Deltini Commercial Developments Inc.

Flood Study Report

Primrose Subdivision (Town of Mulmur)

June 20, 2022

Flood Study Report

Primrose Subdivision (Town of Mulmur)

Deltini Commercial Developments Inc.

Project No.: 201-12148-00
Date: June 20, 2022

WSP
100 Commerce Valley Drive West
Thornhill, ON.,
Canada L3T 0A1
Tel.: +1 905 882-1100
Fax: +1 905 882-0055
wsp.com

June 20, 2022

Confidential

Deltini Commercial Developments Inc.
1350 Shawson Drive,
Mississauga, Ontario L4W 1C5

Attention: Ms. Marika Zigon

Dear Madam:

We are pleased to submit the report for the Flood Study at Primrose Subdivision, Town of Mulmur. This report has been prepared in accordance with the tasks identified in our proposal.

We trust the submission of this documents meets your requirements. Should you have any comments we look forward to your response.

Yours sincerely,

Albert Zhuge, M.A.Sc., P.Eng., PMP
Senior Project Manager
Water Resources

WSP ref.:201-12148-00

100 Commerce Valley Drive West
Thornhill, ON.,
Canada L3T 0A1
Tel.: +1 905 882-1100
Fax: +1 905 882-0055
wsp.com

Revision History

FIRST ISSUE

March 16, 2021	Flood Study			
Prepared by	Reviewed by	Approved By		
Xiaoxu (Iris) Qu, M.Eng., P.Eng.	Albert Zhuge, M.A.Sc.,P.Eng., PMP	Albert Zhuge, M.A.Sc.,P.Eng., PMP		

FINAL ISSUE

June 20, 2022	Flood Study (Stamped)			
Prepared by	Reviewed by	Approved By		
Xiaoxu (Iris) Qu, M.Eng., P.Eng.	Albert Zhuge, M.A.Sc.,P.Eng., PMP	Albert Zhuge, M.A.Sc.,P.Eng., PMP		

Signatures

Prepared by

June 20, 2022

Xiaoxu (Iris) Qu, M.Eng., P.Eng.
Senior Project Engineer, Water Resources

Date

Approved[1] by (must be reviewed for technical accuracy prior to approval)

June 20, 2022

Albert Zhuge, M.A.Sc.,P.Eng.,PMP
Senior Project Manager, Water Resources

Date

[1] Approval of this document is an administrative function indicating readiness for release and does not impart legal liability on to the Approver for any technical content contained herein. Technical accuracy and fit-for-purpose of this content is obtained through the review process. The Approver shall ensure the applicable review process has occurred prior to signing the document.

Contributors

Client

Deltini Commercial Developments Inc.	Ms. Marika Zigon

WSP

Senior Project Manager, Water Resources	Albert Zhuge, M.A.Sc.,P.Eng., PMP
Senior Project Engineer, Water Resources	Xiaoxu (Iris) Qu, M.Eng., P.Eng.
Water Resources Modeller	Jenny Chui, M.Sc.

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1 INTRODUCTION

WSP was retained by Deltini Commercial Development Inc. to prepare a Flood Study Report for the lands at Lot 1 and Lot 2, Concession 2 located in Primrose Subdivision, Town of Mulmur. The subject site is situated within the Boyne River watershed, which falls in the Nottawasaga Valley Conservation Authority (NVCA) jurisdiction. The Primrose Creek, a tributary of the Boyne River, flows south to north on the west side of the subject site.

The work scope of the floodplain study covers the following:

- Obtain and review the existing hydraulic model from the NVCA.
- Produce the Regional floodlines under the existing conditions.
- Examine the potential impacts on floodplain hydraulics due to the proposed development.

1.1 Site Location

The site is located at northwest of the intersection of Prince of Wales Road and Highway 89, Town of Mulmur. Under the existing conditions, the subject site is a vacant open space, as shown in **Figure 1**.

1.2 Proposed Site Development

The draft plan of subdivision including the study area boundary and proposed lots is shown in **Figure 2**.

