

MASTER DRAINAGE STUDY

FOR

NORWOOD EAST

*For info. only -
not a city "approved" study*

PREPARED BY:

K L H ENGINEERING CONSULTANTS, INC.
206-208 Sutton Lane
Colorado Springs, CO 80907
J.N.: KLH 83 528 00

KLH
ENGINEERING, INC.

February, 1985

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SCOPE AND PURPOSE:

This report is intended to furnish the basis for an overall plan for sizing the required drainage facilities for the remainder of Nor'wood Development Corporation lands, in the Nor'wood Development, that are not presently included in a drainage report on file with the City of Colorado Springs. These lands are basically bound on the West by Cottonwood Creek and Rangewood Drive; bound on the North by Woodmen Road; bound on the East by Powers Boulevard; and bound on the South by Sunrise Development (see Figure 1 - Vicinity Map). For a more exact delineation, see the Study Limit Line on the enclosed Master Drainage Plan. This area bound by the Study Limit Line shall be referred to as 'Nor'wood East' in this report.

This study will provide information on total developed flows, approximate sizing and general location for the required drainage facilities. This plan should be used as a guide for the required drainage facilities, and not as an inflexible design. A more detailed examination of drainage facilities will be made in the final drainage reports for each subdivision filing as they are platted. Final, and more detailed, drainage reports and plans will be done for the Nor'wood Trail Drainageway and the Nor'wood East Drainageway prior their improvement.

GENERAL:

This study area, Nor'wood East, is contained entirely within the Cottonwood Creek Drainage Basin and consists of approximately 1,100 acres. This drainage study is in compliance with the "Engineering Study of Cottonwood Creek Drainage Basin" by Lincoln-DeVore. August, 1979, which has been adopted by the City of Colorado Springs. At the time said Engineering Study of Cottonwood Creek Drainage Basin was completed, land uses and street patterns for Nor'wood lands were unknown, therefore, the extent of the study for Norwood was kept general

and was made only to the extent necessary to predict the flow in Cottonwood Creek. This report incorporates the most up-to-date information available for streets, land uses, drainage, etc. These materials will be referenced throughout this report.

Land uses for Nor'wood East are from the Amended Nor'wood Master Plan (slightly modified for proposed street patterns) and from preliminary concept plans by P.G.A.V. for lands west of, and adjacent to, Powers Boulevard. Tributary drainage areas to the East of Powers Boulevard, and at the Northwest corner of Powers Boulevard and Templeton Gap Road are not presently owned by Nor'wood Development Corporation, are not master planned, and are still zoned 5-acre agricultural; therefore, assumptions were made as to the probable land uses for these areas. For a summary of proposed and assumed land uses for Nor'wood East, and lands tributary to it, see Figure Z - Land Uses. Note that the existing Templeton Gap Landfill is assumed to be park, or open space, because of its unbuildable ground conditions. All other land uses tributary to Nor'wood East are presently incorporated into drainage reports on file with the City of Colorado Springs. See the enclosed Master Drainage Plan for reference to these adjacent drainage reports.

Basically, the entire drainage area in this study has been divided into six basins, lettered A through F. Basin A consists of areas tributary to the Nor'wood Trail Drainageway. Some of the sub-basins in Basin A consist of composit basins from previous reports. See the drainage calculations in the back of this report for a more specific description of these composit sub-basins. Basin A outlets into the Nor'wood East Drainageway, approximately 350 feet upstream of the Rangewood Drive-Cottonwood Creek bridge structure. Basin B is a composit of Basins A and B from the Sunrise Master Drainage Study, and outfalls at the head of the Nor'wood East Drainageway. Basin D also outfalls at the head of the Nor'wood East Drainageway. Basin E will flow Eastward in

a concrete channel and outlet into Cottonwood Creek, approximately 500 feet South of Woodmen Road. Basin F will flow overland and in private drainage facilities directly to Cottonwood Creek. Basin C drains to the Nor'wood East Drainageway and outfalls at the Rangewood Drive-Cottonwood Creek bridge structure. Refer to the enclosed drainage plan and Figure 3 - Tributary Drainage Areas.

SOIL TYPES:

Soil types for Nor'wood East and the external tributary drainage areas were determined from the Soil Conservation Service Soils Maps of El Paso County and consist of the following:

- 1). Blakeland Sandy Loam; S.C.S. Soils Number 8 and Hydrologic Soil Group A;
- 2). Bresser Sandy Loam; S.C.S. Soils Number 13 and Hydrologic Soil Group B;
- 3). Stapleton-Bernal Sandy Loam; S.C.S. Soils Number 85 and Hydrologic Soil Group B;
- 4). Tassel Fine Sandy Loam; S.C.S. Soils Number 89 and Hydrologic Soil Group D;
- 5). Truckton Sandy Loam and Loamy Sand; S.C.S. Soils Numbers 95, 96 and 97, Hydrologic Soil Group B;
- 6). Truckton-Blakeland Complex; S.C.S. Soils Number 98 and Hydrologic Soils Groups A and B. S.C.S. Soils Map Numbers are shown on the enclosed Master Drainage Plan.

METHOD OF COMPUTATIONS:

Runoff quantities are calculated using the Modified S.C.S. Methodology as approved by the City of Colorado Springs Engineering Division and outlined in the manual for "Determination of Storm Runoff Criteria" by the City of Colorado Springs, March 1977.

A weighted curve number was utilized for runoff calculations using respective areas of residential lots. Industrial area, commercial area, parks, streets, etc., and soil type. Note that R&D land was considered as Industrial and Office

land was considered as Commercial, because of compatible curve numbers.

Peak runoff flows calculated for both 5 and 100 year frequency storm events are shown on the drainage plan. This includes peak flows from the individual sub-basins, and accumulative flows, as the runoff proceeds downstream. Runoff calculations are included in Appendix B, at the end of this report. In places on the drainage plan it appears that downstream accumulative flows are less than upstream flows. This is due to the addition of areas with low relative curve numbers. In spite of this, upstream design flows were held as the peak until a greater downstream accumulative flow rate was encountered.

Per City of Colorado Springs Criteria, all drainage structures have been sized for the 5 year storm, for peak 100 year flows less than 500 c.f.s., and for the 100 year storm for peak flows in excess of 500 c.f.s.

MAIN CHANNEL DRAINAGEWAYS:

1. Cottonwood Creek

Improvements to Cottonwood Creek have been detailed by the "Final Drainage Report and Drainage Plan For Cottonwood Creek Through Nor'wood Development" by KLH Engineering Consultants, Inc., July 1984. This report has been filed with the City of Colorado Springs.

2. Nor'wood Trail Drainageway

Nor'wood Trail Drainageway is a 3,500 foot long natural channel which runs parallel and adjacent to Rangewood Drive and outfalls into Nor'wood East Drainageway just upstream of Cottonwood Creek. This drainageway is a deeply eroded arroyo consisting of a gravelly sand stream bed and some clays, with steep sideslopes of sandstone and clayey shale outcrops. This is an 'intermittant' stream which is normally dry except after storms or during snowmelt periods.

Channel improvements will consist of 1,070 lineal feet of 90" R.C.P. for the downstream portion and RipRap protection to the upstream portion. RipRap will be required for protection in areas of man-made sideslopes (i.e. road crossings) and in areas where the top-of-bank will be less than 50 feet from the open space boundary, in which this channel lies. An exception to this lining is found at a number of places within the channel at points where the sandstone is exposed. The sandstone is relatively resistant to erosion and may not require lining protection. Guidelines used for determining the Rip Rap section required are from D.R.C.O.G. Urban Storm Drainage Manual (see Figure 4 - Typical Rip Rap Section).

3. Nor'wood East Drainageway

Nor'wood East Drainageway is an 8,000 foot long natural channel which extends from the outfall of Sunrise Development to Cottonwood Creek. This drainageway is also a deeply eroded arroyo with a gravelly sand stream bed with clay and sideslopes of sandstone and clayey shale outcrops. Sideslopes exhibit extensive slumping for the middle one-third of this channel.

Channel improvements will consist of 610 lineal feet of concrete channel at the outlet of Sunrise Development, culvert crossings of roadways and RipRap channel protection. The philosophy for selective RipRap protection for this channel is the same as that for the Nor'wood Trail Drainageway (see Figure 4 - Typical RipRap Section).

TRIBUTARY DRAINAGE :

Basins B and E, and portions of A and D will drain into Nor'wood East as channel flow and pipe flow, with small portions of overland and gutter flow. These channel flows and pipe flows will be continued across Nor'wood East in either pipe, concrete channel, or improved natural channel form. Refer to Figure 2, Figure 3, and Runoff Calculations (Appendix B) for estimated land uses and handling of tributary runoff flows.

INTERNAL DRAINAGE:

Basins A through E are shown on the enclosed Master Drainage Plan and on Figure 3. The routing of flows are consistent with the existing topography and natural drainageways. Street configurations for Rangewood Drive, Dublin Boulevard and Austin Bluffs Parkway are definite; while local residential street patterns are considered probable. Upon final platting (and preparation of final drainage reports) of specific parcels within the Nor'wood East area, it may be necessary to slightly alter the pipe sizes and/or inlets shown on the Master Drainage Plan, to accommodate final street grades, etc.

Vertical curb and gutter will be required at several locations to convey street flows. These locations are shown and described on the Master Drainage Plan. The exact extent and limits where vertical curb is required shall be determined in the final drainage reports for each specific filing.

Drainage facilities for Basin A will include the improvement of Nor'wood Trail Drainageway (as discussed in the 'Main Channel Drainageways' section) and a small system for sub-basin A-5 to flow to the drainageway. Facilities for Rangewood Drive and areas West of Rangewood Drive have been included in previous drainage reports.

Basis C is the largest internal drainage basin, consisting of approximately 660 acres. Drainage facilities required are shown on the Master Drainage Plan and include improvements to Nor'wood East Drainageway (as discussed in the 'Main Channel Drainageways' section) and lengthy pipe system located in the Northern half of the basin.

Flows for Basin D were determined assuming a developed condition for all sub-basins. A concrete drainage channel, outside the study limit of this plan, was sized and placed in existing easements and green belt. This proposed channel is subject to changes in alignment, size, and even type (to say, an underground system) upon determination of final street patterns, building locations, etc.

Basins E and F are of commercial and R&D land uses. Drainage facilities for these two basins will, for the most part, be private, except for the major channel which bisects Basin E. The location of this channel is shown in a very general manner. Final sizing and location will depend upon site plans for the areas it will cross.

DRAINAGE FACILITIES COST ESTIMATE:

I. Major Drainageways

1. Nor'wood Trail Drainageway

| | | | | |
|-----------------------------------|-------------------------|------------|------|---------------|
| a. Slope Shaping and Earthwork | 2280 L.F. @ \$ | 2. /L.F. | = \$ | 4,560. |
| b. Rip-Rap (Incl. Fabric) | 2950 C.Y. @ \$ | 35. /C.Y. | = \$ | 103,250. |
| c. Rip-Rap Pads | 189 C.Y. @ \$ | 35. /C.Y. | = \$ | 6,615. |
| d. Maintenance Road | 1480 L.F. @ \$ | 3. /L.F. | = \$ | 4,440. |
| e. 90" R.C.P. | 1070 L.F. @ \$ | 250. /L.F. | = \$ | 267,500. |
| f. Box Base Manholes | 2 Each @ \$3,500. /Each | | = \$ | <u>7,000.</u> |
| | | TOTAL | \$ | 393,365. |

2. Nor'wood East Drainageway

| | | | | |
|-------------------------------------|---------------------------|------------|------|---------------|
| a. Slope Shaping and Earthwork | 9150 L.F. @ \$ | 2. /L.F. | = \$ | 18,300. |
| b. Rip-Rap (Incl. Fabric) | 12050 C.Y. @ \$ | 35. /C.Y. | = \$ | 421,750. |
| c. Rip-Rap Pads | 922 C.Y. @ \$ | 35. /C.Y. | = \$ | 32,270. |
| d. Maintenance Road | 7020 L.F. @ \$ | 3. /L.F. | = \$ | 21,060. |
| e. Trap. Channel b=5' d=4' z=1.5 | 610 L.F. @ \$ | 129. /L.F. | = \$ | 78,690. |
| f. Conc. Box Culverts | | | | |
| i 6'x10' Single | 100 L.F. @ \$ | 440. /L.F. | = \$ | 44,000. |
| ii 8'x 8' Double | 190 L.F. @ \$ | 906. /L.F. | = \$ | 172,140. |
| iii 10'x 8' Double | 310 L.F. @ \$1,032. /L.F. | | = \$ | 319,920. |
| g. Chute Drop | 1 Each @ \$2,100. /Each | | = \$ | <u>2,100.</u> |
| | | TOTAL | \$ | 1,110,230. |

II. Basin A

| | | | |
|---------------|-------------------------|------|---------------|
| a. 8' D-10R | 3 Each @ \$2,200. /Each | = \$ | 6,600. |
| b. 18" R.C.P. | 130 L.F. @ \$ 27. /L.F. | = \$ | 3,510. |
| c. 24" R.C.P. | 260 L.F. @ \$ 37. /L.F. | = \$ | <u>9,620.</u> |
| | TOTAL | \$ | 19,730. |

III. Basin C

| | | | |
|---------------|--------------------------|------|----------------|
| a. 6' D-10R | 25 Each @ \$1,800. /Each | = \$ | 45,000. |
| b. 8' D-10R | 22 Each @ \$2,200. /Each | = \$ | 48,400. |
| c. 10' D-10R | 1 Each @ \$2,500. /Each | = \$ | 2,500. |
| d. 18" R.C.P. | 560 L.F. @ \$ 27. /L.F. | = \$ | 15,120. |
| e. 21" R.C.P. | 770 L.F. @ \$ 31. /L.F. | = \$ | 23,870. |
| f. 24" R.C.P. | 2340 L.F. @ \$ 37. /L.F. | = \$ | 86,580. |
| g. 27" R.C.P. | 860 L.F. @ \$ 40. /L.F. | = \$ | 30,400. |
| h. 30" R.C.P. | 2760 L.F. @ \$ 42. /L.F. | = \$ | 115,920. |
| i. 36" R.C.P. | 850 L.F. @ \$ 51. /L.F. | = \$ | 43,350. |
| j. 42" R.C.P. | 2120 L.F. @ \$ 65. /L.F. | = \$ | 137,800. |
| k. 48" R.C.P. | 1300 L.F. @ \$ 74. /L.F. | = \$ | 96,200. |
| l. Manholes | 26 Each @ \$1,300. /Each | = \$ | <u>33,800.</u> |
| | TOTAL | \$ | 682,940. |

24,400. ?

