Large Filing Separator Sheet

Case Number: 11-4248-EL-BTX

File Date: 8/17/2012

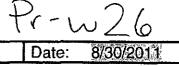
Section: 2 of 3

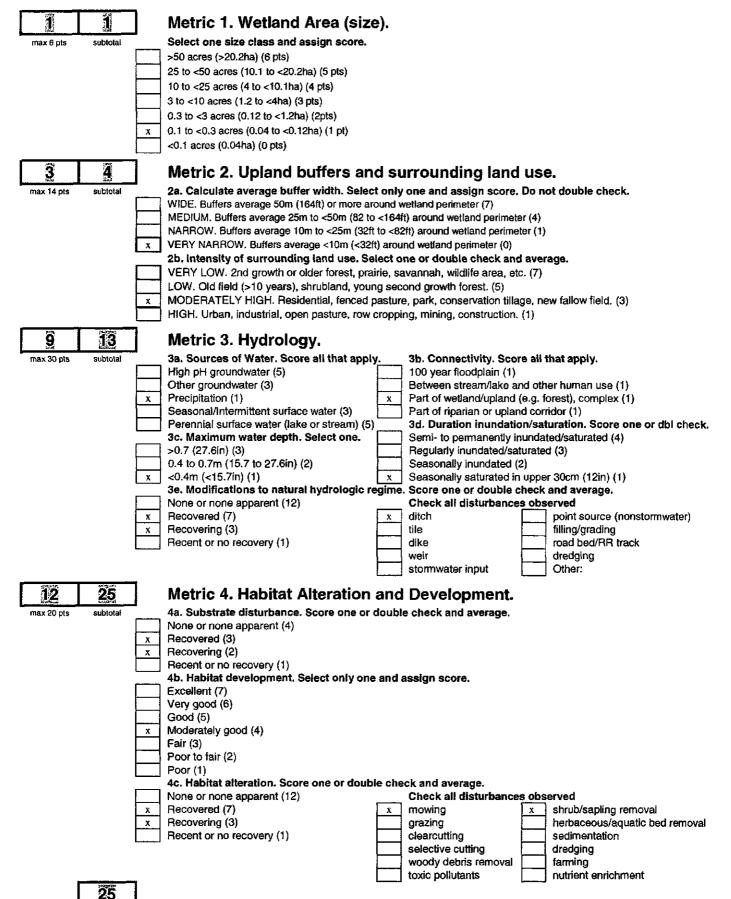
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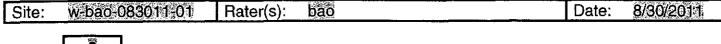
Description of Document: Application

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| [| 3 | | |
|------------|--|---|--|
| Su | btotel this particular the second s | Metric 5. Special Wetlands | ls. |
| max 10 pts | subtotal | Check all that apply and score as indic Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erie coastal/tributary wetland-unrestricted Lake Erie coastal/tributary wetland-restricted Lake Plain Sand Prairies (Oak Openings) (1) Relict Wet Praires (10) Known occurrence state/federal threatened of Significant migratory songbird/water fowl hal Category 1 Wetland. See Question 5 Qualita | icated. icted hydrology (10) ed hydrology (5) (10) d or endangered species (10) abitat or usage (10) |
| 3 | 3 | 1 | ties, interspersion, microtopography. |
| max 20 pts | subtotal | 6a. Wetland Vegetation Communities. Score all present using 0 to 3 scale. 0 Aquatic bed 2 Emergent | |
| | | 1 Shrub 0 Forest 0 Mudflats 0 Open Water 0 Other | significant part but is of low quality Present and either comprises significant part of wetland's 2 vegetation and is of moderate quality or comprises a small part and is of high quality Present and comprises significant part, or more, of wetland's 3 |
| | | 6b. horizontal (plan view) Interspersion. Select only one. High (5) Moderately high(4) | Vegetation and is of high quality Narrative Description of Vegetation Quality low Low spp diversity and/or predominance of nonnative or low |
| | | x Moderate (3) Moderately low (2) Low (1) None (0) 6c. Coverage of invasive plants. Refer | disturbance tolerant native species mod Native spp are dominant component of the vegetation, mod 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 |
| | | Table 1 ORAM long form for list. Add or deduct points for coverage Extensive >75% cover (-5) x Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) Nearly absent <5% cover (0) | high A predominance of native species, with nonnative spp high 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 |
| | | Absent (1) 6d. Microtopography. Score all present using 0 to 3 scale. Vegetated hummucks/tussucks Coarse woody debris >15cm (6in) | Mudflat and Open Water Class Quality 0 Absent <0.1ha (0.247 acres) |
| | | 0 Standing dead >25cm (10in) dbh 0 Amphibian breeding pools | 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 guality |

3

quality or in small amounts of highest quality Present in moderate or greater amounts

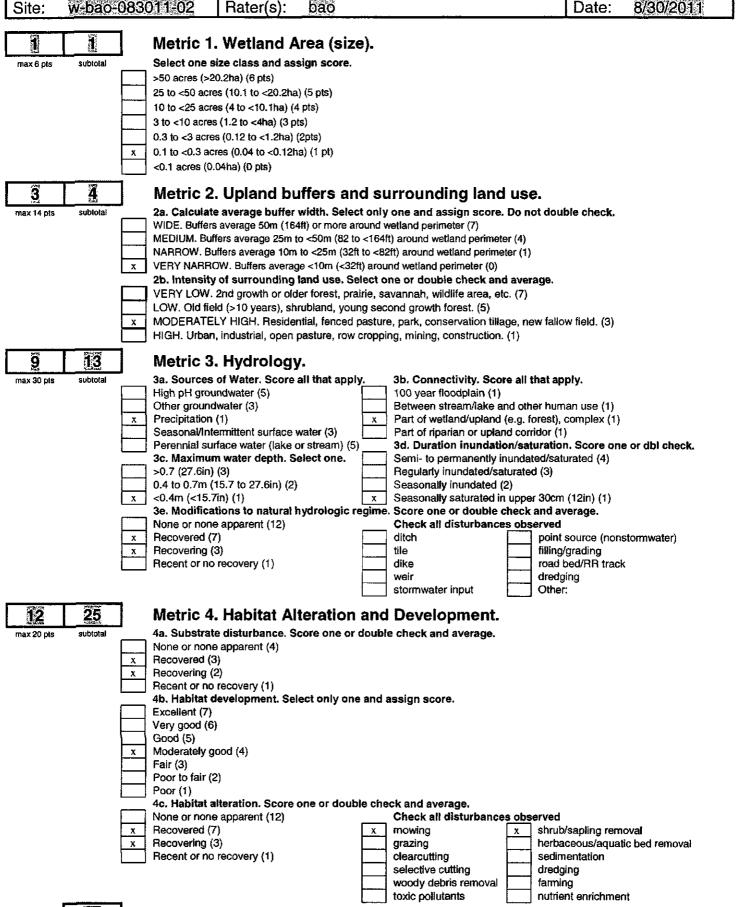
and of highest quality



Category:

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- w27

| Site: | w-bao- | 083011-02 | Rater(s): | bao | | | Date: | 8/30/2011 |
|------------|----------------------|--|---|--|---|--|-------------------------------|--|
| S | 2 ubtotal this pa | ge | | | | | | |
| Q | Ō | Metric 5 | . Special W | etlands. | | | | |
| nax 10 pts | Sudiolai | Bog (10) Fen (10) Old growth fo Lake Erie co Lake Erie co Lake Plain S Relict Wet Pl Known occur Significant m | ed wetland (5) astal/tributary wetla astal/tributary wetla and Prairies (Oak C | nd-unrestricted nd-restricted hy Openings) (10) threatened or a ater fowl habita | hydrolo drology endange t or usa | (5) ared species (10) ge (10) | | |
| 2 | 2 | | | | , int | erspersion, microtopog | | |
| ax 20 pts | subtotal | | Vegetation Com sent using 0 to 3 sc | | 0 | Vegetation Community Cover Scale Absent or comprises <0.1ha (0.2471 a | | |
| | | 0 Aquatic bed 2 Emergent 0 Shrub | ent using o to 3 sc | ale | 1 | Present and either comprises small pa vegetation and is of moderate quality, significant part but is of low quality | art of wetlar | nd's 1 |
| | | 0 Forest 0 Mudflats 0 Open Water | | | 2 | Present and either comprises significa vegetation and is of moderate quality part and is of high quality | | |
| | | Interspersio | | | 3 | Present and comprises significant par vegetation and is of high quality | t, or more, (| of wetland's 3 |
| | | Select only o High (5) | ne. | | | Narrative Description of Vegetati | on Quality | |
| | | Moderately h | igh(4) | | low | Low spp diversity and/or predominance disturbance tolerant native species | | ······································ |
| | | Table 1 OR | je of invasive pla AM long form for | list. Add | mod | Native spp are dominant component or although nonnative and/or disturbance can also be present, and species dive moderately high, but generally w/o pre threatened or endangered spp | e tolerant na irsity moder | ative spp ate to |
| | | Extensive >7 x Moderate 25 Sparse 5-25 | | je | high | A predominance of native species, w and/or disturbance tolerant native sp absent, and high spp diversity and of the presence of rare, threatened, or | p absent or ften, but not | virtually always, |
| | | Absent (1) 6d. Microto | t <5% cover (0) | | 0 | Mudflat and Open Water Class Q Absent <0.1ha (0.247 acres) | uality | |
| | | Score all pre | usent using 0 to 3 : ummucks/tussuck dy debris >15cm (| s | 1 2 3 | Low 0.1 to <1ha (0.247 to 2.47 acre Moderate 1 to <4ha (2.47 to 9.88 acres) or more | | |
| | | 0 Standing de | ad >25cm (10in) d reeding pools | | <u> </u> | Microtopography Cover Scale | | ······································ |
| | | | | • | 0 | Absent | ······ . | ······································ |

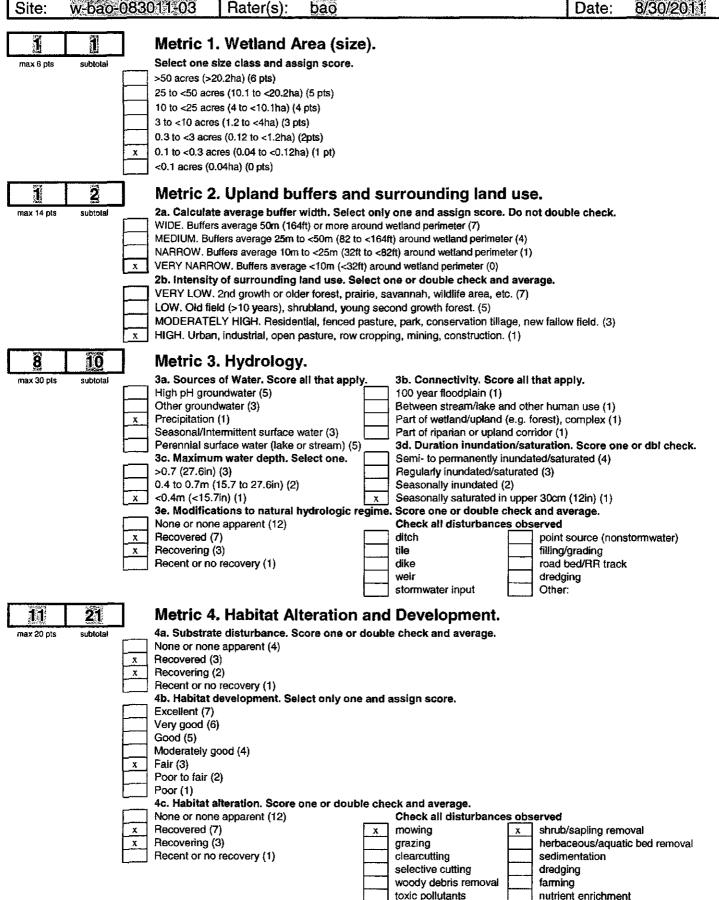
| | Microtopography Cover Scale |
|---|---|
| 0 | Absent |
| 1 | Present very small amounts or if more common of marginal quality |
| 2 | Present in moderate amounts, but not of highest quality or in small amounts of highest quality |
| 3 | Present in moderate or greater amounts and of highest quality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

GRAND TOTAL(max 100 pts)

Category:

Subtotal this page





| Site: | w-bao-C | 83011-03 | Rater(s): | bao | | | Date: | 8/30/2011 |
|------------|-----------------|---|--|-----------------|-----------|--|----------------|----------------|
| г | 1991 1991 | | | | | | | |
| L | | | | | | | | |
| | ototal this pag | • | | | | | | |
| <u>0</u> | Õ | Metric 5 | i. Special W | etlands. | | | | |
| nax 10 pts | subtotal | Check all th | at apply and sco | re as indicat | ed. | | | |
| | | Bog (10) | | | | | | |
| | | Fen (10) | | | | | | |
| | | Old growth fo | . , | | | | | |
| | | | ed wetland (5) astal/tributary wetla | nd-unrestricter | d hydroio | av (10) | | |
| | l | - market and a second | stal/tributary wetla | | | | | |
| | | Lake Plain Si | and Prairies (Oak (| Openings) (10) | | | | |
| | ĺ | Relict Wet Pr | aires (10) | | | | | |
| | | | rence state/federal | | - | | | |
| | | | igratory songbird/w /etland. See Quest | | | | | |
| 400th | | | retiario. Gee Quesi | ION D QUAIILAIN | งธาลแบบู | J (-10) | | |
| | | | | | s, inte | erspersion, microtopo | | |
| nax 20 pts | subtotal | | Vegetation Com | | | Vegetation Community Cover Sca | | |
| | 1 | O Aquatic bed | sent using 0 to 3 so | ale. | 0 | Absent or comprises <0.1ha (0.2471 Present and either comprises small | | |
| | | 1 Emergent | | | | vegetation and is of moderate qualit | | |
| | | 1 Shrub | | | | significant part but is of low quality | | |
| | | 0 Forest 0 Mudflats | | | 2 | Present and either comprises signific vegetation and is of moderate quality | | |
| | | 0 Open Water | | | | part and is of high quality | y or comprise | |
| | | Other | | | 3 | Present and comprises significant pa | art. or more. | of wetland's 3 |
| | | 6b. horizon Interspersio | tal (plan view) | | | vegetation and is of high quality | | |
| | | Select only o | | | · | | | |
| | | High (5) | | | | Narrative Description of Vegeta | | |
| | | Moderately h Moderate (3) | | | low | Low spp diversity and/or predominal disturbance tolerant native species | nce of nonna | tive or low |
| | | x Moderately id | | | mod | Native spp are dominant component | t of the veget | ation, mod |
| | | Low (1) | | | | although nonnative and/or disturban | ce tolerant n | ative spp |
| | l | None (0) | e of invasive pla | nts. Refer | - | can also be present, and species div moderately high, but generally w/o p | | |
| | | | AM long form for | | | threatened or endangered spp | | |
| | 4 | or deduct p | oints for coverage | | high | A predominance of native species, | | |
| | ĺ | | 5% cover (-5) 75% cover (-3) | | | and/or disturbance tolerant native s absent, and high spp diversity and | | |
| | | Sparse 5-25% | | | | the presence of rare, threatened, o | | |
| | | | t <5% cover (0) | | | Mudflet and Open Water Class (| Deality | |
| | ļ | Absent (1) 6d. Microto | pography. | | 0 | Mudflat and Open Water Class (Absent <0.1ha (0.247 acres) | Juanty | |
| | | Score all pre | sent using 0 to 3 | | 1 | Low 0.1 to <1ha (0.247 to 2.47 ac | | · |
| | | | ummucks/tussuck | | | Moderate 1 to <4ha (2.47 to 9.88 : | acres) | |
| | | | d y debris >15cm (ad >25cm (10in) d | | 3 | High 4ha (9.88 acres) or more | | |
| | | | reeding pools | | | Microtopography Cover Scale | | |
| | · | | | | 0 | Absent | | |
| | | | | | 1 | Present very small amounts or if n of marginal quality | nore commo | חו |
| | | | | | 2 | Present in moderate amounts, but | | est |
| | | | | | | quality or in small amounts of high | | |
| | | | | | 3 | Present in moderate or greater an and of highest quality | ounts | |

GRAND TOTAL(max 100 pts)

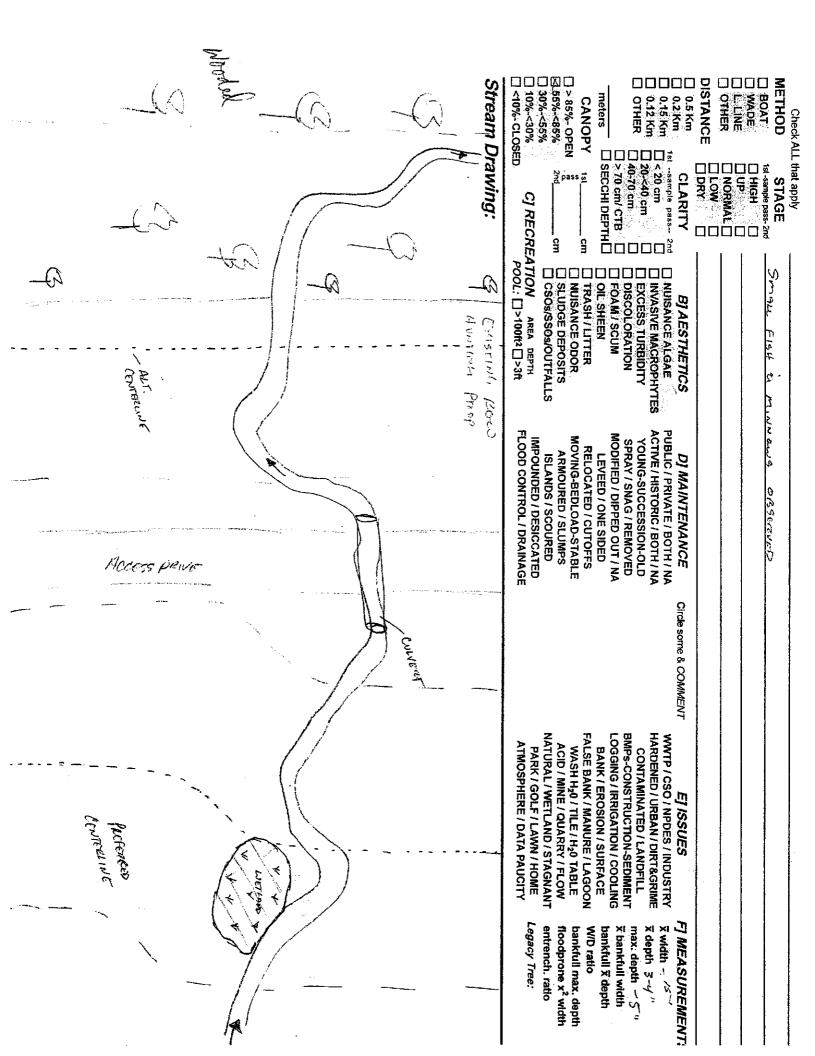
Category:

APPENDIX C

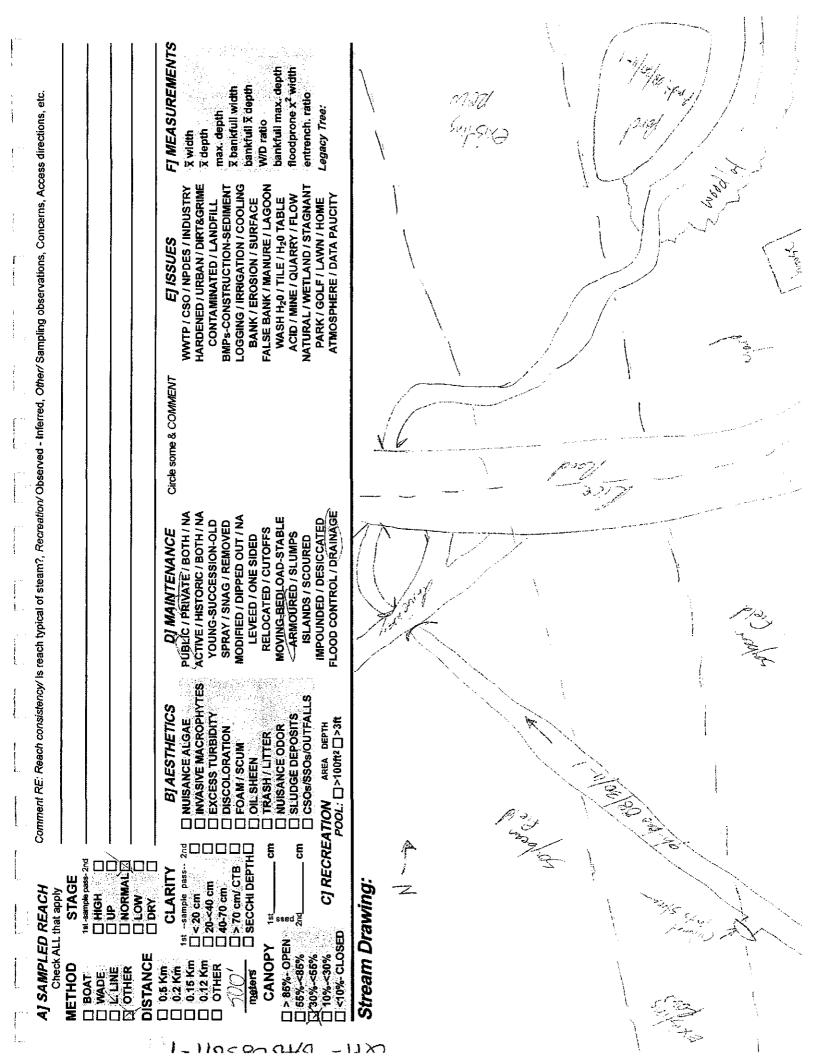
OHIO EPA QHEI STREAM FORMS



| JUID CA | ARRILY CILLER | | MDF083111-016 |
|--|--|---|--|
| ChisEPA | | tat Evaluation Index sment Field Sheet | ও QHEI Score: 🛛 🖉 |
| Stream & Location: <u>FE BE</u> | | R HITENNATE ROUTE | RM: Date: 08 31 11 B. OTTD. M. THOMMAYER, 1125 CO |
| River Code: | STORET #: | Lat./ Long.: | In Office verifi |
| 11 SUBSTRATE Check ONLY | wo substrate TYPE BOXES; note every type present | Check (Check (ORIGIN | DNE (Or 2 & average) QUALITY |
| | D HAROPAN [4] POO D DETRITUS [3] | □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ | |
| | (Score natural substr Score natur Score natural substr Score natural substr Score na | nt-sources) DACUSTURINE (0) | Max DECHE DE |
| 21 INSTREAM COVER Indice | te presence 0 to 3: 0-Absent; 1-Ve | ry small amounts or if more commo | |
| quality: 3-Highest quality in modera | ON [1] ROOTWADS [1] | arge boulders in deep or fast water r, or deep, well-defined, functional | of highest Check ONE (Or 2 & average) pools. EXTENSIVE >75% [1]] RS[1] MODERATE 25-75% [7] FES [1] SPARSE 5-25% [3] |
| RGOTMATS [1] Comments | | Comparison of the second seco second second sec | Cover Maximum 20 |
| 3] CHANNEL MORPHOLOG | | | |
| SINUOSITY DEVELOP | | ON STABILITY | |
| MODERATE [3] 2 GOOD [5 | RECOVERED [4] | MODERATE [2] | |
| LOW [2] AIR [3] NONE [1] DOOR [1] Comments | | COVERY(1) | Channel Maximum 20 |
| 4] BANK EROSION AND RI River right looking downstream | | | |
| | RIPARIAN WIDTH WIDE> 50m [4] 요구 한 문 | | |
| | MODERATE 10-50m (3): []] NARROW 5-10m (2] [] [] [] VERY NARROW < 5m (1) [] [] [] | HRUB OR OLD FIELD [2] RESIDENTIAL: PARK: NEW FIELD ENCED PASTURE [1] | [1] CIMINING/ CONSTRUCTION [0] |
| Comments | 3 | PEN PASTURE, ROWCROP[0] | past 100m riparian. Riparian Maximum 10 |
| | CHANNEL WIDTH heck ONE (Or 2 & average) | CURRENT VELOCITY Check ALL that apply | Recreation Potential Primary Contact |
| □ 0.7-<1m[4] ⊠POG | LWIDTH=RIFFLEWIDTH 11] | TORRENTIAL [1] SLOW [1] VERY FAST [1] UNTERSTIT FAST [1] UNTERMIT MODERATE [1] EDDIES [1] | |
| ⊠ < 0.2m [0] Comments | | Indicate for reach - pools and rif | |
| of riffle-obligate specie RIFFLE DEPTH | RUN DEPTH RIFFLE | (Or 2 & average). / RUN SUBSTRATE RIFF | |
| BESTAREAS > 10cm [2] DM BESTAREAS 5 10cm [1] DM | AXIMUM ≥ 50cm [2] □ STABLE(AXIMUM < 50cm [1] □ MOD. 572 | elg., Cobble, Boulder) [2] BLE le g. Lerge Gravel) [1] | |
| BEST AREAS Scm (metric=0) Comments | | E(e.g., Fine Gravel, Sand)[0] | DINODERATE (D) Riffle / Run ExtENSIVE (1-1) Maximum 8 |
| 6] GRADIENT (ft/mi) DRAINAGE AREA (mi ²) | □ VERY4LOW : LOW (2:4) ▷ MODERATE [6:10] □ HIGH : VERY HIGH (40:8] | | %GLIDE: Gradient %RIFFLE: 30 Maximum |
| EPA 4520 | e a super a march an anna statut a casta can an a | | 06/16/06 |



| Pr-SDIC | tuarry Creek | WH-BAC | 2011-1 |
|---|---|---|---|
| OhioEPA | Qualitative Habitat and Use Assessm | | QHEI Score: 56.5 |
| Stream & Location: | 9h- 600 08/30/11-1, BDB | | RM: Date: 8/ 30/ (1 |
| River Code: - | | Full Name & Affiliation: <u>//</u> Lat./ Long.: (NAD 83 - decimal?) | Thomayer; URS Corp. 18 Office verified location |
| 11 SUBSTRATE Check | ONLY Two substrate TYPE BOXES; | | E (Or 2 & average) |
| DECT TVDEC | te % or note every type present OOL RIFFLE OTHER TYPES POOL F | RIFFLE 🗸 ORIGIN | QUALITY |
| □ □ BLDR/SLABS [10] _ □ □ BOULDER [9] _ | [] [] HARDPAN [4]/() | | HEAVY [-2] |
| | $\frac{40}{25} \frac{40}{2^7} \square \square MUCK [2] \underline{5} \underline{5}$ | <u> 5</u> [] WETLANDS [0] 70 [] HARDPAN [0] | |
| | (0] ARTIFICIAL (0] (0) | | |
| | (Score natural substrates YPES: 4 or more [2] sludge from point-s | | NORMAL [0] 20 |
| Comments | ⊠ 3 or less [0] | □ SHALE [-1] □ COAL FINES [-2] | |
| | Vindicate presence 0 to 3: 0-Absent; 1-Very s | mail amounts or if more common (| |
| - quality; 3-Highest quality in | quality; 2-Moderate amounts, but not of high moderate or greater amounts (e.g., very large | est quality or in small amounts of boulders in deep or fast water, la | highest arge Check ONE (Or 2 & average) |
| diameter log that is stable, UNDERCUT BANKS | well developed rootwad in deep / fast water, o | r deep, well-defined, functional po OXBOWS, BACKWATERS | |
| OVERHANGING VE | GETATION [1] ROOTWADS [1] | AQUATIC MACROPHYTE LOGS OR WOODY DEBR | S [1] SPARSE 5-<25% [3] |
| ROOTMATS [1] | | | Cover |
| Comments | | | Maximum 20 |
| | OLOGY Check ONE in each category (Or 2 | | |
| | | N STABILITY | |
| | OOD [5] RECOVERED [4] RECOVERING [3] | ☐ MODERATE [2] □ LOW [1] | |
| | | | Channel Maximum 75 |
| | | | 20 |
| 4] BANK EROSION A River right fooking downstrear | ND RIPARIAN ZONE Check ONE in eac | ch category for EACH BANK (Or 2 FLOOD PLAIN QUALITY | |
| | | REST, SWAMP [3] | |
| | □ □ NARROW 5-10m [2] □ □ RES | RUB OR OLD FIELD [2] SIDENTIAL, PARK, NEW FIELD [1] | URBAN OR INDUSTRIAL [0] |
| | VERY NARROW < 5m [1] FEN NONE [0] | NCED PASTURE [1] EN PASTURE, ROWCROP [0] | Indicate predominant land use(s) past 100m riparian. Riparian |
| Comments | | · · · | Maximum 8 |
| | D RIFFLE / RUN QUALITY | | Recreation Potential |
| MAXIMUM DEPTH Check ONE (ONLY!) | CHANNEL WIDTH Check ONE (Or 2 & average) | CURRENT VELOCITY Check ALL, that apply | Primary Contact |
| □ > 1m [6] □ 0.7-<1m [4] | | DRRENTIAL [-1] 🗹 SLOW [1] ERY FAST [1] 🛛 INTERSTITIA | L [-1] Secondary Contact |
| | 🗇 POOL WIDTH < RIFFLE WIDTH [0] 🛛 🗛 | ST [1] INTERMITTE ODERATE [1] DEDDIES [1] | |
| ☐ < 0.2m [0] Comments | | Indicate for reach - pools and riffle | |
| | ional riffles; Best areas must be la | rae enough to support a s | |
| of riffle-obligate s | species: Check ONE (Or | r 2 & average). | |
| RIFFLE DEPTH | | , Cobble, Boulder) [2] | |
| BEST AREAS 5-10cm [1] | | E (e.g., Large Gravel) [1] e.g., Fine Gravel, Sand) [0] | I LOW [1] |
| [metric=0] Comments | — - year old 197 V | ★ * 10 000 0 00 0000 0000 00000 **** | |
| 6] GRADIENT (4.88 | > ft/mi) 🔲 VERY LOW - LOW [2-4] | %POOL: % | GLIDE: Gradient |
| DRAINAGE AREA | MODERATE [6-10] | | RIFFLE: |
| | (f | | 06/16/06 |
| | 10/2.05m= 4.88 | | |



APPENDIX D

OHIO EPA HHEI STREAM FORMS



| Pr-502 hh-md+031911-3 | |
|--|------------------------------------|
| ChieEPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : | 5 |
| SITE NAMELOCATION FE - Beaver Devis Besse Proferred Route | |
| | |
| DATE 19 May 2011 SCORER H. Thomay -5 COMMENTS | |
| NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instruct | tions |
| STREAM CHANNEL DINONE / NATURAL CHANNEL DIRECOVERED DIRECOVERING DIREC | round |
| 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40), Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. | HHEI |
| TYPE PERCENT TYPE PERCENT | Metric Points |
| BOULDER (>256 mm) [16 pts] BOULDER (>256 mm) [16 pts] | Substrate |
| | Max = 40 |
| GRAVEL (2-64 mm) [9 pts] O O MUCK [0 pts] | <u> </u> |
| SAND (<2 mm) [6 pts] | |
| Total of Percentages of (B) Bidr Slabs, Boulder, Cobble, Bedrock (A) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 2 | A+B |
| | ool Depth |
| □ > 30 centimeters [20 pts] □ > 5 cm - 10 cm [15 pts] | <u>Max = 30</u> |
| > 22.5 - 30 cm [30 pts] > 4 < 5 cm [5 pts] | 5 |
| COMMENTSMAXIMUM POOL DEPTH (Bentimoters): | |
| □ > 4.0 meters (> 13') [30 pts] □ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] | Bankfull Width <u>Max=30</u> |
| COMMENTSAVERAGE BANKFULL WIDTH (Refers) | 5 |
| This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ல்NOTE: River Left (L) and Right (R) as looking downstream க் | |
| RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R | |
| Wide >10m Mature Forest, Wetland Conservation Tillage | |
| Field Cross Dathers Date | |
| Crop | |
| X None Image: Construction COMMENTS Image: Construction | |
| FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Subsurface flow with isolated pools (Interstitial) COMMENTS | |
| SINUO SITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 1.5 2.5 >3 | |
| STREAM GRADIENT ESTIMATE | ;) |
| 3.5 PHWH Form Page - 1 | |
| June 20, 2003 Revision | |

| / ~ | e (If Yes, Attach Completed QHEI Form) |
|--|--|
| DOWNSTREAM DESIGNATED USE(S) | |
| WWH Name: | Distance from Evaluated Stream |
| CWH Name: | Distance from Evaluated Stream |
| EWH Name: | Distance from Evaluated Stream |
| MAPPING: ATTACH COPIES OF MAPS, INCLUDING | THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION |
| USGS Quadrangle Name: | NRCS Soil Map Page: NRCS Soil Map Stream Order |
| County: | Township / City: |
| MISCELLANEOUS | |
| Base Flow Conditions? (Y/N): Date of last precipitation | on: 5/18/11 Quantity: Unknows |
| Photograph Information: 2: US+05 | |
| Elevated Turbidity? (Y/N): Canopy (% open): | 100 |
| Were samples collected for water chemistry? (Y/N): (f | Note lab sample no. or id. and altach results) Lab Number: |
| | g/) pH (S.U.) Conductivity (µmhos/cm) |
| · 100000 | If not, please explain: |
| is the sampling reach representative of the stream (Y/N) | If not, please explain: |
| BIOTIC EVALUATION Berformed 2 (V/N): // Vis Record all chapterions | Voucher collections optional NOTE: all unucher samples must be labeled with the site |
| Performed? (Y/N): (If Yes, Record all observations, ID number. Include appropriate f Fish Observed? (Y/N) Voucher? (Y/N) Selamat Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) | Voucher collections optional. NOTE: all voucher samples must be labeled with the situ field data sheets from the Primary Headwater Habital Assessment Manual) anders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): (If Yes, Record all observations, ID number. Include appropriate t | field data sheets from the Primary Headwater Habitat Assessment Manual) anders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): (If Yes, Record all observations, ID number. Include appropriate (Fish Observed? (Y/N) Voucher? (Y/N) Selamat Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) | field data sheets from the Primary Headwater Habitat Assessment Manual) anders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): | field data sheets from the Primary Headwater Habitat Assessment Manual) Inders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): | field data sheets from the Primary Headwater Habitat Assessment Manual) inders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): | field data sheets from the Primary Headwater Habitat Assessment Manual) Inders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): | field data sheets from the Primary Headwater Habitat Assessment Manual) inders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): | field data sheets from the Primary Headwater Habitat Assessment Manual) inders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): | field data sheets from the Primary Headwater Habitat Assessment Manual) inders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): | field data sheets from the Primary Headwater Habitat Assessment Manual) inders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): | field data sheets from the Primary Headwater Habitat Assessment Manual) inders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): | field data sheets from the Primary Headwater Habitat Assessment Manual) inders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): | field data sheets from the Primary Headwater Habitat Assessment Manual) inders Observed? (Y/N/////////////////////////////////// |
| Performed? (Y/N): | field data sheets from the Primary Headwater Habital Assessment Manual) anders Observed? (Y/N///// Voucher? (Y/N)/////////////////////////////////// |

aune 20, 2008. Revision

A

PHWH Form Page - 2

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APPENDIX E

DELINEATED FEATURES PHOTOGRAPHS





E1 – WETLANDS





Wetlands

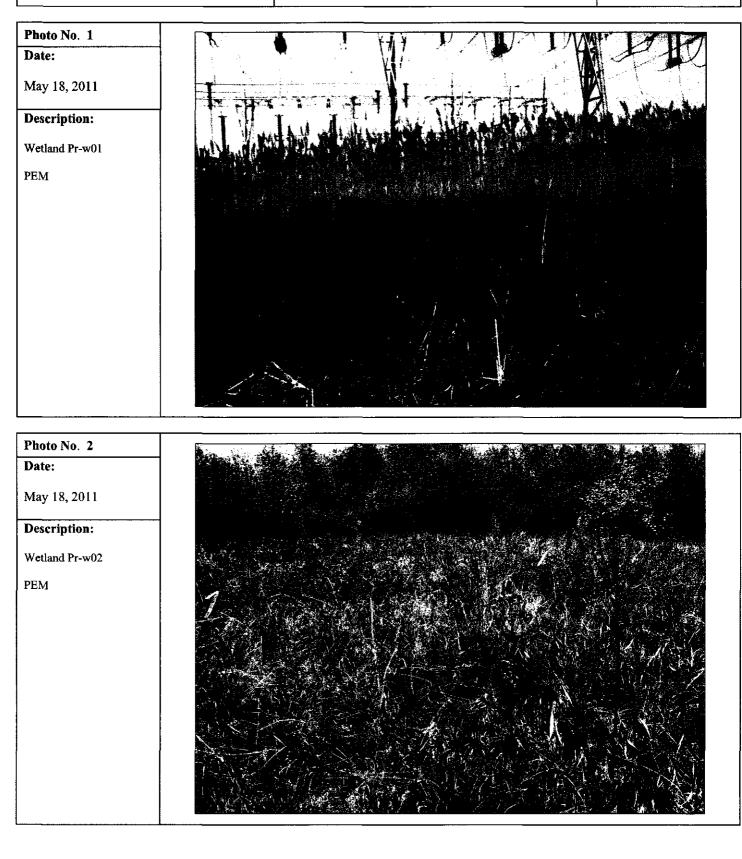
Client Name:

FirstEnergy

Site Location:

Project No.

Beaver-Davis Besse New Construction (Preferred Route)





Wetlands

Client Name:

FirstEnergy

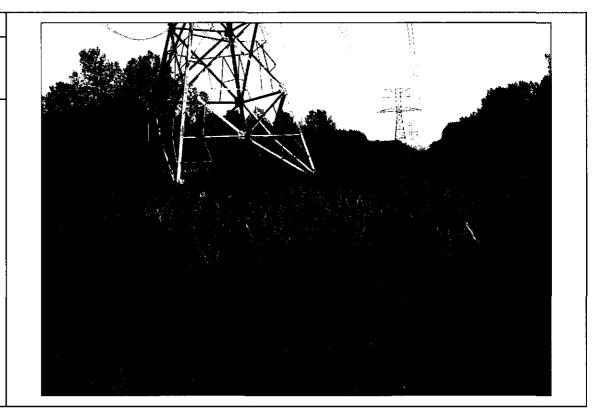
Site Location:

Project No.

Beaver-Davis Besse New Construction (Preferred Route)

14950065

Photo No. 3 Date: May 18, 2011 Description: Wetland Pr-w03 PEM







Wetlands

Client Name:

FirstEnergy

Site Location:

Project No. (oute) 14950065

Beaver-Davis Besse New Construction (Preferred Route)

Photo No. 5

Date:

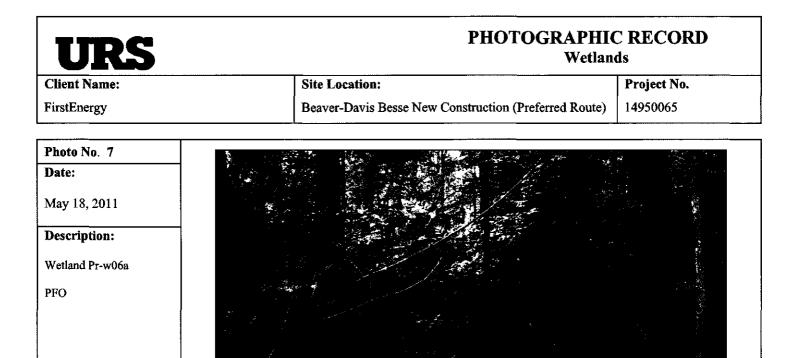
May 18, 2011

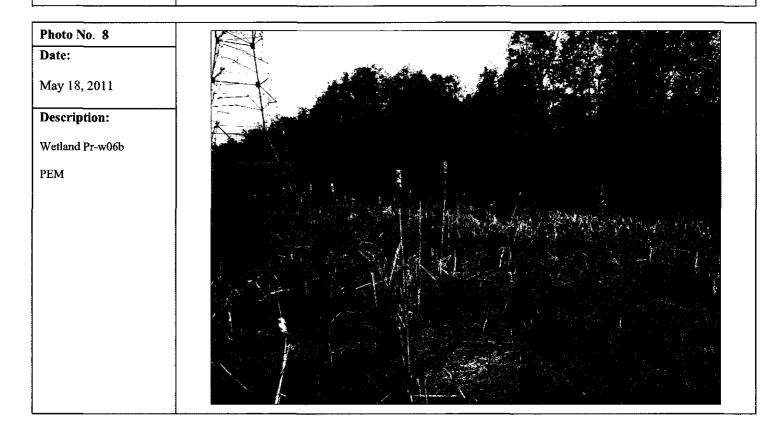
Description:

Wetland Pr-w04b

PEM

| Photo No. 6 | |
|----------------|----------------------|
| Date: | |
| May 18, 2011 | |
| Description: | |
| Wetland Pr-w05 | |
| РЕМ | |
| | |
| | (no photo available) |
| | |
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| | |





Wetlands

URS Client Name:

Chent Mame;

Site Location:

Project No. 14950065

FirstEnergy

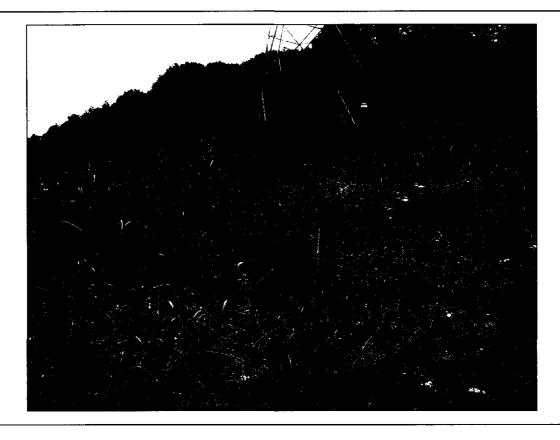
Photo No. 9 Date:

August 31, 2011

Description:

Wetland Pr-w07

PEM/PSS



Beaver-Davis Besse New Construction (Preferred Route)

| Photo No. 10 | |
|-----------------|--|
| Date: | |
| August 31, 2011 | |
| Description: | |
| Wetland Pr-w08 | |
| РЕМ | |
| | |
| | |



Wetlands

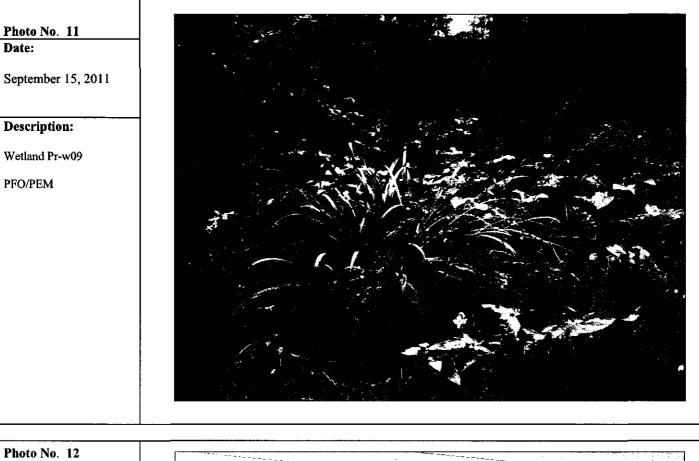
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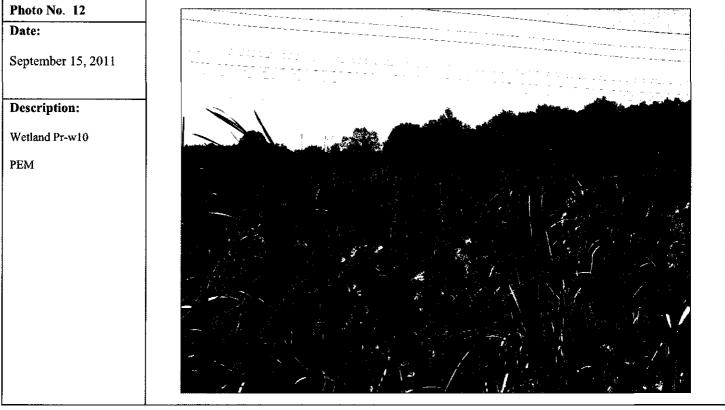
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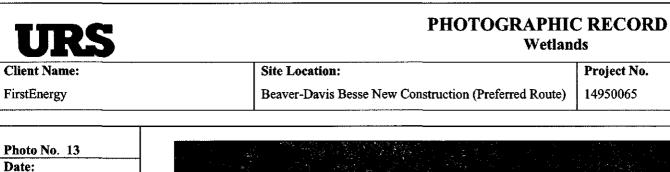
Project No.

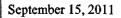
FirstEnergy

Beaver-Davis Besse New Construction (Preferred Route)









Description:

Wetland Pr-w11

PEM



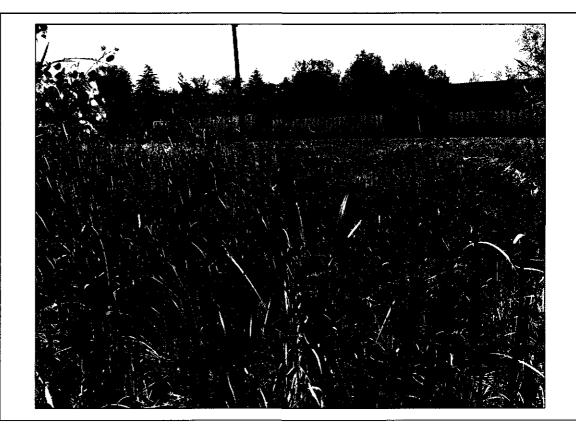


September 15, 2011

Description:

Wetland Pr-w12

PEM





Wetlands

Client Name:

FirstEnergy

Site Location:

Project No. 14950065

Beaver-Davis Besse New Construction (Preferred Route)

Photo No. 15 Date:

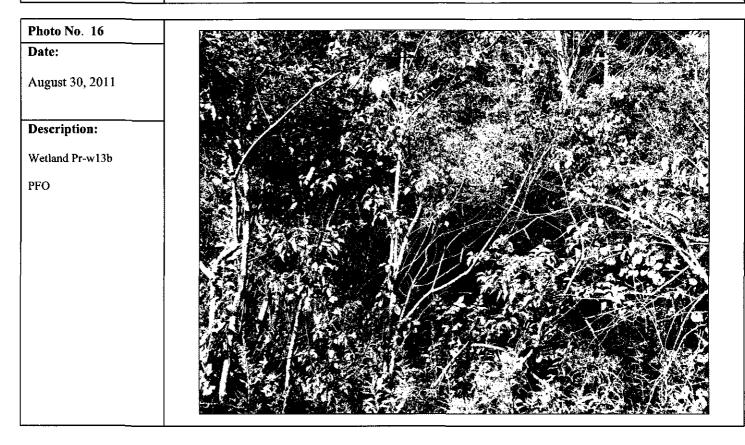
August 30, 2011

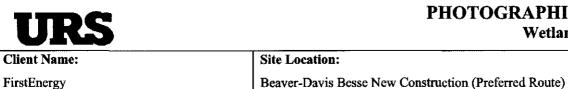
Description:

Wetland Pr-w13a

PEM





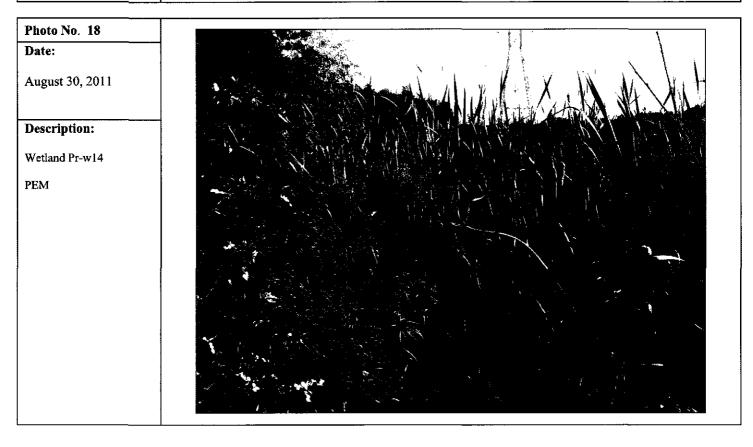


Wetlands

FirstEnergy

Project No. 14950065

Photo No. 17 Date: August 30, 2011 **Description:** Wetland Pr-w13c PEM/PSS





Wetlands

Client Name:

FirstEnergy

Site Location:

Beaver-Davis Besse New Construction (Preferred Route)

Project No. 14950065

 Photo No. 19

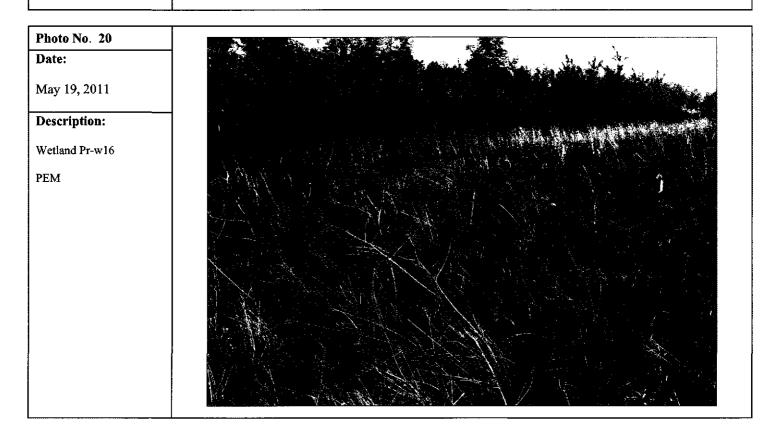
 Date:

 May 19, 2011

 Description:

 Wetland Pr-w15

 PFO/PSS



Wetlands

Client Name:

FirstEnergy

Site Location:

Beaver-Davis Besse New Construction (Preferred Route)

Project No. 14950065

Photo No. 21 Date: May 19, 2011 **Description:** Wetland Pr-w17 PEM







Wetlands

Client Name:

FirstEnergy

Photo No. 23

May 20, 2011

Description:

Wetland Pr-w19

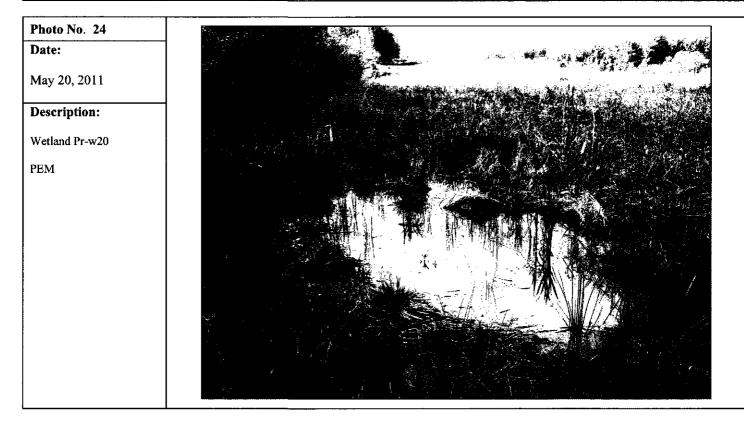
Date:

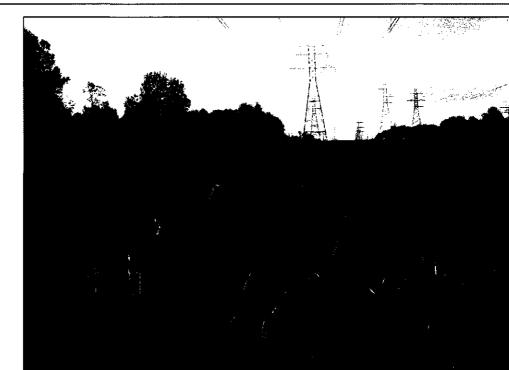
PEM

Site Location:

Project No.

