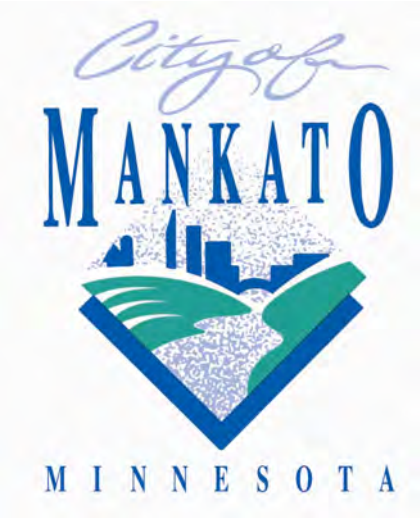
SANITARY SEWER MASTER PLAN



MARCH 2008
Project No. 06-9933

I&S GROUP
One firm - start to finish™

www.is-grp.com

MANKATO
1409 N Riverfront Dr
Mankato, MN 56001
PH: 507.387.6651
FX: 507.387.3583

FARIBAULT
1415 Town Square Ln
Faribault, MN 55021
PH: 507.331.1500
FX: 507.331.1501

ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

Sanitary Sewer Master Plan

For

City of Mankato, Minnesota

Table of Contents

I. INTRODUCTION 1

II. SUMMARY & RECOMMENDATIONS 2

III. PROJECT AREA AND SCOPE 3

IV. DATA SOURCES AND DESIGN ASSUMPTIONS 3

V. EXISTING SANITARY SEWER SYSTEM 5

Aging Pipes 6
Existing Deficiencies 6
Network Alternative Analysis 7
Capacity Analysis 8
Northeast Interceptor 8
Stoltzman Road 8
Stoltzman Road South 9
Districts 8, 18 and 20 9
Monks Avenue East 10
Lime Valley Road North 10
Bittersweet Lane 10
Thompson Ravine North 11
Thompson Ravine South 11
Southeast 12
Southwest 12
West 12
District 9 12

VI. FUTURE SANITARY SEWER DISTRICTS 13

Lime Valley Road North 14
Bittersweet Lane 14
Thompson Ravine North 15
Thompson Ravine South 15
East 15
Southeast 16
Southease (Alternative) 16
Monks Avenue East 17
Monks Avenue West 17
Monks (Alternative) 17
Stoltzman Road West 18
Stoltzman Road South 18
South Bend 18
Southwest 19

Exhibits

Exhibit 1	Existing Trunk Sanitary Sewer System
Exhibit 2	Undevelopable Areas
Exhibit 3	Existing Contour Surface
Exhibit 4	Proposed Land Use Areas
Exhibit 5	Future Trunk Sewers
Exhibit 6	Exhibit Locator
Exhibits 7-16	Existing System Upgrades
Exhibits 17-25	Future Sewersheds

Appendices

Appendix A	Pipe Aging Report
Appendix B	Pipe Upgrade Report
Appendix C	Mankato Area Zoning Map

I. INTRODUCTION

As requested by the City of Mankato, I&S Group have prepared an updated analysis of the City's trunk sanitary sewer system. This report is an update to the most recent plan, with an expanded study area, prepared by Zenk-Read-Trygstad & Associates, Inc. in 1987[1]. This report evaluates and recommends improvements to the existing system based on current and estimated flows due to city growth in phases of 20, 40 and 60 years. Additionally, the report examines future service areas and provides recommendations for trunk sewer sizing and alignment for these future growth areas. The purpose of this report is to provide the City staff with an overall master plan that can be referenced to assist in evaluating reconstruction projects, to provide guidance in the sewer sizing through developing areas, and to assist in the preparation of capital improvement plans.

The report is divided into two distinct sections. The first section (Section V) contains the analysis of ***the existing system***, both in terms of current performance and necessary improvements due to future growth. Any pipes that are currently over capacity, at a slope less than recommended, are aging, or have a history of infiltration are discussed. Recommended replacement pipe sizes are provided that take into consideration the 60 year growth. The second section (Section VI) examines ***future expansion areas***. The expansion areas are broken into individual sewer districts which are defined by geography and/or topography. The physical characteristics, future land use assumptions and anticipated future flows of each area are described and a proposed trunk sewer layout is provided.

[1] *Sanitary Sewer Master Plan for Mankato,* Zenk, Read, Trygstad, & Associates, 1987

II. SUMMARY & RECOMMENDATIONS

This report is an analysis of the City of Mankato's existing sanitary sewer system and a Master Plan for the future sanitary expansion over the next 60 years of anticipated development. The impacts of the proposed future flows are included and the recommendations are listed below. This report also provides preliminary proposed locations and sizes for trunk sewers with lift station locations and flow capacity. We recommend that this report be utilized as reconstruction projects are considered as well as when new developments are being planned. This report should be regularly updated to ensure that changes in land use and development progress are reflected in the recommendations.

III. PROJECT AREA AND SCOPE

The project area consists of the existing City limits and a significant growth area, which includes the remainder of Mankato Township and portions of South Bend, Lime, Jamestown, Decoria, and Rapidan Townships. Exhibit 5 shows a map of the study area. The total study area includes approximately 43,600 acres. Due to the large study area, it is anticipated that the development of this area will take many years. Through discussions with Community Development and Engineering staff, boundaries were added to the study area to break the analysis into 20, 40, and 60 year study periods that describe the anticipated rate of development. Exhibit 5 shows a map with the growth boundaries.

The scope of this report is to analyze all existing sanitary sewer pipes that are larger than 8-inches in diameter to determine their current available capacity as well as projected future available capacity based on the growth of the City. Additionally, future trunk sewers and lift stations have been sized based on projected growth, flow rates, and topography.

IV. DATA SOURCES AND DESIGN ASSUMPTIONS

The existing pipe network was prepared based on existing City base maps, project as-builts, and detailed pipe data provided by the City of Mankato's Public Works Department. The proposed land uses in growth areas are based on the most current City growth maps. In areas of the study that extend beyond the current planning area, the Community Development staff has assisted in assigning a land use. Several annexation agreements are in place between the City of Mankato and adjacent townships. Where

applicable, annexation dates were utilized in determining when these additional flows would be added to the system.

Assumptions that were used in preparing this report are listed below:

1. All flows (in gpd/acre) per land use are listed in Table 1.
2. All areas designated as floodway in FEMA's Flood Insurance Rate Maps, areas shown as conservation areas in the Blue Earth County Greenprint[2], and slopes greater than 15% have been removed from flow analysis. It is assumed these areas are undevelopable, and will not contribute to future flow generations.
3. As the flow from the City of North Mankato is discharged directly to the wastewater treatment plan, the flow was not included in this analysis.
4. If no pipe slope data was available, minimum grades were assumed.
5. Pipe capacities are calculated based on Manning's equation for gravity flow. For purposes of this analysis, projected flows that do not exceed 110% of the existing pipe capacity, no pipe replacement is recommended. However, as the particular sewer shed approaches full development, these points in the system should be monitored to ensure surcharging does not occur.
6. In some cases, reaches of trunk sanitary sewer projected to be under capacity in the future may contain isolated stretches of pipe that are over capacity. In these cases, the report assumes replacement of the entire reach of trunk.

[2] Blue Earth County Greenprint." Blue Earth County, Minnesota. 4 December, 2007. http://www.co.blue-earth.mn.us/greenprint/index.php3.

V. EXISTING SANITARY SEWER SYSTEM

For reference purposes, the area served by the existing sanitary sewer system is divided into a number of discrete sewer districts, which can be seen in Exhibit 1. Each district has a unique number; existing sewer district numbers were utilized where appropriate, and new names were generated where necessary.

Initially the existing sanitary sewer system was analyzed for capacity checks based on the current service area. Based on the known pipe data, including size, slope, and material, a theoretical capacity was assigned to each pipe. Utilizing a Geographic Information System (GIS), peak sewer flows were assigned to each property in the study area based on land use and property size. Peak flows were assigned based on the values in the following table:

Land Use	Peak Flow Rate
Low Density Residential	1,600 gpd/acre
Single Family Residential	2,000 gpd/acre
Saturated Single Family Residential	2,500 gpd/acre
R-2 Multi-family Residential	4,500 gpd/acre
R-3 Multi-family Residential	16,000 gpd/acre
Commercial/Light Industrial	2,000 gpd/acre
Industrial	5,000 gpd/acre
Special Industrial Discharges	As determined by existing rates

Table 1 – Flow Rate Assumptions

These flow rates were utilized in the previous sanitary sewer master plan and have been shown to be reasonable assumptions based on historical system operation. Known point flows from several large users (ADM, CHS, and AmeriPride) were added into the system. The exception to this standard is the existing flow from the City of Eagle Lake. For this

flow, the most current data from the Eagle Lake Comprehensive Plan[3] was used, which utilized a peaking factor of 3.0. Flow rates for future anticipated development were prorated. As it is expected that the City of Madison Lake will be connecting to the City of Mankato system by the end of 2008, anticipated flows were included as existing flows and future development flows were prorated from these existing flows. These flows were assigned to the pipe network and the system was analyzed for current and future capacity.

Aging Pipes

As with any city the size of Mankato, there are many older pipes within the system. As sanitary sewer pipes age, they become more prone to infiltration of clear water, offset joints, and collapse. The age of the trunk sanitary sewers has been taken into consideration in the recommendations for replacement pipes. Additionally, a report tabulating the remaining trunk sewers (greater than 8-inch diameter) by decade of installation has been included in Appendix A.

Existing Deficiencies

After computing the existing flows, it was determined that there are approximately 30 pipes that are currently over capacity and an additional three pipes that are at 90-100% of capacity. As previously mentioned, under capacity pipe reaches within a trunk were assumed to be replaced beyond the 30 pipes. Exhibits 7-16 show the locations of these pipes, and they are tabulated in Appendix B. Some of these pipes are recommended for replacement due to slopes less than the minimum allowed, age and possible infiltration and inflow. These deficiencies are discussed further in the capacity analysis section.

[3] *Comprehensive Infrastructure Planning Study*, Bolton & Menk, Inc., 2006

Network Alternative Analysis

As future growth areas are added into the City, the existing system will need to be upgraded or modified to accommodate the increase in flow. Several alternatives for handling this additional flow were considered. In broad terms, they are as follows:

1. Maintain existing trunk alignments and increase pipe size as conditions warrant.
2. Construct a perimeter gravity system to route increase in flow around the existing system.
3. Create a perimeter forcemain and gravity sewer system to route increase in flow around existing system.

After analysis, the first option was deemed most cost effective. In the investigation, it became clear that, in most cases, as major trunk lines were reaching capacity, they were also reaching the end of their life expectancy. ***The incremental cost to replace these lines with a larger diameter was less than replacing the pipes and installing a new perimeter system***. Additionally, the perimeter system would rely heavily on being able to predict the path and timing of growth. In other words, these alternatives require that the property immediately downstream of the potential development occur first in a circuitous fashion around the perimeter of the City. It is more likely that the developments will branch off from existing infrastructure in a less predictable manner. With this in mind, with a few minor exceptions, it is recommended that the existing infrastructure be upgraded to handle additional flows. The following sections discuss in detail each existing sewershed. Each section describes the existing system deficiencies and future improvements that will need to occur to meet the 20, 40, and 60-year growth expectations.

Capacity Analysis

Each of the existing sewersheds were analyzed for existing capacity and design issues, as well as for capacity concerns due to future growth. The following paragraphs consider each sewershed individually and describe the recommended improvements to be made. Exhibits 7-16 show the recommended improvements color coded by the estimated timeframe the upgrade will need to be performed.

Northeast Interceptor

The northeast interceptor trunk begins at the Wastewater Treatment Plant (WWTP) and extends northeasterly servicing the Thompson Ravine, Bittersweet Lane, Benning, Lime Valley Road North and Industrial Park West sewersheds. Approximately half of the pipes from manhole structure 4-42 to 9-1A near the WWTP are currently over capacity and should be replaced. They are 18" to 24" and 40-90 years old, with reaches from 4-43 to 4-23 and 3-60 to 3-4 not meeting the minimum slope standard for sanitary sewer. These pipes should be replaced with 30" to 42" pipes. This reach of trunk sewer was also considered over capacity in the AUAR study by I&S in 2007[4].

Stoltzman Road

Several portions of the existing trunk sewer on Stoltzman Road should be upgraded to meet current flow conditions. Pipe runs that presently should be upgraded by structure number are from 23-48 to 23-14. These pipes are approximately 20 to 45 years old and are 10" and 12" diameter. Approximately 50% of these pipes do not meet the minimum sanitary grade and may become a maintenance issue in the future. Pipes should be

[4] *Alternative Urban Areawide Review (AUAR),* I&S Engineers & Architects, Inc., 2007

upgraded from 15” to 21” diameter to meet both current and future demands. This update is in agreement with the analysis done by Zenk-Read-Trygstad in 1987. City staff has expressed some concern with this trunk line and has anticipated replacing and updating this sewer.

Stoltzman Road South

Pipe runs from 23-135 to 23-73 will all be over capacity within the anticipated 20-year development analysis. All pipe upgrades in this area will be one size larger. These pipes are approximately 30 years old, and with continued monitoring and maintenance the lifespan may be prolonged. Also, the existing lift station and 6” forcemain, near Stony Creek Road, should be monitored with additional flows.

Districts 8, 18 and 20

The trunk system serving the Monks Avenue area sewershed follows along Birchwood Street and connects into the trunk on Warren Street. The sewer on Balcerzak and Heron Drive from 20-34 to 18-17 are all currently over capacity. These pipes are 21” and 30” and should be replaced with 30” and 33” pipes. Pipes from 20-31 to 20-110 and 20-28 to 20-90 do not meet the minimum sanitary grade and may become a maintenance issue in the future. One option to consider is updating the remaining trunk line that will reach capacity within the 0-20 year analysis. The Zenk-Read-Trygstad report also mentioned updating this trunk line in their report. This analysis included the option of adding in a parallel 27” trunk sewer from 8-94 to 8-91A that would allow the flow from the Glenwood trunk to continue uninterrupted to the Broad Street trunk. All pipe network analysis assumed the 27” trunk sewer option as completed. This additional trunk sewer

reduces the need to replace additional pipes downstream and removes the inplace weir structure at structure 8-91. A pipe would also need to be constructed from manhole structure 8-91 to 9-99.

Monks Avenue East

There are multiple pipes on Heron and Balcerzak Drive that will need to be replaced within the next 20 years. This analysis is in agreement with the study by Zenk-Read-Trygstad in 1987. The calculated increase in pipe size is minimal; therefore monitor before replacement. The forcemain from the existing lift station will need to be replaced as the flow increases, as will the existing pumps. The wet well volume should be verified when the forcemain reaches capacity.

Lime Valley Road North

Adding in the future flow results in most of the existing pipes between structures 3-31 and 9-1A being over capacity. Approximately one-third of the trunk lines in this sewershed are currently over capacity, with the majority of pipes being over capacity after the 0-20 year analysis. These pipes range in age from about 25 to 70 years old. Upsizing the existing system in the 0-20 year analysis from 3-31 to 3-200 will have pipe sizes ranging from 24” to 27”. The pipe reach from structure 3-200 to 3-60 will have pipe upsizing at 36” and most of these pipes are about 35 years old.

Bittersweet Lane

Assuming a connection into structure 33-151, pipe runs from 3-207 to 3-203 are over capacity in the 0-20 year analysis. These pipes range in size from 12” to 24” and the

existing pipes are 30 years old. Connecting at 3-215 would put pipes 3-215 to 3-203 over capacity in the 0-20 year analysis. These pipes would be about 20% over capacity at that time and would need to be resized to 24” in the 40-60 year period. Pipe reach 3-200 to 3-203 will need to be upsized in the 40-60 year period from 18” and 27” to 30”. This provides a better option to prolong upsizing existing pipes that are in good working condition and is recommended in this analysis.

Thompson Ravine North

Additional future flow exceeds capacity in pipe reaches 28-139 to 28-133. The reach from 28-139 to 28-135 will be over capacity in the 40-60 year analysis. The reach 28-135 to 28-134 will be over in 20-40 year time frame, with the reach 28-134 to 28-133 over capacity in the 0-20 year analysis. As development progresses, this area should be monitored. If replacement becomes necessary, 24” pipe is the recommended size based on this analysis.

Thompson Ravine South

The pipe reach from 28-52 to 28-51 was approximately 110% over capacity in the 60-yr analysis, and was not included as a pipe replacement. Continued communication should be maintained with the Eagle Lake city staff to monitor growth and tributary flows. Pipe reaches from 28-45 to 28-44, 28-29 to 28-28 and 28-24 to 28-23 are also over capacity with the 40-60 year flows. Since the analysis found that these pipes will only need to be increased one size at full development, they were not included in the exhibit. This situation should be monitored as Eagle Lake develops to determine if upsizing is necessary.

