

Appendix B

Natural Heritage

Appendix B-1

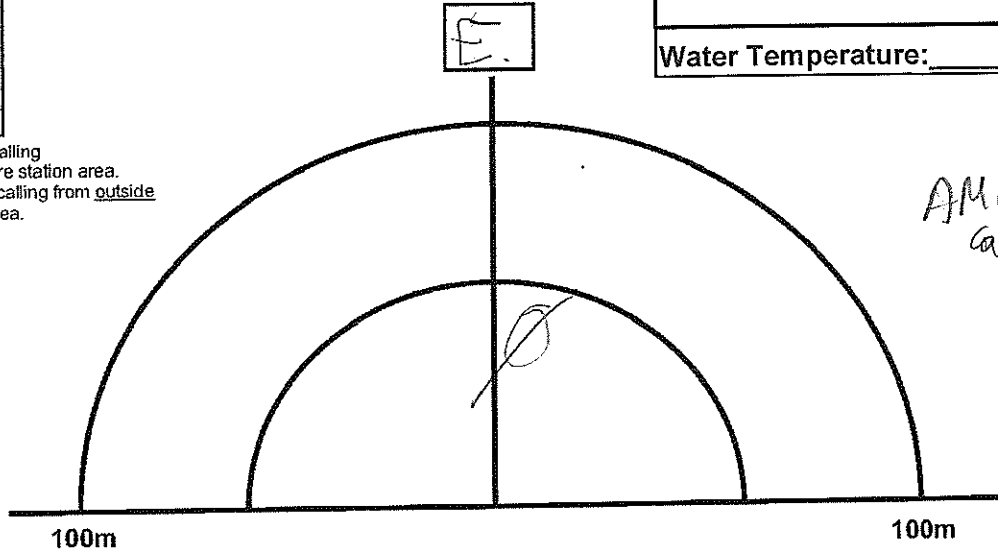
Data Sheets

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

Station 2

Station Start Time (24 hr):	20:52
Background Noise Code (1-4):	1
GPS Coordinates:	_____
Water Temperature:	_____

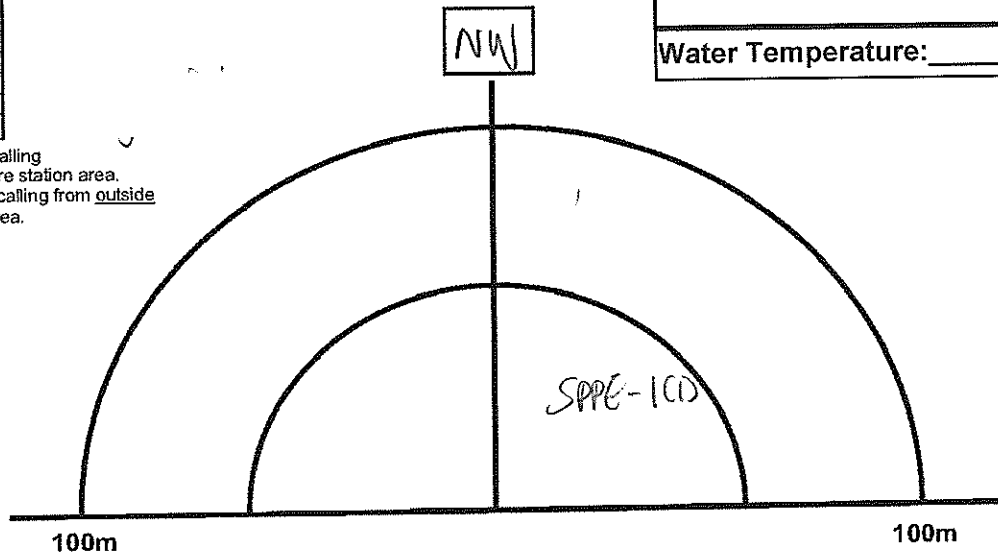


Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

Station 3

Station Start Time (24 hr):	21:15
Background Noise Code (1-4):	1
GPS Coordinates:	_____
Water Temperature:	_____



Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

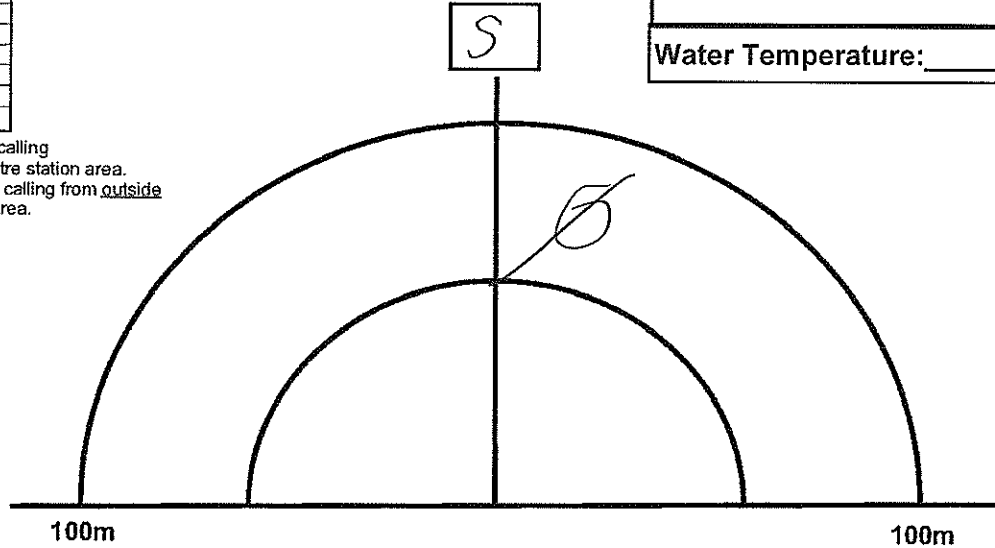
Station 4

Station Start Time (24 hr): 21:24

Background Noise Code (1-4): 1

GPS Coordinates: _____

Water Temperature: _____



Amphibian Species Codes

Species	Code
American Toad	AMTO
Northern (Blanchard's) Cricket Frog	BCFR
Bullfrog	BULL
Chorus Frog	CHFR
Cope's (Diploid) Gray Treefrog	CGTR
Fowler's Toad	FOTO
Gray (Tetraploid) Treefrog	GRTR
Green Frog	GRFR
Mink Frog	MIFR
Northern Leopard Frog	NLFR
Pickrel Frog	PIFR
Spring Peeper	SPPE
Wood Frog	WOFR

Background Noise Codes

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
2	Moderately affecting sampling (e.g., distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (e.g., continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (e.g., continuous traffic passing, construction noise)

24 Hour Time

<u>12 Hour</u>	<u>24 Hour</u>	<u>12 Hour</u>	<u>24 Hour</u>
7:00 PM	1900	10:00 PM	2200
8:00 PM	2000	11:00 PM	2300
9:00 PM	2100	12:00 PM	2400

Beaufort Wind Scale

Number	Wind Speed		Indicators
	Km/h	Mph	
0	0-2	0-1	Calm, smoke rises vertically
1	3-5	2-3	Light air movement, smoke drifts
2	6-11	4-7	Slight breeze, wind felt on face
3	12-19	8-12	Gentle breeze, leaves and small twigs in constant motion
4*	20-30	13-18	Moderate breeze, small branches are moving, raises dust and loose paper

* Winds over Beaufort 3 are unacceptable for amphibian surveys.

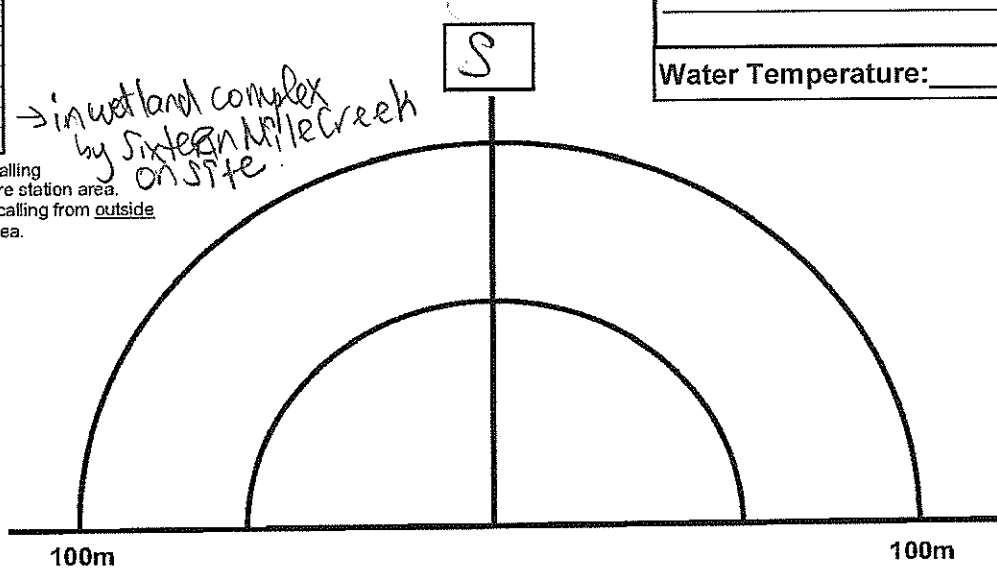
Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	<input checked="" type="checkbox"/>	
WOFR		

→ in wetland complex by Sixteen Mile Creek on site.

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

Station 5

Station Start Time (24 hr):	21:44
Background Noise Code (1-4):	1
GPS Coordinates:	_____
Water Temperature:	_____



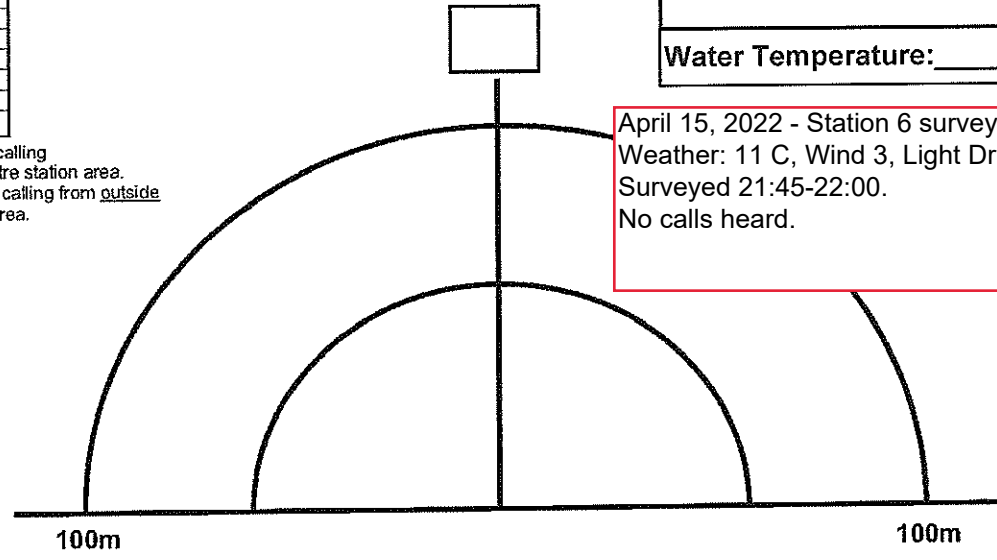
Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

Station _____

Station Start Time (24 hr):	
Background Noise Code (1-4):	
GPS Coordinates:	_____
Water Temperature:	_____

April 15, 2022 - Station 6 surveyed by Ken U. Weather: 11 C, Wind 3, Light Drizzle. Surveyed 21:45-22:00. No calls heard.



Ecological Land Classification **Figure 2**

150 Steeles Avenue Milton EIS

Legend

- Subject Property
- ELC
- Evaluated Wetland - Not Provincially Significant (MNRF 2021)
- Watercourse (MNRF 2021)
- x Amphibian Monitoring Station

Unit Number	ELC Code	Ecological Communities
1	ANT	Anthropogenic (units 1.1 - 1.4)
2	CUW1	Mineral Cultural Woodland (units 2.0)
3	CUM1	Mineral Cultural Meadow (units 3.1 - 3.2)
4	CUS1	Mineral Cultural Savannah (units 4.1 - 4.7)
5	SWT2-5	Red-osier Mineral Thicket Swamp (units 5.1 - 5.2)
6	FOD4	Dry - Fresh Deciduous Forest (unit 6.0)
7	MAM2	Mineral Meadow Marsh (units 7.1 - 7.2)
8	SA	Shallow Water (unit 8.0)
9	MAS2-1	Cattail Mineral Shallow Marsh (unit 9.0)



BEACON ENVIRONMENTAL Project: 221265
Last Revised: February 2022

Client: Neatt Communities Prepared by: MD Checked by: KU **DRAFT**

Scale: 1:2,700 0 60 120 m

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Orthoimagery Baselayar: 2019 (FBS)

** Station 6 ~~was~~ overlooked/missed for this first round of surveys.*

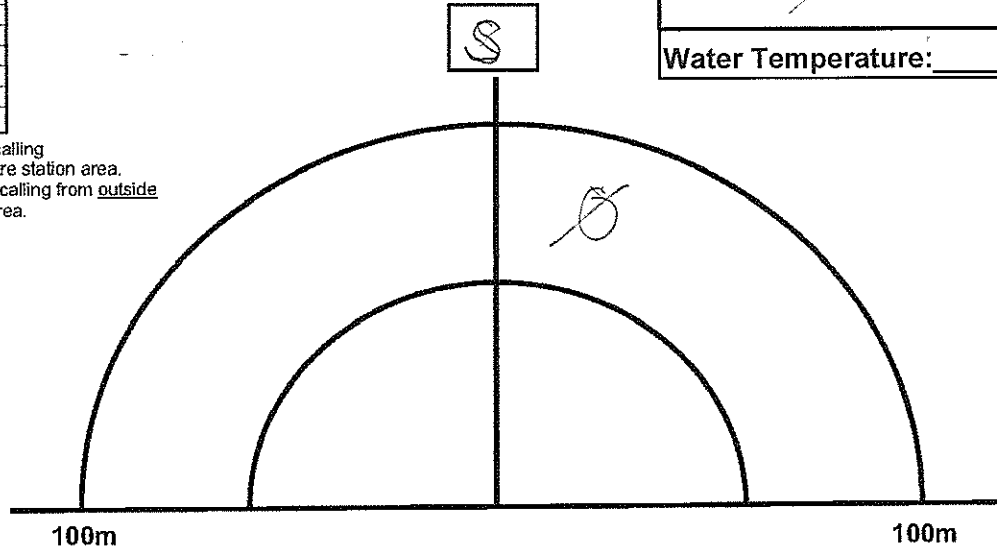
See previous page - Station 6 surveyed for first round by Ken on Apr. 15.

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

Station 4

Station Start Time (24 hr):	20:49
Background Noise Code (1-4):	1
GPS Coordinates:	
Water Temperature:	

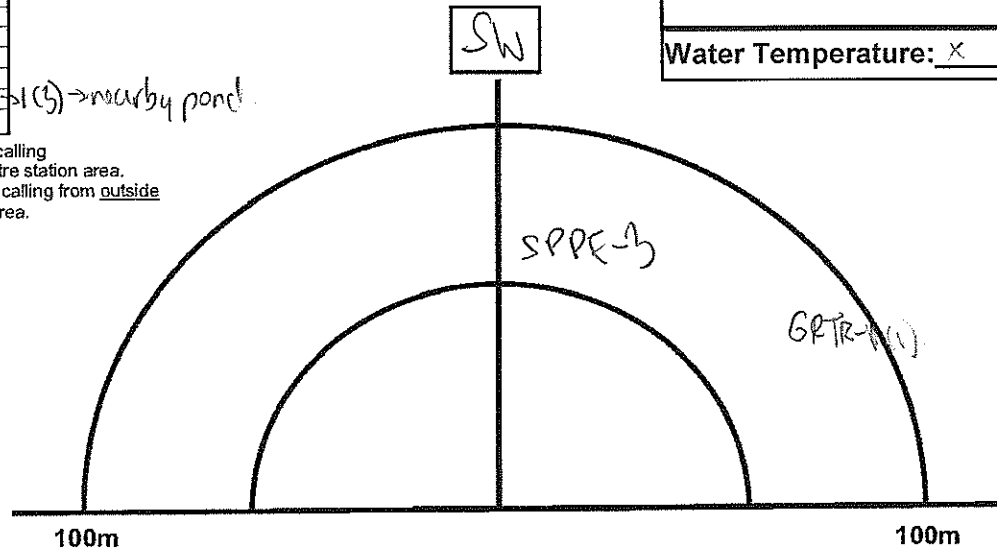


Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

Station 3

Station Start Time (24 hr):	20:59
Background Noise Code (1-4):	1
GPS Coordinates:	X
Water Temperature:	X

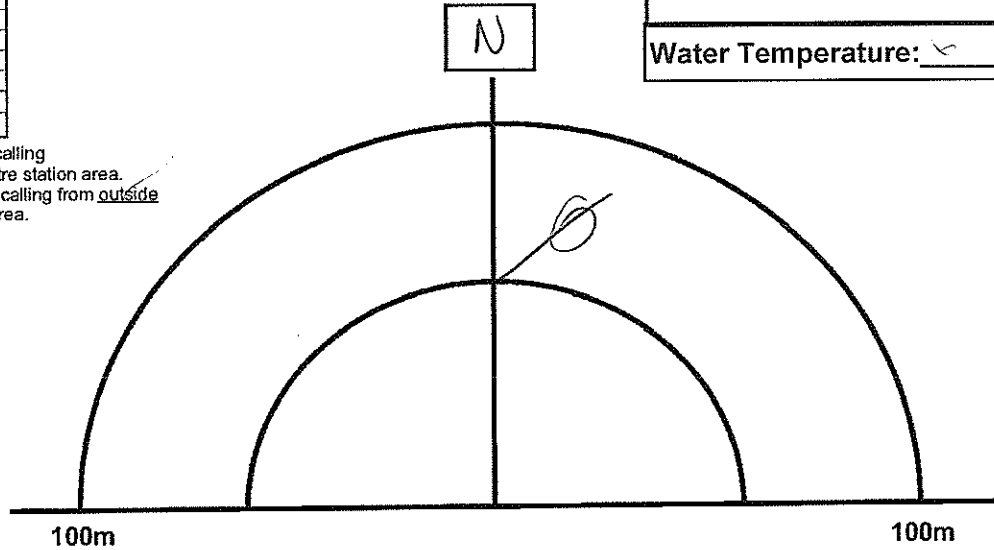


Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

Station 2

Station Start Time (24 hr): <u>21:05</u>
Background Noise Code (1-4): <u>2</u>
GPS Coordinates: <u>X</u>
Water Temperature: <u>✓</u>



Amphibian Species Codes

Species	Code
American Toad	AMTO
Northern (Blanchard's) Cricket Frog	BCFR
Bullfrog	BULL
Chorus Frog	CHFR
Cope's (Diploid) Gray Treefrog	CGTR
Fowler's Toad	FOTO
Gray (Tetraploid) Treefrog	GRTR
Green Frog	GRFR
Mink Frog	MIFR
Northern Leopard Frog	NLFR
Pickereel Frog	PIFR
Spring Peeper	SPPE
Wood Frog	WOFR

Background Noise Codes

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
2	Moderately affecting sampling (e.g., distant traffic, 2-5 cars passing)
3	Seriously affecting sampling (e.g., continuous traffic nearby, 6-10 cars passing)
4	Profoundly affecting sampling (e.g., continuous traffic passing, construction noise)

24 Hour Time

<u>12 Hour</u>	<u>24 Hour</u>	<u>12 Hour</u>	<u>24 Hour</u>
7:00 PM	1900	10:00 PM	2200
8:00 PM	2000	11:00 PM	2300
9:00 PM	2100	12:00 PM	2400

Beaufort Wind Scale

Number	Wind Speed		Indicators
	Km/h	Mph	
0	0-2	0-1	Calm , smoke rises vertically
1	3-5	2-3	Light air movement , smoke drifts
2	6-11	4-7	Slight breeze , wind felt on face
3	12-19	8-12	Gentle breeze , leaves and small twigs in constant motion
4*	20-30	13-18	Moderate breeze , small branches are moving, raises dust and loose paper

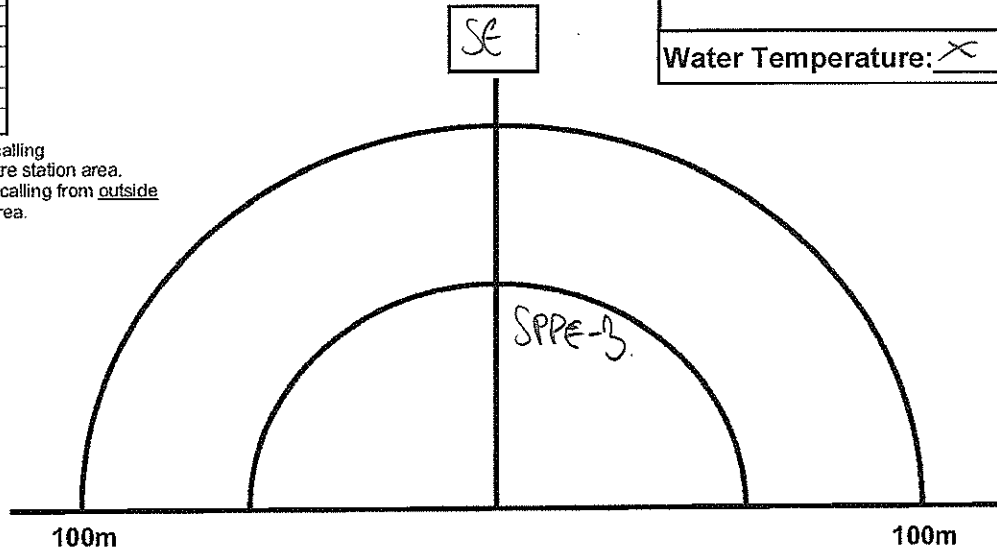
* Winds over Beaufort 3 are unacceptable for amphibian surveys.

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

Station 1

Station Start Time (24 hr):	21:15
Background Noise Code (1-4):	2
GPS Coordinates:	_____
Water Temperature:	_____

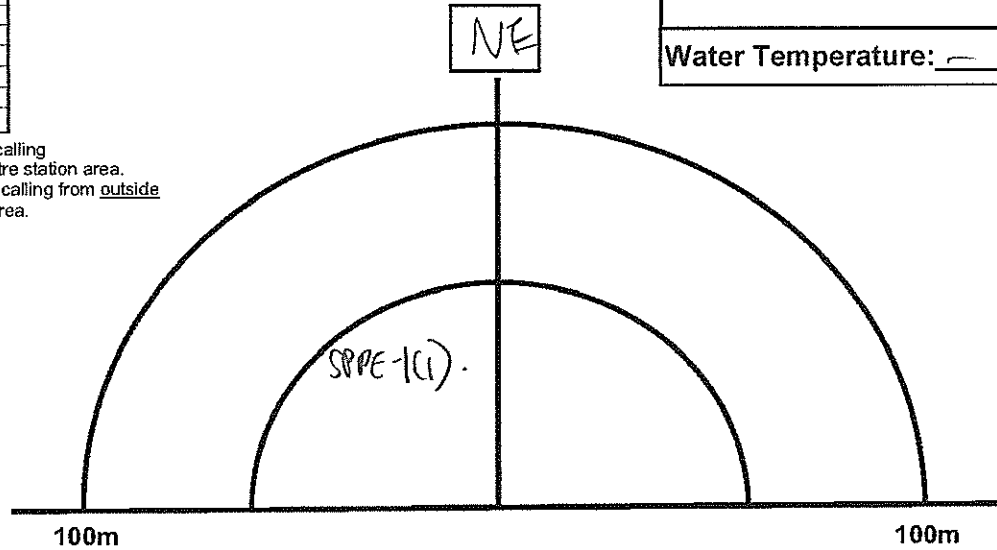


Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

Station 6

Station Start Time (24 hr):	21:30
Background Noise Code (1-4):	2
GPS Coordinates:	_____
Water Temperature:	_____





Ecological Land Classification Figure 2

150 Steeles Avenue Milton EIS

Legend

- Subject Property
- ELC
- Evaluated Wetland - Not Provincially Significant (MNR 2021)
- Watercourse (MNR 2021)
- X Amphibian Monitoring Station

Unit Number	ELC Code	Ecological Communities
1	ANT	Anthropogenic (units 1.1 - 1.4)
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3	CUM1	Mineral Cultural Meadow (units 3.1 - 3.2)
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7	MAM2	Mineral Meadow Marsh (units 7.1 - 7.2)
8	SA	Shallow Water (unit 8.0)
9	MAS2-1	Cattail Mineral Shallow Marsh (unit 9.0)

Project: 221265
Last Revised: February 2022

Client: Neatt Communities Prepared by: MD Checked by: KU **DRAFT**

1:2,700 0 60 120 m

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Orthoimagery Baselayer: 2019 (FBS)

C:\ODR\OneDrive - Beacon Environmental\GeoSpatial\Geo Projects\2021\221265 150 Steeles Avenue Milton EIS\Q Project Files\2021-05-04 - 150 Steeles Avenue Milton EIS - 221265.gpr

Proj name: 150 Steeles Ave

Date: June 1, 2022

Temp(°C): 22

PN: 221265

Visit #: 3

Cloud: 20%

Beaufort: 3 with occasional 4 gusts

AMRO
GRCA
RWBB

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

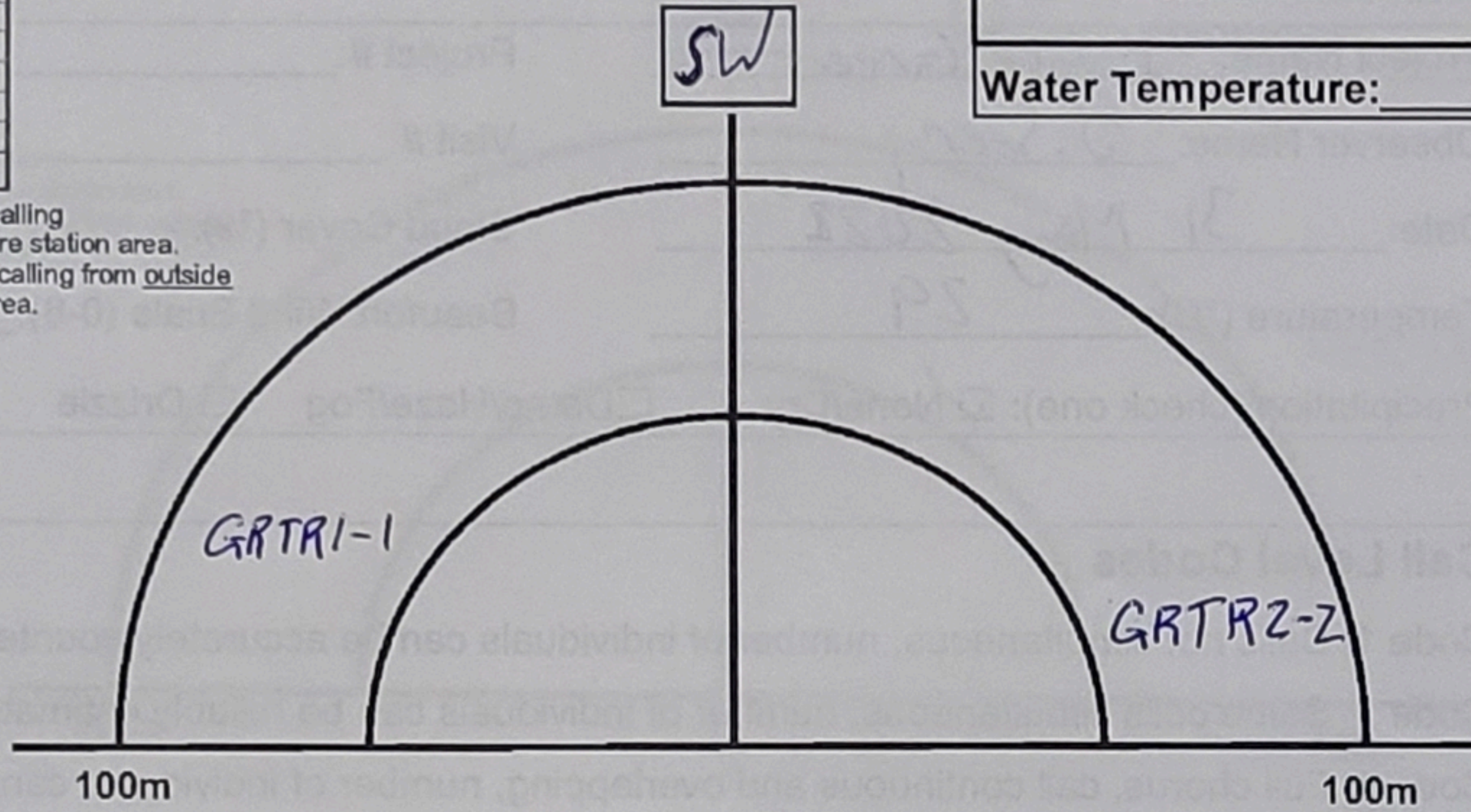
Station 5

Station Start Time (24 hr): 2124

Background Noise Code (1-4): 3

GPS Coordinates: _____

Water Temperature: _____



Lots of Bats!

