Detroit Water and Sewerage Department

Wastewater Master Plan

DWSD Project No. CS-1314

Lateral Sewers and Connector Sewers

Technical Memorandum
Original Date: May 2 2002
Revision Date: June 25, 2003
Author: CDM

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Lateral and Connector Sewers

1. Overview

1.1 Introduction

This technical memorandum provides a synopsis of the findings, conclusions and findings for the Lateral and Connector Sewers in the City of Detroit. The Wastewater Master Plan is identifying the long-term needs for the Detroit Water and Sewerage Department regional system over the next 50 years and to recommend the most cost effective sewer facilities that would meet these needs.

The City is served by wastewater collection and transport facilities, which include service connections, lateral and connector sewers, trunk sewers and interceptor's sewers along with pumping stations, control structures, and outfalls. The wastewater flow is picked up at the service connection, flows through the lateral, trunk and interceptor sewers [where flows from other suburban community flow joins], and delivers the sewage flow to the Detroit Wastewater Treatment Plant.

The collection system serving the City of Detroit is primarily combined sewers and consists of over 3,800 miles of public lateral and trunk sewers serving four maintenance districts. Catch basins connected directly to the collection system drain over 4,000 miles of City streets and alleys. Nearly two thirds of the City of Detroit service area is drained by gravity under non-storm conditions. The remaining one third requires pumping at least once.

This document addresses the condition of the lateral sewers, connector sewers, and sewer service connections of the City of Detroit. Map records, inspection records, service call information and physical observation efforts have been combined to gather information about the system, how it is working and what suggestions might be necessary to maintain service through the collection system over the next 50 years

1.2 Construction Material History

The existing collection system was constructed over a period of 140 years. Sewer construction methods and materials changed during the years reflecting the technology, economy, and priorities.

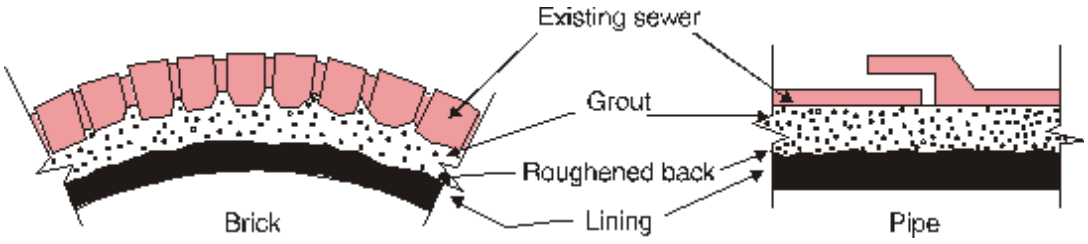

Figure 1. Typical Sewer Installation

Sewer diameters are circular cross section for round sewers; and where referenced to arch or egg shaped cross sections they may be given as the equivalent inside diameters of a circular sewer having the same perimeter. Some of the information contained in this document was derived from the 1977 Segment Facilities report. Our purpose in this section is to review the sizes, shapes and material types of the sewers in the City of Detroit. The principle material types we will be discussing include; brick, glazed vitrified clay pipe or “Crock” (glazed VCP), vitrified clay pipe (VCP), monolithic concrete cylinder (CCP), and re-enforced concrete (RCP), and polyvinyl chloride (PVC) sewers.

Mostly all public sewers installed during the period of time from 1836 to 1910 were constructed using bricks. Until 1892, laterals were also constructed of brick. The first public sewer was constructed in 1836, when Savoyard Creek, which flowed from Cadillac Square to the foot of First Street, was enclosed. This arch sewer is constructed of stone and brick (3'-6" x 4'-6") and is used for the greater portion of the original length. Sixty-six percent (129 miles) of the public sewers built through 1910 are egg-shaped in cross section. Until 1885, a nonstandard oval shaped egg section was popular. After 1885, a standard egg section was adopted. In the early years, one ring of common brick construction 9 inches thick was used for all sizes. Repairs generally consisted of restoration of the cross section and lining the interior with a second ring of brick. Later, public sewers were built of two-ring brick and the largest ones in three-ring brick.

The laterals were mostly 15" x 20" egg-shaped conduits with some 18" x 24" size. Many sewers were constructed before streets were in place so the sewers were built in long reaches with few manholes. Junctions and connections to the public sewers were constructed by angling and dropping the line of construction to the grade of the public sewer. Within one year (1892), almost a complete change of materials for small lateral sewers were made. Glazed VCP or "Crock" pipe was introduced and manholes and lampholes were provided for lateral sewers. Lampholes were built of glazed VCP set vertically as a tee and were located at the ends of the line and at changes of direction and grade to provide a means of inspection, ventilation, and flushing. Interceptor work had not been started by 1910, but 26 per cent of the present public sewer system and 21 per cent of the present lateral sewer system was complete by that time.

From the period 1911 through 1930, the wastewater collection and transportation system expanded rapidly as extensive areas were annexed into the City. Through 1920, most of the public sewers were constructed of brick and were less than 7 feet in diameter. In 1926, when the interceptor concept was implemented, monolithic concrete construction was introduced and quickly became pre-eminent for sewers 6 feet in diameter and larger. Reinforced concrete construction was introduced for large box and arch sewers and outfalls.

There appears to be limited information available regarding the ages of sewers by material type, but the following chart reflects a partial City of Detroit inventory by material type.

1.2.1 Age of Sewers by Material Type

The data used to compile this sewer structures age report was derived from the DWSD complete Sewers 2 shape file provided by the IT department and a manual listing of sewer segments provided by DWSD engineering. Segments were sorted and listed by address, and then by age. The compiled report produced approximately 46,000 records, of which approximately 8,000 records had no age information attached. All 46,000 records were used and the age information was estimated to give an overall picture of what the ages of the sewers are for the City of Detroit. The ages of sewers by material type are shown in Table 1. Since only about 74% of the sewers had age information, the age of about 26% of the system is estimated based upon the available data.

Table 1. Age of Sewers by Material Type

Material	Total Length (mi)	0 - 25	25 – 50	50 - 75	75 - 100	100 - 125	125 - 150
Glazed VCP	941	3	19	146	545	228	
PVC	12	12					
VCP	1,887	5	11	289	1,293	289	
RCP	12		12				
CCP	138		15	85	38		
Brick	393				157	211	25

Laterals were constructed using such refinements as: "pounded" backfill in the main streets; 25 to 30 feet drop manholes with a water cushion at the entry to the public sewers; and concrete encasement under trolley tracks and around lateral angles and drops. Concrete pipe gradually superseded glazed VCP, and by 1930 represented 50 per cent of new lateral construction.

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Conner Creek and Fox Creek were enclosed in 1929 and 1930, respectively, with flow diverted to the DRI upstream of Fairview Pumping Station. By 1930, part of the East and West Jefferson Avenue Relief Sewers had been completed to intercept and convey the storm flow generated on the east side of Detroit to the Conner Creek Pumping Station.

In the early 1930s, the Federal Emergency Administration of Public Works (PWA) administered a program of public sewer cleaning and repair of older sewers. This program generally consisted of restoration of the cross-section, lining the interior with an additional ring of brick, grouting cracks, and rebuilding old sewers having timber inverts. Work at outfalls was coordinated by the Detroit Department of Public Works (DPW) in conjunction with the construction of sewer overflow regulator chambers for the DRI.

Interceptor and wastewater treatment plant construction was underway in the years 1935 through 1940. 1940 marked the completion of the Detroit River Interceptor, the Oakwood-Northwest Interceptor, and the original Detroit primary wastewater treatment plant.

The depression limited public sewer construction between 1930 and 1945. Some lateral sewer manhole construction along problem reaches of laterals was accomplished with the aid of WPA or PWA funding. Short lateral relief sections were constructed as needed. The major combined sewer relief program was introduced in 1945 and has continued to date. Typically, homes constructed after 1945 were connected to laterals installed 20 to 25 years earlier.

The Detroit collection system was expanded to the present City limits by 1951. Construction continued under the combined sewer relief program during this period. Monolithic concrete construction in tunnels was generally used for sewers 5'-0" in diameter or larger. A minimal amount of construction was by the open cut method. Reinforced concrete pipe was also jacked into place for smaller sizes. Brick was used for special sections in smaller sewers or where connections to existing sewers were made.

By 1975, lateral sewer construction had been completed in the last undeveloped areas and in the inner city urban renewal and rehabilitation areas. Short lateral sections and replacement sewers were constructed as needed. A breakdown of age for each type of sewer is included in Table 2. As mentioned above, the age of about 30% of the system had to be estimated because of incomplete sewer records.

Table 2. Sewer Type by Age

Type	Total Length (mi)	0-50 yrs	50-99 yrs	>100 yrs
Interceptor	83	55	28	
Trunk	483	37	364	82
Connectors	559	63	389	107
Lateral	2,258	270	1,596	392

1.3 Background

The information in is report was derived from review of previously compiled TV tapes, extracting information from the paper files of previous TV inspections, reviewing construction drawings, reviewing sewer maps, extracting data from the WOTS (Work Order Tracking System), excerpts from the existing DWSD computerized sewer maps, excerpts from previous studies, personal interviews and personal observation. The basis for the recommendations in this report are derived from the findings under past and current conditions, and are intended to help develop an effective management approach to maintaining continuous uninterrupted sewer service to the citizens and establishments of the City of Detroit for the existing sewer system.

The existing map records for the City of Detroit sewer collection system are divided into four (4) Maintenance Districts. This report selected a representative group of map pages for analysis and the selected pages are highlighted in Figures 2 through 5.

Records of the sewer system for each district are divided into map page areas, which cover approximately 1/3 of a square mile of area. Each of the four districts are shown in the following figures and the summary follows in Table 3.

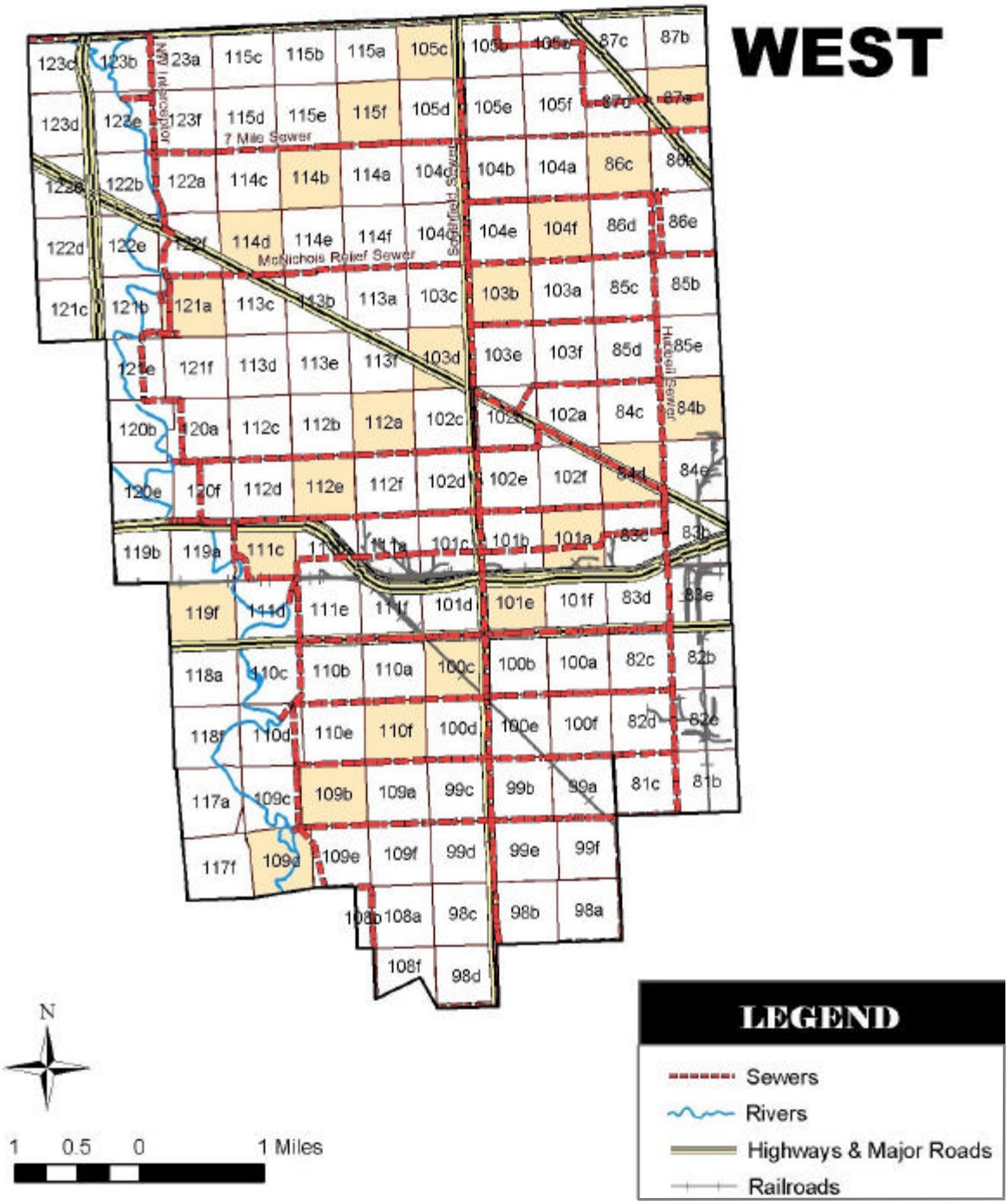

Figure 2. Map of West Sewer Maintenance District

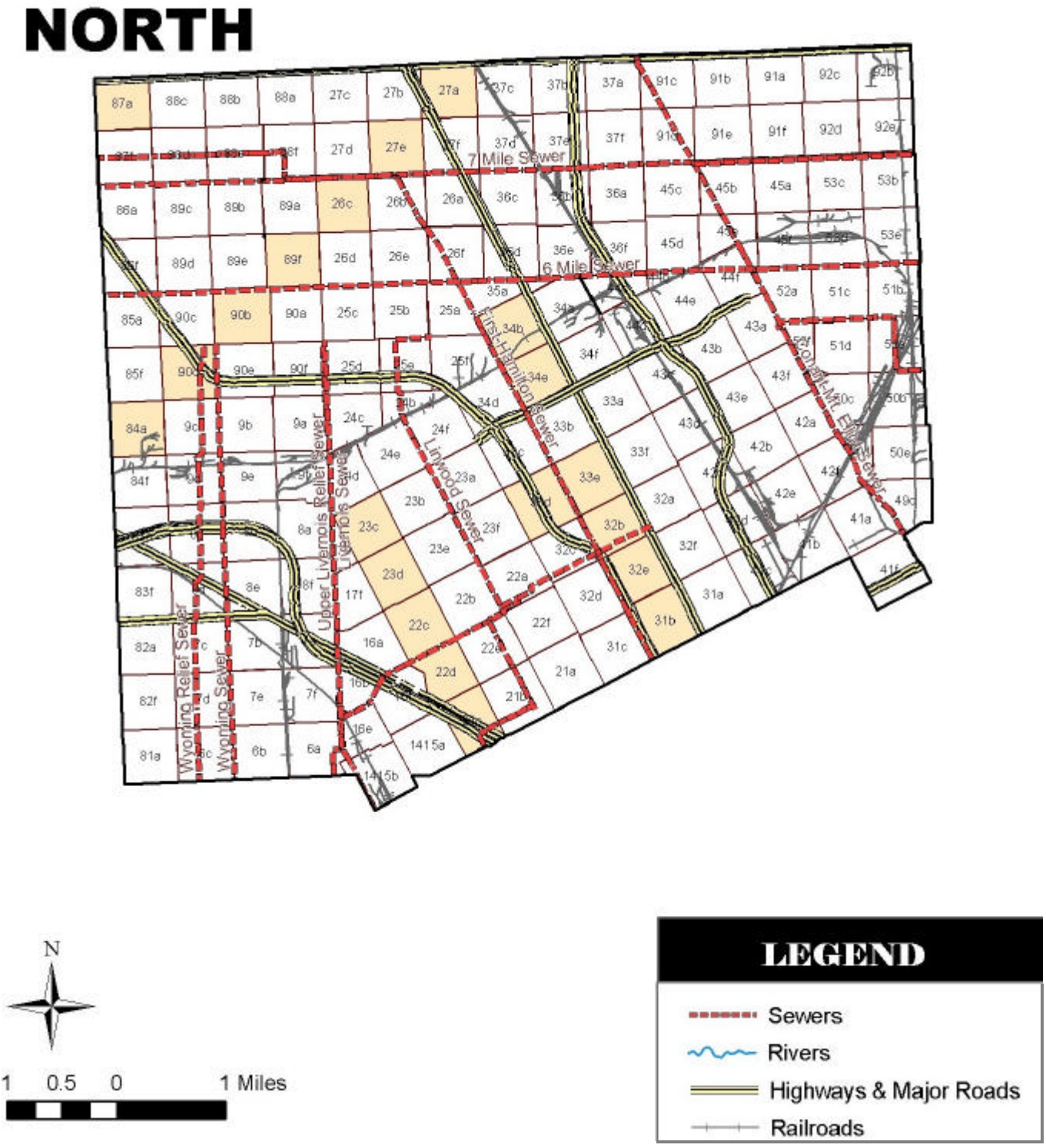

Figure 3. Map of North Sewer Maintenance District

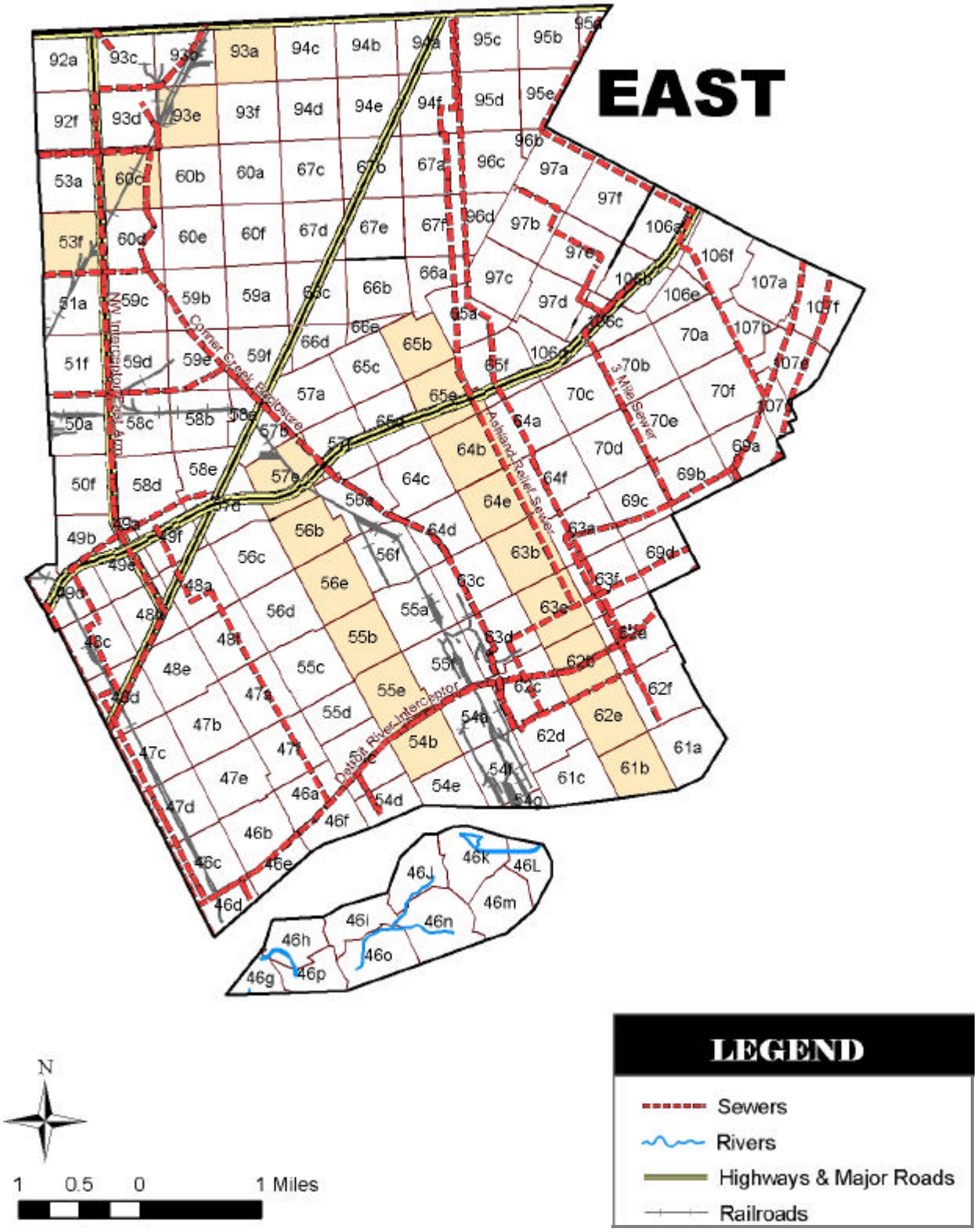

Figure 4. Map of East Sewer Maintenance District

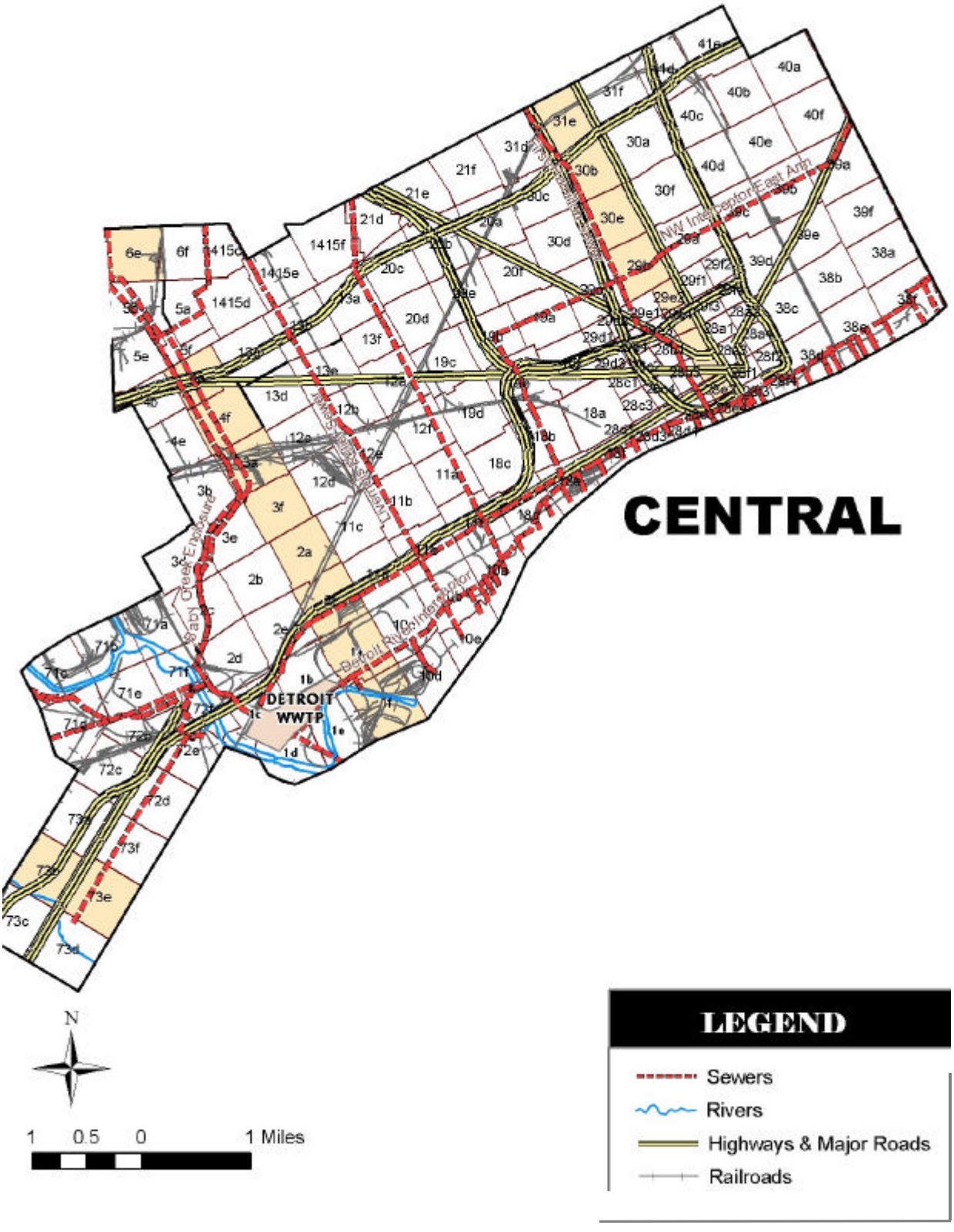

Figure 5. Map of Central Sewer Maintenance District

Within each District, there are many map pages. The second column in Table 3 reflects the number of pages in each District and the total number of map pages, which cover the entire City. For this report, a selected representative number of map pages were identified and targeted for the data collection. They were picked at random and provide a good cross-section of the conditions of the lateral sewer system. The selected number of pages and percentage of each District are listed in Table 3, and the location of the representative area can be viewed in Figures 2 through 5 by the solid polygons.

Table 3. DWSD Sewer Section Maps

Region	Number of Sewer Sub-Section	Selected Map Number*	Percent Selected / Region
West	178	22	15.2%
North	166	21	12.0%
East	165	22	13.3%
Central	128	21	13.0%
Total	637	86	13.3%

The specific number of records collected for each map page in this report is reflected in Table 4 below. The service call (WOTS) count for each map page reflects wastewater service calls only. The number of TV inspection records analyzed, are listed by map page.

Table 4. Sewer TV Inspections

West District		North District		East District		Central District	
Map Page #	TV Inspections	Map Page #	TV Inspections	Map Page #	TV Inspections	Map Page #	TV Inspections
84-B	21	21-C	5	51-B	2	28-B	0
84-D	14	22-C	15	52-C	0	28-B-2	2
86-C	9	22-D	11	52-D	0	28-B-4	2
87-E	0	23-C	3	53-F	7	28-E	0
100-C	2	23-D	4	54-B	10	28-E-2	3
101-A	5	24-D	2	55-B	3	29-B	14
101-E	5	26-C	11	55-E	12	29-E	5
103-B	10	27-A	1	56-B	18	2-A	19
103-D	22	31-B	14	56-E	12	2-F	11
104-F	9	32-B	25	57-B	0	30-B	1
105-C	0	32-E	5	57-E	4	30-E	0
109-B	3	33-D	11	60-C	6	31-E	3
109-D	0	33-E	0	61-B	11	3-A	0
110-F	4	34-C	0	62-B	3	3-F	18
111-C	0	34-E	0	62-E	40	4-A	1
112-A	4	84-A	12	63-B	2	4-F	2
112-E	16	89-F	11	63-E	6	6-D	0
114-B	9	90-B	12	64-B	3	73-B	5
114-D	9	90-D	3	64-E	4	73-E	17
115-F	15	27-E	12	65-B	4	1-A	9
119-C	0	87-A	5	65-E	6	1-F	0
119-F	2			93-A	2		
121-A	5			93-E	7		
				6-D	0		

2. Sewer Summary Information

2.1 Definitions of Sewer Terms

The following terms are defined for use in this memorandum (Source: CS 1158).

1. Service connection

   A pipe that carries the wastewater flow from a customers facility to a point where it is joined to the public sewer system. This joining may be in the form of a manufactured plumbing piece [such as a "Y" or a "T"], or a custom-made opening in the public sewer main where the customer's pipe penetrates the lateral sewer.

2. Lateral Sewers

   A sewer that collects flows from home and business service connections and transports the flow into a trunk sewer. It has few or no other common sewers tributary to it. There are over 2,200 miles of lateral sewers throughout the collection system for the City of Detroit.

3. Connecting Sewers

   Pipes that connect more than one lateral sewer to a trunk sewer. A pipe that connects one region of lateral sewers to another, or one region of lateral sewers to a trunk sewer. These pipes are generally 24' to 48" diameter in size and are considered as intermediate transports to the trunk sewer system.

4. Trunk Sewers

   A sewer that receives flow from lateral sewers and sends the flow to an interceptor. These sewers would have limited service connections.

5. Interceptor Sewers

   A large diameter, deep sewer that receives flow from a number of trunk sewers and transports the flow to the WWTP. Service connections to these sewers are not recommended There are three (3) interceptor sewers serving the City of Detroit [typically called the "common use" interceptors]: the Detroit River Interceptor (DRI), the North Interceptor - East Arm (NI-EA) and the Oakwood North West Interceptor (ONWI).

6. Combined Sewer

   A sewer that carries both wastewater and storm water flows. Combined sewers are found primarily in older, urban systems in the northeast and upper Midwest of the United States. Combined sewer systems were built up until the 1950's.

7. Force Main

   A pressure pipe joining the pump discharge at a water or wastewater pumping station with a point of gravity flow.

8. Outfall

   The sewer pipe where a combined sewer discharges into a lake or river. Detroit has 81 outfalls that discharge to the Detroit and Rouge Rivers. Combined sewage is discharged through these outfalls during heavy rains to prevent backups in residential basements and on streets. Each outfall is listed in the NPDES discharge permit issued to the City of Detroit.

9. Sanitary Sewer

   A sewer that carries liquid and waterborne wastes from residences, commercial buildings, industrial plants, and institutions together with minor quantities of ground, storm and surface water that are not admitted intentionally.

10. Separate Sewer System

    A sewer system carrying sanitary wastewater and other water-carried wastes from residences, commercial buildings, industrial plants, and institutions, as well as minor quantities of ground, storm, and surface water that are not intentionally admitted.

11. Sewer Pipe

    A pipe that carries wastewater or storm water. Sewers can be classified into three levels: interceptors, trunk and lateral.

12. Sewer Separation -

    Replacing a combined sewer with a separate sanitary sewer pipe and a storm sewer pipe. The sanitary sewer pipe flow is transported to the wastewater treatment plant and storm sewer flow is discharged directly to a drain or river, without treatment.

13. Sewer condition grades;

    The following is a description of the four (4) grading terms used to assess the lateral sewers which inspection records were reviewed for. A detailed listing can be found in Appendix 5.2 of this document.

    - "Excellent" – Pipe is clean, fully functional, structurally sound, properly aligned, service connections intact, and no evidence of corrosion or cracking. These pipes could still have their full useful life.

- "Good" – Pipe is free of obstacles and noticeably clean but may show occasional signs of slight cracking. No open joints are evident and most sections are properly aligned. Service connections are reasonably in tact, and little or no evidence of corrosion appears. These pipes may have 75% of their functional life remaining.

- "Fair" - These pipes will need to be inspected again in 10 years and have less than 50% of their useful life remaining. Minor to moderate infiltration is occurring. Some evidence of corrosion may be seen on pipe walls. Occasional cracks have opened enough to allow roots to penetrate. An occasional dip in the pipe may be allowing sedimentation to build which is slightly reducing the capacity.

- "Needs Investigation" – Structural cracks appear in 2 out of every 3 sections of pipe. Some cracks and joints are noticeably allowing exfiltration and infiltration. These pipes need to be placed on an annual watch and replacement / repair will need to be implemented in 10 to 20 years. An occasional obstruction may be reducing the pipe's capacity by 20 to 30%, or, – Pipe is more than 50% obstructed. Occasional pieces of pipe may be missing. Corrosion is so severe that the core of the pipe wall is visible. Collapse is inevitable and attempting to perform maintenance cleaning could further impede the ability to restore service flow. Repair / replacement needs to be planned immediately.

2.2 Sewer Types

Three (3) critical components of the collection system are listed below and plotted by length in Figure 6.

