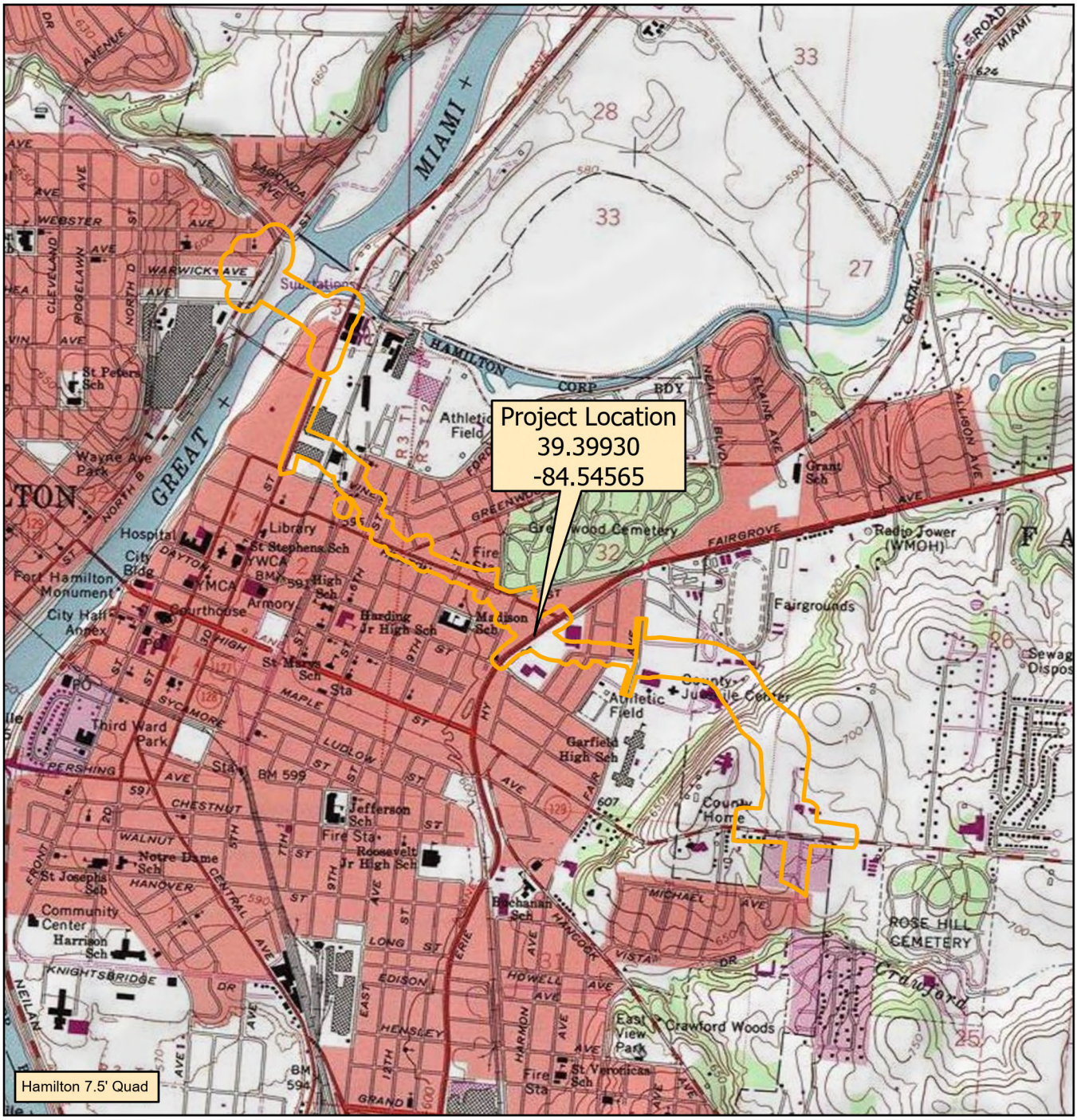
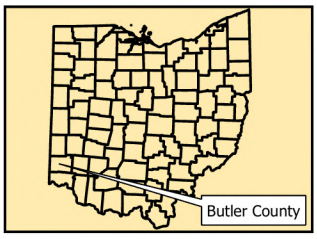
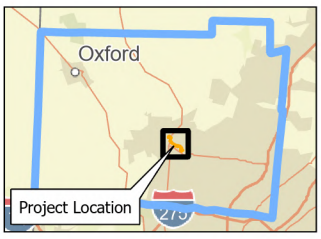
Appendix 1

Mapping







Notes

1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Base features produced from project design elements.
3. Service Layer Credits: Hybrid Reference Layer: City of Hamilton, OH, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS USA_Topo_Maps: Copyright© 2013 National Geographic Society, i-cubed World Street Map: Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS

0 1,000 2,000 Feet

1:24,000 (at original document size of 8.5x11)

N

Stantec

Project Location

City of Hamilton
Butler County, Ohio

173620130

Prepared by MD on 2025-07-19

Client/Project

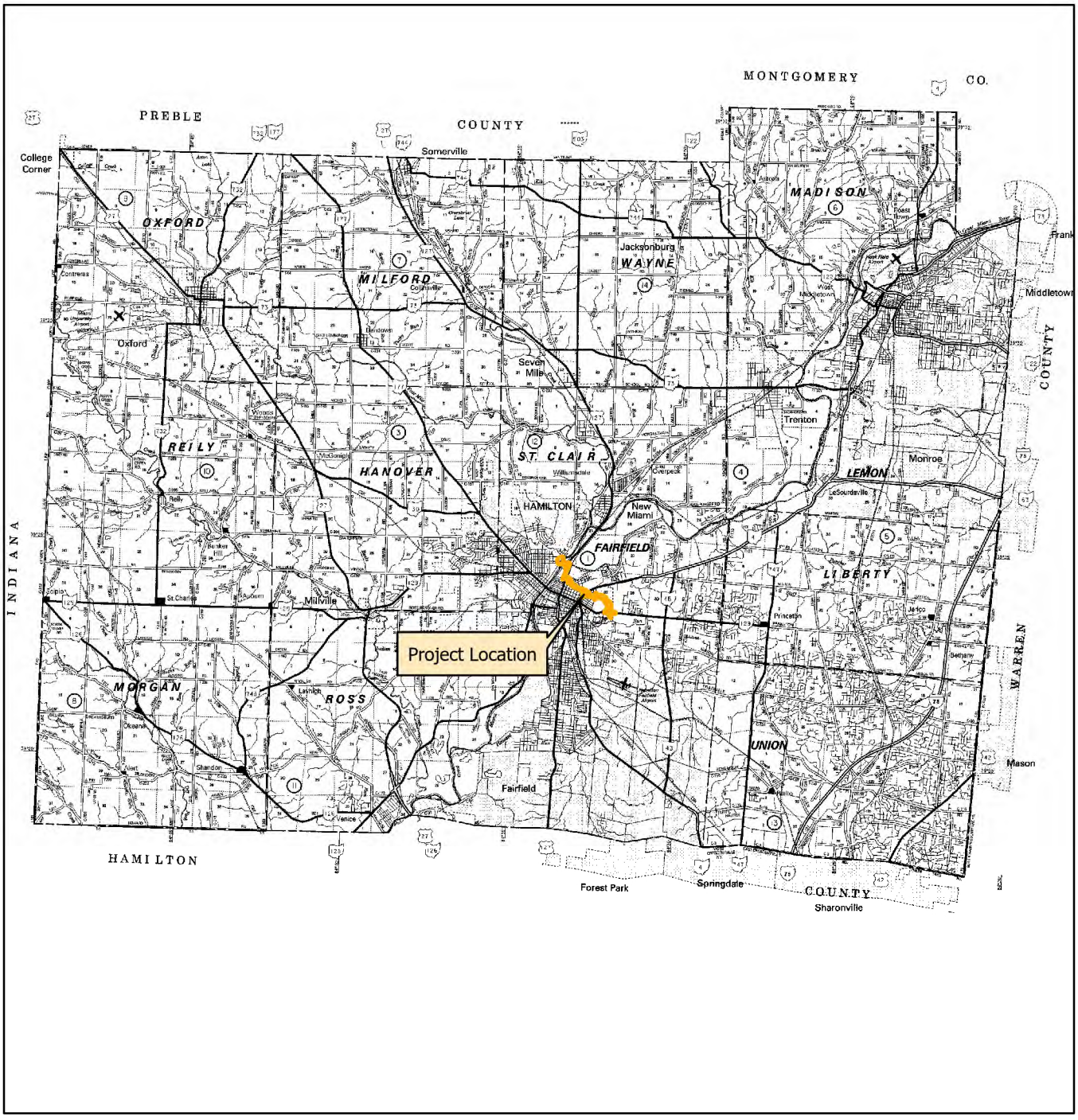
City of Hamilton
BUT-North Hamilton Crossing; PID 115755
Level 1 Ecological Survey Report

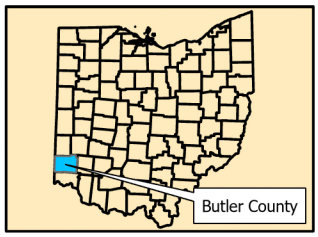
Figure No.

1.1

Title

Project Location Map





Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Base features produced from project design elements.
3. Service Layer Credits: ODOT Mapping Services (2014)

0 2 4 Miles

(At original document size of 8.5x11)
1:260,000

N

Stantec

Project Location
City of Hamilton
Butler County, Ohio

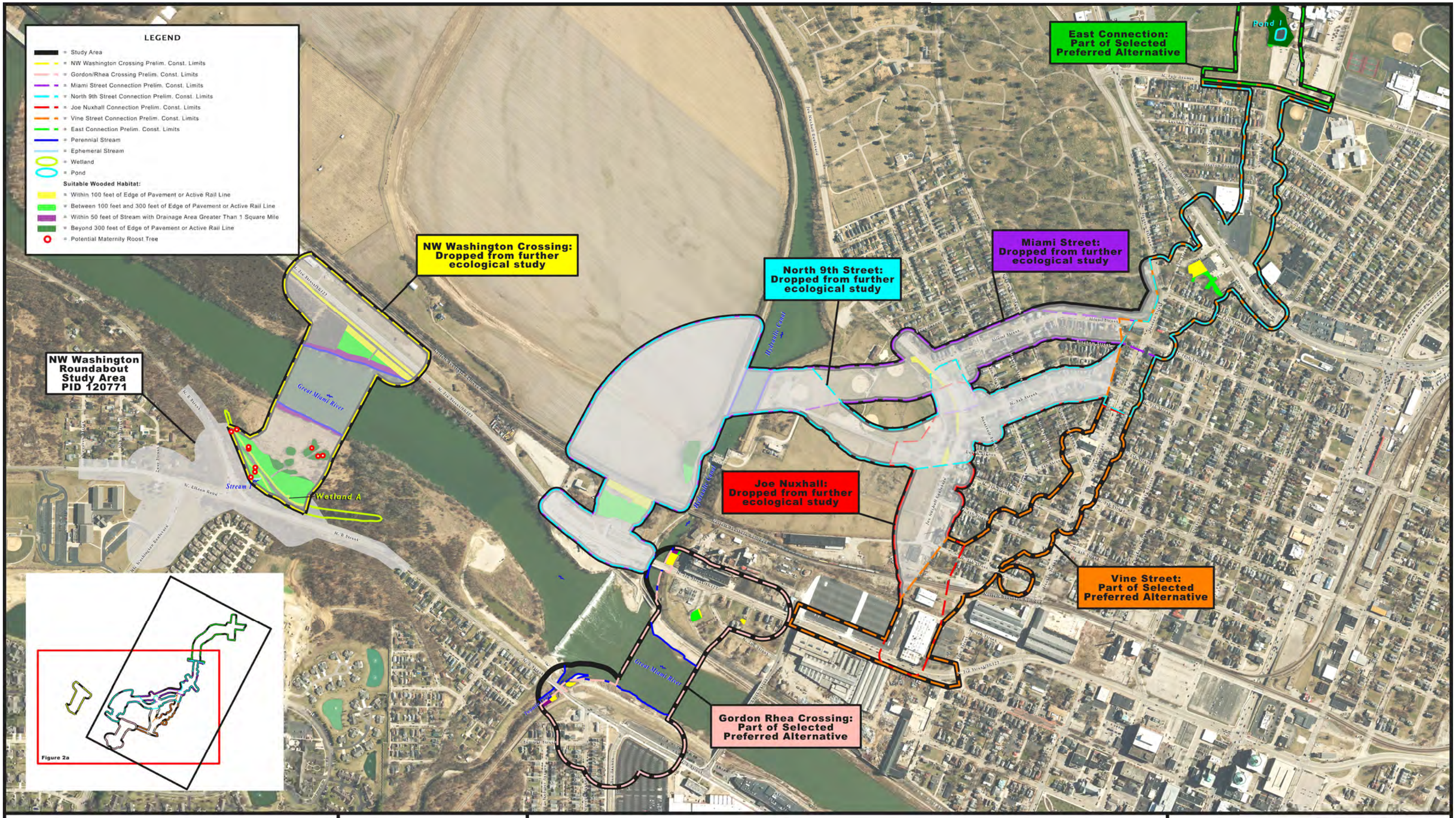
Prepared by MD on 2025-07-19

Client/Project
173620130

City of Hamilton
BUT-North Hamilton Crossing; PID 115755
Level 1 Ecological Survey Report

