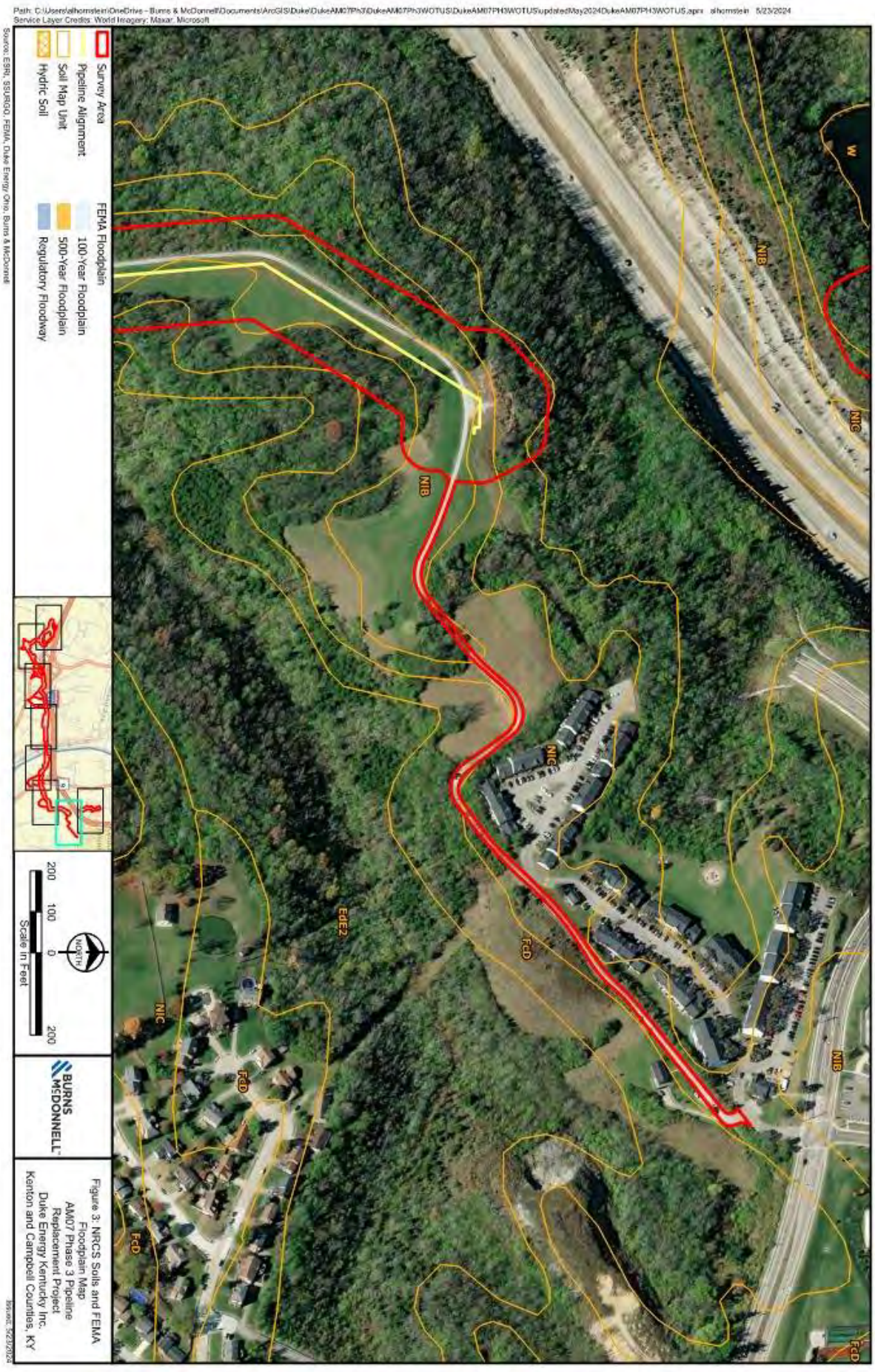
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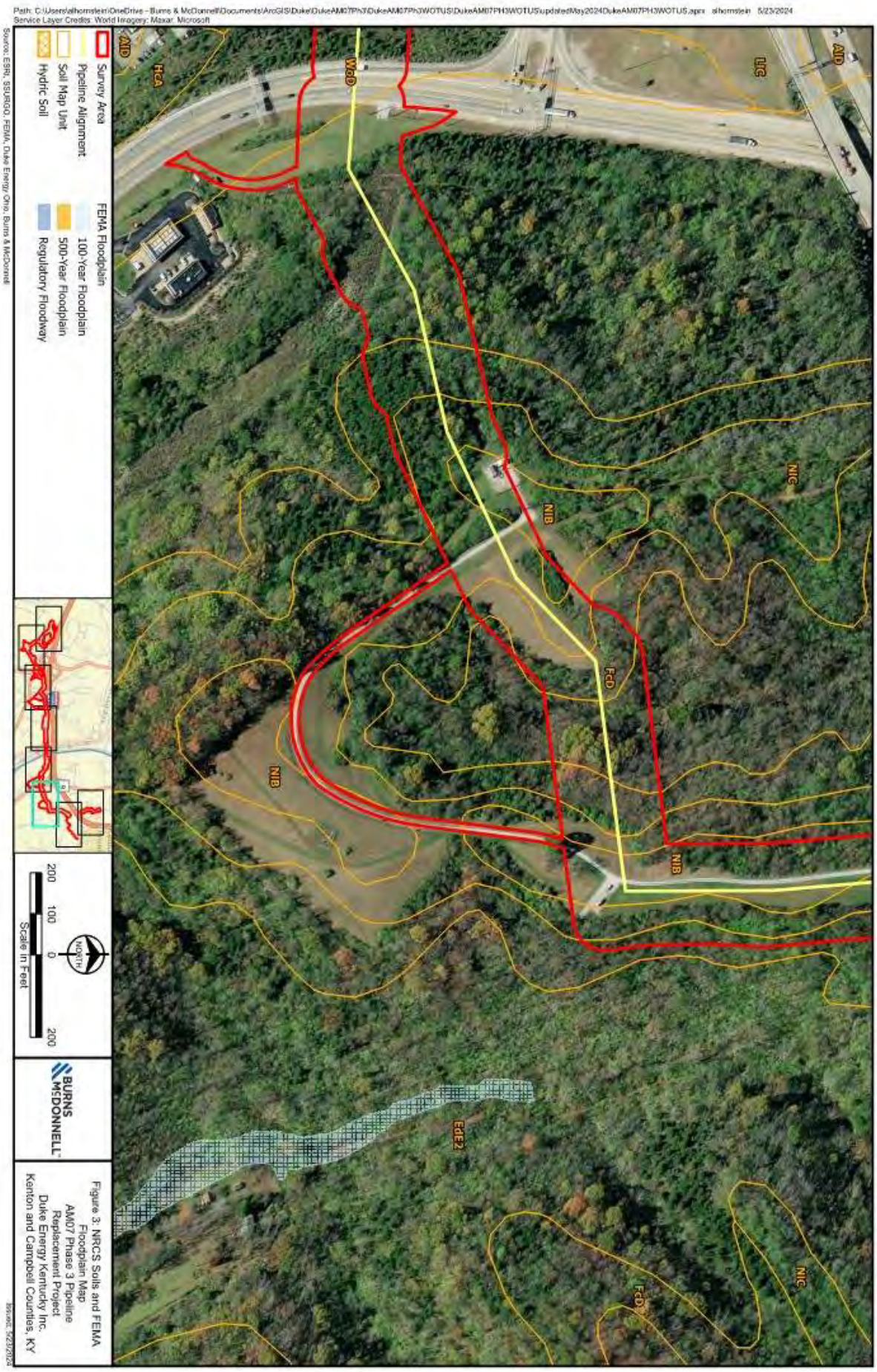
Survey Area
Pipeline Alignment
Soil Map Unit
Hydric Soil
FEMA Floodplain
100-Year Floodplain
500-Year Floodplain
Regulatory Floodway
NIB
NIC
EdE2
FcD
W
NORTH
200
100
0
200
Scale in Feet
BURNS McDONNELL
Figure 3: NRCS Soils and FEMA Floodplain Map
AM07 Phase 3 Pipeline Replacement Project
Duke Energy Kentucky Inc.
Kenton and Campbell Counties, KY
Sources: ESRI, SSURGO, FEMA, Duke Energy Ohio, Burns & McDonnell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Service Layer Credits: World Imagery: Maxar, Microsoft
Source: ESRI, SSURGO, FEMA, Duke Energy Ohio, Burns & McDonnell
Survey Area
Pipeline Alignment
Soil Map Unit
Hydric Soil
FEMA Floodplain
100-Year Floodplain
500-Year Floodplain
Regulatory Floodway
AtD
HCA
WoD
LtC
NtC
NtB
FcD
EdE2
200
100
0
200
Scale in Feet
NORTH
BURNS McDONNELL
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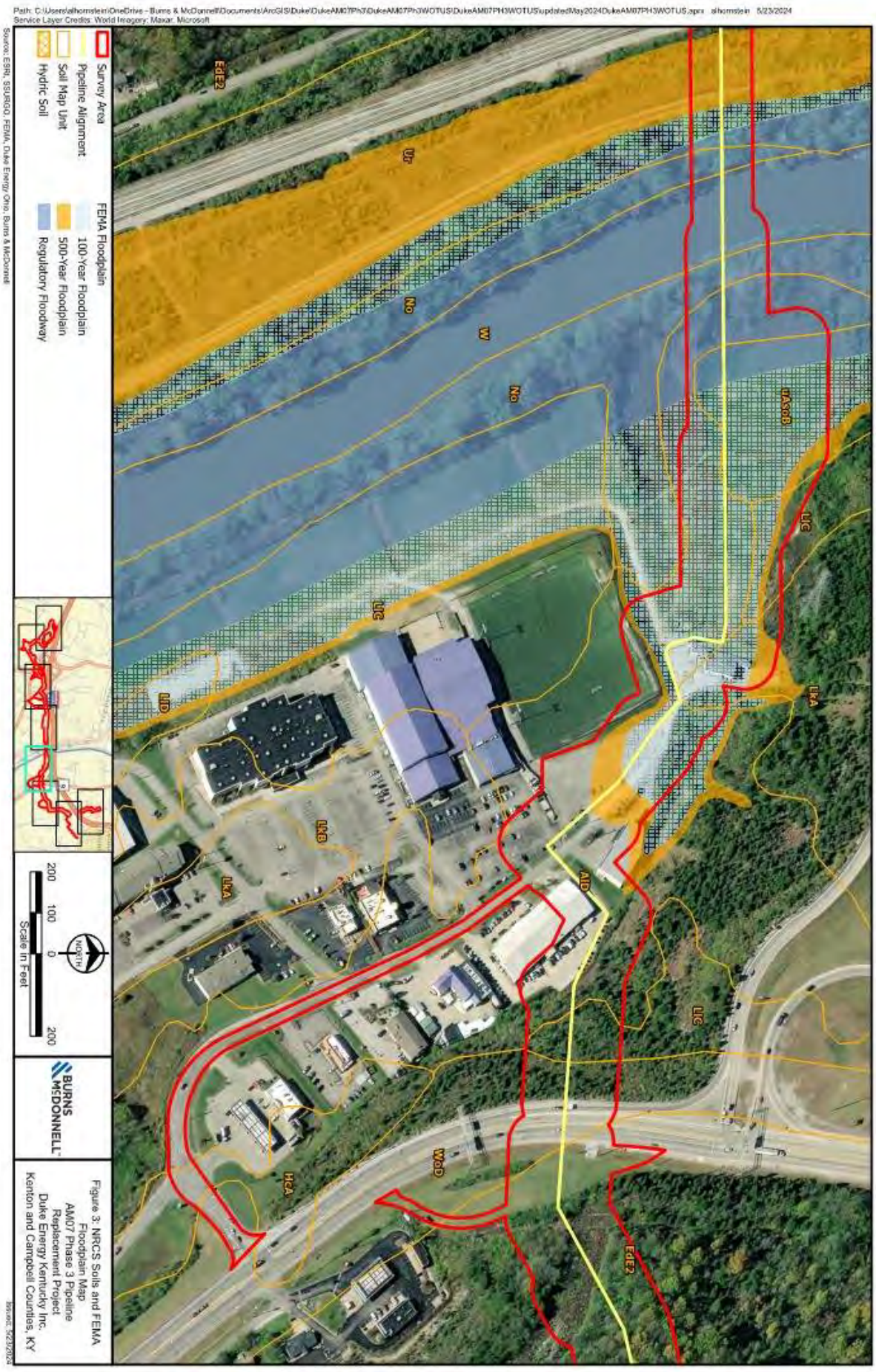
Kenton and Campbell Counties, KY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Source: ESRI, SSURGO, FEMA, Duke Energy Ohio, Burns & McDonnell
Survey Area
Pipeline Alignment
Soil Map Unit
Hydric Soil
FEMA Floodplain
100-Year Floodplain
500-Year Floodplain
Regulatory Floodway
EdE2
Ur
No
W
No
HAsoB
LIC
LIC
LIB
LkA
LkB
LkA
AlD
LIC
WoD
HcA
EdE2
200
100
0
200
Scale in Feet
NORTH
BURNS McDONNELL
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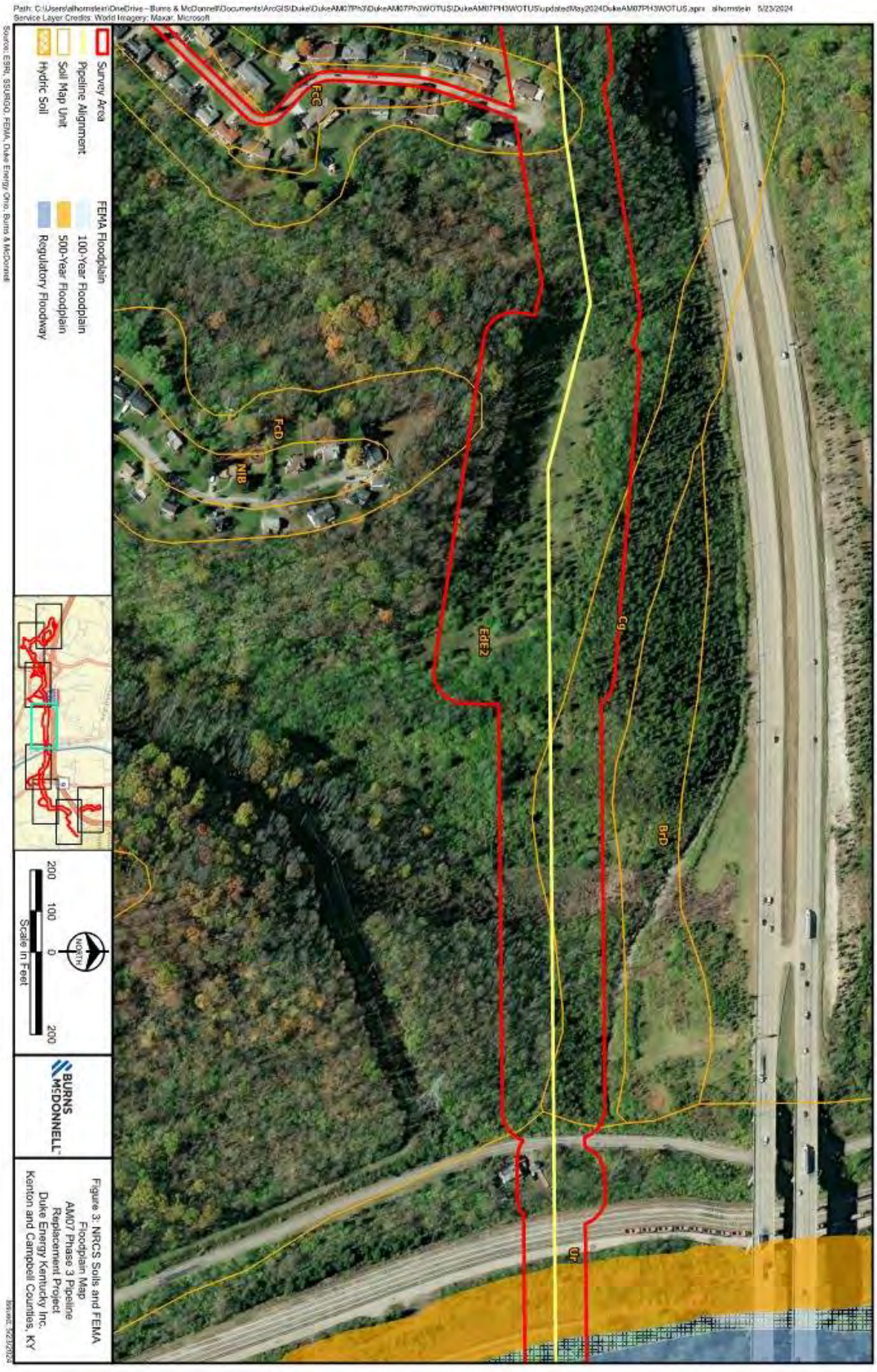
Replacement Project
Duke Energy Kentucky Inc.
Kenton and Campbell Counties, KY
Revised: 5/23/2024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Service Layer Credits: World Imagery: Maxar, Microsoft
Survey Area
Pipeline Alignment
Soil Map Unit
Hydric Soil
FEMA Floodplain
100-Year Floodplain
500-Year Floodplain
Regulatory Floodway
FcG
FcD
NIB
EdE2
Cg
BrD
U7
200
100
0
200
Scale in Feet
NORTH
BURNS McDONNELL
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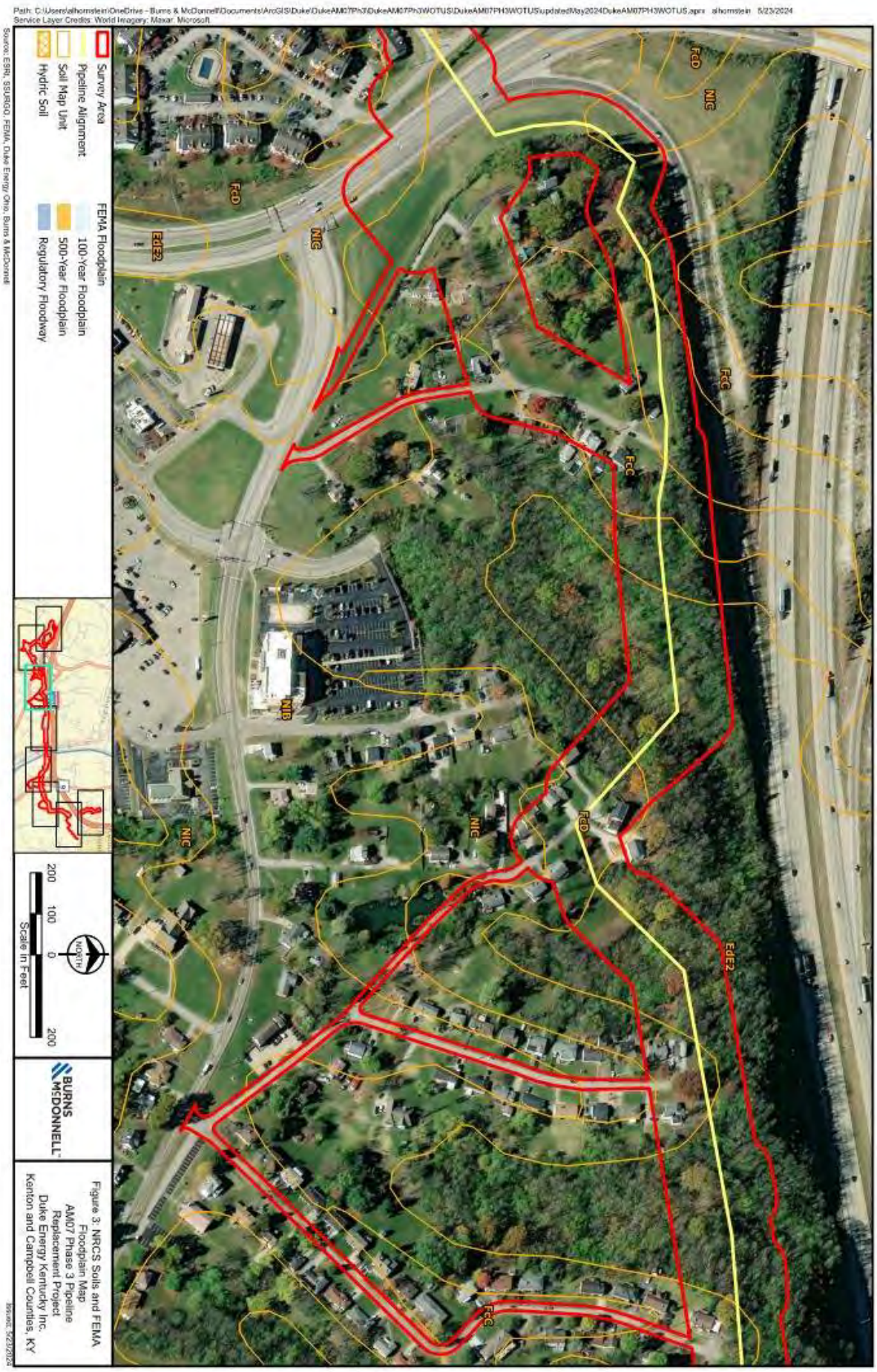
Duke Energy Kentucky Inc.
Kenton and Campbell Counties, KY
Source: ESRI, SSURGO, FEMA, Duke Energy Ohio, Burns & McDonnell
Revised: 5/23/2024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Service Layer Credits: World Imagery: Maxar, Microsoft
Source: ESRI, SSURGO, FEMA, Duke Energy Ohio, Burns & McDonnell
Survey Area
Pipeline Alignment
Soil Map Unit
Hydric Soil
FEMA Floodplain
100-Year Floodplain
500-Year Floodplain
Regulatory Floodway
NIC
FcD
FcC
EdE2
NIB
FcB
200
100
0
200
Scale in Feet
NORTH
BURNS McDONNELL
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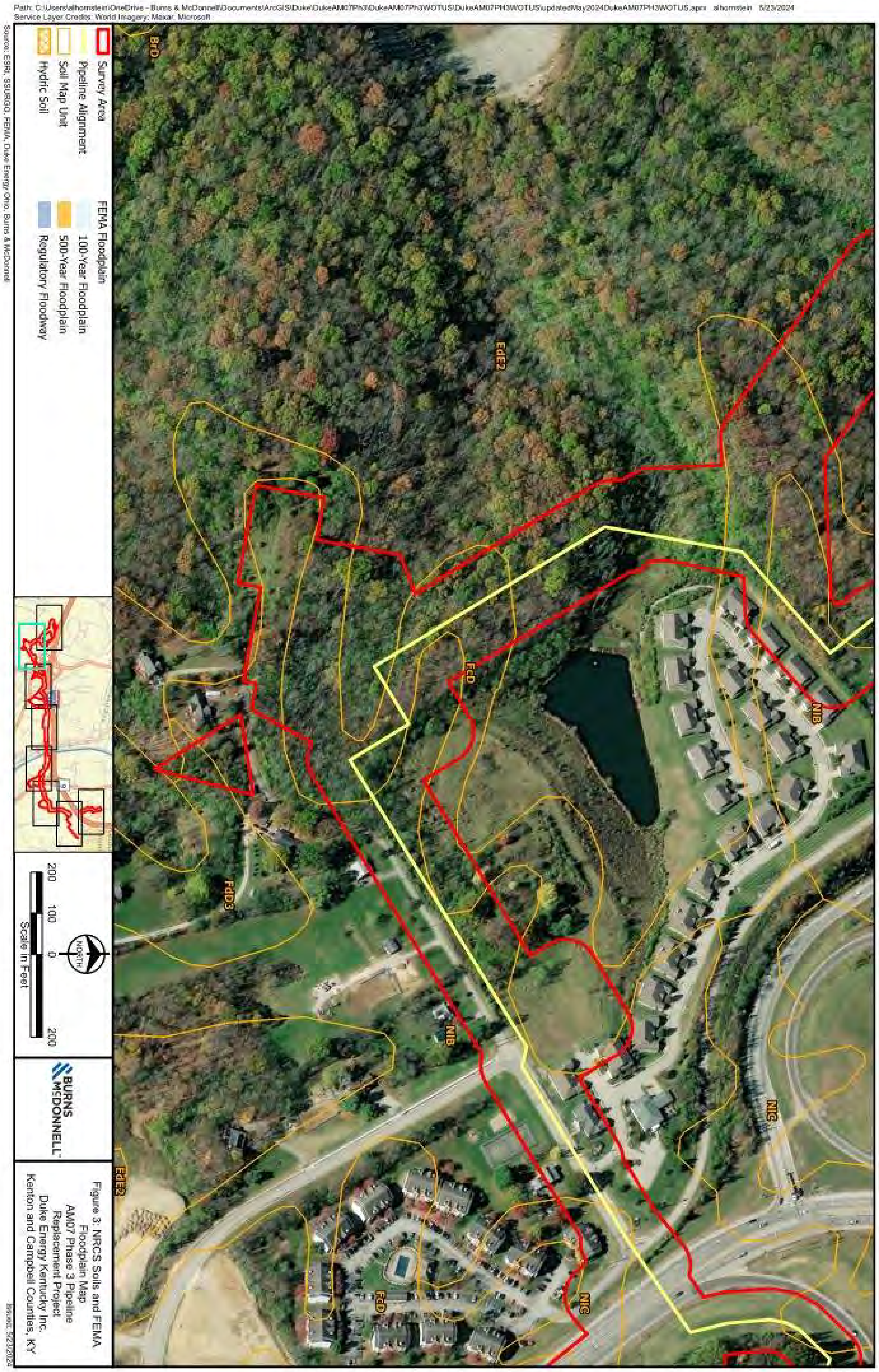
Duke Energy Kentucky Inc.
Kenton and Campbell Counties, KY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Service Layer Credits: World Imagery: Maxar, Microsoft
EdE2
FcD
NIB
NIC
FdD3
BrD
Survey Area
Pipeline Alignment
Soil Map Unit
Hydric Soil
FEMA Floodplain
100-Year Floodplain
500-Year Floodplain
Regulatory Floodway
NORTH
200 100 0 200
Scale in Feet
BURNS McDONNELL
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Duke Energy Kentucky Inc.
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Source: ESRI, SSURGO, FEMA, Duke Energy Ohio, Burns & McDonnell
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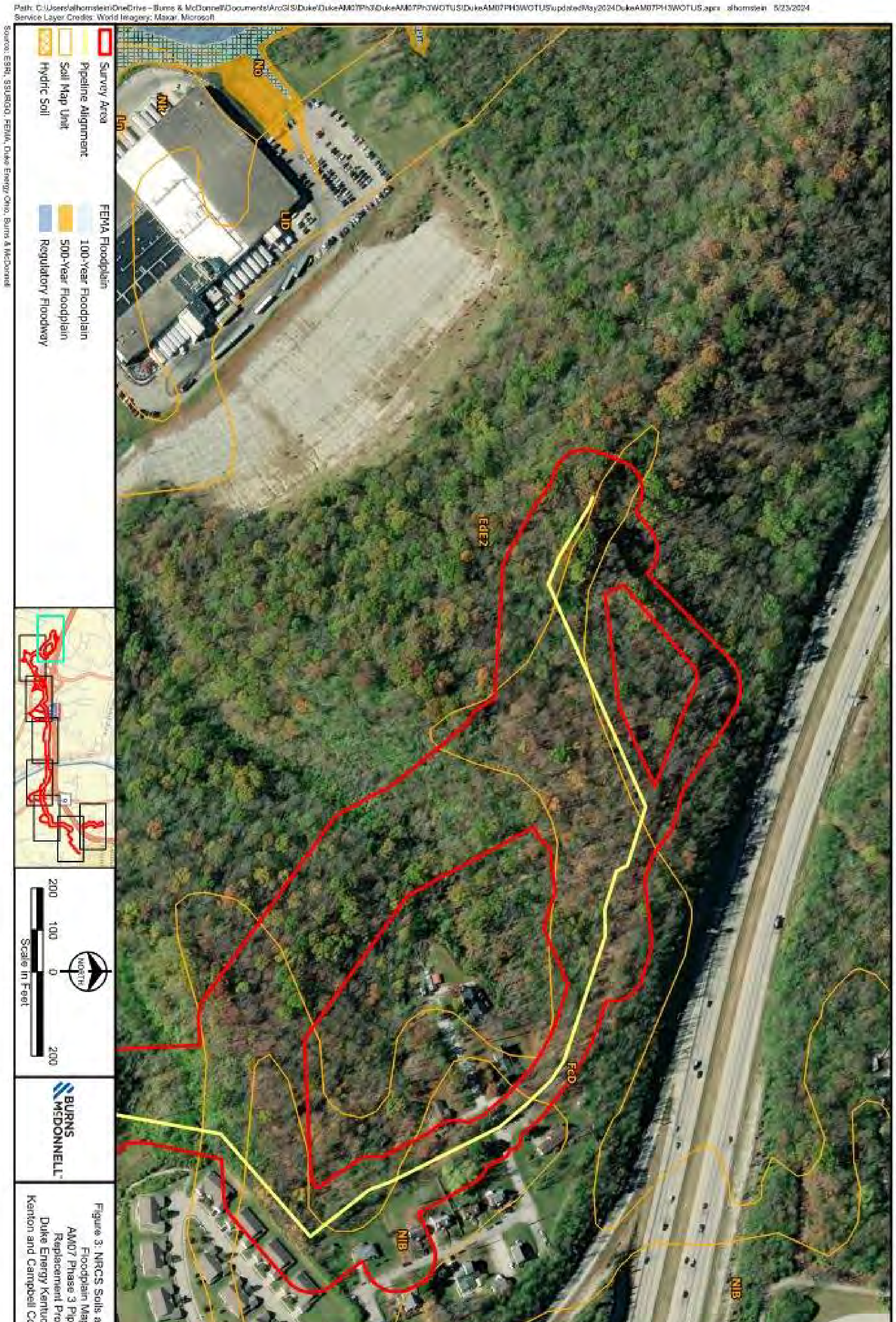
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Service Layer Credits: World Imagery: Maxar, Microsoft
Survey Area
Pipeline Alignment
Soil Map Unit
Hydric Soil
FEMA Floodplain
100-Year Floodplain
500-Year Floodplain
Regulatory Floodway
Source: ESRI, SSURGO, FEMA, Duke Energy Ohio, Burns & McDonnell
200 100 0 200
Scale in Feet
NORTH
BURNS MCDONNELL
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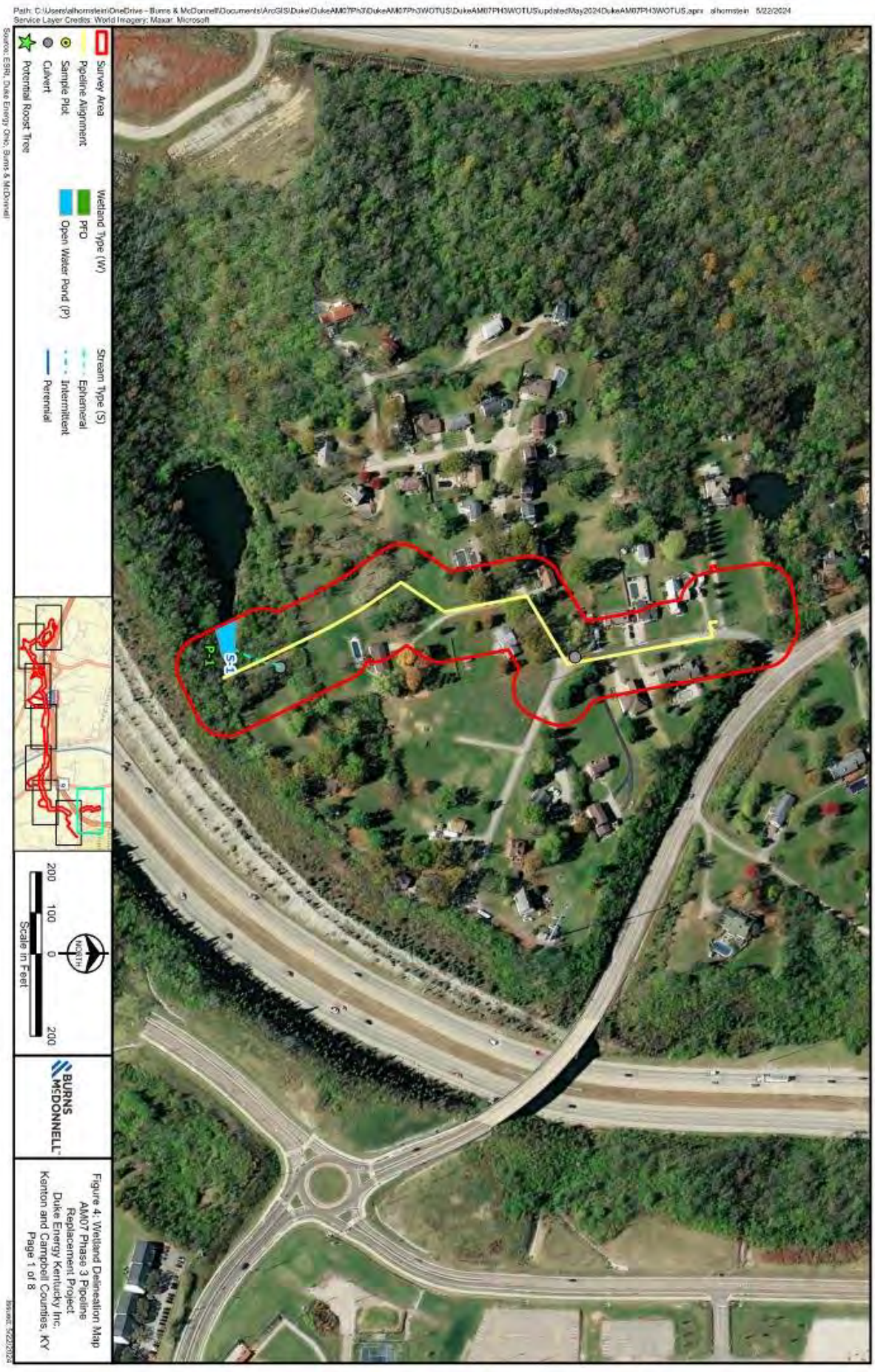
AM07 Phase 3 Pipeline Replacement Project
Duke Energy Kentucky Inc.
Kenton and Campbell Counties, KY
Issued: 5/23/2024
EdE2
FcD
NIB
Nb
LID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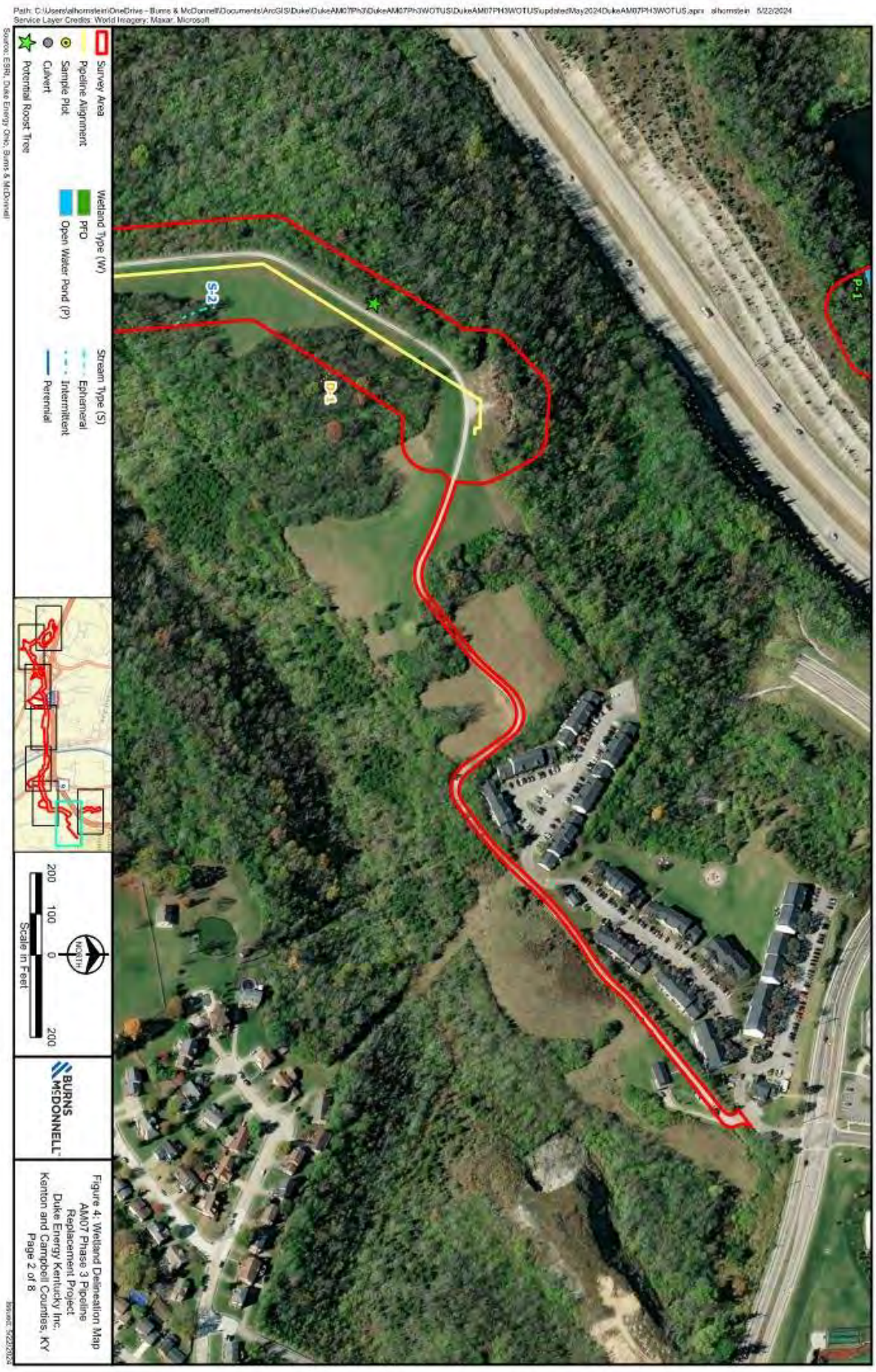
Service Layer Credits: World Imagery: Maxar, Microsoft
Source: ESRI, Duke Energy Ohio, Burns & McDonnell
Survey Area
Pipeline Alignment
Sample Plot
Culvert
Potential Roost Tree
Wetland Type (W)
PFO
Open Water Pond (P)
Stream Type (S)
Ephemeral
Intermittent
Perennial
S-1
P-1
200
100
0
200
Scale in Feet
NORTH
BURNS McDONNELL
Figure 4: Wetland Delineation Map
AM07 Phase 3 Pipeline
Replacement Project
Duke Energy Kentucky Inc.
Kenton and Campbell Counties, KY
Page 1 of 8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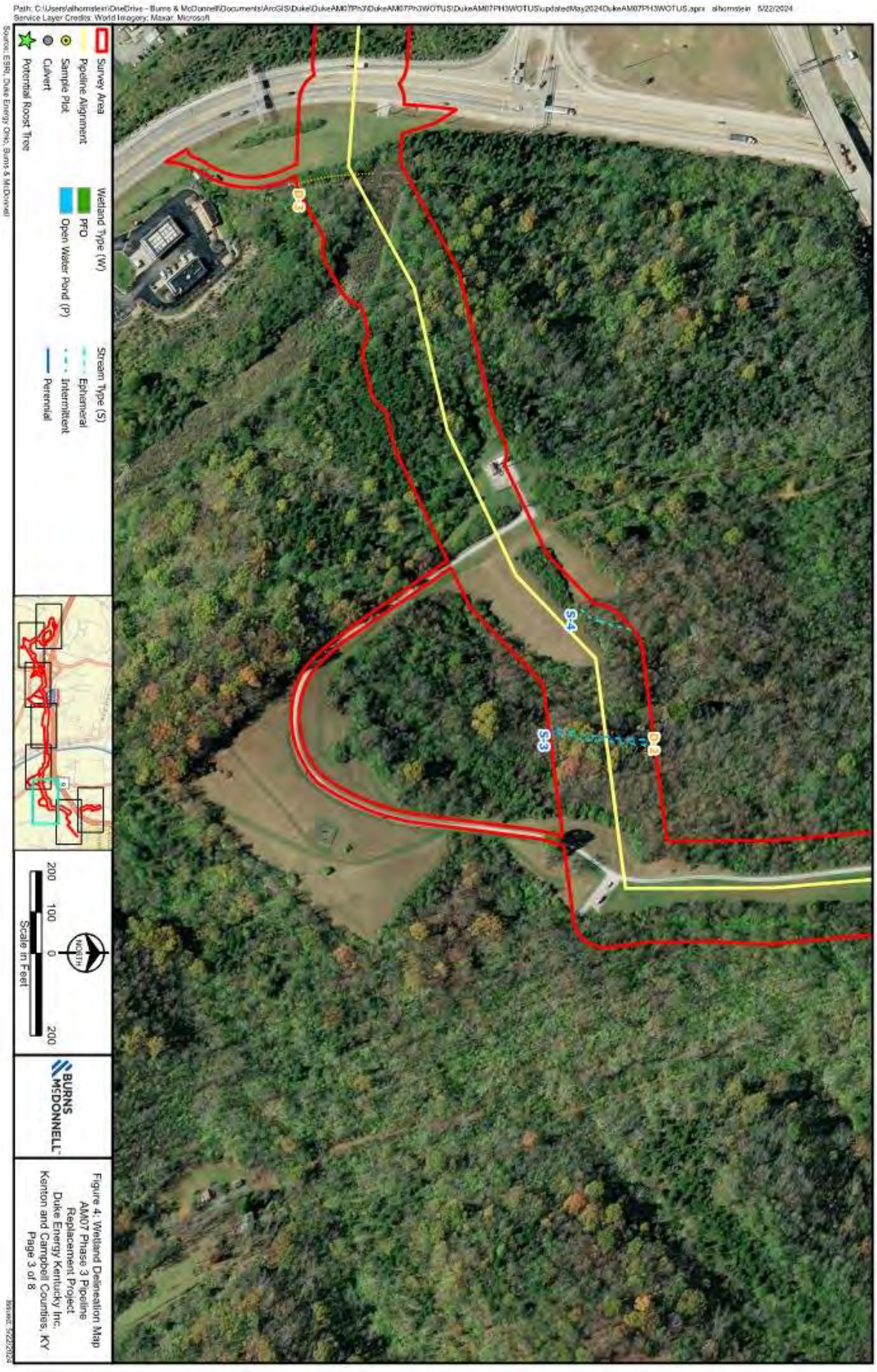
Service Layer Credits: World Imagery: Maxar, Microsoft
Survey Area
Pipeline Alignment
Sample Plot
Culvert
Potential Roost Tree
Wetland Type (W)
PFO
Open Water Pond (P)
Stream Type (S)
Ephemeral
Intermittent
Perennial
S-2
P-1
200
100
0
200
Scale in Feet
BURNS McDONNELL
Figure 4: Wetland Delineation Map
AM07 Phase 3 Pipeline
Replacement Project
Duke Energy Kentucky Inc.
Kenton and Campbell Counties, KY
Page 2 of 8
Source: ESRI, Duke Energy Ohio, Burns & McDonnell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Service Layer Credits: World Imagery: Maxar, Microsoft
Source: ESRI, Duke Energy Ohio, Burns & McDonnell
Survey Area
Pipeline Alignment
Sample Plot
Culvert
Potential Roost Tree
Wetland Type (W)
PFO
Open Water Pond (P)
Stream Type (S)
Ephemeral
Intermittent
Perennial
S-4
S-3
200
100
0
200
NORTH
Scale in Feet
BURNS McDONNELL
Figure 4: Wetland Delineation Map
AM07 Phase 3 Pipeline
Replacement Project
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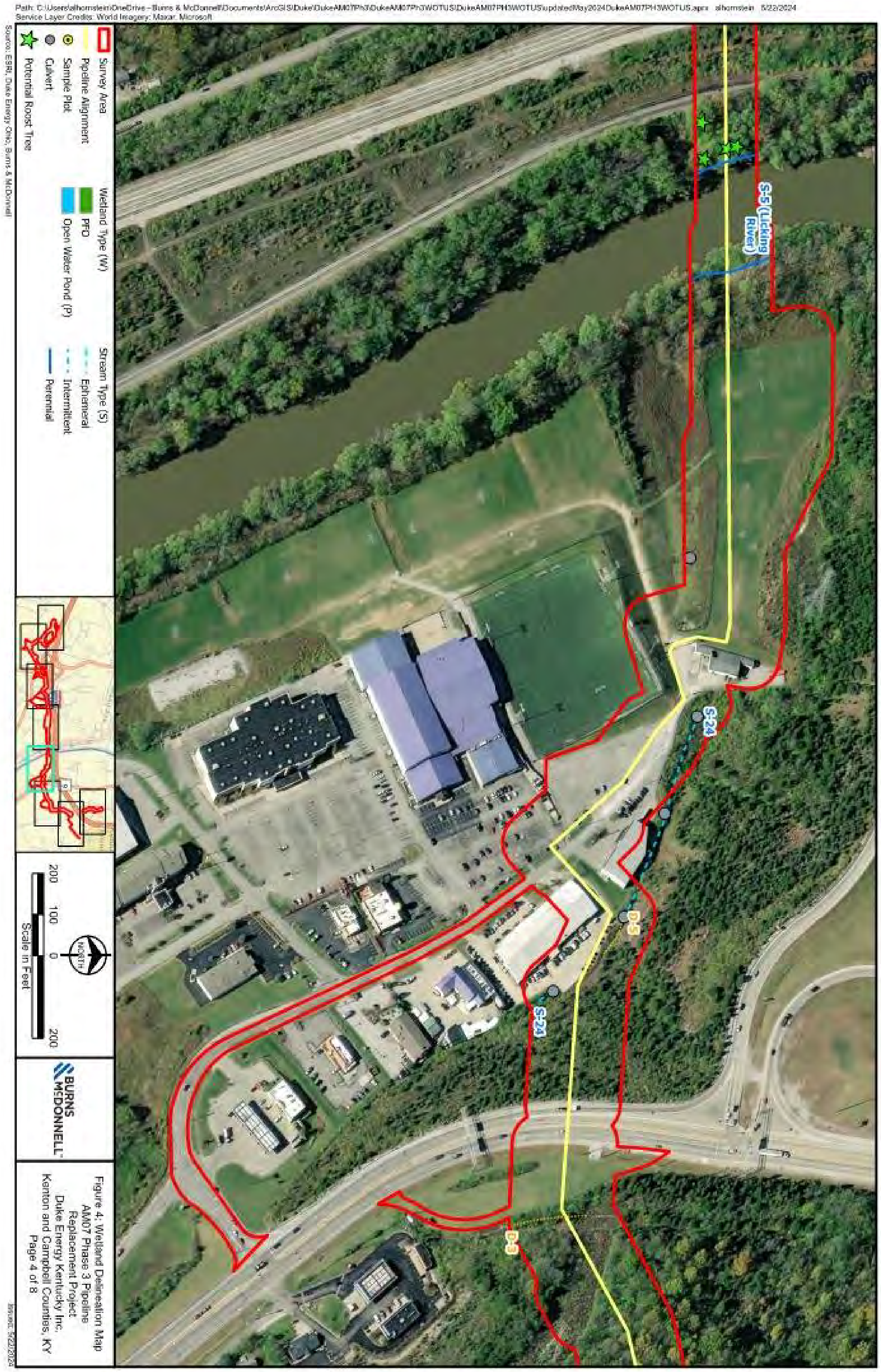
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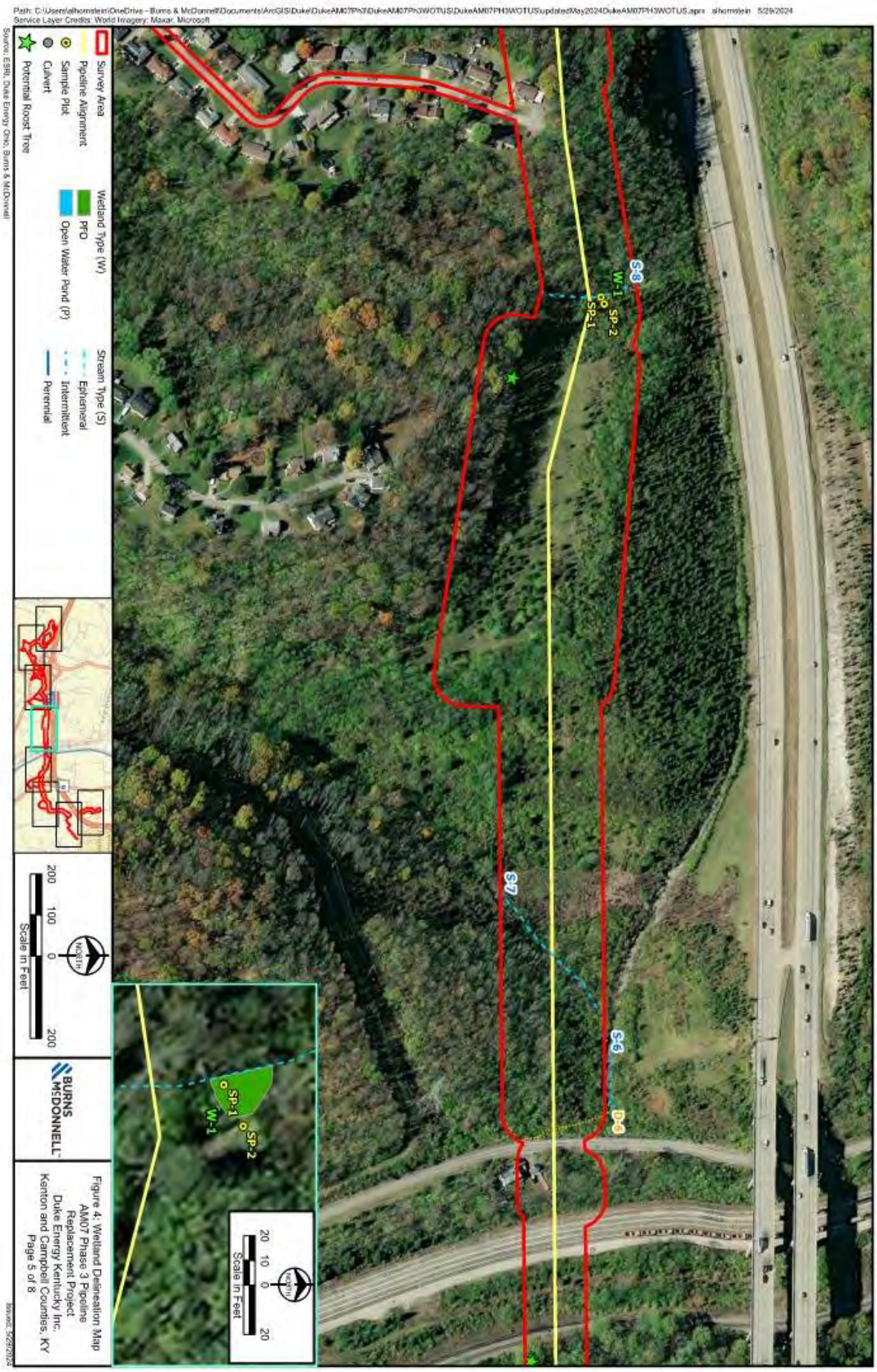
Service Layer Credits: World Imagery: Maxar, Microsoft
S-5 (Licking River)
S-24
D-5
S-24
D-3
Survey Area
Pipeline Alignment
Sample Plot
Culvert
Potential Roost Tree
Wetland Type (W)
PFO
Open Water Pond (P)
Stream Type (S)
Ephemeral
Intermittent
Perennial
NORTH
200 100 0 200
Scale in Feet
BURNS McDONNELL
Figure 4: Wetland Delineation Map
AM07 Phase 3 Pipeline
Replacement Project
Duke Energy Kentucky Inc.
Kenton and Campbell Counties, KY
Page 4 of 8
Source: ESRI, Duke Energy Ohio, Burns & McDonnell
Issued: 5/22/2024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Source: ESRI, Duke Energy Ohio, Burns & McDonnell
Survey Area
Pipeline Alignment
Sample Plot
Culvert
Potential Roost Tree
Wetland Type (W)
PFO
Open Water Pond (P)
Stream Type (S)
Ephemeral
Intermittent
Perennial
S-8
W-1
SP-2
SP-1
S-7
S-6
P-5
SP-1
W-1
SP-2
20 10 0 20
Scale in Feet
200 100 0 200
Scale in Feet
BURNS McDONNELL
Figure 4: Wetland Delineation Map
AM07 Phase 3 Pipeline
Replacement Project
Duke Energy Kentucky Inc.
Kenton and Campbell Counties, KY
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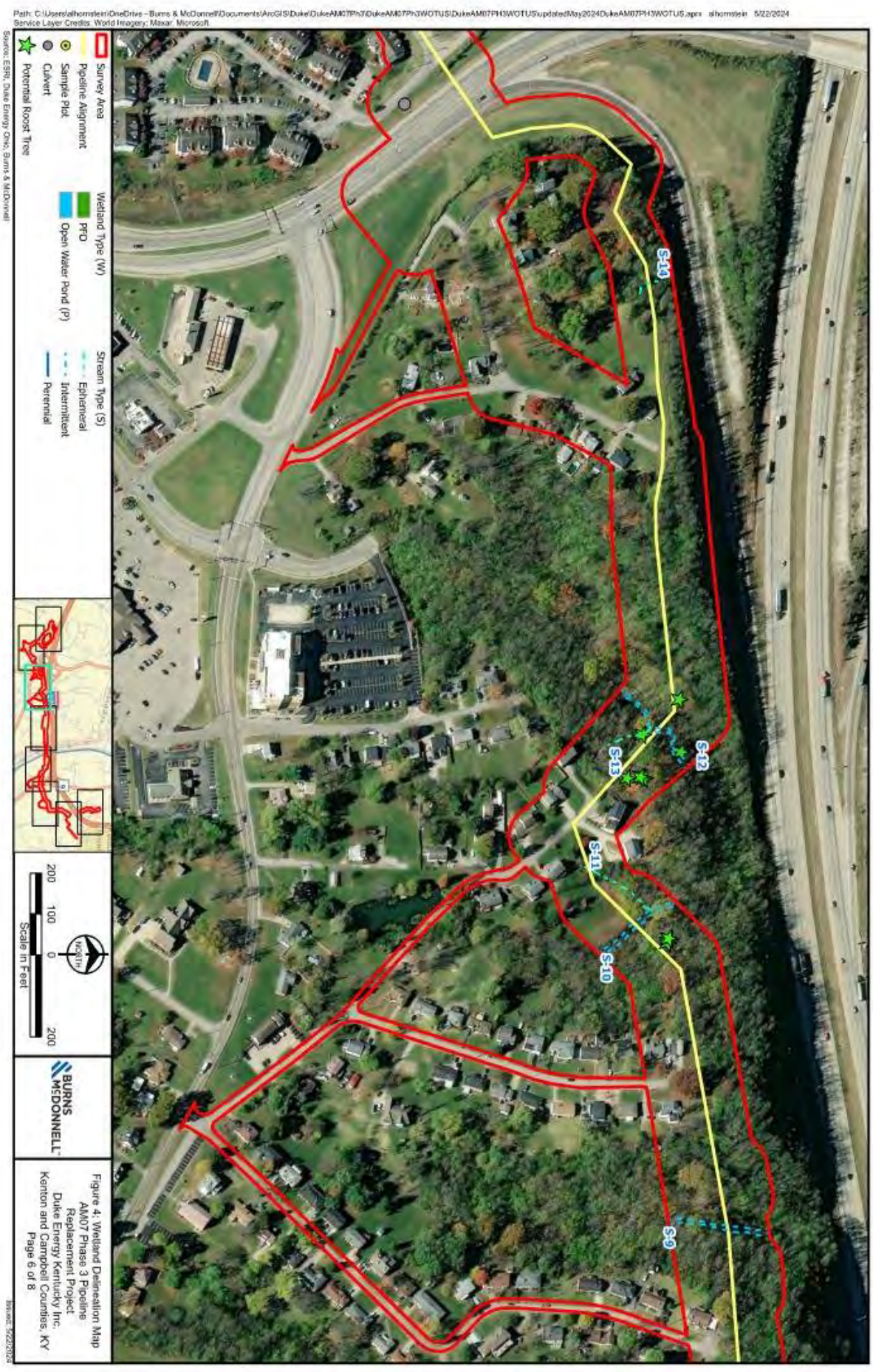
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Service Layer Credits: World Imagery: Maxar, Microsoft
Source: ESRI, Duke Energy Ohio, Burns & McDonnell
Survey Area
Pipeline Alignment
Sample Plot
Culvert
Potential Roost Tree
Wetland Type (W)
PFO
Open Water Pond (P)
Stream Type (S)
Ephemeral
Intermittent
Perennial
S-10
S-11
S-12
S-13
S-9
200
100
0
200
Scale in Feet
NORTH
BURNS McDONNELL
Figure 4: Wetland Delineation Map
AM07 Phase 3 Pipeline
Replacement Project
Duke Energy Kentucky Inc.
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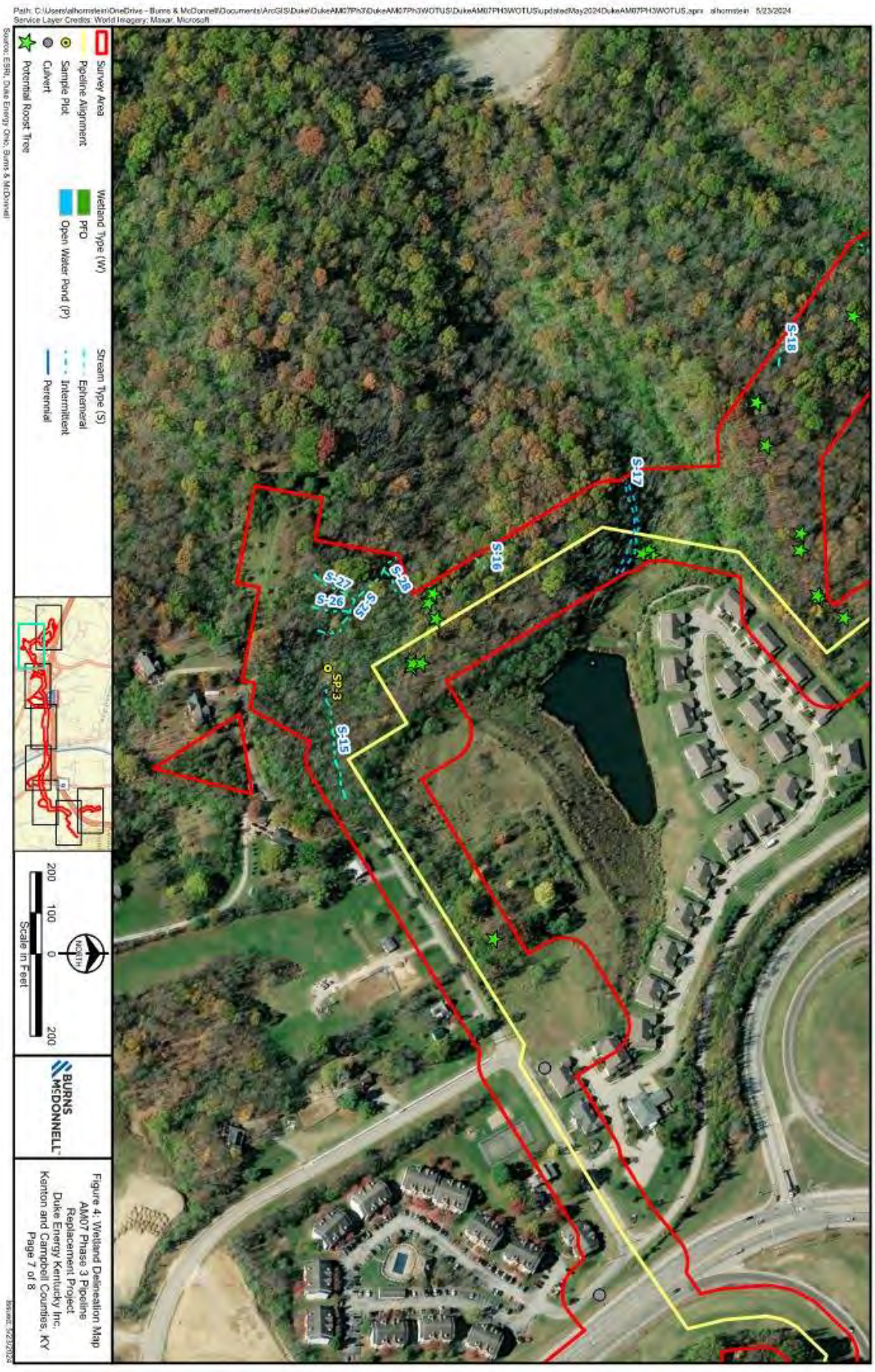
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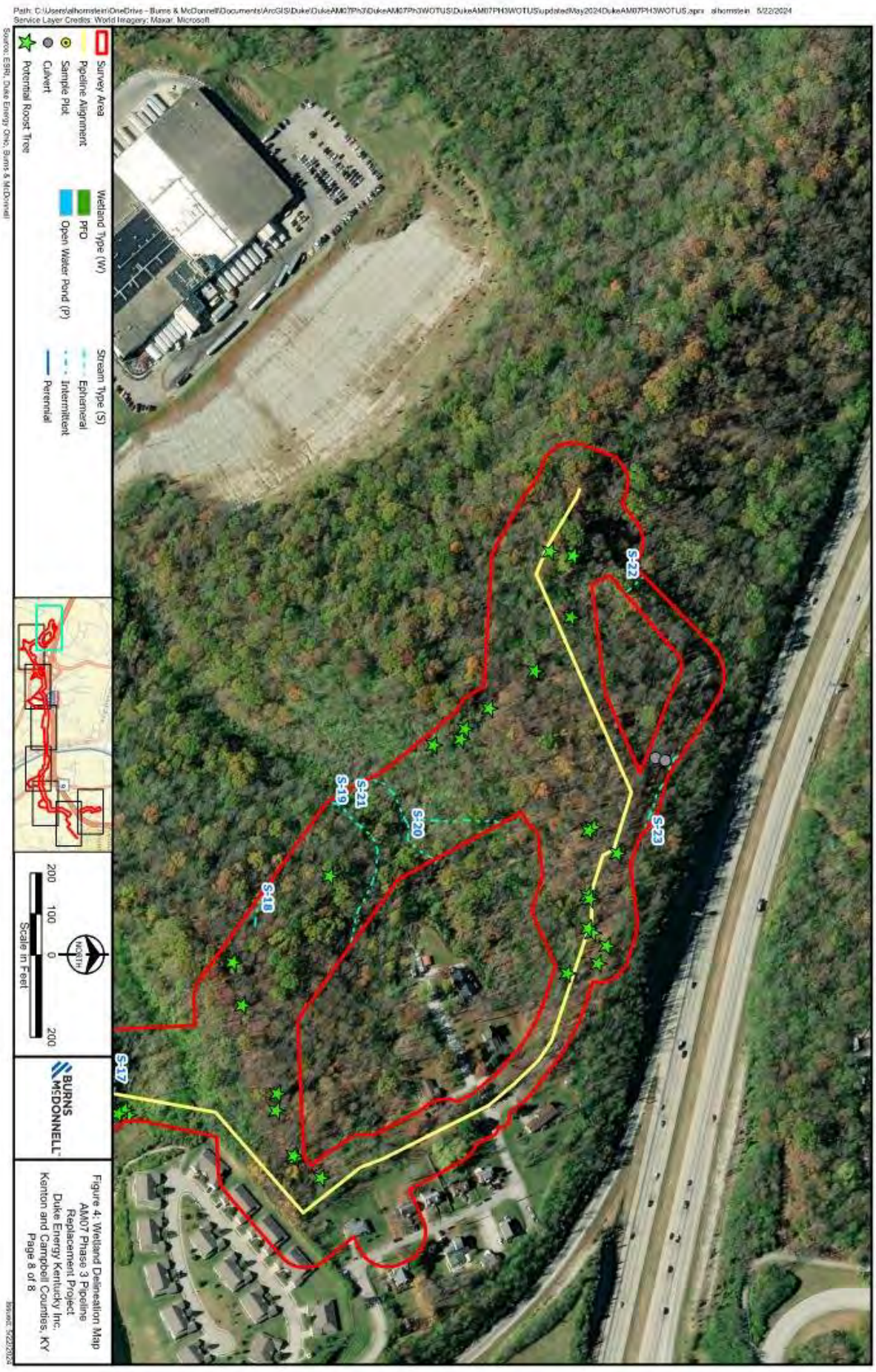
Service Layer Credits: World Imagery; Maxar, Microsoft
Survey Area
Pipeline Alignment
Sample Plot
Culvert
Potential Roost Tree
Wetland Type (W)
PFO
Open Water Pond (P)
Stream Type (S)
Ephemeral
Intermittent
Perennial
S-18
S-17
S-16
S-28
S-27
S-26
S-25
SP-3
S-15
200
100
0
200
Scale in Feet
NORTH
BURNS McDONNELL
Figure 4: Wetland Delineation Map
AM07 Phase 3 Pipeline
Replacement Project
Duke Energy Kentucky Inc.
Kenton and Campbell Counties, KY
Page 7 of 8
Source: ESRI, Duke Energy Ohio, Burns & McDonnell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Service Layer Credits: World Imagery; Maxar, Microsoft
Survey Area
Pipeline Alignment
Sample Plot
Culvert
Potential Roost Tree
Wetland Type (W)
PFO
Open Water Pond (P)
Stream Type (S)
Ephemeral
Intermittent
Perennial
S-10
S-17
S-19
S-20
S-21
S-22
S-23
200
100
0
200
Scale in Feet
NORTH
BURNS McDONNELL
Figure 4: Wetland Delineation Map
AM07 Phase 3 Pipeline
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Duke Energy Kentucky Inc.
Kenton and Campbell Counties, KY
Page 8 of 8
Source: ESRI, Duke Energy Ohio, Burns & McDonnell