Beaver-Davis Besse New Construction (Preferred Route)







Wetlands

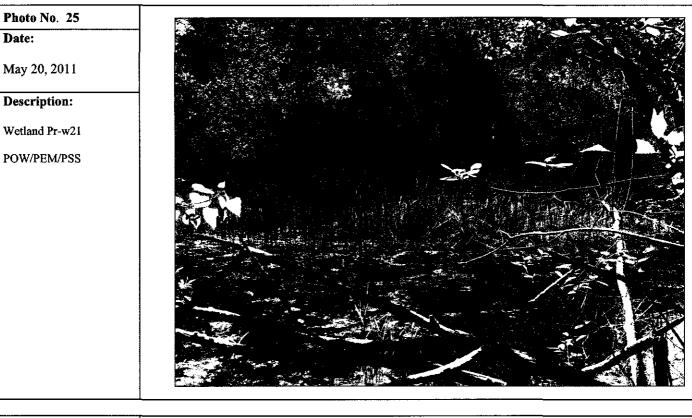
Client Name:

FirstEnergy

Site Location:

Project No.

Beaver-Davis Besse New Construction (Preferred Route)







Wetlands

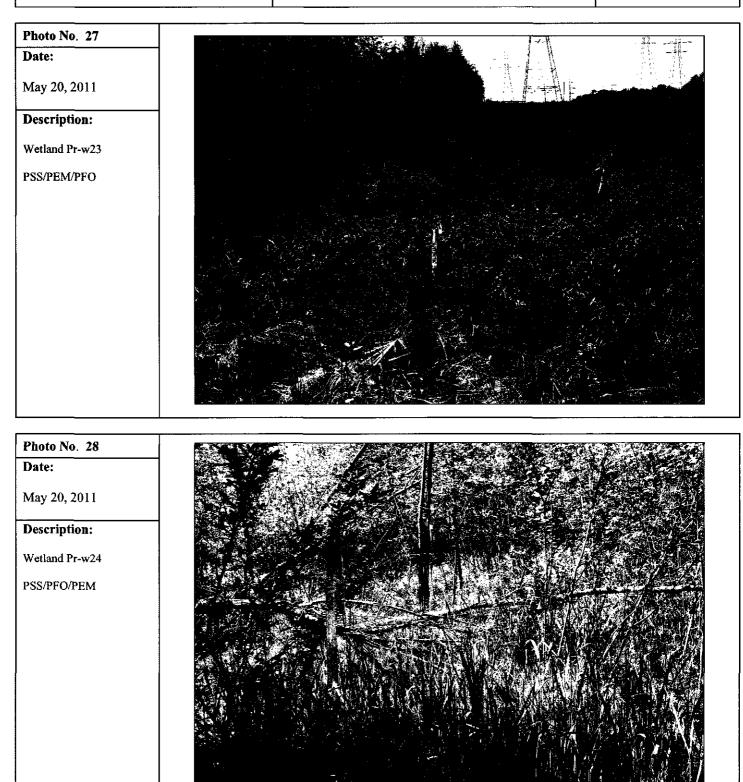
Client Name:

FirstEnergy

Site Location:

Beaver-Davis Besse New Construction (Preferred Route)

Project No. 14950065





Wetlands

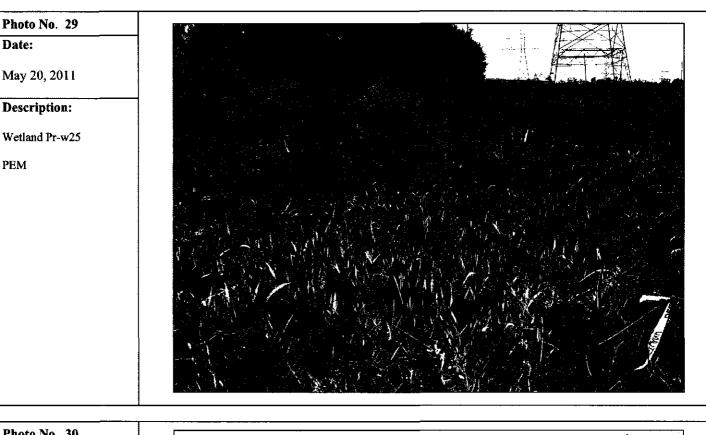
Client Name:

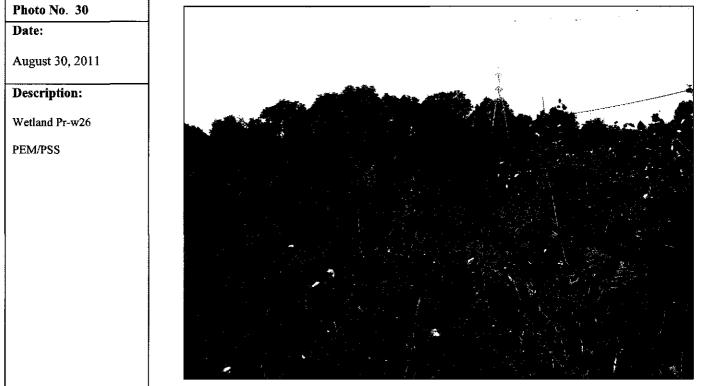
FirstEnergy

Site Location:

Project No.

Beaver-Davis Besse New Construction (Preferred Route)







Wetlands

Client Name:

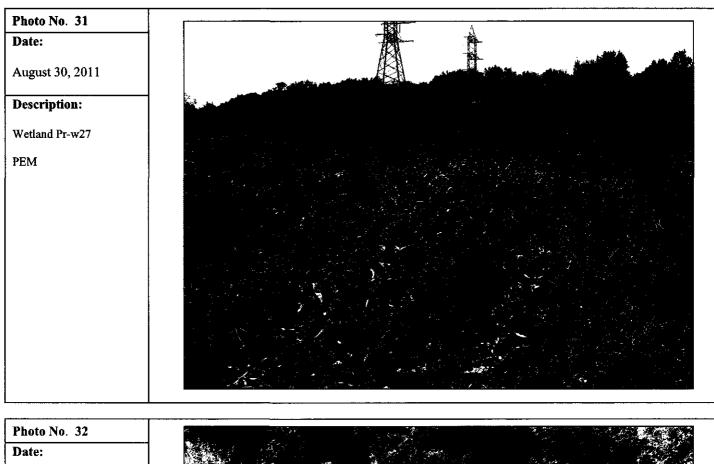
FirstEnergy

Site Location:

Project No.

Beaver-Davis Besse New Construction (Preferred Route)

14950065



August 30, 2011

Description:

Wetland Pr-w28

PEM/PSS





E2 – QHEI STREAMS





PHOTOGRAPHIC RECORD QHEI Streams

Client Name:

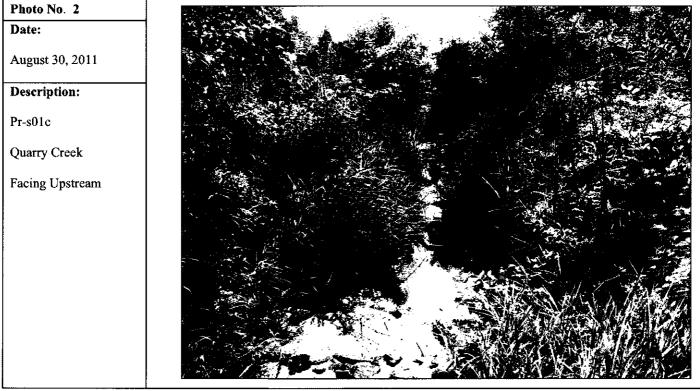
FirstEnergy

Site Location:

Project No.

Beaver-Davis Besse New Construction (Preferred Route)





E3 – HHEI STREAMS





PHOTOGRAPHIC RECORD HHEI Streams

Client Name:

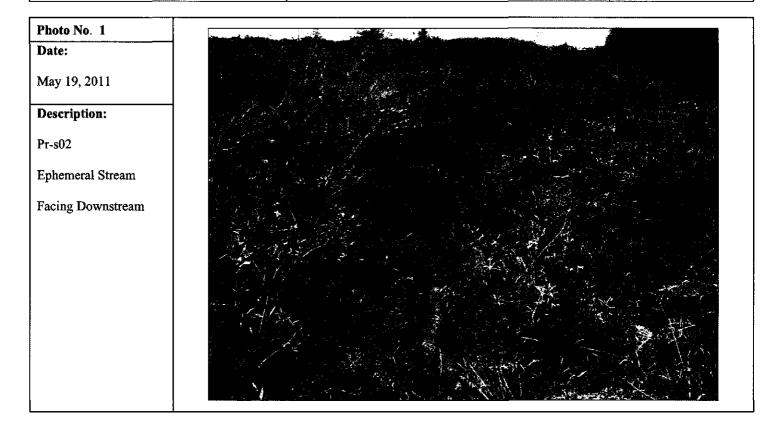
FirstEnergy

Site Location:

Beaver-Davis Besse New Construction (Preferred Route)

Project No.

14950065





E4 – PONDS



PHOTOGRAPHIC RECORD

Ponds

Client Name:

FirstEnergy

Site Location:

Project No. 14950065 Beaver-Davis Besse New Construction (Preferred Route)

Photo No. 1 Date: May 20, 2011 **Description:** Pr-p01 Facing south





BEAVER-BROWNHELM JUNCTION 345 KV NEW CONSTRUCTION-ALTERNATE ROUTE TRANSMISSION LINE PROJECT

WETLAND DELINEATION AND STREAM ASSESSMENT REPORT

Prepared for: American Transmission Systems, Incorporated a subsidiary of FirstEnergy Corp 76 South Main Street Akron, Ohio 44308





525 Vine Street, Suite 1800 Cincinnati, Ohio 45202

July 2012

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- B Ohio EPA Wetland ORAM Forms
- C Ohio EPA QHEI Stream Forms
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 - E2 QHEI Streams
 - E3 HHEI Streams
 - E4 Ponds



LIST OF ACRONYMS

| ATSI | American Transmission Systems, Incorporated |
|-------|---|
| EPA | Environmental Protection Agency |
| FAC | Facultative |
| FACU | Facultative upland |
| FACW | Facultative wetland |
| GPS | Global Positioning System |
| HHEI | Headwater Habitat Evaluation Index |
| HUC | Hydrologic unit code |
| NRCS | National Resource Conservation Service |
| NWI | National Wetlands Inventory |
| OBL | Obligate wetland |
| OHWM | Ordinary high water mark |
| ORAM | Ohio Rapid Assessment Method |
| PEM | Palustrine emergent |
| PHWH | Primary Headwater Habitat |
| PSS | Palustrine scrub/shrub |
| QHEI | Qualitative Habitat Evaluation Index |
| ROW | Right-of-way |
| UPL | Upland |
| U.S. | United States |
| USACE | United States Army Corps of Engineers |
| USDA | United States Department of Agriculture |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |



1.0 INTRODUCTION

American Transmission Systems, Incorporated ("ATSI"), a subsidiary of FirstEnergy Corp., is proposing to construct approximately 2.8 miles of new 345 kV transmission line from the Beaver Substation to an existing FirstEnergy transmission line. The new transmission line will be built with a combination of wood and steel pole construction taking place in the existing right-ofway. The majority of the new construction will be for the Beaver-Carlisle 345 kV Transmission Line; although immediately adjacent to the Beaver Substation it will be used for the Avon-Beaver #1 345 kV Transmission Line. Several of the last 345 kV transmission line spans connected to the Beaver substation will be swung over one bay to avoid line crossings. The Project is referred to as the Beaver to Brownhelm Junction 345 kV New Construction Transmission Line Project (Preferred Route). The proposed Project is illustrated on Figure 1.

To the extent practical, ATSI has taken advantage of existing electric transmission line corridors during the planning and routing of the proposed Project. As a result, the entire proposed Project route will closely parallel an existing electric transmission line.

Land uses crossed by the Project survey corridor were assigned a general classification based upon the principal land characteristics of the location as observed from within a given area, aerial photograph review, and field surveys. Three general land use types will be crossed by the proposed Project (wetlands, open land (hay fields, fallow fields), and existing rights-of-way). The dominant land uses within the Project area are existing rights-of-way and open land.

2.0 METHODOLOGY

The purpose of the field survey was to assess whether wetlands and other "waters of the U.S." exist within the Alternate Route survey corridor. Prior to conducting field surveys, digital and published county Natural Resources Conservation Service (NRCS) soil surveys, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, and U.S. Geological Survey (USGS) 7.5-minute topographic maps were reviewed as an exercise to identify the occurrence and location of potential wetland areas. In May, August, and September 2011 and April 2012, URS biologists walked the Project study corridor to conduct a waterbody and wetland delineation. The study corridor was determined by buffering the centerline of the proposed transmission line by 100-feet on each side, totaling a 200-foot-wide study corridor.

During field surveys, the physical boundaries of observed water features were recorded using sub-meter accurate Trimble Global Positioning System (GPS) units. The GPS data were then reviewed and edited for errors.



1

The field survey results presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which URS is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due to natural processes or human impacts at the project site or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the expansion of knowledge over time. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond the control of URS.

2.1 WETLAND DELINEATION

The Project survey corridor was evaluated according to the procedures outlined in the U.S. Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual (1987 Manual) (Environmental Laboratory, 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0) (Regional Supplement) (USACE, 2012). This Regional Supplement was released in January 2012 by the USACE to address specific regional wetland characteristics and improve the accuracy and efficiency of wetland delineation procedures. The 1987 Manual and Regional Supplement define wetlands as areas that have positive evidence of three environmental parameters: hydric soils, wetland hydrology, and hydrophytic vegetation. Wetland boundaries are placed where one or more of these parameters give way to upland characteristics.

Since quantitative data were not available for any of the identified wetlands, URS utilized the routine delineation method described in the 1987 Manual and Regional Supplement that consisted of a pedestrian site reconnaissance, including identifying the vegetation communities, soils identification, a geomorphologic assessment of hydrology, and notation of disturbance. Completed USACE wetland delineation forms recorded for the Project are provided in Appendix A.

2.1.1 SOILS

Soils were examined using a hand auger to extract soil cores. These cores were examined for hydric soil characteristics. A *Munsell Soil Color Chart* (Kollmorgen Corporation, 1988) was used to identify the hue, value, and chroma of the matrix and redoximorphic features (mottles) of the soils. Generally, mottled soils with a matrix chroma of two or less, or unmottled soils with a matrix chroma of one or less are considered to exhibit hydric soil characteristics (Environmental Laboratory, 1987). In sandy soils, mottled soils with a matrix chroma of three or less, or unmottled soils with a matrix chroma of two or less are considered to be hydric soils.



A total of 28 soil map units from 22 soil series are mapped within the limits of the Project survey boundary (USDA 2011). Table 1 provides a list of these soil map units along with their basic attributes.

According the *Web Soil Survey* (USDA, 2011) and the Natural Resources Conservation Services: Hydric Soils List of Ohio, 10 soil map units from nine soil series within the Project survey boundary are listed as hydric or containing a hydric component.

2.1.2 HYDROLOGY

The 1987 Manual requires that an area be inundated or saturated to the surface for an absolute minimum of five percent of the growing season (areas saturated between five percent and 12.5 percent of the growing season may or may not be wetlands, while areas saturated over 12.5 percent of the growing season fulfill the hydrology requirements for wetlands). The *Regional Supplement* states that the growing season dates are determined through onsite observations of the following indicators of biological activity in a given year: (1) above-ground growth and development of vascular plants, and/or (2) soil temperature (12-in. depth) is 41 degrees Fahrenheit (°F) or higher, as an indicator of soil microbial activity. Therefore, the beginning of the growing season in a given year is indicated by whichever condition occurs earlier, and the end of the growing season by whichever persists later.

The *Regional Supplement* also states that if onsite data gathering is not practical, the growing season can be approximated by the number of days between the average (five years out of ten, or 50 percent probability) date of the last and first 28°F air temperature in the spring and fall, respectively. The National Weather Service Wetland Evaluation Technical System (WETS) data obtained from the NRCS National Water and Climate Center for Lorain County, Ohio reveals that in an average year, this period begins between April 16, and lasts until November 2, or 201 days. In the Project area, five percent of the growing season equates to approximately 10 days (USDA, 2012).

The soils and ground surface were examined for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the *1987 Manual* and the *Regional Supplement*. Evidence indicating wetland hydrology typically includes primary indicators such as surface water, saturation, water marks, drift deposits, water-stained leaves, sediment deposits and oxidized rhizospheres on living roots; and secondary indicators such as, drainage patterns, geomorphic position, micro-topographic relief, and a positive Facultative (FAC)-neutral test (USACE, 2010).



A review of USGS watershed data indicates that the Project is located within the Black-Rocky Watershed of the Southern Lake Erie Subregion (USGS, 2011). Within this watershed, the project will cross one minor watershed: Lake Erie Tributaries East of Vermilion River and West of Black River.

2.1.3 VEGETATION

Dominant vegetation was visually assessed for each stratum (tree, sapling/shrub, herb and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and/or upland (UPL) was assigned to each plant species based on the *1988 National List of Plant Species that Occur in Wetlands: Region 1* (Region 1 includes the state of Ohio). An area is determined to have hydrophytic vegetation when, under normal circumstances, 50 percent or more of the composition of the dominant species are OBL, FACW and/or FAC species. Vegetation of an area was determined to be non-hydrophytic when more than 50 percent of the composition of the dominant species was comprised of FACU and/or UPL species. In addition to the dominance test, the FAC-Neutral test and prevalence tests are used to determine if a wetland has a predominance of hydrophytic vegetation. Table 3 lists the vegetation that was identified in delineated wetlands during field surveys.

2.1.4 WETLAND CLASSIFICATIONS

Wetlands were classified based on the naming convention found in *Classification of Wetlands* and Deepwater Habitats of the United States (Cowardin et al, 1979). All identified wetlands within the survey corridor were classified as freshwater, Palustrine Systems, which includes all nontidal wetlands dominated by trees, shrubs, emergents, mosses or lichens. Three Palustrine wetland classes were identified in the project area. The three classes are as follows:

- **PEM** Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.
- **PSS** Scrub/shrub wetlands are characterized by woody vegetation that is less than 3 inches diameter at breast height (DBH), and greater than 3.28 feet tall. The woody angiosperms (i.e. small trees or shrubs) in this broad leaved deciduous community have relatively wide, flat leaves that are shed annually during the cold or dry season.
- **PFO** Forested wetlands are characterized by woody vegetation that is 3 inches or more DBH, regardless of height. The woody angiosperms (i.e. flowering trees or shrubs) in this broad leaved deciduous community have relatively wide, flat leaves that are shed annually during the cold or dry season.



2.1.5 OHIO RAPID ASSESSMENT METHOD V 5.0

The Ohio Environmental Protection Agency (Ohio EPA) Ohio Rapid Assessment Method for Wetlands v. 5.0 (ORAM) was developed to determine the relative ecological quality and level of disturbance of a particular wetland in order to meet requirements under Section 401 of the Clean Water Act. Wetlands are scored on the basis of hydrology, upland buffer, habitat alteration, special wetland communities, and vegetation communities. Each of these subject areas is further divided into subcategories under ORAM v5.0 resulting in a score that describes the wetland using a range from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Wetlands scored from 0 to 29.9 are grouped into "Category 1", 30 to 59.9 are "Category 2" and 60 to 100 are "Category 3". Transitional zones exist between "Categories 1 and 2" from 30 to 34.9 and between "Categories 2 and 3" from 60 to 64.9. However, according to the Ohio EPA, if the wetland score falls into the transitional range, it must be given the higher Category unless scientific data can prove it should be in a lower Category (Mack, 2001). The ORAM scores for the wetlands that were delineated are discussed in Section 3.1.4 of this report.

Category 1 Wetlands

Category 1 wetlands support minimal wildlife habitat, hydrological and recreational functions, and do not provide for or contain critical habitats for threatened or endangered species. In addition, Category 1 wetlands are often hydrologically isolated and have some or all of the following characteristics: low species diversity, no significant habitat or wildlife use, limited potential to achieve wetland functions, and/or a predominance of non-native species. These limited quality wetlands are considered to be a resource that has been severely degraded or has a limited potential for restoration, or is of low ecological functionality.

Category 2 Wetlands

Category 2 wetlands "...support moderate wildlife habitat, or hydrological or recreational functions," and as wetlands which are "...dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." Category 2 wetlands constitute the broad middle category of "good" quality wetlands, and can be considered a functioning, diverse, healthy water resource that has ecological integrity and human value. Some Category 2 wetlands are lacking in human disturbance and considered to be naturally of moderate quality; others may have been Category 3 wetlands in the past, but have been degraded to Category 2 status.



Category 3 Wetlands

Wetlands that are assigned to Category 3 have "...superior habitat, or superior hydrological or recreational functions." They are typified by generally high levels of diversity, a high proportion of native species, and/or high functional values. Category 3 wetlands include wetlands which contain or provide habitat for threatened or endangered species, are high quality mature forested wetlands, vernal pools, bogs, fens, or which are scarce regionally and/or statewide. It is important to stress that a wetland may be a Category 3 wetland because it exhibits one or all of the above characteristics. For example, a forested wetland located in the flood plain of a river may exhibit "superior" hydrologic functions (e.g. flood retention, nutrient removal), but not contain mature trees or high levels of plant species diversity.

2.2 STREAM & RIVER CROSSINGS

Regulatory activities under the Clean Water Act provide authority for states to issue water quality standards and "designated uses" to all waters of the U.S. upstream to the highest reaches of the tributary streams. In addition, the Federal Water Pollution Control Act of 1972 and its 1977 and 1987 amendments require knowledge of the potential fish or biological communities that can be supported in a stream or river, including upstream headwaters. Streams were identified by the presence of a defined bed and bank, and/or evidence of an ordinary high water mark (OHWM).

Stream assessments were conducted using the methods described in the Ohio EPA's Methods for Assessing Habitat in Flowing Waters: Using Ohio EPA's *Qualitative Habitat Evaluation Index* (Rankin, 2006) and *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, version 1* (Davic, 2002).

2.2.1 OHIO EPA QUALITATIVE HABITAT EVALUATION INDEX

The qualitative habitat evaluation index (QHEI) is designed to provide a rapid determination of habitat features that correspond to those physical factors that most affect fish communities and are generally important to other aquatic life (*e.g.*, macroinvertebrates). The quantitative measure of habitat used to calibrate the QHEI score are Indices (or an Index) of Biotic Integrity (IBI) for fish. In most instances the QHEI is sufficient to give an indication of habitat quality, and the intensive qualitative analysis used to measure the IBI is not necessary. It is the IBI, rather than the QHEI, that is directly correlated with the aquatic life use designation for a particular surface water.

The QHEI method is generally considered appropriate for waterbodies with drainage basins greater than one square mile, if natural pools are greater than 40 cm, or if the water feature is



shown as blue-line waterways on USGS 7.5-minute topographic quadrangle maps. In order to convey general stream habitat quality to the regulated public, the Ohio EPA has assigned narrative ratings to QHEI scores. The ranges vary slightly for headwater streams (H are those with a watershed area less than or equal to 20 square miles) versus larger streams (L are those with a watershed area greater than 20 square miles). The Narrative Rating System includes: Very Poor (<30 H and L), Poor (30 to 42 H, 30 to 44 L), Fair (43 to 54 H, 45 to 59 L), Good (55 to 69 H, 60 to 74 L) and Excellent (70+ H, 75+ L). Results of the QHEI assessments are discussed in Section 3.2.1 of this report.

2.2.2 OHIO EPA PRIMARY HEADWATER HABITAT EVALUATION INDEX

Headwater streams are typically considered to be first-order and second-order streams, meaning streams that have no upstream tributaries (or "branches") and those that have only first-order tributaries, respectively. The stream order concept can be problematic when used to define headwater streams because stream-order designations vary depending upon the accuracy and resolution of the stream delineation. Headwater streams are generally not shown on USGS 7.5minute topographic quadrangles and are sometimes difficult to distinguish on aerial photographs. Nevertheless, headwater streams are now recognized as useful monitoring units due to their abundance, widespread spatial scale and landscape position (Fritz, et al. 2006). Impacts to headwater streams can have a cascading effect on the downstream water quality and habitat value. The headwater habitat evaluation index (HHEI) is a rapid field assessment method for physical habitat that can be used to appraise the biological potential of most Primary Headwater Habitat (PHWH) streams. The HHEI was developed using many of the same techniques as used for QHEI, but has criteria specifically designed for headwater habitats. To use HHEI, the stream must have a "defined bed and bank, with either continuous or periodically flowing water, watershed area less than or equal to 1.0 mi² (259 ha), and a maximum depth of water pools equal to or less than 15.75 inches (40 cm)" (Davic, 2002).

Headwater streams are scored on the basis of channel substrate composition, bankfull width, and maximum pool depth. Assessments result in a score (0 to 100) that is converted to a specific PHWH stream class. Streams that are scored from 0 to 29.9 are typically grouped into "Class 1 PHWH Streams", 30 to 69.9 are "Class 2 PHWH Streams", and 70 to 100 are "Class 3 PHWH Streams". Technically, a stream can score relatively high, but actually belong in a lower class, and vice-versa. According to the Ohio EPA, if the stream score falls into a class and the scorer feels that based on site observations that score does not reflect the actual stream class, a decision-making flow chart can be used to determine appropriate PHWH stream class using the HHEI protocol (Davic, 2002). Evidence of anthropogenic alterations to the natural channel will result



in a "Modified" qualifier for the stream. Results of HHEI assessed streams are discussed in Section 3.2.2 of this report.

Class 1 PHWH Streams: Class 1 PHWH Streams are those that have "normally dry channels with little or no aquatic life present" (Davic, 2002). These waterways are usually ephemeral, with water present for short periods of time due to infiltration from snowmelts or rainwater runoff.

Class 2 PHWH Streams: Class 2 PHWH Streams are equivalent to "warm-water habitat" streams. This stream class has a "moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis" (Davic, 2002). These species communities are composed of vertebrates (fish and salamanders) and/or benthic macroinvertebrates that are considered pioneering, headwater temporary, and/or temperature facultative species.

Class 3 PHWH Streams: Class 3 PHWH Streams usually have perennial water flow with coolcold water adapted native fauna. The community of Class 3 PHWH Streams is comprised of vertebrates (either cold water adapted species of headwater fish and or obligate aquatic species of salamanders, with larval stages present), and/or a diverse community of benthic cool water adapted macroinvertebrates present in the stream continuously (on an annual basis).

Results of the HHEI assessments are discussed in Section 3.2.2 of this report.

3.0 RESULTS

Within the 200-foot study corridor, URS delineated 12 wetlands, seven streams (one stream, Quarry Creek, was crossed four times, and was evaluated at three different locations), and one pond. These wetlands and other water features are discussed in detail in the following sections.

3.1 WETLAND DELINEATION

The locations, approximate extents, and acreages of the wetlands identified within the Project 200-foot survey corridor are shown on Figures 3A through 3D. Completed USACE routine wetland delineation forms are provided in Appendix A. Color photographs were taken of each delineated wetland during the field survey and are provided in Appendix E1.

3.1.1 Preliminary Soils Evaluation

According to the *Web Soil Survey* for Lorain County, Ohio (USDA, 2011) and the Natural Resources Conservation Services Hydric Soils List of Ohio, 28 soil units from 22 soil series are mapped within the 200-foot survey corridor, and include nine soil series with hydric soil map units (USDA, 2011). Soils in each wetland were observed and documented as part of the



delineation methodology. Soil series located within the project area are shown on Figure 4A through 4D. Table 1 provides a detailed overview of all soil series within the 200-foot survey corridor.

3.1.2 National Wetland Inventory Map Review

National Wetland Inventory (NWI) wetlands are areas of potential wetland that have been identified from USFWS aerial photograph interpretation which have typically not been field verified. Forested and heavy scrub/shrub wetlands are often not shown on NWI maps as foliage effectively hides the visual signature that indicates the presence of standing water and moist soils from an aerial view. As a result, NWI maps do not show all the wetlands found in a particular area nor do they necessarily provide accurate wetland boundaries. NWI maps are useful for providing indications of potential wetland areas, which are often supported by soil mapping and hydrologic predictions, based upon topographical analysis using USGS topographic maps.

According to the NWI map of the East Vermilion, Ohio quadrangle, the Alternate Route corridor contained two mapped NWI wetlands, including one Palustrine Forested wetland and one Palustrine Unconsolidated Bottom wetland. The mapped Palustrine Unconsolidated Bottom wetland was shown covering the majority of pond Pr-p02. The other mapped Palustrine Forested NWI wetland was not crossed by any of the field-delineated wetlands. Summary information on NWI mapped wetlands is presented in Table 2.

3.1.3 Delineated Wetlands

The delineation identified 12 wetlands, totaling 2.91-acres, within the 200-foot survey corridor (Table 4). Do note that some wetland boundaries extend beyond the 200-foot survey corridor, but only the portion that was within the study corridor was assessed. These wetlands are of four different wetland habitat types: six are palustrine emergent (PEM) wetlands, four are palustrine emergent-scrub/shrub (PEM/PSS) wetlands, one is a mixed palustrine forested-emergent (PFO/PEM) wetland, and one is a mixed palustrine forested-scrub/shrub (PFO/PSS) wetland.

The locations, approximate extents, and acreages of the wetlands identified within the Project 200-foot survey corridor are shown on Figures 3A through 3D. Completed USACE wetland delineation forms are provided in Appendix A. Color photographs were taken of each delineated wetland during the field survey and are provided in Appendix E1.





| Cowardin Wetland Type | Number of Wetlands | Category 1 | Category 2 | Category 3 | Acreage within Survey Corridor | Linear Feet Crossed by Centerline ^a |
|--------------------------|--------------------------|---------------|---------------|---------------|---|--|
| PEM | 6 | 4 | 2 | 0 | 0.55 | 119 |
| PEM/PSS | 4 | 3 | 1 | 0 | 2.10 | 465 |
| PFO/PEM | 1 | 0 | 1 | 0 | 0.07 | NC |
| PFO/PSS | 1 | 0 | 1 | 0 | 0.19 | 186 |
| Alternate Route Total | 12 | 7 | 5 | 0 | 2.91 | 769 |

TABLE 3.1.3 SUMMARY OF DELINEATED WETLANDS WITHIN THE ALTERNATE ROUTE SURVEY CORRIDOR

Linear Feet Crossed by Centerline (feet)*: NC = Not Crossed by proposed centerline

3.1.4 Delineated Wetlands ORAM V 5.0 Results

Within the Project 200-foot survey corridor, seven of the 12 wetlands are Category 1 wetlands and the remaining six wetlands are Category 2 wetlands. No Category 3 wetlands were delineated during the field investigations. Wetland Pr-w28 had the lowest ORAM score, 22, and Wetland Alt-05b had the highest score, 39. Completed ORAM forms for the individual wetlands are provided in Appendix B.

Category 1 Wetlands

The seven Category 1 wetlands delineated within the 200-foot survey corridor include four PEM wetlands and three PEM/PSS wetlands. The highest scoring Category 1 wetland was 29 (Alt-w04a and Alt-w06), and the lowest was 22 (Pr-w28). These wetlands typically exhibited narrow upland buffers and intensive use of adjacent upland areas (row cropping, open pasture, residential, or construction), exhibited limited plant community development with a moderate to high percentage of invasive species, and characteristically had habitat and hydrology in the early stages of recovering from previous manipulation because of farming or other disturbances.



Category 2 Wetlands

The five Category 2 wetlands delineated within the 200-foot survey corridor include: two PEM wetlands, one PFO/PEM wetland, one PEM/PSS wetland, and one PFO/PSS wetland. The highest scoring Category 2 wetland was 39 (Wetland Alt-w05b), and the lowest was 30 (Alt-w02). Category 2 wetlands with dominant forested and mixed emergent, scrub/shrub, forested plant communities were identified within the survey corridor. Category 2 wetlands generally exhibited moderate to high quality plant communities with few invasive species, moderate to good plant community interspersion, low to high intensity surrounding land use (e.g. young second growth woodlots, shrub-land, etc.), and recovered and/or no modification to natural hydrology and habitat.

Category 3 Wetlands

No Category 3 wetlands were evaluated during the field investigations.

3.2 STREAM & RIVER CROSSINGS

Streams within the 200-foot survey corridor are provided in Table 5. The locations of streams identified within the 200-foot survey corridor are shown on Figures 3A through 3D.

Within the 200-foot survey corridor, seven streams totaling 3,025 linear feet were assessed; four ephemeral (683 linear feet), two intermittent (505 linear feet) and one perennial (four crossings; 1,837 linear feet) waterbodies. The perennial waterbody was assessed in three of the four crossings based on variation of substrate and surrounding area. Six streams were assessed using the HHEI methodology (drainage area less than 1 mi²). The remaining stream was assessed using the QHEI methodology (drainage area greater than 1 mi²).

URS has preliminarily determined that all assessed streams within the survey corridor appear to be jurisdictional (i.e., waters of the U.S.), as they all appear to be tributaries that flow into or combine with other streams.

3.2.1 Qualitative Habitat Evaluation Index

The QHEI assessed stream totaling 1,837 linear feet (Quarry Creek, three individual assessments) within the 200-foot survey corridor received a narrative rating of "good warmwater habitat stream" in all three of the locations that were evaluated, with scores of 56.5, 58, and 60.5. The substrates of the stream were generally dominated by gravel, silt, and bedrock, with lesser amounts of boulder/slabs, hardpan and muck. Areas of the stream showed evidence of undercut



banks, overhanging vegetation, rootwads, shallows in slow water, and little to moderate erosion. Pool depths did not exceed 18 inches, and bankfull width generally did not exceed 25 feet. Forms for the streams assessed using the QHEI methodology are provided in Appendix C. Color photographs were taken of each sampled location of the stream during the field survey and are provided in Appendix E2.

Very Poor Warmwater Habitat Streams -No very poor warmwater habitat streams were evaluated during the field investigations.

Poor Warmwater Habitat Streams – No poor warmwater habitat streams were evaluated during the field investigations.

Fair Warmwater Habitat Streams – No fair warmwater habitat streams were evaluated during the field investigations.

Good Warmwater Habitat Streams- One good warmwater habitat stream (Quarry Creek) (Prs01a, Pr-s01b, and Pr-s01c) was evaluated in three separate locations of the stream and is discussed above.

3.2.2 Primary Headwater Habitat Evaluation Index

Field surveys along the proposed Alternate Route identified six primary headwater streams: three Class 1 streams, two Modified Class 1 streams, and one Class 2 stream. Completed HHEI forms are provided in Appendix D. Color photographs were taken of each stream during the field survey and are provided in Appendix E3.

Modified Class 1 Headwater Streams - Two Modified Class 1 headwater streams totaling 461 linear feet were identified during the field investigations with scores of 11 and 13. One of the streams was ephemeral, and the other was intermittent. The dominant substrates consisted of clay, hardpan, leaf pack/woody debris, and silt, with lesser amounts of bedrock, cobble, gravel, and boulders. The streams contained evidence of manmade stream channel modifications (e.g. channelization, culverting, etc.). These modifications result in these streams receiving a Modified Class 1 designation. Both of the streams were dry at the time of the field investigations, and the bank full width did not exceed three feet.

Class 1 Headwater Streams – Three Class 1 headwater streams totaling 462 linear feet were identified during field surveys, with scores ranging from 11 to 19. All three of the streams were ephemeral, and the dominant substrates generally consisted of clay, hardpan, gravel, and leaf pack/woody debris, with lesser amounts of bedrock and cobble. All three of the streams were dry at the time of the field investigations, and the bank full width did not exceed two feet.



Modified Class 2 Headwater Streams - No Modified Class 2 headwater streams were evaluated during the field investigations.

Class 2 Headwater Streams – One Class 2 headwater stream totaling 266 linear feet was identified during the field investigation, and received a score of 51. The stream was intermittent, and the dominant substrates were bedrock and gravel, with lesser amounts of boulder, cobble, leaf pack/woody debris, and clay/hardpan. The stream displayed a wide riparian zone, which consisted of a mature woodlot. The maximum pool depth was approximately three inches, and the bank full width was approximately 3 feet.

Modified Class 3 Headwater Streams - No Modified Class 3 headwater streams were evaluated during the field investigations.

Class 3 Headwater Streams – No Class 3 headwater streams were evaluated during the field investigations.

3.3 PONDS

One pond was assessed along the Project (Table 6). The acreage of the pond within the 200-foot survey corridor was 0.28 acre. The pond appeared to be man-made for livestock or recreational use. The location of the pond is shown on Figure 3D. A color photograph was taken of the pond during the field survey and is provided in Appendix E4.

4.0 SUMMARY

During the field survey, a total of 12 wetlands, seven streams (with 10 total crossings), and one pond were identified within the 200-foot survey corridor. The 12 wetlands totaled 2.91 acres within the survey area. These wetlands are of five different wetland habitat types: six are palustrine emergent (PEM) wetlands, four are palustrine emergent-scrub/shrub (PEM/PSS) wetlands, one is a mixed palustrine forested-emergent (PFO/PEM) wetland, and one is a mixed palustrine forested-scrub/shrub (PFO/PSS) wetland.

Within the Project survey corridor, seven of the 12 wetlands are Category 1 wetlands and the remaining five wetlands are Category 2 wetlands. No Category 3 wetlands were delineated within the 200-foot survey corridor.

Within the Project survey corridor, seven streams totaling 3,025 linear feet were assessed; four ephemeral (683 linear feet), two intermittent (505 linear feet) and one perennial (four crossings; 1,837 linear feet) waterbodies. The perennial waterbody was assessed in three separate locations



based on variation of substrate and surrounding area. Six streams were assessed using the HHEI methodology (drainage area less than 1 mi^2). The remaining stream was assessed using the QHEI methodology (drainage area greater than 1 mi^2). The HHEI streams received scores ranging from 11 to 51. Three of the HHEI streams were classified as Class 1 Headwater Streams, two were classified as Modified Class 1 Headwater Streams, and one was classified as a Class 2 Headwater Stream. The remaining stream was assessed in three locations (four crossings) using the QHEI methodology (drainage area greater than 1 mi²). The stream received scores of 56.5, 58, and 60.5, and was classified as a Good Warmwater Habitat Stream in all locations.

One man-made pond, totaling 0.28-acre, was also assessed along the Project survey corridor.



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| Mitiwanga | Miner | Mermill | Lorain | Lockport | Jimtown | 1 | LIOUMON | Ummell | Holly | Haskins | | Fulton | Ellsworth | Dekalb | Udorthents | Conocast | Constant | Chili | Bogart | | Allis | Soll Series | |
|--|---|--|-------------------------------|---|---|---|--|--|-----------------|--|-------------------------------------|--|---|--|---|--|---|-----------------------------------|--|-------------------------------------|---|-------------------------------|---|
| MtA | Mr | Mo | L'n | LcB | JtA | JsA | HzB | HzA | Ну | HsB | HsA | FuA | EID2 | DkB | Cz | C oC | CoB | CIB | BtB | BtA | AIA | Symbol | |
| Mitiwanga silt loam, 0 to 2 percent slopes | Miner sity clay loam | Mermill Ioam | Lorain silty clay loam | Lockport silty clay loam, 1 to 4 percent slopes | Jimtown loam, 0 to 2 percent slopes | Jimtown sandy loam, 0 to 2 percent slopes | Hornell silt loam, 2 to 6 percent slopes | Hornell silt loam, 0 to 2 percent slopes | Holly silt loam | Haskins loam, 2 to 6 percent slopes | Haskins loam, 0 to 2 percent slopes | Fulton silt loam, 0 to 2 percent slopes | Ellsworth silt loam, 12 to 18 percent slopes, moderately eroded | Dekalb very channery loam, 1 to 6 percent slopes | Udorthents | Conotton gravelly loam, 6 to 12 percent slopes | Conotton gravelly loam, 2 to 6 percent slopes | Chili loam, 2 to 6 percent slopes | Bogart loam, 2 to 6 percent slopes | Bogart loam, 0 to 2 percent slopes | Allis silty clay loam, 0 to 2 percent slopes | Map Unit Description | TABLE 1 BEAVER-BROWNHELM 345 kV ALTERNATE ROUTE TRANSMISSION LINE PROJECT SO |
| 4.76 | 3.65 | 5.81 | 0.02 | 2.73 | 0.19 | 2.81 | 3.44 | 1.28 | 3.35 | 0.03 | 14.54 | 20.08 | 2.11 | 0.79 | 1.78 | 2.21 | 1.44 | 1.21 | 0.78 | 0.38 | 7.95 | Percent of Route by Series | TERNATE ROUTE TH |
| Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | Lorain | County | TABLE 1 |
| Flat and rounded tops at the base of sandstone highs | Depressions | Depressions | Depressions | Near sandstone highs | Beach ridges, outwash plains, stream terraces | Beach ridges, outwash plains, stream terraces | Depressions | Depressions | Flood plains | Remnants of beach ridges and along drainageways | Depressions | Areas that parallel the shore of Lake Erie | Areas along major drainageways | Flat, rounded tops of sandstone highs | Areas where earth, trash, and slag have been dumped | Areas near sandstone highs | Areas near sandstone highs | | Adjacent to drainageways and on beach ridges | Lake plains and along major streams | Depressions | Topographic Setting | E 1 SION LINE PROJECT SOIL MAP UNITS AND DESCRIPTIONS |
| 10 | Yes | Yes | Yes | no | по | no | Inclusions | Inclusions | Yes | no | Inclusions | no | ou | no | no | no | no | no | ß | no | Inclusions | Hydric | ND DESCR |
| n/a | Miner (85), Luray (3), Lorain (3), Trumbull (3), other areas (3) | Mermill (90), Lorain (4), areas with silt loam (2) | Lorain (90), other areas (10) | n/a | B/A | n/a | Miner (5), Allis (5) | Miner (4), Allis (4) | Holly (95) | n/a | Mermill (3) | D/a | II/3 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | Areas with thin layer of glacial till over shale bedrock (3) | Hydric Component (%) | IPTIONS |

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Table 1 Page 1 of 2

Beaver-Brownhelm Junction 345kV Transmission Line Project Alternate Route

| | | BEAVER-BROWNHELW 343 EV ALLERWATE ROUTE TRANSPISSION LIVE PROJECT SO | LIERNALE RUULE IN | CANSULS | SSION LINE FRUJECT SULL MAP UNITS AND DESCRIPTIONS | ND DESCRI | TITUNS |
|-------------|--------|--|-------------------------------|---------|--|------------|---|
| Soil Series | Symbol | Map Unit Description | Percent of Route by Series | County | Topographic Setting | Hydrit | Hydric Component (%) |
| | MtB | Mitiwanga silt loam, 2 to 6 percent slopes | 2.72 | Lorain | Rounded tops and at the base of sandstone highs | no | n/a |
| Olmsted | Om | Olmsted fine sandy loam | 6.56 | Lorain | Depressions | Yes | |
| | | | | | | | Olmsted (92), Mermill (5), areas with silty clay loam (3) |
| Orrville | 0r | Orrville silt loam | 3.62 | Lorain | Drainageways | Inclusions | Holly (5) |
| Oshterno | BIO | Oshtemo sandy loam, 2 to 6 percent slopes | 0.92 | Lorain | Drainageways | no | n/a |
| Rawson | RdA | Rawson loam, 0 to 2 percent slopes | 2.44 | Lorain | Low knolls on the lake plain and along streams | no | n/a |
| Tyner | ТуС | TyC Tyner loamy sand, 6 to 12 percent slopes | 2.41 | Lorain | Sandy beach ridges | no | n/a |
| NOTES. | | | | | | | |

h TABLE 1

NOTES:

(1) Percentages do not add up to exactly 100% due to rounding

(2) Data sources include:

USDA, NRCS. 2011 Soil Survey Geographic (SSURGO) Database. Available online at: http://soildatamart.arca.usda.gov/ USDA, NRCS. October 2011. National Hydrie Soils List by State. Available online at: http://soils.usda.gov/use/hydric/lists/state.html

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Beaver-Brownhelm Junction 345kV Transmission Line Project Alternate Route

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TABLE 2

ALTERNATE ROUTE TRANSMISSION LINE PROJECT SURVEY CORRIDOR NWI WETLANDS WITHIN THE BEAVER-BROWNHELM JUNCTION345 kV

| Wetland Type | NWI Code | NWI Habitat Type ¹ | Total # of Each Habitat Type | NWI Quadrangle(s) |
|---|-------------------|--|---------------------------------|-------------------|
| Freshwater Forested/Shrub Wetland | PFOIC | Palustrine Forested Broad-Leaved Deciduous Seasonally Flooded | 1 | Vermilion East |
| Freshwater Pond | PUBG | Palustrine Unconsolidated Bottom Intermittently Exposed | 1 | Vermilion East |
| Total Number NWI Wetlands = 2 | 1 Wettands | =2 | | |

¹ USFWS National Wetlands Inventory Classification De-coder: http://137.227.242.85/Data/interpreters/wetlands.aspx

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TABLE 3 VEGETATION IDENTIFIED WITHIN DELINEATED WETLANDS

| Common Name | Scientific Name | Stratum | Region 1 Indicator Status ^b |
|----------------------------|----------------------------|---------|--|
| Allegheny blackberry | Rubus allegheniensis | Н | FACU |
| American elm | Ulmus americana | T | FACW |
| Arrowleaf tearthumb | Polygonum sagittatum | Н | OBL |
| Arrowwood viburnum | Viburnum dentatum | S | FAC |
| Autumn Olive | Elaeagnus umbellata | S | N |
| Big Bluestem | Andropogon gerardii | Н | FAC |
| Black mustard | Brassica nigra | Н | N |
| Black willow | Salix nigra | S&T | FACW |
| Bright red top | Agrostis gigantea | Н | FACW |
| Broad-leaf cattail | Typha latifolia | Н | OBL |
| Buttonbush | Cephalanthus occidentalis | S | OBL |
| Sedge | Carex sp. | Н | FAC |
| Cockspur hawthorn | Crataegus crus-galli | S | FACU |
| Common boneset | Eupatorium perfoliatum | Н | FACW |
| Common reed | Phragmites australis | Н | FACW |
| Deertongue | Dichanthelium clandestinum | Н | FAC |
| Eastern cottonwood | Populus deltoides | S&T | FAC |
| Field horsetail | Equisetum arvense | Н | FAC |
| Fuller's teasel | Dipsacus fullonum | Н | NI |
| Glossy buckthorn | Frangula almus | S | FAC |
| Green ash | Fraxinus pennsylvanica | S&T | FACW |
| Indian hemp | Apocynum cannabinum | Н | FACU |
| Japanese stiltgrass | Microstegium vimineum | Н | IN |
| ATSI | Table 3 Page 1 of 3 | | Beaver-Brownhelm Junction 345 kV Transmission Line Project Alternate Route |

| Report | |
|-------------|--|
| Delineation | |
| Wetland | |



TABLE 3 VEGETATION IDENTIFIED WITHIN DELINEATED WETLANDS

| Common Name | Scientific Name | Stratum" | Region 1 Indicator Status ^b |
|-------------------------|-----------------------------|----------|--|
| Jewelweed | Impatiens capensis | Н | FACW |
| Narrow-leaf cattail | Typha angustifolia | Н | OBL |
| Nodding beggartick | Bidens cernua | Н | OBL |
| Pennsylvania smartweed | Polygonum pensylvanicum | Н | FACW |
| Peppermint | Mentha piperita | Н | FACW |
| Pin oak | Quercus palustris | S&T | FACW |
| Poison ivy | Toxicodendron radicans | S | FAC |
| Purple loosestrife | Lythrum salicaria | Н | FACW |
| Red maple | Acer rubrum | S&T | FAC |
| Redosier dogwood | Cornus sericea | S | FACW |
| Reed canary grass | Phalaris arundinacea | Н | FACW |
| Riverbank grape | Vitis riparia | Λ | FACW |
| Round-leaf goldenrod | Solidago patula | Н | OBL |
| Rufous bulrush | Scirpus pendulus | Н | OBL |
| Rush | Juncus sp. | Н | FAC |
| Sandbar willow | Salix interior | S | OBL |
| Sensitive fem | Onoclea sensibilis | Н | FACW |
| Small-flowered agrimony | Agrimonia parviflora | Н | FAC |
| Soft rush | Juncus efjusus | Н | FACW |
| Swamp milkweed | Asclepias incarnata | Н | OBL |
| Turtle head | Chelone glabra | Н | OBL |
| Virginia creeper | Parthenocissus quinquefolia | Н | FACU |
| Woolgrass | Scirpus cyperinus | Н | FACW |
| | | | |



Table 3 Page 2 of 3

| 3 | | itatus ^b | | function 345 kV ion Line Project Alternate Route |
|--------------------------------|--|--|---|--|
| | | Region 1 Indicator Status ^b | | Beaver-Brownhelm Junction 345 kV Transmission Line Project Alternate Route |
| | ELINEATED WETLANDS | Stratum ^a | | |
| TABLE 3 | VEGETATION IDENTIFIED WITHIN DELINEATED WETLANDS | Scientific Name | I = herb, S = shrub or sapling, T = tree, V = vine Veiland Indicator Status OBL - Obligate Wetland - Occurs almost always (99% probability) FACW - Facultative Wetlands - Usually occurs in wetlands (67 - 99% probability) FACU - Facultative Upland - Usually occurs in non-wetlands (67 - 99% probability) UPL - Obligate Upland - Occurs almost always in non-wetlands (99% probability) UPL - Obligate Upland - Occurs almost always in non-wetlands (99% probability) | Table 3 Page 3 of 3 |
| менали <u>реплеаноп</u> керог. | VEG | Common Name | ^a H = herb, S = shrub or sapling, T = tree, V = vine ^b Wetland Indicator Status OBL - Obligate Wetland - Occurs almost always (99% probability) FACW - Facultative Wetlands - Usually occurs in wetlands (67 - 99% probability) FAC - Facultative Upland - Usually occurs in non-wetlands (67 - 99% probability) UPL - Obligate Upland - Occurs almost always in non-wetlands (99% probability) | ATSI |

Wetland Delineation Report



TABLE 4

ALTERNATE ROUTE TRANSMISSION LINE PROJECT ECOLOGY SURVEY CORRIDOR¹ **DELINEATED WETLANDS WITHIN THE BEAVER-BROWNHELM JUNCTION 345 kV**

| Report Name | Cowardia Wetland Type ⁴ | ORAM Score | ORAM Category | Acreage within 200 Foot Corridor | Approximate Length Crossed by Centerline (feet) |
|-------------------------------------|--|-------------------------|----------------------------|-------------------------------------|--|
| Pr-w01 | PEM | 26 | 1 | 0.10 | 27 |
| Pr-w02 | PEM | 24 | 1 | 0.02 | NC |
| Pr-w03 | PEM | 25 | 1 | 0.24 | 65 |
| Alt-w01 | PEM | 31 | 2 | 80:0 | NC |
| Alt-w02 | PEM | 30 | 2 | 0.11 | 13 |
| Alt-w03 | PEM/PSS | 31 | 2 | 80.0 | 21 |
| Alt-w04b | PEM/PSS | 27 | 1 | 0.50 | 4 |
| Alt-w04a | PEM/PSS | 29 | 1 | 1.26 | 440 |
| Alt-w05b | PFO/PEM | 39 | 2 | 0.07 | NC |
| Alt-w05a | PFO/PSS | 36 | 2 | 0.19 | 186 |
| Alt-w06 | PEM | 29 | 1 | 0.01 | 14 |
| Pr-w28 | PEM/PSS | 22 | 1 | 0.26 | NC |
| TOTAL | 71 | | | 2.91 | 770 |
| ¹ Streams are listed fiv | Streams are listed from the northern end of the project to the southern end of the project (as shown on Figures 3A through 3D) | xet to the southern end | l of the project (as shown |) on Figures 3A through 3D). | |

Cowardin Wetland Type": PEM – palustrine emergent, PSS – palustrine scrub/shrub, PFO – palustrine forested.

