



# TYPE III STORMWATER VARIANCE

---

**Wendler Commons**  
**Wendler Commons LP**  
Columbus, Ohio

**7/10/2019**

---

Registered Engineer

E-72732

Date

2550 CORPORATE EXCHANGE DRIVE, SUITE 300  
COLUMBUS, OHIO 43231  
614.901.2235

[www.structurepoint.com](http://www.structurepoint.com)

# TABLE OF CONTENTS

## Stormwater Management Narrative

<b>1.0</b>	<b>Project Information</b> .....	<b>2</b>
<b>2.0</b>	<b>Existing Conditions</b> .....	<b>2</b>
<b>3.0</b>	<b>Developed Conditions</b> .....	<b>3</b>
<b>3.1</b>	<b>Existing Stream Conditions</b> .....	<b>3</b>
<b>3.2</b>	<b>Proposed SCPZ Impacts</b> .....	<b>4</b>
<b>4.0</b>	<b>Site Development Alternatives</b> .....	<b>4</b>
<b>4.1</b>	<b>Preferred Alternative</b> .....	<b>4</b>
<b>4.2</b>	<b>Minimal Impact Alternative</b> .....	<b>5</b>
<b>4.3</b>	<b>Full Compliance / No Impact Alternative</b> .....	<b>5</b>
<b>4.4</b>	<b>Comparison of Project Alternatives</b> .....	<b>5</b>
<b>5.0</b>	<b>Mitigation</b> .....	<b>6</b>
<b>5.1</b>	<b>Summary of Mitigation</b> .....	<b>6</b>
<b>6.0</b>	<b>Statement of Hardship</b> .....	<b>6</b>

## Appendices

### Appendix A – Project Site Data

- Project Location Map
- USDA Soils Data
- FEMA Flood Insurance Rate Map

### Appendix B – Field Investigation Map

### Appendix C – Headwater Habitat Evaluation Form

- Existing Streams 1 & 2

### Appendix D – Approved Nationwide Permit

### Appendix E – Site Photos

### Appendix F – Proposed Stream Headwater Habitat Evaluation Form

### Exhibit 1 – Preferred Alternative

### Exhibit 2 – No Impact

## 1.0 Project Information

Wendler Commons is located in Columbus, Ohio near on an 11.23 acre site (Franklin County Parcel ID 520-168898) near the intersection of Wendler Boulevard and North Stygler Road. The proposed development is a multi-family development project with two buildings comprising 62 units, parking lot, associated utilities, and underground detention.

A project location map, soils map and FEMA flood insurance rate map can be found in Appendix A of this report.

## 2.0 Existing Conditions

The existing site is currently forested with two ephemeral streams and wetlands located near the middle of the site. Stream 1 flows from west to east and ultimately outlets to the Stygler Road right-of-way. Stream 2 flows from the southwest corner of the site to a wetland area near the middle of the site where it intersects with Stream 1. Both Streams are manmade and were installed as part of Dr D 3129 in 1981.

A Stream Corridor Protection Zone (SCPZ) is present along the two streams within the site. As shown in Appendix B, Stream 1 has a drainage area of 0.02 square miles and Stream 2 has a drainage area of 0.01 square miles. Based upon the criteria provided in the current Columbus Stormwater Detention Manual (SWDM), both Stream 1 & 2 have an SCPZ width of 50', which is the minimum provided per the manual.

A field investigation map can be found in Appendix B of this report.

## 3.0 Developed Conditions

The proposed development includes impact to approximately 281 linear feet of the existing stream running through the site to allow for the proposed development.

The Stream Corridor Protection Zone (SCPZ) consists of the stream channel and the adjacent riparian area. Its purpose is to allow the natural, lateral movement of the stream, provide sufficient area for flood conveyance, protect water quality and prevent structures from being impacted by natural streambank erosion. A SCPZ is present along the unnamed tributaries at the Wendler Commons development site. The Preferred Plan will encroach upon the SCPZ.

The developer is requesting a variance from Section 1.3.2 and 1.3.3 of the SWDM for the proposed residential development, specifically a variance allowing for SCPZ and channel impacts in order to construct a roadway crossing and associated earthwork. The proposed project will also result in compensatory floodplain storage; however, these activities are permitted within the SCPZ per the SWDM and a variance is not required for these impacts.

### 3.1 Existing Stream Conditions

A Headwater Habitat Evaluation Index (HHEI) assessment was completed for Stream 1 and Stream 2 within the project area.

Stream 1 has 670 linear feet within the site and received a HHEI score of 39, which is indicative of a “fair” habitat quality. As shown on the HHEI form (See Appendix C), the stream substrate is made up of 70% clay/hardpan, 20% gravel, 5% sand, and 1% cobble.

Stream 2 has 285 linear feet within the site and received a HHEI score of 33, which is indicative of a “fair” habitat quality. As shown on the HHEI form (See Appendix C), the stream substrate is made up of 45% clay/hardpan, 15% leaf pack/ woody debris, 30% gravel, and 10% sand.

As described by Ohio EPA, Class I ephemeral streams have little or no aquatic life potential and have little or no potential to achieve higher stream functions. Based upon the field observations and the HHEI assessment, Streams 1 and 2 exhibit minimal stream functions. These channels primarily serve to convey overland stormwater flow from the surrounding forest and residential development to the Stygler Road right-of-way, and have flowing water only for very short time periods following significant rainfall events.

### 3.2 Proposed SCPZ Impacts

As shown in Appendix B, Stream 1 has a drainage area of 0.02 square miles and Stream 2 has a drainage area of 0.01 square miles. Based upon the criteria provided in the SWDM both Stream 1 & 2 have an SCPZ width of 50', which is the minimum provided per the SWDM.

Under the Preferred Alternative, discussed below, the proposed area of impact within the SCPZ is 0.35 acres, which includes 281 linear feet of direct channel impacts to Stream 1. Additionally, the proposed impacts to the channel and the SCPZ allows for the construction of the preferred development layout and necessary stormwater management facilities. An approved Nationwide Permit from the Army Corps of Engineers allows for 282 feet of impact (See Appendix D). Additionally, the proposed impacts to the channel and the SCPZ allows for the construction of the Preferred Alternative layout and necessary stormwater management facilities including stream mitigation.

## 4.0 Site Development Alternatives

### 4.1 Preferred Alternative

Under the Preferred Alternative (Exhibit Sheet 1) a two building, 62 unit development will be built on approximately 3.47 acres of land. A parking lot, associated utilities, and underground detention will be constructed as part of the development. The Minimal Impact Alternative will result in 281 linear feet of channel impacts and 0.35 acres of SCPZ impacts. Specifically, the following, non-permitted impacts to the streams and associated SCPZ are proposed:

- 281 linear feet of impact to Stream 1
- 0.35 acres of impact to the SCPZ for Stream 1

The impacts to Stream 1 SCPZ are necessary for construction of the multi-family units. The impacts to the Stream 1 SCPZ will allow for grading associated with the site. The proposed layout minimizes the developable area within the site while still maintaining enough area for residential units and the site's financial viability. The minimal impact alternative also allows for stream mitigation, discussed further below, by allowing room for a proposed stream.