IV. Basin D

| | | | | |
|----|----------------------------------|-------------------------|------|-----------------|
| a. | 6' D-10R | 2 Each @ \$1,800./Each | = \$ | 3,600. |
| b. | 8' D-10R | 4 Each @ \$2,200./Each | = \$ | 8,800. |
| c. | 42" R.C.P. | 3710 L.F. @ \$ 65./L.F. | = \$ | 241,150. |
| d. | 48" R.C.P. | 1280 L.F. @ \$ 74./L.F. | = \$ | 94,720. |
| e. | Manholes | 12 Each @ \$1,300./Each | = \$ | 15,600. |
| f. | 4' x 6' R.C.B. | 160 L.F. @ \$ 235./L.F. | = \$ | 37,600. |
| g. | 4' x 8' R.C.B. | 100 L.F. @ \$ 295./L.F. | = \$ | 29,500. |
| h. | Trap. Channel b=8', d=4', z=1 | 3270 L.F. @ \$ 89./L.F. | = \$ | <u>291,030</u> |
| | | TOTAL | \$ | <u>722,000.</u> |

V. Basin E

| | | | | |
|----|------------------------------------|--------------------------------------|------|-----------------|
| a. | 8' D-10R | 10 Each @ \$2,200./Each | = \$ | 22,000. |
| b. | 21" R.C.P. | 1530 L.F. @ \$ 31./L.F. | = \$ | 47,430. |
| c. | 27" R.C.P. | 210 L.F. @ \$ 40./L.F. | = \$ | 8,400. |
| d. | 4' x 8' R.C.B. | 250 L.F. @ \$ 295./L.F. | = \$ | 73,750. |
| e. | Trap. Channel b=8', d=3.5', z=1 | 5890 L.F. @ \$ 119./L.F. | = \$ | 700,910 |
| f. | Rip-Rap Pad | 90 C.Y. @ \$ 35./C.Y. | = \$ | <u>3,150.</u> |
| | | TOTAL | \$ | <u>855,640.</u> |
| | | SUM TOTAL | \$ | 3,783,905. |
| | | + 15% Engineering and Contingency | \$ | <u>567,586.</u> |
| | | GRAND TOTAL | \$ | 4,351,491. |

DRAINAGE AND BRIDGE FEES:

The Drainage and Bridge Fees required will depend upon the size of the individual parcels platted and the date of platting. An estimate of the fees required is given below:

Approximate 1985 Drainage Fee:

Cottonwood Creek Drainage Basin

1100 ac. @ \$3,136. per acre = \$ 3,449,600.

Approximate 1985 Bridge Fee:

Cottonwood Creek Drainage Basin

1100 ac. @ \$144. per acre = \$ 158,400.

DRAINAGE REPORT STATEMENTS

Nor'wood East Master Drainage Plan

Engineer's Statement:

The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the City for drainage reports and said report is in conformity with the master plan of the drainage basin. I accept responsibility for any liability caused by the negligent acts, errors or omissions on my part in preparing this report.

Name

Seal

Developer's Statement:

The developer has read and will comply with all of the requirements specified in this drainage report.

Business Name

By: _____

Title: _____

Address: _____

City of Colorado Springs:

Filed in accordance with Section 15-3-906 of the Code of the City of Colorado Springs, 1980, as amended.

City Engineer

Date

Conditions:

APPENDIX A

SUBJECT AREA

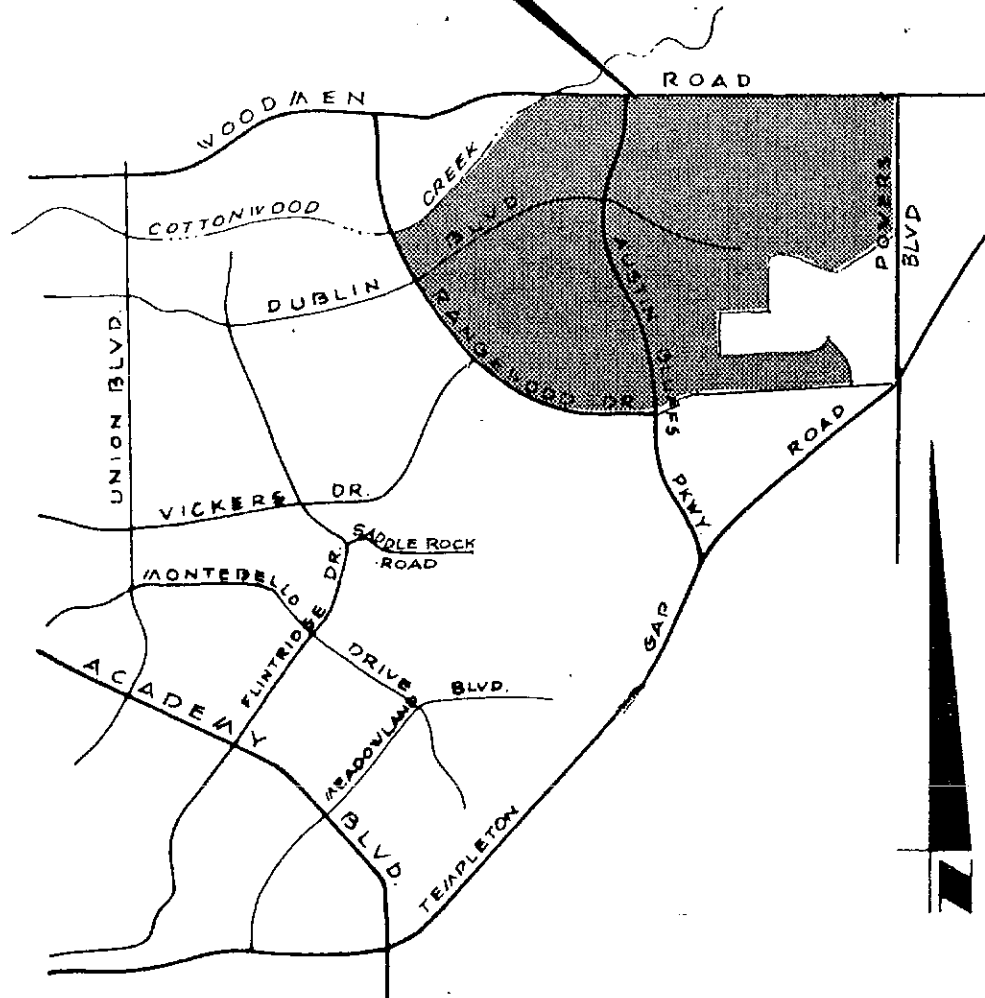


FIGURE 1
VICINITY MAP

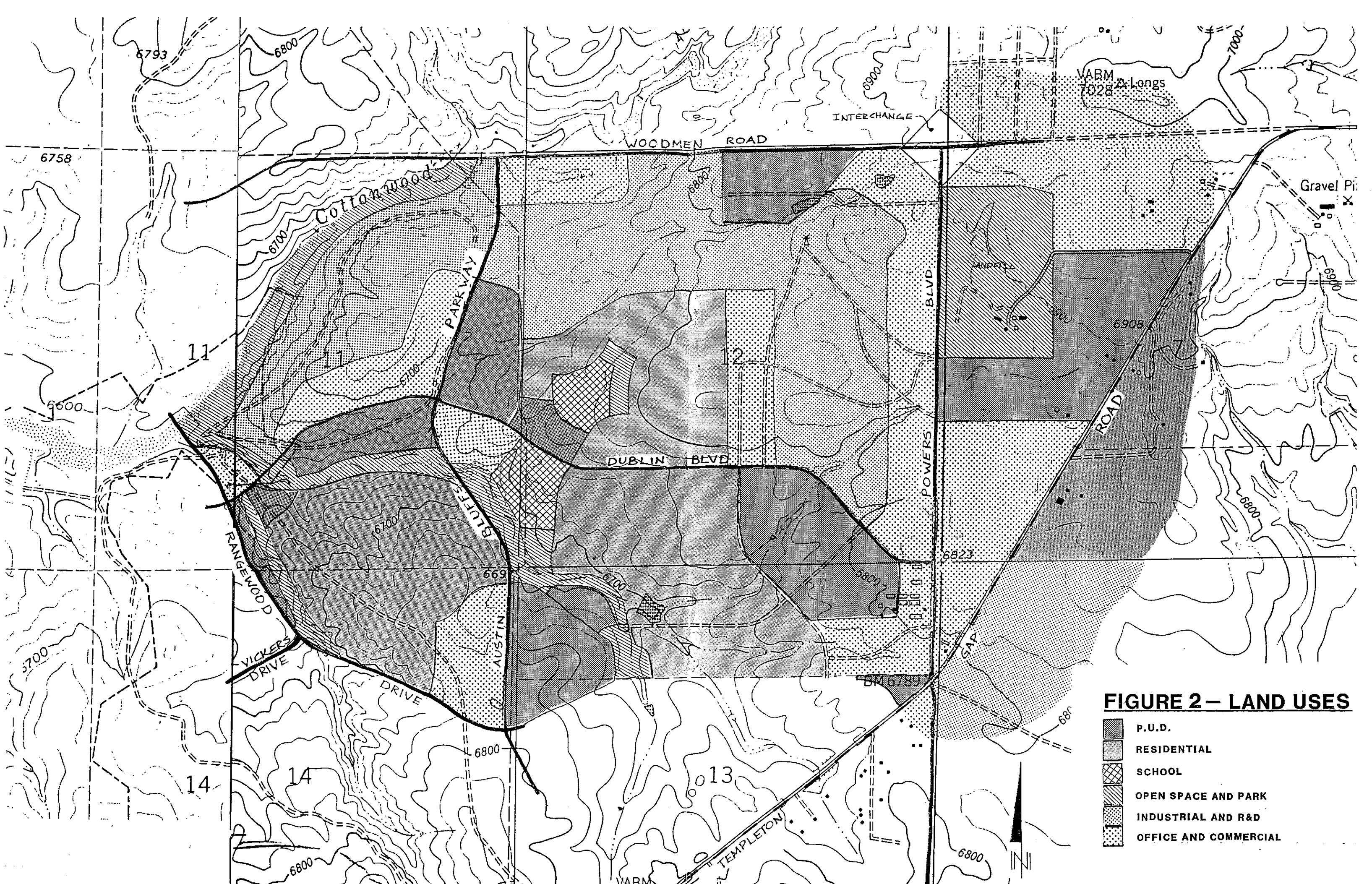








FIGURE 2 – LAND USES

-  P.U.D.
-  RESIDENTIAL
-  SCHOOL
-  OPEN SPACE AND PARK
-  INDUSTRIAL AND R&D
-  OFFICE AND COMMERCIAL

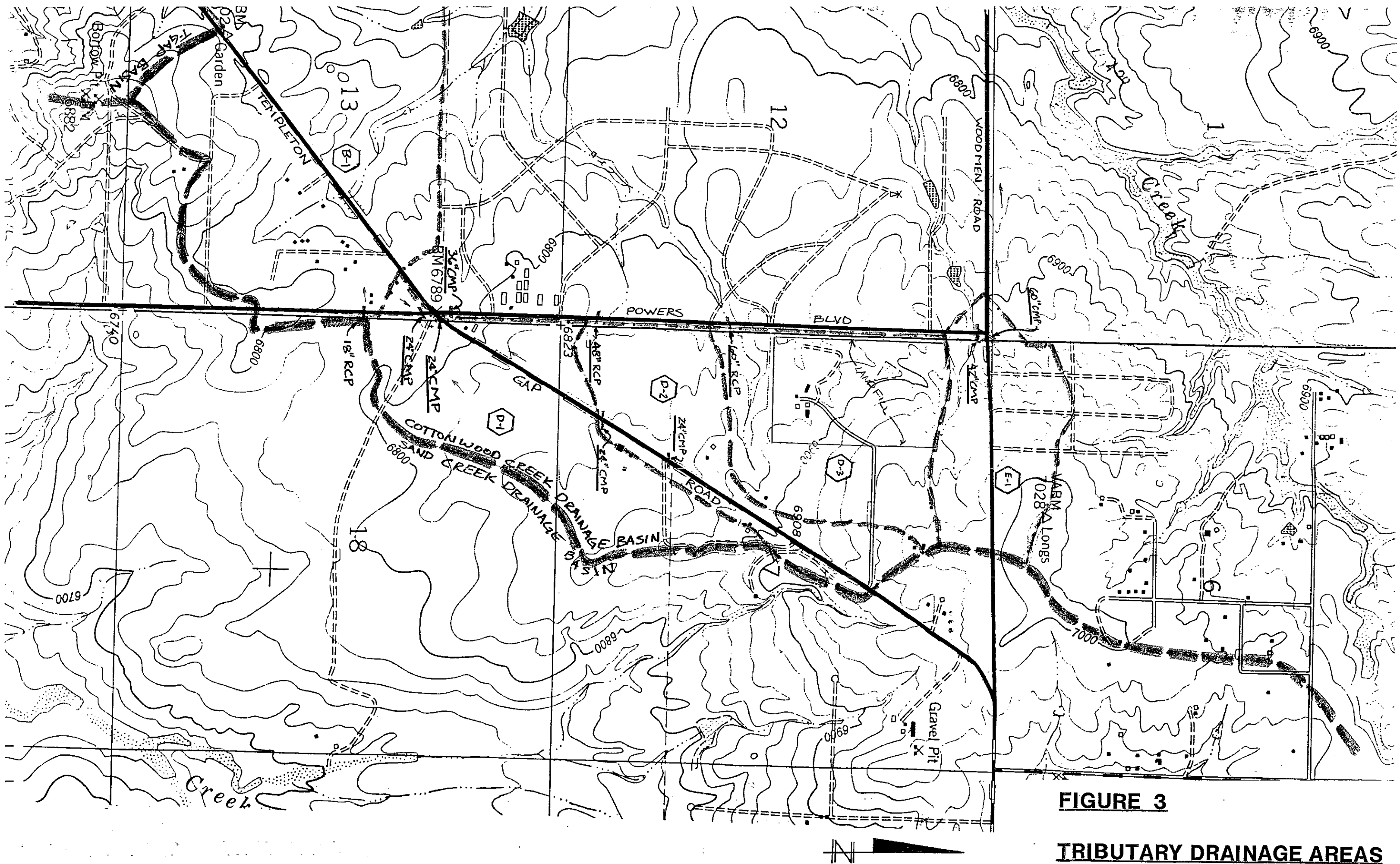


FIGURE 3
TRIBUTARY DRAINAGE AREAS

APPENDIX B

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASIN

NDRW C- 4

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|------------|------|----|-------|--------|
| 7.1 | | INDUSTRIAL | A | 81 | 100.0 | 8100.0 |
| 7.1 | .011 | | | | 100.0 | 8100.0 |

WEIGHTED CN = 81.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 600 | 10 | .064 | | | |
| STREET | 550 | 32 | .019 | | | |
| | 1150 | 42 | .083 | .67 | 1300 | 9.6 (5yr FLOW) |
| | | | | 1.71 | | 24.6 (100yr FLOW) |

BASIN

NDRW C- 5

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 12.3 | | RESIDENTIAL 1/5Ac | A | 65 | 100.0 | 6500.0 |
| 12.3 | .019 | | | | 100.0 | 6500.0 |

WEIGHTED CN = 65.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| OVERLAND | 180 | 10 | .031 | | | |
| STREET | 1820 | 46 | .153 | | | |
| | 2000 | 56 | .184 | .16 | 1090 | 3.4 (5yr FLOW) |
| | | | | .75 | | 15.9 (100yr FLOW) |

BASIN

NDRW C- 6

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 24.4 | | RESIDENTIAL 1/5Ac | A | 65 | 89.1 | 5798.3 |
| 3.0 | | PARK | A | 39 | 16.9 | 427.0 |
| 27.4 | .043 | | | | 100.0 | 6215.3 |

WEIGHTED CN = 62.2

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| STREET | 2500 | 68 | .100 | | | |
| | 2500 | 68 | .100 | .11 | 1270 | 6.1 (5yr FLOW) |
| | | | | .82 | | 33.8 (100yr FLOW) |

BASIN

NDRW C- 7

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|------------|------|----|-------|--------|
| 4.5 | | INDUSTRIAL | A | 81 | 100.0 | 8100.0 |
| 4.5 | .007 | | | | 100.0 | 8100.0 |

WEIGHTED CN = 81.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 600 | 18 | .048 | | | |
| STREET | 920 | 20 | .042 | | | |
| | 1520 | 38 | .090 | .67 | 1300 | 6.1 (5yr FLOW) |
| | | | | 1.71 | | 15.6 (100yr FLOW) |

