

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Clarksville WWTP Expansion and Effluent Line Replacement Project City/County: Clark Sampling Date: 12/13/2011
 Applicant/Owner: Town of Clarksville State: Indiana Sampling Point: DP-6
 Investigator(s): B. Deetsch, L. Darnell Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Large depression (Wetland 2) Local relief (concave, convex, none): Concave
 Slope (%): 1-2% Lat: N 38.2936° Long: W 85.7760° Datum: _____
 Soil Map Unit Name/Uaa - Udorthents, cut and filled NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present?
 Are Vegetation _____, Soil _____ or Hydrology _____ naturally problematic? Yes X No _____
 (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>X</u>	No _____	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	

Remarks: _____

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	Dominant Test worksheet																												
Tree Stratum (Plot size: <u>30-foot radius</u>)				Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)																												
1. <u>Acer negundo</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>																													
2. <u>Fraxinus pennsylvanica</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>																													
3. _____																																
4. _____																																
<u>40</u>	=	Total Cover																														
Sapling/Shrub Stratum (Plot size: <u>15-foot radius</u>)				Prevalence Index worksheet: <table border="0"> <tr> <td align="center" colspan="2">Total % Cover of:</td> <td align="center" colspan="2">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td align="right">x 1 =</td> <td align="center"><u>0</u></td> <td></td> </tr> <tr> <td>FACW species</td> <td align="right">x 2 =</td> <td align="center"><u>0</u></td> <td></td> </tr> <tr> <td>FAC species</td> <td align="right">x 3 =</td> <td align="center"><u>0</u></td> <td></td> </tr> <tr> <td>FACU species</td> <td align="right">x 4 =</td> <td align="center"><u>0</u></td> <td></td> </tr> <tr> <td>UPL species</td> <td align="right">x 5 =</td> <td align="center"><u>0</u></td> <td></td> </tr> <tr> <td>Column Totals:</td> <td align="right"><u>0</u></td> <td align="center">(A)</td> <td align="center"><u>0</u> (B)</td> </tr> </table> Prevalence Index = B/A = ####	Total % Cover of:		Multiply by:		OBL species	x 1 =	<u>0</u>		FACW species	x 2 =	<u>0</u>		FAC species	x 3 =	<u>0</u>		FACU species	x 4 =	<u>0</u>		UPL species	x 5 =	<u>0</u>		Column Totals:	<u>0</u>	(A)	<u>0</u> (B)
Total % Cover of:		Multiply by:																														
OBL species	x 1 =	<u>0</u>																														
FACW species	x 2 =	<u>0</u>																														
FAC species	x 3 =	<u>0</u>																														
FACU species	x 4 =	<u>0</u>																														
UPL species	x 5 =	<u>0</u>																														
Column Totals:	<u>0</u>	(A)	<u>0</u> (B)																													
1. <u>Acer negundo</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>																													
2. <u>Liquidambar styraciflua</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>																													
3. _____																																
4. _____																																
5. _____																																
<u>40</u>	=	Total Cover																														
Herb Stratum (Plot size: <u>5-foot radius</u>)				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 4 - Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation* (Explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes <u>X</u> No _____																												
1. <u>Toxicodendron radicans</u>	<u>8</u>	<u>Y</u>	<u>FAC</u>																													
2. <u>Boehmeria cylindrica</u>	<u>5</u>	<u>Y</u>	<u>OBL</u>																													
3. <u>Phalaris arundinacea</u>	<u>3</u>	<u>N</u>	<u>FACW</u>																													
4. <u>Polygonum cf. hydropiperoides</u>	<u>2</u>	<u>N</u>	<u>OBL</u>																													
5. <u>Carex blanda</u>	<u>1</u>	<u>N</u>	<u>FAC</u>																													
6. <u>Symphotrichum sp.</u>	<u>1</u>	<u>N</u>																														
7. _____																																
8. _____																																
9. _____																																
<u>20</u>	=	Total Cover																														
Woody Vine Stratum (Plot size: <u>30-foot radius</u>)																																
1. _____																																
2. _____																																
_____	=	Total Cover																														

Remarks: (Include photo numbers here or on a separate sheet)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix			Redox Features		Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0 - 3	10YR3/2	100					Silty Clay Loam
3 - 9	10YR4/1	90	10YR4/6	10	C	M	Clay
9 - 14	2.5 Y5/1	70	7.5YR5/8	30	C	M	Clay

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS = Masked or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Material (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present?

Yes _____ X _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input checked="" type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain Remark) | |

Field Observations:

Surface Water Present? Yes _____ No X _____ Depth (inches): NA (in.)

Water Table Present? Yes X _____ No _____ Depth (inches): 8 (in.)

Saturation Present? Yes X _____ No _____ Depth (inches): 8 (in.)
(includes capillary fringe)

Wetland Hydrology Present?

Yes X _____
No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Clarksville WWTP Expansion and Effluent Line Replacement Project City/County: Clark State: Indiana Sampling Date: 12/13/2011
 Applicant/Owner: Town of Clarksville State: Indiana Sampling Point: DP-7
 Investigator(s): B. Deetsch, L. Darnell Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Convex
 Slope (%): ~ 1% Lat: N 38.2932° Long: W 85.7765° Datum: _____
 Soil Map Unit Name: Uua - Udorthents, cut and filled NWI classification: _____

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present?
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? Yes X No _____
 (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>X</u>	No _____	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	

Remarks: _____

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	Dominant Test worksheet																												
Tree Stratum (Plot size: 30-foot radius)				Number of Dominant Species That are OBL, FACW, or FAC: <u>9</u> (A)																												
1. <i>Acer saccharinum</i>	40	Y	FACW																													
2. <i>Acer negundo</i>	25	Y	FACW	Total Number of Dominant Species Across All Strata: <u>10</u> (B)																												
3. <i>Fraxinus pennsylvanica</i>	20	Y	FACW																													
4. <i>Platanus occidentalis</i>	10	N	FACW	Percent of Dominant Species That are OBL, FACW, or FAC: <u>90%</u> (A/B)																												
5. _____	_____	_____	_____																													
	95 =	Total Cover																														
Sapling/Shrub Stratum (Plot size: 15-foot radius)				Prevalence Index worksheet:																												
1. <i>Acer negundo</i>	20	Y	FACW																													
2. <i>Fraxinus pennsylvanica</i>	10	Y	FACW	<table border="0"> <tr> <td colspan="2">Total % Cover of:</td> <td colspan="2">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td><u>0</u></td> <td>x 1 =</td> <td><u>0</u></td> </tr> <tr> <td>FACW species</td> <td><u>0</u></td> <td>x 2 =</td> <td><u>0</u></td> </tr> <tr> <td>FAC species</td> <td><u>0</u></td> <td>x 3 =</td> <td><u>0</u></td> </tr> <tr> <td>FACU species</td> <td><u>0</u></td> <td>x 4 =</td> <td><u>0</u></td> </tr> <tr> <td>UPL species</td> <td><u>0</u></td> <td>x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td><u>0</u> (A)</td> <td></td> <td><u>0</u> (B)</td> </tr> </table>	Total % Cover of:		Multiply by:		OBL species	<u>0</u>	x 1 =	<u>0</u>	FACW species	<u>0</u>	x 2 =	<u>0</u>	FAC species	<u>0</u>	x 3 =	<u>0</u>	FACU species	<u>0</u>	x 4 =	<u>0</u>	UPL species	<u>0</u>	x 5 =	<u>0</u>	Column Totals:	<u>0</u> (A)		<u>0</u> (B)
Total % Cover of:		Multiply by:																														
OBL species	<u>0</u>	x 1 =	<u>0</u>																													
FACW species	<u>0</u>	x 2 =	<u>0</u>																													
FAC species	<u>0</u>	x 3 =	<u>0</u>																													
FACU species	<u>0</u>	x 4 =	<u>0</u>																													
UPL species	<u>0</u>	x 5 =	<u>0</u>																													
Column Totals:	<u>0</u> (A)		<u>0</u> (B)																													
3. _____	_____	_____	_____																													
4. _____	_____	_____	_____																													
5. _____	_____	_____	_____																													
	30 =	Total Cover																														
Herb Stratum (Plot size: 5-foot radius)				Prevalence Index = B/A = ####																												
1. <i>Toxicodendron radicans</i>	3	Y	FAC																													
2. <i>Euonymus fortunei</i>	2	Y	UPL	Hydrophytic Vegetation Indicators:																												
3. <i>Carex blanda</i>	2	Y	FAC																													
4. <i>Symphoricarpos sp.</i>	2	Y	FAC	1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 4 - Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)																												
5. _____	_____	_____	_____																													
6. _____	_____	_____	_____	Problematic Hydrophytic Vegetation* (Explain)																												
7. _____	_____	_____	_____																													
8. _____	_____	_____	_____	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																												
9. _____	_____	_____	_____																													
10. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____																												
	9 =	Total Cover																														
Woody Vine Stratum (Plot size: 30-foot radius)																																
1. <i>Vitis riparia</i>	15	Y	FACW																													
2. <i>Toxicodendron radicans</i>	5	Y	FAC																													
	20 =	Total Cover																														

Remarks: (Include photo numbers here or on a separate sheet) _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Table with columns: Depth (inches), Matrix (Color (moist), %), Redox Features (Color (moist), %, Type¹, Loc²), Texture, Remarks. Data rows for 0-4 and 4-14 inch depths.

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS = Masked or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ 2 cm Muck (A10)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 5 cm Mucky Peat or Peat (S3)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Material (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils*

- ___ Coast Prairie Redox (A16)
___ Dark Surface (S7)
___ Iron-Manganese Masses (F12)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ___ X ___ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

Secondary Indicators (minimum of two required)

- ___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ X 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 (B10)
___ True Aquatic Plants (B14)
___ 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)
___ Gauge or Well Data (D9)
___ Other (Explain Remark)
___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ X ___ Depth (inches): ___ NA ___ (in.)
Water Table Present? Yes ___ No ___ X ___ Depth (inches): ___ >14 ___ (in.)
Saturation Present? Yes ___ No ___ X ___ Depth (inches): ___ >14 ___ (in.)
(includes capillary fringe)

Wetland Hydrology Present? Yes ___ X ___ No ___

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

Remarks: Water marks are approximately 8 inches high on tree trunks.

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Clarksville WWTP Expansion and Effluent Line Replacement Project City/County: Clark State: Indiana Sampling Date: 12/14/2011
 Applicant/Owner: Town of Clarksville State: Indiana Sampling Point: DP-8
 Investigator(s): L. Darnell, R. Fangman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat
 Slope (%): <1% Lat: N 38 2931* Long: W 85 7768* Datum: _____
 Soil Map Unit Name: Uaa - Udorthents, cut and filled NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present?
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? Yes X No _____
 (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>X</u>	No _____	Is the Sampled Area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	

Remarks: _____

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	Dominant Test worksheet
Tree Stratum (Plot size: <u>30-foot radius</u>)				Dominant Test worksheet Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Acer negundo</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Acer saccharinum</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
3. <u>Fraxinus pennsylvanica</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
4. <u>Salix nigra</u>	<u>3</u>	<u>N</u>	<u>OBL</u>	
5. _____	_____	_____	_____	
	<u>78</u> =	Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15-foot radius</u>)				
1. <u>Acer negundo</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>40</u> =	Total Cover		
Herb Stratum (Plot size: <u>5-foot radius</u>)				
1. <u>Carex blanda</u>	<u>1</u>	<u>N</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>1</u> =	Total Cover		
Woody Vine Stratum (Plot size: <u>30-foot radius</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	_____ =	Total Cover		

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	<u>0</u>
FACW species _____	x 2 =	<u>0</u>
FAC species _____	x 3 =	<u>0</u>
FACU species _____	x 4 =	<u>0</u>
UPL species _____	x 5 =	<u>0</u>
Column Totals: <u>0</u> (A)		<u>0</u> (B)

Prevalence Index = B/A = ###

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0
 4 - Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation* (Explain)
 *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet) _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix				Redox Features		Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 4	10YR3/2	100					Silt Loam	
4 - 14	2.5Y3/2	95	7.5YR4/6	5	C	M	Silty Clay Loam	Oxidized Root Channels

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS = Masked or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Material (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present?

