



March 29, 2022

City of Columbus
Division of Sewerage and Drainage
Attn: Greg Fedner, P.E.
Section Manager, Plan Review Section
1250 Fairwood Avenue
Columbus, OH 43206

Also Transmitted via email: gfedner@columbus.gov

**RE: *City of Columbus Stormwater Drainage Manual (SWDM) Type III Variance Request
Proposed Buckeye Rail Yard Redevelopment
4882 Trabue Road, Columbus, Franklin County, Ohio 43228***

On behalf of Buckeye XO, LLC, Kimley-Horn and Associates, Inc. (Kimley-Horn) is submitting this application for Type III Variance Request from the City of Columbus Stormwater Drainage Manual for the Proposed Buckeye Yard Redevelopment project, which encompasses approximately 279.19 acres of former Norfolk-Southern rail yard acreage located at approximately 4882 Trabue Road (north of Trabue Road and south of Roberts Road), Columbus, Franklin County, Ohio 43228, herein referred to as the "Site". The Franklin County Auditor's office identifies the Site as parcel numbers 560-154558 and 560-184817. Approximate latitude/longitude coordinates for the central part of the Site are 39.991777, -83.130647.

Land within the Site currently consists primarily of former Norfolk-Southern railroad acreage, including former rail lines, ballast material, ancillary structures, open areas, waste land, extensive graveled areas, and unmaintained woods. The previously completed wetlands delineation report and associated USACE Preliminary Jurisdictional Determination (PJD) indicates that four (4) streams, two (2) wetlands, and one (1) pond are currently located on the Site (all jurisdictional). Approximately 50-acres of unmaintained wooded land is located on the northwestern portion of the Site, which has generally grown unmaintained since the conversion of the Site from agricultural use prior to the early 1970's to the development of the Site as a rail yard.

The proposed project will re-develop the majority of the 279.19-acre Site with eight (8) industrial logistics warehouse buildings, totaling 4.1m square feet with associated parking, trailer docks, and storm water detention basins. Phase I of the project is anticipated to include four (4) buildings encompassing 1.8m square feet, while Phase II of the project is anticipated to add four (4) buildings encompassing approximately 2.3m square feet. A new private road is anticipated to be constructed throughout the Site with proposed access to Trabue Road as well as Walcutt Road.

The project purpose is to provide large-scale industrial logistics warehouse space with proximate access to the Interstate Highway System and local rail line transportation in the west Columbus area to meet local and regional distribution demands, while the project need is to mitigate the impact of the covid-19 pandemic on retail distribution and ecommerce demands and associated product

shortages/availability within Central Ohio and the Midwest. The proposed Site would allow for substantial supply and last-mile access to meet continued growth trends, while relying on the diverse and skilled local workforce of central Ohio.

Proposed impacts to jurisdictional waters of the U.S. and waters of Ohio include the filling and grading of approximately 0.78 acre of wetland habitat (0.49 acre, Cat 2 palustrine forested habitat and 0.29 acre, Cat 2 palustrine emergent habitat), 0.23 acre of jurisdictional pond habitat (impoundment, unconsolidated bottom), and the relocation of approximately 7,162 linear feet of stream habitat. Impacts to jurisdictional wetland habitat will be mitigated for through the purchase of forested wetland mitigation bank credits through the Wetland Resource Center at their Little Scioto Wetlands Mitigation Bank. Mitigation for impacts to jurisdictional stream habitat will be completed through the relocation and restoration of approximately 7,193.00 linear feet of open stream channel and 1,573.00 linear feet of encapsulated (piped) stream channel, resulting in a total of 8,766.00 linear feet of relocated on-site stream channel while allowing for a natural stream channel design to be implemented with native vegetation plantings, natural meanders, and overall improved stream habitat and water quality when compared to historical impacts of the stream as a result of the development of the rail yard. Impacts to the jurisdictional pond onsite have been encompassed as mitigation within the total stream impacts and proposed onsite stream mitigation linear footage listed above.

Kimley-Horn is submitting this variance request to the City of Columbus for proposed encroachment within the designated Stream Corridor Protection Zone (SCPZ) of onsite stream habitat as part of the proposed development project and associated proposed relocation and restoration of the four (4) on-site streams.

Based on the currently proposed impacts to jurisdictional waters of the United States and waters of the State of Ohio, Kimley-Horn (on behalf of Buckeye XO, LLC) has also submitted a USACE Section 404 Individual Permit Application (USACE ID No: LRH-2021-551-SCR) and an Ohio EPA Section 401 Water Quality Certification Application (Ohio EPA ID No: 227686A), that are currently under review.

Additional information pertaining to the requested variance is included in the enclosed application. If you have any questions, please contact us at the undersigned. Thank you.

Sincerely,



Justin M. Muller, P.E.
Kimley-Horn and Associates, Inc.
Direct: (614) 454 6696
E-Mail: justin.muller@kimley-horn.com



Justin S. Williams, Environmental Scientist
Kimley-Horn and Associates, Inc.
Direct: (380) 215 1794
E-Mail: justin.williams@kimley-horn.com



City of Columbus Type III Variance Application

Buckeye Rail Yard Redevelopment

4882 Trabue Road

Columbus, Franklin County, Ohio

Prepared for:

Buckeye XO, LLC
2100 Ross Avenue, Suite 895
Dallas, TX 75201

Prepared by:

Kimley-Horn and Associates, Inc.
7965 North High Street, Suite 200
Columbus, OH 43235

March 28, 2022

USACE ID No: LRH-2021-551-SCR
Ohio EPA ID No: 227686A
KH Project Number: 190118003

Kimley»»Horn



Table of Contents

Executive Summary	iii
Section 1: Introduction	4
1.1 Purpose and Need	4
1.2 Project Background	5
1.3 Existing Site Conditions	5
Section 2: Variance Submittal Requirements	8
2.1 Reasoning for Variance Request.....	8
2.1.1 Variance Type Requested.....	8
2.1.2 Summary – Impact to Stream, SCPZ, Water Quality, Water Quantity.....	8
2.1.3 Summary – Substantial Hardship/Land Use Deprivation Related to SWDM Comp	10
Section 3: Development Alternatives	12
3.1 No Impact Development Plan	12
3.1.1 Impact to Stream, SCPZ, Water Quality, Water Quantity	12
3.1.2 Social Benefits.....	12
3.1.3 Development Feasibility	12
3.2 Impact to Stream, SCPZ, Water Quality, Water Quantity	14
3.2.1 Social Benefits.....	14
3.2.2 Development Feasibility	14
3.3 Preferred Impact Development Plan.....	17
3.3.1 Impact to Stream, SCPZ, Water Quality, Water Quantity	17
3.3.2 Social Benefits.....	17
3.3.3 Development Feasibility	17
Section 4: Demonstration of Adequate Mitigation.....	19
4.1 Impacts to SCPZ	19
4.2 Impact Directly to Stream.....	19
Section 5: Conclusion/Summary	22
5.1 Closing	22

List of Tables

Table 1: Social and Economic Justification for Stream Relocation

Table 2: Stream Summary Data

Appendices

Figures

Appendix A: Social and Economic Justification for Stream Relocation Table (Table 1)

Appendix B: No Impact Alternative Development Plan

Appendix C: Minimal Impact Alternative Development Plan

Appendix D: Preferred Alternative Development Plan

Appendix E: Stream Relocation Construction Plan(s)

Appendix F: SCPZ Reforestation Plan(s)

Appendix G: USGS Stream Stats Data

Appendix H: Stream Habitat Assessment Datasheets (HHEI and QHEI) and Photolog

Appendix I: Pebble Count Datasheets

Appendix J: Anticipated Stream Habitat Assessment Datasheets for Relocated Streams (HHEI and QHEI)

Appendix K: USACE Jurisdictional Determination

Appendix L: USACE Public Notice / OEPA Complete Application Letter

Appendix M: Previous Wetlands Delineation Report

Appendix N: Additional Supporting Documentation (Historical Aerials, FEMA Map, HUC Map, etc.)

Executive Summary

Kimley-Horn and Associates, Inc. (Kimley-Horn) acting on behalf of Buckeye XO, LLC, is submitting a City of Columbus Type III Variance Request per the requirements of the City of Columbus Stormwater Drainage Manual (SWDM) for the proposed encroachment within the Stream Corridor Protection Zone (SCPZ) including relocation and restoration of four (4) streams (one intermittent, three perennial) for the proposed Buckeye Rail Yard Redevelopment project.

The property/study area encompasses approximately 279.19 acres of former Norfolk-Southern rail yard acreage located at approximately 4882 Trabue Road (north of Trabue Road and south of Roberts Road), Columbus, Franklin County, Ohio 43228, herein referred to as the “Site”. The Franklin County Auditor’s office identifies the Site as parcel numbers 560-154558 and 560-184817.

Based on the currently proposed impacts to jurisdictional waters of the United States and waters of the State of Ohio, Kimley-Horn and Buckeye XO, LLC have also submitted a USACE Section 404 Individual Permit Application (USACE ID No: LRH-2021-551-SCR) and an Ohio EPA Section 401 Water Quality Certification Application (Ohio EPA ID No: 227686A), that are currently under review. Applicable documentation has been provided in the appendices.

Section 1: Introduction

Land within the Site currently consists primarily of former Norfolk-Southern railroad acreage, including former rail lines, ballast material, ancillary structures, open areas, waste land, extensive graveled areas, and unmaintained woods. The previously completed wetlands delineation report and associated USACE Preliminary Jurisdictional Determination indicates that four (4) streams, two (2) wetlands, and one (1) pond are currently located on the Site (all jurisdictional). Approximately 50-acres of unmaintained wooded land is located on the northwestern portion of the Site, which has generally grown unmaintained since the conversion of the Site from agricultural use prior to the early 1970's to the development of the Site as a rail yard.