MULMUR-MELANCTHON TLINE

2ND LINE W

DUFFERIN COUNTY RD 19

HIGHWAY 10/89

HIGHWAY 89

MAPLEWOOD DR

MONO-AMARANTH TLINE

BLIND LI

HIGHWAY 10

HURONTARIO ST

30 SIDEROAD

Legend

- Roads
- Watercourse
- Proposed Lots
- Study Boundary

N

0 62.5 125 250 375 500 Meters

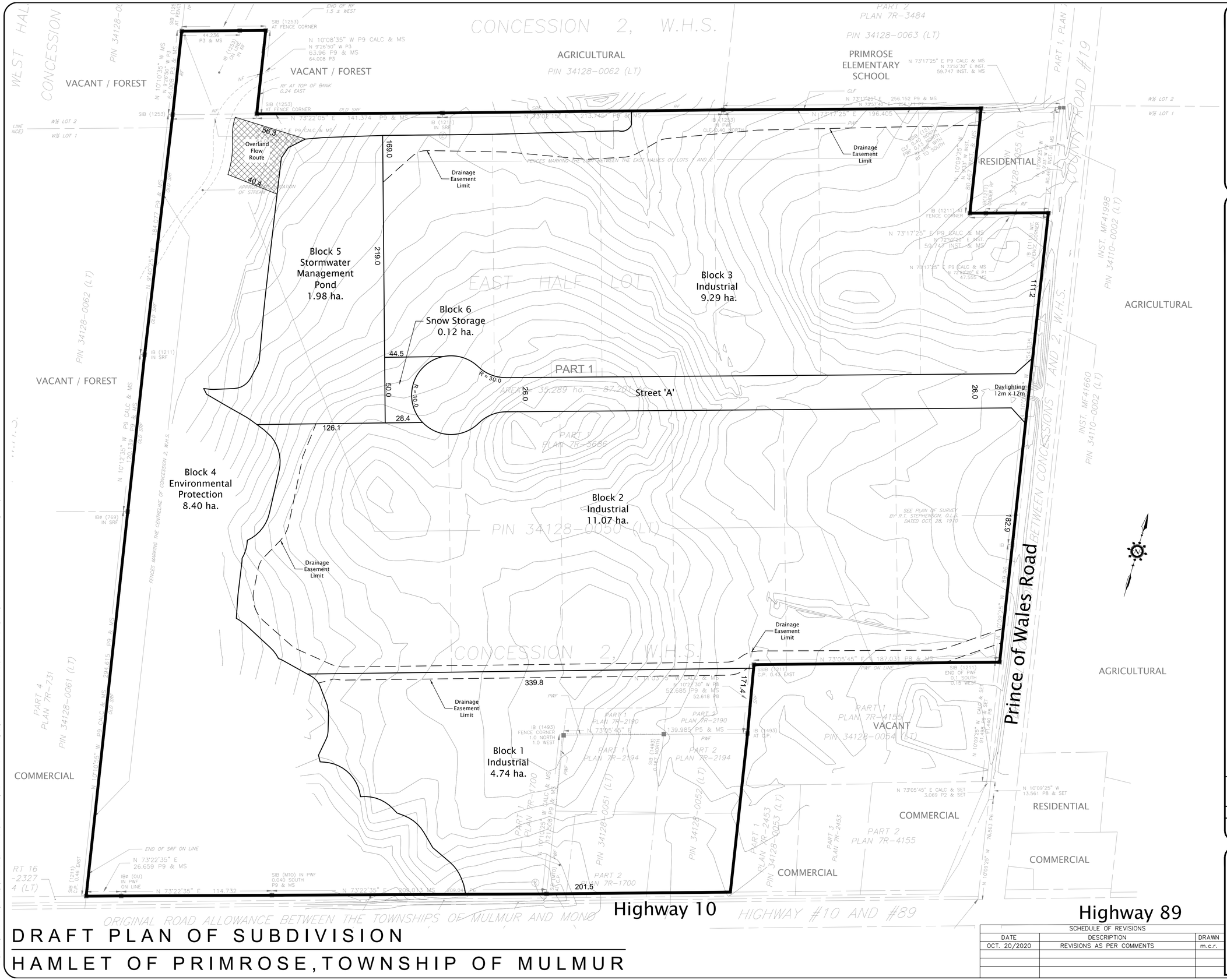
CLIENT
DELTINI COMMERCIAL DEVELOPMENTS INC.

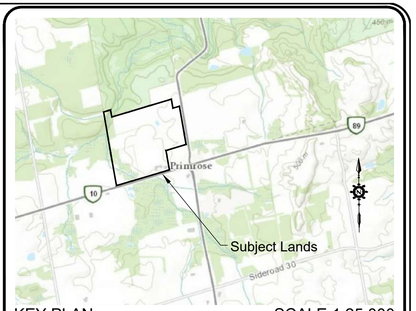
TITLE
PRIMROSE SUBDIVISION
(TOWN OF MULMUR)

STUDY SITE LOCATIONS

Checked I.Q.	Drawn J.C
Date February 2021	Proj. No. 201-12148-00
Scale 1:12,000	Figure No. 1

Document Path: X:\DIV\38\2020\201-12148-00 Primrose\GIS\Figure 1 - Study Site Location.mxd





KEY PLAN SCALE 1:25,000

Draft Plan of Subdivision

Part of the East Half of Lot 1 And,
Part of the East Half of Lot 2, Concession 2,
West of Hurontario Street
Township of Mulmur
County of Dufferin
2020

OWNER'S CERTIFICATE

I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE THE JONES CONSULTING GROUP LTD., TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO THE TOWNSHIP OF MULMUR FOR APPROVAL.

DATE

636040 Prince of Wales Road:
Deltini Commercial Developments Inc.
506249 Highway 89: Deltini (Mulmur) Inc.
506243 Highway 89: Deltini (Primrose) Inc.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE P.J.WILLIAMS, OLS

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

a) SHOWN ON DRAFT PLAN
b) SHOWN ON DRAFT PLAN
c) SHOWN ON KEY PLAN
d) INDUSTRIAL, EP & SWM
e) SHOWN ON DRAFT PLAN
f) SHOWN ON DRAFT PLAN
g) SHOWN ON DRAFT PLAN
h) MUNICIPAL PIPED WATER TO BE PROVIDED
i) SANDY/CLAY LOAM
j) SHOWN ON DRAFT PLAN
k) ALL MUNICIPAL SERVICES TO BE PROVIDED
l) SHOWN ON DRAFT PLAN

STATISTICS	AREA (ha.)
Industrial Blocks (BLOCKS 1 - 3)	25.10 ha.
Environmental Protection (BLOCK 4)	8.40 ha.
Stormwater Management (BLOCK 5)	1.98 ha.
Snow Storage (BLOCK 6)	0.12 ha.
Road (STREET 'A')	1.37 ha.
TOTAL	36.97 ha.