APPENDIX B – WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AM07 Phase 3 City/County: Kenton and Campbell Counties Sampling Date: 2024-02-20

Applicant/Owner: Duke Energy State: Kentucky Sampling Point: SP-1

Investigator(s): B. Harrison and A. Hornstein Section, Township, Range: N/A Metes and Bounds

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR or MLRA): A Lat: 39.02295684 Long: -84.49956512 Datum: WGS 84

Soil Map Unit Name: EdE2 - Eden silty clay loam, 20 to 35 percent slopes, eroded NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___	**Is the Sampled Area within a Wetland?**	Yes ✓	No ___
Hydric Soil Present?	Yes ✓	No ___			
Wetland Hydrology Present?	Yes ✓	No ___			

Remarks:

W-1

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ 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)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ✓ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches):_____
Water Table Present?	Yes _____	No ✓	Depth (inches):_____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches):_____

Wetland Hydrology Present? Yes ✓ No_____

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

Remarks:

Wetland hydrology criteria met

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: SP-1

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5 ft r)			
1. Glyceria striata	90	✓	OBL
2. Fraxinus pennsylvanica	10		FACW
3. Syphyotrichum sp.	2		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	102 = Total Cover		
50% of total cover: 51.00	20% of total cover: 20.40		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	12	x 2 =	24
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	102 (A)		114 (B)

Prevalence Index = B/A = 1.11

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

Hydrophytic vegetation criteria met

SOIL Sampling Point: SP-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 3	2.5Y 5/2	95	2.5Y 5/6	5	C	M	Silty Clay	
3 - 8	2.5Y 5/2	90	2.5Y 5/4	10	C	M	Silty Clay	
8 - 14	2.5Y 5/1	75	2.5Y 5/2	20	C	M	Silty Clay	
8 - 14			2.5Y 5/4	5	C	M	Silty Clay	
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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** ✓ **No** _____

Remarks:

Hydric soil criteria met

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AM07 Phase 3 City/County: Kenton and Campbell Counties Sampling Date: 2024-02-20

Applicant/Owner: Duke Energy State: Kentucky Sampling Point: SP-2

Investigator(s): B. Harrison and A. Hornstein Section, Township, Range: N/A Metes and Bounds

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR or MLRA): A Lat: 39.02295684 Long: -84.49956512 Datum: WGS 84

Soil Map Unit Name: EdE2 - Eden silty clay loam, 20 to 35 percent slopes, eroded NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓	**Is the Sampled Area within a Wetland?**	Yes ___	No ✓
Hydric Soil Present?	Yes ___	No ✓			
Wetland Hydrology Present?	Yes ___	No ✓			

Remarks:

Upland sample plot for W-1

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ 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)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches):_____
Water Table Present?	Yes _____	No ✓	Depth (inches):_____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches):_____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

Wetland hydrology criteria not met

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: SP-2

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Juniperus virginiana	100	✔	FACU
2. Fraxinus americana	15		FACU
3. Cercis canadensis	5		FACU
4.			
5.			
6.			
7.			
	120 = Total Cover		
50% of total cover: 60.00	20% of total cover: 24.00		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Lonicera maackii	70	✔	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	70 = Total Cover		
50% of total cover: 35.00	20% of total cover: 14.00		
Herb Stratum (Plot size: 5 ft r)			
1. Lonicera maackii	35	✔	
2. Microstegium vimineum	35	✔	FAC
3. Fraxinus pennsylvanica	5		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	75 = Total Cover		
50% of total cover: 37.50	20% of total cover: 15.00		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	35	x 3 =	105
FACU species	120	x 4 =	480
UPL species	0	x 5 =	0
Column Totals:	160 (A)		595 (B)

Prevalence Index = B/A = 3.71

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No ✔

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

hydrophytic vegetation criteria not met

SOIL Sampling Point: SP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 7	2.5YR 5/3	100					Silty Clay	
7 - 14	2.5YR 5/3	85	2.5YR 5/4	15	C	M	Silty Clay	
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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** _____ **No** ✓

Remarks:

Hydric soil criteria not met

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: AM07 Phase 3 City/County: Kenton and Campbell Counties Sampling Date: 2024-05-16

Applicant/Owner: Duke Energy State: Kentucky Sampling Point: SP-3

Investigator(s): V. Tremante and B. Salupo Section, Township, Range: N/A Metes and Bounds

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR or MLRA): _____ Lat: 39.01715556 Long: -84.51661376 Datum: NAD 83

Soil Map Unit Name: FcD - Faywood silty clay loam, 12 to 20 percent slopes NWI classification: R4SBC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	**Is the Sampled Area within a Wetland?**	Yes	No ✓
Hydric Soil Present?	Yes	No ✓			
Wetland Hydrology Present?	Yes ✓	No			

Remarks:

This basin receives water from a small stream. The basin is predominantly built-up sediment with no hydric profile or characteristics to the soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✓ 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)
- ___ 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)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ___	Depth (inches): .25
Water Table Present?	Yes ___	No ✓	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ✓	Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

This area receives water from a small stream. It has been impounded by a large 8 foot high berm that may have been used for a roadway. The basin appears to collect sediment and the sediment is well draining such that it does not hold water for a significant amount of time. The incoming stream in fact stops flowing at the edge of this basin and goes into the ground.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: SP-3

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharinum	40	✓	FACW
2. Acer negundo	30	✓	FAC
3. Populus deltoides	20	✓	FAC
4.			
5.			
6.			
7.			
	90 = Total Cover		
50% of total cover: 45.00	20% of total cover: 18.00		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	= Total Cover		
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 5 ft r)			
1. Carex amphibola	5	✓	FAC
2. Carex blanda	5	✓	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10 = Total Cover		
50% of total cover: 5.00	20% of total cover: 2.00		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		260 (B)

Prevalence Index = B/A = 2.60

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 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.

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

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

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No ___

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

SOIL Sampling Point: SP-3

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 16	10YR 3/2	100					Silt Loam	Full soil horizon appears to be well draining sediment from the small feeder stream.
-								
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ___ Thin Dark Surface (S9) **(MLRA 147, 148)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- ___ Umbric Surface (F13) **(MLRA 136, 122)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 148)**
- ___ Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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** _____ **No** ✓

Remarks:

The soils in this basin appear to the sediment coming from the stream that feeds it. There are no hydric indicators in the upper 16 inches of the soil.

APPENDIX C – SITE PHOTOGRAPHS

Photograph 1: View of Sample Plot (SP)-1 located in palustrine forested (PFO) Wetland (W)-1, facing north.

Photograph 2: View of wetland SP-1, facing east.

Duke Energy Kentucky, Inc. AM07 Phase 3 Pipeline Replacement Project	BURNS McDONNELL	Site Photographs Kenton and Campbell Counties, KY

Photograph 3: View of wetland SP-1, facing south.

Photograph 4: View of wetland SP-1, facing west.

Photograph 5: View of upland SP-2, facing south.

Photograph 6: View of upland SP-3, facing south.

Photograph 7: View of ephemeral Stream (S)-1, facing northeast.

Photograph 8: View of ephemeral S-2, facing southeast.

Photograph 9: View of intermittent S-3, facing north.

Photograph 10: View of ephemeral S-4, facing southwest.

Duke Energy Kentucky, Inc. AM07 Phase 3 Pipeline Replacement Project	BURNS McDONNELL	Site Photographs Kenton and Campbell Counties, KY

Photograph 11: View of perennial S-5 (Licking River), facing south.

Photograph 12: View of intermittent S-6, facing west.

Photograph 13: View of intermittent S-7, facing southwest.

Photograph 14: View of intermittent S-8, facing south.

Photograph 15: View of intermittent S-9, facing south.

Photograph 16: View of intermittent S-10, facing south.

Photograph 17: View of ephemeral S-11, facing southwest.

Photograph 18: View of intermittent S-12, facing northeast.

Photograph 19: View of ephemeral S-13, facing north.

Photograph 20: View of ephemeral S-14, facing north.

Photograph 21: View of ephemeral S-15, facing east.

Photograph 22: View of ephemeral S-16, facing west.

Photograph 23: View of intermittent S-17, facing east.

Photograph 24: View of ephemeral S-18, facing west.

Photograph 25: View of ephemeral S-19, facing east.

Photograph 26: View of ephemeral S-20, facing north.

Photograph 27: View of ephemeral S-21, facing southwest.

Photograph 28: View of ephemeral S-22, facing northwest.

Photograph 29: View of ephemeral S-23, facing southeast.

Photograph 30: View of intermittent S-24, facing west.

Photograph 31: View of ephemeral S-25, facing northwest.

Photograph 32: View of ephemeral S-26, facing south.

Photograph 33: View of ephemeral S-27, facing south.

Photograph 34: View of ephemeral S-28, facing west.

Photograph 35: Representative image of upland forest habitat within the Survey Area.

Photograph 36: Representative image maintained lawn habitat within the Survey Area.

Photograph 37: Representative image old field habitat within the Survey Area.

Photograph 38: Representative image new field habitat within the Survey Area.

Photograph 39: Representative image scrub-shrub habitat within the Survey Area.

Photograph 40: Representative view of a potential bat roost tree within the Survey Area.

Photograph 41: Representative view of a potential bat roost tree within the Survey Area.

APPENDIX D – IPAC AND COUNTY SPECIES LIST

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
Phone: (502) 695-0468 Fax: (502) 695-1024
Email Address: kentuckyes@fws.gov

In Reply Refer To: January 18, 2024
Project Code: 2024-0037659
Project Name: AM07 Phase 3 Pipeline Replacement Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service (fws.gov).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
(502) 695-0468

PROJECT SUMMARY

Project Code: 2024-0037659
Project Name: AM07 Phase 3 Pipeline Replacement Project
Project Type: Pipeline - Onshore - Maintenance / Modification - Below Ground
Project Description: The project includes installation of approximately 2.94 miles of 24-inch pipeline.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@39.024667050000005,-84.4745865364385,14z

Counties: Campbell and Kenton counties, Kentucky

ENDANGERED SPECIES ACT SPECIES

There is a total of 15 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 4 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Bat *Myotis grisescens*	Endangered

No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:
- The project area includes potential gray bat habitat.

Species profile: https://ecos.fws.gov/ecp/species/6329
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/NH5B6BDARVEFRP24QYQTXBWWZI/documents/generated/6422.pdf

Indiana Bat *Myotis sodalis*	Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
This species only needs to be considered under the following conditions:
- The project area includes 'potential' habitat. All activities in this location should consider possible effects to this species.

Species profile: https://ecos.fws.gov/ecp/species/5949
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/NH5B6BDARVEFRP24QYQTXBWWZI/documents/generated/6422.pdf

Northern Long-eared Bat *Myotis septentrionalis*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9045
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/NH5B6BDARVEFRP24QYQTXBWWZI/documents/generated/6422.pdf

CLAMS

NAME	STATUS

Clubshell *Pleurobema clava* — Endangered

Population: Wherever found; Except where listed as Experimental Populations
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/3789
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/NH5B6BDARVEFRP24QYQTXBWWZI/documents/generated/5639.pdf

Fanshell *Cyprogenia stegaria* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4822
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/NH5B6BDARVEFRP24QYQTXBWWZI/documents/generated/5639.pdf

Longsolid *Fusconaia subrotunda* — Threatened

There is **final** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/9880

Northern Riffleshell *Epioblasma rangiana* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/527
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/NH5B6BDARVEFRP24QYQTXBWWZI/documents/generated/5639.pdf

Orangefoot Pimpleback (pearlymussel) *Plethobasus cooperianus* — Endangered

No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:
- The species may be affected by projects that significantly impact the Ohio River.

Species profile: https://ecos.fws.gov/ecp/species/1132
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/NH5B6BDARVEFRP24QYQTXBWWZI/documents/generated/5639.pdf

Pink Mucket (pearlymussel) *Lampsilis abrupta* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/7829
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/NH5B6BDARVEFRP24QYQTXBWWZI/documents/generated/5639.pdf

Rabbitsfoot *Quadrula cylindrica cylindrica* — Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/5165
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/NH5B6BDARVEFRP24QYQTXBWWZI/documents/generated/5639.pdf

Ring Pink (mussel) *Obovaria retusa* — Endangered

NAME	STATUS

No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:
- The species may be affected by projects that significantly impact the Ohio River.

Species profile: https://ecos.fws.gov/ecp/species/4128
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/NH5B6BDARVEFRP24QYQTXBWWZI/documents/generated/5639.pdf

Rough Pigtoe *Pleurobema plenum* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/6894
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/NH5B6BDARVEFRP24QYQTXBWWZI/documents/generated/5639.pdf

Salamander Mussel *Simpsonaias ambigua* — Proposed Endangered

There is **proposed** critical habitat for this species. Your location overlaps the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/6208

Snuffbox Mussel *Epioblasma triquetra* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4135

INSECTS

NAME	STATUS

Monarch Butterfly *Danaus plexippus* — Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

CRITICAL HABITATS

There are 2 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS

Longsolid *Fusconaia subrotunda* — Final

https://ecos.fws.gov/ecp/species/9880#crithab

Salamander Mussel *Simpsonaias ambigua* — Proposed

https://ecos.fws.gov/ecp/species/6208#crithab

IPAC USER CONTACT INFORMATION

Agency: Burns & McDonnell
Name: Brooke Harrison
Address: 530 West Spring Street, Suite 100
City: Columbus
State: OH
Zip: 43215
Email bharrison@burnsmcd.com
Phone: 3803902516

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Army Corps of Engineers

Species Information

State Threatened, Endangered, and Special Concern Species observations for selected counties

Linked life history provided courtesy of NatureServe Explorer .
Records may include both recent and historical observations.
US Status Definitions Kentucky Status Definitions

List State Threatened, Endangered, and Special Concern Species observations in 2 selected counties.
Selected counties are: Campbell, Kenton.

Scientific Name and Life History	Common Name and Pictures	Class	County	US Status	KY Status	WAP	Reference
Accipiter striatus	Sharp-shinned Hawk	Aves	Campbell	N	S	Yes	Reference
Accipiter striatus	Sharp-shinned Hawk	Aves	Kenton	N	S	Yes	Reference
Acipenser fulvescens	Lake Sturgeon	Actinopterygii	Campbell	N	E	Yes	Reference
Actitis macularius	Spotted Sandpiper	Aves	Campbell	N	E	Yes	Reference
Actitis macularius	Spotted Sandpiper	Aves	Kenton	N	E	Yes	Reference
Alasmidonta marginata	Elktoe	Bivalvia	Campbell	N	T	Yes	Reference
Alasmidonta marginata	Elktoe	Bivalvia	Kenton	N	T	Yes	Reference
Ardea alba	Great Egret	Aves	Campbell	N	T	Yes	Reference
Atractosteus spatula	Alligator Gar	Actinopterygii	Kenton	N	E	Yes	Reference
Botaurus lentiginosus	American Bittern	Aves	Campbell	N	H	Yes	Reference
Calephelis borealis	Northern Metalmark	Insecta	Campbell	N	T	Yes	Reference
Cardellina canadensis	Canada Warbler	Aves	Kenton	N	S	Yes	Reference
Certhia americana	Brown Creeper	Aves	Kenton	N	T		Reference
Certhia americana	Brown Creeper	Aves	Campbell	N	T		Reference

Chondestes grammacus	Lark Sparrow	Aves	Campbell	N	S		Reference
Circus hudsonius	Northern Harrier	Aves	Kenton	N	T	Yes	Reference
Clonophis kirtlandii	Kirtland's Snake	Reptilia	Kenton	N	T	Yes	Reference
Clonophis kirtlandii	Kirtland's Snake	Reptilia	Campbell	N	T	Yes	Reference
Cryptobranchus alleganiensis alleganiensis	Eastern Hellbender	Amphibia	Kenton	N	S	Yes	Reference
Cryptobranchus alleganiensis alleganiensis	Eastern Hellbender	Amphibia	Campbell	N	S	Yes	Reference
Cumberlandia monodonta	Spectaclecase	Bivalvia	Campbell	E	E	Yes	Reference
Cyprogenia stegaria	Fanshell	Bivalvia	Campbell	E	E	Yes	Reference
Cyprogenia stegaria	Fanshell	Bivalvia	Kenton	E	E	Yes	Reference
Dryobius sexnotatus	Six-banded Longhorn Beetle	Insecta	Kenton	N	T		Reference
Elliptio crassidens	Elephantear	Bivalvia	Kenton	N	S	Yes	Reference
Elliptio crassidens	Elephantear	Bivalvia	Campbell	N	S	Yes	Reference
Empidonax minimus	Least Flycatcher	Aves	Kenton	N	E	Yes	Reference
Epioblasma obliquata	Catspaw	Bivalvia	Campbell	E	E	Yes	Reference
Epioblasma obliquata	Catspaw	Bivalvia	Kenton	E	E	Yes	Reference
Epioblasma rangiana	Northern Riffleshell	Bivalvia	Kenton	E	E	Yes	Reference
Epioblasma rangiana	Northern Riffleshell	Bivalvia	Campbell	E	E	Yes	Reference
Epioblasma triquetra	Snuffbox	Bivalvia	Campbell	E	E	Yes	Reference
Falco peregrinus	Peregrine Falcon	Aves	Campbell	N	E	Yes	Reference
Falco peregrinus	Peregrine Falcon	Aves	Kenton	N	E	Yes	Reference
Fulica americana	American Coot	Aves	Kenton	N	E		Reference
Fulica americana	American Coot	Aves	Campbell	N	E		Reference
Fusconaia subrotunda	Longsolid	Bivalvia	Campbell	T	T	Yes	Reference

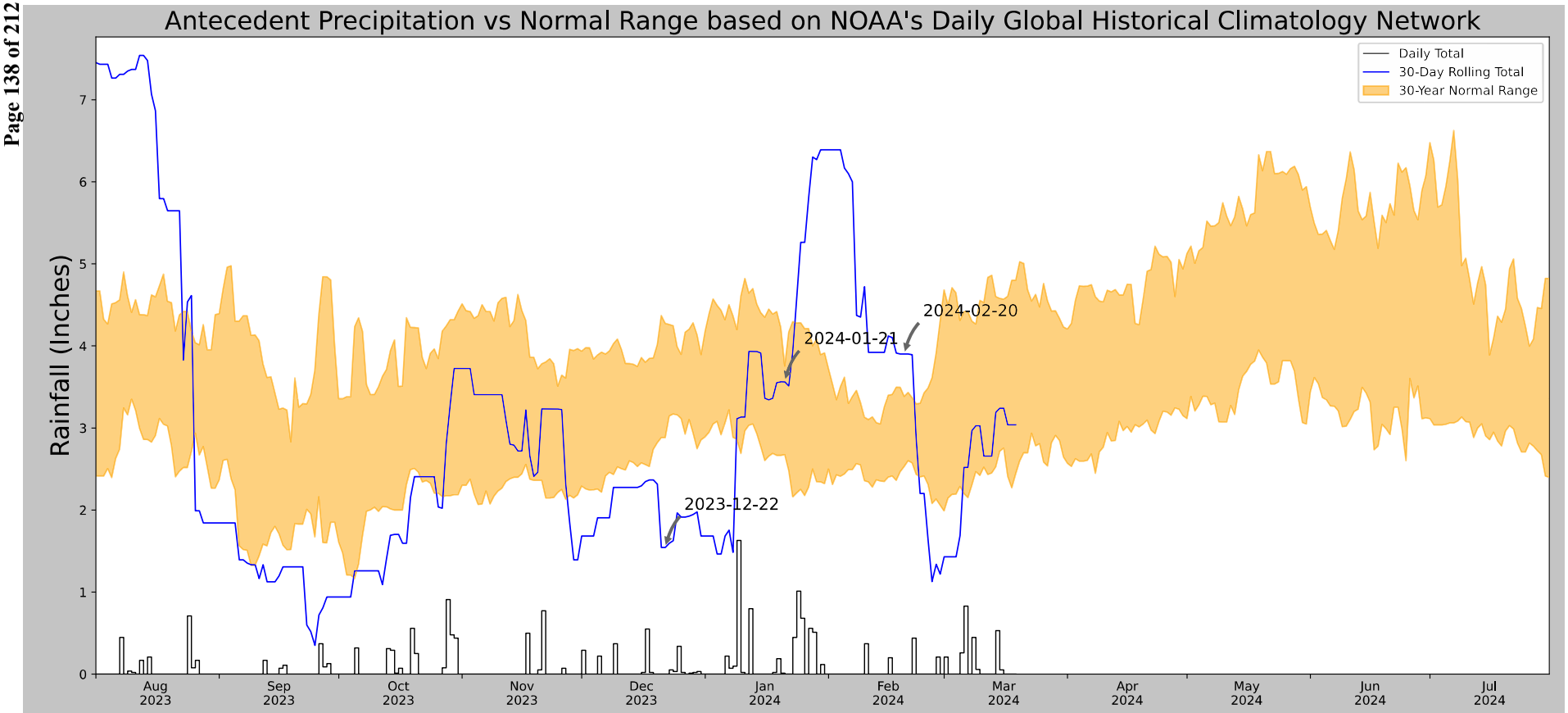
Fusconaia subrotunda	Longsolid	Bivalvia	Kenton	T	T	Yes	Reference
Haliaeetus leucocephalus	Bald Eagle	Aves	Campbell	N	S	Yes	Reference
Haliaeetus leucocephalus	Bald Eagle	Aves	Kenton	N	S	Yes	Reference
Ictiobus niger	Black Buffalo	Actinopterygii	Campbell	N	S	Yes	Reference
Ictiobus niger	Black Buffalo	Actinopterygii	Kenton	N	S	Yes	Reference
Junco hyemalis	Dark-eyed Junco	Aves	Kenton	N	S		Reference
Junco hyemalis	Dark-eyed Junco	Aves	Campbell	N	S		Reference
Lampsilis abrupta	Pink Mucket	Bivalvia	Campbell	E	E	Yes	Reference
Lampsilis abrupta	Pink Mucket	Bivalvia	Kenton	E	E	Yes	Reference
Lampsilis ovata	Pocketbook	Bivalvia	Kenton	N	E	Yes	Reference
Lampsilis ovata	Pocketbook	Bivalvia	Campbell	N	E	Yes	Reference
Lanius ludovicianus	Loggerhead Shrike	Aves	Campbell	N	S	Yes	Reference
Lanius ludovicianus	Loggerhead Shrike	Aves	Kenton	N	S	Yes	Reference
Lasmigona compressa	Creek Heelsplitter	Bivalvia	Campbell	N	E	Yes	Reference
Leptoxis praerosa	Onyx Rocksnail	Gastropoda	Campbell	N	S	Yes	Reference
Ligumia recta	Black Sandshell	Bivalvia	Campbell	N	S	Yes	Reference
Ligumia recta	Black Sandshell	Bivalvia	Kenton	N	S	Yes	Reference
Lithobates pipiens	Northern Leopard Frog	Amphibia	Campbell	N	S	Yes	Reference
Lithobates pipiens	Northern Leopard Frog	Amphibia	Kenton	N	S	Yes	Reference
Lophodytes cucullatus	Hooded Merganser	Aves	Kenton	N	T	Yes	Reference
Lophodytes cucullatus	Hooded Merganser	Aves	Campbell	N	T	Yes	Reference
Myotis lucifugus	Little Brown Bat	Mammalia	Campbell	N	T	Yes	Reference
Myotis lucifugus	Little Brown Bat	Mammalia	Kenton	N	T	Yes	Reference
Myotis septentrionalis	Northern Long-Eared Bat	Mammalia	Campbell	E	E	Yes	Reference

Myotis sodalis	Indiana Bat	Mammalia	Kenton	E	E	Yes	Reference
Notropis hudsonius	Spottail Shiner	Actinopterygii	Campbell	N	S	Yes	Reference
Nycticorax nycticorax	Black-crowned Night-heron	Aves	Campbell	N	T	Yes	Reference
Obovaria retusa	Ring Pink	Bivalvia	Campbell	E	E	Yes	Reference
Obovaria retusa	Ring Pink	Bivalvia	Kenton	E	E	Yes	Reference
Obovaria subrotunda	Round Hickorynut	Bivalvia	Kenton	T	T	Yes	Reference
Pandion haliaetus	Osprey	Aves	Campbell	N	S	Yes	Reference
Passerculus sandwichensis	Savannah Sparrow	Aves	Campbell	N	S	Yes	Reference
Passerculus sandwichensis	Savannah Sparrow	Aves	Kenton	N	S	Yes	Reference
Perimyotis subflavus	Tricolored Bat	Mammalia	Kenton	PE	T	Yes	Reference
Peucaea aestivalis	Bachman's Sparrow	Aves	Kenton	N	E	Yes	Reference
Phalacrocorax auritus	Double-crested Cormorant	Aves	Kenton	N	S		Reference
Phalacrocorax auritus	Double-crested Cormorant	Aves	Campbell	N	S		Reference
Pheucticus ludovicianus	Rose-breasted Grosbeak	Aves	Campbell	N	S		Reference
Pheucticus ludovicianus	Rose-breasted Grosbeak	Aves	Kenton	N	S		Reference
Plethobasus cooperianus	Orangefoot Pimpleback	Bivalvia	Kenton	E	E	Yes	Reference
Plethobasus cooperianus	Orangefoot Pimpleback	Bivalvia	Campbell	E	E	Yes	Reference
Plethobasus cyphyus	Sheepnose	Bivalvia	Campbell	E	E	Yes	Reference
Plethodon cinereus	Eastern Red-backed Salamander	Amphibia	Kenton	N	S	Yes	Reference
Pleurobema clava	Clubshell	Bivalvia	Campbell	E	E	Yes	Reference
Pleurobema clava	Clubshell	Bivalvia	Kenton	E	E	Yes	Reference

Pleurobema plenum	Rough Pigtoe	Bivalvia	Kenton	E	E	Yes	Reference
Pleurobema plenum	Rough Pigtoe	Bivalvia	Campbell	E	E	Yes	Reference
Pleurobema rubrum	Pyramid Pigtoe	Bivalvia	Kenton	PT	E	Yes	Reference
Podilymbus podiceps	Pied-billed Grebe	Aves	Campbell	N	E	Yes	Reference
Podilymbus podiceps	Pied-billed Grebe	Aves	Kenton	N	E	Yes	Reference
Pooecetes gramineus	Vesper Sparrow	Aves	Campbell	N	E		Reference
Pooecetes gramineus	Vesper Sparrow	Aves	Kenton	N	E		Reference
Riparia riparia	Bank Swallow	Aves	Kenton	N	S	Yes	Reference
Riparia riparia	Bank Swallow	Aves	Campbell	N	S	Yes	Reference
Setophaga fusca	Blackburnian Warbler	Aves	Kenton	N	T		Reference
Simpsonaias ambigua	Salamander Mussel	Bivalvia	Kenton	N	T	Yes	Reference
Simpsonaias ambigua	Salamander Mussel	Bivalvia	Campbell	N	T	Yes	Reference
Sitta canadensis	Red-breasted Nuthatch	Aves	Campbell	N	E		Reference
Sitta canadensis	Red-breasted Nuthatch	Aves	Kenton	N	E		Reference
Spatula clypeata	Northern Shoveler	Aves	Kenton	N	E		Reference
Spatula clypeata	Northern Shoveler	Aves	Campbell	N	E		Reference
Spatula discors	Blue-winged Teal	Aves	Campbell	N	T		Reference
Spatula discors	Blue-winged Teal	Aves	Kenton	N	T		Reference
Spilogale putorius	Eastern Spotted Skunk	Mammalia	Campbell	N	S	Yes	Reference
Theliderma cylindrica	Rabbitsfoot	Bivalvia	Campbell	T	E	Yes	Reference
Thryomanes bewickii	Bewick's Wren	Aves	Kenton	N	H	Yes	Reference
Tyto alba	Barn Owl	Aves	Kenton	N	S	Yes	Reference
Vermivora chrysoptera	Golden-winged Warbler	Aves	Kenton	N	E	Yes	Reference

105 species are listed

APPENDIX E – ANTECEDENT PRECIPITATION TOOL



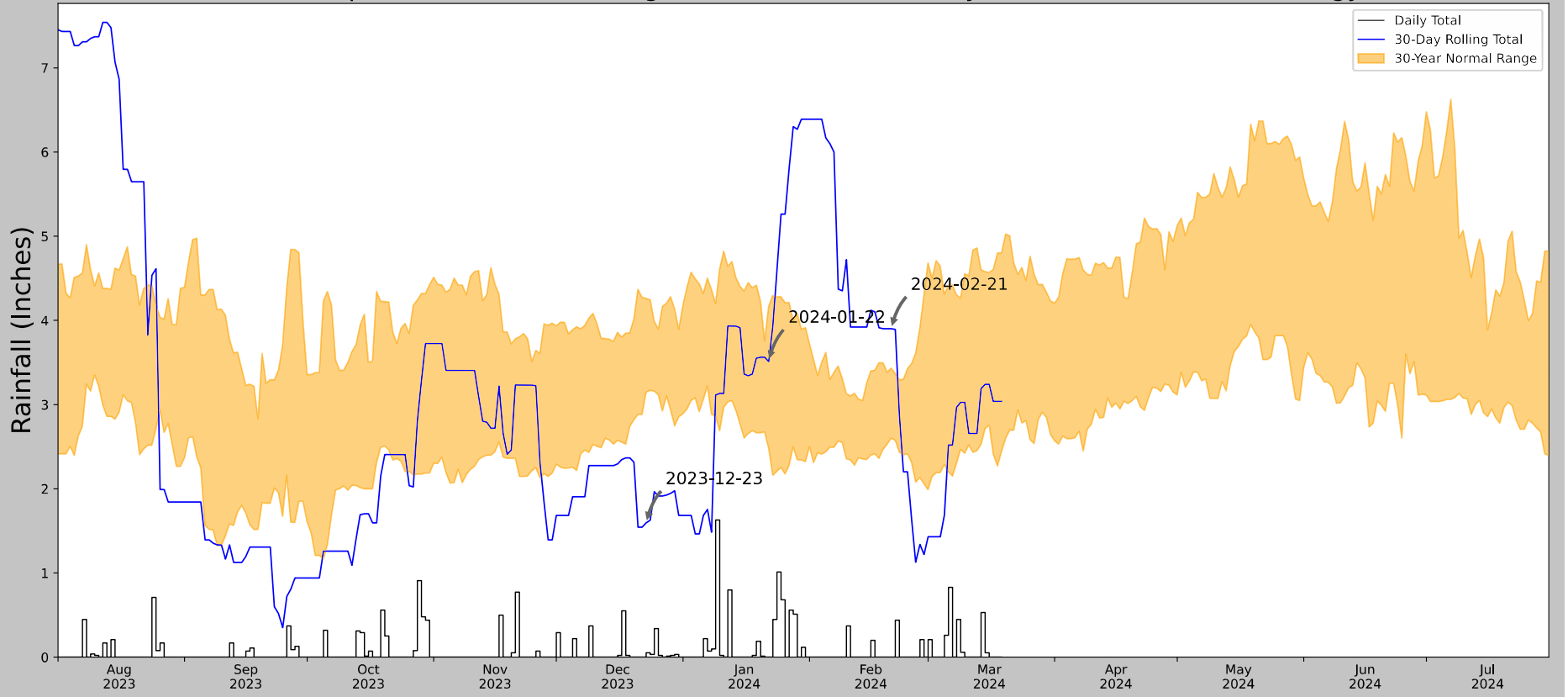
Coordinates	39.021105, -84.497981
Observation Date	2024-02-20
Elevation (ft)	724.942
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-02-20	2.530315	3.385827	3.901575	Wet	3	3	9
2024-01-21	2.67441	3.755906	3.562992	Normal	2	2	4
2023-12-22	2.88189	4.275591	1.543307	Dry	1	1	1
Result							Normal Conditions - 14

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CINCINNATI/NORTHERN KENTUCKY I	39.0444, -84.6725	860.892	9.504	135.95	5.569	11352	90



Coordinates	39.021105, -84.497981
Observation Date	2024-02-21
Elevation (ft)	724.942
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Wet Season

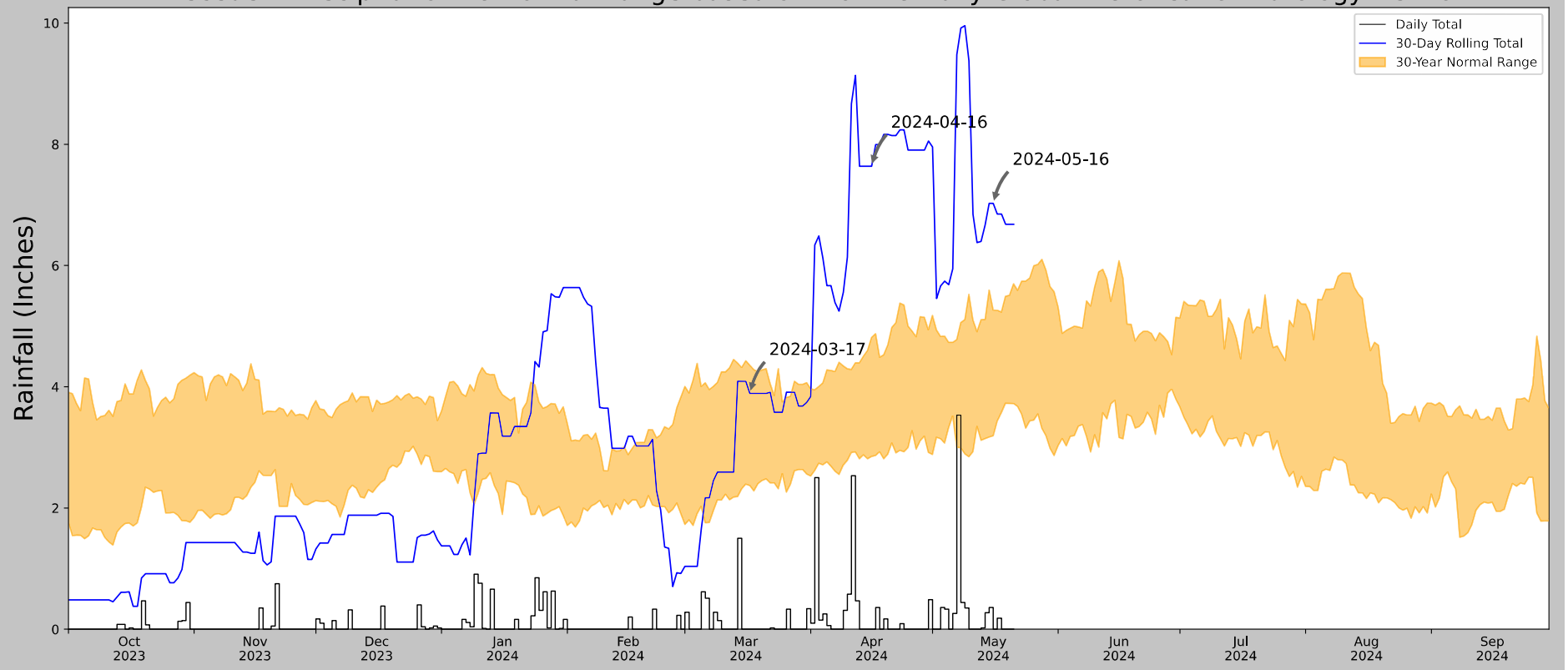
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-02-21	2.601575	3.433465	3.901575	Wet	3	3	9
2024-01-22	2.482677	4.168898	3.511811	Normal	2	2	4
2023-12-23	3.146457	4.262205	1.594488	Dry	1	1	1
Result							Normal Conditions - 14

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CINCINNATI/NORTHERN KENTUCKY I	39.0444, -84.6725	860.892	9.504	135.95	5.569	11352	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	39.021105, -84.497981
Observation Date	2024-05-16
Elevation (ft)	724.942
Drought Index (PDSI)	Mild drought (2024-04)
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-05-16	3.191732	5.265354	7.027559	Wet	3	3	9
2024-04-16	2.849606	4.812992	7.637796	Wet	3	2	6
2024-03-17	2.370473	4.355118	3.889764	Normal	2	1	2
Result							Wetter than Normal - 17

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
CINCINNATI MUNI AP LUNKEN FLD	39.1061, -84.4161	475.066	7.334	249.876	5.133	11108	90
CINCINNATI 4.2 ESE	39.1264, -84.4299	625.984	1.586	150.918	0.953	1	0
CINCINNATI 6.7 E	39.0893, -84.3865	769.029	1.966	293.963	1.463	6	0
CINCINNATI 7.5 E	39.0808, -84.3752	732.94	2.805	257.874	1.986	3	0
COVINGTON 1.3 SSE	39.0658, -84.5017	530.84	5.369	55.774	2.716	1	0
PARK HILLS 0.6 NE	39.0771, -84.5247	541.011	6.159	65.945	3.178	2	0
MILFORD	39.1814, -84.2867	520.013	8.669	44.947	4.291	222	0
CINCINNATI-FERNBANK	39.1169, -84.6961	500.0	15.03	24.934	7.138	9	0

APPENDIX F – AGENCY CORRESPONDENCE

Harrison, Brooke

From: Bishop, Seth R <seth_bishop@fws.gov>
Sent: Wednesday, February 7, 2024 4:35 PM
To: Harrison, Brooke
Subject: FWS 2024-0037659; AM07 Phase 3 Pipeline Replacement Project, Campbell & Kenton Co., KY

Follow Up Flag: Follow up
Flag Status: Flagged

Brooke,

The KFO does not have any comments on this project at this time. The official species list you obtained from the Service's IPaC website will show you which species should be considered when evaluating potential effects to listed species from the project. When you are ready to evaluate potential effects, you can either use the determination keys on the IPaC website or submit a project package to our office for review. There is guidance on both of these options on our website (https://www.fws.gov/office/kentucky-ecological-services/kentucky-field-office-project-review-guidance).

Thanks for reaching out to our office. Let me know if you have any questions or need additional assistance at this time.

Seth

Seth R. Bishop
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Kentucky Field Office
330 West Broadway, Room 265
Frankfort, KY 40601
(502) 545-4532

KENTUCKY DEPARTMENT OF FISH & WILDLIFE RESOURCES

Rich Storm
Commissioner

#1 Sportsman's Lane
Frankfort, Kentucky 40601
Phone (502) 564-3400
Fax (502) 564-0506

Brian Clark
Deputy Commissioner

Gabe Jenkins
Deputy Commissioner

March 18, 2024

Burns & McDonnell
Attn: Brooke Harrison, Project Manager
530 West Spring Street, Suite 100
Columbus, Ohio 43215

RE: Project Review Request
AM07 Phase 3 Pipeline Replacement Project
Kenton and Campbell Counties, Kentucky

Dear Ms. Harrison:

The Kentucky Department of Fish and Wildlife Resources (KDFWR) has received your request for an environmental review regarding the proposed AM07 Phase 3 Pipeline Replacement Project in Kenton and Campbell Counties, KY. The proposed project area has been reviewed for impacts wildlife resources and other sensitive areas. The following comments are provided:

KDFWR Records Review:

Our records indicate the following federally listed and proposed listed species occur within ten (10) miles of the proposed project areas. Be advised that the KDFWR does not have the authority to confirm compliance with the Endangered Species Act. Please coordinate with the U.S. Fish and Wildlife Service for specific recommendations and compliance requirements for these federally listed species.

Scientific Name	Common Name	Class	Federal Status
Etheostoma lemniscatum	Tuxedo Darter	Actinopterygii	E
Cyprogenia stegaria	Fanshell	Bivalvia	E
Fusconaia subrotunda	Longsolid	Bivalvia	T
Lampsilis abrupta	Pink Mucket	Bivalvia	E
Plethobasus cyphyus	Sheepnose	Bivalvia	E
Theliderma cylindrica	Rabbitsfoot	Bivalvia	T
Macrochelys temminckii	Alligator Snapping Turtle	Chelonia	PT
Myotis septentrionalis	Northern Long-Eared Bat	Mammalia	T
Myotis sodalis	Indiana Bat	Mammalia	E
Perimyotis subflavus	Tricolored Bat	Mammalia	PE

The following state-listed species were recorded within one (1) mile of the proposed project area:

Scientific Name	Common Name	Class	Federal Status	KSNPC Status
Lithobates pipiens	Northern Leopard Frog	Amphibia	N	S
Plethodon cinereus	Eastern Red-backed Salamander	Amphibia	N	S
Accipiter striatus	Sharp-shinned Hawk	Aves	N	S
Lanius ludovicianus	Loggerhead Shrike	Aves	N	S
Passerculus sandwichensis	Savannah Sparrow	Aves	N	S
Pheucticus ludovicianus	Rose-breasted Grosbeak	Aves	N	S
Sitta canadensis	Red-breasted Nuthatch	Aves	N	E
Perimyotis subflavus	Tricolored Bat	Mammalia	PE	T

The KDFWR recently updated the Kentucky State Wildlife Action Plan (SWAP) under a federal grant from the U.S. Fish and Wildlife Service. The updated SWAP is a user-friendly guide for conservation of species of greatest conservation need (SGCN) in the state. The KDFWR invites you to review the updated SWAP on its website (https://app.fw.ky.gov/kyswap/). Species experts from the public and private sectors helped develop the SWAP by determining which species were rare, vulnerable, declining in population, or for which there was not enough information to determine status, and therefore had the greatest need for conservation actions. The SWAP is intended to provide guidance to developers, regulators, resource agencies, the public, and other stakeholders to conserve SGCN by prioritizing threats and recommending conservation actions for each species. The KDFWR is promoting the use of the SWAP to prevent declines in SGCN thereby preventing the need to list them in the Endangered Species Act. SGCN status does not invoke regulatory restrictions or requirements. However, the KDFWR encourages project sponsors to consider actions that provide conservation benefits to these species such as minimization of habitat encroachment, using buffer areas near projects to provide habitat, or other measures. Please refer to the SWAP for specific conservation actions that may benefit the SGCN identified within one (1) mile that may be compatible with the proposed project:

Scientific Name	Common Name	Class	Federal Status	KSNPC Status
Ambystoma barbouri	Streamside Salamander	Amphibia	N	N
Lithobates pipiens	Northern Leopard Frog	Amphibia	N	S
Plethodon cinereus	Eastern Red-backed Salamander	Amphibia	N	S
Accipiter striatus	Sharp-shinned Hawk	Aves	N	S
Butorides virescens	Green Heron	Aves	N	N
Coccyzus americanus	Yellow-billed Cuckoo	Aves	N	N
Empidonax traillii	Willow Flycatcher	Aves	N	N
Falco sparverius	American Kestrel	Aves	N	N
Gallinago delicata	Wilson's Snipe	Aves	N	N
Hylocichla mustelina	Wood Thrush	Aves	N	N
Lanius ludovicianus	Loggerhead Shrike	Aves	N	S
Melanerpes erythrocephalus	Red-headed Woodpecker	Aves	N	N
Passerculus sandwichensis	Savannah Sparrow	Aves	N	S
Protonotaria citrea	Prothonotary Warbler	Aves	N	N
Scolopax minor	American Woodcock	Aves	N	N
Setophaga cerulea	Cerulean Warbler	Aves	N	N
Setophaga discolor	Prairie Warbler	Aves	N	N

Spiza americana	Dickcissel	Aves	N	N
Spizella pusilla	Field Sparrow	Aves	N	N
Sturnella magna	Eastern Meadowlark	Aves	N	N
Cambarus bartonii cavatus	Appalachian Brook Crayfish	Malacostraca	N	N
Faxonius rusticus	Rusty Crayfish	Malacostraca	N	N
Perimyotis subflavus	Tricolored Bat	Mammalia	PE	T

No trout streams, fish spawning areas, or sensitive waterways were identified as occurring in the project footprint. It is possible that wetlands occur near the project area based on a desktop review of the National Wetlands Inventory Mapping and soil data. Additionally, numerous streams are depicted on topographic maps and hydrologic map data, including the Licking River. An on-site review of the project footprint is recommended. The KDFWR requests that you coordinate the proposed project with the U. S. Army Corps of Engineers (USACE) and the Kentucky Division of Water (KDOW) prior to any work within the waterways or wetland habitats of Kentucky.

There were no wildlife management areas, natural lands, or other protected areas identified in a review of such records within the footprint of the project or within one (1) mile.

KDFWR Comments and Guidance:

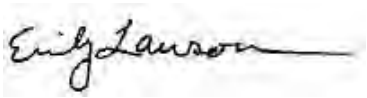
The federally listed mussel species are typically found in flowing waters of medium to large rivers in main channels over mud, firm sand, and gravel substrates. No records were found within the Licking River near the area of concern, therefore it is unlikely that the proposed project will significantly affect these species.

The federally listed bat species occur in forests, caves, or mine portals at different times of the year. The Northern Long-Eared Bat and the Tricolored bat typically overwinter in caves or mines and spend the remainder of the year in forested habitats. The Indiana Bat relies on trees for maternity seasons and may use caves or mine portals throughout the year. The KDFWR asks that you coordinate any tree removal activities with the U.S. Fish and Wildlife Service Kentucky Field Office. Due to the presence of federally listed bat species near the project site, the USFWS may have seasonal requirements for removing those trees, especially those greater than 3" diameter-at-breast height (dbh). Removing these trees during the winter months would reduce possible direct impacts to tree-roosting bat species.

To minimize impacts to nearby state-listed and SGCN aquatic species, KDFWR recommends that erosion control measures be developed and implemented prior to construction to reduce siltation into waterways located within/near the project area. Such erosion control measures may include, but are not limited to silt fences, staked straw bales, brush barriers, sediment basins, and diversion ditches. Erosion control measures will need to be inspected regularly and repaired as needed. If blanket-style matting is used for erosion control, please avoid using the nylon monofilament netting as it can entangle and kill wildlife. An alternative blanket style control is organic coir matting, which degrades naturally and provides excellent soil protection and moisture retention for seed germination—as well as controlling erosion runoff without unnecessarily impacting wildlife.

Thank you for coordinating with KDFWR. Please contact Emily Lawson at 502-892-4472 or emilym.lawson@ky.gov if you have further questions or require additional information.

Sincerely,



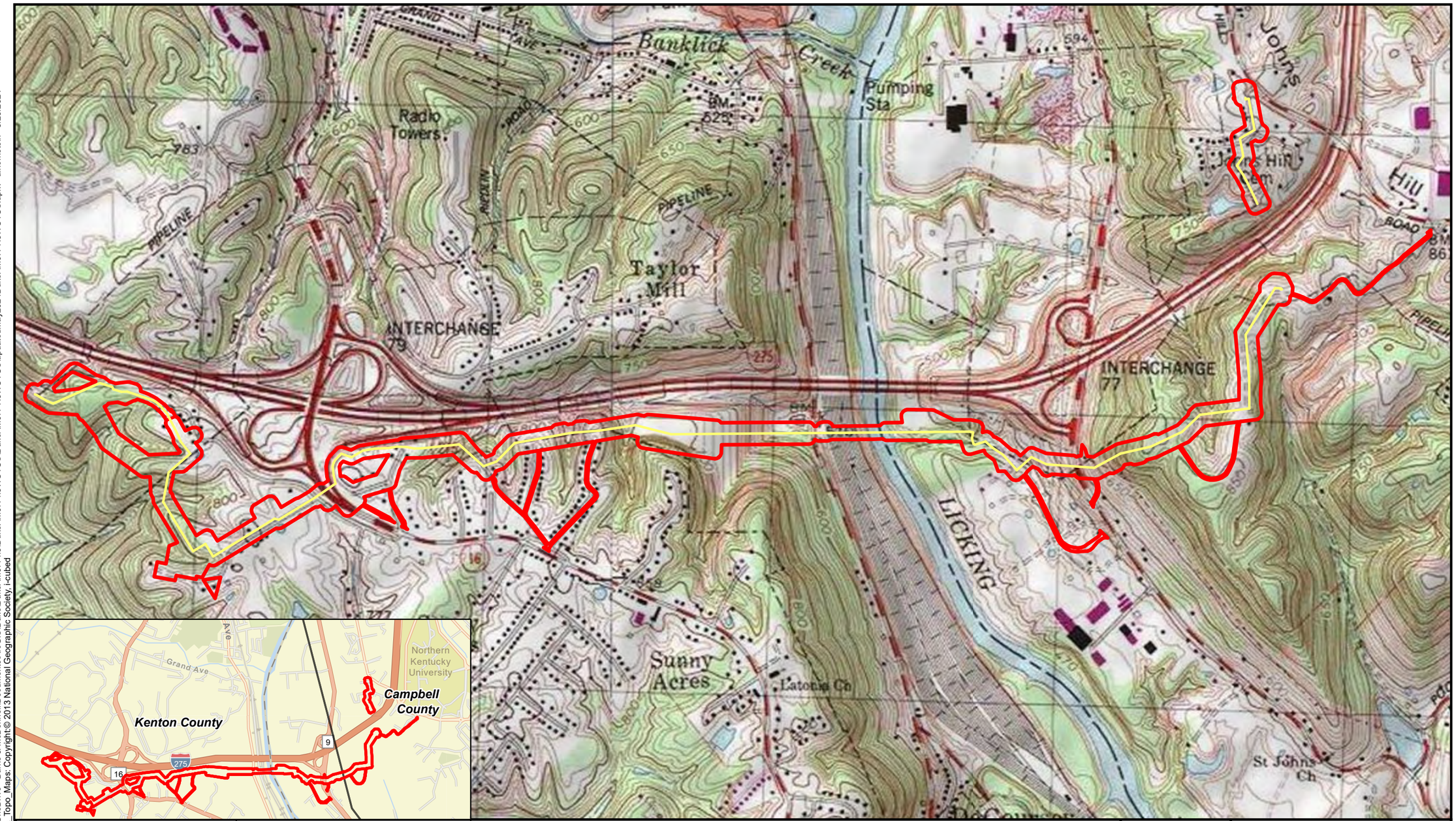
Emily Lawson
Environmental Branch Coordinator

BURNS McDONNELL

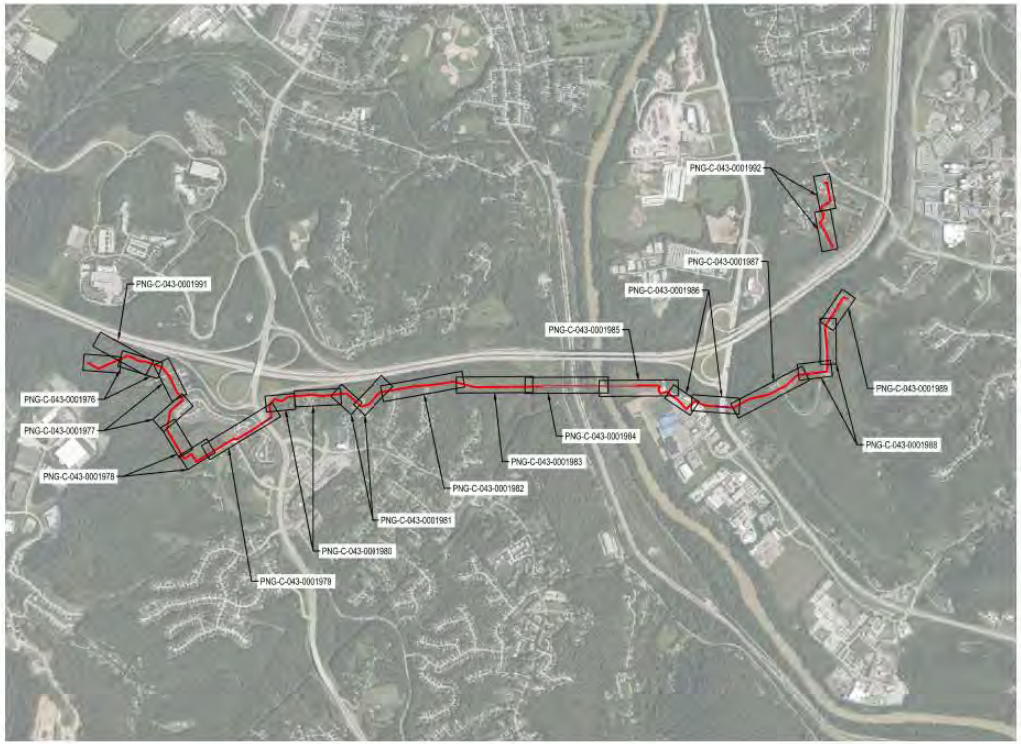
CREATE AMAZING.

Burns & McDonnell World Headquarters
9400 Ward Parkway
Kansas City, MO 64114
O 816-333-9400
F 816-333-3690
www.burnsmcd.com

ATTACHMENT 5 – VICINITY MAP


Banklick Creek
Pumping Sta
Radio Towers
PIPELINE
ROAD
Taylor Mill
INTERCHANGE 79
INTERCHANGE 77
LICKING
Sunny Acres
Latonia Ch
St Johns Ch
Hill
Northern Kentucky University
Grand Ave
Kenton County
Campbell County
Survey Area
Pipeline Alignment
NORTH
1,200 600 0 1,200
Scale in Feet
BURNS McDONNELL
Figure 1: Site Location Map
AM07 Phase 3 Pipeline Replacement Project
Duke Energy Kentucky Inc.
Kenton and Campbell Counties, KY
Issued: 5/23/2024
Source: ESRI, USGS, Duke Energy Ohio, Burns & McDonnell
Path: C:\Users\alhornstein\OneDrive - Burns & McDonnell\Documents\ArcGIS\Duke\DukeAM07Ph3\DukeAM07Ph3WOTUS\DukeAM07PH3WOTUSupdatedMay2024DukeAM07PH3WOTUS.aprx alhornstein 5/23/2024
Service Layer Credits: USA_Topo_Maps: Copyright© 2013 National Geographic Society, i-cubed

ATTACHMENT 6 – DESIGN DRAWINGS



AM07 PHASE 3 PIPELINE

SCALE: 1 : 1000

DRAWING INDEX			
PAGE #	DRAWING NUMBER	SHEET DESCRIPTION	REV.
1	PNG-G-043-0001560	COVER SHEET	B
2	PNG-G-043-0001561	SIGN OFF SHEET	B
3	PNG-G-043-0001562	GENERAL NOTES	B
4	PNG-G-043-0001583	ABBREVIATIONS & LEGEND	B
5	PNG-M-043-0001642	PIPELINE BILL OF MATERIALS 1	A
6	PNG-M-043-0001643	PIPELINE BILL OF MATERIALS 2	A
7	PNG-C-043-0001969	ACCESS ROUTES & LAYDOWN 1	B
8	PNG-C-043-0001970	ACCESS ROUTES & LAYDOWN 2	B
9	PNG-C-043-0001972	AM07 PHASE 3 RETIREMENT PLAN 1	A
10	PNG-C-043-0001973	AM07 PHASE 3 RETIREMENT PLAN 2	A
11	PNG-C-043-0001974	AM07 PHASE 3 RETIREMENT PLAN 3	A
12	PNG-C-043-0001976	AM07 PHASE 3 ALIGNMENT SHEET 1	B
13	PNG-C-043-0001977	AM07 PHASE 3 ALIGNMENT SHEET 2	B
14	PNG-C-043-0001978	AM07 PHASE 3 ALIGNMENT SHEET 3	B
15	PNG-C-043-0001979	AM07 PHASE 3 ALIGNMENT SHEET 4	B
16	PNG-C-043-0001980	AM07 PHASE 3 ALIGNMENT SHEET 5	B
17	PNG-C-043-0001981	AM07 PHASE 3 ALIGNMENT SHEET 6	B
18	PNG-C-043-0001982	AM07 PHASE 3 ALIGNMENT SHEET 7	B
19	PNG-C-043-0001983	AM07 PHASE 3 ALIGNMENT SHEET 8	B
20	PNG-C-043-0001984	AM07 PHASE 3 ALIGNMENT SHEET 9	B
21	PNG-C-043-0001985	AM07 PHASE 3 ALIGNMENT SHEET 10	B
22	PNG-C-043-0001986	AM07 PHASE 3 ALIGNMENT SHEET 11	B
23	PNG-C-043-0001987	AM07 PHASE 3 ALIGNMENT SHEET 12	B
24	PNG-C-043-0001988	AM07 PHASE 3 ALIGNMENT SHEET 13	B
25	PNG-C-043-0001989	AM07 PHASE 3 ALIGNMENT SHEET 14	B
26	PNG-C-043-0001991	AM07-E ALIGNMENT SHEET 1	B
27	PNG-C-043-0001992	UL06 ALIGNMENT SHEET 1	B
28	PNG-C-043-0002001	HDD ALIGNMENT SHEET	A
29	PNG-C-043-0002003	BORE CROSSING DETAIL 1	A
30	PNG-C-043-0002004	BORE CROSSING DETAIL 2	A
31	PNG-M-043-0001633	AM07 PHASE 3 EASTERN TIE-IN & ISOLATION	A
32	PNG-M-043-0001635	AM07-E TIE-IN DETAIL	A
33	PNG-M-043-0001636	STA-0810 FEED DETAIL	A
34	PNG-M-043-0001637	STA-0810 BYPASS DETAIL	A
35	PNG-M-043-0001639	UL06 TIE-IN DETAILS 2	A
36	PNG-M-043-0001640	AM07 PHASE 3 ISOLATION VALVE DETAILS	A
37	PNG-C-043-0002011	CONSTRUCTION DETAIL 1	A
38	PNG-C-043-0002012	CONSTRUCTION DETAIL 2	A
39	PNG-C-043-0002013	CONSTRUCTION DETAIL 3	A
40	PNG-C-043-0002014	CONSTRUCTION DETAIL 4	A
41	PNG-C-043-0002015	CONSTRUCTION DETAIL 5	A
42	PNG-C-043-0002016	CONSTRUCTION DETAIL 6	A
43	PNG-C-043-0002017	CONSTRUCTION DETAIL 7	A
44	PNG-C-043-0002018	CONSTRUCTION DETAIL 8	A
45	PNG-C-043-0002019	CONSTRUCTION DETAIL 9	A
46	PNG-C-043-0002020	CONSTRUCTION DETAIL 10	A
47	PNG-C-043-0002023	ENVIRONMENTAL NOTES AND DETAILS 1	A
48	PNG-C-043-0002024	ENVIRONMENTAL NOTES AND DETAILS 2	A
49	PNG-C-043-0002025	ENVIRONMENTAL NOTES AND DETAILS 3	A
50	PNG-C-043-0002026	ENVIRONMENTAL NOTES AND DETAILS 4	A

FOR PERMITTING PURPOSES ONLY

STATE OF KENTUCKY
JOSHUA FUELLING
37266
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	
ACCOUNT NUMBER	-
PROJECT NUMBER	AW8387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

AM07 PHASE 3
COVER SHEET
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S):

SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	11/07/2023
SUPERSEDED	—
DRAWING NUMBER	PNG G-043-0001560
REVISION	C

CITRLANG01\AM07\

DESIGN REVIEW OF COMPLETED CONSTRUCTION JOB

ISOR________________ DATE______

) CHANGE REQUEST
UMENT REQUIRED: YES☐ NO☐

ISMISSION DESIGN
UMENT REQUIRED: YES☐ NO☐

YSTEMS OPERATION SUPERVISOR
VALVES AND NUMBERS REVIEWED

EWED BY ________________

E ________________

VALVES THAT HAVE BEEN ABANDONED AND REMOVED

________	# ________
________	# ________
________	# ________
________	# ________
________	# ________
________	# ________

CORROSION ENGINEERING

CONDITION OF COATING WHEN DELIVERED TO JOB:

APPR. BY ________________

COATING TYPE __________ GOOD☐ FAIR☐ POOR☐

INSPECTION: VISUAL☐ JEEP☐ INSULATION CHECKED NO. CHECKED ________

TYPE PATCH MATERIAL ________________

TEST CONN. PER STD. SI-ST-4000

NO. PROPOSED ________________

NO. INSTALLED ________________

NO. TESTED OK (P/S INDICATOR) ________________

PLASTIC SEPARATIONS INSTALLED ☐

CONTINUITY OF COUPLINGS CHECKED ☐

CASING CHECKED FOR SHORT ☐

PERMIT(S) REQUIRED

SEE PROJECT PERMIT MATRIX

SUPERVISOR BLOCK

SUPERVISOR OR CONTRACTOR ________________

RECORDED BY ________________

DATE STARTED ________ DATE PLACED IN SERVICE ________

DATE COMPLETED ________ PERMIT NO. ________

TRACEABILITY OF PLASTIC MAIN AND SERVICES TESTED UPON COMPLEATION

COMPLETION CONTRACTOR ________________

VERIFICATION INSPECTOR ________________

FIELD PRESSURE LEAK TEST

ALL PIPELINES REQUIRE LEAK TESTING BEFORE PLACING INTO SERVICE, PRESSURE CHARTS AND FORMS SHOULD BE FORWARDED TO GAS ENGINEERING. SEE FOC-PR-2040.

