2015057164 ORDINANCE \$31.00 04/2015 02:31:51P 9 PGS ennifer Hayden HAMILTON County Recorder IN Recorded as Presented 

**ORDINANCE NO. 52-10-15** 

AN ORDINANCE AMENDING THE UNIFIED DEVELOPMENT ORDINANCE A PART OF THE COMPREHENSIVE MASTER PLAN FOR THE CITY OF NOBLESVILLE, HAMILTON COUNTY, INDIANA TO GRANT A WAIVER REGARDING FILL WITHIN THE FLOOD HAZARD "FH" DISTRICT

An Ordinance to amend the Unified Development Ordinance (the "UDO") for the City of Noblesville, Hamilton County, Indiana enacted by the City of Noblesville pursuant to its authority under Chapter 174 of the Acts of the Indiana General Assembly 1947, as amended, and;

WHEREAS, the Plan Commission of the City of Noblesville has conducted a public hearing as required by law in regard to Application #002336-2015 concerning the waiver of the prohibition of fill within the Flood Hazard Zoning District for Federal Hill Commons at their meeting on October 19, 2015 and sent its favorable recommendation to the Common Council of the City of Noblesville (the "Common Council") by a vote of  $\underline{10}$  in favor and  $\underline{0}$  opposed;

NOW, THEREFORE, be it ordained by the Common Council of the City of Noblesville, Hamilton County, Indiana, meeting in regular session, that the Unified Development Ordinance is hereby amended as follows:

The subject real estate as illustrated and attached as "Exhibit A", and as Section 1. situated between State Road 32 and Logan Street, west of State Road 19 and east of Nixon Street within the Federal Hill Planned Development (FeHiPD), all of which is located within the zoning jurisdiction of the City of Noblesville, Hamilton County.

Section 2. The purpose of this ordinance is essential to the provisions in Article 8. Zoning Districts, Part G. Flood Hazard (FH) District, Section 8. Prohibited Uses within the City of Noblesville's Unified Development Ordinance ("UDO") which prohibits fill within the Flood Hazard District. The UDO further prescribes that in order to acquire a waiver for this provision the applicant must provide an engineering analysis showing the limits of the floodway, floodway fringe, and 100-year elevation for the site.

Section 3. The UDO also states in Article 8. Zoning Districts, Part G. Flood Hazard (FH) District, Section 12. Permit and Data Standards and Requirements that the total cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the regulatory flood level more than 0.10 of one foot and will not increase flood damage or potential flood damage.' Said engineering analysis has been completed by a professional engineer (Exhibit B) and verifies that the construction of the park will have a net-zero (0.00) effect on the regulatory flood level.

Section 4. Upon passage of this ordinance and based upon its requisite information a waiver is granted to allow fill within the Flood Hazard District in Federal Hill Commons as prescribed by Exhibit B.

Section 5. This ordinance shall be in full force and effect from and upon its adoption and publication in accordance with the law.

Section 6. Upon motion duly made and seconded, this Ordinance was fully passed by the members of the Noblesville Common Council on this 27th day of Orthogon. 2015.

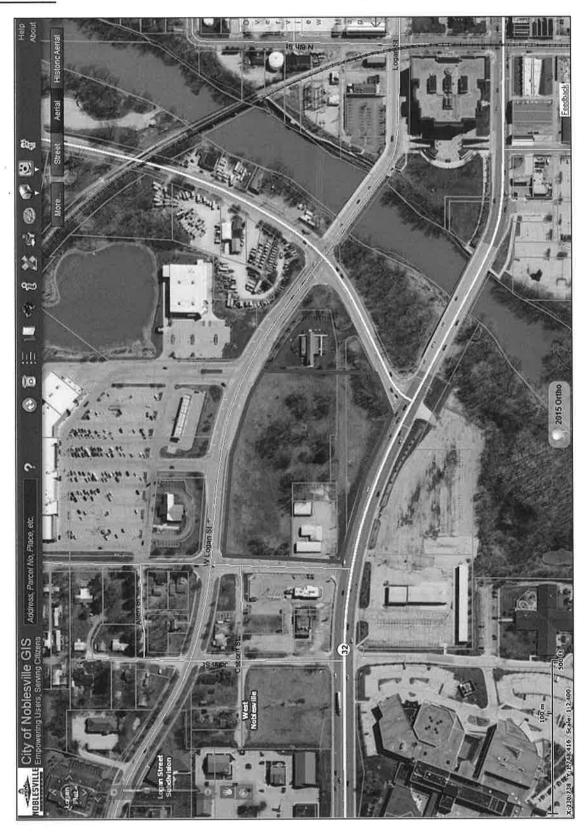
This document prepared by Michael A. Howard, Attorney at Law, 694 Logan Street, Noblesville, Indiana 46060.