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

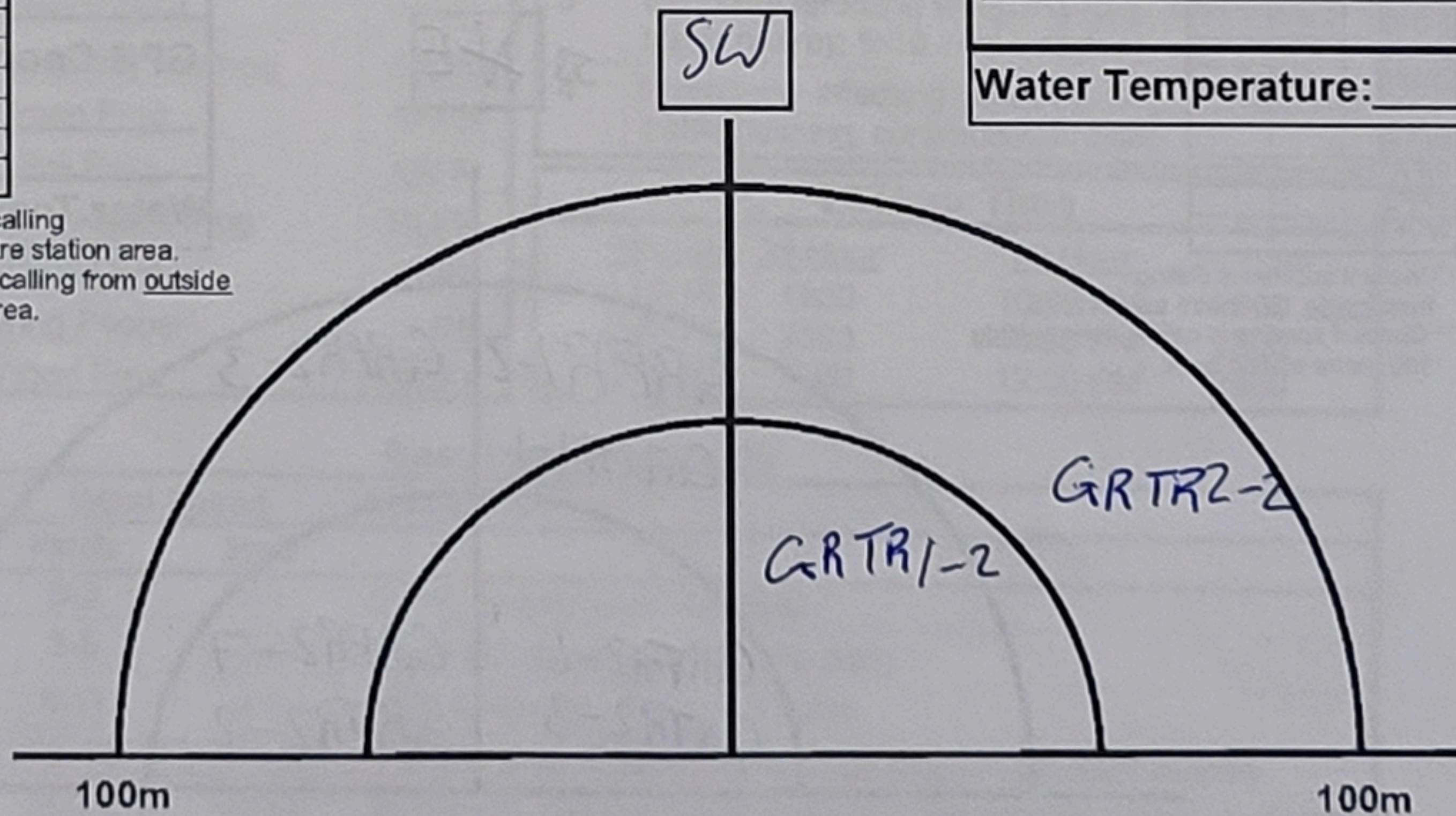
Station 4

Station Start Time (24 hr): 2136

Background Noise Code (1-4): 3

GPS Coordinates: _____

Water Temperature: _____



PN: 221265
Date: June 1, 2022

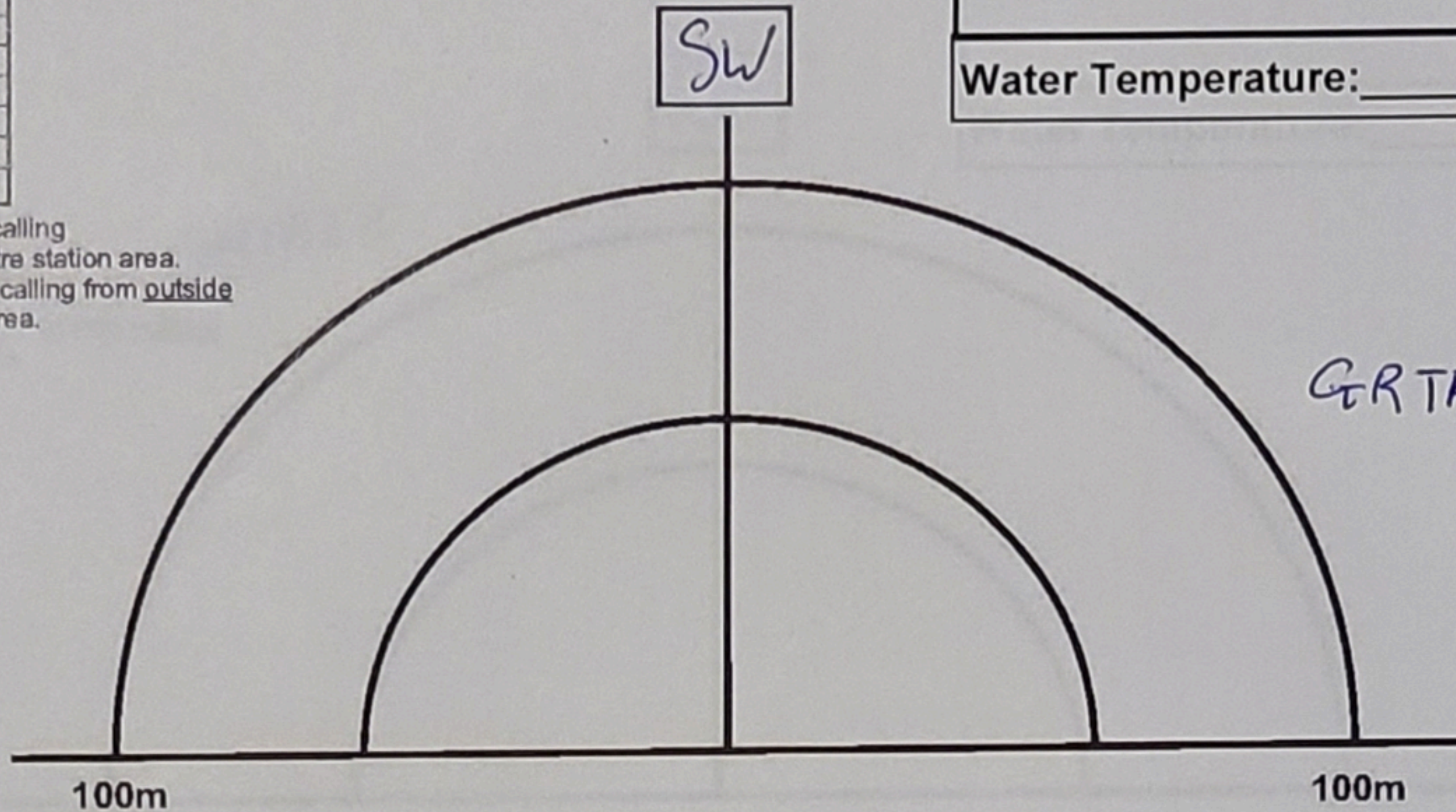
Firefly
Bats

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station 3

Station Start Time (24 hr):	2143
Background Noise Code (1-4):	3
GPS Coordinates:	
Water Temperature:	



Amphibian Species Codes

Species	Code
American Toad	AMTO
Northern (Blanchard's) Cricket Frog	BCFR
Bullfrog	BULL
Chorus Frog	CHFR
Cope's (Diploid) Gray Treefrog	CGTR
Fowler's Toad	FOTO
Gray (Tetraploid) Treefrog	GRTR
Green Frog	GRFR
Mink Frog	MIFR
Northern Leopard Frog	NLFR
Pickerel Frog	PIFR
Spring Peeper	SPPE
Wood Frog	WOFR

Background Noise Codes

Index	Description
0	No appreciable effect (e.g., owl calling)
1	Slightly affecting sampling (e.g., distant traffic, dog barking, car passing)
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24 Hour Time

	12 Hour	24 Hour	12 Hour	24 Hour
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8:00 PM		2000	11:00 PM	2300
9:00 PM		2100	12:00 PM	2400

Beaufort Wind Scale

Number	Wind Speed		Indicators
	Km/h	Mph	
0	0-2	0-1	Calm, smoke rises vertically
1	3-5	2-3	Light air movement, smoke drifts
2	6-11	4-7	Slight breeze, wind felt on face
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4*	20-30	13-18	Moderate breeze, small branches are moving, raises dust and loose paper

* Winds over Beaufort 3 are unacceptable for amphibian surveys.

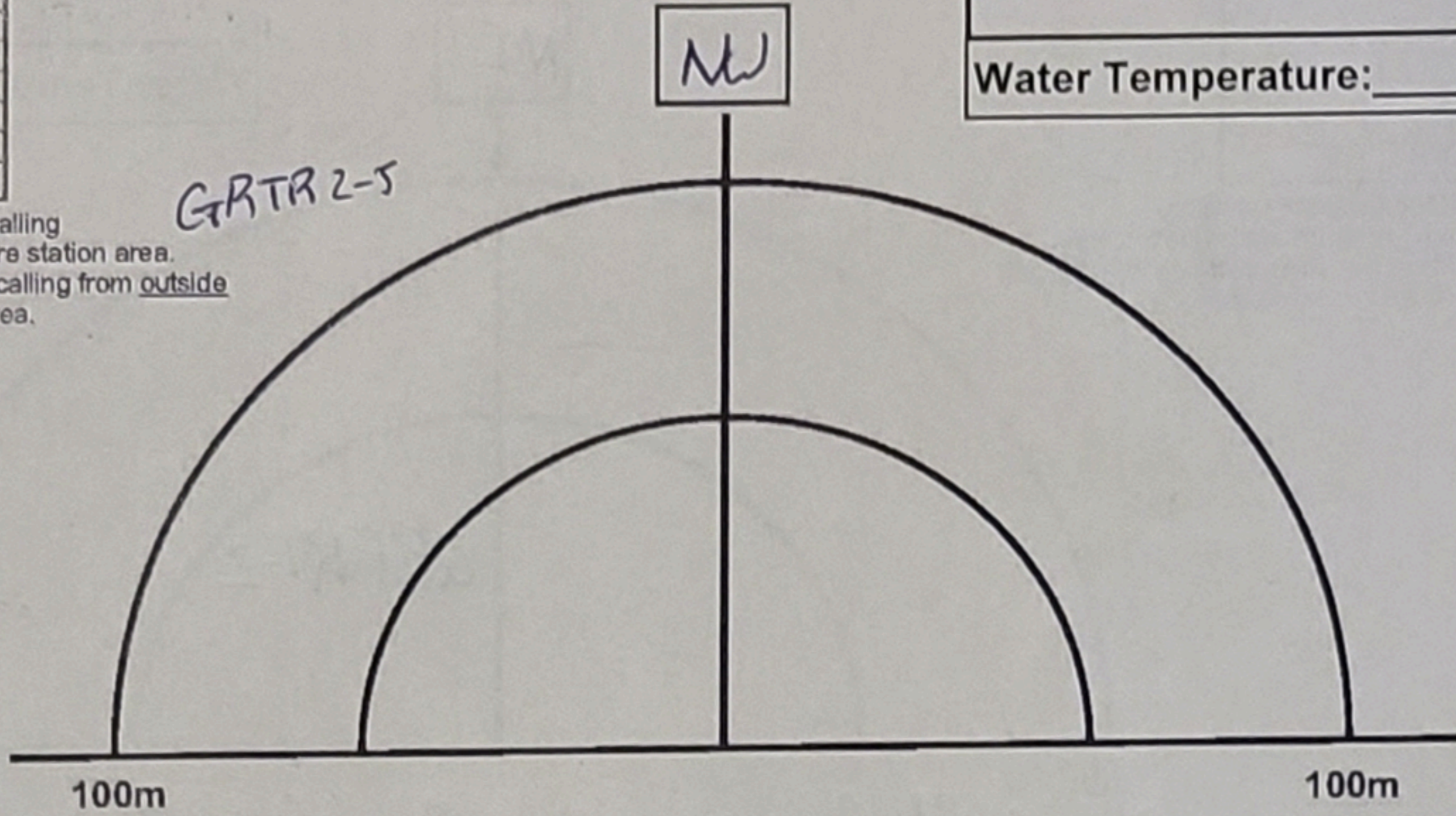
PN: 221265
 Date: June 1, 2022

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

Station 2

Station Start Time (24 hr):	2149
Background Noise Code (1-4):	3
GPS Coordinates:	
Water Temperature:	

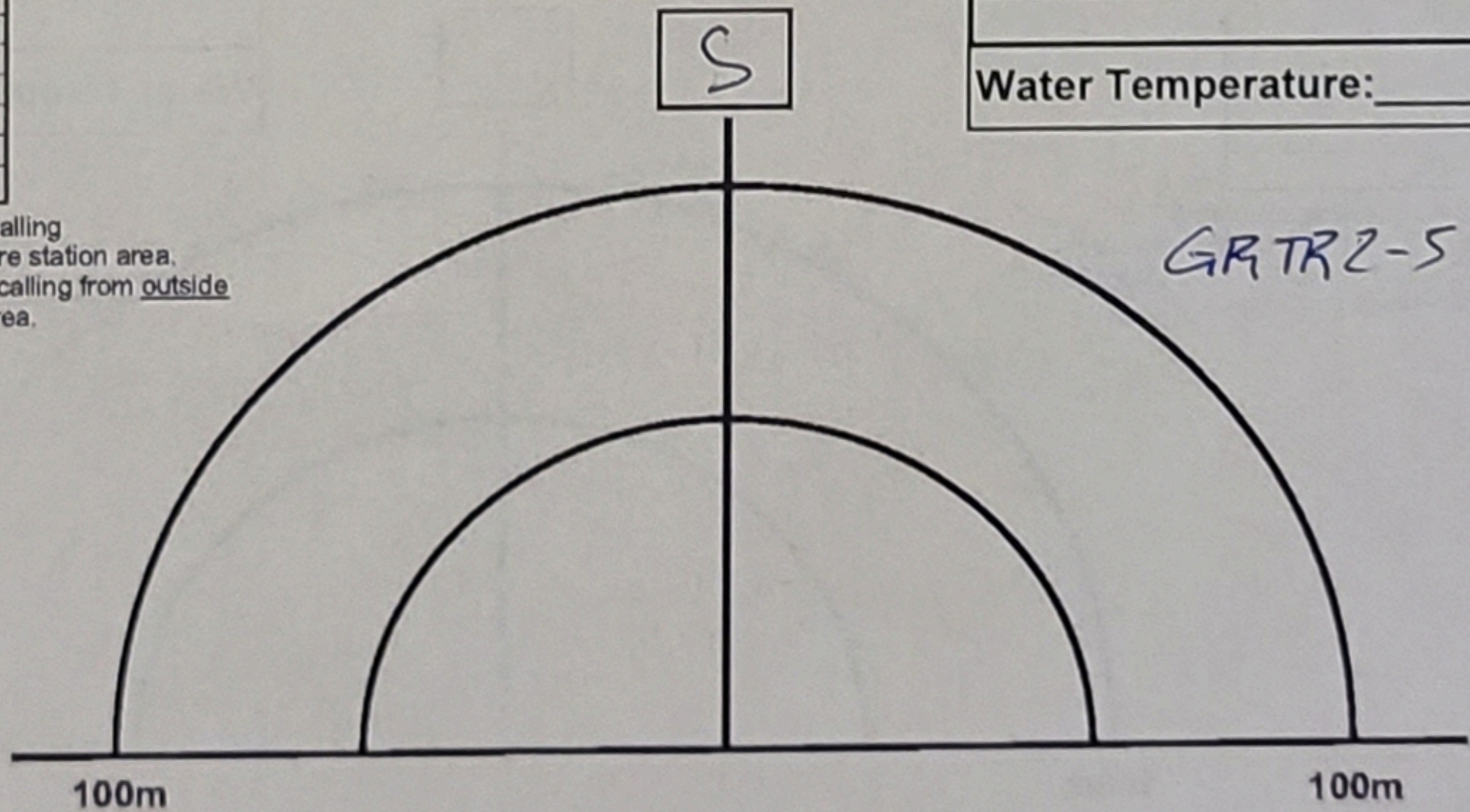


Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
 ** Check if species is calling from outside 100-metre station area.

Station 1

Station Start Time (24 hr):	2200
Background Noise Code (1-4):	3
GPS Coordinates:	
Water Temperature:	



PN: 221265
Date: June 1, 2022

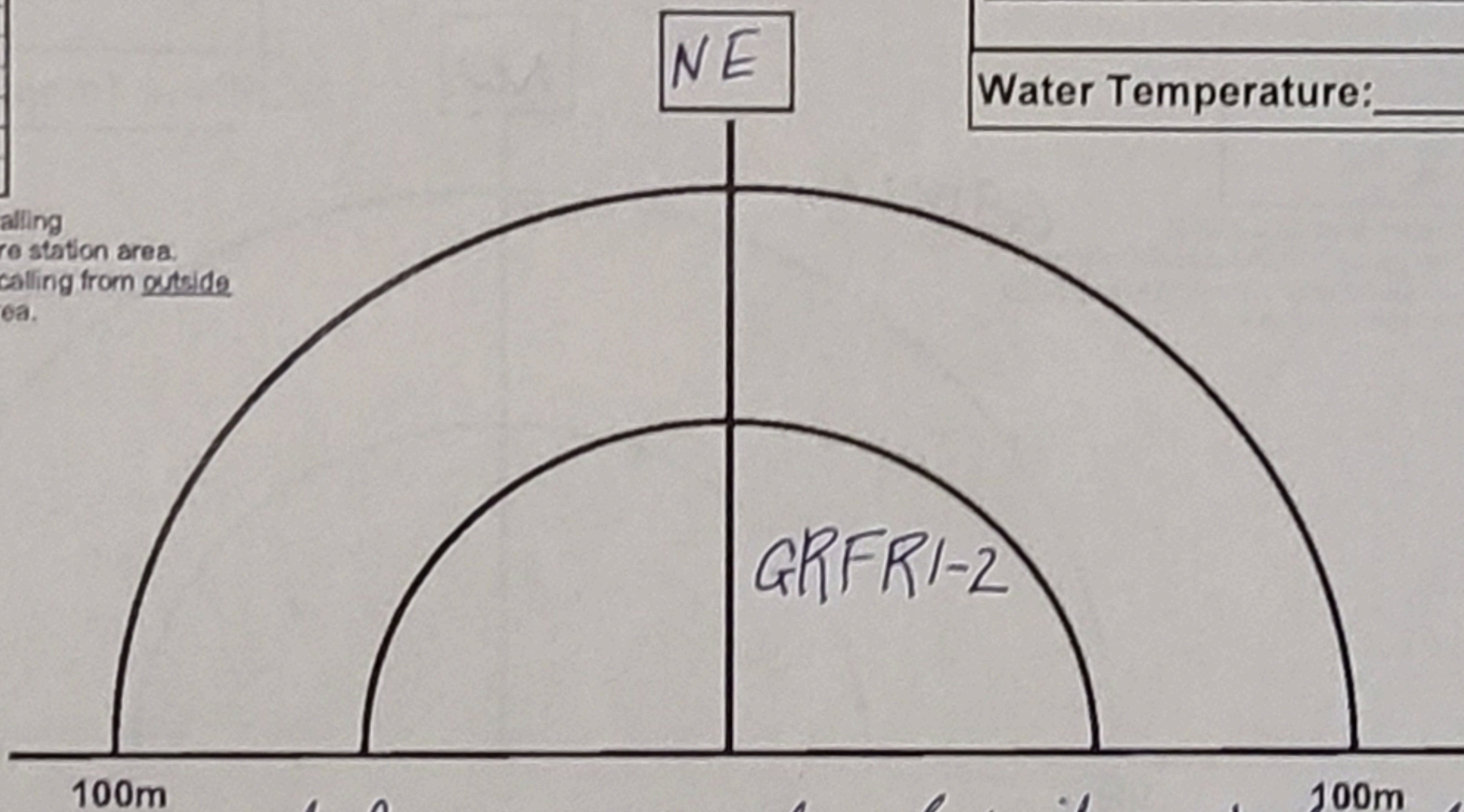
Fireflies

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station 6

Station Start Time (24 hr):	2219 2333
Background Noise Code (1-4):	3
GPS Coordinates:	
Water Temperature:	



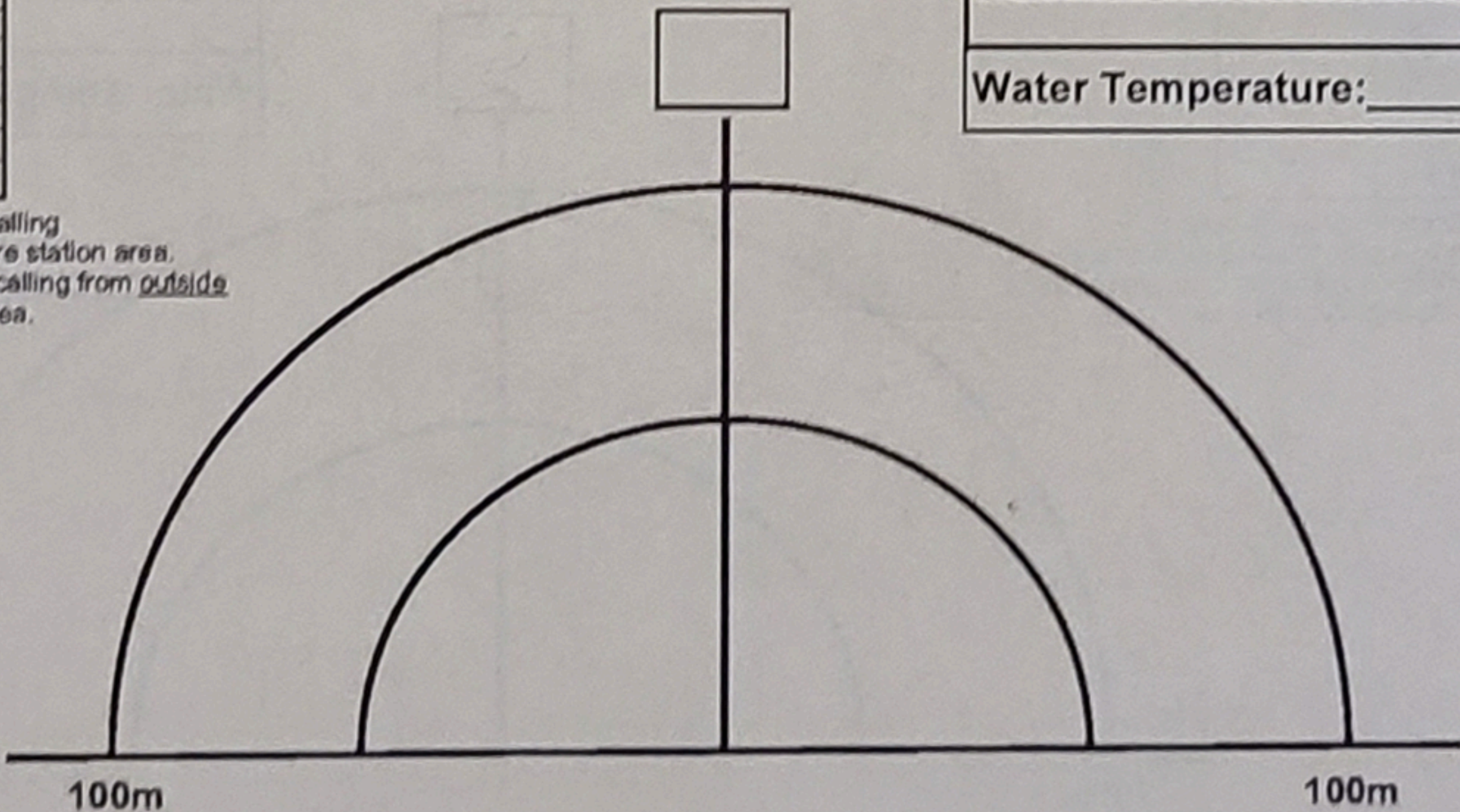
100m 100m
Surveyed from north side of bridge - bridge demolished

Species	In*	Out**
AMTO		
BCFR		
BULL		
CHFR		
CGTR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

* Check if species is calling from inside 100-metre station area.
** Check if species is calling from outside 100-metre station area.