REQUIRED TEST PRESSURE RANGE:

MIN. __-__ PSIG TO MAX __-__ PSIG

HOURS __-__ MEDIUM AIR/NITROGEN

TESTED BY ________________ DATE ________

PROJECT CONTACTS

CONSTRUCTION:
BRAD SEITER 859-466-6690
JON TRAPP 859-250-4785

ENGINEERING SPONSOR:
JOHN PERKINS 513-315-8338

	WO#	PROJECT	ACTIVITY
ALLATION	-	-	-
NDONMENT			
EW SERVICE M-C			
EW SERVICE C-M			
OCATE METER			

PIPE INSTALLED ON JOB

SIZE	KIND	WALL THINKNESS	EST. PIPE LENGTH	ACTUAL PIPE LENGTH	ACTUAL FITTING &VALVE LENGTH
24"	STEEL/ERW	0.5"	17,770'		
20"	STEEL/ERW	0.375"	1,429'		
12"	STEEL/ERW	0.375"	4'		
8"	STEEL/ERW	0.322"	548'		
6"	STEEL/ERW	0.280"	79'		
		TOTAL	-		

HYDROSTATIC PRESSURE TEST

ALL LINES OPERATING ABOVE 60 PSIG REQUIRE STRENGTH TESTING BEFORE PLACING INTO SERVICE. PRESSURE CHARTS AND FORMS SHOULD BE FORWARDED TO GAS ENGINEERING, TEST PER PROCEDURE FOC-PR-2040

REQUIRED TEST PRESSURE RANGE:

MIN. ______ PSIG TO MAX ______ PSIG

HOURS __8__ MEDIUM WATER

SIGNATURE ________________ DATE ________

HYDROSTATIC TEST WATER DISCHARGE REQUIRMENTS

PERMIT REQUIRED FOR ALL DISCHARGE. CONTACT GAS OPERATION REGULATORY COMPLIANCE TO ARRANGE FOR DISCHARGE PERMIT. SAMPLING AND TESTING REQUIRED FOR ALL DISCHARGES TO SURFACE WATERS. CONTACT LOCAL POTW FOR OFFSITE DISCHARGE REQUIREMENTS AND LOCAL WATER DISTRICT.

COUNTY OF	ITEM NO.	SHEET NO.
KENTON, KY	-	-

INSTALLED PIPE & FITTING
MAOP VERIFICATION
AM07/UL06
TO BE FILLED IN BY MAOP ENGINEER

SIZE	WALL THICKNESS	GRADE	% SYMS
24"	0.5"	X65	13.66%
20"	0.375	X65	15.18%

DESIGN MAOP PER CLASS 3 __1000__ PSIG. OPERATING OF LINE __370__ PSIG
MIN. PRESSURE RATING OF VALVE, FLANGE OR FITTING __1480__ PSIG.

I HEREBY CERTIFY THAT ALL MATERIAL INSTALLED IS RATED HIGHER THAN THE DESIGN MAOP OF THIS LINE, AND THAT THE MATERIAL WAS INSTALLED AS DESIGNED UNLESS NOTED ON MATERIAL LIST.

MAOP ENGINEER SIGNATURE ________________ DATE ________

HYDROSTATIC TEST PROJECT CONTACTS

CONSTRUCTION MANAGER___SCOTT COLVIN (C) 513-417-3211

TFO MANAGER___ NATHANIEL BOTTS (C) XXX-XXX-XXXX

PROJECT MANAGER___KELSEY PACE (C) XXX-XXX-XXXX

GTS ENGINEER___

CORROSION ENGINEER___MARK MAXWELL (C) XXX-XXX-XXXX

SYSTEM OPERATIONS___ DEVIN ELLIOTT (C) 937-238-4361

WELD PROCEDURE(S) REQUIRED

SPEC # ________ SPEC # ________
SPEC # ________ SPEC # ________
SPEC # ________ SPEC # ________
SPEC # ________ SPEC # ________

CONFORMING TO THE OFFICE OF PIPELINE SAFETY'S REGULATIONS (SECTION 192.243. PARAGRAPH F), WELDING FOR PIPELINE IS REQUIRED TO BE MAINTAINED AS A PART OF THE PIPELINE'S PERMANENT RECORD.

TO MEET THIS REQUIREMENT, THE INSPECTOR SHALL IDENTIFY EACH WELD OF THIS PIPELINE BY NUMBERING AND LOCATING THE WELD ON THE CONSTRUCTION DRAWING AND COMPLETING THE INFORMATION BLOCK BELOW. NUMBERS MUST MATCH THOSE ON X-RAY SHEET. ALL WELDS MUST BE IN ACCORDANCE WITH COMPANY SPECIFICATION WEL-ST-1000.

TO BE FILLED OUT BY DESIGN ENGINEER

SIZE	24"	20"	12"	8"	6"
WALL THK.	0.5"	0.375"	0.375"	0.322"	0.280"
GRADE	X65	X65	X52	X52	X52
S PER MAOP	13.66%	15.18%	5.72%	9.53%	8.42%
DING SPEC.					
AY	100%	100%	100%	100%	100%

TO BE FILLED OUT BY INSPECTOR

L NO. OF DS MADE					
L NO. OF DS X-RAYED					
L NO. OF DS REJECTED					
L NO. OF DS REPAIRED					
L NO. OF DS REPLACED					

E: TOTAL OF REPAIRED PLUS REPLACED WELDS SHOULD EQUAL AMOUNT OF REJECTED WELDS

INSTALLED PIPE & FITTING
MAOP VERIFICATION
AM07 - E HIGH PRESSURE DISTRIBUTION
TO BE FILLED IN BY MAOP ENGINEER

SIZE	WALL THICKNESS	GRADE	% SYMS
24"	0.5"	X65	6.46%
12"	0.375"	X52	5.72%
8"	0.322"	X52	4.51%

DESIGN MAOP PER CLASS 3 __1000__ PSIG. OPERATING OF LINE __175__ PSIG
MIN. PRESSURE RATING OF VALVE, FLANGE OR FITTING __1480__ PSIG.

I HEREBY CERTIFY THAT ALL MATERIAL INSTALLED IS RATED HIGHER THAN THE DESIGN MAOP OF THIS LINE, AND THAT THE MATERIAL WAS INSTALLED AS DESIGNED UNLESS NOTED ON MATERIAL LIST.

MAOP ENGINEER SIGNATURE ________________ DATE ________

INSTALLED PIPE & FITTING
MAOP VERIFICATION
UL16 DISTRIBUTION
TO BE FILLED IN BY MAOP ENGINEER

SIZE	WALL THICKNESS	GRADE	% SYMS
8"	0.322"	X52	9.53%
6"	0.280"	X52	8.42%

DESIGN MAOP PER CLASS 3 __1000__ PSIG. OPERATING OF LINE __370__ PSIG
MIN. PRESSURE RATING OF VALVE, FLANGE OR FITTING __1480__ PSIG.

I HEREBY CERTIFY THAT ALL MATERIAL INSTALLED IS RATED HIGHER THAN THE DESIGN MAOP OF THIS LINE, AND THAT THE MATERIAL WAS INSTALLED AS DESIGNED UNLESS NOTED ON MATERIAL LIST.

MAOP ENGINEER SIGNATURE ________________ DATE ________

FOR PERMITTING PURPOSES ONLY

STATE OF KENTUCKY
JOSHUA FUELLING
37286
LICENSED PROFESSIONAL ENGINEER
24.05.21 08:32:39-05'00'
SSIONAL ENG/ARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

-
AM07 PHASE 3
SIGN OFF SHEET
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001560

SHEET(S) 1 OF X | DWG SCALE AS NOTED
DWG DATE 11/07/2023 | SUPERSEDED __

DRAWING NUMBER: PNG G-043-0001561 | REVISION: C

C/ERLANGER/AM07

GENERAL NOTES

1. "COMPANY" IS DEFINED AS DUKE ENERGY OR DUKE ENERGY'S APPROVED REPRESENTATIVE.
2. INSTALLER SHALL FURNISH ALL MATERIALS NOT PROVIDED BY THE COMPANY (UNLESS OTHERWISE NOTED ON DRAWINGS OR SPECIFICATIONS) INCLUDING EQUIPMENT TRANSPORTATION, SERVICES AND PERFORM ALL NECESSARY WORK AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREINAFTER.
3. IT SHALL BE THE RESPONSIBILITY OF THE INSTALLER TO VERIFY ALL DIMENSIONS GIVEN ON THE DRAWINGS. ANY ITEM IN QUESTION SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO PROCEEDING WITH THE WORK.
4. INSTALLER SHALL BE RESPONSIBLE FOR PROTECTION OF ALL SURROUNDING AREAS.
5. ALL BELOW GROUND WELDS SHALL BE COATED WITH A TWO-PART EPOXY (DENSO 7125, 7200, OR 7300) PER PERTINENT DESIGN AND CONSTRUCTION STANDARDS.
6. ALL ABOVE GROUND PIPING TO BE BLASTED TO CORRECT SOCIETY FOR PROTECTIVE COATINGS (SSPC) SURFACE PROFILE. PAINT SYSTEM TO BE UTILIZED SHALL BE PER PERTINENT DESIGN AND CONSTRUCTION STANDARDS.
7. UPON BACKFILLING IN AREAS OF ROCK, BURIED PIPE SHALL HAVE 6" OF SAND PAD FILL PLACED AROUND THE PIPE'S CIRCUMFERENCE.
8. PRESSURE TESTING SHALL MEET THE REQUIREMENTS OF DUKE ENERGY'S CURRENT STRENGTH AND LEAK TEST PROCEDURES AND STANDARDS.
9. INSTALLER SHALL DEWATER ALL HYDROSTATICALLY TESTED PIPING, USING CLEANING PIGS AS REQUIRED, AND DRY TO A DEWPOINT OF -40 °F PER PERTINENT DESIGN AND CONSTRUCTION STANDARDS.
10. ALL WELDS SHALL BE INSPECTED PER DUKE GAS STANDARD WELD-ST-1060.
11. INSTALLER IS REQUIRED TO FOLLOW DUKE ENERGY WELD -ST-1010 WELDING PROCEDURES.
12. ALL EXISTING PIPELINE INFORMATION PER DUKE RECORDS.

CONSTRUCTION NOTES

1. EXISTING OVERHEAD AND BELOW GROUND FACILITIES MAY BE IN THE WORK AREA VICINITY. INSTALLER IS RESPONSIBLE FOR HAVING SUCH FACILITIES LOCATED AND IS RESPONSIBLE FOR MAINTENANCE AND PRESERVATION OF THESE FACILITIES.
2. PER PERTINENT DUKE ENERGY DESIGN AND CONSTRUCTION STANDARDS, INSTALLER IS REQUIRED TO CALL 811 FOR UTILITY LOCATES A MINIMUM OF 72 HOURS AND MAXIMUM OF 10 DAYS PRIOR TO COMMENCEMENT OF WORK. NO EXTRA COMPENSATION WILL BE ALLOWED FOR DELAYS FROM ANY WORK PROVIDED BY OTHER UTILITIES.
3. IF EXISTING UTILITIES OF ANY TYPE ARE ENCOUNTERED IN THE FIELD AND DEEMED TO BE IN CONFLICT WITH INSTALLATION OF FACILITIES, INSTALLER SHALL NOTIFY THE PROJECT MANAGER IMMEDIATELY SO THE CONFLICT MAY BE RESOLVED.
4. WHEN EXISTING DRAINAGE FACILITIES ARE DISTURBED, INSTALLER SHALL PROVIDE AND MAINTAIN TEMPORARY OUTLETS AND CONNECTIONS FOR PRIVATE DRAINS OR SEWERS. RESTORATION OF THESE FACILITIES IS TO BE PERFORMED ONCE CONSTRUCTION IS COMPLETE AND ARE CONSIDERED INCIDENTAL COSTS OF THE PROJECT.
5. ALL DRAWING MEASUREMENTS ARE TO BE TAKEN FROM EXISTING GRADE. FINAL GRADE SHALL BE MATCHED TO SURROUNDING GRADE AS PER PERTINENT DESIGN AND CONSTRUCTION STANDARDS.
6. INSTALLER IS TO REMAIN WITHIN CONSTRUCTION WORKING LIMITS. ACCESS TO AREAS OUTSIDE WORKING LIMITS MUST BE COORDINATED WITH THE OWNER OR DUKE ENERGY PROJECT MANAGER.
7. ALL EXCESS EXCAVATION, CONSTRUCTION DEMOLITION DEBRIS AND UNSUITABLE MATERIALS THAT DO NOT CONTAIN ASBESTOS SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED.
8. STANDARD SPECIFICATIONS REFERENCED ON THIS SHEET AND CONSTRUCTION PLANS ARE CONSIDERED AS PART OF THE CONTRACT DOCUMENTS. INCIDENTAL ITEMS OR ACCESSORIES NECESSARY TO COMPLETE THIS WORK MAY NOT BE SPECIFICALLY NOTED, BUT ARE CONSIDERED TO BE A PART OF THIS CONTRACT.
9. BEFORE ACCEPTANCE BY THE OWNER AND FINAL PAYMENT, ALL WORK SHALL BE INSPECTED AND APPROVED BY DUKE ENERGY OR COMPANY REPRESENTATIVE. FINAL PAYMENT SHALL BE MADE AFTER ALL OF THE INSTALLER'S WORK HAS BEEN ACCEPTED AND APPROVED AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
10. DURING CONSTRUCTION, ALL LOOSE MATERIAL THAT IS DEPOSITED IN THE FLOW LINE OF GUTTERS, DRAINAGE STRUCTURES, DITCHES, ETC. SUCH THAT THE NATURAL FLOW LINE OF WATER IS OBSTRUCTED, SHALL BE REMOVED AT THE END OF EACH WORK DAY.
11. ALL FIELD TILE ENCOUNTERED DURING CONSTRUCTION SHALL BE EXTENDED TO OUTLET INTO AN EXISTING DRAINAGE WAY. A RECORD OF ALL FIELD TILE FOR ONSITE DRAIN PIPE ENCOUNTERED SHALL BE KEPT BY THE INSTALLER AND TURNED OVER TO THE PROJECT MANAGER UPON COMPLETION OF THE PROJECT.
12. INSTALLER IS REQUIRED TO MAINTAIN A SET OF ISSUED FOR CONSTRUCTION DRAWINGS AND ALL PERMITS AT THE JOB SITE. ANY MODIFICATIONS OR ALTERATIONS TO THE PLANS OR SPECIFICATIONS SHALL BE APPROVED BY THE PROJECT MANAGER.
13. INSTALLER IS SOLELY RESPONSIBLE FOR EXECUTION OF HIS/HER WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS. INSTALLER IS RESPONSIBLE FOR THE CONSTRUCTION METHODS AND TECHNIQUES, SEQUENCES, TIME OF PERFORMANCE, AND ALL SAFETY PRECAUTIONS.
14. MINIMUM DEPTH OF BURIAL SHALL BE PER PERTINENT DESIGN AND CONSTRUCTION STANDARDS.
15. ALL PIPELINES BEING CROSSED ARE TO BE PROTECTED WITH A MINIMUM OF THREE (3) 4 FEET X 18 FEET WOODEN MATS.
16. PER PERTINENT DESIGN AND CONSTRUCTION STANDARDS, FOR OPEN DITCH EXCAVATION, A MINIMUM OF TWO FEET OF SEPARATION SHALL BE MAINTAINED BETWEEN ALL CROSSING STRUCTURES. SEPARATION BETWEEN CROSSING STRUCTURES AND PIPELINES THAT ARE INSTALLED VIA DIRECTIONAL DRILLING METHODS IS AT THE DISCRETION OF ENGINEERING.
17. DURING BACKFILLING, A SIX INCH CROWN SHALL BE PLACED ON ALL DISTURBED AREAS. COMPACTION REQUIREMENTS SHALL BE PER PERTINENT DESIGN AND CONSTRUCTION STANDARDS.
18. FLOWABLE FILL MUST BE USED IN ROADWAY AND WITHIN 3' OF ROADWAY PER DUKE STANDARDS.
19. SUE LEVEL B SURVEY ACQUIRED. TOP OF PIPE ELEVATIONS SHOWN FOR KNOWN UTILITY DEPTHS. REMAINING UTILITIES ASSUMED TO HAVE 4 FT. OF COVER. CONTRACTOR TO FIELD VERIFY ALL UTILITY DEPTHS.

CIVIL AND STRUCTURAL NOTES

1. ADDITIONAL EXCAVATIONS BELOW FOOTINGS MAY BE NECESSARY TO REACH UNDISTURBED SOIL. SHOULD THIS OCCUR, THE EXCAVATION SHALL BE BROUGHT TO THE BOTTOM OF THE FOOTING ELEVATION WITH COMPACTED SAND FILL MEETING THE REQUIREMENTS OF MODIFIED PROCTOR COMPACTION TEST (ASTM D1557) TO 95% IN SIX INCH LIFTS.
2. ALL EXPOSED CONCRETE EDGES SHALL HAVE A 1" X 1" 45° CHAMFER.
3. CONCRETE SHALL BE MIXED AND POURED PER PERTINENT DESIGN AND CONSTRUCTION STANDARDS. TESTING SHALL CONFORM TO ACI 318. INSTALLER TO SUPPLY ALL CONCRETE AND TESTING.
4. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 SPECIFICATION. STEEL REINFORCING BAR SHALL CONFORM TO ASTM A615 GRADE 60 AND WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. TIE WIRE SHALL CONFORM TO ASTM A82.
5. UNSUITABLE OR EXCESS EARTH SPOIL SHALL BE DISPOSED OF AT AN APPROVED WASTE LOCATION. SOIL BEING TRANSPORTED ONTO THE JOB SITE SHALL BE APPROVED BY EITHER THE PROJECT MANAGER OR CONSTRUCTION MANAGER.
6. ROCKSHIELD OR SIMILAR COMPANY APPROVED PRODUCT MUST BE INSTALLED BETWEEN ALL PIPE AND FITTINGS THAT COME INTO CONTACT WITH CONCRETE. A LAYER OF NON ABRASIVE MATERIAL SUCH AS FRP SHALL BE INSTALLED BETWEEN ALL PIPE SUPPORTS AND PIPING.
7. ALL FIELD BENDING OF REBAR SHALL BE DONE COLD.

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. INSTALLER IS TO CONSTRUCT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES IN SEQUENCE WITH THE PIPELINE CONSTRUCTION, PROVIDE MAINTENANCE AND ASSURE EFFECTIVENESS THROUGHOUT THE DURATION OF THE PROJECT.
2. AS PER THE CONSTRUCTION STORMWATER PERMIT REQUIREMENTS OUTLINED IN THE KDEP-KOW KPDES PERMIT NO. KYR100000, AREAS LEFT TEMPORARILY UNDISTURBED OR AT FINAL GRADE WILL BE STABILIZED WITHIN 14 DAYS OF ACTIVITY CESSATION.
3. ALL SPOILS INCLUDING ORGANIC SOILS, VEGETATION AND DEBRIS SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF IN SUCH A MANNER AS TO NOT ERODE INTO ANY BODY OF WATER OR WETLAND.
4. PERIMETER EROSION CONTROLS (E.G. SILT FENCING) SHALL BE PLACED AS PER THE PLANS AND WHERE NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE WORK AREA.
5. CATCH-ALL INLET FILTERS ARE REQUIRED AT ALL SEWER INLETS, GRATES AND MANHOLES FOR SEDIMENT CONTROL.
6. TOPSOIL STOCKPILES SHALL BE LOCATED TO AVOID EROSION OF SAID STOCKPILE ONTO OFFSITE AREAS.
7. ALL ENVIRONMENTAL MEASURES SHALL BE PER PERTINENT DESIGN AND CONSTRUCTION STANDARDS, AS OUTLINED IN SWPPP NARRATIVES AND APPLICABLE STORMWATER PERMITS.
8. ALL STREAMS AND WETLANDS WITHIN THE PROJECT WORKSPACE MUST BE MATTED IN AREAS WHERE EQUIPMENT OR VEHICLE ACCESS IS NEEDED. IF A WETLAND OR STREAM IS CROSSED AND THE DECISION IS MADE THAT THE FEATURE DOES NOT NEED TO BE MATTED OVER THE ENTIRETY THEN PERIMETER CONTROLS (E.G. SILT FENCE, FILTER SOCK) MUST BE INSTALLED UP SLOPE FROM THE WATER FEATURE CONTINUOUSLY FROM THE EDGE OF THE WORKSPACE UP TO THE CORNERS OF THE MATTING TO PREVENT SEDIMENT FROM ENTERING THE WATER FEATURE. NOTE THAT THIS REQUIREMENT IS NOT EXPLICITLY LOCATED ON THESE PLANS.
9. CONTRACTOR SHALL INSTALL EROSION CONTROL BMPs IN SEQUENCE WITH PIPELINE CONSTRUCTION. NOT ALL CONTROLS NEED TO BE PRESENT SIMULTANEOUSLY. ALL BMPs ARE SHOWN ON THE PLANS FOR LOCATION AND CLARITY, BUT CONTROLS SHALL BE INSTALLED AS PIPELINE CONSTRUCTION PROGRESSES AND IN ACCORDANCE WITH COMPANY INSPECTOR'S DIRECTION.
10. ALL SEDIMENT RELEASES BEYOND THE SITE PERIMETER CONTROLS AND SPILLS REGARDLESS OF AMOUNT OR LOCATION ARE TO BE IMMEDIATELY REPORTED TO THE DUKE ENERGY ENVIRONMENTAL FIELD PROFESSIONAL. IF THE DUKE ENERGY ENVIRONMENTAL PROFESSIONAL CANNOT BE REACHED, THE DUKE ENERGY SPILL HOTLINE IS TO BE CALLED AT 1-800-527-3853.
11. IN AREAS WHERE IT IS FIELD DETERMINED TO REDUCE WORKSPACE OR IMPACT, EROSION AND SEDIMENT CONTROLS SHALL BE ADJUSTED TO MATCH WORKSPACE BOUNDARIES.

SURVEY INVESTIGATION NOTES:

1. BEARINGS AND COORDINATES ARE RELATIVE TO NAD83 KENTUCKY STATE PLANE, NORTH ZONE, US. FOOT. VERTICAL DATUM IS NAVD88.

CATHODIC PROTECTION & AC MITIGATION NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS PARTS TO COMPLETE PROJECT PER CONTRACT DRAWINGS, CONTRACT SPECIFICATIONS, ELECTRICAL CODES, STATE AND LOCAL CODES AND STANDARDS, AND LOCAL ELECTRICAL DISTRIBUTION COMPANY REQUIREMENTS. PARTS INCLUDE, BUT ARE NOT LIMITED TO, WIRING AND MOUNTING MATERIALS, METER SOCKET, DISCONNECT EQUIPMENT, ENCLOSURES, TRANSIENT VOLTAGE SURGE SUPPRESSORS, AC MAIN BUSS TERMINATION, CIRCUIT BREAKERS, AND OTHER ELECTRICAL EQUIPMENT REQUIRED. ACTUAL LENGTH WIRING IS DEPENDENT ON DISTANCE FROM INSTALLATION.

DESIGN NOTES:

1. DESIGNED IN ACCORDANCE WITH PHMSA PART 49 CFR 192 CLASS 3 LOCATION GUIDELINES.
   1.1. ALL WORK WITHIN KENTUCKY TRANSPORTATION CABINET FULLY CONTROLLED ACCESS RIGHT OF WAY ADHERES TO THE DESIGN FACTOR OF CLASS IV PER PART 49 CFR 192.
2. PIPELINES TO BE CATHODICALLY PROTECTED (SEE DWG PNG-E-XXX-000XXXX)
3. DESIGN PRESSURES

AM07 PHASE 3 (TRANSMISSION)
- DESIGN PRESSURE: 1000 PSIG
- MAOP: 370 PSIG

UL06 (TRANSMISSION)
- DESIGN PRESSURE: 1000 PSIG
- MAOP: 370 PSIG

UL16 (DISTRIBUTION)
- DESIGN PRESSURE: 775 PSIG
- MAOP: 370 PSIG

AM07 HIGH PRESSURE DISTRIBUTION
- DESIGN PRESSURE: 525 PSIG
- MAOP: 175 PSIG

4. FOR 24" PIPE, FIELD BEND ALL ANGLES LESS OR EQUAL TO 18 DEGREES. ALL FIELD BENDS REQUIRE 5' TANGENTS. CUT SEGMENTABLE FITTINGS FOR ALL ANGLES ABOVE 18 DEGREES, OR WHERE SPECIFIED.
5. UTILITY DEPTH OF COVER FOLLOWS ASSUMPTIONS BELOW UNLESS POTHOLE DATA IS PROVIDED:
- 2' COVER (ELECTRIC, FIBER, COMMUNICATION)
- 4' COVER (WATER, GAS)
- INVERT DATA USED FOR ALL STORM AND SEWER

KENTUCKY TRANSPORTATION CABINET CONSTRUCTION NOTES:

1. MINIMUM DEPTH OF COVER WITHIN R/W SHALL BE 5-FT UNLESS OTHERWISE APPROVED.
2. CONSTRUCTION SITES SHALL NOT BE ACCESSED DIRECTLY FROM INTERSTATE OR INTERSTATE ACCESS RAMPS.
3. CONSTRUCTION EFFORTS SHALL HAVE NO IMPACT ON INTERSTATE TRAFFIC.
4. CONTRACTOR IS RESPONSIBLE FOR SHIELDING/PROTECTING TRENCHES OR EXCAVATIONS LEFT OPEN WITHIN R/W FOR ANY PERIOD OF NON-WORKING TIME.

FOR PERMITTING PURPOSES ONLY

STATE OF KENTUCKY
JOSHUA FUELLING
37265
LICENSED PROFESSIONAL ENGINEER
2024.05.21 08:33:08-05'00'
PROFESSIONAL ENG/ARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

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AM07 PHASE 3
GENERAL NOTES
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001560

SHEET(S) 1 OF X | DWG SCALE AS NOTED
DWG DATE 11/07/2023 | SUPERSEDED —
DRAWING NUMBER: PNG G-043-0001562 | REVISION: C
C/ERLANGER/AM07

GENERAL RESTRICTIONS

1. STAY IN ROW/EASEMENTS OR WITHIN PREDETERMINED WORKSPACE AREAS.
2. ONLY USE DESIGNATED POINTS OF ACCESS AS APPROVED BY DUKE.
3. NO DIGGING, WORK, OR STORAGE WITHIN 25' OF POWER LINE OR EQUIPMENT INCLUDING GUY WIRES, EXCEPT AT CROSSINGS OF POWER RIGHT OF WAY DESIGNATED ON PLANS.
4. ANY DOT CROSSING NOTIFICATIONS TO BE MADE AS DICTATED BY THE PERMIT OR STATE DOT PERMIT.
5. INSTALLER IS RESPONSIBLE FOR KNOWING LOCATION OF ALL ENVIRONMENTALLY SENSATIVE AREA RESTRICTIONS PERTAINING TO THIS PROJECT.

ABBREVIATIONS

APPROX.	APPROXIMATE
B.C.	BUOYANCY CONTROL
C/L	CENTERLINE
CMP	CORRUGATED METAL PIPE
COMM	COMMUNICATIONS
CP	CATHODIC PROTECTION
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
E	EASTING
EA	EACH
EL / ELEV	ELEVATION
EX	EXISTING
FLC	FOREIGN LINE CROSSING
FM	FORCE MAIN
FT	FEET
FTG	FITTING
H / HORIZ	HORIZONTAL
HDD	HORIZONTAL DIRECTIONAL DRILL
H-LT	HORIZONTAL LEFT TURN
H-RT	HORIZONTAL RIGHT TURN
IN / INV	INVERT
JAB	JACK AND AUGER BORE
L	LENGTH
LF	LINEAR FEET
MAX	MAXIMUM
MIN	MINIMUM
MH	MANHOLE
N	NORTHING
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OC	OPEN CUT
O.D.	OUTSIDE DIAMETER
PCC	PORTLAND CEMENT CONCRETE
PIV	POST INDICATOR VALVE
P / P/L	PROPERTY LINE
PSI	POUNDS PER SQUARE INCH
PVC	POLY VINYL CHLORIDE
R	RADIUS
RD	ROAD
R/W / ROW	RIGHT-OF-WAY
RCP	REINFORCED CONCRETE PIPE
SD	STORM DRAIN
SS	SANITARY SEWER
SSD	SOLID STATE DECOUPLER
STA	STATION
TOP	TOP OF PIPE
TWS	TEMPORARY WORKSPACE
T.C.E.	TEMPORARY CONSTRUCTION EASEMENT
TYP	TYPICAL
UGE	UNDERGROUND ELECTRIC
UGT	UNDERGROUND TELEPHONE/COMMUNICATIONS
V / VERT	VERTICAL
W	WIDTH
W.T.	WALL THICKNESS
X-ING	CROSSING

LEGEND

- PROPOSED TEMPORARY WORKSPACE.
- PROPOSED PERMANENT EASEMENT
- ADDITIONAL TEMPORARY WORKSPACE (PIPE STRING AREA)
- PROPOSED ROW ENCROACHMENT WORKSPACE
- CONSTRUCTION MATTING
- TRENCH PLUG (SEE DETAIL PNG-C-043-0001803)
- SLOPE BREAKER (SEE DETAIL PNG-C-043-0001803)
- DELINEATED WETLAND
- FEMA 100 YEAR FLOOD AREA
- ACCESS PATH
- STREAM
- DITCH
- TREE LINE
- FO — EX. COMMUNICATION, FIBER, CABLE LINE
- OH — EX. OVERHEAD LINE
- E — EX. ELECTRIC LINE
- FENCE
- G — EX. GAS LINE
- R/W — RIGHT-OF-WAY
- RAILROAD
- SS — EX. SANITARY SEWER
- ST — EX. STORM WATER LINE
- W — EX. WATER LINE
- PL — PROPERTY LINE
- FILTER SOCK RUN ON / RUNOFF PROTECTION
- SILT FENCE RUN ON / RUNOFF PROTECTION
- SUPER SILT FENCE RUNOFF PROTECTION
- EX. MAJOR CONTOUR
- 500 — EX. MINOR CONTOUR
- 501 — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- BUOYANCY CONTROL
- 123+00 — PROPOSED GAS LINE
- 123+00 — HORIZONTAL DIRECTIONAL DRILL
- 123+00 — AUGER BORE
- EXCAVATION PIT

- POTHOLE LOCATION
- BORING LOCATION
- FLUSH PIPELINE MARKER
- A.G. — ABOVE GRADE PIPELINE MARKER
- 0.0 — MILE MARKER
- INTERMITTENT STREAM CROSSING (SEE ENV DETAIL PNG-C-043-0002021)
- EPHEMERAL STREAM CROSSING (SEE ENV DETAIL PNG-C-043-0002021)
- J — J-HOOK
- INLET PROTECTION
- ROCK DITCH CHECK
- FILTER SOCK CHECK DAM
- SOIL STOCK PILE
- SCE — CONSTRUCTION ENTRANCE
- T — TEST STATION (SEE EQUIPMENT SCHEDULES ON PNG-E-XXX-000XXXX)
- PIPELINE RETIREMENT, ABANDONED IN PLACE.
- EXISTING PIPELINE DOWN RATED
- EXISTING PIPELINE TRANSFERRED TO NEW SYSTEM.
- EXISTING PIPELINE REPLACEMENT
- W — WATER METER
- WATER VALVE
- WATER HYDRANT
- ABOVE/BELOW GRADE ELECTRICAL BOX
- MAILBOX
- LIGHT POLE
- STREET SIGN
- S — SANITARY SEWER MANHOLE
- D — STORM DRAIN MANHOLE
- STORM CATCH BASIN
- CURB INLET
- OVERHEAD UTILITY POLE

FOR PERMITTING PURPOSES ONLY

STATE OF KENTUCKY — JOSHUA FUELLING — 37266 — LICENSED PROFESSIONAL ENGINEER — PROFESSIONAL ENGINEER STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
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B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	09/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

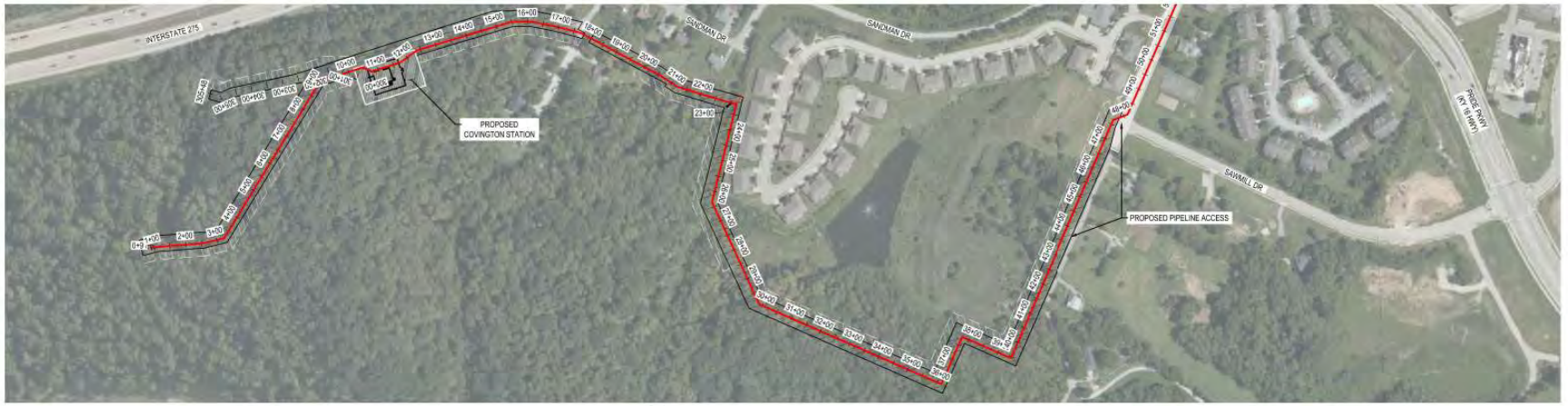
DUKE ENERGY. — Piedmont Natural Gas

-
AM07 PHASE 3
ABBREVIATIONS & LEGEND
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001428

SHEET(S)	1 OF X	DWG SCALE	AS NOTED
DWG DATE	11/07/2023	SUPERSEDED	—

DRAWING NUMBER: PNG G-043-0001563
REVISION: C
C/ERLANGER/AM07



PIPELINE ACCESS & LAYDOWN 1
SCALE: 1:100

PIPELINE ACCESS & LAYDOWN 2
SCALE: 1:100

FOR PERMITTING PURPOSES ONLY

STATE OF KENTUCKY
JOSHUA FUELLING
37268
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
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B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

-
AM07 PHASE 3
ACCESS AND LAYDOWN OVERVIEW 1
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	PNG-G-043-0001560
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	11/29/2023
SUPERSEDED	___
DRAWING NUMBER	PNG C-043-0001969
REVISION	C

C:\ERLANGER\AM07

PIPELINE ACCESS & LAYDOWN 3
SCALE: 1:100

PIPELINE ACCESS & LAYDOWN 4
SCALE: 1:100

FOR PERMITTING PURPOSES ONLY

STATE OF KENTUCKY
JOSHUA FUELLING
37266
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
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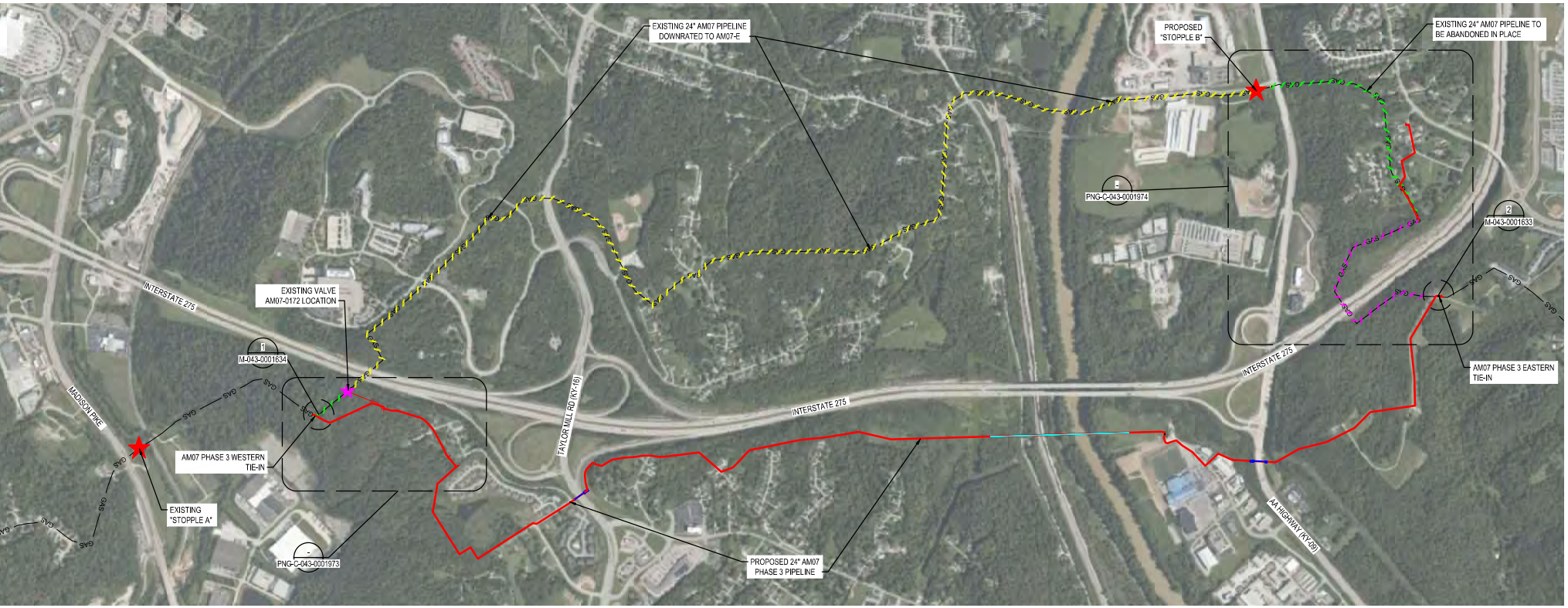
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

-
AM07 PHASE 3
ACCESS AND LAYDOWN OVERVIEW 1
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001560
SHEET(S) 1 OF X | DWG SCALE AS NOTED
DWG DATE 11/29/2023 | SUPERSEDED ___
DRAWING NUMBER | REVISION
PNG C-043-0001970 | C
C:\ERLANGER\AM07



1) AM07 PHASE 3, STEP 1

1. Construct and test AM07 PH3 Pipeline, UL16 Pipeline, AM07-E Pipeline, UL06 MLV, and Covington Station.
   a. Install "Stopple C" & "Stopple D" to isolate and cap existing AM07 section at UL06 MLV and AM07 Phase 3 Eastern Tie-In location. (M-043-0001633 DETAIL 1)
      - Back feed AM07 from UL06.
2. Tie-in AM07 PH3 and AM07-E on the West end.
   a. Isolate existing AM07 Pipeline near West Tie-In
      - Close valves 24" AM07-0172 (2017 Ball Valve) & 8" UL16-0011 (2017 Gate Valve); leaving feed to UL16 active.
      - Utilize existing "Stopple A" near Madison Pike to isolate from the west.
   b. Perform pipe to pipe tie-ins for Phase 3 and AM07-E (M-043-0001634 & M-043-0001635).
3. Place AM07 PH3, UL06 MLV, and Covington Station in service.
   a. Utilize Stopple C and Stopple D near UL06 MLV site to isolate AM07.
      - Back feed AM07 from UL06.
   b. Perform AM07 East tie-in and UL06 MLV tie-in (M-043-0001633).
   c. Open Covington Station Bypass Valve (use bypass not regulation runs).
   d. Release Stopple C and Stopple D to place AM07 PH3 and UL06 Feed into service.
   e. Release Stopple A for continuous flow through AM07.
   f. Open AM07-0172

2) AM07 PHASE 3, STEP 2 (PNG-C-043-0001973)

1. Transition STA-0810 gas supply from existing UL16 to new UL16 feed.
   a. Close NEW 8" UL16 Bypass Valve
   b. Tap UL16 8" and 6" spherical tees (M-043-0001636 & M-043-0001637).
   c. Close UL16-0012 to shut off gas supply from existing AM07 (M-043-0001635).
   d. Cap and isolate old UL16 pipe (M-043-0001636 & M-043-0001637).
      - Isolation via UL16-0012, Existing "Stopple G" and NEW 6" Spherical Tee
      - Install caps to abandon UL16 pipe (M-043-0001635, M-043-0001636 & M-043-0001637).

3) AM07 PHASE 3, STEP 3 (PNG-C-043-0001974)

1. Construct 20" UL06 Pipeline (Construction done in parallel with AM07 PH3 construction)
   a. Isolate UL06 Pipeline.
      - Install 20-inch "Stopple E" at UL06 North Tie-In (M-043-0001639).
      - Install 24-inch "Stopple F" at UL06 South Tie-In (M-043-0001638).
      - Install 24-inch "Stopple B" on west side of Licking Pike (M-043-0001641).
   b. Tie-In proposed UL06 to existing UL06 & place 20" UL06 into service.
   c. Cap existing AM07 east of "Stopple B" (M-043-0001641).
2. Transition Existing AM07 to AM07-E (C-043-0001974).
   a. Transition flow from Covington Bypass to Regulation Run.
   b. Remove UL06-0009 Valve Pit in front yard (C-043-0001974).

AM07 PHASE 3 CONSTRUCTION SEQUENCING

SCALE: 1:600

FOR PERMITTING PURPOSES ONLY

JOSHUA FUELLING 37285 LICENSED PROFESSIONAL ENGINEER
2024.05.29.08:37:11-05'00'
PROFESSIONAL ENGARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
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B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

-
AM07 PHASE 3
CONSTRUCTION SEQUENCING PLAN
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	PNG-G-043-0001560
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	03/28/2024
SUPERSEDED	—
DRAWING NUMBER	PNG C-043-0001972
REVISION	B

C/ERLANGER/AM07

AM07 PHASE 3, STEP 1

Construct and test AM07 PH3 Pipeline, UL16 Pipeline, AM07-E Pipeline, UL06 MLV, and Covington Station.

a. Install "Stopple C" & "Stopple D" to isolate and cap existing AM07 section at UL06 MLV and AM07 Phase 3 Eastern Tie-In location. (M-043-0001633 DETAIL 1)
   - Back feed AM07 from UL06.

Tie-in AM07 PH3 and AM07-E on the West end.

a. Isolate existing AM07 Pipeline near West Tie-In
   - Close valves 24" AM07-0172 (2017 Ball Valve) & 8" UL16-0011 (2017 Gate Valve); leaving feed to UL16 active.
   - Utilize existing "Stopple A" near Madison Pike to isolate from the west.

b. Perform pipe to pipe tie-ins for Phase 3 and AM07-E (M-043-0001634 & M-043-0001635).

Place AM07 PH3, UL06 MLV, and Covington Station in service.

a. Utilize Stopple C and Stopple D near UL06 MLV site to isolate AM07.
   - Back feed AM07 from UL06.

b. Perform AM07 East tie-in and UL06 MLV tie-in (M-043-0001633).

c. Open Covington Station Bypass Valve (use bypass not regulation runs).

d. Release Stopple C and Stopple D to place AM07 PH3 and UL06 Feed into service.

e. Release Stopple A for continuous flow through AM07.

f. Open AM07-0172

) AM07 PHASE 3, STEP 2 (PNG-C-043-0001973)

. Transition STA-0810 gas supply from existing UL16 to new UL16 feed.

a. Close NEW 8" UL16 Bypass Valve

b. Tap UL16 8" and 6" spherical tees (M-043-0001636 & M-043-0001637).

c. Close UL16-0012 to shut off gas supply from existing AM07 (M-043-0001635).

d. Cap and isolate old UL16 pipe (M-043-0001636 & M-043-0001637).

- **Isolation via UL16-0012, Existing "Stopple G" and NEW 6" Spherical Tee**
- **Install caps to abandon UL16 pipe (M-043-0001635, M-043-0001636 & M-043-0001637).**

3) AM07 PHASE 3, STEP 3 (PNG-C-043-0001974)

1. Construct 20" UL06 Pipeline (Construction done in parallel with AM07 PH3 construction)

a. Isolate UL06 Pipeline.
   - Install 20-inch "Stopple E" at UL06 North Tie-In (M-043-0001639).
   - Install 24-inch "Stopple F" at UL06 South Tie-In (M-043-0001638).
   - Install 24-inch "Stopple B" on west side of Licking Pike (M-043-0001641).

b. Tie-In proposed UL06 to existing UL06 & place 20" UL06 into service.

c. Cap existing AM07 east of "Stopple B" (M-043-0001641).

2. Transition Existing AM07 to AM07-E (C-043-0001974).

a. Transition flow from Covington Bypass to Regulation Run.

b. Remove UL06-0009 Valve Pit in front yard (C-043-0001974).

AM07 PHASE 3 CONSTRUCTION SEQUENCING

SCALE: 1:80

FOR PERMITTING PURPOSES ONLY

JOSHUA FUELLING 37288 LICENSED PROFESSIONAL ENGINEER
STATE OF KENTUCKY
PROFESSIONAL ENGINEER STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

-
AM07 PHASE 3
CONSTRUCTION SEQUENCING PLAN 2
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	PNG-C-043-0001560
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	03/28/2024
SUPERSEDED	—
DRAWING NUMBER	PNG C-043-0001973
REVISION	B

C/ERLANGER/AM07

1) AM07 PHASE 3, STEP 1

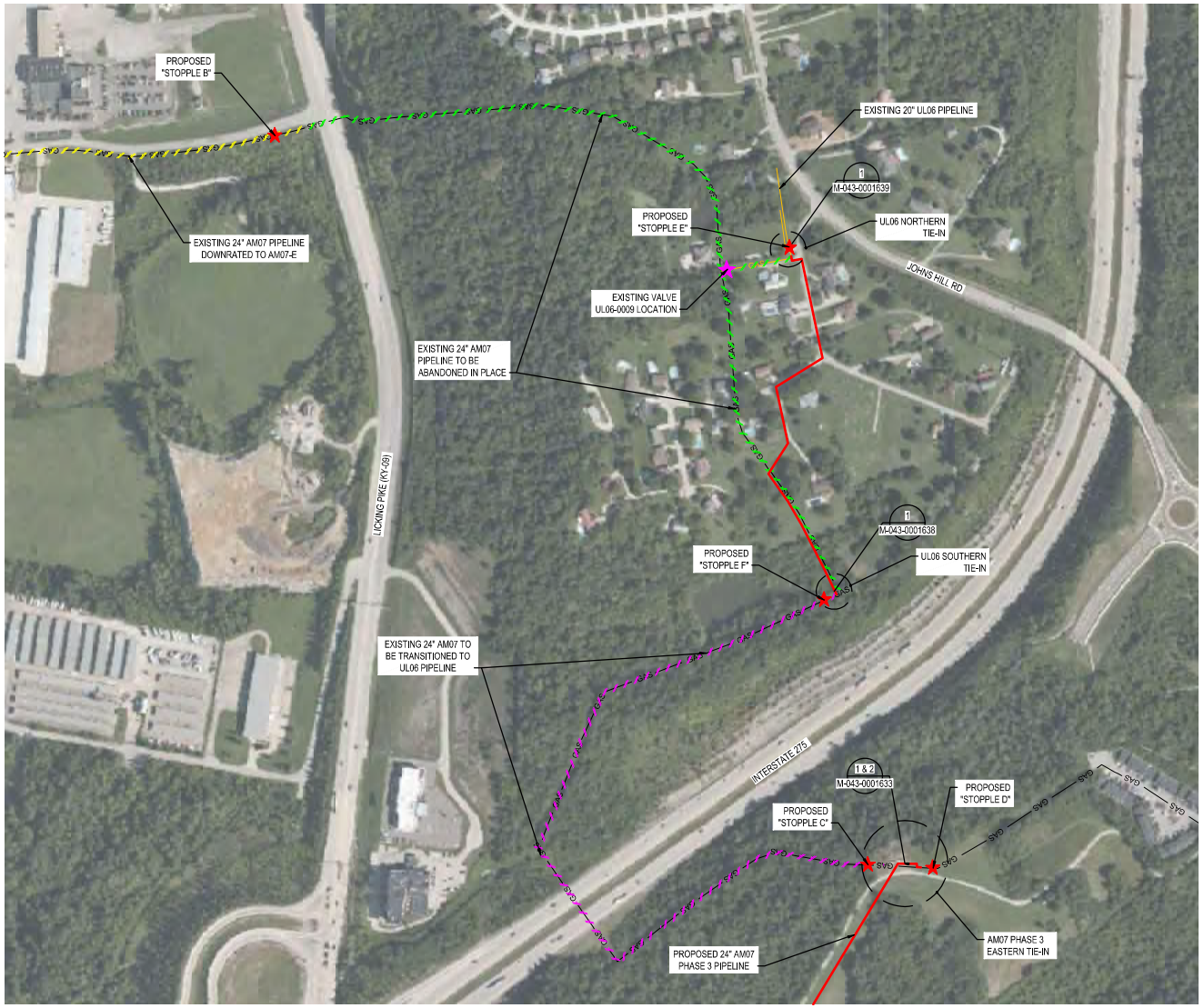
1. Construct and test AM07 PH3 Pipeline, UL16 Pipeline, AM07-E Pipeline, UL06 MLV, and Covington Station.
   a. Install "Stopple C" & "Stopple D" to isolate and cap existing AM07 section at UL06 MLV and AM07 Phase 3 Eastern Tie-In location. (M-043-0001633 DETAIL 1)
      - Back feed AM07 from UL06.
2. Tie-in AM07 PH3 and AM07-E on the West end.
   a. Isolate existing AM07 Pipeline near West Tie-In
      - Close valves 24" AM07-0172 (2017 Ball Valve) & 8" UL16-0011 (2017 Gate Valve); leaving feed to UL16 active.
      - Utilize existing "Stopple A" near Madison Pike to isolate from the west.
   b. Perform pipe to pipe tie-ins for Phase 3 and AM07-E (M-043-0001634 & M-043-0001635).
3. Place AM07 PH3, UL06 MLV, and Covington Station in service.
   a. Utilize Stopple C and Stopple D near UL06 MLV site to isolate AM07.
      - Back feed AM07 from UL06.
   b. Perform AM07 East tie-in and UL06 MLV tie-in (M-043-0001633).
   c. Open Covington Station Bypass Valve (use bypass not regulation runs).
   d. Release Stopple C and Stopple D to place AM07 PH3 and UL06 Feed into service.
   e. Release Stopple A for continuous flow through AM07.
   f. Open AM07-0172

2) AM07 PHASE 3, STEP 2 (PNG-C-043-0001973)

1. Transition STA-0810 gas supply from existing UL16 to new UL16 feed.
   a. Close NEW 8" UL16 Bypass Valve
   b. Tap UL16 8" and 6" spherical tees (M-043-0001636 & M-043-0001637).
   c. Close UL16-0012 to shut off gas supply from existing AM07 (M-043-0001635).
   d. Cap and isolate old UL16 pipe (M-043-0001636 & M-043-0001637).
      - Isolation via UL16-0012, Existing "Stopple G" and NEW 6" Spherical Tee
      - Install caps to abandon UL16 pipe (M-043-0001635, M-043-0001636 & M-043-0001637).

3) AM07 PHASE 3, STEP 3 (PNG-C-043-0001974)

1. Construct 20" UL06 Pipeline (Construction done in parallel with AM07 PH3 construction)
   a. Isolate UL06 Pipeline.
      - **Install 20-inch "Stopple E" at UL06 North Tie-In (M-043-0001639).**
      - **Install 24-inch "Stopple F" at UL06 South Tie-In (M-043-0001638).**
      - **Install 24-inch "Stopple B" on west side of Licking Pike (M-043-0001641).**
   b. Tie-In proposed UL06 to existing UL06 & place 20" UL06 into service.
   c. Cap existing AM07 east of "Stopple B" (M-043-0001641).
2. Transition Existing AM07 to AM07-E (C-043-0001974).
   a. Transition flow from Covington Bypass to Regulation Run.
   b. Remove UL06-0009 Valve Pit in front yard (C-043-0001974).



AM07 PHASE 3 CONSTRUCTION SEQUENCING

SCALE: 1:200

FOR PERMITTING PURPOSES ONLY

JOSHUA FUELLING 37256 LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

-
AM07 PHASE 3
CONSTRUCTION SEQUENCING PLAN 3
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001560

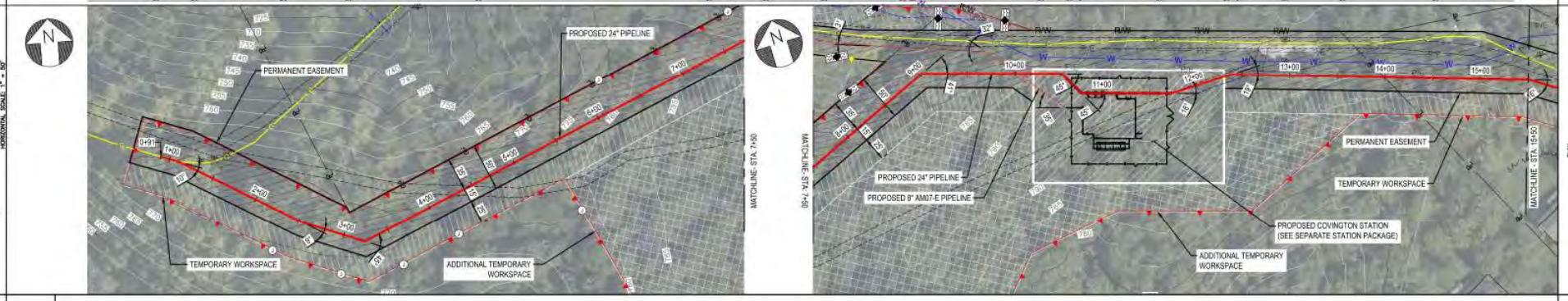
SHEET(S) 1 OF X	DWG SCALE AS NOTED
DWG DATE 03/28/2024	SUPERSEDED —

DRAWING NUMBER: PNG C-043-0001974 | REVISION: B

C/ERLANGER/AM07

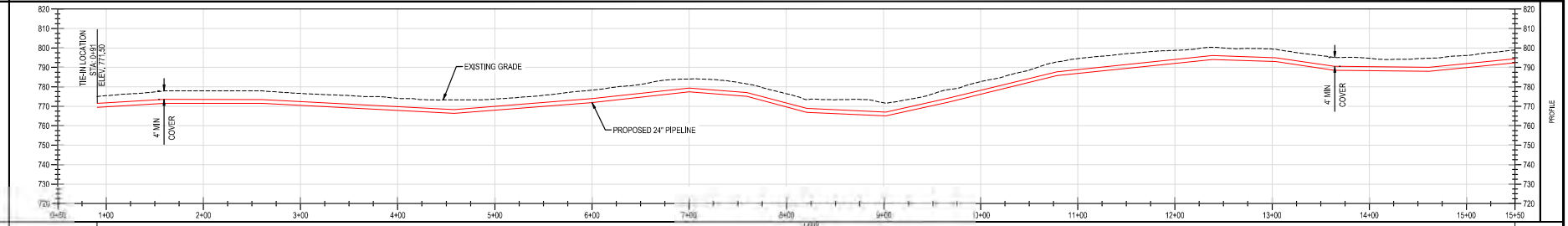
OWNERSHIP	PIDN 043-00-00-100.00 TAYLOR DEVELOPMENT CO.	PIDN 057-10-00-016.00 ROBERT A. TAYLOR AND WIFE, SUSAN E. TAYLOR
ACREAGE		
EASEMENTS		
REF. DWG. NO.		

