

Chapter 8: Wastewater  
 **Appendix**

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# Appendix 8-A: Inflow And Infiltration Study

## Inflow & Infiltration Study *Sanitary Sewer Collection System*

Golden Valley, Minnesota

SEH No. A-GOLDVo407.00

March 29, 2006

*213 pages*



March 29, 2006

RE: Sanitary Sewer Collection System  
Inflow and Infiltration Study  
Golden Valley, Minnesota  
SEH No. A-GOLDV0407.00

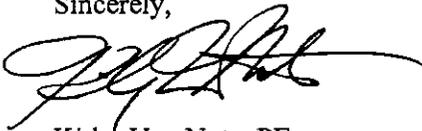
Mr. Jeff Oliver  
City Engineer  
City of Golden Valley  
7800 Golden Valley Road  
Golden Valley, MN 55427-4588

Dear Mr. Oliver:

Please find 12 copies of the Inflow and Infiltration (I/I) Study prepared by Short Elliott Hendrickson Inc. (SEH®) on the Golden Valley sanitary sewer collection system. The work was completed under an agreement signed by the City on April 5, 2005. This report documents the work completed this past year to identify potential I/I in the City's sanitary sewer collection system and determine the need for further I/I abatement measures to address the MCES surcharge program.

If you have any comments or questions on the report, please contact me at 651.490.2144 or Sue Mason at 651.490.2018.

Sincerely,



Kirby Van Note, PE  
Project Manager

nm

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Sanitary Sewer Collection System  
Inflow and Infiltration Study  
Golden Valley, Minnesota

SEH No. A-GOLDV0407.00

March 29, 2006

I hereby certify that this report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota



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Kirby Van Note, PE

Date: March 29, 2006 Lic. No.: 16241

Reviewed by:  3/29/06  
Date

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## Executive Summary

The City of Golden Valley, like the majority of the communities in the Metropolitan Twin Cities area, has spent considerable time and energy managing inflow and infiltration (I/I) within their sanitary sewer collection system. The Metropolitan Council Environmental Services (MCES) has implemented a surcharge program which is designed to encourage metro communities to reduce I/I entering their portion of the sanitary collection system. During a number of significant rainfall events over the past five years, Golden Valley's inflow contribution has reached the levels that trigger the MCES surcharge. The City's peak hour inflow has exceeded the acceptable peak hour flow rates established during a recent study of I/I by the MCES in the metro area.

The initial phase of the I/I analysis investigation included installation of six groundwater monitoring wells to determine local groundwater conditions and their possible effect on I/I entering the Golden Valley sanitary sewer system. Nineteen portable flow meters were installed in strategic locations (identified as Sewer Districts) to isolate areas of the sanitary sewer collection system. The portable flow meters were installed in the collection system for four months to collect wastewater data in order to determine dry and wet weather conditions. A rain gauge was installed at the Golden Valley City Hall complex to correlate rainfall to any increases in wastewater flow. Peak hour rates and daily flow rates by location were recorded and correlated to rainfall intensity to determine I/I rates for each rainfall event. Meter reconnaissance was performed during the initial investigation to determine acceptable locations for flow monitoring. The flow monitoring occurred during a dry period and provided only average rainfall intensities. Fortunately, the Golden Valley sanitary sewer system responds well to small storm events. Six storm events (June 8, June 20, June 27, July 25, August 26, and September 4, 2005) produced a good response to rainfall and provided the type of data necessary to quantify flow monitoring results. None of these events produced a rainfall event greater than one inch in an hour and over two inches in a 24-hour period.

Groundwater levels did not fluctuate much during the monitoring period except slightly in late September when rainfall was recorded more often and over a greater duration. Water level readings were the highest in the northwest through the southeast sections of the City and seem to correlate with the districts with the higher potential for I/I. The peak hour rainfall event during the monitoring period was approximately 7.9 (millions gallons per day) which was not high enough to exceed the criteria established by the MCES for a surcharge. On October 4, 2005, a significant storm event did occur and caused the City to record a peak flow rate of approximately 13.8 mgd. The peak rate was above the allowable peak hour rate of 8.38 mgd established by the MCES in order to determine the amount of the surcharge.

Based on the peak hour flow rates recorded at each portable flow meter during a number of rainfall events in June through September, the highest peak flow rates were estimated to be found in the west and south areas of the City. Districts 9, 10, 13, 16, and 17 (as shown on Figure 4) peak rates increased to three to four times the normal daily dry weather flows. Based on the results of the flow monitoring, additional field investigation work and sewer rehabilitation will need to be conducted in the coming years to continue isolating specific sources of I/I and stay ahead of the additional MCES surcharges and demand charges.

The City of Golden Valley will need to continue an I/I reduction program to isolate and prioritize sewer rehabilitation in their sanitary collection system, both on the public and private property side of the system. SEH recommends continuing with the City's current cleaning and closed circuit television inspection programs, developing a new program for private property, commercial, and residential private property building inspection, including conducting follow-up inspections in districts with significant I/I potential, developing service lateral inspection and repair program, work with MCES staff to evaluate the

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Bassett Creek interceptor and the MCES interceptor running from the City of St Louis Park, and continue to monitor MCES flow meter station maintenance and performance to ensure the data is reliable and to check the progress of future sewer rehabilitation measures implemented by the City. The City will need to implement an I/I reduction program with the elements listed in this study to reduce I/I and minimize peak inflow rates in the City's sanitary sewer collection system. The City should document all expenses for any I/I investigations and/or sewer system rehabilitation in the event of a surcharge to show the MCES the City is continuing in its effort to reduce I/I in the sanitary sewer collection system.

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# **Inflow and Infiltration Study**

## **Sanitary Sewer Collection System**

Prepared for the City of Golden Valley

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### **1.0 Introduction**

The City of Golden Valley operates a sanitary sewer collection system designed to provide wastewater conveyance to the Metropolitan Council Environmental Services (MCES) regional interceptor system. The MCES is ultimately responsible for wastewater treatment in the greater Minneapolis-St. Paul area. Each local community is charged a users fee by the MCES based on contributing wastewater flows determined through a network of flow meters across the greater metropolitan area. The wastewater flow can include clear water from rain water or groundwater commonly referred to as inflow and infiltration (I/I) entering the sanitary sewer system through leaks in the publicly-owned sewer and manholes and from local private property sources such as rain leaders, sump pumps, foundation drains, and leaking house laterals.

The MCES has evaluated their interceptors and treatment plant capacity for long-term metro area growth. The capacity taken up by the addition of inflow and infiltration is a critical issue for the MCES and substantially impacts future capital expenditures. In order to meet the growing needs in the metro area, MCES is implementing surcharge charges to communities that produce significant peak hour inflow demands on the MCES interceptor collection and treatment system. During a number of significant rainfall events over the past five years, Golden Valley's inflow contribution has reached the levels that trigger the MCES surcharge. The City's peak hour inflow has exceeded the acceptable peak hour flow rates established during a recent study of I/I by the MCES in the metro area.

### **1.1 Purpose and Objectives**

The purpose of this study was to complete an inflow/infiltration (I/I) study for the City of Golden Valley and determine the need for further sanitary sewer rehabilitation beyond the work completed by the City in the past. The objective of this study is to begin the process of isolating specific areas contributing I/I and developing a program to reduce peak I/I flow rates in the Golden Valley sanitary sewer collection system in order to avoid MCES

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surcharges. In addition, the result of the current study will be the development of a program designed to abate I/I and integrate it with the Golden Valley projects currently planned or implemented by the City. The overall goal of this study is to establish priority areas for future investigations, identify future investigation work tasks, establish base flow rates to determine I/I removal effectiveness, and begin the process of identifying and implementing an I/I abatement plan for continued investigation and rehabilitation as needed.

## **1.2 Work Plan Development**

In March of this year, a work scope was presented to the City of Golden Valley identifying the work tasks to be completed in 2005 to begin the process of isolating I/I in the City's sanitary sewer collection system and determine the need for future I/I abatement to reduce potential MCES surcharges. The I/I analysis developed in the current study included the following:

- A review of past SSES work and maintenance work completed by the City during the past 10 years;
- An evaluation of MCES flow rates and all calculations used to determine the volume of I/I generated in Golden Valley;
- A review of the City's sanitary lift station pumping records;
- Implement a flow monitoring program to determine if possible which areas have a higher potential for I/I entering the collection system;
- Install a recording rain gauge to monitor rainfall intensity and daily storm events locally;
- Installation of monitoring wells or piezometers to monitor groundwater elevations around the City;
- Review the existing building inspection and compliance program;
- A review and evaluation of the City's current drain tile installation program;
- Perform a sump pump inspection program in the Manor area neighborhood of the City;
- Update the geographic information system (GIS) database with additional attribute information for the City's sanitary sewer collection system;
- Evaluate the flow monitoring data to establish a priority for future SSES activities and quantify potential I/I impacts within the Golden Valley sanitary sewer collection system;
- Develop an I/I abatement plan to cost-effectively eliminate I/I from the City's wastewater collection system.

## **2.0 Sanitary Collection System Work History**

Over the past 20 years, the City of Golden Valley has had a limited focus to address their issues on sanitary sewer collection system in order to isolate and identify specific sources of inflow and infiltration. The following

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sections discuss the previous investigation efforts and the maintenance programs the City has established to reduce I/I impacts on the collection system.

## **2.1 Previous I/I Studies**

In March 1999, Thibault Associates completed a Wastewater Plan as part of a Comprehensive Plan for the Golden Valley Sanitary Sewer Collection System. The plan reviews the physical elements of the City's collection system and the operation and maintenance process Golden Valley utilizes to manage wastewater and potential I/I City-wide.

The previous I/I analysis completed in 1983 by the City of Golden Valley found I/I to be significant enough to warrant additional investigation.

The 1983 study was prepared in response to the Metropolitan Council Environmental Services (MCES), formerly called Metropolitan Waste Control Commission (MWCC) Facilities Planning Program, required to comply with Section 201 of the Federal Water Pollution Control Act of 1972.

Since the completion of the original I/I analysis, the City has only completed the minimum steps necessary to locate and reduce I/I which include the following:

- Adoption of a revised sewer ordinance.
- Initiate a rehabilitation program to repair manholes, manhole covers, and pipe to reduce I/I entering the collection system. The City began a manhole inspection program each spring and an ongoing annual cleaning and closed circuit television (CCTV) inspection program. Sewer pipe slip-lining was conducted in select areas of the City to remove identified I/I through CCTV.

According to the analysis of flow sanitary data (wastewater flows) from 1989 through 1998 completed under the Thibault Associates report for the Golden Valley Wastewater Plan, inflow and infiltration was reduced over the period in the range of 10 to 15 percent. The report estimated that the current percent of annual wastewater flow collected in the Golden Valley sanitary sewer system due to I/I was approximately 7 percent. This value was expected to be approximately 20 percent less than the volume of I/I collected in the early 1980s. No estimates were suggested on the peak hour rates expected from significant storm events during the same period.

The following recommendations were made to the City as a result of this study:

1. Continue to enforce the City sewer ordinance preventing illegal connections to the system.
2. When monitoring the City's sanitary sewer system, identify and correct inflow and infiltration problems on a planned basis.
3. Use corrective sewer rehabilitation including pipe replacement or relining, manhole repair, and repair of service lines where appropriate.

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4. Maintain a maximum goal of I/I entering the sanitary collection system of no more than 7 percent.

## **2.2 Past SSES Program Activities**

Following the recommendations from the previous I/I report, the City began a program of investigation and rehabilitation to remove I/I from problem areas. Over the past two decades, City staff has conducted manhole inspections, roof and yard drain inspections on commercial properties, private property sump pump/foundation drain surveys by mail, sanitary sewer pipe cleaning, and closed circuit television inspection (CCTV). The results of the investigation led to a sewer rehabilitation program which included manhole lid replacement, manhole grouting, and an extensive CCTV and sewer pipe slip lining program to reduce I/I in the problem areas as identified during the Golden Valley Wastewater Plan completed in March 1999.

## **2.3 Sanitary Sewer Ordinance**

The Golden Valley City Code was last updated in November 1997. Under Subdivision 4 of the City Code, Section 3.30 Rules and Regulations, relating to sewerage service, it is unlawful to discharge roof water, groundwater, or any natural precipitation into the sanitary sewer system. Any discharge into the storm sewage system requires permission of the City's PDW. The City has the authority under the current sewer ordinance to impose a fee for any water entering the sanitary sewer system not in compliance with the ordinance (Subdivision 11).

The current sanitary sewer ordinance needs strengthening and in some areas conflict with the goals and objectives of the current MCES surcharge programs. This ordinance will need to be reviewed and modified to provide the proper language to meet the long term goals of an I/I abatement program.

## **3.0 MCES Flow Monitoring Program**

MCES utilizes a network of permanent flow monitoring stations around the metropolitan Minneapolis-St. Paul area to determine wastewater treatment charges to individual communities. For the majority of the metro communities in the Twin Cities area, the MCES uses more than one flow monitoring station to determine the wastewater flow volume. The flow monitoring stations are permanent locations along the MCES interceptor system using a flume and/or magnetic flow meter to collect wastewater flow data every 15 minutes. The data is provided to the communities to support the billing charges by the MCES.

Many communities have isolated areas where wastewater flows between adjacent cities are not recorded by the interceptor flow meters. At many of these locations, MCES staff installs portable flow metering equipment on a quarterly basis to determine the necessary adjustments for the final invoicing to each community. The remaining unmetered areas are estimated based on the number and type of sanitary sewer connections times a typical rate of wastewater per connection each day. The MCES factors in I/I based on the

location of the community and whether the current year is a wet or dry year based on total rainfall.

### 3.1 MCES Wastewater Determination

Golden Valley’s wastewater volume determination by MCES based a number of flow monitoring locations. MCES Flow Meter M117-M118 and M120 are used to determine the total wastewater contribution except for a small unmetered area from the City of Robbinsdale, which enters the Golden Valley sanitary sewer collection system. MCES estimates approximately 3.21 million gallons per quarter enter the Golden Valley collection system from the City of Robbinsdale. No other adjustments are made by MCES to determine quarterly and annual wastewater flow volumes for the City of Golden Valley. Approximately 290 million gallons each quarter is discharged into the MCES interceptor from the Golden Valley sanitary sewer collection system. Table 1 presents the calculations completed by MCES to determine the final wastewater flow contribution to determine the City of Golden Valley’s quarterly wastewater treatment user fee.

**Table 1  
MCES Determination of Wastewater Volume**

<u>MCES Sewer Flow Monitoring Equation</u>	MG/Qtr
MCES Meter M117 (Mpls) – MCES Meter M120 (from St. Louis Park)	Approx. 290
<u>Unmetered Wastewater Quarterly Flow Estimates Third Quarter, 2004</u>	
From Robbinsdale $((227 \text{ SFU} \times 56,141)/365) \times 92 = 3.21$	
Total Unmetered Wastewater Adjustments for Golden Valley	-3.21

**Note:**

SFU stands for single-family unit. The flow per SFU connection was based on quarterly flow metering conducted by MCES staff during quality control testing performed during 2002 and 2003. The 56,141-gallon figure used in the above equation is the measured average flow rate per connection per year. Typically, MCES considers Golden Valley a normal flow community whose annual metered flow per household ranges from approximately 90,000 gallons to 100,000 gallons. Normally, a rate of 90,000 gallons per connection is used for dry to normal years, when the annual precipitation is less than 32 inches. A rate of 100,000 per connection is used when the precipitation is greater than 32 inches.

### 3.2 MCES Surcharge Program

In the May 2004 Inflow/Infiltration Task Force Report completed by the MCES on I/I in the Twin Cities metropolitan area, it was determined that during the period from the years 2001 through 2003, the City of Golden Valley was one of many communities which contained excessive peak hour flows. This was a result of an April 2001 storm event, which produced a peak hour flow rate of 4.6 mgd that exceeded the allowable peak hour rate of 4.18 mgd established by the MCES for the City of Golden Valley sanitary sewer collection system. For each community, MCES determined an allowable peak hour factor and tied it to each City’s three-year average wastewater flow. As previously indicated, during the original MCES study, Golden

Valley’s metered peak hour I/I flow rate added to the peak hour of dry weather flow exceeded the allowable peak flow rate. Table 2 presents the current criteria established by the MCES which determines whether the City will be assessed a surcharge in the future.

**Table 2**  
**MCES Current Surcharge Criteria**

Three-Year Average Flow	3.22 mgd
Allowable Peak Hour Flow	8.38 mgd
Dry Weather Peak Hour Flow	4.32 mgd
Metered Peak Hour of I/I (mgd)	Measured During Storm Event
Resulting Peak Hour Flow (mgd)	Dry Weather Peak Hour Flow + Metered Peak Hour of I/I

During future storm events, MCES will continually monitor and re-evaluate as necessary the criteria established in Table 2. The procedure used by MCES to determine if the I/I from the City is excessive is as follows:

- The average flow for the City is based on an average of the past three years of historical flow records and it will be updated annually.
- The acceptable peak hour flow is calculated using the MCES table that relates peak to average ratios to average flow. The appropriate peak to average ratio is multiplied times the three-year average flow to calculate the acceptable peak hour flow.
- A representative dry weather flow pattern is selected from recent historical data. The average flow during this period is close to the average flow for the past three years.
- The I/I component of the wet weather flow is determined by subtracting the dry weather flow for the corresponding hour and day of the week.
- The I/I component of wet weather flow is added to the peak hour flow rate of the typical dry weather flow pattern to determine if the resulting peak flow is greater than the allowable peak hour flow. If the resulting peak flow is greater, the I/I is excessive.

During the past two years, the City of Golden Valley has only recorded one significant storm event which resulted in I/I volumes large enough to exceed the peak hour rate MCES standard for Golden Valley. The potential does exist under the right conditions to produce an even larger peak hour event through a more intense rainfall event that could increase the surcharge.

The past two years have been relatively dry overall. The total annual rainfall totals of the Minneapolis-St. Paul Airport for the past 10 years are shown in Figure 1 following the text.

#### **4.0 Initial I/I Analysis Investigation**

SEH began the I/I analysis by collecting all historical information on the wastewater collection system this information included past I/I reports,

maintenance logs of collection system repairs, previous collection system inspection data logs, lift station data, inventory map of the storm sewer and wastewater collection system, and other appropriate data which assisted in the completion of the investigation. SEH reviewed all available information on the age, size, type, footage, materials of construction, and general physical condition of the City's trunk and collector sewer lines. A review and evaluation of the previous I/I analysis report was completed to establish wastewater base flow volume and determine the magnitude of I/I entering the collection system during the previous study.

#### 4.1 Sanitary Sewer System Districts

In order to isolate areas of the City where excessive amounts of infiltration and inflow are potentially entering the collection system, the sanitary sewer system was separated into 18 areas or sewer districts. Each sewer district was determined based on the location of the main collection pipe or interceptors, the ability to isolate equal areas consistent with the previous I/I analysis, and good locations for potential flow monitoring stations. An additional 19<sup>th</sup> sewer district was established to measure the flows entering Golden Valley from the City of Robbinsdale. A field inspection of the manholes at the downstream discharge point of each district was evaluated for suitability for portable flow metering equipment.

Upon an inspection of all the potential flow monitoring manhole locations, 19 sewer districts were finally selected to isolate specific areas of the Golden Valley collection system. Table 3 presents an inventory of the Golden Valley sanitary sewer collection system located within each of the sewer districts identified to isolate potential I/I for this investigation.

**Table 3  
Sanitary Sewer Collection System Inventory**

<b>District No.</b>	<b>Location</b>	<b>Parcels</b>	<b>Number of Manholes</b>	<b>Length of Pipe (in)</b>
1	North side of Theodore Wirth Park and area east of Legend Drive	374	145	33,783
2	Theodore Wirth Parkway	86	26	5,269
3	South of 27 <sup>th</sup> Avenue N between Noble Avenue N and June Avenue N including the Hidden Lakes Parkway area.	281	125	22,506
4	North of Bassett Creek Drive and east of Noble Avenue N	329	85	20,191
5	North of Bassett Creek Drive between Hwy 100 and Noble Ave N	495	145	35,650
6	Between just west of Hwy 100 and Noble Avenue N, north of Golden Valley Road	438	131	29,938
7	South of Golden Valley Road and north of Angelo Drive	258	82	17,071

**Table 3  
Sanitary Sewer Collection System Inventory**

<b>District No.</b>	<b>Location</b>	<b>Parcels</b>	<b>Number of Manholes</b>	<b>Length of Pipe (in)</b>
	in the west side of Sweeney Lake			
8	Between Hwy 100 and Sweeney Lake south of Angelo Drive	154	94	20,842
9	TH 55 to North City limits between Douglas Drive N and just west of Hwy 100	548	228	48,506
10	North of Golden Valley Road between Winnetka Avenue N and Douglas Drive N	1186	403	96,606
11	Between Winnetka Avenue N and TH 169 north of Duluth Street (Northwest corner of City)	1021	300	65,512
12	West of Boone Avenue N between Plymouth Avenue and Duluth Street	388	106	27,143
13	South of 10 <sup>th</sup> Avenue N and west of Brookview Pkwy	114	101	23,445
14	East of Natchez Avenue N between Glenwood Avenue and Hwy 55	392	158	33,706
15	East of Hwy 100 and south of Glenwood Avenue (North and South Tyrol Hills Area)	409	151	33,099
16	South of Hwy 55 and east of Edgewood Ave N, north of I394	366	173	39,305
17	South of Hwy 55 and between Louisiana Avenue south of Edgewood Avenue N	336	144	33,252
18	South of Golden Valley Road and east of Brookview Parkway	546	223	50,851
19	Area North of 26 <sup>th</sup> Avenue N (Flows from Robbinsdale)	-	-	-
<b>Totals</b>		<b>7,721</b>	<b>2,820</b>	<b>636,675</b>

Note:  
The numbers listed above are estimates based on the data provided in the Golden Valley GIS database.

The sewer district boundaries will be used in the future as delineated areas to perform additional investigative field work which may be necessary based on the results of flow metering performed this past year. Figure 2 presents a layout map of the City and the approximate boundaries of each sewer district. Districts 1 and 14 include the main collector interceptor line out of the City running into the MCES flow meter location M117 along State Highway 55 in the City of Minneapolis.

## 4.2 Collection System Flow Metering

Nineteen portable flow meters and a rain gauge were leased from Teledyne ISCO, Inc. The portable flow meters along with the existing MCES flow meters were used to complete the flow monitoring for the I/I study for the City. The portable flow monitoring units isolated specific segments of the City in order to determine portions of the sanitary collection system with higher potential for contributing infiltration or inflow. Table 4 presents a summary of the type of equipment and location of the portable flow monitoring used for this investigation.

**Table 4**  
**Flow Monitoring Location Summary**

District No.	Location	Manhole No.	Pipe Size (in.)
1	North of State Highway 55 at Bassett Creek	3	36
2	East of Burlington Northern RR, south of York Avenue	452	8
3	Northwest corner of Theodore Wirth Golf Course	26	36
4	Noble Avenue at Bassett Creek Drive	350	9
5	Regent Avenue just north of Bassett Creek Drive	47A	12
6	Noble Avenue at Bassett Creek	41	30
7	Major Drive south of Golden Valley Road	114	15
8	Adeline Lane south of Angelo Drive	138	12
9	Easement south of Utility Avenue North	673	27
10	East of Canadian Pacific RR on Constance Drive West	682	27
11	Plymouth Avenue North and Orkla Drive	1321	15
12	Boone Avenue North south of 10 <sup>th</sup> Avenue	1690	15
13	Boone Avenue North, north of Golden Valley Road	717	21
14	North of State Highway 55 near Theodore Wirth Parkway	577	36
15	Natchez Avenue north of Glenwood Avenue	593	30
16	Ottawa Avenue north of Entrance to Beck School	616	24
17	Laurel Avenue west of Turners Crossroad South	632	21
18	Laurel Avenue east of Louisiana Avenue South	2936	21
19	Kewanee Way south of 26 <sup>th</sup> Avenue North	486	8

**Note:**

Flow monitoring at all locations in Golden Valley used an ISCO Model 2150 Area Flow Meter. An ISCO model 674 rain gauge was used to collect rainfall data at the Golden Valley City Hall complex.

The type of flow meter used for this investigation was manufactured by Teledyne ISCO, Inc. ISCO's Model 2150 Area Velocity Flow Module and Sensors. All 19 portable flow meters were designed to record wastewater flow depth and velocity. The meter installations were selected at manhole locations where the sensors could be placed in the pipe with minimal grade and bends where there were no transitions and smooth laminar flow. In addition, the flow had to be a minimum of one inch deep and area free of sediments, if possible. ISCO also provided the rain gauge which was placed at the Golden Valley City Hall complex just north of Golden Valley Road near Winnetka Avenue. The general location of the portable flow meters and

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the individual pipe sizes at each monitoring point for each sewer district are shown in Figure 3.

The portable flow meters and rain gauge were installed and calibrated during the last two weeks in May 2005 to establish a base flow for wastewater volumes and record rainfall events during the early spring. During the winter of 2004-2005, prior to the flow monitoring period was a warmer than typical winter with a minimum amount of snow cover. These conditions must have produced a lower groundwater table than the typical year and may have influenced the flow data collected. The results of the flow which is discussed in future sections. The flow meters were maintained every two to three weeks or more often in the event of a significant storm event to ensure they were operating properly. The flow meters contain data storage units which record date, time, flow depth, and velocity. Transfer of data from the flow meters and the rain gauge was accomplished either with a laptop or by using ISCO's Model 2101 Field Wizard, which served as a temporary data storage module.

Seven of the portable meters were placed in MCES interceptor lines in order to reduce the number of units used in the study. With MCES approval, the portable flow meters were installed at critical junctions along the interceptor. The only maintenance issue with the flow meters occurred in MH 2936 (District 18). Redeposited debris in the line and the configuration of the manhole did not provide a good location for stable velocity readings. The equipment was ultimately removed and replaced with the unit from MH 486 after a significant amount of data was retrieved at that location.

The rain gauge placed at the Golden Valley City Hall complex was installed to correlate rainfall to wastewater readings from the flow monitoring equipment in order to identify the inflow potential within the collection system. The rain gauge recorded rainfall in 10-minute intervals using a tipping bucket to collect in .01-inch intervals. The data was stored on a recording module and transferred by laptop during routine maintenance periods.

### **4.3 Groundwater Monitoring Well Installation**

Six groundwater monitoring wells or piezometers were installed at the following locations around the City to establish local groundwater conditions.

- Sunset Ridge at Westwood Drive (PZ-1)
- State Highway 55 at Winnetka Avenue (PZ-2)
- Ensign Avenue at 23<sup>rd</sup> Avenue (PZ-3)
- Florida Avenue north of Golden Valley Road (PZ-4)
- Regent Avenue at Triton Drive (PZ-5)
- Fire Station at Golden Valley Road (PZ-6)

The monitoring wells were installed by Thein Well Company during the week of May 17, 2005. The wells were constructed of two-inch PVC and were screened at the water table elevation. The monitoring wells were used

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to establish baseline groundwater elevations and to monitor historical fluctuations in water table elevations throughout the year. Water table readings were collected by SEH staff weekly or bi-weekly, depending on the time of year. Data from the monitoring wells were used to correlate sewer system to ground water elevations and establish the potential for infiltration entering the collection system. The well and boring record prepared by the Minnesota Department of Health (MDH) for each monitoring well is included in Appendix A. The monitoring wells will be used to monitor groundwater during future field investigation activities if required, and abandoned at the completion of this work.

## **5.0 Collection System Flow Monitoring Results**

The following section discusses the results of the four-month flow monitoring period which began in mid-May 2005 and concluded in mid-September 2005. The length of the monitoring period was helpful in order to determine how the Golden Valley sanitary sewer collection system responds to different rainfall intensities, rainfall events in consecutive days or long periods of rainfall over weeks which increased the local groundwater levels impacting I/I volumes within the collection system. As with the case in some years, rainfall events in Golden Valley during the past year included long dry periods followed by a few weeks of steady rainfall. Many of the storm events were similar in nature either from a peak hour intensity or over a daily rainfall total.

### **5.1 Groundwater Fluctuations and Potential Impacts**

Table 5 presents the results from the six piezometers installed around the City of Golden Valley to determine what, if any impact on local groundwater could be measured due to rainfall events throughout the year. Unfortunately, the last two years have been dry years of record and the unusually warm winters have created little snow cover. The absence of snowmelt and lower than normal annual rainfall appear to have reduced the potential for seasonal increases in groundwater levels.

Piezometers located in the northwest (PZ-3) and northeast (PZ-5) side of the City appear to have the highest groundwater elevations below ground surface. The interesting point in reviewing the data is the level of change in water levels in PZ-3. When the well was first installed, the water table was very high, but during the summer, the levels drop below the depth of the monitoring well. After the service flow monitoring equipment was removed, additional water level readings were taken, with levels increasing after heavier rains occurred in late September and early October. The remaining wells only showed a moderate increase and decrease in water table elevations over the monitoring period.

The longest storm event occurred on October 4, 2005 after the flow monitoring period was complete, yet the increases to groundwater levels across the City were marginal. The piezometer with the highest fluctuation occurred in PZ-3, which also has the closest groundwater level to the ground surface. Increases in groundwater elevations in localized areas can have a dramatic effect on peak I/I rates (rainfall induced infiltration/inflow). A

significant rainfall event during a period of higher groundwater conditions, such as in the spring of the year, can produce much larger peak I/I rates.

It is very likely that if normal groundwater conditions had been present during flow monitoring period for this study, the I/I volumes would have been much higher. Also, some of the areas would have shown higher peak rates of I/I such as District 11 where the ground water table dropped twelve feet during the study.

In April 2001, when a significant rainfall event was recorded and when the groundwater was extremely high, flooding occurred in Bassett Creek and provided the peak inflow rate that produced the original surcharge for the City in the preliminary MCES I/I Surcharge Program report. Our assessment of the groundwater conditions during the flow monitoring period for this study would be considered more typical of dry to normal water table elevations and it is likely groundwater levels could be higher historically or in the future, which would have a greater impact on I/I rates. Groundwater monitoring during the spring or a wet summer could verify this condition. The groundwater results collected during this study are provided in Table 5 below. Appendix B presents a chart of the groundwater results during the flow monitoring period this year for each piezometer.

**Table 5  
Groundwater Monitoring Well Elevations**

Date	Piezometer Location					
	PZ-1	PZ-2	PZ-3	PZ-4	PZ-5	PZ-6
	Sunset Ridge at Westwood D2	State Hwy 55 at Winnetka Ave	Ensign Ave at 23 <sup>rd</sup> Ave	Florida Ave N of Golden Valley Rd	Regent Ave at Triton Dr	Fire Station at Golden Valley Rd
Depth to Water (TOC)	Depth to Water (TOC)	Depth to Water (TOC)	Depth to Water (TOC)	Depth to Water (TOC)	Depth to Water (TOC)	
5/24/2005	12.20	19.15	7.40	11.95	8.96	21.42
6/2/2005	12.24	19.07	8.83	11.97	8.97	21.46
6/8/2005	12.07	19.06	7.70	11.92	8.92	21.54
6/21/2005	12.00	18.88	9.35	11.82	8.91	21.68
7/8/2005	12.23	18.74	13.85	11.99	9.17	22.00
8/5/2005	12.79	18.76	19.60	12.39	9.71	23.85
8/15/2005	13.00	18.89	19.60	12.53	9.91	24.09
8/21/2005	13.10	18.96	19.60	12.62	10.01	24.19
9/8/2005	12.61	18.74	19.60	12.30	9.73	23.90
9/22/2005	12.65	18.68	19.60	12.07	9.49	23.48
10/14/2005	11.77	18.13	6.70	10.98	7.99	22.49
11/1/2005	11.98	18.23	7.94	11.46	8.64	22.16

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## **5.2 Measured Rainfall Events for Flow Monitoring Period**

presents all the rainfall recorded at the rain gauge located at the Golden Valley City Hall complex during the flow monitoring period. The majority of the rainfall events listed in Table 6 were of a short duration and limited intensity. This year started out with limited amounts of rainfall and started out very dry. From February, 2005 up to the third week of April, the City received only a small amount of precipitation. Over the next four to six weeks, the majority of the storm events were low intensity. I/I during storm events with intensities less than 0.5 inches per hour are typically difficult to quantify unless the amount of I/I entering the sanitary sewer collection system is extreme with many direct storm water connections. A number of more intense rainfall events did occur later in the flow monitoring period which did provide the data needed to isolate specific areas of the City with higher I/I potential. It is possible that wetter conditions might effect the results and change the priority of some of the areas specially the areas with the potential for a higher seasonal groundwater table.

**Table 6**  
**Rainfall Events During Flow Monitoring Period**

Event Date	Rainfall (inches)		
	Peak 30 Min.	Peak Hour	Daily 24-Hr Total
5/25/2005	0.09	0.13	0.34
5/26/2005	0.05	0.05	0.07
5/27/2005	0.03	0.03	0.04
5/29/2005	0.02	0.02	0.02
6/4/2005	0.18	0.25	0.31
6/5/2005	0.06	0.06	0.10
6/7/2005	0.29	0.29	0.29
6/8/2005	0.38	0.47	0.91
6/10/2005	0.17	0.26	0.57
6/11/2005	0.02	0.02	0.03
6/13/2005	0.25	0.30	0.35
6/14/2005	0.03	0.04	0.10
6/15/2005	0.03	0.04	0.10
6/20/2005	0.68	0.70	0.72
6/27/2005	0.36	0.53	1.13
6/29/2005	0.11	0.11	0.20
7/3/2005	0.35	0.38	0.41
7/20/2005	0.51	0.56	0.57
7/23/2005	0.37	0.48	0.53
7/25/2005	0.79	0.90	1.23
8/4/2005	0.11	0.14	0.15
8/8/2005	0.16	0.16	0.26
8/9/2005	0.01	0.01	0.01
8/11/2005	0.04	0.04	0.05
8/16/2005	0.12	0.12	0.12
8/18/2005	0.04	0.05	0.07
8/19/2005	0.05	0.05	0.05
8/26/2005	0.67	0.98	1.86
9/3/2005	0.27	0.32	0.87
9/4/2005	0.54	0.60	1.37
9/5/2005	0.15	0.20	0.52
9/7/2005	0.04	0.08	0.09
9/8/2005	0.02	0.04	0.05
9/12/2005	0.40	0.40	0.61
9/13/2005	0.10	0.10	0.25
9/19/2005	0.24	0.40	0.52
9/21/2005	0.56	0.60	1.24
9/22/2005	0.01	0.01	0.01
<b>Total Rainfall</b>			<b>16.12</b>

The ideal storm events for I/I computation occurred in late summer and the fall when precipitation totals began to rebound from a relatively dry spring and early summer. On three days during the late summer and early fall (July 25, August 26, and September 4, 2005), the City received between 0.60 and 0.98 inches of rain over a one-hour period and between 1.23 and 1.86 inches of rainfall during a 24-hour period for each rainfall. Each storm event during this period was somewhat isolated from other events and resulting in quantifiable inflow volumes from every flow meter location. During the monitoring period, six rainfall events over 0.47 inches in a one-hour period

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were recorded at the Golden Valley rain gauge. Every storm event registered some volume of I/I with an easily identifiable spike in the wastewater flows. Different storm events produced different results which sometimes makes it difficult to quantify absolute values for each location. Each storm event is unique and groundwater impacts the results a great deal.

### 5.2.1 Peak Hour Storm Events

Peak hour rainfall totals are critical to determining inflow or I/I peak rates. Typically, the direct sources of inflow, such as storm sewer and downspout connections to the sanitary sewer, are the first to respond during a rainfall event. The relationship between inflow entering the sanitary sewer and rainfall is not linear but in direct proportion to the intensity of the storm event. The large and quick responses to rainfall, such as immediate increases in wastewater flow rates in any sanitary collection system, typically means the storm water has entered the sanitary sewer from a direct source. The more intense storms, usually over a short period (one hour) are helpful in determining the amount and sometimes the type of I/I.

The following rainfall events were used to determine the amount of peak hour I/I rates isolated within the sanitary sewer collection system during the metering period (May to September 2005):

	Inches per Hour
June 8, 2005	0.47
June 20, 2005	0.70
June 27, 2005	0.53
July 25, 2005	0.90
August 26, 2005	0.98
September 4, 2005	0.60

As stated earlier, the highest intensity storm event occurred during the morning of August 26, 2005 when 0.98 inches of rain fell over a one-hour period. The rainfall was determined to be less than a one-year, one-hour event based on regional publications on storm occurrence intervals. Weather data collected by the National Weather Service, Technical Paper No. 40 (TP-40), was used to determine the rainfall frequency for the August 26 storm event. TP-40 was prepared by the National Weather Service in 1961 to identify precipitation frequency maps for Eastern United States.

### 5.2.2 Daily Rainfall Totals

In order to determine the volume of I/I produced during wet weather periods, we relied more on the 24-hour or daily rainfall events. The intensity of rainfall was not as important, only the total daily rainfall total. Unfortunately, larger rainfall events can create a longer impact on the sanitary sewer collection system, sometimes over multiple days. If rainfall events occur on consecutive days or continuously for multiple days each week, I/I can be present in the sanitary sewer collection system for weeks if the conditions are right. Examples of this would include sources of infiltration such as storm water transfer between the sanitary and storm water collection lines, groundwater entering the sanitary sewer system after large storm events, and surface water through leaking pipe joints, ponding or drainage areas above

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the sanitary collection system. Long periods of rainfall could increase the local groundwater and cause infiltration of water into the sanitary collection system through leaking pipe joints or aging pipe with structural issues.

Four storm events were used to help determine the volume of I/I entering Golden Valley sanitary sewer collection system. The daily rainfall totals ranged from 1.13 to 1.86 inches. The two most significant rainfall events occurred in the fall during the early morning hours (July 25 and August 26, 2005).

### **5.3 Measured Infiltration/Inflow Results**

This section discusses the results found as a result of all the flow monitoring within the Golden Valley sanitary collection system and the approach used to determine dry weather and wet weather flows. The impact of I/I on the Golden Valley sanitary sewer collection system is presented on hydrographs of storm events in Appendix C.

#### **5.3.1 Dry Weather Flows**

Dry weather flows were established with a combination of data with the permanent MCES Flow Metering Stations M117 and M120 and the portable flow meters used for the study. The goal was to establish dry weather flows at each portable flow metering location and calibrate the information with the data from the MCES flow metering stations. The data collected at the permanent MCES location will typically be more accurate. Since the main purpose of installing the flow meters was to isolate areas of significant I/I within the Golden Valley sanitary collection system, establishing dry weather flows by sewer district was not paramount but helpful for comparison purposes. For our study, the number and placement of the meters was determined with the goal of isolating I/I and establishing a flow reduction program.

Dry weather flows were determined during the first two weeks of September due to the dry conditions. The wastewater flow rates at this time were typical of dry weather flows expected during more spring time conditions when snowmelt and early spring rains increase groundwater levels. Even during this period, average daily wastewater flows were below normal conditions. The MCES, as stated in Table 2, uses an average daily flow of 3.22 mgd.

During the early weeks of September, a dry weather flow of 2.96 mgd passed through the MCES flow meters representing the volume of wastewater for Golden Valley. Similar daily flow rates were recorded throughout the remaining month of September. After the flow meters were removed, water level data was recorded to determine the response to the additional rainfall recorded after the equipment was removed. Groundwater levels in the piezometers continued to get higher in October due to the additional rainfall events that occurred in the late fall. Each sewer district's dry weather flow was used as a starting point for comparison to the daily volume of I/I found during the flow monitoring period. Table 7 presents the resulting daily flow rates by sewer district.

**Table 7  
Portable Flow Metering Results**

<b>Sewer District</b>	<b>Average Daily<sup>(1)</sup> Dry Weather Flow (mgd)</b>	<b>Daily Wet Weather Flow<sup>(2)</sup> (mgd)</b>	<b>Peak I/I Flow Rate<sup>(3)</sup> (mgd)</b>	<b>Ratio of Peak I/I Flow Rate vs. Dry Weather Flow</b>
1	0.156	.008	.072	0.5
2	0.023	.004	.029	1.3
3	0.155	.027	.092	0.6
4	0.020	.005	.096	4.8
5	0.172	.008	.132	0.8
6	0.162	.004	.085	0.5
7	0.090	.020	.171	1.9
8	0.077	.010	.167	2.2
9	0.234	.035	.444	1.9
10	0.479	.062	.523	1.1
11	0.174	.020	.222	1.3
12	0.162	.021	.278	1.7
13	0.183	.013	.440	2.4
14	0.079	.032	.172	2.2
15	0.150	.054	.144	1.0
16	0.198	.037	.212	1.1
17	0.130	.020	.278	2.1
18	0.287	.019	.223	0.8
19	0.029	.005	.200	6.9
<b>Total</b>	<b>2.960</b>	<b>0.404</b>	<b>3.980</b>	<b>1.3</b>

**Notes:**

- (1) Based on the average daily wastewater flows (2.96) recorded during the first two weeks of September 2005.
- (2) Based on the results from a rainfall event of 1.86 inches on August 26, 2005.
- (3) I/I peak rates based on rainfall event from August 26, 2005 when 0.98 inches fell over a one-hour period.

**5.3.2 Wet Weather Flows**

Daily wet weather flows were determined using data from the portable meters located throughout the Golden Valley sanitary collection system. The MCES flow meter data was used to study the entire sanitary sewer collection system and provide a method to check the accuracy of the data collected at the portable flow meters. The portable flow meters isolated the I/I by sewer district in order to provide a method to establish measured peak flow rate each sewer district by the amount of I/I contribution.

The wastewater flow data from the individual flow meters was used to determine the wet weather, or in this case daily I/I portion of the flow. A number of rainfall events were used to evaluate the amount of I/I at each location. Six storm events (June 8, June 20, June 27, July 25, August 26, and September 4, 2005) were used to present the estimated daily I/I flow rates (wet weather flow) by sewer district. Each event was used due to the consistency of the data from location to location and each storm event was similar in the amount of I/I measured per each inch of rainfall recorded by the rain gauge at the City Hall complex.

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The results from this event were used to then correlate the data with the flow rate measured at the MCES locations during the same period. The overall wastewater flow rates were consistent with the total wastewater flow volumes at each portable meter location.

#### 5.3.2.1 Measured Peak Flow Rates by District

In order to prioritize future work activities and to establish a baseline for effectiveness of I/I removal, the peak flow rates were determined from the flow metering data. The last two sections review the methodology used in determining the peak I/I flow rates and evaluate the potential for future MCES surcharges and how the findings will be used by the City to continue with potential sewer rehabilitation.

#### 5.3.2.2 Daily I/I Flow Estimates

Based on the storm events of June 8, June 20, June 27, July 25, August 26, and September 4, 2005, the peak I/I flow rate at each portable flow metering location was determined. The initial peak rate recorded immediately after the most intense period of each storm event was subtracted from the previous flow rate if the rainfall intensity peaked at the beginning of the storm. If rainfall occurred earlier, the previous day's flow rate was used, but only if it was consistent with similar readings during that same period of time (days before the event). The storm events were used because of the nature of the rainfall, either because the event was somewhat isolated from others or easy to determine what the typical dry weather flow rate would be if it was not raining.

The peak I/I rates were determined and then normalized by dividing the peak I/I rate by the peak hour rainfall total for each storm event. The peak I/I rates per inch of rain were then averaged to determine a typical peak I/I rate by sewer district for each inch of rainfall expected during a peak hour event. The peak hour rainfall event is a typical storm event the City would expect to see each year. The results are shown in Table 8. Sewer Districts 4, 8, 13, 14, and 17 have the highest ratio of peak I/I flow to the amount of dry weather flow generated in each district. Districts 9, 10, 13, 16, and 17 generate the highest peak rate of inflow during a significant rainfall event. It is unfortunate that the most significant storm event of 2005 occurred after the end of the monitoring period on October 4, 2005. Also, the potential of a higher groundwater table would have increased the I/I results in some of the districts impacted by a higher groundwater table. Hydrographs of the flow monitoring results from areas with a higher groundwater table or from prolonged storm events could produce a sustained rate recorded above the normal daily rates for up to two days. This condition would typically be found with private property sources such as sump pumps or foundation drains. Figure 4 graphically illustrates the sewer districts with the highest I/I peak rates measured in gallons per minute per inch of rainfall over a one-hour period.

### 5.4 **Current vs. Historical Results**

Overall, the volume of I/I entering the Golden Valley sanitary collection system is not as significant as the peak hour values. The problem, which the MCES surcharge has been created for, is the peak rates of I/I that occur

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during rainfall periods. In the past, based on MCES flow metering data, the City has reached peak hour flow rates exceeding 19 mgd (April 2001). Recently, during a storm event in October 4, 2005 (the largest of 2005), the MCES recorded a peak I/I flow rate of approximately 13.8 mgd from Golden Valley which set the amount of the current surcharge. Even though the current flow monitoring program in this study missed the largest events, we were able to capture enough data to begin the process of looking in specific areas in order to locate I/I sources.

### **5.5 Golden Valley Lift Station Data**

During the study, the City provided historical pump data on the three lift stations (Highway 55, Schaper and Woodstock) currently in operation within the City of Golden Valley. Pump running times were tabulated from City records during each of the years from 2001 through 2003 when significant rainfall events occurred at each station. Comparing the data to the daily rainfall totals, it is easy to see the large amount of I/I from each lift station. In most cases, the pumps at each station run for half the day during the storm event when the pumps run less than 2 hours under typical conditions. Appendix D includes graphs of the data from all three lift stations.

## **6.0 I/I Field Investigations**

In addition to the flow monitoring program, a number of investigations were performed in order to better understand the City's sanitary sewer collection system and the City's overall sanitary sewer program. The additional investigation work was completed to assist in the development of an overall I/I reduction program.

### **6.1 Drain Tile Program**

The City of Golden Valley has implemented a drain tile program in conjunction with their Pavement Management Program to address with a number of surface water management issues. The program consists of the installation of subsurface drainage pipes behind the curb during street reconstruction. The program relied on voluntary information from the homeowners to determine the need for the drain tile. The residents are allowed the opportunity to extend a storm sewer line into the tile from their sump pump discharge pipes. Under this same program, the City mails out a survey to ask the City residents if they have a sump pump and if so where does it discharge. Although it is difficult to measure the effectiveness of such a program, any measure to remove water from the residents' yards will reduce the potential for recycling water into service laterals or back into the house foundation. Figure 7 includes a map prepared by the City which indicates which residents participated in the Program.

### **6.2 Bassett Creek Interceptor Inspection**

On September 29, portions of the MCES Bassett Creek Interceptor were inspected to see if the manholes and/or sewer pipe would be susceptible to a flood from the creek. Each manhole was inspected and information was recorded as to its location, condition of the sewer, lid, rings, etc., its height above grade and an assessment on its ability to take in water if exposed to flooding. The flood plain data on Bassett Creek was provided from FEMA

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and GIS data was obtained from MCES on the location of all the manholes along the MCES interceptor (Bassett Creek).

The results of the inspection survey are provided in Appendix E and the location of the manholes and their proximity to the 100-year flood plain as defined by FEMA is presented in Figure 5. Twenty-four manholes are located in the flood plain and have the potential to contribute I/I during a flood created by Bassett Creek. The potential amount of I/I contribution from these manholes would vary depending on the depth of surface water over each location, but each manhole lid and frame could potentially add 5 to 10 gallons per minute of inflow during a flooding event.

### **6.3 Manor Area Sump Pump Inspections**

A sump pump inspection program was conducted from November 10, 2005 until the end of November. An information packet outlining the purpose and scope of the inspections went out to each resident in the Manor area in the northeast corner of Golden Valley. The program was voluntary. Each resident called in for an appointment and an inspection was completed on their basement to determine if they were in compliance with the current sewer ordinance. Approximately 183 homes were notified of the inspections and 99 homes, or about 50 percent of the residents, called in and scheduled an appointment. Three houses were found to be not in compliance with the ordinance. Many of the homes did not have a sump pump and the residents believed that they did not have foundation drains around their homes. The residents with sump pumps indicated that they were not used often only installed one when they received a limited amount of water during very wet years.

The results of the study are presented on Figure 6 and the hard copy of the inspection forms are provided in Appendix F.