1.1 Purpose and Need

The project purpose is to provide large-scale industrial logistics warehouse space with proximate access to the Interstate Highway System and rail line transportation in the west Columbus area to meet local and regional distribution demands.

The project need is to mitigate the impact of the covid-19 pandemic on retail distribution and ecommerce demands and associated product shortages/availability within Central Ohio and the Midwest. The proposed site would allow for substantial supply and last-mile access to meet continued growth trends, while relying on the diverse and skilled local workforce of central Ohio.

The proposed project is the construction of eight (8) commercial/industrial warehouse buildings totaling approximately 4.1m square feet on the previous Buckeye Rail Yard property located in Columbus, Ohio. The project and structures will be centrally located within Ohio and the midwestern United States while allowing for transportation access to the existing Norfolk Southern rail line service, nearby interstates I-70 and I-71, and Rickenbacker International Airport.

To facilitate proposed development of the Site, Buckeye XO, LLC, is proposing to impact 0.78 acre of jurisdictional wetland habitat, 0.23 acre of jurisdictional pond habitat, and the relocation and restoration of four (4) jurisdictional streams on the Site, totaling 7,162 linear feet of stream habitat. Mitigation for impacts to jurisdictional stream habitat on-site will be completed through the relocation and restoration of approximately 7,193.00 linear feet of open stream channel and 1,573.00 linear feet of encapsulated (piped) stream channel, resulting in a total of 8,766.00 linear feet of relocated on-site stream channel. The relocated and restored stream channel will be completed using natural channel design methods in an effort to restore the historically channelized and impacted streams from the original development of the buckeye rail yard site in the late 1960's. Once completed, the relocated and restored streams are anticipated to consist of a sinuous/meandering stream channel with diverse stream channel habitat that will improve overall downstream water quality through decreased siltation and turbidity associated with the high amounts of erosion created from the existing channelized streams.

Proposed impacts to jurisdictional wetland habitat will be mitigated for through the purchase of forested wetland mitigation bank credits, while impacts to the jurisdictional pond have been encompassed as linear footage within the proposed relocated and restored stream channel, as the on-site pond is a historically impounded portion of Stream 10 on-site. The relocated and restored stream habitat on-site will include 17.10 total acres of SCPZ (inclusive of both piped portions and channel portions; an increase of approximately 1.82 acres total.

1.2 Project Background

Buckeye Rail Yard (BUK) was one of five (5) CSX/Norfolk Southern intermodal terminals in Ohio, with others located in Cincinnati, Cleveland Marion, and north Baltimore. Per available information provided by online resources, rail yard construction started in 1968 and was at least complete enough for operations to begin by December 1969.

Buckeye Yard was one of Penn Central Transportation Company's (Penn Central) first significant projects, replacing several old and outmoded yards on the Pennsylvania Railroad (PRR) and New York Central Railroad (NYC) lines around Columbus. The Buckeye Yard site was an entirely new yard built on farmland, connecting to three Penn Central main lines west of Columbus. Historically, Buckeye Yard was an important location for auto part distribution from plants in northern Ohio to the southern United States. To further emphasize the importance of the rail yard, in 2011, CSX Transportation (CSX) announced a \$59 million expansion of the east-adjointing intermodal freight terminal facility, which was completed in 2013 and added 24 additional acres and doubled capacity from 180,000 to 360,000 cargo lifts per year. The expansion was fueled by the need for anticipated growth in the surrounding area and regional business development by linking deep water east coast ports with Midwestern markets.

Unfortunately, through the years and as a result of a variety of railroad company changes and associated closures, abandonments, and decreasing carload traffic which was further driven by the 2008 recession, Norfolk Southern planned to close the Buckeye Yard Site circa 2008. The rail yard was closed in 2009 with Norfolk Southern planning to scrape the land and sell it. The east-adjointing CSX intermodal freight facility remains highly active to this day.

Buckeye XO, LLC, a special-purpose entity (SPE) of Xebec Holdings, LLC, completed purchase of the Buckeye Rail Yard Site in July 2022. The applicant considered multiple other locations for purchase before ultimately settling upon the purchase of the Buckeye Rail Yard Site. The purchase of the Site represented a truly unique opportunity for industrial warehouse logistics development in the area due to its size, zoning, adjacent freight terminal facility, continued rail line connection, and intermodal connectors that provide CSX and Norfolk Southern direct access to the yard site including Roberts Road, Westbelt Drive, and Trabue Road, as well as direct access to the facility via I-270 with nearby access I-70 and I-71.

Based on the alternative analysis of off-site and on-site development options which is further discussed in detail in (Section 3), the Preferred Alternative Development Plan was ultimately selected as it provides enough buildable land on the Site to fulfill the proposed project purpose and need that was initially intended based on the Site's location, size, costs, and other associated inputs (zoning, generally previously developed, direct access to intermodal facilities, etc), while allowing for a substantial amount of aquatic impacts to be appropriately mitigated for on-site through associated relocation and restoration.

In January 2022, on behalf of the applicant, Kimley-Horn prepared and submitted a USACE Section 404 Individual Permit Application and Ohio Environmental Protection Agency (Ohio EPA) Section 401 Individual Water Quality Certification Application for proposed impacts to jurisdictional waters of the U.S. located on the Site, which are currently under agency review. Details regarding proposed impacts to jurisdictional surface waters are further discussed in Section 3.1.

1.3 Existing Site Conditions

The Site encompasses approximately 279.19 acres of former Norfolk-Southern rail yard acreage, which includes approximately 50-acres of woods located on the western side of the Site. The remaining portions of the Site consist of removed rail line areas, ballast material, ancillary structures, open areas, waste land, concrete parking lots and extensive graveled areas.

According to the previous wetlands delineation and revised U.S. Army Corps of Engineers (USACE) Preliminary Jurisdictional Determination (PJD) dated February 14, 2022, four (4) jurisdictional streams are present on the Site (Stream 9, 10, 11, 12) encompassing 7,162 linear feet; two (2) jurisdictional wetlands (Wetland 7, 8) encompassing 0.78 acres; and one jurisdictional pond (Pond 1) encompassing 0.23 acres.

Surface hydrology from Stream 10 flows through Pond 1 and continues north. No non-jurisdictional (isolated) surface water features are located on the Site. Overall, surface water hydrology on the Site is essentially split in middle with Stream 9 and Stream 10 flowing north/northeast and then turning east (downstream) away from the Site, and Stream 11 and Stream 12 flowing south/southeast (downstream) away from the Site before flowing east into the Scioto River (0506001-12-05, Dry Run-Scioto River).

The rail yard Site was developed in the late 1960's and early 1970's. According to the review of historical aerial/satellite images (Appendix N), the majority of the Site was composed of agricultural land prior to Site development in the late 1960's. Drainageways are present on-site in the 1950's although likely altered historically by that point due to the agricultural use of the area. According to the review of the 1970 aerial photograph, the Site is depicted as generally constructed with heavy grading present and all streams located within the Site having been significantly altered by means of rerouting and channelization. Little to no effort was given to provide a natural stream design or associated riparian habitat during the stream relocation process and development of the rail yard, which is clearly evident. The streams appear to have been re-routed around the railyard area through a common channel/ditch which is the currently delineated Stream 11 channel. The streams are depicted as straight with no provided sinuosity or riparian/or streambank vegetation present.

Based on the review of historical aerial/satellite images and further site evaluation reconnaissance and stream habitat assessment that was conducted by Kimley-Horn, on-site stream channels generally exhibit modified warm water habitat characteristics due to historical impacts resulting in channelization, limited stream channel substrate, limited flow and stream channel habitat (no defined riffle/run or pool habitat) and a limited stream riparian corridor that has been unmaintained and partially dominated by invasive species (Honeysuckle, *Lonicera* spp.).

Current on-site aquatic resources include the following:

Stream 9: 320.00 linear feet, Intermittent, Modified Small Drainage Warmwater (HHEI 60), Jurisdictional
Stream 10: 2,552.00 linear feet, Perennial, Modified Small Drainage Warmwater (HHEI 59), Jurisdictional
Stream 11: 3,921.00 linear feet, Perennial, Modified Warmwater (QHEI 32.5), Jurisdictional
Stream 12: 369.00 linear feet, Perennial, Modified Warmwater (QHEI 32.5), Jurisdictional

Wetland 7 – 0.49 acre, Category 2 (ORAM Score 49), Palustrine Forested (PFO), Jurisdictional
Wetland 8 – 0.29 acre, Category 2 (ORAM Score 38), Palustrine Emergent (PEM), Jurisdictional
Pond 1 – 0.23 acre, open water (partial impoundment of Stream 10), unconsolidated bottom, Jurisdictional

The streams and other aquatic resources are further discussed in Section 4.2, and applicable habitat assessment scoring datasheets can be found in Appendix H.

SPCZ Widths on Existing Stream

The SCPZ widths for the existing streams were determined using the following equation, which is referenced in Section 1.3.1 of the City of Columbus Stormwater Drainage Manual.

Stream Corridor Protection Zone, in feet of width¹ = 147(DA)^{0.38}

Where DA = drainage area of the stream in square miles

Stream drainage areas were calculated with the use the U.S. Geological Survey (USGS) StreamStats application from the approximate point where surface water hydrology from the feature entered the Site. One (1) point was selected for each of the four (4) streams, which is indicated in Appendix G. The SCPZ calculations for each stream is summarized below:

Stream 9: StreamStats point was taken at the stormwater retention basin (Latitude 40.00244, Longitude -83.13024), just upstream of where hydrology flows onto the Site through a concrete culvert. StreamStats located was not taken exactly where hydrology flows onto the Site as the StreamStats data was not populating correctly due to the limited drainage area of the stream.