- Service connections

- Lateral sewers

- Connecting Sewers

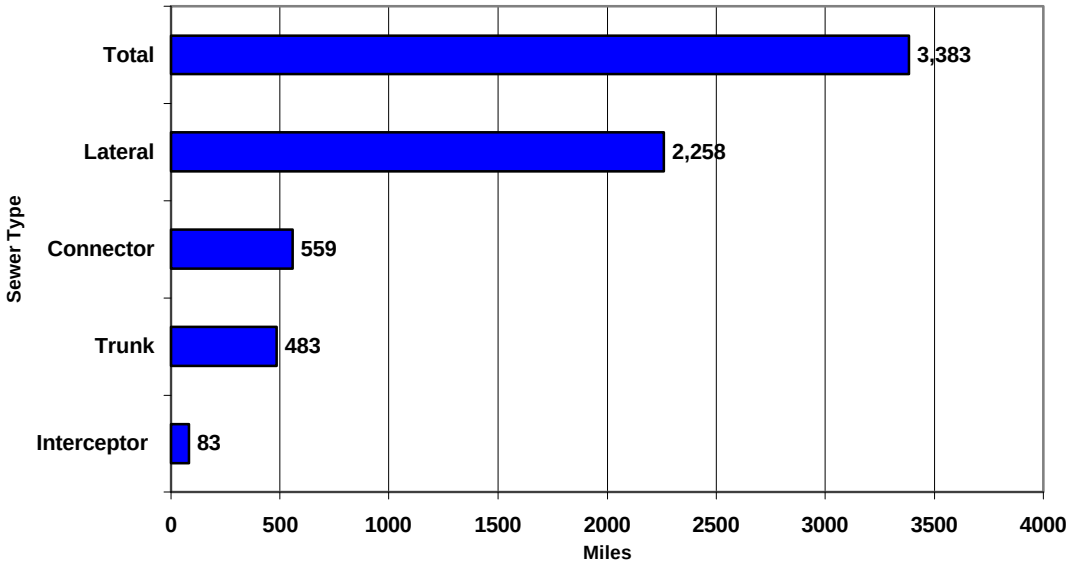

Figure 6. Sewer Types

2.3 Condition Findings

Sewers are damaged and flow is disrupted for a variety of reasons. Typical reasons are discussed here and shown in Table 5.

Table 5. Potential Sewer Problems

Problem	Problem Causes
Root Growth	Roots penetrating through pipe joint and broken pipe sections.
Off-Set joints	Ground movement and pipe joints cause debris buildup.
Sedimentation	Broken pipe allows soil to be washed into pipe.
Corrosion	Corrosion or breakdown erode away pipe vent. "Bottomless" Pipe
Obsolete Material	Orangeberg Pipe is a discontinued product due to poor performances and design life. Pipe crumbles during normal cleaning.
Infiltration	Groundwater penetrates pipe joints and cracks.
Exfiltration	Effluent escapes pipe to contaminate surrounding soil.
Structural Cracks	Material fatigue, changes in the support of the backfill around the pipe
Undersized Sewers	Small sewers
Grease	Small incident presence of grease build-up on sewer walls which attaches itself to other debris causing blockage
Odor	Sewer gases
Adverse Soil Conditions	Heavy sand
Utility Interference	Errors from directional boring causes pipe penetration.

2.3.1 Roots

The sewers located near terraces and in alleys or vacated alleys appear to be affected by tree roots, that have entered through cracks and joints, more than any other lateral sewers.

Deeper (more than 15feet) lateral sewers did not have as many root problems.

2.3.2 Off-Set Joints

If the pipe sections are not properly seated, the alignment of the pipe from one section to another can change. These alignment changes at pipe joints or "off-sets" are sometimes caused by ground freezing and thawing, vibration from nearby construction, or effects from a leaking sewer that changes the stability of the backfill in the pipe's trench.

2.3.3 Sedimentation

Sedimentation is a buildup of material in the inverts of sewers. It is most often caused by grit — the heavy suspended inorganic matter present in water or wastewater, such as sand, gravel, cinders — heavy organic matter or soil entering the pipe through cracks or open joints.

In 1959 the Baby Creek barrels and the Conner barrels were used to store dry weather flow by manually adjusting the regulators in an attempt to moderate the variations in the hydraulic load on the treatment plant. Sedimentation occurred at both locations. The sediment deposits in the Conner barrels were not dislodged by the lower gradient however. This was due both to the design of the sewer and its distance from the Wastewater Treatment Plant.

Inspection of the three Conner Gravity Sewer barrels in 1967 revealed that the two outside barrels were partially filled with deposits. The center barrel remained relatively clean, cluttered with larger pieces of concrete and brickbats since the deposits in the outer barrels had formed natural dams which forced all dry weather flow through the center barrel with increased velocity. Near the transition section, the east barrel contained deposits approximately 7 feet deep.

2.3.4 Corrosion

Corrosion is the deterioration of sewers through chemical action or mechanical abrasion. Samples of concrete from a Detroit sewer more than 50 years old revealed that deterioration was occurring. The presence of iron oxide and calcium hydroxide through the material indicated the acid nature of the wastewater had corroded the pipe. Also, inspection of a 54-inch elliptical sewer showed a strong presence of acidic activity on the iron frame and lid, suggesting the presence of hydrogen sulfide. This could cause the lid to rust to the frame, preventing access.

2.3.5 Obsolete Material

Obsolete Material consists of pipe products that are discontinued due to poor performance or improper design.

One example is Orangeberg Pipe, which is a trade name for a discontinued brand of pipe that has a tendency to crumble during cleaning, well before the useful life of normal pipe material.

2.3.6 Infiltration

Infiltration is the excessive flow of groundwater into sewers through leaking joints, cracks, or deteriorated manholes or other structures. Footing drains connected to the sanitary or combined sewers can also be a major source of infiltration.

2.3.7 Exfiltration

Exfiltration is sewage that escapes from sewer pipes through open joints or cracks. It can cause environmental and health hazards if it reaches ground surface or a watercourse. In many instances in Detroit, exfiltration has mixed with the fine aggregate making a slurry type soil material that can flow back into the sewer creating a potential blockage.

2.3.8 Structural Cracks

Structural Cracks are imperfections in sewer pipe structural integrity that can allow infiltration, and in severe cases lead to complete collapse of the conduit. In older sewers, longitudinal “stress” cracks are seen at the top or on the side of the pipe wall.

2.3.9 Undersized Sewers

Undersized Sewers are pipes whose hydraulic capacity is less than the flows that they are required to carry. Sewers may have been undersized due to original design or due to additional service area being added that was not planned for. The darkest portions of Figure 7 show districts in Detroit where undersized sewers are a problem.

Currently there are several major sections of DWSD's system that have sewers that fall into this subject "Small Sewer Feature", which are as follows:

- West District Sewer System known as "Old Redford Area". Sections of the Five Points to Lahser and W. 7 Mile to Curtis. Sewer section map numbers 122-A; 122-B; 122-C; and 122-F.

- West District's North Rosedale Park - bounded by Southfield to Evergreen and Grand River to W. McNichols.

- Too small and adequate sized sewers found in easements between Greenfield and Southfield Roads, West McNichols to Fenkell. Many of these smaller lines were constructed with exceeding long distances between up-stream manholes and discharge points. Such conditions result in basement flooding conditions.

- East District Separated Sewer System - Section Maps Numbers 63-A through 63-F; 64-A through 64-F; 70-A through 70-F; 106-A through 106-F and 107-A through 107-F

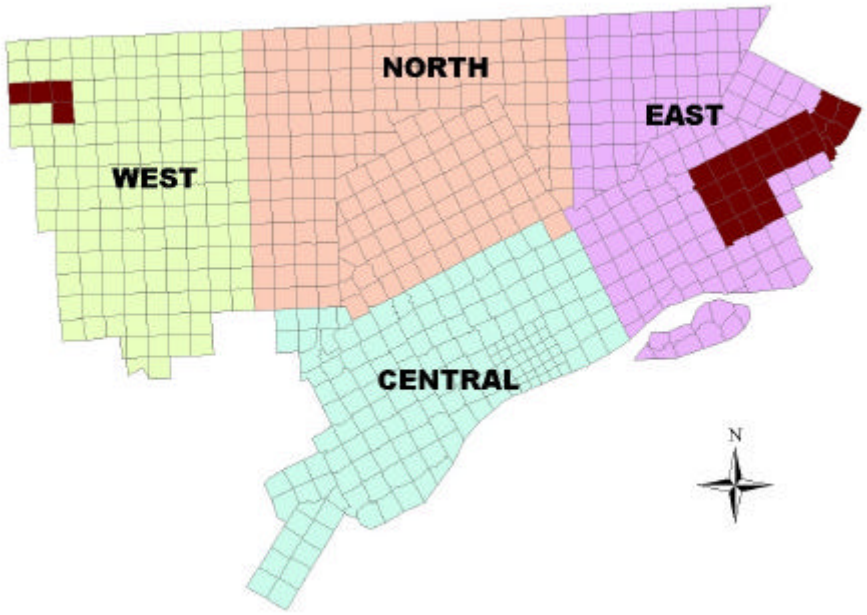

Figure 7. Location of Small Sewers

Even though some sewers found within the 106 and 107 series are of adequate size and depth, they are located in overgrown easements that are somewhat difficult to access. Since they are public sewers, access conditions do not preclude DWSD from performing maintenance and rehabilitation tasks as needed. Spaces of these type sewer systems are found throughout DWSD's eastside maintenance district.

2.3.10 Grease

Grease is often generated as a byproduct from food preparation establishments. If it is not trapped before it enters the public sewers it will often lodge against pipe walls or other debris potentially creating a solid obstruction to the wastewater flow.

2.3.11 Odor

Sewer odor is caused by the venting of gas through existing openings in the public or private system. The sewer gas is most often found where debris can build up and begin to decompose, or where obstructions allow liquid sewage to remain stagnant and begin to turn septic.

2.3.12 Adverse Soil Conditions

Adverse soil conditions present problems in some areas of Detroit. Poor soil conditions can create extreme pressures on sewers, leading to cracking or collapse.

Also, in areas where fine soil surrounds the sewer pipes, the soil material migrates its way into sewer cracks. Crews have observed this often in the VCP that has commonly been used for the last 70 years in the system.

Deep sandy soil sewers across the top section of the city starts at about Puritan Avenue. These lines lie in sandy soils which, as described earlier herein result in cracked pipe, sand and water infiltration, along with large root intrusions.

Cleaning processes in order to remove both roots and sand, greatly contribute to a larger degree of deterioration of the lines. If bucket dragging of the lines is performed, it (bucket) rides on top of sand, resulting in crushed crowns of the sewer. The use of high-pressure water jet processes, causes additional sand to be sucked in through existing pipe cracks.

During the 2001 calendar year, DWSD's contractor, Inland Waters (CS-1325), cleaned, televised, and lined sewers in an area bounded by the alley west of Livernois to Schaefer Avenue, west 7 Mile Road to west Outer Drive, the lower half of north sewer section maps no. 87-F, 88-D, 88-E, and 88-F. Maintenance personnel highly recommend that the upper half of that same section be treated in the same fashion, which is W. Outer Drive to Pembroke, and Livernois to Schaefer Highway.

2.3.13 Utility Interference

Utility Interference is the damage to or intrusion of sewers by other utility conduits. Locator information for all utilities is required before below-grade excavating or directional boring can occur. Lack of information and poor contractor practices have led to small utility leads being placed through the sewer pipe. The exposed infiltrating utility pipe becomes a trap for debris that moves through the sewer system.

2.4 Statistics

The sewer system pipe network is made up of several material types. The following paragraphs describe the age, material type and lengths of sewers in the City of Detroit.

2.4.1 Sewers by Service Call History

Table 6 includes a summary of service calls by Map Page as they were established in the WOTS system for the maintenance Department at DWSD. The purpose of this section is to show the number of sanitary sewer related problem calls by map page, that came in to the Dispatch center in the sewer maintenance department.

Table 6. Distribution of WOTS calls

West District		North District		East District		Central District	
Map Page #	No. of WOTS Calls	Map Page #	No. of WOTS Calls	Map Page #	No. of WOTS Calls	Map Page #	No. of WOTS Calls
84-B	148	21-C	89	51-B	62	28-B	104
84-D	161	22-C	89	52-C	1	28-B-2	11
86-C	95	22-D	89	52-D	3	28-B-4	32
87-E	108	23-C	108	53-F	99	28-E	79
100-C	61	23-D	106	54-B	68	28-E-2	20
101-A	44	24-D	64	55-B	173	29-B	61
101-E	77	26-C	44	55-E	42	29-E	76
103-B	147	27-A	1	56-B	100	2-A	79
103-D	125	31-B	64	56-E	91	2-F	63
104-F	108	32-B	121	57-B	3	30-B	22
105-C	165	32-E	67	57-E	51	30-E	86
109-B	108	33-D	57	60-C	34	31-E	49
109-D	10	33-E	33	61-B	53	3-A	16
110-F	160	34-C	12	62-B	51	3-F	211
111-C	30	34-E	4	62-E	25	4-A	46
112-A	62	84-A	64	63-B	44	4-F	64
112-E	65	89-F	100	63-E	79	6-D	3
114-B	73	90-B	103	64-B	107	73-B	21
114-D	103	90-D	107	64-E	119	73-E	98
115-F	108	27-E	41	65-B	102	1-A	75
119-C	15	87-A	69	65-E	109	1-F	1
119-F	26			93-A	73		
121-A	72			93-E	78		
				6-D	3		

2.5 Material Types

The sewer system is made up of several different types of pipe material. Material types changed in popularity as the years went by and technology changed. The approximate quantities of each type of material used in the Detroit sewer system are listed in Table 7 below.

Table 7.Sewer Pipe Material Breakdown

Material	Miles
Glazed VCP	941
PVC	12
VCP	1,887
RCP	12
CCP	138
Brick	393

2.5.1 Cast Iron

A small portion of the sewer system in the City of Detroit is made up of Cast Iron pipe, and appears to have installation dates prior to 1930. This material is highly corrosive and may be more vulnerable to failure

2.5.2 Glazed Vitrified Clay Pipe or "Crock"

The vitrified clay tile sewer pipe with the smooth glazed surface (glazed VCP) is commonly referred to as "crock" sewer. It was designed to be placed by spigot into bell on a solid base and when properly backfilled, could withstand sewage flow conditions quite well. One of the weaknesses of glazed VCP sewer is that it is brittle and when service connections were made, or construction was done nearby, or when cleaning machinery passed through, it would crack or chip or sometimes a piece of the pipe wall would break out.

2.5.3 PVC

Polyvinyl chloride (PVC) material is durable and lightweight. This material is joined by a glue-bonding process making it the most water-tight pipe material available for sewers today. This material is smooth and offers good transfer of the waste water flow.

2.5.4 Vitrified Clay Pipe

Vitrified clay pipe (VCP) has been a proven product for sewers for many years. It comes in short lengths to make it manageable and is easy to fit together by section. It is a brittle material so care must be used in handling and placing the pipe, but once properly bedded, this pipe has proven to be very good.

2.5.5 Concrete

Various types of concrete are used for storm drains, culverts, storm sewers and sanitary sewers.

2.5.6 Reinforced Concrete

Formed concrete pipe with steel reinforcing material embedded in its walls. This product is very strong and is popular for large diameter pipes.

2.5.7 Brick

Almost every public sewer installed from 1836 to 1910 was constructed using bricks. Until 1892, laterals were also constructed of brick. In the early years, one ring of common brick construction nine inches thick was used for all sizes of sewers. Many of these public sewers required rebuilding and repair in the late 19th Century. Repairs generally consisted of restoration of the cross section and lining the interior with a second ring of brick. Later, public sewers were built of two ring brick and the largest ones in three ring brick.

2.6 Maintenance

Maintaining the sewer pipes can be done through number of services. These include:

- Televised inspection and cleaning
- Sewer jetting and vacuuming services
- Flushing
- Physical Inspection

A study was made of sewer flushing practices to determine the feasibility of reducing pollutional load of storm water overflows during dry weather conditions as well as to reduce solids build-up in the low spots in the lateral sewer lines. Flushing would be accomplished by a series of flush tanks installed in or next to existing manholes of the combined sewer. These flush tanks would be filled with sewage plant effluent or other strained raw sewage that would be most practically available. The operation of the tank would be controlled at timed intervals, to release its contents to increase the hydraulic volume during calculated flow times so as not to create a back-up. The rapid release of the volume of liquid would increase the velocity and volume of the flow enough to set solids deposits free and carry them on down them on down the line. Sewer sizes and flow history should be studied to determine if the tank releases can produce enough rapid volume to achieve the desired conditions. This would not work on large diameter pipes but would be ideal for lateral sewers.

Another way to help minimize the problem of flow restrictions in the sewer is through a grease prevention program.

For residential customers, this can be done through an educational process where flyers can be mailed to the home owner, describing how to remove grease from the waste that goes down the drain and inform them of alternative methods of disposing of the grease. For food preparation establishments, a grease trap program can significantly reduce the grease product that gets into the sewer. Owners would be

required to install a grease trap device and set up a regular cleaning arrangement for the grease to be hauled off the premises. Plumbing guidelines would be distributed to avoid the piping of hot water through the grease trap drain system. A regular inspection program could be conducted by having sewer maintenance crews visit 2 or 3 food preparation establishments each day on their return from jetting and cleaning assignments. Properties that showed evidence of improper care could be radioed in to dispatch and ordinance compliance notices would then be sent to the appropriate address.

2.7 Assessment

Table 8 is a representative report of the conditions of the lateral sewer records reviewed in the DWSD field engineering office.

Table 8. Condition by Segment

	North		West		East		Central		Total	
Segments Inspected	166		178		165		128		637	
Excellent	9	5.4%	7	3.9%	16	9.7%	6	4.7%	38.2	6.0%
Good	74	44.6%	95	53.4%	105	63.6%	67	52.3%	342.6	53.8%
Fair	63	38.0%	48	27.0%	30	18.2%	32	25.0%	173.8	27.3%
Needs Investigation	20	12.0%	28	15.7%	19	11.5%	20	15.6%	87.4	13.7%

2.8 Solutions

DWSD's operational approach to the various problems being encountered in the lateral sewer system has been to respond as the situation dictates. Responding to sewer calls is the measuring stick of what action has been needed to resolve the problems that come up. In addition to standard procedures like the maintenance procedure of "jetting", there have been solution tasks performed to help keep the sewers in good operating condition. Some examples are listed below.

2.8.1 CIPP

DWSD has been using CIPP (Cured-In-Place Pipe) for the rehabilitation of sewers since 1981. CIPP can be used for the full range of pipes in main line manhole-to-manhole applications. It takes experience to install the pipe liner properly. CIPP is a flexible cured-in-place pipe suitable for a number of different uses and installations. It is available in a full range of pipe diameters and wall thickness. Prior to impregnation within the liner tube, each batch of resin is tested in-house for stability and curing. The pipe also undergoes third party testing to insure the product exceeds ASTM's strength requirements.

Figure 8 shows the approximate amount of active Cured In Place Pipe, which has been completed, on existing sewers over the past 20 years.

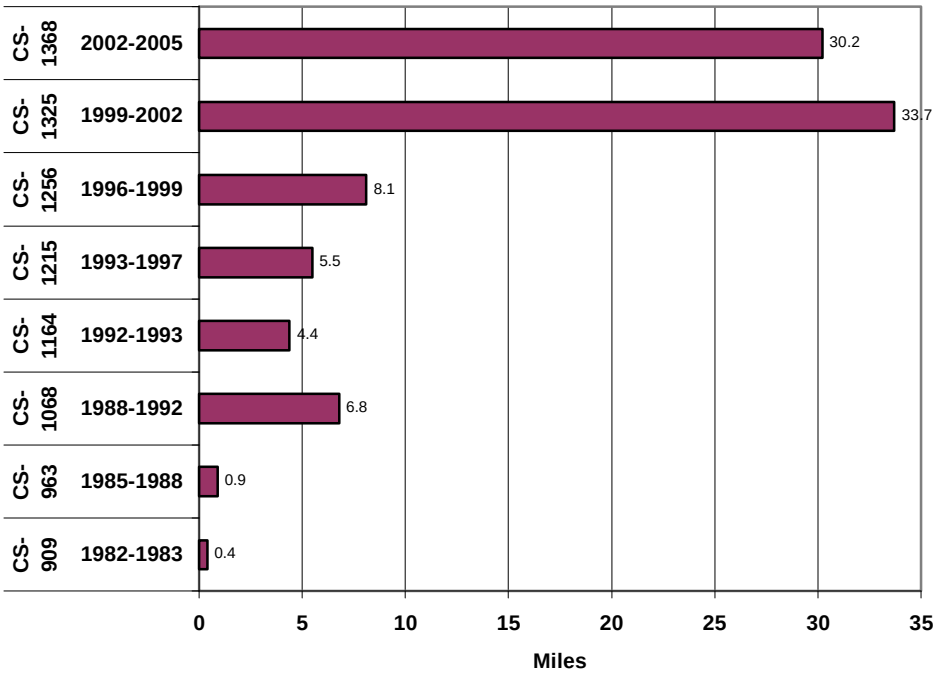

Figure 8. CIPP Installed Lengths by Contract

2.8.2 Open Cut Replacement/Repair

When open cutting occurs in the street, traffic has to be rerouted. This method can put other underground utility structures at risk, and the weather factor makes this method of construction sometimes unpredictable.

2.8.3 Pipe Bursting

Pipe bursting is the only method of trenchless technology rehabilitation that permits upsizing or size-for-size pipeline replacement. It is cost-efficient, proven in over 32 million feet of use and ideal for cast iron, clay, concrete and other fracturable pipelines. Because of its upsizing capability, an existing 8-inch pipe, for instance, can be replaced with a 10-inch pipe with very little disturbance of the work area. Pipe bursting offers significant cost savings over the dig-and-replace method. It can be done faster and with less disruption of the landscaping.

2.8.4 Sediment Boxes

Limited history of this type approach in the City of Detroit.

2.8.5 Pipe Liner

Ultraliner has proven itself to be the most advanced and cost-effective system for lining sewer and storm sewer pipe up to 24 inches. There is little disruption to customers. Liner is capable of lining severe offsets, extreme bends, size transitions, voids in the pipeline and corrugated metal pipe.

2.8.6 Vacuum Sewers

Vacuum lateral sewers can cost up to 60% less than conventional gravity sewer systems because of its fast installation, shallow burial depths, smaller diameter mains, and having no lift-stations, manholes or confined spaces. These systems also have low (O&M) costs. Systems are sealed, so there is no hydrogen sulfide, inflow, infiltration, or exfiltration. Very low negative pressures are required, yet transport is fast. Sewage flows by gravity from homes or businesses into a collection sump, which may serve up to 4 customers. When 10 gallons of sewage accumulate in the sump, the vacuum interface valve located above the sump automatically opens a differential pressure propels the sewage through the valve into the vacuum main. The sewer mains are under a vacuum created by pumps located at the vacuum station. Sewage flows through the vacuum mains and into the collection tank at the vacuum station. Sewage pumps then transfer the sewage from the collection tank into a nearby gravity or force main which takes the sewage to a trunk sewer, or interceptor. These sewer systems perform best when separating an existing combined sewer system, particularly in a downtown area. A vacuum system can often be installed over or next to an existing gravity sewer system due to the shallow depths.

3. References

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Appendix A

Construction Information								Inspection Information							
Sewer Section Map Number	Location/ Section Map District	Year Installed	Pipe Material	Size	Grade Elev./ Depth	Pipe Number	Drawing Number	Inspection Report Number	T.V. Number/ Tape Number	Length	Pipe Condition	Inspection Date	Rehabilitation Date	Rehabilitation/ Repair/ Cleaning Method	Remarks
28-B2	40' N of NPL of Middle, 19' E of WPL of Clifford District-C	1853	Brick	36"	8'	N/A			96506 B25	649	N/A	1/17/1996			19 service connections including a CB lead 538' were found. A conduit was running through the sewer at 143' from East to West. A large concrete slab was restricting sewer flow at 647'. 13 taps were from vacant lots. Sewer was holding 15" to 20" of sludge.
29-E4	18' E/ WPL of Clifford, 96' N/ NPL of Columbia District-C	1858	Brick	36"	16.4'	PG 62			96503 B25	147	N/A	1/17/1996			10 taps including a Catch Basin lead at 134' were found. Sewer was holding about 30" of sludge and debris. Camera could not pass.
29-E4	24' N/SPL of Fisher Fwy., 19' E/WPL of Clifford District-C	1858	Brick	36"	15.5'	PG 62			96505 B24	258	Structurally sound	1/6/1996			7 taps including a Catch Basin lead at 22' were found. Sewer was holding about 4" -7" of debris.
29-B	"T" Alley E/Cass between Parson & Davenport District-C	1870	Brick	1893	8'	Roll 1128			96208 C3	171	N/A	10/6/1996			14 taps were found. All of the taps were from vacant lots. Due to the presence of bricks, gravel and debris in the sewer, the camera could not go any further.
29-B	"T" Alley E/EPL Cass between Parson & Davenport 192' E/MH District-C	1870	Brick	15" Per Dwg. 15"x 20"	8'	Roll 1128			97115 11A	55	N/A	7/11/1997			3 taps from vacant lots found. Pipe under water from 30' to 50'. At 55' camera unable to pass due to debris.
29-B	201' E/EPL Cass, 171' S/SPL Parson District-C	1870	Brick	15" Per Dwg. 15"x 20"	9'	Roll 1128			97893 C4	225	N/A	7/10/1997			17 taps found including one catch basin lead at 202'. At 197' sewer has a lot of debris.
29-B	180' S/SL of Parsons between Parson & Davenport E/ of Cass District-C	1870	Brick	15" Per Dwg. 15"x 20"	9'	Roll 1128			96211 C4	406	Structurally sound	10/8/1996			21 service connections including a Catch Basin lead at 15' were found. 2 of the taps were from vacant lots. Sewer was holding 6" to 9" of sludge and debris. A few bricks were missing from the pipe.
29-B	"T" Alley E of Cass between Parson & Davenport District-C	1870	Brick	15" Per Dwg. 15"x 20"	9'	Roll 1128			96587 B29	233	N/A	6/1/1996			5 service connections including a Catch Basin lead at 206' were found. Sewer was holding 6" to 9" of sludge and debris. Camera could go any further due to debris.
29-B	13' W of WPL of Second, Alley between Selden & Brainard District-C	1872	Brick	15"x 20"	10.5'	Roll 1495			90642	410	Structurally sound	7/31/1990		Cleaned by Jet Rodder	14 service connections including a Catch Basin lead at 166' were found. Sewer was holding 6" to 9" of sludge. Hard debris build-up was causing back water.
29-B	Paved Alley, 2' W of EPL of Cass, & 138' S of SPL of Alexandrine District-C	1872	Brick	15"x 20"	10.5'	Roll 1493			93616	220	Structurally sound	9/28/1993		Cleaned by Jet Rodder	The complainant was the homeowner at 4120 Cass. He could not get his water out from his house. 2 taps including a Catch Basin lead at 18' and the complainant's tap at 62' were found. The sewer was holding 3"-6" of sludge.
										0.52537879					
29-E4	Along CL of Park from S of Fisher to SPL of Montcalm District-C	1878	Brick	3'-0'x 4'-0"	17'	Rol l 2935			95364 76 S	330	Excellent	12/3/1995			A total of 16 connections to this 3'-0"x4'-0' brick sewer were recorded. The connections ranged from 6" taps from Detroit Edison Steam Manholes to larger 15"x20" laterals. About 2" of debris were found. High fog content, probably due to drainage from Detroit Edison steam Manholes was observed.
28-B4	114' W/WPL Woodward, 3' S/SPL Clifford District-C	1880	Brick	12"	12.3'	Roll 493			99006 C14	90	Good	2/1/1999			Inspection was done in response to a reported cave-in near 1459 Woodward. 3 taps were found including a 4" drain from a possible Detroit Edison conduit, a parking lot and a blocked/abandoned connection. Sewer needed to be cleaned.
31-E	8' E of W Second, Alley (Yal) between Grand Blvd., Milwaukee District-C	1887	Brick	15"x20"	9'	Roll 7880			89318	310	Structurally sound	11/8/1989		Cleaned by Bucket Machine	5 taps were found. High concentration of grease noticed.
31-E	3' E/WPL of Second, 183' S/SPL of W Grand Blvd District-C	1887	Brick	15"x20"	7.5'	Roll 7880			89737	75	N/A	10/14/1989			At beginning of inspection, 5"-6" of debris was noticed in the pipe. At 20' there was a 12" CB lead. At 35', 7"-8"' of debris prevented camera from moving further.
32-E	48' E/WPL of Woodward, 156' N/NPL of Clairmount District-N	1892	Brick	72"	25.4'	N/A			96665 B37	54	N/A	7/14/1996			One tap found. Sewer was holding 15" of sludge and debris.

29-B	"T" Alley W/Woodward between Parson & Davenport District-C	1893	Brick	15"	16.5'	Roll 2034			97117 12A	20	N/A	7/14/1997			One tap found. Intruding tap in over third of pipe, unable to pass.
29-B	"T" Alley W of Woodward between Parson & Davenport District-C	1893	Brick	15"	16.4'	Roll 2034			96586 B29	13	N/A	6/1/1996			One service connection from a vacant lot was found.
										0.16893939					
28-E2	12' N/NPL Larned, 96' E/EPL Griswold District-C	1903	Brick	15" Per Dwg. 12"	9.5'	N/A			97888 C3	10	N/A	7/9/1997			1 tap found. Pipe problem-unable to go any further debris and NFT sticking into sewer.
28-E2	12' N/NPL E Larned, 96' E/EPL Griswold District-C	1903	Brick	15" Per Dwg. 12"	9.5'	N/A			97878 C3	0	N/A	7/1/1997			Pipe-3/4 full of dirt and debris.
61-B	6' S/SPL Avondale & 30' W/EPL Lakewood District- E	1913	Brick	48"	12.7'	N/A			994116 A 15	468	Structurally sound	7/10/1999			There were a total of 3 connections. T connctions were a 36" from the west side at 28', a 25" from the east side at 211', and a 12" from the top at 394'. There was 12" of sludge and water in the sewer.
61-B	6' S/SPL Avondale & 30' W/EPL Lakewood District- E	1913	Brick	60"	12.7'	N/A			994115 A 15	460	Structurally sound	7/10/1999			No tap found. Sewer was holding 6" to 8" of sludge.
										0.17765152					
29-B	"T" Alley W of Cass between Selden & Brainard 15x20 brick sewer District-C	1961	Brick Per Dwg. Block	15"x 20"	12.2'	Roll 1356			4010 1 A	133	N/A	3/15/2000			5 taps including a CB line at 15' and 2 vacant lots were found.
29-B	222' S/SPL of Seldon, 20' E/WPL of Second, 18x20 brick sewer District-C	1961	Brick Per Dwg. Block	18"x 20" per Dwg. 15"x 20"	22'	Roll 1356			4009 1 A	215	N/A	3/14/2000			11 taps including 4 vacant lots were found. 3 of the taps were intruding. The camera could not pass the intruding tap at 215'
										0.06590909					
29-B	"T" Alley W of Woodward between Parson & Davenport District-C	1893	Clay	12"	16.4'	Roll 2034			96207 C3	190	Structurally sound	10/5/1996			18 service connections including 2 Catch Basin leads at 35' and 92' were found. 10 of the taps were from vacant lots. Sewer was holding 3" to 5" of sludge. A few bricks were missing from the pipe.
29-B	"T" Alley W of Woodward between Parson & Davenport District-C	1893	Clay	12"	16.4'	Roll 2034			96203 C3	206	N/A	9/30/1996			14 service connections including a Catch Basin lead at 34' were found. 8 of the taps were from vacant lots. The tap at 10' from Woodward side was sticking 3" into the sewer.
29-B	240' W of WPL of Woodward, 21' N of SPL of Parson District-C	1893	Clay	15"	18.8'	Roll 2034			96202 C3	219	N/A	9/30/1996			10 service connections including 2 parking lotswere found. 8 of the taps were from vacant lots. Sewer was holding 3" to 5" of sludge.
32-E	A=15' E of W Second between W Euclid & Philadelphia District-N	1893	Clay	15"	19'	Roll 2150			93179 46PA	105	Structurally sound	7/9/1993			This inspection was performed in response to a complaint from homeowner at 620 W Euclid and in conjunction with report no. 93178.. 3 taps were found. Sewer was extremely clean.
32-E	A=15' E of W Second 4' S of Alley CL between Euclid & Philadelphia District-N	1893	Clay	15"	17'	Roll 2150			93178 46PA	460	Structurally sound	7/9/1993			This inspection was performed in response to a complaint from homeowner at 620 W Euclid and in conjunction with report no. 93179. 22 taps including 2 CB leads at 28' and 228' were found. 6 of the taps came from vacant lots and 1 was from a parking lot.Sewer was extremely clean.
32-E	135' N/NPL Taylor, 33' E/WPL Second Ave. (cave-in) District-N	1893	Clay	18"	17.8'	Roll 2083			93229 VN 2	387	Poor	4/17/2000			This inspection was performed in response to a reported cave-in at 108 Taylor. 27 taps including 3 CB leads at 8', 62' and 341' were found. There were 12 abandoned taps including a CB lead, 3 defective taps, 1 broken tap and 1 tap having infiltration.The tap at 215' was protruding 3"-4" into the sewer and the taps at 294' and 282' was sticking 2" into the sewer. The service connections at 229' and 327' were almost totally collapsed. At 387' the sewer had lost its roundness. This segment of sewer could be a good candidate for lining with INSITUFORM.
28-E2	60' W/WPL Woodward, 15' S/SPL W Congress District-C	1894	Clay	15"	10'	#668			97906 C4	0	N/A	7/18/1997			Sewer has a wall of debris. Jet rodder needed to clean out sewer.