## **7.0 I/I Reduction Program**

Continued sanitary sewer collection activities need to be part of a routine maintenance program for the City of Golden Valley as part of an ongoing I/I reduction program. Continued maintenance of the collection system is critical to the success of managing I/I in the sanitary sewer collection. Future work should be directed to the areas with the highest I/I peak rates with the districts in the western side of the City. The districts with a high seasonal groundwater table seem to be the areas with the most problems. The City will need to continue its efforts to investigate sources of inflow to reduce potential I/I and avoid further charges by the MCES. This would include the following measures with an emphasis on the districts with higher potential for inflow:

- Cleaning and closed circuit television (CCTV) inspection
- Conduct a building inspection program for private property sources
- Review and revise the City sewer ordinance
- Determine potential financing options for City and residents
- Continue with the drain tile program

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- Implement a service lateral inspection/repair program/revise ordinance as needed
  - Meet with MCES and work with staff to update Bassett Creek Interceptor
  - Monitor MCES flow metering results
  - Record all I/I abatement efforts and document every City expense for investigation and sewer rehabilitation.
  - Meet with the City of Robbinsdale to discuss inflow contributions from District 19.

### **7.1 Cleaning and Closed Circuit Television Inspection (CCTV)**

The City should continue with their annual cleaning and CCTV program with an emphasis on Districts 9, 10, 13, 16, and 17. All sewer pipes will be cleaned to enhance future closed-circuit television inspection. The television inspection will be completed by inserting a TV camera through the sewer system and preparing a photo log of pipe defects, specifically looking for inflow, as well as infiltration sources. The City should monitor the groundwater and coordinate CCTV with the periods with higher recorded water tables from the piezometers in the area of the CCTV inspection. Piezometers PZ-1, 3, 4, and 5 have the higher water table elevations. During high groundwater periods, careful monitoring could make it easier to locate inflow sources, especially after significant rainfall events. Data collected from the inspection will be documented and used to establish the method needed for collection system rehabilitation.

### **7.2 Building Inspections**

In order to effectively remove the amount of peak inflow from the Golden Valley sanitary sewer collection system necessary to eliminate future long-term MCES demand charges, the City will need to implement a private property building inspection program. Voluntary programs typically have limited success in reducing the I/I problem. The City will need to first develop a strategy to investigate, identify, and finally fund the necessary rehabilitation needed to remove the I/I. Once the strategy has been developed, the sewer ordinance will likely need to be revised to support the program. In coordination with the redrafting of the ordinance, the City will need to provide education through the City's website or by pamphlets so the residents can support the program.

Once the sewer ordinance is in place, the City should begin with the inspection program in the districts with the highest amount of peak inflow (District 10) and continue to work through City in the Districts (9, 13, 16, and 17) with the higher inflow rates.

The City should also continue with the drain tile program in conjunction with the City's Pavement Management Program. The private property inspection program will create more opportunities for the removal of clear water and the drain tile program will provide a mechanism to remove the water expeditiously from the property. The City may need to discuss the potential for a mandatory program to connect sump pump discharge piping to the drain tile if available. The City will also need to review the locations of previous

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sump pump, illegal connections, and investigate the potential for foundation drain connections in buildings that do not currently appear to have wet basements or a sump pit.

### **7.3 Service Lateral Inspection/Repair Program**

Another source of inflow and infiltration which can be significant under the right groundwater conditions are service laterals. Many service laterals are in need of repair or replacement, but are never considered for inspection or rehabilitation due to the burden placed on the resident. During replacement of the sanitary sewer line on public property, the structural condition of the pipe may require replacement, but the service laterals are typically not checked and usually tapped back into the new sewer line. The old service lateral could be adding I/I into the sanitary collection system. A number of municipalities in the Midwest have implemented a program which requires the resident to verify the integrity of their sanitary sewer line prior to reconnection. This assures the City that each line, at a minimum, has been inspected and will not cause additional problems, structurally or potentially with I/I. The City should consider this option and include it as part of their sewer ordinance as another method to potentially reduce I/I in the future.

### **7.4 Bassett Creek Interceptor**

The City should open up a dialogue with MCES staff to determine the present maintenance schedule for the St Louis Park and Bassett Creek Interceptor. Although it is not the sole cause of the excessive peak flow rates in the Golden Valley sanitary sewer collection system, it is part of the problem during extremely wet periods or when Bassett Creek expands into the flood plain. Significant amounts of inflow will enter the system during flood conditions along the interceptor. We would recommend meeting with MCES staff periodically to determine what maintenance has been performed, the schedule for upgrades to the interceptor and an agreement on the (City vs. MCES) responsibilities for excessive flows caused by flooding as defined by the inflow contributions from the interceptor.

### **7.5 Future MCES Flow Metering Evaluation**

The MCES has invested a large amount of energy and revenue in putting together a flow monitoring network so they can bill their customers equitably. The system is subject to the same types of problems the City faces each day, such as equipment failure or error and maintenance caused by residents that do not always understand the limitations of a wastewater collection and treatment system. Therefore, the City should continue to monitor the flow monitoring results provided by the MCES and check in with MCES staff on the performance of the flow meter used to determine Golden Valley wastewater flow rates and volumes. Each year the City should document all I/I reduction program efforts and maintain a record of expenses in the event the MCES does impose a surcharge on the City of Golden Valley.

### **7.6 I/I Abatement Program Direction**

A summary of the I/I field work and activities under the program has been identified by year in Table 8. A preliminary budget has been established to complete the field work and program management activities. Future

discussions on the amount of assistance to help residents pay for sump pump rehabilitation costs would be additional along with the costs of sewer lateral or main repairs completed under this program.

Year	Sewer District	I/I Field Work/Activities	I/I Findings and Recommendations
2006	10	<ul style="list-style-type: none"> <li>• Annual cleaning and CCTV inspection.</li> <li>• Develop strategy for private property inspections.</li> <li>• Revise sewer ordinance.</li> <li>• Conduct education program.</li> <li>• Adopt sewer ordinance.</li> <li>• Perform initial building inspections.</li> <li>• Establish meetings with MCES staff</li> <li>• Expand the drain tile program</li> <li>• Perform additional flow monitoring</li> <li>• Inspect and repair/replace manhole covers/frame/rings</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate local funding options.</li> <li>• Establish budget for sump pump repairs.</li> <li>• Document sewer maintenance activities</li> </ul>
2007	9 & 13	<ul style="list-style-type: none"> <li>• Annual cleaning and CCTV inspection.</li> <li>• Investigate service lateral inspection program.</li> <li>• Revise ordinance as needed.</li> <li>• Implement service lateral inspection w/Pavement Management Program.</li> <li>• Continue with building inspections.</li> </ul>	<ul style="list-style-type: none"> <li>• Document sump pump rehabilitation and provide certificates of compliance.</li> <li>• Monitor MCES flows.</li> <li>• Document sewer maintenance activities</li> </ul>
2008	14 & 16	<ul style="list-style-type: none"> <li>• Annual cleaning and CCTV inspection.</li> <li>• Continue with private property inspections.</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor MCES flows.</li> <li>• Document sewer maintenance activities</li> <li>• Document sump pump rehabilitation and provide certificates of compliance</li> </ul>
2009-2012	7,8,11,12, 14,15 & 18	<ul style="list-style-type: none"> <li>• Evaluate need to continue program</li> <li>• Continue with private property inspections.</li> <li>• Annual cleaning and CCTV inspection.</li> </ul>	<ul style="list-style-type: none"> <li>• Determine impact of I/I reduction program.</li> <li>• Document sewer maintenance activities.</li> <li>• Document sump pump rehabilitation and provide certificates of compliance</li> </ul>

## 8.0 Conclusions and Recommendations

Based on the results of the I/I analysis completed for the City of Golden Valley, the following conclusions are offered:

- The City of Golden Valley sanitary collection system during past storm events has exceeded the maximum allowable peak hour rate calculated by the MCES in the past. During a storm event in April 2001, a peak hour rate greater than 19 mgd was recorded, exceeding the minimum allowable peak hour rate established by MCES.

- 
- Under the current program, the City will be assessed a surcharge of \$1,900,500.00 by the MCES based on an October 4, 2005 storm event which produced a peak rate of 13.8 mgd in the Golden Valley sanitary sewer collection system. This amount could increase if larger storm events occur in future years.
  - The City of Golden Valley did not reach the allowable peak hour rate established under the MCES surcharge program during the flow monitoring program completed in 2005 under this study. The peak rate of I/I appears to be lower than historical readings due to the limited rainfall events and lower than typical groundwater elevations in 2005.
  - Although the total rainfall during the flow monitoring period was lower than normal, six rainfall events (June 8, June 20, June 27, July 25, August 26, and September 4, 2005) which produced system responses, occurred during the four-month period.
  - Under the current groundwater conditions in 2005 and the lack of rainfall early in the year, the City did not receive a storm event which triggered the maximum peak hour flow rate during the flow monitoring period. On October 4, 2005 the City received a storm event which did cause the City to exceed the criteria for a surcharge as established by the MCES.
  - The City was divided into 18 sewer districts to isolate specific areas contributing I/I in the Golden Valley sanitary sewer system. Districts 9, 10, 13, 16, and 17 had the highest peak inflow rates recorded during the flow monitoring.

The MCES surcharge will require the City to take a hard look at additional sources of I/I due to the high peak hour rates that have been recorded at the MCES flow monitoring stations which meters Golden Valley's wastewater flow rates.

- The City should continue with their cleaning and CCTV program with an emphasis on Districts 9, 10, 13, 16, and 17. Monitor the piezometer and conduct CCTV during periods of higher groundwater or after significant rainfall events.
- Meet with the City of Robbinsdale to redevelop a plan to address I/I from District 19
- Develop a strategy for performing private property inspections
- Develop a strategy for a building inspection program for private property sources.
- Determine financing options for the City and/or residents.
- Continue with the drain tile program.
- Consider implementing a service lateral inspection and repair program during major street and utility reconstruction projects.
- Meet with MCES and work with staff to update the St Louis Park and the Bassett Creek Interceptor. The City should periodically check with MCES staff to discuss the status of the meter locations and their maintenance history to see if the performance of the station improves in the future.

- 
- Review MCES flow monitoring results to determine if there are any significant trends during peak hour flows or I/I since MCES surcharges will be based on data collected from future rainfall events.
  - Maintain records and document all I/I investigation and sewer rehabilitation expenses in the event of an MCES surcharge in the future.
  - Implement an I/I reduction program based on the above-mentioned elements to reduce I/I in the Golden Valley sanitary sewer system.

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## **List of Figures**

Figure 1 – Minneapolis-St. Paul Annual Rainfall

Figure 2 – Sewer District Boundary Map

Figure 3 – Sanitary Sewer District Layout

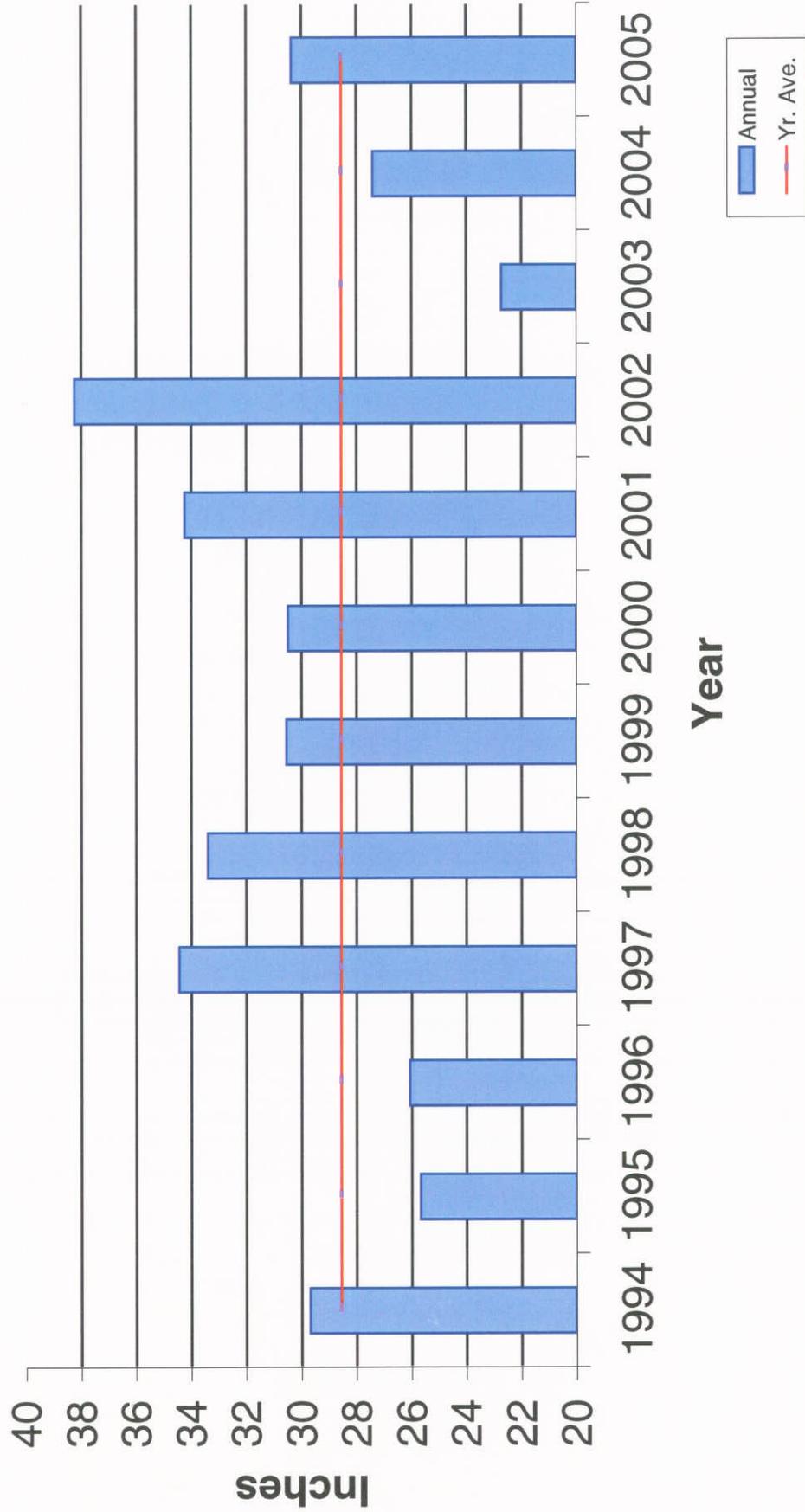
Figure 4 – Peak I/I Flow Rates

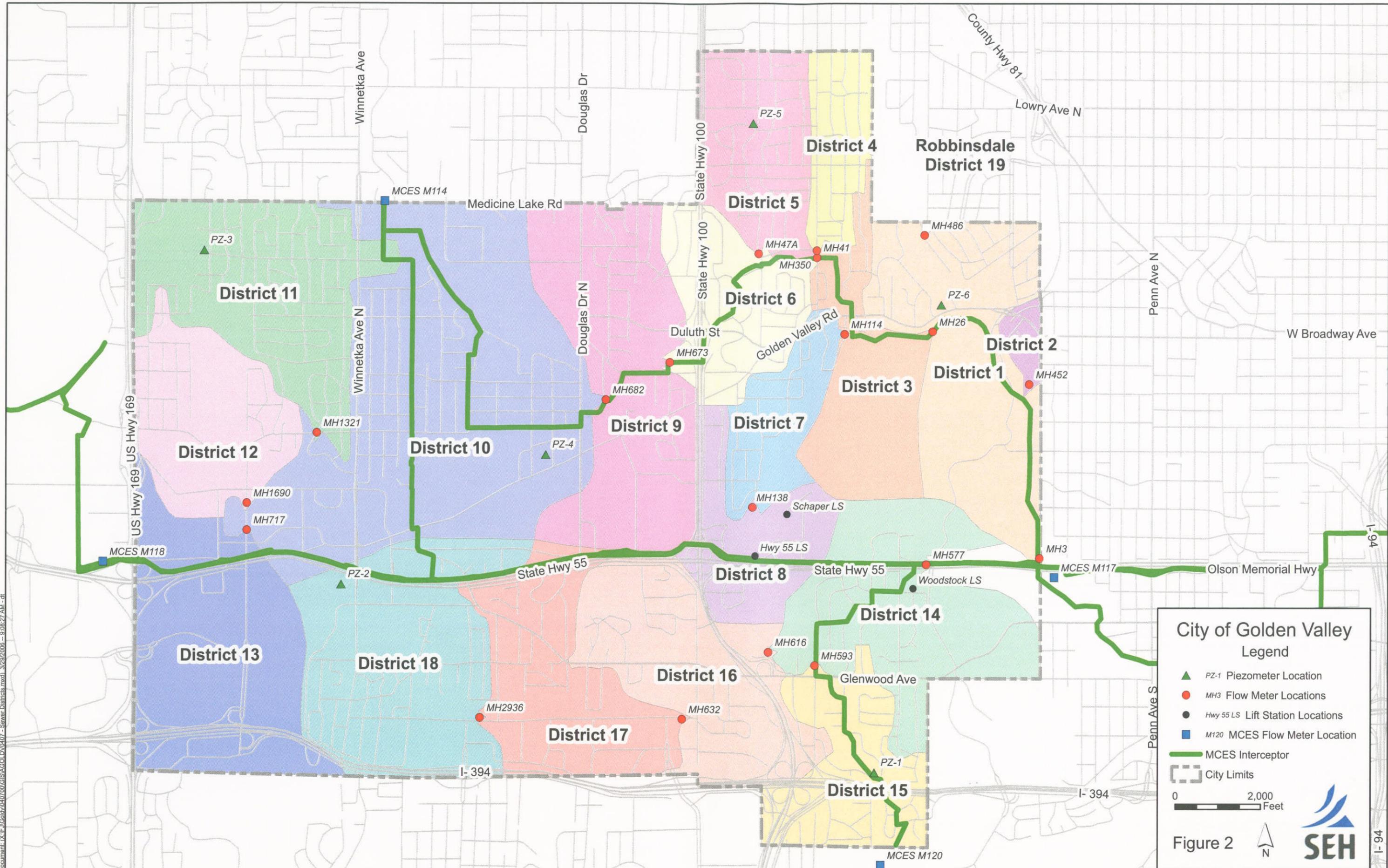
Figure 5 – Bassett Creek Interceptor Overview Map

Figure 6 – Sump Pump Inspection Program Survey

Figure 7 – Voluntary Program for Sump Pump Connections

**Figure 1**  
**Mpls-StP Annual Rainfall**





### City of Golden Valley Legend

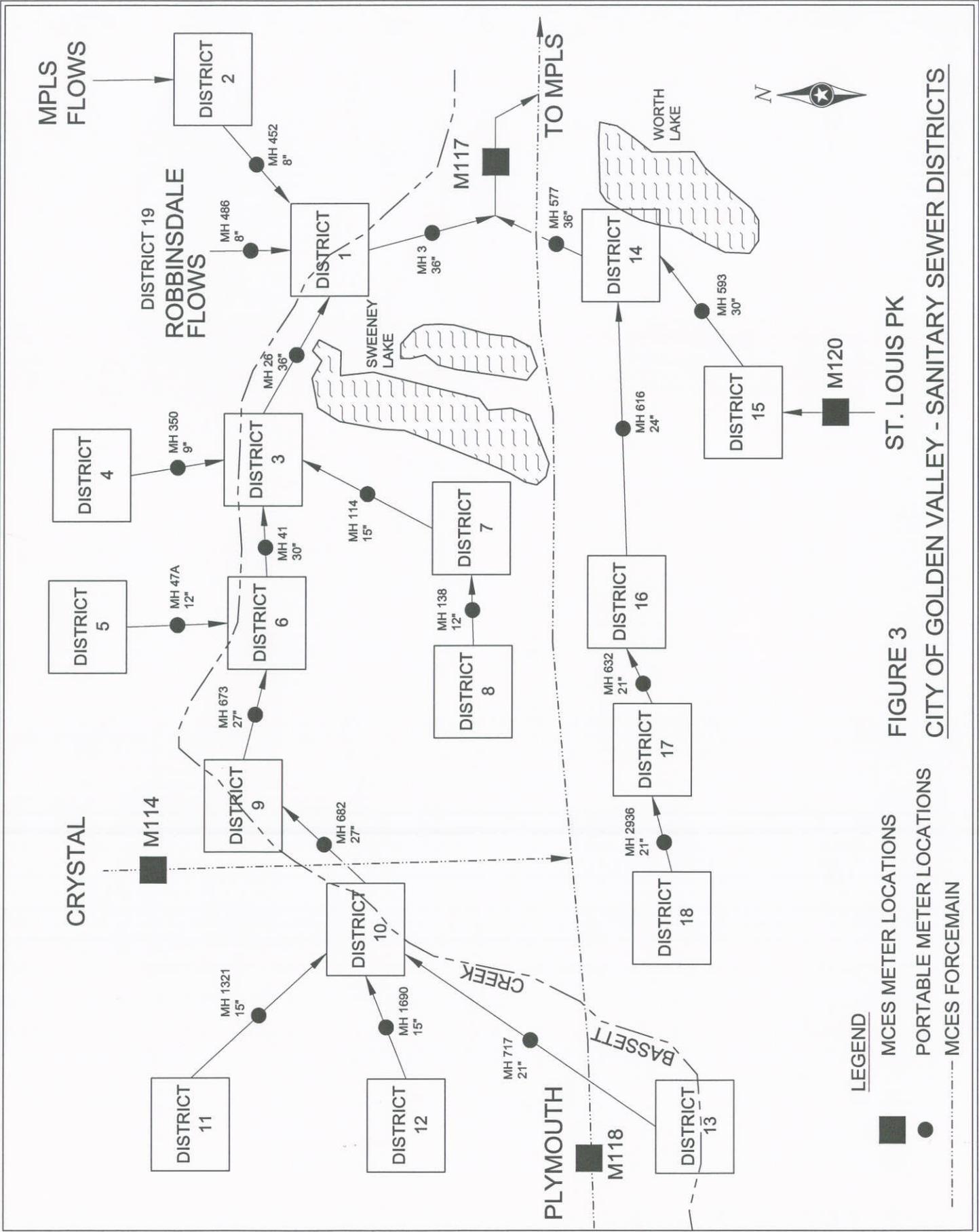
- ▲ PZ-1 Piezometer Location
- MH3 Flow Meter Locations
- Hwy 55 LS Lift Station Locations
- M120 MCES Flow Meter Location
- MCES Interceptor
- City Limits

0 2,000 Feet

Figure 2 N

**SEH**

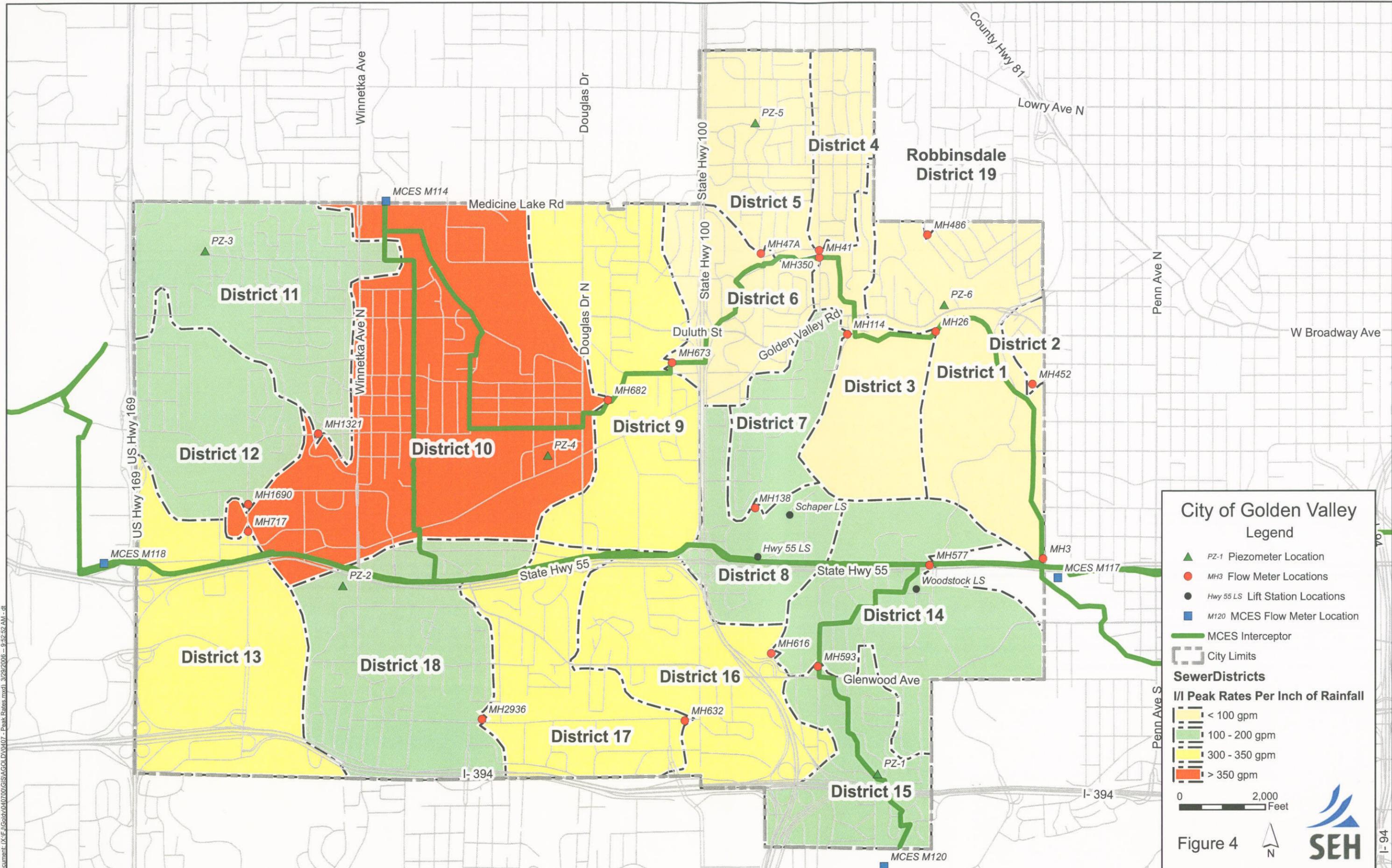
Document: \\F:\GIS\GIS\AGOL\DW\407 - Sewer Districts.mxd, 3/29/2006 - 9:08:27 AM - dt



**LEGEND**

- MCES METER LOCATIONS
- PORTABLE METER LOCATIONS
- - - MCES FORCEMAIN

**FIGURE 3**  
**CITY OF GOLDEN VALLEY - SANITARY SEWER DISTRICTS**



### City of Golden Valley Legend

- ▲ PZ-1 Piezometer Location
- MH3 Flow Meter Locations
- Hwy 55 LS Lift Station Locations
- M120 MCES Flow Meter Location
- MCES Interceptor
- City Limits

#### Sewer Districts

I/I Peak Rates Per Inch of Rainfall

- < 100 gpm
- 100 - 200 gpm
- 300 - 350 gpm
- > 350 gpm

0 2,000  
 Feet

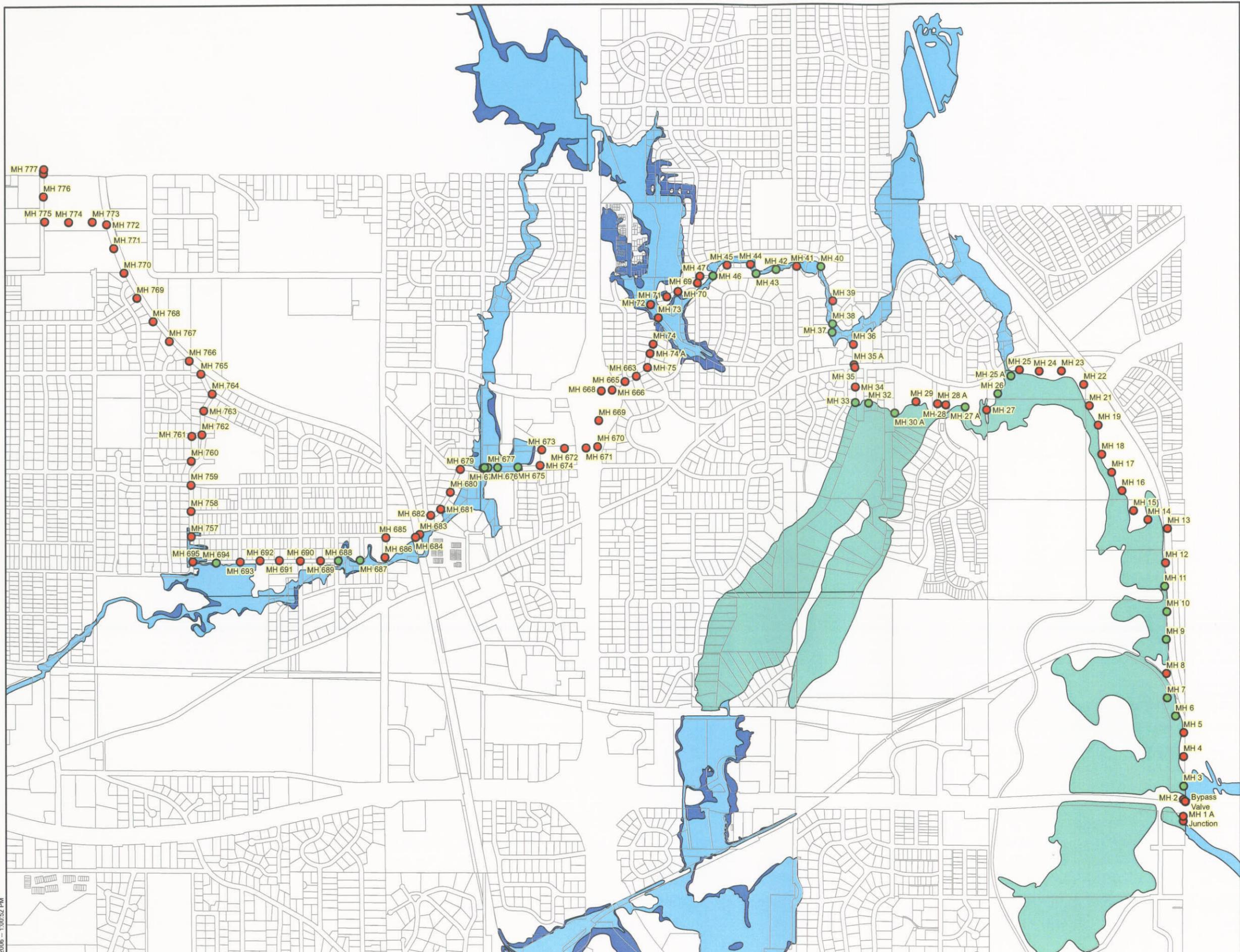
Figure 4 N

**SEH**

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I-94

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2006 - 1:00:52 PM



**Legend**

**FEMA ZONE**

- ZONE A (100 YR FLOOD PLAIN)
- ZONE AE (100 YR FLOOD PLAIN-BFE DETERMINED)
- ZONE X500 (500 YR FLOOD PLAIN)

- MCES Manholes
- Manholes with the potential for contributing I/I during Flood Conditions



Projection:  
Hennepin County Coordinates, Nad 83 ft  
Source:  
MCES, Hennepin County, FEMA, NRCS  
Drawn by:  
dc



# BASSETT CREEK INTERCEPTOR OVERVIEW

Golden Valley, MN



Project Number  
AGOLDV0407.00

Figure  
5



### Legend

- Limits of Inspection
- Not Inspected
- No Sumps or Foundation Drains
- Pump Permanently Piped Outside
- 2 Sumps Permanently Piped Outside
- Non Compliance
- No Sump, Has Driveway Drain
- 2 Sumps, No Pumps or Piping



## SUMP PUMP INSPECTION PROGRAM SURVEY

Golden Valley, MN



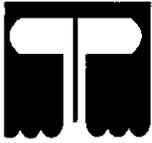
Project Number  
AGOLDV0407.00

Figure  
6

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## **Appendix A**

Minnesota Department of Health Monitoring Well Boring Records



# THEIN WELL CO.

WELLS ~ PUMPS  
SALES ~ SERVICE

Since 1893

102 OUNOAS ROAD • MONTICELLO, MN 55379  
(763) 271-4200 • (320) 847-3207  
www.theinwell.com  
e-mail twell@hcinet.net

S.E.H.  
City of Golden Valley Project  
Golden Valley, Minnesota  
May 17, 2005

Geological Materials	Color	Material Hardness	From	To	Blow Counts
<b><u>PZ #1</u></b>					
Silty Clay	Blk	Soft	0	3	
Silty Clay	Blk Brn	Med	3	5	21
Silty Clay Fine Sand	Brn	Med	5	8	
Fine Sand	Brn	Med	8	10	20
Fine Sand	Brn	Med	10	12	20
Gravel	Brn	Med	12	14	21
Coarse Sand	Brn	Med	14	16	22
<b><u>PZ #2</u></b>					
Clay Gravel	Blk Brn	Med	0	3	
Clay Gravel	Brn	Med	3	5	40
Silty Clay	Brn Blk	Med	5	8	
Silty Clay	Blk	Med	8	10	48
Silty Clay Gravel	Blk	Med	10	13	
Gravel	Gray	Hard	13	15	68/Refusal
Coarse Sand	Gray	Med	15	17	29
Coarse Sand	Gray	Med	17	19	21
Coarse Sand	Gray	Med	19	21	22/Refusal
Coarse Sand	Gray	Med	21	23	20
<b><u>PZ #3</u></b>					
Silty Clay	Brn	Soft	0	3	
Silty Clay	Brn	Soft	3	5	10
Silty Clay	Brn	Soft	5	8	
Clay	Red Brn	Hard	8	10	89
Clay	Red Brn	Hard	10	12	55
Clay Gravel	Red Brn	Hard	12	14	100+
Clay Gravel	Red Brn	Hard	14	16	100+
Clay Gravel	Red Brn	Hard	16	18	88

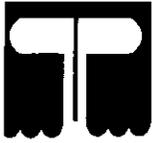
SPICER, MN 56288 (320) 796-2111 • ROCHESTER, MN 55901 (507) 288-5554 • MONTICELLO, MN 55362 (763) 271-4200

MEMBER  
NGWA

**CERTIFIED MASTER WATER WELL CONTRACTOR**

Equal Opportunity Employer

MEMBER  
AWWA



# THEIN WELL CO.

WELLS ~ PUMPS  
SALES ~ SERVICE

Since 1893

102 DUNDAS ROAD • MONTICELLO, MN 55379  
(763) 271-4200 • (320) 847-3207  
www.theinwell.com  
e-mail twell@hclnet.net

S.E.H.  
City of Golden Valley Project  
Golden Valley, Minnesota  
May 17, 2005

Geological Materials	Color	Material Hardness	From	To	Blow Counts
<u>PZ #4</u>					
Clay	Blk	Med	0	3	
Clay	Blk Brn	Med	3	5	23
Clay Coarse Sand	Brn	Med	5	8	
Coarse Sand Gravel	Brn	Med	8	10	26
Coarse Sand Gravel	Brn	Med	10	12	28/Refusal
Coarse Sand Gravel	Brn	Med	12	14	100+
Coarse Sand Gravel	Brn	Med	14	16	68
Coarse Sand Gravel	Brn	Med	16	18	74
<u>PZ #5</u>					
Silty Clay	Blk	Med	0	3	
Silty Clay	Blk	Med	3	5	23
Silty Clay	Blk	Med	5	8	
Silt Organics	Blk Gray	Hard	8	10	80
Silt Organics	Gray	Soft	10	12	5
Silt Organics	Gray	Soft	12	14	5
Silt Organics	Gray	Soft	14	16	6
Silt Organics Sand	Gray Brn	Soft	16	18	8
Coarse Sand	Brn	Soft	18	20	13
<u>PZ #6</u>					
Clay Fine Sand	Blk Brn	Soft	0	3	
Fine Sand	Brn	Soft	3	5	17
Fine Sand	Brn	Soft	5	8	
Fine Sand	Brn	Med	8	10	21
Fine Sand	Brn	Med	10	13	
Coarse Sand	Brn	Med	13	15	22
Coarse Sand Gravel	Brn	Med	15	17	37
Coarse Sand Gravel	Brn	Med	17	19	42
Sand Gravel Silty Sand	Brn	Soft	19	21	15
Sand Gravel Silty Sand	Brn	Soft	21	23	17
Sand Gravel Silty Sand	Brn	Med	23	25	22
Sand Gravel Silty Sand	Brn	Med	25	26	
Sand Gravel Silty Sand	Brn	Med	26	28	23

SPICER, MN 56288 (320) 796-2111 • ROCHESTER, MN 55901 (507) 288-5554 • MONTICELLO, MN 55382 (763) 271-4200

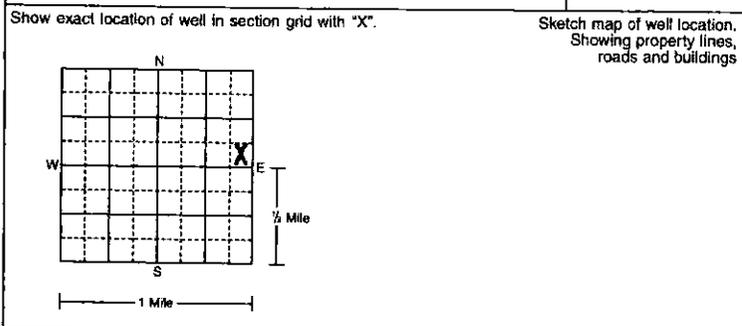
MINNESOTA DEPARTMENT OF HEALTH  
**WELL AND BORING RECORD**  
 Minnesota Statutes, Chapter 103I

MINNESOTA UNIQUE WELL NO.

725670

WELL LOCATION  
 County Name **HENNEPIN**  
 Township Name \_\_\_\_\_ Township No. **29N** Range No. **24W** Section No. **30** Fraction **SE 1/4**  
 WELL DEPTH (completed) **15'** ft. Date Work Completed **5/17/05**

GPS LOCATION: Latitude \_\_\_\_\_ degrees \_\_\_\_\_ minutes \_\_\_\_\_ seconds \_\_\_\_\_  
 Longitude \_\_\_\_\_ degrees \_\_\_\_\_ minutes \_\_\_\_\_ seconds \_\_\_\_\_  
 House Number, Street Name, City, and Zip Code of Well Location **SUNSET RIDGE & RAVINE TRAIL GOLDEN VALLEY** or Fire Number \_\_\_\_\_



DRILLING METHOD  
 Cable Tool  Driven  Dug  
 Auger  Rotary  Jetted

DRILLING FLUID **NONE USED** WELL HYDROFRACTURED?  Yes  No  
 FROM \_\_\_\_\_ ft. TO \_\_\_\_\_ ft.

USE  
 Domestic  Monitoring  Heating/Cooling  
 Noncommunity PWS  Environ. Bore Hole  Industry/Commercial  
 Community PWS  Irrigation  Remedial  
 Dewatering  **PIEZOMETER**

CASING Drive Shoe?  Yes  No  
 Steel  Threaded  Welded  
 Plastic

CASING DIAMETER WEIGHT HOLE DIAM.  
**2** in. to **5** ft. **.69** lbs./ft. **8 1/2** in. to **16** ft.  
 \_\_\_\_\_ in. to \_\_\_\_\_ ft. \_\_\_\_\_ lbs./ft. \_\_\_\_\_ in. to \_\_\_\_\_ ft.  
 \_\_\_\_\_ in. to \_\_\_\_\_ ft. \_\_\_\_\_ lbs./ft. \_\_\_\_\_ in. to \_\_\_\_\_ ft.

PROPERTY OWNER'S NAME/COMPANY NAME  
**CITY OF GOLDEN VALLEY**  
 Property owner's mailing address if different than well location address indicated above.  
**7800 GOLDEN VALLEY ROAD  
 GOLDEN VALLEY MN 55427**

SCREEN **TIMCO** OPEN HOLE  
 Make **PVC** FROM **2"** TO \_\_\_\_\_ ft.  
 Type \_\_\_\_\_ Diam. \_\_\_\_\_  
 Slot/Gauze **10' SLOT** Length **10'**  
 Set between **5** ft. and **15** ft. FITTINGS \_\_\_\_\_

STATIC WATER LEVEL  
**8** ft.  below  above land surface Date measured **5/17/05**

WELL OWNER'S NAME/COMPANY NAME  
**SAME AS ABOVE**  
 Well owner's mailing address if different than property owners address indicated above.

PUMPING LEVEL (below land surface)  
**N/A** ft. after \_\_\_\_\_ hrs. pumping \_\_\_\_\_ g.p.m.

WELL HEAD COMPLETION  
 Pitless adapter manufacturer \_\_\_\_\_ Model \_\_\_\_\_  
 Casing Protection **6" PROTOP**  12 in. above grade  
 At-grade (Environmental Wells and Boring ONLY)

GROUTING INFORMATION  
 Well grouted  Yes  No  
 Grout material  Neat cement  Bentonite  Concrete  High Solids Bentonite  
 from **0** to **4** ft. **2** yds.  bags  
 from **4** to **4 1/2** ft. **1** yds.  bags  
 from \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ yds.  bags

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
<del>SILTY CLAY</del>	<del>BLACK</del>	<del>SOFT</del>	<del>0</del>	<del>3</del>
<del>SILTY CLAY</del>	<del>BLK/BRN</del>	<del>MED</del>	<del>3</del>	<del>5</del>
<del>SILTY CLAY SAND</del>	<del>BROWN</del>	<del>MED</del>	<del>5</del>	<del>8</del>
<del>SAND</del>	<del>BROWN</del>	<del>MED</del>	<del>8</del>	<del>10</del>
<del>GRAVEL</del>	<del>BROWN</del>	<del>MED</del>	<del>12</del>	<del>14</del>
<del>SAND</del>	<del>BROWN</del>	<del>MED</del>	<del>14</del>	<del>16</del>

NEAREST KNOWN SOURCE OF CONTAMINATION **UNKNOWN**  
 \_\_\_\_\_ feet \_\_\_\_\_ direction \_\_\_\_\_ type

Well disinfected upon completion  Yes  No

PUMP  
 Not installed Date installed \_\_\_\_\_

Manufacturer's name \_\_\_\_\_  
 Model number \_\_\_\_\_ HP \_\_\_\_\_ Volts \_\_\_\_\_

Length of drop pipe \_\_\_\_\_ ft. Capacity \_\_\_\_\_ g.p.m.  
 Type:  Submersible  L.S. Turbine  Reciprocating  Jet  \_\_\_\_\_

ABANDONED WELLS  
 Does property have any not in use and not sealed well(s)  Yes  No

VARIANCE  
 Was a variance granted from the MDH for this well?  Yes  No TN# \_\_\_\_\_

WELL CONTRACTOR CERTIFICATION  
 This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

REMARKS, ELEVATION, SOURCE OF DATA, etc.  
**PX#1**  
 seh

**THEIN WELL COMPANY** 34625  
 Licensee Business Name Lic. or Reg. No. **6/14/05**  
  
 Authorized Representative Signature Date  
**ALVIN WIEBER**  
 Name of Driller

IMPORTANT - FILE WITH PROPERTY PAPERS  
 WELL OWNER COPY **725670**

MINNESOTA DEPARTMENT OF HEALTH  
**WELL AND BORING RECORD**  
 Minnesota Statutes, Chapter 103I

MINNESOTA UNIQUE WELL NO.

**725671**

WELL LOCATION

County Name  
**HENNEPIN**

Township Name \_\_\_\_\_ Township No. **118N** Range No. **21W** Section No. **32** Fraction **SW SW NW**

WELL DEPTH (completed) **23'** ft. Date Work Completed **5/17/05**

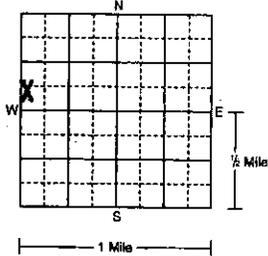
GPS LOCATION: Latitude \_\_\_\_\_ degrees \_\_\_\_\_ minutes \_\_\_\_\_ seconds \_\_\_\_\_  
 Longitude \_\_\_\_\_ degrees \_\_\_\_\_ minutes \_\_\_\_\_ seconds \_\_\_\_\_

DRILLING METHOD  
 Cable Tool  Driven  Dug  
 Auger  Rotary  Jetted

House Number, Street Name, City, and Zip Code of Well Location  
**WINNETKA AVENUE & OLSON MEMORIAL HIGHWAY GOLDEN VALLEY**

DRILLING FLUID **NONE USED** WELL HYDROFRACTURED?  Yes  No

Show exact location of well in section grid with "X". Sketch map of well location. Showing property lines, roads and buildings



USE  
 Domestic  Monitoring  Heating/Cooling  
 Noncommunity PWS  Environ. Bore Hole  Industry/Commercial  
 Community PWS  Irrigation  Remedial  
 Dewatering  **PIEZOMETER**

PROPERTY OWNER'S NAME/COMPANY NAME  
**CITY OF GOLDEN VALLEY**

CASING Drive Shoe?  Yes  No  
 Steel  Threaded  Welded  
 Plastic

Property owner's mailing address if different than well location address indicated above.  
**7800 GOLDEN VALLEY ROAD  
 GOLDEN VALLEY MN 55427**

CASING DIAMETER **2** in. to **13** ft. WEIGHT **.69** lbs./ft. **8 1/2** in. to **23** ft.

WELL OWNER'S NAME/COMPANY NAME  
**SAME AS ABOVE**

SCREEN **TIMCO** OPEN HOLE FROM **2'** TO \_\_\_\_\_ ft.  
 Make \_\_\_\_\_ Type **PVC** Diam. \_\_\_\_\_  
 Slot/Gauze **10 SLOT** Length **10'**  
 Set between **13** ft. and **23** ft. FITTINGS \_\_\_\_\_

Well owner's mailing address if different than property owners address indicated above.

STATIC WATER LEVEL **15** ft.  below  above land surface Date measured **5/17/05**

PUMPING LEVEL (below land surface) **N/A** ft. after \_\_\_\_\_ hrs. pumping \_\_\_\_\_ g.p.m.

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
CLAY GRAVEL	BLK/BRN	MED	0	3
CLAY GRAVEL	BROWN	MED	3	5
MILTY CLAY	BRN/BLK	MED	5	8
SILTY CLAY	BLACK	MED	8	10
SILTY CLAY GRAVEL	BLACK	MED	10	13
GRAVEL	GRAY	MED	13	15
SAND	GRAY	MED	15	23

WELL HEAD COMPLETION  
 Pitless adapter manufacturer \_\_\_\_\_ Model \_\_\_\_\_  
 Casing Protection **6" PROTOP**  12 in. above grade  
 At-grade (Environmental Wells and Boring ONLY)

GROUTING INFORMATION  
 Well grouted  Yes  No  
 Grout material  Neat cement  Bentonite  Concrete  High Solids Bentonite  
 from **0** to **9** ft. **4** yds.  bags  
 from **9** to **11** ft. **1** yds.  bags  
 from \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ yds.  bags

NEAREST KNOWN SOURCE OF CONTAMINATION **UNKNOWN**  
 \_\_\_\_\_ feet \_\_\_\_\_ direction \_\_\_\_\_ type

Well disinfected upon completion  Yes  No

REMARKS, ELEVATION, SOURCE OF DATA, etc.  
**PZ#2**  
  
**seh**

PUMP  
 Not installed Date installed \_\_\_\_\_  
 Manufacturer's name \_\_\_\_\_  
 Model number \_\_\_\_\_ HP \_\_\_\_\_ Volts \_\_\_\_\_  
 Length of drop pipe \_\_\_\_\_ ft. Capacity \_\_\_\_\_ g.p.m.  
 Type:  Submersible  L.S. Turbine  Reciprocating  Jet  \_\_\_\_\_

ABANDONED WELLS  
 Does property have any not in use and not sealed well(s)  Yes  No

VARIANCE  
 Was a variance granted from the MDH for this well?  Yes  No TN# \_\_\_\_\_

WELL CONTRACTOR CERTIFICATION  
 This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

**THEIN WELL COMPANY** **346725**  
 Licensee Business Name \_\_\_\_\_ Lic. or Reg. No. **6/14/05**  
*Alvin Wieber*  
 Authorized Representative Signature \_\_\_\_\_ Date \_\_\_\_\_  
**ALVIN WIEBER**  
 Name of Driller \_\_\_\_\_

IMPORTANT - FILE WITH PROPERTY PAPERS  
 WELL OWNER COPY **725671**

**MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING RECORD**  
Minnesota Statutes, Chapter 1031

MINNESOTA UNIQUE WELL NO.