Linear Feet Crossed by Centerline (feet)^b : NC = Not Crossed by proposed centerline

ATSI

Beaver-Brownhelm Junction 345 kV Transmission Line Project Alternate Route

Table 4

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TABLE 5 STREAMS IDENTIFIED WITHIN THE BEAVER-BROWNHELM JUNCTION 345 kV

| | ALTE | ALTERNATE ROU | UTE TRANSM | UTE TRANSMISSION LINE PROJECT SURVEY CORRIDOR | ROJECT SURV | EY CORRID | OR | |
|-----------------------------------|---|----------------------|---|---|---|--------------------|-------|--------------------------|
| Stream Name | Waterbody Name | Flow Type | Estimated Width of Stream Crossing (feet) | Maximum Pool Depth (inches) | Approximate Length Within 200 Foot Survey Corridor (feet) | Assessment Used | Score | Narrative Description |
| Pr-s01a | Quarry Creek | Perennial | 25 | 4 | 325 | QHEI | 60.5 | Good Warmwater |
| Pr-s01b | Quarry Creek | Perennial | 15 | 4 | 798 | QHEI | 58 | Good Warmwater |
| Alt-s01a | Tributary to Quarry Creek | Intermittent | 1 | 0 | 239 | ІННЫ | 11 | Modified Class I |
| Alt-s01b | Tributary to Quarry Creek | Intermittent | 3 | 3 | 266 | ІЗНН | 51 | Class II |
| Alt-s02 | Tributary to Quarry Creek | Ephemeral | 2 | 0 | 204 | ІННЕІ | 19 | Class I |
| Alt-s03 | Tributary to Quarry Creek | Ephemeral | 3 | 0 | 222 | HHEI | 13 | Modified Class I |
| Alt-s04 | Tributary to Quarry Creek | Ephemeral | 2 | 0 | 215 | ІННЕІ | 12 | Class I |
| Alt-s05 | Tributary to Quarry Creek | Ephemeral | 1 | 0 | 43 | IHHEI | 11 | Class I |
| Pr-s01c (northern crossing) | Quarry Creek | Perennial | 3.5 | 18 | 345 | QHEI | 56.5 | Good Warmwater |
| Pr-s01c (southern | Quarry Creek | Perennial | 3.5 | 18 | | QHEI | 56.5 | Good Warmwater |
| crossing) Tatal | | | | | 308 3.025 | | | |
| Company and lists | Streams are listed from the most and af the united to d | t the mariant to the | a toutham and after | to anniont (ao ahamma a | he conthem and of the avoient (as shorts on Finness 3A through 3D) | Int. | | |

Streams are listed from the northern end of the project to the southern end of the project (as shown on Figures 3A through 3U).

Beaver-Brownhelm Junction 345 kV Transmission Line Project Alternate Route

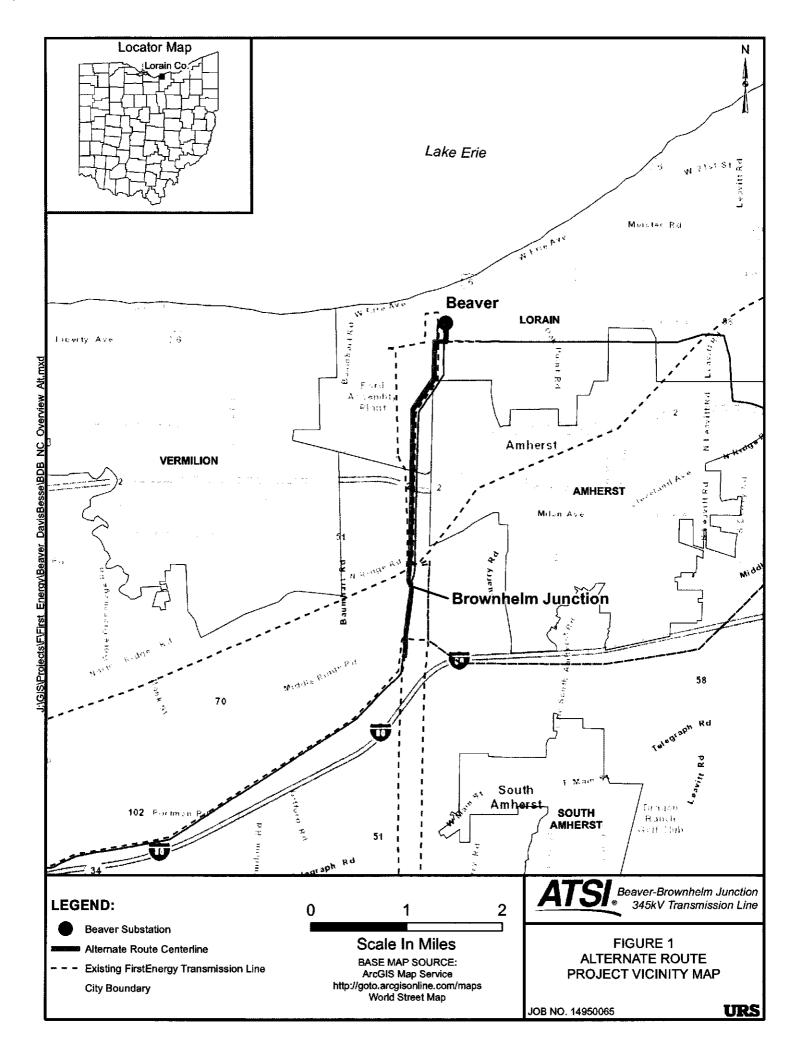
Table 5

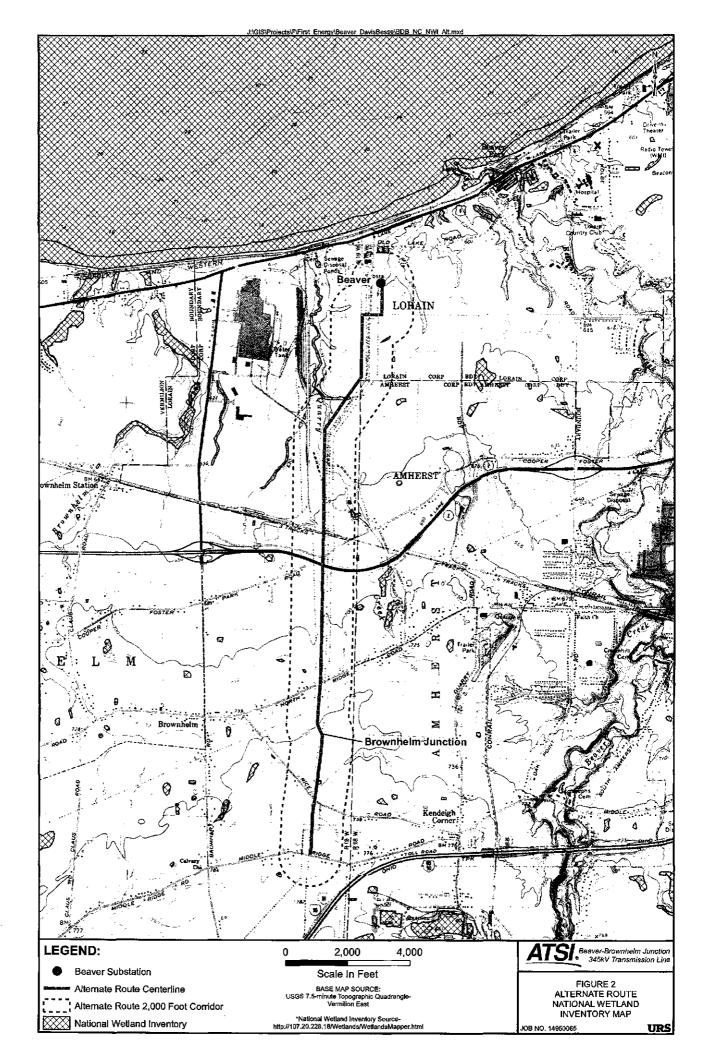


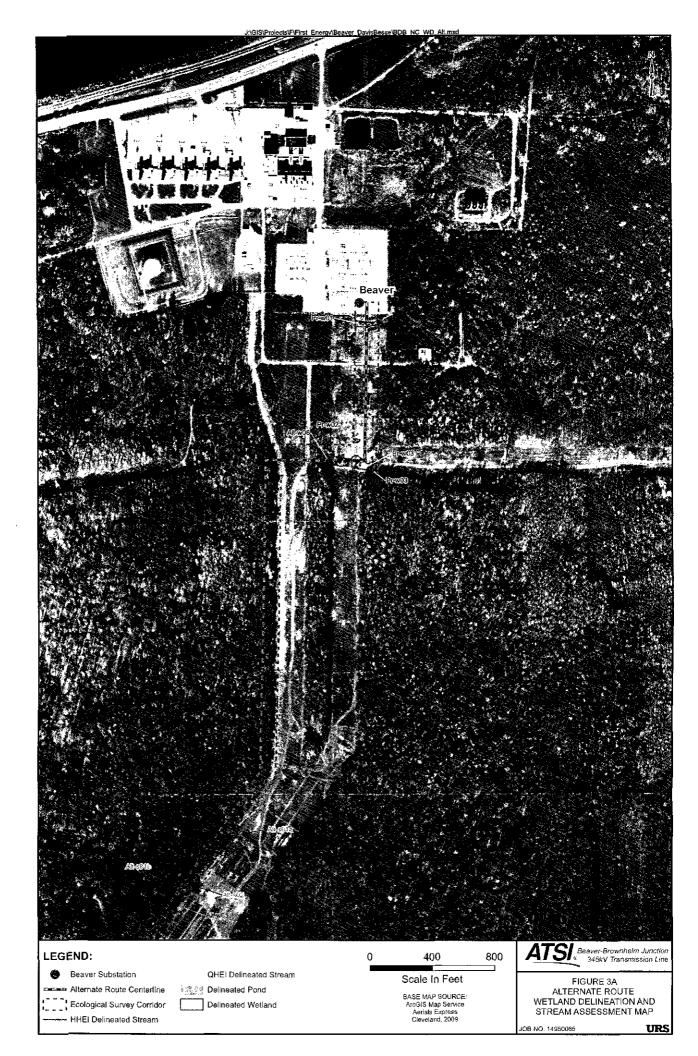
| TABLE 6 | | | | |
|--|--|--|--|--|
| POND IDENTIFIED WITHIN THE BEAVER-BROWNHELM JUNCTION | | | | |
| 345 kV ALTERNATE ROUTE TRANSMISSION LINE PROJECT ECOLOGY SURVEY CORRIDOR | | | | |

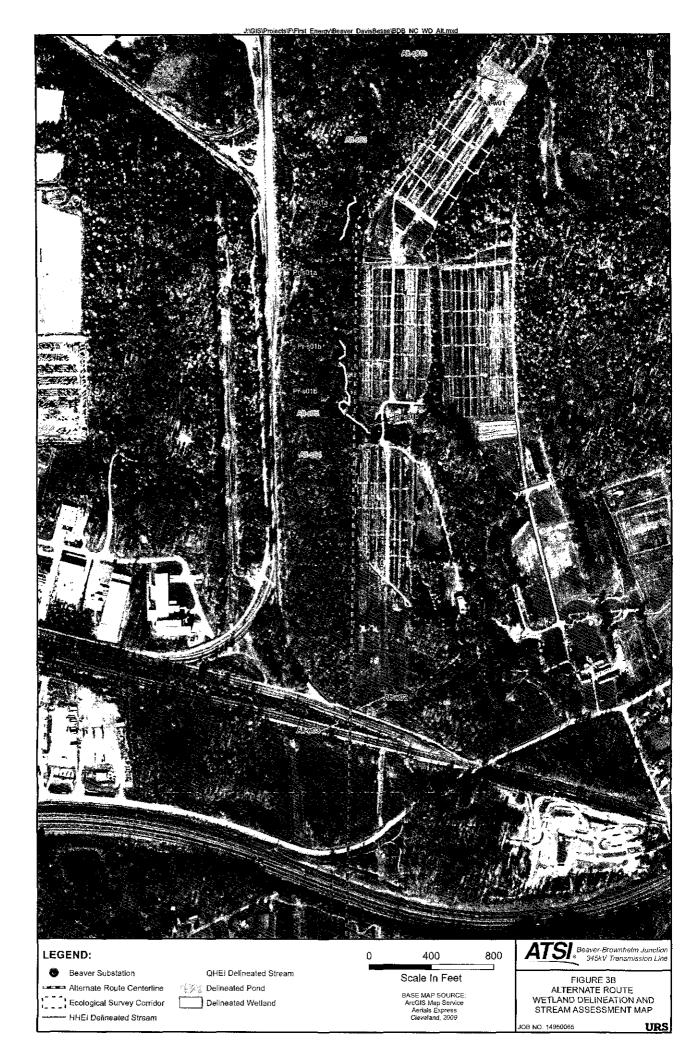
| Pond Name | County | Acreage within Survey Corridor | Approximate Length Crossed by Centerline (feet) |
|-----------|--------|-----------------------------------|--|
| Pr-p02 | Lorain | 0.28 | 71 |
| Total | | 0.28 | 71 |

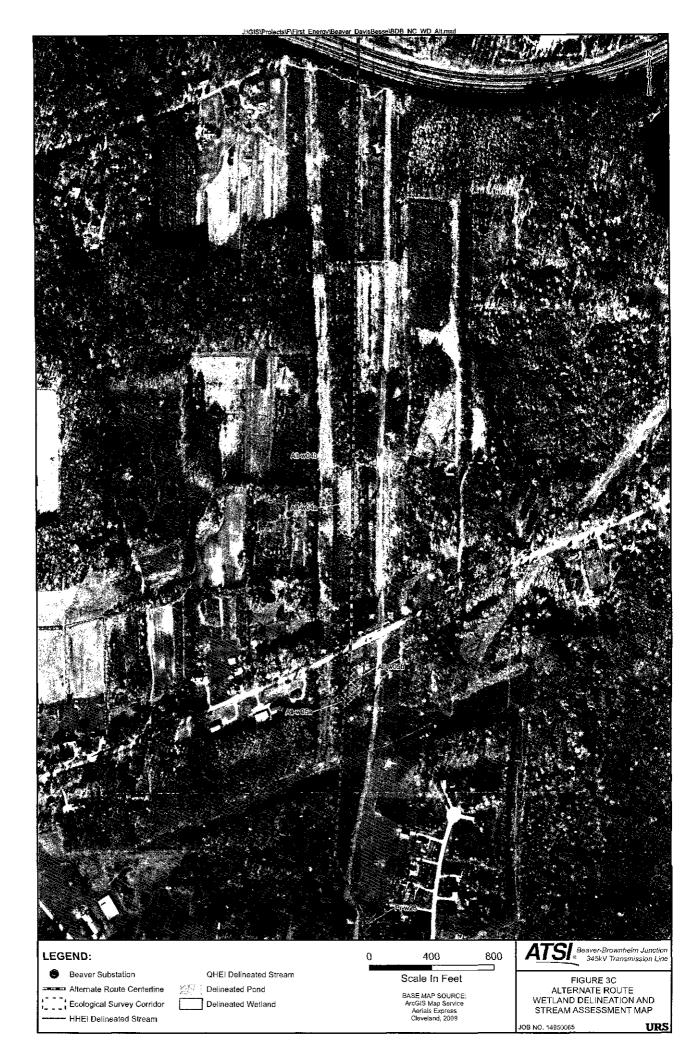


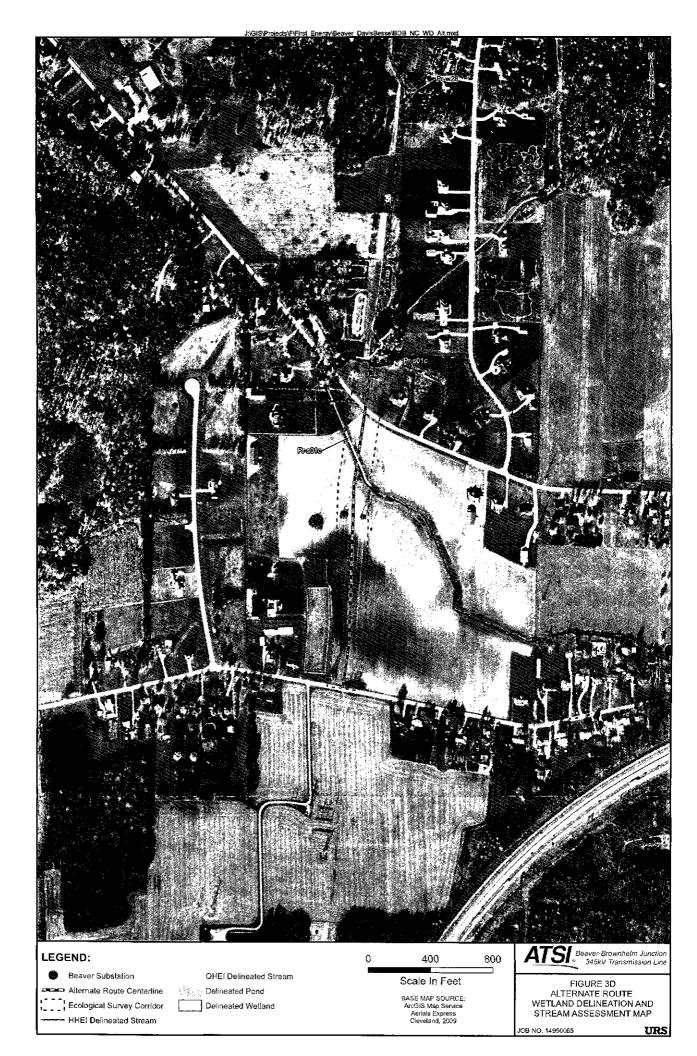


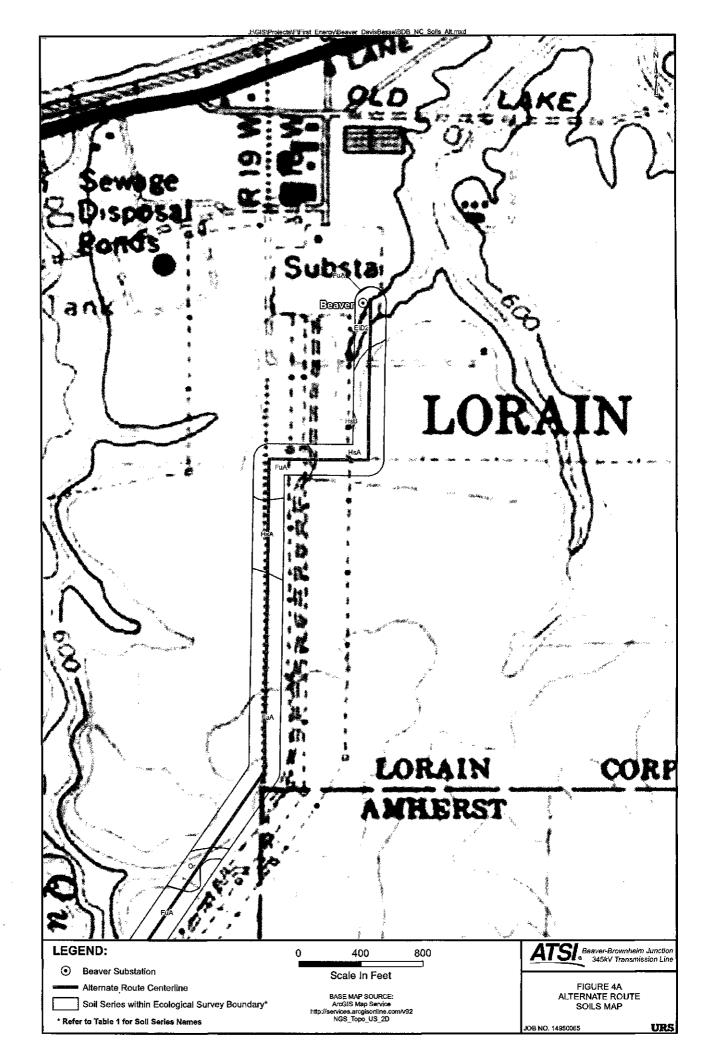


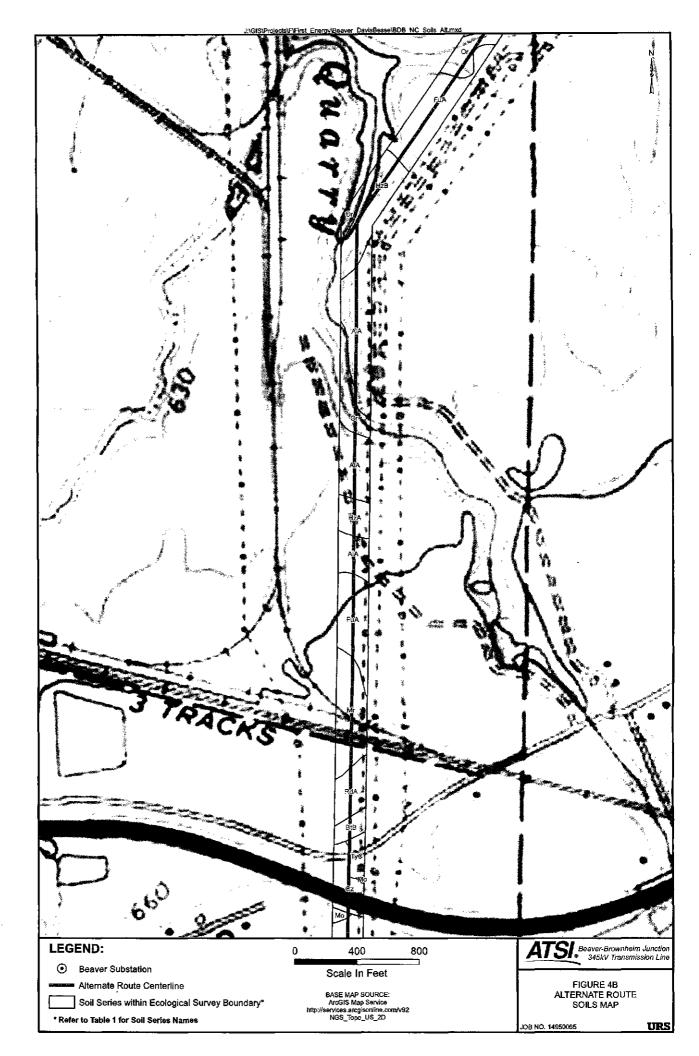


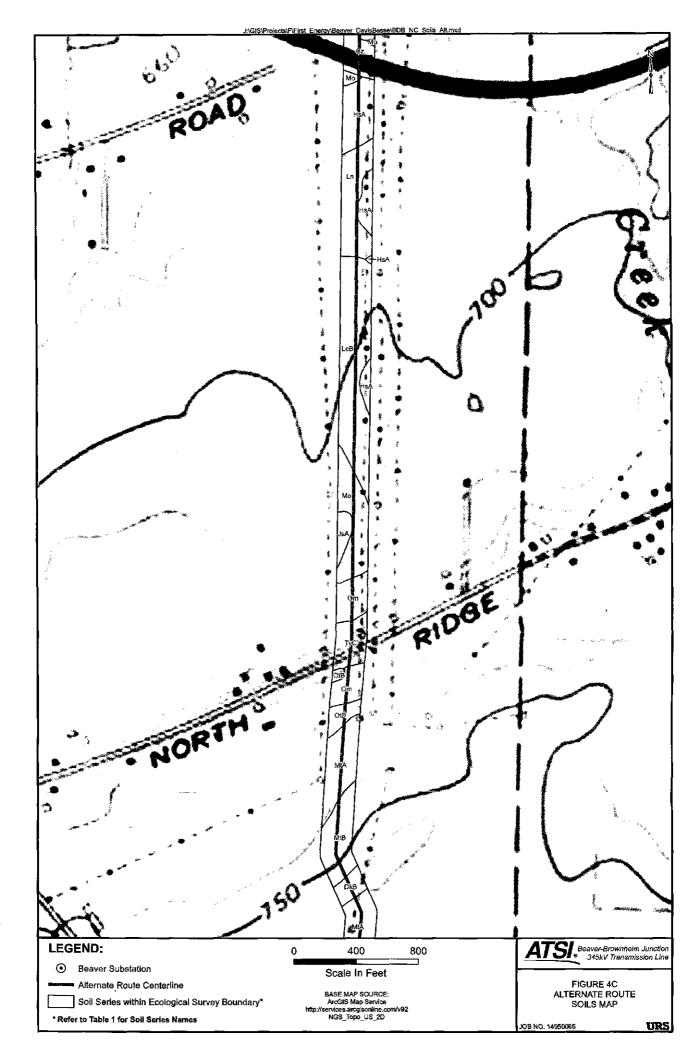


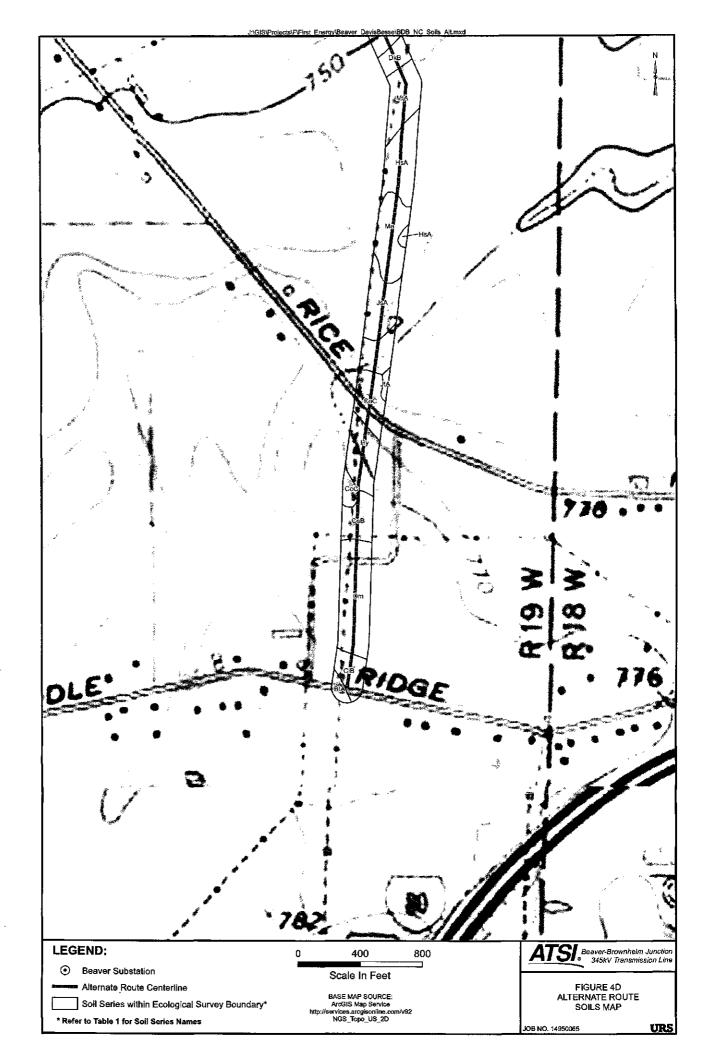














APPENDIX A

U.S. ARMY CORPS OF ENGINEERS WETLAND FORMS



| Pr-WOI W-MDT051811-2 |
|--|
| WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region |
| Project/Site: FE Blower Daws Blower Daws City/County: LOrain County Sampling Date: 18 March Applicant/Owner: First Energy State: DH State: DH Sampling Date: 18 March Investigator(s): M. Mow Call (, S. Polsci Section, Township, Range: THN, Cl8 Cl8 Landform (hillslope, terrace, etc.): Base of Mill Local relief (concave, convex, none): Concave Slope (%): [2] Lat: 41 42.63.445 Long: -87 26.65.77 Datum: WGS S 198.44 Soil Map Unit Name: EID2 Nog: -87 26.65.77 Datum: WGS S 198.44 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.) Are Vegetation MO Soil MO or Hydrology Mo anturally problematic? (If needed, explain any answers in Remarks.) SumMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. SumMarks of Findings |
| Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Hydric Soil Present? Yes No Is the Sampled Area within a Wetland? Yes No Wetland Hydrology Present? Yes No If yes, optional Wetland? Yes No Remarks: (Explain alternative procedures here or in a separate report.) If yes, optional Wetland Site ID: |
| HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) |
| Field Observations: Surface Water Present? Yes X No Depth (inches): D'' (o " Water Table Present? Yes No Depth (inches): Surface Wetland Hydrology Present? Yes X No Depth (inches): Surface C Wetland Hydrology Present? Yes X No Depth (inches): Surface C Wetland Hydrology Present? Yes X No Depth (inches): Surface C Wetland Hydrology Present? Yes X No Depth (inches): Surface C Wetland Hydrology Present? Yes X No Depth (inches): Surface C Wetland Hydrology Present? Yes X No Depth (inches): Surface C Wetland Hydrology Present? Yes X No Depth (inches): Surface C Wetland Hydrology Present? Yes X No Depth (inches): Surface C Wetland Hydrology Present? Yes X No Depth (inches): Surface C Wetland C Wetland Hydrology Present? Yes X No Depth (inches): Surface C Wetland C Wetland Hydrology Present? Yes X No Depth (inches): Surface C Wetland C Wetland Hydrology Present? Yes X No Depth (inches): Surface C Wetland C W |
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| /EGETATION - Use scientific names of pla | nts. | | Sampling Point: |
|--|----------------|--------------|---|
| <u>Tree Stratum</u> (Plot size:) 1) | <u>% Cover</u> | | Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC; |
| 2 3 | | | Total Number of Dominant Species Across Ail Strata: (B) |
| 4 | | | Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B |
| 6 | | <u> </u> | Prevalence index worksheet: |
| · · <u></u> | | Totol Course | Total % Cover of: Multiply by: OBL species |
| | | | |
| Sapling/Shrub Stratum (Plot size: | | 0.0.1 | FACW species x 2 = |
| 1. Sandbar millon | | <u> </u> | FAC species x 3 = |
| 2. flassier Logu soz | <u> </u> | PACW+ | FACU species x 4 = |
| 3. Pin Dark | 2 | FACU | UPL species x5 = |
| 4 | | | (A) (B) |
| 5 | · · · · | | Prevalence index = B/A = |
| 6 | | | Hydrophytic Vegetation Indicators: |
| 7 | | | Rapid Test for Hydrophytic Vegetation |
| · · · · · · · · · · · · · · · · · · · | | Total Cover | Dominance Test is >50% |
| | <u> </u> | TOTAL COVEL | Prevalence Index is ≤3.0 ¹ |
| Herb Stratum (Plot size:) 1. Phragmitic australis | 45 | PACU | Mombological Adaptations ¹ (Provide supporting |
| 2. Typhe lastitolia | 25 | DRL | Problematic Hydrophytic Vegetation ¹ (Explain) |
| | | | |
| 3. Juncus efforcus | | - Macur | ¹ Indicators of hydric soil and wetland hydrology must |
| | | | be present, unless disturbed or problematic. |
| 5. Equisation gruense | | <u> </u> | Definitions of Vegetation Strata: |
| 3. Junces sp | 5 | FRC | _ |
| . Impatiens rapansis | 5 | FACW | Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. |
| i | | | Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tail. |
| 1 | | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| 1 | | | Woody vines - All woody vines greater than 3.28 ft in |
| | = | | height. |
| Voody Vine Stratum (Plot size:) | | | |
| · | | | |
| 2 | | | |
| 3 | | | Hydrophytic |
| 4 | | | Vegetation Present? Yes <u>No</u> |
| | | Total Cover | Present? Yes <u>/</u> No |
| Remarks: (Include photo numbers here or on a separa | oto shoet \ | | |
| Eastern portion of in | retland | rs domi- | rated by Phragmites, |
| and western side | is el. | sminated | L by broadleaf catteril |
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| | | | | | | | | Sampling Point: |
|--|---|--|----------------------------------|------------------|------------------------|------------------|-------------------|--|
| | cription: (Describe 1 | to the depti | | | | or confirm | n the absence of | findicators.) |
| Depth (inches) | <u>Matrix</u> Color (moist) | | Color (moist) | ox Features % | s Type ¹ | Loc ² | Texture | Remarks |
| n-1." | 104R 4/2 | | 10112 6/6 | | / | M | silty clay | <u> </u> |
| Vu | 1011-71- | . <u>-70</u> - | 10112 010 | | <u> </u> | 14 | · Snig (157 - | few/discrete |
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| ¹ Type: C=Co Hydric Soil I | oncentration, D=Depl | etion, RM=F | Reduced Matrix, C | S=Covered | i or Coate | ad Sand Gr | | tion: PL=Pore Lining, M=Matrix. |
| • | | | Debuglue Balc | - Ourface | (00) /I RI | | | or Problematic Hydric Soils ³ : |
| — Histosoi Histic Ep | i (A1) pipedon (A2) | - | Polyvalue Belo MLRA 149B | | (S8) (Enn | ι κ, | | rairie Redox (A16) (LRR K, L, MLRA 149B) rairie Redox (A16) (LRR K, L, R) |
| | istic (A3) | - | Thin Dark Surfa | | .RR R, MI | LRA 1498 | | icky Peat or Peat (S3) (LRR K, L, R) |
| Hydroge | en Sulfide (A4) | - | Loamy Mucky I | Mineral (F1 | 1) (LRR K, | | Dark Suri | rface (S7) (LRR K, L) |
| | d Layers (A5) | - | Loamy Gleyed | |) | | | e Below Surface (S8) (LRR K, L) |
| - · | d Below Dark Surface ark Surface (A12) | بر (A11) و | Depleted Matrix Redox Dark Su | | | | | k Surface (S9) (LRR K, L) Iganese Masses (F12) (LRR K, L, R) |
| | ark Surface (A12) /lucky Mineral (S1) | | Redox Dark Su Depleted Dark | | | | | nt Floodplain Soils (F12) (LRK K, L, K) |
| | Gleyed Matrix (S4) | - | Redox Depress | - | · / | | | podic (TA6) (MLRA 144A, 145, 149B) |
| Sandy R | Redox (S5) | | _ | | | | Red Pare | ent Material (TF2) |
| 1 | d Matrix (S6) | ······ | | | | | | allow Dark Surface (TF12) |
| Dark ou | Irface (S7) (LRR R, M | ILRA 1490) | ł | | | | עוושו (בא | xplain in Remarks) |
| ³ Indicators of | of hydrophytic vegetati | tion and wet | land hydrology mu | ist be prese | ent, unless | s disturber | d or problematic. | |
| <u> </u> | Layer (if observed): | | | | | | | <u> </u> |
| Туре: | <u> </u> | | | | | | | |
| Depth (inc | ches): | | | | | | Hydric Soil Pr | resent? Yes 🚬 No |
| Remarks: | | | | | <u> </u> | | | |
| | ioil couldn | 1 ho | - Ila-Lad | 1 hole | nes la | 1" d | lip to sa | turation |
| 20 | on covian | T De | Collecter | | Here - | 2 2 | | |
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| WETLAND | DETERMINATION DATA FO | ORM – Northcentral ar | nd Northeast Region |
| pplicant/Owner: $Arger Entransport Entran$ | $\frac{91}{5 \cdot Polciev} \text{ Sec}$ $\frac{91}{29762} \text{ Long}$ $\frac{91}{29762} \text{ Long}$ he site typical for this time of year? Hydrology $\frac{100}{100}$ significantly distributed by $\frac{100}{100}$ naturally problem | tion, Township, Range: Local relief (concave, g:82, 266 Yes No (if r urbed? Are "Normal Ci natic? (If needed, exp | convex, none): <u>Concure</u> |
| Hydrophytic Vegetation Present? Hydric Soil Present? | Yes No Yes No | Is the Sampled Area within a Wetland? | Yes No |
| Wetland Hydrology Present? Remarks: (Explain alternative proced PEM Wetland Wetland is down | Yes <u> </u> | If yes, optional Wetland Si | te ID: |
| YDROLOGY Vetland Hydrology Indicators: | | Se | condary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is | required; check all that apply) | <u>56</u> | Surface Soil Cracks (B6) |
| Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Image Sparsely Vegetated Concave Sur | Presence of Reduce Recent Iron Reducti Thin Muck Surface of Other (Explain in Re | dor (C1) res on Living Roots (C3) ed Iron (C4) ion in Tilled Soils (C6) (C7) emarks) | Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5) |
| Nater Table Present? Yes Saturation Present? Yes | X No Depth (inches): 0 ^t No X Depth (inches): No X Depth (inches): No Depth (inches): | | rology Present? Yes No |
| (includes capillary fringe) Describe Recorded Data (stream gau | ge, monitoring well, aerial photos, pr | evious inspections), if availab | le: |
| | | | a ca carrandad Cint |

W-MJJ 051811-3

| VEGETATION - Use | scientific names | of plants. |
|------------------|------------------|------------|
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Sampling Point:

| Tree Stratum (Plot size:) | Absolute % Cover | Dominan Species? | t Indicator | Dominance Test worksheet: |
|---|--------------------------|---------------------|-------------|--|
| 1 | · | | | Number of Dominant Species That Are OBL, FACW, or FAC:(2(A) |
| 2 | | | | Total Number of Dominant |
| 3 | | | | Species Across All Strata:(B) |
| 4 | | | | Percent of Dominant Species That Are OBL, FACW, or FAC:(OO (A/B) |
| 5 | · | | | |
| 6 | | | | Prevalence index worksheet: |
| | d | = Total Co | ver | Total % Cover of: Multiply by: OBL species 25 x 1 = 25 |
| Sapling/Shrub Stratum (Plot size:) | 7 | | | FACW species |
| 1. Din ocil | 2 | 125 | FACW | FAC species $\frac{80}{240}$ x 3 = $\frac{240}{240}$ |
| 2. Red Dier dogwood | 2 | Les | FACW | FACU species $0 \times 4 = 0$ |
| 2. Pedosier dogwon? 3. Francis pennsylvanica | | ver | FACW | UPL species \bigcirc x 5 = \bigcirc Column Totals: $\boxed{46}$ (A) $\boxed{287}$ (B) |
| 4 | | (~ | | |
| 5 | | | | Prevalence Index = $B/A = 2.47$ |
| 6 | . <u> </u> | | <u> </u> | Hydrophytic Vegetation indicators: |
| 7 | | | | Rapid Test for Hydrophytic Vegetation |
| | _6_ | = Total Co | ver | X Dominance Test is >50% X Prevalence Index is ≤3.01 |
| Herb Stratum (Plot size:) | Ì | 31.2 | | Morphological Adaptations ¹ (Provide supporting |
| 1. Carex speciels (2 speciels) | _50 | yes | FAC | data in Remarks or on a separate sheet) |
| 2. Moth grous sp. | _20 | > yes | FAC | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 3. Sprand milkuled | 20 | yes_ | DEL | ¹ Indicators of hydric soil and wetland hydrology must |
| 4. Teash | 5 | ne | NI | be present, unless disturbed or problematic. |
| 5. Bluestern (Andropogan gerand | k: <u>)5</u> | no | <u>FAC</u> | Definitions of Vegetation Strata: |
| 6. Nodding bullrush | | no | QBC | Tree – Woody plants 3 in. (7.6 cm) or more in diameter |
| 7. Junche Sp. | <u>_</u> | <u>no</u> | PAC | at breast height (DBH), regardless of height. |
| 8. Mncus effustis | <u></u> | | PACENT | Sapling/shrub – Woody plants less than 3 in, DBH |
| 9 | | | · | and greater than 3.28 ft (1 m) tall. |
| 10 | | | · ······ | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tail. |
| 11 | | | • | |
| 12 | | | | Woody vines – All woody vines greater than 3.28 ft in height. |
| | 57.5 | = Total Co | ver | |
| Woody Vine Stratum (Plot size:) | 23 | | | |
| 1 | | . <u></u> | | |
| 2 | | | ····· | |
| 4. (none) | | <u> </u> | · ····· | Hydrophytic Vegetation |
| | $\overline{\mathcal{O}}$ | = Total Co | ver | Present? Yes <u>No</u> |
| Remarks: (Include photo numbers here or on a separate s | | | | |
| Wettand if donination | 12 3 | Y 2 | Spec | ies of carex. |
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| U-MM Someline Delate | OS(BIT - | 2 |
|-------------------------|----------|---|
| Sampling Point: | | |

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| Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) | | | | | | | |
|---|--|--|-----------------------------------|----------|-------------|---------------------------|--|
| Depth | Matrix | | | Feature | | 12 | Tastus |
| (inches) | | <u>%</u> | Color (moist) | | | | Texture Remarks |
| 0''-6'' | 10YR 4/2 | 80 | 104R 6/8 | 10 | · | $\underline{\mathcal{M}}$ | silty day |
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| | | | | | | | |
| | oncentration, D=Dep | AM= | Reduced Matrix CS | =Covere | d or Coate | d Sand G | Prains. ² Location: PL=Pore Lining, M=Matrix. |
| Hydric Soil | | | | | <u> </u> | | Indicators for Problematic Hydric Solis ³ : |
| Histosol | | | Polyvalue Below | Surface | (S8) (LRI | RR, | 2 cm Muck (A10) (LRR K, L, MLRA 149B) |
| | pipedon (A2) | - | MLRA 149B) | | | - | Coast Prairie Redox (A16) (LRR K, L, R) |
| | istic (A3) | | Thin Dark Surface | | | | |
| | n Sulfide (A4) | | Loamy Mucky M | | | , L) | Dark Surface (S7) (LRR K, L) |
| | d Layers (A5) d Belevi Dadi Suifa | - (444) | Loamy Gleyed N Depieted Matrix | | ?) | | Polyvalue Below Surface (S8) (LRR K, L) |
| | d Below Dark Surfac ark Surface (A12) | e(All) (| Redox Dark Sur | | | | Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R) |
| | lucky Mineral (S1) | - | Depleted Dark S | | | | Piedmont Floodplain Soils (F19) (MLRA 149E |
| | Sleyed Matrix (S4) | | Redox Depressi | - | • | | Mesic Spodic (TA6) (MLRA 144A, 145, 149B |
| | Redox (S5) | | | | | | Red Parent Material (TF2) |
| | Matrix (S6) | | | | | | Very Shallow Dark Surface (TF12) |
| Dark Su | rface (S7) (LRR R, I | MLRA 149B |) | | | | Other (Explain in Remarks) |
| ³ Indicators of | f hydrophytic vegeta | tion and wet | land hydrology must | be prese | ent. unless | disturbed | d or problematic |
| | Layer (if observed): | | | | | | |
| Type: | | | | | | | |
| Depth (inc | ches): (non-l | 1 | | | | | Hydric Soil Present? Yes No |
| Remarks: | | ·) | | | | | |
| itemarts. | | | | | | | |
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| Pr-WO3 W-MDTDS1311-4 |
|---|
| WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region |
| |
| Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Hydric Soil Present? Yes No If yes, optional Wetland? Yes No Wetland Hydrology Present? Yes No If yes, optional Wetland Site ID: If yes, optional Wetland Site ID: Remarks: (Explain alternative procedures here or in a separate report.) If yes, optional Wetland Site ID: PEM Wetland bordered by ROW for 2 transmits on times, mod Memory and the forst and wettand by Row for 2 transmits on times, mod mod Wetland + forst and wettand by Row for 2 transmits on times, mod Wetland + forst and wettand by Row for 2 transmits on times, mod Wetland + forst and wettand by Bridler brind of wettand Wetland + forst and wettand by Typhca by Bridler brind of wettand Wetland + forst and by Indensity and cards sp. by Bridler brind of bridle bridler Wetland + forst and by Indensity and cards |
| HYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6) X Surface Water (A1) Water-Stained Leaves (B9) Drainage Patterns (B10) High Water Table (A2) Aquatic Fauna (B13) fcr + pol f Moss Trim Lines (B16) X Surface Water (A3) Marl Deposits (B15) Dry-Season Water Table (C2) Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2) Iron Deposits (B5) Thin Muck Surface (C7) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Microtopographic Relief (D4) Sparsely Vegetated Concave Surface (B8) FAC-Neutral Test (D5) FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Yes No Depth (inches): <u>L'-b'</u> Water Table Present? Yes No Depth (inches): <u>UncEacc</u> Watland Hydrology Present? Yes No Saturation Present? Yes No Depth (inches): <u>UncEacc</u> Watland Hydrology Present? Yes No Saturation Present? Yes No Depth (inches): <u>UncEacc</u> Watland Hydrology Present? Yes No Saturation Present? Yes No Depth (inches): <u>UncEacc</u> Watland Hydrology Present? Yes No Saturation Present? Yes No Depth (inches): <u>UncEacc</u> Watland Hydrology Present? Yes No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No |

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VEGETATION - Use scientific names of plants.

