

## **APPENDIX D**

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### **Hydrology, Hydraulics and Stormwater Management**

*D1: Figures*

*D2: Hydrology and Stormwater  
Management*

*D3: Hydraulics*



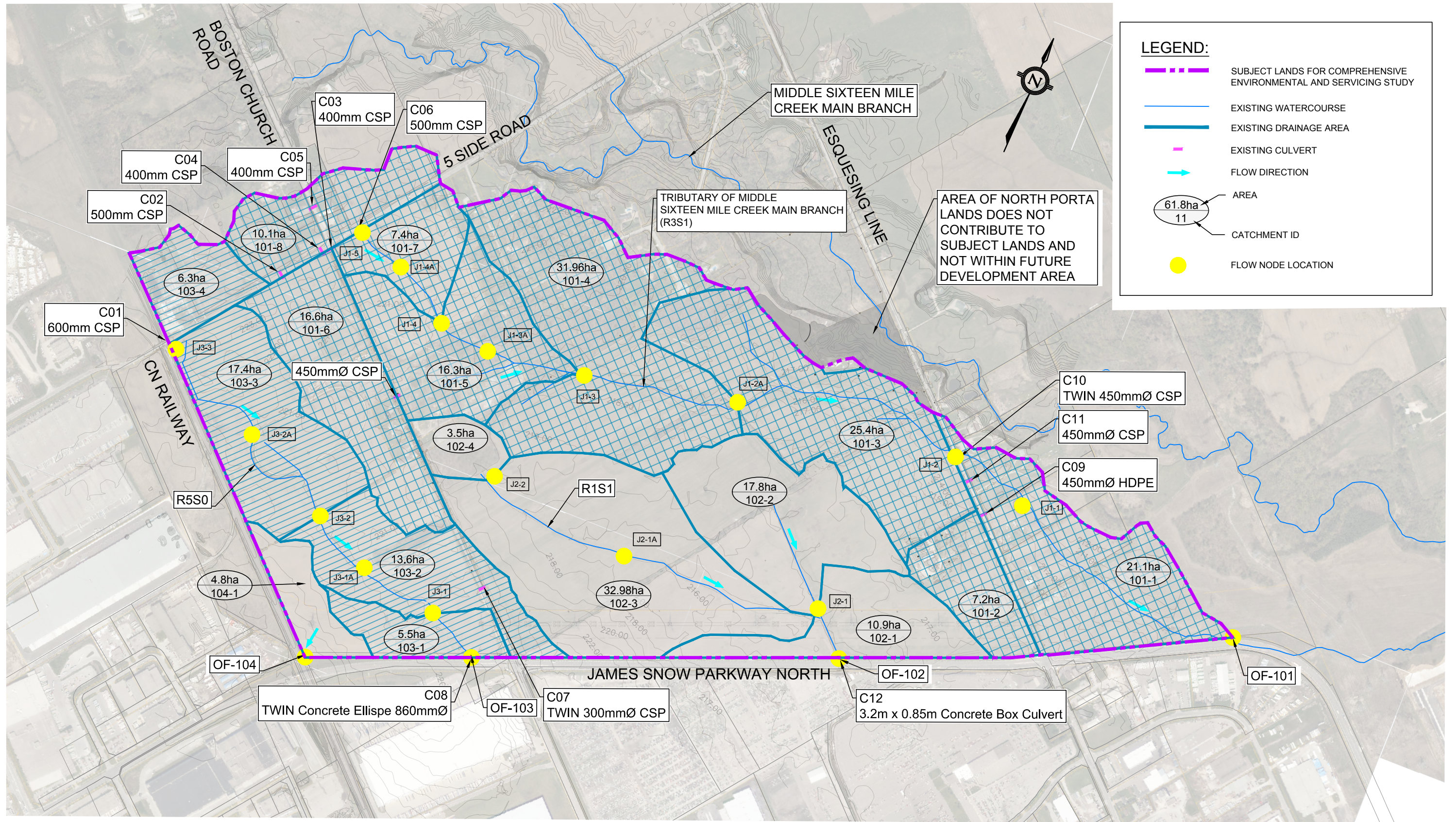
## *Appendix D1*

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### *Figures*



File: G:\Projects\201717197 - Orlando - North Porta\3. Drawings\6. SWM\CES\FIGURES\FIG D3-1 Existing Conditions Hydrologic Catchment Areas.dwg, Layout: D3-1 Date: Apr 25, 2022 - 12:07pm, Edit By: emirraias

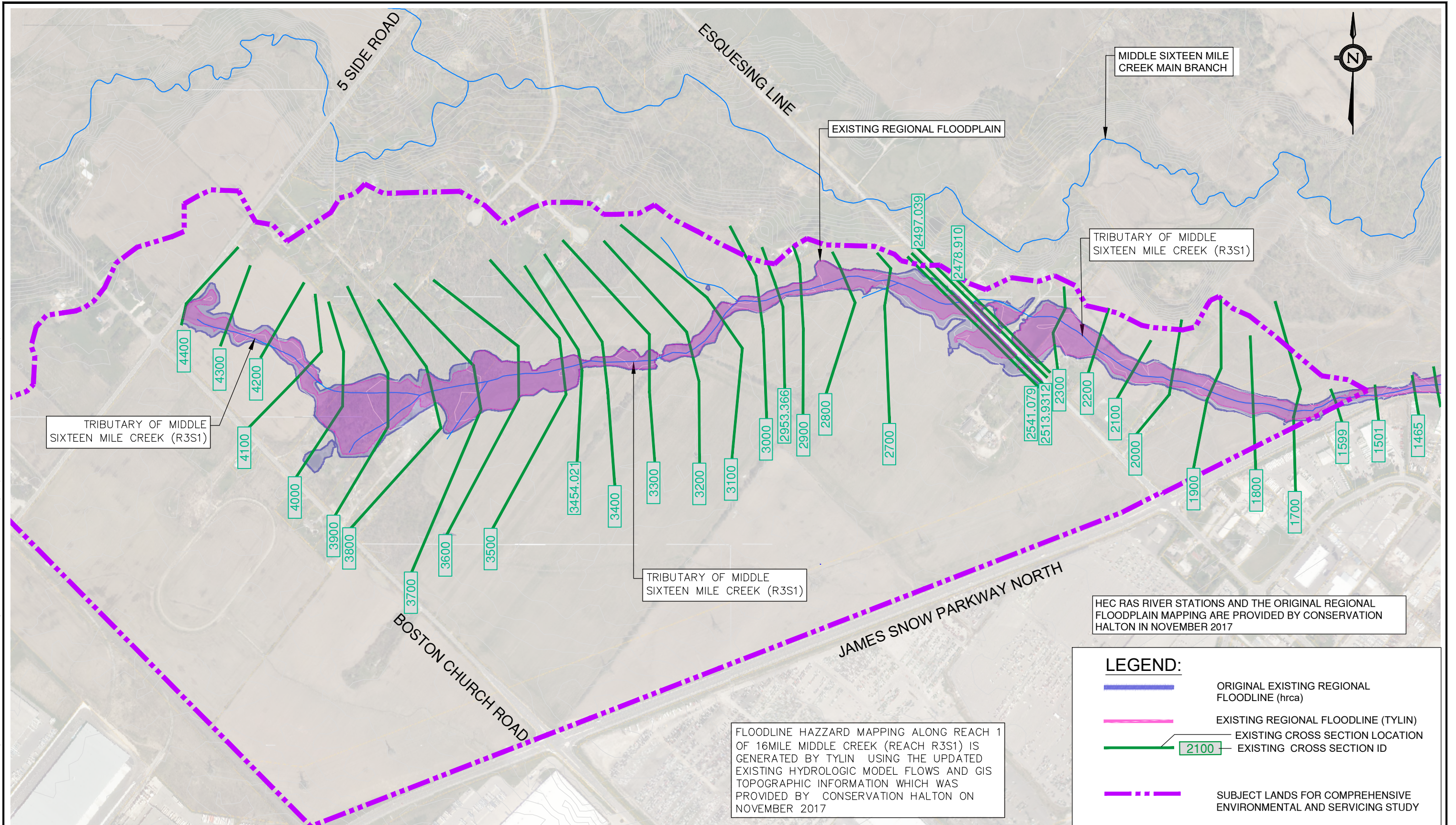


**ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
EXISTING CONDITIONS HYDROLOGIC CATCHMENT AREAS**

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SCALE: 1:10,000	PROJECT No. 17197
DATE: APRIL 2022	
DESIGNED BY: E.T.	DRAWN BY: E.T.
CHECKED BY: T.D.	CHECKED BY: T.D.
	FIGURE No. D3-1

File : G:\Projects\201717197 - Orlando - North Porta\3. Drawings\6. SWM\CES\FIGURES\FIG D3-2 - Existing HEC-RAS Model Cross-Section Plan.dwg. Layout : D3-2 Date : Apr 14, 2022 - 12:22pm. Edit By : arnira.tasi



TRIBUTARY OF MIDDLE SIXTEEN MILE CREEK (R3S1)

TRIBUTARY OF MIDDLE SIXTEEN MILE CREEK (R3S1)






EXISTING REGIONAL FLOODPLAIN

TRIBUTARY OF MIDDLE SIXTEEN MILE CREEK (R3S1)

HEC RAS RIVER STATIONS AND THE ORIGINAL REGIONAL FLOODPLAIN MAPPING ARE PROVIDED BY CONSERVATION HALTON IN NOVEMBER 2017

FLOODLINE HAZZARD MAPPING ALONG REACH 1 OF 16MILE MIDDLE CREEK (REACH R3S1) IS GENERATED BY TYLIN USING THE UPDATED EXISTING HYDROLOGIC MODEL FLOWS AND GIS TOPOGRAPHIC INFORMATION WHICH WAS PROVIDED BY CONSERVATION HALTON ON NOVEMBER 2017

**LEGEND:**

-  ORIGINAL EXISTING REGIONAL FLOODLINE (hrca)
-  EXISTING REGIONAL FLOODLINE (TYLIN)
-  EXISTING CROSS SECTION LOCATION
-  EXISTING CROSS SECTION ID
-  SUBJECT LANDS FOR COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY

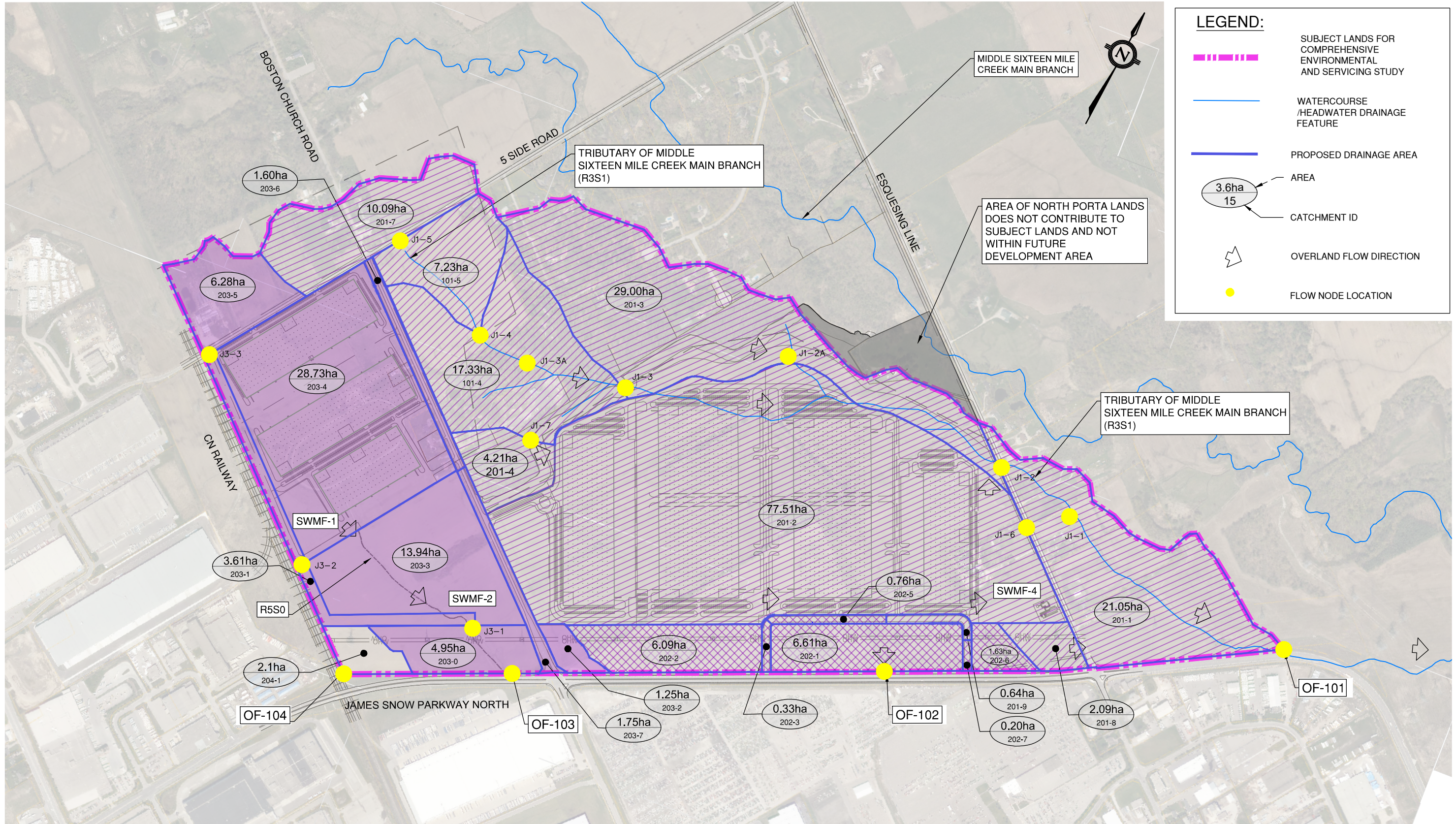


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ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
EXISTING HEC-RAS MODEL CROSS-SECTION PLAN

SCALE: N.T.S.		PROJECT No.
DATE: APRIL 2022		17197
DESIGNED BY: E.T.	DRAWN BY: E.T.	FIGURE No.
CHECKED BY: T.D.	CHECKED BY: T.D.	D3-2

File: G:\Projects\201717197 - Orlando - North Porta\3. Drawings\6. SWM\CES\FIGURES\FIG D5-1 - Proposed Conditions Hydrologic Catchment Areas.dwg, Layout: D5-1 Date: Apr 20, 2022 - 10:05am, Edit By: ermiria.tasi



**LEGEND:**

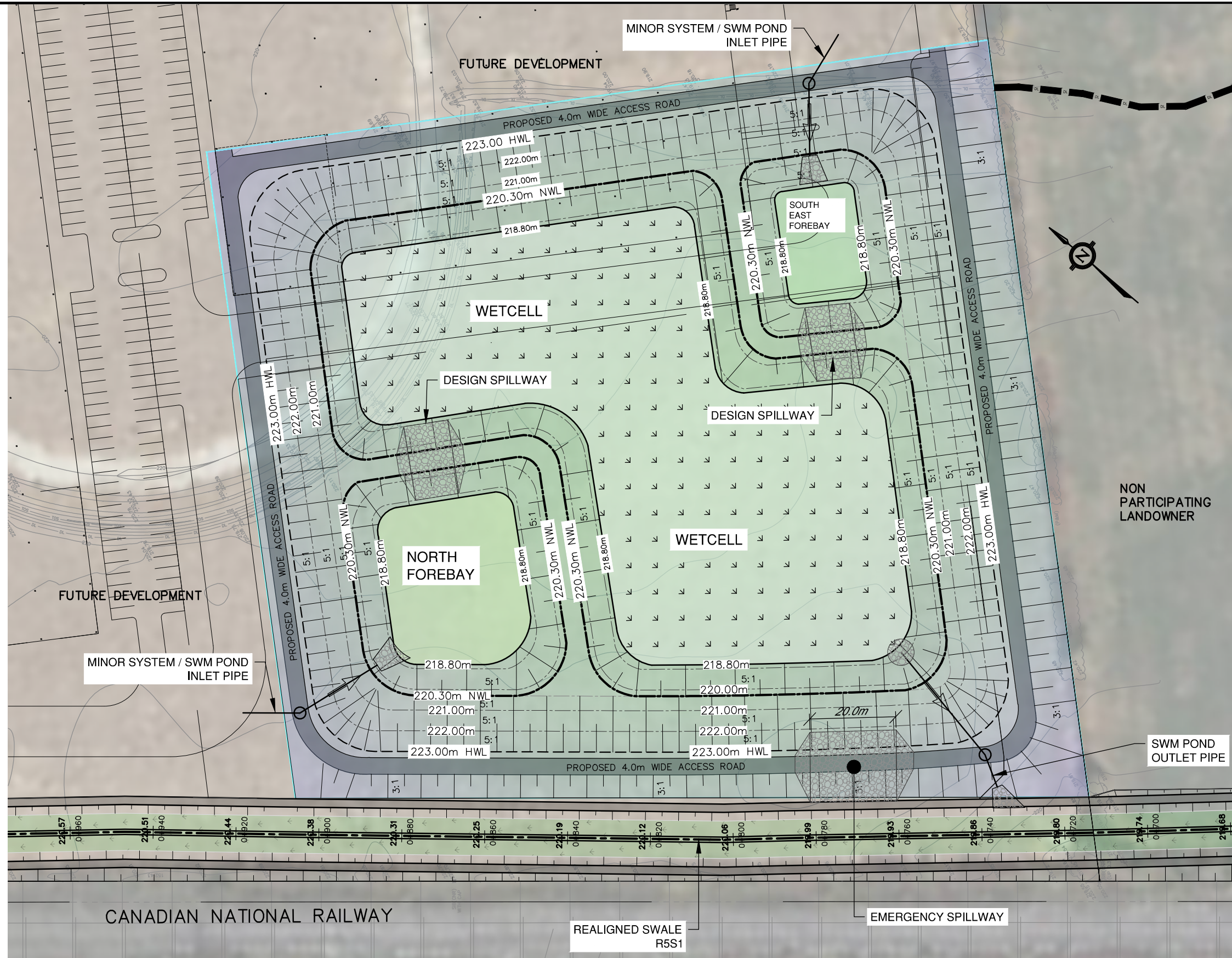
- SUBJECT LANDS FOR COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY
- WATERCOURSE /HEADWATER DRAINAGE FEATURE
- PROPOSED DRAINAGE AREA
- 3.6ha  
15 AREA  
CATCHMENT ID
- OVERLAND FLOW DIRECTION
- FLOW NODE LOCATION

**ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
PROPOSED CONDITIONS HYDROLOGIC CATCHMENT AREAS**

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SCALE: 1:10,000		PROJECT No.
DATE: APRIL 2022		17197
DESIGNED BY: E.T	DRAWN BY: E.T.	FIGURE No.
CHECKED BY: T.D.	CHECKED BY: T.D.	D5-1

File : G:\Projects\201717197 - Orlando - North Porta\3. Drawings\6. SWMF\CESS FIGURES\FIG D7-1 to D7-2 SWMF Concept Plans.dwg. Layout : D7-1 Date: Apr 11, 2022 - 6:52pm. Edit By : ermiralasi



DESCRIPTION	REQUIRED STORAGE	AVAILABLE STORAGE
PERMANENT POOL EL. 218.80 - EL. 220.30	6,069 m <sup>3</sup>	20,607 m <sup>3</sup>
EXTENDED DETENTION EL. 220.30 - EL. 220.60	5,491 m <sup>3</sup>	5,890 m <sup>3</sup>
25-YEAR FLOOD EL. 220.30 - EL. 221.45	21,627 m <sup>3</sup>	22,580 m <sup>3</sup>
100-YEAR FLOOD EL. 220.30 - EL. 221.70	26,771 m <sup>3</sup>	27,488 m <sup>3</sup>
REGIONAL FLOOD EL. 220.30 - EL. 223.00	56,863 m <sup>3</sup>	56,881 m <sup>3</sup>

POND DATA	
DRAINAGE AREA	30.33 HA
POND BLOCK AREA	3.25 HA
ROAD ELEV. (AT INLET MH)	223.35 m
PERMANENT POOL ELEV.	220.30 m
BOTTOM OF POND ELEV.	218.80
HWL (Regional)	223.00 m
FREE BOARD ELEV	223.30 m
POND SLOPES	5:1
POND INLET INV.	220.30 m
POND OUTLET INV.	220.00 m
APPROX. LENGTH/WIDTH RATIO	<3:1

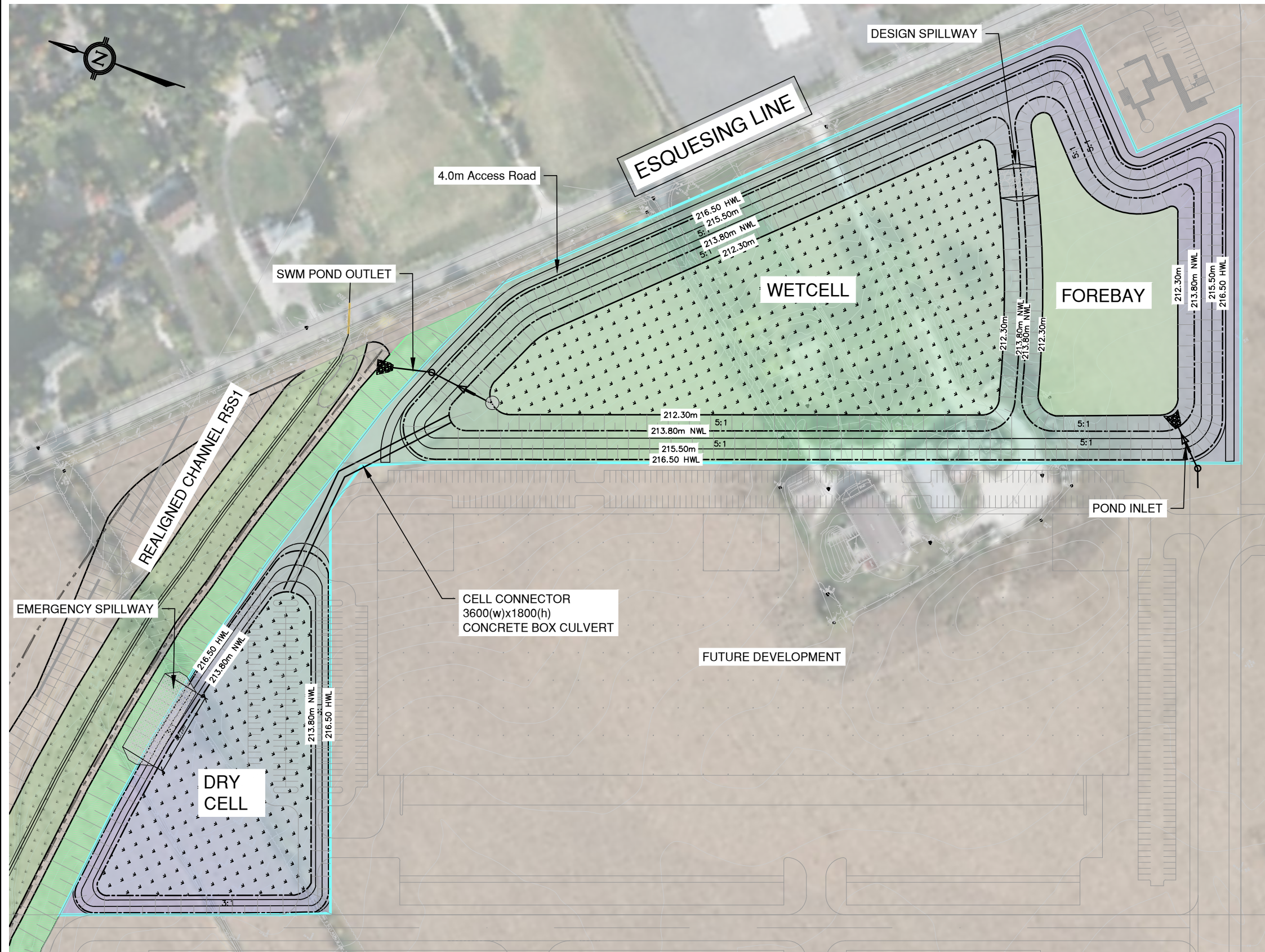


**ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
SWMF1 CONCEPT PLAN**

SCALE: 1:1000	PROJECT No. 17197
DATE: MARCH 2022	FIGURE No. D7-1
DESIGNED BY: S.B	DRAWN BY: S.B.
CHECKED BY: T.D.	CHECKED BY: T.D.



File : G:\Projects\201717197 - Orlando - North Porta3\_Drawing\6\_SWM\FIGURES\FIG D7-1 to D7-2\_SWMF Concept Plans.dwg Layout : D7-2 Date: Apr 12, 2022 - 2:51pm. Edit By : ermiralasi



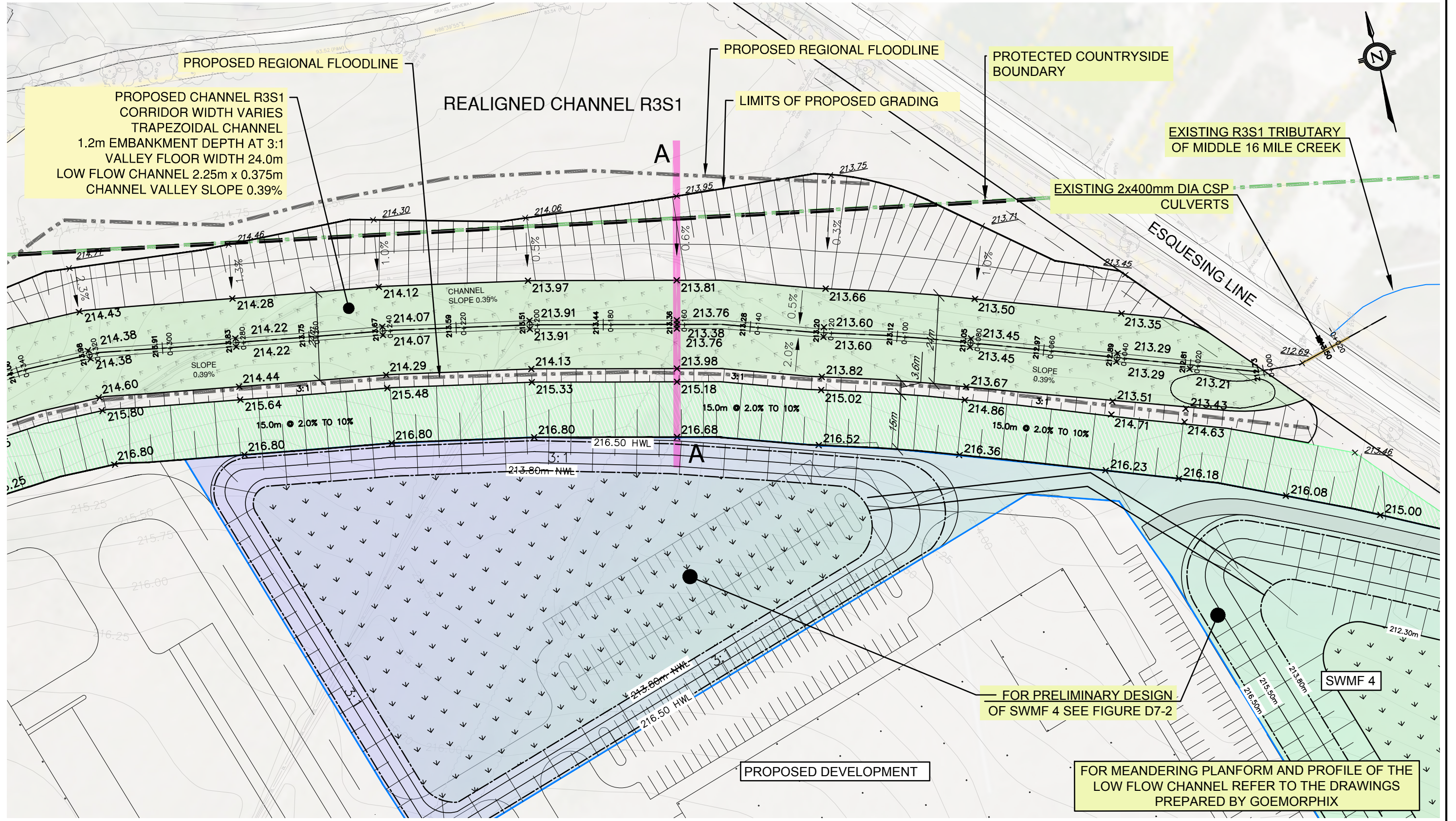
DESCRIPTION	REQUIRED STORAGE	AVAILABLE STORAGE
PERMANENT POOL EL. 212.30 - EL. 213.80	15,886 m <sup>3</sup>	45,373 m <sup>3</sup>
EXTENDED DETENTION EL. 213.80 - EL. 215.00	58,529 m <sup>3</sup>	58,600 m <sup>3</sup>
25-YEAR FLOOD EL. 213.80 - EL. 215.15	63,375 m <sup>3</sup>	64,601 m <sup>3</sup>
100-YEAR FLOOD EL. 213.80 - EL. 215.65	88,933 m <sup>3</sup>	91,545 m <sup>3</sup>
ACTUAL REGIONAL FLOOD EL. 213.80 - EL. 216.50	138,909 m <sup>3</sup>	141,489 m <sup>3</sup>

POND DATA	
DRAINAGE AREA	78.15 HA
POND BLOCK AREA	6.92 HA
ROAD ELEV. (AT INLET MH)	216.80m
PERMANENT POOL ELEV.	213.80 m
BOTTOM OF POND ELEV.	212.30 m
HWL (Regional)	216.50 m
FREE BOARD ELEV	216.80m
POND SLOPES	5:1
POND INLET INV.	213.80 m
POND OUTLET INV.	213.50 m
APPROX. LENGTH/WIDTH RATIO	3:1



**ORLANDO - NORTH PORTA  
 COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
 SWMF4 CONCEPT PLAN**

SCALE: N.T.S.	PROJECT No. <b>17197</b>
DATE: MARCH 2022	FIGURE No. <b>D7-2</b>
DESIGNED BY: S.B.	DRAWN BY: S.B.
CHECKED BY: T.D.	CHECKED BY: T.D.

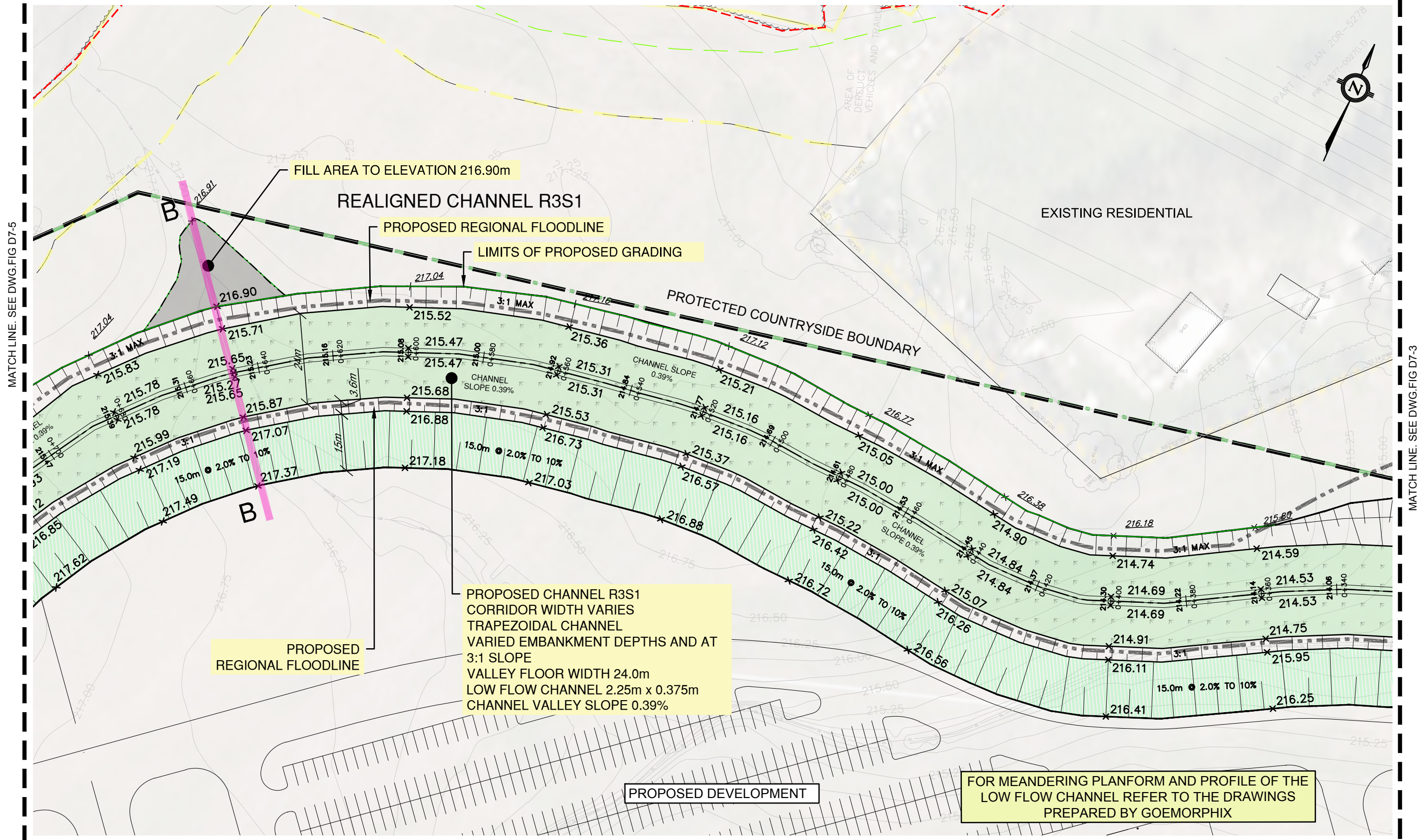


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**ORLANDO - NORTH PORTA**  
**COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY**  
**PRELIMINARY DESIGN OF CHANNEL R3S1**  
**PLAN VIEW 1 OF 3**

SCALE: 1:1000	DATE: APRIL 2022	PROJECT No. <b>17197</b>
DESIGNED BY: E.T	DRAWN BY: E.T.	FIGURE No. <b>D7-3</b>
CHECKED BY: T.D.	CHECKED BY: T.D.	

File : G:\Projects\201717197 - Orlando - North Porta\3\_Drawings\6\_SWM\ACCESS FIGURES\FIG D7-3 to D7-5\Proposed Channel Plans R3S1.dwg, Layout : D7-4 Date: Apr 25, 2022 - 12:32pm, Edit By: emira.iasa



**TYLin**

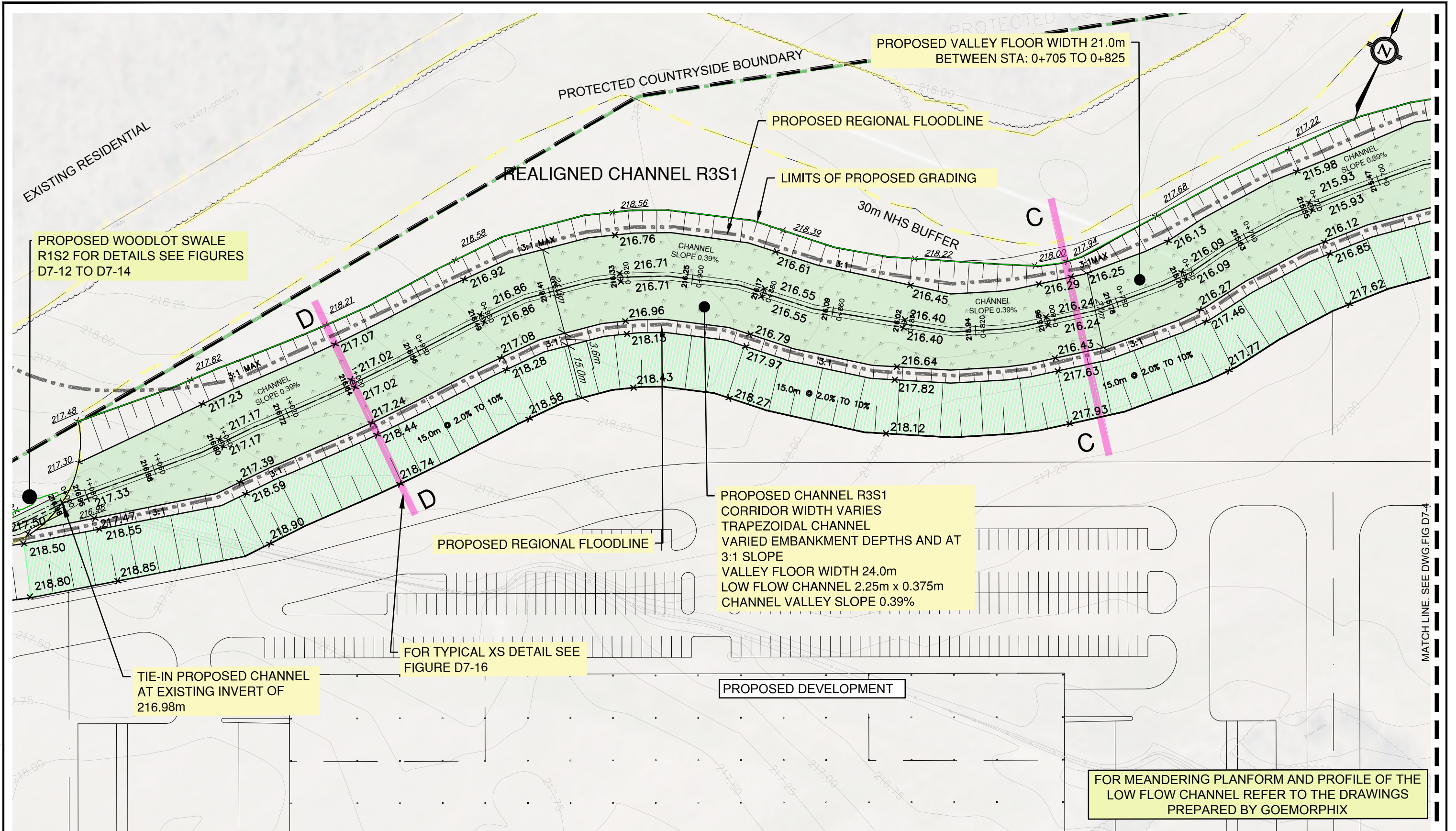
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**ORLANDO - NORTH PORTA**  
**COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY**  
**PRELIMINARY DESIGN OF CHANNEL R3S1**  
**PLAN VIEW 2 OF 3**

SCALE: 1:1000	PROJECT No. 17197
DATE: APRIL 2022	FIGURE No. D7-4
DESIGNED BY: E.T.	DRAWN BY: E.T.
CHECKED BY: T.D.	CHECKED BY: T.D.

File: G:\Projects\201717197 - Orlando - North Porta\3. Drawings\6. SWMM\CESS FIGURES\FIG D7-3 to D7-5 Proposed Channel Plans R3S1.dwg, Layout: D7-5 Date: Apr 25, 2022, 12:32pm, Edit By: emira.ias



PROPOSED WOODLOT SWALE R1S2 FOR DETAILS SEE FIGURES D7-12 TO D7-14

PROPOSED VALLEY FLOOR WIDTH 21.0m BETWEEN STA: 0+705 TO 0+825

REALIGNED CHANNEL R3S1

PROPOSED REGIONAL FLOODLINE

LIMITS OF PROPOSED GRADING

30m NHS BUFFER

CHANNEL SLOPE 0.39%

CHANNEL SLOPE 0.39%

CHANNEL SLOPE 0.39%

PROPOSED REGIONAL FLOODLINE

PROPOSED CHANNEL R3S1 CORRIDOR WIDTH VARIES TRAPEZOIDAL CHANNEL VARIED EMBANKMENT DEPTHS AND AT 3:1 SLOPE VALLEY FLOOR WIDTH 24.0m LOW FLOW CHANNEL 2.25m x 0.375m CHANNEL VALLEY SLOPE 0.39%

FOR TYPICAL XS DETAIL SEE FIGURE D7-16

TIE-IN PROPOSED CHANNEL AT EXISTING INVERT OF 216.98m

PROPOSED DEVELOPMENT

FOR MEANDERING PLANFORM AND PROFILE OF THE LOW FLOW CHANNEL REFER TO THE DRAWINGS PREPARED BY GOEMORPHIX

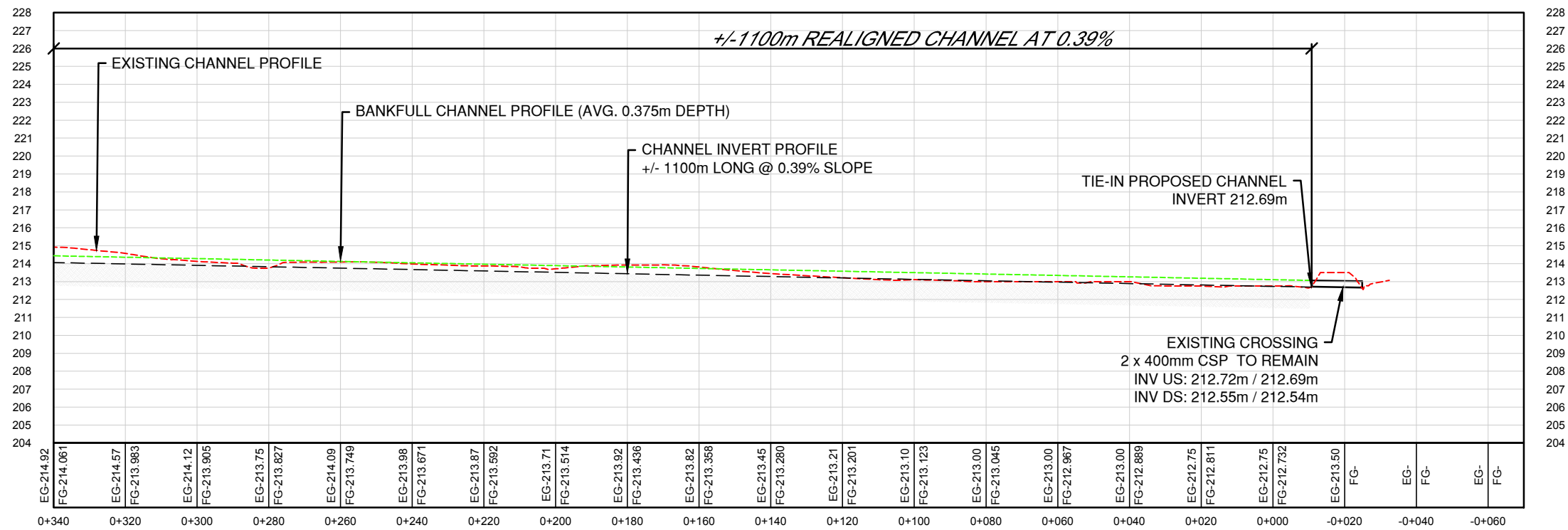
MATCH LINE: SEE DWG.FIG D7-4



ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
PRELIMINARY DESIGN OF CHANNEL R3S1  
PLAN VIEW 3 OF 3

SCALE: 1:1000	PROJECT No. 17197
DATE: APRIL 2022	FIGURE No. D7-5
DESIGNED BY: E.T.	DRAWN BY: E.T.
CHECKED BY: T.D.	CHECKED BY: T.D.