Stream 9 drainage area is 0.64 mi². SCPZ width = $147(0.64)^{0.38} = 124.07'$ wide total or 62' from stream channel center (124' total SCPZ width), totaling approximately 0.91 acres of SCPZ area.

Stream 10: StreamStats point was taken at concrete culvert outfall pipe located on the western boundary of the Site where Stream 10 hydrology flows east (downstream) onto the Site (Latitude 39.99724, Longitude -83.13273).

Stream 10 drainage area is 0.18 mi². SCPZ width = $147(0.18)^{0.38} = 76.61'$ wide total or 38.5' from stream channel center (77' total SCPZ width), totaling approximately 4.51 acres of SCPZ area.

Stream 11: StreamStats point was taken at the approximate location where Stream 11 hydrology flows east (downstream) onto the Site (Latitude 39.99343, Longitude -83.13523).

Stream 11 drainage area is 0.36 mi². SCPZ width = $147(0.36)^{0.38} = 99.70'$ wide total or 50' from stream channel center (100' total SCPZ width), totaling approximately 9.00 acres of SCPZ area.

Stream 12: StreamStats point was taken at the approximate location where Stream 11 hydrology flows east (downstream) onto the Site (Latitude 39.98984, Longitude -83.13300).

Stream 12 drainage area is 0.37 mi². SCPZ width = $147(0.37)^{0.38} = 100.74'$ wide total or 50.5' from stream channel center (101' total SCPZ width), totaling approximately 0.86 acres of SCPZ area.

Section 2: Variance Submittal Requirements

2.1 Reasoning for Variance Request

Kimley-Horn, acting on behalf of Buckeye XO, LLC, is submitting this variance request to the City of Columbus for proposed encroachment within the SCPZ as part of the proposed development project and associated relocation and restoration of four (4) streams (one intermittent, three perennial) for the proposed Buckeye Rail Yard Redevelopment project.

2.1.1 Variance Type Requested

Kimley-Horn is requesting variances from the following SWDM section and sub-sections for the Preferred Impact Development Plan alternative for the development of the Site:

1. SWDM Section 1.1 and 1.3.3 (Table 1-1): On-site relocation/restoration and the filling of approximately 7,162 linear feet of four (4) unnamed, jurisdictional headwater tributaries to the Scioto River, indicated below:
 - Stream 9: 320.00 linear feet, Intermittent, Jurisdictional (Modified Class II PHWH)
 - Stream 10: 2,552.00 linear feet, Perennial, Jurisdictional (Modified Class II PHWH)
 - Stream 11: 3,921.00 linear feet, Perennial, Jurisdictional (Modified Warmwater)
 - Stream 12: 369.00 linear feet, Perennial, Jurisdictional (Modified Warmwater)
2. SWDM Section 1.3.3 (Table 1-1): Associated riparian impacts (tree/vegetation removal) in the SCPZ of the proposed relocated/restored and filled stream sections totaling approximately 15.28 acres:
 - Stream 9: 320.00 linear feet, 124' wide SCPZ, 0.91 acres SCPZ area
 - Stream 10: 2,552.00 linear feet, 77' wide SCPZ, 4.51 acres SCPZ area
 - Stream 11: 3,921.00 linear feet, 100' wide SCPZ, 9.00 acres SCPZ area
 - Stream 12: 369.00 linear feet, 101' wide SCPZ, 0.86 acres SCPZ area
3. SWDM Section 1.3.3 (Table 1-1) and 1.5: On-site filling of two (2) jurisdictional wetlands; and one (1) jurisdictional pond that are located within the SCPZ and indicated below:
 - Wetland 7 – 0.49 acre, Category 2, Palustrine Forested (PFO), Jurisdictional
 - Wetland 8 – 0.29 acre, Category 2, Palustrine Emergent (PEM), Jurisdictional
 - Pond 1 – 0.23 acre, partial impoundment of Stream 10, Jurisdictional

2.1.2 Summary – Impact to Stream, SCPZ, Water Quality, Water Quantity

Granting of the requested variances, in addition to approval of applicable USACE and Ohio EPA Section 404/401 waterway permitting, would allow all four (4) streams to be relocated and restored along the western portion of the Site. On-site wetland habitat would be compensated for through the purchase of mitigation bank credits at a location within the 8-digit HUC of the Site (05060001, Upper Scioto) consistent with the USACE and Ohio EPA mitigation hierarchy. The relocation/restoration and associated stream, wetland, and pond filling are a necessity based on the proposed/preferred Site development alternative.

The rail yard was developed in the late 1960's and early 1970's. According to the review of historical aerial/satellite images (attached), the majority of the Site was composed of agricultural land prior to Site development in the late 1960's. Drainageways are present on-site in the 1950's although likely altered historically somewhat by that point due to the agricultural use of the site. According to the review of the 1970 aerial photograph, the site is depicted as generally constructed with heavy grading present and all streams located within the Site having been significantly altered by means of rerouting and channelization. The streams appear to have been re-routed around the railyard area through a common channel/ditch which is the currently delineated Stream 11 channel. The streams are depicted as straight with no sinuosity

or riparian/stream bank vegetation present. Overall, the streams on-site have been historically channelized and entrenched, which has resulted in limited stream functionality and channel habitat and anticipated lowering of down-stream water quality due to increased erosion and turbidity.

As the existing on-site stream channels generally exhibit modified warm water habitat characteristics due to historical impacts resulting in channelization, limited stream channel substrate, flow channel habitat (no defined riffle/run or pool habitat) and a limited stream riparian corridor; the relocation and restoration of streams on-site is anticipated to result in significant habitat improvements which will aid and benefit the surrounding and downstream area watershed. The proposed relocated and restored stream channels and associated SCPZ areas on-site are anticipated to yield an overall long-term improvement in water quality due to the restoration of beneficial stream channel bottom substrate and in-stream habitat, stream bank vegetation establishment, stream corridor woody tree and shrub plantings, and restoration of stream channel sinuosity and associated floodplain. These improvements will further increase the diversity of habitat for aquatic macroinvertebrates, fish and amphibians, which is generally lacking in the existing stream channels.

Currently, approximately 7,162 linear feet of jurisdictional intermittent and perennial stream habitat is present on the Site. The proposed relocation and restoration of on-site stream habitat would result in approximately 7,193.00 linear feet of open stream channel and 1,573.00 linear feet of encapsulated (piped) stream channel, resulting in a total of 8,766.00 linear feet of relocated on-site stream channel. The proposed relocation and restoration length is at an approximately 1:1 ratio for the open stream channel portions, and slightly higher if proposed piped stream portions are included. A copy of the proposed Stream Relocation Plans are provided in Appendix E (relocated streams are referred to as Stream A and Stream B).

Proposed impacts to 0.78 acre of on-site jurisdictional emergent and forested wetland habitat (Wetland 7, 0.49 ac and Wetland 8, 0.29 ac) is proposed to be mitigated by the purchase of wetland mitigation bank credits through the Wetland Resource Center (WRC) at their Little Scioto Wetland Mitigation Bank which is located within and services the project area 8-digit HUC (Upper Scioto, 05060001). Mitigation credits have been reserved and paid for through WRC at the rate of 2:1 for emergent wetland habitat impacts and 2.5:1 for forested wetland habitat impacts, which is further outlined below.

Stream Impacts (7,162.00 linear feet; 12,360.00 CY fill total)

Stream 9 - 320.00 linear feet

Stream 10 - 2,552.00 linear feet

Stream 11 - 3,921.00 linear feet

Stream 12 - 369.00 linear feet

Total proposed stream impacts = 7,162 linear feet

Total on-site proposed stream relocation/restoration = 8,766.00 linear feet (incl 1,573.00 If piped)

Total on-site proposed open stream channel (total above – proposed piped) = 7,193.00 linear feet

Wetland Impacts (0.78 acre total; 6,860.21 CY fill total)

Wetland 7 – 0.49 acre, Category 2, Palustrine Forested (PFO) – 0.49 acre x 2.5 = 1.3 credits needed

Wetland 8 – 0.29 acre, Category 2, Palustrine Emergent (PEM) – 0.29 acre x 2.0 = 0.6 credits needed

Total wetland credits needed/required = 1.9 wetland credits

Total wetland credits currently reserved/paid for through WRC = 1.9 credits

Pond Impacts (0.23 acre total; 1,484.42 CY fill; 18.16 CY cut total)

Pond 1 (0.23 acre) – the applicant is not proposing any mitigation for the pond area at this time. As Stream 10 flows through Pond 1, the linear footage of the stream has been encompassed as mitigation within the total stream impacts and proposed on-site mitigation listed above.

The proposed new SCPZ within the relocated stream areas will be approximately 17.10 acres in total, yielding an increase of 1.82 acres of relocated SCPZ from the original stream channel and current SPCZ acreage of 15.28 acres. This is based on the proposed SCPZ width of 77' for Stream 9, and 130' for Stream 10, 11, and 12, inclusive of both open-channel and encapsulated stream portions. The portion of Stream

11 between where the stream flows onto the Site and where the stream has a confluence with Stream 12 has a proposed SPCZ of 100' wide, while remaining portions of south of the Stream 12 confluence are proposed to have a 130' wide SCPZ. Plantings of native and non-invasive tree and shrub species in the SCPZ of the relocated stream is anticipated to increase overall habitat quality and wildlife use when compared to many of the low quality, fast growing and short-lived tree species currently located within the SPCZ, in addition to very few trees being located on the eastern portion of the SPCZ due to its historical channelized located directly adjacent to the rail yard.

Stream 10 flows north into Stream 9 which proceeds to flow east (downstream) under the existing railyard area through a 60" corrugated metal culvert, while Stream 11 and 12 flow east and then turn south and continue to flow south/southeast before flowing offsite through a 72" corrugated metal culvert. The proposed stream relocation is anticipated to maintain these locations for the hydrological flow transition off-site (downstream).