I affirm, under penalty of perjury, that I have taken reasonable care to redact each Social Security Number in this document, unless required by law. Michael A. Howard, Attorney at Law, 694 Logan Street, Noblesville, Indiana 46060

## COMMON COUNCIL

AYE		NAY
	Brian Ayer	
12/95	Mark Boice	
300	Roy Johnson	<del></del>
Any Com	Gregory P. O'Connor	
Kuth Yay	Rick Taylor	
Sixte celler	Stephen C. Wood	
- CO 19	Jeff Zeckel	
Approved and signed k	by the Mayor of the Cit	ty of Noblesville, Hamilton County,
Indiana, this 21th day of	Oct , 20	015.
		Ditslear, Mayor
ATTEST:	City	of Noblesville, Indiana
govet & garos		
Janet S. Jaros, Člerk–Treasurer		
408166		

## Exhibit A



September 23rd, 2015



Christy Langley, Director Noblesville Planning Department City Hall 16 South 10<sup>th</sup> Street Noblesville, IN 46060

RE: Hydraulic Analysis for New Federal Hill Park Construction West of

State Road 19. Noblesville, IN.

To Whom It May Concern:

Please find below our summary of hydraulic findings based on the impacts of the planned park development west of State Road 19.

It is our understanding that the City of Noblesville plans to construct a new park west of State Road 19 between Logan Street and Conner Street. To construct this new park, additional fill will be placed within the White River floodplain to raise the grade for various portions of construction. To study the potential impacts of this fill, a hydraulic analysis was completed utilizing HEC-RAS (v4.1) and the Indiana Department of Natural Resources (IDNR) approved permit model FW-26149.

The above mentioned model contains cross sections and structures along the stretch of The White River between Conner Street and the Greenway Bridge. Cross sections that intersected areas within the proposed park had obstructions added to them to imitate proposed fill and buildings. In addition, these sections also contained the proposed Riverwalk geometry on the east river banks including boardwalks and retaining walls. Findings from the analysis may be seen below.

The proposed fill does not affect backwater levels within the study reach. The portion of floodplain that fill will be placed in is an ineffective flow area that does not contribute to backwater levels upstream. In order for flow to become effective, flood waters will need to enter the west overbank and overtop both Logan and Conner Street, which currently does not occur based on the hydraulic models. Upon analyzing this information, we feel the proposed park construction will not have negative impacts upstream. Output from our model and additional appendices are provided for your information. If you have any questions, please do not hesitate to contact us.

Sincerely,

Bryan Wright, P.E.

Butler, Fairman, and Seufert Inc.

cc. John Beery, City Engineer

Headquarters:

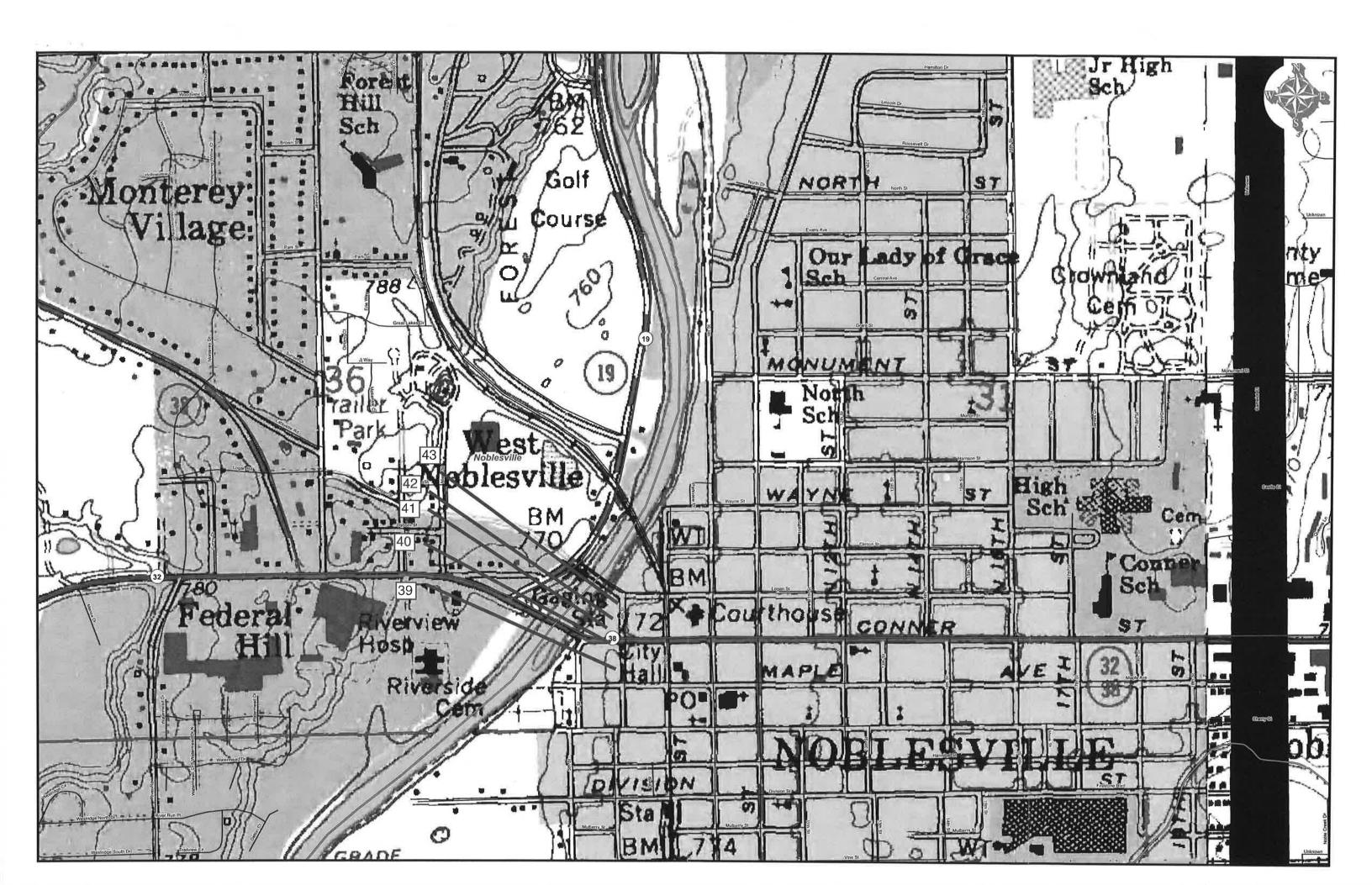
8450 Westfield Blvd., Suite 300 Indianopolis, IN 46240-5920 T 317.713.4615 F 317.713.4616 E bfs@BFSEngr.com