Overland Flow Route

0 10 50 100M
SCALE 1 : 1250 (A1)

MULMUR PROPERTY

PROPOSED DRAFT PLAN OF SUBDIVISION

Raymond J. Duhamel
REGISTERED PROFESSIONAL PLANNER
R.P.P.

Date Issued:	JULY 9, 2020
Checked By:	RD
Project No.:	FRE-17110
Drawn By:	m.c.r.
Drawing Name:	FRE-17110-DP-1a.dwg

SCHEDULE OF REVISIONS

DATE	DESCRIPTION	DRAWN
OCT. 20/2020	REVISIONS AS PER COMMENTS	m.c.r.

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Drive East, Unit 1, Barrie, Ontario, L4N 0W5
Phone: 705-734-2538 Fax: 705-734-1056
www.jonesconsulting.com

FIG. 2

DRAFT PLAN OF SUBDIVISION

HAMLET OF PRIMROSE, TOWNSHIP OF MULMUR

2 BACKGROUND DATA

The following background data was provided by the NVCA for the study:

- GIS datasets including the shapefiles of watercourses; cross section cut lines; breaklines; and mass points with the ground elevations that covers the study area.
- The existing HEC-RAS hydraulic model associated with the study area.
- Previous report: “Watershed Hydrology Study for Nottawasaga, Pretty and Batteax Rivers, Black Ash, Silver and Sturgeon Creeks”, Volume 1-Technical Report”, Canada-Ontario Flood Damage Reduction Program (MacLarenPlansearch, 1988).

3 NVCA EXISTING HEC-RAS MODEL REVIEW

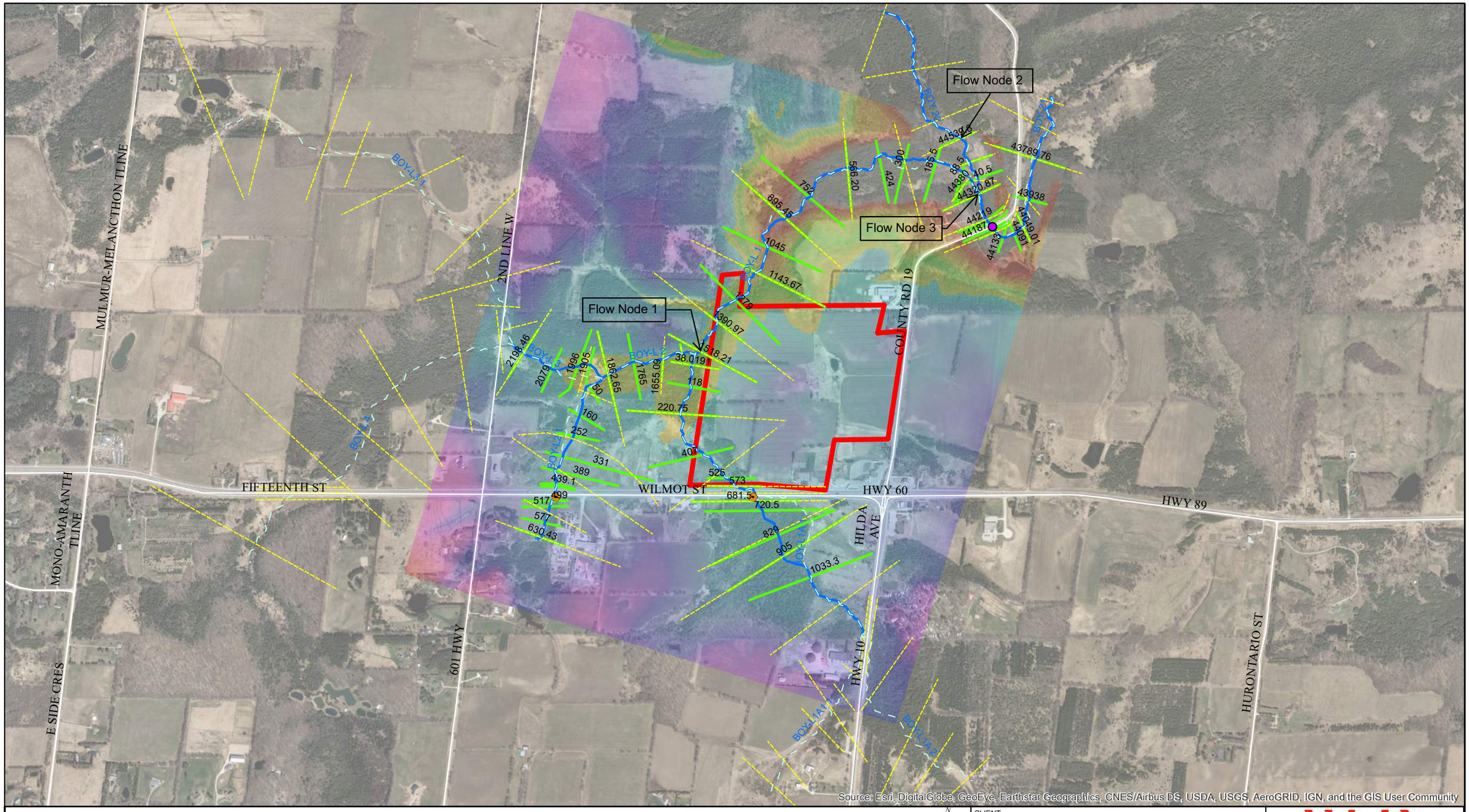
The existing HEC-RAS model received from the NVCA includes approximately 10 km river alignment with 73 cross sections and a bridge with 38 m span and 8.6 m height at Prince of Wales Road, as illustrated in **Figure 3**.

