

FEBRUARY 2008

FINAL REPORT

# SANITARY SEWER MASTER PLAN



PREPARED BY

**rjngroup**

Excellence through Ownership

PREPARED FOR

**VILLAGE OF VILLA PARK**

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# EXECUTIVE SUMMARY

## BACKGROUND

This report provides a review of improvements undertaken since the original Facility Plan in 1980, an evaluation of current conditions, and recommendations for rehabilitation, inflow and infiltration removal, and capital improvements in order for the current system to convey all sanitary flow during a 5-year, 30-minute storm without overflows and basement back-ups.

## RECOMMENDATIONS

The recommendations for the Village are divided into the following priorities:

- Inflow and infiltration (I/I) removal
- Capacity improvements
- Structural improvements

### Inflow and infiltration Removal

The priority for the Village is to remove cost-effective sources of inflow and infiltration (I/I) which will reduce the incidences of surcharging within the system. Inflow is stormwater that enters the sewer system through direct sources such as catch basins, downspouts and sump pumps. Infiltration is stormwater or groundwater that enters the sewer system through cracked pipes, pipe joints, and defective manholes.

The following ten-year plan recommendations are made:

#### *Public Sector*

- Line / rehabilitate all sewers within Basin 6 and Basin 7 (South Villa) that are more than 30 years old
- Line / rehabilitate all sewers in North Villa within the area bounded by Villa Avenue, Addison Avenue, and the UP and CCP railroad tracks (ABC Streets and the College Streets)
- Smoke test sewers west of Addison Avenue in the North Villa separated area, and prioritize defects for rehabilitation
- Continue a comprehensive manhole inspection program and rehabilitate those defective manholes identified during smoke testing
- Continue sewer inspection and rehabilitation efforts, prioritized within a ten-year cycle

#### *Private Sector*

- • Disconnect all confirmed directly connected inflow sources, including downspouts, stairwell drains, area drains, and sump pumps

- • Provide cost-sharing for overhead sewers and check valves to those residences subject to basement back-ups. If properties have foundation drains disconnection will be mandatory as part of the cost sharing process
- All tear-downs should be required to replace or line the sewer lateral and provide a clean-out. No “break-in” lateral connections will be permitted. In addition any major remodel will be required to disconnect any foundation drain connection
- • Continue the current program of private sector I/I reduction with lateral inspection and repair, lining, or replacement on a cost-sharing basis.
- • Continue “close of sale” building inspections for illegal I/I discharges
- • Subsidize repair or replacement of laterals and removal of area drains, contingent on the homeowner passing an I/I inspection.

### Capacity Improvements

The following recommendations are made to improve the capacity of the sanitary system:

- It is recommended that a relief sewer be constructed along South Myrtle Avenue to eliminate hydraulic deficiencies identified during modeling of the existing system and confirmed through observations
- South Villa Lift Station may require an increase in capacity in the future but it is recommended that this be addressed only after the improvements identified to achieve I/I reduction in the sewer basin have been performed.
- Overflows that have occurred in the North Villa area were not determined to be caused by inherent capacity limitations at their respective locations. However, it is recommended that routine inspection and cleaning of sewers be performed in these areas in order to ensure capacity to convey wet-weather flows.

### Structural Improvements

Structural improvements intended to convey sanitary flow more efficiently are also recommended. These recommendations include:

- Removal of the Sugar Creek crossing at Cross Street at MH 6-075 (part of the Myrtle Avenue relief sewer improvements)
- Re-routing of sewers at other locations intended to avoid creek crossings and reduce loading on overburdened sewers
- Elimination of redundant sanitary sewers.

With the exception of the first item, none of these improvements is urgent and may be constructed as part of the normal capital / maintenance improvement program in the specific area.

## COSTS OF RECOMMENDED TEN-YEAR PLAN

The cost of the recommended ten-year plan includes all identified recommendations for I/I removal, capacity improvements, and structural improvements, as well as the rehabilitation of more recently constructed sewers as part of a ten-year maintenance plan.

### **Phasing of Recommended Ten-Year Plan**

Phasing of recommendations have been spread over a ten-year period beginning in 2008 and ending in 2017. The priority for the phasing was to first undertake all work identified in the Compliance Commitment Agreement with IEPA. Additional work was then based on severity of defect, difficulty of access if the defect deteriorated, (for example the backyards) and anticipated deterioration based on age, or material. The work was further phased to reduce the impact on the Village to maintain their wastewater fund without additional burden of raising the sewer charges beyond that required for the most urgent work.

### **Impact on User Charge**

The total cost of first year of work (including engineering and contingency) is \$4.032 million. A 2¾ % loan amortized over 20 years would require annual repayments of \$263,445.

The annual metered consumption is 590.2 million gallons. The current user charge would therefore need to increase by \$0.45/1,000 gal. It is estimated that the monthly financial impact to a homeowner (7,000 gal/residential user/month) for this loan will be \$3.13 or \$37.50 annually.

To implement the first five years of the recommended plan, the cost of the loan is estimated at \$5.25 million. A 2¾% loan amortized over 20 years would require annual repayments of \$343,000. This would require an increase in the user charge of \$0.58/1,000 gal. The monthly impact to a residential customer for this increase would be \$4.06 or \$48.82 annually.

To implement all ten years of the recommended plan, the cost of the loan is estimated at \$6.835 million. A 2¾% loan amortized over 20 years would require annual repayments of \$447,000. This would require an increase in the user charge of \$0.76/1,000 gal. The monthly impact to a residential customer for this increase would be \$5.30 or \$63.56 annually.

### **Wastewater Fund Current Indebtedness**

The Village is currently undertaking improvements to the North Villa Lift Station, which is also being funded by an IEPA loan. It is estimated that the cost to service this loan will be \$25,500 per year, which will require an additional increase in the user charge of \$0.045/1,000 gal.

## BACKGROUND

A comprehensive review of the separate sanitary system in the Village of Villa Park was undertaken in 2007. It was the intention to update the Facilities Plan that was originally prepared in 1980. This report provides a review of improvements undertaken since the original Facility Plan, an evaluation of current conditions, and recommendations for rehabilitation, inflow and infiltration (I/I) removal, and capital improvements in order for the current system to convey all sanitary flow during a 5-year 30-minute storm without overflows and basement back-ups.

### NOTICE OF VIOLATION AND RESPONSE

During the storms of January 12, 2005; October 2, 2006; and December 20, 2006 the Village experienced severe rains which resulted in sanitary sewer overflows at four locations: the corner of Cross Street and Julia Drive, the backyard easement between S. Myrtle Avenue and S. Euclid Avenue, the corner of Villa Avenue and Maple Street, and the corner of Fulton Street and Vermont Street.

Due to the recurring difficulties in these areas, the Village was issued a Notice of Violation from the Illinois Environmental Protection Agency (IEPA). The Village has committed to providing to the IEPA an aggressive program of investigation and remedial action to reduce the incidences of sanitary overflow and basement back-ups within the next year. A copy of the approved Compliance Commitment Agreement (CCA) is appended to this report.

This study was prepared in response to these conditions and consists of Facility Type Planning.

#### Objectives

The primary purpose of this facility plan is to improve the sanitary sewer system and ensure the capacity required to convey flows from a 5-year, 30-minute storm event. This facility plan update consists of the following components:

- Smoke testing of all sanitary sewer lines (including private sanitary sewers) within the South Villa Lift Station service area, with identification of defects
- Smoke testing of all sanitary sewer lines (including private sanitary sewers) within the ABC Streets and College Streets areas in North Villa, with identification of defects
- Dye testing of public and private sector major defects (downspouts, area drains, and catch basins)
- Dye testing of the Villa Avenue / St. Charles Road siphon
- Sewer rehabilitation recommendations for I/I removal
- Flow monitoring at significant locations throughout the Village
- SWMM Modeling of sanitary sewer system network
- Investigation of the causes of the basement back-ups and SSOs
- SWMM Modeling of alternatives to improve conveyance

- Evaluation of the current operation of South Villa Lift Station, and review of alternate operating scenarios
- Review of the sanitary system with recommendations for structural improvements and a long term maintenance plan
- Detailed recommended ten-year plan and additional recommendations for a ten to twenty-year time frame
- Recommended phasing of the ten-year improvement plan

## EXISTING SYSTEM

### Treatment Facilities

The Village of Villa Park sanitary sewer system is served by two wastewater treatment plants. The primary facility is the Salt Creek Sanitary District (SCSD) Treatment Facility, and a secondary Wet Weather Flow Treatment Facility (WWFTF) is owned and operated by the Village. The SCSD facility treats flow from both the combined and sanitary systems. It is permitted for a maximum capacity of 8.0 mgd but has successfully treated flows up to 11.0 mgd.

The WWTF is designed to treat flows that exceed the capacity of the SCSD. Both the combined and sanitary systems have a network of relief sewers that divert the flow to the WWFTF as separate waste streams during wet-weather conditions. The WWFTF can treat sanitary flows up to 7.55 mgd and combined sewer flows up to 18.3 mgd.

### Sewer Collection System

The Village comprises both combined and separate sanitary sewer systems. The central part of the town bounded by Madison Street to the south and the UP railroad to the North contains the majority of the combined sewers. The areas to the north and south of this central region are separate sanitary systems. The extent of the combined and separate systems is shown on Exhibit 2-1.

### Sanitary Sewer Collection System

The Village sanitary collection system is predominantly 8" and 10" diameter. The interceptors range in size from 12" to 30" diameter. In total, there are 41.18 miles of public sanitary sewer in the Village. The distribution by size is shown in Table 2A and Figure 2A, and the system network is presented on Exhibit 2-1.

**Table 2A**  
**Village of Villa Park**  
**Length of Sanitary Sewer by Size**

Size (Inches)	Length (Feet)	Length (Miles)	% Total
6	1,323	0.25	0.61
8	117,134	22.18	53.88
10	45,656	8.65	21.00
12	7,789	1.48	3.58
14	148	0.03	0.07
15	5,555	1.05	2.56
18	23,756	4.50	10.93
21	6,370	1.21	2.93
24	9,290	1.76	4.27
27	83	0.02	0.04
30	307	0.06	0.14
<b>Total</b>	<b>217,411</b>	<b>41.18</b>	<b>100%</b>

The Village began developing in the 1920's with expansion every decade, with the exception of the 1940's. Table 2B and Figure 2B represent the distribution of sanitary sewers by age, and the graphical representation is shown in Exhibit 2-2. The main growth period for the Village was during the 1950's when 90,000 ft of sanitary sewer was constructed. The sewers built during this time period were predominantly unreinforced concrete pipe and serve the area on the north side of the Village between the UP and the CCP railroads, including those areas known as the ABC Streets and College Streets.

**Table 2B**  
**Village of Villa Park**  
**Length of Sanitary Sewer by Age**

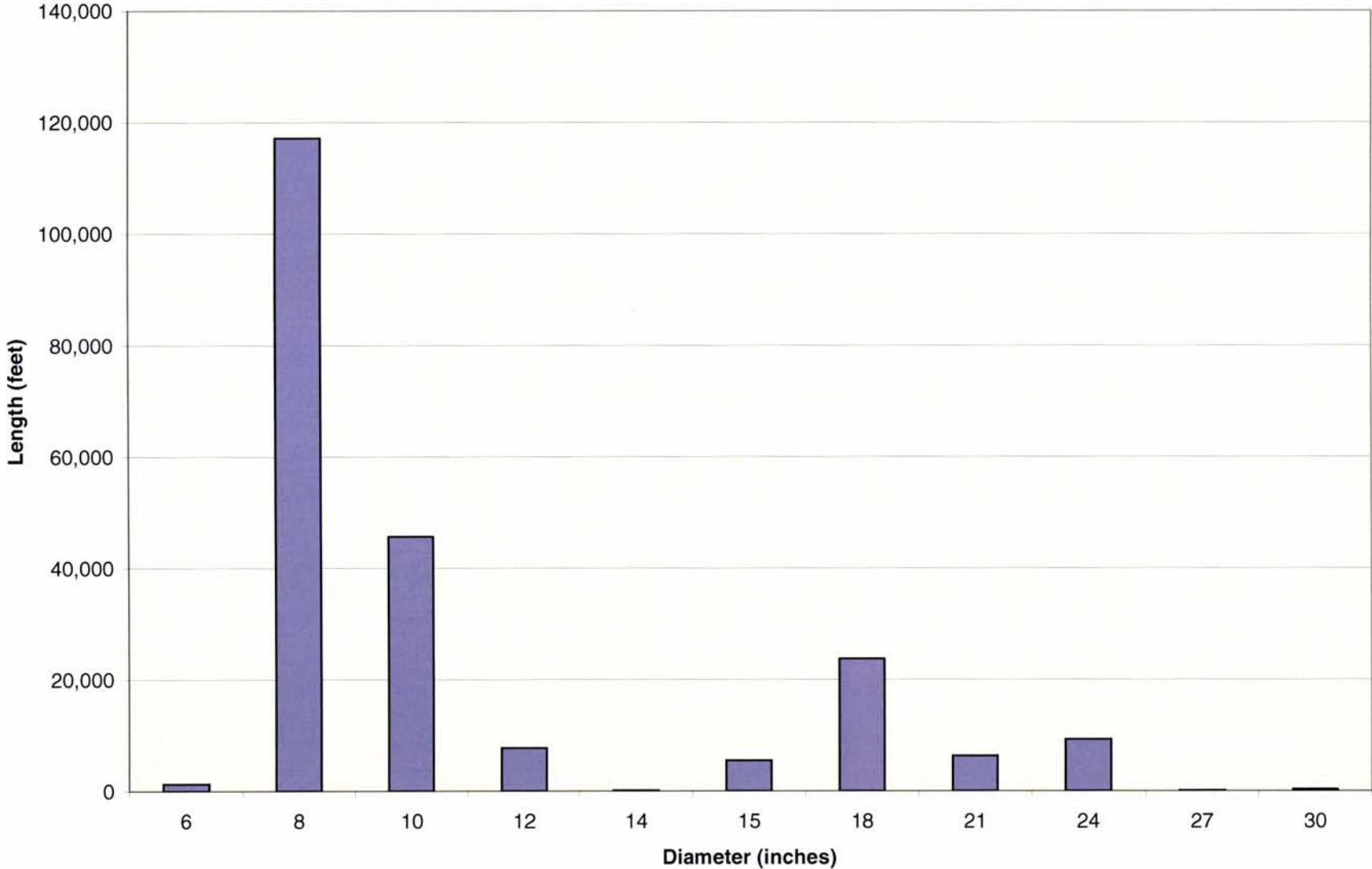
Year of Installation	Feet	Miles
1920 - 1939	18,426	3.49
1950 - 59	89,758	17.00
1960 - 69	14,499	2.75
1970 - 79	35,528	6.73
1980 - 89	33,412	6.33
1990 - 99	20,572	3.90
2000 - present	5,216	0.99

Expansion since the 1960's has been mainly of vitrified clay pipe (concrete for larger sizes) and latterly of PVC. The distribution of pipe by material is presented in Table 2C and Figure 2C and graphically on Exhibit 2-3.

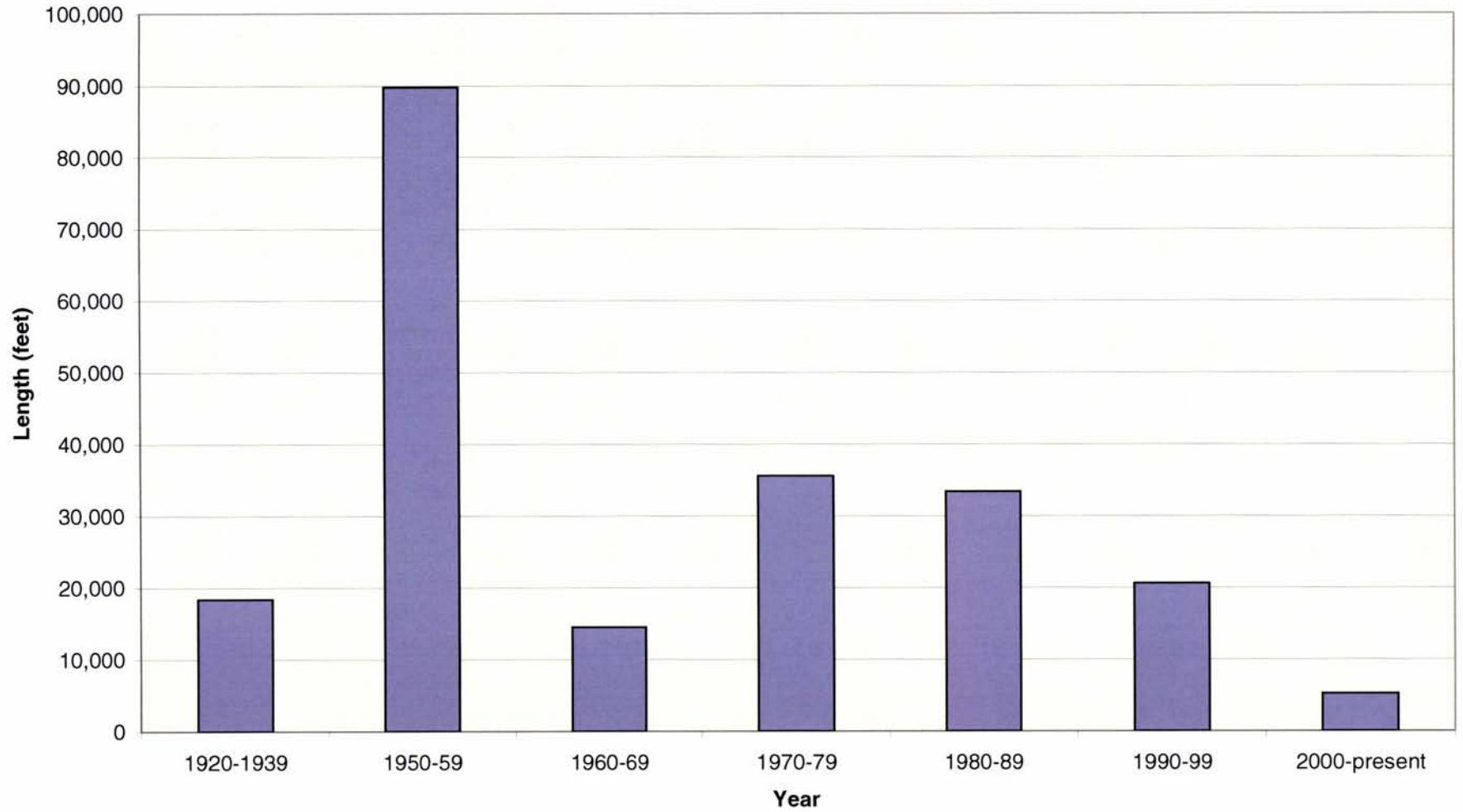
**Table 2C**  
**Village of Villa Park**  
**Length of Sanitary Sewer by Material**

<b>Material</b>	<b>Length (Feet)</b>	<b>Length (Miles)</b>	<b>% Total</b>
Cast Iron	2,566	0.49	1.2%
Concrete	116,443	22.05	53.6%
Plastic	29,716	5.63	13.7%
VCP	61,449	11.64	28.3%
Unknown	7,207	1.36	3.3%

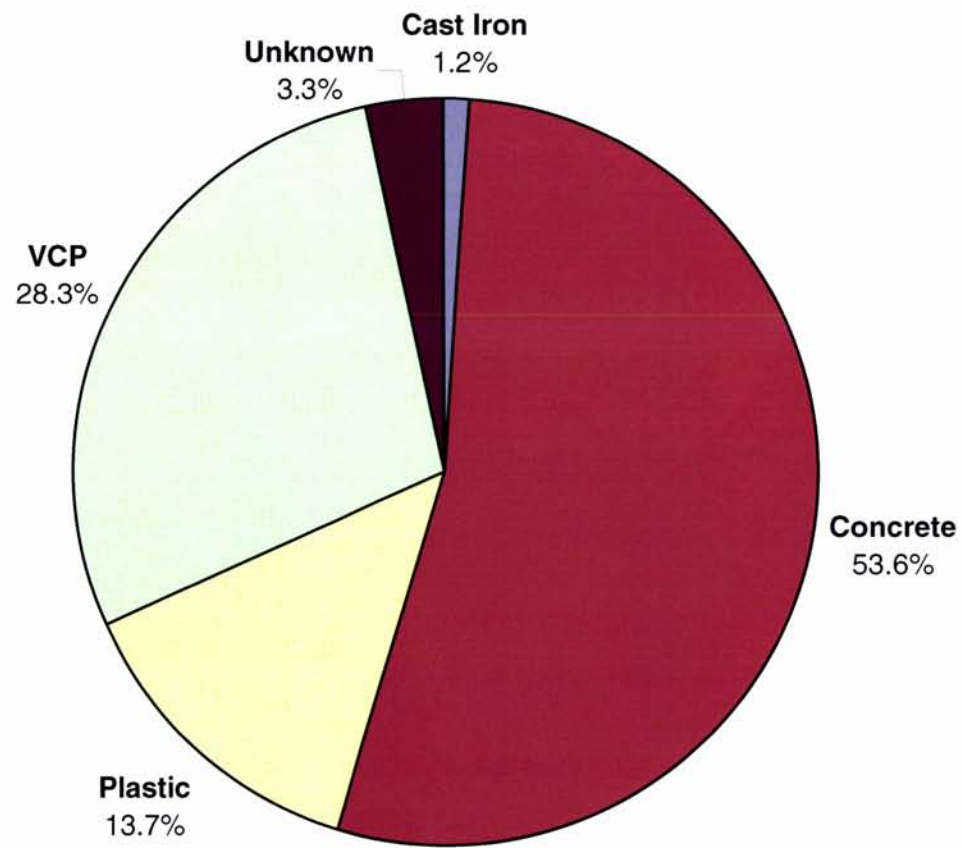
**Figure 2A**  
**Village of Villa Park**  
**Length of Sanitary Sewer by Size**



**Figure 2B**  
**Village of Villa Park**  
**Length of Sanitary Sewer by Age**



**Figure 2C**  
**Village of Villa Park**  
**Percentage of Sanitary Sewer by Material**



## Combined Sewer Collection System

The combined sewer collection system is predominately clay with pipes ranging in size from 6" to 84". There are 32.34 miles of sewer within the combined sewer area.

Since the adoption of the 1981 facility plan, the Village has systematically worked to reduce the amount of stormwater entering the combined system through the construction of separate storm sewers and elimination of I/I sources where feasible. As a result, total flow to SCSD has decreased significantly. Consequently the separate sanitary sewer areas are considered the priority for addressing current inadequacies within the system and are the focus of this facility plan update.

## Lift Stations

The Village is served by a total of six lift stations. The largest of these lift stations is South Villa Lift Station, which serves all of Basins 6, 7, and 8. It is currently permitted for 6,200 PE with an anticipated additional contribution of 3,800 PE. Currently the average daily flow being delivered to the pump station is 450,000 gpd (370,000 gpd of dry weather flow, PE of 3,700) and 80,000 gpd (600 gpd/idm) of base infiltration.

The North Villa Lift Station is the largest lift station in the north separated area. It serves the part of the Village that is north of North Avenue and delivers approximately 100,000 gpd of dry weather flow and has a peak capacity of approximately 1.9 mgd. The lift station will be rebuilt in 2008.

## HISTORY

During the late 1970's and early 1980's the Village of Villa Park undertook a comprehensive review of their entire sanitary sewer network including modeling, building inspection, smoke testing, manhole inspection, and dyed water flooding (*Sewer System Evaluation Study – August 1981* and subsequent reports). The model indicated that even with removal of all cost-effective I/I sources, which accounted for 65% of the total I/I at that time, there would be a need for relief sewers and the construction of an SSO treatment facility. The need for these improvements was due primarily to the age of the housing stock. Many homes in the Village were constructed from the 1920's to the 1950's when it was typical for foundation drains to be connected to the sanitary sewer system.

In 1984, extensive public sector rehabilitation and new construction was performed. It comprised the following:

- Rehabilitation of 364 manholes
- 117 point repairs
- Installation of 18,000 ft of relief sewer
- Installation of fifteen diversion structures.
- Construction of a 7.55 mgd SSO treatment facility and an 18.3 mgd CSO treatment facility.

During the early 1990's, after the public sector rehabilitation and construction of the relief sewers had been completed, the residences with cost-effective private sector defects

(downspouts, area drains, and sump pumps) were issued notices to remove these sources from the sanitary system. Follow-up inspections were then pursued to confirm the disconnection of these sources. Since then, the Village has instituted a “close of sale” building inspection ordinance, and this continued programmatic work ensures that improper connections are prevented or rectified.

## **CHANGES AND IMPROVEMENTS TO THE SYSTEM SINCE 1980**

### **Facility Planning Area and System Expansion**

Since the original Master Plan, areas have been added to the Village sanitary system. These include sewers that were originally connected to the Village of Lombard sanitary system, the Westlands Area property to the east of S. Villa Avenue, commercial property on the south side of Roosevelt Road, residential property north of North Avenue, and some of the previously unincorporated areas in the southernmost part of the Village. This has resulted in a current dry-weather flow of 2.3 mgd for the entire Village.

These incorporations have resulted in changes to the Salt Creek Sanitary District FPA. The boundary of the current FPA is shown on Exhibit 2-1. It is not anticipated that there will be any changes to the current boundary of the FPA. Within the boundary itself it is expected that the large unincorporated area in the south of the Village will eventually be incorporated into the Village. The anticipated increase in flow within the system for this future condition is addressed in the modeling section of this report.

### **South Villa Lift Station Upgrades**

Due to its age and the increased flow, the South Villa Lift Station was upgraded in 1998, with three pumps replacing the previous two-pump operation. These pumps were each rated for 800 gpm against approximately 29 ft of head through a single 10” force main. Utilizing an 8 ft/s maximum rating on the force main resulted in a 2.8 mgd maximum flow for the station under the new configuration.

Surcharged conditions continued to occur at the pump station, and in 2005 a flow monitoring study of the tributary area indicated that without additional I/I removal, the South Villa Lift Station would need to be upsized for a 5-year, 30-minute storm event. To relieve some of the concern regarding the pump station, an additional 12” force main was installed during road reconstruction of South Villa Avenue. The upgrade allowed for all three pumps to operate on two force mains during wet-weather conditions, resulting in a capacity of 3.1 mgd (2,151 gpm) under normal operating conditions and 4.0 mgd when the wet well is surcharged.

### **Ongoing Rehabilitation**

During the last ten years, the Village has continued to maintain the system and has conducted additional smoke testing and dye testing, which has resulted in lining sewers and removing indirect cross-connections with the storm sewers. Manholes along Sugar Creek were also investigated for infiltration from the creek, and rehabilitation was undertaken.

## INVESTIGATIONS

### SMOKE TESTING

As part of this study, the Village undertook the initiative to smoke test all sanitary sewers within the South Villa Lift Station service area, as well as the ABC Streets and College Streets in the North Villa area. This included not only the sewers that were constructed prior to 1980 (when they were previously tested), but also the areas in the southern part of the Village that have been added since that time. In total, approximately 105,000 feet of sewer was smoke tested.

#### Follow-up Dye Testing

Dye testing of catch basins, area drains, and downspouts was performed at fifty locations in the Village, where smoke testing had indicated possible direct connections to major inflow sources. Directly connected catch basins, area drains, and downspouts were identified by these investigations.

#### Results

I/I sources identified during smoke testing and dye testing were evaluated and quantified using CassPC, an RJN data management tool. The complete results of this analysis are attached to this report as Appendix B. All private sector defects were assigned a flow value and repair cost, depending on the type and severity of the defect. These values are derived from several hundred sewer evaluation projects.

Exhibit 3-1 is a defect map that shows both public and private sector defects that were identified. These defects, along with their attributed flows, are summarized in Tables 3A and 3B. North Villa refers to all defects in the ABC Streets and College Streets areas, and South Villa refers to defects within the South Villa Lift Station service area. The largest portion of identified public sector I/I was attributed to main-line defects and cross-connections. The largest portion of private sector I/I was attributed to directly connected foundation drains. In total, 1,204,416 gpd of inflow and infiltration was identified, of which 777,456 gpd is deemed cost-effective to remove.

**Table 3A  
Quantification of Identified Defects South Villa**

<b>Defect</b>	<b>Number</b>	<b>5-Year, 30-Minute Flow (gpd)</b>	<b>Total Flow (gpd)</b>
<b><u>Private Sector</u></b>			
Downspouts	2	54,000	
Defective Disconnected Downspout	7	9,072	
Area Drains	5	72,000	
Defective Cleanout	32	41,472	
Stairwell Drains	1	14,400	
Leaking Lateral	41	59,040	
Confirmed Foundation Drain*	30	259,200	
Confirmed window wells*	6	4,320	
	<b>TOTAL Private Sector Inflow</b>		<b>513,504</b>
<b><u>Public Sector</u></b>			
Manhole	67	96,480	
Catch Basin	3	86,400	
	<b>TOTAL Public Sector Inflow</b>		<b>182,880</b>
<b><u>Infiltration</u></b>			
Main Line defects and cross connections	35	201,600	
	<b>TOTAL Identified Infiltration</b>		<b>201,600</b>
	<b>TOTAL Identified Flow</b>		<b>897,984</b>
	<b>TOTAL Cost-effective Removal</b>		<b>575,424</b>
*These items are not generally considered cost-effective to remove but may be removed per Village ordinance.			

