

1 BILL NO. 457

A BILL

ORDINANCE NO.
2003-478

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FOR

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AN ORDINANCE

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AMENDING THE CITY OF KEIZER MASTER PLAN
BY ADOPTING THE MASTER SEWER
PLAN UPDATE (JANUARY 30, 2003); AND
DECLARING AN EMERGENCY (ELIMINATION OF
DEARBORN AND ELIZABETH SEWER PUMP
STATION) (AMENDING ORDINANCE NO. 87-077)

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The City of Keizer ordains as follows:

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Section 1. ADOPTION OF MASTER SEWER PLAN UPDATE. The City of

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Keizer hereby adopts the Master Sewer Plan Update dated January 30, 2003 (hereinafter
"2003 Update") as set forth in Exhibit "1" attached and by this reference incorporated
herein. Such 2003 Update is hereby made a part of the Keizer Comprehensive Plan in
connection with facilities planning. This 2003 Update relates to the elimination of
Dearborn and Elizabeth pump stations and provides for a new gravity trunk line.

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Section 2. AMENDMENT OF ORDINANCE NO. 87-077. Ordinance No.

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87-077 (Keizer Comprehensive Plan) and any inconsistent previous Master Sewer Plan
or Master Sewer Plan Updates are hereby amended by addition of this Master Sewer
Plan Update (January 30, 2003).

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Section 3. OFFICIAL RECORD. One copy of the 2003 Update referenced

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above shall be marked "Official Text" and kept on file in the office of the City Recorder.

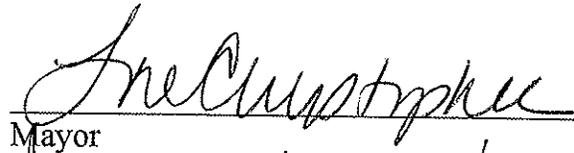
1 Section 4. SEVERABILITY. If any section, subsection, sentence, clause,
2 phrase, or portion of this Ordinance is for any reason held invalid or unconstitutional by
3 any court or board of competent jurisdiction, such portion shall be deemed a separate,
4 distinct, and independent provision and such holding shall not affect the validity of the
5 remaining portions hereof.

6 Section 5. EFFECTIVE DATE. This Ordinance being necessary for the
7 immediate preservation of the public health, safety and welfare, an emergency is
8 declared to exist and this Ordinance shall take effect immediately upon its passage.

9 PASSED this 3rd day of February, 2003.

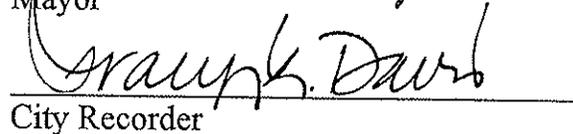
10 SIGNED this 3rd day of February, 2003.

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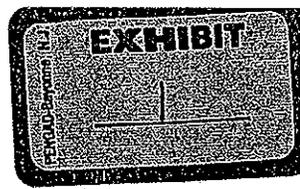


Mayor

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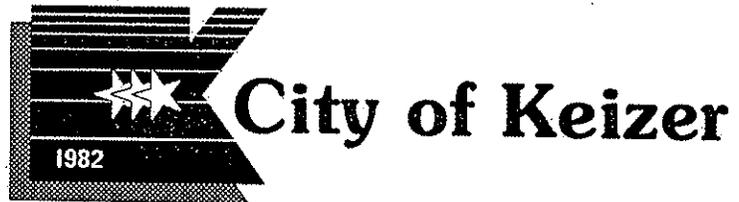


City Recorder



2003 MASTER SEWER PLAN UPDATE

January 30, 2003



Prepared By

William I. Peterson Engineering Consultants, Inc.
4300 Cherry Ave. NE
Keizer, OR 97303

CITY OF KEIZER
2003 MASTER SEWER PLAN UPDATE

Prepared

by

WILLIAM I. PETERSON
ENGINEERING CONSULTANTS, INC.
KEIZER, OR 97303

January 30, 2003

EXECUTIVE SUMMARY

The current agreement between the City of Salem and the City of Keizer provides for sanitary sewer master planning for both cities. The agreement anticipates that modifications to pump stations or sewer trunk lines will be needed throughout the period of time the agreement is in effect. When modifications to the collection system is necessary, the agreement provides as follows:

“Salem Agrees.....