Steady flow inputs for the Regulatory event were included in the existing model. The River, Reach, RS and associated peak flow rates are presented in **Exhibit 1**.

Flow Change Location

	River	Reach	RS	PF 1
1	BOY	22	45131.34	120.216
2	BOY	21	44320.87	140.9179
3	BOY-L	4	3542.255	35.78172
4	BOY-L	3	2198.463	38.41797
5	BOY-L	2	1862.646	39.93919
6	BOY-L	1	1518.208	46.34887
7	BOY-L1A	2	2170.309	1.887544
8	BOY-L1A	1	1280.319	6.519317
9	BOY-L1A1	1	655.5946	1.517423
10	BOY-L2	1	630.4254	2.175656
11	BOY-L3	1	1536.604	3.208743

Exhibit 1 NVCA Existing HEC-RAS Model Flow Inputs



Legend

- StudyArea
- NVCA Existing HEC-RAS River Alignment
- NVCA Existing HEC-RAS Cross Section
- WSP Revised HEC-RAS River Alignment
- WSP Revised HEC-RAS Cross Section
- Watercourse Crossing in NVCA Model
- Additional Watercourse Crossings in WSP Revised Model

Terrain Created from NVCA Mass Points

- High : 474.563
- Low : 409.742

0 95 190 380 570 760 Meters

CLIENT
DELTINI COMMERCIAL DEVELOPMENT INC.

TITLE
FLOOD STUDY OF PRIMROSE SUBDIVISION
(TOWN OF MULMUR)

NVCA EXISTING AND WSP REVISED HEC-RAS MODEL LAYOUT

Checked: A.ZH	Drawn: I.Q.
Date: February 2021	Proj. No.: 201-12148-00
Scale: 1:12,000	Figure No.: 3

4 HYDROLOGIC REVIEW

4.1 Approach

The purpose of the hydrologic review was to validate the flow rates coded in the NVCA existing HEC-RAS model. As stated above, the subject site is located within the Boyne River watershed. The Boyne River is a tributary of the Nottawasaga River. As such, previous hydrologic study "*Watershed Hydrology Study for Nottawasaga, Pretty and Batteax Rivers, Black Ash, Silver and Sturgeon Creeks", Volume 1-Technical Report*", Canada-Ontario Flood Damage Reduction Program (*MacLarenPlansearch, 1988*) and associated *Basin Figure* and *Appendix G Design Flows: Nottawasaga Basin* were reviewed. The flow nodes located at the study area were identified and the flow rates were compared between the 1988 report and the NVCA supplied model, as described in detail below.

4.2 Flow Comparison

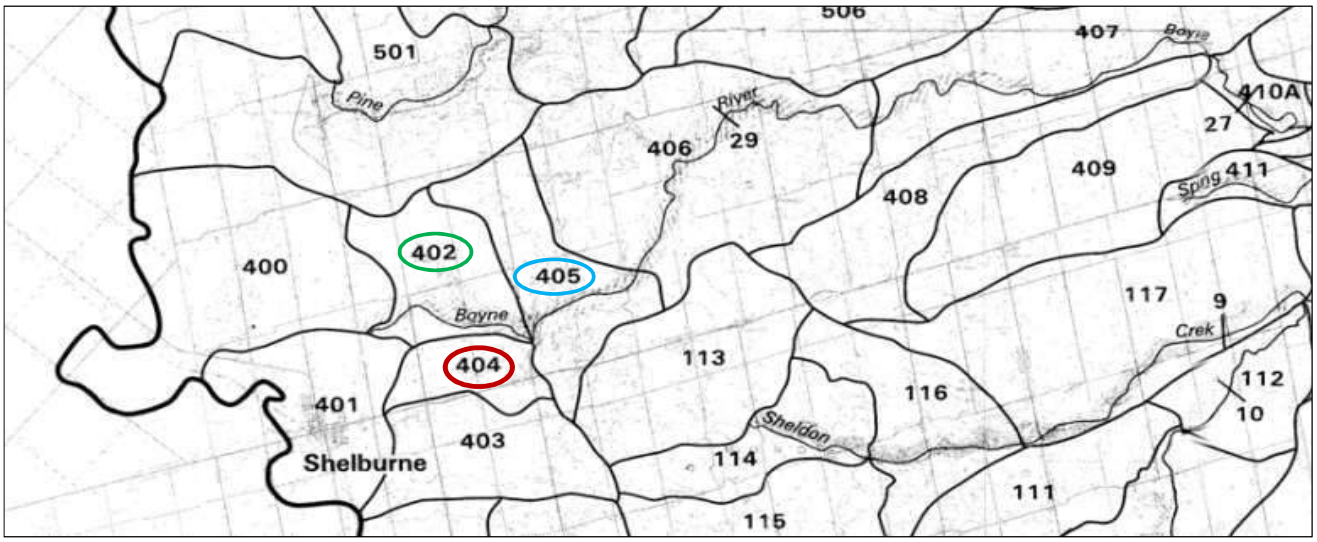
The basin figure and flow summary of the Boyne River extracted from the *Basin Figure* and *Appendix G Design Flows* (*MacLarenPlansearch, 1988*) are presented in **Exhibit 2**.