**Table 3B**  
**Quantification of Identified Defects North Villa**

<b>Defect</b>	<b>Number</b>	<b>5-Year, 30-Minute Flow (gpd)</b>	<b>Total Flow (gpd)</b>
<b><u>Private Sector</u></b>			
Defective Cleanout	17	22,032	
Stairwell Drains	1	14,400	
Leaking Lateral	33	47,250	
Confirmed Foundation Drain*	12	103,680	
Confirmed window wells*	1	720	
	<b>TOTAL Private Sector Inflow</b>		<b>188,352</b>
<b><u>Public Sector</u></b>			
Manhole	18	25,920	
Catch Basin	1	28,800	
	<b>TOTAL Public Sector Inflow</b>		<b>54,720</b>
<b><u>Infiltration</u></b>			
Main Line defects and cross connections	11	63,360	
	<b>TOTAL Identified Infiltration</b>		<b>63,360</b>
	<b>TOTAL Identified Flow</b>		<b>306,342</b>
	<b>TOTAL Cost-effective Removal</b>		<b>202,032</b>
*These items are not generally considered cost-effective to remove but may be removed per village ordinance.			

Both the smoke testing and follow-up dye tests identified sewers that require maintenance. These have been recommended for follow-up television inspection to identify locations of cross-connection defects and appropriate rehabilitation. Four direct catch basin connections were identified from within the public sector, and only a few private sector downspouts and area drains have been confirmed as being directly connected to the sanitary system. These homeowners will be issued violation notices and are required to disconnect the inflow sources.

## OTHER INVESTIGATIONS

### North Villa Avenue Siphon Dye Test

An additional dye test was conducted on the parallel 8" and 14" siphons beneath Villa Avenue at St. Charles Road. The siphons are designed so that flow enters the 8" siphon exclusively during base flow conditions and begins to utilize the 14" siphon only after the capacity of the smaller siphon is exhausted. However, it is believed that the siphons are susceptible to debris accumulation, which may have caused surcharging upstream of St. Charles Road and contributed to the overflows at Villa Avenue and Maple Street.

The dye test measured a velocity of 1.65 ft/s through the siphons on the morning of November 27, 2007. A flow meter upstream of the siphon recorded a flow of approximately 1.0 mgd at the time the dye test was performed. These figures reflect a cross-sectional area of flow roughly equal to that of a 13" diameter pipe, which indicates that the 8" siphon is likely restricted by debris, or obstructed entirely, forcing low flows into the 14" siphon.

### South Villa Lift Station Calibration

In order to accurately gauge the capacity of the South Villa Lift Station, a manual calibration was conducted using field-measured wet well dimensions and draw-down times. The calibration indicated that the pump station can deliver a maximum of 3.1 mgd at its routine operating range (wet well level of 6 ft) with all three of its pumps in service. In a surcharged condition (wet well level of 15 to 20 ft), it can pump approximately 4.0 mgd.

### Television Inspection of ABC and College Streets Sanitary Sewers – North Villa Area

Internal television inspection of sanitary sewers in the ABC streets was undertaken during a comprehensive watermain construction project, in order to identify those lines that might need replacement or repair before surface restoration. These inspections indicated that the sanitary sewers were un-reinforced concrete and showing signs of severe corrosion and deterioration. Some sewers needed immediate replacement or point repairs, but all sewers would need lining to prevent further deterioration of the pipe wall, which would ultimately lead to the collapse of the sewers.

A review of construction as-builts from 1957 indicated that the area west of the ABC streets bounded by Ardmore Avenue in the east and Addison Avenue in the west was also constructed at that time of similar material. This area, known as the College Streets was identified for further investigation to a) confirm the pipe material in all segments and b) televise 20% of the sewers to provide a statistical sample of pipes that would need repair or replacement. The sample television inspection identified that the sewers were in a similar condition to the ABC streets and would therefore require lining. In addition lines were identified that would need point repairs and replacement. From this 20% sample it was possible to predict the extent of the rehabilitation work that would be required in the College Streets area.

# FLOW MONITORING AND MODELING

## SANITARY SKELETAL MODEL

In order to gauge the overall performance of the existing sanitary sewer system and to diagnose specific locations for improvements, a skeletal model of the sanitary system was created. The skeletal network included the main sanitary sewers and sanitary relief sewers throughout the Village and followed the system to both the Salt Creek Sanitary District Treatment Facility (SCSD) and the Wet Weather Flow Treatment Facility (WWTF). The sewers included in the skeletal network are shown on Exhibits 4-1 and 4-2.

The skeletal network on the north side of the Village focused on the main interceptor beginning at manhole 1-195 on Terrace Street, which continues north at the Terrace Street and Beverly Avenue diversion structure, then heads east along Vermont Street before turning south on Villa Avenue, ultimately leading to the Salt Creek Sanitary District Treatment Facility. The skeletal network also included the sewer reach that flows south from the Ridge and Princeton diversion structure (manhole 1-205) to the main interceptor at Princeton Avenue and Terrace Street, as well as the reach beginning at the North Villa Lift Station discharge point (manhole 1-031) that flows south and joins the interceptor line at Villa Avenue and Vermont Street.

The skeletal network on the south side of the Village followed the main sewer reach beginning at the Villa Oaks shopping center (manhole 6-136) that flows northeast along Sugar Creek to the South Villa Lift Station. The southern portion of the skeletal network also included the reach beginning at Villa Avenue and Kolberg Court (manhole 6-055), which continues north along Villa Avenue, west along Harrison Street, and north between Myrtle Avenue and Euclid Street before crossing Sugar Creek and connecting to diversion structure 6-006. The skeletal network continued downstream of South Villa Lift Station through the parallel force mains along Villa Avenue then east along Madison Street before continuing north along Riverside Drive, ending at the SCSD.

The skeletal network included all relief sewers and sanitary diversion structures within the system with weir elevations set to their current, field-checked levels.

## MODELING FOR A 5-YEAR, 30-MINUTE EVENT

### Basis

In order to evaluate the existing system during large storm events, the model was calibrated to simulate a 30-minute storm of a 5-year recurrence interval.

Wet-weather and dry-weather flows throughout the sanitary system were determined using data obtained by flow meters at twelve locations, shown on Exhibits 4-1 and 4-2. Flows in South Villa were monitored over a sampling period beginning June 5, 2007 and ending on August 31,

2007. Flows in North Villa were monitored over a sampling period beginning September 27, 2007 and ending on December 4, 2007.

Wet-weather flow responses to various storm events were evaluated according to rainfall data collected at the Salt Creek at Elmhurst USGS rain gauge station during this period and used to predict flows during a 5-year, 30-minute rain event. The rain events that occurred during the flow monitoring period are detailed in Table 4A.

**Table 4A**  
**Rainfall Summary**

<b>Date</b>	<b>30-Minute Peak (in.)</b>	<b>Recurrence Interval</b>
7/18	0.66	4-month
8/6	0.61	3-month
8/7	0.35	
8/8	1.02	1-year
8/14	0.23	
8/15	0.31	
8/19	0.35	
8/23	0.47	
8/23	0.83	6-month
9/26	0.11	
10/1	0.33	
10/2	0.22	
10/18	0.11	
11/21	0.18	
12/2	0.11	

#### **Dry-Weather Base Flow**

The dry-weather base flow for the South Villa area, including residual infiltration is 0.45 mgd. This compares to the base flow for the same area in the 1981 report of 0.35 mgd. The increase in flow can be attributed to the expansion of the area and the general increase in affluence within the last 25 years resulting in higher water consumption. The peak diurnal base flow is 0.70 mgd, which equates to a diurnal peaking factor of 1.55.

Meter locations in South Villa and their respective base flows are shown in Table 4B. An additional meter was located in the Madison Street relief sewer at structure 5-054 and recorded flow during the August 20 and August 23 rain events.

**Table 4B**  
**Base Flows at Meters in South Villa**

Location	Structure No.	Base Flow (mgd)	Diurnal Peak Base Flow (mgd)
521 Madison St.	5-024	0.372	0.700
Terry and Grant	6-026	0.287	0.520
Kohlberg and Villa	6-055	0.051	0.110
Cross and Julia	6-075	0.076	0.130
Villa Oaks	6-136	0.043	0.110
Summit and Van Buren	7-001	0.094	0.160

The current dry-weather base flow for the North Villa area, including residual infiltration is 0.67 mgd. The peak diurnal base flow is approximately 1.10 mgd, which reflects a peaking factor of 1.64.

Meter locations in North Villa and their respective base flows are shown in Table 4C. An additional meter was located in the North Villa Avenue relief sewer at structure 1-210, but did not record flow during the sampling period.

**Table 4C**  
**Base Flows at Meters in North Villa**

Location	Structure No.	Base Flow (mgd)	Diurnal Peak Base Flow (mgd)
Villa and Maple	1-018	0.674	1.100
Terrace and Ardmore	1-073	0.448	0.850
Harvard and Ridge	1-113	0.034	0.070
Terrace and Yale	1-195	0.204	0.350

**Future Expansion – South Villa**

To account for future increased load on the sanitary system, the South Villa model included the tributary flow from the currently unincorporated area south of Harrison Street, bordered by Ardmore Avenue to the west and Villa Avenue to the east. This area is surrounded by the Village and could be annexed within a 20-year planning horizon.

It is anticipated that this area, with some aggregation and re-division of parcels, will include approximately 156 homes. With an estimated demand of 350 gpd per household, the area would contribute a sanitary base flow of 54,600 gpd, which would increase the tributary dry-weather flow to South Villa Lift Station approximately 12% to 0.5046 mgd. Because this area would be serviced by newly constructed sewer with minimal I/I, the 5-year, 30-minute peaking factor was estimated at 5.0, resulting in a peak wet-weather flow of 273,000 gpd.

Based on the topography of this area and the elevations of surrounding sewers, it is anticipated that at least two-thirds of this flow would be tributary to the portion of the system to the south and east of Sugar Creek in the vicinity of Harrison Street and Julia Drive. The remainder of the sanitary load would flow into the sanitary sewers along Ardmore Avenue and to the north of Sugar Creek.

#### 5-Year, 30-minute Storm Analysis

Although the South Villa sampling period did not include any peak 30-minute rainfall intensities exceeding a 5-year recurrence interval, the flow responses to the storm events of July 18 (0.66 inches in 30 minutes), August 8 (1.02 inches in 30 minutes), and August 23 (0.85 inches in 30 minutes), as well as 1.4 inches of antecedent rainfall in the twenty hours prior and a total of 3.5 inches in the five days prior) were extrapolated to a 5-year, 30-minute intensity. The 5-year, 30-minute storm flow responses of the meters in South Villa are detailed in Table 4D. The meters at structures 5-024 and 5-054 on Madison Street are excluded from the analysis, as the flow tributary to these structures is dictated by the pumping rate of the South Villa Lift Station and not directly by rain intensity; however, they were used as confirmation of recorded average and peak flows, as measured at the lift station.

**Table 4D**  
**5-Year, 30-Minute Flows at South Villa Meters**

Meter Location	Structure Number	Average Daily Base Flow (mgd)	24-Hour Peak Infiltration (mgd)	24-Hour Inflow (mgd)	Total 24-Hour Wet-Weather Flow (mgd)	5-Year, 30-Minute Instantaneous Peak (mgd)
Villa Oaks	6-136	0.043	0.028	0.027	<b>0.098</b>	0.233
Terry and Grant	6-026	0.287	0.685	2.979	<b>3.951</b>	7.352
Summit and Van Buren	7-001	0.094	0.240	1.478	<b>1.812</b>	4.458
Kohlberg and Villa	6-055	0.051	0.047	0.098	<b>0.131</b>	0.400
Cross and Julia	6-075	0.076	0.161	0.830	<b>1.067</b>	1.474

Based on this data, peak flows were distributed at various points throughout the model network to reflect the measured peak flows at these meter locations. In total, it was estimated that the South Villa Lift Station experiences a 5-year, 30-minute instantaneous peak flow of approximately 8 mgd and an hourly peak flow of 6 mgd.

The North Villa sampling period did not include any rain events of greater intensity than 0.33" in 30 minutes. Therefore, 5-year, 30-minute flow responses could not be determined from flow monitoring data alone. As a basis for the model, peak flows in North Villa were estimated by applying an overall system peaking factor reflecting 40% I/I removal from 1981 inflow values, or 25% less than was intended at the time. This total flow was distributed at various points throughout the model network based on relative base flow contributions and responses to small

rain events during the monitoring period. Flow monitoring of the North Villa area will continue in the spring of 2008, and the actual storm response data will be re-evaluated.

## RESULTS

The model estimates that the sanitary system contributes a peak flow of approximately 11.5 mgd to the two treatment facilities during a 5-year, 30-minute storm event. Of this flow, approximately 7.0 mgd will flow to the SCSF facility, and 4.5 mgd will flow to the WWTF.

The results of the skeletal model in profile view are attached as Appendix C and correspond to the sewer reaches shown on Exhibits 4-1 and 4-2.

### South Villa

During a 5-year, 30-minute storm event, the leg of the skeletal network extending south of Sugar Creek between Euclid and Myrtle Avenues and along Harrison Street (Reach 2) has significant surcharging and overflows. Manholes 6-075 (located at Julia Drive and Cross Street), 6-066 (located on Julia Drive), and 6-053 (located at Harrison Street and Villa Avenue) present the highest risk of overflow due to the level of the hydraulic grade line and sags in the ground profile at these locations. This conclusion is consistent with the history of overland flooding and basement back-ups in the vicinity of Cross Street and Julia Drive and in the residents' backyards between Myrtle Avenue and Euclid Avenue during severe storm events.

Additionally, during peak flow conditions, the wet well at the South Villa Lift Station reaches very high levels relative to the inverts of the tributary sewers, causing both the Terry Lane relief sewer (Reach 3R) and the main sewer line (Reach 3) to surcharge several segments upstream.

### North Villa

The North Villa area does not surcharge during an estimated 5-year, 30-minute storm event. As anticipated, however, the manholes at Fulton and Vermont (1-047) and Villa and Maple (1-018) showed the greatest potential to overflow due to their shallow depths and near-surcharged state under peak flow conditions. Consequently, these two structures were assessed under specific scenarios.

The sewer segment downstream of structure 1-047 at Fulton and Vermont has a capacity of 2.4 mgd and will surcharge beyond this flow. It will not overflow however, until subjected to a 30-minute peak flow of more than 6 mgd. This flow would represent a peaking factor of more than 20, given that another 4 to 5 mgd would be simultaneously conveyed by the relief sewer along Terrace Street (Reach 6R) under such conditions.

The sewer segment downstream of structure 1-018 at Maple and Villa has a capacity of 4.6 mgd. However, it would require a 30-minute peak flow of more than 6 mgd upstream of this structure for it to overflow. This flow would represent a peaking factor of approximately 13.5, given that another 3 mgd would be conveyed by the parallel relief sewer during such a condition.

The parallel siphons on Villa Avenue at St. Charles Road restrict flow slightly during peak wet-weather conditions. The combined capacity of the two lines is approximately ten percent less than the capacities of both upstream and downstream sewers. However, if the siphons are

deteriorated or restricted by debris, they will further restrict flow and intensify upstream surcharged conditions.

### **South Villa Alternate Model Scenarios**

In order to address the deficiencies in the existing system upstream of the South Villa Lift Station, alternate models were created to explore re-routing scenarios and the effects of increasing the lift station pumping capacity.

#### *Upsize Terry Lane Relief Sewer*

In order to address surcharging in sewer Reaches 2 and 3, model scenarios were run with increased capacity in the Terry Lane relief sewer (Reach 3R). It was anticipated that a larger relief sewer on Terry Lane could provide storage to prevent the sewers along Sugar Creek, Cross Street, and Julia Drive from surcharging and overflowing.

The model indicated that a 42" sewer would be required to alleviate surcharging in Reach 3 and to prevent the system from surcharging further upstream of the Terry Lane diversion structure. However, providing this additional storage alone would not alleviate the severe surcharging in Reach 2.

#### *Add South Myrtle Avenue / Julia Drive Relief Sewer*

The existing model indicated that the surcharging in Reach 2 was a result not only of the downstream sewers backing-up, but also of a capacity shortage in Reach 2 itself. During a 5-year, 30-minute storm event, there is not enough capacity in this sewer to convey its tributary flow without surcharging and potentially causing basement back-ups in connected houses.

Therefore, the option of constructing a relief sewer on Myrtle Avenue that would disconnect this flow from the Terry Lane sewer and connect directly to the South Villa Lift Station was explored. Under this routing scenario, shown on Exhibit 4-3, the flow from the south and southeastern portions of Basin 6 would no longer be tributary to the existing sewer between Myrtle and Euclid Avenues, but rather, to the relief sewer. Additionally, it was assumed that the currently unincorporated area south of Harrison Street would ultimately be served by the relief sewer.

This scenario was anticipated to have two significant benefits:

1. It would reduce the need for additional capacity in the Terry Lane relief sewer
2. It would reduce the likelihood of future overflows and basement back-ups in homes on Myrtle and Euclid Avenues by drastically reducing the load on the sewer that serves these homes

The model indicated that the new relief sewer would eliminate overflows along Julia Drive and Myrtle Avenue and alleviate, but not eliminate, surcharging through the Sugar Creek and Terry Lane sewers.

The relief sewer would have to be a minimum of 10 inches in diameter along Myrtle Avenue and 12 inches in diameter along Julia Drive in order to prevent overflows and basement back-ups during a 5-year, 30-minute storm. From Julia Drive and Villa Avenue, the new sewer would

cross Sugar Creek and connect to the lift station via the existing 18" line along Villa Avenue. Additionally, the existing 8" line on Harrison Street between Villa and Myrtle Avenues would need to be enlarged to a 10" pipe in order to safely convey a 5-year, 30-minute flow without surcharge.

*Increase Capacity of South Villa Lift Station to 6 mgd*

Increasing the pump station capacity to 6 mgd would result in minimal surcharging in the Terry Lane relief sewer (Reach 3R) and Sugar Creek sewer (Reach 3). The receiving sewers on Madison Street and Riverside Drive have sufficient capacity to convey this flow to the Salt Creek Treatment plant.

The modeling results indicate the surcharge elevations upstream of a lift station with increased capacity are below overflow or back-up levels, and it is anticipated that programmed system rehabilitation will provide further I/I reductions.

*Increase Capacity of South Villa Lift Station to 8 mgd*

Increasing the pump station capacity to 8 mgd would alleviate all surcharging in the Terry Lane relief sewer (Reach 3R) and Sugar Creek sewer (Reach 3). However, the relief sewers on Madison Street and Riverside Drive would need to be upsized to 27 inches in order to prevent surcharging downstream of the lift station, in addition to diversion structure modifications.

# RECOMMENDATIONS, COSTS, AND PHASING

## RECOMMENDATIONS

The recommendations for the Village are divided into the following priorities as a basis for a ten-year plan:

- Inflow and infiltration (I/I) removal
- Capacity improvements
- Structural improvements

### **Inflow and Infiltration Removal**

The priority for the Village is to remove cost-effective sources of I/I which will reduce the incidences of surcharging within the system.

Smoke testing with follow-up dye identified both public and private sector sources of inflow and infiltration. In addition it is known that a large area of the town is constructed with un-reinforced concrete sanitary sewers which are beginning to deteriorate and collapse. These sewers are subject to excessive rates of infiltration.

The following tasks are recommended to reduce the incidences of I/I:

#### *Public Sector*

##### South Villa

- Line / rehabilitate all sewers within Basin 6 and Basin 7 that are more than 30 years old. In particular the following areas are recommended for attention:
  - Remove all identified direct cross-connections
  - Line (or replace) all sewers that indicated main-line defects or indirect cross connections defects during smoke testing
  - Line the sanitary sewer along, and crossing, the creek, and rehabilitate manholes with sealant along creek
  - Provide bolted manhole covers on manholes in floodway where rim elevation is below the 100-year flood stage, or raise rims to 100-year flood stage elevation
  - Line (or replace) all the sewers in the oldest part of the South Villa area (Basin 7) bounded by Ardmore Avenue, Harvard Avenue, Madison Street, and Jackson Street. (1920's sewers)
  - Rehabilitate all backyard sewers to reduce maintenance issues as accessibility is difficult (impossible in some locations)
  - Rehabilitate all remaining lines in the Rand Road / Leslie Lane area ( un-reinforced concrete sewers)

- Continue sewer inspection and rehabilitation efforts of 1960's and 1970's sanitary sewers, prioritized within a ten-year cycle
- Continue a comprehensive manhole inspection program and rehabilitate those defective manholes identified during smoke testing

#### North Villa

- Line / rehabilitate all sewers within the area bounded by Villa Avenue, Addison Avenue, and the UP and CCP railroad tracks (ABC Streets and the College Streets). In particular, the following areas are recommended for attention:
  - Line all concrete sewers in the ABC Streets area (all urgent point repairs and pipe replacement in the ABC Streets area were undertaken in 2007)
  - Line / rehabilitate all concrete sewers within the College Streets area
  - Rehabilitate all non-concrete sewers that have main-line defects
- Smoke test sanitary sewers west of Addison Avenue, and prioritize defects for rehabilitation
- Continue a comprehensive manhole inspection program and rehabilitate those defective manholes identified during smoke testing

#### *Private Sector*

- Disconnect all confirmed directly connected inflow sources, including downspouts, stairwell drains, area drains, and sump pumps
- Provide cost-sharing for overhead sewers and check valves to those residences subject to basement back-ups. If properties have foundation drains disconnection will be mandatory as part of the cost sharing process.
- All tear-downs should be required to replace or line the sewer lateral and provide a clean-out. No "break-in" lateral connections will be permitted. In addition any major remodel will be required to disconnect any foundation drain connection
- Continue the current program of private sector I/I reduction with lateral inspection and repair, lining, or replacement on a cost-sharing basis with homeowners
- Continue "close of sale" building inspections for illegal I/I discharges.
- Subsidize repair or replacement of laterals and area drains, contingent on the homeowner passing an I/I inspection.

#### **Capacity Improvements**

Even with removal of all cost-effective I/I sources from South Villa (Basins 6, 7, and 8), the modeling determined that additional improvements to the system would be required to reduce surcharging and eliminate the potential for overflows and basement backups. While I/I removal would eliminate a substantial amount of flow in Basin 6, very little of this flow would be from the portion of Basin 6 tributary to the sewers along S. Myrtle Avenue and Cross Street, an area of the system with a history of overflows. Therefore, it was determined that immediate construction scenarios for additional improvements within this area should be explored without the consideration of any benefit from the removal of I/I.

#### *South Villa Recommendations*

##### South Myrtle Avenue Relief Sewer

It is recommended that the Myrtle Avenue relief sewer be constructed to eliminate hydraulic

deficiencies identified during modeling of the existing system and confirmed by observations.

South Villa Lift Station and Tributary Sewer Alternates

The following scenarios were evaluated in Chapter 4 to improve the operation in and around the South Villa Lift Station:

*Alternate 1: Upsize Terry Lane Relief Sewer*

Modeling determined that a larger relief sewer on Terry Lane could provide storage for peak flows that back up from the South Villa Lift Station during a 5-year, 30-minute event. This alternative would require construction of a 42” sewer in place of the existing 18-sewer, as well as reconstruction of the diversion structure at Terry Lane and Cross Street, in order to eliminate all surcharging upstream of the lift station.

*Alternate 2: Increase Capacity of South Villa Lift Station to 6 mgd*

The capacity of the South Villa Lift Station could be increased to as much as 6 mgd without the need to upsize the receiving gravity sewers on Villa Avenue, Madison Street, and Riverside Drive. This increase in capacity would reduce surcharging upstream of the lift station to below basement elevations and significantly decrease the duration of the surcharged condition during a 5-year, 30-minute event. This alternative, in addition to the construction of the South Myrtle relief sewer and I/I removal, could potentially eliminate all surcharging upstream of the lift station without any further improvements.

*Alternate 3: Increase Capacity of South Villa Lift Station to 8 mgd*

The option of increasing the lift station capacity to match the projected 5-year, 30-minute tributary flow of 8 mgd was also examined. This alternative would eliminate all surcharging upstream of the lift station but would require increased capacity of the receiving gravity sewers. Modeling indicated that the entire length of relief sewer along both Madison Street and Riverside Drive would need to be replaced by 21” sewer to prevent surcharging and potential basement back-ups during peak operation of the lift station.

The costs of these alternates are presented in Table 5A. It is recommended that programmatic removal of I/I sources be the focus of capital expenditure. However, if upgrade improvements are required at South Villa Lift Station, upsizing the pumps to 6 mgd at a cost of \$210,000 (including modifications to the diversion structure on Riverside and Park) would provide significant improvement without adversely affecting the downstream areas.

**Table 5A**  
**South Villa Costs of Alternates**

	<b>Alternate 1</b>	<b>Alternate 2</b>	<b>Alternate 3</b>
<b>S. Villa Lift Station Improvements</b>	–	\$210,000	\$425,000
<b>Upsize Terry Lane Sewer to 42"</b>	\$430,000	–	–
<b>Upsize Downstream Sewers to 21"</b>	–	–	\$1,123,000
<b>TOTAL</b>	<b>\$430,000</b>	<b>\$210,000</b>	<b>\$1,548,000</b>

### *North Villa Recommendations*

Modeling did not indicate any apparent sewer capacity deficiencies in the North Villa area. All reaches of the skeletal model in the north part of the Village proved capable of conveying flows representing peaking factors greater than 10. Therefore, no capacity improvements in North Villa are recommended.

Investigations at both locations where SSOs occurred (the intersection of Fulton Street and Vermont Street and the intersection of Villa Avenue and Maple Street) determined that these sewers are prone to debris accumulation. In addition, the reduction in the capacity of the siphon exacerbates the surcharging at Villa Avenue and Maple Street. Routine inspection and cleaning are recommended in order to ensure that full pipe capacities are maintained in these areas.

### **Structural System Improvements**

In evaluating the model and the South Villa system for structural improvements, the following parameters were used:

- Possible removal of Sugar Creek crossings (to reduce vulnerability to inflow and infiltration from Sugar Creek)
- Feasibility of removing backyard sewers – or making backyard sewers tributary only to themselves – to reduce basement back-ups and maintenance problems
- Sewer re-routing to reduce loading on Terry Lane relief sewer when new areas are incorporated
- Any sewer upsizing required when new areas are incorporated
- Removal of redundant sanitary sewers

The following improvements are proposed and shown on the recommended plan (Exhibit 5-1):

1. Remove Sugar Creek crossing at Cross Street at MH 6-075 (part of Myrtle Ave relief sewer improvements)
2. Remove Sugar Creek crossing on Harrison by re-routing flow north to Cornell from MH 6-081
3. Remove connection from E. Van Buren at MH 6-060 to backyard sewer and connect to S. Villa sewer at MH 6-900
4. Abandon second 12" sewer on Congress at MH 6-112 and replace remaining sewer with a 15" sewer
5. When unincorporated area develops re-route flow from MH 6-049 on Summit to Julia Drive (to keep additional flow south of Sugar Creek and reduce the loading on the Terry Lane relief sewer)
6. When unincorporated area develops on S. Villa upsize sewers from MH 6-055 to MH 6-053 from 8" to 10"

With the exception of Item 1, none of these improvements is urgent, and may be constructed as part of the normal capital / maintenance improvement program in the specific area.

### **Ten to Twenty-Year Recommendations**

The following items are recommended to be implemented within the ten to twenty year time horizon:

- Inspection and rehabilitation (where necessary) of 1980's and 1990's sanitary sewers in the South Villa area
- Inspection and rehabilitation of sanitary sewers downstream of South Villa Lift Station
- Smoke testing and rehabilitation of remaining sewers in the North Villa area
- Lining of remaining small size (8" to 12") un-reinforced concrete sanitary sewers in the North Villa area
- Concurrent manhole rehabilitation

**COSTS OF RECOMMENDED TEN-YEAR PLAN**

The cost of the recommended ten-year plan includes all items previously identified and additionally the rehabilitation of the newer sewers in the South Villa area (pre-1990) as part of a ten-year maintenance plan. Capacity upgrade of South Villa Lift Station to 6 mgd is included, although it is anticipated that the comprehensive sewer rehabilitation and defect removal to be undertaken within the tributary area will remove the necessity of work on the pump station beyond routine maintenance.

The following assumptions were made in order to estimate costs for the areas requiring the most rehabilitation:

- Backyards in the South Villa area All lined with 16 point repairs
- Basin 7 west of Ardmore 1920's sewers all lined; 10% replacement and 11 point repairs
- Sewer along Sugar Creek All lined
- Concrete sewer in ABC Streets All lined
- Concrete sewer in College Streets All lined with 10% replacement, and 45 point repairs
- Leslie / Rand concrete sewers All lined with 5 point repairs
- Remaining defects in South Villa Point repair or line
- Northwest Villa (west of Addison) 45 point repairs

Other rehabilitation assumptions:

- Remaining sewers built in 1920 or 1950 40% will require lining
- Sewers built in 1960 and later Point repairs only

**Lining costs**

The following assumptions were made for lining costs including 25% for engineering and contingency. This cost would include the removal of protruding taps and light cleaning in addition to lining.

Size	Cost Per Lineal Foot
8"	\$50
10"	\$57
12"	\$63
15"	\$94
18"	\$125
21"	\$188

### Replacement Sewer and Point Repair Costs

The following costs were used for replacement or point repair costs (including 27% for engineering and contingency). These costs assume all materials for paved construction including ancillaries such as manholes and lateral reconnection.