STA: 1+10, 10° BEND (H-RT) · STA: 1+60, 2° OVERBEND (V) · STA: 2+55.9° BEND (H-LT) · STA: 3+23.45° FTG (H-LT) · STA: 4+58.4° SAG (V) · STA: 7+00.5° OVERBEND (V) · STA: 7+09.5° OVERBEND (V) · STA: 8+21.8° SAG (V) · STA: 9+02.41° FTG (H-RT) 8° SAG (V) · STA: 10+48.65° FTG (H-LT) · STA: 10+79.45° FTG (H-LT) 4° OVERBEND (V) · STA: 11+73.18° BEND (H-LT) · STA: 12+38.19° FTG (H-RT) 4° OVERBEND (V) · STA: 13+04.3° OVERBEND (V) · STA: 13+64.4° SAG (V) · STA: 14+62.2° SAG (V)

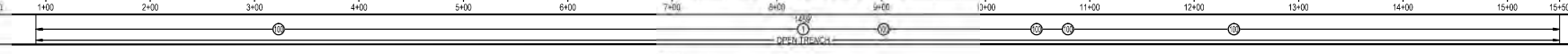


PIPE DATA (SLOPE, STATIONING)

FOR PERMITTING PURPOSES ONLY



MATERIAL · CONST. METHOD · CLASS / MAOP



NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	10/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

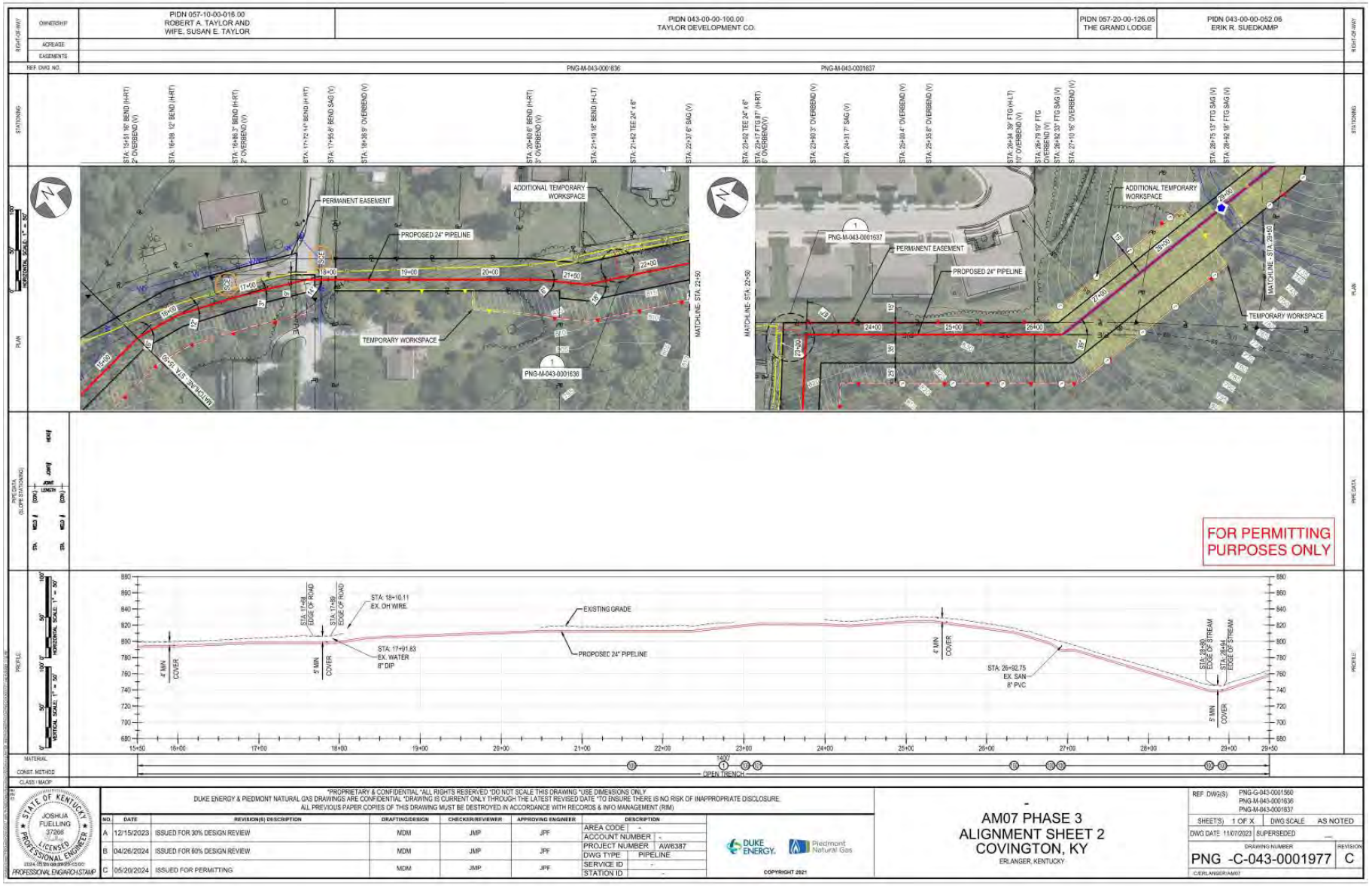
STATE OF KENTUCKY · JOSHUA FUELLING · 27266 · LICENSED PROFESSIONAL ENGINEER · PROFESSIONAL ENGINEER STAMP

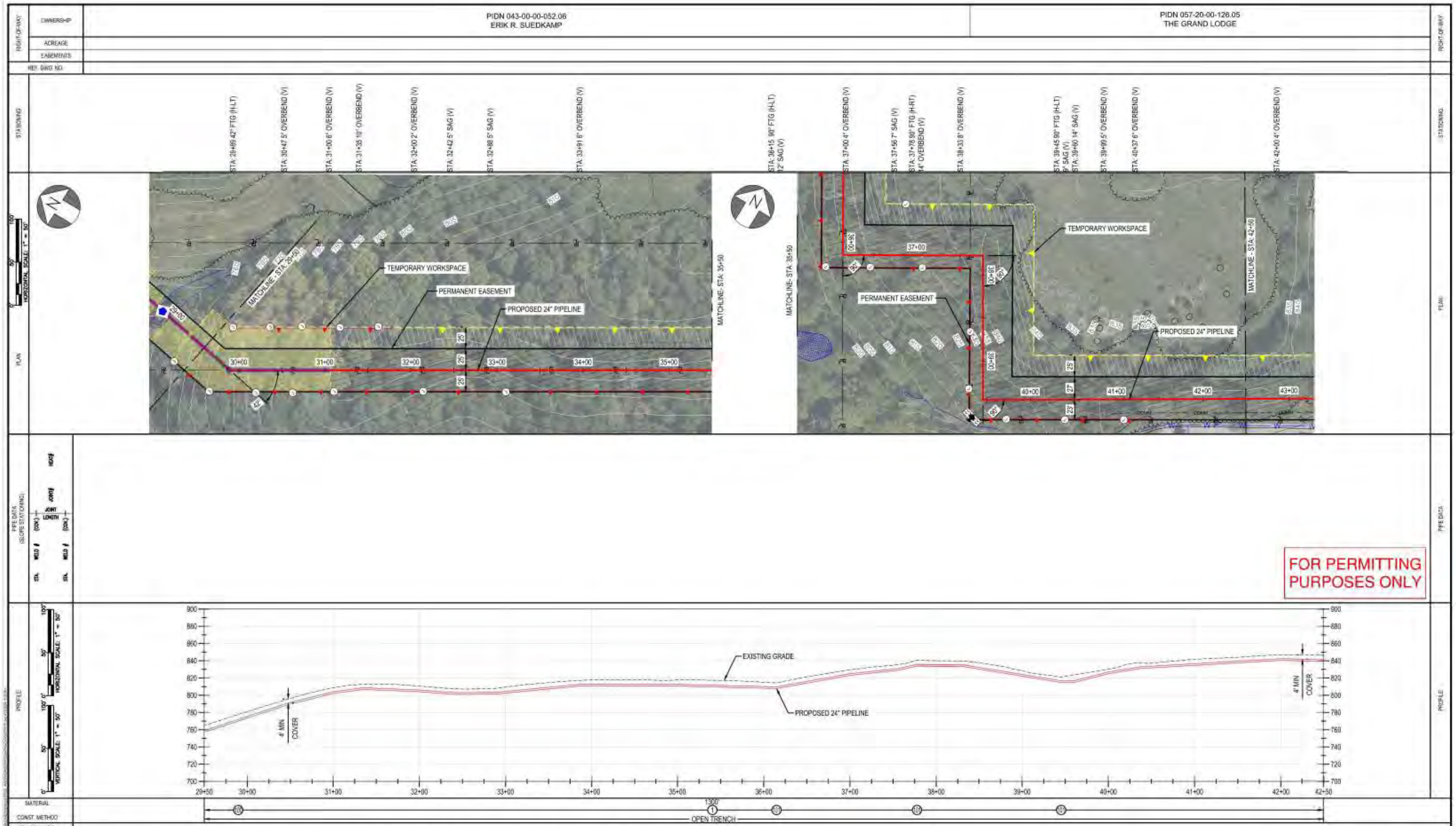
DUKE ENERGY. · Piedmont Natural Gas

AM07 PHASE 3
ALIGNMENT SHEET 1
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	PNG-C-043-0001560
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	11/07/2023
SUPERSEDED	
DRAWING NUMBER	PNG -C-043-0001976
REVISION	C

C:\ERLANGER\AM07


PIDN 057-10-00-016.00
ROBERT A. TAYLOR AND
WIFE, SUSAN E. TAYLOR
PIDN 043-00-00-100.00
TAYLOR DEVELOPMENT CO.
PIDN 057-20-00-126.05
THE GRAND LODGE
PIDN 043-00-00-052.06
ERIK R. SUEDKAMP
PNG-M-043-0001636
PNG-M-043-0001637
PERMANENT EASEMENT
ADDITIONAL TEMPORARY WORKSPACE
PROPOSED 24" PIPELINE
TEMPORARY WORKSPACE
MATCHLINE: STA: 22+50
MATCHLINE: STA: 29+50
FOR PERMITTING PURPOSES ONLY
EXISTING GRADE
PROPOSED 24" PIPELINE
STA: 18+10.11
EX. OH WIRE
STA: 17+91.83
EX. WATER
8" DIP
STA: 26+92.75
EX. SAN
8" PVC
OPEN TRENCH
AM07 PHASE 3
ALIGNMENT SHEET 2
COVINGTON, KY
ERLANGER, KENTUCKY
PNG -C-043-0001977
C



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NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JPM	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JPM	JPF
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

STATE OF KENTUCKY
JOSHUA FUELLING
37266
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENG/ARCH STAMP

DUKE ENERGY. Piedmont Natural Gas

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AM07 PHASE 3
ALIGNMENT SHEET 3
COVINGTON, KY

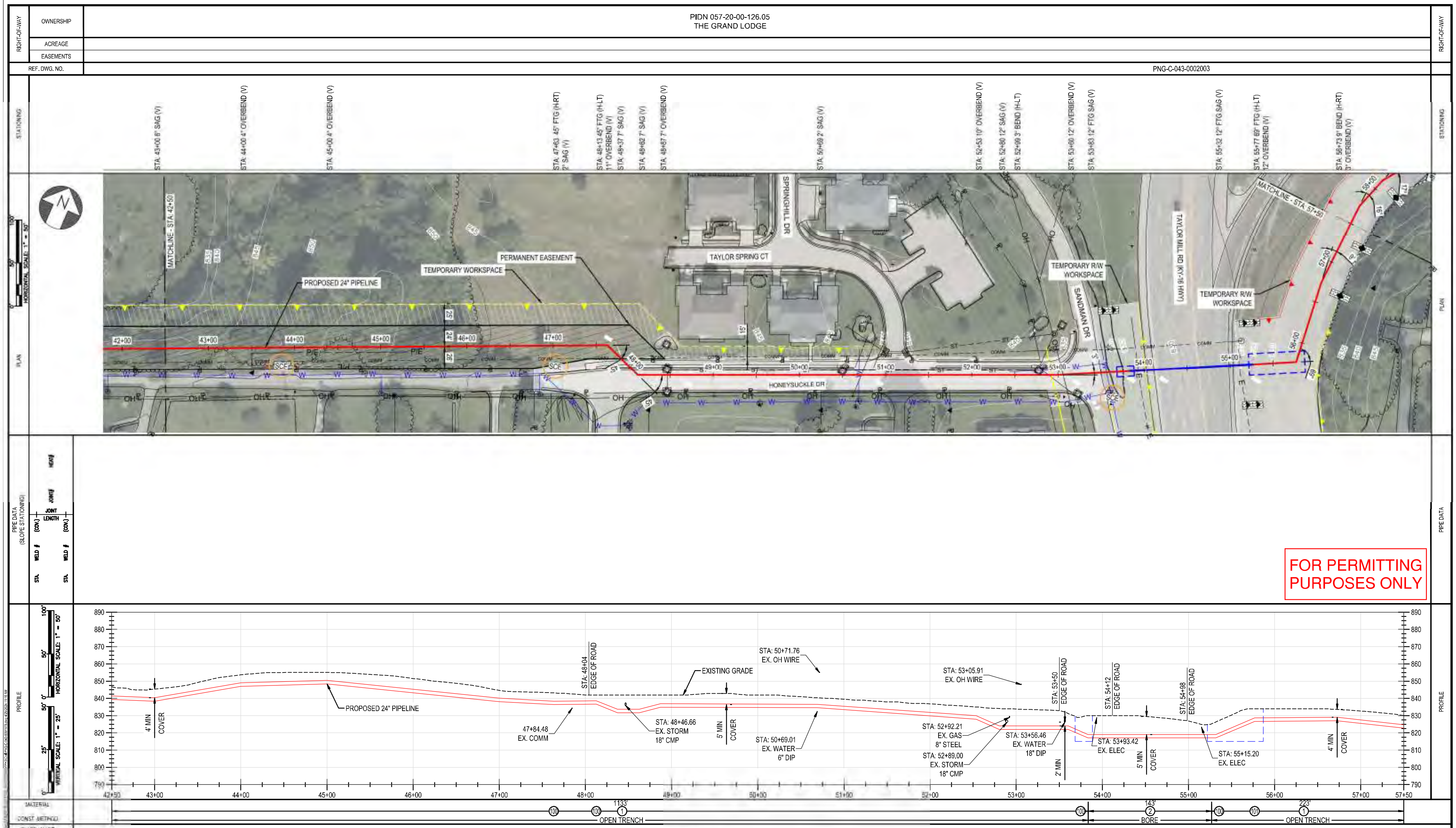
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001560

SHEET(S) 1 OF X | DWG SCALE AS NOTED
DWG DATE 11/07/2023 | SUPERSEDED

DRAWING NUMBER: PNG -C-043-0001978 | REVISION: C

C:\ERLANGER\AM07



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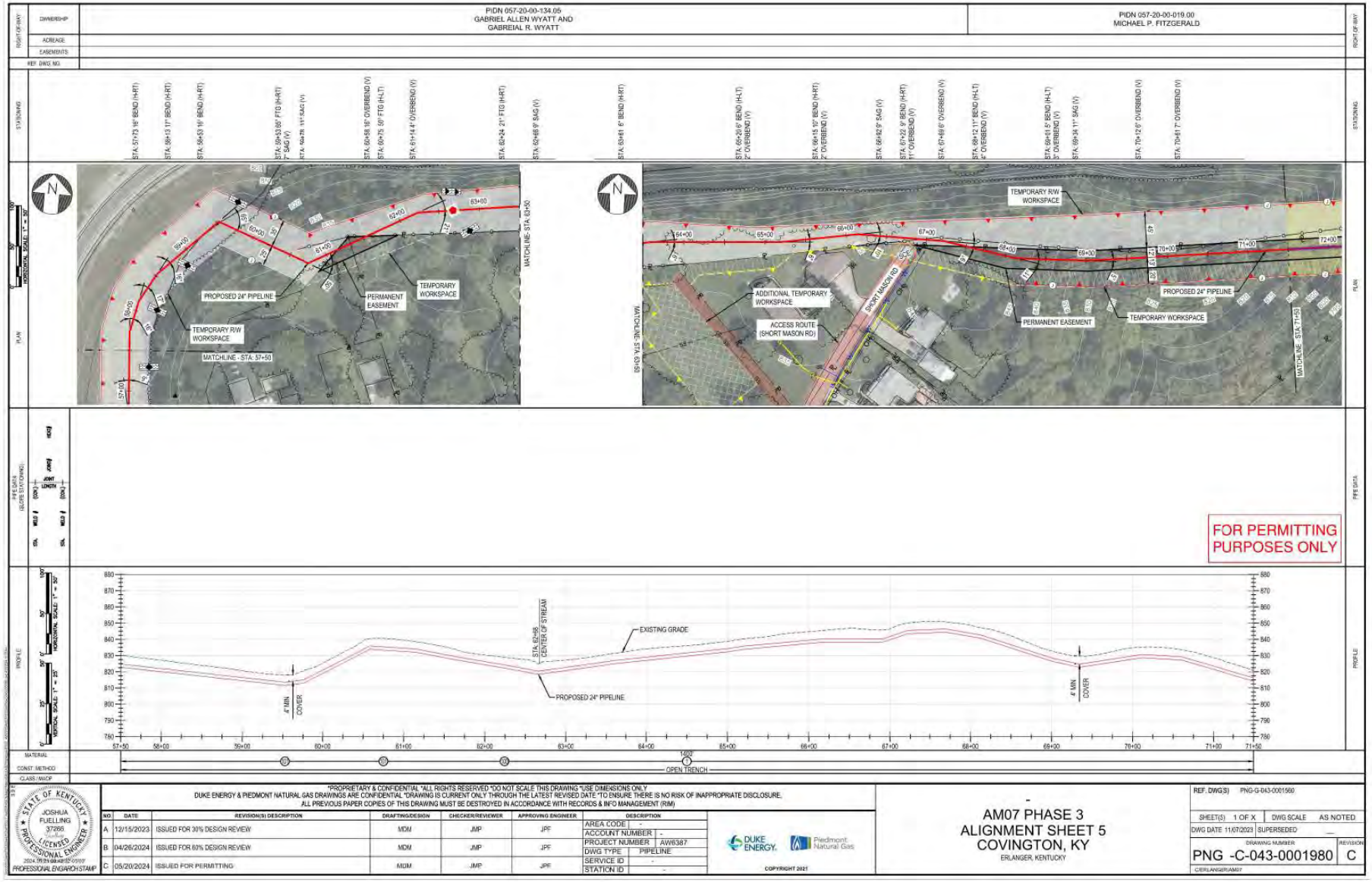
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

PROFESSIONAL ENGINEER STAMP: STATE OF KENTUCKY, JOSHUA FUELLING, 37266, LICENSED PROFESSIONAL ENGINEER

-
AM07 PHASE 3
ALIGNMENT SHEET 4
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001560, PNG-C-043-0002003
SHEET(S) 1 OF X | DWG SCALE AS NOTED
DWG DATE 11/07/2023 | SUPERSEDED —
DRAWING NUMBER PNG -C-043-0001979 | REVISION C
C/ERLANGER/AM07



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A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW8387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

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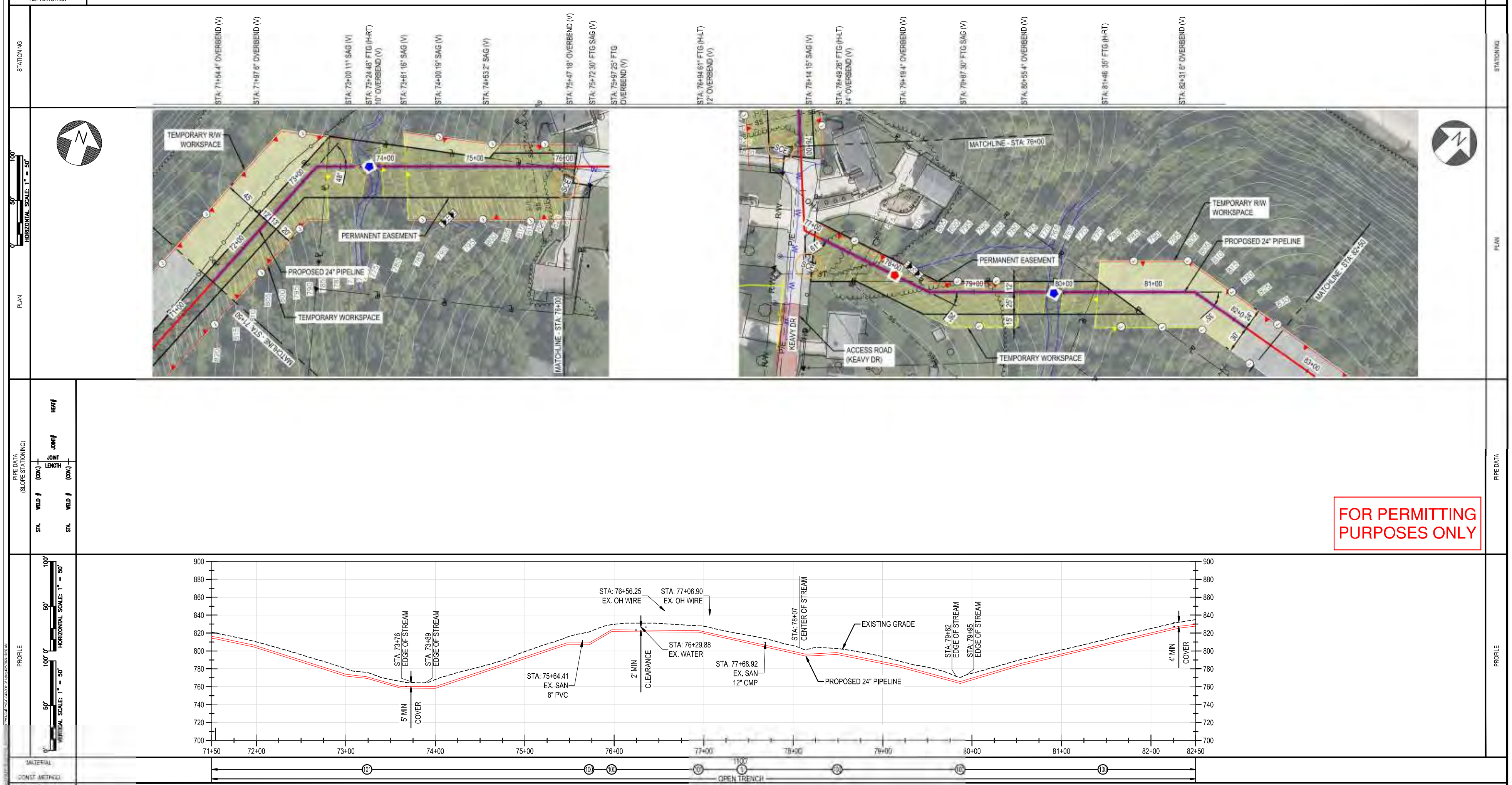
AM07 PHASE 3
ALIGNMENT SHEET 5
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001560
SHEET(S) 1 OF X | DWG SCALE AS NOTED
DWG DATE 11/07/2023 | SUPERSEDED —
DRAWING NUMBER PNG -C-043-0001980 | REVISION C
CIERLANGER/AM07

RIGHT-OF-WAY					
OWNERSHIP	PIDN 057-20-00-019.00 MICHAEL P. FITZGERALD	PIDN 057-20-00-130.00 LRE 1, LLC AN OHIO LIMITED LIABILITY COMPANY	PIDN 057-20-00-129.01 MICHAEL D. ECKLAR AND FRANCES R. ECKLAR, HUSBAND AND WIFE	PIDN 057-20-00-128.00 CLEDIOUS & VIRGINIA ELDER	
ACREAGE					
EASEMENTS					
REF. DWG. NO.					



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STATE OF KENTUCKY — JOSHUA FUELLING 37286 — LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGR/ARCH STAMP

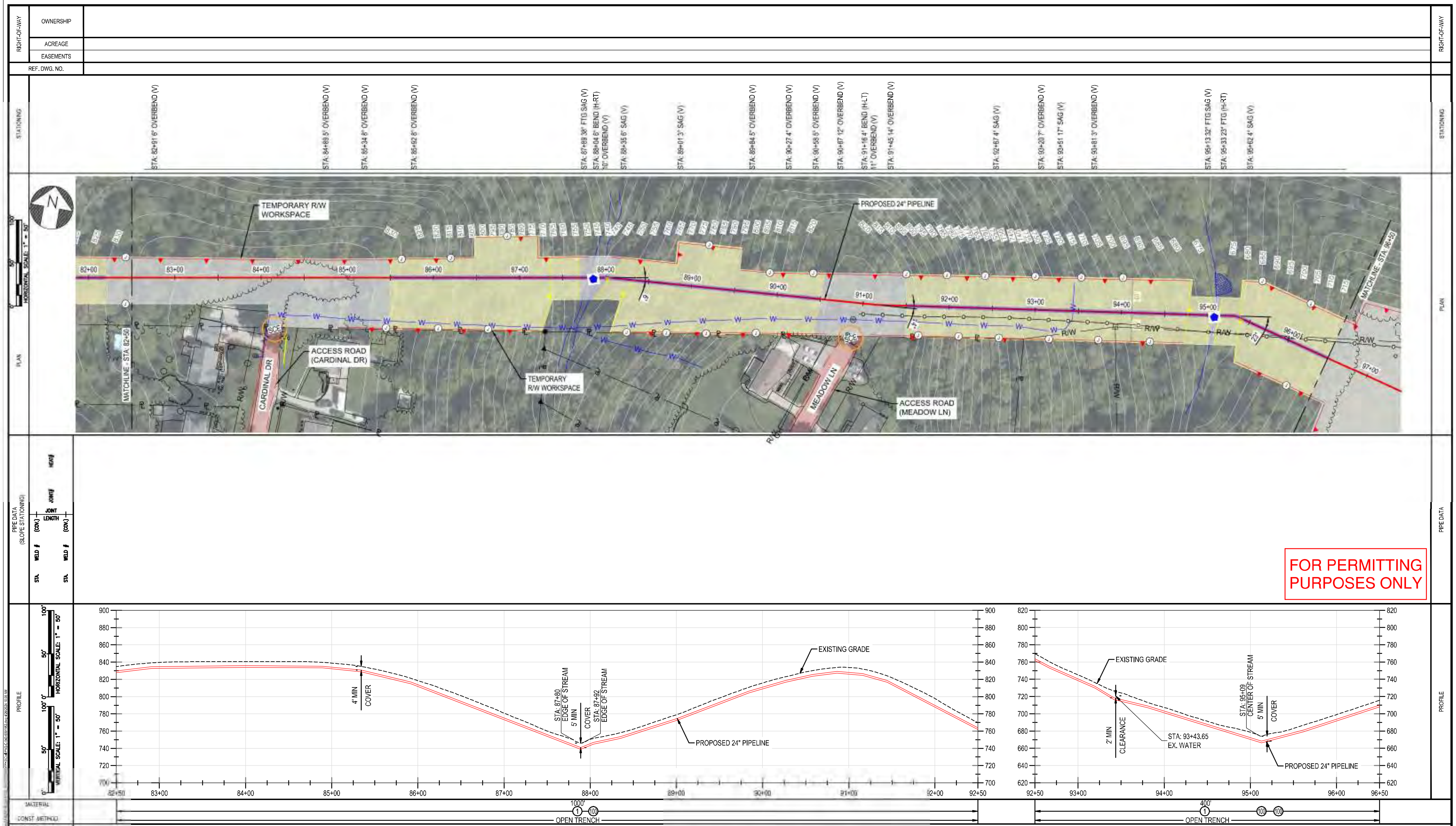
NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

-
AM07 PHASE 3
ALIGNMENT SHEET 6
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001560
SHEET(S) 1 OF X | DWG SCALE AS NOTED
DWG DATE 11/07/2023 | SUPERSEDED —
DRAWING NUMBER PNG -C-043-0001981 | REVISION C
C/ERLANGER/AM07



STATE OF KENTUCKY — JOSHUA PUELLING 37266 — LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

-
AM07 PHASE 3
ALIGNMENT SHEET 7
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001560
SHEET(S) 1 OF X — DWG SCALE AS NOTED
DWG DATE 11/07/2023 — SUPERSEDED —
DRAWING NUMBER: PNG -C-043-0001982 — REVISION: C
C/ERLANGER/AM07

RIGHT-OF-WAY

OWNERSHIP	
ACREAGE	
EASEMENTS	
REF. DWG. NO.	

STATIONING

STA. 96+79.18° OVERBEND (V) | STA. 99+50.15° BEND (H-LT) | STA. 104+53.15° OVERBEND (V) | STA. 107+37.2° OVERBEND (V) | STA. 108+79.2° SAG (V)

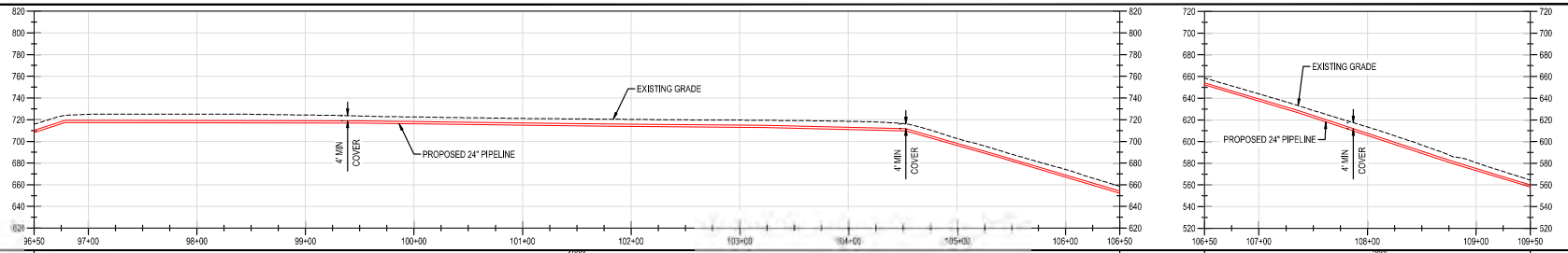
PLAN

PIPE DATA (SLOPE IS LOOKING)

STA.	WELD #	JOINT LENGTH (CM)	JOINT #	WELD #

FOR PERMITTING PURPOSES ONLY

PROFILE



MATERIAL	
CONST. METHOD	100' OPEN TRENCH / 300' OPEN TRENCH
CLASS / MAOP	

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	11/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

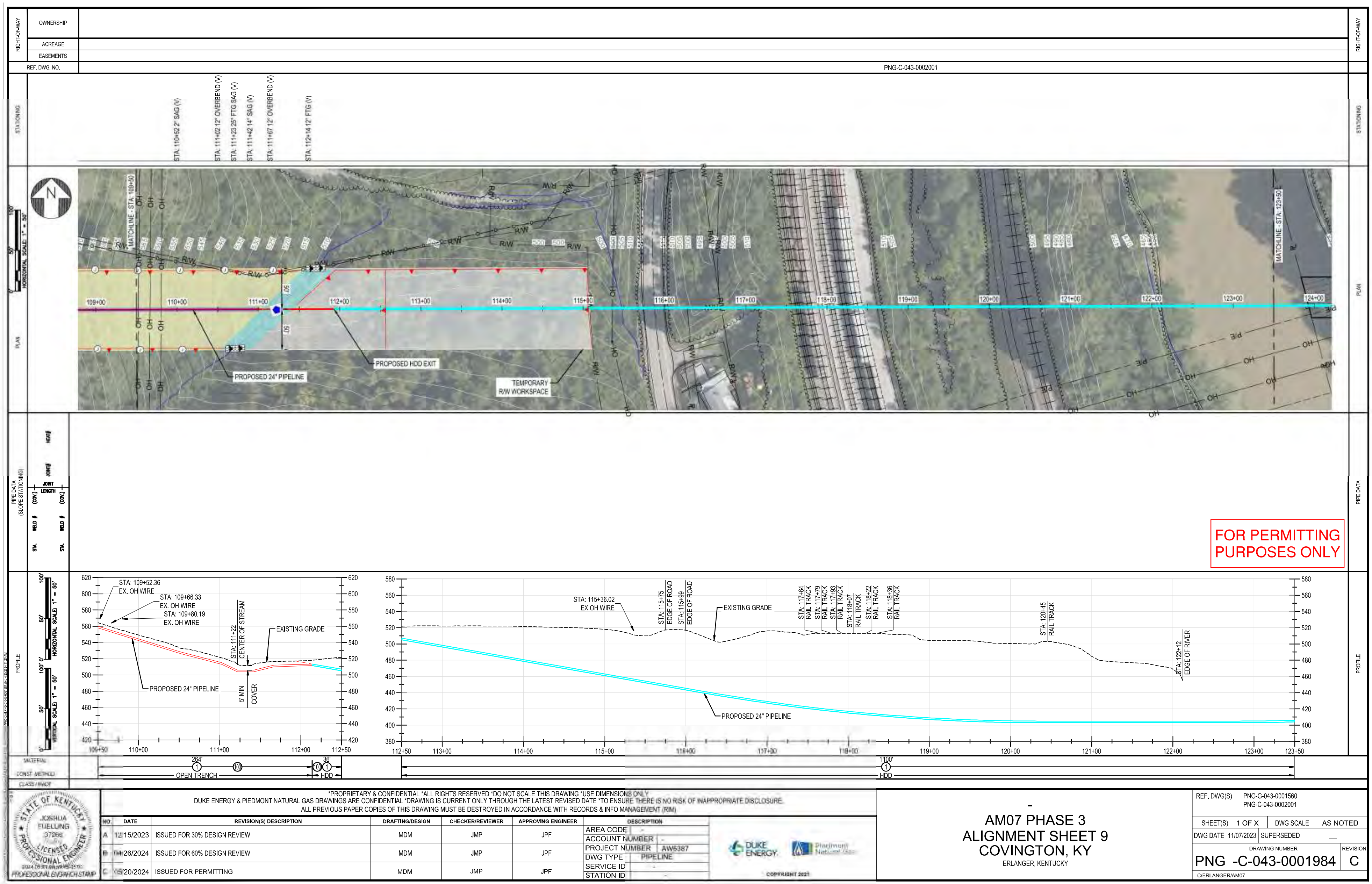
DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

STATE OF KENTUCKY — JOSHUA FUELLING — 37268 — LICENSED PROFESSIONAL ENGINEER — PROFESSIONAL ENGRAPH STAMP

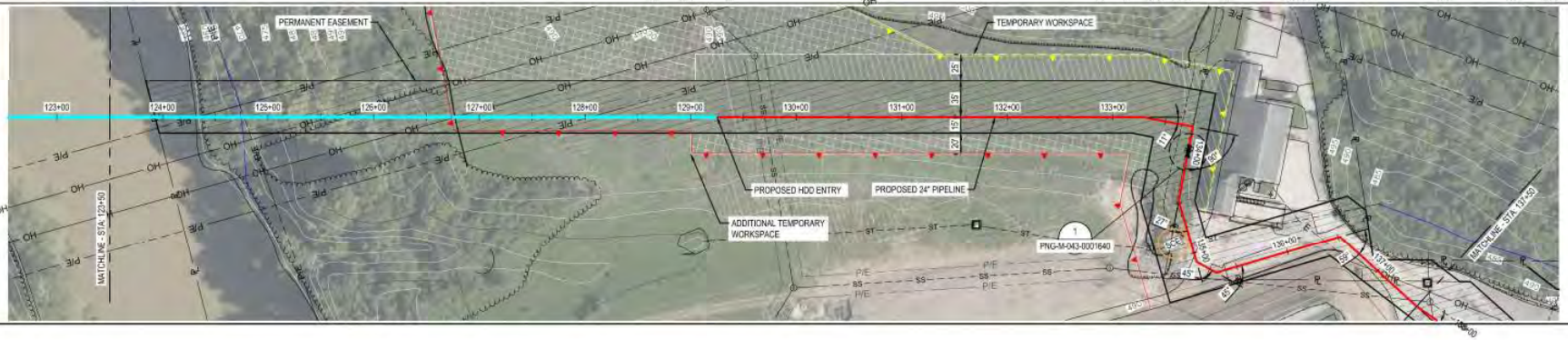
DUKE ENERGY. | Piedmont Natural Gas

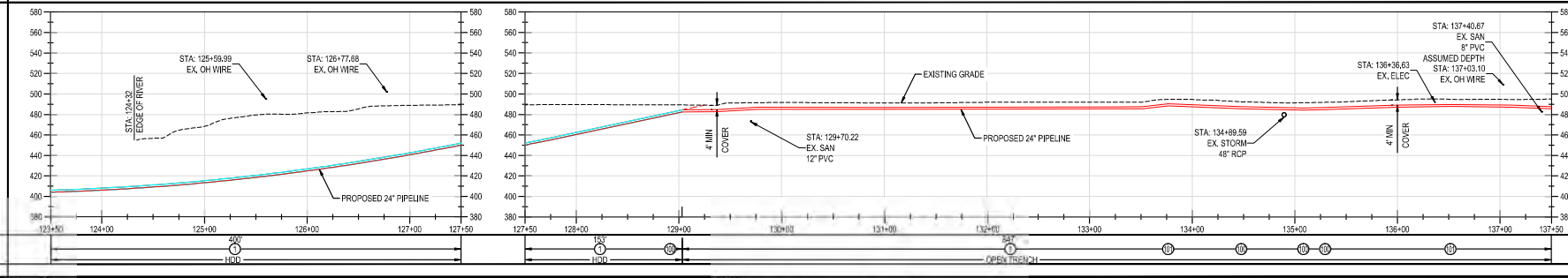
-
AM07 PHASE 3
ALIGNMENT SHEET 8
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	PNG-C-043-0001560
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	11/07/2023
SUPERSEDED	
DRAWING NUMBER	PNG -C-043-0001983
REVISION	C
C/ERLANGER/AM07	


RIGHT-OF-WAY
OWNERSHIP
ACREAGE
EASEMENTS
REF. DWG. NO.
PNG-C-043-0002001
STATIONING
STA: 110+52 2° SAG (V)
STA: 111+02 12° OVERBEND (V)
STA: 111+23 25° FTG SAG (V)
STA: 111+42 14° SAG (V)
STA: 111+67 12° OVERBEND (V)
STA: 112+14 12° FTG (V)
PLAN
MATCHLINE - STA: 109+50
MATCHLINE - STA: 123+50
PROPOSED 24" PIPELINE
PROPOSED HDD EXIT
TEMPORARY R/W WORKSPACE
PIPE DATA (SLOPE STATIONING)
FOR PERMITTING PURPOSES ONLY
PROFILE
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 50'
STA: 109+52.36 EX. OH WIRE
STA: 109+66.33 EX. OH WIRE
STA: 109+80.19 EX. OH WIRE
STA: 111+22 CENTER OF STREAM
EXISTING GRADE
PROPOSED 24" PIPELINE
5' MIN COVER
STA: 115+36.02 EX.OH WIRE
STA: 115+75 EDGE OF ROAD
STA: 115+99 EDGE OF ROAD
STA: 117+64 RAIL TRACK
STA: 117+79 RAIL TRACK
STA: 117+93 RAIL TRACK
STA: 118+07 RAIL TRACK
STA: 118+22 RAIL TRACK
STA: 118+36 RAIL TRACK
STA: 120+45 RAIL TRACK
STA: 122+12 EDGE OF RIVER
OPEN TRENCH
HDD
MATERIAL
CONST. METHOD
CLASS / MAOP
*PROPRIETARY & CONFIDENTIAL *ALL RIGHTS RESERVED *DO NOT SCALE THIS DRAWING *USE DIMENSIONS ONLY
DUKE ENERGY & PIEDMONT NATURAL GAS DRAWINGS ARE CONFIDENTIAL *DRAWING IS CURRENT ONLY THROUGH THE LATEST REVISED DATE *TO ENSURE THERE IS NO RISK OF INAPPROPRIATE DISCLOSURE,
ALL PREVIOUS PAPER COPIES OF THIS DRAWING MUST BE DESTROYED IN ACCORDANCE WITH RECORDS & INFO MANAGEMENT (RIM)
NO. | DATE | REVISION(S) DESCRIPTION | DRAFTING/DESIGN | CHECKER/REVIEWER | APPROVING ENGINEER
A | 12/15/2023 | ISSUED FOR 30% DESIGN REVIEW | MDM | JMP | JPF
B | 04/26/2024 | ISSUED FOR 60% DESIGN REVIEW | MDM | JMP | JPF
C | 05/20/2024 | ISSUED FOR PERMITTING | MDM | JMP | JPF
AREA CODE -
ACCOUNT NUMBER -
PROJECT NUMBER AW6387
DWG TYPE PIPELINE
SERVICE ID -
STATION ID -
STATE OF KENTUCKY
JOSHUA FUELLING
37266
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER STAMP
COPYRIGHT 2021
AM07 PHASE 3
ALIGNMENT SHEET 9
COVINGTON, KY
ERLANGER, KENTUCKY
REF. DWG(S) PNG-G-043-0001560
PNG-C-043-0002001
SHEET(S) 1 OF X
DWG SCALE AS NOTED
DWG DATE 11/07/2023
SUPERSEDED
DRAWING NUMBER
PNG -C-043-0001984
REVISION C
C/ERLANGER/AM07

OWNERSHIP		PIDN 999-99-17-734.00 T&C REAL ESTATE HOLDINGS, LLC	PIDN 999-99-17-734.16 TSF REAL ESTATE HOLDINGS, LLC	PIDN 999-99-17-734.00 T&C REAL ESTATE HOLDINGS, LLC
ACREAGE				
EASEMENTS				
REF. DWG. NO.	PNG-C-043-0002001	PNG-M-043-0001640		





FOR PERMITTING PURPOSES ONLY

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	11/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

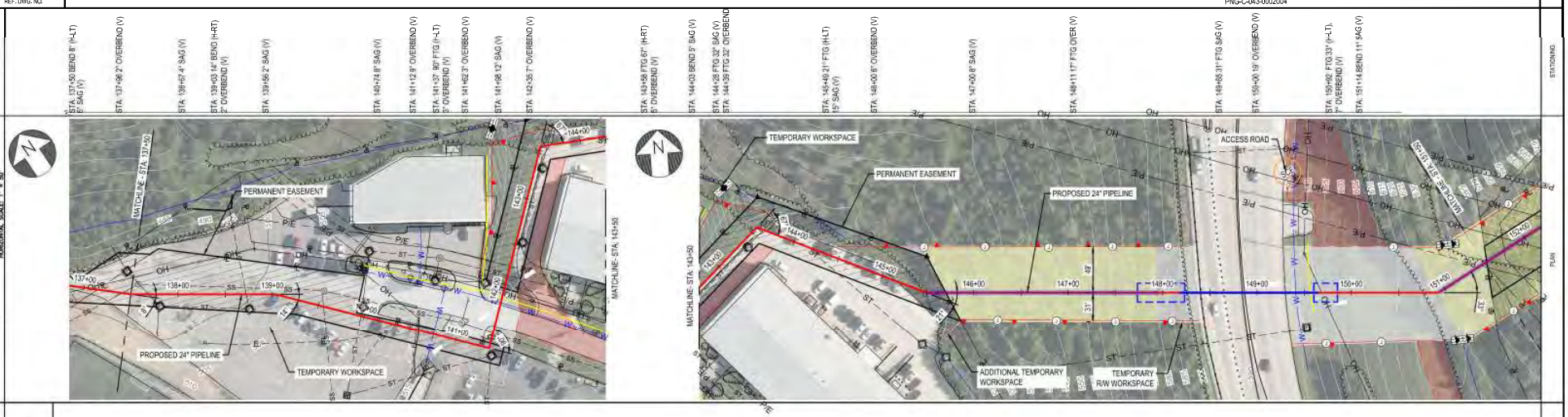
DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

STATE OF KENTUCKY
JOSHUA FUELLING
37266
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGRAPH STAMP

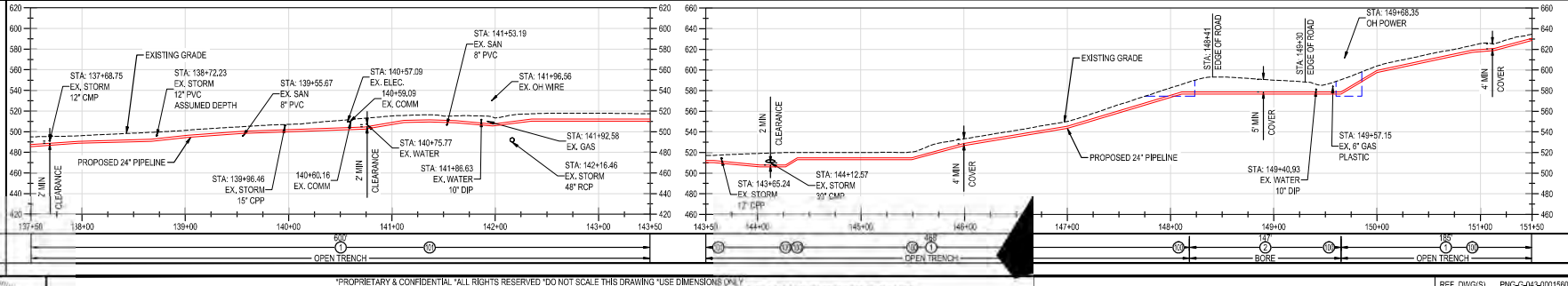
-
AM07 PHASE 3
ALIGNMENT SHEET 10
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	PNG-C-043-0001560 PNG-C-043-0002001 PNG-M-043-0001640
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	11/07/2023
SUPERSEDED	—
DRAWING NUMBER	PNG -C-043-0001985
REVISION	C
C/ERLANGER/AM07	

OWNERSHIP	PIDN 999-99-17-734.00 T&C REAL ESTATE HOLDINGS, LLC	PIDN 999-99-17-734.09 T & D RENTAL, LLC
ACREAGE		
EASEMENTS		
REF. DWG. NO.		PNG-C-043-0002004



FOR PERMITTING PURPOSES ONLY



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NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	10/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

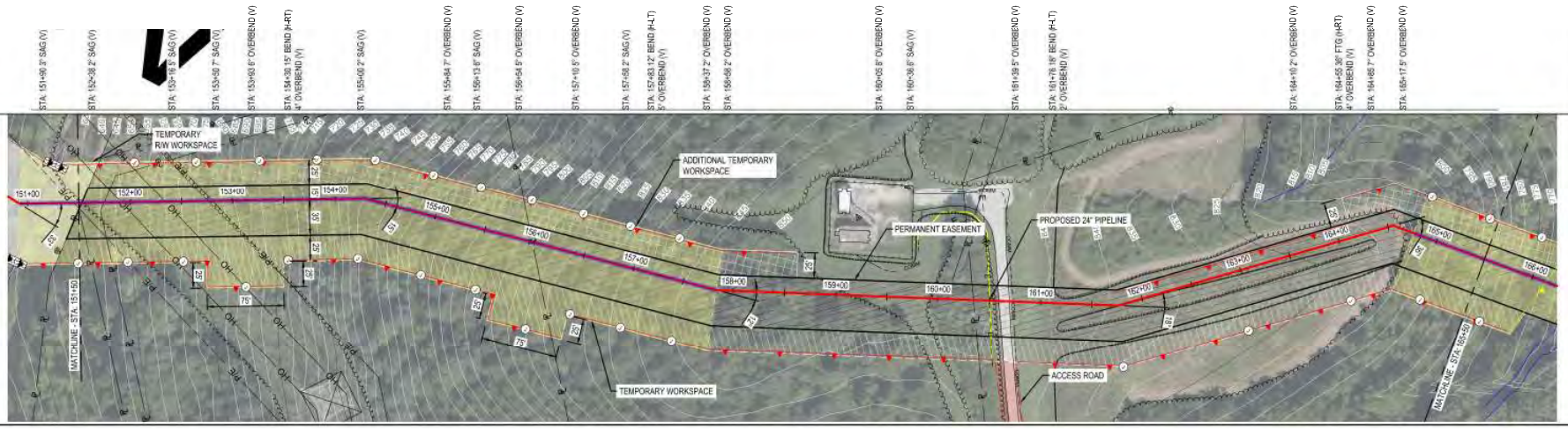
DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

JOSHUA FUELLING 37266 LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGRAPH STAMP

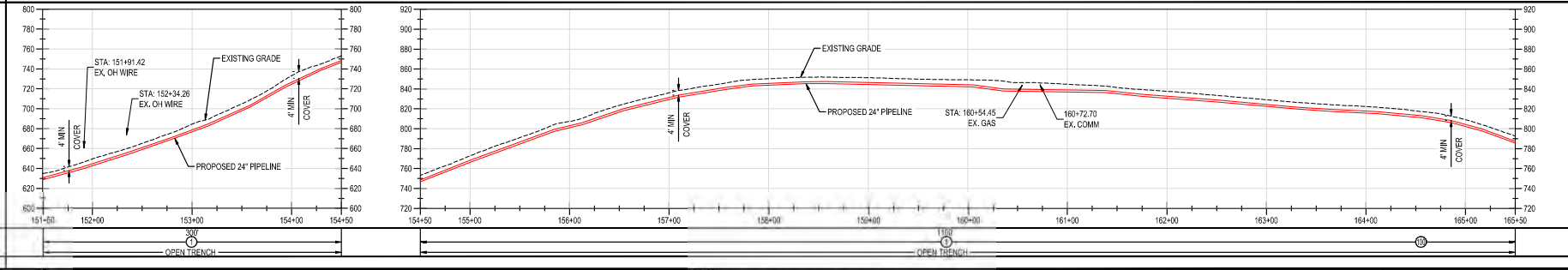
-
AM07 PHASE 3
ALIGNMENT SHEET 11
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	PNG-C-043-0001560 PNG-C-043-0002004
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	11/07/2023
SUPERSEDED	—
DRAWING NUMBER	PNG -C-043-0001986
REVISION	C
C/ERLANGER/AM07	

	PIDN 999-99-18-115.00 CONNIE COOTS AND BETTY S. SMITH	PIDN 999-99-18-115.01 SANITATION DISTRICT 1	PIDN 999-99-20-215.00 COMMONWEALTH OF KENTUCKY
OWNERSHIP			
ACREAGE			
EASEMENTS			
REF. DWG. NO.			



FOR PERMITTING PURPOSES ONLY



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NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	09/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

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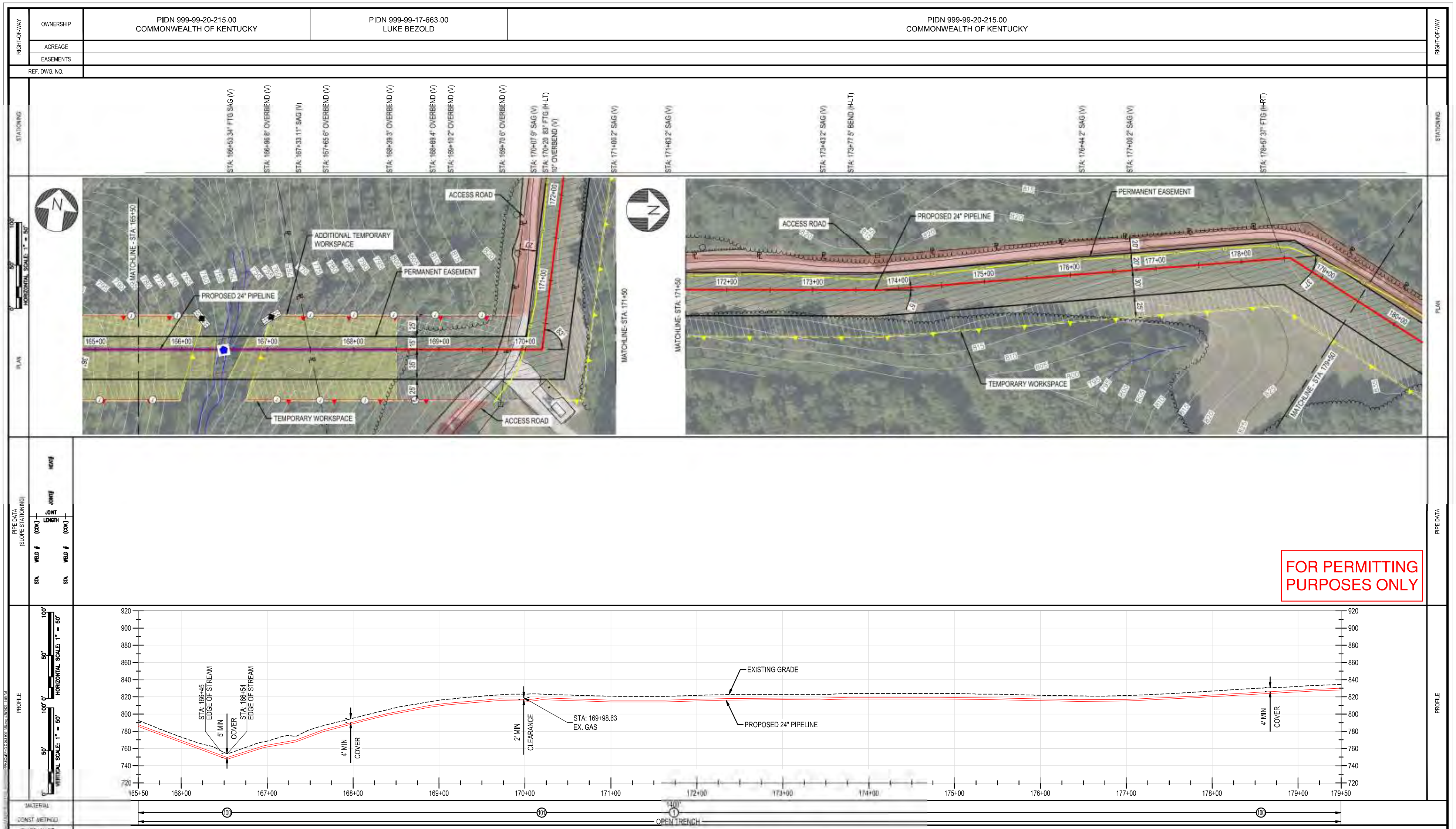
STATE OF KENTUCKY — JOSHUA FUELLING — 37266 — LICENSED PROFESSIONAL ENGINEER

-
AM07 PHASE 3
ALIGNMENT SHEET 12
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	PNG-C-043-0001560
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	11/07/2023
SUPERSEDED	—
DRAWING NUMBER	PNG -C-043-0001987
REVISION	C
C/ERLANER/AM07	



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A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

STATE OF KENTUCKY JOSHUA FUELLING 37266 LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER STAMP

DUKE ENERGY. Piedmont Natural Gas
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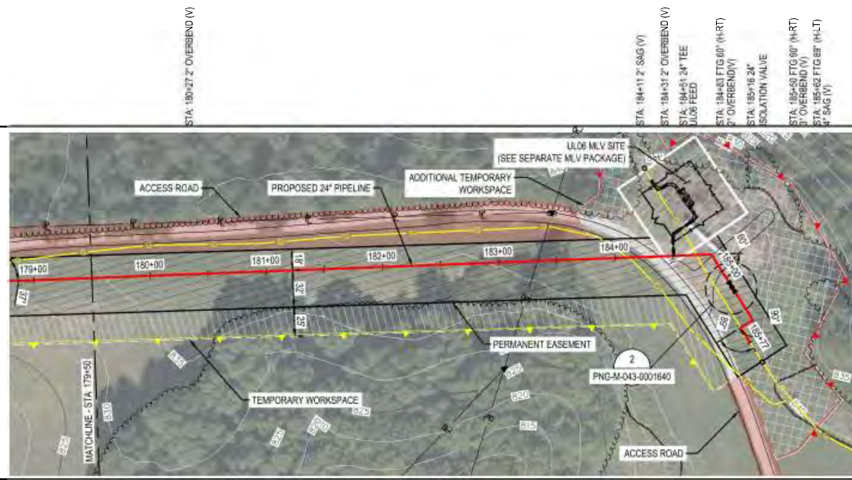
-
AM07 PHASE 3
ALIGNMENT SHEET 13
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001560
SHEET(S) 1 OF X | DWG SCALE AS NOTED
DWG DATE 11/07/2023 | SUPERSEDED —
DRAWING NUMBER: PNG -C-043-0001988 | REVISION: C
C/ERLANGER/AM07

RIGHT-OF-WAY		
OWNERSHIP	PIDN 999-99-20-215.00 COMMONWEALTH OF KENTUCKY	PIDN 999-99-20-100.00 COMMOMWEALTH OF KENTUCKY
ACREAGE		
EASEMENTS		
REF. DWG. NO.	PNG-M-043-0001640	

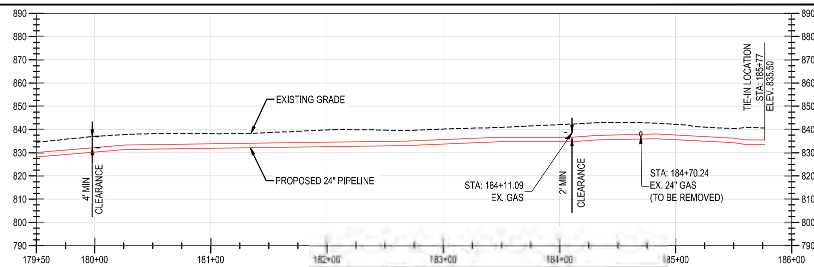
STATIONING



PLAN

PIPE DATA (SLOPE STATIONING)

FOR PERMITTING PURPOSES ONLY



PROFILE

MATERIAL
CONST. METHOD
CLASS / MAOP

JOSHUA FUELLING 37266 STATE OF KENTUCKY LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER STAMP

NO	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW5387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY | Piedmont Natural Gas

-
AM07 PHASE 3
ALIGNMENT SHEET 13
COVINGTON, KY
ERLANGER, KENTUCKY

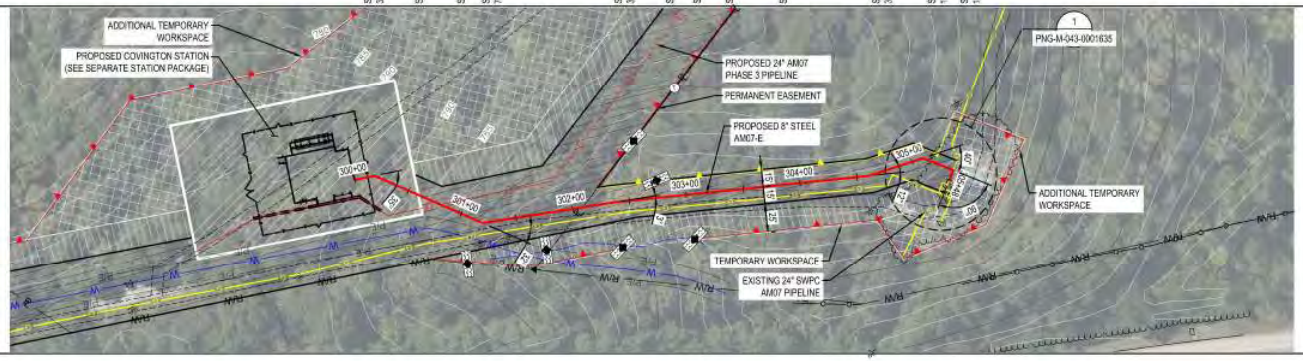
REF. DWG(S) PNG-G-043-0001560
PNG-M-043-0001640
SHEET(S) 1 OF X | DWG SCALE AS NOTED
DWG DATE 11/07/2023 | SUPERSEDED —
DRAWING NUMBER PNG -C-043-0001989 | REVISION C
C/ERLANGER/AM07

RIGHT-OF-WAY	OWNERSHIP	PIDN 057-10-00-016.00 ROBERT A. TAYLOR AND WIFE, SUSAN E. TAYLOR DB 289, PG 55
		PIDN 057-10-00-025.02 MICHELLE KNUCKLES, LISA KNUCKLES, PAMELA KNUCKLES, ANGELA KNUCKLES AND LARRY KNUCKLES
	ACREAGE	
	EASEMENTS	
	REF. DWG. NO.	PNG-M-043-0001635

STATIONING

STA. 306+17.33° FTG (H-RT)
STA. 305+57.4° OVERBEND (V)
STA. 305+94.4° OVERBEND (V)
STA. 301+21.32° FTG (H-LT)
7° SAG (V)
STA. 302+36.3° BEND (H-RT)
9° OVERBEND (V)
STA. 302+76.5° SAG (V)
STA. 303+06.3° SAG (V)
STA. 303+28.4° SAG (V)
STA. 303+75.2° OVERBEND (V)
STA. 304+62.12° BEND (H-LT)
3° OVERBEND (V)
STA. 305+10.40° FTG (H-RT)
17° OVERBEND (V)
STA. 305+39.90° FTG (H-RT)
19° SAG (V)

PLAN

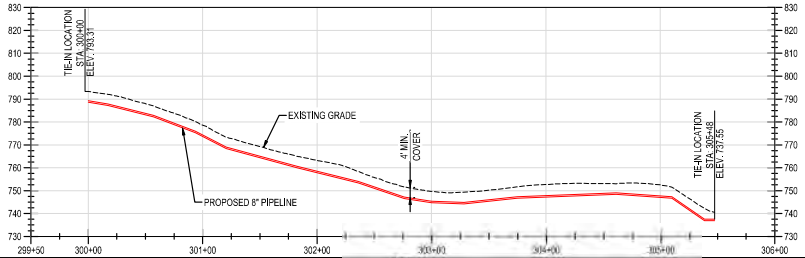


PIPE DATA (SLOPE STAKING)

STA.	WELD #	JOINT LENGTH (CM)	JOINT #	WELD #	STA.