File: C:\Projects\201717197 - Orlando - North Porta3. Drawings\6. SWM\ACCESS FIGURES\FIG D7-6 to D7-8 Channel Profiles R3S1.dwg Layout: FIG D7-6 Date: Apr 14, 2022 - 9:54am. Edit By: ermirra.lasi

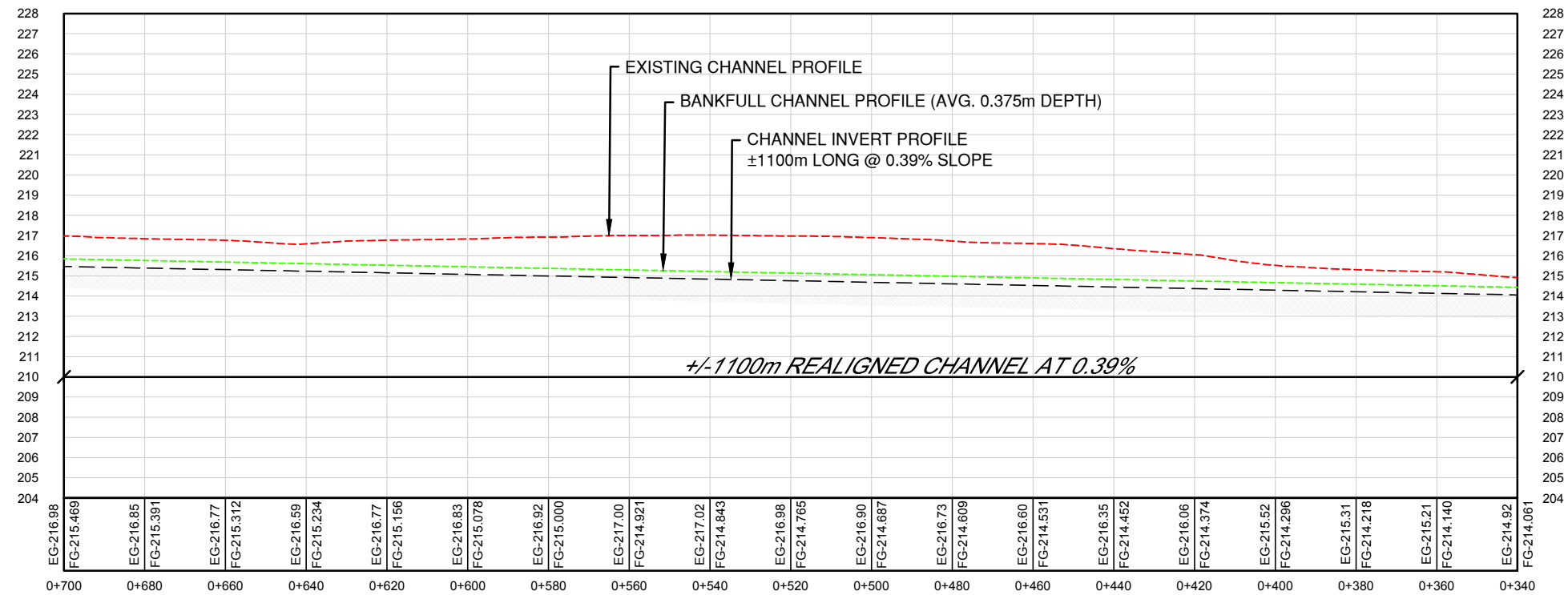


**PROFILE VIEW**  
SCALE H 1:1500  
V 1:300



**ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
PRELIMINARY DESIGN OF CHANNEL R3S1  
PROFILE VIEW 1 OF 3**

SCALE: AS SHOWN		PROJECT No.
DATE: APRIL 2022		17197
DESIGNED BY: E.T	DRAWN BY: E.T.	FIGURE No.
CHECKED BY: T.D.	CHECKED BY: T.D.	D7-6



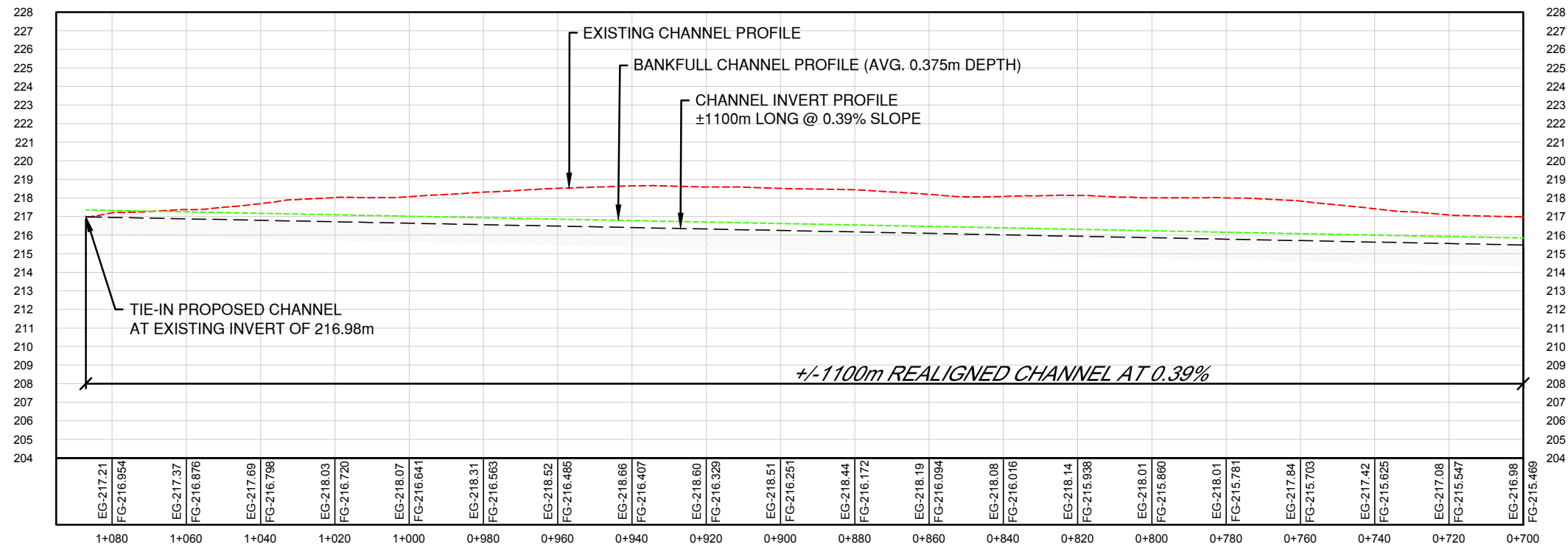
**PROFILE VIEW**  
SCALE H 1:1500  
V 1:300

ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
PRELIMINARY DESIGN OF CHANNEL R3S1  
PROFILE VIEW 2 OF 3



SCALE: AS SHOWN		PROJECT No.
DATE: APRIL 2022		17197
DESIGNED BY: E.T	DRAWN BY: E.T.	FIGURE No.
CHECKED BY: T.D.	CHECKED BY: T.D.	D7-7

File: C:\Projects\201717197 - Orlando - North Porta\3. Drawings\6. SWM\ACCESS FIGURES\FIG D7-6 to D7-8 Channel Profiles R3S1.dwg Layout: FIG D7-8 Date: Apr 14, 2022 - 10:09am. Edit By: erminia.tasi



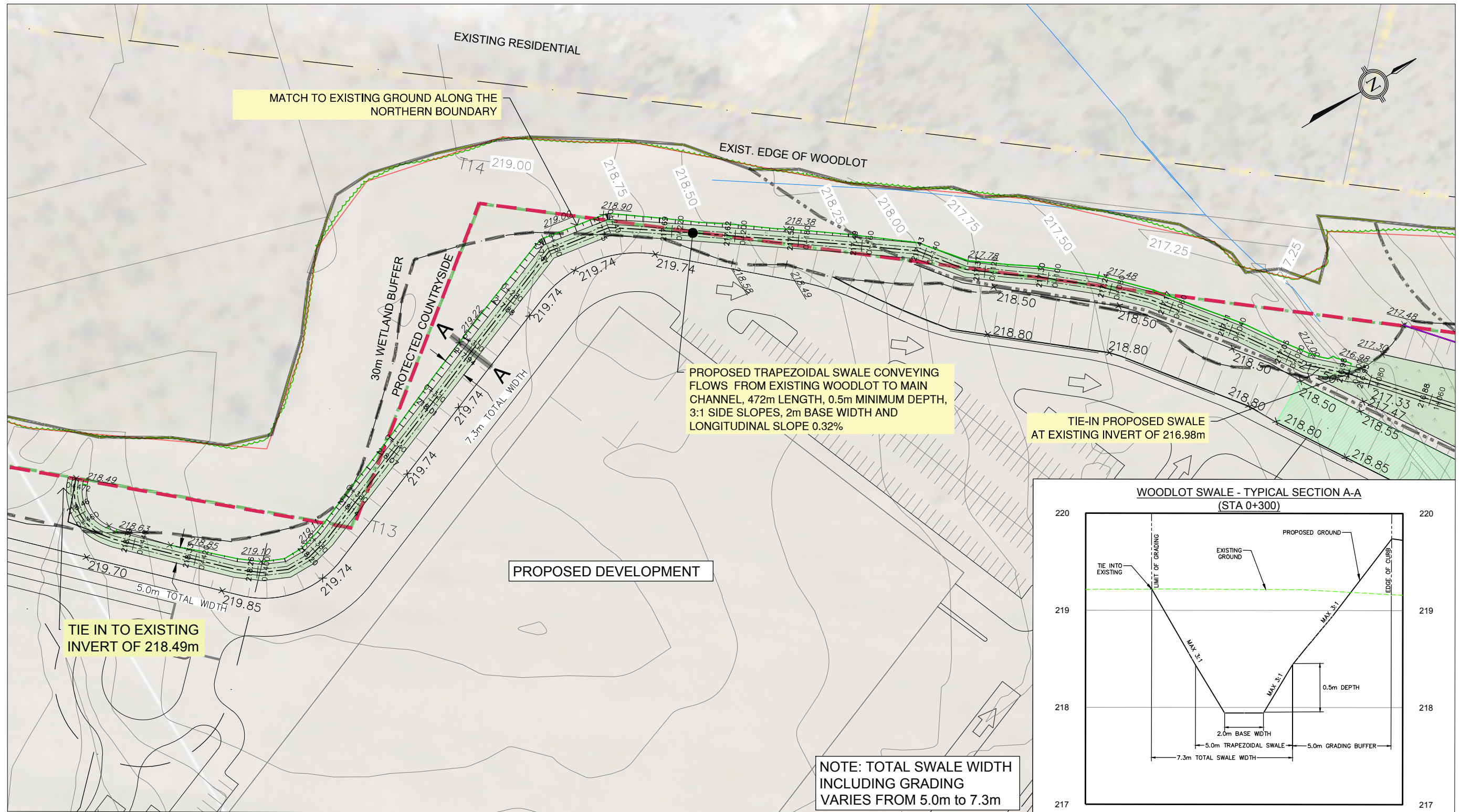
**PROFILE VIEW**  
SCALE H 1:1500  
V 1:300

**ORLANDO - NORTH PORTA**  
**COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY**  
**PRELIMINARY DESIGN OF CHANNEL R3S1**  
**PROFILE VIEW 3 OF 3**



SCALE: AS SHOWN		PROJECT No.
DATE: APRIL 2022		17197
DESIGNED BY: E.T	DRAWN BY: E.T.	FIGURE No.
CHECKED BY: T.D.	CHECKED BY: T.D.	D7-8

File: G:\Projects\2017\17197 - Orlando - North Porta\3. Drawings\6. SWM\ACCESS FIGURES\FIG D7-9 Woodlot Swale R1S2\_Plan.dwg. Layout: D7-9 Date: Apr 25, 2022 - 2:06pm. Edit By: emir.iasi

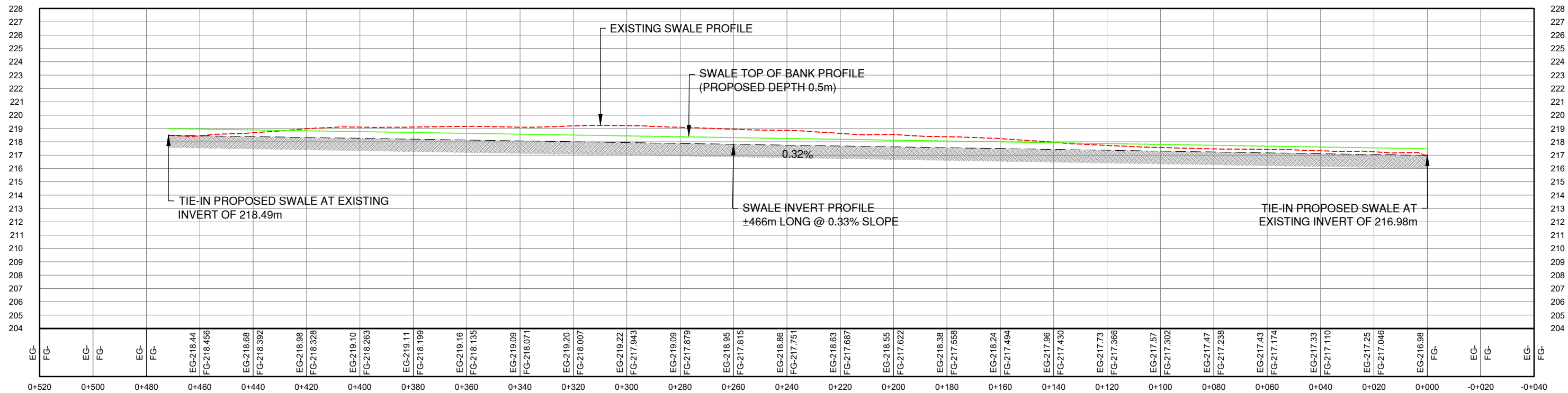


**ORLANDO - NORTH PORTA**  
**COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY**  
**PRELIMINARY DESIGN OF WOODLOT SWALE R1S2**  
**PLAN VIEW 1 OF 1**

SCALE: 1:1250	PROJECT No. 17197
DATE: APRIL 2022	FIGURE No. D7-9
DESIGNED BY: E.T.	DRAWN BY: E.T.
CHECKED BY: T.D.	CHECKED BY: T.D.



File: C:\Projects\201717197 - Orlando - North Porta\3. Drawings\6. SWM\ACCESS FIGURES\FIG D7-10 Woodlot Swale R1S2\_Profile.dwg, Layout: FIG D7-10 Date: Apr 14, 2022 - 11:49am, Edit By: emir.iasi



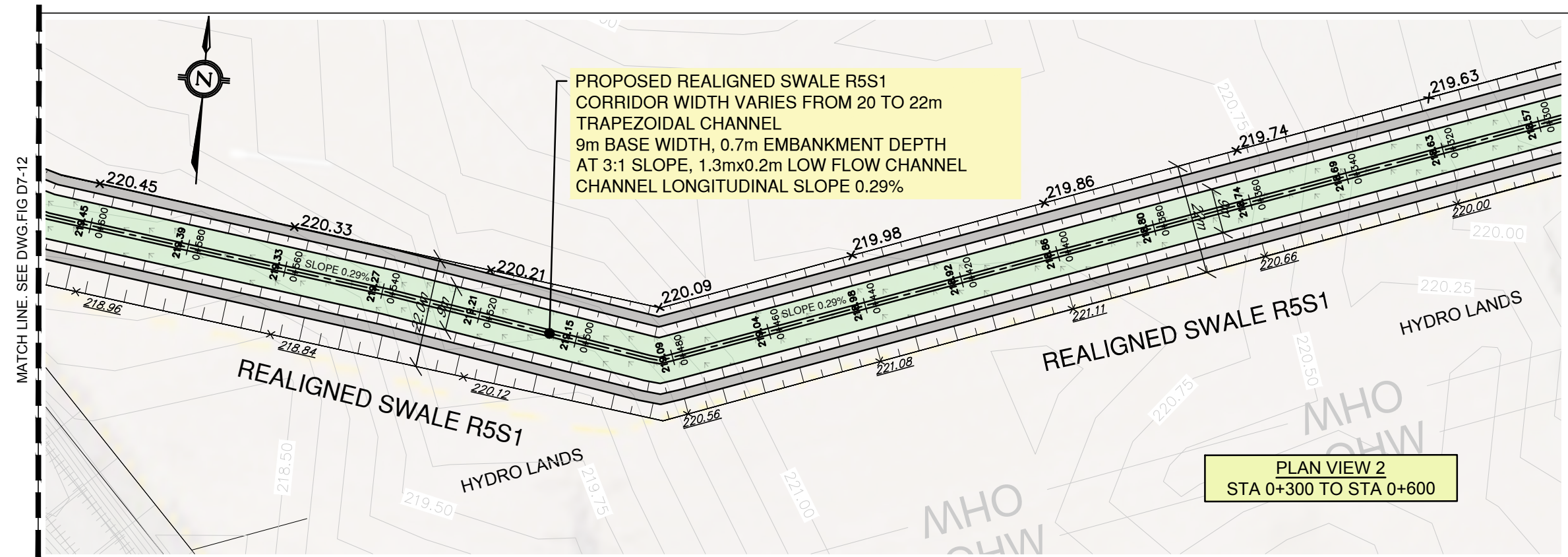
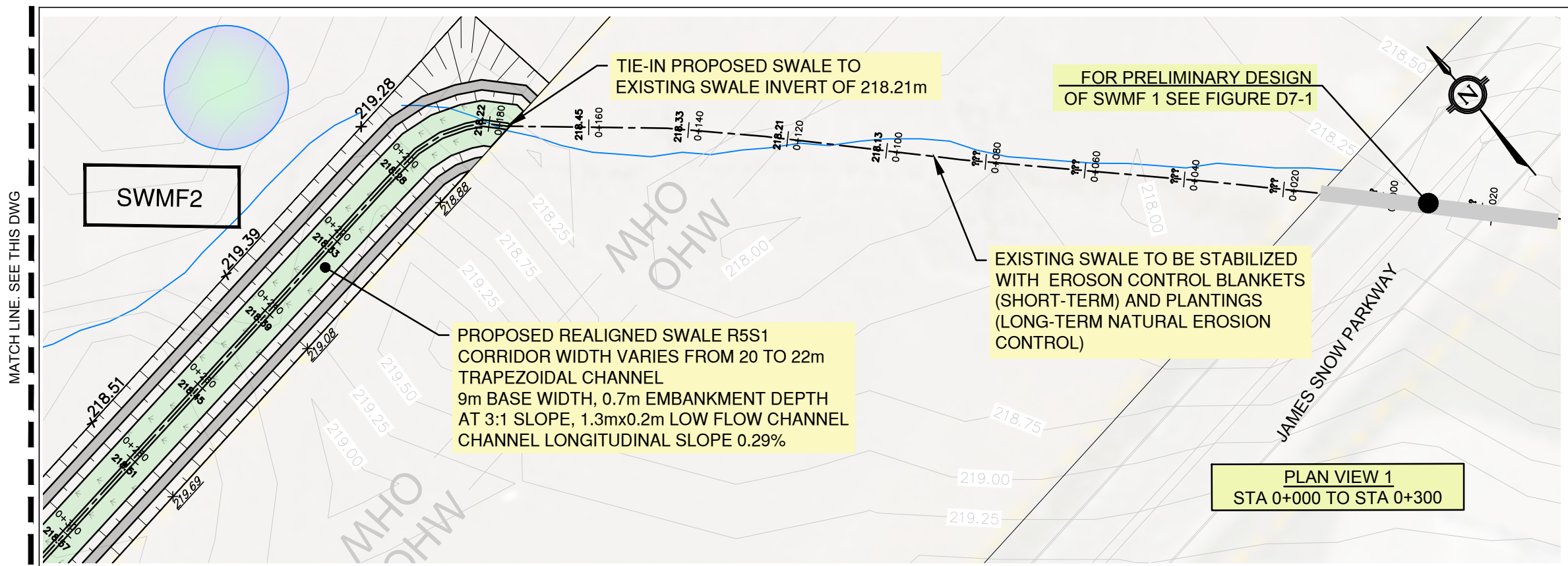
**PROFILE VIEW**  
SCALE H 1:1500  
V 1:300



**ORLANDO - NORTH PORTA**  
**COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY**  
**PRELIMINARY DESIGN OF CHANNEL R1S2**  
**PROFILE VIEW 1 OF 1**

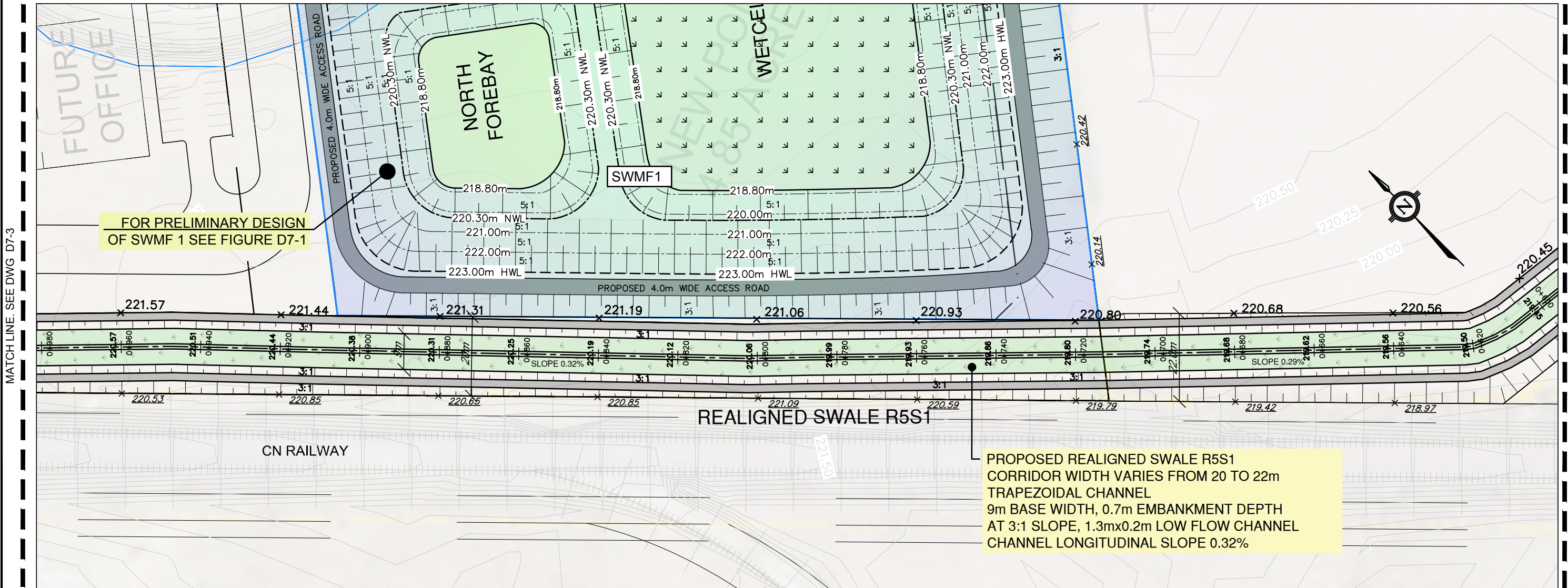
SCALE: AS SHOWN		PROJECT No.
DATE: APRIL 2022		17197
DESIGNED BY: E.T.	DRAWN BY: E.T.	FIGURE No.
CHECKED BY: T.D.	CHECKED BY: T.D.	D7-10

File : G:\Projects\2017\17197 - Orlando - North Porta\3\_Drawing\6\_SWM\ACCESS FIGURES\FIG D7-11 to D7-13\Proposed CN Swale Plans (R5S1).dwg, Layout : D7-11 Date : Apr 25, 2022 - 2:21pm, Edit By : ermira.tasi



ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
PRELIMINARY DESIGN OF CN SWALE R5S1  
PLAN VIEW 1 OF 3

SCALE: 1:1000	PROJECT No. 17197
DATE: APRIL 2022	FIGURE No. D7-11
DESIGNED BY: E.T.	DRAWN BY: E.T.
CHECKED BY: T.D.	CHECKED BY: T.D.

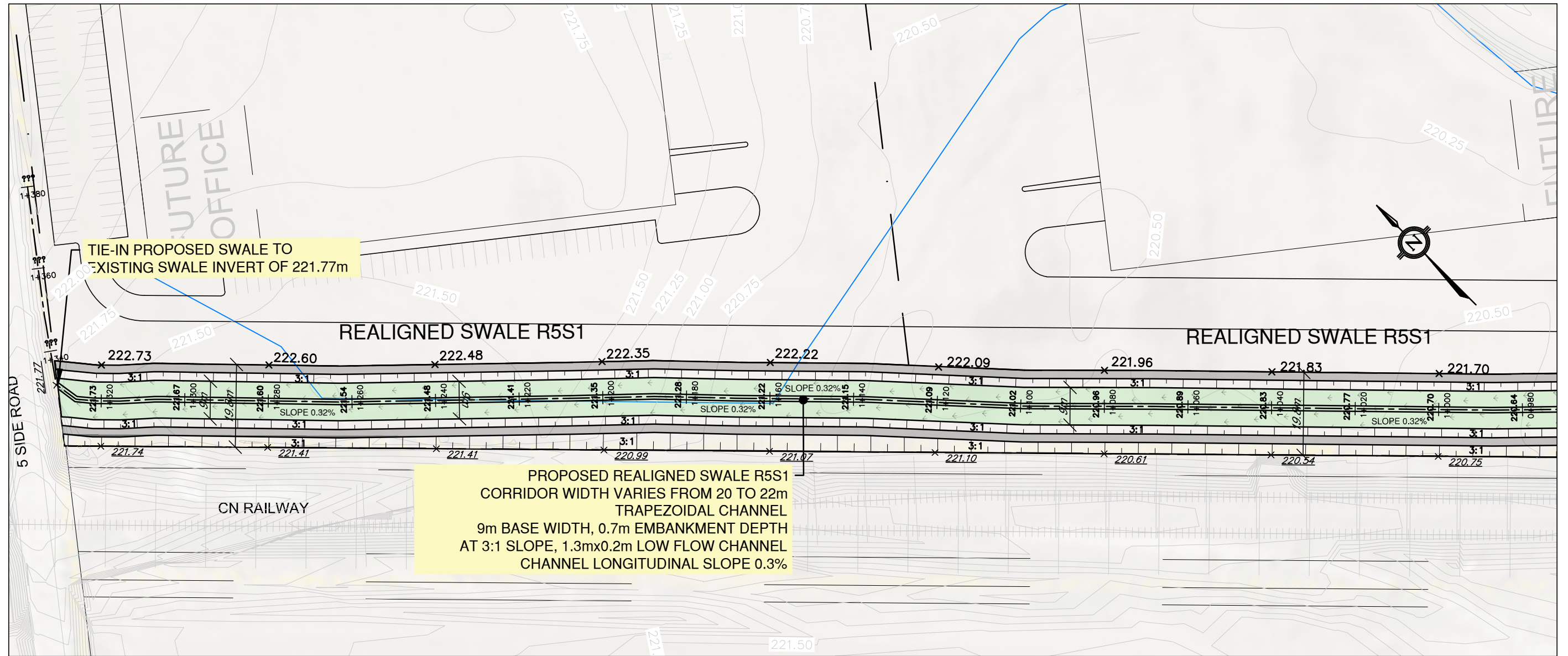


FOR PRELIMINARY DESIGN OF SWMF 1 SEE FIGURE D7-1

PROPOSED REALIGNED SWALE R5S1  
 CORRIDOR WIDTH VARIES FROM 20 TO 22m  
 TRAPEZOIDAL CHANNEL  
 9m BASE WIDTH, 0.7m EMBANKMENT DEPTH  
 AT 3:1 SLOPE, 1.3mx0.2m LOW FLOW CHANNEL  
 CHANNEL LONGITUDINAL SLOPE 0.32%

PLAN VIEW 3  
 STA 0+600 TO STA 0+980

File : G:\Projects\2017\17197 - Orlando - North Porta\3. Drawings\6. SWM\CESS FIGURES\FIG D7-11 to D7-13 Proposed CN Swale Plans (R5S1).dwg. Layout : D7-13 Date : Apr 25, 2022 - 11:59am. Edit By : amir.alsi



PLAN VIEW 4  
STA 0+980 TO STA 1+320

MATCH LINE - SEE DWG.FIG D7-12

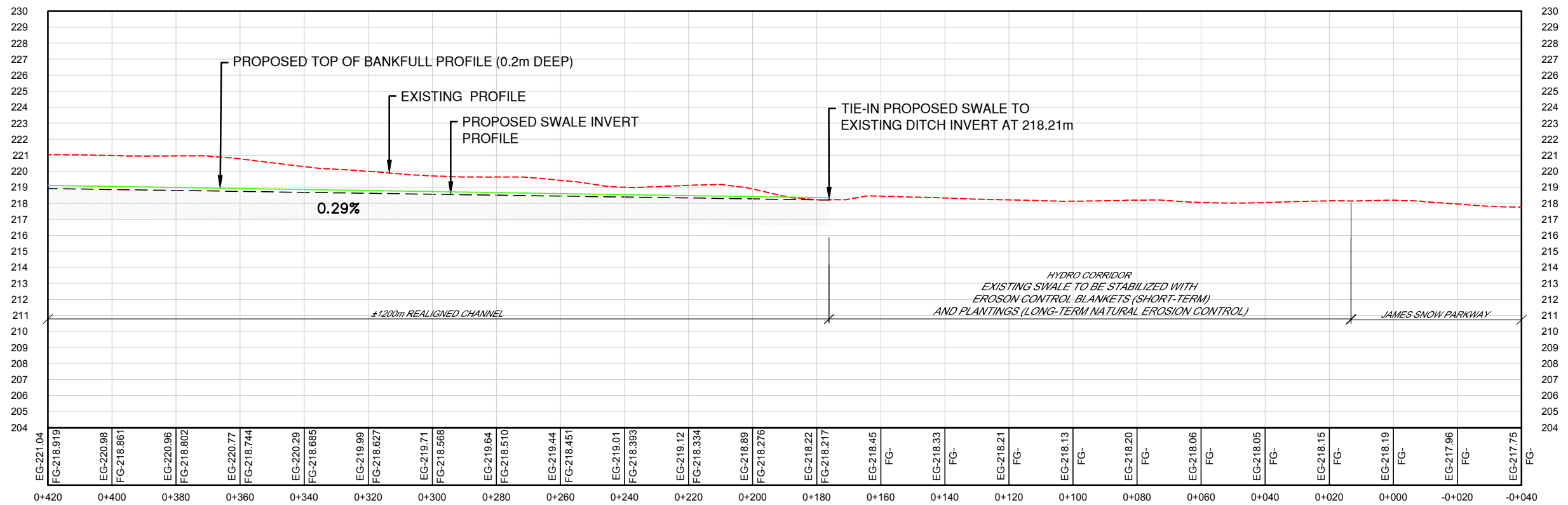


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ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
PRELIMINARY DESIGN OF CN SWALE R5S1  
PLAN VIEW 3 OF 3

SCALE: 1:1000	PROJECT No. 17197
DATE: APRIL 2022	FIGURE No. D7-13
DESIGNED BY: E.T.	DRAWN BY: E.T.
CHECKED BY: T.D.	CHECKED BY: T.D.

File : C:\Projects\2017\17197 - Orlando - North Porta\3. Drawings\6. SWM\CESS FIGURES\FIG D7-14 to D7-15 Proposed CN Swale Profiles (R5S1).dwg. Layout : FIG D7-14 Date : Apr 25, 2022 - 2:35pm. Edit By : ermiratasi



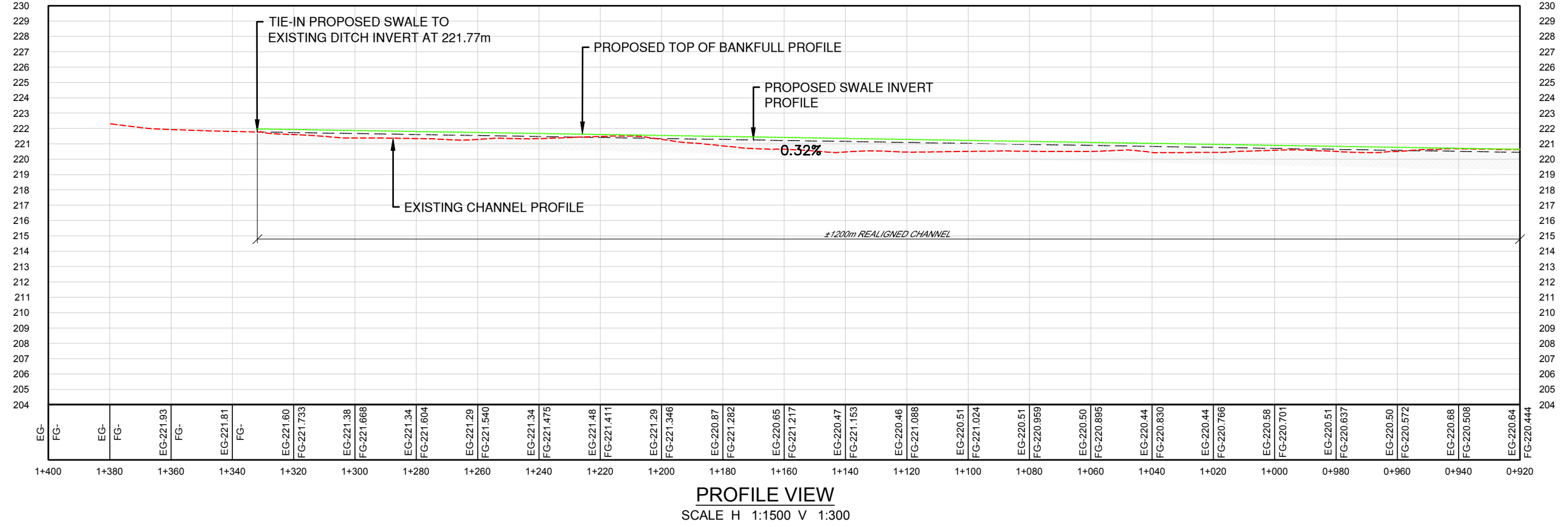
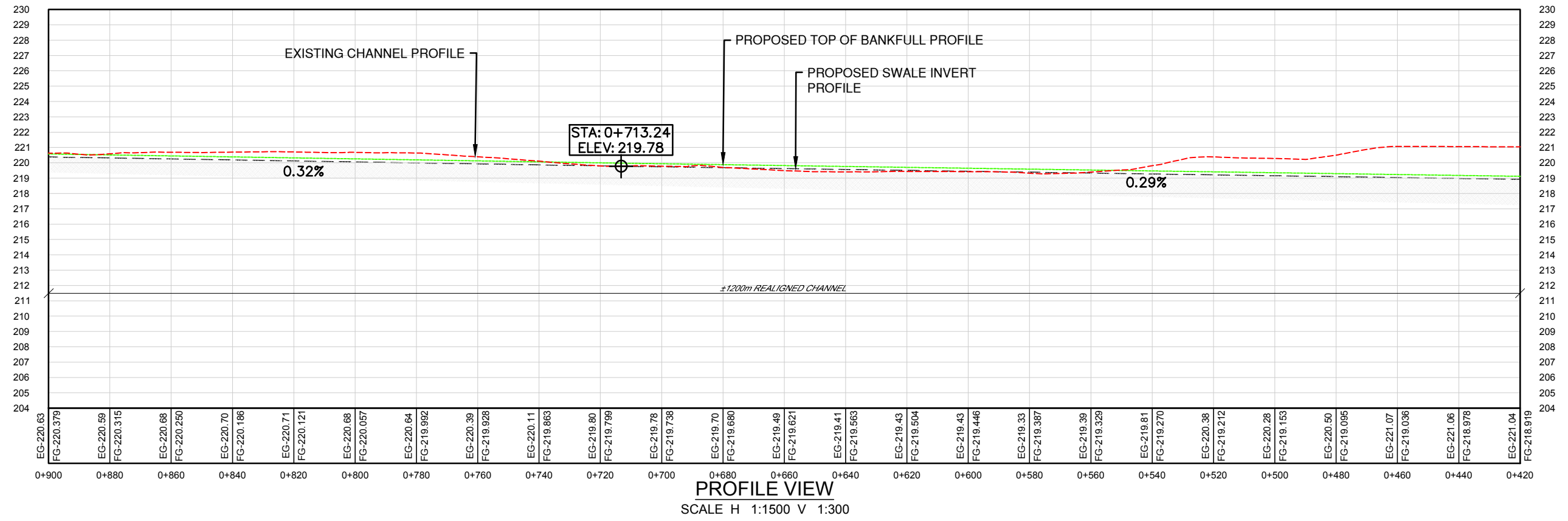
**PROFILE VIEW**  
SCALE H 1:1500  
V 1:300



ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
PRELIMINARY DESIGN OF CN SWALE R5S1  
PROFILE VIEW 1 OF 2

SCALE: AS SHOWN		PROJECT No.
DATE: APRIL 2022		17197
DESIGNED BY: E.T.	DRAWN BY: E.T.	FIGURE No.
CHECKED BY: T.D.	CHECKED BY: T.D.	D7-14

File : G:\Projects\2017\17197 - Orlando - North Porta3. Drawings\6. SWM\CESS FIGURES\FIG D7-14 to D7-15 Proposed CN Swale Profiles (R5S1).dwg. Layout : FIG D7-15 Date : Apr 25, 2022 - 12:03pm. Edit By : ermira.tasi



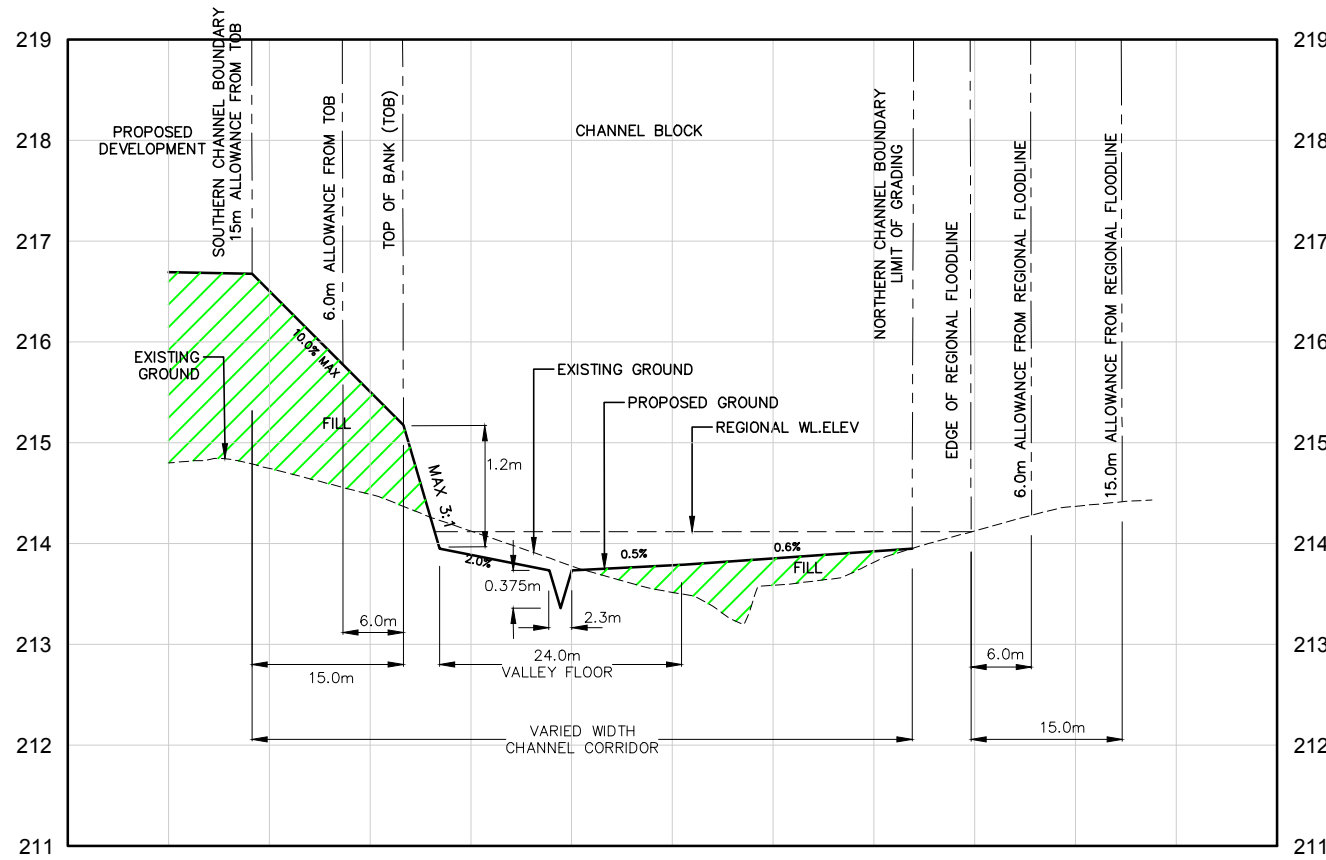
**ORLANDO - NORTH PORTA**  
**COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY**  
**PRELIMINARY DESIGN OF CN SWALE R5S1**  
**PROFILE VIEW 2 OF 2**

SCALE: AS SHOWN		PROJECT No.
DATE: APRIL 2022		17197
DESIGNED BY: E.T	DRAWN BY: E.T.	FIGURE No.
CHECKED BY: T.D.	CHECKED BY: T.D.	D7-15

File: C:\Projects\201717197 - Orlando - North Porta3. Drawings\6. SWM\ACCESS FIGURES\FIG D7-16-17 Channel R3S1 Typical Section.dwg, Layout: D7-16 Date: Apr 22, 2022 - 4:31pm, Edit By: erminiasi