Southeast

Due to the large area of future growth in the Southeast area, all of the trunk sewer from structure 20-349XX to 8-94 will need to be replaced during the 60 year development. Pipe increases range from 24" to 33". The future growth in the Southeast area provides the majority of the flow increase, and therefore the rate of development in this area will affect how quickly these pipes will need to be replaced. The majority of these pipes are only about 10 years old. Routing increased flows to different structures may be an option to postpone pipe upsizing.

Southwest

The majority of area in this district is undevelopable and pipe increases occur later in the anticipated development analysis. Pipe reaches from 26-88 to 26-63 will all be over capacity by the 60 year period. These pipes are about 80 years old and should be considered to be replaced per Exhibits 7 and 8.

West

Pipe reaches from 24-55 to 24-9 (Exhibit 7) will all be over capacity with the anticipated South Bend Township additional flows. About half of this reach is 80 years old and the other half is 20 years old. The majority of replacements occur in the 20-60 year timeframe.

District 9

The future development south and west of Mankato is planned to network thru District 9 and to the treatment plant. Pipe reaches from 9-30 to 9-2 need to be upsized in the next

60 years. These pipes are about 30-60 years old with the recommended pipe increase ranging from 33” to 54”. A more cost effective option may be to add a parallel trunk to split the flows. The Mulberry lift station should continue to be monitored with increased flows and verify the existing pump, capacity and forcemain will be sufficient (Exhibits 13, 14).

VI. FUTURE SANITARY SEWER DISTRICTS

Exhibit 5 shows the areas of the anticipated growth for the City of Mankato over the next 60 years. An analysis of future anticipated flows includes the cities of Eagle and Madison Lake. Portions of the study area that are designated greenprint (natural preserve), contain slopes greater than 15%, or are designated as floodways on FEMA’s Flood Insurance Rate Map are not ever anticipated to develop and thus not assigned a flow rate. Exhibit 2 shows the extent of these undevelopable areas.

As previously mentioned, this study was broken into three phases, 0-20 years, 20-40 years and 40-60 years of growth. Given an anticipated lifespan of greater than 50 years for replacement sanitary sewer, the ultimate desired capacities of these pipes were considered throughout the 60 year design period. Listed below is a summary of the computations that have been broken into sewershed areas. Exhibit 5 provides an overall map of future sewer service areas and trunk lines. Exhibits 17-25 provide details for each sewershed that show proposed land use, proposed trunk sewer system, and any required lift stations.

Lime Valley Road North

This district is northwest of Mankato and includes proposed commercial, industrial, and residential developments. It is bordered on the east by the Mankato Municipal Airport, on the north by 490th Street and on the west by the existing Industrial Park West. This sewershed includes 2,200 acres of tributary area with a projected flow of 7.55 cfs. Three lift stations have been proposed, one near 3rd Ave. North, one at the intersection of North Industrial Road and 3rd Ave. North, and the third on Hwy. 22. Based on this analysis, the three lift stations should have peak hourly pumping capacities of 2,600 gpm, 3,400 gpm and 800 gpm respectively. Proposed trunk pipe sizes in this district will range from 10" to 24".

Bittersweet Lane

This district is located north and east of the Mankato Golf Club and includes proposed office residential, residential and industrial developments. In addition, the Mankato Municipal Airport has a lift station (340 gpm) and forcemain that connects at structure 33-35. It has been proposed that the City of Madison Lake will connect into the Mankato WWTP using 10" forcemain and the additional anticipated flows have been accounted for in the analysis of this system. Additional flow (from the 40-60 year analysis) will be approximately 11.53 cfs and pipe sizes will be 10" and 24" assuming minimum grade. This analysis assumes a connection into structure 3-215. This interceptor could also connect into structure 33-35, 33-151 or 3-207, depending on the timing of development, elevation constraints and capacity of the existing system.

Thompson Ravine North

This district is located north of Hwy 14 and includes proposed residential and industrial developments. The proposed trunk will connect at along CSAH 3 near the Township road. The anticipated additional flow is 1.54 cfs and will be gravity fed with a 12" pipe. A lift station with a 6" forcemain is proposed near the CSAH 3 and Railroad crossing. This lift station should have a peak hourly pumping capacity of 350 gpm.

Thompson Ravine South

This district is bordered on the north by Hwy 14 and on the south by East Madison Ave. It is zoned for commercial, office residential and residential developments. The proposed 12" trunk extension will connect to the existing system at structure 28-54 on Madison Avenue and will add about 1.32 cfs at full development. A portion of this sewershed could also be connected to the existing trunk at 31-2XX. This sewershed also includes flows from the City of Eagle Lake connecting at 28-54. The total estimated flow at structure 28-54 will be 6.82 cfs. Due to elevation constrains, a lift station will need to be constructed with a peak hourly discharge of 500 gpm and a 6" forcemain.

East

This district is adjacent to Thompson Ravine South and is east of Hoffman Road. It includes areas of office residential, commercial and residential development. At full development approximately 1.73 cfs of additional flow will be added at the proposed connection 15-115X. The proposed trunk extension could be 12" or 15", depending on pipe grade. The additional flow does not create any over capacity issues downstream until structure 20-333, which was examined in the previous section. A portion of this

sewershed may be tied into the existing system at structure 29-31 as Bassett Drive develops.

Southeast

This district occupies a large area southeast of Mankato. The total sewershed encompasses approximately 8,600 acres. A large portion of the area is planned for greenprint and is within FEMA's floodplain. The majority of this sewershed is assumed as residential development with some commercial and public areas providing an additional flow of 12.87 cfs at full development. This proposed sewershed involves construction of three lift stations, forcemain and pipe trunks ranging from 10" to 27". The proposed lift stations along County Road 90, on Township Road 192 and on Township Road 194 should have peak hourly capacities of 1,600 gpm, 3,600 gpm and 4,600 gpm respectively. The city staff has expressed a concern to service the area of existing development along County Road 41 and an alternative solution to provide interim service is described below.

Southeast (Alternative)

The Mankato city staff would like to service the area of existing development along County Road 41, within the next 20 years. Most of the southeast sewershed is proposed to develop from 20-60 years, so a temporary sewer has been proposed in Exhibit 21A. A lift station with 500 gpm and a 6" temporary forcemain would need to be installed. The lift station should be sized appropriately to handle the full development with a flow of 3,600 gpm. If this alternative is not included, a substantial amount of large trunk sewer

would need to be installed to service this area, as well as an upgrade to the Victory Drive/Glenwood Avenue trunk sewer.

Monks Avenue East

This district is adjacent to Hwy 22 and just north of County Road 90. Potential development is assumed as predominately residential with some commercial development. A proposed 15" sewer will connect into the existing system at 20-450X and add about 3.0 cfs of additional flow at full development.

Monks Avenue West

The Monks Avenue West sewershed is a small district between Monks and Stoltzman Road and north of County Road 90. It is a proposed residential development with a proposed 12" pipe connecting in at structure 20-472X and approximately 0.92 cfs of additional flow at full development.

Monks Avenue (Alternative)

Development near Monks Avenue is most likely to branch off from existing infrastructure. Consideration should be given to routing a portion of the County Road 90 corridor north along Monks Avenue. This option was not analyzed in this report and factors to consider include: topography, existing infrastructure capacity and future development networking.

Stoltzman Road West

This district is a small residential development along Doc Jones Road. A proposed 0.1 cfs of additional flow will be added at pipe stub 27-52X. There are capacity issues downstream from this district. These concerns have been addressed in the Existing Sanitary Sewer System (Section V).

Stoltzman Road South

This district will be primarily a residential development south of Mankato along Stoltzman Road. This development will add 1.20 cfs of additional flow and it will be gravity feed to the Stony Creek lift station, and then pumped to structure 23-208. The lift station, pumps and pipe capacity should be continuously monitored with increased flows.

South Bend

South Bend Township is west of Mankato along Highway 169. There are currently annexation agreements between the city of Mankato and South Bend Township that dictate which areas will be served by the City of Mankato system. Taking that into consideration, there will be approximately 3.53 cfs of additional flow at the 60 year development, connecting at structure 24-55A. A large portion of this sewershed contains floodplain and natural preserve areas, with the remaining development divided among residential, industrial, commercial and public uses. A significant portion of this sewershed has bedrock at or near the surface. This geological feature will make it difficult and costly to construct a traditional gravity sewer system. As such, a series of lift stations and forcemains are proposed to service this area.

Southwest

This district is located in the valley along Hwy 66 and the western portion of County Road 90. A considerable amount of this sewershed is either floodplain or natural preserve area. The remaining developable areas are zoned or planned for residential and commercial areas. Proposed 15" and 18" trunks are suggested for this area with the addition of a lift station on Hwy 66 near Doc Jones Road. This lift station should have a peak hourly capacity of 1800 gpm with a 12" forcemain. An additional 3.85 cfs is anticipated at full development. Two alternatives were considered for an outlet to this area. One was a connection to structure 26-88 at the south end of Carney Avenue, the other alternative was to pump the wastewater east on Doc Jones Road into the Stoltzman system. In analyzing the downstream effects of both options, the Carney Avenue alternative was deemed to be the most cost effective. The existing sanitary sewer in Carney Avenue is over 80 years old, and will need to be replaced shortly simply due to age. When the pipes are replaced, they should be upsized to allow for the increased future flows from the southwest district.

EXHIBIT 1

EXISTING TRUNK SANITARY SEWER SYSTEM

CITY OF MANKATO
MANKATO, MINNESOTA
2008

TO AIRPORT LIFT STATION

HWY 169

HWY 14

HWY 22

HWY 14

HWY 169

HWY 22

LEGEND

- EXISTING
- FORCEMAIN
- LIFT STATION
- SEWERSHED BOUNDARY
- 8" SANITARY
- 10"&12" SANITARY
- 15"–27" SANITARY
- 30"–48" SANITARY

0 1500 3000
Scale:

N

City of MANKATO

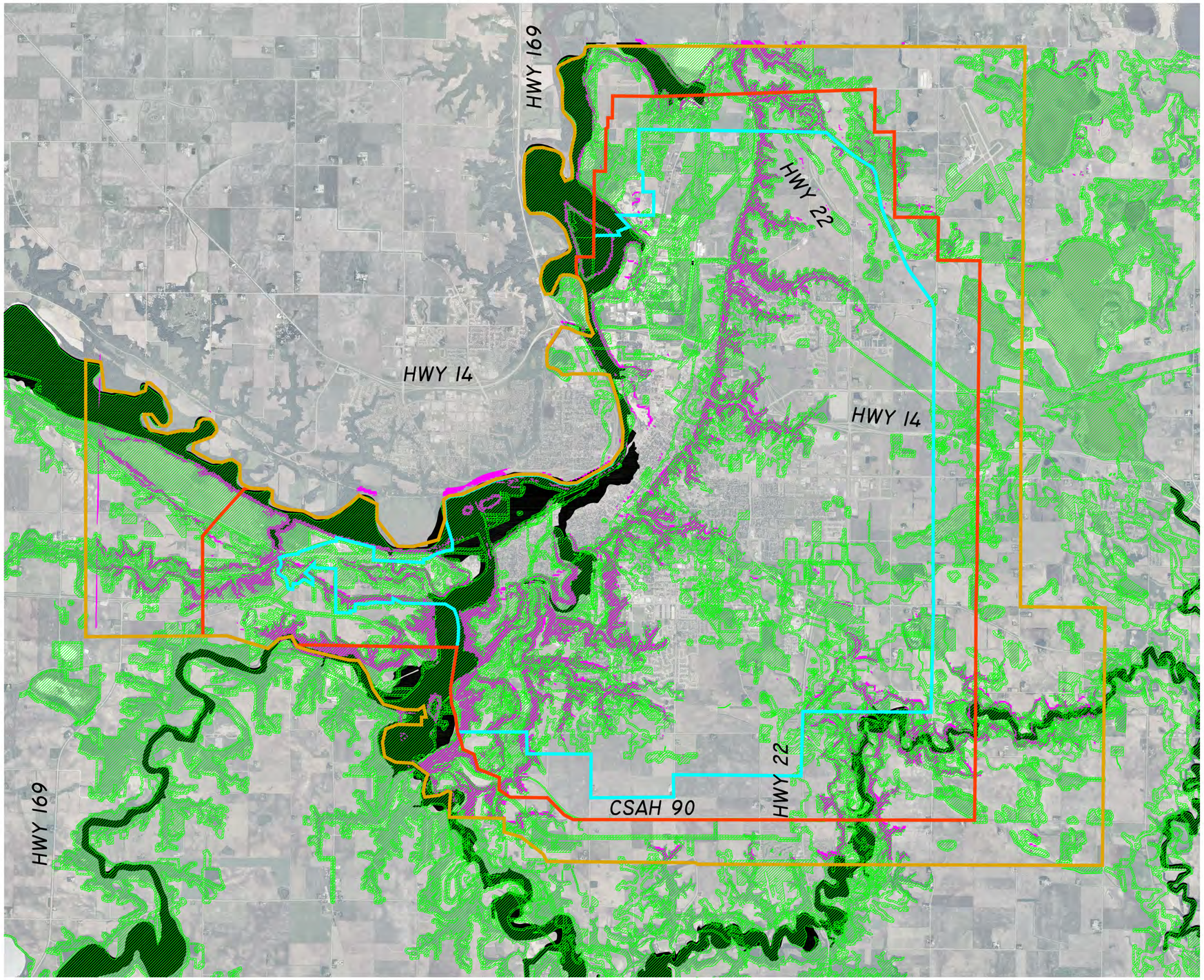
I&S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

SHEET 1 of 25 PROJECT NO. 9933

EXHIBIT 2

UNDEVELOPABLE AREAS

CITY OF MANKATO
MANKATO, MINNESOTA
2008



LEGEND

- GREENPRINT AREA
- FEMA FIRM AREA
- SLOPES > 15%
- 20 yr STUDY AREA
- 40 yr STUDY AREA
- 60 yr STUDY AREA

0 3000 6000
Scale:

N

City of MANKATO

I&S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

 PROJECT NO. 9933

EXHIBIT 3

EXISTING CONTOUR SURFACE

CITY OF MANKATO
MANKATO, MINNESOTA
2008

0 3000 6000
Scale:

N

Citizens MANKATO

I|S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 4

PROPOSED LAND USE AREAS

CITY OF MANKATO
MANKATO, MINNESOTA
2008

HWY 169
HWY 14
HWY 22
HWY 14
HWY 60
CSAH 90
HWY 22
HWY 169

LEGEND

	PROPOSED
LIGHT RESIDENTIAL	
MEDIUM RESIDENTIAL	
HEAVY RESIDENTIAL	N/A
COMMERCIAL	
PUBLIC	
PARK	
LIGHT INDUSTRIAL	
HEAVY INDUSTRIAL	N/A
OFFICE RESIDENTIAL	
MINING	
CENTRAL BUSINESS DISTRICT	N/A
20 yr STUDY AREA	
40 yr STUDY AREA	
60 yr STUDY AREA	

0 3000 6000
Scale:

N

City of MANKATO

I&S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 5

FUTURE TRUNK SEWERS

CITY OF MANKATO
MANKATO, MINNESOTA
2008

HWY 169
HWY 22
HWY 14
HWY 14
HWY 60
HWY 169
CSAH 90
HWY 22
LIME VALLEY ROAD NORTH
BITTERSWEET LANE
THOMPSON RAVINE NORTH
THOMPSON RAVINE, SOUTH
EAST
SOUTH BEND
STOLTZMAN ROAD WEST
SOUTHWEST
STOLTZMAN ROAD SOUTH
MONK'S AVE WEST
MONK'S AVE EAST
SOUTHEAST
LOW PRESSURE SEWER
INDIVIDUAL GRINDER PUMPS
8" FORCEMAIN
10" FORCEMAIN FROM MADISON LAKE
18" FORCEMAIN
6" FORCEMAIN
10" FORCEMAIN
4" FORCEMAIN
12" FORCEMAIN
15" FORCEMAIN
3-31 7.55 cfs
3-215 11.53 cfs
1.54 cfs
28-54 6.82 cfs
15-115X 1.73 cfs
20-3493X 12.87 cfs
24-35A 3.53 cfs
26-88 3.85 cfs
27-50X 0.12 cfs
20-450X 2.96 cfs
20-472X 0.92 cfs
L.S. Stony Creek 1.22 cfs

LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"-27" SANITARY	N/A
	30"-48" SANITARY	N/A
N/A	20 yr STUDY AREA	
N/A	40 yr STUDY AREA	
N/A	60 yr STUDY AREA	
N/A	SEWERSHED BOUNDARY	

0 3000 6000
Scale:

N

Citizens of MANKATO

I&S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

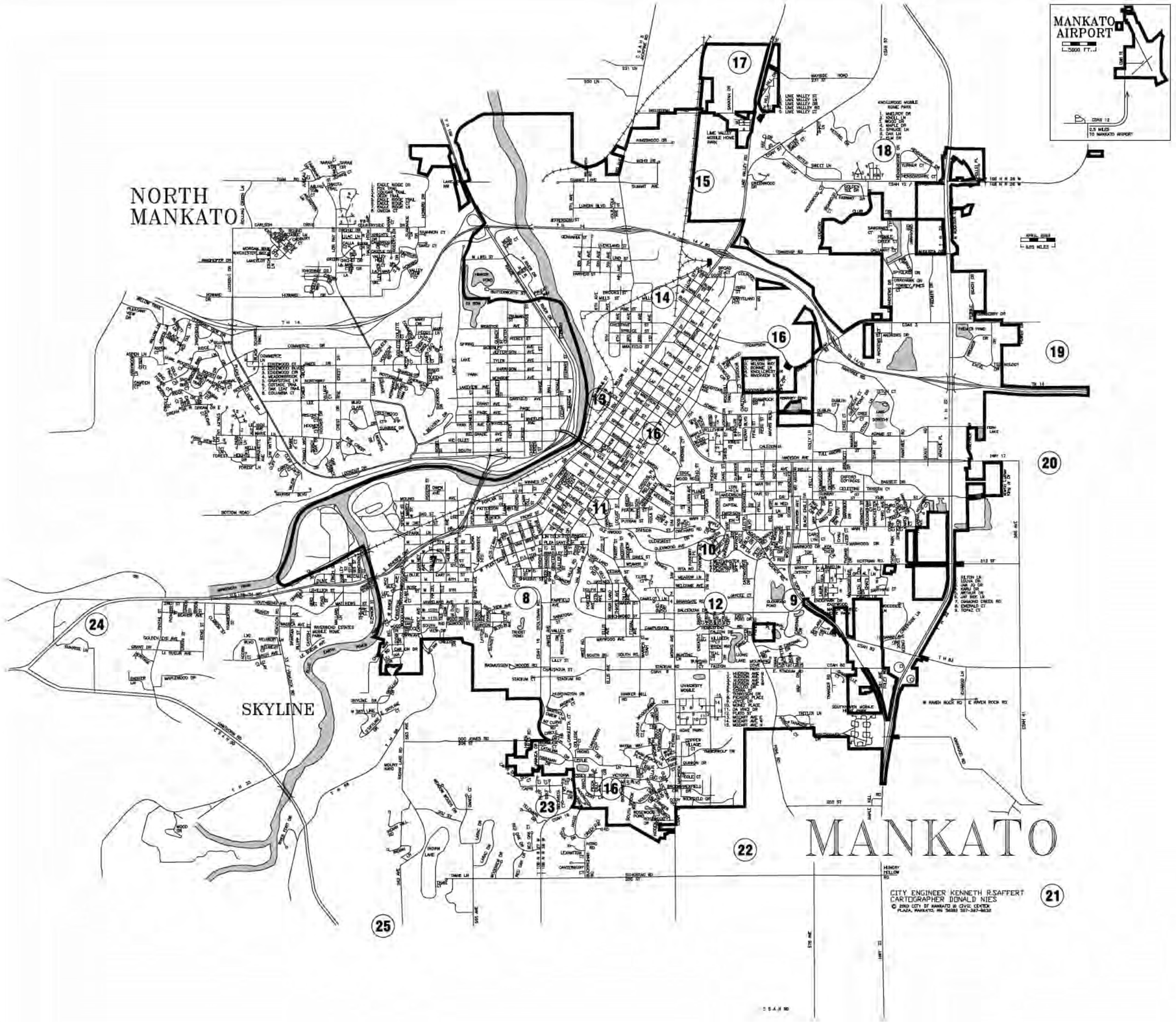


EXHIBIT 6

EXHIBIT LOCATOR

CITY OF MANKATO
MANKATO, MINNESOTA
2008

(#) INDICATES EXHIBIT LOCATION

MANKATO

I&S GROUP
One firm start to finish™
ARCHITECTS · ENGINEERS · PLANNERS · LAND SURVEYORS · SCIENTISTS

EXHIBIT 7

OVER CAPACITY PIPES

DISTRICTS 9, 24-26

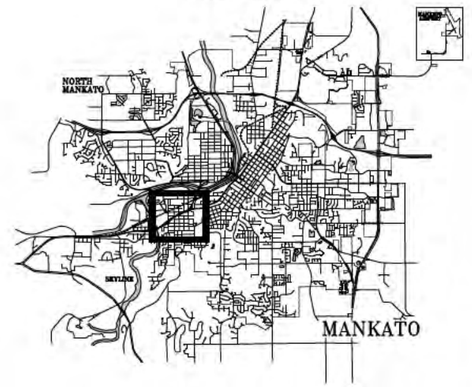
CITY OF MANKATO
MANKATO, MINNESOTA
2008

LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
	EXISTING OVER CAPACITY PIPE	N/A
N/A	0–20 YR. OVER CAPACITY PIPE	
N/A	20–40 YR. OVER CAPACITY PIPE	
N/A	40–60 YR. OVER CAPACITY PIPE	

NOTE: PROPOSED PIPE REPLACEMENTS ARE BASED ON THE 60 YR. FLOWS

KEY MAP



0 200 400
Scale:

N

SEE SHEET 8

EXHIBIT 8

OVER CAPACITY PIPES

DISTRICTS 23, 25-26

CITY OF MANKATO
MANKATO, MINNESOTA
2008

LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"-27" SANITARY	N/A
	30"-48" SANITARY	N/A
	EXISTING OVER CAPACITY PIPE	N/A
N/A	0-20 YR. OVER CAPACITY PIPE	
N/A	20-40 YR. OVER CAPACITY PIPE	
N/A	40-60 YR. OVER CAPACITY PIPE	

NOTE: PROPOSED PIPE REPLACEMENTS ARE BASED ON THE 60 YR. FLOWS

KEY MAP

0 200 400
Scale:

N

Mayor's MANKATO

I&S GROUP
One firm start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 9

OVER CAPACITY PIPES

DISTRICTS 13-15, 20

CITY OF MANKATO
MANKATO, MINNESOTA
2008

LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
	EXISTING OVER CAPACITY PIPE	N/A
N/A	0–20 YR. OVER CAPACITY PIPE	
N/A	20–40 YR. OVER CAPACITY PIPE	
N/A	40–60 YR. OVER CAPACITY PIPE	

NOTE: PROPOSED PIPE REPLACEMENTS ARE BASED ON THE 60 YR. FLOWS

KEY MAP

N

0 200 400

Scale:

City of MANKATO

I&S GROUP
One firm start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 10

OVER CAPACITY PIPES

DISTRICTS 10, 12-13, 15, 16

CITY OF MANKATO
MANKATO, MINNESOTA
2008

LEGEND

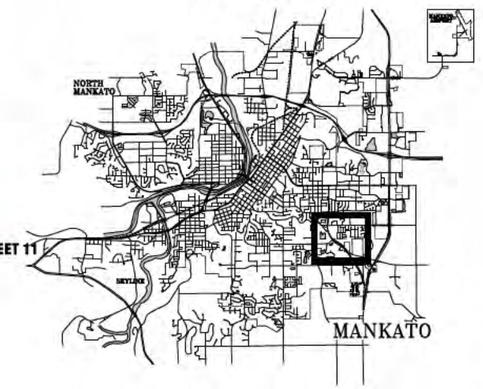
EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
	EXISTING OVER CAPACITY PIPE	N/A
N/A	0–20 YR. OVER CAPACITY PIPE	
N/A	20–40 YR. OVER CAPACITY PIPE	
N/A	40–60 YR. OVER CAPACITY PIPE	

NOTE: PROPOSED PIPE REPLACEMENTS ARE BASED ON THE 60 YR. FLOWS

SEE SHEET 9

SEE SHEET 11

KEY MAP



N

0 200 400

Scale:

EXHIBIT 11

OVER CAPACITY PIPES

DISTRICTS 8-10, 16, 21-22

CITY OF MANKATO
MANKATO, MINNESOTA
2008

LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
	EXISTING OVER CAPACITY PIPE	N/A
N/A	0–20 YR. OVER CAPACITY PIPE	
N/A	20–40 YR. OVER CAPACITY PIPE	
N/A	40–60 YR. OVER CAPACITY PIPE	

NOTE: PROPOSED PIPE REPLACEMENTS ARE BASED ON THE 60 YR. FLOWS

MULBERRY LIFT STATION 6,000 GALLONS PER MINUTE MAX.

SEE SHEET 17

NEW 27" PARALLEL SEWER

SEE SHEET 10

KEY MAP

N

0 200 400

Scale:

MANKATO

IS GROUP
One firm start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 12

OVER CAPACITY PIPES

DISTRICTS 18-20

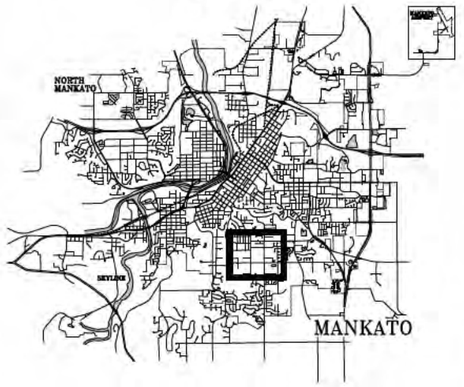
CITY OF MANKATO
MANKATO, MINNESOTA
2008

LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
	EXISTING OVER CAPACITY PIPE	N/A
N/A	0–20 YR. OVER CAPACITY PIPE	
N/A	20–40 YR. OVER CAPACITY PIPE	
N/A	40–60 YR. OVER CAPACITY PIPE	

NOTE: PROPOSED PIPE REPLACEMENTS ARE BASED ON THE 60 YR. FLOWS

KEY MAP



N

0 200 400
Scale:

MANKATO

IS GROUP
One firm start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 13

OVER CAPACITY PIPES

DISTRICTS 5-9

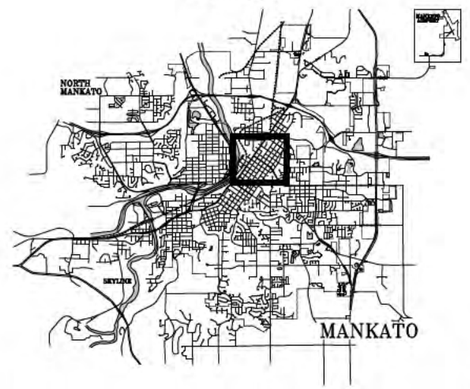
CITY OF MANKATO
MANKATO, MINNESOTA
2008

LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
	EXISTING OVER CAPACITY PIPE	N/A
N/A	0–20 YR. OVER CAPACITY PIPE	
N/A	20–40 YR. OVER CAPACITY PIPE	
N/A	40–60 YR. OVER CAPACITY PIPE	

NOTE: PROPOSED PIPE REPLACEMENTS ARE BASED ON THE 60 YR. FLOWS

KEY MAP



N

0 200 400

Scale:

City of MANKATO

I&S GROUP
One firm start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 14

OVER CAPACITY PIPES

DISTRICTS 2-5, 9

CITY OF MANKATO
MANKATO, MINNESOTA
2008

LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
	EXISTING OVER CAPACITY PIPE	N/A
N/A	0–20 YR. OVER CAPACITY PIPE	
N/A	20–40 YR. OVER CAPACITY PIPE	
N/A	40–60 YR. OVER CAPACITY PIPE	

NOTE: PROPOSED PIPE REPLACEMENTS ARE BASED ON THE 60 YR. FLOWS

KEY MAP

0 200 400
Scale:

N

SEE SHEET 15

SEE SHEET 13

CLEVELAND ST.
LIND ST.
HARPER ST
BROOKS ST
PINE ST.
MILLS ST.
CHESTNUT ST
SPRUCE ST
MAXFIELD ST
THOMPSON ST.
DUKES ST.
WEST ST.
WILLOW ST.
MABEL ST.
RIVERFRONT DR.
RUTH ST.
MAY ST.
BROAD ST.
ANN ST.
2ND AVE.
3RD AVE.
4TH AVE.
5TH AVE.
6TH AVE.
7TH AVE.
8TH AVE.
1ST AVE
2ND ST.
4TH ST
5TH ST
C. & N.W. TRANS CO.
FM '99

EXHIBIT 15

OVER CAPACITY PIPES

DISTRICT 3

CITY OF MANKATO
MANKATO, MINNESOTA
2008

LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
	EXISTING OVER CAPACITY PIPE	N/A
N/A	0–20 YR. OVER CAPACITY PIPE	
N/A	20–40 YR. OVER CAPACITY PIPE	
N/A	40–60 YR. OVER CAPACITY PIPE	

NOTE: PROPOSED PIPE REPLACEMENTS ARE BASED ON THE 60 YR. FLOWS

KINGSWOOD DR.
MOHR DR.
MOHR DR. LIFT STATION
SUMMIT AVE.
LIME VALLEY RD.
3RD AVE.
N. GERMANIA ST.
N. GERMANIA ST.
42" CASING UNDER TRACKS
SEE SHEET 14

KEY MAP

N

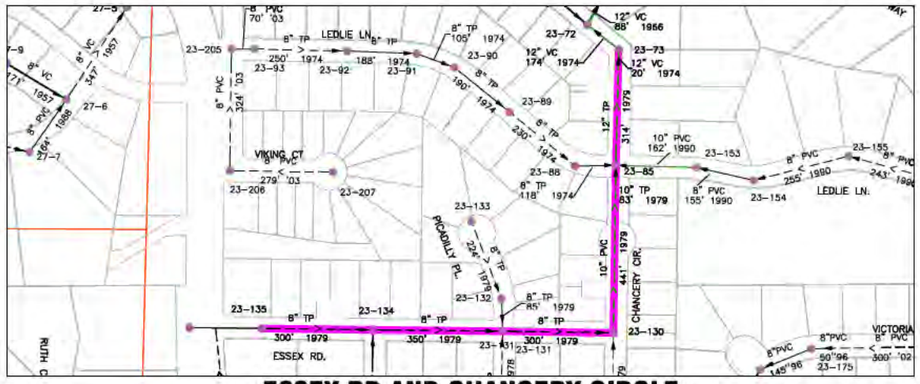
0 200 400
Scale:

EXHIBIT 16

OVER CAPACITY PIPES

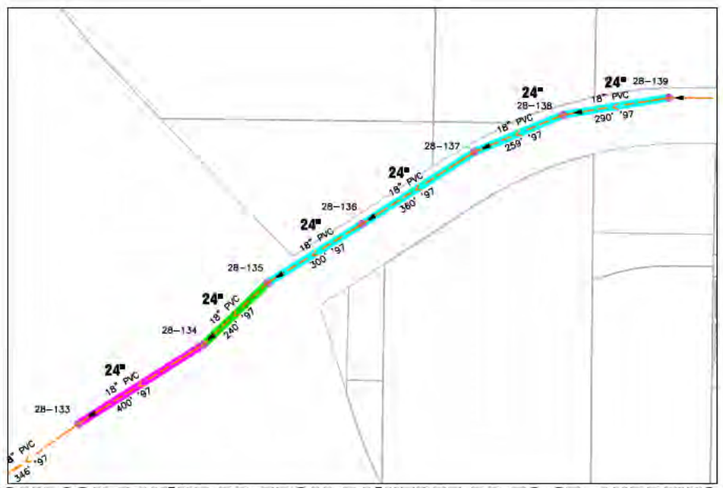
DISTRICTS 7, 20, 23, 28

CITY OF MANKATO
MANKATO, MINNESOTA
2008



ESSEX RD AND CHANCERY CIRCLE

5TH ST AND WASHINGTON ST



THOMPSON RAVINE RD FROM RAINTREE RD TO ST. ANDREWS DR

LEGEND

EXISTING		PROPOSED
——<II——	FORCEMAIN	——<II——
——<——	SANITARY SEWER	——<——
■	LIFT STATION	■
——<——	8" SANITARY	N/A
——<——	10"&12" SANITARY	N/A
——<——	15"–27" SANITARY	N/A
——<——	30"–48" SANITARY	N/A
———	EXISTING OVER CAPACITY PIPE	N/A
N/A	0–20 YR. OVER CAPACITY PIPE	———
N/A	20–40 YR. OVER CAPACITY PIPE	———
N/A	40–60 YR. OVER CAPACITY PIPE	———