Station _____

Station Start Time (24 hr):	
Background Noise Code (1-4):	
GPS Coordinates:	
Water Temperature:	



May ~~30~~ 31/2022

221265 - Milton

Weather: 30°C, sunny

Deployment start time 10:50 AM

Site 8

Mic #: X

Unit #: X

GPS (UTM) 589 500 E
4818 741 N

Site 7 Mic # 065 Unit # 111 (11:04 AM)

GPS UTM: 589 530 E
4818 712 N

Site 6 Mic # 061 Unit 110 (11:19 AM)

GPS UTM: 589 597 E
4818 722 N

Site 4 Mic # 056 Unit # 117 (11:33 AM)

UTMs: 589 647 E
4818 745 N

Site 3 Mic: 105 Unit: 112 (11:47 AM)

UTMs 589 695 E
4818 721 N

Site 2 Mic: 111 Unit: 124 (11:55 AM)

UTMs 589 703 E
4818 694 N

Site 1 Mic 117 Unit: 56 (12:15 PM)

UTMs 589 691 E
4818 671 N

May 31, 2022

221265 - Milton

Site 10

Mic: 110 Unit: 105

(12:28 PM)

UTMs 589 640 E
4818 687 N

Site 9

Mic 124 Unit: 65

(12:45 PM)

UTMs: 589 441 E
4818 719 N

Breeding Bird Survey Summary Form

Surveyor Name: Geoff Carpenter Date (use letters for mos.): May 26/21

Project Name: 150 Steeles, W: Han Project #: 221265

Time of Survey (start and finish): 0800 - 1045

Weather (approx. temp., cloud cover, wind, precipitation): light breeze 23°C
75% cloud

Additional notes on birds (nests, uncertainties, unusual observations, habitat comments etc.):

Gr. Squirrel, E. Cottontail

Incidental Observations

Anything welcome (mammals, herps, fish presence, insects, plants esp. unusual spp. etc.). For herps, rare plants, occurrence of fish, please also mark location on map. For herps, number observed. Thanks!

<u>HOSP 1</u>	<u>GRCA - 1</u>	<u>RWBL - 5</u>
<u>EAST 4-5</u>	<u>BTW warbler - 1</u>	<u>COYE - 5</u>
<u>MODD 2</u>	<u>NOFL - 1</u>	<u>WAUI - 1</u>
<u>CAGU - Grazing + 2</u>	<u>AMGO - 1</u>	<u>YEWA - 2</u>
<u>SASP - 1</u>	<u>BAOR - 3-4</u>	<u>Blackpoll warbler - migrant</u>
<u>AMCR - 1</u>	AMCR	<u>HOWR - 4</u>
<u>SOSP - 7</u>	<u>AMRE - 1</u>	<u>BLJA - 2</u>
<u>NOCA 3</u>	<u>INBU - 1</u>	<u>REUI - 2</u>
<u>EWPE - 1</u>	<u>CEDW 1</u>	<u>HAWD - 1</u>
<u>COGR 2-3</u>	<u>BITW - 1</u>	<u>BCCF - 2</u>
<u>FISP - 1</u>	<u>AMRU 3</u>	

22/265 sites for Milton

23 JAN 2023

Winte Raptor Nest survey - MO

0830 - 1100

0830 DC, Wind, 2 NE, (00% cloud, no precip)

SN1 - 0589360 4818741

< 1m wide and < 0.5m deep

- sparse sticks, some grass inside

- in Black locust ~ 7m up

- AMCR, COMA, GRNE possible

Inc. Obs.

many squirrel legs

CANB1 BETH I in nest

- Red Fox tracks throughout

- E. Gray Squirrel tracks

DOWD

BOB

WPAN

AMBO

RTMA - 1mm

in wetland

MALL

SN2 - 0589492 4818712

< 0.5m wide and < 0.25m deep, ~ 7m up in walnut

- very sparse collection of sticks, old nest or not finished

Raccoon tracks

SN3 - 0589619 4818741

- < 1.0m x < 0.75m wide, ~ 0.5m deep, ~ 5m up in Hawthorn

- mostly sticks w some fluff + leaves internally

- AMCR, COMA, GRNE possible

SN4 ~ 0589705 4818596 (southeast of property)

- larger stick nest off property, 7/10m wide, ~ 1.0m deep

~ 12m up in a walnut; made of mostly twigs ~ 2.0cm in diameter, some leaves in top layer.

Scale: 1 square = likely raptor nest

Rite in the Rain.

Project: 201265		Observer(s): DK/JH		Date: 21-09-13			Page 1/20
Tag	Species	DBH	Health	Structure			Notes
				Root flare	Trunk	Branch/Crown	
701	M. Map	22	P	P	P	P	1. Lanky
702	"	20	P	P	P	F	co-dominant 1 dead
703	"	32	P	P	P	P	root plate destabilized
704	Hawthorn	15	G-F	F-P	F	G-F	co-dominant
705	M. maple	25	P	P	F	P	tree of concern lots of deadwood.
706	Hawthorn	21	F	F	F	F	
707	Sugar M.	39	G	G-F	F	G	
708	B.W.	33/32	G	G-F	G	G	
709	b.w	15	F	F	G	F	Thin canopy
710	Sugar M.	16	F	F	G-F	F	
711	Norway M.	21	F	F	F	F	Gypsy moth damage on Norway but not sugar.
712	B.W.	23	G-F	G	G	G-F	
713	M. Map	22	P	P	P	P	90% canopy missing
714	B.W.	26	F	F	G	F	
715	"	19	F	G-F	F	F	
716	"	24	F-G	F	F	F	lopsided
717	"	42	G	G	F	G	
718	"	27	F	F	F-G	G	
719	"	17	F	F	F	F	lopsided
720	"	29	F-G	F	F-G	F-G	

Project:		Observer(s):		Date:			Notes
Tag	Species	DBH	Health	Structure			
				Root flare	Trunk	Branch/Crown	
739	B.W.	15	F	F.a	F	F.a	co-dom.
740	B.W.	26	F.	G-F	F	F.a	
741	Man. map	15	P	P	P	P.	
742	A-Elm	18	F	F-p	P	P	wild gap in tree grated root.
743	B.W.	24	F-a	F	F.	F-a.	
744	A-Elm	22	F	P _F			
745	M. map	17	P	P	P	P	co-down
746	B.W.	38	F.	F.a	F	a.	
747	M. m	17	P	P	P	P	
748	B.W.	18	F	F	P	P	poor trunk taper-
749	"	26	F	F	F	F.	
750	"	42	G	G-F	F	G-F.	
751	"	15	F.	F.	F.	F.	
752	B.W.	35	F.a.	F.p	F.	F	
753	Elm	30	F.p	F	F	F-p	Red Elm? center, wild grape in tree.
754	B.W.	30	F.	F.p	P	F.p	wild grape
755	A. Elm	25	F-u	F.	G.	F.b	same grading roots
756	B.W.	24	P.	F	F	P.	
757	B.W.	23	F	F	F	F.	thicker crawler.
758	B.W.	26	F.p	F.	F.	F.	" "

Project:		Observer(s):		Date:			Page 4/20
Tag	Species	DBH	Health	Structure			Notes
				Root flare	Trunk	Branch/Crown	
759	B.W	22	F	F	P		thick CR, mech. damage on trunk.
760	"	27.	P	P	P	P	mech damage. 60% cambium, deal wood
761	"	24	F	Fp	P	P	mech dam. 30% cambium
762	"	17.	F	F	H	F.a.	
763	A Elm	22	F.	F	G-F.	F.	
764	B.W	34	F.p	P P	F.	F.	th. CR. dead wood.
765	B.W	20	F.			P	lopsided
766	B.W	17.	F.	F.	F	F	Th. CR.
767	S. Elm	29/34	F. /38	P	P	P	3 stems. poor attachments.
768	B.W	25	F.	F.	F.	F.	deadwood
769	S. Elm	21	F	F	F	Fp	missing canopy. Th-CR.
770	M.M.	16	P	P	F.p	P	Th. CR. & w. grape Twp. encen
771	B.W	17.	P	P	F	P	bean pole.
772	"	27.	F	F	Fp	F	Th. Cr.
773	"	20	F	Fh	P	Fp	canker on trunk.
774	"	32	F.	F	F.	F.	Th. Cr.
775	"	15	F.	F.	F.	F.	Th. CR.
776	B.W	20	F.p	Fp	F.	F.	Th-CR deadwood
777	M.M.	40	F.p	P	P	P P	poor attachment point in co-down
778	B.W	30	F.	F.	F	G	Th. Cr
779	B.W.	17	F	F	F	G-F.	

Project:		Observer(s):		Date:			Page 6/20
Tag	Species	DBH	Health	Structure			Notes
				Root flare	Trunk	Branch/Crown	
799	S. Pine	19	F.P	F.	F.	F _P	Wild grape in hole. ^{MISSING} Cave
800	"	17	F _P	F	F.	F _P	" "
801	"	16	F _P	F	F	F _P	w.g.
802	"	23	F _P	F	P	F _P	trunk injury
803	A. Elm	15	F _P	G	G _{F.}	F	
804	S. pine	19	F _G	F	F	F _{G.}	stuck in Buck T.
805	A. maple	18	G	G	F	F.	4 stems
806	B.W	30	F.	F.	F.	F	lopsided deadwood
807	B.W	27	F.	F.	F.	F-G	deadwood
808	BW	22	F	F	F	F	
809	"	34	F	G	F.	F.	Th-Cr.
810	"	33	F _P	F.	F _P	F.	Th Cr /w. grape
811	"	18	F.	F.	P	F.	damaged bark
812	"	32	F _P	F.	F	F _P	
813	"	32	F.	F.	F.	F.	
814	M. maple	17.	P	P	P	P.	
815	B.W.	22	P	P	P	F _P	co down.
816	B.W.	25	F	F	P	F.	
817	B.W	23	F _P	F _P	F _P	F _P	Th-Cr - /w. grape
818	"	38	G	G	F-G	G _F	

Project:		Observer(s):		Date:			Page 7/20
Tag	Species	DBH	Health	Structure			Notes
				Root flare	Trunk	Branch/Crown	
819	B.W	20	F	F.	G, F	F.	Th. Cr.
820	"	15	F _A	P	F.	P	Th./CR + grape.
821	B.W	30/28	F _A	F	F, P	F	Co-down
822	B.W	28	F _A	F.	F	F _A	dead wood.
823	"	16	F.	F _A	G.	F.	top sided.
824	"	26	F.	F _P	F.	F _P	"
825	"	34/26	F.	F _P	F _P	F.	dead wood. (included bark)
826	M _M	20	P	P	P	P.	snag.
827	M _M	20	P	P	P	P	
828	B.W.	31.	F _A	F	F	F _A	some canker
829	B.W	17	F.	P	F.	F _P	
830	"	26	F.	F.	F.	F.	dead wood
831	B.W.	25	F.	F.	F, P	F.	included
832	B.W	17.	F.	F _P	F.	F.	Th. CR. top sided.
833	"	29	F.	G.	F.	F _A	Th. CR. striking
834	"	30	F _A	F.	F _P	F _P	poor attachment points.
835	"	22	F.	F.	F.	F _P	w grape in canopy.
836	"	15	F.	F.	F.	F.	
837	"	23	F _A	F.	F.	F.	Th. CR. co-down
838	"	16	F.	F.	F.	F _P	Be. W. grape in canopy

Project: 820265		Observer(s): DK/JH		Date: 2021-09-13 / 2021-09-16			Page 8/20
Tag	Species	DBH	Health	Structure			Notes
				Root flare	Trunk	Branch/Crown	
839	B.W	15	F.	Fa.	F.	F.a.	
840	B.W	25	F.p	Fa.	F.	F.p.	w. grape in canopy Th CR
841	"	16	F.G.	F.	F.	F.G.	
842	A-Elm	17	F.	G.	G.	G.F.	
843	B.W	17.	F.	F.	F.	G.F.	
844	"	15	F.	F.	F.	F.	Th. CR. w/ grape
845	B.W	28	F.G.	G.	F.G.	F.	some dead wood -
846	B.W	18	F.	F.p	F.	F	w. grape
847	B.W	24 1/2	F.G.	P	P	F.	
848	M.M	20/10/10/6	F. P	P	P	F	4 stems
849	B.W.	17.	F.p	P	F	F	
850	B.W	17.	F.p	P	F	F.	
851	M.M	21	P	P	P	P	in decline.
852	B.W	22	F. G.	F.G	F.G.	G.	good structure - root flare, ok.
853	B.W	27.	P	P	F.p	P	muzzing 90% of canopy.
854	B.W	16	F	F.p	F.	F.	
855	B.W	26	F.	F.p	F.G.	F.	
856	h. Ash	17.	P	P	P	P.	(eats) almost dead.
857	h. Ash	20/18	P	P	P	P	"
858	B.W.	25	G.F	G.F.	G.F.	G.F.	
859	"	22	G.F.	G.F.	G.F.	G.F.	

Project:		Observer(s):		Date:			Page 9/20
Tag	Species	DBH	Health	Structure			Notes
				Root flare	Trunk	Branch/Crown	
860	B.W.	16	F.	F-p	F.u.	a-F.	
861	B.W.	30	G.	G.	F-p	F-h	Th Cr.
862	B.W.	18/	F.	F.	a-F.	F.	Th Cr.
863	B.W.	26	F.	F.	Fp	F	
864	B.W.	21	F.u.	F.u.	F-p	F.	
865	M.M.	29	F-p	P	P	F-p	
866	B.W.	17.	F	Fp	F.	F.	
867	B.W.	25	F.	G	F-p	F.	included bark.
868	B.W.	16	F.	F.	F.	F-p	lopsided. w. grape vine
869	B.W.	27	F.	F.u.	F.h.	F-p	w. grape in canopy
870	B.W.	21	Fp	Fp	P	P	w. grape include bark.
871	B.W.	21	F.	G	Fp	F.	included bark.
872	B.W.	15	F-p	P-#	F-p	F	" "
873	B.W.	20	F-p	P	P	F-p	" " w. grape
874	B.W.	19	F-p	F.	F.	F-p	" " "
875	B.W.	30	F.MR	G.	P.	F-p	" " "
876	B.W.	22.	F.	F.u.	F.h.	F	some inclusion in upper canopy
877	B.W.	30	F.MR	F.	P	F	include Bark.
878	B.W.	24	Fp	F.	F.	F-p	w. grape : Th. Cr.
879	B.W.	30	F.	F-p	G.	F	" "

Project:		Observer(s):		Date:			Page 10 / 20
Tag	Species	DBH	Health	Structure			Notes
				Root flare	Trunk	Branch/Crown	
480	B.W.	35	F.	F.a.	F.a.	P	Th Cr. w. grape
481	M.M.	15	F.	P	P	P	leaning ^{45°} . Th. Cr. w. grape
482	B.W.	32	F.	F	F.	F.	rhine potential inclusion.
483	B.W.	30	F.a.	F.a.	F.p	F.	Flux @ first Branch union. w. gap " " old injuries. Th. Cr.
484	A Elm	34.	P	a.	F.	P	DED in tree.
485	B.W.	27	F.a.	F.a.	G.	F.a.	w. grape - Th. CR.
486	A. Elm	17	P	G.	F.	P	DED. " "
487	B.W.	28	F.	G.	G.	P	Th. CR. w. large thin canopy
488	B.W.	23	F.	F.	F.	F.	" "
489	B.W.	22	F.	F.	F.a.	F	
490	B.W.	17	F.	G.	G.	F.a.	
491	"	24	F.	G.	F.a.	F.p	w. grape Th. CR.
492	"	22	F.p	F.	F.	F.p	" "
493	"	21	F.	F.	F.	F.	
494	"	22	F.	F.p	F.	F.p	w. grape Th. CR.
495	"	28	F	F.p	F.	F.	
496	"	26	F.	F.	F.p	F.	rhine included bark
497	M.M.	19	F.	F.p	F.	F.p	
498	Hambur	31	G	G	P _F	F.	
499	"	16/10/10	F.	P	P	F.p.	pear stub

Project:		Observer(s):		Date:			Notes
Tag	Species	DBH	Health	Structure			
				Root flare	Trunk	Branch/Crown	
900	B.W	26	F.u.	F.	F.	F.	Rhiz inclusion in Bark.
901	"	28	F.u.	F.	F.G.	F.	
902	"	17.	F	P	G.	FP	
903	"	22	F	P _F	F	F.	
904	EC. wood	60	F.	P	F	P.	
905	B.W	27.	F	P	F _E	P F	
906	M.A	16	P-F	P	P	P	5 stems.
907	"	20/18	F.p	P	P	F.p	includes bark & roots.
908	B.W	22	F.	F.G	F.p	F.	" " Th.CR.
909	B.W	15	FP	FP	F.	FP	^{Th.Cr.} W grape in canopy
910	"	21/22	F.	F.p	P	FP	includes Bark Th.Cr
911	Willow _?	33	F.	P	F.p	F.p	caulky at base
912	M.M.	15/12/10 10/18	F.	P	P	FP	
913	"	19	FP	P	P	FP	
914	"	21	F.	F	F.	F.P.	
915	B.W	15 1/2 1/2	F.p	P	P	P-F.	includes bark.
916	B.W	15	Any.u.	F.	F.p	F.p	" "
917	"	23/30	F.u.	F.	P	F.p	Rhiz inclusion.
918	"	19	F.	F.	F.u	F.	
919	"	26	H.	F.	G.F.	F.	

Project:		Observer(s):		Date:			Page <u>12/20</u>
Tag	Species	DBH	Health	Structure			Notes
				Root flare	Trunk	Branch/Crown	
920	B.W	23	F _a	F.	F _p	F _c	includes Bark
921	"	17	F.	F.	F _a	F _p	w. grape
922	W.EM	20	P	G.	F.	P	w. grape consumed
923	B.W.	20	F _p	F _p	F.	P	" "
924	"	17	F _p	F _p	F.	P	" "
925	"	22	F.	P	F _p		tree burned, neck ^{up}
926	M.M	18/14	F _p	P	P	P	
927	B.W.	21	F.	F _p	F.	F _p	w. grapes
928	B.W. Willow EM	27/24 26/22 18/24	P-F.	P	F _p	F _p	shedding scabbs.
929	"	28	P	P	P	P	tree has fallen alive.
930	B.W	27	F _a	F.	F.	F _a	Th Cr.
931	B.W	23	F.	G.	G.	F.	
932	B. cherry	19	F.	P	F.	P	flame burned
933	B. willow	38	F _p	P	F	P	" "
934	"	30	F _p	P	F.	F.	" "
935	M.M	29	F.	P	P	P	leamy.
936	B. willow	23/36 32/	F _p	G.	P	P	tops faded & sucking.
937	T. aspen	21	P	P	P	P	tree being pulled over by w. grape
938	"	26	F.	P	F	F.	
939	" OR	37	P	P	P	P	leamy - concerning, targets?

E.C. wood.

Project:		Observer(s):		Date:			Page 13/30
Tag	Species	DBH	Health	Structure			Notes
				Root flare	Trunk	Branch/Crown	
940	Malus.	19/24	F.	Fp	Fp	Fp	Suckers messy
941	M.M.	24	Fp	P	P	Fp	w. grape
942	Huv.	14/15/4	F.	F	F.	F.p	w. grape
943	B.W	21	G	F.	G.	Fp	Th. CR.
944		27	G.	G.F	G.	G.F	
945	T. Aspen	24 24	Fp	Fp	F.	Fp	missing canopy.
946		26	F.	P	F.	P	snags in tree w. grape
947		15	Fg	F.	F.	F.	w. grape
948	M.M	15 ¹⁰ 12 10	P	P	P	P	tree forked & suckered -
949	Black willow	³⁰ 28/36 36	F.p	P	P	P	poor structure @ root plane
950	Black locust	28	F	P	F	F.	Th. CR.
951	T. Aspen	22	F.	P	Fp	F.	root plane buried.
952	B.W	19	F	F	F.	F.	Th. CR.
953		15	Fp	Fp	F.	F.	
954	T. Aspen	16.	Fp	P	F.	Fp	Th. CR. w. grape
955	B.W	19	F.	F.	Fp	F.	blue inclusion
956		17.	F	Fa.	F.	F.	
957	Honey locust	44.	Fp	Fp	F.p	P	inhabited - with w. grape
958	B.W	32	G.	G.	F.G.	F.G.	blue inclusion
959	B.W	22	F.	F.	F.	F.G.	

Project:		Observer(s):		Date:			Page 14/20
Tag	Species	DBH	Health	Structure			Notes
				Root flare	Trunk	Branch/Crown	
960	B.W	16/15	F.a.	F.	P	F.	included bark @ root flare
961	"	19	F.u.	F.u.	u.	F.u.	
962	"	28	F.u.	u.	u.	G.F.	
963	"	30	F.u.	u.	u.	u.F.	
964	"	18	F.	F.	F.	F.P.	Th.CR.
965	"	15	F.	F.	u.F.	F.	lopsided
966	"	18	F.a.	F.	F.	F.	mech injury bark @ base
967	"	32	G.F.	u.	u.	u.F.	
968	"	15	F.P.	F.P.	P	F.P.	Th.CR.
969	"	31	u.	u.	u.F.	u.F.	
970	M.M	15	F.P.	F.	EP	EP	
971	B.W	15	F.	F.	F.	F.P.	Th.Cr. w. grape
972	B.W	30	F.u.	u.	u.F.	F.G.	w. grape starting
973	B.W	24	F.	F.	F.	F.	lopsided
974	"	32	F.	F.	F.	F.	emergent branch/scalld
975	A.Elm	19	F.	F.	u.	F.P.	w. grape in canopy
976	B.W	26	F.u.	F.	u.	F.u.	Th. Cas bark @ base
977	"	42	u.	u.	u.	u.	
978	"	17	F.	F.P.	P	P	swallow b, 777.
979	"	34	F.u.	F.u.	u.	F.u.	
980	"	30	F.u.	F.P.	F.	F.P.	Th CR. w. gn

Project:		Observer(s):		Date:			Notes
Tag	Species	DBH	Health	Structure			
				Root flare	Trunk	Branch/Crown	
981	B.W	33	F.	G.	F.	K	co-dom.
982	"	39	F	Fp	F.	F.	girdling root @ flare?
983	"	32	F	F.	F.	F.	} acting as one canopy
984	"	34	F	Fp	F.	F	
985	"	15	F.G.	F.	Fp	Fp	w. grape & thick CR ₂
986	"	18	F	Fp	Fp	Fp	" "
987	"	27	F.	G.	F.p	Fp	
988	"	33 ^{1/2}	F.	G.	P	Fp.	included bark a root flare
989	"	20/19	F.G.	G.F	P	Fp	included bark "
990	A. Elm	16	Fp	P	F.	P	wild g. Th-CR.
991	Hawthorn	16	Fp	G.	F	P	" "
992	^E Hawthorn	18	Fp	F.G.	G.	F	" "
993	B.W	19	P	G	G.	P	missing canopy early but drop?
994	"	25	F.p	F.	G.	P	Th-CR w. grape
995	M.M.	22	P	P	P	P	leaving. Th CR w. grape
996	B.W.	19	F.	P	Fp	P	" uprooting- " "
997	M.M	24	P	P	P	P	
998	B.W	18	Fp	P	P	Fp	
999	M.M.	44/32	P	P	P	P	free of cancer.
1000	B.W	19	F.	P	Fp	Fp	Th. Cr. w. Grape

Project:		Observer(s):		Date:			Notes
Tag	Species	DBH	Health	Structure			
				Root flare	Trunk	Branch/Crown	
001	B.W.	25	Fp	Fp	F.	Fp	Tk Cr. w.g.
002	M.M.	28/18/30 38/36	P	P	P	P	in dielma
003	"	15/18/17	Fp	P	P	P _F	
004	B.W	23	F	F.	F.	F.	Blue inclusion
005	A. Elm	20	G.	G.	P.	Fp	included bark
006	M.M	19/15/12 10	P	P	P	P-F.	
007	M.M	34	Fp	P	P _F	P	Tk-cr. w.g.
008	M.M.	24	F	P	Fp	P	" "
009	"	15	Fp	P	F	P	
010	M.M.	15	Fp	P	F.	P	
011	19	28	Fp	P	P	Fp	
012	M.M.	22	Fp	P	P	Fp	
013	"	16	F p	Fp	F.	Fp.	Tk. Cr
014	B.W	18	F.	F _u .	Fp	F	Blue inclusion
015	MM.	15	Fp	P	P	P	leamy Tk CR w-a ₂
016	"	20	Fp	P	Fp	Fp	
017	M.M.	17/32	F.	Fp	P	P _F	poor structure @ base of pedistal
018	"	8/21	F.	P	P	P	poor structure
019	"	29/19	F _p	P	P	P.F.	
020	"	18/19	F	P	Fp	F.P	

Project:		Observer(s):		Date:			Notes
Tag	Species	DBH	Health	Structure			
				Root flare	Trunk	Branch/Crown	
021	M.M.	15	P	P	P	P	
022	M.M.	15/12	F.	P	F _P	F _P	
023	B.W	32/10	G.	G.	G.	G.F.	
024	M.M.	21/17	F _P	P	P	P	
025	"	17	F _P	P	F.	F _P	
026	"	15	F	P	F _P	F _P	
027	"	15	F	P	F _P	F _P	
028	"	16	F _G .	F _P	F.	F	
029	"	19	F.	F _P	F	F _P	T _{CR}
030	B. Willow	48	F.	F _P	F _P	F _P	
031	M.M.	23	F.	G.	F.	F _P	Th CR
032	"	19/19	F _P	F _P	P	P	poor inclusion Th. Cr. W _G
033	B.W	36	G.F.	F.	F _P	F	thru inclusion Th. Cr. W _G
034	"	16/13	F.	F _P	F _P	F	" "
035	A. Elm	15	F.	F _P	F.	P _P	wild grape in canopy
036	M.M.	55/10	F.	P	P	P.	
037	Black locust	18/15	F.	P	F _P	F _P	barred
038	"	15/17	F.	P	D	P.F.	leamy.
039	W. Willow?	21/30	F.	P	P	F	
040	"	24	F	P	F	F	
041	"	29/19/10	F	P	P	F.	

Project:		Observer(s):		Date:			Page 18/20
Tag	Species	DBH	Health	Structure			Notes
				Root flare	Trunk	Branch/Crown	
042	Willow	32	F.	P	F.	P	Th Cr. w.g.
044	"	13/7/18 19/11/15	F	P	P	F.	poor structure
045	M.M.	20	P	P	P	P	w. group Th Cr.
046	"	20 15	P	P	P	P	leaving w. group Th Cr.
047	B.W	16	Fp	P	F	P.	" "
048	"	35	G.F.	G.	G.	F.G.	
049	"	23	F	G.	G.	G.F.	
050	"	15	F.	F.	Fp	F.	ribbed inclusion!
051	"	19	F.	F.G.	F	Fp	Th Cr. w.g.
052	"	44	F.G.	G.	F.G.	F.	w. grape.
053	"	36	F.G.	G.	F.G.	F.G.	
054	"	34	F.	F.	F.G.	F.	w. grape
055	"	24	F.	P	F	F.	w. grape study.
056	"	32	F.	F	F.	F.G.	
057	"	27	F	G.F	F	F.	
058	"	43	F.	G.	G.F.	G.F.	
059	"	32	F	F.	F.	F.	
060	"	34	G.	F.	F.G.	F.G.	
061	"	15	F.	P	F.	Fp	
062	"	23	Fp	F.	P	Fp.	included bark.

