



August 6, 2015

Medford Mayor and City Council
c/o Planning Department
City Hall
Medford, OR 97501

**Urban Growth Boundary Amendment
City Sanitary Sewer**

Dear Mayor and City Council:

During the Planning Commission's public hearing of March 12, 2015 I entered into the public record background information obtained from the Medford Public Works Department concerning how sewer service was scored for the City versus scoring for the Rogue Valley Sanitary Sewer (RVSS) with respect to potential service areas within Medford proposed 20-year UGB expansion. To expand on the testimony of Public Works Director Cory Crebbin during the hearing (and with his permission) we have engaged qualified civil engineer Mark Dew to perform an actual External Study Area (ESA) sanitary sewer assessment (attached) for the northeasterly portion of MD5. This now exists as the only UGB candidate area that has been technically examined with the respect to sanitary sewer and the analysis shows that it is readily serviceable at minimal marginal cost.

Please note in Mr. Dew's analysis, the very large area that can be served by *gravity sewers* in both the existing UGB and proposed UGB expansion area. Some of the acreage can only be accommodated by gravity sewers if our area is included in the expanded UGB. Moreover, the cost of serving this area is substantially reduced if it can be served through our property. Finally, it is noteworthy that Chrissy Park would also lack a means to obtain public sanitary sewer and connecting trails to meet Medford's Leisure Services Plan, without the inclusion of our property.

The technical data submitted here is conclusive and clearly illustrated in the attached map. The marginal costs to include the Mahar Homes tract (if paid by the City) on the upsizing from 8" to 12" sewer pipe is minimal.

Please consider the full benefits our property brings to the 20-year UGB expansion. Viewed in proper context, this property should score very high in comparison to other lands which lack immediate access to sanitary sewer.

Respectfully,

Randall D. Jones
Partner/General Manager

Southeast Sewer Service Plan
Procedural Narrative

Revised April 7, 2015
Project No. 15-005

The purpose of the following narrative is to give a brief overview of how the sewer pipe locations and sizes were determined.

The sewer lines shown on the attached Southeast Sewer Service Plan were located to follow the proposed road layout shown in the Southeast Circulation Plan while also maintaining a positive gradient in the pipe. Their location topographically provides service to all of Northeast MD-5 area and the northerly 75% of the Existing UGB that is currently not served.

The design flow rate was determined by using the residential population forecast generated by CSA, then dividing the total population by 2.2 people per household, then multiplying the number of households by 200 gallons per day per house. This number is then multiplied by a Peaking Factor (PF) which is calculated as $1 + (14 / (4 + \sqrt{P}))$, where P= population in the thousands. And finally, an Inflow & Infiltration of 1000 gallons per day per acre added to determine the total design flow.

Three key locations were evaluated in the spreadsheets shown below and are identified on the Plan as Sewer Study Stations:

- Station #1 - located at the westerly edge of Northeast MD-5
- Station #2 - located west of Lone Oak
- Station #3 - located at North Phoenix Road

Determination of Flow (cfs)

<u>Area</u>	<u>Population</u>	<u>Houses</u>	<u>GPD</u>	<u>PF</u>	<u>Acres</u>	<u>Flow</u>
NE MD-5	2729	1240	200	3.48	382	1.9
Ex UGB-East	1254	570	200	3.73	151	0.9
Station #1	3983	1810	200	3.33	533	2.7
				4.50		
Station #1	3983	1810	200	3.33	533	2.7
Ex UGB-mid	1444	656	200	3.69	180	1.0
Station #2	5427	2467	200	3.21	713	3.6
				4.50		
NE MD-5	2729	1240	200	3.48	382	1.9
Ex UGB	4854	2206	200	3.26	655	3.2
Station #3	7583	3447	200	3.07	1037	4.9

The sewer pipes were then sized based on the design flow rate calculated in the spreadsheet above (in cubic feet per second) and the slope of the existing ground where the pipe is shown.

Pipe Capacity versus Actual Pipe Flow

<u>Station</u>	<u>Pipe</u>	<u>Slope</u>	<u>Capacity</u>	<u>Demand</u>
#1	8"	5.0%	2.7	2.7
#1	12"	2.0%	5.0	2.7
#2	12"	3.0%	6.2	3.6
#3	12"	2.5%	5.6	4.9

Conclusion:

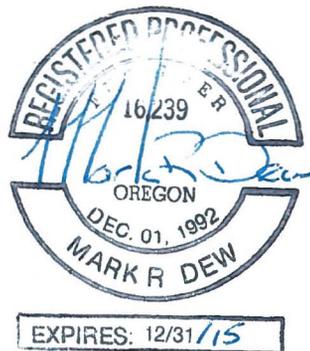
An 8" sewer pipe has the capacity to handle the flow generated from the 547 acres in the Northeast MD-5 area (of which 165 of those acres are part of Chrissy Park and excluded from the calculations). The pipe will need to increase to a 12" pipe west of Study Station #1 to handle the additional flow and flatter slopes. As shown in the calculations above, a 12" pipe at Sewer Study Station #3 has considerably more capacity than the actual demand generated from all of Northeast MD-5 (547 acres) and all of the Existing UGB currently not served (655 acres).