;

| | | Species? Sta | us Number of Dominant Species |
|--|----------------------|--------------------------------|---|
| 2 | | | Total Number of Dominant Species Across All Strata: (Β) |
| 4. 5. | | | Percent of Dominant Species That Are OBL, FACW, or FAC: (DD (A/B) |
| 6 | 2 5 | = Total Cover <u>yes</u> FA | Column Totals: 137 (A) 234 (B) |
| 5. 6. 7. | | | Prevalence Index = B/A = <u>L</u> Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation |
| Herb Stratum (Plot size:) | 3 | Ч | ✓ Dominance Test is >50% ✓ Prevalence Index is ≤3.01 ✓ Morphological Adaptations1 (Provide supporting |
| 1. Typha (cutolia 2. Joff rush 3. Small rush (unk) | <u>bD</u> 20 5 | yes PAC yes PAC no FA | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 4. <u>Slock mustar</u> 5. <u>black mustar</u> | 2 | N.0 | Definitions of Vegetation Strata: |
| 8. Phranmites australis 7. Carlx Sp 8. Phalairs armadiances | 1. | no FAC | Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. |
| 8. <u>Wallard</u> arunding eg | | _yes_file _no_OB | and greater than 3.28 ft (1 m) tall. |
| 10 11 12 | | | 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 |
| Woody Vine Stratum (Plot size:) | 46 | = Total Cover | height. |
| 1 2 3 4(none) | 21e | | Hydrophytic Vegetation Present? Yes No |
| | | = Total Cover | |
| Remarks: (Include photo numbers here or on a separate st st sign wetlow is for noted West side of wetlowe is | 5 y y | Soft ru inalld 4 | by Pholonis |
| | | | |

W-MOT 0518/1-4

Sampling Point: __

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| Profile Description: (Describe to the de | oth needed to docur | nent the in | dicator o | or confirm | the absence of Indi | icators.) |
|--|--|--------------|-------------------|------------------|-----------------------------------|---|
| Depth Matrix | | x Features | | Loc ² | * *- | Demodus |
| $\frac{\text{(inches)}}{\mathbb{O}\left(\left(\begin{array}{c} 1\\ 1\\ 1\end{array}\right)} \frac{\text{Color (moist)}}{1} \frac{\%}{1}$ | $\frac{\text{Color (moist)}}{\left(0 \right) \left(d \right)}$ | <u>%</u> . | Type ¹ | | <u>Texture</u> | Remarks |
| <u>D"-6" IDYR 4/2 80</u> | 1018 6/B | | C | \underline{M} | Silty clay | |
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| 1 | | · · | | | | |
| ¹ Type: C=Concentration, D=Depletion, RM Hydric Soil Indicators: | =Reduced Matrix, CS | S=Covered | or Coate | d Sand Gra | | PL=Pore Lining, M=Matrix. oblematic Hydric Soils ³ : |
| | Debereive Deter | | 00) /L DE | 1 | | - |
| Histosol (A1) | MLRA 1498 | | 30) (LRR | с к, | | (10) (LRR K, L, MLRA 149B) Redox (A16) (LRR K, L, R) |
| Black Histic (A3) | Thin Dark Surfa | , | RR R. ML | .RA 149B) | | Peat or Peat (S3) (LRR K, L, R) |
| Hydrogen Sulfide (A4) | Loamy Mucky N | • • • | | | | (S7) (LRR K, L) |
| Stratified Layers (A5) | Loamy Gleyed | | | - | | low Surface (S8) (LRR K, L) |
| Depieted Below Dark Surface (A11) | X Depleted Matrix | • | | | | rface (S9) (LRR K, L) |
| Thick Dark Surface (A12) | Redox Dark Su | • • | | | | ese Masses (F12) (LRR K, L, R) |
| Sandy Mucky Mineral (S1) | Depleted Dark | |) | | | odplain Soils (F19) (MLRA 149B) |
| Sandy Gleyed Matrix (S4) Sandy Redox (S5) | Redox Depress | ions (ro) | | | Red Parent M | (TA6) (MLRA 144A , 145, 149B) |
| Stripped Matrix (S6) | | | | | | Dark Surface (TF12) |
| Dark Surface (S7) (LRR R, MLRA 149 | B) | | | | | n in Remarks) |
| | | | | | | , |
| ³ Indicators of hydrophytic vegetation and w | etland hydrology mus | st be preser | nt, unless | disturbed | or problematic. | |
| Restrictive Layer (if observed): | | | | | | |
| Туре: | | | | | | |
| Depth (inches): (nore) | | | | | Hydric Soll Prese | nt? Yes X No |
| Remarks: | | | | | | |
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| A | HE-WOI WWW DEZULOZ |
|---|--|
| | $W = W_{BT} = 0$ $W = W_{BT} = 0$ $S = 311 + 03$ |
| Applicant/Owner: <u>P11(57 E NEGCHY</u> Investigator(s): <u>BGO, Map</u> Landform (hillslope, terrace, etc.): Stope (%): Lat: <u>41, 416545</u> Stope (%): Lat: Are climatic / hydrologic conditions on the site typical for this time of Are Vegetation Are Vegetation <u>M</u>, Soil <u>M</u>, or Hydrology <u>M</u> significant of the site typical for this time of the vegetation <u>M</u>, Soil <u>M</u>, or Hydrology <u>M</u> naturally the vegetation | Local relief (concave, convex, none): Long: -82.265721 Datum: NVI classification: N/A of year? Yes No (If no, explain in Remarks.) untly disturbed? Are "Normal Circumstances" present? y problematic? (If needed, explain any answers in Remarks.) ring sampling point locations, transects, important features, etc. Is the Sampled Area within a Wetland? Yes If yes, optional Wetland Site ID: |
| PERI WETCHND W/IN FIRST | EVERGLY ROW |
| Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that applicators (minimum of one is required; check all that applicators) Surface Water (A1) | hed Leaves (B9) X Drainage Patterns (B10) una (B13) Moss Trim Lines (B16) sits (B15) Dry-Season Water Table (C2) Sulfide Odor (C1) X Crayfish Burrows (C8) hizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) of Reduced Iron (C4) Stunted or Stressed Plants (D1) n Reduction in Tilled Soils (C6) Geomorphic Position (D2) |
| Field Observations: Surface Water Present? Yes No Depth (inc Water Table Present? Yes No Depth (inc Saturation Present? Yes No Depth (inc (includes capillary fringe) No Depth (inc Describe Recorded Data (stream gauge, monitoring well, aerial p Remarks: | hes): Wetland Hydrology Present? Yes No |
| | |

VEGETATION - Use scientific names of plants.

Sampling Point:

| · · · · · · · · · · · · · · · · · · · | Absolute | Dominant | Indicator | |
|--|----------|-------------|---------------------|--|
| | | Species? | | Dominance Test worksheet: |
| 1 | | | | Number of Dominant Species |
| | <u></u> | | | That Are OBL, FACW, or FAC: (A) |
| 2 | | | | Total Number of Dominant |
| 3 | | | | Species Across All Strata: (B) |
| 4, | | | | Percent of Dominant Species |
| 5 | | | | That Are OBL, FACW, or FAC: _/OOr (A/B) |
| ·· | | | | 0 |
| 6 | | | | Prevalence Index worksheet: |
| 7 | | | | Total % Cover of:Multiply by: |
| | | = Total Cov | er | OBL species $25 \times 1 = 25$ |
| Sapling/Shrub Stratum (Plot size:) | | | | FACW species $50 \times 2 = 100$ |
| | | | | FAC species $20 \times 3 = 60$ |
| 1. | | . <u> </u> | | |
| 2 | <u> </u> | | · | |
| 3 | | | | UPL species $x_5 =$ |
| | | ······· | | Column Totals: 100 (A) 205 (B) |
| 4 5 | | | | Prevalence Index = B/A =2.05 |
| | | | | Hydrophytic Vegetation Indicators: |
| · | | | <u> </u> | Rapid Test for Hydrophytic Vegetation |
| 7 | | | <u> </u> | Dominance Test is >50% |
| | | = Total Cov | er | Prevalence Index is ≤3.0 ¹ |
| Herb Stratum (Plot size:) | | | | Morphological Adaptations ¹ (Provide supporting |
| 1. AMARIMITIES QUISTSALIS | 30 | Yes | PACW | data in Remarks or on a separate sheet) |
| 2. JUNCUS OFFUSEC | <u> </u> | Jus_ | FACW | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 3. DRoppiNH BULLRNEH - Sciepus pendulus | 20 | Jes | ORL | |
| 4. SMALL FLOWER AGRIMONT - A. Darviflor | | 11 | FAC | ¹ Indicators of hydric soil and wetland hydrology must |
| | | <u>_no_</u> | | be present, unless disturbed or problematic. |
| 5. DOGIBHINE Apocynum carnabium | | <u>n°</u> | FACU | Definitions of Vegetation Strata: |
| 6. PPLICOBUM SHOTATOM | | <u>no</u> | OBL | Tree - Woody plants 3 in. (7.6 cm) or more in diameter |
| T. EQUIDES OF | - | no | FAL | at breast height (DBH), regardless of height. |
| 8. Poblanium Sp | | กจ | FAC | |
| | | | م <u>ت مامل امر</u> | Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| J | | <u> </u> | ··· | • |
| 10 | . | | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| 11 | | | | or size, and woody plants less than 5.20 it tail. |
| 12 | | . <u> </u> | <u> </u> | Woody vines - All woody vines greater than 3.28 ft in |
| , | 100 | = Total Cov | er | height. |
| Woody Vine Stratum (Plot size:) | • | 20/50 | | |
| | | . • | | |
| 1 | | | | |
| 2 | <u> </u> | | <u> </u> | |
| 3 | | | | Hydrophytic / |
| 4 | | | | Vegetation |
| · | | – Total Cov | er | Present? Yes V No |
| Remarks: (Include photo numbers here or on a separate sh | | | | ······································ |
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W-MOT-083111-03

| Profile Des | cription: (Describe | to the de | pth needed to doc | ument the | indicator | or confin | m the absence | of indicat | ors.) | |
|-------------|-------------------------------------|------------|--------------------|--------------|------------|------------------|-----------------|--------------|-----------------------------------|----------------------------|
| Depth | Matnx | | • | dox Feature | | | | | , | |
| (inches) | Color (moist) | | Color (moist) | <u>%</u> | Туре | Loc ² | Texture | | Remarks | |
| Ô-1 | | | | | | - | BLACK | PREA | UIC LAYOR | > |
| <u></u> | 10 YR 5/1 | 80 | 7.5VR 78 | | C | M | SILVEJCLAU | | /DISHACT | |
| 8-12 | IOV/RG/1 | 55 | 104R 4/8 | 45 | С. | in | - | . / | / DISTINCT | |
| <u> </u> | <u>10410 471</u> | | 10 710 10 | | • | . <u></u> | LOAM | <u>I ANT</u> | | |
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| | Concentration, D=Dep Indicators: | letion, RN | I=Reduced Matrix, | CS=Covere | d or Coat | ed Sand G | | | Pore Lining, M= matic Hydric S | |
| Histoso | | | Polyvalue Be | low Surface | (\$8) (1.8 | RR | | | (LRR K, L, MLF | |
| | Epipedon (A2) | | MLRA 149 | | | л п , | | | lox (A16) (LRR | - |
| | listic (A3) | | Thin Dark Su | • | LRR R, N | ILRA 1498 | | | or Peat (S3) (LI | |
| | en Sulfide (A4) | | Loamy Muck | | | | | |) (LRR K, L) | |
| | ed Layers (A5) | | Loamy Gleye | | | | | | Surface (S8) (LF | RR K, L) |
| Deplete | ed Below Dark Surfac | e (A11) | Depleted Mat | trix (F3) | | | Thin C | ark Surface | e (S9) (LRR K, L | .) |
| Thick D | ark Surface (A12) | | Redox Dark S | Surface (F6) |) | | iron-M | langanese l | Masses (F12) (L | RR K, L, R) |
| Sandy I | Mucky Mineral (S1) | | Depleted Dar | k Surface (f | =7) | | Piedm | iont Floodpl | ain Soils (F19) (| MLRA 149B |
| Sandy | Gleyed Matrix (S4) | | Redox Depression | ssions (F8) | | | Mesic | Spodic (TA | 6) (MLRA 144A | , 1 [′] 45, 149B) |
| | Redox (S5) | | | | | | | arent Mater | | |
| | d Matrix (S6) | | | | | | | | k Surface (TF12 |) |
| Dark Si | urface (S7) (LRR R, I | MLRA 149 | B) | | | | Other | (Explain in | Remarks) | |
| | of hydrophytic vegeta | | etland hydrology m | ust be pres | ent, unles | s disturbe | d or problemati | c. | | |
| | Layer (if observed): | | | | | | | · | / | , , |
| Type: | ····· | | | | | | Ibut to Oall | Duese w42 | N-a | Ma |
| | nches): | | | | | | Hydric Soil | Present | Yes | No |
| Remarks: | - / | | | . 1 | | | | | | |
| | (XID) | IZED 1 | Root (HAM | MAC > | | | | | | |
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| W-1340-091511-05 | 4 |
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| TERMINATION DATA FORM - Northe | entral a |

41+-~02

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

| Project/Site: FF BDB - ALTENNATE ROU | City/County: Lorali | Sampling Date: 09151/ |
|--|---|---|
| Applicant/Owner: FIRST ENERGY | | ^ |
| Investigator(s): | Section, Township, Range: | TLN RIGW |
| Landform (hillslope, terrace, etc.): | | |
| Slope (%): Lat: <u>41, 405777</u> | -82, 268/1 | 2.3 Datum: |
| Soil Map Unit Name: | | |
| | | NWI classification: <u><u><u>n</u>/<u>9</u></u></u> |
| Are climatic / hydrologic conditions on the site typical for this tim | | |
| Are Vegetation \underline{N}_{i} , Soil \underline{P}_{i} , or Hydrology \underline{P}_{i} significant significa | | I Circumstances" present? Yes <u>X</u> No |
| Are Vegetation, Soil, or Hydrology nature | ally problematic? (if needed, | explain any answers in Remarks.) |
| SUMMARY OF FINDINGS – Attach site map sho | wing sampling point location | ons, transects, important features, etc. |
| Hydrophytic Vegetation Present? Yes M No Hydric Soil Present? Yes K No Wetland Hydrology Present? Yes K No Remarks: (Explain alternative procedures here or in a separation) | within a Wetland? | Yes <u> </u> |
| PEMWETTAND LOCATED TO THE A FE ROW. | IORTH OF RAN ROAD T | TRIPERS WITHIN EXISTING |
| HYDROLOGY | | |
| Wetland Hydrology Indicators: | | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that | | Surface Soil Cracks (B6) |
| | tained Leaves (B9) | ★ Drainage Patterns (B10) |
| | Fauna (B13) | Moss Trim Lines (B16) |
| | posits (B15) | Dry-Season Water Table (C2) |
| | n Sulfide Odor (C1) | X Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) |
| | e of Reduced Iron (C4) | Stunted or Stressed Plants (D1) |
| | ron Reduction in Tilled Soils (C6) | Geomorphic Position (D2) |
| | ck Surface (C7) | Shallow Aquitard (D3) |
| | xplain in Remarks) | Microtopographic Relief (D4) |
| Sparsely Vegetated Concave Surface (B8) | . , | FAC-Neutral Test (D5) |
| Field Observations: | | |
| Surface Water Present? Yes <u>Y</u> No Depth (| inches): <u>3 / / .</u> | |
| Water Table Present? Yes No <u>x</u> Depth (| inches): | |
| Saturation Present? Yes <u><</u> No Depth ((includes capillary fringe) | inches): <u>Surfrace</u> Wetland | Hydrology Present? Yes <u>No</u> No |
| Describe Recorded Data (stream gauge, monitoring well, aeria | l photos, previous inspections), if ava | ailable: |
| | | |
| Remarks: | | |
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W-BAO-091511-05

| EGETATION - Use scientific names of plants. | | | | Sampling Point: |
|---|---------------------|----------------------|---------------------|--|
| Tree Stratum (Plot size:) | Absolute % Cover | Dominant Species? | Indicator Status | Dominance Test worksheet: |
| 1. EASTERN COTTONIDOD-P. Jelfrides | | | | Number of Dominant Species // That Are OBL, FACW, or FAC: (A) |
| 2. GREEN ASH - F. Pennylucinica | | | | |
| 3. AMERICAN EZM- Ulmus americana | | | | Total Number of Dominant Species Across All Strata:(B) |
| λ | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: (A/E |
| | <. | · | <u> </u> | Prevalence Index worksheet: |
| • | | | | Total % Cover of: Multiply by: |
| apling/Shrub Stratum (Plot size:) | _11_ | = Total Cov | ver | OBL species $\frac{\pi}{2}$ $x_1 = \frac{7\pi}{2}$ FACW species $\frac{2\pi}{2}$ $x_2 = \frac{44}{4}$ |
| RED OMEN DOGWOOD C. Sericea | _/0 | <u>_X</u> _ | FACW | FAC species 4^2 x 3 = 4^2 |
| ARROWWOOD VIBERUM -U. dentatu | | | | FACU species $\underline{-7}$ x4 = $\underline{-28}$ |
| . HAWTHORN - Crartague Crus-galli | | | | UPL species x 5 = Column Totals:($\frac{20}{}$ (A)($\frac{19}{}$ (B) |
| · | | | | Prevalence Index = $B/A = \frac{1.69}{1.000}$ |
| | <u> </u> | | | Hydrophytic Vegetation Indicators: |
| • | <u> </u> | | | Rapid Test for Hydrophytic Vegetation |
| | 14 | = Total Cov | ver | Dominance Test is >50% Prevalence Index is ≤3.0 ¹ |
| erb Stratum (Plot size:) | | , | ~~ | Morphological Adaptations ¹ (Provide supporting |
| NARROWLEAF CRITICIL - T. angestitulia | 45 | _X_ | DBL | data in Remarks or on a separate sheet) |
| BONESET - E. perfoliatum | | | | Problematic Hydrophytic Vegetation ¹ (Explain) |
| Nothing BEEGHUSTICIC. Bidens CPITTUR | 10. | | DBL | ¹ Indicators of hydric soil and wetland hydrology must |
| | ~ | | | be present, unless disturbed or problematic. |
| ODEMANE - Afocynum canachium | 5. | | | Definitions of Vegetation Strata: |
| Small FLOWER AGEIMONY - A. parviflore | <u> </u> | | | Tree ~ Woody plants 3 in. (7.6 cm) or more in diamete |
| Swhup MILLWEED - A. inclinata | | | | at breast height (DBH), regardless of height. |
| | | <u> </u> | | Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| D | | | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| 2 | | | | Woody vines - All woody vines greater than 3.28 ft in |
| | 59 | = Total Cov | /er | height. |
| Voody Vine Stratum (Plot size:) | | 1044,000 | | |
| | | | | |
| | | | | |
| | | | | Hydrophytic |
| | | | | Vegetation |
| | | = Total Cov | /er | Present? Yes No |
| emarks: (Include photo numbers here or on a separate sl | heet.) | | I | |
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| PEM WETLAND W | ' S or | ne p | 55 E 1 | oro (small att |
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W-BRO-091511-05

| Sam | pling | Point: |
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| Profile Desc | ription: (Describe | to the dep | th needed to | document the | e indicator | or confirm | n the absence | e of indicators.) |
|--|---|-------------|---------------|-----------------------------------|--------------|------------------|--|---|
| Depth (inches) | Matrix Color (moist) | _% | Color (mo | Redox Featu ist) % | resType1 | Loc ² | Texture | Remarks |
| Inchest_ | 1042. 4/1 | 90 | 101R 6/ | | Nm | M | deny | FEW /FAINT |
| 5-11 | 1041× 5/1 | 50 | 10112 4 | | Km | ш | CLAU | MANY/OSTINCT |
| | | | 10410 2 | | | | | rary fusting |
| | | | <u></u> | <u> </u> | | | | · · · · · · · · · · · · · · · · · · · |
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| | | . <u></u> | | | | | | |
| ¹ Type: C=Co Hydric Soil I | ncentration, D=Dep | letion, RM | Reduced Ma | trix, CS=Cove | red or Coate | d Sand G | | ocation: PL=Pore Lining, M=Matrix. s for Problematic Hydric Soils ³ : |
| Histosol | | | Polyvalu | e Below Surfa | ce (S8) (LRF | R. | | Muck (A10) (LRR K, L, MLRA 149B) |
| Histic Ep | ipedon (A2) | | MLRA | 149B) | | | Coasi | t Prairie Redox (A16) (LRR K, L, R) |
| Biack His Hydroge | stic (A3) n Sulfide (A4) | | | k Surface (S9) lucky Mineral (| - | | | Mucky Peat or Peat (S3) (LRR K, L, R) Surface (S7) (LRR K, L) |
| Stratified | Layers (A5) | | Loamy G | ileyed Matrix (| | , _, | | alue Below Surface (S8) (LRR K, L) |
| 1 | l Below Dark Surface Irk Surface (A12) | e (A11) | L Depieted | l Matrix (F3) ark Surface (F | (e) | | | Dark Surface (S9) (LRR K, L) Manganese Masses (F12) (LRR K, L, R) |
| | lucky Mineral (S1) | | | Dark Surface | • | | | nont Floodplain Soils (F19) (MLRA 149B) |
| | leyed Matrix (S4) | | Redox D | epressions (F | 3) | | | : Spodic (TA6) (MLRA 144A, 145, 149B) |
| | edox (S5) Matrix (S6) | | | | | | | Parent Material (TF2) Shallow Dark Surface (TF12) |
| | face (S7) (LRR R, N | ALRA 1498 | 3) | | | | | (Explain in Remarks) |
| ³ Indicators of | hydrophytic vegetal | tion and we | tiand hydrolo | ov must be ore | sent, unless | s disturbed | t or problemati | ic |
| | ayer (if observed): | | | gy most be pre | | | | No. |
| Туре: | | | | | | | | V |
| Depth (inc | ches): | | | | | | Hydric Soi | il Present? Yes No |
| Remarks: | | | | | | | | |
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| 11-1340-091011-07 | 0-091511-04 | 1.1-BAO- |
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Alt-w03

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

| Project/Site: FE BDB - ALTERNATE ROWTE City/C | county: Loranic Sampling Date: 09/57/ |
|--|--|
| | State; <u>64</u> Sampling Point: <u>4</u> |
| Investigator(s): B. Otto, M. Thomayer Section | |
| Landform (hillslope, terrace, etc.): Direct between c.c. trace | • |
| | |
| | -82. 26.8506 Datum: |
| Soil Map Unit Name: | NWI classification: n/a |
| Are climatic / hydrologic conditions on the site typical for this time of year? Y | 'es <u> </u> |
| Are Vegetation $\underline{\mathcal{N}}_{}$, Soil $\underline{\mathcal{V}}_{}$, or Hydrology $\underline{\mathcal{N}}_{}$ significantly distur | bed? 🤔 Are "Normal Circumstances" present? Yes No |
| Are Vegetation, Soil, or Hydrology naturally problems | atic? (If needed, explain any answers in Remarks.) |
| SUMMARY OF FINDINGS – Attach site map showing sam | pling point locations, transects, important features, etc. |
| Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Remarks: (Explain alternative procedures here or in a separate report.) | Is the Sampled Area within a Wetland? Yes No If yes, optional Wetland Site ID: |
| PEMPSS WETLAND FILAT IS LOCATED BETWEEN T. WETLAND IS DRIMARKY CATTAILS. Soils ARE IMPRETED BY ITON RUNOFF FROM | |
| HYDROLOGY | |
| Wetland Hydrology Indicators: | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum of one is required; check all that apply) | Surface Soil Cracks (B6) |
| X Surface Water (A1) Water-Stained Leave | s (B9) Drainage Patterns (B10) |
| High Water Table (A2) Aquatic Fauna (B13) | Moss Trim Lines (B16) |
| X Saturation (A3) Marl Deposits (B15) | Dry-Season Water Table (C2) |
| Water Marks (B1) Hydrogen Sulfide Od | or (C1) Crayfish Burrows (C8) |
| | es on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) |
| Drift Deposits (B3) Presence of Reduced | |
| Algai Mat or Crust (B4) Recent Iron Reductio | |
| X Iron Deposits (B5) Thin Muck Surface (C | |
| Inundation Visible on Aerial Imagery (B7) Other (Explain in Ren | |
| Sparsely Vegetated Concave Surface (B8) | FAC-Neutral Test (D5) |
| Field Observations: | |
| Surface Water Present? Yes X No Depth (inches): | |
| Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): | |
| (includes capillary fringe) | |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre | vious inspections), ir available. |
| | |
| Remarks: | |
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W-BAO-091511-04

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| Tree Stratum (Plot size:) | Absolute % Cover | Dominant Species? | | Dominance Test worksheet: |
|---|---------------------|----------------------|--------------|---|
| | | | | Number of Dominant Species That Are OBL, FACW, or FAC:(A) |
| 2 | | <u></u> | | Total Number of Dominant(B) |
| | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B |
| 5 | ··· | | | Prevalence Index worksheet: |
| | | | | Total % Cover of: Multiply by: |
| · · · · · · · · · · · · · · · · · · · | | = Total Cov | er | $\frac{1}{10000000000000000000000000000000000$ |
| Sapling/Shrub Stratum (Plot size:) | | | | FACW species $5 \times 2 = 30$ |
| 1. BLACKWILLOW - S. migra | | Ves | FACW | FAC species $1 \times 3 = 2$ |
| 2. GLOSSY BUCK THORN - Frangesta almus | | | FAC | FACU species $2 \times 4 = 8$ |
| 3. Provonik - Q. parlustrij | / | <u>ho</u> | FACW | UPL species \mathcal{D} x 5 = \mathcal{D} Column Totals: \mathcal{D} (A) \mathcal{U} (B) |
| A. RED OSIER DOGWOOD -C. SERTLA | <u>_</u> | <u>yes</u> | FALLO | |
| 5 | | · | | Prevalence Index = B/A =32 |
| 6 | | | | Hydrophytic Vegetation Indicators: |
| 7 | | | | Rapid Test for Hydrophytic Vegetation |
| | 7 | = Total Cov | er | ∠ Dominance Test is >50% |
| Herb Stratum (Plot size:) | 1 | 1.4/3.5 | | Prevalence Index is ≤3.0 ¹ |
| 1. NARROW LETTE CATTAIL - T. angustiple | 85 | 11 25 | DBL | Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| 2. BONESET - E. perfol; atum | | | FACW | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 3. JEWELWEED - Importions Careni | | <u> </u> | FACW | ¹ Indicators of hydric soil and wetland hydrology must |
| 4. TURTIFHERD - Chelone glabra | | <u>no</u> | OBL | be present, unless disturbed or problematic. |
| 5. DOGBANE - Apocynum Cannabium | 2 | <u>n</u> | FACU | Definitions of Vegetation Strata: |
| 8. SENSIFIUS FERN - Onocles RASHILL | | | FACW | Tree - Woody plants 3 in. (7.6 cm) or more in diamete |
| 7. Sphagnum moss so | | | FAL | at breast height (DBH), regardless of height. |
| 8. <u>Wouldings - Sciens Cyperium</u> 9 | | <u> </u> | <u>FIICW</u> | Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| 10 11 | | | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| 12. | | | | Woody vines – All woody vines greater than 3.28 ft in |
| | 104 | = Total Cov | er | height. |
| Woody Vine Stratum (Plot size: | | 152 | | |
| I | <u> </u> | | | |
| 2 | <u> </u> | | | |
| 3 | | | | Hydrophytic |
| s | | | | Vegetation Present? Yes 🖌 No |
| | | | | |
| Remarks: (Include photo numbers here or on a separate | | = Total Cov | er | |

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|---------------------|------------------|-----------------|----------------------|-------------------|---------------------------|-------------------|-------------------------|--|
| | • • | | th needed to docur | | dicator | or confirm | the absence (| of indicators.) |
| Depth | Mat | | | <u>x Features</u> | 1 | | T | Dama ta |
| (inches) | Color (mois | | Color (moist) | <u>%</u> . | Type ¹ | _Loc ² | Texture | Remarks |
| (\mathbf{Q}) | SEE | REMAR | KS BELO | ~> © | <u> </u> | | | |
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| Гуре: С=С | oncentration, D= | Depletion, RM | =Reduced Matrix, CS | S=Covered | or Coate | ed Sand Gra | ains. ² Loca | tion: PL=Pore Lining, M=Matrix. |
| | Indicators: | | | | | | | or Problematic Hydric Soils ³ : |
| Histoso | I (A1) | | Polyvalue Belo | v Surface (| 58) <i>(</i> I R I | 2 8 | | uck (A10) (LRR K, L, MLRA 149B) |
| | pipedon (A2) | | MLRA 149B | | | ••• | | rairie Redox (A16) (LRR K, L, R) |
| | istic (A3) | | Thin Dark Surfa | | | RA 1498) | | ucky Peat or Peat (S3) (LRR K, L, R |
| | en Sulfide (A4) | | Loamy Mucky M | | | | | Inface (S7) (LRR K, L) |
| | d Layers (A5) | | Loamy Gleyed | | | , m a) | | Je Below Surface (S8) (LRR K, L) |
| | | urface (A11) | | | | | | |
| ···· - · | d Below Dark St | | Depleted Matrix | | | | | rk Surface (S9) (LRR K, L) |
| | ark Surface (A12 | | Redox Dark Su | | | | | nganese Masses (F12) (LRR K, L, R |
| | Mucky Mineral (S | | Depleted Dark | | } | | | nt Floodplain Soils (F19) (MLRA 149 |
| | Gleyed Matrix (S | (4) | Redox Depress | ions (F8) | | | | podic (TA6) (MLRA 144A, 145, 149 |
| | Redox (S5) | | | | | | | rent Material (TF2) |
| ••• | t Matrix (S6) | | | | | | · | allow Dark Surface (TF12) |
| _ Dark Su | rface (S7) (LRR | t R, MLRA 1491 | 3) | | | | Other (E | Explain in Remarks) |
| | | | | | | | | |
| ndicators o | f hydrophytic ve | getation and we | etiand hydrology mus | t be preser | it, unless | disturbed | or problematic. | |
| Restrictive | Layer (if observ | ved): | | · | | | | ······································ |
| Type: | | | | | | | | |
| | | | | | | | Lindria Sali B | Preșent? Yes X No |
| Depth (in | ches): | | | | | | lassum | Present? Yes X No |
| lemarks: | | | | | - | | \sim | , |
| $\langle N \rangle$ | Soils . | ARE IN | PACTED B | y AD | JUCCA | UT ICAIL | ROAD TH | eners sours (R) |
| (A) | | | · | | | | | |
| Ŷ | ADDENT | TO BE | HADALTON D. | | 204 | | RAM PAI | CARD TRACKS |
| | prove | , 9 .00 | imporce by | (NON | 1200 | | a part | LOAD TAACKS. |
| | 12-1-1-1-1- | | , | . . | | A | ~ ~ ~ . | |
| | COLEMAN | WAS / | UUNDATED & | Cour | 15 10 7 | CC 67 | JOIL JA | ripco |
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| | Alt- W046 | W-Mdt 8/27/2011-16 |
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| WETLAND DETERMINA | ATION DATA FORM Northcentral | 101101-10 |
| | | State:Sampling Point: T(6 NR194) ve, convex, none): BSBDatum: NWI classification: <u>In / G</u> (If no, explain in Remarks.) I Circumstances" present? YesNo explain any answers in Remarks.) Dns, transects, important features, etc. YesNo |
| Remarks: (Explain alternative procedures here or in a PEM/PSS we thank that Row and was recently A | a separate report.) is located in exist clowed. Part of large | ing transmission live wetland. |
| HYDROLOGY | | |
| High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8) | Water-Stained Leaves (B9) Aquatic Fauna (B13) Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres on Living Roots (C3) Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Soils (C6) Thin Muck Surface (C7) Other (Explain in Remarks) | Secondary Indicators (minimum of two required) Surface Soil Cracks (B6) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Kicrotopographic Relief (D4) FAC-Neutral Test (D5) |
| Surface Water Present? Yes No Water Table Present? Yes No Saturation Present? Yes No Saturation Present? Yes No (includes capiliary fringe) Describe Recorded Data (stream gauge, monitoring w Remarks: Saturated Hwo us had with: | rell, aerial photos, previous inspections), if ava | |
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W-HH 9/27/2011-16 Sampling Point:_____

VEGETATION -- Use scientific names of plants.

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| Tree Stratum (Plot size:) | Absolute % Cover | Dominant Species? | | Dominance Test worksheet: |
|---|---------------------|----------------------|----------|---|
| 1. Alore | | | | Number of Dominant Species |
| 2 | | | | That Are OBL, FACW, or FAC: (A) |
| | | | | Total Number of Dominant Species Across All Strata: |
| 3 | | | | (-, |
| 4 | | | | Percent of Dominant Species That Are OBL, FACW, or FAC: / 00 ⁶ (A/B) |
| 5 | | | | |
| - | | · | | Prevalence Index worksheet: |
| 7 | 0 | | <u> </u> | Total % Cover of: Multiply by: |
| | | = Total Co | ver | OBL species $30 \times 1 = 30$ FACW species $90 \times 2 = 100$ |
| Sapling/Shrub Stratum (Plot size:) | 1.2 | | | FAC species $-\frac{10}{2}$ x2 = $-\frac{130}{20}$ |
| 1. Button bush - C. occidentalis | | | OBL | FACU species O x4 = O |
| 2. Arrow wood viternum-U. dentatu | | <u> </u> | FAC | UPL species $0 \times 5 = 0$ |
| 3. Glassy buck them - Frangula al | w <u>r</u> O | <u>-yej</u> | FAL | Column Totals: 30 (A) 240 (B) |
| 4 | | · | | |
| 5 | | · | | Prevaience Index = B/A = 85 |
| 6 | | . <u></u> | | Hydrophytic Vegetation Indicators: |
| 7 | | . <u></u> | | Rapid Test for Hydrophytic Vegetation |
| | 20 | = Țotal Cov | ver | $\sum_{i=1}^{N}$ Dominance Test is >50% |
| Herb Stratum (Plot size:) | • | 4/10 | | X Prevalence Index is ≤3.0 ¹ |
| 1. 1Nool grass-Scirpus cyperinus | 60 | yes | FACW | Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| 2. sensitive lern-Onpella proisi | | | | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 3. Derrowlead Cartail - T. arguitte | | | OBL | |
| 4. Polygonum sagifation | 10 | <u></u> ทอ | DBL | ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. |
| 5 | | | _ | |
| 6 | | | | Definitions of Vegetation Strata: |
| 7 | | | | Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. |
| 8 | | | | |
| 9 | | | | Sapling/shrub ~ Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. |
| | | | | |
| 10 | | | | Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| 11 | | | | Woody vines – All woody vines greater than 3.28 ft in |
| 12 | | | | height. |
| | - <u>10</u> 121 | = Total Cov 55 | /er | |
| Woody Vine Stratum (Plot size:) | -1 | 22 | | |
| | | <u></u> | | |
| 2 | | | <u> </u> | |
| 3 | <u>.</u> | | | Hydrophytic Vegetation |
| 4 | | | | Present? Yes <u>No</u> No |
| | | = Total Cov | ver | |
| Remarks: (Include photo numbers here or on a separate s | heet.) | | | |
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W-110+ 9/27/2011 - 16 Sampling Point:_____

| Profile Desc | ription: (Describe to | o the dept | h needed to docu | ment the | ndicator | or confirm | the absence | of indicato | ors.) | |
|----------------------------|---|------------|-------------------------------|-------------|------------------------|------------------|----------------|--------------|----------------------------------|---|
| Depth (inches) | Matrix | | | ox Feature | s Type ¹ | Loc ² | Touture | | Desserver | |
| (inches) | <u>Color (moist)</u> | 90 | Color (moist) | <u>%</u> | Type | <u></u> | Texture | 011 | <u>Remarks</u> | |
| 0-12 | 104R 2/1 | <u>_//</u> | 1092 4/6 | | | | Sundy Jay | ter a | stonet | |
| <u></u> | | <u> </u> | | | | | | | | |
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| Hydric Soil | oncentration, D=Deple Indicators: | tion, RM= | Reduced Matrix, C | S=Covere | d or Coate | d Sand Gr | | | Pore Lining, M matic Hydric S | |
| Histosol | | _ | Polyvalue Belo | w Surface | (S8) (LRF | R, | | | (LRR K, L, ML | 1 |
| | pipedon (A2) | | MLRA 1498 | • | | | Coast | Prairie Red | ox (A16) (LRR | K, L, R) |
| | stic (A3) | - | Thin Dark Sur | | | | | | or Peat (S3) (L | .RR K, L, R) |
| | n Sulfide (A4) I Layers (A5) | - | Loamy Mucky Loamy Gleyed | | | , | | | (LRR K, L) Surface (S8) (L | RRK.L) |
| | Below Dark Surface | (A11) | Depleted Matri | | / | | | | (S9) (LRR K, | |
| | ark Surface (A12) | - | Redox Dark Si | | | | | | lasses (F12) (l | |
| | lucky Mineral (S1) Heyed Matrix (S4) | - | Depleted Dark Redox Depres | | •7) | | | - | ain Soils (F19) 6) (MLRA 144/ | |
| | edox (S5) | - | | | | | | arent Materi | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |
| | Matrix (S6) | | | | | | | | Surface (TF1) | 2) |
| Dark Su | rface (S7) (LR R R, M I | LRA 149B) |) | | | | Other (| Explain in F | Remarks) | |
| ³ Indicators of | f hydrophytic vegetatic | on and wet | land hydrology mu | st be prese | ent, unless | disturbed | or problematic | | | |
| | _ayer (if observed): | | | | | | | | | |
| Туре: | | | | | | | | | | Ī |
| Depth (inc | ches): | | | | | | Hydric Soil | Present? | Yes _X_ | No |
| Remarks: | ······································ | | | | | | | | | |
| | | | | 2 | | | | | | |
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| Alt-WOJa would yza/11-1a |
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| WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region |
| Project/Site: <u>Beaver Navis BESSE <u>Alternate Kaste</u> City/County: <u>Lorcin Caunky</u> Sampling Date: <u>18 Sept Bill</u> Applicant/Owner: <u>First Enlorsy</u> State: <u>OH</u> Sampling Point: <u>G</u> Investigator(s): <u>MTBattay-r</u>, <u>Stillestr</u> <u>ULS</u> Section, Township, Range: <u>ION</u> <u>R19W</u> Landform (hillslope, terrace, etc.): <u>ferrace</u>, <u>Slight</u> <u>Slope</u> Local relief (concave, convex, none): <u>Slightform (ave</u>) Slope (%): <u>Lat</u> <u>41.394603</u> Long: <u>-82.268956</u> Datum: <u>Soil Map</u> <u>Ando</u> Are climatic / hydrologic conditions on the site typical for this time of year? Yes <u>No</u> (if no, explain in Remarks.) Are Vegetation <u>M</u>, Soil <u>M</u>, or Hydrology <u>M</u> significantly disturbed? Are "Normal Circumstances" present? Yes <u>No</u> <u>Are Vegetation Mydrology M</u> naturally problematic? (if needed, explain any answers in Remarks.) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes <u>No</u> <u>If yes</u> <u>No</u> <u>If yes</u> <u>No</u> <u>If yes</u>, optional Wetland Site ID:</u> Remarks: (Explain alternative procedures here or in a separate report.) <i>PEHLIPSS</i> we floard in ord between existing ROWS, <i>Part of</i> <i>Barger</i> we floard, in ord between existing ROWS, <i>Part of</i> |
| HYDROLOGY |
| Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check all that apply) |
| X Surface Water (A1) Water-Stained Leaves (B9) Drainage Patterns (B10) High Water Table (A2) Aquatic Fauna (B13) Moss Trim Lines (B16) X Saturation (A3) Marl Deposits (B15) Dry-Season Water Table (C2) Water Marks (B1) Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2) Iron Deposits (B5) Thin Muck Surface (C7) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Microtopographic Relief (D4) Sparsely Vegetated Concave Surface (B8) Y FAC-Neutral Test (D5) Fleid Observations: |
| Pred Observations. Surface Water Present? Yes X No Depth (inches): Water Table Present? Yes X No Depth (inches): Saturation Present? Yes X No Depth (inches): Sufface Water Table Present? Yes X No Depth (inches): Saturation Present? Yes X No Depth (inches): Sufface Conded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Weetland Saturated Houghout with inundation occurring in 130/atted pockets. |
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W-N.d+9/28/11-1a

VEGETATION – Use scientific names of plants.

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Sampling Point: _____

| Tree Stratum (Plot size:) | Absolute % Cover | Dominant Species? | Indicator | Dominance Test worksheet: |
|---|--|----------------------|-----------|---|
| | | | | Number of Dominant Species |
| 1. Black withow Salix nigra | <u> </u> | | 1 mun | That Are OBL, FACW, or FAC: (A) |
| 2 | | | | Total Number of Dominant |
| 3 | | | · | Species Across All Strata: (B) |
| 4 | | | | Percent of Dominant Species |
| 5 | | <u> </u> | | That Are OBL, FACW, or FAC: (A/B) |
| 6 | | | | Prevalence Index worksheet: |
| 7 | | <u></u> | | Total % Cover of:Multiply by: |
| | - | = Total Co | ver | OBL species $lD x 1 = lD$ |
| Sapling/Shrub Stratum (Plot size:) | | | | FACW species $45 \times 2 = 90$ |
| 1. green ash - F. pennsylvanica | 15 | ul (| PACW | FAC species $5 \times 3 = 15$ |
| 2. redosier dogwood - C. Strilles | | | | FACU species x 4 = |
| المحسين و | - | , | 1 | UPL species x 5 = |
| 3. Anowwood inburnum - U. Sentest | | | FAC | Column Totals: 60 (A) 115 (B) |
| 4. | | | | Prevalence index = $B/A = \frac{1.92}{1.92}$ |
| 5 | | | | |
| 6 | | | | Hydrophytic Vegetation Indicators: |
| 7 | | | | Rapid Test for Hydrophytic Vegetation |
| | 40 | = Total Co | ver | Dominance Test is >50% |
| Herb Stratum (Plot size:) | | 8/20 | > | Prevalence Index is ≤3.0 ¹ |
| Herb Stratum (Plot size:) M. 1. <u>Tapanase</u> of 14 grass - Urmini | um 85 | YES | NT | Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| 2. Impations capensis | | | FACEN | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 3. Swamp with weed Asclepiaring | | | | |
| | | | | ¹ Indicators of hydric soil and wetland hydrology must |
| 4. Narrow lead cattail - Typka argusti | <u>dia -></u> | <u></u> | UBL | be present, unless disturbed or problematic. |
| 5 | <u> </u> | - | | Definitions of Vegetation Strata: |
| 6 | <u> </u> | <u> </u> | | Tree - Woody plants 3 in. (7.6 cm) or more in diameter |
| 7 | | | | at breast height (DBH), regardless of height. |
| 8 | | <u> </u> | | Sapling/shrub – Woody plants less than 3 in. DBH |
| 9 | | <u></u> | | and greater than 3.28 ft (1 m) tail. |
| 10 | | | | Herb - All herbaceous (non-woody) plants, regardless |
| 11 | | | | of size, and woody plants less than 3.28 ft tall. |
| 12. | | | | Woody vines – All woody vines greater than 3.28 ft in |
| | 100 | = Total Co | | height. |
| March March March March at a | | ~/ ਖਰ | VEI | |
| Woody Vine Stratum (Plot size:) | - | 1.0 | | |
| | ······································ | | | |
| 2 | | | <u> </u> | |
| 3 | | | | Hydrophytic |
| 4 | | | <u> </u> | Vegetation Present? Yes No |
| | <u> </u> | = Total Cov | ver | |
| Remarks: (Include photo numbers here or on a separate s | heet.) | | | |
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w-wdf 9/28/11 - 1a Sampling Point: _____

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|-------------------|---|-------------|-------------------|-------------------------|-------------------|------------------|----------------|-------------------------------|--|--------------------------------|
| | ription: (Describe t | io the dept | | | | or contirm | n the absence | of indicator | 5.) | |
| Depth (inches) | <u>Matrix</u> Color (moist) | % | Color (moist) | <u>ox Features</u> % | Type ¹ | Loc ² | Texture | | Remarks | |
| 0-10 | 7.5.4K 4/1 | | IDYR 6/B | | C | | 4 den | few | Jiscre te | |
| | Dencentration, D=Depl ndicators: | | | | | | | cation: PL=P for Problem | Pore Lining, M= Patic Hydric S ,RR K, L, MLF | Matrix. oils ³ : |
| | (A1) vipedon (A2) | - | MLRA 1498 | | 58) (LRF | ι κ , | | | .RR K, L, MLF x (A16) (LRR I | |
| Black Hi | | _ | Thin Dark Surf | | RR R, ML | .RA 1498 | | | r Peat (S3) (Li | |
| | n Sulfide (A4) | - | Loamy Mucky | Mineral (F1) |) (LRR K | | Dark S | Surface (S7) (| LRR K, L) | |
| | l Layers (A5) I Below Dark Surface | - | Loamy Gleyed | | | | | | urface (S8) (LF (S9) (LRR K, L | • |
| | irk Surface (A12) | | Redox Dark St | | | | | | asses (F12) (L | |
| | lucky Mineral (S1) | - | Depleted Dark | - | 7) | | | | n Soils (F19) (| |
| | edox (S5) | - | Redox Depress | sions (F8) | | | | Spodic (TA6) arent Materia |) (MLRA 144A (TE2) | , 145, 149B) |
| · | Matrix (S6) | | | | | | | | Surface (TF12 |) |
| Dark Su | face (S7) (LRR R, M | LRA 149B) | } | | | | Other (| (Explain in Re | emarks) | |
| | hydrophytic vegetati ayer (if observed): | on and wet | land hydrology mu | st be presei | nt, unless | disturbed | or problematio | » | <u></u> | |
| Type: | ayer (it observed). | | | | | | | | | |
| Depth (ind | :hes): | | | | | | Hydric Soil | Present? | Yes 🔀 | No |
| Remarks: | | | | | | | | | | |
| | | | | | | | | | | |

| | | A14- | - W C |)56 | | wind ?? | 128/11-18 | | |
|---|---|---|----------------------------|---------------|--------------------------------|-------------------------------------|-----------------|--|--|
| WETLA | ND DETERMINATIO | N DATA FO | RM – Norti | ncentral | and Northea | | , | | |
| Project/Site: Land David | besse All Partie | Citv/C | County: Lo | Drain | Counti | Sampling Date: | 78 Sept 2 | | |
| بالاستغراب المتشاكين | | | | | | C 14 | Point: 15 | | |
| Applicant/Owner: <u>A 2017 2019</u> nvestigator(s): <u>M. Thankasser</u> | 23. Willoster 1 | 112 Section | on Towashin | Range 7 | TON, RI | 9W | | | |
| andform (hillslope, terrace, etc.): | | | | | | | | | |
| Slope (%): Lat: | | | | | | | | | |
| Soil Map Unit Name: | 1.2.6223 | Long: | | | | | | | |
| | | | | | | | 19 | | |
| re climatic / hydrologic conditions | on the site typical for this | time of year? Y | res <u>×</u> N | | | | Let in | | |
| re Vegetation <u>//</u> , Soil <u>//</u> | _, or Hydrology _/vsig | gnificantly distur | rbed? A | | | | <u> </u> | | |
| tre Vegetation <u>//</u> , Soil <u>//</u> | _, or Hydrology///_ na | iturally problem: | atic? (I | f needed, e | explain any answe | ers in Remarks.) | | | |
| SUMMARY OF FINDINGS | Attach site map s | howing san | npling poir | nt locatio | ons, transects | s, important f | eatures, etc. | | |
| Hydrophytic Vegetation Present? Hydric Soil Present? | | | Is the Samp within a We | | Yes | < | - | | |
| Wetland Hydrology Present? | Yes 🔀 No | | If yes, option | nal Wetland | Site ID: | | | | |
| Remarks: (Explain alternative pr | | | · | | , , | * *** *** _*** _** *** ***** | | | |
| PFO/PEAL works | المحصور بالمجارية وموجوع المحمود المحمودي | ويتقتل يعيدونه ومجمعه ويترتك تحكم | فشاتر ويأسبه ليب | مهري ومراهمة | المدوقة متوسيس الجيوع وماريج | | 12 mars | | |
| 2000 hard A | a f | and a start of the second | | | | | | | |
| ا مرجع المرجع المرج المرجع المرجع | مجامعة مسام فكرته سروتكم | - 7 (a mar - | | | | | | | |
| IYDROLOGY | | <u> </u> | <u> </u> | | | | | | |
| Wetland Hydrology Indicators: | · | | | | Secondary Indic | ators (minimum o | f two required) | | |
| Primary Indicators (minimum of c | me is required; check all th | at apply) | | | Surface Soi | Cracks (B6) | | | |
| | | r-Stained Leave | | | Drainage Patterns (B10) | | | | |
| High Water Table (A2) Saturation (A3) | | tic Fauna (B13) Donocito (B15) | | | <u>×</u> Moss Trim Lines (B16) | | | | |
| \leq Water Marks (B1) | | Deposits (B15) ogen Sulfide Od | | | Dry-Season Water Table (C2) | | | | |
| Sediment Deposits (B2) | | - | | loots (C3) | | isible on Aerial In | nagery (C9) | | |
| Drift Deposits (B3) | | ence of Reduce | | | | Stressed Plants (D | | | |
| Algal Mat or Crust (B4) | Rece | nt Iron Reductio | on in Tilled Soi | ls (C6) | Geomorphic | Position (D2) | | | |
| Iron Deposits (B5) | | Muck Surface (| | | Shallow Aqu | | | | |
| Inundation Visible on Aerial | | r (Explain in Rei | marks) | | ' | aphic Relief (D4) | ľ | | |
| Sparsely Vegetated Concave Field Observations: | | | <u> </u> | | FAC-Neutra | | | | |
| Surface Water Present? Y | 'es 🔀 No 🔜 Dept | th (inches): | 2 | | | | | | |
| Water Table Present? Y | 'es No <u>></u> Dept | th (inches): | | | | | | | |
| | /es No Dept | | | Wetland H | lydrology Prese | nt? Yes 🔀 | No | | |
| (includes capillary fringe) | , , | | | | | | | | |
| Describe Recorded Data (stream | gauge, monitoring well, a | erial photos, pre | evious inspecti | ions), if ava | ilable: | | | | |
| Remarks: | | <u></u> | ····· | | | <u></u> | | | |
| Saltura feelit - An | roughours with | (portes | ante Ort | in . Maria | al color de las le | | | | |
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VEGETATION - Use scientific names of plants.