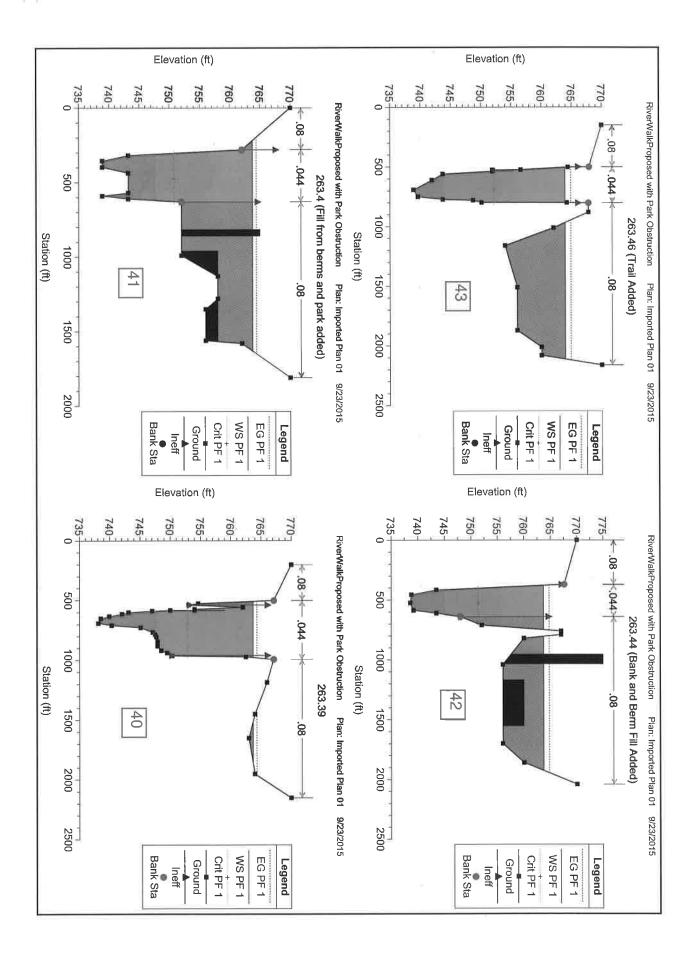
**Branch Locations:** 

Fort Wayne Jeffersonville Lafayette Merrillville Plainfield

Founded 1961







## Hydraulic Analysis Output (No Fill in Park)

54     PF 1     46000.00     (fis)     (fit)       53     PF 1     46000.00     (fit)       52     PF 1     46000.00     (fit)       50     PF 1     46000.00     (fit)       49     PF 1     46000.00     (fit)       47.5     PF 1     46000.00     (fit)       46     PF 1     46000.00     (fit)       44     PF 1     46000.00     (fit)       43     PF 1     46000.00     (fit)       44     PF 1     46000.00     (fit)       44     PF 1     46000.00     (fit)       43     PF 1     46000.00     (fit)       44     PF 1     46000.00     (fit)       40     PF 1     46000.00     (fit)       39     PF 1     46000.00     (fit)       38     PF 1     46000.00     (fit)       34     PF 1     46000.00     (fit)       34     PF 1     46000.00     (fit)       35 <t< th=""><th>Reach</th><th>River Sta</th><th>Profile</th><th>Q Total</th><th>Profile Q Total Min Ch El W.S. E</th><th>W.S. Elev</th><th>Crit W.S.</th><th>E.G. Elev</th><th>E.G. Slope</th><th>Vel Chnl</th><th>Flow Area</th><th>Top Width</th><th>Froude # Chl</th></t<>	Reach	River Sta	Profile	Q Total	Profile Q Total Min Ch El W.S. E	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
54     PF 1     46000.00     741.70     768.64     768.80       53     PF 1     46000.00     741.30     768.36     768.57       52     PF 1     46000.00     738.40     767.48     767.78       50     PF 1     46000.00     738.20     766.55     766.52       49     PF 1     46000.00     738.00     765.16     752.71     765.78       47.5     PF 1     46000.00     738.60     764.48     752.71     765.74       46     PF 1     46000.00     738.60     764.48     752.71     765.74       47.5     PF 1     46000.00     738.60     764.48     752.71     765.74       44     PF 1     46000.00     738.60     764.48     752.71     765.74       43     PF 1     46000.00     738.90     764.16     751.37     765.23       44     PF 1     46000.00     738.90     763.94     752.15     765.84       45     PF 1     46000.00     738.10     763.78 <th></th> <th></th> <th></th> <th>(cfs)</th> <th>(ft)</th> <th>(ft)</th> <th>(ft)</th> <th>(ft)</th> <th>(ft/ft)</th> <th>(ft/s)</th> <th>(sq ft)</th> <th>(ft)</th> <th></th>				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
53     PF 1     46000.00     741.30     768.36     768.57       52     PF 1     46000.00     738.40     767.80     768.11       51     PF 1     46000.00     738.20     765.48     767.78       50     PF 1     46000.00     738.00     765.65     766.52       48     PF 1     46000.00     738.00     765.15     752.71     766.52       47.5     PF 1     46000.00     738.60     764.48     752.71     765.49       45     PF 1     46000.00     738.60     764.16     751.37     765.23       44     PF 1     46000.00     738.90     764.16     751.37     765.23       44     PF 1     46000.00     738.90     764.16     751.37     765.23       44     PF 1     46000.00     738.90     763.41     752.15     765.49       43     PF 1     46000.00     738.90     763.94     752.15     764.87       40     PF 1     46000.00     738.90     763.78	Reach-1	54	PF 1	46000.00	741.70	768.64		768.80	0.000270	4.57	21089.42	1957.42	0.16
52     PF 1     46000.00     738.40     767.80     768.11       51     PF 1     46000.00     738.20     767.48     767.78       50     PF 1     46000.00     739.00     766.02     751.55     766.80       49     PF 1     46000.00     736.60     765.16     752.71     766.35       47.5     PF 1     46000.00     736.60     764.48     752.71     765.74       47.5     PF 1     46000.00     736.60     764.48     752.71     765.74       44.7     PF 1     46000.00     738.60     764.18     752.71     765.74       44.6     PF 1     46000.00     738.90     764.13     752.15     765.49       43     PF 1     46000.00     738.90     763.14     752.15     764.87       40     PF 1     46000.00     738.90     763.78     751.35     764.41       40     PF 1     46000.00     738.90     763.78     752.87     764.41       39     PF 1     46000.00	Reach-1	53	PF 1	46000.00	741.30	768.36		768.57	0.000307	5.02	18912.35	1784.54	0.18