Upon review of the *Basin Figure*, WSP identified 3 flow nodes (highlighted in **Exhibit 2)** and their corresponding locations in the NVCA existing HEC-RAS model (shown in **Figure 3**) for the comparison. The flow nodes, Regional flow rates extracted from the *Appendix G Design Flows*, corresponding HEC-RAS locations and the flows coded in the NVCA model are presented in **Table 1**.

Table 1 Flow Comparison

Flow Node	from NVCA HEC-RAS Model				from MacLarenPlansearch, 1988		
	River	Reach	RS	Regional Flow (m^3/s)	Reference No.	Description	Regional Flow (m^3/s)
1	BOY-L	1	1518.21	46.3	404	Outlet of Catchment 404	34.9
2	BOY	22	44539.8	120.2	330	Outlet of Catchment 402	96.7
3	BOY	21	44320.87	140.9	350	Outlet of Catchment 405	136.4

As shown in **Table 1,** the Regional flows coded in the NVCA HEC-RAS model were comparable to the flows obtained from the 1988 report at the 3 identified check locations. Therefore, the Regional flow inputs in the NVCA's HEC-RAS model were considered reasonable, and these flows are suitable to be used for the Primrose Subdivision flood study.



REF. NO.	DESCRIPTION	TRIBUTARY AREA (KM2)	DEVELOPMENT CONDITION	DISCHARGE (M3/S) 5-YR	10-YR	20-YR	50-YR	100-YR	REGIONAL STORM
BOYNE RIVER									
400	Outlet of catchment 400	30.5	Present	11.7	15.4	19.3	25.0	29.5	47.8
			Future	11.7	15.4	19.3	25.0	29.5	47.8
401	Outlet of catchment 401	15.2	Present	11.4	14.9	18.7	21.2	28.5	39.8
			Future	11.4	14.9	18.7	21.2	28.5	40.1
1052	Confluence of catchment 400 and 401	45.7	Present	21.6	28.4	35.6	46.1	54.4	77.9
			Future	21.7	28.9	36.0	49.3	59.6	77.8
330	Outlet of catchment 402	57.4	Present	28.4	37.4	46.7	60.5	71.5	96.7
			Future	28.5	37.6	46.9	60.8	71.9	96.4
404	Outlet of catchment 404	21.1	Present	8.8	11.6	14.5	18.8	22.2	34.9
			Future	8.8	11.6	14.5	18.8	22.2	34.9
1053	Confluence of catchment 404 and 402	78.5	Present	37.0	48.8	61.0	79.1	93.5	119.8
			Future	37.1	49.0	61.4	79.4	93.9	119.6
350	Outlet of catchment 405	93.5	Present	41.3	54.3	67.9	87.9	103.9	136.4
			Future	41.4	54.5	68.4	88.5	104.7	136.2
360	Outlet of catchment 407	131.2	Present	48.0	63.1	78.9	102.3	120.8	139.7
			Future	48.1	63.3	79.2	102.9	122.3	139.7
370	Outlet of catchment 407	158.7	Present	55.9	73.5	91.9	119.1	140.6	146.0
			Future	56.1	73.7	92.1	119.3	140.7	146.0
1058	Confluence of catchment 407 and 408	178.0	Present	62.5	82.1	102.7	133.0	157.1	165.4
			Future	62.5	82.1	102.7	133.0	157.1	165.4
409	Outlet of catchment 409	26.1	Present	24.7	32.4	40.6	52.6	62.1	79.3
			Future	24.7	32.4	40.6	52.6	62.1	79.3
702	Outlet of catchment 410A-wsc gauge Earl Rowe Park	207.2	Present	70.0	92.0	115.0	149.0	176.0	184.3
			Future	70.0	92.0	115.0	149.0	176.0	184.3
390	Outlet of catchment 410B	212.1	Present	69.0	90.7	113.4	146.9	173.6	174.8
			Future	69.0	90.7	113.4	146.9	173.6	174.8

Exhibit 2 Basin Figure and Design Flows Extracted from MacLarenPlansearch, 1988

5 REVISION OF NVCA HEC-RAS MODEL

5.1 Terrain

The terrain was created using the mass points provided by the NVCA in January 2021, as shown in **Figure 3**. It was used to generate the new cross sections in the WSP revised HEC-RAS model.

5.2 Revision of NVCA HEC-RAS Model

WSP made the modifications for both river alignments and cross sections in some reaches, as shown in **Figure 3**. The main revisions are listed below:

- The reaches and cross sections outside the terrain covered areas were removed. The revised model has approximately 4.7 km river alignment with 57 cross sections; a few portions of the river alignments were adjusted based on the terrain;
- Modifications of the main channel bank stations were made to properly reflect the main flow conveyance area by either top to top for the well-defined channels or 2 m for undefined channels;
- The downstream reach lengths were properly defined;
- A Manning's roughness of 0.035 for the main channel and 0.08 for the overbanks were used for each cross section;
- Left and/or right levees with stationing and elevations were placed for any cross-section with the high ground to ensure the water would not flow to the left of the left levee station or to the right of the right levee station until either of the levee elevation was exceeded;
- Two watercourse crossings at Highway 89 were added in the model. The dimensions of the structures were estimated based on the WSP field visual inspection on February 3, 2021. The photos related to these two crossings are provided in **Appendix A**. The top/road elevations were extracted from the mass points supplied by the NVCA.
- Ineffective flow areas were defined at the upstream and downstream cross-sections for every crossing using "Normal" ineffective mode. Two pairs of stations and elevations were entered to establish the left and right side of ineffective areas.