## 4.2 Minimal Impact Alternative

There is no minimal impact alternative for this site. Given the restraints of the site and the necessity to cross at least one stream to make a drive connection the preferred alternative presented above is the least impactful the site can be while still maintaining viability for the developer.

## 4.3 Full Compliance / No Impact Alternative

Under the Full Compliance / No Impact Alternative (Exhibit Sheet 2) the project cannot be constructed. The viability of the project without stream impacts is unattainable, as the only feasible location of the buildings and parking are north of Stream 1. The Full Compliance / No Impact Alternative will result in no channel impacts and no SCPZ impacts.

## 4.4 Comparison of Project Alternatives

**Table 4.4.1 Project Impact Comparisons**

Alternative	Impacts		Remaining	
	Channel (lf)	SCPZ (ac)	Channel (lf)	SCPZ (ac)
<i>Existing Conditions</i>			910	1.04
Preferred Impact	281	0.35	629	0.69
No Impact	0	0	910	1.04

The Preferred Impact Alternative does not disturb Stream 2 and its associated SCPZ while adhering to the allowed impacts to Stream 1 and its associated SCPZ under the nationwide permit while maintaining a developable site.

The No Impact Alternative does not allow for any development on the site as the project cannot be constructed in the area between Wendler Boulevard, Stream1, and Stream 2.

## 5.0 Mitigation

### 5.1 Summary of Mitigation

Impact to approximately 281 linear feet of Stream 1 will allow the proposed development to be constructed. Per the SWDM, mitigation will be required for impacts to the SCPZ by creating equivalent mitigation for the impacted area. The Minimal Impact alternative will impact 0.35 acres within the SCPZ and 281 linear feet of the channel. The impact area to the SCPZ will be mitigated onsite in accordance with the SWDM.

Onsite mitigation will occur at a 1:1 ratio at minimum. The proposed stream length is 317 linear feet and the proposed SCPZ area is 0.36 acres. See Exhibit 2 for mitigation stream area. Trees reflective of the existing site makeup shall be planted along the banks of the proposed stream (See Appendix E for examples). The stream substrate shall be comprised of approximately 70% clay/ hardpan, 20% gravel, 5% sand, and 1% cobble. This will ensure the stream is as close to the existing conditions as possible.

Planting the trees along the stream banks, adhering the substrate makeup as detailed above, and grading in the proposed stream with pools as shown in Exhibit 1 should yield an HHEI score of 54 or greater (See Appendix F), ensuring that the proposed stream conditions exceed what was previously on site.

**Table 5.1.1 On-Site Stream Mitigation**

Alternative	Impacts		Proposed SCPZ Mitigation	
	Channel (lf)	SCPZ (ac)	Channel (lf)	SCPZ (ac)
Minimal Impact Plan	281	0.35	317	0.36

## 6.0 Statement of Hardship

The proposed channel and SCPZ impacts under the Preferred Impact Alternative are driven by a need to reduce stream and SCPZ impacts on site while still maintaining the commercial viability of the site. Avoidance of all stream and SCPZ impacts would render this site undevelopable resulting in a significant hardship to the developer. The developer respectfully requests approval of the variance for the Minimal Plan Alternative.



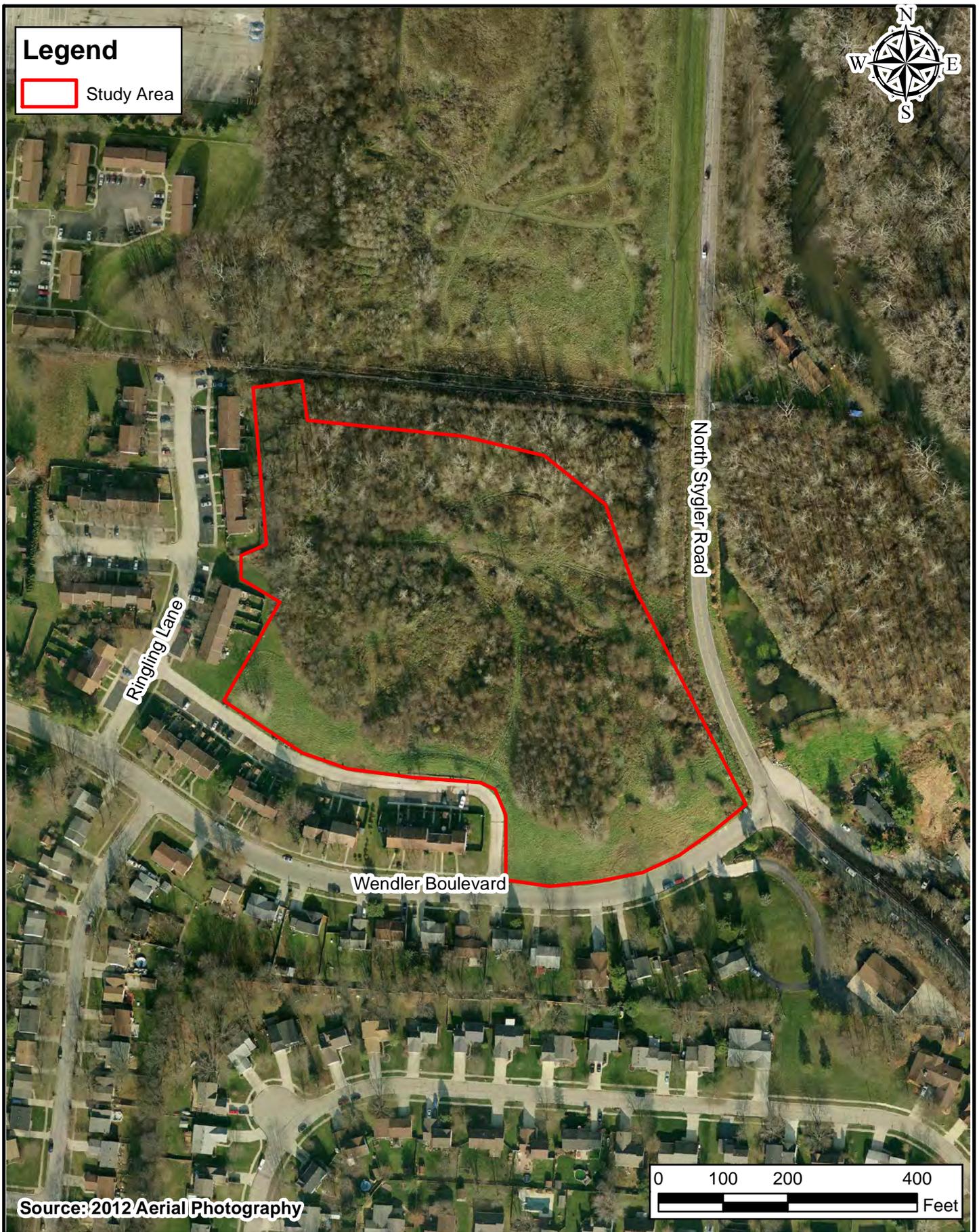
## Appendix A - Project Site Data





### Legend

 Study Area



Source: 2012 Aerial Photography



### Aerial Map

The Woda Group, Inc.  
229 Huber Village Boulevard, Suite 100  
Westerville, Ohio 43081