Figure No.
1.2

Title
Project Location Map
County Roadway Map Base

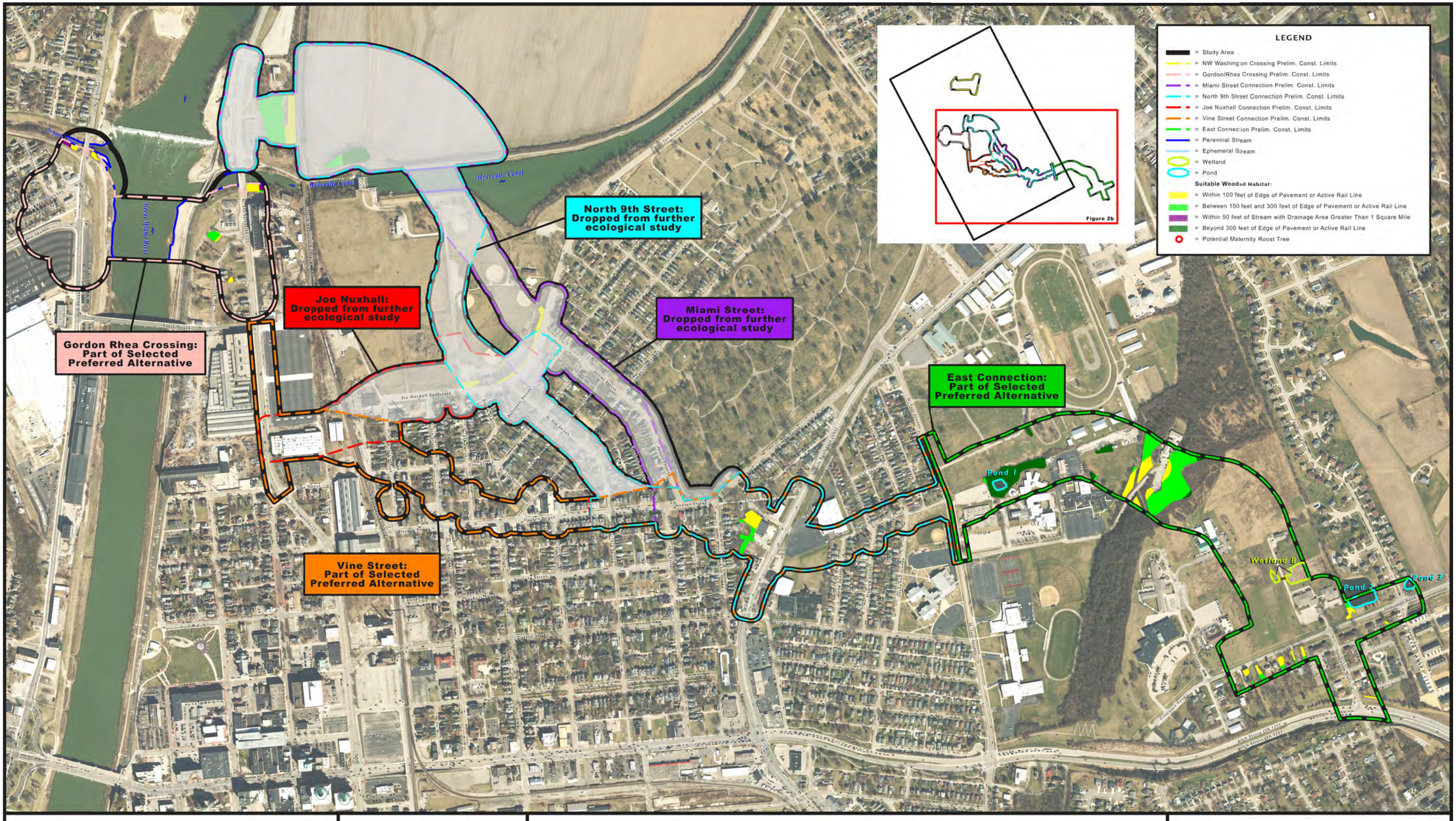


Level 1 Ecological Survey Report

BUT-North Hamilton Crossing, PID 115755
Previously Studied Alternatives, Butler County, Ohio

Figure 2a

Previously Studied
Ecological Resources



0 100 200 300 400 FEET

July 2025

NORTH

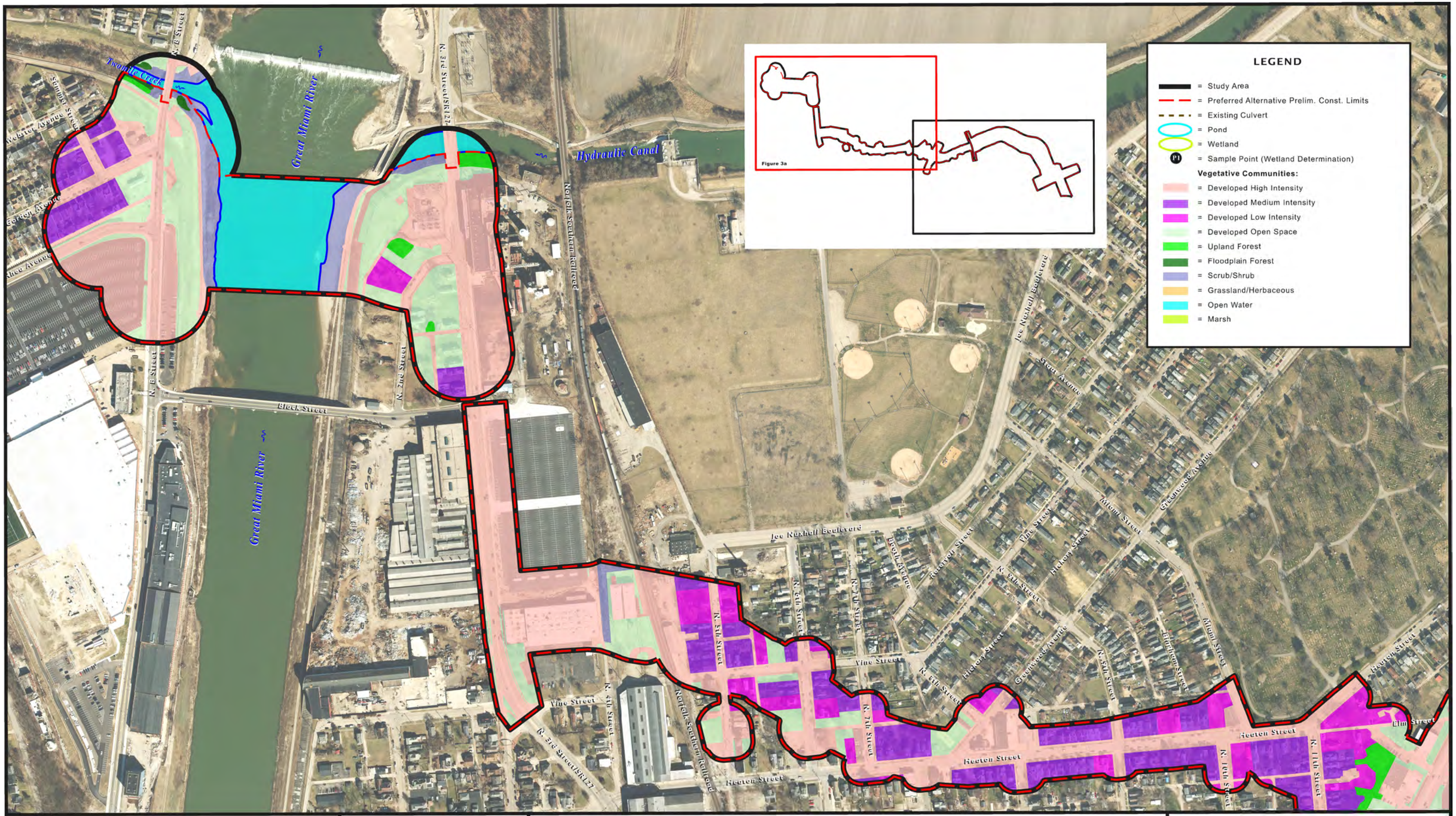
Stantec

Level 1 Ecological Survey Report

BUT-North Hamilton Crossing, PID 115755
Previously Studied Alternatives, Butler County, Ohio

Figure 2b

Previosuly Studied
Ecological Resources



0 100 200 300 400 FEET

July 2025

NORTH

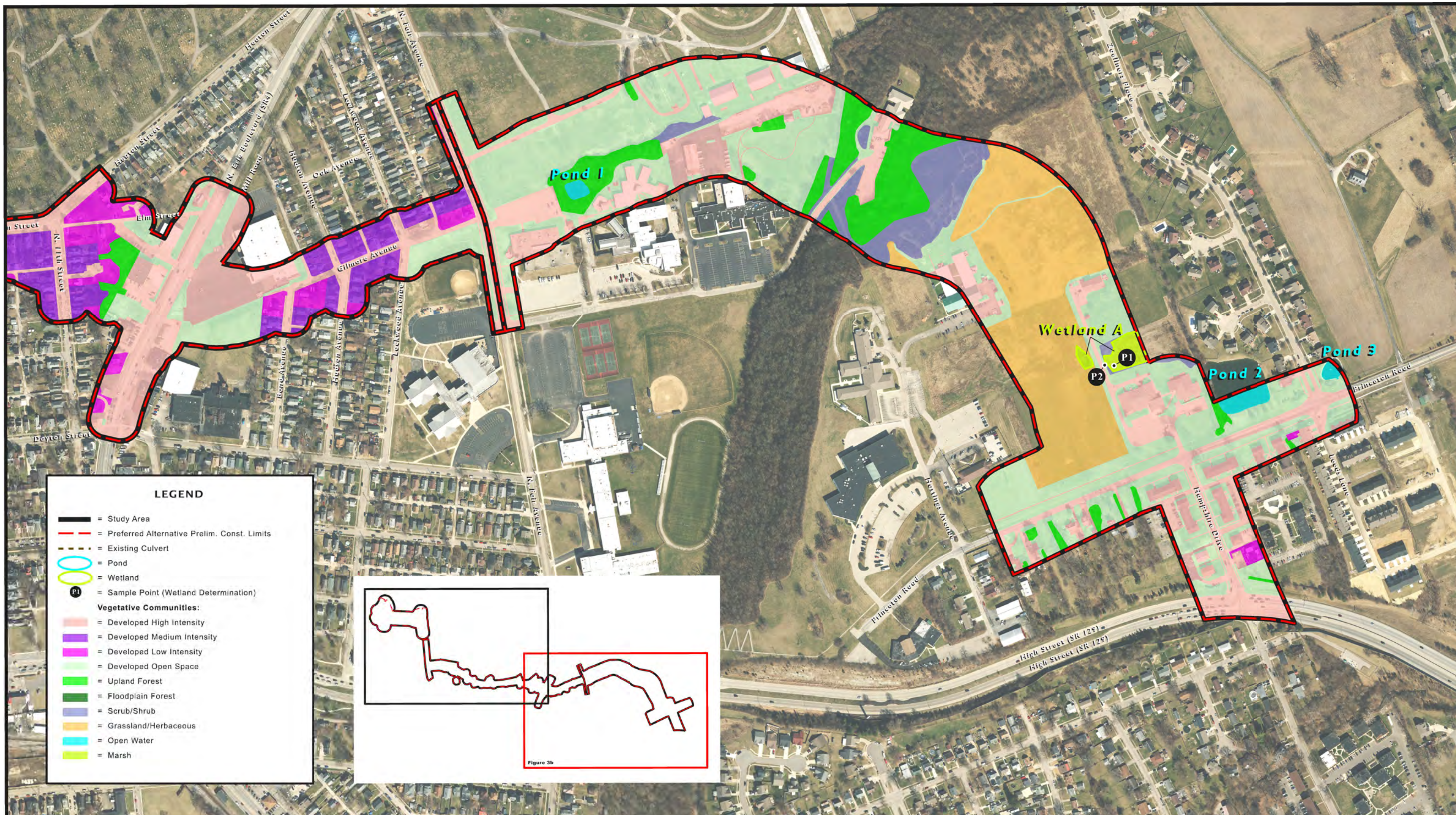
Stantec

Level 1 Ecological Survey Report

BUT-North Hamilton Crossing, PID 115755
Preferred Alternative, Butler County, Ohio

Figure 3a

Ecological Resources


Pond 1
Pond 2
Pond 3
Wetland A
P1
P2
Elm Street
N. 11th Street
Gilmore Avenue
Dayton Street
N. Fair Avenue
Hooven Avenue
Lockwood Avenue
Oak Avenue
Mill Road
Bone Avenue
Princeton Road
Hampshire Drive
High Street (SR 129)
LEGEND
= Study Area
= Preferred Alternative Prelim. Const. Limits
= Existing Culvert
= Pond
= Wetland
= Sample Point (Wetland Determination)
Vegetative Communities:
= Developed High Intensity
= Developed Medium Intensity
= Developed Low Intensity
= Developed Open Space
= Upland Forest
= Floodplain Forest
= Scrub/Shrub
= Grassland/Herbaceous
= Open Water
= Marsh
Figure 3b
0 100 200 300 400 FEET
NORTH

July 2025

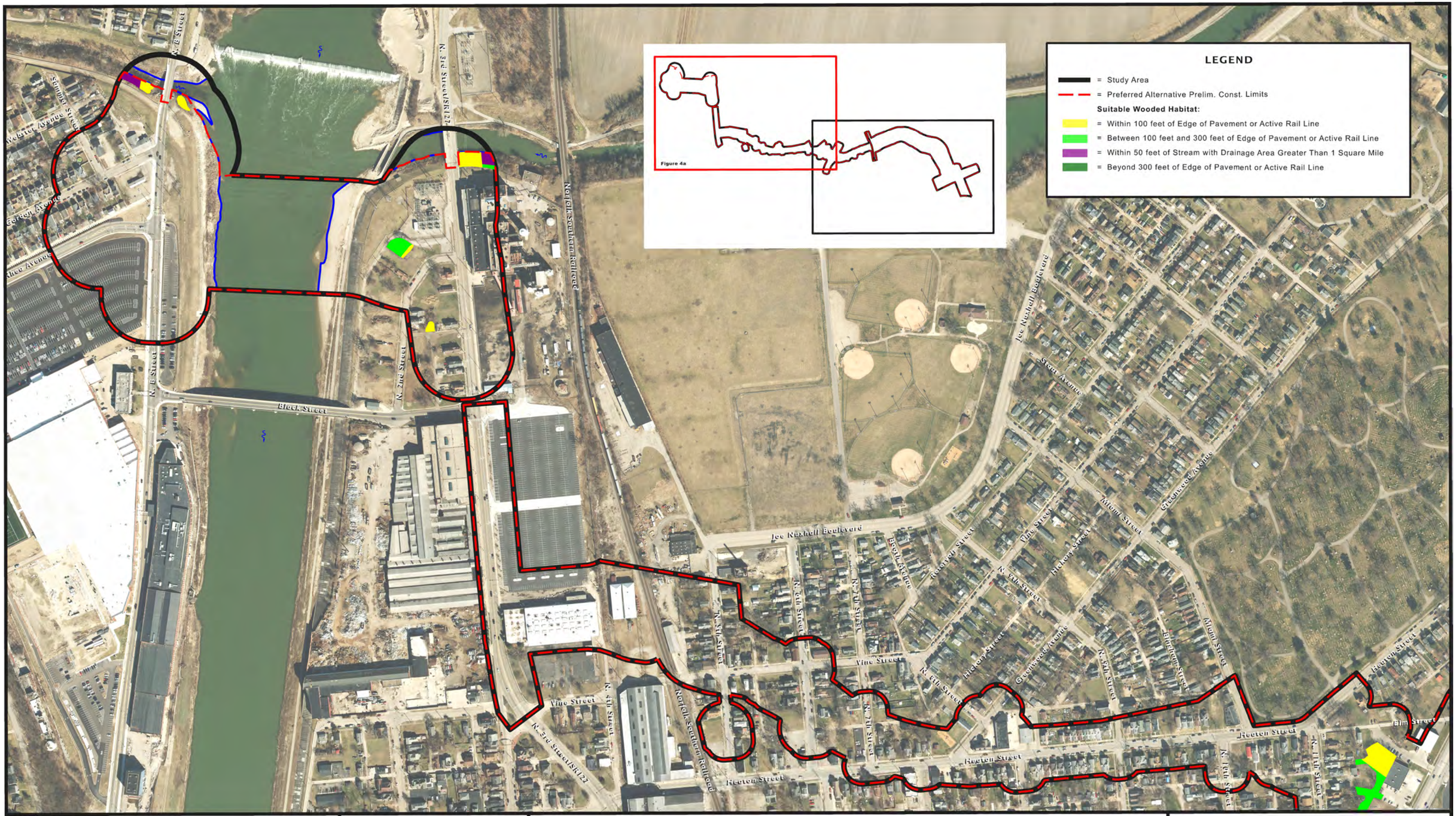
Stantec

Level 1 Ecological Survey Report

BUT-North Hamilton Crossing, PID 115755
Preferred Alternative, Butler County, Ohio