725672

**WELL LOCATION**  
County Name  
**HENNEPIN**

Township Name      Township No.      Range No.      Section No.      Fraction  
**118N      21W      30      NW NW 1/4 NW 1/4**

WELL DEPTH (completed)      Date Work Completed  
**18'**      **5/16/05**

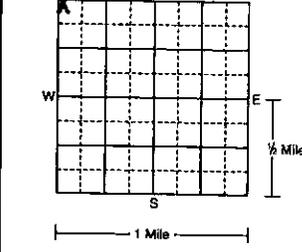
GPS LOCATION: Latitude \_\_\_\_\_ degrees \_\_\_\_\_ minutes \_\_\_\_\_ seconds \_\_\_\_\_  
Longitude \_\_\_\_\_ degrees \_\_\_\_\_ minutes \_\_\_\_\_ seconds \_\_\_\_\_

**DRILLING METHOD**  
 Cable Tool       Driven       Dug  
 Auger       Rotary       Jetted

House Number, Street Name, City, and Zip Code of Well Location      or Fire Number  
**ENSIGN AVE. N & 23RD AVE. GOLDEN VALLEY**

**DRILLING FLUID**      **WELL HYDROFRACTURED?**  Yes  No  
**NONE USED**      FROM \_\_\_\_\_ ft. TO \_\_\_\_\_ ft.

Show exact location of well in section grid with "X".      Sketch map of well location. Showing property lines, roads and buildings



**USE**  
 Domestic       Monitoring       Heating/Cooling  
 Noncommunity PWS       Environ. Bore Hole       Industry/Commercial  
 Community PWS       Irrigation       Private  
 **PIEZOMETER**

**CASING**      Drive Shoe?  Yes  No  
 Steel       Threaded       Welded  
 Plastic

**CASING DIAMETER**      **WEIGHT**      **HOLE DIAM.**  
**2** in. to **8** ft.      **.69** lbs./ft.      **8 1/2** in. to **18** ft.

**PROPERTY OWNER'S NAME/COMPANY NAME**  
**CITY OF GOLDEN VALLEY**

Property owner's mailing address if different than well location address indicated above.  
**7800 GOLDEN VALLEY ROAD  
GOLDEN VALLEY MN 55427**

**SCREEN**      **OPEN HOLE**  
Make **TIMCO**      FROM \_\_\_\_\_ ft. TO \_\_\_\_\_ ft.  
Type **PVC**      Diam. **2"**  
Slot/Gauze **10 SLOT**      Length **19'**  
Set between **8** ft. and **18** ft.      **FITTINGS**

**STATIC WATER LEVEL**  
**10** ft.  below  above land surface      Date measured **6/14/05**

**WELL OWNER'S NAME/COMPANY NAME**  
**SAME AS ABOVE**

Well owner's mailing address if different than property owners address indicated above.

**PUMPING LEVEL** (below land surface)  
**N/A** ft. after \_\_\_\_\_ hrs. pumping \_\_\_\_\_ g.p.m.

**WELL HEAD COMPLETION**  
 Pileless adapter manufacturer      Model \_\_\_\_\_  
 Casing Protection      **6" PROTOP**       12 in. above grade  
 At-grade (Environmental Wells and Boring ONLY)

**GROUTING INFORMATION**  
Well grouted  Yes  No  
Grout material  Neat cement  Bentonite  Concrete  High Solids Bentonite  
from **0** to **4** ft.      **2** yds.  bags  
from **4** to **6** ft.      **1** yds.  bags  
from \_\_\_\_\_ to \_\_\_\_\_ ft.      \_\_\_\_\_ yds.  bags

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
SILTY CLAY	BROWN	SOFT	0	8
CLAY	RED/BRN	HARD	8	12
CLAY GRAVEL	RED/BRN	HARD	12	18

**NEAREST KNOWN SOURCE OF CONTAMINATION**      **UNKNOWN**  
\_\_\_\_\_ feet      \_\_\_\_\_ direction      \_\_\_\_\_ type

Well disinfected upon completion  Yes  No

**PUMP**  
 Not installed      Date installed \_\_\_\_\_

Manufacturer's name \_\_\_\_\_  
Model number \_\_\_\_\_ HP \_\_\_\_\_ Volts \_\_\_\_\_  
Length of drop pipe \_\_\_\_\_ ft. Capacity \_\_\_\_\_ g.p.m.  
Type:  Submersible  L.S. Turbine  Reciprocating  Jet  \_\_\_\_\_

**ABANDONED WELLS**  
Does property have any not in use and not sealed well(s)  Yes  No

**VARIANCE**  
Was a variance granted from the MDH for this well?  Yes  No TN# \_\_\_\_\_

**WELL CONTRACTOR CERTIFICATION**  
This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

REMARKS, ELEVATION, SOURCE OF DATA, etc.  
**PZ#3**  
  
**seh**

**THEIN WELL COMPANY**      **34625**  
Licensee Business Name      Lic. or Reg. No.  
*Alvin Wieber*      **6/14/05**  
Authorized Representative Signature      Date  
**ALVIN WIEBER**

**IMPORTANT - FILE WITH PROPERTY PAPERS  
WELL OWNER COPY**      **725672**

Name of Driller  
HE-01205-04 (Rev. 5/04)

**MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING RECORD**  
*Minnesota Statutes, Chapter 103I*

MINNESOTA UNIQUE WELL NO.

**725673**

**WELL LOCATION**  
County Name  
**HENNEPIN**

Township Name  
**118N**

Township No. **21W**

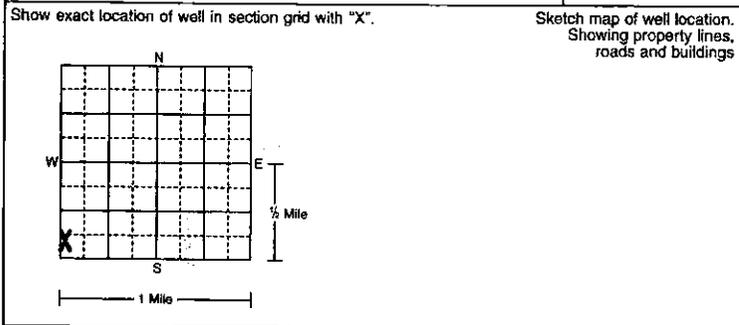
Range No. **28**

Section No. **SM SWSW**

Fraction **1/4 1/4 1/4**

**GPS LOCATION:** Latitude \_\_\_\_\_ degrees \_\_\_\_\_ minutes \_\_\_\_\_ seconds \_\_\_\_\_  
Longitude \_\_\_\_\_ degrees \_\_\_\_\_ minutes \_\_\_\_\_ seconds \_\_\_\_\_

House Number, Street Name, City, and Zip Code of Well Location or Fire Number  
**FLORIDA AVE & GOLDEN VALLEY RD GOLDEN VALLEY**



PROPERTY OWNER'S NAME/COMPANY NAME  
**CITY OF GOLDEN VALLEY**

Property owner's mailing address if different than well location address indicated above.  
**7800 GOLDEN VALLEY ROAD  
GOLDEN VALLEY MN 55427**

WELL OWNER'S NAME/COMPANY NAME  
**SAME AS ABOVE**

Well owner's mailing address if different than property owners address indicated above.

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
CLAY	BLACK	MED	0	3
CLAY	BLK/BRN	MED	3	5
CLAY SAND	BROWN	MED	5	8
SAND GRAVEL	BROWN	MED	8	10
SAND GRAVEL	BROWN	HARD	10	18

REMARKS, ELEVATION, SOURCE OF DATA, etc.  
**PZ#4**

**seh**

IMPORTANT - FILE WITH PROPERTY PAPERS  
WELL OWNER COPY **725673**

WELL DEPTH (completed) **18'** ft. Date Work Completed **5/18/05**

**DRILLING METHOD**  
 Cable Tool  Dug  
 Auger  Rotary  Jetted

**DRILLING FLUID** **NONE USED** **WELL HYDROFRACTURED?**  Yes  No  
FROM \_\_\_\_\_ ft. TO \_\_\_\_\_ ft.

**USE**  
 Domestic  Monitoring  Heating/Cooling  
 Noncommunity PWS  Environ. Bore Hole  Industry/Commercial  
 Community PWS  Irrigation  Remedial  
 **PIEZOMETER**

**CASING**  
 Steel  Drive Shoe?  Yes  No  
 Plastic  Threaded  Welded

**CASING DIAMETER** **2** in. to **8** ft. **WEIGHT** **.69** lbs./ft. **HOLE DIAM.** **8 1/2** in. to **18** ft.

**SCREEN** **TIMCO** **OPEN HOLE**  
Make **PVC** FROM **2"** ft. TO \_\_\_\_\_ ft.  
Type **10 SLOT** Diam. \_\_\_\_\_  
Slot/Gauze **10'** Length **10'**  
Set between **8** ft. and **18** ft. FITTINGS \_\_\_\_\_

**STATIC WATER LEVEL**  
**10** ft.  below  above land surface Date measured **5/18/05**

**PUMPING LEVEL (below land surface)**  
**N/A** ft. after \_\_\_\_\_ hrs. pumping \_\_\_\_\_ g.p.m.

**WELL HEAD COMPLETION**  
 Pits adapter manufacturer \_\_\_\_\_ Model \_\_\_\_\_  
 Casing Protection **6" PROTOP**  12 in. above grade  
 At-grade (Environmental Wells and Boring ONLY)

**GROUTING INFORMATION**  
Well grouted  Yes  No  
Grout material  Neat cement  Bentonite  Concrete  High Solids Bentonite

from **0** to **4** ft. **2** yds.  bags  
from **4** to **6** ft. **1** yds.  bags  
from \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ yds.  bags

**NEAREST KNOWN SOURCE OF CONTAMINATION** **UNKNOW**  
\_\_\_\_\_ feet \_\_\_\_\_ direction \_\_\_\_\_ type

Well disinfected upon completion:  Yes  No

**PUMP**  
 Not installed Date installed \_\_\_\_\_  
Manufacturer's name \_\_\_\_\_  
Model number \_\_\_\_\_ HP \_\_\_\_\_ Volts \_\_\_\_\_  
Length of drop pipe \_\_\_\_\_ ft. Capacity \_\_\_\_\_ g.p.m.  
Type:  Submersible  L.S. Turbine  Reciprocating  Jet  \_\_\_\_\_

**ABANDONED WELLS**  
Does property have any not in use and not sealed well(s)  Yes  No

**VARIANCE**  
Was a variance granted from the MDH for this well?  Yes  No TN# \_\_\_\_\_

**WELL CONTRACTOR CERTIFICATION**  
This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

**THEIN WELL COMPANY 34625**  
Licensee Business Name \_\_\_\_\_ Lic. or Reg. No. **6/14/05**  
*Alvin Wieber*  
Authorized Representative Signature \_\_\_\_\_ Date  
**ALVIN WIEBER**  
Name of Driller

MINNESOTA DEPARTMENT OF HEALTH  
**WELL AND BORING RECORD**  
 Minnesota Statutes, Chapter 103I

MINNESOTA UNIQUE WELL NO.

**725674**

WELL LOCATION

County Name  
**HENNEPIN**

Township Name    Township No.    Range No.    Section No.    Fraction  
 \_\_\_\_\_    **29N**    **24W**    **7**    **SW SW ¼ NW ¼**

WELL DEPTH (completed)    Date Work Completed  
**18'**    **5/18/05**

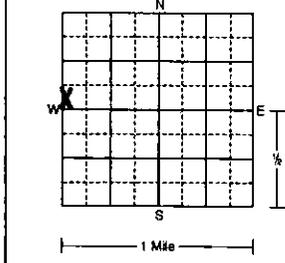
GPS LOCATION: Latitude \_\_\_\_\_ degrees \_\_\_\_\_ minutes \_\_\_\_\_ seconds \_\_\_\_\_  
 Longitude \_\_\_\_\_ degrees \_\_\_\_\_ minutes \_\_\_\_\_ seconds \_\_\_\_\_

DRILLING METHOD  
 Cable Tool     Driven     Dug  
 Auger     Rotary     Jetted

House Number, Street Name, City, and Zip Code of Well Location    or Fire Number  
**REMENT AVENUE & TRITON DRIVE    GOLDEN VALLEY**

DRILLING FLUID    WELL HYDROFRACTURED?  Yes  No  
**NONE USED**    FROM \_\_\_\_\_ ft. TO \_\_\_\_\_ ft.

Show exact location of well in section grid with "X".    Sketch map of well location. Showing property lines, roads and buildings



USE  
 Domestic     Monitoring     Heating/Cooling  
 Noncommunity PWS     Environ. Bore Hole     Industry/Commercial  
 Community PWS     Irrigation     Remedial  
 **PIEZOMETER**

PROPERTY OWNER'S NAME/COMPANY NAME  
**CITY OF GOLDEN VALLEY**

CASING    Drive Shoe?  Yes  No  
 Steel     Threaded     Welded  
 Plastic

Property owner's mailing address if different than well location address indicated above.  
**67800 GOLDEN VALLEY ROAD  
 GOLDEN VALLEY MN 55427**

CASING DIAMETER    WEIGHT  
**2** in. to **8** ft.    **.69** lbs./ft. **8 1/2** in. to **20** ft.

WELL OWNER'S NAME/COMPANY NAME  
**SAME AS ABOVE**

SCREEN **TIMCO**    OPEN HOLE  
 Make **PVC**    FROM \_\_\_\_\_ TO \_\_\_\_\_ ft.  
 Type **10 SLOT**    Diam. **2"**  
 Slot/Gauge \_\_\_\_\_    Length **10'**  
 Set between **8** ft. and **18** ft. FITTINGS

Well owner's mailing address if different than property owners address indicated above.

STATIC WATER LEVEL  
**10** ft.  below  above land surface    Date measured **5/18/05**

PUMPING LEVEL (below land surface)  
**N/A** ft. after \_\_\_\_\_ hrs. pumping    g.p.m.

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
SILTY CLAY	BLACK	MED	0	8
SILT ORGANICS	BLK/GRY	HARD	8	10
SILT ORGANICS	GRAY	SOFT	10	16
SILT ORGANICS SAND	GRY/BRN	SOFT	16	18
SANE	BROWN	SOFT	18	20

WELL HEAD COMPLETION  
 Pitless adapter manufacturer \_\_\_\_\_ Model \_\_\_\_\_  
 Casing Protection **6" PROTOP**     12 in. above grade  
 At-grade (Environmental Wells and Boring ONLY)

GROUTING INFORMATION  
 Well grouted  Yes  No  
 Grout material  Neat cement  Bentonite  Concrete  High Solids Bentonite  
 from **0** to **4** ft.    **2** yds.  bags  
 from **4** to **6** ft.    **1** yds.  bags  
 from \_\_\_\_\_ to \_\_\_\_\_ ft.    \_\_\_\_\_ yds.  bags

NEAREST KNOWN SOURCE OF CONTAMINATION  
**UNKNOWN**  
 \_\_\_\_\_ feet \_\_\_\_\_ direction \_\_\_\_\_ type

Well disinfected upon completion  Yes  No

PUMP  
 Not installed    Date installed \_\_\_\_\_  
 Manufacturer's name \_\_\_\_\_  
 Model number \_\_\_\_\_ HP \_\_\_\_\_ Volts \_\_\_\_\_  
 Length of drop pipe \_\_\_\_\_ ft. Capacity \_\_\_\_\_ g.p.m.  
 Type:  Submersible  L.S. Turbine  Reciprocating  Jet  \_\_\_\_\_

ABANDONED WELLS  
 Does property have any not in use and not sealed well(s)  Yes  No

VARIANCE  
 Was a variance granted from the MDH for this well?  Yes  No TN# \_\_\_\_\_

WELL CONTRACTOR CERTIFICATION  
 This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

REMARKS, ELEVATION, SOURCE OF DATA, etc.  
**PZ#5**  
  
**seh**

**THEIN WELL COMPANY    34625**  
 Licensee Business Name    Lic. or Reg. No.  
  
**6/14/05**  
 Authorized Representative Signatures    Date  
**ALVIN WIEBER**

IMPORTANT - FILE WITH PROPERTY PAPERS  
 WELL OWNER COPY    **725674**

Name of Driller  
 \_\_\_\_\_  
 HE-01205-08 (Rev. 5/02)

MINNESOTA DEPARTMENT OF HEALTH  
**WELL AND BORING RECORD**  
 Minnesota Statutes, Chapter 103I

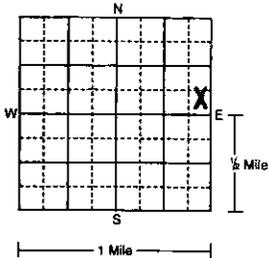
MINNESOTA UNIQUE WELL NO.

725675

WELL LOCATION  
 County Name  
**HENNEPIN**  
 Township Name  
 Township No. **29N** Range No. **24W** Section No. **18** Fraction **SE SE NE**

GPS LOCATION: Latitude \_\_\_\_\_ degrees \_\_\_\_\_ minutes \_\_\_\_\_ seconds \_\_\_\_\_  
 Longitude \_\_\_\_\_ degrees \_\_\_\_\_ minutes \_\_\_\_\_ seconds \_\_\_\_\_

House Number, Street Name, City, and Zip Code of Well Location  
**BASSETT CREEK DRIVE & GOLDEN VALLEY ROAD GOLDEN VALLEY**  
 or Fire Number \_\_\_\_\_  
 Show exact location of well in section grid with "X". Sketch map of well location. Showing property lines, roads and buildings



WELL DEPTH (completed) **28'** ft. Date Work Completed **5/18/05**

DRILLING METHOD  
 Cable Tool  Driven  Dug  
 Auger  Rotary  Jetted

DRILLING FLUID **NONE USED** WELL HYDROFRACTURED?  Yes  No  
 FROM \_\_\_\_\_ ft. TO \_\_\_\_\_ ft.

USE  
 Domestic  Monitoring  Heating/Cooling  
 Noncommunity PWS  Environ. Bore Hole  Industry/Commercial  
 Community PWS  Irrigation  Remedial  
 Dewatering  **PIEZOMETER**

CASING Drive Shoe?  Yes  No  
 Steel  Threaded  Welded  
 Plastic

CASING DIAMETER **2** in. to **18** ft. WEIGHT **.69** lbs./ft. **8 1/2** in. to **28** ft.  
 \_\_\_\_\_ in. to \_\_\_\_\_ ft. \_\_\_\_\_ lbs./ft. \_\_\_\_\_ in. to \_\_\_\_\_ ft.  
 \_\_\_\_\_ in. to \_\_\_\_\_ ft. \_\_\_\_\_ lbs./ft. \_\_\_\_\_ in. to \_\_\_\_\_ ft.

PROPERTY OWNER'S NAME/COMPANY NAME  
**CITY OF GOLDEN VALLEY**  
 Property owner's mailing address if different than well location address indicated above.  
**7800 GOLDEN VALLEY ROAD  
 GOLDEN VALLEY MN 55427**

SCREEN Make **TIMCO** OPEN HOLE FROM \_\_\_\_\_ ft. TO \_\_\_\_\_ ft.  
 Type **PVC** Diam. **2"**  
 Slot/Gauze **10 SLOT** Length **10'**  
 Set between **18** ft. and **28** ft. FITTINGS \_\_\_\_\_

STATIC WATER LEVEL **20** ft.  below  above land surface Date measured **5/18/05**

WELL OWNER'S NAME/COMPANY NAME  
**SAME AS ABOVE**  
 Well owner's mailing address if different than property owners address indicated above.

PUMPING LEVEL (below land surface) **N/A** ft. after \_\_\_\_\_ hrs. pumping \_\_\_\_\_ g.p.m.

WELL HEAD COMPLETION  
 Pileless adapter manufacturer Model \_\_\_\_\_  
 Casing Protection **6" PROTOP**  12 in. above grade  
 At-grade (Environmental Wells and Boring ONLY)

GROUTING INFORMATION  
 Well grouted  Yes  No  
 Grout material  Neat cement  Bentonite  Concrete  High Solids Bentonite  
 from **0** to **14** ft. \_\_\_\_\_ yds.  bags  
 from **14** to **16** ft. \_\_\_\_\_ yds.  bags  
 from \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ yds.  bags

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
CLAY SAND	BLK/BRN	SOFT	0	3
SAND	BROWN	SOFT	3	8
SAND	BROWN	MED	8	13
SAND GRAVEL	BROWN	MED	15	19
SAND SILTY SAND	BROWN	SOFT	19	23
SAND SILTY SAND	BROWN	MED	23	28

NEAREST KNOWN SOURCE OF CONTAMINATION **UNKNOWN**  
 \_\_\_\_\_ feet \_\_\_\_\_ direction \_\_\_\_\_ type

Well disinfected upon completion  Yes  No

PUMP  Not installed Date installed \_\_\_\_\_

Manufacturer's name \_\_\_\_\_  
 Model number \_\_\_\_\_ HP \_\_\_\_\_ Volts \_\_\_\_\_  
 Length of drop pipe \_\_\_\_\_ ft. Capacity \_\_\_\_\_ g.p.m.  
 Type:  Submersible  L.S. Turbine  Reciprocating  Jet  \_\_\_\_\_

ABANDONED WELLS  
 Does property have any not in use and not sealed well(s)  Yes  No

VARIANCE  
 Was a variance granted from the MDH for this well?  Yes  No TN# \_\_\_\_\_

WELL CONTRACTOR CERTIFICATION  
 This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

REMARKS, ELEVATION, SOURCE OF DATA, etc.  
**PZ#6**  
**seh**

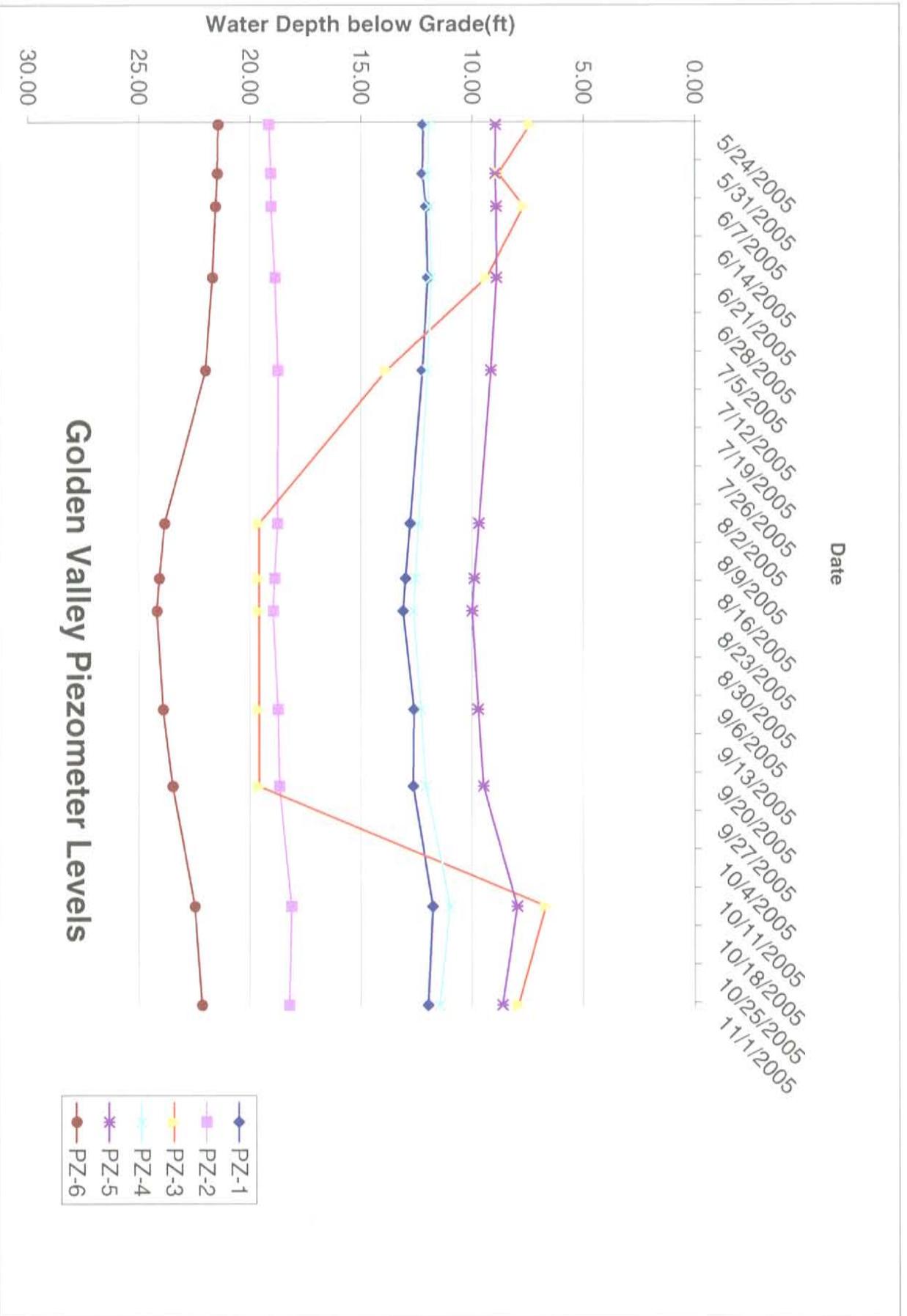
**THEIN WELL COMPANY 34625**  
 Licensee Business Name \_\_\_\_\_ Lic. or Reg. No. **6/14/05**  
 Authorized Representative Signature \_\_\_\_\_ Date \_\_\_\_\_  
**ALVIN WIEBER**  
 Name of Driller \_\_\_\_\_

IMPORTANT - FILE WITH PROPERTY PAPERS  
 WELL OWNER COPY **725675**

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## **Appendix B**

### Piezometer Results

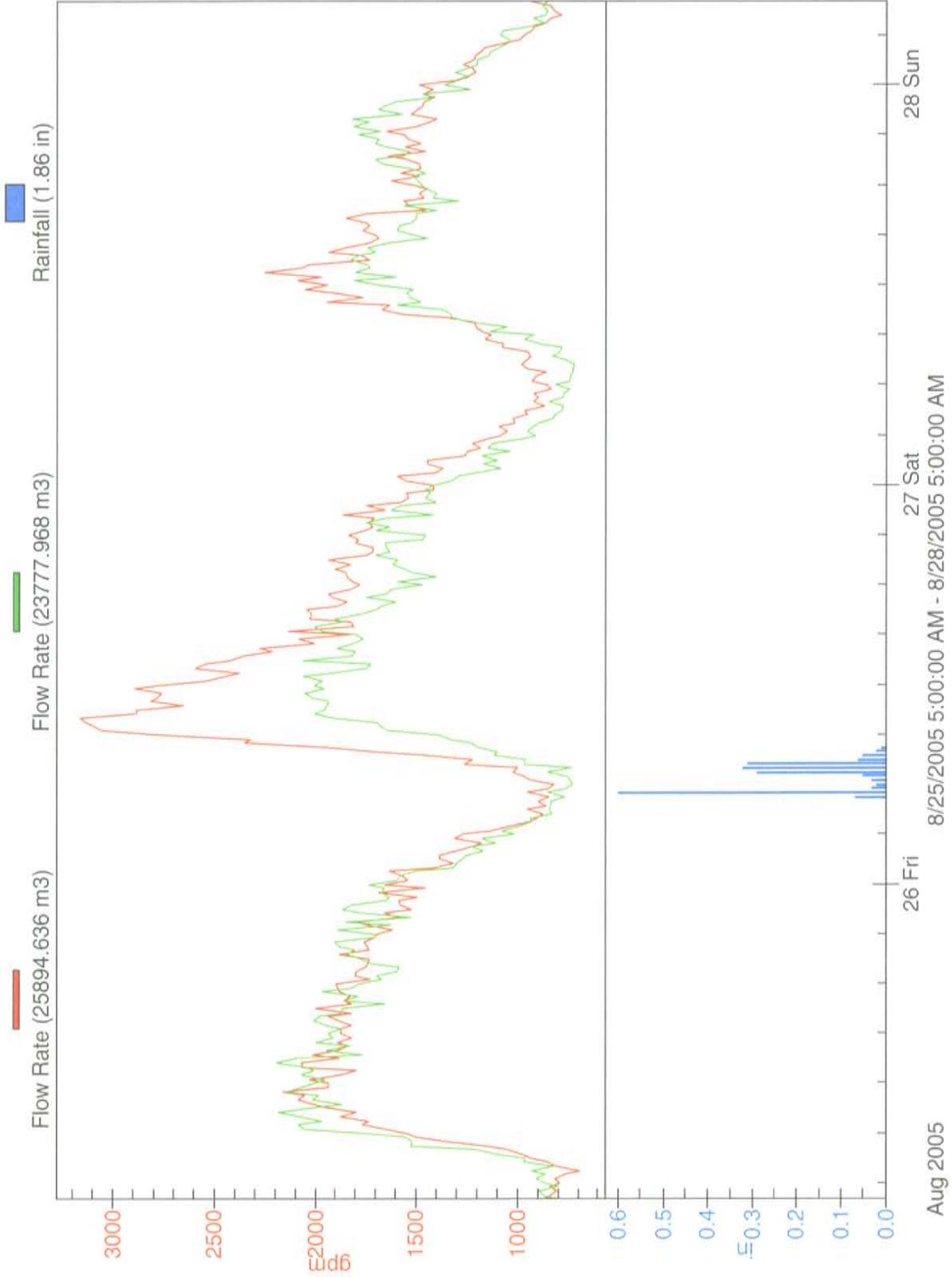


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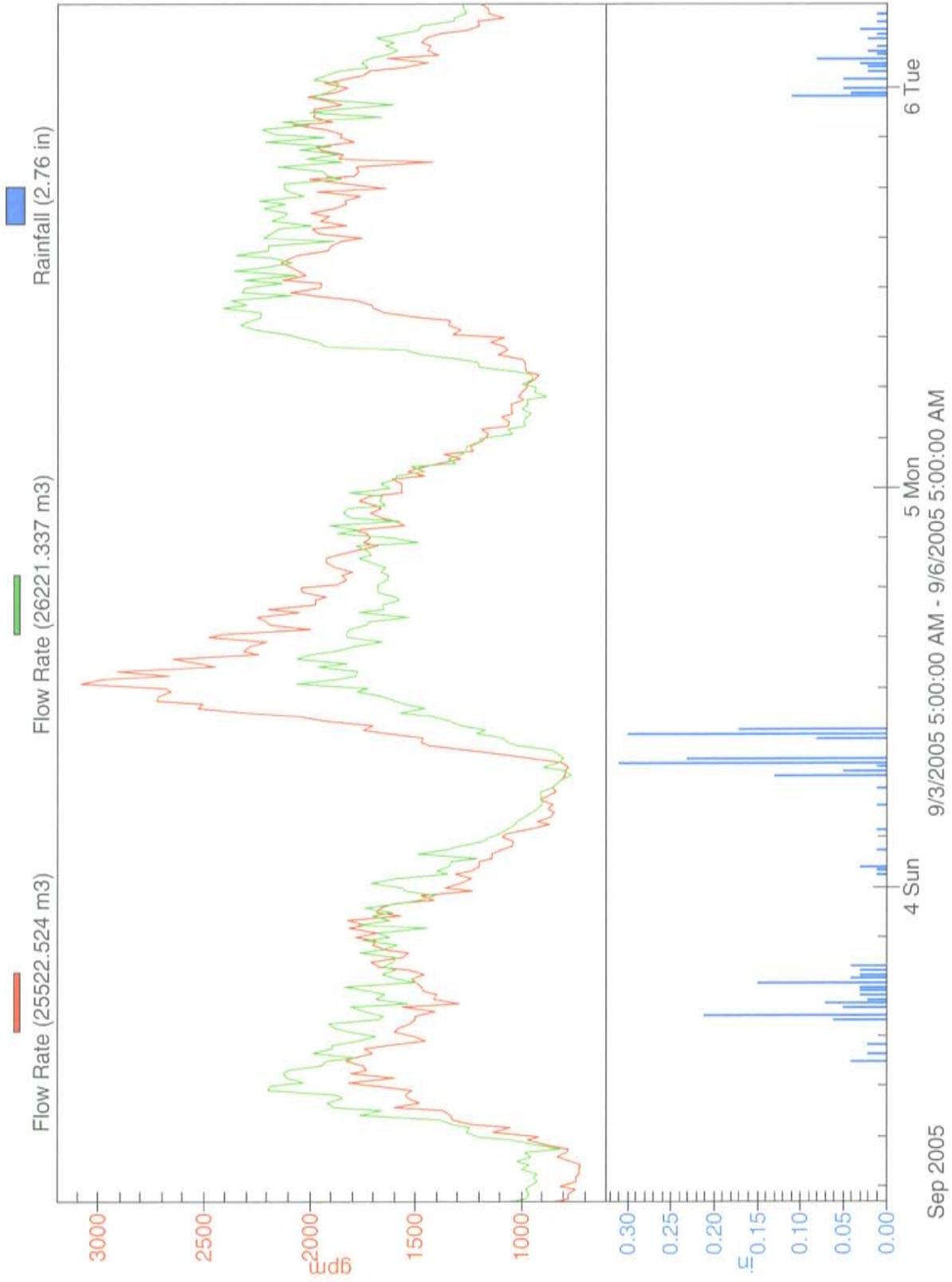
## **Appendix C**

Flow Monitoring Results

# North of State Highway 55 at Bassett Creek District 1

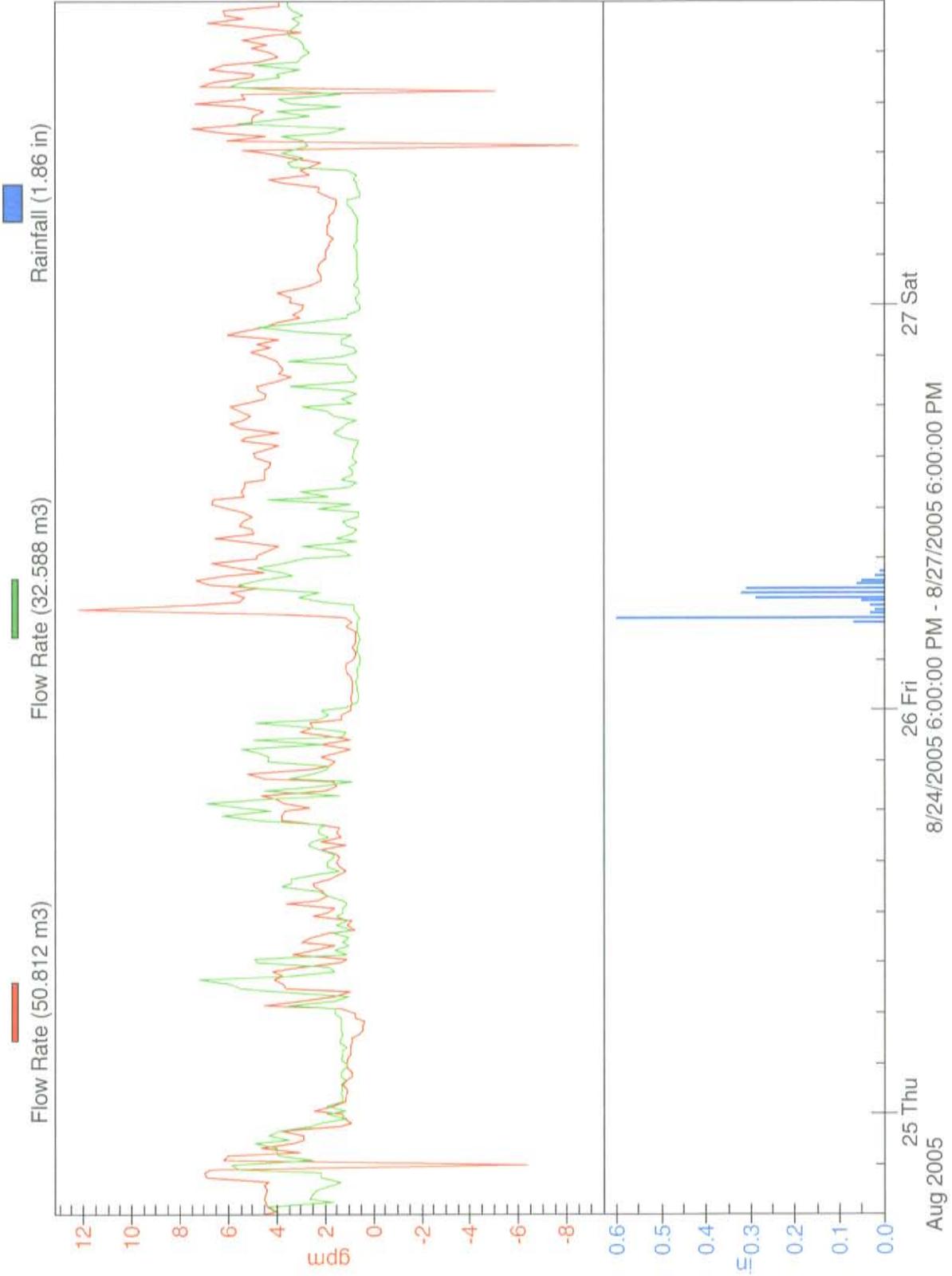


# North of State Highway 55 at Bassett Creek District 1



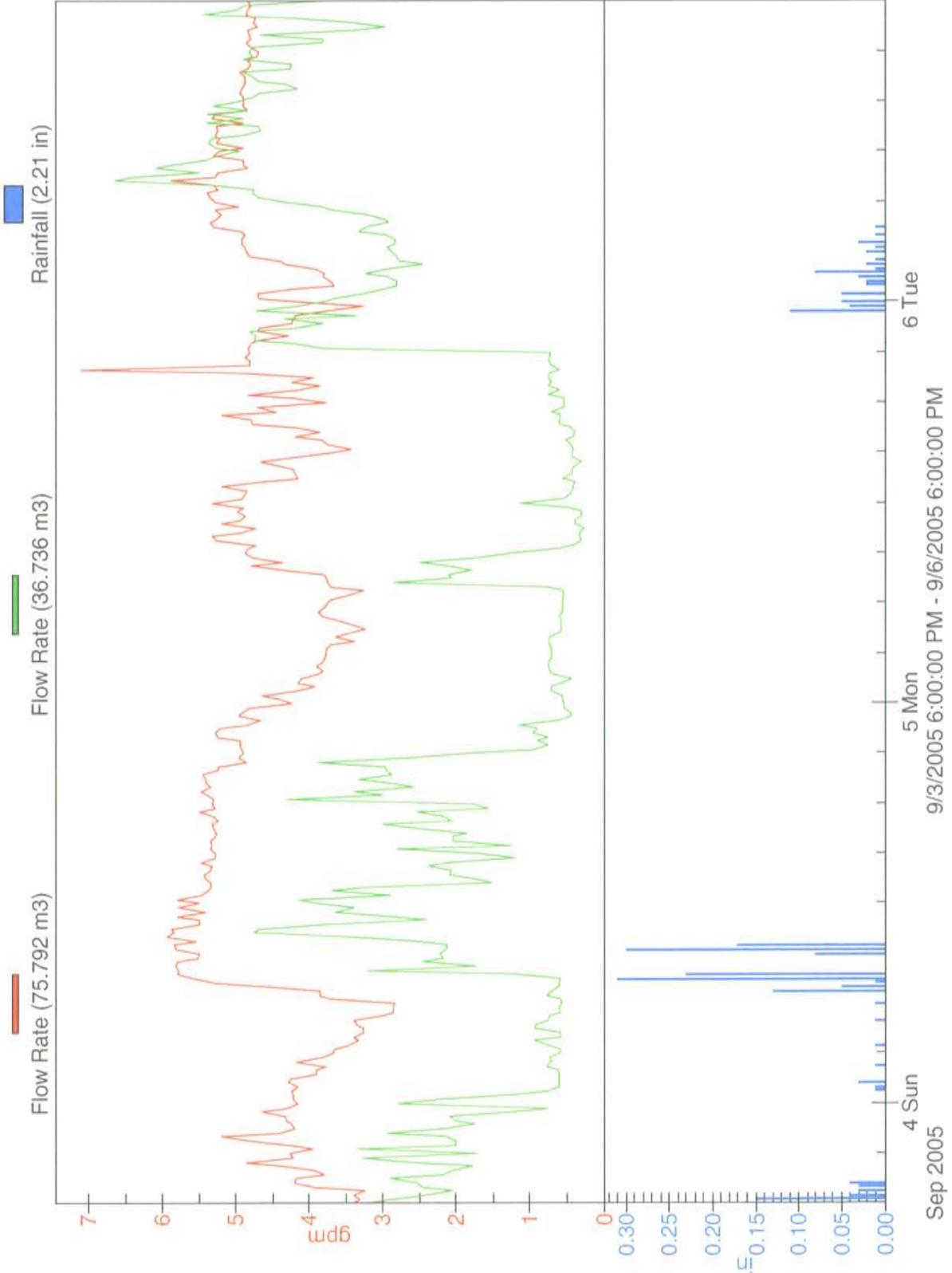
# East of Burlington Northern RR, south of York Avenue

District 2



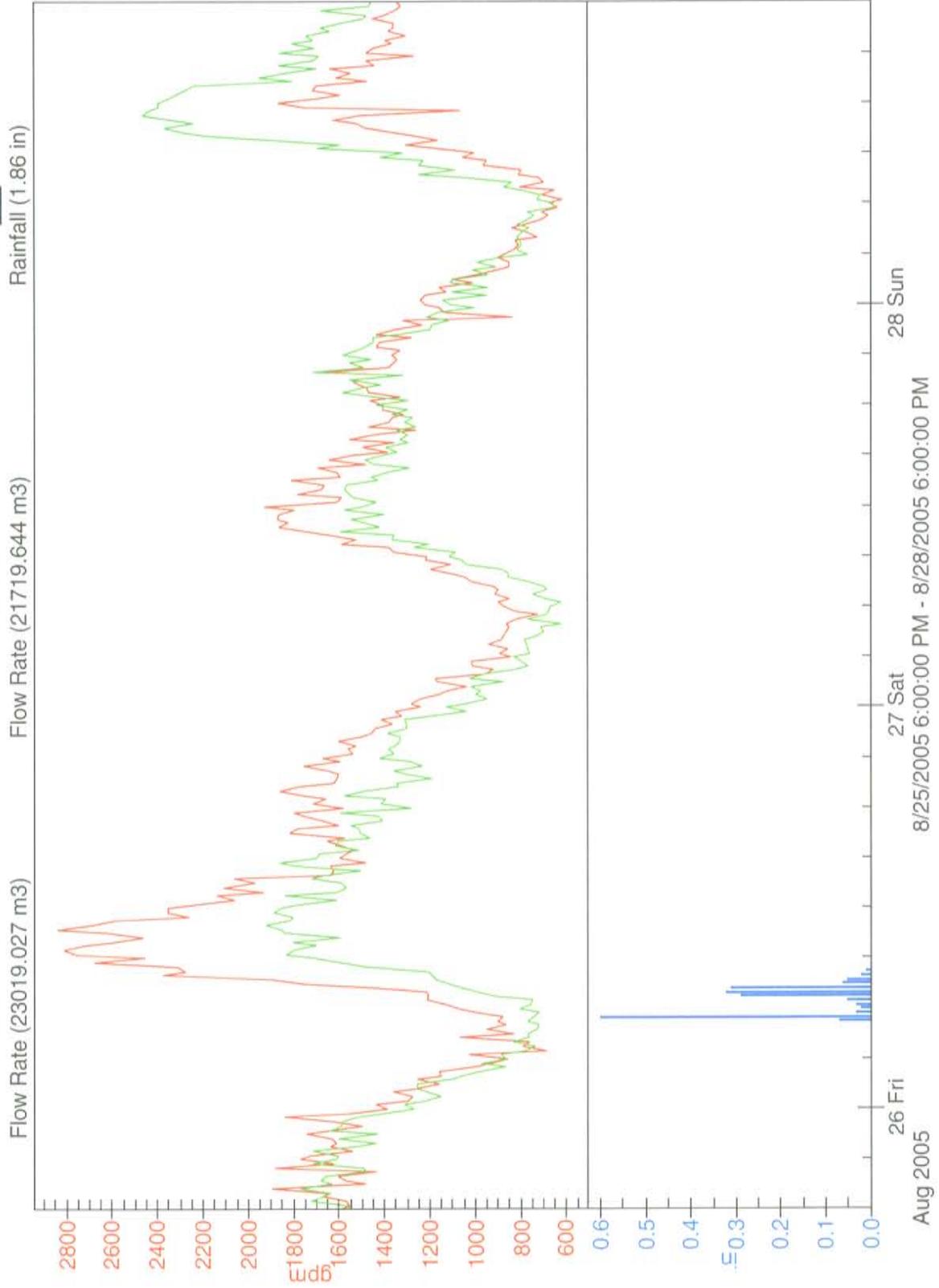
# East of Burlington Northern RR, south of York Avenue

District 2



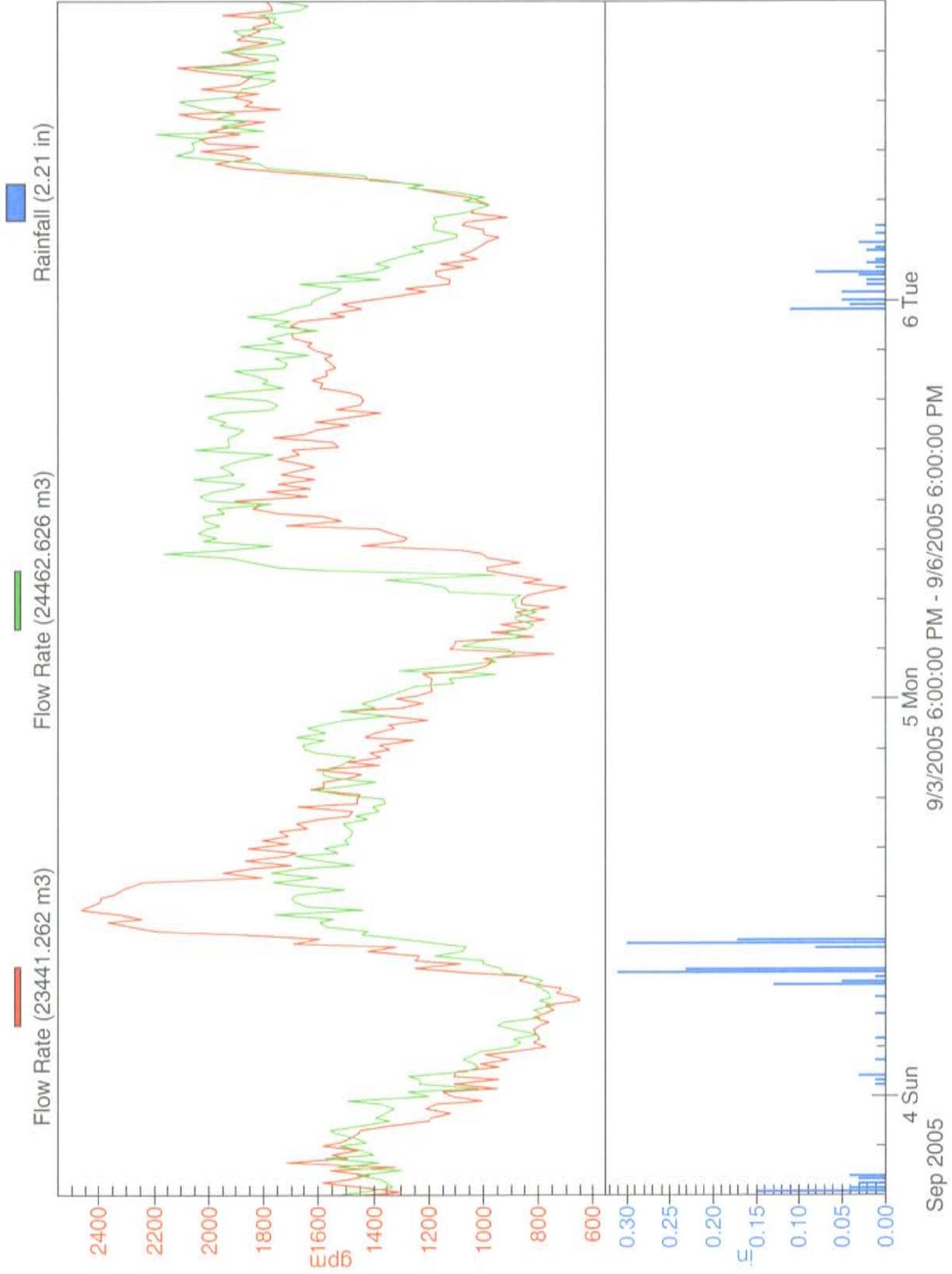
# Northwest corner of Theodore Wirth Golf Course