51     PF 1     46000.00     738.20     767.48     767.78       50     PF 1     46000.00     739.00     766.55     766.80       49     PF 1     46000.00     738.60     765.16     752.71     766.35       47.5     PF 1     46000.00     736.60     764.48     752.71     765.74       47.5     PF 1     46000.00     736.60     764.48     752.71     765.74       47.5     PF 1     46000.00     738.60     764.48     752.71     765.74       44.7     PF 1     46000.00     738.60     764.16     751.37     765.74       44.6     PF 1     46000.00     738.90     764.13     752.15     765.74       43.5     PF 1     46000.00     738.90     763.94     752.15     764.87       42     PF 1     46000.00     738.90     763.78     752.15     764.74       41     PF 1     46000.00     738.10     763.78     752.87     764.74       46000.00     738.10	Reach-1	52	PF 1	46000.00	738.40	767.80		768.11	0.000394	5.05	14092.88	1441.46	0.19
50     PF 1     46000.00     739.00     766.55     766.80       49     PF 1     46000.00     738.00     766.02     751.55     766.52       48     PF 1     46000.00     736.60     765.16     752.71     766.35       47.5     PF 1     46000.00     736.60     764.48     752.71     765.74       46     PF 1     46000.00     738.60     764.48     752.71     765.74       44     PF 1     46000.00     738.60     764.48     752.71     765.49       44     PF 1     46000.00     738.60     764.48     752.71     765.49       43     PF 1     46000.00     738.90     764.13     752.15     765.04       44     PF 1     46000.00     738.90     763.94     752.15     764.87       40     PF 1     46000.00     738.90     763.78     752.85     764.41       40     PF 1     46000.00     738.10     763.71     752.87     764.33       30     PF 1	Reach-1	51	PF 1	46000.00	738.20	767.48		767.78	0.000436	5.96	16091.72	1532.08	0.21
49     PF 1     46000.00     738.00     766.02     751.55     766.52       48     PF 1     46000.00     736.60     765.16     752.71     766.35       47.5     Bridge     736.60     764.48     752.71     765.74       46     PF 1     46000.00     738.60     764.48     752.71     765.74       43     PF 1     46000.00     738.90     764.16     751.37     765.23       43     PF 1     46000.00     738.90     764.13     752.15     764.87       42     PF 1     46000.00     738.90     763.94     752.15     764.87       42     PF 1     46000.00     738.90     763.78     752.15     764.87       44     PF 1     46000.00     738.90     763.78     752.15     764.87       40     PF 1     46000.00     738.10     763.78     752.83     764.14       40     PF 1     46000.00     738.10     763.75     752.89     764.12       33     PF 1	Reach-1	50	PF 1	46000.00	739.00	766.55		766.80	0.000321	5.00	17747.72	1825.16	0.18
48     PF 1     46000.00     736.60     765.16     752.71     766.35       47.5     Bridge     736.60     764.48     752.71     765.74       46     PF 1     46000.00     738.00     764.52     751.48     765.23       45     PF 1     46000.00     738.90     764.16     751.37     765.23       43     PF 1     46000.00     738.90     763.94     752.15     764.87       42     PF 1     46000.00     738.90     763.94     752.15     764.74       41     PF 1     46000.00     738.90     763.78     752.15     764.87       42     PF 1     46000.00     738.90     763.78     752.85     764.74       41     PF 1     46000.00     738.90     763.78     752.87     764.33       39.5     Bridge     763.78     752.87     764.33     764.11       37     PF 1     46000.00     738.90     763.45     752.89     764.12       38     PF 1     46000.00 <td>Reach-1</td> <td>49</td> <td>PF 1</td> <td>46000.00</td> <td>738.00</td> <td>766.02</td> <td>751.55</td> <td>766.52</td> <td>0.000531</td> <td>6.09</td> <td>9546.80</td> <td>629.22</td> <td>0.23</td>	Reach-1	49	PF 1	46000.00	738.00	766.02	751.55	766.52	0.000531	6.09	9546.80	629.22	0.23
