APPENDIX F – SPALDING PUMP STATION ANALYSIS MEMORANDUM

MEMORANDUM

To: Joey Wright, City of Grants Pass

From: Bhargavi Maremanda, Wayne Gresh,

Reviewed: Lara Kammereck

Date: February 4, 2015

Subject: Spalding Pump Station Analysis

1.0 BACKGROUND AND INTRODUCTION

This memorandum provides an opinion of the capital cost to provide wastewater service to the Spalding Industrial area as shown on Figure 1 (Proposed area 1). The following work was conducted to prepare the opinion of cost:

- Review of the 2004 Collection System Master Plan and Spalding Pump Station Total Project Cost Report (Parametrix, February 2006) to understand prior recommendations for serving the area. Those recommendations included a future wastewater pump station on the eastern edge of the Urban Growth Boundary to serve areas generally west and east of Ament Road.

- Update of the estimated wastewater flows for the areas of interest based on land use and zoning outlined in the Wastewater Collection System Capacity Analysis (Carollo Engineers, February 2013).

- Confirmation of the collection system improvements required to convey wastewater from the Spalding study area (Proposed areas 1 to 5 on Figure 1) to the Water Restoration Plant.

2.0 SYSTEM ANALYSIS

A planning level system analysis was conducted to confirm the collection system improvements needed to serve the Spalding Industrial area. The analysis included areas that would contribute flow to the collection system constructed to serve the Spalding Industrial area in the future. These areas are shown on Figure 1 as proposed areas 2, 3, 4, and 5. Zoning for these areas includes industrial, low-density residential, rural industrial and business parks as identified in the 2013 Wastewater Collection System Capacity Analysis. Table 1 presents the acreage and flow coefficients used to generate flows anticipated from the Spalding study area.