Total 3 structures were coded in the revised model, as shown in **Table 2**.

Table 2 Structures in WSP Revised HEC-RAS Model

Location	River, Reach	River Station	Structure Type	Dimension (m)		Note
				Span	Height	
Highway 89	BOY-L1A, 1	655	Concrete Box Culvert	1.25	1.25	Based on WSP field visual inspection on February 3, 2021
Highway 89	BOY-L2, 1	467	Concrete Box Culvert	1.25	1.25	
Prince of Wales Rd	BOY, 21	44197	Bridge	38	8.6	Original NVCA HEC-RAS model

As stated in **Section 4.2,** the flows entered in the NVCA existing HEC-RAS Model remained unchanged in this analysis. While, the flow input locations were properly adjusted in compliance with the revised river network and cross sections, as illustrated in **Exhibit 3**.

Flow Change Location

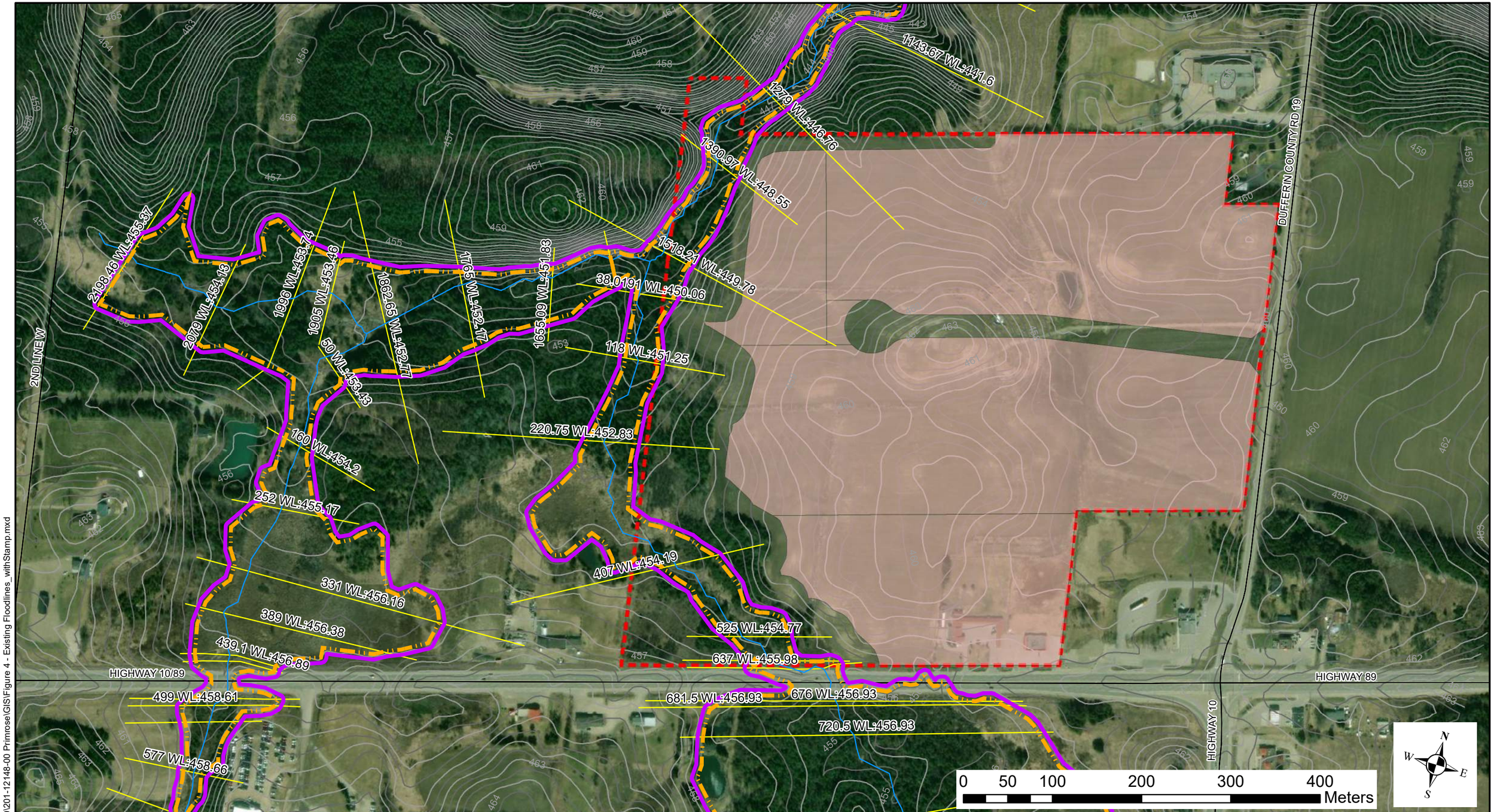
	River	Reach	RS	PF 1
1	BOY	22	44539.8	120.216
2	BOY	21	44320.87	140.9179
3	BOY-L	3	2198.46	38.41797
4	BOY-L	2	1862.65	39.93919
5	BOY-L	1	1518.21	46.34887
6	BOY-L 1A	1	1033.3	6.519317
7	BOY-L2	1	630.43	2.175656

Exhibit 3 WSP Revised Model Flow Input Locations

5.3 Model Results

The revised HEC-RAS model was simulated for the Regional event. The model output is provided in **Appendix B**. The Regional floodlines were produced and illustrated in **Figure 4**. **Figure 4** also shows the 6.0 m access allowance of the Regional floodlines required by the NVCA.