31-B	45' W/EPL of Second., bet. Delaware & Seward District- N	1894	Clay	15"	21'	Roll 3089			004178 8 A	134	N/A	9/9/2000			There were 7 taps including 2 Catch Basin leads at 52' and 91' which was abandoned. Inspection was done due a reported cave-in at 708 Delware. Over half of the pipe had considerable debris needing cleaning. Camera could not pass.
31-B	150' N/NPL of Delware & 36' W/EPL of Third, bet. Delaware & Seward District- N	1894	Clay	15"	15'	Roll 3262			4161	121	N/A	8/30/2000			There were 7 taps including 2 Catch Basin leads at 10' and 105'. Inspection was done due a reported cave-in at the rear side of 708 Delware.
31-B	400' W/WPL of Second, bet. Seward &Viginia Park District- N	1894	Clay	15"	15'	Roll 3091			97161 15 A	0	N/A	9/2/1997			The sewer was over half full with water. Tried after recleaning but camera could not proceed due to a bend in pipe.
31-B	183' W/WPL of Woodward & 36' S/SPL of Seward District- N	1894	Clay	18"	24.5'	#3091			99052 C 17	225	Structurally sound	10/18/1999			There were 8 taps It includes a Catch Basin lead at 44', 5 abandoned connections and 2 vacant lots. Inspection was done due a reported cave-in.The cave-in was at 218' where the sewer had some stress cracks but nothing to cause cave-ins. The cave-in was probably due to problems in the back fills.
31-B	255' E/EPL of Second, bet. Seward &Viginia Park District- N	1894	Clay	18"	13.3'	Roll 3091			96179 C 2	163	N/A	9/9/1996			There were 16 taps including a Catch Basin lead at 163' and a vacant lot. The complainant was from 80 Seward. Some roots were found at that location. Sewer was holding 3" to 6" of sludge.
31-B	"T" Alley, W of Woodward, bet. Seward & Virginia Park District- N	1894	Clay	18"	13.6'	Roll 3091			96178 2 C	187	N/A	9/9/1996			The complainant was from 80 Seward . The service connection for the apatment at this address had a sewer snake sticking of the non-factory tap at 172'. There were a total of 12 taps including a vacant lot. Two taps had 20% and 60% root obstructions and the sewer was holding 3"-6" sludge.
33-D	T-Alley W of Woodward 99' Lawrence & Burlingame District-N	1895	Clay	18"	20'	Roll 3684			98399 34A	178	N/A	10/21/1998			8 taps were found. All but 2 of the connections were abandoned.
33-D	613' E/EPL of Second between Lawrence & Burlingame District-N	1895	Clay	18"	22'	Roll 3684			98278 19A	71	N/A	6/23/1998			5 taps were found. 2 of the connections were abandoned. The owner of 40 Lawrence introduced water into his service connection but no water entered city sewer.
33-D	Alley W of Woodward, alley between Burlingame & Webb District-N	1895	Clay	18"	18.5'	Roll 3684			90098	660	Excellent	4/16/1990			The complainant was homeowner at 159 Burlingame. 58 taps including a CB lead at 5' were found. A leaking joint was observed at 102'. That could be due to the possible problems at 159 Burlingame.
31-B	Alley, 159' W/WPL of Bethune Ct., bet. Pallister & Bethune District- N	1896	Clay	15"	19'	Roll 4393			0193270 VN 12	398	Structurally sound	4/10/2001			The complainant was homeowner at 707 Pallister. Water could not be turned on at the house as nobody was home. But a continuous flow of water from the connection was entering the city sewer. There were 38 taps including 4 connections from vacant lots and 2 Catch Basin leads at 69' and 199' where sewer pipe was broken. 19 taps were abandoned and 7 were defective. 6 connections were shifted from 1" to 2".
31-B	156' N/NPL of Lothrop &12' E/EPL of Third District- N	1896	Clay	15"	22'	Roll 4339			98172 8 A	353	N/A	3/30/1998			There are 20 taps including 2 abandoned connections and 3 vacant lots. The complainant was from 742/744 Lothrop. The tap was tested by putting dye in the connection. It was holding water. At 2 places sewer was holding 2" and 3" of sludge. The sewer pipe was made of concrete and not clay.
31-B	Alley, 200' W/WPL of Second, bet. Lothrop & Bethune District- N	1896	Clay	15"	15'	Roll 4339			96134 81 PA	281	Structurally sound	5/14/1996			There were 18 taps including a Catch Basin lead at 137' and 7 connections from parking lots. A depression was found at 656 Lothrop at 120'. 656 Lothrop had 2 taps at 2" apart. The depression was in the parking lot on Bethune at the property line of parking lot and 661 Lothrop over tap at 117' (Sewer was OK). There were some grease marks in sewer. The sewer was found to be a 12" and not a 15" as shown on plan.
32-E	A=400' E of E Third between Hazelwood & Gladstone District-N	1897	Clay	15"	16'	Roll 5006			93186 47PA	400	Structurally sound	7/13/1993			This inspection was performed in response to a complaint from homeowner at 743 Hazelwood. 29 taps including 2 CB leads at 196' and 201' and an 8" connection from an apartment complex at 115' were found. 5 taps came from vacant lots and 2 taps had minor roots. Sewer was very clean.

31-B	"T" Alley, W of Woodward, bet. Delaware & Pallister District- N	1897	Clay	18"	22.3'	#4997			98336 26 A	620	Structurally sound	8/17/1998			There were 40 taps It includes a 12" connection at 219', 3 Catch Basin leads at 234', 325' and 482', 6 parking lots, 6 abandoned connections and 13 vacant lots. Seven connections had shifted about 3" to 4" and two taps were broken. Inspection was done due a reported cave-in.The cave-in was at 115 Delware. The inside of the tap was broken. Dye introduced through the void came out through connections on both sides of pipe and joints from 378' to 381'.
54-B	Alley N/Jefferson- CL. Of Defer. Dist.- E	1902	Clay	12"	12'	Roll 7212			96072 79 PA	95	Structurally sound	4/1/1996			6 taps including 2 CB leads at 27' and 89' were found. The other 4 connections wer from vacant lots. Sewer was holding 2" of debris.
33-E	145' N/NPL of Calvert, 21' E/WPL of Second between Cavert & Collingwood (cave in) District-N	1902	Clay	15"	21.3'	#1258			14120 15 A	432	N/A	5/22/2001			This inspection was performed in response to a reported cave-in at 655 Collingwood. 9 taps including 3 vacant lots were found. There were 4 defective and 1 protruding taps.From 55' to 65' the pipe sagged and was cracked. 2 taps and several joints had roots.There were also sludge, debris and gravel in the sewer which needed to be cleaned. Camera could proceed due to protruding tap.
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32-B	213' W/WPL Woodward, 141' S/SPL Longfellow District-N	1903	Clay	10"	14.3'	#1402			98044 C11	138	Structurally sound	3/17/1998			4 taps including a CB lead at 16' were found. 2 of the the taps were abandoned and 1 tap was 2" shifted and had infiltration.
32-B	213' W/WPL Woodward, 141' S/SPL Longfellow District-N	1903	Clay	10"	14.3'	#1402			98031 C10	141	N/A	2/25/1998			4 taps including a CB lead at 17' were found. 2 of the taps were abandoned and 1 tap had a break in the connection. Sewer had a lot of debris which made it impossible for the camera to make it to the next manhole.
32-B	12' W/EPL of Third, between Longfellow & Boston (plate over cave-in) District-N	1903	Clay	12"	25'	#1398 Roll 6668			14097 13 A	600	Good	4/24/2001		Rehabilitated with INSITUFORM	The purpose of this inspection was to check who was responsible for the cave-in behind 708 Longfellow and to retrieve the 6'x12' plate. The service connection from the house was a non-factory tap. The entire length inspected was lined with INSITUFORM.
32-B	147' N/NPL Longfellow, 21' W/EPL Third District-N	1903	Clay	12"	14'	#1398 Roll 6668			98043 C11	545	Structurally sound	3/17/1998			19 taps including a CB lead at 429' were found. 3 taps were defective, 3 were broken, 4 had infiltration, 3 were intruding and 1 tap had roots. There was another root blockage at 210'.
32-B	147' N/NPL Longfellow, 21' W/EPL Third District-N	1903	Clay	12"	14'	#1398 Roll 6668			98030 C10	210	N/A	2/25/1998			9 taps including a CB lead at 80' were found. 3 of the taps were abandoned. 2 taps had broken connections, 1 had infiltration and 2 taps were intruding 2" and 3" into the sewer. The 3" intruding tap was PVC. Sewer had a lot of roots which made it impossible for the camera to make it to the next manhole. Sewer needed to be cleaned.
32-B	147' N/NPL Longfellow, 5' W/WPL Second District-N	1903	Clay	15"	12'	#1398 Roll 6668			98029 C10	400	N/A	2/25/1998			23 taps including a CB lead at 99' were found. 10 of the taps were abandoned. 2 taps had broken connections, 2 had infiltration and 1 tap was defective. Sewer changed in size from 15" to 12" at 398'. Sewer had a lot of debris including 4" stones and needed to be cleaned.
32-B	147' N/NPL Longfellow, 523' W/WPL Woodward District-N	1903	Clay	18"	16.6'	#1398 Roll 6668			98028 C10	355	Structurally sound	2/25/1998			18 taps including 2 CB leads at 332' and 334' were found. 4 of the taps including a CB lead were abandoned. 4 taps had broken connections, 4 had infiltration, 2 taps were intruding upto 2" and 2 taps were defective.
32-B	213' W/WPL Woodward, 147' N/NPL Longfellow District-N	1903	Clay	18"	18.2'	#1398 Roll 6668			98027 C10	310	N/A	2/25/1998			25 taps including a CB lead at 244' were found. 5 of the taps were abandoned. 4 taps had broken connections, 1 had infiltration and several taps were defective with shifted joints. The CB lead was protruding 3" into the sewer. There were some cracks and the sewer was a little out of round in certain sections. Sewer was holding upto 4" of debris.
32-B	321' E/EPL Second, 141' S/SPL Longfellow District-N	1903	Clay	18"	17.6'	#1402			98026 C10	359	N/A	2/24/1998			21 taps including 3 CB leads at 281', 335' and 337' were found. 10 of the taps including 2 CB leads were abandoned.1 tap had broken connections, 2 had infiltration, and 1 tap was defective. 5 taps had roots. Sewer was extremely dirty with upto 7" of mud and debris.

32-B	213' W/WPL Woodward, 141' S/SPL Longfellow District-N	1903	Clay	18"	14.3'	#1402			98025 C10	306	Structurally sound	2/24/1998			21 taps including a CB lead at 226' and a bulkheaded 12" connection at 302' were found. 8 of the taps were abandoned.1 tap had broken connections, 2 had infiltration, 1 tap was intruding 6" into the sewer and 2 taps were defective. Sewer was extremely dirty with 5"- 7" of debris in certain places.
32-B	31' N/SPL Longfellow, 213' W/WPL Woodward District-N	1903	Clay	18"	18.2'	#1398 Roll 6668			98024 C10	175	Fair	2/24/1998			4 taps including 2 abandoned connections were found. Minor roots were observed at one tap. There were some cracks but nothing major.
32-B	213' W/WPL Woodward, 141' S/SPL Longfellow District-N	1903	Clay	18"	14.3'	#1402			98023 C10	175	N/A	2/24/1998			4 taps including 2 abandoned connections were found. There were some cracks and sewer had lost roundness but still holding from 30' to 60'. Looked like a good candidate for using INSITUFORM.
32-B	135' N/NPL Longfellow, 210' W/WPL Woodward District-N	1903	Clay	18"	18.2'	#1398 Roll 6668			97824 C1	315	Structurally sound	5/16/1997			15 taps including a CB lead at 243' were found. One tap had 30% blockage by roots.
32-B	12' N/NPL of Second between Glynn & Calvert District-N	1906	Clay	15"	17.5'	#1731 Roll 7041			994191 19A	354	Fair	9/9/1999			26 taps including a CB lead at 220', an abandoned connection and 2 vacant lots were found. 12 taps were defective, 3 taps had roots, 10 taps and joints had infiltration and there were 3 intruding connections. From 208' to 222' the pipe was badly cracked. There were many other circular and longitudinal cracks. From 146' to 157' the sewer had sagging pipe, shifted joints, non-factory PVC replacement taps,cracka and cave-in. 10 pieces of pipe needed replacement.
32-B	A=WPL Second between Glynn & Calvert District-N	1906	Clay	15"	14'	#1731 Roll 7041			91266 B	361	N/A	9/10/1991			25 taps including a CB lead at 225' were found. The sewer pipe was cracked and 2" down from 148' to 160'. One tap had minor roots.
55-E	Alley SPL of Kercheval bet. Fairview & Lillibridge. Dist.- E	1908	Clay	15"	12'	Roll 24 A			96066 79 PA	82	N/A	3/29/1996			5 taps including a CB lead at 82' and 3 vacant lots found. Encountered downed pipe.
2-F	N/Service Dr. of Fisher bet. Entral & Glinnan. District- C	1909	Clay	12"	14'	#1970 Roll 7280			004077 10 A	77	N/A	5/21/2000			7 taps including 3 abandoned and 3 defective taps.At 34' from start, cave-in reported. At 77', camera could not pass due to sand. Open joint caused sand deposit of 1/3 height of pipe.
2-F	42' N/NPL of Fisher Service Dr.bet. Glinnan & Springwells. Dist.- C	1909	Clay	12"	12'	#2015 Roll 7325			97199 10 A	75	N/A	5/6/1997			4 taps found.
2-F	As above	1909	Clay	12"	12'	#2015 Roll 7325			As above	237	N/A	5/6/1997			17 taps. Few cracks were noticed.
2-F	As above	1909	Clay	12"	12'	#2015 Roll 7325			As above	93	N/A	5/6/1997			8 taps including 2 abandoned taps. Circular and longitudinal cracks observed along with open joints allowing 4"-6"of dirt and mud deposit
32-B	410' W/WPL of Third between Boston & Chicago District-N	1909	Clay	12"	14'	#2026 Roll 7336			98392 32A	475	Fair	10/11/1998			27 taps including a 12" connection at 183', 4 CB leads at 273', 415', 449', and 475', and 12 abandoned connections were found. 6 taps were defective, and there were 2 intruding connections. There were many circular and longitudinal cracks. Some open joints also existed including 205' to 217' which was under water.
32-B	460' W/WPL of Third between Boston & Chicago District-N	1909	Clay	12"	14'	#2026 Roll 7336			98385 32A	212	N/A	10/6/1998			12 taps including a 12" connection at 180', and 5 abandoned connections were found. 3 taps were defective. Some open joints also existed including 192' to 212' which was under water. At 189' half pipe full of sludge started. Sewer had sludge, crock and sand deposits.
32-B	12' E/EPL of Hamilton between Boston & Chicago District-N	1909	Clay	12"	11.4'	#2026 Roll 7336			98389 32A	110	N/A	10/9/1998			11 taps including a 12" connection at 110', and 5 abandoned connections were found. 5 taps were defective. 106' to110' had high water level.
32-B	410' W/WPL of Third between Boston & Chicago District-N	1909	Clay	12"	14'	#2026 Roll 7336			98383 32A	278	N/A	10/6/1998			19 taps including 5 abandoned connections were found. 10 taps were defective. 2 and several joints had heavy roots . Some open joints also existed with severe infiltration problems. The tap at 278' was blocking sewer. Sewer was holding 4"-6" sludge and sand.
32-B	12' W/EPL of Third between Chicago & Boston District-N	1909	Clay	15"	16.2'	#2026 Roll 7336			98384 32A	38	N/A	10/6/1998			A CB lead at 28' was found. 6' to 38' had open and offset joints. Camera could not pass.

32-B	A=5' W of W Second between W Boston & W Chicago District-N	1909	Clay	15"	16'	#2026 Roll 7336			92179 36PA	422	Structurally sound	8/6/1992			32 taps including a CB lead at 46' were found. One tap was slightly leaking, one tap had minor roots and one tap was protruding 3" into the sewer. The sewer alignments both vertical and horizontal were poor.
32-B	A=EPL of Second between Boston & Chicago District-N	1909	Clay	15"	19'	#2026 Roll 7336			92172 36PA	28	N/A	7/30/1992			The location of inspection should read West property line of Second. Joints at 4' and 8' were leaking. Water was introduced. It appeared in the pipe in 5 minutes. All 5 joints were leaking to 12'.
2-F	495' N/NPL Laffayette, Bet. Wheelock & Solvay. Dist.- C	1910	Clay	12"	8'	#2039			96642 835	87	N/A	7/5/1996			7 taps found.
2-F	333' N/NPL W. Laffayette, Bet. Wheelock & N. Solvay. District- C	1910	Clay	12"	7.5'	#2039			96641 835	154	Good	7/5/1996			10 taps. 4"- 6" of sludge noticed at one location.
55-B	153' E/EPL Garland & 223' S/SPL Goethe District- E	1910	Clay	12"	10.6'	#2087 Roll 7397			97942 C 5	90	N/A	9/17/1997			6 taps. Heavy root intrusion and grease accumulation reported.
2-F	144'W/WPL Wheelock & 12' S/NPL W. Laffayette. Dist.- C	1910	Clay	15"	11.5'	#2039			96640 835	345	N/A	7/5/1996			20 taps. At one location, 6"- 8" of sludge noticed.
2-F	228' W of W Govin, bet. Witt & Olivet. Dist.- C	1910	Clay	15"	8'	#2082 Roll 7392			95020 65 A	209	N/A	4/9/1995			17 taps. Few cracks were noticed. Heavy grease and some debris were present.
62-E	Alley, 320' N/NPL Essex bet. Chalmers & Lakewood District- E	1910	Clay	15"	10'	#2127 Roll 7437			95367 76 E	323	Structurally sound	12/8/1995			6 taps inluding one from a vacant lot found. 3 connections had 99% and 99% and 10% roots including 20% of city sewer being blocked. Sewer was holding 1/3 to 1/2 full of debris and water and needed clean up to lower water level.
62-E	Alley, 320' N/NPL Essex bet. Chalmers & Lakewood District- E	1910	Clay	15"	10'	#2127 Roll 7437			95361 76 AE	320	N/A	12/2/1995			4 taps including one from a vacant lot found. Heavy roots present. 2 taps had 100% and 90% roots and city sewer was 60% and 35% obstructed. Water depth in sewer was 7" including 5" of debris and 2" of water. Suggested root cutting before retelevising.
62-E	Alley, 435' S/SPL Freud bet. Chalmers & Lakewood District- E	1910	Clay	15"	8'	#2127 Roll 7437			92055 28	360	N/A	3/19/1992			The resident at 620 Lakewood was the complainant. His service connection was not functioning properly. Small steady flow from unknown source was exiting the tap. A total of 19 taps including 3 from vacant lots found. 3 taps had grease problem. At 262' and 264' 2 taps had 95% to 100% blockage and the city sewer had 75% to 85% obstructions. The grease problem was assumed to be caused by the root obstructions.
62-E	5' S/SPL Freud, bet. Chalmers & Marlborough District- E	1911	Clay	12"	7.8'	#2237 Roll 7547			96650 B 35	188	N/A	7/9/1996			6 taps found.2 connections had 90% and 80% roots including 30% of city sewer being blocked. Sewer was holding 5'-8" of sludge and needed clean up.
21-C	330' W/WPL Jeffries Fwy., bet. Allendale & Seebalt District- N	1911	Clay	15"	13,8'	#2193			97151 15 A	268	N/A	8/15/1997			The inspection was performed due to complaints from homeowner at 4283 Allendale at 268'. The tap had roots. Home owner introduced water into the connection but water was entering from one side only suggesting possible blockage. 5 taps were found.
2-A	Alley W/Mullane btn. Longworth & Homer, W/Springwells. Dist.- C	1911	Clay	15"	6.2'	#2126 Roll 7436			014137 16-A	514	Good	6/4/2001			36 taps were found including a CB lead at 81'. 9 connections were defective.
2-A	362' E/Alley & E/Mullane btn. Logan & Longworth. Dist.- C	1911	Clay	15"	7'	#2126 Roll 7436			92058 28 PA	150	N/A	3/23/1992			MH - A not shown on plan. 6 taps in the section. High water and debris observed in sewer. Cleaning downstream suggested.
2-A	Alley E/Mullane bet. Longworth & Logan. District- C	1911	Clay	15"	7'	#2126 Roll 7436			92013 24 A	130	N/A	2/6/1992			8 taps. Some debris located.
2-A	As above	1911	Clay	15"	7'	#2126 Roll 7436			92013 24 A	88	N/A	2/6/1992			6 taps. Some debris observed.
2-A	As above	1911	Clay	15"	7'	#2126 Roll 7436			92013 24 A	144	N/A	2/6/1992			10 taps. Many cracks and holes in the pipe were observed. MH not shown on plan.
3-F	Paved Alley, 352' W of WPL of Mullane between Whittaker & Vernon District-C	1911	Clay	15"	8.4'	#2214 Roll 7524			91546	344	Structurally sound	3/14/1991		Cleaned by Jet Rodder	15 taps were found. Sewer was holding 4" to 6" of sludge.

55-E	Alley 515' N/N Kercheval bet. Lemay & Montclair. Dist.- E	1911	Clay	15"	11'	#2143 Roll 7453			96045 78 PA	330	Good	3/8/1996			18 taps. Camera could not pass after 237' due to heavy roots. 5" of debris were found at one location. Suggests removing roots before next inspection.
55-E	Alley 15' N/S Kercheval bet. Lemay & Montclair. Dist.- E	1911	Clay	15"	14'	Roll 25 A			96044 78 PA	580	Structurally sound	3/8/1996			26 taps including a MH at27', 2 CB leads at 74' and 215' were found. Large mineral deposits at a tap. At 2 taps roots were obstructing 40%-50% of taps and 30%-40% of the sewers. At 306' roots were blocking 90% of the sewer. Camera could not pass. 3" of debris was present.
2-E	NPL Witt between Lawndale & Cabot District-C	1911	Clay	18"	10'	#2119 Roll 7429			93138 44A	70	N/A	5/25/1993			4 taps found. The tap for 2500 cabot was at 9'. Debris, most likely from this tap was 9" deep and there was a small depression in the ground surface over this tap. The debris in the pipe was holding back 9" of water. Suggested cleaning the pipe and re-televising.
3-F	Paved Alley, 294' E of EPL of Mullane, between Vernon & Whittaker District-C	1911	Clay	18"	6.5'	#2187 Roll 1497			91548	294	Structurally sound	3/14/1991		Cleaned by Jet Rodder	25 taps including a CB line at 191' were found. Sewer was holding 5" to 7" of sludge.
21-C	120' E/EPL Radford, bet. Montgomery & Vicksburg District- N	1912	Clay	12"	15'	#2284			014132 16 A	179	Poor	5/30/2001			There were 5 taps including 2 Catch Basins at 118' and 176' and a vacant lot. There was no flow in the sewer and the pipe was half full with sludge and debris.
2-A	Alley W/Springwells bet. Gartner & Navy. District- C	1912	Clay	12"	8.5'	#2242 Roll 7552			98427 37-A	160	Good	12/2/1998			11 service connections. At one location 1/3 pipe full of gravel & sand due to bad connection. Insituform process performed.
2-A	Alley bet. Navy & Gartner W/Springwells. District-C	1912	Clay	12"	8.5'	#2242 Roll 7552			98098 C- 12	19	N/A	12/2/1998			No connections found.
2-A	Alley W/Springwells bet. Lane & Cahalan. District- C	1912	Clay	12"	8'	#2241 Roll 7551			96071 79 PA	127	Fair	4/1/1996			12 service connections. Pipe generally in good condition except some cracks. Yard depressions were observed but water was not available to test.
2-A	Alley W/Springwells Bet. Cahalan & Lane. District- C	1912	Clay	12"	7'	#2241 Roll 7551			91292 20	385	Fair	10/31/1991			26 taps including a CB lead at 128' found. Water introduced in the depression did not appear in the sewer. Some cracks and settlements were obsevered.
2-A	Bet. Cahalan & Lane 385' W/Alley W/Springwells. District- C	1912	Clay	12"	7'	#2241 Roll 7551			91291 20	15	N/A	10/31/1991			One service connection. Camera could not pass due to obstruction.
3-F	Alley, 250' N of N Belle between Inglis-Norman District-C	1912	Clay	12"	8'	#2396			92118 33PA	215	Excellent	5/27/1992			2 taps including a vacant lot found. After 50' depth of debris increased to 6". Suggested recleaning to televise entire length.
3-F	Paved Alley, 24' S of NPL of Pitt, 108' E of EPL of Norman District-C	1912	Clay	12"	13'	#2306			91559	329	Good	3/20/1991			Insituform lining was performed in this sewer. 22 taps including a CB at 29' were found. Sewer was holding 2" to 3" of sludge.
21-C	143' E/EPL Holmur., bet. Vicksburg & Montgomery District- N	1912	Clay	15"	19.6'	#2284			96697 B 40	360	Good	7/30/1996			There were 22 taps including a Catch Basin lead at 66'. The sewer was holding 4" to 7" of sludge and debris.
21-C	9' W/EPL Holmur. & 108' N/NPL Montgomery District- N	1912	Clay	15"	11.7'	#2284			96696 B 40	152	Structurally sound	7/30/1996			There were 10 taps including a Catch Basin lead at 18' and a vacant lot. One joint at 94' had roots blocking 40% of city sewer. The sewer was holding 4" to 7" of sludge and debris.
21-C	Alley, W of Dexter,bet. Vicksburg & Montgomery District- N	1912	Clay	15"	23'	#2284			91247 16	355	Fair	9/19/1991			The tap at 3739 Vicksburg was inspected as depression in the property was reported. Previous patch over this tap at 63' was found. Another depression on surface at 235' was noticed. City sewer at both places were in excellent condition. A total of 23 taps were found including a Catch Basin lead at 291' and an abandoned lot. The pipe was cracked and about 1" down at 3 places with lengths of 4',2' and 4'. Minor roots were found at two taps with 10% blockage. One joint was found leaking and the pipe was 1/3 to 1/2 full of debris.
3-F	Paved Alley, 145 ft. N/ of Vernor, 24 ft. E/EPL of Norman near Inglis District-C	1912	Clay	20"	6.1'	#2305			014115 14A	102	Good	1-May		Cleaned by Jet Rodder	NFT with domestic flow. City sewer in good condition

3-F	From manhole number 994172A to manhole number 994172B street address 7606 Pitt Wib District-C	1913	Clay	12"	10'	#2393 Roll 7703			994172 19A	124	N/A	8/27/1999			4 taps found including 2 abandoned and 2 defective connections. It also includes 2 Basin leads. Pipe found open flowing. Camera was taken out at 124'.
54-B	762' S Alley, S/Jefferson bet. Harding & St. Clair District- E	1913	Clay	12"	10'	#2408 Roll 7718			14110 14-A	260	N/A	5/2/2001			16 taps including 3 CB leads at 44', 50' and 66' were found. It included 8 vacant lots. Dye was introduced in the toilet of the complainant at 689 Harding where a cave-in occurred but it did not enter the sewer. Some roots at taps were found ant the camera could not pass a tap at 711 Harding which was sticking 5"-7" into the sewer.
54-B	114' W/WPL Harding & 453' S/SPL E. Jefferson District- E	1913	Clay	12"	15.5'	#2408 Roll 7718			193278 VN 12	78	Bad	4/24/2001			6 taps including one PVC. Broken and collapsed sewer reported.
62-E	Paved Alley, 512' N/NPL of Essex bet. Eastlawn & Newport District- E	1913	Clay	12"	8.6'	#2437 Roll 7747			91511	28	N/A	1/19/1991		Cleaned by jet rodder	3 taps found and camera hit some obstruction. Unable to pass. Sewer holding 3"-4' of sludge.
62-E	Paved Alley, 325' S/SPL Freud bet. Eastlawn & Piper, near Essex District- E	1913	Clay	12"	8.5'	#2436 Roll 7746			91012	325	N/A	1/18/1991		Cleaned by jet rodder	21 taps including 1 Catch Basin lead at 271' found. One tap at 75' had 90% in tap and 60% of main sewer blocked by roots. 2 joints were found leaking probably from adjacent taps.
62-E	Easement, 15' S/SPL Freud, bet. Lenox & Drexel District- E	1913	Clay	12"	9'	#2454 Roll 7764			91509	519	N/A	1/18/1991		Cleaned by jet rodder	A total of 28 taps including 2 Catch Basin leads at 166" and 265' were found. From 0' to 10' sewer was holding 4"-7" of sludge and debris and from 330' to 519' about 7"-10" of debris and sludge. Pipe also under water. Sewer needed cleaning.
62-E	Paved Alley, 327' S/SPL Freud bet. Coplin & Piper, near Essex District- E	1913	Clay	12"	9.5'	#2436 Roll 7746			91009	327	Structurally sound	1/17/1991		Cleaned by jet rodder	There were 22 taps including a 12" lead at 126'. At 166' the tap from a vacant lot on Piper had a large amount of water coming through it. The sewer was 1/3 to 1/2 full and had root intrusions blocking 80% of sewer from 284' to 288'.
62-E	Easement, 536' N/NPL Essex, bet. Coplin & Drexel, near Freud District- E	1913	Clay	12"	10'	32454 Roll 7764			91506	395	N/A	1/15/1991		Cleaned by jet rodder	There were 31 taps including a 12" Catch Basin lead at 279'. About 3" to 6" of sludge was present in the sewer. Sewer needed cleaning.
62-E	Paved Alley, 31' S/NPL of Essex & 111' W/WPL of Newport, near Eastlawn & Freud District- E	1913	Clay	12" & 15"	11'	#2437 Roll 7747			91510	543	N/A	1/19/1991		Cleaned by jet rodder	A total of 41 taps including 2 Catch Basin leads at 35' and 411' were found. Minor cracks between 169' to 172' was observed. At 272' sewer size changes from 12" to 15". Roots blocking 90% of the tap and 30% of city sewer at 212'. From 480' to 500' camera was under water and could not see pipe.
3-F	510 ft. S/SPL of Dix, between Casper & Dix (cave-in) District-C	1913	Clay	15"	7'	#2189 Roll 7499			014106 13A	437	Poor	4/30/2001			8 taps found including 2 vacant lots. The sewer had several offset joints, roots at 2 taps, 3 defective connections, and cracks at various locations. Also had sludge and high water. Needed cleaning.
54-B	114' W/WPL Harding & 150' S/SPL E. Jefferson District- E	1913	Clay	15"	17.5'	#2408 Roll 7718			193281 VN 12	282	Bad	4/27/2001			13 taps including a CB lead at 16', 9 vacant lotsand one abandoned connection found. A cave-in was reported at 689 Harding. At the location of cave-in, half of the sewer was missing at the connection. At various locations 4"-7" of debris, roots and pipe collapse were reported. Sewer in bad shape.
62-E	Alley, CL Freud bet. Newport & Lakewood District- E	1913	Clay	15"	11'	#2437 Roll 7747			91293 20	135	N/A	10/31/1991			8 taps including a Basin lead at 35' and one from a vacant lot found. At the Basin connection, city sewer pipe was cracked and down 4" for about 2' length. Numerous pieces of crock of sizes as big as 12" were found in the sewer. 130' of sewer was not televised because of the crock pieces in high water.
62-E	Paved Alley, 387' N/NPL Essex bet. Eastlawn & Piper, near Freud District- E	1913	Clay	15"	11'	#2436 Roll 7746			91011	365	Structurally sound	1/18/1991		Cleaned by jet rodder	30 taps including 2 Catch Basin leads at 186' and 332' found.
62-E	Paved Alley, 395' N/NPL Essex, bet. Coplin & Piper, near Freud District- E	1913	Clay	15"	10'	#2436 Roll 7746			91008	363	N/A	1/17/1991		Cleaned by jet rodder	There were 34 taps including a 12" lead at 58'. About 34' of the pipe was cracked and 1"+/- down from 328' to 352'. A partially removed 7" Beaver Dam was found at 301'