4854 Wendler Boulevard

Location: Columbus  
Township: Mifflin  
County: Franklin  
State: Ohio

Date: 07/29/2018

# Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:2,000 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

## MAP LEGEND

- Area of Interest (AOI)**
  -  Area of Interest (AOI)
- Soils**
  -  Soil Map Unit Polygons
  -  Soil Map Unit Lines
  -  Soil Map Unit Points
- Special Point Features**
  -  Blowout
  -  Borrow Pit
  -  Clay Spot
  -  Closed Depression
  -  Gravel Pit
  -  Gravelly Spot
  -  Landfill
  -  Lava Flow
  -  Marsh or swamp
  -  Mine or Quarry
  -  Miscellaneous Water
  -  Perennial Water
  -  Rock Outcrop
  -  Saline Spot
  -  Sandy Spot
  -  Severely Eroded Spot
  -  Sinkhole
  -  Slide or Slip
  -  Sodic Spot
- Water Features**
  -  Streams and Canals
- Transportation**
  -  Rails
  -  Interstate Highways
  -  US Routes
  -  Major Roads
  -  Local Roads
- Background**
  -  Aerial Photography
- Other Features**
  -  Spoil Area
  -  Stony Spot
  -  Very Stony Spot
  -  Wet Spot
  -  Other
  -  Special Line Features

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Franklin County, Ohio  
 Survey Area Data: Version 15, Oct 5, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 4, 2014—Aug 27, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AdD2	Alexandria silt loam, 12 to 18 percent slopes, eroded	2.5	29.5%
Crd1B1	Cardington silt loam, 2 to 6 percent slopes	0.0	0.5%
So	Sloan silt loam, frequently flooded	0.2	1.9%
Ur	Udorthents, loamy, sloping	5.8	68.1%
<b>Totals for Area of Interest</b>		<b>8.5</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

# Legend



Study Area

## Flood Hazard Zones



1% Annual Chance Flood Hazard



0.2% Annual Chance Flood Hazard



Area with Reduced Risk Due to Levee



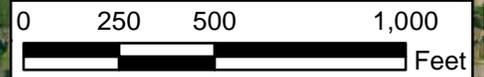
Floodway



NHD Flow Lines



Source: 2012 Aerial Photography



### FEMA 100-Year Floodplain Map

The Woda Group, Inc.  
229 Huber Village Boulevard, Suite 100  
Westerville, Ohio 43081

4854 Wendler Boulevard

Location: Columbus  
Township: Mifflin  
County: Franklin  
State: Ohio

Date: 07/29/2018



## **Appendix B – Field Investigation Map**

**Legend**

- Study Area
- Wetland
- Sample Point
- Stream



Source: 2012 Aerial Photography



**Field Investigation Map**

The Woda Group, Inc.  
 229 Huber Village Boulevard, Suite 100  
 Westerville, Ohio 43081

4854 Wendler Boulevard

Location: Columbus  
 Township: Mifflin  
 County: Franklin  
 State: Ohio

Date: 07/29/2018



## **Appendix C – Headwater Habitat Evaluation Form**

SITE NAME/LOCATION **Stream 1 (UNT to Big Walnut Creek)**

SITE NUMBER  RIVER BASIN  DRAINAGE AREA (mi<sup>2</sup>) **0.02**

LENGTH OF STREAM REACH (ft) **200** LAT. **40.04801** LONG. **-82.89273** RIVER CODE  RIVER MILE

DATE **07/25/18** SCORER **R. Paul** COMMENTS

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	4%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	1%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	70%
<input type="checkbox"/> <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	20%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	5%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **1.00%** (A)

Substrate Percentage Check (B)

**SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 9**      **TOTAL NUMBER OF SUBSTRATE TYPES: 5**

**HHEI Metric Points**

Substrate Max = 40

14

A + B

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS  **MAXIMUM POOL DEPTH (centimeters): 3**

Pool Depth Max = 30

5

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS  **AVERAGE BANKFULL WIDTH (meters): 2.00**

Bankfull Width Max=30

20

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wide >10m		Mature Forest, Wetland	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Moderate 5-10m		Immature Forest, Shrub or Old Field	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m		Residential, Park, New Field	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None		Fenced Pasture	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Conservation Tillage	
		Urban or Industrial	
		Open Pasture, Row Crop	
		Mining or Construction	

COMMENTS

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)     Flat to Moderate     Moderate (2 ft/100 ft)     Moderate to Severe     Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input type="checkbox"/> WWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name:  NRCS Soil Map Page:  NRCS Soil Map Stream Order

County:  Township / City:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Date of last precipitation:  Quantity:

Photograph Information:

Elevated Turbidity? (Y/N):  Canopy (% open):

Were samples collected for water chemistry? (Y/N):  (Note lab sample no. or id. and attach results) Lab Number:

Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)

Is the sampling reach representative of the stream (Y/N)  If not, please explain:

Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N)  Voucher? (Y/N)  Salamanders Observed? (Y/N)  Voucher? (Y/N)

Frogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebrates Observed? (Y/N)  Voucher? (Y/N)

Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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

FLOW 





# Primary Headwater Habitat Evaluation Form

33

HHEI Score (sum of metrics 1, 2, 3) :

SITE NAME/LOCATION **Stream 2 (UNT to UNT to Big Walnut Creek)**

SITE NUMBER  RIVER BASIN  DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) **200** LAT. **40.04784** LONG. **-82.89249** RIVER CODE  RIVER MILE

DATE **07/25/18** SCORER **R. Paul** COMMENTS

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="text" value="0%"/>
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text" value="0%"/>	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text" value="15%"/>
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="text" value="0%"/>	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text" value="0%"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text" value="45%"/>
<input type="checkbox"/> <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text" value="30%"/>	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="text" value="0%"/>
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text" value="10%"/>	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text" value="0%"/>

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **0.00%** (A)

Substrate Percentage Check (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **9**

TOTAL NUMBER OF SUBSTRATE TYPES: **4**

**HHEI Metric Points**

Substrate Max = 40

**13**

A + B

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input checked="" type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS  MAXIMUM POOL DEPTH (centimeters): **3**

Pool Depth Max = 30

**5**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input checked="" type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS  AVERAGE BANKFULL WIDTH (meters): **1.40**