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Sampling Point: _____

| | Absolute | Dominant | Indicator | Dominance Test worksheet: |
|---|----------------|---|---|---|
| Tree Stratum (Plot size:) | <u>% Cover</u> | Species? | Status | Number of Dominant Section |
| 1. Elack willow - S. nigra | 50 | des | FACW | Number of Dominant Species 3 (A) |
| | />> | 10 | FAC | |
| · / | | | | Total Number of Dominant |
| 3 | · | | | Species Across All Strata: (B) |
| 4 | · <u> </u> | <u></u> | | Percent of Dominant Species |
| 5 | | | | That Are OBL, FACW, or FAC: 70/, (A/B) |
| 6 | | | | |
| | | | | Prevalence Index worksheet: |
| 7 | 1 | | | Total % Cover of: Multiply by: |
| | | = Total Co /30 | ver | OBL species x1 = |
| Sapling/Shrub Stratum (Plot size:) | | | | FACW species $105 \times 2 = 30$ |
| 1. Low more your -V desta | Lin 5 | Jet | FAC | FAC species $15 \times 3 = 45$ |
| 2. Black willber - S. niego | · | lar | C ()) | FACU species x4 = |
| J ^{an} | | $\frac{\gamma \alpha}{\gamma}$ | <u>trew</u> | UPL species × 5 = |
| 3. | | | | Column Totals: \underline{BD} (A) \underline{TT} (B) |
| 4 | | | | |
| 5 | | | | Prevalence index = B/A = |
| | | | | Hydrophytic Vegetation Indicators: |
| 6 | | | ÷*** | Rapid Test for Hydrophytic Vegetation |
| 7 | | - <u></u> | | X Dominance Test is >50% |
| | <u></u> | = Total Co | ver | — <u> </u> |
| Herb Stratum (Plot size:) | 3 | 17.5 | | X Prevalence Index is ≤3.01 |
| 1. Seperier still groad-Minister | | US | M | Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| A strain from Course | <u></u> | 1 | <u>Chris</u> | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 2. Landlove caperas | | <u>Yra</u> | FACW | |
| 3 | - <u> </u> | | | ¹ Indicators of hydric soil and wetland hydrology must |
| 4 | | | | be present, unless disturbed or problematic. |
| 5 | | | | |
| | | | | Definitions of Vegetation Strata: |
| 6 | | | <u> </u> | Tree - Woody plants 3 in. (7.6 cm) or more in diameter |
| 7 | | | | at breast height (DBH), regardless of height. |
| 8 | | · | | Sapling/shrub – Woody plants less than 3 in. DBH |
| 9. | | | | and greater than 3.28 ft (1 m) tall. |
| 10. | | | | Mark All hashe energy (see woods) plants reporting |
| | | · · · · · · · · · · · · · · · · · · · | | Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. |
| 11. | | | | |
| 12 | | | · | Woody vines - All woody vines greater than 3.28 ft in height |
| | 35 | = Total Co | ver | height. |
| Woody Vine Stratum (Plot size:) | 17/47 | | | |
| 1 Nove | 1 | | | |
| | | · <u>· · · · · · · · · · · · · · · · · · </u> | | |
| 2 | | · · | | |
| 3. | | · | | Hydrophytic |
| 4 | | | | Vegetation Present? Yes No |
| | | = Total Co | | Present? Yes No |
| Remarks: (Include photo numbers here or on a separate | | - 10(a) 00 | · <u>····</u> ······························· | <u>}</u> |
| Remarks: (include photo numbers here or on a separate | sneet.) | | | |
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| 25-34d+9/23/11- | 10 |
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| Sampling Point: | |

| | ription: (Describe to | o the dep | | | | or confirm | the absence o | of indicators.) |
|---------------------------|--|------------|-------------------------------|-------------------|-------------------|------------------------|-------------------------|--|
| Depth (inches) | Matrix Color (moist) | % | Color (moist) | x Features % | Type ¹ | Loc2 | Texture | Remarks |
| 0-10 | 7.5412 4/1 | 79 | 10/16 6-18 | 30 | | <u> </u> | Sitty shing | -lest discrite |
| 010 | 11/1/10-111 | | 1412 412 | ميني عالم مي م | <u></u> | | <u> </u> | <u> </u> |
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| ¹ Type: C=Ci | oncentration, D=Deple | etion, RM= | Reduced Matrix. C | S=Covered | l or Coate | d Sand Gr | ains. ² Loca | ation: PL=Pore Lining, M=Matrix. |
| Hydric Soil | | | | | | | | or Problematic Hydric Soils ³ : |
| Histosol | | | Polyvalue Beid | | (S8) (LRI | ₹ R, | | uck (A10) (LRR K, L, MLRA 149B) |
| | pipedon (A2) | | MLRA 1498 | • | | | | rairie Redox (A16) (LRR K, L, R) |
| | istic (A3) en Sulfide (A4) | | Thin Dark Surf Loamy Mucky | | | | | ucky Peat or Peat (S3) (LRR K, L, R) Inface (S7) (LRR K, L) |
| | d Layers (A5) | | Loamy Gleyed | | | , l an <i>)</i> | | ue Below Surface (S8) (LRR K, L) |
| | Below Dark Surface | (A11) | Z Depleted Matri | - | , | | | rk Surface (S9) (LRR K, L) |
| | ark Surface (A12) | | Redox Dark St | | | | | nganese Masses (F12) (LRR K, L, R) |
| | Aucky Mineral (S1) | | Depleted Dark | | 7) | | | nt Floodplain Soils (F19) (MLRA 1498 |
| | Bleyed Matrix (S4) Redox (S5) | | Redox Depres | sions (F8) | | | | podic (TA6) (MLRA 144A, 145, 149B rent Material (TF2) |
| | Matrix (S6) | | | | | | | allow Dark Surface (TF12) |
| | rface (S7) (LRR R, M | LRA 149E | 3) | | | | Other (E | Explain in Remarks) |
| 31 | • • • • • • • • • • • • • • • • | | | | | | | |
| | f hydrophytic vegetati Layer (if observed): | on and we | tland hydrology mu | st be prese | ent, unles | s disturbed | or problematic. | |
| Type: | Layer (il Duserveu). | | | | | | | ŕ |
| Depth (in | obac): | | | | | | Hydric Soil F | Present? Yes 🔀 No |
| Remarks: | ules). | | | | | | | |
| Remarks: | | | | | | | | |
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Alt-wOSa w-udt 9/27/2011-1a WETLAND DETERMINATION DATA FORM -- Northcentral and Northeast Region J. 107/asicy JUKS Section, Township, Range: TGN, RIGN Investigator(s): M. Tho Mayer_ Landform (hillstope, terrace, etc.): ______ Local relief (concave, convex, none): ______ Long: -82, 268887 41.391209 __ Datum: ____ Slope (%): Om Soil Map Unit Name: ____ NWI classification: 1/6 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.) Are Vegetation _____, Soil _____, or Hydrology ______ significantly disturbed? Are Vegetation ______, Soil _____, or Hydrology ______ naturally problematic? Are "Normal Circumstances" present? Yes K. No (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Is the Sampled Area Yes Hydrophytic Vegetation Present? _ No____ Yes X No within a Wetland? Yes Hydric Soil Present? No _ Yes X Wetland Hydrology Present? No If yes, optional Wetland Site ID: Remarks: (Explain alternative procedures here or in a separate report.) existing powerline ROWS. PFO/PSS netland located between Part of larger wettand HYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (minimum of two required) Primary Indicators (minimum of one is required; check-all that apply) Surface Soil Cracks (B6) X Water-Stained Leaves (B9) X Surface Water (A1) 左 Drainage Patterns (B10) High Water Table (A2) ____ Aquatic Fauna (B13) Moss Trim Lines (B16) Saturation (A3) Marl Deposits (B15) Dry-Season Water Table (C2) X Water Marks (B1) K Hydrogen Sulfide Odor (C1) Crayfish Burrows (C8) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) ____ Drift Deposits (B3) Presence of Reduced Iron (C4) Stunted or Stressed Plants (D1) Algal Mat or Crust (B4) _ Recent Iron Reduction in Tilled Soils (C6) Geomorphic Position (D2) Iron Deposits (B5) ____ Thin Muck Surface (C7) Shallow Aquitard (D3) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) X Microtopographic Relief (D4) X Sparsely Vegetated Concave Surface (B8) FAC-Neutral Test (D5) Field Observations: Yes $\underline{\times}$ No ____ Depth (inches): $\underline{2^{\prime\prime}}$ Surface Water Present?
 Yes
 No
 Depth (inches):

 Yes
 Xo
 Depth (inches):
 Strifette
 Water Table Present? Wetland Hydrology Present? Yes X No ... Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Saturated throughout, in undated near drainage swale.

w. w. H 9/27/2011-1a

VEGETATION - Use scientific names of plants.

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Sampling Point: _____

| | Absolute | | Indicator | Dominance Test worksheet: |
|--|----------------|------------|-----------|--|
| | <u>% Cover</u> | | | Number of Dominant Species |
| 1. Pin oak - Q. palustris | | <u></u> | FACW | That Are OBL, FACW, or FAC:(A) |
| 2. Red maple - A! rubium | | yes | FAC | Total Number of Dominant Q |
| 3. Alade willow - S. nigra | | <u>der</u> | FACW | Species Across All Strata: (B) |
| 4 | | · | | Percent of Dominant Species |
| 5 | | <u></u> | | That Are OBL, FACW, or FAC:O_O_(A/B) |
| 6 | | | | Prevalence Index worksheet: |
| 7 | | | | Total % Cover of:Multiply by: |
| | (,0 | = Total Co | ver | OBL species 25 $x_1 = 25$ |
| Sapling/Shrub Stratum (Plot size:) | 12/3 | | | FACW species $10 \times 2 = 20$ |
| 1. Redosier doewood - C. Serilia | (| | FACW. | FAC species $65 \times 3 = 195$ |
| | 15 | | | FACU species x4 = |
| 2. Betonbish - C. occidentalis | | -fee | DBL | UPL species x 5 = |
| 3. Arrougocal viburnum - U. Lestate | | <u></u> No | FAL | Column Totals: 200 (A) 340 (B) |
| A. Red maple A. Inbrum | | yes | FAC | |
| 5. Bast willow S. nigra | 5 | ho | FACW | Prevalence Index = B/A =7 |
| 6. 36354 Sucktham-F. almus | _10 | <u>n</u> > | FAC_ | Hydrophytic Vegetation Indicators: |
| 7 | | | · | Rapid Test for Hydrophytic Vegetation |
| | - 60 | = Total Co | ver | X Dominance Test is >50% |
| Herb Stratum (Plot size:) | -167 | 46 | | X Prevalence Index is ≤3.0 ¹ |
| 1. Sendweel - I. co.pensis | 15 | Yes | FACU | Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) |
| 2. Woolgass - S. Cypering | 25 | Jer . | FACIN | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 3. Connor bareser - E. Derfolicitum | ~ | ho | FACW | |
| | 10 | | | ¹ Indicators of hydric soil and wetland hydrology must |
| | | | | be present, unless disturbed or problematic. |
| 5 | | | · | Definitions of Vegetation Strata: |
| 6 | | | | Tree - Woody plants 3 in. (7.6 cm) or more in diameter |
| 7 | | | | at breast height (DBH), regardless of height. |
| 8 | | · | | Sapling/shrub - Woody plants less than 3 in. DBH |
| 9 | | | | and greater than 3.28 ft (1 m) tall. |
| 10 | <u> </u> | | | Herb - All herbaceous (non-woody) plants, regardless |
| 11 | . <u></u> | <u> </u> | | of size, and woody plants less than 3.28 ft tall. |
| 12 | | | | Woody vines - All woody vines greater than 3.28 ft in |
| | _55 | = Total Co | ver | height. |
| Woody Vine Stratum (Plot size:) | "I'I | 27.5 | | |
| 1. Rivebank suge Vitis i para | 5 | 125 | FALW | |
| 2 | | 7 | | |
| a | <u> </u> | | | the dwa shouth |
| 4 | <u></u> | | | Hydrophytic Vegetation |
| 4 | -5- | - T-4-1 0- | | Present? Yes // No |
| Remarks: (Include photo numbers here or on a separate si | | = Total Co | ver | |
| PFO primarily along west ed | | ' wetta | nd. | |
| | | | | |

W-нд+ 9/27/2011-1a Sampling Point: _____

| Depth | Matrix | | | Redox | Features | | | | |
|---|-----------------------------------|-----------------|---------------|------------------|-------------|-------------------|------------------|------------------|--|
| (inches) | Color (moist) | % | Color (mo | | % | Type ¹ | Loc ² | Texture | Remarks |
| 0-12 | 1049 2/1 | 90 | 1011E | 46 | 10 | <u> </u> | M | Sardy | Lew/ distinct |
| | | | | | | <u>.</u> | | | |
| | | | | <u> </u> | | | | <u> </u> | |
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| | | | | | . <u> </u> | | | | |
| ¹ Type: C=Co Hydric Soil II | ncentration, D=Depl ndicators: | etion, RM= | Reduced Ma | trix, CS | =Covered | or Coate | d Sand G | | cation: PL=Pore Lining, M=Matrix. for Problematic Hydric Soils ³ : |
| Histosol (| | | Polyvalu | e Below | / Surface | (S8) (L R | ₹R, | 2 cm M | fuck (A10) (LRR K, L, MLRA 149B) |
| Histic Epi Black His | ipedon (A2) | | | 149B) k Surfa | | 60 0 M | LRA 1498 | | Prairie Redox (A16) (LRR K, L, R) fucky Peat or Peat (S3) (LRR K, L, R) |
| — 7 | n Sulfide (A4) | | - | | lineral (F1 | | | | Surface (S7) (LRR K, L) |
| | Layers (A5) | | | | Aatrix (F2) | | | | lue Below Surface (S8) (LRR K, L) |
| | Below Dark Surface | e (A 11) | Depleted | | | | | | ark Surface (S9) (LRR K, L) |
| | rk Surface (A12) | | | | face (F6) | - | | | anganese Masses (F12) (LRR K, L, R) |
| | ucky Mineral (S1) | | | | Surface (F | 7) | | | ont Floodplain Soils (F19) (MLRA 1498 Specie (TAS) (MLRA 1444, 145, 1498 |
| | leyed Matrix (S4) edox (S5) | | Redox D | epressi | ons (Fo) | | | | Spodic (TA6) (MLRA 144A, 145, 149B arent Material (TF2) |
| | Matrix (S6) | | | | | | | | hallow Dark Surface (TF12) |
| | face (S7) (LRR R, N | LRA 1498 | l) | | | | | | (Explain in Remarks) |
| | hydrophytic vegetati | on and we | tland hydrolo | gy musi | t be prese | nt, unles | s disturbed | d or problematic | |
| | ayer (if observed): | | | | | | | | |
| Type: | • • | | | | | | | Hudric Soil | Present? Yes X No |
| | hes): | | | | | | | - Hyune Son | |
| Remarks: | | | | | | | | | |
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|---|--|---|---|--|--|
| WE | | ETERMIN | 1 | - <u>-</u> | and Northeast Region |
| Applicant/Owner: <u>FirSt</u> Investigator(s): <u>B. Otto</u> Landform (hillslope, terrace, e Slope (%): Lat: Soil Map Unit Name: <u>M</u> Are climatic / hydrologic condi Are Vegetation <u>M</u> , Soil <u>_</u> Are Vegetation <u>M</u> , Soil <u>_</u> SUMMARY OF FINDIN Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: (Explain alternation | Everg M_{i} tc.): -A tions on the M_{i} , or Hy M_{i} , or Hy GS - Attention sent? ve procedure | 3872 site typical f vdrology _/ ach site r Yes Yes Site ro in | <u> <u> </u> </u> | ion, Township, Range: Local relief (conca : 2 & 82 Yes No rbed? Are "Norma natic? (If needed, mpling point location Is the Sampled Area within a Wetland? If yes, optional Wetlan | Il Circumstances" present? Yes <u>V</u> No <u>No</u> explain any answers in Remarks.) ons, transects, important features, etc. Yes <u>V</u> No <u></u> |
| HYDROLOGY | | | | | Secondary Indicators (minimum of two required) |
| Primary Indicators (minimum | High Water Table (A2) Aquatic Fauna (B13) ≦ Saturation (A3) Marl Deposits (B15) Water Marks (B1) Hydrogen Sulfide Od Sediment Deposits (B2) Oxidized Rhizosphere Drift Deposits (B3) Presence of Reduced Algal Mat or Crust (B4) Recent Iron Reduction | | |) res on Living Roots (C3) Id Iron (C4) on in Tilled Soils (C6) C7) | Surface Soil Cracks (B6) Drainage Patterns (B10) Moss Trim Lines (B16) Dry-Season Water Table (C2) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4) FAC-Neutral Test (D5) |
| Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe) Describe Recorded Data (str Remarks: Mydrology seem Setisty hydrolo | Yes Yes eam gauge, 5 | No X No X monitoring | ic, but enough | Wetland la serious inspections), if available | Hydrology Present? Yes <u>></u> No <u></u> ailable: Were present to |
| | | | | | |

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| VEGETATION | – Use | scientific | names | of plants. |
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W-bao 08/30/11-3 Sampling Point: _____

| ······································ | Absoluto | Dominani | Indicator | |
|---|-----------|----------------------|-----------|---|
| Tree Stratum (Plot size:) | | Dominani Species? | | Dominance Test worksheet: |
| 1/ 0 | | | | Number of Dominant Species |
| 1. None | · | · | | That Are OBL, FACW, or FAC: (A) |
| 2 | | | | Tabel Mumber of Deminant |
| | | | | Total Number of Dominant Species Across All Strata; (B) |
| 3 | · | | | |
| 4 | · | · | | Percent of Dominant Species |
| 5 | | | | That Are OBL, FACW, or FAC:OO((A/B) |
| | | | | <u></u> |
| 6 | · | | · | Prevalence Index worksheet: |
| 7 | | | | Total % Cover of: Multiply by: |
| | Θ | = Total Co | ver | OBL species $75 \times 1 = 75$ |
| Desting (Ohrsch, Ohrschung, (Ohrt sing) | | | | FACW species $4 \times 2 = 228$ |
| Sapling/Shrub Stratum (Plot size:) | | | N - | |
| 1. glossy buck them - Frangela alous | 10 | yes | PAC | |
| 2. in all-Quercus palustri | | | | FACU species ×4 = |
| | | | ., | UPL species x 5 = |
| 3. Common - Populus deltoides | | <u>ho</u> | | Column Totals: 206 (A) 354 (B) |
| 4. Salix nigra | <u> </u> | no | FACW | |
| 5 | | | | Prevalence Index = $B/A = 1.72$ |
| 6 | | · | | Hydrophytic Vegetation Indicators: |
| 7 | | | | Rapid Test for Hydrophytic Vegetation |
| | | _ T-1-1 A | | Z Dominance Test is >50% |
| | | = Total Co | ver | \overline{X} Prevalence Index is $\leq 3.0^1$ |
| Herb Stratum (Plot size:) | ç | .8/9.5 | | Morphological Adaptations ¹ (Provide supporting |
| · · · · · · · · · · · · · · · · · · · | | | FACU | data in Remarks or on a separate sheet) |
| 2. Dugle Cosestite - L. salicaria | 40 | <u>yes</u> | DACW | Problematic Hydrophytic Vegetation ¹ (Explain) |
| 3. Manon las rather - T. anustite | | no | DBL | |
| | | | | ¹ Indicators of hydric soil and wetland hydrology must |
| 4. Aught road top - Agrestisgigantea | 25 | <u>no</u> | FACW | be present, unless disturbed or problematic. |
| 5. Magnito australis | | no | FACW | Definitions of Vegetation Strata: |
| 6. Accorn believe - Scirpus pendulu | 4 15 | | OBL | Southing of Lefternoll Angres |
| | | | | Tree - Woody plants 3 in. (7.6 cm) or more in diameter |
| 7. Convice borosont - E. pectalian | | <u>_no</u> _ | FACIN | at breast height (DBH), regardless of height. |
| 8. Polyaonini sagitatum | 25 | no | OBL | Sapling/shrub – Woody plants less than 3 in. DBH |
| 9. deer tongue | 5 | No | FAC | and greater than 3.28 ft (1 m) tall. |
| | | | OBL | |
| 10. countraf assanced - Solidago patel | 7 50 | yes | | Herb – All herbaceous (non-woody) plants, regardless |
| 11. 10 your plansyluganteen | | -ho | PACU | of size, and woody plants less than 3.28 ft tall. |
| 12 | | . – | | Woody vines - All woody vines greater than 3.28 ft in |
| | 107 | | | height. |
| | | = Total Co | | |
| Woody Vine Stratum (Plot size:) | 37.4 | 1/ 93. | 5 | ······································ |
| 1. None | | r | | |
| 1 | | | | |
| 2 | · <u></u> | | | |
| 3 | | | | Hydrophytic |
| | | <u> </u> | | Venetation |
| 4 | | | | Present? Yes <u>No</u> No |
| | <u>_</u> | = Total Cov | /er | |
| Remarks: (Include photo numbers here or on a separate s | heet.) | | <u></u> | |
| Ared will I d 1.1 | -11 | ~ ~ ~ ~ | . / | |
| PEM wetland throughout u | コナら | 1-0- | alon | g east edge. |
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w-bao 08/30/11-3 Sampling Point

| SOIL | | | | | | | | Sampling Point |
|---------------|--|------------|---------------------------------------|---------------------|-------------------|-------------------|--|--|
| Profile Desc | ription: (Describe t | o the dep | th needed to docun | nent the ir | dicator | or confirm | n the absence of ind | licators.) |
| Depth | Matrix | | Redo | <u>x Features</u> | | | | |
| (inches) | Color (moist) | | Color (moist) | % | Type ¹ | _Loc ² | <u> Texture </u> | Remarks |
| 1-4 | 104R 4/1 | 80 | 1092 4/6 | 20 | C | M | sandy clay | |
| 4-12 | 10427h | 2-21 | INER 1 la | $\overline{\frown}$ | | | silty class | |
| | IVIR III | <u>-50</u> | 10m 6/8_ | 20 | | M | SITY Clay | ······································ |
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| | oncentration, D=Depl | etion, RM | Reduced Matrix, CS | S=Covered | or Coate | d Sand G | | PL=Pore Lining, M=Matrix. |
| Hydric Soil I | ndicators: | | | | | | | oblematic Hydric Soils ³ : |
| Histosol | • • | | Polyvalue Below | | (S8) (LRF | ₹R, | | A10) (LRR K, L, MLRA 149B) |
| | pipedon (A2) | | MLRA 149B) | | | - | | Redox (A16) (LRR K, L, R) |
| Black His | | | Thin Dark Surfa | | | | | Peat or Peat (S3) (LRR K, L, R) |
| | n Sulfide (A4) I Layers (A5) | | Loamy Mucky M Loamy Gleyed I | | | , L) | | e (S7) (LRR K, L) Now Surface (S8) (LRR K, L) |
| | Below Dark Surface | (A11) | Depleted Matrix | | | | | urface (S9) (LRR K, L) |
| | ark Surface (A12) | | Redox Dark Su | | | | | ese Masses (F12) (LRR K, L, R) |
| | lucky Mineral (S1) | | Depleted Dark | | 7) | | | odplain Soils (F19) (MLRA 149B) |
| | leyed Matrix (S4) | | Redox Depress | ions (F8) | | | Mesic Spodic | c (TA6) (MLRA 144A, 145, 149B) |
| Sandy R | edox (S5) | | | | | | Red Parent M | Material (TF2) |
| | Matrix (S6) | | | | | | | Dark Surface (TF12) |
| Dark Sur | face (S7) (LRR R, M | LRA 1498 | 3) | | | | Other (Explai | in in Remarks) |
| 3 | | | Maria 4 6 1 | | | | | |
| | hydrophytic vegetati | on and we | tiano nyorology mus | a de prese | nt, uniess | aisturbed | or proolematic. | |
| | ayer (if observed): | | | | | | | |
| Туре: | | | | | | | | |
| Depth (inc | :hes): | | | | | | Hydric Soil Prese | nt? Yes <u> </u> |
| Remarks: | ······································ | | | | | | | , |
| | 1 | j | Harc | cail | core | S. A.M. | ost of w | high |
| (00 | ok sever | a/ | other : | 501. | 2010 | // / -(| | <i>//// 3</i> |
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| 601 | ntained | a 1 | of of | Sand | in | the | top 6 | · |
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AH-w66 W-Mdt 4/10/12-5-

| WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region | |
|--|---|
| Projecussie: <u>Avon-Bequer #1</u> OhyRounty. <u>Loroin</u> Sampling Date: <u>DApri</u> Applicant/Owner: <u>FirstEnergy</u> State: <u>OH</u> Sampling Point: | 12012 |
| Applicant/Owner: FirstEnergy State: OH Sampling Point: | |
| Investigatoris): M. Thomacy-et URS Section, Township, Range: | |
| Landtorm (hillslope, terrace, etc.): <u>Herrace</u> Local rehef (conceive convex, none). <u>Conceive</u> Stope (%) | |
| Subregion (LRR or MLRA): Lat: Datum: | |
| Soli Map Unit Name: | 1 |
| Are climate / hydrologic conditions on the site typical for this time of year? Yea K No (if no, explain in Remarks.) | |
| Are VegatationScil or Hydrologysignificantly disturbed? Are "Normal Circumstances" present? Yes 🔀 No | |
| Are Vegetation | |
| | |
| SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, o | 21C. |
| Hydrophytic Vegetation Prosent? Yes No is the Sampled Area within a Wetland? Yes No | 4. 70.00517 101 |
| | with the second s |
| Weitsnit Hydrology Preservit? Yes No If yes, optional Wetland Site ID Remarks: (Explain alternative procedures here or in a separate report.) If yes, optional Wetland Site ID | |
| | |
| PETM we fland located in scrub/shrub upland area beyond | |
| existing ROW. | |
| Chisting KOD. | |
| | |
| HYDROLOGY | |
| Wetland Hydrology Indicators: Secondary indicators immimum of two require | <u>a</u> |
| Primery indicators (minimum of one is required, check all that apoly) | |
| Surface Water (A1) | |
| High Water Table (A2) Aquetic Fauna (B13) // Moss Trim Lines (B16) | |
| Saturation (A3) Mari Deposits (B15) Dry-Season Water Table (C2) | 1 |
| Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) Saturation Visible on Aerial Imagery (C9) | |
| Or & Deposits (B3) Presence of Reduced iron (C4) Stunied or Stressed Plants (D1) | |
| Argal Mat or Crust (84) Recent Son Reduction in Titled Soils (CS) Geomorphic Position (D2) | |
| Iton Deposits (B5) This Muck Surface (C7) Shallow Acpitated (D3) | |
| 🔄 Inundation Visible on Aetial Imagery (B7) 🛛 Other (Explain in Remarks) 🛛 🛛 🔬 Microtopographic Relief (D4) | |
| Sparsely Vegetaled Concerve Surface (B8) SAC-Neutral Test (D5) | |
| Field Observations: Surface Water Present? Yes No Cepth (Inches): | |
| | ļ |
| Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Welland Hydrology Present? Yes No | |
| (includes capitally surge) | |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections). If available: | |
| | e : e a - u |
| Remarks: | |
| Small depressional area that exhibits signs of | |
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| inonderion. | |
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Samewing Point

AH- 006 WMd+4/10/12-5

| (inches) | Color (molsl) | - 44 | Color im | Redox Stil | ** | Type | 103 | Texture Remarks |
|--|---|--|---|--|---|--------------|-----------------|--|
| 0-11 | <u>107 pt 5/2</u> | <u> </u> | 1091 <u>e</u> | 5/6 | 20 | | <u></u> | <u>sility day</u> |
| | | ······ | | ······ | | | | |
| | | | | | | | | |
| 'Type: C=CA Hydric Soli I | ncentratico, G=Deol Indicators: | ction, RM=1 | feduced M | etnx, MS | =Masked | Send Gray | 15 | Location: FL=Pore Lising, M=Mainx Indicators for Problematic Hydric Solis*; |
| Black Hi Hydroge Strainlec Depletec Thick De Sendy N Sendy G Sandy G Sandy R Sinpred Derk Sa | ipedon (A2) sbc (A3) n Sulfide (A4) 1 Layers (A5) 1 Below Dark Surface (K Surface (A12) Nucky Mineral (S1) Network (S5) Mettin (S6) (Jace (S7) (LRR R, M | (A11) | NLR Thia Da Loamy I Loamy I Societe Redox I Redox I | A 1498) rk Surfac Mucky Mi Gleyed N d Matrix i Derk Surf d Dark S Depressie | e (S9) (L narol (F1 Istitx (F2 (F3) ace (F5) urfoce (F6) ons (F6) | 7) | (A 149B | Dark Surface (S7) (LRR K. L. M) Polyvalue Below Surface (S8) (LRR K. L) Thin Dark Surface (S9) (LRR K. L) Iron-Manganese Masses (F12) (LRR K. L) Predmont Floorblain Sol's (F19) (MLRA - Mesic Spocke (TA6) (MLRA 144A, 145, 1 Red Farent Material (F21) Very Shallow Dark Surface (TF12) Other (Explain in Remarks) |
| | hydrophytic vegetat: .ayer (if observed): :hes). | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | xgy nu sr | on prose | ne, uniess (| <u>ssuide</u> o | Hydric Soll Present? Yes No |

SOIL



APPENDIX B

OHIO EPA WETLAND ORAM FORMS

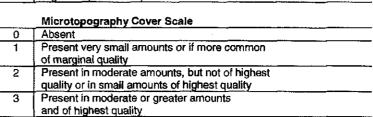


| | | | | | | Pr- | $\omega 01$ |
|---------------------------------|--|--|--|---|---|--|--------------------------------|
| ORAM v. 5.0 Field Form Quantita | CODE and reaction and | Rater(s): mdt | | <u> </u> | | Date: | 5/18/2011 |
| max 6 pts subtotal | Select one siz >50 acres (>20 25 to <50 acres 10 to <25 acres 3 to <10 acres 0.3 to <3 acres | s (10.1 to <20.2ha) (5 pts) s (4 to <10.1ha) (4 pts) (1.2 to <4ha) (3 pts) (0.12 to <1.2ha) (2pts) es (0.04 to <0.12ha) (1 pt) | e). | | | | |
| 2 3 max 14 pts subtotal | 2a. Caiculate WIDE. Buffers MEDIUM. Buffers NARROW. Buff VERY NARRO 2b. Intensity VERY LOW. 2 LOW. Old field MODERATEL | Upland buffers and average buffer width. Select average 50m (164ft) or more and ars average 25m to <50m (82 to fers average 10m to <25m (32ft W. Buffers average <10m (<32ft of surrounding land use. Se and growth or older forest, praid d (>10 years), shrubland, your Y HIGH. Residential, fenced p industrial, open pasture, row of | t only on ound wetl > <164ft) a t to <82ft) it) around elect one irie, sava ng second pasture, p | e and assign sco and perimeter (7) round wetland perin around wetland perin wetland perimeter (or double check nnah, wildlife area d growth forest. (5) wark, conservation | neter (4) imeter (4) imeter (1) 0) and averag , etc. (7) tillage, new | double check. ge. | |
| 16 19 max 30 pis subtotai | 3a. Sources of High pH grour Other groundv Precipitation (Seasonal/Inte Perennial surf 3c. Maximum >0.7 (27.6in) (0.4 to 0.7m (1 <0.4m (<15.7i 3e. Modificati None or none | vater (3) 1) mittent surface water (3) ace water (lake or stream) (5) water depth. Select one. 3) 5.7 to 27.6in) (2) n) (1) ions to natural hydrologic re apparent (12)) | x Pi x Pi 30 x Si x Si x Si x Si z Si z Si z Si z Si z Si z Si z Si z | heck all disturbar tch | (1) e and other nd (e.g. for bland corrid ation/satur ly inundate /saturated d (2) d in upper 3 ie check an nces obser x f | r human use (1) rest), complex (1) lor (1) ration. Score on d/saturated (4) (3) 30cm (12in) (1) nd average. | e or dbi check. stormwater) |
| 8 27 max 20 pts subtotal | 4a. Substrate None or none Recovered (3) Recovering (2 Recent or nor 4b. Habitat de Excellent (7) Very good (6) Good (5) Moderately go Fair (3) Poor to fair (2) Poor (1) 4c. Habitat al None or none Recovered (7) |) recovery (1) evelopment. Select only one hod (4) teration. Score one or doubl apparent (12) | double c and ass le check X X X X X X X X | heck and average | nces obse | rved shrub/sapling rem herbaceous/aqua sedimentation dredging farming nutrient enrichme | tic bed removal |

Subtotal this page

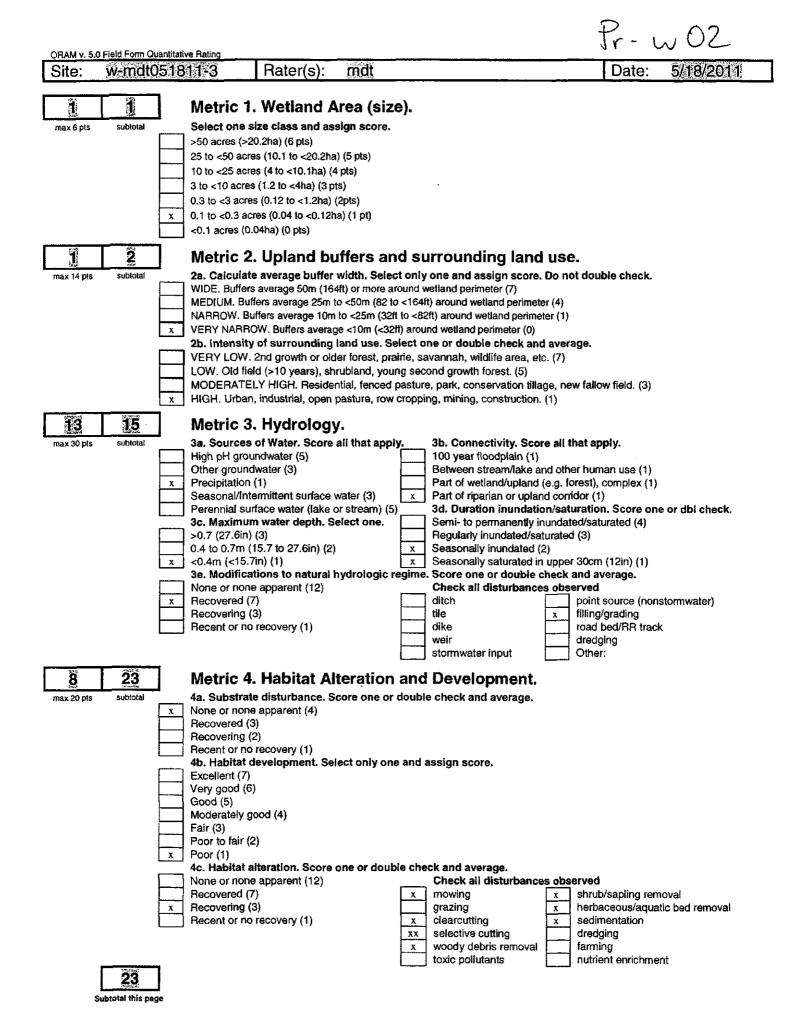
| Site: | | 051811-2 | Rater(s): ř | ndt | |)ate: 5/18/2011 |
|------------|------------------|---|--------------------------|---------------------|---|---------------------|
| s | Subtotal this pa | ge ge | | | | |
| Ō | Ö | Metric 5 | . Special Wet | lands. | | |
| max 10 pts | subtotal | | at apply and score a | | | |
| | | Bog (10) | | | | |
| | | Fen (10) | | | | |
| | | Old growth fo | rest (10) | | | |
| | | Mature forest | ed wetland (5) | | | |
| | | Lake Erie coa | stal/tributary wetland-u | nrestricted hydroid | gy (10) | |
| | | Lake Erie coa | stal/tributary wetland-r | estricted hydrology | (5) | |
| | | Lake Plain Sa | nd Prairies (Oak Open | ings) (10) | | |
| | | Relict Wet Pr | aires (10) | | | |
| | | Known occur | ence state/federal thre | atened or endange | red species (10) | |
| | | Significant mi | gratory songbird/water | fowl habitat or usa | ge (10) | |
| | | Category 1 W | etland. See Question 5 | Qualitative Rating | (-10) | |
| Ũ | | Metric 6 | . Plant comm | unities, inte | erspersion, microtopogra | aphy. |
| max 20 pts | subtotal | | Vegetation Commu | nities. | Vegetation Community Cover Scale | |
| | | particular second se | ent using 0 to 3 scale. | 0 | Absent or comprises <0.1ha (0.2471 acr | es) contiguous area |
| | | 0 Aquatic bed | | 1 | Present and either comprises small part | |
| | | 2 Emergent | | | vegetation and is of moderate quality, or significant part but is of low quality | comprises a |
| | | 0 Shrub | | 2 | | |
| | | 0 Forest 0 Mudflats | | 2 | Present and either comprises significant vegetation and is of moderate quality or | • |

| , 0 | Shrub | | significant part but is of low quality |
|-------------------|---|------|--|
| 0 | Forest Mudflats Open Water | 2 | Present and either comprises significant part of wetland's 2 vegetation and is of moderate quality or comprises a small part and is of high quality |
| | Other 6b. horizontal (plan view) Interspersion. | 3 | Present and comprises significant part, or more, of wetland's 3 vegetation and is of high quality |
| | Select only one. High (5) | | Narrative Description of Vegetation Quality |
| | Moderately high(4) Moderate (3) | low | Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species |
| X | Moderately low (2) Low (1) None (0) 6c. Coverage of invasive plants. Refer Table 1 ORAM long form for list, Add | mod | Native spp are dominant component of the vegetation, mod 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 |
| x | or deduct points for coverage Extensive >75% cover (-5) Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) | high | A predominance of native species, with nonnative spp high 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 |
| | Nearly absent <5% cover (0) Absent (1) | | Mudflat and Open Water Class Quality |
| | 6d. Microtopography. | 0 | Absent <0.1ha (0.247 acres) |
| | Score all present using 0 to 3 scale. | 1 | Low 0.1 to <1ha (0.247 to 2.47 acres) |
| 1, | Vegetated hummucks/tussucks | 2 | Moderate 1 to <4ha (2.47 to 9.88 acres) |
| 0 | Coarse woody debris >15cm (6in) | 3 | High 4ha (9.88 acres) or more |
| 0 1 | Standing dead >25cm (10in) dbh Amphibian breeding pools | | Microtopography Cover Scale |
| | - * | | |



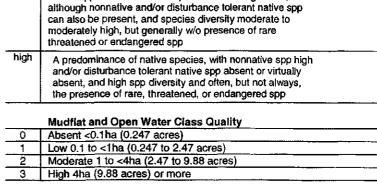


Category: 1



| ORAM v. 5.0 | Field Form Qu | antitative Rating | | | | | |
|----------------------|------------------------------------|---|---|---|---|-----------------|---------------|
| Site: | w-mdt0 | 51811-3 | Rater(s): | mdt | | Date: | 5/18/2011 |
| S O max 10 pts | ubtotal this page 0 subtotal | Metric 5. Check all tha Bog (10) Fen (10) Old growth for Mature foreste Lake Erie coas Lake Erie coas Lake Plain Sa Relict Wet Pra Known occurre Significant mig | d wetland (5) stal/tributary wetland stal/tributary wetland nd Prairies (Oak Op irres (10) ence state/federal til gratory songbird/wa | e as indicated. d-unrestricted hydrology | ered species (10) ge (10) | | |
| | <u>î</u> | Metric 6. | Plant com | munities, inte | erspersion, microtopo | graphy. | |
| max 20 pts | subtotal | 6a. Wetland | Vegetation Comm | nunities. | Vegetation Community Cover Scal | e | |
| | | Score all prese | ent using 0 to 3 sca | e. 0 | Absent or comprises <0.1ha (0.2471 | acres) contig | juous area |
| | | 0 Aquatic bed 2 Emergent 0 Shrub | | 1 | Present and either comprises small p vegetation and is of moderate quality significant part but is of low quality | | |
| | | 0 Forest 0 Mudflats 0 Open Water | | 2 | Present and either comprises signific vegetation and is of moderate quality part and is of high quality | | |
| | | Other 6b. horizonta Interspersion | ai (plan view) n. | 3 | Present and comprises significant pa vegetation and is of high quality | irt, or more, o | f wetland's 3 |
| | | Select only on High (5) | | | Narrative Description of Vegetal | ····· | |
| | | Moderately hig | JN(4) | low | Low spp diversity and/or predominar | ice of nonnat | ve or low |

| High (5) | |
|-----------------------------------|-------------|
| Moderately high(4) | low |
| Moderate (3) | |
| Moderately low (2) | mod |
| Low (1) | |
| x None (0) | |
| 6c. Coverage of invasive plant | s. Refer |
| Table 1 ORAM long form for lis | |
| or deduct points for coverage | high |
| Extensive >75% cover (-5) | - |
| x Moderate 25-75% cover (-3) | |
| Sparse 5-25% cover (-1) | |
| Nearly absent <5% cover (0) | |
| Absent (1) | |
| 6d. Microtopography. | 0 |
| Score all present using 0 to 3 sc | ale. 1 |
| Vegetated hummucks/tussucks | 2 |
| 0 Coarse woody debris >15cm (6ii | ı) <u>3</u> |
| 5 Standing dead >25cm (10in) dbr |)) |
| Amphibian breeding pools | |
| | |



Native spp are dominant component of the vegetation, mod

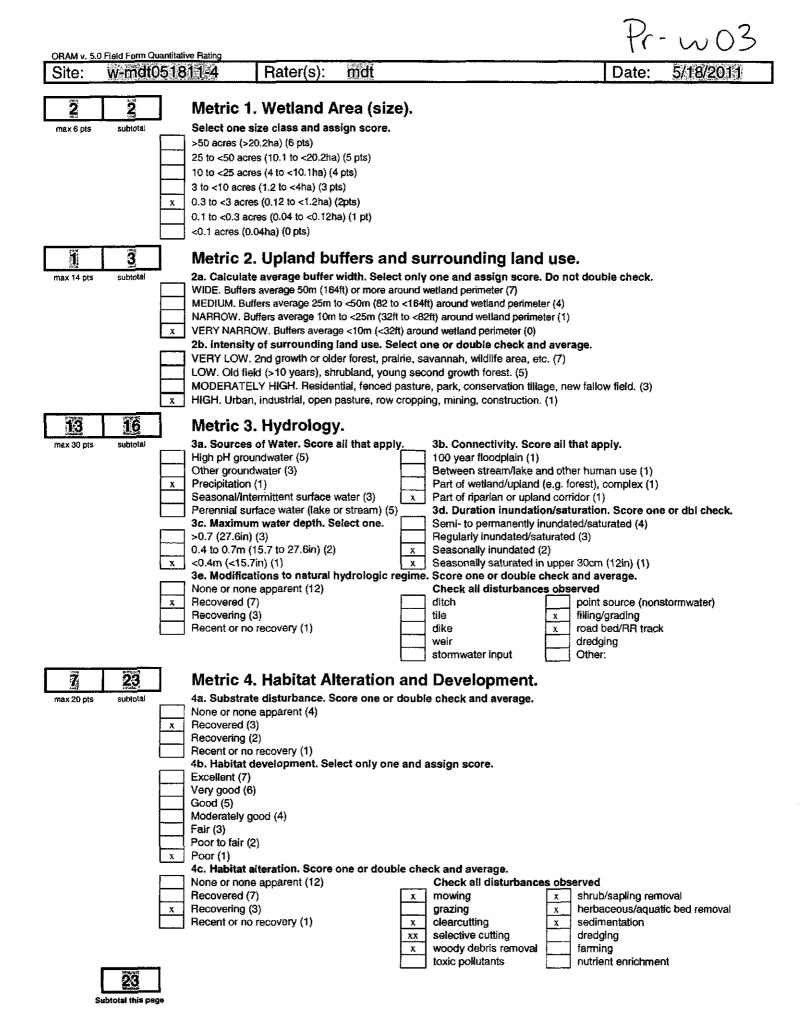
Microtopography Cover Scale

disturbance tolerant native species

| 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 |



Category: []



| Site: | w-mdt(| 51811-4 | Rater(s): | met | Date: 5/18/201 |
|-----------|----------------------|---|--|-----------------------------------|---|
| 8 | 2 ubtotel this pa |] | | | |
| Õ | Ō | 1 | 5. Special W | etlands. | |
| | 3.44 | 4 | • | | |
| ax 10 pts | subtotal | | hat apply and sco | re as indicated. | |
| | | Bog (10) | | | |
| | | Fen (10) | | | |
| | | Old growth f | • • | | |
| | | | ted wetland (5) | | |
| | | | • | nd-unrestricted hydrolc | |
| | | i | - | nd-restricted hydrology | y (5) |
| | | Lake Plain S | and Prairies (Oak O | penings) (10) | |
| | | Relict Wet P | | | |
| | | | | threatened or endange | |
| | | Significant m | igratory songbird/wa | ater fowl habitat or usa | age (10) |
| | | Category 1 V | Vetland. See Questi | on 5 Qualitative Rating | g (-10) |
| 2 | 2 | Metric (| 5. Plant com | munities, int | erspersion, microtopography. |
| ax 20 pts | subtotal | 6a. Wetland | d Vegetation Com | munities. | Vegetation Community Cover Scale |
| | | | sent using 0 to 3 sca | ale. O | Absent or comprises <0.1ha (0.2471 acres) contiguous area |
| | | 0 Aquatic bed | | 1 | Present and either comprises small part of wetland's 1 |
| | | 2 Emergent | | | vegetation and is of moderate quality, or comprises a |
| | | 0 Shrub 0 Forest | | 2 | significant part but is of low quality |
| | | 0 Forest 0 Mudflats | | 2 | Present and either comprises significant part of wetland's 2 vegetation and is of moderate quality or comprises a small |
| | | | | | part and is of high quality |
| | | 0 Open Water | | | |
| | | 0 Open Water | | 3 | |
| | | Other | tal (plan view) | 3 | Present and comprises significant part, or more, of wetland's 3 |
| | | Other | tal (plan view) on. | 3 | Present and comprises significant part, or more, of wetland's 3 vegetation and is of high quality |
| | | 6b. horizon | on. | 3 | vegetation and is of high quality |
| | | Other 6b. horizon Interspersi Select only of High (5) | on. one. | | vegetation and is of high quality Narrative Description of Vegetation Quality |
| | | Other 6b. horizon Interspersi Select only of High (5) Moderately h | on. one. high(4) | 3 low | vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low |
| | | Other 6b. horizon Interspersi Select only of High (5) Moderately f Moderate (3) | on. ne. ìgh(4) | low | vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species |
| | | Other 6b. horizon Interspersi Select only of High (5) Moderately f Moderately f | on. ne. ìgh(4) | | Vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species Native spp are dominant component of the vegetation, mod |
| | | Other 6b. horizon interspersi Select only of High (5) Moderately f Moderately f Low (1) | on. ne. ìgh(4) | low | Vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp |
| | | Other 6b. horizon interspersi Select only of High (5) Moderately f Moderately i Low (1) X None (0) | on. one. high(4)) ow (2) | low mod | Vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species Native spp are dominant component of the vegetation, mod 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 |
| | | Other 6b. horizon interspersi Select only of High (5) Moderately f Moderately i Low (1) X None (0) 6c. Coverage | on. ne. ìgh(4) | low mod | Vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to |
| | | Other 6b. horizon interspersi Select only of High (5) Moderately f Moderately f Low (1) X None (0) 6c. Covera Table 1 OR | on. high(4) bow (2) ge of invasive play | nts. Refer list. Add | Vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species Native spp are dominant component of the vegetation, mod 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 |
| | | Other 6b. horizon interspersi Select only of High (5) Moderately f Moderately f Low (1) X None (0) 6c. Covera Table 1 OR or deduct p | on. high(4) bow (2) ge of invasive play AM long form for bo | nts. Refer list. Add | vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species Native spp are dominant component of the vegetation, mod 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 A predominance of native species, with nonnative spp high and/or disturbance tolerant native spp absent or virtually |
| | | Other 6b. horizon interspersi Select only of High (5) Moderately f Moderately f Low (1) X None (0) 6c. Covera Table 1 OR or deduct p Extensive >7 X Moderate 25 | on. one. high(4) ow (2) ge of invasive plan AM long form for points for coverag /5% cover (-5) -75% cover (-3) | nts. Refer list. Add | vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species Native spp are dominant component of the vegetation, mod 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 A predominance of native species, with nonnative spp high and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, |
| | | Other 6b. horizon interspersi Select only of High (5) Moderately f Moderately f Low (1) X None (0) 6c. Coverat Table 1 OR or deduct p Extensive >7 X Moderate 25 Sparse 5-25 | on. one. high(4) ow (2) ge of invasive plan AM long form for joints for coverag '5% cover (-5) -75% cover (-3) % cover (-1) | nts. Refer list. Add | vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species Native spp are dominant component of the vegetation, mod 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 A predominance of native species, with nonnative spp high and/or disturbance tolerant native spp absent or virtually |
| | | Other 6b. horizon interspersi Select only of High (5) Moderately f Moderately f Low (1) X None (0) 6c. Coverag Table 1 OR or deduct p Extensive >7 Moderate 25 Sparse 5-25' Nearly absert | on. one. high(4) ow (2) ge of invasive plan AM long form for points for coverag /5% cover (-5) -75% cover (-3) | nts. Refer list. Add | vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species Native spp are dominant component of the vegetation, mod 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 A predominance of native species, with nonnative spp high 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 |
| | | Other 6b. horizon interspersi Select only of High (5) Moderately Moderately Moderately Moderately Moderately Moderately Moderately Moderately Moderately Moderately Moderate 25 Sparse 5-25 Nearly absert Absent (1) | on. one. high(4) ow (2) ge of invasive plan AM long form for boints for coverag '5% cover (-5) -75% cover (-3) % cover (-1) ht <5% cover (0) | low mod list. Add e high | vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species Native spp are dominant component of the vegetation, mod 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 A predominance of native species, with nonnative spp high 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 Mudifiat and Open Water Class Quality |
| | | Other 6b. horizon interspersi Select only of High (5) Moderately Moderately Moderately Moderately Moderately Moderately Moderately Moderately Moderately Moderately Moderate 25 Sparse 5-25 Nearly absert Absent (1) 6d. Microto | on. one. high(4) ow (2) ge of invasive plan AM long form for boints for coverag '5% cover (-5) -75% cover (-3) % cover (-1) ht <5% cover (0) | low mod list. Add e high | vegetation and is of high quality Narrative Description of Vegetation Quality Low spp diversity and/or predominance of nonnative or low disturbance tolerant native species Native spp are dominant component of the vegetation, mod 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 A predominance of native species, with nonnative spp high 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 |