The proposed build of the relocated stream channels will incorporate a natural design including a pool/riffle-based design to facilitate the reestablishment of habitat within the stream corridor areas that was likely historically present before prior to redevelopment of the area for agricultural and then industrial uses for the rail yard. Due to the historical re-routing and channelization of the streams when the rail yard was originally built in the 1960's and 1970's, limited to no riffle/pool habitat or high-quality stream bed substrate current exists within the stream channels. The streams were moved and excavated in a manner to convey water through and away from the Site as quickly as possible without the intention of creating beneficial stream habitat. The proposed stream relocation and habitat restoration will restore natural stream sinuosity and in-channel habitat that is anticipated to significantly increase the diversity of habitat for aquatic macroinvertebrates, fish and amphibians which is generally lacking in the existing stream channels.

Anticipated stream hydrology flowing onto and through the Site is anticipated to remain at current stream flow rates or increase somewhat due to the restoration of stream habitat. Kimley-Horn is proposing a five (5) year monitoring period (subject to USACE and Ohio EPA approval) that will provide an adequate timeline for the relocation/restoration of on-site stream habitat, yearly habitat monitoring and assessment calculations, SCPZ plantings, and associated recommendations modifications if the established stream performance criteria are either not met or not on a positive trajectory to being met. A copy of the proposed stream relocation/restoration monitoring plan can be forwarded upon request. Kimley-Horn considers the proposed design a substantial benefit to the streams on-site as well as the immediate and downstream watershed area, which has been historically altered and modified for a variety of development types.

2.1.3 Summary – Substantial Hardship/Land Use Deprivation Related to SWDM Comp

As previously referenced in Section 1.1, The project purpose is to provide large-scale industrial logistics warehouse space with proximate access to the Interstate Highway System and rail line transportation in the west Columbus area to meet local and regional distribution demands; while the project need is to mitigate the impact of the covid-19 pandemic on retail distribution and ecommerce demands and associated product shortages/availability within Central Ohio and the Midwest. Due to the location of the existing, historically impacted streams being on the western portion of the Site, complete avoidance of impacts within the SCPZ portion of the Site would result in the loss of approximately 100-acres of usable and developable acreage, resulting in a significant financial hardship for the Site owner as the property has already been purchased for a substantial fee which was based on the Site's location, size, zoning, construction feasibility, direct Norfolk-Southern rail access, nearby access to I-270 and Interstate I-70, and other applicable inputs (surrounding area workforce, affordable living, etc.).

While smaller warehouse structures could potentially be developed and placed on the Site to avoid impacts within the existing SCPZ (thus maintaining compliance with the SWDM), the resulting buildable land reduction would further influence buildable infrastructure on the site and associated under roof square footage. On a typical industrial development site, the industry standard you look to achieve is 35-40% minimum site coverage, and on a property as large as this Site, maximizing coverage is essential. Additionally, in today's industrial market the building sizes that are performing the strongest are the large

(800k+ square feet) and mid-size (200k-500k) industrial structures/developments. Avoiding impacts to the majority of the stream habitat and SCPZ on-site would result in the loss of nearly 1-million square feet of building square footage, which is roughly an 8% decrease of buildable coverage across the ~280-acre Site. This potential design alternative would need to remove the currently proposed Building 2D (previously located north of Building 2C) from the plan entirely and Building 2C would never actually be constructed due to design deficiencies and lack of engineering feasibility, resulting in a buildable coverage loss of closer to 10%.

With the reduction of square footage in an alternative Site design that results in no impact to the SCPZ, two of the proposed buildings (1D and 2B) would be forced into a “tweener” range of 700k square feet and further drop buildings 1A and 1B below 200k square feet. At these sizes, these buildings become substantially more difficult to lease at these size ranges, while further increasing the lease up risk on the project for the applicant. Beyond marketability, the financial impact resulting from the potential square footage loss equates to at least \$4.5 million net operating income once the project is stabilized, which actually assumes that Building 2C is constructed although it is not feasible from a design perspective. Assuming the current buildings proposed for the No Impact Development Plan alternative (thus maintaining compliance with the SWDM) are valued at a conservative market cap rate of 4.75%, this alternative would result in a loss of value of approximately \$94 million on the project. The loss of Buildings 2C and 2D either from their location over a jurisdictional feature and within the SCPZ or from their structural design feasibility in relation to their setback from a jurisdictional feature, the net operating income loss increases to \$5.6 million with a ~\$118-million loss in stabilized value, making the project economically not practicable. As the Site was specifically selected and purchased for its size, centralized location, intermodal connectivity, existing zoning, and nature of the Site already being mostly historically developed and impacted, the potential for the loss of substantial buildable land as it relates to avoidance of stream and wetland features and associated SCPZ areas would place a significant financial hardship on the applicant and would not have made the Site a potential purchase and redevelopment option. In this scenario, this Site would remain undeveloped and fallow, furthering the eyesore and unused rail yard that occupies a heavily populated and trafficked area on the west side of Columbus; potentially leading to increased crime, unpermitted use, and degraded stream habitat and limiting water quality that has continued since the historical impacts of the streams (limited in-stream habitat, channelization, limited floodplain control, increased turbidity, lower overall water quality). Additionally, in this scenario the Site may be sold to another investor/developer and possibly developed for another use, however, this process may take years to locate another potential buyer who has an interest in the Site at a market price that would allow the current owner and applicant to regain their expenses. The future purchaser of the Site would also likely see the same development constraints as it relates to attempting to avoid most stream/wetland and SCPZ impacts, thus resulting in similar permitting constraints and business investment concerns that may prolong any development or investment opportunities from taking place on the Site in the future.

Numerous offsite and on-site alternatives were evaluated for this project. A property search was previously conducted prior to the purchase of the Buckeye Rail Yard Site for other available properties within the Central Ohio area that would potentially satisfy the overall project purpose and need. Those sites were ultimately ruled out for a variety of reasons including inadequate parcel size, availability of developable land, floodplain concerns, availability of access, incorrect zoning and ability for a zoning change/variance, and other site construction feasibility concerns, and have been included in the alternative analysis provided for the USACE Section 404 Individual Permit Application and Ohio EPA Section 401 Water Quality Certification Application, which are currently under review.

The selection of the Buckeye Rail Yard Site represented the ideal property for purchase and development for the intended project purpose and need of the surrounding area and supporting market. It is large and adequately sized, correctly zoned, does not possess significant floodplain concerns, centrally located with existing rail service, and has the capability to use the existing City workforce while maintaining those jobs locally for the area and region. Additionally, a substantial portion of the Site has already been historically

developed for the previous rail yard operations. These aspects represented a significant opportunity for the applicant/permittee to purchase the Site and move forward with its associated redevelopment.

Section 3: Development Alternatives

3.1 No Impact Development Plan

The No Impact Development Plan would include development of portions of the Site, while completely avoiding any site development activities within jurisdictional waters of the United States and their associated SCPZ areas while still attempting fulfill the overall project purpose and need. Site development activities could potentially take place outside of any delineated jurisdictional stream or wetland habitat or protected corridor areas, which would generally be confined to the existing developed former rail yard area only.

3.1.1 Impact to Stream, SCPZ, Water Quality, Water Quantity

The No Impact Development Plan, which is depicted as Alternative 1 in Appendix B, would avoid all impacts to on-site jurisdictional stream, wetland, and pond habitat and the associated SCPZ areas. The proposed development plan for this alternative would not significantly or adversely affect water quality or quantity on-site due to the avoidance of impacts to aquatic resources and their response SCPZ areas, nor would any stream restoration, riparian habitat improvements or plantings/reforestation be anticipated to take place on the Site, as under this alternative encroachment and associated impacts within the SCPZ area would be avoided.

3.1.2 Social Benefits

As summarized in Table 1 in Appendix A, selection and implementation of the No Impact Development Plan would provide the following surrounding area/local community benefits, although not nearly as substantial as the anticipated benefits of the Preferred Development Plan:

- Creation of permanent jobs associated with operation of the proposed logistics facilities including associated local, state, and federal payroll tax income.
- Creation of temporary construction jobs including local, state, and federal payroll tax income.
- Supplemental job creation and support for skilled trade positions such as laborers, operators, mason, ironworkers, carpenters, roofers, glaziers, plumbers, pipefitters, electricians, and landscapers.
- Surrounding area/local community retail sales and associated tax income related to permanent and temporary work on-site who will either relocate permanently or temporarily to the nearby area and spend portions of their income on housing, vehicle fuel, meals, retail purchases, etc.

It should be noted that the No Impact Development Plan is anticipated to result in the creation of approximately 100 fewer temporary jobs and 300 fewer permanent jobs, while also resulting in a significant decrease in payroll and property tax revenue when compared with the Preferred Impact Development Plan alternative (refer to Table 1 in Appendix A).

3.1.3 Development Feasibility

While smaller warehouse structures could potentially be developed and placed on the Site to avoid impacts within the existing SCPZ (thus maintaining compliance with the SWDM) for the No Impact Development Plan, the resulting buildable land reduction would further influence buildable infrastructure on the Site and associated under roof square footage. On a typical industrial development site, the industry standard you look to achieve is 35-40% minimum site coverage, and on a property as large as this Site, maximizing coverage is essential. Additionally, in today's industrial market the building sizes that are performing the strongest are the large (800k+ square feet) and mid-size (200k-500k) industrial structures/developments. Avoiding impacts to the majority of the stream habitat and SCPZ on-site would result in the loss of nearly

1-million square feet of building square footage, which is roughly an 8% decrease of buildable coverage across the ~280-acre Site. This potential design alternative would need to remove the currently proposed Building 2D (previously located north of Building 2C) from the plan entirely and Building 2C would never actually be constructed due to design deficiencies and lack of engineering feasibility, resulting in a buildable coverage loss of closer to 10%.