Figure 3b

Ecological Resources



0 100 200 300 400 FEET

July 2025

NORTH

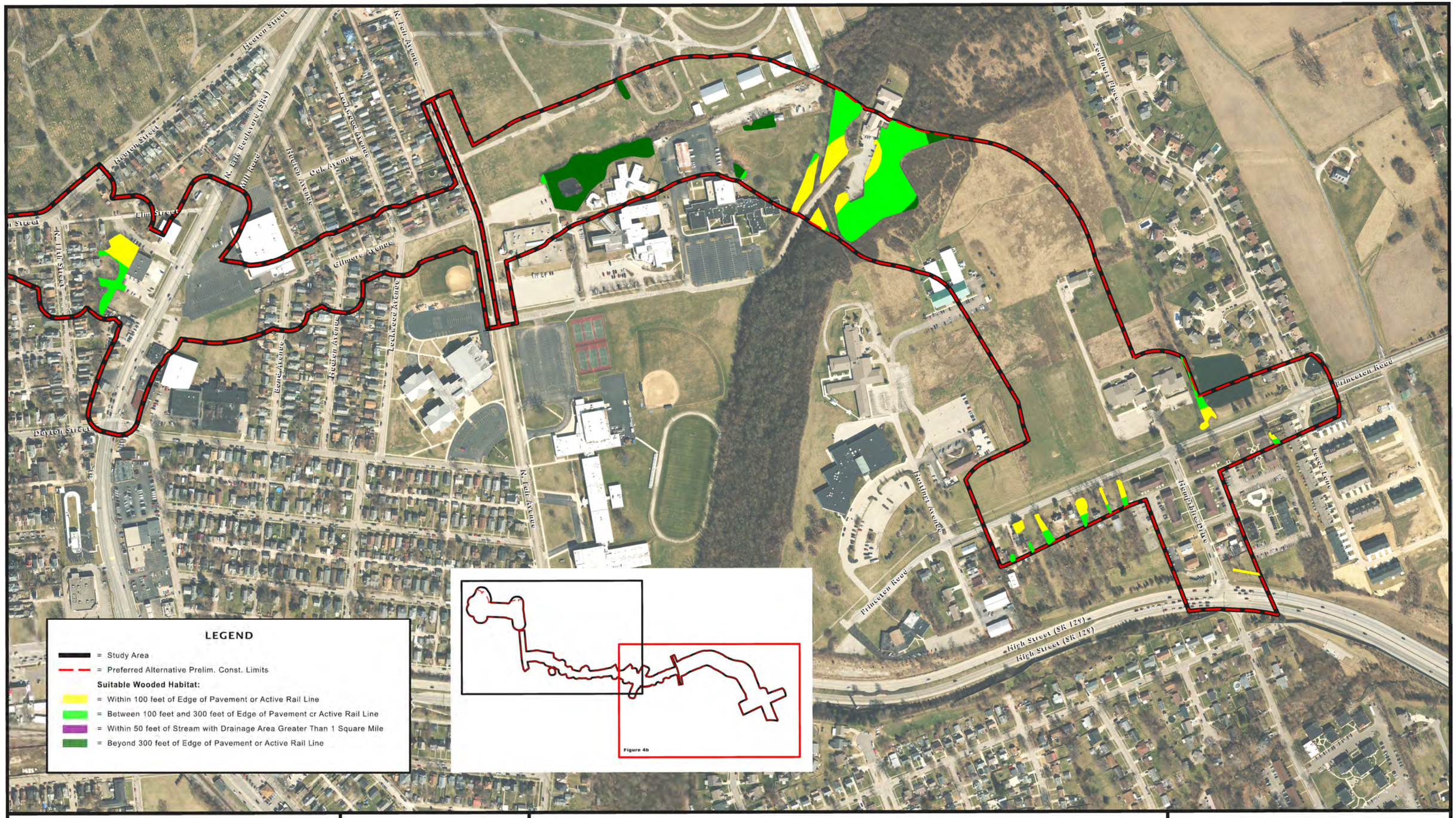
Stantec

Level 1 Ecological Survey Report

BUT-North Hamilton Crossing, PID 115755
Preferred Alternative, Butler County, Ohio

Figure 4a

Suitable Wooded Habitat



0 100 200 300 400 FEET

July 2025

NORTH

Stantec

Level 1 Ecological Survey Report

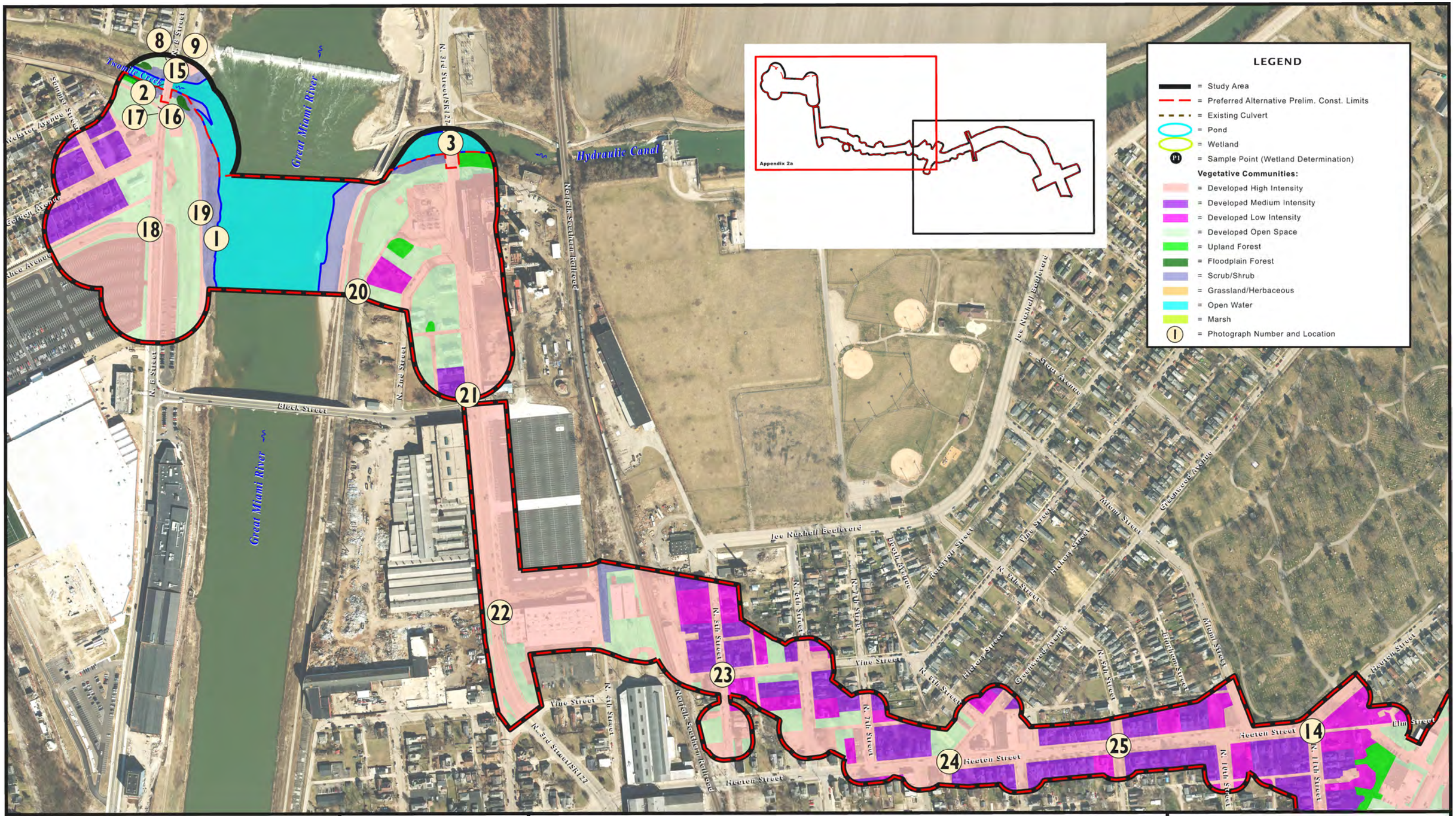
BUT-North Hamilton Crossing, PID 115755
Preferred Alternative, Butler County, Ohio

Figure 4b

Suitable Wooded Habitat

Appendix 2

Photo Log



0 100 200 300 400 FEET

July 2025

NORTH

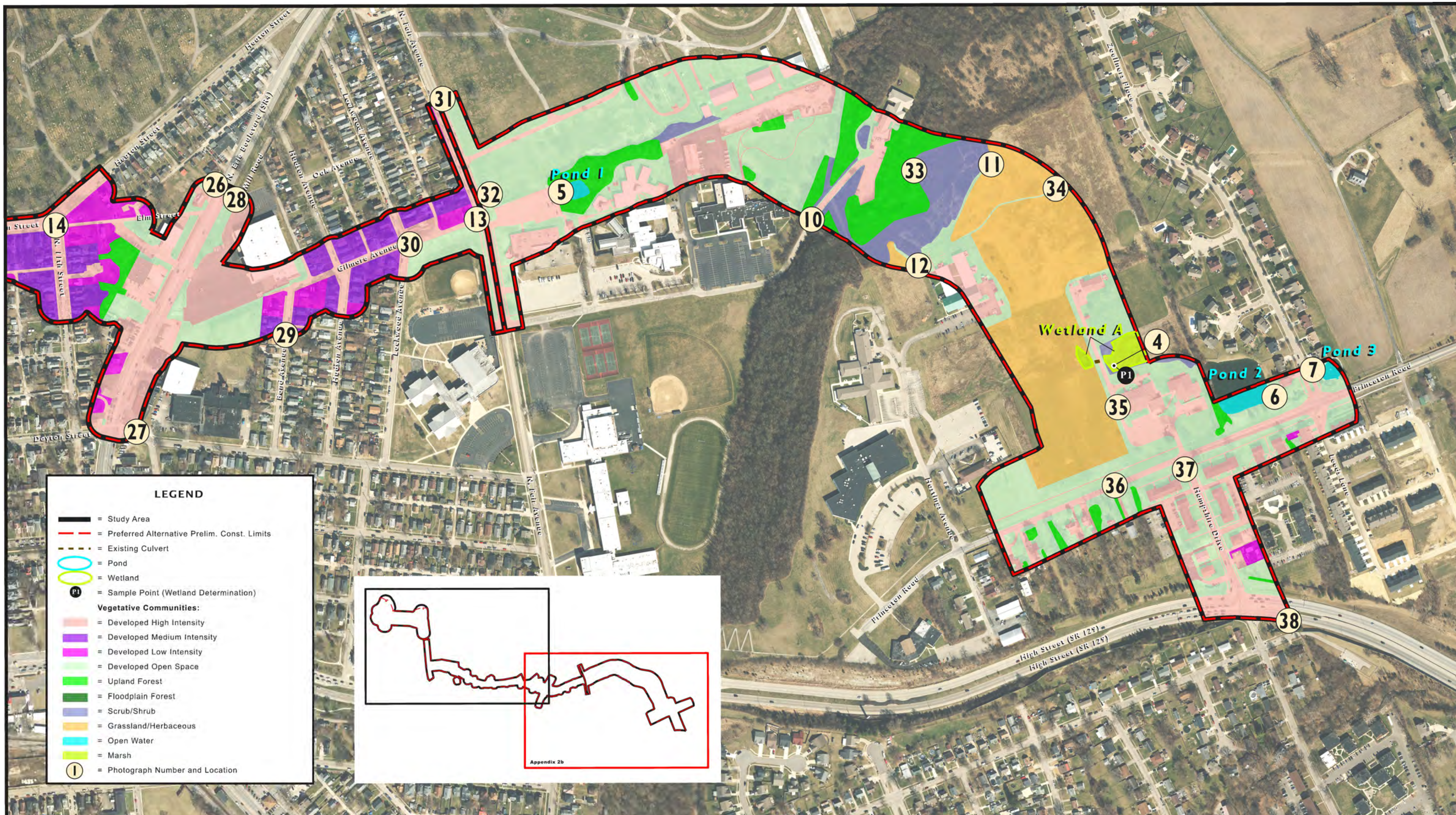
Stantec

Level 1 Ecological Survey Report

BUT-North Hamilton Crossing, PID 115755
Preferred Alternative, Butler County, Ohio

Appendix 2a

Photograph Location Map


LEGEND
= Study Area
= Preferred Alternative Prelim. Const. Limits
= Existing Culvert
= Pond
= Wetland
= Sample Point (Wetland Determination)
Vegetative Communities:
= Developed High Intensity
= Developed Medium Intensity
= Developed Low Intensity
= Developed Open Space
= Upland Forest
= Floodplain Forest
= Scrub/Shrub
= Grassland/Herbaceous
= Open Water
= Marsh
= Photograph Number and Location
Pond 1
Pond 2
Pond 3
Wetland A
P1
Appendix 2b
Princeton Road
High Street (SR 129)
Dayton Street
Elm Street
Gilmore Avenue
N. Fair Avenue
Hampshire Drive

0 100 200 300 400 FEET

July 2025

NORTH

Stantec

Level 1 Ecological Survey Report

BUT-North Hamilton Crossing, PID 115755
Preferred Alternative, Butler County, Ohio

Appendix 2b

Photograph Location Map

Stantec

Photographic Log

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 1 **Photo Location:** 1 **Direction:** Northeast **Survey Date:** 8/7/2024 **Comments:** Great Miami River, perennial, facing upstream.	
Photograph ID: 2 **Photo Location:** 1 **Direction:** Southeast **Survey Date:** 8/7/2024 **Comments:** Great Miami River, perennial, facing downstream.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 3 **Photo Location:** 1 **Direction:** Down **Survey Date:** 8/7/2024 **Comments:** Great Miami River, perennial, typical substrates.	

Photograph ID: 4 **Photo Location:** 2 **Direction:** Northwest **Survey Date:** 8/14/2024 **Comments:** Twomile Creek, perennial, facing upstream.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 5 **Photo Location:** 2 **Direction:** Southeast **Survey Date:** 8/14/2024 **Comments:** Twomile Creek, perennial, facing downstream.	
Photograph ID: 6 **Photo Location:** 2 **Direction:** Down **Survey Date:** 8/14/2024 **Comments:** Twomile Creek, perennial, typical substrates.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 7 **Photo Location:** 3 **Direction:** East **Survey Date:** 8/7/2024 **Comments:** Hydraulic Canal, perennial, facing upstream.	
Photograph ID: 8 **Photo Location:** 3 **Direction:** West **Survey Date:** 8/7/2024 **Comments:** Hydraulic Canal, perennial, facing downstream.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 9 **Photo Location:** 3 **Direction:** Down **Survey Date:** 8/7/2024 **Comments:** Hydraulic Canal, perennial, typical substrates.	
Photograph ID: 10 **Photo Location:** 4 **Direction:** North **Survey Date:** 9/19/2024 **Comments:** Wetland A, Sample Point P1.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 11 **Photo Location:** 4 **Direction:** East **Survey Date:** 9/19/2024 **Comments:** Wetland A, Sample Point P1.	
Photograph ID: 12 **Photo Location:** 4 **Direction:** South **Survey Date:** 9/19/2024 **Comments:** Wetland A, Sample Point P1.	