FOR PERMITTING PURPOSES ONLY

PROFILE



MATERIAL
CONST. METHOD
CLASS LOCATION

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	–
ACCOUNT NUMBER	–
PROJECT NUMBER	AW8387
DWG TYPE	PIPELINE
SERVICE ID	–
STATION ID	–

STATE OF KENTUCKY — JOSHUA FUELLING 37268 — LICENSED PROFESSIONAL ENGINEER — PROFESSIONAL ENGINEER STAMP

DUKE ENERGY. Piedmont Natural Gas

-
AM07-E
ALIGNMENT SHEET 1
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	PNG-G-043-0001560 PNG-M-043-0001635
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	11/07/2023
SUPERSEDED	—
DRAWING NUMBER	PNG -C-043-0001991
REVISION	C

C/ERLANGER/AM07

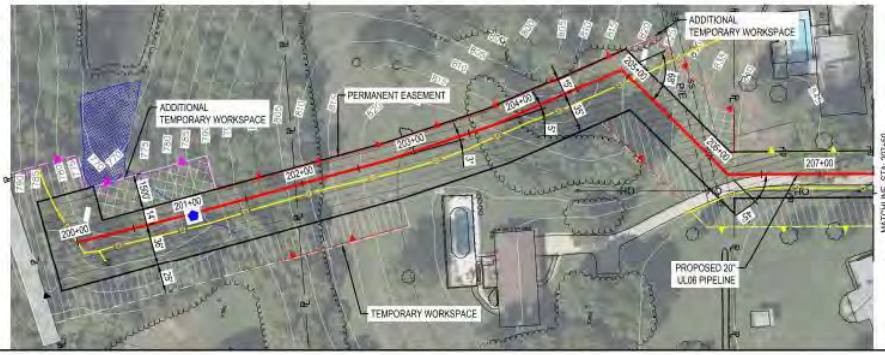
OWNERSHIP	PIDN 999-99-17-844.00 GARY SCHULTZ AND ROBERTA SCHULTZ, HUSBAND AND WIFE DB 590, PG 507	PIDN 999-99-19-195.00 WILLIAM T & LINDA S LUCAS DB 481, PG 203 PC A, SLIDE 560A LOT 3-3
ACREAGE		
EASEMENTS		
REF. DWG. NO.		PNG-M-043-0001639

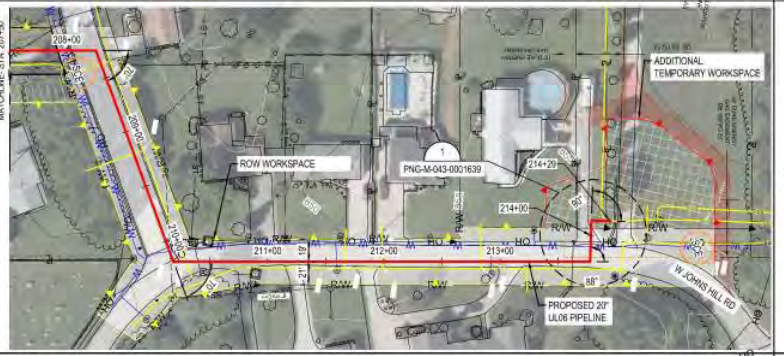
STATIONING

STA. 200+00 F TG 70° (H-LT).
10" OVER (V)
STA. 200+20 14° SAG (V)
STA. 200+87 17° SAG (V)
STA. 201+38.4° OVERBEND (V)
STA. 202+35.3° OVERBEND (V)
STA. 202+78.3° BEND (H-LT)
7" OVERBEND (V)
STA. 203+40.5° OVERBEND (V)
STA. 203+31.6° OVERBEND (V)
STA. 203+72.5° BEND (H-LT)
3° OVERBEND (V)
STA. 204+32.18° SAG (V)
STA. 204+93 F TG 88° (H-RT)
9° OVERBEND (V)
STA. 205+09 F TG 22° SAG (V)
STA. 205+29.13° OVERBEND (V)
STA. 206+21 F TG 45° (H-LT)
3° OVERBEND (V)
STA. 206+60.5° OVERBEND (V)
STA. 207+61.4° OVERBEND (V)
STA. 207+87.3° SAG (V)
STA. 208+17.3° SAG (V)
STA. 208+25 F TG 70° (H-RT)
2° OVERBEND (V)
STA. 209+30.2° SAG (V)
STA. 209+73.16° OVERBEND (V)
STA. 210+00.14° SAG (V)
STA. 210+19 70° F TG (H-LT)
14° SAG (V)
STA. 210+49.15° OVERBEND (V)
STA. 211+10.2° SAG (V)
STA. 212+10.2° SAG (V)
STA. 213+14.2° OVERBEND (V)
STA. 213+58.5° OVERBEND (V)
STA. 213+77 F TG 88° (H-LT)
4° SAG (V)
STA. 213+95.4° SAG (V)
STA. 214+13 F TG 90° (H-RT).
4° OVERBEND (V)

PLAN

HORIZONTAL SCALE: 1" = 50'





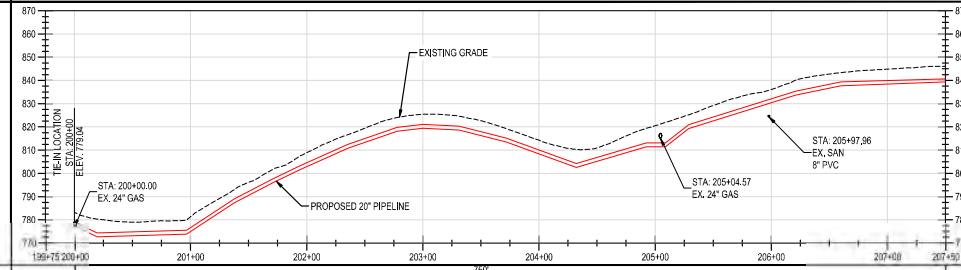
PIPE DATA (SLOPE IS STATIONING)

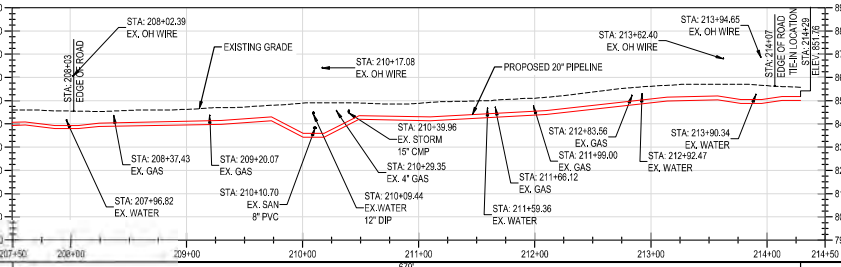
STA.	WELD #	JOINT LENGTH (CM)	JOINT	HEAT

FOR PERMITTING PURPOSES ONLY

PROFILE

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 25'





MATERIAL	
CONST. METHOD	OPEN TRENCH
CLASS / MAOP	

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
C	09/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

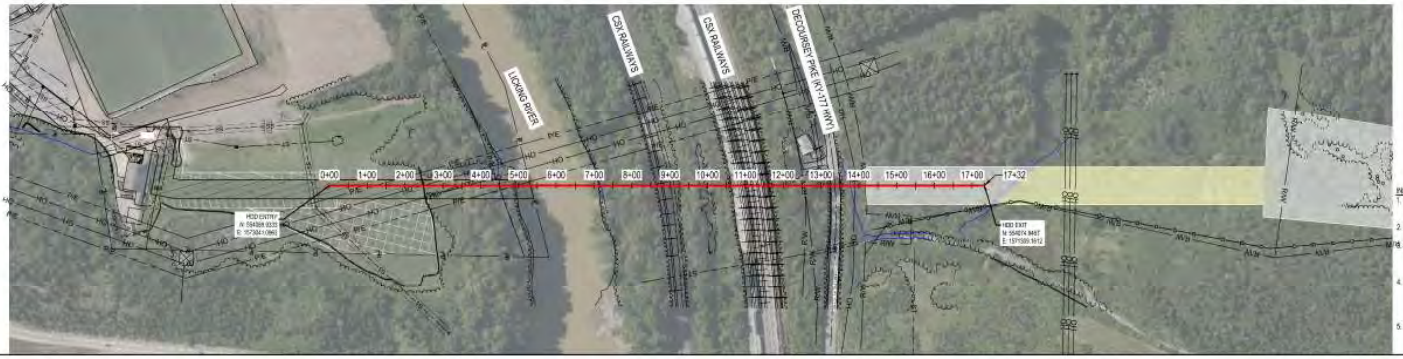
STATE OF KENTUCKY
JOSHUA PUELLING
37266
LICENSED
PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER STAMP

DUKE ENERGY. Piedmont Natural Gas

-
UL06 PIPELINE
ALIGNMENT SHEET 1
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	PNG-C-043-0001560 PNG-M-043-0001639
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	11/07/2023
SUPERSEDED	—
DRAWING NUMBER	PNG -C-043-0001992
REVISION	C
C/ERLANGER/AM07	

PLAN



REQUIRED TOLERANCES	
ITEM	TOLERANCE
PILOT HOLE ENTRY LOCATION	NO MODIFICATIONS SHALL BE MADE WITHOUT APPROVAL FROM THE COMPANY ENGINEER. IN THE EVENT THE PILOT HOLE IS ADVANCED FROM EXIT TO ENTRY OR A PILOT HOLE INTERSECT IS PERFORMED, TOLERANCES SHALL BE APPROVED BY COMPANY ENGINEER.
PILOT HOLE EXIT LOCATION	UP TO 20-FEET BEYOND OR 10-FEET SHORT OF THE EXIT STAKE; BETWEEN 5-FEET LEFT AND 5-FEET RIGHT OF CENTERLINE
MINIMUM ALLOWABLE THREE-JOINT COMBINED RADIUS	OVER ANY CONSECUTIVE THREE-JOINT SECTION SHALL NOT BE LESS THAN 1602'.
PILOT HOLE DEPTH	UP TO 2-FEET ABOVE THE DESIGN DRILL PROFILE ALLOWED, UP TO 10-FEET BELOW THE DESIGN DRILL PROFILE ALLOWED.
PILOT HOLE ALIGNMENT	SHALL REMAIN WITHIN 5-FEET LEFT OR RIGHT OF THE HDD ALIGNMENT.
ENTRY ANGLE	UP TO 1° INCREASE FROM THE DESIGNED ENTRY ANGLE; NO DECREASE IN ENTRY ANGLE WILL BE ALLOWED.
EXIT ANGLE	NO INCREASE FROM THE DESIGNED EXIT ANGLE; UP TO 2° DECREASE IN EXIT ANGLE WILL BE ALLOWED.

INSTALLATION REQUIREMENTS:
1. CONTRACTOR SHALL SUPPLY A PULLBACK LIFTING PROCEDURE, INCLUDING SUPPORT SPACING AND HEIGHT, AS PART OF THEIR FINAL HDD WORK PLAN.
2. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.
3. THE MINIMUM ALLOWABLE RADIUS OF CURVATURE FOR HANDLING AND POSITIONING THE CARRIER PIPE IN PREPARATION FOR PULLBACK OPERATIONS IS 1,600-FEET.
4. THE HDD CONTRACTOR SHALL PROVIDE WITH THEIR HDD WORK PLAN THE MAXIMUM ANTICIPATED PULL FORCE REQUIRED TO INSTALL THE CARRIER PIPE AND THE MAXIMUM ALLOWABLE PULL FORCE THAT CAN BE APPLIED TO THEIR DOWNHOLE TOOLING.
5. THE HDD CONTRACTOR SHALL MONITOR DOWNHOLE ANNULAR PRESSURE THROUGHOUT THE DRILLING PROCESS.

POST-INSTALLATION REQUIREMENTS:
1. THE HDD CONTRACTOR SHALL BE RESPONSIBLE FOR PRODUCING AND SUBMITTING AN AS-BUILT DRAWING OF THE PILOT HOLE SURVEY DATA WITHIN TWO WEEKS OF THE COMPLETION OF PULLBACK OPERATIONS. THIS SHALL INCLUDE A TABULATION OF THE SUPPORTING AS-BUILTS SURVEY DATA USED TO GENERATE THE DRAWING.
2. UPON COMPLETION OF INSTALLATION, A CALIPER PIG SURVEY SHALL BE COMPLETED IN ACCORDANCE WITH CONTRACT DOCUMENTS.

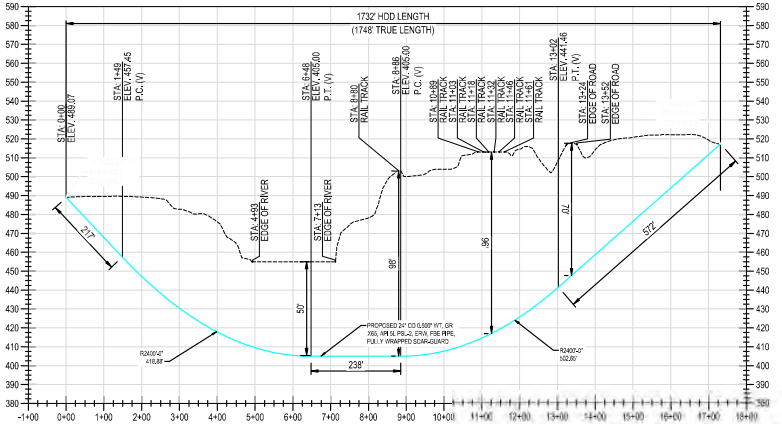
PLAN/PROFILE VIEW SCALE
0 150' 300'
HORIZONTAL SCALE: 1" = 150'

STATIONING

1. STATIONING IS IN FEET BY HORIZONTAL MEASUREMENT, FOR HDD SURVEY CONTROL REFERENCING CENTERLINE OF PIPE.
2. HORIZONTAL CONTROL NAD 83, KENTUCKY PLANE NORTH ZONE (2246), US FOOT. VERTICAL CONTROL ELEV. REF NAVD 88.
3. GEOTECHNICAL DATA WAS PROVIDED FOR CONTRACTOR REFERENCE IN THE GEOTECHNICAL DATA REPORT FOR HDD-XX PREPARED BY "COMPANY NAME" DATED MONTH DAY, 20XX.

PROFILE

ENTRY ANGLE	EXIT ANGLE	LENGTH OF BORE
12°	10°	1747'-6"



TYPICAL SAND | WELL-GRADED SAND | POORLY-GRADED SAND | WELL-GRADED SAND WITH SILT | POORLY-GRADED SAND WITH SILT | SILT | SILTY SAND | SILTY SAND WITH CLAY SEAMS | SANDY SILT | CLAYEY SILT | LOW PLASTICITY ORGANIC SILT OR CLAY | HIGH PLASTICITY SILT | LOW PLASTICITY SILT | CLAY | SANDY CLAY | SILTY CLAY | CLAYEY SAND | LIMESTONE ROCK | MUCK/PEAT | CORED ROCK | PARTIALLY WEATHERED ROCK | SILTY GRAVEL | ASPHALT | WATER

1. STATIONING IS IN FEET BY HORIZONTAL MEASUREMENT, FOR HDD SURVEY CONTROL REFERENCING CENTERLINE OF PIPE.
2. HORIZONTAL CONTROL NAD 83, KENTUCKY PLANE NORTH ZONE (2246), US FOOT. VERTICAL CONTROL ELEV. REF NAVD 88.
3. GEOTECHNICAL DATA WAS PROVIDED FOR CONTRACTOR REFERENCE IN THE GEOTECHNICAL DATA REPORT FOR HDD-XX PREPARED BY "COMPANY NAME" DATED MONTH DAY, 20XX.

GENERAL NOTES:
1. DESIGNED IN ACCORDANCE TO TITLE 49 CFR 192 CLASS IV DESIGN FACTOR ON FULLY CONTROLLED HIGHWAYS.
2. STATIONING IS IN FEET BY HORIZONTAL MEASUREMENT, FOR HDD SURVEY CONTROL REFERENCING CENTERLINE OF PIPE.
3. HORIZONTAL CONTROL NAD 83, VERTICAL CONTROL ELEV. REF NAVD 88.
4. THE GEOTECHNICAL INFORMATION PROVIDED ON THIS DRAWING IS A GENERAL SUMMARY.
5. BORING IS OFFSET FROM THE PIPELINE CENTERLINE AS SHOWN IN THE PLAN VIEW. BORING GROUND SURFACE ELEVATION WAS PROVIDED WITH THE GEOTECHNICAL DATA RECEIVED FOR THIS SITE AS SHOWN ON THE PROFILE VIEW. REFER TO THE APPLICABLE GEOTECHNICAL REPORT IN THE CONTRACT DOCUMENTS FOR MORE DETAILED INFORMATION PROVIDED BY GEOTECHNOLOGY LLC, DATED 01/10/2023).
6. CONTRACTOR IS RESPONSIBLE FOR CALLING KY 811 AND LOCATING ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING CONSTRUCTION. IF ANY UTILITY IS LOCATED WITHIN 15-FEET OF THE DESIGNED HDD PROFILE AND ALIGNMENT, CONTRACTOR SHALL OBTAIN APPROVAL FROM DUKE ENERGY PRIOR TO INITIATING HDD OPERATIONS.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY AND PROTECT ANY FOREIGN UTILITY THAT MAY BE AFFECTED BY THE HDD OPERATIONS.
8. THE HDD DRILL RIG SHALL BE POSITIONED ON THE ENTRY SIDE OF THE CROSSING UNLESS OTHERWISE APPROVED BY THE PROJECT TEAM. THE USE OF DUAL DRILL RIGS DURING CONSTRUCTION MAY BE AT THE DISCRETION OF THE HDD CONTRACTOR, TO BE APPROVED BY THE PROJECT TEAM.
9. PROJECT AREA IS NOT BE ACCESSED IN I-275 OR ITS AFFILIATED ON/OFF RAMPS. TRAFFIC SHALL NOT BE IMPACTED BY CONSTRUCTION ACTIVITIES.
10. MAXIMUM WORK SPACE LIMITS ARE DEPICTED. CLEARING BETWEEN THE ENTRY AND EXIT POINTS REQUIRES PRIOR APPROVAL FROM THE ENVIRONMENTAL INSPECTOR, FOR ROW MAINTENANCE. A MINIMUM 16' SHALL BE CLEARED FROM GROUND TO SKY ALONG THE ENTIRE HDD TO ENSURE COMPLIANCE WITH PHMSA PART 192 REGULATIONS REQUIRING PATROLS THAT WOULD ALLOW FOR AERIAL SURVEILLANCE OF THE ROW ON THE REQUIRED FREQUENCY.
11. CONTRACTOR SHALL DISPOSE OF EXCESS FLUID IN ACCORDANCE WITH CONTRACT DOCUMENTS AND/OR PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING FLUID WHICH INADVERTENTLY SURFACES AT POINTS OTHER THAN THE ENTRY OR EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF IN ACCORDANCE WITH CONTRACT DOCUMENTS AND/OR PERMIT CONDITIONS. ALL DISPOSAL LOCATIONS SHALL BE REVIEWED AND APPROVED BY DUKE ENERGY IN ADVANCE.
12. WATER FOR DRILLING FLUID AND HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE.
13. PRE-INSTALLATION AND POST-INSTALLATION HYDROSTATIC TEST SHALL BE CONDUCTED IN ACCORDANCE WITH THE HYDROSTATIC TEST PLAN. TEST WATER SHALL BE SAMPLED AND TESTED IN ACCORDANCE WITH PERMIT REQUIREMENTS.
14. THE HDD CONTRACTOR SHALL SUBMIT WITH THEIR HDD WORK PLAN AN ASSESSMENT OF THE POTENTIAL FOR HOLE INSTABILITY AND THEIR PROPOSED MITIGATION PROCEDURES SHOULD HOLE INSTABILITY IMPACT DRILLING OPERATIONS AND/OR INCREASE THE RISK OF A FAILED INSTALLATION.
15. THE HDD CONTRACTOR SHALL MAKE ALL REASONABLE ATTEMPTS TO MAINTAIN DRILLING FLUID RETURNS DURING PILOT HOLE AND REAMING OPERATIONS.
16. THE DRILLING FLUID PROPERTIES SHALL BE TESTED A MINIMUM OF THREE (3) TIMES PER SHIFT SO THE SUITABILITY OF THE DRILLING FLUID FOR THE GIVEN CONDITIONS CAN BE DETERMINED.
17. ALL DRILL PIPE UTILIZED ON THE PROJECT MUST BE INSPECTED AND DRILL PIPE INSPECTION RECORDS FURNISHED TO DUKE ENERGY PRIOR TO USE ON THE PROJECT. THE DRILL PIPE SHALL NOT HAVE BEEN USED ON ANOTHER PROJECT SUBSEQUENT TO ITS LAST INSPECTION.
18. PROPOSED PIPELINE/HDD WILL BE PROTECTED BY THE EXISTING AM07 CATHODIC PROTECTION SYSTEM. ALL TEST STATIONS INSTALLATIONS AND CP EFFORTS ARE TO BE COORDINATED WITH DUKE SYSTEM INTEGRITY DEPARTMENT.

PILOT HOLE REQUIREMENTS:
1. AT ALL TIMES THE HDD CONTRACTOR SHALL PROVIDE AND MAINTAIN INSTRUMENTATION TO DOCUMENT AND ACCURATELY LOCATE THE PILOT HOLE. THIS EFFORT SHALL INCLUDE THE USE OF A DOWNHOLE STEERING TOOL AS WELL AS A SECONDARY SURVEY SYSTEM (TRUTRACK, PARATRACK, OR EQUIVALENT). THE HDD CONTRACTOR WILL NOT BE ALLOWED TO DRILL ANY PORTION OF THE PILOT HOLE WITHOUT THE USE OF A SECONDARY SURVEY SYSTEM UNLESS AGREED TO IN ADVANCE BY THE COMPANY OR IN EVENT A GYROSCOPIC STEERING TOOL IS UTILIZED.
2. AFTER SURVEYING THE SECONDARY SURVEY WIRE, THE HDD CONTRACTOR SHALL REPORT ANY LACK OF CLOSURE THAT MAY INDICATE INCORRECTLY LOCATED ENTRY AND/OR EXIT POINTS OR ANY OTHER POTENTIAL DISCREPANCIES WITH THE DESIGN INFORMATION PROVIDED ON THIS DESIGN DRAWING.
3. IN NO CASE WILL THE PILOT HOLE BE ACCEPTABLE IF ITS LOCATION WOULD RESULT IN THE PIPELINE BEING INSTALLED IN VIOLATION OF THE RIGHT-OF-WAY AND PERMIT STIPULATIONS SECTION OF THE CONTRACT, AND FEDERAL, STATE, OR LOCAL PERMIT REQUIREMENTS OR REQUIRED CLEARANCES BETWEEN COMPANY AND FOREIGN OWNED UTILITIES AND STRUCTURES.
4. PRIOR TO REAMING, THE CONTRACTOR SHALL SUBMIT AS-DRILLED DATA AND CALCULATED LOCATION TO THE COMPANY FOR APPROVAL OF THE PILOT HOLE. CONTRACTOR SHALL NOT COMMENCE REAMING UNTIL THE PILOT HOLE IS APPROVED.

REAMING REQUIREMENTS:
1. AFTER COMPLETION OF THE PILOT HOLE, THE HDD CONTRACTOR SHALL MAINTAIN A CONTINUOUS STRING OF DRILL PIPE DOWNHOLE BETWEEN ENTRY AND EXIT AT ALL TIMES EXCEPT WHEN RE-ESTABLISHING A CONTINUOUS STRING OF DRILL PIPE IN THE EVENT OF A TWIST OFF DOWNHOLE.
2. THE HDD CONTRACTOR SHALL COMPLETE AT A MINIMUM ONE (1) SWAB PASS TO EVALUATE THE CONDITION OF THE HOLE PRIOR TO PULLBACK OPERATIONS. THE HDD CONTRACTOR SHALL MEET WITH DUKE ENERGY AND REVIEW THE DATA COLLECTED DURING THE REAMING AND SWAB PASSES BEFORE PULLBACK OPERATIONS BEGIN.

ADDITIONAL NOTES:
1. CONTRACTOR SHALL COMPLETE THE DRILL IN ACCORDANCE WITH DUKE'S HDD SPECIFICATION ENG-SO-3050, ANY DEVIATION PROPOSED BY THE CONTRACTOR TO THE SPECIFICATION SHALL BE APPROVED BY COMPANY ENGINEER IN WRITING BEFORE IMPLEMENTATION.
2. CONTACT KYTC DISTRICT 5 TO LOCATE UNDERGROUND LINES FOR SIGNALS AND LIGHTING.
3. CONTACT TRIMARC TO LOCATE UNDERGROUND ELECTRIC AT TURKEYFOOT RD & I-275.
4. HDD ENTRY SITE WITHIN KYTC R/W WILL BE SECURED BY CONTRACTOR TO PROTECT THE SAFETY OF PEDESTRIAN TRAFFIC.

FOR PERMITTING PURPOSES ONLY

MATERIAL
CLASS / MAOP

STATE OF KENTUCKY
JOSHUA FUELLING
37266
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER STAMP

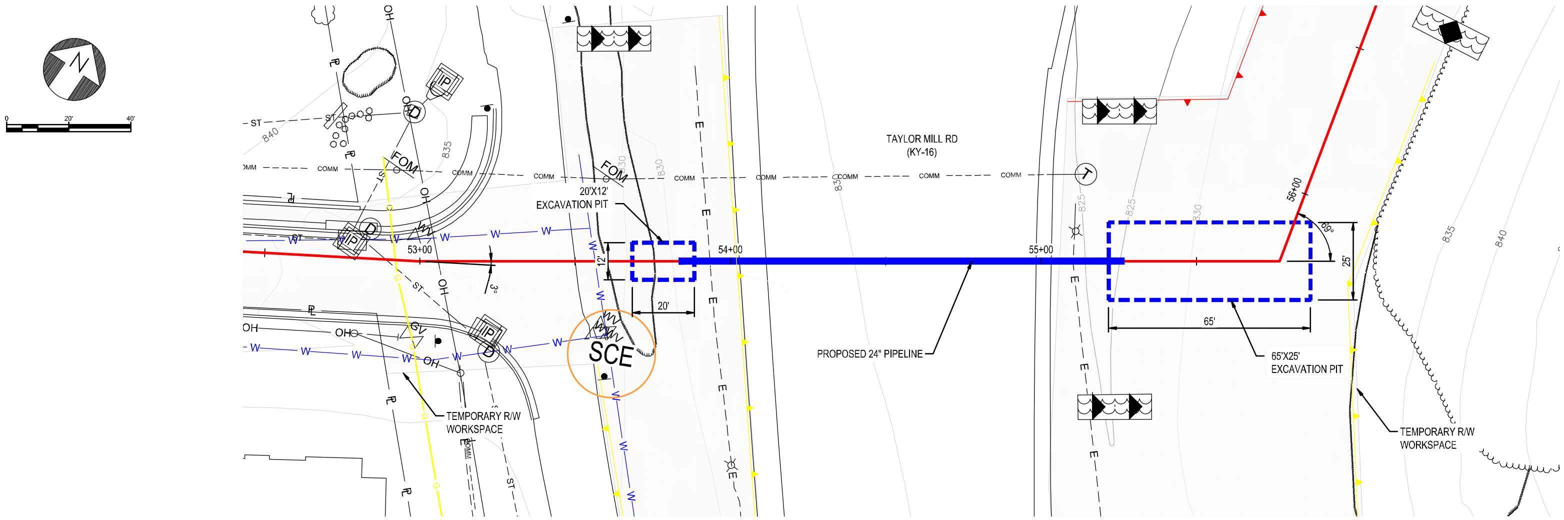
NO	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

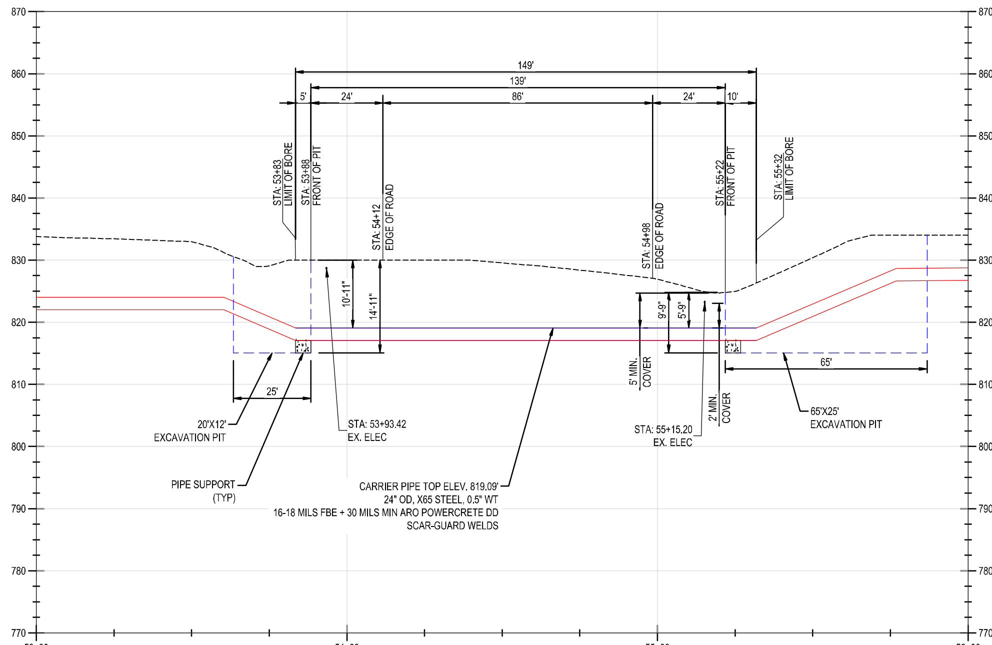
DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AVW387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	

DUKE ENERGY. Piedmont Natural Gas

-
AM07 PHASE 3
HDD ALIGNMENT SHEET
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	0X-XXXXX-XXXX-20XX - SHT 1 0X-XXXXX-XXXX-20XX - SHT 1
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	04/10/2024
SUPERSEDED	—
DRAWING NUMBER	PNG -C-043-0002001
REVISION	B
DISCIPLINE / RESOURCE CENTER / LINE NUMBER	





HORIZONTAL VIEW SCALE
0 20' 40'
HORIZONTAL SCALE: 1" = 20'

VERTICAL VIEW SCALE
0 10' 20'
HORIZONTAL SCALE: 1" = 10'

FOR PERMITTING PURPOSES ONLY

JOSHUA FUELLING 37286 LICENSED PROFESSIONAL ENGINEER
2024.05.21 09:12:36-05'00'
PROFESSIONAL ENG/ARCH STAMP

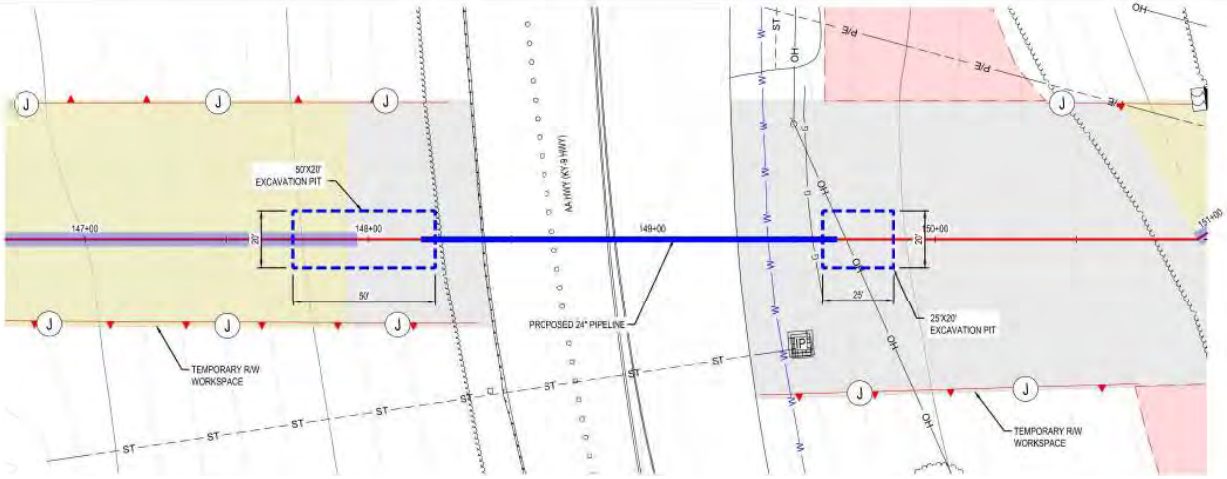
NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

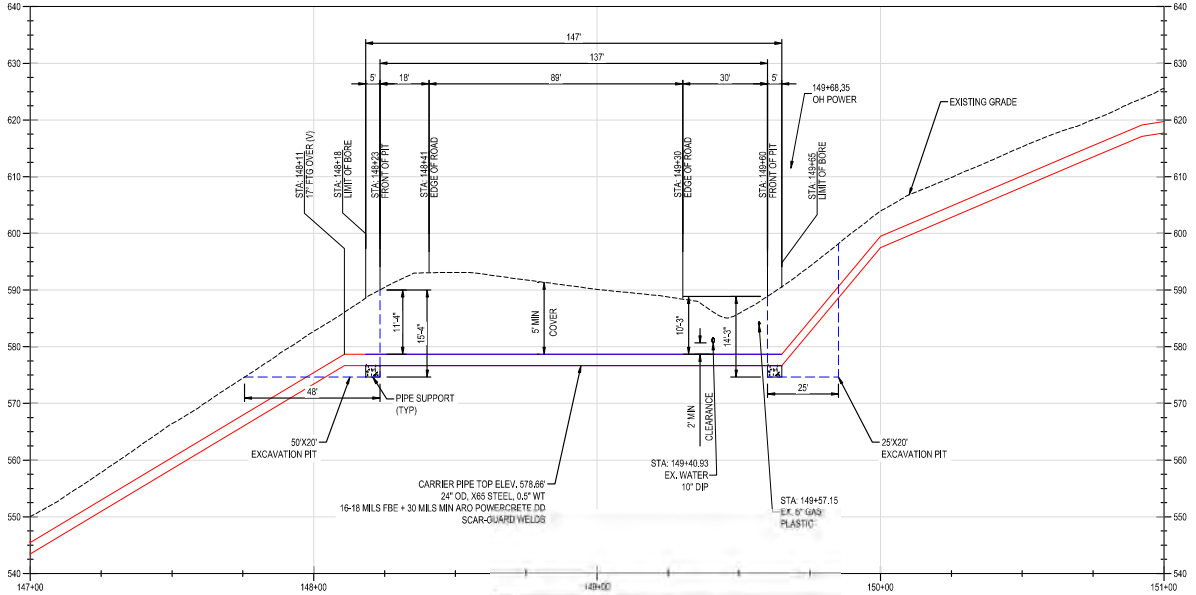
-
AM07 PHASE 3
BORE CROSSING DETAIL 1
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) G-XXX-000XXX1
SHEET(S) 1 OF X | DWG SCALE AS NOTED
DWG DATE 04/10/2024 | SUPERSEDED —
DRAWING NUMBER: PNG C-043-0002003 | REVISION: B
C/ERLANGER/AM07

PLAN



PROFILE



HORIZONTAL VIEW SCALE
HORIZONTAL SCALE: 1" = 20'

VERTICAL VIEW SCALE
HORIZONTAL SCALE: 1" = 10'

FOR PERMITTING PURPOSES ONLY

STATE OF KENTUCKY
JOSHUA FUELLING
37266
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

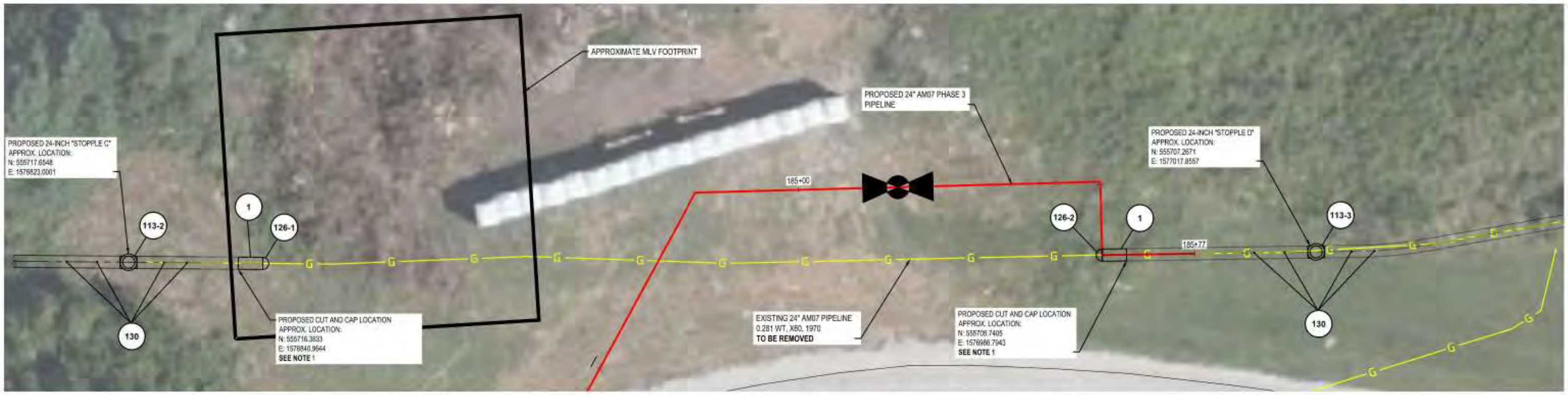
DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

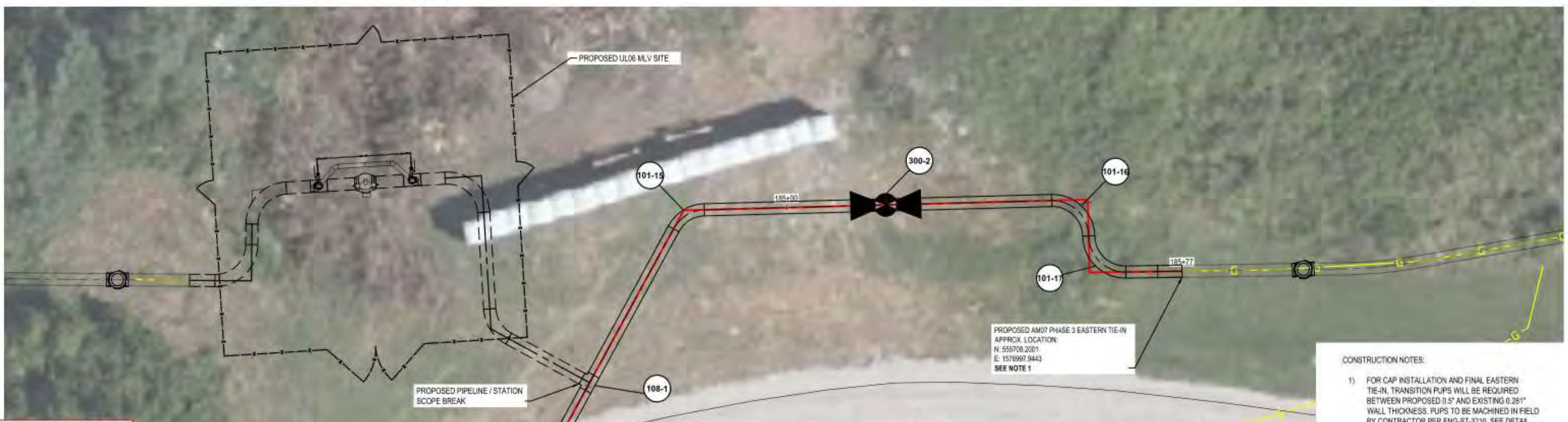
-
AM07 PHASE 3
BORE CROSSING DETAIL 2
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	G-XXX-000XXX1
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	04/10/2024
SUPERSEDED	—
DRAWING NUMBER	PNG C-043-0002004
REVISION	B

C/ERLANGER/AM07



UL06 MLV AND AM07 PHASE 3 EASTERN TIE-IN ISOLATION AND RETIREMENT DETAIL (1, PNG-C-043-0001974)



CONSTRUCTION NOTES:

1) FOR CAP INSTALLATION AND FINAL EASTERN TIE-IN, TRANSITION PUPS WILL BE REQUIRED BETWEEN PROPOSED 0.5" AND EXISTING 0.281" WALL THICKNESS. PUPS TO BE MACHINED IN FIELD BY CONTRACTOR PER ENG-ST-3210. SEE DETAIL PNG-C-043-0002020.

FOR PERMITTING PURPOSES ONLY

(2, PNG-C-043-0001974) AM07 PHASE 3 EASTERN FINAL TIE-IN

STATE OF KENTUCKY — JOSHUA FUELLING 37266 — LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL ENG/ARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

-
AM07 PHASE 3
EASTERN TIE-IN AND ISOLATION DETAIL
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S): PNG-G-043-0001560, PNG-C-043-0001974, PNG-C-043-0001989

SHEET(S)	1 OF X	DWG SCALE	AS NOTED
DWG DATE	04/08/2024	SUPERSEDED	—

DRAWING NUMBER: PNG M-043-0001633 — REVISION: B

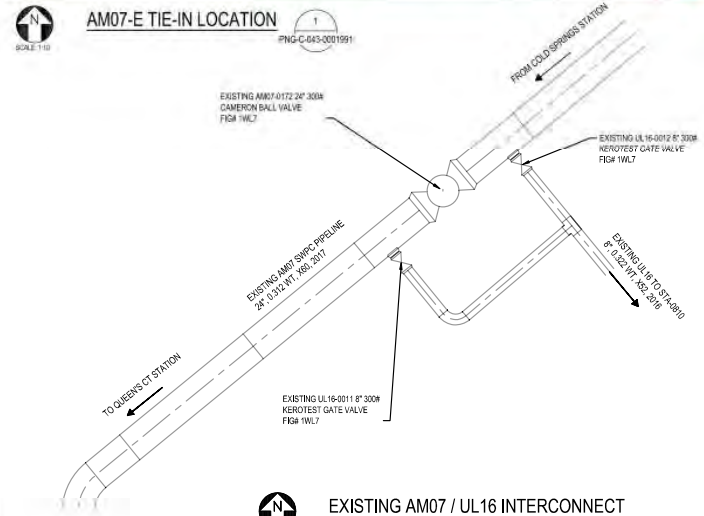
M/ERLANGER/AM07

AM07-E TIE-IN LOCATION

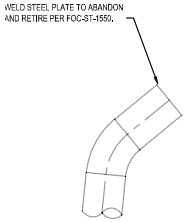
CONSTRUCTION NOTES:

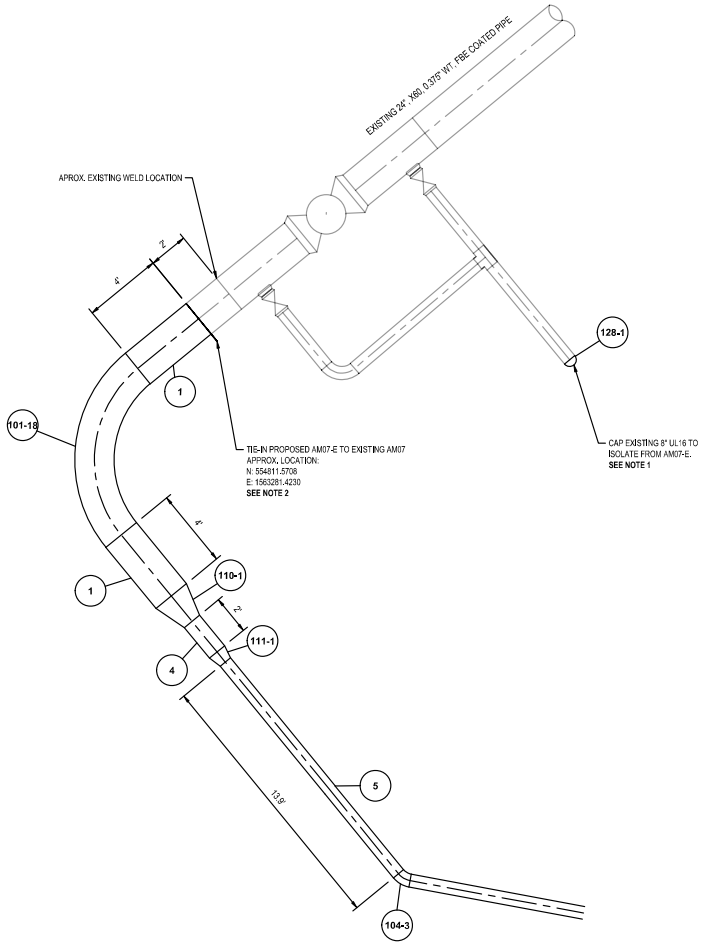
1) FOR SEQUENCING OF CAP INSTALLATION, PLEASE REFER TO DRAWINGS C-043-0001972 - C-043-0001974.

2) TRANSITION PUP WILL BE REQUIRED BETWEEN PROPOSED 0.5" AND EXISTING 0.312" WALL THICKNESS. PUPS TO BE MACHINED IN FIELD BY CONTRACTOR PER ENG-ST-3210. SEE DETAIL PNG-C-043-0002020.



EXISTING AM07 / UL16 INTERCONNECT





PROPOSED AM07-E TIE-IN

FOR PERMITTING PURPOSES ONLY

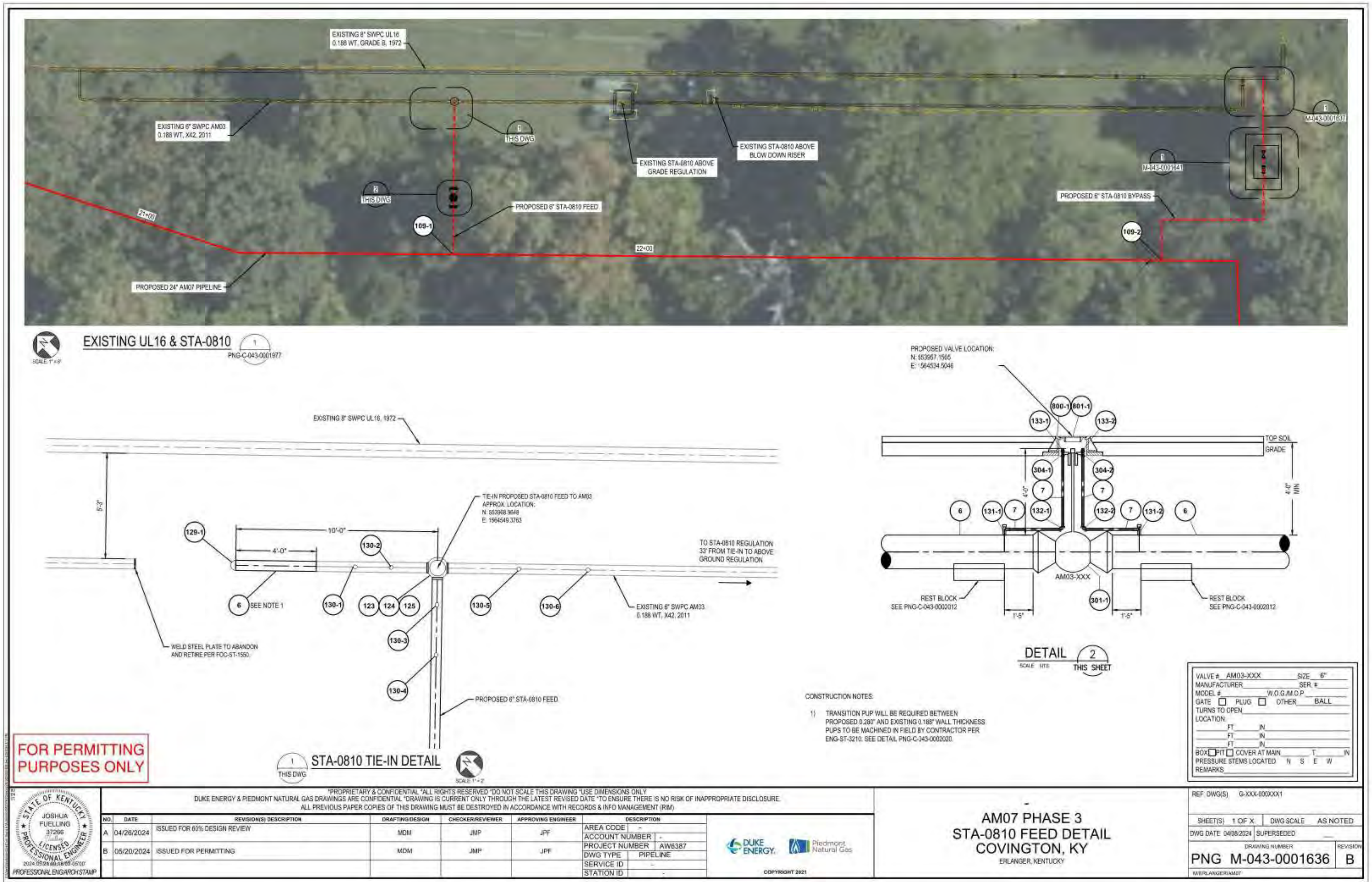
NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

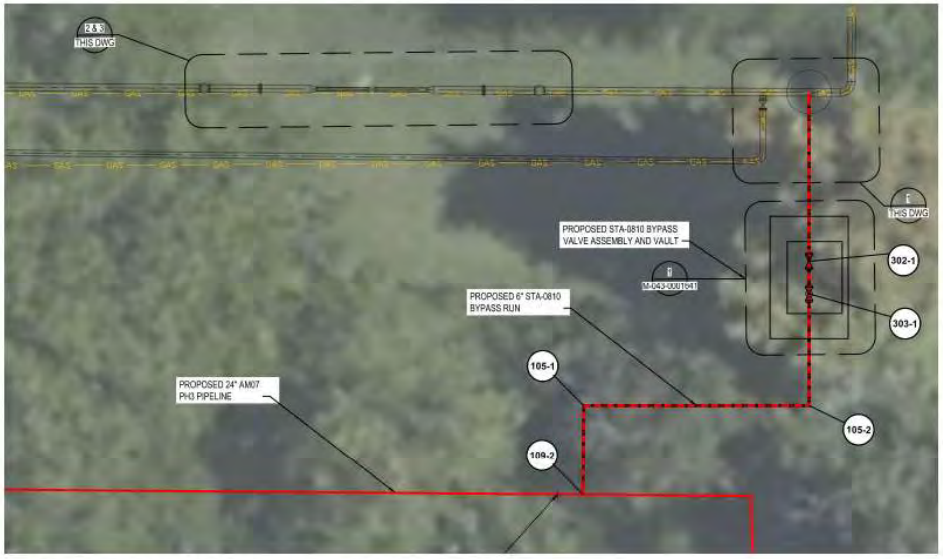
DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW8387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

-
AM07 PHASE 3
AM07-E TIE-IN DETAIL
COVINGTON, KY
ERLANGER, KENTUCKY

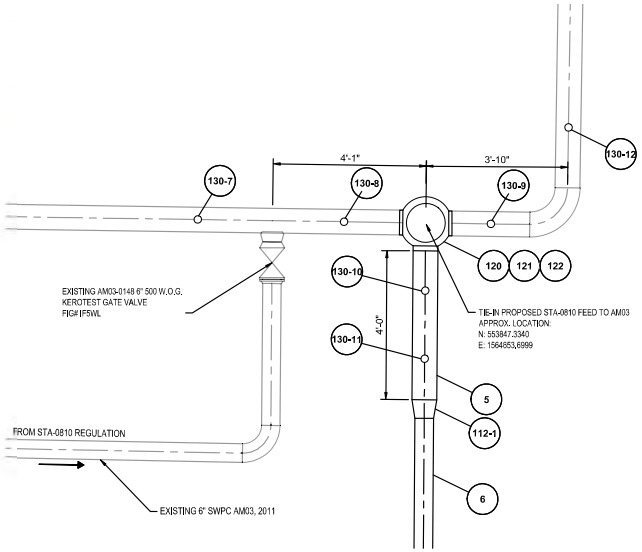
REF. DWG(S)	PNG-G-043-0001560 PNG-C-043-0001973
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	03/28/2024
SUPERSEDED	—
DRAWING NUMBER	PNG M-043-0001635
REVISION	B

M:\ERLANGER\AM07


EXISTING 8" SWPC UL16 0.188 WT, GRADE B, 1972
EXISTING 6" SWPC AM03 0.188 WT, X42, 2011
EXISTING STA-0810 ABOVE GRADE REGULATION
EXISTING STA-0810 ABOVE BLOW DOWN RISER
PROPOSED 6" STA-0810 FEED
PROPOSED 6" STA-0810 BYPASS
PROPOSED 24" AM07 PIPELINE
EXISTING UL16 & STA-0810
PROPOSED VALVE LOCATION: N: 553957.1505 E: 1564534.5046
TOP SOIL
GRADE
REST BLOCK SEE PNG-C-043-0002012
DETAIL 2 THIS SHEET
TIE-IN PROPOSED STA-0810 FEED TO AM03 APPROX. LOCATION: N: 553968.9648 E: 1564549.3763
TO STA-0810 REGULATION 33' FROM TIE-IN TO ABOVE GROUND REGULATION
WELD STEEL PLATE TO ABANDON AND RETIRE PER FOC-ST-1550.
STA-0810 TIE-IN DETAIL
CONSTRUCTION NOTES:
1) TRANSITION PUP WILL BE REQUIRED BETWEEN PROPOSED 0.280" AND EXISTING 0.188" WALL THICKNESS PUPS TO BE MACHINED IN FIELD BY CONTRACTOR PER ENG-ST-3210. SEE DETAIL PNG-C-043-0002020.
VALVE #: AM03-XXX SIZE: 6"
FOR PERMITTING PURPOSES ONLY
"PROPRIETARY & CONFIDENTIAL "ALL RIGHTS RESERVED "DO NOT SCALE THIS DRAWING "USE DIMENSIONS ONLY
DUKE ENERGY & PIEDMONT NATURAL GAS DRAWINGS ARE CONFIDENTIAL "DRAWING IS CURRENT ONLY THROUGH THE LATEST REVISED DATE "TO ENSURE THERE IS NO RISK OF INAPPROPRIATE DISCLOSURE.
ALL PREVIOUS PAPER COPIES OF THIS DRAWING MUST BE DESTROYED IN ACCORDANCE WITH RECORDS & INFO MANAGEMENT (RIM)
A 04/26/2024 ISSUED FOR 60% DESIGN REVIEW MDM JMP JPF
B 05/20/2024 ISSUED FOR PERMITTING MDM JMP JPF
PROJECT NUMBER AW6387
DWG TYPE PIPELINE
AM07 PHASE 3
STA-0810 FEED DETAIL
COVINGTON, KY
ERLANGER, KENTUCKY
DWG DATE 04/08/2024
PNG M-043-0001636 B

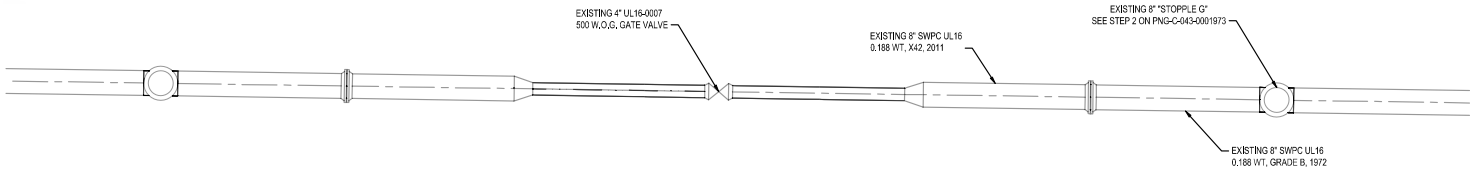


PROPOSED STA-0810 BYPASS RUN (1 / PNG-C-043-0001977)

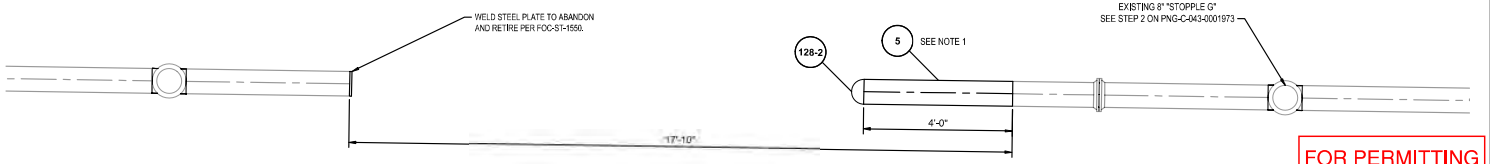


1 THIS DWG — PROPOSED STA-0810 BYPASS TIE-IN

2 THIS DWG — EXISTING STA-0810 BYPASS VALVE



3 THIS DWG — EXISTING STA-0810 BYPASS VALVE REMOVAL & ISOLATION



CONSTRUCTION NOTES:

1) TRANSITION PUP WILL BE REQUIRED BETWEEN PROPOSED 0.322" AND EXISTING 0.188" WALL THICKNESS. PUPS TO BE MACHINED IN FIELD BY CONTRACTOR PER ENG-ST-3210. SEE DETAIL PNG-C-043-0002020.

FOR PERMITTING PURPOSES ONLY

STATE OF KENTUCKY — JOSHUA FUELLING — 37356 — LICENSED PROFESSIONAL ENGINEER — 2024.08.04 — PROFESSIONAL ENGINEER STAMP

NO	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/22/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW8387
DWG TYPE	PIPE, INF
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

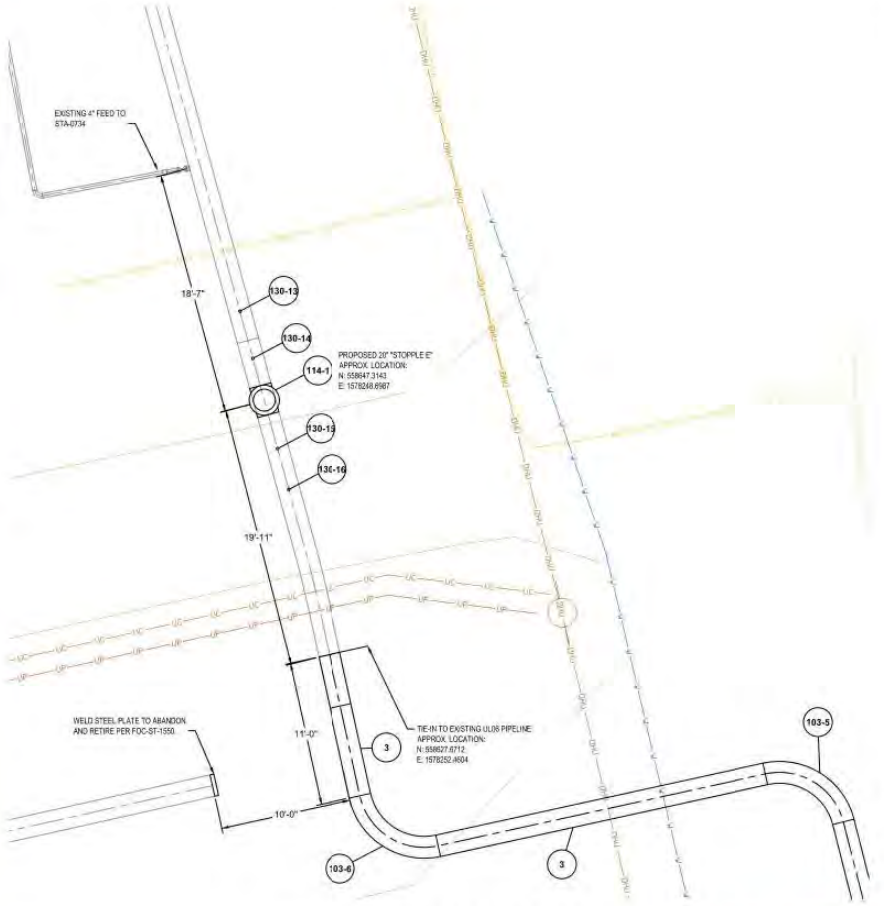
-
AM07 PHASE 3
STA-0810 BYPASS DETAIL
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	G-XXX-000XXX1
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	04/08/2024
SUPERSEDED	—
DRAWING NUMBER	PNG M-043-0001637
REVISION	B

M:\ERLANGER\AM07

UL06 NORTH TIE-IN VICINITY MAP (1 / PNG-C-043-0001992)

1 THIS DWG — UL06 & STA-0734 EXISTING CONDITIONS (N, SCALE 1" = 10')



2 THIS DWG — PROPOSED UL06 NORTH TIE-IN (N, SCALE 1" = 4')

FOR PERMITTING PURPOSES ONLY

STATE OF KENTUCKY — JOSHUA FUELLING 37266 — LICENSED PROFESSIONAL ENGINEER — PROFESSIONAL ENGARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

AM07 PHASE 3
UL06 TIE-IN DETAIL 2
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)	PNG-G-043-0001560
SHEET(S)	1 OF X
DWG SCALE	AS NOTED
DWG DATE	04/26/2024
SUPERSEDED	
DRAWING NUMBER	PNG M-043-0001639
REVISION	B

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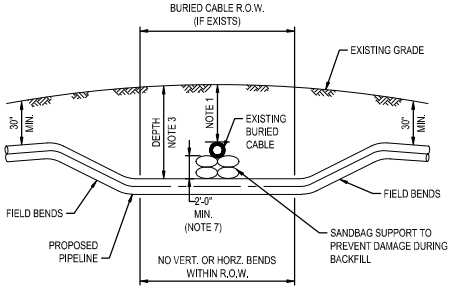


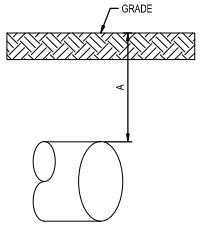
NOTES:

1. BURIED CABLE LOCATIONS & PIPE DEPTHS TO BE DETERMINED BY ELECTRONIC MEANS IN ADVANCE OF PIPELINE CONSTRUCTION AND CONFIRMED BY CAREFULLY EXPOSING BY HAND DIGGING WHEN WITHIN 24" IN ANY DIRECTION FROM THE PIPELINE.
2. OWNER OF BURIED CABLE(S) SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF EXCAVATION OF CROSSING.
3. DEPTH OF PIPELINE INCLUDING 2'-0" MIN. CLEARANCE SHALL BE MAINTAINED FOR THE FULL ANGULAR WIDTH OF BURIED CABLE R.O.W.
4. PROPOSED PIPELINE MAY ONLY CROSS ABOVE BURIED CABLE(S) WHERE APPROVED IN WRITING BY BURIED CABLE OWNER.
5. CONTRACTOR TO SUPPORT EXPOSED CABLE WITH WOOD PLANK OR STRUCTURAL STEEL DURING CONSTRUCTION.
6. CONTRACTOR TO UTILIZE CAUTION WITH PLACEMENT OF BACKFILL TO MINIMIZE POSSIBLE DAMAGE TO THE CABLE.

CROSS SECTION OF BURIED CABLE R.O.W.

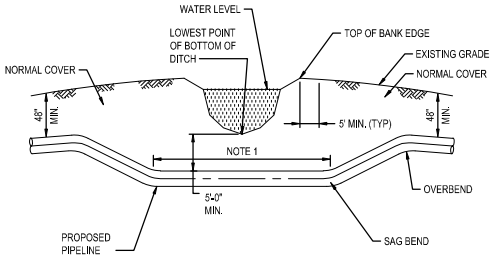
SCALE: N.T.S.

PIPE LOCATION	DEPTH OF COVER (A)
NORMAL	4'-0"
STREAM/WATERBODY CROSSING	5'-0"
WETLAND CROSSING	5'-0"
ROAD CROSSING	5'-0"
RAILROAD CROSSING	10'-0"



PIPELINE DEPTH OF COVER

SCALE: N.T.S.

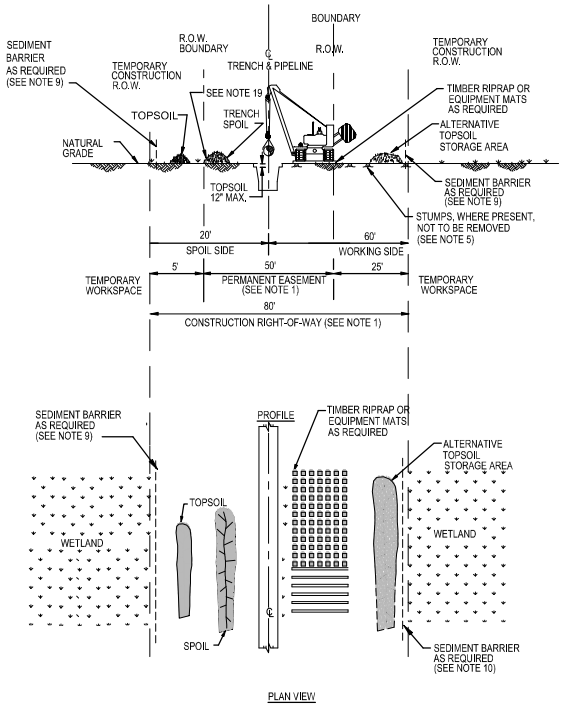


NOTE:

1. PIPELINE WEIGHTS OR ANCHORS TO BE INSTALLED PER PLANS OR AS DIRECTED BY COMPANY.

TYPICAL OPEN CUT STREAM CROSSING

SCALE: N.T.S.