Yes _____ X _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

Secondary Indicators (minimum of two required)

- 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 Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)

- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- True Aquatic Plants (B14)
- 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)
- Gauge or Well Data (D9)
- Other (Explain Remark)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): NA (in.)
 Water Table Present? Yes X No _____ Depth (inches): 10 (in.)
 Saturation Present? Yes X No _____ Depth (inches): 6 (in.)
 (includes capillary fringe)

Wetland Hydrology Present? Yes X No _____

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

Remarks

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Clarksville WWTP Expansion and Effluent Line Replacement Project City/County: Clark Sampling Date: 12/14/2011
 Applicant/Owner: Town of Clarksville State: Indiana Sampling Point: DP-9
 Investigator(s): L. Darnell, R. Fangman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat
 Slope (%): <1% Lat: N 38.2931° Long: W 85.7763° Datum: _____
 Soil Map Unit Name: Uaa - Udorthents, cut and filled NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present?
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? Yes X No _____
 (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>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks: _____

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: <u>30-foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominant Test worksheet
1. <u>Acer negundo</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A)
2. <u>Fraxinus pennsylvanica</u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
3. <u>Ulmus americana</u>	<u>4</u>	<u>N</u>	<u>FACW</u>	
4. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
5. _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC: <u>83%</u> (A/B)
<u>89</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15-foot radius</u>)				
1. <u>Acer negundo</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>###</u>
2. <u>Fraxinus pennsylvanica</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>10</u> = Total Cover				
Herb Stratum (Plot size: <u>5-foot radius</u>)				
1. <u>Achyranthes japonica</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: _____ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 _____ 4 - Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation! (Explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. <u>Carex blanda</u>	<u>3</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Symphotrichum sp.</u>	<u>2</u>	<u>Y</u>	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>10</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30-foot radius</u>)				
1. <u>Vitis riparia</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
<u>15</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 6	10YR3/2	100					Silt Loam	
6 - 12	10YR4/3	80	10YR5/6	15	C	M	Silt Loam	
			10YR5/4	5	C	M		
12 - 14	10YR4/3	80	10YR5/6	15	C	M	Clay	
			10YR5/4	5	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS = Masked or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Material (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present?

Yes _____ No _____ X _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input checked="" type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain Remark) | |

Field Observations:

Surface Water Present? Yes _____ No X _____ Depth (inches): NA (in.)

Water Table Present? Yes _____ No X _____ Depth (inches): >14 (in.)

Saturation Present? Yes _____ No X _____ Depth (inches): >14 (in.)
(includes capillary fringe)

Wetland Hydrology Present?

Yes X _____
No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Clarksville WWTP Expansion and Effluent Line Replacement Project City/County: Clark State: Indiana Sampling Date: 12/14/2011
 Applicant/Owner: Town of Clarksville State: Indiana Sampling Point: DP-10
 Investigator(s): L. Darnell, R. Fangman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat
 Slope (%): >1 Lat: N 38.2927° Long: W 85.7768° Datum: _____
 Soil Map Unit Name: Uaa - Udorthents, cut and filled NWI classification: _____

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present?
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? Yes X No _____
 (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 X No _____
 Hydric Soil Present? Yes X No _____
 Wetland Hydrology Present? Yes X No _____
 Is the Sampled Area within a Wetland? Yes No

Remarks: _____

VEGETATION -- Use scientific names of plants.

		Absolute	Dominant	Indicator	Dominant Test worksheet	
		% Cover	Species?	Status		
Tree Stratum (Plot size: <u>30-foot radius</u>)						
1.	_____	_____	_____	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A)	
2.	_____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)	
3.	_____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
4.	_____	_____	_____	_____		
5.	_____	_____	_____	_____		
		=	Total Cover			
Sapling/Shrub Stratum (Plot size: <u>15-foot radius</u>)						
1.	<u>Acer negundo</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>		
2.	_____	_____	_____	_____		
3.	_____	_____	_____	_____		
4.	_____	_____	_____	_____		
5.	_____	_____	_____	_____		
		=	Total Cover			
Herb Stratum (Plot size: <u>5-foot radius</u>)						
1.	<u>Phalaris arundinacea</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>		
2.	<u>Rumex crispus</u>	<u>8</u>	<u>N</u>	<u>FAC</u>		
3.	<u>Scirpus atrovirens</u>	<u>8</u>	<u>N</u>	<u>OBL</u>		
4.	<u>Achyranthes japonica</u>	<u>5</u>	<u>N</u>	<u>UPL</u>		
5.	<u>Polygonum cf. hydropiperoides</u>	<u>2</u>	<u>N</u>	<u>OBL</u>		
6.	_____	_____	_____	_____		
7.	_____	_____	_____	_____		
8.	_____	_____	_____	_____		
9.	_____	_____	_____	_____		
10.	_____	_____	_____	_____		
		=	Total Cover			
Woody Vine Stratum (Plot size: <u>30-foot radius</u>)						
1.	_____	_____	_____	_____		
2.	_____	_____	_____	_____		
		=	Total Cover			

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = <u>0</u>
FACW species _____	x 2 = <u>0</u>
FAC species _____	x 3 = <u>0</u>
FACU species _____	x 4 = <u>0</u>
UPL species _____	x 5 = <u>0</u>
Column Totals: <u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = ###

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0 - 6	10YR4/2	90	10YR4/4	10	C	M	Silt Loam	
6 - 14	10YR4/3	90	10YR5/2	10	D	M	Silty Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS = Masked or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

Indicators for Problematic Hydric Soils³

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Material (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present?

Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input checked="" type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain Remark) | |

Field Observations:

Surface Water Present? Yes No Depth (inches): NA (in.)

Water Table Present? Yes No Depth (inches): >14 (in.)

Saturation Present? Yes No Depth (inches): >14 (in.)
(includes capillary fringe)

Wetland Hydrology Present?

Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Clarksville WWTP Expansion and Effluent Line Replacement Project City/County: Clark State: Indiana Sampling Date: 2/3/2012
 Applicant/Owner: Town of Clarksville State: Indiana Sampling Point: DP-11
 Investigator(s): L. Darnell, R. Fangman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat
 Slope (%): >1 Lat: N 38.2930° Long: W 85.7765° Datum: _____
 Soil Map Unit Name: Uaa - Udorthents, cut and filled NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____ or Hydrology _____ naturally problematic? Yes X No _____
 (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 X No _____
 Hydric Soil Present? Yes _____ No X
 Wetland Hydrology Present? Yes X No _____
 Is the Sampled Area within a Wetland? Yes _____ No X

Remarks: _____

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	Dominant Test worksheet
Tree Stratum (Plot size: 30-foot radius)				Dominant Test worksheet Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Acer negundo</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Liquidambar styraciflua</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
<u>65</u>	=	Total Cover		
Sapling/Shrub Stratum (Plot size: 15-foot radius)				
1. <u>Acer negundo</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
5. _____				
<u>10</u>	=	Total Cover		
Herb Stratum (Plot size: 5-foot radius)				
1. <u>Carex blanda</u>	<u>2</u>	<u>N</u>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>2</u>	=	Total Cover		
Woody Vine Stratum (Plot size: 30-foot radius)				
1. <u>Vitis riparia</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
2. _____				
<u>5</u>	=	Total Cover		

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = <u>0</u>
FACW species _____	x 2 = <u>0</u>
FAC species _____	x 3 = <u>0</u>
FACU species _____	x 4 = <u>0</u>
UPL species _____	x 5 = <u>0</u>
Column Totals: <u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = **####**

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0
 4 - Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation* (Explain) _____
 *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.) _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 4/3	80	10YR 4/2	20	D	M	Silty Loam	
6-14	10YR 4/2	80	10YR 4/3	20	C	M	Silty Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS = Masked or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

Indicators for Problematic Hydric Soils³

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Material (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present?

Yes _____ No _____ X _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input checked="" type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain Remark) | |

Field Observations:

Surface Water Present? Yes _____ No X _____ Depth (inches): NA (in.)

Water Table Present? Yes _____ No X _____ Depth (inches): >14 (in.)

Saturation Present? Yes _____ No X _____ Depth (inches): >14 (in.)
(includes capillary fringe)

Wetland Hydrology Present? Yes X _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Clarksville WWTP Expansion and Effluent Line Replacement Project City/County: Clark State: Indiana Sampling Date: 2/3/2012
 Applicant/Owner: Town of Clarksville Section, Township, Range: 0 Sampling Point: DP-12
 Investigator(s): L. Darnell, R. Fangman Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Convex
 Slope (%): 2-Jan Lat: N 38.2925° Long: W 85.7767° Datum: _____
 Soil Map Unit Name: Uaa - Udorthents, cut and filled NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present?
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? Yes X No _____
 (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>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	

Remarks: _____

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	Dominant Test worksheet																												
Tree Stratum (Plot size: 30-foot radius)				Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>75%</u> (A/B)																												
1. <i>Robinia pseudoacacia</i>	<u>10</u>	<u>Y</u>	<u>UPL</u>																													
2. <i>Acer negundo</i>	<u>10</u>	<u>Y</u>	<u>FACW</u>																													
3. <i>Fraxinus pennsylvanica</i>	<u>5</u>	<u>Y</u>	<u>FACW</u>																													
4. _____	_____	_____	_____																													
5. _____	_____	_____	_____																													
<u>25</u>	=	Total Cover																														
Sapling/Shrub Stratum (Plot size: 15-foot radius)				Prevalence Index worksheet: <table border="0"> <tr> <td align="center" colspan="2">Total % Cover of:</td> <td align="center" colspan="2">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td align="center"><u>0</u></td> <td align="center">x 1 =</td> <td align="center"><u>0</u></td> </tr> <tr> <td>FACW species</td> <td align="center"><u>0</u></td> <td align="center">x 2 =</td> <td align="center"><u>0</u></td> </tr> <tr> <td>FAC species</td> <td align="center"><u>0</u></td> <td align="center">x 3 =</td> <td align="center"><u>0</u></td> </tr> <tr> <td>FACU species</td> <td align="center"><u>0</u></td> <td align="center">x 4 =</td> <td align="center"><u>0</u></td> </tr> <tr> <td>UPL species</td> <td align="center"><u>0</u></td> <td align="center">x 5 =</td> <td align="center"><u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td align="center"><u>0</u> (A)</td> <td></td> <td align="center"><u>0</u> (B)</td> </tr> </table> Prevalence Index = B/A = ####	Total % Cover of:		Multiply by:		OBL species	<u>0</u>	x 1 =	<u>0</u>	FACW species	<u>0</u>	x 2 =	<u>0</u>	FAC species	<u>0</u>	x 3 =	<u>0</u>	FACU species	<u>0</u>	x 4 =	<u>0</u>	UPL species	<u>0</u>	x 5 =	<u>0</u>	Column Totals:	<u>0</u> (A)		<u>0</u> (B)
Total % Cover of:		Multiply by:																														
OBL species	<u>0</u>	x 1 =	<u>0</u>																													
FACW species	<u>0</u>	x 2 =	<u>0</u>																													
FAC species	<u>0</u>	x 3 =	<u>0</u>																													
FACU species	<u>0</u>	x 4 =	<u>0</u>																													
UPL species	<u>0</u>	x 5 =	<u>0</u>																													
Column Totals:	<u>0</u> (A)		<u>0</u> (B)																													
1. <i>Robinia pseudoacacia</i>	<u>10</u>	<u>Y</u>	<u>UPL</u>																													
2. <i>Acer negundo</i>	<u>10</u>	<u>Y</u>	<u>FACW</u>																													
3. <i>Fraxinus pennsylvanica</i>	<u>5</u>	<u>Y</u>	<u>FACW</u>																													
4. _____	_____	_____	_____																													
5. _____	_____	_____	_____																													
<u>25</u>	=	Total Cover																														
Herb Stratum (Plot size: 5-foot radius)																																
1. <i>Phalaris arundinacea</i>	<u>10</u>	<u>Y</u>	<u>OBL</u>																													
2. <i>Toxicodendron radicans</i>	<u>5</u>	<u>Y</u>	<u>FAC</u>																													
3. <i>Vernonia gigantea</i>	<u>3</u>	<u>N</u>	<u>FAC</u>																													
4. <i>Carex blanda</i>	<u>3</u>	<u>N</u>	<u>FAC</u>																													
5. _____	_____	_____	_____																													
6. _____	_____	_____	_____																													
7. _____	_____	_____	_____																													
8. _____	_____	_____	_____																													
9. _____	_____	_____	_____																													
10. _____	_____	_____	_____																													
<u>21</u>	=	Total Cover																														
Woody Vine Stratum (Plot size: 30-foot radius)																																
1. _____	_____	_____	_____																													
2. _____	_____	_____	_____																													
_____	=	Total Cover																														