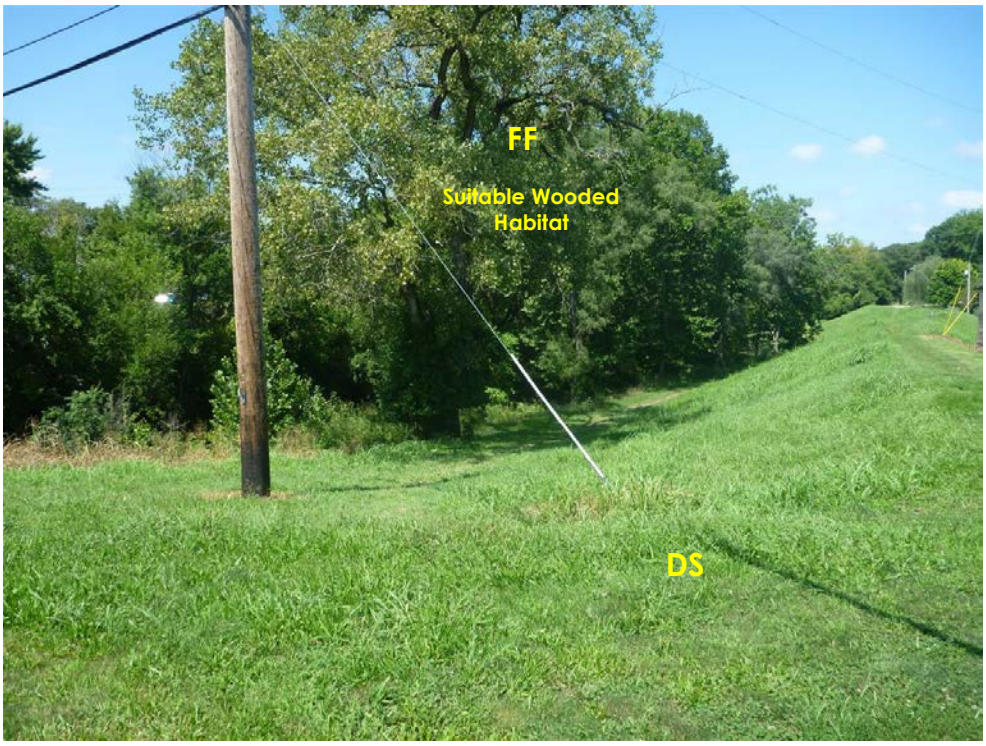
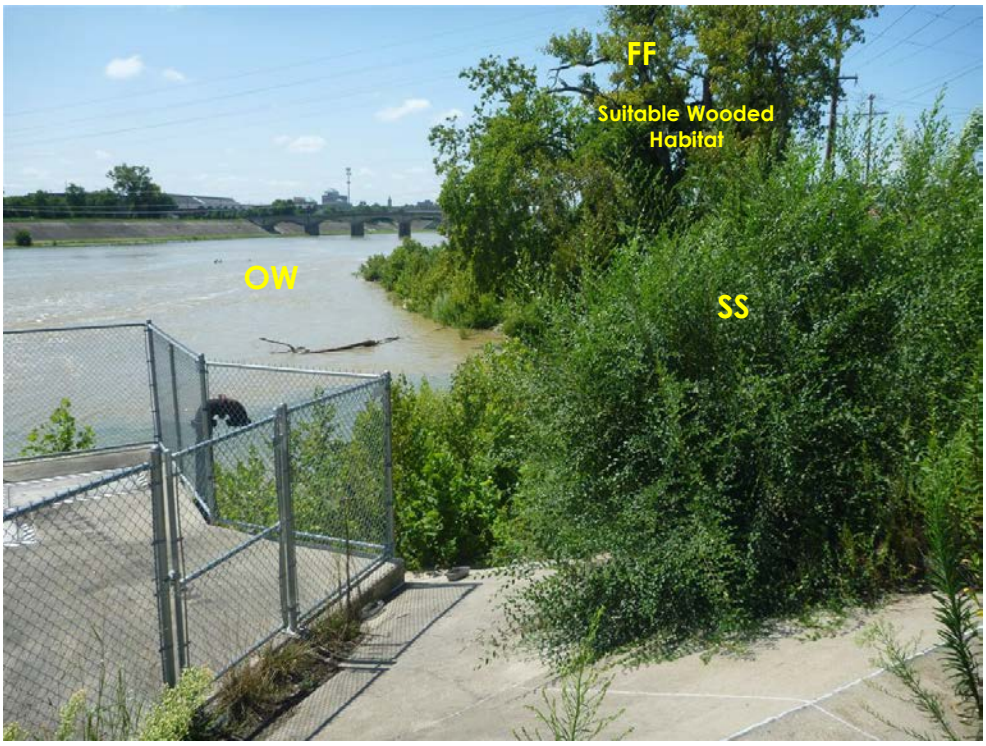
Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 13 **Photo Location:** 4 **Direction:** West **Survey Date:** 9/19/2024 **Comments:** Wetland A, Sample Point P1.	
Photograph ID: 14 **Photo Location:** 5 **Direction:** Southeast **Survey Date:** 9/19/2024 **Comments:** Pond 1.	

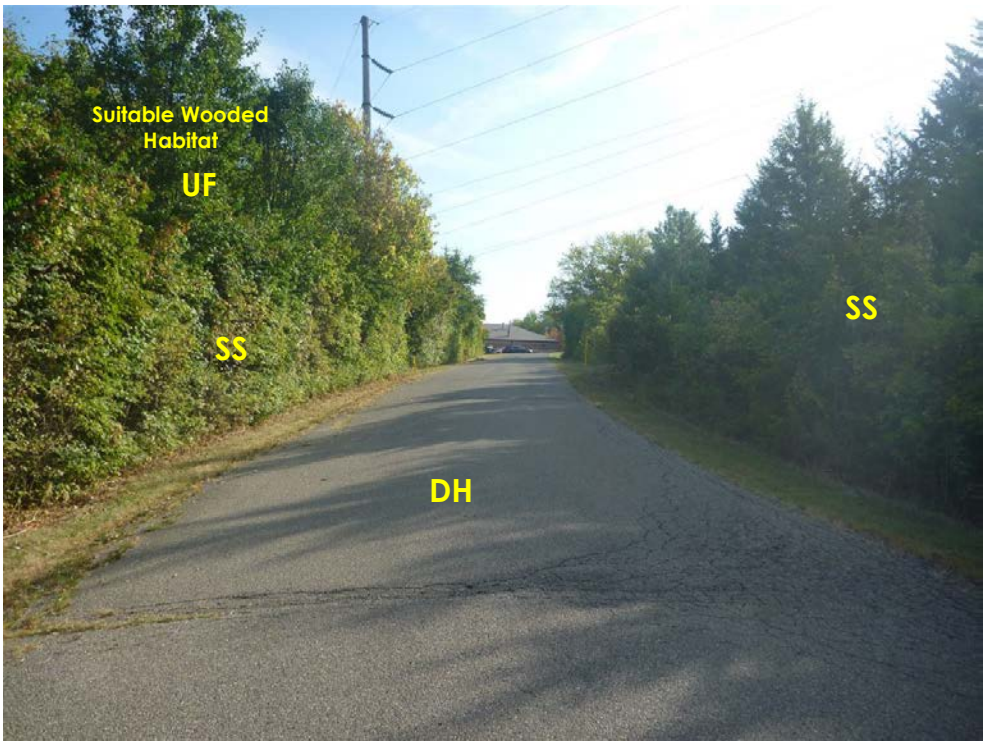
Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 15 **Photo Location:** 6 **Direction:** Northwest **Survey Date:** 8/14/2024 **Comments:** Pond 2.	
Photograph ID: 16 **Photo Location:** 7 **Direction:** Southeast **Survey Date:** 8/14/2024 **Comments:** Pond 3.	

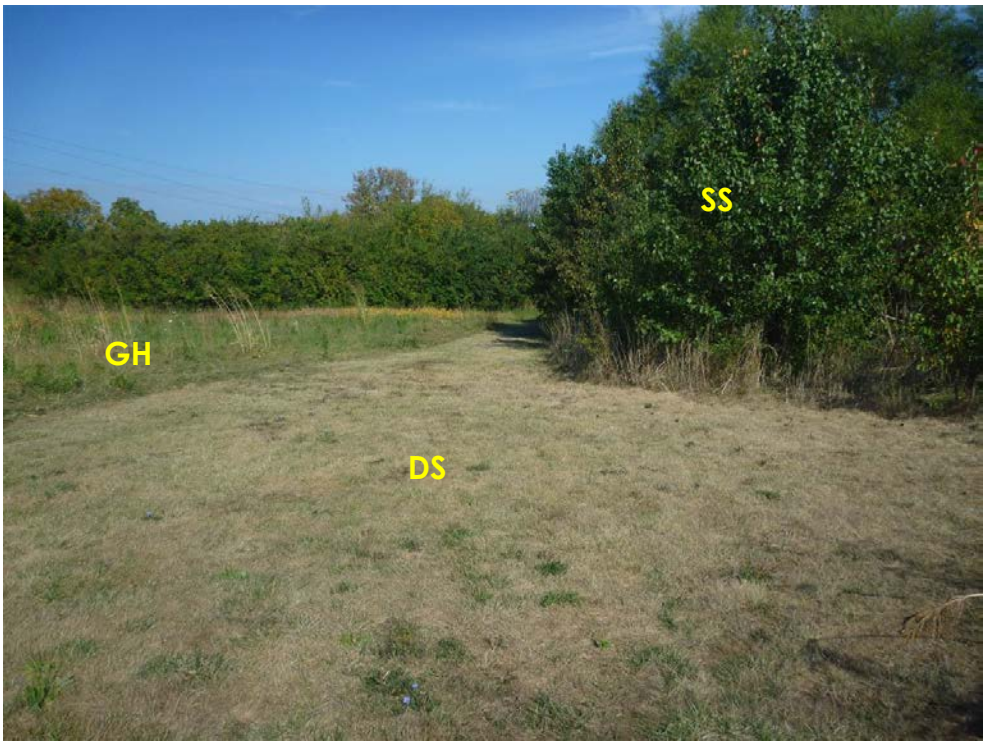
Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 17 **Photo Location:** 8 **Direction:** Northwest **Survey Date:** 8/7/2024 **Comments:** Developed Open Space (DS) and Floodplain Forest (FF) vegetative communities.	
Photograph ID: 18 **Photo Location:** 9 **Direction:** South **Survey Date:** 8/7/2024 **Comments:** Scrub/Shrub (SS), Floodplain Forest (FF), and Open Water (OW) vegetative communities.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 19 **Photo Location:** 10 **Direction:** Northeast **Survey Date:** 9/19/2024 **Comments:** Developed High Intensity (DH), Scrub/Shrub (SS), and Upland Forest (UF) vegetative communities.	
Photograph ID: 20 **Photo Location:** 11 **Direction:** South **Survey Date:** 9/19/2024 **Comments:** Grassland/Herbaceous (GH) vegetative community.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 21 **Photo Location:** 12 **Direction:** Northwest **Survey Date:** 9/19/2024 **Comments:** Developed Open Space (DS), Scrub/Shrub (SS), and Grassland/Herbaceous (GH) vegetative communities.	
Photograph ID: 22 **Photo Location:** 13 **Direction:** West **Survey Date:** 8/8/2024 **Comments:** Developed Open Space (DS), Developed High Intensity (DH), and Developed Low Intensity (DL) vegetative communities.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 23 **Photo Location:** 14 **Direction:** Northwest **Survey Date:** 8/8/2024 **Comments:** Developed High Intensity (DH) and Developed Medium Intensity (DM) vegetative communities.	
Photograph ID: 24 **Photo Location:** 14 **Direction:** Southeast **Survey Date:** 8/8/2024 **Comments:** Developed High Intensity (DH) and Developed Low Intensity (DL) vegetative communities.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 25 **Photo Location:** 15 **Direction:** Southeast **Survey Date:** 8/7/2024 **Comments:** Great Miami River dam from Combs Park driveway.	

Photograph ID: 26 **Photo Location:** 16 **Direction:** Northwest **Survey Date:** 8/7/2024 **Comments:** Entrance to Phase 2 portion of Beltline Trail.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 27 **Photo Location:** 17 **Direction:** Southwest **Survey Date:** 8/7/2024 **Comments:** View of Riverview Food Mart and North B Street.	
Photograph ID: 28 **Photo Location:** 18 **Direction:** Northwest **Survey Date:** 8/7/2024 **Comments:** Rhea Avenue intersection with North B Street.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 29 **Photo Location:** 19 **Direction:** Southwest **Survey Date:** 8/7/2024 **Comments:** Great Miami River west bank floodwall.	
Photograph ID: 30 **Photo Location:** 20 **Direction:** North **Survey Date:** 8/7/2024 **Comments:** Great Miami River Trail and east bank floodwall.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 31 **Photo Location:** 21 **Direction:** Northeast **Survey Date:** 8/7/2024 **Comments:** Residences and Hamilton Power Plant from US 127.	
Photograph ID: 32 **Photo Location:** 22 **Direction:** North **Survey Date:** 8/8/2024 **Comments:** Industrial sites along US 127.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 33 **Photo Location:** 23 **Direction:** Southeast **Survey Date:** 8/7/2024 **Comments:** Residences along Vine Street from intersection with North 5th Street.	
Photograph ID: 34 **Photo Location:** 23 **Direction:** Northwest **Survey Date:** 8/7/2024 **Comments:** Residences along Vine Street from intersection with North 5th Street.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 35 **Photo Location:** 24 **Direction:** Northwest **Survey Date:** 8/8/2024 **Comments:** Residences and businesses along Heaton Street.	

Photograph ID: 36 **Photo Location:** 25 **Direction:** Northeast **Survey Date:** 8/8/2024 **Comments:** Residences and historic firehouse along North 9th Street from intersection with Heaton Street.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 37 **Photo Location:** 26 **Direction:** Southwest **Survey Date:** 8/8/2024 **Comments:** Businesses and fire station along North Erie Boulevard (State Route 4).	
Photograph ID: 38 **Photo Location:** 27 **Direction:** Northwest **Survey Date:** 8/8/2024 **Comments:** Intersection of North Erie Boulevard (State Route 4) and Dayton Street.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 39 **Photo Location:** 28 **Direction:** Southwest **Survey Date:** 8/8/2024 **Comments:** Butler County Educational Service Center parking lot and North Erie Boulevard (State Route 4).	

Photograph ID: 40 **Photo Location:** 29 **Direction:** Northeast **Survey Date:** 8/8/2024 **Comments:** View of Bond Avenue.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 41 **Photo Location:** 30 **Direction:** Southwest **Survey Date:** 8/8/2024 **Comments:** Fairwood Elementary School and residences along Lockwood Avenue.	
Photograph ID: 42 **Photo Location:** 31 **Direction:** South **Survey Date:** 8/14/2024 **Comments:** Butler County Fairgrounds and North Fair Avenue.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 43 **Photo Location:** 32 **Direction:** South **Survey Date:** 8/14/2024 **Comments:** View along North Fair Avenue.	
Photograph ID: 44 **Photo Location:** 33 **Direction:** South **Survey Date:** 9/19/2024 **Comments:** Maintained trail for the Animal Friends Humane Society.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 45 **Photo Location:** 34 **Direction:** West **Survey Date:** 9/19/2024 **Comments:** Animal Friends Humane Society building and maintained trail.	
Photograph ID: 46 **Photo Location:** 35 **Direction:** North **Survey Date:** 9/19/2024 **Comments:** Animal Friends Humane Society building and Transitional Inc. buildings.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 47 **Photo Location:** 36 **Direction:** East **Survey Date:** 8/14/2024 **Comments:** View along Princeton Road.	
Photograph ID: 48 **Photo Location:** 37 **Direction:** South **Survey Date:** 8/14/2024 **Comments:** Princeton Square Apartments along Hampshire Drive.	