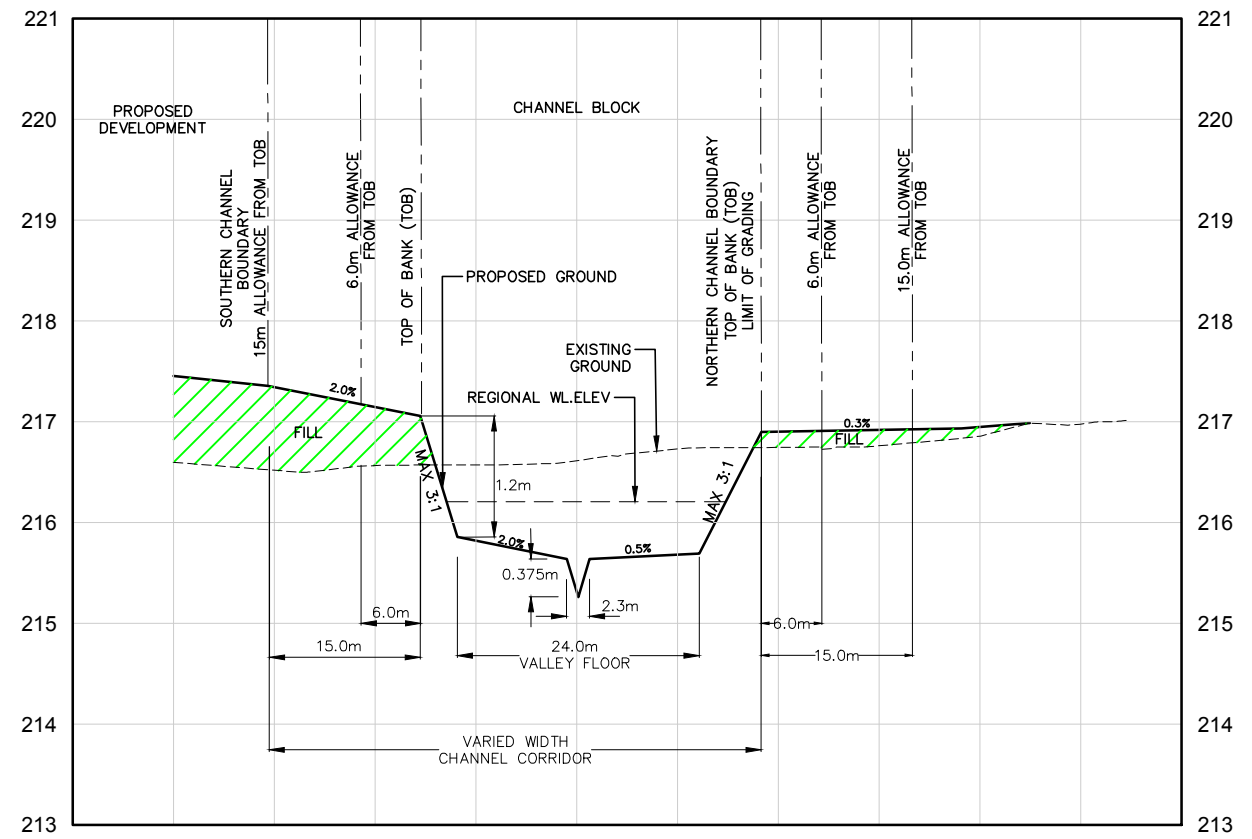
**SECTION A-A**

HOR SCALE: 1:750  
VER SCALE 1:75



**SECTION B-B**

HOR SCALE: 1:750  
VER SCALE 1:75



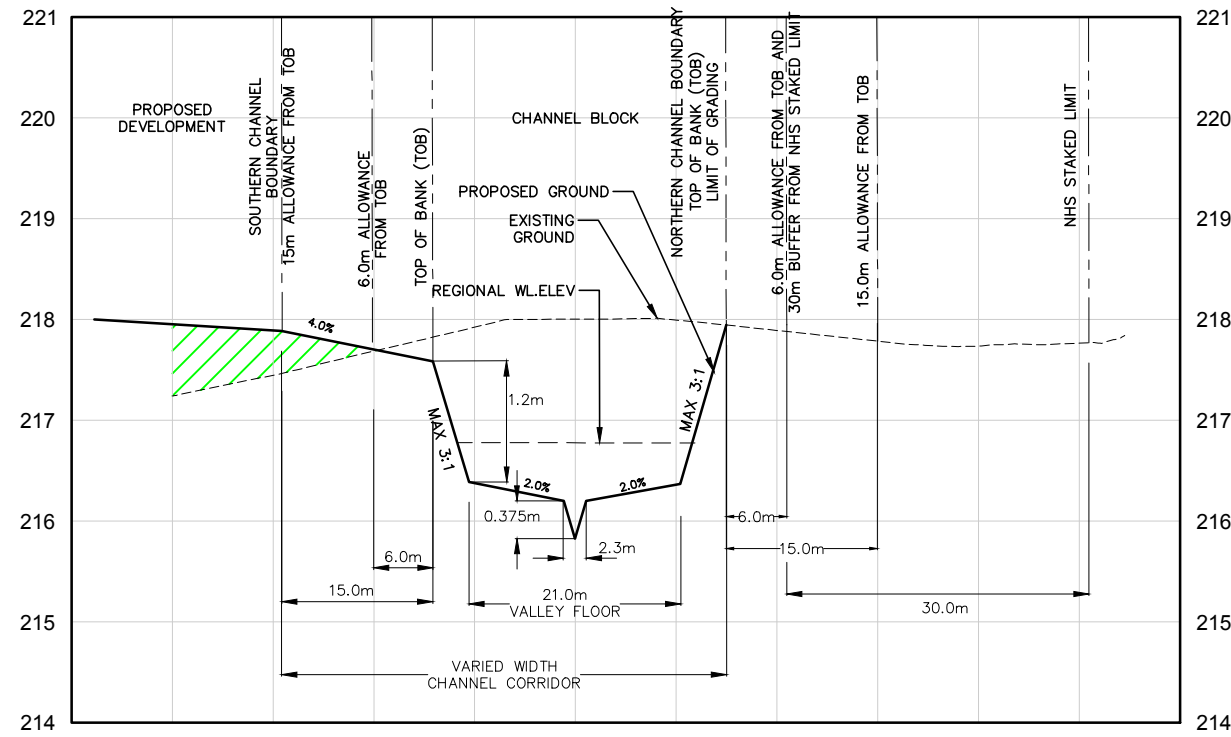
**ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
PRELIMINARY DESIGN OF CHANNEL R3S1  
CROSS SECTION A-A AND B-B DETAIL**

SCALE: AS SHOWN		PROJECT No.
DATE: APRIL 2022		17197
DESIGNED BY: E.T	DRAWN BY: E.T.	FIGURE No.
CHECKED BY: T.D.	CHECKED BY: T.D.	D7-16

File: C:\Projects\201717197 - Orlando - North Porta\3. Drawings\6. SWM\CCESS FIGURES\FIG D7-16-17 Channel R3S1 Typical Section.dwg, Layout: D7-17 Date: Apr 24, 2022 - 1:38pm, Edit By: erminia.tasi

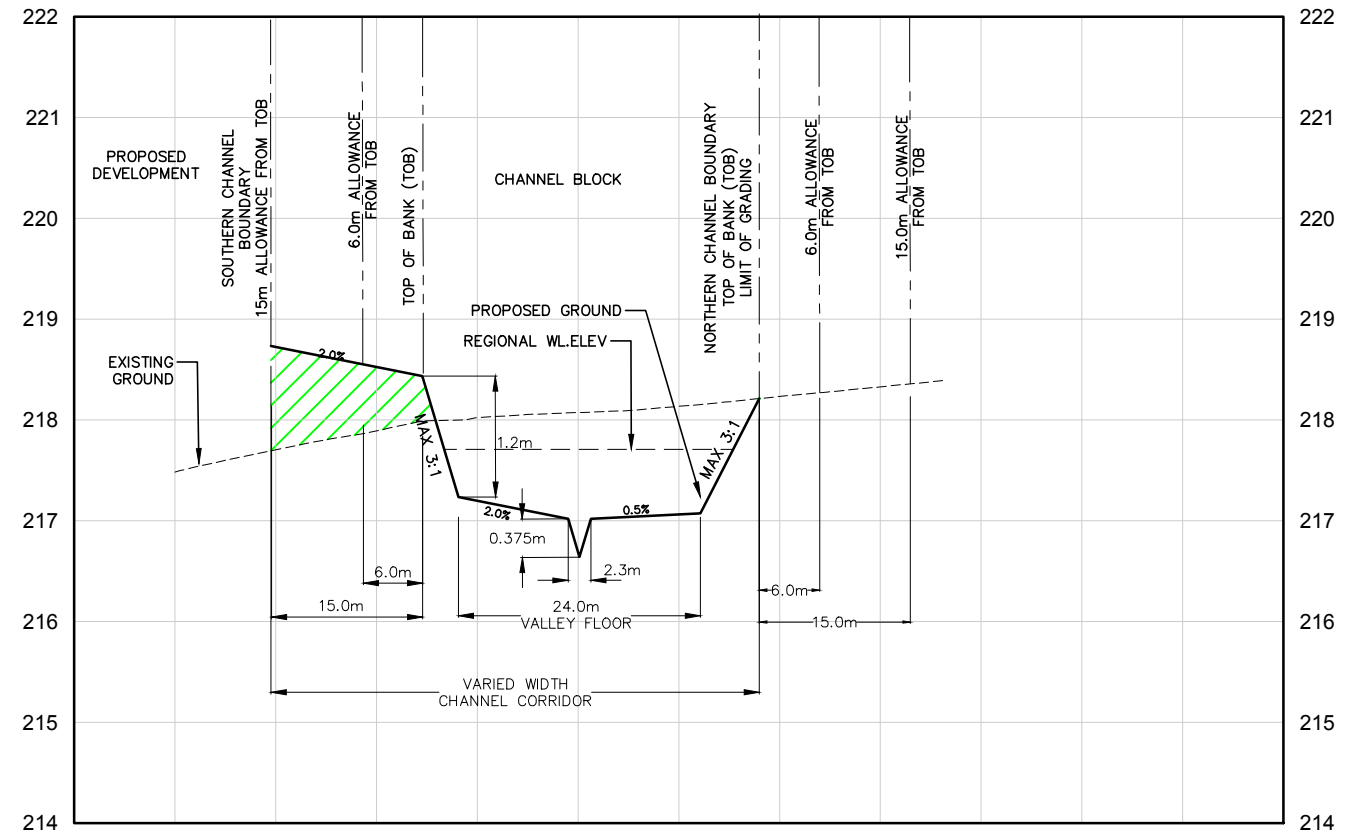
**SECTION C-C**

HOR SCALE: 1:750  
VER SCALE 1:75



**SECTION D-D**

HOR SCALE: 1:750  
VER SCALE 1:75

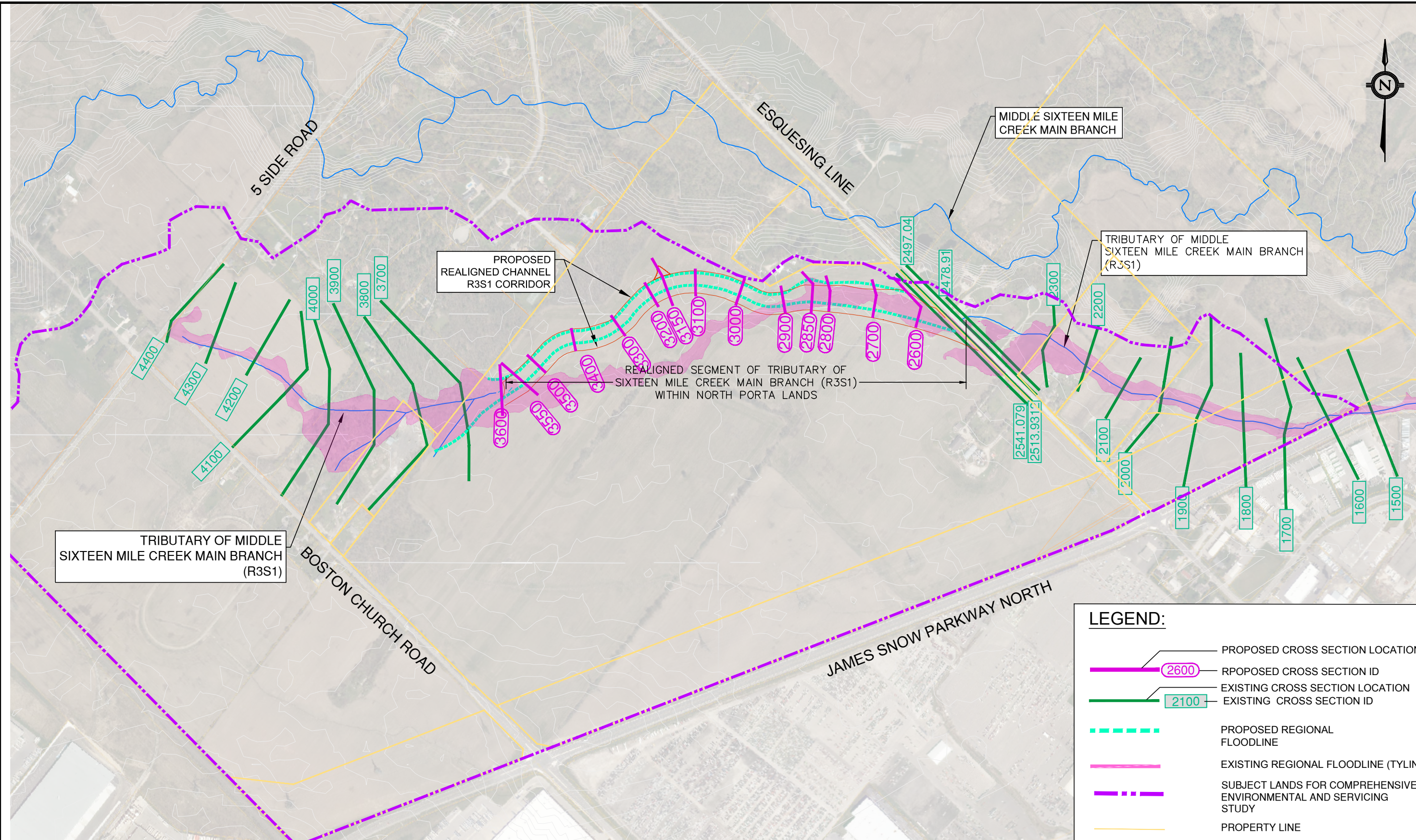


**ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
PRELIMINARY DESIGN OF CHANNEL R3S1  
CROSS SECTION C-C AND D-D DETAIL**

SCALE: AS SHOWN		PROJECT No.
DATE: APRIL 2022		17197
DESIGNED BY: E.T	DRAWN BY: E.T.	FIGURE No.
CHECKED BY: T.D.	CHECKED BY: T.D.	D7-17



File: G:\Projects\201717197 - Orlando - North Porta\3\_Drawings\6\_SWM\CES\FIGURES\FIG D7-18 Proposed Conditions HEC-RAS Model Cross-Section Plan.dwg, Layout: D7-18, Date: Apr 25, 2022, 2:52pm, Edit By: ermira.basi

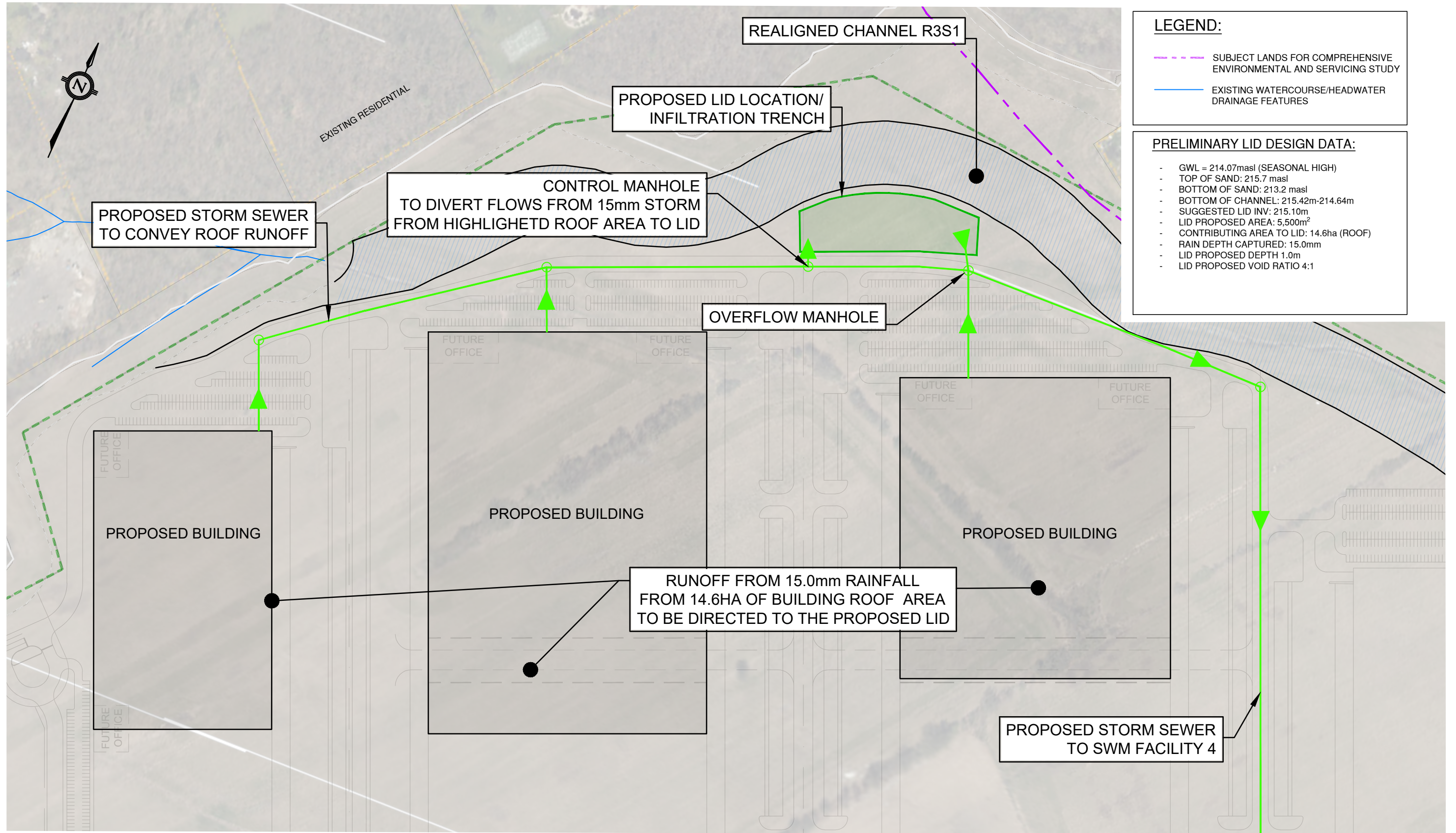


LEGEND:	
	PROPOSED CROSS SECTION LOCATION
	PROPOSED CROSS SECTION ID
	EXISTING CROSS SECTION LOCATION
	EXISTING CROSS SECTION ID
	PROPOSED REGIONAL FLOODLINE
	EXISTING REGIONAL FLOODLINE (TYLIN)
	SUBJECT LANDS FOR COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY
	PROPERTY LINE

**TYLin**  
 8800 Dufferin Street,  
 Suite 200  
 Vaughan, ON  
 L4K 0C5  
 p: 905.738.5700  
 f: 905.738.0065

**ORLANDO - NORTH PORTA  
 COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
 PROPOSED HEC-RAS MODEL CROSS-SECTION PLAN**

SCALE: N.T.S.		PROJECT No.
DATE: APRIL 2022		17197
DESIGNED BY: E.T.	DRAWN BY: E.T.	FIGURE No.
CHECKED BY: T.D.	CHECKED BY: T.D.	D7-18



**LEGEND:**

- - - - - SUBJECT LANDS FOR COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY
- EXISTING WATERCOURSE/HEADWATER DRAINAGE FEATURES

**PRELIMINARY LID DESIGN DATA:**

- GWL = 214.07masl (SEASONAL HIGH)
- TOP OF SAND: 215.7 masl
- BOTTOM OF SAND: 213.2 masl
- BOTTOM OF CHANNEL: 215.42m-214.64m
- SUGGESTED LID INV: 215.10m
- LID PROPOSED AREA: 5,500m<sup>2</sup>
- CONTRIBUTING AREA TO LID: 14.6ha (ROOF)
- RAIN DEPTH CAPTURED: 15.0mm
- LID PROPOSED DEPTH 1.0m
- LID PROPOSED VOID RATIO 4:1

File : G:\Projects\201717197 - Orlando - North Porta\3\_Drawings\6\_SWM\ACCESS FIGURES\FIG D7-19 LID Concept.dwg, Layout : FIG D 7-18 Date : Apr 22, 2022 - 4:40pm, Edit By : tony.dang

8800 Dufferin Street,  
Suite 200  
Vaughan, ON  
L4K 0C5  
p: 905.738.5700  
f: 905.738.0065

**ORLANDO - NORTH PORTA  
COMPREHENSIVE ENVIRONMENTAL AND SERVICING STUDY  
LID CONCEPT**

SCALE: 1:3000	PROJECT No. 17197
DATE: APRIL 2022	
DESIGNED BY: E.T.	DRAWN BY: E.T.
CHECKED BY: T.D.	CHECKED BY: T.D.
	FIGURE No. D-19

## *Appendix D2*

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### *Hydrology and Stormwater Management*



**PCSWMM Existing Conditions Input Parameters**

PROJECT: Orlando North Porta  
 PROJECT #: 17197  
 DATE: April-22  
 MUNICIPALITY: Town of Milton

**Subcatchments**

Name	Outlet	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Imperv. (%)	N Imperv	N Perv	Dstore Imperv (mm)	Dstore Perv (mm)	Suction Head (mm)	Conductivity (mm/hr)	Initial Deficit (frac.)
101-1	J1-1	21.1	187	1123.002	0.563	6.867	0.013	0.25	2	5	256	4.28	0.26
101-2	J1-1	7.2	249	289	1.827	4.888	0.013	0.25	2	5	287	0.82	0.23
101-3	J1-2A	25.4	277	916.999	0.504	0.08	0.013	0.25	2	5	285	1.04	0.23
101-4	J1-3	32.0	293	1090	0.504	2.457	0.013	0.25	2	5	273	2.37	0.24
101-5	J1-3A	16.3	219	744	0.602	3.565	0.013	0.25	2	5	251	4.94	0.26
101-6	J1-3A	16.6	153	1082.999	0.384	4.041	0.013	0.25	2	5	259	4.04	0.25
101-7	J1-4A	7.4	155	476	1.333	0.535	0.013	0.25	2	5	262	3.65	0.25
101-8	J1-5	10.1	263	384.001	0.152	10.31	0.013	0.25	2	5	289	0.59	0.23
102-1	J2-1	10.9	265	411.999	0.76	0	0.013	0.25	2	5	290	0.51	0.23
102-2	J2-1	17.8	277	640	0.465	0	0.013	0.25	2	5	290	0.51	0.23
102-3	J2-1A	33.0	337	979	0.465	0.155	0.013	0.25	2	5	258	4.06	0.25
102-4	J2-2	3.6	102	349.001	0.52	4.576	0.013	0.25	2	5	250	5.00	0.26
103-1	OF-103	5.5	146	377	0.748	3.476	0.013	0.25	2	5	250	5.00	0.26
103-2	J3-1A	13.6	326	418	0.441	4.074	0.013	0.25	2	5	250	5.00	0.26
103-3	J3-2A	17.4	256	680.001	0.321	0	0.013	0.25	2	5	272	2.54	0.24
103-4	J3-3	6.3	175	360	0.473	15.851	0.013	0.25	2	5	290	0.51	0.23
104-1	OF-104	4.8	214	226	2.262	0	0.013	0.25	2	5	265	3.36	0.25

**Conduits**

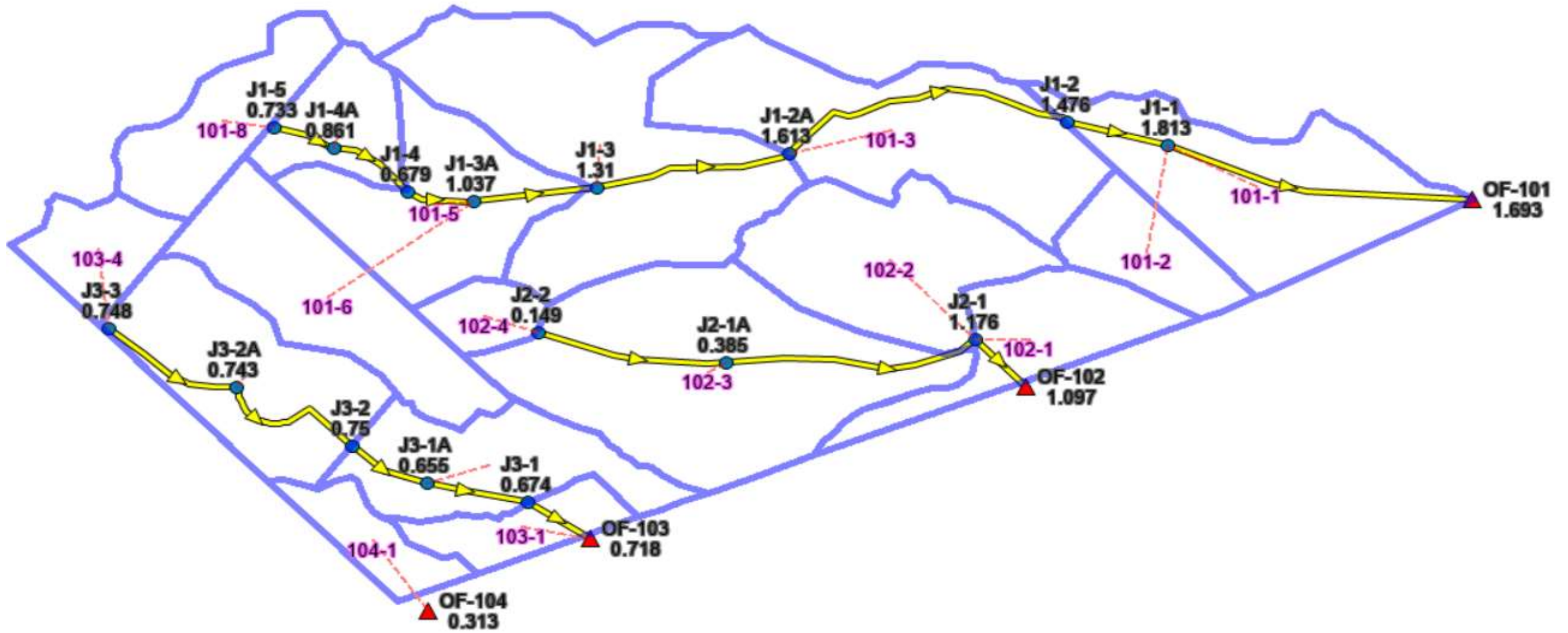
Name	Inlet Node	Outlet Node	Length (m)	Roughness	Avg. Loss Coeff.	Seepage Rate (mm/hr)	Cross-Section	Transect	Slope (m/m)
C1	OF-101	OF-101A	250	0.01	0.2	0.5	IRREGULAR	C1	0.0078
C1-1	J1-1	OF-101	684.75	0.01	0.2	0.5	IRREGULAR	C1-1	0.00424
C1-2	J1-2	J1-1	225.654	0.01	0.2	0.5	IRREGULAR	C1-2	0.0043
C1-3_1	J1-3	J1-2A	430.984	0.01	0.2	0.5	IRREGULAR	C1-3	0.00382
C1-3_2	J1-2A	J1-2	673.035	0.01	0.2	0.5	IRREGULAR	C1-3	0.00382
C1-4_1	J1-4	J1-3A	151.447	0.01	0.2	0.5	IRREGULAR	C1-4	0.00504
C1-4_2	J1-3A	J1-3	270.952	0.01	0.2	0.5	IRREGULAR	C1-4	0.00504
C1-5_1	J1-5	J1-4A	141.637	0.01	0.2	0.5	IRREGULAR	C1-5	0.00534
C1-5_2	J1-4A	J1-4	196.91	0.01	0.2	0.5	IRREGULAR	C1-5	0.00535
C2-1	J2-1	OF-102	159.907	0.01	0.2	0.5	IRREGULAR	C2-1	0.00544
C2-2_1	J2-2	J2-1A	418.518	0.01	0.2	0.5	IRREGULAR	C2-2	0.00396
C2-2_2	J2-1A	J2-1	565.369	0.01	0.2	0.5	IRREGULAR	C2-2	0.00396
C3-1	J3-1	OF-103	161.267	0.01	0.2	0.5	IRREGULAR	C3-1	0.00056
C3-2_1	J3-2	J3-1A	189.784	0.01	0.2	0.5	IRREGULAR	C3-2_2	0.0043
C3-2_3	J3-3	J3-2A	325.284	0.01	0.2	0.5	IRREGULAR	C3-2_3	0.0026
C3-2_4	J3-2A	J3-2	348.175	0.01	0.2	0.5	IRREGULAR	C3-2_3	0.0026
C3-2_5	J3-1A	J3-1	223.527	0.01	0.2	0.5	IRREGULAR	C3-2_5	0.004

**Junctions & Outfalls**

Name	Invert Elev. (m)	Rim Elev. (m)
J1-1	212.02	212.02
J1-2	212.99	212.99
J1-2A	215.563	215.563
J1-3	217.21	217.21
J1-3A	218.576	218.576
J1-4	219.34	219.34
J1-4A	220.393	220.393
J1-5	221.15	221.15
J2-1	214.63	214.63
J2-1A	216.871	216.871
J2-2	218.53	218.53
J3-1	218.29	218.29
J3-1A	219.183	219.183
J3-2	220	220
J3-2A	220.905	220.905
J3-3	221.75	221.75
OF-101	209.12	209.12

**PCSWMM Existing Conditions Model Schematic**

PROJECT: Orlando North Porta  
PROJECT #: 17197  
DATE: April-22  
MUNICIPALITY: Town of Milton



**PCSWMM Proposed Conditions Input Parameters**

PROJECT: Orlando North Porta  
 PROJECT #: 17197  
 DATE: April-22  
 MUNICIPALITY: Town of Milton

**Subcatchments**

Name	Outlet	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Imperv. (%)	N Imperv	N Perv	Dstore Imperv (mm)	Dstore Perv (mm)	Suction Head (mm)	Conductivity (mm/hr)	Initial Deficit (frac.)
101-4	J1-3A	17.33	233	744	0.60	3.57	0.013	0.25	2	5	250	4.95	0.26
101-5	J1-4A	7.23	152	476	1.33	0.54	0.013	0.25	2	5	262	3.71	0.25
201-1	J1-1	21.05	187	1123	0.56	6.87	0.013	0.25	2	5	256	4.28	0.26
201-2	J1-2	77.51	388	2000	0.30	80.81	0.013	0.25	2	5	272	2.48	0.24
201-3	J1-2A	29.00	175	1654	0.50	2.00	0.013	0.25	2	5	282	1.43	0.24
201-4	J1-7	4.21	127	331	0.50	85.00	0.013	0.25	2	5	272	2.48	0.24
201-7	J1-5	10.09	263	384	0.15	10.31	0.013	0.25	2	5	289	0.59	0.23
201-8	J1-6	2.09	26	800	0.50	10.00	0.013	0.25	2	5	290	0.51	0.23
201-9	J1-2	0.64	36	176	0.50	100.00	0.013	0.25	2	5	290	0.51	0.23
202-1	OF-102	6.61	618	107	0.76	0.00	0.013	0.25	2	5	290	0.53	0.23
202-2	OF-102	6.09	162	375	0.46	0.00	0.013	0.25	2	5	267	3.05	0.25
202-3	OF-102	0.33	27	121	0.50	100.00	0.013	0.25	2	5	276	2.07	0.24
202-5	OF-102	0.76	26	292	0.50	100.00	0.013	0.25	2	5	288	0.71	0.23
202-6	OF-102	1.62	152	107	0.50	0.00	0.013	0.25	2	5	290	0.51	0.23
202-7	OF-102	0.20	29	68	0.50	100.00	0.013	0.25	2	5	290	0.51	0.23
203-0	J3-1	4.95	131	377	0.75	4.00	0.013	0.25	2	5	250	5.00	0.26
203-1	J3-2	3.61	36	1000	0.44	5.00	0.013	0.25	2	5	274	2.26	0.24
203-2	J3-1	1.25	125	100	0.50	10.00	0.013	0.25	2	5	250	5.00	0.26
203-3	J3-1	13.94	197	708	0.30	79.00	0.013	0.25	2	5	250	5.00	0.26
203-4	J3-2	28.73	265	1084	0.30	79.00	0.013	0.25	2	5	266	3.23	0.25
203-5	J3-3	6.28	174	360	0.47	15.85	0.013	0.25	2	5	290	0.51	0.23
203-6	J3-2	1.60	27	600	0.30	80.00	0.013	0.25	2	5	253	4.67	0.26
203-7	J3-1	1.75	29	600	0.30	80.00	0.013	0.25	2	5	253	4.67	0.26
204-1	OF-104	2.08	189	110	0.50	4.00	0.013	0.25	2	5	272	2.48	0.24

**PCSWMM Proposed Conditions Input Parameters**

PROJECT: Orlando North Porta  
 PROJECT #: 17197  
 DATE: April-22  
 MUNICIPALITY: Town of Milton

**Conduits**

Name	Inlet Node	Outlet Node	Length (m)	Avg. Loss Coeff.	Seepage Rate (mm/hr)	Cross-Section	Geom1 (m)	Geom2 (m)	Barrels	Transect	Slope (m/m)
C1	OF-101	OF-101A	250	0.2	0.5	IRREGULAR	0	0	1	C1	0.0078
C1-1	J1-1	OF-101	684.75	0.2	0.5	IRREGULAR	0	0	1	C1-1	0.00424
C1-2	J1-2	J1-1	225.654	0.2	0.5	IRREGULAR	0	0	1	C1-2	0.0043
C1-3_1	J1-3	J1-2A	451.13	0.2	0.5	IRREGULAR	0	0	1	C1-3	0.00382
C1-3_2	J1-2A	J1-2	654.364	0.2	0.5	IRREGULAR	0	0	1	C1-3	0.00382
C1-4_1	J1-4	J1-3A	151.447	0.2	0.5	IRREGULAR	0	0	1	C1-4	0.00504
C1-4_2	J1-3A	J1-3	270.952	0.2	0.5	IRREGULAR	0	0	1	C1-4	0.00504
C1-5_1	J1-5	J1-4A	141.637	0.2	0.5	IRREGULAR	0	0	1	C1-5	0.00534
C1-5_2	J1-4A	J1-4	196.91	0.2	0.5	IRREGULAR	0	0	1	C1-5	0.00535
C1-6	J1-6	J1-1	119.178	0.2	0.5	IRREGULAR	0	0	1	V-notchSwale	0.00512
C1-7	J1-7	J1-3	291.286	0.2	0.5	IRREGULAR	0	0	1	V-notchSwale	0.00453
C3-1	J3-1	OF-103	161.267	0.2	0.5	IRREGULAR	0	0	1	C3-2	0.00019
C3-2_1	J3-3	J3-2	617.17	0.2	0.5	IRREGULAR	0	0	1	C3-2	0.00301
C3-2_2	J3-2	J3-1	563.449	0.2	0.5	IRREGULAR	0	0	1	C3-2	0.00295
C5	J3-4	J3-1	100	0	0	CIRCULAR	0.3	0	2		0.0067

**Storage**

Name	Invert Elev. (m)	Rim Elev. (m)	Depth (m)	Initial Depth (m)	Surcharge Depth (m)	Curve Name
SWMF1	220.3	223.3	3	0	0	SWMF1(203-F1-3)
SWMF2	219	221.55	2.7	0	0	SWMF2(203-3)
SWMF4	213.8	216.8	3	0	0	SWMF4(201-2)

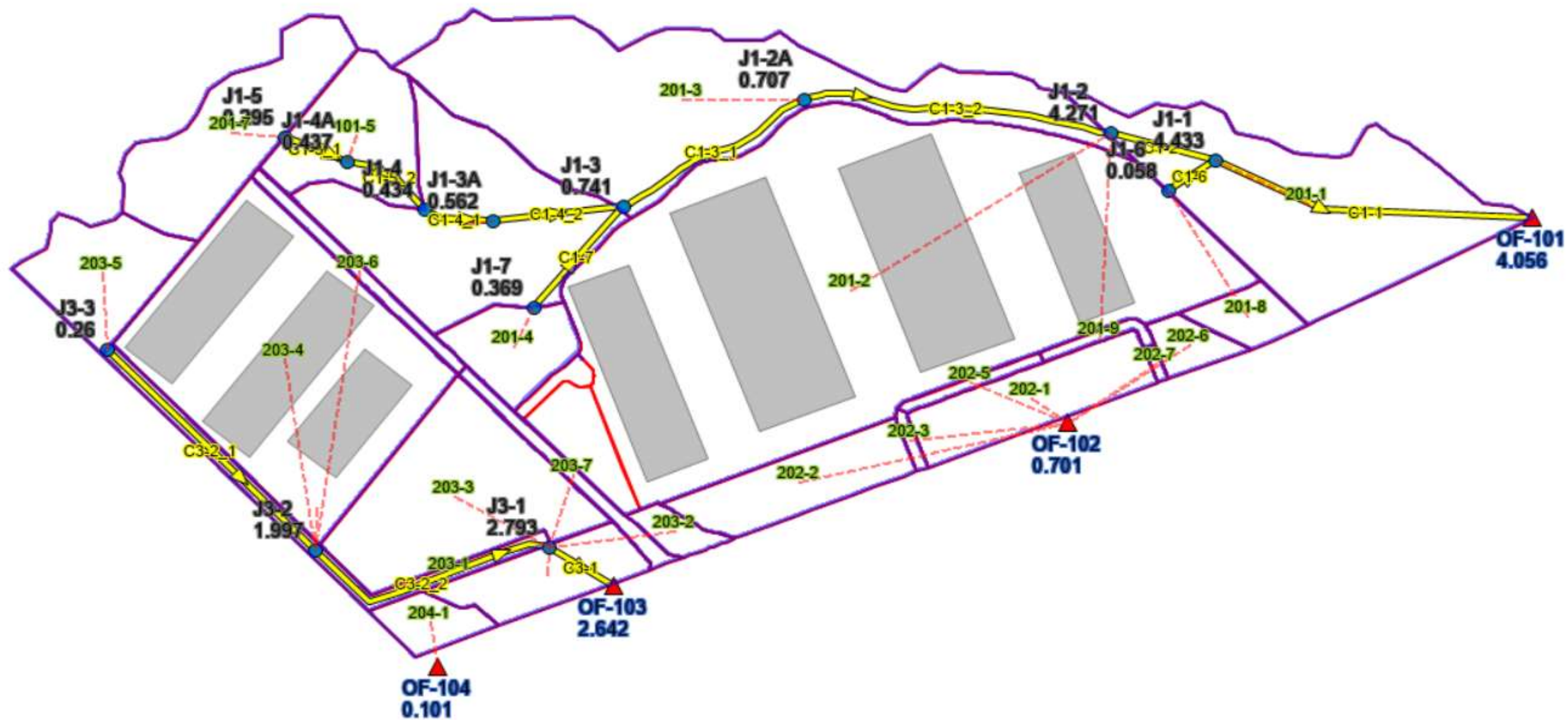
**Junctions & Outfalls**

Name	Invert Elev. (m)	Rim Elev. (m)
J1-1	212.02	212.02
J1-2	212.99	212.99
J1-2A	215.49	215.488
J1-3	217.21	217.21
J1-3A	218.58	218.576
J1-4	219.34	219.34
J1-4A	220.39	220.393
J1-5	221.15	221.15
J1-6	212.63	212.63
J1-7	218.53	218.53
J3-1	218.23	218.23
J3-2	219.89	219.89
J3-3	221.75	221.75
J3-4	218.9	219.2
OF-101	209.12	209.12
OF-102	213.76	213.76
OF-103	218.2	219.2
OF-104	216.5	216.5



**PCSWMM Proposed Conditions Model Schematic**

PROJECT: Orlando North Porta  
PROJECT #: 17197  
DATE: April-22  
MUNICIPALITY: Town of Milton



**Existing versus Proposed Conditions Peak Flow Rates**

PROJECT: [Orlando North Porta](#)

PROJECT #: [17197](#)

DATE: [Apr-22](#)

MUNICIPALITY: [Town of Milton](#)

PCSWMM Node ID	Location Description	Contributing Drainage Area (ha)		Peak Flow Rate (m <sup>3</sup> /s)													
				2 YR		5 YR		10 YR		25 YR		50 YR		100 YR		Regional	
		Ex.	Prop.	Ex.	Prop.	Ex.	Prop.	Ex.	Prop.	Ex.	Prop.	Ex.	Prop.	Ex.	Prop.	Ex.	Prop.
<b>OF-101</b>	R3S1 at James Snow Parkway	136.0	169.1	0.22	0.10	0.62	0.19	0.83	0.24	1.39	0.38	1.74	0.50	1.86	0.75	7.92	7.26
<b>J1-1</b>	R3S1 downstream of Esquesing Line	136.0	169.1	0.25	0.14	0.67	0.24	0.88	0.29	1.48	0.39	1.81	0.52	1.93	0.86	8.03	7.32
<b>J1-2</b>	R3S1 at Esquesing Line	107.7	146.0	0.20	0.09	0.54	0.17	0.73	0.22	1.23	0.37	1.49	0.49	1.61	0.76	6.58	6.33
<b>J1-3</b>	R3S1 at upstream limit of Parcel 4	82.3	38.9	0.21	0.25	0.49	0.41	0.62	0.52	0.91	0.68	1.06	0.70	1.18	0.82	5.06	2.85
<b>J1-4</b>	R3S1 at downstream limit of Parcel 3	17.5	17.3	0.12	0.11	0.27	0.22	0.33	0.34	0.37	0.37	0.41	0.40	0.49	0.48	1.48	1.47
<b>J1-5</b>	R3S1 at No. 5 Sideroad	10.1	10.1	0.11	0.11	0.18	0.18	0.23	0.23	0.26	0.26	0.28	0.28	0.33	0.33	0.88	0.88
<b>J1-6</b>	Esquesing Line culvert south of R3S1	n/a	2.1	n/a	0.02	n/a	0.04	n/a	0.04	n/a	0.05	n/a	0.06	n/a	0.06	0.18	0.18
<b>J1-7</b>	Outlet of R1S2	n/a	4.2	n/a	0.20	n/a	0.26	n/a	0.30	n/a	0.34	n/a	0.36	n/a	0.40	0.60	0.60
<b>OF-102</b>	R2S1 at James Snow Parkway	65.2	15.6	0.23	0.29	0.44	0.49	0.63	0.54	0.86	0.64	1.01	0.67	1.12	0.80	4.14	1.64
<b>OF-103</b>	R5S0 at James Snow Parkway	42.8	62.1	0.09	0.09	0.19	0.14	0.30	0.18	0.50	0.19	0.59	0.25	0.64	0.27	2.84	2.84
<b>J3-1</b>	R5S0 at hydro corridor limit	42.8	62.1	0.09	0.10	0.20	0.18	0.31	0.23	0.51	0.26	0.59	0.33	0.65	0.64	2.48	2.87
<b>J3-2</b>	R5S0 at outlet of SWMF1	23.7	40.2	0.13	0.11	0.23	0.19	0.31	0.24	0.45	0.28	0.48	0.33	0.56	0.50	1.68	1.91
<b>J3-3</b>	R5S1 at No. 5 Sideroad	6.3	6.3	0.12	0.12	0.18	0.18	0.21	0.21	0.26	0.26	0.26	0.26	0.31	0.31	0.64	0.64
<b>OF-104</b>	Outlet of drainage area at southwest corner of Subject Lands	4.8	2.1	0.04	0.03	0.10	0.06	0.13	0.07	0.17	0.09	0.17	0.10	0.22	0.12	0.51	0.23

**Permanent Pool Volume Calculations**

PROJECT: [Orlando North Porta](#)  
 PROJECT #: 17197  
 DATE: [Apr/22](#)  
 MUNICIPALITY: [Town of Milton](#)

SWMF ID	Catchment ID	Drainage Area (ha)	Total Impervious (%)	SWMP Type	Permanent Pool Unit Storage Volume * (m <sup>3</sup> /ha)	Permanent Pool Volume (m <sup>3</sup> )
SWMF1		30.33	79%	Wet Pond	200	6069
	203-4	28.73	79%			
	203-6	1.60	80%			
SWMF2		15.70	79%	Wet Pond	200	3142
	203-3	13.94	79%			
	203-7	1.75	80%			
SWMF4		78.15	81%	Wet Pond	203	15886
	201-2	77.51	81%			
	201-9	0.64	100%			

\*Excluding 40m<sup>3</sup>/ha of extended detention storage

SWMP Type	Storage Volume (m <sup>3</sup> /ha) for Impervious Level *			
	35%	55%	70%	85%
Infiltration	25	30	35	40
Wetland	80	105	120	140
Hybrid Wet Pond / Wetland	110	150	175	195
Wet Pond	140	190	225	250

\* NOTE: Values in table for Wet Ponds and Wetlands include 40m<sup>3</sup>/ha of extended detention storage.