 I
 Vegetated hummucks/tussucks

 0
 Coarse woody debris >15cm (6in)

 0
 Standing dead >25cm (10in) dbh

 2
 Amphibian breeding pools

 2
 Moderate 1 to <4ha (2.47 to 9.88 acres)</td>

 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

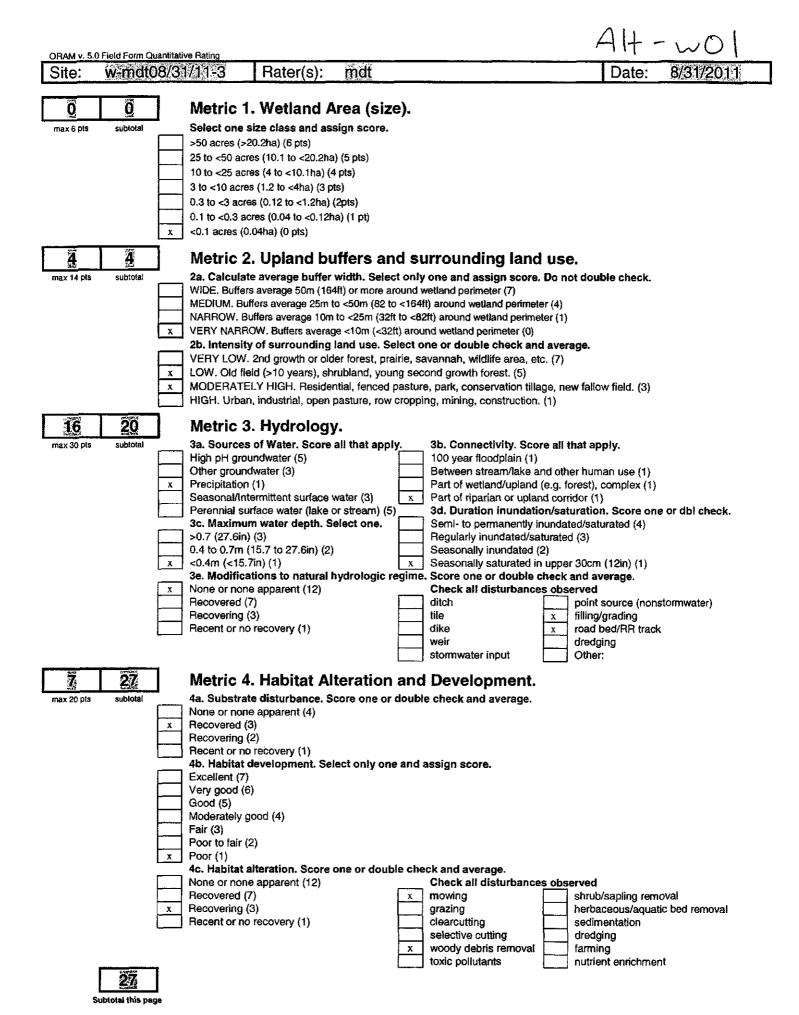
and of highest quality

Present in moderate or greater amounts

3

GRAND TOTAL(max 100 pts)

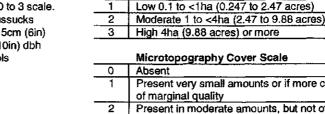
Category: 🎚

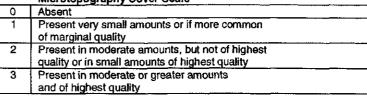


| Site: | w-mdt08 | /31/11-3 | Rater(s): | mdt | | Date: | 8/31/2011 |
|-----------|-------------------------|-----------------------------|------------------------|-----------------------------|---|-------------------|---------------|
| | Z Subtotal this page | | | | | | |
| Õ | Ő | Metric 5 | 5. Special We | etlands. | | | |
| ax 10 pts | subtotal | Check all t | nat apply and scor | e as indicated. | | | |
| | ſ | Bog (10) | | | | | |
| | Γ | Fen (10) | | | | | |
| | | Old growth fo | prest (10) | | | | |
| | | Mature fores | ted wetland (5) | | | | |
| | | | • | d-unrestricted hydrological | | | |
| | | Lake Erie co | astal/tributary wetlan | d-restricted hydrology | / (5) | | |
| | | | and Prairies (Oak Op | enings) (10) | | | |
| | Ļ | Relict Wet P | | . | | | |
| | Ĺ | | | reatened or endange | | | |
| | L | | • · · | ter fowl habitat or use | • • • | | |
| | L | Category 1 V | Vetland. See Questic | n 5 Qualitative Rating | g (-10) | | |
| 4 | 4 | Metric 6 | 6. Plant com | munities, int | erspersion, microtopo | ography. | |
| ax 20 pts | subtotal | | I Vegetation Comm | | Vegetation Community Cover Sc | | |
| | - | | sent using 0 to 3 sca | | Absent or comprises <0.1ha (0.247 | | |
| | - | 0 Aquatic bed 3 Emergent | | 1 | Present and either comprises small vegetation and is of moderate qual | | |
| | F | 0 Shrub | | | significant part but is of low quality | tty, or comprise | 3 a |
| | F | 0 Forest | | 2 | Present and either comprises signi | ficant part of we | etland's 2 |
| | | 0 Mudflats | | | vegetation and is of moderate qual | | |
| | | 0 Open Water | | | part and is of high quality | | |
| | | Other | | 3 | Present and comprises significant | part, or more, o | f wetland's 3 |
| | | 6b. horizon Interspersi | tal (plan view) | | vegetation and is of high quality | • • • | |
| | | Select only o | | | <u> </u> | ····· | |
| | Γ | High (5) | | | Narrative Description of Veget | ation Quality | |
| | | Moderately h | ligh(4) | low | Low spp diversity and/or predomin | ance of nonnati | ve or low |
| | Ĺ | Moderate (3) | | <u> </u> | disturbance tolerant native species | ; | |
| | ŀ | Moderately k | ow (2) | mod | Native spp are dominant compone | | |
| | F | Low (1) x None (0) | | | although nonnative and/or disturba can also be present, and species of | | |
| | L | | ge of invasive plan | ts. Refer | moderately high, but generally w/o | | |
| | | | AM long form for l | | threatened or endangered spp | | |
| | | | oints for coverage | | A predominance of native species | , with nonnative | e spp high |
| | | | 5% cover (-5) | | and/or disturbance tolerant native | spp absent or v | virtually |
| | Ļ | | -75% cover (-3) | | absent, and high spp diversity and the presence of rare, threatened, | | |
| | F | x Sparse 5-25 | • • | | the presence of rate, intrateneo, | or endangered | |
| | ŀ | Absent (1) | nt <5% cover (0) | | Mudflat and Open Water Class | Quality | |
| | L | 6d. Microto | pography. | 0 | Absent <0.1ha (0.247 acres) | | |
| | | | sent using 0 to 3 s | | Low 0.1 to <1ha (0.247 to 2.47 a | ares) | |

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

GRAND TOTAL(max 100 pts)

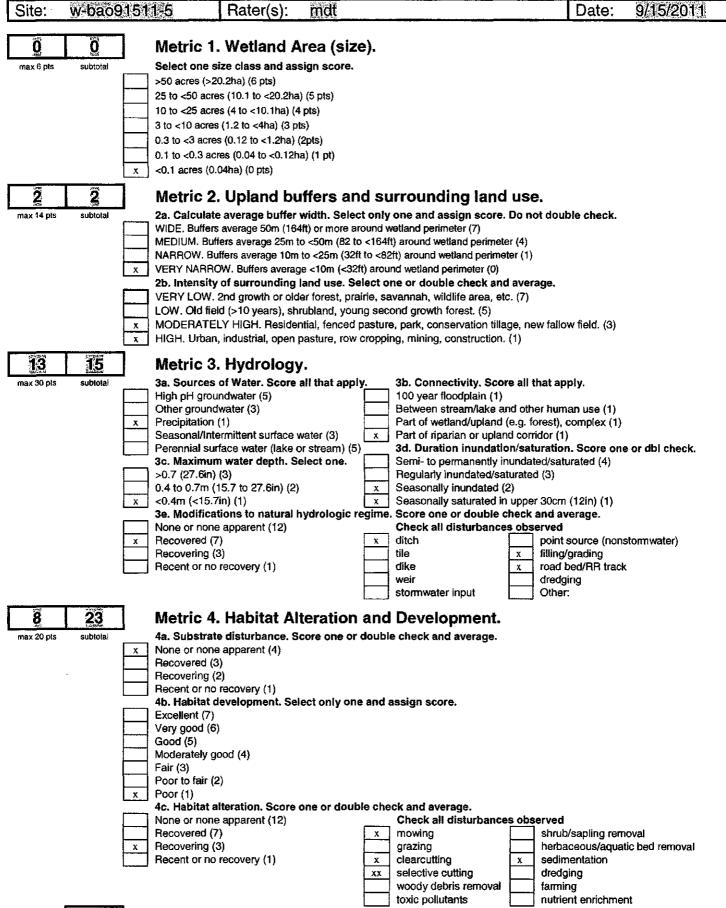




Category: 2

Subtotal this page

A1 + - w02



| Site: | w-baos | 1511-5 | Rater(s): mdt | | | Date: | 9/15/2011 |
|------------|----------------|---|--|---------------|--|-----------------|----------------|
| Г | <u>198</u> | ٦ | | | | | |
| L | Z |] | | | | | |
| Su | btotal this pa | ye T | | | | | |
| Õ | Õ | Metri | c 5. Special Wetland | s. | | | |
| nax 10 pis | subtotal | Check a | II that apply and score as indi | cated. | | | |
| | | Bog (10) | | | | | |
| | | Fen (10) | | | | | |
| | | Old grow | th forest (10) | | | | |
| | | Mature fo | prested wetland (5) | | | | |
| | | | e coastal/tributary wetland-unrestri | - | | | |
| | | | e coastal/tributary wetland-restricte | - | r (5) | | |
| | | ⊢ | in Sand Prairies (Oak Openings) (| 10) | | | |
| | | | et Praires (10) courrance state/federal threatener | l or onden~ | and enacion (10) | | |
| | | [| ccurrence state/federal threatened nt migratory songbird/water fowl h | - | | | |
| | | | 1 Wetland. See Question 5 Quali | | - | | |
| | | | | uxuvo maning | (() | | |
| 7 | Z | Metri | c 6. Plant communit | ies, int | erspersion, microtopo | ography. | |
| nax 20 pts | subtotal | | and Vegetation Communities | | Vegetation Community Cover Sc | | |
| | | | present using 0 to 3 scale. | 0 | Absent or comprises <0.1ha (0.247 | | Z |
| | | 0 Aquatic b | | 1 | Present and either comprises small vegetation and is of moderate quali | | |
| | | 1 Shrub | | | significant part but is of low quality | cy, or complic | |
| | | Forest | | 2 | Present and either comprises signif | icant part of w | vetland's 2 |
| | | 0 Mudflats | | | vegetation and is of moderate quali | ty or comprise | es a small |
| | | 0 Open Wa | iter | 3 | part and is of high quality | | |
| | | | zontal (plan view) | 5 | Present and comprises significant p | part, or more, | of wetland's 3 |
| | | Interspe | | | vegetation and is of high quality | | |
| | | Select or | ily one. | | Northing Description of Venet | allan Ovalla | |
| | | High (5) | ely high(4) | low | Narrative Description of Vegeta Low spp diversity and/or predomina | | |
| | | Moderate | | | disturbance tolerant native species | | |
| | | | ely low (2) | mod | Native spp are dominant componer | | |
| | | x Low (1) | | | although nonnative and/or disturbation can also be present, and species d | | |
| | | None (0) | erage of invasive plants. Refe | r | moderately high, but generally w/o | | |
| | | Table 1 | ORAM long form for list. Add | | threatened or endangered spp | • | - |
| | | | ct points for coverage | high | A predominance of native species | | |
| | | | ∋ >75% cover (-5) ∋ 25-75% cover (-3) | | and/or disturbance tolerant native absent, and high spp diversity and | | |
| | | and the second se | -25% cover (-1) | | the presence of rare, threatened, of | | |
| | | | osent <5% cover (0) | | | | |
| | | Absent (1 | | | Mudflat and Open Water Class | Quality | |
| | | | otopography. | 0 | Absent <0.1ha (0.247 acres) | | · |
| | | | present using 0 to 3 scale. I hummucks/tussucks | <u>1</u> 2 | Low 0.1 to <1ha (0.247 to 2.47 at Moderate 1 to <4ha (2.47 to 9.88 | | |
| | | | voody debris >15cm (6in) | 3 | High 4ha (9.88 acres) or more | | |
| | | | dead >25cm (10in) dbh | | | | |
| | | <u>1</u> Amphibia | an breeding pools | 0 | Microtopography Cover Scale Absent | | |
| | | | | 1 | Present very small amounts or if | more commo | n |
| | | | | | of marginal quality | | |
| | | | | 2 | Present in moderate amounts bu | A much at him . | |

2 3 Present in moderate amounts, but not of highest quality or in small amounts of highest quality Present in moderate or greater amounts and of highest quality



Category: 2

w-bao91511-4 mdt Site: Rater(s): Date: 9/15/2011 Ô Metric 1. Wetland Area (size). 0 Select one size class and assign score. max 6 pts subtotal >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) 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) х Metric 2. Upland buffers and surrounding land use. 2a. Calculate average buffer width. Select only one and assign score. Do not double check. max 14 pts subtota 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) VERY NARROW. Buffers average <10m (<32ft) around wetland perimeter (0) х 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), shrubland, young second growth forest. (5) MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field. (3) HIGH. Urban, industrial, open pasture, row cropping, mining, construction. (1) 14 13 Metric 3. Hydrology. 3a. Sources of Water. Score all that apply. 3b. Connectivity. Score all that apply. max 30 pts subtotal High pH groundwater (5) 100 year floodplain (1) Other groundwater (3) Between stream/lake and other human use (1) Precipitation (1) Part of wetland/upland (e.g. forest), complex (1) х Seasonal/Intermittent surface water (3) х Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3d. Duration inundation/saturation. Score one or dbl check. 3c. Maximum water depth. Select one. Semi- to permanently inundated/saturated (4) >0.7 (27.6in) (3) х Regularly inundated/saturated (3) Seasonally inundated (2) 0.4 to 0.7m (15.7 to 27.6in) (2) <0.4m (<15.7in) (1) Seasonally saturated in upper 30cm (12in) (1) х 3e. Modifications to natural hydrologic regime. Score one or double check and average. None or none apparent (12) Check all disturbances observed Recovered (7) ditch point source (nonstormwater) х Recovering (3) tile filling/grading х Recent or no recovery (1) dike road bed/RR track х weir dredging stormwater input Other: Metric 4. Habitat Alteration and Development. 25 4a. Substrate disturbance. Score one or double check and average. max 20 pts subtotal None or none apparent (4) Recovered (3) х 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) Poor (1) х Habitat alteration. Score one or double check and average. None or none apparent (12) Check all disturbances observed Recovered (7) mowing shrub/sapling removal х х Recovering (3) herbaceous/aquatic bed removal grazing Recent or no recovery (1) sedimentation clearcutting х X selective cutting dredging XХ woody debris removal farming toxic pollutants nutrient enrichment

Alt - w (



| Site: | w-bao9 | 1511-4 | Rater(s): mdt | | | Date: 9/15/2011 |
|------------|--------------------------------|--|--|------------------|--|--|
| | 6 Subtotal this page | ge | | | | |
| Ö | Q | Metric | 5. Special Wetlan | ds. | | |
| max 10 pts | subtotal | Check all 1 | hat apply and score as in | dicated. | | |
| | | Bog (10) | | | | |
| | | Fen (10) | | | | |
| | | Old growth | | | | |
| | | | sted wetland (5) pastal/tributary wetland-unres | tricted budicelo | av (10) | |
| | | | bastal/tributary wetland-restric | - | ••• | |
| | | | Sand Prairies (Oak Openings) | | | |
| | | Relict Wet F | • | () | | |
| | | | urrence state/federal threaten | ed or endange | red species (10) | |
| | | | nigratory songbird/water fowl | - | • • • | |
| | | Category 1 | Wetland, See Question 5 Qua | alitative Rating | (-10) | |
| 6 | 6 | Metric | 6. Plant communi | ities, inte | erspersion, microtop | ography. |
| nax 20 pts | subtotal | a 6a. Wetlan | d Vegetation Communitie | s. | Vegetation Community Cover So | cale |
| | | in the second se | esent using 0 to 3 scale. | 0 | Absent or comprises <0.1ha (0.24 | |
| | | 0 Aquatic bed | | 1 | Present and either comprises sma | |
| | | S Emergent | | | vegetation and is of moderate qua significant part but is of low quality | |
| | | Q Forest | | 2 | Present and either comprises sign | |
| | | 0 Mudflats | | | vegetation and is of moderate qua | |
| | | 0 Open Water | r | | part and is of high quality | ······································ |
| | | | ntal (plan view) | 3 | Present and comprises significant | part, or more, of wetland's 3 |
| | | Interspers | | | vegetation and is of high quality | |
| | | Select only | one. | | | |
| | | High (5) Moderately | hinh(4) | low | Narrative Description of Vege Low spp diversity and/or predomin | |
| | | Moderate (3 | • • • | 1011 | disturbance tolerant native species | |
| | | Moderately | low (2) | mod | Native spp are dominant compone | ent of the vegetation, mod |
| | | x Low (1) | | | although nonnative and/or disturba | |
| | | None (0) | ge of invasive plants. Ref | er | can also be present, and species of moderately high, but generally w/o | |
| | | | AM long form for list. Ad | | threatened or endangered spp | • |
| | | | points for coverage | high | A predominance of native species | |
| | | | 75% cover (-5) | | and/or disturbance tolerant native absent, and high spp diversity an | |
| | | | 5-75% cover (-3) i% cover (-1) | | the presence of rare, threatened, | |
| | | <u> </u> | nt <5% cover (0) | k | | |
| | | Absent (1) | | | Mudflat and Open Water Class | s Quality |
| | | | ppography. | 0 | Absent <0.1ha (0.247 acres) | |
| | | | resent using 0 to 3 scale. hummucks/tussucks | 1 | Low 0.1 to <1ha (0.247 to 2.47 a Moderate 1 to <4ha (2.47 to 9.8 | |
| | | | ody debris >15cm (6in) | 3 | High 4ha (9.88 acres) or more | |
| | | | ead >25cm (10in) dbh | | · · · · · · · · · · · · · · · · · · · | |
| | | | breeding pools | | Microtopography Cover Scale | |

| | Microtopography Cover Scale |
|---|---|
| Ô | 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 |

31 GRAND TOTAL(max 100 pts)

Category: 2

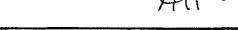
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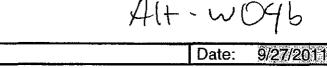
w-mdt9/27/2011-1b

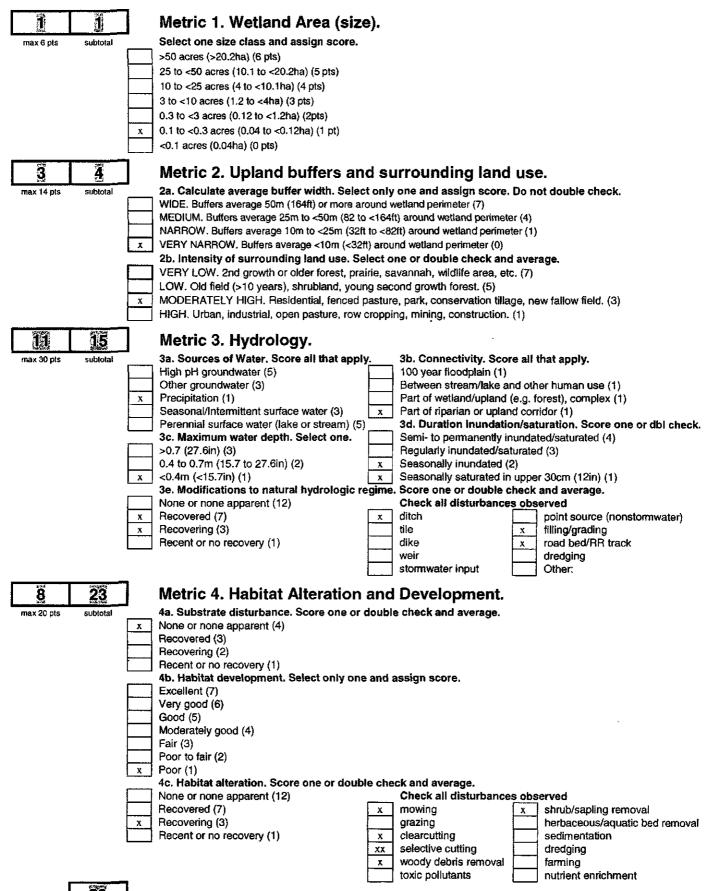
Site:

Rater(s):

mdt







Site: w-mdt9/27/2011-1b Rater(s): mdt

Date: 9/27/2011

| | 4 | | | |
|------------|----------------|---|---------------|---|
| Subto | otal this page | Metric 5. Special Wetland | s. | |
| nax 10 pts | subiotal | Check all that apply and score as indi | cated. | |
| | ļ | Bog (10) | | |
| | | Fen (10) | | |
| | | Old growth forest (10) | | |
| | | Mature forested wetland (5) | | |
| | | Lake Erie coastal/tributary wetland-unrestrie | cted hydrold | ogy (10) |
| | | Lake Erie coastal/tributary wetland-restricte | d hydrology | (5) |
| | | Lake Plain Sand Prairies (Oak Openings) (| 10) | |
| | | Relict Wet Praires (10) | | |
| | ļ | Known occurrence state/federal threatened | l or endange | ared species (10) |
| | | Significant migratory songbird/water fowl ha | abitat or usa | ge (10) |
| | l | Category 1 Wetland. See Question 5 Qualit | tative Rating |) (-10) |
| 4 | 4 | Metric 6. Plant communit | ies, int | erspersion, microtopography. |
| nax 20 pis | subtotal | 6a. Wetland Vegetation Communities. | | Vegetation Community Cover Scale |
| | | Score all present using 0 to 3 scale. | 0 | Absent or comprises <0.1ha (0.2471 acres) contiguous area |
| | | 0 Aquatic bed | 1 | Present and either comprises small part of wetland's 1 vegetation and is of moderate quality, or comprises a |
| | | 1 Shrub | | significant part but is of low quality |
| | | 0 Forest | 2 | Present and either comprises significant part of wetland's 2 |
| | | 0 Mudflats | | vegetation and is of moderate quality or comprises a small |
| | ĺ | Ø Open Water | | part and is of high quality |
| | [| Other | 3 | Present and comprises significant part, or more, of wetland's 3 |
| | | 6b. horizontal (plan view) Interspersion. | | vegetation and is of high quality |
| | | Select only one. High (5) | | Narrative Description of Vegetation Quality |
| | | Moderately high(4) | low | Low spp diversity and/or predominance of nonnative or low |
| | | Moderate (3) | | disturbance tolerant native species |
| | 1 | Moderately low (2) | mod | Native spp are dominant component of the vegetation, mod |
| | | x Low (1) None (0) | | although nonnative and/or disturbance tolerant native spp can also be present, and species diversity moderate to |
| | 1 | 6c. Coverage of invasive plants. Refer | • | moderately high, but generally w/o presence of rare |
| | | Table 1 ORAM long form for list. Add | | threatened or endangered spp |
| | , | or deduct points for coverage | high | A predominance of native species, with nonnative spp high |
| | | Extensive >75% cover (-5) | | and/or disturbance tolerant native spp absent or virtually |
| | | x Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) | | absent, and high spp diversity and often, but not always, the presence of rare, threatened, or endangered spp |
| | | Nearly absent <5% cover (0) | ···· | |
| | | Absent (1) | · | Mudflat and Open Water Class Quality |
| | | 6d. Microtopography. | | Absent <0.1ha (0.247 acres) |
| | 1 | Score all present using 0 to 3 scale. | - 1 2 | Low 0.1 to <1ha (0.247 to 2.47 acres) Moderate 1 to <4ha (2.47 to 9.88 acres) |
| | | 0 Coarse woody debris >15cm (6in) | 3 | High 4ha (9.88 acres) or more |
| | | 0 Standing dead >25cm (10in) dbh | | |
| | | Amphibian breeding pools | | 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 |



Category:

Subtotal this page



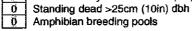


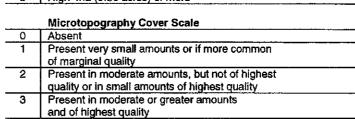
Date:

9/28/2011

2 Metric 1. Wetland Area (size). 2 Select one size class and assign score. subtotal max 6 ots >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) 0.3 to <3 acres (0.12 to <1.2ha) (2pts) x 0.1 to <0.3 acres (0.04 to <0.12ha) (1 pt) <0.1 acres (0.04ha) (0 pts) 3 5 Metric 2. Upland buffers and surrounding land use. 2a. Calculate average buffer width. Select only one and assign score. Do not double check. subtotal max 14 pts 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) 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), shrubland, 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) 14 Metric 3. Hydrology. subtota 3a. Sources of Water. Score all that apply. 3b. Connectivity. Score all that apply. max 30 pts High pH groundwater (5) 100 year floodplain (1) Between stream/lake and other human use (1) Other groundwater (3) Precipitation (1) Part of wetland/upland (e.g. forest), complex (1) x х Seasonal/Intermittent surface water (3) Part of riparian or upland corridor (1) Perennial surface water (lake or stream) (5) 3d. Duration inundation/saturation. Score one or dbl check. 3c. Maximum water depth. Select one. Semi- to permanently inundated/saturated (4) >0.7 (27.6in) (3) Regularly inundated/saturated (3) 0.4 to 0.7m (15.7 to 27.6in) (2) Seasonally inundated (2) <0.4m (<15.7in) (1) 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) Check all disturbances observed Recovered (7) point source (nonstormwater) ditch х filling/grading Recovering (3) tile х dike road bed/RR track Recent or no recovery (1) dredging weir stormwater input Other: 8 22 Metric 4. Habitat Alteration and Development. 4a. Substrate disturbance. Score one or double check and average. subtota max 20 ots None or none apparent (4) Recovered (3) х 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) Poor (1) 4c. Habitat alteration. Score one or double check and average. None or none apparent (12) Check all disturbances observed Recovered (7) mowing shrub/sapling removal х Recovering (3) grazing herbaceous/aquatic bed removal х sedimentation Recent or no recovery (1) х clearcutting selective cutting dredaina XX woody debris removal farming toxic pollutants nutrient enrichment

| Site: | w-mdt9 |)/28/11-1a | Rater(s): | mdt | | | Date: | 9/28/2011 |
|-----------|------------------|-----------------|--|-----------------|-----------|--|-----------------|--------------|
| | 7 | 1 | | | | | | |
| | 7 | | | | | | | |
| S | iubtotal this pa | ġe | | | | | | |
| Q | Q | Motric 5 | . Special V | letlands. | | | | |
| <u>U</u> | | | • | | | | | |
| ax 10 pts | subtotal | Check all th | at apply and sco | ore as indicat | ed. | | | |
| | | Bog (10) | | | | | | |
| | | Fen (10) | | | | | | |
| | | Old growth for | rest (10) | | | | | |
| | | Mature forest | ed wetland (5) | | | | | |
| | | | stal/tributary wetla | nd-unrestricte | d hydrold | gy (10) | | |
| | | | stal/tributary wetla | | - | | | |
| | | | Ind Prairies (Oak | | , | | | |
| | | | | Spermigs/(10) | | | | |
| | | Relict Wet Pra | • • | threatened or | andanar | red species (10) | | |
| | | | ence state/federa | | - | | | |
| | | | gratory songbird/v | | | | | |
| | | Category 1 W | etland. See Ques | uon 5 Qualitati | ve Hatinç | J (- 10) | | |
| 7 | Z | Metric 6 | . Plant con | nmunitie | s, int | erspersion, microtopo | graphy. | |
| ax 20 pts | subtotal | | Vegetation Con | | | Vegetation Community Cover Sca | | |
| | | | ent using 0 to 3 s | | 0 | Absent or comprises <0.1ha (0.2471 | | ious area |
| | | Q Aquatic bed | •••••••••••••••••••••••••••••••••••••• | | 1 | Present and either comprises small | | |
| | | 3 Emergent | | | | vegetation and is of moderate quality | | |
| | | 2 Shrub | | | | significant part but is of low quality | | |
| | | 0 Forest | | | 2 | Present and either comprises signific | ant part of we | land's 2 |
| | | 0 Mudflats | | | | vegetation and is of moderate quality | | |
| | | 0 Open Water | | | | part and is of high quality | | - |
| | | Other | | | 3 | Present and comprises significant pa | art or more of | wetland's 3 |
| | | | al (plan view) | | | vegetation and is of high quality | | wettand \$ 0 |
| | | Interspersio | | | | Yogotation and so of high quality | | |
| | | Select only or | 1 0 . | | | | | |
| | | High (5) | | | | Narrative Description of Vegetat | | |
| | | Moderately hi | gn(4) | | low | Low spp diversity and/or predominar | nce or nonnativ | e of low |
| | | Moderate (3) | w (0) | | mod | disturbance tolerant native species | ••• | |
| | | x Moderately lo | ** (~) | | mou | Native spp are dominant component although nonnative and/or disturban | • | |
| | | None (0) | | | | can also be present, and species div | | |
| | | | e of invasive pla | ants. Refer | | moderately high, but generally w/o p | | |
| | | | M long form for | | | threatened or endangered spp | | |
| | | | oints for covera | | high | A predominance of native species, | with nonnative | spp high |
| | | Extensive >75 | | | | and/or disturbance tolerant native s | pp absent or v | intually |
| | | | 75% cover (-3) | | | absent, and high spp diversity and | | |
| | | Sparse 5-25% | • • | | | the presence of rare, threatened, or | r endangered s | pp |
| | | | t <5% cover (0) | | | | | |
| | | Absent (1) | | | | Mudflat and Open Water Class (| Quality | |
| | | 6d, Microtop | • · · | | 0 | Absent <0.1ha (0.247 acres) | | <u> </u> |
| | | | sent using 0 to 3 | | 1 | Low 0.1 to <1ha (0.247 to 2.47 ac | 1. | |
| | | | ummucks/tussuci | | 2 | Moderate 1 to <4ha (2.47 to 9.88 a | acres) | |
| | | 1 Coarse wood | ly debris >15cm | (n :_) | 3 | High 4ha (9.88 acres) or more | | |

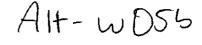


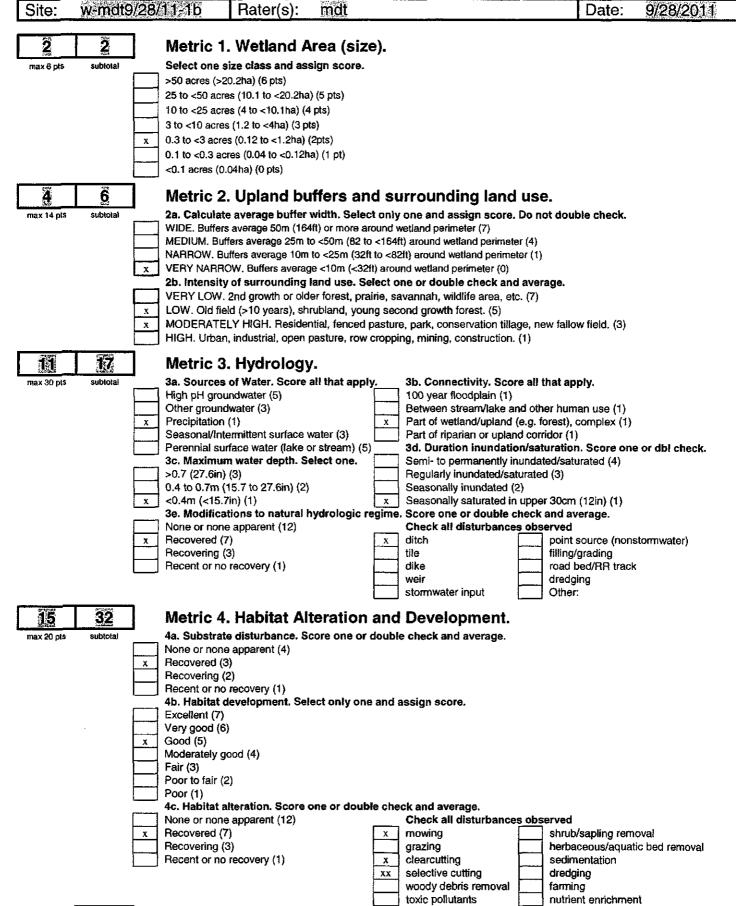


29

GRAND TOTAL(max 100 pts)

Category: 🗓





32 Subtotal this page

| Site: | w-mdt | 9/28/11-16 | Rater(s): mdt | | · · · · · · · · · · · · · · · · · · · | Date: | 9/28/2011 |
|------------|----------------------|--------------------------------|---|----------------|--|-----------------|----------------|
| Su | Z Ibtotal this pa |] ge | | | | | |
| Q | Õ | Metric 5 | i. Special Wetlands | s. | | | |
| max 10 pts | subtolal | | at apply and score as indic | | | | |
| | | Bog (10) | | | | | |
| | | Fen (10) | | | | | |
| | | Old growth fo | • • | | | | |
| | | | ted wetland (5) | to al bualanta | | | |
| | | | astal/tributary wetland-unrestric astal/tributary wetland-restricted | • | | | |
| | | | and Prairies (Oak Openings) (1 | | | | |
| | | Relict Wet P | | | | | |
| | | | rence state/federal threatened | - | | | |
| | | ⊢ × | igratory songbird/water fowl hal | | , | | |
| | | Category 1 V | Vetland. See Question 5 Quality | ative Hating | g (-10) | | |
| 7 | 7 | Metric 6 | 6. Plant communiti | es, inte | erspersion, microtopo | graphy. | |
| max 20 pls | subtotal | | Vegetation Communities. | | Vegetation Community Cover Sca | | |
| | | | sent using 0 to 3 scale. | 1 | Absent or comprises <0.1ha (0.2471 | | |
| | | Aquatic bed S Emergent | | 1 | Present and either comprises small vegetation and is of moderate quality | | |
| | | 0 Shrub | | | significant part but is of low quality | <u> </u> | |
| | | 2 Forest 0 Mudflats | | 2 | Present and either comprises signific vegetation and is of moderate quality | | |
| | | 0 Open Water | | | part and is of high quality | y or comprise | |
| | | Other | | 3 | Present and comprises significant pa | art or more (| of wetland's 3 |
| | | 6b. horizon Interspersio | tal (plan view) | | vegetation and is of high quality | | in medianico o |
| | | Select only o | | | ······································ | | |
| | | High (5) | | | Narrative Description of Vegeta | tion Quality | |
| | | Moderately h | | low | Low spp diversity and/or predominal disturbance tolerant native species | nce of nonnat | ive or low |
| | | Moderate (3) | | mod | Native spp are dominant component | t of the venet | ation, mod |
| | | Low (1) | ., | | although nonnative and/or disturban | ice tolerant na | tive spp |
| | | | a of invocivo planto. Bafar | | can also be present, and species div moderately high, but generally w/o p | | |
| | | | e of invasive plants. Refer | | threatened or endangered spp | 10001100 01 14 | |
| | | or deduct p | oints for coverage | high | A predominance of native species, | | |
| | | | 5% cover (-5) -75% cover (-3) | | and/or disturbance tolerant native s absent, and high spp diversity and | | |
| | | X Moderate 25 Sparse 5-259 | • • | | the presence of rare, threatened, o | | |
| | | Nearly abser | it <5% cover (0) | | | | |
| | | Absent (1) 6d. Microto | nography | 0 | Mudflat and Open Water Class (Absent <0.1ha (0.247 acres) | Juality | ····· |
| | | | esent using 0 to 3 scale. | 1 | Low 0.1 to <1ha (0.247 acres) | res) | |
| | | I Vegetated h | ummucks/tussucks | 2 | Moderate 1 to <4ha (2.47 to 9.88 | | ······ |
| | | | dy debris >15cm (6in) ad >25cm (10in) dbh | 3 | High 4ha (9.88 acres) or more | | |
| | | | ad >25cm (10in) don Freeding pools | | Microtopography Cover Scale | | |
| | | المشت | | 0 | Absent | | |

| | 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 |

39 GRAND TOTAL(max 100 pts)

Category: 2

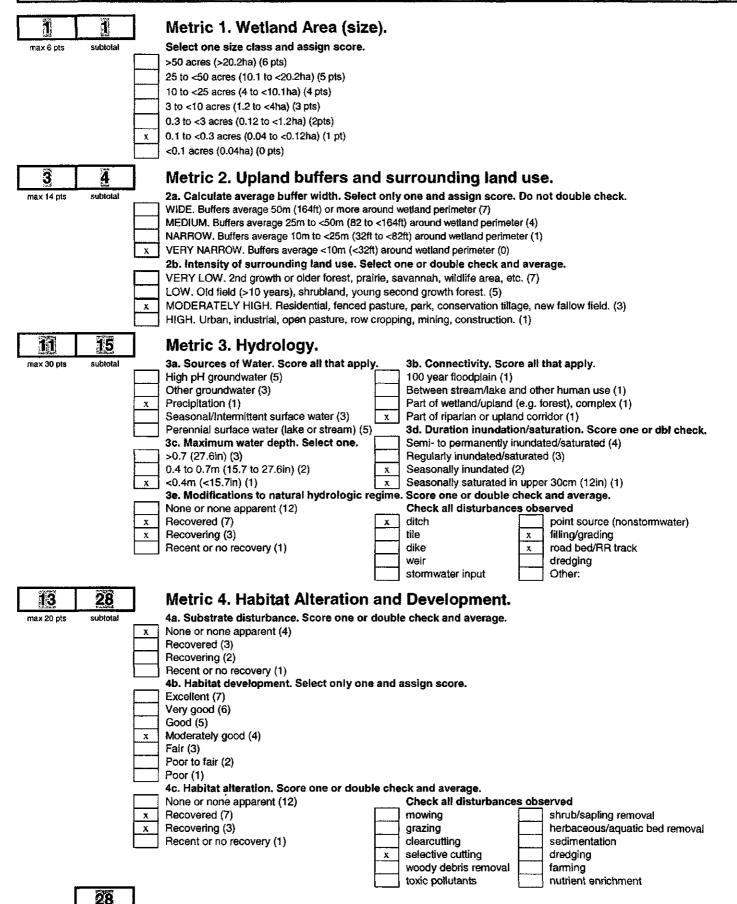
H-wOSa

9/27/2011

Date:

Subtotal this page

Site: w-mdt9/27/2011-1a Rater(s): mdt



w-mdt9/27/2011-1a Rater(s): mdt Site:

Date: 9/27/2011

| | 8 |] | | |
|-----------|------------------|---|----------------|---|
| | ubtotal this pay | ge N | | |
| Õ | Ô | Metric 5. Special Wetlan | ds. | |
| ax 10 pts | subtotal | Check all that apply and score as in | dicated. | |
| | | Bog (10) | | |
| | | Fen (10) | | |
| | | Old growth forest (10) | | |
| | | Mature forested wetland (5) | | |
| | | Lake Erie coastal/tributary wetland-unres | • | |
| | | Lake Erie coastal/tributary wetland-restric | | (5) |
| | | Lake Plain Sand Prairies (Oak Openings) |) (10) | |
| | | Relict Wet Praires (10) | | |
| | | Known occurrence state/federal threaten | - | |
| | | Significant migratory songbird/water fow | | • • • |
| | | Category 1 Wetland. See Question 5 Qua | anative hadrig | (-iu) |
| 8 | 8 | Metric 6. Plant communi | ities, inte | erspersion, microtopography. |
| ax 20 pts | subtotal | 6a. Wetland Vegetation Communitie | s | Vegetation Community Cover Scale |
| | | Score all present using 0 to 3 scale. | 0 | Absent or comprises <0.1ha (0.2471 acres) contiguous area |
| | | 0 Aquatic bed | 1 | Present and either comprises small part of wetland's 1 |
| | | 1 Emergent 2 Shrub | | vegetation and is of moderate quality, or comprises a significant part but is of low quality |
| | | 2 Forest | 2 | Present and either comprises significant part of wetland's 2 |
| | | Q Mudflats | | vegetation and is of moderate quality or comprises a small |
| | | 0 Open Water | | part and is of high quality |
| | | Other | 3 | Present and comprises significant part, or more, of wetland's 3 |
| | | 6b. horizontal (plan view) Interspersion. | | vegetation and is of high quality |
| | | Select only one. | | |
| | | High (5) | | Narrative Description of Vegetation Quality |
| | | Moderately high(4) | low | Low spp diversity and/or predominance of nonnative or low |
| | | x (Moderate (3) | mod | disturbance tolerant native species |
| | | Moderately low (2) Low (1) | mou | Native spp are dominant component of the vegetation, mod although nonnative and/or disturbance tolerant native spp |
| | | None (0) | | can also be present, and species diversity moderate to |
| | | 6c. Coverage of invasive plants. Ref | | moderately high, but generally w/o presence of rare |
| | | Table 1 ORAM long form for list. Add | | threatened or endangered spp |
| | | or deduct points for coverage Extensive >75% cover (-5) | high | A predominance of native species, with nonnative spp high and/or disturbance tolerant native spp absent or virtually |
| | | x Moderate 25-75% cover (-3) | | absent, and high spp diversity and often, but not always, |
| | | Sparse 5-25% cover (-1) | | the presence of rare, threatened, or endangered spp |
| | | Nearly absent <5% cover (0) | | |
| | | Absent (1) | | Mudflat and Open Water Class Quality |
| | | 6d. Microtopography. Score all present using 0 to 3 scale. | -0 | Absent <0.1ha (0.247 acres) Low 0.1 to <1ha (0.247 to 2.47 acres) |
| | | Vegetated hummucks/tussucks | 2 | Moderate 1 to <4ha (2.47 to 9.88 acres) |
| | | 1 Coarse woody debris >15cm (6in) | 3 | High 4ha (9.88 acres) or more |
| | | 0 Standing dead >25cm (10in) dbh | | |
| | | 1 Amphibian breeding pools | | Microtopography Cover Scale |
| | | | <u>0</u> 1 | Absent 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 |



Category: 2

| ORAM v. 5.0 Field Form Quantitati | ive Ratino | Pr- w 28 |
|-----------------------------------|---|--|
| Site: w-bao-0830 | All 15th West All All All All All All All All All Al | Date: 8/30/2011 |
| max 6 pts subiotal | Metric 1. Wetland Area (size) 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) 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) |). |
| 1 2 | Metric 2. Upland buffers and | l surrounding land use. |
| max 14 pts subtotal | WIDE. Buffers average 50m (164ft) or more arou MEDIUM. Buffers average 25m to <50m (82 to < NARROW. Buffers average 10m to <25m (32ft to VERY NARROW. Buffers average <10m (<32ft) 2b. Intensity of surrounding land use. Sele VERY LOW. 2nd growth or older forest, prairi LOW. Old field (>10 years), shrubland, young | c164ft) around wetland perimeter (4) o <82ft) around wetland perimeter (1) around wetland perimeter (0) ect one or double check and average. ie, savannah, wildlife area, etc. (7) y second growth forest. (5) asture, park, conservation tillage, new fallow field. (3) |
| 8 10 | Metric 3. Hydrology. | |
| max 30 pts subtota! | | 3b. Connectivity. Score all that apply. 100 year floodplain (1) Between stream/lake and other human use (1) Part of wetland/upland (e.g. forest), complex (1) Part of riparian or upland corridor (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) gime. Score one or double check and average. Check all disturbances observed dlich point source (nonstormwater) tille filling/grading dike orad bed/RR track weir Other: |
| max 20 pts subtotal | Metric 4. Habitat Alteration a 4a. Substrate disturbance. Score one or de None or none apparent (4) Recovered (3) Recovering (2) Recent or no recovery (1) 4b. Habitat development. Select only one a Excellent (7) Very good (6) Good (5) Moderately good (4) Fair (3) Poor to fair (2) Poor (1) 4c. Habitat alteration. Score one or double None or none apparent (12) Recovered (7) Recovering (3) Recent or no recovery (1) | and assign score. and assign score. check and average. Check all disturbances observed x mowing grazing herbaceous/aquatic bed removal clearcutting sedimentation selective cutting dredging |
| 21 | Ę | toxic pollutants nutrient enrichment |

Subtotal this page

| Site: | w-bao-083011-03 | Rater(s): bao | Date: | 8/30/2011 |
|-------|-----------------|---------------|-------|-----------|
| - | | | | |

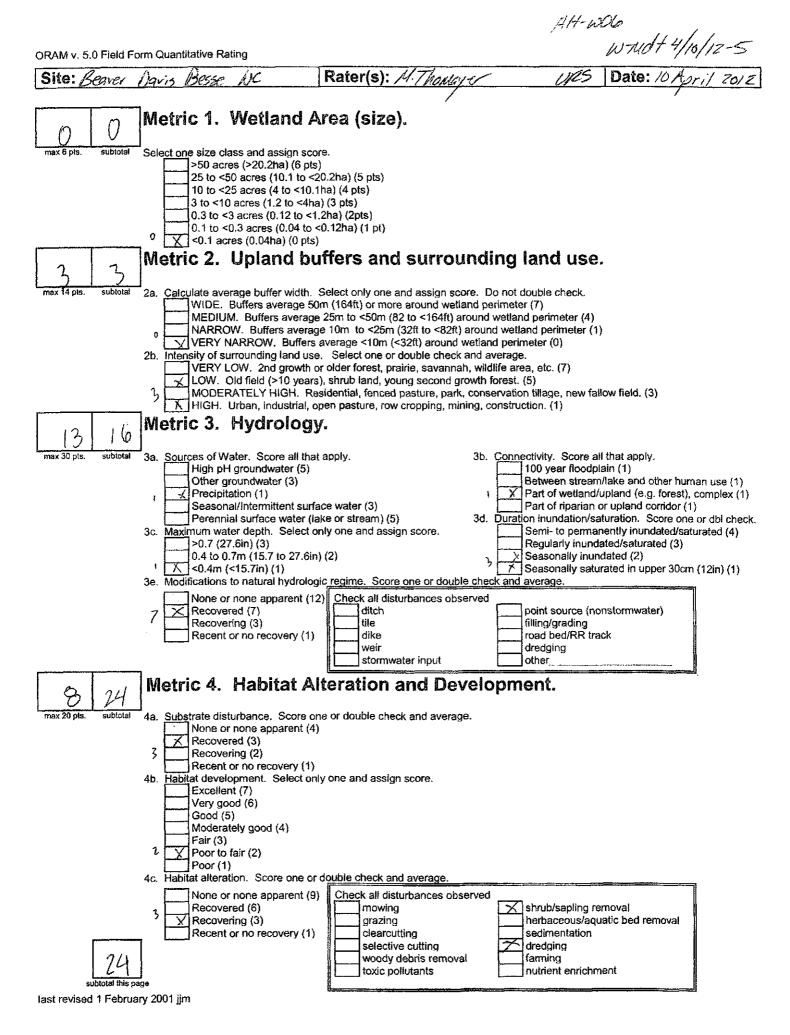
Subtotal this pag Metric 5. Special Wetlands. 0 0 Check all that apply and score as indicated. max 10 pts subtota Bog (10) Fen (10) Old growth forest (10) Mature forested wetland (5) Lake Erre coastal/tributary wetland-unrestricted hydrology (10) Lake Erie coastal/tributary wetland-restricted hydrology (5) Lake Plain Sand Prairies (Oak Openings) (10) Relict Wet Praires (10) Known occurrence state/iederal threatened or endangered species (10) Significant migratory songbird/water fowl habitat or usage (10) Category 1 Wetland, See Question 5 Qualitative Rating (-10) 1 Metric 6. Plant communities, interspersion, microtopography. 6a. Wetland Vegetation Communities. subtotal Vegetation Community Cover Scale max 20 ots Score all present using 0 to 3 scale. 0 Absent or comprises <0.1ha (0.2471 acres) contiguous area 0 Aquatic bed 1 Present and either comprises small part of wetland's 1 1 Emergent vegetation and is of moderate quality, or comprises a significant part but is of low quality 1 Shrub 2 0 Forest Present and either comprises significant part of wetland's 2 Ö Mudflats vegetation and is of moderate quality or comprises a small Open Water part and is of high quality 0 Other 3 Present and comprises significant part, or more, of wetland's 3 6b. horizontal (plan view) vegetation and is of high quality Interspersion. Select only one. High (5) Narrative Description of Vegetation Quality low Moderately high(4) Low spp diversity and/or predominance of nonnative or low Moderate (3) disturbance tolerant native species Moderately low (2) mod Native spp are dominant component of the vegetation, mod Low (1) although nonnative and/or disturbance tolerant native spp None (0) can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare 6c. Coverage of invasive plants. Refer threatened or endangered spp Table 1 ORAM long form for list. Add or deduct points for coverage hiah A predominance of native species, with nonnative spp high Extensive >75% cover (-5) and/or disturbance tolerant native spp absent or virtually absent, and high spp diversity and often, but not always, Moderate 25-75% cover (-3) Sparse 5-25% cover (-1) the presence of rare, threatened, or endangered spp Nearly absent <5% cover (0) **Mudflat and Open Water Class Quality** Absent (1) 6d. Microtopography. 0 Absent <0.1ha (0.247 acres) Score all present using 0 to 3 scale. Low 0.1 to <1ha (0.247 to 2.47 acres) 1 0 Vegetated hummucks/tussucks 2 Moderate 1 to <4ha (2.47 to 9.88 acres) Coarse woody debris >15cm (6in) High 4ha (9.88 acres) or more Ö з

Standing dead >25cm (10in) dbh
 Amphibian breeding pools

| 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 |

GRAND TOTAL(max 100 pts)

Category: 🗓



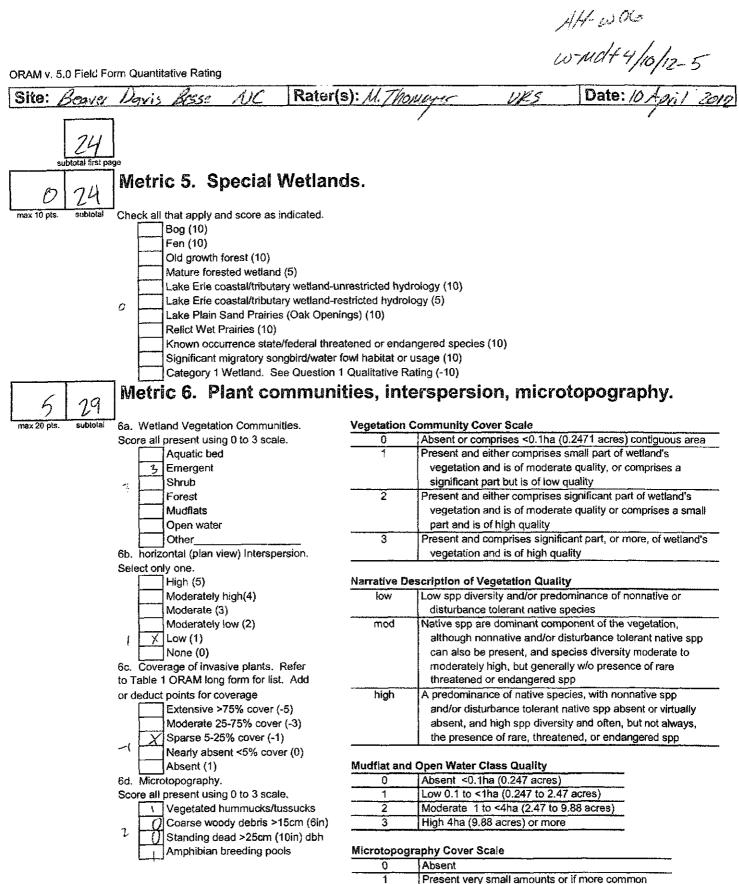


 Image: Note in the second se

End of Quantitative Rating. Complete Categorization Worksheets.