Size	Cost Per Lineal Foot
8"	\$200
10"	\$210
12"	\$215
Point Repair	\$5,000/repair

### Manhole Rehabilitation Costs

Manhole rehabilitation costs were calculated using the following assumptions, and including 27% for engineering and contingency:

Location	Cost
Manholes along Sugar Creek	\$3,000
Defective Manholes	\$2,450
General Rehabilitation	\$700
New Manholes	\$3,500

## PHASING

The priority for the phasing of the ten-year plan was to undertake all work identified in the Compliance Commitment Agreement with IEPA first. Additional work was then based on severity of defect, difficulty of access if the defect deteriorated, (for example the backyards) and anticipated deterioration based on age, or material. The work was further phased to reduce the impact on the Village to maintain their wastewater fund without additional burden of raising the sewer charges beyond that required for the most urgent work. The recommended plan costs and phasing for the ten-year plan are presented on Table 5B.

## IMPACT ON USER CHARGE

The total cost of first year of work (including engineering and contingency) is \$4.032 million. A 2¾ % loan amortized over 20 years would require annual repayments of \$263,445.

The annual metered consumption is 590.2 million gallons. The current user charge would need to increase by \$0.45/1,000 gal. It is estimated that the monthly financial impact to a homeowner (7,000 gal/residential user/month) for this loan will be \$3.13 or \$37.50 annually.

To implement the first five years of the recommended plan, the cost of the loan is estimated at \$5.25 million. A 2¾% loan amortized over 20 years would require annual repayments of \$343,000. This would require an increase in the user charge of \$0.58/1,000 gal. The monthly impact to a residential customer for this increase would be \$4.06 or \$48.82 annually.

To implement all ten years of the recommended plan, the cost of the loan is estimated at \$6.835 million. A 2 ¾% loan amortized over 20 years would require annual repayments of \$447,000. This would require an increase in the user charge of \$0.76/1,000 gal. The monthly impact to a residential customer for this increase would be \$5.30 or \$63.56 annually.

#### **Wastewater Fund Current Indebtedness**

The Village is currently undertaking improvements to the North Villa Lift Station, which is also being funded by an IEPA loan. It is estimated that the cost to service this loan will be \$25,500 per year, which will require an additional increase in the user charge of \$0.045/1,000 gal.

### **ENVIRONMENTAL IMPACTS**

It is anticipated that with these improvements the Village will be subject to reduced incidences of overflows and basement back-ups.

It is intended as part of this plan wherever possible to use “no-dig” techniques and best management practices to reduce environmental effects during construction.

A Determination of Environmental Impacts and sign-off is being sought from NIPC; DuPage County Stormwater Commission; Illinois Historic Preservation Agency; and IDNR.

Table 5-B  
Phasing of Recommended Plan

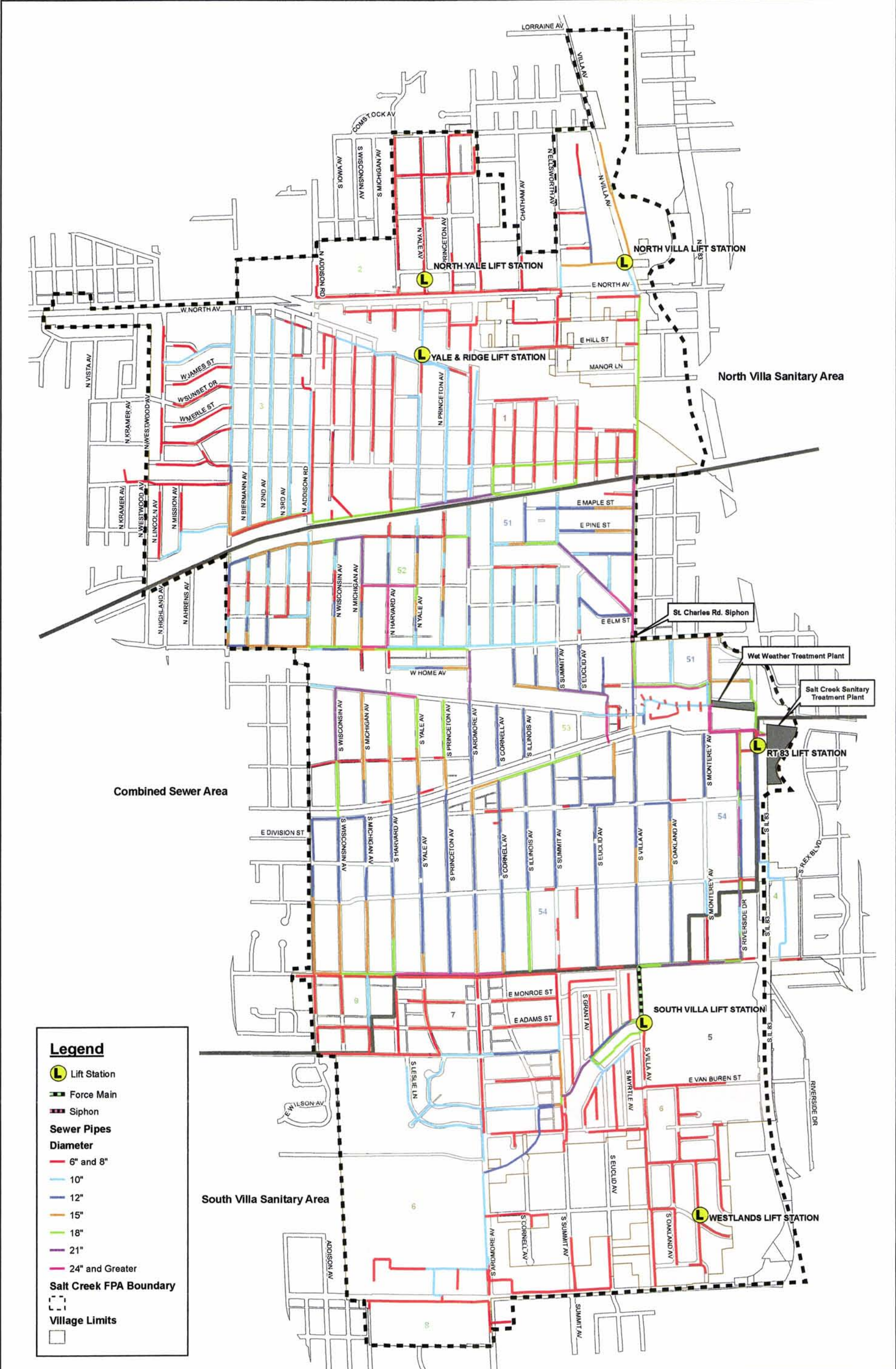
Item No.	Improvement	Cost	Length	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
1	South Myrtle Relief Sewers	\$800,000	1,600	\$800,000									
2	Line 6-938 to 6-928 18" South Villa Pump Station	\$15,250	122	\$15,250									
3	Myrtle/Euclid backyard repairs	\$91,200	1,024	\$91,200									
4	ABC Streets Lining	\$706,110	10,637	\$706,110									
5	ABC Streets Manhole rehab	\$5,000	-				\$5,000						
6	College Streets rehabilitation	\$1,738,050	20,419	\$1,738,050									
7	College Streets manhole rehabilitation	\$3,000	-				\$3,000						
8	Service connections rehab -Y only - nominal	\$200,000		\$150,000									
9	Leslie/Rand Lining and point repairs	\$266,000	4,169	\$266,000									
10	Leslie/Rand Manhole rehabilitation	\$15,320	-	\$15,320									
11	Basin 7 west of Ardmore sewer rehabilitation	\$500,000	7,163	\$200,000			\$300,000						
12	Basin 7 west of Ardmore manhole rehab	\$31,160	-				\$31,160						
13	Sugar Creek Sewer Lining	\$227,000	2,653			\$227,000							
14	Sugar Creek Manhole Rehabilitation	\$33,000	-				\$33,000						
15	Backyards sewer rehab and lining	\$387,650	6,213			\$387,650							
16	Backyard manhole rehab	\$36,160	-			\$36,160							
17	Remaining Smoke Defect line rehabilitation in South Villa	\$158,125	2,790					\$158,125					
18	Smoke test Northwest Villa (west of Addison)	\$34,000	34,000					\$34,000					
19	Rehabilitate Basin 6 1920's area	\$93,000	4,650						\$93,000				
20	Basin 6 1920's manhole rehabilitation	\$21,880	-						\$21,880				
21	Basin 7 east of Ardmore rehabilitation	\$176,140	8,995						\$176,140				
22	Remaining Basin 7 manholes	\$42,540	-						\$42,540				
23	Northwest Villa concrete sewer 45 point repairs	\$225,000	-							\$225,000			
24	Rehabilitate remaining smoke defect manholes South Villa	\$101,600	-							\$101,600			
25	Rehabilitate rest of 1950's sewers	\$70,740	3,537							\$70,740			
26	Rehabilitate Basin 6 1960's sewers - 10 point repairs	\$50,000	2,728								\$50,000		
27	Rehabilitate Basin 6 1970's sewers - 15 point repairs	\$75,000	5,750								\$75,000		
28	Upsize S. Villa Lift Station to 6 mgd	\$210,000	-									\$210,000	
29	Rehabilitate 1980's sewers - 10 point repairs	\$50,000	6,842									\$50,000	
30	Remove Creek Crossing at 6-081 (Harrison)	\$10,000	-									\$10,000	
31	Re-direct flow from MH 6-049 to 6-072 (Summit/Julia)	\$94,500	450										\$94,500
32	Re-direct flow from MH 6-060 to 6-900 (Van Buren/Villa)	\$90,000	450										\$90,000
33	Upsize S. Villa at Harrison to 10"	\$121,800	580										\$121,800
34	Remove second sewer on Congress at 6-112	\$60,200	280									\$60,200	
35	Remaining Manhole Rehabilitation Basin 6	\$95,900	-										\$95,900
39	Private sector cost sharing			\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
	<b>TOTAL</b>	<b>\$6,835,325</b>	<b>125,052</b>	<b>\$4,031,930</b>	<b>\$50,000</b>	<b>\$700,810</b>	<b>\$422,160</b>	<b>\$242,125</b>	<b>\$383,560</b>	<b>\$447,340</b>	<b>\$175,000</b>	<b>\$380,200</b>	<b>\$452,200</b>

APPENDIX A

EXHIBITS

**rjn**group

Excellence through Ownership



**Legend**

- Lift Station
- Force Main
- Siphon
- Sewer Pipes**
- Diameter**
- 6" and 8"
- 10"
- 12"
- 15"
- 18"
- 21"
- 24" and Greater
- Salt Creek FPA Boundary
- Village Limits

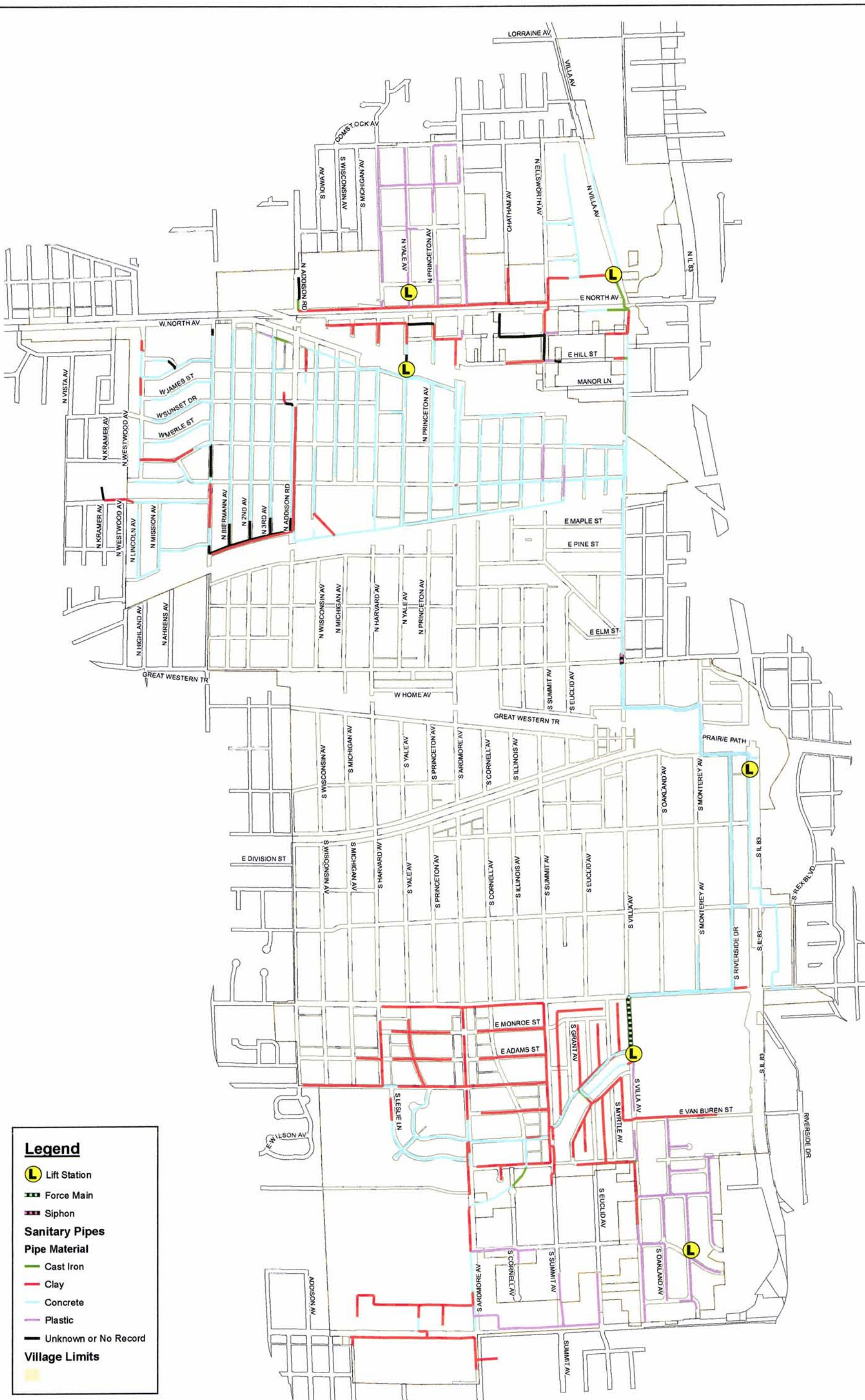


**Legend**

**Sanitary Pipes**  
**Year of Construction**

- 1920
- 1950 - 1959
- 1960 - 1969
- 1970 - 1979
- 1980 - 1989
- 1990 - 1999
- 2000 or later

**Village Limits**

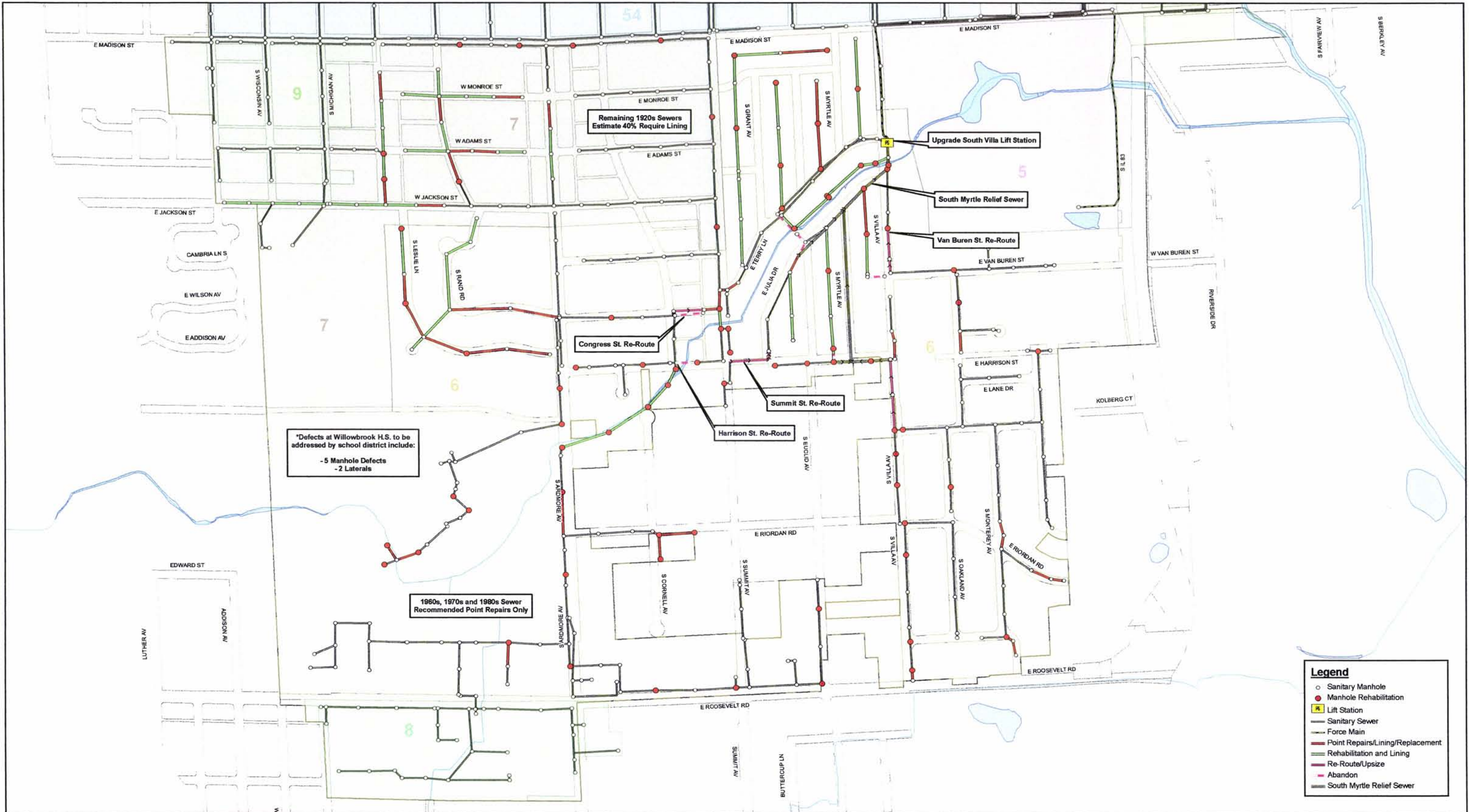


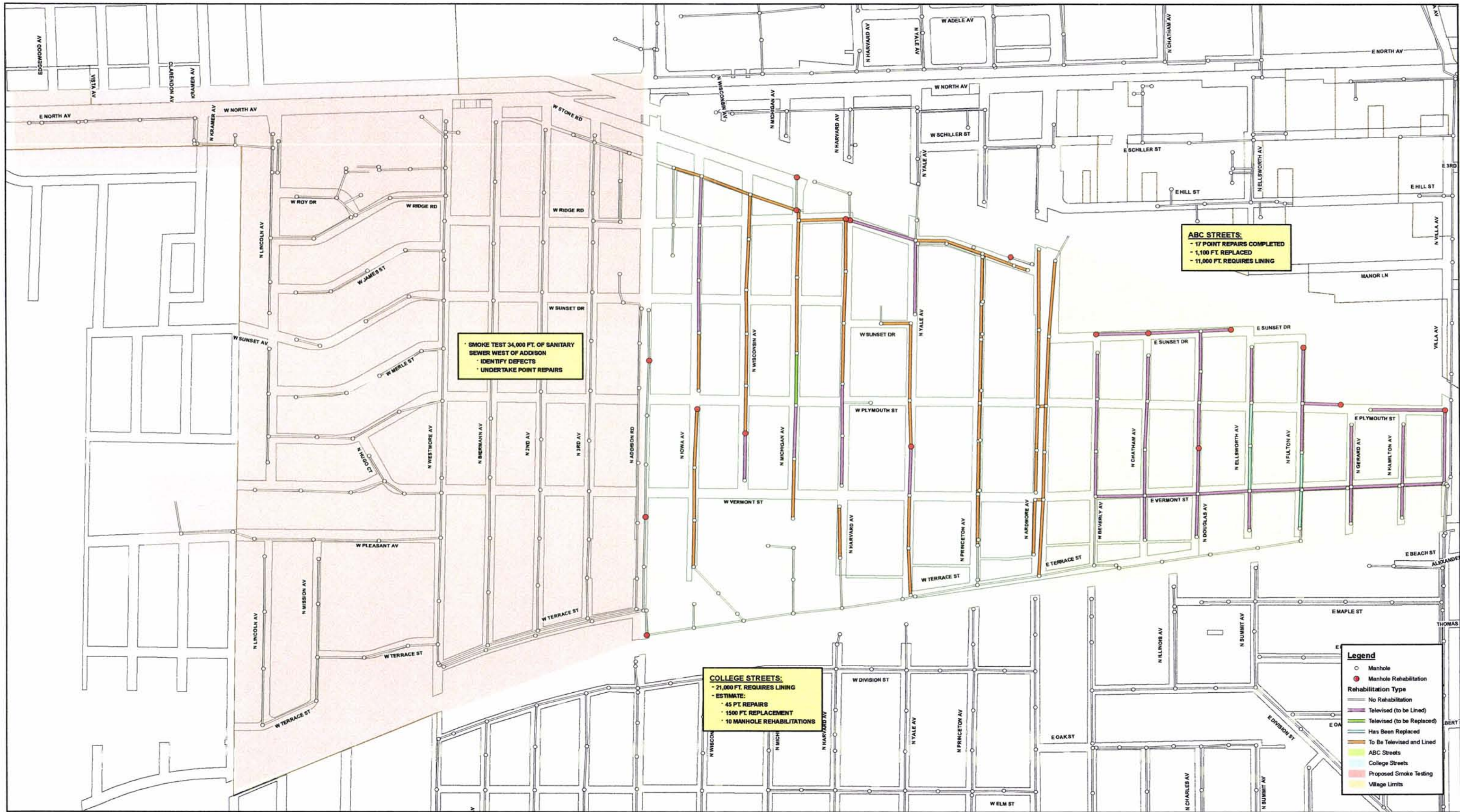
**Legend**

- Lift Station
- Force Main
- Siphon
- Sanitary Pipes**
- Pipe Material**
- Cast Iron
- Clay
- Concrete
- Plastic
- Unknown or No Record
- Village Limits**
- Village Limits









**SMOKE TEST 34,000 FT. OF SANITARY SEWER WEST OF ADDISON**  
 - IDENTIFY DEFECTS  
 - UNDERTAKE POINT REPAIRS

**ABC STREETS:**  
 - 17 POINT REPAIRS COMPLETED  
 - 1,100 FT. REPLACED  
 - 11,000 FT. REQUIRES LINING

**COLLEGE STREETS:**  
 - 21,000 FT. REQUIRES LINING  
 - ESTIMATE:  
 - 45 PT. REPAIRS  
 - 1500 FT. REPLACEMENT  
 - 10 MANHOLE REHABILITATIONS

**Legend**

- Manhole
- Manhole Rehabilitation
- Rehabilitation Type
- No Rehabilitation
- Televised (to be Lined)
- Televised (to be Replaced)
- Has Been Replaced
- To Be Televised and Lined
- ABC Streets
- College Streets
- Proposed Smoke Testing
- Village Limits





Area West of Addison Scheduled for Rehabilitation in 2014

**Legend**

- Sanitary Manhole
- Sanitary Sewer
- Recommended Phasing for Manholes**
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
- Recommended Phasing for Pipes**
- 2008
- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017

**APPENDIX B**

**SMOKE AND DYE TESTING  
DEFECT REPORT**

**rjn**group

Excellence through Ownership

## ABC Streets Defect Summary - Private Sector

<i>Project Number</i>		<i>Village of Village Park</i>			<i>Smoke Leak</i>	<i>Recommended</i>	<i>Rehabilitation</i>	<i>Inflow Rate</i>
<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Address</i>	<i>Street Name</i>	<i>Source</i>	<i>For Dyed Water</i>	<i>Work</i>	<i>(gpd)</i>	
					<i>Flooding</i>			
1-036	1-035	308	Plymouth	Foundation Drains		Connect New Storm Sump	8,640	
1-036	1-035	308	Plymouth	Cleanout		Repair Broken Cleanout	1,296	
1-036	1-035	308	Plymouth	Lateral Defects		Replace Lateral	1,440	
1-036	1-035	332	Plymouth	Lateral Defects		Replace Lateral	1,440	
1-037	1-038	437	Hamilton	Foundation Drains		Connect New Storm Sump	8,640	
1-037	1-038	437	Hamilton	Cleanout		Repair Broken Cleanout	1,296	
1-042	1-041	440	Gerard	Foundation Drains		Connect New Storm Sump	8,640	
1-042	1-041	437	Gerard	Lateral Defects		Replace Lateral	1,440	
1-043	1-045	250	Plymouth	Foundation Drains		Connect New Storm Sump	8,640	
1-043	1-045	228	Plymouth	Lateral Defects		Replace Lateral	1,440	
1-043	1-045	232	Plymouth	Lateral Defects		Replace Lateral	1,440	
1-044	1-045	220	Plymouth	Cleanout		Repair Broken Cleanout	1,296	
1-044	1-045	523	Fulton	Cleanout		Repair Broken Cleanout	1,296	
1-044	1-045	515	Fulton	Lateral Defects		Replace Lateral	1,440	
1-044	1-045	523	Fulton	Lateral Defects		Replace Lateral	1,440	
1-045	1-046	219	Plymouth	Window Well Drain		Connect New Storm Sump	720	
1-045	1-046	493	Fulton	Foundation Drains		Connect New Storm Sump	8,640	
1-045	1-046	241	Plymouth	Lateral Defects		Replace Lateral	1,440	
1-045	1-046	493	Fulton	Lateral Defects		Replace Lateral	1,440	
1-047	1-041	232	Vermont	Cleanout		Replace Cleanout Cap	1,296	
1-050	1-047	213	Vermont	Foundation Drains		Connect New Storm Sump	8,640	
1-052	1-051	441	Ellsworth	Foundation Drains		Connect New Storm Sump	8,640	
1-052	1-051	445	Ellsworth	Lateral Defects		Replace Lateral	1,440	
1-053	1-052	208	Sunset	Lateral Defects		Replace Lateral	1,440	
1-053	1-052	506	Ellsworth	Lateral Defects		Replace Lateral	1,440	
1-053	1-052	513	Ellsworth	Lateral Defects		Replace Lateral	1,440	

## ABC Streets Defect Summary - Private Sector

<i>Village of Villa Park</i>				<i>Smoke Leak</i>	<i>Recommended For Dyed Water Flooding</i>	<i>Rehabilitation Work</i>	<i>Inflow Rate (gpd)</i>
<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Address</i>	<i>Street Name</i>	<i>Source</i>			
1-053	1-052	521	Ellsworth	Cleanout		Replace Cleanout Cap	1,296
1-053	1-052	514	Ellsworth	Lateral Defects		Replace Lateral	1,440
1-053	1-052	525	Ellsworth	Lateral Defects		Replace Lateral	1,440
1-055	1-058	525	Douglas	Lateral Defects		Replace Lateral	1,440
1-056	1-055	120	Sunset	Lateral Defects		Replace Lateral	1,440
1-057	1-056	20	Sunset	Lateral Defects		Replace Lateral	1,440
1-057	1-056	22	Sunset	Lateral Defects		Replace Lateral	1,440
1-057	1-056	24	Sunset	Lateral Defects		Replace Lateral	1,440
1-058	1-059	505	Douglas	Lateral Defects		Replace Lateral	1,440
1-058	1-059	506	Douglas	Lateral Defects		Replace Lateral	1,440
1-058	1-059	513	Douglas	Lateral Defects		Replace Lateral	1,440
1-059	1-060	497	Plymouth	Foundation Drains		Connect New Storm Sump	8,640
1-059	1-060	445	Douglas	Lateral Defects		Replace Lateral	1,440
1-061	1-062	402	Douglas	Cleanout		Repair Broken Cleanout	1,296
1-069	1-070	494	Beverly	Cleanout		Repair Broken Cleanout	1,296
1-083	1-078	550	Ardmore	Stairwell Drain		Inconclusive	14,400

## College Streets Defect Summary - Private Sector

<i>Project Number</i>		<i>Village of Villa Park</i>			<i>Recommended</i>		<i>Inflow Rate</i>
<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Address</i>	<i>Street Name</i>	<i>Smoke Leak Source</i>	<i>For Dyed Water Flooding</i>	<i>Rehabilitation Work</i>	<i>(gpd)</i>
1-085	1-086	6	Ridge	Lateral Defects		Replace Lateral	1,440
1-106	1-107	543	Harvard	Cleanout		Repair Broken Cleanout	1,296
1-107	1-108	546	Harvard	Foundation Drains		Connect New Storm Sump	8,640
1-108	1-109	642	Harvard	Cleanout		Repair Broken Cleanout	1,296
1-137	1-136	611	Michigan	Cleanout		Repair Broken Cleanout	1,296
1-137	1-136	614	Michigan	Cleanout		Repair Broken Cleanout	1,296
1-137	1-136	605	Michigan	Lateral Defects		Replace Lateral	1,440
1-137	1-136	614	Michigan	Lateral Defects		Replace Lateral	1,440
1-139	1-138	505	Michigan	Cleanout		Repair Broken Cleanout	1,296
1-142	1-143	508	Wisconsin	Foundation Drains		Connect New Storm Sump	8,640
1-145	1-146	618	Wisconsin	Foundation Drains		Connect New Storm Sump	8,640
1-145	1-146	622	Wisconsin	Cleanout		Repair Broken Cleanout	1,296
1-147	1-212	228	Ridge	Cleanout		Replace Cleanout Cap	1,296
1-153	1-154	633	Addison	Cleanout		Repair Broken Cleanout	1,296
1-208	1-091	6	Ridge	Lateral Defects		Replace Lateral	1,440
1-208	1-091	620	Ridge	Lateral Defects		Replace Lateral	1,440
1-208	1-091	431	Ridge	Lateral Defects		Replace Lateral	1,440
1-303	1-304	431	Yale	Foundation Drains		Connect New Storm Sump	8,640
1-303	1-304	431	Yale	Lateral Defects		Replace Lateral	1,440
1-304	1-305	415	Yale	Lateral Defects		Replace Lateral	1,440
3-015	3-014	433	Addison	Lateral Defects		Replace Lateral	1,440
3-157	3-156	255	Vermont	Cleanout		Replace Cleanout Cap	1,296