47.5   Bridge   736.60   764.48   752.71   765.74     47   PF 1   46000.00   738.00   764.48   752.71   765.74     48   PF 1   46000.00   738.00   764.16   751.37   765.49     45   PF 1   46000.00   738.90   764.13   752.15   765.04     43   PF 1   46000.00   738.90   763.94   752.15   764.87     42   PF 1   46000.00   738.90   763.78   752.15   764.74     40   PF 1   46000.00   738.90   763.78   752.87   764.41     39.5   PF 1   46000.00   738.90   763.78   752.87   764.41     39.5   PF 1   46000.00   738.10   763.78   752.87   764.12     39.5   PF 1   46000.00   738.10   763.45   752.89   764.12     36   PF 1   46000.00   738.90   763.45   752.89   764.12     36   PF 1   46000.00   738.10   762.26   752.83   764.04     3	Reach-1	48		46000.00	736.60	765.16	752.71	766.35	0.001215	8.76	5250.27	290.92	0.32
47     PF 1     46000.00     736.60     764.48     752.71     765.74       46     PF 1     46000.00     738.00     764.52     751.48     765.49       45     PF 1     46000.00     738.60     764.16     751.37     765.23       44     PF 1     46000.00     738.90     764.13     752.15     765.04       43.5     PF 1     46000.00     738.90     763.94     752.15     764.87       42     PF 1     46000.00     738.90     763.78     750.83     764.74       40     PF 1     46000.00     738.90     763.78     750.83     764.74       39.5     PF 1     46000.00     738.10     763.78     752.87     764.33       39.5     PF 1     46000.00     738.10     763.45     752.89     764.12       39.     PF 1     46000.00     738.90     763.45     752.89     764.12       30.     PF 1     46000.00     737.80     762.71     752.83     762.59       34	Reach-1	47.5		Bridge									
46     PF 1     46000.00     738.00     764.52     751.48     765.49       45     PF 1     46000.00     738.60     764.16     751.37     765.23       44     PF 1     46000.00     738.90     764.13     752.15     765.04       43     PF 1     46000.00     738.90     763.94     752.15     764.87       41     PF 1     46000.00     738.90     763.78     750.83     764.74       40     PF 1     46000.00     738.90     763.78     752.87     764.33       39.5     PF 1     46000.00     738.10     763.71     752.87     764.41       39     PF 1     46000.00     738.10     763.45     752.89     764.12       30     PF 1     46000.00     738.90     763.45     752.89     764.12       31     PF 1     46000.00     738.90     763.45     752.89     764.12       32     PF 1     46000.00     737.80     762.71     762.31     762.37       34	Reach-1	47	PF 1	46000.00	736.60	764.48	752.71	765.74	0.001329	9.03	5092.16	288.97	0.34
45     PF 1     46000.00     738.60     764.16     751.37     765.23       44     PF 1     46000.00     738.90     764.13     752.15     765.04       43     PF 1     46000.00     738.90     763.94     752.15     764.87       42     PF 1     46000.00     738.90     763.78     750.83     764.74       40     PF 1     46000.00     738.10     763.71     752.87     764.33       39.5     Bridge     Bridge     752.87     764.12     764.12       38     PF 1     46000.00     738.90     763.45     752.89     764.12       37     PF 1     46000.00     738.90     763.38     750.83     764.12       38     PF 1     46000.00     738.90     763.35     750.83     764.12       39     PF 1     46000.00     738.90     762.71     752.89     764.12       30     PF 1     46000.00     737.80     762.71     762.31     762.33       34     PF 1	Reach-1	46	PF 1	46000.00	738.00	764.52	751.48	765.49	0.000945	7.88	5839.24	586.53	0.29