Within the reduction of square footage in the No Impact Development Plan that results in no impact to the SCPZ, two of the proposed buildings (1D and 2B) would be forced into a “tweener” range of 700k square feet and further drop buildings 1A and 1B below 200k square feet. At these sizes, these buildings become substantially more difficult to lease at these size ranges, while further increasing the lease up risk on the project for the applicant. Beyond marketability, the financial impact resulting from the potential square footage loss equates to at least \$4.5 million net operating income once the project is stabilized, which actually assumes that Building 2C is constructed although it is not feasible from a design perspective. Assuming the current buildings proposed for the No Impact Development Alternative (thus maintaining compliance with the SWDM) are valued at a conservative market cap rate of 4.75%, this alternative would result in a loss of value of approximately \$94 million on the project. The loss of Buildings 2C and 2D either from their location over a jurisdictional feature and within the SCPZ or from their structural design feasibility in relation to their setback from a jurisdictional feature, the net operating income loss increases to \$5.6 million with a ~\$118-million loss in stabilized value, making the project economically not practicable. As the Site was specifically selected and purchased for its size, centralized location, intermodal connectivity, existing zoning, and nature of the Site already being mostly historically developed and impacted, the potential for the loss of substantial buildable land as it relates to avoidance of stream and wetland features and associated SCPZ areas would place a significant financial hardship on the applicant and would not have made the Site a potential purchase and redevelopment option. In this scenario, this Site would remain undeveloped and fallow, furthering the eyesore and unused rail yard that occupies a heavily populated and trafficked area on the west side of Columbus; potentially leading to increased crime, unpermitted use, and degraded stream habitat and limiting water quality that has continued since the historical impacts of the streams (limited in-stream habitat, channelization, limited floodplain control, increased turbidity, lower overall water quality). Additionally, in this scenario the Site may be sold to another investor/developer and possibly developed for another use, however, this process may take years to locate another potential buyer who has an interest in the Site at a market price that would allow the current owner and applicant to regain their expenses. The future purchaser of the Site would also likely see the same development constraints as it relates to attempting to avoid most stream/wetland and SCPZ impacts, thus resulting in similar permitting constraints and business investment concerns that may prolong any development or investment opportunities from taking place on the Site.

In conclusion, the No Impact Development Plan would significantly limit the amount of developable and buildable land located on the Site. Since the Site is currently zoned for manufacturing, as is the majority of the surrounding properties, maintaining the same zoning and use of the Site is ideal and maintains what the Site was originally developed for. Industrial development sites are typically chosen to maximize the amount of buildable land and square footage under roof. Avoiding impacts to stream/wetland features on-site would result in the loss of nearly 1-million square feet of building square footage, resulting in an 8-10% decrease of buildable coverage across the entirety of the Site. This would result in a loss of approximately \$94-118 million as under roof square footage would significantly decrease in buildings 1A and 1B and proposed buildings 2C and 2D would likely not be constructed due to their location over a jurisdictional feature or from their structural design feasibility in relation to their setback from a jurisdictional feature. This overall monetary loss in relation to the Site purchase price and anticipated investment return once constructed as proposed places an undue financial burden on the applicant based on the intended use and development of the Site and is therefore not considered a practicable alternative. Furthermore, the potential to sell the Site to another investor/developer is not considered practicable as a future purchaser of the Site would also likely see the same development constraints as it relates to avoidance of impacts to on-site stream/wetland features, thus resulting in similar permitting constraints and business investment concerns that may prolong any development or investment opportunities from taking place on the Site.

3.2 Minimal Impact Development Plan

The Minimal Impact Development Plan would include avoiding the majority of proposed impacts to jurisdictional waters of the United States and their associated SCPZ areas, while attempting to still fulfill the overall project purpose and need.

3.2.1 Impact to Stream, SCPZ, Water Quality, Water Quantity

The Minimal Impact Development Plan, which is depicted as Alternative 2 in Appendix C, would avoid the majority of impacts to on-site jurisdictional stream habitat and associated SCPZ areas, while proposed impacts for this alternative would still include 322 linear feet of jurisdictional stream habitat, 0.78 acre of jurisdictional wetland habitat, and 0.02 acre of jurisdictional pond habitat. Impacts to 6,840 linear feet of stream habitat would be avoided based on the Minimal Impact Development Plan. Due to the proposed impacts to over 0.5-acre of jurisdictional aquatic habitat on-site, the Minimal Impact Development Plan would still require a USACE Section 404 Individual Permit Application and Ohio EPA 401 Water Quality Certification Application as proposed impacts would exceed the threshold for coverage under a USACE Nationwide Permit. Culverting and/or stream relocation would be minimal with this alternative.

The proposed Minimal Impact Development Plan would not significantly or adversely affect water quality or quantity on-site due to the avoidance of most impacts to aquatic stream habitat and representative SCPZ areas. Some stream restoration/relocation may be required on-site to offset the proposed impacts to the noted 322 linear feet of stream habitat loss and associated impacts and encroachment within the SCPZ area. Planting/reforestation would be required for the newly established SCPZ within the areas of restored/relocated stream habitat. Water quality may decrease for a short-term period while the stream restoration/relocation is conducted but is not considered to represent a significant long-term degradation. Additionally, proposed impacts to jurisdictional wetland habitat would be offset by the purchase of wetland mitigation credits at an established wetland mitigation bank that services the 8-digit HUC of the Site/project area.

3.2.2 Social Benefits

As summarized in Table 1 in Appendix B, selection and implementation of the Minimal Impact Development Plan would provide the following surrounding area/local community benefits, although not nearly as substantial as the anticipated benefits of the Preferred Development Plan:

- Creation of permanent jobs associated with operation of the proposed logistics facilities including associated local, state, and federal payroll tax income.
- Creation of temporary construction jobs including local, state, and federal payroll tax income.
- Supplemental job creation and support for skilled trade positions such as laborers, operators, mason, ironworkers, carpenters, roofers, glaziers, plumbers, pipefitters, electricians, and landscapers.
- Surrounding area/local community retail sales and associated tax income related to permanent and temporary work on-site who will either relocate permanently or temporarily to the nearby area and spend portions of their income on housing, vehicle fuel, meals, retail purchases, etc.

It should be noted that the Minimal Impact Development Plan is anticipated to result in the creation of approximately 100 fewer temporary jobs and 300 fewer permanent jobs, while also resulting in a significant decrease in payroll and property tax revenue when compared with the Preferred Impact Development Plan (refer to Table 1 in Appendix A).

3.2.3 Development Feasibility

While smaller warehouse structures could potentially be developed and placed on the Site to avoid the majority of impacts within the existing SCPZ (thus maintaining compliance with the SWDM) for the Minimal Impact Development Plan, the resulting buildable land reduction would further influence buildable

infrastructure on the site and associated under roof square footage. On a typical industrial development site, the industry standard you look to achieve is 35-40% minimum site coverage, and on a property as large as this Site, maximizing coverage is essential. Additionally, in today's industrial market the building sizes that are performing the strongest are the large (800k+ square feet) and mid-size (200k-500k) industrial structures/developments. Avoiding impacts to the majority of the stream habitat and SCPZ on-site would result in the loss of nearly 1-million square feet of building square footage, which is roughly an 8% decrease of buildable coverage across the ~280-acre Site. This potential design alternative would need to remove the currently proposed Building 2D (previously located north of Building 2C) from the plan entirely and Building 2C would never actually be constructed due to design deficiencies and lack of engineering feasibility, resulting in a buildable coverage loss of closer to 10%.

Within the reduction of square footage in the Minimal Impact Development Plan that results in no impact to the SCPZ, two of the proposed buildings (1D and 2B) would be forced into a "tweener" range of 700k square feet and further drop buildings 1A and 1B below 200k square feet. At these sizes, these buildings become substantially more difficult to lease at these size ranges, while further increasing the lease up risk on the project for the applicant. Beyond marketability, the financial impact resulting from the potential square footage loss equates to at least \$4.5 million net operating income once the project is stabilized, which actually assumes that Building 2C is constructed although it is not feasible from a design perspective. Assuming the current buildings proposed for the Minimal Impact Development Alternative (thus maintaining compliance with the SWDM) are valued at a conservative market cap rate of 4.75%, this alternative would result in a loss of value of approximately \$94 million on the project. The loss of Buildings 2C and 2D either from their location over a jurisdictional feature and within the SCPZ or from their structural design feasibility in relation to their setback from a jurisdictional feature, the net operating income loss increases to \$5.6 million with a ~\$118-million loss in stabilized value, making the project economically not practicable. As the Site was specifically selected and purchased for its size, centralized location, intermodal connectivity, existing zoning, and nature of the Site already being mostly historically developed and impacted, the potential for the loss of substantial buildable land as it relates to avoidance of stream and wetland features and associated SCPZ areas would place a significant financial hardship on the applicant and would not have made the Site a potential purchase and redevelopment option. In this scenario, this Site would remain undeveloped and fallow, furthering the eyesore and unused rail yard that occupies a heavily populated and trafficked area on the west side of Columbus; potentially leading to increased crime, unpermitted use, and degraded stream habitat and limiting water quality that has continued since the historical impacts of the streams (limited in-stream habitat, channelization, limited floodplain control, increased turbidity, lower overall water quality). Additionally, in this scenario the Site may be sold to another investor/developer and possibly developed for another use, however, this process may take years to locate another potential buyer who has an interest in the Site at a market price that would allow the current owner and applicant to regain their expenses. The future purchaser of the Site would also likely see the same development constraints as it relates to attempting to avoid most stream/wetland and SCPZ impacts, thus resulting in similar permitting constraints and business investment concerns that may prolong any development or investment opportunities from taking place on the Site.