Bankfull Width Max=30

**15**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)	Wide >10m	(Most Predominant per Bank)	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Moderate 5-10m	<input type="checkbox"/>	Immature Forest, Shrub or Old Field	Conservation Tillage
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Narrow <5m	<input type="checkbox"/>	Residential, Park, New Field	Urban or Industrial
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None	<input type="checkbox"/>	Fenced Pasture	Open Pasture, Row Crop
			<input type="checkbox"/>
			Mining or Construction

COMMENTS

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input type="checkbox"/> 2.0	<input checked="" type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input type="checkbox"/> WWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name:  NRCS Soil Map Page:  NRCS Soil Map Stream Order

County:  Township / City:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Date of last precipitation:  Quantity:

Photograph Information:

Elevated Turbidity? (Y/N):  Canopy (% open):

Were samples collected for water chemistry? (Y/N):  (Note lab sample no. or id. and attach results) Lab Number:

Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)

Is the sampling reach representative of the stream (Y/N)  If not, please explain:

Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N)  Voucher? (Y/N)  Salamanders Observed? (Y/N)  Voucher? (Y/N)

Frogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebrates Observed? (Y/N)  Voucher? (Y/N)

Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

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

FLOW 





## Appendix D – Nationwide Permit



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
HUNTINGTON DISTRICT, CORPS OF ENGINEERS  
502 EIGHTH STREET  
HUNTINGTON, WEST VIRGINIA 25701-2070

December 21, 2018

Regulatory Division  
North Branch  
LRH-2018-961-SCR-Unnamed Tributary to Big Walnut Creek

**PRELIMINARY JURISDICTIONAL DETERMINATION AND  
NATIONWIDE PERMIT 29 VERIFICATION**

Mr. Joe McCabe  
Woda Cooper Companies, Inc.  
500 South Front Street, 10<sup>th</sup> floor  
Columbus, Ohio 43215

Dear Mr. McCabe:

I refer to the pre-construction notification (PCN), submitted on your behalf American Structurepoint, Inc., and received in this office on December 3, 2018, concerning the Wendler Commons residential development. You have requested a Department of the Army (DA) authorization for the discharge of dredged and/or fill material into waters of the United States associated with the construction of residential development and its attendant features. The proposed 8.5-acre project site is located just northwest of the intersection of Wendler Boulevard and North Stygler Road in Mifflin Township, Franklin County, Ohio (40.047823, -82.892577). We have assigned the following file number to your PCN: LRH-2018-961-SCR-Unnamed Tributary to Big Walnut Creek. Please reference this file number on all future correspondence related to this subject proposal.

The United States Army Corps of Engineers' (Corps) authority to regulate waters of the United States is based on the definitions and limits of jurisdiction contained in 33 CFR 328, including the amendment to 33 CFR 328.3 (80 Federal Register 37053), and 33 CFR 329. Section 404 of the Clean Water Act (Section 404) requires a DA permit be obtained prior to discharging dredged and/or fill material into waters of the United States, including wetlands. Section 10 of the Rivers and Harbors Act of 1899 (Section 10) requires a DA permit be obtained for any work in, on, over or under a navigable water.

***Preliminary Jurisdictional Determination***

Based on a review of the aquatic resources in the submitted information, approximately 955 linear feet (lf) of two (2) streams (Streams 1-2) and 0.05 acre of two (2) wetlands (Wetlands A-B) are located within the review area. The aquatic resources identified above and on the enclosed preliminary jurisdictional determination (JD) form **may** be waters of the United States in accordance with the Regulatory Guidance Letter for Jurisdictional Determinations (JDs) issued by the Corps on October 31, 2016 (Regulatory Guidance Letter No. 16-01). As indicated

in the guidance, this preliminary JD is non-binding and cannot be appealed (33 CFR 331.2) and only provides a written indication that waters of the United States may be present on-site.

You have declined to exercise the option to obtain an approved JD in this instance and at this time for the above aquatic resources. However, for the purposes of the determination of impacts, compensatory mitigation, and other resource protection measures for activities that require authorization from this office the aquatic resources referenced above and on the enclosed preliminary JD form will be evaluated as if they are waters of the United States.

Enclosed with this document please find two (2) copies of the preliminary JD. If you agree with the findings of this preliminary JD and understand your options regarding the same, please sign and date one (1) copy of the form and return it to this office within 30 days of receipt of this letter. You should submit the signed copy to the following address:

United States Army Corps of Engineers  
Huntington District Attn: North Branch  
LRH-2018-567-SCR  
502 Eighth Street  
Huntington, West Virginia 25701

### ***Nationwide Permit Verification***

The proposed project, as described in the submitted information, has been reviewed in accordance with Section 404 and Section 10. Based on your description of the proposed work, and other information available to us, it has been determined that this project will not involve activities subject to the requirements of Section 10. However, this project will include the discharge of fill material into waters of the United States subject to the requirements of Section 404.

In the submitted PCN materials received in this office on December 3, 2018, you have requested a DA authorization for the permanent discharge of approximately 19.4 cubic yards (CY) of dredged and/or fill material into 0.01 acre of Wetland B for grading associated with the proposed development. In addition, you have requested a DA authorization to discharge 15.4 CY of fill material into 282 (0.02 acre) of Stream 1 for grading, the installation of a pipe, and the placement of rip-rap. The discharges of dredged and/or fill material associated with the construction of the Wendler Commons Project are described in the enclosed Table 1. All work will be conducted in accordance with the PCN report titled "Wendler Commons" and dated November 29, 2018.

Based on the provided information, it has been determined the proposed discharges of dredged and/or fill material into waters of the United States in conjunction with the construction of the proposed project meets the criteria for Nationwide Permit (NWP) No. 29 (enclosed) under the January 6, 2017 Federal Register, Issuance and Reissuance of NWPs (82 FR 1860) provided you comply with all terms and conditions of the enclosed material, the enclosed special conditions, and the 401 Water Quality Certification issued by the Ohio Environmental Protection

Agency on March 17, 2017. Please be aware this NWP verification does not obviate the requirement to obtain any state or local assent required by law for the activities.

This verification is valid until the expiration date of the NWPs, unless the NWP authorization is modified, suspended, or revoked. The verification will remain valid if the NWP authorization is reissued without modification or the activity complies with any subsequent modification of the NWP authorization. All of the existing NWPs are scheduled to be modified, reissued, or revoked on March 18, 2022. Prior to this date, it is not necessary to contact this office for re-verification of your project unless the plans for the proposed activity are modified. Furthermore, if you commence or under contract to commence this activity before March 18, 2022, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

A copy of the NWPs and this verification letter must be kept at the site during construction. Upon completion of the activities authorized by these NWP verifications, the enclosed certification must be signed and returned to this office. If you have any questions concerning the above, please contact Ms. Katie Samples of the North Branch at 304-399-6933, by mail at the above address, or by email at [katie.e.taylor@usace.army.mil](mailto:katie.e.taylor@usace.army.mil).