Remarks: (Include photo numbers here or on a separate sheet.) _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/2	100					Silt Loam	
4-14	10YR 4/2	70	10YR 4/3	30	C	M	Silty Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS = Masked or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

Indicators for Problematic Hydric Soils³

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Material (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present?

Yes _____ No X _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain Remark) | |

Field Observations:

Surface Water Present? Yes _____ No X _____ Depth (inches): NA (in.)

Water Table Present? Yes _____ No X _____ Depth (inches): >14 (in.)

Saturation Present? Yes _____ No X _____ Depth (inches): >14 (in.)
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X _____

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Clarksville WWTP Expansion and Effluent Line Replacement Project City/County: Clark Sampling Date: 3/29/2012
 Applicant/Owner: Town of Clarksville State: Indiana Sampling Point: DP-13
 Investigator(s): B. Deelsch, R. Fangman Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat
 Slope (%): >1 Lat: N 38.2931° Long: W 85.7759° Datum: _____
 Soil Map Unit Name Uaa - Udorthents, cut and filled NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present?
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? Yes X No _____
 (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>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	

Remarks:

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	Dominant Test worksheet
Tree Stratum (Plot size: <u>30-foot radius</u>)				Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A)
1. <u>Platanus occidentalis</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
2. <u>Ulmus americana</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Acer negundo</u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
4. _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
5. _____	_____	_____	_____	
_____ = Total Cover <u>95</u>				
Sapling/Shrub Stratum (Plot size: <u>15-foot radius</u>)				
1. <u>Fraxinus pennsylvanica</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>####</u>
2. <u>Ulmus americana</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover <u>30</u>				
Herb Stratum (Plot size: <u>5-foot radius</u>)				
1. <u>Carex blanda</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. <u>Cinna latifolia</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. <u>Acer saccharinum</u>	<u>2</u>	<u>N</u>	<u>FACW</u>	
4. <u>Euonymus fortunei</u>	<u>1</u>	<u>N</u>	<u>UPL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover <u>23</u>				
Woody Vine Stratum (Plot size: <u>30-foot radius</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover _____				

Remarks: (Include photo numbers here or on a separate sheet.)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	100					Silt Loam	
4-13	10YR 4/2	60	10YR 4/3	40	C	M	Silt Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS = Masked or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

Indicators for Problematic Hydric Soils³

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Material (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present?

Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain Remark) | |

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): NA (in.)
 Water Table Present? Yes _____ No X Depth (inches): >14 (in.)
 Saturation Present? Yes _____ No X Depth (inches): >14 (in.)
 (includes capillary fringe)

Wetland Hydrology Present?

Yes _____
No X

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Clarksville WWTP Expansion and Effluent Line Replacement Project City/County: Clark State: Indiana Sampling Date: 3/29/2012
 Applicant/Owner: Town of Clarksville Sampling Point: DP-14
 Investigator(s): B. Deetsch, R. Fangman Section, Township, Range: 0
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave
 Slope (%): >1 Lat: N 38.2931° Long: W 85.7756° Datum: _____
 Soil Map Unit Name Uaa - Udorthents, cut and filled NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present?
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? Yes X No _____
 (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>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks: _____

VEGETATION -- Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	Dominant Test worksheet																																
Tree Stratum (Plot size: 30-foot radius)				Dominant Test worksheet Number of Dominant Species That are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>88%</u> (A/B)																																
1. <i>Salix nigra</i>	30	Y	OBL																																	
2. <i>Ulmus americana</i>	30	Y	FACW																																	
3. <i>Acer negundo</i>	20	Y	FACW																																	
4. <i>Acer saccharinum</i>	5	N	FACW																																	
5. <i>Fraxinus pennsylvanica</i>	5	N	FACW																																	
	90	=	Total Cover																																	
Sapling/Shrub Stratum (Plot size: 15-foot radius)																																				
1. <i>Ulmus americana</i>	4	N	FACW																																	
2. _____																																				
3. _____																																				
4. _____																																				
5. _____																																				
	4	=	Total Cover																																	
Herb Stratum (Plot size: 5-foot radius)				Prevalence Index worksheet: <table border="0"> <tr> <td>Total % Cover of:</td> <td></td> <td>Multiply by:</td> <td></td> </tr> <tr> <td>OBL species</td> <td align="center">_____</td> <td>x 1 =</td> <td align="center">0</td> </tr> <tr> <td>FACW species</td> <td align="center">_____</td> <td>x 2 =</td> <td align="center">0</td> </tr> <tr> <td>FAC species</td> <td align="center">_____</td> <td>x 3 =</td> <td align="center">0</td> </tr> <tr> <td>FACU species</td> <td align="center">_____</td> <td>x 4 =</td> <td align="center">0</td> </tr> <tr> <td>UPL species</td> <td align="center">_____</td> <td>x 5 =</td> <td align="center">0</td> </tr> <tr> <td>Column Totals:</td> <td align="center">0</td> <td>(A)</td> <td align="center">0</td> </tr> <tr> <td colspan="4">Prevalence Index = B/A = #####</td> </tr> </table>	Total % Cover of:		Multiply by:		OBL species	_____	x 1 =	0	FACW species	_____	x 2 =	0	FAC species	_____	x 3 =	0	FACU species	_____	x 4 =	0	UPL species	_____	x 5 =	0	Column Totals:	0	(A)	0	Prevalence Index = B/A = #####			
Total % Cover of:		Multiply by:																																		
OBL species	_____	x 1 =	0																																	
FACW species	_____	x 2 =	0																																	
FAC species	_____	x 3 =	0																																	
FACU species	_____	x 4 =	0																																	
UPL species	_____	x 5 =	0																																	
Column Totals:	0	(A)	0																																	
Prevalence Index = B/A = #####																																				
1. <i>Carex blanda</i>	20	Y	FAC																																	
2. <i>Lysimachia nummularia</i>	15	Y	FACW																																	
3. <i>Euonymus fortunei</i>	10	N	UPL																																	
4. <i>Symphoricarpon</i> sp.	10	N																																		
5. <i>Cinna latifolia</i>	5	N	FACW																																	
6. <i>Acer saccharinum</i>	4	N	FACW																																	
7. <i>Toxicodendron radicans</i>	3	N	FAC																																	
8. <i>Smilax</i> sp.	2	N																																		
9. _____																																				
10. _____																																				
	69	=	Total Cover																																	
Woody Vine Stratum (Plot size: 30-foot radius)																																				
1. <i>Vitis riparia</i>	5	Y	FACW																																	
2. <i>Euonymus fortunei</i>	3	Y	UPL																																	
3. <i>Toxicodendron radicans</i>	2	Y	FAC																																	
	10	=	Total Cover																																	

Remarks: (Include photo numbers here or on a separate sheet.) _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/2	100					Silt Loam	
4-7	10YR 4/3	70	10YR 4/2	30	D	M	Silt Loam	gravel material
7-13	10YR 4/3	60	10YR 4/2	25	D	M	Silty Clay Loam	gravel material
			10YR 5/6	15	C	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS = Masked or Coated Sand Grains

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

Indicators for Problematic Hydric Soils³

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Material (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No _____ X _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input checked="" type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain Remark) | |

Field Observations:

Surface Water Present? Yes _____ No X _____ Depth (inches): NA (in.)

Water Table Present? Yes _____ X _____ No _____ Depth (inches): 11 (in.)

Saturation Present? Yes _____ X _____ No _____ Depth (inches): 0 (in.)
(includes capillary fringe)

Wetland Hydrology Present? Yes X _____ No _____

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

Remarks:

WETLAND DETERMINATION DATA FORM -- Midwest Region

Project/Site: Clarksville WWTP Expansion and Effluent Line Replacement Project City/County: Clark Sampling Date: 3/29/2012
 Applicant/Owner: Town of Clarksville State: Indiana Sampling Point: DP-15
 Investigator(s): B. Deetsch, R. Fangman Section, Township, Range: 0
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave
 Slope (%): >1 Lat: N 38.2927° Long: W 85.7760° Datum: _____
 Soil Map Unit Name Uaa - Udorthents, cut and filled NWI classification: _____
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present?
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? Yes X No _____
 (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>X</u>	No _____	Is the Sampled Area within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	

Remarks:

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: <u>30-foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominant Test worksheet	
1. _____	_____	_____	_____	Number of Dominant Species That are OBL, FACW, or FAC:	<u>3</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC:	<u>100%</u> (A/B)
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
			= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15-foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:	
1. <u>Sambucus canadensis</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species _____ x 1 = <u>0</u>	_____
3. _____	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	_____
4. _____	_____	_____	_____	FAC species _____ x 3 = <u>0</u>	_____
5. _____	_____	_____	_____	FACU species _____ x 4 = <u>0</u>	_____
			= Total Cover	UPL species _____ x 5 = <u>0</u>	_____
				Column Totals: <u>0</u> (A)	<u>0</u> (B)
				Prevalence Index = B/A = <u>###</u>	
Herb Stratum (Plot size: <u>5-foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:	
1. <u>Phalaris arundinacea</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	<u>X</u> 1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Schoenoplectus tabernaemontani</u>	<u>15</u>	<u>Y</u>	<u>OBL</u>	<u>X</u> 2 - Dominance Test is >50%	
3. <u>Peltandra virginica</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	3 - Prevalence Index is ≤3.0	
4. <u>Phalaris arundinacea</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)	
5. <u>Equisetum sp.</u>	<u>5</u>	<u>N</u>	_____	Problematic Hydrophytic Vegetation' (Explain)	
6. <u>Sagittaria latifolia</u>	<u>3</u>	<u>N</u>	<u>OBL</u>	'Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
7. <u>Populus deltoides</u>	<u>3</u>	<u>N</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes <u>X</u>	
8. <u>Rumex crispus</u>	<u>3</u>	<u>N</u>	<u>FAC</u>	No _____	
9. <u>Polygonum cf. hydroperoides</u>	<u>3</u>	<u>N</u>	<u>OBL</u>		
10. _____	_____	_____	_____		
			= Total Cover		
Woody Vine Stratum (Plot size: <u>30-foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
			= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet.)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix			Redox Features			Texture	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹		
0-3	5Y 3/2	100					Silt	abundance of roots
3-12	Gley 1 2.5/10Y	95	5Y 3/2	5	D	M	Silt	abundance of roots
12-14	5Y 2.5/1	100					Silty Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS = Masked or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Material (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³

- Coast Prairie Redox (A16)
- Dark Surface (S7)
- Iron-Manganese Masses (F12)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present?