62-E	Easement, 102' W/WPL Drexel, & 27' S/NPL Essex, near Coplin & Freud District- E	1913	Clay	15"	10.5'	32454 Roll 7764			91505	553	Structurally sound	1/15/1991		Cleaned by jet rodder	There were 34 taps including a 12" Catch Basin lead at 467'.
3-F	20' E of W Springwells Alley S of Dix District-C	1913	Clay	18"	7'	#2189 Roll 7499			91206 11	146		8/12/1991			7 taps including a presumed CB line at 10', 3 parking lots and a vacant lot were found. Pipe was 1/3 to 1/2 full of debris.
3-F	Alley S of Dix between Springwells & Casper District-C	1913	Clay	18"	8'	#2189 Roll 7499			91205 11	169	Poor	8/12/1991			6 taps including a CB line at 143', and 4 parking lots were found. Entire length of pipe was 1/3 to 1/2 full of debris. The MH at 169' was not shown on the drawing. 80% of joints had calcium deposits and 30% of pipe had cracks in the arch.
62-E	Paved Alley, CL Essex bet. Eastlawn & Piper, near Freud District- E	1913	Clay	18"	11'	#2436 Roll 7746			91010	417	N/A	1/17/1991		Cleaned by jet rodder	A total of 36 taps were found. About 12' of the pipe was cracked and 1"+/- down from 390' to 402'.
62-E	Paved Alley, CL Essex, bet. Coplin & Piper, near Freud District- E	1913	Clay	18"	11'	#2436 Roll 7746			91007	425	Structurally sound	1/17/1991		Cleaned by jet rodder	There were 34 taps including a 12" lead at 58'. About 1/3 to 1/2 of the sewer was full.
22-D	133' W/WPL Dexter & 18' S of CL Euclid District-N	1914	Clay	12"	7'	#2872 Private			97125 3 A	9	Structurally sound	3/4/1997			The complainant was homeowner at 8341 Dexter with the house connection at 9'. 99% of the tap was blocked by roots. Flow was low.
22-D	133' W/WPL Dexter & 18' S of CL Euclid District-N	1914	Clay	12"	7'	#2872 Private			97124 3 A	0	N/A	3/3/1997			From 2' to 6' heavy root curtain with 95% blockage. Nothing could be seen. Suggested cutting roots.
2-A	Alley E/Central btn. Navy & Senator. District- C	1914	Clay	12"	11.5	N/A			014005 1-A	45	N/A	1/26/2001			2 service connections, one defective, one abandoned.
2-A	105' E/EPL Springwells & 3' S/SPL Navy. District.- C	1914	Clay	12"	6.3'	#2610 Roll 7920			99088 C- 19	104	Good	11/24/1999			5 service connections.
2-A2-F	119' W/WPL Central & Alley btn. Gartner & Cahalan. Dist.- C	1914	Clay	12"	7.5'	Roll 7920			96615 B-32	96	Good	6/18/1996			7 service connections found.
2-F	12' E/WPL Springwells & 128' N/NPL Olivet. District- C	1914	Clay	12"	10'	#2573			96183 C 2	210	N/A	9/11/1996			9 taps. At one spot 6"- 10" of sludge & debris was noticed and cracks at non factory taps were present.
62-E	Alley, EPL Dickerson, N of Averhill, near Drexel District- E	1914	Clay	12"	9'	#2511 Roll 7881			91015	110	Structurally sound	1/19/1991		Cleaned by jet rodder	5 taps found including 3 from vacant lots.
62-E	Alley, WPL Newport, W of Averhill, near Eastlawn District- E	1914	Clay	12"	8'	#2509 Roll 7819			91014	115	Structurally sound	1/19/1991		Cleaned by jet rodder	4 taps found including 1 from a vacant lot.
62-E	Alley, 5' E/WPL Drexel bet. Averhill & Essexl District- E	1914	Clay	12"	8.5'	#2511 Roll 7881			90722	62	N/A	12/18/1990		Cleaned by jet rodder	Sewer was holding about 4" to 7" of debris. The pipe could not be seen. Camera was backed out. Sewer needed cleaning.
4-A	27' N of NPL of Edsel Ford, Alley between Lumley & Elmer District-C	1914	Clay	15"	9.5'	#2582			91543	50	Structurally sound	3/13/1991		Cleaned by Jet Rodder	2 taps were found. Sewer was holding 2" to 4" of sludge.The complainant was homeowner at 5187 Lumley. No body was home during inspection.
62-E	Paved Alley, SPL Essex, bet. Newport & Eastlawn, near Averhill & Essex District- E	1914	Clay	15"	9'	#2509 Roll 7819			90360	309	Structurally sound	12/11/1990		Cleaned by jet rodder	There were 22 taps found. About 20% of the joints contained Calcium deposits and at 250' the deposits from the tap were too large for the camera to pass.
63-E	192' S/SPL Charlevoix, bet. Newport & Lakewood District- E	1914	Clay	15"	12'	#2522 Roll 7832			94608 B 9	384	N/A	8/8/1994			There were 26 taps including 1 Catch Basin lead at 46' '. 16 of the taps were from vacant lots. 3 taps had root obstructions blocking minor to 30% of the taps.
63-E	150' W/WPL Lakewood & 322' N/NPL E Vernor District- E	1914	Clay	15"	12.1'	#2522 Roll 7832			94605 B 9	371	N/A	8/6/1994			One tap was located.
63-E	150' W/WPL Lakewood & 322' N/NPL E Vernor District- E	1914	Clay	15"	12.1'	#2522 Roll 7832			94604 B 9	16	N/A	8/6/1994			One tap was located. Supposed to be a dam connection.
2-A	105' S/SPL Senator & 411' E/EPL Springwells. District- C	1914	Clay	18"	7'	#2608 Roll 2608			0093290 VN-4	292	Overall pipe condition good.	8/24/2000			20 service connections including a CB lead at 126' were found. 12 service connections were broken. Dye testing was performed. Defective and broken pipe sections, and shifted pipe in 10 locations were reported. Sewer had a lot of debris. Cleaning recommended.

62-E	Paved Alley, 4' N/SPL of Essex bet. Lakewood & Newport District- E	1914	Clay	18"	9.5'	#2507 Roll 8717			91017 (shows 91016 on tape)	225	N/A	1/28/1991		Cleaned by jet rodder	!5 taps including 2 Catch Basin leads at 43' and 190' found. The sewer pipe was down about 1"-3" from 40' to 44' and 3"-5" from 98' to 120'. Also the 12" basin lead at 190' dropped 10" inside into the water line blocking the flow..
62-E	Paved Alley, CL Essex, bet. Drexel & Lenox, near Averhill District- E	1914	Clay	18"	10'	#2511 Roll 7881			90358	338	N/A	12/10/1990		Cleaned by jet rodder	There were 26 taps including two 12" leads at 31' and 73'. The sewer had cracks and was down 1"-4" from 135' to 229'.
63-E	171' W/WPL Lakewood & 9' S/NPL Vernor District- E	1914	Clay	18"	11.4'	#2522 Roll 7832			96645 B 35	180	N/A	7/7/1996			There were 16 taps including 2 Catch Basin leads at 16' and 173'. 9 of the taps were from vacant lots. 2 taps had root obstructions blocking 50% and 80% of the taps and 30% of city sewer. Root curtain at the joint at 179' was blocking 99% of the sewer. Camera unable to pass.
63-E	Paved Alley, 10' S/NPL Vernor, bet. Chalmers & Lakewood District- E	1914	Clay	18"	12'	#2645			93172 46 PA	460	N/A	6/16/1993			There were 28 taps including 1 Catch Basin lead at 306' '. 8 of the taps were from vacant lots. The pipe was cmplete under water 315'.
63-E	Paved Alley, 10' S/NPL Vernor, bet. Chalmers & Lakewood District- E	1914	Clay	18"	12'	#2645			92108 32 PA	460	N/A	5/8/1992			There were 27 taps including 1 Catch Basin lead at 306' '. 8 of the taps were from vacant lots. The pipe was cmpletely under water 315'. Flow at 275' was 2". High water at MH at 460'. Unable to enter.
21-C	27' N/SPL Virginia Park, bet.Dexter & Homur District-N	1914	Clay	20"	25.1'	#2486			94630 B 11	149	N/A	8/29/1994			5 taps were found. Debris were coming out of tap from 8241 Dexter. Sewer was holding 3"-6" of sludge.
22-D	Alley, 420' W of W Radford, bet. Philadelphia & Pingree District- N	1915	Clay	12"	10'	#2585			95066 67 PA	37	Fair	5/19/1995			The inspection was done due to a reported depression at 4375 Pingree. The city sewer at the tap for this house was slightly cracked but not enough to cause the tap to fall. 5 taps were found. Water introduced at the house appeared in the sewer. No sign of high water found. The depression was not tested with water.
22-D	Alley, S of Dumbarton & Alley W of Quincy District- N	1915	Clay	12"	9'	#2689			94021 54 PA	525	Structurally sound	2/24/1994			There were 36 taps including 4 Catch Basin leads at 16', 90' (8" dia.), 159' and 400'. 6 of the taps came from vacant lots. The pipe bends 45 degree bend at 505' in the NW direction. Pipe is extremely clean.
2-A	2' N/NPL Navy & 110' E/EPL Central. Dist.- C	1915	Clay	12"	8'	#2609 Roll 7919			98151 6-A	44	Bad	3/6/1998			Pipe section has numerous open cracks, circular cracks, and longitudinal cracks. Sand was present in sewer. Needs clraning.
2-A	Alley E/Central btn. Navy & Senator. District.- C	1915	Clay	12"	11.5'	#2609 Roll 7919			98035 C-10	0	N/A	2/28/1998			6"- 8" of debris & sludge present in sewer. Camera could not proceed.
2-A	330' W/Alley, W/Green bet. Navy & Senator. District- C	1915	Clay	12"	8'	#2609 Roll 7919			91236 15	331	Excellent	9/10/1991			27 taps including 2 CB leads at 200' and 317' were found. Water introduced in the depression did not appear in the sewer.
3-E**	12' S/SPL of Pitt between Ferriss & Wendell District-C	1915	Clay	12"	5'	#2365 Roll 7675			99463 8A	279	Bad	4/30/1999			26 taps found including a Catch Basin at 71', 3 vacant lots, 15 defective and 1 abandoned connections. The complainants at 2411 Wendell and 2394 Ferris introduced water in their leads. 2394 Ferris had broken connection with infiltration and there was a plate over the connection. There were numerous shifted joints and cracked pipe. About half of the pipe was full of sand.
4-F	8' N of S St. Stephans, Alley between Springwells-Lunley District-C	1915	Clay	12"	5'	#2668 Roll 7978			90028	70	Structurally sound	1/30/1990		Cleaned by Power Rodder	4 taps including 3 vacant lots were found. Sewer was extremely clean. Complainant was homeowner at 4363 Springwells.
4-F	62' S of S St. Stephans, Alley between Springwells-Lunley District-C	1915	Clay	12"	5'	#2668 Roll 7978			90029	171	Excellent	1/30/1991			16 taps including 3 vacant lots were found. Sewer was extremely clean. Complainant was homeowner at 4363 Springwells. Mud and debris were seen coming through the tap for 4363 Springwells.
2-A	145' E/EPL Central & N/NPL Navy. Dist.- C	1915	Clay	15"	10'	N/A			014007 1-A	42	N/A	1/26/2001			Sewer needs flushing.

3-F	660' N/N.P. of Pitt, Alley between Pearl & Norman District-C	1915	Clay	15"	12.3'	#2396			014071 10A	390	Structurally sound	3/23/2001			27 taps found including a Catch Basin lead at 164',4 abandoned taps and 7 defective connections which had shifted 2" to 4". Calcium deposits were restricting 40% of service conn. at 2658 Pearl and at another tap. The water level was high in places & there was sand at the bottom.The tap from the complainant's house at 2634 Pearl appeared to be OK.
3-F	N/NPL of Pitt between Pearl & Wendell District-C	1915	Clay	15"	9'	#2398			98402 35A	110	Bad	10/23/1998			10 taps found. All the connections and joints are defective. The complainant was homeowner at 2584 Wendell which had a non-factory tap with break in connection. The pipe was half full of sand. There were numerous shifted joints, cracked pipe and roots. Some PVC replacement connections were also observed.
3-F	"T" Alley S/of Woodmere, Pearl & Wendell District-C	1915	Clay	15"	20.1'	#2398			98387 32A	0	Fair	10/8/1998			5 taps found including 2 abandoned and 3 defective connections. The complainant was homeowner at 2586 Wendell with a reported cave-in problem. The pipe was half full of sand. There was one shifted and broken connection. Camera could not move further.
22-D	Alley, W of Dexter, bet. Hazelwood & Gladstone District- N	1915	Clay	18"	18'	#2685			96062 78 PA	490	Structurally sound	5/19/1995			There were 7 taps. Pipe had 5" of debris and 2" of water. Mineral deposits were seen to be coming out of 2 taps. No sign of high water found. Water was dripping out of tap from complainant's house at 3737 Hazelwood.
22-D	Alley, W of Dexter, bet. Hazelwood & Taylor District- N	1915	Clay	18"	12'	#2688			94098 58 PA	130	N/A	2/27/1994			There were 3 taps including a Catch Basin lead at 27'. At the tap for 8933 Dexter, there was an 8"depression over it. The tap was blocked 99% and the sewer 75% by roots. Roots were holding back 9" of water.
22-D	Alley, W of Dexter, bet. Blaine & Pingree District- N	1915	Clay	18"	16'	#2687			94005 54 PA	434	Structurally sound	1/13/1994			There were 27 taps including a Catch Basin lead at 224' and an abandoned connection. 4 of the taps came from vacant lots.
3-F	12' N/SPL of Pitt. Between Pearl & Wendell District-C	1915	Clay	18"	9'	#2396			98382 31A	138	Bad	10/5/1998			11 taps found including a Catch Basin lead at 71'. Most of the connections and joints are defective. The complainant was homeowner at 2584 Wendell. The pipe was half full of sand and gravel. There were numerous shifted and open joints and connections allowing sand and infiltration. Camera could not move further.
3-F	Paved Alley, CL Of Pitt, between Pearl & Wendell District-C	1915	Clay	18"	10'	#2398			91033	305	Structurally sound	2/27/1991			24 taps including a CB line at 73', a vacant lot and an abandoned connection were found.
3-F	Paved Alley, 270' N of W Pitt, between Pearl & Norman District-C	1915	Clay	18"	12.3'	#2396			90211	365	Excellent	8/6/1990			28 taps including a CB line at 61', a vacant lot were found.
3-F	Alley, CL of Pitt between Pearl & Norman District-C	1915	Clay	20"	12'	#2396			95164 70PA	290	Structurally sound	7/28/1995			The homeowner at 2502 Pearl complained about a 5 cyd depression in the yard. Water with dye introduced into the depression entered the sewer only through tap for 2505 Pearl. Home owner was advised that the problem was in the owner's property. 3 taps including a Catch Basin at 57' were found.
54-B	Alley 290' N of N Freud bet. Montclair & Meadowbrook District E	1915	Clay	20"	17'	#2662			95362 76 E	130	Good	12/2/1995			Some debris and align sshift reported. MH not shown on drawing.
56-B	Alley, 335' N of N Freud & CL of Meadowbrook District- E	1915	Clay	24"	15'	#2662			95356 76 E	117	Structurally sound.	11/27/1995			Pipe extremely clean. Pipe rises 5' between 0' to 40'.
62-E	12' N of Alley CL N of Averhill, & Alley CL bet. Coplin & Piper, District- E	1916	Clay	12"	9.7'	#8202 DPW			91006	108	Structurally sound	1/15/1991		Cleaned by jet rodder	There were 4 taps. The pipe was 1/3 full.
62-E	Alley CL, W of Averhill, & EPL Piper, near Essex & Coplin District- E	1916	Clay	12"	9.4'	#8202 DPW			91005	110	Structurally sound	1/15/1991		Cleaned by jet rodder	There were 3 taps found including one from a vacant lot. A prbable 4th tap at 63' and the sewer at that point were 100% by roots. Sewer, being totally blocked at 63', the sewage was backflowing towards the west. Also, there was 8" of gravel between 2' and 4'.

54-B	Alley S/Jefferson bet. St. Jean & Engle District- E	1916	Clay	15"	10'	#3380			95359 76 PA	290	N/A	12/1/1995			No tap found One jet nozzle noticed.
62-E	Paved Alley, CL Essex, bet. Coplin & Piper, near Averhill District- E	1916	Clay	18"	10'	#8206 DPW			90361	325	Structurally sound	12/11/1990		Cleaned by jet rodder	There were 26 taps including three 12" leads at 25', 74' and 220'. The first one comes from a west MH and the other two are Catch Basin leads. Pipe was extremely clean.
54-B	Alley, at CL Edlie bet. Lillibridge & Fairview District E	1916	Clay	20"	21'	N/A			95353 76 S	280	Structurally sound	11/27/1995			2 taps including a CB lead at 148' were found .
33-D	A=220' E of E Rosa Parks between Burlingame & Lawrence District-N	1917	Clay	24"	14'	#2852			93197 47PA	96	Fair	7/19/1993			This inspection was performed in response to a reported depression at1691 Burlingame. Water introduced into a previously-filled depression did not appear into the sewer.4 taps including a CB lead at 24' were found. 20% of the pipe were cracked but not down very low.
33-D	Alley 405' W of W Woodrow Wilson 130' S Burlingame District-N	1917	Clay	24"	12'	#2852			91253 17	405	Fair	9/25/1991			This inspection was performed in response to a reported depression at1691 Burlingame. 6 taps including 2 vacant lots were found. Due to an off-set joint at 125' camera could not pass. The entrance MH was not shown on the print. Pipe was extremely clean.
33-D	Alley 505' W of W Woodrow Wilson 130' S of S Burlingame District-N	1917	Clay	24"	12'	#2852			91252 17	101	N/A	9/25/1991			This inspection was performed in response to a reported depression at 1691 Burlingame. 6 taps including a CB lead at 30' and 1 vacant lot were found. Water was introduced into the depression and it appeared through joints from 37' to 44'. 30% of pipe was cracked but not down.
22-C	Alley, 390' N/NPL Boston, bet.Quincy & Petoskey District- N	1918	Clay	12"	10'	#2963			96108 80 PA	390	N/A	4/26/1996			There were 9 taps including a 12" lead at 37' from the west ROW. 2 taps came from vacant lots. The joint at 142' had medium root problems but even after partial removal, the roots were blocking 60% of the sewer. Also, 2 taps at 84' and 112' had severe root problems blocking 98% and 100% of the connectoins and part of main sewer.
22-C	Alley, 5' S/SPL Collingham, bet.Quincy & Petoskey District- N	1918	Clay	12"	9'	#2963			96109 80 PA	391	Structurally sound	4/25/1996			There were 22 taps. 6 taps came from vacant lots. The joints from 224' to 256' had medium roots blocking 40% of the sewer. Also, 6 taps had minor to severe root problems blocking 5% to 100% of the connectoins and part of main sewer. The sewer was extremely clean.
22-C	Alley, 390' N/NPL Boston, bet.Quincy & Petoskey District- N	1918	Clay	12"	10'	#2963			96107 80 PA	390	Structurally sound and clean to 140'	4/24/1996			There were 8 taps including a 12"lead at 36' from the west ROW. 2 taps came from vacant lots. The joint at 142' had full root curtain which could not be crossed. Also, 2 taps at 84' and 111' had severe root problems blocking 98% and 100% of the connectoins and 30% of main sewer. Suggested removal of roots before reentry.
62-E	198' N/NPL Avondale & 132' E/EPL Lenox District- E	1918	Clay	12"	7'	Roll 8291			96676 B 37	120	N/A	7/16/1996			Found 8 taps. 4"-7" of sludge present in the sewer.
62-E	27' S/NPL Avondale & 141' W/WPL Drexel District- E	1918	Clay	12"	10.5'	#2983			96567 B 28	20	N/A	5/21/1996			One tap found. 70% of sewer blocked by root curtain coming from joints. Sewer holding 3"-6" of sludge. Camera could not pass.
62-E	Paved Alley, CL of Essex bet. Eastlawn & Piper, near Averhill District- E	1918	Clay	12"	7'	#2979 Roll 8289			91013	347	Structurally sound	1/19/1991		Cleaned by jet rodder	25 taps including 3 Catch Basin leads at 32' , 36' and 320' found. The sewer pipe was cracked and down about 3" from 31' to 37' '. Sewer was clean.
62-E	Paved Alley, N of Averhill bet. Piper & Eastlawn, near Essex District- E	1918	Clay	12"	6.5'	#2979 Roll 8289			91004	108	Structurally sound	1/15/1991		Cleaned by jet rodder	4 taps found including 1 from a vacant lot. Sewer very clean.
62-E	Alley, WPL Eastlawn, N of Averhill, near Essex & Piper, District- E	1918	Clay	12"	7'	#2979 Roll 8289			91003	108	Structurally sound	1/15/1991		Cleaned by jet rodder	3 taps found including 1 from a vacant lot. Sewer very clean.
62-E	Alley, 111' W/WPL Coplin bet. Averhill & Essex District- E	1918	Clay	12"	7'	#2977 Roll 8287			90724	108	Structurally sound	12/13/1990		Cleaned by jet rodder	There were 3 taps found. Sewer was holding about 4" to 6" of sludge and debris. Camera could not pass.
62-E	Alley, 3' W/WPL Coplin bet. Averhill & Drexel District- E	1918	Clay	12"	7'	#2977 Roll 8287			90723	108	Structurally sound	12/13/1990		Cleaned by jet rodder	There were 4 taps found. Sewer was holding about 3" to 6" of debris and sludge. Camera could not pass.

62-E	Easement at "T" Alley, N of Averhill & Alley bet. Eastlawn & Piper near Essex District- E	1918	Clay	12"	7'	#2979 Roll 8289			90721	27	Structurally sound	12/12/1990		Cleaned by jet rodder	There were 3 taps found including a Catch Basin at 27'. Sewer was holding about 3" to 5" of sludge.
62-E	Paved Alley, SPL Essex, bet. Drexel & Coplin, near Averhill District- E	1918	Clay	12"	10'	#2977 Roll 8287			90359	321	Structurally sound	12/10/1990		Cleaned by jet rodder	There were 23 taps found. About 15% of the joints contained Calcium deposits. Sewer was extremely clean.
62-E	165' E/WPL Drexel & 26' S/NPL Avondale District-E	1918	Clay	12"	9.5'	#2982 Roll 8292			96620	20	N/A	6/25/1990		Cleaned by jet rodder	One tap found. Bricks in the sewer crating obstructions. Camera could not pass.
22-C	Alley, 210' N/NPL Boston, bet.Quincy & Petoskey District- N	1918	Clay	15"	10'	#2963			96106 80 PA	187	Structurally sound	4/24/1996			There were 14 taps including a Catch Basin lead at 7'. 11 of the taps were coming from vacant lots. Two taps at 20' and 50' had roots blocking 99% and 95% of the taps and 30%-35% of city sewer.
22-C	Alley, 15' S/SPL Boston, bet.Quincy & Petoskey District- N	1918	Clay	15"	11'	#2963			96105 80 PA	228	N/A	4/23/1996			There were 17 taps including a Catch Basin lead at 43'. 8 of the taps were coming from vacant lots. Two taps at 61' and 157' had roots blocking 80% and 25% of the taps and 10%-15% of city sewer. Roots at joint at 228' are restricting 20% of sewer.
54-B	Alley S Jefferson bet. Lillibridge & Fairview District E	1918	Clay	15"	10'	#3035 Roll 8345			95366 76 PA	260	Structurally sound	12/4/1995			15 taps including a CB lead at 176' were found. Camera could move further due to a lot of sludge deposit.
22-C	Alley, 15' N/NPL Chicago, bet.Quincy & Petoskey District- N	1918	Clay	18"	11'	#2963 Roll 8273			96104 80 A	565	Structurally sound	4/20/1996			There were 49 taps including a Catch Basin lead at 187'. 21 of the taps were coming from vacant lots. One tap was found abandoned. 4 taps at 149', 189', 274' and 488' had roots blocking 50% to 100% of the taps and 15%-40% of city sewer. 4' of pipe was cracked and slightly down from 28'- to 32'.
22-C	120' E/EPLPetoskey &18' N/NPL Chicago District- N	1918	Clay	20"	13.5'	#2963			014131 16 A	575'	Good	5/30/2001			The inspection was done due to complaints from homeowner at 9366 Petoskey. There were 33 taps including 2 Catch Basin leads at 22' and 24'. 13 taps came from vacant lots and 9 connections were abandoned. The complainant flushed his toilets but very little flow appeared at the connection. 5 taps had root problems.
22-C	Alley, 540' S/SPL Chicago, bet.Quincy & Petoskey District- N	1918	Clay	20"	12'	#2963 Roll 8273			96103 80 PA	560	Structurally sound	4/19/1996			There were 43 taps including 4 Catch Basin leads at 181', 232', 379' and 402'. 16 of the taps were coming from vacant lots. 5 taps at 73', 256', 259', 289' and 504' had roots blocking 30% to 90% of the taps and 10%-50% of city sewer. 2' of pipe was cracked and slightly down from 72' to 74'. Roots in sewer were only from taps and not from joints. Camera could not pass roots after 505'. Suggested removing roots from 505'.
22-C	Alley, N of Joy, bet.Quincy & Petoskey District- N	1918	Clay	24"	14'	#2963 Roll 8273			96102 79 PA	610	Structurally sound	4/18/1996			There were 49 taps including 4 Catch Basin leads at 103', 236',461' and 505'. 25 of the taps were coming from vacant lots. 3 taps at 530', 558', and 561' had roots blocking 40% to 80% of the taps and 5% to 25% of city sewer. 16' of pipe was cracked and slightly down from 260' to 276' and 20' of pipe was cracked and slightly down from 450' to 470'. Roots in sewer were only from taps and not from joints. Camera could not pass roots after 505'. Suggested removing roots from 505'. The city sewer had no problem at the depression over tap at 80'.
33-D	25' E/WPL of Woodrow Wilson, 39' N/SPL of Lawrence District-N	1918	Clay	24"	18.8'	#2943 Roll 8253			4079 11A	612	N/A	5/25/2000			5 taps which included 3 vacant lots and a CB lead at 314' were found. 3 of the connections were abandoned. The sewer was holding 1/3 depthof sand, debris and bricks.
62-E	155' W/WPL Drexel & 29' N/NPL Avondale District-E	1918	Clay	24"	10'	#2983 Roll 8293			90652	385	N/A	8/22/1990		Cleaned by jet rodder	There were 6 leads found including four 12" connections at 147', 182', 205' and 216'. The pipe had cracks from 293' to 295'.
22-C	24' N/NPL Glynn & 132' E/EPL Dexter District- N	1919	Clay	15"	13.4'	#3145			0190774 R 16	124	Structurally sound	10/29/2001			The inspection was done due to a reported cave-in at 9936 Dexter. There were 7 taps including 3 abandoned connections. The flow level was low-about 3"-5".

24-D	141' E/EPL Holmur, bet. Clements & W Grand District- N	1919	Clay	15"	9'	N/A Private			98274 18 AA	152	N/A	6/22/1998			The inspection was done due to a reported cave-in at 3827 W Grand.. Water introduced at the house by the owner appeared from and around the connection. 15 taps were found including a Catch Basin lead at 152'. 7 of the taps were abandoned and 2 taps came from vacant lots. 6 of the taps were defective and 4 taps had root problems. Due to open pipe camera could not go further.
24-D	189' W/WPL Holmur, bet. Oakman & Ewald Circle District- N	1919	Clay	15"	8'	N/A Private			96707	459	Excellent	8/10/1996		Rehabilated using Insituform Process	The sewer was rehabilitated with Insituform. There were 36 taps including 2 Catch Basin leads at 174' and 233'. 2 taps came from vacant lots. Sewer was holding 3"-5" of sludge.
26-C	Easement, N/SPL Clarita & 132' E/EPL Muirland District- N (Private)	1919	Clay	18"	12'	#3202			90797	489	Structurally sound	5/18/2000		Cleaned with jet rodder	There were 23 taps of which 5 were abandoned. Severe root problems noticed all through. 11 taps had root obstructions ranging from 10% to 90% in taps and 20% to 40% in city sewer. 2 of the taps had 2" shifted joints.
26-C	15' S/NPL of Clarita, & 135' W/WPL Parkside District- N (Private)	1919	Clay	22"	13'	#3175			97868 C 3	503	Structurally sound	6/25/1997			The complainant was homeowner at 18905 Parkside. Homeowner turned on water at his house. By the time the water reached city sewer it was dripping only suggesting owner problem .There were a total of 27 taps. One joint showed minor roots and infiltration.
26-C	SPL of Seven Mile Rd., bet. Muirland & Fairfield District- N (Private)	1919	Clay	24"	13'	#3202			97182 18 A	572	N/A	9/22/1997			The complainant was homeowner at 18935 Muirwood. Homeowner introduced water at the house and the water came through joints and connections. There was roots and breaks in the connection which was also down. The homeowner at 18984 Fairfield complained to the crew of basement flooding problem. The service connection for the house at 259' had break in the connection.There were a total of 38 taps of which 12 were abandoned. Another tap had root problems with 85% obstruction.
22-C	64' N/NPL Kay, bet. Broadstreet & Martindale District- N	1919	Clay	24"	12.7'	#3110			98353 28 A	230	N/A	9/10/1998			The inspection was done due to complaints from homeowner at 9378 Broad street. There were 13 taps including 3 Catch Basin leads at 41', 100' and 131'. 5 taps came from vacant lots. 2 of the taps were abandoned. The tap at 199' belonging to the complainant was completely blocked due to break in connection. Most of the remaining taps were defective. One tap had roots. The joint at 128' was sagging with circular and longitudinal cracks.
2-F	5' Nof S Fort & 650' W of W. Springwells. District- C	1919	Clay	24"	4'	N/A			93150 45 SW	0	N/A	6/3/1993			Pipe has 18" vertical separation.
64-E	3' N/SPL Forest bet. Chalmers & Lakewood District- E	1920	Clay	10"	8'	#3321			97185 9 A	71	N/A	4/18/1997			There were 4 taps. The owner at 4723 introduced water into his tap at 67'. The connection at 71' had roots and infiltration. At 38' the jointwas offset and had break in connection,infiltration, mud and roots. At 4' the pipe had cracks and roots. Roots were cut using saw.
64-E	12' N/SPL E Forest bet. Chalmers & Lakewood District- E	1920	Clay	10"	8'	#3321			94609 B 9	31	N/A	8/8/1994			4 taps were found. The homeowner at 4723 Chalmers introduced water into city sewer. The manner in which the water entered the city sewer, it seemed like the service connection had some sort of problem.
63-B	Alley, N of Mack, bet. Lakewood & Chalmers District- E	1920	Clay	10"	10'	#3321 Roll 8631			95295 74 E	421	Structurally sound	9/29/1995			There were 23 taps found including 9 from vacant lots. Only one tap had minor roots. One of the taps had a large amount of water entering the sewer. All the taps could not be seen because of high but clear water. The sewer was clean.
23-D	330' N/NPL Collingwood., bet. Broadstreet & Martindale District- N	1920	Clay	12"	8.3'	#3268			98165 7 A	356	N/A	3/24/1998			The inspection was done due to complaints from homeowner at 11342 Broad street. There were 30 taps including 3 Catch Basin leads at 104', 200' and 276'. 12 taps came from vacant lots. The complainant introduced water in the service line. It appeared in the roots at the connection. 4 joints had heavy root problems and 5 taps also had root problems. Suggested to cut out roots and reclean sewer.
23-D	"T" Alley, W of Dexter, bet. Duane & Monterey District- N	1920	Clay	18"	15.3'	#3260			99450 7 A	19	N/A	4/19/1999			Roots were blocking 100% of city sewer. Needed cutting and cleaning.