NOTE: PROPOSED PIPE REPLACEMENTS ARE BASED ON THE 60 YR. FLOWS

KEY MAP

N

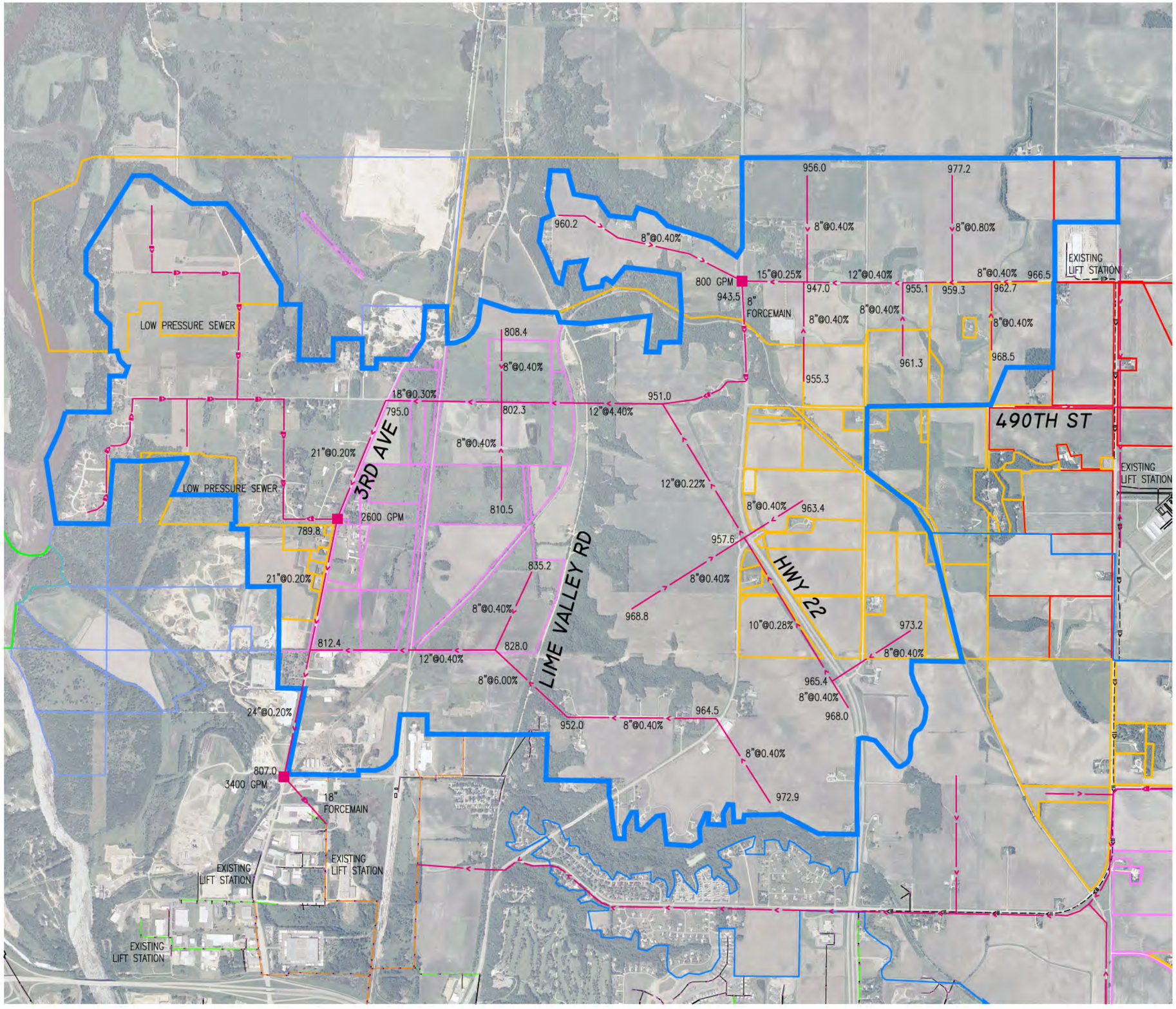
0 200 400

Scale:

EXHIBIT 17

LIME VALLEY ROAD NORTH SEWERSHED

CITY OF MANKATO
MANKATO, MINNESOTA
2008



LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
N/A	LIGHT RESIDENTIAL	
N/A	MEDIUM RESIDENTIAL	
N/A	COMMERCIAL	
N/A	PUBLIC	
N/A	PARK	
N/A	LIGHT INDUSTRIAL	
N/A	OFFICE RESIDENTIAL	
N/A	MINING	
N/A	SEWERSHED BOUNDARY	

0 1000 2000
Scale:

N

EXHIBIT 18

BITTERSWEET LANE SEWERSHED

CITY OF MANKATO
MANKATO, MINNESOTA
2008

INDIVIDUAL GRINDER PUMPS
1001.1
8"@0.40%
EXISTING LIFT STATION
998.3
10"@0.28%
999.8
8"@0.40%
490TH ST
991.0
INDIVIDUAL GRINDER PUMPS
986.3
8"@0.40%
991.9
INDIVIDUAL GRINDER PUMPS
LIME VALLEY RD
HWY 22
CSAH 12
971.9
981.1
8"@0.40%
10" FORCEMAIN FROM MADISON LAKE
975.7
8"@0.40%
822.7
24"@4.80%
938.8
24"@3.50%
887.2
960.4
969.1
24"@0.26%
24"@0.26%
CSAH 12
12"@0.22%
975.0

LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
N/A	LIGHT RESIDENTIAL	
N/A	MEDIUM RESIDENTIAL	
N/A	COMMERCIAL	
N/A	PUBLIC	
N/A	PARK	
N/A	LIGHT INDUSTRIAL	
N/A	OFFICE RESIDENTIAL	
N/A	MINING	
N/A	SEWERSHED BOUNDARY	

N

0 1000 2000
Scale:

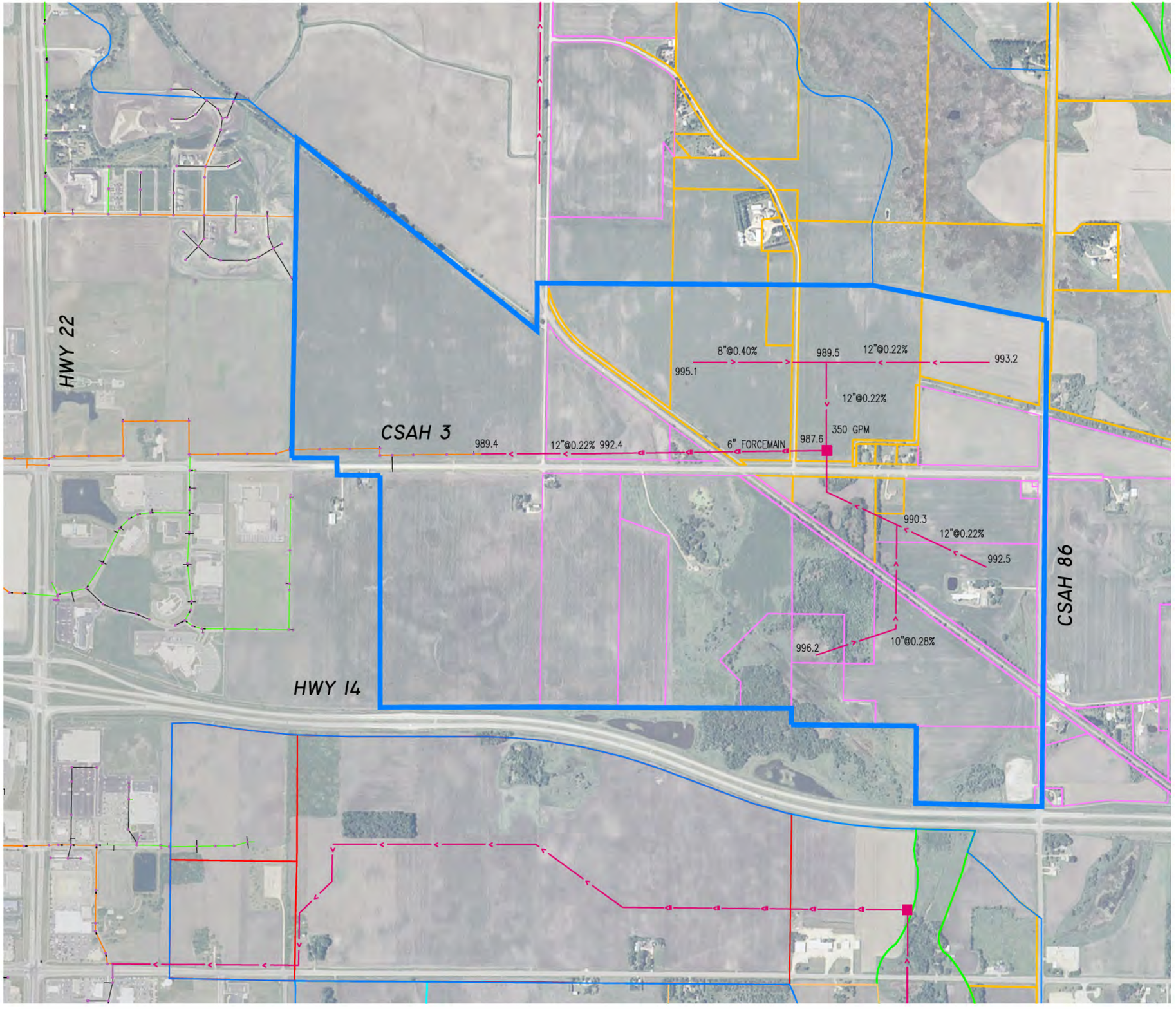
City of MANKATO

I&S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 19

THOMPSON RAVINE NORTH SEWERSHED

CITY OF MANKATO
MANKATO, MINNESOTA
2008



LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
N/A	LIGHT RESIDENTIAL	
N/A	MEDIUM RESIDENTIAL	
N/A	COMMERCIAL	
N/A	PUBLIC	
N/A	PARK	
N/A	LIGHT INDUSTRIAL	
N/A	OFFICE RESIDENTIAL	
N/A	MINING	
N/A	SEWERSHED BOUNDARY	

0 500 1000
Scale:

N

City of MANKATO

I&S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 20

THOMPSON RAVINE SOUTH & EAST SEWERSHEDS

CITY OF MANKATO
MANKATO, MINNESOTA
2008

HWY 14
MADISON AVE
THOMPSON RAVINE SOUTH SEWERSHED
EAST SEWERSHED
594TH AVE
HWY 22
12"@0.22%
1003.7
6" FORCEMAIN
988.0
500 GPM
989.1
8"@0.40%
996.9
988.6
8"@0.40%
983.8
12"@0.22%
976.8
18"@0.12%
15"@0.15%
972.5
973.8

LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
N/A	LIGHT RESIDENTIAL	
N/A	MEDIUM RESIDENTIAL	
N/A	COMMERCIAL	
N/A	PUBLIC	
N/A	PARK	
N/A	LIGHT INDUSTRIAL	
N/A	OFFICE RESIDENTIAL	
N/A	MINING	
N/A	SEWERSHED BOUNDARY	

N

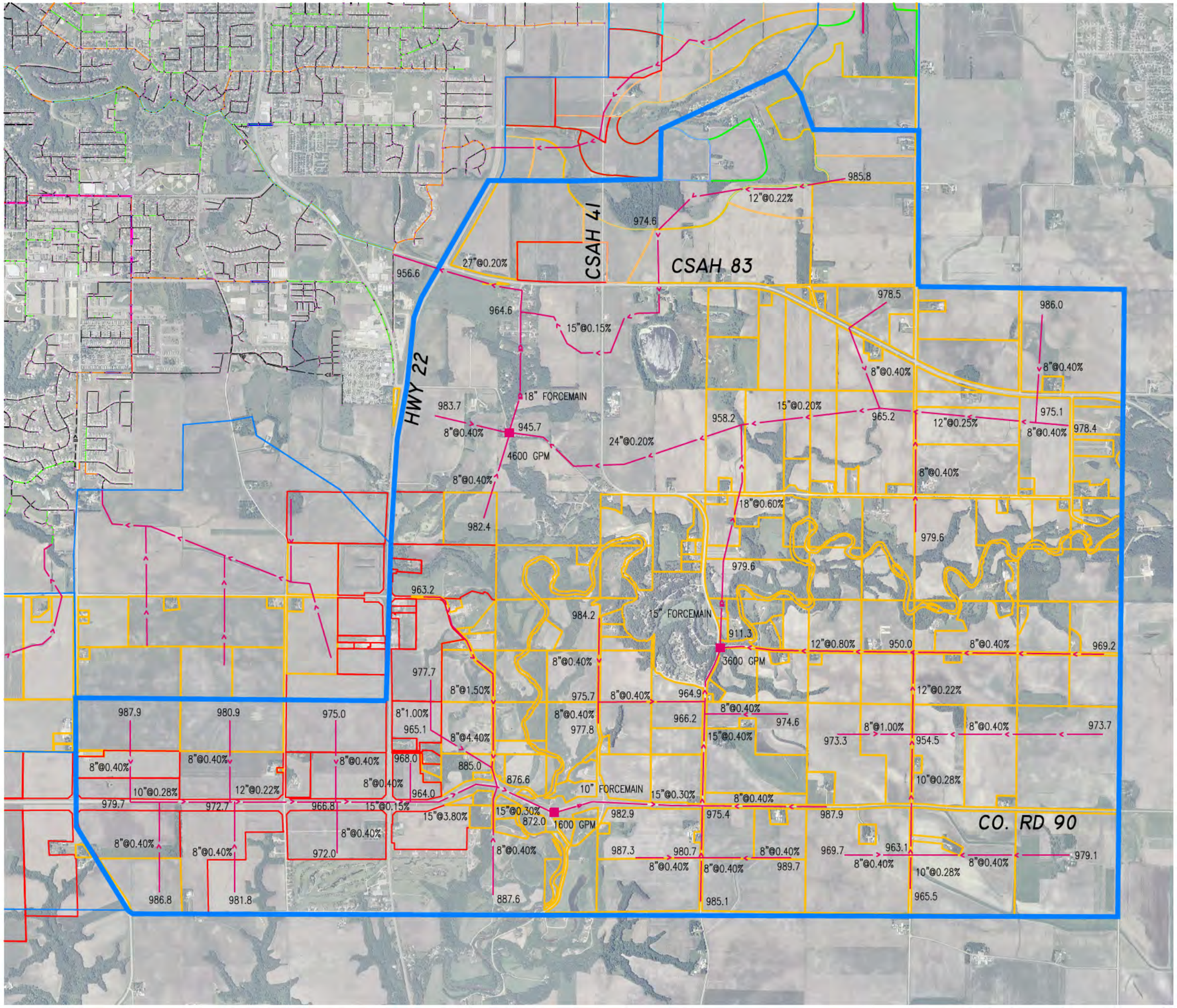
0 500 1000
Scale:

IS GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 21

SOUTHEAST SEWERSHED

CITY OF MANKATO
MANKATO, MINNESOTA
2008



LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
N/A	LIGHT RESIDENTIAL	
N/A	MEDIUM RESIDENTIAL	
N/A	COMMERCIAL	
N/A	PUBLIC	
N/A	PARK	
N/A	LIGHT INDUSTRIAL	
N/A	OFFICE RESIDENTIAL	
N/A	MINING	
N/A	SEWERSHED BOUNDARY	

0 1200 2400
Scale:

N

City of MANKATO

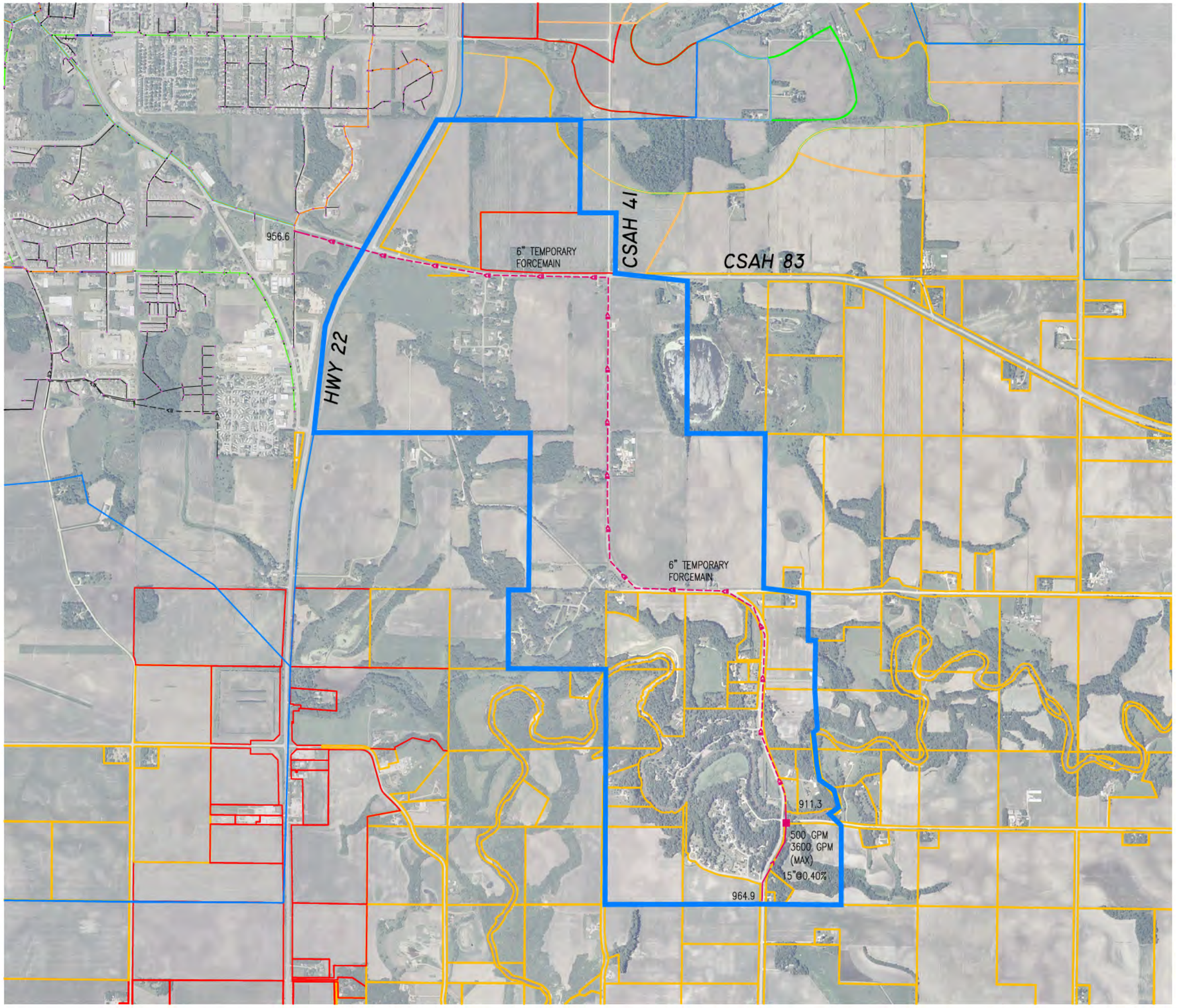
I&S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 21A

SOUTHEAST SEWERSHED

INTERIM CONDITION

CITY OF MANKATO
MANKATO, MINNESOTA
2008



LEGEND

EXISTING		PROPOSED
—— –<ll– –——	FORCEMAIN	—— <ll ——
—— – < – –——	SANITARY SEWER	—— < ——
■	LIFT STATION	■
—— – < – –——	8" SANITARY	N/A
—— – < – –——	10"&12" SANITARY	N/A
—— – < – –——	15"–27" SANITARY	N/A
—— – < – –——	30"–48" SANITARY	N/A
N/A	LIGHT RESIDENTIAL	——
N/A	MEDIUM RESIDENTIAL	——
N/A	COMMERCIAL	——
N/A	PUBLIC	——
N/A	PARK	——
N/A	LIGHT INDUSTRIAL	——
N/A	OFFICE RESIDENTIAL	——
N/A	MINING	——
N/A	SEWERSHED BOUNDARY	——

0 800 1600
Scale:

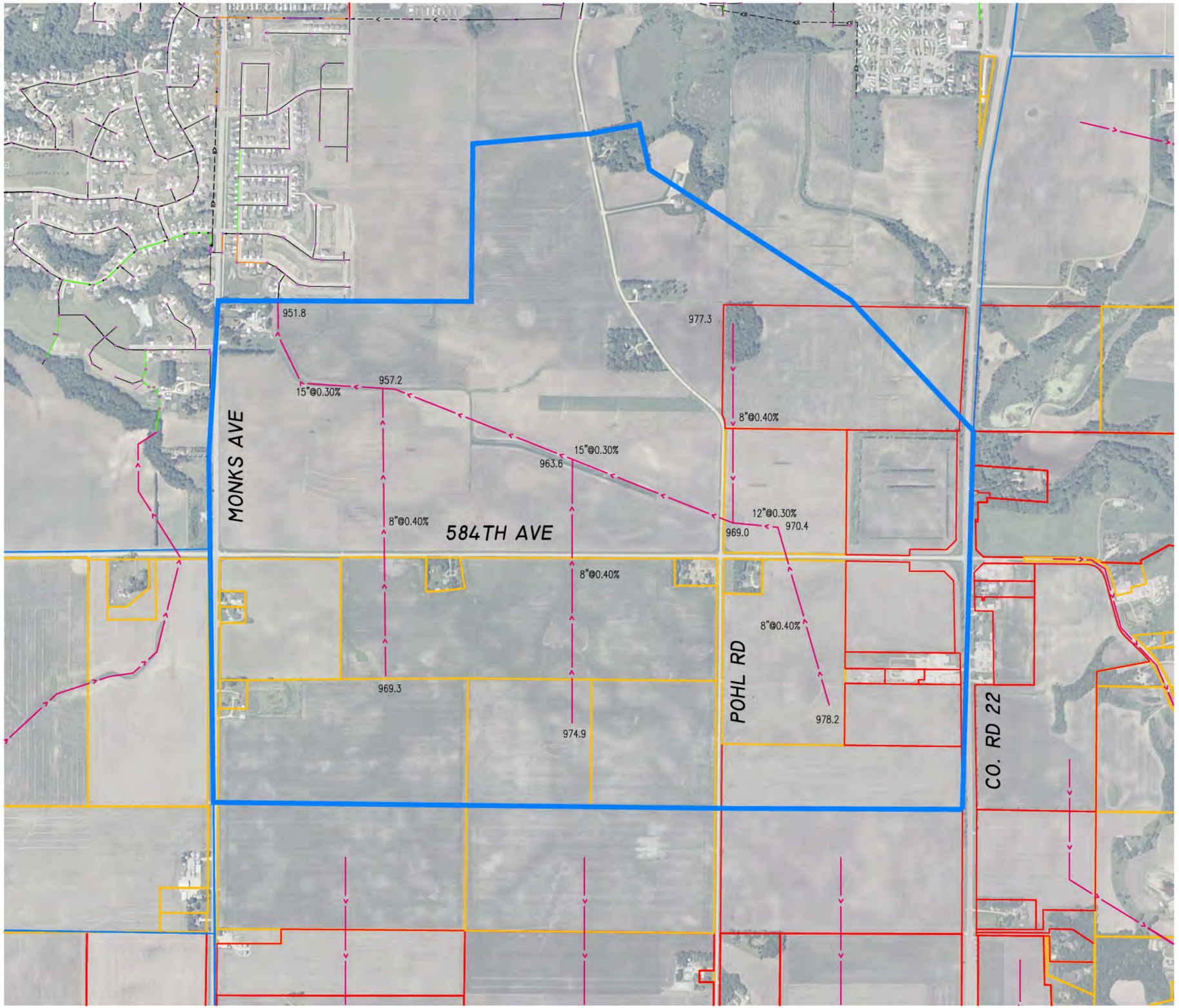
N

I&S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 22

MONKS AVE. EAST SEWERSHED

CITY OF MANKATO
MANKATO, MINNESOTA
2008



LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
N/A	LIGHT RESIDENTIAL	
N/A	MEDIUM RESIDENTIAL	
N/A	COMMERCIAL	
N/A	PUBLIC	
N/A	PARK	
N/A	LIGHT INDUSTRIAL	
N/A	OFFICE RESIDENTIAL	
N/A	MINING	
N/A	SEWERSHED BOUNDARY	

0 500 1000
Scale:

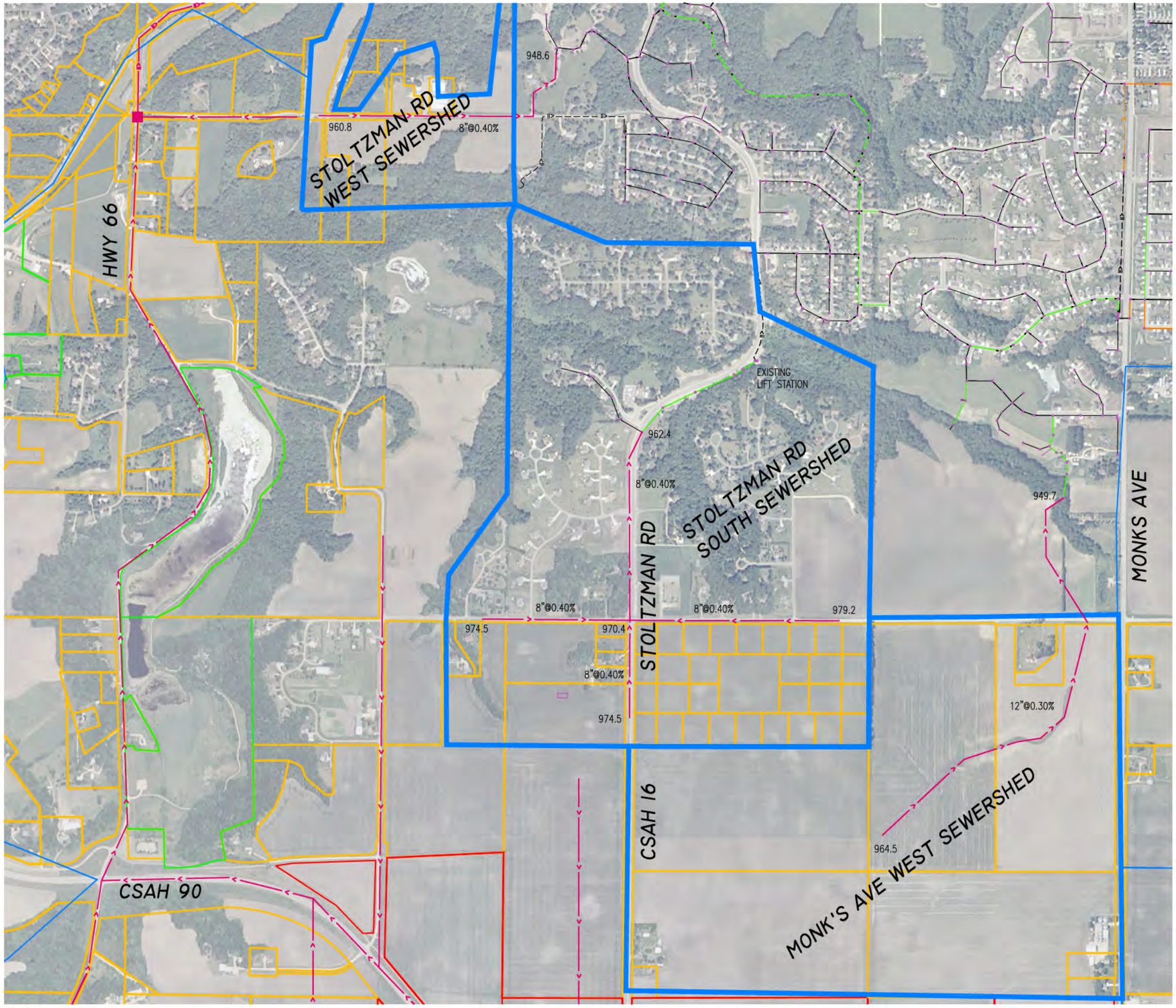
N

IS GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 23

STOLTZMAN ROAD WEST, SOUTH & MONK'S AVE WEST SEWERSHEDS

CITY OF MANKATO
MANKATO, MINNESOTA
2008



LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
N/A	LIGHT RESIDENTIAL	
N/A	MEDIUM RESIDENTIAL	
N/A	COMMERCIAL	
N/A	PUBLIC	
N/A	PARK	
N/A	LIGHT INDUSTRIAL	
N/A	OFFICE RESIDENTIAL	
N/A	MINING	
N/A	SEWERSHED BOUNDARY	

0 500 1000
Scale:

N

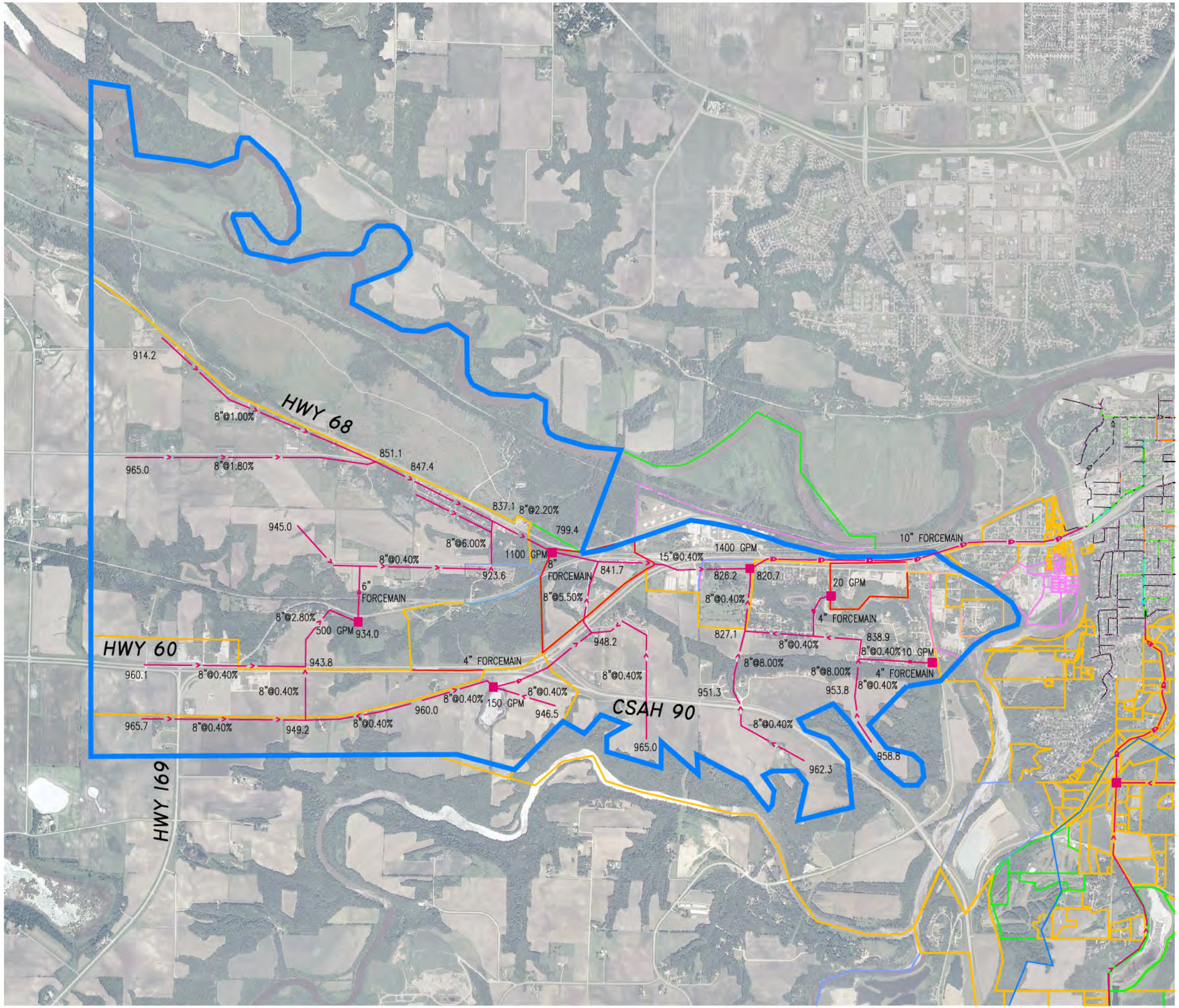
City of MANKATO

IS GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 24

SOUTH BEND SEWERSHED

CITY OF MANKATO
MANKATO, MINNESOTA
2008



LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
N/A	LIGHT RESIDENTIAL	
N/A	MEDIUM RESIDENTIAL	
N/A	COMMERCIAL	
N/A	PUBLIC	
N/A	PARK	
N/A	LIGHT INDUSTRIAL	
N/A	OFFICE RESIDENTIAL	
N/A	MINING	
N/A	SEWERSHED BOUNDARY	