District 3



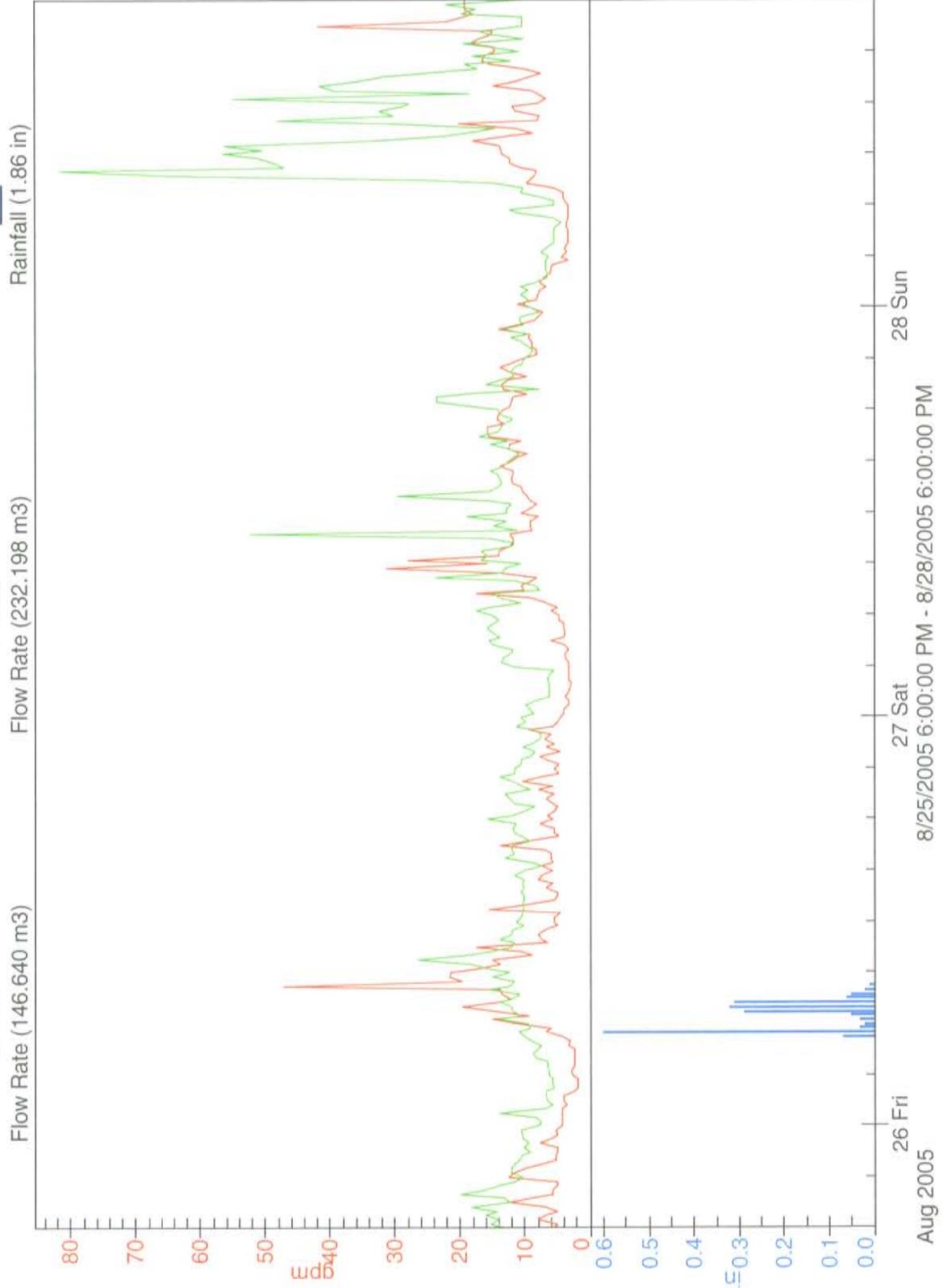
# Northwest corner of Theodore Wirth Golf Course

District 3



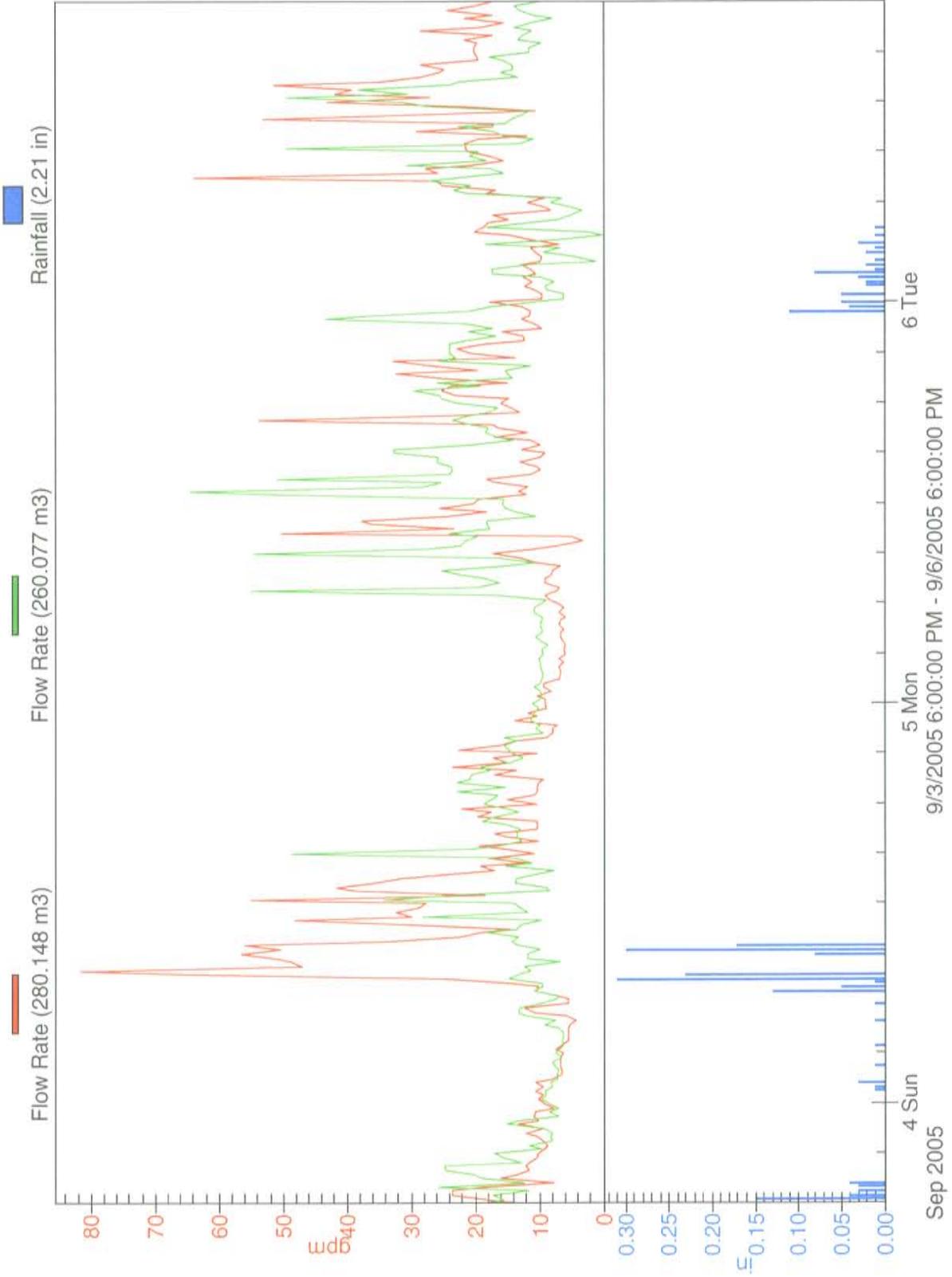
# Noble Avenue at Bassett Creek Drive

District 4



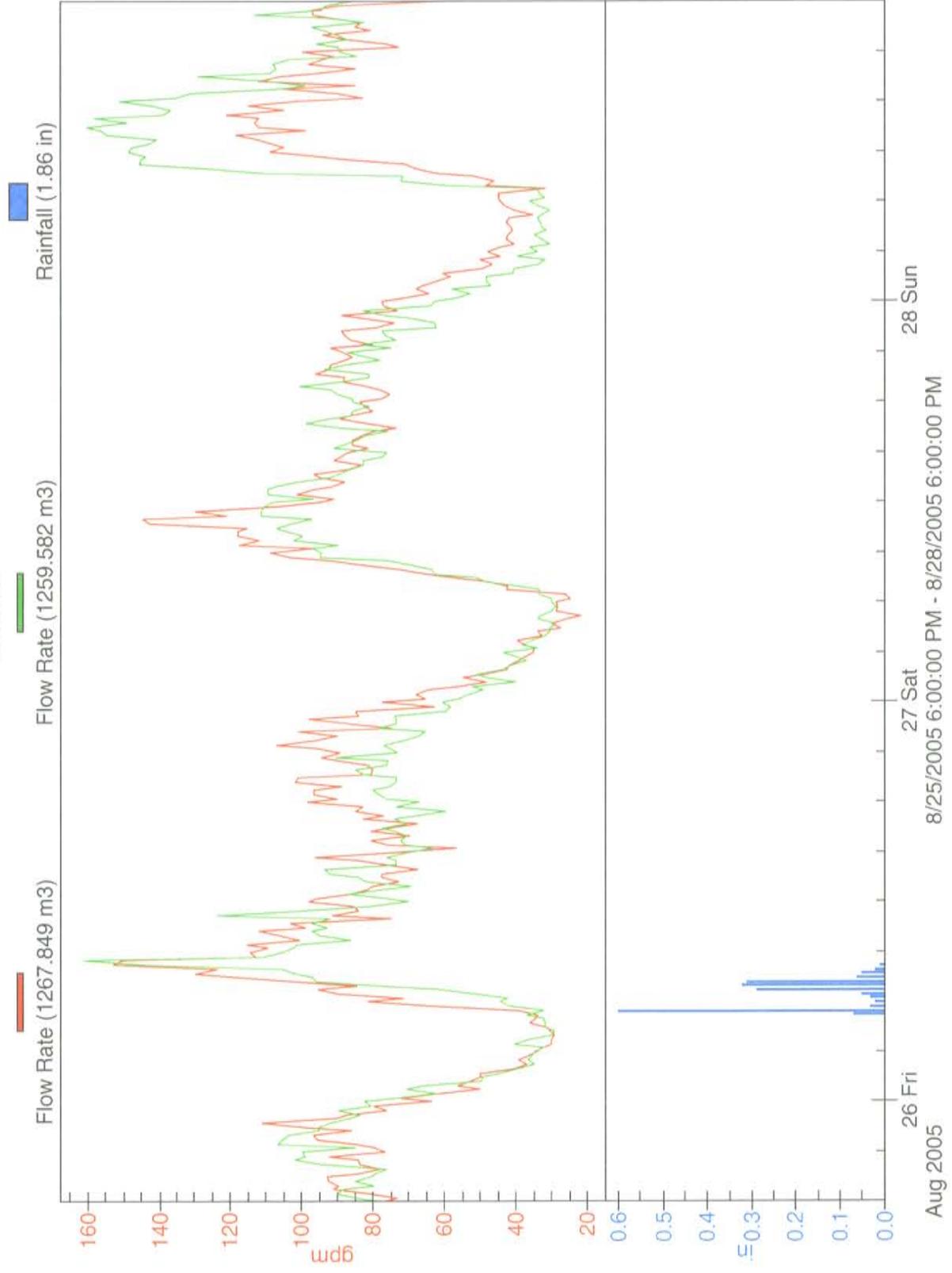
# Noble Avenue at Bassett Creek Drive

District 4



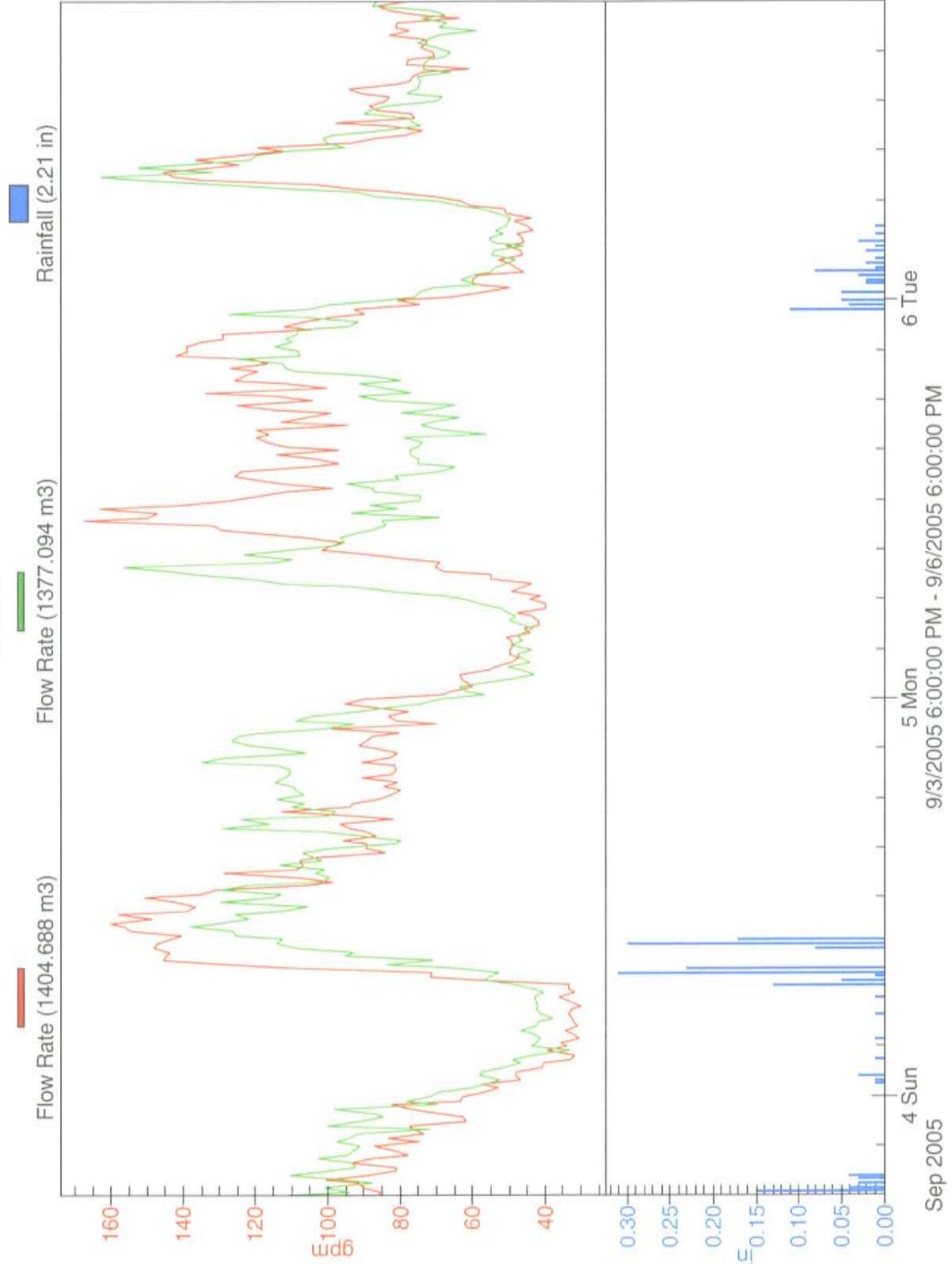
# Regent Avenue just north of Bassett Creek Drive

District 5



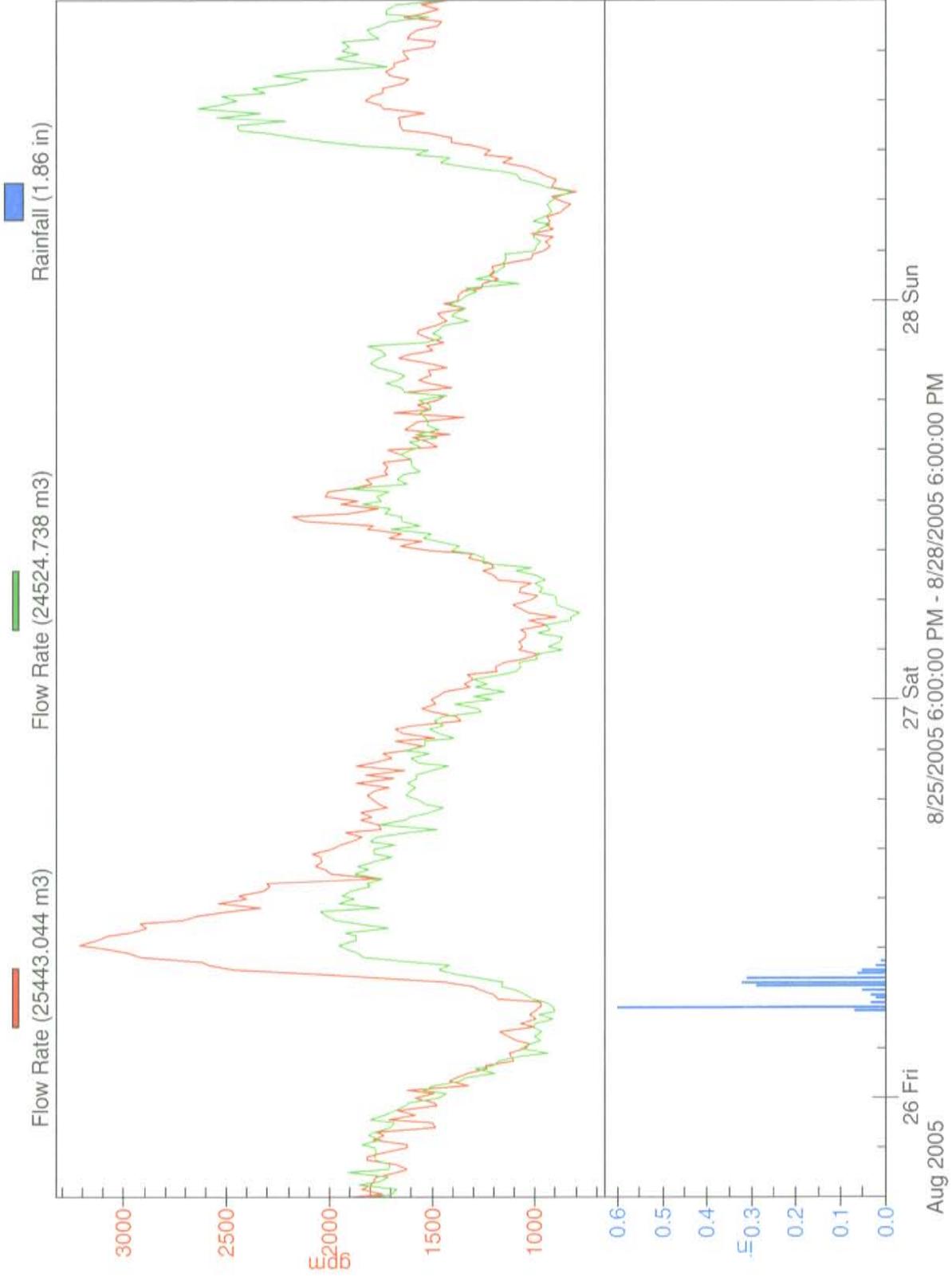
# Regent Avenue just north of Bassett Creek Drive

District 5



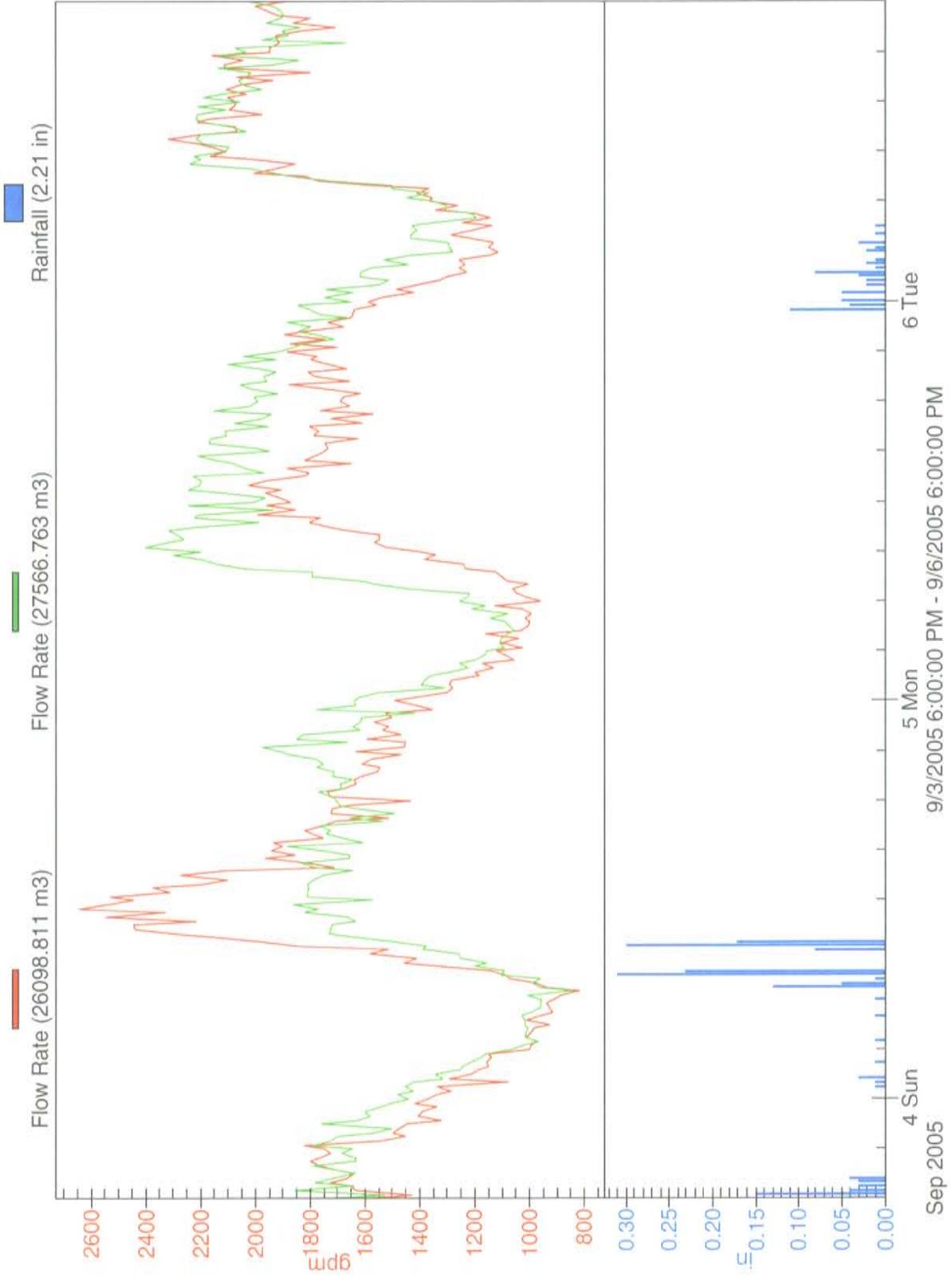
# Noble Avenue at Bassett Creek

District 6



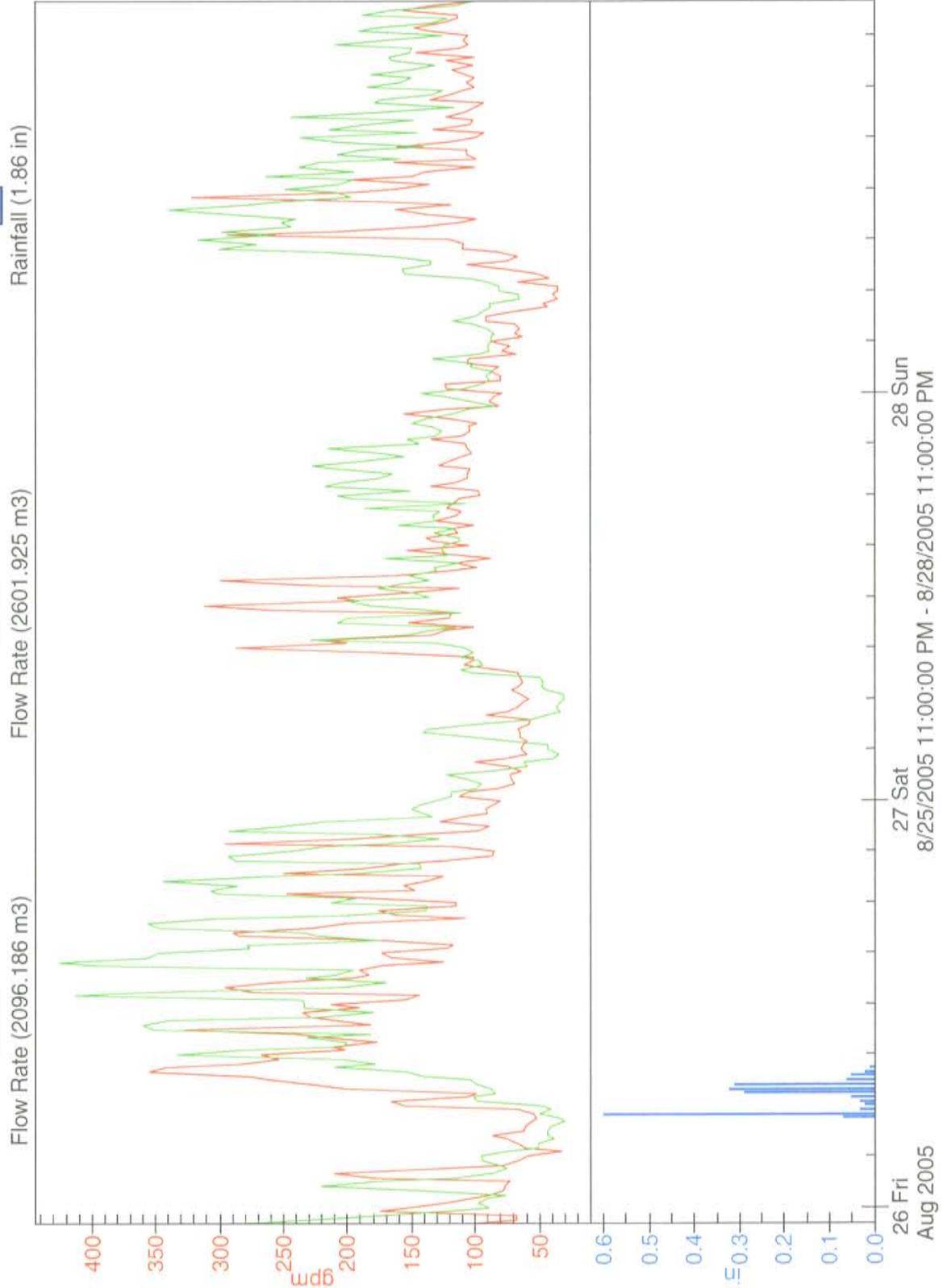
# Noble Avenue at Bassett Creek

District 6



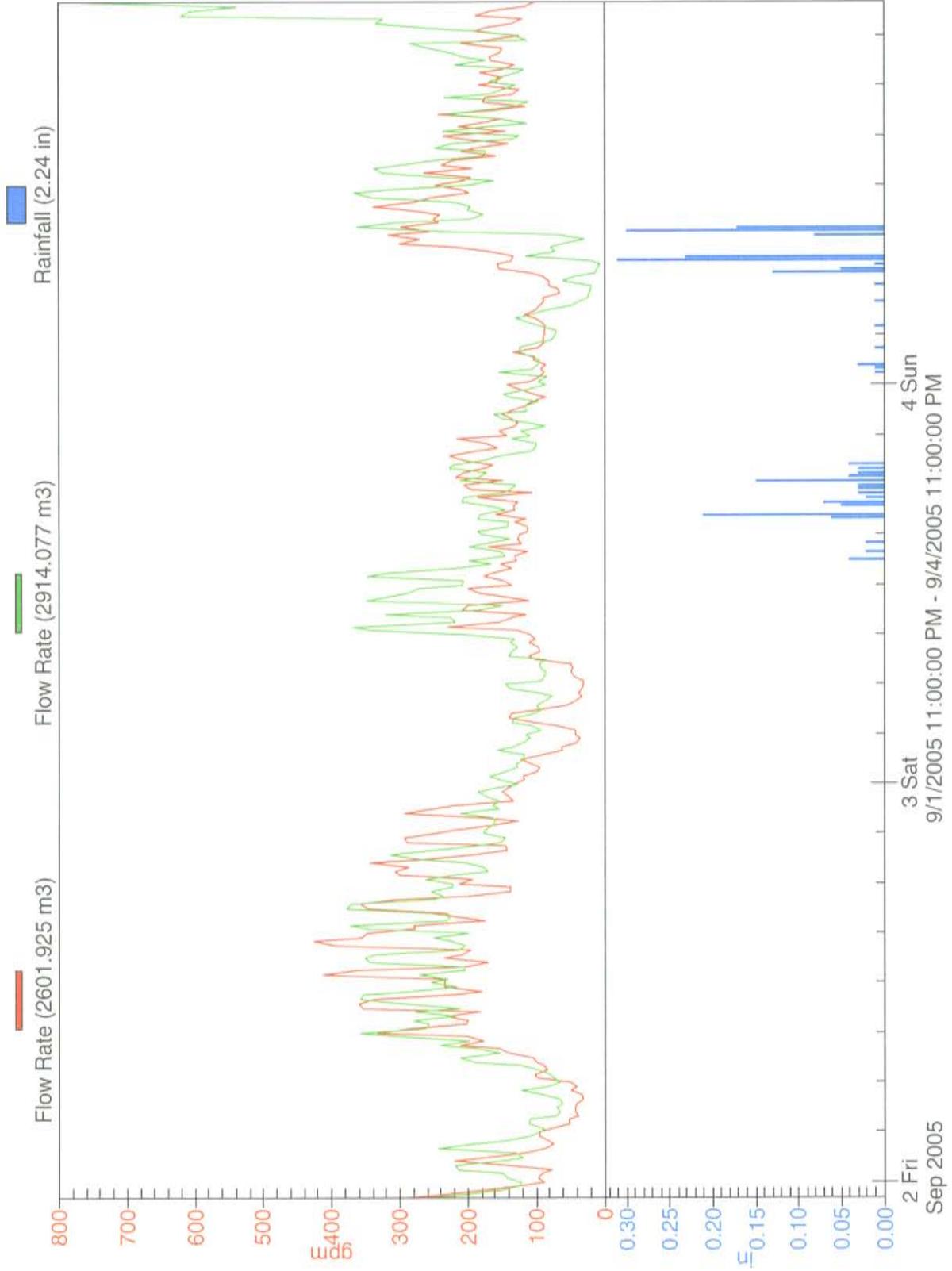
# Major Drive south of Golden Valley Road

District 7



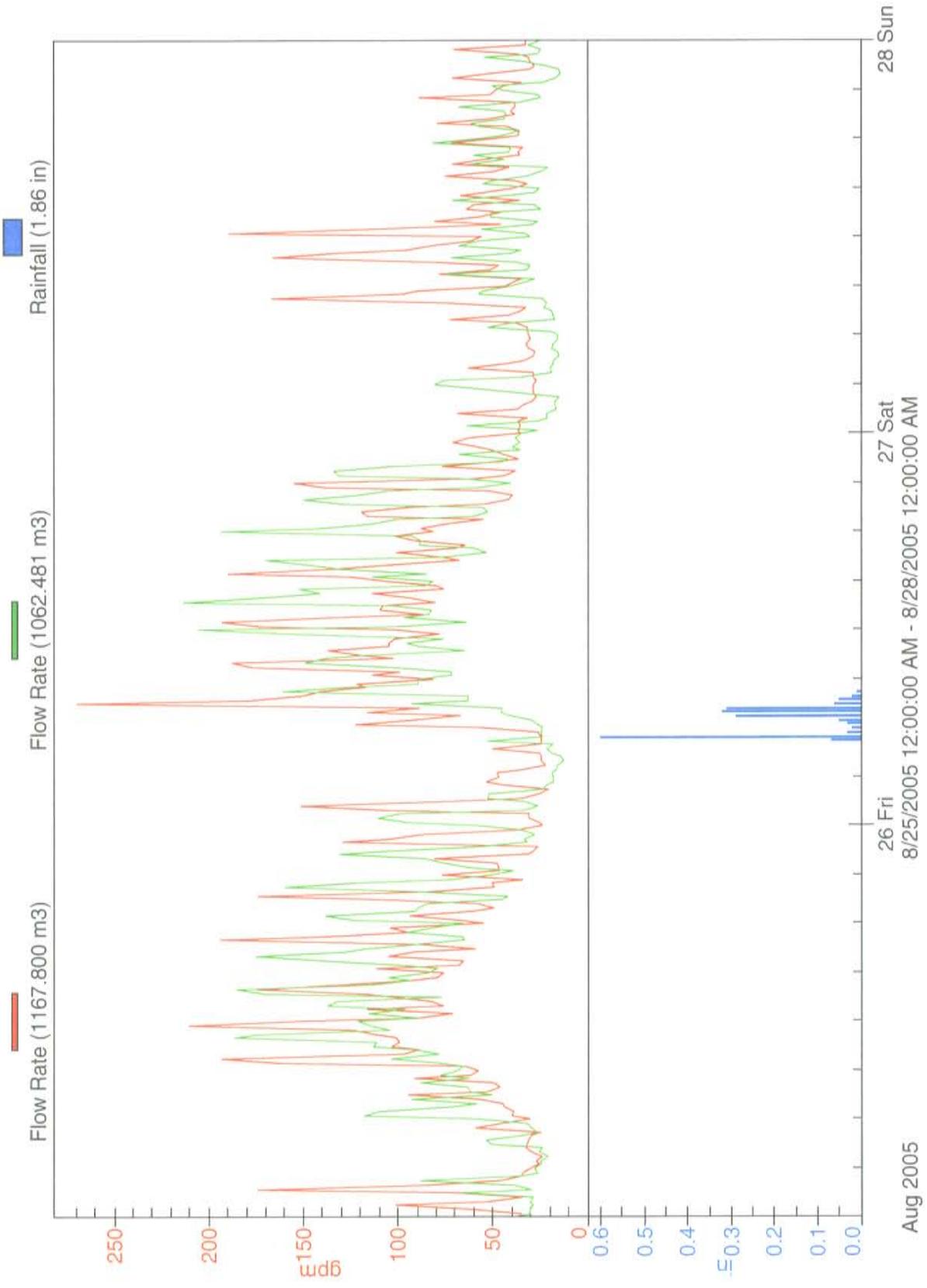
# Major Drive south of Golden Valley Road

District 7



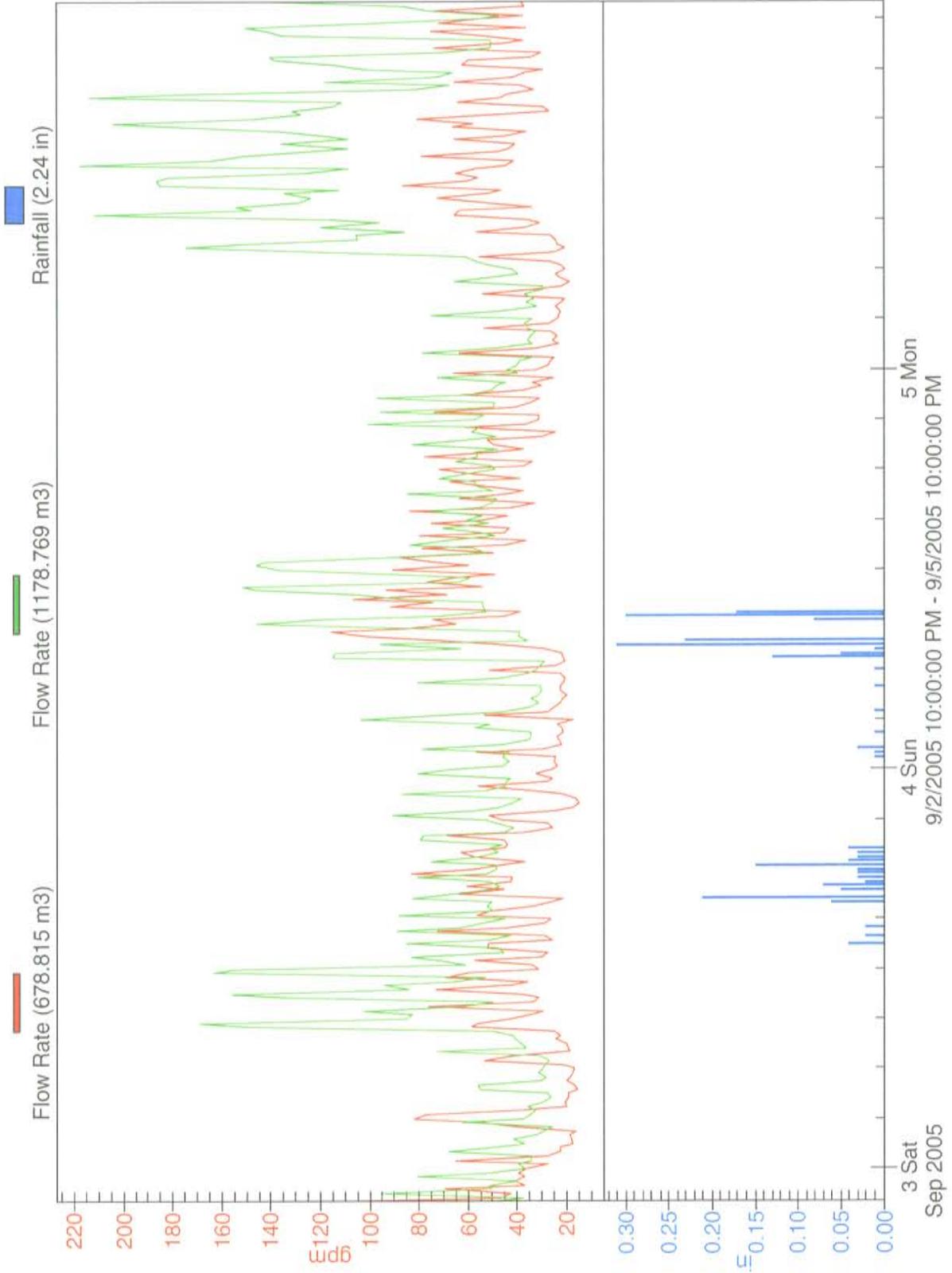
# Adeline Lane south of Angelo Drive

District 8



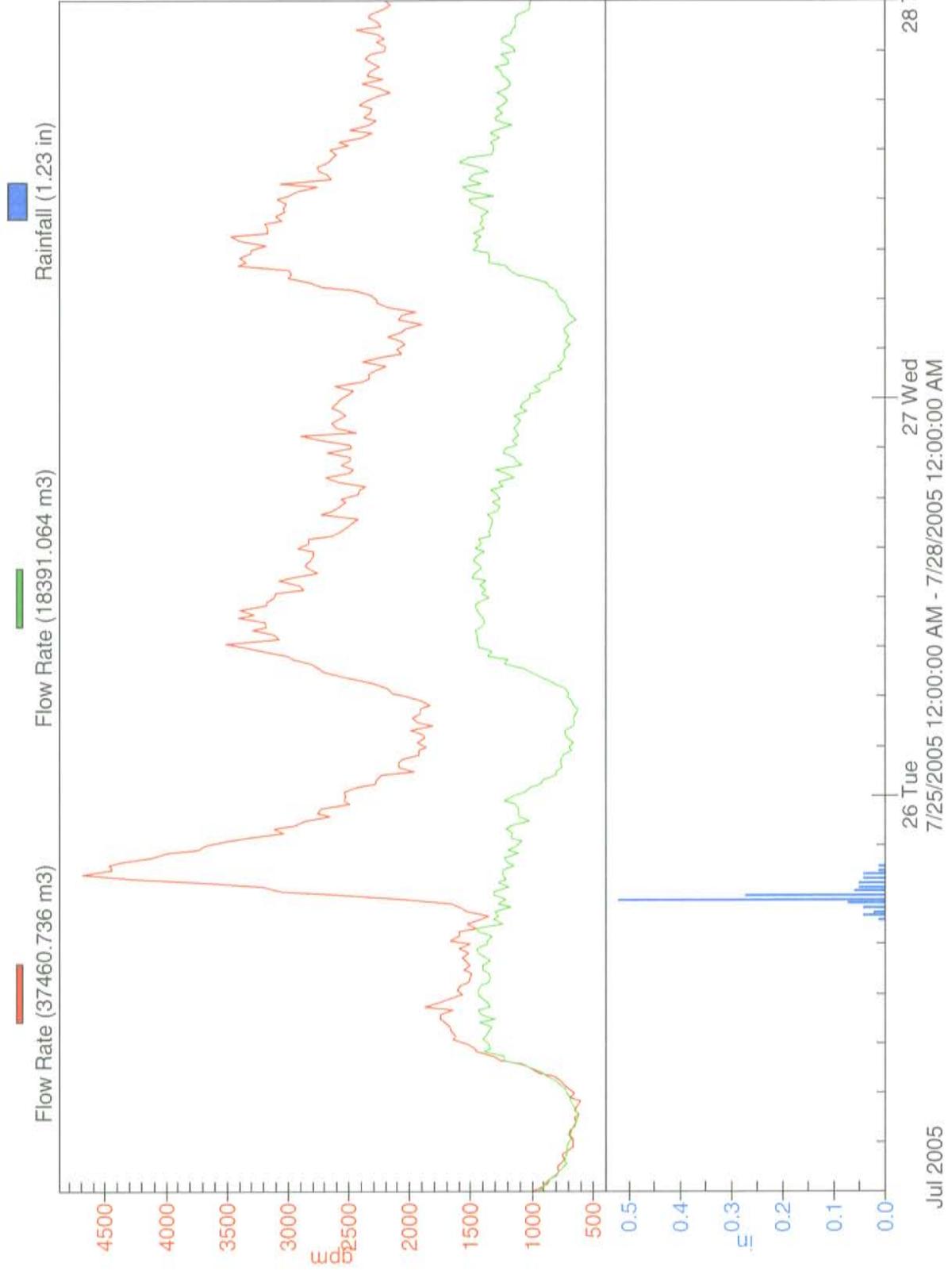
# Adeline Lane south of Angelo Drive

District 8



# Easement south of Utility Avenue North

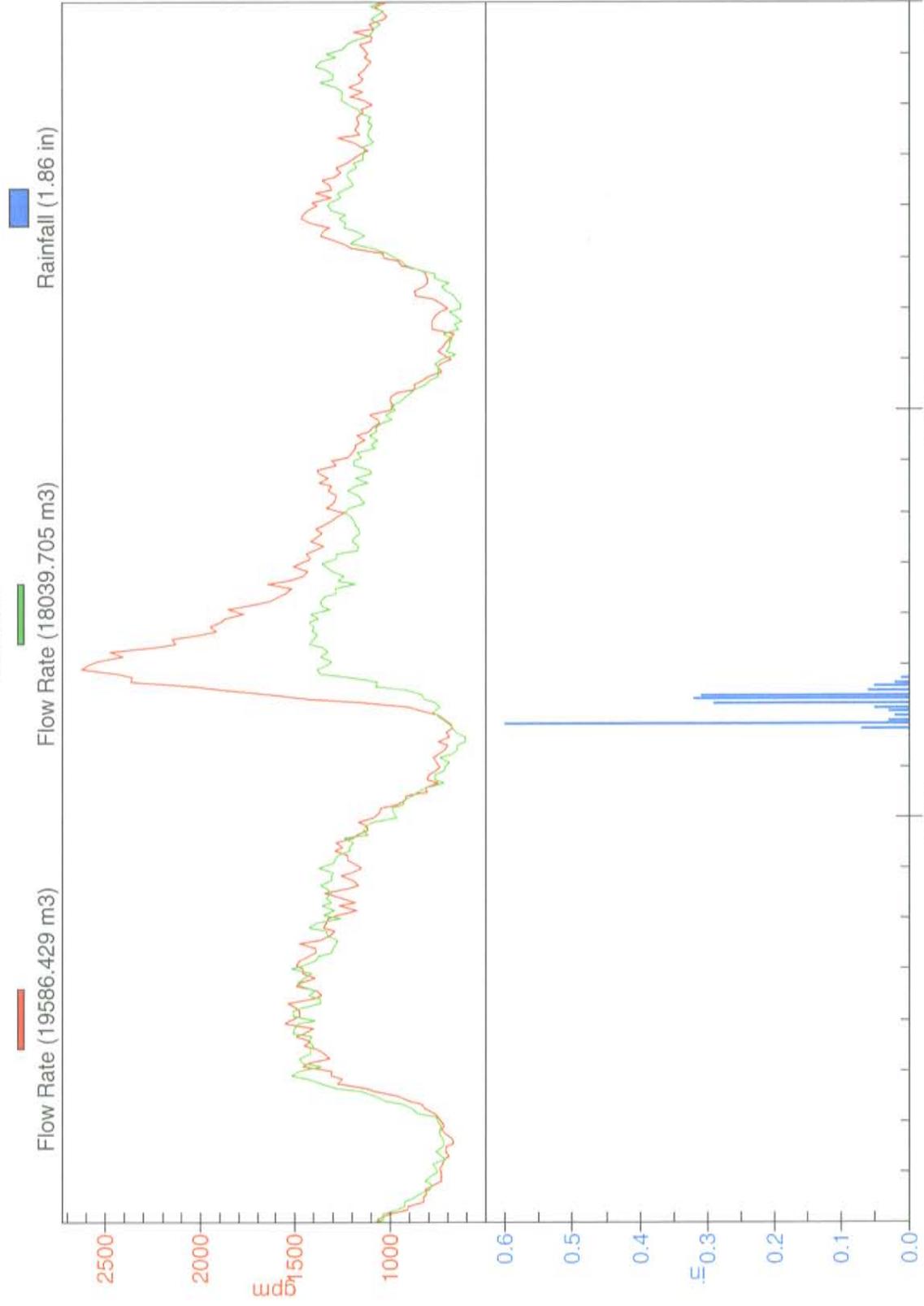
District 9





# East of Canadian Pacific RR on Constance Drive West

District 10



Flow Rate (19586.429 m3)

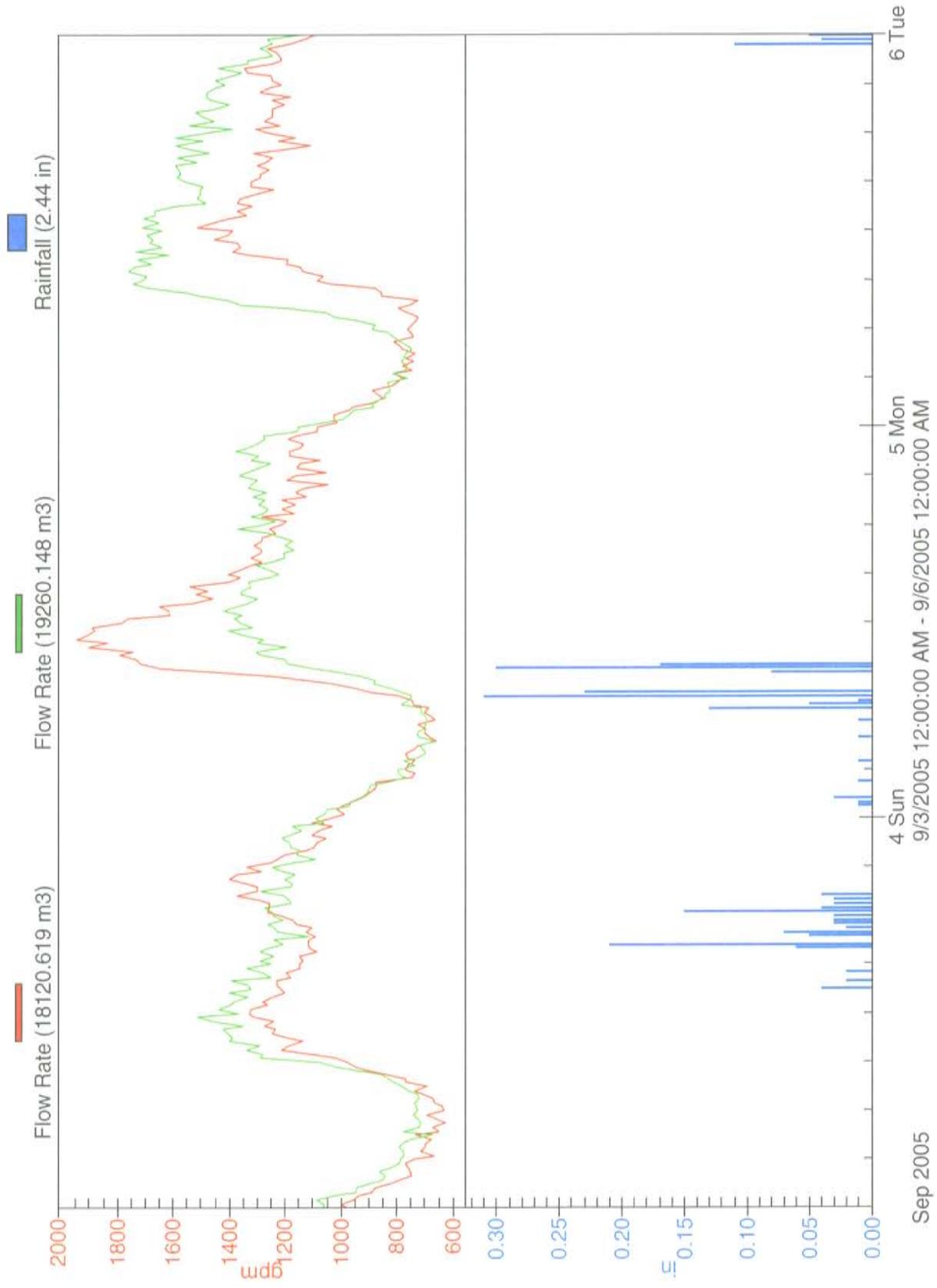
Flow Rate (18039.705 m3)