33-D	99' W of woodward, T-Alley between Burlingame & Lawrence District-N	1920	Clay	18"	20'	#2900			98400 34A	96	Fair	10/21/1998			5 taps found but all of them were abandoned.
23-D	"T" Alley, W of Dexter, bet. Duane & Monterey District- N	1920	Clay	20"	17'	#3260			99457 8 A	201	Fair	4/27/1999			The inspection was done in response to complaints from homeowner at 3763 Monterey. The tap for this house was at 171'. The owner introduced water and dye into the service connection. The tap was defective with roots and infiltration. Another defective but abandoned tap with roots was also located.
23-D	135' E/EPL Holmur, bet. Duane & Monterey District- N	1920	Clay	20"	14.6'	#3260			99451 7 A	282	N/A	4/19/1999			There were 5 taps including one tap for a vacant lot. The sewer was totally blocked with 99% roots. Needed cleaning.
56-B	Alley, 1460' N/NPL E.Warren & 134' E/EPL Garland District- E	1921	Clay	10"	9.3'	#3507			97947 C 6	238	N/A	8/22/1997			The complainant was the homeowner at 5266 Garland. The tap from the property had roots but water introduced at the home entered the main sewer. The cause of the problem was not clear. 18 taps including 5 from vacant lots were found. Most of the joints and 7 of the connections had heavy root problems. Camera could not pass. Suggested root saw to cut and clean.
56-B	Alley, 600' S of Sshoemaker, bet. Garland & St. Clair District- E	1921	Clay	10"	9'	#3507			95265 73 PA	15	Structurally sound.	9/15/1995			The inspection was done on complaints from 5300 Garland. 2 taps were located. Sugested to clean the 2 outlets of the MH as the south outlet was 2/3 full and the west outlet was under water.
64-E	150' N/NPL Waveney bet. Drexel & Coplin District- E	1921	Clay	10"	12'	#3192			994237 26A	12	N/A	12/9/1999			3 taps were found. 2 are broken/defective. Dye and water were introduced in the tap for 4368 Drexel 168' long.
56-E	Alley, 20' S/NPL Canfield Bet. St. Clair & Garland District- E	1921	Clay	12"	10'	#3452 Roll 8762			93138 45 PA	580	Structurally sound.	5/26/1993			3 taps were located. At 38' water introduced in in a plate in the alley did not appear in the sewer.
29-E2	Alley, 20' S of N of Temple Alley & W of Cass District-C	1921	Clay	15"	7'	#3569			95119 69BA	82	Poor	6/27/1995			8 taps including a Catch Basin lead at 30' were found. Pipe was cracked and 1"-2" down from 12' to 34'. Owner of building at 26' turned on sump pump but no water came out through the taps.
54-B	230' N/NPL Freud bet. Marquette & St. Clair District- E	1921	Clay	15"	11.3'	#3308			97177	0	Bad	4/14/1997			Could proceed only 12'. Reported pipe problems include cracks, collapses, sag, grease.
61-B	138' W/WPL Lakewood & 21' N/SPL Korte District- E	1921	Clay	15"	11.5'	#3540 Roll 8850			99019 C 15	353	Structurally sound	7/11/1999			The complainant was the homeowner at 269 Lakewood.There were 22 taps found. 6 connections had root obstructions including a 45% blockage at one and 99% blockage at 274 Newport. At this point the water level was 1/2 to3/4 pipe.
61-B	138' W/WPL Lakewood & 21' N/SPL Korte District- E	1921	Clay	15"	11.4'	#3540 Roll 8850			99018 C 15	238	Structurally sound	7/10/1999			13 service connections were located. 3 connections had root obstructions. At 238' the camera could not pass due to a heavy pile of roots.
56-B	Alley, 294' N/NPL Warren bet. Garland & St. Clair District- E	1921	Clay	18"	12.3'	#3507 Roll 8817			004086 11 A	209	N/A	6/2/2000			The inspection was performed due to accumulation of sewage noticed in the alley. 17 taps were found including a basin lead at 99' and 5 taps from vacant lots. One abandoned connection was also found. Almost all the taps were defectiveand/or broken. 1/3 of the pipe was full of sludge and debris.
22-C	Alley, N of Joy, at CL Genesse (Towards Lawton) District- N	1921	Clay	20"	12'	#3377			93146 45 PA	169	Structurally sound to at least 140'	5/29/1993			There were 8 taps including a Catch Basin lead at 35'. The debris in the pipe were hard and ranged from 1" at 10' to 15" at 128'. Camera could not
27-A	144' S/SPL * Mile Rd. & 240' E/EPL Kenneth District- N	1921	Clay	20"	13'	#3477 Roll 8787			99053 C 18	357	Good	10/18/1999			29 taps. Some root intrusion reported at one location. Suggested little cleaning.
56-B	Alley, 54' S/NPL Warren & 35' E/EPL Garland District- E	1921	Clay	20"	14.4'	#3507 Roll 8817			004085 11 A	348	Fair	6/2/2000			The inspection was performed due to accumulation of raw sewage noticed in the alley. 27 taps were found including two basin leads at 55' and 297' and 2 taps from vacant lots. Six abandoned connection was also found. Almost all the taps were defectiveand/or broken. The last tap was a PVC replacement connection.
27-E	300' N/NPL Wellesley & E/EPL Lucerne. Dist.- N	1921	Clay	8"	10'	#3600			004078 11 A	233	N/A	5/21/2000			100' of pipe was under water.

27-E	330' W/WPL Wellesley & 12' S/SPL Balmoral. District-N	1921	Clay	8"	12'	#3279			994246 27 A	14	N/A	12/13/1999			High water condition in pipe. Suggested reclean and grease removal.
27-E	492' W/WPL Wellesley & 12' S/NPL Balmoral District- N	1921	Clay	8"	6'	#3279			994245 27 A	197	N/A	12/13/1999			Sewer has heavy grease, sludge and joint shift problems.
27-E	492' W/WPL Wellesley & 12' S/NPL Balmoral District- N	1921	Clay	8"	6'	#3279			994243 27 A	112	N/A	12/11/1999			Sewer has heavy grease, and open joint shift problems. Sewer needs reclean and grease removal. Could not pass.
27-E	342' W/WPL Wellesley & 12' S/NPL Balmoral District- N	1921	Clay	8"	12'	#3279			994241 27 A	2	N/A	12/11/1999			2 taps. One from vacant lot. Both have root problems. One has 98% roots in connection in Manhole.
27-E	12' W/WPL Wellesley & NPL Balmoral District- N	1921	Clay	8"	9.7'	#3279			994240 26 A	224	Bad	12/10/1999			Sewer block has many complaints as sewer is running very sluggish and slow. There may be a down city sewer. One tap comes from a vacant lot. 37'-220' has open joints allowing in sand and infiltration. 2"-4' of sand deposit found in the sewer. Root problems in joints also exist.Sewer may be a good candidate for Insituform.
27-E	12' W/WPL Wellesley & NPL Balmoral District- N	1921	Clay	8"	9.7'	#3279			994240 26 A	23	Bad	12/10/1999			Sewer block has many complaints as sewer is running very sluggish and slow. One PVC tap found in the Manhole. Sewer section has open and offset joints, circular and longitudinal cracks, roots and infiltration problems. Camera could not proceed any further possibly due to a missing pipe. Sewer may be a good candidate for Insituform.
27-E	Manhole in front of 1884 Balmorral District- N	1921	Clay	8"	11'	#3279			97156 6 A	0	N/A	3/24/1997			Service connection, a non-factory tap is 99% blocked by roots and mud and has infiltration.
27-E	18' E/WPL Gloucester & 15' N/SPL Wellesley District- N	1922	Clay	12"	12.3'	#3600 Pvt.			99015 C 9	66	Structurally sound	2/5/1998			Due to total root curtain had to back out. Need root saw .
53-F	18' W/EPL School, 111' N/NPL Varjo District- E	1922	Clay	12"	11'	#3606 Private			97870 C 3	188	Structurally sound.	6/27/1997			17 taps imncluding 8 from parking lots were found. Roots at one tap, open joints at two locations, some calcium deposit and debris were noticed.
53-F	Alley, 30' W/EPL Cliff, & 118' S/SPL Buhr near Davison & School District- E	1922	Clay	12"	10'	#3606 Private			93545	285	Structurally sound.	5/20/1993		Cleaned by jet rodder	28 taps including 3 CB leads were found at 35', 143' and 223'. 2' of pipe was repaired at the top. Sewer was holding 3' to 5' of sludge.
53-F	18' W/EPL School, 111' N/NPL Varjo District- E	1922	Clay	15"	11'	#3606 Private			97871 C 3	147	Structurally sound.	6/27/1997			Indications of sewer running 1/2 to 3/4 full were observed. Sewer was found to be clean with no visible obstruction or damage.
55-B	651' N Alley N/Mack bet. Garland & St. Clair District- E	1922	Clay	18"	12'	#3643			14102 13 A	331	Good	4/26/2001			16 taps. Severe root intrusion problems.
56-E	Paved Alley, 560' S of S Canfield, bet. St. Clair & Garland District- E	1922	Clay	18"	12.5'	#3643			90032	332	Structurally sound	2/6/1990			The inspection was done due to a report of depression from 63913 St. Clair. No depression was found during inspection. 21 taps were found including 4 vacant and 1 abandoned lots. The sewer was clean.
55-B	Alley N/Mack bet. St. Clair & Garland District- E	1922	Clay	24"	13.1'	#3643			97195 9 A	321	N/A	5/2/1997			14 taps. From 162' to 187' sewer reported to be egg shaped having cracks, separation, roots and infiltration.
27-E	Alley, at SPL of Lucerne (Ext.) & NPL of Lincolnshire (Ext.) District- N	1922	Clay	8"	8'	#3600			95213 71 B	203	Excellent	8/18/1995			There is no tap in this run. Pipe is very clean. This pipe is in a berm with 4 trees growing over it but no roots are visible in pipe. Joints have some calcium deposits.
27-E	Alley, 250' N of N Seven Mile Rd. & 10' E of W Strathcona District- N	1922	Clay	8"	5'	#3600 Pvt.			95145 69 B	61	Excellent	7/12/1995			3 taps found. Water was introduced in a small depression found on 19185 Strathcona but it did not appear in the main sewer after one hour. Due to protruding connection, camera could not proceed after 61'.

23-D	Paved Alley, 83' W/WPL Holmur, bet. Richton & Cortland District- N	1923	Clay	12"	8'	#4029			90122	401	Excellent	5/29/1990			There were 30 taps including 2 Catch Basin leads at 27' and 238'. 5 of the taps were coming from vacant lots.2 taps at 217' and 224' had roots blocking 100% and 50% of the taps and 60% and 40% of city sewer. 4' of pipe was cracked and 2" down from 24' to 28' and 24' of pipe was cracked and 1" down from 140' to 164'. At 3 other locations the pipe was cracked. The cracks were from 170' to 180', 210' to 220' and 243' to 251'. Roots in sewer were only from taps and not from joints.
26-C	3' N/NPL of Margareta, bet. Birchcrest & Oak Drive District- N	1923	Clay	12"	7.4'	#3820-A			96171 1C	360	Good	9/3/1996			The complainant was homeowner at 18606 Oak Drive. Homeowner turned on water at his house. The water reached city sewer under the non-factory tap having roots around it. There were a total of 16 taps. The city sewer had some open joints and there was 4"-6" of sand, sludge and debris. It needed root cutting and cleaning.
26-C	Easement, 160' S/SPL of Clarita, bet. Birchcrest & Oak Drive District- N	1923	Clay	12"	10'	#3820-A			96155 C 1	189	Structurally sound	8/26/1996			There were a total of 8 taps. 4 taps had heavy roots restricting 60% to 90% of the taps and 20% to 40% of the city sewer. In addition the joints also had roots. There was 4"-6"of sludge in the pipe. Due to heavy roots, camera had to be taken out.
26-C	3' N/NPL of Margareta, bet. Birchcrest & Oak Drive District- N	1923	Clay	12"	7.4'	#3820-A			96153 C 1	21	N/A	8/26/1996			City sewer was holding about 3"-5" of sludge. Camera had to be pulled out due to heavy root curtain.
26-C	Alley, 251' N/NPL of Clarita, bet. Warrington & Livernois District- N	1923	Clay	12"	12'	#3820-A			94540 B 3	119	N/A	6/17/1994			There were a total of 7 taps. 2 taps had some root problems.
56-B	111' W/WPL Lillibridge & 231' S/SPL Shoemaker District- E	1923	Clay	12"	11.7'	#3969			97923 C 5	612	Structurally sound.	7/25/1997			The inspection was initiated due to problems at 5145 Lillibridge. The owner turned on the water which did not enter city sewer but kept dripping in through heavy roots. The second tap from the same address was running continuously but a third had no water. A total of 60 taps including 3 Catch Basin leads at 126', 247' and 544' were found. 21 of the taps were from vacant lots and one from I-696 ROW. There were heavy concentration of roots and debris at various places in the sewer which needed cleaning.
60-B	Alley, NPL Linnhurst Bet. Blackmoor & Gruebner District- E	1923	Clay	12"	8'	#4693			96085 79 E	368	Partially sound	4/8/1996			Complain came from 18600 Blackmoor homeowner. 6 taps were found. Severe root and grease problems were observed. Obstructions from roots and grease ranged from 60% to 90% in two taps and 50% in main sewer. Suggested to reinspect after cuuting roots and removing grease.
64-B	Easement, 129' W/WPL Marlborough, near Chalmers & Chandler Park Dr. District- E	1923	Clay	12"	9.6'	#4004			4092	232	N/A	6/6/2000			The inspection was initiated due to complaints by 5582 Chalmers homeowner. The owner introduced water into the house lead at 182'. 8 taps including 2 abandoned connections were found during the inspection. All of the taps were defective. The camera could not pass beyond 234' as the pipe was half full with sludge and grease.
64-B	22' S/NPL Southampton & 112' E/EPL Lenox District- E	1923	Clay	12"	15.7'	#3945			96151 1	47	N/A	8/23/1996			The inspection was initiated due to a depression reported at 5501 Drexel. 3 taps were found during the inspection.
65-E	106' S/SPL Evanston & 6' W/EPL Coplin District- E	1923	Clay	12"	14.3'	#3895			97171 7 A	235	N/A	4/4/1997			There were 11 taps including 1 Catch Basin lead at 33'. 4 of the taps were from vacant lots. At 235' sewer was blocked 95% by roots. Camera could not proceed.
65-E	Alley, CL Coplint bet. Wade & Camden District- E	1923	Clay	12"	8'	#3895			93308 51 AE	483		9/14/1993			Camera could not pass beyond 46' due to a 3" protruding tap. The sewer dips 8" from 10' to 18'. Suggested to replace this section of sewer.
73-B	Alley, 87' S/SPL Greyfriars, 51' E/EPL W Outer Drive District-C	1923	Clay	12"	9.5'	#3940			97152 15A	51	N/A	8/18/1997			2 taps found. The tap at 43' was dropping down causing blockage and had infiltration due to broken connection. It had roots on both sides. Over half of the pipe was full of gravel and sludge. Sewer needed cleaning.

73-B	Alley, 87' S/SPL Greyfriars, 51' E/EPL W Outer Drive District-C	1923	Clay	12"	9.5'	#3940			97943 C5	45	N/A	8/18/1997			2 taps were found. Homeowner at 25831 W. Outer Drive introduced water into his connection. No water entered the sewer. The sewer had open joints and a lot of debris at this point.
73-B	Alley, 120' E/EPL of Outer Drive, 9' N/NPL of Fort St. District-C	1923	Clay	12"	10.6'	#3940			96745 C4	76	N/A	10/26/1996			5 taps including a parking lot were found. Pipe had both circular and longitudinal cracks. Sewer was holding 4"-7" of debris and sludge. Camera unable to pass.
73-B	Alley, 120' E/EPL of Outer Drive, 9' S/NPL of Fort St. District-C	1923	Clay	12"	10.4'	#3940			96220 C4	74	N/A	10/25/1996			4 taps were found. Pipe had both circular and longitudinal cracks. Sewer was holding 4"-7" of debris and sludge.
73-B	Alley, 127' E/EPL of W Outer Drive, 12' S/NPL of Fort St. District-C	1923	Clay	12"	10.6'	#3940			96754 C5	77	N/A	11/1/1996			3 taps were found. Pipe had both circular and longitudinal cracks with slight deformities. Sewer was holding 3"-7" of debris.
73-E	Alley, 315' W/WPL of Saliotte between Annabell & Beatrice District-C	1923	Clay	12"	8'	#3735			98349 27A	104	Poor	8/24/1998			7 taps including 1 vacant and abandoned and 4 defective connections were found. Homeowner at 3581 Annabell introduced water and dye into his connection. Water and dye entered the sewer through joints and cracks. The sewer had open joints and severe circular and longitudinal cracks. At 52' and 104' sewer turned egg-shaped. 0' to 104' seemed to be a good choice for INSITUFORM lining.
73-E	Alley, 27' W/WPL of Francis between Electric & Liddlesdale District-C	1923	Clay	12"	10'	#3735			96751 C4 & 5	368	Structurally sound	10/30/1996			29 taps including 3 CB leads at 35', 41' and 65' and 3 vacant lots were found. The tap at 361' had 90% blockage in the tap and 50% in the main sewer due to roots. Sewer was holding 3" to 5" of sludge.
73-E	Alley, 3' E/EPL of Saliotte between Annabelle & Beatrice District-C	1923	Clay	12"	10'	#3735			96215 C4	376	Fair	10/21/1996			25 taps including a CB lead at 24' and 8 vacant lots were found. The sewer had cracks from 46' to 76' and 89' to 97'.Sewer was holding 2" to 4" of debris.
73-E	Alley, 362' W/WL of Visqer, 111' S/SL of Edsel District-C	1923	Clay	12"		#3756			90333	220'	Good	11/8/1990			13 taps were found. Sewer was full of water from 164' to 220'.
73-E	Alley, 4' W/WPL of Saliotte, 132' S/SPL of Annabell District-C	1923	Clay	13'	9.7'	#3735			98348 27A	73	Very poor	8/24/1998			6 taps including a CB lead at 23', 2 abandoned and 3 broken and defective connections were found. Homeowner at 3630 Beatrice introduced water into his connection. Water entered the sewer muddy. The sewer had open joints and severe circular and longitudinal cracks. From 32' to 73' sewer turned egg-shaped.
26-C	5' S/NPL of Clarita & 157' E/EPL Oak Drive District- N	1923	Clay	15"	10.6'	#3820-A			96156 C 1	0	Structurally sound	8/26/1996			There were a total of 9 taps. 3 taps had heavy roots restricting 50% to 90% of the taps and 30% to 40% of the city sewer. There was 3"-5" of sludge in the pipe.
26-C	5' S/NPL of Clarita & 157' E/EPL Oak Drive District- N	1923	Clay	15"	10.6'	#3820-A			96154 C 1	200	Structurally sound	8/26/1996			There were a total of 10 taps including 2 Catch Basin leads at 14' and 31'. 2 taps had heavy roots restricting 50% and 80% of the taps and 30% of the city sewer. In addition the joints also had roots. There was 4"-6"of sludge in the pipe.
33-D	Alley E of Woodrow Wilson between Richton & Monterey District-N	1923	Clay	15"	13'	#3758			93171 46PA	295	Fair	6/16/1993			This inspection was performed to check the probable source of a depression around a D.E. manhole at Richton near Woodrow Wilson. Water was introduced into the depression at different sides of the D.E. MH and into the Catch Basins in the vicinity of the depression and the sewer and .the taps around the spot were examined simultaneously. Finally it was determined that the origin was the Catch Basins to the East. 6 taps including a CB lead at 107' and another CB lead at 125' were found.1 tap was from a vacant lot and 1 tap was abandoned.
60-C	Alley, 350' E/EPL Veach Bet. Brentwood & Hollywood District- E	1923	Clay	15"	9'	#3770			94074 57 AE	348	Structurally sound	4/27/1994			The complainant was 8268 Brentwood homeowner. Water introduced at the house appeared in the sewer. Problem was solved by plumber. 21 taps were found of which 3 came from vacant lots.

64-E	120' W/WPL Lenox & 120' S/SPL E Warren District- E	1923	Clay	15"	9.3'	#3970 PVT			98016 C 9	370	Very bad	2/6/1998			This sewer section had 23 taps including one Catch Basin at 142' and 5 vacant lots. At 2 taps, roots were present with one having 75% of the tap and 50% of city sewer blocked. There were 3 abandoned connections and 8 broken/defective taps having infiltration. There were also 3 shifted (2" to 4") and one 3" protruding connections. The overall condition of the sewer was very bad with numerous cracked, collapsed, sagged , broken, deformed and flattened portions throughout the sewer section.. There were questions by the inspecting crew about the structural integrity of the pipe. It could be a good candidate for insituform.
73-E	Alley, 306' W/WPL Leblanc, 117' N/NPL Electric District-C	1923	Clay	15"	11.4'	#3756			97860 C3	80	Structurally sound	6/20/1997			Inspection was conducted to investigate a cave-in at 3551 Edsel. 10 taps were found. Water was turned on at above house. It entered the sewer irregularly. One tap was full of dirt with some roots.
73-E	60' E/EPL Leblanc, 117' N/NPL Electric District-C	1923	Clay	15"	13.2'	#3756			97859 C3	70	N/A	6/20/1997			Inspection was conducted to investigate a cave-in at 3551 Edsel. 6 taps including a CB lead at 66' were found. At the CB the sewer had collapsed with dropped connection, The sewer was also flattened, with sag and hole.
73-E	"T" Alley W of Visger, easement between Electric & Liddlesdale District-C	1923	Clay	15"	12'	#3735			96750 C4	96	Bad	10/28/1996			6 taps were found. The city sewer at the problem area at 2935 Electric near the service connection had some cracks. At 96', the sewer had severe deformity due to circular/logitudinal/open cracks and open and collapsed pipe. Broken pieces of pipe were present in the sewer. Sewer was holding 4" to 7" of sludge.
73-E	Alley, 60' E of E Leblanc between Edsel & Electric District-C	1923	Clay	15"	10'	#3756			93211 48A	410	Structurally sound	7/23/1993			18 taps were found including 3 CB leads at 70', 85' and 88' and 1 from a vacant lot. The basin lead at 70' was 6" down. The patch over this pipe needed fixing. The tap at 115' was protruding 3" and the tap at 191' from 3515 Edsel was protruding 13". The camera could not pass. Suggested cleaning downstream.
73-E	38' E/WPL of Gleason & 9' S/NPL of Fort District-C	1923	Clay	15" Per Dwg. 24"	15'	#3940			97160 15A	28'	Good	8/29/1997			Inspection was conducted to investigate a cave-in. Off-set joint. Unable to pass. The address in report is wrong.
90-B	Alley, 370' N of Alley N of Fenkell bet. Indiana & Kentucky District- N	1923	Clay	15" Insp/ 18" Dwg	10'	#3832			91152 5	350	Bad	6/22/1991			20 taps found including a CB lead at 200'. 3 taps were protruding from 1" to 5". 6 taps had heavy roots blocking 25% to 100% of the taps and 30% to 35% of main sewer at 4 locations. 2 taps could not be located because camera was under water. 2 taps could not be located due to heavy roots and high water level.Heavy roots encountered for a length of 50'. 10' of longitudinal crack and 2' of vertical cracks found. Pipe was out of vertcal alignment 1" to 4".
90-B	Alley, 360' N of Alley N of Fenkell bet. Indiana & Kentucky District- N	1923	Clay	15" Insp/ 18" Dwg	11'	#3832			91149 5	350	N/A	6/20/1991			3 taps found. Tap at 16196 Kentucky protruding 5" into the sewer. Camera unable to pass without reinstallation.
26-C	Easement, 206' N/NPL of Clarita, bet. Birchcrest & Oak Drive District- N	1923	Clay	18"	11.6'	#3820-A			96157 CC 1	365	Structurally sound	8/26/1996			There were a total of 17 taps. The city sewer had one joint at 184' having roots covering 70% of the city sewer on the upper side. 7 taps had heavy roots restricting 30% to 70% of the taps and 20% to 40% of the city sewer. There was 3"-6" of sludge in the pipe. It needed root cutting and cleaning.
53-F	Alley, 580' E/EPL Sherwood, bet. Sherwood & Buhr near Davison District- E	1923	Clay	18"	13.5'	#3886			91059	399	Excellent	3/22/1991		Cleaned by jet rodder	23 taps including a CB lead at 163' were found. Water introduced into the 2 cyd depression at 6773 Davison did not appear in the city sewer through the tap or joints after 1/2 hour. Calcium deposits seen coming out of tap was restrictring sewer by 30%. Camera could not pass beyond 93' after the CB due to roots
60-C	Alley, 180' E/EPL Veach Bet. Brentwood & Hollywood District- E	1923	Clay	18"	16.3'	#3770			014031 4 A	335	Fair	3/2/2001			A total of 20 taps including 2 abandoned and 3 from vacant lots were found. 11 of the connections were defective and /or broken.

64-B	Alley, 20' S/NPL Southampton bet. Lakeview & Coplin District- E	1923	Clay	18"	10'	#3919			94108	380	Structurally sound	7/21/1994			The homeowner at 5511 reported that water from his house was not draining. A small depression was observed over this tap. In all 21 taps were found including one from a vacant lot at 120'. The inspectors also noted that the joints at 119' and 121' were leaking. The pipe was clean.
73-E	10' E of W Gleason between Electric & Liddlesdale District-C	1923	Clay	18"	13'	#3735			95087 67E	325	Structurally sound	5/31/1995			3 taps incuding 1 from a vacant lot were found. The tap at 41' had severe root problems with 85% of tap and 80% of main sewer blocked. Camera could not pass root curtain. Suggested cutting roots and retelevising.
73-E	Alley, 400' S of S Gleason between Liddlesdale & Electric District-C	1923	Clay	18"	12'	#3735			95076 67E	21	Excellent	5/25/1995			3 taps found. The complainant at 3358 Liddesdale introduced water into his connection and it appeared in the main sewer.
90-B	Alley, N of Fenkell bet. Indiana & Kentucky District- N	1923	Clay	18"	11'	#3832			91148 5	370	N/A	6/19/1991			23 taps found including a CB lead at 20'. 8 taps have minor root problems ranging from 5% to 35% obstructions. One tap protruding 4" into the main sewer.
22-C	Alley, 270' S/SPL Kay, bet. Ostego & Petoskey District- N	1923	Clay	20"	13'	#3992			014072 10 A	294	Good	3/23/2001			The inspection was done due to complaints from homeowner at 9376 Ostego. There were 16 taps including 1 Catch Basin lead at 294'. 13 taps were defective mostly having 2"-4"shifted joints. 4 taps came from vacant lots. The complainant at 9376 Ostego flushed his toilets with dye but very little flow appeared at the connection. Instead, dye came out through tap at 9370 Ostego which had 2" shifted joint.The complainant's connection had 4" shifted joint. 1 tap had root problems and one had calcium deposits.
73-E	Alley, 108' S/SPL Edsel, 9' E/WPL Gleason District-C	1923	Clay	20"	16.2'	#3756			97973 C7	395	Structurally sound	9/4/1997			34 taps were found including 4 from vacant lots. Water was turned on at 3321 Edsel where a cave-in was reported. No water entered the main sewer. Minor roots were observed at 2 taps.
73-E	Alley, 8' E/WPL of Gleason between Edsel & Electric District-C	1923	Clay	20"	16'	#3756			96708 B41	410	Structurally sound	8/11/1996			The complainant was from 3321 Edsel. 35 taps including 4 vacant lots were found. Water was turned on at the complainant's house but no water entered city sewer. He sewer was holding 5"-10" of sludge and debris.
22-C	Alley, 585' N of "T" Alley N of Joy, bet.Ostego & Petoskey District- N	1923	Clay	24"		#3992			93526	200	Structurally sound	4/28/1993		Cleaned by jet rodder	Inspection was done in response to complaints from homeowner at 9316 Ostego. The tap of the house was at 137'. The house connection was repaired. There were 17 taps including a Catch Basin lead at 61'. There was 3" to 5" of sludge in the pipe.
73-E	38' E/WPL of Gleason & 9' S/NPL of Fort District-C	1923	Clay	24"	15'	#3940			97158 15A	0	N/A	8/29/1997			Inspection was done to investigate a cave-in. 12' into pipe over half full with gravel & mud. Could view as far as 20'. The address in report is wrong.
90-B	Alley, CL Florence, bet. Greenlawn & Roselawn District- N	1924	Clay	12'	8'	#4188			91238 15	445	N/A	9/11/1991			14 taps found including a CB lead at 33'. 3 taps had roots blocking 25% to 50% of the taps and 20% & 30% of main sewer at two locations. 25% of the joints for about 100' had root problems.
65-E	111' W/WPL Chalmers & 39' S/NPL Maiden District- E	1924	Clay	12"	11'	#4201			97998 C 8	118	N/A	12/19/1997			4 taps were found including one from a vacant lot. Sewer had a lot of grease and gravel.
65-E	Alley, W of Chalmers, bet. Hampshire & Camden District- E	1924	Clay	12"	12'	#4267			95159 70 PA	33	Structurally sound	7/25/1995			4 taps were found including 2 from a vacant lots. Sewer was excellent with low flow.
65-E	Alley, 15' E of W Newport bet. Wade & Camden District- E	1924	Clay	12"	10'	#4267			93309 50 E	359	Structurally sound	9/15/1993			19 taps were found including 5 from a vacant lots. One tap had minor roots. There was a crack in the pipe at 317'.
89-F	Alley, N/NPL Margarita, bet. Woodingham & Santa Barbara District- N	1924	Clay	12"	6'	#4060			95246 72 E	375	Structurally sound	9/2/1995			26 taps were found. Root obstructing 50%, 40% and 80% of taps at 3 locations but only 5% of city sewer at one tap. In the last 25' roots were partially cut out but 40% obstruction still exists. Inspite of medium roots, pipe is extremely clean.
90-B	Alley, N of N Florence, bet. Ohio & Cherrylawn District- N	1924	Clay	12"	10'	#4117			95118 68 PA	225	N/A	6/22/1995			The inspection was performed due to complaints from 16545 Cherrylawn homeowner. Water introduced from the house did not appear in city sewer. 21 taps were found. Root obstruction and grease were encountered at various locations.