2. To maintain, operate and replace the sewer interceptor, trunk lines, collector mains, laterals and pumping stations within Keizer and the same within Salem as necessary to serve Keizer, the cost of said service being provided through the sewer service charge; provided however, maintenance and repair of building sewers from the lateral or main to individual premises within Keizer shall be the responsibility of the property owner.....

9. To develop and update Salem’s Master Sewer Plan including reviewing and considering for approval Keizer’s Master Sewer Plan, and any amendments, which is required as an element of Salem’s Master Sewer Plan; and to pay Keizer’s engineering costs for updating Keizer’s element of Salem’s Master Sewer Plan provided Salem has given Keizer prior written approval for the scope of the work and for such costs to be incurred.”

Included in this document is a letter from the City of Salem (See Exhibit A) regarding their plans to remove two pump stations (Dearborn and Elizabeth) after construction of new sewer trunk lines in Windsor Island Road, Shoreline Road, and Chemawa Road.

The City of Keizer’s Department of Public Works and City Engineer have reviewed the plans of the City of Salem and find that the methodology used to determine the required sewer trunk lines is consistent with the design criteria used in the development of the Keizer Master Sewer Plan.

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LIST OF EXHIBITS

- EXHIBIT A - LETTER FROM CITY OF SALEM PUBLIC WORKS DEPT.
- EXHIBIT B - VICINITY MAP
- EXHIBIT C - BASIN MAP
- EXHIBIT D - CALCULATION SHEET AND RESULTS
- EXHIBIT E - PIPE SIZE ANALYSIS

1.0 INTRODUCTION

AUTHORIZATION

Authorization for this study can be found in a letter dated January 27, 2003 from Tim Gerling, Public Works Director, City of Salem, to Mr. Rob Kissler, Public Works Director, City of Keizer, Oregon.

PURPOSE/OBJECTIVE

The purpose of this master sewer plan update is to guide the future development and maintenance of the Keizer sanitary sewer system. This update, when adopted, becomes part of the City of Keizer's Comprehensive Plan by reference. The update has been deemed necessary to bring the City of Keizer into compliance with EPA and DEQ regulations. It has been determined to remove 2 pump stations and construct gravity sewer trunk lines in their stead.

EXISTING FACILITIES

The Keizer sewer system utilizes the City of Salem's 72-75 inch interceptor as the main trunk line. In addition to the interceptor, pump stations are required to assist in maintaining flow to the sanitary sewer treatment plant. This report will address the removal of two of these pump stations, namely the stations located near the intersection of Dearborn Rd. and Shoreline Dr. and the other near Chemawa Rd. and Elizabeth St. as shown in Exhibit C.

2.0 FISCAL IMPACT

Project funding will be provided through use of user fees as outlined in the City of Salem Sanitary Sewer Capital Improvement Plan for Sewer Rehabilitation program and will have no affect on the City of Keizer sewer reserve fund. Additionally, the City of Salem C.I.P. fund will be used to reimburse City of Keizer engineer to update the Master Sewer Report and provide daily input during construction of the project.

3.0 DESIGN METHODOLOGY

The methodology used in completing the analysis for existing basins utilizes two design criteria, Infiltration and Inflow (I/I) and domestic sewer flow. I/I rates used in the past by the City of Keizer are based on the age of the existing sewer system in the area. Most of the system in the area that has been analyzed was constructed prior to 1970. Based on City of Keizer requirements, the I/I rate for sewer systems built prior to 1970 is 6000 gpcd (gallons per capita per day.)

The basins analyzed are almost entirely residential. The City of Keizer assumes a population equivalent of 11.76 person/acre for residential areas. Additionally, a peak factor is used for this type of system to determine peak flows. The peak factor value used in our calculations is 1.69. Exhibit D shows results using the above criteria. Once the flow was determined, calculations were made to evaluate the capacity of the pipe (See Exhibit E.)

4.0 PROPOSED UPDATE

The proposed gravity trunk lines have been reviewed under two different scenarios to determine if the lines have the capacity to carry the flows generated by the respective sewer basins without the aid of the pump stations. The first scenario has taken under consideration the flow generated by the Dearborn Basin and the Elizabeth Basin, (See Exhibit C.) The second scenario included the flow that the Rivercrest Basin would generate should the Rivercrest pump station be eliminated in the future and a gravity line be placed in its stead in the direction of the proposed trunk lines. Using the flow calculated with design methodology and specifications described in the City of Keizer's

1994 Master Sewer Plan Update, we've reviewed the capacity of the proposed trunk line and found that under both scenarios the trunk lines will have sufficient capacity.