In conclusion, the Minimal Impact Development Plan would significantly limit the amount of developable and buildable land located on the Site. Since the Site is currently zoned for manufacturing, as is the majority of the surrounding properties, maintaining the same zoning and use of the Site is ideal and maintains what the Site was originally developed for. Industrial development sites are typically chosen to maximize the amount of buildable land and square footage under roof. Avoiding impacts to the majority of stream habitat on-site would result in the loss of nearly 1-million square feet of building square footage, resulting in an 8-10% decrease of buildable coverage across the entirety of the Site. This would result in a loss of approximately \$94-118 million as under roof square footage would significantly decrease in buildings 1A and 1B and proposed buildings 2C and 2D would likely not be constructed due to their location over a jurisdictional feature or from their structural design feasibility in relation to their setback from a jurisdictional feature. This overall monetary loss in relation to the Site purchase price and anticipated investment return once constructed as proposed places an undue financial burden on the applicant based on the intended

use and development of the Site and is therefore not considered a practicable alternative. Furthermore, the potential to sell the Site to another investor/developer is not considered practicable as a future purchaser of the Site would also likely see the same development constraints as it relates to avoidance of impacts to on-site stream/wetland features, thus resulting in similar permitting constraints and business investment concerns that may prolong any development or investment opportunities from taking place on the Site.

3.3 Preferred Impact Development Plan

The Preferred Impact Development Plan would include impacting the entirety of waters of the United States located on the Site, while fulfilling the overall project purpose and need and maximizing developable land on the Site. Proposed impacts for this alternative would include 7,162 linear feet of jurisdictional stream habitat, 0.78 acre of jurisdictional wetland habitat, and 0.02 acre of jurisdictional pond habitat. Impacts to the noted features would take place in the form of filling/grading of wetland and pond habitat, and relocation/restoration of on-site stream habitat which would occur within the boundaries of the Site.

3.3.1 Impact to Stream, SCPZ, Water Quality, Water Quantity

Impacts to the on-site streams and jurisdictional aquatic resources, associated SCPZ, and discussion related to water quality and quantity was previously referenced. Please refer to Section 2.2.1. A site plan depicting the proposed layout of the Preferred Impact Development including the proposed stream relocation and associated SCPZ is provided in Appendix D. In addition, Stream Relocation and Reforestation Plans for the Preferred Impact Development Plan are presented in Appendices E and F.

3.3.2 Social Benefits

As summarized in Table 1 in Appendix A, selection and implementation of the Minimal Impact Development Plan would provide the following surrounding area/local community benefits, although not nearly as substantial as the anticipated benefits of the Preferred Development Plan:

- Creation of permanent jobs associated with operation of the proposed logistics facilities including associated local, state, and federal payroll tax income.
- Creation of temporary construction jobs including local, state, and federal payroll tax income.
- Supplemental job creation and support for skilled trade positions such as laborers, operators, mason, ironworkers, carpenters, roofers, glaziers, plumbers, pipefitters, electricians, and landscapers.
- Increased long-term overall water quality improvements once streams are relocated and restored with beneficial channel substrate, stream bank stabilization measures, and floodplain plantings.
- Surrounding area/local community retail sales and associated tax income related to permanent and temporary work on-site who will either relocate permanently or temporarily to the nearby area and spend portions of their income on housing, vehicle fuel, meals, retail purchases, etc.

The Preferred Impact Development Plan is anticipated to result in the creation of approximately 100 more temporary jobs and 300 more permanent jobs, while also resulting in extensive payroll and property tax revenues compared with the No Impact and Minimal Impact Development Plan alternatives (refer to Table 1 in Appendix B).

3.3.3 Development Feasibility

To summarize, the Preferred Impact Development Plan is the applicant's preferred Site design alternative and is has been further identified as the least environmental damaging most practicable alternative (LEDPA) in the associated project USACE Section 404 permit application and Ohio EPA Section 401 water quality certification application. All other alternative locations and associated on-site design alternatives located on the Buckeye Rail Yard Site were not considered practical or feasible for the reasons listed above. While the Preferred Impact Development Plan does propose to impact all jurisdictional waters of the United States located on the property, on-site wetland habitat is relatively low to moderate quality and is not considered notable or high quality and therefore is proposed to be mitigated for through the purchase of mitigation bank credits. Additionally, proposed impacts to the 7,162 linear feet of jurisdictional stream habitat on-site and associated SCPZ is proposed to be mitigated for by relocating and restoring the existing stream channel, which is anticipated to yield approximately 7,193.00 linear feet of open stream channel, resulting in a net gain of 31.00 linear feet of open channel and the associated SPCZ area to accompany those stream relocations (12.51 acres). Additionally, approximately 1,573.00

linear feet of encapsulated/piped stream is also proposed to be added on-site in areas where open stream channel sinuosity are not feasible from a design and setback perspective (underground utilities, proximity to adjoining sites, road crossings, parking areas, entrances/exits, etc.). SCPZ area for piped portions as well will yield approximately 4.59 acres. Relocated and restored SCPZ acreage will result in approximately 17.10 acres.

This alternative fulfills the overall project purpose and need and for allowing a substantial amount of buildable and developable land on the Site, while providing for a method to minimize environmental impacts and providing suitable mitigation for those proposed impacts. The driver of this alternative being identified and selected as the Preferred Impact Development Plan is it fulfills the overall project purposed and need, while also satisfying the City of Columbus zoning variance request requirements regarding encroachment into a Stream Corridor Protection Zone. This alternative avoids encapsulation of the current 7,162 linear feet of stream on-site as initially proposed in the preliminary planning stages of the project and further allows for on-site stream relocation/restoration and associated water quality and habitat improvements while actually increasing linear stream footage on-site and SCPZ acreage (approximately 17.10 acres; an increase of 1.82 acres over the existing 15.28 acres).

Section 4: Demonstration of Adequate Mitigation

4.1 Impacts to SCPZ

The Preferred Impact Development Plan will result in impacts to approximately 15.28 acres of existing SCPZ on-site associated within the four (4) streams located on the property. As proposed mitigation for proposed encroachment and associated impacts to the SCPZ, approximately 17.10 acres of SCPZ will be established within the riparian areas of the relocated/restored stream channel areas. This represents an increase of 1.82 acres, due to the increased SCPZ from Stream 11 and 12 which were currently 100' from center line (based on StreamStats calculated drainage areas) and are now proposed to extend 130' from center line (south of Stream 12 confluence). Additionally, a SCPZ is proposed to be established over the piped/encapsulated stream portions on-site as well, maintaining the SCPZ throughout the Site to the greatest extent practical.

In compliance with the City of Columbus Tree Protection and Mitigation Policy, trees that are currently located within the existing SCPZ areas which are proposed for removal will be replaced within the newly established SCPZ at a minimum of 1:1 ratio per the City's tree replacement guidance. A Stream Reforestation Plan has been developed for restoration of the SCPZ area and is provided in Appendix F. The plan includes a survey of the existing trees currently located in the SCPZ of the on-site stream areas, anticipated replacement ratios, applicable tree sizes (DBH, diameter at breast height), proposed tree species to be planted, and proposed locations for the newly planted trees within the new, relocated SCPZ areas. A total of 468 trees were surveyed within the existing SCPZ, while they are anticipated to be replaced with 661 new trees per City tree replacement guidance.

Kimley-Horn has prepared a vegetation planting plan for the proposed SCPZ, which will consist of native trees/shrubs and associated vegetation within the newly relocated SCPZ. Due to the substantial amount of invasive/non-native species coverage within the current SCPZ, such as honeysuckle (*Lonicera* spp.), giant reed (*Typha angustifolia*) and cattail (*Typha* spp.), the reforestation and replanting of the proposed relocated SCPZ is anticipated to improve the overall woody and non-woody plant species diversity and abundance within the Site. The Stream Reforestation Plan is provided in Appendix F.

A conservation easement will be placed on the SCPZ of the relocated streams that named the City of Columbus as the Grantee. The conservation easement will be placed on the entire 17.10 acres of newly established SCPZ, with the exception of any proposed sewer, storm sewer, utility, or other applicable easements.

The conservation easement will include as attachments, a metes and bounds (survey) description of the protected mitigation area (SCPZ) and survey maps depicting the boundaries of all protected mitigation areas. Additionally, applicable SCPZ signage will be placed within visual distance of each other along the edge of the conservation/SCPZ area per SWDM guidance (Section 1.3.6). Other easements that cross the SCPZ such as sanitary, water, and access are anticipated to be exempt from the conservation easement agreement.

4.2 Impact Directly to Stream

The Preferred Impact Development Plan will result in approximately 7,162 linear feet of jurisdictional intermittent and perennial stream habitat on-site. As compensation for the proposed on-site stream impacts, the existing streams are anticipated to be relocated, which will yield approximately 7,193.00 linear feet of open stream channel and 1,573.00 linear feet of encapsulated (piped) stream channel, resulting in a total of 8,766.00 linear feet of relocated on-site stream channel. This results in a net gain of approximately 31.00 linear feet of open stream channel. The relocated stream portions will be designed using natural stream design principals and the SCPZ will be re-established along the relocated stream segments to compensate for proposed impacts to the existing SCPZ. The newly established SCPZ will result in

approximately 17.10 acres total, yielding a net gain of 1.82 acres over the existing SCPZ acreage (15.28 acres). As the existing on-site stream channels generally exhibit modified warm water habitat characteristics due to historical impacts resulting in channelization, limited stream channel substrate, limited flow and stream channel habitat (no defined riffle/run or pool habitat) and a limited stream riparian corridor, the relocation and restoration of streams on-site is anticipated to result in significant habitat improvements which will aid and benefit the surrounding and downstream area watershed by improving water quality and habitat. These improvements will increase the diversity of habitat for aquatic macroinvertebrates, fish, and amphibians which is generally lacking in the existing stream channels.