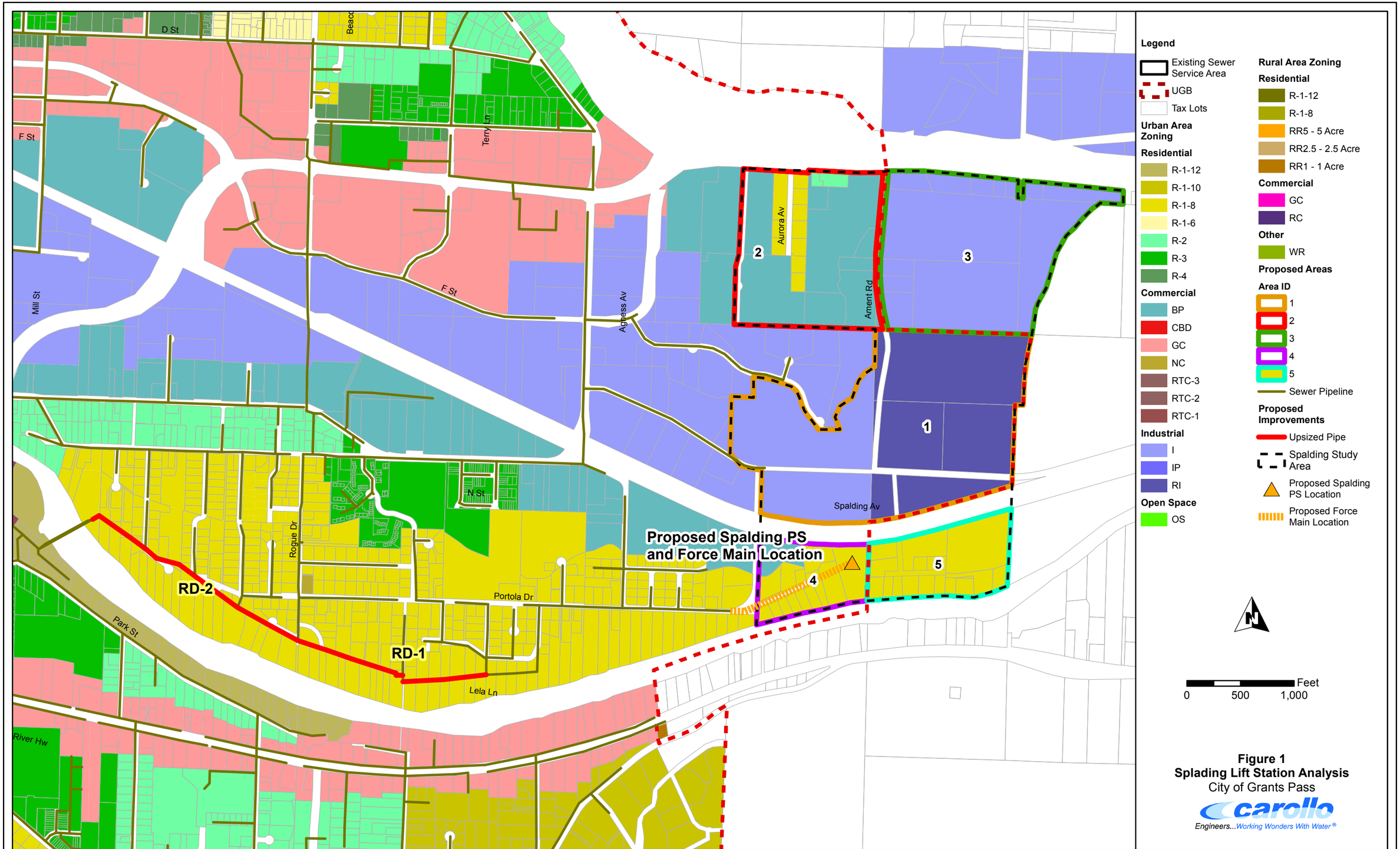

Figure 1
Splading Lift Station Analysis
City of Grants Pass

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Table 1 – Flow Estimate for Spalding Pump Station Study Area					
Zoning	**Area (ac)**	**Flow Coefficients (gpad)[(1)]**	**Infiltration/ Inflow Factor (gpad) [(1)]**	**Total Flow (gpd)**	**Total Flow (gpm)**
BP (Business Park)	36.18	1,020	1,000	73,084	51
I (Industrial)	86.06	1,080	1,000	179,005	124
R-1-8 (Low Density Residential)	36.32	960	1,000	71,187	49
R-2 (Low Density Residential)	1.13	1,380	1,000	2,689	2
RI (Rural Industrial)	46.76	1,080	1,000	97,261	68
TOTAL	206.45	-	-	423,226	294
Notes: (1) Flow coefficients and I/I factor consistent with assumptions from *Wastewater Collection System Capacity Analysis*, Carollo Engineers, February 2013.					

The flow generated from the Spalding study area was modeled using the existing H2OMAP® SWMM collection system hydraulic model, prepared and calibrated by Carollo in 2012. The model simulation identified two existing reaches on the Rogue Drive Interceptor that are hydraulically limited to convey design flows from the Spalding study area. To alleviate the capacity deficiencies, new 15- and 21- inch pipelines are recommended to replace respectively the existing 12- and 15- inch sewers. The recommended improvements run from south of Waterman Lane and Lela Lane to just upstream of the river pipeline crossing. Theses improvements are shown on Figure 1 as RD-1 and RD-2.

These improvements are consistent with the results from the Capacity Analysis completed in February 2013. Additionally, modeling confirmed that a pump station located approximately west of Jones Creek on the eastern edge of the Urban Growth Boundary (UGB), force main, and conveyance improvements are needed to convey flows from the Spalding study area to the existing sewer in Portola Drive as outlined in the 2006 Parametrix study. Further study during the 2015 Collection System Master Plan is needed to identify the optimal location and capacity of the pump station and force main route.

3.0 OPINION OF CAPITAL COST

The collection system improvements required to serve the Spalding Industrial area and proposed areas 2 to 5 include pump station, force main, and Rogue Drive Interceptor up-sizing. Costs for the pump station and force main presented in the 2006 Parametrix study were reviewed and found to represent the capital improvements required. Additionally, capital cost for alleviating capacity deficiencies in the Rogue Drive Interceptor, as outlined in the 2013 Capacity Analysis were confirmed.

Costs from the 2006 Parametrix study and 2013 Capacity Analysis were adjusted for inflation using the *Engineer News Record Capital Cost Index* as shown in Table 2. The total cost to bring the new areas into service is approximately $2.8 million.

Table 2 – Capital Cost Estimate		
Description	**ENR**	**Total Cost**
Pump Station and Single Force Main Cost	7971	$1,006,100[(1)]
	9801	$1,237,100
Collection System Improvements (RD-1 and RD-2)	9412	$1,461,000[(2)]
	9801	$1,521,400
TOTAL	**9801**	**$2,758,500**

Notes:
(1) Cost from *Spalding Pump Station Total Project Cost*, Parametrix, February 2006.
(2) Cost from *Wastewater Collection System Capacity Analysis*, Carollo Engineers, February 2013.