## South Villa Basin Defect Summary - Private Sector

<i>Project Number</i>		<i>Village of Villa Park</i>			<i>Smoke Leak</i>	<i>Recommended</i>	<i>Rehabilitation</i>	<i>Inflow Rate</i>
<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Address</i>	<i>Street Name</i>	<i>Source</i>	<i>For Dyed Water</i>	<i>Work</i>	<i>(gpd)</i>	
					<i>Flooding</i>			
6-010	6-009	289	Terry	Foundation Drains		Connect New Storm Sump	4,320	
6-012	6-011	834	Villa	Foundation Drains		Connect New Storm Sump	4,320	
6-012	6-011	834	Villa	Area Drain	Yes	Remove to Storm Sewer	14,400	
6-012	6-011	901	Myrtle	Area Drain	Yes	Remove to Storm Sewer	14,400	
6-013	6-012	827	Myrtle	Foundation Drains		Connect New Storm Sump	4,320	
6-013	6-012	827	Myrtle	Window Well Drain		Connect New Storm Sump	720	
6-013	6-012	829	Myrtle	Window Well Drain		Connect New Storm Sump	720	
6-013	6-012	831	Myrtle	Window Well Drain		Connect New Storm Sump	720	
6-014	6-015	827	Monroe	Downspout	confirmed	Disconnect	27,000	
6-014	6-015	827	Monroe	Lateral Defects		Replace Lateral	1,440	
6-017	6-016	908	Euclid	Window Well Drain		Connect New Storm Sump	720	
6-017	6-016	924	Euclid	Foundation Drains		Connect New Storm Sump	4,320	
6-017	6-016	904	Euclid	Stairwell Drain	Yes	Remove to Storm Sewer	14,400	
6-017	6-016	908	Euclid	Lateral Defects		Replace Lateral	1,440	
6-018	6-017	826	Monroe	Lateral Defects		Replace Lateral	1,440	
6-019	6-020	241	Madison	Area Drain	Yes	Confirm not connected to stor	14,400	
6-019	6-020	254	Monroe	Foundation Drains		Connect New Storm Sump	4,320	
6-019	6-020	260	Monroe	Foundation Drains		Connect New Storm Sump	4,320	
6-019	6-020	264	Monroe	Lateral Defects		Replace Lateral	1,440	
6-019	6-020	264	Monroe	Lateral Defects		Replace Lateral	1,440	
6-023	6-024	909	Summit	Lateral Defects		Replace Lateral	1,440	
6-025	6-034	1035	Summit	Lateral Defects		Replace Lateral	1,440	
6-036	6-181	1040	Summit	Cleanout		Repair Broken Cleanout	1,296	
6-050	6-148	241	Harrison	Foundation Drains		Connect New Storm Sump	4,320	
6-050	6-148	229	Harrison	Lateral Defects		Replace Lateral	1,440	
6-050	6-148	241	Harrison	Lateral Defects		Replace Lateral	1,440	
6-051	6-069	1144	Myrtle	Lateral Defects		Replace Lateral	1,440	
6-064	6-065	1015	Myrtle	Lateral Defects		Replace Lateral	1,440	

## South Villa Basin Defect Summary - Private Sector

<i>Project Number</i>		<i>Village of Villa Park</i>			<i>Recommended</i>		<i>Inflow Rate</i>
<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Address</i>	<i>Street Name</i>	<i>Smoke Leak Source</i>	<i>For Dyed Water Flooding</i>	<i>Rehabilitation Work</i>	<i>(gpd)</i>
6-075	6-076	246	Julia	Cleanout		Repair Broken Cleanout	1,296
6-082	6-081	50	Harrison	Lateral Defects		Replace Lateral	1,440
6-083	6-084	201	Orchard Hill	Area Drain	Yes	Remove to Storm Sewer	14,400
6-083	6-084	205	Orchard Hill	Area Drain	Yes	Remove to Storm Sewer	14,400
6-086	6-085	14	Harrison	Lateral Defects		Replace Lateral	1,440
6-086	6-085	26	Harrison	Lateral Defects		Replace Lateral	1,440
6-089	6-090	129	Ardmore	Lateral Defects		Replace Lateral	1,440
6-089	6-090	137	Ardmore	Lateral Defects		Replace Lateral	1,440
6-092	6-107	1055	Ardmore	Cleanout		Repair Broken Cleanout	1,296
6-094	6-093	7	Jackson	Foundation Drains		Connect New Storm Sump	4,320
6-094	6-093	7	Jackson	Lateral Defects		Replace Lateral	1,440
6-096	6-097	1041	Rand	Foundation Drains		Connect New Storm Sump	4,320
6-097	6-106	37	Rand	Foundation Drains		Connect New Storm Sump	4,320
6-097	6-106	42	Rand	Foundation Drains		Connect New Storm Sump	4,320
6-097	6-106	32	Rand	Area Drain - Indirect		TV and Line sewer	1,872
6-097	6-106	42	Rand	Area Drain - Indirect		TV and Line sewer	1,872
6-100	6-099	1050	Leslie	Window Well Drain		Connect New Storm Sump	720
6-102	6-098	317	Willowcrest	Foundation Drains		Connect New Storm Sump	4,320
6-102	6-098	317	Willowcrest	Lateral Defects		Replace Lateral	1,440
6-103	6-098	113	Leslie	Foundation Drains		Connect New Storm Sump	4,320
6-103	6-098	113	Leslie	Area Drain - Indirect		TV and Line sewer	1,872
6-103	6-098	120	Leslie	Area Drain - Indirect		TV and Line sewer	1,872
6-104	6-103	36	Leslie	Area Drain - Indirect		TV and Line sewer	1,872
6-104	6-103	53	Leslie	Area Drain - Indirect		TV and Line sewer	1,872
6-105	6-104	17	Leslie	Window Well Drain		Connect New Storm Sump	720
6-105	6-104	32	Leslie	Lateral Defects		Replace Lateral	1,440
6-106	6-107	17	Rand	Foundation Drains		Connect New Storm Sump	4,320
6-126	6-125	2	Roosevelt	Lateral Defects		Replace Lateral	1,440
6-144	6-183	226	Roosevelt	Lateral Defects		Replace Lateral	1,440

## South Villa Basin Defect Summary - Private Sector

<i>Project Number</i>		<i>Village of Villa Park</i>			<i>Recommended</i>		<i>Inflow Rate</i>
<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Address</i>	<i>Street Name</i>	<i>Smoke Leak</i>	<i>For Dyed Water</i>	<i>Rehabilitation</i>	<i>(gpd)</i>
				<i>Source</i>	<i>Flooding</i>	<i>Work</i>	
6-182	6-058	615	Van Buren	Foundation Drains		Connect New Storm Sump	4,320
6-200	6-060	435	Van Buren	Cleanout		Repair Broken Cleanout	1,296
6-202	6-200	455	Van Buren	Cleanout		Repair Broken Cleanout	1,296
6-202	6-200	1049	Oakland	Lateral Defects		Replace Lateral	1,440
6-205	6-203	511	Calduto	Cleanout		Repair Broken Cleanout	1,296
6-205	6-203	519	Calduto	Cleanout		Repair Broken Cleanout	1,296
6-205	6-203	523	Calduto	Lateral Defects		Replace Lateral	1,440
6-206	6-203	1120	Oakland	Cleanout		Repair Broken Cleanout	1,296
6-207	6-208	580	Harrison	Cleanout		Repair Broken Cleanout	1,296
6-208	6-210	1215	Wayside	Foundation Drains		Connect New Storm Sump	4,320
6-215	6-213	1400	Wayside	Lateral Defects		Replace Lateral	1,440
6-225	6-224	560	Kolberg	Cleanout		Repair Broken Cleanout	1,296
6-226	6-224	1315	Kolberg	Cleanout		Repair Broken Cleanout	1,296
6-226	6-224	1315	Monterey	Cleanout		Repair Broken Cleanout	1,296
6-226	6-224	1325	Monterey	Cleanout		Replace Cleanout Cap	1,296
6-228	6-227	1365	Monterey	Foundation Drains		Connect New Storm Sump	4,320
6-232	6-231	1340	Oakland	Cleanout		Repair Broken Cleanout	1,296
6-233	6-235	1510	Oakland	Cleanout		Replace Cleanout Cap	1,296
6-244	6-242	119	Riordan	Lateral Defects		Replace Lateral	1,440
6-244	6-242	1401	Cornell	Lateral Defects		Replace Lateral	1,440
6-901	6-908	1125	Villa	Foundation Drains		Connect New Storm Sump	4,320
6-908	6-171	1201	Villa	Lateral Defects		Replace Lateral	1,440
6-911	6-932	1500	Villa	Cleanout		Replace Cleanout Cap	1,296
6-922	6-900	1019	Villa	Cleanout		Repair Broken Cleanout	1,296
6-927	6-088	1231	Ardmore	Lateral Defects		Replace Lateral	1,440

## South Villa Basin Defect Summary - Private Sector

<i>Project Number</i>		<i>Village of Villa Park</i>			<i>Smoke Leak</i>	<i>Recommended For Dyed Water Flooding</i>	<i>Rehabilitation Work</i>	<i>Inflow Rate (gpd)</i>
<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Address</i>	<i>Street Name</i>		<i>Source</i>			
7-005	7-004	24	Jackson	Cleanout			Repair Broken Cleanout	1,296
7-005	7-004	24	Jackson	Lateral Defects			Replace Lateral	1,440
7-010	7-011	101	Adams	Cleanout			Replace Cleanout Cap	1,296
7-010	7-011	110	Adams	Cleanout			Replace Cleanout Cap	1,296
7-016	7-015	134	Monroe	Disconnected Downspout			Install Cap	1,296
7-018	7-017	115	Monroe	Disconnected Downspout			Install Cap	1,296
7-020	7-019	24	Monroe	Cleanout			Repair Broken Cleanout	1,296
7-020	7-019	836	Cornell	Cleanout			Repair Broken Cleanout	1,296
7-020	7-019	19	Monroe	Lateral Defects			Replace Lateral	1,440
7-021	7-015	146	Monroe	Lateral Defects			Replace Lateral	1,440
7-024	7-023	125	Madison	Lateral Defects			Replace Lateral	1,440
7-025	7-024	113	Madison	Disconnected Downspout			Install Cap	1,296
7-026	7-025	141	Madison	Lateral Defects			Replace Lateral	1,440
7-035	7-034	127	Madison	Lateral Defects			Replace Lateral	1,440
7-036	7-037	130	Monroe	Downspout		confirmed	Disconnect	27,000
7-036	7-037	131	Monroe	Disconnected Downspout			Install Cap	1,296
7-036	7-037	135	Monroe	Cleanout			Repair Broken Cleanout	1,296
7-038	7-037	102	Monroe	Cleanout			Repair Broken Cleanout	1,296
7-039	7-038	34	Monroe	Foundation Drains			Connect New Storm Sump	4,320
7-039	7-038	43	Monroe	Cleanout			Replace Cleanout Cap	1,296
7-041	7-043	901	Yale	Foundation Drains			Connect New Storm Sump	4,320
7-041	7-043	903	Yale	Foundation Drains			Connect New Storm Sump	4,320
7-044	7-043	905	Yale	Foundation Drains			Connect New Storm Sump	4,320
7-045	7-044	41	Adams	Disconnected Downspout			Install Cap	1,296

## South Villa Basin Defect Summary - Private Sector

<i>Project Number</i>		<i>Village of Villa Park</i>			<i>Recommended</i>		<i>Inflow Rate</i>
<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Address</i>	<i>Street Name</i>	<i>Smoke Leak Source</i>	<i>For Dyed Water Flooding</i>	<i>Rehabilitation Work</i>	<i>(gpd)</i>
7-046	7-045	18	Adams	Foundation Drains		Connect New Storm Sump	4,320
7-046	7-045	18	Adams	Cleanout		Repair Broken Cleanout	1,296
7-048	7-049	906	Ardmore	Lateral Defects		Replace Lateral	1,440
7-048	7-049	910	Ardmore	Lateral Defects		Replace Lateral	1,440
7-049	7-050	932	Ardmore	Foundation Drains		Connect New Storm Sump	4,320
7-049	7-050	932	Ardmore	Lateral Defects		Replace Lateral	1,440
7-050	7-051	936	Ardmore	Cleanout		Repair Broken Cleanout	1,296
7-054	7-053	42	Jackson	Cleanout		Repair Broken Cleanout	1,296
7-057	7-056	128	Jackson	Foundation Drains		Connect New Storm Sump	4,320
7-057	7-056	123	Jackson	Foundation Drains		Connect New Storm Sump	4,320
7-057	7-056	123	Jackson	Area Drain - Indirect Cross Connection		TV and Line	1,872
7-058	7-057	140	Jackson	Foundation Drains		Connect New Storm Sump	4,320
7-058	7-057	130	Jackson	Lateral Defects		Replace Lateral	1,440
7-060	7-059	919	Harvard	Lateral Defects		Replace Lateral	1,440
7-062	7-060	206	Adams	Foundation Drains		Connect New Storm Sump	4,320
7-062	7-060	206	Adams	Disconnected Downspout		Install Cap	1,296
7-062	7-060	201	Adams	Cleanout		Repair Broken Cleanout	1,296
7-065	7-064	826	Harvard	Foundation Drains		Connect New Storm Sump	4,320
7-065	7-064	833	Monroe	Disconnected Downspout		Install Cap	1,296
7-065	7-064	826	Harvard	Cleanout		Repair Broken Cleanout	1,296
7-065	7-064	833	Monroe	Cleanout		Repair Broken Cleanout	1,296
7-065	7-064	824	Harvard	Lateral Defects		Replace Lateral	1,440
7-066	7-058	944	Harvard	Cleanout		Repair Broken Cleanout	1,296
7-069	7-068	310	Jackson	Lateral Defects		Replace Lateral	1,440
7-074	7-062	227	Adams	Foundation Drains		Connect New Storm Sump	4,320

## Basin 9 Defect Summary - Combined Area Private Sector

<i>Project Number</i>		<i>Village of Villa Park</i>			<i>Smoke Leak</i>	<i>Recommended</i>	<i>Rehabilitation</i>	<i>Inflow Rate</i>
<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Address</i>	<i>Street Name</i>		<i>Source</i>	<i>For Dyed Water</i>	<i>Work</i>	<i>(gpd)</i>
						<i>Flooding</i>		
9-004	9-001	219	Madison		Lateral Defects		Replace Lateral	1,440
9-004	9-001	219	Madison		Lateral Defects		Replace Lateral	1,440
9-004	9-001	223	Madison		Lateral Defects		Replace Lateral	1,440
9-005	9-004	205	Madison		Foundation Drains		Connect New Storm Sump	4,320
9-005	9-004	213	Madison		Foundation Drains		Connect New Storm Sump	4,320
9-005	9-004	213	Madison		Cleanout		Repair Broken Cleanout	1,296
9-008	9-007	850	Michigan		Lateral Defects		Replace Lateral	1,440
9-010	9-009	242	Adams		Foundation Drains		Connect New Storm Sump	4,320
9-010	9-009	239	Adams		Disconnected Downspout		Install Cap	1,296
9-010	9-009	239	Adams		Disconnected Downspout		Install Cap	1,296
9-010	9-009	235	Adams		Lateral Defects		Replace Lateral	1,440
9-011	9-010	306	Adams		Foundation Drains		Connect New Storm Sump	4,320
9-011	9-010	243	Adams		Disconnected Downspout		Install Cap	1,296
9-014	9-013	331	Adams		Lateral Defects		Replace Lateral	1,440
9-014	9-013	332	Adams		Lateral Defects		Replace Lateral	1,440
9-014	9-013	344	Adams		Lateral Defects		Replace Lateral	1,440
9-027	9-026	301	Jackson		Lateral Defects		Replace Lateral	1,440

# ABC Streets Defect Summary - Public Sector

*Village of Villa Park*

<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Street Name</i>	<i>Smoke Leak Source</i>	<i>Rehabilitation Work</i>
1-035		VILLA	Manhole Defects	Inspect and Rehabilitation
1-043		PLYMOUTH	Manhole Defects	Inspect and Rehabilitation
1-043	1-045	PLYMOUTH	Main Line Defect	TV and Line or Replace
1-044		FULTON	Manhole Defects	Inspect and Rehabilitation
1-054		SUNSET	Manhole Wall Root Intrusion	Inspect and Rehabilitation
1-056		SUNSET	Manhole Defects	Inspect and Rehabilitation
1-057		SUNSET	Manhole Defects	Inspect and Rehabilitation
1-060		DOUGLAS	Manhole Defects	Inspect and Rehabilitation

# College Streets Defect Summary - Public Sector

*Village of Villa Park*

<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Street Name</i>	<i>Smoke Leak Source</i>	<i>Rehabilitation Work</i>
1-085	1-086	RIDGE	Main Line Defect	TV and Line or Replace
1-086		RIDGE	Manhole Defects	Inspect and Rehabilitation
1-099	1-098	TERRACE	Catch Basin	TV and Line or Replace
1-104	1-106	HARVARD	Main Line Defect	TV and Line or Replace
1-109		RIDGE	Manhole Defects	Inspect and Rehabilitation
1-110		MICHIGAN	Manhole Defects	Inspect and Rehabilitation
1-110	1-212	MICHIGAN	Main Line Defect	TV and Line or Replace
1-113		RIDGE	Manhole Defects	Inspect and Rehabilitation
1-114	1-115	YALE	Catch Basin	TV and Line or Replace
1-142		WISCONSIN	Manhole Defects	Inspect and Rehabilitation
1-148	1-147	Ridge	Catch Basin	Disconnect
1-212		MICHIGAN	Manhole Defects	Inspect and Rehabilitation
1-303		YALE	Manhole Defects	Inspect and Rehabilitation
1-303	1-304	YALE	Main Line Defect	TV and Line or Replace
1-900	1-115	YALE	Catch Basin	TV and Line or Replace
3-008	3-007	IOWA	Main Line Defect	TV and Line or Replace
3-009		IOWA	Manhole Defects	Inspect and Rehabilitation
3-014		ADDISON	Manhole Defects	Inspect and Rehabilitation
3-017		ADDISON	Manhole Defects	Inspect and Rehabilitation
3-018	3-017	ADDISON	Main Line Defect	TV and Line or Replace
3-156	3-155	Jefferson School	Catch Basin	TV and Line or Replace
3-160		TERRACE	Manhole Defects	Inspect and Rehabilitation

## South Villa Defect Summary - Public Sector

### Village of Villa Park

<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Street Name</i>	<i>Smoke Leak Source</i>	<i>Rehabilitation Work</i>
6-008		TERRY	Manhole Defects	Inspect and Rehabilitation
6-009		TERRY	Manhole Defects	Inspect and Rehabilitation
6-012		MYRTLE	Manhole Defects	Inspect and Rehabilitation
6-014	6-015	EUCLID	Main Line Defect	TV and Line or Replace
6-015		EUCLID	Manhole Defects	Inspect and Rehabilitation
6-015	6-009	EUCLID	Main Line Defect	TV and Line or Replace
6-016		EUCLID	Manhole Defects	Inspect and Rehabilitation
6-018		EUCLID	Manhole Defects	Inspect and Rehabilitation
6-019	6-020	NO STREET	Main Line Defect	TV and Line or Replace
6-019		NO STREET	Manhole Defects	Inspect and Rehabilitation
6-021		MONROE	Manhole Defects	Inspect and Rehabilitation
6-023		GRANT	Manhole Defects	Inspect and Rehabilitation
6-047		SUMMIT	Manhole Defects	Inspect and Rehabilitation
6-048		SUMMIT	Manhole Defects	Inspect and Rehabilitation
6-050		HARRISON	Manhole Defects	Inspect and Rehabilitation
6-051		HARRISON	Manhole Defects	Inspect and Rehabilitation
6-052		HARRISON	Manhole Defects	Inspect and Rehabilitation
6-055		VILLA	Manhole Defects	Inspect and Rehabilitation
6-056		VILLA	Manhole Defects	Inspect and Rehabilitation
6-057		VILLA	Manhole Wall Root Intrusion	Inspect and Rehabilitation
6-064	6-065	VILLA	Main Line Defect	TV and Line or Replace
6-064		VILLA	Manhole Defects	Inspect and Rehabilitation
6-064	6-065	VILLA	Catch Basin Indirect	TV and Line or Replace
6-065		JULIE	Manhole Defects	Inspect and Rehabilitation
6-065	6-066	JULIE	Catch Basin Indirect	Being Replaced
6-067		MYRTLE	Manhole Defects	Inspect and Rehabilitation
6-067	6-066	MYRTLE	Catch Basin Indirect	TV and Line or Replace
6-069		MYRTLE	Manhole Defects	Inspect and Rehabilitation
6-074	6-075	JULIE	Main Line Defect	Part Being Replaced
6-075	6-076	CROSS	Catch Basin Indirect	Being Abandoned
6-080		HARRISON	Manhole Defects	Inspect and Rehabilitation
6-082		HARRISON	Manhole Defects	Inspect and Rehabilitation
6-087		HARRISON	Manhole Defects	Inspect and Rehabilitation
6-088		ARDMORE	Manhole Defects	Inspect and Rehabilitation

# South Villa Defect Summary - Public Sector

## Village of Villa Park

<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Street Name</i>	<i>Smoke Leak Source</i>	<i>Rehabilitation Work</i>
6-097	6-106	RAND	Area Drain - Indirect	TV and Line or Replace
6-097	6-106	RAND	Area Drain - Indirect	TV and Line or Replace
6-099	6-098	LESLIE	Area Drain - Indirect	TV and Line or Replace
6-099		LESLIE	Manhole Defects	Inspect and Rehabilitation
6-100	6-099	LESLIE	Main Line Defect	TV and Line or Replace
			Catch Basin Indirect	TV and Line or Replace
6-101		LESLIE	Manhole Defects	Inspect and Rehabilitation
6-103		LESLIE	Manhole Defects	Inspect and Rehabilitation
6-103	6-098	LESLIE	Area Drain - Indirect	TV and Line or Replace
6-104	6-103	LESLIE	Area Drain - Indirect	TV and Line or Replace
6-105	6-104	LESLIE	Area Drain - Indirect	TV and Line or Replace
6-106	6-107	RAND	Area Drain - Indirect	TV and Line or Replace
6-108		CONGRESS	Manhole Defects	Inspect and Rehabilitation
6-116		CORNELL	Hydrogen Sulfide Corrosion	Inspect and Rehabilitation
6-118		ARDMORE	Manhole Defects	Inspect and Rehabilitation
6-120		ARDMORE	Manhole Defects	Inspect and Rehabilitation
6-131	6-132	ROOSEVELT	Catch Basin Indirect	TV and Line or Replace
6-132		NO STREET	Manhole Defects	Inspect and Rehabilitation
6-140		ARDMORE	Manhole Wall Root Intrusion	Inspect and Rehabilitation
6-146	6-149	CONGRESS	Catch Basin Indirect	TV and Line or Replace
6-148		HARRISON	Manhole Defects	Inspect and Rehabilitation
6-149	6-181	SUMMIT	Main Line Defect	TV and Line or Replace
6-149		SUMMIT	Manhole Defects	Inspect and Rehabilitation
6-181	6-029	SUMMIT	Catch Basin Indirect	TV and Line or Replace
6-184		ARDMORE	Manhole Defects	Inspect and Rehabilitation
6-200		VAN BUREN	Manhole Defects	Inspect and Rehabilitation
6-202		OAKLAND	Manhole Defects	Inspect and Rehabilitation
6-206	6-203	OAKLAND	Catch Basin Indirect	TV and Line or Replace
6-208		WAYSIDE	Manhole Defects	Inspect and Rehabilitation
6-223		KOLBERG	Manhole Defects	Inspect and Rehabilitation
6-231		OAKLAND	Manhole Defects	Inspect and Rehabilitation
6-238	6-120	ARDMORE	Main Line Defect	TV and Line or Replace
6-242		RIORDAN	Manhole Defects	Inspect and Rehabilitation
6-242	6-241	RIORDAN	Catch Basin Indirect	TV and Line or Replace
6-243	6-242	CORNELL	Main Line Defect	TV and Line or Replace
6-243		CORNELL	Manhole Defects	Inspect and Rehabilitation
6-243	6-242	CORNELL	Catch Basin Indirect	TV and Line or Replace

## South Villa Defect Summary - Public Sector

### *Village of Villa Park*

<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Street Name</i>	<i>Smoke Leak Source</i>	<i>Rehabilitation Work</i>
6-244	6-242	RIORDAN	Main Line Defect	TV and Line or Replace
6-244		RIORDAN	Manhole Defects	Inspect and Rehabilitation
6-244	6-242	RIORDAN	Catch Basin Indirect	TV and Line or Replace
6-400	6-228	MONTEREY	Main Line Defect	TV and Line or Replace
6-403	6-401	RIORDAN	Catch Basin Indirect	TV and Line or Replace
6-406		MONTEREY	Manhole Defects	Inspect and Rehabilitation
6-408	6-406	MONTEREY	Main Line Defect	TV and Line or Replace
6-905		ROOSEVELT	Manhole Defects	Inspect and Rehabilitation
6-907		ROOSEVELT	Manhole Defects	Inspect and Rehabilitation
6-908	6-171	VILLA	Catch Basin Indirect	TV and Line or Replace
6-911		VILLA	Manhole Defects	Inspect and Rehabilitation
6-914		RIORDAN	Manhole Defects	Inspect and Rehabilitation
6-918		ROOSEVELT	Manhole Defects	Inspect and Rehabilitation
6-921		EUCLID	Manhole Defects	Inspect and Rehabilitation
6-923		SUMMIT	Manhole Defects	Inspect and Rehabilitation
6-926		VILLA	Manhole Defects	Inspect and Rehabilitation
6-927		ARDMORE	Manhole Defects	Inspect and Rehabilitation
6-930		VILLA	Manhole Defects	Inspect and Rehabilitation
6-931	6-930	VILLA	Catch Basin Indirect	TV and Line or Replace
6-932		VILLA	Manhole Defects	Inspect and Rehabilitation
6-937		VILLA	Manhole Defects	Inspect and Rehabilitation

# South Villa Defect Summary - Public Sector

*Village of Villa Park*

<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Street Name</i>	<i>Smoke Leak Source</i>	<i>Rehabilitation Work</i>
7-001		SUMMIT	Manhole Defects	Inspect and Rehabilitation
7-014		SUMMIT	Manhole Defects	Inspect and Rehabilitation
7-024		MADISON	Manhole Defects	Inspect and Rehabilitation
7-027		MADISON	Manhole Defects	Inspect and Rehabilitation
7-033		MADISON	Manhole Defects	Inspect and Rehabilitation
7-037	7-041	YALE	Catch Basin (3)	Disconnect & TV and Line
7-040	7-039	MONROE	Catch Basin	TV and Line or replace
7-043	7-055	YALE	Catch Basin	TV and Line or replace
7-044	7-043	ADAMS	Main Line Defect	TV and Line or Replace
7-045	7-044	ADAMS	Main Line Defect	TV and Line or Replace
7-047	7-048	ARDMORE	Catch Basin	TV and Line or replace
7-055		YALE	Manhole Defects	Inspect and Rehabilitation
7-057	7-056	JACKSON	Area Drain - Indirect	TV and Line or Replace
7-059	7-058	HARVARD	Main Line Defect	TV and Line or Replace
7-059		HARVARD	Manhole Defects	Inspect and Rehabilitation
7-060		HARVARD	Manhole Defects	Inspect and Rehabilitation
7-065	7-064	HARVARD	Catch Basin	Disconnect or TV and Line
7-071		MADISON	Manhole Defects	Inspect and Rehabilitation