PLAN VIEW

NOTE:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 80 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND UP TO 30 FEET OF TEMPORARY WORKSPACE.
2. THE SAME LAYOUT APPLIES WHETHER CONSTRUCTION R.O.W. DOES OR DOES NOT ABUT A FOREIGN R.O.W.
3. LOCATE ANY EXTRA TEMPORARY WORK SPACE AREAS AT LEAST 25 FEET FROM EDGE OF WETLAND AND WITHIN THE APPLICABLE FULL WIDTH CONSTRUCTION R.O.W.
4. CLEARING OF VEGETATION AND TREES IS PROHIBITED BETWEEN TEMPORARY EXTRA WORK SPACE AND THE EDGE OF THE WETLAND
5. CUT VEGETATION AND TREES OFF AT GROUND LEVEL, LEAVING EXISTING ROOT SYSTEMS IN PLACE WHEREVER PRACTICABLE, AND REMOVE CUTTINGS FROM THE WETLAND FOR DISPOSAL.
6. LIMIT CONSTRUCTION EQUIPMENT TO ONE PASS THROUGH WETLANDS TO THE EXTENT PRACTICABLE.
7. NO REFUELING OF EQUIPMENT WITHIN 100 FEET OF WETLAND EXCEPT IN ACCORDANCE WITH THE SPCC PLAN.
8. IF SATURATED AT TIME OF CONSTRUCTION, REDUCE SOIL COMPACTION BY UTILIZING WIDE-TRACK OR BALLOON TIRE CONSTRUCTION EQUIPMENT OR NORMAL EQUIPMENT OPERATED ON TIMBER RIPRAP OR EQUIPMENT MATS.
9. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS IMMEDIATELY AFTER INITIAL GROUND DISTURBANCE AND AT THE EDGE OF THE CONSTRUCTION R.O.W. ALONG THE WETLAND AS DIRECTED BY THE COMPANY'S INSPECTOR.
10. WETLAND AREAS SHALL HAVE SILT FENCING AND ONE LAYER OF FILTER SOCK INSTALLED NO CLOSER THAN 25 FEET FROM POINT OF WETLAND DELINEATION.
11. THIS DRAWING REFLECTS "TRENCH ONLY" TOPSOIL STRIPPING PROCEDURE FOR AREAS WHERE STANDING WATER OR SATURATED SOIL ARE NOT PRESENT.
12. SALVAGE UP TO 12" OF TOPSOIL OVER TRENCH AT LOCATIONS IDENTIFIED ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE COMPANY'S INSPECTOR. MAINTAIN SEPARATION BETWEEN TOPSOIL AND TRENCH SPOIL.
13. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILE.
14. IN UNSATURATED CONDITIONS, SPOIL MAY BE USED TO STABILIZE THE WORKING SIDE.
15. IF SATURATED AT TIME OF CONSTRUCTION, LEAVE HARD PLUGS AT THE EDGE OF WETLAND UNTIL JUST PRIOR TO TRENCHING.
16. TRENCH THROUGH WETLANDS.
17. LOWER-IN PIPE, INSTALL TRENCH BREAKERS AT WETLAND EDGES AS DIRECTED BY THE COMPANY'S INSPECTOR TO PREVENT DRAINAGE. BACKFILL UPON COMPLETION OF CONSTRUCTION.
18. REMOVE ALL TIMBER, RIPRAP OR EQUIPMENT MATS FROM WETLANDS UPON COMPLETION OF CONSTRUCTION.
19. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY AND REPLACE TOPSOIL, WHERE SALVAGED, WITHOUT A CROWN OVER THE TRENCH.
20. IF STANDING WATER IS NOT PRESENT, SEED AS SPECIFIED.
21. TOPSOIL AND TRENCH SPOIL RELATIVE POSITIONS CAN, AS DIRECTED BY THE COMPANY'S INSPECTOR, BE REVERSED.

TYPICAL WETLAND CROSSING

SCALE: N.T.S.

FOR PERMITTING PURPOSES ONLY

JOSHUA FUELLING 37265 LICENSED PROFESSIONAL ENGINEER
STATE OF KENTUCKY
PROFESSIONAL ENGARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

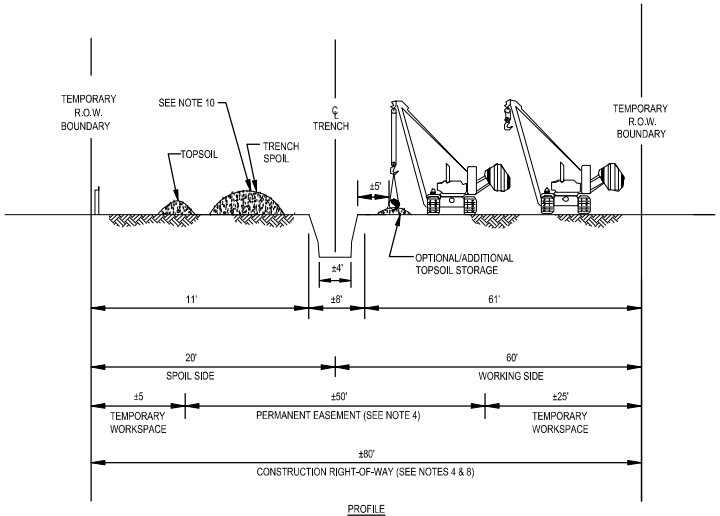
DUKE ENERGY. Piedmont Natural Gas

-
AM07 PHASE 3
CONSTRUCTION DETAILS 3
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

SHEET(S) 1 OF X	DWG SCALE AS NOTED
DWG DATE 04/05/2024	SUPERSEDED —
DRAWING NUMBER	REVISION
PNG -C-043-0002013	B

C/ERLANGER/AM07



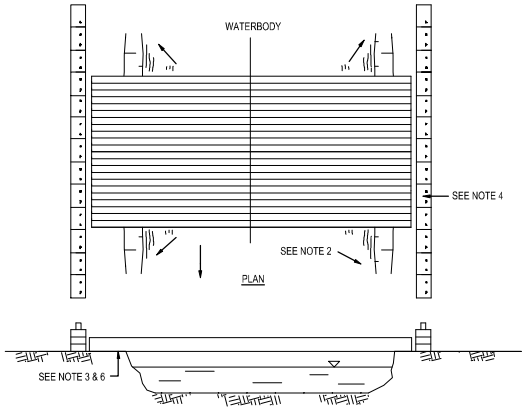
PROFILE

TYPICAL 80' WORKSPACE TOPSOIL SEPARATION

SCALE: N.T.S.

NOTES:

1. UTILIZE THE "TRENCH ONLY" TOPSOIL SALVAGE METHOD AT LOCATIONS SUCH AS RIPARIAN AREAS OR UNMANAGED WOODLAND, WHERE IDENTIFIED ON THE CONSTRUCTION DRAWINGS, OR AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.
2. THE TRENCH ONLY METHOD IS NOT TO BE USED ON AGRICULTURAL LAND EXCEPT AS DIRECTED BY THE COMPANY INSPECTOR (PER LANDOWNER REQUEST).
3. FOR TRENCH ONLY STRIPPING, THE STRIPPED AREA SHALL BE WIDE ENOUGH TO ACCOMMODATE TRENCHING EQUIPMENT
4. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 80 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND 30 FEET OF TEMPORARY WORKSPACE. EXTRA TEMPORARY WORK SPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED, CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
5. STOCKPILE TOPSOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE COMPANY'S INSPECTOR. KEEP TOPSOIL CLEAN OF ALL CONSTRUCTION DEBRIS
6. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH TOPSOIL INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING.
7. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL AND TOPSOIL PILES.
8. SAME LAYOUT APPLIES WHERE CONSTRUCTION R.O.W. DOES NOT ABUT EXISTING R.O.W.
9. TEMPORARILY SUSPEND TOPSOIL HANDLING OPERATIONS DURING INORDINATELY WINDY CONDITIONS UNTIL MITIGATIVE MEASURES TO MINIMIZE WIND EROSION CAN BE IMPLEMENTED.
10. TOPSOIL AND TRENCH SPOIL RELATIVE POSITIONS CAN, AS DIRECTED BY THE COMPANY'S INSPECTOR, BE REVERSED.



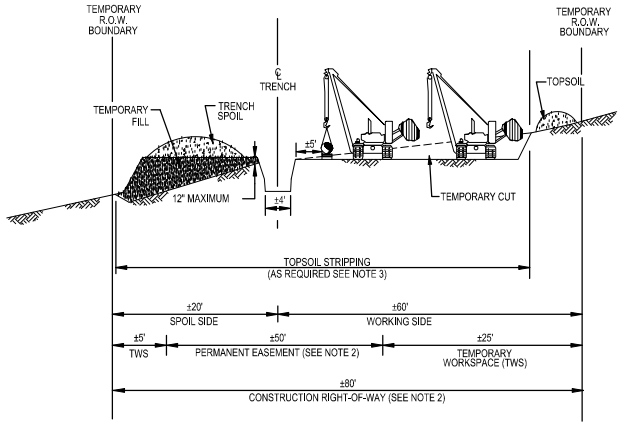
PROFILE

TYPICAL TIMBER MAT WATERBODY BRIDGE

SCALE: N.T.S.

NOTES:

1. THIS TYPE OF BRIDGE IS GENERALLY USED ON NARROW CROSSINGS, LESS THAN 20 FEET WIDE WITH APPROPRIATE BANK CONFIGURATION. MULTIPLE MATS MAY BE LAYERED FOR HEAVIER EQUIPMENT CROSSINGS.
2. BRIDGE IS ANCHORED AND/OR TIED OFF TO ANCHOR BLOCKS FOR STABILITY. BRIDGE SHOULD BE TEMPORARILY REMOVED IF HIGH WATER RENDERS IT UNSAFE TO USE.
3. IF REQUIRED, UTILIZE APPROACH FILLS OF CLEAN GRANULAR MATERIAL, SWAMP MATS, SKIDS OR OTHER SUITABLE MATERIALS TO AVOID CUTTING THE BANKS WHEREVER FEASIBLE. ENSURE ADEQUATE FREEBOARD. AS REQUIRED, ENSURE THAT FILL MATERIAL IF USED DOES NOT SPILL INTO WATERCOURSE INCLUDING REMOVAL OF DIRT FROM DECK DURING OPERATION.
4. CONSTRUCT SEDIMENT BARRIERS ACROSS THE ENTIRE CONSTRUCTION R.O.W. TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING BACK INTO WATERBODY. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY. SILT FENCE, HAY BALES OR SANDBAGS MAY BE USED INTERCHANGEABLY.
5. REMOVE BRIDGES AS SOON AS POSSIBLE AFTER PERMANENT SEEDING UNLESS OTHERWISE DIRECTED BY COMPANY REPRESENTATIVE, THE STRUCTURE IS TO BE REMOVED IF THERE IS MORE THAN ONE MONTH BETWEEN FINAL GRADING AND SEEDING, AND ALTERNATIVE ACCESS TO THE CONSTRUCTION R.O.W. IS AVAILABLE.
6. DISPOSE OF ANY ROCK AS DIRECTED BY COMPANY REPRESENTATIVE.
7. RESTORE AND STABILIZE BED AND BANKS TO APPROXIMATE PRE-CONSTRUCTION CONDITIONS.



PROFILE

TYPICAL SIDE HILL CONSTRUCTION

SCALE: N.T.S.

NOTES:

1. SIDE HILL CONSTRUCTION CUT AND FILL SHALL BE ALLOWED WHENEVER, IN THE OPINION OF THE CONTRACTOR, STEEP SIDE HILL CONSTRUCTION IS WARRANTED FOR PERSONNEL AND/OR EQUIPMENT SAFETY CONSIDERATIONS.
2. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 80 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND 30 FEET OF TEMPORARY WORKSPACE. EXTRA TEMPORARY WORK SPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
3. THIS DRAWING REFLECTS "TRENCH, SPOIL, AND WORKING SIDE" TOPSOIL STRIPPING PROCEDURE AS NEEDED FOR HILL SIDE LEVELING. SALVAGE TOPSOIL OVER TRENCH UNDER THE SPOIL PILE AND FROM TEMPORARY CUT AND FILL AREAS AT LOCATIONS IDENTIFIED OF THE CONSTRUCTION ALIGNMENT SHEETS OR AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.
4. STOCKPILE TOPSOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE COMPANY'S REPRESENTATIVE, KEEP TOPSOIL CLEAN OF ALL CONSTRUCTION DEBRIS.
5. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH TOPSOIL INTO CREEKS OR WETLANDS, DO NOT USE TOPSOIL FOR PADDING, AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING TOPSOIL PILE.

FOR PERMITTING PURPOSES ONLY

JOSHUA FUELLING 37265 LICENSED PROFESSIONAL ENGINEER
2024.05.29 09:08:43 -05'00'
PROFESSIONAL ENGARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

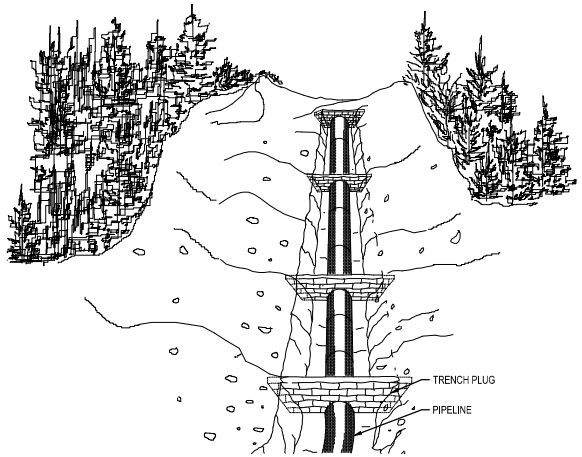
-
AM07 PHASE 3
CONSTRUCTION DETAILS 4
COVINGTON, KY
ERLANGER, KENTUCKY

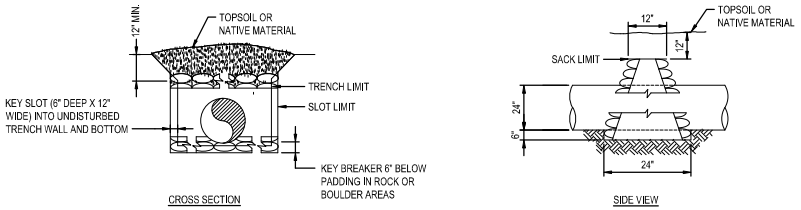
REF. DWG(S)

SHEET(S) 1 OF X	DWG SCALE AS NOTED
DWG DATE 04/05/2024	SUPERSEDED —

DRAWING NUMBER: PNG -C-043-0002014 | REVISION: B

C/ERLANGER/AM07

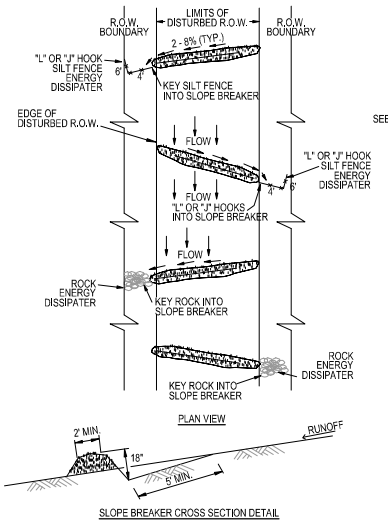




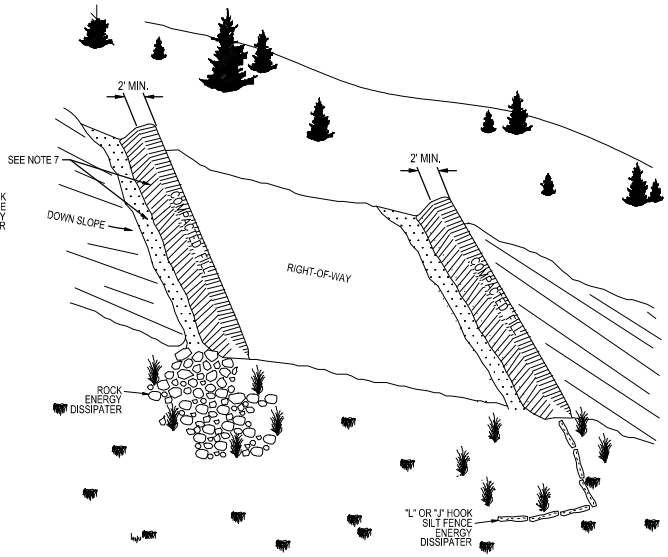
NOTES:
1. TRENCH PLUGS SHALL BE INSTALLED:
   - **ON UPLAND SLOPES, AT THE SAME SPACING AS SLOPE BREAKERS AND UP SLOPE OF SLOPE BREAKERS;**
   - ON SLOPES ALONG THE TRENCH LINE WHERE THE NATURAL DRAINAGE PATTERN, PROFILE, AND TYPE OF BACKFILL MATERIAL MAY RESULT IN LOSS OF BACKFILL MATERIAL OR ALTERATION OF THE NATURAL PATTERN;
   - AT THE BASE OF SLOPES ADJACENT TO WATERBODIES AND WETLANDS;
   - WHERE NEEDED TO AVOID DRAINING A WETLAND;
   - IN CULTIVATED LAND AND RESIDENTIAL AREAS WHERE PERMANENT SLOPE BREAKERS ARE NOT TYPICALLY INSTALLED, AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED
2. PLUGS SHALL BE INSTALLED IN ACCORDANCE WITH DUKE CONSTRUCTION STANDARDS AND AS DIRECTED
   - BY COMPANY'S INSPECTOR, SACK BREAKS SHALL UTILIZE OPEN WEAVE HEMP OR JUTE SACKS FILLED WITH MINIMUM OF 55LBS OF SUBSOIL, SAND OR A MIXTURE OF 1 PART CEMENT TO 6 PARTS SAND OR SUBSOIL AS DETERMINED BY COMPANY'S INSPECTOR
   - POLYURETHANE FOAM BREAKERS MAY BE USED IN-LEIU-OF SACK BREAKERS, WHEN APPROVED BY COMPANY'S REPRESENTATIVE.
3. PLUG SPACING AND CONFIGURATION MAY BE CHANGED AS DIRECTED BY COMPANY. DEPTH OF DITCH MAY VARY WITH SITE CONDITIONS.
4. ALL MATERIALS SHALL BE SUPPLIED BY CONTRACTOR.

TYPICAL TRENCH PLUG

SCALE: N.T.S.



MAXIMUM CONTRIBUTION AREA TO SLOPE BREAKER USING SLOPE LENGTH	
SLOPE	SLOPE LENGTH (FT.)
0% - 2%	250
3% - 10%	125
11% - 20%	100
21% - 33%	75
34% - 50%	50
>50%	25



NOTES:
1. SLOPE BREAKERS SHALL BE CONSTRUCTED OF COMPACTED NATIVE SOIL AND INSTALLED AT LOCATIONS AS REQUIRED BY DUKE CONSTRUCTION STANDARDS OR AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.
2. SLOPE BREAKERS SHALL BE CONSTRUCTED AS SHOWN, ALTERNATING FLOW TO OPPOSITE SIDES OF RIGHT-OF-WAY EVERY OTHER BREAK INSTALLED OR OTHER PATTERN AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.
3. SLOPE BREAKERS SHALL BE CONSTRUCTED AT 2-8% GRADIENT ACROSS THE SLOPE.
4. THE SLOPE BREAKERS SHALL BE 18" DEEP (AS MEASURED FROM THE TROUGH TO THE TOP OF THE SLOPE BREAKER). THE THROUGH WILL BE A MINIMUM OF 5' WIDE ACROSS THE WIDTH OF THE RIGHT-OF-WAY.
5. THE OUTLET OF THE SLOPE BREAKER MUST FREELY DISCHARGE ALL RUNOFF OFF THE DISTURBED RIGHT-OF-WAY INTO AN ENERGY DISSIPATER.
6. WHERE SLOPE BREAKERS EXTEND BEYOND THE EDGE OF THE CONSTRUCTION RIGHT-OF-WAY TO DIRECT RUNOFF INTO STABLE, WELL VEGETATED AREAS, THESE LOCATIONS MUST BE APPROVED BY THE COMPANY'S REPRESENTATIVE.
7. SHORT-TERM BIODEGRADABLE DOUBLE NET STRAW EROSION CONTROL BLANKETS SHALL BE INSTALLED ACROSS ENTIRIETY OF EACH BREAKER AND BREAKER CHANNEL.

FLOW ENERGY DISSIPATER NOTES:
1. THE OUTLET SHALL CONTAIN AN ENERGY DISSIPATER IF THE COMPANY'S INSPECTOR DETERMINES EXISTING VEGETATION IS NOT SUFFICIENTLY STABLE TO PREVENT EROSION. THE ENERGY DISSIPATER SHALL BE CONSTRUCTED AS FOLLOWS:
   - OUTFALL END OF DISSIPATER SHOULD BE LOWER THAN SLOPE BREAKER END.
   - SILT FENCE OR ROCK DISSIPATERS SHOULD BE KEYED INTO THE END OF THE SLOPE BREAKER.
   - PROVIDE ENOUGH AREA INSIDE "L" TO CAPTURE AND HOLD SEDIMENT.

TYPICAL SLOPE BREAKER

SCALE: N.T.S.

FOR PERMITTING PURPOSES ONLY

JOSHUA FUELLING 37266 LICENSED PROFESSIONAL ENGINEER
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NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
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DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

-
AM07 PHASE 3
CONSTRUCTION DETAILS 5
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

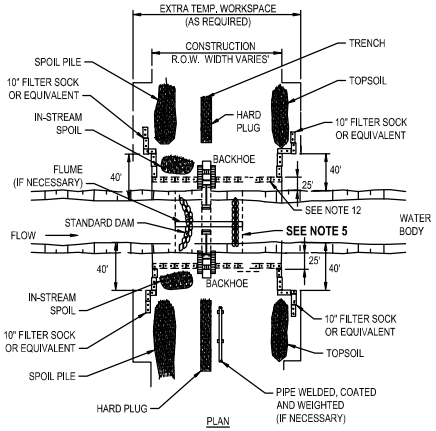
SHEET(S) 1 OF X	DWG SCALE AS NOTED
DWG DATE 04/05/2024	SUPERSEDED —

DRAWING NUMBER: PNG -C-043-0002015 | REVISION: B

C/ERLANGER/AM07

NOTES:

1. METHOD APPLIES TO WATERBODIES WHERE DOWNSTREAM SILTATION MUST BE AVOIDED. FLUMES ARE GENERALLY NOT RECOMMENDED FOR USE ON WATERBODIES WITH A BROAD UNCONFINED CHANNEL, PERMEABLE SUBSTRATE, EXCESSIVE DISCHARGE, OR WHERE A SIGNIFICANT AMOUNT OF BED OR BANK ALTERATION IS REQUIRED TO INSTALL FLUMES OR DAMS.
2. SCHEDULE CROSSING DURING LOW FLOW PERIOD IF POSSIBLE.
3. COMPLETE ALL WATERCOURSE ACTIVITIES AS EXPEDIENTLY AS POSSIBLE.
4. NO REFUELING OF MOBILE EQUIPMENT WITHIN 125 FEET OF WATERBODY.
5. **IN STREAM CONSTRUCTION DISTURBANCE LIMITED TO 15' WIDTH.**
6. IN AGRICULTURAL LAND, STRIP TOPSOIL FROM SPOIL STORAGE AREA.
7. IN-STREAM SPOIL TO BE STORED ON BANKS A MINIMUM OF 10 FEET FROM TOP OF THE BANK.
8. LEAVE HARD PLUGS AT THE STREAM BANK EDGE UNTIL JUST PRIOR TO PIPE INSTALLATION.
9. IF FLUME METHOD IS UTILIZED, SIZE FLUME TO HANDLE 150% ANTICIPATED FLOWS. INSTALL FLUME IN WATERCOURSE AND MAINTAIN CORRECT ALIGNMENT UNTIL REMOVED.
10. CONSTRUCT UPSTEAM DAM FOLLOWED BY DOWNSTREAM DAM. INSTALL A FLANGE ON UPSTREAM END OF FLUME AND SEAL TO SUBSTRATE WITH SANDBAGS AND POLYETHYLENE LINER WHERE NECESSARY TO ENSURE A WATER TIGHT BARRIER. "KEY" DAMS INTO BANKS OR CONSTRUCT SECONDARY DAM, IF NECESSARY.
11. PUMP STREAM CHANNEL BETWEEN DAMS. IF NECESSARY. DISCHARGE WATER THROUGH A DEWATERING STRUCTURE AND ONTO A STABLE WELL VEGETATED AREA TO PREVENT EROSION AND SEDIMENTATION. NO HEAVILY SILT-LADEN WATER MAY BE DISCHARGED IN THE STREAM.
12. CONSTRUCT SEDIMENT BARRIERS (FILTER SOCK AND/ OR SILT FENCE) TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING BACK INTO WATERCOURSE. CONSTRUCTED SEDIMENT BARRIERS SHALL EXTEND ALONG THE SIDES OF THE STOCKPILES AND THE ENDS OF DAMS. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY.
13. COMPLETE PREFABRICATION OF IN-STREAM PIPE SECTION AND WEIGHT PIPE AS NECESSARY PRIOR TO COMMENCEMENT OF IN-STREAM ACTIVITY.
14. TRENCH THROUGH WATERCOURSE. INSTALL TEMPORARY (SOFT) PLUGS, IF NECESSARY, TO CONTROL WATER FLOW AND TRENCH SLOUGHING.
15. MAINTAIN STREAM FLOW, IF PRESENT, THROUGH FLUME OR PUMP THROUGHOUT CROSSING CONSTRUCTION.
16. LOWER-IN PIPE, INSTALL TRENCH PLUG AND BACKFILL IMMEDIATELY.
17. BACKFILL WITH NATIVE MATERIAL.
18. RESTORE WATERCOURSE CHANNEL TO APPROXIMATE PRE-CONSTRUCTION PROFILE AND SUBSTRATE.
19. RESTORE STREAM BANKS TO APPROXIMATE ORIGINAL CONDITION AND STABILIZE, AS REQUIRED.



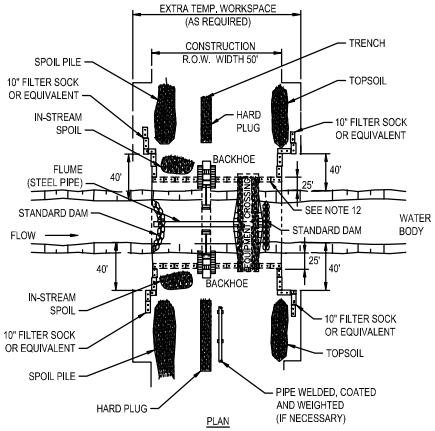
PLAN

EPHEMERAL STREAM OPEN CUT DETAIL

SCALE:N.T.S.

NOTES:

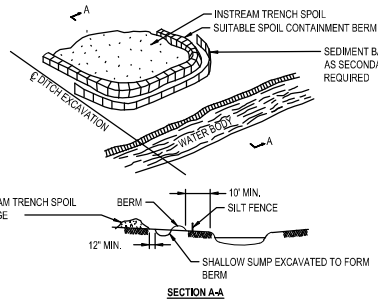
1. METHOD APPLIES TO WATERBODIES WHERE DOWNSTREAM SILTATION MUST BE AVOIDED. FLUMES ARE GENERALLY NOT RECOMMENDED FOR USE ON WATERBODIES WITH A BROAD UNCONFINED CHANNEL, PERMEABLE SUBSTRATE, EXCESSIVE DISCHARGE, OR WHERE A SIGNIFICANT AMOUNT OF BED OR BANK ALTERATION IS REQUIRED TO INSTALL FLUMES OR DAMS.
2. SCHEDULE CROSSING DURING LOW FLOW PERIOD IF POSSIBLE.
3. COMPLETE ALL WATERCOURSE ACTIVITIES AS EXPEDIENTLY AS POSSIBLE.
4. NO REFUELING OF MOBILE EQUIPMENT WITHIN 125 FEET OF WATERBODY.
5. **CONSTRUCTION ROW WIDTH LIMITED TO 50' FOR OPEN CUT CROSSING AND TEMPORARY EQUIPMENT CROSSING INSTALLATION.**
6. IN AGRICULTURAL LAND, STRIP TOPSOIL FROM SPOIL STORAGE AREA.
7. IN-STREAM SPOIL TO BE STORED ON BANKS A MINIMUM OF 10 FEET FROM TOP OF THE BANK.
8. LEAVE HARD PLUGS AT THE STREAM BANK EDGE UNTIL JUST PRIOR TO PIPE INSTALLATION.
9. SIZE FLUME TO HANDLE 150% ANTICIPATED FLOWS. INSTALL FLUME IN WATERCOURSE AND MAINTAIN CORRECT ALIGNMENT UNTIL REMOVED.
10. CONSTRUCT UPSTEAM DAM FOLLOWED BY DOWNSTREAM DAM. INSTALL A FLANGE ON UPSTREAM END OF FLUME AND SEAL TO SUBSTRATE WITH SANDBAGS AND POLYETHYLENE LINER WHERE NECESSARY TO ENSURE A WATER TIGHT BARRIER. "KEY" DAMS INTO BANKS OR CONSTRUCT SECONDARY DAM, IF NECESSARY.
11. PUMP STREAM CHANNEL BETWEEN DAMS. IF NECESSARY. DISCHARGE WATER THROUGH A DEWATERING STRUCTURE AND ONTO A STABLE WELL VEGETATED AREA TO PREVENT EROSION AND SEDIMENTATION. NO HEAVILY SILT-LADEN WATER MAY BE DISCHARGED IN THE STREAM.
12. CONSTRUCT SEDIMENT BARRIERS (FILTER SOCK AND/ OR SILT FENCE) TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING BACK INTO WATERCOURSE. CONSTRUCTED SEDIMENT BARRIERS SHALL EXTEND ALONG THE SIDES OF THE STOCKPILES AND THE ENDS OF DAMS. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY.
13. COMPLETE PREFABRICATION OF IN-STREAM PIPE SECTION AND WEIGHT PIPE AS NECESSARY PRIOR TO COMMENCEMENT OF IN-STREAM ACTIVITY.
14. TRENCH THROUGH WATERCOURSE. INSTALL TEMPORARY (SOFT) PLUGS, IF NECESSARY, TO CONTROL WATER FLOW AND TRENCH SLOUGHING.
15. MAINTAIN STREAM FLOW, IF PRESENT, THROUGH FLUME THROUGHOUT CROSSING CONSTRUCTION.
16. LOWER-IN PIPE, INSTALL TRENCH PLUG AND BACKFILL IMMEDIATELY.
17. BACKFILL WITH NATIVE MATERIAL.
18. RESTORE WATERCOURSE CHANNEL TO APPROXIMATE PRE-CONSTRUCTION PROFILE AND SUBSTRATE.
19. RESTORE STREAM BANKS TO APPROXIMATE ORIGINAL CONDITION AND STABILIZE, AS REQUIRED.



PLAN

INTERMITTENT STREAM OPEN CUT DETAIL

SCALE:N.T.S.



SECTION A-A

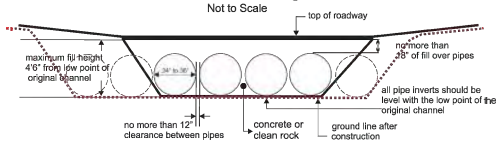
NOTES:

1. SOIL CONTAINMENT BERMS ARE TO BE USED WHERE INSTREAM TRENCH SPOIL COULD REENTER THE WATERCOURSE DIRECTLY OR INDIRECTLY AND WITH SIMULTANEOUS UTILIZATION OF SEDIMENT BARRIERS IF REQUIRED.
2. MATERIAL USED FOR THE CONTAINMENT BERM SHOULD BE A MINIMUM OF 10 FT. FROM THE WATERS EDGE. IT SHOULD BE KEPT TO A HEIGHT WHICH REMAINS STABLE DURING THE CONSTRUCTION PERIOD.
3. CARE SHOULD BE TAKEN THAT THE SPOIL PILE DOES NOT OVERTOP THE CONTAINMENT BERM.
4. THE CONTAINMENT BERM SHOULD BE DISMANTLED AND THE SITE RESTORED TO THE ORIGINAL CONDITION UPON COMPLETION OF THE WATER CROSSING.
5. WHERE POSSIBLE, RIPARIAN VEGETATION SHALL BE LEFT IN PLACE.
6. STAGED MOVEMENT OF INSTREAM SPOIL MAY BE REQUIRED IF QUANTITIES ARE EXCESSIVE.
7. CARE AND ATTENTION MUST BE TAKEN TO ENSURE SPOIL CONTAINMENT BERMS ARE MAINTAINED.
8. FULL CONSIDERATION FOR OVERALL SLOPE STABILITY IS REQUIRED WHEN SELECTING A SPOIL CONTAINMENT LOCATION.

TYPICAL TEMPORARY SOIL CONTAINMENT BERM FOR WATERBODY TRENCH SPOILS

SCALE:N.T.S.

Standard Drawing
Not to Scale



Notes:

1. This is a conceptual drawing. The number and size of pipes and other details will vary depending on specific site conditions.
2. The pipes and backfill must be contained within the stream channel as shown above. During the construction of the approaches and access roadway across the floodplain, unstable and unconsolidated materials unsuitable for roadways may be excavated and replaced with riprap, crushed stone, or other stable road construction materials. This may only be done, however, with the following provisions: (1) the disposal of excess, unconsolidated materials thus excavated must be outside of the floodplain and (2) the finished surface of the completed road may be no more than three inches (3") above the pre-construction surface of the floodplain at any point beyond the top of banks.

LOW-WATER CROSSING

SCALE: N.T.S.

FOR PERMITTING PURPOSES ONLY

NOTES:

1. ALL SEDIMENT RELEASES BEYOND THE SITE PERIMETER CONTROLS AND SPILLS REGARDLESS OF AMOUNT OR LOCATION ARE TO BE IMMEDIATELY REPORTED TO THE DUKE ENERGY ENVIRONMENTAL FIELD PROFESSIONAL. IF THE DUKE ENERGY ENVIRONMENTAL PROFESSIONAL CANNOT BE REACHED, THE DUKE ENERGY SPILL HOTLINE IS TO BE CALLED AT 1-800-527-3853.

JOSHUA FUELLING 37288 LICENSED PROFESSIONAL ENGINEER 04.05.24 09:49:55-05'00' PROFESSIONAL ENGINEER STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

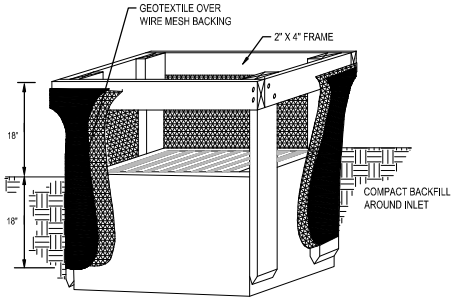
-
AM07 PHASE 3
ENVIRONMENTAL NOTES AND DETAILS 1
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

SHEET(S) 1 OF X	DWG SCALE AS NOTED
DWG DATE 04/05/2024	SUPERSEDED —

DRAWING NUMBER: PNG -C-043-0002023 | REVISION: B

C/ERLANGER/AM07



SECTION

INSTALLATION:

1. CONSTRUCT PRIOR TO UPSLOPE LAND DISTURBANCE.
2. CONSTRUCT WOODEN FRAME FROM 2"X4" LUMBER. DRIVE POSTS 1' INTO THE GROUND AT EACH CORNER DIRECTLY AGAINST THE CONCRETE BOX AND ASSEMBLE THE TOP FRAME WITH AN OVERLAP JOINT SHOWN BELOW. THE TOP FRAME SHALL BE SET AT AN ELEVATION THAT DOES NOT CAUSE PONDED WATER TO BACKUP INTO UNWANTED AREAS.
3. THE WIRE MESH AND GEOTEXTILE SHALL BE TIGHTLY STRETCHED AND FASTENED TO THE FRAME.
4. THE GEOTEXTILE SHALL OVERLAP ACROSS ONE SIDE OF THE INLET SO THE ENDS OF THE CLOTH ARE NOT FASTENED TO THE SAME POST.
5. BACKFILL SHALL BE PLACED IN THE 18" TRENCH AROUND THE INLET IN COMPACTED 6" LAYERS UNTIL THE ELEVATION OF THE TOP OF THE GRATE IS REACHED.

MAINTENANCE:

1. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF THE HEIGHT OF THE PRACTICE. THE REMOVED SEDIMENT MUST BE STABILIZED AND SHOULD NOT BE PLACED WHERE IT COULD EVENTUALLY BE CONVEYED BACK TO THE INLET VIA SURFACE RUNOFF.
2. REPLACE AND PROPERLY DISPOSE OF DAMAGED SILT FENCE MATERIAL.
3. AREA WHERE SURFACE FLOW HAS CUT UNDER THE SILT FENCE MATERIAL WITHIN THE TRENCH SHALL BE RE-COMPACTED WITH APPROPRIATE MATERIAL (I.E. HIGH CLAY CONTENT)

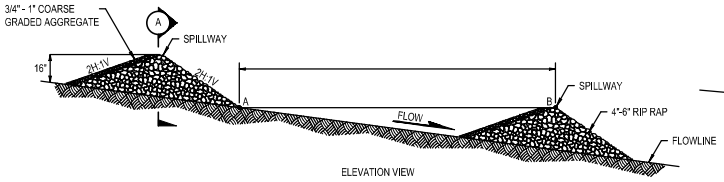
REMOVAL:

1. PULL OUT ALL SILT FENCE MATERIAL AND STAKES AND PROPERLY DISPOSE OF OFF-SITE.
2. RE-GRADE AREA SEDIMENT HAS ACCUMULATED AS NECESSARY AND ESTABLISH VEGETATION ON ANY RESULTING DISTURBED AREAS.

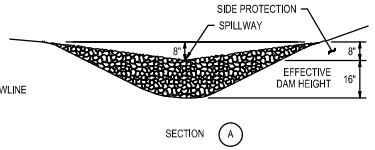
ALTERNATIVE MANUFACTURED YARD DRAIN INLET PROTECTION PRODUCTS ARE AVAILABLE AND CAN BE USED, BUT ARE SUBJECT TO APPROVAL BY DUKE REPRESENTATIVE.

DROP INLET PROTECTION

SCALE:N.T.S.



ELEVATION VIEW



SECTION (A)

ROCK DITCH CHECK

SCALE: N.T.S.

INSTALLATION:

1. AASHTO #1 (1.5-3.5 INCH) STONE OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT A MINIMUM 6-INCH THICKNESS FOR LIGHT DUTY USE OR AT LEAST 10-INCH THICKNESS FOR HEAVY-DUTY USE.
2. THE ENTRANCE SHALL BE AS LONG AS REQUIRED TO STABILIZE HIGH TRAFFIC AREAS (30-FT MINIMUM ON A SINGLE RESIDENTIAL LOT, 70-FT MINIMUM ELSEWHERE).
3. A GEOTEXTILE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE. IT SHALL BE COMPOSED OF STRONG ROT-PROOF POLYMERIC FIBERS AND MEET THE FOLLOWING SPECIFICATIONS:

MINIMUM TENSILE STRENGTH	200 lbs.
MINIMUM PUNCTURE STRENGTH	80 psi.
MINIMUM TEAR STRENGTH	50 lbs.
MINIMUM BURST STRENGTH	320 psi.
MINIMUM ELONGATION	20%
EQUIVALENT OPENING SIZE	EOS < 0.6 mm
PERMEABILITY	1X10-3 cm/sec

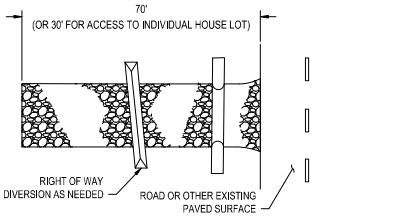
4. IF NEEDED, A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE TO PREVENT SURFACE WATER FROM FLOWING ACROSS THE ENTRANCE OUT ONTO PAVED SURFACES.
5. IF NEEDED, A WATER BAR SHALL BE CONSTRUCTED TO PREVENT SURFACE WATER FROM FLOWING ALONG THE LENGTH OF THE ENTRANCE UT ONTO PAVED SURFACE.

MAINTENANCE:

1. TOP DRESS WITH ADDITIONAL STONE AS SITE CONDITIONS DEMAND.
2. REMOVE MUD TRACKED ONTO PUBLIC STREETS IMMEDIATELY VIA SCRAPING OR SWEEPING.
3. ENSURE THE ENDS OF A TEMPORARY CULVERT PIPE (IF UTILIZED) ARE NOT BLOCKED AND THAT THE PIPE IS FREE OF DEBRIS THROUGHOUT.

REMOVAL:

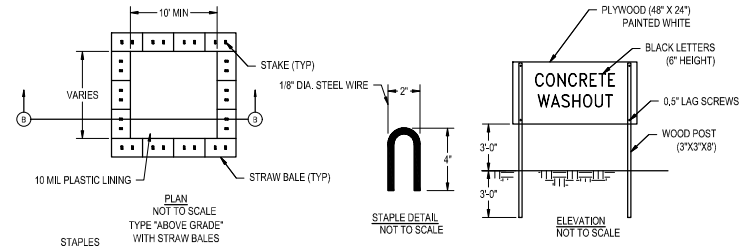
1. THE ENTRANCE SHALL REMAIN IN PLACE UNTIL THE DISTURBED AREA IS STABILIZED OR REPLACED WITH A PERMANENT ROADWAY OR ENTRANCE.
2. PULL OUT ALL CONSTRUCTION ENTRANCE MATERIAL AND PROPERLY DISPOSE OF OFF-SITE. STONE CAN BE BLENDED INTO THE SURROUNDING LANDSCAPE AS SITE CONDITIONS ALLOW.
3. RE-GRADE THE AREA AS NECESSARY AND ESTABLISH VEGETATION ON ANY RESULTING DISTURBED AREAS.



STABILIZING CONSTRUCTION ENTRANCE

SCALE:N.T.S.

SPACE CHECK DAMS THE DISTANCE APART WHERE POINTS "A" AND "B" ARE THE SAME ELEVATION

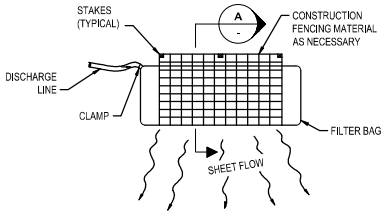


NOTES:

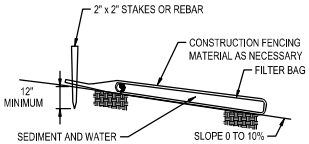
1. CONCRETE WASHOUT WATER SHALL NOT BE ALLOWED TO FLOW TO STREAMS, DITCHES, STORM DRAINS, OR ANY OTHER WASHOUT CONVEYANCE.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED ADJACENT TO THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. WASHOUT PIT MUST BE INSPECTED FREQUENTLY TO ENSURE LINER IS INTACT.
4. ONCE 75% OF ORIGINAL PIT VOLUME IS FILLED OR LINER IS TORN, MATERIAL MUST BE REMOVED AND PROPERLY DISPOSED OF ONCE HARDENED. LINER SHALL BE REPLACED IF TORN.

CONCRETE WASHOUT AREAS

SCALE:N.T.S.



PLAN



SECTION "A-A"

NOTES:

1. INSTALL A DEWATERING GEOTEXTILE FILTER BAG AS DIRECTED BY THE COMPANY'S INSPECTOR TO PREVENT THE FLOW OF HEAVILY SILT LADEN WATER INTO WATERBODIES OR WETLANDS.
2. DISCHARGE SITE SHALL BE WELL VEGETATED AND THE TOPOGRAPHY OF THE SITE SUCH THAT WATER WILL FLOW AWAY FROM ANY WORK AREAS. THE AREA DOWN SLOPE FROM THE DEWATERING SITE MUST BE REASONABLY PLANE OR STABILIZED BY VEGETATION OR OTHER MEANS TO ALLOW THE FILTERED WATER TO CONTINUE AS SHEET FLOW.
3. TO ATTACH THE DISCHARGE HOSE, CUT A CORNER OF THE BAG, INSERT DISCHARGE HOSE, AND SECURE THE HOSE TO THE BAG.
4. A SINGLE FILTER BAG SHOULD NOT BE USED FOR FLOWS GREATER THAN 600 GALLONS PER MINUTE.
5. REPLACE FILTER BAG BEFORE IT IS COMPLETELY FILLED WITH SEDIMENT. MONITOR DISCHARGE TO AVOID OVER PRESSURING DUE TO PLUGGING, WHICH MAY RESULT IN RUPTURE.
6. DISPOSE OF USED FILTER BAG AND SEDIMENT AT A SITE APPROVED BY THE COMPANY'S INSPECTOR.

TYPICAL GEOTEXTILE FILTER BAG FOR DEWATERING

SCALE:N.T.S.

NOTES:

1. ALL SEDIMENT RELEASES BEYOND THE SITE PERIMETER CONTROLS AND SPILLS REGARDLESS OF AMOUNT OR LOCATION ARE TO BE IMMEDIATELY REPORTED TO THE DUKE ENERGY ENVIRONMENTAL FIELD PROFESSIONAL. IF THE DUKE ENERGY ENVIRONMENTAL PROFESSIONAL CANNOT BE REACHED, THE DUKE ENERGY SPILL HOTLINE IS TO BE CALLED AT 1-800-527-3853.

FOR PERMITTING PURPOSES ONLY

STATE OF KENTUCKY
JOSHUA FUELLING
37260
LICENSED PROFESSIONAL ENGINEER
2024.05.29 09:44:57 -05'00'
PROFESSIONAL ENGINEER STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

-
AM07 PHASE 3
ENVIRONMENTAL NOTES AND DETAILS 2
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

SHEET(S) 1 OF X	DWG SCALE AS NOTED
DWG DATE 04/05/2024	SUPERSEDED —

DRAWING NUMBER: PNG -C-043-0002024 | REVISION: B

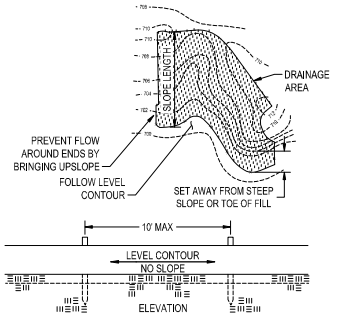
C/ERLANGER/AM07

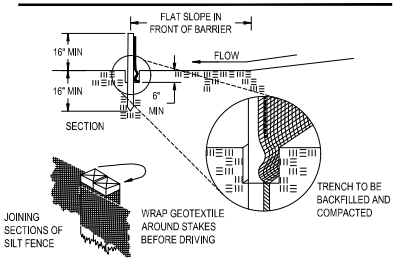
SILT FENCE

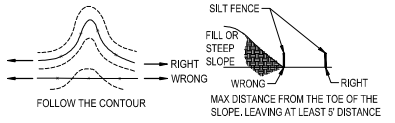
INSTALLATION:
1. CONSTRUCT PRIOR TO UPSLOPE LAND DISTURBANCE.
2. PLACE CONTINUOUS LENGTHS OF SILT FENCE ALONG A CONSISTENT CONTOUR SO AS TO PREVENT THE CONCENTRATION OF RUNOFF AT LOW POINTS IN THE FENCE.
3. TO PREVENT FLOW AROUND ENDS, EXTEND EACH OF A CONTINUOUS LENGTH OF SILT FENCE UPSLOPE (90° TO THE CONTOUR) SO THE ENDS ARE AT A HIGHER ELEVATION OR 20-FEET IN HORIZONTAL DISTANCE, WHICHEVER IS ACHIEVED FIRST.
4. AT A MINIMUM, THE BOTTOM 8-INCHES OF THE SILT FENCE MATERIAL MUST BE PLACED IN A TRENCH (MINIMUM 6-INCH DEPTH) THAT IS CUT WITH A TRENCHER, CABLE LAYING MACHINE, OR OTHER SUITABLE DEVICE. THE TRENCH SHALL NOT BE CONSTRUCTED WITH THE TILT BLADE OF A BULLDOZER.
5. THE TRENCH MUST BE BACKFILLED WITH SOIL AND PROPERLY COMPACTED. WHEN AGGRESSIVELY PULLED UPWARD BETWEEN TWO CONSECUTIVE STAKES THE MATERIAL SHOULD NOT PULL OUT OF THE GROUND.
6. STAKES (MIN. 32-INCH LENGTH, 2"X2" HARDWOOD OF GOOD QUALITY) MUST BE PALCED ON THE DOWNSLOPE SIDE OF THE SILT FENCE MATERIAL.
7. SILT FENCE MATERIAL MUST BE PULLED TIGHT BETWEEN CONSECUTIVE STAKES TO ENSURE THE FENCE DOES NOT SAG.
8. WHEN IT IS NECESSARY TO JOIN TWO SEPARATE LENGTHS OF SILT FENCE TO FORM A CONTINUOUS RUN, THE END OF TWO SEPARATE LENGTHS MUST BE JOINED TOGETHER BY FIRST OVERLAPPING THEM AND THEN TWISTING THEM TOGETHER AT LEAST 180° PRIOR TO DRIVING THE STAKES INTO THE GROUND.

MAINTENANCE:
1. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES 1/3RD THE HEIGHT OF THE SILT FENCE. THE REMOVED SEDIMENT MUST BE STABILIZED AND SHOULD NOT BE PLACED WHERE IT COULD EVENTUALLY BE CONVEYED BACK TO THE SILT FENCE VIA SURFACE RUNOFF.
2. REPLACE AND PROPERLY DISPOSE OF DAMAGED SILT FENCE MATERIAL.
3. AREAS WHERE SURFACE FLOW HAS CUT UNDER THE SILT FENCE MATERIAL WITHIN THE TRENCH SHALL BE RE-COMPACTED WITH APPROPRIATE MATERIAL (I.E. HIGH CLAY CONTENT).

REMOVAL:
1. PULL OUT ALL SILT FENCE MATERIAL AND STAKES AND PROPERLY DISPOSE OF OFF-SITE.
2. RE-GRADE AREA WHERE SEDIMENT HAS ACCUMULATED AS NECESSARY AND ESTABLISH VEGETATION IN ANY RESULTING DISTURBED AREAS.

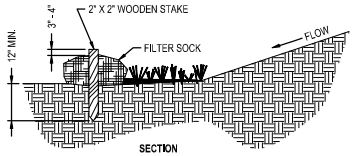






SILT FENCE

SCALE: N.T.S.



SLOPE	RATIO (H:V)	8"	12"	18"	24"
0% - 2%	10% - 20%	125	250	300	350
10% - 20%	50:1 - 10:1	100	125	200	250
2% - 10%	10:1 - 5:1	75	100	150	200
20% - 33%	5:1 - 2:1		50	75	100
>50%	>2:1		25	50	75

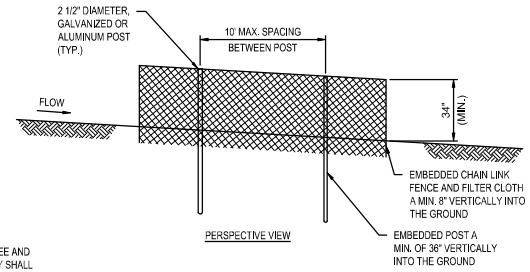
NOTES:
1. MATERIALS - COMPOST USED FOR FILTER SOCKS SHALL BE WEED, PATHOGEN AND INSECT FREE AND FREE OF ANY REFUSE, CONTAMINANTS OR OTHER MATERIALS TOXIC TO PLANT GROWTH, THEY SHALL BE DERIVED FROM A WELL-DECOMPOSED SOURCE OF ORGANIC MATTER AND CONSIST OF A PARTICLES RANGING FROM 3/8" TO 2".
2. FILTER SOCKS INSTALLED IN RIPARIAN OR WETLAND BOUNDARY AREAS SHALL BE CONSTRUCTED OF NATURAL FIBER MESH NETTING AND SUITABLE COMPOST MATERIAL.
3. FILTER SOCKS SHALL BE 3 OR 5 MIL CONTINUOUS, TUBULAR, HDPE 3/8" KNITTED MESH NETTING MATERIAL, FILLED WITH COMPOST PASSING THE ABOVE SPECIFICATIONS FOR COMPOST PRODUCTS.

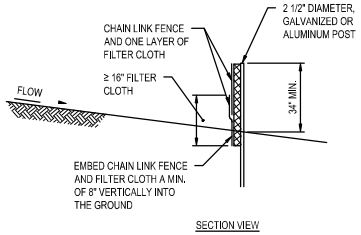
INSTALLATION:
1. FILTER SOCKS WILL BE PLACED ON A LEVEL LINE ACROSS SLOPES, GENERALLY PARALLEL TO THE BASE OF THE SLOPE OR OTHER AFFECTED AREA. ON SLOPES APPROACHING 2:1, ADDITIONAL SOCKS SHALL BE PROVIDED AT THE TOP AND AS NEEDED MID-SLOPE.
2. FILTER SOCKS INTENDED TO BE LEFT AS A PERMANENT FILTER OR PART OF THE NATURAL LANDSCAPE, SHALL BE SEEDED AT THE TIME OF INSTALLATION FOR ESTABLISHMENT OF PERMANENT VEGETATION.
3. FILTER SOCKS ARE NOT TO BE USED IN CONCENTRATED FLOW SITUATIONS OR IN RUNOFF CHANNELS.

MAINTENANCE:
1. ROUTINELY INSPECT FILTER SOCKS AFTER EACH SIGNIFICANT RAIN, MAINTAINING FILTER SOCKS IN A FUNCTIONAL CONDITION AT ALL TIMES.
2. REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE FILTER SOCKS WHEN THEY REACH 1/3 OF THE EXPOSED HEIGHT OF THE PRACTICE.
3. WHERE THE FILTER SOCK DETERIORATES OR FAILS, IT WILL BE REPAIRED OR REPLACED WITH A MORE EFFECTIVE ALTERNATIVE.
4. REMOVAL - FILTER SOCKS WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED IN SUCH AS WAY AS TO FACILITATE AND NOT OBSTRUCT SEEDINGS.

FILTER SOCK

SCALE: N.T.S.

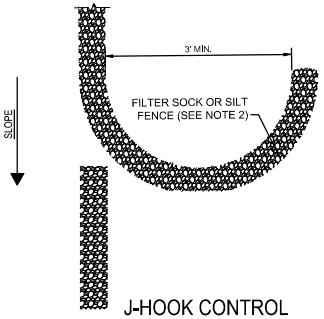




SUPER SILT FENCE DETAIL

SCALE: N.T.S.

IF AND WHERE REQUIRED BY THE LOCAL SOIL CONSERVATION DISTRICT AND / OR THE PROJECT ENGINEER



J-HOOK CONTROL

SCALE: N.T.S.

NOTES:
1. INSTALL J-HOOKS AT LOCATIONS INDICATED ON PLANS OR WHERE COMPANY REPRESENTATIVE DETERMINES NECESSARY.
2. J-HOOK INSTALLATION MATERIAL SHALL MATCH UP-GRADIENT E&SC TYPE (FILTER SOCK / SILT FENCE)
3. UP-GRADIENT E&SC TYPE (FILTER SOCK / SILT FENCE) AND J-HOOK SHALL BE ONE CONTINUOUS LINE.
4. START DOWN-GRADIENT E&SC TYPE AS CLOSE AS POSSIBLE TO THE UP-GRADIENT J-HOOK.
5. SPACING BETWEEN J-HOOKS SHALL BE NO GREATER THAN 100'.

FOR PERMITTING PURPOSES ONLY

NOTES:
1. ALL SEDIMENT RELEASES BEYOND THE SITE PERIMETER CONTROLS AND SPILLS REGARDLESS OF AMOUNT OR LOCATION ARE TO BE IMMEDIATELY REPORTED TO THE DUKE ENERGY ENVIRONMENTAL FIELD PROFESSIONAL. IF THE DUKE ENERGY ENVIRONMENTAL PROFESSIONAL CANNOT BE REACHED, THE DUKE ENERGY SPILL HOTLINE IS TO BE CALLED AT 1-800-527-3853.

JOSHUA FUELLING 37266 LICENSED PROFESSIONAL ENGINEER
24.06.28 09:48:57-05'00'
PROFESSIONAL ENGINEER STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP
B	05/20/2024	ISSUED FOR PERMITTING	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

-
AM07 PHASE 3
ENVIRONMENTAL NOTES AND DETAILS 3
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

SHEET(S) 1 OF X	DWG SCALE AS NOTED
DWG DATE 04/05/2024	SUPERSEDED —

DRAWING NUMBER: PNG -C-043-0002025 | REVISION: B

C/ERLANGER/AM07

SEED SPECIES & MIXTURES	SEEDING RATE (LBS)		SOIL PH	OTHER NOTES
	PER ACRE	PER 1000 SQ. FT		
MIXTURES FOR RELATIVELY FLOT OR SLIGHTLY SLOPING AREAS				
PERENNIAL RYEGRASS	25 TO 35	1	5.6 TO 7.0	APPLY LIME AT 2 TONS PER ACRE IF SOIL PH IS BELOW 5.5; USE 400-800 LB FERTILIZER (10-10-10) ON POOR SOILS.
+ TALL FESCUE	15 TO 30	1		
TALL FESCUE	40 TO 50	1.5	5.6 TO 7.5	
+ LADINO OR WHITE CLOVER	1 TO 2	2 OZ		
MIXTURES FOR STEEP SLOPES, BANKS, CUTS, AND OTHER LOW MAINTAENANCE AREAS				
SMOOTH BROMEGRASS	25 TO 35	1	5.5 TO 7.5	TRACK STEEP SLOPES WITH DOZER UP AND DOWN HILL BEFORE SEEDING.MULCH SLOPES AFTER SEEDING WITH 2 TO 3 TONS OF STRAW OR 6 TONS OF WOOD CHIPS PER ACRE. USE TACKIFIER ON MULCH, DISK IT IN, OR PUNCH IN WITH SHEEP-FOOT. FOR EXTREME SLOPES USE EROSION CONTROL BLANKETS AFTER SEEDING. 20' SPACING ON STAPLES
+ RED CLOVER	10 TO 20	0.5		
TALL FESCUE	40 TO 50	1	5.5 TO 7.5	
+ WHITE OR LADINO CLOVER	1 TO 2	2 OZ		
ORCHARDGRASS	20 TO 30	1	5.6 TO 7.0	
+ RED CLOVER	10 TO 20	0.5		
+ LADINO CLOVER	1 TO 2	2 OZ		
LAWNS AND OTHER HIGH TRAFFIC OR HIGH MAINTENANCE AREAS				
BLUEGRASS	105 TO 140	3	5.5 TO 7.0	DO NOT ESTABLISH GRASSED LAWNS NEAR STREAMS OR WETLANDS - LEAVE A 15 TO 30 FT BUFFER OF NATURAL VEGETATION.
PERENNIAL RYEGRASS (TURF)	45 TO 60	2	5.6 TO 7.0	
+ BLUEGRASS	79 TO 90	2.5		
CHANNELS AND OTHER AREAS OF CONCENTRATED WATER FLOWS				
PERENNIAL RYEGRASS	100 TO 150	3	5.6 TO 7.0	SEED DITCHES AND CHANNELS THICKLY. DO NOT USE FERTILIZER NEAR DITCH OR CHANNEL BOTTOM. USE EROSION CONTROL BLANKETS WHEN CHANNEL BOTTOM SLOOPES EXCEED 3%. SILT CHECK DAMS ARE REQUIRED WHEN SLOPES EXCEED 5%.USE ROCK FOR CHECK DAMS.
+ WHITE OR LADINO CLOVER	45 TO 60	2 OZ		
TALL FESCUE	100 TO 1500	3	5.5 TO 7.5	
+ PERENNIAL RYEGRASS	15 TO 20	0.5		
+ KENTUCKY BLUEGRASS	15 TO 20	0.5		

SITE PREPARATION:

1. SOIL SHOULD BE CAPABLE OF SUPPORTING PERMANENT VEGETATION AND HAVE AT LEAST 25% SILT AND CLAY TO PROVIDE AN ADEQUATE AMOUNT OF MOISTURE HOLDING CPACITY. AN EXCESSIVE AMOUNT OF POROUS SAND WILL NOT CONSISTENTLY PROVIDE SUFFICIENT MOISTURE FOR GOOD GROWTH REGARDLESS OF OTHER SOIL FACTORS.
   - 1.1. PLAN TO SEED ALL AREAS AS SOON AS FINAL GRADE IS REACHED.
   - 1.2. WHERE COMPACTED SOILS OCCUR, THEY SHOULD BE BROKEN UP SUFFICIENTLY TO CREATE A FAVORABLE ROOTING DEPTH OF 6 - 8 INCHES.
   - 1.3. STOCKPILE TOPSOIL TO APPLY TO SITES THAT ARE OTHERWISE UNSUITED FOR ESTABLISHING VEGETATION. APPROXIMATELY 400 CUBIC YARDS OF TOPSOIL PER ACRE ARE NEEDED FOR APPLICATION DEPTHS OF 3 INCHES (~9.3 CUBIC YARDS PER 1,000 SQUARE FEET).

SEEDBED PREPARATION:

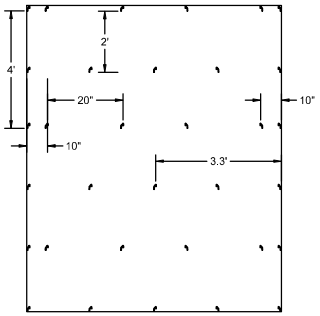
1) SPREAD LIME (IN LIEU OF A SOIL TEST RECOMMENDATION) ON ACID SOIL AND SUBSOIL, AT A RATE OF ONE TON PER ACRE OF AGRICULTURAL GROUND LIMESTONE. FOR BEST RESULTS, TEST THE SOIL—THIS CAN REDUCE THE EXPENSE OF UNNEEDED LIME AND FERTILIZER AND POTENTIAL EXCESS NUTRIENT LOSS THROUGH RUNOFF AND LEACHING.
2) FERTILIZER (IN LIEU OF A SOIL TEST RECOMMENDATION) SHOULD BE APPLIED AT A RATE OF NO MORE THAN 800 POUNDS PER ACRE OF 10-10-10 ANALYSIS. FOR BEST RESULTS, TEST THE SOIL TO DETERMINE FERTILIZER REQUIREMENTS. IN LIMESTONE AREAS WITH STREAMS AND RIVERS IMPACTED BY HIGH ALGAE CONCENTRATIONS, USE 10-0-10 FERTILIZER.
3) WORK THE LIME AND FERTILIZER INTO THE SOIL WITH A DISK HARROW, SPRINGTOOTH HARROW, OR OTHER SUITABLE FIELD EQUIPMENT TO A DEPTH OF 4 INCHES. ON SLOPING LAND, THE FINAL OPERATION MUST BE ON THE CONTOUR.