4.0 SCHEDULE

The bid opening date for the construction of the sanitary sewer trunk line is anticipated to be in mid-March. The actual construction should commence 30 to 60 days after a contractor has been chosen.

EXHIBITS

January 27, 2003



Rob Kissler, Public Works Director
City of Keizer
P O Box 21000
Keizer OR 97307-1000

**SUBJECT: SANITARY SEWER PUMP STATION ABANDONMENTS WITHIN
THE CITY OF KEIZER**

Dear Mr. Kissler:

The City of Salem is in the process of removing the Dearborn and Elizabeth Sewer Pump Stations from the sewer system. The removal of the subject pump stations will be accomplished by the installation of a new gravity sewer system. The project that will accomplish this goal is budgeted, design is complete, and is being processed for advertisement in order to accept bids.

The Agreement between the City of Keizer and the City of Salem references that, when the City of Salem undertakes improvements to the sewer system, it shall inform the City of Keizer of said intention. This letter shall serve as that notification for the subject project.

Additionally, the City of Keizer shall undertake revisions to its Master Sewer Plan in keeping with the above-mentioned agreement. The cost of preparing these revisions shall be reimbursed by the City of Salem to the City of Keizer.

The City of Salem has within its proposed 2003/2004 budget, proposed funding to design an additional gravity sewer system with the City of Keizer. The proposed project will, when construction funding is approved, eliminate the Rivercrest Sewer Pump Station.

I hope this information will enable you to coordinate this project with your City Council and ultimately your citizens. Should you have any questions regarding the current project, please contact the Project Manager, Clifton Serres, at 503-588-6211. As always, I am available to discuss any other issues of mutual concern to our Cities.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Gerling", with a stylized flourish at the end.

Tim Gerling, P.E.
Public Works Director

C:\S\UP:P\Acorresp 2003\keizer.wpd

cc: Karl D. Goertzen, City Engineer
Paul Eckley, Operations Services Manager
Keith Whisenhunt, Assistant City Engineer
Randy Pecor, Sewer Collection Superintendent

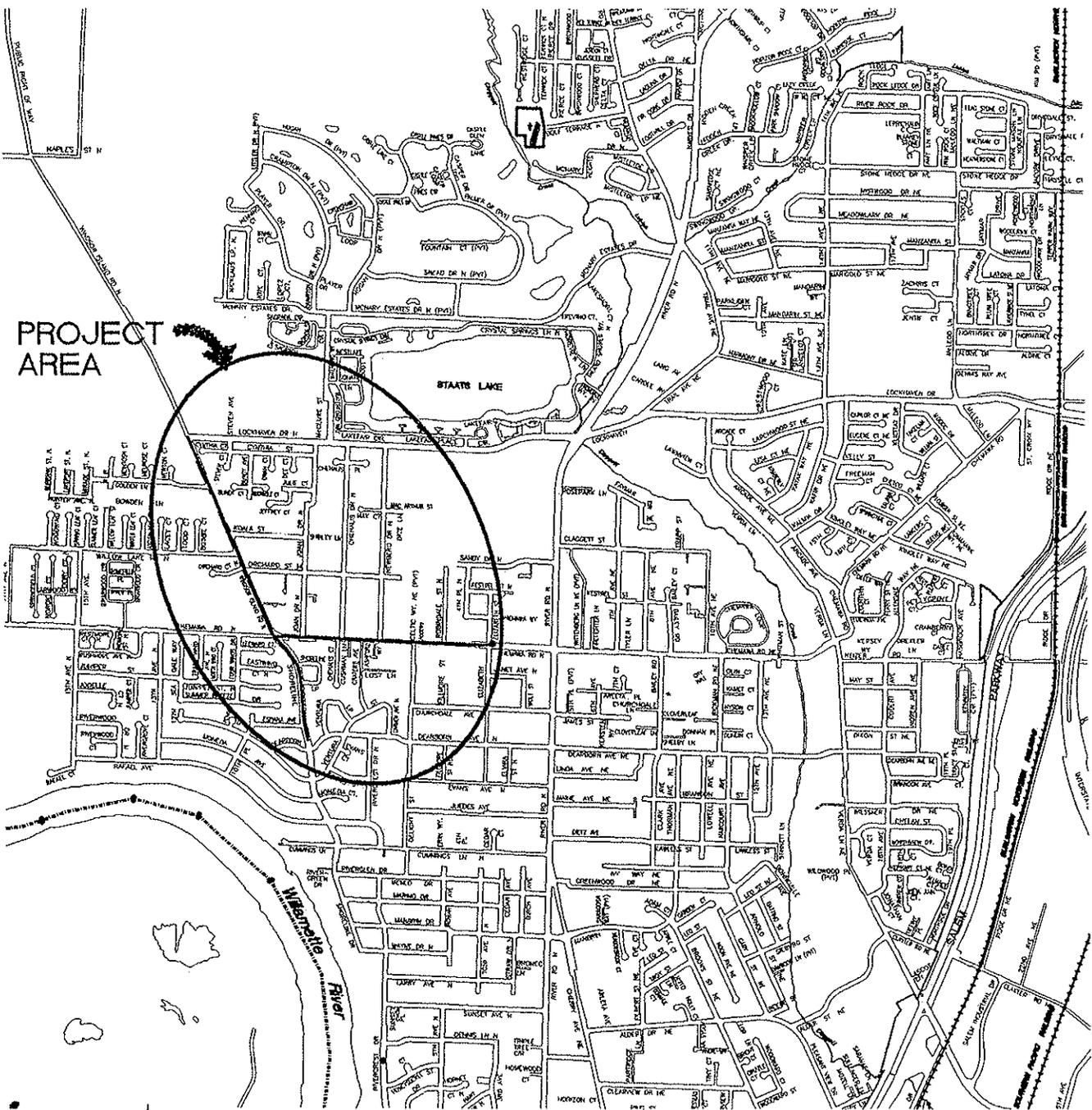
❖ ADA Accommodations Will Be Provided Upon Request ❖