**Erosion Control / Extended Detention Peak Flow Calculations**

PROJECT: [Orlando North Porta](#)  
 PROJECT #: [17197](#)  
 DATE: [Apr/22](#)  
 MUNICIPALITY: [Town of Milton](#)

SWMF ID	Catchment ID	Drainage Area (ha)	Total Impervious (%)	Required Unit Peak Flow Control (m <sup>3</sup> /s/ha)	Required Unit Storage (m <sup>3</sup> /imp ha)	Erosion Storage Volume (m <sup>3</sup> )	Peak Flow (m <sup>3</sup> /s)
	(a)	(b)	(c)	(d)	(e)	(f=b*c*e)	(g=f / (48hr x 3600 x 1.5))
1	SWMF1	30.33	79%	0.0012	229	5491	0.048
4	SWMF4	78.15	81%	0.00068	925	58529	0.031 (see note)

Note: SWMF-4 erosion peak flow rate determined by the proposed conditions drainage area minus the R3S1 drainage area diversion (net increase of 33.18 ha). Required erosion storage determined by iterative hydrologic modelling to compare proposed conditions erosive flow conditions vs existing conditions.

**SWMF1 Storage Calculations**  
**Provided Storage Calculations**

Project#: 17197

Date: Apr-22

Location - SWMF1

**STAGE / STORAGE INFORMATION**

			Elevation	Stage	Area Wet Cell	Area 2 Forebay	Total Area	Avg. Area	Incremental Storage	Cumulative Storage	Cumulative Storage above Permanent Pool
			(m)	(m)	(m <sup>2</sup> )	(m <sup>2</sup> )	(m <sup>2</sup> )	(m <sup>2</sup> )	(m <sup>3</sup> )	(m <sup>3</sup> )	Pool (m <sup>3</sup> )
<b>POND CHARACTERISTICS</b>											
Base of Pond:	218.80		Pond Base:	218.80	0.00	8,386.1	1,815.7	10,201.8	0.0		
N.W.L.:	220.30 masl		NWL:	220.30	1.50	17,274.4		17,274.4	13,738.1	20,607.1	20,607
Increment for Volume:	0.1 m			222.00	3.20	21,994.6		21,994.6	19,634.5	33,378.6	53,986
Required Permanent Pool Volume:	6,069 m <sup>3</sup>		HWL:	223.00	4.20	25,009.8		25,009.8	23,502.2	23,502.2	77,488
Permanent Pool Volume Provided:	20,607 m <sup>3</sup>		Free Board:	223.30	4.50	26,110.2		26110.186	25560.0	7668.0	85,156
											64,549
<b>VOLUME</b>											
Known Water Level:	220.60										
		INCL. P.P. ACTIVE ONLY									
Lower Known Elevation:	220.3										
Lower Known Volume:	20,607.14										
Upper Known Elevation:	222.00										
Upper Known Volume:	53,985.78										
Volume of Known W.L. Elevation:	26,497	5,890									
<b>Water Level of Known Volume</b>											
Known Volume:	0	5,491									
		INCL. P.P. ACTIVE ONLY									
Lower Known Elevation:	218.8	220.30									
Lower Known Volume:	0	0.00									
Upper Known Elevation:	220.3	222.00									
Upper Known Volume:	20607.135	33378.64									
W.L. Elevation of Known Volume:	218.80	220.58									
Permanent Pool Volume Provided:	20,607 m <sup>3</sup>										
Active Pool Volume Provided:	33,379 m <sup>3</sup>										



**Conceptual Infiltration LID Design**

**Parcel 1**

Annual Precipitation	877 mm/year	
15mm event annual equivalent	719 mm/year	(82% annual precipitation)
Annual infiltration deficit	38318 m3/year	(from water balance)
Roof area required at 15mm capture to mitigate water balance deficit	53265 m2	

Roof Area	5.3 ha
Required Water Balance Capture Volume (15mm)	799 m <sup>3</sup>
<b>TOTAL</b>	<b>799 m<sup>3</sup></b>

<b>Requirement</b>	
Storage Required =	799 m <sup>3</sup>
<b>LID Characteristics</b>	
<b>Input</b>	
Soil Storage Media Area =	2000 m2
Soil Storage Media Depth =	1.0 m
Void Space =	0.4
<b>Calculated</b>	
Storage Volume Provided =	800 m <sup>3</sup>
<b>Draw Down Time of 5mm Volume</b>	
<b>Input</b>	
Design Infiltration Rate	6 mm/hr (includes 2.5 safety factor, infiltration rate to be further tested at site specific location)
Infiltration Area	2000 m <sup>2</sup>
Volume (25mm)	799 m <sup>3</sup>
<b>Calculated</b>	
Flow Rate	3.33 L/s
<b>Draw Down Time</b>	<b>66.6 hours</b>
<b>Impervious Ratio</b>	
Impervious Area (m <sup>2</sup> )	53265
INF Area (m <sup>2</sup> )	2000
<b>RATIO</b>	<b>27 :1 &lt; 20:1 OK, clean roof water</b>
<b>Maximum Depth without underdrain</b>	
D <sub>(max)</sub> = Max stone reservoir depth	
$D = i * t_s / V_r$	
D <sub>(max)</sub>	720 mm > 600mm therefore OK
<b>Input</b>	
6	i = infiltration rate for native soils
0.4	V <sub>r</sub> = Void Space Ratio for aggregate (Typically 0.4 for 50mm clear stone)
48	t <sub>s</sub> = Time to drain (design for 48hr is recommended)
Infiltration rate based estimated infiltration rate by Palmer across the surficial till of the Subject Lands. Site specific in-situ infiltration testing required to confirm local infiltration rate and select suitable LID locations.	
<b>Summary</b>	
LID was sized to provide storage and infiltration for the 82th percentile storm event (15mm) from 5.3ha of roof area, equivalent to the 38,318 m3/year infiltration deficit in post-development conditions without mitigation. A total LID area of 2,000 m2 is required based on an LID depth of 1.0m.	

**Conceptual Infiltration LID Design**

**Parcel 4**

Annual Precipitation	877 mm/year	
15mm event annual equivalent	719 mm/year	(82% annual precipitation)
Annual infiltration deficit	104726 m3/year	(from water balance)
Roof area required at 15mm capture to mitigate water balance deficit	145577 m2	

Roof Area	14.6 ha
Required Water Balance Capture Volume (15mm)	2184 m <sup>3</sup>
<b>TOTAL</b>	<b>2184 m<sup>3</sup></b>

<b>Requirement</b>			
Storage Required =	2184 m <sup>3</sup>		
<b>LID Characteristics</b>			
<b>Input</b>			
Soil Storage Media Area =	5500 m2		
Soil Storage Media Depth =	1.0 m		
Void Space =	0.4		
<b>Calculated</b>			
Storage Volume Provided =	2200 m <sup>3</sup>		
<b>Draw Down Time of 5mm Volume</b>			
<b>Input</b>			
Design Infiltration Rate	13 mm/hr	(includes 2.5 safety factor, infiltration rate to be further tested at site specific location)	
Infiltration Area	5500 m <sup>2</sup>		
Volume (25mm)	2184 m <sup>3</sup>		
<b>Calculated</b>			
Flow Rate	19.86 L/s		
<b>Draw Down Time</b>	<b>30.5 hours</b>	<48 hr	therefore OK
<b>Impervious Ratio</b>			
Impervious Area (m <sup>2</sup> )	145577		
INF Area (m <sup>2</sup> )	5500		
<b>RATIO</b>	<b>26 :1</b>	< 20:1	OK, clean roof water
<b>Maximum Depth without underdrain</b>			
D <sub>(max)</sub> = Max stone reservoir depth			
$D = i * t_s / V_r$			
	<b>D<sub>(max)</sub></b>	<b>1560 mm</b>	> 600mm therefore OK
<b>Input</b>			
13	i = infiltration rate for native soils		
0.4	V <sub>r</sub> = Void Space Ratio for aggregate (Typically 0.4 for 50mm clear stone)		
48	t <sub>s</sub> = Time to drain (design for 48hr is recommended)		
Infiltration rate based low range of infiltration rates estimated by Palmer near MW1 and MW6 on Parcel 4. Site specific in-situ infiltration testing required to confirm local infiltration rate at proposed LID location.			
<b>Summary</b>			
LID was sized to provide storage and infiltration for the 82th percentile storm event (15mm) from 14.6ha of roof area, equivalent to the 104,726 m3/year infiltration deficit in post-development conditions without mitigation. A total LID area of 5,500 m2 is required based on an LID depth of 1.0m.			



## Culvert Inventory

PROJECT: [Orlando North Porta](#)

PROJECT #: [17197](#)

DATE: [April-22](#)

MUNICIPALITY: [Town of Milton](#)

Culvert ID	Location	Size	Observations (October 26, 2017)
1	5 Side Rd. and CNR	600mm diameter CSP	- no flow - downstream side: 0.47m opening height above sediment
2	West Boston Church Rd.	500mm diameter CSP	- no flow - upstream: little sediment - downstream: 0.45m opening height above sediment
3	5 Side Rd. & Boston Church Rd.	400mm diameter CSP	- no flow - upstream: 0.35m opening height above sediment - downstream: 0.35m opening height above sediment
5	5 Side Rd. & Boston Church (50m North)	400mm diameter CSP	- minor flow - upstream: 0.29m opening height above sediment - downstream: unable to locate
6	5 Side Rd. (30m East)	500mm diameter CSP	- no flow - upstream: 0.48m opening height above sediment -downstream: damaged, crushed CSP
7	100m north of James Snow & Boston Church Rd.	Twin 300mm diameter CSP	- no flow - upstream: no sediment - downstream: no sediment
8	100m west of James Snow & Boston Church Rd.	Twin CONC Ellipse (860mm height /1345mm width)	- no flow - upstream: no sediment - downstream: little sediment
9	8350 Esquesing Line	450mm diameter HDPE	- no flow - upstream: no sediment - downstream: 0.48m opening height above sediment
10	8395 Esquesing Line	Twin 450mm diameter CSP	- no flow - upstream: no sediment - downstream: no sediment
11	8365 Esquesing Line	450mm diameter CSP	- no flow - upstream: no sediment - downstream: no sediment
12	James Snow Parkway (550m west of Esquesing Line)	CONC Box Culvert (3.2m wide; 0.85m high)	- minor flow - upstream: sediment accumulated - downstream: pool water



## *Appendix D3*

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### *Hydraulics*



**HEC RAS Model Peak Flow Rates**

PROJECT: Orlando North Porta

PROJECT #: 17197

DATE: April 2022

MUNICIPALITY: Town of Milton

Existing Conditions

PCSWMM Node	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR	Regional	HEC-RAS RS
J1-5	0.109	0.182	0.226	0.264	0.282	0.332	0.879	
J1-4	0.115	0.268	0.334	0.368	0.407	0.489	1.478	4400
J1-3	0.206	0.485	0.619	0.911	1.057	1.184	5.059	4000
J1-1	0.250	0.670	0.880	1.479	1.811	1.931	8.034	3500
OF-101	0.221	0.617	0.834	1.391	1.741	1.857	7.923	2300

Proposed with SWM

PCSWMM Node	2 YR	5 YR	10 YR	25 YR	50 YR	100 YR	Regional	HEC-RAS RS
J1-5	0.109	0.181	0.226	0.264	0.283	0.332	0.879	
J1-4	0.108	0.217	0.342	0.369	0.403	0.482	1.465	4400
J1-3	0.249	0.411	0.516	0.678	0.703	0.822	2.848	4000
J1-1	0.139	0.240	0.291	0.393	0.515	0.863	7.323	3500
OF-101	0.096	0.185	0.236	0.380	0.503	0.753	7.262	2300

**HEC RAS Model Output**

PROJECT: Orlando North Porta

PROJECT #: 17197

DATE: April 2022

MUNICIPALITY: Town of Milton

Plan: 100\_Existing Conditions (HRCA\_EX)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	4400	Regional	8.07	221.15	221.76	221.52	221.79	0.001623	0.87	14.16	37.88	0.39
Reach1	4300	Regional	8.07	220.94	221.48	221.39	221.53	0.004605	1.21	10.66	41.74	0.62
Reach1	4200	Regional	8.07	220.3	220.7	220.7	220.82	0.011582	1.69	6.86	33.36	0.95
Reach1	4100	Regional	8.07	219.64	220.16	220.02	220.2	0.002813	1.04	13.11	47.67	0.49
Reach1	4000	Regional	8.07	219.34	219.59	219.59	219.64	0.012796	1.36	14.29	138.68	0.93
Reach1	3900	Regional	8.07	218.7	219.12	218.96	219.13	0.001821	0.78	31.93	181.22	0.39
Reach1	3800	Regional	8.07	218.39	218.64	218.64	218.72	0.015314	1.6	11.42	76.65	1.04
Reach1	3700	Regional	8.07	217.36	217.95	217.58	217.96	0.000729	0.53	30.64	105	0.25
Reach1	3600	Regional	8.07	217.04	217.9	217.46	217.91	0.000349	0.52	31.37	81.2	0.19
Reach1	3500	Regional	8.07	216.8	217.88		217.89	0.000138	0.39	40.71	73.59	0.12
Reach1	3454.021	Regional	8.07	216.59	217.7	217.7	217.85	0.010102	1.75	5.37	22.48	0.9
Reach1	3400	Regional	8.07	216.48	217.14	217.05	217.24	0.005244	1.42	6.56	19.8	0.67
Reach1	3300	Regional	8.87	216.26	216.86		216.9	0.002277	1.04	13.61	42.51	0.46
Reach1	3200	Regional	8.87	215.84	216.65		216.7	0.001774	1.03	11.69	31.6	0.41
Reach1	3100	Regional	8.87	215.75	216.3		216.39	0.006949	1.48	8.58	30.45	0.76
Reach1	3000	Regional	10.48	215.42	216.03		216.07	0.001838	0.85	13.11	35.25	0.4
Reach1	2953.366	Regional	10.48	215.19	215.73	215.72	215.89	0.009898	1.84	7.27	26.58	0.91
Reach1	2900	Regional	10.48	214.79	215.43	215.32	215.52	0.004621	1.43	10.13	28.64	0.64
Reach1	2800	Regional	10.83	214.27	214.74	214.74	214.86	0.009894	1.74	10.6	51.47	0.9
Reach1	2700	Regional	10.83	213.45	214.12	213.95	214.18	0.002881	1.23	13.45	38.13	0.52
Reach1	2541.079	Regional	11.47	213.07	214.15		214.15	0.000027	0.17	159.63	308.84	0.06
Reach1	2513.932	Regional	11.47	212.99	214.14	214.02	214.14	0.00005	0.21	134.45	303.86	0.07
Reach1	2505.702		Culvert									
Reach1	2497.039	Regional	11.47	212.99	213.95	213.95	213.96	0.000171	0.41	33.91	248.59	0.14
Reach1	2478.91	Regional	11.47	213.14	213.23	212.98	213.23	0.002603	0.26	30.58	122.76	0.34
Reach1	2300	Regional	12.36	212.02	212.25	212.25	212.33	0.020845	1.77	14.16	93.01	1.2
Reach1	2200	Regional	12.36	210.92	211.56	211.43	211.63	0.003397	1.32	16.14	52.7	0.56
Reach1	2100	Regional	13.76	210.67	211.24		211.29	0.003249	1.27	19.15	52.99	0.55
Reach1	2000	Regional	13.76	210.15	210.72	210.69	210.85	0.007109	1.76	12.44	41.95	0.8
Reach1	1900	Regional	13.76	209.57	210.14		210.23	0.005496	1.56	14.94	49	0.7
Reach1	1800	Regional	14.75	208.98	210.01		210.04	0.000891	0.93	27.39	52.05	0.31
Reach1	1700	Regional	14.75	209.12	209.65	209.65	209.81	0.011837	2.06	10.97	35.26	1
Reach1	1599	Regional	15.73	207.45	208.66	208.41	208.73	0.003768	1.89	18.14	27.69	0.6
Reach1	1501	Regional	15.73	207.01	208.03		208.18	0.008197	2.52	12.7	23.78	0.87
Reach1	1465	Regional	15.73	206.56	207.65	207.46	207.7	0.003083	1.64	20.88	37.72	0.56
Reach1	1450	Regional	15.73	206.26	207.49	207.26	207.55	0.002792	1.68	20.64	33.45	0.54
Reach1	1430	Regional	15.73	206.18	207.27	207.09	207.32	0.003578	1.69	21.47	40.83	0.58
Reach1	1420	Regional	16.84	206.24	207.16	206.95	207.2	0.004609	1.87	22.76	47.55	0.66
Reach1	1200	Regional	16.84	205.99	206.78		206.86	0.0032	1.47	18.95	45.44	0.57
Reach1	1100	Regional	18.4	205.39	206.08	206.08	206.28	0.013621	2.3	12.19	35.71	1.09
Reach1	1000	Regional	18.4	204.37	205.11	205.02	205.25	0.005635	1.67	12.81	32.09	0.72
Reach1	899.9998	Regional	18.4	203.87	204.59		204.71	0.005115	1.75	17.33	47.92	0.7
Reach1	799.9999	Regional	19.16	203.11	203.84	203.83	204.02	0.009509	2.13	13.07	34.3	0.93
Reach1	700	Regional	19.16	202.6	203.41	203.19	203.49	0.0032	1.43	19.58	37.29	0.56
Reach1	600	Regional	19.16	201.94	202.8	202.8	202.98	0.009852	2.16	14.08	40.73	0.94
Reach1	540.4514	Regional	19.83	201.5	202.48	202.24	202.55	0.002332	1.35	22.34	45.83	0.49
Reach1	504.8202	Regional	19.83	200.96	202.25	201.96	202.35	0.002389	1.49	18.74	36.4	0.51
Reach1	482.854	Regional	19.83	200.81	202.26	201.79	202.3	0.000965	1.08	31.89	55.01	0.33
Reach1	449.3484	Regional	19.83	200.58	202.27	201.35	202.28	0.000225	0.61	59.79	68.13	0.17
Reach1	439.3625	Regional	19.83	200.58	202.21	201.49	202.26	0.000637	0.97	20.47	61.36	0.28
Reach1	426.0718		Culvert									
Reach1	416.8555	Regional	19.83	200.33	200.98	201.27	202.05	0.075137	4.59	4.32	20.99	2.45
Reach1	406.9713	Regional	19.83	200.03	201.01	200.87	201.09	0.003392	1.43	19.45	43.42	0.57
Reach1	368.8569	Regional	19.83	199.63	200.31	200.31	200.51	0.009806	2.23	13.38	36.15	0.96
Reach1	300	Regional	20.53	198.81	200.11	199.74	200.17	0.001188	1.14	25.88	41.52	0.36
Reach1	258.518	Regional	20.53	198.76	199.64	199.64	199.9	0.010116	2.37	10.88	28.71	0.98
Reach1	199.9999	Regional	20.53	198.52	199.45	199.13	199.49	0.001655	1.11	32.37	60.48	0.41
Reach1	155.1166	Regional	20.53	198.33	198.92	198.92	199.14	0.012482	2.28	11.63	29.3	1.05
Reach1	100	Regional	20.53	197.69	198.33	198.22	198.44	0.005213	1.59	15.95	41.08	0.69
Reach1	24.31342	Regional	20.82	197.32	197.6	197.6	197.7	0.046733	2.04	15.5	76.21	1.67

**HEC RAS Model Output**

PROJECT: Orlando North Porta

PROJECT #: 17197

DATE: April 2022

MUNICIPALITY: Town of Milton

Plan: 200\_TMIG\_Existing April 2022

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	4400	2 year	0.12	221.15	221.26	221.22	221.26	0.001362	0.2	0.61	11.35	0.25
Reach1	4400	5 year	0.27	221.15	221.3	221.24	221.31	0.001377	0.26	1.2	16.59	0.27
Reach1	4400	10 year	0.33	221.15	221.32	221.25	221.32	0.001407	0.28	1.43	18.23	0.28
Reach1	4400	25 year	0.37	221.15	221.32	221.25	221.33	0.001375	0.29	1.56	19.14	0.27
Reach1	4400	50 year	0.41	221.15	221.33	221.26	221.34	0.00136	0.3	1.71	20.07	0.28
Reach1	4400	100 year	0.49	221.15	221.35	221.27	221.35	0.001348	0.31	2	21.32	0.28
Reach1	4400	Regional	1.48	221.15	221.45	221.34	221.46	0.001318	0.44	4.5	25.3	0.3
Reach1	4300	2 year	0.12	220.94	221.06	221.03	221.06	0.003326	0.28	0.41	7.65	0.38
Reach1	4300	5 year	0.27	220.94	221.1	221.06	221.1	0.00317	0.38	0.75	9.95	0.4
Reach1	4300	10 year	0.33	220.94	221.11	221.06	221.12	0.003239	0.41	0.88	10.67	0.41
Reach1	4300	25 year	0.37	220.94	221.12	221.07	221.12	0.003264	0.42	0.94	11.02	0.42
Reach1	4300	50 year	0.41	220.94	221.12	221.07	221.13	0.003305	0.44	1.01	11.39	0.42
Reach1	4300	100 year	0.49	220.94	221.13	221.08	221.14	0.003375	0.47	1.16	12.12	0.43
Reach1	4300	Regional	1.48	220.94	221.23	221.16	221.25	0.003853	0.69	2.76	20.84	0.5
Reach1	4200	2 year	0.12	220.3	220.37	220.37	220.38	0.020711	0.52	0.22	6.21	0.88
Reach1	4200	5 year	0.27	220.3	220.39	220.39	220.42	0.024306	0.68	0.39	8.25	1
Reach1	4200	10 year	0.33	220.3	220.4	220.4	220.43	0.023519	0.71	0.47	9	1
Reach1	4200	25 year	0.37	220.3	220.4	220.4	220.43	0.022848	0.73	0.5	9.33	0.99
Reach1	4200	50 year	0.41	220.3	220.41	220.41	220.44	0.022257	0.75	0.54	9.68	0.99
Reach1	4200	100 year	0.49	220.3	220.42	220.42	220.45	0.021365	0.79	0.63	10.38	0.99
Reach1	4200	Regional	1.48	220.3	220.49	220.49	220.54	0.016818	1.06	1.56	16.07	0.97
Reach1	4100	2 year	0.12	219.64	219.76	219.71	219.76	0.000758	0.16	0.85	14.07	0.19
Reach1	4100	5 year	0.27	219.64	219.81	219.73	219.81	0.000787	0.21	1.58	17.68	0.21
Reach1	4100	10 year	0.33	219.64	219.82	219.74	219.83	0.000786	0.22	1.86	18.92	0.21
Reach1	4100	25 year	0.37	219.64	219.84	219.74	219.84	0.000583	0.21	2.25	20.46	0.18
Reach1	4100	50 year	0.41	219.64	219.85	219.75	219.86	0.000546	0.21	2.48	21.36	0.18
Reach1	4100	100 year	0.49	219.64	219.86	219.75	219.87	0.000631	0.23	2.68	22.16	0.19
Reach1	4100	Regional	1.48	219.64	219.99	219.82	220	0.000589	0.34	6.28	32.75	0.21
Reach1	4000	2 year	0.21	219.34	219.41	219.41	219.42	0.022776	0.55	0.39	13.42	0.92
Reach1	4000	5 year	0.48	219.34	219.43	219.43	219.45	0.021473	0.71	0.8	18.69	0.96
Reach1	4000	10 year	0.62	219.34	219.44	219.44	219.47	0.020908	0.76	0.98	20.53	0.97
Reach1	4000	25 year	0.91	219.34	219.46	219.46	219.49	0.018724	0.84	1.37	24.08	0.96
Reach1	4000	50 year	1.06	219.34	219.46	219.46	219.5	0.018866	0.89	1.53	25.43	0.97
Reach1	4000	100 year	1.18	219.34	219.47	219.47	219.51	0.016858	0.9	1.75	27.14	0.93
Reach1	4000	Regional	5.06	219.34	219.58	219.58	219.62	0.010074	1.17	9.67	105.46	0.82
Reach1	3900	2 year	0.21	218.7	218.78	218.74	218.79	0.001239	0.2	1.58	35.28	0.24
Reach1	3900	5 year	0.48	218.7	218.82	218.77	218.83	0.001356	0.28	3.14	47.56	0.27
Reach1	3900	10 year	0.62	218.7	218.84	218.78	218.84	0.001394	0.31	3.82	51.99	0.28
Reach1	3900	25 year	0.91	218.7	218.86	218.79	218.87	0.001442	0.35	5.22	60.15	0.29
Reach1	3900	50 year	1.06	218.7	218.87	218.8	218.88	0.001448	0.37	5.91	63.79	0.3
Reach1	3900	100 year	1.18	218.7	218.88	218.8	218.89	0.001476	0.39	6.46	66.52	0.3
Reach1	3900	Regional	5.06	218.7	219.04	218.91	219.05	0.00167	0.64	20.57	112.47	0.36
Reach1	3800	2 year	0.21	218.39	218.43	218.43	218.45	0.026194	0.53	0.47	21.69	0.96
Reach1	3800	5 year	0.48	218.39	218.45	218.45	218.48	0.021079	0.68	1.03	29.27	0.95
Reach1	3800	10 year	0.62	218.39	218.46	218.46	218.49	0.020086	0.73	1.27	31.61	0.94
Reach1	3800	25 year	0.91	218.39	218.48	218.48	218.51	0.019167	0.82	1.77	35.87	0.96
Reach1	3800	50 year	1.06	218.39	218.48	218.48	218.51	0.019151	0.87	2	37.65	0.97
Reach1	3800	100 year	1.18	218.39	218.49	218.49	218.52	0.018611	0.89	2.22	39.29	0.97
Reach1	3800	Regional	5.06	218.39	218.59	218.59	218.66	0.015725	1.38	7.77	65.88	1.01
Reach1	3700	2 year	0.21	217.36	217.43	217.29	217.43	0.001054	0.12	2.03	20.47	0.2
Reach1	3700	5 year	0.48	217.36	217.5	217.33	217.5	0.00114	0.18	3.61	29.23	0.23
Reach1	3700	10 year	0.62	217.36	217.51	217.34	217.51	0.001434	0.22	3.94	30.78	0.26
Reach1	3700	25 year	0.91	217.36	217.5	217.37	217.51	0.00338	0.33	3.83	30.26	0.4
Reach1	3700	50 year	1.06	217.36	217.5	217.38	217.51	0.004497	0.38	3.84	30.34	0.46

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	3700	100 year	1.18	217.36	217.52	217.39	217.52	0.004319	0.39	4.22	32	0.45
Reach1	3700	Regional	5.06	217.36	217.92	217.52	217.92	0.000358	0.36	27.56	93.75	0.17
Reach1	3600	2 year	0.21	217.04	217.14	217.14	217.16	0.024481	0.67	0.31	6.66	1
Reach1	3600	5 year	0.48	217.04	217.17	217.17	217.2	0.022198	0.79	0.61	9.84	1
Reach1	3600	10 year	0.62	217.04	217.21	217.19	217.23	0.008971	0.64	1	12.7	0.68
Reach1	3600	25 year	0.91	217.04	217.31	217.21	217.32	0.001295	0.39	2.78	20.95	0.29
Reach1	3600	50 year	1.06	217.04	217.36	217.22	217.37	0.000717	0.34	3.95	24.92	0.22
Reach1	3600	100 year	1.18	217.04	217.38	217.23	217.39	0.000683	0.35	4.41	26.22	0.22
Reach1	3600	Regional	5.06	217.04	217.9	217.38	217.9	0.00014	0.33	31.01	80.53	0.12
Reach1	3500	2 year	0.25	216.8	216.98	216.89	216.99	0.000488	0.18	1.65	16.89	0.17
Reach1	3500	5 year	0.67	216.8	217.12	216.93	217.12	0.000261	0.2	4.42	24.6	0.13
Reach1	3500	10 year	0.88	216.8	217.17		217.17	0.000217	0.21	5.76	27.45	0.13
Reach1	3500	25 year	1.48	216.8	217.29		217.29	0.000167	0.23	9.41	34.19	0.12
Reach1	3500	50 year	1.81	216.8	217.34		217.34	0.000155	0.24	11.37	37.3	0.12
Reach1	3500	100 year	1.93	216.8	217.36		217.36	0.000151	0.25	12.06	38.34	0.12
Reach1	3500	Regional	8.03	216.8	217.88		217.89	0.000138	0.39	40.6	73.48	0.12
Reach1	3454.021	2 year	0.25	216.59	216.85	216.85	216.92	0.01891	1.13	0.22	1.71	1
Reach1	3454.021	5 year	0.67	216.59	216.98	216.98	217.07	0.016624	1.38	0.49	2.53	1.01
Reach1	3454.021	10 year	0.88	216.59	217.02	217.02	217.13	0.016003	1.46	0.6	2.83	1
Reach1	3454.021	25 year	1.48	216.59	217.12	217.12	217.25	0.015215	1.63	0.91	3.47	1.01
Reach1	3454.021	50 year	1.81	216.59	217.16	217.16	217.31	0.014853	1.69	1.07	3.76	1.02
Reach1	3454.021	100 year	1.93	216.59	217.18	217.18	217.33	0.014724	1.72	1.13	3.86	1.02
Reach1	3454.021	Regional	8.03	216.59	217.7	217.7	217.85	0.01007	1.75	5.34	22.34	0.89
Reach1	3400	2 year	0.25	216.48	216.71	216.62	216.72	0.00132	0.3	0.85	7.02	0.27
Reach1	3400	5 year	0.67	216.48	216.8	216.68	216.81	0.002023	0.44	1.51	9.38	0.35
Reach1	3400	10 year	0.88	216.48	216.82	216.71	216.83	0.002337	0.51	1.74	10.09	0.38
Reach1	3400	25 year	1.48	216.48	216.87	216.76	216.89	0.003072	0.66	2.27	11.59	0.46
Reach1	3400	50 year	1.81	216.48	216.89	216.79	216.92	0.003353	0.73	2.55	12.28	0.48
Reach1	3400	100 year	1.93	216.48	216.9	216.8	216.93	0.003483	0.75	2.63	12.49	0.49
Reach1	3400	Regional	8.03	216.48	217.13	217.05	217.23	0.005692	1.45	6.34	19.49	0.7
Reach1	3300	2 year	0.25	216.26	216.35	216.35	216.37	0.024741	0.65	0.39	9.14	0.99
Reach1	3300	5 year	0.67	216.26	216.41		216.43	0.009366	0.65	1.13	14.31	0.69
Reach1	3300	10 year	0.88	216.26	216.43		216.45	0.00716	0.64	1.53	15.83	0.62
Reach1	3300	25 year	1.48	216.26	216.49		216.51	0.004782	0.69	2.51	19.13	0.54
Reach1	3300	50 year	1.81	216.26	216.51		216.54	0.004306	0.72	3.02	20.62	0.53
Reach1	3300	100 year	1.93	216.26	216.52		216.55	0.004166	0.73	3.21	21.13	0.52
Reach1	3300	Regional	8.03	216.26	216.83		216.87	0.002346	1.02	12.36	40.25	0.46
Reach1	3200	2 year	0.25	215.84	216.09	215.97	216.09	0.000831	0.24	1.04	8.27	0.22
Reach1	3200	5 year	0.67	215.84	216.18		216.19	0.001055	0.34	1.96	11.36	0.26
Reach1	3200	10 year	0.88	215.84	216.21		216.22	0.00113	0.38	2.31	12.32	0.27
Reach1	3200	25 year	1.48	215.84	216.28		216.29	0.001252	0.47	3.24	14.84	0.3
Reach1	3200	50 year	1.81	215.84	216.31		216.32	0.001284	0.52	3.7	15.97	0.31
Reach1	3200	100 year	1.93	215.84	216.32		216.33	0.001296	0.53	3.86	16.35	0.31
Reach1	3200	Regional	8.03	215.84	216.63		216.67	0.00168	0.97	10.95	29.95	0.4
Reach1	3100	2 year	0.25	215.75	215.88	215.86	215.89	0.009922	0.53	0.47	7.49	0.67
Reach1	3100	5 year	0.67	215.75	215.94		215.96	0.007384	0.68	1.06	11.21	0.64
Reach1	3100	10 year	0.88	215.75	215.96		215.99	0.006837	0.73	1.34	12.52	0.63
Reach1	3100	25 year	1.48	215.75	216.01		216.05	0.006711	0.86	2.02	15.02	0.65
Reach1	3100	50 year	1.81	215.75	216.03		216.07	0.006655	0.91	2.38	16.15	0.66
Reach1	3100	100 year	1.93	215.75	216.04		216.08	0.006672	0.93	2.5	16.52	0.66
Reach1	3100	Regional	8.03	215.75	216.27		216.36	0.007684	1.49	7.6	28.62	0.79
Reach1	3000	2 year	0.25	215.42	215.54		215.54	0.00177	0.25	1.02	13.82	0.29
Reach1	3000	5 year	0.67	215.42	215.59		215.6	0.002107	0.36	1.86	16.23	0.34
Reach1	3000	10 year	0.88	215.42	215.61		215.62	0.002215	0.4	2.2	17.12	0.36
Reach1	3000	25 year	1.48	215.42	215.66		215.68	0.002236	0.47	3.15	19.35	0.37
Reach1	3000	50 year	1.81	215.42	215.69		215.7	0.002236	0.5	3.63	20.4	0.38
Reach1	3000	100 year	1.93	215.42	215.7		215.71	0.002283	0.51	3.77	20.69	0.38
Reach1	3000	Regional	8.03	215.42	215.95		215.99	0.002001	0.79	10.57	31.87	0.41
Reach1	2953.366	2 year	0.25	215.19	215.3	215.3	215.33	0.023411	0.76	0.33	5.71	1.01
Reach1	2953.366	5 year	0.67	215.19	215.38		215.41	0.010435	0.72	0.93	9.64	0.74
Reach1	2953.366	10 year	0.88	215.19	215.41		215.44	0.0084	0.71	1.24	11.15	0.68
Reach1	2953.366	25 year	1.48	215.19	215.46		215.49	0.008314	0.84	1.79	13.43	0.7



Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	2953.366	50 year	1.81	215.19	215.48	215.44	215.52	0.008385	0.9	2.06	14.39	0.72
Reach1	2953.366	100 year	1.93	215.19	215.48	215.45	215.53	0.008412	0.93	2.15	14.69	0.72
Reach1	2953.366	Regional	8.03	215.19	215.69	215.66	215.81	0.008121	1.57	6.35	24.9	0.82
Reach1	2900	2 year	0.25	214.79	214.96	214.91	214.97	0.002475	0.33	0.76	8.76	0.35
Reach1	2900	5 year	0.67	214.79	215.01		215.02	0.005241	0.59	1.16	11.01	0.54
Reach1	2900	10 year	0.88	214.79	215.02		215.04	0.006583	0.7	1.31	11.72	0.62
Reach1	2900	25 year	1.48	214.79	215.07		215.1	0.006517	0.83	1.97	14.48	0.64
Reach1	2900	50 year	1.81	214.79	215.09		215.13	0.006324	0.87	2.34	15.84	0.64
Reach1	2900	100 year	1.93	214.79	215.1		215.14	0.006281	0.89	2.47	16.29	0.64
Reach1	2900	Regional	8.03	214.79	215.33	215.27	215.42	0.006509	1.44	7.28	25.08	0.73
Reach1	2800	2 year	0.25	214.27	214.37	214.37	214.39	0.024714	0.69	0.36	7.52	1.01
Reach1	2800	5 year	0.67	214.27	214.45		214.47	0.005873	0.58	1.24	13.75	0.56
Reach1	2800	10 year	0.88	214.27	214.48	214.43	214.5	0.004526	0.58	1.7	15.97	0.51
Reach1	2800	25 year	1.48	214.27	214.53	214.47	214.55	0.004716	0.69	2.54	22.3	0.54
Reach1	2800	50 year	1.81	214.27	214.55	214.49	214.57	0.004895	0.75	2.96	24.81	0.56
Reach1	2800	100 year	1.93	214.27	214.55	214.5	214.58	0.004951	0.77	3.11	25.65	0.57
Reach1	2800	Regional	8.03	214.27	214.74	214.69	214.8	0.005727	1.31	10.37	50.98	0.68
Reach1	2700	2 year	0.25	213.45	213.62	213.55	213.62	0.001586	0.27	0.93	10.76	0.28
Reach1	2700	5 year	0.67	213.45	213.62		213.64	0.01235	0.74	0.91	10.62	0.79
Reach1	2700	10 year	0.88	213.45	213.62	213.62	213.66	0.019965	0.95	0.93	10.73	1.01
Reach1	2700	25 year	1.48	213.45	213.66	213.66	213.72	0.018204	1.06	1.44	13.93	1
Reach1	2700	50 year	1.81	213.45	213.68	213.68	213.74	0.01681	1.12	1.69	15.1	0.99
Reach1	2700	100 year	1.93	213.45	213.68	213.68	213.75	0.016449	1.15	1.78	15.63	0.98
Reach1	2700	Regional	8.03	213.45	213.89	213.89	214.02	0.011398	1.74	6.04	25.93	0.95
Reach1	2541.079	2 year	0.25	213.07	213.16		213.17	0.006543	0.34	0.73	16.39	0.51
Reach1	2541.079	5 year	0.67	213.07	213.63		213.63	0.000003	0.04	35.58	150.38	0.02
Reach1	2541.079	10 year	0.88	213.07	213.63	213.19	213.63	0.000006	0.05	35.58	150.38	0.02
Reach1	2541.079	25 year	1.48	213.07	213.63	213.21	213.63	0.000016	0.08	35.76	150.56	0.04
Reach1	2541.079	50 year	1.81	213.07	213.64	213.22	213.64	0.000023	0.1	36.24	151.05	0.05
Reach1	2541.079	100 year	1.93	213.07	213.64	213.23	213.64	0.000025	0.11	36.65	151.47	0.05
Reach1	2541.079	Regional	8.03	213.07	213.71	213.37	213.72	0.000223	0.34	48.38	170.49	0.14
Reach1	2513.932	2 year	0.25	212.63	213.16	212.79	213.16	0.00008	0.18	1.42	117.55	0.08
Reach1	2513.932	5 year	0.67	212.63	213.63	212.87	213.63	0	0.02	97.64	291.19	0.01
Reach1	2513.932	10 year	0.88	212.63	213.63	212.9	213.63	0.000001	0.02	97.64	291.19	0.01
Reach1	2513.932	25 year	1.48	212.63	213.63	212.98	213.63	0.000002	0.04	97.91	291.24	0.01
Reach1	2513.932	50 year	1.81	212.63	213.64	213.03	213.64	0.000003	0.05	98.64	291.37	0.02
Reach1	2513.932	100 year	1.93	212.63	213.64	213.04	213.64	0.000003	0.05	99.29	291.48	0.02
Reach1	2513.932	Regional	8.03	212.63	213.71	213.58	213.71	0.000016	0.13	152.26	295.64	0.04
Reach1	2505.702		Culvert									
Reach1	2497.039	2 year	0.25	212.55	212.87	212.62	212.87	0.000132	0.18	1.4	74.68	0.1
Reach1	2497.039	5 year	0.67	212.55	212.92	212.68	212.93	0.000567	0.41	1.63	82.05	0.21
Reach1	2497.039	10 year	0.88	212.55	212.94	212.71	212.96	0.000818	0.51	1.72	84.93	0.26
Reach1	2497.039	25 year	1.48	212.55	212.99	212.78	213.02	0.001607	0.77	1.92	91.34	0.37
Reach1	2497.039	50 year	1.81	212.55	213.01	212.81	213.05	0.002065	0.9	2.01	94.33	0.42
Reach1	2497.039	100 year	1.93	212.55	213.02	212.82	213.06	0.002232	0.95	2.04	95.37	0.44
Reach1	2497.039	Regional	8.03	212.55	213.25	213.25	213.6	0.009967	2.62	3.07	198.17	1
Reach1	2478.91	2 year	0.25	213.14	212.86		212.86	0.002277		2.36	48.74	0
Reach1	2478.91	5 year	0.67	213.14	212.9		212.9	0.002411		4.45	56.46	0
Reach1	2478.91	10 year	0.88	213.14	212.92		212.92	0.002364		5.35	58.41	0
Reach1	2478.91	25 year	1.48	213.14	212.95	212.86	212.95	0.002419		7.41	61.67	0
Reach1	2478.91	50 year	1.81	213.14	212.97		212.97	0.002401		8.47	63.25	0
Reach1	2478.91	100 year	1.93	213.14	212.97		212.98	0.002378		8.86	63.82	0
Reach1	2478.91	Regional	8.03	213.14	213.16	212.95	213.16	0.002747	0.08	22.63	99.41	0.26
Reach1	2300	2 year	0.22	212.02	212.06	212.06	212.07	0.030178	0.53	0.63	38.21	1.02
Reach1	2300	5 year	0.62	212.02	212.08	212.08	212.09	0.023231	0.68	1.53	46.98	0.98
Reach1	2300	10 year	0.83	212.02	212.09	212.09	212.11	0.023498	0.75	1.89	48.52	1.01
Reach1	2300	25 year	1.39	212.02	212.1	212.1	212.13	0.023836	0.89	2.73	54	1.06
Reach1	2300	50 year	1.74	212.02	212.11	212.11	212.14	0.023813	0.96	3.21	55.99	1.08
Reach1	2300	100 year	1.86	212.02	212.11	212.11	212.14	0.024509	0.99	3.33	56.66	1.1
Reach1	2300	Regional	7.92	212.02	212.21	212.21	212.27	0.020745	1.53	10.31	84.96	1.15
Reach1	2200	2 year	0.22	210.92	211.07	211.01	211.07	0.001704	0.25	0.89	11.74	0.29