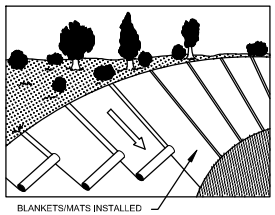
MAINTENANCE:

1) WATER THE SOIL UNTIL THE GRASS IS FIRMLY ESTABLISHED. THIS IS ESPECIALLY NEEDED WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY AND HOT SEASON, OR ON SITES WITH STEEP SLOPES OR OTHER ADVERSE CONDITIONS.
2) INSPECT ALL SEEDED AREAS FOR FAILURES AND MAKE NECESSARY REPAIRS, REPLACEMENTS, RESEEDINGS, AND REMULCHING WITHIN THE PLANTING SEASON.
3) IF STAND IS INADEQUATE, (LESS THAN 85 PERCENT GROUNDCOVER) SEED OVER THE SITE AND FERTILIZE, USING HALF OF THE SEEDING RATE ORIGINALLY APPLIED, AND APPLY MULCH.
4) IF STAND IS MORE THAN 60 PERCENT DAMAGED, REESTABLISH THE STAND. FOLLOW THE ORIGINAL SEEDBED PREPARATION METHODS, SEEDING AND MULCHING RECOMMENDATIONS, AND APPLY LIME AND FERTILIZER AS NEEDED ACCORDING TO A SOIL TEST.

PERMANENT SEEDING

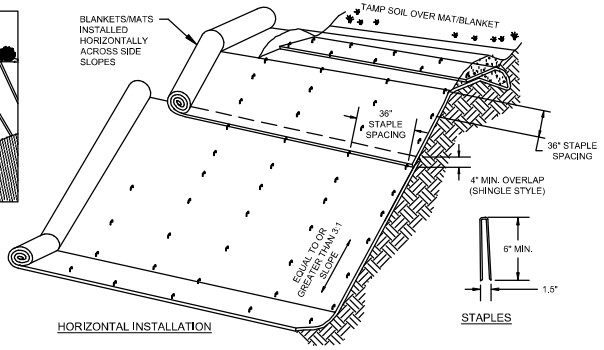
SCALE: N.T.S.





BLANKETS/MATS INSTALLED VERTICALLY ON SEVERE OR LONGER SLOPES. SEE HORIZONTAL INSTALLATION FOR DETAILS.

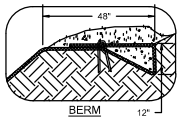
VERTICAL INSTALLATION



HORIZONTAL INSTALLATION

NOTES:

1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
4. USE ON SIDE SLOPES EXCEEDING A 3:1 SLOPE AND DISTURBED STREAMBANKS.
5. **THE FOLLOWING BLANKET TYPES SHALL BE UTILIZED:**
   - **A. TENSAR NORTH AMERICAN GREEN SC250 ON STREAMBANKS AND SLOPES 1:1 OR GREATER.**
   - **B. SHORT-TERM BIODEGRADABLE DOUBLE-NET STRAW BLANKET ON 3:1 SLOPES OR GREATER. THESE BLANKETS ARE NOT REQUIRED ON SLOPES PROTECTED BY SLOPE BREAKER INSTALLATION.**
   - **C. SHORT-TERM BIODEGRADABLE SINGLE-NET STRAW ON LESSER SLOPES, FLAT FLOODPLAIN, AND WORKSPACE AREAS.**
6. FOR STREAMBANK STABILIZATION:
   - A. TUCK/UNDERLAP BASE OF BLANKET TO PREVENT HIGH WATER FROM REMOVING BLANKET AND SEED.
   - B. STAPLE SPACING MAY NEED TO BE DECREASED.
   - C. PREPARE SUBGRADE PRIOR TO INSTALLING BLANKET BY REMOVING DISPLACED ROCKS AND WOODY DEBRIS.
   - D. USE VERTICAL INSTALLATION. USE STAPLE SPACING SHOWN TO THE LEFT.
   - E. INSTALL OVER ENTIRE 50' ROW AND ANY ADDITIONAL DISTURBED STREAMBANKS. INSTALL VERTICALLY OVER BANK TO A POINT AT LEAST 10' UPSLOPE OF WATER LEVEL.



BERM

EROSION CONTROL BLANKETS

SCALE: N.T.S.

FOR PERMITTING PURPOSES ONLY

NOTES:

1. ALL SEDIMENT RELEASES BEYOND THE SITE PERIMETER CONTROLS AND SPILLS REGARDLESS OF AMOUNT OR LOCATION ARE TO BE IMMEDIATELY REPORTED TO THE DUKE ENERGY ENVIRONMENTAL FIELD PROFESSIONAL. IF THE DUKE ENERGY ENVIRONMENTAL PROFESSIONAL CANNOT BE REACHED, THE DUKE ENERGY SPILL HOTLINE IS TO BE CALLED AT 1-800-527-3853.

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DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

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AM07 PHASE 3
ENVIRONMENTAL NOTES AND DETAILS 4
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

SHEET(S)	1 OF X	DWG SCALE	AS NOTED
DWG DATE	04/05/2024	SUPERSEDED	—

DRAWING NUMBER: PNG -C-043-0002026
REVISION: B
C/ERLANGER/AM07

ATTACHMENT 7 – EXISTING PHOTOS

Photograph 1: View of Sample Plot (SP)-1 located in palustrine forested (PFO) Wetland (W)-1, facing north.

Photograph 2: View of wetland SP-1, facing east.

Photograph 3: View of wetland SP-1, facing south.

Photograph 4: View of wetland SP-1, facing west.

Photograph 5: View of upland SP-2, facing south.

Photograph 6: View of upland SP-3, facing south.

Photograph 7: View of ephemeral Stream (S)-1, facing northeast.

Photograph 8: View of ephemeral S-2, facing southeast.

Photograph 9: View of intermittent S-3, facing north.

Photograph 10: View of ephemeral S-4, facing southwest.

Photograph 11: View of perennial S-5 (Licking River), facing south.

Photograph 12: View of intermittent S-6, facing west.

Photograph 13: View of intermittent S-7, facing southwest.

Photograph 14: View of intermittent S-8, facing south.

Photograph 15: View of intermittent S-9, facing south.

Photograph 16: View of intermittent S-10, facing south.

Photograph 17: View of ephemeral S-11, facing southwest.

Photograph 18: View of intermittent S-12, facing northeast.

Photograph 19: View of ephemeral S-13, facing north.

Photograph 20: View of ephemeral S-14, facing north.

Photograph 21: View of ephemeral S-15, facing east.

Photograph 22: View of ephemeral S-16, facing west.

Photograph 23: View of intermittent S-17, facing east.

Photograph 24: View of ephemeral S-18, facing west.

Photograph 25: View of ephemeral S-19, facing east.

Photograph 26: View of ephemeral S-20, facing north.

Photograph 27: View of ephemeral S-21, facing southwest.

Photograph 28: View of ephemeral S-22, facing northwest.

Photograph 29: View of ephemeral S-23, facing southeast.

Photograph 30: View of intermittent S-24, facing west.

Photograph 31: View of ephemeral S-25, facing northwest.

Photograph 32: View of ephemeral S-26, facing south.

Photograph 33: View of ephemeral S-27, facing south.

Photograph 34: View of ephemeral S-28, facing west.

Photograph 35: Representative image of upland forest habitat within the Survey Area.

Photograph 36: Representative image maintained lawn habitat within the Survey Area.

Photograph 37: Representative image old field habitat within the Survey Area.

Photograph 38: Representative image new field habitat within the Survey Area.

Photograph 39: Representative image scrub-shrub habitat within the Survey Area.

Photograph 40: Representative view of a potential bat roost tree within the Survey Area.

Photograph 41: Representative view of a potential bat roost tree within the Survey Area.

24-0507

RIGHT-OF-WAY ENCROACHMENT PERMIT APPLICATION
DEPARTMENT OF PUBLIC WORKS

1730 Russell Street, Covington, KY 41011
www.covingtonky.gov | Phone: (859) 292-2292 | Fax: (859) 491-8814

As authorized by Commissioners' Ordinance No. O-04-20.
See City of Covington Code of Ordinances Ch. 96 for regulations governing Streets and Sidewalks.

Application Date: 5/8/2024 ☐ **Emergency Work** ☐ **Non-Emergency Work**

TYPE OF ENCROACHMENT (Check all that apply)

Building/Grade Work ☐ Fill ☐ Landscape on Right-of-Way/Easement ☐ Structure on Right-of-Way/Easement ☐ Other
Entrance/Curb Cut ☐ Residential ☐ Commercial/Business **Pavement Cut** ☐ Street ☐ Sidewalk ☐ Driveway ☐ Other
Utility ☐ New Overhead ■ New Underground ☐ Repair/Maintenance

APPLICANT INFORMATION

Applicant/Company Name: Duke Energy
Registrant No.: _____ **Occupational License No.:** _____
Legal Status: ■ Corporation ■ LLC ☐ Partnership ☐ Sole Proprietorship ☐ Other: _____
Contact Person: John Perkins
Address: 139 E. 4th St. **City:** Cincinnati **State:** OH **Zip:** 45202
Telephone No.: 513-315-8338 **Email Address:** john.perkins@duke-energy.com

PERMIT INFORMATION (Attach map or sketch of work area and affected streets, sidewalks, buildings, etc.)

Project Location: Sandman Dr. **City:** Covington **State:** KY **Zip:** 41015
Proposed Start Date: February-October 2025 **Proposed Start Time:** 7-8 am
Proposed Completion Date: February-October 2025 **Proposed Completion Time:** 5-6 pm
Franchise Attached ☐ Yes ☐ No **Restoration Plan Attached** ☐ Yes ☐ No **Traffic Control Plan Attached** ■ Yes ☐ No

For Sidewalks, Driveways across Sidewalks, or Curb Cuts Only - § 96.20-96.21

Attach a statement of plan showing the location of the proposed sidewalk, driveway, or curb cut.
Exact number of lineal feet of sidewalk, driveway, or curb cut: _____
Abutting Property Owner Name: _____
Property Address: _____ **City:** _____ **State:** _____ **Zip:** _____
Name of Contractor: _____
Business Address: _____ **City:** _____ **State:** _____ **Zip:** _____

For All Other Encroachment Types - § 96.37 (Not Sidewalks, Driveways across Sidewalks, or Curb Cuts)

Description of Work: 21' road open cut for installation of new natural gas pipeline

If you need more space, please attach a description all activities covered by the proposed permit, the locations and estimated dates and times of commencement and completion of all activities, and a site plan where appropriate.
Number of all surface cuts, if any, covered by the permit: 2
Approximate dimensions of each cut, if any: ~5-8' wide trench

Contractor/Subcontractor (If multiple subcontracts are being used, attach the contact information below for each)
Contact Person: TBD
Company: TBD **Occupational License No.:** _____
Address: _____ **City:** _____ **State:** _____ **Zip:** _____
Telephone No.: _____ **Email Address:** _____

Date by which the construction work will be complete and the roadway surface restored: November 2024

PERMIT APPLICATION FEES

- Application Fee for Sidewalk, Driveway across Sidewalk, or Curb Cut pursuant to § 96.20-96.21: $50.00
- Application Fee for All Other Encroachment Types pursuant to § 96.37:
  - Street Surface Cut - $50.00
  - Sidewalk or Bike Path Cut - $20.00
  - Bore Cut - $20.00
  - Sod Cut - $15.00
  - Blocking of Any Street in a Manner that Obstructs Traffic - $15.00
  - Any Other Encroachment Not Listed Above - $15.00

ALL APPLICANTS MUST COMPLY WITH ALL CONDITIONS BELOW

- Applicant shall be responsible for Notifying the City of Covington Police Department (859-292-2222) and the City of Covington Fire Department (859-431-0462) a minimum of one hour before starting activity.
- Applicant shall provide signage at each end of street/sidewalk and/or property with detour arrows to alert vehicles/pedestrians of activity in progress. Traffic control (vehicular and pedestrian) shall be in accordance with the City of Covington "Temporary Traffic Control Requirements" attached to this permit application.
- Applicant shall use extreme caution at any overhead utility lines.
- Applicant shall make effort to complete work as quickly as possible to reduce obstruction time.

CONDITIONS PERTAINING TO CONSTRUCTION:

- Applicant shall always stand ready to remove all equipment out of the Right-of-Way to facilitate emergency vehicle access.
- Under no circumstances shall equipment be left unattended and the public be allowed to walk under ladders or scaffolding unless specifically designed in accordance with OSHA standards and approved by the City. The location must be roped off for pedestrian traffic which must be directed to the other side of the road unless four (4) or more feet of sidewalk width remains unobstructed. This can be done with cones, barricades, and/or flagging tape.
- Applicant shall be sensitive to the residents, businesses, and patron, adjacent to the location and shall keep all noise to a minimum.

SPECIAL CONDITIONS

- All encroachment and restoration activities shall be done in accordance with City of Covington Ordinance Chapter 96.
- "No Parking" signs need to be posted twenty-four (24) hours in advance before parking can be eliminated and restoration of construction immediately following completion.

APPLICANT SIGNATURE

(I/We) hereby certify that all the information contained in this application is true and complete to the best of my knowledge and (I/We) shall comply with the terms and conditions listed above under which the temporary encroachment permit hereby applied for is issued. Furthermore, (I/We) agree to fully indemnify and hold harmless the City of Covington and all of its employees, officials and representatives from any claim, damage or injury to a person or property arising or alleged to arise from any work related to the approved encroachment or work thereof. Approval does not relieve Applicant, or its Contractors or Subcontractors from obligations and responsibility to protect traffic, personnel or property. Other permits may be necessary. If the Applicant is using a Contractors or Subcontractors, it is the responsibility of said Contractors or Subcontractors to obtain all necessary permits related to the activity.

Applicant/Authorized Agent Signature: JPerki2 Digitally signed by JPerki2 (277364) Date: 2024.05.14 07:52:18 -04'00' **Date:** _____

Property Owner Signature: JPerki2 Digitally signed by JPerki2 (277364) Date: 2024.05.14 07:52:51 -04'00' **Date:** _____

OFFICE USE ONLY

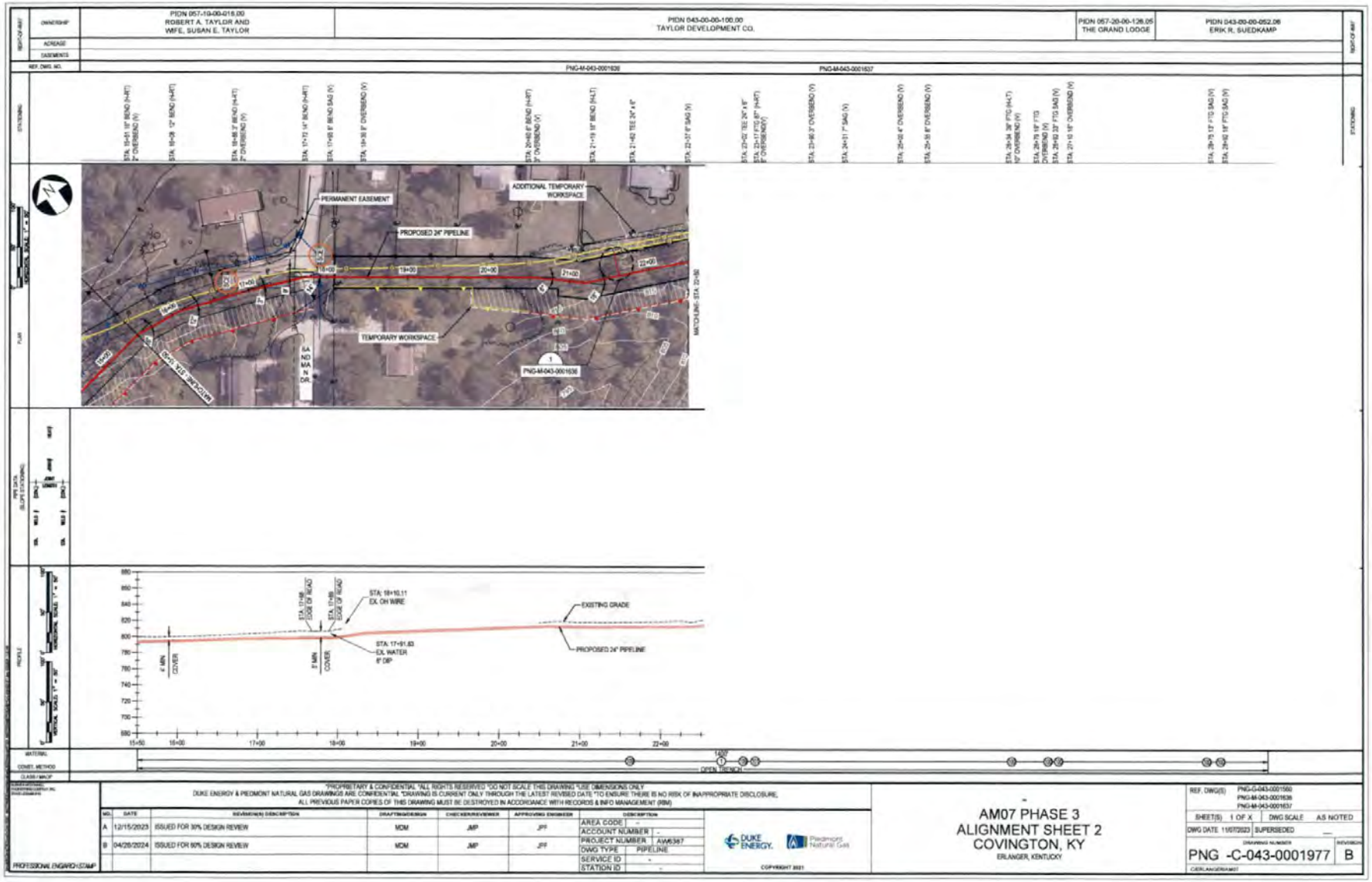
Permit No. 24-0507 10-31-25 **is hereby granted to perform such work.** A copy of the permit, the application, and the specifications shall be available at the jobsite at all times.

Permit Approved By: _____ **Date:** 5-28-24

Final Inspection Approved By: _____ **Date:** _____

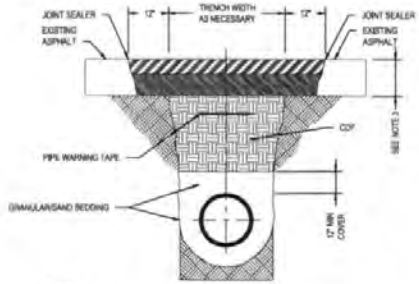
Requires a Franchise ☐ Yes ☐ No Requires Restoration Plan ☐ Yes ☐ No Requires Traffic Control Plan ☐ Yes ☐ No

Requires Inspection ☐ Yes ☐ No Requires Bond/Insurance ☐ Yes ☐ No



AM07 PHASE 3
ALIGNMENT SHEET 2
COVINGTON, KY
ERLANGER, KENTUCKY

PNG -C-043-0001977 B

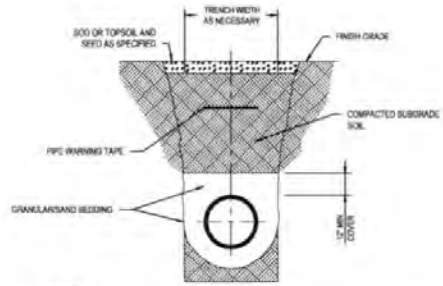


NOTES:

1. ALL RESTORATION SHALL BE MILLED AND PAVED TO THE ENTIRE WIDTH OF THE AFFECTED LANE(S). SEE MILL AND PAVE DETAIL ON THIS DRAWING.
2. APPLY GRANULAR/SAND BEDDING AROUND PIPE PER FOC-ST-3000 AND COMPACTED AS NECESSARY TO ENSURE PIPE IS FULLY ENCIRCLED WITH UNIFORM SUPPORT ALONG THE UNDERSIDE OF THE PIPE. BACKFILL REMAINDER OF TRENCH WITH A CONTROLLED DENSITY FILL (CDF) TO BOTTOM OF EXISTING ASPHALT.
3. SEE SITE SPECIFIC PAVEMENT RESTORATION DESIGN ON DRAWING C-043-000*806. MILL AND PAVE DETAIL ON C-043-000*806.
4. PIPE WARNING TAPE SHALL BE INSTALLED APPROXIMATELY 24"-36" ABOVE PIPELINE, OR AS OTHERWISE RECOMMENDED BY MANUFACTURER. MATERIALS SHALL BE SIGNALTAPE® OR APPROVED EQUIVALENT AND SHALL BE NON-TRACEABLE VARIETY.
5. HARD SURFACE RESTORATION TYPE TO BE USED IF OPEN TRENCH IS WITHIN 3-FEET OF PAVEMENT, CURB OR SIDEWALK.

TYPICAL HARD SURFACE UTILITY TRENCH RESTORATION

SCALE: N.T.S.



NOTES:

1. APPLY GRANULAR/SAND BEDDING AROUND PIPE PER FOC-ST-3000 AND COMPACTED AS NECESSARY TO ENSURE PIPE IS FULLY ENCIRCLED WITH UNIFORM SUPPORT ALONG THE UNDERSIDE OF THE PIPE.
2. SUBGRADE BACKFILL TO BE SELECTED AND COMPACTED PER FOC-ST-3000 7.3 & 7.4
3. PIPE WARNING TAPE SHALL BE INSTALLED APPROXIMATELY 24"-36" ABOVE PIPELINE, OR AS OTHERWISE RECOMMENDED BY MANUFACTURER. MATERIALS SHALL BE SIGNALTAPE® OR APPROVED EQUIVALENT AND SHALL BE NON-TRACEABLE VARIETY.
4. HARD SURFACE RESTORATION TYPE TO BE USED IF OPEN TRENCH IS WITHIN 3-FEET OF PAVEMENT, CURB OR SIDEWALK.

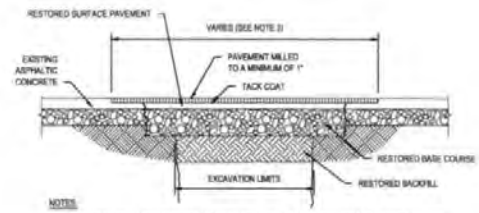
TYPICAL SOFT SURFACE UTILITY TRENCH RESTORATION DETAIL

SCALE: N.T.S.

HARD SURFACE RESTORATION REQUIREMENTS				
LOCATION	SURFACE COURSE	BASE COURSE	MILL AND PAVE LIMITS	CURB DETAIL
–	MATCH EX.	MATCH EX.	15' WIDE	MATCH EX.
–	MATCH EX.	MATCH EX.	15' WIDE	MATCH EX.
–	MATCH EX.	MATCH EX.	CURB TO CURB	MATCH EX.
–	MATCH EX.	MATCH EX.	5' OFF TRENCH LIMITS	MATCH EX.
TYPICAL PRIVATE PROPERTY (CHECK SPECIAL PROVISIONS)	MATCH EX.	MATCH EX.	2' OFF TRENCH LIMITS	MATCH EX.

HARD SURFACE RESTORATION REQUIREMENTS

SCALE: N.T.S.



NOTES:

1. THICKNESS OF ALL REPLACEMENT COURSES SHALL NOT BE LESS THAN THAT OF EXISTING COURSE.
2. OVERLAY MATERIAL USED TO REPLACE MILLED SURFACE SHALL MATCH MATERIAL USED DURING RESTORATION.
3. MILLING WIDTHS VARY BASED ON LOCATION/MUNICIPALITY. SEE THE "HARD SURFACE RESTORATION REQUIREMENTS" TABLE AND "CREST VIEW HILLS FULL PAVEMENT DESIGN DETAILS" TABLE FOR WIDTH REQUIREMENTS. (THIS DWG)

MILL AND PAVE

SCALE: N.T.S.

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKED/REVIEWED	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP

DESCRIPTION	
AREA CODE	-
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PROJECT NUMBER	AM0367
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

PROFESSIONAL ENGINEER STAMP

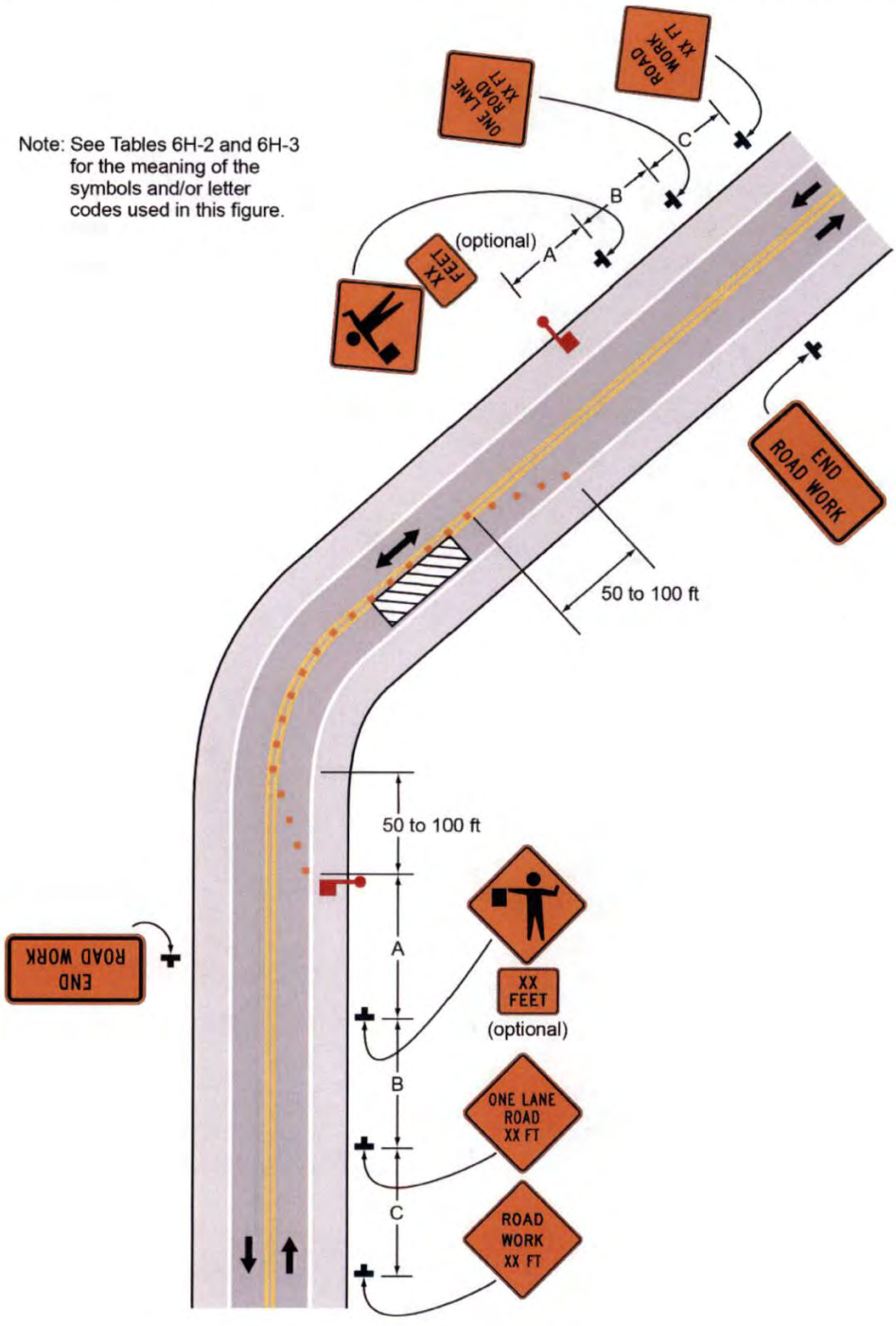
AM07 PHASE 3
CONSTRUCTION DETAILS 8
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S):

SHEET(S)	1 OF X	DWG SCALE	AS NOTED
DWG DATE	04/26/2024	SUPERSEDED	—

DRAWING NUMBER: PNG -C-043-0002018
REVISION: A

Figure 6H-10. Lane Closure on a Two-Lane Road Using Flaggers (TA-10)



Typical Application 10

Webb, Brittany N

From: Brian Haney <bhaney@taylormillky.gov>
Sent: Thursday, May 16, 2024 4:02 PM
To: Webb, Brittany N
Subject: RE: Taylor Mill ROW Request

Brittany,

Thank you, and no written permit is required. We probably need to do that in the future but at this point is isn't policy. Keep me posted as the project draws nearer and let me know if anything changes.

Brian Haney
City Administrative Officer
859-581-3234

From: Webb, Brittany N <bnwebb@burnsmcd.com>
Sent: Monday, May 13, 2024 8:25 PM
To: Brian Haney <bhaney@taylormillky.gov>
Cc: john.perkins <john.perkins@duke-energy.com>
Subject: Taylor Mill ROW Request

Hi Brian!
Please see the attached request for proposed Right of Way permissions for installation of a new natural gas steel pipeline for Duke Energy in the city of Taylor Mill limits. Construction is not anticipated until early 2025 but wanted to get this in front of you for permitting requests. Based on our historical discussions I don't believe there is any formal permit application but certainly let me know if you have anything on hand.
Thanks!
Brittany

Brittany Webb, PE*, MBA \ Burns & McDonnell
Project Manager \ Pipelines & Facilities \ Transmission & Distribution
O 614-705-1561 \ M 330-495-4624
bnwebb@burnsmcd.com \ burnsmcd.com
530 W. Spring Street \ Suite 200 \ Columbus, OH 43215

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*Registered in: OH

CITY OF WILDER

520 Licking Pike
Wilder, Kentucky 41071
(859)581-8884 ADMINISTRATION

(859)292-3622 COUNTY DISPATCH

APPLICATION FOR PERMIT TO CUT, EXCAVATE OR BORE IN THE CITY RIGHT OF WAY

PERMIT NUMBER _____
PERMIT FEE _____
CASH INDEMNITY NOT LESS THAN $500.00

NAME OF APPLICANT Duke Energy

ADDRESS OF APPLICANT 139 E 4th St
Cincinnati, OH
45202

EMERGENCY TELEPHONE NUMBER OF APPLICANT _____
NAME OF CONTRACTOR PERFORMING THIS WORK TBD
EMERGENCY TELEPHONE NUMBER OF CONTRACTOR TBD
LOCATION OF PROJECT W. Johns Hill Rd, Alanna Dr. and Town Dr.
DESCRIPTION OF WORK (please attach 2 sets of plans indicating purpose of cut, width, depth, name of street and approximate location, I.e. street address and nearest cross street)

EXPECTED DATE OF OPENING February through October 2025

ANTICIPATED DATE OF CLOSING February through October 2025

THE APPLICANT OF THIS PERMIT TO CUT, EXCAVATE OR BORE IN THE CITY RIGHT OF WAY AGREES TO COMPLY WITH THE REGULATIONS ON THE REVERSE OF THIS APPLICATION.

5-14-24
DATE OF APPLICATION

John Perkins Digitally signed by JPerki2 (277364) Date: 2024.05.14 07:48:25 -04'00'
SIGNATURE OF APPLICANT

TYPE OF BOND POSTED _____
AMOUNT OF BOND POSTED _____

UPON APPROVAL OF THIS APPLICATION THE APPLICANT SHALL BE RESPONSIBLE FOR THE FOLLOWING:

1 AT ALL TIMES DURING THE PROGRESS OF WORK, ADEQUATE PROTECTION AND PASSAGE SHALL BE PROVIDED BY THE PERMIT HOLDER FOR THE TRAVELING PUBLIC.

2 WORK ZONE TRAFFIC CONTROL ROADWAY SIGNS AND MARKINGS MUST BE UTILIZED AND MAINTAINED ALL EXCAVATIONS (i.e. BORE PITS, ROAD CUTS, SERVICE TAPS OR REPAIRS) SHALL BE BACKFILLED OR STEEL PLATED AT THE END OF EACH WORKING DAY. EXCAVATIONS LEFT UNATTENDED FOR ANY PERIOD OF TIME SHALL BE PROHIBITED, UNLESS OTHER ARRANGEMENTS ARE MADE WITH THE INSPECTOR.

3 ALL RESTORATION OF THE ROADWAY AND RIGHT OF WAY SHALL BE PER CITY OF WILDER ROADWAY CUT SPECIFICATIONS (ATTACHED)

4 BACKFILL OF ALL TRENCHES 8' DEEP OR LESS SHALL BE WITH FLOWABLE CONTROL DENSITY FILL ONLY. FOR TRENCHES DEEPER THAN 8' SUITABLE SOILS OR GRANULAR FILL MAY BE UTILIZED AS BACKFILL MATERIAL WHEN PLACED IN SHALLOW LEVEL LAYERS AND COMPACTED WITH AN APPROPRIATE TYPE OF COMPACTION EQUIPMENT TO A DENSITY NOT LESS THAN 95 PERCENT OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR MOISTURE DENSITY TEST (ASTM D698-78 OR AASHTO T-99). TESTING MUST BE PERFORMED BY A RECOGNIZED GEOTECHNICAL ENGINEER AND WRITTEN RESULTS SUBMITTED IMMEDIATELY TO THE INSPECTOR ALL GEOTECHNICAL TESTING WILL BE AT THE EXPENSE OF THE APPLICANT.

5 NO FIXED STRUCTURES SHALL BE ALLOWED WITHIN FOUR (4) FEET OF THE EDGE OF PAVEMENT OR HAMPER MAINTENANCE OF DRAINAGE SYSTEMS, SIDEDITCH RESTORATION MUST MATCH EXISTING CONDITIONS AND BE BE APPROVED BY THE INSPECTOR.

6 ROAD CUTS THAT MUST BE MADE DURING TIMES OF COLD WEATHER WILL REQUIRE A TEMPORARY REPAIR OF DGA AND COLD PATCH ASPHALT. THE PATCH SHALL BE INSPECTED DAILY BY THE APPLICANT AND PATCHED AS NECESSARY. PERMANENT REPAIR IS TO BE MADE IN SPRING AS SOON AS THE ASPHALT PLANTS REOPEN.

7 APPLICANT WILL BE RESPONSIBLE TO NOTIFY AND HAVE LOCATED ALL UNDERGROUND UTILITIES, (U.S. GOVT OSHA REGULATION 1926-651 AND KENTUCKY UNDERGROUND FACILITY DAMAGE PREVENTION ACT SECTION 6 PART 1)

8 A 24 HOUR NOTICE OF INSPECTION IS REQUIRED FOR ANY WORK PERFORMED WITHIN THE CITY RIGHT OF WAY.

9 THE APPLICANT SHALL HOLD THE CITY HARMLESS FROM ALL CLAIMS, DEMANDS, SUITS, DAMAGES AND CAUSES OF ACTIONS ARISING FROM OR RELATING TO THE ACTIVITIES PROVIDED FRO IN THIS APPLICATION.

10 FOR EMERGENCY REPAIRS WITHIN CITY RIGHT OF WAY, A PERMIT MUST BE OBTAINED THE NEXT BUSINESS DAY. ALL REPAIRS MUST MEET THE CITY OF WILDER ROADWAY CUT SPECIFICATIONS. THE INSPECTOR SHALL BE NOTIFIED TO ASSURE COMPLIANCE WITH THESE SPECIFICATIONS.

RIGHT-OF-WAY

OWNERSHIP | PIDN 999-99-17-734.00 T&C REAL ESTATE HOLDINGS, LLC

ACREAGE

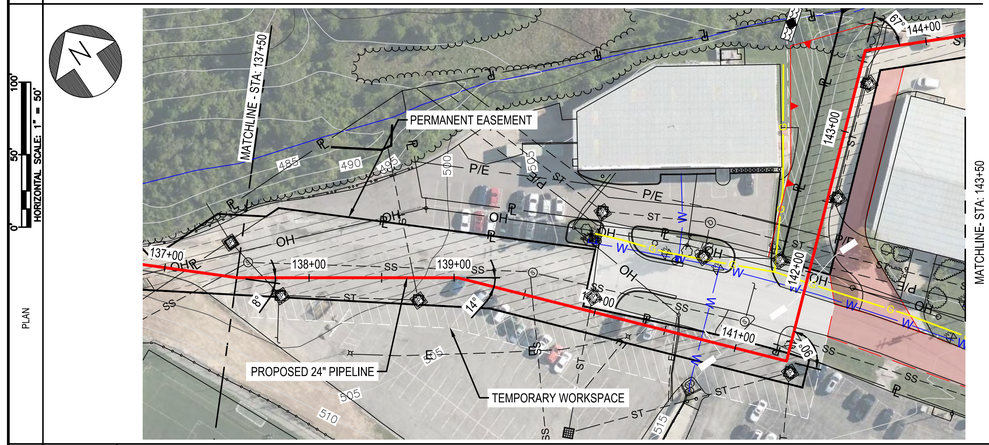
EASEMENTS

REF. DWG. NO.

STATIONING

STA: 137+50 BEND 8° (H-LT) 6° SAG (V)
STA: 137+96 2° OVERBEND (V)
STA: 138+67 4° SAG (V)
STA: 139+03 14° BEND (H-RT) 2° OVERBEND (V)
STA: 139+56 2° SAG (V)
STA: 140+74 8° SAG (V)
STA: 141+12 9° OVERBEND (V)
STA: 141+37 90° FTG (H-LT) 3° OVERBEND (V)
STA: 141+62 3° OVERBEND (V)
STA: 141+98 12° SAG (V)
STA: 142+35 7° OVERBEND (V)

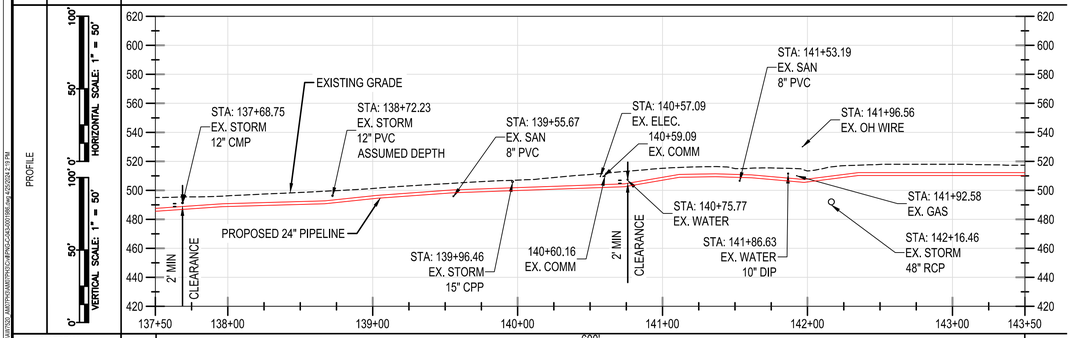
PLAN



PIPE DATA (SLOPE STATIONING)

STA.	WELD #	(CON.)	JOINT LENGTH	JOINT #	HEAT #	(CON.)	WELD #	STA.

PROFILE



MATERIAL | 600' (1) (10)

CONST. METHOD | OPEN TRENCH

CLASS / MAOP

RIGHT-OF-WAY | STATIONING | PLAN | PIPE DATA | PROFILE

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

PROFESSIONAL ENG/ARCH STAMP

BURNS & MCDONNELL ENGINEERING COMPANY, INC.
STATE LICENSE # 43

-
AM07 PHASE 3
ALIGNMENT SHEET 11
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001560
PNG-C-043-0002004

SHEET(S) 1 OF X | DWG SCALE AS NOTED
DWG DATE 11/07/2023 | SUPERSEDED ___

DRAWING NUMBER: PNG -C-043-0001986 | REVISION: B

C/ERLANGER/AM07

RIGHT-OF-WAY

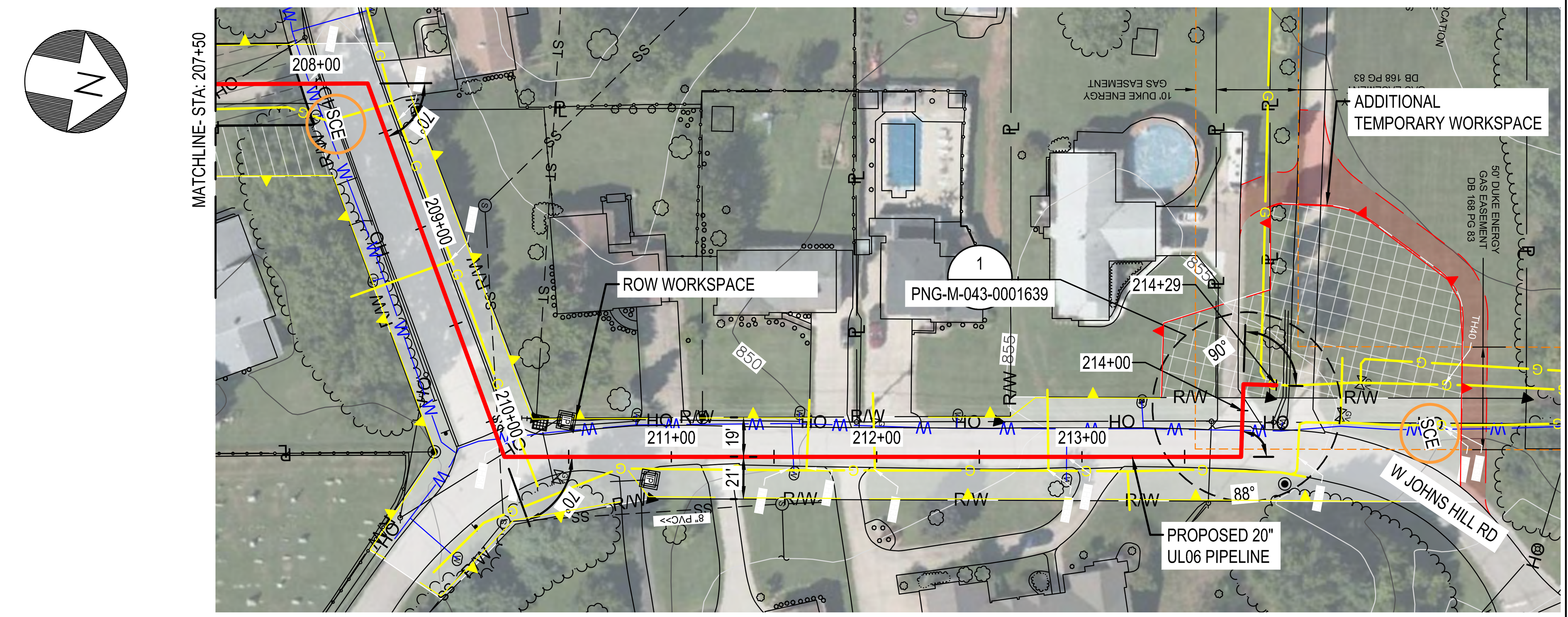
OWNERSHIP	-99-19-195.00 LINDA S LUCAS 1, PG 203 E 560A LOT 3-3
ACREAGE	
EASEMENTS	
REF. DWG. NO.	PNG-M-043-0001639

STATIONING

- STA: 207+87 3° SAG (V)
- STA: 208+07 3° SAG (V)
- STA: 208+25 FTG 70° (H-RT) 2° OVERBEND (V)
- STA: 209+30 2° SAG (V)
- STA: 209+73 16° OVERBEND (V)
- STA: 210+00 14° SAG (V)
- STA: 210+19 70° FTG (H-LT) 14° SAG (V)
- STA: 210+49 15° OVERBEND (V)
- STA: 211+10 2° SAG (V)
- STA: 212+10 2° SAG (V)
- STA: 213+14 2° OVERBEND (V)
- STA: 213+58 5° OVERBEND (V)
- STA: 213+77 FTG 88° (H-LT) 4° SAG (V)
- STA: 213+95 4° SAG (V)
- STA: 214+13 FTG 90° (H-RT), 4° OVERBEND (V)

PLAN

HORIZONTAL SCALE: 1" = 50'

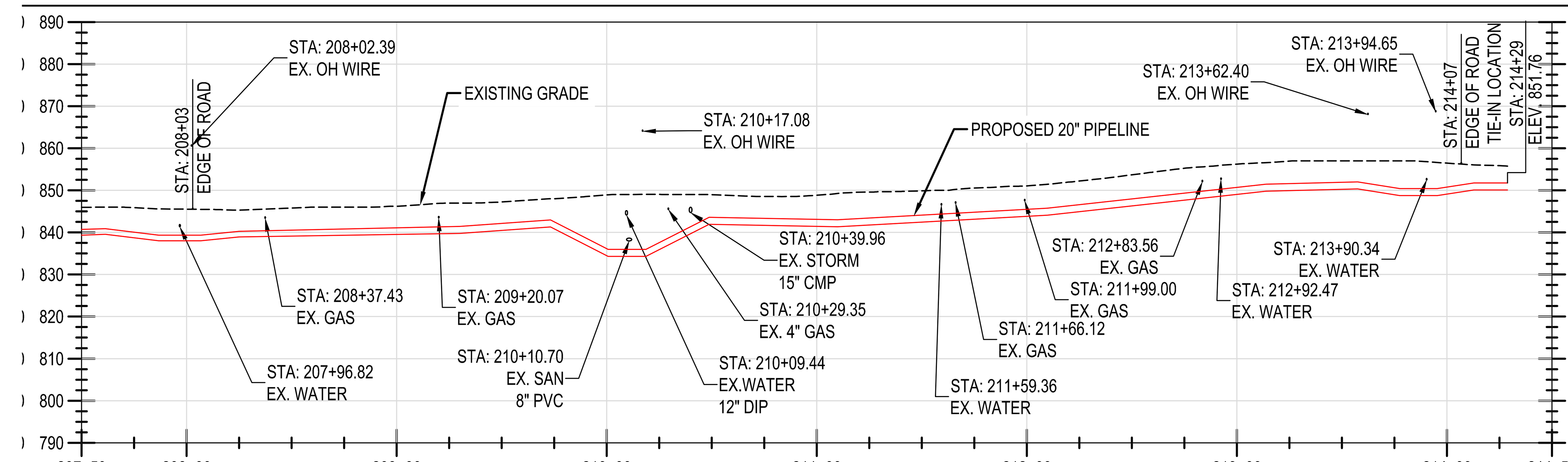


PIPE DATA (SLOPE STATIONING)

STA. | WELD # | (COV.) | JOINT LENGTH | JOINT # | HEAT #

PROFILE

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 25'



MATERIAL	103 — 103 — 3 (679') — 103 — 103
CONST. METHOD	OPEN TRENCH
CLASS / MAOP	

BURNS & MCDONNELL ENGINEERING COMPANY, INC. STATE LICENSE # 43

PROFESSIONAL ENG/ARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	12/15/2023	ISSUED FOR 30% DESIGN REVIEW	MDM	JMP	JPF
B	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	JPF

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

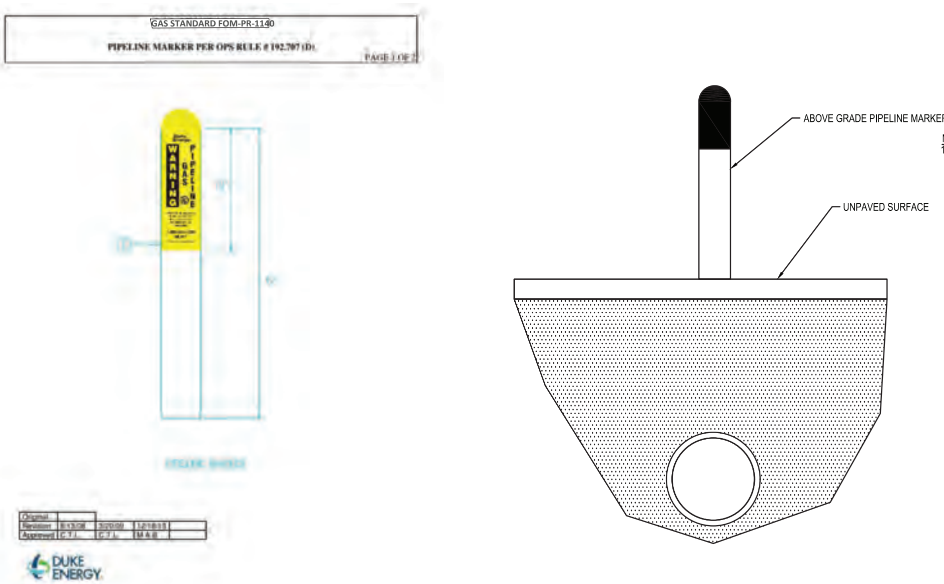
-
UL06 PIPELINE ALIGNMENT SHEET 1 COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S) PNG-G-043-0001560 PNG-M-043-0001639

SHEET(S) 1 OF X	DWG SCALE AS NOTED
DWG DATE 11/07/2023	SUPERSEDED —

DRAWING NUMBER: PNG -C-043-0001992 REVISION: B

C/ERLANGER/AM07



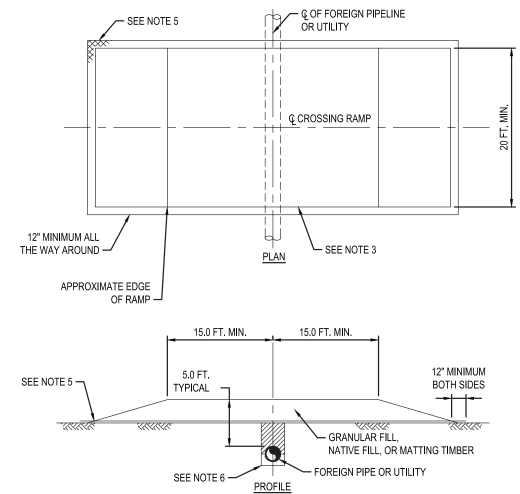
NOTE:
1. ABOVE GRADE PIPELINE MARKERS TO BE INSTALLED IN GRASS OR UNPAVED AREAS WHEN PIPELINE MARKER IS REQUIRED.

ABOVE GRADE PIPELINE MARKER

SCALE: N.T.S.

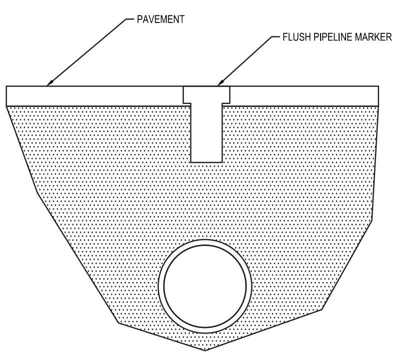
NOTES:

1. CONTRACTOR TO NOTIFY EXISTING PIPELINE/UTILITY COMPANY PRIOR TO INSTALLATION OF CROSSING RAMP.
2. LENGTH OF RAMP TO VARY IN ACCORDANCE WITH CROSSING ANGLE. MINIMUM CROSSING ANGLE TO BE 45 DEGREES.
3. VEHICLES OR EQUIPMENT USING CROSSINGS SHALL PROCEED SLOWLY AND WITH CAUTION TO MINIMIZE IMPACT LOADING AND REDUCTION ON DEPTH OF COVER OVER PIPE/UTILITY.
4. ON COMPLETION OF CONSTRUCTION, CONTRACTOR TO REMOVE COMPLETE RAMP AND RESTORE AREA TO THE SATISFACTION OF THE EXISTING PIPELINE/UTLITY COMPANY AND THE COMPANY'S INSPECTOR.
5. GEOTEXTILE FABRIC (AND GEOTEXTILE GRID WHERE REQUIRED) SHALL BE INSTALLED TO PROTECT NATIVE TOP SOIL AS DIRECTED BY COMPANY'S INSPECTOR WHEN IMPORTED GRANULAR FILL OR NATIVE SUBSOIL FILL MATERIAL IS UTILIZED. IMPORTED GRANULAR FILL MATERIAL OR NATIVE SUBSOIL FILL MATERIAL TO BE REMOVED AND DISPOSED OF AS DIRECTED BY COMPANY'S REPRESENTATIVE.
6. IN ROCK TERRAIN THE CONTRACTOR SHALL, UNDER THE EXISTING PIPELINE COMPANY'S SUPERVISION, EXPOSE THE TOP HALF OF THE PIPE AND BACKFILL WITH COMPACTED SAND OR APPROVED SOIL.



TEMPORARY RAMP CROSSING

SCALE: N.T.S.



NOTE:

1. FLUSH PIPELINE MARKERS TO BE INSTALLED IN PAVEMENT WHEN PIPELINE MARKER IS REQUIRED.

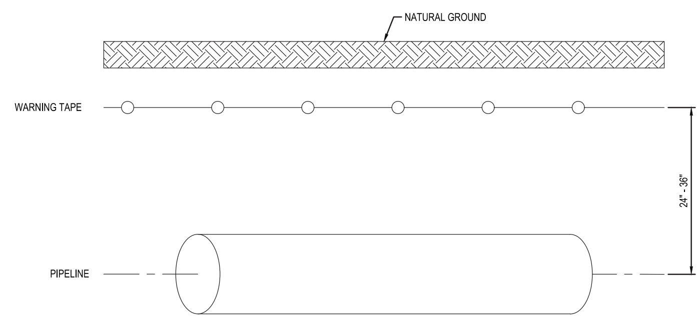
FLUSH PIPELINE MARKER

SCALE: N.T.S.

NOTES:

1. PIPELINE MARKERS SHALL BE PLACED AT:
   - IN LINE-OF-SIGHT INTERVALS AND TURNING POINTS
   - ALL PUBLIC ROAD CROSSINGS
   - ALL RAILROAD CROSSINGS
   - RIVER, STREAM, CREEK, DITCH AND CANAL CROSSINGS
   - UTILITY CROSSINGS (PER DUKE DISCRETION)
   - SWAMPS OR WETLANDS (ENTRY AND EXIT)
   - ROAD MEDIANS
   - ABOVE GROUND FACILITIES SUCH AS VALVE SETTINGS, BORDER STATIONS, REGULATOR STATIONS, AND PIPELINE INTERCONNECTS
   - UNDERGROUND VALVES
   - HDD ENTRY AND EXIT POINTS
2. PIPELINE MARKERS SHALL BE PLACES DIRECTLY ON TOP OR WITHIN 24 INCHES OF THE PIPELINE.
3. SET MARKERS AS SOON AS PRACTICAL AFTER THE INSTALLATION OF THE PIPELINE. MAKE EVERY EFFORT TO PROVIDE MARKERS BEFORE VEGETATION IS RE-ESTABLISHED AFTER CONSTRUCTION.

PIPELINE MARKER LOCATIONS



NOTES:

1. WARNING TAPE INSTALLATION NOT APPLICABLE FOR TRENCHLESS INSTALLATIONS.
2. PIPE WARNING TAPE SHALL BE INSTALLED APPROXIMATELY 24"-36" ABOVE PIPELINE, OR AS OTHERWISE RECOMMENDED BY MANUFACTURER. MATERIALS SHALL BE SIGNALTAPE® OR APPROVED EQUIVALENT AND SHALL BE NON-TRACEABLE VARIETY.

UNDERGROUND WARNING TAPE INSTALLATION DETAIL

SCALE: N.T.S.

BURNS & MCDONNELL ENGINEERING COMPANY INC. STATE LICENSE # 43

PROFESSIONAL ENG/ARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

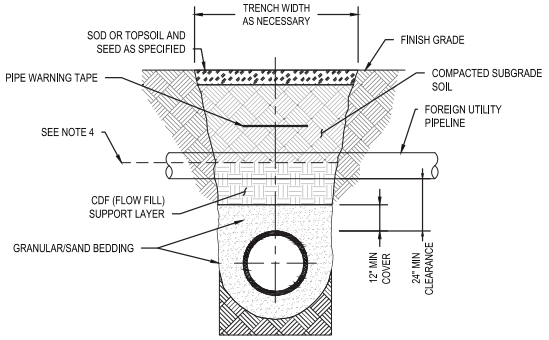
-
AM07 PHASE 3
CONSTRUCTION DETAILS 1
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

SHEET(S) 1 OF X | DWG SCALE AS NOT
DWG DATE 04/05/2024 | SUPERSEDED —

DRAWING NUMBER
PNG -C-043-0002011

C/ERLANGER/AM07



NOTES:

1. FOREIGN PIPELINE LOCATIONS TO BE DETERMINED BY ELECTRONIC MEANS IN ADVANCE OF PIPELINE CONSTRUCTION AND CONFIRMED BY CAREFULLY EXPOSING PRIOR TO INSTALLATION WHERE WITHIN 24" IN ANY DIRECTION FROM THE PIPELINE.
2. OWNER OF FOREIGN PIPELINE(S) SHALL BE NOTIFIED 72 HOURS IN ADVANCE OF EXCAVATION OF CROSSING.
3. 24" CLEARANCE ON ALL FOREIGN UTILITIES REQUIRED UNLESS OTHERWISE APPROVED BY OWNER OR ENGINEER.
4. CDF (FLOWABLE FILL) BACKFILL SHALL BE USED AS A SUPPORTING LAYER FOR FOREIGN UTILITY. LAYER THICKNESS SHALL START AT THE TOP OF SAND PADDING AND RISE TO ENCAPSULATE AT LEAST HALF OF THE FOREIGN UTILITY. SUPPORT LAYER SHALL EXTEND TO A WIDTH AT LEAST 3-FEET ON EITHER SIDE OF THE FOREIGN UTILITY.
5. CDF LAYER SHALL BE ALLOWED TO SET BEFORE MECHANICAL COMPACTION ON THE SOIL LAYER ABOVE IS PERFORMED.
6. APPROPRIATE MEANS SHALL BE TAKEN BY THE CONTRACTOR TO SUPPORT AND PRESERVE THE EXISTING FOREIGN UTILITY DURING EXCAVATION AND INSTALLATION OF PROPOSED PIPELINE.
7. APPLICABLE UTILITIES INCLUDE SEWER, WATER AND GAS MAINS.

UTILITY CONTACTS:

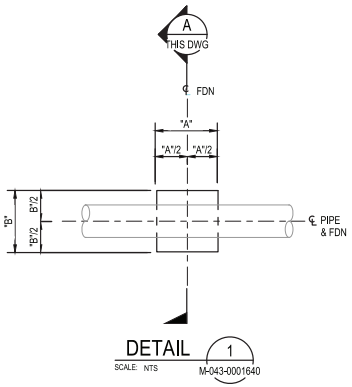
NORTHERN KENTUCKY WATER DISTRICT
CHAD SIMON; CSIMON@NKYWATER.ORG; 859-578-7891

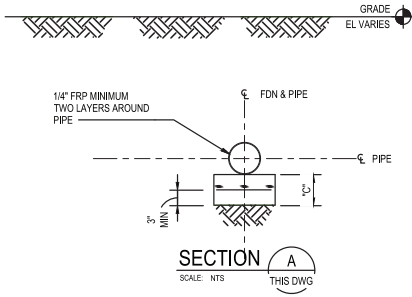
SD1
DOUG MALONE; DMALONE@SD1.ORG; 859-250-3904

DUKE ENERGY
ERIC ZIMMER; ERIC.ZIMMER@DUKE-ENERGY.COM; 513-616-7255

FOREIGN PIPELINE CROSSING IN SOFT SURFACE RESTORATION

SCALE: N.T.S.

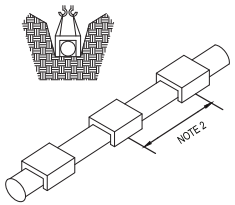




REST/THRUST BLOCK SCHEDULE				
PIPE SIZE/TYPE	"A"	"B"	"C"	REINFORCEMENT
24" REST BLOCK	3' - 0"	3' - 0"	1' - 0"	#5 BARS @ 12" BOTH WAYS MID DEPTH
20" REST BLOCK	3' - 0"	3' - 0"	1' - 0"	#5 BARS @ 12" BOTH WAYS MID DEPTH
6" REST BLOCK	1' - 0"	1' - 0"	6"	(2) #4 BARS @ 12" MAX SPA EW MID DEPTH

REST BLOCK DETAILS & SCHEDULE

SCALE: N.T.S.

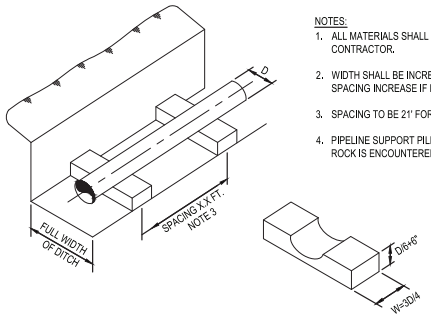


NOTES:

1. GEOTEXTILE PIPELINE WEIGHT TO BE 5000 POUNDS FOR 24" PIPE.
2. GEOTEXTILE PIPELINE WEIGHT TO BE SPACED EVERY 18' FOR 24" PIPE.
3. GEOTEXTILE PIPELINE WEIGHT TO BE FILLED WITH SAND OR GRAVEL.
4. GEOTEXTILE PIPELINE WEIGHT VENDORS TO BE PIPESAK OR ECOBAG OR APPROVED BY OWNER.

GEOTEXTILE PIPELINE WEIGHT

SCALE: N.T.S.



NOTES:

1. ALL MATERIALS SHALL BE SUPPLIED BY CONTRACTOR.
2. WIDTH SHALL BE INCREASED PROPORTIONAL TO SPACING INCREASE IF REQUIRED.
3. SPACING TO BE 21' FOR 24" PIPE.
4. PIPELINE SUPPORT PILLOWS SHALL BE USED WHEN ROCK IS ENCOUNTERED AT BOTTOM OF TRENCH.

TYPICAL PIPELINE SUPPORT PILLOWS

SCALE: N.T.S.