## Basin 9 Defect Summary - Public Sector

*Village of Villa Park*

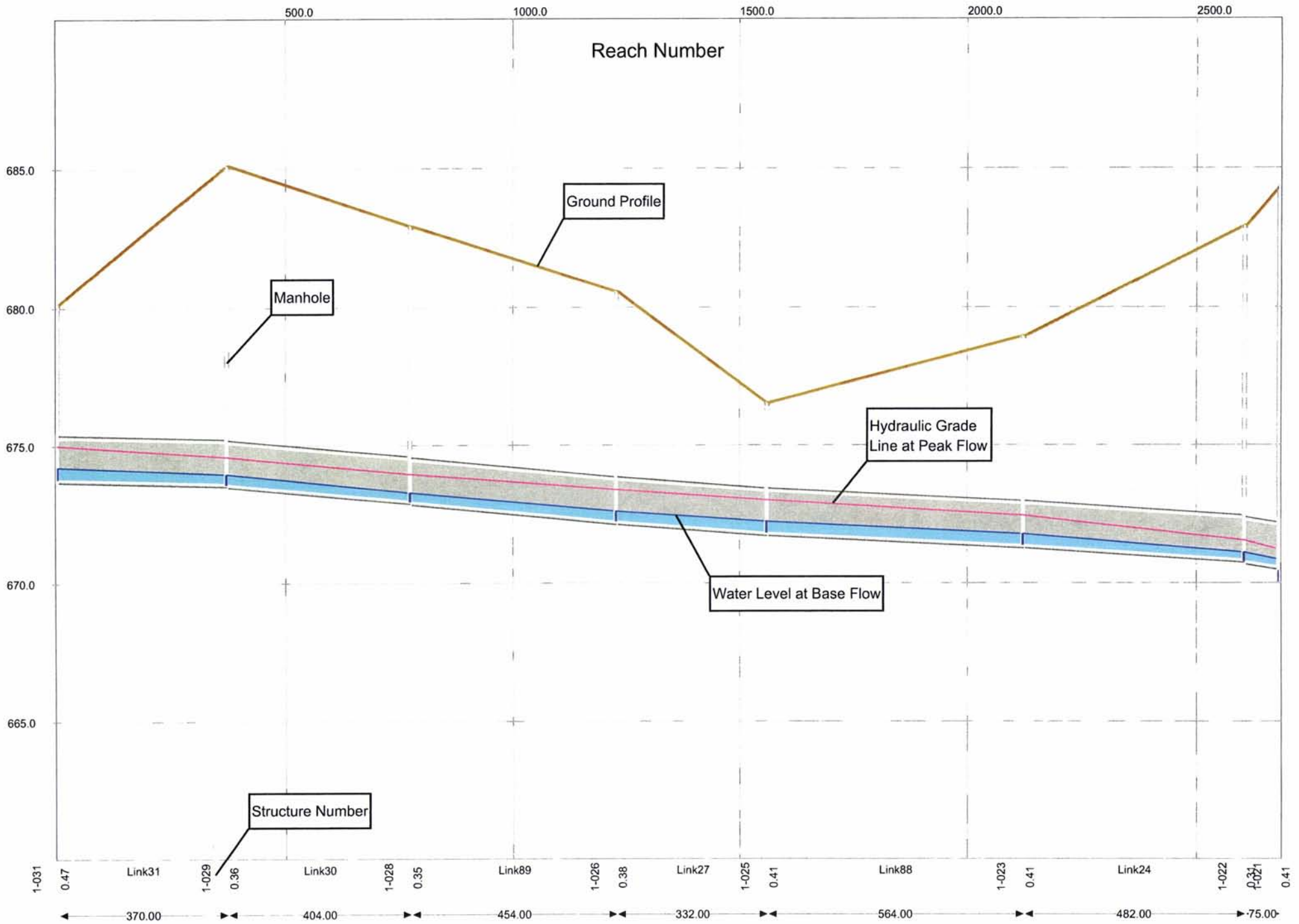
<i>Upstream MH</i>	<i>Downstream MH</i>	<i>Street Name</i>	<i>Smoke Leak Source</i>	<i>Rehabilitation Work</i>
9-004	9-001	MADISON	Main Line Defect	TV and Line or Replace
9-008	9-007	MICHIGAN	Main Line Defect	TV and Line or Replace
9-008		MICHIGAN	Manhole Defects	Inspect and Rehabilitation
9-009	9-008	MICHIGAN	Main Line Defect	TV and Line or Replace
9-009	9-008	MICHIGAN	Catch Basin	Combined Area
9-012	9-011	WISCONSIN	Main Line Defect	TV and Line or Replace
9-026	9-009	MICHIGAN	Main Line Defect	TV and Line or Replace
9-026	9-009	MICHIGAN	Catch Basin	Combined Area
9-027	9-026	MICHIGAN	Catch Basin	Combined Area

APPENDIX C

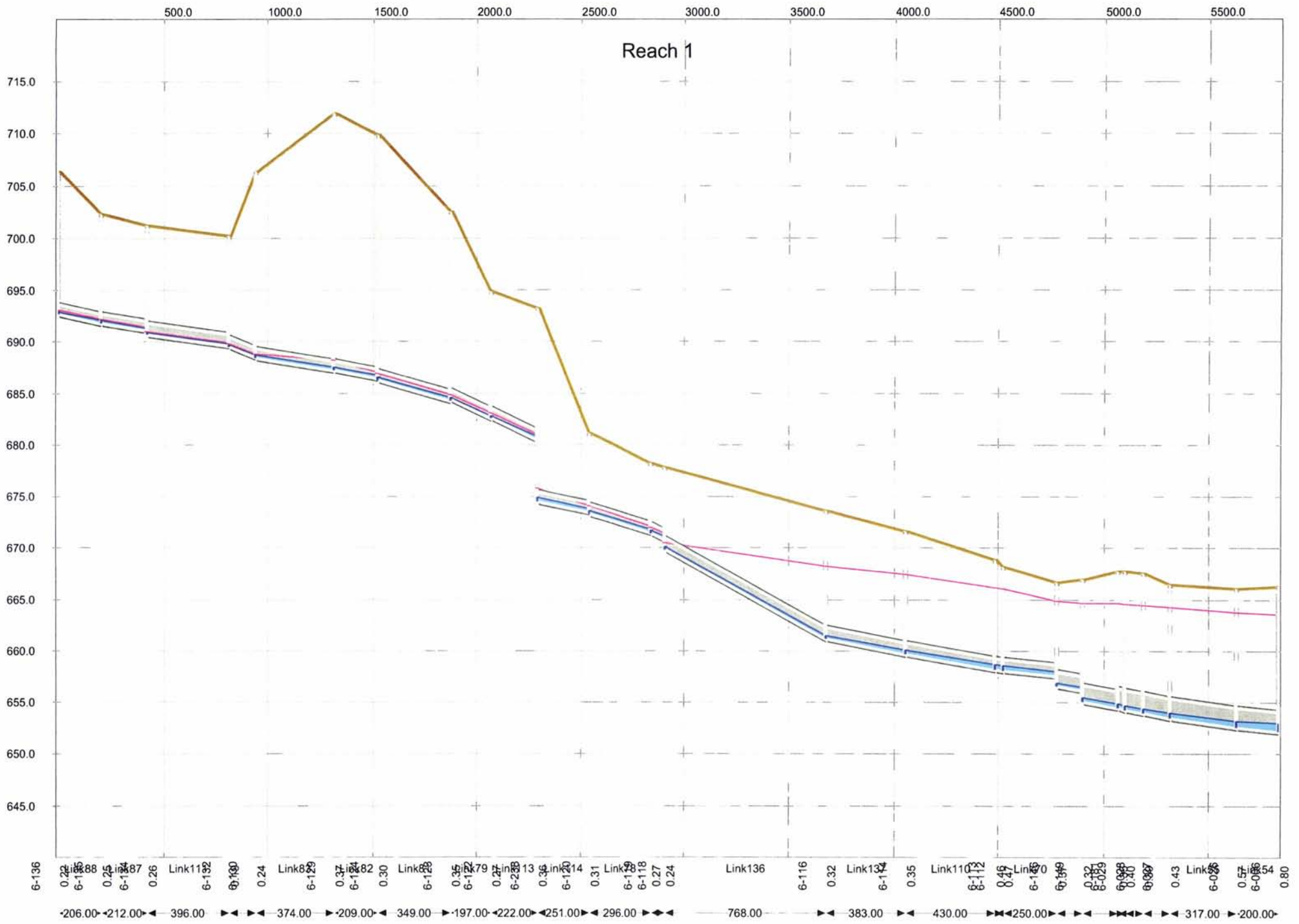
SKELETAL MODEL  
HYDRAULIC PROFILES

**rjn**group

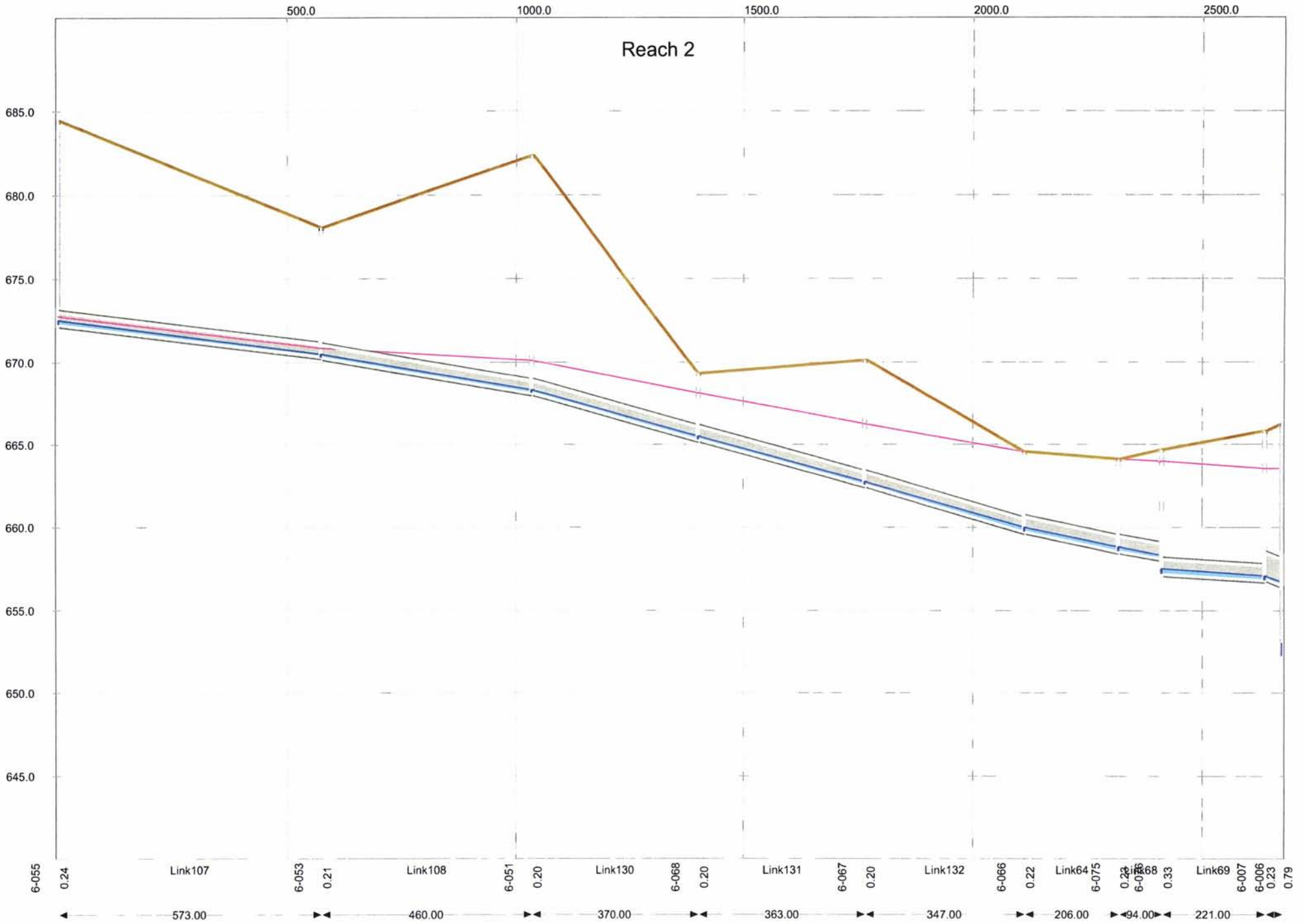
Excellence through Ownership



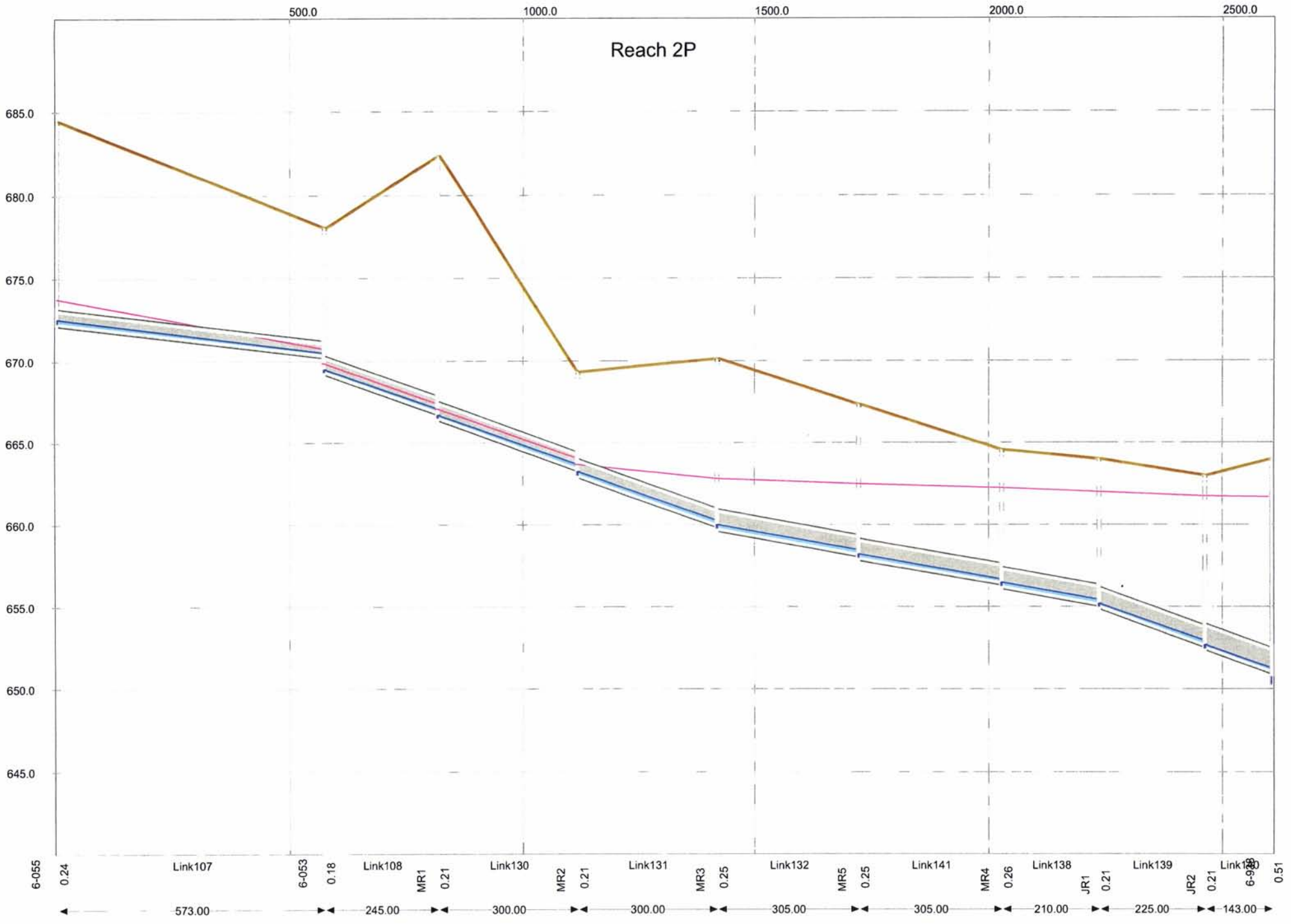
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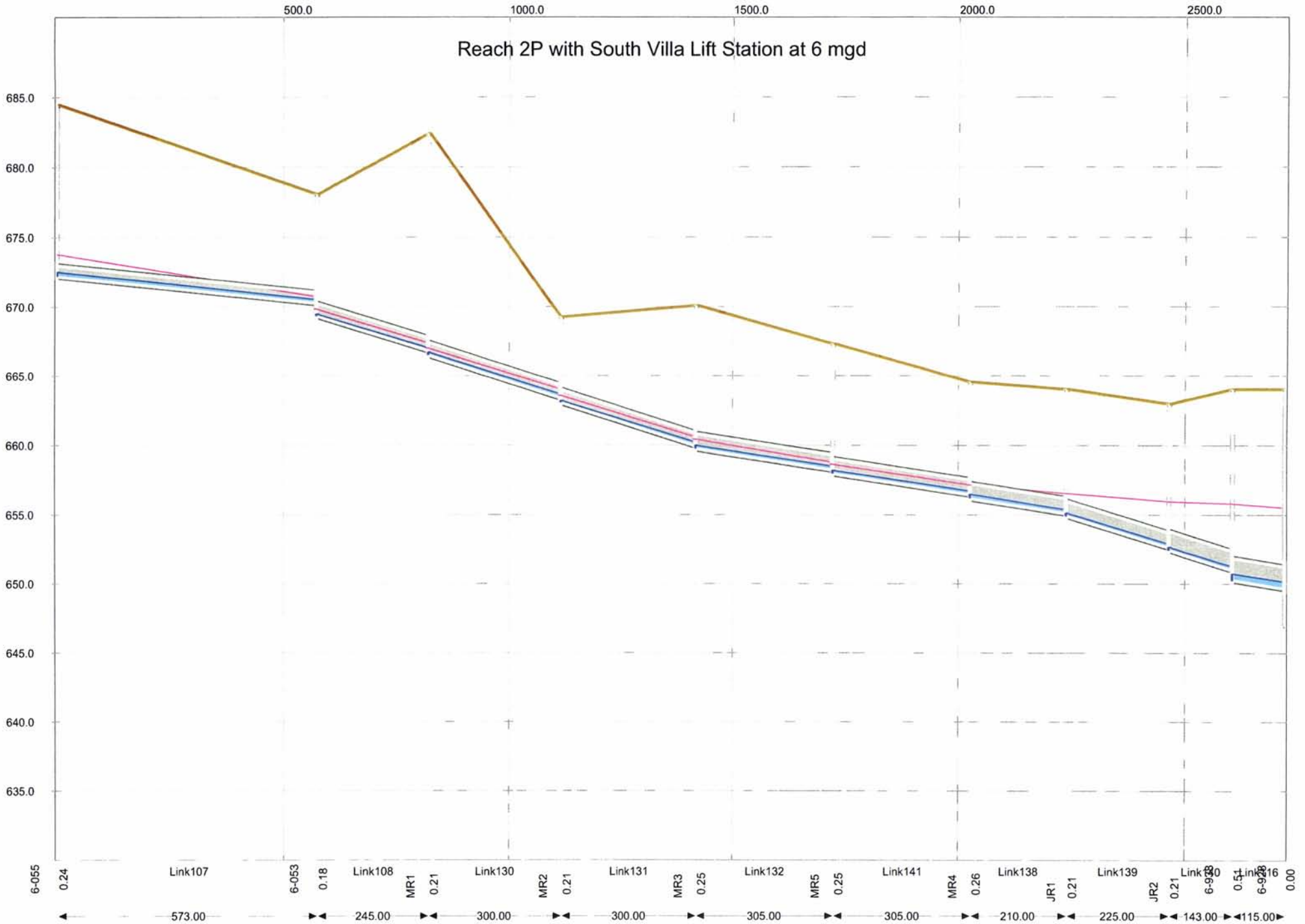
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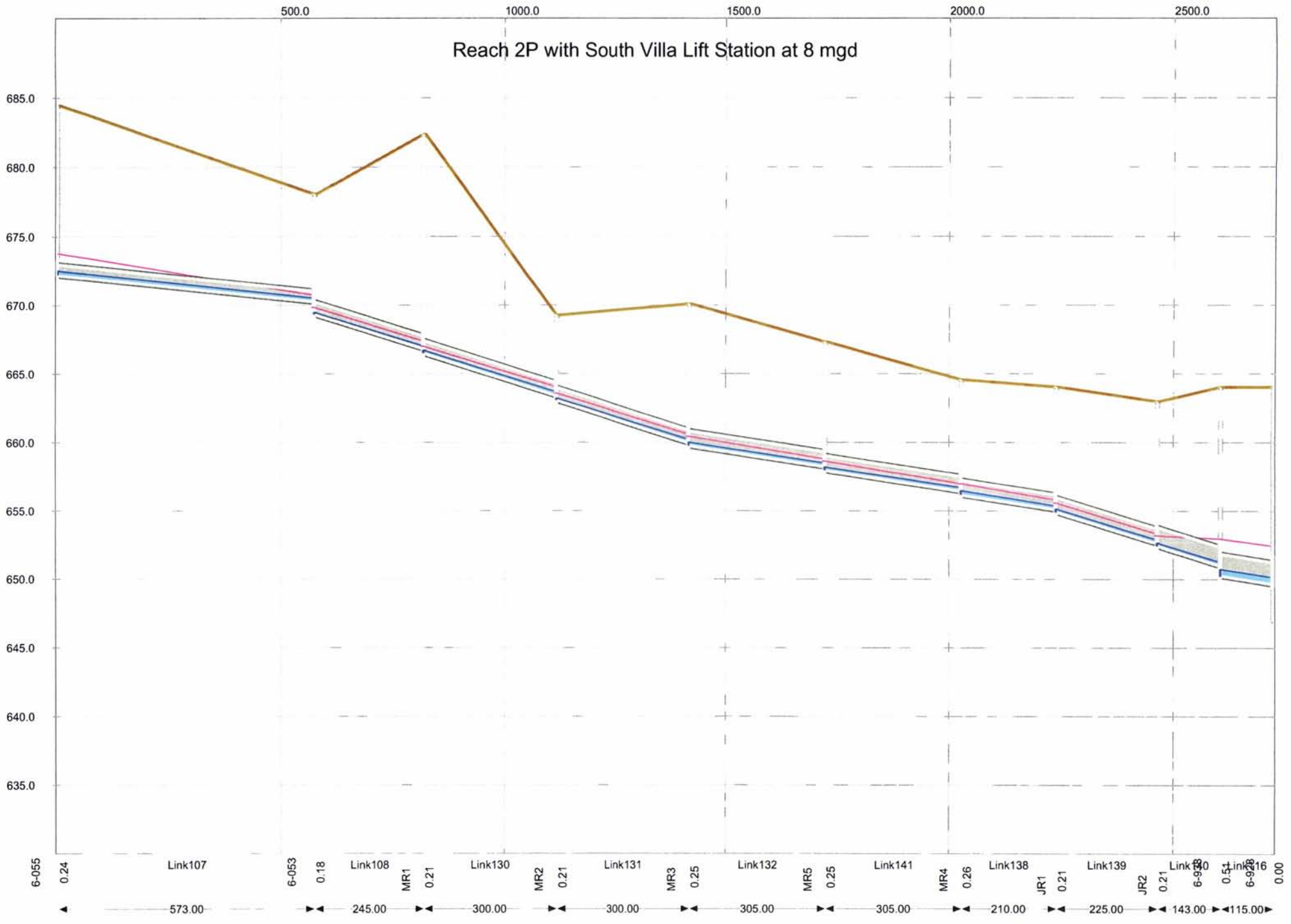
Reach 2P