Client:	**City of Hamilton**	**Project:**	**BUT-North Hamilton Crossing; PID 115755**
Site Name:	**North Hamilton Crossing**	**Site Location:**	**Butler County, Ohio**

Photograph ID: 49

Photo Location:
38

Direction:
Northwest

Survey Date:
8/14/2024

Comments:
Princeton Square Apartments at intersection of High Street (State Route 129) and Hampshire Drive.

Appendix 3

Plans

PLANS UNDER DEVELOPMENT

(see Figure 3 in Appendix 1
for study area limits)

Appendix 4

Forms

Stream Data Forms

Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 58.5

Stream & Location: Twomile Creek **RM:** 0.3 **Date:** 8 / 14 / 24

Hamilton, Ohio **Scorers Full Name & Affiliation:** Raymond Gonzo; Stantec

River Code: _ _ _ - _ _ _ - _ _ _ **STORET #:** _ _ _ _ _ _ **Lat./ Long.:** (NAD 83 - decimal °) 39.41350 / -84.55800 Office verified location ☐

1] SUBSTRATE

Check *ONLY* **Two** substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]			☐ ☐ HARDPAN [4]		
☐ ☐ BOULDER [9]	Present	Present	☐ ☐ DETRITUS [3]		
☒ ☐ COBBLE [8]	Present	Present	☐ ☐ MUCK [2]		
☐ ☒ GRAVEL [7]	Present	Present	☐ ☐ SILT [2]	Present	Present
☐ ☐ SAND [6]	Present	Present	☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☐ LIMESTONE [1]
- ☒ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

EMBEDDEDNESS

SILT
- ☐ HEAVY [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]

QUALITY
- ☐ EXTENSIVE [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

Substrate 16 *Maximum 20*

Comments

2] INSTREAM COVER

Indicate presence 0 to 3: **0**-Absent; **1**-Very small amounts or if more common of marginal quality; **2**-Moderate amounts, but not of highest quality or in small amounts of highest quality; **3**-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

- 0 UNDERCUT BANKS [1]
- 1 OVERHANGING VEGETATION [1]
- 1 SHALLOWS (IN SLOW WATER) [1]
- 0 ROOTMATS [1]
- 1 POOLS > 70cm [2]
- 0 ROOTWADS [1]
- 2 BOULDERS [1]
- 0 OXBOWS, BACKWATERS [1]
- 0 AQUATIC MACROPHYTES [1]
- 1 LOGS OR WOODY DEBRIS [1]

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☒ MODERATE 25-75% [7]
- ☒ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover Maximum 20 11

3] CHANNEL MORPHOLOGY

Check ONE in each category (*Or 2 & average*)

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☐ LOW [2]
- ☒ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☒ FAIR [3]
- ☐ POOR [1]

CHANNELIZATION
- ☐ NONE [6]
- ☒ RECOVERED [4]
- ☐ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☒ HIGH [3]
- ☐ MODERATE [2]
- ☐ LOW [1]

Comments

Channel Maximum 20 11

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for *EACH BANK* (*Or 2 per bank & average*)

River right looking downstream

EROSION

L	R	
☒	☒	NONE / LITTLE [3]
☐	☐	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

RIPARIAN WIDTH

L	R	
☐	☐	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☐	☐	NARROW 5-10m [2]
☒	☒	VERY NARROW < 5m [1]
☐	☐	NONE [0]

FLOOD PLAIN QUALITY

L	R	
☐	☐	FOREST, SWAMP [3]
☐	☐	SHRUB OR OLD FIELD [2]
☒	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☐	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☒	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian Maximum 10 4.50

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check **ONE** (*ONLY!*)
- ☒ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH

Check ONE (*Or 2 & average*)
- ☐ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☒ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☒ MODERATE [1]
- ☒ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

Pool / Current Maximum 12 8

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (*Or 2 & average*). ☐ NO RIFFLE [metric=0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☒ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☒ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE
- ☒ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☒ MODERATE [0]
- ☐ EXTENSIVE [-1]

Comments

Riffle / Run Maximum 8 4

6] GRADIENT

(71.43 ft/mi) **DRAINAGE AREA** (8.46 mi²)

- ☒ VERY LOW - LOW [2-4]
- ☐ MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL: 10.00 %GLIDE: 30.00 %RUN: 10.00 %RIFFLE: 50.00

Gradient Maximum 10 4

A] SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
- ☒ WADE
- ☐ L. LINE
- ☐ OTHER

STAGE

1st -sample pass-	2nd
☐ HIGH	☐
☐ UP	☐
☐ NORMAL	☐
☒ LOW	☐
☐ DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☐ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☒ OTHER

50 meters

CLARITY

1st --sample pass--	2nd
☐ < 20 cm	☐
☐ 20-<40 cm	☐
☒ 40-70 cm	☐
☐ > 70 cm/ CTB	☐
☐ SECCHI DEPTH	☐

CANOPY

- ☐ > 85%- OPEN
- ☒ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

1st pass _____ cm

2nd _____ cm

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Photo Location 2

pH: 8.6 Temperature: 21.5 Celsius Conductivity: 710 microsiemens Dissolved Oxyegen: 7.2 mg/L or 86.5%

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☒ FOAM / SCUM
- ☐ OIL SHEEN
- ☒ TRASH / LITTER
- ☒ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☐ >100ft² ☒ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

E] ISSUES

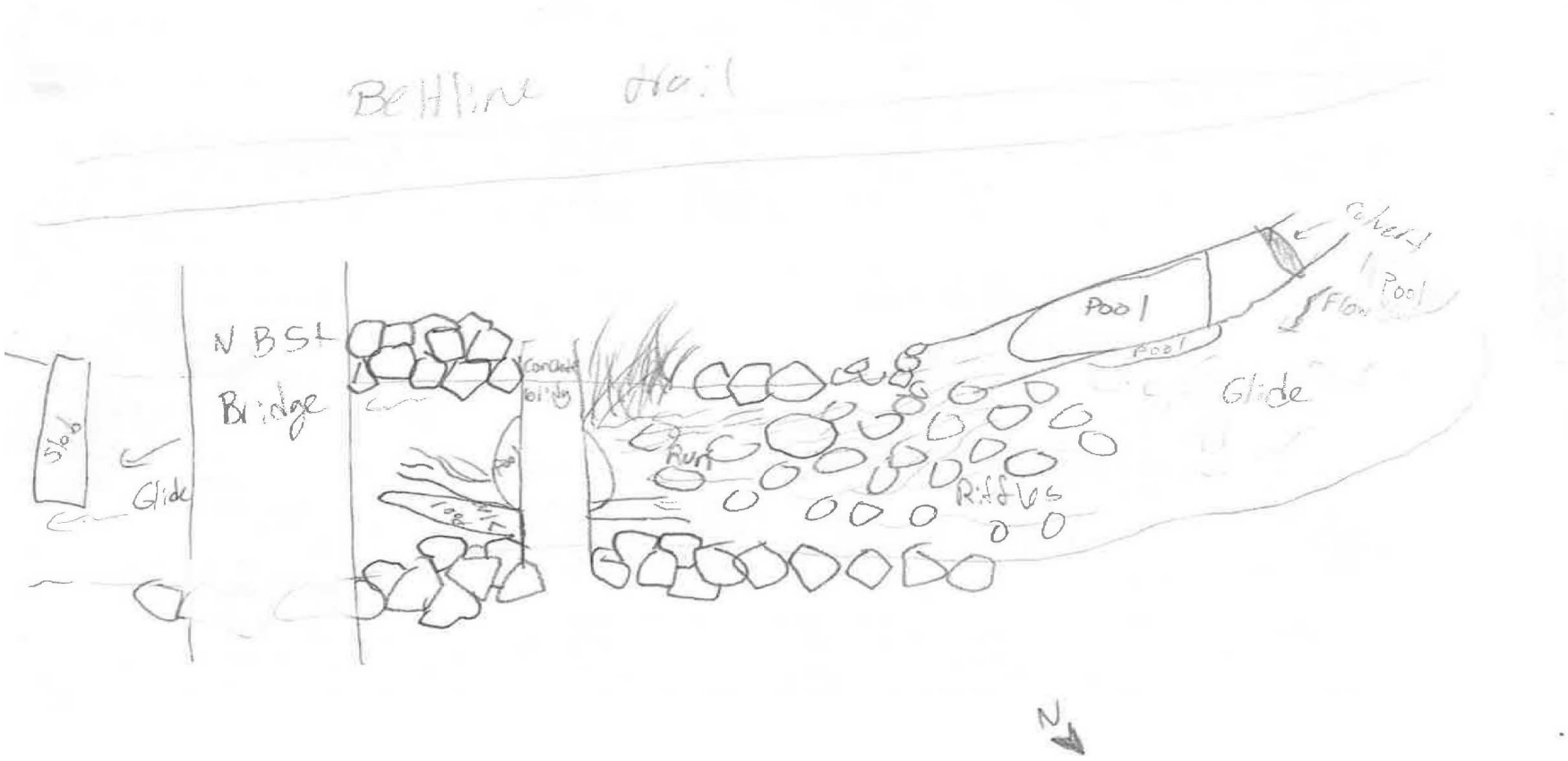
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- $\bar{x}$ width 12 m
- $\bar{x}$ depth 15.6cm
- max. depth >1m
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Qualitative Habitat Evaluation Index and Use Assessment Field Sheet

QHEI Score: 51.0

Stream & Location: Hydraulic Canal; Hamilton, OH **RM:** 0.4 **Date:** 8 / 7 / 24

Scorers Full Name & Affiliation: Raymond Gonzo; Stantec

River Code: ___-___-___ **STORET #:** _____ **Lat./ Long.:** (NAD 83 - decimal °) 39.40941 / -84.54959 Office verified location ☐

1] SUBSTRATE

Check *ONLY* **Two** substrate *TYPE BOXES*; estimate % or note every type present

BEST TYPES	POOL	RIFFLE	OTHER TYPES	POOL	RIFFLE
☐ ☐ BLDR /SLABS [10]			☐ ☐ HARDPAN [4]		
☐ ☐ BOULDER [9]	present		☐ ☐ DETRITUS [3]		
☐ ☐ COBBLE [8]	present		☐ ☐ MUCK [2]		
☐ ☐ GRAVEL [7]	present		☒ ☐ SILT [2]	present	
☐ ☒ SAND [6]	present		☐ ☐ ARTIFICIAL [0]		
☐ ☐ BEDROCK [5]					

(Score natural substrates; ignore sludge from point-sources)

NUMBER OF BEST TYPES: ☒ 4 or more [2] ☐ 3 or less [0]

Check ONE (*Or 2 & average*)

ORIGIN
- ☐ LIMESTONE [1]
- ☒ TILLS [1]
- ☐ WETLANDS [0]
- ☐ HARDPAN [0]
- ☐ SANDSTONE [0]
- ☐ RIP/RAP [0]
- ☐ LACUSTURINE [0]
- ☐ SHALE [-1]
- ☐ COAL FINES [-2]

SILT / EMBEDDEDNESS

QUALITY
- ☒ HEAVY [-2]
- ☐ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ FREE [1]
- ☐ EXTENSIVE [-2]
- ☒ MODERATE [-1]
- ☐ NORMAL [0]
- ☐ NONE [1]

Comments

Substrate 8 *Maximum 20*

2] INSTREAM COVER

Indicate presence 0 to 3: **0**-Absent; **1**-Very small amounts or if more common of marginal quality; **2**-Moderate amounts, but not of highest quality or in small amounts of highest quality; **3**-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

0	UNDERCUT BANKS [1]	2	POOLS > 70cm [2]	1	OXBOWS, BACKWATERS [1]
1	OVERHANGING VEGETATION [1]	0	ROOTWADS [1]	2	AQUATIC MACROPHYTES [1]
0	SHALLOWS (IN SLOW WATER) [1]	1	BOULDERS [1]	1	LOGS OR WOODY DEBRIS [1]
0	ROOTMATS [1]				

AMOUNT

Check ONE (*Or 2 & average*)
- ☐ EXTENSIVE >75% [11]
- ☒ MODERATE 25-75% [7]
- ☒ SPARSE 5-<25% [3]
- ☐ NEARLY ABSENT <5% [1]

Comments

Cover Maximum 20 12

3] CHANNEL MORPHOLOGY

Check ONE in each category (*Or 2 & average*)

SINUOSITY
- ☐ HIGH [4]
- ☐ MODERATE [3]
- ☒ LOW [2]
- ☒ NONE [1]

DEVELOPMENT
- ☐ EXCELLENT [7]
- ☐ GOOD [5]
- ☐ FAIR [3]
- ☒ POOR [1]

CHANNELIZATION
- ☐ NONE [6]
- ☒ RECOVERED [4]
- ☐ RECOVERING [3]
- ☐ RECENT OR NO RECOVERY [1]

STABILITY
- ☒ HIGH [3]
- ☐ MODERATE [2]
- ☐ LOW [1]

Comments

Channel Maximum 20 9.5

4] BANK EROSION AND RIPARIAN ZONE

Check **ONE** in each category for *EACH BANK* (*Or 2 per bank & average*)

River right looking downstream

L	R	EROSION
☒	☒	NONE / LITTLE [3]
☐	☐	MODERATE [2]
☐	☐	HEAVY / SEVERE [1]

L	R	RIPARIAN WIDTH
☐	☐	WIDE > 50m [4]
☐	☐	MODERATE 10-50m [3]
☐	☐	NARROW 5-10m [2]
☒	☒	VERY NARROW < 5m [1]
☐	☐	NONE [0]

L	R	FLOOD PLAIN QUALITY
☐	☐	FOREST, SWAMP [3]
☐	☐	SHRUB OR OLD FIELD [2]
☒	☐	RESIDENTIAL, PARK, NEW FIELD [1]
☐	☐	FENCED PASTURE [1]
☐	☒	OPEN PASTURE, ROWCROP [0]

L	R	
☐	☐	CONSERVATION TILLAGE [1]
☐	☐	URBAN OR INDUSTRIAL [0]
☐	☐	MINING / CONSTRUCTION [0]

Indicate predominant land use(s) past 100m riparian.

Comments

Riparian Maximum 10 4.5

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

MAXIMUM DEPTH

Check **ONE** (*ONLY!*)
- ☒ > 1m [6]
- ☐ 0.7-<1m [4]
- ☐ 0.4-<0.7m [2]
- ☐ 0.2-<0.4m [1]
- ☐ < 0.2m [0]

CHANNEL WIDTH

Check ONE (*Or 2 & average*)
- ☒ POOL WIDTH > RIFFLE WIDTH [2]
- ☐ POOL WIDTH = RIFFLE WIDTH [1]
- ☐ POOL WIDTH < RIFFLE WIDTH [0]

CURRENT VELOCITY

Check ALL that apply
- ☐ TORRENTIAL [-1]
- ☐ VERY FAST [1]
- ☐ FAST [1]
- ☒ MODERATE [1]
- ☒ SLOW [1]
- ☐ INTERSTITIAL [-1]
- ☐ INTERMITTENT [-2]
- ☐ EDDIES [1]

Indicate for reach - pools and riffles.