Flow Rate (19586.429 m3)

Rainfall (1.86 in)

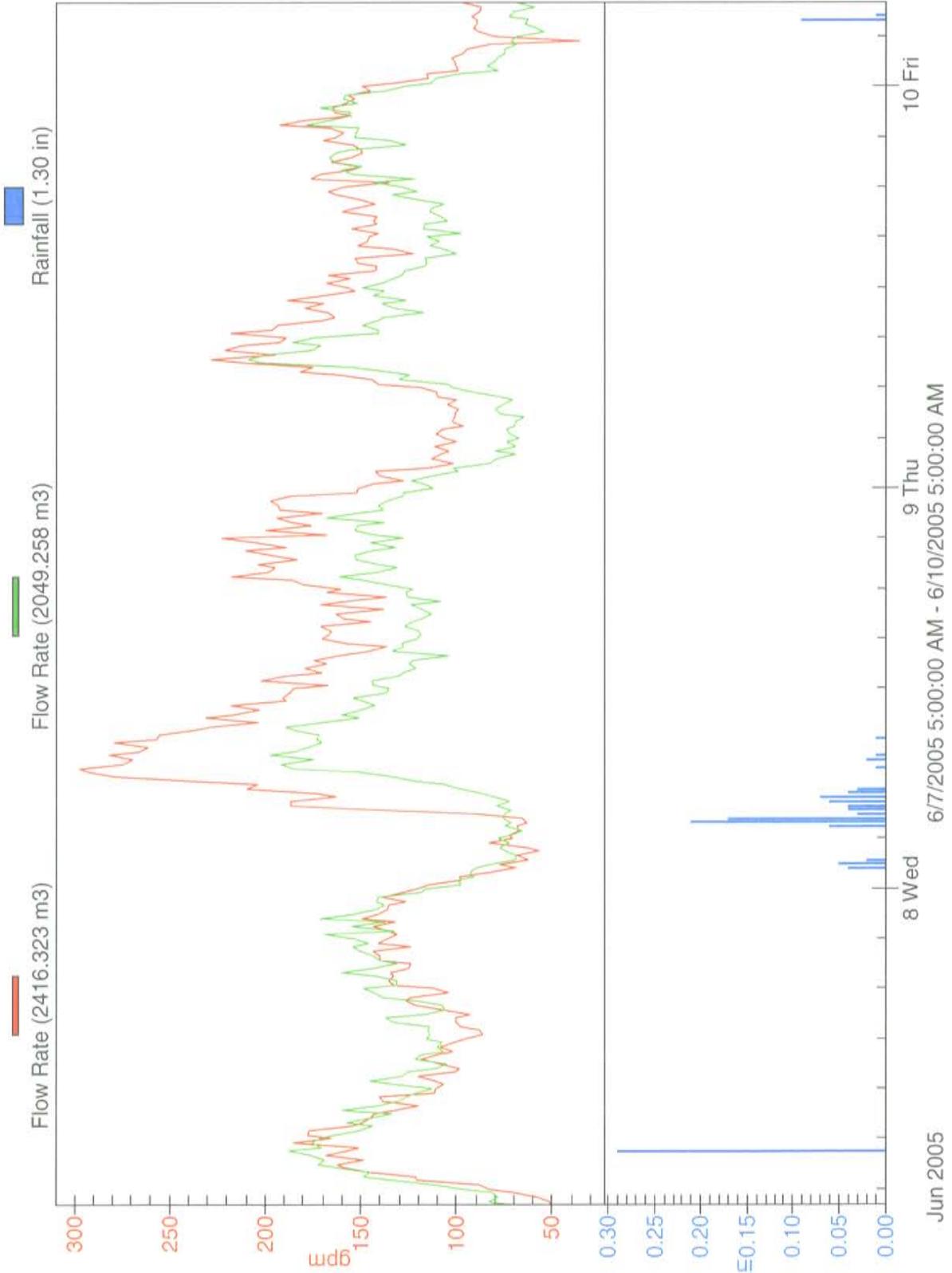
# East of Canadian Pacific RR on Constance Drive West

District 10



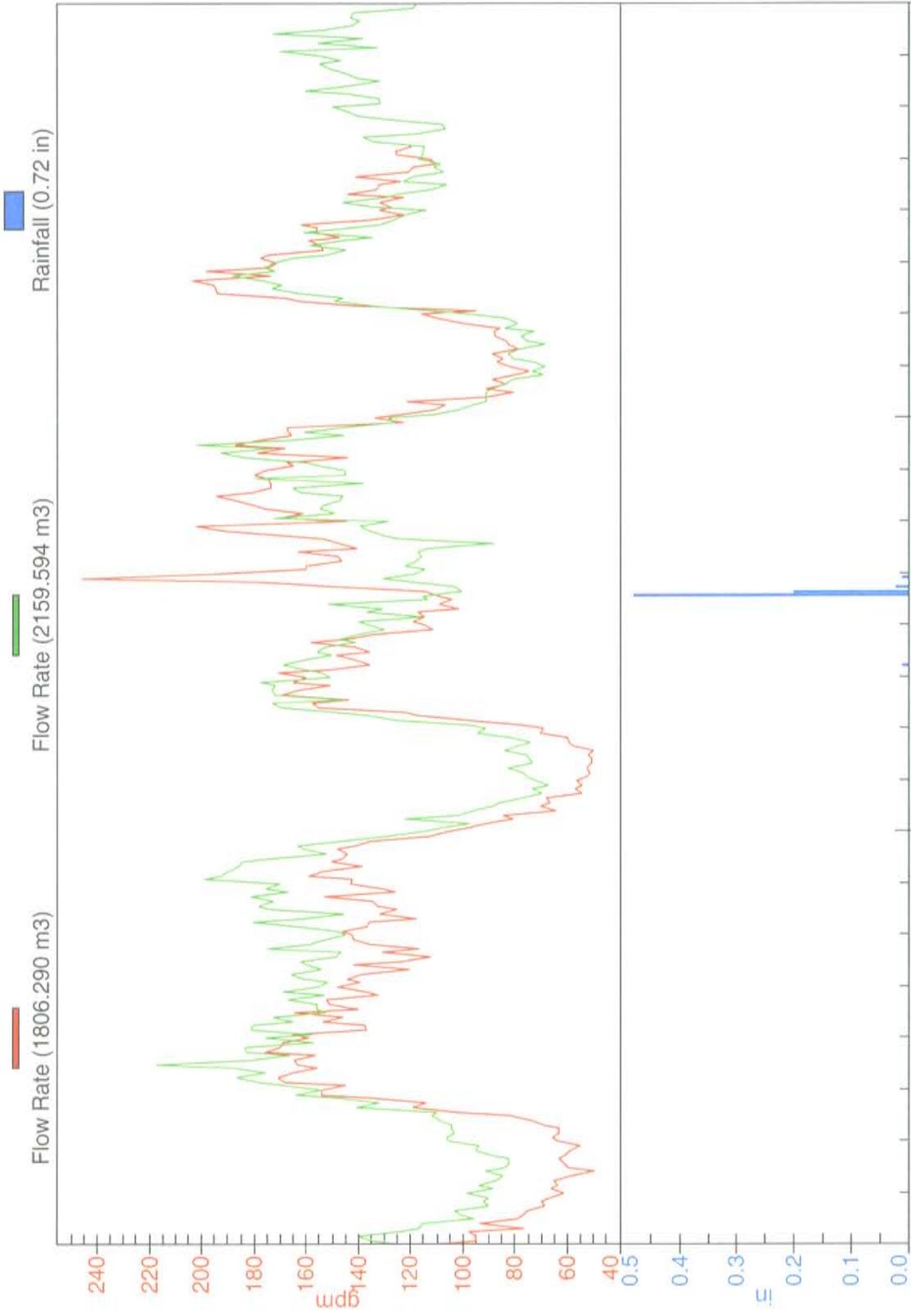
# Plymouth Avenue North and Orkla Drive

District 11



# Plymouth Avenue North and Orkla Drive

District 11



22 Wed

21 Tue

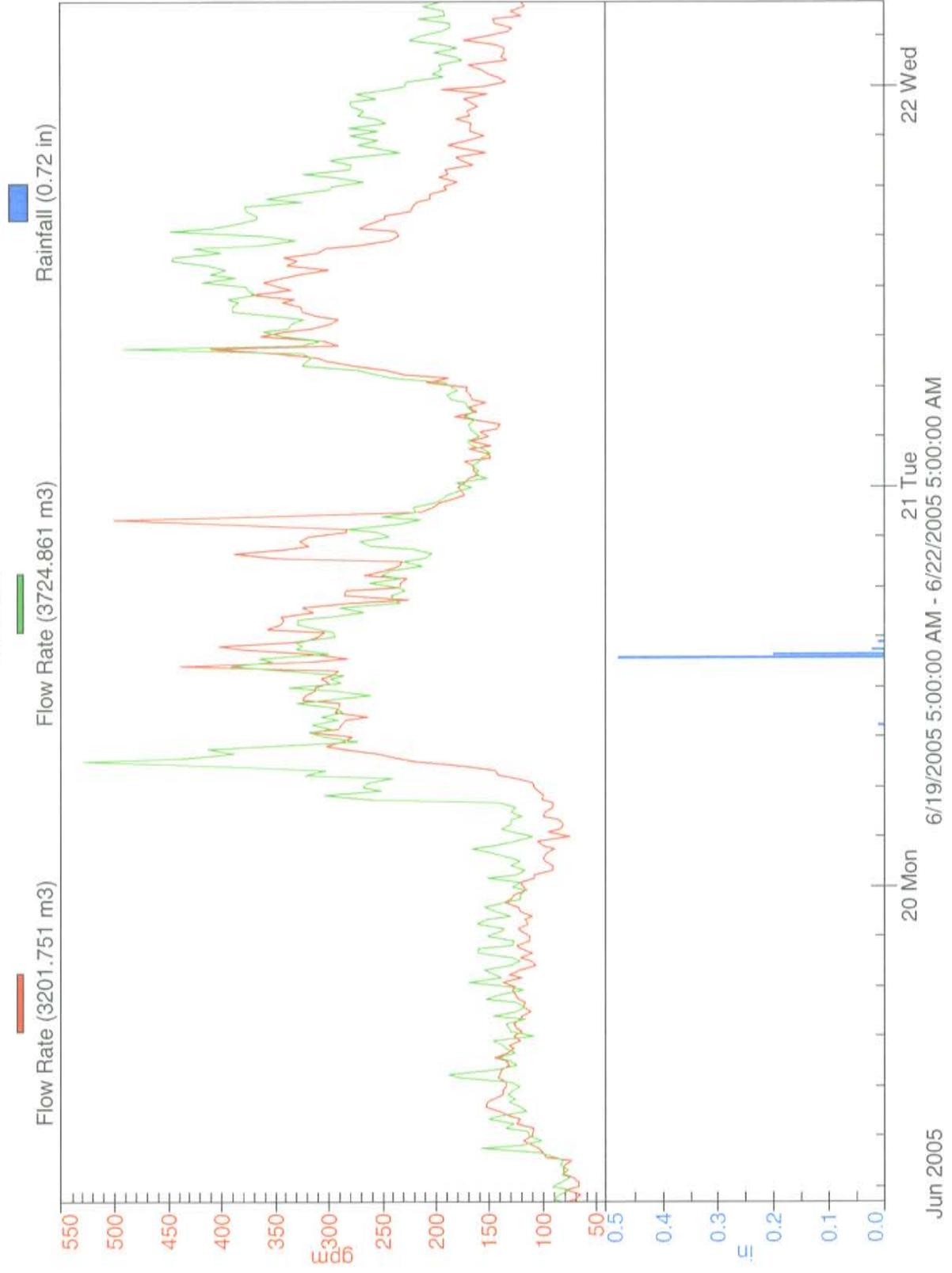
20 Mon

Jun 2005

6/19/2005 12:00:00 AM - 6/22/2005 12:00:00 AM

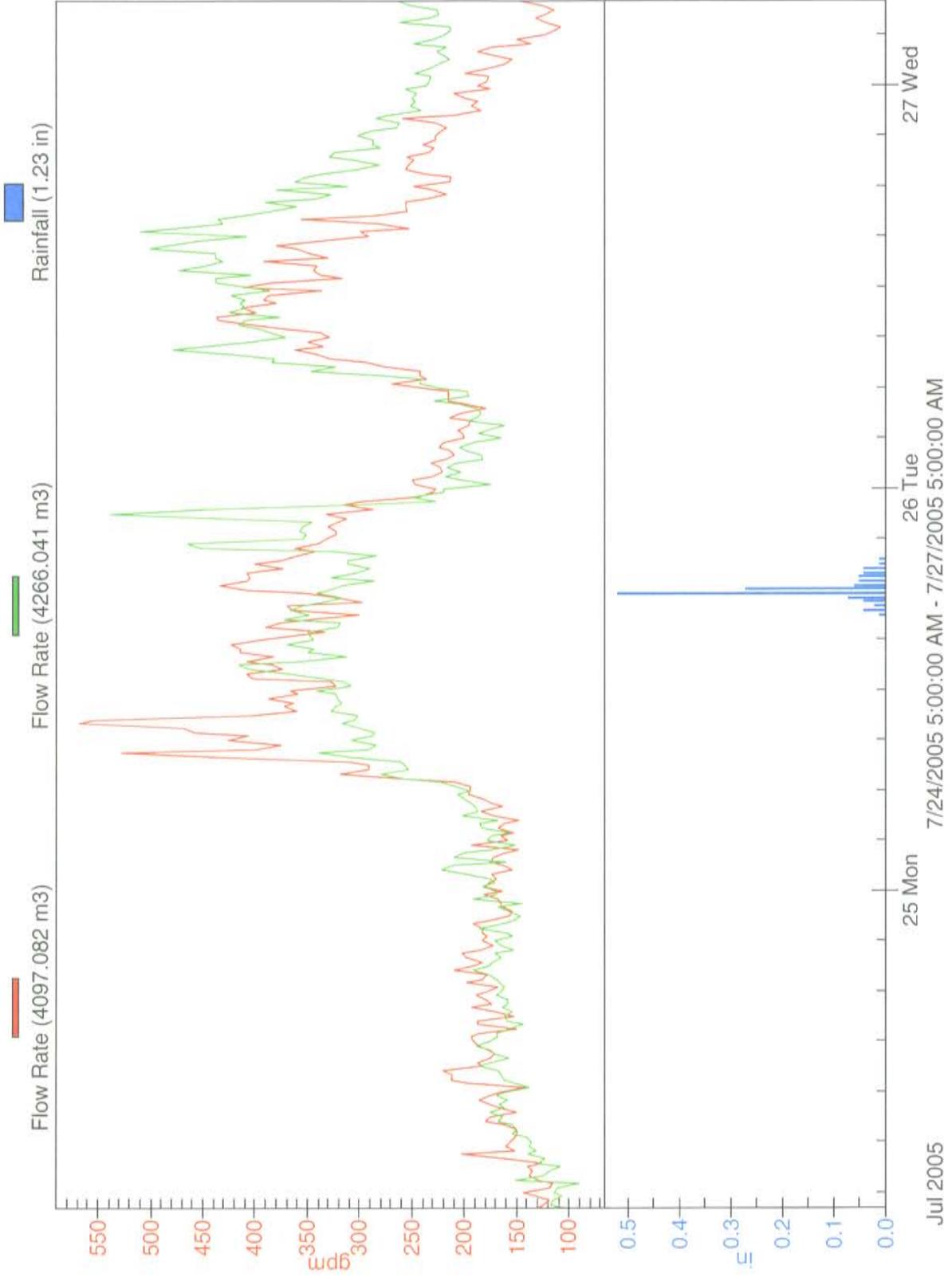
# Boone Avenue North south of 10th Avenue

District 12



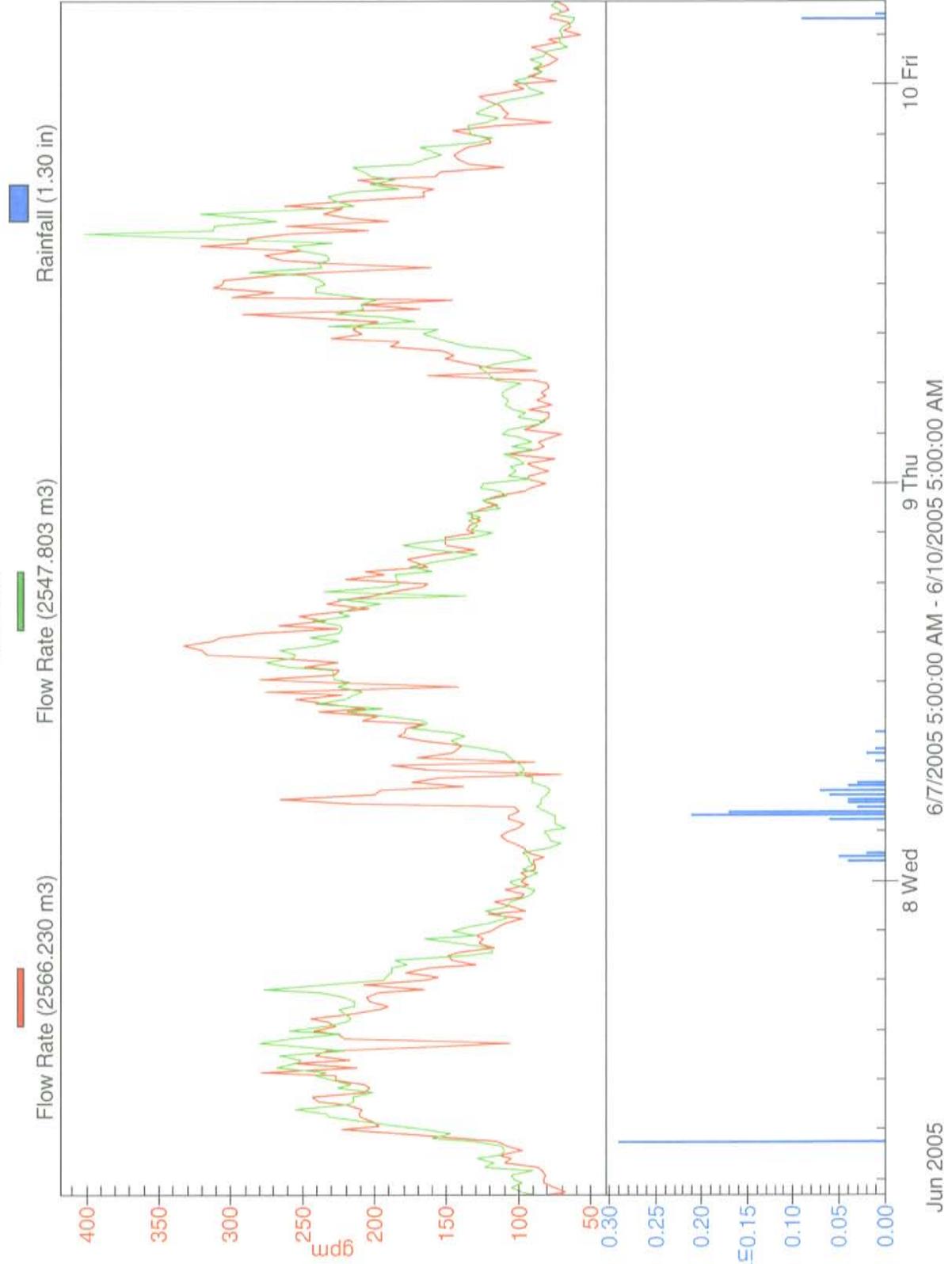
# Boone Avenue North south of 10th Avenue

District 12



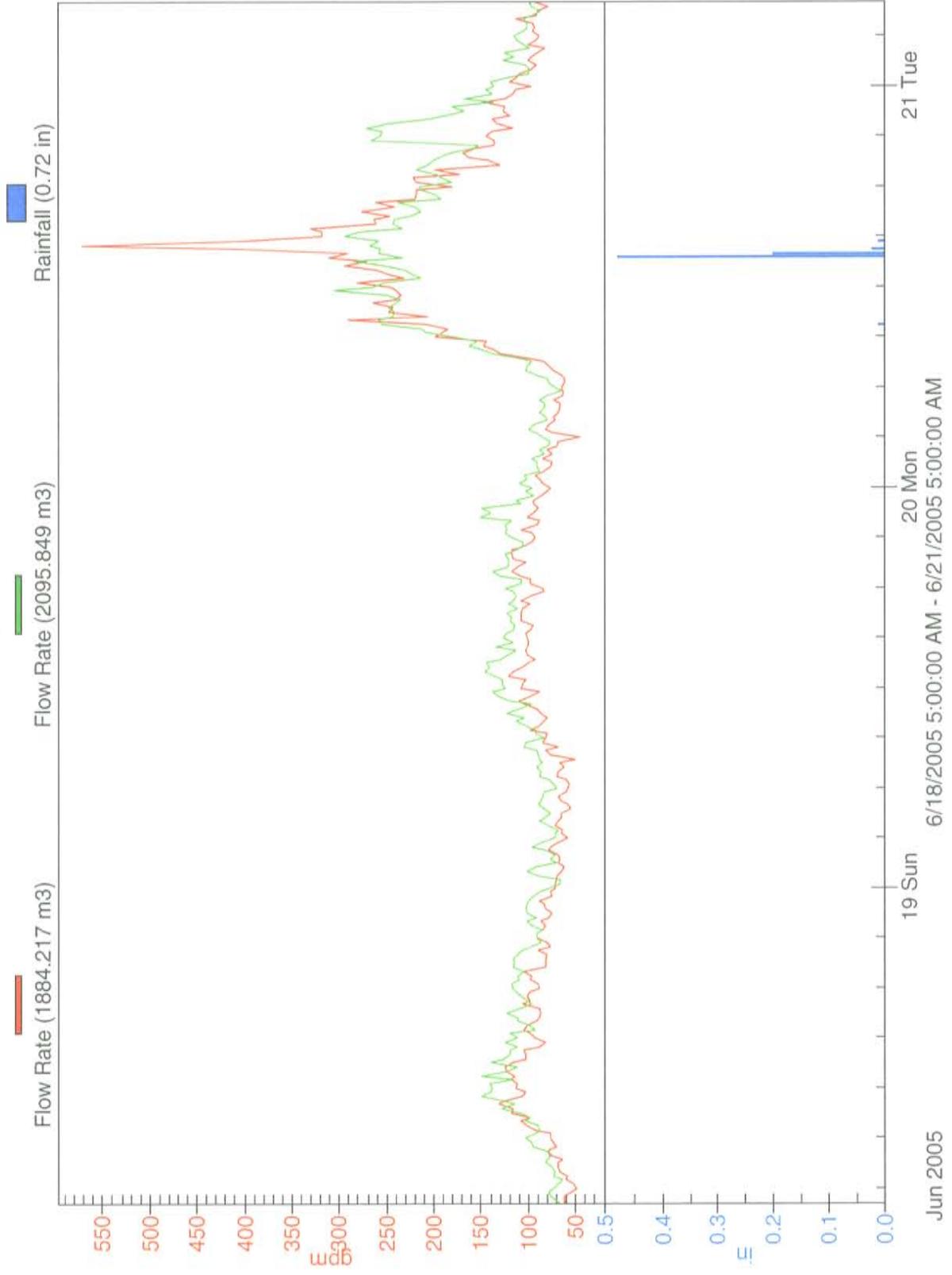
# Boone Avenue North, north of Golden Valley Road

District 13



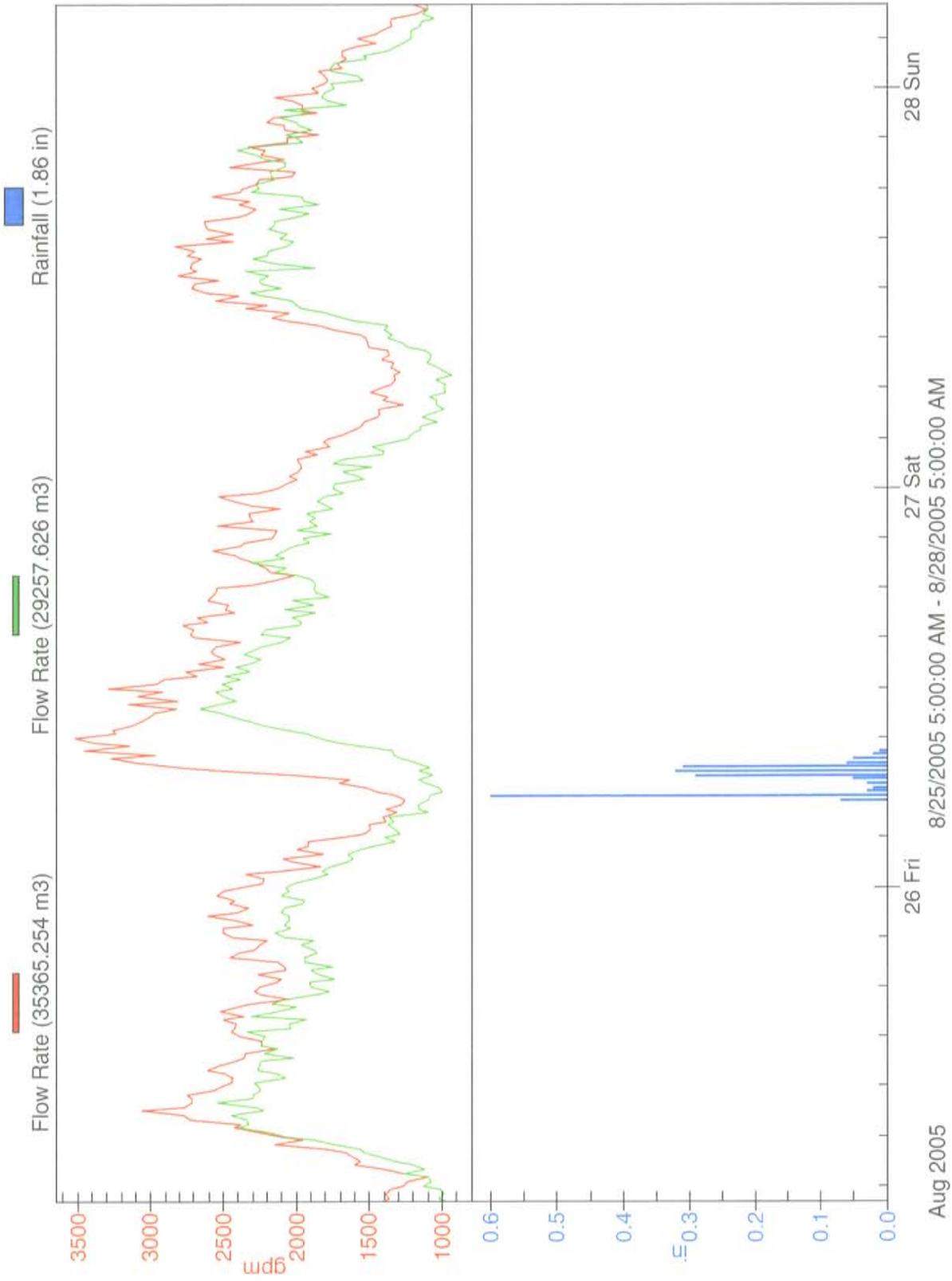
# Boone Avenue North, north of Golden Valley Road

District 13



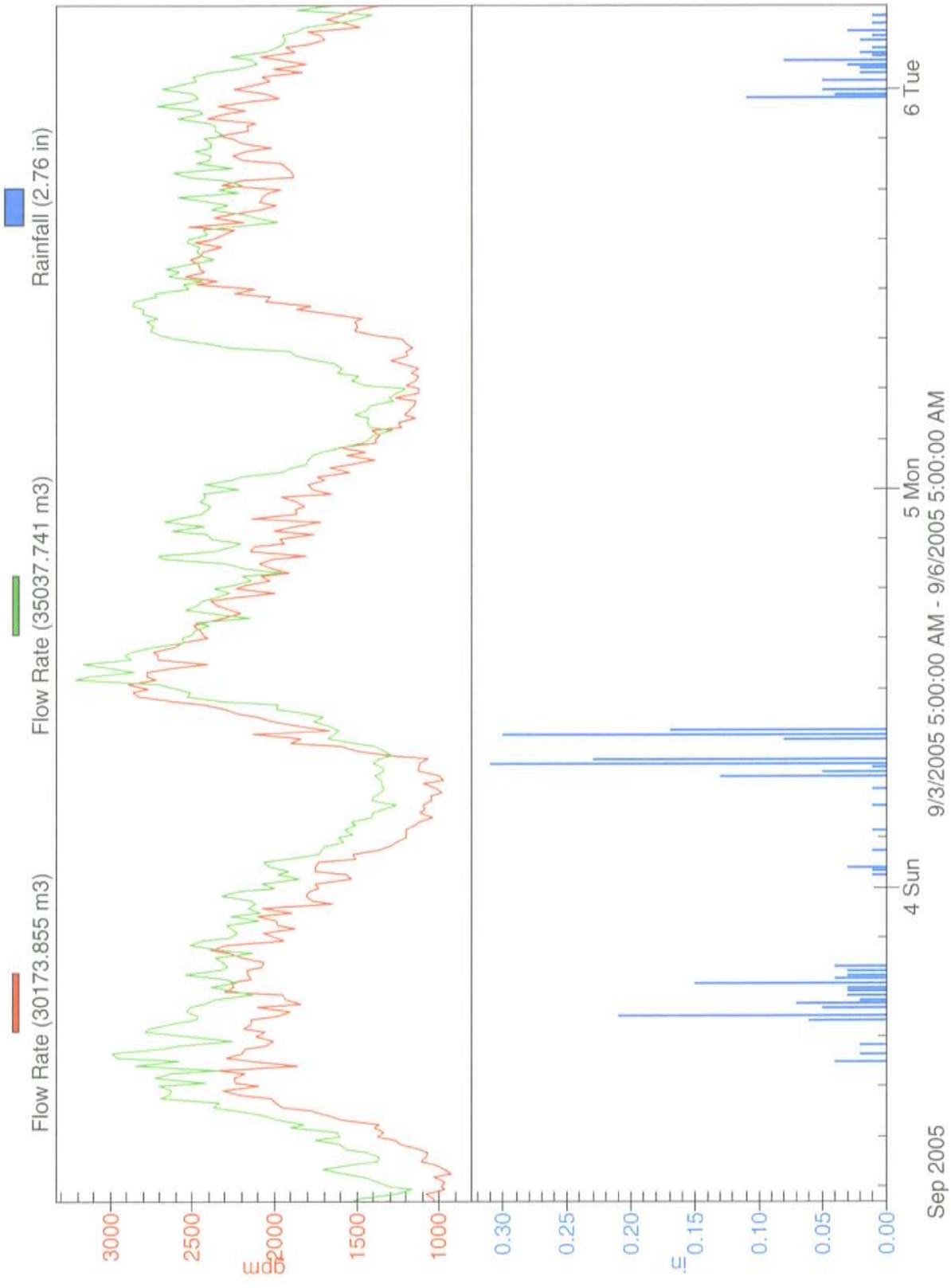
# North of State Highway 55 near Theodore Wirth Parkway

District 14



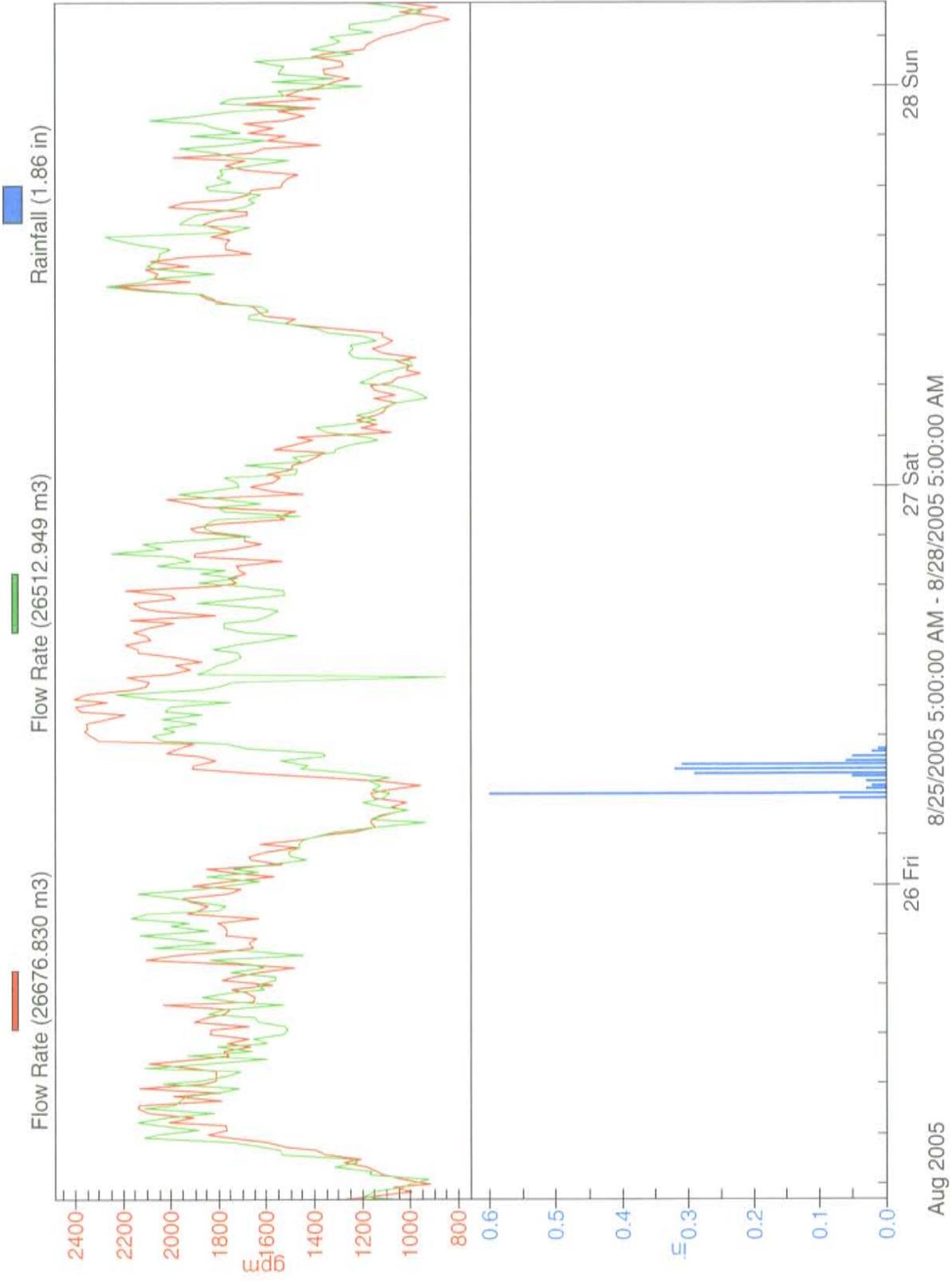
# North of State Highway 55 near Theodore Wirth Parkway

District 14



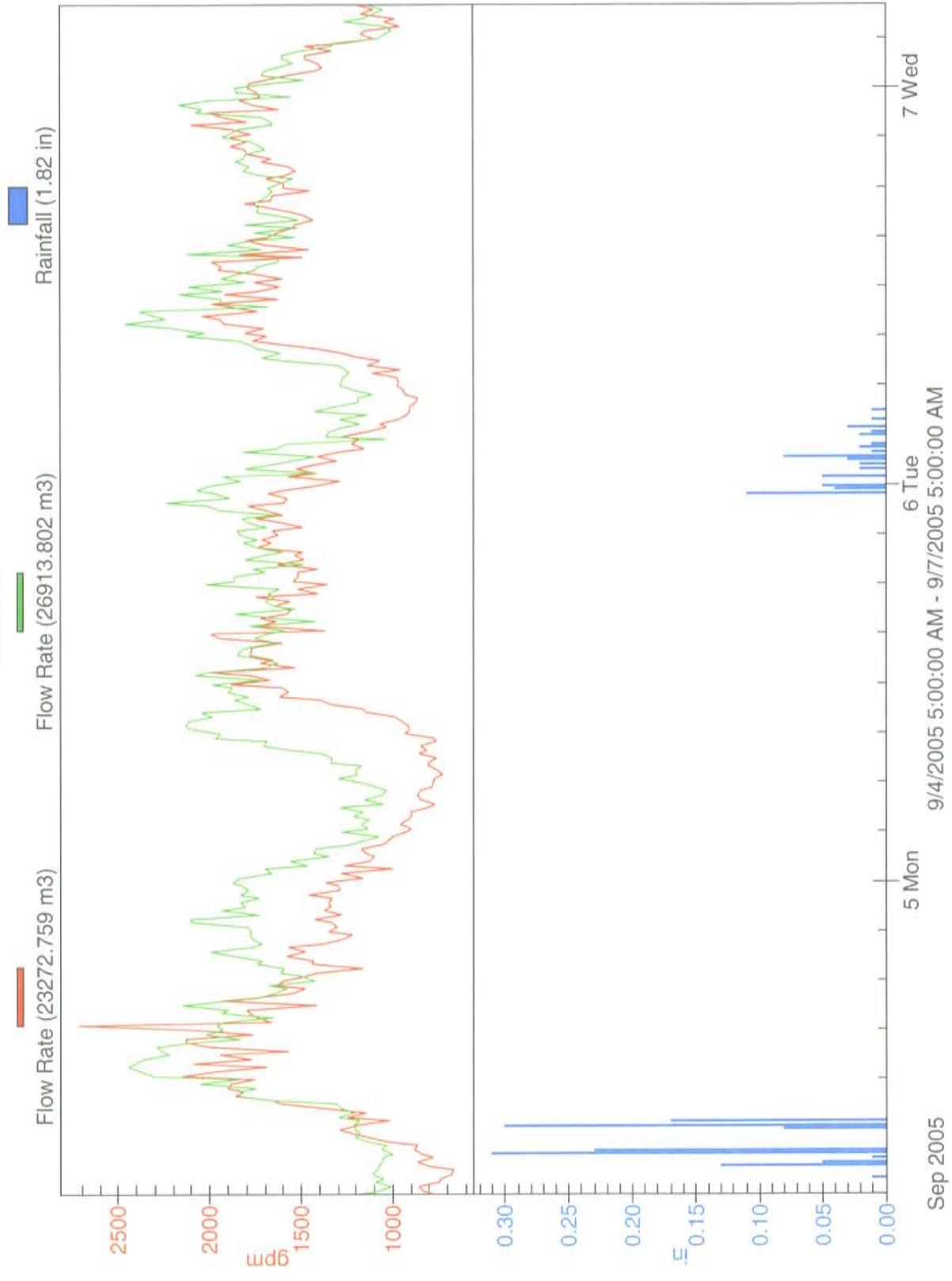
# Natchez Avenue north of Glenwood Avenue

District 15



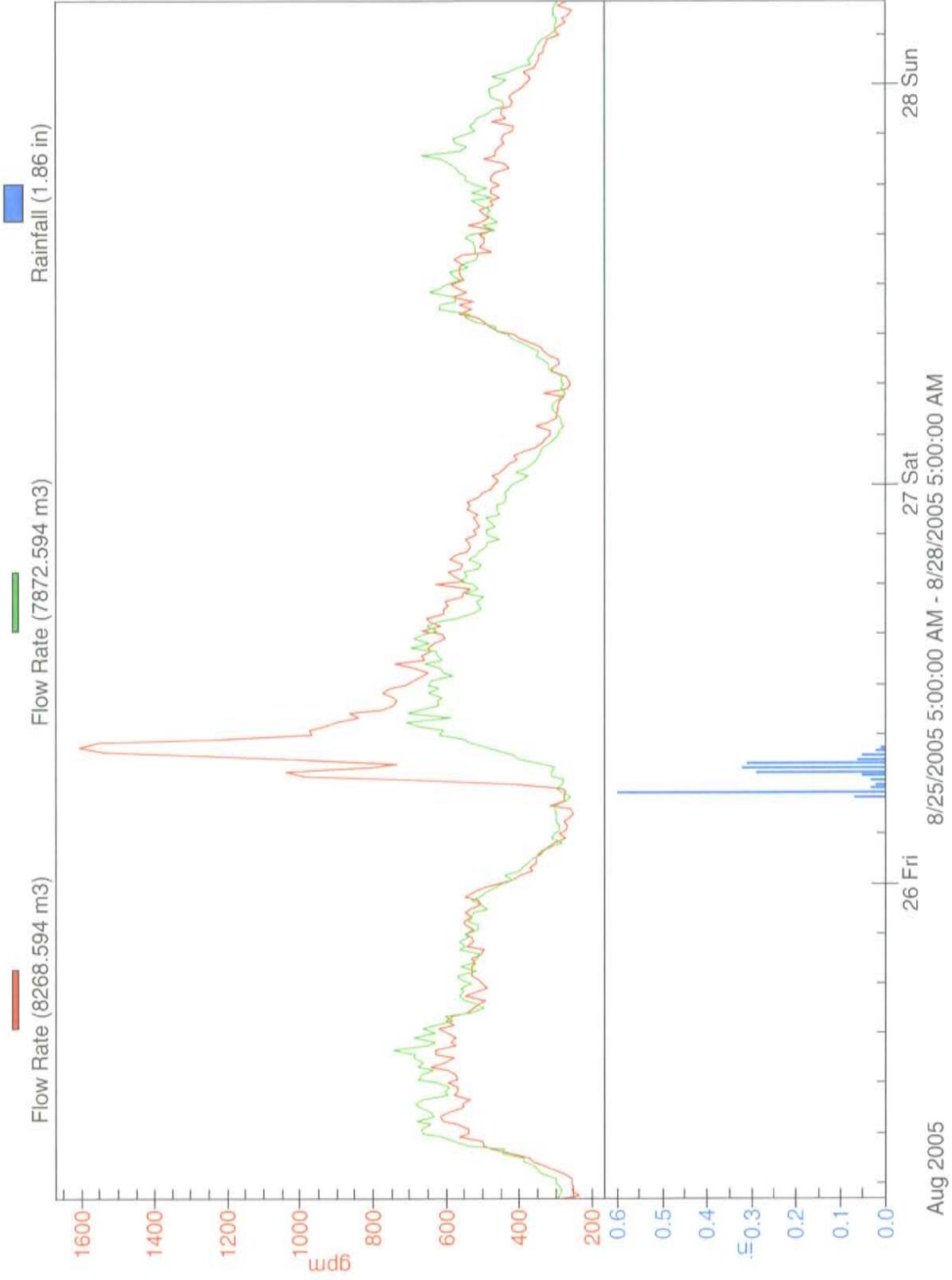
# Natchez Avenue north of Glenwood Avenue

District 15



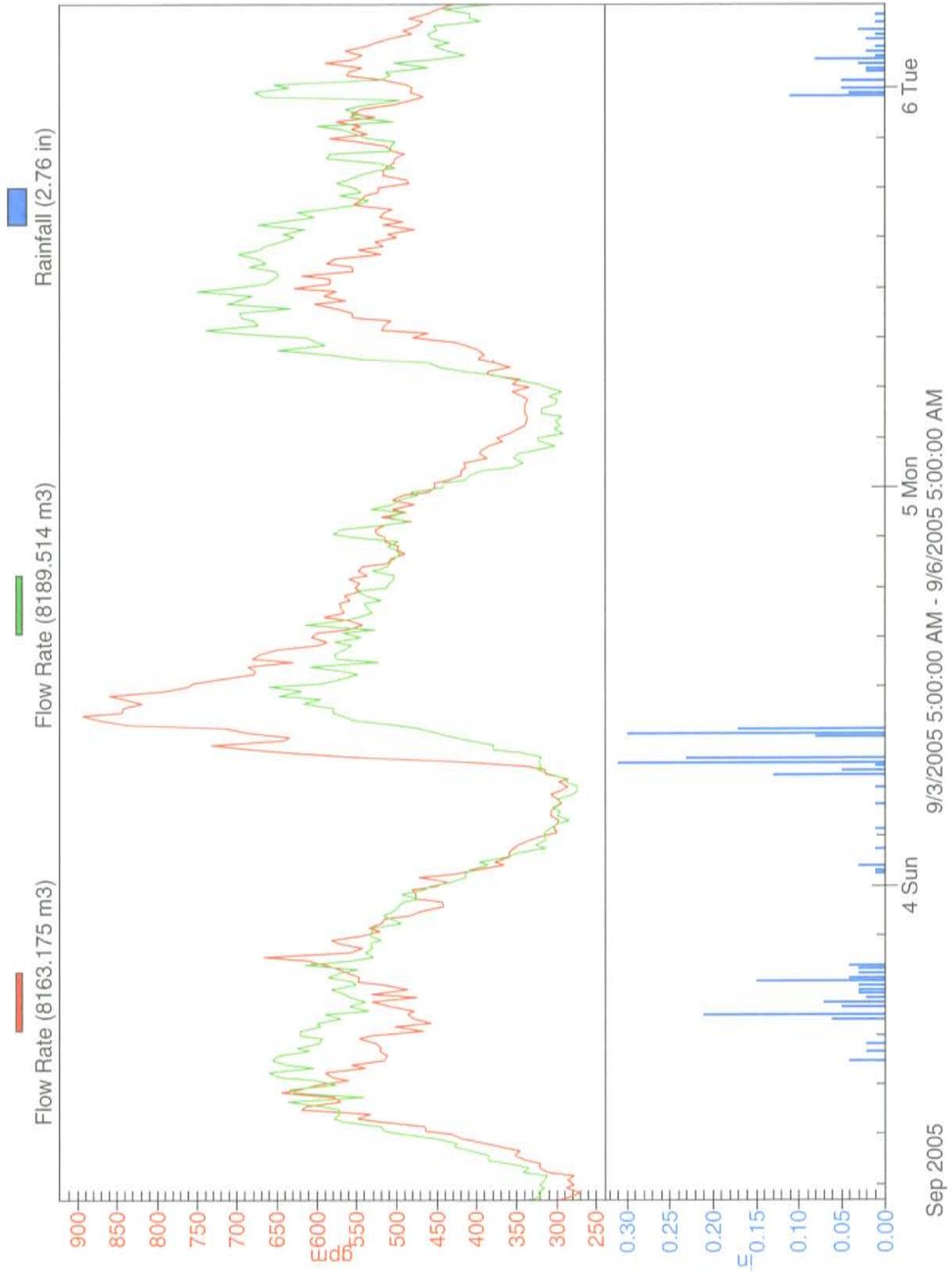
# Ottawa Avenue north of Entrance to Breck School