BASIN

NDRW C- 8

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 19.7 | | RESIDENTIAL 1/5Ac | A | 65 | 64.2 | 4171.0 |
| .6 | | P.U.D. | A | 77 | 2.0 | 150.5 |
| 8.8 | | SCHDOL | A | 72 | 28.7 | 2063.8 |
| 1.6 | | PARK | A | 39 | 5.2 | 203.3 |
| 30.7 | .048 | | | | 100.0 | 6588.6 |

WEIGHTED CN = 65.9

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 920 | 34 | .183 | | | |
| STREET | 980 | 36 | .050 | | | |
| | 1900 | 70 | .233 | .18 | 1010 | 8.8 (5yr FLOW) |
| | | | | .79 | | 38.5 (100yr FLOW) |

BASIN

NDRW C- 9

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|------------|------|----|-------|--------|
| 27.0 | | INDUSTRIAL | A | 81 | 100.0 | 8100.0 |
| 27.0 | .042 | | | | 100.0 | 8100.0 |

WEIGHTED CN = 81.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 760 | 20 | .066 | | | |
| STREET | 1920 | 28 | .076 | | | |
| | 2680 | 48 | .142 | .67 | 1170 | 33.0 (5yr FLOW) |
| | | | | 1.71 | | 84.3 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASIN

NORW C-10

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------------|------|----|-------|--------------------|
| 29.2 | | P.U.D. | A | 77 | 89.3 | 6875.8 |
| 3.5 | | STREETS & WALKS | A | 98 | 10.7 | 1048.9 |
| 32.7 | .051 | | | | 100.0 | 7924.8 |
| | | | | | | WEIGHTED CN = 79.2 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| | | | | | | |
|--------|------|----|------|------|------|-------------------|
| SHEET | 540 | 20 | .051 | | | |
| STREET | 1040 | 11 | .072 | | | |
| | 1680 | 31 | .123 | .59 | 1210 | 38.6 (5yr FLOW) |
| | | | | 1.58 | | 97.9 (100yr FLOW) |

BASIN

NORW C-11

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------------------|
| 11.4 | | COMMERCIAL | A | 89 | 53.8 | 4785.8 |
| 9.8 | | RESIDENTIAL 1/5Ac | A | 65 | 46.2 | 3004.7 |
| 21.2 | .033 | | | | 100.0 | 7790.6 |
| | | | | | | WEIGHTED CN = 77.9 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| | | | | | | |
|--------|------|----|------|------|------|-------------------|
| STREET | 3130 | 82 | .139 | | | |
| | 3130 | 82 | .138 | .54 | 1170 | 20.8 (5yr FLOW) |
| | | | | 1.49 | | 57.8 (100yr FLOW) |

BASIN

NORW C-12

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------------------|
| 20.5 | | RESIDENTIAL 1/5Ac | A | 65 | 100.0 | 6500.0 |
| 20.5 | .032 | | | | 100.0 | 6500.0 |
| | | | | | | WEIGHTED CN = 65.0 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| | | | | | | |
|----------|------|----|------|-----|------|-------------------|
| OVERLAND | 100 | 1 | .035 | | | |
| STREET | 2260 | 68 | .135 | | | |
| | 2360 | 69 | .170 | .16 | 1120 | 5.9 (5yr FLOW) |
| | | | | .75 | | 27.0 (100yr FLOW) |

BASIN

NORW C-13

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------------------|
| 4.1 | | RESIDENTIAL 1/5Ac | A | 65 | 39.8 | 2587.4 |
| 6.2 | | P.U.D. | A | 77 | 60.2 | 4635.0 |
| 10.3 | .016 | | | | 100.0 | 7222.3 |
| | | | | | | WEIGHTED CN = 72.2 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| | | | | | | |
|--------|------|----|------|------|------|-------------------|
| STREET | 1880 | 82 | .071 | | | |
| | 1880 | 82 | .071 | .34 | 1300 | 7.2 (5yr FLOW) |
| | | | | 1.13 | | 23.7 (100yr FLOW) |

BASIN

NORW C-14

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------------------|
| 1.8 | | RESIDENTIAL 1/5Ac | A | 65 | 39.1 | 2543.5 |
| 2.8 | | STREETS & WALKS | A | 98 | 60.9 | 5965.2 |
| 4.6 | .007 | | | | 100.0 | 8508.7 |
| | | | | | | WEIGHTED CN = 85.1 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| | | | | | | |
|--------|------|----|------|------|------|-------------------|
| STREET | 2050 | 42 | .097 | | | |
| | 2050 | 42 | .097 | .87 | 1280 | 8.0 (5yr FLOW) |
| | | | | 2.02 | | 18.6 (100yr FLOW) |

BASIN

NORW C-15

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------------------|
| 13.6 | | RESIDENTIAL 1/5Ac | A | 65 | 100.0 | 6500.0 |
| 13.6 | .021 | | | | 100.0 | 6500.0 |
| | | | | | | WEIGHTED CN = 65.0 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| | | | | | | |
|----------|------|----|------|-----|------|-------------------|
| OVERLAND | 100 | 1 | .035 | | | |
| STREET | 1440 | 10 | .140 | | | |
| | 1540 | 11 | .175 | .16 | 1110 | 3.9 (5yr FLOW) |
| | | | | .75 | | 17.7 (100yr FLOW) |

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BASIN

NORM C-16

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 8.9 | | RESIDENTIAL 1/5ac | A | 65 | 71.8 | 4665.3 |
| 3.5 | | P.U.D. | A | 77 | 28.2 | 2173.4 |
| 12.4 | .019 | | | | 100.0 | 6838.7 |

WEIGHTED CN = 68.4

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| OVERLAND | 100 | 2 | .028 | | | |
| STREET | 2580 | 66 | .125 | | | |
| | 2680 | 68 | .151 | .24 | 1150 | 5.3 (5yr FLOW) |
| | | | | .92 | | 20.5 (100yr FLOW) |

BASIN

NORM C-17

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 20.1 | | RESIDENTIAL 1/5ac | A | 65 | 100.0 | 6500.0 |
| 20.1 | .031 | | | | 100.0 | 6500.0 |

WEIGHTED CN = 65.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| OVERLAND | 80 | 2 | .019 | | | |
| STREET | 1680 | 38 | .099 | | | |
| | 1760 | 40 | .118 | .16 | 1220 | 6.3 (5yr FLOW) |
| | | | | .75 | | 26.9 (100yr FLOW) |

BASIN

NORM C-18

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 13.5 | | RESIDENTIAL 1/5ac | A | 65 | 100.0 | 6500.0 |
| 13.5 | .021 | | | | 100.0 | 6500.0 |

WEIGHTED CN = 65.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| STREET | 1960 | 60 | .057 | | | |
| | 1960 | 60 | .057 | .16 | 1500 | 4.5 (5yr FLOW) |
| | | | | .75 | | 20.6 (100yr FLOW) |

BASIN

NORM C-19

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------------|------|----|-------|--------|
| 23.9 | | P.U.D. | A | 77 | 93.0 | 7160.7 |
| 1.6 | | STREETS & WALKS | A | 99 | 7.0 | 686.4 |
| 25.7 | .040 | | | | 100.0 | 7847.1 |

WEIGHTED CN = 78.5

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 950 | 35 | .047 | | | |
| STREET | 720 | 28 | .050 | | | |
| | 1570 | 63 | .097 | .56 | 1290 | 28.8 (5yr FLOW) |
| | | | | 1.53 | | 78.6 (100yr FLOW) |

BASIN

NORM C-20

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 4.7 | | RESIDENTIAL 1/5ac | A | 65 | 8.8 | 572.1 |
| 28.2 | | SCHOOL | A | 72 | 52.8 | 3802.2 |
| 7.8 | | COMMERTIAL | A | 89 | 14.6 | 1300.0 |
| 12.7 | | OPEN SPACE | A | 49 | 23.8 | 1165.4 |
| 53.4 | .083 | | | | 100.0 | 6839.7 |

WEIGHTED CN = 68.4

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 550 | 42 | .073 | | | |
| CREEK | 2980 | 47 | .304 | | | |
| | 3530 | 89 | .377 | .24 | 940 | 16.7 (5yr FLOW) |
| | | | | .92 | | 64.6 (100yr FLOW) |

BASIN

NORM C-21

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------------|------|----|-------|--------|
| 7.4 | | COMMERTIAL | A | 89 | 72.5 | 6456.9 |
| 2.8 | | STREETS & WALKS | A | 98 | 27.5 | 2590.2 |
| 10.2 | .016 | | | | 100.0 | 9147.1 |

WEIGHTED CN = 91.5

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| STREET | 1620 | 66 | .113 | | | |
| | 1620 | 66 | .113 | 1.29 | 1230 | 25.2 (5yr FLOW) |
| | | | | 2.59 | | 50.7 (100yr FLOW) |

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BASIN

NORM C-22

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 6.9 | | RESIDENTIAL 1/5Ac | A | 65 | 65.7 | 4271.4 |
| 3.6 | | STREETS & WALKS | A | 98 | 34.3 | 3360.0 |
| 10.5 | .016 | | | | 100.0 | 7631.4 |

WEIGHTED CN = 76.3

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| STREET | 3420 | 109 | .106 | | | |
| | 3420 | 109 | .106 | .48 | 1250 | 9.8 (5yr FLOW) |
| | | | | 1.39 | | 28.4 (100yr FLOW) |

BASIN

NORM C-23

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 1.0 | | RESIDENTIAL 1/5Ac | B | 78 | 50.0 | 3900.0 |
| 1.0 | | STREETS & WALKS | A | 98 | 50.0 | 4900.0 |
| 2.0 | .003 | | | | 100.0 | 8800.0 |

WEIGHTED CN = 89.0

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|------------------|
| STREET | 1100 | 47 | .073 | | | |
| PIPE | 160 | 14 | .003 | | | |
| | 1260 | 61 | .076 | 1.05 | 1300 | 4.3 (5yr FLOW) |
| | | | | 2.27 | | 9.2 (100yr FLOW) |

BASIN

NORM C-24

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------------|------|----|-------|--------|
| 5.6 | | COMMERTIAL | A | 89 | 52.3 | 4657.9 |
| 5.2 | | COMMERTIAL | B | 92 | 29.9 | 2751.4 |
| 1.9 | | STREETS & WALKS | A | 98 | 17.8 | 1740.2 |
| 10.7 | .017 | | | | 100.0 | 9149.5 |

WEIGHTED CN = 91.5

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| STREET | 1550 | 79 | .050 | | | |
| | 1550 | 79 | .050 | 1.29 | 1300 | 28.0 (5yr FLOW) |
| | | | | 2.59 | | 56.3 (100yr FLOW) |

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BASIN

NORM C-25

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 14.9 | | RESIDENTIAL 1/5Ac | A | 65 | 100.0 | 6500.0 |
| 14.9 | .023 | | | | 100.0 | 6500.0 |

WEIGHTED CN = 65.0

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| STREET | 2440 | 137 | .078 | | | |
| | 2440 | 137 | .078 | .16 | 1300 | 4.9 (5yr FLOW) |
| | | | | .75 | | 22.8 (100yr FLOW) |

BASIN

NORM C-26

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 12.0 | | RESIDENTIAL 1/5Ac | A | 65 | 100.0 | 6500.0 |
| 12.0 | .019 | | | | 100.0 | 6500.0 |

WEIGHTED CN = 65.0

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| STREET | 2440 | 137 | .078 | | | |
| | 2440 | 137 | .078 | .16 | 1300 | 4.0 (5yr FLOW) |
| | | | | .75 | | 18.3 (100yr FLOW) |

BASIN

NORM C-27

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 13.5 | | RESIDENTIAL 1/5Ac | A | 65 | 100.0 | 6500.0 |
| 13.5 | .021 | | | | 100.0 | 6500.0 |

WEIGHTED CN = 65.0

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| OVERLAND | 50 | 2 | .010 | | | |
| STREET | 1520 | 60 | .072 | | | |
| | 1570 | 62 | .082 | .16 | 1300 | 4.5 (5yr FLOW) |
| | | | | .75 | | 20.6 (100yr FLOW) |

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BASIN

NORW C-28

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 20.3 | | RESIDENTIAL 1/5Ac | A | 65 | 100.0 | 6500.0 |
| 20.3 | .032 | | | | 100.0 | 6500.0 |

WEIGHTED CN = 65.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| OVERLAND | 160 | 7 | .030 | | | |
| STREET | 2220 | 88 | .105 | | | |
| | 2380 | 95 | .135 | .16 | 1180 | 6.1 (5yr FLOW) |
| | | | | .75 | | 28.1 (100yr FLOW) |

BASIN

NORW C-29

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 7.1 | | RESIDENTIAL 1/5Ac | A | 65 | 100.0 | 6500.0 |
| 7.1 | .011 | | | | 100.0 | 6500.0 |

WEIGHTED CN = 65.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| OVERLAND | 50 | 2 | .010 | | | |
| STREET | 1980 | 102 | .077 | | | |
| | 1930 | 104 | .087 | .16 | 1300 | 2.4 (5yr FLOW) |
| | | | | .75 | | 10.9 (100yr FLOW) |

BASIN

NORW C-30

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 6.9 | | RESIDENTIAL 1/5Ac | A | 65 | 100.0 | 6500.0 |
| 6.9 | .011 | | | | 100.0 | 6500.0 |

WEIGHTED CN = 65.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| OVERLAND | 160 | 18 | .019 | | | |
| STREET | 1020 | 20 | .044 | | | |
| | 1180 | 38 | .063 | .16 | 1300 | 2.3 (5yr FLOW) |
| | | | | .75 | | 10.5 (100yr FLOW) |

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BASIN

NORW C-31

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 3.0 | | RESIDENTIAL 1/5Ac | A | 65 | 10.5 | 681.9 |
| 13.8 | | P.U.D. | A | 77 | 48.3 | 3715.4 |
| 11.8 | | OPEN SPACE | A | 49 | 41.3 | 2021.7 |
| 28.6 | .045 | | | | 100.0 | 6418.9 |

WEIGHTED CN = 64.2

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 550 | 16 | .045 | | | |
| CREEK | 1640 | 19 | .216 | | | |
| | 2190 | 35 | .261 | .15 | 970 | 6.4 (5yr FLOW) |
| | | | | .71 | | 30.9 (100yr FLOW) |

BASIN

NORW C-32

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 2.9 | | P.U.D. | A | 77 | 37.7 | 2900.0 |
| 1.7 | | P.U.D. | D | 92 | 22.1 | 2031.2 |
| .8 | | RESIDENTIAL 1/5Ac | A | 65 | 10.4 | 675.3 |
| 2.3 | | OPEN SPACE | A | 49 | 29.9 | 1463.6 |
| 7.7 | .012 | | | | 100.0 | 7070.1 |

WEIGHTED CN = 70.7

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 450 | 20 | .030 | | | |
| CREEK | 300 | 4 | .039 | | | |
| | 750 | 24 | .069 | .30 | 1300 | 4.7 (5yr FLOW) |
| | | | | 1.05 | | 16.4 (100yr FLOW) |

BASIN

NORW C-33

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------------|------|----|-------|--------|
| 5.7 | | P.U.D. | A | 77 | 64.8 | 4987.5 |
| 3.1 | | STREETS & WALKS | A | 98 | 35.2 | 3452.3 |
| 8.8 | .014 | | | | 100.0 | 8439.8 |

WEIGHTED CN = 84.4

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 900 | 34 | .064 | | | |
| STREET | 600 | 8 | .025 | | | |
| | 1500 | 42 | .089 | .84 | 1300 | 15.0 (5yr FLOW) |
| | | | | 1.97 | | 35.2 (100yr FLOW) |