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	2200	5 year	0.62	210.92	211.13	211.06	211.14	0.001956	0.38	1.71	16.32	0.34
Reach1	2200	10 year	0.83	210.92	211.15	211.08	211.16	0.002084	0.44	2.09	17.97	0.36
Reach1	2200	25 year	1.39	210.92	211.2	211.11	211.21	0.00229	0.55	3	21.43	0.39
Reach1	2200	50 year	1.74	210.92	211.22	211.13	211.24	0.002405	0.6	3.52	23.26	0.41
Reach1	2200	100 year	1.86	210.92	211.23	211.13	211.25	0.002427	0.62	3.7	23.84	0.41
Reach1	2200	Regional	7.92	210.92	211.45	211.33	211.5	0.003365	1.14	10.97	42.37	0.54
Reach1	2100	2 year	0.22	210.67	210.74	210.73	210.75	0.008439	0.39	0.58	14.47	0.59
Reach1	2100	5 year	0.62	210.67	210.78		210.8	0.007223	0.56	1.29	19.98	0.6
Reach1	2100	10 year	0.83	210.67	210.8		210.82	0.006667	0.61	1.67	22.43	0.6
Reach1	2100	25 year	1.39	210.67	210.84		210.86	0.005968	0.7	2.6	26.57	0.59
Reach1	2100	50 year	1.74	210.67	210.86		210.88	0.005846	0.76	3.13	28.25	0.6
Reach1	2100	100 year	1.86	210.67	210.87		210.89	0.005786	0.77	3.3	28.79	0.6
Reach1	2100	Regional	7.92	210.67	211.08		211.13	0.00432	1.15	11.33	44.27	0.6
Reach1	2000	2 year	0.22	210.15	210.29	210.25	210.3	0.002807	0.29	0.76	11.31	0.36
Reach1	2000	5 year	0.62	210.15	210.35	210.29	210.36	0.003043	0.44	1.48	15.76	0.41
Reach1	2000	10 year	0.83	210.15	210.37	210.31	210.38	0.003166	0.5	1.82	17.07	0.43
Reach1	2000	25 year	1.39	210.15	210.41	210.34	210.43	0.003362	0.61	2.61	19.8	0.46
Reach1	2000	50 year	1.74	210.15	210.43	210.36	210.45	0.00342	0.67	3.08	21.27	0.48
Reach1	2000	100 year	1.86	210.15	210.44	210.36	210.46	0.003448	0.69	3.23	21.71	0.48
Reach1	2000	Regional	7.92	210.15	210.66	210.56	210.72	0.004112	1.22	9.88	38.38	0.59
Reach1	1900	2 year	0.22	209.57	209.65	209.65	209.67	0.024872	0.64	0.35	8.56	0.99
Reach1	1900	5 year	0.62	209.57	209.69	209.69	209.72	0.019908	0.84	0.79	12.56	0.98
Reach1	1900	10 year	0.83	209.57	209.71	209.71	209.75	0.018199	0.9	1.03	14.3	0.96
Reach1	1900	25 year	1.39	209.57	209.74	209.74	209.79	0.016288	1.01	1.63	17.98	0.95
Reach1	1900	50 year	1.74	209.57	209.76	209.76	209.81	0.015977	1.07	1.96	19.36	0.96
Reach1	1900	100 year	1.86	209.57	209.77	209.77	209.82	0.015811	1.09	2.07	19.8	0.96
Reach1	1900	Regional	7.92	209.57	209.95	209.95	210.06	0.012502	1.7	6.83	33.48	0.98
Reach1	1800	2 year	0.22	208.98	209.28	209.09	209.28	0.00009	0.1	2.35	15.65	0.08
Reach1	1800	5 year	0.62	208.98	209.37	209.14	209.38	0.000164	0.18	4.01	20.52	0.11
Reach1	1800	10 year	0.83	208.98	209.41	209.16	209.41	0.000199	0.21	4.7	22.24	0.12
Reach1	1800	25 year	1.39	208.98	209.47	209.2	209.47	0.000282	0.28	6.17	25.5	0.15
Reach1	1800	50 year	1.74	208.98	209.5	209.23	209.51	0.000315	0.32	7.08	27.33	0.16
Reach1	1800	100 year	1.86	208.98	209.51	209.23	209.52	0.000329	0.33	7.34	27.83	0.17
Reach1	1800	Regional	7.92	208.98	209.81	209.45	209.83	0.000697	0.7	18.09	43.3	0.27
Reach1	1700	2 year	0.22	209.12	209.22	209.22	209.25	0.023611	0.71	0.31	6.05	1
Reach1	1700	5 year	0.62	209.12	209.27	209.27	209.32	0.022157	0.93	0.67	8.59	1.04
Reach1	1700	10 year	0.83	209.12	209.3	209.3	209.34	0.021274	0.89	0.96	14.51	1.01
Reach1	1700	25 year	1.39	209.12	209.34	209.34	209.38	0.014178	0.95	1.65	19.56	0.89
Reach1	1700	50 year	1.74	209.12	209.35	209.35	209.41	0.016277	1.08	1.87	20.58	0.96
Reach1	1700	100 year	1.86	209.12	209.36	209.36	209.41	0.015443	1.09	2.01	21.44	0.95
Reach1	1700	Regional	7.92	209.12	209.53	209.53	209.64	0.011953	1.67	6.97	32.51	0.96
Reach1	1599	2 year	0.22	207.45	207.84	207.61	207.84	0.000876	0.41	0.6	6.53	0.23
Reach1	1599	5 year	0.62	207.45	207.97	207.75	207.98	0.00085	0.51	3.09	27.63	0.24
Reach1	1599	10 year	0.83	207.45	208.02	207.81	208.02	0.000717	0.5	4.36	27.81	0.23
Reach1	1599	25 year	1.39	207.45	208.07	207.96	208.08	0.000879	0.6	5.99	28.04	0.26
Reach1	1599	50 year	1.74	207.45	208.11	207.98	208.12	0.000874	0.62	7.06	28.2	0.26
Reach1	1599	100 year	1.86	207.45	208.14	207.99	208.15	0.000701	0.58	7.99	28.33	0.23
Reach1	1599	Regional	7.92	207.45	208.48	208.15	208.49	0.001183	1	17.65	29.65	0.33
Reach1	1501	2 year	1.15	206.8	207.5		207.55	0.003952	1.02	1.26	9.33	0.53
Reach1	1501	5 year	2.25	206.8	207.62	207.57	207.69	0.004634	1.31	2.98	20.95	0.6
Reach1	1501	10 year	3.14	206.8	207.68	207.65	207.76	0.004484	1.41	4.54	25.64	0.6
Reach1	1501	25 year	4.27	206.8	207.74	207.71	207.82	0.004494	1.5	6.05	25.87	0.61
Reach1	1501	50 year	5.07	206.8	207.77	207.74	207.85	0.004714	1.59	6.86	26	0.63
Reach1	1501	100 year	5.99	206.8	207.8	207.77	207.89	0.004968	1.69	7.68	26.12	0.65
Reach1	1501	Regional	15.73	206.8	208.06		208.19	0.005881	2.28	14.66	27.18	0.75
Reach1	1465	2 year	1.15	206.56	207.19	207.11	207.21	0.00303	0.85	2.6	19.74	0.46
Reach1	1465	5 year	2.25	206.56	207.29	207.21	207.32	0.003135	1.02	5.02	28.87	0.49
Reach1	1465	10 year	3.14	206.56	207.34	207.26	207.38	0.00334	1.14	6.83	34.94	0.51
Reach1	1465	25 year	4.27	206.56	207.4	207.27	207.43	0.003351	1.22	8.97	40	0.52
Reach1	1465	50 year	5.07	206.56	207.43	207.33	207.47	0.003267	1.25	10.25	40.13	0.52
Reach1	1465	100 year	5.99	206.56	207.47	207.36	207.5	0.00314	1.28	11.7	40.28	0.52
Reach1	1465	Regional	15.73	206.56	207.74	207.53	207.78	0.002966	1.58	22.73	41.36	0.53

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	1450	2 year	1.15	206.42	207.06		207.08	0.002089	0.77	3.27	27.98	0.39
Reach1	1450	5 year	2.25	206.42	207.16		207.18	0.002025	0.88	6.35	34.54	0.4
Reach1	1450	10 year	3.14	206.42	207.2		207.22	0.002385	1.01	7.72	34.86	0.44
Reach1	1450	25 year	4.27	206.42	207.25		207.28	0.002401	1.08	9.62	35.08	0.45
Reach1	1450	50 year	5.07	206.42	207.28		207.31	0.002461	1.13	10.76	35.21	0.46
Reach1	1450	100 year	5.99	206.42	207.32		207.35	0.002493	1.18	12.02	35.35	0.47
Reach1	1450	Regional	15.73	206.42	207.55		207.6	0.00364	1.74	20.16	36.26	0.59
Reach1	1430	2 year	1.15	206.34	206.79	206.79	206.84	0.006196	1.22	2.21	24.42	0.64
Reach1	1430	5 year	2.25	206.34	206.84	206.84	206.92	0.008807	1.6	3.76	31.93	0.78
Reach1	1430	10 year	3.14	206.34	206.9	206.9	206.96	0.006951	1.55	5.97	41.88	0.71
Reach1	1430	25 year	4.27	206.34	206.93	206.93	206.99	0.008451	1.77	7.02	41.98	0.79
Reach1	1430	50 year	5.07	206.34	206.94	206.94	207.01	0.008989	1.87	7.79	42.06	0.82
Reach1	1430	100 year	5.99	206.34	206.96	206.96	207.04	0.009823	1.99	8.5	42.12	0.86
Reach1	1430	Regional	15.73	206.34	207.18		207.25	0.007459	2.17	17.82	43	0.79
Reach1	1420	2 year	1.15	206.19	206.54	206.46	206.55	0.003335	0.72	3.37	22.61	0.45
Reach1	1420	5 year	2.25	206.19	206.63	206.51	206.64	0.003243	0.84	6.22	35.89	0.46
Reach1	1420	10 year	3.14	206.19	206.68	206.55	206.69	0.003063	0.89	8.06	39.42	0.46
Reach1	1420	25 year	4.27	206.19	206.73	206.6	206.75	0.002922	0.95	10.23	42.41	0.46
Reach1	1420	50 year	5.07	206.19	206.77	206.62	206.78	0.002804	0.98	11.69	42.84	0.45
Reach1	1420	100 year	5.99	206.19	206.8	206.64	206.82	0.002745	1.02	13.25	44.64	0.46
Reach1	1420	Regional	16.84	206.19	207.09		207.11	0.002613	1.33	27.56	52.06	0.48
Reach1	1200	2 year	1.15	205.99	206.26		206.28	0.002889	0.57	2.17	15.21	0.43
Reach1	1200	5 year	2.25	205.99	206.34		206.37	0.003078	0.72	3.6	19.9	0.47
Reach1	1200	10 year	3.14	205.99	206.39		206.42	0.003149	0.83	4.63	22.68	0.49
Reach1	1200	25 year	4.27	205.99	206.44	206.33	206.48	0.003165	0.93	5.95	26.83	0.5
Reach1	1200	50 year	5.07	205.99	206.47	206.36	206.52	0.003299	1	6.78	29.42	0.52
Reach1	1200	100 year	5.99	205.99	206.51	206.38	206.56	0.003323	1.06	7.82	32.4	0.53
Reach1	1200	Regional	16.84	205.99	206.78		206.86	0.0032	1.47	18.95	45.44	0.57
Reach1	1100	2 year	1.15	205.39	205.62	205.62	205.67	0.021293	1.15	1.27	12.08	1.08
Reach1	1100	5 year	2.25	205.39	205.68	205.68	205.76	0.019084	1.35	2.19	15.32	1.08
Reach1	1100	10 year	3.14	205.39	205.72	205.72	205.81	0.018121	1.45	2.87	17.35	1.08
Reach1	1100	25 year	4.27	205.39	205.76	205.76	205.87	0.018326	1.59	3.59	19.26	1.11
Reach1	1100	50 year	5.07	205.39	205.79	205.79	205.9	0.016751	1.63	4.21	20.74	1.08
Reach1	1100	100 year	5.99	205.39	205.82	205.82	205.94	0.016601	1.72	4.77	21.94	1.09
Reach1	1100	Regional	18.4	205.39	206.08	206.08	206.28	0.013621	2.3	12.19	35.71	1.09
Reach1	1000	2 year	1.15	204.37	204.62	204.54	204.64	0.004597	0.65	1.76	11.38	0.53
Reach1	1000	5 year	2.25	204.37	204.69	204.62	204.73	0.005694	0.82	2.74	14.67	0.61
Reach1	1000	10 year	3.14	204.37	204.74	204.67	204.78	0.005886	0.91	3.45	16.65	0.63
Reach1	1000	25 year	4.27	204.37	204.79	204.71	204.84	0.006056	1.01	4.27	18.68	0.65
Reach1	1000	50 year	5.07	204.37	204.82	204.74	204.87	0.006048	1.06	4.87	20.03	0.66
Reach1	1000	100 year	5.99	204.37	204.85	204.77	204.91	0.006071	1.11	5.5	21.41	0.67
Reach1	1000	Regional	18.4	204.37	205.11	205.02	205.25	0.005635	1.67	12.81	32.09	0.72
Reach1	900	2 year	1.15	203.87	204.1		204.12	0.00586	0.68	1.76	14.94	0.58
Reach1	900	5 year	2.25	203.87	204.18		204.21	0.004735	0.82	3.1	19.82	0.57
Reach1	900	10 year	3.14	203.87	204.22		204.26	0.004599	0.92	4.08	22.74	0.58
Reach1	900	25 year	4.27	203.87	204.27		204.32	0.004465	1.02	5.28	25.68	0.58
Reach1	900	50 year	5.07	203.87	204.3		204.35	0.004508	1.09	6.06	27.39	0.6
Reach1	900	100 year	5.99	203.87	204.33		204.39	0.004525	1.15	6.93	29.22	0.61
Reach1	900	Regional	18.4	203.87	204.59		204.71	0.005115	1.75	17.33	47.92	0.7
Reach1	800	2 year	1.15	203.11	203.36		203.4	0.009138	0.87	1.41	11.99	0.74
Reach1	800	5 year	2.25	203.11	203.42	203.4	203.48	0.012128	1.19	2.12	14.53	0.88
Reach1	800	10 year	3.14	203.11	203.45	203.45	203.54	0.012626	1.35	2.73	16.36	0.93
Reach1	800	25 year	4.27	203.11	203.49	203.49	203.6	0.01318	1.5	3.43	18.28	0.97
Reach1	800	50 year	5.07	203.11	203.52	203.52	203.64	0.012741	1.56	4	19.67	0.96
Reach1	800	100 year	5.99	203.11	203.55	203.55	203.68	0.012596	1.63	4.6	21.1	0.97
Reach1	800	Regional	19.16	203.11	203.84	203.83	204.02	0.009509	2.13	13.07	34.3	0.93
Reach1	700	2 year	1.15	202.6	202.86	202.79	202.87	0.003321	0.51	2.86	21.71	0.44
Reach1	700	5 year	2.25	202.6	202.94	202.84	202.96	0.002768	0.6	4.79	25.58	0.43
Reach1	700	10 year	3.14	202.6	202.99	202.87	203.01	0.002757	0.68	5.97	27.13	0.44
Reach1	700	25 year	4.27	202.6	203.04	202.9	203.06	0.00271	0.77	7.38	28.61	0.45
Reach1	700	50 year	5.07	202.6	203.07	202.92	203.1	0.002734	0.82	8.26	29.5	0.46
Reach1	700	100 year	5.99	202.6	203.1	202.95	203.14	0.002659	0.87	9.34	30.45	0.46
Reach1	700	Regional	19.16	202.6	203.41	203.19	203.49	0.0032	1.43	19.58	37.29	0.56

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	600	2 year	1.15	201.94	202.25	202.23	202.3	0.011621	1.05	1.1	7.22	0.84
Reach1	600	5 year	2.25	201.94	202.32	202.32	202.42	0.013824	1.43	1.64	9.16	0.97
Reach1	600	10 year	3.14	201.94	202.37	202.37	202.49	0.01228	1.55	2.24	11.33	0.94
Reach1	600	25 year	4.27	201.94	202.44	202.44	202.57	0.01106	1.67	3.03	13.69	0.92
Reach1	600	50 year	5.07	201.94	202.51	202.51	202.61	0.010805	1.51	4.28	23.25	0.89
Reach1	600	100 year	5.99	201.94	202.54	202.54	202.65	0.01164	1.57	4.99	25.95	0.93
Reach1	600	Regional	19.16	201.94	202.8	202.8	202.98	0.009852	2.16	14.08	40.73	0.94
Reach1	540.4514	2 year	1.15	201.5	201.81	201.74	201.84	0.005511	0.67	1.73	12.6	0.57
Reach1	540.4514	5 year	2.25	201.5	201.9	201.82	201.93	0.004564	0.8	2.99	17.55	0.55
Reach1	540.4514	10 year	3.14	201.5	201.95	201.87	201.99	0.00418	0.86	4.02	20.18	0.55
Reach1	540.4514	25 year	4.27	201.5	202.01	201.91	202.05	0.003791	0.92	5.42	25.91	0.54
Reach1	540.4514	50 year	5.07	201.5	202.05	201.94	202.09	0.003537	0.96	6.42	28.92	0.53
Reach1	540.4514	100 year	5.99	201.5	202.09	201.96	202.13	0.003216	0.99	7.63	30.44	0.51
Reach1	540.4514	Regional	19.83	201.5	202.48	202.24	202.55	0.002332	1.35	22.34	45.83	0.49
Reach1	504.8202	2 year	1.15	200.96	201.35	201.27	201.38	0.004632	0.77	1.49	7.45	0.55
Reach1	504.8202	5 year	2.25	200.96	201.44	201.36	201.49	0.004888	0.99	2.3	9	0.6
Reach1	504.8202	10 year	3.14	200.96	201.51	201.41	201.57	0.004995	1.12	2.89	10.15	0.62
Reach1	504.8202	25 year	4.27	200.96	201.57	201.47	201.65	0.005186	1.26	3.58	11.36	0.65
Reach1	504.8202	50 year	5.07	200.96	201.61	201.51	201.7	0.005283	1.35	4.05	12.12	0.66
Reach1	504.8202	100 year	5.99	200.96	201.66	201.55	201.76	0.005537	1.42	4.65	13.5	0.68
Reach1	504.8202	Regional	19.83	200.96	202.25	201.96	202.35	0.002389	1.49	18.74	36.4	0.51
Reach1	482.854	2 year	1.15	200.81	201.12	201.12	201.2	0.016666	1.22	0.94	6.18	1
Reach1	482.854	5 year	2.25	200.81	201.21	201.21	201.32	0.014673	1.45	1.57	7.94	0.99
Reach1	482.854	10 year	3.14	200.81	201.27	201.27	201.39	0.013219	1.59	2.06	9.06	0.98
Reach1	482.854	25 year	4.27	200.81	201.33	201.33	201.48	0.01203	1.72	2.68	10.36	0.96
Reach1	482.854	50 year	5.07	200.81	201.37	201.37	201.53	0.011407	1.79	3.12	11.26	0.95
Reach1	482.854	100 year	5.99	200.81	201.44	201.44	201.58	0.011448	1.74	3.94	14.49	0.95
Reach1	482.854	Regional	19.83	200.81	202.26	201.79	202.3	0.000965	1.08	31.89	55.01	0.33
Reach1	449.3484	2 year	1.15	200.58	201.02	200.82	201.02	0.000677	0.39	4.18	22.29	0.23
Reach1	449.3484	5 year	2.25	200.58	201.13	200.92	201.14	0.000787	0.49	6.87	26.37	0.25
Reach1	449.3484	10 year	3.14	200.58	201.2	200.96	201.21	0.000828	0.54	8.88	29.27	0.26
Reach1	449.3484	25 year	4.27	200.58	201.28	201.01	201.3	0.000831	0.57	11.49	32.12	0.27
Reach1	449.3484	50 year	5.07	200.58	201.34	201.04	201.35	0.00082	0.58	13.22	33.77	0.27
Reach1	449.3484	100 year	5.99	200.58	201.39	201.06	201.4	0.000835	0.61	14.95	35.33	0.27
Reach1	449.3484	Regional	19.83	200.58	202.27	201.35	202.28	0.000225	0.61	59.79	68.13	0.17
Reach1	439.3625	2 year	1.15	200.58	200.9	200.9	200.97	0.017016	1.17	0.98	7.02	1
Reach1	439.3625	5 year	2.25	200.58	200.98	200.98	201.07	0.01668	1.32	1.7	10.55	1.02
Reach1	439.3625	10 year	3.14	200.58	201.03	201.03	201.13	0.014897	1.45	2.17	12.58	1
Reach1	439.3625	25 year	4.27	200.58	201.08	201.08	201.2	0.014008	1.59	2.68	14.75	1
Reach1	439.3625	50 year	5.07	200.58	201.11	201.11	201.25	0.013632	1.66	3.05	16.43	1
Reach1	439.3625	100 year	5.99	200.58	201.3	201.16	201.36	0.00407	1.08	5.54	28.61	0.57
Reach1	439.3625	Regional	19.83	200.58	202.21	201.49	202.26	0.000637	0.97	20.47	61.36	0.28
Reach1	426.0718		Culvert									
Reach1	416.8555	2 year	1.15	200.33	200.65	200.65	200.72	0.016832	1.21	0.95	6.36	1
Reach1	416.8555	5 year	2.25	200.33	200.75	200.75	200.84	0.015489	1.34	1.68	9.14	1
Reach1	416.8555	10 year	3.14	200.33	200.8	200.8	200.9	0.014823	1.44	2.19	11.09	1
Reach1	416.8555	25 year	4.27	200.33	200.85	200.85	200.97	0.014465	1.55	2.76	13.08	1.01
Reach1	416.8555	50 year	5.07	200.33	200.88	200.88	201.01	0.013772	1.6	3.17	14.47	1
Reach1	416.8555	100 year	5.99	200.33	200.59	200.91	205.3	1.402741	9.61	0.62	5.16	8.83
Reach1	416.8555	Regional	19.83	200.33	200.98	201.27	202.05	0.075137	4.59	4.32	20.99	2.45
Reach1	406.9713	2 year	1.15	200.03	200.42	200.3	200.44	0.002199	0.53	2.19	11.64	0.38
Reach1	406.9713	5 year	2.25	200.03	200.51	200.38	200.54	0.002437	0.69	3.35	14.05	0.42
Reach1	406.9713	10 year	3.14	200.03	200.57	200.43	200.6	0.002647	0.8	4.15	15.5	0.45
Reach1	406.9713	25 year	4.27	200.03	200.64	200.47	200.67	0.002987	0.86	5.41	20.86	0.48
Reach1	406.9713	50 year	5.07	200.03	200.7	200.51	200.73	0.002852	0.84	6.83	30.21	0.47
Reach1	406.9713	100 year	5.99	200.03	200.72	200.54	200.76	0.00314	0.93	7.71	37.43	0.5
Reach1	406.9713	Regional	19.83	200.03	201.01	200.87	201.09	0.003392	1.43	19.45	43.42	0.57
Reach1	368.8569	2 year	1.15	199.63	199.85	199.85	199.9	0.01884	1.03	1.13	11.46	1.01
Reach1	368.8569	5 year	2.25	199.63	199.91	199.91	199.98	0.016193	1.21	1.99	15.61	0.99
Reach1	368.8569	10 year	3.14	199.63	199.95	199.95	200.03	0.014054	1.31	2.66	18.1	0.96
Reach1	368.8569	25 year	4.27	199.63	199.99	199.99	200.09	0.012327	1.41	3.53	20.61	0.93

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	368.8569	50 year	5.07	199.63	200.01	200.01	200.13	0.014588	1.59	3.78	21.27	1.02
Reach1	368.8569	100 year	5.99	199.63	200.05	200.05	200.17	0.011684	1.58	4.79	26.84	0.94
Reach1	368.8569	Regional	19.83	199.63	200.31	200.31	200.51	0.009806	2.23	13.38	36.15	0.96
Reach1	300	2 year	1.15	198.81	199.3	199.08	199.3	0.000836	0.39	2.96	11.47	0.24
Reach1	300	5 year	2.25	198.81	199.43	199.17	199.44	0.000959	0.48	4.68	14.59	0.27
Reach1	300	10 year	3.14	198.81	199.5	199.22	199.51	0.001005	0.55	5.75	16.4	0.28
Reach1	300	25 year	4.27	198.81	199.57	199.27	199.59	0.001054	0.63	6.95	18.31	0.3
Reach1	300	50 year	5.07	198.81	199.61	199.31	199.63	0.001072	0.68	7.8	19.54	0.31
Reach1	300	100 year	5.99	198.81	199.66	199.35	199.68	0.001101	0.73	8.73	20.8	0.32
Reach1	300	Regional	20.53	198.81	200.11	199.74	200.17	0.001188	1.14	25.88	41.52	0.36
Reach1	258.518	2 year	1.15	198.76	199.02	199.01	199.08	0.01496	1.1	1.05	7.49	0.94
Reach1	258.518	5 year	2.25	198.76	199.09	199.09	199.18	0.016086	1.33	1.69	9.5	1.01
Reach1	258.518	10 year	3.14	198.76	199.14	199.14	199.25	0.015189	1.44	2.19	10.96	1.01
Reach1	258.518	25 year	4.27	198.76	199.19	199.19	199.32	0.014051	1.57	2.76	12.21	1
Reach1	258.518	50 year	5.07	198.76	199.22	199.22	199.36	0.013328	1.65	3.17	13.02	0.99
Reach1	258.518	100 year	5.99	198.76	199.26	199.26	199.41	0.012673	1.72	3.64	13.88	0.98
Reach1	258.518	Regional	20.53	198.76	199.64	199.64	199.9	0.010116	2.37	10.88	28.71	0.98
Reach1	199.9999	2 year	1.15	198.52	198.87	198.87	198.88	0.001441	0.39	4.32	36.88	0.3
Reach1	199.9999	5 year	2.25	198.52	198.94	198.83	198.95	0.00148	0.49	6.96	39.23	0.32
Reach1	199.9999	10 year	3.14	198.52	198.99	198.87	199	0.001525	0.55	8.73	41.03	0.34
Reach1	199.9999	25 year	4.27	198.52	199.03	198.89	199.05	0.001579	0.62	10.73	43.18	0.35
Reach1	199.9999	50 year	5.07	198.52	199.07	198.91	199.08	0.001575	0.66	12.11	44.62	0.35
Reach1	199.9999	100 year	5.99	198.52	199.1	198.93	199.12	0.001592	0.7	13.57	46.08	0.36
Reach1	199.9999	Regional	20.53	198.52	199.45	199.13	199.49	0.001655	1.11	32.37	60.48	0.41
Reach1	155.1166	2 year	1.15	198.33	198.5	198.5	198.54	0.019785	0.93	1.5	18.96	1
Reach1	155.1166	5 year	2.25	198.33	198.54	198.54	198.6	0.019662	1.16	2.35	20.03	1.05
Reach1	155.1166	10 year	3.14	198.33	198.57	198.57	198.65	0.019022	1.28	2.96	20.77	1.07
Reach1	155.1166	25 year	4.27	198.33	198.61	198.61	198.69	0.018138	1.39	3.69	21.62	1.07
Reach1	155.1166	50 year	5.07	198.33	198.63	198.63	198.72	0.018614	1.49	4.09	22.01	1.1
Reach1	155.1166	100 year	5.99	198.33	198.65	198.65	198.76	0.017722	1.57	4.6	22.54	1.09
Reach1	155.1166	Regional	20.53	198.33	198.92	198.92	199.14	0.012482	2.28	11.63	29.3	1.05
Reach1	100	2 year	1.15	197.69	197.87	197.81	197.88	0.003257	0.5	2.34	18.85	0.43
Reach1	100	5 year	2.25	197.69	197.94	197.86	197.96	0.003283	0.64	3.69	22.13	0.46
Reach1	100	10 year	3.14	197.69	197.98	197.89	198	0.003466	0.73	4.62	23.93	0.49
Reach1	100	25 year	4.27	197.69	198.02	197.92	198.06	0.003616	0.8	5.77	26.21	0.51
Reach1	100	50 year	5.07	197.69	198.05	197.95	198.09	0.003736	0.86	6.51	27.78	0.52
Reach1	100	100 year	5.99	197.69	198.08	197.97	198.12	0.00394	0.91	7.26	29.02	0.54
Reach1	100	Regional	20.53	197.69	198.33	198.22	198.44	0.005238	1.59	15.92	41.05	0.69
Reach1	24.31342	2 year	1.15	197.32	197.32	197.32	197.36	0.050901	0.1	1.33	18.37	0.82
Reach1	24.31342	5 year	2.25	197.32	197.37	197.37	197.41	0.059965	0.75	2.42	30.6	1.43
Reach1	24.31342	10 year	3.14	197.32	197.39	197.39	197.44	0.056433	0.94	3.28	35.68	1.48
Reach1	24.31342	25 year	4.27	197.32	197.41	197.41	197.47	0.059124	1.14	4.13	40.31	1.58
Reach1	24.31342	50 year	5.07	197.32	197.43	197.43	197.49	0.058511	1.24	4.78	44.36	1.6
Reach1	24.31342	100 year	5.99	197.32	197.45	197.45	197.51	0.053169	1.31	5.69	48.89	1.57
Reach1	24.31342	Regional	20.82	197.32	197.6	197.6	197.7	0.046733	2.04	15.5	76.21	1.67

**HEC RAS Model Output**

PROJECT: Orlando North Porta

PROJECT #: 17197

DATE: April 2022

MUNICIPALITY: Town of Milton

Plan: 201\_TMIG\_NorthPorta\_Proposed APRIL2022

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	4400	2 year	0.11	221.15	221.26	221.21	221.26	0.001423	0.2	0.57	10.93	0.25
Reach1	4400	5 year	0.22	221.15	221.29	221.23	221.29	0.001424	0.25	0.99	14.97	0.27
Reach1	4400	10 year	0.34	221.15	221.32	221.25	221.32	0.001412	0.29	1.45	18.41	0.28
Reach1	4400	25 year	0.37	221.15	221.32	221.25	221.33	0.001374	0.29	1.57	19.16	0.27
Reach1	4400	50 year	0.4	221.15	221.33	221.26	221.33	0.001361	0.3	1.7	19.98	0.28
Reach1	4400	100 year	0.48	221.15	221.34	221.27	221.35	0.001349	0.31	1.98	21.28	0.28
Reach1	4400	Regional	1.47	221.15	221.45	221.34	221.46	0.00132	0.44	4.47	25.25	0.3
Reach1	4300	2 year	0.11	220.94	221.06	221.02	221.06	0.003012	0.27	0.41	7.62	0.36
Reach1	4300	5 year	0.22	220.94	221.09	221.04	221.09	0.00313	0.35	0.65	9.31	0.39
Reach1	4300	10 year	0.34	220.94	221.11	221.06	221.12	0.003246	0.41	0.9	10.76	0.41
Reach1	4300	25 year	0.37	220.94	221.12	221.07	221.12	0.003269	0.42	0.95	11.03	0.42
Reach1	4300	50 year	0.4	220.94	221.12	221.07	221.13	0.003301	0.44	1.01	11.36	0.42
Reach1	4300	100 year	0.48	220.94	221.13	221.08	221.14	0.003376	0.47	1.15	12.05	0.43
Reach1	4300	Regional	1.47	220.94	221.23	221.16	221.25	0.00385	0.69	2.74	20.74	0.5
Reach1	4200	2 year	0.11	220.3	220.36	220.36	220.38	0.027269	0.57	0.19	5.77	1
Reach1	4200	5 year	0.22	220.3	220.38	220.38	220.41	0.025075	0.65	0.33	7.58	1
Reach1	4200	10 year	0.34	220.3	220.4	220.4	220.43	0.023261	0.72	0.48	9.08	0.99
Reach1	4200	25 year	0.37	220.3	220.4	220.4	220.43	0.022853	0.73	0.5	9.33	0.99
Reach1	4200	50 year	0.4	220.3	220.41	220.41	220.44	0.022365	0.75	0.54	9.64	0.99
Reach1	4200	100 year	0.48	220.3	220.42	220.42	220.45	0.021334	0.79	0.62	10.33	0.99
Reach1	4200	Regional	1.47	220.3	220.49	220.49	220.54	0.016825	1.05	1.55	16.02	0.97
Reach1	4100	2 year	0.11	219.64	219.77	219.71	219.77	0.000563	0.14	0.9	14.38	0.16
Reach1	4100	5 year	0.22	219.64	219.8	219.73	219.8	0.000759	0.19	1.36	16.7	0.2
Reach1	4100	10 year	0.34	219.64	219.82	219.74	219.82	0.000996	0.24	1.73	18.37	0.23
Reach1	4100	25 year	0.37	219.64	219.83	219.74	219.83	0.000816	0.23	1.98	19.41	0.21
Reach1	4100	50 year	0.4	219.64	219.83	219.75	219.84	0.00088	0.24	2.06	19.72	0.22
Reach1	4100	100 year	0.48	219.64	219.85	219.75	219.85	0.000899	0.26	2.34	20.81	0.23
Reach1	4100	Regional	1.47	219.64	219.94	219.82	219.95	0.001183	0.43	4.77	28.99	0.29
Reach1	4000	2 year	0.25	219.34	219.41	219.41	219.43	0.023822	0.6	0.45	14.59	0.96
Reach1	4000	5 year	0.41	219.34	219.43	219.43	219.45	0.020358	0.67	0.72	17.88	0.93
Reach1	4000	10 year	0.52	219.34	219.43	219.43	219.46	0.019908	0.71	0.88	19.51	0.94
Reach1	4000	25 year	0.68	219.34	219.45	219.45	219.47	0.019759	0.78	1.09	21.59	0.95
Reach1	4000	50 year	0.7	219.34	219.45	219.45	219.48	0.019082	0.78	1.14	22.02	0.94
Reach1	4000	100 year	0.82	219.34	219.45	219.45	219.49	0.019679	0.83	1.27	23.2	0.97
Reach1	4000	Regional	2.85	219.34	219.56	219.56	219.59	0.008554	0.98	6.82	100.5	0.74
Reach1	3900	2 year	0.25	218.7	218.79	218.75	218.8	0.001202	0.21	1.96	39.62	0.24
Reach1	3900	5 year	0.41	218.7	218.82	218.76	218.82	0.001273	0.26	2.9	46.38	0.26
Reach1	3900	10 year	0.52	218.7	218.83	218.77	218.83	0.001409	0.29	3.36	49.33	0.28
Reach1	3900	25 year	0.68	218.7	218.84	218.78	218.85	0.001339	0.31	4.3	54.92	0.28
Reach1	3900	50 year	0.7	218.7	218.85	218.78	218.85	0.001347	0.31	4.42	55.59	0.28
Reach1	3900	100 year	0.82	218.7	218.85	218.79	218.86	0.001457	0.34	4.87	58.05	0.29
Reach1	3900	Regional	2.85	218.7	218.96	218.85	218.97	0.001624	0.53	13.05	91.91	0.34
Reach1	3800	2 year	0.25	218.4	218.44	218.44	218.46	0.031059	0.48	0.52	22.06	1
Reach1	3800	5 year	0.41	218.4	218.45	218.45	218.47	0.029525	0.55	0.75	25.86	1.02
Reach1	3800	10 year	0.52	218.4	218.46	218.46	218.48	0.019787	0.51	1.01	28.84	0.86
Reach1	3800	25 year	0.68	218.4	218.47	218.47	218.49	0.025565	0.61	1.12	30.01	0.99
Reach1	3800	50 year	0.7	218.4	218.47	218.47	218.49	0.025538	0.62	1.15	30.32	0.99
Reach1	3800	100 year	0.82	218.4	218.48	218.48	218.49	0.019764	0.59	1.41	32.91	0.89
Reach1	3800	Regional	2.85	218.4	218.53	218.53	218.56	0.021158	0.86	3.46	48.63	1.01
Reach1	3700	2 year	0.25	217.36	217.38	217.3	217.38	0.005235	0.1	1.39	16.89	0.35
Reach1	3700	5 year	0.41	217.36	217.42	217.32	217.42	0.003681	0.2	2.27	23.01	0.36
Reach1	3700	10 year	0.52	217.36	217.45	217.33	217.45	0.002978	0.22	2.88	26.57	0.34
Reach1	3700	25 year	0.68	217.36	217.47	217.34	217.48	0.002531	0.24	3.68	30.68	0.33
Reach1	3700	50 year	0.7	217.36	217.48	217.34	217.48	0.002469	0.25	3.81	31.28	0.33
Reach1	3700	100 year	0.82	217.36	217.5	217.35	217.5	0.002116	0.25	4.48	34.24	0.31
Reach1	3700	Regional	2.85	217.36	217.76	217.44	217.77	0.000386	0.23	18.08	65.27	0.16

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
			(m <sup>3</sup> /s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m <sup>2</sup> )	(m)	