0 1200 2400
Scale:

N

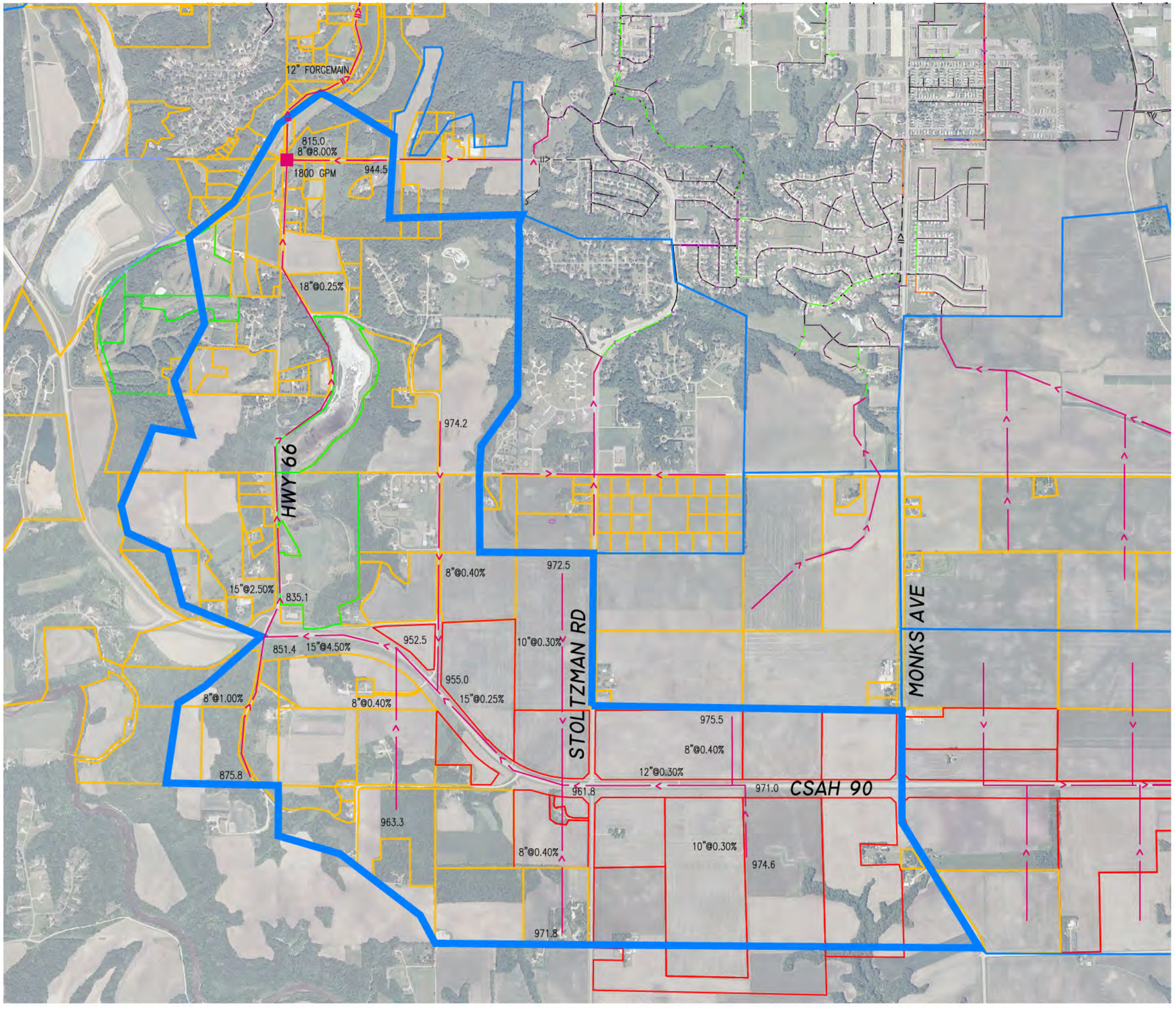
City of MANKATO

I&S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

EXHIBIT 25

SOUTHWEST SEWERSHED

CITY OF MANKATO
MANKATO, MINNESOTA
2008



LEGEND

EXISTING		PROPOSED
	FORCEMAIN	
	SANITARY SEWER	
	LIFT STATION	
	8" SANITARY	N/A
	10"&12" SANITARY	N/A
	15"–27" SANITARY	N/A
	30"–48" SANITARY	N/A
N/A	LIGHT RESIDENTIAL	
N/A	MEDIUM RESIDENTIAL	
N/A	COMMERCIAL	
N/A	PUBLIC	
N/A	PARK	
N/A	LIGHT INDUSTRIAL	
N/A	OFFICE RESIDENTIAL	
N/A	MINING	
N/A	SEWERSHED BOUNDARY	

0 1200 2400
Scale:

N

City of MANKATO

I&S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

Appendix A

Aging Report

Installation Date	Street	Pipe Diameter	Pipe Length	Upstream MH	Downstream MH	Capacity Check	20 Year Capacity	40 Year Capacity	60 Year Capacity
Decade: 1900									
1/1/1903	2ND	10	150	08-007	08-007A	OK	OK	OK	OK
1/1/1903	2ND	10	410	08-008	08-007	OK	OK	OK	OK
1/1/1903	2ND	12	260	08-007A	08-006	OK	OK	OK	OK
1/1/1903	WASHINGTON	36	440	09-120	09-134	OK	OK	OK	OK
Total Pipe Remaining from the 1900's:			1260	feet					
Decade: 1910									
1/1/1912	5TH	10	400	07-039	07-047	OK	OK	OK	OK
1/1/1912	5TH	10	524	07-048	07-039	Not OK	Not OK	Not OK	Not OK
1/1/1912	5TH	10	232	07-049	07-048	OK	OK	OK	OK
1/1/1912	5TH	10	420	07-020	07-049	OK	OK	OK	OK
1/1/1912	5TH	10	63	07-047	07-046	OK	OK	OK	OK
1/1/1912	5TH	12	409	06-010	06-006	OK	OK	OK	OK
1/1/1912	5TH	12	412	06-012	06-010	OK	OK	OK	OK
1/1/1915	BRADLEY	10	215	22-039	22-036	OK	OK	OK	OK
1/1/1915	BRADLEY	10	195	22-040	22-039	OK	OK	OK	OK
1/1/1915	RIVERFRONT	24	23	04-014	04-042	OK	OK	OK	OK
1/1/1915	RUTH	24	336	04-027	04-014	OK	OK	OK	OK
1/1/1915	RIVERFRONT	24	300	04-042	04-043	OK	OK	Not OK	Not OK
1/1/1915	RIVERFRONT	24	334	04-043	04-023	Not OK	Not OK	Not OK	Not OK
1/1/1915	RUTH	24	357	04-045	04-027	OK	OK	OK	OK
1/1/1916	ROCK	10	300	09-013	09-012	OK	OK	OK	OK
1/1/1917	SHAUBUT	10	260	23-120	23-119	OK	OK	OK	OK
1/1/1917	SHAUBUT	10	277	23-119	23-117	OK	OK	OK	OK
Total Pipe Remaining from the 1910's:			5057	feet					

Aging Report

Installation Date	Street	Pipe Diameter	Pipe Length	Upstream MH	Downstream MH	Capacity Check	20 Year Capacity	40 Year Capacity	60 Year Capacity
Decade: 1920									
1/1/1925	BELLE	12	474	11-002	11-001	OK	OK	OK	OK
1/1/1925	BELLE	12	516	11-003	11-002	OK	OK	OK	OK
1/1/1925	MADISON	12	470	11-008	11-007	OK	OK	OK	OK
1/1/1925	MADISON	12	516	11-009	11-008	OK	OK	OK	OK
1/1/1925	MAIN	15	330	12-002	12-001	Not OK	Not OK	Not OK	Not OK
1/1/1925	HINCKLEY	18	127	10-053	10-047	OK	OK	OK	OK
1/1/1925	HINCKLEY	18	209	10-055	10-053	OK	OK	OK	OK
1/1/1925	MAIN	18	90	10-056	10-055	OK	OK	OK	OK
1/1/1925	MAIN	18	417	10-057	10-056	OK	OK	OK	OK
1/1/1925	MAIN	18	300	10-057A	10-057	OK	OK	OK	OK
1/1/1925	MAIN	18	29	10-058	10-057A	OK	OK	OK	OK
1/1/1925	DANE	18	385	11-007	11-001	OK	OK	OK	OK
1/1/1926	MARSHALL	10	322	21-026	21-024	OK	OK	OK	OK
1/1/1926	HUBBELL	10	10	24-017	24-016	OK	OK	OK	OK
1/1/1926	HUBBELL	10	409	24-018	24-017	OK	OK	OK	OK
1/1/1926	CARNEY	10	490	24-029	24-027	OK	OK	OK	OK
1/1/1926	WOODLAND	10	389	24-034	24-033	OK	OK	OK	OK
1/1/1926	WOODLAND	10	596	24-039	24-031	OK	OK	OK	OK
1/1/1926	RIVERFRONT	10	458	24-052	24-045	OK	OK	OK	OK
1/1/1926	RIVERFRONT	10	370	24-056	24-031	OK	OK	OK	OK
1/1/1926	MARCY	10	625	24-074	24-075	OK	OK	OK	OK
1/1/1926	OWATONNA	10	347	24-087	24-006	OK	OK	OK	OK
1/1/1926	7TH	10	480	25-023	25-022	OK	OK	OK	OK
1/1/1926	8TH	10	470	25-041	25-040	OK	OK	OK	OK
1/1/1926	TILE	10	431	25-048	25-044	OK	OK	OK	OK
1/1/1926	8TH	10	316	26-067	26-066	OK	OK	OK	OK
1/1/1926	HAZEL	10	426	26-068	26-066	OK	OK	OK	OK

Aging Report

Installation Date	Street	Pipe Diameter	Pipe Length	Upstream MH	Downstream MH	Capacity Check	20 Year Capacity	40 Year Capacity	60 Year Capacity
1/1/1926	CARNEY	10	287	26-076	26-073	OK	OK	OK	Not OK
1/1/1926	CARNEY	10	325	26-079	26-076	OK	OK	OK	Not OK
1/1/1926	CARNEY	10	147	26-082	26-079	OK	OK	OK	Not OK
1/1/1926	CARNEY	10	158	26-083	26-082	OK	OK	OK	Not OK
1/1/1926	11TH	10	350	26-080	26-079	OK	OK	OK	OK
1/1/1926	HUBBELL	10	179	24-016	24-015	OK	OK	OK	OK
1/1/1926	8TH	10	368	26-066	26-063	OK	OK	OK	OK
1/1/1926	LINDER	12	340	23-003	23-002	Not OK	Not OK	Not OK	Not OK
1/1/1926	LINDER	12	152	23-004	23-003	Not OK	Not OK	Not OK	Not OK
1/1/1926	RIVERFRONT	12	288	23-005	23-004	Not OK	Not OK	Not OK	Not OK
1/1/1926	7TH	12	473	25-022	25-021	OK	OK	OK	OK
1/1/1926	HUBBELL	12	362	25-040	25-039	OK	OK	OK	OK
1/1/1926	8TH	12	237	25-043	25-040	OK	OK	OK	OK
1/1/1926	TILE	12	424	25-044	25-043	OK	OK	OK	OK
1/1/1926	OAK KNOLL	12	334	25-076	25-072	OK	OK	OK	OK
1/1/1926	CARNEY	12	426	26-073	26-072	OK	OK	OK	Not OK
1/1/1926	HUBBELL	15	507	24-015	24-012	OK	OK	Not OK	Not OK
1/1/1926	CARNEY	15	165	24-025	24-023	OK	OK	Not OK	Not OK
1/1/1926	CARNEY	15	368	24-027	24-025	OK	Not OK	Not OK	Not OK
1/1/1926	CARNEY	15	360	24-031	24-027	OK	Not OK	Not OK	Not OK
1/1/1926	CARNEY	15	239	24-032	24-031	OK	Not OK	Not OK	Not OK
1/1/1926	WINONA	15	80	25-020	25-019	OK	OK	OK	OK
1/1/1926	7TH	15	385	25-021	25-020	OK	OK	OK	OK
1/1/1926	CARNEY	15	368	26-063	26-002	OK	OK	OK	OK
1/1/1926	CARNEY	15	268	26-070	26-063	OK	OK	Not OK	Not OK
1/1/1926	CARNEY	15	158	26-072	26-070	OK	OK	OK	OK
1/1/1926	2ND	18	150	24-019	24-015	OK	OK	OK	OK
1/1/1926	2ND	18	347	24-020	24-019	OK	OK	OK	Not OK

Aging Report

Installation Date	Street	Pipe Diameter	Pipe Length	Upstream MH	Downstream MH	Capacity Check	20 Year Capacity	40 Year Capacity	60 Year Capacity
1/1/1926	2ND	18	29	24-021	24-020	OK	OK	OK	OK
1/1/1926	2ND	18	74	24-022	24-021	OK	OK	OK	OK
1/1/1926	2ND	18	364	24-023	24-022	OK	OK	Not OK	Not OK
1/1/1926	MOUND	18	285	24-066	24-012	OK	OK	OK	OK
1/1/1926	WINONA	21	180	25-034	25-019	OK	OK	OK	OK
1/1/1926	WINONA	21	190	25-037	25-034	OK	OK	OK	OK
1/1/1926	WINONA	21	45	25-019	25-018	OK	OK	OK	OK
1/1/1926	MOUND	24	87	24-002	24-001	OK	OK	OK	OK
1/1/1926	MOUND	24	189	24-003	24-002	OK	OK	OK	OK
1/1/1926	MOUND	24	170	24-004	24-003	OK	OK	OK	OK
1/1/1926	POPLAR	30	396	25-006	25-005	OK	OK	OK	OK
1/1/1926	RIVERFRONT	30	204	25-011	25-010A	OK	OK	OK	OK
1/1/1926	WINONA	30	63	25-015	25-011	OK	OK	OK	OK
1/1/1926	WINONA	30	450	25-016	25-015	OK	OK	OK	OK
1/1/1926	WINONA	30	300	25-017	25-016	OK	OK	OK	OK
1/1/1926	WINONA	30	296	25-018	25-017	OK	OK	OK	OK
1/1/1926	POPLAR	42	53	25-001	09-050	OK	OK	OK	OK
1/1/1927	DIVISION	10	425	10-043	10-049	OK	OK	OK	OK
1/1/1927	PLUM	10	322	10-044	10-043	OK	OK	OK	OK
1/1/1927	PLUM	10	322	10-045	10-044	OK	OK	OK	OK
1/1/1927	MULBERRY	10	329	10-050	10-049	OK	OK	OK	OK
1/1/1927	MULBERRY	10	329	10-051	10-050	OK	OK	OK	OK
1/1/1927	MORELAND	10	660	26-034	26-073	OK	OK	OK	OK
1/1/1927	PLUM	12	237	10-043	10-042	OK	OK	OK	OK
1/1/1927	MULBERRY	12	501	10-048	10-047	OK	OK	OK	OK
1/1/1927	MULBERRY	12	478	10-049	10-048	OK	OK	OK	OK
1/1/1927	MAIN	12	148	12-020	12-019	OK	OK	OK	OK
1/1/1927	MAIN	12	178	12-028	12-020	OK	OK	OK	OK

Aging Report

Installation Date	Street	Pipe Diameter	Pipe Length	Upstream MH	Downstream MH	Capacity Check	20 Year Capacity	40 Year Capacity	60 Year Capacity
1/1/1927	MAIN	12	350	12-030	12-028	OK	OK	OK	OK
1/1/1927	MAIN	15	160	12-004	12-003	OK	OK	OK	OK
1/1/1927	MAIN	15	200	12-008	12-004	OK	OK	OK	OK
1/1/1927	MAIN	15	527	12-009	12-008	OK	OK	OK	OK
1/1/1927	MAIN	15	327	12-003	12-002	OK	OK	OK	OK
1/1/1927	MAIN	18	290	10-061	10-058	OK	OK	OK	OK
1/1/1927	MAIN	18	119	10-062	10-061	OK	OK	OK	OK
1/1/1927	MARSH	21	70	10-018	10-015	OK	OK	OK	OK
Total Pipe Remaining from the 1920's:			27594	feet					