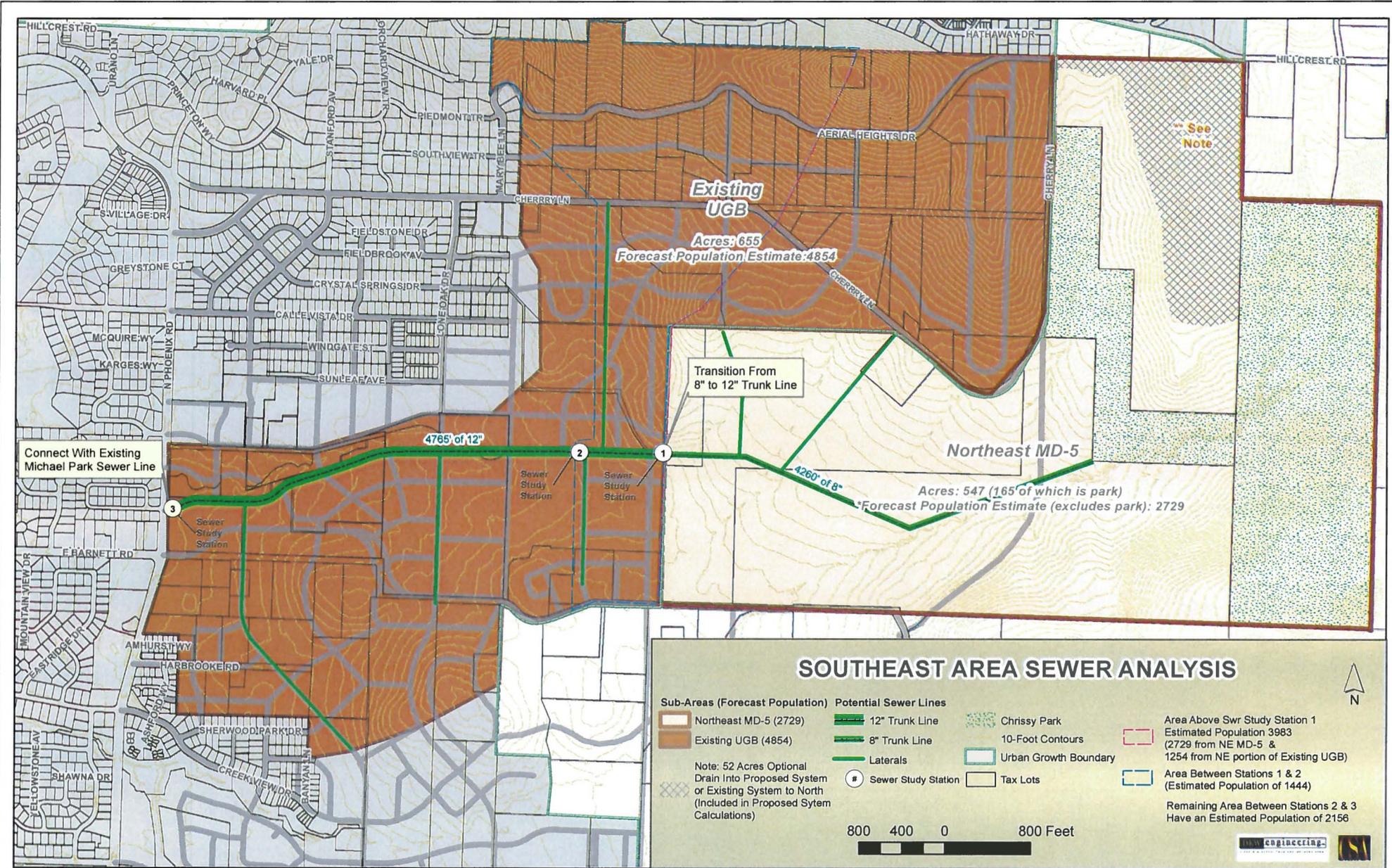
Respectfully submitted,

DEW ENGINEERING, INC.



Mark R. Dew, P.E.





4-7-2015 Source: Dew Engineering and CSA Planning, Ltd. Note: Population Estimates Derived from RVTD adopted Employment and Population Forecasting Model