9-C	T- Alley, S/Fenkell bet. Birwood & Mendota, S/Chalfon District- N	1924	Clay	12"	14'	#4124			97123 3 A	108	Fair	3/1/1997			10 taps were found including 1 CB lead at 25' and 2 connections from vacant lots.. There was a break in one connection.
55-E	Alley 520' N/Kercheval bet. Fairview & Lillibridge. Dist.- E	1924	Clay	15"	10'	#1844 Roll 13-A			96076 79 PA	360	N/A	4/2/1996			3 service conections. About 7" sludge & debris at one location and severe obstruction due to root intrusion especially at joints and taps reported.
55-E	Alley 25' S/ N Kercheval bet. Fairview & Lillibridge. Dist.- E	1924	Clay	15"	12'	#1844 Roll 13-A			96073 79 PA	520	Structurally sound	4/1/1996			43 taps including 4 CB leads at 38/, 87', 94',and 274' were found. It includes 19 vacant lots. Roots blocking 98% of the tap and 45% of the sewer at one location. Sewer was holding 3" of debris. Camera got stuck in roots.
56-B	Alley, 780' N of N Warren, bet. Harding & French District- E	1924	Clay	15"	9'	#4144			94123 59 PA	423	Excellent	9/20/1994			A total of 36 taps including 14 from vacant lots and 4 Catch Basin leads at 40', 299', 301' and 393' were found.
65- B	Easement, 320' W/"T" Alley at Chalmers, bet. Wilshire & Chelsea District- E	1924	Clay	15"	13.1'	#4116			014214 25 B	111	Structurally sound	11/7/2001			9 taps including 2 from vacant lots found. 2 taps had roots, one had break in connection, 4 were defective and one PVC tap at 104' was protruding. Due to thick roots at 111' camera could not pass.
65-E	Alley, W of Chalmers, bet. Hampshire & Camden District- E	1924	Clay	15"	12'	#4267			95160 70 PA	350	Structurally sound	7/25/1995			There were 11 taps including 1 Catch Basin lead at 228'. 9 of the taps were from parking lots. The remaining lot seemed to be inactive. The pipe was extremely clean with low flow.
89-F	Alley, 375' N/NPL Margarita, bet. Woodingham & Santa Barbara District- N	1924	Clay	15"	8'	#4060			95247 72 E	19	N/A	9/2/1995			3 taps were found. Severe root problem in one connection blocking 100% of the tap and 60% of city sewer. Camera had to be pulled out.
56-B	Alley, at NPL of Warren, bet. Harding & French District- E	1924	Clay	18"	10'	#4144			95038 65 PA	360	Structurally sound.	4/25/1995			Inspection performed due to depression found near 5038 Harding. Determined that depression was not caused by the city sewer which was in excellent condition. The tap here had 60% and the main sewer had 10% root obstruction. Total of 18 taps located including a Catch Basin lead at 128'. 6 taps were from vacant lots and 3 were non-functional. At 4 taps root obstructions ranged from 10% to 100%.
90-B	24' E/WPL Wisconsin & 108' N/NPL Puritan District-N	1924	Clay	18"	15.7'	#4056			95647 B 17	40	N/A	5/2/1995			Inspection was pereformed due to complaints from 8700 Puritan. 8 taps were located including a CB lead at 39'. No water was entering into city sewer from 3 taps out of 6 taps from 8700 Puritan.
90-B	Alley, 150' S/SPL of Florence, bet. Kentucky & Wyoming District- N	1924	Clay	18"	11'	#4117			94122 59 PA	81	Structurally sound	9/20/1994			10 taps found including 3 from parking lots. 5 taps had root problems blocking 20% to 60% of the taps. Joints in 14' of main sewer blocking upto 50% of pipe. At one joint roots obstructing almost 98% of pipe. Suggested cutting roots and retelevising.
53-F	SPL E Nevada, 12' E/WPL Van Dyke District- E	1924	Clay	20"	16.2'	#4123			97874 C 3	140	Very Bad	6/28/1997			One tap was found with calcium deposit. Sewer had bad cracks throughout including circular, longitudinal and open cracks. Pipe collapsed and flattened.
65- B	Alley, 297' W/WPL Newport, bet. Promenade & E Outer Dr. District- E	1924	Clay	20"	11.7'	#4118			0090716 R 3	180	Structurally sound	2/1/2000			The complainant was from 13425 Promenade. 9 taps including 1 from a vacant lot were found. 2 taps had 3" offset connections and one joint was found leaking. Sewer had 3"-5" flow.
65- B	Alley, 275' W/WPL Newport, bet Longview & Chelsea District- E	1924	Clay	24"	13'	#4024			92036 26 A	275	Structurally sound	2/27/1992			19 taps including 3 from vacant lots found. Water was introduced at the house at 13390 Chelsea. It appeared in the sewer with normal flow. The sewer was extremely clean.
27-E	18' E/WPL Gloucester & 15' N/SPL Wellesley District- N	1924	Clay	8"	12.3'	#3600A			99014 C 9	158	Structurally sound	2/5/1998			One abandoned tap found. Could not go further as the pipe is getting smaller to 8".
84-D	Alley 375' S/S Lyndon & 14' W/E Hubbell District- W	1925	Clay	12"	8'	#4278			94097 58 S	33	Excellent	5/26/1994			2 taps found.
89-F	Easement, 134' W/WPL Pennington, 325' S/SPL Curtis District- N	1925	Clay	12"	9.7'	#4224			98112 C 12	5	N/A	12/12/1998			This inspection was conducted in response to a cave-in problem. 3/4 of pipe was full of sludge, debris and sand. Camera unable to proceed.
89-F	390' S/SPL Thatcher,bet. Livernois & Stoepel District- N	1925	Clay	12"	13'	#4449			96623 B 33	42	N/A	6/26/1996			3 taps were found including 2 from parking lots.

89-F	390' S/SPL Thatcher,bet. Livernois & Stoepel District- N	1925	Clay	12"	13'	#4449			96623 B 33	354	N/A	6/26/1996			34 taps were found including 6 from parking lots. Roots at two locations obstructing 80%-90% of the taps and 20%-50% of city sewers were observed. Also 3"-5" of sludge was present in the pipe.
89-F	6' S/SPL Thatcher, bet. San Juan & Prairie District- N	1925	Clay	12"	8'	#4224			94640 B11	207	N/A	9/7/1994			5 taps found. 4"-7" of sludge and debris present in the pipe.
90-D	100' Manor & 114' S/SPL Midland District- N	1925	Clay	12"	11'	#4354			0093283 VN-4	383	Structurally sound.	8/19/2000			33 taps were found including 4 MH at 0' and 5 CB leads at 126', 130', 142', 151', and 162'. Starting MH had a lot of debris requiring cleaning. Pipe was under water from 0'-21'. 2 taps were from vacant lots. 7 of the connections were abandoned including the CB lead at 151'. 5 connections were 90% to 100% blocked by roots. Minor roots and grease were present in other areas including a CB lead. Inspection was done due to complaints from homeowner at 15739 Manor. No sign of blockage around the connection was found and the tap looked good. Water with dye introduced at the house entered city sewer. . Some portion of sewer had high water from 1/2 to 3/4 pipe.
23-C	Alley, 240' E/EPL Holmur, bet.Cortland & Sturtevant District- N	1925	Clay	15"	12'	#4442			91242 16	397	Good	9/13/1991			There were 26 taps including 4 Catch Basin leads at 217', 253', 290' (non- functioning) and 319'. The CB lead at 217' was down 4" into the sewer. The pipe was cracked and down 2" from 218' to 226'. The paved Alley over here was depressed 6". There were numerous depressions over taps in the Alley the sewer pipe was OK except as noted. Overall 30% of pipe showed cracks but were not down.
23-C	Alley, 239' E/EPL Holmur, bet.Glendale & Leslie District- N	1925	Clay	15"	11'	#4442			90537	402	Structurally sound	3/8/1990		Cleaned by jet rodder	There were 27 taps including 5 Catch Basin leads at 222', 254', 269', 291' and 304'. 2 taps at 20' and 192' ' had roots blocking 30% of the taps. Sludge buildup throughout the inspected portion of sewer was recorded. Sewer was holding 3"-5"of sludge from 1' to 160', 5" to 8" from 160' to 190', 3"-5" from 190' to 270' and 4"-6" from 270' to 402'.
89-F	Easement, 126' W/WPL Prairie & 18' N/SPL Santa Clara District- N	1925	Clay	15"	8.3'	#4224			01416 TR-2	197	Structurally sound	2/20/2001			Complain came from 17503 Prairie. Service line was checked by turning on water in house which entered the city sewer. 9 taps were located. 3"-5" of sludge was present in the sewer.
23-C	"T" Alley, W of Dexter, bet. Fullerton & Sturtevant District- N	1925	Clay	18"	15'	#4442			98414 36 A	359	Fair	11/14/1990			16 taps including 3 from vacant lots and 7 abandoned connections found. Water was introduced at the house at 3774 Sturtevant. Muddy water was coming in from joint possibly from shifted connection.
56-B	Alley, 312' N/NPL Warren bet. St. Clair & Harding District- E	1925	Clay	18"	11.6'	#4283			99059 C 18	324	Structurally sound.	10/22/1999			27 taps were found including 2 Catch Basins at 11' and 233'. At 129' connection the tap was 90% restricted and the city sewer was structurally damaged with low flow level. 8" of sludge and debris found in the pipe needed cleaning.
84-D	Alley N/ Grand River & 16' W/ E Hubbell District- W	1925	Clay	18"	14'	#4278			93265-RVC 49 S	440	Structurally sound	8/20/1993			12 taps including a CB lead at 304' were found.. Pipe extremely clean.
84-D	Alley N/ Grand River & 16' W/ E Hubbell District- W	1925	Clay	18"	14'	#4278			93250 49 S	303	Excellent	8/12/1993			12 taps including a CB lead at 303' were found. Pipe was clean
89-F	Easement, 134' W/WPL Pennington,109' S/SPL Curtis District- N	1925	Clay	18"	13'	#4224			98111 C 12	123	N/A	12/12/1998			This inspection was conducted in response to a cave-in problem. 8 taps were found. Starting from 104' sewer is half full with soft sludge. Camera had to be backed out due to too much sand in pipe. Sewer needs cleaning.
101-A	Alley, 4' N/NPL Davison, bet.Asbury Park & Mettetal District- W	1925	Clay	20"	12'	#4276			91200 11	320	Excellent	8/8/1991			17 taps. 6" of sludge and debris found.
51-B	Alley, CL Gable & Alley S/McNichols District- E	1925	Clay	20"	15'	#4296			91203 11	170	Excellent	8/10/1991			Inspection was performed due to depressions found over a Factory Tap and a Non Factory Tap from 5946 E McNichols. 4 taps includind 1 from a vacant lot were located.

89-F	184' S/SPL Santa Maria, between Stoepel & Santa Rosa District- N	1925	Clay	20"	14.5'	#4449			97174 17 A	135	Bad	9/15/1997			13 taps located. Pipe has many problems such roots with as much as 95% blockage, open joints, broken connections, and infiltration. Suggests reclean by cutting roots.
89-F	184' S/SPL Santa Maria, between Stopel & Santa Rosa District- N	1925	Clay	20"	14.5'	#4449			97174 17 A	125	Bad	9/15/1997			Of the 8 taps located, 3 were abandoned. Pipe has many problems. 12' of pipe was under water with muds, longitudinal cracks including a 17' stretch at one location and large amount of sand in another place were noticed. Suggests reclean and cut roots.
92-E	Paved Alley, 20' N of S Emery, W of Mt. Elliot District-E	1925	Clay	20"	11.7'	#4345			90314 000 to 184	58	Structurally sound	10/26/1990		Cleaned by jet rodder.	2 taps including a Catch Basin lead at 58' were found. The remaining tap was from a vacant lot. The inspection was done because of a depression found around at 44'. The sewer underneath was OK.
101-A	Alley, S/Schoolcraft, bet. St. Mary & Mettetal District- W	1925	Clay	24"	13'	#4276			95010 65 E	62	N/A	3/27/1995			4 taps. 8" debris found under a tap.
101-A	Alley, 315' N/NPL Davison, bet.Asbury Park & Mettetal District- W	1925	Clay	24"	12'	#4276			91201 11	320	N/A	8/8/1991			5 taps. Could pass after 95' due to 8" of sludge and debris.
56-B	Paved Alley, 335' N/NPL Warren, bet. Montclair & Lemay near Shoemaker District- E	1926	Clay	15"	12'	#4696			93520	353	Structurally sound.	4/24/1993		Cleaned by Jet rodder	A total of 28 taps including 4 from vacant lots and 2 Catch Basin leads at 139' and 205' were found. 3" to 6" of sludge and debris was present in the sewer.
56-E	111' E/EPL Lillibridge & 90' S/SPL E Warren District- E	1926	Clay	12"	13'	#4670			98039 C 10	112	N/A	3/3/1998			6 taps were found including 2 abandoned connections. 4 connections were broken and 3 connections had 2" shifted joints. 2 taps had 45% root obstructions and the joint at 110' had 95% root curtain. Camera unable to pass at this point.
56-E	470' S/SPL Warren Bet.Beniteau & Lillibridge District- E	1926	Clay	12"	8'	#7620			96724 C 3	223	Structurally sound.	9/23/1996			The inspection was done due to a reported cave-in at Beniteau. The city alley was dug up at a service connection. 15 taps including 4 from vacant lots were found. One of the tap appeared to be a PVC connection. At one tap 40% of both the tap and the city sewer were blocked by roots. The sewer had 4"-7" of sludge and debris.
84-A	369' S/SPL Chalfonte, bet. Snowden & Hartwell. Dist.- N	1926	Clay	12"	9.3'	#4547			99053 C 18	82	N/A	10/19/1999			4 taps. Camera could not pass through due to severe root problem which is all throughout the sewer section.
84-A	Alley 385' S/ S Chalfonte bet. Snowden & Hartwell District- N	1926	Clay	12"	8'	#4547			95279 74 E	172	N/A	9/22/1995			7 taps. Some sludge deposits, cracks and deformity in pipe is reported.
84-A	Alley S/SPL Chalfonte bet. Hartwell & Snowden. Dist.- N	1926	Clay	12"	8'	#4547			95156 70 E	385	N/A	7/22/1995			23 taps. Sewer structurally sound but severe root problem in many areas. Suggests cutting roots.
84-B	"T" Alley, bet. Cruse & Ardmore District- W	1926	Clay	12"	10.6'	#4675			96168 C 1	363	N/A	8/29/1996			25 taps. Medium cracks and slight deformity associated with 4"-7" sludge noticed at one location. 3 places have 40% to 90% root intrusions in service taps and 10% to 30% in main sewers.
84-B	Alley, CL of Eaton, bet. Schaefer & Tracy District- W	1926	Clay	12"	12'	#4496			93266 49 AE	292	N/A	8/20/1993			21 taps. Root problems found in four tap locations.
84-B	Alley 30' N/S Eaton, bet. Schaefer & Tracy District- W	1926	Clay	12"	11'	#4496			93244 48 A	365	N/A	8/8/1993			Heavy roots also in previously cut areas. Suggests recutting roots and flushing sewer.
84-B	Alley 75' S/S Chalfonte, bet. Tracy &Schaefer Dist.- W	1926	Clay	12"	12'	#4496			93225 48 AE	85	N/A	7/30/1993			4 taps found.
84-B	Alley 75' S/S Chalfonte, bet. Tracy &Schaefer Dist.- W	1926	Clay	12"	12'	#4496			93225 48 AE	5	N/A	7/30/1993			1 tap found.
84-B	Alley 75' S/S Chalfonte, bet. Tracy &Schaefer Dist.- W	1926	Clay	12"	12'	#4496			93225 48 AE	30	N/A	7/30/1993			
84-B	Alley 310' N/N Chalfonte, bet. Tracy & Schaefer Dist.- W	1926	Clay	12"	9'	#4496			93226 48 AE	330	Good	7/30/1993			27 taps including 4 parking lots. Minor root problems.
84-B	2' N/NPL Chalfonte & 115' W/WPL Tracy District- W	1926	Clay	12"	8'	#4496			93604	39	N/A	8/6/1993			3" to 8" sludge and debris present in sewer.

84-B	2' N/NPL Chalfonte & 115' W/WPL Tracy District- W	1926	Clay	12"	8'	#4496			93604	306	Good	8/6/1993			20 taps found. 60% root obstructions at two locations.
84-B	Easement S/SPL Eaton bet. Stansbury & Lesure District- W	1926	Clay	12"	12'	#4496			90125	260	Good	5/30/1990			15 taps found. Roots were cut before televising. Some sludge dep[osits and vertical alignment shift observed. Cleaned by jet rodder.
84-B	Easement Eaton S 255', bet. Tracy & Lesure District- W	1926	Clay	12"	10'	#4496			90124	0	N/A	5/30/1990			12 taps found. Upto 4" sludge deposit and about 5" vertical alignment shift observed at one place. Cleaned by jet rodder.
84-B	Easement 293' N/SPL Eaton bet. Stansbury & 111' W/WPL Lesure- Dead End District- W	1926	Clay	12"	8'	#4496			90114	52	N/A	5/19/1990			2 taps found. Reports 99% root curtain. Camera could not pass. Suggests cleaning by cutting roots with root saw.
84-D	Alley S/ Grand River, bet. Ferry & Robson District- W	1926	Clay	12"	13'	#4488			91043 603- 723	292	Structurally sound	3/9/1991			4 taps found. Camera under water.
90-B	Alley,SPL of Margrove & Alley E of Wyoming District- N	1926	Clay	12"	11'	#4542			95240 72 A	36	Structurally sound	8/31/1995			Inspection was done to locate a CB lead which could not be found. Pipe was extremely clean.
90-B	ROW, 139' S/SPL of Marygrove, Alley bet. Kentucky & Wyoming District- N	1926	Clay	12"	10'	#4521			93620	135	N/A	10/1/1993			Inspection was performed due to complaints from 8901 Marygrove. Roots were restricting 70% of the tap and 20% of city sewer at this location. Total of 4 taps found. 3" to 6" of sludge and debris found throughout the pipe. Also roots were present in joints for the entire length of pipe.
90-B	Alley, S of Marygrove, bet. Kentucky & Wyoming District- N	1926	Clay	12"	10'	#4521			93303 50 E	111	N/A	9/11/1993			One tap found. Tap is blocked 35% by roots. Pipe is half full with debris and small roots. Suggested recleaning and root cutting before retelevising.
90-D	174' S/SPL Pilgrim, Easement bet. Griggs & Birwood District- N	1926	Clay	12"	15.6'	#4469			004105 12 A	287	Structurally sound.	6/15/2000			The complainant was homeowner at 15731 Griggs. Dye introduced in the house sink appeared in city sewer. There were 18 taps of which 6 were abandoned and 6 had severe root problems with blockage ranging from 30% 99%. City sewer had root intrusion of 30% at 2 locations.
90-D	174' S/SPL Pilgrim, Easement 148' W/WPL Griggs District- N	1926	Clay	12"	15.6'	#4469			0093231 VN 2	74	Bad	4/21/2000			The complainant was homeowner at 15731 Griggs. The problem was bad odor in basement. There were 3 taps of which 1 was abandoned and 2 had severe root problems with blockage ranging from 85%% 95%. City sewer had root intrusion blocking 75% and the camera could not pass.
30-B	104' N/NPL of Warren, Alley between Woodward & Case District-C	1926	Clay	15"	18'	#4501			91613	240	N/A	5/18/1991		Cleaned by Jet Rodder	17 taps including a Catch Basin lead at 165' were found. Sewer was holding 2" to 3" of sludge.
56-E	Alley, 345' N/NPL Canfield Bet.Beniteau & Lillibridge District- E	1926	Clay	15"	10'	#4670			91281 19	405	Excellent	10/22/1991			29 taps including 3 Catch Basin leads at 38', 53' and 181' were found. 11 of the connections came from vacant lots. 44' of sewer had cracks in the arch. Minor roots found at one tap. Sewer was clean.
84-A	143' S/SPL Chalfonte bet. Sorrento & Steel District- N	1926	Clay	15"	10.8'	#4555			97179 18 A	82	N/A	9/19/1997			8 taps. Severe root problems at the taps. Also due to collapsed pipe the camera could not proceed.
84-A	Alley 100' N/N Eaton bet. Snowden & Hartwell District- N	1926	Clay	15"	10'	#4547			95214 71-E	422	N/A	8/19/1995			38 taps. Root problems mostly in taps but also in sewer observed. Evidence of sludge removal found. Suggests root removal.
84-A	Alley 100' N/N Eaton bet. Snowden & Hartwell District- N	1926	Clay	15"	9'	#4547			95200 71 AE	404	N/A	8/12/1995			1 tap. Camera could not pass due to heavy roots. Suggests root removal before retelevising.
84-A	Alley bet. Ward & Srrrento, 140' N/NPL Chalfonte. Dist.- N	1926	Clay	15"	14' Per Dwg.	#4555			93578	153	N/A	6/28/1993			9 taps. 4"-7" sludge noticed in one area. Cleaned by jet rodder.
84-A	Alley bet. Sorrento & Ward 144' N/ NPL Chalfonte. Dist.- N	1926	Clay	15"	14' Per Dwg.	#4555			92610	355	Good	10/1/1992			24 taps. Some roots encountered. Cleaned by jet rodder.
84-B	"T" Alley S/Fenkell, bet. Cruse & Ardmore District- W	1926	Clay	15"	12.2'	#4675			96167 C 1	152	N/A	8/29/1996			8 taps. Root problems towards the end encountered. City sewer holding 3-6" of sludge in pipe. There are cracks in pipe and slight deformity to the structure.
84-B	"T" Alley S/Fenkell, Easement bet. Cruse & Stansbury District- W	1926	Clay	15"	13.2'	#4496			94577 B 7	132	N/A	7/16/1994			7 taps. Two service connections have root problems.

84-B	Alley 420' S/S Cambridge, bet. Schaefer & Tracy District- W	1926	Clay	15"	10'	#4496			93247 49 AE	455	N/A	8/11/1993			13 taps including two apartment houses. Heavy roots for 60% of sewer for about 150'. Six taps are 40%-100% blocked by roots. Suggests cutting roots and retelevising.
84-B	Alley, CL of Eaton, bet. Lesure & Tracy District- W	1926	Clay	15"	11'	#4496			93248 49 E	255	Good	8/11/1993			14 taps. Minor roots at one tap. Sewer pipe has cracks for 20' length where it is slightly down also.
84-B	Alley 600' N/N Chalfonte, bet. Tracy & Lesure. Dist.- W	1926	Clay	15"	9'	#4496			93242 48 E	334	N/A	8/7/1993			7 taps. Roots at one tap- 85% in tap and 40% in sewer
84-B	Alley ' NPL Chalfonte, bet. Tracy & Lesure. Dist.- W	1926	Clay	15"	9'	#4496			93241 48 E	283	N/A	8/7/1993			21 taps. Root problems found in two tap locations-75%-98% in taps and 40%-60% in sewer..
84-B	Easement 31' N/SPL Eaton & 112' E/EPL Lesure District- W	1926	Clay	15"	11'	#4496			90594	137	N/A	5/19/1990			8 taps found. Sludge accumulation of 6" to 8" due to heavy roots. Needs roots removal. Cleaned by jet rodder.
84-B	Easement 235' S/SPL to 600' S/SPL Eaton bet. Stansbury & Lesure District- W	1926	Clay	15"	12'	#4496			90125	346	Good	5/30/1990			26 taps found. Cleaned by jet rodder.
84-B	Easement 30" N/SPL Eaton bet. Stansbury & 111' W/WPL Lesure- Dead End District- W	1926	Clay	15"	12'	#4496			90113	263	N/A	5/19/1990			15 taps found. Some roots in joints.
84-D	Alley, 280' S/ Alley Grand River & CL Robson District- W	1926	Clay	15"	10'	#4488			93203 47 S	10	N/A	7/20/1993			Sewer 80% blocked by roots. Camera could not pass.
84-D	Alley,' S/ Grand River & CL Robson District- W	1926	Clay	15"	11'	#4536			93200 47 S	410	Structurally sound	7/20/1993			5 taps found. Camera could not proceed due to a snake in service tap causing obstruction. One tap was 95% blocked by roots.
84-D	Alley, N/NPL Schoolcraft & CL Lauder District- W	1926	Clay	15"	14'	#4536			93198 47 S	160	Good	7/19/1993			9 taps found. Some roots are present.
84-D	Alley, 160' N/NPL Schoolcraft & CL Lauder District- W	1926	Clay	15"	14'	#4536			93199 47 S	100	Structurally sound	7/19/1993			5 taps found. Sewer had a bend.
101-E	Alley 240' S/SPL Capital, bet. Asbury Park & Woodmont Dist.- W	1926	Clay	18"	12'	#4523			4154 6 A	378	N/A	8/22/2000			17 taps. Severe root problems, defective joints, and sludge/debris found throughout pipe.
101-E	"T" Alley N/Plymouth, bet. Asbury Park & Woodmont Dist.- W	1926	Clay	18"	18'	#4523			4114 14 A	64	N/A	6/24/2000			5 taps including 3 abandoned. Insituform has been used for rehabilitation.
101-E	Asbury Pk., Plymouth, Woodmont, and Wadsworth - "T"Alley N/Plymouth, and bet. Asbury Park & Woodmont Dist.- W	1926	Clay	18"	18.5'	#4523			91676	100	N/A	12/12/1991			5 taps. 5"-6" sludge and debris in pipe. Some leaking joints found.
51-B	122' N/NPL Charles, Easement bet. St. Louis & Dwyer District- E	1926	Clay	18"	17.3'	#4510			98244 17 A	339	Structurally sound.	6/1/1998			This inspection was conducted due to complaints from homeowner at 12857 St. Louis for cave-in. A total of 21 taps were located of which 5 connections were broken and shifted and 13 connections had severe root intrusion ranging from 40% to 90% in taps.City sewer was obstructed 20% to 60% at various locations. 1 tap apparently was abandoned. Camera unable to pass 60% obstruction in main sewer from tap out of 12891 Dwyer.
56-B	Paved Alley, 81' N/NPL Warren, bet. Montclair & Lemay near Shoemaker District- E	1926	Clay	18"	12'	#4696			93519	253	N/A	4/24/1993		Cleaned by Jet rodder	A total of 19 taps including 6 from vacant lots and 1 Catch Basin lead at 109' were found. 3" to 6" of sludge and debris was present in the sewer. Sewer needed cleaning.
84-A	101' S/T Alley S/Fenkell, Easem. bet. Appoline & Steel. Dist.- N	1926	Clay	18"	14'	#4547			14109 14 A	20	N/A	5/2/2001			Heavy root problem, restricting 50-60% of sewer. 5"-8" debris present.
84-B	Alley, CL of Eaton, bet. Schaefer & Tracy District- W	1926	Clay	18"	12'	#4496			93264 49 AE	110	N/A	8/19/1993			7 taps which include 2 factory and 1 parking lot taps.
84-B	Alley, CL of Eaton, bet. Lesure & Tracy District- W	1926	Clay	18"	12'	#4496			93263 49 S	140	N/A	8/19/1993			7 taps. Three service connections have severe root problems.At one location, sewer is blocked by roots about 70%.
84-B	Alley, CL of Eaton, bet. Lesure & Tracy District- W	1926	Clay	18"	12'	#4496			93249 49 E	295		8/12/1993			Heavy roots. Suggests cutting roots and retelevising.

84-D	Alley, NPL Schoolcraft & CL Robson District- W	1926	Clay	18"	10'	#4488			93201 47 S	100	Fair	7/21/1993			8 taps. Roots reported at two taps. Obstruction at taps 60%-75% and in sewer 35%-45%.
84-D	Alley, 320' N/NPL Schoolcraft & CL Robson District- W	1926	Clay	18"	12'	#4488			93202 47 S	135	Good	7/20/1993			8 taps found.
101-E	104' N/NPL Plymouth, & 27' E/WPL Grandmont Dist.- W	1926	Clay	20"	19.2'	#4522			99085 C 19	155	Good	11/20/1999			7 taps. About 3" of sludge found.
101-E	Grandmont, Plymouth, Abingtont, and Wadsworth - Alley 103' N/NPL Plymouth, and 29' E/WPL Grandmont Dist.- W	1926	Clay	20"	19.2'	#4522			91534	160	N/A	3/5/1991			7 taps. About 4"-9" of sludge/debris found at various places. One leaking joint noticed. Pipe adjacent to ending manhole broken with a piece missing.
56-B	Alley, N of Shoemaker, bet. Springfield & Lemay District- E	1926	Clay	20"	12'	#4500			91272 19	375	Good	10/16/1991			A depression was reported which was at 106'. Water introduced in the depression did not appear in the city sewer. The condition of the sewer was good at this location. A total of 26 taps including 3 from vacant lots and 2 Catch Basin leads at 159' and 306' were found. At 2 taps roots were obstructing 5% to 15% of the taps.
84-A	3' N/NPL Lyndon & 123' E/EPL Cheyenne District- N	1926	Clay	20"	10.3'	#4547			98237 16 A	203	Good	5/28/1998			14 taps including 4 abandoned. Several joints have shifted 2"-4".
84-A	Alley bet. Sorrento & Ward 499' N/ NPL Chalfonte. Dist.- N	1926	Clay	20"	16' Per Dwg.	#4555			92611	121	Good	10/1/1992			7 taps. 3"-5"sludge deposit found at one location.
84-A	Alley 1' N/N Lyndon bet. Snowden & Hartwell District- N	1926	Clay	20"	10' Per Dwg.	#4547			90608	86	N/A	7/6/1990			5 taps. 5"-7" of sludge was found. Camera could not pass due to root curtain restricting 80% of sewer. Need root saw to remove roots. Cleaned by jet rodder.
84-B	Alley, 10' S/N Eaton, bet.Mark Twain & Strathmoor District- W	1926	Clay	8"	4'	#4615			92038 26	11	N/A	2/28/1992			Heavy roots all through, High water and cracks at one location obsevered. Suggested cutting roots before retelevising.
104-F	Alley, E/ PL Asbury Park & Alley S/ W Outer Dr. District- W	1927	Clay	12"	7'	#4830			93277 49 E	105	Structurally sound	8/25/1993			3 taps found. Roots found at 2 taps and 1 joint.
104-F	Alley, E/PL Asbury Park & Alley S/ W Outer Dr. District- W	1927	Clay	12"	7'	#4830			93271 49 E	95	N/A	8/23/1993			4 taps. 75% root obstruction in tap 10% in City sewer at 7503 W Outer Dr. and 95% root obstruction at 95'. Three other connections have medium root obstructions. Camera could not pass after 0+71 due to roots and debris.
56-E	Paved Alley, 707' S/SPL Warren, bet. St. Clair & Harding District- E	1927	Clay	12"	9.5'	#4785			91586	130	Structurally sound	4/16/1991		Cleaned by Jet rodder	The complainant was homeowner at 4573 Hardind. Water was turned at the house. It entered the city sewer but in small quantiyties. 9 taps including one Catch Basin at 46' were found. Sewer was holding 2"-6" of sludge.
84-D	120' N/NPL Kendall & CL Sussex District- W	1927	Clay	12"	11'	#4871			91039 170-310	265	N/A	3/2/1990			6 taps found. Camera could not pass due to high water and debris. Suggests recleaning.
93-A	Alley, 24' N/SPL of Bringard, & 132' W/WPL of Dresden District-E	1927	Clay	12"	14.1'	#4835			4096 12 A	383	Poor	6/8/2000			18 taps were found. 7 taps had root problems with one having 99% and another with 75% blockage. 4 taps were defective. Sewer was sagging from 290' to 300'. The joint at 383' had roots and infiltration. Suggested recutting roots.
93-A	Alley 80' S of S Fairmont between Annott & Bradford District-E	1927	Clay	12"	12'	#4835			96043 78A	377	Structurally sound	3/5/1996			20 taps including a Catch Basin lead at 95'were found. 4 taps had root problems with one having 99% and others from 10% to 70% blockage. The joints from 190' to 210' had roots blocking 10% to 30% of sewer. At 3 taps the sewer was obstructed from 25% to 35%. Suggested cutting roots.from 190' to 300'.
93-E	4' S/SPL of Sturgis Easement between Hoover & Albion District-E	1927	Clay	12"	8'	#4474			4192 A 11	14	Structurally sound	9/20/2000			One service connection for complainant at 19527-33 Hoover was found. Complainant was not home. First 2 pipes in connection looked good.
93-E	123' W/WPL Algonac, 393' N/NPL Lappin District-E	1927	Clay	12"	8.8'	#4474			932105 VN 5	48	N/A	9/26/2000			The complainant was from 19411 Algonac. 4 taps including 1 abandoned connection were found. Several joints had root problems and sewer was flattened from 10' to 30'. Sewer had a lot of debris and needed cleaning. Inspection ended due to total root curtain.