44 PF 1 46000.00 738.90 764.13 752.15 765.04   435 PF 1 46000.00 738.90 763.94 752.15 764.87   42 PF 1 46000.00 738.90 763.78 750.83 764.41   40 PF 1 46000.00 738.10 763.71 752.87 764.33   39.5 PF 1 46000.00 738.10 763.45 752.89 764.12   36 PF 1 46000.00 738.90 763.38 750.83 764.04   37 PF 1 46000.00 738.90 762.71 752.89 764.12   36 PF 1 46000.00 737.80 762.71 752.83 764.04   33 PF 1 46000.00 734.30 762.26 754.31 762.37   34 PF 1 46000.00 741.50 760.29 754.31 762.37   34 PF 1 46000.00 734.30 760.29 754.31 761.89   35 PF 1 46000.00 741.50 760.29 754.31 762.37   34 PF 1 46000.00 737.60 760.29 754.31 761.89   35 PF 1 46000.00 737.60<	Reach-1	45	PF 1	46000.00	738.60	764.16	751.37	765.23	0.001100	8.31	5533.97	1495.94	0.31
43.5     Bridge     Control       43.3     PF 1     46000.00     738.90     763.94     752.15     764.87       42     PF 1     46000.00     738.90     763.78     750.83     764.41       40     PF 1     46000.00     738.10     763.71     752.87     764.33       39.5     PF 1     46000.00     738.10     763.45     752.89     764.12       38     PF 1     46000.00     738.90     763.38     750.83     764.04       37     PF 1     46000.00     738.90     762.71     752.89     764.12       36     PF 1     46000.00     737.80     762.71     762.83     763.16       35     PF 1     46000.00     734.30     762.26     752.31     762.59       34.5     PF 1     46000.00     741.50     760.90     754.31     762.37       33     PF 1     46000.00     737.60     760.29     754.31     761.89       33     PF 1     46000.00     734.30     760.2	Reach-1	44	PF 1	46000.00	738.90	764.13	752.15	765.04	0.001080	7.69	5981.85	1447.88	0.30
43 PF 1 46000.00 738.90 763.94 752.15 764.87   42 PF 1 46000.00 738.60 763.68 751.35 764.74   41 PF 1 46000.00 738.90 763.78 750.83 764.41   40 PF 1 46000.00 738.10 763.71 752.87 764.33   39.5 PF 1 46000.00 738.10 763.45 752.89 764.12   38 PF 1 46000.00 738.90 763.38 750.83 764.04   37 PF 1 46000.00 737.80 762.71 763.16   36 PF 1 46000.00 734.30 762.26 754.31 762.59   34.5 PF 1 46000.00 741.50 760.90 754.31 761.89   33 PF 1 46000.00 734.30 760.29 754.31 761.89   33 PF 1 46000.00 737.60 759.20 754.31 761.89   32 PF 1 46000.00 737.60 759.20 752.72 759.78	Reach-1	43.5		Bridge			j						23
42     PF 1     46000.00     738.60     763.68     751.35     764.74       41     PF 1     46000.00     738.90     763.78     750.83     764.41       40     PF 1     46000.00     738.10     763.71     752.87     764.33       39.5     PF 1     46000.00     738.10     763.45     752.89     764.12       38     PF 1     46000.00     738.90     762.71     752.89     764.04       37     PF 1     46000.00     737.80     762.71     762.59     763.16       36     PF 1     46000.00     734.30     762.26     762.59     762.59       34.5     PF 1     46000.00     741.50     760.90     754.31     762.37       34     PF 1     46000.00     741.50     760.29     754.31     761.89       33     PF 1     46000.00     734.30     760.29     754.31     761.89       32     PF 1     46000.00     734.30     760.29     754.31     761.19       32 <td>Reach-1</td> <td>43</td> <td>PF 1</td> <td>46000.00</td> <td>738.90</td> <td>763.94</td> <td>752.15</td> <td>764.87</td> <td>0.001111</td> <td>7.76</td> <td>5925.86</td> <td>1441.60</td> <td>0.31</td>	Reach-1	43	PF 1	46000.00	738.90	763.94	752.15	764.87	0.001111	7.76	5925.86	1441.60	0.31
41   PF 1   46000.00   738.90   763.78   750.83   764.41     40   PF 1   46000.00   738.10   763.71   752.87   764.33     39.5   Bridge   738.10   763.45   752.89   764.12     39   PF 1   46000.00   738.90   763.38   750.83   764.04     37   PF 1   46000.00   737.80   762.71   763.16   762.59     36   PF 1   46000.00   734.30   762.26   762.37   762.59     34.5   PF 1   46000.00   741.50   760.90   754.31   761.89     33   PF 1   46000.00   734.30   760.29   754.31   761.89     33   PF 1   46000.00   734.30   760.29   754.31   761.89     32   PF 1   46000.00   734.30   760.29   754.31   761.89	Reach-1	42	PF 1	46000.00	738.60	763.68	751.35	764.74	0.001035	8.23	5590.43	1493.43	0.31