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BASIN

NORW D-34

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------------|------|----|-------|--------------------|
| .9 | | P.U.D. | A | 77 | 27.3 | 2100.0 |
| 2.4 | | STREETS & WALKS | A | 98 | 72.7 | 7127.3 |
| 3.3 | .005 | | | | 100.0 | 9227.3 |
| | | | | | | WEIGHTED CN = 92.3 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| STREET | 1200 | 12 | .075 | | | |
| | 1200 | 12 | .075 | 1.35 | 1300 | 9.0 (5yr FLOW) |
| | | | | 2.66 | | 17.9 (100yr FLOW) |

BASIN

NORW C-35

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------------|------|----|-------|--------------------|
| 14.7 | | COMMERTIAL | A | 89 | 50.7 | 4511.4 |
| 11.9 | | INDUSTRIAL | A | 81 | 41.0 | 3323.9 |
| 2.4 | | STREETS & WALKS | A | 98 | 8.3 | 811.0 |
| 29.0 | .045 | | | | 100.0 | 8646.2 |
| | | | | | | WEIGHTED CN = 86.5 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 500 | 20 | .035 | | | |
| STREET | 2090 | 44 | .105 | | | |
| | 2580 | 64 | .140 | .95 | 1170 | 50.5 (5yr FLOW) |
| | | | | 2.14 | | 113.3 (100yr FLOW) |

BASIN

NORW C-36

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------------|------|----|-------|--------------------|
| 9.2 | | COMMERTIAL | A | 89 | 89.1 | 7932.5 |
| 1.0 | | STREETS & WALKS | A | 98 | 10.9 | 1065.2 |
| 9.2 | .014 | | | | 100.0 | 8997.8 |
| | | | | | | WEIGHTED CN = 90.0 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 500 | 34 | .028 | | | |
| STREET | 800 | 10 | .048 | | | |
| | 1300 | 44 | .076 | 1.18 | 1300 | 22.0 (5yr FLOW) |
| | | | | 2.45 | | 45.7 (100yr FLOW) |

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BASIN

NORW C-37

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------------|------|----|-------|--------------------|
| 17.5 | | COMMERTIAL | A | 89 | 60.8 | 5408.0 |
| 7.0 | | INDUSTRIAL | A | 81 | 24.3 | 1968.9 |
| 4.3 | | STREETS & WALKS | A | 98 | 14.9 | 1463.2 |
| 26.8 | .045 | | | | 100.0 | 8839.9 |
| | | | | | | WEIGHTED CN = 86.4 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 170 | 4 | .016 | | | |
| STREET | 2820 | 98 | .109 | | | |
| | 2990 | 102 | .125 | 1.07 | 1200 | 57.9 (5yr FLOW) |
| | | | | 2.30 | | 124.4 (100yr FLOW) |

BASIN

NORW C-38

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|------------|------|----|-------|--------------------|
| 4.5 | | INDUSTRIAL | A | 81 | 38.1 | 3099.0 |
| 7.3 | | OPEN SPACE | D | 80 | 61.9 | 4949.2 |
| 11.8 | .018 | | | | 100.0 | 8038.1 |
| | | | | | | WEIGHTED CN = 80.4 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 640 | 70 | .027 | | | |
| CREEK | 830 | 6 | .072 | | | |
| | 1470 | 76 | .099 | .64 | 1280 | 15.1 (5yr FLOW) |
| | | | | 1.66 | | 39.3 (100yr FLOW) |

BASIN

NORW C-39
(Composit of BASIN NORW B)

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------|------|----|-------|--------------------|
| 375.5 | | BASIN 'B' | A | 73 | 100.0 | 7307.1 |
| 375.5 | .587 | | | | 100.0 | 7307.1 |
| | | | | | | WEIGHTED CN = 73.1 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| STREET | 2810 | 67 | .143 | | | |
| PIPE | 3820 | 48 | .061 | | | |
| CHANNEL | 440 | 6 | .007 | | | |
| | 6070 | 121 | .231 | .37 | 1010 | 216.1 (5yr FLOW) |
| | | | | 1.18 | | 701.5 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 02/08/85

BASIN

(Composit of BASIN 'NORW D'
NORW C-40

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | I x CN |
|---------|---------|-----------|------|----|-------|--------|
| 679.0 | | BASIN 'D' | A | 79 | 100.0 | 7759.3 |
| 679.0 | 1.061 | | | | 100.0 | 7759.3 |

WEIGHTED CN = 77.7

| FLOW TYPE | L (ft) | H (ft) | Tc (hrs) | RUNOFF (in) | qp (CSM/in) | Q (cfs) |
|-----------|--------|--------|----------|-------------|-------------|---------------------|
| OVERLAND | 100 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 6480 | 112 | .148 | | | |
| | 6480 | 146 | .392 | .54 | 320 | 467.4 (5yr FLOW) |
| | | | | 1.49 | | 1296.4 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASINS

NORW C- 1, 2, 3

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | I x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 10.7 | | RESIDENTIAL 1/5Ac | A | 65 | 12.2 | 791.2 |
| 21.4 | | COMMERTIAL | A | 89 | 24.3 | 2165.8 |
| 55.8 | | INDUSTRIAL | A | 81 | 63.5 | 5142.0 |
| 87.9 | .137 | | | | 100.0 | 8166.0 |

WEIGHTED CN = 81.0

| FLOW TYPE | L (ft) | H (ft) | Tc (hrs) | RUNOFF (in) | qp (CSM/in) | Q (cfs) |
|-----------|--------|--------|----------|-------------|-------------|--------------------|
| SHEET | 1000 | 10 | .139 | | | |
| STREET | 1470 | 15 | .109 | | | |
| PIPE | 1070 | 11 | .031 | | | |
| | 3540 | 36 | .279 | .67 | 750 | 87.3 (5yr FLOW) |
| | | | | 1.71 | | 222.9 (100yr FLOW) |

BASINS

NORW C- 1, 2, 3, 4, 5

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | I x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 23.0 | | RESIDENTIAL 1/5Ac | A | 65 | 21.4 | 1393.3 |
| 21.4 | | COMMERTIAL | A | 89 | 19.9 | 1775.0 |
| 62.9 | | INDUSTRIAL | A | 81 | 58.6 | 4748.3 |
| 107.3 | .169 | | | | 100.0 | 7916.6 |

WEIGHTED CN = 79.2

| FLOW TYPE | L (ft) | H (ft) | Tc (hrs) | RUNOFF (in) | qp (CSM/in) | Q (cfs) |
|-----------|--------|--------|----------|-------------|-------------|--------------------|
| SHEET | 1000 | 10 | .139 | | | |
| STREET | 1470 | 15 | .109 | | | |
| PIPE | 1610 | 33 | .039 | | | |
| | 4080 | 58 | .287 | .59 | 740 | 92.8 (5yr FLOW) |
| | | | | 1.58 | | 248.6 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASINS

NORW C- 1, 2, 3, 4, 5, 6, 7

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 47.4 | | RESIDENTIAL 1/5Ac | A | 65 | 34.1 | 2215.4 |
| 21.4 | | COMMERTIAL | A | 89 | 15.4 | 1368.2 |
| 67.4 | | INDUSTRIAL | A | 81 | 48.4 | 3922.0 |
| 3.0 | | PARK | A | 39 | 2.2 | 84.1 |
| 139.2 | .218 | | | | 100.0 | 7587.6 |

WEIGHTED CN = 75.9

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 1000 | 10 | .139 | | | |
| STREET | 1470 | 15 | .109 | | | |
| PIPE | 2530 | 54 | .037 | | | |
| | 5000 | 79 | .305 | .46 | 920 | 92.4 (5yr FLOW) |
| | | | | 1.36 | | 271.6 (100yr FLOW) |

BASINS

NORW C- 1, 2, 3, 4, 5, 6, 7, 8

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 8.8 | | SCHOOL | A | 72 | 5.2 | 372.9 |
| .6 | | P.U.D. | A | 77 | .4 | 27.2 |
| 67.1 | | RESIDENTIAL 1/5Ac | A | 65 | 39.5 | 2567.1 |
| 21.4 | | COMMERTIAL | A | 89 | 12.6 | 1121.0 |
| 67.4 | | INDUSTRIAL | A | 81 | 39.7 | 3213.3 |
| 4.6 | | PARK | A | 39 | 2.7 | 105.6 |
| 139.9 | .265 | | | | 100.0 | 7407.1 |

WEIGHTED CN = 74.1

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 1000 | 10 | .139 | | | |
| STREET | 1470 | 15 | .109 | | | |
| PIPE | 3390 | 72 | .075 | | | |
| | 5860 | 97 | .325 | .40 | 900 | 95.5 (5yr FLOW) |
| | | | | 1.24 | | 297.3 (100yr FLOW) |

BASINS

NORW C- 1, 2, 3, 4, 5, 6, 7, 8, 9

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 8.8 | | SCHOOL | A | 72 | 4.5 | 321.8 |
| .6 | | P.U.D. | A | 77 | .3 | 23.5 |
| 67.1 | | RESIDENTIAL 1/5Ac | A | 65 | 34.1 | 2215.1 |
| 21.4 | | COMMERTIAL | A | 89 | 10.9 | 967.3 |
| 94.4 | | INDUSTRIAL | A | 81 | 47.9 | 3883.4 |
| 4.6 | | PARK | A | 39 | 2.3 | 91.1 |
| 196.9 | .308 | | | | 100.0 | 7502.1 |

WEIGHTED CN = 75.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 1000 | 10 | .139 | | | |
| STREET | 1470 | 15 | .109 | | | |
| PIPE | 4510 | 84 | .108 | | | |
| | 5980 | 109 | .356 | .43 | 860 | 114.2 (5yr FLOW) |
| | | | | 1.30 | | 344.8 (100yr FLOW) |

BASINS

NORW C- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 35, 36

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 8.8 | | SCHOOL | A | 72 | 3.3 | 236.6 |
| 29.8 | | P.U.D. | A | 77 | 11.1 | 856.8 |
| 67.1 | | RESIDENTIAL 1/5Ac | A | 65 | 25.1 | 1628.6 |
| 44.3 | | COMMERTIAL | A | 89 | 16.5 | 1472.3 |
| 106.3 | | INDUSTRIAL | A | 81 | 39.7 | 3215.2 |
| 4.6 | | PARK | A | 39 | 1.7 | 67.0 |
| 6.9 | | STREETS & WALKS | A | 98 | 2.6 | 252.5 |
| 267.8 | .418 | | | | 100.0 | 7729.0 |

WEIGHTED CN = 77.3

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 1000 | 10 | .139 | | | |
| STREET | 1470 | 15 | .109 | | | |
| PIPE | 6090 | 146 | .132 | | | |
| | 8560 | 171 | .390 | .51 | 840 | 180.6 (5yr FLOW) |
| | | | | 1.45 | | 509.8 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASINS

NORW C- 11,12,13

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 6.2 | | P.U.D. | A | 77 | 11.9 | 918.1 |
| 34.4 | | RESIDENTIAL 1/5ac | A | 65 | 66.2 | 4308.0 |
| 11.4 | | COMMERCIAL | A | 89 | 21.9 | 1951.2 |
| 52.0 | .081 | | | | 100.0 | 7169.2 |

WEIGHTED CN = 71.7

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 100 | 1 | .035 | | | |
| STREET | 2260 | 68 | .135 | | | |
| | 2360 | 69 | .170 | .33 | 1120 | 29.7 (5yr FLOW) |
| | | | | 1.10 | | 100.4 (100yr FLOW) |

BASINS

NORW C- 11,12,13,14

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 6.2 | | P.U.D. | A | 77 | 11.0 | 843.5 |
| 36.2 | | RESIDENTIAL 1/5ac | A | 65 | 64.0 | 4157.2 |
| 11.4 | | COMMERCIAL | A | 89 | 20.1 | 1792.6 |
| 2.8 | | STREETS & WALKS | A | 98 | 4.9 | 484.8 |
| 56.6 | .088 | | | | 100.0 | 7278.1 |

WEIGHTED CN = 72.8

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 100 | 1 | .035 | | | |
| STREET | 2260 | 68 | .135 | | | |
| | 2360 | 69 | .170 | .36 | 1120 | 35.6 (5yr FLOW) |
| | | | | 1.17 | | 115.6 (100yr FLOW) |

BASINS

NORW C- 11,12,13,14,15,16,17,18

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 9.7 | | P.U.D. | A | 77 | 8.3 | 642.8 |
| 92.3 | | RESIDENTIAL 1/5ac | A | 65 | 79.4 | 5163.1 |
| 11.4 | | COMMERCIAL | A | 89 | 9.8 | 873.1 |
| 2.8 | | STREETS & WALKS | A | 98 | 2.4 | 236.1 |
| 116.2 | .182 | | | | 100.0 | 6915.1 |

WEIGHTED CN = 65.2

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 100 | 1 | .035 | | | |
| STREET | 2260 | 68 | .135 | | | |
| PIPE | 1100 | 24 | .029 | | | |
| | 3460 | 93 | .199 | .26 | 1070 | 50.0 (5yr FLOW) |
| | | | | .96 | | 186.9 (100yr FLOW) |

BASINS

NORW C- 15,17,18

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 47.2 | | RESIDENTIAL 1/5ac | A | 65 | 100.0 | 6500.0 |
| 47.2 | .074 | | | | 100.0 | 6500.0 |

WEIGHTED CN = 65.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| OVERLAND | 100 | 1 | .035 | | | |
| STREET | 3400 | 70 | .197 | | | |
| | 3500 | 71 | .232 | .16 | 1010 | 12.2 (5yr FLOW) |
| | | | | .75 | | 56.0 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 02/28/85

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASINS

NORM C- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 21, 34, 35, 36

| ACREAGE | SG. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 8.8 | | SCHOOL | A | 72 | 3.1 | 225.2 |
| 30.7 | | P.U.D. | A | 77 | 10.7 | 840.3 |
| 37.1 | | RESIDENTIAL 1/5Ac | A | 65 | 23.9 | 1550.5 |
| 51.7 | | COMMERCIAL | A | 39 | 18.4 | 1635.7 |
| 106.3 | | INDUSTRIAL | A | 31 | 37.9 | 3060.9 |
| 4.6 | | PARK | A | 39 | 1.6 | 63.9 |
| 12.1 | | STREETS & WALKS | A | 98 | 4.3 | 421.5 |
| 381.3 | .440 | | | | 100.0 | 7798.0 |

WEIGHTED CN = 78.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 1000 | 10 | .139 | | | |
| STREET | 1470 | 15 | .107 | | | |
| PIPE | 6070 | 146 | .132 | | | |
| | 8560 | 171 | .380 | .54 | 840 | 199.6 (5yr FLOW) |
| | | | 1.50 | | | 552.3 (100yr FLOW) |

BASINS

NDRW C- 28, 29, 30

| ACREAGE | SG. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 34.3 | | RESIDENTIAL 1/5Ac | A | 65 | 100.0 | 6500.0 |
| 34.3 | .054 | | | | 100.0 | 6500.0 |

WEIGHTED CN = 65.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| OVERLAND | 160 | 7 | .030 | | | |
| STREET | 3340 | 116 | .141 | | | |
| | 3500 | 123 | .171 | .16 | 1110 | 9.7 (5yr FLOW) |
| | | | | .75 | | 44.7 (100yr FLOW) |

BASINS

NDRW C- 25, 26, 27, 28, 29, 30

| ACREAGE | SG. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 74.7 | | RESIDENTIAL 1/5Ac | A | 65 | 100.0 | 6500.0 |
| 74.7 | .117 | | | | 100.0 | 6500.0 |

WEIGHTED CN = 65.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| OVERLAND | 160 | 7 | .030 | | | |
| STREET | 3340 | 116 | .141 | | | |
| | 3500 | 123 | .171 | .16 | 1110 | 21.2 (5yr FLOW) |
| | | | | .75 | | 97.4 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 02/26/85