Sincerely,

**WENDT.ANDR**  
**EW.JOHN.126**  
**2368293**

Digitally signed by  
WENDT.ANDR.EW.JOHN.1262368293  
DN: c=US, o=U.S. Government,  
ou=DoD, ou=PKI, ou=USA,  
cn=WENDT.ANDR.EW.JOHN.1262368  
293  
Date: 2018.12.21 13:11:45 -05'00'

Andrew J. Wendt  
Regulatory Project Manager  
North Branch

Enclosures

cc:

Ms. Kerri Rogers (by email)

**TABLE 1. AUTHORIZED DISCHARGES OF DREDGED AND/OR FILL MATERIAL  
WITHIN WATERS OF THE UNITED STATES ASSOCIATED WITH THE  
WENDLER COMMONS PROJECT  
LRH-2018-961-SCR-UT BIG WALNUT CREEK**

<b>Aquatic Resource</b>	<b>Latitude &amp; Longitude (°N)            (°W)</b>		<b>Cubic Yards of Fill Material</b>	<b>Length (lf) and/or Acres (ac) of Fill</b>	<b>Other Pertinent Information</b>
Wetland B	40.047990	-82.892264	19.4 cy	0.012 acre	Grading for development
Stream 1	40.04801	-82.892730	15.4 cy	0.02 acre	Grading, pipe installation, and RCP
<b>Total</b>				<b>0.03 acre</b>	

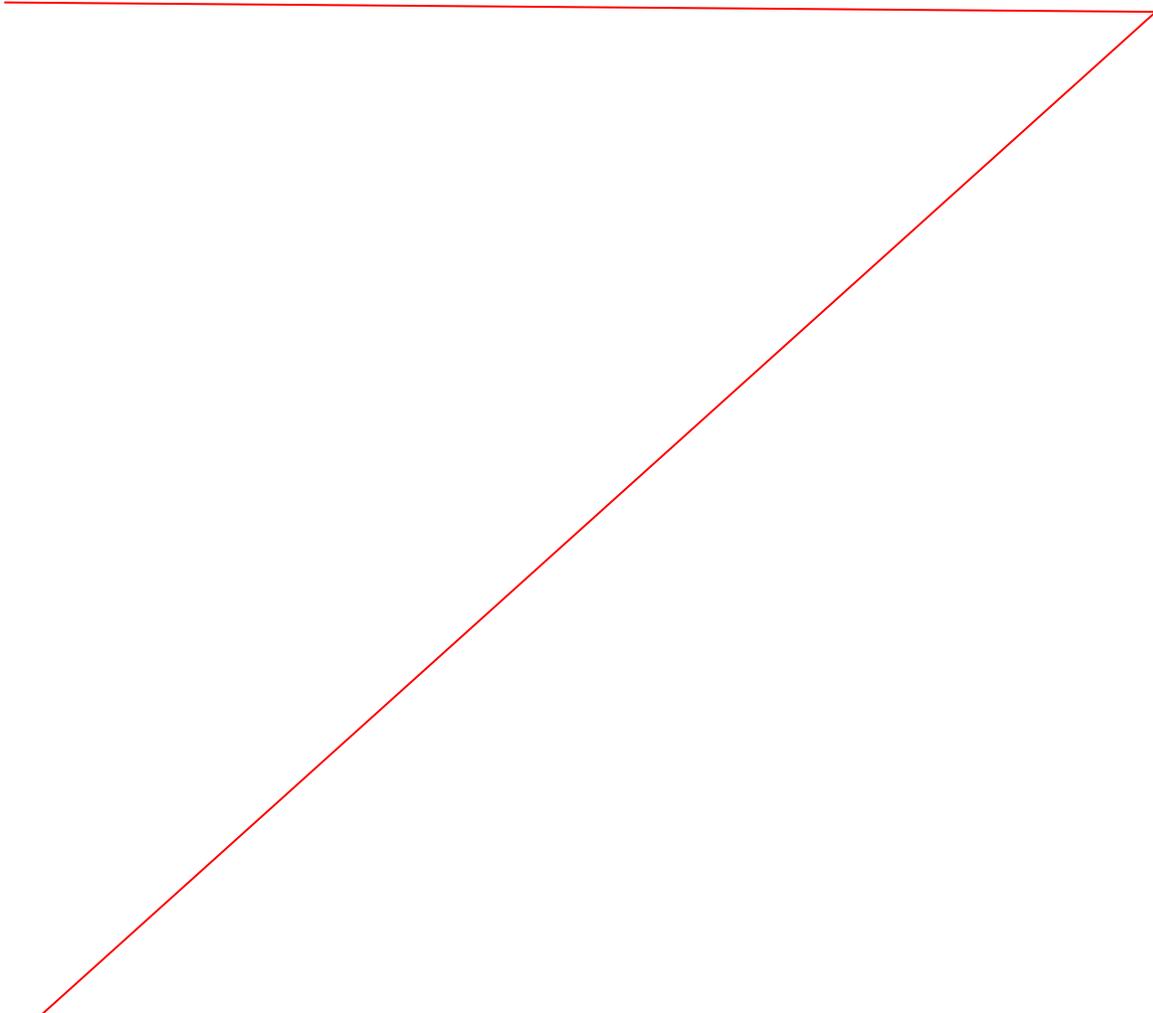
**SPECIAL CONDITIONS FOR NATIONWIDE PERMIT 29 VERIFICATION  
WENDLER COMMONS PROJECT  
LRH-2018-961-SCR-UT BIG WALNUT CREEK  
PAGE 1 OF 2**

1. All work will be conducted in accordance with the submitted pre-construction notification for the Wendler Commons Project received in this office on December 3, 2018.
2. Enclosed is a copy of Nationwide Permit 29, which will be kept at the site during construction. A copy of the nationwide permit verification, special conditions, and the submitted construction plans must be kept at the site during construction. The permittee will supply a copy of these documents to their project engineer responsible for construction activities.
3. Should new information regarding the scope and/or impacts of the project become available that was not submitted to this office during our review of the proposal, the permittee will submit written information concerning proposed modification(s) to this office for review and evaluation, as soon as practicable.
4. Upon completion of the activity authorized by this nationwide permit verification, the enclosed attached certification must be signed and returned to this office along with as-built drawings showing the location and configuration, as well as all pertinent dimensions and elevations of the activity authorized under this nationwide permit verification.
5. No area for which grading has been completed will be unseeded or unmulched for longer than 14 days. All disturbed areas will be seeded and/or revegetated with native species and approved seed mixes (where practicable) after completion of construction activities for stabilization and to help preclude the establishment of non-native invasive species.
6. In the event any previously unknown historic or archaeological sites or human remains are uncovered while accomplishing the activity authorized by this nationwide permit authorization, the permittee must cease all work in waters of the United States immediately and contact local, state and county law enforcement offices (only contact law enforcement on findings of human remains), the Corps at 304-399-5210 and Ohio State Historic Preservation Office at 614-298-2000. The Corps will initiate the Federal, state and tribal coordination required to comply with the National Historic Preservation Act and applicable state and local laws and regulations. Federally recognized tribes are afforded a government-to-government status as sovereign nations and consultation is required under Executive Order 13175 and 36 CFR Part 800.
7. The project site lies within the range of the Indiana bat (*Myotis sodalis*), a federally-listed endangered species and the northern long-eared bat (*Myotis septentrionalis*), a federally-listed threatened species. Several factors have contributed to the two species decline, including habitat loss, fragmentation of habitat and the disease White Nose Syndrome. During winter, the two bat species hibernate in caves and abandoned mines. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This