Project:		Observer(s):		Date:			Notes
Tag	Species	DBH	Health	Structure			
				Root flare	Trunk	Branch/Crown	
063	B.W	23	Fa.	Fp	F.	F	Ph206 w. grip
064	"	29	F.	G.	F.	F.	
065	"	26	Fg.	Fg.	F.	Fg.	
066	"	17/15	Fp	Fp	P	P	inclusion Bark / snag.
067	"	26	F	F.	Fc.	F	
068	"	30	F	F.	F.	F.	
069	"	28	G.	F	G.	G.F.	
070	"	20	F.	Fa.	F	F.	
071	"	28	F	G.	F	F.a	
072	"	31	Fg	G.	G.	Fa,	w. grip
073	"	19	Fg	G.	G.	F.	
074	"	19	Fg	G.	G.	F.	} acting as one canopy
075	"	23	Fg	G. F	F.	F	
076	"	27	F.	F.p	F.	Fp	brush @ base.
077	"	30	G.	G.	Fp	F.	flue inclusion
078	"	23	F	G	F.	F.A	
079	"	21	F.	F.	F.	Fp.	
080	"	41	G.	G.	F.	Fg.	
081	"	31	G.	Fp	G.	G.F.	
082	"	38	G.	F.	G.	G.	

Project:		Observer(s):		Date:			Notes
Tag	Species	DBH	Health	Structure			
				Root flare	Trunk	Branch/Crown	
083	B.W.	38*	G.	G.	G.	G.	
084	G. Ash	15	G.	F.	F.	Fa.	no signs of EAB?
085	B.W.	23	G.	F.	F.	F.	
086	B.W.	30	F	F.	F.	F.	
087	B.W.	15/10	F.	P	P	P	
088	.	45	F	G.	F.	F.	
089	.	39	G	G.	G.F	G.F.	
090		33/38	F.	F.	P	F.	co-dorm include bark into soil
091		30*	F	Fg	Fg	Fg	
092		32	Fg	F.	G.	G.F	w.g sturche
093		28	Fg	F.	F.	F.	
094		16	F	P	Fp	Fp	lopsided
095		36	Fg	g	F.	F.	
096		30	F.	F.	F.	F.	
097.		34	Fg	G	Fg	Fp	pair sturche in canopy
098		24	F.	Fp	F.	F	w. grapes
099	Willow	26/26	F.	P	F.	Fp	w. grapes
100	" Willow	34/34	P	P	F.	P	
101	B.W.	39	F.	G.	F.	F.	w. grapes.
102		32	F	F.	F.	P	w. grape.
103		15					

Appendix B-2

Flora List

Appendix B-2

Flora List

Scientific Name	Common Name	COSEWIC	SARO	SRank ^a	Halton Status		Coefficient of Conservatism ^b	Coefficient of Wetness ^c
					Varga, 2005	Crins et al., 2006		
<i>Acalypha rhomboidea</i>	Common Three-seeded Mercury	—	—	S5	—	—	0	3
<i>Acer negundo</i>	Manitoba Maple	—	—	S5	—	—	0	0
<i>Acer platanoides</i>	Norway Maple	—	—	SE5	—	—	0	5
<i>Acer saccharum</i>	Sugar Maple	—	—	S5	—	—	4	3
<i>Acer tataricum ssp. ginnala</i>	Amur Maple	—	—	SE1	—	—	0	5
<i>Agrimonia eupatoria</i>	European Agrimony	—	—	SE1	—	—	0	—
<i>Agrostis stolonifera</i>	Creeping Bentgrass	—	—	SE5	—	—	0	-3
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	—	—	S5	—	—	5	-3
<i>Artemisia campestris ssp. canadensis</i>	Canada Wormwood	—	—	S4	—	—	8	5
<i>Asclepias syriaca</i>	Common Milkweed	—	—	S5	—	—	0	5
<i>Asparagus officinalis</i>	Garden Asparagus	—	—	SE5	—	—	0	3
<i>Barbarea vulgaris</i>	Bitter Wintercress	—	—	SE5	—	—	0	0
<i>Berberis vulgaris</i>	Common Barberry	—	—	SE5	—	—	0	3
<i>Bromus inermis</i>	Smooth Brome	—	—	SE5	—	—	0	5
<i>Carya cordiformis</i>	Bitternut Hickory	—	—	S5	—	—	6	0
<i>Centaurea nigrescens</i>	Short-fringed Knapweed	—	—	SE5	—	—	0	5
<i>Cichorium intybus</i>	Wild Chicory	—	—	SE5	—	—	0	3
<i>Circaea canadensis ssp. canadensis</i>	Canada Enchanter's Nightshade	—	—	S5	—	—	2	3
<i>Cirsium vulgare</i>	Bull Thistle	—	—	SE5	—	—	0	3
<i>Cornus sericea</i>	Red-osier Dogwood	—	—	S5	—	—	2	-3
<i>Crataegus monogyna</i>	English Hawthorn	—	—	SE4	—	—	0	3
<i>Crataegus spp.</i>	Hawthorn species	—	—	—	—	—	—	—
<i>Cynoglossum officinale</i>	Common Hound's-tongue	—	—	SE5	—	—	0	5
<i>Dactylis glomerata</i>	Orchard Grass	—	—	SE5	—	—	0	3
<i>Daucus carota</i>	Wild Carrot	—	—	SE5	—	—	0	5
<i>Dianthus armeria</i>	Deptford Pink	—	—	SE5	—	—	0	5
<i>Dipsacus fullonum</i>	Common Teasel	—	—	SE5	—	—	0	3
<i>Echinochloa crus-galli</i>	Large Barnyard Grass	—	—	SE5	—	—	0	-3
<i>Elaeagnus angustifolia</i>	Russian Olive	—	—	SE3	—	—	0	3
<i>Elymus repens</i>	Quackgrass	—	—	SE5	—	—	0	3
<i>Erigeron annuus</i>	Annual Fleabane	—	—	S5	—	—	0	3
<i>Erigeron canadensis</i>	Canada Horseweed	—	—	S5	—	—	0	3
<i>Eupatorium perfoliatum</i>	Common Boneset	—	—	S5	—	—	2	-3
<i>Eutrochium maculatum</i>	Spotted Joe Pye Weed	—	—	S5	—	—	3	-5
<i>Fragaria virginiana</i>	Wild Strawberry	—	—	S5	—	—	2	3
<i>Fraxinus excelsior</i>	European Ash	—	—	SE2	—	—	0	3
<i>Fraxinus pennsylvanica</i>	Red Ash	—	—	S4	—	—	3	-3
<i>Galium palustre</i>	Common Marsh Bedstraw	—	—	S5	—	—	5	-5
<i>Geum urbanum</i>	Wood Avens	—	—	SE3	—	—	0	5
<i>Glechoma hederacea</i>	Ground-ivy	—	—	SE5	—	—	0	3
<i>Gleditsia triacanthos</i>	Honey Locust	—	—	S2?	—	—	8	0
<i>Glyceria striata</i>	Fowl Mannagrass	—	—	S5	—	—	3	-5
<i>Hackelia virginiana</i>	Virginia Stickseed	—	—	S5	U	HU	5	3

Scientific Name	Common Name	COSEWIC	SARO	SRank ^a	Halton Status		Coefficient of Conservatism ^b	Coefficient of Wetness ^c
					Varga, 2005	Crins et al., 2006		
<i>Impatiens capensis</i>	Spotted Jewelweed	—	—	S5	—	—	4	-3
<i>Inula helenium</i>	Elecampane	—	—	SE5	—	—	0	3
<i>Juglans nigra</i>	Black Walnut	—	—	S4?	—	—	5	3
<i>Juniperus virginiana</i>	Eastern Red Cedar	—	—	S5	—	—	4	3
<i>Ligustrum vulgare</i>	European Privet	—	—	SE5	—	—	0	3
<i>Linaria vulgaris</i>	Butter-and-eggs	—	—	SE5	—	—	0	5
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	—	—	SE5	—	—	0	3
<i>Lotus corniculatus</i>	Garden Bird's-foot Trefoil	—	—	SE5	—	—	0	3
<i>Lythrum salicaria</i>	Purple Loosestrife	—	—	SE5	—	—	0	-5
<i>Malus pumila</i>	Common Apple	—	—	SE4	—	—	0	5
<i>Medicago lupulina</i>	Black Medick	—	—	SE5	—	—	0	3
<i>Morus alba</i>	White Mulberry	—	—	SE5	—	—	0	0
<i>Oenothera biennis</i>	Common Evening-primrose	—	—	S5	R1	H?	0	3
<i>Panicum capillare</i>	Common Panicgrass	—	—	S5	—	—	0	0
<i>Parthenocissus vitacea</i>	Thicket Creeper	—	—	S5	—	—	4	3
<i>Phalaris arundinacea</i>	Reed Canarygrass	—	—	S5	—	—	0	-3
<i>Phleum pratense</i>	Common Timothy	—	—	SE5	—	—	0	3
<i>Picea pungens</i>	Blue Spruce	—	—	SE1	—	—	0	3
<i>Pinus sylvestris</i>	Scots Pine	—	—	SE5	—	—	0	3
<i>Plantago lanceolata</i>	English Plantain	—	—	SE5	—	—	0	3
<i>Plantago major</i>	Common Plantain	—	—	SE5	—	—	0	3
<i>Poa compressa</i>	Canada Bluegrass	—	—	SE5	—	—	0	3
<i>Populus deltoides</i>	Eastern Cottonwood	—	—	S5	—	—	4	0
<i>Populus grandidentata</i>	Large-toothed Aspen	—	—	S5	—	—	5	3
<i>Populus tremuloides</i>	Trembling Aspen	—	—	S5	—	—	2	0
<i>Potentilla recta</i>	Sulphur Cinquefoil	—	—	SE5	—	—	0	5
<i>Prunella vulgaris ssp. vulgaris</i>	Common Self-heal	—	—	SE3	—	—	0	0
<i>Prunus serotina</i>	Black Cherry	—	—	S5	—	—	3	3
<i>Prunus virginiana</i>	Chokecherry	—	—	S5	—	—	2	3
<i>Pyrus communis</i>	Common Pear	—	—	SE4	—	—	0	5
<i>Quercus macrocarpa</i>	Bur Oak	—	—	S5	—	—	5	3
<i>Ranunculus acris</i>	Common Buttercup	—	—	SE5	—	—	0	0
<i>Rhus typhina</i>	Staghorn Sumac	—	—	S5	—	—	1	3
<i>Robinia pseudoacacia</i>	Black Locust	—	—	SE5	—	—	0	3
<i>Rosa multiflora</i>	Multiflora Rose	—	—	SE5	—	—	0	3
<i>Rubus idaeus</i>	Red Raspberry	—	—	S5	—	—	2	3
<i>Rumex crispus</i>	Curled Dock	—	—	SE5	—	—	0	0
<i>Salix amygdaloides</i>	Peach-leaved Willow	—	—	S5	U	—	6	-3
<i>Salix interior</i>	Sandbar Willow	—	—	S5	U	—	1	-3
<i>Setaria pumila</i>	Yellow Foxtail	—	—	SE5	—	—	0	0
<i>Solanum dulcamara</i>	Bittersweet Nightshade	—	—	SE5	—	—	0	0
<i>Solidago altissima</i>	Tall Goldenrod	—	—	S5	—	—	1	3
<i>Solidago canadensis</i>	Canada Goldenrod	—	—	S5	—	—	1	3
<i>Solidago gigantea</i>	Giant Goldenrod	—	—	S5	U	HU	4	-3
<i>Solidago nemoralis</i>	Grey-stemmed Goldenrod	—	—	S5	—	—	2	5
<i>Sonchus arvensis</i>	Field Sow-thistle	—	—	SE5	—	—	0	3
<i>Sorbus aucuparia</i>	European Mountain-ash	—	—	SE4	—	—	0	5
<i>Symphyotrichum cordifolium</i>	Heart-leaved Aster	—	—	S5	—	—	5	5
<i>Symphyotrichum ericoides</i>	White Heath Aster	—	—	S5	—	—	4	3
<i>Symphyotrichum lanceolatum</i>	Panicled Aster	—	—	S5	—	—	3	-3

Scientific Name	Common Name	COSEWIC	SARO	SRank ^a	Halton Status		Coefficient of Conservatism ^b	Coefficient of Wetness ^c
					Varga, 2005	Crins et al., 2006		
<i>Symphyotrichum novae-angliae</i>	New England Aster	—	—	S5	—	—	2	-3
<i>Symphyotrichum urophyllum</i>	Arrow-leaved Aster	—	—	S4	R5	HU	6	5
<i>Taraxacum officinale</i>	Common Dandelion	—	—	SE5	—	—	0	3
<i>Tilia cordata</i>	Little-leaved Linden	—	—	SE1	—	—	0	5
<i>Tragopogon pratensis</i>	Meadow Goatsbeard	—	—	SE5	—	—	0	5
<i>Trifolium pratense</i>	Red Clover	—	—	SE5	—	—	0	3
<i>Trifolium repens</i>	White Clover	—	—	SE5	—	—	0	3
<i>Typha angustifolia</i>	Narrow-leaved Cattail	—	—	SE5	—	—	0	-5
<i>Ulmus americana</i>	White Elm	—	—	S5	—	—	3	-3
<i>Ulmus pumila</i>	Siberian Elm	—	—	SE3	—	—	0	3
<i>Verbena urticifolia</i>	White Vervain	—	—	S5	—	—	4	0
<i>Viburnum opulus</i>	Cranberry Viburnum	—	—	S5	—	—	5	-3
<i>Vicia cracca</i>	Tufted Vetch	—	—	SE5	—	—	0	5
<i>Vincetoxicum rossicum</i>	European Swallowwort	—	—	SE5	—	—	0	5
<i>Vitis riparia</i>	Riverbank Grape	—	—	S5	—	—	0	0

a – S-Rank (from Natural Heritage Information Centre) for breeding status: S1 (Extremely Rare), S2 (Very Rare), S3 (Rare to Uncommon) (S4 (Common), S5 (Very Common) SNA (Not applicable...because the species is not a suitable target for conservation activities'; includes non-native species)

b,c – Oldham, M.J., W.D. Bakowsky, and D.A. Sutherland. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ontario Ministry of Natural Resources, Peterborough, Ontario, Canada.

Appendix B-3

Tableland Tree Inventory

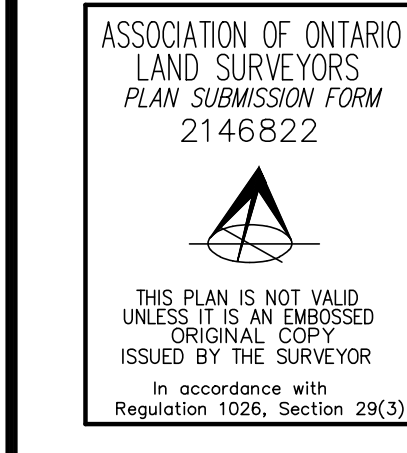
LEGEND	
1	CONCRETE MONUMENT FOUND
2	CONCRETE MONUMENT SET
3	CONCRETE CONCRETE PIN WITH WASHER
4	CONCRETE IRON BAR
5	CONCRETE STANCHION IRON BAR
6	CONCRETE ROUND IRON BAR
7	CONCRETE SPIKE STANDARD IRON BAR
8	CONCRETE PROPERTY IDENTIFIER NUMBER
9	CONCRETE PLAN 20R-20243
10	CONCRETE PLAN 20R-20243
11	CONCRETE PLAN 20R-20243
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100	CONCRETE PLAN 20R-20243

REVISION NOTE
 SURVEY AMENDED TO INCORPORATE HC STAKED TOP OF BANK AND METLAND LIMITS ON JULY 16, 2021
 SURVEY AMENDED TO INCORPORATE ADDITIONAL TOPOGRAPHY, STAKING LIMIT AND FENCING JULY 30, 2021
 SURVEY AMENDED TO INCORPORATE TREE TAG INVENTORY NOVEMBER 2, 2021
 SURVEY AMENDED TO INCORPORATE STAKED TOP LINE ON NOVEMBER 22, 2021

PLAN OF SURVEY
SHOWING TOPOGRAPHIC DETAIL OF
PART OF LOT 15
CONCESSION 2, NEW SURVEY
 (GEOGRAPHIC TOWNSHIP OF TRAFALGAR)
AND PART OF LOT 7
REGISTERED PLAN 364
TOWN OF MILTON
 REGIONAL MUNICIPALITY OF HALTON
 SCALE 1:1000
 10 20 30 40 50 60 70 80 90 100 110 m
 C. WAHBA SURVEYING LTD.
METRIC
 DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES
 AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.
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ELEVATION NOTE
 ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM GPS OBSERVATIONS.

INTEGRATION NOTE
 COORDINATES ARE UTM ZONE 17, NAD83 (ORIGINAL) TO UTM ZONE 17, NAD 83 (ORIGINAL)
 REAL TIME NETWORK (RTN), UTM ZONE 17, NAD 83 (ORIGINAL)
 GRS 80 NORTH 4 888 887.05 EAST 588 094.13
 COORDINATES ARE UTM ZONE 17, NAD83 (ORIGINAL) TO UTM ZONE 17, NAD 83 (ORIGINAL)
 OF ORDER 6 AND CANNOT BE USED TO RE-ESTABLISH CORNERS OF BOUNDARIES.
 DISTANCES ARE GEODETIC AND CAN BE CONVERTED TO FEET BY
 MULTIPLYING BY THE CORRECTED SCALE FACTOR OF 0.999997.



SURVEYOR'S CERTIFICATE
 I CERTIFY THAT:
 1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYORS ACT, THE
 SURVEYORS REGULATION AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
 2. THE SURVEY WAS COMPLETED ON THE 12th DAY OF MAY, 2021.
 DATE
 C. WAHBA
 ONTARIO LAND SURVEYOR

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WAHBA SURVEYING	

DRAWING 2

Appendix B-4

Breeding Birds

Appendix B-4

Breeding Bird List

Common Name	Scientific Name	Status				# Breeding Pairs/ Territories Observed by Beacon Environmental (2021)
		National Species at Risk COSEWIC ^a	Species at Risk in Ontario Listing ^b	Provincial breeding season SRANK ^c	Area- sensitive (OMNR) ^d	
Canada Goose	<i>Branta canadensis</i>			S5		2
Wood Duck	<i>Aix sponsa</i>			S5		1
Turkey Vulture	<i>Cathartes aura</i>			S5		1
Killdeer	<i>Charadrius vociferus</i>			S5		1
Mourning Dove	<i>Zenaida macroura</i>			FS5		2
Hairy Woodpecker	<i>Dryobates villosus</i>			S5	A	1
Northern Flicker	<i>Colaptes auratus</i>			S4		1
Eastern Wood-Pewee	<i>Contopus virens</i>	SC	SC	S4		1
Great Crested Flycatcher	<i>Myiarchus crinitus</i>			S4		1
Blue Jay	<i>Cyanocitta cristata</i>			S5		2
American Crow	<i>Corvus brachyrhynchus</i>			S5		1
Black-capped Chickadee	<i>Poecile atricapillus</i>			S5		2
House Wren	<i>Troglodytes aedon</i>			S5		4
American Robin	<i>Turdus migratorius</i>			S5		3
Gray Catbird	<i>Dumetella carolinensis</i>			S4		3
Cedar Waxwing	<i>Bombycilla cedrorum</i>			S5		1
European Starling	<i>Sturnus vulgaris</i>			SE		4
Warbling Vireo	<i>Vireo gilvus</i>			S5		1
Red-eyed Vireo	<i>Vireo olivaceus</i>			S5		2
Yellow Warbler	<i>Setophaga petechia</i>			S5		2
Blackpoll Warbler	<i>Setophaga striata</i>			S4		migrant
Black-and-white Warbler	<i>Mniotilta varia</i>			S5	A	1
American Redstart	<i>Setophaga ruticilla</i>			S5	A	2

Common Name	Scientific Name	Status				# Breeding Pairs/ Territories Observed by Beacon Environmental (2021)
		National Species at Risk COSEWIC ^a	Species at Risk in Ontario Listing ^b	Provincial breeding season SRANK ^c	Area- sensitive (OMNR) ^d	
Common Yellowthroat	<i>Geothlypis trichas</i>			S5		5
Northern Cardinal	<i>Cardinalis cardinalis</i>			S5		3
Indigo Bunting	<i>Passerina cyanea</i>			S4		1
Field Sparrow	<i>Spizella pusilla</i>			S4		1
Savannah Sparrow	<i>Passerculus sandwichensis</i>			S4	A	1
Song Sparrow	<i>Melospiza melodia</i>			S5		7
Swamp Sparrow	<i>Melospiza georgiana</i>			S5		1
Red-winged Blackbird	<i>Agelaius phoeniceus</i>			S4		5
Common Grackle	<i>Quiscalus quiscula</i>			S5		2
Brown-headed Cowbird	<i>Molothrus ater</i>			S4		1
Baltimore Oriole	<i>Icterus galbula</i>			S4		4
American Goldfinch	<i>Spinus tristis</i>			S5		1
House Sparrow	<i>Passer domesticus</i>			SNA		2

= Maximum number of breeding pairs recorded on subject property

a - COSEWIC = Committee on the Status of Endangered Wildlife in Canada: END = Endangered, THR = Threatened, SC = Special Concern

b - Species at Risk in Ontario List (as applies to ESA) as designated by COSSARO (Committee on the Status of Species at Risk in Ontario): END = Endangered, THR = Threatened, SC = Special Concern

c - SRANK (from Natural Heritage Information Centre) for breeding status if: S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure) SNA (Not applicable, as the species is not a suitable target for conservation activities; includes non-native species)

d - Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide (Appendix G). 151 p plus appendices.

Appendix B-5

Raptor Habitat Field Map



150 Steeles Avenue Milton CEMS

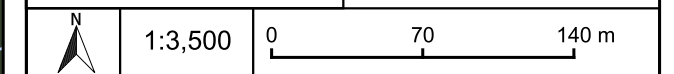
Legend

- Subject Property
- Ecological Communities
- Watercourse (MNRF 2021)
- Potential stick nest – no use observed

Unit Number	ELC Code	Ecological Communities
1	ANT	Anthropogenic (units 1.1 - 1.25)
2	CUW1	Mineral Cultural Woodland (units 2.0 - 2.5)
3	CUM1	Mineral Cultural Meadow (units 3.1 - 3.3)
4	CUS1	Mineral Cultural Savannah (units 4.1 - 4.8)
5	SWT2-5	Red-osier Mineral Thicket Swamp (units 5.1 - 5.2)
6	FOD4	Dry - Fresh Deciduous Forest (unit 6.0 - 6.2)
7	MAM2	Mineral Meadow Marsh (units 7.1 - 7.7)
8	SA	Shallow Water (unit 8.0 - 8.3)
9	MAS2-1	Cattail Mineral Shallow Marsh (unit 9.0)
10	FOD5	Dry - Fresh Sugar Maple Deciduous Forests (units 10.0 - 10.1)
11	CUT	Cultural Thicket (unit 11)

BEACON ENVIRONMENTAL Project: 221265
Last Revised: February 2023

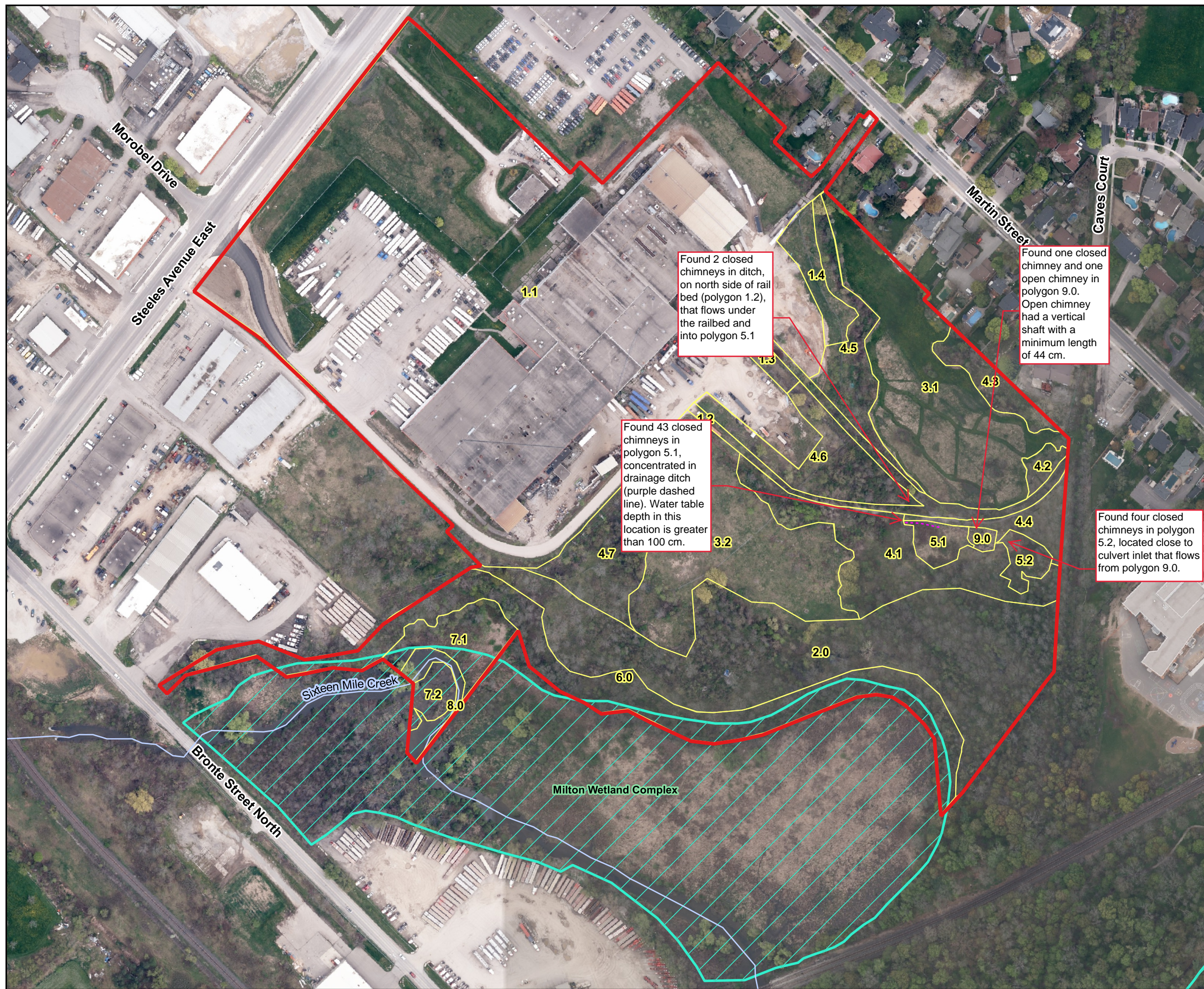
Client: 150 Steeles Milton Inc. Prepared by: SZ Checked by: KU **DRAFT**



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Appendix B-6

Terrestrial Crayfish Field Notes



Chimney Crayfish Locations **Figure**

150 Steeles Avenue Milton EIS

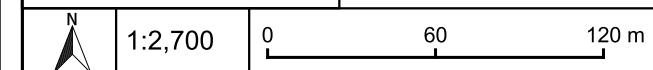
Legend

- Subject Property
- ELC
- Evaluated Wetland - Not Provincially Significant (MNR 2021)
- Watercourse (MNR 2021)

Unit Number	ELC Code	Ecological Communities
1	ANT	Anthropogenic (units 1.1 - 1.4)
2	CUW1	Mineral Cultural Woodland (units 2.0)
3	CUM1	Mineral Cultural Meadow (units 3.1 - 3.2)
4	CUS1	Mineral Cultural Savannah (units 4.1 - 4.7)
5	SWT2-5	Red-osier Mineral Thicket Swamp (units 5.1 - 5.2)
6	FOD4	Dry - Fresh Deciduous Forest (unit 6.0)
7	MAM2	Mineral Meadow Marsh (units 7.1 - 7.2)
8	SA	Shallow Water (unit 8.0)
9	MAS2-1	Cattail Mineral Shallow Marsh (unit 9.0)

BEACON ENVIRONMENTAL Project: 221265
Last Revised: February 2022

Client: Neatt Communities Prepared by: MD Checked by: KU **DRAFT**



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Appendix B-7

Significant Wildlife Habitat Evaluation

Appendix B-7

Table.1 Significant Wildlife Habitat (SWH) Assessment

Wildlife Habitat Category and Associated Species*	ELC Communities	Provincial Guidance for Ecoregion 7E*	SWH Potential Applicable to the Subject Property and Adjacent Lands
Seasonal Concentration Areas			
Waterfowl Stopover and Staging Areas (Terrestrial) American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan	CUM1 CUT1 Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Suitable Habitat <ul style="list-style-type: none"> Fields with sheet water during Spring (mid-March to May) Suggested Criteria <ul style="list-style-type: none"> Studies carried out and verified presence of an annual concentration of any listed species 	<ul style="list-style-type: none"> No suitable habitat or associated species present on the subject property. Habitat type was not identified in adjacent lands through background review and field surveys.
Waterfowl Stopover and Staging Areas (Aquatic) Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	Suitable Habitat <ul style="list-style-type: none"> Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration Sewage treatment ponds and storm water ponds do not qualify as SWH, however a reservoir managed as a large wetland or pond/lake does qualify These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water) Suggested Criteria Studies carried out and verified presence of: <ul style="list-style-type: none"> Aggregations of 100 or more of listed species for 7 days, results in > 700 waterfowl use days Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH Wetland area and shorelines associated with sites identified within the Significant Wildlife Habitat Technical Guide (SWHTG) (MNR 2000) Appendix K are SWH 	<ul style="list-style-type: none"> No suitable habitat on the subject property. Habitat type was not identified in adjacent lands through background review and field surveys.
Shorebird Migratory Stopover Area Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2	Suitable Habitat <ul style="list-style-type: none"> Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH Suggested Criteria	<ul style="list-style-type: none"> No suitable habitat or associated species observed on the subject property. Habitat type was not identified in adjacent lands through background review and field surveys.