BASINS

NORM C- 39,40

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------|------|----|-------|--------|
| 375.5 | | BASIN 'B' | A | 73 | 35.6 | 2602.0 |
| 679.0 | | BASIN 'D' | A | 78 | 64.4 | 5915.6 |
| 1054.5 | 1.648 | | | | 100.0 | 7617.6 |

WEIGHTED CN = 76.2

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|---------------------|
| OVERLAND | 100 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 6480 | 112 | .148 | | | |
| | 9680 | 146 | .392 | .47 | 320 | 638.3 (5yr FLOW) |
| | | | | 1.38 | | 1860.0 (100yr FLOW) |

BASINS

NORM C- 11,12,13,14,15,16,17,18,39,40

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 375.5 | | BASIN 'B' | A | 73 | 32.1 | 2343.7 |
| 679.0 | | BASIN 'D' | A | 78 | 58.0 | 4517.8 |
| 9.7 | | P.U.D. | A | 77 | .8 | 63.8 |
| 92.3 | | RESIDENTIAL 1/5ac | A | 65 | 7.9 | 512.5 |
| 11.4 | | COMMERCIAL | A | 89 | 1.0 | 86.7 |
| 2.8 | | STREETS & WALKS | A | 98 | .2 | 25.4 |
| 1170.7 | 1.829 | | | | 100.0 | 7547.9 |

WEIGHTED CN = 75.5

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|---------------------|
| OVERLAND | 100 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 6480 | 112 | .148 | | | |
| CREEK | 910 | 12 | .029 | | | |
| | 10490 | 158 | .421 | .45 | 800 | 655.0 (5yr FLOW) |
| | | | | 1.33 | | 1949.2 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 02/28/85

BASINS

NORM C- 11,12,13,14,15,16,17,18,19,39,40

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 375.5 | | BASIN 'B' | A | 73 | 31.4 | 2293.4 |
| 679.0 | | BASIN 'D' | A | 78 | 55.8 | 4428.7 |
| 33.6 | | P.U.D. | A | 77 | 2.8 | 216.2 |
| 92.3 | | RESIDENTIAL 1/5ac | A | 65 | 7.7 | 501.5 |
| 11.4 | | COMMERCIAL | A | 89 | 1.0 | 84.8 |
| 4.6 | | STREETS & WALKS | A | 98 | .4 | 37.7 |
| 1196.4 | 1.829 | | | | 100.0 | 7554.3 |

WEIGHTED CN = 75.5

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|---------------------|
| OVERLAND | 100 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 6480 | 112 | .148 | | | |
| CREEK | 1050 | 18 | .038 | | | |
| | 10730 | 164 | .430 | .45 | 750 | 664.3 (5yr FLOW) |
| | | | | 1.34 | | 1973.1 (100yr FLOW) |

BASINS

NORM C- 11,12,13,14,15,16,17,18,19,20,24,39,40

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 375.5 | | BASIN 'B' | A | 73 | 31.1 | 2269.3 |
| 679.0 | | BASIN 'D' | A | 78 | 55.2 | 4374.3 |
| 33.6 | | P.U.D. | A | 77 | 2.8 | 214.0 |
| 92.3 | | RESIDENTIAL 1/5ac | A | 65 | 7.6 | 495.2 |
| 1.0 | | RESIDENTIAL 1/5ac | B | 78 | .1 | 6.5 |
| 17.0 | | COMMERCIAL | A | 89 | 1.4 | 125.1 |
| 5.2 | | COMMERCIAL | B | 92 | .3 | 24.3 |
| 7.5 | | STREETS & WALKS | A | 98 | .6 | 60.8 |
| 1209.1 | 1.889 | | | | 100.0 | 7570.5 |

WEIGHTED CN = 75.7

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|---------------------|
| OVERLAND | 100 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 6480 | 112 | .148 | | | |
| CREEK | 1390 | 26 | .050 | | | |
| | 11070 | 172 | .442 | .46 | 780 | 671.3 (5yr FLOW) |
| | | | | 1.35 | | 1984.0 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 02/28/85

BASINS

NORM C- 11,12,13,14,15,16,17,18,19,20,23,24,39,40

| ACREAGE | SO. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|-------|--------|--------------------|
| 28.2 | | SCHOOL | A | 72 | 2.2 | 160.8 |
| 12.7 | | OPEN SPACE | A | 49 | 1.0 | 49.3 |
| 375.5 | | BASIN 'B' | A | 73 | 29.7 | 2173.3 |
| 679.0 | | BASIN 'D' | A | 78 | 53.8 | 4189.3 |
| 33.6 | | P.B.S. | A | 77 | 2.7 | 204.9 |
| 97.0 | | RESIDENTIAL 1/5Ac | A | 65 | 7.7 | 499.4 |
| 1.0 | | RESIDENTIAL 1/5Ac | B | 78 | .1 | 6.2 |
| 24.8 | | COMMERTIAL | A | 89 | 2.9 | 174.8 |
| 3.2 | | COMMERTIAL | B | 92 | .3 | 23.3 |
| 7.5 | | STREETS & WALKS | A | 98 | .5 | 58.2 |
| 1262.5 | 1.973 | | | 100.0 | 7539.6 | WEIGHTED CN = 75.4 |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | ap(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|---------------------|
| OVERLAND | 100 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 6480 | 112 | .105 | | | |
| CREEK | 2910 | 48 | .148 | | | |
| | 12590 | 194 | .497 | .44 | 730 | 640.4 (5yr FLOW) |
| | | | | 1.33 | | 1910.6 (100yr FLOW) |

BASINS

NORM C- 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,34,35,36,39,40

| ACREAGE | SO. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|-------|--------|--------------------|
| 8.8 | | SCHOOL | A | 72 | .6 | 40.8 |
| 28.2 | | SCHOOL | A | 72 | 1.8 | 130.6 |
| 12.7 | | OPEN SPACE | A | 49 | .8 | 40.0 |
| 375.5 | | BASIN 'B' | A | 73 | 24.2 | 1763.3 |
| 679.0 | | BASIN 'D' | A | 78 | 43.7 | 3402.8 |
| 64.3 | | F.U.D. | A | 77 | 4.1 | 318.5 |
| 171.0 | | RESIDENTIAL 1/5Ac | A | 65 | 11.0 | 715.1 |
| 1.0 | | RESIDENTIAL 1.5Ac | B | 78 | .1 | 5.0 |
| 74.5 | | COMMERTIAL | A | 89 | 4.9 | 438.0 |
| 3.2 | | COMMERTIAL | B | 92 | .2 | 18.9 |
| 186.3 | | INDUSTRIAL | A | 81 | 6.9 | 554.0 |
| 4.6 | | PARK | A | 39 | .3 | 11.5 |
| 23.2 | | STREETS & WALKS | A | 98 | 1.5 | 146.3 |
| 1554.3 | 2.429 | | | 100.0 | 7587.0 | WEIGHTED CN = 75.9 |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | ap(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|---------------------|
| OVERLAND | 100 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 6480 | 112 | .146 | | | |
| CREEK | 2910 | 48 | .105 | | | |
| PIPE | 230 | 2 | .002 | | | |
| | 12790 | 196 | .499 | .46 | 730 | 818.0 (5yr FLOW) |
| | | | | 1.36 | | 2405.7 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 02/28/85

BASINS

NORW C- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 31, 34, 35, 36, 39, 40

| ACREAGE | SG. #1. | LAND USE | SOIL | CN | % | X x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 8.8 | | SCHOOL | A | 72 | .6 | 40.0 |
| 28.2 | | SCHOOL | A | 72 | 1.8 | 128.3 |
| 12.7 | | OPEN SPACE | A | 49 | .8 | 39.3 |
| 11.8 | | OPEN SPACE | A | 49 | .7 | 36.5 |
| 375.5 | | BASIN 'B' | A | 73 | 23.7 | 1733.4 |
| 679.0 | | BASIN 'D' | A | 78 | 42.9 | 3341.3 |
| 78.1 | | P.U.D. | A | 77 | 4.9 | 379.9 |
| 174.0 | | RESIDENTIAL 1/5Ac | A | 65 | 11.0 | 714.5 |
| 1.0 | | RESIDENTIAL 1/5Ac | B | 78 | .1 | 4.9 |
| 76.5 | | COMMERCIAL | A | 89 | 4.8 | 430.1 |
| 3.2 | | COMMERCIAL | B | 92 | .2 | 13.6 |
| 106.3 | | INDUSTRIAL | A | 81 | 6.7 | 544.0 |
| 4.6 | | PARK | A | 39 | .3 | 11.3 |
| 25.2 | | STREETS & WALKS | A | 98 | 1.3 | 143.6 |
| 1582.9 | 2.473 | | | | 100.0 | 7585.9 |

WEIGHTED CN = 75.7

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| | | | | | | |
|----------|-------|-----|------|-----|-----|---------------------|
| OVERLAND | 180 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 6480 | 112 | .148 | | | |
| CREEK | 2910 | 48 | .105 | | | |
| PIPE | 200 | 2 | .002 | | | |
| CREEK | 2110 | 27 | .076 | | | |
| | 14900 | 223 | .575 | .45 | 680 | 763.4 (5yr FLOW) |
| | | | 1.34 | | | 2259.4 (100yr FLOW) |

BASINS

NORW C- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 40

| ACREAGE | SG. #1. | LAND USE | SOIL | CN | % | X x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 8.8 | | SCHOOL | A | 72 | .5 | 37.8 |
| 28.2 | | SCHOOL | A | 72 | 1.7 | 121.3 |
| 12.7 | | OPEN SPACE | A | 49 | .8 | 37.2 |
| 11.8 | | OPEN SPACE | A | 49 | .7 | 34.5 |
| 2.0 | | OPEN SPACE | A | 49 | .1 | 5.7 |
| 375.5 | | BASIN 'B' | A | 73 | 23.4 | 1639.0 |
| 679.0 | | BASIN 'D' | A | 78 | 40.3 | 3159.3 |
| 86.7 | | P.U.D. | A | 77 | 5.2 | 398.8 |
| 1.7 | | P.U.D. | D | 92 | .1 | 9.3 |
| 249.5 | | RESIDENTIAL 1/5Ac | A | 65 | 14.9 | 768.7 |
| 1.0 | | RESIDENTIAL 1/5Ac | B | 78 | .1 | 4.7 |
| 76.5 | | COMMERCIAL | A | 89 | 4.6 | 406.7 |
| 3.2 | | COMMERCIAL | B | 92 | .2 | 17.0 |
| 106.3 | | INDUSTRIAL | A | 81 | 6.3 | 514.3 |
| 4.6 | | PARK | A | 39 | .3 | 10.7 |
| 25.2 | | STREETS & WALKS | A | 98 | 1.6 | 154.0 |
| 1674.1 | 2.616 | | | | 100.0 | 7520.5 |

WEIGHTED CN = 75.2

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| | | | | | | |
|----------|-------|-----|------|-----|-----|---------------------|
| OVERLAND | 180 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 6480 | 112 | .148 | | | |
| CREEK | 2910 | 48 | .105 | | | |
| PIPE | 200 | 2 | .002 | | | |
| CREEK | 2100 | 27 | .076 | | | |
| PIPE | 120 | 2 | .001 | | | |
| CREEK | 480 | 5 | .011 | | | |
| | 15410 | 230 | .587 | .44 | 680 | 779.3 (5yr FLOW) |
| | | | 1.31 | | | 2338.6 (100yr FLOW) |

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BASINS

NORM C- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 8.8 | | SCHOOL | A | 72 | .5 | 37.0 |
| 25.2 | | SCHOOL | A | 72 | 1.6 | 118.4 |
| 12.7 | | OPEN SPACE | A | 49 | .7 | 36.3 |
| 11.8 | | OPEN SPACE | A | 49 | .7 | 33.7 |
| 2.3 | | OPEN SPACE | A | 49 | .1 | 8.6 |
| 7.3 | | OPEN SPACE | D | 50 | .4 | 34.1 |
| 375.5 | | BASIN 'B' | A | 75 | 21.9 | 1600.2 |
| 579.0 | | BASIN 'D' | A | 78 | 39.6 | 3084.5 |
| 66.7 | | P.U.D. | A | 77 | 5.1 | 395.3 |
| 1.7 | | P.U.D. | D | 92 | .1 | 9.1 |
| 249.5 | | RESIDENTIAL 1/5Ac | A | 65 | 14.6 | 745.5 |
| 1.0 | | RESIDENTIAL 1/5Ac | B | 78 | .1 | 4.5 |
| 94.0 | | COMMERTIAL | A | 89 | 5.5 | 487.9 |
| 3.2 | | COMMERTIAL | B | 92 | .2 | 17.2 |
| 117.8 | | INDUSTRIAL | A | 81 | 6.9 | 556.5 |
| 4.6 | | PARK | A | 39 | .3 | 10.5 |
| 30.6 | | STREETS & WALKS | A | 98 | 1.8 | 174.9 |
| 1714.7 | 2.679 | | | | 100.0 | 7546.3 |

WEIGHTED CN = 75.5

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|---------|
| OVERLAND | 100 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 6480 | 112 | .148 | | | |
| CREEK | 2910 | 48 | .105 | | | |
| PIPE | 200 | 2 | .002 | | | |
| CREEK | 2100 | 27 | .076 | | | |
| PIPE | 120 | 2 | .001 | | | |
| CREEK | 400 | 5 | .011 | | | |
| PIPE | 200 | 2 | .002 | | | |
| CREEK | 1130 | 12 | .041 | | | |

16740 244 .650 .45 650 778.5 (5yr FLOW)
1.33 2318.0 (100yr FLOW)

BASIN

NORM D- 1

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 31.0 | | COMMERTIAL | A | 89 | 20.4 | 1815.1 |
| 66.2 | | INDUSTRIAL | A | 81 | 43.6 | 3527.8 |
| 54.8 | | RESIDENTIAL 1/5Ac | A | 65 | 36.1 | 2343.4 |
| 152.0 | .238 | | | | 100.0 | 7686.3 |

WEIGHTED CN = 76.9

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 100 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 1650 | 24 | .046 | | | |
| | 4550 | 56 | .290 | .50 | 930 | 109.9 (5yr FLOW) |
| | | | | 1.42 | | 214.0 (100yr FLOW) |

BASIN

NORM D- 2

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 63.5 | | COMMERTIAL | A | 89 | 62.7 | 5579.0 |
| 20.0 | | P.U.D. | A | 77 | 19.7 | 1520.2 |
| 17.8 | | RESIDENTIAL 1/5Ac | A | 65 | 17.5 | 1142.2 |
| 101.3 | .158 | | | | 100.0 | 8241.4 |

WEIGHTED CN = 82.4

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 790 | 23 | .053 | | | |
| STREET | 2960 | 46 | .168 | | | |
| PIPE | 2200 | 21 | .061 | | | |
| | 5800 | 90 | .282 | .74 | 940 | 109.4 (5yr FLOW) |
| | | | | 1.81 | | 269.9 (100yr FLOW) |

BASIN

NORM D- 3

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|------------|------|----|-------|--------|
| 40.0 | | P.U.D. | A | 77 | 29.4 | 2253.0 |
| 33.5 | | COMMERTIAL | A | 89 | 24.6 | 2190.7 |
| 62.6 | | LANDFILL | A | 49 | 46.0 | 2253.5 |
| 136.1 | .213 | | | | 100.0 | 6707.5 |

WEIGHTED CN = 67.1

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| STREET | 2900 | 68 | .124 | | | |
| PIPE | 1000 | 12 | .025 | | | |
| | 3900 | 50 | .149 | .21 | 1150 | 50.7 (5yr FLOW) |
| | | | | 1.85 | | 208.5 (100yr FLOW) |