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	3600	2 year	0.25	216.87	217.27		217.28	0.000547	0.17	2.03	17.35	0.13
Reach1	3600	5 year	0.41	216.87	217.33		217.33	0.000541	0.2	3.12	23.2	0.13
Reach1	3600	10 year	0.52	216.87	217.35		217.35	0.000574	0.22	3.7	25.08	0.14
Reach1	3600	25 year	0.68	216.87	217.38		217.39	0.000623	0.25	4.52	27.42	0.14
Reach1	3600	50 year	0.7	216.87	217.39		217.39	0.000622	0.25	4.66	27.82	0.14
Reach1	3600	100 year	0.82	216.87	217.41		217.41	0.000629	0.27	5.3	29.5	0.15
Reach1	3600	Regional	2.85	216.87	217.73		217.73	0.000366	0.32	18.05	47.87	0.13
Reach1	3550	2 year	0.25	216.8	217.19		217.21	0.005772	0.56	0.46	5.03	0.4
Reach1	3550	5 year	0.41	216.8	217.25	217.13	217.26	0.005291	0.63	1.11	16.66	0.4
Reach1	3550	10 year	0.52	216.8	217.27	217.16	217.28	0.005286	0.66	1.48	18	0.4
Reach1	3550	25 year	0.68	216.8	217.29	217.24	217.31	0.005315	0.7	1.98	19.68	0.41
Reach1	3550	50 year	0.7	216.8	217.3		217.32	0.00475	0.68	2.17	20.29	0.39
Reach1	3550	100 year	0.82	216.8	217.33		217.35	0.003715	0.64	2.82	22.25	0.35
Reach1	3550	Regional	2.85	216.8	217.7		217.71	0.000802	0.48	13.11	31.16	0.18
Reach1	3500	2 year	0.14	216.61	216.95		216.96	0.003723	0.4	0.35	2.04	0.31
Reach1	3500	5 year	0.24	216.61	217.02		217.03	0.003746	0.48	0.61	10.1	0.33
Reach1	3500	10 year	0.29	216.61	217.04		217.05	0.003672	0.5	0.88	15.29	0.33
Reach1	3500	25 year	0.39	216.61	217.06	216.93	217.08	0.003695	0.54	1.32	17.18	0.33
Reach1	3500	50 year	0.51	216.61	217.09	216.97	217.1	0.003736	0.58	1.77	18.55	0.34
Reach1	3500	100 year	0.86	216.61	217.15		217.16	0.003784	0.65	2.88	21.54	0.35
Reach1	3500	Regional	7.32	216.61	217.57		217.6	0.003801	1.11	13.87	27.53	0.4
Reach1	3400	2 year	0.14	216.21	216.55		216.56	0.003976	0.41	0.34	2.01	0.32
Reach1	3400	5 year	0.24	216.21	216.62		216.63	0.003953	0.49	0.59	9.48	0.33
Reach1	3400	10 year	0.29	216.21	216.63		216.65	0.003999	0.52	0.82	14.41	0.34
Reach1	3400	25 year	0.39	216.21	216.66		216.68	0.003994	0.56	1.26	16.97	0.35
Reach1	3400	50 year	0.51	216.21	216.69		216.7	0.003905	0.59	1.73	18.41	0.35
Reach1	3400	100 year	0.86	216.21	216.74		216.76	0.003861	0.66	2.85	21.44	0.36
Reach1	3400	Regional	7.32	216.21	217.18		217.21	0.003616	1.1	13.95	26.86	0.4
Reach1	3300	2 year	0.14	215.81	216.15		216.16	0.004012	0.41	0.34	2.02	0.32
Reach1	3300	5 year	0.24	215.81	216.22		216.23	0.004054	0.49	0.58	9.43	0.34
Reach1	3300	10 year	0.29	215.81	216.24		216.25	0.003993	0.51	0.82	13.95	0.34
Reach1	3300	25 year	0.39	215.81	216.26		216.28	0.004	0.56	1.23	15.4	0.35
Reach1	3300	50 year	0.51	215.81	216.29		216.3	0.004122	0.6	1.63	16.7	0.36
Reach1	3300	100 year	0.86	215.81	216.35		216.36	0.004126	0.68	2.67	19.68	0.37
Reach1	3300	Regional	7.32	215.81	216.78		216.81	0.004343	1.2	12.49	23.85	0.43
Reach1	3200	2 year	0.14	215.42	215.76		215.76	0.003861	0.41	0.34	2.02	0.32
Reach1	3200	5 year	0.24	215.42	215.82		215.83	0.003797	0.48	0.61	9.92	0.33
Reach1	3200	10 year	0.29	215.42	215.84		215.85	0.003887	0.51	0.84	14.6	0.34
Reach1	3200	25 year	0.39	215.42	215.87		215.88	0.003888	0.55	1.28	17.07	0.34
Reach1	3200	50 year	0.51	215.42	215.9		215.91	0.003758	0.58	1.77	18.56	0.34
Reach1	3200	100 year	0.86	215.42	215.95		215.97	0.003761	0.65	2.89	21.61	0.35
Reach1	3200	Regional	7.32	215.42	216.38		216.4	0.003851	1.12	13.81	27.56	0.41
Reach1	3150	2 year	0.14	215.27	215.61		215.62	0.003894	0.41	0.34	2.02	0.32
Reach1	3150	5 year	0.24	215.27	215.68		215.69	0.003821	0.48	0.6	9.75	0.33
Reach1	3150	10 year	0.29	215.27	215.7		215.71	0.00378	0.51	0.85	14.8	0.33
Reach1	3150	25 year	0.39	215.27	215.73		215.74	0.003714	0.54	1.32	17.26	0.33
Reach1	3150	50 year	0.51	215.27	215.75		215.76	0.004046	0.6	1.7	18.45	0.35
Reach1	3150	100 year	0.86	215.27	215.81		215.82	0.003862	0.66	2.86	21.66	0.36
Reach1	3150	Regional	7.32	215.27	216.23		216.26	0.003817	1.12	13.91	27.83	0.41
Reach1	3100	2 year	0.14	215.01	215.34		215.35	0.003858	0.41	0.34	2.03	0.32
Reach1	3100	5 year	0.24	215.01	215.41		215.42	0.003988	0.49	0.58	8.95	0.33
Reach1	3100	10 year	0.29	215.01	215.43		215.44	0.004036	0.52	0.8	13.73	0.34
Reach1	3100	25 year	0.39	215.01	215.46	215.33	215.47	0.00412	0.56	1.23	16.99	0.35
Reach1	3100	50 year	0.51	215.01	215.49		215.5	0.003531	0.56	1.82	18.79	0.33
Reach1	3100	100 year	0.86	215.01	215.54		215.56	0.003785	0.65	2.88	21.61	0.35
Reach1	3100	Regional	7.32	215.01	215.96		215.99	0.00391	1.13	13.64	27	0.41
Reach1	3000	2 year	0.14	214.61	214.94		214.95	0.003965	0.41	0.34	2.02	0.32
Reach1	3000	5 year	0.24	214.61	215.01		215.02	0.003804	0.48	0.6	9.76	0.33
Reach1	3000	10 year	0.29	214.61	215.03		215.04	0.003708	0.5	0.87	14.98	0.33
Reach1	3000	25 year	0.39	214.61	215.06		215.07	0.003609	0.54	1.34	17.24	0.33
Reach1	3000	50 year	0.51	214.61	215.08	214.96	215.09	0.004474	0.62	1.61	18.07	0.37
Reach1	3000	100 year	0.86	214.61	215.14		215.15	0.004101	0.67	2.77	21.24	0.37
Reach1	3000	Regional	7.32	214.61	215.57		215.6	0.003732	1.11	13.85	27.04	0.4



Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	2900	2 year	0.14	214.23	214.56		214.57	0.00386	0.41	0.34	2.02	0.32
Reach1	2900	5 year	0.24	214.23	214.63		214.64	0.004146	0.49	0.56	8.8	0.34
Reach1	2900	10 year	0.29	214.23	214.64		214.66	0.00427	0.53	0.77	13.53	0.35
Reach1	2900	25 year	0.39	214.23	214.67		214.69	0.004428	0.58	1.18	16.67	0.36
Reach1	2900	50 year	0.51	214.23	214.71		214.72	0.003304	0.55	1.89	18.8	0.32
Reach1	2900	100 year	0.86	214.23	214.76		214.77	0.003728	0.65	2.89	21.49	0.35
Reach1	2900	Regional	7.32	214.23	215.13		215.16	0.005517	1.27	12.2	26.91	0.48
Reach1	2850	2 year	0.14	213.97	214.31		214.32	0.00395	0.41	0.34	2.02	0.32
Reach1	2850	5 year	0.24	213.97	214.39		214.4	0.003368	0.46	0.67	11.12	0.31
Reach1	2850	10 year	0.29	213.97	214.41		214.42	0.00319	0.48	0.97	16.34	0.31
Reach1	2850	25 year	0.39	213.97	214.44	214.29	214.45	0.002973	0.5	1.58	21.98	0.3
Reach1	2850	50 year	0.51	213.97	214.44		214.46	0.004919	0.64	1.62	22.29	0.39
Reach1	2850	100 year	0.86	213.97	214.5		214.51	0.004252	0.68	3.19	32.57	0.37
Reach1	2850	Regional	7.32	213.97	214.84		214.86	0.003758	1.02	18.59	55.64	0.39
Reach1	2800	2 year	0.14	213.82	214.19		214.2	0.002414	0.34	0.41	2.21	0.25
Reach1	2800	5 year	0.24	213.82	214.19		214.21	0.007518	0.6	0.4	2.19	0.45
Reach1	2800	10 year	0.29	213.82	214.21		214.23	0.008162	0.66	0.45	4.53	0.47
Reach1	2800	25 year	0.39	213.82	214.24	214.14	214.26	0.008868	0.75	0.68	11.5	0.5
Reach1	2800	50 year	0.51	213.82	214.35	214.18	214.35	0.00166	0.42	2.89	27.53	0.23
Reach1	2800	100 year	0.86	213.82	214.39	214.29	214.39	0.002246	0.53	4.13	32.8	0.28
Reach1	2800	Regional	7.32	213.82	214.67		214.69	0.005057	1.15	15.77	46.52	0.45
Reach1	2700	2 year	0.14	213.43	213.7		213.72	0.013117	0.64	0.22	1.61	0.56
Reach1	2700	5 year	0.24	213.43	213.88	213.7	213.88	0.001765	0.36	1.15	18.34	0.23
Reach1	2700	10 year	0.29	213.43	213.9	213.72	213.9	0.001735	0.38	1.53	21.79	0.23
Reach1	2700	25 year	0.39	213.43	213.93	213.75	213.93	0.001678	0.4	2.26	27.3	0.23
Reach1	2700	50 year	0.51	213.43	213.79	213.79	213.88	0.039194	1.35	0.38	2.14	1.02
Reach1	2700	100 year	0.86	213.43	213.91	213.9	213.95	0.012265	1.03	1.76	23.67	0.62
Reach1	2700	Regional	7.32	213.43	214.34	214.11	214.35	0.002411	0.84	21.85	57.88	0.32
Reach1	2600	2 year	0.14	213.05	213.46		213.47	0.001	0.26	0.74	12.49	0.17
Reach1	2600	5 year	0.24	213.05	213.31	213.31	213.38	0.043256	1.15	0.21	1.58	1.02
Reach1	2600	10 year	0.29	213.05	213.33	213.33	213.4	0.041932	1.2	0.24	1.71	1.01
Reach1	2600	25 year	0.39	213.05	213.37	213.37	213.45	0.040331	1.27	0.31	1.93	1.01
Reach1	2600	50 year	0.51	213.05	213.8	213.4	213.8	0.00003	0.08	18.6	80.31	0.03
Reach1	2600	100 year	0.86	213.05	213.63		213.63	0.001298	0.42	6.27	56.22	0.21
Reach1	2600	Regional	7.32	213.05	213.71	213.71	213.78	0.022973	1.99	11.54	74.14	0.92
Reach1	2541.079	2 year	0.14	212.72	213.47		213.47	0	0	33.76	82.2	0
Reach1	2541.079	5 year	0.24	212.72	213.15	212.79	213.15	0.000003	0.02	11.96	51.63	0.01
Reach1	2541.079	10 year	0.29	212.72	213.2	212.79	213.2	0.000002	0.02	15.08	57.72	0.01
Reach1	2541.079	25 year	0.39	212.72	213.41	212.8	213.41	0.000001	0.01	29.49	78.61	0.01
Reach1	2541.079	50 year	0.51	212.72	213.8		213.8	0	0.01	68.09	139.33	0
Reach1	2541.079	100 year	0.86	212.72	213.63		213.63	0.000001	0.02	48.58	97.57	0.01
Reach1	2541.079	Regional	7.32	212.72	213.71	213.01	213.71	0.000031	0.15	56.41	109.93	0.06
Reach1	2513.932	2 year	0.14	212.63	213.47	212.76	213.47	0.000004	0.06	2.37	269.01	0.02
Reach1	2513.932	5 year	0.24	212.63	213.14	212.78	213.15	0.00008	0.17	1.38	115.16	0.08
Reach1	2513.932	10 year	0.29	212.63	213.2	212.8	213.2	0.000079	0.19	1.56	128.1	0.08
Reach1	2513.932	25 year	0.39	212.63	213.41	212.82	213.41	0.000045	0.18	2.2	244.29	0.07
Reach1	2513.932	50 year	0.51	212.63	213.8	212.84	213.8	0	0.01	179.27	312.72	0
Reach1	2513.932	100 year	0.86	212.63	213.63	212.9	213.63	0.000001	0.02	97.7	291.2	0.01
Reach1	2513.932	Regional	7.32	212.63	213.71	213.53	213.71	0.000014	0.12	150.79	295.28	0.04
Reach1	2505.702		Culvert									
Reach1	2497.039	2 year	0.14	212.55	213.4	213.4	213.4	0	0	31.25	248.18	0
Reach1	2497.039	5 year	0.24	212.55	212.85	212.62	212.86	0.000143	0.18	1.33	72.51	0.1
Reach1	2497.039	10 year	0.29	212.55	212.87	212.63	212.88	0.000169	0.2	1.42	75.48	0.11
Reach1	2497.039	25 year	0.39	212.55	212.89	212.64	212.89	0.000268	0.26	1.48	77.48	0.15
Reach1	2497.039	50 year	0.51	212.55	212.9	212.66	212.91	0.000401	0.33	1.55	79.46	0.18
Reach1	2497.039	100 year	0.86	212.55	212.94	212.71	212.95	0.000826	0.51	1.7	84.13	0.26
Reach1	2497.039	Regional	7.32	212.55	213.21	213.21	213.54	0.010175	2.54	2.88	136.74	1
Reach1	2478.91	2 year	0.14	213.14	212.74	212.74	212.76	0.106513		0.23	6.24	0
Reach1	2478.91	5 year	0.24	213.14	212.85		212.85	0.00256		1.7	29.39	0
Reach1	2478.91	10 year	0.29	213.14	212.87		212.87	0.002382		2.58	50.04	0
Reach1	2478.91	25 year	0.39	213.14	212.88		212.88	0.002436		3.12	52.23	0

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	2478.91	50 year	0.51	213.14	212.89		212.89	0.002525		3.68	53.84	0
Reach1	2478.91	100 year	0.86	213.14	212.91		212.92	0.002521		5.17	58.07	0
Reach1	2478.91	Regional	7.32	213.14	213.14	212.95	213.15	0.00268	0.02	21.23	93.96	0.17
Reach1	2300	2 year	0.1	212.02	212.05	212.05	212.06	0.022734	0.36	0.35	26.92	0.83
Reach1	2300	5 year	0.19	212.02	212.06	212.06	212.07	0.026574	0.48	0.57	36.47	0.94
Reach1	2300	10 year	0.24	212.02	212.06	212.06	212.07	0.033427	0.56	0.64	38.44	1.07
Reach1	2300	25 year	0.38	212.02	212.07	212.07	212.08	0.018851	0.54	1.16	44.09	0.86
Reach1	2300	50 year	0.5	212.02	212.08	212.08	212.09	0.016973	0.57	1.48	46.59	0.83
Reach1	2300	100 year	0.75	212.02	212.08	212.08	212.1	0.023569	0.72	1.76	48.03	1
Reach1	2300	Regional	7.26	212.02	212.2	212.2	212.26	0.021221	1.5	9.59	83.14	1.16
Reach1	2200	2 year	0.1	210.92	211.03	210.99	211.04	0.001453	0.19	0.51	8.79	0.25
Reach1	2200	5 year	0.19	210.92	211.06	211.01	211.07	0.001617	0.23	0.8	11.09	0.28
Reach1	2200	10 year	0.24	210.92	211.07	211.01	211.08	0.001704	0.25	0.93	12.01	0.29
Reach1	2200	25 year	0.38	210.92	211.1	211.03	211.1	0.001851	0.31	1.24	14	0.31
Reach1	2200	50 year	0.5	210.92	211.12	211.05	211.12	0.001917	0.35	1.49	15.26	0.33
Reach1	2200	100 year	0.75	210.92	211.14	211.07	211.15	0.00202	0.42	1.96	17.41	0.35
Reach1	2200	Regional	7.26	210.92	211.43	211.32	211.48	0.003302	1.1	10.25	40.76	0.53
Reach1	2100	2 year	0.1	210.67	210.72		210.73	0.010746	0.31	0.31	11.38	0.61
Reach1	2100	5 year	0.19	210.67	210.74		210.75	0.009097	0.38	0.5	13.73	0.6
Reach1	2100	10 year	0.24	210.67	210.75	210.73	210.75	0.008433	0.4	0.61	14.72	0.59
Reach1	2100	25 year	0.38	210.67	210.76	210.74	210.77	0.007629	0.47	0.88	17.02	0.59
Reach1	2100	50 year	0.5	210.67	210.77		210.79	0.007351	0.52	1.09	18.65	0.6
Reach1	2100	100 year	0.75	210.67	210.8		210.81	0.006883	0.59	1.53	21.53	0.6
Reach1	2100	Regional	7.26	210.67	211.06		211.11	0.00437	1.13	10.56	43.34	0.59
Reach1	2000	2 year	0.1	210.15	210.26	210.22	210.26	0.002617	0.23	0.41	8.09	0.33
Reach1	2000	5 year	0.19	210.15	210.28	210.24	210.29	0.00274	0.28	0.67	10.57	0.35
Reach1	2000	10 year	0.24	210.15	210.3	210.25	210.3	0.002794	0.3	0.8	11.63	0.36
Reach1	2000	25 year	0.38	210.15	210.32	210.27	210.32	0.002936	0.36	1.07	13.51	0.38
Reach1	2000	50 year	0.5	210.15	210.33	210.28	210.34	0.002984	0.4	1.29	14.82	0.4
Reach1	2000	100 year	0.75	210.15	210.36	210.3	210.37	0.003106	0.48	1.7	16.62	0.42
Reach1	2000	Regional	7.26	210.15	210.64	210.55	210.7	0.004076	1.18	9.22	37.29	0.59
Reach1	1900	2 year	0.1	209.57	209.62	209.62	209.64	0.029656	0.54	0.18	6.22	1.01
Reach1	1900	5 year	0.19	209.57	209.64	209.64	209.66	0.026267	0.61	0.3	8.06	1
Reach1	1900	10 year	0.24	209.57	209.65	209.65	209.67	0.024736	0.65	0.36	8.74	0.99
Reach1	1900	25 year	0.38	209.57	209.67	209.67	209.69	0.021529	0.74	0.53	10.43	0.97
Reach1	1900	50 year	0.5	209.57	209.68	209.68	209.71	0.020712	0.8	0.67	11.58	0.98
Reach1	1900	100 year	0.75	209.57	209.7	209.7	209.74	0.018927	0.89	0.94	13.65	0.97
Reach1	1900	Regional	7.26	209.57	209.93	209.93	210.04	0.012729	1.65	6.33	32.27	0.98
Reach1	1800	2 year	0.1	208.98	209.23	209.06	209.23	0.000045	0.06	1.63	12.93	0.05
Reach1	1800	5 year	0.19	208.98	209.27	209.08	209.27	0.00008	0.09	2.16	15.01	0.07
Reach1	1800	10 year	0.24	208.98	209.29	209.09	209.29	0.000092	0.1	2.44	15.96	0.08
Reach1	1800	25 year	0.38	208.98	209.33	209.11	209.33	0.000124	0.14	3.09	17.97	0.09
Reach1	1800	50 year	0.5	208.98	209.35	209.13	209.35	0.000146	0.16	3.58	19.39	0.1
Reach1	1800	100 year	0.75	208.98	209.4	209.16	209.4	0.000186	0.2	4.46	21.65	0.12
Reach1	1800	Regional	7.26	208.98	209.79	209.43	209.81	0.000671	0.67	17.08	42.18	0.26
Reach1	1700	2 year	0.1	209.12	209.19	209.19	209.21	0.028552	0.62	0.16	4.27	1.03
Reach1	1700	5 year	0.19	209.12	209.22	209.22	209.24	0.024877	0.69	0.27	5.6	1.01
Reach1	1700	10 year	0.24	209.12	209.23	209.23	209.25	0.023307	0.72	0.33	6.21	1
Reach1	1700	25 year	0.38	209.12	209.25	209.25	209.28	0.021734	0.8	0.47	7.22	1
Reach1	1700	50 year	0.5	209.12	209.26	209.26	209.3	0.020707	0.85	0.59	8.07	0.99
Reach1	1700	100 year	0.75	209.12	209.29	209.29	209.33	0.022125	0.86	0.89	13.39	1.02
Reach1	1700	Regional	7.26	209.12	209.52	209.52	209.62	0.011884	1.62	6.55	32.21	0.95
Reach1	1599	2 year	0.1	207.45	207.81	207.54	207.81	0.000216	0.19	0.5	2.29	0.11
Reach1	1599	5 year	0.19	207.45	207.94	207.59	207.94	0.000125	0.19	2.34	26.02	0.09
Reach1	1599	10 year	0.24	207.45	207.99	207.62	207.99	0.000092	0.17	3.57	27.7	0.08
Reach1	1599	25 year	0.38	207.45	208.04	207.67	208.04	0.00011	0.2	4.93	27.89	0.09
Reach1	1599	50 year	0.5	207.45	208.07	207.72	208.07	0.000118	0.22	5.93	28.03	0.09
Reach1	1599	100 year	0.75	207.45	208.11	207.79	208.11	0.000162	0.27	7.09	28.2	0.11
Reach1	1599	Regional	7.26	207.45	208.47	208.14	208.48	0.001035	0.93	17.42	29.62	0.3
Reach1	1501	2 year	1.15	206.8	207.5		207.55	0.003952	1.02	1.26	9.33	0.53
Reach1	1501	5 year	2.25	206.8	207.62	207.57	207.69	0.004634	1.31	2.98	20.95	0.6
Reach1	1501	10 year	3.14	206.8	207.68	207.65	207.76	0.004484	1.41	4.54	25.64	0.6

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	1501	25 year	4.27	206.8	207.74	207.71	207.82	0.004494	1.5	6.05	25.87	0.61
Reach1	1501	50 year	5.07	206.8	207.77	207.74	207.85	0.004714	1.59	6.86	26	0.63
Reach1	1501	100 year	5.99	206.8	207.8	207.77	207.89	0.004968	1.69	7.68	26.12	0.65
Reach1	1501	Regional	15.73	206.8	208.06		208.19	0.005881	2.28	14.66	27.18	0.75
Reach1	1465	2 year	1.15	206.56	207.19	207.11	207.21	0.00303	0.85	2.6	19.74	0.46
Reach1	1465	5 year	2.25	206.56	207.29	207.21	207.32	0.003135	1.02	5.02	28.87	0.49
Reach1	1465	10 year	3.14	206.56	207.34	207.26	207.38	0.00334	1.14	6.83	34.94	0.51
Reach1	1465	25 year	4.27	206.56	207.4	207.27	207.43	0.003351	1.22	8.97	40	0.52
Reach1	1465	50 year	5.07	206.56	207.43	207.33	207.47	0.003267	1.25	10.25	40.13	0.52
Reach1	1465	100 year	5.99	206.56	207.47	207.36	207.5	0.00314	1.28	11.7	40.28	0.52
Reach1	1465	Regional	15.73	206.56	207.74	207.53	207.78	0.002966	1.58	22.73	41.36	0.53
Reach1	1450	2 year	1.15	206.42	207.06		207.08	0.002089	0.77	3.27	27.98	0.39
Reach1	1450	5 year	2.25	206.42	207.16		207.18	0.002025	0.88	6.35	34.54	0.4
Reach1	1450	10 year	3.14	206.42	207.2		207.22	0.002385	1.01	7.72	34.86	0.44
Reach1	1450	25 year	4.27	206.42	207.25		207.28	0.002401	1.08	9.62	35.08	0.45
Reach1	1450	50 year	5.07	206.42	207.28		207.31	0.002461	1.13	10.76	35.21	0.46
Reach1	1450	100 year	5.99	206.42	207.32		207.35	0.002493	1.18	12.02	35.35	0.47
Reach1	1450	Regional	15.73	206.42	207.55		207.6	0.00364	1.74	20.16	36.26	0.59
Reach1	1430	2 year	1.15	206.34	206.79	206.79	206.84	0.006196	1.22	2.21	24.42	0.64
Reach1	1430	5 year	2.25	206.34	206.84	206.84	206.92	0.008807	1.6	3.76	31.93	0.78
Reach1	1430	10 year	3.14	206.34	206.9	206.9	206.96	0.006951	1.55	5.97	41.88	0.71
Reach1	1430	25 year	4.27	206.34	206.93	206.93	206.99	0.008451	1.77	7.02	41.98	0.79
Reach1	1430	50 year	5.07	206.34	206.94	206.94	207.01	0.008989	1.87	7.79	42.06	0.82
Reach1	1430	100 year	5.99	206.34	206.96	206.96	207.04	0.009823	1.99	8.5	42.12	0.86
Reach1	1430	Regional	15.73	206.34	207.18		207.25	0.007459	2.17	17.82	43	0.79
Reach1	1420	2 year	1.15	206.19	206.54	206.46	206.55	0.003335	0.72	3.37	22.61	0.45
Reach1	1420	5 year	2.25	206.19	206.63	206.51	206.64	0.003243	0.84	6.22	35.89	0.46
Reach1	1420	10 year	3.14	206.19	206.68	206.55	206.69	0.003063	0.89	8.06	39.42	0.46
Reach1	1420	25 year	4.27	206.19	206.73	206.6	206.75	0.002922	0.95	10.23	42.41	0.46
Reach1	1420	50 year	5.07	206.19	206.77	206.62	206.78	0.002804	0.98	11.69	42.84	0.45
Reach1	1420	100 year	5.99	206.19	206.8	206.64	206.82	0.002745	1.02	13.25	44.64	0.46
Reach1	1420	Regional	16.84	206.19	207.09		207.11	0.002613	1.33	27.56	52.06	0.48
Reach1	1200	2 year	1.15	205.99	206.26		206.28	0.002889	0.57	2.17	15.21	0.43
Reach1	1200	5 year	2.25	205.99	206.34		206.37	0.003078	0.72	3.6	19.9	0.47
Reach1	1200	10 year	3.14	205.99	206.39		206.42	0.003149	0.83	4.63	22.68	0.49
Reach1	1200	25 year	4.27	205.99	206.44	206.33	206.48	0.003165	0.93	5.95	26.83	0.5
Reach1	1200	50 year	5.07	205.99	206.47	206.36	206.52	0.003299	1	6.78	29.42	0.52
Reach1	1200	100 year	5.99	205.99	206.51	206.38	206.56	0.003323	1.06	7.82	32.4	0.53
Reach1	1200	Regional	16.84	205.99	206.78		206.86	0.0032	1.47	18.95	45.44	0.57
Reach1	1100	2 year	1.15	205.39	205.62	205.62	205.67	0.021293	1.15	1.27	12.08	1.08
Reach1	1100	5 year	2.25	205.39	205.68	205.68	205.76	0.019084	1.35	2.19	15.32	1.08
Reach1	1100	10 year	3.14	205.39	205.72	205.72	205.81	0.018121	1.45	2.87	17.35	1.08
Reach1	1100	25 year	4.27	205.39	205.76	205.76	205.87	0.018326	1.59	3.59	19.26	1.11
Reach1	1100	50 year	5.07	205.39	205.79	205.79	205.9	0.016751	1.63	4.21	20.74	1.08
Reach1	1100	100 year	5.99	205.39	205.82	205.82	205.94	0.016601	1.72	4.77	21.94	1.09
Reach1	1100	Regional	18.4	205.39	206.08	206.08	206.28	0.013621	2.3	12.19	35.71	1.09
Reach1	1000	2 year	1.15	204.37	204.62	204.54	204.64	0.004597	0.65	1.76	11.38	0.53
Reach1	1000	5 year	2.25	204.37	204.69	204.62	204.73	0.005694	0.82	2.74	14.67	0.61
Reach1	1000	10 year	3.14	204.37	204.74	204.67	204.78	0.005886	0.91	3.45	16.65	0.63
Reach1	1000	25 year	4.27	204.37	204.79	204.71	204.84	0.006056	1.01	4.27	18.68	0.65
Reach1	1000	50 year	5.07	204.37	204.82	204.74	204.87	0.006048	1.06	4.87	20.03	0.66
Reach1	1000	100 year	5.99	204.37	204.85	204.77	204.91	0.006071	1.11	5.5	21.41	0.67
Reach1	1000	Regional	18.4	204.37	205.11	205.02	205.25	0.005635	1.67	12.81	32.09	0.72
Reach1	900	2 year	1.15	203.87	204.1		204.12	0.00586	0.68	1.76	14.94	0.58
Reach1	900	5 year	2.25	203.87	204.18		204.21	0.004735	0.82	3.1	19.82	0.57
Reach1	900	10 year	3.14	203.87	204.22		204.26	0.004599	0.92	4.08	22.74	0.58
Reach1	900	25 year	4.27	203.87	204.27		204.32	0.004465	1.02	5.28	25.68	0.58
Reach1	900	50 year	5.07	203.87	204.3		204.35	0.004508	1.09	6.06	27.39	0.6
Reach1	900	100 year	5.99	203.87	204.33		204.39	0.004525	1.15	6.93	29.22	0.61
Reach1	900	Regional	18.4	203.87	204.59		204.71	0.005115	1.75	17.33	47.92	0.7
Reach1	800	2 year	1.15	203.11	203.36		203.4	0.009138	0.87	1.41	11.99	0.74
Reach1	800	5 year	2.25	203.11	203.42	203.4	203.48	0.012128	1.19	2.12	14.53	0.88

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	800	10 year	3.14	203.11	203.45	203.45	203.54	0.012626	1.35	2.73	16.36	0.93
Reach1	800	25 year	4.27	203.11	203.49	203.49	203.6	0.01318	1.5	3.43	18.28	0.97
Reach1	800	50 year	5.07	203.11	203.52	203.52	203.64	0.012741	1.56	4	19.67	0.96
Reach1	800	100 year	5.99	203.11	203.55	203.55	203.68	0.012596	1.63	4.6	21.1	0.97
Reach1	800	Regional	19.16	203.11	203.84	203.83	204.02	0.009509	2.13	13.07	34.3	0.93
Reach1	700	2 year	1.15	202.6	202.86	202.79	202.87	0.003321	0.51	2.86	21.71	0.44
Reach1	700	5 year	2.25	202.6	202.94	202.84	202.96	0.002768	0.6	4.79	25.58	0.43
Reach1	700	10 year	3.14	202.6	202.99	202.87	203.01	0.002757	0.68	5.97	27.13	0.44
Reach1	700	25 year	4.27	202.6	203.04	202.9	203.06	0.00271	0.77	7.38	28.61	0.45
Reach1	700	50 year	5.07	202.6	203.07	202.92	203.1	0.002734	0.82	8.26	29.5	0.46
Reach1	700	100 year	5.99	202.6	203.1	202.95	203.14	0.002659	0.87	9.34	30.45	0.46
Reach1	700	Regional	19.16	202.6	203.41	203.19	203.49	0.0032	1.43	19.58	37.29	0.56
Reach1	600	2 year	1.15	201.94	202.25	202.23	202.3	0.011621	1.05	1.1	7.22	0.84
Reach1	600	5 year	2.25	201.94	202.32	202.32	202.42	0.013824	1.43	1.64	9.16	0.97
Reach1	600	10 year	3.14	201.94	202.37	202.37	202.49	0.01228	1.55	2.24	11.33	0.94
Reach1	600	25 year	4.27	201.94	202.44	202.44	202.57	0.01106	1.67	3.03	13.69	0.92
Reach1	600	50 year	5.07	201.94	202.51	202.51	202.61	0.010805	1.51	4.28	23.25	0.89
Reach1	600	100 year	5.99	201.94	202.54	202.54	202.65	0.01164	1.57	4.99	25.95	0.93
Reach1	600	Regional	19.16	201.94	202.8	202.8	202.98	0.009852	2.16	14.08	40.73	0.94
Reach1	540.4514	2 year	1.15	201.5	201.81	201.74	201.84	0.005511	0.67	1.73	12.6	0.57
Reach1	540.4514	5 year	2.25	201.5	201.9	201.82	201.93	0.004564	0.8	2.99	17.55	0.55
Reach1	540.4514	10 year	3.14	201.5	201.95	201.87	201.99	0.00418	0.86	4.02	20.18	0.55
Reach1	540.4514	25 year	4.27	201.5	202.01	201.91	202.05	0.003791	0.92	5.42	25.91	0.54
Reach1	540.4514	50 year	5.07	201.5	202.05	201.94	202.09	0.003537	0.96	6.42	28.92	0.53
Reach1	540.4514	100 year	5.99	201.5	202.09	201.96	202.13	0.003216	0.99	7.63	30.44	0.51
Reach1	540.4514	Regional	19.83	201.5	202.48	202.24	202.55	0.002332	1.35	22.34	45.83	0.49
Reach1	504.8202	2 year	1.15	200.96	201.35	201.27	201.38	0.004632	0.77	1.49	7.45	0.55
Reach1	504.8202	5 year	2.25	200.96	201.44	201.36	201.49	0.004888	0.99	2.3	9	0.6
Reach1	504.8202	10 year	3.14	200.96	201.51	201.41	201.57	0.004995	1.12	2.89	10.15	0.62
Reach1	504.8202	25 year	4.27	200.96	201.57	201.47	201.65	0.005186	1.26	3.58	11.36	0.65
Reach1	504.8202	50 year	5.07	200.96	201.61	201.51	201.7	0.005283	1.35	4.05	12.12	0.66
Reach1	504.8202	100 year	5.99	200.96	201.66	201.55	201.76	0.005537	1.42	4.65	13.5	0.68
Reach1	504.8202	Regional	19.83	200.96	202.25	201.96	202.35	0.002389	1.49	18.74	36.4	0.51
Reach1	482.854	2 year	1.15	200.81	201.12	201.12	201.2	0.016666	1.22	0.94	6.18	1
Reach1	482.854	5 year	2.25	200.81	201.21	201.21	201.32	0.014673	1.45	1.57	7.94	0.99
Reach1	482.854	10 year	3.14	200.81	201.27	201.27	201.39	0.013219	1.59	2.06	9.06	0.98
Reach1	482.854	25 year	4.27	200.81	201.33	201.33	201.48	0.01203	1.72	2.68	10.36	0.96
Reach1	482.854	50 year	5.07	200.81	201.37	201.37	201.53	0.011407	1.79	3.12	11.26	0.95
Reach1	482.854	100 year	5.99	200.81	201.44	201.44	201.58	0.011448	1.74	3.94	14.49	0.95
Reach1	482.854	Regional	19.83	200.81	202.26	201.79	202.3	0.000965	1.08	31.89	55.01	0.33
Reach1	449.3484	2 year	1.15	200.58	201.02	200.82	201.02	0.000677	0.39	4.18	22.29	0.23
Reach1	449.3484	5 year	2.25	200.58	201.13	200.92	201.14	0.000787	0.49	6.87	26.37	0.25
Reach1	449.3484	10 year	3.14	200.58	201.2	200.96	201.21	0.000828	0.54	8.88	29.27	0.26
Reach1	449.3484	25 year	4.27	200.58	201.28	201.01	201.3	0.000831	0.57	11.49	32.12	0.27
Reach1	449.3484	50 year	5.07	200.58	201.34	201.04	201.35	0.00082	0.58	13.22	33.77	0.27
Reach1	449.3484	100 year	5.99	200.58	201.39	201.06	201.4	0.000835	0.61	14.95	35.33	0.27
Reach1	449.3484	Regional	19.83	200.58	202.27	201.35	202.28	0.000225	0.61	59.79	68.13	0.17
Reach1	439.3625	2 year	1.15	200.58	200.9	200.9	200.97	0.017016	1.17	0.98	7.02	1
Reach1	439.3625	5 year	2.25	200.58	200.98	200.98	201.07	0.01668	1.32	1.7	10.55	1.02
Reach1	439.3625	10 year	3.14	200.58	201.03	201.03	201.13	0.014897	1.45	2.17	12.58	1
Reach1	439.3625	25 year	4.27	200.58	201.08	201.08	201.2	0.014008	1.59	2.68	14.75	1
Reach1	439.3625	50 year	5.07	200.58	201.11	201.11	201.25	0.013632	1.66	3.05	16.43	1
Reach1	439.3625	100 year	5.99	200.58	201.3	201.16	201.36	0.00407	1.08	5.54	28.61	0.57
Reach1	439.3625	Regional	19.83	200.58	202.21	201.49	202.26	0.000637	0.97	20.47	61.36	0.28
Reach1	426.0718		Culvert									
Reach1	416.8555	2 year	1.15	200.33	200.65	200.65	200.72	0.016832	1.21	0.95	6.36	1
Reach1	416.8555	5 year	2.25	200.33	200.75	200.75	200.84	0.015489	1.34	1.68	9.14	1
Reach1	416.8555	10 year	3.14	200.33	200.8	200.8	200.9	0.014823	1.44	2.19	11.09	1
Reach1	416.8555	25 year	4.27	200.33	200.85	200.85	200.97	0.014465	1.55	2.76	13.08	1.01
Reach1	416.8555	50 year	5.07	200.33	200.88	200.88	201.01	0.013772	1.6	3.17	14.47	1
Reach1	416.8555	100 year	5.99	200.33	200.59	200.91	205.3	1.402741	9.61	0.62	5.16	8.83
Reach1	416.8555	Regional	19.83	200.33	200.98	201.27	202.05	0.075137	4.59	4.32	20.99	2.45

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach1	406.9713	2 year	1.15	200.03	200.42	200.3	200.44	0.002199	0.53	2.19	11.64	0.38
Reach1	406.9713	5 year	2.25	200.03	200.51	200.38	200.54	0.002437	0.69	3.35	14.05	0.42
Reach1	406.9713	10 year	3.14	200.03	200.57	200.43	200.6	0.002647	0.8	4.15	15.5	0.45
Reach1	406.9713	25 year	4.27	200.03	200.64	200.47	200.67	0.002987	0.86	5.41	20.86	0.48
Reach1	406.9713	50 year	5.07	200.03	200.7	200.51	200.73	0.002852	0.84	6.83	30.21	0.47
Reach1	406.9713	100 year	5.99	200.03	200.72	200.54	200.76	0.00314	0.93	7.71	37.43	0.5
Reach1	406.9713	Regional	19.83	200.03	201.01	200.87	201.09	0.003392	1.43	19.45	43.42	0.57
Reach1	368.8569	2 year	1.15	199.63	199.85	199.85	199.9	0.01884	1.03	1.13	11.46	1.01
Reach1	368.8569	5 year	2.25	199.63	199.91	199.91	199.98	0.016193	1.21	1.99	15.61	0.99
Reach1	368.8569	10 year	3.14	199.63	199.95	199.95	200.03	0.014054	1.31	2.66	18.1	0.96
Reach1	368.8569	25 year	4.27	199.63	199.99	199.99	200.09	0.012327	1.41	3.53	20.61	0.93
Reach1	368.8569	50 year	5.07	199.63	200.01	200.01	200.13	0.014588	1.59	3.78	21.27	1.02
Reach1	368.8569	100 year	5.99	199.63	200.05	200.05	200.17	0.011684	1.58	4.79	26.84	0.94
Reach1	368.8569	Regional	19.83	199.63	200.31	200.31	200.51	0.009806	2.23	13.38	36.15	0.96
Reach1	300	2 year	1.15	198.81	199.3	199.08	199.3	0.000836	0.39	2.96	11.47	0.24
Reach1	300	5 year	2.25	198.81	199.43	199.17	199.44	0.000959	0.48	4.68	14.59	0.27
Reach1	300	10 year	3.14	198.81	199.5	199.22	199.51	0.001005	0.55	5.75	16.4	0.28
Reach1	300	25 year	4.27	198.81	199.57	199.27	199.59	0.001054	0.63	6.95	18.31	0.3
Reach1	300	50 year	5.07	198.81	199.61	199.31	199.63	0.001072	0.68	7.8	19.54	0.31
Reach1	300	100 year	5.99	198.81	199.66	199.35	199.68	0.001101	0.73	8.73	20.8	0.32
Reach1	300	Regional	20.53	198.81	200.11	199.74	200.17	0.001188	1.14	25.88	41.52	0.36
Reach1	258.518	2 year	1.15	198.76	199.02	199.01	199.08	0.01496	1.1	1.05	7.49	0.94
Reach1	258.518	5 year	2.25	198.76	199.09	199.09	199.18	0.016086	1.33	1.69	9.5	1.01
Reach1	258.518	10 year	3.14	198.76	199.14	199.14	199.25	0.015189	1.44	2.19	10.96	1.01
Reach1	258.518	25 year	4.27	198.76	199.19	199.19	199.32	0.014051	1.57	2.76	12.21	1
Reach1	258.518	50 year	5.07	198.76	199.22	199.22	199.36	0.013328	1.65	3.17	13.02	0.99
Reach1	258.518	100 year	5.99	198.76	199.26	199.26	199.41	0.012673	1.72	3.64	13.88	0.98
Reach1	258.518	Regional	20.53	198.76	199.64	199.64	199.9	0.010116	2.37	10.88	28.71	0.98
Reach1	199.9999	2 year	1.15	198.52	198.87		198.88	0.001441	0.39	4.32	36.88	0.3
Reach1	199.9999	5 year	2.25	198.52	198.94	198.83	198.95	0.00148	0.49	6.96	39.23	0.32
Reach1	199.9999	10 year	3.14	198.52	198.99	198.87	199	0.001525	0.55	8.73	41.03	0.34
Reach1	199.9999	25 year	4.27	198.52	199.03	198.89	199.05	0.001579	0.62	10.73	43.18	0.35
Reach1	199.9999	50 year	5.07	198.52	199.07	198.91	199.08	0.001575	0.66	12.11	44.62	0.35
Reach1	199.9999	100 year	5.99	198.52	199.1	198.93	199.12	0.001592	0.7	13.57	46.08	0.36
Reach1	199.9999	Regional	20.53	198.52	199.45	199.13	199.49	0.001655	1.11	32.37	60.48	0.41
Reach1	155.1166	2 year	1.15	198.33	198.5	198.5	198.54	0.019785	0.93	1.5	18.96	1
Reach1	155.1166	5 year	2.25	198.33	198.54	198.54	198.6	0.019662	1.16	2.35	20.03	1.05
Reach1	155.1166	10 year	3.14	198.33	198.57	198.57	198.65	0.019022	1.28	2.96	20.77	1.07
Reach1	155.1166	25 year	4.27	198.33	198.61	198.61	198.69	0.018138	1.39	3.69	21.62	1.07
Reach1	155.1166	50 year	5.07	198.33	198.63	198.63	198.72	0.018614	1.49	4.09	22.01	1.1
Reach1	155.1166	100 year	5.99	198.33	198.65	198.65	198.76	0.017722	1.57	4.6	22.54	1.09
Reach1	155.1166	Regional	20.53	198.33	198.92	198.92	199.14	0.012482	2.28	11.63	29.3	1.05
Reach1	100	2 year	1.15	197.69	197.87	197.81	197.88	0.003257	0.5	2.34	18.85	0.43
Reach1	100	5 year	2.25	197.69	197.94	197.86	197.96	0.003283	0.64	3.69	22.13	0.46
Reach1	100	10 year	3.14	197.69	197.98	197.89	198	0.003466	0.73	4.62	23.93	0.49
Reach1	100	25 year	4.27	197.69	198.02	197.92	198.06	0.003616	0.8	5.77	26.21	0.51
Reach1	100	50 year	5.07	197.69	198.05	197.95	198.09	0.003736	0.86	6.51	27.78	0.52
Reach1	100	100 year	5.99	197.69	198.08	197.97	198.12	0.00394	0.91	7.26	29.02	0.54
Reach1	100	Regional	20.53	197.69	198.33	198.22	198.44	0.005238	1.59	15.92	41.05	0.69
Reach1	24.31342	2 year	1.15	197.32	197.32	197.32	197.36	0.050901	0.1	1.33	18.37	0.82
Reach1	24.31342	5 year	2.25	197.32	197.37	197.37	197.41	0.059965	0.75	2.42	30.6	1.43
Reach1	24.31342	10 year	3.14	197.32	197.39	197.39	197.44	0.056433	0.94	3.28	35.68	1.48
Reach1	24.31342	25 year	4.27	197.32	197.41	197.41	197.47	0.059124	1.14	4.13	40.31	1.58
Reach1	24.31342	50 year	5.07	197.32	197.43	197.43	197.49	0.058511	1.24	4.78	44.36	1.6
Reach1	24.31342	100 year	5.99	197.32	197.45	197.45	197.51	0.053169	1.31	5.69	48.89	1.57
Reach1	24.31342	Regional	20.82	197.32	197.6	197.6	197.7	0.046733	2.04	15.5	76.21	1.67