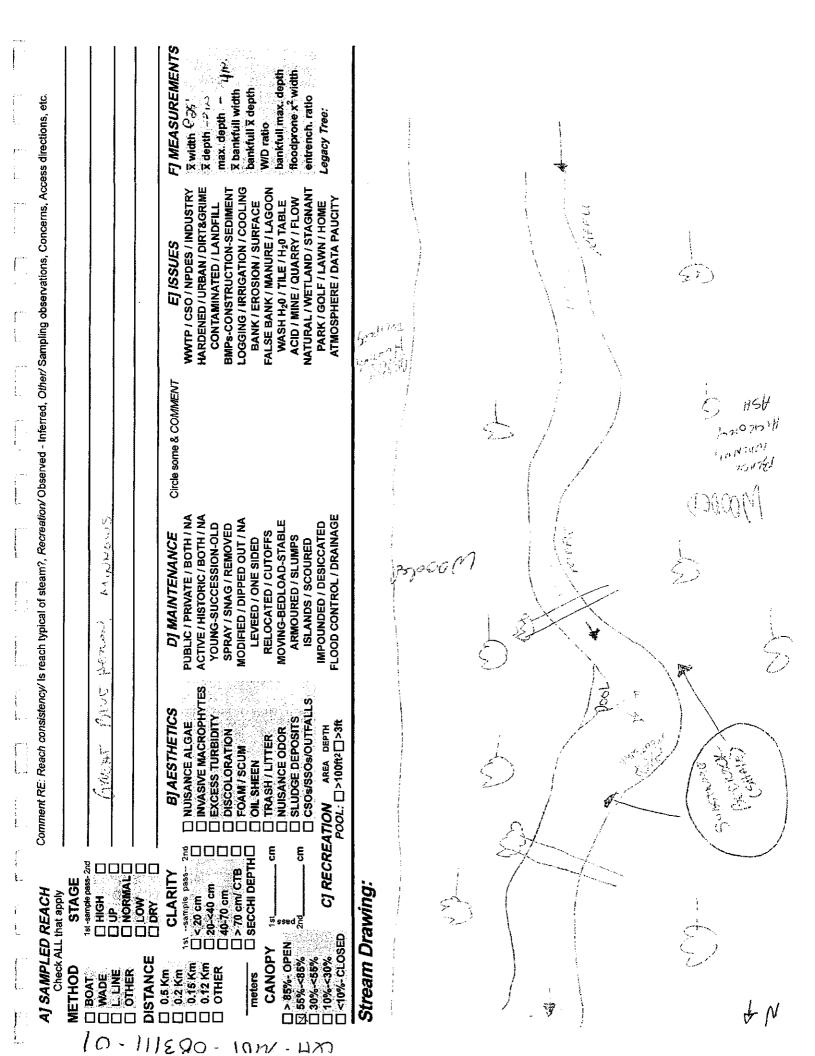


APPENDIX C

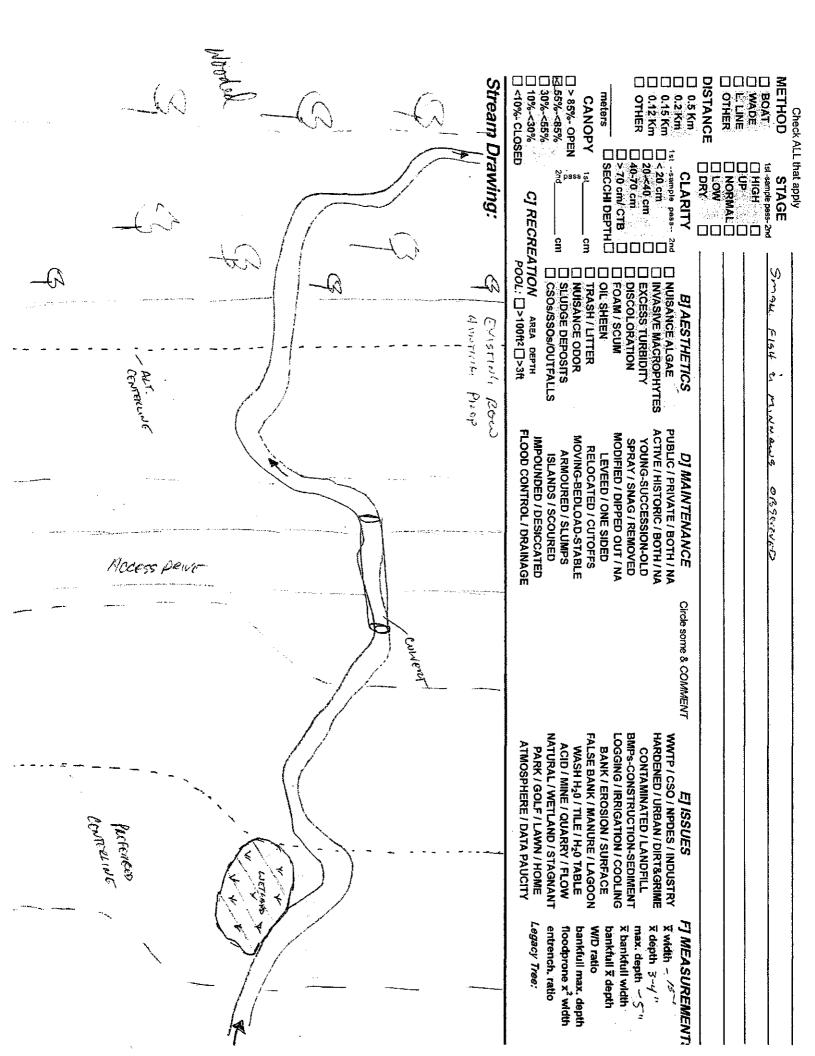
OHIO EPA QHEI STREAM FORMS



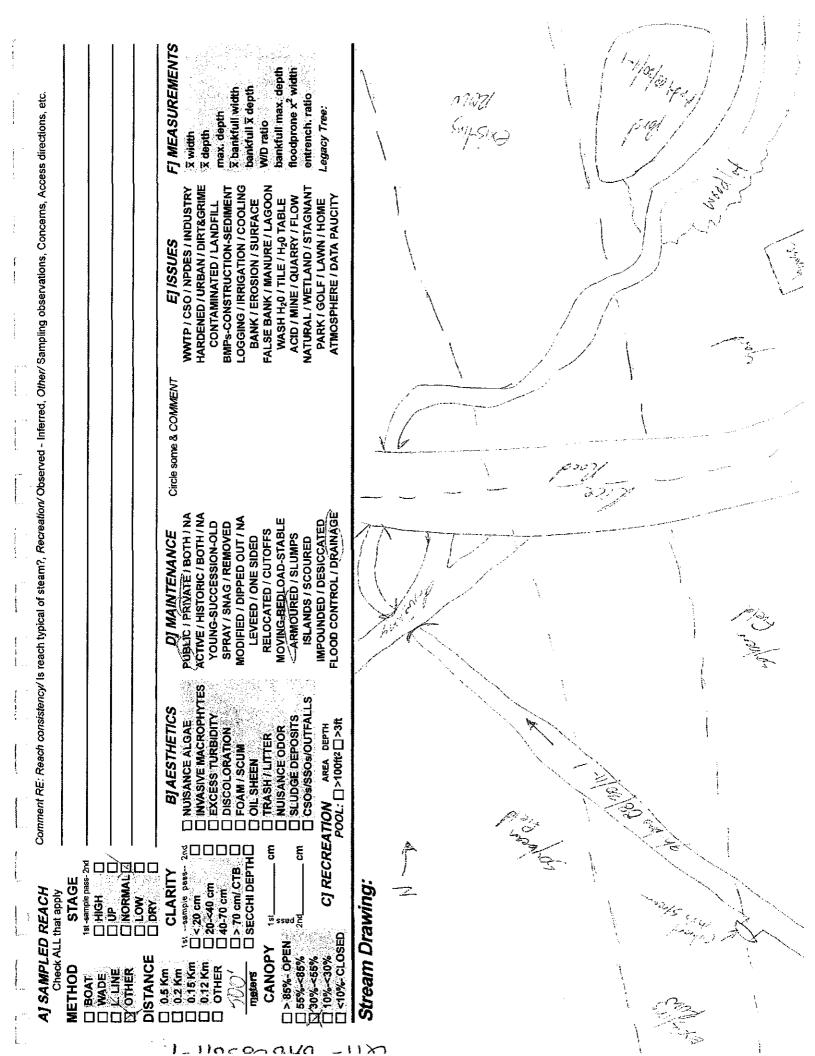
| PRSOLA | Hucerry Cr | riek | QH-MOT.09 | ;3/11-01a |
|--|---|--|--|---------------------------------------|
| ChieEPA | Qualitative Habit and Use Assess | | | ore: 60.5 |
| Stream & Location: | CE BOB ALTERNAT | E ROUTE | RM:L | Date: 09 3 11 11 |
| | | rs Full Name & Affiliat | | UKS Office verified |
| River Code: | - STORET #: | Lat./ Long.: | /8 | |
| estima | ONLY Two substrate TYPE BOXES; te % or note every type present | ODION | eck ONE (Or 2 & average | |
| BEST TYPES P | | | | UALITY AVY [-2] |
| | | | SILT 🗆 MO | DERATE [-1] Substrate |
| | | | n 🗖 ERI | |
| | 40 90 Score natural substr | ates: innore RIP/RAP [0] | 2 1 MO | DERATE [-1] |
| NUMBER OF BEST T | YPES: 4 or more [2] sludge from poin | nt-sources) | NE[0] 🗟 👋 🖄 Ю NO | RMAL [0] 20 |
| Comments | KI 3 or less [0] | | [-2] | |
| | Vindicate presence 0 to 3: 0-Absent; 1-Ven | ry small amounts or if more o | promon of marginal | AMOUNT |
| • | quality; 2-Moderate amounts, but not of h moderate or greater amounts (e.g., very la | nighest quality or in small am | ounts of highest | NE (Or 2 & average) |
| diameter log that is stable, UNDERCUT BANKS | well developed rootwad in deep / fast wate | er, or deep, well-defined, func 2] OXBOWS, BACK | tional pools. | ISIVE >75% [11] RATE 25-75% [7] |
| OVERHANGING VE | GETATION [1] ROOTWADS [1] | AQUATIC MACRO | OPHYTES [1] 🔲 SPARS | SE 5-<25% [3] |
| SHALLOWS (IN SLC ROOTMATS [1] | | | | LY ABSENT <5% [1] |
| Comments | | | | Maximum 20 |
| 31 CHANNEL MORPH | OLOGY Check ONE in each category (C |)r 2 & average) | . <u></u> | |
| SINUOSITY DEV | ELOPMENT CHANNELIZATI | ON STABILIT | | |
| | XCELLENT [7] | ☐ HIGH [3] ☑ MODERAT | | |
| | AIR [3] 🗌 RECOVERING [3] | 📋 LOW [1] | - N -9 | Channel (|
| Comments | | COVERTIN | | Maximum 10 |
| | | | | |
| 4] BANK EKOSION A River right looking downstrea | MD RIPARIAN ZONE Check ONE in | FLOOD PLAIN OF | JALITY | - |
| | | FOREST, SWAMP [3] | | ATION TILLAGE [1] R INDUSTRIAL [0] |
| 🖾 🖾 MODERATE [2] | □ □ NARROW 5-10m [2] □ □ | SHRUB OR OLD FIELD [2] RESIDENTIAL, PARK, NEW I | | |
| | □ □ VERY NARROW < 5m [1] □ □ 1 □ □ NONE [0] □ □ (| FENCED PASTURE [1] OPEN PASTURE, ROWCRO | Indicate predomi P [0] past 100m ripari | |
| Comments 🤉 | 3.5 | s | | Maximum C.S |
| 51 POOL / GLIDE ANI | D RIFFLE / RUN QUALITY | | | 10 |
| MAXIMUM DEPTH | CHANNEL WIDTH | CURRENT VELOC | ו••• | ation Potential |
| Check ONE (ONLY!) | Check ONE (Or 2 & average) | Check ALL that app | Associated and the second second second | nary Contact |
| | | VERY FAST [1] | | and comment on back) |
| 🔲 0.2-<0.4m [1] | | MODERATE [1] DEDDI Indicate for reach - pools | ES [1] | Pool / Current |
| ⊠.< 0.2m [0] Comments | | moleate for reach - pools o | ano 18863. | Maximum 12 |
| Indicate for funct | ional riffles; Best areas must be | large enough to supp | ort a population _ | |
| of riffle-obligate s RIFFLE DEPTH | - | (Or 2 & average). / RUN SUBSTRATE | L RIFFLE / RUN EMBE | NO RIFFLE [metric=0] |
| BEST AREAS > 10cm [2] | MAXIMUM > 50cm [2] STABLE (| e.g., Cobble, Boulder) [2] | NONE [2] | |
| BESTAREAS 5-10cm [1] | | \BLE (e.g., Large Gravel) [1 E (e.g., Fine Gravel, Sand) [/ | | E IOI Riffle / |
| [metric=0] Comments | — | a antar 🛱 tao antaria a la futbolita (1898). | | E[-1] Run Maximum |
| 6] GRADIENT | ft/mi) 📋 VERY LOW - LOW [2-4] | %POOL: | | 8 |
| DRAINAGE AREA | MODERATE [6-10] | | \prec | Gradient Maximum |
| (3.82 | 2 mi ²) HIGH - VERY HIGH [10-6] | %RUN: (_3 |)%RIFFLE: (30) |) 10 |
| EPA 4520 l D | oft/ 0.77 = 12.99 | | | 06/16/06 |



| JUID | CWARING CREEK | QH-M | DF083111-016 |
|--|---|---|--|
| ChicEPA | Qualitative Hab | itat Evaluation Index ssment Field Sheet | QHEI Score: |
| Stream & Location: | | <u>ร์ AltenNATE Roure</u> RI Rers Full Name & Affiliation: <u>B</u> | |
| River Code: - | - STORET #: | Lat./ Long.: | In Office verified |
| 1] SUBSTRATE Check | k ONLY Two substrate TYPE BOXES; ate % or note every type present | | (Or 2 & average) |
| BLOR/SLABS [10] BOULDER [0] COBBLE [8] GRAVEL [7] SAND [6] BEDROCK [5] | (I C HARDPAN (4) (I C DETRITUS (3) (I C DETRITUS (3) | OOL RIFFLE ORIGIN | QUALITY HEAVY(152) SILT MODERATE 1-11 Substr NORMAL 101 DECON MODERATE 1-11 MODERATE 1-11 MAXIM 20 NONE [1] |
| quality; 3-Highest quality i diameter log that is stable / UNDERCUT BANK 2 OVERHANGING VI SHALLOWS (IN SL ROOTMATS [1] Comments | n moderate or greater amounts (e.g., ven , well developed rootwad in deep / fast wi S [1]: GETATION [1] / ROOTWADS [1 OW WATER) [1] BOULDERS [1] | of highest quality or in small amounts of h y large boulders in deep or fast water, lar ater, or deep, well-defined, functional poo [2] OXBOWS BACKWATERS AQUATIC MACROPHYTES LOGS OR WOODY DEBRIS | lighest Check ONE (Or 2 & average) Js. IEXTENSIVE 75% [31] [1] IMODERATE 25-75% [7] [1] SPARSE 5<25% [3] |
| SINUOSITY DEV HIGH (4) CHODERATE (3) C LOW (2) | Image: Construction of the construc | TION STABILITY | Channel Maximum 20 |
| River right looking downstree EROSION | □ □ WIDE> 50m [4] □ □ MODERATE 10-50m [3] □ □ □ □ NARROW \$-10m [2] □ □] □ □ VERY NARROW \$-5m [1] □ □ | FLOOD PLAIN QUALITY FOREST, SWAMP [3] SHRUB OR OLD FIELD [2] RESIDENTIAL, PARK, NEW FIELD [1] FENCED PASTURE [1] | CONSERVATION TILLAGE [1] |
| 5] POOL / GLIDE AN MAXIMUM DEPTH Check ONE (ONLY!) □ > 1m [6] □ 0.7~1m(4] □ 0.4~0.7m(2] □ 0.2~0.4m [1] □ 2~0.2m [0] Comments | POOLWDTH = RIFFLE WIDTH [1] POOLWIDTH > RIFFLE WIDTH [0] | CURRENT VELOCITY Check ALL that apply TORRENTIAL [-1] SLOW[1] VERY FAST [1] INTERSTITIAL FAST [1] INTERMITTEN MODERATE [1] EDDIES [1] Indicate for reach - pools and riffles. | T.[-2] |
| Indicate for func of riffle-obligate RIFFLE DEPTH BESTAREAS > 10cm [2 BESTAREAS > 10cm [2 BESTAREAS > 10cm [2 BESTAREAS > 50cm [1 DESTAREAS > 5cm [1 Imetrice0 Comments | RUN DEPTH RIFFL MAXIMUM > 50cm [2] STABL MAXIMUM < 50cm [1] [] MOD S UNSTAL | E (Or 2 & average). E / RUN SUBSTRATE RIFFLE (eig. Cobble, Boulder) [2]. | *************************************** |
| 6] GRADIENT (DRAINAGE AREA (| ft/mi) UERY/LOW/2LOW/2-41, S MODERATE [6:10] mi ²) HIGH VERY/HIGH(10,6] | | GLIDE: Gradient IFFLE: 30 Maximum 10 |



| Pr-SDIC | tuarry Creek | WH-BAO | 083011-1 |
|--|--|--|--|
| ChicEPA | Qualitative Habitat Evand Use Assessmen | | QHEI Score: 56.5 |
| Stream & Location: | / | | M:Date: 8/ 30/ (1 |
| River Code: - | - STORFT #: Lat | t./ Long.: | homayer: URS Corp. 18. Office verified |
| 11 SUBSTRATE Check | ONLY Two substrate TYPE BOXES; | <u>83 - decimal °) - </u> | |
| BEGT TVDEG | ate % or note every type present OTHER TYPES POOL RIFE | ODION | (Or 2 & average) QUALITY |
| BLDR /SLABS [10] BOULDER [9] | □ □ HARDPAN [4] <u>10</u> 10 | | HEAVY [-2] |
| 🕅 🗖 COBBLE [8] | 40 40 🗍 MUCK [2] <u>5</u> | WETLANDS [0] | |
| 10 GRAVEL [7] | <u>25 26 [] (] SILT [2] 7.</u> | _ □ HARDPAN [0] _ □ SANDSTONE [0] | |
| | (Score natural substrates; ign | | DEONE MODERATE [-1] MODERATE [-1] NORMAL [0] NONE [1] |
| Comments | 3 or less [0] | | |
| | ` | COAL FINES [-2] | |
| • | R Indicate presence 0 to 3: 0-Absent; 1-Very small quality; 2-Moderate amounts, but not of highest c | quality or in small amounts of hi | ighest |
| diameter log that is stable | n moderate or greater amounts (e.g., very large bou , well developed rootwad in deep / fast water, or dee | ep, well-defined, functional poo | is. 🔲 EXTENSIVE >75% [11] |
| UNDERCUT BANK | | - OXBOWS, BACKWATERS AQUATIC MACROPHYTES | |
| SHALLOWS (IN SL ROOTMATS [1] | | LOGS OR WOODY DEBRIS | |
| Comments | Bernet, Autor mittale | | Cover Maximum 20 |
| 31 CHANNEL MORPH | IOLOGY Check ONE in each category (Or 2 & av | verane) | |
| SINUOSITY DEV | ELOPMENT CHANNELIZATION | STABILITY | |
| | XCELLENT [7] X NONE [6] SOOD [5] II RECOVERED [4] | MODERATE [2] | |
| 🗇 LOW [2] 🛛 🕅 🛱 | AIR [3] RECOVERING [3] | 📋 LOW [1] | Channel |
| Comments | | , Lij | Maximum 20 |
| 4) BANK EROSION A River right looking downstree | AND RIPARIAN ZONE Check ONE in each ca | | er bank & average) |
| EDORION | | LOOD PLAIN QUALITY | |
| B EROSION Image: B Image: B Image: B Image: B< | M MODERATE 10-50m [3] M M SHRUB | OR OLD FIELD [2] | URBAN OR INDUSTRIAL [0] |
| |] 🗌 🗍 VERY NARROW < 5m [1] 🔲 🗍 FENCE | D PASTURE [1] | Indicate predominant land use(s) |
| Comments | | ASTURE, ROWCROP [0] | past 100m riparian. Riparian 8 Maximum 8 |
| | | <u></u> | 10 |
| 5] POOL / GLIDE AN MAXIMUM DEPTH | <i>D RIFFLE / RUN QUALITY</i> CHANNEL WIDTH CI | URRENT VELOCITY | Recreation Potential |
| Check ONE (ONLY) | Check ONE (Or 2 & average) | Check ALL that apply | Primary Contact |
| 🗌 0.7-<1m [4] | POOL WIDTH = RIFFLE WIDTH [1] VERY I | FAST [1] 🗍 INTERSTITIAL | |
| 0.2-<0.4m [1] | POOL WIDTH < RIFFLE WIDTH [0] FAST [| RATE [1] EDDIES [1] | Pool / |
| ☐ < 0.2m [0] Comments | Indica | ate for reach - pools and riffles. | Current Maximum 12 |
| | tional riffles; Best areas must be large | | |
| of riffle-obligate RIFFLE DEPTH | | - | / RUN EMBEDDEDNESS |
| BEST AREAS > 10cm [2 |]MAXIMUM > 50cm [2] ⊠ STABLE (e.g., Co | bble, Boulder) [2] | |
| BEST AREAS 5-10cm [1 | UNSTABLE (e.g., | .g., Large Gravel) [1] Fine Gravel, Sand) [0] | MODERATE [0] Riffle / |
| <i>Comments</i> | 1 | | |
| 6] GRADIENT (4,84 | | %POOL: %0 | SLIDE: Gradient |
| DRAINAGE AREA (2・3 | MODERATE [6-10] (mi ²) HIGH - VERY HIGH [10-6] | | FFLE: Maximum |
| | 10f/2.05m= 4.88 | | 06/16/06 |
| | 1-1 - 1.00 | | |





APPENDIX D

OHIO EPA HHEI STREAM FORMS



| Alt-sola HH-MDT-083111-C |)3A |
|--|-----------------------------|
| ChieEPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : | 1 |
| SITE NAMELOCATION FE BDB- NC- AUT. ROWTE | |
| SITE NUMBER <u>3A</u> RIVER BASIN DRAINAGE AREA (mi ²) LENGTH OF STREAM REACH (ft) LATLONG RIVER CODE RIVER MILE DATE <u>083111</u> SCORER <u>B40</u> COMMENTS NT. NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru- STREAM CHANNEL INONE / NATURAL CHANNEL RECOVERED B-RECOVERING D RECENT OR NO RECOV MODIFICATIONS: W/IN KOW & APPENTS'TS HAVE BEEN CHANNEL | ctions VERY |
| 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. TYPE PERCENT D BLDR SLABS [16 pts] | HHEI Metric Points |
| BOULDER (>256 mm) [16 pts] Image: Comparison of the pts] | Substrate Max = 40 |
| Total of Percentages of (B) Bidr Slabs, Boulder, Cobble, Bedrock (C) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: | A+B |
| Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from read culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] | Pool Depth Max = 30 |
| COMMENTSNAXIMUM POOL DEPTH (centimeters): | |
| 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] > 1.0 m (< 3' 3") [5 pts] | Bankfuli Width Max=30 |
| COMMENTSAVERAGE BANKFULL WIDTH (metors) | \mathbf{S} |
| This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY INOTE: River Left (L) and Right (R) as looking downstream Intermediate to the construction of the constructin of the constructin of the construction of the construction of t | |
| Image: None Image: Im | |
| | |
| SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 - 1.5 2.5 >3 | |
| STREAM GRADIENT ESTIMATE Image: Stream Gradient Estimate < | £} |

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| QHEI PERFORMED? - 🗍 Yes 🕱 No QHEI Score DOWNSTREAM DESIGNATED USE(S) WWH Name: CWH Name: EWH Name: | Distance from Evaluated Stream |
|---|--|
| WWH Name: | |
| CWH Name: | |
| EWH Name: | Distance from Evaluated Stream |
| | Distance from Evaluated Stream |
| MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTI | RE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION |
| GS Quadrangle Name: | |
| unty: Lorain County Townsh | ip / City |
| MISCELLANEOUS | |
| se Flow Conditions? (Y/N): Date of last precipitation: | 1 K Quantity: |
| otograph Information: | |
| wated Turbidity? (Y/N): Canopy (% open): | |
| | |
| ere samples collected for water chemistry? (Y/N); (Note lab s | ample no. or id. and attach results) Lab Number: |
| ld Measures: Temp (°C) Dissolved Oxygen (mg/l) | pH (S.U.) Conductivity (µmhos/cm) |
| he sampling reach representative of the stream (Y/N) If not, p | lease explain: |
| | |
| | collections optional. NOTE: all voucher samples must be labeled with the sheets from the Primary Headwater Habitat Assessment Manual) |
| h Observed? (Y/N) Voucher? (Y/N) Salamanders Ob cgs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic | served? (Y/N) Voucher? (Y/N) |
| mments Regarding Biology: | |
| | |
| | |
| | |
| DRAWING AND NARRATIVE DESCRIPTION | OF STREAM REACH (This must be completed): |
| Include important landmarks and other features of interest for | site evaluation and a narrative description of the stream's locatio |
| Republic provent | (3 |
| | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
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| HUNITS FOR STATIS | +HH-MOT-083111-03B |
| .ow → [H+ 07+ 03+ | HHMUK-88311-6315 |
| .ow → [htt: 03+ [3] [3] [3] [3] [3] [3] [3] [3] [3] [3] | A HIM MUK- 98311-0310 |
| ow → [H+ 8 m - 3531] (H+ 8 m - 3531] | A HARMAR-0310 A HARM |

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June 20, 2008 Revision

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PHWH Form Page - 2

| Alt-SOID +14-MOT-083111-03B | |
|--|-------------------|
| ChieFPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : | 51 |
| SITE NAME/LOCATION FE 19015 - NC - ACT 120015 - DRAINAGE AREA (m ²)DRAINAGE AREA (m ²) | |
| LENGTH OF STREAM REACH (ft) LAT LONG RIVER CODE RIVER MILE | |
| DATE DE3111 SCORER B40 COMMENTS INTERMITTENT | |
| NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instru | căle esta î. |
| STREAM CHANNEL SINCE / NONE / NATURAL CHANNEL RECOVERED RECOVERING: RECENT OR NO RECO | |
| 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. | HHEI |
| TYPE PERCENT TYPE PERCENT D BLDR SLABS [16 pts] D SILT [3 pt] | Metric Points |
| | Substrate |
| COBBLE (65-256 mm) [12 pts] 10 CLAY or HARDPAN [0 pt] | Max = 40 |
| Image: Sand (<2 mm) [9 pts] | 31 |
| Total of Percentages of (A) | A+B |
| Bidr Stabs, Bouider, Cobble, Bedrock <u>)</u> 2 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: | |
| 2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of | Pool Depth |
| evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): > 30 centimeters [20 pts] > 30 centimeters [20 pts] | <u>Max = 30</u> |
| □ > 22.5 - 30 cm [30 pts] □ > 10 - 22.5 cm [25 pts] □ NO WATER OR MOIST CHANNEL [0 pts] | 15 |
| COMMENTSMAXIMUM POOL DEPTH (centimeters): | |
| 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): □ > 4.0 meters (> 13') [30 pts] □ > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] | Bankfull Width |
| > 4.0 meters (> 13') [30 pts] > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts] > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] ↓ ≤ 1.0 m (≤ 3' 3") [5 pts] > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] ↓ ≤ 1.0 m (≤ 3' 3") [5 pts] | Max=30 |
| COMMENTSAVERAGE BANKFULL WIDTH (mgters) | 5 |
| | |
| This information <u>must</u> also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ứNOTE: River Left (L) and Right (R) as looking downstream | |
| L R (Per Bank) L R (Most Predominant per Bank) L R 🛙 🖾 Wide >10m 😥 🖾 Mature Forest, Wetland 🗖 🗖 Conservation Tillage | |
| Moderate 5-10m Immature Forest, Shrub or Old I Urban or Industrial | |
| Image: Narrow <5m | |
| Image: None Image: Fenced Pasture Image: Mining or Construction COMMENTS | |
| FLOW REGIME (At Time of Evaluation) (Check ONLY one box); Stream Flowing Stream Flowing Subsurface flow with isolated pools (Interstitial) Dry channel, isolated pools, no flow (Intermittent) COMMENTS | |
| SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 1.5 2.5 >3 | |
| STREAM GRADIENT ESTIMATE | π) |
| | |

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| | HH-MOT-083111-038 |
|---|--|
| ADDITIONAL STREAM INFORMATION (This information N | lust Also be Completed): |
| QHEI PERFORMED? - 🗖 Yes 🗶 No QHEI Sco | ore (If Yes, Attach Completed QHEI Form) |
| DOWNSTREAM DESIGNATED USE(S) | |
| | Distance from Evaluated Stream |
| | Distance from Evaluated Stream Distance from Evaluated Stream |
| | G THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION |
| | NRCS Soil Map Page: NRCS Soil Map Stream Order |
| | Township / City: |
| MISCELLANEOUS | |
| | Name () H di-) and the |
| Base Flow Conditions? (17/N): Date of fast precipital | tion:Quantity: |
| | |
| Elevated Turbidity? (Y/N): Canopy (% open): | |
| | (Note lab sample no. or id, and attach results) Lab Number: |
| Field Measures: Temp (°C) Dissolved Oxygen (n | ng/l) pH (S.U.) Conductivity (µmhos/cm) |
| Is the sampling reach representative of the stream (Y/N) | If not, please explain: |
| | ····· |
| Additional comments/description of pollution impacts: | |
| | |
| BIOTIC EVALUATION | |
| | s. Voucher collections optional. NOTE: all voucher samples must be labeled with the site |
| ID number. Include appropriat | e field data sheets from the Primary Headwater Habitat Assessment Manual) |
| Fish Observed? (Y/N) Voucher? (Y/N) Salam Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) | nanders Observed? (Y/N) Voucher? (Y/N) Voucher? (Y/N) Voucher? (Y/N) |
| Comments Regarding Biology | |
| | |
| | |
| | RIPTION OF STREAM REACH (This <u>must</u> be completed): |
| include important landmarks and other features of in | nterest for site evaluation and a narrative description of the stream's location |
| WT STALL LOOK J | L + HK- MON- CALIFIC CON (100000) |
| in an CORE | |
| 1 George CS | |
| | FOOL PECKDER |
| FLOW TO Pace | the V2 A T |
| BEAREN | |
| CMEED V | as mile 144-055447-034 |
| r 1 12 | C I Contra - |
| Fre Room 1 CT | φ , φ |
| × × | OAK/HICKONY/ASA T |
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| June 20, 2018 Revision | WOCDEP |
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| Alt-502 ##-MDT-083111-02 |
|---|
| ChieEPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 19 |
| SITE NAMELOCATION BUB-NC-ALTORNATE 1007 |
| SITE NUMBER RIVER BASIN DRAINAGE AREA (mi²) LENGTH OF STREAM REACH (#) LAT LONG RIVER CODE RIVER MILE |
| DATE 083011 SCORER RAD COMMENTS EPH. |
| NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions |
| STREAM CHANNEL INONE / NATURAL CHANNEL RECOVERED RECOVERING RECENT OR NO RECOVERY MODIFICATIONS: From DRAWAGE IN FIELD |
| 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. |
| TYPE PERCENT TYPE PERCENT U BLDR SLABS [16 pts] U SILT [3 pt] Percent Percent |
| |
| COBBLE (65-256 mm) [12 pts] 10 CLAY or HARDPAN [0 pt] 40 |
| Image: SaND (<2 mm) [9 pts] |
| |
| Bidr Slabs, Boulder, Cobble, Bedrock 25 A+B SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: |
| 2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of Pool Depth evaluation. Avoid plunge pools from road cutverts or storm water pipes) (Check ONLY one box): Max = 30 |
| > 30 centimeters [20 pts] > 5 cm + 10 cm [15 pts] |
| > 22.5 - 50 cm [35 pts] > 10 - 22.5 cm [25 pts] 0 0 0 |
| COMMENTSMAXIMUM POOL DEPTH (centimeters): |
| 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bankfull □ >4.0 meters (> 13') [30 pts] □ > 1.0 m - 1.5 m (> 3'.3" - 4'.8") [15 pts] Width □ >3.0 m - 4.0 m (> 9'.7" - 13') [25 pts] ☑ ≤ 1.0 m (≤ 3'.3") [5 pts] Max=30 > 1.5 m - 3.0 m (> 4'.8" - 9'.7") [20 pts] ☑ ≤ 1.0 m (≤ 3'.3") [5 pts] □ |
| COMMENTSAVERAGE BANKFULL WIDTH (TDATAST |
| |
| This information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY 화NOTE: River Left (L) and Right (R) as looking downstream쓝 PIDA PLAN WEDTLY |
| RIPARIAN WIDTH FLOODPLAIN QUALITY L R (Per Bank) L R (Most Predominant per Bank) L R |
| Image: |
| Imaculate of your Pasture, Row |
| None Cop Fenced Pasture Crop Mining or Construction |
| COMMENTS |
| FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS COMMENTS |
| SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 1.5 2.5 >3 |
| STREAM GRADIENT ESTIMATE |
| Flat (0.5 fl/100 /k) Flat to Moderate Moderate Moderate (2 // 100 /k) Moderate to Severe Severe (10 // 100 /k) |

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PHWH Form Page - 1

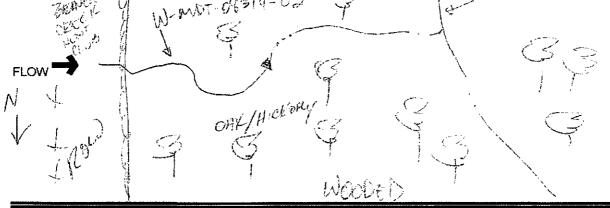
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| | HH-MDT-083111-02 |
|---|--|
| ADDITIONAL STREAM INFORMATION (This information Must Also be Completed): | |
| QHEI PERFORMED? - 🗍 Yes 🗩 No QHEI Score (If Yes, All | tach Completed QHEI Form) |
| DOWNSTREAM DESIGNATED USE(S) | |
| 🗇 WWH Name: | |
| CWH Name: | |
| EWH Name: | |
| MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE <u>ENTIRE</u> WATERSHE | ED AREA. CLEARLY MARK THE SITE LOCATION |
| USGS Quadrangle Name: NRCS Soil Map | |
| county: LOCAIN COUNTY Township / City: | |
| MISCELLANEOUS | |
| Base Flow Conditions? (Y/N): Date of last precipitation: | Quantity: |
| Photograph Information: | |
| Elevated Turbidity? (Y/N): Canopy (% open): | |
| Were samples collected for water chemistry? (Y/N): (Note lab sample no. or id. | and attach results) Lab Number: |
| Field Measures: Temp (°C) Dissolved Oxygen (mg/l) pH (S.U.) Is the sampling reach representative of the stream (Y/N) If not, please explain: | |
| Additional comments/description of pollution impacts: | |
| BIOTIC EVALUATION | 11 |
| Performed? (Y/N): (If Yes, Record all observations. Voucher collections option ID number. Include appropriate field data sheets from the P | |
| Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observed? (Y/N) Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Macroinvertebr | |
| Comments Regarding Biology: | |
| | |
| DRAWING AND NARRATIVE DESCRIPTION OF STREAM | A REACH (This <u>must</u> be completed): and a narrative description of the stream's location |

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PHWH Form Page - 2

| AH-503 HH-MOT-083111-01 EPH |
|---|
| ChisEPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 13 |
| SITE NAME/LOCATION <u>FF /SDB - NC - ACT. Route</u> |
| LENGTH OF STREAM REACH (ft) LAT LONG RIVER CODE RIVER MILE |
| DATE <u>() 8-3 I- //</u> SCORER <u>BPO</u> COMMENTS NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions |
| STREAM CHANNEL |
| MODIFICATIONS: ORIGINATES FROM DEATMAGE THE, DRAINAGE THE OBSERVED EV/M CHANNE |
| 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. HHEI Metric Percent TYPE BLDR SLABS [16 pts] PERCENT TYPE PERCENT |
| Total of Percentages of Bidr Slabs, Boulder, Cobble, Bedrock <u>30</u> (A) <u>3</u> SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: A + B |
| Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box); > 30 centimeters [20 pts] > 22.5 - 30 cm [30 pts] > 10 - 22.5 cm [25 pts] NO WATER OR MOIST CHANNEL [0 pts] |
| COMMENTSMAXIMUM POOL DEPTH (centimeters): |
| 3.BANK FULL WIDTH (Measured as the average of 3-4 measurements) > 4.0 meters (> 13') [30 pts]Check ONLY one box): $1.0 m. + 1.5 m. (> 3' 3" + 4' 6") [15 pts]BankfullWidthMax=30> 3.0 m. + 4.0 m. (> 9' 7" + 13') [25 pts]\square> 1.0 m. (> 3' 3") [5 pts]Max=30> 1.5 m 3.0 m. (> 4' 8" - 9' 7") [20 pts]\square\square\square\square$ |
| COMMENTSAVERAGE BANKFULL WIDTH (meters) |
| This Information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY INNOTE: River Left (L) and Right (R) as looking downstream Interpreted in the second downstream Interpreted in the second downstream Interpreted in the second downstream Interpreted downstream Interpre |
| |
| Image: Narrow <5m |
| FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS COMMENTS |
| SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 1.5 2.5 5. |
| STREAM GRADIENT ESTIMATE |
| PHWH Form Page - 1 |

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| QHEI PERFORMED? - 🗍 Yes 🖾 No QHEI Score | (If Yes, Attach Completed QHEI Form) |
|--|--|
| DOWNSTREAM DESIGNATED USE(S) | |
| D WWH Name: | Distance from Evaluated Stream |
| CWH Name: | |
| D EWH Name: | Distance from Evaluated Stream |
| MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE | WATERSHED AREA. CLEARLY MARK THE SITE LOCATION |
| USGS Quadrangle Name: NR(| |
| County: LOracin County Township/ | City: |
| MISCELLANEOUS | |
| Base Flow Conditions? (Y/N): Date of last precipitation: | <u></u> Quantity: |
| | |
| Photograph Information: | |
| Elevated Turbidity? (Y/N): Canopy (% open): | |
| Were samples collected for water chemistry? (Y/N): (Note lab sam | ple no, or id. and attach results) Lab Number: |
| Field Measures: Temp (°C) Dissolved Oxygen (mg/l) | pH (S.U.) Conductivity (µmhos/cm) |
| Is the sampling reach representative of the stream (Y/N) If not, pleas | |
| | с сарані |
| | |
| Additional comments/description of pollution impacts: | ······ |
| | |
| BIOTIC EVALUATION | |
| Performed? (Y/N): (If Yes, Record all observations. Voucher colle | ctions optional. NOTE: all voucher samples must be labeled with the site |
| | ets from the Primary Headwater Habitat Assessment Manual) |
| Fish Observed? (Y/N) Voucher? (Y/N) Salamanders Observ | red? (Y/N) Voucher? (Y/N) |
| Frogs or Tadpoles Observed? (Y/N) Voucher? (Y/N) Aquatic Ma | |
| Comments Regarding Biology: | |

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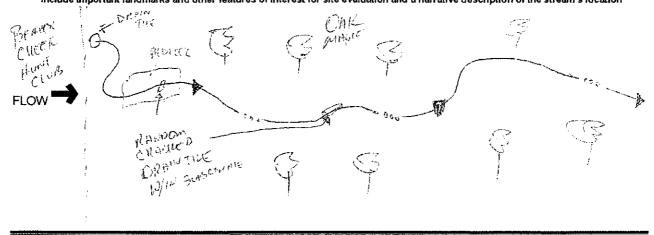
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include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



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| Alt-504 HH-MDT-091511-01 | |
|--|--------|
| ChieFPA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : 12 | |
| SITE NAMELOCATION FE BOB - NC - ALTERNATE ROUTE DRAINAGE AREA (mi ²) | ł |
| LENGTH OF STREAM REACH (ft) LAT LONG RIVER CODE RIVER MILE DATE <u>09151</u> SCORER <u>B40, mor_</u> COMMENTS <u>EPHEIMERCHL</u> - <u>No Fro</u> w NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions | |
| STREAM CHANNEL SIN THIS FORM - REFER TO THEIR EVENDATION MINIMUMATION ON STITUTION OF THE RECOVERY MODIFICATIONS: | |
| 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONL Y two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. HHE TYPE PERCENT TYPE PERCENT BUDR SLABS [16 pts] PERCENT SILT [3 pt] BOULDER (>256 mm) [16 pts] BOULDER (>256 mm) [12 pts] BOULDER (>264 mm) [16 pts] BOULDER | C S |
| Total of Percentages of (A) Bldr Slabs, Boulder, Cobble, Bedrock 10 (A) SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: TOTAL NUMBER OF SUBSTRATE TYPES: 4 A + B | |
| 2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): Max = 3 > 30 centimeters [20 pts] > 5 cm - 10 cm [15 pts] > 5 cm [5 pts] Max = 3 > 22.5 - 30 cm [30 pts] > 6 cm [5 pts] > 0 WATER OR MOIST CHANNEL [0 pts] O | |
| COMMENTSMAXIMUM POOL DEPTH (centimeters); | |
| 3.BANK FULL WIDTH (Measured as the average of 3-4 measurements)(Check ONLY one box): $1.5 \text{ m} (> 3' 3'' - 4' 8'')$ [15 pts]Bankful Width $1.5 \text{ m} (> 3' 3'' - 4' 8'')$ [15 pts]Bankful Width $1.5 \text{ m} (> 3' 3'')$ [5 pts]Bankful Width $1.5 \text{ m} (> 3' 3'')$ [5 pts] $0 > 1.5 \text{ m} - 3.0 \text{ m} (> 4' 8'' - 9' 7'')$ [20 pts] $0 > 1.0 \text{ m} (\le 3' 3'')$ [5 pts] $1.6''$ | |
| COMMENTSAVERAGE BANKFULL WIDTH (meters) | |
| This Information must also be completed RIPARIAN ZONE AND FLOODPLAIN QUALITY ŵNOTE: River Left (L) and Right (R) as looking downstream ŵ RIPARIAN WIDTH FLOODPLAIN QUALITY Immature Forest, River Left (L) and Right (R) as looking downstream ŵ L R (Per Bank) L R Immature Forest, Wetland Immature Forest, Wetland Immature Forest, Shrub or Old Immature Forest, Shrub or Old Immature Forest, Shrub or Old Immature Forest, Shrub or Old Immature, Row Immature, Row Immature Som Immature Forest Pasture Immature, Row Immature, Row Immature Forest None Immature Forest Immature, Row Immature Forest Fenced Pasture Immature, Row Immature Forest Immature, Row Immature, Row | |
| FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) Subsurface flow with isolated pools (Interstitial) Dry channel, no water (Ephemeral) COMMENTS COMMENTS | |
| SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): None 1.0 2.0 3.0 0.5 1.5 2.5 5 | |
| STREAM GRADIENT ESTIMATE | |

| DDITIONAL STREAM INFORMATION (This Information Must Al | iso be Completed): | |
|---|---|------------------|
| QHEI PERFORMED? - 🗍 Yes 🗵 No QHEI Score | (If Yes, Attach Completed QHEI Form) | |
| DOWNSTREAM DESIGNATED USE(S) | | |
| | Distance from Evaluated Stream | |
| | Distance from Evaluated Stream | |
| | | |
| · · · · · | ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION | |
| | NRCS Soil Map Page: NRCS Soil Map Stream Order | |
| county: 60rain Ton | wnship / City | |
| MISCELLANEOUS | | |
| Base Flow Conditions? (Y/N): Date of last precipitation: | UKN Quantity: | |
| Photograph Information: | | |
| Elevated Turbídity? (Y/N):/ Canopy (% open):/ | 15 | |
| | iab sample no. or id. and attach results) Lab Number; | |
| | | |
| | pH (S.U.) Conductivity (µmhos/cm) | |
| s the sampling reach representative of the stream (Y/N) If no | ot, please explain: | |
| BIOTIC EVALUATION | | |
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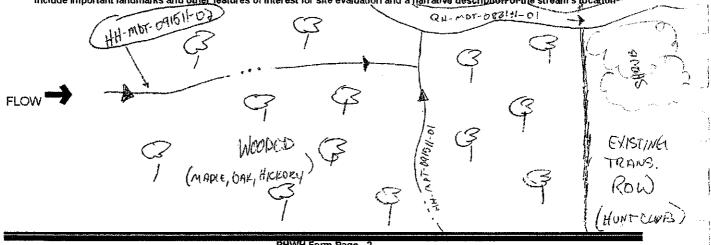
No. Contraction ••••••

June 20, 2008 Revision

| Alt-505 +++-MDT-091571- | -02 |
|--|------------|
| ChieFA Primary Headwater Habitat Evaluation Form HHEI Score (sum of metrics 1, 2, 3) : // | |
| SITE NAMELOCATION FE BOB - NC - ALTERNATE ROUTE | |
| SITE NUMBER RIVER BASIN DRAINAGE AREA (mi²) | |
| LENGTH OF STREAM REACH (ft) LAT LONG RIVER CODE RIVER MILE | |
| DATE 091511 SCORER 1840 COMMENTS EPHEMERAL - NO FLOW | |
| NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PHWH Streams" for Instructions | |
| | · · . |
| | |
| 1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 40). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B. | FI |
| TYPE PERCENT TYPE PERCENT Met | ric |
| Poir BLDR SLABS (16 pts) The provide the provident provides the p | nts |
| BOULDER (>256 mm) [16 pts] Ø LEAF PACKWOODY DEBRIS [3 pts] 400 BEDROCK [16 pt] Ø FINE DETRITUS [3 pts] 400 | trate |
| Image: Solution of the second seco | = 40 |
| GRAVEL (2-64 mm) [9 pts] / / | |
| SAND (<2 mm) [6 pts] ARTIFICIAL [3 pts] () | |
| Total of Percentages of (A) A+1 | 2000 C |
| Bidr Slabs, Boulder, Cobbie, Bedrock 3 SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 3 TOTAL NUMBER OF SUBSTRATE TYPES: | |
| 2. Maximum Pool Depth (Measure the maximum pool depth within the 51 meter (200 ft) evaluation reach at the time of Pool D |)epth |
| evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box): | = 30 |
| □ > 30 centimeters [20 pts] □ > 22.5 - 30 cm [30 pts] | ר ד |
| □ > 22.5 - 30 cm [30 pts] □ < 5 cm [5 pts] □ < 5 cm [5 pts] □ > 10 - 22.5 cm [25 pts] □ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ | |
| COMMENTSMAXIMUM POOL DEPTH (centimeters): | |
| 3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box): Bank | เกินไ |
| □ > 4.0 meters (> 13') [30 pts] □ > 1.0 m - 1.5 m (> 3'.3", -4'.8") [15 pts] Widt □ > 3.0 m - 4.0 m (> 6'.7" - 13') [25 pts] ☑ > 1.0 m (≤ 3'.3") [5 pts] Max= | |
| □ > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts] □ > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts] | <u></u> |
| 4 1 15 | |
| COMMENTSAVERAGE BANKFULL WIDTH (metors) | |
| This information <u>must</u> also be completed | |
| RIPARIAN ZONE AND FLOODPLAIN QUALITY ANOTE: River Left (L) and Right (R) as looking downstream of | |
| RIPARIAN WIDTH FLOODPLAIN QUALITY | |
| L R (Per Bank) L R (Most Predominant per Bank) L R Ø Ø Wide >10m Ø Ø Auture Forest, Wetland D D Conservation Tillage | |
| Moderate 5-10m Minimature Forest, Shrub or Old I Urban or Industrial | |
| | |
| LI Narrow <5m LI Residential, Park, New Field LI Crop | |
| Image: None Image: Descent Pasture Image: Descent Pasture COMMENTS Image: Descent Pasture Image: Descent Pasture | |
| | |
| FLOW REGIME (At Time of Evaluation) (Check ONLY one box): Stream Flowing Moist Channel, isolated pools, no flow (Intermittent) | |
| Subsurface flow with isolated pools (Interstitial) Subsurface flow with isolated pools (Interstitial) Subsurface flow with isolated pools (Interstitial) | |
| COMMENTS | |
| SINUO SITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box): | |
| ↓ None ↓ 1.0 ↓ 2.0 ↓ 3.0 ☑ 0.5 □ 1.5 □ 2.5 □ >3 | |
| | |
| STREAM GRADIENT ESTIMATE Stat (0.5 ft/100 ft) Severe (10 ft/100 ft) Severe (10 ft/100 ft) | |
| | |

.