As shown in **Figure 4**, the proposed lots are located outside the 6.0 m access allowance of the Regional floodlines. Therefore, the proposed development will have no hydraulic impacts on the existing floodplain.



Legend

- Watercourse
- Roads
- Hec-RAS Cross Sections
- Proposed Lots
- Study Boundary
- Regional Floodline (Existing Condition)
- 6m access allowance of the Regional floodline
- Minor Contours*
- Major Contours*

*Contours are created from NVCA Mass Points (NVCA 2008)

HYDRAULIC ENGINEERING CONSULTANT

LICENSED PROFESSIONAL ENGINEER
A. Z. ZHUGE
100133894
2022-06-20
PROVINCE OF ONTARIO

The professional engineer's seal and signature verifies the location of the floodline and associated water surface elevations only.

CLIENT
DELTINI COMMERCIAL DEVELOPMENTS INC.

TITLE
PRIMROSE SUBDIVISION
(TOWN OF MULMUR)

EXISTING REGIONAL FLOODLINES

Checked: I.Q.	Drawn: J.C
Date: June 2022	Proj. No.: 201-12148-00
Scale: 1:4,000	Figure No.: **4**

Document Path: X:\DIV38\2020\201-12148-00 Primrose\GIS\Figure 4 - Existing Floodlines_withStamp.mxd

6 CONCLUSIONS

WSP was retained by Deltini Commercial Development Inc. to prepare a Flood Study Report for the lands at Lot 1 and Lot 2, Concession 2 located in Primrose Subdivision, Town of Mulmur. The existing HEC-RAS hydraulic model with the Regional flows and the terrain were supplied by the NVCA in January 2021.

WSP compared the flows in the NVCA's HEC-RAS model to the *MacLarenPlansearch Study (1988)* and concluded that these flows were suitable to be used for the subject site study. WSP also modified the HEC-RAS model by adjusting / generating the river alignments / cross sections based on the terrain and coded 2 additional watercourse crossings under Highway 89. The revised HEC-RAS model was simulated under the Regional flood event and the Regional floodlines were produced, as shown in **Figure 4**.

Based on the model results, the proposed lots are situated outside of the 6.0 m access allowance of the existing Regional floodlines. Consequently, it is concluded that there will be no hydraulic impacts on the existing floodplain due to the proposed development.