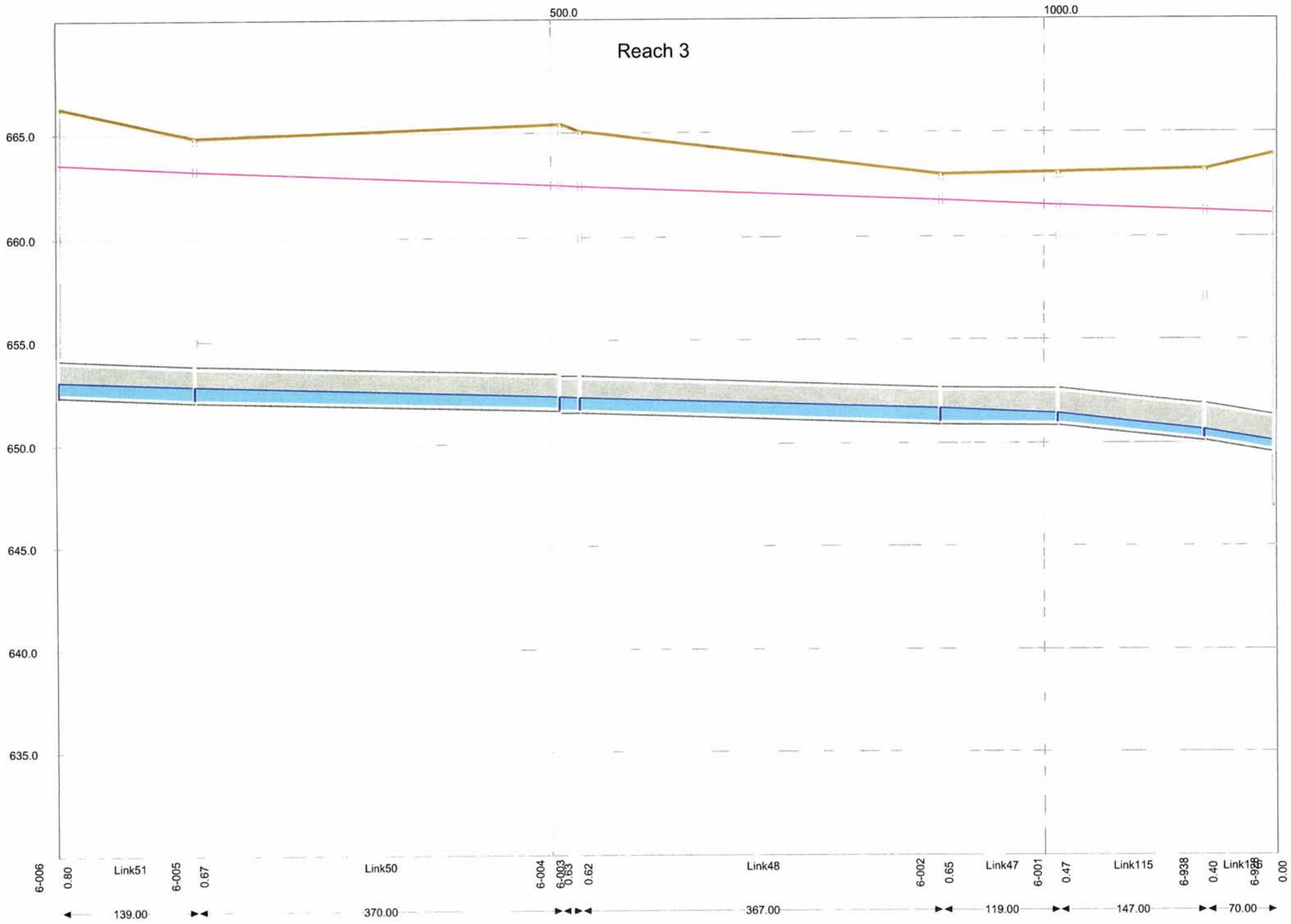


# Reach 2P with South Villa Lift Station at 6 mgd

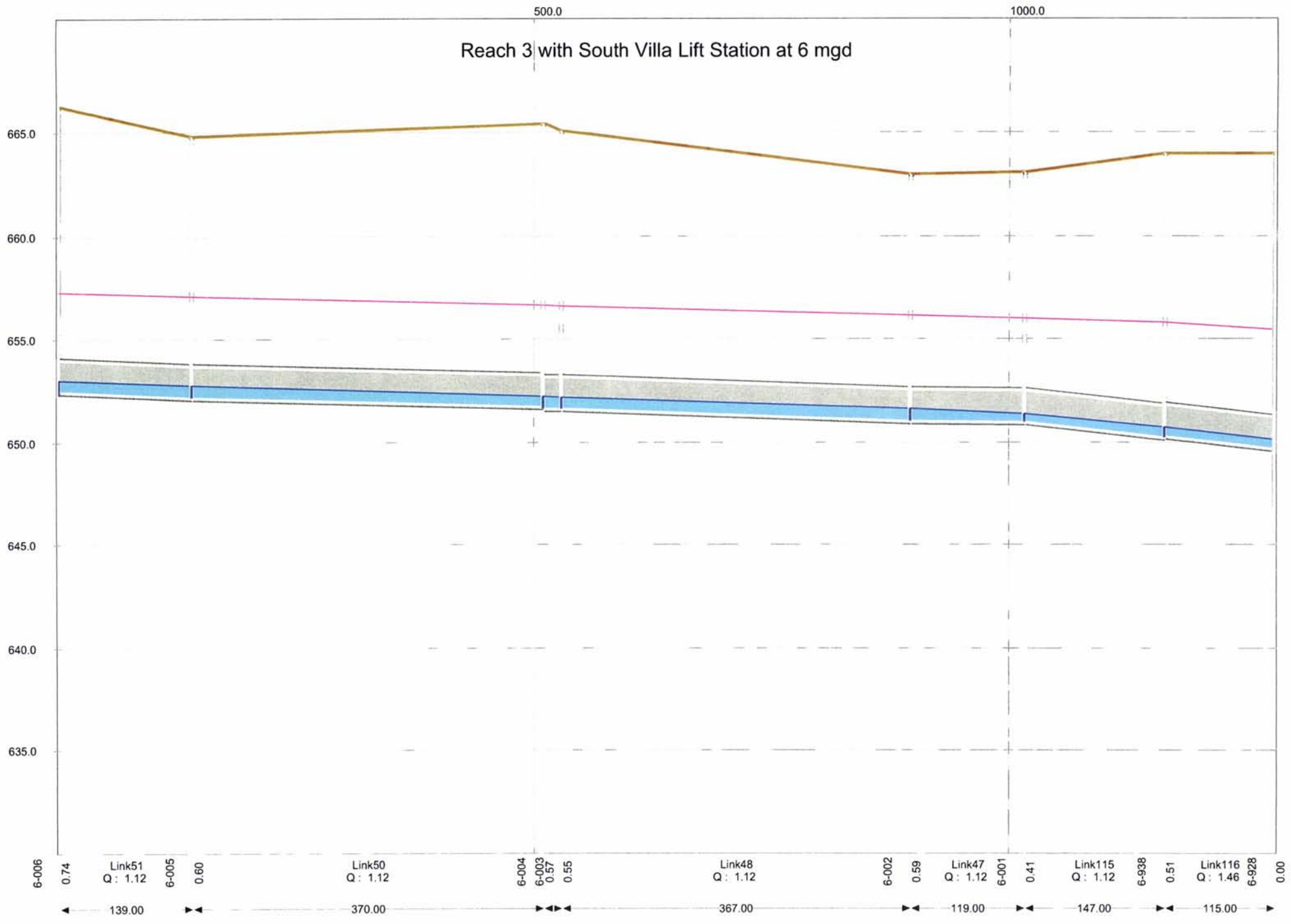


### Reach 2P with South Villa Lift Station at 8 mgd

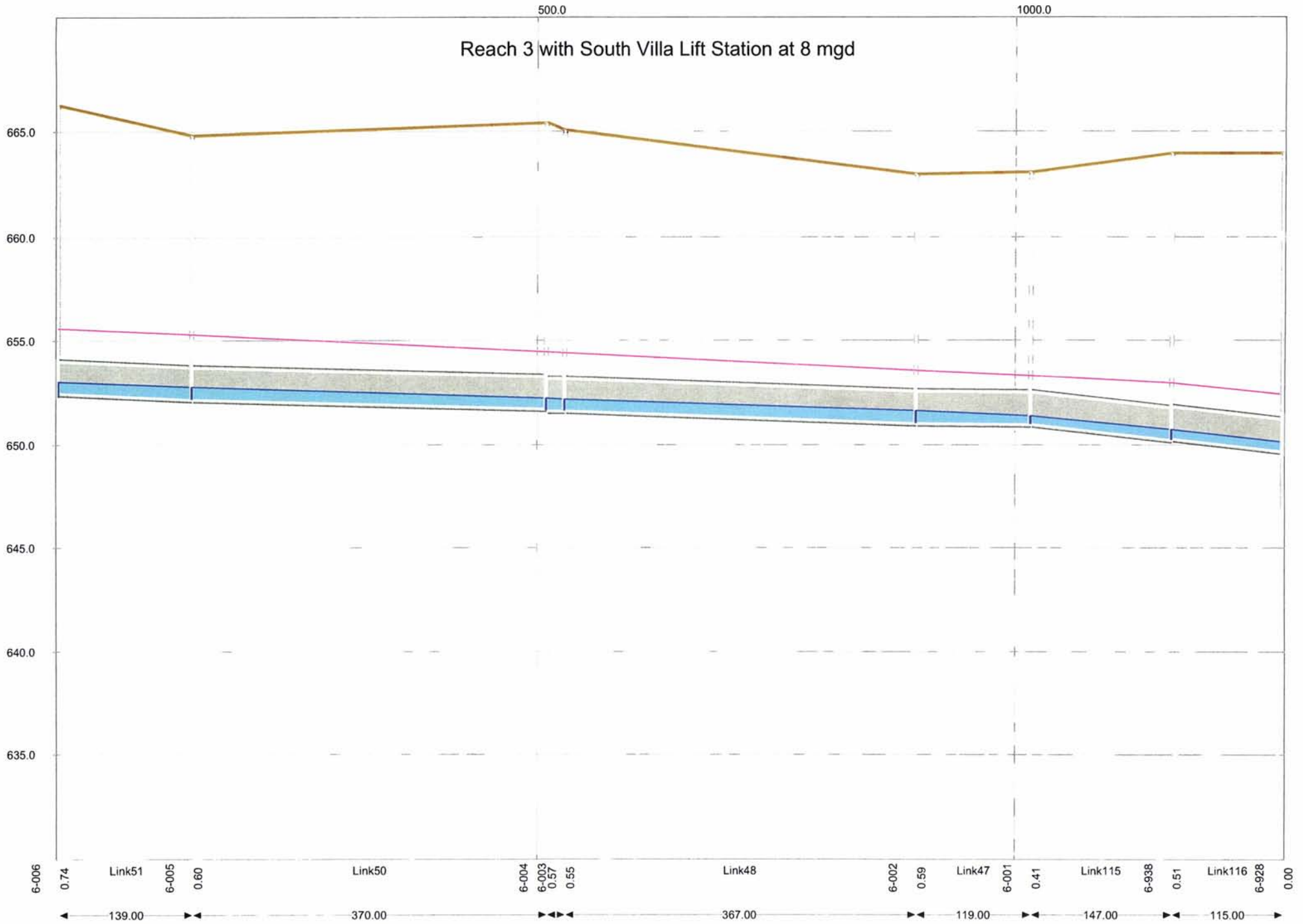


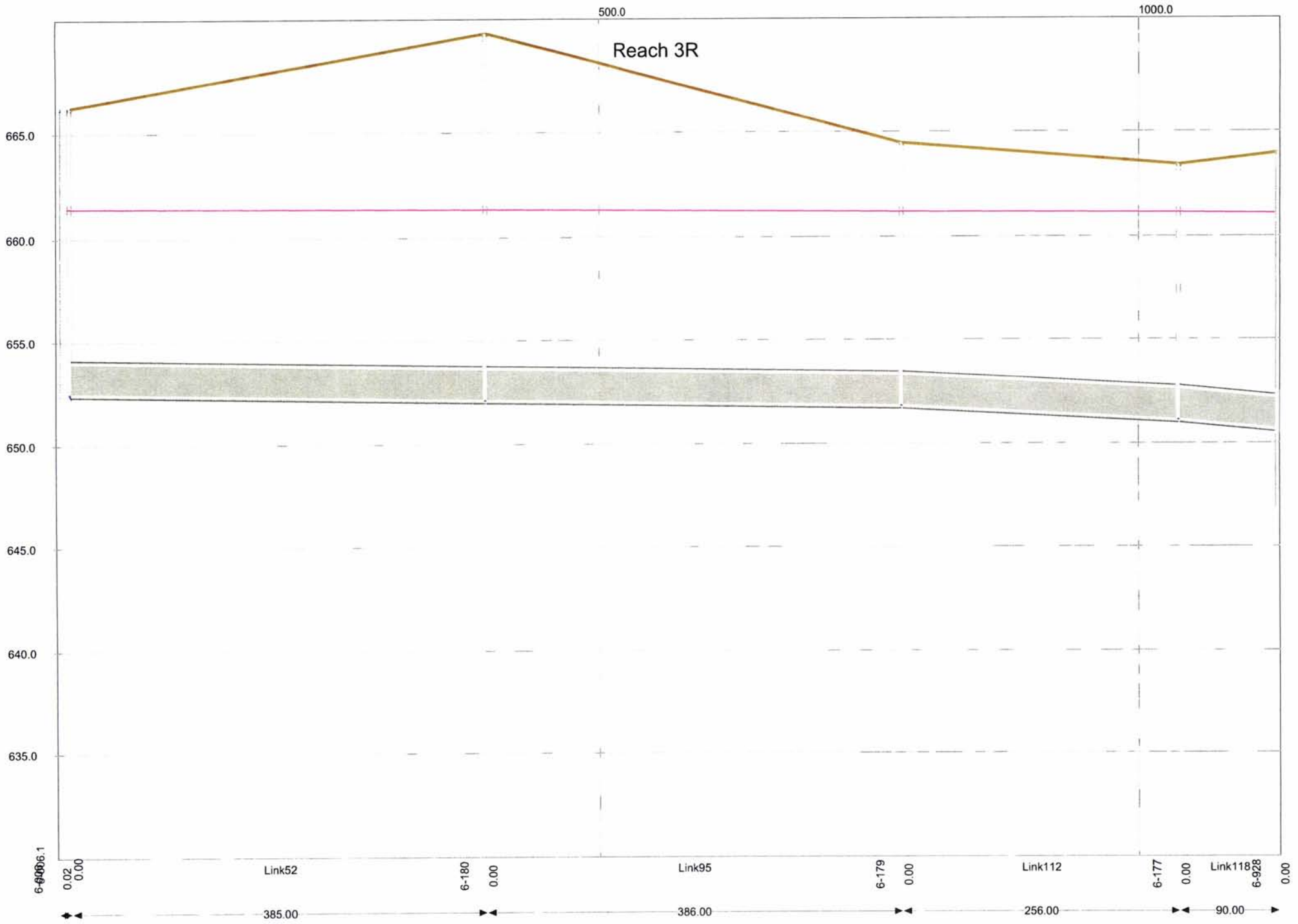


Reach 3 with South Villa Lift Station at 6 mgd

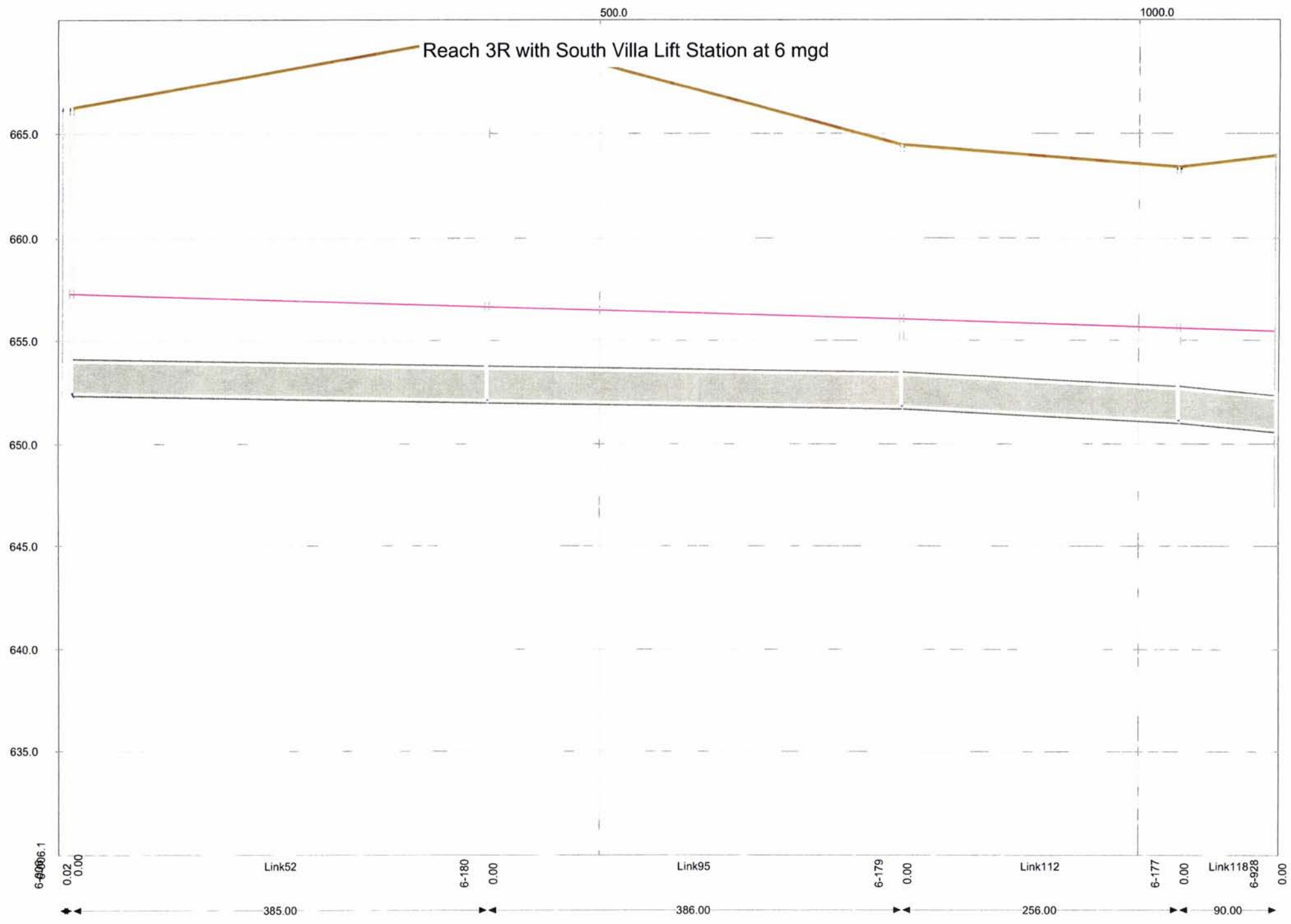


Reach 3 with South Villa Lift Station at 8 mgd

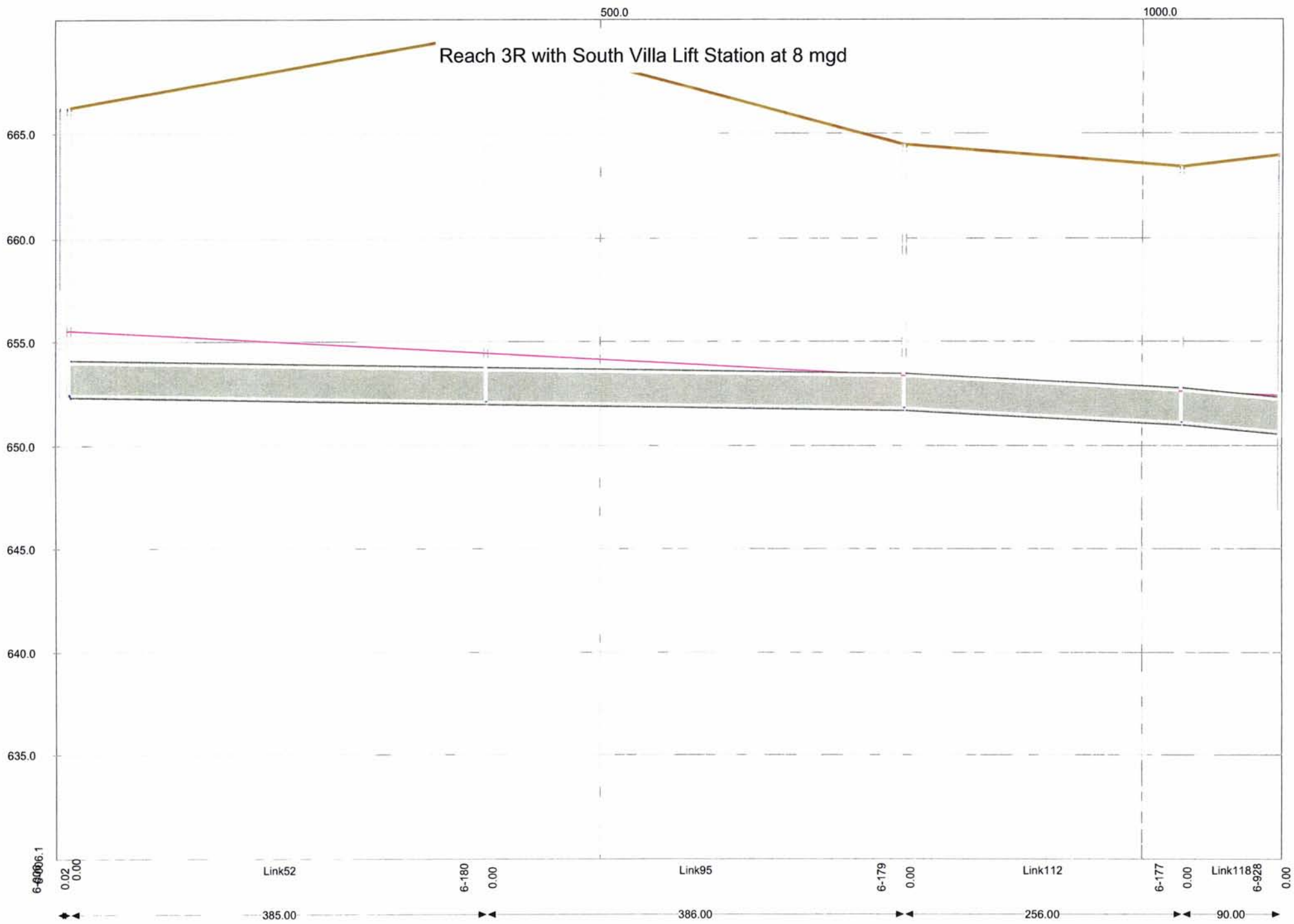


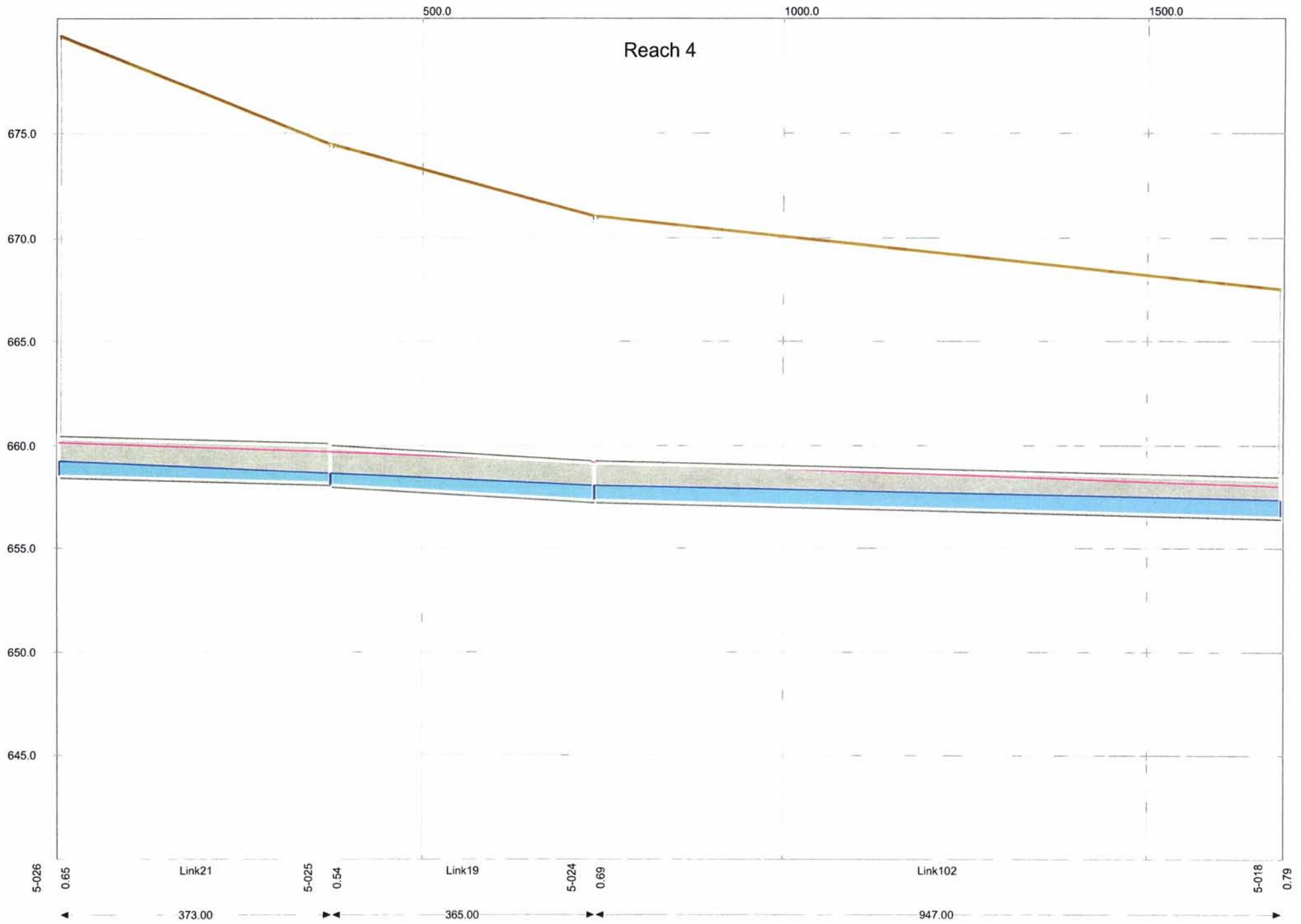


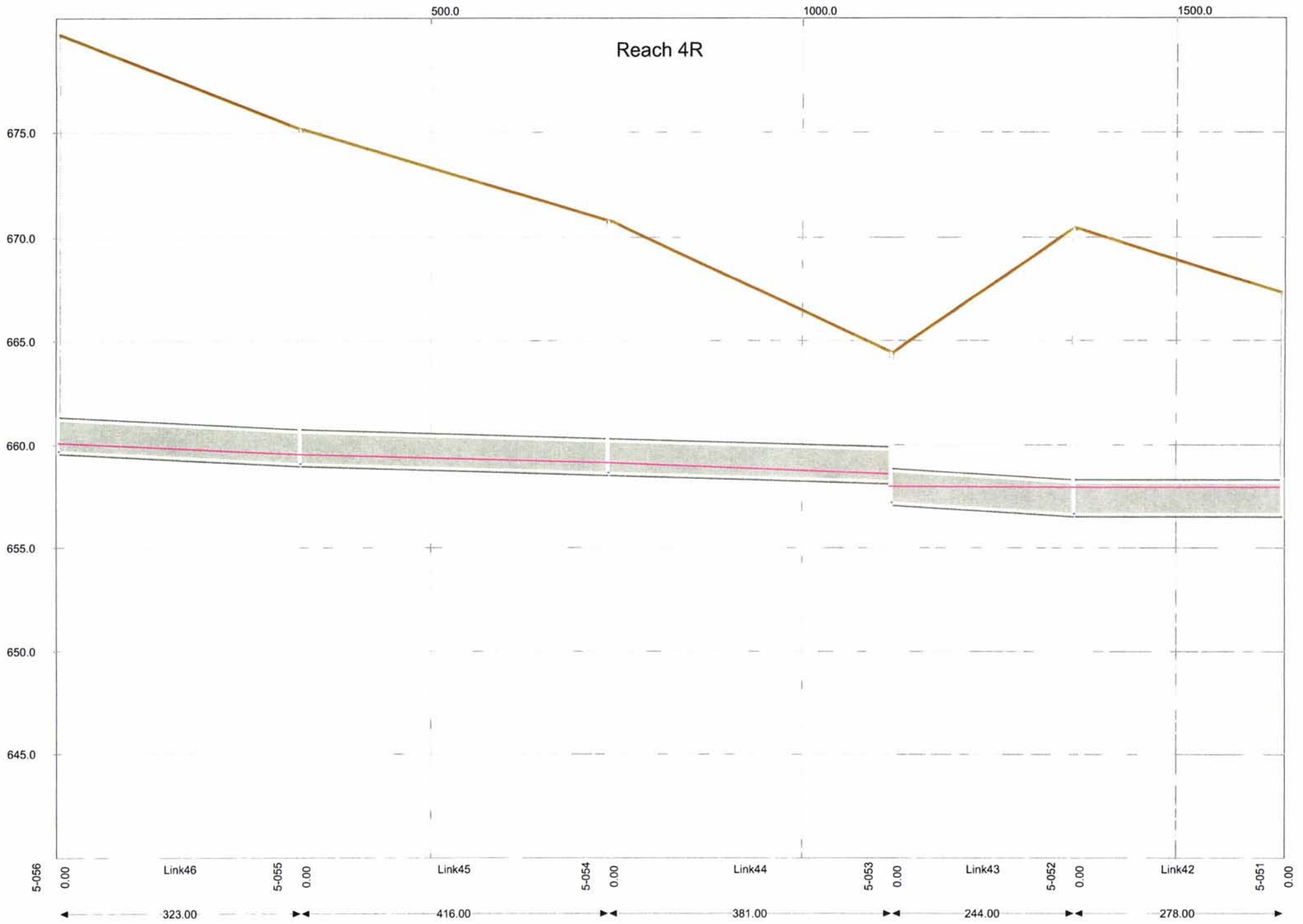
Reach 3R with South Villa Lift Station at 6 mgd



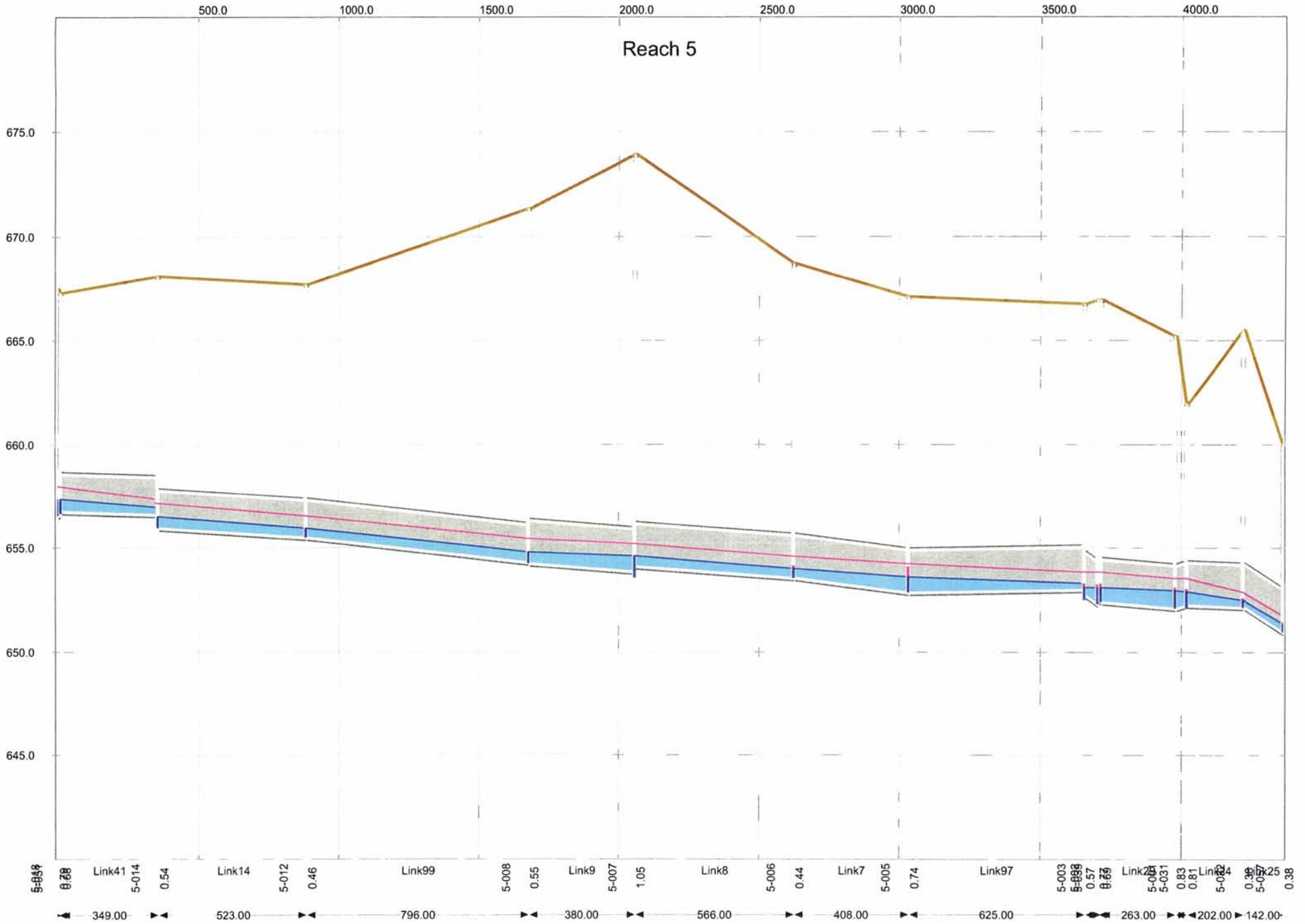
Reach 3R with South Villa Lift Station at 8 mgd