104-F	Alley 50' N/ N Santa Maria bet. Murray Hill & Asbury Park District- W	1927	Clay	15"	11'	#4830			93275 49 E	374	Good	8/25/1993			28 taps found. 95% root obstruction at tap and 5% in City sewer at 17369 Murray Hill
56-E	Paved Alley, 600' S/SPL Warren, bet. St. Clair & Harding District- E	1927	Clay	15"	10'	#4785			91587	370	Structurally sound	4/16/1991		Cleaned by Jet rodder	28 taps including 4 Catch Basin leads at 43', 211', 269' and 295' were found. The sewer was holding 2"-4" of sludge.
56-E	Paved Alley, 510' S of S Canfield, bet. St. Clair & Harding District- E	1927	Clay	15"	9.8'	#4785			90035	0	Excellent	2/7/1990		Cleaned by Jet rodder	11 taps includind a 12" lead protruding into the sewer were found.
104-F	Alley 240' S/ S Santa Maria bet. Murray Hill & Asbury Park District- W	1927	Clay	18"	11'	#4830			93274 49 E	365	Structurally sound	8/24/1993			26 taps including aCB lead at 292' were found. 80% obstruction at tap and 15% in City sewer at 17191 Murray Hill. Pipe was very clean.
93-E	Unpaved Alley, 315' N/NPL of Manning & S/SPL State Fair District-E	1927	Clay	18"	14.5'	#4775			091062 410 to 520	215	Good	3/25/1991			12 taps were found. 4 taps had root obstructions ranging from 10% to 90%.
62-E	22' W/EPL Coplin & 28' S/NPL of Essex near Drexel District- E	1927	Clay	24"	10'	N/A			91517	132	N/A	2/8/1991		Cleaned by jet rodder	No taps found in this section. The MH was buried. 3"-7" of sludge was present in the sewer.
73-E	347' N of Francis in Fort District-C	1927	Clay	24"	10'	#4841			97159 15A	0	N/A	8/29/1997			Inspection was conducted to investigate a cave-in. Off-set joint. Unable to pass. Sewer had deposits of gravel, brick and mud.
										15.2793561					
103-B	"T" Alley S/McNichols, bet. Biltmore & Ferguson. Dist.- W	1928	Clay	12"	13.8'	#4812			98103 C 12	108	Structurally sound	12/5/1998			11 taps. Cave-in at 16941 McNichols was due to a non-factory tap used.
103-B	McNichols, Biltmore,Ferguson "T" Alley 109' S/SPL McNichols & 20' W/EPL Biltmore , Dist.- W	1928	Clay	12"	13.8'	#4812			98130 4A	75	N/A	2/5/1998			7 taps including a CB lead at 95' were found. Cleaned by jet rodder. This inspection was initiated due to a cave-in at 16941 McNichols. Water and dye introduced in to the depression came out from the tap at 16941 McNichols.
103-B	McNichols, Biltmore,Ferguson "T" Alley 109' S/SPL McNichols & 20' W/EPL Biltmore. Dist.- W	1928	Clay	12"	13.8'	#4812			98129 4A	16	Poor	2/5/1998			Cleaning needed as pipe is 1/3 blocked by mud. This inspection was initiated due to a cave-in at 16941 McNichols. Camera had to be pulled out.
103-B	22'N/SPL Grove & 108' W/WPL Ferguson District- W	1928	Clay	12"	9'	#4812			97128 4 A	225	N/A	3/5/1997			12 taps including 2 abandoned. Root problem at two taps from 50% to 90% in taps and 30% to 40% in main sewer. Some cracks at two tap areas also observed.
103-B	20'S/NPL Grove & 106' E/EPL Ferguson District- W	1928	Clay	12"	8'	#4812			97121 3 A	136	N/A	2/28/1997			6 taps. Root obstructions 10% to 60% in 5 taps and about 10% and 30% in main sewer near two taps.
103-B	3 'S/CL Grove bet. Ferguson & Asbury District- W	1928	Clay	12"	9'	#4812			97120 3 A	128	N/A	2/28/1997			7 service connections found.
103-D	On S/PL Gainsborough, 27' W/EPL Avon District- W	1928	Clay	12"	22.3'	#5992			97162 15 A	13	N/A	9/2/1997			
103-D	On S/PL Gainsborough, 27' W/EPL Avon District- W	1928	Clay	12"	22.3'	#5992			97162 15 A	227	N/A	9/2/1997			Pipe has severe offset joint problems. Water introduced in cave-in showed up in pipe at one location. Dye introduced at one cave-in location was entering pipe with water. Also lots of mud and gravel.
93-E	123' W/WPL Algonac 393' N/NPL Lappin District-E	1928	Clay	12"	8.8'	#4948			932112 VN 6	356	Structurally sound except flattened areas.	9/29/2000			The complainant was from 19411 Algonac. 24 taps including 9 abandoned connections were found. 1 tap had broken and 2" shifted connection, 3 taps and a joint had minor roots and sewer was flattened from 10' to 24'. Sewer had 2"-4"debris.
112-E	Alley /NPL Kendall, bet. Braile & Patton District- W	1928	Clay	15"	8'	#4821			93125 44 E	48	Structurally sound	5/17/1993			one tap found.
112-E	Alley /NPL Kendall, bet. Braile & Patton District- W	1928	Clay	15"	8'	#4821			93125 44 E	326	Structurally sound	5/17/1993			21 taps found including 1abandoned and 10 vacant. Pipe is clean with no visible obstruction.

114-B	Alley, 300' S of Pickford bet. Heyden & Vaughan District- W	1928	Clay	15"	12'	#5089			92119 33 E	330	N/A	5/28/1992			19 taps found. Including 2 vacant. At 18265 Vaughan 50% roots in tap and 10% in city sewer. Water introduced in depression at 18254 Heyden appeared through tap. From Sta.0+76 to 1+79 pipe is cracked and 1"-2" down. Pipe is clean with 3" debris at the end.
57-E	360' N/N Service Dr. Ford Fwy. & E/S of Lemay District- E	1928	Clay	15"	12..7'	#5096			004066 9A	107	N/A	5/7/2000			7 taps including a Catch Basin at 44' found. One tap comes from a vacant lot. Almost all the taps are defective. At 107' the sewer had broken down and the sewer was 1/2 full with debris allowing no flow beyond this point.
57-E	100' S/SPL Harper & E/EPL Lemay District- E	1928	Clay	15"	14.6'	#5096			004065 9 A	236	N/A	5/7/2000			13 taps including 2 abandoned connections and a Catch Basin lead at 177' found. 8 of the taps are from vacant lots. Most of the taps are broken or otherwise defective. Open cracks at two locations were also found. At 236' the sewer was broken and collapsed.
93-E	123' W/WPL Algonac, 45' N/NPL Lappin District-E	1928	Clay	15"	10.6'	#4948			932111 VN 6	350	Bad	9/29/2000			The complainant was from 19411 Algonac. 26 taps including 11 abandoned connections were found. 1 tap had broken and 1" shifted connection, 3 taps and several joints had medium to heavy root problems. Sewer was flattened from 225' to 300'. Sewer had 3"-5"debris and high water level. Suggested lining the sewer to avoid further problems.
93-E	123' W/WPL Algonac, 45' N/NPL Lappin District-E	1928	Clay	15"	10.6'	#4948			932104 VN 5	256	Bad	9/26/2000			The complainant was from 19411 Algonac. 19 taps including 8 abandoned connections were found. 1 tap had broken and 1" shifted connection, 1 tap and several joints had medium to heavy root problems. Sewer was flattened at 237' and lost its integrity. Due to root curtains camera could not pass.
114-B	Alley, 300' S of Pickford bet. Heyden & Vaughan District- W	1928	Clay	18"	12'	#5089			92120 33 E	351	Structurally sound	5/29/1992			20 taps found. At the end vertical alignment shifted +/- 5"
114-D	Alley N Grand River bet. Greydale &Lahser District- W	1928	Clay	18"	14.3'	#5059			99060 C 18	28	Structurally sound	10/23/1999			2 taps found including a 12" non-factory tap. 8" of debris found.
112-E	Alley 315' S of S Kendall, bet. Evergreen & Vaughan District- W	1928	Clay	20"	12'	#4944			93121 44 AE	158	Structurally sound	5/14/1993			14 taps found including 7 parking lots. At 2 locations taps are 97% blocked by roots and city sewer about 50% blocked.
112-E	Alley 315' S of S Kendall, bet. Evergreen & Vaughan District- W	1928	Clay	20"	12'	#4944			93121 44 AE	157	Structurally sound	5/14/1993			14 taps found including 1 parking lot. At 1 location tapis 20% blocked by roots and city sewer about 10% blocked. Pipe generally clean with no other root problems.
56-B	108' N/NPL Shoemaker, bet. Lemay & Montclair District- E	1928	Clay	20"	12.2'	#5017			96658 B 36	311		7/12/1996			The inspection was done because of a reported cave-in at 5551 Lemay. Water introduced into the sewer did detect any damage. A total of 25 taps including a Catch Basin lead at 241' were found.
100-C	Fitzpatrick, Greenview & Faust- 125' E/EPL Greenview & 24' S/NPL Fitzpatrick. Dist.-W	1929	Clay	12"	11'	#5310			89765	173	Good	12/2/1989			7 taps. 3"-5" sludge in pipe. Cleaned by jet rodder.
100-C	Fitzpatrick, Greenview & Brace- 20' E/WPL Orangelawn & 24' S/NPL Fitzpatrick. Dist.-W	1929	Clay	12"	10'	#5310			89766	315	Good	12/2/1989			14 taps. 4"-6" sludge and debris in pipe. Cleaned by jet rodder.
104-F	"T" Alley, W/ Greenfield bet. Thatcher & Curtis District- W	1929	Clay	12"	18'	#5274			96224 4 C	48	N/A	11/8/1996			1 tap found. Roots in joints. At 48' camera could not pas due to 95% root obstruction.
121-A	350' S/SPL Verne & 26' W/EPL Bramell District- W	1929	Clay	12" Per Insp./15" Per Dwg.	11.6'	#5214			98342 27 A	322	Sructurally sound	8/19/1998			There are 15 taps found. Root problems at 6 connections. Taps are blocked from 30% to 99% and the city sewer is obstructed 0% to 30%.
87-A	114' W/WPL Steel & 3' S/SPL Chippewa Road District- N	1929	Clay	15"	10'	#5177			99051 C 17	68	Fair	10/16/1999			4 taps. 3 taps have 25%-50% root obstruction. Lot of debris in sewer. Requires cleaning.
87-A	114' W/WPL Steel & 18' N/SPL Chippewa Road District- N	1929	Clay	15"	9.8'	#5177			99050 C 17	23	Good	10/16/1999			No tap in this section.
87-A	114' W/WPL Steel & 21' S/NPL Chippewa Road District- N	1929	Clay	15"	9.7'	#5177			99049 C 17	18	Good	10/16/1999			Found buried Manhole. No taps found.

87-A	120' W/WPL Steel & 12' S/NPL Chippewa Road District- N	1929	Clay	15"	10.3'	#5177			97144 14 A	102	Fair	8/7/1997			2 taps found. Both are manholes at 16' and 41'. From 41' to 102' sewer had root problems. Because of roots and grease problems in the sewer in needed cleaning.
84-D	Coyle, Schoolcraft & Kendall. 5' N/NPL Schoolcraft, 8' E/WPL Coyle Dist.-W	1929	Clay	18"	11.5'	#5141			91514	231	N/A	2/4/1991			17 taps. Slight deformity to structures found.
121-A	Alley,CL Bramell & NPL Puritan District- W	1929	Clay	20"	15'	#5214			95019 65 S	56	N/A	4/6/1995			2 taps found. The tap at 16101 Bramell is full of debris(Sta. 0+56). No water can exit the other tap.
62-E	26' S/NPL of Essex & 113' E/EPL Coplin, near Piper District- E	1929	Clay	24"	12'	N/A			91516	135	Structurally sound	2/8/1991		Cleaned by jet rodder	Catch Basin lead at 102'. No other tap found. Sewer was holding 3"-5" of sludge.
112-A	Alley, 365' N of N Lyndon, bet. Auburn & Minock District- W	1930	Clay	12"	6'	#5457			93065 42 E	286	Excellent	4/22/1993			2 taps were found. The inspection was done to determine the cause for a one CYD depression on top of pipe at Sta. 0+10. Water introduced in the depression appeared through the pipe but did not enter through the tap.
73-E	108' N/NPL of Edsel, 9' W/WPL of Francis District-C	1930	Clay	24"	15'	#5503			97178 8A	212	N/A	4/14/1997			Inspection was conducted to investigate a void at 3046 Edsel. A CB lead at 206' was found. Sewer had an open joint at 133' and was broken at 212'. Sewer had gravel deposits with low water level but found no problems at the void.
121-A	33' S/NPL W. McNichols, & 15' W/EPL Lamphere District- W	1930	Clay	24" Per Insp./15" Per Dwg.	16.2'	#5516			99013 C 14	321	Poor	6/3/1999			No taps. This is a storm sewer. Pipe broken, collapsed' flattened and sagged. Carrying 1/3 pipe of sludge. Pipe needs cleaning and is a good candidate for Insituform. Suggests informing the Central Yard.
103-D	216' N/NPL Lancashire & 15' E/WPL Warwick District- W	1934	Clay	18"	9'	#5699			97939 C 5	421	Good	8/13/1997			6 taps. Sewer looks structurally sound. Could not determine why a cave-n occurred. Water was entering into pipe through 6 open joints.
27-E	325' W/WPL Lincolnshire & 9' N of N Curb of 7 Mile Rd. District- N	1936	Clay	20" Rep/ 24" Dwg	23'	N/A			97245 C 7	292	N/A	12/6/1997			One tap found. Roots blocking 45% of sewer but 98% blockage at the connection.
114-B	Alley, 140' S of S Pickford & 10' W of E Pierson District- W	1937	Clay	10"	5'	#5808			912643 18	510	Structurally sound	10/9/1991			12 taps found. One was defective, one was inactive, two were clean-outs and one was a factory connection. One tap was verified by introducing water in it. 80% of joints had calcium deposits. Pipe very clean.
114-B	Alley, 135' S of S Pickford & 10' W of E Pierson District- W	1937	Clay	12"	7'	#5808			91265 18	135	Structurally sound	10/9/1991			10 taps found. Calcium deposits in 60% of joints.
114-B	Alley, 315' S of S Pickford & 10' W of E Pierson District- W	1937	Clay	12"	8'	#5808			91264 18	151	N/A	9/10/1991			7 taps found.
114-B	Alley, 620' S of S Pickford & 10' W of E Pierson District- W	1937	Clay	18"	12'	#5808			91250 00	253	Excellent	9/24/1991			5 taps found including 2 vacant. One tap is 8".
63-B	Alley, N of Mack, bet. Lakewood & Chalmers District- E	1938	Clay	12"	10'	#5780			95292 74 S	186	Structurally sound	9/28/1995			There were 8 taps including one from a parking lot. The end of the sewer appeared to be bulkheaded.
33-D	613' E/EPL of Second between 40 & 50 Lawrence District-N	1950	Clay	13" Per insp./18" per Dwg.	22'	#6696 DPW			98279 19A	178	N/A	6/23/1998			8 taps were found. All but 3 of the connections were abandoned. The owner of 40 Lawrence introduced water and dye into city sewer. The tap at 40 Lawrence appeared to have mud inside.
53-F	18' N/SPL Varjo, 12' E/WPL Van Dyke District- E	1950	Clay	18"	11'	#6682			97873 C 3	413	Structurally sound.	6/28/1997			A catch basin lead was found at 127'. No other tap was observed.
53-F	18' N/SPL Varjo, 12' E/WPL Van Dyke District- E	1950	Clay	18"	11'	#6682			97872 C 3	135	Structurally sound.	6/28/1997			One tap from a parking lot found. Heavy calcium deposit at the connection was visible.
										1.6905303					
61-B	2' E of E Lakewood & 10' S of N Harbor Island District- E	1961	Clay	12"	9.9'	Dwg.# 1906			90219	126	N/A	8/10/1990			5 taps were found including a Basin lead. 3 joints were leaking . There was a 1/4 yd. Depression on the ground. Some calcium deposits were visible. All area water was turned off but the joints were still leaking. Assumption was made that the water coming in was ground water. Water sample was taken.
										0.02386364					

31-B	Alley, 150' E/EPL of Second, bet.Pallister & Bethune District- N	1893-1896	Clay	18"	21'	Roll 4191			93155 45 PA	450	Structurally sound	6/5/1993			There were 17 taps including a Catch Basin lead at 141' and 7 connections from parking lots. Small depression found in parking lot over tap at 214' (Sewer was OK). Found a 8" dia. Calcium deposit at 221'.
115-F	Alley 313' N/NPL Cambridge, bet. Edinborough & Huntington District- W	1930	Clay per report/ Conc per Dwg.	12"	10'	#5341			93316 51 E	297	N/A	10/5/1993			3 taps found. Could not pass further due to obstruction by a snake in the pipe. Small amount leakage in joint observed.
115-F	Alley, 312' N/NPL Cambridge, bet. Edinborough & Huntington District- W	1930	Clay per report/ Conc per Dwg.	12"	10'	#5341			91155 6	297	N/A	6/26/1991			18 taps found. 8 taps have roots ranging from 5% to 90% blockage. City sewer has obstructions. through joints also forming heavy root curtains.
115-F	Alley N/NPL Cambridge, & Easement bet. Edinborough & Huntington District- W	1930	Clay per report/ Conc per Dwg.	15"	9'	#5341			93315 51 E	313	N/A	10/5/1993			13 taps found. One is a vacant property. 9 taps have root obstructions from 10% to 95%. 80' of main sewer has roots in every joint.
115-F	Alley N/NPL Cambridge, & Easement bet. Edinborough & Huntington District- W	1930	Clay per report/ Conc per Dwg.	15"	9'	#5341			91154 6	312	N/A	6/26/1991			15 taps found including 1 abandoned. Root problem found at 7 locations ranging from 20% to 95% restrictions in the taps. Many joints hve root problems obstructing upto 70% of sewer.
115-F	N/NPL Cambridge, & Easement bet. Edinborough & Huntington District- W	1930	Clay per report/ Conc per Dwg.	15"	9'	#5341			91145 5	310	N/A	6/11/1991			8 taps found. 4 of the taps have 20% to 30% obstructions. 3 joints are causing 50% to 95% root obstruction in the main sewer. Camera could not pass beyond 175' due to large concentration of roots.
87-A	105' W/WPL Ward & 111' S/SPL Eight Mile Road District- N	1929	Clay/Insp. Conc./Dwg	12"	11'	#5177			93297 VN 4	277	N/A	8/28/2000			13 service connections including 3 abandoned taps. One tap was PVC. 5 connections are coming from parking lots. Severe root problems at all the taps with 4 having 99% blockage. 3"-5" sludge deposits was found at end of inspection.
										0.34204545					
29-E4	Alley, 75' E of E Park & 100' N of N Montcalm District-C	1870	Concrete	15"x20"	14'	Roll 1096			93320 51VE	267	Structurally sound	10/7/1993			There were no taps in this run. MH was not shown on the plan.
										0.05056818					
89-F	132' W/WPL Kentucky & 21' S/NPLThatcher District- N	1925	Concrete	12"	10'	#4227			97185 19 A	197	N/A	9/24/1997			14 taps were located including a CB lead at 10', and 4 connections from vacant lots in Wyoming. At 187' over half of the sewer was blocked due to dropped connection. Camera needed to be taken out.
89-F	120' N/NPL Santa Maria, & 120' W/WPL of Stoepel District- N	1925	Concrete	20"	9'	#4449			97963 C 6	18	Bad	8/27/1997			2 taps found before pulling out because of more than half of sewer was full of debris. Pipe also has longitudinal open cracks. Pipe needs to be recleaned.
56-B	Paved Alley, 330' S/SPL Olga, bet. Montclair & Lemay near Shoemaker District- E	1926	Concrete	18"	11.5'	#5017			91624	325	N/A	7/1/1991		Cleaned by Jet rodder	A total of 24 taps including 8 from vacant lots and 2 Catch Basin leads at 155' and 232' were found. 3" to 5" of sludge and debris was present in the sewer.
56-B	Paved Alley, 645' S/SPL Olga, bet. Montclair & Lemay near Shoemaker District- E	1926	Concrete	20"	11.5'	#5017			91623	305	N/A	7/1/1991		Cleaned by Jet rodder	A total of 23 taps including 6 from vacant lots were found. 5" to 7" of sludge and debris was present in the sewer.
65- B	Alley, S Curbline Corbett & 170' W/WPL Coplin District- E	1927	Concrete	12"	4'	R/W #1647			93289 50 E	127	Structurally sound	9/3/1993			The complainant was homeowner at 13124 Corbett regarding depression in the ground. There was a hole in the pipe in ROW in front of the house. A small camera was pushed about 72' to the back edge of the house. Pipe was in excellent condition with no leaks seen. Camera could not pass beyond 72' due to 4" of debris in pipe. The city would install a MH at the curbline and would retelevise with a larger camera at that time.
104-F	Alley,N/Six Mile Rd. bet. Murray Hill & Asbury Park District- W	1927	Concrete	20"	13'	#4830			93273 49 E	215	Excellent	8/24/1993			15 taps. 10% root obstruction in tap and 5% in City sewer at 17161 Asbury Park.
										0.22481061					

109-B	Alley, S of Joy bet. Evergreen & Vaughn District- W	1928	Concrete	12"	3'	#5057			92109 32 PA	8	N/A	5/9/1992			Inspection was done to determine source of cave-in reported by owner of 8695 Evergreen. No problem was visible to pin-point the origin of depression over basin. Suggested dye tracing to locate origin of depression.
110 F	315' N/NPL Dover, bet. Minock & Auburn District- W	1928	Concrete	12"	10.3'	#5083			994159 17 A	16	N/A	8/16/1999			Reclean for the camera.
110 F	315' N/NPL Dover, bet. Minock & Auburn District- W	1928	Concrete	12"	10.3'	#5083			994160 17 A	36	N/A	8/16/1999			There is one tap which is defective and has roots. From 12' to 36' sewer has cracks. Camera unable to proceed.
110 F	30' N/NPL Dover, bet. Minock & Auburn District- W	1928	Concrete	15"	11.5'	#5083			994158 17 A	119	Very poor	8/16/1999			There are 7 taps found. Defective connections all through. Circular and longitudinal cracks noticed at 5 areas causing pipe to become egg shaped due to sag at 2 locations. Roots encountered at 3 places which at 119' blocking 97% of city sewer. Camera unable to move.
112-E	111' S/SPL Lyndon & 123' W/WPL Patton District- W	1928	Concrete	15"	12.2'	#4821			97821 C 1	135	Structurally sound	5/15/1997			10 taps. 14433 Patton had cave-in problem at location of tap. Home owner flushed water but it trickled into sewer indicating home owner problem.
112-E	111' S/SPL Lyndon & 123' W/WPL Patton District- W	1928	Concrete	15"	12.2'	#4821			97819 C 1	25	N/A	5/14/1997			2 taps. Camera had to be taken out since sewer was full of debris.
112-E	Alley, 250' S of Alley S of Lyndon, & Easement E of Kentfield District- W	1928	Concrete	15"	9'	#4944			95104 68 E	364	Structurally sound	6/16/1995			21 taps found. 2 taps have 30% and 75% obstructions in taps and 10% and 25% in city sewers respectively. From Sta. 1+90 to 2+40 sewer is 35% obstructed by roots and other debris.
112-E	115' E/EPL Vaughan & 393' S/SPL Kendall District- W	1928	Concrete	18"	12.3'	#4944			99100 C 19	159	N/A	12/8/1999			14 taps including 8 abandoned connections. The camera could not pass after 159' because of roots, debris and a jet rodder saw left in place.
112-E	115' E/EPL Vaughan & 393' S/SPL Kendall District- W	1928	Concrete	18"	12.3'	#4944			99089 C 19	10	N/A	11/29/1999			1 tap found. Inspection was done to find cause of cave-in. Camera could not pass due to a solid root curtain.
112-E	Alley, S of Lyndon, & Easement E of Kentfield District- W	1928	Concrete	18"	10'	#4944			95103 68 E	256	N/A	6/15/1995			16 taps including 2 abandoned found. 7" of hard debris found at 0+04. At 133' water and debris level is 3". Tap at 144400 Kentfield 30% roots in tap and 15% in sewer. Generally roots are not restricting more than 5%.
112-E	Easement bet. Patton & Braile and "T" Alley S of Lyndon in Patton, Braile, Lyndon & Acacia area District- W	1928	Concrete	18"	11.5'	#4821			91599	390	Structurally sound	4/30/1991		Cleaned by jet rodder	23 taps found. There was 3"-5" of sludge in the pipe. The inspection was initiated by West Yard on a complaint from 14387 Patton where at the service connection with a factory tap no structural damage to city sewer was found.
86-C	"T" Alley, S/Seven Mile, bet. Robson & Coyle District- W	1928	Concrete	18"	13'	#5045			98174 8 A	107	N/A	3/31/1998			7 taps found. Severe root problems at 5 taps. 45% to 99% blockage of taps and 45% obstruction of city sewer at one location. Suggests reclean and cutting roots.
86-C	Alley, 160' S/S Clarita bet. Robson & Lauder District- W	1928	Concrete	18"	9'	#5045			91251 00	189	Excellent	9/25/1991			12 taps.
86-C	Alley, 160' S/S Clarita bet. Robson & Lauder District- W	1928	Concrete	18"	9'	#5045			91251 00	15	Excellent	9/25/1991			
112-E	Alley, CL Kentfield & Easement S of Lyndon District- W	1928	Concrete	20"	11'	#4944			95109 68 E	145	Structurally sound	6/17/1995			7 taps. Pipe is 1/3 full with some debris at the bottom.
112-E	Alley, CL Kentfield & Easement S of Lyndon District- W	1928	Concrete	20"	11'	#4944			95105 68 E	58	N/A	6/16/1995			One tap located. Could not pass beyond 58' due to large amount of debris in sewer. Notified to clean downstream sewer to lower water level before re-televising.
112-E	Alley N of Schoolcraft, bet. Kentfield & Heyden District- W	1928	Concrete	20"	9'	#4944			92139 34 E	338	Structurally sound	6/22/1992			22 taps found including 5 vacant properties. Minor roots (5% in tap and 10% in city sewer) found at one joint. Water introduced at the service connection at 154' did not appear in main sewer. At 1+06 water was entering through an adjacent joint. At the end pipe align shifted +/- 6" vertically and +/-8" horizontally and there was 5"-7" debris accumulation.
112-E	Alley N of Schoolcraft, bet. Kentfield & Stout District- W	1928	Concrete	20"	14'	#4944			90288	140	N/A	10/16/1990			Inspection was initiated due to depression noticed at property line of 20230 Schoolcraft. Camera could not enter because of 14" sludge 10' long. Suggested recleaning and retelevising.

112-E	Alley CL N of Schoolcraft, & Easement CL bet. Kentfield & Stout District- W	1928	Concrete	20"	13.6'	#4944			90194	145	N/A	7/27/1990			Inspection was initiated due to depression noticed at property line of 20320 Schoolcraft. Camera could not pass 0+08 because of 15" sludge and gravel. Suggested recleaning and retelevising.
86-C	152' N/Clarita, bet. Robson & Coyle District- W	1928	Concrete	20"	11'	#5045			98176 8 A	26	N/A	3/31/1998			3 taps including one PVC connection. Heavy roots encountered at 4 locations. At one location city sewer is 75% blocked. Camera could not pass beyond 26'. Suggests root cutting.
86-C	145' W /WPL Robson & 20' S/SPL Clarita District- W	1928	Concrete	20"	9'	#5045			98175 8 A	152	Good	3/31/1998			6 taps. One tap shifted 2". Sewer has some gravel and sand deposit.
86-C	"T" Alley, S/Seven Mile, bet. Robson & Coyle District- W	1928	Concrete	20"	13'	#5045			95714 B 22	110	N/A	10/8/1995			7 taps. Roots at 4 taps blocking 30% to 80% of taps and 30% to 40% of city sewers at two locations. Sewer has 4"-6" of sludge.
104-F	1' W/WPL Forrer & 102' S/SPL Curtis District- W	1929	Concrete	12"	12'	#5298			98307 22 A	144	N/A	7/25/1998			10 taps found. Some roots at 99' and medium to heavy roots from 20' to 94'.
104-F	148' W/WPL Forrer & 102' S/SPL Curtis District- W	1929	Concrete	18"	12.3'	#5298			98309 22 A	304	Good	7/28/1998			16 taps including one abandoned connection found. Roots at 3 taps, 2 defective and 2 open joints.
104-F	148' W/WPL Forrer & 102' S/SPL Curtis District- W	1929	Concrete	18"	12.3'	#5298			98308 22 A	18	N/A	7/25/1998			Camera was unable to see a connection.
109-B	Alley, Easement CL/N of Tireman bet. Patton & Fielding District- W	1929	Concrete	20"	11'	#5303			92135 34 E	67	Good	6/17/1992			Some patch work was done in the arch area. The pipe is in good shape now.
109-B	Alley, N of Tireman & easement bet. Patton & Fielding District- W	1929	Concrete	20"	Per Dwg. 12.3'	#5303			90093	430	Good	4/12/1990			2 taps at 8035 Fielding and 8034 Patton were checked. Both were factory taps and city sewer was in excellent condition.
114-D	21' W/EPL Trinity & 33' N/SPL Orchard District- W	1929	Concrete	12"	11' Per Dwg.	#5204			90712	183	Structurally sound	1/28/2000			8 taps located. Complainant was from 17297 Trinity. Since nobody was home during inspection, no water could be introduced in the tap. Camera could not proceed further because of calcium buildup in 30% of city sewer.
60-C	Alley, 3' W/EPL Veach Bet. Quinn & Hildale District- E	1930	Concrete	15"	10'	#3768			95319 75 A	263	Structurally sound	10/17/1995			A total of 5 taps were found but 3 of them appeared to be inactive as no stains were observed. The pipe was extremely clean with no sign of high water.
115-F	N/NPL Cambridge bet. Edinborough & Huntington District- W	1930	Concrete	15"	12'	#5341			98419 37 A	67	N/A	11/18/1998			4 taps found. All connections have roots with having 95% obstruction. Roots entering sewer through all joints. Medium roots from 26' to 67'. Roots need to be cut and sewer recleaned.
115-F	312' N/NPL Cambridge, bet. Edinborough & Huntington District- W	1930	Concrete	12"	11.8'	#5341			994205 23 A	312	N/A	9/21/1999			2 taps located. Both defective. Pipe blocked due to deposits. Camera unable to pass after 76'.
115-F	Alley 312' N/NPL Cambridge, & Easement bet. Edinborough & Huntington District- W	1930	Concrete	12"	10'	#5341			93322-RVC 51 E	314	Structurally sound	10/7/1993			18 taps found. 8 taps have roots ranging from 5% to 90% blockage. City sewer does have more than 5% obstructions.
115-F	12' N/NPL Cambridge, bet. Edinborough & Huntington District- W	1930	Concrete	15"	11.7'	#5341			004108 14 A	304	Fair	6/21/2000			15 taps found including a vacant lot. Root problem found at 8 locations including three taps where more than 95% restrictions found in the taps.
115-F	1' N/NPL Cambridge, bet. Grandville & Huntington District- W	1930	Concrete	15"	12.6'	#5341			994203 22 A	158	N/A	9/8/1999			6 taps found. All of them are defective with heavy roots. Root curtain is blocking. Suggests cutting roots and recleaning.
115-F	Alley N/NPL Cambridge, & Easement bet. Edinborough & Huntington District- W	1930	Concrete	15"	9'	#5341			93321-RVC 51 E	312	N/A	10/7/1993			16 taps found. One tap is now a vacant property. 11 taps have heavy roots. Except 1 tap with 5% blockage, other obstructions range from 30% to 95%. Main sewer is not blocked for more than 205.
115-F	240' N of "T" Alley N/& Mile bet. Grandville & Huntington District- W	1930	Concrete	18"	13.4'	#5341			994202 22 A	181	N/A	9/18/1999			9 taps found. 7 are defective and 7 have severe root problems. One tap is 90% blocked by roots. Camera unable to proceed further due to roots. Suggests recutting roots.
115-F	"T" Alley N of 7 Mile Rd., bet. Grandville & Huntington District- W	1930	Concrete	20"	14.2'	#5341			994201 22 A	24	N/A	9/18/1999			One tap found with defects and 90% roots. Camera unable to proceed due to 90% blockage in city sewer. Suggests cutting the heavy roots.