**SPECIAL CONDITIONS FOR NATIONWIDE PERMIT 29 VERIFICATION  
WENDLER COMMONS PROJECT  
LRH-2018-961-SCR-UT BIG WALNUT CREEK  
PAGE 2 OF 2**

includes forests and woodlots containing potential roosts (i.e., live trees and/or snags  $\geq 3$  inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. The permittee will preserve wooded/forested habitats exhibiting any of the characteristics listed above wherever possible. Should suitable habitat be present that cannot be saved during construction activities, any trees  $\geq 3$  inches dbh will only be cut between October 1 – March 31.

8. Section 7 obligations under Endangered Species Act must be reconsidered if new information reveals impacts of the project that may affect federally listed species or critical habitat in a manner not previously considered, the proposed project is subsequently modified to include activities which were not considered during Section 7 consultation with the United States Fish and Wildlife Service, or new species are listed or critical habitat designated that might be affected by the subject project.





## Appendix E – Site Photos











## **Appendix F – Proposed Stream Headwater Habitat Evaluation Form**



# Primary Headwater Habitat Evaluation Form

**54**

**HHEI Score (sum of metrics 1, 2, 3) :**

SITE NAME/LOCATION **Proposed Stream (UNT to Big Walnut Creek)**

SITE NUMBER  RIVER BASIN  DRAINAGE AREA (mi<sup>2</sup>) **0.01**

LENGTH OF STREAM REACH (ft) **317** LAT. **40.04801** LONG. **-82.89273** RIVER CODE  RIVER MILE

DATE **07/09/19** SCORER **R. Paul** COMMENTS

**NOTE: Complete All Items On This Form - Refer to "Field Evaluation Manual for Ohio's PWH Streams" for Instructions**

**STREAM CHANNEL MODIFICATIONS:**  NONE / NATURAL CHANNEL  RECOVERED  RECOVERING  RECENT OR NO RECOVERY

**1. SUBSTRATE (Estimate percent of every type of substrate present. Check ONLY two predominant substrate TYPE boxes (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.**

TYPE	PERCENT	TYPE	PERCENT
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	<input type="text"/> 0%	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	<input type="text"/> 0%
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	<input type="text"/> 0%	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	<input type="text"/> 4%
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pt]	<input type="text"/> 0%	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	<input type="text"/> 0%
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	<input type="text"/> 1%	<input checked="" type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	<input type="text"/> 70%
<input type="checkbox"/> <input checked="" type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	<input type="text"/> 20%	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	<input type="text"/> 0%
<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	<input type="text"/> 5%	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	<input type="text"/> 0%

Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock **1.00%** (A)

Substrate Percentage Check (B)

SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: **9**

TOTAL NUMBER OF SUBSTRATE TYPES: **5**

**HHEI Metric Points**

Substrate Max = 40

**14**

A + B

Pool Depth Max = 30

**2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 ft) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):**

<input checked="" type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> > 5 cm - 10 cm [15 pts]
<input type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]
<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0 pts]

COMMENTS  MAXIMUM POOL DEPTH (centimeters): **3**

**20**

**3. BANK FULL WIDTH (Measured as the average of 3-4 measurements) (Check ONLY one box):**

<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]
<input type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]
<input checked="" type="checkbox"/> > 1.5 m - 3.0 m (> 9' 7" - 4' 8") [20 pts]	

COMMENTS  AVERAGE BANKFULL WIDTH (meters): **2.00**

Bankfull Width Max=30

**20**

**This information must also be completed**

**RIPARIAN ZONE AND FLOODPLAIN QUALITY** ☆NOTE: River Left (L) and Right (R) as looking downstream ☆

RIPARIAN WIDTH		FLOODPLAIN QUALITY	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Per Bank)	Wide >10m	(Most Predominant per Bank)	Mature Forest, Wetland
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Moderate 5-10m		Immature Forest, Shrub or Old Field
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Narrow <5m		Residential, Park, New Field
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	None		Fenced Pasture
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			Conservation Tillage
			Urban or Industrial
			Open Pasture, Row Crop
			Mining or Construction

COMMENTS

**FLOW REGIME (At Time of Evaluation) (Check ONLY one box):**

<input type="checkbox"/> Stream Flowing	<input checked="" type="checkbox"/> Moist Channel, isolated pools, no flow (Intermittent)
<input type="checkbox"/> Subsurface flow with isolated pools (Interstitial)	<input type="checkbox"/> Dry channel, no water (Ephemeral)

COMMENTS

**SINUOSITY (Number of bends per 61 m (200 ft) of channel) (Check ONLY one box):**

<input type="checkbox"/> None	<input type="checkbox"/> 1.0	<input checked="" type="checkbox"/> 2.0	<input type="checkbox"/> 3.0
<input type="checkbox"/> 0.5	<input type="checkbox"/> 1.5	<input type="checkbox"/> 2.5	<input type="checkbox"/> >3

**STREAM GRADIENT ESTIMATE**

Flat (0.5 ft/100 ft)  Flat to Moderate  Moderate (2 ft/100 ft)  Moderate to Severe  Severe (10 ft/100 ft)

**ADDITIONAL STREAM INFORMATION (This Information Must Also be Completed):**

QHEI PERFORMED? -  Yes  No QHEI Score  (If Yes, Attach Completed QHEI Form)

**DOWNSTREAM DESIGNATED USE(S)**

<input type="checkbox"/> WWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> CWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>
<input type="checkbox"/> EWH Name:	<input type="text"/>	Distance from Evaluated Stream	<input type="text"/>

**MAPPING: ATTACH COPIES OF MAPS, INCLUDING THE ENTIRE WATERSHED AREA. CLEARLY MARK THE SITE LOCATION**

USGS Quadrangle Name:  NRCS Soil Map Page:  NRCS Soil Map Stream Order

County:  Township / City:

**MISCELLANEOUS**

Base Flow Conditions? (Y/N):  Date of last precipitation:  Quantity:

Photograph Information:

Elevated Turbidity? (Y/N):  Canopy (% open):

Were samples collected for water chemistry? (Y/N):  (Note lab sample no. or id. and attach results) Lab Number:

Field Measures: Temp (°C)  Dissolved Oxygen (mg/l)  pH (S.U.)  Conductivity (µmhos/cm)