Recreation Potential
Primary Contact
Secondary Contact
(circle one and comment on back)

Comments

Pool / Current Maximum 12 10

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (*Or 2 & average*).

☒ NO RIFFLE [metric=0]

RIFFLE DEPTH
- ☐ BEST AREAS > 10cm [2]
- ☐ BEST AREAS 5-10cm [1]
- ☐ BEST AREAS < 5cm [metric=0]

RUN DEPTH
- ☐ MAXIMUM > 50cm [2]
- ☐ MAXIMUM < 50cm [1]

RIFFLE / RUN SUBSTRATE
- ☐ STABLE (e.g., Cobble, Boulder) [2]
- ☐ MOD. STABLE (e.g., Large Gravel) [1]
- ☐ UNSTABLE (e.g., Fine Gravel, Sand) [0]

RIFFLE / RUN EMBEDDEDNESS
- ☐ NONE [2]
- ☐ LOW [1]
- ☐ MODERATE [0]
- ☐ EXTENSIVE [-1]

Comments

Riffle / Run Maximum 8 0

6] GRADIENT

(34.20 ft/mi)

DRAINAGE AREA

(5.60 mi²)

- ☐ VERY LOW - LOW [2-4]
- ☒ MODERATE [6-10]
- ☐ HIGH - VERY HIGH [10-6]

%POOL: 100.00 %GLIDE: 0.00

%RUN: 0.00 %RIFFLE: 0.00

Gradient Maximum 10 7

A] SAMPLED REACH

Check ALL that apply

METHOD

- ☐ BOAT
- ☐ WADE
- ☐ L. LINE
- ☒ OTHER

STAGE

1st -sample pass- 2nd

1st		2nd
☐	HIGH	☐
☐	UP	☐
☒	NORMAL	☐
☐	LOW	☐
☐	DRY	☐

DISTANCE

- ☐ 0.5 Km
- ☒ 0.2 Km
- ☐ 0.15 Km
- ☐ 0.12 Km
- ☐ OTHER

_____ meters

CLARITY

1st --sample pass-- 2nd

1st		2nd
☒	< 20 cm	☐
☐	20-<40 cm	☐
☐	40-70 cm	☐
☐	> 70 cm/ CTB	☐
☐	SECCHI DEPTH	☐

CANOPY

- ☒ > 85%- OPEN
- ☐ 55%-<85%
- ☐ 30%-<55%
- ☐ 10%-<30%
- ☐ <10%- CLOSED

1st pass _____ cm

2nd _____ cm

Comment RE: Reach consistency/ Is reach typical of steam?, *Recreation/* Observed - Inferred, *Other/* Sampling observations, Concerns, Access directions, etc.

Photo Location 3

pH: 8.1 Temperature: 29.9 Celcius Conductivity: 751 microseiemens Dissolved Oxygen: 5.3 mg/L or 71.2%

B] AESTHETICS

- ☐ NUISANCE ALGAE
- ☐ INVASIVE MACROPHYTES
- ☐ EXCESS TURBIDITY
- ☐ DISCOLORATION
- ☐ FOAM / SCUM
- ☐ OIL SHEEN
- ☒ TRASH / LITTER
- ☐ NUISANCE ODOR
- ☐ SLUDGE DEPOSITS
- ☐ CSOs/SSOs/OUTFALLS

C] RECREATION

AREA DEPTH

POOL: ☒ >100ft² ☒ >3ft

D] MAINTENANCE

Circle some & *COMMENT*

PUBLIC / PRIVATE / BOTH / NA
ACTIVE / HISTORIC / BOTH / NA
YOUNG-SUCCESSION-OLD
SPRAY / SNAG / REMOVED
MODIFIED / DIPPED OUT / NA
LEVEED / ONE SIDED
RELOCATED / CUTOFFS
MOVING-BEDLOAD-STABLE
ARMOURED / SLUMPS
ISLANDS / SCOURED
IMPOUNDED / DESICCATED
FLOOD CONTROL / DRAINAGE

E] ISSUES

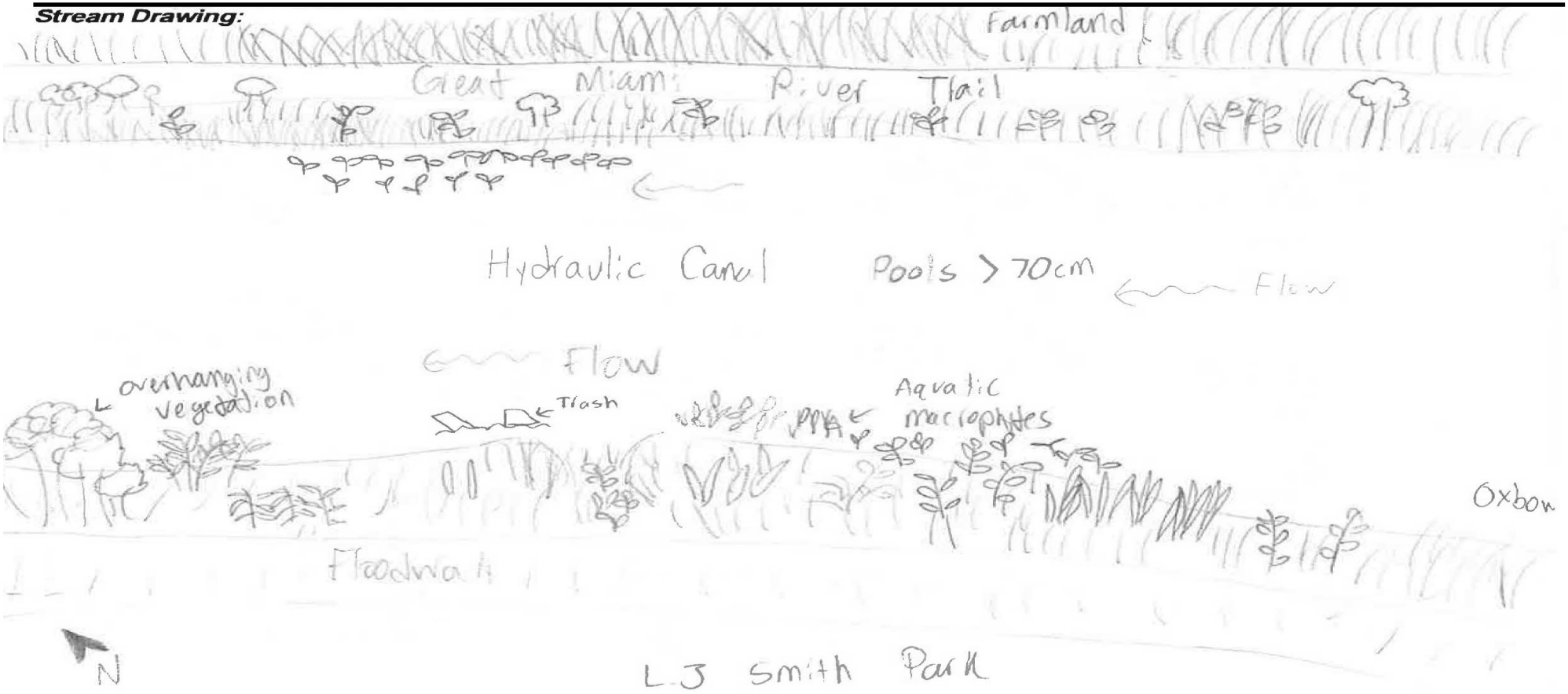
WWTP / CSO / NPDES / INDUSTRY
HARDENED / URBAN / DIRT&GRIME
CONTAMINATED / LANDFILL
BMPs-CONSTRUCTION-SEDIMENT
LOGGING / IRRIGATION / COOLING
BANK / EROSION / SURFACE
FALSE BANK / MANURE / LAGOON
WASH H_20 / TILE / H_20 TABLE
ACID / MINE / QUARRY / FLOW
NATURAL / WETLAND / STAGNANT
PARK / GOLF / LAWN / HOME
ATMOSPHERE / DATA PAUCITY

F] MEASUREMENTS

- $\bar{x}$ width 55 m
- $\bar{x}$ depth > 1 m
- max. depth
- $\bar{x}$ bankfull width
- bankfull $\bar{x}$ depth
- W/D ratio
- bankfull max. depth
- floodprone x^2 width
- entrench. ratio

Legacy Tree:

Stream Drawing:



Wetland Data Forms

WETLAND DETERMINATION DATA FORM
Midwest Region

Project/Site:	BUT-North Hamilton Crossing	Stantec Project #:	173620130
Applicant:	City of Hamilton		
Investigator #1:	Michael de Villiers	Investigator #2:	Raymond Gonzo
Soil Unit:	Urban land complex, 0-2% slopes (RdUA)	NWI/WWI Classification:	N/A
Landform:	Swale	Local Relief:	Concave
Slope (%):	0	Latitude: 39.39372°N	Longitude: -84.53353°W Datum: NAD 83

Date:	09/19/24
County:	Butler
State:	Ohio
Wetland ID:	Wetland A
Sample Point:	P1
Community ID:	PEM
Section:	S26
Township:	T2E
Range:	R3N Dir: --

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed?
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☐ Yes ☑ No

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	☑ Yes ☐ No	Hydric Soils Present?	☑ Yes ☐ No
Wetland Hydrology Present?	☑ Yes ☐ No	Is This Sampling Point Within A Wetland?	☑ **Yes** ☐ **No**

Remarks: --

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☐):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B14 - True Aquatic Plants
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ D9 - Gauge or Well Data
- ☐ Other (Explain in Remarks)

Secondary:
- ☑ B6 - Surface Soil Cracks
- ☑ B10 - Drainage Patterns
- ☐ C2 - Dry-Season Water Table
- ☑ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☑ D2 - Geomorphic Position
- ☑ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth: --	(in.)
Water Table Present?	☐ Yes	☑ No	Depth: --	(in.)
Saturation Present?	☐ Yes	☑ No	Depth: --	(in.)

Wetland Hydrology Present? ☑ Yes ☐ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: --

Remarks:

SOILS

Map Unit Name: Urban land complex, 0-2% slopes (RdUA)

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Location	Texture (e.g. clay, sand, loam)
0	20	1	10YR 3/1	95	10YR 4/6	5	C	M	silty clay loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A10 - 2 cm Muck
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S3 - 5 cm Mucky Peat or Peat
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ F1 - Loamy Muck Mineral
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☑ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A16 - Coast Prairie Redox
- ☐ S7 - Dark Surface
- ☐ F12 - Iron-Manganese Masses
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: -- Depth: --

Hydric Soil Present? ☑ Yes ☐ No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM
Midwest Region

Project/Site: BUT-North Hamilton Crossing | Wetland ID: Wetland A | Sample Point: P1

VEGETATION

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 5 ft radius)

1.	*Carex scoparia*	5	N	FACW
2.	*Lycopus americanus*	5	N	OBL
3.	*Typha latifolia*	60	Y	OBL
4.	*Carex lupulina*	5	N	OBL
5.	*Dipsacus fullonum*	2	N	FACU
6	*Asclepias incarnata*	2	N	OBL
7.	*Justicia americana*	30	Y	OBL
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	109		

Woody Vine Stratum (Plot size: 30 ft radius)

1.	*Vitis aestivalis*	5	Y	FACU
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	5		

Remarks: --

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***67%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	102	x 1 =	102
FACW spp.	5	x 2 =	10
FAC spp.	0	x 3 =	0
FACU spp.	7	x 4 =	28
UPL spp.	0	x 5 =	0
Total	114 (A)		140 (B)

Prevalence Index = B/A = ***1.228***

Hydrophytic Vegetation Indicators:

- ☐ Yes ☐ No Rapid Test for Hydrophytic Vegetation
- ☑ Yes ☐ No Dominance Test is > 50%
- ☑ Yes ☐ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☐ No Morphological Adaptations (Explain) *
- ☐ Yes ☐ No Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☑ Yes ☐ No

Additional Remarks:

Photo Location 4: North, East, South, West

WETLAND DETERMINATION DATA FORM
Midwest Region

Project/Site:	BUT-North Hamilton Crossing	Stantec Project #:	173620130
Applicant:	City of Hamilton		
Investigator #1:	Michael de Villiers	Investigator #2:	Raymond Gonzo
Soil Unit:	Raub-urban land complex, 0-2% slopes (RdUA)	NWI/WWI Classification:	N/A
Landform:	Toeslope	Local Relief:	Convex
Slope (%):	1	Latitude: 39.39373°N	Longitude: -84.53364°W Datum: NAD 83

Are climatic/hydrologic conditions on the site typical for this time of year? (If no, explain in remarks) ☑ Yes ☐ No

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed?
Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic?

Are normal circumstances present? ☑ Yes ☐ No

Date:	09/19/24
County:	Butler
State:	Ohio
Wetland ID:	Wetland A
Sample Point:	P2
Community ID:	UPLAND
Section:	S26
Township:	T2E
Range:	R3N Dir: --

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present? ☐ Yes ☑ No
Wetland Hydrology Present? ☐ Yes ☑ No
Hydric Soils Present? ☐ Yes ☑ No
Is This Sampling Point Within A Wetland? ☐ **Yes** ☑ **No**

Remarks: --

HYDROLOGY

Wetland Hydrology Indicators (Check here if indicators are not present ☑):

Primary:
- ☐ A1 - Surface Water
- ☐ A2 - High Water Table
- ☐ A3 - Saturation
- ☐ B1 - Water Marks
- ☐ B2 - Sediment Deposits
- ☐ B3 - Drift Deposits
- ☐ B4 - Algal Mat or Crust
- ☐ B5 - Iron Deposits
- ☐ B7 - Inundation Visible on Aerial Imagery
- ☐ B8 - Sparsely Vegetated Concave Surface
- ☐ B9 - Water-Stained Leaves
- ☐ B13 - Aquatic Fauna
- ☐ B14 - True Aquatic Plants
- ☐ C1 - Hydrogen Sulfide Odor
- ☐ C3 - Oxidized Rhizospheres on Living Roots
- ☐ C4 - Presence of Reduced Iron
- ☐ C6 - Recent Iron Reduction in Tilled Soils
- ☐ C7 - Thin Muck Surface
- ☐ D9 - Gauge or Well Data
- ☐ Other (Explain in Remarks)

Secondary:
- ☐ B6 - Surface Soil Cracks
- ☐ B10 - Drainage Patterns
- ☐ C2 - Dry-Season Water Table
- ☐ C8 - Crayfish Burrows
- ☐ C9 - Saturation Visible on Aerial Imagery
- ☐ D1 - Stunted or Stressed Plants
- ☐ D2 - Geomorphic Position
- ☐ D5 - FAC-Neutral Test

Field Observations:

Surface Water Present?	☐ Yes	☑ No	Depth: --	(in.)
Water Table Present?	☐ Yes	☑ No	Depth: --	(in.)
Saturation Present?	☐ Yes	☑ No	Depth: --	(in.)