Yes _____ X _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one is required; check all that apply)

Secondary Indicators (minimum of two required)

- | | | |
|--|---|--|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Surface Soil Cracks (B6) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Fauna (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> True Aquatic Plants (B14) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Stunted or Stressed Plants (D1) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) | <input type="checkbox"/> Geomorphic Position (D2) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) | <input checked="" type="checkbox"/> FAC-Neutral Test (D5) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Gauge or Well Data (D9) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | <input type="checkbox"/> Other (Explain Remark) | |

Field Observations:

Surface Water Present? Yes No _____ Depth (inches): <1 (in.)

Water Table Present? Yes No _____ Depth (inches): 0 (in.)

Saturation Present? Yes No _____ Depth (inches): 0 (in.)
(includes capillary fringe)

Wetland Hydrology Present? Yes No _____

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

Remarks:

APPENDIX B

RAPID BIOASSESSMENT PROTOCOL FORMS

High Gradient Stream Data Sheet

STREAM NAME: Intermittent Stream 1			LOCATION: Clarksville WWTP Expansion and Effluent Line Replacement Project														
STATION #: RBP 1		MILE:	BASIN/WATERSHED: Mill Creek														
LAT: 38.2934°		LONG: 85.7762°	COUNTY: Clark		USGS 7.5 TOPO: New Albany												
DATE: 12/13/11		TIME: 2:00	<input type="checkbox"/> AM	<input checked="" type="checkbox"/> PM	INVESTIGATORS: B. Deetsch, L. Darnell												
TYPE SAMPLE: P-CHEM		Macroinvertebrate	FISH	BACT.													
WEATHER: <table style="width: 100%; border: none;"> <tr> <td style="width: 25%; border: none;">Now Heavy Rain Steady Rain Intermittent Showers <input type="checkbox"/> Clear/Sunny</td> <td style="width: 25%; border: none;">Past 24 Hours Heavy Rain Steady Rain Intermittent Showers <input type="checkbox"/> Clear/Sunny</td> <td style="width: 50%; border: none;"> Has there been a heavy rain in the last 7 days? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Air Temperature 40 °F 4 °C Rainfall in the past 24 hours 0.0 in. 100 % Cloud Cover </td> </tr> </table>						Now Heavy Rain Steady Rain Intermittent Showers <input type="checkbox"/> Clear/Sunny	Past 24 Hours Heavy Rain Steady Rain Intermittent Showers <input type="checkbox"/> Clear/Sunny	Has there been a heavy rain in the last 7 days? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Air Temperature 40 °F 4 °C Rainfall in the past 24 hours 0.0 in. 100 % Cloud Cover									
Now Heavy Rain Steady Rain Intermittent Showers <input type="checkbox"/> Clear/Sunny	Past 24 Hours Heavy Rain Steady Rain Intermittent Showers <input type="checkbox"/> Clear/Sunny	Has there been a heavy rain in the last 7 days? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Air Temperature 40 °F 4 °C Rainfall in the past 24 hours 0.0 in. 100 % Cloud Cover															
P-Chem: Temp (°C) _____		D.O. (mg/l) _____	% Saturation _____	pH (S.U.) _____	Cond. _____	Grab _____											
INSTREAM WATERSHED FEATURES: Stream Width <u>1 - 4</u> ft Range of Depth <u>0.1 - 0.5</u> ft Average Velocity <u>1</u> ft/s Discharge _____ cfs Est. Reach Length <u>125</u> ft			LOCAL WATERSHED FEATURES: Predominant Surrounding Land Use: <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Surface Mining</td> <td style="width: 33%;">Construction</td> <td style="width: 33%;"><input type="checkbox"/> Forest</td> </tr> <tr> <td>Deep Mining</td> <td>Commercial</td> <td>Pasture/Grazing</td> </tr> <tr> <td>Oil Wells</td> <td><input type="checkbox"/> Industrial</td> <td>Silviculture</td> </tr> <tr> <td><input type="checkbox"/> Land Disposal</td> <td>Row Crops</td> <td><input type="checkbox"/> Urban Runoff/Storm Sewers</td> </tr> </table>			Surface Mining	Construction	<input type="checkbox"/> Forest	Deep Mining	Commercial	Pasture/Grazing	Oil Wells	<input type="checkbox"/> Industrial	Silviculture	<input type="checkbox"/> Land Disposal	Row Crops	<input type="checkbox"/> Urban Runoff/Storm Sewers
Surface Mining	Construction	<input type="checkbox"/> Forest															
Deep Mining	Commercial	Pasture/Grazing															
Oil Wells	<input type="checkbox"/> Industrial	Silviculture															
<input type="checkbox"/> Land Disposal	Row Crops	<input type="checkbox"/> Urban Runoff/Storm Sewers															
Hydraulic Structures Dams Bridge Abutments Island Waterfalls Other		Stream Flow: Dry Pooled Low <input checked="" type="checkbox"/> Normal High Very Rapid or Torrential		Stream Type: Perennial <input checked="" type="checkbox"/> Intermittent Ephemeral Seep													
Riparian Vegetation Dominant Type: <input type="checkbox"/> Trees <input type="checkbox"/> Shrubs <input type="checkbox"/> Grasses <input type="checkbox"/> Herbaceous Number of strata: <u>4</u>		Dom. Tree/Shrub Taxa Silver Maple Box-Elder Black Willow	Canopy Cover: <input checked="" type="checkbox"/> Fully Exposed (0-25%) <input type="checkbox"/> Partially Exposed (25-50%) <input type="checkbox"/> Partially Shaded (50-75%) <input type="checkbox"/> Fully Shaded (75-100%)	Channel Alterations: Dredging Channelization (Full Partial)													
Substrate Est. P.C		Riffle <u>30</u> %	Run <u>60</u> %	Pool <u>10</u> %													
Silt/Clay (<0.06 mm)		X	X	X													
Sand (0.06 - 2 mm)		X	X	X													
Gravel (2-64 mm)		X	X	X													
Cobble (64 - 256 mm)																	
Boulders (>256 mm)																	
Bedrock																	
Habitat Parameter		Condition Category															
		Excellent	Good	Fair	Poor												
1. Epifaunal Substrate/ Available Cover		Greater than 70% of substrate favorable for epifaunal colonization and fish cover	40-70% mix of stable habitat: well-suited for full colonization potential	20-40% mix of stable habitat; habitat availability less than desirable	Less than 20% stable habitat; lack of habitat is obvious												
5		16 - 20	11 - 15	6 - 10	0 - 5												
2. Embeddedness		Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment												
11		16 - 20	11 - 15	6 - 10	0 - 5												
3. Velocity/Depth Regime		All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-missing, score lower than if shallow). (Slow is <0.3 m/x, deep is >0.5 m).	Only 3 of the 4 regimes present (if fast-shallow is missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/depth regime (usually slow-deep)												
10		16 - 20	11 - 15	6 - 10	0 - 5												

4.	Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of bottom affected by deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 20-50% of the bottom affected	Moderate deposition of new gravel, sand, or fine sediment on old and new bars; 50-80% of the bottom affected. Sediment deposits at obstructions, constrictions, and bends.	Heavy deposits of fine material, increased bar development; more than 80% of bottom changing frequently.
	13				
		16 - 20	11 - 15	6 - 10	0 - 5
5.	Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel is exposed.	Water fills 25-50% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	18				
		16 - 20	11 - 15	6 - 10	0 - 5
6.	Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, evidence of past channelization (> past 20 years) may be present.	Channelization may be extensive; shoring structures on both banks and 40-80% stream reach channelized.	Brush shored with gabion or cement; over 80% of reach channelized and disrupted.
	16				
		16 - 20	11 - 15	6 - 10	0 - 5
7.	Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
	17				
		16 - 20	11 - 15	6 - 10	0 - 5
8.	Bank Stability	Stable; evidence of erosion of bank failure absent or minimal. Little potential for future problem.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank has areas of erosion.	Moderately unstable; 30-60% of bank has areas of erosion; high erosion potential during floods.	Unstable; eroded areas frequent; obvious bank sloughing; 60-100% of bank has erosional scars.
	SCORE (LB)	3	9 - 10	6 - 8	3 - 5
	SCORE (RB)	3	9 - 10	6 - 8	3 - 5
		9 - 10	6 - 8	3 - 5	0 - 2
9.	Vegetative Protection	More than 90% of streambank surfaces and immediate riparian zone covered by native vegetation.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants not well-represented; disruption evident.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil.	Less than 50% of the streambank surfaces covered by vegetation disruption of streambank vegetation is very high.
	SCORE (LB)	4	9 - 10	6 - 8	3 - 5
	SCORE (RB)	4	9 - 10	6 - 8	3 - 5
		9 - 10	6 - 8	3 - 5	0 - 2
10.	Riparian Vegetative Zone Width	Width of riparian zone >18 meters; human activities have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
	SCORE (LB)	9	9 - 10	6 - 8	3 - 5
	SCORE (RB)	9	9 - 10	6 - 8	3 - 5
		9 - 10	6 - 8	3 - 5	0 - 2