District 16



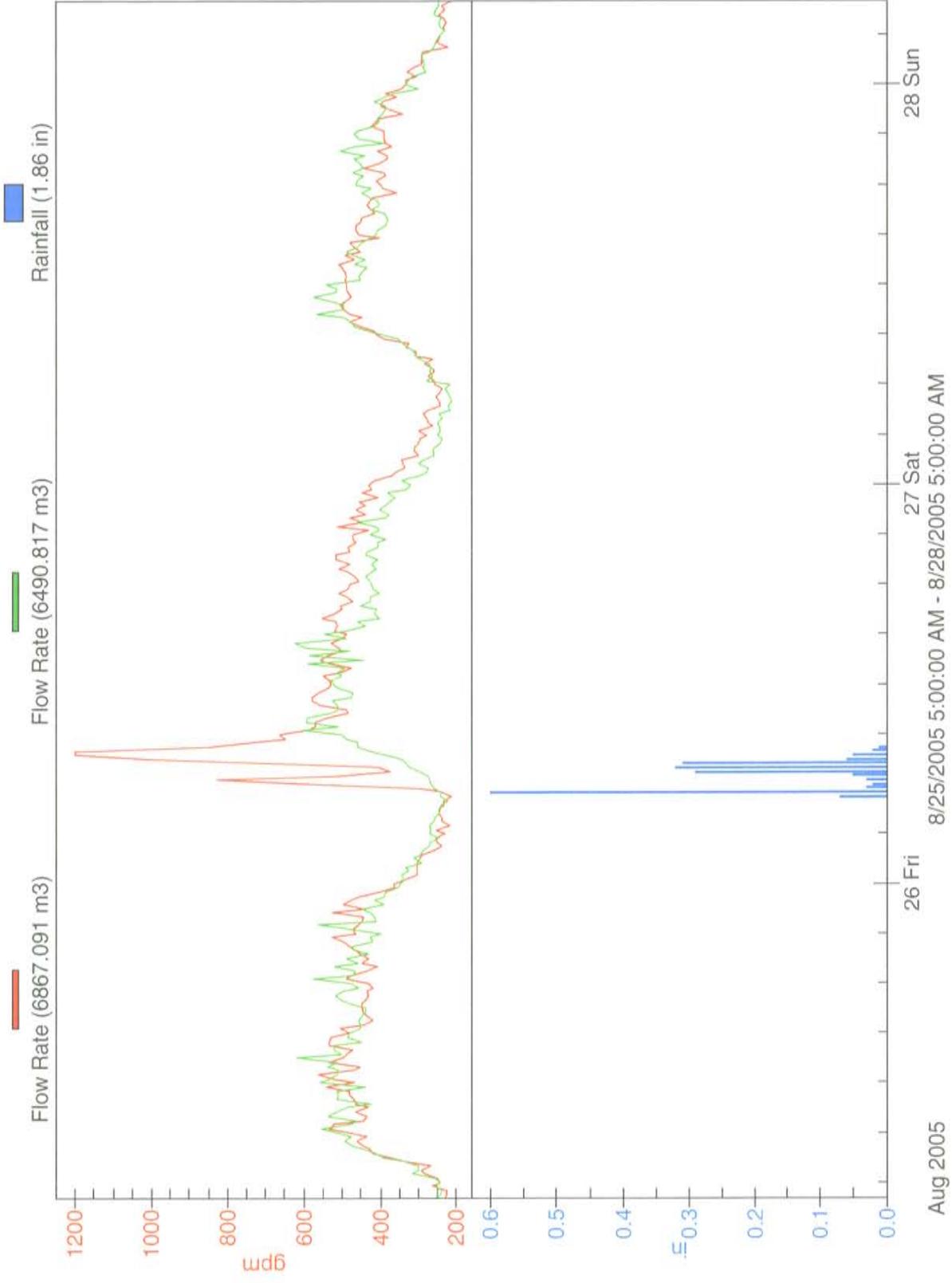
# Ottawa Avenue north of Entrance to Breck School

District 16

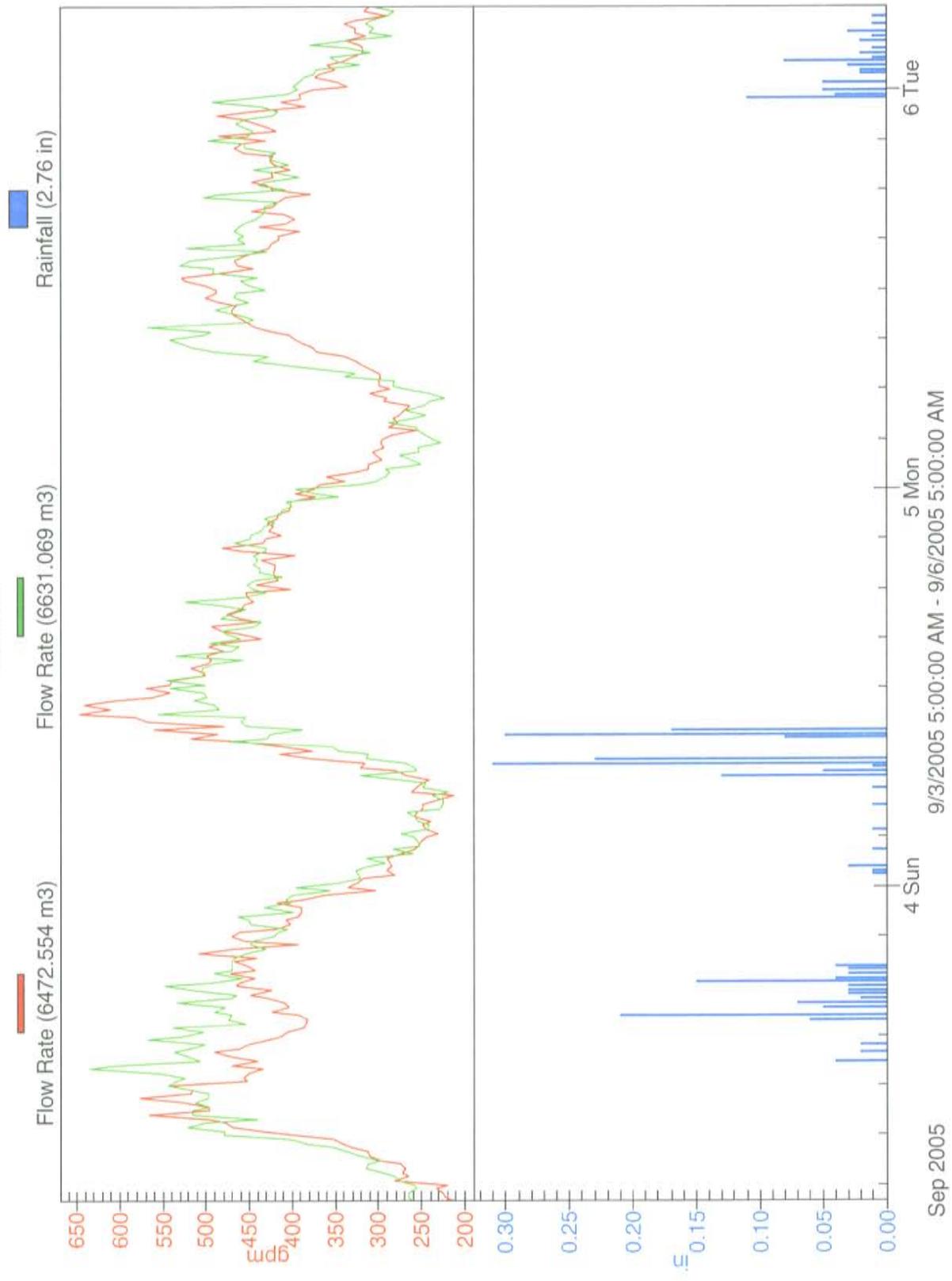


# Laurel Avenue west of Turners Crossroad South

District 17

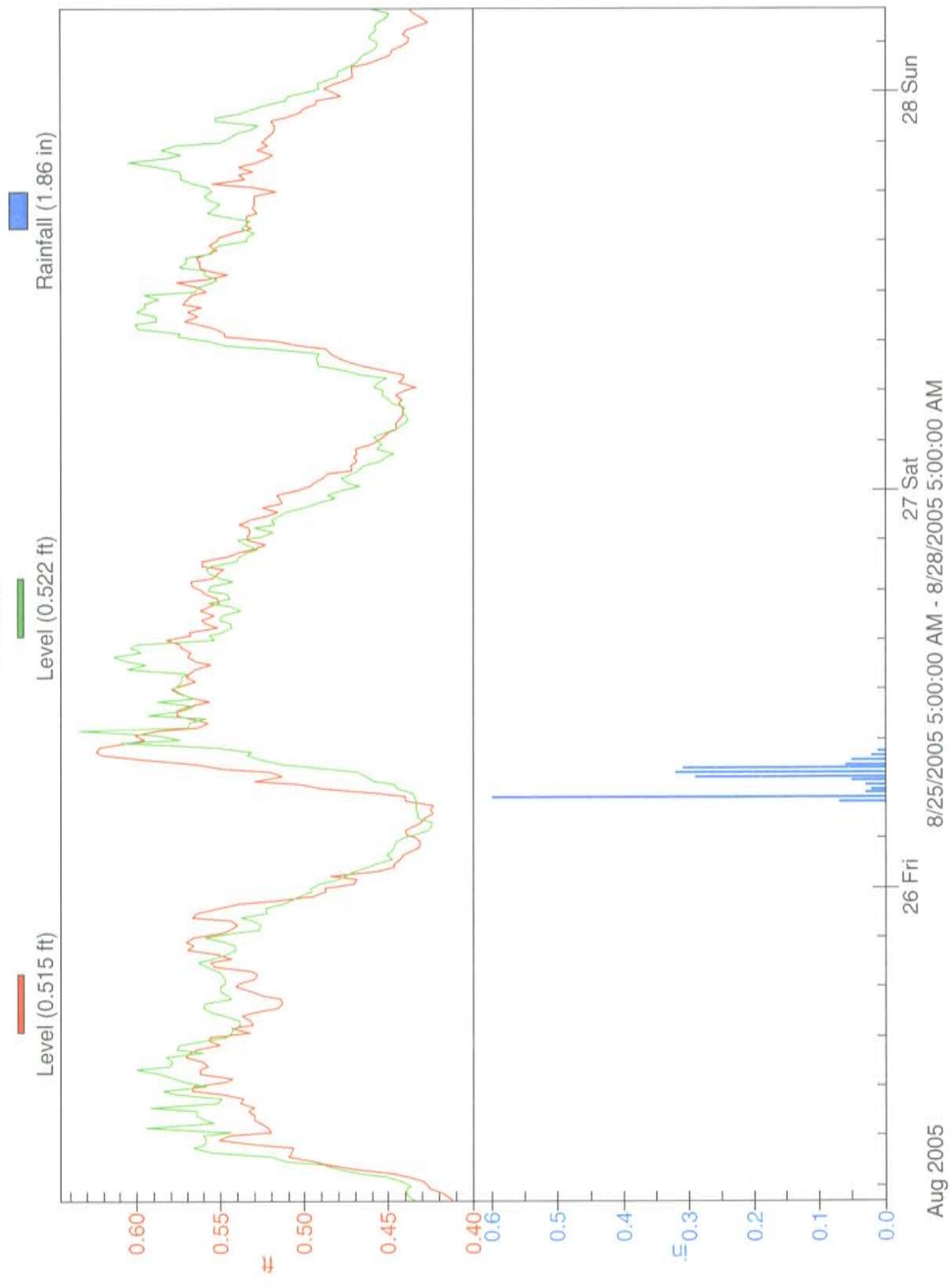


# Laurel Avenue west of Turners Crossroad South District 17



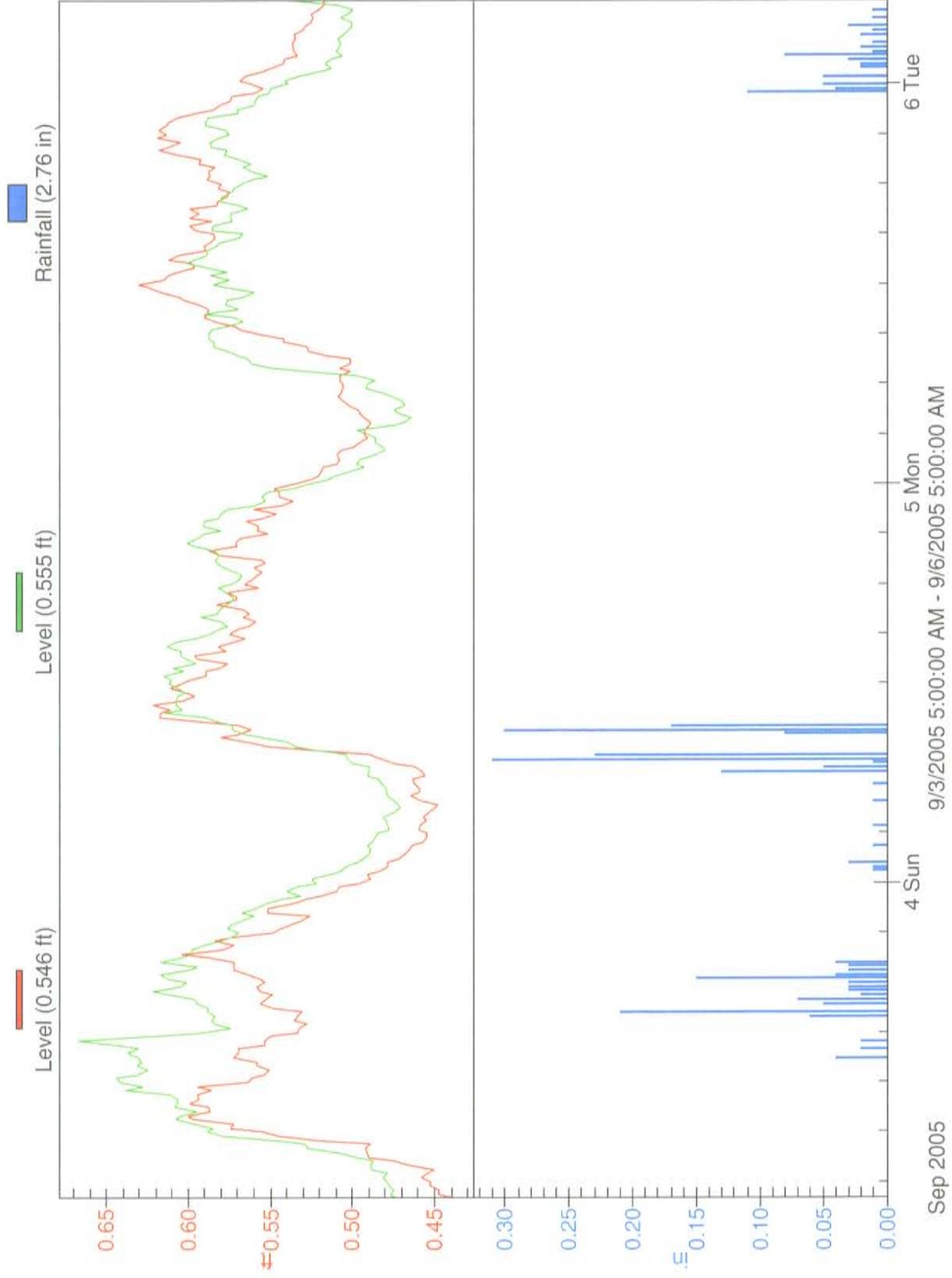
# Laurel Avenue east of Louisiana Avenue South

District 18



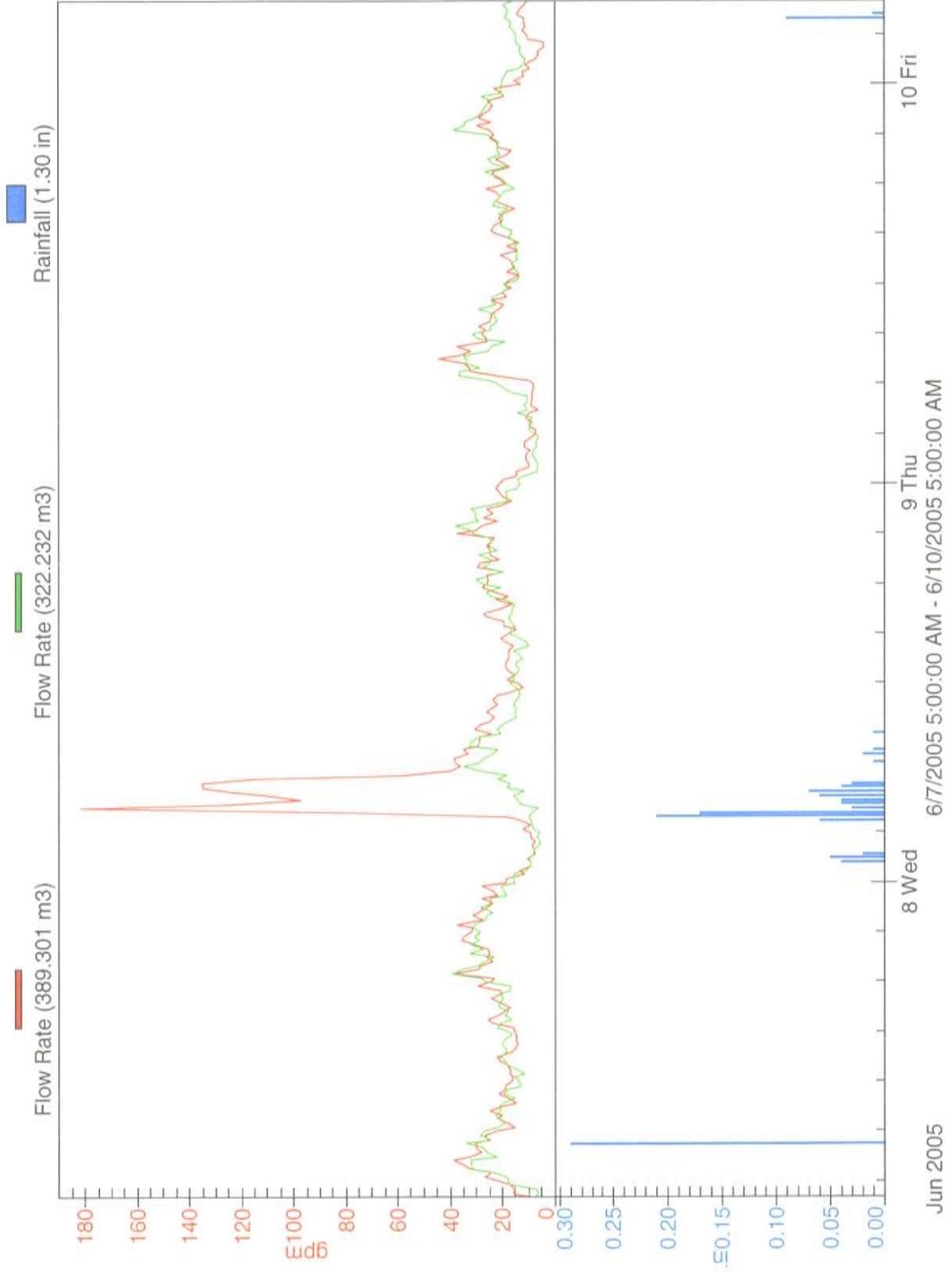
# Laurel Avenue east of Louisiana Avenue South

District 18



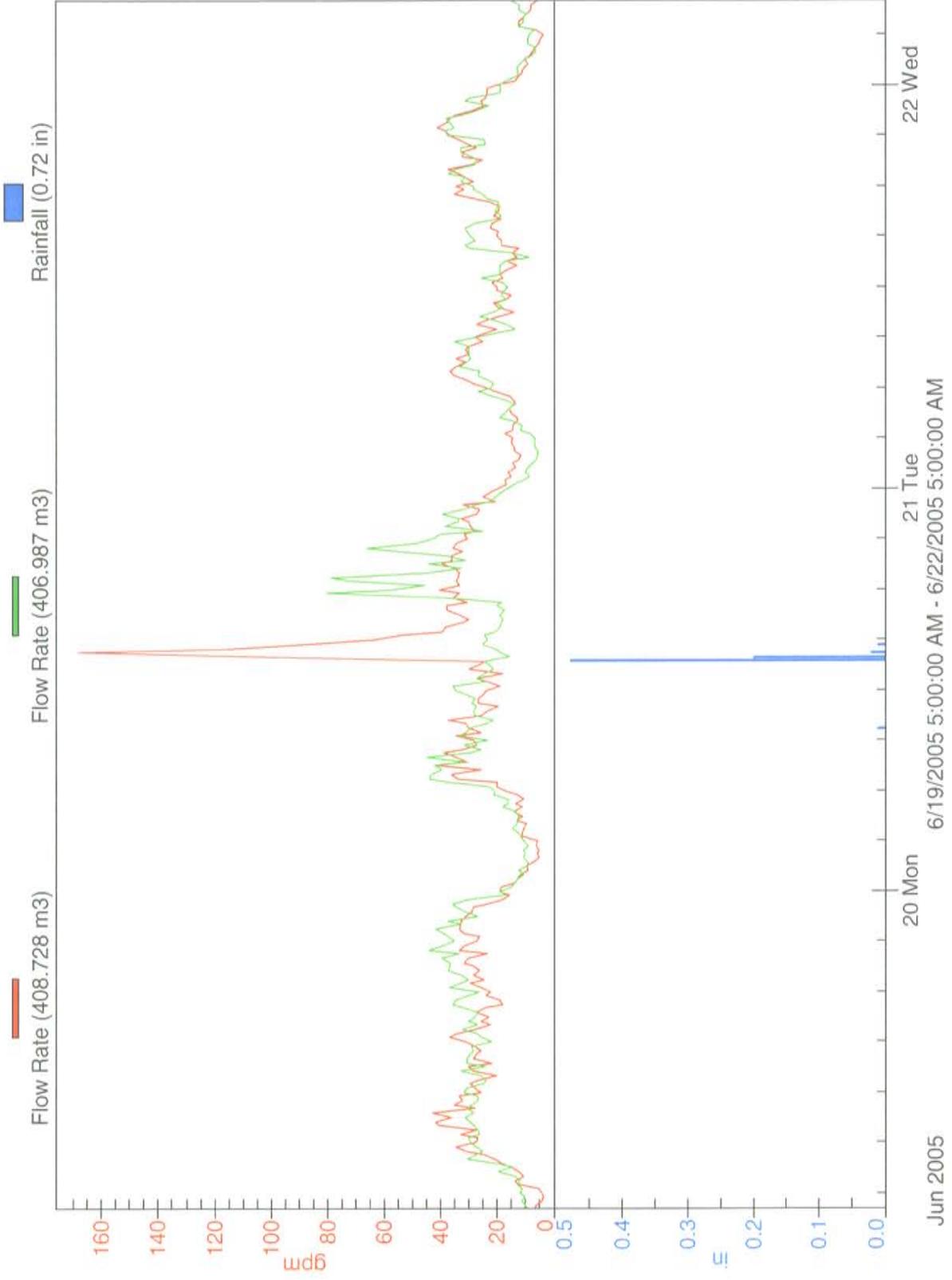
# Kewanee Way south of 26th Avenue North

District 19 (Flows from Robbinsdale)



# Kewanee Way south of 26th Avenue North

District 19 (Flows from Robbinsdale)