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NORM D-4

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-----------------|------|----|-------|--------|
| 5.1 | | P.U.D. | A | 77 | 12.5 | 962.5 |
| 27.9 | | COMMERTIAL | A | 89 | 68.4 | 6086.0 |
| 5.5 | | COMMERTIAL | B | 92 | 13.5 | 1240.2 |
| 2.3 | | STREETS & WALKS | A | 98 | 5.6 | 552.5 |
| 40.8 | .064 | | | | 100.0 | 8941.2 |

WEIGHTED CN = 88.4

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| STREET | 2460 | 39 | .142 | | | |
| PIPE | 400 | 6 | .010 | | | |
| | 2860 | 45 | .152 | 1.07 | 1150 | 78.6 (5yr FLOW) |
| | | | | 2.30 | | 169.0 (100yr FLOW) |

BASIN

NORM D-5

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|------------|------|----|-------|--------|
| 6.9 | | COMMERTIAL | A | 89 | 20.1 | 1790.4 |
| 27.4 | | INDUSTRIAL | A | 81 | 79.9 | 6470.6 |
| 34.3 | .054 | | | | 100.0 | 8260.9 |

WEIGHTED CN = 82.6

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 600 | 3 | .069 | | | |
| STREET | 2140 | 78 | .057 | | | |
| | 2740 | 86 | .126 | .74 | 1200 | 47.9 (5yr FLOW) |
| | | | | 1.83 | | 117.6 (100yr FLOW) |

BASIN

NORM D-6

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-----------------|------|----|-------|--------|
| 14.8 | | COMMERTIAL | A | 89 | 81.3 | 7237.4 |
| 3.4 | | STREETS & WALKS | A | 98 | 18.7 | 1830.8 |
| 18.2 | .028 | | | | 100.0 | 9068.1 |

WEIGHTED CN = 90.7

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| STREET | 2680 | 79 | .110 | | | |
| PIPE | 650 | 18 | .013 | | | |
| | 3330 | 97 | .125 | 1.23 | 1210 | 82.5 (5yr FLOW) |
| | | | | 2.51 | | 166.4 (100yr FLOW) |

BASIN

NORM D-7

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|------------|------|----|-------|--------|
| 7.2 | | COMMERTIAL | A | 89 | 75.8 | 6745.3 |
| 2.3 | | COMMERTIAL | B | 92 | 24.2 | 2227.4 |
| 9.5 | .015 | | | | 100.0 | 8972.6 |

WEIGHTED CN = 89.7

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 600 | 10 | .064 | | | |
| STREET | 750 | 6 | .043 | | | |
| | 1350 | 14 | .107 | 1.18 | 1250 | 21.5 (5yr FLOW) |
| | | | | 2.42 | | 45.0 (100yr FLOW) |

BASIN

NORM D-8

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|------------|------|----|-------|--------|
| 14.6 | | INDUSTRIAL | A | 81 | 100.0 | 6100.0 |
| 14.6 | .023 | | | | 100.0 | 8100.0 |

WEIGHTED CN = 81.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 400 | 25 | .022 | | | |
| PIPE | 760 | 22 | .087 | | | |
| | 1160 | 47 | .109 | .67 | 1250 | 19.1 (5yr FLOW) |
| | | | | 1.71 | | 48.7 (100yr FLOW) |

BASIN

NORM D-9

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-----------------|------|----|-------|--------|
| 7.3 | | INDUSTRIAL | A | 81 | 86.9 | 7039.3 |
| 1.1 | | STREETS & WALKS | A | 98 | 13.1 | 1293.3 |
| 8.4 | .013 | | | | 100.0 | 8322.6 |

WEIGHTED CN = 83.2

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| STREET | 1020 | 28 | .044 | | | |
| | 1020 | 28 | .044 | .78 | 1300 | 13.2 (5yr FLOW) |
| | | | | 1.88 | | 32.0 (100yr FLOW) |

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NORW D-10

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|--------------------|---------|-----------------|------|----|-------|--------|
| 13.4 | | COMMERCIAL | A | 89 | 46.9 | 4169.9 |
| 6.6 | | COMMERCIAL | B | 92 | 23.1 | 2123.1 |
| 6.6 | | INDUSTRIAL | B | 88 | 23.1 | 2030.8 |
| 2.0 | | STREETS & WALKS | A | 98 | 7.0 | 685.0 |
| 28.6 | .045 | | | | 100.0 | 9009.1 |
| WEIGHTED CN = 89.1 | | | | | | |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 420 | 8 | .042 | | | |
| STREET | 620 | 4 | .043 | | | |
| PIPE | 930 | 24 | .017 | | | |
| | 1970 | 36 | .102 | 1.19 | 1270 | 67.3 (5yr FLOW) |
| | | | | 2.46 | | 139.4 (100yr FLOW) |

BASIN

NORW D-11

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|--------------------|---------|----------|------|----|-------|--------|
| 13.0 | | P.U.D. | A | 77 | 24.1 | 1857.1 |
| 40.9 | | P.U.D. | B | 85 | 75.9 | 6449.9 |
| 53.9 | .084 | | | | 100.0 | 8307.1 |
| WEIGHTED CN = 83.1 | | | | | | |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 200 | 4 | .056 | | | |
| STREET | 2030 | 52 | .092 | | | |
| | 2230 | 56 | .148 | .77 | 1150 | 74.4 (5yr FLOW) |
| | | | | 1.56 | | 180.5 (100yr FLOW) |

BASIN

NORW D-12

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|--------------------|---------|-------------------|------|----|-------|--------|
| 10.5 | | RESIDENTIAL 1/5Ac | A | 65 | 31.5 | 2049.5 |
| 22.8 | | RESIDENTIAL 1/5Ac | B | 78 | 68.5 | 5340.5 |
| 33.3 | .052 | | | | 100.0 | 7390.1 |
| WEIGHTED CN = 73.9 | | | | | | |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| STREET | 500 | 18 | .020 | | | |
| PIPE | 2060 | 46 | .037 | | | |
| | 2560 | 64 | .057 | .39 | 1300 | 26.7 (5yr FLOW) |
| | | | | 1.23 | | 82.5 (100yr FLOW) |

BASIN

NORW D-13

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|--------------------|---------|-------------------|------|----|-------|--------|
| 10.7 | | RESIDENTIAL 1/5Ac | A | 65 | 26.7 | 1734.4 |
| 29.4 | | RESIDENTIAL 1/5Ac | B | 78 | 73.3 | 5718.7 |
| 40.1 | .063 | | | | 100.0 | 7453.1 |
| WEIGHTED CN = 74.5 | | | | | | |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 220 | 10 | .037 | | | |
| STREET | 360 | 9 | .018 | | | |
| PIPE | 2360 | 63 | .045 | | | |
| | 2940 | 82 | .100 | .42 | 1270 | 33.0 (5yr FLOW) |
| | | | | 1.27 | | 101.3 (100yr FLOW) |

BASIN

NORW D-14

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|--------------------|---------|-------------------|------|----|-------|--------|
| .9 | | RESIDENTIAL 1/5Ac | A | 65 | 10.1 | 655.2 |
| 7.1 | | OPEN SPACE | A | 49 | 89.9 | 4403.8 |
| 7.9 | .012 | | | | 100.0 | 5062.0 |
| WEIGHTED CN = 50.6 | | | | | | |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|------------------|
| OVERLAND | 270 | 12 | .047 | | | |
| CHANNEL | 670 | 14 | .010 | | | |
| | 940 | 26 | .057 | .00 | 1300 | 1.0 (5yr FLOW) |
| | | | | .21 | | 3.4 (100yr FLOW) |

BASINS

NORW D- 1, 4

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|-------|--------|--------------------|
| 5.1 | | P.U.D. | A | 77 | 2.6 | 203.7 |
| 54.8 | | RESIDENTIAL 1/5ac | A | 65 | 28.4 | 1847.5 |
| 58.9 | | COMMERTIAL | A | 87 | 30.5 | 2718.9 |
| 5.5 | | COMMERTIAL | B | 92 | 2.9 | 262.4 |
| 56.2 | | INDUSTRIAL | A | 81 | 34.3 | 2781.2 |
| 2.3 | | STREETS & WALKS | A | 98 | 1.2 | 116.9 |
| 192.8 | .301 | | | 100.0 | 7930.7 | WEIGHTED CN = 79.3 |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | cp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 100 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 3580 | 44 | .096 | | | |
| | 6780 | 78 | .340 | .59 | 880 | 157.7 (5yr FLOW) |
| | | | | 1.59 | | 420.8 (100yr FLOW) |

BASINS

NORW D- 1, 4, 13

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|-------|--------|--------------------|
| 5.1 | | P.U.D. | A | 77 | 2.2 | 168.6 |
| 55.5 | | RESIDENTIAL 1/5ac | A | 65 | 28.1 | 1828.0 |
| 29.4 | | RESIDENTIAL 1/5ac | B | 78 | 12.6 | 994.6 |
| 58.9 | | COMMERTIAL | A | 89 | 25.3 | 2250.6 |
| 5.5 | | COMMERTIAL | B | 92 | 2.4 | 217.3 |
| 56.2 | | INDUSTRIAL | A | 81 | 28.4 | 2302.4 |
| 2.3 | | STREETS & WALKS | A | 98 | 1.0 | 96.8 |
| 232.9 | .364 | | | 100.0 | 7548.5 | WEIGHTED CN = 79.5 |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | cp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 100 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 6480 | 112 | .148 | | | |
| | 9680 | 146 | .392 | .56 | 820 | 167.4 (5yr FLOW) |
| | | | | 1.53 | | 456.7 (100yr FLOW) |

BASINS

NORW D- 2, 10

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|-------|--------|--------------------|
| 20.0 | | P.U.D. | A | 77 | 15.4 | 1185.5 |
| 17.8 | | RESIDENTIAL 1/5ac | A | 65 | 13.7 | 890.7 |
| 76.9 | | COMMERTIAL | A | 89 | 59.2 | 5268.7 |
| 6.6 | | COMMERTIAL | B | 92 | 5.1 | 467.4 |
| 6.6 | | INDUSTRIAL | B | 88 | 5.1 | 447.1 |
| 2.0 | | STREETS & WALKS | A | 98 | 1.5 | 150.9 |
| 129.9 | .203 | | | 100.0 | 8410.4 | WEIGHTED CN = 84.1 |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | cp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 700 | 23 | .053 | | | |
| STREET | 2900 | 46 | .168 | | | |
| PIPE | 4020 | 55 | .104 | | | |
| | 7420 | 124 | .325 | .82 | 890 | 148.3 (5yr FLOW) |
| | | | | 1.94 | | 351.3 (100yr FLOW) |

BASINS

NORW D- 3, 6

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------------|------|-------|--------|--------------------|
| 62.6 | | LANDFILL | A | 49 | 40.6 | 1987.9 |
| 40.0 | | P.U.D. | A | 77 | 25.9 | 1996.1 |
| 48.3 | | COMMERTIAL | A | 89 | 31.3 | 2785.9 |
| 3.4 | | STREETS & WALKS | A | 98 | 2.2 | 215.9 |
| 154.3 | .241 | | | 100.0 | 6785.9 | WEIGHTED CN = 69.9 |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | cp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| STREET | 2900 | 68 | .124 | | | |
| PIPE | 1830 | 30 | .044 | | | |
| | 4730 | 98 | .168 | .28 | 1120 | 74.4 (5yr FLOW) |
| | | | | 1.00 | | 270.1 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASINS

NORW D- 2 ,3 ,5 ,6 ,7 ,8 ,9 ,10

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|-------|------|--------|
| 62.6 | | LANDFILL | A | 49 | 17.8 | 873.9 |
| 66.0 | | P.U.D. | A | 77 | 17.1 | 1316.2 |
| 17.8 | | RESIDENTIAL 1/5ac | A | 65 | 5.1 | 329.6 |
| 139.3 | | COMMERCIAL | A | 89 | 39.7 | 3532.1 |
| 8.9 | | COMMERCIAL | B | 92 | 2.5 | 233.3 |
| 49.3 | | INDUSTRIAL | A | 81 | 14.0 | 1137.7 |
| 6.6 | | INDUSTRIAL | B | 88 | 1.9 | 165.5 |
| 6.5 | | STREETS & WALKS | A | 98 | 1.7 | 181.5 |
| 351.0 | .548 | | | 100.0 | | 7769.8 |

WEIGHTED CN = 77.7

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 700 | 23 | .053 | | | |
| STREET | 2900 | 46 | .168 | | | |
| PIPE | 4020 | 55 | .104 | | | |
| | 7420 | 124 | .325 | .53 | 890 | 258.5 (5yr FLOW) |
| | | | | 1.48 | | 720.9 (100yr FLOW) |

BASINS

NORW D- 2 ,3 ,5 ,6 ,7 ,8 ,9 ,10,11

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|-------|------|--------|
| 62.6 | | LANDFILL | A | 49 | 15.5 | 757.6 |
| 73.0 | | P.U.D. | A | 77 | 18.0 | 1388.2 |
| 40.6 | | P.U.D. | B | 85 | 10.1 | 858.6 |
| 17.8 | | RESIDENTIAL 1/5ac | A | 65 | 4.4 | 265.7 |
| 139.3 | | COMMERCIAL | A | 89 | 34.4 | 3061.9 |
| 8.9 | | COMMERCIAL | B | 92 | 2.2 | 202.2 |
| 49.3 | | INDUSTRIAL | A | 81 | 12.2 | 986.2 |
| 6.6 | | INDUSTRIAL | B | 88 | 1.6 | 143.4 |
| 6.5 | | STREETS & WALKS | A | 98 | 1.6 | 157.3 |
| 404.9 | .633 | | | 100.0 | | 7841.3 |

WEIGHTED CN = 78.4

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 700 | 23 | .053 | | | |
| STREET | 2900 | 46 | .168 | | | |
| PIPE | 5340 | 118 | .133 | | | |
| | 8940 | 187 | .354 | .56 | 860 | 303.6 (5yr FLOW) |
| | | | | 1.53 | | 830.0 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASINS

NORW D- 3 ,5 ,6 ,7

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-----------------|------|-------|------|--------|
| 62.6 | | LANDFILL | A | 49 | 31.6 | 1548.4 |
| 40.0 | | P.U.D. | A | 77 | 20.2 | 1554.8 |
| 62.4 | | COMMERCIAL | A | 89 | 31.5 | 2803.4 |
| 2.3 | | COMMERCIAL | B | 92 | 1.2 | 104.8 |
| 27.4 | | INDUSTRIAL | A | 81 | 13.8 | 1120.3 |
| 3.4 | | STREETS & WALKS | A | 98 | 1.7 | 168.2 |
| 198.1 | .310 | | | 100.0 | | 7362.0 |

WEIGHTED CN = 73.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| STREET | 2900 | 68 | .124 | | | |
| PIPE | 1850 | 30 | .044 | | | |
| | 4750 | 98 | .168 | .37 | 1120 | 127.0 (5yr FLOW) |
| | | | | 1.18 | | 409.4 (100yr FLOW) |

BASINS

NORW D- 3 ,5 ,6 ,7 ,8

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-----------------|------|-------|------|--------|
| 62.6 | | LANDFILL | A | 49 | 29.4 | 1442.1 |
| 40.0 | | P.U.D. | A | 77 | 18.8 | 1448.0 |
| 62.4 | | COMMERCIAL | A | 89 | 29.3 | 2611.0 |
| 2.3 | | COMMERCIAL | B | 92 | 1.1 | 99.5 |
| 42.0 | | INDUSTRIAL | A | 81 | 19.7 | 1599.4 |
| 3.4 | | STREETS & WALKS | A | 98 | 1.6 | 156.7 |
| 212.7 | .332 | | | 100.0 | | 7356.7 |