Decade: 1930

1/1/1936	MILLS	18	406	02-027	02-026	OK	OK	OK	Not OK
1/1/1936	MILLS	18	130	02-034	02-028	OK	OK	Not OK	Not OK
1/1/1936	2ND	18	233	02-040	02-035	Not OK	Not OK	Not OK	Not OK
1/1/1936	2ND	18	175	02-041	02-040	OK	OK	OK	OK
1/1/1936	3RD	18	92	02-028	02-027	OK	OK	Not OK	Not OK
1/1/1936	PINE	21	95	02-001	09-001	Not OK	Not OK	Not OK	Not OK
1/1/1936	PINE	21	182	02-002	02-001	Not OK	Not OK	Not OK	Not OK
1/1/1936	PINE	21	245	02-003	02-002	OK	Not OK	Not OK	Not OK
1/1/1936	PINE	21	188	02-004	02-003	OK	Not OK	Not OK	Not OK
1/1/1936	MILLS	21	411	02-005	02-006	OK	OK	OK	OK
1/1/1936	MILLS	21	205	02-006	02-007	OK	OK	OK	OK
1/1/1936	MILLS	21	281	02-007	02-007A	OK	OK	OK	OK
1/1/1936	PINE	21	262	09-001	09-001A	OK	OK	Not OK	Not OK
1/1/1936	PINE	21	30	09-001A	WWTP	OK	OK	OK	Not OK
1/1/1936	6TH	21	6	02-008A	02-005	OK	OK	OK	OK
1/1/1938	WILLOW	12	466	04-022	04-038	OK	OK	OK	OK
1/1/1938	MABEL	12	336	04-026	04-025	OK	OK	OK	OK

Aging Report

Installation Date	Street	Pipe Diameter	Pipe Length	Upstream MH	Downstream MH	Capacity Check	20 Year Capacity	40 Year Capacity	60 Year Capacity
1/1/1938	MABEL	12	350	04-029A	04-026	OK	OK	OK	OK
1/1/1938	MABEL	12	159	04-034	04-032A	OK	OK	OK	OK

Total Pipe Remaining from the 1930's: 4252 feet

Decade: 1940

1/1/1945	MARSH	10	474	10-027	10-023	OK	OK	OK	OK
1/1/1945	MARSH	10	495	10-029	10-028	OK	OK	OK	OK
1/1/1945	MARSH	12	516	10-028	10-027	OK	OK	OK	OK

Total Pipe Remaining from the 1940's: 1485 feet

Decade: 1950

1/1/1951	MARSH	10	312	10-021	10-020	OK	OK	OK	OK
1/1/1951	PINE	42	154	09-002	09-001A	OK	OK	OK	OK
1/1/1951	PINE	42	160	09-003	09-002	OK	Not OK	Not OK	Not OK
1/1/1951	PINE	42	306	09-004	09-003	OK	Not OK	Not OK	Not OK
1/1/1951	PINE	42	436	09-005	09-004	OK	Not OK	Not OK	Not OK
1/1/1951	PINE	42	345	09-006	09-005	OK	Not OK	Not OK	Not OK
1/1/1951	ROCK	42	305	09-007	09-006	OK	Not OK	Not OK	Not OK
1/1/1951	ROCK	42	207	09-008	09-007	OK	OK	OK	Not OK
1/1/1951	ROCK	42	427	09-010	09-009	OK	Not OK	Not OK	Not OK
1/1/1951	ROCK	42	125	09-011	09-011A	OK	OK	OK	Not OK
1/1/1951	ROCK	42	70	09-012A	09-011	OK	OK	Not OK	Not OK
1/1/1951	ROCK	42	435	09-009	09-008	OK	Not OK	Not OK	Not OK
1/1/1952	PATTERSON	10	10	21-018	21-017	OK	OK	OK	OK
1/1/1952	PATTERSON	10	300	21-020	21-019	OK	OK	OK	OK
1/1/1952	PATTERSON	10	396	21-021	21-020	OK	OK	OK	OK
1/1/1952	PATTERSON	10	130	21-019	21-018	OK	OK	OK	OK
1/1/1954	DANE	10	28	12-012	12-011	OK	OK	OK	OK

Aging Report

Installation Date	Street	Pipe Diameter	Pipe Length	Upstream MH	Downstream MH	Capacity Check	20 Year Capacity	40 Year Capacity	60 Year Capacity
1/1/1954	STATE	10	14	21-028	21-056	OK	OK	OK	OK
1/1/1954	STATE	10	396	21-052	21-049	OK	OK	OK	OK
1/1/1954	CARROLL	10	360	21-058	21-052	OK	OK	OK	OK
1/1/1954	RECORD	10	320	23-117	23-111	OK	OK	OK	OK
1/1/1954	STATE	10	356	21-027	21-026	OK	OK	OK	OK
1/1/1954	STATE	10	396	21-053	21-052	OK	OK	OK	OK
1/1/1954	WARREN	12	395	18-059	18-032	Not OK	Not OK	Not OK	Not OK
1/1/1955	3RD	10	397	02-043	02-041	OK	OK	OK	OK
1/1/1955	BELLEVIEW	12	267	11-046	11-044	OK	OK	OK	OK
1/1/1955	ADAMS	12	534	11-050	11-048	OK	OK	OK	OK
1/1/1955	LIBERTY	15	290	21-040	21-065	OK	OK	OK	OK
1/1/1956	3RD	10	222	02-044	02-043	OK	OK	OK	OK
1/1/1956	3RD	10	242	02-045	02-044	OK	OK	OK	OK
1/1/1956	3RD	10	213	02-046	02-045	OK	OK	OK	OK
1/1/1956	PLAINVIEW	10	401	14-010	14-002	OK	OK	OK	OK
1/1/1956	PLAINVIEW	10	400	14-011	14-010	OK	OK	OK	OK
1/1/1956	FAIR	10	295	14-013	14-012	OK	OK	OK	OK
1/1/1956	FAIR	10	367	14-048	14-047	OK	OK	OK	OK
1/1/1956	PLAINVIEW	10	355	14-012	14-011	OK	OK	OK	OK
1/1/1956	PLAINVIEW	10	120	14-012	14-012X	OK	Not OK	Not OK	Not OK
1/1/1956	BELMONT	15	388	13-059	13-042	OK	OK	OK	OK
1/1/1956	BELMONT	15	146	13-060	13-059	OK	OK	OK	OK
1/1/1956	GLENWOOD	18	119	13-041	13-040	OK	OK	OK	OK
1/1/1956	BELMONT	18	328	13-042	13-041	OK	OK	OK	OK
1/1/1957	FAIR	10	154	14-047	14-013	OK	OK	OK	OK
1/1/1957	SUNRAY	10	361	14-057	14-056	OK	OK	OK	OK
1/1/1957	SUNRAY	10	356	14-058	14-057	OK	OK	OK	OK
1/1/1957	SUNRAY	10	161	14-060	14-059	OK	OK	OK	OK

Aging Report

Installation Date	Street	Pipe Diameter	Pipe Length	Upstream MH	Downstream MH	Capacity Check	20 Year Capacity	40 Year Capacity	60 Year Capacity
1/1/1957	SUNRAY	10	60	14-061	14-060	OK	OK	OK	OK
1/1/1957	EMERSON	10	300	13-072	13-063	OK	OK	OK	OK
1/1/1957	SUNRAY	10	114	14-062	14-061	OK	OK	OK	OK
1/1/1957	SUNRAY	10	239	14-059	14-058	OK	OK	OK	OK
1/1/1957	HOLLY	12	50	14-055	14-047	OK	OK	OK	OK
1/1/1957	HOLLY	12	136	14-063	14-056	OK	OK	OK	OK
1/1/1957	ADAMS	12	305	11-059	11-050	OK	OK	OK	OK
1/1/1957	HOLLY	12	280	14-056	14-055	OK	OK	OK	OK
1/1/1957	GLENWOOD	24	100	08-071	08-070	OK	OK	OK	OK
1/1/1958	POHL	10	350	13-078	13-077	OK	OK	OK	OK
1/1/1958	POHL	10	175	13-079	13-078	OK	OK	OK	OK
1/1/1958	POHL	10	110	13-080	13-079	OK	OK	OK	OK
1/1/1958	POHL	12	350	13-084	13-080	OK	OK	OK	OK
1/1/1958	POHL	12	362	13-085	13-084	OK	OK	OK	OK
1/1/1958	MAIN	15	174	14-002	14-001	OK	OK	OK	OK
1/1/1958	MAIN	15	295	14-009	14-002	OK	OK	OK	OK
1/1/1958	MAIN	15	207	14-017	14-016	OK	OK	OK	OK
1/1/1958	MAIN	15	170	14-016	14-009	OK	OK	OK	OK
9/15/1958	MONKS	12	47	20-148	19-035	OK	Not OK	Not OK	Not OK
1/1/1959	PARKWAY	10	98	16-013A	16-013	OK	OK	OK	OK
1/1/1959	PARKWAY	10	200	16-014	16-013A	OK	OK	OK	OK
1/1/1959	PARKWAY	10	72	16-014A	16-014	OK	OK	OK	OK
1/1/1959	PARKWAY	10	305	16-015	16-014A	OK	OK	OK	OK
1/1/1959	RITA	10	296	16-016	16-015	OK	OK	OK	OK
1/1/1959	RITA	10	315	16-017	16-016	OK	OK	OK	OK
1/1/1959	RITA	10	160	16-021	16-020	OK	OK	OK	OK
1/1/1959	PARKWAY	10	338	16-013	16-012	OK	OK	OK	OK
1/1/1959	RITA	10	320	16-020	16-017	OK	OK	OK	OK

Aging Report

Installation Date	Street	Pipe Diameter	Pipe Length	Upstream MH	Downstream MH	Capacity Check	20 Year Capacity	40 Year Capacity	60 Year Capacity
1/1/1959	BROAD	27	421	08-085	08-084	OK	OK	OK	OK
1/1/1959	BROAD	27	410	08-087	08-086	OK	OK	OK	OK
1/1/1959	BROAD	27	410	08-088	08-087	OK	OK	OK	OK
1/1/1959	BROAD	27	337	08-090	08-088	OK	OK	OK	OK
1/1/1959	BROAD	27	13	08-091	08-091A	OK	OK	OK	OK
1/1/1959	BROAD	27	107	08-091A	08-090	OK	OK	OK	OK
1/1/1959	BROAD	27	409	08-086	08-085	OK	OK	OK	OK
1/1/1959	BROAD	30	401	08-080	08-114	OK	OK	OK	OK
1/1/1959	BROAD	30	410	08-081	08-080	OK	OK	OK	OK
1/1/1959	BROAD	30	420	08-084	08-081	OK	OK	OK	OK

Total Pipe Remaining from the 1950's: 21765 feet

Appendix B

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 02									
Street: 2ND									
02-040	02-035	18	233	1/1/1936	Not OK	Not OK	Not OK	Not OK	30
Street: 3RD									
02-028	02-027	18	92	1/1/1936	OK	OK	Not OK	Not OK	24
Street: 6TH									
02-080	02-004	21	184	1/1/1984	Not OK	Not OK	Not OK	Not OK	36
Street: MILLS									
02-011	02-008	21	420	1/1/1984	OK	Not OK	Not OK	Not OK	27
02-026	02-011	18	402	1/1/1984	OK	Not OK	Not OK	Not OK	27
02-027	02-026	18	406	1/1/1936	OK	OK	OK	Not OK	21
02-034	02-028	18	130	1/1/1936	OK	OK	Not OK	Not OK	24
02-035	02-034	18	285	1/1/1980	Not OK	Not OK	Not OK	Not OK	30
Street: PINE									
02-001	09-001	21	95	1/1/1936	Not OK	Not OK	Not OK	Not OK	33
02-002	02-001	21	182	1/1/1936	Not OK	Not OK	Not OK	Not OK	39
02-003	02-002	21	245	1/1/1936	OK	Not OK	Not OK	Not OK	30
02-004	02-003	21	188	1/1/1936	OK	Not OK	Not OK	Not OK	33

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 03									
Street: 1ST									
03-001	02-040	18	458	1/1/1967	Not OK	Not OK	Not OK	Not OK	39
03-002	03-001	18	525	1/1/1967	Not OK	Not OK	Not OK	Not OK	39
Street: INDUSTRIAL									
03-213	03-212	16	369	1/1/1978	OK	Not OK	Not OK	Not OK	24
03-214	03-213	16	405	1/1/1978	OK	Not OK	Not OK	Not OK	24
03-215	03-214	16	405	1/1/1978	OK	Not OK	Not OK	Not OK	24
Street: KINGSWOOD									
03-027	03-026	15	338	1/1/1970	OK	Not OK	Not OK	Not OK	24
03-028	03-027	15	200	1/1/1970	OK	Not OK	Not OK	Not OK	21
03-031	03-028	15	207	6/1/2006	OK	Not OK	Not OK	Not OK	24
Street: MABEL									
03-063	03-062	24	163	1/1/1967	OK	OK	Not OK	Not OK	30
03-065C	03-063	24	333	1/1/1978	OK	OK	Not OK	Not OK	30
Street: MOHR									
03-020	03-019	18	492	1/1/1970	OK	Not OK	Not OK	Not OK	27
03-021	03-020	18	480	1/1/1970	OK	Not OK	Not OK	Not OK	27
03-022	03-021	18	360	1/1/1970	OK	Not OK	Not OK	Not OK	27
03-023	03-022	18	290	1/1/1970	OK	Not OK	Not OK	Not OK	27
03-024	03-023	15	213	1/1/1970	OK	Not OK	Not OK	Not OK	21
03-025	03-024	15	332	1/1/1970	OK	Not OK	Not OK	Not OK	24
03-026	03-025	15	333	1/1/1970	OK	Not OK	Not OK	Not OK	24

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Street: TRUNK HWY #14									
03-006	03-005	18	100	1/1/1967	OK	Not OK	Not OK	Not OK	30
03-007	03-006	18	340	1/1/1970	OK	Not OK	Not OK	Not OK	30
03-008	03-007	18	499	1/1/1970	OK	Not OK	Not OK	Not OK	33
03-013	03-008	18	197	1/1/1970	OK	Not OK	Not OK	Not OK	27
03-014	03-013	18	330	1/1/1970	OK	Not OK	Not OK	Not OK	33
03-015	03-014	18	276	1/1/1970	OK	Not OK	Not OK	Not OK	33
03-016	03-015	18	263	1/1/1970	OK	Not OK	Not OK	Not OK	30
03-018	03-017	18	350	1/1/1970	OK	Not OK	Not OK	Not OK	27
03-019	03-018	18	400	1/1/1970	OK	Not OK	Not OK	Not OK	27
03-200	03-016	18	180	1/1/1970	OK	Not OK	Not OK	Not OK	30
03-201	03-200	27	230	1/1/1970	OK	OK	OK	Not OK	30
03-202	03-201	27	354	1/1/1978	OK	OK	OK	Not OK	30
03-203	03-202	27	395	1/1/1978	OK	OK	OK	Not OK	30
03-210	03-203	18	248	1/1/1978	OK	Not OK	Not OK	Not OK	27
03-211	03-210	16	369	1/1/1978	OK	Not OK	Not OK	Not OK	24
03-212	03-211	16	369	1/1/1978	OK	Not OK	Not OK	Not OK	24
Street: WEST									
03-004	03-002	18	311	1/1/1967	Not OK	Not OK	Not OK	Not OK	39
03-060	03-004	18	318	1/1/1967	Not OK	Not OK	Not OK	Not OK	52
03-061	03-060	24	141	1/1/1967	OK	OK	Not OK	Not OK	30
03-062	03-061	24	126	1/1/1967	OK	OK	Not OK	Not OK	30

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 04									
Street: MABEL									
04-023	03-065C	24	388	1/1/1978	OK	OK	OK	Not OK	27
Street: RIVERFRONT									
04-042	04-043	24	300	1/1/1915	OK	OK	Not OK	Not OK	30
04-043	04-023	24	334	1/1/1915	Not OK	Not OK	Not OK	Not OK	39

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 07									
Street: 5TH									
07-048	07-039	10	524	1/1/1912	Not OK	Not OK	Not OK	Not OK	12

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 08									
Street: GLENWOOD									
08-068	08-067	18	144	1/1/1974	OK	OK	OK	Not OK	21
08-069	08-068	18	209	1/1/1974	OK	Not OK	Not OK	Not OK	27
08-072	08-071	18	145	1/1/1995	OK	OK	Not OK	Not OK	24
08-073	08-072	18	250	1/1/1995	OK	OK	OK	Not OK	24
Street: WARREN									
08-061	08-093	18	404	1/1/1974	OK	Not OK	Not OK	Not OK	21
Street: WASHINGTON									
08-002	08-003	36	63	1/1/1986	OK	Not OK	Not OK	Not OK	48
08-003	08-003A	36	342	1/1/1986	OK	OK	OK	Not OK	48