Wildlife Habitat Category and Associated Species*	ELC Communities	Provincial Guidance for Ecoregion 7E*	SWH Potential Applicable to the Subject Property and Adjacent Lands
Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	<ul style="list-style-type: none"> Presence of 3 or more of listed species and > 1000¹ shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100 m radius area 	
Raptor Wintering Area Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. Bald Eagle: Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area)	Suitable Habitat <ul style="list-style-type: none"> The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors Raptor wintering (hawk/owl) sites need to be > 20 ha with a combination of forest and upland Suggested Criteria Studies confirm the use of these habitats by: <ul style="list-style-type: none"> One or more Short-eared Owls or; One or more Bald Eagles or at least 10 individuals and two listed hawk/owl species To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area 	<ul style="list-style-type: none"> No suitable habitat on the subject property or adjacent lands.
Bat Hibernacula Big Brown Bat Tri-colored Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	Suitable Habitat <ul style="list-style-type: none"> Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. Suggested Criteria <ul style="list-style-type: none"> All sites with confirmed hibernating bats are SWH The area includes 200m radius around the entrance of the hibernaculum for most development types and for wind farms 	<ul style="list-style-type: none"> No suitable habitat on the subject property. Habitat type was not identified in adjacent lands through background review and field surveys.
Bat Maternity Colonies Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	Suitable Habitat <ul style="list-style-type: none"> Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH) Maternity colonies located in mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees Female bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2 Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred Suggested Criteria <ul style="list-style-type: none"> Maternity colonies with confirmed use by: <ul style="list-style-type: none"> >10 Big Brown Bats >5 Adult Female Silver-haired Bats 	<ul style="list-style-type: none"> Possible in Adjacent Lands (ELC Unit 10 - FOD5) — Further field investigations and analysis required to confirm No suitable habitat on subject property. While Big Brown Bat and Silver-Haired bat were detected through acoustic monitoring, suitable roosting habitat is not present on Subject Property based on consideration of the criteria in the left columns: <ul style="list-style-type: none"> Tableland portion of the subject property support CUW not FOD. Only the valley slope supports FOD, however this is a very small narrow area and not a mature forest stand.

Wildlife Habitat Category and Associated Species*	ELC Communities	Provincial Guidance for Ecoregion 7E*	SWH Potential Applicable to the Subject Property and Adjacent Lands
		<ul style="list-style-type: none"> - The area of the habitat includes the entire woodland or the forest stand ELC Ecosite or an Ecoelement containing the maternity colonies 	<ul style="list-style-type: none"> o There are no other mature forest stands on the subject property. o There are no older forest areas on the subject property. o In the absence of mark recapture or radio telemetry studies, it is not possible to confirm the criterion of more than 10 Big Brown Bats, as MNRF discourages such investigations due to the potential to harm bats. o In the absence of mark recapture and sexing, it is not possible to confirm the criterion of use by more than five adult female Silver-Haired Bats, as MNRF discourages such investigations due to the potential to harm bats.
Turtle Wintering Areas Midland Painted Turtle Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles; ELC Community Classes; SW, MA, OA and SA, ELC Community Series; FEO and BOO Northern Map Turtle; Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering	Suitable Habitat <ul style="list-style-type: none"> • For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH Suggested Criteria <ul style="list-style-type: none"> • Presence of 5 over-wintering Midland Painted Turtles is significant • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH 	<ul style="list-style-type: none"> • No turtles observed in potential habitat (Sixteen Mile Creek) on the subject property. Habitat type was not identified in adjacent lands through background review and field surveys.
Reptile Hibernaculum Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Milksnake Eastern Ribbonsnake	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator.	Suitable Habitat <ul style="list-style-type: none"> • For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations • The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying Candidate SWH • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover Suggested Criteria Studies confirming: <ul style="list-style-type: none"> • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (e.g. foundation or rocky slope) on sunny warm days in spring 	<ul style="list-style-type: none"> • No snakes observed in potential habitat on the subject property. Habitat type was not identified in adjacent lands through background review and field surveys.
Colonially-Nesting Bird Breeding Habitat (Bank and Cliff) Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be	sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1	Suitable Habitat <ul style="list-style-type: none"> • Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles • Does not include a licensed/permitted Mineral Aggregate Operation 	<ul style="list-style-type: none"> • No suitable habitat or associated species observed on the subject property. Habitat type was not identified in adjacent lands through background review and field surveys.

Wildlife Habitat Category and Associated Species*	ELC Communities	Provincial Guidance for Ecoregion 7E*	SWH Potential Applicable to the Subject Property and Adjacent Lands
found in Cliff Swallow colonies)	CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	Suggested Criteria Studies confirming: <ul style="list-style-type: none"> • Presence of 1 or more nesting sites with 8 or more cliff swallow pairs or 50 bank swallow and/or rough-winged swallow pairs during the breeding season • A colony identified as SWH will include a 50m radius habitat area from the peripheral nests 	
Colonially-Nesting Bird Breeding Habitat (Tree/Shrubs) Great Blue Heron Black-crowned Night-Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	Suitable Habitat <ul style="list-style-type: none"> • Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used • Most nests in trees are 11 to 15 m from ground, near the top of the tree Suggested Criteria Studies confirming: <ul style="list-style-type: none"> • Presence of 2 or more active nests of Great Blue Heron or other listed species • The habitat extends from the edge of the colony and a minimum 300m radius or extent of the forest ecosite containing the colony or any island <15.0 ha with a colony is the SWH 	<ul style="list-style-type: none"> • Possible in Adjacent Lands (e.g., ELC Unit 7.3) — No suitable habitat or associated species observed on the subject property or adjacent lands. The Provincial database (LIO) notes there is a Mixed Wader Colony Wildlife Concentration Area within the 1 km grid, which is provincially tracked; therefore, this habitat is assumed to be present in the wetlands outside of the Study Area. • Only one territory of Green Heron was observed during surveys.
Colonially-Nesting Bird Breeding Habitat (Ground) Herring Gull Great Black-backed Gull Little Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6; MAS1 – 3; CUM CUT CUS	Suitable Habitat <ul style="list-style-type: none"> • Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands Suggested Criteria Studies confirming: <ul style="list-style-type: none"> • Presence of >25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant • Presence of 5 or more pairs for Brewer's Blackbird • The edge of the colony and a minimum 150m area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH 	<ul style="list-style-type: none"> • No suitable habitat or associated species observed on the subject property. Habitat type was not identified in adjacent lands through background review and field surveys.
Migratory Butterfly Stopover Areas Painted Lady Red Admiral Monarch	Combination of ELC Community Series; need to have present one Community Series from each landclass: Field: CUM CUT CUS Forest: FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	Suitable Habitat <ul style="list-style-type: none"> • A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario or Lake Erie • The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest Suggested Criteria Studies confirm: <ul style="list-style-type: none"> • The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. • Numbers of butterflies can range from 100-500/day - significant variation can occur between years and multiple years of sampling should occur • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admirals is to be considered significant 	<ul style="list-style-type: none"> • No — The subject property and adjacent lands are not within 5 km of Lake Ontario or Lake Erie

Wildlife Habitat Category and Associated Species*	ELC Communities	Provincial Guidance for Ecoregion 7E*	SWH Potential Applicable to the Subject Property and Adjacent Lands
<p>Landbird Migratory Stopover Areas All migratory songbirds</p>	<p>All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD</p>	<p>Suitable Habitat</p> <ul style="list-style-type: none"> Woodlots >5 ha in size and within 5 km of Lake Ontario and Lake Erie If woodlands are rare in an area of shoreline, woodland fragments 2 ha to 5ha can be considered for this habitat If multiple woodlands are located along the shoreline those Woodlands <2 km from Lake Erie or Ontario are more significant Sites have a variety of habitats; forest, grassland and wetland complexes The largest sites are more significant Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5km of Lake Ontario are Candidate SWH <p>Suggested Criteria Studies confirm:</p> <ul style="list-style-type: none"> Use of the woodlot by >200 birds/day and with >35 species with at least 10 bird spp. recorded on at least 5 different survey dates This abundance and diversity of migrant bird species is considered above average and significant 	<ul style="list-style-type: none"> No — The subject property and adjacent lands are not within 5 km of Lake Ontario or Lake Erie
<p>Deer Winter Congregation Areas White-tailed Deer</p>	<p>All Forested Ecosites with these ELC Community Series; FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.</p>	<p>Suitable Habitat</p> <ul style="list-style-type: none"> Woodlots >100 ha in size or if large woodlots are rare in a planning area woodlots >50 ha Deer movement during winter in Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands Large woodlots > 100 ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha Woodlots with high densities of deer due to artificial feeding are not significant <p>Suggested Criteria Studies confirm:</p> <ul style="list-style-type: none"> Deer management is an MNR responsibility, deer winter congregation areas considered significant will be mapped by MNRF Use of the woodlot by white-tailed deer will be determined by MNR, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF 	<ul style="list-style-type: none"> No suitable habitat identified on the subject property or adjacent lands.
Rare Vegetation Communities			
<p>Cliffs and Talus Slopes</p>	<p>Any ELC Ecosite within Community Series: TAO CLO TAS CLS TAT CLT</p>	<ul style="list-style-type: none"> A Cliff is vertical to near vertical bedrock >3m in height A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris Most cliff and talus slopes occur along the Niagara Escarpment <p>Suggested Criteria</p> <ul style="list-style-type: none"> ELC Communities: TAO, TAS, TAT, CLO, CLS or CLT 	<ul style="list-style-type: none"> No suitable habitat on the subject property or adjacent lands.
<p>Sand Barren</p>	<p>ELC Ecosites: SBO1 SBS1 SBT1</p> <p>Vegetation cover varies from patchy and barren to continuous meadow, (SBO1), thicket-like (SBS1), or more closed and treed</p>	<ul style="list-style-type: none"> Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion Usually located within other types of natural habitat such as forest or savannah Vegetation can vary from patchy and barren to tree covered but less than 60% <p>Suggested Criteria</p> <ul style="list-style-type: none"> A sand barren area >0.5 ha in size ELC Communities: SBO1, SBS1, SBT1 	<ul style="list-style-type: none"> No suitable habitat on the subject property or adjacent lands.

Wildlife Habitat Category and Associated Species*	ELC Communities	Provincial Guidance for Ecoregion 7E*	SWH Potential Applicable to the Subject Property and Adjacent Lands
Alvar	<p>(SBT1). Tree cover always < 60%.</p> <p>ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2</p> <p>Five Alvar Indicator Species: 1) <i>Carex crawei</i> 2) <i>Panicum philadelphicum</i> 3) <i>Eleocharis compressa</i> 4) <i>Scutellaria parvula</i> 5) <i>Trichostema brachiatum</i></p> <p>These indicator species are very specific to Alvars within Ecoregion 7E</p>	<ul style="list-style-type: none"> Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics) An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil The hydrology of alvars is complex, with alternating periods of inundation and drought Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover <p>Suggested Criteria</p> <ul style="list-style-type: none"> An Alvar site > 0.5 ha in size Alvar is particularly rare in ecoregion 7E where the only known sites are found in the western islands of Lake Erie Five indicator species specific to alvars within Ecoregion 7E: 1) <i>Carex crawei</i> 2) <i>Panicum philadelphicum</i> 3) <i>Eleocharis compressa</i> 4) <i>Scutellaria parvula</i> 5) <i>Trichostema brachiatum</i> Field studies identify four of the five Alvar indicator species within ELC communities: ALO1, ALS1, ALT1, FOC1, FOC2, CUM2, CUS2, CUT2-1, CUW2 Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics) The Alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses 	<ul style="list-style-type: none"> No suitable habitat observed on the subject property or adjacent lands.
Old Growth Forest	<p>Community Series: FOD FOC FOM SWD SWC SWM</p>	<ul style="list-style-type: none"> Old-growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris. <p>Suggested Criteria</p> <ul style="list-style-type: none"> Woodland area is >0.5 ha If dominant trees species of the ecosite are >140 years old, then stand is SWH The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present) The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH 	<ul style="list-style-type: none"> No suitable habitat on the subject property or adjacent lands.
Savannah	<p>TPS1 TPS2 TPW1 TPW2 CUS2</p>	<ul style="list-style-type: none"> A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60% In ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario) <p>Suggested Criteria</p> <ul style="list-style-type: none"> No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH Field studies confirm one or more of the Prairie indicator species listed in Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 7E should be used Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics) 	<ul style="list-style-type: none"> No suitable habitat on the subject property or adjacent lands.
Tallgrass Prairie	<p>TPO1 TPO2</p>	<ul style="list-style-type: none"> A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover 	<ul style="list-style-type: none"> No suitable habitat on the subject property or adjacent lands.

Wildlife Habitat Category and Associated Species*	ELC Communities	Provincial Guidance for Ecoregion 7E*	SWH Potential Applicable to the Subject Property and Adjacent Lands
		<ul style="list-style-type: none"> In ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario) <p>Suggested Criteria</p> <ul style="list-style-type: none"> No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH ELC communities TPO1, TPO2 Field studies confirm one or more of the Prairie indicator species listed in Appendix N in SWHTG (MNR 2000) should be present Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics) 	
<p>Other Rare Vegetation Communities</p>	<p>Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.</p>	<ul style="list-style-type: none"> Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG (MNR 2000) Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in SWHTG (MNR 2000) Appendix M The MNR/NHIC will have up to date listing for rare vegetation communities 	<ul style="list-style-type: none"> No rare vegetation communities observed on subject property or adjacent lands.
<p>Specialized Habitat for Species</p>			
<p>Waterfowl Nesting Area American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard</p>	<p>All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4</p>	<p>Suitable Habitat</p> <ul style="list-style-type: none"> A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5 ha) with small wetlands (<0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur Upland areas should be at least 120m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests <p>Suggested Criteria Studies confirmed:</p> <ul style="list-style-type: none"> Presence of 3 or more nesting pairs for listed species excluding Mallards, or presence of 10 or more nesting pairs for listed species including Mallards Any active nesting site of an American Black Duck is considered significant Wood Ducks and Hooded Mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites 	<ul style="list-style-type: none"> No suitable habitat or associated species observed on the subject property.
<p>Bald Eagle and Osprey Nesting, Foraging and Perching Habitat</p>	<p>ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands</p>	<p>Suitable Habitat</p> <ul style="list-style-type: none"> Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms) <p>Suggested Criteria Studies confirm the use of these nests by:</p> <ul style="list-style-type: none"> One or more active Osprey or Bald Eagle nests in an area Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH ^{ccvii}, maintaining undisturbed shorelines with large trees within this area is important 	<ul style="list-style-type: none"> No associated species or nests observed on the subject property or adjacent lands.

Wildlife Habitat Category and Associated Species*	ELC Communities	Provincial Guidance for Ecoregion 7E*	SWH Potential Applicable to the Subject Property and Adjacent Lands
		<ul style="list-style-type: none"> For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant 	
Woodland Raptor Nesting Habitat Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD, CUP3	Suitable Habitat <ul style="list-style-type: none"> All natural or conifer plantation woodland/forest stands combined >30ha or with >4 ha of interior habitat. Interior habitat determined with a 200 m buffer Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on peninsulas or small off-shore island In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest Suggested Criteria Studies confirm: <ul style="list-style-type: none"> Presence of 1 or more active nests from species list is considered significant Red-shouldered Hawk and Northern Goshawk – a 400m radius around the nest or 28 ha of suitable habitat is the SWH. (the 28-ha habitat area would be applied where optimal habitat is irregularly shaped around the nest) Barred Owl – a 200m radius around the nest is the SWH Broad-winged Hawk and Cooper's Hawk, – a 100m radius around the nest is the SWH Sharp-Shinned Hawk – a 50m radius around the nest is the SWH 	<ul style="list-style-type: none"> Presumed Present <ul style="list-style-type: none"> Three (3) old stick nests observed adjacent to staked dripline on Subject Property (ELC Unit 2.0). Nests were size of Cooper's Hawk Nests One large squirrel drey in adjacent lands (ELC Unit 10.0)
Turtle Nesting Areas Midland Painted Turtle Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) cxlviii or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	Suitable Habitat <ul style="list-style-type: none"> Exposed mineral soil (sand or gravel) areas adjacent (<100 m) to within the following Ecosites: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, BOO1, FEO1 Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used Suggested Criteria Studies confirm: <ul style="list-style-type: none"> Presence of 5 or more nesting Midland Painted Turtles One or more Northern Map Turtle or Snapping Turtle nesting The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependant on slope, riparian vegetation and adjacent land use is the SWH Travel routes from wetland to nesting area are to be considered within the SWH 	<ul style="list-style-type: none"> No associated species or habitat observed on the subject property. Habitat type was not identified in adjacent lands through background review and field surveys.
Seeps and Springs Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Suitable Habitat <ul style="list-style-type: none"> Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system (could contain a seep or spring - areas where ground water comes to the surface) Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat 	<ul style="list-style-type: none"> No seeps or springs observed on the subject property. Habitat type was not identified in adjacent lands through background review and field surveys.

Wildlife Habitat Category and Associated Species*	ELC Communities	Provincial Guidance for Ecoregion 7E*	SWH Potential Applicable to the Subject Property and Adjacent Lands
		<p>Suggested Criteria Studies confirm:</p> <ul style="list-style-type: none"> • Presence of a site with 2 or more seeps/springs should be considered SWH • The area of an ELC forest ecosite containing the seeps/springs is the SWH 	
<p>Amphibian Breeding Habitat (Woodland) Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog</p>	<p>All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD</p> <p>Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians</p>	<p>Suitable Habitat</p> <ul style="list-style-type: none"> • Presence of a wetland, pond, or woodland pool within or adjacent (within 120 m) to a woodland (no minimum size) • Some small wetlands may not be mapped and may be important breeding pools for amphibians • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat <p>Suggested Criteria Studies confirm;</p> <ul style="list-style-type: none"> • Presence of breeding population of 1 or more of the listed salamander species or 2 or more of the listed frog species with at least 20 individuals (adults, juveniles, eggs/larval masses) or 2 or more of the listed frog species with Call Level Codes of 3 	<ul style="list-style-type: none"> • Yes — Spring Peeper (call code 3) and some Gray Treefrog were breeding in the woodland and wetland habitat on subject property (ELC Units 5.1, 2.0, and 6.0) and on adjacent lands (ELC Unit 7.3).
<p>Amphibian Breeding Habitat (Wetland) Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog</p>	<p>ELC Community Classes SW, MA, FE, BO, OA and SA.</p> <p>Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands</p>	<p>Suitable Habitat</p> <ul style="list-style-type: none"> • Wetlands >500 m² (about 25 m diameter) supporting high species diversity are significant • Some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators • Bullfrogs require permanent water bodies with abundant emergent vegetation. <p>Suggested Criteria Studies confirm:</p> <ul style="list-style-type: none"> • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog or toad species and with at least 20 individuals (adults, juveniles, eggs/larval masses) or 2 or more of the listed frog species with Call Level Codes of 3 • The ELC ecosite wetland area and the shoreline are the SWH 	<ul style="list-style-type: none"> • No suitable habitat or associated species observed on the subject property or adjacent lands.
<p>Woodland Area-Sensitive Bird Breeding Habitat Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Pileated Woodpecker Cerulean Warbler Canada Warbler</p>	<p>All Ecosites associated with these ELC Community Series; FOC FOM FOD SWC SWM SWD</p>	<p>Suitable Habitat</p> <ul style="list-style-type: none"> • Habitats where interior forest breeding birds are breeding • Typically large mature (>60 yrs old) forest stands or woodlots >30 ha • Interior forest habitat is at least 200 m from forest edge habitat <p>Suggested Criteria Studies confirm:</p> <ul style="list-style-type: none"> • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • Any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH 	<ul style="list-style-type: none"> • No suitable habitat (large mature or interior forest) on the subject property or adjacent lands. Two territories of American Redstart, one territory of Black-and-white Warbler, and one territory of Hairy Woodpecker were observed in the cultural savannah fragments on the subject property (ELC Units 4.2, 4.3, 4.4, and 4.6)

Wildlife Habitat Category and Associated Species*	ELC Communities	Provincial Guidance for Ecoregion 7E*	SWH Potential Applicable to the Subject Property and Adjacent Lands
Habitat for Species of Conservation Concern			
Marsh Bird Breeding Habitat American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Green Heron Trumpeter Swan Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	Suitable Habitat <ul style="list-style-type: none"> Nesting occurs in wetlands All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water Suggested Criteria Studies confirm: <ul style="list-style-type: none"> Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species Note: any wetland with breeding of 1 or more Trumpeter Swans, Black Terns or Yellow Rail is SWH Area of the ELC ecosite is the SWH 	<ul style="list-style-type: none"> No — While suitable habitat is present in the Sixteen Mile Creek valleylands, only Green Heron were observed in these wetlands. An insufficient number of species were observed for this habitat to be considered significant.
Open Country Bird Breeding Habitat Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Short-eared Owl	CUM1, CUM2	Suitable Habitat <ul style="list-style-type: none"> Large grassland areas (includes natural and cultural fields and meadows) >30 ha Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years) Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species Suggested Criteria Field Studies confirm: <ul style="list-style-type: none"> Presence of nesting or breeding of 2 or more of the listed species A field with 1 or more breeding Short-eared Owls is to be considered SWH. The area of SWH is the contiguous ELC ecosite field areas 	<ul style="list-style-type: none"> No suitable habitat observed on the subject property or adjacent lands. One territory of Savannah Sparrow was observed in ELC Unit 1.1 (ANT), within 50 metres of Steeles Avenue East.
Shrub/Early Successional Bird Breeding Habitat <u>Indicator Species:</u> Brown Thrasher Clay-coloured Sparrow <u>Common Species:</u> Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher <u>Special Concern:</u> Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2	Suitable Habitat <ul style="list-style-type: none"> Large natural field areas succeeding to shrub and thicket habitats >10ha^{CLxiv} in size. Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years) Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. Suggested Criteria Field Studies confirm: <ul style="list-style-type: none"> Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat The area of the SWH is the contiguous ELC ecosite field/thicket area 	<ul style="list-style-type: none"> No indicator or special concern species observed on the subject property or adjacent lands. One territory of Field Sparrow observed in ELC Unit 3.2 (CUM1 - landfill).
Terrestrial Crayfish Chimney or Digger Crayfish (<i>Fallicambarus fodiens</i>)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2	Suitable Habitat <ul style="list-style-type: none"> Wet meadow and edges of shallow marshes (no minimum size) identified should be surveyed for terrestrial crayfish 	<ul style="list-style-type: none"> Yes — Terrestrial crayfish burrows observed in ELC Units 5.1, 5.2 (SWT2-5), and 9.0 (MAS2-1).

Wildlife Habitat Category and Associated Species*	ELC Communities	Provincial Guidance for Ecoregion 7E*	SWH Potential Applicable to the Subject Property and Adjacent Lands
Devil Crawfish or Meadow Crayfish (<i>Cambarus Diogenes</i>)	MAS3 SWD SWT SWM CUM1 with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish.	<ul style="list-style-type: none"> Constructs burrows in marshes, mudflats, meadows; the ground can't be too moist Can often be found far from water Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels; usually the soil is not too moist so that the tunnel is well formed <p>Suggested Criteria Studies Confirm:</p> <ul style="list-style-type: none"> Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites Area of ELC Ecosite polygon is the SWH 	<ul style="list-style-type: none"> As CUS1 is not included in the criteria for this SWH, the two burrows observed in a small inclusion (ditch) at the south edge of ELC Unit 4.6 (CUS1), are not considered significant
Special Concern and Rare Wildlife Species		<ul style="list-style-type: none"> All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially rare species Linking candidate habitat on the site needs to be completed to ELC Ecosites <p>Suggested Criteria Studies confirm:</p> <ul style="list-style-type: none"> Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable Habitat form and function needs to be assessed from the assessment of ELC vegetation types and an area of significant habitat that protects the rare or special concern species identified The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH; this must be delineated through detailed field studies The habitat needs be easily mapped and cover an important life stage component for a species (e.g. specific nesting habitat or foraging habitat) 	<ul style="list-style-type: none"> Yes — One Eastern Wood-Pewee territory was identified in the vicinity of ELC Unit 5.1 (SWT2-5). The adjacent woodland (ELC Unit 2.0; CUW1) provides suitable habitat for this species and could be considered SWH. No special concern or rare species were identified on adjacent lands
Animal Movement Corridors			
Amphibian Movement Corridors Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog		<ul style="list-style-type: none"> Animal movement corridors should only be identified as SWH where a confirmed or Candidate SWH has been identified by MNRF or the planning authority Movement corridors between breeding habitat and summer habitat Movement corridors must be considered when amphibian breeding habitat is confirmed as SWH Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites Corridors should consist of native vegetation, with several layers of vegetation Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant Corridors should be at least 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps <20 m Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat 	<ul style="list-style-type: none"> Not evaluated, as SWH had not been previously determined on the Subject Property or Adjacent Lands

* Adapted from the listed species and habitat criteria provided in the *Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E* (MNRF 2015) but updated to reflect any relevant changes in species status. For example, Tri-coloured Bat (*Perimyotis subflavus*) is now listed as Threatened so needs to be addressed under the *Endangered Species Act* and not under SWH.