PUBLIC WORKS DEPARTMENT

555 Liberty St. SE / Rm. 325 • Salem, OR 97301-3503 • Phone (503) 588-6211 Fax (503) 588-6025 TTY (503) 588-6292

EXHIBIT "A"

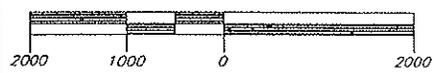
PROJECT AREA



VICINITY MAP



SCALE: 1"=2000'



CITY OF KEIZER
 P.O. BOX 21000 KEIZER, OR. 97303

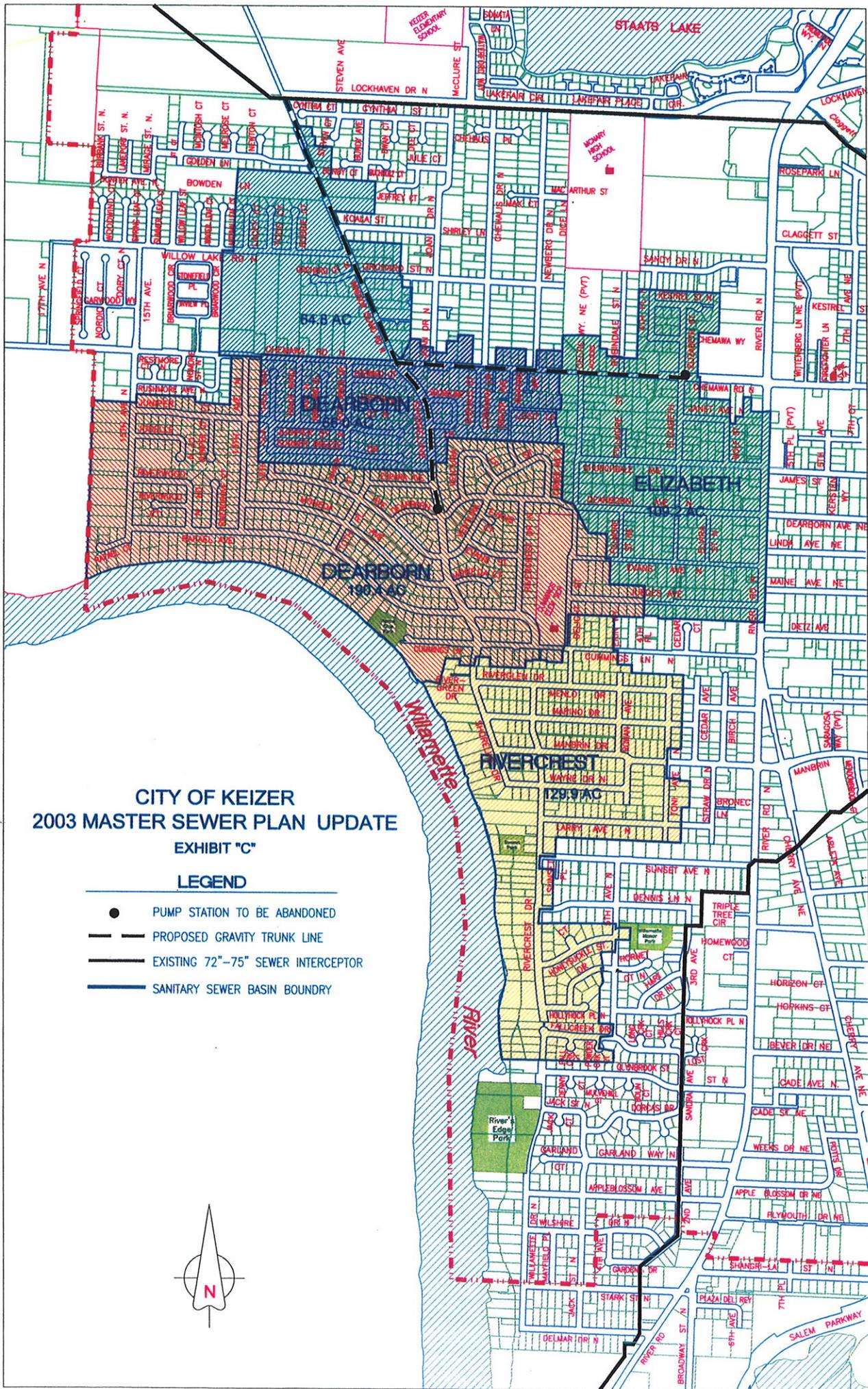
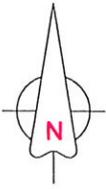
**2003 MASTER SEWER
 PLAN UPDATE**