HEC RAS Model Output

PROJECT: Orlando North Porta

PROJECT #: 17197

DATE: April 2022

MUNICIPALITY: Town of Milton

Plan: 202\_TMIG\_Ex\_Riparian April 2022

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl	Volume (1000 m3)
Reach1	4400	2 year	0.12	221.15	221.26	221.22	221.26	0.001362	0.2	0.61	11.35	0.25	6.06
Reach1	4400	5 year	0.27	221.15	221.3	221.24	221.31	0.001377	0.26	1.2	16.59	0.27	11
Reach1	4400	10 year	0.33	221.15	221.32	221.25	221.32	0.001407	0.28	1.43	18.23	0.28	13.88
Reach1	4400	25 year	0.37	221.15	221.32	221.25	221.33	0.001375	0.29	1.56	19.14	0.27	18.37
Reach1	4400	50 year	0.41	221.15	221.33	221.26	221.34	0.00136	0.3	1.71	20.07	0.28	21.12
Reach1	4400	100 year	0.49	221.15	221.35	221.27	221.35	0.001348	0.31	2	21.32	0.28	23.28
Reach1	4400	Regional	1.48	221.15	221.45	221.34	221.46	0.001318	0.44	4.5	25.3	0.3	63.14
Reach1	4300	2 year	0.12	220.94	221.06	221.03	221.06	0.003326	0.28	0.41	7.65	0.38	6.01
Reach1	4300	5 year	0.27	220.94	221.1	221.06	221.1	0.00317	0.38	0.75	9.95	0.4	10.9
Reach1	4300	10 year	0.33	220.94	221.11	221.06	221.12	0.003239	0.41	0.88	10.67	0.41	13.76
Reach1	4300	25 year	0.37	220.94	221.12	221.07	221.12	0.003264	0.42	0.94	11.02	0.42	18.24
Reach1	4300	50 year	0.41	220.94	221.12	221.07	221.13	0.003305	0.44	1.01	11.39	0.42	20.99
Reach1	4300	100 year	0.49	220.94	221.13	221.08	221.14	0.003375	0.47	1.16	12.12	0.43	23.13
Reach1	4300	Regional	1.48	220.94	221.23	221.16	221.25	0.003853	0.69	2.76	20.84	0.5	62.79
Reach1	4200	2 year	0.12	220.3	220.37	220.37	220.38	0.020711	0.52	0.22	6.21	0.88	5.98
Reach1	4200	5 year	0.27	220.3	220.39	220.39	220.42	0.024306	0.68	0.39	8.25	1	10.84
Reach1	4200	10 year	0.33	220.3	220.4	220.4	220.43	0.023519	0.71	0.47	9	1	13.69
Reach1	4200	25 year	0.37	220.3	220.4	220.4	220.43	0.022848	0.73	0.5	9.33	0.99	18.17
Reach1	4200	50 year	0.41	220.3	220.41	220.41	220.44	0.022257	0.75	0.54	9.68	0.99	20.91
Reach1	4200	100 year	0.49	220.3	220.42	220.42	220.45	0.021365	0.79	0.63	10.38	0.99	23.04
Reach1	4200	Regional	1.48	220.3	220.49	220.49	220.54	0.016818	1.06	1.56	16.07	0.97	62.57
Reach1	4100	2 year	0.12	219.64	219.76	219.71	219.76	0.000758	0.16	0.85	14.07	0.19	5.93
Reach1	4100	5 year	0.27	219.64	219.81	219.73	219.81	0.000787	0.21	1.58	17.68	0.21	10.75
Reach1	4100	10 year	0.33	219.64	219.82	219.74	219.83	0.000786	0.22	1.86	18.92	0.21	13.58
Reach1	4100	25 year	0.37	219.64	219.84	219.74	219.84	0.000583	0.21	2.25	20.46	0.18	18.04
Reach1	4100	50 year	0.41	219.64	219.85	219.75	219.86	0.000546	0.21	2.48	21.36	0.18	20.76
Reach1	4100	100 year	0.49	219.64	219.86	219.75	219.87	0.000631	0.23	2.68	22.16	0.19	22.88
Reach1	4100	Regional	1.48	219.64	219.99	219.82	220	0.000589	0.34	6.28	32.75	0.21	62.18
Reach1	4000	2 year	0.21	219.34	219.41	219.41	219.42	0.022776	0.55	0.39	13.42	0.92	5.86
Reach1	4000	5 year	0.48	219.34	219.43	219.43	219.45	0.021473	0.71	0.8	18.69	0.96	10.62
Reach1	4000	10 year	0.62	219.34	219.44	219.44	219.47	0.020908	0.76	0.98	20.53	0.97	13.43
Reach1	4000	25 year	0.91	219.34	219.46	219.46	219.49	0.018724	0.84	1.37	24.08	0.96	17.84
Reach1	4000	50 year	1.06	219.34	219.46	219.46	219.5	0.018866	0.89	1.53	25.43	0.97	20.55
Reach1	4000	100 year	1.18	219.34	219.47	219.47	219.51	0.016858	0.9	1.75	27.14	0.93	22.64
Reach1	4000	Regional	5.06	219.34	219.58	219.58	219.62	0.010074	1.17	9.67	105.46	0.82	61.3
Reach1	3900	2 year	0.21	218.7	218.78	218.74	218.79	0.001239	0.2	1.58	35.28	0.24	5.77
Reach1	3900	5 year	0.48	218.7	218.82	218.77	218.83	0.001356	0.28	3.14	47.56	0.27	10.42
Reach1	3900	10 year	0.62	218.7	218.84	218.78	218.84	0.001394	0.31	3.82	51.99	0.28	13.19
Reach1	3900	25 year	0.91	218.7	218.86	218.79	218.87	0.001442	0.35	5.22	60.15	0.29	17.51
Reach1	3900	50 year	1.06	218.7	218.87	218.8	218.88	0.001448	0.37	5.91	63.79	0.3	20.17
Reach1	3900	100 year	1.18	218.7	218.88	218.8	218.89	0.001476	0.39	6.46	66.52	0.3	22.23
Reach1	3900	Regional	5.06	218.7	219.04	218.91	219.05	0.00167	0.64	20.57	112.47	0.36	59.78
Reach1	3800	2 year	0.21	218.39	218.43	218.43	218.45	0.026194	0.53	0.47	21.69	0.96	5.66
Reach1	3800	5 year	0.48	218.39	218.45	218.45	218.48	0.021079	0.68	1.03	29.27	0.95	10.21
Reach1	3800	10 year	0.62	218.39	218.46	218.46	218.49	0.020086	0.73	1.27	31.61	0.94	12.93
Reach1	3800	25 year	0.91	218.39	218.48	218.48	218.51	0.019167	0.82	1.77	35.87	0.96	17.16
Reach1	3800	50 year	1.06	218.39	218.48	218.48	218.51	0.019151	0.87	2	37.65	0.97	19.77
Reach1	3800	100 year	1.18	218.39	218.49	218.49	218.52	0.018611	0.89	2.22	39.29	0.97	21.78
Reach1	3800	Regional	5.06	218.39	218.59	218.59	218.66	0.015725	1.38	7.77	65.88	1.01	58.33
Reach1	3700	2 year	0.21	217.36	217.43	217.29	217.43	0.001054	0.12	2.03	20.47	0.2	5.54
Reach1	3700	5 year	0.48	217.36	217.5	217.33	217.5	0.00114	0.18	3.61	29.23	0.23	9.98
Reach1	3700	10 year	0.62	217.36	217.51	217.34	217.51	0.001434	0.22	3.94	30.78	0.26	12.67
Reach1	3700	25 year	0.91	217.36	217.5	217.37	217.51	0.00338	0.33	3.83	30.26	0.4	16.88
Reach1	3700	50 year	1.06	217.36	217.5	217.38	217.51	0.004497	0.38	3.84	30.34	0.46	19.48
Reach1	3700	100 year	1.18	217.36	217.52	217.39	217.52	0.004319	0.39	4.22	32	0.45	21.47
Reach1	3700	Regional	5.06	217.36	217.92	217.52	217.92	0.000358	0.36	27.56	93.75	0.17	56.61
Reach1	3600	2 year	0.21	217.04	217.14	217.14	217.16	0.024481	0.67	0.31	6.66	1	5.44
Reach1	3600	5 year	0.48	217.04	217.17	217.17	217.2	0.022198	0.79	0.61	9.84	1	9.79
Reach1	3600	10 year	0.62	217.04	217.21	217.19	217.23	0.008982	0.64	1	12.7	0.68	12.45
Reach1	3600	25 year	0.91	217.04	217.31	217.21	217.32	0.001296	0.39	2.78	20.95	0.29	16.58
Reach1	3600	50 year	1.06	217.04	217.36	217.22	217.37	0.000717	0.34	3.95	24.92	0.22	19.12
Reach1	3600	100 year	1.18	217.04	217.38	217.23	217.39	0.000683	0.35	4.41	26.22	0.22	21.07

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl	Volume (1000 m3)
Reach1	3600	Regional	5.06	217.04	217.9	217.38	217.9	0.00014	0.33	31.01	80.53	0.12	53.85
Reach1	3500	2 year	0.25	216.8	216.98	216.89	216.99	0.000488	0.18	1.65	16.89	0.17	5.34
Reach1	3500	5 year	0.67	216.8	217.12	216.93	217.12	0.000261	0.2	4.42	24.6	0.13	9.54
Reach1	3500	10 year	0.88	216.8	217.17		217.17	0.000218	0.21	5.75	27.44	0.13	12.1
Reach1	3500	25 year	1.48	216.8	217.29		217.29	0.000167	0.23	9.41	34.19	0.12	15.95
Reach1	3500	50 year	1.81	216.8	217.34		217.34	0.000155	0.24	11.37	37.3	0.12	18.34
Reach1	3500	100 year	1.93	216.8	217.36		217.36	0.000151	0.25	12.06	38.34	0.12	20.23
Reach1	3500	Regional	8.03	216.8	217.88		217.89	0.000138	0.39	40.6	73.48	0.12	50.19
Reach1	3454.021	2 year	0.25	216.59	216.85	216.85	216.92	0.01891	1.13	0.22	1.71	1	5.29
Reach1	3454.021	5 year	0.67	216.59	216.98	216.98	217.07	0.016624	1.38	0.49	2.53	1.01	9.43
Reach1	3454.021	10 year	0.88	216.59	217.02	217.02	217.13	0.016003	1.46	0.6	2.83	1	11.97
Reach1	3454.021	25 year	1.48	216.59	217.12	217.12	217.25	0.015215	1.63	0.91	3.47	1.01	15.74
Reach1	3454.021	50 year	1.81	216.59	217.16	217.16	217.31	0.014853	1.69	1.07	3.76	1.02	18.08
Reach1	3454.021	100 year	1.93	216.59	217.18	217.18	217.33	0.014724	1.72	1.13	3.86	1.02	19.95
Reach1	3454.021	Regional	8.03	216.59	217.7	217.7	217.85	0.01007	1.75	5.34	22.34	0.89	49.25
Reach1	3400	2 year	0.25	216.48	216.71	216.72	216.72	0.00132	0.3	0.85	7.02	0.27	5.27
Reach1	3400	5 year	0.67	216.48	216.8	216.68	216.81	0.001987	0.44	1.52	9.41	0.35	9.38
Reach1	3400	10 year	0.88	216.48	216.82	216.71	216.83	0.002285	0.5	1.76	10.13	0.38	11.9
Reach1	3400	25 year	1.48	216.48	216.87	216.76	216.89	0.002972	0.65	2.3	11.66	0.45	15.65
Reach1	3400	50 year	1.81	216.48	216.89	216.79	216.92	0.003317	0.72	2.56	12.3	0.48	17.98
Reach1	3400	100 year	1.93	216.48	216.9	216.8	216.93	0.003414	0.75	2.65	12.53	0.49	19.85
Reach1	3400	Regional	8.03	216.48	217.13	217.05	217.23	0.005695	1.45	6.34	19.49	0.7	48.93
Reach1	3300	2 year	0.25	216.26	216.35	216.35	216.37	0.024741	0.65	0.39	9.14	0.99	5.2
Reach1	3300	5 year	0.67	216.26	216.4		216.43	0.00986	0.66	1.11	14.22	0.71	9.25
Reach1	3300	10 year	0.88	216.26	216.43		216.45	0.007495	0.65	1.5	15.74	0.64	11.74
Reach1	3300	25 year	1.48	216.26	216.49		216.51	0.005106	0.7	2.46	18.95	0.56	15.41
Reach1	3300	50 year	1.81	216.26	216.51		216.54	0.0044	0.72	3	20.55	0.53	17.7
Reach1	3300	100 year	1.93	216.26	216.52		216.55	0.004245	0.73	3.18	21.07	0.53	19.56
Reach1	3300	Regional	8.03	216.26	216.83		216.87	0.002344	1.02	12.36	40.26	0.46	47.99
Reach1	3200	2 year	0.25	215.84	216.09	215.97	216.09	0.000831	0.24	1.04	8.27	0.22	5.13
Reach1	3200	5 year	0.67	215.84	216.18		216.19	0.00102	0.34	1.98	11.42	0.26	9.09
Reach1	3200	10 year	0.88	215.84	216.21		216.22	0.001086	0.38	2.35	12.4	0.27	11.55
Reach1	3200	25 year	1.48	215.84	216.28		216.29	0.001184	0.46	3.3	15	0.29	15.13
Reach1	3200	50 year	1.81	215.84	216.31		216.32	0.001231	0.51	3.76	16.11	0.3	17.37
Reach1	3200	100 year	1.93	215.84	216.32		216.34	0.001244	0.52	3.92	16.48	0.31	19.21
Reach1	3200	Regional	8.03	215.84	216.63		216.67	0.001669	0.97	10.98	30.02	0.4	46.86
Reach1	3100	2 year	0.25	215.75	215.88	215.86	215.89	0.009922	0.53	0.47	7.49	0.67	5.06
Reach1	3100	5 year	0.67	215.75	215.93	215.91	215.96	0.009051	0.72	0.98	10.82	0.7	8.94
Reach1	3100	10 year	0.88	215.75	215.95	215.92	215.98	0.008921	0.79	1.21	11.93	0.71	11.37
Reach1	3100	25 year	1.48	215.75	216		216.04	0.008757	0.94	1.82	14.34	0.74	14.87
Reach1	3100	50 year	1.81	215.75	216.02		216.07	0.00832	0.98	2.18	15.52	0.73	17.08
Reach1	3100	100 year	1.93	215.75	216.03		216.08	0.008226	1	2.3	15.91	0.73	18.9
Reach1	3100	Regional	8.03	215.75	216.26		216.36	0.007989	1.51	7.47	28.38	0.8	45.97
Reach1	3000	2 year	0.25	215.42	215.54		215.54	0.00177	0.25	1.02	13.82	0.29	4.98
Reach1	3000	5 year	0.67	215.42	215.6		215.6	0.001816	0.34	1.95	16.48	0.32	8.8
Reach1	3000	10 year	0.88	215.42	215.62		215.63	0.001813	0.37	2.36	17.51	0.32	11.19
Reach1	3000	25 year	1.48	215.42	215.68		215.69	0.001822	0.44	3.38	19.87	0.34	14.61
Reach1	3000	50 year	1.81	215.42	215.7		215.71	0.00187	0.47	3.87	20.89	0.35	16.77
Reach1	3000	100 year	1.93	215.42	215.71		215.72	0.001879	0.48	4.04	21.24	0.35	18.58
Reach1	3000	Regional	8.03	215.42	215.96		215.99	0.001904	0.78	10.75	32.13	0.4	45.03
Reach1	2953.366	2 year	0.25	215.19	215.3	215.3	215.33	0.023411	0.76	0.33	5.71	1.01	4.95
Reach1	2953.366	5 year	0.67	215.19	215.36	215.36	215.4	0.019973	0.92	0.73	8.49	1	8.73
Reach1	2953.366	10 year	0.88	215.19	215.38	215.38	215.43	0.019701	0.98	0.9	9.47	1.01	11.12
Reach1	2953.366	25 year	1.48	215.19	215.42	215.42	215.48	0.018555	1.1	1.35	11.64	1.02	14.5
Reach1	2953.366	50 year	1.81	215.19	215.44	215.44	215.51	0.017564	1.15	1.58	12.62	1.01	16.64
Reach1	2953.366	100 year	1.93	215.19	215.45	215.45	215.52	0.017301	1.17	1.66	12.95	1.01	18.44
Reach1	2953.366	Regional	8.03	215.19	215.67	215.66	215.81	0.010361	1.7	5.76	23.76	0.91	44.65
Reach1	2900	2 year	0.25	214.79	214.96	214.91	214.97	0.002475	0.33	0.76	8.76	0.35	4.92
Reach1	2900	5 year	0.67	214.79	215.03	214.96	215.04	0.002766	0.48	1.48	12.49	0.4	8.68
Reach1	2900	10 year	0.88	214.79	215.06	214.98	215.07	0.002837	0.53	1.81	13.88	0.42	11.05
Reach1	2900	25 year	1.48	214.79	215.11	215.02	215.13	0.00306	0.64	2.67	16.94	0.45	14.39
Reach1	2900	50 year	1.81	214.79	215.14	215.04	215.16	0.003065	0.68	3.14	18.43	0.46	16.52
Reach1	2900	100 year	1.93	214.79	215.15	215.05	215.17	0.003102	0.69	3.3	18.88	0.46	18.32
Reach1	2900	Regional	8.03	214.79	215.37	215.27	215.44	0.004452	1.28	8.4	26.53	0.62	44.29
Reach1	2800	2 year	0.25	214.27	214.37	214.37	214.39	0.024714	0.69	0.36	7.52	1.01	4.87
Reach1	2800	5 year	0.67	214.27	214.42	214.42	214.45	0.01962	0.87	0.79	11.13	0.98	8.56
Reach1	2800	10 year	0.88	214.27	214.43	214.43	214.48	0.01892	0.94	0.98	12.3	0.98	10.91
Reach1	2800	25 year	1.48	214.27	214.47	214.47	214.53	0.016645	1.06	1.53	15.2	0.97	14.18

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl	Volume (1000 m3)
Reach1	2800	50 year	1.81	214.27	214.49	214.49	214.55	0.017177	1.12	1.81	17.07	0.99	16.27
Reach1	2800	100 year	1.93	214.27	214.5	214.5	214.56	0.016659	1.13	1.92	17.92	0.98	18.05
Reach1	2800	Regional	8.03	214.27	214.69	214.69	214.79	0.010039	1.59	8.11	45.93	0.89	43.45
Reach1	2700	2 year	0.25	213.45	213.63	213.55	213.63	0.001135	0.24	1.05	11.38	0.24	4.8
Reach1	2700	5 year	0.67	213.45	213.71	213.6	213.71	0.001192	0.34	2.15	17.32	0.27	8.42
Reach1	2700	10 year	0.88	213.45	213.73	213.62	213.74	0.001247	0.38	2.59	18.46	0.28	10.73
Reach1	2700	25 year	1.48	213.45	213.79	213.66	213.8	0.001369	0.48	3.69	21.15	0.31	13.93
Reach1	2700	50 year	1.81	213.45	213.81	213.68	213.83	0.001409	0.52	4.27	22.42	0.32	15.97
Reach1	2700	100 year	1.93	213.45	213.82	213.68	213.83	0.001437	0.53	4.45	22.8	0.33	17.74
Reach1	2700	Regional	8.03	213.45	214.08	213.89	214.12	0.002122	1.01	11.93	36.02	0.44	42.5
Reach1	2541.079	2 year	0.25	213.07	213.14	213.14	213.16	0.020167	0.53	0.47	12.79	0.87	4.67
Reach1	2541.079	5 year	0.67	213.07	213.17	213.17	213.2	0.024176	0.71	0.94	19.08	1.01	8.17
Reach1	2541.079	10 year	0.88	213.07	213.19	213.19	213.21	0.022222	0.76	1.18	22.34	0.99	10.43
Reach1	2541.079	25 year	1.48	213.07	213.21	213.21	213.25	0.019142	0.86	1.83	26.46	0.97	13.48
Reach1	2541.079	50 year	1.81	213.07	213.22	213.22	213.26	0.019208	0.92	2.11	27.59	0.99	15.45
Reach1	2541.079	100 year	1.93	213.07	213.23	213.23	213.27	0.018122	0.92	2.25	28.16	0.97	17.19
Reach1	2541.079	Regional	8.03	213.07	213.37	213.37	213.44	0.010949	1.3	8.86	69.75	0.87	40.74
Reach1	2513.932	2 year	0.25	212.63	212.86	212.74	212.86	0.000315	0.14	1.77	15.21	0.13	4.64
Reach1	2513.932	5 year	0.67	212.63	212.9	212.79	212.91	0.000979	0.28	2.45	22.16	0.24	8.12
Reach1	2513.932	10 year	0.88	212.63	212.92	212.8	212.92	0.001238	0.32	2.84	27.63	0.27	10.37
Reach1	2513.932	25 year	1.48	212.63	212.95	212.84	212.96	0.001775	0.42	3.98	38.84	0.33	13.4
Reach1	2513.932	50 year	1.81	212.63	212.97	212.86	212.98	0.001886	0.46	4.71	45.91	0.35	15.36
Reach1	2513.932	100 year	1.93	212.63	212.97	212.86	212.99	0.00191	0.47	4.99	48.72	0.35	17.1
Reach1	2513.932	Regional	8.03	212.63	213.17	213.04	213.18	0.001381	0.64	23.67	120.94	0.33	40.35
Reach1	2497.039	2 year	0.25	212.55	212.86		212.86	0.000003	0.02	13.86	73.75	0.02	4.49
Reach1	2497.039	5 year	0.67	212.55	212.9		212.9	0.000014	0.05	16.99	79.55	0.03	7.93
Reach1	2497.039	10 year	0.88	212.55	212.92		212.92	0.000019	0.06	18.28	81.69	0.04	10.16
Reach1	2497.039	25 year	1.48	212.55	212.96		212.96	0.000036	0.09	21.3	86.72	0.05	13.14
Reach1	2497.039	50 year	1.81	212.55	212.97		212.97	0.000044	0.1	22.87	89.25	0.06	15.08
Reach1	2497.039	100 year	1.93	212.55	212.98		212.98	0.000047	0.1	23.42	90.13	0.06	16.8
Reach1	2497.039	Regional	8.03	212.55	213.17		213.17	0.000161	0.25	43.17	119.13	0.12	39.56
Reach1	2478.91	2 year	0.25	213.14	212.86		212.86	0.002285		2.36	48.73	0	4.32
Reach1	2478.91	5 year	0.67	213.14	212.9		212.9	0.002416		4.45	56.45	0	7.7
Reach1	2478.91	10 year	0.88	213.14	212.92		212.92	0.002379		5.34	58.39	0	9.91
Reach1	2478.91	25 year	1.48	213.14	212.95	212.86	212.95	0.002434		7.4	61.65	0	12.83
Reach1	2478.91	50 year	1.81	213.14	212.97		212.97	0.002408		8.46	63.24	0	14.74
Reach1	2478.91	100 year	1.93	213.14	212.97		212.98	0.002396		8.84	63.79	0	16.45
Reach1	2478.91	Regional	8.03	213.14	213.15		213.16	0.002788	0.07	22.5	98.91	0.25	38.83
Reach1	2300	2 year	0.22	212.02	212.06	212.06	212.07	0.030178	0.53	0.63	38.21	1.02	4.12
Reach1	2300	5 year	0.62	212.02	212.08	212.08	212.09	0.023231	0.68	1.53	46.98	0.98	7.29
Reach1	2300	10 year	0.83	212.02	212.09	212.09	212.11	0.023498	0.75	1.89	48.52	1.01	9.41
Reach1	2300	25 year	1.39	212.02	212.1	212.1	212.13	0.023836	0.89	2.73	54	1.06	12.13
Reach1	2300	50 year	1.74	212.02	212.11	212.11	212.14	0.023813	0.96	3.21	55.99	1.08	13.93
Reach1	2300	100 year	1.86	212.02	212.11	212.11	212.14	0.024509	0.99	3.33	56.66	1.1	15.61
Reach1	2300	Regional	7.92	212.02	212.21	212.21	212.27	0.020745	1.53	10.31	84.96	1.15	36.56
Reach1	2200	2 year	0.22	210.92	211.07	211.01	211.07	0.001704	0.25	0.89	11.74	0.29	4.04
Reach1	2200	5 year	0.62	210.92	211.13	211.06	211.14	0.001956	0.38	1.71	16.32	0.34	7.13
Reach1	2200	10 year	0.83	210.92	211.15	211.08	211.16	0.002084	0.44	2.09	17.97	0.36	9.21
Reach1	2200	25 year	1.39	210.92	211.2	211.11	211.21	0.00229	0.55	3	21.43	0.39	11.85
Reach1	2200	50 year	1.74	210.92	211.22	211.13	211.24	0.002405	0.6	3.52	23.26	0.41	13.6
Reach1	2200	100 year	1.86	210.92	211.23	211.13	211.25	0.002427	0.62	3.7	23.84	0.41	15.27
Reach1	2200	Regional	7.92	210.92	211.45	211.33	211.5	0.003365	1.14	10.97	42.37	0.54	35.55
Reach1	2100	2 year	0.22	210.67	210.74	210.73	210.75	0.008439	0.39	0.58	14.47	0.59	3.97
Reach1	2100	5 year	0.62	210.67	210.78		210.8	0.007223	0.56	1.29	19.98	0.6	6.98
Reach1	2100	10 year	0.83	210.67	210.8		210.82	0.006667	0.61	1.67	22.43	0.6	9.03
Reach1	2100	25 year	1.39	210.67	210.84		210.86	0.005968	0.7	2.6	26.57	0.59	11.57
Reach1	2100	50 year	1.74	210.67	210.86		210.88	0.005846	0.76	3.13	28.25	0.6	13.27
Reach1	2100	100 year	1.86	210.67	210.87		210.89	0.005786	0.77	3.3	28.79	0.6	14.92
Reach1	2100	Regional	7.92	210.67	211.08		211.13	0.00432	1.15	11.33	44.27	0.6	34.46
Reach1	2000	2 year	0.22	210.15	210.29	210.25	210.3	0.002807	0.29	0.76	11.31	0.36	3.9
Reach1	2000	5 year	0.62	210.15	210.35	210.29	210.36	0.003043	0.44	1.48	15.76	0.41	6.84
Reach1	2000	10 year	0.83	210.15	210.37	210.31	210.38	0.003166	0.5	1.82	17.07	0.43	8.86
Reach1	2000	25 year	1.39	210.15	210.41	210.34	210.43	0.003362	0.61	2.61	19.8	0.46	11.33
Reach1	2000	50 year	1.74	210.15	210.43	210.36	210.45	0.00342	0.67	3.08	21.27	0.48	12.98
Reach1	2000	100 year	1.86	210.15	210.44	210.36	210.46	0.003448	0.69	3.23	21.71	0.48	14.61
Reach1	2000	Regional	7.92	210.15	210.66	210.56	210.72	0.004112	1.22	9.88	38.38	0.59	33.49
Reach1	1900	2 year	0.22	209.57	209.65	209.65	209.67	0.024872	0.64	0.35	8.56	0.99	3.85
Reach1	1900	5 year	0.62	209.57	209.69	209.69	209.72	0.019908	0.84	0.79	12.56	0.98	6.73



Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl	Volume (1000 m3)
Reach1	1900	10 year	0.83	209.57	209.71	209.71	209.75	0.018199	0.9	1.03	14.3	0.96	8.72
Reach1	1900	25 year	1.39	209.57	209.74	209.74	209.79	0.016288	1.01	1.63	17.98	0.95	11.12
Reach1	1900	50 year	1.74	209.57	209.76	209.76	209.81	0.015977	1.07	1.96	19.36	0.96	12.73
Reach1	1900	100 year	1.86	209.57	209.77	209.77	209.82	0.015811	1.09	2.07	19.8	0.96	14.36
Reach1	1900	Regional	7.92	209.57	209.95	209.95	210.06	0.012502	1.7	6.83	33.48	0.98	32.69
Reach1	1800	2 year	0.22	208.98	209.28	209.09	209.28	0.00009	0.1	2.35	15.65	0.08	3.71
Reach1	1800	5 year	0.62	208.98	209.37	209.14	209.38	0.000164	0.18	4.01	20.52	0.11	6.49
Reach1	1800	10 year	0.83	208.98	209.41	209.16	209.41	0.000199	0.21	4.7	22.24	0.12	8.43
Reach1	1800	25 year	1.39	208.98	209.47	209.2	209.47	0.000282	0.28	6.17	25.5	0.15	10.73
Reach1	1800	50 year	1.74	208.98	209.5	209.23	209.51	0.000315	0.32	7.08	27.33	0.16	12.28
Reach1	1800	100 year	1.86	208.98	209.51	209.23	209.52	0.000329	0.33	7.34	27.83	0.17	13.89
Reach1	1800	Regional	7.92	208.98	209.81	209.45	209.83	0.000697	0.7	18.09	43.3	0.27	31.46
Reach1	1700	2 year	0.22	209.12	209.22	209.22	209.25	0.023611	0.71	0.31	6.05	1	3.58
Reach1	1700	5 year	0.62	209.12	209.27	209.27	209.32	0.022157	0.93	0.67	8.59	1.04	6.26
Reach1	1700	10 year	0.83	209.12	209.3	209.3	209.34	0.021274	0.89	0.96	14.51	1.01	8.15
Reach1	1700	25 year	1.39	209.12	209.34	209.34	209.38	0.014178	0.95	1.65	19.56	0.89	10.34
Reach1	1700	50 year	1.74	209.12	209.35	209.35	209.41	0.016277	1.08	1.87	20.58	0.96	11.84
Reach1	1700	100 year	1.86	209.12	209.36	209.36	209.41	0.015443	1.09	2.01	21.44	0.95	13.42
Reach1	1700	Regional	7.92	209.12	209.53	209.53	209.64	0.011953	1.67	6.97	32.51	0.96	30.23
Reach1	1599	2 year	0.22	207.45	207.84	207.61	207.84	0.000876	0.41	0.6	6.53	0.23	3.53
Reach1	1599	5 year	0.62	207.45	207.97	207.75	207.98	0.00085	0.51	3.09	27.63	0.24	6.07
Reach1	1599	10 year	0.83	207.45	208.02	207.81	208.02	0.000717	0.5	4.36	27.81	0.23	7.87
Reach1	1599	25 year	1.39	207.45	208.07	207.96	208.08	0.000879	0.6	5.99	28.04	0.26	9.95
Reach1	1599	50 year	1.74	207.45	208.11	207.98	208.12	0.000874	0.62	7.06	28.2	0.26	11.38
Reach1	1599	100 year	1.86	207.45	208.14	207.99	208.15	0.000701	0.58	7.99	28.33	0.23	12.91
Reach1	1599	Regional	7.92	207.45	208.48	208.15	208.49	0.001183	1	17.65	29.65	0.33	28.96
Reach1	1501	2 year	1.15	206.8	207.5		207.55	0.003952	1.02	1.26	9.33	0.53	3.44
Reach1	1501	5 year	2.25	206.8	207.62	207.57	207.69	0.004634	1.31	2.98	20.95	0.6	5.76
Reach1	1501	10 year	3.14	206.8	207.68	207.65	207.76	0.004484	1.41	4.54	25.64	0.6	7.43
Reach1	1501	25 year	4.27	206.8	207.74	207.71	207.82	0.004494	1.5	6.05	25.87	0.61	9.35
Reach1	1501	50 year	5.07	206.8	207.77	207.74	207.85	0.004714	1.59	6.86	26	0.63	10.69
Reach1	1501	100 year	5.99	206.8	207.8	207.77	207.89	0.004968	1.69	7.68	26.12	0.65	12.13
Reach1	1501	Regional	15.73	206.8	208.06		208.19	0.005881	2.28	14.66	27.18	0.75	27.36
Reach1	1465	2 year	1.15	206.56	207.19	207.11	207.21	0.00303	0.85	2.6	19.74	0.46	3.25
Reach1	1465	5 year	2.25	206.56	207.29	207.21	207.32	0.003135	1.02	5.02	28.87	0.49	5.38
Reach1	1465	10 year	3.14	206.56	207.34	207.26	207.38	0.00334	1.14	6.83	34.94	0.51	6.89
Reach1	1465	25 year	4.27	206.56	207.4	207.27	207.43	0.003351	1.22	8.97	40	0.52	8.64
Reach1	1465	50 year	5.07	206.56	207.43	207.33	207.47	0.003267	1.25	10.25	40.13	0.52	9.88
Reach1	1465	100 year	5.99	206.56	207.47	207.36	207.5	0.00314	1.28	11.7	40.28	0.52	11.22
Reach1	1465	Regional	15.73	206.56	207.74	207.53	207.78	0.002966	1.58	22.73	41.36	0.53	25.6
Reach1	1450	2 year	1.15	206.42	207.06		207.08	0.002089	0.77	3.27	27.98	0.39	3.09
Reach1	1450	5 year	2.25	206.42	207.16		207.18	0.002025	0.88	6.35	34.54	0.4	5.08
Reach1	1450	10 year	3.14	206.42	207.2		207.22	0.002385	1.01	7.72	34.86	0.44	6.5
Reach1	1450	25 year	4.27	206.42	207.25		207.28	0.002401	1.08	9.62	35.08	0.45	8.14
Reach1	1450	50 year	5.07	206.42	207.28		207.31	0.002461	1.13	10.76	35.21	0.46	9.32
Reach1	1450	100 year	5.99	206.42	207.32		207.35	0.002493	1.18	12.02	35.35	0.47	10.58
Reach1	1450	Regional	15.73	206.42	207.55		207.6	0.00364	1.74	20.16	36.26	0.59	24.44
Reach1	1430	2 year	1.15	206.34	206.79	206.79	206.84	0.006196	1.22	2.21	24.42	0.64	2.9
Reach1	1430	5 year	2.25	206.34	206.84	206.84	206.92	0.008807	1.6	3.76	31.93	0.78	4.72
Reach1	1430	10 year	3.14	206.34	206.9	206.9	206.96	0.006951	1.55	5.97	41.88	0.71	6.02
Reach1	1430	25 year	4.27	206.34	206.93	206.93	206.99	0.008451	1.77	7.02	41.98	0.79	7.56
Reach1	1430	50 year	5.07	206.34	206.94	206.94	207.01	0.008989	1.87	7.79	42.06	0.82	8.67
Reach1	1430	100 year	5.99	206.34	206.96	206.96	207.04	0.009823	1.99	8.5	42.12	0.86	9.87
Reach1	1430	Regional	15.73	206.34	207.18		207.25	0.007459	2.17	17.82	43	0.79	23.12
Reach1	1420	2 year	1.15	206.19	206.54	206.46	206.55	0.003335	0.72	3.37	22.61	0.45	2.82
Reach1	1420	5 year	2.25	206.19	206.63	206.51	206.64	0.003243	0.84	6.22	35.89	0.46	4.57
Reach1	1420	10 year	3.14	206.19	206.68	206.55	206.69	0.003063	0.89	8.06	39.42	0.46	5.81
Reach1	1420	25 year	4.27	206.19	206.73	206.6	206.75	0.002922	0.95	10.23	42.41	0.46	7.3
Reach1	1420	50 year	5.07	206.19	206.77	206.62	206.78	0.002804	0.98	11.69	42.84	0.45	8.37
Reach1	1420	100 year	5.99	206.19	206.8	206.64	206.82	0.002745	1.02	13.25	44.64	0.46	9.54
Reach1	1420	Regional	16.84	206.19	207.09		207.11	0.002613	1.33	27.56	52.06	0.48	22.44
Reach1	1200	2 year	1.15	205.99	206.26		206.28	0.002889	0.57	2.17	15.21	0.43	2.58
Reach1	1200	5 year	2.25	205.99	206.34		206.37	0.003078	0.72	3.6	19.9	0.47	4.16
Reach1	1200	10 year	3.14	205.99	206.39		206.42	0.003149	0.83	4.63	22.68	0.49	5.28
Reach1	1200	25 year	4.27	205.99	206.44	206.33	206.48	0.003165	0.93	5.95	26.83	0.5	6.62
Reach1	1200	50 year	5.07	205.99	206.47	206.36	206.52	0.003299	1	6.78	29.42	0.52	7.6
Reach1	1200	100 year	5.99	205.99	206.51	206.38	206.56	0.003323	1.06	7.82	32.4	0.53	8.65
Reach1	1200	Regional	16.84	205.99	206.78		206.86	0.0032	1.47	18.95	45.44	0.57	20.47





Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl	Volume (1000 m3)
Reach1	24.31342	50 year	5.07	197.32	197.43	197.43	197.49	0.058511	1.24	4.78	44.36	1.6	
Reach1	24.31342	100 year	5.99	197.32	197.45	197.45	197.51	0.053169	1.31	5.69	48.89	1.57	
Reach1	24.31342	Regional	20.82	197.32	197.6	197.6	197.7	0.046733	2.04	15.5	76.21	1.67	

**HEC RAS Model Output**

PROJECT: Orlando North Porta

PROJECT #: 17197

DATE: April 2022

MUNICIPALITY: Town of Milton

Plan: 203\_TMIG\_PR\_Riparian April 2022

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl	Volume (1000 m3)
Reach1	4400	2 year	0.12	221.15	221.26	221.22	221.26	0.001362	0.2	0.61	11.35	0.25	6.07
Reach1	4400	5 year	0.27	221.15	221.3	221.24	221.31	0.001377	0.26	1.2	16.59	0.27	11.95
Reach1	4400	10 year	0.33	221.15	221.32	221.25	221.32	0.001407	0.28	1.43	18.23	0.28	15.22
Reach1	4400	25 year	0.37	221.15	221.32	221.25	221.33	0.001375	0.29	1.56	19.14	0.27	20.58
Reach1	4400	50 year	0.41	221.15	221.33	221.26	221.34	0.00136	0.3	1.71	20.07	0.28	23.66
Reach1	4400	100 year	0.49	221.15	221.35	221.27	221.35	0.001348	0.31	2	21.32	0.28	25.93
Reach1	4400	Regional	1.48	221.15	221.45	221.34	221.46	0.001318	0.44	4.5	25.3	0.3	65.95
Reach1	4300	2 year	0.12	220.94	221.06	221.03	221.06	0.003326	0.28	0.41	7.65	0.38	6.02
Reach1	4300	5 year	0.27	220.94	221.1	221.06	221.1	0.00317	0.38	0.75	9.95	0.4	11.86
Reach1	4300	10 year	0.33	220.94	221.11	221.06	221.12	0.003239	0.41	0.88	10.67	0.41	15.11
Reach1	4300	25 year	0.37	220.94	221.12	221.07	221.12	0.003264	0.42	0.94	11.02	0.42	20.46
Reach1	4300	50 year	0.41	220.94	221.12	221.07	221.13	0.003305	0.44	1.01	11.39	0.42	23.52
Reach1	4300	100 year	0.49	220.94	221.13	221.08	221.14	0.003375	0.47	1.16	12.12	0.43	25.78
Reach1	4300	Regional	1.48	220.94	221.23	221.16	221.25	0.003853	0.69	2.76	20.84	0.5	65.59
Reach1	4200	2 year	0.12	220.3	220.37	220.37	220.38	0.020711	0.52	0.22	6.21	0.88	5.99
Reach1	4200	5 year	0.27	220.3	220.39	220.39	220.42	0.024306	0.68	0.39	8.25	1	11.8
Reach1	4200	10 year	0.33	220.3	220.4	220.4	220.43	0.023519	0.71	0.47	9	1	15.04
Reach1	4200	25 year	0.37	220.3	220.4	220.4	220.43	0.022848	0.73	0.5	9.33	0.99	20.38
Reach1	4200	50 year	0.41	220.3	220.41	220.41	220.44	0.022257	0.75	0.54	9.68	0.99	23.44
Reach1	4200	100 year	0.49	220.3	220.42	220.42	220.45	0.021365	0.79	0.63	10.38	0.99	25.69
Reach1	4200	Regional	1.48	220.3	220.49	220.49	220.54	0.016818	1.06	1.56	16.07	0.97	65.37
Reach1	4100	2 year	0.12	219.64	219.76	219.71	219.76	0.000717	0.16	0.87	14.17	0.18	5.94
Reach1	4100	5 year	0.27	219.64	219.81	219.73	219.81	0.000786	0.21	1.58	17.69	0.2	11.7
Reach1	4100	10 year	0.33	219.64	219.82	219.74	219.83	0.000785	0.22	1.86	18.92	0.21	14.93
Reach1	4100	25 year	0.37	219.64	219.84	219.74	219.85	0.000573	0.2	2.26	20.52	0.18	20.25
Reach1	4100	50 year	0.41	219.64	219.85	219.75	219.86	0.000555	0.21	2.46	21.31	0.18	23.3
Reach1	4100	100 year	0.49	219.64	219.86	219.75	219.87	0.000613	0.23	2.7	22.27	0.19	25.53
Reach1	4100	Regional	1.48	219.64	220	219.82	220	0.000568	0.34	6.37	32.96	0.21	64.99
Reach1	4000	2 year	0.21	219.34	219.4	219.4	219.42	0.027882	0.59	0.36	12.79	1.02	5.87
Reach1	4000	5 year	0.48	219.34	219.43	219.43	219.46	0.022178	0.72	0.8	18.69	0.98	11.58
Reach1	4000	10 year	0.62	219.34	219.44	219.44	219.47	0.021538	0.77	0.99	20.57	0.98	14.78
Reach1	4000	25 year	0.91	219.34	219.46	219.46	219.49	0.019679	0.87	1.37	24.12	0.98	20.06
Reach1	4000	50 year	1.06	219.34	219.47	219.47	219.5	0.018567	0.9	1.58	25.83	0.97	23.08
Reach1	4000	100 year	1.18	219.34	219.47	219.47	219.51	0.018083	0.93	1.75	27.14	0.97	25.29
Reach1	4000	Regional	5.06	219.34	219.59	219.59	219.64	0.010298	1.21	10.55	106.42	0.84	64.07
Reach1	3900	2 year	0.21	218.7	218.79	218.75	218.79	0.001253	0.2	1.65	37.09	0.24	5.77
Reach1	3900	5 year	0.48	218.7	218.82	218.77	218.83	0.001307	0.27	3.29	48.91	0.27	11.37
Reach1	3900	10 year	0.62	218.7	218.84	218.78	218.84	0.001337	0.3	3.99	53.15	0.27	14.53
Reach1	3900	25 year	0.91	218.7	218.86	218.79	218.87	0.001407	0.35	5.38	60.72	0.29	19.72
Reach1	3900	50 year	1.06	218.7	218.87	218.8	218.88	0.001414	0.37	6.07	64.16	0.29	22.7
Reach1	3900	100 year	1.18	218.7	218.88	218.8	218.89	0.00146	0.38	6.58	66.59	0.3	24.87
Reach1	3900	Regional	5.06	218.7	219.03	218.9	219.04	0.00178	0.65	20.07	110.58	0.37	62.53
Reach1	3800	2 year	0.21	218.4	218.44	218.44	218.45	0.02355	0.41	0.5	21.64	0.87	5.66
Reach1	3800	5 year	0.48	218.4	218.46	218.46	218.47	0.027223	0.56	0.87	27.22	0.99	11.16
Reach1	3800	10 year	0.62	218.4	218.46	218.46	218.48	0.026084	0.6	1.05	29.19	0.99	14.27
Reach1	3800	25 year	0.91	218.4	218.48	218.48	218.5	0.024305	0.65	1.41	32.9	0.99	19.37
Reach1	3800	50 year	1.06	218.4	218.48	218.48	218.51	0.024551	0.69	1.57	34.35	1	22.31
Reach1	3800	100 year	1.18	218.4	218.49	218.49	218.51	0.023391	0.7	1.73	35.83	0.99	24.45
Reach1	3800	Regional	5.06	218.4	218.56	218.56	218.61	0.019619	1	5.38	58.64	1.02	61.22
Reach1	3700	2 year	0.21	217.36	217.36		217.36	0.006391	0.01	1.12	14.44	0.23	5.58
Reach1	3700	5 year	0.48	217.36	217.44	217.33	217.44	0.003233	0.21	2.68	25.44	0.35	10.99
Reach1	3700	10 year	0.62	217.36	217.47	217.34	217.47	0.002671	0.24	3.39	29.28	0.33	14.05
Reach1	3700	25 year	0.91	217.36	217.51	217.36	217.52	0.00187	0.25	5.02	36.52	0.3	19.06
Reach1	3700	50 year	1.06	217.36	217.54	217.37	217.54	0.001632	0.26	5.82	39.67	0.28	21.95
Reach1	3700	100 year	1.18	217.36	217.55	217.37	217.55	0.00151	0.26	6.46	42.02	0.28	24.05
Reach1	3700	Regional	5.06	217.36	217.87	217.5	217.87	0.000478	0.29	25.4	80.9	0.19	59.71
Reach1	3600	2 year	0.21	216.87	217.26		217.26	0.000481	0.16	1.83	16.22	0.12	5.46
Reach1	3600	5 year	0.48	216.87	217.35		217.35	0.000514	0.21	3.68	25.01	0.13	10.72
Reach1	3600	10 year	0.62	216.87	217.38		217.38	0.000541	0.23	4.44	27.2	0.13	13.73
Reach1	3600	25 year	0.91	216.87	217.44		217.44	0.000563	0.26	6.06	31.38	0.14	18.59
Reach1	3600	50 year	1.06	216.87	217.46		217.46	0.000565	0.28	6.85	33.24	0.14	21.42
Reach1	3600	100 year	1.18	216.87	217.48		217.48	0.000597	0.29	7.37	34.39	0.15	23.47