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 09									
Street: ELM									
09-138	09-139	42	282	1/1/1971	OK	Not OK	Not OK	Not OK	52
09-139	09-140	42	102	1/1/1971	OK	Not OK	Not OK	Not OK	52
Street: MAPLE									
09-140	09-012A	42	339	1/1/1971	OK	Not OK	Not OK	Not OK	52
Street: PINE									
09-001	09-001A	21	262	1/1/1936	OK	OK	Not OK	Not OK	27
09-001A	WWTP	21	30	1/1/1936	OK	OK	OK	Not OK	24
09-003	09-002	42	160	1/1/1951	OK	Not OK	Not OK	Not OK	52
09-004	09-003	42	306	1/1/1951	OK	Not OK	Not OK	Not OK	52
09-005	09-004	42	436	1/1/1951	OK	Not OK	Not OK	Not OK	52
09-006	09-005	42	345	1/1/1951	OK	Not OK	Not OK	Not OK	52
Street: RIVERFRONT									
09-038	09-037	42	273	1/1/1971	Not OK	Not OK	Not OK	Not OK	60
09-039	09-038	42	410	1/1/1971	Not OK	Not OK	Not OK	Not OK	62
Street: ROCK									
09-007	09-006	42	305	1/1/1951	OK	Not OK	Not OK	Not OK	52
09-008	09-007	42	207	1/1/1951	OK	OK	OK	Not OK	48
09-009	09-008	42	435	1/1/1951	OK	Not OK	Not OK	Not OK	52
09-010	09-009	42	427	1/1/1951	OK	Not OK	Not OK	Not OK	52
09-011	09-011A	42	125	1/1/1951	OK	OK	OK	Not OK	48
09-011A	09-010	42	45	1/1/1982	OK	OK	OK	Not OK	48

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
09-012A	09-011	42	70	1/1/1951	OK	OK	Not OK	Not OK	48
Street: WASHINGTON									
09-051	09-120	36	16	1/1/1971	OK	OK	OK	Not OK	39
Street: WILLOW									
09-026	09-132	27	140	1/1/1971	OK	Not OK	Not OK	Not OK	33
09-027	09-026	27	89	1/1/1971	OK	Not OK	Not OK	Not OK	33
09-028	09-027	27	75	1/1/1971	Not OK	Not OK	Not OK	Not OK	33
09-029	09-028	27	77	1/1/1971	Not OK	Not OK	Not OK	Not OK	33
09-030	09-029	27	180	1/1/1971	OK	Not OK	Not OK	Not OK	33
09-132	09-133	27	110	1/1/1971	OK	Not OK	Not OK	Not OK	33
09-135	09-136	42	400	1/1/1971	OK	Not OK	Not OK	Not OK	52
09-136	09-137	42	322	1/1/1971	OK	Not OK	Not OK	Not OK	52
09-137	09-138	42	42	1/1/1971	OK	OK	OK	Not OK	48

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 13									
Street: GLENWOOD									
13-001	16-010	18	165	1/1/1995	OK	OK	Not OK	Not OK	24
13-002	13-001	18	120	1/1/1995	OK	OK	Not OK	Not OK	24
13-003	13-002	18	256	1/1/1995	OK	OK	Not OK	Not OK	24
13-015	13-004	18	174	1/1/1995	OK	OK	OK	Not OK	24
13-016	13-015	18	185	1/1/1995	OK	OK	OK	Not OK	24
13-017	13-016	18	165	1/1/1995	OK	OK	Not OK	Not OK	24
13-018	13-017	18	183	1/1/1995	OK	OK	OK	Not OK	21
13-019	13-018	18	297	1/1/1995	OK	OK	OK	Not OK	21
13-022	13-019	18	142	1/1/1995	OK	OK	Not OK	Not OK	27
13-023	13-022	18	236	1/1/1995	OK	OK	OK	Not OK	24
13-024	13-023	18	232	1/1/1995	OK	OK	OK	Not OK	24
13-037	13-024	24	379	1/1/1995	OK	OK	OK	Not OK	27
13-039	13-037	24	400	1/1/1995	OK	OK	Not OK	Not OK	33

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 15									
Street: AGENCY									
15-001	13-039	24	197	1/1/1995	OK	OK	OK	Not OK	33
15-011	15-001	24	255	1/1/1995	OK	OK	OK	Not OK	33
Street: HOFFMAN									
15-013	15-012	10	260	1/1/1965	Not OK	Not OK	Not OK	Not OK	12
15-014	15-013	10	352	1/1/1965	Not OK	Not OK	Not OK	Not OK	12

Pipe Upgrade Report

Sewer District 16

Street: GLENWOOD

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
16-001	08-073	18	215	1/1/1995	OK	OK	Not OK	Not OK	24
16-002	16-001	18	213	1/1/1995	OK	OK	OK	Not OK	21
16-003	16-002	18	250	1/1/1995	OK	OK	OK	Not OK	24
16-004	16-003	18	474	1/1/1995	OK	OK	OK	Not OK	21
16-007	16-006	18	494	1/1/1995	OK	OK	Not OK	Not OK	24
16-008	16-007	18	500	1/1/1995	OK	OK	OK	Not OK	24
16-009	16-008	18	311	1/1/1995	OK	OK	OK	Not OK	21
16-010	16-009	18	325	1/1/1995	OK	OK	OK	Not OK	21

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 18									
Street: BIRCHWOOD									
18-019	18-018	30	242	1/1/1970	OK	Not OK	Not OK	Not OK	33
18-020	18-019	30	348	1/1/1970	OK	Not OK	Not OK	Not OK	33
18-022	18-021	30	160	1/1/1970	OK	Not OK	Not OK	Not OK	33
18-023	18-022	30	253	1/1/1970	OK	Not OK	Not OK	Not OK	33
18-024	18-023	30	268	1/1/1970	OK	Not OK	Not OK	Not OK	33
Street: ELLIS									
18-018	18-017	21	73	1/1/1970	Not OK	Not OK	Not OK	Not OK	30
Street: HIGHLAND									
18-006	18-005	18	45	1/1/1963	OK	Not OK	Not OK	Not OK	21
Street: WARREN									
18-025	18-024	30	200	1/1/1970	OK	Not OK	Not OK	Not OK	33

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 19									
Street: ELLIS									
19-009	19-008	12	190	1/1/1965	Not OK	Not OK	Not OK	Not OK	15
19-010	19-009	12	196	1/1/1965	Not OK	Not OK	Not OK	Not OK	15
Street: SOUTH									
19-018	19-017	12	285	1/1/1965	Not OK	Not OK	Not OK	Not OK	15

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 20									
Street: BALCERZAK									
20-002	20-001	30	302	1/1/1970	OK	Not OK	Not OK	Not OK	33
20-003	20-002	30	321	1/1/1970	OK	Not OK	Not OK	Not OK	33
20-004	20-003	30	331	1/1/1970	OK	Not OK	Not OK	Not OK	33
20-023	20-004	30	329	1/1/1970	OK	Not OK	Not OK	Not OK	33
20-024	20-023	30	331	1/1/1970	OK	Not OK	Not OK	Not OK	33
20-025	20-024	30	335	1/1/1970	OK	Not OK	Not OK	Not OK	33
20-026	20-025	30	332	1/1/1970	OK	Not OK	Not OK	Not OK	33
Street: CO RD 83									
20-329	20-328	24	400	5/1/2002	OK	OK	OK	Not OK	33
20-330	20-329	24	321	5/1/2002	OK	OK	OK	Not OK	33
20-332	20-330	24	400	1/9/2002	OK	OK	OK	Not OK	33
20-333	20-332	24	292	1/9/2002	OK	OK	OK	Not OK	33
20-349	20-333	18	95	1/9/2002	OK	OK	OK	Not OK	24
Street: HERON									
20-027	20-026	30	395	1/1/1970	OK	Not OK	Not OK	Not OK	33
20-028	20-090	30	315	1/1/1970	Not OK	Not OK	Not OK	Not OK	48
20-028A	20-028	30	276	1/1/1993	OK	Not OK	Not OK	Not OK	33
20-029	20-028A	30	139	1/1/1970	OK	Not OK	Not OK	Not OK	33
20-030	20-029	30	403	1/1/1970	OK	Not OK	Not OK	Not OK	33
20-031	20-110	30	273	1/1/1970	Not OK	Not OK	Not OK	Not OK	42
20-033A	20-033	30	220	1/1/1970	OK	Not OK	Not OK	Not OK	33
20-034	20-033A	30	190	1/1/1970	OK	Not OK	Not OK	Not OK	33

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
20-110	20-030	30	130	1/1/1970	OK	Not OK	Not OK	Not OK	36
Street: STADIUM									
20-051	20-050A	15	166	1/1/1973	Not OK	Not OK	Not OK	Not OK	18
20-055	20-054	15	426	1/1/1973	Not OK	Not OK	Not OK	Not OK	18
Street: VICTORY									
20-299	20-161	24	250	10/1/2001	OK	OK	OK	Not OK	33
20-300	20-299	24	231	10/1/2001	OK	OK	OK	Not OK	33
20-301	20-300	24	268	10/1/2001	OK	OK	OK	Not OK	33
20-302	20-301	24	324	10/1/2001	OK	OK	OK	Not OK	33
20-326	20-303	24	400	5/1/2002	OK	OK	OK	Not OK	33
20-327	20-326	24	400	5/1/2002	OK	OK	OK	Not OK	33
20-328	20-327	24	285	5/1/2002	OK	OK	OK	Not OK	33

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 23									
Street: CHANCERY									
23-130	23-085	10	441	1/1/1979	OK	Not OK	Not OK	Not OK	12
Street: CHAUTAQUA									
23-048	23-033A	12	336	1/1/1992	OK	Not OK	Not OK	Not OK	15
Street: JAMES									
23-054	23-052	12	145	1/1/1988	OK	Not OK	Not OK	Not OK	15
Street: LINDER									
23-003	23-002	12	340	1/1/1926	Not OK	Not OK	Not OK	Not OK	18
23-004	23-003	12	152	1/1/1926	Not OK	Not OK	Not OK	Not OK	18
Street: RIVERFRONT									
23-005	23-004	12	288	1/1/1926	Not OK	Not OK	Not OK	Not OK	18
Street: STOLTZMAN									
23-019	23-014	12	216	1/1/1985	Not OK	Not OK	Not OK	Not OK	21
23-020	23-019	12	350	1/1/1967	Not OK	Not OK	Not OK	Not OK	18
23-021	23-020	12	444	1/1/1967	Not OK	Not OK	Not OK	Not OK	15
23-022	23-021	12	280	1/1/1967	Not OK	Not OK	Not OK	Not OK	18
23-023	23-022	12	449	1/1/1967	Not OK	Not OK	Not OK	Not OK	21
23-024	23-023	12	504	1/1/1985	Not OK	Not OK	Not OK	Not OK	21
23-025A	23-025	12	163	1/1/1960	OK	Not OK	Not OK	Not OK	15
23-026	23-025A	12	421	1/1/1960	Not OK	Not OK	Not OK	Not OK	18
23-027	23-026	10	400	1/1/1960	Not OK	Not OK	Not OK	Not OK	18
23-028	23-027	10	400	1/1/1960	Not OK	Not OK	Not OK	Not OK	15

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
23-029	23-028	10	400	1/1/1960	Not OK	Not OK	Not OK	Not OK	15
23-030	23-029	10	350	1/1/1960	Not OK	Not OK	Not OK	Not OK	15
23-031	23-030	10	350	1/1/1960	Not OK	Not OK	Not OK	Not OK	15
23-032	23-031	10	325	1/1/1960	OK	Not OK	Not OK	Not OK	15
23-033	23-032	10	280	1/1/1960	Not OK	Not OK	Not OK	Not OK	15
Street: VIKING									
23-085	23-073	12	314	1/1/1979	OK	Not OK	Not OK	Not OK	15

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 24									
Street: 2ND									
24-020	24-019	18	347	1/1/1926	OK	OK	OK	Not OK	24
24-023	24-022	18	364	1/1/1926	OK	OK	Not OK	Not OK	21
Street: CARNEY									
24-025	24-023	15	165	1/1/1926	OK	OK	Not OK	Not OK	18
24-027	24-025	15	368	1/1/1926	OK	Not OK	Not OK	Not OK	21
24-031	24-027	15	360	1/1/1926	OK	Not OK	Not OK	Not OK	21
24-032	24-031	15	239	1/1/1926	OK	Not OK	Not OK	Not OK	18
Street: HUBBELL									
24-015	24-012	15	507	1/1/1926	OK	OK	Not OK	Not OK	18
Street: MOUND									
24-012	24-009	18	462	8/1/2003	OK	OK	Not OK	Not OK	21
Street: RIVERFRONT									
24-033	24-032	12	243	1/1/1987	OK	OK	Not OK	Not OK	18
24-042	24-033	12	243	1/1/1987	OK	OK	Not OK	Not OK	21
24-043	24-042	12	140	1/1/1987	OK	OK	OK	Not OK	15
24-045	24-044	12	186	1/1/1987	OK	OK	Not OK	Not OK	18
24-046	24-045	12	285	1/1/1987	OK	OK	OK	Not OK	15
24-053	24-046	12	300	1/1/1987	OK	OK	Not OK	Not OK	15
24-055	24-053	12	186	1/1/1987	OK	OK	OK	Not OK	15

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 26									
Street: CARNEY									
26-070	26-063	15	268	1/1/1926	OK	OK	Not OK	Not OK	21
26-073	26-072	12	426	1/1/1926	OK	OK	OK	Not OK	15
26-076	26-073	10	287	1/1/1926	OK	OK	OK	Not OK	15
26-079	26-076	10	325	1/1/1926	OK	OK	OK	Not OK	15
26-082	26-079	10	147	1/1/1926	OK	OK	OK	Not OK	15
26-083	26-082	10	158	1/1/1926	OK	OK	OK	Not OK	12

Pipe Upgrade Report

Upstream MH	Downstream MH	Pipe Diameter	Pipe Length	Installation Date	Capacity Check	Capacity 20 Year	Capacity 40 Year	Capacity 60 Year	Replacement Size
Sewer District 28									
Street: ADAMS									
28-029	28-028	27	243	1/1/1986	OK	OK	Not OK	Not OK	33
28-036	28-035	27	347	1/1/1986	OK	OK	OK	Not OK	30
28-041	28-040	24	297	1/1/1986	OK	OK	OK	Not OK	27
28-042	28-041	24	214	1/1/1986	OK	OK	OK	Not OK	27
28-045	28-044	24	392	1/1/1985	OK	OK	OK	Not OK	27
Street: DUBLIN									
28-024	28-023	27	278	1/1/1986	OK	OK	OK	Not OK	30
Street: HAEFNER									
28-052	28-051	24	262	1/1/1987	OK	OK	OK	Not OK	24
Street: THOMPSON RAVINE									
28-007	28-006	24	188	1/1/1986	OK	OK	OK	Not OK	27
28-134	28-133	18	400	1/1/1997	OK	Not OK	Not OK	Not OK	24
28-135	28-134	18	240	1/1/1997	OK	OK	Not OK	Not OK	21
28-137	28-136	18	360	1/1/1997	OK	OK	OK	Not OK	21
28-139	28-138	18	290	1/1/1997	OK	OK	OK	Not OK	21

Appendix C

CITY OF MANKATO
ZONING

- T TRANSITION DISTRICT
- R-1 ONE-FAMILY DWELLING
- R-2 ONE & TWO FAMILY DWELLING
- R-3 LIMITED MULTIPLE DWELLING
- R-4 MULITPLE DWELLING
- R-T RESIDENTIAL TRANSITION
- OR OFFICE RESIDENTIAL / (O - OFFICE)
- CBD-C CENTRAL BUSINESS DISTRICT CORE
- CBD-F CENTRAL BUSINESS DISTRICT FRINGE
- B-1 COMMUNITY BUSINESS DISTRICT
- B-2 GENERAL BUSINESS DISTRICT
- B-3 HIGHWAY BUSINESS DISTRICT
- PI PLANNED INDUSTRIAL
- M-1 LIGHT INDUSTRIAL
- M-2 HEAVY INDUSTRIAL
- I-O INSTITUTIONAL OVERLAY
- R-F RESIDENTIAL FRINGE LAKE TOWNSHIP USE O, L

N

DECEMBER 2007

0.25 MILES

T 109 N R 26 W

T 108 N R 26 W

MANKATO AIRPORT INSERT

Map Disclaimer

The zoning map of the City of Mankato represents the current zoning designations as of the date indicated on the bottom of the map. The map displays the general zoning districts of the community and Community Development staff should be contacted at (507) 387-8611 for the official zoning of specific properties or areas.