Is the sampling reach representative of the stream (Y/N)  If not, please explain:

Additional comments/description of pollution impacts:

**BIOTIC EVALUATION**

Performed? (Y/N):  (If Yes, Record all observations. Voucher collections optional. NOTE: all voucher samples must be labeled with the site ID number. Include appropriate field data sheets from the Primary Headwater Habitat Assessment Manual)

Fish Observed? (Y/N)  Voucher? (Y/N)  Salamanders Observed? (Y/N)  Voucher? (Y/N)

Frogs or Tadpoles Observed? (Y/N)  Voucher? (Y/N)  Aquatic Macroinvertebrates Observed? (Y/N)  Voucher? (Y/N)

Comments Regarding Biology:

**DRAWING AND NARRATIVE DESCRIPTION OF STREAM REACH (This must be completed):**

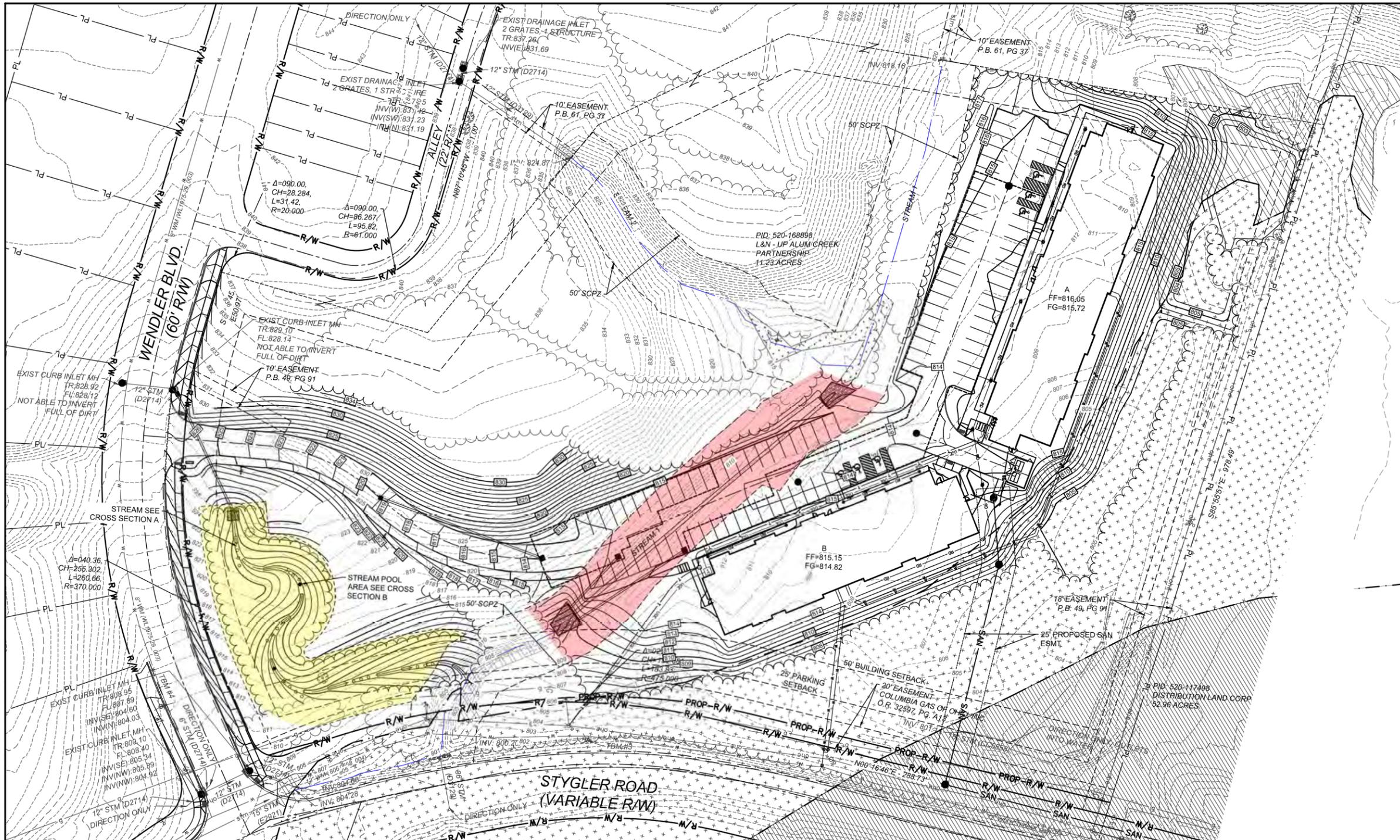
Include important landmarks and other features of interest for site evaluation and a narrative description of the stream's location

FLOW 



## **Exhibit 1 – Preferred Impact Alternative**

PLOT SCALE: 1"=100' DATE: 7/10/19 9:16 AM EDITED BY: BUCHANSON DRAWING FILE: 0:20170220.DWG DRAWING CIVIL EXHIBIT STORM WATER VARIANCE EXHIBIT PREFERRED OPTION.DWG



**EXISTING LEGEND**

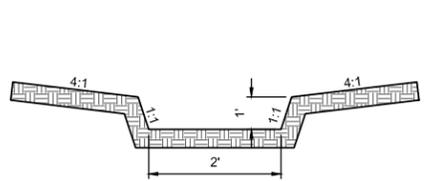
- PL PROPERTY LINE
- R/W RIGHT-OF-WAY
- PAVEMENT/SIDEWALK
- PAVEMENT STRIPING
- CURB
- ROAD CENTERLINE
- TREE DRIP LINE
- FENCE
- STREAM
- stm STORM SEWER
- san SANITARY SEWER
- w WATER LINE
- g GAS LINE
- f FIBER OPTIC LINE
- e ELECTRIC
- ohw OVERHEAD ELECTRIC
- t TELECOMMUNICATION
- ctv CABLE TELEVISION
- 100 YEAR FLOOD ELEVATION LIMITS
- EXISTING STREAM
- FLOODWAY
- 100 YEAR FLOOD ELEVATION
- 500 YEAR FLOOD ELEVATION

**PROPOSED LEGEND**

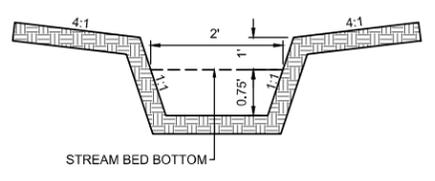
- SCZP IMPACT AREA
- MITIGATION AREA
- PROPOSED STREAM
- PROPOSED TREELINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR

**SITE STATISTICS**

TOTAL SITE AREA	11.23 AC
DEVELOPED AREA	3,960 AC
TOTAL UNITS	62
GROSS DENSITY	17.87 UNITS/AC
STREAM 1 IMPACT	281 LF
STREAM 2 IMPACT	N/A
TOTAL STREAM IMPACT	281 LF
TOTAL SCZP IMPACT	0.35 AC
PROPOSED STREAM LENGTH	317 LF
PROPOSED SCZP AREA	0.36 AC