WEIGHTED CN = 73.6

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| STREET | 2900 | 68 | .124 | | | |
| PIPE | 2850 | 94 | .065 | | | |
| | 5780 | 162 | .189 | .38 | 1090 | 139.0 (5yr FLOW) |
| | | | | 1.21 | | 439.6 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 2/28/85

NORWOOD EAST - MASTER DRAINAGE PLAN - 9/31/85

BASINS

NORW D- 2,3,5,6,7,8,9,10,11,12

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 62.6 | | LANDFILL | A | 49 | 14.3 | 700.0 |
| 73.0 | | P.U.D. | A | 77 | 16.7 | 1282.7 |
| 40.9 | | P.U.D. | B | 85 | 9.3 | 793.4 |
| 28.0 | | RESIDENTIAL 1/5AC | A | 65 | 6.5 | 419.8 |
| 21.8 | | RESIDENTIAL 1/5AC | B | 78 | 5.2 | 405.8 |
| 139.3 | | COMMERTIAL | A | 89 | 31.8 | 2829.2 |
| 8.9 | | COMMERTIAL | B | 92 | 2.0 | 186.9 |
| 49.0 | | INDUSTRIAL | A | 81 | 11.3 | 911.3 |
| 6.8 | | INDUSTRIAL | B | 88 | 1.5 | 132.5 |
| 6.5 | | STREETS & WALKS | A | 98 | 1.5 | 145.4 |
| 459.2 | .685 | | | | 100.0 | 7807.0 |

WEIGHTED CN = 78.1

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CMG/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 700 | 23 | .053 | | | |
| STREET | 2900 | 46 | .168 | | | |
| PIPE | 7440 | 136 | .172 | | | |
| | 11040 | 295 | .393 | .54 | 829 | 305.6 (5yr FLOW) |
| | | | 1.50 | | | 843.4 (100yr FLOW) |

BASINS

NORW D- 1,2,3,4,5,6,7,8,9,10,11,12,13,14

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|----|-------|--------|
| 62.6 | | LANDFILL | A | 49 | 9.2 | 451.8 |
| 7.1 | | OPEN SPACE | A | 49 | 1.0 | 51.2 |
| 78.1 | | P.U.D. | A | 77 | 11.5 | 885.7 |
| 40.9 | | P.U.D. | B | 85 | 6.0 | 512.0 |
| 74.6 | | RESIDENTIAL 1/5AC | A | 65 | 13.9 | 905.6 |
| 52.2 | | RESIDENTIAL 1/5AC | B | 78 | 7.7 | 599.6 |
| 198.2 | | COMMERTIAL | A | 89 | 29.2 | 2597.9 |
| 14.4 | | COMMERTIAL | B | 92 | 2.1 | 195.1 |
| 115.5 | | INDUSTRIAL | A | 81 | 17.0 | 1377.8 |
| 8.8 | | INDUSTRIAL | B | 88 | 1.0 | 85.5 |
| 8.8 | | STREETS & WALKS | A | 98 | 1.3 | 127.0 |
| 679.0 | 1.061 | | | | 100.0 | 7789.3 |

WEIGHTED CN = 77.9

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CMG/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|---------------------|
| OVERLAND | 100 | 4 | .020 | | | |
| STREET | 3100 | 30 | .224 | | | |
| PIPE | 6480 | 112 | .148 | | | |
| | 9680 | 146 | .392 | .54 | 820 | 467.4 (5yr FLOW) |
| | | | 1.49 | | | 1296.4 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 02/11/85

NORWOOD EAST - MASTER DRAINAGE PLAN - 02/11/85

BASIN

NORW E- 1

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------|------|----|-------|--------|
| 42.8 | | COMMERTIAL | A | 89 | 44.9 | 4174.8 |
| 36.7 | | COMMERTIAL | B | 92 | 40.2 | 3702.2 |
| 11.7 | | INTERCHANGE | A | 74 | 12.8 | 949.3 |
| 91.2 | .143 | | | | 100.0 | 8828.3 |

WEIGHTED CN = 88.3

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 400 | 12 | .032 | | | |
| STREET | 2000 | 28 | .379 | | | |
| PIPE | 100 | 10 | .035 | | | |
| | 2500 | 50 | .146 | 1.06 | 1150 | 176.0 (5yr FLOW) |
| | | | | 2.29 | | 379.1 (100yr FLOW) |

BASIN

NGRW E- 4

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-----------------|------|----|-------|--------|
| 4.5 | | COMMERTIAL | A | 89 | 21.4 | 1907.1 |
| 13.2 | | INDUSTRIAL | A | 91 | 62.9 | 5691.4 |
| 3.3 | | STREETS & WALKS | A | 98 | 15.7 | 1540.0 |
| 21.0 | .933 | | | | 100.0 | 8538.6 |

WEIGHTED CN = 85.4

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 300 | 25 | .014 | | | |
| STREET | 2160 | 34 | .171 | | | |
| | 2460 | 59 | .185 | .89 | 1090 | 31.9 (5yr FLOW) |
| | | | | 2.05 | | 73.2 (100yr FLOW) |

BASIN

NORW E- 5

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-----------------|------|----|-------|--------|
| 12.0 | | COMMERTIAL | A | 89 | 87.0 | 7739.1 |
| 1.8 | | STREETS & WALKS | A | 98 | 13.0 | 1278.3 |
| 13.8 | .022 | | | | 100.0 | 9017.4 |

WEIGHTED CN = 90.2

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 300 | 25 | .014 | | | |
| STREET | 1970 | 36 | .107 | | | |
| | 2270 | 61 | .121 | 1.19 | 1210 | 31.1 (5yr FLOW) |
| | | | | 2.46 | | 64.3 (100yr FLOW) |

BASIN

NORW E- 6

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|------------|------|----|-------|--------|
| 10.2 | | INDUSTRIAL | A | 81 | 100.0 | 8100.0 |
| 10.2 | .016 | | | | 100.0 | 8100.0 |

WEIGHTED CN = 81.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 540 | 56 | .023 | | | |
| | 540 | 56 | .023 | .67 | 1300 | 13.9 (5yr FLOW) |
| | | | | 1.71 | | 35.4 (100yr FLOW) |

BASIN

NORW E- 2

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|------------|------|----|-------|--------|
| 24.0 | | COMMERTIAL | A | 89 | 33.3 | 2966.7 |
| 24.0 | | INDUSTRIAL | A | 81 | 33.3 | 2700.0 |
| 24.0 | | P.U.D. | A | 77 | 33.3 | 2566.7 |
| 72.0 | .113 | | | | 100.0 | 8233.3 |

WEIGHTED CN = 82.3

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 480 | 6 | .061 | | | |
| STREET | 1740 | 56 | .074 | | | |
| CHANNEL | 740 | 25 | .017 | | | |
| | 2960 | 90 | .152 | .73 | 1150 | 94.6 (5yr FLOW) |
| | | | | 1.81 | | 233.9 (100yr FLOW) |

BASIN

NORW E- 3

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|------------|------|----|-------|--------|
| 48.8 | | INDUSTRIAL | A | 81 | 93.7 | 7536.9 |
| 3.3 | | COMMERTIAL | A | 89 | 6.3 | 563.7 |
| 52.1 | .091 | | | | 100.0 | 8100.7 |

WEIGHTED CN = 81.5

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 1200 | 23 | .101 | | | |
| CHANNEL | 2420 | 68 | .035 | | | |
| | 3620 | 96 | .136 | .69 | 1130 | 66.5 (5yr FLOW) |
| | | | | 1.75 | | 167.7 (100yr FLOW) |

WORWOOD EAST - MASTER DRAINAGE PLAN - 02/11/85

BASINS

WDRW E- 1,2

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------|------|----|-------|--------|
| 11.7 | | INTERCHANGE | A | 74 | 7.2 | 530.5 |
| 24.0 | | P.U.D. | A | 77 | 14.7 | 1132.4 |
| 66.8 | | COMMERTIAL | A | 89 | 40.9 | 3642.9 |
| 36.7 | | COMMERTIAL | B | 92 | 22.5 | 2068.9 |
| 24.0 | | INDUSTRIAL | A | 81 | 14.7 | 1191.2 |
| 163.2 | .255 | | | | 100.0 | 8565.9 |

WEIGHTED CN = 85.7

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 400 | 12 | .032 | | | |
| STREET | 1200 | 28 | .079 | | | |
| PIPE | 100 | 10 | .035 | | | |
| CHANNEL | 2190 | 74 | .052 | | | |
| | 3890 | 124 | .198 | .91 | 1070 | 247.2 (5yr FLOW) |
| | | | | 2.07 | | 564.8 (100yr FLOW) |

BASINS

WDRW E- 1,2,3

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------|------|----|-------|--------|
| 11.7 | | INTERCHANGE | A | 74 | 5.4 | 402.1 |
| 24.0 | | P.U.D. | A | 77 | 11.1 | 858.3 |
| 70.1 | | COMMERTIAL | A | 89 | 32.6 | 2897.8 |
| 36.7 | | COMMERTIAL | B | 92 | 17.0 | 1568.2 |
| 72.8 | | INDUSTRIAL | A | 81 | 33.8 | 2738.9 |
| 215.3 | .336 | | | | 100.0 | 8465.4 |

WEIGHTED CN = 84.7

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 400 | 12 | .032 | | | |
| STREET | 1200 | 28 | .079 | | | |
| PIPE | 100 | 10 | .035 | | | |
| CHANNEL | 5320 | 158 | .190 | | | |
| | 7020 | 208 | .246 | .85 | 990 | 283.2 (5yr FLOW) |
| | | | | 1.99 | | 662.2 (100yr FLOW) |

BASINS

WDRW E- 1,2,3,5

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------|------|----|-------|--------|
| 11.7 | | INTERCHANGE | A | 74 | 5.2 | 383.9 |
| 24.0 | | P.U.D. | A | 77 | 10.6 | 819.5 |
| 70.1 | | COMMERTIAL | A | 89 | 31.1 | 2786.7 |
| 36.7 | | COMMERTIAL | B | 92 | 16.3 | 1497.3 |
| 65.0 | | INDUSTRIAL | A | 81 | 36.8 | 2981.4 |
| 225.5 | .352 | | | | 100.0 | 8448.8 |

WEIGHTED CN = 84.5

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 400 | 12 | .032 | | | |
| STREET | 1200 | 28 | .079 | | | |
| PIPE | 100 | 10 | .035 | | | |
| CHANNEL | 6040 | 201 | .110 | | | |
| | 7740 | 251 | .256 | .84 | 980 | 290.5 (5yr FLOW) |
| | | | | 1.98 | | 682.0 (100yr FLOW) |

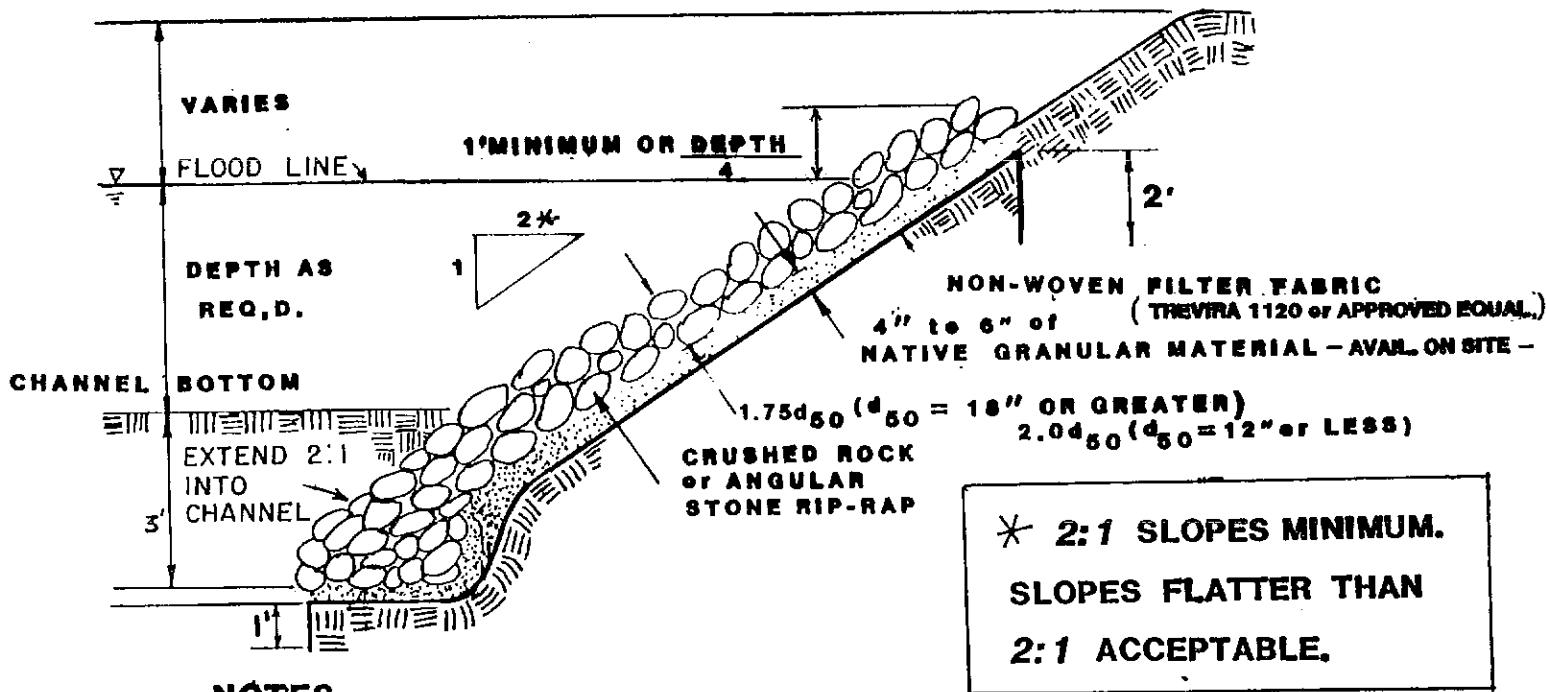
WORMWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASIN

NORM F- 1

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|------------|------|-------|--------|--------------------|
| 74.6 | | INDUSTRIAL | A | 81 | 83.3 | 6744.0 |
| 15.0 | | OPEN SPACE | A | 49 | 16.7 | 820.3 |
| 89.6 | .140 | | | 100.0 | 7564.3 | WEIGHTED CN = 75.6 |

| FLDW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 1430 | 97 | .076 | | | |
| CREEK | 2650 | 38 | .289 | | | |
| | 4080 | 135 | .365 | .45 | 850 | 54.0 (5yr FLOW) |
| | | | 1.34 | | | 157.8 (100yr FLOW) |



* 2:1 SLOPES MINIMUM.
SLOPES FLATTER THAN
2:1 ACCEPTABLE.

NOTES

1. Stone size and stone graduation shall be provided as follows:

| | % smaller than given size by weight | Intermediate Rock Dimension |
|-----------------|-------------------------------------|-----------------------------|
| | | (Inches) |
| $d_{50} = 12''$ | 70 - 100 | 21 |
| | 50 - 70 | 18 |
| | 35 - 70 | 12 |
| | 2 - 10 | 4 |
| $d_{50} = 18''$ | 100 | 30 |
| | 50 - 70 | 24 |
| | 35 - 50 | 18 |
| | 2 - 10 | 6 |
| $d_{50} = 24''$ | 100 | 42 |
| | 50 - 70 | 33 |
| | 35 - 50 | 24 |
| | 2 - 10 | 9 |

2. Use 4-6 inches of native granular material on top of geotextile material for impact protection.
3. Geotextiles shall be overlapped at least 1.0 foot longitudinally (along the channel), with the upstream fabric being placed on the downstream fabric at the lap.