Total Score: 122

NOTES/COMMENTS: Poor Quality



High Gradient Stream Data Sheet

STREAM NAME: Intermittent Stream 2		LOCATION: Clarksville WWTP Effluent and Expansion Line Replacement Project		
STATION #: RBP 2		MILE: _____		
BASIN/WATERSHED: Mill Creek		COUNTY: Clark USGS 7.5 TOPO: New Albany		
LAT: 38.2934° LONG: 85.7762°		INVESTIGATORS: B. Deetsch, L. Darnell		
DATE: 12/13/11 TIME: 2:15 AM <input checked="" type="checkbox"/> PM		TYPE SAMPLE: P-CHEM Macroinvertebrate FISH BACT		
WEATHER: Now <input type="checkbox"/> Past 24 Hours <input type="checkbox"/>		Has there been a heavy rain in the last 7 days? Yes <input type="checkbox"/> No <input type="checkbox"/>		
Heavy Rain <input type="checkbox"/> Steady Rain <input type="checkbox"/> Intermittent Showers <input type="checkbox"/> Clear/Sunny <input type="checkbox"/>		Air Temperature 40 °F 4 °C Rainfall in the past 24 hours 0.0 in. 100 % Cloud Cover		
Heavy Rain <input type="checkbox"/> Steady Rain <input type="checkbox"/> Intermittent Showers <input type="checkbox"/> Clear/Sunny <input type="checkbox"/>		P-Chem: Temp (°C) _____ D.O. (mg/l) _____ % Saturation _____ pH (S.U.) _____ Cond. _____ Grab _____		
INSTREAM WATERSHED FEATURES: Stream Width 0.5 - 1.5 ft Range of Depth 0.1 - 0.2 ft Average Velocity <1 ft/s Discharge _____ cfs Est. Reach Length 60 ft		LOCAL WATERSHED FEATURES: Predominant Surrounding Land Use: Surface Mining _____ Construction <input type="checkbox"/> Forest <input type="checkbox"/> Deep Mining _____ Commercial <input type="checkbox"/> Pasture/Grazing <input type="checkbox"/> Oil Wells _____ Industrial <input type="checkbox"/> Silviculture <input type="checkbox"/> Land Disposal <input type="checkbox"/> Row Crops <input type="checkbox"/> Urban Runoff/Storm Sewers <input type="checkbox"/>		
Hydraulic Structures: Dams _____ Bridge Abutments _____ Island _____ Waterfalls _____ Other _____		Stream Flow: Dry _____ Pooled _____ Low <input type="checkbox"/> Normal <input type="checkbox"/> High _____ Very Rapid or Torrential _____		
Stream Type: Perennial _____ Intermittent <input type="checkbox"/> Ephemeral _____ Seep _____		Riparian Vegetation: Dominant Type: _____ Trees <input type="checkbox"/> Shrubs <input type="checkbox"/> Grasses <input type="checkbox"/> Herbaceous <input type="checkbox"/>		
Dom. Tree/Shrub Taxa: Sycamore Number of strata: 3		Canopy Cover: Fully Exposed (0-25%) <input type="checkbox"/> Partially Exposed (25-50%) _____ Partially Shaded (50-75%) _____ Fully Shaded (75-100%) _____		
Channel Alterations: Dredging _____ Channelization (Full Partial)		Substrate Est. P.C. Riffle 30 % Run 70 % Pool 0 %		
Silt/Clay (<0.06 mm)		X		
Sand (0.06 - 2 mm)		X		
Gravel (2-64 mm)		X		
Cobble (64 - 256 mm)				
Boulders (>256 mm)				
Bedrock				
Habitat Parameter	Condition Category			
	Excellent	Good	Fair	Poor
1. Epifaunal Substrate/ Available Cover 4	Greater than 70% of substrate favorable for epifaunal colonization and fish cover 16 - 20	40-70% mix of stable habitat: well-suited for full colonization potential 11 - 15	20-40% mix of stable habitat; habitat availability less than desirable 6 - 10	Less than 20% stable habitat; lack of habitat is obvious 0 - 5
2. Embeddedness 10	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment 16 - 20	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment 11 - 15	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment 6 - 10	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment 0 - 5
3. Velocity/Depth Regime 5	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-missing, score lower than if shallow). (Slow is <0.3 m/x, deep is >0.5 m). 16 - 20	Only 3 of the 4 regimes present (if fast-shallow is missing other regimes). 11 - 15	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low). 6 - 10	Dominated by 1 velocity/depth regime (usually slow-deep) 0 - 5

4.	Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of bottom affected by deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 20-50% of the bottom affected	Moderate deposition of new gravel, sand, or fine sediment on old and new bars; 50-80% of the bottom affected. Sediment deposits at obstructions, constrictions, and bends.	Heavy deposits of fine material, increased bar development; more than 80% of bottom changing frequently.
	10				
		16 - 20	11 - 15	6 - 10	0 - 5
5.	Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel is exposed.	Water fills 25-50% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	16				
		16 - 20	11 - 15	6 - 10	0 - 5
6.	Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, evidence of past channelization (> past 20 years) may be present.	Channelization may be extensive; shoring structures on both banks and 40-80% stream reach channelized.	Brush shored with gabion or cement; over 80% of reach channelized and disrupted.
	18				
		16 - 20	11 - 15	6 - 10	0 - 5
7.	Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
	17				
		16 - 20	11 - 15	6 - 10	0 - 5
8.	Bank Stability	Stable; evidence of erosion of bank failure absent or minimal. Little potential for future problem.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank has areas of erosion.	Moderately unstable; 30-60% of bank has areas of erosion; high erosion potential during floods.	Unstable; eroded areas frequent; obvious bank sloughing; 60-100% of bank has erosional scars.
	SCORE (LB)	7	9 - 10	6 - 8	3 - 5
	SCORE (RB)	7	9 - 10	6 - 8	3 - 5
9.	Vegetative Protection	More than 90% of streambank surfaces and immediate riparian zone covered by native vegetation.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants not well-represented; disruption evident.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil.	Less than 50% of the streambank surfaces covered by vegetation disruption of streambank vegetation is very high.
	SCORE (LB)	7	9 - 10	6 - 8	3 - 5
	SCORE (RB)	7	9 - 10	6 - 8	3 - 5
10.	Riparian Vegetative Zone Width	Width of riparian zone >18 meters; human activities have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
	SCORE (LB)	9	9 - 10	6 - 8	3 - 5
	SCORE (RB)	9	9 - 10	6 - 8	3 - 5

Total Score:

126

NOTES/COMMENTS:

Poor Quality



High Gradient Stream Data Sheet

STREAM NAME: Mill Creek		LOCATION: Clarksville WWTP Effluent and Expansion Line Replacement Project			
STATION #: RBP 3		MILE: _____			
BASIN/WATERSHED: Mill Creek		COUNTY: Clark USGS 7.5 TOPO: New Albany			
LAT: 38.2932° LONG: 85.7764°		INVESTIGATORS: B. Deetsch, L. Darnell			
DATE: 12/13/11 TIME: 2:00 AM <input checked="" type="checkbox"/> PM		TYPE SAMPLE: P-CHEM Macroinvertebrate FISH BACT.			
WEATHER: Now _____ Past 24 Hours _____		Has there been a heavy rain in the last 7 days? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Heavy Rain _____ Heavy Rain _____		Air Temperature 40 °F 4 °C			
Steady Rain _____ Steady Rain _____		Rainfall in the past 24 hours 0.0 in.			
Intermittent Showers _____ Intermittent Showers _____		100 % Cloud Cover			
<input type="checkbox"/> Clear/Sunny <input type="checkbox"/> Clear/Sunny					
P-Chem: Temp (°C) _____ D.O. (mg/l) _____ % Saturation _____		pH (S.U.) _____ Cond. _____ Grab _____			
INSTREAM WATERSHED FEATURES: Stream Width 20 - 30 ft Range of Depth 1 - 3 ft Average Velocity <1 ft/s Discharge _____ cfs Est. Reach Length 200 ft		LOCAL WATERSHED FEATURES: Predominant Surrounding Land Use: Surface Mining _____ Construction <input type="checkbox"/> Forest <input type="checkbox"/> Deep Mining _____ Commercial <input type="checkbox"/> Pasture/Grazing <input type="checkbox"/> Oil Wells _____ Industrial <input type="checkbox"/> Silviculture <input type="checkbox"/> Land Disposal _____ Row Crops <input type="checkbox"/> Urban Runoff/Storm Sewers <input type="checkbox"/>			
Hydraulic Structures Dams _____ Bridge Abutments _____ Island _____ Waterfalls _____ <input type="checkbox"/> Other _____ Floodwall with control structure _____		Stream Flow: Dry _____ Pooled _____ Low <input type="checkbox"/> Normal <input type="checkbox"/> High _____ Very Rapid or Torrential _____			
Riparian Vegetation Dominant Type: <input type="checkbox"/> Trees <input type="checkbox"/> Shrubs <input type="checkbox"/> Grasses <input type="checkbox"/> Herbaceous _____ Number of strata: 4		Dom. Tree/Shrub Taxa Silver Maple _____ Box-Elder _____ Green Ash _____ American Elm _____			
		Canopy Cover: <input type="checkbox"/> Fully Exposed (0-25%) <input type="checkbox"/> Partially Exposed (25-50%) <input type="checkbox"/> Partially Shaded (50-75%) <input type="checkbox"/> Fully Shaded (75-100%)			
		Channel Alterations: <input type="checkbox"/> Dredging <input type="checkbox"/> Channelization (<input type="checkbox"/> Full <input type="checkbox"/> Partial)			
Substrate Est. P.C		Riffle _____ %			
		Run _____ %			
		Pool 100 %			
Silt/Clay (<0.06 mm)					
Sand (0.06 - 2 mm)					
Gravel (2-64 mm)					
Cobble (64 - 256 mm)					
Boulders (>256 mm)					
Bedrock					
Habitat Parameter		Condition Category			
		Excellent		Good	
		Fair		Poor	
1. Epifaunal Substrate/ Available Cover		Greater than 70% of substrate favorable for epifaunal colonization and fish cover		40-70% mix of stable habitat; well-suited for full colonization potential	
5		20-40% mix of stable habitat; habitat availability less than desirable		Less than 20% stable habitat; lack of habitat is obvious	
		16 - 20		11 - 15	
		6 - 10		0 - 5	
2. Embeddedness		Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment		Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment	
11		Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment		Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment	
		16 - 20		11 - 15	
		6 - 10		0 - 5	
3. Velocity/Depth Regime		All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is <0.3 m/x, deep is >0.5 m).		Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if shallow). (Slow is <0.3 m/x, missing other regimes).	
4		Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).		Dominated by 1 velocity/depth regime (usually slow-deep)	
		16 - 20		11 - 15	
		6 - 10		0 - 5	

4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of bottom affected by deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 20-50% of the bottom affected	Moderate deposition of new gravel, sand, or fine sediment on old and new bars; 50-80% of the bottom affected. Sediment deposits at obstructions, constrictions, and bends.	Heavy deposits of fine material, increased bar development; more than 80% of bottom changing frequently.
16	16 - 20	11 - 15	6 - 10	0 - 5
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel is exposed.	Water fills 25-50% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
18	16 - 20	11 - 15	6 - 10	0 - 5
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, evidence of past channelization (> past 20 years) may be present.	Channelization may be extensive; shoring structures on both banks and 40-80% stream reach channelized.	Brush shored with gabion or cement; over 80% of reach channelized and disrupted.
8	16 - 20	11 - 15	6 - 10	0 - 5
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
5	16 - 20	11 - 15	6 - 10	0 - 5
8. Bank Stability	Stable; evidence of erosion of bank failure absent or minimal. Little potential for future problem.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank has areas of erosion.	Moderately unstable; 30-60% of bank has areas of erosion; high erosion potential during floods.	Unstable; eroded areas frequent; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE (LB)	5	9 - 10	6 - 8	3 - 5
SCORE (RB)	5	9 - 10	6 - 8	3 - 5
9. Vegetative Protection	More than 90% of streambank surfaces and immediate riparian zone covered by native vegetation.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants not well-represented; disruption evident.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil.	Less than 50% of the streambank surfaces covered by vegetation disruption of streambank vegetation is very high.
SCORE (LB)	7	9 - 10	6 - 8	3 - 5
SCORE (RB)	8	9 - 10	6 - 8	3 - 5
10. Riparian Vegetative Zone Width	Width of riparian zone >18 meters; human activities have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE (LB)	7	9 - 10	6 - 8	3 - 5
SCORE (RB)	7	9 - 10	6 - 8	3 - 5

Total Score:

106

NOTES/COMMENTS:

Poor Quality



High Gradient Stream Data Sheet

STREAM NAME: Mill Creek		LOCATION: Clarksville WWTP Effluent and Expansion Line Replacement Project			
STATION #: RBP 4		MILE: _____			
LAT: 38.2928°		LONG: 85.7758°			
DATE: 3/29/12		INVESTIGATORS: B. Deetsch, R. Fangman			
TIME: 9:30		AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>			
TYPE SAMPLE: P-CHEM		Macroinvertebrate FISH BACT.			
WEATHER: Now		Past 24 Hours			
Heavy Rain		Heavy Rain			
Steady Rain		Steady Rain			
Intermittent Showers		Intermittent Showers			
<input type="checkbox"/> Clear/Sunny		<input type="checkbox"/> Clear/Sunny			
Has there been a heavy rain in the last 7 days?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Air Temperature 55 °F _____ °C		Rainfall in the past 24 hours 0.0 in.			
10 % Cloud Cover					
P-Chem: Temp (°C) _____		D.O. (mg/l) _____ % Saturation _____ pH (S.U.) _____ Cond. _____ Grab			
INSTREAM WATERSHED FEATURES:		LOCAL WATERSHED FEATURES:			
Stream Width 12-15 ft		Predominant Surrounding Land Use:			
Range of Depth 1 - 2 ft		Surface Mining _____ Construction <input type="checkbox"/> Forest <input type="checkbox"/>			
Average Velocity <1 ft/s		Deep Mining _____ Commercial _____ Pasture/Grazing _____			
Discharge _____ cfs		Oil Wells _____ Industrial <input type="checkbox"/> Silviculture _____			
Est. Reach Length 200 ft		Land Disposal _____ Row Crops _____ Urban Runoff/Storm Sewers <input type="checkbox"/>			
Hydraulic Structures		Stream Flow:			
Dams _____ Bridge Abutments _____		Dry _____ Pooled _____ Low <input type="checkbox"/> Normal <input checked="" type="checkbox"/>			
Island _____ Waterfalls _____		High _____ Very Rapid or Torrential _____			
<input type="checkbox"/> Other _____ Floodwall with control structure _____		Stream Type:			
		Perennial <input type="checkbox"/> Intermittent <input type="checkbox"/>			
		Ephemeral _____ Seep _____			
Riparian Vegetation		Canopy Cover:			
Dominant Type:		Fully Exposed (0-25%) <input type="checkbox"/>			
Trees <input type="checkbox"/> Shrubs <input type="checkbox"/>		Partially Exposed (25-50%) _____			
Grasses <input type="checkbox"/> Herbaceous <input type="checkbox"/>		Partially Shaded (50-75%) _____			
Number of strata: 4		Fully Shaded (75-100%) _____			
Dom. Tree/Shrub Taxa		Channel Alterations:			
Silver Maple _____		Dredging _____			
Box-Elder _____		Channelization <input type="checkbox"/>			
Green Ash _____		(Full <input type="checkbox"/> Partial <input type="checkbox"/>)			
American Elm _____					
Substrate Est. P.C.		Riffle 25 %			
		Run 50 %			
		Pool 25 %			
Silt/Clay (<0.06 mm)		X			
Sand (0.06 - 2 mm)		X			
Gravel (2-64 mm)		X			
Cobble (64 - 256 mm)		X			
Boulders (>256 mm)		X			
Bedrock					
Habitat Parameter		Condition Category			
		Excellent		Good	
		Fair		Poor	
1. Epifaunal Substrate/ Available Cover		Greater than 70% of substrate favorable for epifaunal colonization and fish cover		40-70% mix of stable habitat: well-suited for full colonization potential	
8		20-40% mix of stable habitat; habitat availability less than desirable		Less than 20% stable habitat; lack of habitat is obvious	
		16 - 20		11 - 15	
		6 - 10		0 - 5	
2. Embeddedness		Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment		Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment	
8		Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment		Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment	
		16 - 20		11 - 15	
		6 - 10		0 - 5	
3. Velocity/Depth Regime		All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is <0.3 m/x, deep is >0.5 m).		Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes)	
12		Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).		Dominated by 1 velocity/depth regime (usually slow-deep)	
		16 - 20		11 - 15	
		6 - 10		0 - 5	

4. Sediment Deposition	Little or no enlargement of islands or point bars and less than <20% of bottom affected by deposition.	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 20-50% of the bottom affected	Moderate deposition of new gravel, sand, or fine sediment on old and new bars; 50-80% of the bottom affected. Sediment deposits at obstructions, constrictions, and bends.	Heavy deposits of fine material, increased bar development; more than 80% of bottom changing frequently.
16				
	16 - 20	11 - 15	6 - 10	0 - 5
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel is exposed.	Water fills 25-50% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
18				
	16 - 20	11 - 15	6 - 10	0 - 5
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, evidence of past channelization (> past 20 years) may be present.	Channelization may be extensive; shoring structures on both banks and 40-80% stream reach channelized.	Brush shored with gabion or cement; over 80% of reach channelized and disrupted.
5				
	16 - 20	11 - 15	6 - 10	0 - 5
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
14				
	16 - 20	11 - 15	6 - 10	0 - 5
8. Bank Stability	Stable; evidence of erosion of bank failure absent or minimal. Little potential for future problem.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank has areas of erosion.	Moderately unstable; 30-60% of bank has areas of erosion; high erosion potential during floods.	Unstable; eroded areas frequent; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE (LB)	3	9 - 10	6 - 8	3 - 5
SCORE (RB)	4	9 - 10	6 - 8	3 - 5
9. Vegetative Protection	More than 90% of streambank surfaces and immediate riparian zone covered by native vegetation.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants not well-represented; disruption evident.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil.	Less than 50% of the streambank surfaces covered by vegetation disruption of streambank vegetation is very high.
SCORE (LB)	3	9 - 10	6 - 8	3 - 5
SCORE (RB)	3	9 - 10	6 - 8	3 - 5
10. Riparian Vegetative Zone Width	Width of riparian zone >18 meters; human activities have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE (LB)	5	9 - 10	6 - 8	3 - 5
SCORE (RB)	9	9 - 10	6 - 8	3 - 5

Total Score:

108

NOTES/COMMENTS:

Poor Quality



APPENDIX C

**PRELIMINARY JURISDICTIONAL
DETERMINATION FORM**

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):
May 18, 2012

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Ms. Brittany Montgomery
Town of Clarksville
2000 Broadway Street
Clarksville, Indiana 47129

Represented by:
Redwing Ecological Services, Inc.
1139 South Fourth Street
Louisville, KY 40203

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Louisville District; Clarksville WWTP Expansion and Effluent Line Replacement Project; LRL-2012-

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

The Project consists of two distinct study areas, an approximately 7.5 acre tract to the east of the existing WWTP where the WWTP expansion is proposed, and an approximately 9.4-acre corridor along the proposed effluent line replacement alignment, located just south of the existing WWTP. The existing WWTP site is located at 1 Luethart Drive in Clarksville, Clark County, Indiana.

(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: Indiana County/parish/borough: Clark City: Clarksville

Center coordinates of site (lat/long in degree decimal format): WWTP Expansion Area - Lat. N 38.29603°, Long. W 85.773559°; Effluent Line Replacement Area - Lat. N 38.29516°, Long. W 85.77548°

Name of nearest waterbody: Mill Creek

Identify (estimate) amount of waters in the review area:

Non-wetland waters: 1,163 linear feet: 1 to 30 width (ft) and/or 0.275 acres.

Cowardin Class: R3UB3 and R4SB5

Stream Flow: Perennial, Intermittent, and Ephemeral

Wetlands: 1.31 acres.

Cowardin Class: PEM1 and PFO1

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal:

Non-Tidal:

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an

official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply) checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Redwing, May 15, 2012.
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps: .
- Corps navigable waters' study: .
- U.S. Geological Survey Hydrologic Atlas: .
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 – New Albany and Jeffersonville, IN.
- USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey Geographic Database for Clark County, Kentucky (2009).
- National wetlands inventory map(s). Cite name: .
- State/Local wetland inventory map(s): .
- FEMA/FIRM maps: FEMA Q3 Flood Data for Clark County, Indiana (2002).
- 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): FSA NAIP Ortho Imagery for Indiana (2008).
or Other (Name & Date): Site photographs December 13 and 14, 2011 and February 3 and March 29, 2012.
- Previous determination(s). File no. and date of response letter: .
- Other information (please specify): .

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

 NAME
 Regulatory Project Manager
 (REQUIRED)

 Signature and date of
 person requesting preliminary JD
 (REQUIRED, unless obtaining the signature
 is impracticable)

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
Mill Creek	38.2932°	85.7764°	R3UB3	0.24 acre	non-section 10 – non-wetland
Intermittent Stream 1	38.2934°	85.7762°	R4SB5	0.02 acre	non-section 10 – non-wetland
Intermittent Stream 2	38.2934°	85.7762°	R4SB5	0.001 acre	non-section 10 – non-wetland
Ephemeral Stream 1	38.2960°	85.7754°	R4SB5	0.01 acre	non-section 10 – non-wetland
Ephemeral Stream 2	38.2945°	85.7751°	R4SB5	0.004 acre	non-section 10 – non-wetland
Wetland 1	38.2950°	85.7751°	PFO1	0.01 acre	non-section 10 – wetland
Wetland 2	38.2934°	85.7764°	PFO1 and PEM1	0.71 acre	non-section 10 – wetland
Wetland 3	38.2928°	85.7764°	PEM1	0.59 acre	non-section 10 – wetland

APPENDIX D

HAZARDOUS MATERIALS ASSESSMENT REPORT



August 3, 2012

Mr. Richard Clausen
Redwing Ecological Services, Inc.
1139 South Fourth Street
Louisville, Kentucky 40203

***RE: Hazardous Materials Environmental Assessment
Expansion and Effluent Line Replacement Project
Clarksville Waste Water Treatment Plant
1 Leuthart Drive
Clarksville, Clark County, Indiana
Linebach Funkhouser, Inc. Project No. 186-12***

Dear Mr. Clausen:

Linebach Funkhouser, Inc. (LFI) has completed a *Hazardous Materials Environmental Assessment* for the above-referenced project, as requested by Redwing Ecological Services, Inc. (Redwing). The purpose of the assessment was to address the potential presence of hazardous materials in conjunction with a Federal Emergency Management Agency (FEMA) Environmental Assessment (EA). The location of the designated study area is indicated on the attached topographic quadrangle in **Figure 1**. An aerial photograph depicting site-specific features for the expansion study area and effluent line replacement study area is included as **Figure 2**.

The assessment of hazardous materials performed for the subject study areas included:

- A reconnaissance of the study areas;
- A review of environmental database information, historical aerial photographs and historical topographic quadrangles;
- A review of previous Phase I and Phase II Environmental Site Assessment (ESA) reports; and,
- An on-line review of records from the Indiana Department of Environmental Management (IDEM).

Site Reconnaissance

A reconnaissance of the Clarksville Waste Water Treatment Plant (WWTP), including both the expansion study area and the effluent line replacement study area, was performed on July 17, 2012 by Mr. Brendan Merk, L.P.G., Senior Geologist of LFI. Mr. Merk was unaccompanied during the site visit. The purpose of the reconnaissance was to gather information regarding the environmental conditions at the subject property and surrounding areas. Photographs taken during the site reconnaissance, depicting general site conditions at the time of the visit, are provided in **Attachment A**.

The expansion study area of the WWTP includes the former Midway Park property owned by the Town of Clarksville. The site reconnaissance identified the presence of two structures, a picnic pavilion and a garage. The sheltered pavilion structure appeared to be primarily constructed of a metal frame with shingled roof, with concrete block walls containing a small area for restroom facilities. The two-car garage structure appeared to be of wood frame construction with stone walls and a tile roof. No access was available to the interior of the buildings, but there does appear to be a limited potential for asbestos containing materials (ACMs) and lead-based paint.

An above-ground storage tank (AST) was noted adjacent to the garage structure. The approximately 500-gallon AST was labeled as 'Waste Oil'. A damaged port cap was noted at the top of the AST, exposing the interior of the AST to the atmosphere and allowing the infiltration of rainwater. A small quantity of liquid was noted in the bottom of the AST.