Wetland Hydrology Present? ☐ Yes ☑ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: --

Remarks:

SOILS

Map Unit Name: Raub-urban land complex, 0-2% slopes (RdUA)

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators.) (Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered/Coated Sand Grains; Location: PL=Pore Lining, M=Matrix)

Top Depth	Bottom Depth	Horizon	Matrix Color (Moist)	Matrix %	Redox Features Color (Moist)	Redox Features %	Redox Features Type	Redox Features Location	Texture (e.g. clay, sand, loam)
0	16	1	10YR 4/3	98	10YR 4/6	2	C	M	silty clay loam
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--

NRCS Hydric Soil Field Indicators (check here if indicators are not present ☐):
- ☐ A1- Histosol
- ☐ A2 - Histic Epipedon
- ☐ A3 - Black Histic
- ☐ A4 - Hydrogen Sulfide
- ☐ A5 - Stratified Layers
- ☐ A10 - 2 cm Muck
- ☐ A11 - Depleted Below Dark Surface
- ☐ A12 - Thick Dark Surface
- ☐ S1 - Sandy Muck Mineral
- ☐ S3 - 5 cm Mucky Peat or Peat
- ☐ S4 - Sandy Gleyed Matrix
- ☐ S5 - Sandy Redox
- ☐ S6 - Stripped Matrix
- ☐ F1 - Loamy Muck Mineral
- ☐ F2 - Loamy Gleyed Matrix
- ☐ F3 - Depleted Matrix
- ☐ F6 - Redox Dark Surface
- ☐ F7 - Depleted Dark Surface
- ☐ F8 - Redox Depressions

Indicators for Problematic Soils [1]
- ☐ A16 - Coast Prairie Redox
- ☐ S7 - Dark Surface
- ☐ F12 - Iron-Manganese Masses
- ☐ TF12 - Very Shallow Dark Surface
- ☐ Other (Explain in Remarks)

[1] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (If Observed) Type: Compaction Depth: 16"

Hydric Soil Present? ☐ Yes ☑ No

Remarks:

Stantec

WETLAND DETERMINATION DATA FORM
Midwest Region

Project/Site: BUT-North Hamilton Crossing | Wetland ID: Wetland A | Sample Point: P2

VEGETATION

Tree Stratum (Plot size: 30 ft radius)

	Species Name	% Cover	Dominant	Ind.Status
1.	*Morus rubra*	5	Y	FACU
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	5		

Sapling/Shrub Stratum (Plot size: 15 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
6.	--	--	--	--
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
	Total Cover =	0		

Herb Stratum (Plot size: 5 ft radius)

1.	*Solidago canadensis*	30	Y	FACU
2.	*Dipsacus fullonum*	10	N	FACU
3.	*Festuca rubra*	50	Y	FACU
4.	*Taraxacum officinale*	7	N	FACU
5.	*Symphyotrichum ericoides*	3	N	FACU
6	*Ambrosia trifida*	5	N	FAC
7.	--	--	--	--
8.	--	--	--	--
9.	--	--	--	--
10.	--	--	--	--
11.	--	--	--	--
12.	--	--	--	--
13.	--	--	--	--
14.	--	--	--	--
15.	--	--	--	--
	Total Cover =	105		

Woody Vine Stratum (Plot size: 30 ft radius)

1.	--	--	--	--
2.	--	--	--	--
3.	--	--	--	--
4.	--	--	--	--
5.	--	--	--	--
	Total Cover =	0		

Remarks: --

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ***0%*** (A/B)

Prevalence Index Worksheet

Total % Cover of:		Multiply by:	
OBL spp.	0	x 1 =	0
FACW spp.	0	x 2 =	0
FAC spp.	5	x 3 =	15
FACU spp.	105	x 4 =	420
UPL spp.	0	x 5 =	0
Total	110 (A)		435 (B)

Prevalence Index = B/A = ***3.955***

Hydrophytic Vegetation Indicators:

- ☐ Yes ☐ No Rapid Test for Hydrophytic Vegetation
- ☐ Yes ☑ No Dominance Test is > 50%
- ☐ Yes ☑ No Prevalence Index is ≤ 3.0 *
- ☐ Yes ☐ No Morphological Adaptations (Explain) *
- ☐ Yes ☐ No Problem Hydrophytic Vegetation (Explain) *

* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft. tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.

Woody Vines - All woody vines greater than 3.28 ft. in height.

Hydrophytic Vegetation Present ☐ Yes ☑ No

Additional Remarks:

--

Background Information

Name:	Raymond Gonzo
Date:	September 19, 2024
Affiliation:	Stantec Consulting Services
Address:	10200 Alliance Road, Suite 300 Cincinnati, OH 45242
Phone Number:	513-619-6476
e-mail address:	raymond.gonzo@stantec.com
Name of Wetland:	Wetland A
Vegetation Communit(ies):	Palustrine Emergent Wetland
HGM Class(es):	Depressional

Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.

See Figure 3b in Appendix 1

Lat/Long or UTM Coordinate	39.39372, -84.53353
USGS Quad Name	Hamilton 7.5'
County	Butler
Township	Hamilton
Section and Subsection	S26, T2E, R3N
Hydrologic Unit Code	050800020902
Site Visit	09/19/24
National Wetland Inventory Map	N/A
Ohio Wetland Inventory Map	N/A
Soil Survey	Raub Urban land Complex, 0-2% slopes (RdUA)
Delineation report/map	Level 1 ESR

Name of Wetland: Wetland A	
Wetland Size (acres, hectares):	0.746 acre

Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc.

See Figure 3b in Appendix 1

Comments, Narrative Discussion, Justification of Category Changes:

Final score :	22.5	**Category:**	1

Scoring Boundary Worksheet

INSTRUCTIONS. The initial step in completing the ORAM is to identify the "scoring boundaries" of the wetland being rated. In many instances this determination will be relatively easy and the scoring boundaries will coincide with the "jurisdictional boundaries." For example, the scoring boundary of an isolated cattail marsh located in the middle of a farm field will likely be the same as that wetland's jurisdictional boundaries. In other instances, however, the scoring boundary will not be as easily determined. Wetlands that are small or isolated from other surface waters often form large contiguous areas or heterogeneous complexes of wetland and upland. In separating wetlands for scoring purposes, the hydrologic regime of the wetland is the main criterion that should be used. Boundaries between contiguous or connected wetlands should be established where the volume, flow, or velocity of water moving through the wetland changes significantly. *Areas with a high degree of hydrologic interaction should be scored as a single wetland*. In determining a wetland's scoring boundaries, use the guidelines in the ORAM Manual Section 5.0. In certain instances, it may be difficult to establish the scoring boundary for the wetland being rated. These problem situations include wetlands that form a patchwork on the landscape, wetlands divided by artificial boundaries like property fences, roads, or railroad embankments, wetlands that are contiguous with streams, lakes, or rivers, and estuarine or coastal wetlands. These situations are discussed below, however, it is recommended that Rater contact Ohio EPA, Division of Surface Water, 401/Wetlands Section if there are additional questions or a need for further clarification of the appropriate scoring boundaries of a particular wetland.

#	Steps in properly establishing scoring boundaries	done?	not applicable
Step 1	Identify the wetland area of interest. This may be the site of a proposed impact, a reference site, conservation site, etc.	☑	☐
Step 2	Identify the locations where there is physical evidence that hydrology changes rapidly. Such evidence includes both natural and human-induced changes including, constrictions caused by berms or dikes, points where the water velocity changes rapidly at rapids or falls, points where significant inflows occur at the confluence of rivers, or other factors that may restrict hydrologic interaction between the wetlands or parts of a single wetland.	☑	☐
Step 3	Delineate the boundary of the wetland to be rated such that all areas of interest that are contiguous to and within the areas where the hydrology does not change significantly, i.e. areas that have a high degree of hydrologic interaction are included within the scoring boundary.	☑	☐
Step 4	Determine if artificial boundaries, such as property lines, state lines, roads, railroad embankments, etc., are present. These should not be used to establish scoring boundaries unless they coincide with areas where the hydrologic regime changes.	☑	☐
Step 5	In all instances, the Rater may enlarge the minimum scoring boundaries discussed here to score together wetlands that could be scored separately.	☑	☐
Step 6	Consult ORAM Manual Section 5.0 for how to establish scoring boundaries for wetlands that form a patchwork on the landscape, divided by artificial boundaries, contiguous to streams, lakes or rivers, or for dual classifications.	☑	☐

End of Scoring Boundary Determination. Begin Narrative Rating on next page.

Narrative Rating

INSTRUCTIONS. Answer each of the following questions. Questions 1, 2, 3 and 4 should be answered based on information obtained from the site visit or the literature *and* by submitting a Data Services Request to the Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Natural Heritage Data Services, 1889 Fountain Square Court, Building F-1, Columbus, Ohio 43224, 614-265-6453 (phone), 614-265-3096 (fax), http://www.dnr.state.oh.us/dnap . The remaining questions are designed to be answered primarily by the results of the site visit. Refer to the User's Manual for descriptions of these wetland types. Note: "Critical habitat" is legally defined in the Endangered Species Act and is the geographic area containing physical or biological features essential to the conservation of a listed species or as an area that may require special management considerations or protection. The Rater should contact the Region 3 Headquarters or the Columbus Ecological Services Office for updates as to whether critical habitat has been designated for other federally listed threatened or endangered species. "Documented" means the wetland is listed in the appropriate State of Ohio database.

#	Question	Circle one	
1	**Critical Habitat.** Is the wetland in a township, section, or subsection of a United States Geological Survey 7.5 minute Quadrangle that has been designated by the U.S. Fish and Wildlife Service as "critical habitat" for any threatened or endangered plant or animal species? Note: as of January 1, 2001, of the federally listed endangered or threatened species which can be found in Ohio, the Indiana Bat has had critical habitat designated (50 CFR 17.95(a)) and the piping plover has had critical habitat proposed (65 FR 41812 July 6, 2000).	YES ☐ Wetland should be evaluated for possible Category 3 status Go to Question 2	NO ☑ Go to Question 2
2	**Threatened or Endangered Species.** Is the wetland known to contain an individual of, or documented occurrences of federal or state-listed threatened or endangered plant or animal species?	YES ☐ Wetland is a Category 3 wetland. Go to Question 3	NO ☑ Go to Question 3
3	**Documented High Quality Wetland.** Is the wetland on record in Natural Heritage Database as a high quality wetland?	YES ☐ Wetland is a Category 3 wetland Go to Question 4	NO ☑ Go to Question 4
4	**Significant Breeding or Concentration Area.** Does the wetland contain documented regionally significant breeding or nonbreeding waterfowl, neotropical songbird, or shorebird concentration areas?	YES ☐ Wetland is a Category 3 wetland Go to Question 5	NO ☑ Go to Question 5
5	**Category 1 Wetlands.** Is the wetland less than 0.5 hectares (1 acre) in size and **hydrologically isolated** and either 1) comprised of vegetation that is dominated (greater than eighty per cent areal cover) by *Phalaris arundinacea, Lythrum salicaria,* or *Phragmites australis*, or 2) an acidic pond created or excavated on mined lands that has little or no vegetation?	YES ☐ Wetland is a Category 1 wetland Go to Question 6	NO ☑ Go to Question 6
6	**Bogs.** Is the wetland a peat-accumulating wetland that 1) has no significant inflows or outflows, 2) supports acidophilic mosses, particularly *Sphagnum* spp., 3) the acidophilic mosses have >30% cover, 4) at least one species from Table 1 is present, and 5) the cover of invasive species (see Table 1) is <25%?	YES ☐ Wetland is a Category 3 wetland Go to Question 7	NO ☑ Go to Question 7
7	**Fens.** Is the wetland a carbon accumulating (peat, muck) wetland that is saturated during most of the year, primarily by a discharge of free flowing, mineral rich, ground water with a circumneutral ph (5.5-9.0) and with one or more plant species listed in Table 1 and the cover of invasive species listed in Table 1 is <25%?	YES ☐ Wetland is a Category 3 wetland Go to Question 8a	NO ☑ Go to Question 8a
8a	**"Old Growth Forest."** Is the wetland a forested wetland and is the forest characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least 50% of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past 80 to 100 years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs?	YES ☐ Wetland is a Category 3 wetland. Go to Question 8b	NO ☑ Go to Question 8b

8b	**Mature forested wetlands**. Is the wetland a forested wetland with 50% or more of the cover of upper forest canopy consisting of deciduous trees with large diameters at breast height (dbh), generally diameters greater than 45cm (17.7in) dbh?	YES ☐ Wetland should be evaluated for possible Category 3 status. Go to Question 9a	NO ☑ Go to Question 9a
9a	**Lake Erie coastal and tributary wetlands**. Is the wetland located at an elevation less than 575 feet on the USGS map, adjacent to this elevation, or along a tributary to Lake Erie that is accessible to fish?	YES ☐ Go to Question 9b	NO ☑ Go to Question 10
9b	Does the wetland's hydrology result from measures designed to prevent erosion and the loss of aquatic plants, i.e. the wetland is partially hydrologically restricted from Lake Erie due to lakeward or landward dikes or other hydrological controls?	YES ☐ Wetland should be evaluated for possible Category 3 status Go to Question 10	NO ☐ Go to Question 9c
9c	Are Lake Erie water levels the wetland's primary hydrological influence, i.e. the wetland is hydrologically unrestricted (no lakeward or upland border alterations), or the wetland can be characterized as an "estuarine" wetland with lake and river influenced hydrology. These include sandbar deposition wetlands, estuarine wetlands, river mouth wetlands, or those dominated by submersed aquatic vegetation.	YES ☐ Go to Question 9d	NO ☐ Go to Question 10
9d	Does the wetland have a predominance of native species within its vegetation communities, although non-native or disturbance tolerant native species can also be present?	YES ☐ Wetland is a Category 3 wetland Go to Question 10	NO ☐ Go to Question 9e
9e	Does the wetland have a predominance of non-native or disturbance tolerant native plant species within its vegetation communities?	YES ☐ Wetland should be evaluated for possible Category 3 status Go to Question 10	NO ☐ Go to Question 10
10	**Lake Plain Sand Prairies (Oak Openings)** Is the wetland located in Lucas, Fulton, Henry, or Wood Counties and can the wetland be characterized by the following description: the wetland has a sandy substrate with interspersed organic matter, a water table often within several inches of the surface, and often with a dominance of the gramineous vegetation listed in Table 1 (woody species may also be present). The Ohio Department of Natural Resources Division of Natural Areas and Preserves can provide assistance in confirming this type of wetland and its quality.	YES ☐ Wetland is a Category 3 wetland. Go to Question 11	NO ☑ Go to Question 11
11	**Relict Wet Prairies**. Is the wetland a relict wet prairie community dominated by some or all of the species in Table 1. Extensive prairies were formerly located in the Darby Plains (Madison and Union Counties), Sandusky Plains (Wyandot, Crawford, and Marion Counties), northwest Ohio (e.g. Erie, Huron, Lucas, Wood Counties), and portions of western Ohio Counties (e.g. Darke, Mercer, Miami, Montgomery, Van Wert etc.).	YES ☐ Wetland should be evaluated for possible Category 3 status Complete Quantitative Rating	NO ☑ Complete Quantitative Rating

Table 1. Characteristic plant species.

invasive/exotic spp	fen species	bog species	0ak Opening species	wet prairie species
Lythrum salicaria	*Zygadenus elegans var. glaucus*	*Calla palustris*	*Carex cryptolepis*	*Calamagrostis canadensis*
Myriophyllum spicatum	*Cacalia plantaginea*	*Carex atlantica var. capillacea*	*Carex lasiocarpa*	*Calamogrostis stricta*
Najas minor	*Carex flava*	*Carex echinata*	*Carex stricta*	*Carex atherodes*
Phalaris arundinacea	*Carex sterilis*	*Carex oligosperma*	*Cladium mariscoides*	*Carex buxbaumii*
Phragmites australis	*Carex stricta*	*Carex trisperma*	*Calamagrostis stricta*	*Carex pellita*
Potamogeton crispus	*Deschampsia caespitosa*	*Chamaedaphne calyculata*	*Calamagrostis canadensis*	*Carex sartwellii*
Ranunculus ficaria	*Eleocharis rostellata*	*Decodon verticillatus*	*Quercus palustris*	*Gentiana andrewsii*
Rhamnus frangula	*Eriophorum viridicarinatum*	*Eriophorum virginicum*		*Helianthus grosseserratus*
Typha angustifolia	*Gentianopsis spp.*	*Larix laricina*		*Liatris spicata*
Typha xglauca	*Lobelia kalmii*	*Nemopanthus mucronatus*		*Lysimachia quadriflora*
	Parnassia glauca	*Schechzeria palustris*		*Lythrum alatum*
	Potentilla fruticosa	*Sphagnum spp.*		*Pycnanthemum virginianum*
	Rhamnus alnifolia	*Vaccinium macrocarpon*		*Silphium terebinthinaceum*
	Rhynchospora capillacea	*Vaccinium corymbosum*		*Sorghastrum nutans*
	Salix candida	*Vaccinium oxycoccos*		*Spartina pectinata*
	Salix myricoides	*Woodwardia virginica*		*Solidago riddellii*
	Salix serissima	*Xyris difformis*		
	Solidago ohioensis			
	Tofieldia glutinosa			
	Triglochin maritimum			
	Triglochin palustre			

End of Narrative Rating. Begin Quantitative Rating on next page.