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6378
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

PROFESSIONAL ENG/ARCH STAMP

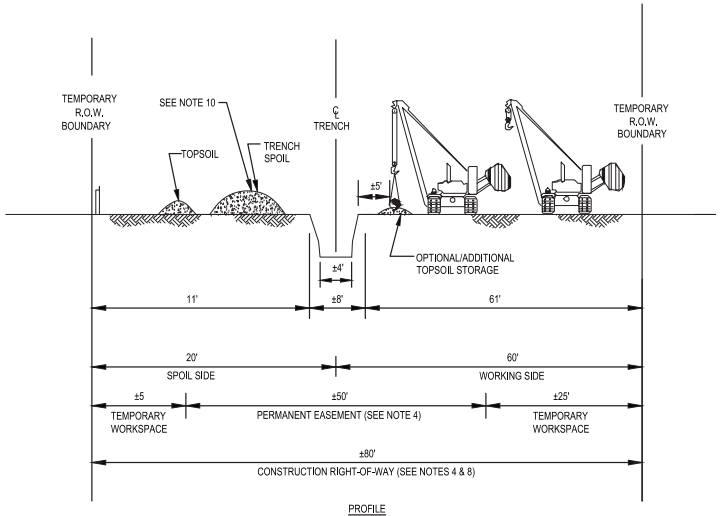
-
AM07 PHASE 3
CONSTRUCTION DETAILS 2
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

SHEET(S) 1 OF X	DWG SCALE AS NOTI
DWG DATE 04/05/2024	SUPERSEDED —

DRAWING NUMBER
PNG -C-043-0002012

C/ERLANGER/AM07



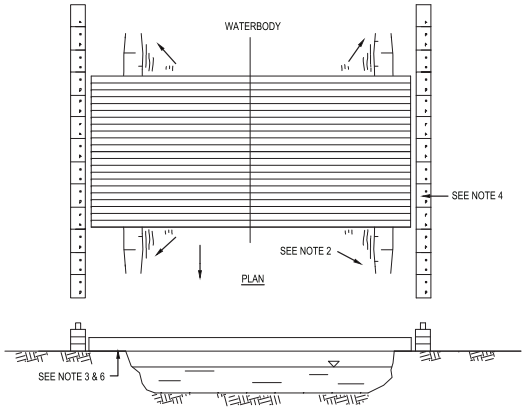
PROFILE

NOTES:

1. UTILIZE THE "TRENCH ONLY" TOPSOIL SALVAGE METHOD AT LOCATIONS SUCH AS RIPARIAN AREAS OR UNMANAGED WOODLAND, WHERE IDENTIFIED ON THE CONSTRUCTION DRAWINGS, OR AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.
2. THE TRENCH ONLY METHOD IS NOT TO BE USED ON AGRICULTURAL LAND EXCEPT AS DIRECTED BY THE COMPANY INSPECTOR (PER LANDOWNER REQUEST).
3. FOR TRENCH ONLY STRIPPING, THE STRIPPED AREA SHALL BE WIDE ENOUGH TO ACCOMMODATE TRENCHING EQUIPMENT
4. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 80 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND 30 FEET OF TEMPORARY WORKSPACE. EXTRA TEMPORARY WORK SPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
5. STOCKPILE TOPSOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE COMPANY'S INSPECTOR. KEEP TOPSOIL CLEAN OF ALL CONSTRUCTION DEBRIS
6. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES, DO NOT PUSH TOPSOIL INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING.
7. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL AND TOPSOIL PILES.
8. SAME LAYOUT APPLIES WHERE CONSTRUCTION R.O.W. DOES NOT ABUT EXISTING R.O.W.
9. TEMPORARILY SUSPEND TOPSOIL HANDLING OPERATIONS DURING INORDINATELY WINDY CONDITIONS UNTIL MITIGATIVE MEASURES TO MINIMIZE WIND EROSION CAN BE IMPLEMENTED.
10. TOPSOIL AND TRENCH SPOIL RELATIVE POSITIONS CAN, AS DIRECTED BY THE COMPANY'S INSPECTOR, BE REVERSED.

TYPICAL 80' WORKSPACE TOPSOIL SEPARATION

SCALE: N.T.S.



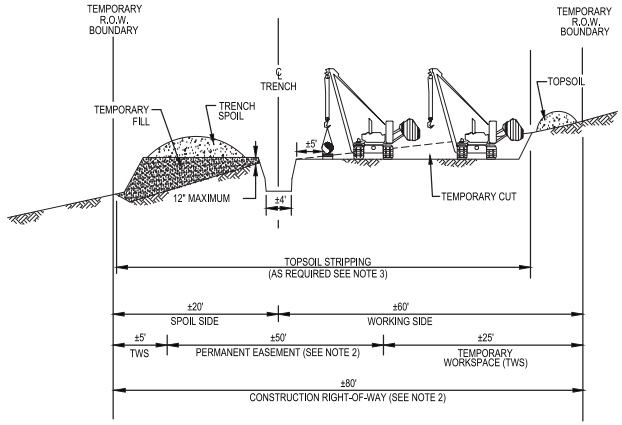
PROFILE

NOTES:

1. THIS TYPE OF BRIDGE IS GENERALLY USED ON NARROW CROSSINGS, LESS THAN 20 FEET WIDE WITH APPROPRIATE BANK CONFIGURATION. MULTIPLE MATS MAY BE LAYERED FOR HEAVIER EQUIPMENT CROSSINGS.
2. BRIDGE IS ANCHORED AND/OR TIED OFF TO ANCHOR BLOCKS FOR STABILITY. BRIDGE SHOULD BE TEMPORARILY REMOVED IF HIGH WATER RENDERS IT UNSAFE TO USE.
3. IF REQUIRED, UTILIZE APPROACH FILLS OF CLEAN GRANULAR MATERIAL, SWAMP MATS, SKIDS OR OTHER SUITABLE MATERIALS TO AVOID CUTTING THE BANKS WHEREVER FEASIBLE. ENSURE ADEQUATE FREEBOARD. AS REQUIRED, ENSURE THAT FILL MATERIAL IF USED DOES NOT SPILL INTO WATERCOURSE INCLUDING REMOVAL OF DIRT FROM DECK DURING OPERATION.
4. CONSTRUCT SEDIMENT BARRIERS ACROSS THE ENTIRE CONSTRUCTION R.O.W. TO PREVENT SILT LADEN WATER AND SPOIL FROM FLOWING BACK INTO WATERBODY. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY. SILT FENCE, HAY BALES OR SANDBAGS MAY BE USED INTERCHANGEABLY.
5. REMOVE BRIDGES AS SOON AS POSSIBLE AFTER PERMANENT SEEDING UNLESS OTHERWISE DIRECTED BY COMPANY REPRESENTATIVE. THE STRUCTURE IS TO BE REMOVED IF THERE IS MORE THAN ONE MONTH BETWEEN FINAL GRADING AND SEEDING, AND ALTERNATIVE ACCESS TO THE CONSTRUCTION R.O.W. IS AVAILABLE.
6. DISPOSE OF ANY ROCK AS DIRECTED BY COMPANY REPRESENTATIVE.
7. RESTORE AND STABILIZE BED AND BANKS TO APPROXIMATE PRE-CONSTRUCTION CONDITIONS.

TYPICAL TIMBER MAT WATERBODY BRIDGE

SCALE: N.T.S.



PROFILE

NOTES:

1. SIDE HILL CONSTRUCTION CUT AND FILL SHALL BE ALLOWED WHENEVER, IN THE OPINION OF THE CONTRACTOR, STEEP SIDE HILL CONSTRUCTION IS WARRANTED FOR PERSONNEL AND/OR EQUIPMENT SAFETY CONSIDERATIONS.
2. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 80 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT AND 30 FEET OF TEMPORARY WORKSPACE. EXTRA TEMPORARY WORK SPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
3. THIS DRAWING REFLECTS "TRENCH, SPOIL, AND WORKING SIDE" TOPSOIL STRIPPING PROCEDURE AS NEEDED FOR HILL SIDE LEVELING. SALVAGE TOPSOIL OVER TRENCH UNDER THE SPOIL PILE AND FROM TEMPORARY CUT AND FILL AREAS AT LOCATIONS IDENTIFIED OF THE CONSTRUCTION ALIGNMENT SHEETS OR AS DIRECTED BY THE COMPANY'S REPRESENTATIVE.
4. STOCKPILE TOPSOIL AS SHOWN OR IN ANY CONFIGURATION APPROVED BY THE COMPANY'S REPRESENTATIVE. KEEP TOPSOIL CLEAN OF ALL CONSTRUCTION DEBRIS.
5. LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH TOPSOIL INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING TOPSOIL PILE.

TYPICAL SIDE HILL CONSTRUCTION

SCALE: N.T.S.

BURNS & MCDONNELL ENGINEERING COMPANY, INC. STATE LICENSE #435

PROFESSIONAL ENG/ARCH STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

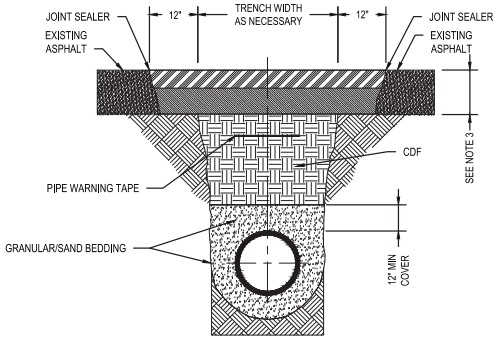
-
AM07 PHASE 3
CONSTRUCTION DETAILS 4
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

SHEET(S) 1 OF X	DWG SCALE AS NOT
DWG DATE 04/05/2024	SUPERSEDED

DRAWING NUMBER
PNG -C-043-0002014

C/ERLANGER/AM07

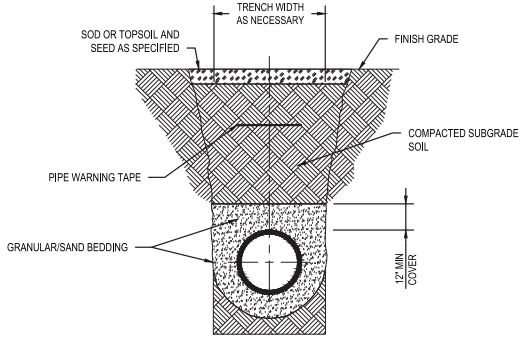


NOTES:

1. ALL RESTORATION SHALL BE MILLED AND PAVED TO THE ENTIRE WIDTH OF THE AFFECTED LANE(S). SEE MILL AND PAVE DETAIL ON THIS DRAWING.
2. APPLY GRANULAR/SAND BEDDING AROUND PIPE PER FOC-ST-3000 AND COMPACTED AS NECESSARY TO ENSURE PIPE IS FULLY ENCIRCLED WITH UNIFORM SUPPORT ALONG THE UNDERSIDE OF THE PIPE. BACKFILL REMAINDER OF TRENCH WITH A CONTROLLED DENSITY FILL (CDF) TO BOTTOM OF EXISTING ASPHALT.
3. SEE SITE SPECIFIC PAVEMENT RESTORATION DESIGN ON DRAWING C-043-0001806, MILL AND PAVE DETAIL ON C-043-0001806.
4. PIPE WARNING TAPE SHALL BE INSTALLED APPROXIMATELY 24"-36" ABOVE PIPELINE, OR AS OTHERWISE RECOMMENDED BY MANUFACTURER, MATERIALS SHALL BE SIGNALTAPE® OR APPROVED EQUIVALENT AND SHALL BE NON-TRACEABLE VARIETY.
5. HARD SURFACE RESTORATION TYPE TO BE USED IF OPEN TRENCH IS WITHIN 3-FEET OF PAVEMENT, CURB OR SIDEWALK.

TYPICAL HARD SURFACE UTILITY TRENCH RESTORATION

SCALE: N.T.S.



NOTES:

1. APPLY GRANULAR/SAND BEDDING AROUND PIPE PER FOC-ST-3000 AND COMPACTED AS NECESSARY TO ENSURE PIPE IS FULLY ENCIRCLED WITH UNIFORM SUPPORT ALONG THE UNDERSIDE OF THE PIPE.
2. SUBGRADE BACKFILL TO BE SELECTED AND COMPACTED PER FOC-ST-3000 7.3 & 7.4
3. PIPE WARNING TAPE SHALL BE INSTALLED APPROXIMATELY 24"-36" ABOVE PIPELINE, OR AS OTHERWISE RECOMMENDED BY MANUFACTURER, MATERIALS SHALL BE SIGNALTAPE® OR APPROVED EQUIVALENT AND SHALL BE NON-TRACEABLE VARIETY.
5. HARD SURFACE RESTORATION TYPE TO BE USED IF OPEN TRENCH IS WITHIN 3-FEET OF PAVEMENT, CURB OR SIDEWALK.

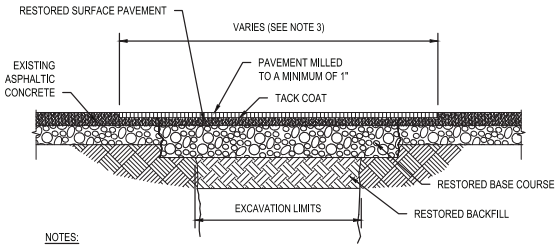
TYPICAL SOFT SURFACE UTILITY TRENCH RESTORATION DETAIL

SCALE: N.T.S.

HARD SURFACE RESTORATION REQUIREMENTS				
LOCATION	SURFACE COURSE	BASE COURSE	MILL AND PAVE LIMITS	CURB DETAIL
-	MATCH EX.	MATCH EX.	15' WIDE	MATCH EX.
-	MATCH EX.	MATCH EX.	15' WIDE	MATCH EX.
-	MATCH EX.	MATCH EX.	CURB TO CURB	MATCH EX.
-	MATCH EX.	MATCH EX.	5' OFF TRENCH LIMITS	MATCH EX.
TYPICAL PRIVATE PROPERTY (CHECK SPECIAL PROVISIONS)	MATCH EX.	MATCH EX.	2' OFF TRENCH LIMITS	MATCH EX.

HARD SURFACE RESTORATION REQUIREMENTS

SCALE: N.T.S.



NOTES:

1. THICKNESS OF ALL REPLACEMENT COURSES SHALL NOT BE LESS THAN THAT OF EXISTING COURSE.
2. OVERLAY MATERIAL USED TO REPLACE MILLED SURFACE SHALL MATCH MATERIAL USED DURING RESTORATION.
3. MILLING WIDTHS VARY BASED ON LOCATION/MUNICIPALITY. SEE THE "HARD SURFACE RESTORATION REQUIREMENTS" TABLE AND "CRESTVIEW HILLS FULL PAVEMENT DESIGN DETAILS" TABLE FOR WIDTH REQUIREMENTS. (THIS DWG)

MILL AND PAVE

SCALE: N.T.S.

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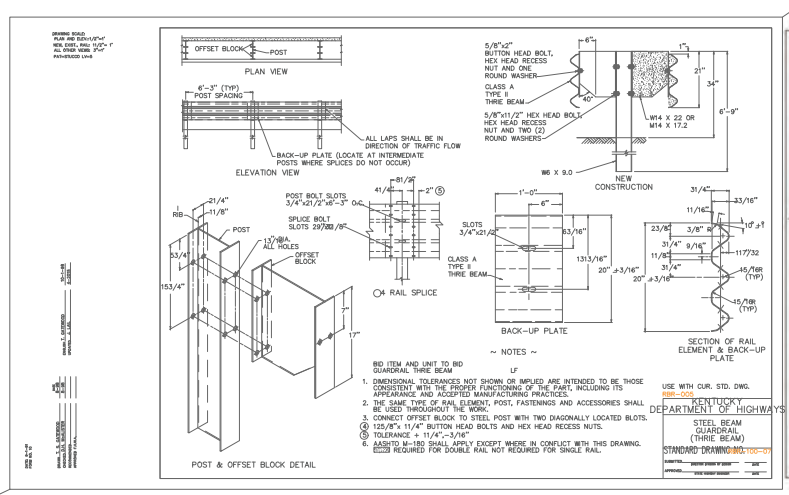
DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

PROFESSIONAL ENG/ARCH STAMP

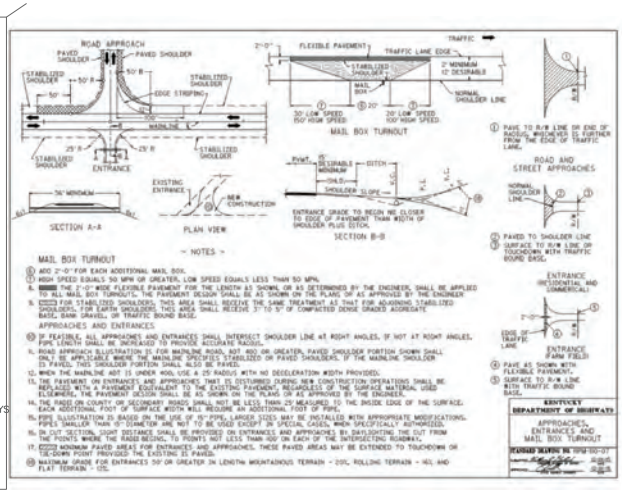
-
AM07 PHASE 3
CONSTRUCTION DETAILS 8
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

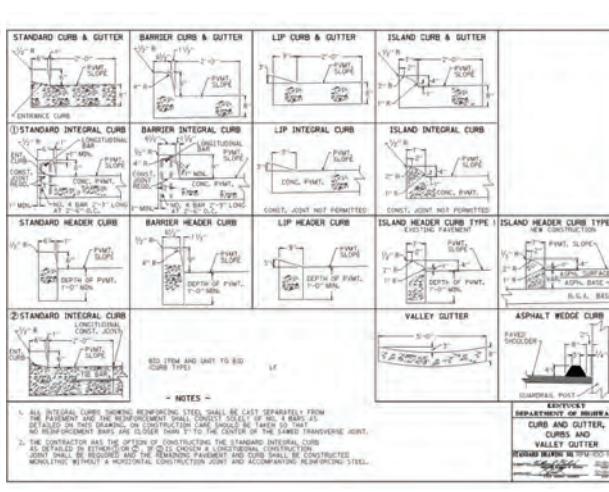
SHEET(S) 1 OF X	DWG SCALE AS NOTI
DWG DATE 04/05/2024	SUPERSEDED —
DRAWING NUMBER	RE
PNG -C-043-0002018	
C/ERLANGER/AM07	



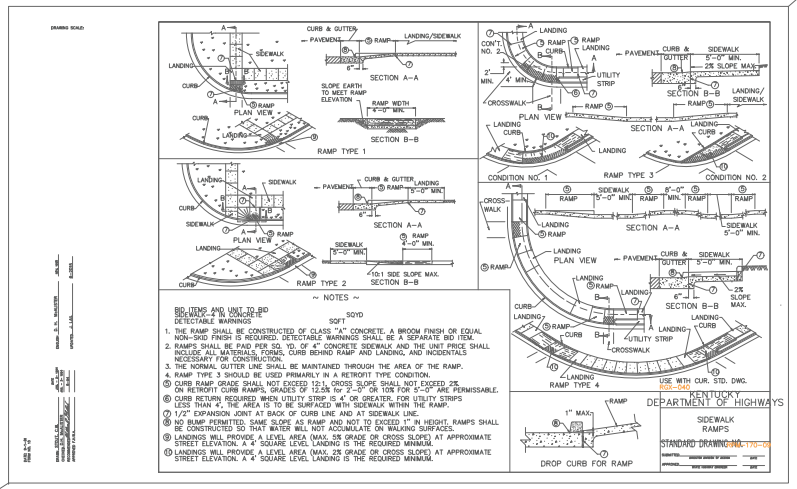
STEEL BEAM GUARDRAIL (THRIE BEAM) 1
SCALE: NTS



APPROACHES, ENTRANCES, AND MAIL BOX TURNOUT 2
SCALE: NTS



CURB AND GUTTER, CURBS AND VALLEY GUTTER DETAIL
SCALE: NTS



SIDEWALK RAMPS 4
SCALE: NTS

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

BURNS & MCDONNELL ENGINEERING COMPANY, INC.
STATE LICENSE #443

PROFESSIONAL ENGINEER STAMP

-
AM07 PHASE 3
CONSTRUCTION DETAILS 9
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

SHEET(S)	1 OF X	DWG SCALE	AS NOT
DWG DATE	04/05/2024	SUPERSEDED	__

DRAWING NUMBER
PNG -C-043-0002019

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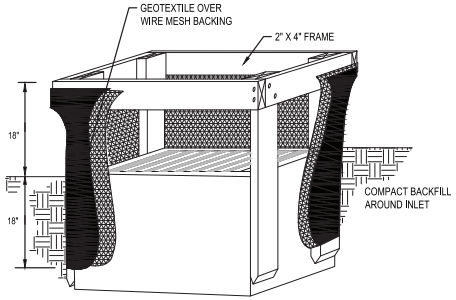


SECTION

INSTALLATION:

1. CONSTRUCT PRIOR TO UPSLOPE LAND DISTURBANCE.
2. CONSTRUCT WOODEN FRAME FROM 2"X4" LUMBER. DRIVE POSTS 1' INTO THE GROUND AT EACH CORNER DIRECTLY AGAINST THE CONCRETE BOX AND ASSEMBLE THE TOP FRAME WITH AN OVERLAP JOINT SHOWN BELOW. THE TOP FRAME SHALL BE SET AT AN ELEVATION THAT DOES NOT CAUSE PONDED WATER TO BACKUP INTO UNWANTED AREAS.
3. THE WIRE MESH AND GEOTEXTILE SHALL BE TIGHTLY STRETCHED AND FASTENED TO THE FRAME.
4. THE GEOTEXTILE SHALL OVERLAP ACROSS ONE SIDE OF THE INLET SO THE ENDS OF THE CLOTH ARE NOT FASTENED TO THE SAME POST.
5. BACKFILL SHALL BE PLACED IN THE 18" TRENCH AROUND THE INLET IN COMPACTED 6" LAYERS UNTIL THE ELEVATION OF THE TOP OF THE GRATE IS REACHED.

MAINTENANCE:

1. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF THE HEIGHT OF THE PRACTICE. THE REMOVED SEDIMENT MUST BE STABILIZED AND SHOULD NOT BE PLACED WHERE IT COULD EVENTUALLY BE CONVEYED BACK TO THE INLET VIA SURFACE RUNOFF.
2. REPLACE AND PROPERLY DISPOSE OF DAMAGED SILT FENCE MATERIAL.
3. AREA WHERE SURFACE FLOW HAS CUT UNDER THE SILT FENCE MATERIAL WITHIN THE TRENCH SHALL BE RE-COMPACTED WITH APPROPRIATE MATERIAL (I.E. HIGH CLAY CONTENT)

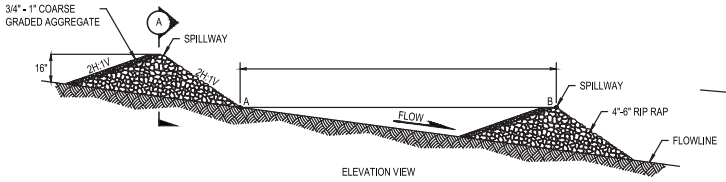
REMOVAL:

1. PULL OUT ALL SILT FENCE MATERIAL AND STAKES AND PROPERLY DISPOSE OF OFF-SITE.
2. RE-GRADE AREA SEDIMENT HAS ACCUMULATED AS NECESSARY AND ESTABLISH VEGETATION ON ANY RESULTING DISTURBED AREAS.

ALTERNATIVE MANUFACTURED YARD DRAIN INLET PROTECTION PRODUCTS ARE AVAILABLE AND CAN BE USED, BUT ARE SUBJECT TO APPROVAL BY DUKE REPRESENTATIVE.

DROP INLET PROTECTION

SCALE:N.T.S.



ROCK DITCH CHECK

SCALE: N.T.S.

INSTALLATION:

1. AASHTO #1 (1.5-3.5 INCH) STONE OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT A MINIMUM 6-INCH THICKNESS FOR LIGHT DUTY USE OR AT LEAST 10-INCH THICKNESS FOR HEAVY-DUTY USE.
2. THE ENTRANCE SHALL BE AS LONG AS REQUIRED TO STABILIZE HIGH TRAFFIC AREAS (30-FT MINIMUM ON A SINGLE RESIDENTIAL LOT; 70-FT MINIMUM ELSEWHERE).
3. A GEOTEXTILE SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE. IT SHALL BE COMPOSED OF STRONG ROT-PROOF POLYMERIC FIBERS AND MEET THE FOLLOWING SPECIFICATIONS:

MINIMUM TENSILE STRENGTH	200 lbs.
MINIMUM PUNCTURE STRENGTH	80 psi.
MINIMUM TEAR STRENGTH	50 lbs.
MINIMUM BURST STRENGTH	320 psi.
MINIMUM ELONGATION	20%
EQUIVALENT OPENING SIZE	EOS < 0.8 mm
PERMEABILITY	1X10-3 cm/sec

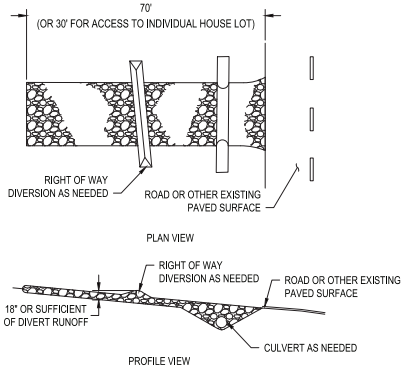
4. IF NEEDED, A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE TO PREVENT SURFACE WATER FROM FLOWING ACROSS THE ENTRANCE OUT ONTO PAVED SURFACES.
5. IF NEEDED, A WATER BAR SHALL BE CONSTRUCTED TO PREVENT SURFACE WATER FROM FLOWING ALONG THE LENGTH OF THE ENTRANCE UT ONTO PAVED SURFACE.

MAINTENANCE:

1. TOP DRESS WITH ADDITIONAL STONE AS SITE CONDITIONS DEMAND.
2. REMOVE MUD TRACKED ONTO PUBLIC STREETS IMMEDIATELY VIA SCRAPING OR SWEEPING.
3. ENSURE THE ENDS OF A TEMPORARY CULVERT PIPE (IF UTILIZED) ARE NOT BLOCKED AND THAT THE PIPE IS FREE OF DEBRIS THROUGHOUT.

REMOVAL:

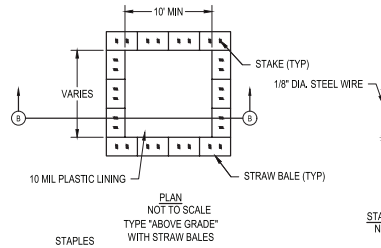
1. THE ENTRANCE SHALL REMAIN IN PLACE UNTIL THE DISTURBED AREA IS STABILIZED OR REPLACED WITH A PERMANENT ROADWAY OR ENTRANCE,
2. PULL OUT ALL CONSTRUCTION ENTRANCE MATERIAL AND PROPERLY DISPOSE OF OFF-SITE. STONE CAN BE BLENDED INTO THE SURROUNDING LANDSCAPE AS SITE CONDITIONS ALLOW.
3. RE-GRADE THE AREA AS NECESSARY AND ESTABLISH VEGETATION ON ANY RESULTING DISTURBED AREAS.

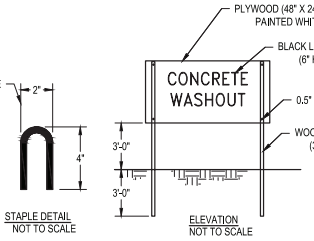


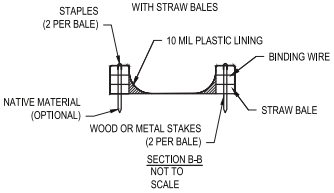
STABILIZING CONSTRUCTION ENTRANCE

SCALE:N.T.S.

SPACE CHECK DAMS THE DISTANCE APART WHERE POINTS "A" AND "B" ARE THE SAME ELEVATION





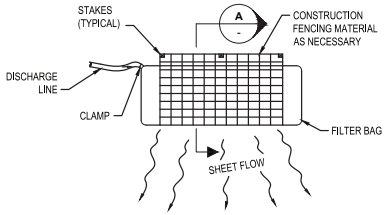


NOTES:

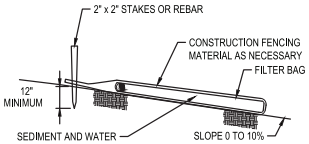
1. CONCRETE WASHOUT WATER SHALL NOT BE ALLOWED TO FLOW TO STREAMS, DITCHES, STORM DRAINS, OR ANY OTHER WASHOUT CONVEYANCE.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED ADJACENT TO THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. WASHOUT PIT MUST BE INSPECTED FREQUENTLY TO ENSURE LINER IS INTACT.
4. ONCE 75% OF ORIGINAL PIT VOLUME IS FILLED OR LINER IS TORN, MATERIAL MUST BE REMOVED AND PROPERLY DISPOSED OF ONCE HARDENED. LINER SHALL BE REPLACED IF TORN.

CONCRETE WASHOUT AREAS

SCALE:N.T.S.



PLAN



SECTION "A-A"

NOTES:

1. INSTALL A DEWATERING GEOTEXTILE FILTER BAG AS DIRECTED BY THE COMPANY'S INSPECTOR TO PREVENT THE FLOW OF HEAVILY SILT LADEN WATER INTO WATERBODIES OR WETLANDS.
2. DISCHARGE SITE SHALL BE WELL VEGETATED AND THE TOPOGRAPHY OF THE SITE SUCH THAT WATER WILL FLOW AWAY FROM ANY WORK AREAS. AREA DOWN SLOPE FROM THE DEWATERING SITE MUST BE REASONABLY PLANE OR STABILIZED BY VEGETATION OR OTHER MEANS TO ALLOW THE FILTERED WATER TO CONTINUE AS SHEET FLOW.
3. TO ATTACH THE DISCHARGE HOSE, CUT A CORNER OF THE BAG, INSERT DISCHARGE HOSE, AND SECURE THE HOSE TO THE BAG.
4. A SINGLE FILTER BAG SHOULD NOT BE USED FOR FLOWS GREATER THAN GALLONS PER MINUTE.
5. REPLACE FILTER BAG BEFORE IT IS COMPLETELY FILLED WITH SEDIMENT. MONITOR DISCHARGE TO AVOID OVER PRESSURING DUE TO PLUGGING, WHICH MAY RESULT IN RUPTURE.
6. DISPOSE OF USED FILTER BAG AND SEDIMENT AT A SITE APPROVED BY TH COMPANY'S INSPECTOR.

TYPICAL GEOTEXTILE FILTER BAG FOR DEWATERING

SCALE:N.T.S.

NOTES:

1. ALL SEDIMENT RELEASES BEYOND THE SITE PERIMETER CONTROLS AND SPILLS REGARDLESS AMOUNT OR LOCATION ARE TO BE IMMEDIATELY REPORTED TO THE DUKE ENERGY ENVIRONME FIELD PROFESSIONAL. IF THE DUKE ENERGY ENVIRONMENTAL PROFESSIONAL CANNOT BE REA THE DUKE ENERGY SPILL HOTLINE IS TO BE CALLED AT 1-800-527-3853.

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DESCRIPTION	
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DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

DUKE ENERGY. Piedmont Natural Gas

PROFESSIONAL ENGINEER STAMP

-
AM07 PHASE 3
ENVIRONMENTAL NOTES AND DETAILS 2
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

SHEET(S)	1 OF X
DWG SCALE	AS NOT
DWG DATE	04/05/2024
SUPERSEDED	

DRAWING NUMBER
PNG -C-043-0002024

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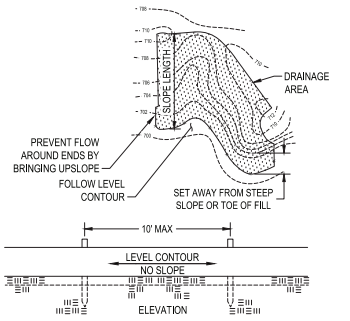
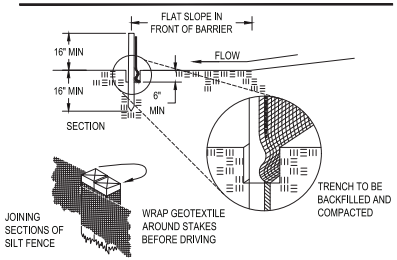
SILT FENCE

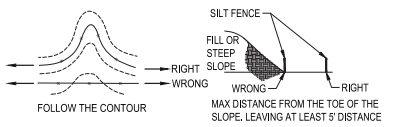
INSTALLATION:
1. CONSTRUCT PRIOR TO UPSLOPE LAND DISTURBANCE.
2. PLACE CONTINUOUS LENGTHS OF SILT FENCE ALONG A CONSISTENT CONTOUR SO AS TO PREVENT THE CONCENTRATION OF RUNOFF AT LOW POINTS IN THE FENCE.
3. TO PREVENT FLOW AROUND ENDS, EXTEND EACH OF A CONTINUOUS LENGTH OF SILT FENCE UPSLOPE (90° TO THE CONTOUR) SO THE ENDS ARE AT A HIGHER ELEVATION OR 20-FEET IN HORIZONTAL DISTANCE, WHICHEVER IS ACHIEVED FIRST.
4. AT A MINIMUM, THE BOTTOM 8-INCHES OF THE SILT FENCE MATERIAL MUST BE PLACED IN A TRENCH (MINIMUM 8-INCH DEPTH) THAT IS CUT WITH A TRENCHER, CABLE LAYING MACHINE, OR OTHER SUITABLE DEVICE. THE TRENCH SHALL NOT BE CONSTRUCTED WITH THE TILT BLADE OF A BULLDOZER.
5. THE TRENCH MUST BE BACKFILLED WITH SOIL AND PROPERLY COMPACTED. WHEN AGGRESSIVELY PULLED UPWARD BETWEEN TWO CONSECUTIVE STAKES, THE MATERIAL SHOULD NOT PULL OUT OF THE GROUND.
6. STAKES (MIN. 32-INCH LENGTH, 2"X2" HARDWOOD OF GOOD QUALITY) MUST BE PALCED ON THE DOWNSLOPE SIDE OF THE SILT FENCE MATERIAL.
7. SILT FENCE MATERIAL MUST BE PULLED TIGHT BETWEEN CONSECUTIVE STAKES TO ENSURE THE FENCE DOES NOT SAG.
8. WHEN IT IS NECESSARY TO JOIN TWO SEPARATE LENGTHS OF SILT FENCE TO FORM A CONTINUOUS RUN, THE END OF TWO SEPARATE LENGTHS MUST BE JOINED TOGETHER BY FIRST OVERLAPPING THEM AND THEN TWISTING THEM TOGETHER AT LEAST 180° PRIOR TO DRIVING THE STAKES INTO THE GROUND.

MAINTENANCE:
1. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES 1/3RD THE HEIGHT OF THE SILT FENCE. THE REMOVED SEDIMENT MUST BE STABILIZED AND SHOULD NOT BE PLACED WHERE IT COULD EVENTUALLY BE CONVEYED BACK TO THE SILT FENCE VIA SURFACE RUNOFF.
2. REPLACE AND PROPERLY DISPOSE OF DAMAGED SILT FENCE MATERIAL.
3. AREAS WHERE SURFACE FLOW HAS CUT UNDER THE SILT FENCE MATERIAL WITHIN THE TRENCH SHALL BE RE-COMPACTED WITH APPROPRIATE MATERIAL (I.E. HIGH CLAY CONTENT).

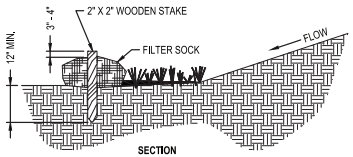
REMOVAL:
1. PULL OUT ALL SILT FENCE MATERIAL AND STAKES AND PROPERLY DISPOSE OF OFF-SITE.
2. RE-GRADE AREA WHERE SEDIMENT HAS ACCUMULATED AS NECESSARY AND ESTABLISH VEGETATION IN ANY RESULTING DISTURBED AREAS.







SILT FENCE
SCALE: N.T.S.



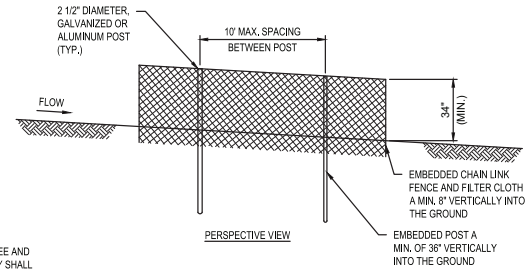
SLOPE	RATIO (H:V)	8"	12"	18"	24"
0% - 2%	10% - 20%	125	250	300	350
10% - 20%	50:1 - 10:1	100	125	200	250
2% - 10%	10:1 - 5:1	75	100	150	200
20% - 33%	5:1 - 2:1		50	75	100
>50%	>2:1		25	50	75

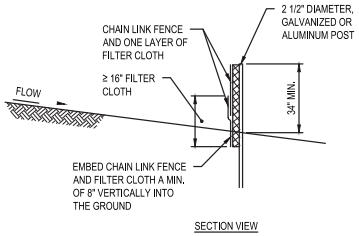
NOTES:
1. MATERIALS - COMPOST USED FOR FILTER SOCKS SHALL BE WEED, PATHOGEN AND INSECT FREE AND FREE OF ANY REFUSE, CONTAMINANTS OR OTHER MATERIALS TOXIC TO PLANT GROWTH. THEY SHALL BE DERIVED FROM A WELL-DECOMPOSED SOURCE OF ORGANIC MATTER AND CONSIST OF A PARTICLES RANGING FROM 3/8" TO 2".
2. FILTER SOCKS INSTALLED IN RIPARIAN OR WETLAND BOUNDARY AREAS SHALL BE CONSTRUCTED OF NATURAL FIBER MESH NETTING AND SUITABLE COMPOST MATERIAL.
3. FILTER SOCKS SHALL BE 3 OR 5 MIL CONTINUOUS, TUBULAR, HDPE 3/8" KNITTED MESH NETTING MATERIAL, FILLED WITH COMPOST PASSING THE ABOVE SPECIFICATIONS FOR COMPOST PRODUCTS.

INSTALLATION:
1. FILTER SOCKS WILL BE PLACED ON A LEVEL LINE ACROSS SLOPES, GENERALLY PARALLEL TO THE BASE OF THE SLOPE OR OTHER AFFECTED AREA, ON SLOPES APPROACHING 2:1, ADDITIONAL SOCKS SHALL BE PROVIDED AT THE TOP AND AS NEEDED MID-SLOPE.
2. FILTER SOCKS INTENDED TO BE LEFT AS A PERMANENT FILTER OR PART OF THE NATURAL LANDSCAPE, SHALL BE SEEDED AT THE TIME OF INSTALLATION FOR ESTABLISHMENT OF PERMANENT VEGETATION.
3. FILTER SOCKS ARE NOT TO BE USED IN CONCENTRATED FLOW SITUATIONS OR IN RUNOFF CHANNELS.

MAINTENANCE:
1. ROUTINELY INSPECT FILTER SOCKS AFTER EACH SIGNIFICANT RAIN, MAINTAINING FILTER SOCKS IN A FUNCTIONAL CONDITION AT ALL TIMES.
2. REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE FILTER SOCKS WHEN THEY REACH 1/3 OF THE EXPOSED HEIGHT OF THE PRACTICE.
3. WHERE THE FILTER SOCK DETERIORATES OR FAILS, IT WILL BE REPAIRED OR REPLACED WITH A MORE EFFECTIVE ALTERNATIVE.
4. REMOVAL - FILTER SOCKS WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED IN SUCH AS WAY AS TO FACILITATE AND NOT OBSTRUCT SEEDINGS.

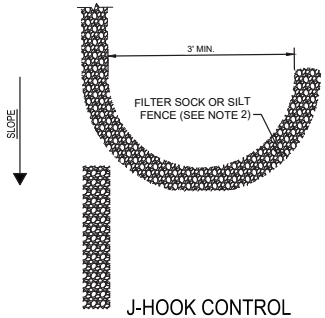
FILTER SOCK
SCALE: N.T.S.





SUPER SILT FENCE DETAIL
SCALE: N.T.S.

IF AND WHERE REQUIRED BY THE LOCAL SOIL CONSERVATION DISTRICT AND / OR THE PROJECT ENGINEER



J-HOOK CONTROL
SCALE: N.T.S.

NOTES:
1. INSTALL J-HOOKS AT LOCATIONS INDICATED ON PLANS OR WHERE COMPANY REPRESENTATIVE DETERMINES NECESSARY.
2. J-HOOK INSTALLATION MATERIAL SHALL MATCH UP-GRADIENT E&SC TYPE (FILTER SOCK / SILT FENCE)
3. UP-GRADIENT E&SC TYPE (FILTER SOCK / SILT FENCE) AND J-HOOK SHALL BE ONE CONTINUOUS LINE.
4. START DOWN-GRADIENT E&SC TYPE AS CLOSE AS POSSIBLE TO THE UP-GRADIENT J-HOOK.
5. SPACING BETWEEN J-HOOKS SHALL BE NO GREATER THAN 100'.

NOTES:
1. ALL SEDIMENT RELEASES BEYOND THE SITE PERIMETER CONTROLS AND SPILLS REGARDLESS O AMOUNT OR LOCATION ARE TO BE IMMEDIATELY REPORTED TO THE DUKE ENERGY ENVIRONME FIELD PROFESSIONAL. IF THE DUKE ENERGY ENVIRONMENTAL PROFESSIONAL CANNOT BE REA THE DUKE ENERGY SPILL HOTLINE IS TO BE CALLED AT 1-800-527-3853.

BURNS & MCDONNELL ENGINEERING COMPANY, INC. STATE LICENSE #443

PROFESSIONAL ENGINEER STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

-
AM07 PHASE 3
ENVIRONMENTAL NOTES AND DETAILS 3
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

SHEET(S)	1 OF X	DWG SCALE	AS NOT
DWG DATE	04/05/2024	SUPERSEDED	__

DRAWING NUMBER
PNG -C-043-0002025
C/ERLANGER/AM07

SEED SPECIES & MIXTURES	SEEDING RATE (LBS)		SOIL PH	OTHER NOTES
	PER ACRE	PER 1000 SQ. FT		
MIXTURES FOR RELATIVELY FLOT OR SLIGHTLY SLOPING AREAS				
PERENNIAL RYEGRASS	25 TO 35	1	5.6 TO 7.0	APPLY LIME AT 2 TONS PER ACRE IF SOIL PH IS BELOW 5.5; USE 400-800 LB FERTILIZER (10-10-10) ON POOR SOILS.
+ TALL FESCUE	15 TO 30	1		
TALL FESCUE	40 TO 50	1.5	5.6 TO 7.5	
+ LADINO OR WHITE CLOVER	1 TO 2	2 OZ		
MIXTURES FOR STEEP SLOPES, BANKS, CUTS, AND OTHER LOW MAINTAENANCE AREAS				
SMOOTH BROMEGRASS	25 TO 35	1	5.5 TO 7.5	TRACK STEEP SLOPES WITH DOZER UP AND DOWN HILL BEFORE SEEDING.MULCH SLOPES AFTER SEEDING WITH 2 TO 3 TONS OF STRAW OR 6 TONS OF WOOD CHIPS PER ACRE. USE TACKIFIER ON MULCH. DISK IT IN, OR PUNCH IN WITH SHEEP-FOOT. FOR EXTREME SLOPES USE EROSION CONTROL BLANKETS AFTER SEEDING. 20' SPACING ON STAPLES
+ RED CLOVER	10 TO 20	0.5		
TALL FESCUE	40 TO 50	1	5.5 TO 7.5	
+ WHITE OR LADINO CLOVER	1 TO 2	2 OZ		
ORCHARDGRASS	20 TO 30	1	5.6 TO 7.0	
+ RED CLOVER	10 TO 20	0.5		
+ LADINO CLOVER	1 TO 2	2 OZ		
LAWNS AND OTHER HIGH TRAFFIC OR HIGH MAINTENANCE AREAS				
BLUEGRASS	105 TO 140	3	5.5 TO 7.0	DO NOT ESTABLISH GRASSED LAWNS NEAR STREAMS OR WETLANDS - LEAVE A 15 TO 30 FT BUFFER OF NATURAL VEGETATION.
PERENNIAL RYEGRASS (TURF)	45 TO 60	2	5.6 TO 7.0	
+ BLUEGRASS	79 TO 90	2.5		
CHANNELS AND OTHER AREAS OF CONCENTRATED WATER FLOWS				
PERENNIAL RYEGRASS	100 TO 150	3	5.6 TO 7.0	SEED DITCHES AND CHANNELS THICKLY. DO NOT USE FERTILIZER NEAR DITCH OR CHANNEL BOTTOM. USE EROSION CONTROL BLANKETS WHEN CHANNEL BOTTOM SLOOPES EXCEED 3%. SILT CHECK DAMS ARE REQUIRED WHEN SLOPES EXCEED 5%.USE ROCK FOR CHECK DAMS.
+ WHITE OR LADINO CLOVER	45 TO 60	2 OZ		
TALL FESCUE	100 TO 1500	3	5.5 TO 7.5	
+ PERENNIAL RYEGRASS	15 TO 20	0.5		
+ KENTUCKY BLUEGRASS	15 TO 20	0.5		

SITE PREPARATION:

1. SOIL SHOULD BE CAPABLE OF SUPPORTING PERMANENT VEGETATION AND HAVE AT LEAST 25% SILT AND CLAY TO PROVIDE AN ADEQUATE AMOUNT OF MOISTURE HOLDING CPACITY, AN EXCESSIVE AMOUNT OF POROUS SAND WILL NOT CONSISTENTLY PROVIDE SUFFICIENT MOISTURE FOR GOOD GROWTH REGARDLESS OF OTHER SOIL FACTORS.
   - 1.1. PLAN TO SEED ALL AREAS AS SOON AS FINAL GRADE IS REACHED.
   - 1.2. WHERE COMPACTED SOILS OCCUR, THEY SHOULD BE BROKEN UP SUFFICIENTLY TO CREATE A FAVORABLE ROOTING DEPTH OF 6 - 8 INCHES.
   - 1.3. STOCKPILE TOPSOIL TO APPLY TO SITES THAT ARE OTHERWISE UNSUITED FOR ESTABLISHING VEGETATION. APPROXIMATELY 400 CUBIC YARDS OF TOPSOIL PER ACRE ARE NEEDED FOR APPLICATION DEPTHS OF 3 INCHES (~9.3 CUBIC YARDS PER 1,000 SQUARE FEET).

SEEDBED PREPARATION:

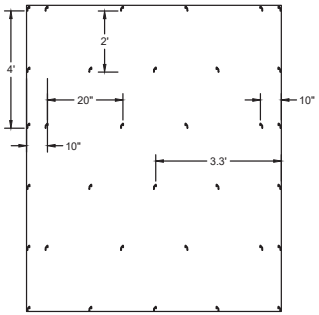
1) SPREAD LIME (IN LIEU OF A SOIL TEST RECOMMENDATION) ON ACID SOIL AND SUBSOIL, AT A RATE OF ONE TON PER ACRE OF AGRICULTURAL GROUND LIMESTONE. FOR BEST RESULTS, TEST THE SOIL—THIS CAN REDUCE THE EXPENSE OF UNNEEDED LIME AND FERTILIZER AND POTENTIAL EXCESS NUTRIENT LOSS THROUGH RUNOFF AND LEACHING.
2) FERTILIZER (IN LIEU OF A SOIL TEST RECOMMENDATION) SHOULD BE APPLIED AT A RATE OF NO MORE THAN 800 POUNDS PER ACRE OF 10-10-10 ANALYSIS. FOR BEST RESULTS, TEST THE SOIL TO DETERMINE FERTILIZER REQUIREMENTS, IN LIMESTONE AREAS WITH STREAMS AND RIVERS IMPACTED BY HIGH ALGAE CONCENTRATIONS, USE 10•0•10 FERTILIZER.
3) WORK THE LIME AND FERTILIZER INTO THE SOIL WITH A DISK HARROW, SPRINGTOOTH HARROW, OR OTHER SUITABLE FIELD EQUIPMENT TO A DEPTH OF 4 INCHES. ON SLOPING LAND, THE FINAL OPERATION MUST BE ON THE CONTOUR.

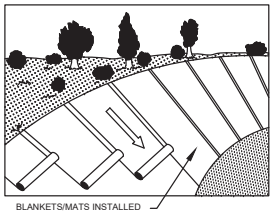
MAINTENANCE:

1) WATER THE SOIL UNTIL THE GRASS IS FIRMLY ESTABLISHED. THIS IS ESPECIALLY NEEDED WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY AND HOT SEASON, OR ON SITES WITH STEEP SLOPES OR OTHER ADVERSE CONDITIONS.
2) INSPECT ALL SEEDED AREAS FOR FAILURES AND MAKE NECESSARY REPAIRS, REPLACEMENTS, RESEEDINGS, AND REMULCHING WITHIN THE PLANTING SEASON.
3) IF STAND IS INADEQUATE, (LESS THAN 85 PERCENT GROUNDCOVER) SEED OVER THE SITE AND FERTILIZE, USING HALF OF THE SEEDING RATE ORIGINALLY APPLIED, AND APPLY MULCH.
4) IF STAND IS MORE THAN 60 PERCENT DAMAGED, REESTABLISH THE STAND. FOLLOW THE ORIGINAL SEEDBED PREPARATION METHODS, SEEDING AND MULCHING RECOMMENDATIONS, AND APPLY LIME AND FERTILIZER AS NEEDED ACCORDING TO A SOIL TEST.

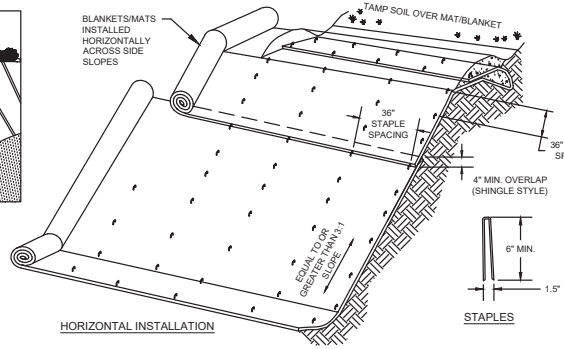
PERMANENT SEEDING

SCALE: N.T.S.





VERTICAL INSTALLATION

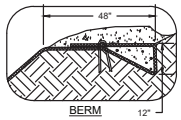


HORIZONTAL INSTALLATION

STAPLES

NOTES:

1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
4. USE ON SIDE SLOPES EXCEEDING A 3:1 SLOPE AND DISTURBED STREAMBANKS.
5. **THE FOLLOWING BLANKET TYPES SHALL BE UTILIZED:**
   - **A. TENSAR NORTH AMERICAN GREEN SC250 ON STREAMBANKS AND SLOPES 1:1 OR GREATER.**
   - **B. SHORT-TERM BIODEGRADABLE DOUBLE-NET STRAW BLANKET ON 3:1 SLOPES OR GREATER. THESE BLANKETS ARE NOT REQUIRED ON SLOPES PROTECTED BY SLOPE BREAKER INSTALLATION.**
   - **C. SHORT-TERM BIODEGRADABLE SINGLE-NET STRAW ON LESSER SLOPES, FLAT FLOODPLAIN, AND WORKSPACE AREAS.**
6. FOR STREAMBANK STABILIZATION:
   - A. TUCK/UNDERLAP BASE OF BLANKET TO PREVENT HIGH WATER FROM REMOVING BLANKET AND SEED.
   - B. STAPLE SPACING MAY NEED TO BE DECREASED.
   - C. PREPARE SUBGRADE PRIOR TO INSTALLING BLANKET BY REMOVING DISPLACED ROCKS AND WOODY DEBRIS.
   - D. USE VERTICAL INSTALLATION. USE STAPLE SPACING SHOWN TO THE LEFT.
   - E. INSTALL OVER ENTIRE 50' ROW AND ANY ADDITIONAL DISTURBED STREAMBANKS. INSTALL VERTICALLY OVER BANK TO A POINT AT LEAST 10' UPSLOPE OF WATER LEVEL.



BERM

EROSION CONTROL BLANKETS

SCALE: N.T.S.

NOTES:

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BURNS & MCDONNELL ENGINEERING COMPANY, INC.
STATE LICENSE #435

PROFESSIONAL ENGINEER STAMP

NO.	DATE	REVISION(S) DESCRIPTION	DRAFTING/DESIGN	CHECKER/REVIEWER	APPROVING ENGINEER
A	04/26/2024	ISSUED FOR 60% DESIGN REVIEW	MDM	JMP	AMP

DESCRIPTION	
AREA CODE	-
ACCOUNT NUMBER	-
PROJECT NUMBER	AW6387
DWG TYPE	PIPELINE
SERVICE ID	-
STATION ID	-

-
AM07 PHASE 3
ENVIRONMENTAL NOTES AND DETAILS 4
COVINGTON, KY
ERLANGER, KENTUCKY

REF. DWG(S)

SHEET(S)	1 OF X	DWG SCALE	AS NOT
DWG DATE	04/05/2024	SUPERSEDED	

DRAWING NUMBER
PNG -C-043-0002026

C/ERLANGER/AM07

Harrison, Brooke

From: Bishop, Seth R <seth_bishop@fws.gov>
Sent: Wednesday, February 7, 2024 4:35 PM
To: Harrison, Brooke
Subject: FWS 2024-0037659; AM07 Phase 3 Pipeline Replacement Project, Campbell & Kenton Co., KY

Follow Up Flag: Follow up
Flag Status: Flagged

Brooke,

The KFO does not have any comments on this project at this time. The official species list you obtained from the Service's IPaC website will show you which species should be considered when evaluating potential effects to listed species from the project. When you are ready to evaluate potential effects, you can either use the determination keys on the IPaC website or submit a project package to our office for review. There is guidance on both of these options on our website (https://www.fws.gov/office/kentucky-ecological-services/kentucky-field-office-project-review-guidance).

Thanks for reaching out to our office. Let me know if you have any questions or need additional assistance at this time.

Seth

Seth R. Bishop
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Kentucky Field Office
330 West Broadway, Room 265
Frankfort, KY 40601
(502) 545-4532

KENTUCKY DEPARTMENT OF FISH & WILDLIFE RESOURCES

Rich Storm
Commissioner

#1 Sportsman's Lane
Frankfort, Kentucky 40601
Phone (502) 564-3400
Fax (502) 564-0506

Brian Clark
Deputy Commissioner

Gabe Jenkins
Deputy Commissioner

March 18, 2024

Burns & McDonnell
Attn: Brooke Harrison, Project Manager
530 West Spring Street, Suite 100
Columbus, Ohio 43215

RE: Project Review Request
AM07 Phase 3 Pipeline Replacement Project
Kenton and Campbell Counties, Kentucky

Dear Ms. Harrison:

The Kentucky Department of Fish and Wildlife Resources (KDFWR) has received your request for an environmental review regarding the proposed AM07 Phase 3 Pipeline Replacement Project in Kenton and Campbell Counties, KY. The proposed project area has been reviewed for impacts wildlife resources and other sensitive areas. The following comments are provided:

KDFWR Records Review:

Our records indicate the following federally listed and proposed listed species occur within ten (10) miles of the proposed project areas. Be advised that the KDFWR does not have the authority to confirm compliance with the Endangered Species Act. Please coordinate with the U.S. Fish and Wildlife Service for specific recommendations and compliance requirements for these federally listed species.

Scientific Name	Common Name	Class	Federal Status
Etheostoma lemniscatum	Tuxedo Darter	Actinopterygii	E
Cyprogenia stegaria	Fanshell	Bivalvia	E
Fusconaia subrotunda	Longsolid	Bivalvia	T
Lampsilis abrupta	Pink Mucket	Bivalvia	E
Plethobasus cyphyus	Sheepnose	Bivalvia	E
Theliderma cylindrica	Rabbitsfoot	Bivalvia	T
Macrochelys temminckii	Alligator Snapping Turtle	Chelonia	PT
Myotis septentrionalis	Northern Long-Eared Bat	Mammalia	T
Myotis sodalis	Indiana Bat	Mammalia	E
Perimyotis subflavus	Tricolored Bat	Mammalia	PE

The following state-listed species were recorded within one (1) mile of the proposed project area:

Scientific Name	Common Name	Class	Federal Status	KSNPC Status
Lithobates pipiens	Northern Leopard Frog	Amphibia	N	S
Plethodon cinereus	Eastern Red-backed Salamander	Amphibia	N	S
Accipiter striatus	Sharp-shinned Hawk	Aves	N	S
Lanius ludovicianus	Loggerhead Shrike	Aves	N	S
Passerculus sandwichensis	Savannah Sparrow	Aves	N	S
Pheucticus ludovicianus	Rose-breasted Grosbeak	Aves	N	S
Sitta canadensis	Red-breasted Nuthatch	Aves	N	E
Perimyotis subflavus	Tricolored Bat	Mammalia	PE	T

The KDFWR recently updated the Kentucky State Wildlife Action Plan (SWAP) under a federal grant from the U.S. Fish and Wildlife Service. The updated SWAP is a user-friendly guide for conservation of species of greatest conservation need (SGCN) in the state. The KDFWR invites you to review the updated SWAP on its website (https://app.fw.ky.gov/kyswap/). Species experts from the public and private sectors helped develop the SWAP by determining which species were rare, vulnerable, declining in population, or for which there was not enough information to determine status, and therefore had the greatest need for conservation actions. The SWAP is intended to provide guidance to developers, regulators, resource agencies, the public, and other stakeholders to conserve SGCN by prioritizing threats and recommending conservation actions for each species. The KDFWR is promoting the use of the SWAP to prevent declines in SGCN thereby preventing the need to list them in the Endangered Species Act. SGCN status does not invoke regulatory restrictions or requirements. However, the KDFWR encourages project sponsors to consider actions that provide conservation benefits to these species such as minimization of habitat encroachment, using buffer areas near projects to provide habitat, or other measures. Please refer to the SWAP for specific conservation actions that may benefit the SGCN identified within one (1) mile that may be compatible with the proposed project:

Scientific Name	Common Name	Class	Federal Status	KSNPC Status
Ambystoma barbouri	Streamside Salamander	Amphibia	N	N
Lithobates pipiens	Northern Leopard Frog	Amphibia	N	S
Plethodon cinereus	Eastern Red-backed Salamander	Amphibia	N	S
Accipiter striatus	Sharp-shinned Hawk	Aves	N	S
Butorides virescens	Green Heron	Aves	N	N
Coccyzus americanus	Yellow-billed Cuckoo	Aves	N	N
Empidonax traillii	Willow Flycatcher	Aves	N	N
Falco sparverius	American Kestrel	Aves	N	N
Gallinago delicata	Wilson's Snipe	Aves	N	N
Hylocichla mustelina	Wood Thrush	Aves	N	N
Lanius ludovicianus	Loggerhead Shrike	Aves	N	S
Melanerpes erythrocephalus	Red-headed Woodpecker	Aves	N	N
Passerculus sandwichensis	Savannah Sparrow	Aves	N	S
Protonotaria citrea	Prothonotary Warbler	Aves	N	N
Scolopax minor	American Woodcock	Aves	N	N
Setophaga cerulea	Cerulean Warbler	Aves	N	N
Setophaga discolor	Prairie Warbler	Aves	N	N

Spiza americana	Dickcissel	Aves	N	N
Spizella pusilla	Field Sparrow	Aves	N	N
Sturnella magna	Eastern Meadowlark	Aves	N	N
Cambarus bartonii cavatus	Appalachian Brook Crayfish	Malacostraca	N	N
Faxonius rusticus	Rusty Crayfish	Malacostraca	N	N
Perimyotis subflavus	Tricolored Bat	Mammalia	PE	T

No trout streams, fish spawning areas, or sensitive waterways were identified as occurring in the project footprint. It is possible that wetlands occur near the project area based on a desktop review of the National Wetlands Inventory Mapping and soil data. Additionally, numerous streams are depicted on topographic maps and hydrologic map data, including the Licking River. An on-site review of the project footprint is recommended. The KDFWR requests that you coordinate the proposed project with the U. S. Army Corps of Engineers (USACE) and the Kentucky Division of Water (KDOW) prior to any work within the waterways or wetland habitats of Kentucky.

There were no wildlife management areas, natural lands, or other protected areas identified in a review of such records within the footprint of the project or within one (1) mile.

KDFWR Comments and Guidance:

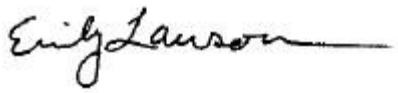
The federally listed mussel species are typically found in flowing waters of medium to large rivers in main channels over mud, firm sand, and gravel substrates. No records were found within the Licking River near the area of concern, therefore it is unlikely that the proposed project will significantly affect these species.

The federally listed bat species occur in forests, caves, or mine portals at different times of the year. The Northern Long-Eared Bat and the Tricolored bat typically overwinter in caves or mines and spend the remainder of the year in forested habitats. The Indiana Bat relies on trees for maternity seasons and may use caves or mine portals throughout the year. The KDFWR asks that you coordinate any tree removal activities with the U.S. Fish and Wildlife Service Kentucky Field Office. Due to the presence of federally listed bat species near the project site, the USFWS may have seasonal requirements for removing those trees, especially those greater than 3” diameter-at-breast height (dbh). Removing these trees during the winter months would reduce possible direct impacts to tree-roosting bat species.

To minimize impacts to nearby state-listed and SGCN aquatic species, KDFWR recommends that erosion control measures be developed and implemented prior to construction to reduce siltation into waterways located within/near the project area. Such erosion control measures may include, but are not limited to silt fences, staked straw bales, brush barriers, sediment basins, and diversion ditches. Erosion control measures will need to be inspected regularly and repaired as needed. If blanket-style matting is used for erosion control, please avoid using the nylon monofilament netting as it can entangle and kill wildlife. An alternative blanket style control is organic coir matting, which degrades naturally and provides excellent soil protection and moisture retention for seed germination—as well as controlling erosion runoff without unnecessarily impacting wildlife.

Thank you for coordinating with KDFWR. Please contact Emily Lawson at 502-892-4472 or emilym.lawson@ky.gov if you have further questions or require additional information.

Sincerely,



Emily Lawson
Environmental Branch Coordinator