APPENDIX

A

WSP Site Visit Photos
February 3, 2021

APPENDIX

B

HEC-RAS Model Outputs

HEC-RAS Plan: Boyne_Final_Primrose_20210217 Profile: PF 1

River	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
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
BOY-L2	1	630.43	PF 1	2.18	458.98	459.31		459.33	0.005989	1.03	5.57	29.57	0.58
BOY-L2	1	577	PF 1	2.18	458.41	458.66	458.66	458.73	0.027445	1.81	2.82	18.93	1.19
BOY-L2	1	517	PF 1	2.18	457.68	458.61		458.61	0.000049	0.19	32.41	56.89	0.06
BOY-L2	1	499	PF 1	2.18	457.39	458.61		458.61	0.000009	0.10	72.99	111.07	0.03
BOY-L2	1	488	PF 1	2.18	457.27	458.59	457.70	458.61	0.000397	0.68	4.20	107.91	0.19
BOY-L2	1	467		Culvert									
BOY-L2	1	446.2	PF 1	2.18	456.81	457.24	457.24	457.43	0.018476	2.14	1.29	90.13	1.07
BOY-L2	1	439.1	PF 1	2.18	456.70	456.89	456.85	456.89	0.004205	0.60	10.00	86.56	0.45
BOY-L2	1	389	PF 1	2.18	456.21	456.38	456.38	456.42	0.036686	1.63	3.82	45.01	1.29
BOY-L2	1	331	PF 1	2.18	456.05	456.16	456.16	456.16	0.000100	0.06	47.91	223.34	0.06
BOY-L2	1	252	PF 1	2.18	454.95	455.17		455.18	0.004999	0.74	8.96	72.06	0.50
BOY-L2	1	160	PF 1	2.18	453.98	454.20	454.20	454.25	0.029585	1.72	3.20	25.30	1.21
BOY-L2	1	50	PF 1	2.18	452.75	453.43		453.44	0.000106	0.23	24.61	50.78	0.09
BOY-L1A	1	1033.3	PF 1	6.52	456.83	457.02	457.02	457.06	0.052598	2.10	8.93	77.61	1.57
BOY-L1A	1	837	PF 1	6.52	455.09	456.93	455.43	456.93	0.000008	0.12	238.51	395.76	0.03
BOY-L1A	1	720.5	PF 1	6.52	455.02	456.93	455.31	456.93	0.000002	0.06	394.31	377.43	0.01
BOY-L1A	1	681.5	PF 1	6.52	455.04	456.93	455.30	456.93	0.000003	0.08	305.12	328.18	0.02
BOY-L1A	1	676	PF 1	6.52	455.09	456.93	455.91	456.93	0.000003	0.08	272.67	297.72	0.02
BOY-L1A	1	655		Culvert									
BOY-L1A	1	637	PF 1	6.52	454.80	455.98	455.84	456.29	0.011125	2.62	2.93	104.87	0.81
BOY-L1A	1	573	PF 1	6.52	454.72	455.11	455.08	455.18	0.020615	2.16	8.67	41.40	1.12
BOY-L1A	1	525	PF 1	6.52	454.31	454.77		454.79	0.004105	1.07	16.80	58.45	0.51
BOY-L1A	1	407	PF 1	6.52	453.74	454.19		454.21	0.005891	1.27	15.17	60.02	0.61
BOY-L1A	1	220.75	PF 1	6.52	452.45	452.83		452.86	0.009039	1.38	12.93	60.64	0.73
BOY-L1A	1	118	PF 1	6.52	450.89	451.25	451.25	451.35	0.027907	2.40	7.59	37.56	1.28
BOY-L1A	1	38.0191	PF 1	6.52	449.45	450.06		450.07	0.002712	1.03	17.35	47.31	0.43
BOY-L	3	2198.46	PF 1	38.42	454.28	455.37	455.03	455.40	0.004013	1.89	61.49	98.08	0.58
BOY-L	3	2079	PF 1	38.42	453.58	454.13	454.13	454.27	0.041144	3.86	30.45	96.37	1.67
BOY-L	3	1996	PF 1	38.42	452.73	453.74		453.75	0.001474	1.10	98.19	140.48	0.35
BOY-L	3	1905	PF 1	38.42	452.67	453.46		453.50	0.006386	1.95	52.80	91.44	0.70
BOY-L	2	1862.65	PF 1	39.94	452.21	452.77	452.68	452.83	0.020550	2.76	42.32	118.76	1.18
BOY-L	2	1765	PF 1	39.94	450.91	452.17		452.20	0.003059	1.84	63.99	83.09	0.52
BOY-L	2	1655.09	PF 1	39.94	450.27	451.83		451.88	0.002779	2.03	56.26	58.38	0.52
BOY-L	2	1582.84	PF 1	39.94	449.53	451.04	451.04	451.45	0.015809	4.58	25.52	36.73	1.21
BOY-L	1	1518.21	PF 1	46.35	448.51	449.78		449.84	0.004166	2.16	53.90	54.54	0.61
BOY-L	1	1390.97	PF 1	46.35	447.37	448.55	448.55	448.92	0.014121	3.68	27.88	39.51	1.11
BOY-L	1	1279	PF 1	46.35	445.34	446.76	446.76	447.23	0.011283	3.71	23.79	27.54	1.02
BOY-L	1	1143.67	PF 1	46.35	440.02	441.60	441.60	442.16	0.011409	4.00	21.16	21.42	1.04
BOY-L	1	1045	PF 1	46.35	434.41	435.60	435.60	435.92	0.021496	4.60	27.58	39.30	1.37
BOY-L	1	895.45	PF 1	46.35	429.26	430.02	429.90	430.16	0.021058	3.44	34.36	59.37	1.26
BOY-L	1	752	PF 1	46.35	426.20	427.29	427.20	427.49	0.016478	3.86	33.91	51.66	1.19
BOY-L	1	566.20	PF 1	46.35	423.25	424.77	424.66	425.00	0.011049	3.89	35.89	47.51	1.02
BOY-L	1	424	PF 1	46.35	421.44	422.35	422.35	422.62	0.028269	4.49	28.54	49.74	1.51
BOY-L	1	300	PF 1	46.35	419.42	421.79		421.80	0.000474	1.10	126.10	89.97	0.23
BOY-L	1	185.5	PF 1	46.35	418.61	421.79		421.79	0.000017	0.25	536.68	261.48	0.05
BOY-L	1	88.5	PF 1	46.35	417.04	421.79		421.79	0.000007	0.21	618.97	189.99	0.03
BOY-L	1	40.5	PF 1	46.35	416.51	421.79		421.79	0.000006	0.21	556.24	146.86	0.03
BOY	22	44539.8	PF 1	120.22	418.46	421.79		421.80	0.000107	0.66	538.21	261.56	0.12
BOY	22	44440	PF 1	120.22	417.06	421.79		421.79	0.000044	0.53	619.19	190.00	0.08
BOY	22	44380	PF 1	120.22	416.39	421.78		421.79	0.000028	0.46	555.79	146.82	0.06
BOY	21	44320.87	PF 1	140.92	416.13	421.75		421.78	0.000175	1.18	267.58	76.27	0.16
BOY	21	44219	PF 1	140.92	415.65	421.58		421.74	0.000894	2.28	130.31	46.06	0.32
BOY	21	44207	PF 1	140.92	415.68	421.49	419.73	421.72	0.001156	2.40	98.54	39.19	0.36
BOY	21	44197		Bridge									
BOY	21	44187	PF 1	140.92	415.30	420.28	420.28	421.39	0.009453	4.73	34.69	22.55	0.88
BOY	21	44174	PF 1	140.92	415.07	420.23	420.23	421.14	0.008786	4.78	49.53	32.17	0.81
BOY	21	44133	PF 1	140.92	414.45	417.97	417.97	418.89	0.007971	4.40	41.72	29.39	0.91
BOY	21	44091	PF 1	140.92	413.52	417.14	417.14	418.09	0.007996	4.64	43.93	27.79	0.91
BOY	21	44049.01	PF 1	140.92	412.67	415.96	415.96	416.72	0.009060	4.99	60.60	41.65	0.97
BOY	21	43938	PF 1	140.92	411.85	414.27	414.27	415.12	0.009233	4.45	45.31	30.83	0.99
BOY	21	43789.76	PF 1	140.92	410.12	411.63	411.63	412.13	0.009867	3.58	67.48	80.33	0.96