Appendix B-8

Wetland Water Balance – Re-Created Wetland



URBANTECH®

Memorandum

To: Ken Ursic, M.Sc.
Senior Ecologist, Beacon Environmental

Date: February 22, 2023

Cc:

From: Kate Rothwell, M.Eng., P.Eng.
Manager, Water Resources, Urbantech Consulting

Project #: 21-678

Re: **Continuous Hydrologic Model of Replacement Wetland**
150 Steeles Ave. E., Town of Milton

Introduction

Urbantech Consulting has been retained to complete a continuous hydrologic model of the re-created wetland for the subject site located at 150 Steeles Ave. E. in the Town of Milton. During the pre-consultation phase, Conservation Halton (CH) and Region of Halton (Region) staff confirmed that a pit and mound wetland was an acceptable form of wetland re-creation for the former tailings pond / wetland. The former tailings pond / wetland will be removed as a result of the remediation efforts and it was agreed that a self-sustaining pit and mound wetland would be appropriate as it would not rely on any external drainage to sustain the wetland functions. CH also requested that efforts be made to create a deeper pit that might have the potential to hold water longer and potentially provide amphibian habitat, although this was not a requirement of the wetland design.

Based on this request, the re-created pit and mound wetland will be comprised of several smaller pits and one larger pit. The purpose of the continuous hydrologic modelling analysis was two-fold: (1) to determine the possibility for the available runoff volumes to provide amphibian breeding habitat in the larger pit; and (2) if amphibian breeding is possible, to optimize the pit-and-mound configuration for success of amphibian breeding.

Several modelling scenarios were assessed using daily climate data, focusing on the period between February and June critical for amphibian production and development.

This technical memorandum provides the following information:

- Different wetland scenarios modelled and assessed;
- Modelling inputs and assumptions;
- Modelling results; and
- Recommendations.

Model Scenarios

Several configurations and alternatives of the proposed pit and mound wetland were simulated in the continuous hydrologic model to identify an optimal design that has the potential to sustain amphibian breeding.

The following configurations/alternatives were simulated in the continuous hydrologic model:

1. Placement of the large pit at the upstream end of the pit and mound wetland;
2. Placement of the large pit at the downstream end of the pit and mound wetland; and
3. Elongating and deepening the large pit by ~20%.

It should be noted that only the large pit was assessed in terms of suitability for amphibian breeding. The smaller pits were also included in the simulations, but they are not large enough to support amphibian breeding and were not the focus of the hydrologic modelling.

Through the evaluation of the various scenarios, it was determined that the preferred alternative includes the large pit at the downstream end of the pit and mound wetland, with a larger pool footprint. The analysis and results of the preferred option are discussed further in the following sections.

Model Inputs & Assumptions

The continuous hydrologic model of the re-created wetland was simulated using Visual OTTHYMO (VO) modelling software. The hydrologic model output is appended to this technical memo, for reference.

Climate Data

The water levels and retained volume within the wetland were simulated using daily climate data for 1985 to 1991 from the Toronto Lester B. Pearson International Airport station. The climate data used for this simulation included both daily precipitation and temperature. The simulated period from 1985 to 1991 was selected as it included dry years (1985, 1986), wet years (1988, 1989) and an average year (1991), based on annual precipitation.

Catchments

The total drainage area contributing runoff to the re-created wetland was separated into two NASHYD catchments in the continuous hydrologic model. The total drainage area was separated into the following two catchments based on type of land cover:

- Catchment 100 – the buffer area around the wetland consisting predominantly of “light forest” cover.
- Catchment 200 – the wetland area itself consisting predominantly of vegetated “grass land” cover.

As previously noted, the preferred design alternative includes the larger pit at the downstream end of the wetland. The drainage area for each catchment was delineated from **Drawing 4**. As shown on **Drawing 4**, the total drainage area to the large pit at the downstream end of the wetland system is approximately 0.68

ha, consisting of 0.45 ha of buffer area and 0.23 ha of wetland area. **Drawing 4** is appended with this memo, for reference.

The Soil Conservation Service (SCS) Curve Number (CN) values for the two catchments were determined using MTO Design Charts 1.08 and 1.09. The associated CN value represents both the soil conditions as well as the land cover of each catchment. The time to peak for each catchment was calculated using the Airport Method. The relevant MTO Design Charts and time to peak calculations are appended with this memo.

Pits

The proposed pits were modelled as LID rain gardens in the continuous hydrologic model, which included simulation of the effect of temperature and evapotranspiration on the surface ponding volume within each pit. For reference, the larger pit is identified as LID #2 in the model.

It was assumed that the soil base of the pits will be clay material, similar to existing soil conditions.

All of the pits within the re-created wetland were included in the continuous hydrologic model.

The depth, bottom area and top area for each pool required for the LID rain garden inputs were determined from **Drawing 3** (appended to this memo).

Model Results

The model results for all the scenarios were evaluated to assess the best alternative which meets the following criteria:

- Maintains a minimum of 0.15 metres (m) of ponding depth within the larger pit during the majority of the wet period from February through June; and
- Emulates natural seasonal drawdown during the summer and fall.

As previously noted, it was determined that the preferred alternative includes the larger pit located at the downstream end of the wetland. By locating the larger pit at the downstream end of the drainage area, more runoff volume can be captured and stored. The results indicate that a target water depth of 0.15 m in the larger pit can be sustained between February and June under most conditions.

The size of the larger pit was also reduced by approximately 20% in one of the model simulations to assess if the reduced size would affect the duration of ponding to 0.15 m level. No significant differences were observed between the different sizes as it relates to maintaining a 0.15 m ponding depth during the wet season. Therefore, the reduction of the larger pit size was not recommended such that a larger footprint of habitat could be provided.

The resulting model output for the preferred alternative is appended to this memo and summarized in graphs. The graphs show the fluctuation of ponding volumes in the larger pit relative to the target depth

requirements for amphibian breeding. The model results are provided for each year within the selected climate data period of 1985 through 1991.

Conclusions & Recommendations

The following is noted from the continuous hydrologic model analysis and model results:

- In order to achieve CH's request to provide a larger pit that has the potential to provide amphibian habitat, it is preferred that the larger pit be located at the downstream end of the re-created wetland to maximize the amount of drainage/runoff available to feed the larger pool and maintain a hydroregime that would be suitable for amphibian habitat.
- The minimum depth requirement of 0.15 m for amphibian habitat is maintained in the larger pit from February through June, with the exception of 1989 which is dry until mid-March.
- There are frequent dry periods in the larger pit for 1987-1991 between July through December, which will not substantially impact the amphibian breeding functions.

Regards,
Urbantech® Consulting



Kate Rothwell, M.Eng., P.Eng.
Manager, Water Resources

Encl. MTO Design Charts 1.08 and 1.09
 Time to Peak Calculations
 Drawing 3 – Proposed Pit and Mound Wetland Creation
 Drawing 4 – Post-Remediation Grading Plan
 VO Model Results (1985-1991)
 Wetland Pool Cross-Sections

Design Chart 1.08: Hydrologic Soil Groups (Continued)**- Based on Soil Texture**

<u>Sands, Sandy Loams and Gravels</u>	
- overlying sand, gravel or limestone bedrock, very well drained	A
- ditto, imperfectly drained	AB
- shallow, overlying Precambrian bedrock or clay subsoil	B
<u>Medium to Coarse Loams</u>	
- overlying sand, gravel or limestone, well drained	AB
- shallow, overlying Precambrian bedrock or clay subsoil	B
<u>Medium Textured Loams</u>	
- shallow, overlying limestone bedrock	B
- overlying medium textured subsoil	BC
<u>Silt Loams, Some Loams</u>	
- with good internal drainage	BC
- with slow internal drainage and good external drainage	C
<u>Clays, Clay Loams, Silty Clay Loams</u>	
- with good internal drainage	C
- with imperfect or poor external drainage	C
- with slow internal drainage and good external drainage	D

Source: U.S. Department of Agriculture (1972)

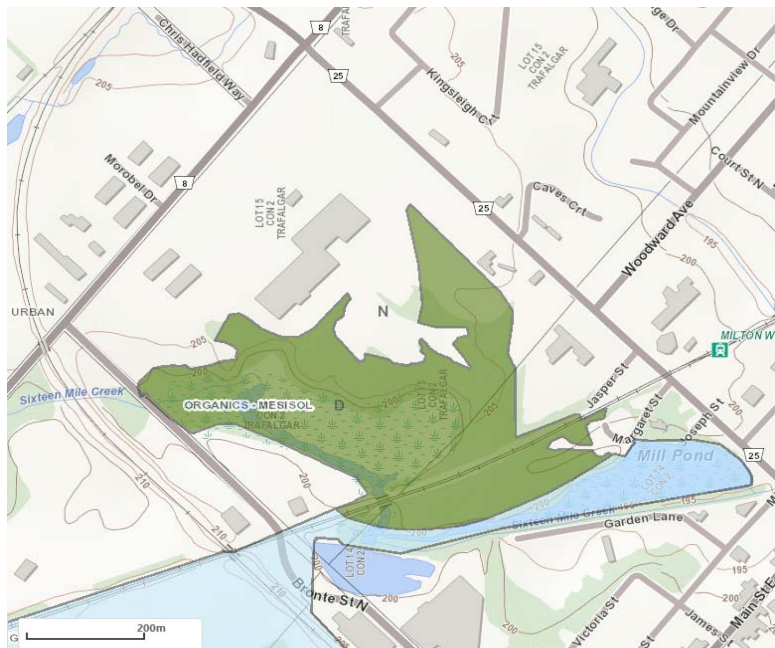
Design Chart 1.09: Soil Conservation Service Curve Numbers (Continued)

Land Use or Surface	Hydrologic Soil Group						
	A	AB	B	BC	C	CD	D
Fallow (special cases only)	77	82	86	89	91	93	94
Crop and other improved land	66** (62)	70** (68)	74	78	82	84	86 AMC I
Pasture & other unimproved land	58* (38)	62* (51)	65	71	76	79	81
Woodlots and forest	50* (30)	54* (44)	58	65	71	74	77
Impervious areas (paved)							98
Bare bedrock draining directly to stream by surface flow							98
Bare bedrock draining indirectly to stream as groundwater (usual case)							70
Lakes and wetlands							50

Notes

- (i) All values are based on AMC II except those marked by * (AMC III) or ** (mean of AMC II and AMC III).
- (ii) Values in brackets are AMC II and are to be used only for special cases.
- (iii) Table is not applicable to frozen soils or to periods in which snowmelt contributes to runoff.

Time to Peak Calculations - Airport Method (Wetland Buffer)



Area (ha)	Curve Number (CN Value)	Length (m)	Slope (%)	Runoff Co	Tc (min)	Tp (min)	Tp (hr)
0.449	77	41	1.80	0.25	15	10	0.16

1.3.3 Airport Method



For catchments where the runoff coefficient, C, is less than 0.40, the Airport formula may provide a better estimate of the time of concentration. This method was developed for airfields and calculates time of concentration as a function of runoff coefficient, length, and slope as follows:

$$t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S_w^{0.33}} \quad (2)$$

where:

- t_c = time of concentration (min)
- C = runoff coefficient
- L = catchment length, (m)
- S_w = catchment slope (%)

Soil Name Label: Organics Mesisol
 Hydric Soil Group: D
 Width (m):
 Area (m2): 0.4485
 Land Use Surface: Woodlots & Forest
 Curve Number: 77

Time to Peak Calculations - Airport Method (Wetland)



Area (ha)	Curve Number (CN Value)	Length (m)	Slope (%)	Runoff Co	Tc (min)	Tp (min)	Tp (hr)
0.229	81	96	1.99	0.25	22	14	0.24

1.3.3 Airport Method

For catchments where the runoff coefficient, C, is less than 0.40, the Airport formula may provide a better estimate of the time of concentration. This method was developed for airfields and calculates time of concentration as a function of runoff coefficient, length, and slope as follows:

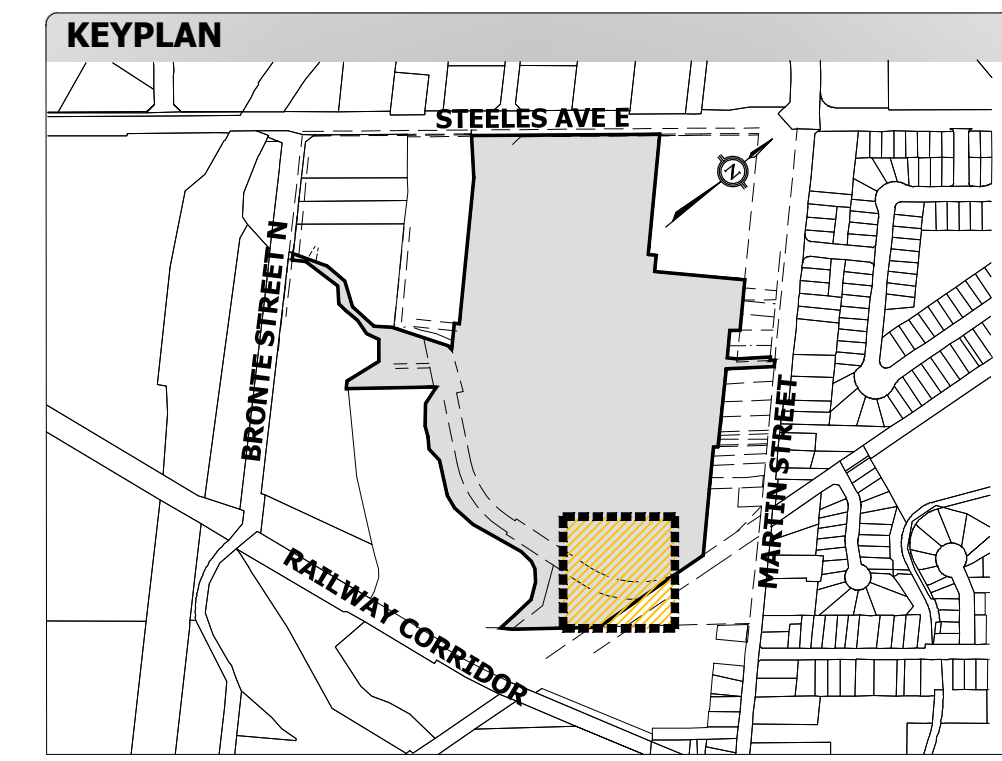
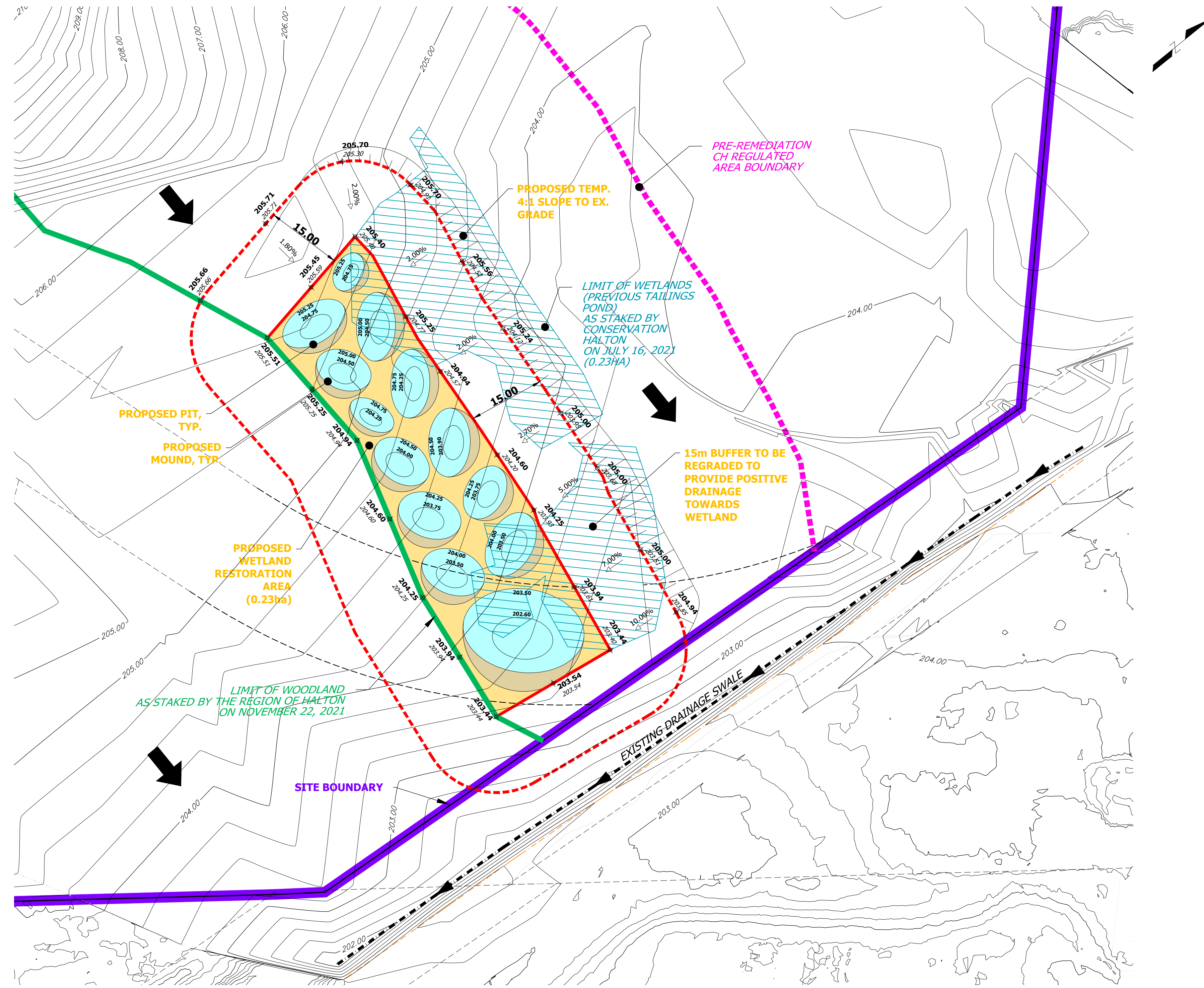
$$t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S_w^{0.33}} \quad (2)$$

where:

- t_c = time of concentration (min)
- C = runoff coefficient
- L = catchment length, (m)
- S_w = catchment slope (%)

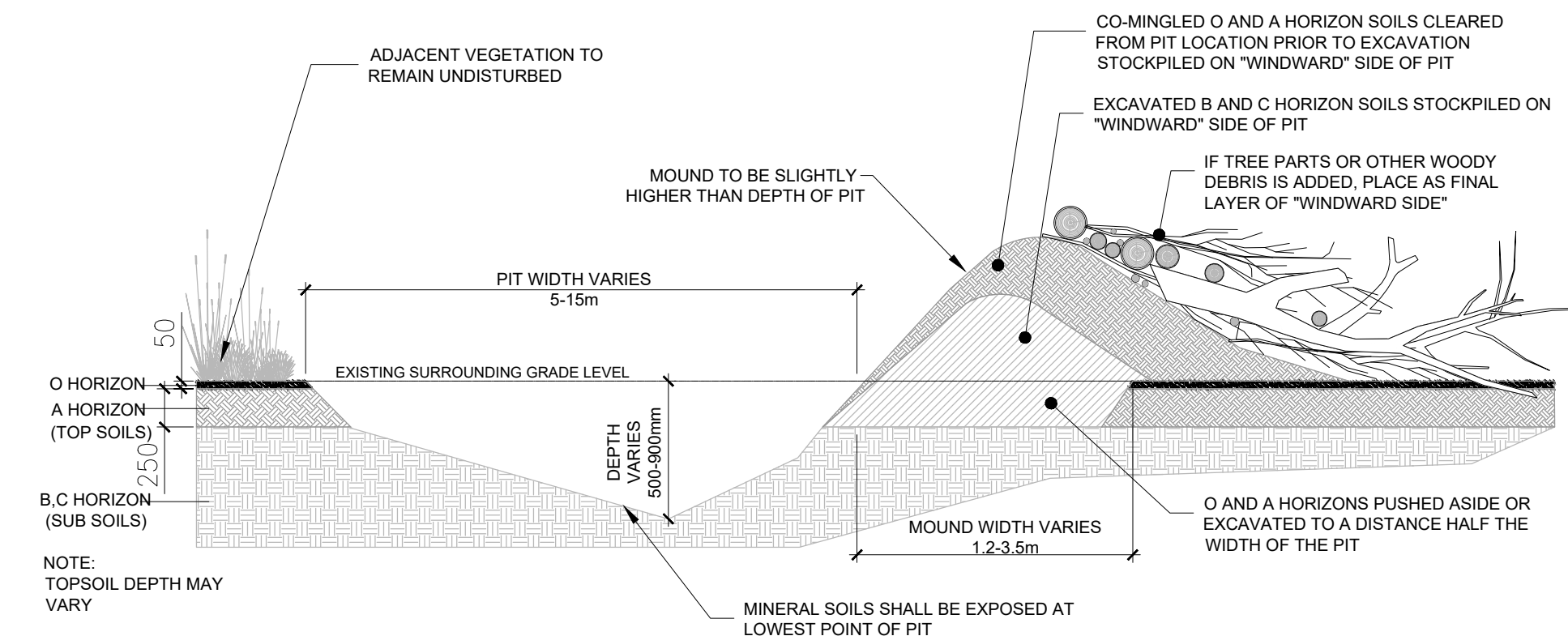
Soil Name Label: Organics Mesisol
 Hyrdolic Soil Group: D
 Land Use Surface: Pasture & Other
 Curve Number: 81

Width (m):
 Area (m2): 0.2286



LEGEND:

- EXISTING CONTOUR AND ELEVATION
- PROPOSED ELEVATION
- EXISTING GROUND ELEVATION
- EXISTING OVERLAND FLOW ARROW
- PROPERTY LINE
- PRE-REMEDIATION CH REGULATED AREA BOUNDARY
- LIMIT OF WETLANDS (PREVIOUS TAILINGS POND) (STAKED BY CONSERVATION HALTON JUL. 16, 2021)
- LIMIT OF WOODLAND (STAKED BY REGION OF HALTON NOV. 22, 2021)
- WETLAND RESTORATION AREA
- PIT TOP ELEVATION
- PIT BOTTOM ELEVATION
- MOUND



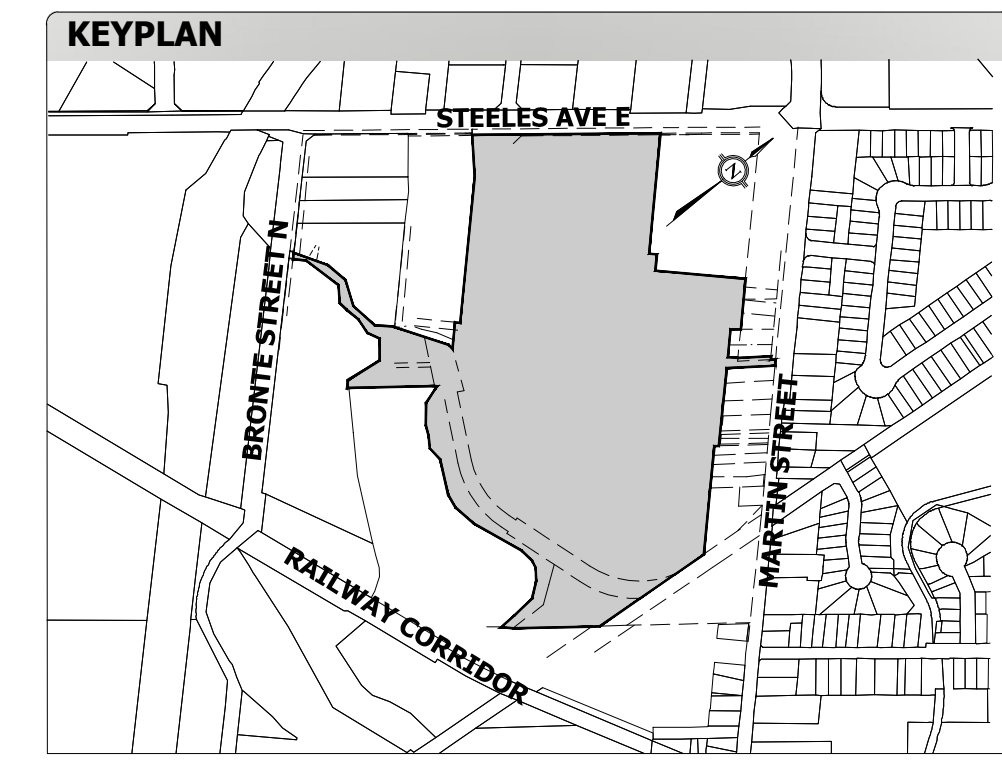
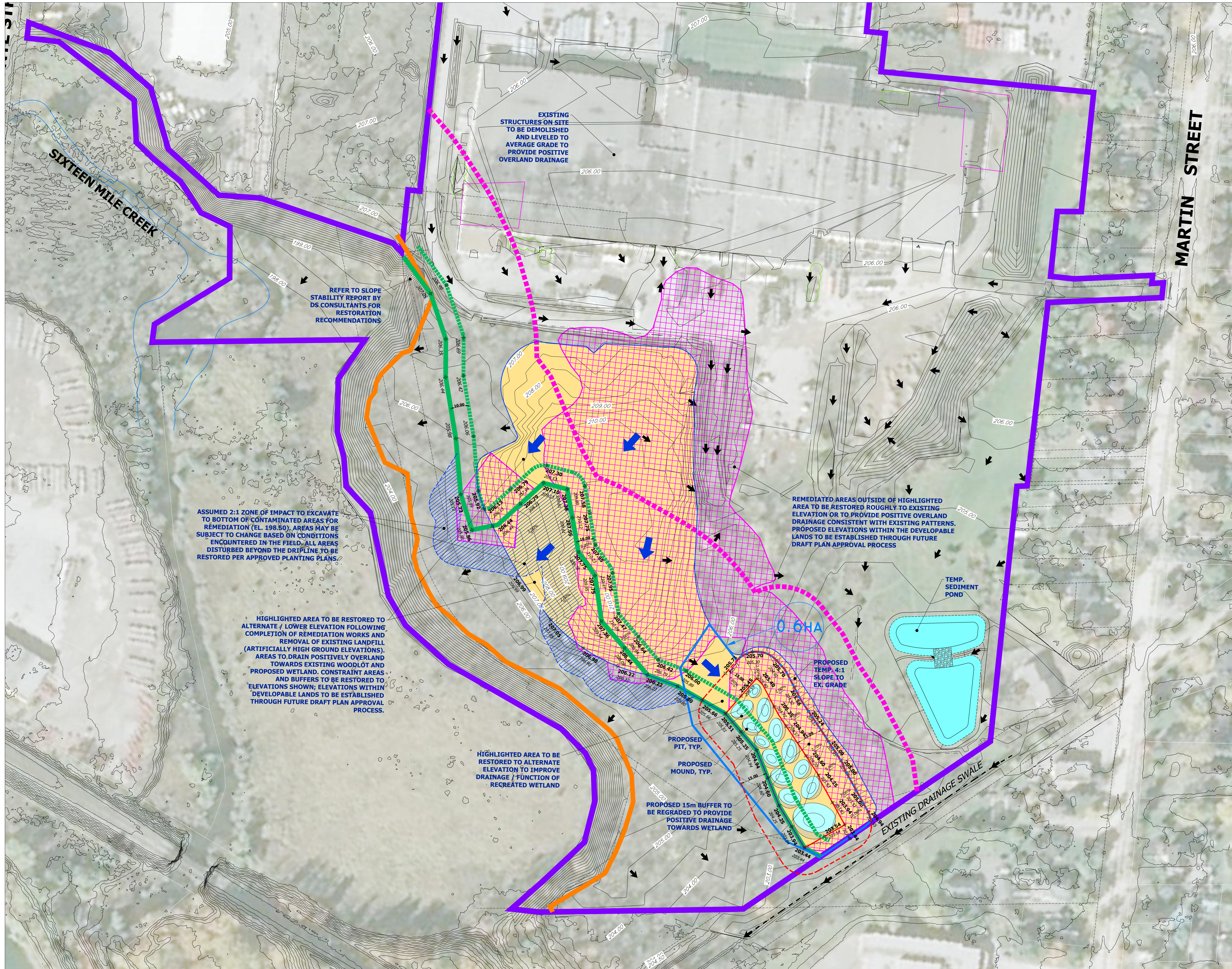
TYPICAL PIT & MOUND DETAIL (N.T.S.)