Based on the September 2012, Guidance Document for Applying for a Variance from the Stormwater Drainage Manual, available on the City of Columbus Stormwater Variance Requests' website, the Type III Stream Protection Variances Section III, Part B, indicates that *"if the preferred alternative has a direct impact on the stream, then the Applicant must demonstrate adequate mitigation by demonstrating that the stream health and functionality will not be impaired. Applicant must do so by comparing the estimated QHEI/HHEI of the stream with full compliance with the Manual. If the QHEI/HHEI of the preferred alternative meets or exceeds the full compliance QHEI/HHEI, then the Applicant has demonstrated adequate mitigation."* Additional required information is also indicated in this section. While all streams on-site encompassed a drainage area below one square mile, Stream 9 and Stream 10 were the only streams that exhibited a maximum pool depth of less than 40 centimeters, indicating the use of Ohio EPA's *Field Methods for Evaluating Headwater Streams in Ohio (HHEI)*. While Stream 11 and 12 exhibited drainage areas below one square mile, the other two (2) streams also exhibited a depth of over 40 centimeters, thus requiring the use of the *Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI)*. Applicable HHEI and QHEI scores were calculated based on the representative stream habitat characteristics on-site. The Stream 9 and 10 HHEI reaches were approximately a 200' long reach located within a representative segment of the on-site stream portions, while for Stream 11, and 12, a reach length of approximately 100 meters (if practical) was used to ensure adequate habitat variation was assessed. Additionally, locations of the HHEI and QHEI areas were selected in an effort to minimize historically disturbed areas and/or heavily impacted areas so that in-channel habitat could be adequately recorded to the greatest extent possible.

The Stream 9 HHEI reach was located approximately in the central portion of the stream located between the west adjoining storm water basin, which feeds Stream 9, and the eastern portion of the stream where Stream 9 flows into Stream 10, and they both proceed to flow east (downstream) under a culvert that carries flow east under the rail yard area. The HHEI score for Stream 9 was calculated to be 60, while the HHEI score for Stream 10 was calculated to be 59. Based on the HHEI flowchart in the Ohio EPA manual, both stream scores represent Modified Class II Primary Headwater Habitat (intermittent).

The Stream 11 and 12 QHEI locations were located in representative habitat areas of the respective streams, which attempted to minimize the sampling/assessment of areas that were historically disturbed or modified. Due to the historical impacts across the entirety of the site, this proved to be difficult although the habitat sampling effort took this into account to the greatest extent practical. The QHEI scores for both Stream 11 and Stream 12 were calculated to be 32.5, which represents Modified Warmwater Habitat.

Applicable existing stream habitat assessment HHEI and QHEI datasheets are provided in Appendix H, while existing pebble count datasheets are provided in Appendix I. Anticipated stream habitat assessment datasheets for the applicable streams once restored are provided in Appendix J.

As previously indicated, prior to the development of the Site for the rail yard, the majority of the Site consisted of active agricultural land with extremely limited or no riparian buffers adjacent to the on-site streams. Additionally, although it cannot be determined based on historical aerial/satellite image review, streams on-site were also likely somewhat modified and/or channelized as part of routine agricultural practices. Following development of the Site with the rail yard, streams are depicted as having been re-routed around the rail yard through newly excavated channel/ditches that either conveyed east-flowing hydrology north or south around the central rail yard area. No stream sinuosity, in-stream channel habitat,

or stream bank or riparian vegetation appeared to have been created or restored at the time of the respective stream relocations. The assumed intent of the historical stream re-routing was to convey hydrology away from the rail yard Site as quickly and efficiently as possible, with little regard to water quality or associated stream habitat.

The existing streams onsite do not currently have an Ohio EPA designated aquatic life use. Overall, the existing slope of all onsite streams is approximately 0.2-0.3%, which is likely a result of the historical impacts to the onsite stream habitat and significant stream relocation. Stream entrenchment and floodplain disconnection appear to have negatively influenced fine sediment scouring and D84 particle size, as indicated in Table 2 below.

Due to the historical impacts and re-routing of onsite stream habitat, some of the parameters listed in Table 2 below may be slightly skewed and do not meet any Rosgen Stream Classification type as described. Based on the evaluation and assessment of onsite stream habitat, all four (4) streams onsite likely most closely align as a E6b stream, although all streams currently exhibit heavy historical modification. The existing and proposed 100-year floodplains are presented on the provided stream relocation plans in Appendix E. Proposed stream channels within the relocation and restoration areas are anticipated to exhibit a relatively stable C type stream channel morphology exhibiting a width to depth ratio greater than 12, an entrenchment ratio greater than 2.2, a slope between 0.1% and 1.3%, and a sinuosity greater than 1.2. The D84 substrate and riffle habitat is anticipated to also be vastly improved once the proposed stream relocation and restoration has been completed and the stream has had ample time to return to normal flow conditions and seasonal patterns.

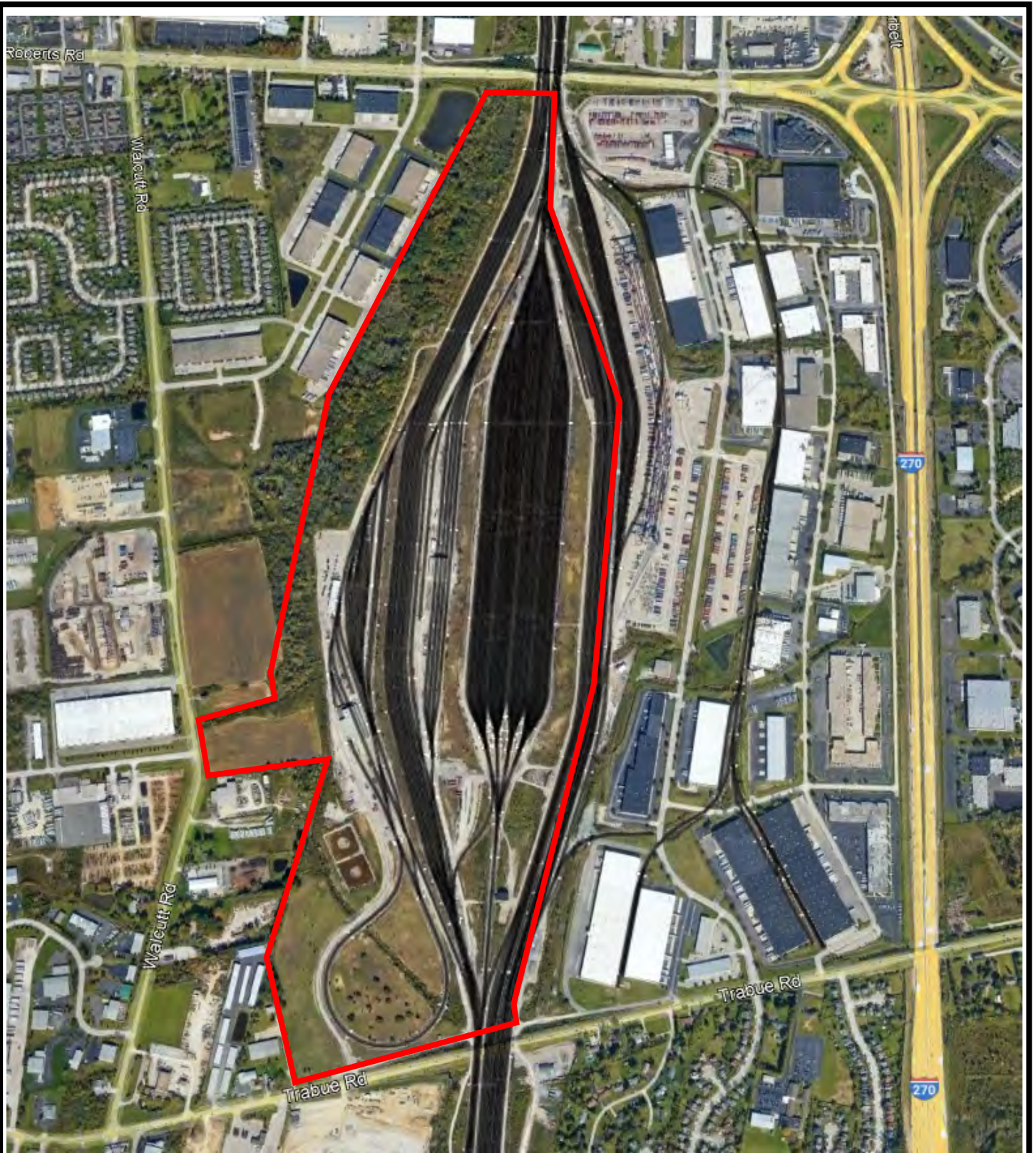
Table 2: Stream Summary Data				
	Stream 9	Stream 10	Stream 11	Stream 12
OEPA Aquatic Life Use Designation	Not Listed	Not Listed	Not Listed	Not Listed
OEPA HHEI/QHEI Score	60 (HHEI)	59 (HHEI)	32.5 (QHEI)	32.5 (QHEI)
Stream Gradient (%)	0.2	0.2	0.3	0.3
Average Bank Full Width	16'	20'10"	21'2"	18"1'
Width to Depth Ratio	6.40	5.26	5.86	6.06
Entrenchment Ratio	2.38	3.50	3.40	2.88
Substrate D84 mm	<0.06 (silt)	12.5	6	<0.06 (silt)
Sinuosity	1.06	1.16	0.95	1.00
Rosgen Stream Type	E6b	E6b	E6b	E6b
Drainage Area (sq mi)	0.64	0.18	0.36	0.37

Section 5: Conclusion/Summary

5.1 Closing

The proposed Preferred Impact Development Plan will allow the applicant to fulfill the intended purpose and need of the project and creation of substantial warehouse logistics space within central Ohio that is intended to fulfill the local and regional demand shortages and gaps that have arisen since the beginning of the covid-19 pandemic and associated product shortages/availability. The proposed site would allow for substantial supply and last-mile access to meet continued growth trends, while relying on the diverse and skilled local workforce of central Ohio. In addition, the proposed relocation and restoration of on-site jurisdictional stream habitat represents a significant opportunity to restore the noted aquatic features to historical pre-impact conditions (prior to rail yard development) that is intended to improve overall water quality and associated stream habitat on-site and within the surrounding area watershed.