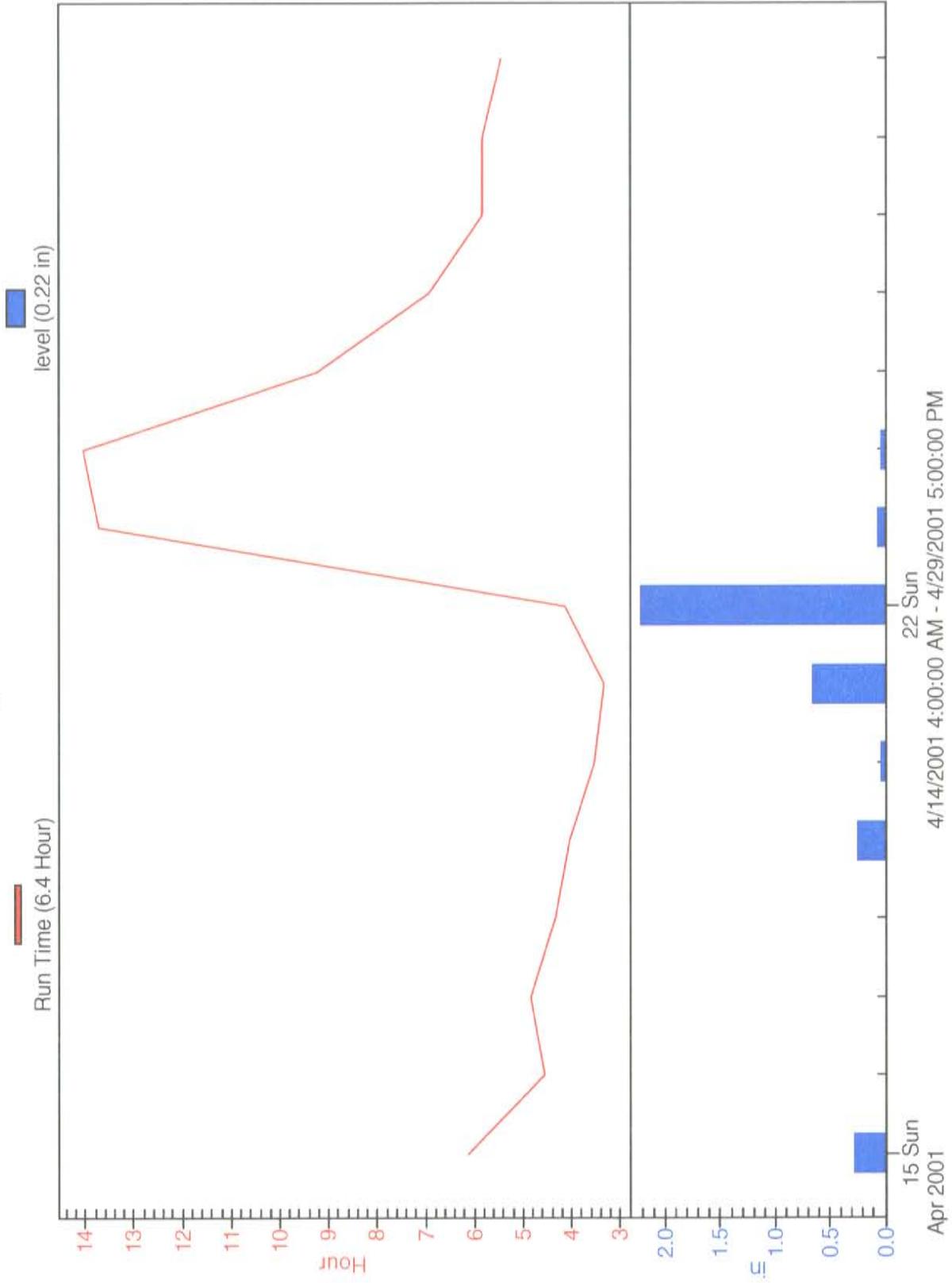
---

## **Appendix D**

Lift Station Results

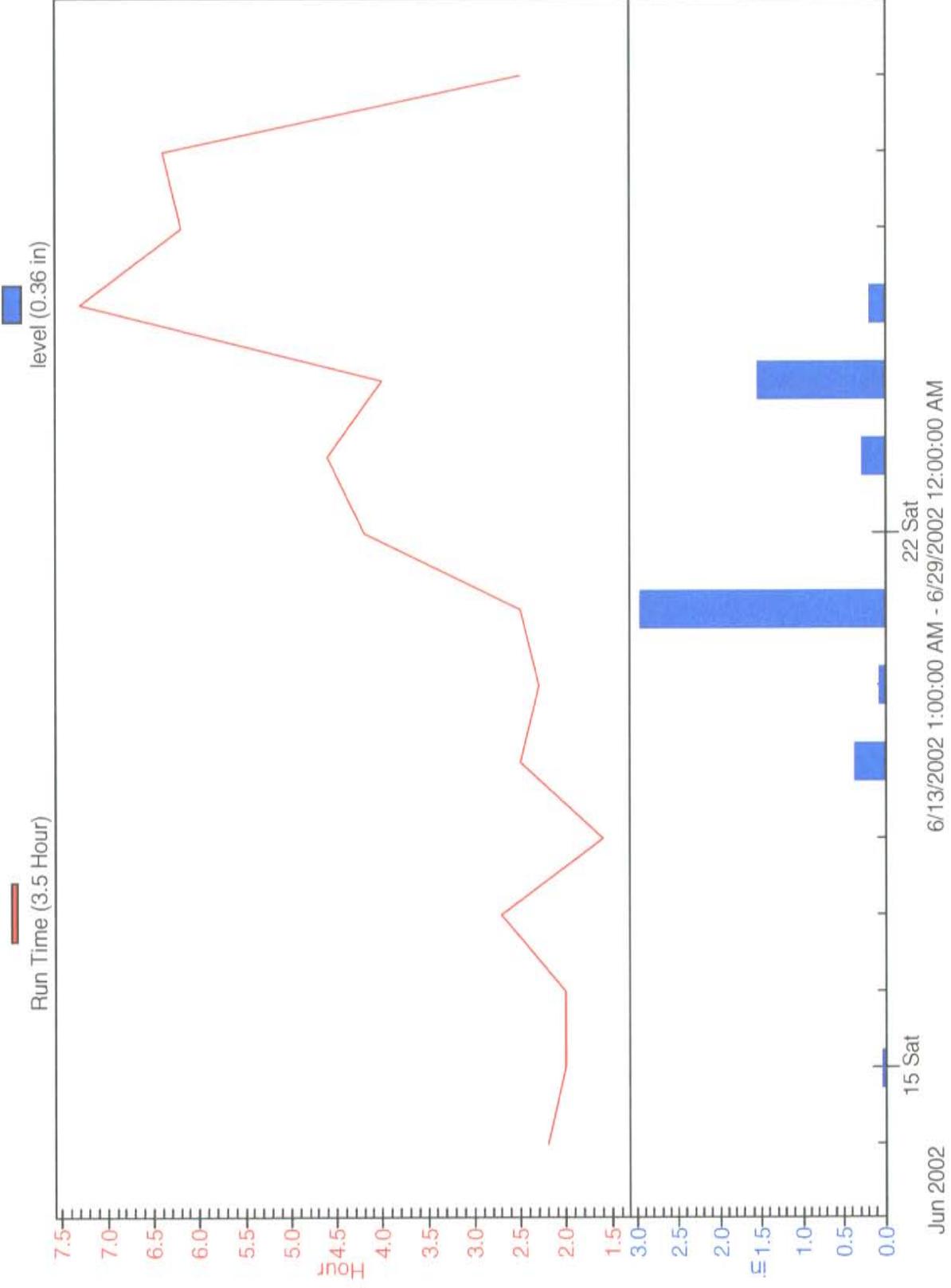
# Hwy 55 Liftstation

## Pumps Combined Run Time



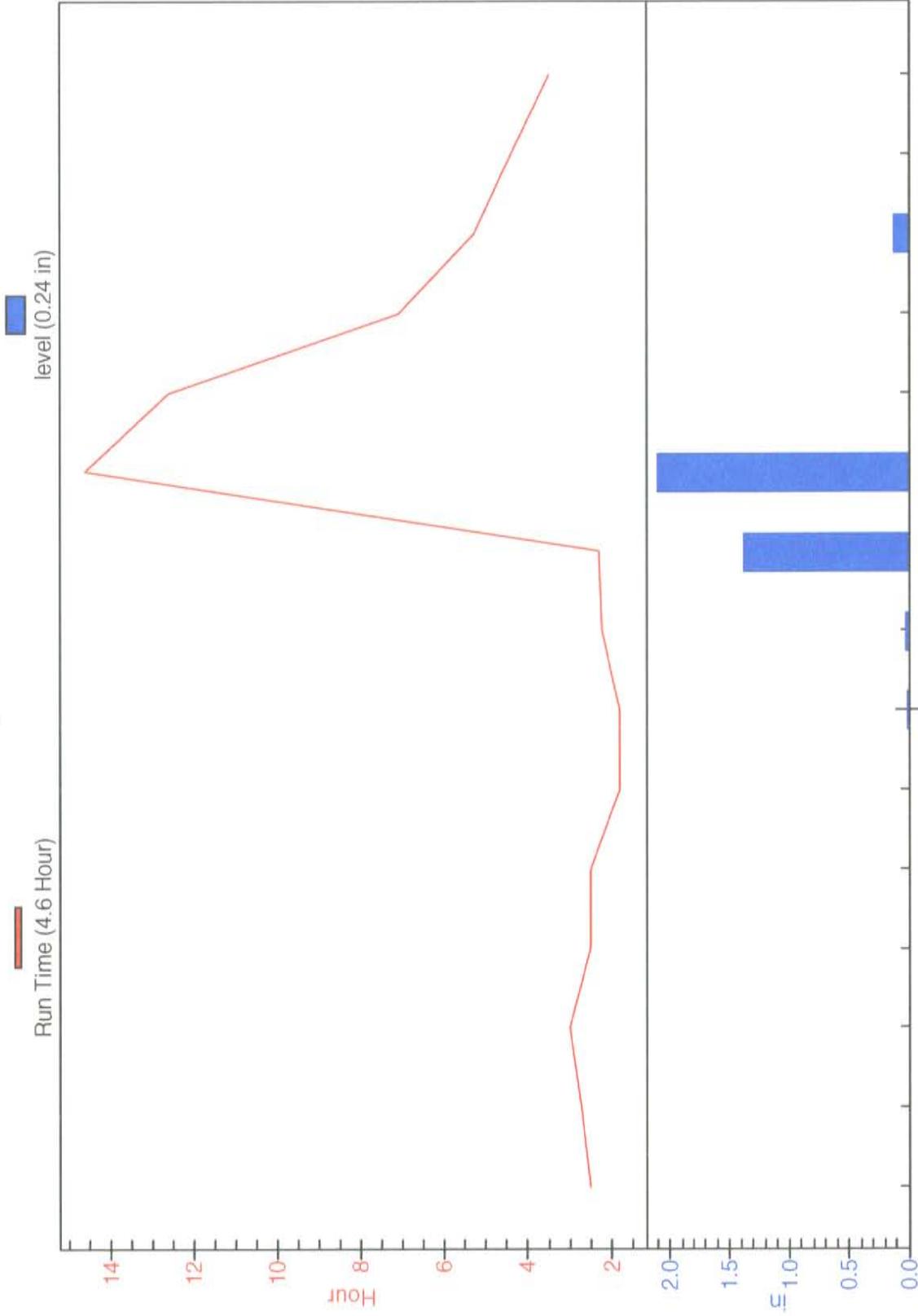
# HWY 55 Liftstation

Pumps Combined Run Time



# HWY 55 Liftstation

Pumps Combined Run Time

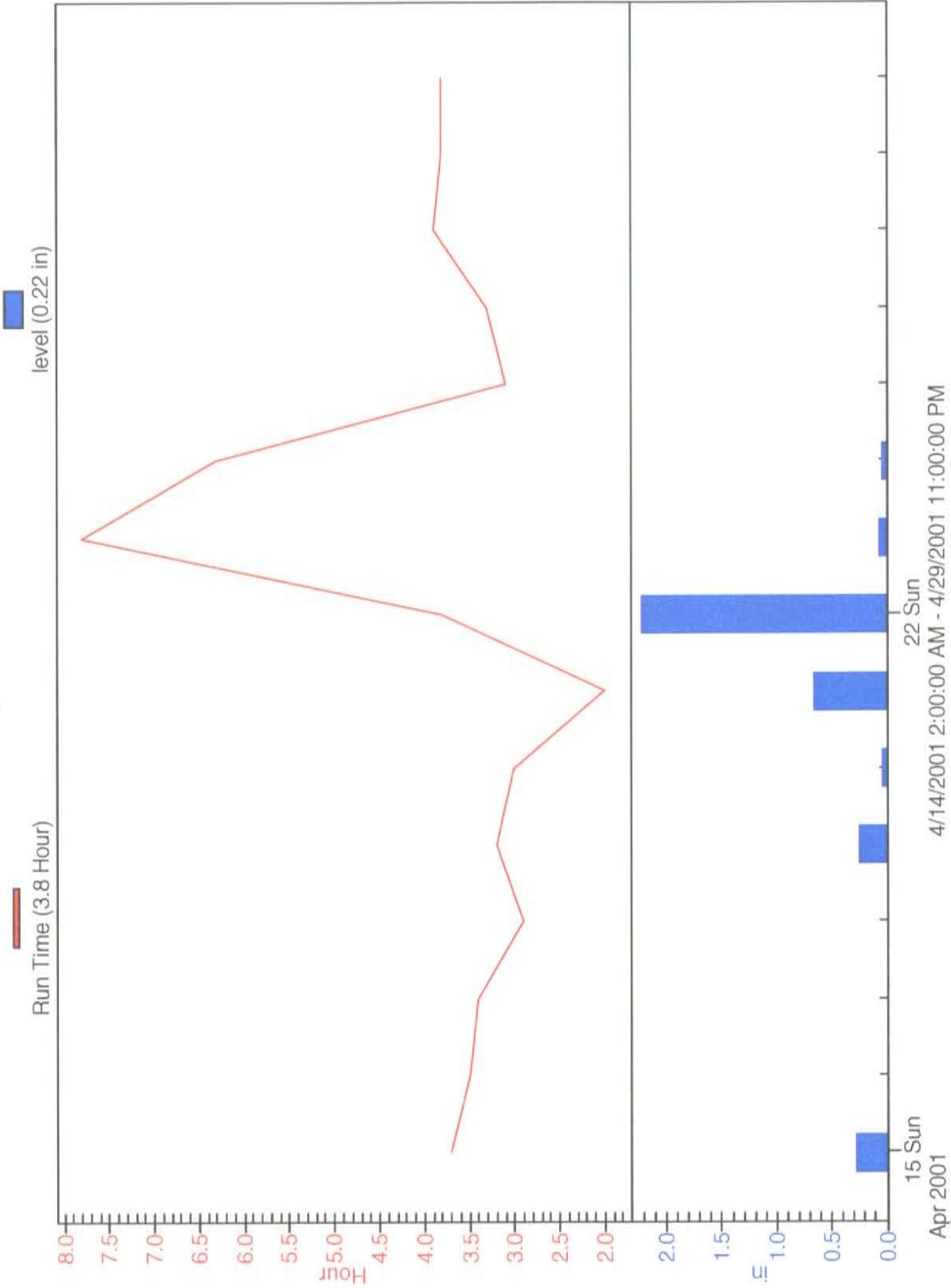


22 Sun  
6/15/2003 5:00:00 AM - 6/30/2003 10:00:00 PM

Jun 2003

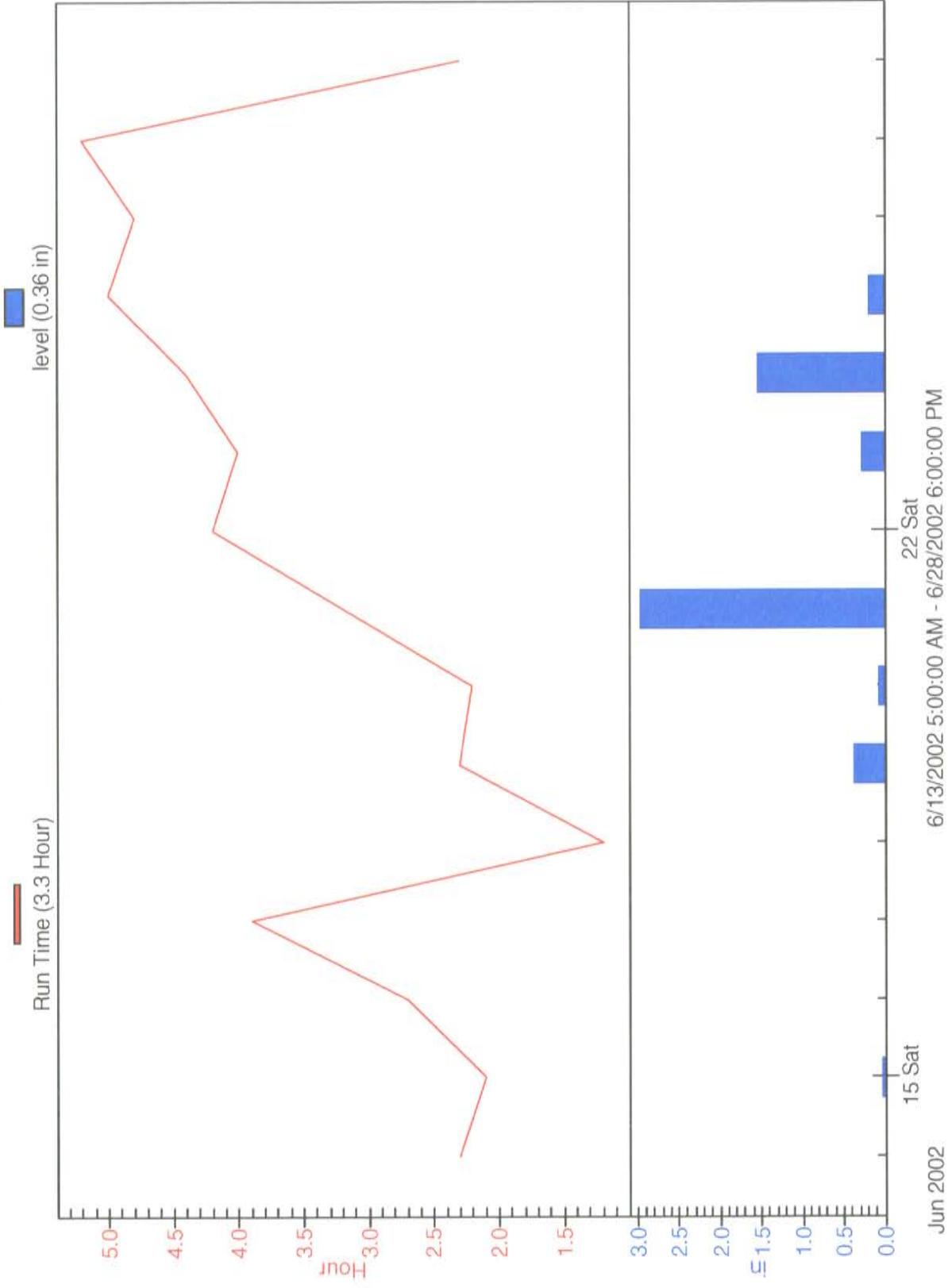
# Schaper Liftstation

Pumps Combined Run Time



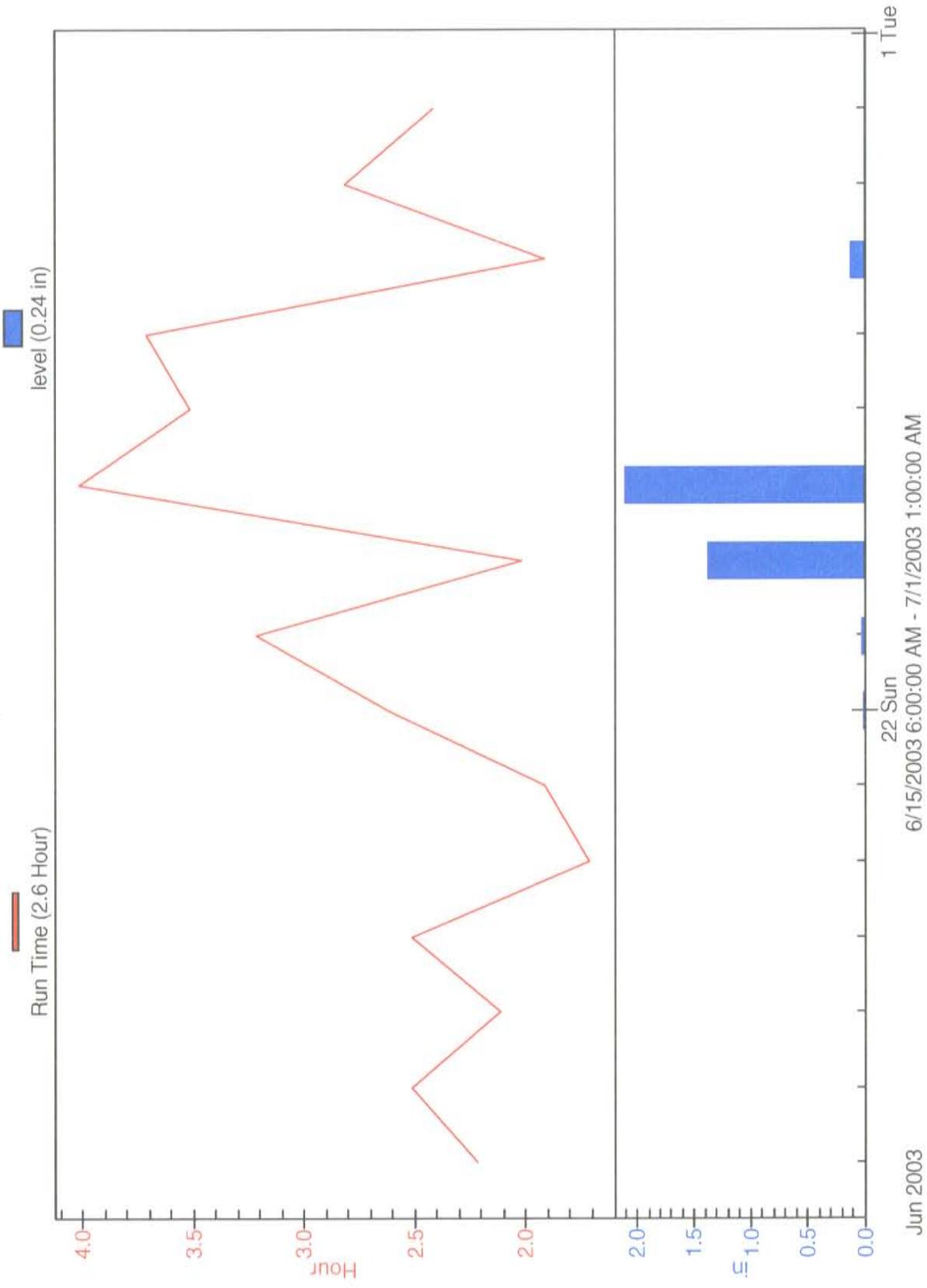
# Schaper Liftstation

Pumps Combined Run Time



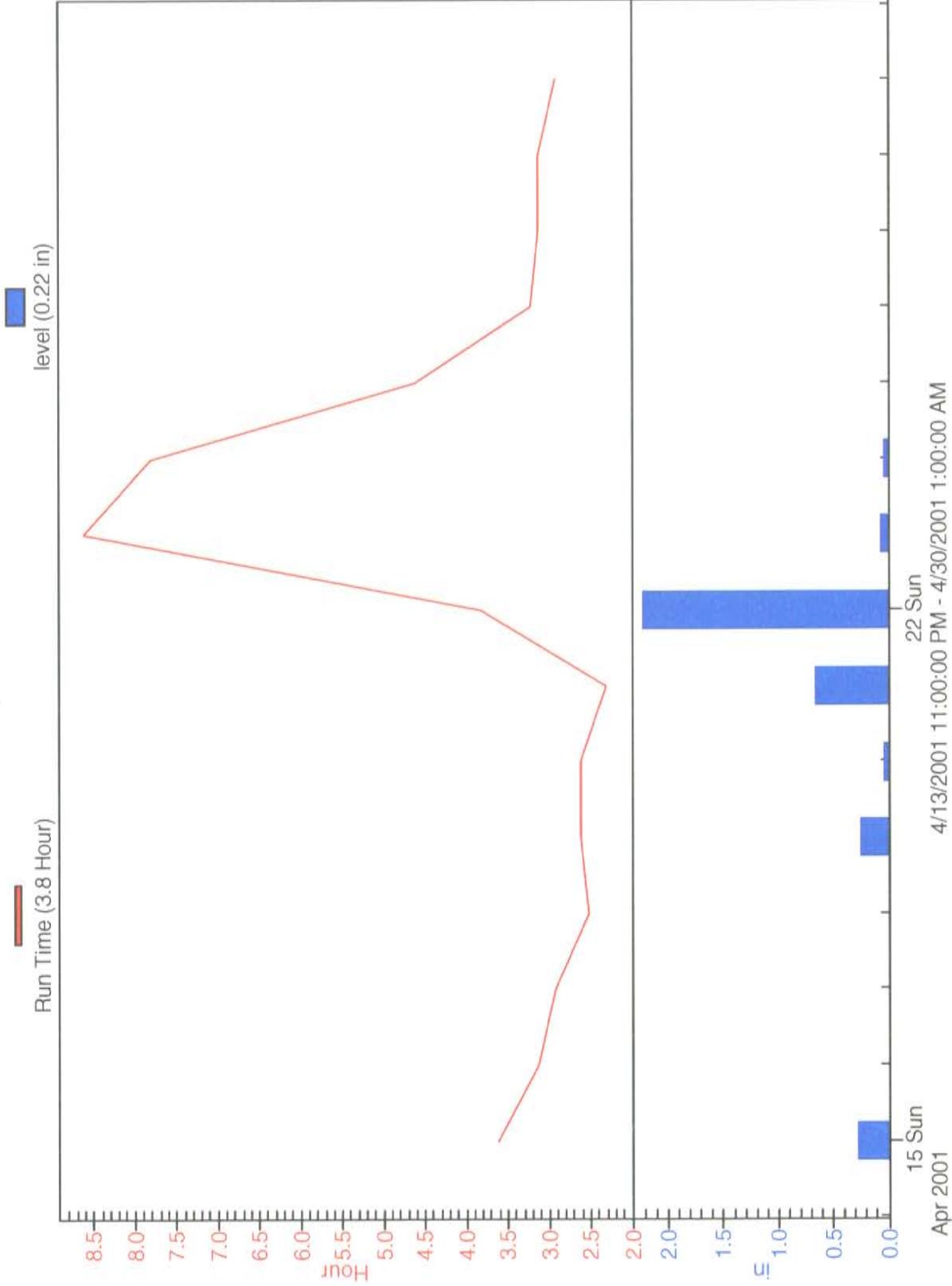
# Schaper Liftstation

Pumps Combined Run Time



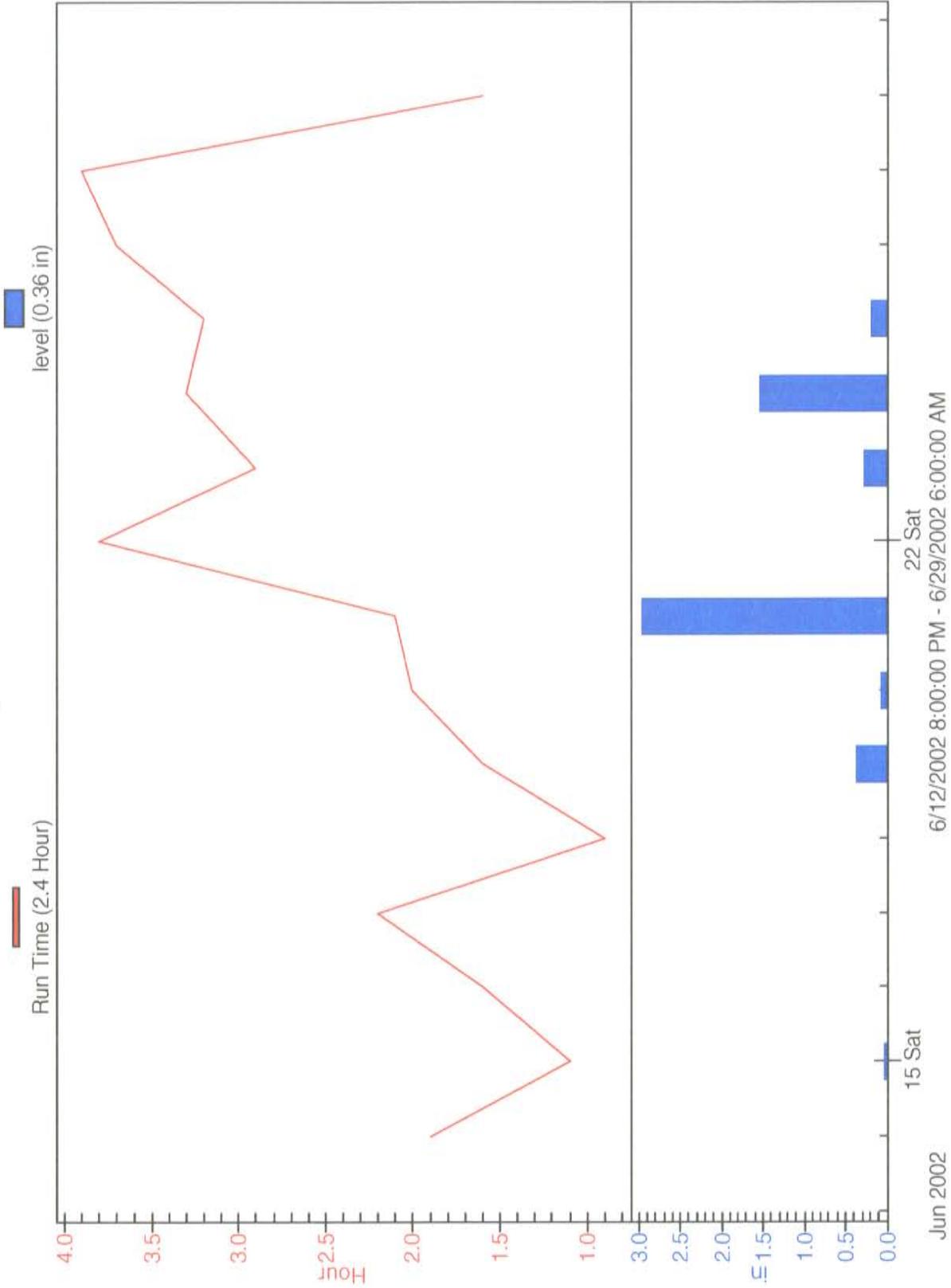
# Woodstock Liftstation

Pumps Combined Run Time



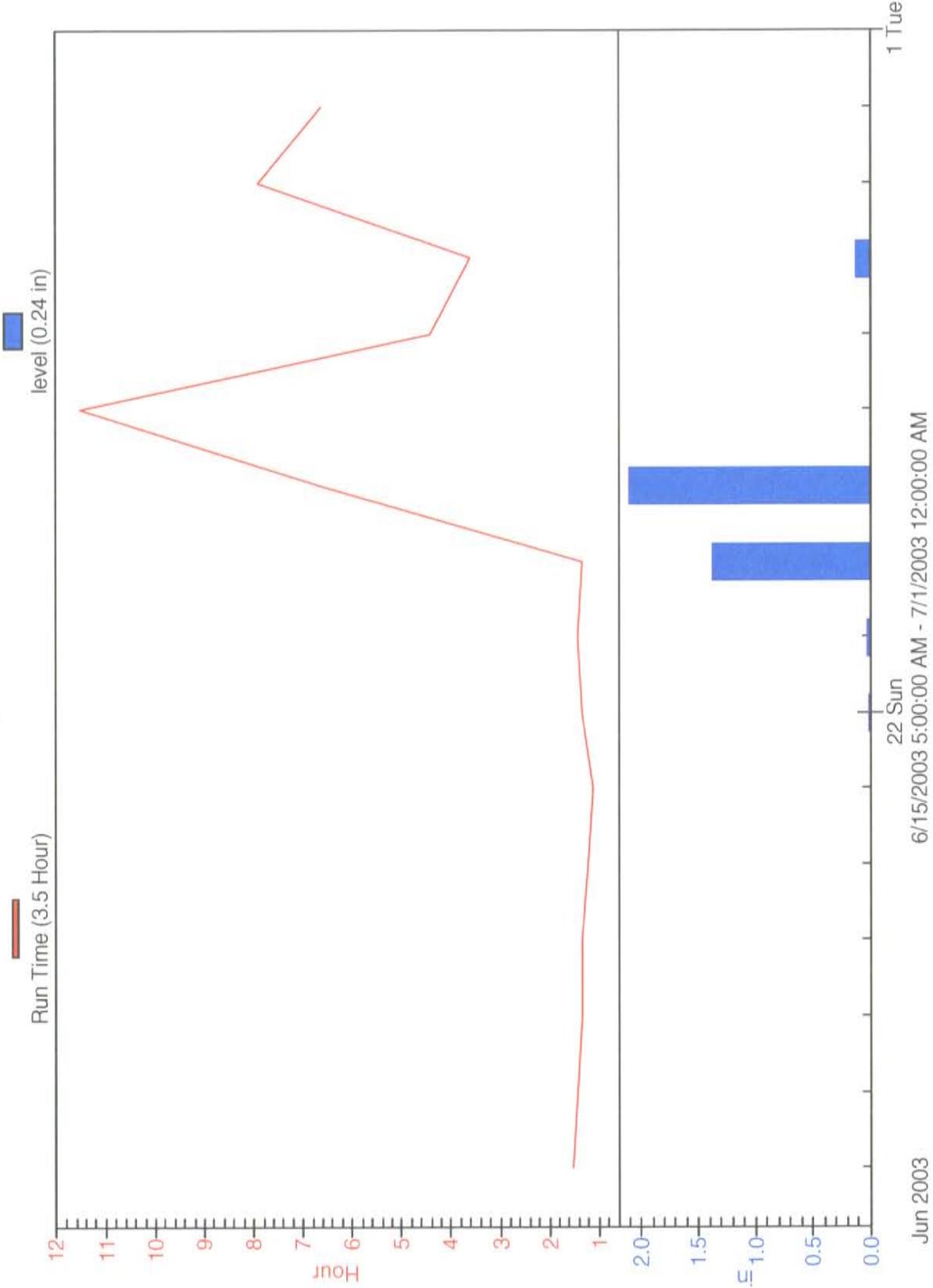
# Woodstock Liftstation

Pumps Combined Run Time



# Woodstock Liftstation

Pumps Combined Run Time



Jun 2003

22 Sun

6/15/2003 5:00:00 AM - 7/1/2003 12:00:00 AM

1 Tue

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## **Appendix E**

MCES Interceptor Inspection Results

Manhole	Evidence of Leaking	Frame Offset	Holes in Lid	No. of Rings	Height (in) Above Grd	Manhole Condition	Manhole Construction	Lid Leaking?	Frame Leaking?	Rings Leaking?	Walls Leaking?	Inspection Date
MH 1A	Yes	No	1	0	1	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 2	Yes	No	1	0	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 3	Yes	No	1	6	34	Excellent	Precast	Yes	Yes	No	No	9-29-05/10-3-05
MH 4	Yes	No	1	1	9	Excellent	Precast	Yes	Yes	No	No	9-29-05/10-3-05
MH 5	Yes	No	1	2	2	Excellent	Precast	Yes	Yes	No	No	9-29-05/10-3-05
MH 6	Yes	No	1	2	8	Excellent	Precast	Yes	Yes	No	No	9-29-05/10-3-05
MH 7	Yes	No	2	2	38	Excellent	Precast	Yes	Yes	No	No	9-29-05/10-3-05
MH 8	Yes	No	1	1	7	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 11	Yes	No	1	2	38	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 12	Yes	No	1	1	2	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 13	Yes	No	1	1	16	Excellent	Precast	Yes	Yes	No	No	9-29-05/10-3-05
MH 14	No	No	No	4	3	Good	Precast	Yes	Yes	No	Yes	9-29-05/10-3-05
MH 15	Yes	No	1	3	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 16	No	No	1	5	3	Fair	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 17	Yes	No	1	1	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 18	Yes	No	1	6	0	Excellent	Precast	No	No	No	No	9-29-05/10-3-05
MH 19	Yes	No	1	1	1	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 21	Yes	No	1	1	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 22	Yes	No	1	3	3	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 23	Yes	No	1	4	1	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 24	Yes	No	1	2	1	Good	Precast	Yes	Yes	No	Yes	9-29-05/10-3-05
MH 25	Yes	No	1	2	0	Good	Precast	Yes	No	No	Yes	9-29-05/10-3-05
MH 25 A	Yes	No	1	2	38	Fair	Block	Yes	No	No	Yes	9-29-05/10-3-05
MH 26	Yes	No	1	6	1	Fair	Precast	Yes	Yes	Yes	No	9-29-05/10-3-05
MH 27	Yes	No	1	6	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 27 A	Yes	No	1	1	2	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05

MH 29	Yes	No	1	2	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 30 A	Yes	No	1	6	0	Good	Precast	Yes	No	No	Yes	9-29-05/10-3-05
MH 32	Yes	No	1	0	1	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 33	Yes	No	1	3	0	Fair	Block	Yes	Yes	No	Yes	9-29-05/10-3-05
MH 37	Yes	No	1	3	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 38	No	No	0	0	0	Good	Block	No	No	No	No	9-29-05/10-3-05
MH 39	Yes	No	1	1	NA	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 40	Yes	No	1	6	NA	Good	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 42	Yes	No	1	6	0	Good	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 43	Yes	No	1	6	1	Good	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 44	No	No	0	3	0	Excellent	Precast	No	No	No	No	9-29-05/10-3-05
MH 45	No	No	0	6	0	Excellent	Precast	No	No	No	No	9-29-05/10-3-05
MH 46	Yes	No	1	0	0	Good	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 47	Yes	No	0	6	NA	Good	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 72	No	No	0	6	NA	Good	Precast	No	No	No	No	9-29-05/10-3-05
MH 73	No	No	0	6	NA	Good	Precast	No	No	No	No	9-29-05/10-3-05
MH 675	Yes	Yes	2	5	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 676	Yes	Yes	1	5	0	Good	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 677	Yes	No	1	5	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 677A	Yes	No	1	5	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 678	Yes	No	1	6	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 687	Yes	Yes	1	4	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 688	Yes	No	1	6	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 693	Yes	No	1	3	0	Excellent	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 694	Yes	No	2	6	0	Good	Precast	Yes	No	No	No	9-29-05/10-3-05
MH 695	No	No	0	2	0	Fair	Precast	No	No	No	No	9-29-05/10-3-05
MH 757	No	No	0	2	0	Fair	Block	No	No	No	No	9-29-05/10-3-05

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## **Appendix F**

Private Property Inspection Forms



# Storm Water Compliance Inspection

City of ██████████, Minnesota

Golden Valley

Date

11/29/05

Time

18:00  a.m.  
 p.m.

Name

Gordon Hanson

House Number

2317

Street Name

Byrd Ave N

Telephone Number

651 789 2491

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

No water problems  
2 sump locations no pumps  
installed only in additions no water

North



# Storm Water Compliance Inspection

~~Maplewood~~, Minnesota  
Golden Valley

Date

11/15/05

Time

1:30 a.m.  
p.m.

Name

Christina Cole

House Number

2521

Street Name

Parkview Blvd

Telephone Number

763 639 9469

Owner/Occupant Signature

Philip Cole

Inspector Signature

[Handwritten Signature]

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████, Minnesota  
*Golden Valley*

Date

11 / 19 / 05

Time

14 : 15  a.m.  
 p.m.

Name

Chris Sullivan

House Number

2303

Street Name

Xerxes Ave N

Telephone Number

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

*o drain in driveway need to check to see if it is connected to the sanitary sewer*





# Storm Water Compliance Inspection

City of ██████████ Minnesota

Golden Valley

Date

11/28/05

Time

18:45  a.m.  p.m.

Name

Mike Bieniek

House Number

2412

Street Name

McNair

Telephone Number

763 588 4755

Owner/Occupant Signature

*Michael P. Brent*

Inspector Signature

*Paul Kubest*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

beaver boards drain ~~to~~ only once every few years <sup>to ten</sup> into sanitary

Last time may have been 10 years ago put gutters on in back & that probably cured the problem



*(Paul Kubest (SEH) 651 490 2165)*



# Storm Water Compliance Inspection

City of [REDACTED] Minnesota

Golden Valley

Date

11/23/05

Time

11:15  a.m.  p.m.

Name

Connie Moeller

House Number

3337

Street Name

26<sup>th</sup> Ave N

Telephone Number

521 4252

Owner/Occupant Signature

Connie Moeller

Inspector Signature

Paul Kel

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

None

North



# Storm Water Compliance Inspection

City of ~~Minneapolis~~ Minnesota  
Golden Valley,

Date

11/18/05

Time

14:30  a.m.  
 p.m.

Name

Kathryn Whichard

House Number

2409

Street Name

Parkview Blvd

Telephone Number

763 588 1230

Owner/Occupant Signature

*James A. Whichard*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer *No float switch manual*
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

*used once in last five years  
could run here outside with a little work*





# Storm Water Compliance Inspection

City of ~~Golden Valley~~ Minnesota

*Golden Valley*

Date

11/29/05

Time

18:15  a.m.  
 p.m.

Name

Pat Cassidy

House Number

3133

Street Name

26th Avenue

Telephone Number

763 588 1794

Owner/Occupant Signature

Patricia H Cassidy

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

Golden Valley

Date

11/10/05

Time

11:15  a.m.  p.m.

Name

Carolyn Prehoda

House Number

3221

Street Name

St. Margaret Dr

Telephone Number

763 529 7464

Owner/Occupant Signature

*Darryl Prehoda*

Inspector Signature

*Paul Kuback*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes *Sump Runs very little*

*Put in in 1987  
sump pit at the tie*





# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

*Gobem Valley*

Date

11/10/05

Time

11:30  a.m.  
 p.m.

Name

Daniel Lindley

House Number

2320

Street Name

York Ave N

Telephone Number

763 588 8138

Owner/Occupant Signature

Inspector Signature

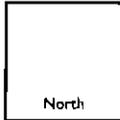
### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes: Very little water/moisture at Heavy Rains





# Storm Water Compliance Inspection

City of ~~Golden Valley~~ Minnesota

*Golden Valley*

Date

11/10/05

Time

11:00  a.m.  
 p.m.

Name

Stephanie Chapman

House Number

2517

Street Name

Parkview Dr

Telephone Number

[Empty telephone number boxes]

Owner/Occupant Signature

*Stephanie Chapman*

Inspector Signature

*[Handwritten Signature]*

Compliance	Non-Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket - installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes: *Slight water in basement at time during the year*

North



# Storm Water Compliance Inspection

City of ██████████, Minnesota

*Golden Valley*

Date

11/28/05

Time

17:45  a.m.  p.m.

Name

Pete Steichen

House Number

3126

Street Name

Manor Dr

Telephone Number

612 240 4204

Owner/Occupant Signature

*[Handwritten Signature]*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket – installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

*Golden Valley*

Date

11/14/05

Time

11:15  a.m.  
 p.m.

Name

Lillian Sween

House Number

2531

Street Name

McNair Dr

Telephone Number

763 588 8569

Owner/Occupant Signature

*Lillian Sween*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

*2 Sumps both go outside*

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

Golden Valley

Date

11/21/05

Time

13:00  a.m.  
 p.m.

Name

Kevin Cunningham

House Number

3401

Street Name

26<sup>th</sup> Ave N

Telephone Number

612 617 1070

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket -- installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

*Golden Valley*

Date

11/22/05

Time

11:30  a.m.  
 p.m.

Name

Richard Tyrrell

House Number

2525

Street Name

Byrd Ave N

Telephone Number

522 5413

Owner/Occupant Signature

*Richard Tyrrell*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket – installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

Large empty box for notes.





# Storm Water Compliance Inspection

City of [redacted] Minnesota

*Golden Valley*

Date

11/22/05

Time

11:10  a.m.  
 p.m.

Name

Norman Wilisman

House Number

3211

Street Name

St Margaret Dr

Telephone Number

588 7429

Owner/Occupant Signature

*Norman Wilisman*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

## City of Maplewood, Minnesota

Date: 11/19/05 Time: 14:05  a.m.  p.m.

Name: Wendy Geiwitz

House Number: 2500 Street Name: Parkview Blvd

Telephone Number: [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Owner/Occupant Signature: *Wendy Geiwitz*

Inspector Signature: *[Signature]*

Compliance	Non-Compliance	
<input type="radio"/> No sump or foundation drain	<input type="radio"/> Pumps to sanitary sewer	<input type="radio"/> Access to property denied
<input checked="" type="radio"/> Pump permanently piped outside	<input type="radio"/> Pump needs to permanently pump outside	<input type="radio"/> Further inspection required
<input type="radio"/> No basement	<input type="radio"/> Internal drainage to sanitary sewer	
<input type="radio"/> Previous discrepancies corrected		
<input type="radio"/> Sump basket - installed seal		

Notes: [ ] North



# Storm Water Compliance Inspection

City of [REDACTED], Minnesota

Golden Valley

Date

11/19/05

Time

14:00  a.m.  
 p.m.

Name

Jim Eiert

House Number

2437

Street Name

Parkview Blvd

Telephone Number

522 4870

Owner/Occupant Signature

*Jim Eiert*

Inspector Signature

*Paul Kubel*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes: pump runs often

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

Golden Valley

Date

11 / 15 / 05

Time

12:00  a.m.  
 p.m.

Name

Wilmine Ferrell

House Number

3100

Street Name

Manor Dr

Telephone Number

763 588 1871

Owner/Occupant Signature

*Wilmine L. Ferrell*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ~~Golden Valley~~, Minnesota  
Golden Valley

Date

11 / 18 / 05

Time

15 : 30  a.m.  
 p.m.

Name

Randy Lundell

House Number

3227

Street Name

26<sup>th</sup> Ave N

Telephone Number

763 229 9583

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ~~Golden Valley~~, Minnesota  
Golden Valley

Date

11 / 18 / 05

Time

13 : 45  a.m.  
 p.m.

Name

John Penny

House Number

3411

Street Name

Terrace La

Telephone Number

763 521 4312

Owner/Occupant Signature

Inspector Signature

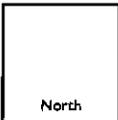
### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:





# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

Golden Valley

Date

11/14/05

Time

17:45  a.m.  p.m.

Name

Sara Halvorson

House Number

2500

Street Name

McNair Dr

Telephone Number

612 321 4842

Owner/Occupant Signature

*Sara Halvorson*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota  
Golden Valley

Date: 11/14/05 Time: 17:30  a.m.  p.m.

Name: John Lawler

House Number: 3701 Street Name: 26th Ave N

Telephone Number: 763 588 9180

Owner/Occupant Signature: John J. Lawler

Inspector Signature: [Signature]

<p><b>Compliance</b></p> <p><input type="radio"/> No sump or foundation drain</p> <p><input checked="" type="radio"/> Pump permanently piped outside</p> <p><input type="radio"/> No basement</p> <p><input type="radio"/> Previous discrepancies corrected</p> <p><input type="radio"/> Sump basket – installed seal</p>	<p><b>Non - Compliance</b></p> <p><input type="radio"/> Pumps to sanitary sewer</p> <p><input type="radio"/> Pump needs to permanently pump outside</p> <p><input type="radio"/> Internal drainage to sanitary sewer</p> <p><input type="radio"/> Access to property denied</p> <p><input type="radio"/> Further inspection required</p>
---	--

Notes: Kicks on during large events





# Storm Water Compliance Inspection

City of ~~Maplewood~~ Minnesota  
*Golden Valley*

Date  
11/14/05

Time  
9:00 ~~a.m.~~  
p.m.

Name  
Sue Grande

House Number  
3106

Street Name  
Manor Dr

Telephone Number  
763 522 5242

Owner/Occupant Signature  
*Miriam M Grande*

Inspector Signature  
*[Signature]*

Compliance	Non - Compliance	
<input type="radio"/> No sump or foundation drain	<input type="radio"/> Pumps to sanitary sewer	<input type="radio"/> Access to property denied
<input checked="" type="radio"/> Pump permanently piped outside	<input type="radio"/> Pump needs to permanently pump outside	<input type="radio"/> Further inspection required
<input type="radio"/> No basement	<input type="radio"/> Internal drainage to sanitary sewer	
<input type="radio"/> Previous discrepancies corrected		
<input type="radio"/> Sump basket - installed seal		

Notes:

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~ Minnesota

Golden Valley

Date

11/14/05

Time

13:15  a.m.  
 p.m.

Name

Scott Ennis

House Number

3224

Street Name

Manor Dr

Telephone Number

763 588 7630

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

Bea runs very little

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~ Minnesota

*Golden Valley*

Date

11 / 14 / 05

Time

11 : 00  a.m.  
 p.m.

Name

Helen LaValle

House Number

2413

Street Name

Parkview Blvd

Telephone Number

763 521 2003

Owner/Occupant Signature

*Helen LaValle*

Inspector Signature

*[Handwritten Signature]*

Compliance	Non - Compliance
<input type="radio"/> No sump or foundation drain <input checked="" type="radio"/> Pump permanently piped outside <input type="radio"/> No basement <input type="radio"/> Previous discrepancies corrected <input type="radio"/> Sump basket - installed seal	<input type="radio"/> Pumps to sanitary sewer <input type="radio"/> Pump needs to permanently pump outside <input type="radio"/> Internal drainage to sanitary sewer <input type="radio"/> Access to property denied <input type="radio"/> Further inspection required

Notes: *No water this year*

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

Golden Valley

Date

11 / 12 / 05

Time

09 : 00  a.m.  
 p.m.

Name

Cheryl Wahlin

House Number

2404

Street Name

McNair

Telephone Number

763 529 9245

Owner/Occupant Signature

*Cheryl L Wahlin  
(Carlson)*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~ Minnesota

Golden Valley

Date

11/11/05

Time

11:15  a.m.  p.m.

Name

Bette Lue

House Number

1915

Street Name

Glenwood Pkwy

Telephone Number

763 529 8560

Owner/Occupant Signature

*Bette Lue*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

*Runs very little  
none on Oct Rain*

North



# Storm Water Compliance Inspection

City of [redacted] Minnesota

Golden Valley

Date

11/21/05

Time

18:15  a.m.  p.m.

Name

Melinda Pauletti

House Number

2508

Street Name

McNaip Dr

Telephone Number

486 1828

Owner/Occupant Signature

Melinda R. Pauletti

Inspector Signature

[Handwritten Signature]

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

Golden Valley

Date

11/21/05

Time

13:15  a.m.  
 p.m.

Name

James Cogelow

House Number

3721

Street Name

26<sup>th</sup> Ave N

Telephone Number

588 8994

Owner/Occupant Signature

*James Cogelow*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of [redacted] Minnesota  
Golden Valley

Date

11/30/05

Time

18:30  a.m.  
 p.m.

Name

Charles Kock

House Number

3300

Street Name

Terrace Ln

Telephone Number

529 6616

Owner/Occupant Signature

*Charles Kock*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

[Empty space for notes]





# Storm Water Compliance Inspection

City of ██████████ Minnesota

*Golden Valley*

Date

11 / 30 / 05

Time

18 : 00  a.m.  
 p.m.

Name

Betty Murphy

House Number

2343

Street Name

Xerxes Ave N

Telephone Number

952 828 2036

Owner/Occupant Signature

Bette Betts Murphy

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket – installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota  
Golden Valley

Date  
11 / 30 / 05

Time  
17 : 30  a.m.  
 p.m.

Name  
Jennifer Menges

House Number  
3417

Street Name  
Terrace La

Telephone Number  
522 6712

Owner/Occupant Signature  
David Menges

Inspector Signature

Compliance	Non - Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket - installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota  
Golden Valley

Date  
11 / 30 / 05

Time  
13 : 00  a.m.  
 p.m.

Name  
Jim Murphy

House Number  
2537

Street Name  
McNair Dr

Telephone Number  
537 3014

Owner/Occupant Signature  
James Murphy

Inspector Signature  
*[Handwritten Signature]*

- Compliance**
- No sump or foundation drain
  - Pump permanently piped outside
  - No basement
  - Previous discrepancies corrected
  - Sump basket – installed seal

- Non - Compliance**
- Pumps to sanitary sewer
  - Access to property denied
  - Pump needs to permanently pump outside
  - Further inspection required
  - Internal drainage to sanitary sewer

Notes:





# Storm Water Compliance Inspection

City of ██████████ Minnesota

*Golden Valley*

Date

11/30/05

Time

11:00  a.m.  
 p.m.

Name

James Greene

House Number

2312

Street Name

Crestview Ave

Telephone Number

206 890 0853

Owner/Occupant Signature

Inspector Signature

Compliance	Non - Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket – installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of [REDACTED], Minnesota

Golden Valley

Date

11/29/05

Time

18:30  a.m.  
 p.m.

Name

Michael Hofstead

House Number

3223

Street Name

Vista Dr

Telephone Number

952 351 1215

Owner/Occupant Signature

*Michael Hofstead*

Inspector Signature

*Paul [REDACTED]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

*Golden Valley*

Date

11/29/05

Time

17:30  a.m.  
 p.m.

Name

Scott Saucier

House Number

2428

Street Name

Parkview Blvd

Telephone Number

763 257 5337

Owner/Occupant Signature

*Scott Saucier*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket – installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

North



# Storm Water Compliance Inspection

City of ██████████, Minnesota

Golden Valley

Date

11/28/05

Time

18:00  a.m.  
 p.m.

Name

James Stremel

House Number

2524

Street Name

Meridian

Telephone Number

612 419 1549

Owner/Occupant Signature

*James Stremel*

Inspector Signature

*[Signature]*

Compliance	Non - Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket – installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████, Minnesota

*Golden Valley*

Date

11/28/05

Time

17:00  a.m.  
 p.m.

Name

Mike Olson

House Number

3513

Street Name

26<sup>th</sup> Ave N

Telephone Number

763 521 4436

Owner/Occupant Signature

*May Olson*

Inspector Signature

*[Signature]*

Compliance	Non-Compliance	
<input checked="" type="radio"/> No sump or foundation drain	<input type="radio"/> Pumps to sanitary sewer	<input type="radio"/> Access to property denied
<input type="radio"/> Pump permanently piped outside	<input type="radio"/> Pump needs to permanently pump outside	<input type="radio"/> Further inspection required
<input type="radio"/> No basement	<input type="radio"/> Internal drainage to sanitary sewer	
<input type="radio"/> Previous discrepancies corrected		
<input type="radio"/> Sump basket – installed seal		

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

Golden Valley,

Date

11/28/05

Time

16:30  a.m.  p.m.

Name

Chris Houserman

House Number

2309

Street Name

York Ave N

Telephone Number

763 232 2421

Owner/Occupant Signature

*Chris H.*

Inspector Signature

*[Signature]*

Compliance	Non-Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket – installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

*Golden Valley*

Date

11 / 28 / 05

Time

16:00  a.m.  
 p.m.

Name

J a n i o   A x e l s o n

House Number

2431

Street Name

M c M a i r   D r

Telephone Number

763 516 3062

Owner/Occupant Signature

*J. Axelsson*

Inspector Signature

*Paul Klak*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket – installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

Large empty box for notes and a small box labeled 'North' in the top right corner.



# Storm Water Compliance Inspection

City of ██████████, Minnesota

Golden Valley

Date

11/23/05

Time

11:45  a.m.  p.m.

Name

David Weselenak

House Number

3512

Street Name

Manor Dr

Telephone Number

612 790 2330

Owner/Occupant Signature

*David Weselenak*

Inspector Signature

*[Signature]*

Compliance	Non-Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket – installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████, Minnesota

*Golden Valley*

Date

11 / 23 / 05

Time

11 : 30  a.m.  
 p.m.

Name

Glenn Seibold

House Number

2525

Street Name

Meridian Dr

Telephone Number

529 2886

Owner/Occupant Signature

*Glenn Seibold*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket – installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

*Golden Valley*

Date

11/23/05

Time

11:00  a.m.  
 p.m.

Name

Heather Novak Peterson

House Number

3125

Street Name

26<sup>th</sup> Ave

Telephone Number

763 529 9013

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

Large empty box for notes with a small 'North' orientation box in the top right corner.



# Storm Water Compliance Inspection

City of ██████████ Minnesota

Golden Valley,

Date

11 / 22 / 05

Time

1 :  a.m.  
 p.m.

Name

Andrew Nallick

House Number

3115

Street Name

Vista Dr

Telephone Number

529  6864

Owner/Occupant Signature

*Andrew P. Nallick*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

1970 house

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

*Golden Valley*

Date

11/22/05

Time

11:20  a.m.  
 p.m.

Name

Lorne Bettenga

House Number

3430

Street Name

Manor Dr

Telephone Number

588 8147

Owner/Occupant Signature

*Lorne Bettenga*

Inspector Signature

*[Signature]*

Compliance	Non - Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket – installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████, Minnesota  
Golden Valley,

Date

11/21/05

Time

11:45  a.m.  
 p.m.

Name

John Patrias

House Number

2565

Street Name

Byrd

Telephone Number

- 529 9266

Owner/Occupant Signature

*John Patrias*

Inspector Signature

*[Signature]*

Compliance	Non-Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket – installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

Golden Valley

Date

11/21/05

Time

11:05  a.m.  
 p.m.

Name

John Toren

House Number

2437

Street Name

McNair Dr

Telephone Number

522 8143

Owner/Occupant Signature

John Toren

Inspector Signature

*[Handwritten Signature]*

Compliance	Non-Compliance	
<input checked="" type="checkbox"/> No sump or foundation drain	<input type="checkbox"/> Pumps to sanitary sewer	<input type="checkbox"/> Access to property denied
<input type="checkbox"/> Pump permanently piped outside	<input type="checkbox"/> Pump needs to permanently pump outside	<input type="checkbox"/> Further inspection required
<input type="checkbox"/> No basement	<input type="checkbox"/> Internal drainage to sanitary sewer	
<input type="checkbox"/> Previous discrepancies corrected		
<input type="checkbox"/> Sump basket – installed seal		

Notes:

North

Sullivan Sullivan

# November 19, 2005

## Saturday

November 2005							December 2005						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28	29	30				25	26	27	28	29	30	31

7 am		
8 00	Not Avail	
9 00	9:00am-9:15am Bruce Carter, 2502 Meridian Dr (521.0423)	
9 00	9:30am-9:45am Bob Gotwalt, 2301 Xerxes Ave N (521.8590)	
10 00	10:00am-10:15am Karol Chamberlain-Healy, 2524 McNair Dr (651.556.9318)	☼ 10:15am-10:30am Gudmund Julseth, 2322 CrestView Ave (521.4070)
10 00	10:30am-10:45am Scott Barr, 2430 McNair Dr (612.965.1600)	
11 00	11:00am-11:15am Karen Mohr, 2416 Byrd Ave N (521.3291)	☼ 11:15am-11:30am Robert Kuusisto, 3121 St. Margaret Dr (588.9228)
11 00	11:30am-11:45am Debra Hutson, 2500 Byrd, 529.5886	☼ 11:45am-12:00pm Ken Little, 3524 Manor Dr (458.4449)
12 pm	12:00pm-12:15pm Chester Health, 2330 Crestview (529.4526)	
12 00	12:45pm-1:00pm Alexander Elliott, 3210 Manor, 588.6961	
1 00	1:00pm-1:15pm Ann Stone, 2421 Parkview Blvd (612.267.5078)	
1 00	1:30pm-1:45pm Owen Elde, 3941 26th Ave N (588.4318)	☼ 1:45pm-2:00pm Dawn Boesch, 2540 Meridian Dr, 522.8357
2 00	2:00 Jim Elert 2437 Parkview Blvd 5224820	☼ 2:15pm Chris Sullivan 2303 Xerxes Ave N
3 00	2:45pm-3:00pm Roseann Payne, 2301 Byrd Ave N (588.3521)	
3 00	3:00pm-3:15pm Carolyn Jakobsen, 2534 Zenith Ave N (521.7002)	
4 00		
5 00	2:00 Jim Elert 2437 Parkview 5224820	
6 00	2:15 Chris Sullivan 2303 Xerxes Ave N	

# November 21, 2005

Monday

November 2005							December 2005						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28	29	30				25	26	27	28	29	30	31

7 am

☞ Not Avail

8 00

9 00

10 00

11 00

☞ 11:00am-11:15am John Toren, 2427 McNair Dr, 522.8143

☞ 11:30am-11:45am Lorne Bettenga, 3430 Manor Dr (588.8147)

☞ 11:15am-11:30am Richard Tyrnell, 2525 Byrd Ave N (522.5413)

12 pm

1 00

☞ 1:00pm-1:15pm Kevin Cunningham, 3401 26th Ave N (612.617.1070/529.8432)

2 00

☞ 2:00pm-2:15pm Peter Gillen, 3516 Manor Dr (612.220.8997)

3 00

☞ 3:00pm-3:15pm Francis Acker, 2429 Parkview Blvd, 588.4851

☞ 3:15pm-3:30pm Marty Ostern, 2518 Meridian Dr (302.7796)

4 00

☞ 4:00pm-4:15pm Janio Axelsson, 2431 McNair Dr (516.3062)

5 00

☞ 5:30pm-5:45pm Jason Briles, 2408 Byrd Ave N (952.548.7008)

6 00

☞ 6:00pm-6:15pm Bernice Gresback, 3328 Terrace La (612.761.7845)

☞ 6:30pm-6:45pm Jane King, 2522 Zenith Ave N (952.918.4225)

☞ 6:15pm-6:30pm Melinda Pauletti, 2508 McNair Dr (486.1828)

# November 18, 2005

Friday

November 2005							December 2005						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28	29	30				25	26	27	28	29	30	31

7 am

8 00 ↻ Not Avail

9 00

10 00

11 00

11:00am-11:15am Irene Nelson, 2519 Meridian, 588.7358

12 pm

1 00

2 00

3 00

4 00

5 00

6 00

3:30pm-3:45pm Randy Lundell, 3227 26th Ave N (229.9583)

# November 19, 2005

## Saturday

November 2005							December 2005						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28	29	30				25	26	27	28	29	30	31

7 am

8<sup>00</sup> Not Avail

9<sup>00</sup> 9:00am-9:15am Bruce Carter, 2502 Meridian Dr (521.0423)

10<sup>00</sup> 10:00am-10:15am Karol Chamberlain-Healy, 2524 McNair Dr (651.556.9318)

11<sup>00</sup>

12<sup>pm</sup>

1<sup>00</sup>

2<sup>00</sup>

3<sup>00</sup> 3:00pm-3:15pm Carolyn Jakobsen, 2534 Zenith Ave N (521.7002)

4<sup>00</sup>

5<sup>00</sup>

6<sup>00</sup>

# November 18, 2005

Friday

November 2005							December 2005						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28	29	30				25	26	27	28	29	30	31

7 am

8:00 Not Avail

9:00

10:00

11:00

11:00am-11:15am Irene Nelson, 2519 Meridian, 588.7358 X

11:30am-11:45am Tom Nevin, 2424 Byrd Ave N (522.0868) X

12 pm

12:30pm-12:45pm Richard Thoen, 2513 Zenith, 588.6170 X

1:00pm-1:15pm Tim Stellburg, 2434 McNair Dr (521.6114)

1:30pm-1:45pm Paul Beneke, 2412 Parkview Blvd (522.6103)

2:00pm-2:15pm Pam Lapham, 3201 St Margaret Dr (529.4586)

2:30pm-2:45pm Kathryn Whichard, 2409 Parkview Bl, 763.588.1230

3:00pm-3:15pm Bernhard Sorger, 2421 McNair Dr (588.9320)

3:30pm-3:45pm Randy Lundell, 3227 26th Ave N (229.9583)

4:00pm-4:15pm Linda Jeske, 1929 Glenwood Pkwy (612.910.2849)

5:00

6:00



# Storm Water Compliance Inspection

City of Maplewood, Minnesota

Date  
11/19/05

Time  
14:20  a.m.  
 p.m.

Name  
Richard Kretschmer

House Number  
2309

Street Name  
Xerxes

Telephone Number  
[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Owner/Occupant Signature  
Richard Kretschmer

Inspector Signature  
[Signature]

- Compliance**
- No sump or foundation drain
  - Pump permanently piped outside
  - No basement
  - Previous discrepancies corrected
  - Sump basket – installed seal

- Non - Compliance**
- Pumps to sanitary sewer
  - Pump needs to permanently pump outside
  - Internal drainage to sanitary sewer
  - Access to property denied
  - Further inspection required

Notes: wet in Oct





# Storm Water Compliance Inspection

City of ~~Minneapolis~~, Minnesota  
Golden Valley

Date

11 / 19 / 05

Time

15 : 00  a.m.  
 p.m.

Name

Carolyn Jakobsen

House Number

2534

Street Name

Zenith Ave N

Telephone Number

521 7002

Owner/Occupant Signature

*Carolyn Jakobsen*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket – installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

[Large empty box for notes]





# Storm Water Compliance Inspection

City of ██████████ Minnesota  
Golden Valley

Date  
11 / 19 / 05

Time  
14 : 45  a.m.  
 p.m.

Name  
Roseann Payne

House Number  
2301

Street Name  
Byrd Ave N

Telephone Number  
588 3521

Owner/Occupant Signature  
*R. Payne*

Inspector Signature  
*Paul [Signature]*

- Compliance**
- No sump or foundation drain
  - Pump permanently piped outside
  - No basement
  - Previous discrepancies corrected
  - Sump basket – installed seal

- Non - Compliance**
- Pumps to sanitary sewer
  - Pump needs to permanently pump outside
  - Internal drainage to sanitary sewer
  - Access to property denied
  - Further inspection required

Notes: No wetness





# Storm Water Compliance Inspection

City of ~~Golden Valley~~, Minnesota

*Golden Valley*

Date

11/19/05

Time

13:45  a.m.  p.m.

Name

Dawn Boesch

House Number

2540

Street Name

Meridian Dr

Telephone Number

763 522 8357

Owner/Occupant Signature

*Dawn Boesch*

Inspector Signature

*[Signature]*

Compliance	Non - Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket -- installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes: *No vet*

*Dawn Boesch*

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

*Golden Valley*

Date

11 / 19 / 05

Time

13 : 30  a.m.  
 p.m.

Name

Owen Eide

House Number

3341

Street Name

26th Ave N

Telephone Number

588 4318

Owner/Occupant Signature

*Owen Eide*

Inspector Signature

*Paul K...*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket -- installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

North



# Storm Water Compliance Inspection

City of [REDACTED] Minnesota

Golden Valley

Date

11/19/05

Time

13:00  a.m.  
 p.m.

Name

Ann Stone

House Number

2421

Street Name

Parkview Blvd

Telephone Number

612 267 5078

Owner/Occupant Signature

*[Handwritten Signature]*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

North



# Storm Water Compliance Inspection

City of [REDACTED], Minnesota

Golden Valley

Date

11/19/05

Time

12:45 ~~a.m.~~ p.m.

Name

Alexander Elliott

House Number

3210

Street Name

Manor

Telephone Number

588 6961

Owner/Occupant Signature

*A. Elliott*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

Large empty box for notes and a small box labeled 'North' in the top right corner.



# Storm Water Compliance Inspection

City of ~~Golden Valley~~, Minnesota

Golden Valley

Date

11/19/05

Time

10:30  a.m.  
 p.m.

Name

Scott Barr

House Number

2430

Street Name

McNair Dr

Telephone Number

612 965 1600

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket -- installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

~~Not Home~~ at 1026 <sup>at home at 1015 left 1029</sup> 612 965 1600  
 called no answer called phone  
 no answer  
 back at 1200 to check again  
 owner home & mad about message  
 he stated he was here at 1015  
 Ed Ed





# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

Golden Valley

Date

11/19/05

Time

11:45<sup>0</sup> a.m.  
 p.m.

Name

Ken Little

House Number

3524

Street Name

Manor Dr

Telephone Number

458 4449

Owner/Occupant Signature

*Ken Little*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

~~Not home~~  
No water





# Storm Water Compliance Inspection

City of ██████████ Minnesota  
Golden Valley

Date

11/19/05

Time

12:00  a.m.  
 p.m.

Name

Chester Heath

House Number

2330

Street Name

Crestview

Telephone Number

529 4526

Owner/Occupant Signature

*Chester Heath*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- ~~No sump or foundation drain~~
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket – installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ~~Maple Valley~~ Minnesota  
Golden Valley

Date

11/19/05

Time

11:30  a.m.  
 p.m.

Name

Debra Hutson

House Number

2500

Street Name

Byrd Ave N

Telephone Number

529

5886  
~~5886~~

Owner/Occupant Signature

*Debra Hutson*

Inspector Signature

*Paul K*

### Compliance

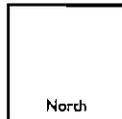
- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

*No wetness unless in very large events*





# Storm Water Compliance Inspection

City of ~~Maple Valley~~ Minnesota

Golden Valley

Date

11/19/05

Time

11:15  a.m.  
 p.m.

Name

Robert Kuusisto

House Number

3121

Street Name

St Margaret Dr

Telephone Number

763 588 9228

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

Golden Valley

Date

11/19/05

Time

11:00  a.m.  
 p.m.

Name

Karen Mohn

House Number

2416

Street Name

Byrd Ave N

Telephone Number

763 521 3291

Owner/Occupant Signature

*Karen Mohn*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket -- installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

North



# Storm Water Compliance Inspection

City of ~~Golden Valley~~, Minnesota

*Golden Valley*

Date

11 / 19 / 05

Time

10 : 15  a.m.  
 p.m.

Name

Gudmund Tulsseth

House Number

2322

Street Name

Crestview Ave

Telephone Number

763 521 4070

Owner/Occupant Signature

*G. Tulsseth*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

North



# Storm Water Compliance Inspection

City of ~~Golden Valley~~ Minnesota  
Golden Valley

Date

11 / 19 / 05

Time

10 : 00  a.m.  
 p.m.

Name

Karol Chamberlain-Healy

House Number

2524

Street Name

McNair Dr

Telephone Number

651 556 9318

Owner/Occupant Signature

*Karol Chamberlain-Healy*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

Golden Valley,

Date

11 / 19 / 05

Time

09 : 30  a.m.  
 p.m.

Name

Bob Gotwalt

House Number

2301

Street Name

Xerxes Ave N

Telephone Number

763 521 8590

Owner/Occupant Signature

*Robert H. Gotwalt Jr.*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

North



# Storm Water Compliance Inspection

City of ~~Maple Valley~~ Minnesota

Golden Valley

Date

11/19/05

Time

09:00  a.m.  p.m.

Name

Bruce Carter

House Number

2502

Street Name

Meridian Dr

Telephone Number

763 521 0423

Owner/Occupant Signature

*William Bruce Carter*

Inspector Signature

*[Handwritten Signature]*

Compliance	Non - Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket - installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ~~Golden Valley~~, Minnesota

Golden Valley

Date

11/18/05

Time

16:00  a.m.  p.m.

Name

Linda Jeske

House Number

1929

Street Name

Glenwood Pkwy

Telephone Number

612 910 2849

Owner/Occupant Signature

*Linda Jeske*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

*wet in Oct*

North



# Storm Water Compliance Inspection

City of ~~Minneapolis~~ Minnesota

*Golden Valley*

Date

11 / 18 / 05

Time

15 : 00  a.m.  
 p.m.

Name

Bernhard Sorger

House Number

2421

Street Name

McNair Dr

Telephone Number

763 588 9320

Owner/Occupant Signature

*Elfride Sorger*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket -- installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

*never wet*

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~ Minnesota

Golden Valley

Date

11 / 18 / 05

Time

14 : 00  a.m.  
 p.m.

Name

Pam Lapham

House Number

3201

Street Name

St Margaret Dr

Telephone Number

763 529 4586

Owner/Occupant Signature

Pamela Lapham

Inspector Signature

[Handwritten Signature]

Compliance	Non - Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket - installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes: does get wet in basement

North



# Storm Water Compliance Inspection

City of ~~Maple Valley~~, Minnesota  
Golden Valley

Date

11/18/05

Time

13:30  a.m.  
 p.m.

Name

Paul Beneke

House Number

2412

Street Name

Parkview Blvd

Telephone Number

763 522 6103

Owner/Occupant Signature

Paul Beneke

Inspector Signature

[Handwritten Signature]

Compliance	Non - Compliance
<input checked="" type="radio"/> No sump or foundation drain <input type="radio"/> Pump permanently piped outside <input type="radio"/> No basement <input type="radio"/> Previous discrepancies corrected <input type="radio"/> Sump basket -- installed seal	<input type="radio"/> Pumps to sanitary sewer <input type="radio"/> Pump needs to permanently pump outside <input type="radio"/> Internal drainage to sanitary sewer <input type="radio"/> Access to property denied <input type="radio"/> Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of [redacted] Minnesota

Golden Valley

Date

11 / 18 / 05

Time

13:00  a.m.  p.m.

Name

Tim Stellburg

House Number

2434

Street Name

McNaair Dr

Telephone Number

763 521 6114

Owner/Occupant Signature

*Tim Stellburg*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota  
Golden Valley

Date

11 / 18 / 05

Time

12 : 30  a.m.  
 p.m.