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 3760 14th Avenue, Suite 301,
 Markham, ON, L3R 3T7
 TEL 905.946.9461 • urbantech.com

COMPREHENSIVE ENVIRONMENTAL MANAGEMENT STRATEGY
150 STEELES AVENUE

**PROPOSED PIT AND MOUND
 WETLAND CREATION**

PROJECT No.	DATE	SCALE	DWG No.
21-678	FEB 2023	1:500	3



LEGEND:

- EXISTING CONTOUR AND ELEVATION
- PROPERTY LINE
- PRE-RESTORATION CH REGULATED AREA BOUNDARY
- LIMIT OF WOODLAND (STAKED BY REGION OF HALTON NOV. 22, 2021)
- 10m WOODLOT BUFFER
- PHYSICAL TOP OF BANK (STAKED BY CONSERVATION HALTON JUL 16, 2021)
- LIMIT OF PROPOSED WETLAND
- 15m BUFFER FROM PROPOSED WETLAND
- ANTICIPATED REMEDIATION AREAS
- 2:1 ZONE OF IMPACT TO REACH REMEDIATION DEPTH BEYOND DRIPLINE
- AREAS TO BE REGRADED
- POST-RESTORATION DRAINAGE BOUNDARY TO PROP. WETLAND
- POST-RESTORATION DRAINAGE AREA TO PROPOSED WETLAND
- EXISTING OVERLAND FLOW DIRECTION
- PROPOSED OVERLAND FLOW DIRECTION

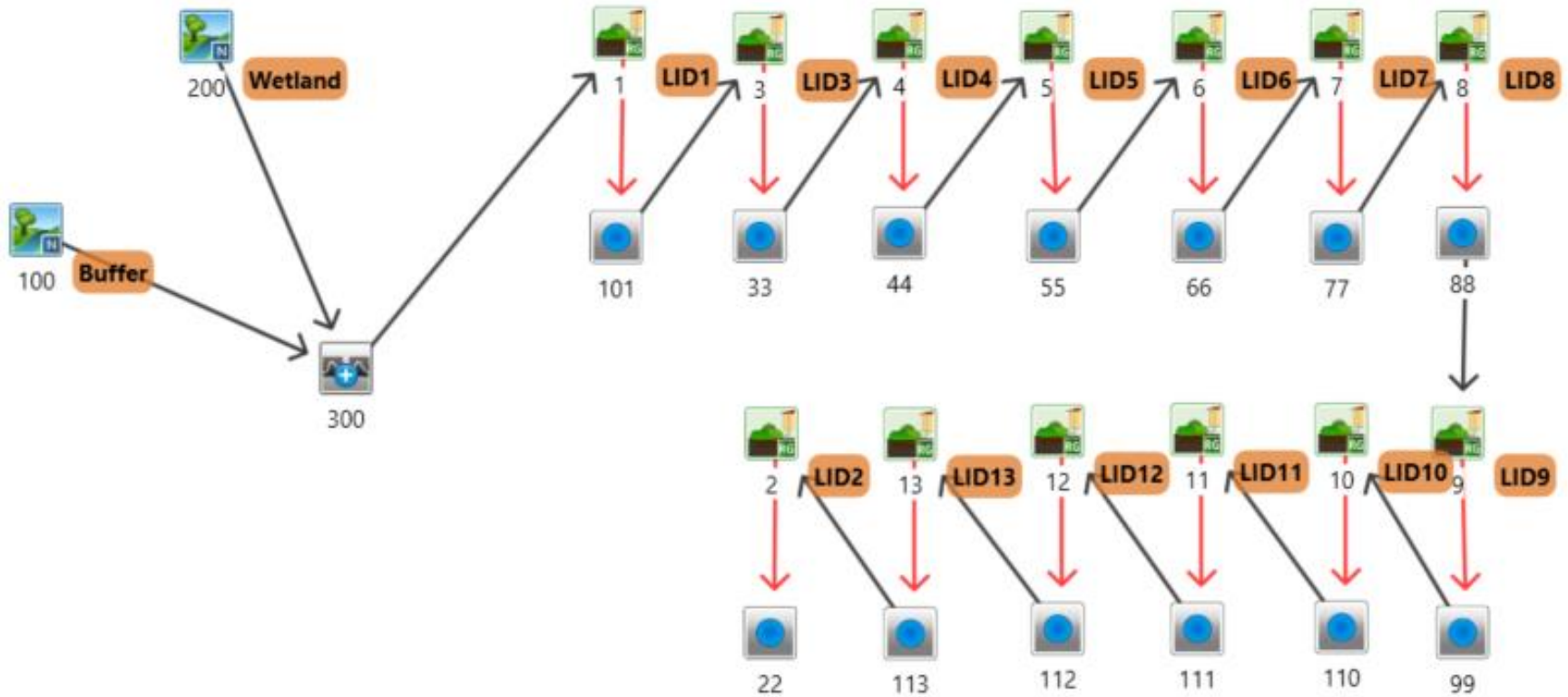
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COMPREHENSIVE ENVIRONMENTAL MANAGEMENT STRATEGY
150 STEELES AVENUE

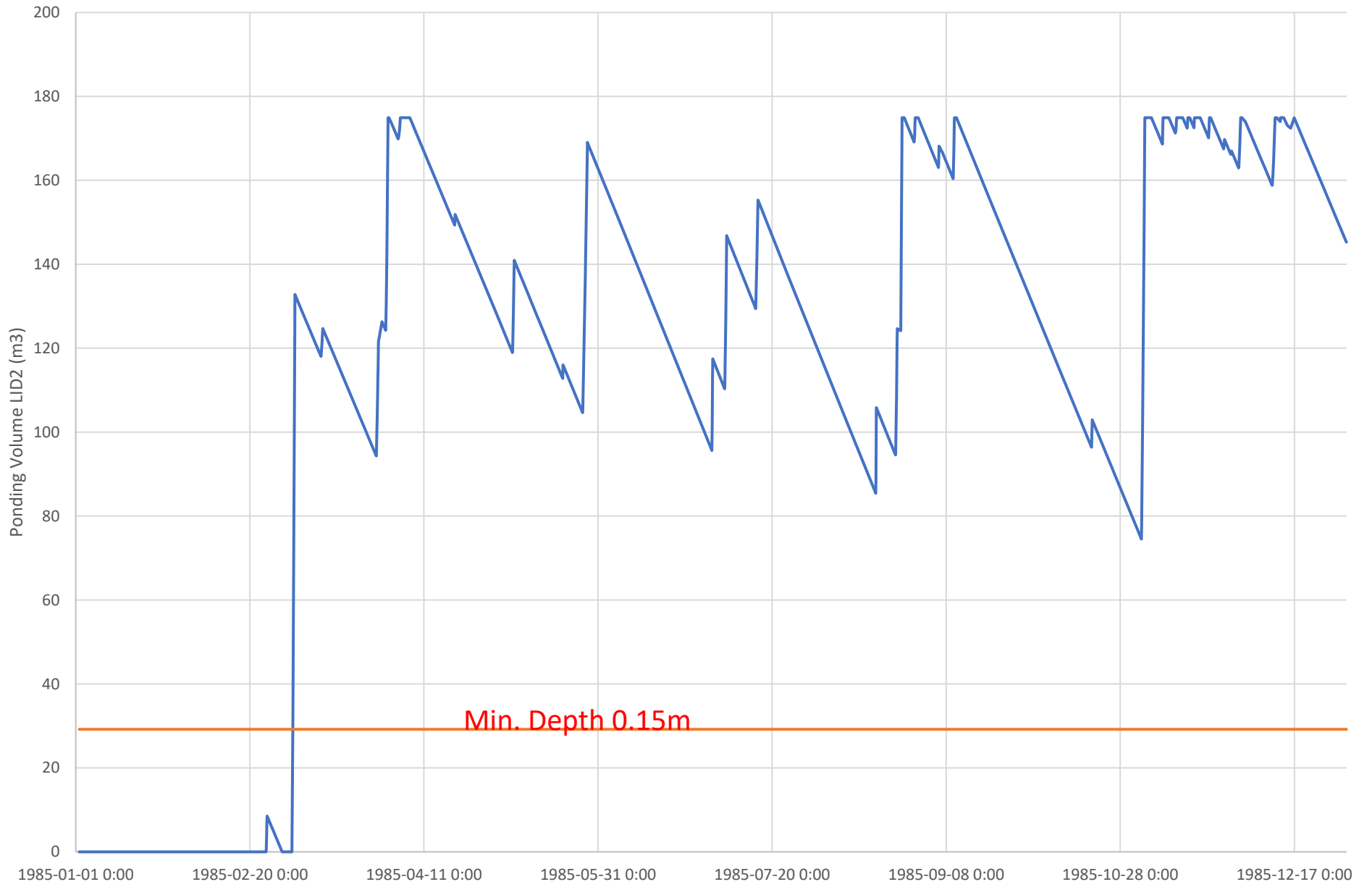
POST-REMEDIATION GRADING PLAN

PROJECT No.	DATE	SCALE	DWG No.
21-678	FEB 2023	1:1000	4

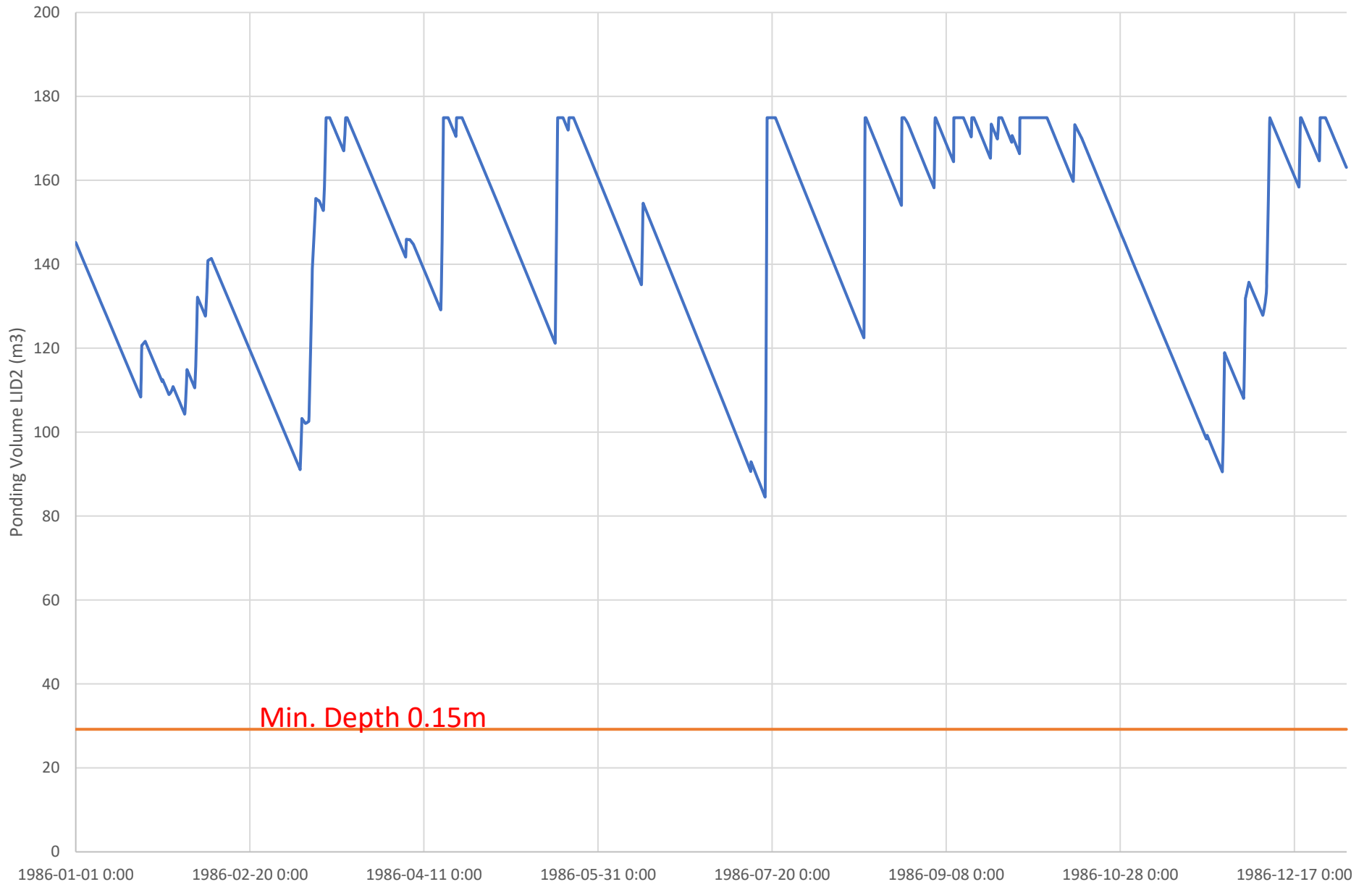
Visual OTTHYMO – Continuous Hydrologic Model