**A** TYPICAL STREAM CROSS SECTION  
NOT TO SCALE



**B** TYPICAL STREAM CROSS SECTION W/ POOL  
NOT TO SCALE

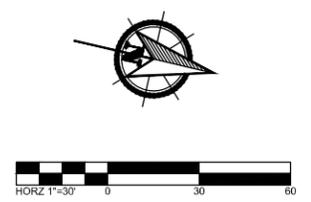
STORM WATER VARIANCE EXHIBIT  
FOR  
**WENDLER COMMONS**  
COLUMBUS, FRANKLIN COUNTY, OHIO

**PREFERRED ALTERNATIVE**

REVISIONS	DATE	SHEET NO.	DESCRIPTION	APPROVED	DATE

DATE: 07/10/2019  
DRAWN BY: BAJ  
CHECKED BY: OSD  
JOB NUMBER: 2017.02204

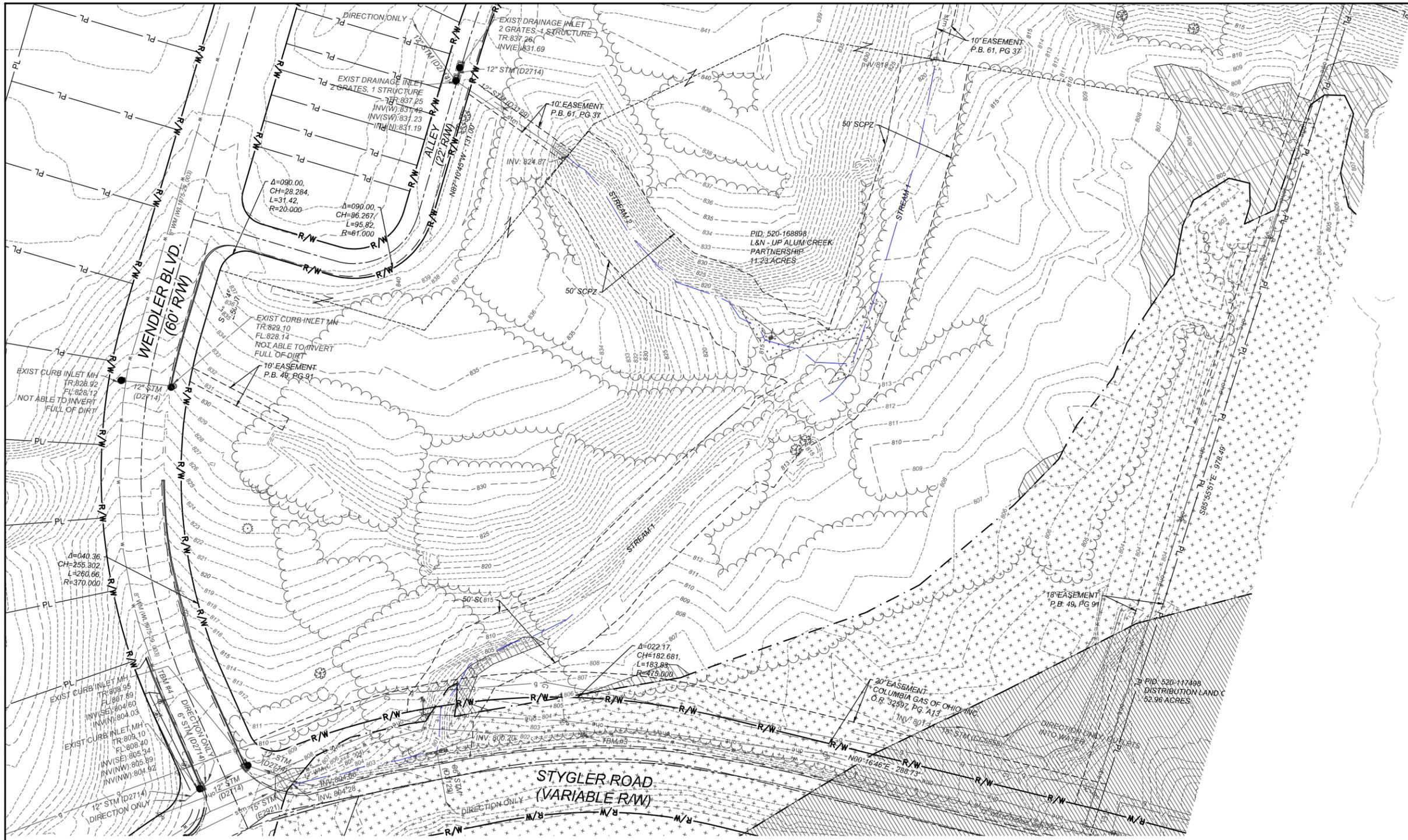
**EX 1**



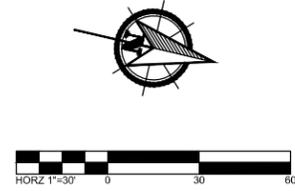


## Exhibit 2 – No Impact

PLOT SCALE: 1:1 EDIT DATE: 7/9/19 - 11:54 AM EDITED BY: BUCHANSON DRAWING FILE: O:\2017\0220\DWG.DRAWINGS\CIVIL\EXHIBIT\STORMWATER VARIANCE\EXHIBIT NO IMPACT OPTION.DWG



- EXISTING LEGEND**
- PL — PROPERTY LINE
  - R/W — RIGHT-OF-WAY
  - PAVEMENT/SIDEWALK
  - PAVEMENT STRIPING
  - CURB
  - ROAD CENTERLINE
  - TREE DRIP LINE
  - FENCE
  - STREAM
  - stm — STORM SEWER
  - san — SANITARY SEWER
  - w — WATER LINE
  - g — GAS LINE
  - fo — FIBER OPTIC LINE
  - e — ELECTRIC
  - ohe — OVERHEAD ELECTRIC
  - t — TELECOMMUNICATION
  - ctv — CABLE TELEVISION
  - - - 100 YEAR FLOOD ELEVATION LIMITS
  - FLOODWAY
  - ▨ 100 YEAR FLOOD ELEVATION
  - ▩ 500 YEAR FLOOD ELEVATION
- GRADING LEGEND**
- - - 810 — EXISTING MAJOR CONTOUR
  - - - 809 — EXISTING MINOR CONTOUR



STORMWATER VARIANCE EXHIBIT  
FOR  
**WENDLER COMMONS**  
COLUMBUS, FRANKLIN COUNTY, OHIO  
**NO IMPACT OPTION**

REVISIONS	DATE	SHEET NO.	DESCRIPTION	APPROVED	DATE

DATE: 07/10/2019  
DRAWN BY: BAJ  
CHECKED BY: OSD  
JOB NUMBER: 2017.02204

**EX 2**