114-B	280' S/SPL Pickford & 12' E/WPL Patton District- W	1942	Concrete	12"	9.2'	#6252			994335 A	338	Good	3/30/1999			12 taps found. One was defective.
114-B	45' S/SPL Pickford & 12' E/WPL Patton District- W	1942	Concrete	12"	8.8'	#6252			994224 A	65	N/A	3/19/1999			One tap found. Calcium deposits has reduced the sewewr size. Camera had to be backed out.
114-B	280' S/SPL Pickford & 12' E/WPL Patton District- W	1942	Concrete	12"	9.2'	#6252			994214 A	10	N/A	3/19/1999			One tap found. Calcium deposits of 95% has reduced the sewewr size. Camera had to be backed out.
115-F	Alley 10' S of N Vassar, bet. Granville & Shaftsbury District- W	1949	Concrete	15"	7'	#6634			9122113	286	N/A	8/22/1991			13 taps found. Grease mark noticed in 5' and calcium in joints found in 86' of sewer. Water level ranged from 1" to 7". Suggests cutting roots and cleaning downstream.
										1.27329545					
31-B	Alley, 159' W/WPL of Bethune Ct., bet. Pallister & Bethune District- N	1896	Crock	15"	14.5'	Roll 4393			0041536 A	263	N/A	8/21/2000			There were 14 taps. It includes 7 abandoned connections and 2 vacant lots. Inspection was done due a reported cave-in at 741 Pallister. Water was introduced by the homeowner. The cave-in was due to non-factory taps.

Appendix B

Sample from Larger Table

Sliplining Contracts

Contract #	Year Range	Pipe Size (IN)	Length of Segment (FT)	Location	Address	Map Page	Task #
CS-963	1981-1983	24	350	Winthrop Ave. between Fenkell Ave. & Keeler Ave.	15300-15400 Winthrop	103-F	4
CS-963	1981-1983	15	334	Evergreen Ave. between Kirkland Ave. & Dayton Ave.	6000-6700 Evergreen	108-F	15
CS-963	1981-1983	18	145	Dayton Ave. between Evergreen Ave. & Plainview Ave.	19800-19900 Dayton	108-F	16
CS-963	1981-1983	18	210	Easement north of Argus Ave. between Bramall Ave. & Cooley Ave.	22500 block of Argus	122-F	2
CS-963	1981-1983	15	380	Alley north of Lafayette Ave. between Lawndale & Elsmere Aves.	8700-9100 Lafayette	2-E	8
CS-963	1981-1983	18	360	Alley north of Lafayette Ave. between Lawndale & Elsmere Aves.	8700-9100 Lafayette (alley btw. Lafayette & Olivet)	2-E	8
CS-963	1981-1983	24	155	Alley west of Lawndale Ave. between Lafayette & Oilvet Aves.	1000-1100 Lawndale	2-E	11
CS-963	1981-1983	27	350	Alley south of Layfayette Ave. between Lawndale and Elsmere Aves.	8700-9100 Lafayette	2-E	10
CS-963	1981-1983	30	405	Alley south of Layfayette Ave. between Lawndale and Elsmere Aves.	8700-9100 Lafayette	2-E	10
CS-963	1981-1983	30	140	J.C. Lodge Service Dr.. Rosa Parks Blvd. to alley north of 14th Ave.	?	34-D	1
CS-963	1981-1983	36	345	J.C. Lodge Service Dr.. Rosa Parks Blvd. to alley north of 14th Ave.	?	34-D	1
CS-963	1981-1983	42	338	J.C. Lodge Service Dr.. Rosa Parks Blvd. to alley north of 14th Ave.	?	34-D	1
CS-963	1981-1983	18	240	Georgia Ave. between Sherwood & Mt. Elliot Ave.	6300-6700 Georgia	50-E	3
CS-963	1981-1983	12	345	Easement east of Lenox between Avondale & Averhill	400-450 Lenox	62-E	14
CS-963	1981-1983	20	320	E. Outer Dr. between alley north & south of E. Warren	?	64-F	5
CS-963	1981-1983	12	300	Easement south of Cornwall Ave. between Yorkshire & Kensington Ave.	16600-17000 Cornwall (alley btw Cornwall & Waverly)	70-E	13
CS-963	1981-1983	15	380	Easement south of Cornwall Ave. between E. Outer Dr. & Kensington Ave.	16500-16600 Cornwall	70-E	12
CS-963	1981-1983	12	385	Alley east of Northlawn Ave. between Thatcher & Santa Clara Ave.	17500-18000 Northlawn (alley btw Northlawn & Roselawn)	89-E	6
CS-963	1981-1983	20	343	Alley east of Laing between Britain & Morang	12000-12200 Laing	97-B	7
CS-963	1981-1983	24	435	Easement west of Oakman between Belton & McKenzie	6400-6581 Oakman		9
Total Number of Segments			**20**				
Total Footage for CS-963 (ft)			**6280**				
CS-1164	1984-1988	8	1432	Easement between Outer Dr.-Shaftsbury Rd.-Warwick Rd. from alley south of McNichols Rd. to Grove Lansing Ave., Porter, McKinstry, Amherst	?	114-F	1
CS-1164	1984-1988	15 x 20	1019	Easement between Outer Dr.-Shaftsbury Rd.-Warwick Rd. from alley south of McNichols Rd. to Grove Lansing Ave., Porter, McKinstry, Amherst	?	114-F	1
CS-1164	1984-1988	15 x 20	887	In Warren Ave. from 16th St. to the alley east of 14th St.	2200-2400 Warren	20-A	7
CS-1164	1984-1988	8	51	Alley bounded by Monroe Ave., Lafayette Ave., Beaubien & St. Antoine	500-600 Monroe (alley btw. Monroe & Lafayette)	28-A-4	4

Sample from Larger Table

Contract #	Year Range	Pipe Size (IN)	Length of Segment (FT)	Location	Address	Map Page	Task #
CS-1164	1984-1988	12	442	Alley bounded by Monroe Ave., Lafayette Ave., Beaubien & St. Antoine	500-600 Monroe (alley btw. Monroe & Lafayette)	28-A-4	4
CS-1164	1984-1988	15 x 20	435	Alley between Monroe Ave., Macomb St., Beaubien, & St. Antoine	500-600 Monroe (alley btw. Monroe & Macomb)	28-A-4	4
CS-1164	1984-1988	12	3296	Alley bound by Springwells, Evans, Gartner, & Pershing Ave.,	1514-1901 Springwells (alley btw Springwells and Pershing)	2-A	3
CS-1164	1984-1988	15	2539	Alley bound by Senator, Navy, Mullane & Springwells	8000-8300 Senator (alley btw Senator & Navy)	2-A	3
CS-1164	1984-1988	18	1281	Alley between Longworth, Rathbone, Falcon, Elsmere, Woodmere, & Avis	?	2-A	3
CS-1164	1984-1988	18	24	Alley at Second Ave. between Boston and Chicago Blvds.	9700-9800 Second	32-B	4
CS-1164	1984-1988	15 x 20	457	Alley between Beaufait & Bellevue south of Kercheval	1700-2100 Beaufait	47-D	2
CS-1164	1984-1988	12	2226	Bound by Freud Ave. to the north, Lakewood east, Averhill south, & Coplin Ave. west	450-700 Coplin (alley btw Coplin & Lakewood)	62-E	9
CS-1164	1984-1988	15	1830	Victoria Park Subdivision	?	62-E	9
CS-1164	1984-1988	18	658	Victoria Park Subdivision	?	62-E	9
CS-1164	1984-1988	20	295	Victoria Park Subdivision	?	62-E	9
CS-1164	1984-1988	24	183	Victoria Park Subdivision	?	62-E	9
CS-1164	1984-1988	12	932	Alley south of Seven Mile Rd. from Sorrento Rd. to Steel Rd. & Appoline	12800-13000 7 Mile (alley btw 7 Mile & Clarita)	86-A	6
CS-1164	1984-1988	15	684	Alley between Steel, Sorrento, Appoline, Seven Mile Rd, & Clarita Rd.	18900-19100 Sorrento, Steel (alleys)	86-A	6
Total Number of Segments			**18**				
Total Footage for CS-1164			**18671**				
CS-1215	1989-1993	8	606	Between Provost and Ruthford Ave. and extending from Puritan Ave. on the north to Pilgrim Ave. on the south	15800-16100 Ruthford (alley btw Ruthford & Provost)	103-F	10
CS-1215	1989-1993	24	683	In alley east of Hazelton Ave. and west of West Parkway Ave. between Sawyer Ave. and Ann Arbor Trail	7400-7600 Hazelton	117-F	10
CS-1215	1989-1993	12	1855	W. Outer Dr. south of Fullerton to existing manhole in Fullerton west of Rouge River	22300 Fullerton	119-F	12
CS-1215	1989-1993	12	944	In alley south of Melville Ave. between an alley west of Harbeugh Ave. to Yale St.	8500-8900 Melville (alley btw Melville & South St.)	1-B	18
CS-1215	1989-1993	15	75	Inside the Wastewater Treatment Plant and across W. Jefferson Ave.	?	1-D	16
CS-1215	1989-1993	15 x 20	819	Warren Ave. from 16th St. to alley east of 14th St.	2200-2400 Warren	20-A	3
CS-1215	1989-1993	12	397	In alley between Virginia Park Ave. and Vicksburg Ave.	2900-3200 Virginia Park (alleys between Virgina Pk & Vicksburg)	21-B	6

Sample from Larger Table

Contract #	Year Range	Pipe Size (IN)	Length of Segment (FT)	Location	Address	Map Page	Task #
CS-1215	1989-1993	15	392	In alley between Virginia Park Ave. and Vicksburg Ave.	2900-3200 Virginia Park (alleys between Virgina Pk & Vicksburg)	21-B	6
CS-1215	1989-1993	12	308	East of Livernois Ave. extending from Clarita Ave. to Pickford Ave.	18400-18920 Livernois (alley)	26-C	19
CS-1215	1989-1993	15	36	East of Livernois Ave. extending from Clarita Ave. to Pickford Ave.	18400-18920 Livernois (alley)	26-C	19
CS-1215	1989-1993	18	278	East of Livernois Ave. extending from Clarita Ave. to Pickford Ave.	18400-18920 Livernois (alley)	26-C	19
CS-1215	1989-1993	12	1306	Sherbourne Ave. between Warrington Dr. to Canterbury Rd.	3160-3550 Sherbourne	27-C	24
CS-1215	1989-1993	18	753	Sherbourne Ave. between Warrington Dr. to Canterbury Rd.	3100-3350 Sherbourne	27-C	24
CS-1215	1989-1993	15 x 20		Near Grand River and Lodge Expressway	?	29-D	30
CS-1215	1989-1993	12	1758	Area bounded by east of Springwells and west of Mullane Ave. between Lane Ave. and Longworth Ave. and east of Lawndale between Navy Ave. and Gartner	?	2-A	20
CS-1215	1989-1993	15	1088	Area bounded by east of Springwells and west of Mullane Ave. between Lane Ave. and Longworth Ave. and east of Lawndale between Navy Ave. and Gartner	?	2-A	20
CS-1215	1989-1993	18	527	Area bounded by east of Springwells and west of Mullane Ave. between Lane Ave. and Longworth Ave. and east of Lawndale between Navy Ave. and Gartner	?	2-A	20
CS-1215	1989-1993	20	491	Area bounded by east of Springwells and west of Mullane Ave. between Lane Ave. and Longworth Ave. and east of Lawndale between Navy Ave. and Gartner	?	2-A	20
CS-1215	1989-1993	15 x 20	366		?	39-D	13
CS-1215	1989-1993	12	955	In Carpenter Ave. between Conant and Caely Streets.	3800-4640 Carpenter	52-F	23
CS-1215	1989-1993	18	144	In Carpenter Ave. between Conant and Caely Streets.	3800-4640 Carpenter	52-F	23
CS-1215	1989-1993	24	5028	In alley between Devonshire and Bedford from north of Warren Ave. to Mack Ave.	3400-5000 Bedford	70-D	5
CS-1215	1989-1993	12	346	In Rouge Ave. between Ormond Blvd. to Powell Ave.	300-500 Rouge	71-B	28
CS-1215	1989-1993	18	190	East of Schaefer Ave. extending south from Bussett Ave. to Ethel St.	2600-2650 Schaeffer	72-D	25
CS-1215	1989-1993	36	712	Sanders Ave. from Oakwood Pump Station to the manhole beneath I-75 expressway at northerly edge		72-E	11
CS-1215	1989-1993	24	302	Belton Ave. to the easement east of Cheyenne St.	13000-13200 Belton	81-A	27
CS-1215	1989-1993	12	1349	Between Prest and Sussex Aves. extending from north of West Chicago Ave. to south of Plymouth Ave.	9500-11600 Prest (alley btw Prest & Sussex)	82-C	21
CS-1215	1989-1993	15	1014	Between Prest and Sussex Aves. extending from north of West Chicago Ave. to south of Plymouth Ave.	9500-11600 Prest (alley btw Prest & Sussex)	82-C	21
CS-1215	1989-1993	18	1010	Between Prest and Sussex Aves. extending from north of West Chicago Ave. to south of Plymouth Ave.	9500-11600 Prest (alley btw Prest & Sussex)	82-C	21
CS-1215	1989-1993	20	341	Between Prest and Sussex Aves. extending from north of West Chicago Ave. to south of Plymouth Ave.	9500-11600 Prest (alley btw Prest & Sussex)	82-C	21
CS-1215	1989-1993	24	913	Between Prest and Sussex Aves. extending from north of West Chicago Ave. to south of Plymouth Ave.	9500-11600 Prest (alley btw Prest & Sussex)	82-C	21
CS-1215	1989-1993	12	945	In alley bounded by Sorrento, Appoline, Clarita, and Seven Mile Rds.	18900-19100 Sorrento, Steel (alleys)	86-A	2

Sample from Larger Table

Contract #	Year Range	Pipe Size (IN)	Length of Segment (FT)	Location	Address	Map Page	Task #
CS-1215	1989-1993	15	685	In alley bounded by Sorrento, Appoline, Clarita, and Seven Mile Rds.	18900-19100 Sorrento, Steel (alleys)	86-A	2
CS-1215	1989-1993	12	596	Sewers between Wyoming and Washburn Aves. from W. Outer Dr. to the alley north of Seven Mile Rd.	19100-19400 Washburn (alley btw Washburn & Wyoming)	88-D	7
CS-1215	1989-1993	15	90	Sewers between Wyoming and Washburn Aves. from W. Outer Dr. to the alley north of Seven Mile Rd.	19000-19400 Washburn (alley btw. Wyoming & Washburn)	88-D	7
CS-1215	1989-1993	15	292	Alley south of W. Outer Dr. between east and west side alleys of Washburn Ave.	3967-4060 W. Outer Drive	88-D	8
CS-1215	1989-1993	18	444	Sewers between Wyoming and Washburn Aves. from W. Outer Dr. to the alley north of Seven Mile Rd.	19000-19400 Washburn (alley btw. Wyoming & Washburn)	88-D	7
CS-1215	1989-1993	20	494	Sewers between Wyoming and Washburn Aves. from W. Outer Dr. to the alley north of Seven Mile Rd.	19000-19400 Washburn (alley btw. Wyoming & Washburn)	88-D	7
CS-1215	1989-1993	12	392	North of Curtis Ave. extending from San Juan Ave. to Greenlawn Ave.	7500-8100 Curtis (alley)	89-A	15
CS-1215	1989-1993	18	344	North of Curtis Ave. extending from San Juan Ave. to Greenlawn Ave.	7500-8100 Curtis (alley)	89-A	15
CS-1215	1989-1993	20	349	North of Curtis Ave. extending from San Juan Ave. to Greenlawn Ave.	7500-8100 Curtis (alley)	89-A	15
CS-1215	1989-1993	12	65	In alley south of Curtis Ave. and west of Wyoming Ave.	?	89-C	4
CS-1215	1989-1993	15	293	In alley south of Curtis Ave. and west of Wyoming Ave.	?	89-C	4
CS-1215	1989-1993	18	294	In alley south of Curtis Ave. and west of Wyoming Ave.	?	89-C	4
CS-1215	1989-1993	20	593	In alley south of Curtis Ave. and west of Wyoming Ave.	?	89-C	4
CS-1215	1989-1993	24	583	In alley south of Curtis Ave. and west of Wyoming Ave.	?	89-C	4
Total Number of Segments			**46**				
Total footage for CS-1215			**22993**				
CS-1256	1994-1997	12	1068	Alley between Abington and Grandmont Aves. from an alley south of Grand River Ave. to manhole in Grandmont Ave. north of Schoolcraft Ave.	13900-14700 Grandmont	102-E	13
CS-1256	1994-1997	15	1077	Alley between Abington and Grandmont Aves. from an alley south of Grand River Ave. to manhole in Grandmont Ave. north of Schoolcraft Ave.	13900-14700 Grandmont	102-E	13
CS-1256	1994-1997	18	693	Alley between Abington and Grandmont Aves. from an alley south of Grand River Ave. to manhole in Grandmont Ave. north of Schoolcraft Ave.	13900-14700 Grandmont	102-E	13
CS-1256	1994-1997	20	451	Alley between Abington and Grandmont Aves. from an alley south of Grand River Ave. to manhole in Grandmont Ave. north of Schoolcraft Ave.	13900-14700 Grandmont	102-E	13
CS-1256	1994-1997	24	673	Alley between Abington and Grandmont Aves. from an alley south of Grand River Ave. to manhole in Grandmont Ave. north of Schoolcraft Ave.	13900-14700 Grandmont	102-E	13
CS-1256	1994-1997	24	179	Evergreen just south of W. Warren Ave.	?	109-F	8
CS-1256	1994-1997	12	302	Alley west of Linwood Ave. and east of Lawton Ave. between Vicksburg Ave. and Montgomery Ave.	8101-8201 Linwood	21-B	25

Sample from Larger Table

Contract #	Year Range	Pipe Size (IN)	Length of Segment (FT)	Location	Address	Map Page	Task #
CS-1256	1994-1997	15	395	Alley west of Linwood Ave. and east of Lawton Ave. between Vicksburg Ave. and Montgomery Ave.	2600-2900 Vicksburg (alley btw. Vicksburg & Montgomery)	21-B	25
CS-1256	1994-1997	12	507	Alley between Woodstock Dr. and Eight Mile Rd. from west of Woodward Ave. to Straford Rd.	2300-3350 Woodstock	27-B,C	11
CS-1256	1994-1997	15	377	Alley between Woodstock Dr. and Eight Mile Rd. from west of Woodward Ave. to Straford Rd.	2300-3350 Woodstock	27-B,C	11
CS-1256	1994-1997	18	378	Alley between Woodstock Dr. and Eight Mile Rd. from west of Woodward Ave. to Straford Rd.	2300-3350 Woodstock	27-B,C	11
CS-1256	1994-1997	20	725	Alley between Woodstock Dr. and Eight Mile Rd. from west of Woodward Ave. to Straford Rd.	2300-3350 Woodstock	27-B,C	11
CS-1256	1994-1997	24	1141	Alley between Woodstock Dr. and Eight Mile Rd. from west of Woodward Ave. to Straford Rd.	2300-3350 Woodstock	27-B,C	11
CS-1256	1994-1997	12	242	East of Broadway Ave. between Gratiot and Grand River	1300-1400 Broadway (alley)	28-A-3	1
CS-1256	1994-1997	15	150	East of Broadway Ave. between Gratiot and Grand River	1300-1400 Broadway (alley)	28-A-3	1
CS-1256	1994-1997	15 x 20	390 & Point Repairs	East of Broadway Ave. between Gratiot and Grand River	1300-1400 Broadway (alley)	28-A-3	1
CS-1256	1994-1997	30 x 37	525	Second Ave. from Beech St. to Bagley St.	1700-2000 Second	28-B-1	7
CS-1256	1994-1997	48 to 36	375	Elizabeth St. from Withereil just west of Woodward Ave.	2-100 Elizabeth	28-B-2	21
CS-1256	1994-1997	12	219	Alley south of Cadillac Sq. from Woodward Ave. to Bates Ave.	?	28-F-1	32
CS-1256	1994-1997	15 x 20	229	Brick sewer east of Woodward Ave. from Congress to Cadillac Sq.	600 block of Woodward	28-F-1	32
CS-1256	1994-1997	48	390	St. Antoine from Lafayette to I-85 south of Fort St.	700-1000 St. Antoine	28-F-2	4
CS-1256	1994-1997	15 x 20	106	Easement east of Carl's Chop House and west of the J.C. Lodge Expressway	?	29-C	29
CS-1256	1994-1997	40 x 54	261	(New Tiger Stadium) In Montcalm St. R.O.W. east of manhole section to Montcalm St. R.O.W. east of John R.	?	29-F-3	26
CS-1256	1994-1997	12	403	Alley between Glinnan Ave. and Springwells Ave. form Lafayette Ave. to Fisher Freeway	?	2-F	12
CS-1256	1994-1997	12	854	Alley between Boston Blvd. and Chicago Blvd. from Third Ave. to Hamilton Ave.	800-1100 Boston (alley btw Boston & Chicago)	32-B	24
CS-1256	1994-1997	56	1075	Six (6) Barrels. Iroquois & Jefferson Aves. to edge of Detroit River at seawall and reconstruction at seawall	?	46-A	17
CS-1256	1994-1997	15	200	Beaufait Ave. just east and west of Benson Ave. and 15" sewer in Benson Ave. north of Beaufait Ave.	2900-3600 Beaufait (alley btw. Beaufait & Bellevue);6400-6500 Benson	47-C	6
CS-1256	1994-1997	42 x 63	347	Beaufait Ave. just east and west of Benson Ave. and 15" sewer in Benson Ave. north of Beaufait Ave.	2900-3600 Beaufait (alley btw. Beaufait & Bellevue);6400-6500 Benson	47-C	6
CS-1256	1994-1997	12	715	Alley east of Western Ave.	?	4-B	30
CS-1256	1994-1997	12	720	Alley west of Western Ave.	?	4-B	30
CS-1256	1994-1997	15	720	Alley east of Western Ave.	?	4-B	30
CS-1256	1994-1997	15	630	Alley west of Western Ave.	?	4-B	30
CS-1256	1994-1997	18	148	Alley south of Michigan Ave. between alleys and west of Western Ave.	?	4-B	30

Sample from Larger Table

Contract #	Year Range	Pipe Size (IN)	Length of Segment (FT)	Location	Address	Map Page	Task #
CS-1256	1994-1997	18	330	Alley east of Western Ave.	?	4-B	30
CS-1256	1994-1997	18	519	Alley west of Western Ave.	?	4-B	30
CS-1256	1994-1997	20	181	Alley south of Michigan Ave. between alleys and west of Western Ave.	?	4-B	30
CS-1256	1994-1997	20	375	Alley east of Western Ave.	?	4-B	30
CS-1256	1994-1997	20	312	Alley west of Western Ave.	?	4-B	30
CS-1256	1994-1997	20" T section	306	Along St. Stephens Ave. between alleys east and west of Western Ave.	?	4-B	30
CS-1256	1994-1997	12	721	Alley between Marquette Dr. and St. Clair north of Frued Ave.	10400-10500 Frued (alley)	54-B	9
CS-1256	1994-1997	15	937	Alley between Marquette Dr. and St. Clair north of Frued Ave.	10400-10500 Frued (alley)	54-B	9
CS-1256	1994-1997	18	445	Alley between Marquette Dr. and St. Clair north of Frued Ave.	10400-10500 Frued (alley)	54-B	9
CS-1256	1994-1997	54	901	In Fairview Ave. between Jefferson Ave. and Freud Ave.	426-1500 Fairview	54-B	28
CS-1256	1994-1997	60	974	In Fairview Ave. between Jefferson Ave. and Freud Ave.	426-1500 Fairview	54-B	28
CS-1256	1994-1997	24	1796	Cross lots (alleyway) between Harvard and Cadieux from Waverly to Warren	4300-5000 Harvard	70-F	18
CS-1256	1994-1997	12	338	At Edward's Oil Service between Ormond Blvd. and Powell Ave.	?	71-B	3
CS-1256	1994-1997	24	71	Belton Ave. between the easement west of Sorrento Ave.. to the easement east of Cheyenne St.	13000-13200 Belton	81-A	2
CS-1256	1994-1997	24	340	Belton Ave. between Sorrento and Littlefield Aves.	12900-13000 Belton	81-A	5
CS-1256	1994-1997	12	581	Alley north of W. Outer Dr. and south of St. Martins between Meyers Rd. and Wyoming Ave.	10000-12700 St. Martins	88-D	23
CS-1256	1994-1997	15	582	Alley north of W. Outer Dr. and south of St. Martins between Meyers Rd. and Wyoming Ave.	10000-12700 St. Martins	88-D	23
CS-1256	1994-1997	15	445	Alley between Meyers and Manor south of St. Martins to manhole south of W. Outer Dr.	19400-19700 Meyers	88-D	23
CS-1256	1994-1997	18	847	Alley north of W. Outer Dr. and south of St. Martins between Meyers Rd. and Wyoming Ave.	10000-12700 St. Martins	88-D	23
CS-1256	1994-1997	20	284	Alley north of W. Outer Dr. and south of St. Martins between Meyers Rd. and Wyoming Ave.	10000-12700 St. Martins	88-D	23
CS-1256	1994-1997	20	325	Alley between Meyers and Manor south of St. Martins to manhole south of W. Outer Dr.	10000-12700 St. Martins	88-D	23
CS-1256	1994-1997	24	73	Alley between Meyers and Manor south of St. Martins to manhole south of W. Outer Dr.	10000-12700 St. Martins	88-D	23
CS-1256	1994-1997	24	893	Easement between Wisconsin Ave. and Indiana Ave. from an alley south of Outer Dr. to an alley north of Seven Mile Rd.	19100-19400 Wisconsin	88-E	10
CS-1256	1994-1997	12	1207	Alley south of W. McNichols Rd. between Livernois Ave. and Woodingham Dr.	5000-8000 McNichols	90-A	14
CS-1256	1994-1997	18	961	Alley south of W. McNichols Rd. between Livernois Ave. and Woodingham Dr.	5000-8000 McNichols	90-A	14
CS-1256	1994-1997	20	559	Alley south of W. McNichols Rd. between Livernois Ave. and Woodingham Dr.	5000-8000 McNichols	90-A	14
CS-1256	1994-1997	24	389	Alley south of W. McNichols Rd. between Livernois Ave. and Woodingham Dr.	5000-8000 McNichols	90-A	14
CS-1256	1994-1997	12	425	Alley north and southh of Longfellow Ave. between Edison and W. Chicago	?		20

Sample from Larger Table

Contract #	Year Range	Pipe Size (IN)	Length of Segment (FT)	Location	Address	Map Page	Task #
CS-1256	1994-1997	15	1284	Alley north and southh of Longfellow Ave. between Edison and W. Chicago	?		20
CS-1256	1994-1997	15	2574	Beechwood and in alleys	?		22
CS-1256	1994-1997	15	100	In Vernor Highway	?		32
CS-1256	1994-1997	18	1364	Alley north and southh of Longfellow Ave. between Edison and W. Chicago	?		20
CS-1256	1994-1997	18	417	Beechwood and in alleys	?		22
CS-1256	1994-1997	20	655	Beechwood and in alleys	?		22
CS-1256	1994-1997	24	195	At I-94 and 21 Mile Rd.	?		16
CS-1256	1994-1997	24	659	Beechwood and in alleys	?		22
CS-1256	1994-1997	24	109	Sewer in Dix Ave.	?		32
CS-1256	1994-1997	36	129	In Vernor Highway	?		32
CS-1256	1994-1997	42	355	At I-94 and 21 Mile Rd.	?		16
CS-1256	1994-1997	15" x 10.5 mm	839	Alley north and southh of Longfellow Ave. between Edison and W. Chicago	?		20
CS-1256	1994-1997	18" x 7.5 mm	1006	Alley north and southh of Longfellow Ave. between Edison and W. Chicago	?		20
CS-1256	1994-1997	18" x 9 mm	353	Alley north and southh of Longfellow Ave. between Edison and W. Chicago	?		20
CS-1256	1994-1997	27 & 41	390	Beechwood and in alleys	?		22
Total Number of Segments			**76**				
Total footage for CS-1256			**34463**				
CS-1325	1998-Present	12	2431	Area between 7 Mile Rd. and Vassar from Evergreen to Sunderland and Vassar to St. Martins from Shaftsbury to Sunderland	?	115-F	9
CS-1325	1998-Present	15	2220	Area between 7 Mile Rd. and Vassar from Evergreen to Sunderland and Vassar to St. Martins from Shaftsbury to Sunderland	?	115-F	9
CS-1325	1998-Present	18	1575	Area between 7 Mile Rd. and Vassar from Evergreen to Sunderland and Vassar to St. Martins from Shaftsbury to Sunderland	?	115-F	9
CS-1325	1998-Present	20	2068	Area between 7 Mile Rd. and Vassar from Evergreen to Sunderland and Vassar to St. Martins from Shaftsbury to Sunderland	?	115-F	9
CS-1325	1998-Present	21	1003	Area between 7 Mile Rd. and Vassar from Evergreen to Sunderland and Vassar to St. Martins from Shaftsbury to Sunderland	?	115-F	9
CS-1325	1998-Present	24	162	Area between 7 Mile Rd. and Vassar from Evergreen to Sunderland and Vassar to St. Martins from Shaftsbury to Sunderland	?	115-F	9
CS-1325	1998-Present	15 x 20	265	Alley just north of Sampson St. between St. Anne St. and 18th St.	?	18-B	3
CS-1325	1998-Present	15 x 20	1081	Alley just west of 18th St. bounded by Sampson and Bagley	?	18-B	3
CS-1325	1998-Present	15 x 20	770	Alley between 17th St. and 18th St. bounded by Stanton Park and Bagley	?	18-B	3
CS-1325	1998-Present	48 to 36	375	In Elizabeth, Witherell, and Park Ave.	?	28-A-1,28-B-2	21
CS-1325	1998-Present	60	934	Meadowbrook Ave. and Fairview Ave. between Jefferson Ave. (north) and Freud Ave. (south)	?	54-B	4
CS-1325	1998-Present	4 x 6	2601	Meadowbrook Ave. and Fairview Ave. between Jefferson Ave. (north) and Freud Ave. (south)	430-1308 Meadowbrook (alley btw. Meadowbrook & Fairview)	54-B	4
CS-1325	1998-Present	2(4'-8" x 4'-9")		Park View Blvd. between Jefferson Ave. and Detroit River	300-1200 Park View	54-C	2
CS-1325	1998-Present	2(5'-0" x 4'-9")		Park View Blvd. between Jefferson Ave. and Detroit River	300-1200 Park View	54-C	2

Sample from Larger Table

Contract #	Year Range	Pipe Size (IN)	Length of Segment (FT)	Location	Address	Map Page	Task #
CS-1325	1998-Present	8	421	Southwest Water Treatment Plant just north of Goddard Rd.	?		5
CS-1325	1998-Present	12	455	Southwest Water Treatment Plant just north of Goddard Rd.	?		5
Total Number of Segments			**16**				
Total footage for CS-1325			**16361**				

Total Length of all Lining (ft) **98768**