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl	Volume (1000 m3)
Reach1	3600	Regional	5.06	216.87	217.82		217.82	0.000668	0.47	22.31	51.92	0.17	57.71
Reach1	3550	2 year	0.21	216.8	217.2		217.21	0.003282	0.43	0.53	7.58	0.3	5.4
Reach1	3550	5 year	0.48	216.8	217.29		217.3	0.002945	0.52	1.9	19.43	0.3	10.57
Reach1	3550	10 year	0.62	216.8	217.32		217.33	0.002799	0.54	2.47	21.23	0.3	13.54
Reach1	3550	25 year	0.91	216.8	217.38		217.38	0.002275	0.54	3.84	25	0.28	18.33
Reach1	3550	50 year	1.06	216.8	217.4		217.41	0.002086	0.54	4.51	26.27	0.27	21.12
Reach1	3550	100 year	1.18	216.8	217.41		217.42	0.002196	0.57	4.83	26.47	0.28	23.15
Reach1	3550	Regional	5.06	216.8	217.76		217.77	0.001765	0.76	14.87	32.06	0.28	56.75
Reach1	3500	2 year	0.25	216.61	217.02		217.03	0.003735	0.48	0.66	11.22	0.33	5.37
Reach1	3500	5 year	0.67	216.61	217.12		217.13	0.003768	0.61	2.29	20	0.35	10.47
Reach1	3500	10 year	0.88	216.61	217.15		217.16	0.003777	0.65	2.93	21.68	0.35	13.41
Reach1	3500	25 year	1.48	216.61	217.22		217.23	0.003828	0.74	4.51	24.83	0.37	18.12
Reach1	3500	50 year	1.81	216.61	217.25		217.26	0.003809	0.77	5.27	25.06	0.37	20.87
Reach1	3500	100 year	1.93	216.61	217.26		217.27	0.003807	0.79	5.53	25.14	0.37	22.89
Reach1	3500	Regional	8.03	216.61	217.6		217.63	0.003792	1.14	14.77	27.78	0.41	56.01
Reach1	3400	2 year	0.25	216.21	216.62		216.63	0.003945	0.49	0.63	10.62	0.33	5.3
Reach1	3400	5 year	0.67	216.21	216.72		216.73	0.003888	0.62	2.25	19.88	0.35	10.23
Reach1	3400	10 year	0.88	216.21	216.75		216.76	0.003868	0.66	2.9	21.56	0.36	13.1
Reach1	3400	25 year	1.48	216.21	216.82		216.83	0.003805	0.74	4.51	24.49	0.37	17.65
Reach1	3400	50 year	1.81	216.21	216.85		216.86	0.003785	0.77	5.26	24.68	0.37	20.32
Reach1	3400	100 year	1.93	216.21	216.86		216.87	0.00382	0.79	5.49	24.74	0.37	22.31
Reach1	3400	Regional	8.03	216.21	217.22		217.24	0.003607	1.13	14.85	27.07	0.4	54.45
Reach1	3300	2 year	0.25	215.81	216.22		216.23	0.004063	0.5	0.62	10.59	0.34	5.24
Reach1	3300	5 year	0.67	215.81	216.32		216.33	0.004109	0.64	2.12	18.16	0.36	10.01
Reach1	3300	10 year	0.88	215.81	216.35		216.36	0.004107	0.68	2.72	19.82	0.37	12.82
Reach1	3300	25 year	1.48	215.81	216.42		216.43	0.004113	0.77	4.18	21.7	0.38	17.21
Reach1	3300	50 year	1.81	215.81	216.45		216.46	0.004151	0.81	4.85	21.88	0.39	19.81
Reach1	3300	100 year	1.93	215.81	216.46		216.48	0.004098	0.82	5.1	21.95	0.39	21.78
Reach1	3300	Regional	8.03	215.81	216.81		216.85	0.004361	1.23	13.27	24.04	0.44	53.05
Reach1	3200	2 year	0.25	215.42	215.83		215.84	0.003788	0.48	0.65	11.04	0.33	5.17
Reach1	3200	5 year	0.67	215.42	215.92		215.94	0.003771	0.61	2.29	20.04	0.35	9.79
Reach1	3200	10 year	0.88	215.42	215.95		215.97	0.003783	0.65	2.93	21.72	0.35	12.54
Reach1	3200	25 year	1.48	215.42	216.02		216.04	0.003798	0.74	4.53	24.85	0.36	16.78
Reach1	3200	50 year	1.81	215.42	216.05		216.07	0.003807	0.77	5.27	25.08	0.37	19.31
Reach1	3200	100 year	1.93	215.42	216.06		216.08	0.003888	0.79	5.49	25.14	0.37	21.25
Reach1	3200	Regional	8.03	215.42	216.41		216.43	0.003853	1.15	14.7	27.8	0.41	51.65
Reach1	3150	2 year	0.25	215.27	215.68		215.69	0.003815	0.49	0.65	10.84	0.33	5.15
Reach1	3150	5 year	0.67	215.27	215.78		215.79	0.003742	0.61	2.3	20.17	0.35	9.7
Reach1	3150	10 year	0.88	215.27	215.81		215.82	0.003744	0.65	2.95	21.89	0.35	12.42
Reach1	3150	25 year	1.48	215.27	215.88		215.89	0.003747	0.73	4.56	24.94	0.36	16.6
Reach1	3150	50 year	1.81	215.27	215.91		215.92	0.003763	0.77	5.31	25.18	0.37	19.11
Reach1	3150	100 year	1.93	215.27	215.92		215.93	0.003771	0.78	5.56	25.27	0.37	21.04
Reach1	3150	Regional	8.03	215.27	216.26		216.29	0.003822	1.15	14.8	28.09	0.41	51.09
Reach1	3100	2 year	0.25	215.01	215.41		215.43	0.003995	0.49	0.62	10	0.34	5.1
Reach1	3100	5 year	0.67	215.01	215.51		215.52	0.004006	0.63	2.22	19.9	0.36	9.55
Reach1	3100	10 year	0.88	215.01	215.54		215.56	0.004007	0.67	2.85	21.55	0.36	12.22
Reach1	3100	25 year	1.48	215.01	215.61		215.62	0.004035	0.76	4.42	24.66	0.38	16.29
Reach1	3100	50 year	1.81	215.01	215.64		215.65	0.004037	0.79	5.15	24.86	0.38	18.75
Reach1	3100	100 year	1.93	215.01	215.65		215.66	0.004023	0.8	5.4	24.92	0.38	20.66
Reach1	3100	Regional	8.03	215.01	216		216.02	0.003903	1.16	14.51	27.21	0.41	50.08
Reach1	3000	2 year	0.25	214.61	215.02		215.03	0.003792	0.48	0.65	10.87	0.33	5.04
Reach1	3000	5 year	0.67	214.61	215.11		215.13	0.003754	0.61	2.29	19.98	0.35	9.31
Reach1	3000	10 year	0.88	214.61	215.14		215.16	0.003738	0.65	2.94	21.65	0.35	11.92
Reach1	3000	25 year	1.48	214.61	215.21		215.23	0.003648	0.73	4.59	24.68	0.36	15.83
Reach1	3000	50 year	1.81	214.61	215.24		215.26	0.003632	0.76	5.35	24.89	0.36	18.2
Reach1	3000	100 year	1.93	214.61	215.25		215.27	0.003648	0.77	5.59	24.95	0.36	20.09
Reach1	3000	Regional	8.03	214.61	215.6		215.63	0.003754	1.14	14.7	27.24	0.41	48.58
Reach1	2900	2 year	0.25	214.23	214.63		214.64	0.004166	0.5	0.6	9.85	0.34	4.98
Reach1	2900	5 year	0.67	214.23	214.72		214.74	0.004295	0.65	2.15	19.53	0.37	9.1
Reach1	2900	10 year	0.88	214.23	214.75		214.77	0.00435	0.69	2.74	21.12	0.38	11.65
Reach1	2900	25 year	1.48	214.23	214.82		214.83	0.004523	0.79	4.22	24.59	0.4	15.4
Reach1	2900	50 year	1.81	214.23	214.85		214.86	0.004608	0.83	4.9	24.89	0.4	17.71
Reach1	2900	100 year	1.93	214.23	214.86		214.87	0.004591	0.84	5.15	24.96	0.41	19.57
Reach1	2900	Regional	8.03	214.23	215.15		215.19	0.005586	1.31	12.93	27.1	0.49	47.24
Reach1	2850	2 year	0.25	213.97	214.39		214.4	0.003337	0.46	0.72	12.26	0.31	4.93
Reach1	2850	5 year	0.67	213.97	214.49		214.5	0.003074	0.57	2.9	30.91	0.32	8.93
Reach1	2850	10 year	0.88	213.97	214.52		214.53	0.003107	0.6	3.77	34.21	0.32	11.43
Reach1	2850	25 year	1.48	213.97	214.57		214.58	0.003165	0.67	5.85	38.88	0.33	15.07







Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl	Volume (1000 m3)
Reach1	1420	2 year	1.15	206.19	206.54	206.46	206.55	0.003335	0.72	3.37	22.61	0.45	2.82
Reach1	1420	5 year	2.25	206.19	206.63	206.51	206.64	0.003243	0.84	6.22	35.89	0.46	4.57
Reach1	1420	10 year	3.14	206.19	206.68	206.55	206.69	0.003063	0.89	8.06	39.42	0.46	5.81
Reach1	1420	25 year	4.27	206.19	206.73	206.6	206.75	0.002922	0.95	10.23	42.41	0.46	7.3
Reach1	1420	50 year	5.07	206.19	206.77	206.62	206.78	0.002804	0.98	11.69	42.84	0.45	8.37
Reach1	1420	100 year	5.99	206.19	206.8	206.64	206.82	0.002745	1.02	13.25	44.64	0.46	9.54
Reach1	1420	Regional	16.84	206.19	207.09		207.11	0.002613	1.33	27.56	52.06	0.48	22.44
Reach1	1200	2 year	1.15	205.99	206.26		206.28	0.002889	0.57	2.17	15.21	0.43	2.58
Reach1	1200	5 year	2.25	205.99	206.34		206.37	0.003078	0.72	3.6	19.9	0.47	4.16
Reach1	1200	10 year	3.14	205.99	206.39		206.42	0.003149	0.83	4.63	22.68	0.49	5.28
Reach1	1200	25 year	4.27	205.99	206.44	206.33	206.48	0.003165	0.93	5.95	26.83	0.5	6.62
Reach1	1200	50 year	5.07	205.99	206.47	206.36	206.52	0.003299	1	6.78	29.42	0.52	7.6
Reach1	1200	100 year	5.99	205.99	206.51	206.38	206.56	0.003323	1.06	7.82	32.4	0.53	8.65
Reach1	1200	Regional	16.84	205.99	206.78		206.86	0.0032	1.47	18.95	45.44	0.57	20.47
Reach1	1100	2 year	1.15	205.39	205.62	205.62	205.67	0.021293	1.15	1.27	12.08	1.08	2.42
Reach1	1100	5 year	2.25	205.39	205.68	205.68	205.76	0.019084	1.35	2.19	15.32	1.08	3.88
Reach1	1100	10 year	3.14	205.39	205.72	205.72	205.81	0.018121	1.45	2.87	17.35	1.08	4.92
Reach1	1100	25 year	4.27	205.39	205.76	205.76	205.87	0.018326	1.59	3.59	19.26	1.11	6.16
Reach1	1100	50 year	5.07	205.39	205.79	205.79	205.9	0.016751	1.63	4.21	20.74	1.08	7.07
Reach1	1100	100 year	5.99	205.39	205.82	205.82	205.94	0.016601	1.72	4.77	21.94	1.09	8.05
Reach1	1100	Regional	18.4	205.39	206.08	206.08	206.28	0.013621	2.3	12.19	35.71	1.09	19
Reach1	1000	2 year	1.15	204.37	204.62	204.54	204.64	0.004597	0.65	1.76	11.38	0.53	2.26
Reach1	1000	5 year	2.25	204.37	204.69	204.62	204.73	0.005694	0.82	2.74	14.67	0.61	3.63
Reach1	1000	10 year	3.14	204.37	204.74	204.67	204.78	0.005886	0.91	3.45	16.65	0.63	4.6
Reach1	1000	25 year	4.27	204.37	204.79	204.71	204.84	0.006056	1.01	4.27	18.68	0.65	5.76
Reach1	1000	50 year	5.07	204.37	204.82	204.74	204.87	0.006048	1.06	4.87	20.03	0.66	6.61
Reach1	1000	100 year	5.99	204.37	204.85	204.77	204.91	0.006071	1.11	5.5	21.41	0.67	7.53
Reach1	1000	Regional	18.4	204.37	205.11	205.02	205.25	0.005635	1.67	12.81	32.09	0.72	17.77
Reach1	900	2 year	1.15	203.87	204.1		204.12	0.00586	0.68	1.76	14.94	0.58	2.09
Reach1	900	5 year	2.25	203.87	204.18		204.21	0.004735	0.82	3.1	19.82	0.57	3.34
Reach1	900	10 year	3.14	203.87	204.22		204.26	0.004599	0.92	4.08	22.74	0.58	4.22
Reach1	900	25 year	4.27	203.87	204.27		204.32	0.004465	1.02	5.28	25.68	0.58	5.29
Reach1	900	50 year	5.07	203.87	204.3		204.35	0.004508	1.09	6.06	27.39	0.6	6.07
Reach1	900	100 year	5.99	203.87	204.33		204.39	0.004525	1.15	6.93	29.22	0.61	6.91
Reach1	900	Regional	18.4	203.87	204.59		204.71	0.005115	1.75	17.33	47.92	0.7	16.27
Reach1	800	2 year	1.15	203.11	203.36		203.4	0.009138	0.87	1.41	11.99	0.74	1.93
Reach1	800	5 year	2.25	203.11	203.42	203.4	203.48	0.012128	1.19	2.12	14.53	0.88	3.08
Reach1	800	10 year	3.14	203.11	203.45	203.45	203.54	0.012626	1.35	2.73	16.36	0.93	3.88
Reach1	800	25 year	4.27	203.11	203.49	203.49	203.6	0.01318	1.5	3.43	18.28	0.97	4.85
Reach1	800	50 year	5.07	203.11	203.52	203.52	203.64	0.012741	1.56	4	19.67	0.96	5.57
Reach1	800	100 year	5.99	203.11	203.55	203.55	203.68	0.012596	1.63	4.6	21.1	0.97	6.34
Reach1	800	Regional	19.16	203.11	203.84	203.83	204.02	0.009509	2.13	13.07	34.3	0.93	14.76
Reach1	700	2 year	1.15	202.6	202.86	202.79	202.87	0.003321	0.51	2.86	21.71	0.44	1.71
Reach1	700	5 year	2.25	202.6	202.94	202.84	202.96	0.002768	0.6	4.79	25.58	0.43	2.73
Reach1	700	10 year	3.14	202.6	202.99	202.87	203.01	0.002757	0.68	5.97	27.13	0.44	3.44
Reach1	700	25 year	4.27	202.6	203.04	202.9	203.06	0.00271	0.77	7.38	28.61	0.45	4.31
Reach1	700	50 year	5.07	202.6	203.07	202.92	203.1	0.002734	0.82	8.26	29.5	0.46	4.95
Reach1	700	100 year	5.99	202.6	203.1	202.95	203.14	0.002659	0.87	9.34	30.45	0.46	5.64
Reach1	700	Regional	19.16	202.6	203.41	203.19	203.49	0.0032	1.43	19.58	37.29	0.56	13.16
Reach1	600	2 year	1.15	201.94	202.25	202.23	202.3	0.011621	1.05	1.1	7.22	0.84	1.51
Reach1	600	5 year	2.25	201.94	202.32	202.32	202.42	0.013824	1.43	1.64	9.16	0.97	2.41
Reach1	600	10 year	3.14	201.94	202.37	202.37	202.49	0.01228	1.55	2.24	11.33	0.94	3.04
Reach1	600	25 year	4.27	201.94	202.44	202.44	202.57	0.01106	1.67	3.03	13.69	0.92	3.8
Reach1	600	50 year	5.07	201.94	202.51	202.51	202.61	0.010805	1.51	4.28	23.25	0.89	4.35
Reach1	600	100 year	5.99	201.94	202.54	202.54	202.65	0.01164	1.57	4.99	25.95	0.93	4.95
Reach1	600	Regional	19.16	201.94	202.8	202.8	202.98	0.009852	2.16	14.08	40.73	0.94	11.58
Reach1	540.4514	2 year	1.15	201.5	201.81	201.74	201.84	0.005511	0.67	1.73	12.6	0.57	1.43
Reach1	540.4514	5 year	2.25	201.5	201.9	201.82	201.93	0.004564	0.8	2.99	17.55	0.55	2.27
Reach1	540.4514	10 year	3.14	201.5	201.95	201.87	201.99	0.00418	0.86	4.02	20.18	0.55	2.86
Reach1	540.4514	25 year	4.27	201.5	202.01	201.91	202.05	0.003791	0.92	5.42	25.91	0.54	3.56
Reach1	540.4514	50 year	5.07	201.5	202.05	201.94	202.09	0.003537	0.96	6.42	28.92	0.53	4.04
Reach1	540.4514	100 year	5.99	201.5	202.09	201.96	202.13	0.003216	0.99	7.63	30.44	0.51	4.59
Reach1	540.4514	Regional	19.83	201.5	202.5	202.24	202.57	0.002103	1.31	23.31	46.93	0.47	10.55
Reach1	504.8202	2 year	1.15	200.96	201.35	201.27	201.38	0.004632	0.77	1.49	7.45	0.55	1.28
Reach1	504.8202	5 year	2.25	200.96	201.44	201.36	201.49	0.004888	0.99	2.3	9	0.6	2.04
Reach1	504.8202	10 year	3.14	200.96	201.51	201.41	201.57	0.004995	1.12	2.89	10.15	0.62	2.55
Reach1	504.8202	25 year	4.27	200.96	201.57	201.47	201.65	0.005186	1.26	3.58	11.36	0.65	3.16
Reach1	504.8202	50 year	5.07	200.96	201.61	201.51	201.7	0.005283	1.35	4.05	12.12	0.66	3.58
Reach1	504.8202	100 year	5.99	200.96	201.66	201.55	201.76	0.005537	1.42	4.65	13.5	0.68	4.06

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl	Volume (1000 m3)
Reach1	504.8202	Regional	19.83	200.96	201.98	201.96	202.22	0.009096	2.27	10.62	23.55	0.93	9.19
Reach1	482.854	2 year	1.15	200.81	201.12	201.12	201.2	0.016666	1.22	0.94	6.18	1	1.26
Reach1	482.854	5 year	2.25	200.81	201.21	201.21	201.32	0.014673	1.45	1.57	7.94	0.99	1.99
Reach1	482.854	10 year	3.14	200.81	201.27	201.27	201.39	0.013219	1.59	2.06	9.06	0.98	2.5
Reach1	482.854	25 year	4.27	200.81	201.33	201.33	201.48	0.01203	1.72	2.68	10.36	0.96	3.1
Reach1	482.854	50 year	5.07	200.81	201.37	201.37	201.53	0.011407	1.79	3.12	11.26	0.95	3.51
Reach1	482.854	100 year	5.99	200.81	201.44	201.44	201.58	0.011448	1.74	3.94	14.49	0.95	3.97
Reach1	482.854	Regional	19.83	200.81	201.79	201.79	202.02	0.009167	2.29	11.93	31.38	0.93	8.95
Reach1	449.3484	2 year	1.15	200.58	201	200.82	201	0.000892	0.43	3.71	21.5	0.26	1.2
Reach1	449.3484	5 year	2.25	200.58	201.09	200.92	201.11	0.001094	0.55	6	25.13	0.3	1.9
Reach1	449.3484	10 year	3.14	200.58	201.15	200.96	201.17	0.001192	0.63	7.6	27.38	0.31	2.38
Reach1	449.3484	25 year	4.27	200.58	201.22	201.01	201.24	0.001307	0.69	9.52	30	0.33	2.96
Reach1	449.3484	50 year	5.07	200.58	201.26	201.04	201.28	0.001374	0.72	10.77	31.4	0.34	3.35
Reach1	449.3484	100 year	5.99	200.58	201.3	201.06	201.32	0.001456	0.76	12.03	32.65	0.36	3.79
Reach1	449.3484	Regional	19.83	200.58	201.64	201.35	201.69	0.002175	1.25	24.89	43.47	0.47	8.56
Reach1	439.3625	2 year	1.15	200.58	200.94	200.9	200.98	0.008038	0.84	1.37	9.15	0.69	1.17
Reach1	439.3625	5 year	2.25	200.58	201.02	200.98	201.08	0.007672	1.04	2.23	12.54	0.72	1.86
Reach1	439.3625	10 year	3.14	200.58	201.07	201.03	201.14	0.007662	1.17	2.88	14.6	0.74	2.33
Reach1	439.3625	25 year	4.27	200.58	201.12	201.08	201.21	0.008032	1.28	3.72	17.4	0.77	2.89
Reach1	439.3625	50 year	5.07	200.58	201.16	201.12	201.25	0.007992	1.31	4.46	20.1	0.77	3.27
Reach1	439.3625	100 year	5.99	200.58	201.2	201.16	201.29	0.008177	1.37	5.16	22.58	0.79	3.71
Reach1	439.3625	Regional	19.83	200.58	201.48	201.45	201.64	0.00818	1.94	13.89	37.36	0.86	8.37
Reach1	416.8555	2 year	1.15	200.33	200.65	200.65	200.72	0.016832	1.21	0.95	6.36	1	1.14
Reach1	416.8555	5 year	2.25	200.33	200.75	200.75	200.84	0.015489	1.34	1.68	9.14	1	1.81
Reach1	416.8555	10 year	3.14	200.33	200.8	200.8	200.9	0.015185	1.45	2.18	11.01	1.01	2.27
Reach1	416.8555	25 year	4.27	200.33	200.85	200.85	200.97	0.013667	1.51	2.89	13.22	0.98	2.81
Reach1	416.8555	50 year	5.07	200.33	200.88	200.88	201.01	0.013496	1.58	3.32	14.48	0.99	3.18
Reach1	416.8555	100 year	5.99	200.33	200.92	200.92	201.06	0.012427	1.65	3.85	16.58	0.97	3.6
Reach1	416.8555	Regional	19.83	200.33	201.26	201.26	201.46	0.007667	2.15	13.63	39.04	0.86	8.04
Reach1	406.9713	2 year	1.15	200.03	200.42	200.3	200.43	0.002238	0.53	2.18	11.61	0.38	1.13
Reach1	406.9713	5 year	2.25	200.03	200.51	200.38	200.53	0.00249	0.7	3.33	14	0.43	1.79
Reach1	406.9713	10 year	3.14	200.03	200.56	200.43	200.6	0.00271	0.81	4.11	15.44	0.46	2.24
Reach1	406.9713	25 year	4.27	200.03	200.63	200.47	200.67	0.003057	0.88	5.32	20.38	0.49	2.77
Reach1	406.9713	50 year	5.07	200.03	200.69	200.51	200.73	0.002948	0.85	6.74	28.42	0.48	3.14
Reach1	406.9713	100 year	5.99	200.03	200.72	200.54	200.76	0.003246	0.94	7.6	37.34	0.51	3.55
Reach1	406.9713	Regional	19.83	200.03	200.68	200.87	201.26	0.049188	3.45	6.45	25.68	1.95	7.94
Reach1	368.8569	2 year	1.15	199.63	199.85	199.85	199.9	0.01884	1.03	1.13	11.46	1.01	0.95
Reach1	368.8569	5 year	2.25	199.63	199.91	199.91	199.98	0.016193	1.21	1.99	15.61	0.99	1.51
Reach1	368.8569	10 year	3.14	199.63	199.95	199.95	200.03	0.014054	1.31	2.66	18.1	0.96	1.89
Reach1	368.8569	25 year	4.27	199.63	199.99	199.99	200.09	0.012327	1.41	3.53	20.61	0.93	2.32
Reach1	368.8569	50 year	5.07	199.63	200.01	200.01	200.13	0.014588	1.59	3.78	21.27	1.02	2.59
Reach1	368.8569	100 year	5.99	199.63	200.05	200.05	200.17	0.011684	1.58	4.79	26.84	0.94	2.92
Reach1	368.8569	Regional	19.83	199.63	200.31	200.31	200.51	0.009806	2.23	13.38	36.15	0.96	7.01
Reach1	300	2 year	1.15	198.81	199.3	199.08	199.3	0.000836	0.39	2.96	11.47	0.24	0.81
Reach1	300	5 year	2.25	198.81	199.43	199.17	199.44	0.000959	0.48	4.68	14.59	0.27	1.28
Reach1	300	10 year	3.14	198.81	199.5	199.22	199.51	0.001005	0.55	5.75	16.4	0.28	1.61
Reach1	300	25 year	4.27	198.81	199.57	199.27	199.59	0.001054	0.63	6.95	18.31	0.3	1.97
Reach1	300	50 year	5.07	198.81	199.61	199.31	199.63	0.001072	0.68	7.8	19.54	0.31	2.21
Reach1	300	100 year	5.99	198.81	199.66	199.35	199.68	0.001101	0.73	8.73	20.8	0.32	2.48
Reach1	300	Regional	20.53	198.81	200.11	199.74	200.17	0.001188	1.14	25.88	41.52	0.36	5.84
Reach1	258.518	2 year	1.15	198.76	199.02	199.01	199.08	0.01496	1.1	1.05	7.49	0.94	0.61
Reach1	258.518	5 year	2.25	198.76	199.09	199.09	199.18	0.016086	1.33	1.69	9.5	1.01	0.96
Reach1	258.518	10 year	3.14	198.76	199.14	199.14	199.25	0.015189	1.44	2.19	10.96	1.01	1.21
Reach1	258.518	25 year	4.27	198.76	199.19	199.19	199.32	0.014051	1.57	2.76	12.21	1	1.49
Reach1	258.518	50 year	5.07	198.76	199.22	199.22	199.36	0.013328	1.65	3.17	13.02	0.99	1.68
Reach1	258.518	100 year	5.99	198.76	199.26	199.26	199.41	0.012673	1.72	3.64	13.88	0.98	1.88
Reach1	258.518	Regional	20.53	198.76	199.64	199.64	199.9	0.010116	2.37	10.88	28.71	0.98	4.41
Reach1	199.9999	2 year	1.15	198.52	198.87	198.87	198.88	0.001441	0.39	4.32	36.88	0.3	0.49
Reach1	199.9999	5 year	2.25	198.52	198.94	198.83	198.95	0.00148	0.49	6.96	39.23	0.32	0.78
Reach1	199.9999	10 year	3.14	198.52	198.99	198.87	199	0.001525	0.55	8.73	41.03	0.34	0.98
Reach1	199.9999	25 year	4.27	198.52	199.03	198.89	199.05	0.001579	0.62	10.73	43.18	0.35	1.21
Reach1	199.9999	50 year	5.07	198.52	199.07	198.91	199.08	0.001575	0.66	12.11	44.62	0.35	1.36
Reach1	199.9999	100 year	5.99	198.52	199.1	198.93	199.12	0.001592	0.7	13.57	46.08	0.36	1.53
Reach1	199.9999	Regional	20.53	198.52	199.45	199.13	199.49	0.001655	1.11	32.37	60.48	0.41	3.6
Reach1	155.1166	2 year	1.15	198.33	198.5	198.5	198.54	0.019785	0.93	1.5	18.96	1	0.22
Reach1	155.1166	5 year	2.25	198.33	198.54	198.54	198.6	0.019662	1.16	2.35	20.03	1.05	0.35
Reach1	155.1166	10 year	3.14	198.33	198.57	198.57	198.65	0.019022	1.28	2.96	20.77	1.07	0.45
Reach1	155.1166	25 year	4.27	198.33	198.61	198.61	198.69	0.018138	1.39	3.69	21.62	1.07	0.56

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl	Volume (1000 m3)
Reach1	155.1166	50 year	5.07	198.33	198.63	198.63	198.72	0.018614	1.49	4.09	22.01	1.1	0.63
Reach1	155.1166	100 year	5.99	198.33	198.65	198.65	198.76	0.017722	1.57	4.6	22.54	1.09	0.71
Reach1	155.1166	Regional	20.53	198.33	198.92	198.92	199.14	0.012482	2.28	11.63	29.3	1.05	1.63
Reach1	100	2 year	1.15	197.69	197.87	197.81	197.88	0.003257	0.5	2.34	18.85	0.43	0.12
Reach1	100	5 year	2.25	197.69	197.94	197.86	197.96	0.003283	0.64	3.69	22.13	0.46	0.2
Reach1	100	10 year	3.14	197.69	197.98	197.89	198	0.003466	0.73	4.62	23.93	0.49	0.25
Reach1	100	25 year	4.27	197.69	198.02	197.92	198.06	0.003616	0.8	5.77	26.21	0.51	0.32
Reach1	100	50 year	5.07	197.69	198.05	197.95	198.09	0.003736	0.86	6.51	27.78	0.52	0.36
Reach1	100	100 year	5.99	197.69	198.08	197.97	198.12	0.00394	0.91	7.26	29.02	0.54	0.41
Reach1	100	Regional	20.53	197.69	198.33	198.22	198.44	0.005238	1.59	15.92	41.05	0.69	0.96
Reach1	24.31342	2 year	1.15	197.32	197.32	197.32	197.36	0.050901	0.1	1.33	18.37	0.82	
Reach1	24.31342	5 year	2.25	197.32	197.37	197.37	197.41	0.059965	0.75	2.42	30.6	1.43	
Reach1	24.31342	10 year	3.14	197.32	197.39	197.39	197.44	0.056433	0.94	3.28	35.68	1.48	
Reach1	24.31342	25 year	4.27	197.32	197.41	197.41	197.47	0.059124	1.14	4.13	40.31	1.58	
Reach1	24.31342	50 year	5.07	197.32	197.43	197.43	197.49	0.058511	1.24	4.78	44.36	1.6	
Reach1	24.31342	100 year	5.99	197.32	197.45	197.45	197.51	0.053169	1.31	5.69	48.89	1.57	
Reach1	24.31342	Regional	20.82	197.32	197.6	197.6	197.7	0.046733	2.04	15.5	76.21	1.67	

# Channel Report

## Woodlot Channel

### Trapezoidal

Bottom Width (m)	= 2.0000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.5000
Invert Elev (m)	= 217.2400
Slope (%)	= 0.3300
N-Value	= 0.045

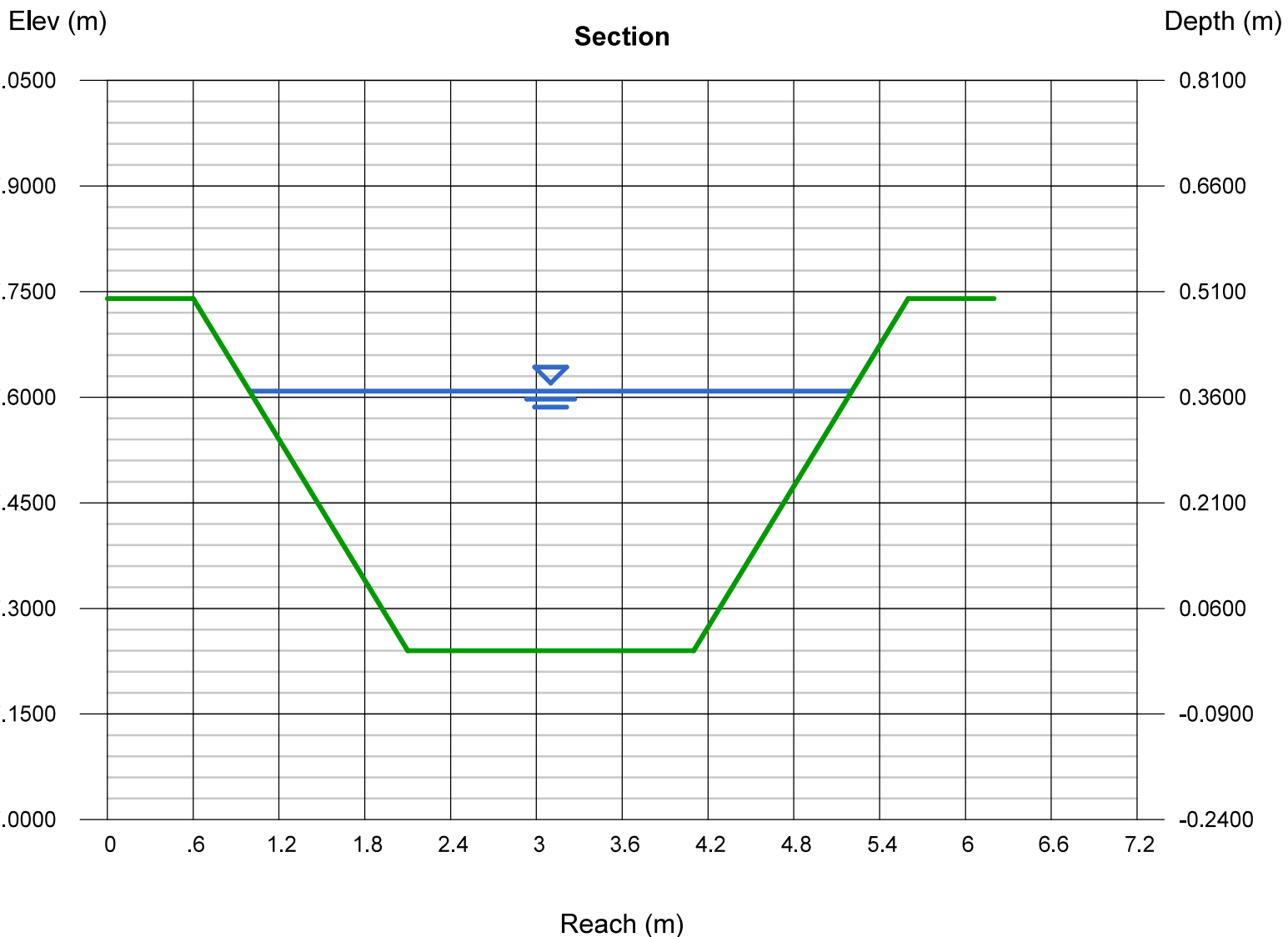
### Highlighted

Depth (m)	= 0.3688
Q (cms)	= 0.6000
Area (sqm)	= 1.1457
Velocity (m/s)	= 0.5237
Wetted Perim (m)	= 4.3325
Crit Depth, Yc (m)	= 0.1920
Top Width (m)	= 4.2128
EGL (m)	= 0.3828

### Calculations

Compute by:	Known Q
Known Q (cms)	= 0.6000

Proposed Conditions Regional  
Peak Flow Rate at Node J1-7



# Channel Report

## R5S1 (upstream of SWMF1 outlet)

### Trapezoidal

Bottom Width (m)	= 9.0000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 0.7000
Invert Elev (m)	= 219.9200
Slope (%)	= 0.3000
N-Value	= 0.045

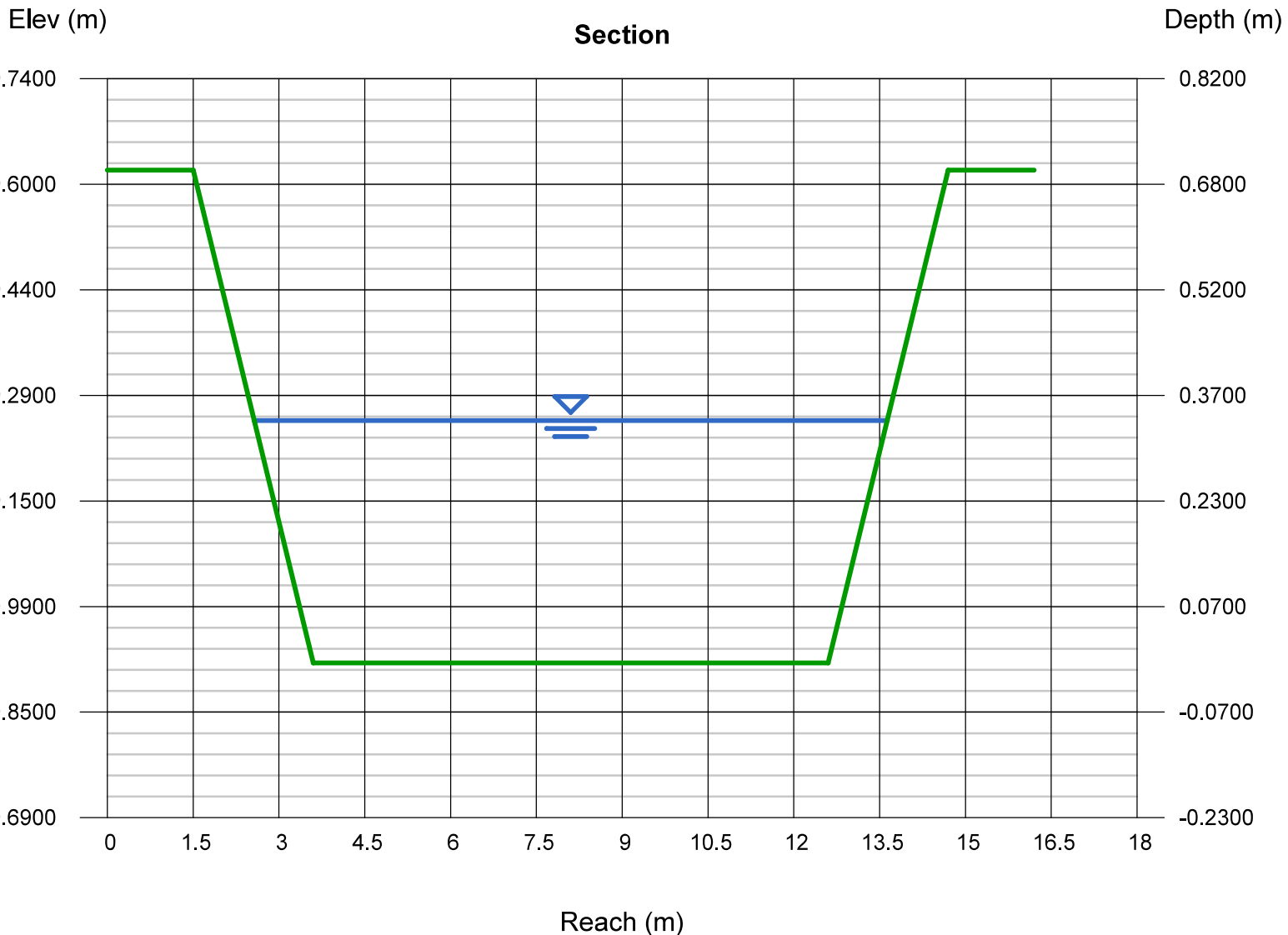
### Highlighted

Depth (m)	= 0.3444
Q (cms)	= 1.9100
Area (sqm)	= 3.4557
Velocity (m/s)	= 0.5527
Wetted Perim (m)	= 11.1783
Crit Depth, Yc (m)	= 0.1646
Top Width (m)	= 11.0665
EGL (m)	= 0.3600

### Calculations

Compute by:	Known Q
Known Q (cms)	= 1.9100

Proposed Conditions Regional  
Peak Flow Rate at Node J3-2



# Channel Report

## R5S1 (downstream)

### Trapezoidal

Bottom Width (m) = 9.0000  
Side Slopes (z:1) = 3.0000, 3.0000  
Total Depth (m) = 0.7000  
Invert Elev (m) = 218.0000  
Slope (%) = 0.2900  
N-Value = 0.080

### Highlighted

Depth (m) = 0.6126  
Q (cms) = 2.8700  
Area (sqm) = 6.6398  
Velocity (m/s) = 0.4322  
Wetted Perim (m) = 12.8747  
Crit Depth, Yc (m) = 0.2134  
Top Width (m) = 12.6759  
EGL (m) = 0.6222

### Calculations

Compute by: Known Q  
Known Q (cms) = 2.8700

Proposed Conditions Regional  
Peak Flow Rate at Node J3-1