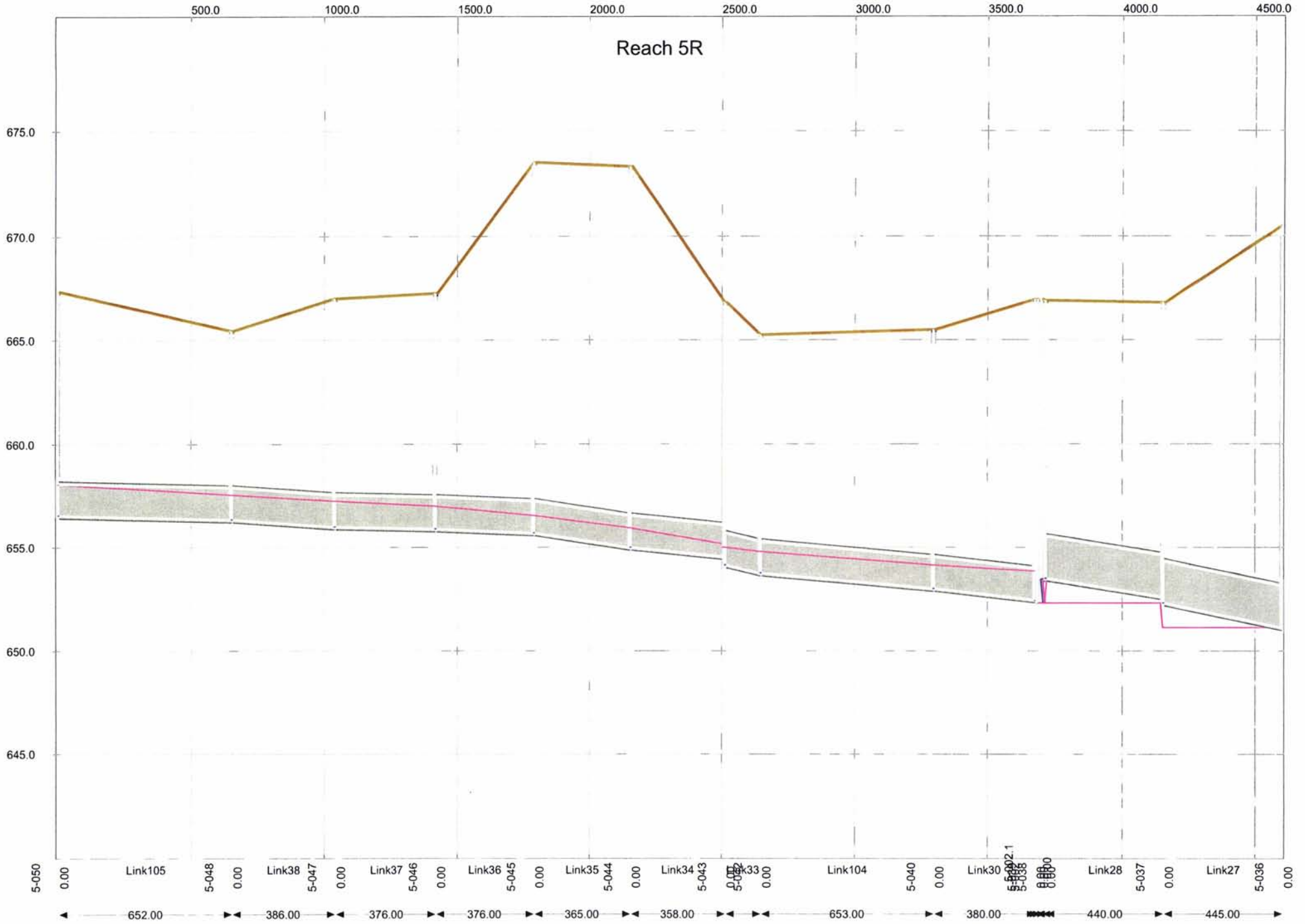




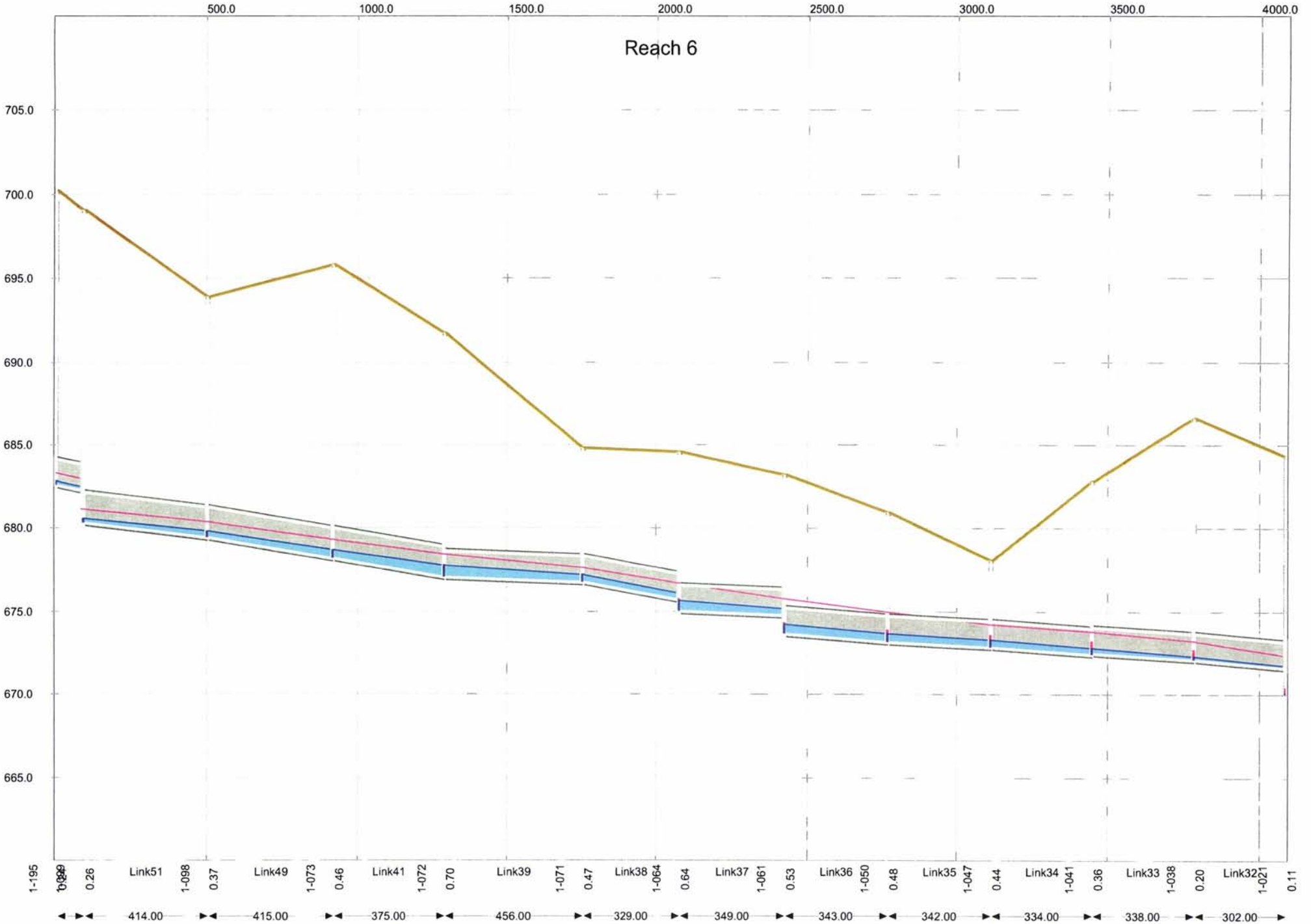
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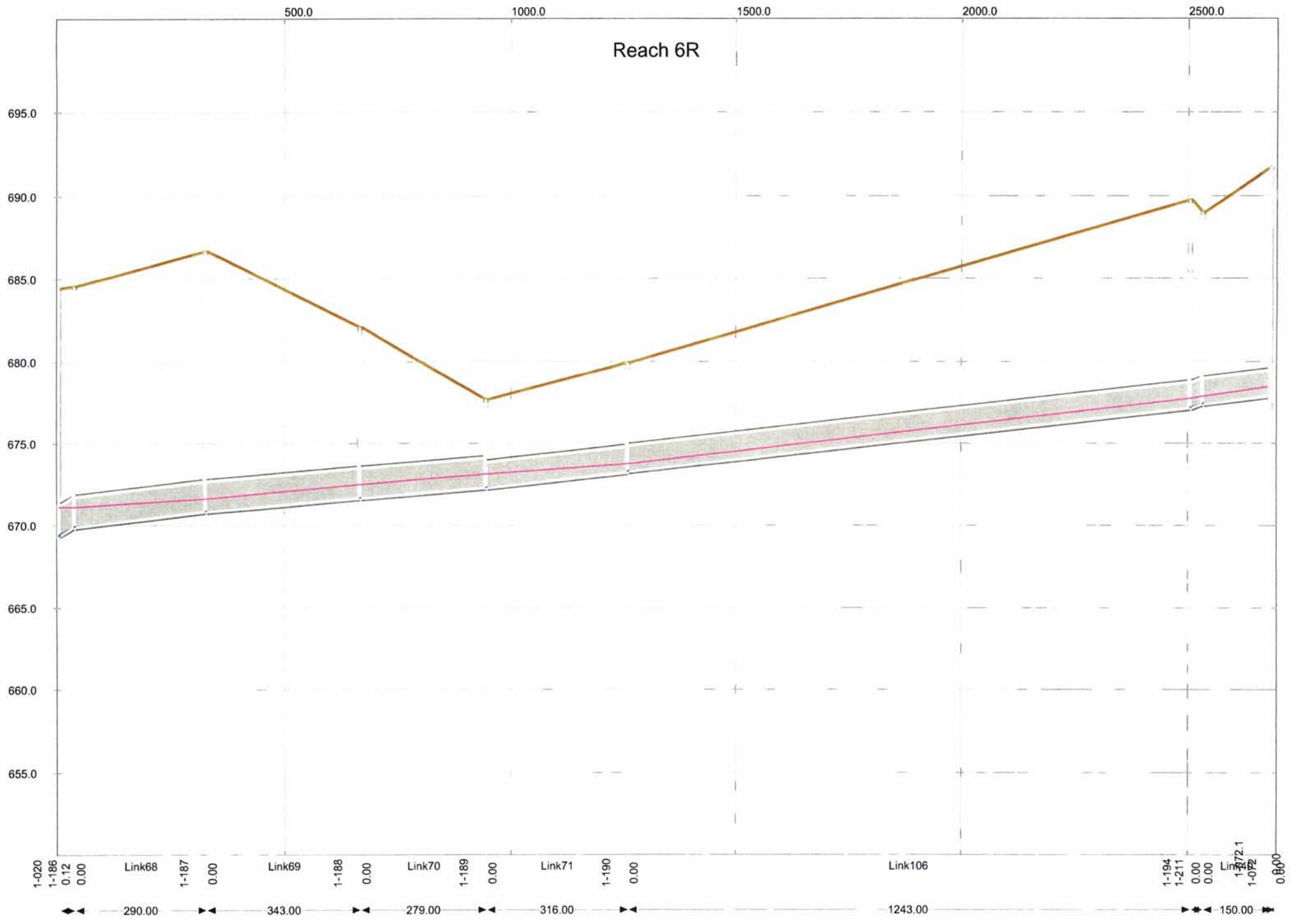
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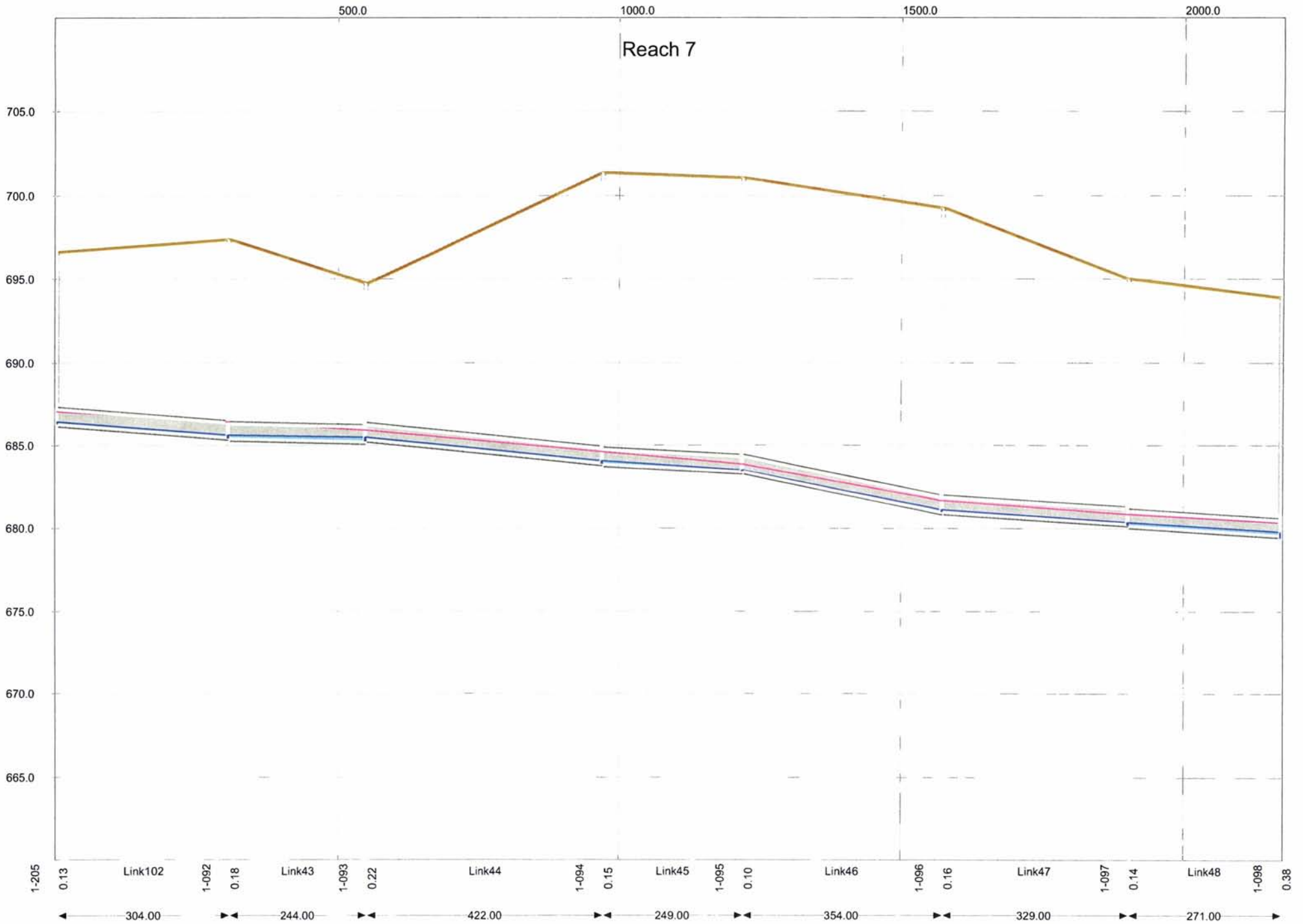


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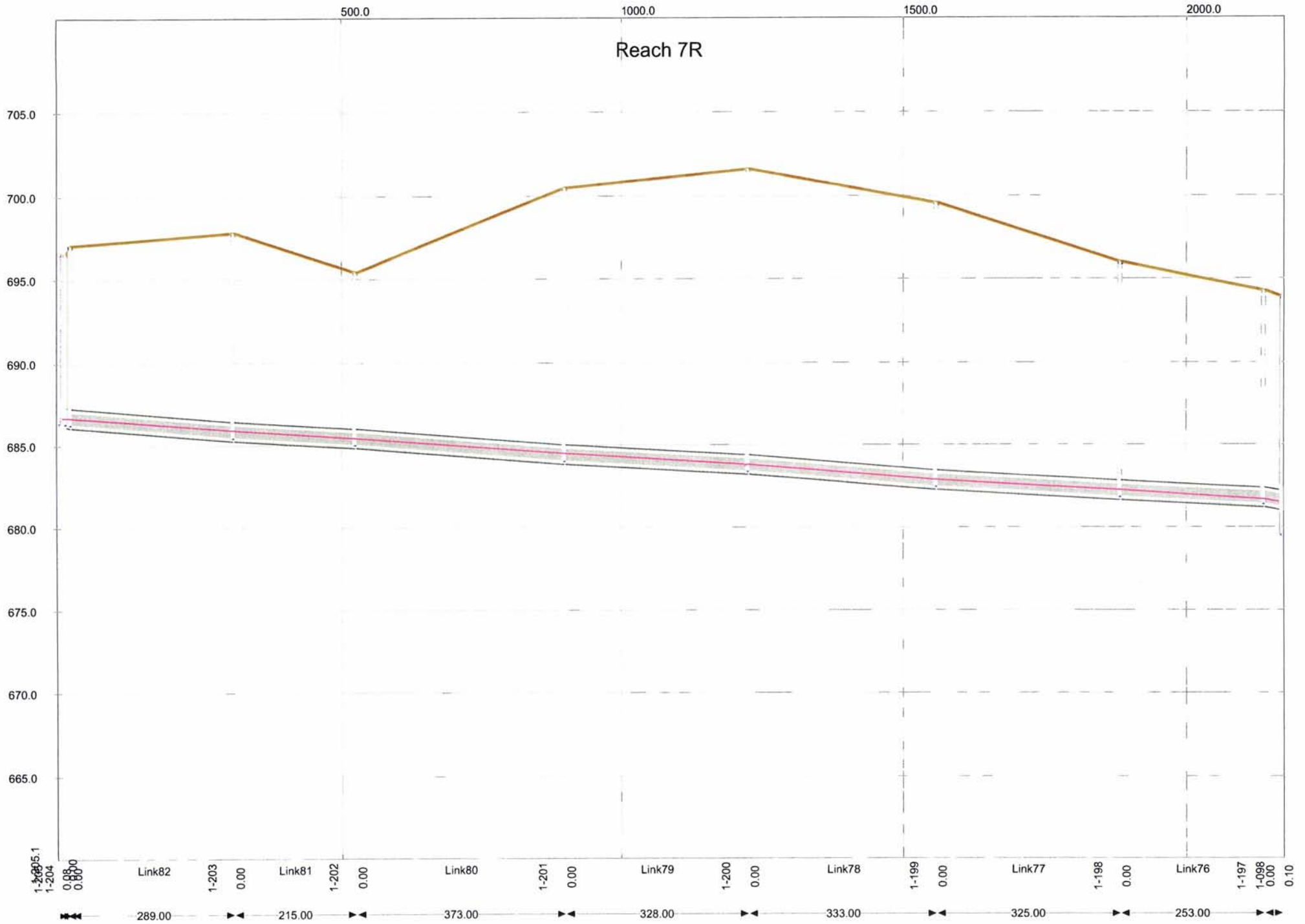


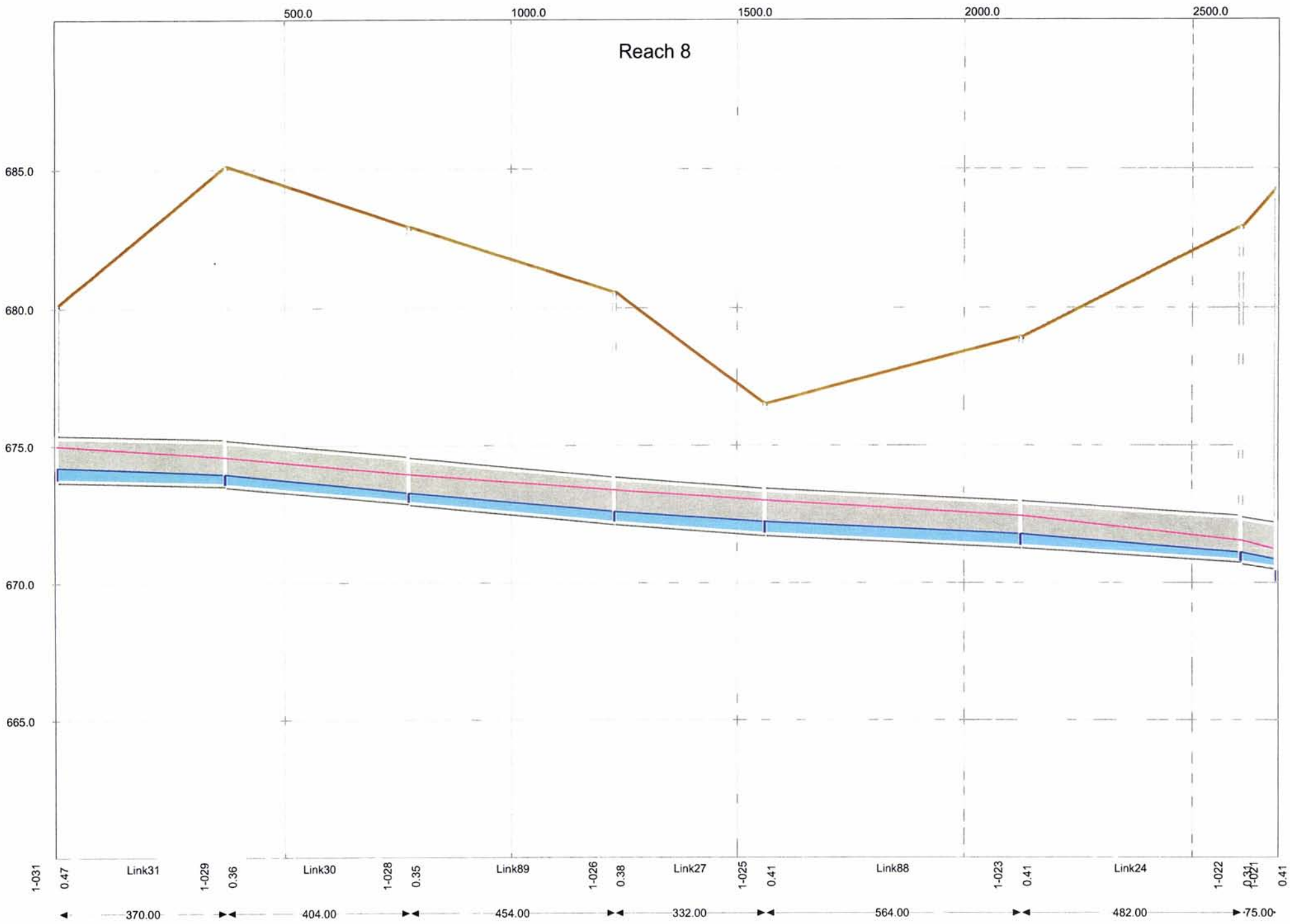
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# Reach 7R





Reach 8

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680.0

675.0

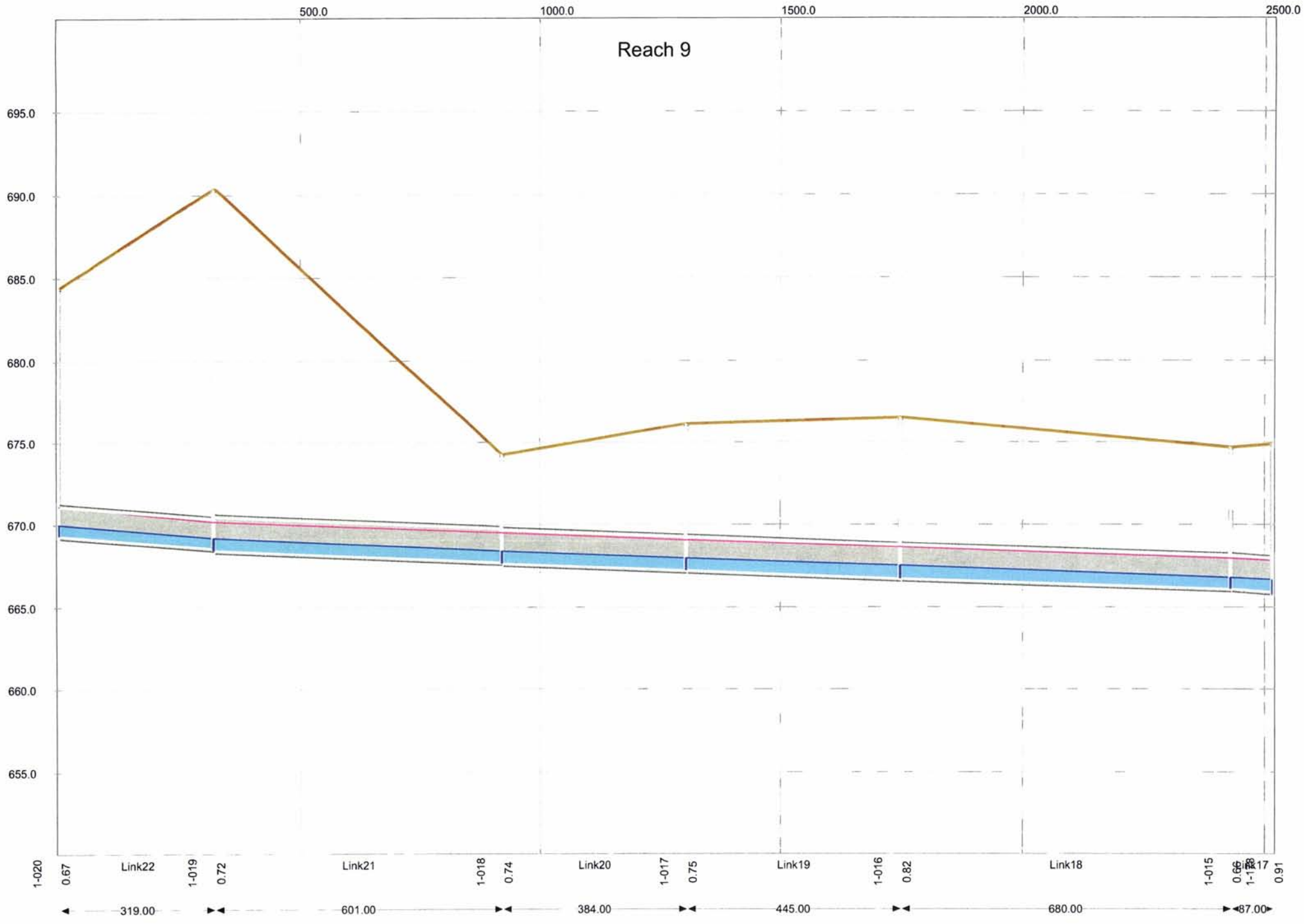
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665.0

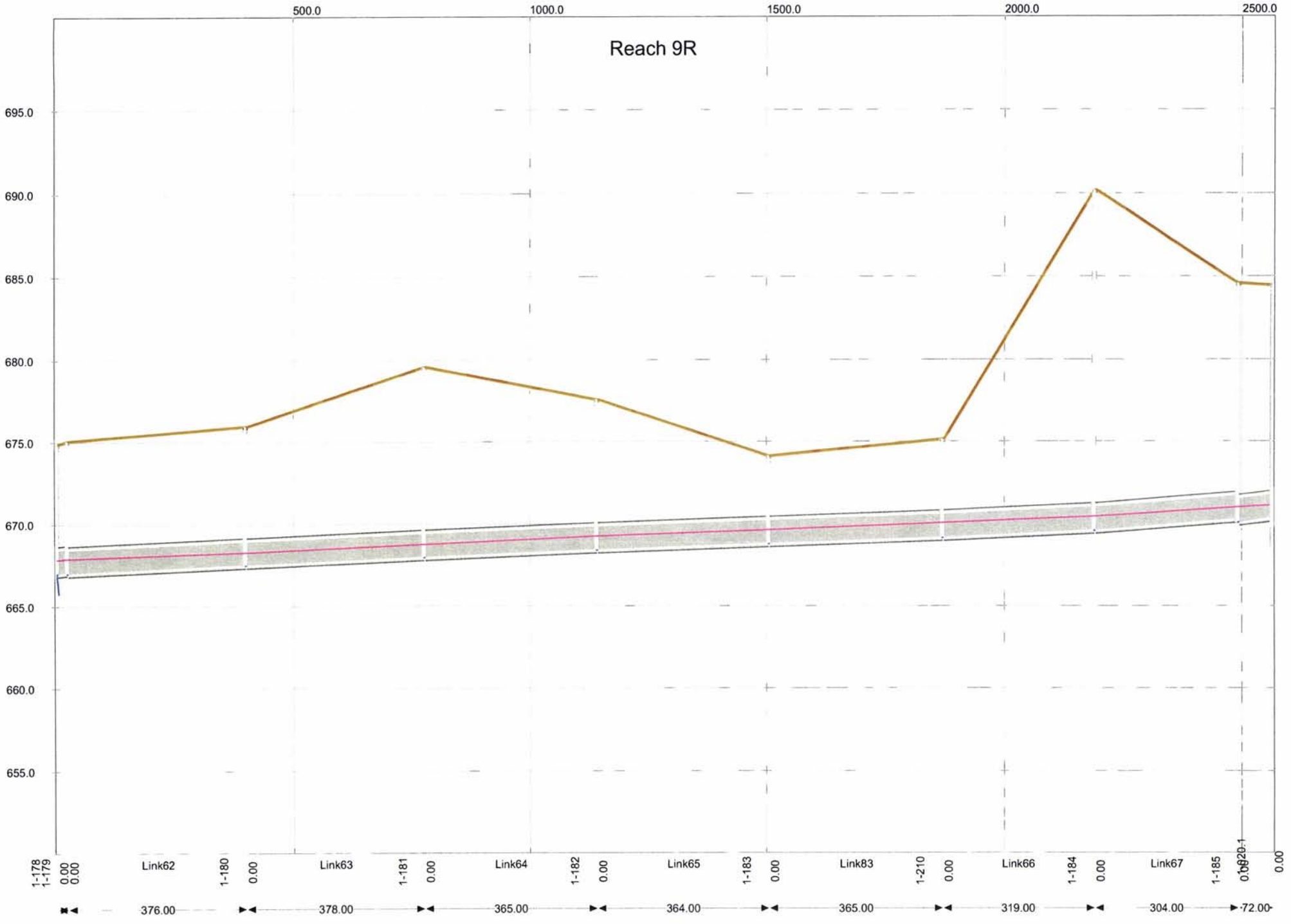
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◀ 370.00 ▶▶ 404.00 ▶▶ 454.00 ▶▶ 332.00 ▶▶ 564.00 ▶▶ 482.00 ▶▶ 75.00 ▶