The effluent line replacement study area extends over several properties including:

- Portions of the flood wall (presumably managed by the Army Corps of Engineers);
- A portion of a former railroad track that bisects the area into northern and southern portions, owned by the Town of Clarksville;
- The area north of the railroad tracks, owned by Lucas Brothers Paving; and,
- The area south of the railroad tracks, owned by the Indiana Department of Natural Resources (IDNR).

Access to the full study area of the Lucas Brothers Paving and IDNR properties were limited by heavy vegetation. No obvious evidence of hazardous materials was noted with the flood wall or former railroad tracks properties.

The site reconnaissance of the Lucas Brothers Paving property, however, revealed abundant solid waste materials at the ground surface, likely with a former landfill located at this property (as discussed in following sections). The solid waste included scrap metal, waste tires, automotive parts (oil filters, gas tanks, etc.), rusted 55-gallon drums, bottles and cans, and asphalt and concrete construction debris. A trail, apparently used by off-road vehicles, appeared to be associated with limited dumping of more recent solid waste debris.

The site reconnaissance of the IDNR property also revealed small amounts of solid waste debris at various locations. A small pond, present along the western boundary of the property, appeared to discharge to a surface water feature flowing to the south. The water feature appeared to deposit an orange (iron) precipitate, with additional precipitate noted in the bank of the water feature. While no obvious sheen or odor was associated with the water feature, the general appearance of the water suggested possible leachate impact from the former landfill at the upgradient Lucas Brothers Paving property. The surface water feature was noted to flow south, discharging directly to Mill Creek. Thick plant and algae growth were noted at the confluence with Mill Creek but not within the water feature itself.

Environmental Records Review

A computerized database search was conducted of files maintained by the United State Environmental Protection Agency (U. S. EPA) and Indiana Department of Environmental Management (IDEM). FirstSearch Technology Corporation (FirstSearch), an independent environmental data research company, conducted the search on July 17, 2012 to evaluate the regulatory history of the study areas and surrounding properties. A search of available federal, state and local regulatory agency databases was conducted in an attempt to identify if properties within the study areas are listed in any environmental databases and to identify facilities that could cause actual or potential environmental impacts to properties within the study area. A copy of the radius report is included as **Attachment B**.

The environmental records search conducted by FirstSearch identified one (1) property within the study area on the search databases reviewed:

Lucas Bros Inc.

Address: Sames Road, Clarksville, Indiana 47129

Databases: UST; Brownfields

Regulatory Data Summary: Underground Storage Tank (UST) systems were reported to be permanently out of service or under investigation. The facility was also listed under the state brownfields program. No additional information was provided by the report.

The following adjoining property was also noted within the environmental records search conducted by FirstSearch:

Clarksville WWTP

Address: 725 North Clark; 1 Leuthart Drive, Clarksville, Indiana 47129

Databases: Spills; RCRA Gen; RCRA No Longer Regulated; Other

Regulatory Data Summary: A chlorine spill (10 pounds) was noted to have occurred in April 1992. The facility was identified as a small quantity generator of hazardous wastes in 2002, and later revised as a 'No Longer Regulated' facility in 2012. A sewage discharge permit was noted to be active from 2003 through 2008. A 2,000-gallon UST was noted to have been installed in 1988 and removed from service in 2012.

The FirstSearch environmental records search mapped 7 additional properties within a 0.25-mile radius of the facility established for this project, as required by AAI, with a potential for release and impact on the site. None of the sites identified appear to present an obvious release or threatened release to the property, based on information contained in the regulatory databases, information provided in other historical reports, and the distance of the listed sites from the subject site.

The FirstSearch environmental records search also provides a list of "orphan" sites, which are properties that could not be mapped due to poor or inaccurate address information. The FirstSearch records search identified 23 orphan site listings, including Lucas Brothers and other

properties identified in the database search. No unmapped sites appeared to be in the vicinity of the subject property based on our area reconnaissance, with the exception of the following property:

Galligan Dump

Address: 1035 Sames Road, Clarksville, Indiana 47129

Databases: Brownfields

Regulatory Data Summary: No information through the regulatory database search was provided; however, this facility was noted to be upgradient and a potential contaminant source for the Lucas Brothers property, as discussed in a previous Phase I report.

The environmental records review also included a search for aerial photographs of the subject property and surrounding area by FirstSearch, with aerial photographs provided for various years from 1940 to 2010. A copy of the report is included as **Attachment C** and a summary is presented in the following table:

Aerial Photographs

Year	Issues Noted	Observations
1940	No	The possible construction of the flood wall is noted. Surrounding areas are all undeveloped and mostly wooded, with the exception of agricultural property along the IDNR property.
1949	No	Much of the surrounding area is now cleared for agricultural use. Industrial or commercial activity is noted northwest of the Lucas Brothers property.
1955	No	A drive-in theater is noted to the east. A water feature is now noted northwest of the Lucas Brothers property, indicating the likely presence of a sand and gravel operation. A residence is noted at the Midway Park property.
1965	Yes	All wooded areas have now been cleared. Disturbed areas, possibly sand and gravel operations are noted on the Lucas Brothers property, extending into the IDNR property. The property northwest of Lucas Brothers is now a lake.
1981	Yes	Continued disturbance is noted on the Lucas Brothers property. Some of the surrounding area is again wooded.
1992	Yes	Continued disturbance is noted on the Lucas Brothers property. The construction of the Clarksville WWTP is noted.
1998	Yes	Continued disturbance of the Lucas Brothers property is noted. The development of Midway Park is also noted.
2010	Yes	Continued disturbance of the northern area of the Lucas Brothers property is noted. The lake to the northwest of Lucas Brothers is noted to be reclaimed.

Review of Previous Phase I and Phase II Environmental Site Assessment Reports

The Lucas Brothers property was the subject of a Phase I Environmental Site Investigation dated April 26, 2010 and a Phase II investigation dated November 19, 2010. The Phase I investigation included the portion of the effluent line replacement study area north of the former railroad track. The Phase II investigation was conducted on the northern part of the Lucas Brothers property that was not part of the study area.

The Phase I report noted the following environmental concerns:

- The historic use of the Lucas Brothers property as an unlicensed landfill, with abundant unregulated waste materials dumped into water filled gravel pits;
- Volatile organic compounds detected in groundwater samples from a nearby water plant (Atkins Well Field Site), attributed to the former dumping operations at the Lucas Brothers property;
- Solid waste debris visible at the ground surface, including tires, scrap metal, equipment, construction debris, automotive equipment and trash; and,
- An additional dump (Galligan Dump) located northwest of the Lucas Brothers property, noted to have potential for the migration of contamination onto the Lucas Brothers property. This dump reportedly received a violation of non-compliance in 2011.

The Phase II report included results of soil and groundwater sampling. Groundwater was reportedly encountered at approximately 23 feet below ground surface, with an interpreted flow direction to the southwest. Soil samples collected near the study area indicated levels of arsenic, lead and total petroleum hydrocarbons above state residential closure levels. Groundwater samples collected near the study area indicated levels of lead in groundwater above state residential closure levels.

Review of Public Records

The Virtual File Cabinet (VFC) provides an online depository of records for sites regulated by IDEM. Key documentation for the study area is included in **Attachment D**. A review of records for the study area and surrounding properties was used to compile the following information:

Atkins Well Field Site

Summary: This site reportedly operated as a municipal water supply. A landfill was noted at the Lucas Brothers property by well field personnel in 1967. Dumping operations at the Lucas Brothers property reportedly consisted of solid materials that were burned and then pushed with liquid wastes into a water filled gravel pit. Monitoring wells were installed at the well field, and possible groundwater degradation from dumping operations was reported in 1968. Illegal dumping reportedly continued through the 1970s and use of the well field was apparently terminated. A 1988 IDEM inspection recommended 'No Further Action' for the well field as dumping operations occurred off-site and not at the former well field.

Lucas Bros Property

Summary: IDEM correspondence to Lucas Brothers in 1986 and 1987 noted continued dumping observed during state inspections. A 1987 IDEM report recommended further investigation and sampling, noting the presence of unknown wastes, flammable liquids and the potential for groundwater and surface water contamination. A 1990 letter from IDEM to the EPA noted a 1989 site inspection that identified lead contamination in soil and low concentrations of contaminants in groundwater. IDEM requested no additional investigation based on a 'slim likely-hood' of a threat to human health and the environment. In 1990 the Region V EPA indicated that no additional investigation of the former landfill would be required.

Discussion of Alternatives

A review of the historical documentation and the performance of the site reconnaissance indicate that hazardous materials appear to be present in the study area, including the potential transport of suspect leachate from the former landfill area to Mill Creek. The following action alternatives are recommended to address these potential concerns:

Alternative 1 - No Action Alternative

If no action is taken, there would be no ground disturbed and no additional hazardous materials would be encountered or disturbed. Any existing hazardous materials would remain in their present condition. The presence of the orange precipitate observed downgradient of the Lucas Brothers Paving property may indicate a threat to the environment and local surface waters. LFI recommends the collection of a sample from the surface water feature to determine if hazardous constituents are present.

Alternative 2 - Proposed Action

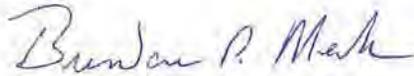
LFI understands that the proposed construction activities would require only minimal excavation in areas along the eastern portion of the effluent line study area, and therefore away from the more abundant areas of obvious solid waste. If suspected hazardous materials are found during construction (e.g. through the discovery of buried solid waste, discolored soils, etc.), appropriate measures will be taken to identify, remove, and dispose of the waste and any associated contaminated soils. Hazardous materials discovered, generated, or used during construction would be handled and disposed of in accordance with applicable local, State, and Federal regulations.

A review of public records for the study area indicated that a potential was previously noted for groundwater from the former city dump (northwest of the study area) to impact former public water wells (southeast of the study area). Previous environmental studies in the area indicated a local depth to groundwater of approximately 23 feet below ground surface. If the excavation associated with this project is not anticipated to extend to this depth, the potential to encountered impacted groundwater during excavation activities would be unlikely.

If the project includes the demolition of existing structures on the former Midway Park, an assessment for potential asbestos-containing materials and lead-based paint should be conducted in accordance with the requirements for National Emission Standards for Hazardous Air Pollutants (NESHAP).

We appreciate the opportunity to assist Redwing Ecological Services with this project. If you have any questions or comments regarding this submittal, please contact us at (502) 895-5009.