HH-MOT-091511-02 ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed): QHEI PERFORMED? - O Yes Allo QHEI Score _____ (If Yes, Atlach Completed QHEI Form) DOWNSTREAM DESIGNATED USE(S) 🗇 WWH Name: ______ Distance from Evaluated Stream ______ CWH Name: _____ Distance from Evaluated Stream _____ D EWH Name: _____ Distance from Evaluated Stream _____ MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION NRCS Soil Map Page:_____ NRCS Soil Map Stream Order _____ USGS Quadrangle Name: _____ Township / City:_____ County: MISCELLANEOUS Base Flow Conditions? (Y/N): _____ Date of last precipitation: _____/K/___ Quantity: ______ Photograph Information: Elevated Turbidity? (Y/N): _____ Canopy (% open): _____ Were samples collected for water chemistry? (Y/N): _____ (Note lab sample no. or id. and attach results) Lab Number: _____ Field Measures: Temp (°C)_____ Dissolved Oxygen (mg/) _____ pH (S.U.) _____ Conductivity (µmhos/cm) ______ Additional comments/description of pollution impacts: BIOTIC EVALUATION Performed? (Y/N): _____ (If Yes, Record all observations. Voucher collections optional. NOTE; all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual) Fish Observed? (Y/N)____ Voucher? (Y/N)____ Salamanders Observed? (Y/N)____ Voucher? (Y/N)_ Frogs or Tadpoles Observed? (Y/N)____ Voucher? (Y/N)____ Aquatic Macroinvertebrates Observed? (Y/N)____ Voucher? (Y/N)____ Comments Regarding Biology. DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed): Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location



PHWH Form Page - 2



APPENDIX E

DELINEATED FEATURES PHOTOGRAPHS





E1 – WETLANDS





FirstEnergy

Site Location:

Beaver-Brownhelm Junction (Alternate Route)

Project No. 14950065

Photo No. 1

Date:

May 18, 2011

Description:

Wetland Pr-w01

PEM





PHOTOGRAPHIC RECORD

Wetlands

Client Name:

FirstEnergy

Site Location:

Beaver-Brownhelm Junction (Alternate Route)

Project No. 14950065

Photo No. 3 Date: May 18, 2011 **Description:** Wetland Pr-w03 PEM





PHOTOGRAPHIC RECORD

Wetlands

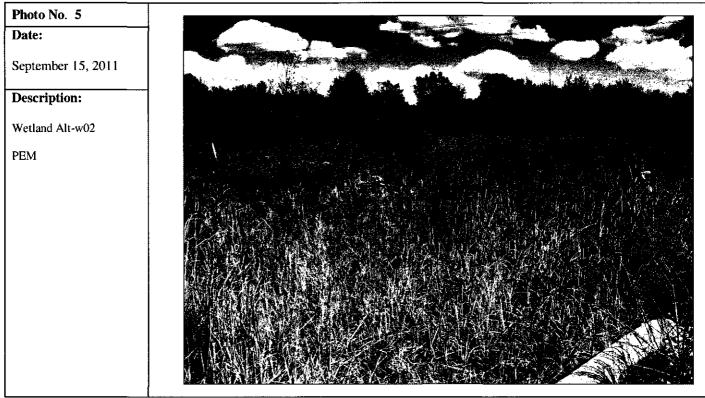
Client Name:

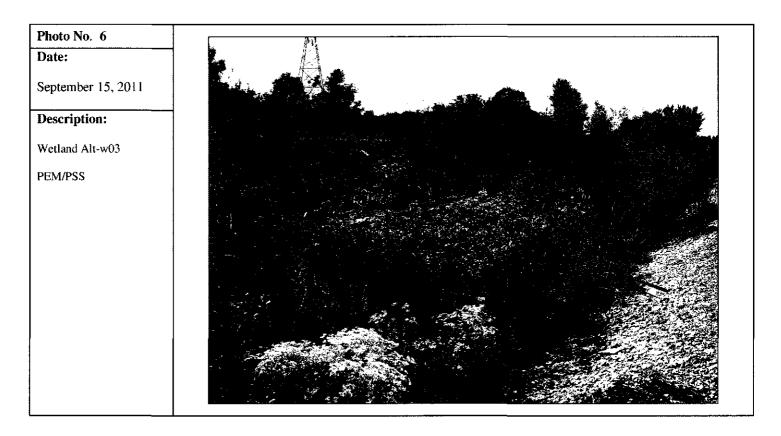
FirstEnergy

Site Location:

Beaver-Brownhelm Junction (Alternate Route)

Project No. 14950065







Client Name:

FirstEnergy

Date:

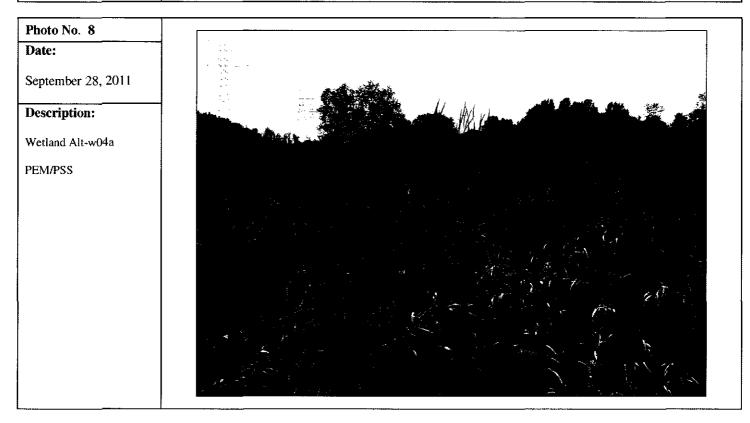
PEM/PSS

Site Location:

Beaver-Brownhelm Junction (Alternate Route)

Project No. 14950065

Photo No. 7 September 27, 2011 **Description:** Wetland Alt-w04b





Client Name: FirstEnergy

Site Location:

Beaver-Brownhelm Junction (Alternate Route)

Project No.

14950065

Photo No. 9 Date: September 28, 2011 Description: Wetland Alt-w05b PFO/PEM





Client Name:

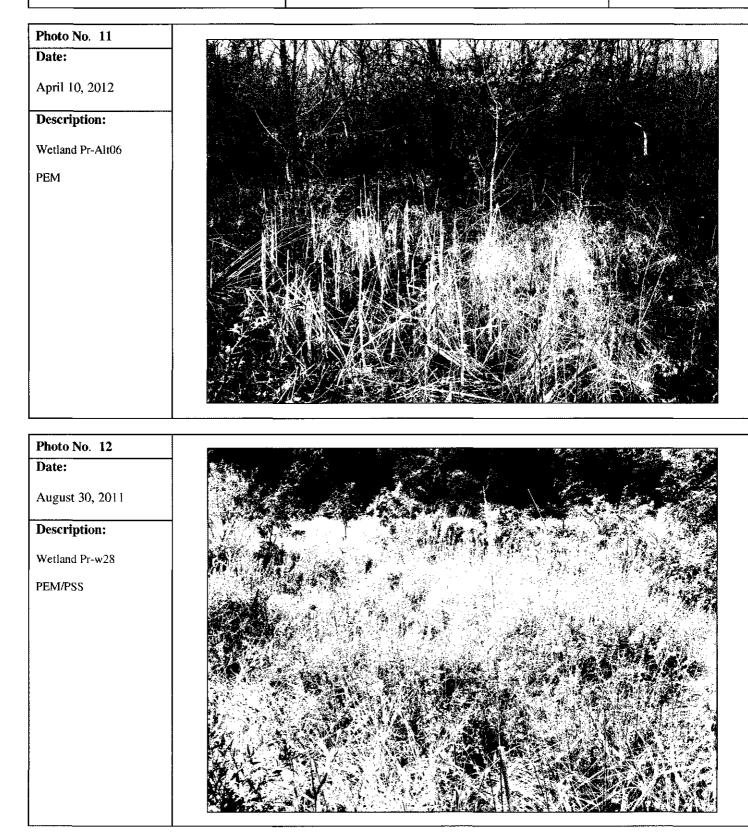
FirstEnergy

Site Location:

Beaver-Brownhelm Junction (Alternate Route)

Project No.

14950065





E2 – QHEI STREAMS





PHOTOGRAPHIC RECORD QHEI Streams

Site Location:

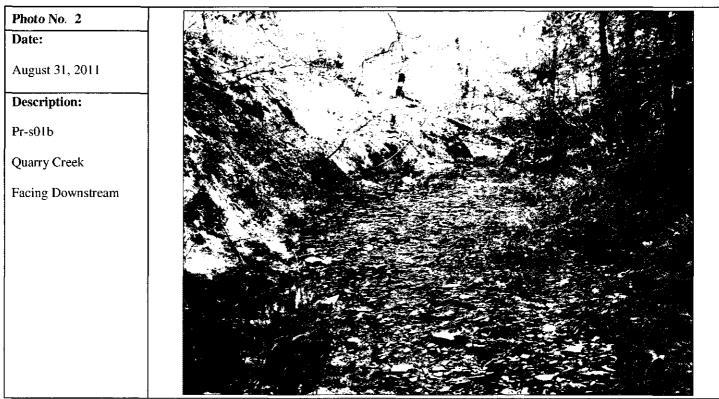
Project No.

FirstEnergy

Beaver-Brownhelm Junction (Alternate Route)

14950065







PHOTOGRAPHIC RECORD QHEI Streams

Client Name:

FirstEnergy

Site Location:

Beaver-Brownhelm Junction (Alternate Route)

Project No. 14950065

| Photo No. 3 | |
|-----------------|--|
| Date: | |
| August 30, 2011 | |
| Description: | |
| Pr-s01c | |
| Quarry Creek | |
| Facing Upstream | |

E3 – HHEI STREAMS





PHOTOGRAPHIC RECORD HHEI Streams

Client Name: FirstEnergy Site Location:

Beaver-Brownhelm Junction (Alternate Route)

Project No. 14950065

| Photo No. 1 | TAKANA TATAN TATAN ANA TATAN TATA |
|---|---|
| Date: | |
| August 31, 2011 | |
| Description: | |
| Alt-s01a | |
| Intermittent Stream | |
| Facing Downstream | |
| (stream channel is obscured by vegetation) | |
| | |
| Photo No. 2 | |
| Date: | |
| August 31, 2011 | |
| Description: | |
| Alt-s01b | |
| Intermittent Stream | |
| Facing Downstream | |
| | |
| | |
| | |
| | |
| | |



PHOTOGRAPHIC RECORD HHEI Streams

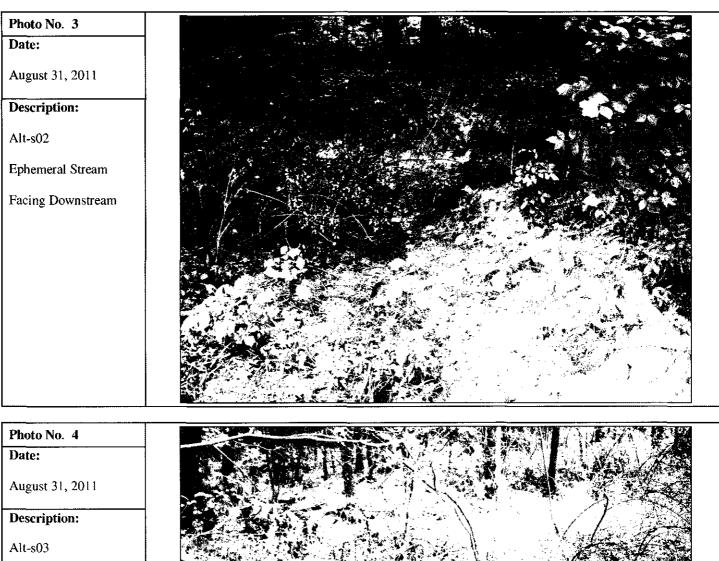
Client Name:

FirstEnergy

Site Location:

Beaver-Brownhelm Junction (Alternate Route)

Project No. 14950065



Ephemeral Stream

Facing Downstream





PHOTOGRAPHIC RECORD HHEI Streams

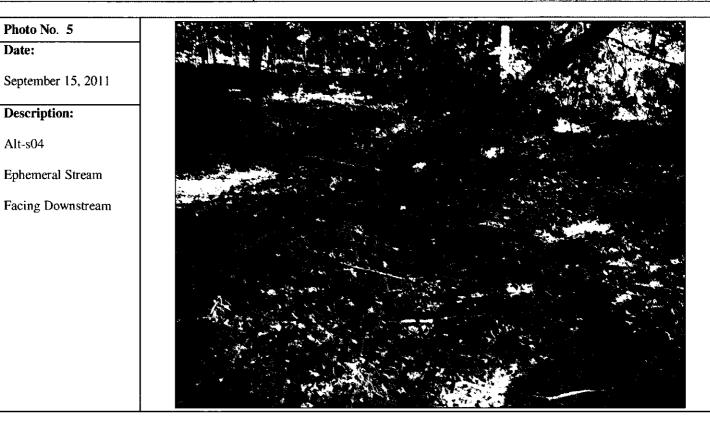
Client Name:

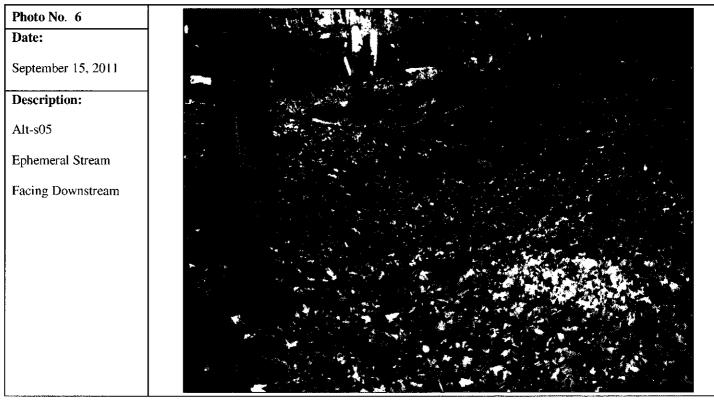
FirstEnergy

Site Location:

Beaver-Brownhelm Junction (Alternate Route)

Project No. 14950065







E4 – PONDS





PHOTOGRAPHIC RECORD Ponds

Client Name:

FirstEnergy

Site Location:

Beaver-Brownhelm Junction (Preferred Route)

Project No. 14950065

| Photo No. 1 | |
|------------------|--|
| Date: | |
| August 30, 2011 | |
| Description: | |
| Pr-p02 | |
| Facing southeast | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |





AVON-BEAVER #1 345 KV TRANSMISSION LINE RELOCATION PORTION OF THE BEAVER TO BROWNHELM JUNCTION 345 KV TRANSMISSION LINE PROJECT

WETLAND DELINEATION AND STREAM ASSESSMENT REPORT

Prepared for: American Transmission Systems, Incorporated a subsidiary of FirstEnergy Corp 76 South Main Street Akron, Ohio 44308





525 Vine Street, Suite 1800 Cincinnati, Ohio 45202

July 2012



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APPENDICES

Appendix

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- C Ohio EPA HHEI Stream Forms
- D Delineated Features Photographs
 - D1 Wetlands
 - D2 HHEI Streams



LIST OF ACRONYMS

| ATSI | American Transmission Systems, Incorporated |
|--------------|---|
| EPA | Environmental Protection Agency |
| FAC | Facultative |
| FACU | Facultative upland |
| FACW | Facultative wetland |
| GPS | Global Positioning System |
| HHEI | Headwater Habitat Evaluation Index |
| HUC | Hydrologic unit code |
| NRCS | National Resource Conservation Service |
| NWI | National Wetlands Inventory |
| OBL | Obligate wetland |
| OHWM | Ordinary high water mark |
| ORAM | Ohio Rapid Assessment Method |
| PEM | Palustrine emergent |
| PHWH | Primary Headwater Habitat |
| PSS | Palustrine scrub/shrub |
| QHEI | Qualitative Habitat Evaluation Index |
| ROW | Right-of-way |
| UPL | Upland |
| U.S . | United States |
| USACE | United States Army Corps of Engineers |
| USDA | United States Department of Agriculture |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |



1.0 INTRODUCTION

American Transmission Systems, Incorporated ("ATSI"), a subsidiary of FirstEnergy Corp., is proposing to construct approximately 2.8 miles of new 345 kV transmission line from the Beaver Substation to an existing FirstEnergy transmission line. The new transmission line will be constructed with a combination of wood and steel pole construction in the existing right-of-way. The majority of the new construction will be for the Beaver-Carlisle 345 kV Transmission Line; although immediately adjacent to the Beaver Substation it will be used for the Avon-Beaver #2 345kV Transmission Line. Several of the last 345 kV line spans connected to the Beaver substation will be swung over one bay to avoid line crossings. As a result of moving the lines over one bay, the Avon-Beaver #1 345 kV Transmission Line must be relocated. The Project is referred to as the Beaver to Brownhelm Junction 345 kV New Construction Transmission Line Project and is illustrated on Figure 1.

This portion of the Project requires relocating approximately 0.40 miles of the transmission line to the east of Beaver Substation. This portion of the Project will exit the north side of the Beaver Substation, travel north for approximately 300 feet before heading east approximately 270 feet, and finally the route heads south approximately 1,550 feet (0.29-mile) where it will tie into the existing line that continues east.

To the extent practical, ATSI has taken advantage of existing electric transmission line corridors during the planning and routing of the proposed Project. As a result, the entire portion of the proposed Project route will closely parallel the existing Beaver Substation fenceline and the existing electric transmission line corridor.

Land uses crossed by the Project 200-foot survey corridor were assigned a general classification based upon the principal land characteristics of the location as observed from within a given area, aerial photograph review, and field surveys. Four general land use types will be crossed by the proposed Project (old field, young deciduous forest, scrub/shrub uplands, and wetlands). The dominant land uses within the Project 200-foot wide survey corridor are young deciduous forest and scrub/shrub upland.

2.0 METHODOLOGY

The purpose of this survey was to determine whether evidence of wetlands and "waters of the U.S." may exist in within the project area. Prior to conducting field surveys, digital and published county Natural Resource Conservation Service (NRCS) soil surveys, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, and U.S. Geological



URS

Survey (USGS) 7.5-minute topographic maps were reviewed as an exercise to determine the occurrence and location of potential wetland areas.

In April 2012, URS biologists walked the Project study corridor to conduct a waterbody and wetland delineation. The study corridor was determined by buffering the centerline of the proposed transmission line by 100-feet on each side, totaling a 200-foot-wide study corridor.

During field surveys, the physical boundaries of observed water features were recorded using sub-meter accurate Trimble Global Positioning System (GPS) units. The GPS data were then reviewed and edited for errors.

The field survey results presented herein apply to the existing and reasonably foreseeable site conditions at the time of our assessment. They cannot apply to site changes of which URS is unaware and has not had the opportunity to review. Changes in the condition of a property may occur with time due to natural processes or human impacts at the project site or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the expansion of knowledge over time. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond the control of URS.

2.1 WETLAND DELINEATION

The Project survey corridor was evaluated according to the procedures outlined in the U.S. Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual (1987 Manual) (Environmental Laboratory, 1987) and the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Interim Regional Supplement) (USACE, 2009). The Interim Regional Supplement was released in October, 2009 by the USACE to address regional wetland characteristics and improve the accuracy and efficiency of wetland delineation procedures. The 1987 Manual and Interim Regional Supplement define wetlands as areas that have positive evidence of three environmental parameters: hydric soils, wetland hydrology, and hydrophytic vegetation. Wetland boundaries are placed where one or more of these parameters give way to upland characteristics.

Since quantitative data were not available for any of the identified wetlands, URS utilized the routine delineation method described in both the 1987 Manual and the Interim Regional Supplement that consisted of a pedestrian site reconnaissance, including identifying the vegetation communities, soils identification, a geomorphologic assessment of hydrology, and notation of disturbance. The methodology used to examine each parameter is described in the



following sections. Completed USACE wetland delineation forms recorded for the site are provided in Appendix A.

2.1.1 SOILS

Soils were examined using a hand auger to extract soil cores. These cores were examined for hydric soil characteristics. A *Munsell Soil Color Chart* (Kollmorgen Corporation, 1988) was used to identify the hue, value, and chroma of the matrix and mottles of the soils. Generally, mottled soils with a matrix chroma of two or less, or unmottled soils with a matrix chroma of one or less are considered to exhibit hydric soil characteristics (Environmental Laboratory, 1987). In sandy soils, mottled soils with a matrix chroma of three or less, or unmottled soils with a matrix chroma of the amatrix chroma of three or less, or unmottled soils with a matrix chroma of two or less are considered to be hydric soils.

Six soil map units from five soil series are mapped within the limits of the Project survey corridor (USDA 2011). Table 1 provides a list of these soil map units along with their basic attributes.

According to the *Web Soil Survey* (USDA, 2011) and the Natural Resources Conservation Services Hydric Soils List of Ohio, three soil map units from three soil series within the Project survey boundary are listed as containing a hydric component.

2.1.2 HYDROLOGY

The *1987 Manual* requires that an area be inundated or saturated to the surface for an absolute minimum of five percent of the growing season (areas saturated between five percent and 12.5 percent of the growing season may or may not be wetlands, while areas saturated over 12.5 percent of the growing season fulfill the hydrology requirements for wetlands). The regional supplement states that the growing season dates are determined through onsite observations of the following indicators of biological activity in a given year: (1) above-ground growth and development of vascular plants, and/or (2) soil temperature (12-in. depth of 41 degrees Fahrenheit (°F) or higher) as an indicator of soil microbial activity. Therefore, the beginning of the growing season in a given year is indicated by whichever condition occurs earlier, and the end of the growing season by whichever persists later.

The *Regional Supplement* also states that if onsite data gathering is not practical, the growing season can be approximated by the number of days between the average (five years out of ten, or 50 percent probability) date of the last and first 28°F air temperature in the spring and fall, respectively. The National Weather Service WETS data obtained from the NRCS National Water and Climate Center reveals that in an average year, this period lasts from April 16 to November



2, or 201 days. In the Project area, five percent of the growing season equates to approximately 10 days.

The soils and ground surface were examined for evidence of wetland hydrology in lieu of detailed hydrological data. This is an acceptable approach according to the *1987 Manual* and the *Regional Supplement*. Evidence indicating wetland hydrology typically includes primary indicators such as surface water, saturation, water marks, drift deposits, water-stained leaves, sediment deposits and oxidized rhizospheres on living roots; and secondary indicators such as, drainage patterns, geomorphic position, micro-topographic relief, and a positive Facultative (FAC)-neutral test (USACE, 2011).

Review of USGS watershed data indicates that the Project is located within the Black-Rocky Watershed of the Southern Lake Erie Subregion (USGS, 2011). Within this watershed, the project will cross one minor watershed: Lake Erie Tributaries East of Vermilion River and West of Black River.

2.1.3 VEGETATION

Dominant vegetation was visually assessed for each stratum (tree, sapling/shrub, herb and woody vine) and an indicator status of obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and/or upland (UPL) was assigned to each plant species based on the U.S. Army Corps of Engineers North-central and Northeast Region National Wetland Plant List (2012). An area is determined to have hydrophytic vegetation when, under normal circumstances, 50 percent or more of the composition of the dominant species are OBL, FACW and/or FAC species. Vegetation of an area was determined to be non-hydrophytic when more than 50 percent of the composition of the dominant species was FACU and/or UPL species. In addition to the dominance test, the FAC-Neutral test and prevalence tests are used to determine if a wetland has a predominance of hydrophytic vegetation. Table 2 lists the vegetation that was identified in delineated wetlands during field surveys.

2.1.4 WETLAND CLASSIFICATIONS

Wetlands were classified based on the naming convention found in *Classification of Wetlands* and Deepwater Habitats of the United States (Cowardin et al, 1979). All identified wetlands within the survey corridor were classified as freshwater, Palustrine Systems, which includes all nontidal wetlands dominated by trees, shrubs, emergents, mosses or lichens. Three Palustrine wetland classes were identified in the Project survey corridor. The three classes are as follows:



- **PEM** Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants.
- **PSS** Scrub/shrub wetlands are characterized by woody vegetation that is less than 3 inches diameter at breast height (DBH), and greater than 3.28 feet tall. The woody angiosperms (i.e. small trees or shrubs) in this broad leaved deciduous community have relatively wide, flat leaves that are shed annually during the cold or dry season.
- **PFO** Forested wetlands are characterized by woody vegetation that is 3 inches or more DBH, regardless of height. The woody angiosperms (i.e. trees or shrubs) in this broad leaved deciduous community have relatively wide, flat leaves that are shed annually during the cold or dry season.

2.1.5 OHIO RAPID ASSESSMENT METHOD V 5.0

The Ohio Environmental Protection Agency (Ohio EPA) Ohio Rapid Assessment Method for Wetlands v. 5.0 (ORAM) was developed to determine the relative ecological quality and level of disturbance of a particular wetland in order to meet requirements under Section 401 of the Clean Water Act. Wetlands are scored on the basis of hydrology, upland buffer, habitat alteration, special wetland communities, and vegetation communities. Each of these subject areas is further divided into subcategories under ORAM v5.0 resulting in a score that describes the wetland using a range from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Wetlands scored from 0 to 29.9 are grouped into "Category 1", 30 to 59.9 are "Category 2" and 60 to 100 are "Category 3". Transitional zones exist between "Categories 1 and 2" from 30 to 34.9 and between "Categories 2 and 3" from 60 to 64.9. However, according to the OEPA, if the wetland score falls into the transitional range, it must be given the higher Category unless scientific data can prove it should be in a lower category (Mack, 2001). The ORAM scores for the wetlands that were delineated are discussed in Section 3.1.4 of this report.

Category 1 Wetlands

Category 1 wetlands support minimal wildlife habitat, hydrological and recreational functions, and do not provide for or contain critical habitats for threatened or endangered species. In addition, Category 1 wetlands are often hydrologically isolated and have some or all of the following characteristics: low species diversity, no significant habitat or wildlife use, limited potential to achieve wetland functions, and/or a predominance of non-native species. These limited quality wetlands are considered to be a resource that has been severely degraded or has a limited potential for restoration, or is of low ecological functionality.



Category 2 Wetlands

Category 2 wetlands "...support moderate wildlife habitat, or hydrological or recreational functions," and as wetlands which are "...dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions." Category 2 wetlands constitute the broad middle category of "good" quality wetlands, and can be considered a functioning, diverse, healthy water resource that has ecological integrity and human value. Some Category 2 wetlands are lacking in human disturbance and considered to be naturally of moderate quality; others may have been Category 3 wetlands in the past, but have been degraded to Category 2 status.

Category 3 Wetlands

Wetlands that are assigned to Category 3 have "...superior habitat, or superior hydrological or recreational functions." They are typified by high levels of diversity, a high proportion of native species, and/or high functional values. Category 3 wetlands include wetlands which contain or provide habitat for threatened or endangered species, are high quality mature forested wetlands, vernal pools, bogs, fens, or which are scarce regionally and/or statewide. It is important to stress that a wetland may be a Category 3 wetland because it exhibits one or all of the above characteristics. For example, a forested wetland located in the flood plain of a river may exhibit "superior" hydrologic functions (e.g. flood retention, nutrient removal), but not contain mature trees or high levels of plant species diversity.

2.2 STREAM & RIVER CROSSINGS

Regulatory activities under the Clean Water Act provide authority for states to issue water quality standards and "designated uses" to all waters of the U.S. upstream to the highest reaches of the tributary streams. In addition, the Federal Water Pollution Control Act of 1972 and its 1977 and 1987 amendments require knowledge of the potential fish or biological communities that can be supported in a stream or river, including upstream headwaters. Streams were identified by the presence of a defined bed and bank, and/or evidence of an ordinary high water mark (OHWM).

Stream assessments were conducted using the methods described in the Ohio EPA's Methods for Assessing Habitat in Flowing Waters: Using Ohio EPA's *Qualitative Habitat Evaluation Index* (Rankin, 2006) and *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams, version 1* (Davic, 2002).



2.2.1 OHIO EPA QUALITATIVE HABITAT EVALUATION INDEX

The qualitative habitat evaluation index (QHEI) is designed to provide a rapid determination of habitat features that correspond to those physical factors that most affect fish communities and which are generally important to other aquatic life (*e.g.*, macroinvertebrates). The quantitative measure of habitat used to calibrate the QHEI score are Indices (or Index) of Biotic Integrity (IBI) for fish. In most instances the QHEI is sufficient to give an indication of habitat quality, and the intensive qualitative analysis used to measure the IBI is not necessary. It is the IBI, rather than the QHEI, that is directly correlated with the aquatic life use designation for a particular surface water.

The QHEI method is generally considered appropriate for waterbodies with drainage basins greater than one square mile, if natural pools are greater than 40 cm, or if the water feature is shown as "blue-line" waterways on USGS 7.5-minute topographic quadrangle maps. In order to convey general stream habitat quality to the regulated public, the Ohio EPA has assigned narrative ratings to QHEI scores. The ranges vary slightly for headwater streams (H are those with a watershed area less than or equal to 20 square miles) versus larger streams (L are those with a watershed area greater than 20 square miles). The Narrative Rating System includes: Very Poor (<30 H and L), Poor (30 to 42 H, 30 to 44 L), Fair (43 to 54 H, 45 to 59 L), Good (55 to 69 H, 60 to 74 L) and Excellent (70+ H, 75+ L). Results of the QHEI assessments are discussed in Section 3.2.1 of this report.

2.2.2 OHIO EPA PRIMARY HEADWATER HABITAT EVALUATION INDEX

Headwater streams are typically considered to be first-order and second-order streams, meaning streams that have no upstream tributaries (or "branches") and those that have only first-order tributaries, respectively. The stream order concept can be problematic when used to define headwater streams because stream-order designations vary depending upon the accuracy and resolution of the stream delineation. Headwater streams are generally not shown on USGS 7.5-minute topographic quadrangles and are sometimes difficult to distinguish on aerial photographs. Nevertheless, headwater streams are now recognized as useful monitoring units due to their abundance, widespread spatial scale and landscape position (Fritz, et al. 2006). Impacts to headwater streams can have a cascading effect on the downstream water quality and habitat value. The headwater habitat evaluation index (HHEI) is a rapid field assessment method for physical habitat that can be used to appraise the biological potential of most Primary Headwater Habitat (PHWH) streams. The HHEI was developed using many of the same techniques as used for QHEI, but has criteria specifically designed for headwater habitats. To use HHEI, the stream must have a "defined bed and bank, with either continuous or periodically flowing water, with



watershed area less than or equal to 1.0 mi² (259 ha), <u>and</u> a maximum depth of water pools equal to or less than 15.75 inches (40 cm)" (Davic, 2002).

Headwater streams are scored on the basis of channel substrate composition, bankfull width, and maximum pool depth. Assessments result in a score (0 to 100) that is converted to a specific PHWH stream class. Streams that are scored from 0 to 29.9 are typically grouped into "Class 1 PHWH Streams", 30 to 69.9 are "Class 2 PHWH Streams", and 70 to 100 are "Class 3 PHWH Streams". Technically, a stream can score relatively high, but actually belong in a lower class, and vice-versa. According to the OEPA, if the stream score falls into a class and the scorer feels that based on site observations that score does not reflect the actual stream class, a decision-making flow chart can be used to determine appropriate PHWH stream class using the HHEI protocol (Davic, 2002). Evidence of anthropogenic alterations to the natural channel will result in a "Modified" qualifier for the stream. Results of HHEI assessed streams are discussed in Section 3.2.2 of this report.

Class 1 PHWH Streams: Class 1 PHWH Streams are those that have "normally dry channels with little or no aquatic life present" (Davic, 2002). These waterways are usually ephemeral, with water present for short periods of time due to infiltration from snowmelts or rainwater runoff.

Class 2 PHWH Streams: Class 2 PHWH Streams are equivalent to "warm-water habitat" streams. This stream class has a "moderately diverse community of warm-water adapted native fauna either present seasonally or on an annual basis" (Davic, 2002). These species communities are composed of vertebrates (fish and amphibians i.e., salamanders and frogs) and/or benthic macroinvertebrates that are considered pioneering, headwater temporary, and/or temperature facultative species.

Class 3 PHWH Streams: Class 3 PHWH Streams usually have perennial water flow with coolcold water adapted native fauna. The community of Class 3 PHWH Streams is comprised of vertebrates (either cold water adapted species of headwater fish and or obligate aquatic species of salamanders, with larval stages present), and/or a diverse community of benthic cool water adapted macroinvertebrates present in the stream continuously (on an annual basis).

Results of the HHEI assessments are discussed in Section 3.2.2 of this report.

3.0 RESULTS

Within the 200-foot study corridor, URS delineated six wetlands and four streams. These wetlands and other water features are discussed in detail in the following sections.



3.1 WETLAND DELINEATION

The locations, approximate extents, and acreages of the wetlands delineated within the Project 200-foot survey corridor are shown on Figure 3. Completed USACE wetland delineation forms are provided in Appendix A. Color photographs were taken of each delineated wetland during the field survey and are provided in Appendix D1.

3.1.1 Preliminary Soils Evaluation

According to the *Web Soil Survey* for Lorain County, Ohio (USDA, 2011) and the Natural Resources Conservation Services Hydric Soils List of Ohio, six soil series are mapped within the 200-foot survey corridor, and include three soil series with hydric soil map units (USDA, 2011). Soils in each wetland were observed and documented as part of the delineation methodology. Soil series located within the project area are shown on Figure 4. Table 1 provides a detailed overview of all soil series within the 200-foot survey corridor.

3.1.2 National Wetland Inventory Map Review

National Wetland Inventory (NWI) wetlands are areas of potential wetland that have been identified from USFWS aerial photograph interpretation which have typically not been field verified. Forested and heavy scrub/shrub wetlands are often not shown on NWI maps as foliage effectively hides the visual signature that indicates the presence of standing water and moist soils from an aerial view. The USFWS website states that the NWI maps are not intended or designed for jurisdictional wetland identification or location. As a result, NWI maps do not show all the wetlands found in a particular area nor do they necessarily provide accurate wetland boundaries. NWI maps are useful for providing indications of potential wetland areas, which are often supported by soil mapping and hydrologic predictions, based upon topographical analysis using USGS topographic maps.

According to the NWI map of the East Vermilion, Ohio quadrangle, the survey corridor contains no mapped NWI wetlands.

3.1.3 Delineated Wetlands

The wetland delineation identified six wetlands, totaling 0.76 acres, within the 200-foot survey corridor (Table 3.1.3). Do note that some wetland boundaries extend beyond the 200-foot survey corridor, but only what was within the study corridor was assessed. See Table 3.1.3 for a summary of the delineated wetlands.



The locations, approximate extents, and acreages of the wetlands identified within the Project 200-foot survey corridor are shown on Figure 3. Completed USACE wetland delineation forms are provided in Appendix A. Color photographs were taken of each delineated wetland during the field survey and are provided in Appendix D1.

| Cowardin Wetland Type | Number of Wetlands | Category 1 | Category 2 | Category 3 | Acreage within 200- Foot Survey Corridor | Approximate Length Crossed by Centerline (feet) |
|--------------------------|--------------------------|---------------|---------------|---------------|---|--|
| PSS | 1 | 1 | 0 | 0 | 0.01 | Not Crossed |
| PFO | 2 | 0 | 2 | 0 | 0.35 | 47 |
| PFO/PSS | 1 | 0 | 1 | 0 | 0.12 | Not Crossed |
| PFO/PSS/PEM | 2 | 1 | 1 | 0 | 0.28 | 37 |
| Totals: | 6 | 2 | 4 | 0 | 0.76 | 84 |

TABLE 3.1.3 SUMMARY OF DELINEATED WETLANDS WITHIN THE AVON-BEAVER #1 345 kV TRANSMISSION LINE RELOCATION PROJECT SURVEY CORRIDOR

3.1.4 Delineated Wetlands ORAM V5.0 Results

Within the Project 200-foot survey corridor, two of the six wetlands are Category 1 wetlands, and the remaining four wetlands are Category 2 wetlands. No Category 3 wetlands were crossed by the 200-foot survey corridor. Wetland AB-w05a had the lowest ORAM score, 25, and Wetland AB-w03 had the highest score, 57. Completed ORAM forms for the wetlands are provided in Appendix B.

Category 1 Wetlands

The two Category 1 wetlands totaling 0.14 acre within the 200-foot survey corridor include: one PSS wetland and one PFO/PSS/PEM wetland. The highest scoring Category 1 wetland was 27 (Wetland AB-w01), and the lowest was 25 (Wetland AB-w05a). These wetlands exhibited narrow upland buffers and intensive use of adjacent upland areas, exhibited limited plant community development with a moderate to high percentage of invasive species, and characteristically had habitat and hydrology in the early stages of recovering from previous manipulation because of farming or other disturbances.

Category 2 Wetlands

The four Category 2 wetlands totaling 0.62 acres delineated within the 200-foot survey corridor include: two PFO wetlands, one PFO/PSS wetland, and one PFO/PSS/PEM wetland. The highest scoring Category 2 wetland was 57 (Wetland AB-w03), and the lowest was 40 (Wetland AB-w02). Category 2 wetlands with dominant forested and mixed emergent, scrub/shrub,



forested plant communities were identified within the survey corridor. Category 2 wetlands generally exhibited moderate to high quality plant communities with few invasive species, moderate to good plant community interspersion, low to high intensity surrounding land use (e.g. young second growth woodlots, shrub-land, etc.), and recovered and/or no modification to natural hydrology and habitat.

Category 3 Wetlands

No Category 3 wetlands were identified within the 200-foot survey corridor.

3.2 STREAM & RIVER CROSSINGS

Streams within the 200-foot survey corridor are provided in Table 4. The locations of streams identified within the 200-foot survey corridor are shown on Figure 3.

Within the 200-foot survey corridor, four streams were assessed; three ephemeral (1,340 linear feet) and one intermittent (17 linear feet) streams. All streams were assessed using the HHEI methodology (drainage area less than 1 mi^2).

URS has preliminarily determined the four streams appear to be jurisdictional (i.e., waters of the U.S.).

3.2.1 Qualitative Habitat Evaluation Index

No QHEI streams were identified within the 200-foot survey corridor.

3.2.2 Primary Headwater Habitat Evaluation Index

Field surveys along the survey corridor identified four primary headwater streams: two Class 1 streams, one Modified Class 1 stream, and one Modified Class 2 stream. Completed HHEI forms are provided in Appendix C. Color photographs were taken of each stream during the field survey and are provided in Appendix D2.

Class 1 Headwater Streams – Two Class 1 headwater streams totaling 859 linear feet were identified during field surveys, with scores ranging from 15 to 19. Both of the streams were ephemeral, and the dominant substrates generally consisted of clay, silt, and muck, with lesser amounts of cobble, gravel and sand. The maximum pool depth was approximately one inch, and the maximum bank full width was approximately 2.3 feet.



Modified Class 1 Headwater Streams - One Modified Class 1 headwater stream totaling 481 linear feet was identified during the field surveys, and received a score of 19. The stream was ephemeral, and the dominant substrates were gravel and clay, with lesser amounts of sand, muck, and artificial substrate. The maximum pool depth was approximately 0.5 inch, and the bank full width was approximately 1.5 feet. The stream contained evidence of stream channel modifications (e.g. channelization, culverting, etc.). These modifications resulted in this stream receiving a Modified Class 1 designation.

Modified Class 2 Headwater Streams - One Modified Class 2 headwater stream totaling 17 linear feet was identified during the field investigation, and received a score of 34. The stream was intermittent, and the dominant substrates were gravel and clay, with lesser amounts of cobble, sand, and silt. The maximum pool depth was approximately three inches, and the bank full width was approximately 3 feet.

3.3 PONDS

No ponds were identified within the 200-foot survey corridor.

4.0 SUMMARY

During the field survey, a total of six wetlands totaling 0.76 acre were assessed within the 200foot survey corridor. These wetlands are of four different wetland habitat types: one PSS wetland, two PFO wetlands, one PFO/PSS wetland, and two PFO/PSS/PEM wetlands. Within the Project 200-foot survey corridor, two of the six wetlands are Category 1 wetlands, and the remaining four wetlands are Category 2 wetlands.

Within the 200-foot survey corridor, four streams were assessed: three ephemeral (1,340 linear feet) and one intermittent (17 linear feet) streams. All streams were assessed using the HHEI methodology (drainage area less than 1 mi^2). The ephemeral streams received scores ranging from 15 to 19 and were classified as Class 1 and Modified Class 1 Headwater streams. The intermittent stream received a score of 34 and was classified as a Modified Class 2 Headwater stream.





5.0 REFERENCES

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TABLE 1

Son Series Ellsworth Haskins Miner Fulton Holly HsA FuA EID2 HsB M Æ Ellsworth silt loam, 12 to 18 percent slopes, moderately SOIL MAP UNITS AND DESCRIPTIONS WITHIN THE AVON-BEAVER #1345 KV TRANSMISSION LINE RELOCATION PROJECT STUDY CORRIDOR Whep Unit Description Percent of Route Topographic Setting Hydre Hydre Fulton silt loam, 0 to 2 percent slopes Haskins loam, 0 to 2 percent slopes Haskins loam, 2 to 6 percent slopes Miner silty clay loam Holly silt loam eroded 0.003 35 23 2 9 Remnants of beach ridges and along drainageways Areas that parallel the shore of Lake Eric Areas along major drainageways Flood plains Depressions Depressions Inclusions Yes Yes no 10 붕 Miner (85), Luray (3), Lorain (3), Trumbull (3), other areas (3) Holly (95) Mermill (3) n/a n/a п/а

NOTES:

(1) Percentages do not add up to exactly 100% due to rounding

(2) Data sources include:

USDA, NRCS, 2011 Soil Survey Geographic (SSURGO) Database. Available online at: http://soildatamart.nrcs.usda.gov/

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Table 1

Avon-Beaver #1 345 kV Transmission Line Relocation Project

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TABLE 2

VEGETATION IDENTIFIED WITHIN THE AVON-BEAVER #1 345 kV TRANSMISSION LINE RELOCATION PROJECT SURVEY CORRIDOR

| Common Name | Scientific Name | Stratum [*] | Northeastern / Northcentral Region Indicator Status ^b |
|---------------------|------------------------|----------------------|---|
| | | | |
| American Sycamore | Platanus occidentalis | T/S | FACW |
| Ash-Leaf Maple | Acer negundo | T/S | FAC |
| Black Willow | Salix nigra | T/S | OBL |
| Cottongrass Bulrush | Scirpus cyperinus | Н | OBL |
| Eastern Cottonwood | Populus deltoides | T/S | FAC |
| Green Ash | Fraxinus pennsylvanica | T/S | FACW |
| Hawthorn | Crataegus sp. | S | FAC |
| Lamp Rush | Inncus effusions | Η | OBL |
| Red Maple | Acer rubrum | T/S | FAC |
| Red Osier | Cornus alba | S | FACW |
| Sedge | Carex sp. | H | FAC |
| Southern Arrow-Wood | Viburnum dentatum | S | FAC |
| Swamp Rose | Rosa palustris | S | OBL |
| | | | |

^a H = herb, S = shrub or sapling, T = tree, V = vine

^b Wetland Indicator Status for USACE Northeastern / Northcentral Region (includes the entire project area) OBL - Obligate Wetland - Occurs almost always (99% probability) in wetlands FACW - Facultative Wetlands - Usually occurs in wetlands (67 - 99% probability) FAC - Facultative - Equally likely to occur in wetlands or non-wetlands (34 - 66% probability) FACU - Facultative Upland - Usually occurs in non-wetlands (67 - 99% probability)

UPL - Obligate Upland - Occurs almost always in non-wetlands (99% probability)

| TABLE | 3 |
|-------|---|
|-------|---|

DELINEATED WETLANDS WITHIN THE AVON-BEAVER #1 345 kV TRANSMISSION LINE RELOCATION PROJECT SURVEY CORRIDOR

| Report Name | Cowardin Wetland Type ^a | ORAM Score | ORAM Category | Acreage within 200 Foot Corridor | Approximate Length Crossed by Centerline (feet) |
|----------------|---------------------------------------|---------------|------------------|---|--|
| AB-w01 | PSS | 27 | 1 | 0.01 | Not Crossed |
| AB-w02 | PFO/PSS | 40 | 2 | 0.12 | Not Crossed |
| AB-w03 | PFO | 57 | 2 | 0.32 | 47 |
| AB-w04 | PFO | 46.5 | 2 | 0.03 | Not Crossed |
| AB-w05a | PFO/PSS/PEM | 25 | 1 | 0.13 | 26 |
| AB-w05b | PFO/PSS/PEM | 54 | 2 | 0.15 | 11 |
| TOTAL | 6 | | | 0.76 | 84 |

* Wetland Type: PEM - palustrine emergent, PSS - palustrine scrub/shrub, PFO - palustrine forested.



Wetland Delineation Report



STREAMS IDENTIFIED WITHIN THE AVON-BEAVER #1 345 kV TRANSMISSION LINE RELOCATION PROJECT SURVEY CORRIDOR **TABLE 4**

| Aucesment Score Narrative Description | HHEI 19 Modified Class I | HHEI 34 Modified Class II | HHEI 19 Class I | HHEI 15 Class I | |
|---|--------------------------|---------------------------|-----------------|-----------------|--------|
| Approximate Length Within Survey Corridor (feet) | 481 | 17 | 360 | 499 | 1.357 |
| Maximum Pool Depth (inches) | 0.5 | ę | 1 | 1 | |
| Estimated Width of Stream Crossing (feet) | 1.5 | 3 | 2.3 | 2 | |
| Flow Type | Ephemeral | Intermittent | Ephemeral | Ephemeral | |
| Stream Name | AB-s01 | AB-s02 | AB-s03 | AB-s04 | Total: |

ATSI