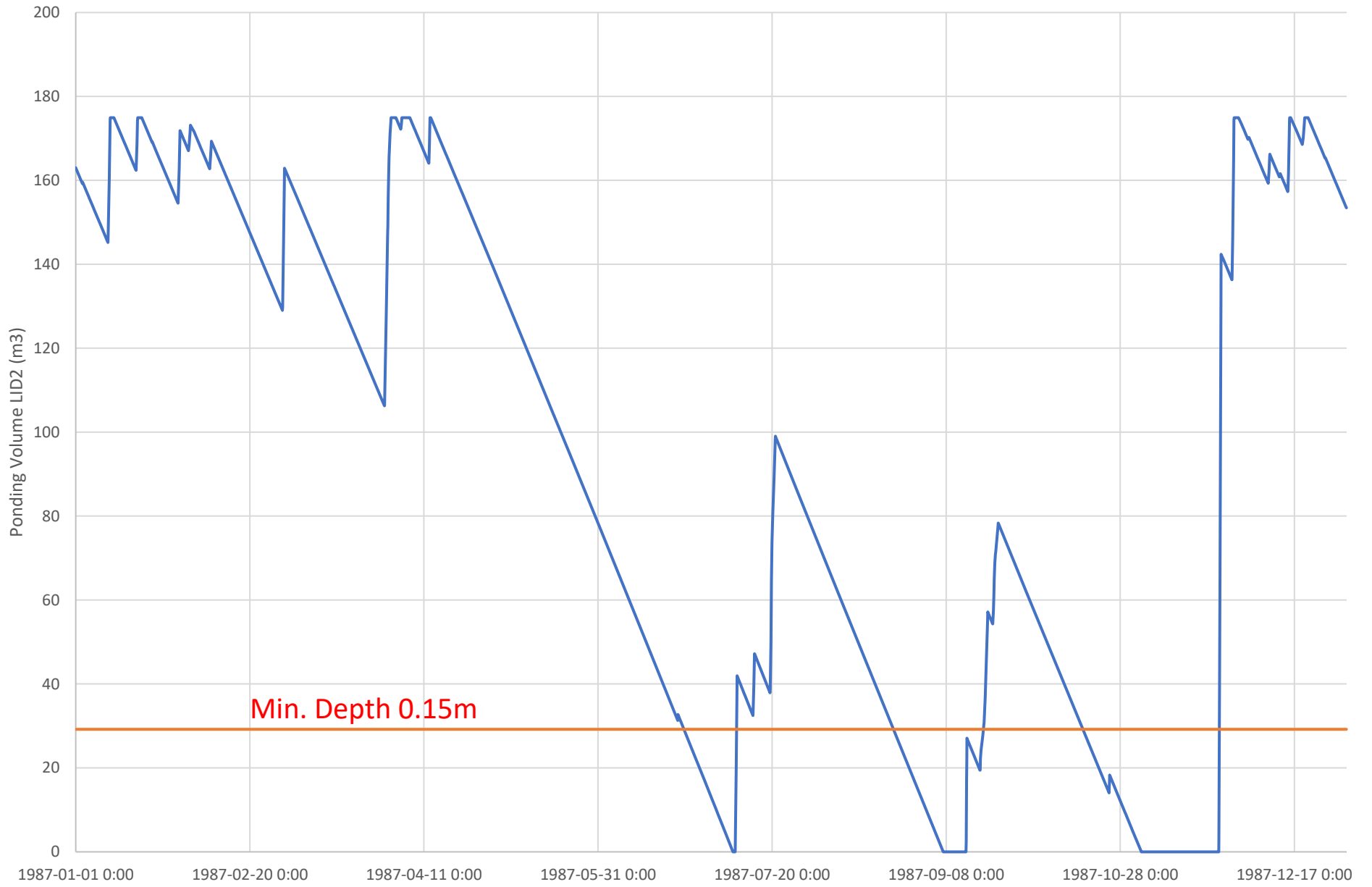
1985



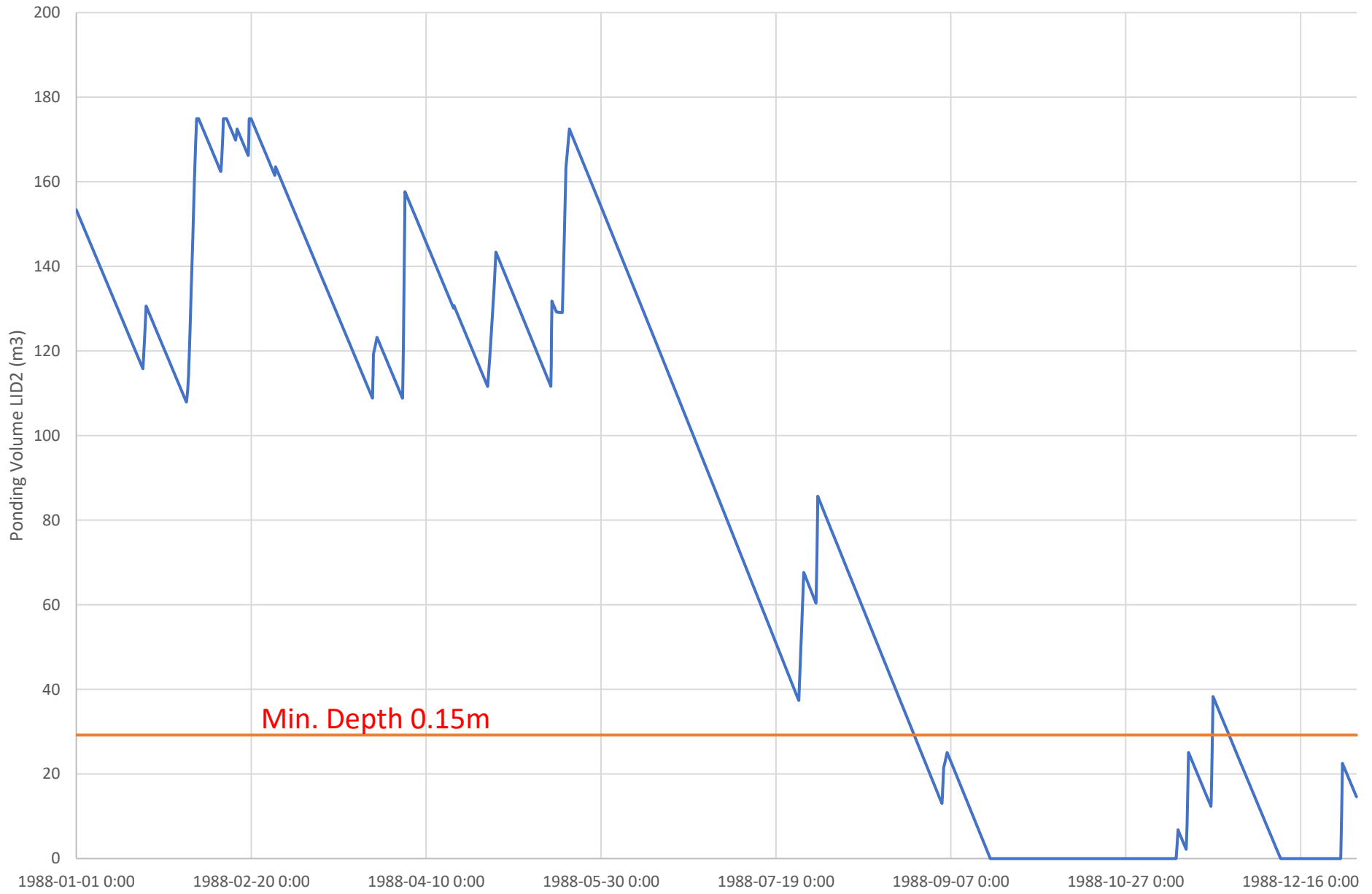
1986



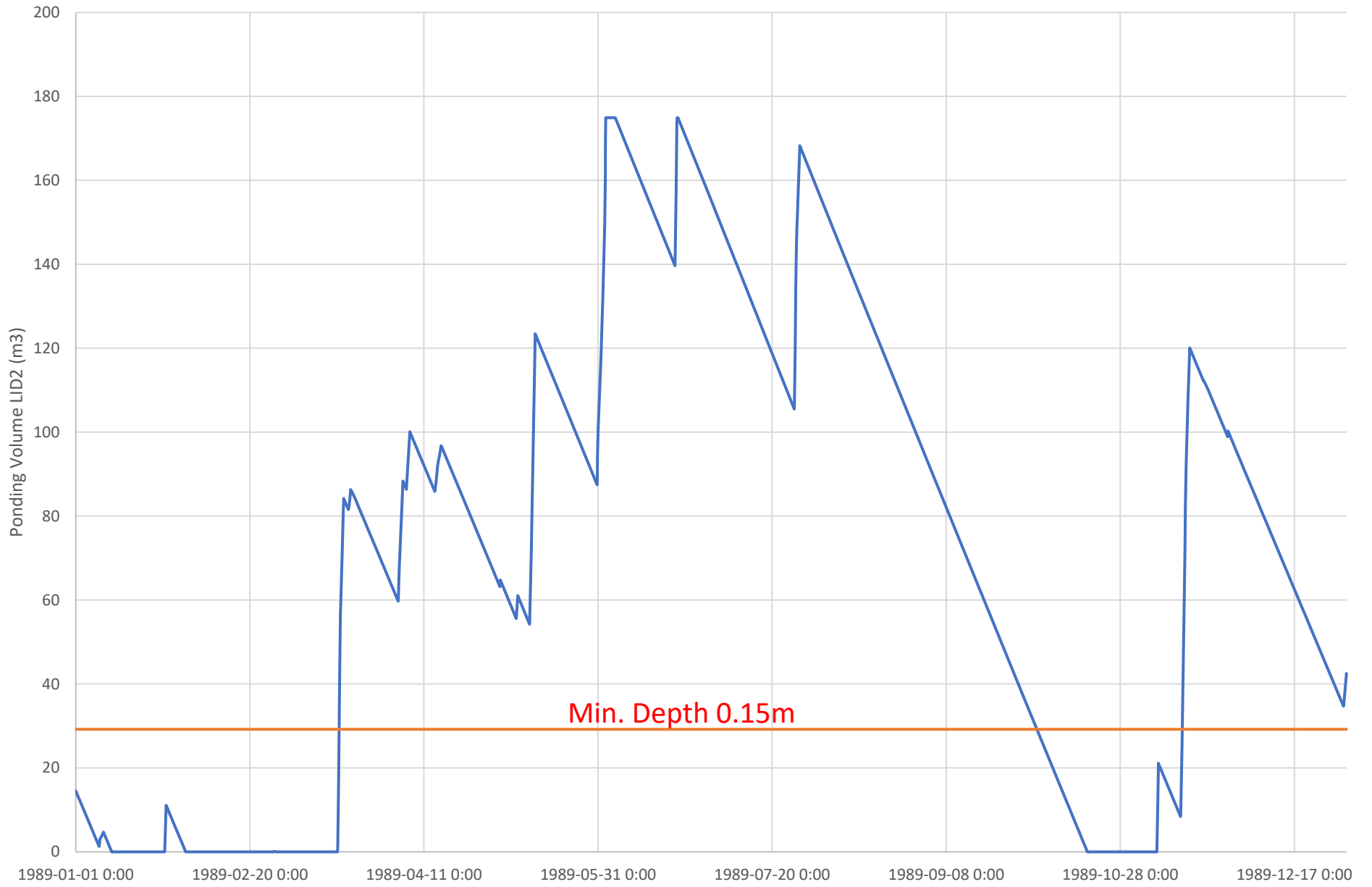
1987



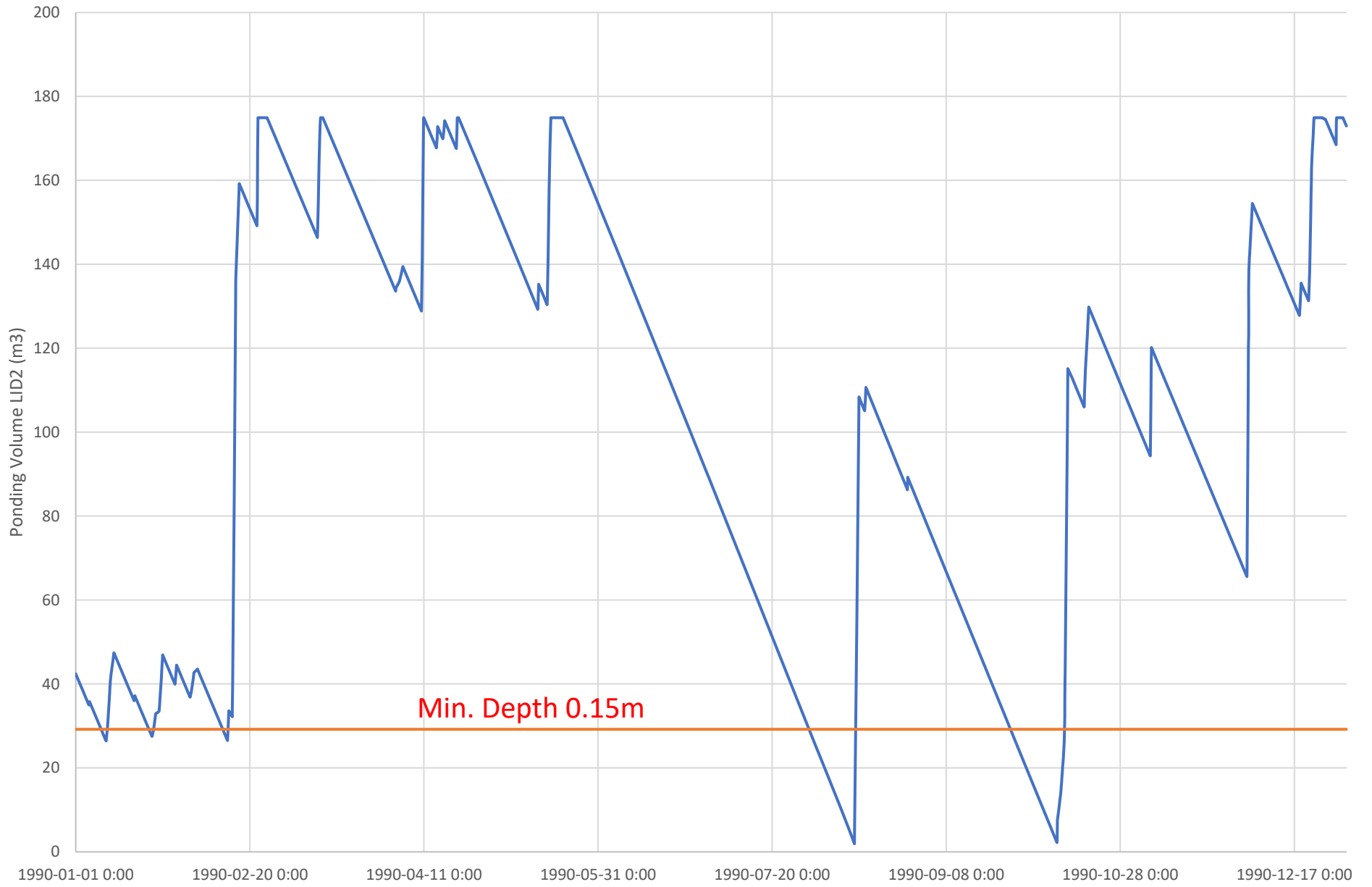
1988



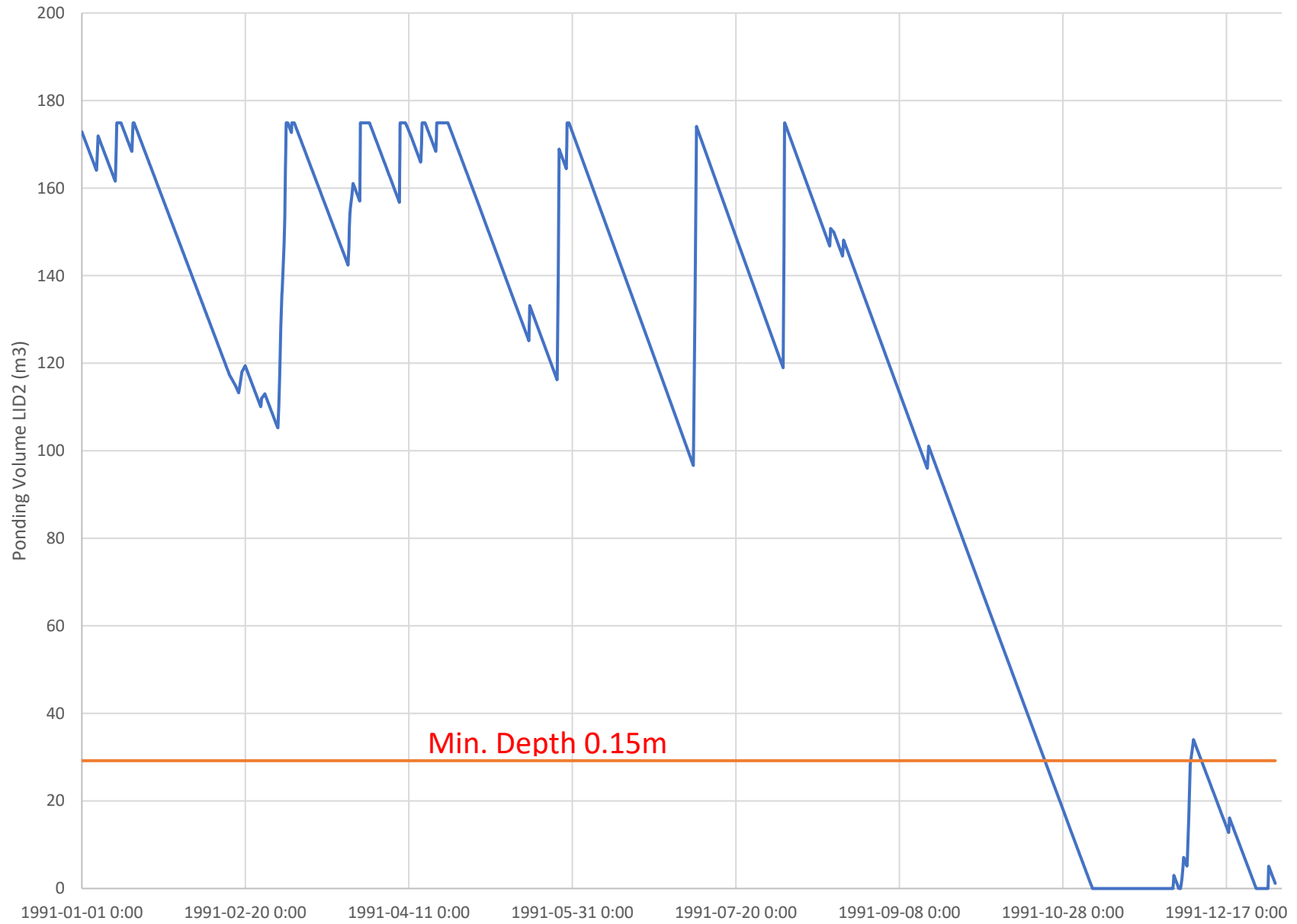
1989



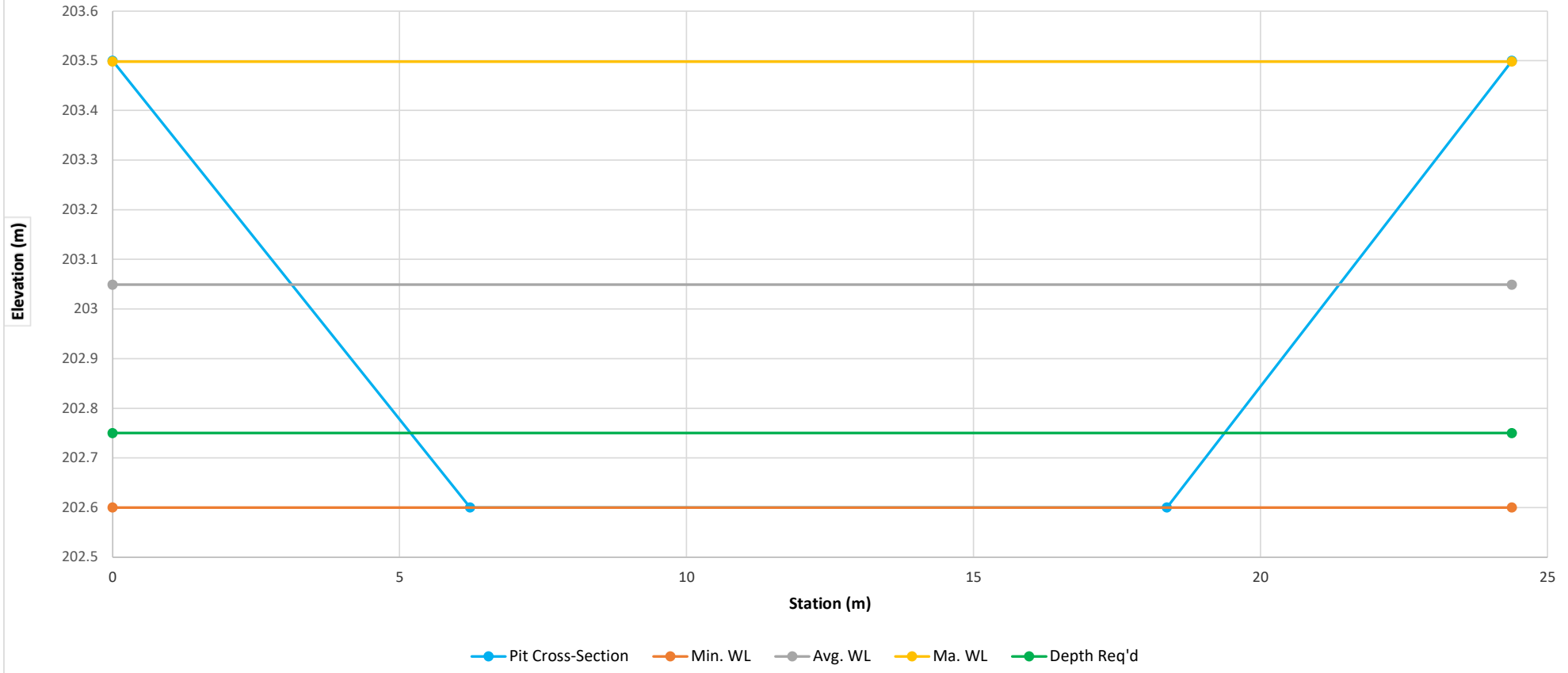
1990



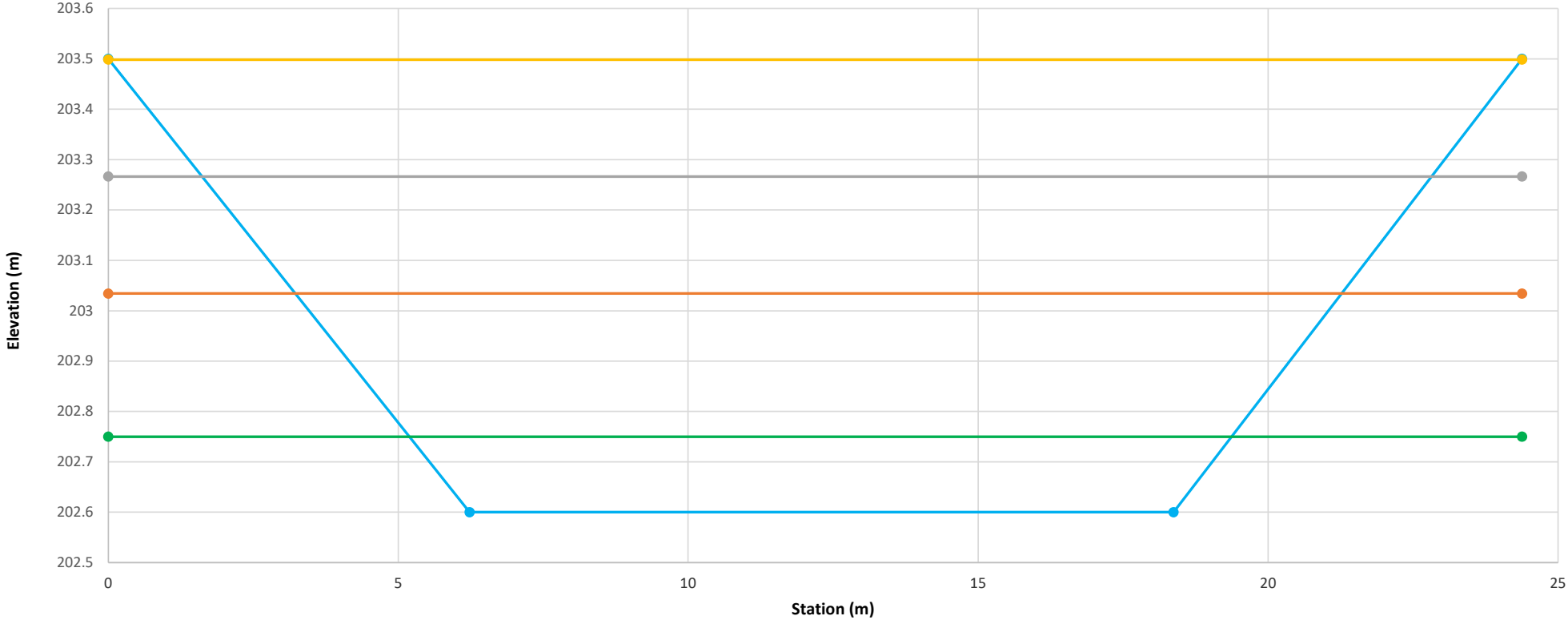
1991



Pit Cross-Section (LID2) - 1985

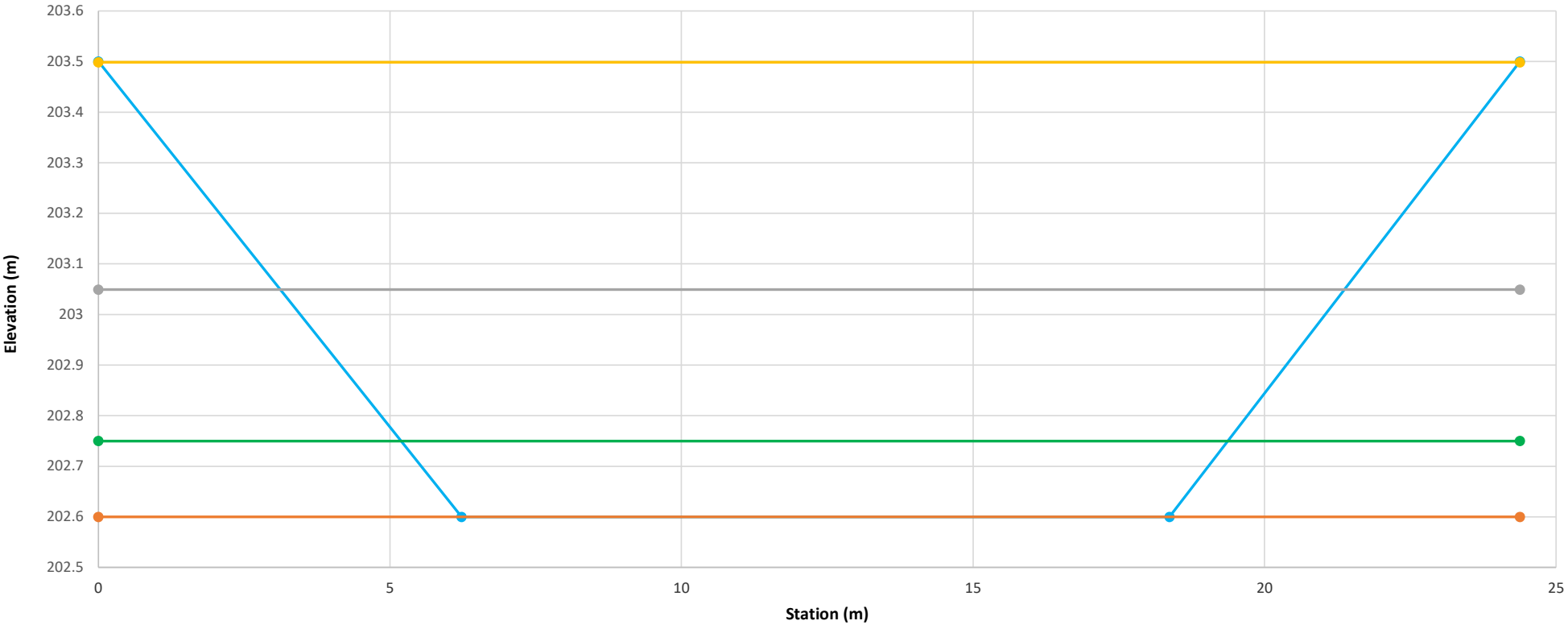


Pit Cross-Section (LID2) - 1986



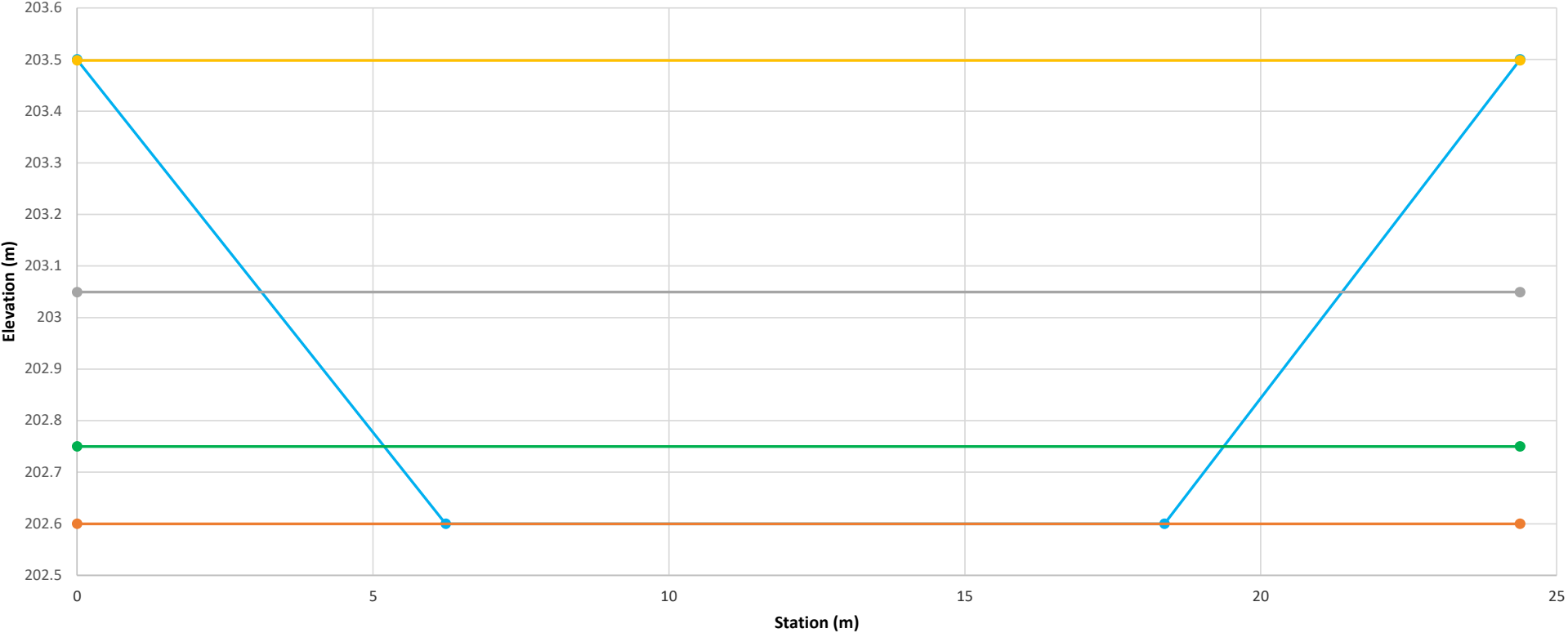
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Pit Cross-Section (LID2) - 1987



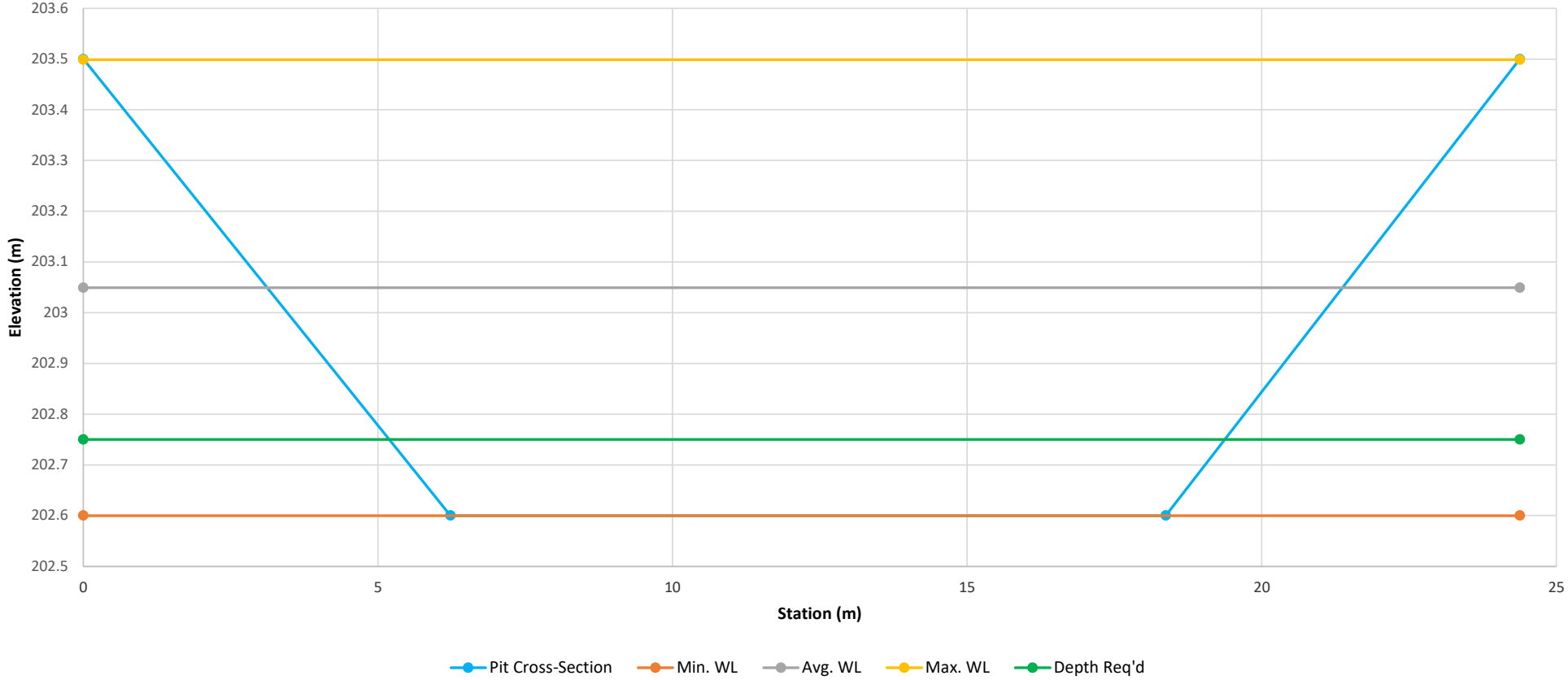
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Pit Cross-Section (LID2) - 1988

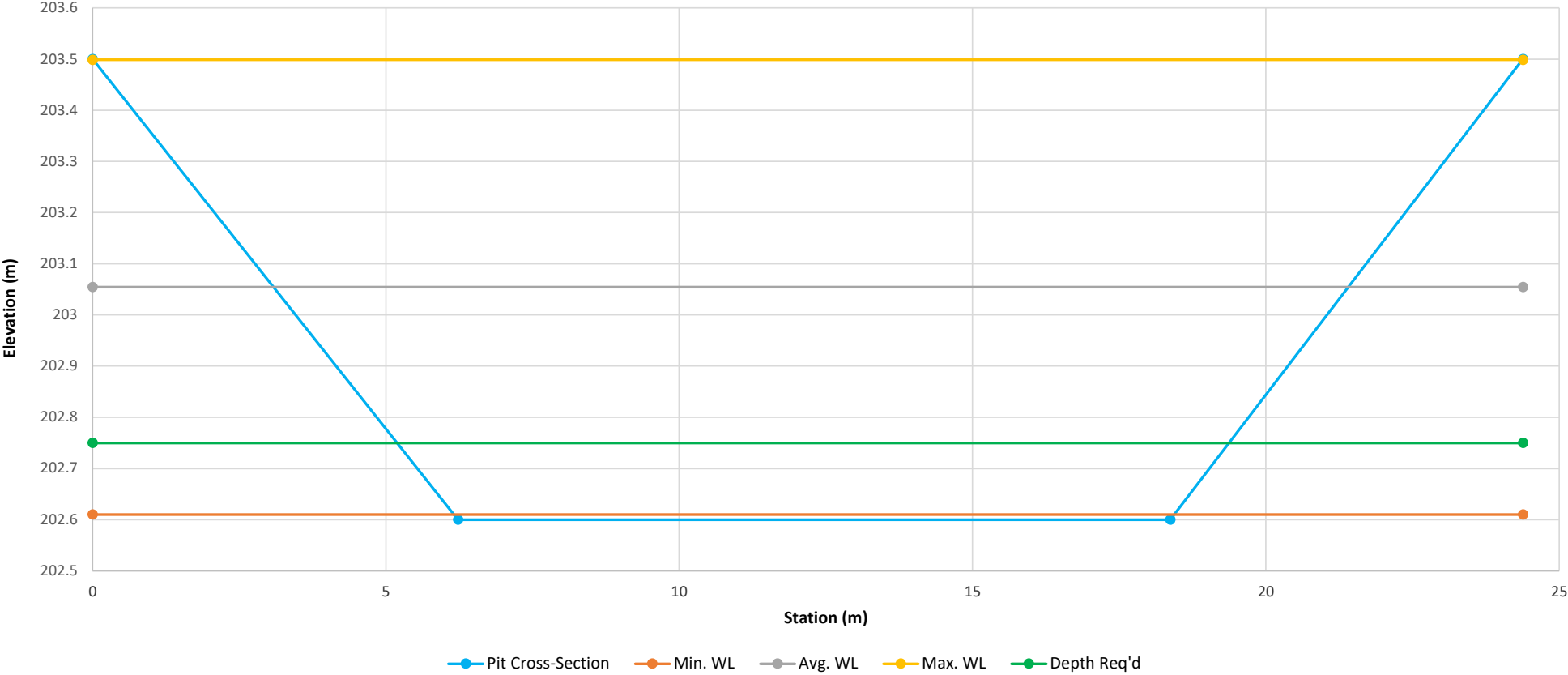


—●— Pit Cross-Section —●— Min. WL —●— Avg. WL —●— Max. WL —●— Depth Req'd

Pit Cross-Section (LID2) - 1989



Pit Cross-Section (LID2) - 1990



Pit Cross-Section (LID2) - 1991