Sincerely,



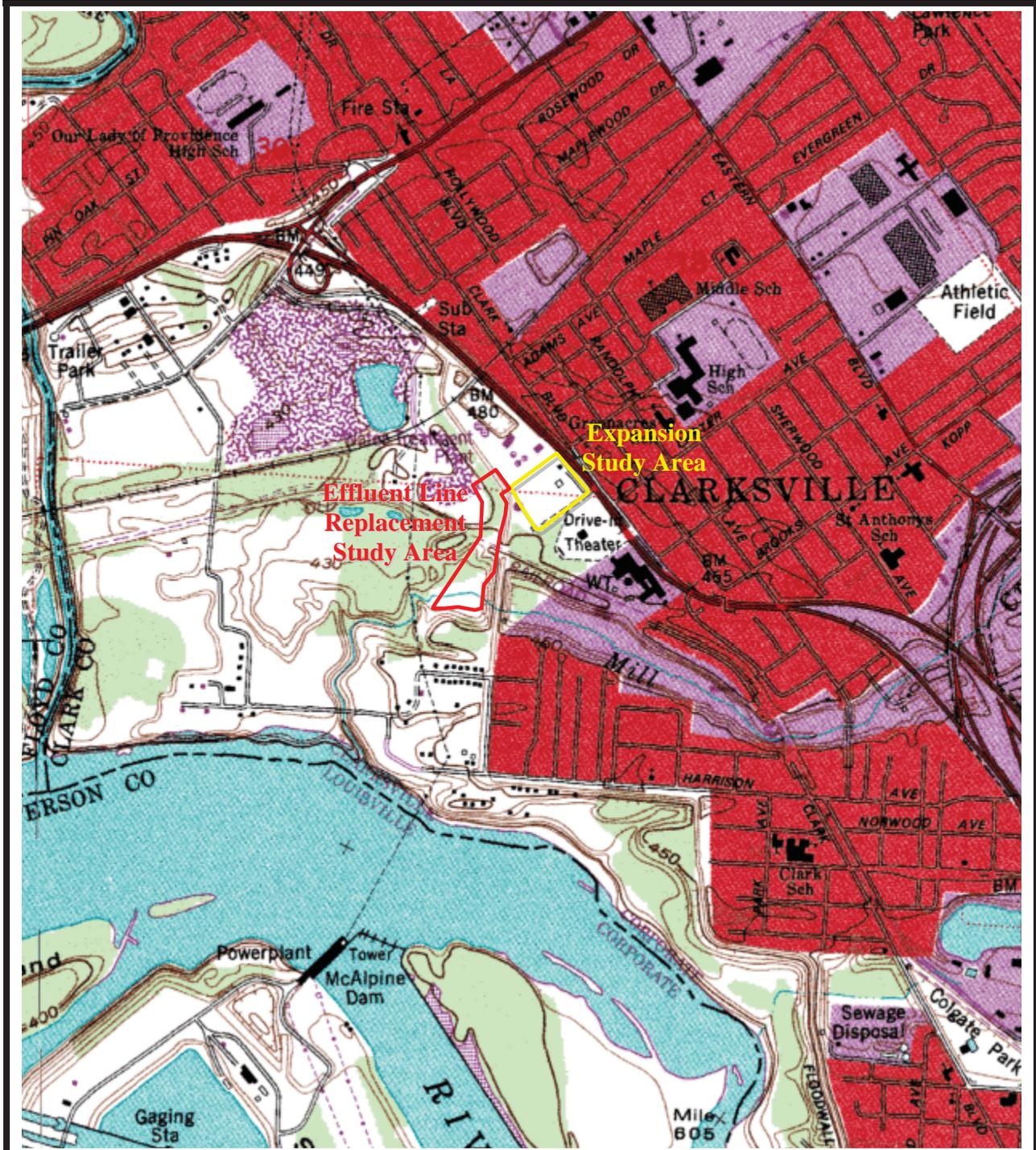
Brendan P. Merk, L.P.G.
Senior Geologist



Charles D. Linebach, CHMM
Principal

Attachments

Figures



Clarksville WWTP
 1 Leuhart Drive
 Clarksville, Indiana



Linebach Funkhouser, Inc.
 environmental compliance & consulting

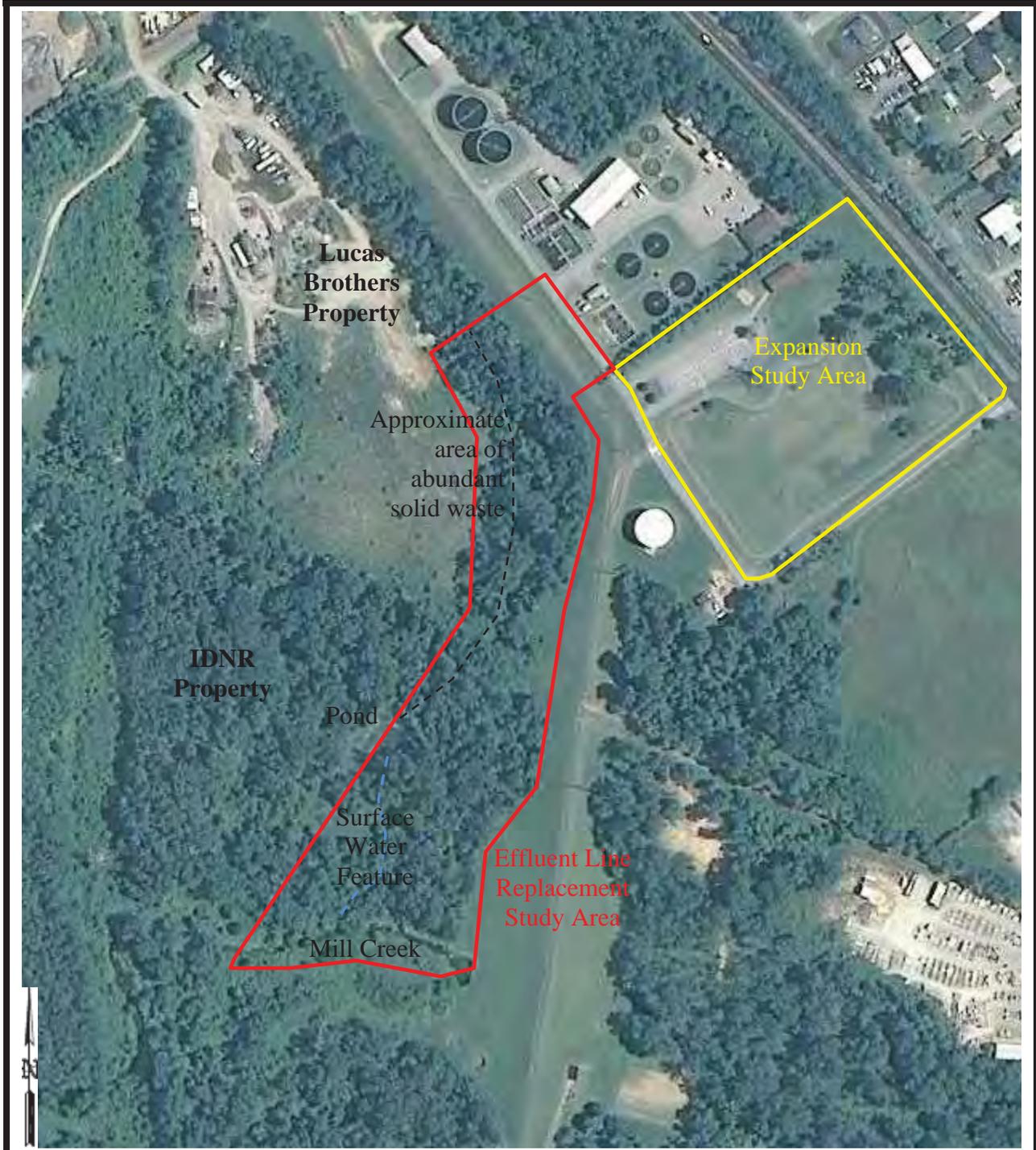
Site Location Map

USGS Topographical Map
 1995 New Albany, IN

PROJECT NO: 186-12

Scale:
 1:24,000

Figure:
 1



Clarksville WWTP
 1 Leuthart Drive
 Clarksville, IN



2010 Aerial Photograph
 Showing Surrounding
 Property Use

PROJECT NO: 186-12

Scale:
 1:6,000

Figure:
 2

Attachment A

Site Photographs



Photographic Record

Client: Redwing Ecological Services

Site Name: Clarksville WWTP Expansion

Project Number: 186-12

Site Location: 1 Leuthart Drive, Clarksville, Indiana

Photo Number:

1

Photographer:

Brendan P. Merk

Date:

July 17, 2012

Direction:

North/Northeast

Comments:

Structures at the Midway Park property include a pavilion and garage, associated with historic use of the site as a residence and later a public park.



Photo Number:

2

Photographer:

Brendan P. Merk

Date:

July 17, 2012

Direction:

South/southwest

Comments:

An above-ground storage tank (AST) was noted adjacent to the garage structure. The AST was labeled to contain waste oil, but appeared to contain minimal fluid. Rusting was noted on the exterior of the AST; however, no apparent release was noted.





Photographic Record

Client: Redwing Ecological Services

Site Name: Clarksville WWTP Expansion

Project Number: 186-12

Site Location: 1 Leuthart Drive, Clarksville, Indiana

Photo Number:

3

Photographer:

Brendan P. Merk

Date:

July 17, 2012

Direction:

Aerial

Comments:

An insignificant amount of soil staining was noted adjacent to a tree in the northeast portion of the park property.



Photo Number:

4

Photographer:

Brendan P. Merk

Date:

July 17, 2012

Direction:

Northeast

Comments:

Abundant solid waste was encountered on the Lucas Brothers property. This area is west of the flood wall, and north of the former railroad track. Waste from this former dump reportedly affected public water wells to the southeast.





Photographic Record

Client: Redwing Ecological Services

Site Name: Clarksville WWTP Expansion

Project Number: 186-12

Site Location: 1 Leuthart Drive, Clarksville, Indiana

Photo Number:

5

Photographer:

Brendan P. Merk

Date:

July 17, 2012

Direction:

Southwest

Comments:

Additional solid waste on the Lucas Brothers property included unlabeled and rusted drums and automotive parts, such as the gas tank depicted.



Photo Number:

6

Photographer:

Brendan P. Merk

Date:

July 17, 2012

Direction:

Southwest

Comments:

A wet weather spring or sink appeared to be present, based on observations of likely wet weather flow patterns. Typical karst/cave features are not expected in the area; however, some subsurface flow may be present.





Photographic Record

Client: Redwing Ecological Services

Site Name: Clarksville WWTP Expansion

Project Number: 186-12

Site Location: 1 Leuthart Drive, Clarksville, Indiana

Photo Number:

7

Photographer:

Brendan P. Merk

Date:

July 17, 2012

Direction:

Southwest

Comments:

A pond was noted on the IDNR property west of the flood wall and south of the former railroad track. Access to the pond was limited by thick vegetation.



Photo Number:

8

Photographer:

Brendan P. Merk

Date:

July 17, 2012

Direction:

West

Comments:

Water discharge from the pond appeared to precipitate iron, possibly associated with leachate from the former dump to the north. Additional areas of apparent leachate were noted in the banks of the surface water feature.





Photographic Record

Client: Redwing Ecological Services

Site Name: Clarksville WWTP Expansion

Project Number: 186-12

Site Location: 1 Leuthart Drive, Clarksville, Indiana

Photo Number:

9

Photographer:

Brendan P. Merk

Date:

July 17, 2012

Direction:

Northeast

Comments:

Algae growth was noted at the confluence of the suspect leachate water feature and Mill Creek. No stressed vegetation was observed directly, but is suspected based on a general lack of vegetation or plant growth within the main channel of the suspect leachate surface water feature..



Photo Number:

10

Photographer:

Brendan P. Merk

Date:

July 17, 2012

Direction:

East

Comments:

A second view of the confluence, downstream of the water feature discharge point.





Photographic Record

Client: Redwing Ecological Services

Site Name: Clarksville WWTP Expansion

Project Number: 186-12

Site Location: 1 Leuthart Drive, Clarksville, Indiana

Photo Number:

11

Photographer:

Brendan P. Merk

Date:

July 17, 2012

Direction:

East

Comments:

Solid waste debris was noted throughout the Lucas Brothers and IDNR properties, and noted with a drum identified near the southeast corner of the effluent line study area.



Photo Number:

12

Photographer:

Brendan P. Merk

Date:

July 17, 2012

Direction:

North

Comments:

Minor amounts of solid waste dumping was noted on the IDNR property, along an ATV trail that runs through the property.