40 PF 1 46000.00 738.10 763.71 752.87 764.33   39.5 Bridge 788.10 763.45 752.89 764.12   39 PF 1 46000.00 738.10 763.35 750.83 764.04   37 PF 1 46000.00 737.80 762.71 763.16 763.16   36 PF 1 46000.00 734.30 762.26 762.59   35 PF 1 46000.00 741.50 760.90 754.31 762.37   34.5 Bridge Bridge 759.20 754.31 761.89   33 PF 1 46000.00 734.30 760.29 754.31 761.89   32 PF 1 46000.00 737.60 759.20 752.72 759.78	Reach-1	41	PF 1	46000.00	738.90	763.78	750.83	764.41	0.000660	6.41	7177.21	1413.26	0.25
39.5 Bridge   39 PF 1 46000.00 738.10 763.45 752.89 764.12   38 PF 1 46000.00 738.90 763.38 750.83 764.04   37 PF 1 46000.00 737.80 762.71 763.16   36 PF 1 46000.00 734.30 762.26 752.59   35 PF 1 46000.00 741.50 760.90 754.31 762.37   34.5 Bridge Bridge 759.20 754.31 761.89   33 PF 1 46000.00 734.30 760.29 754.31 761.89   32 PF 1 46000.00 737.60 759.20 752.72 759.78	Reach-1	40	PF 1	46000.00	738.10	763.71	752.87	764.33	0.000829	6.30	7299.85	826.52	0.27
39     PF 1     46000.00     738.10     763.45     752.89     764.12       38     PF 1     46000.00     738.90     763.38     750.83     764.04       37     PF 1     46000.00     737.80     762.71     763.16     763.16       36     PF 1     46000.00     734.30     762.26     762.59     762.59       35     PF 1     46000.00     741.50     760.90     754.31     762.37       34.5     Bridge     888.00     760.29     754.31     761.89     761.89       33     PF 1     46000.00     734.30     760.29     754.31     761.89       32     PF 1     46000.00     737.60     759.20     752.72     759.78	Reach-1	39.5		Bridge			Ĺ						
38 PF 1 46000.00 738.90 763.38 750.83 764.04   37 PF 1 46000.00 737.80 762.71 763.16   36 PF 1 46000.00 734.30 762.26 762.59   35 PF 1 46000.00 741.50 760.90 754.31 762.37   34.5 Bridge T61.59 760.29 754.31 761.89   33 PF 1 46000.00 734.30 760.29 754.31 761.89   32 PF 1 46000.00 737.60 759.20 752.72 759.78	Reach-1	39	PF 1 +	46000.00	738.10	763.45	752.89	764.12	0.000908	6.60	6967.80	691.65	0.28
37 PF 1 46000.00 737.80 762.71 763.16   36 PF 1 46000.00 734.30 762.26 762.59   35 PF 1 46000.00 741.50 760.90 754.31 762.37   34.5 Bridge 760.29 754.31 761.89   33 PF 1 46000.00 741.50 760.29 754.31 761.89   32 PF 1 46000.00 737.60 759.20 752.72 759.78	Reach-1	38	PF 1	46000.00	738.90	763.38	750.83	764.04	0.000705	6.54	7037.91	1387.89	0.26
36 PF 1 46000.00 734.30 762.26 762.93   35 PF 1 46000.00 741.50 760.90 754.31 762.37   34.5 Bridge T60.29 754.31 761.89   34 PF 1 46000.00 741.50 760.29 754.31 761.89   33 PF 1 46000.00 734.30 760.80 761.19   32 PF 1 46000.00 737.60 759.20 752.72 759.78	Reach-1	37	PF 1	46000.00	737.80	762.71		763.16	0.000564	6.16	12972.07	1335.73	0.23
35 PF 1 46000.00 741.50 760.90 754.31 762.37   34.5 Bridge 760.29 754.31 761.89   34 PF 1 46000.00 741.50 760.29 754.31 761.89   33 PF 1 46000.00 734.30 760.80 761.19   32 PF 1 46000.00 737.60 759.20 752.72 759.78	Reach-1	36	PF 1	46000.00	734.30	762.26		762.59	0.000398	5.20	14980.38	1479.69	0.20
34.5   Bridge   761.59   761.89     34   PF 1   46000.00   741.50   760.29   754.31   761.89     33   PF 1   46000.00   734.30   760.80   761.19     32   PF 1   46000.00   737.60   759.20   752.72   759.78	Reach-1	35	PF 1	46000.00	741.50	760.90	754.31	762.37	0.002369	9.74	4733.89	1564.85	0.44
34 PF 1 46000.00 741.50 760.29 754.31 761.89   33 PF 1 46000.00 734.30 760.80 761.19   32 PF 1 46000.00 737.60 759.20 752.72 759.78	Reach-1	34.5		Bridge									
33 PF 1 46000.00 734.30 760.80 761.19 32 PF 1 46000.00 737.60 759.20 752.72 759.78	Reach-1	34	PF 1	46000.00	741.50	760.29	754.31	761.89	0.002700	10.15	4535.43	1560.80	0.47
32 PF 1 46000.00 737.60 759.20 752.72 759.78	Reach-1	33	PF 1	46000.00	734.30	760.80		761.19	0.000522	5.68	13024.94	1480.02	0.22
	Reach-1	32	PF 1	46000.00	737.60	759.20	752.72	759.78	0.000999	7.53	11050.90	1363.92	0.31