EXHIBIT B

**CITY OF KEIZER
2003 MASTER SEWER PLAN UPDATE
EXHIBIT "C"**

LEGEND

- PUMP STATION TO BE ABANDONED
- PROPOSED GRAVITY TRUNK LINE
- EXISTING 72"–75" SEWER INTERCEPTOR
- SANITARY SEWER BASIN BOUNDARY



CALCULATION SHEET AND RESULTS
ANALYSIS OF FLOW FOR BASINS CONTRIBUTING TO PROPOSED GRAVITY LINE
 prepared by **William I. Peterson Engineering Consultants, Inc.**
 Date: January 28, 2003

Flow Generated by Dearborn and Elizabeth Basins

Basin	SIZE (acres)	Persons Per Acre	Usage (gpcd)	Peak Factor	Usage (gpd)	Infiltration (gpad)	Infiltration (gpd)	Total - Usage & Infiltration (gpd)	Flow (cfs)
Dearborn	256.4	11.76	75	1.69	382185	6000	1538400	1920585	2.97
Elizabeth	109.2	11.76	75	1.69	162771	6000	655200	817971.3	1.27
TOTAL	365.6	11.76	75	1.69	544956	6000	2193600	2738556	4.24

Flow Generated by Dearborn, Elizabeth and Rivercrest Basins

Basin	Acres	Persons Per Acre	Usage (gpcd)	Peak Factor	Usage (gpd)	Infiltration (gpad)	Infiltration (gpd)	Total - Usage & Infiltration (gpd)	Flow (cfs)
Dearborn	256.4	11.76	75	1.69	382185	6000	1538400	1920585	2.97
Elizabeth	109.2	11.76	75	1.69	162771	6000	655200	817971.3	1.27
Rivercrest	129.9	11.76	75	1.69	193626	6000	779400	973026.3	1.51
TOTAL	495.5	11.76	75	1.69	738582	6000	2973000	3711582	5.74

EXHIBIT D

PIPE SIZE ANALYSIS
Worksheet for Circular Channel

Project Description	
Project File	c:\docume~1\robert\desktop\master_s.fm2
Worksheet	Sewer
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Mannings Coefficient	0.009
Channel Slope	0.001500 ft/ft
Diameter	18.00 in
Discharge	5.74 cfs

Results	
Depth	1.20 ft
Flow Area	1.51 ft ²
Wetted Perimeter	3.32 ft
Top Width	1.20 ft
Critical Depth	0.92 ft
Percent Full	79.95
Critical Slope	0.002922 ft/ft
Velocity	3.79 ft/s
Velocity Head	0.22 ft
Specific Energy	1.42 ft
Froude Number	0.60
Maximum Discharge	6.32 cfs
Full Flow Capacity	5.88 cfs
Full Flow Slope	0.001431 ft/ft
Flow is subcritical.	