# Reach 9

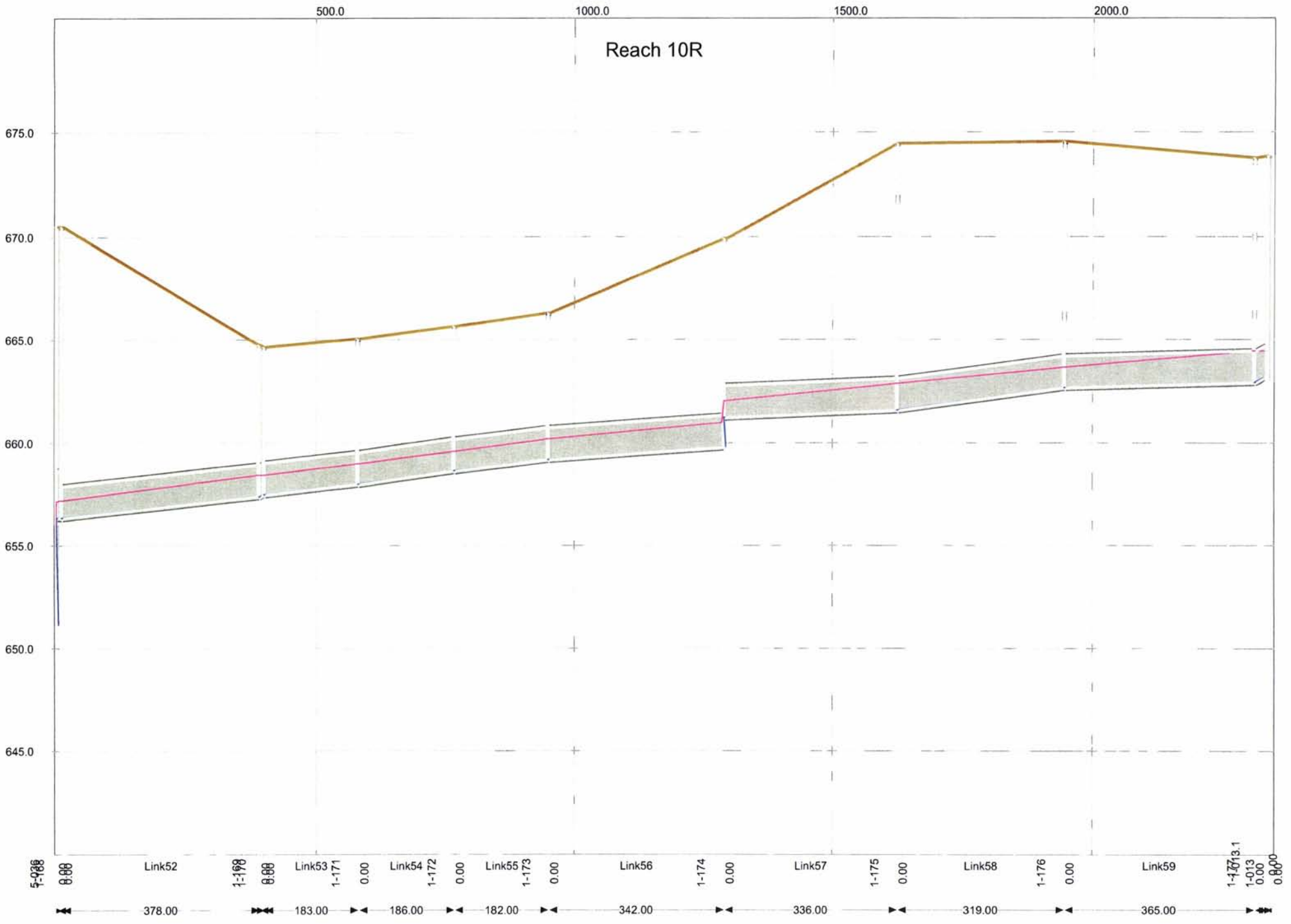


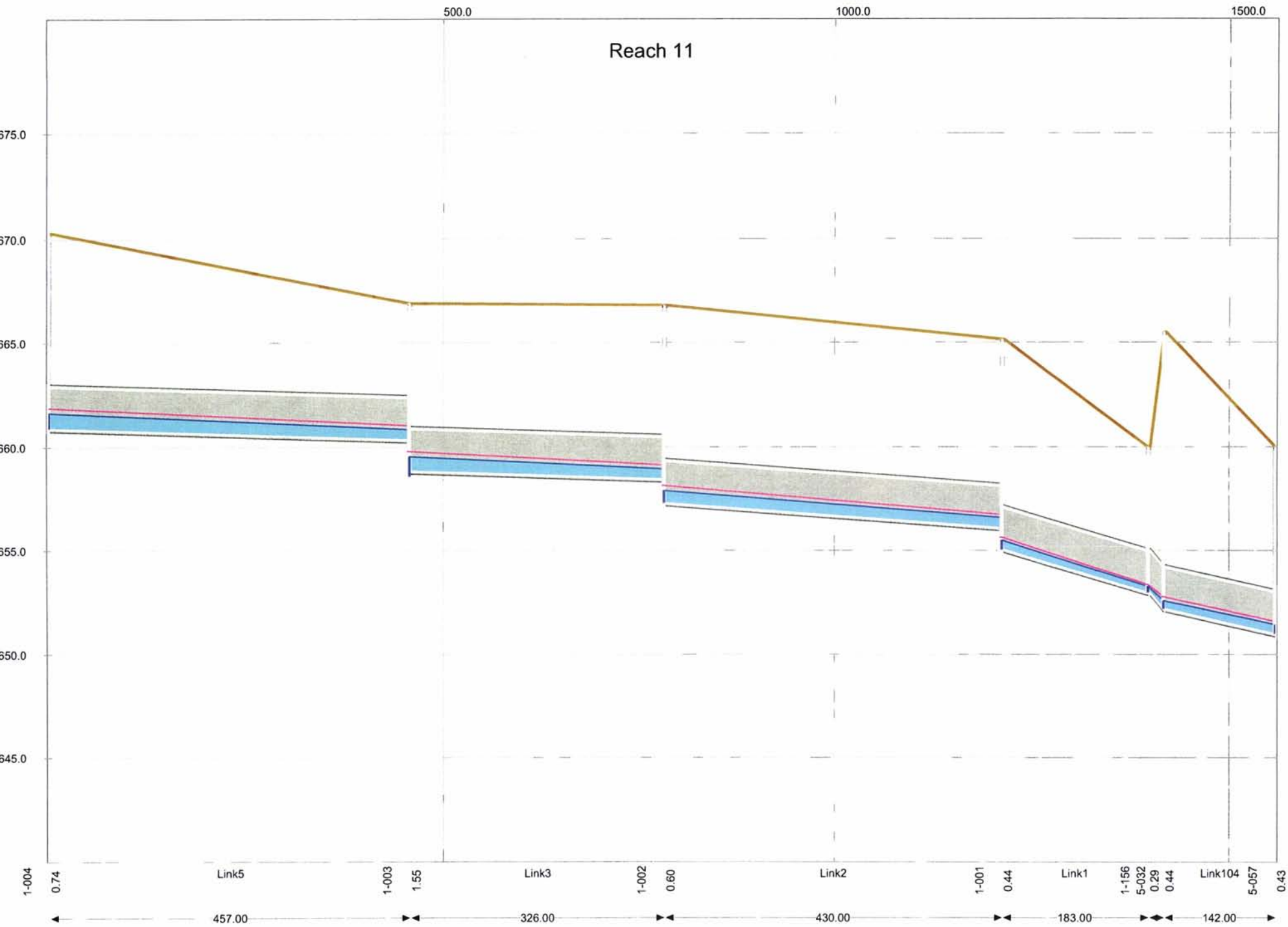
Reach 9R





# Reach 10R





APPENDIX D

COMPLIANCE COMMITMENT  
AGREEMENT

**rjn**group

Excellence through Ownership



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-3397
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 - (312) 814-6026

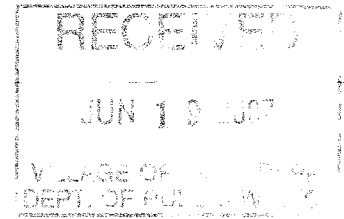
ROD R. BLAGOJEVICH, GOVERNOR DOUGLAS P. SCOTT, DIRECTOR

217/782-9720

CERTIFIED MAIL # 7004 2510 0001 8619 5188
RETURN RECEIPT REQUESTED

June 18, 2007

Mr. Vydas Juskelis, P.E.
Village of Villa Park Public Works Director
Village of Villa Park
20 South Ardmore Avenue
Villa Park, Illinois 60181-2696



Re: Compliance Commitment Acceptance, Violation Notice: W-2007-00071
Facility I.D.: IL0033618

Dear Mr. Juskelis:

The Illinois Environmental Protection Agency ("Illinois EPA") accepts the Compliance Commitment Agreement ("CCA") proposed by the Village of Villa Park dated April 19, 2007 and the Violation Notice Meeting response dated May 18, 2007 in response to the Violation Notice dated May 8, 2007. The CCA addresses the violations cited in Violation Notice W-2007-00071.

Failure to fully comply with each of the commitments and the schedules for achieving each commitment as contained in the CCA may, at the sole discretion of the Illinois EPA, result in referral of this matter to the Office of the Attorney General, the State's Attorney or the United States Environmental Protection Agency.

The CCA does not constitute a waiver or modification of the terms and conditions of any license or permit issued by the Illinois EPA or any other unit or department of local, state or federal government or of any local, state or federal statute or regulatory requirement. All required permits or licenses necessary to accomplish the commitments stated above and comply with all local, state or federal laws, regulations, licenses or permits must be acquired in a timely manner. The need for acquisition of any licenses or permits does not waive any of the times for achieving each commitment as contained in the CCA.

Questions regarding this matter should be directed to Barb Conner at 217/782-9720. Written communications should be directed to Beverly Booker at the Illinois Environmental Protection Agency, Bureau of Water, CAS #19, P.O. Box 19276, Springfield, IL 62794-9276, and all communications shall include reference to your Violation Notice Number W-2007-00071.

Sincerely,

[Handwritten signature of Michael S. Garretson]

Michael S. Garretson, Manager
Compliance Assurance Section
Bureau of Water

ROCKFORD - 4302 North Main Street, Rockford, IL 61103 - (815) 987-7760 • DES PLAINES - 9511 W. Harrison St., Des Plaines, IL 60016 - (847) 294-4000
ELGIN - 595 South State, Elgin, IL 60123 - (847) 608-3131 • PEORIA - 5415 N. University St., Peoria, IL 61614 - (309) 693-5463
BUREAU OF LAND - PEORIA - 7620 N. University St., Peoria, IL 61614 - (309) 693-5462 • CHAMPAIGN - 2125 South First Street, Champaign, IL 61820 - (217) 278-5800
SPRINGFIELD - 4500 S. Sixth Street Rd., Springfield, IL 62706 - (217) 786-6892 • COLLINSVILLE - 2009 Mall Street, Collinsville, IL 62234 - (618) 346-5120
MARION - 2309 W. Main St., Suite 116, Marion, IL 62959 - (618) 993-7200



# Village of Villa Park

20 South Ardmore Avenue, Villa Park, Illinois 60181-2696

DEPARTMENT OF PUBLIC WORKS  
VYDAS JUSKELIS, P.E. • Director Public Works

Phone (630) 834-8505  
Fax (630) 834-8509  
TDD (630) 834-8589

07-097  
CURRENT

May 18, 2007

Ms. Beverly Booker  
Illinois EPA  
Bureau of Water  
CAS #19, P.O. Box 19276  
Springfield, IL 62794-9276

Re: Violation Notice W-2007-00071  
Proposed Compliance Commitment

Dear Ms. Booker:

The Village of Villa Park would like to thank your office for the cooperation extended during the Violation Notice Meeting held on May 4, 2007 in IEPA's Des Plaines, IL office with Ms. Maureen Brehmer and Ms. Barb Connor (via phone). During this meeting, the Village and its consulting engineering firm, RJN Group, Inc. had the opportunity to obtain feedback on the Village's letter that was prepared in response to IEPA's Notice of Violation letter dated March 6, 2007. Based on the above referenced meeting, this letter is written to provide IEPA with the Village of Villa Park's Proposed Compliance Commitment.

The Village wants to ensure that it is adequately meeting the demands of IEPA. As a result, the Village of Villa Park is willing to meet with IEPA to discuss the plan in greater detail, if IEPA deems a subsequent follow up meeting would be merited.

As a result of the Violation Notice Meeting, this letter does not repeat items brought forth in prior correspondence. Rather, this letter will focus on the Village's Compliance Commitment Plan.

We have prepared the proposed Compliance Commitment plan based on our understanding of the desires of IEPA. A summary of the proposed Compliance Commitment is given in the

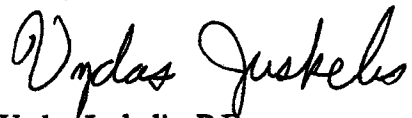
enclosed Table 1.

We believe that the proposed Compliance Commitment meets the desires of IEPA. If it does not, we would heartily encourage you to contact us so that we can ensure it does.

Ms. Beverly Booker  
May 25, 2007  
Page Two

We hope you find the enclosed information to be satisfactory for your purposes. I would encourage you to call should you have any questions.

Sincerely Yours,  
Village of Villa Park

A handwritten signature in black ink that reads "Vydas Juskelis". The signature is written in a cursive style with a large, looped 'V' at the beginning.

Vydas Juskelis, P.E.  
Public Works Director

Enclosure

Table1  
 Village of Villa Park  
 Compliance Commitment  
 As of May 25, 2007

Date	Description
2006	Point repairs and sanitary sewer replacement "ABC" Streets
2006	South Villa Force main replacement and upgrade
2006/2007	TV inspection of 16,000 lf of sanitary sewers in the "ABC" Streets Area.
2006/2007	TV inspection of sanitary service laterals of homes subject to basement back-up. Follow-up with certified letter for those homes that do not respond to initial request for internal inspection.
May 2007	Obtain board approval to contract with RJN to smoke test the area tributary to South Villa Lift Station and the "ABC" Streets Area (90,000 ft. total)
June - Sept 2007	Conduct flow monitoring of the Parliament Square Apartments Area and the Westlands Area.
June 2007	Smoke testing of 15,000 ft of "ABC" Streets Area
June 2007	Smoke testing of area tributary to the South Villa Lift Station (75,000 ft)
June 2007	Prioritize residences for overhead sewers
June/July 2007	Procure improved television inspection equipment
July 2007	Based on smoke testing results, dye test, with television inspection suspect cross connections
July 2007	Obtain board approval to authorize overhead sewer program
July 2007	Start facility plan for sanitary rehabilitation. Specifically, Myrtle Relief Sewer and north Villa Park Concrete Sanitary Sewer Point Repairs and Lining, for submittal to IEPA for low interest loan program

Table 1  
 Village of Villa Park  
 Compliance Commitment  
 As of May 25, 2007  
 (Continued)

Date	Description
July 2007	Start design of Myrtle Relief Sewer
August 2007	Smoke test concrete sanitary sewers west of Ardmore
August 2007	Send letters to homeowners targeted for overhead sewer program
August 2007	Develop a plan for raising manholes in Sugar Creek floodway and backyard easements
September 2007	Send follow up letter to homeowners targeted for overhead sewer program that did not respond to the first mailing
September 2007	Raise manholes in Sugar Creek floodway and in the backyard easements
October 2007	Target date for completion of overhead sewer installations at selected private residences
October 2007	Submit pre-application and Facility Plan for IEPA low interest loan for Myrtle relief sewer
October 2007	Television inspection of concrete sanitary sewers west of Ardmore (27,000 ft)
November/December 2007	Review television inspection and make recommendations for point repairs and lining
November 2007	Submit financial budgets, user charge spreadsheets, to IEPA for review
November 2007	Submit financial check-list and Myrtle relief sewer loan documents package
November 2007	Complete design of Myrtle Relief Sewer and submit to IEPA for review

Table 1  
 Village of Villa Park  
 Compliance Commitment  
 As of May 25, 2007  
 (Continued)

Date	Description
December 2007	Submit amended wastewater ordinance with user charges increased to reflect cost of loan repayment
December 2007/ January 2008	Address Facility Plan Comments.
January 2008	Prepare plans and specifications for rehabilitation of North Villa concrete sanitary sewers
January 2008	Bid Myrtle Relief Sewer for construction
February 2008	Submit concrete sanitary sewer rehabilitation plans and specifications to IEPA for review
February 2008	Submit concrete sewer rehabilitation loan documents to IEPA
April 2008	Obtain low interest loan from IEPA for Myrtle Relief Sewer
May 2008	Start Construction of Myrtle Relief Sewer
May 2008	If needed conduct Building Inspection to identify private sector sources in Westlands
May 2008	Bid North Villa sewer rehabilitation for construction
July 2008	Obtain low interest loan from IEPA for North Villa sewer rehabilitation
July 2008	Begin sewer rehabilitation project
September 2008	Complete Myrtle Relief Sewer
October 2008	Complete sewer rehabilitation project

APPENDIX E

2007 CLOSE OF SALE BUILDING  
INSPECTION REPORTS

**rjngroup**

Excellence through Ownership

Violation Notices List

VIOLATION NUMBER	PROPERTY INFORMATION				DATE INFORMATION					WASTEWATER					ENGINEERING		
	ADDRESS OF VIOLATION	PROPERTY OWNER NAME	PROPERTY OWNER MAILING ADDRESS	PROPERTY OWNER CITY, STATE, ZIP	MAILING DATE	RECEIPT DATE	CORRECTION PERIOD	CORRECTION DEADLINE	CORRECTION DATE	ACCESS VIOLATION	WORK WITHOUT PERMIT	SEWER ABANDONMENT	COURTESY INSPECTION	V-TICKET ISSUED	ILLEGAL CONNECTION	ILLEGAL FILL	STORMWATER VIOLATION
2007-01	5 East Riordan Road	Suleiman Master	5 East Riordan Road	Villa Park, IL 60181	01/03/2007	01/06/2007	30	02/05/2007	04/13/2007							X	
2007-02	1032 South Villa Avenue	Beverly F. Mruk	1032 South Villa Avenue	Villa Park, IL 60181	01/08/2007	01/10/2007	30	02/09/2007	01/11/2007							X	
2007-03	524 West Division Street	Daniel Gamboa	524 West Division Street	Villa Park, IL 60181	01/05/2007		30	02/02/2007	01/24/2007					X			
2007-04	621 South Wisconsin Avenue	Vito Sisto	676 South Washington Street	Elmhurst, IL 60126	11/01/2006		180	04/30/2007	05/07/2007					X			
2007-05	889 West North Avenue #C	Jose Zavala	889 West North Avenue #C	Villa Park, IL 60181	12/12/2006		30	01/10/2007	01/19/2007	X							
2007-06	1007 North Harvard Avenue	Robert Cleary	1007 North Harvard Avenue	Villa Park, IL 60181	12/21/2006		30	01/19/2007									X
2007-07	209 North Harvard Avenue	Tom Roth	115 Woodland Drive	Oakbrook, IL 60523	01/17/2007		10	03/31/2007	05/30/2007			X					
2007-08	1007 North Harvard Avenue	Robert Cleary	1007 North Harvard Avenue	Villa Park, IL 60181	01/22/2007		10										X
2007-09	1009 West North Ave #C	Tania Ortega	1009 West North Ave #C	Villa Park, IL 60181	01/23/2007	01/24/2007	30	02/23/2007	06/22/2007					X			
2007-10	535 East Park Blvd	Joy Staunton	535 East Park Blvd	Villa Park, IL 60181	01/24/2007		30	03/08/2007	03/15/2007					X			
2007-11	225 East Harrison Street	Sunrise Homes	710 Western Avenue	Lombard, IL 60148	01/25/2007	01/26/2007	10	02/05/2007	05/15/2007							X	
2007-12	539 South Harvard	Gillespie	539 South Harvard	West Chicago, IL	02/12/2007		30	03/13/2007	03/05/2007					X			
2007-13	106 South Harvard	Correa	106 South Harvard	Villa Park, IL 60181	03/23/2007		15	04/06/2007	03/23/2007					X			
2007-14	111 South Michigan	Caswell	111 South Michigan	Villa Park, IL 60181	03/23/2007		15	04/06/2007	03/23/2007					X			
2007-15	745 South Princeton	Pickerrill	149 West St. Charles	Villa Park, IL 60181	03/29/2007		10	04/09/2007	closed per eng								
2007-16	620 West Sunset	Klein/Lawson	620 West Sunset	Villa Park, IL 60181	04/05/2007		30	05/02/2007	11/30/2007				Y/P	X			
2007-17	340 West Adams	Susan Cartwright	1017 S. Edgewood	Lombard, IL 60148	04/13/2007		30	05/08/2007	04/23/2007					X			
2007-18	1115 N. Yale Avenue	Reid Huefner	1115 N. Yale Avenue	Villa Park, IL 60181	04/13/2007		30	05/09/2007	10/19/2007					X			
2007-19	929 West North Ave Unit F	Shabana Moeed	929 W. North Ave Unit F	Villa Park, IL 60181	04/13/2007		30	04/26/2007	03/29/2007					X			
2007-20	502 North Addison	Naim Mansour	502 N. Addison Road	Villa Park, IL 60181	04/13/2007		180	10/01/2007	05/15/2007					X			
2007-21	648 South Villa Avenue	Sandra Sidoryk	648 South Villa Avenue	Villa Park, IL 60181	04/30/2007		180	10/27/2007					Y/P	X			
2007-22	440 South Yale	Peter Loughman	440 South Yale Avenue	Villa Park, IL 60181	04/20/2007		30	05/16/2007	04/27/2007					X			
2007-23	224 North Princeton	Brian Capdeville	224 N. Princeton	Villa Park, IL 60181	04/20/2007		30	05/16/2007	04/25/2007					X			
2007-24	517 North Princeton	James Kaylor	306 South Oakland	Villa Park, IL 60181	04/20/2007		30	05/16/2007	05/01/2007					X			
2007-25	520 South Cornell	Robert Klug	520 South Cornell	Villa Park, IL 60181	04/27/2007		180	10/27/2007	11/06/2007					X			

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2007-26	426 South Wisconsin	Stephen Russell	426 South Wisconsin	Villa Park, IL 60181	04/27/2007		180	10/24/2007	09/14/2007						X			
2007-27	440 South Wisconsin	Znaida Kripak	473 Jennifer Court No. 2	Woodale, IL 60191	05/08/2007		180	11/04/2007	10/24/2007						X			
2007-28	165 North Myrtle	Joseph Sandelbach	165 North Myrtle	Villa Park, IL 60181	05/08/2007		180	10/30/2007	12/28/2007				Y/P	X				
2007-29	430 East Washington	Randall Bloomfield	430 East Washington	Villa Park, IL 60181	05/08/2007		180	11/04/2007					V/P	X				
2007-30	317 S. Riverside	Randall Richards	317 South Riverside	Villa Park, IL 60181	05/08/2007		180	12/05/2007						X				
2007-31	114 West Kenilworth	Daniel & Bryan Kovar	1013 Highmorr	Lombard, IL 60148	05/23/2007		180	11/11/2007					V	X				
2007-32	262 East Pine Street	Jason Mahon	262 East Pine	Villa Park, IL 60181	05/10/2007		180	12/07/2007	06/07/2007					X				
2007-33	101 East Congress	Richard Matula	101 East Congress	Villa Park, IL 60181	05/22/2007		180	11/13/2007	06/14/2007					X				
2007-34	134 West Division	Jon Austin	134 West Division	Villa Park, IL 60181	05/21/2007		180	11/17/2007	05/25/2007					X				
2007-35	1129 North Yale	John Bender	1129 North Yale	Villa Park, IL 60181	05/30/2007		180	11/25/2007	06/04/2007					X				
2007-36	423 South Cornell	Merrill McMillan	423 south Cornell	Villa Park, IL 60181	06/06/2007		180	12/04/2007						X				
2007-37	26 North Addison	Carol Ann Salas	10738 Willow Avenue	Mokena, IL 60448	06/08/2007		180	12/05/2007	08/09/2007					X				
2007-38	VOIDED																	
2007-39	426 North Ellsworth	Nazir Ahmed	426 N. Ellsworth Avenue	Villa Park, IL 60181	06/12/2007		180	12/09/2007						X				
2007-40	1014 South Myrtle	Jerry Higginbotham	1014 S. Myrtle Avenue	Villa Park, IL 60181	06/12/2007		180	12/09/2007	06/15/2007					X				
2007-41	543 North Harvard	Robert Sowalter	543 North Harvard	Villa Park, IL 60181	06/13/2007		180	12/09/2007	06/27/2007					X				
2007-42	VOIDED																	
2007-43	348 North Yale	Homer Bachman	348 orth Yale	Villa Park, IL 60181	06/15/2007		180	12/15/2007	06/20/2007					X				
2007-44	726 North Biermann	Edward Finnegan	726 North Biermann	Villa Park, IL 60181	06/20/2007		180	12/18/2007	07/23/2007					X				
2007-45	1002 South Grant	Marion Dunham	1002 South Grant	Villa Park, IL 60181	06/20/2007		180	12/18/2007						X				
2007-46	1201 Orchard Hill Court	Charles Tanzer	1201 Orchard Hill Court	Villa Park, IL 60181	06/27/2007		30	07/18/2007	07/25/2007					X				
2007-47	305 South Harvard	Gordon Green	305 South Harvard	Villa Park, IL 60181	07/13/2007		180	01/08/2008						X				
2007-48	121 South Euclid	Mike & Lisa Straka	121 South Euclid	Villa Park, IL 60181	07/18/2007		180	01/14/2008						X				
2007-49	310 South Illinois	Richard Lanis	2939 N. Ashland Ave No.1	Chicago, IL 60657	07/11/2007		180	01/07/2008	08/15/2007					X				
2007-50	701 South Addison	Janice Duda	701 South Addison	Villa Park, IL 60181	07/16/2007		180	01/16/2008	08/14/2007					X				

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2007-51	1109 South Euclid	Roger Zagorski	39 Whittington	St. Charles, IL 60174	07/18/2007		30	08/17/2007	08/23/2007						X			
2007-52	708 South Princeton	K. Kulikauskiene	708 South Princeton	Villa Park, IL 60181	07/16/2007		180	08/14/2007	07/27/2007						X			
2007-53	400 North Beverly	Richard Adams	47415 Forest Preserve	Chicago, IL 60634	07/18/2007		180	01/16/2008	07/23/2007						X			
2007-54	215 North Harvard	Shaheen Pervaiz	215 North Harvard	Villa Park, IL 60181	07/24/2007		180	01/19/2008	01/16/2008						X			
2007-55	512 North Addison	Chapman	7348 W. Madison Street	Forest Park, IL 60130	07/25/2007		30	08/22/2007	08/07/2007						X			
2007-56	241 W. Madison	Eric Jensen	241 W. Madison	Villa Park, IL 60181	07/25/2007		30	08/22/2007	07/27/2007						X			
2007-57	424 South Oakland	Gene Gassensmith	424 Sout Oakland	Villa Park, IL 60181	07/26/2007		180	01/22/2008	08/03/2007						X			
2007-58	448 North Iowa	Tamara Henderson	448 North Iowa	Villa Park, IL 60181	07/30/2007		30	08/28/2007	08/07/2007						X			
2007-59	405 North Chatham	Arnold Holland	405 North Chatham	Villa Park, IL 60181	08/02/2007		30	08/30/2007	08/06/2007						X			
2007-60	102 W. Rand	Laurel Waszak	102 W. Rand	Villa Park, IL 60181	08/09/2007		30	09/08/2007	09/21/2007						X			
2007-61	434 E. Wildwood	William Bates	434 E. Wildwood	Villa Park, IL 60181	08/13/2007		180	02/09/2008	09/14/2007						X			
2007-62	252 North Yale	Gary Markey	252 North Yale	Villa Park, IL 60181	08/22/2007		180	02/17/2008	09/26/2007						X			
2007-63	229 East Vermont	Otolino	229 East Vermont	Villa Park, IL 60181	09/25/2007		90	01/31/2008	extension				Y	X				
2007-64	233 East Vermont	M. Valvis	233 East Vermont	Villa Park, IL 60181	09/25/2007		90	01/31/2008	extension						X			
2007-65	237 East Vermont	Jose Ocampo	237 East Vermont	Villa Park, IL 60181	09/25/2007		30	01/31/2008	extension						X			
2007-66	226 North Cornell	Robert Rottschalk	226 North Cornell	Villa Park, IL 60181	09/25/2007		180	03/23/2008				C						
2007-67	407 South Yale	Paul Nystedt	407 South Yale	Villa Park, IL 60181	09/25/2007		180	03/23/2008	02/01/5054			C		x				
2007-68	826 South Myrtle	Clarence Goodlow	826 South Myrtle	Villa Park, IL 60181	09/27/2007		30	10/26/2007	11/28/2007						X			
2007-69	819 South Myrtle	Virginia Sperlik	819 South Myrtle	Villa Park, IL 60181	10/05/2007		30	11/05/2007	10/17/2007						X			
2007-70	816 North Yale	Frank Griseta	816 North Yale	Villa Park, IL 60181	10/05/2007		30	11/06/2007	11/06/2007						X			
2007-71	226 East Oak	Jeff Campell	226 East Oak	Villa Park, IL 60181	10/05/2007		180	04/02/2008	12/07/2007			C/R						
2007-72	449 South Ardmore	Lawrence Tantilla	449 South Ardmore	Villa Park, IL 60181	11/30/2007		180	05/26/2008				C		X				
2007-73	321 South Illinois	Russell Eisele	321 South Illinois	Villa Park, IL 60181	12/04/2007		180	05/28/2008	12/13/2007			C		X				
2007-74	23 North Second	James Rigitano	23 North Second	Villa Park, IL 60181	12/03/2007		180	06/03/2008	12/12/2007					X				
2007-75	639 W. Terrace	Winfield Realty	27 W 130 Roosevelt Road	Winfield, IL 60190	12/11/2007		30	01/12/2008						X				

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2007-76	405 East Highland	E. J. Karges	405 E. Highland	Villa Park, IL 60181	11/13/2007		180	06/11/2008					C		X			
2007-77	284 East Elm	Ms. Majer	624 Candlewck Dfve	Poplar Grove, IL 61065	11/30/2007		180	06/11/2008					C		X			
2008-001	303 West School	Joseph DePolo	303 W. School	Villa Park, IL 60181	01/08/2008		180	07/06/2008							X			
2008-002	609 South Harvard	Grant Markuson	609 S.outh Harvard	Villa Park, IL 60181	01/10/2008		180	07/08/2008							X			
2008-003	129 South Euclid	Patrick Dickson	129 S. Euclid	Villa Park, IL 60181	01/16/2008		30	02/15/2008	01/24/2008						X			