## Hydraulic Analysis Output (Fill in Park)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	54	PF 1	46000.00	741.70	768.64		768.80	0.000270	4.57	21089.42	1957.42	0.16
Reach-1	53	PF 1	46000.00	741.30	768.36		768.57	0.000307	5.02	18912.35	1784.54	0.18
Reach-1	52	PF 1	46000.00	738.40	767.80		768.11	0.000394	5.05	14092.88	1441.46	0.19
Reach-1	51	PF 1	46000.00	738.20	767.48		767.78	0.000436	5.96	16091.72	1532.08	0.21
Reach-1	50	PF 1	46000.00	739.00	766.55		766.80	0.000321	5.00	17747.72	1825.16	0.18
Reach-1	49	PF 1	46000.00	738.00	766,02	751.55	766.52	0.000531	6.09	9546.80	629.22	0.23
Reach-1	48	PF 1	46000.00	736.60	765.16	752.71	766.35	0.001215	8.76	5250.27	290.92	0.32
Reach-1	47.5		Bridge									
Reach-1	47	PF 1	46000.00	736.60	764.48	752.71	765.74	0.001329	9.03	5092.16	288.97	0.34
Reach-1	46	PF 1	46000.00	738.00	764.52	751.48	765.49	0.000945	7.88	5839.24	586.53	0.29
Reach-1	45	PF 1	46000.00	738.60	764.16	751.37	765.23	0.001100	8.31	5533.97	1495.94	0.31
Reach-1	44	PF 1	46000.00	738.90	764.13	752.15	765.04	0.001080	7.69	5981.85	1447.88	0.30
Reach-1	43.5		Bridge									
Reach-1	43	PF 1	46000.00	738.90	763.94	752.15	764.87	0.001111	7.76	5925.86	1441.60	0.31
Reach-1	42	PF 1	46000.00	738.60	763.68	751.35	764.74	0.001035	8.23	5590.43	1411.43	0.31
Reach-1	41	PF 1	46000.00	738.90	763.78	750.83	764.41	0.000660	6.41	7177.21	1369.26	0.25
Reach-1	40	PF 1	46000.00	738.10	763.71	752.87	764.33	0.000829	6.30	7299.85	826.52	0.27
Readi-1	39.5		Bridge			Ĺ						
Reach-1	39	PF 1	46000.00	738.10	763.45	752.89	764.12	0.000908	6.60	6967.80	691.65	0.28
Reach-1	38	PF 1	46000.00	738.90	763.38	750.83	764.04	0.000705	6.54	7037.91	1387.89	0.26
Reach-1	37	PF 1	46000.00	737.80	762.71		763.16	0.000564	6.16	12972.07	1335.73	0.23
Reach-1	36	PF 1	46000.00	734.30	762.26		762.59	0.000398	5.20	14980.38	1479.69	0.20
Reach-1	35	PF 1	46000.00	741.50	760.90	754.31	762.37	0.002369	9.74	4733.89	1564.85	0.44
Reach-1	34.5		Bridge									
Reach-1	34	PF 1	46000.00	741.50	760.29	754.31	761.89	0.002700	10.15	4535.43	1560.80	0.47
Reach-1	33	PF 1	46000.00	734.30	760.80		761.19	0.000522	5.68	13024.94	1480.02	0.22
Dooch 1	33	PF 1	46000.00	737.60	759.20	752.72	759.78	0.000999	7.53	11050.90	1363.92	0.31