Name

Richard Thoen

House Number

2513

Street Name

Zenith

Telephone Number

763 588 6170

Owner/Occupant Signature

Richard Thoen

Inspector Signature

[Handwritten Signature]

<p><b>Compliance</b></p> <p><input checked="" type="checkbox"/> No sump or foundation drain</p> <p><input type="checkbox"/> Pump permanently piped outside</p> <p><input type="checkbox"/> No basement</p> <p><input type="checkbox"/> Previous discrepancies corrected</p> <p><input type="checkbox"/> Sump basket - installed seal</p>	<p><b>Non-Compliance</b></p> <p><input type="checkbox"/> Pumps to sanitary sewer</p> <p><input type="checkbox"/> Access to property denied</p> <p><input type="checkbox"/> Pump needs to permanently pump outside</p> <p><input type="checkbox"/> Further inspection required</p> <p><input type="checkbox"/> Internal drainage to sanitary sewer</p>
--	---

Notes:

North



# Storm Water Compliance Inspection

City of ~~Minneapolis~~ Minnesota

Golden Valley

Date

11 / 18 / 05

Time

11:45  a.m.  
 p.m.

Name

Dave Hanzel

House Number

3200

Street Name

Manor Dr

Telephone Number

763 521 5433

Owner/Occupant Signature

*Dave Hanzel*

Inspector Signature

*Paul K...*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ~~Golden Valley~~ Minnesota

*Golden Valley*

Date

11 / 18 / 05

Time

11 : 30  a.m.  
 p.m.

Name

Tom Nevin

House Number

2424

Street Name

Byrd Ave N

Telephone Number

763 522 0868

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

*Golden Valley*

Date

11/18/05

Time

11:00<sup>0</sup> a.m.  
 p.m.

Name

Irene Nelson

House Number

2519

Street Name

Meridian

Telephone Number

763 588 7358

Owner/Occupant Signature

*Irene M Nelson*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

*Wet in Oct 4*

North



# Storm Water Compliance Inspection

City of ~~Minneapolis~~, Minnesota  
Golden Valley

Date  
11 / 15 / 05

Time  
11 : 00  a.m.  
 p.m.

Name  
Richard Anderson

House Number  
2508

Street Name  
Byrd Ave N

Telephone Number  
612 518 5632

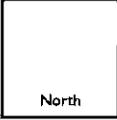
Owner/Occupant Signature

Inspector Signature

- Compliance**
- No sump or foundation drain
  - Pump permanently piped outside
  - No basement
  - Previous discrepancies corrected
  - Sump basket - installed seal

- Non - Compliance**
- Pumps to sanitary sewer
  - Pump needs to permanently pump outside
  - Internal drainage to sanitary sewer
  - Access to property denied
  - Further inspection required

Notes: No wetness





# Storm Water Compliance Inspection

City of ~~Maplewood~~ Minnesota

Golden Valley

Date

11/14/05

Time

18:00  a.m.  p.m.

Name

Andy Scheu

House Number

2520

Street Name

Parkview Blvd

Telephone Number

612 360 0426

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

No wetness

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

Golden Valley

Date: 11 / 14 / 05

Time: 17:15  a.m.  p.m.

Name: Andrea Simian

House Number: 2401

Street Name: Zenith Ave N

Telephone Number: 952 540 7050

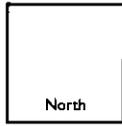
Owner/Occupant Signature: [Handwritten Signature]

Inspector Signature: [Handwritten Signature]

- Compliance**
- No sump or foundation drain
  - Pump permanently piped outside
  - No basement
  - Previous discrepancies corrected
  - Sump basket - installed seal

- Non - Compliance**
- Pumps to sanitary sewer
  - Pump needs to permanently pump outside
  - Internal drainage to sanitary sewer
  - Access to property denied
  - Further inspection required

Notes: [Empty box for notes]





# Storm Water Compliance Inspection

City of ~~Maplewood~~ Minnesota

*Golden Valley*

Date

11 / 14 / 05

Time

05 : 00  a.m.  p.m.

Name

Maria Wetherall

House Number

3439

Street Name

Terrace La

Telephone Number

763 717 7752

Owner/Occupant Signature

*Maria Wetherall*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

*No Wetness*

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~ Minnesota

Golden Valley

Date

11 / 14 / 05

Time

04 : 30  a.m.  p.m.

Name

Jamie Otero

House Number

2427

Street Name

McNair Dr

Telephone Number

952 674 2023

Owner/Occupant Signature

*[Handwritten Signature]*

Inspector Signature

*[Handwritten Signature]*

### Compliance

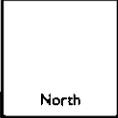
- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket – installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

[Large empty box for notes]





# Storm Water Compliance Inspection

City of ~~Maplewood~~ Minnesota

*Golden Valley*

Date

11/14/05

Time

03:05  a.m.  
 p.m.

Name

Ron Emerson

House Number

3502

Street Name

Manor Dr

Telephone Number

952 920 3162

Owner/Occupant Signature

*Ronald C. Emerson*

Inspector Signature

*[Signature]*

Compliance	Non-Compliance	
<input checked="" type="checkbox"/> No sump or foundation drain	<input type="checkbox"/> Pumps to sanitary sewer	<input type="checkbox"/> Access to property denied
<input type="checkbox"/> Pump permanently piped outside	<input type="checkbox"/> Pump needs to permanently pump outside	<input type="checkbox"/> Further inspection required
<input type="checkbox"/> No basement	<input type="checkbox"/> Internal drainage to sanitary sewer	
<input type="checkbox"/> Previous discrepancies corrected		
<input type="checkbox"/> Sump basket - installed seal		

Notes: *No water prob*

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~ Minnesota

Golden Valley

Date

11 / 14 / 05

Time

03 : 30  a.m.  
 p.m.

Name

Angela Watkins

House Number

2426

Street Name

McNair

Telephone Number

612 625 7896

Owner/Occupant Signature

Angela K. Watkins

Inspector Signature

[Handwritten Signature]

Compliance	Non-Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket – installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

*Golden Valley*

Date

11/14/05

Time

13:00  a.m.  
 p.m.

Name

Rita Hovorka

House Number

3221

Street Name

Vista Dr

Telephone Number

763 521 9907

Owner/Occupant Signature

*Rita Hovorka*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes: *No Wetness*

North

# November 12, 2005

## Saturday

November 2005							December 2005						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28	29	30				25	26	27	28	29	30	31

7 am

8<sup>00</sup> Not Avail

9<sup>00</sup> 9:00am-9:15am Cheryl Watlin, 2404 McNair, 529.9245

9:15am-9:30am Scott Kiddahl, 2311 Byrd Ave, 763.588.9087(H)

10<sup>00</sup>

11<sup>00</sup>

12<sup>pm</sup>

1<sup>00</sup> 1:00pm-1:15pm Julie Rivard, 2330 York Ave N (245.6158)

2<sup>00</sup>

3<sup>00</sup>

4<sup>00</sup>

5<sup>00</sup>

6<sup>00</sup>

# November 11, 2005

Friday

November 2005							December 2005						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28	29	30				25	26	27	28	29	30	31

7 am

8:00 Not Avail

9:00

10:00

11:00

11:00am-11:15am Sten Pearson, 2438 Parkview Blvd (612.578.4183)

11:30am-11:45am Carole Beach, 2501 Parkview Blvd (521.1671)

12:00pm-12:15pm Paul Boldischar, 2511 Byrd Ave N (612.816.2287)

11:15am-11:30am Betty Lue, 1915 Glenwood Pkwy (529.8560)

1:00

2:00

2:45pm-3:00pm Rob Gaer, 3300 Manor Dr (923.6143/522.6369)

3:00pm-3:15pm Chris Bratsch, 2529 Parkview Blvd (546.6952)

4:00

5:00

6:00



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota  
Golden Valley

Date

11/12/05

Time

13:00  a.m.  
 p.m.

Name

Julie Rivard

House Number

2330

Street Name

York Ave N

Telephone Number

763 245 6158

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

No Wetness

North



# Storm Water Compliance Inspection

~~City of Maplewood~~, Minnesota  
Golden Valley

Date

11/12/05

Time

09:15  a.m.  
 p.m.

Name

Scott Kildahl

House Number

2311

Street Name

Byrd Ave

Telephone Number

763 588 9087

Owner/Occupant Signature

*Scott Kildahl*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

*wet at times unfinished*

North



# Storm Water Compliance Inspection

~~City of Maplewood~~, Minnesota  
Golden Valley

Date

11/11/05

Time

03:00  a.m.  
 p.m.

Name

Chris Bratsch

House Number

2529

Street Name

Parkview Blvd

Telephone Number

763 546 6952

Owner/Occupant Signature

*Chris Bratsch*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

*wet twice this year*

North



# Storm Water Compliance Inspection

~~City of Maplewood~~, Minnesota  
Golden Valley

Date

11/11/05

Time

14:45  a.m.  p.m.

Name

Rob Gaer

House Number

3300

Street Name

Manor Dr

Telephone Number

963 923 6143

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

Notes area with a North arrow indicator in the top right corner.



# Storm Water Compliance Inspection

~~City of Maplewood~~, Minnesota  
Golden Valley

Date

11/11/05

Time

12:00  a.m.  
 p.m.

Name

Paul Boldischar

House Number

2511

Street Name

Byrd Ave<sup>NE</sup>

Telephone Number

612 816 2287

Owner/Occupant Signature

*Paul Boldischar FR.*

Inspector Signature

*Paul [Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

Walkout Basement no water probs

North



# Storm Water Compliance Inspection

~~\_\_\_\_\_~~ Minnesota  
Golden Valley

Date

11 / 11 / 05

Time

11 : 30  a.m.  
 p.m.

Name

Carole Beach

House Number

2501

Street Name

Parkview Blvd

Telephone Number

763 521 1671

Owner/Occupant Signature

Carole E. Beach

Inspector Signature

*[Handwritten Signature]*

Compliance	Non - Compliance
<input checked="" type="checkbox"/> No sump or foundation drain <input type="checkbox"/> Pump permanently piped outside <input type="checkbox"/> No basement <input type="checkbox"/> Previous discrepancies corrected <input type="checkbox"/> Sump basket – installed seal	<input type="checkbox"/> Pumps to sanitary sewer <input type="checkbox"/> Pump needs to permanently pump outside <input type="checkbox"/> Internal drainage to sanitary sewer <input type="checkbox"/> Access to property denied <input type="checkbox"/> Further inspection required

Notes: Wet From time to time

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

*Golden Valley*

Date

11 / 11 / 05

Time

11 : 00  a.m.  
 p.m.

Name

Sten Pearson

House Number

2438

Street Name

Parkview Blvd

Telephone Number

612 578 4183

Owner/Occupant Signature

*Sten Pearson*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

French drain for Egress  
wet on Oct Rain

North

# November 14, 2005

## Monday

November 2005							December 2005						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28	29	30				25	26	27	28	29	30	31

7 am

8:00 Not Avail

9:00

10:00

11:00 ☀️ 11:00am-11:15am Helen LaValle, 2413 Parkview Blvd (521.2003)

☀️ 11:15am-11:30am Lillian Sween, 2531 McNair Dr (588.8569)

12 pm

1:00 ☀️ 1:00pm-1:15pm Rita Hovorka, 3221 Vista Dr (521.9907)

☀️ 1:15pm-1:30pm Scott Ennis, 3224 Manor Dr (588.7630)

2:00

3:00 ~~3:30~~ Angela Watkins 2426 McNair Dr 612.625.7896

☀️ 3:45pm-4:00pm Ronald Emerson, 3502 Manor Dr (952.920.3162, 522.8991)

4:00 ☀️ 4:00pm-4:15pm Sue Grande, 3106 Manor Dr (522.5242)

~~☀️ 4:30pm-4:45pm Jamie Chen, 2427 McNair Dr (952.674.2023)~~

5:00 ☀️ 5:00pm-5:15pm Maria Wetherall, 3439 Terrace La (717.7752)

☀️ 5:15pm-5:30pm Andreea Simlan, 2401 Zenith Ave N (952.540.7050)

☀️ 5:30pm-5:45pm Lois Lawler, 3701 26th Ave N, 588.9180(H)

☀️ 5:45pm-6:00pm Sara Halvorson, 2500 McNair Dr (612.321.4842)

6:00 ☀️ 6:00pm-6:15pm Andy Scheu, 2520 Parkview Blvd (612.360.0426)

# November 15, 2005

Tuesday

November 2005							December 2005						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28	29	30				25	26	27	28	29	30	31

7 am

8:00 Not Avail

9:00

10:00

11:00

11:00am-11:15am Richard Anderson, 2508 Byrd Ave N (612.518.5632)

12:30 pm Christina Cole 2521 Park view Blvd 639 9469

1:00

2:00 Wilmine Ferrell 3100 manor Dr 588 1871

3:00 Sump drains outside 11-15-05

4:00

5:00

6:00

# November 21, 2005

Monday

November 2005							December 2005						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28	29	30				25	26	27	28	29	30	31

7 am

8 00 Not Avail

9 00

10 00

11 00 11:00am-11:15am John Toren, 2427 McNair Dr, 522.8143

11:45am-12:00pm John Patrias, 2565 Byrd, 529.9266

12 pm

1 00 1:00pm-1:15pm Kevin Cunningham, 3401 26th Ave N (612.617.1070/529.8432)

2 00 2:00pm-2:15pm Peter Gillen, 3516 Manor Dr (612.220.8997)

3 00 3:00pm-3:15pm Francis Acker, 2429 Parkview Blvd, 588.4851

4 00 4:00pm-4:15pm Janio Axelson, 2431 McNair Dr (516.3062)

5 00 4:30-4:45 Margaret Kline 3115 St Margaret Dr 445-500  
5:00-5:15 Roy Bechtold 2495 Byrd 5214167

6 00 5:30pm-5:45pm Jason Biles, 2408 Byrd Ave N (952.548.7008)

6:00pm-6:15pm Bernice Gresback, 3328 Terrace La (612.761.7845)

6:30pm-6:45pm Jane King, 2522 Zenith Ave N (952.918.4225)

7:00-7:15 John Lapham 3201 Strangule 5294586

6:45-7:00 Heather Anderson 2509 Parkview Blvd 651 308 3654

115-130 James Cogelow 3721 26th Ave N 588 8994

3:15pm-3:30pm Marty Ostem, 2518 Meridian Dr (302.7796)

4:15-4:30 Jan Judice 2300 York 763 5219896  
445-500 ~~445-500~~ Ierdale 2215 Xerxes 5213150



# Storm Water Compliance Inspection

City of ██████████ Minnesota

*Golden Valley*

Date

11/21/05

Time

18:45  a.m.  p.m.

Name

Heather Anderson

House Number

2509

Street Name

Parkview Blvd

Telephone Number

651 308 3684

Owner/Occupant Signature

Inspector Signature

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket – installed seal

### Non-Compliance

- Pumps to sanitary sewer
- Access to property denied
- Pump needs to permanently pump outside
- Further inspection required
- Internal drainage to sanitary sewer

Notes:

Large empty box for notes with a small 'North' orientation box in the top right corner.



# Storm Water Compliance Inspection

City of [redacted] Minnesota

*Golden Valley*

Date

11/21/05

Time

18:30  a.m.  p.m.

Name

Jane King

House Number

2522

Street Name

Zenith Ave N

Telephone Number

952 918 4225

Owner/Occupant Signature

*Jane King*

Inspector Signature

*Partha*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of [REDACTED], Minnesota

*Golden Valley*

Date

11/21/05

Time

18:00  a.m.  
 p.m.

Name

Bernice Gresback

House Number

3328

Street Name

Terrace La

Telephone Number

612 761 7845

Owner/Occupant Signature

*Ba Gresback*

Inspector Signature

*Paul Hubel*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket -- installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

Golden Valley

Date

11/21/05

Time

17:30  a.m.  
 p.m.

Name

Jason Briles

House Number

2408

Street Name

Byrd Ave N

Telephone Number

952 548 7008

Owner/Occupant Signature

Jason D Briles

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

*Golden Valley*

Date

11/21/05

Time

17:00  a.m.  p.m.

Name

Roy Bechtold

House Number

2495

Street Name

Byrd

Telephone Number

521 4167

Owner/Occupant Signature

*Roy Bechtold*

Inspector Signature

*[Signature]*

<p><b>Compliance</b></p> <p><input checked="" type="checkbox"/> No sump or foundation drain</p> <p><input type="checkbox"/> Pump permanently piped outside</p> <p><input type="checkbox"/> No basement</p> <p><input type="checkbox"/> Previous discrepancies corrected</p> <p><input type="checkbox"/> Sump basket – installed seal</p>	<p><b>Non - Compliance</b></p> <p><input type="checkbox"/> Pumps to sanitary sewer</p> <p><input type="checkbox"/> Pump needs to permanently pump outside</p> <p><input type="checkbox"/> Internal drainage to sanitary sewer</p> <p><input type="checkbox"/> Access to property denied</p> <p><input type="checkbox"/> Further inspection required</p>
--	---

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota  
Golden Valley,

Date

11/21/05

Time

16:45  a.m.  p.m.

Name

Harriet Lerdale

House Number

2215

Street Name

Xerxes

Telephone Number

521 3150

Owner/Occupant Signature

*S. Lundgren*

Inspector Signature

*Paul K*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

*No basement*

North



# Storm Water Compliance Inspection

City of ~~Maplewood~~, Minnesota

Golden Valley

Date

11/21/05

Time

16:30  a.m.  p.m.

Name

Dick Kline

House Number

3115

Street Name

St Margaret Dr

Telephone Number

~~0 733~~

Owner/Occupant Signature

Jagundice

Inspector Signature

[Handwritten Signature]

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ~~Golden Valley~~, Minnesota

*Golden Valley*

Date

11/21/05

Time

16:15  a.m.  p.m.

Name

Jan Giudice

House Number

2300

Street Name

York

Telephone Number

763 521 9846

Owner/Occupant Signature

*Jan Giudice*

Inspector Signature

*[Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket - installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

North



# Storm Water Compliance Inspection

City of ██████████, Minnesota  
*Golden Valley*

Date: 11/21/05 Time: 15:15  a.m.  p.m.

Name: Marty Osterm

House Number: 2518 Street Name: Meridian Dr

Telephone Number: 302 7796

Owner/Occupant Signature: *[Handwritten Signature]*

Inspector Signature: *Paul Kubel*

<p><b>Compliance</b></p> <p><input checked="" type="checkbox"/> No sump or foundation drain</p> <p><input type="checkbox"/> Pump permanently piped outside</p> <p><input type="checkbox"/> No basement</p> <p><input type="checkbox"/> Previous discrepancies corrected</p> <p><input type="checkbox"/> Sump basket – installed seal</p>	<p><b>Non - Compliance</b></p> <p><input type="checkbox"/> Pumps to sanitary sewer</p> <p><input type="checkbox"/> Pump needs to permanently pump outside</p> <p><input type="checkbox"/> Internal drainage to sanitary sewer</p> <p><input type="checkbox"/> Access to property denied</p> <p><input type="checkbox"/> Further inspection required</p>
--	---

Notes:

North



# Storm Water Compliance Inspection

City of [REDACTED] Minnesota  
*Golden Valley*

Date: 11/21/05 Time: 15:00  a.m.  p.m.

Name: Francis Acker

House Number: 2429 Street Name: Parkview Blvd

Telephone Number: 588 4851

Owner/Occupant Signature: *Francis M. Acker*

Inspector Signature: *[Signature]*

Compliance	Non-Compliance	
<input checked="" type="checkbox"/> No sump or foundation drain	<input type="checkbox"/> Pumps to sanitary sewer	<input type="checkbox"/> Access to property denied
<input type="checkbox"/> Pump permanently piped outside	<input type="checkbox"/> Pump needs to permanently pump outside	<input type="checkbox"/> Further inspection required
<input type="checkbox"/> No basement	<input type="checkbox"/> Internal drainage to sanitary sewer	
<input type="checkbox"/> Previous discrepancies corrected		
<input type="checkbox"/> Sump basket - installed seal		

Notes:

North



# Storm Water Compliance Inspection

City of ██████████ Minnesota

*Golden Valley*

Date

11/21/05

Time

14:00  a.m.  p.m.

Name

Peter Gillen

House Number

3516

Street Name

Manor Dr

Telephone Number

612 220 8997

Owner/Occupant Signature

*[Handwritten Signature]*

Inspector Signature

*[Handwritten Signature]*

### Compliance

- No sump or foundation drain
- Pump permanently piped outside
- No basement
- Previous discrepancies corrected
- Sump basket – installed seal

### Non - Compliance

- Pumps to sanitary sewer
- Pump needs to permanently pump outside
- Internal drainage to sanitary sewer
- Access to property denied
- Further inspection required

Notes:

Large empty box for notes and a small box labeled 'North' in the top right corner.

# Appendix 8-B: Existing Sanitary Sewer

Table 8-B-1: Existing Sanitary Sewer (Age, Type, and Size)

Pipe Type	Size (in)	Year Installed												Total Miles
		Un-known	1954-1961	1961-1965	1966-1970	1971-1975	1976-1980	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005	2006	
Cast Iron Pipe (CIP)	4	0.06	—	—	0.02	0.07	—	—	—	—	—	—	—	0.15
	8	0.04	5.81	0.90	0.08	0.04	0.03	—	—	0.04	—	—	—	6.94
	9	—	0.32	—	0.01	—	—	—	—	—	—	—	—	0.33
	10	0.04	1.39	0.29	—	—	—	—	—	—	—	—	—	1.72
	12	—	1.05	—	—	—	—	—	—	—	—	—	—	1.05
	16	—	0.35	—	—	—	—	—	—	—	—	—	—	0.35
<b>Total</b>	—	0.14	8.92	1.19	0.12	0.11	0.03	—	—	0.04	—	—	—	10.54
CIP/ Forcemain	6	—	0.06	—	—	—	—	—	—	—	—	—	—	0.06
<b>Total</b>	—	—	0.06	—	—	—	—	—	—	—	—	—	—	0.06
Ductile Iron Pipe (DIP)	2	—	—	—	—	—	—	—	—	—	0.00	—	—	0.00
	4	—	—	—	—	—	—	0.05	—	—	—	—	—	0.05
	6	—	—	—	0.05	—	—	—	—	—	0.01	—	—	0.06
	8	0.18	0.14	0.17	0.07	0.10	0.27	0.02	0.73	0.28	0.09	0.22	—	2.28
	10	0.26	0.05	0.03	0.05	0.09	—	0.10	0.12	—	—	—	—	0.70
	12	0.08	—	—	—	—	—	—	0.06	0.05	—	—	—	0.19
	15	—	—	—	—	—	—	—	0.02	—	—	—	—	0.02
	16	—	—	—	—	—	—	—	0.13	0.08	—	—	—	0.21
	20	—	—	—	—	—	—	—	—	0.07	—	—	—	0.07
<b>Total</b>	—	0.51	0.19	0.21	0.18	0.19	0.27	0.17	1.06	0.48	0.11	0.22	—	3.59
Inner Circle Pipe (CIP)	42	—	0.24	—	—	—	—	—	—	—	—	—	—	0.24
<b>Total</b>	—	—	0.24	—	—	—	—	—	—	—	—	—	—	0.24
Lock Joint Pipe (LJP)	16	—	0.21	—	—	—	—	—	—	—	—	—	—	0.21
	24	—	0.31	—	—	—	—	—	—	—	—	—	—	0.31
	30	—	0.17	—	—	—	—	—	—	—	—	—	—	0.17
	36	—	0.82	—	—	—	—	—	—	—	—	—	—	0.82
<b>Total</b>	—	—	1.50	—	—	—	—	—	—	—	—	—	—	1.50
Polyvinyl-Chloride (PVC)	2	—	—	—	—	—	—	—	—	—	0.09	0.10	—	0.19
	4	—	—	—	—	0.05	—	—	—	—	—	—	—	0.05
	6	0.04	—	—	—	—	—	—	—	—	—	—	—	0.04
	8	0.07	0.11	—	0.14	0.18	0.48	0.07	—	0.20	2.41	0.35	0.09	4.11
	9	0.06	0.09	—	0.13	—	—	—	—	—	—	0.02	—	0.30
	12	—	—	—	—	—	—	—	—	—	—	0.14	—	0.14
<b>Total</b>	—	0.17	0.20	—	0.27	0.23	0.48	0.07	—	0.20	2.64	0.47	0.09	4.83
PVC/DIP	8	—	—	—	—	—	—	—	—	—	0.21	—	—	0.21
<b>Total</b>	—	—	—	—	—	—	—	—	—	—	—	—	—	0.21

Table 8-B-1: Existing Sanitary Sewer (Age, Type, and Size) *continued*

Pipe Type	Size (In)	Year Installed											Total Miles	
		Un-known	1954-1961	1961-1965	1966-1970	1971-1975	1976-1980	1981-1985	1986-1990	1991-1995	1996-2000	2001-2005		2006
Reinforced Concrete Pipe (RCP)	12	0.35	6.82	0.25	—	—	—	—	0.17	—	—	—	—	7.60
	15	0.01	2.06	—	—	—	—	—	0.15	—	—	—	—	2.22
	18	—	0.57	—	—	—	—	—	—	—	—	—	—	0.57
	21	—	1.36	—	—	—	—	—	—	—	—	—	—	1.36
	24	0.15	1.63	—	0.05	—	—	—	—	—	0.04	—	—	1.87
	27	—	2.67	—	—	—	—	—	—	—	—	—	—	2.67
	30	—	1.78	—	—	—	—	—	—	—	—	—	—	1.78
	36	—	2.00	—	—	—	—	0.12	—	—	—	—	—	2.12
	42	—	0.07	—	—	—	—	—	—	—	—	—	—	0.07
<i>Total</i>	—	0.51	18.96	0.25	0.05	—	—	0.12	0.32	—	0.04	—	—	20.26
Vitrified Clay Pipe (VCP)	6	0.02	—	—	—	—	—	—	—	—	—	—	—	0.02
	8	—	—	—	—	—	0.64	0.10	0.07	—	—	—	—	0.80
	9	0.40	0.02	0.01	—	—	—	—	—	—	—	—	—	0.43
	10	0.12	—	—	—	—	—	—	—	—	—	—	—	0.12
	30	0.00	—	—	—	—	—	—	—	—	—	—	—	0.00
<i>Total</i>	—	0.55	0.02	0.01	—	—	0.64	0.10	0.07	—	—	—	—	1.39
Vitrified Soil Pipe (VSP)	6	—	0.04	—	0.09	—	—	—	—	—	—	—	—	0.13
	8	—	0.67	0.03	0.15	0.34	0.96	—	0.06	—	0.03	—	—	2.25
	9	0.54	60.31	9.16	3.84	1.49	0.02	—	—	—	0.06	0.02	—	75.45
	10	—	0.04	—	—	—	0.09	—	—	—	—	—	—	0.14
	12	—	0.43	—	—	—	—	—	—	—	—	—	—	0.43
<i>Total</i>	—	0.54	61.49	9.20	4.08	1.83	1.07	—	0.06	—	0.09	0.02	—	78.39
<i>Grand Total</i>	—	2.41	91.57	10.85	4.70	2.37	2.50	0.46	1.51	0.73	3.10	0.71	0.09	120.99

# Appendix 8-C: Lift Station Inspection Report

## Schaper Lift Station

### Description

The Schaper Lift Station is a submersible pump station which contains piping within the wet well with the inlet valve located below grade outside the wet well. The valve stem extends to a valve box located adjacent to the wet well. The wet well manhole is 4 feet in diameter and 11 feet deep. The concrete in and around the wet well is in good condition. The steps have been removed from within the wet well. The metal access hatch to the wet well is in good condition with a holding mechanism for the hatch. The wet well houses two Hydromatic submersible pumps that were installed in 2006. The rails and chains for pump removal are in good condition. The wet well has a ventilation gooseneck. There was minimal scum in the wet well.

The wet well is directly connected to a storage vault by a 6-inch ductile iron pipe (DIP) with a valve. The valve is closed during normal operation and opened for emergency storage. The pumps discharge via a flexible hose to a 2" diameter PVC pipe. There was an excessive amount of discharge hose wrapped around the pump rail support system.

The operator stated that this lift station was experiencing plugging with medical debris. During power out there is no system down alarm until power resumes.

### Capacity

#### Drawdown Test

- ♦ Pump #1: 36 gpm, 51,840 gpd
- ♦ Pump #2: 39 gpm, 56,160 gpd
- ♦ Measured Influent Flow: 1.54 gpm

Pump Run Times (hr)/ Starts (wet weather, April 2007)			
Pump	Average	Max Day	Min Day
#1	2.5	3	.7
#2	1.6	2.5	0.6

Pump Flow Rate (GPD)			
Pump	Average	Max Day	Min Day
#1	5,400	6,480	1,512
#2	3,744	5,850	1,404

### Process

#### Condition

- ♦ No safety grating in wet well
- ♦ The 2-inch receiving force main is considered sub-standard. The Ten State Standards guidelines require a 4-inch or greater diameter force main.

### Electrical

#### Service

460V / 1Ø

#### Control System

- ♦ Four floats (Pumps Off, Lead Pump On, Lag Pump On, High Level Alarm) with Systems Control Technology pump controller

#### Control System Modifications

- ♦ Add fifth float (Low Water Cutoff) for additional pump protection in case of low water level.
- ♦ Use control relays to add backup pumping scheme in case of pump controller failure.
- ♦ Add relay to send alarm at power failure prior to power returning to the system. There is already a battery in place for this.
- ♦ Add SCADA to the system.

Pump Currents		
Pump	Full Load	Inrush
#1	2.5	3
#2	1.6	2.5

## Highway 55 Lift Station

### Description

Highway 55 Lift Station Lift Station is a wet well/dry well pump station which contains the pumps, piping and valves within a dry valve vault. The wet well is 75 square feet (10 feet x 7.5 feet) and 15.5 feet deep. The concrete in and around the wet well is in good condition. The steps into the pump and valve vault are in good condition. The access hatch to the wet well is in good condition with extension rails. The dry vault houses two Chicago Pump Flush Kleen long shaft pumps with US Electrical motors. The pumps were rebuilt last year and bearings were replaced on the long shafts. The piping and valves are 6-inch ductile iron pipe (DIP) and are in good condition. There was minimal scum in the wet well.

The wet well is cleaned at least one time per month and pumps have been getting clogged with clinic debris. During power out there is no system down alarm until power resumes.

### Capacity

#### Drawdown Test

- ♦ Pump #1: 213 gpm, 306,720 gpd
- ♦ Pump #2: 168 gpm, 241,920 gpd
- ♦ Measured Influent Flow: 28 gpm

Pump Run Times (hr)/ Starts (wet weather, April 2007)			
Pump	Average	Max Day	Min Day
#1	1.6	3	.9
#2	1.7	5	.8

Pump Flow Rate (GPD)			
Pump	Average	Max Day	Min Day
#1	20,448	38,340	11,502
#2	17,136	50,400	8,064

### Process

#### Condition

- ♦ No safety grating in wet well

### Electrical

#### Service

230V / 3 Ø

#### Control System

- ♦ Four floats (Pumps Off, Lead Pump On, Lag Pump On, High Level Alarm) with Systems Control Technology pump controller

#### Control System Modifications

- ♦ Add fifth float (Low Water Cutoff) for additional pump protection in case of low water level.
- ♦ Use control relays to add backup pumping scheme in case of pump controller failure.
- ♦ Add relay to send alarm at power failure prior to power returning to the system
- ♦ Add SCADA to the system.

Pump Currents	
Pump	Average (A)
#1	21.5
#2	18.2

## Woodstock Lift Station

### Description

The Woodstock Lift Station is a submersible pump station which contains piping within the wet well with the inlet valve located outside the wet well in a valve manhole. The wet well manhole is 6 feet in diameter and 15.2 feet deep. The concrete in and around the wet well is in good condition. There are no steps within the wet well. The metal access hatch to the wet well is steel and in good condition with a holding mechanism for the hatch. The wet well houses two Peabody Barnes submersible pumps. The rails and chains for pump removal are in good condition. The wet well has a ventilation gooseneck. There was a small amount of scum in the wet well, but concentrated around the north pump because the floats were all hung in this one location. The piping and valves are 4 in. diameter ductile iron pipe (DIP) and are in moderate condition. The check valve was replaced in 2006.

The operator did not report any problems with this station except no alarm until power resumes. During power out there is no system down alarm until power resumes.

### Capacity

#### Drawdown Test

- ♦ Pump #1: 272 gpm 391,680 gpd
- ♦ Pump #2: 238 gpm, 342,720 gpd
- ♦ Measured Influent Flow: 28 gpm

Pump Run Times (hr)/ Starts (wet weather, April 2007)			
Pump	Average	Max Day	Min Day
#1	0.9	1.5	0.6
#2	0.9	1.5	0.6

Pump Flow Rate (GPD)			
Pump	Average	Max Day	Min Day
#1	14,688	24,480	9,792
#2	14,688	24,480	9,792

### Process

#### Condition

- ♦ No safety grating in wet well
- ♦ The 2-inch discharge line is considered sub-standard. The Ten State Standards guidelines require a 4-inch or greater diameter discharge line.

### Electrical

#### Service

460V / 1Ø

#### Control System

- ♦ Four floats (Pumps Off, Lead Pump On, Lag Pump On, High Level Alarm) with Systems Control Technology pump controller.

#### Control System Modifications

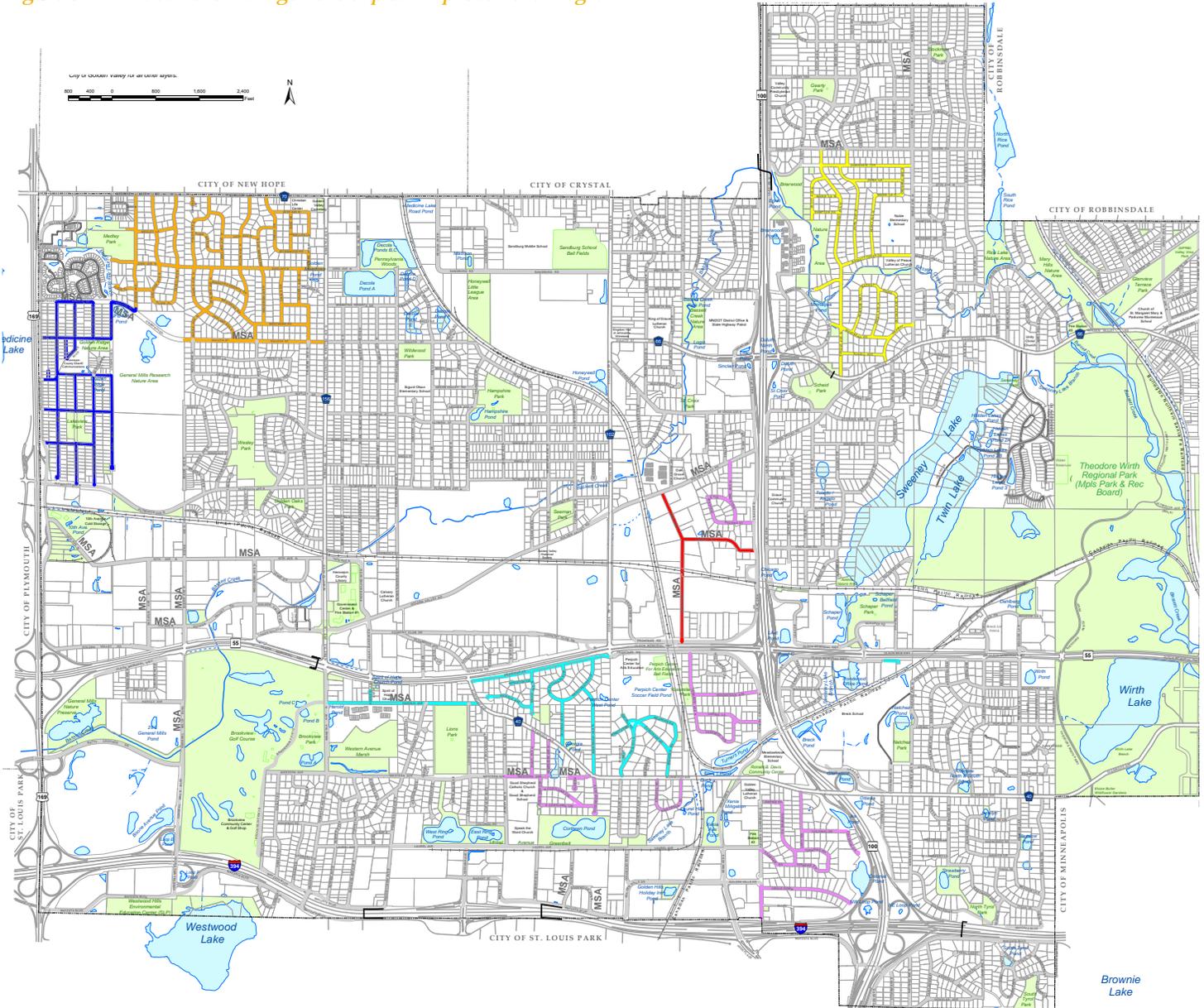
- ♦ Add fifth float (Low Water Cutoff) for additional pump protection in case of low water level.
- ♦ Use control relays to add backup pumping scheme in case of pump controller failure.
- ♦ Add relay to send alarm at power failure prior to power returning to the system
- ♦ Add SCADA to the system.

Pump Currents		
Pump	Full Load	Inrush
#1	1.4	20.5
#2	1.4	25



# Appendix 8-D: Pavement Management Capital Improvement Program

Figure 8-D-1: Pavement Management Capital Improvement Program



**Year Programmed**

- 2009 4 miles local, 0.0 miles MSA
- 2010 2.7 miles local, 0.5 miles MSA
- 2011 4.3 miles local, 0.2 miles MSA
- 2012-2013 6.3 miles local, 0.5 miles MSA
- 2014 3.0 miles local, 0.2 miles MSA
- After 2014 0.0 miles local, 0.8 miles MSA

- Streets Built to Standard
- MSA** MSA Municipal State Aid Street
- Private Streets
- Other Agency's Jurisdiction

Map Updated: October 2008 Print Date: October 6, 2008

Sources: Hennepin County Surveyors Office for Property Lines (2008), City of Golden Valley for all other layers



## Appendix 8-E: Lift Station Acceptability Rating

Table 8-E-1: Schaper Lift Station Acceptability Rating		
Item	Parameter	Rating
Pumps	Age Years - (1 year)	1
	Number - 2 Hydromatic	1
	Capacity Each - 0.05 mgd	1
	Redundancy - 100%	1
	Pump Condition (Based on Amperage Draw) - 5.7, 13.2	3
	Reported Problems - New	1
<i>Overall Pump Rating</i>		1
Wet Well	Material - Precast Concrete	1
	Physical Condition - Good	1
	Detention Time - 0.3 hr.	1
	Pump Starts/hr - (each) 2	1
	Hatch - Good	1
	Steps - (removed)	1
	Pump Rails - Good	1
<i>Overall Wet Well Rating</i>		1
Valve Vault	Material - Precast Concrete	N/A
	Steps - Moderate	N/A
	Access - Manhole Cover	N/A
	Cleanliness	N/A
	Piping -	3
	Valves -	3
<i>Overall Valve Vault Rating</i>		3
Electrical	Electrical Service	1
	Generator Plug - Yes	1
	Power Outages	3
	Control Panel	
	Condition	1
	Accessibility	1
	Location	3
<i>Overall Electrical Rating</i>		2
Instrumentation/Controls	Control Type	
	(Systems Control Technology)	3
	Low Level Shut off	5
	Control Relays for Backup Pumping for Pump Controller Failure (no alarm until power on)	5
	SCADA (Separate Panel)	5
<i>Overall Instrumentation/Controls Rating</i>		4
Potential Sewage Backup	History of Problems	2
	Detention Time (Sewer & Wet Well) - 24 hrs	1
	Standby Power Receptacle	1
<i>Overall Potential Sewage Backup Rating</i>		1

Table 8-E-1: Schaper Lift Station Acceptability Rating *continued*

Item	Parameter	Rating
Location	Access from City Street	3
	Secure from Public Damage	4
	Driveway to Station	3
	Visibility to Neighbors	2
	Proximity to Homes	2
	Located within Easement or ROW	1
<i>Overall Location Rating</i>		3
Safety	Accessibility (Steps to Station)	1
	Safety Railing on Wet Well Manhole Steps Into Wet Well	4
	Manhole Steps Into Valve Vault - Moderate	2
	Operation Staff Must Park on Street	3
	Pump Service Vehicle Access from Parking Lot (access is via walking trail)	3
	Manhole Cover Lid on Value Vault	4
<i>Overall Potential Sewage Backup Rating</i>		3

Table 8-E-2: Highway 55 Lift Station Acceptability Rating

Item	Parameter	Rating
Pumps	Age Years - (lift station installed in 1952, rebuilt 2006)	3
	Number - 2 (Chicago Pump Flush Kleen)	1
	Capacity Each - 0.504 mgd	1
	Redundancy - 100%	1
	Pump Condition (Based on Amperage Draw) - 21.5, 18	3
	Reported Problems -	1
<i>Overall Pump Rating</i>		2
Wet Well	Material - Precast Concrete	1
	Physical Condition - Good	1
	Detention Time - 0.15 hr.	1
	Pump Starts/hr - (each) 14	3
	Hatch - Good	1
	Steps - N/A	1
	Pump Rails - Good	1
<i>Overall Wet Well Rating</i>		1
Pump/Valve Building	Material - Precast Concrete	1
	Steps - Ladder w/ bar extension	1
	Access - Limited access hole in floor	3
	Cleanliness	1
	Piping -	1
	Valves -	1
<i>Overall Pump/Valve Rating</i>		1
Electrical	Electrical Service	1
	Generator Plug - Yes	1
	Power Outages - (issues with trees)	5
	Control Panel	
	Condition	1
	Accessibility	1
	Location	1
<i>Overall Electrical Rating</i>		2
Instrumentation/Controls	Control Type	
	(Systems Control Technology)	3
	Low Level Shut off	5
	Control Relays for Backup Pumping for Pump Controller Failure (no alarm until power on)	5
	SCADA (Separate Panel)	5
<i>Overall Instrumentation/Controls Rating</i>		4
Potential Sewage Backup	History of Problems	1
	Detention Time (Sewer & Wet Well) - 1.6 hrs	1
	Standby Power Receptacle	1
<i>Overall Potential Sewage Backup Rating</i>		1

Table 8-E-2: Highway 55 Lift Station Acceptability Rating *continued*

Item	Parameter	Rating
Location	Access from City Street	4
	Secure from Public Damage	1
	Driveway to Station	4
	Visibility to Neighbors	1
	Proximity to Homes	1
	Located within Easement or ROW	2
	Location within FEMA 100-year Floodplain	5
<i>Overall Location Rating</i>		3
Safety	Accessibility (Steps to Station)	1
	Safety Railing on Wet Well Manhole Steps Into Wet Well	4
	Manhole Steps Into Valve Vault - Moderate	3
	Operation Staff Must Park on Street	2
	Pump Service Vehicle Access from Parking Lot	3
	Manhole Cover Lid on Value Vault	N/A
<i>Overall Safety Rating</i>		3

Table 8-E-3: Woodstock Lift Station Acceptability Rating

Item	Parameter	Rating
Pumps	Age Years - (lift station installed in 1983, replaced 1x)	3
	Number - 2 (Peabody Barnes)	1
	Capacity Each - 0.22 mgd	1
	Redundancy - 100%	1
	Pump Condition (Based on Amperage Draw) - 20.5, 25	2
	Reported Problems	2
<i>Overall Pump Rating</i>		2
Wet Well	Material - Precast Concrete	1
	Physical Condition - Good	1
	Detention Time - 0.12 hr.	1
	Pump Starts/hr - (each) 3	1
	Hatch - Good	1
	Steps	1
	Pump Rails - Good	1
<i>Overall Wet Well Rating</i>		1
Valve Vault	Material - Precast Concrete	1
	Steps - Moderate	2
	Access - Manhole Cover	2
	Cleanliness	2
	Piping -	3
	Valves -	3
<i>Overall Valve Vault Rating</i>		2
Electrical	Electrical Service	1
	Generator Plug - Yes	1
	Power Outages	3
	Control Panel	
	Condition	1
	Accessibility	1
	Location	1
<i>Overall Electrical Rating</i>		1
Instrumentation/Controls	Control Type	
	(Systems Control Technology)	3
	Low Level Shut off	5
	Control Relays for Backup Pumping for Pump Controller Failure (no alarm until power on)	5
	SCADA (Separate Panel)	5
<i>Overall Instrumentation/Controls Rating</i>		4
Potential Sewage Backup	History of Problems	1
	Detention Time (Sewer & Wet Well) - 2.2 hrs	1
	Standby Power Receptacle	1
<i>Overall Potential Sewage Backup Rating</i>		1

Table 8-E-3: Woodstock Lift Station Acceptability Rating *continued*

Item	Parameter	Rating
Location	Access from City Street	1
	Secure from Public Damage	3
	Driveway to Station	2
	Visibility to Neighbors	3
	Proximity to Homes	4
	Located within Easement or ROW	1
<i>Overall Location Rating</i>		2
Safety	Accessibility (Steps to Station)	1
	Safety Railing on Wet Well Manhole Steps Into Wet Well	4
	Manhole Steps Into Valve Vault - Moderate	3
	Operation Staff Must Park on Street	4
	Pump Service Vehicle Access from Parking Lot	3
	Manhole Cover Lid on Value Vault	N/A
<i>Overall Safety Rating</i>		3

## Appendix 8-F: Capital Improvements Annual Expenditures

**Table 8-F-1: Sanitary Sewer System Operation, Maintenance, and Capital Improvements  
Annual Expenditures 2008–2017\***

Parameter	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
<b>Annual Operations and Maintenance</b>										
Cleaning/ Jetting Sewer	\$74,000	\$74,000	\$74,000	\$74,000	\$74,000	\$74,000	\$74,000	\$74,000	\$74,000	\$74,000
Televising Sewer	\$33,900	\$33,900	\$33,900	\$33,900	\$33,900	\$33,900	\$33,900	\$33,900	\$33,900	\$33,900
Lift Station Inspection	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000
<b>Total</b>	<b>\$110,900</b>	<b>\$110,900</b>	<b>\$110,900</b>	<b>\$110,900</b>	<b>\$110,900</b>	<b>\$110,900</b>	<b>\$110,900</b>	<b>\$110,900</b>	<b>\$110,900</b>	<b>\$110,900</b>
<b>Capital Improvements</b>										
Sewer Line Repair	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
I/I Flow Reduction	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000
Lift Station Improvements	\$30,000	\$195,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000
<b>Total</b>	<b>\$780,000</b>	<b>\$945,000</b>	<b>\$780,000</b>							
<b>Total Annual Cost to City</b>	<b>\$890,900</b>	<b>\$1,055,900</b>	<b>\$890,900</b>							
*Cost estimates are based on 2007 dollars, do not account for inflation, and are for planning purposes only.										



## Appendix 8-G: Projected Average Daily Flow Volumes To MCES Interceptors

Table 8-G-1: Point Flow Quantity					
	Golden Valley MH	MCES MH	Existing ADF	Projected ADF 2020	Projected ADF 2030
			MGD	MGD	MGD
1-GV-460		MH 770	0.14	0.14	0.14
		MH 765	0.23	0.23	0.23
		MH 758	0.31	0.31	0.31
	MH 717		0.19	0.18	0.18
	MH 1690		0.17	0.17	0.17
	MH 1321		0.14	0.17	0.20
		MH 682	1.24	1.26	1.28
		MH 72	1.69	1.71	1.74
	MH 48/47A		0.11	0.11	0.11
	MH 350		0.01	0.01	0.01
		MH 41	1.85	1.87	1.89
		MH 35A	1.88	1.90	1.92
	MH 114		0.18	0.17	0.16
		MH 26	2.11	2.12	2.13
		MH 25	2.15	2.17	2.18
	MH 452		0.01	0.01	0.01
	MH 3	2.16	2.17	2.19	
1-GV-461	M120 St Louis Park		2.92	2.97	3.02
		MH 610	3.04	3.09	3.15
		MH 605	3.12	3.18	3.23
		MH 593	3.29	3.35	3.41
	MH 2936		0.28	0.32	0.36
	MH 632		0.44	0.52	0.60
	MH 614		0.59	0.72	0.84
		MH 583	3.90	4.09	4.27
		MH 582	3.92	4.10	4.27
		MH 577	3.97	4.13	4.29
Total Flow To 1-MN-320 (M117)					
		MH 2	6.13	6.31	6.48

ADF = average daily flow; MH = manholes; MGD = million gallons per day

Figure 8-G-1: Point Flow Location Map