Site: Wetland A	**Rater(s):** MDV, RG	**Date:** 09/19/24

Metric 1. Wetland Area (size).

2	2
max 6 pts.	subtotal

Select one size class and assign score.

- [ ] >50 acres (>20.2ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2ha) (5 pts)
- [ ] 10 to <25 acres (4 to <10.1ha) (4 pts)
- [ ] 3 to <10 acres (1.2 to <4ha) (3 pts)
- [x] 0.3 to <3 acres (0.12 to <1.2ha) (2pts)
- [ ] 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt)
- [ ] <0.1 acres (0.04ha) (0 pts)

Metric 2. Upland buffers and surrounding land use.

1	3
max 14 pts.	subtotal

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50m (164ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25m to <50m (82 to <164ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10m to <25m (32ft to <82ft) around wetland perimeter (1)
- [x] VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrub land, young second growth forest. (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3)
- [x] HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1)

Metric 3. Hydrology.

7	10
max 30 pts.	subtotal

3a. Sources of Water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3)
- [x] Precipitation (1)
- [ ] Seasonal/Intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100 year floodplain (1)
- [x] Between stream/lake and other human use (1)
- [ ] Part of wetland/upland (e.g. forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 (27.6in) (3)
- [ ] 0.4 to 0.7m (15.7 to 27.6in) (2)
- [x] <0.4m (<15.7in) (1)

3d. Duration inundation/saturation. Score one or dbl check.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3)
- [ ] Seasonally inundated (2)
- [x] Seasonally saturated in upper 30cm (12in) (1)

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] ditch
- [ ] tile
- [ ] dike
- [ ] weir
- [x] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [x] road bed/RR track
- [ ] dredging
- [ ] other_____

Metric 4. Habitat Alteration and Development.

8.5	18.5
max 20 pts.	subtotal

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [x] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [x] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [x] Recovered (6)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [x] selective cutting
- [ ] woody debris removal
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] sedimentation
- [ ] dredging
- [ ] farming
- [ ] nutrient enrichment

18.5
subtotal this page

last revised 1 February 2001 jjm

Site: Wetland A	**Rater(s):** MDV, RG	**Date:** 09/19/24

18.5
subtotal first page

Metric 5. Special Wetlands.

0	18.5
max 10 pts.	subtotal

Check all that apply and score as indicated.

- [ ] Bog (10)
- [ ] Fen (10)
- [ ] Old growth forest (10)
- [ ] Mature forested wetland (5)
- [ ] Lake Erie coastal/tributary wetland-unrestricted hydrology (10)
- [ ] Lake Erie coastal/tributary wetland-restricted hydrology (5)
- [ ] Lake Plain Sand Prairies (Oak Openings) (10)
- [ ] Relict Wet Prairies (10)
- [ ] Known occurrence state/federal threatened or endangered species (10)
- [ ] Significant migratory songbird/water fowl habitat or usage (10)
- [ ] Category 1 Wetland. See Question 1 Qualitative Rating (-10)

Metric 6. Plant communities, interspersion, microtopography.

4	22.5
max 20 pts.	subtotal

6a. Wetland Vegetation Communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water
- [ ] Other_____

6b. horizontal (plan view) Interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high(4)
- [ ] Moderate (3)
- [ ] Moderately low (2)
- [ ] Low (1)
- [✓] None (0)

6c. Coverage of invasive plants. Refer to Table 1 ORAM long form for list. Add or deduct points for coverage

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [✓] Absent (1)

6d. Microtopography.
Score all present using 0 to 3 scale.

- [2] Vegetated hummucks/tussucks
- [0] Coarse woody debris >15cm (6in)
- [0] Standing dead >25cm (10in) dbh
- [0] Amphibian breeding pools

Vegetation Community Cover Scale

0	Absent or comprises <0.1ha (0.2471 acres) contiguous area
1	Present and either comprises small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2	Present and either comprises significant part of wetland's vegetation and is of moderate quality or comprises a small part and is of high quality
3	Present and comprises significant part, or more, of wetland's vegetation and is of high quality

Narrative Description of Vegetation Quality

low	Low spp diversity and/or predominance of nonnative or disturbance tolerant native species
mod	Native spp are dominant component of the vegetation, although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare threatened or endangered spp
high	A predominance of native species, with nonnative spp and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp

Mudflat and Open Water Class Quality

0	Absent <0.1ha (0.247 acres)
1	Low 0.1 to <1ha (0.247 to 2.47 acres)
2	Moderate 1 to <4ha (2.47 to 9.88 acres)
3	High 4ha (9.88 acres) or more

Microtopography Cover Scale

0	Absent
1	Present very small amounts or if more common of marginal quality
2	Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3	Present in moderate or greater amounts and of highest quality

22.5

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

		circle answer or insert score	Result
Narrative Rating	Question 1 Critical Habitat	YES ☐ NO ☑	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES ☐ NO ☑	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES ☐ NO ☑	If yes, Category 3.
	Question 4. Significant bird habitat	YES ☐ NO ☑	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES ☐ NO ☑	If yes, Category 1.
	Question 6. Bogs	YES ☐ NO ☑	If yes, Category 3.
	Question 7. Fens	YES ☐ NO ☑	If yes, Category 3.
	Question 8a. Old Growth Forest	YES ☐ NO ☑	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES ☐ NO ☑	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES ☐ NO ☑	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES ☐ NO ☑	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES ☐ NO ☑	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 10. Oak Openings	YES ☐ NO ☑	If yes, Category 3
	Question 11. Relict Wet Prairies	YES ☐ NO ☑	If yes, evaluate for Category 3; may also be 1 or 2.
Quantitative Rating	Metric 1. Size	2	
	Metric 2. Buffers and surrounding land use	1	
	Metric 3. Hydrology	7	
	Metric 4. Habitat	8.5	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	4	
	TOTAL SCORE	22.5	Category based on score breakpoints Category 1

Complete Wetland Categorization Worksheet.

Wetland Categorization Worksheet

Choices	Circle one		Evaluation of Categorization Result of ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 2, 3, 4, 6, 7, 8a, 9d, 10	YES ☐ Wetland is categorized as a Category 3 wetland	NO ☑	Is quantitative rating score *less* than the Category 2 scoring threshold (*excluding* gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been over-categorized by the ORAM
Did you answer "Yes" to any of the following questions: Narrative Rating Nos. 1, 8b, 9b, 9e, 11	YES ☐ Wetland should be evaluated for possible Category 3 status	NO ☑	Evaluate the wetland using the 1) narrative criteria in OAC Rule 3745-1-54(C) and 2) the quantitative rating score. If the wetland is determined to be a Category 3 wetland using either of these, it should be categorized as a Category 3 wetland. Detailed biological and/or functional assessments may also be used to determine the wetland's category.
Did you answer "Yes" to Narrative Rating No. 5	YES ☐ Wetland is categorized as a Category 1 wetland	NO ☑	Is quantitative rating score *greater* than the Category 2 scoring threshold *(including* any gray zone)? If yes, reevaluate the category of the wetland using the narrative criteria in OAC Rule 3745-1-54(C) and biological and/or functional assessments to determine if the wetland has been under-categorized by the ORAM
Does the quantitative score fall within the scoring range of a Category 1, 2, or 3 wetland?	YES ☑ Wetland is assigned to the appropriate category based on the scoring range	NO ☐	If the score of the wetland is located within the scoring range for a particular category, the wetland should be assigned to that category. In all instances however, the narrative criteria described in OAC Rule 3745-1-54(C) can be used to clarify or change a categorization based on a quantitative score.
Does the quantitative score fall with the *"gray zone"* for Category 1 or 2 or Category 2 or 3 wetlands?	YES ☐ Wetland is assigned to the higher of the two categories or assigned to a category based on detailed assessments and the narrative criteria	NO ☑	Rater has the option of assigning the wetland to the higher of the two categories or to assign a category based on the results of a nonrapid wetland assessment method, e.g. functional assessment, biological assessment, etc, and a consideration of the narrative criteria in OAC rule 3745-1-54(C).
Does the wetland otherwise exhibit *moderate OR superior* hydrologic OR habitat, OR recreational functions AND the wetland was *not* categorized as a Category 2 wetland (in the case of moderate functions) or a Category 3 wetland (in the case of superior functions) by this method?	YES ☐ Wetland was undercategorized by this method. A written justification for recategorization should be provided on Background Information Form	NO ☑ Wetland is assigned to category as determined by the ORAM.	A wetland may be undercategorized using this method, but still exhibit one or more superior functions, e.g. a wetland's biotic communities may be degraded by human activities, but the wetland may still exhibit superior hydrologic functions because of its type, landscape position, size, local or regional significance, etc. In this circumstance, the narrative criteria in OAC Rule 3745-1-54(C)(2) and (3) are controlling, and the under-categorization should be corrected. A written justification with supporting reasons or information for this determination should be provided.

Final Category

Choose one	Category 1	Category 2	Category 3
	☑	☐	☐

End of Ohio Rapid Assessment Method for Wetlands.

Appendix 5

Agency Data Requests

NHDB Review

Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR MARY MERTZ, DIRECTOR

Jeff Johnson, Chief
Division of Natural Areas & Preserves
2045 Morse Rd, Building H
Columbus, Ohio 43229

June 28, 2024

Raymond Gonzo
Stantec Consulting Servies, Inc.
10200 Alliance Rd, Suite 300
Cincinnati, Ohio 45242

Re: OR24_090

Dear Raymond,

After reviewing the Natural Heritage Database, I find we have no records of rare or endangered species in the BUT-North Hamilton Crossing (PID 115755) project area, including a one-mile radius, in Saint Clair and Fairfield Townships, Butler County, Ohio.

Records searched date from 1980. Features searched include locations of rare and endangered plants and animals determined to be of value to the conservation of their species, high quality plant communities, animal breeding assemblages, and outstanding geological features. Our inventory program has not completely surveyed Ohio and relies on information supplied by many individuals and organizations. Therefore, a lack of records for any particular area is not a statement that rare species or unique features are absent from that area.

This letter only represents a review of rare species and natural features data within the Ohio Natural Heritage Database. It does not fulfill coordination under the National Environmental Policy Act (NEPA) or the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S. C. 661 et seq.) and does not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Please contact me by email or voicemail at 614-265-6818 if I can be of further assistance.

Sincerely,

Kendra Millam
Ohio Natural Heritage Program

USFWS Information Request

Gonzo, Raymond

From: Korfel, Lindsey M <lindsey_korfel@fws.gov>
Sent: Monday, June 24, 2024 3:06 PM
To: Gonzo, Raymond; Hallberg, Karen I
Cc: Rahtz, Christine; de Villiers, Michael
Subject: Re: [EXTERNAL] Bat Buffer, Eastern Massasauga polygon and Bald Eagle Known Nest Location Request for ODOT Project: North Hamilton Crossing (PID 115755)

Hello! Please see my response below. Have a wonderful day!

Best,

Lindsey Korfel (*She/her*)
Wildlife Biologist
Transportation Liaison

| U.S. Fish and Wildlife Service Ohio Ecological Services Field Office |
| 4625 Morse Road Suite 104 | Columbus, OH 43230 | direct line 614-528-9707 |

From: Gonzo, Raymond <Raymond.Gonzo@stantec.com>
Sent: Tuesday, June 11, 2024 11:41 AM
To: Hallberg, Karen I <Karen_Hallberg@fws.gov>; Korfel, Lindsey M <lindsey_korfel@fws.gov>
Cc: Rahtz, Christine <Christine.Rahtz@stantec.com>; de Villiers, Michael <Michael.deVilliers@stantec.com>
Subject: [EXTERNAL] Bat Buffer, Eastern Massasauga polygon and Bald Eagle Known Nest Location Request for ODOT Project: North Hamilton Crossing (PID 115755)

Karen/Lindsey,

This project is a federal aid highway project and will be coordinated with your office (if coordination is required) through the ODOT-OES Ecological MOA process and OHPBO. This is a request for bat buffer, eastern massasauga polygon, and
known bald eagle nest buffer information only, and a technical guidance letter is not required.

Project Coordinates:

North End	South End
Lat: 39.42315	Lat: 39.38969
Long: -84.55308	Long: -84.53256

This project is located within the following bat buffer:
____ BLUE (IBAT hibernaculum)

____ PURPLE (NLEB hibernaculum)
____ RED (IBAT swarming)
____ YELLOW (Acoustic IBAT detection)
____ GOLD (IBAT maternity colony)
____ BROWN (NLEB maternity colony)
____ GREEN (Male/non-reproductive female IBAT)
__X__ Project not located in a bat buffer

The project is located within an eastern massasauga range polygon:
____ YES
__X__ NO

This project is located within a known bald eagle nest buffer
____ YES
__X__ NO

Note: Neither the Service nor the Ohio Division of Wildlife maintains a complete database of current BAEG nest locations.
Therefore, the project sponsor (or representative acting on their behalf) is still responsible for surveying the project area and
consulting further with this office, prior to commencement of any project activity, if a nest is identified within a 0.5-mile
radius of the project site.

Raymond Gonzo
Environmental Specialist

Direct: (513) 619-6476
Raymond.Gonzo@stantec.com

Stantec
10200 Alliance Road, Suite 300
Cincinnati, OH 45242