FIGURE 4 - TYPICAL RIP-RAP SECTION

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASIN

NORW A-1

(Composit of BASINS Sunr C-1 thru 11 Sandown Sub.Fi.No.3)

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|---------------|------|----|-------|--------------------|
| 76.9 | | RES/CDMM/PARK | B | 85 | 100.0 | 8462.0 |
| 76.9 | .120 | | | | 100.0 | 8462.0 |
| | | | | | | WEIGHTED CN = 84.6 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 220 | 24 | .010 | | | |
| STREET | 2400 | 82 | .175 | | | |
| PIPE | 1600 | 41 | .027 | | | |
| | 4220 | 147 | .212 | .85 | 1050 | 107.0 (5yr FLOW) |
| | | | | 1.99 | | 250.5 (100yr FLOW) |

BASIN

NORW A-2

(Composit of BASINS Sunr D-1,2 Sunrise Master Drainage Study)

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|--------------|------|----|-------|--------------------|
| 77.5 | | RES/PUB/PARK | D | 86 | 100.0 | 8584.0 |
| 77.5 | .121 | | | | 100.0 | 8584.0 |
| | | | | | | WEIGHTED CN = 85.8 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 110 | 9 | .015 | | | |
| STREET | 970 | 43 | .075 | | | |
| CREEK | 3770 | 143 | .115 | | | |
| | 4850 | 195 | .208 | .92 | 1050 | 116.5 (5yr FLOW) |
| | | | | 2.09 | | 265.1 (100yr FLOW) |

BASIN

NORW A-3

(Composit of BASINS R-0 thru 11 Prossinence Sub.Fi.No.1)

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|----------------|------|----|-------|--------------------|
| 145.2 | | RES/PUB/SCHOOL | B | 84 | 100.0 | 8428.4 |
| 145.2 | .227 | | | | 100.0 | 8428.4 |
| | | | | | | WEIGHTED CN = 84.3 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 300 | 16 | .052 | | | |
| STREET | 1530 | 45 | .222 | | | |
| PIPE | 2940 | 99 | .048 | | | |
| | 4770 | 160 | .322 | .83 | 900 | 159.5 (5yr FLOW) |
| | | | | 1.96 | | 400.0 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASIN

NORW A-4

(Composit of BASINS RWWD C-1 thru 8 RANGEWOOD & DUBLIN DRAINAGE REPORT)

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-----------------|------|----|-------|--------------------|
| 34.5 | | SCHOOL/PUB/CDMM | B | 85 | 100.0 | 8512.0 |
| 34.5 | .054 | | | | 100.0 | 8512.0 |
| | | | | | | WEIGHTED CN = 85.1 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 680 | 49 | .073 | | | |
| STREET | 1080 | 23 | .054 | | | |
| PIPE | 450 | 7 | .011 | | | |
| | 2210 | 79 | .133 | .88 | 1170 | 55.2 (5yr FLOW) |
| | | | | 2.03 | | 127.8 (100yr FLOW) |

BASIN

NORW A-5

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------------------|
| 18.1 | | RESIDENTIAL 1/4Ac | B | 75 | 72.7 | 5451.8 |
| 6.8 | | RESIDENTIAL 1/4Ac | D | 85 | 27.3 | 2321.3 |
| 24.9 | .039 | | | | 100.0 | 7773.1 |
| | | | | | | WEIGHTED CN = 77.7 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| OVERLAND | 150 | 10 | .023 | | | |
| STREET | 2620 | 107 | .097 | | | |
| | 2770 | 117 | .120 | .53 | 1220 | 25.2 (5yr FLOW) |
| | | | | 1.48 | | 70.2 (100yr FLOW) |

BASIN

NORW A-6

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|-------------------|------|----|-------|--------------------|
| 10.8 | | OPEN SPACE | D | 80 | 41.7 | 3338.6 |
| 2.6 | | RESIDENTIAL 1/4Ac | D | 87 | 10.2 | 890.6 |
| 9.1 | | P.U.D. | D | 92 | 31.9 | 2933.9 |
| 4.1 | | P.U.D. | B | 85 | 16.1 | 1372.0 |
| 25.4 | .040 | | | | 100.0 | 8535.0 |
| | | | | | | WEIGHTED CN = 85.4 |

FLOW TYPE L(ft) H(ft) Tc(hrs) RUNOFF(in) qp(CSM/in) Q (cfs)

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| OVERLAND | 400 | 50 | .056 | | | |
| CREEK | 2350 | 30 | .275 | | | |
| | 2750 | 80 | .331 | .89 | 890 | 31.4 (5yr FLOW) |
| | | | | 2.94 | | 72.2 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

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BASIN

NORM A-7

| ACREAGE | SQ. FT. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|------------|------|----|-------|--------|
| 9.9 | | COMMERTIAL | D | 95 | 100.0 | 9500.0 |
| 9.9 | .015 | | | | 100.0 | 9500.0 |

WEIGHTED CN = 95.0

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| SHEET | 800 | 20 | .069 | | | |
| | 800 | 20 | .069 | 1.58 | 1300 | 31.6 (5yr FLOW) |
| | | | | 2.94 | | 58.9 (100yr FLOW) |

BASINS

NORM A- 1 ,2

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|---------------|------|----|-------|--------|
| 76.9 | | RES/CDMM/PARK | B | 85 | 49.8 | 4214.6 |
| 77.5 | | RES/PUD/PARK | D | 86 | 50.2 | 4308.7 |
| 154.4 | .241 | | | | 100.0 | 8523.2 |

WEIGHTED CN = 85.2

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 220 | 24 | .010 | | | |
| STREET | 2400 | 82 | .175 | | | |
| PIPE | 1600 | 41 | .027 | | | |
| | 4220 | 147 | .212 | .86 | 1050 | 223.4 (5yr FLOW) |
| | | | | 2.04 | | 515.6 (100yr FLOW) |

BASINS

NORM A- 1 ,2 ,3

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | Z | Z x CN |
|---------|---------|----------------|------|----|-------|--------|
| 76.9 | | RES/CDMM/PARK | B | 85 | 25.7 | 2172.0 |
| 77.5 | | RES/PUD/PARK | D | 86 | 25.9 | 2220.5 |
| 145.2 | | RES/PUD/SCHODL | E | 84 | 48.5 | 4084.5 |
| 299.6 | .468 | | | | 100.0 | 8477.3 |

WEIGHTED CN = 84.8

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 300 | 16 | .052 | | | |
| STREET | 1530 | 45 | .222 | | | |
| PIPE | 2940 | 99 | .043 | | | |
| | 4770 | 160 | .322 | .56 | 900 | 360.9 (5yr FLOW) |
| | | | | 2.00 | | 841.8 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASINS

NORW A- 1, 2, 3, 5

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|-------|--------|--------------------|
| 76.9 | | RES/COMM/PARK | B | 85 | 23.7 | 2005.3 |
| 77.5 | | RES/PUD/PARK | D | 86 | 23.9 | 2050.1 |
| 145.2 | | RES/PUD/SCHOOL | B | 84 | 44.7 | 3771.4 |
| 18.1 | | RESIDENTIAL 1/4Ac | B | 75 | 5.6 | 418.3 |
| 8.8 | | RESIDENTIAL 1/4Ac | D | 85 | 2.1 | 178.1 |
| 324.5 | .507 | | | 100.0 | 8423.2 | WEIGHTED CN = 84.2 |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 300 | 16 | .052 | | | |
| STREET | 1530 | 45 | .222 | | | |
| PIPE | 2940 | 99 | .048 | | | |
| CREEK | 905 | 11 | .033 | | | |
| | 5675 | 171 | .355 | .83 | 860 | 360.9 (5yr FLOW) |
| | | | | 1.95 | | 852.4 (100yr FLOW) |

BASINS

NORW A- 1, 2, 3, 5, 6

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|-------|--------|--------------------|
| 76.9 | | RES/COMM/PARK | B | 85 | 22.0 | 1859.5 |
| 77.5 | | RES/PUD/PARK | D | 86 | 22.1 | 1901.3 |
| 145.2 | | RES/PUD/SCHOOL | B | 84 | 41.5 | 3497.6 |
| 10.6 | | OPEN SPACE | D | 80 | 3.0 | 242.4 |
| 4.1 | | P.U.D. | B | 85 | 1.2 | 99.6 |
| 8.1 | | P.U.D. | D | 92 | 2.3 | 215.0 |
| 18.1 | | RESIDENTIAL 1/4Ac | B | 75 | 5.2 | 388.0 |
| 9.4 | | RESIDENTIAL 1/4Ac | D | 87 | 2.7 | 233.7 |
| 342.9 | .547 | | | 100.0 | 8435.2 | WEIGHTED CN = 84.4 |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 300 | 16 | .052 | | | |
| STREET | 1530 | 45 | .222 | | | |
| PIPE | 2940 | 99 | .048 | | | |
| CREEK | 2210 | 26 | .080 | | | |
| | 6980 | 186 | .402 | .83 | 810 | 369.4 (5yr FLOW) |
| | | | | 1.96 | | 869.9 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

BASINS

NORW A- 1, 2, 3, 4, 5, 6

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|-------|--------|--------------------|
| 76.9 | | RES/COMM/PARK | B | 85 | 20.0 | 1692.8 |
| 77.5 | | RES/PUD/PARK | D | 86 | 20.2 | 1738.6 |
| 145.2 | | RES/PUD/SCHOOL | B | 84 | 37.8 | 3183.7 |
| 34.5 | | SCHOOL/PUD/COMM | B | 85 | 9.0 | 764.0 |
| 10.6 | | OPEN SPACE | D | 80 | 2.6 | 220.6 |
| 4.1 | | P.U.D. | B | 85 | 1.1 | 90.7 |
| 8.1 | | P.U.D. | D | 92 | 2.1 | 192.9 |
| 18.1 | | RESIDENTIAL 1/4Ac | B | 75 | 4.7 | 353.1 |
| 9.4 | | RESIDENTIAL 1/4Ac | D | 87 | 2.4 | 212.7 |
| 384.4 | .601 | | | 100.0 | 8442.1 | WEIGHTED CN = 84.4 |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 300 | 16 | .052 | | | |
| STREET | 1530 | 45 | .222 | | | |
| PIPE | 2940 | 99 | .048 | | | |
| CREEK | 2210 | 26 | .080 | | | |
| | 6980 | 186 | .402 | .84 | 810 | 407.6 (5yr FLOW) |
| | | | | 1.97 | | 958.4 (100yr FLOW) |

BASINS

NORW A- 1, 2, 3, 4, 5, 6, 7

| ACREAGE | SQ. MI. | LAND USE | SOIL | CN | % | % x CN |
|---------|---------|-------------------|------|-------|--------|--------------------|
| 76.9 | | RES/COMM/PARK | B | 85 | 19.5 | 1650.5 |
| 77.5 | | RES/PUD/PARK | D | 86 | 19.7 | 1697.4 |
| 145.2 | | RES/PUD/SCHOOL | B | 84 | 36.8 | 3104.1 |
| 34.5 | | SCHOOL/PUD/COMM | B | 85 | 8.9 | 744.8 |
| 10.6 | | OPEN SPACE | D | 80 | 2.7 | 215.1 |
| 4.1 | | P.U.D. | B | 85 | 1.0 | 88.4 |
| 8.1 | | P.U.D. | D | 92 | 2.1 | 189.0 |
| 18.1 | | RESIDENTIAL 1/4Ac | B | 75 | 4.6 | 344.3 |
| 9.4 | | RESIDENTIAL 1/4Ac | D | 87 | 2.4 | 207.4 |
| 9.9 | | COMMERCIAL | D | 95 | 2.5 | 237.6 |
| 394.3 | .616 | | | 100.0 | 8468.6 | WEIGHTED CN = 84.7 |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| OVERLAND | 300 | 16 | .052 | | | |
| STREET | 1530 | 45 | .222 | | | |
| PIPE | 2940 | 99 | .048 | | | |
| CREEK | 2210 | 26 | .080 | | | |
| PIPE | 1060 | 18 | .021 | | | |
| | 8040 | 204 | .423 | .85 | 790 | 414.6 (5yr FLOW) |
| | | | | 1.99 | | 969.0 (100yr FLOW) |

NORWOOD EAST - MASTER DRAINAGE PLAN - 01/31/85

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BASIN

NORW B- 1

(Composit of BASIN SunrAB Sunrise Master Drainage Study)

| ACREAGE | SQ.MI. | LAND USE | SOIL | CN | Z | Z x CN |
|--------------------|--------|-------------------|------|----|-------|--------|
| 375.5 | | RES/PUD/COMM/PARK | A | 73 | 100.0 | 7307.1 |
| 375.5 | .597 | | | | 100.0 | 7307.1 |
| WEIGHTED CN = 73.1 | | | | | | |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| STREET | 2810 | 67 | .165 | | | |
| PIPE | 2820 | 48 | .061 | | | |
| CHANNEL | 440 | 6 | .007 | | | |
| | 6070 | 121 | .231 | .37 | 1010 | 218.1 (5yr FLOW) |
| | | | | 1.18 | | 701.5 (100yr FLOW) |

BASIN

NORW C- 1

| ACREAGE | SQ.MI. | LAND USE | SOIL | CN | Z | Z x CN |
|--------------------|--------|------------|------|----|-------|--------|
| 45.1 | | INDUSTRIAL | A | 81 | 100.0 | 8100.0 |
| 45.1 | .070 | | | | 100.0 | 8100.0 |
| WEIGHTED CN = 81.0 | | | | | | |

| FLOW TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|--------------------|
| SHEET | 1000 | 10 | .139 | | | |
| STREET | 1470 | 15 | .109 | | | |
| | 2470 | 25 | .248 | .67 | 990 | 46.7 (5yr FLOW) |
| | | | | 1.71 | | 119.2 (100yr FLOW) |

BASIN

NORW C- 2

| ACREAGE | SQ.MI. | LAND USE | SOIL | CN | Z | Z x CN |
|--------------------|--------|-------------------|------|----|-------|--------|
| 21.4 | | COMMERTIAL | A | 89 | 66.7 | 5933.3 |
| 10.7 | | RESIDENTIAL 1/5Ac | A | 65 | 33.3 | 2166.7 |
| 32.1 | .050 | | | | 100.0 | 8100.0 |
| WEIGHTED CN = 81.0 | | | | | | |

| FLDM TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| STREET | 2600 | 26 | .193 | | | |
| | 2600 | 26 | .193 | .67 | 1080 | 36.2 (5yr FLOW) |
| | | | | 1.71 | | 92.6 (100yr FLOW) |

BASIN

NORW C- 3

| ACREAGE | SQ.MI. | LAND USE | SOIL | CN | Z | Z x CN |
|--------------------|--------|------------|------|----|-------|--------|
| 10.7 | | INDUSTRIAL | A | 81 | 100.0 | 8100.0 |
| 10.7 | .017 | | | | 100.0 | 8100.0 |
| WEIGHTED CN = 81.0 | | | | | | |

| FLDM TYPE | L(ft) | H(ft) | Tc(hrs) | RUNOFF(in) | qp(CSM/in) | Q (cfs) |
|-----------|-------|-------|---------|------------|------------|-------------------|
| STREET | 1680 | 29 | .096 | | | |
| | 1680 | 29 | .096 | .67 | 1290 | 14.4 (5yr FLOW) |
| | | | | 1.71 | | 36.0 (100yr FLOW) |