Figures



Kimley >> Horn

7965 North High Street
Suite 200
Columbus, Ohio 43235

Source: Google Earth®, 2021

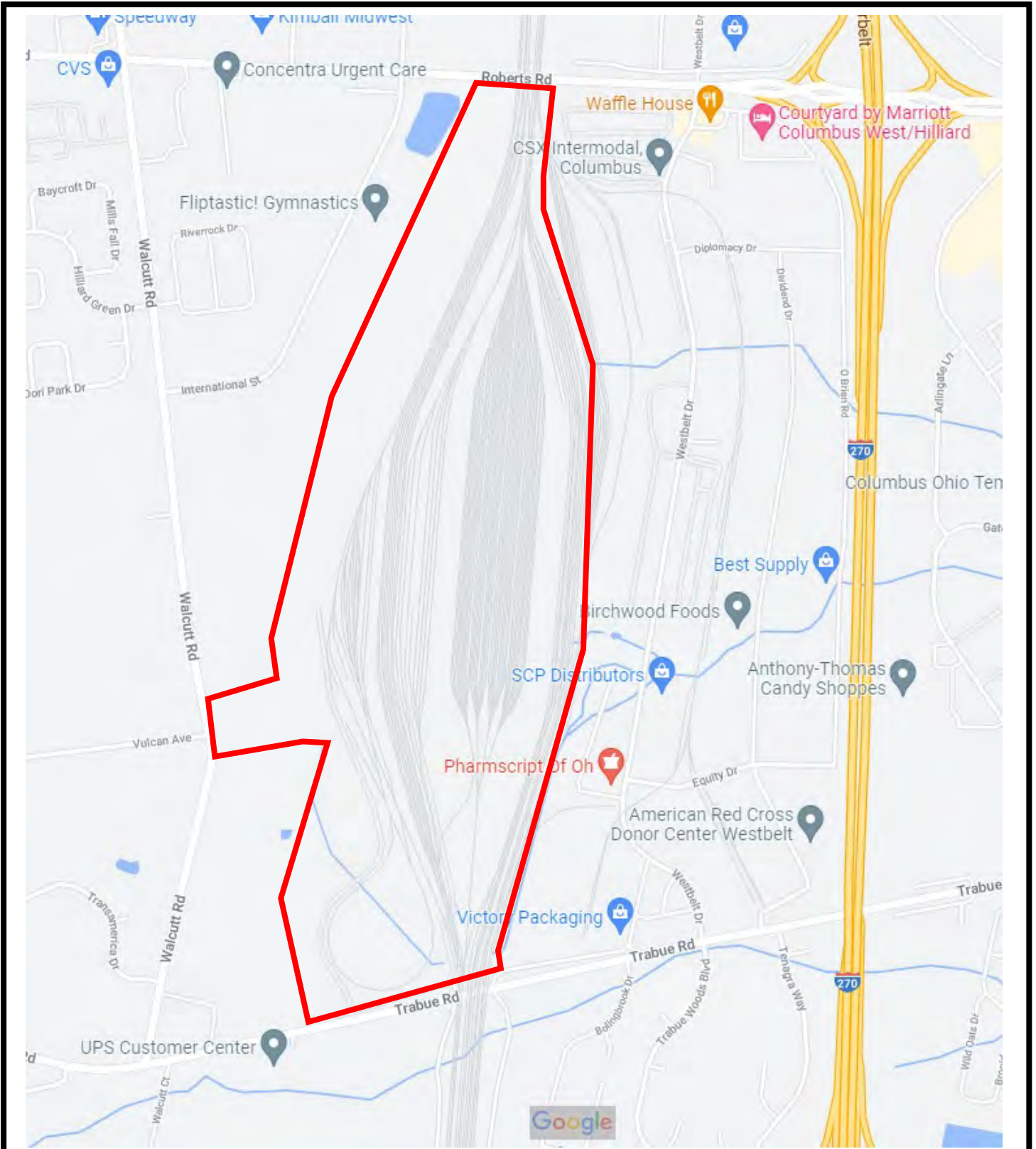
Project No: 190118003

Date: November 2021

Scale: 1" = 1,000'

Figure 1A: Site Vicinity Map – Aerial
Proposed Buckeye Yard Redevelopment
Trabue Road & Roberts Road
Columbus, Franklin County, OH 43228





Kimley»Horn

7965 North High Street
Suite 200
Columbus, Ohio 43235

Source: Google Map Data©. 2021

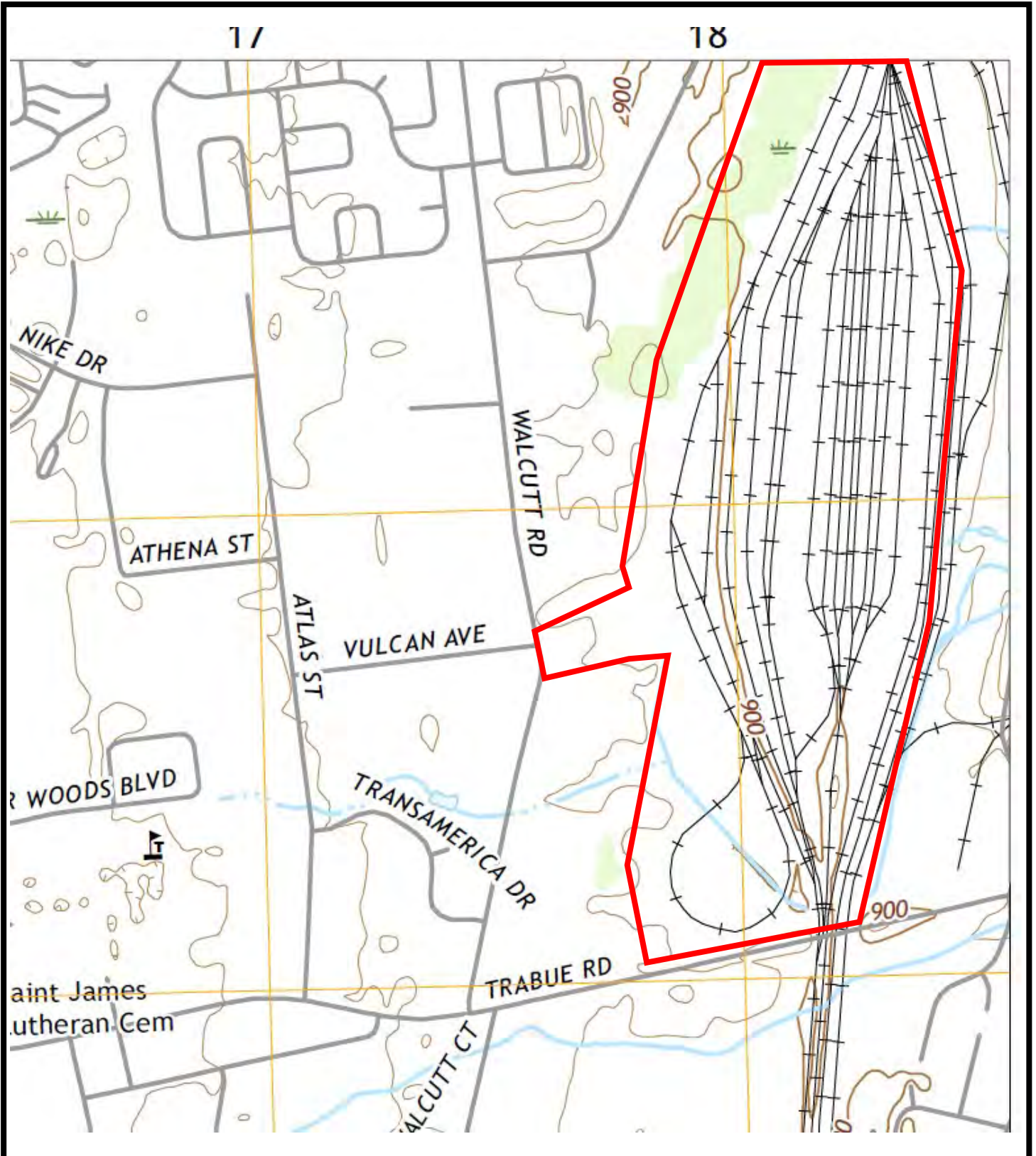
Project No: 190118003

Date: November 2021

Scale: 1" = 1,000'

Figure 2B: Site Vicinity Map – Street
Proposed Buckeye Yard Redevelopment
Trabue Road & Roberts Road
Columbus, Franklin County, OH 43228





Kimley»Horn

7965 North High Street
Suite 200
Columbus, Ohio 43235

Source: USGS Topo Map, 7.5-Minute Series, Galloway, OH Quadrangle, 2019

Project No: 190118003

Date: November 2021

Scale: 1 :24,000

Figure 1C: Site Vicinity Map – Topo
Proposed Buckeye Yard Redevelopment
Trabue Road & Roberts Road
Columbus, Franklin County, OH 43228










Franklin County
Auditor's Office
Auditor
Michael Stinziano

Map Produced November 16, 2021




Planimetric Legend

Source: 2018 Aerial Photography

-  Edge of Pavement
-  Roadway Centerlines
-  Railroad Centerlines
-  Building Footprints
-  Building Under Construction
-  Creeks, Streams, Ditches
-  Rivers & Ponds













Topographic Legend

Source: OSIP - 2019 LiDAR Collection

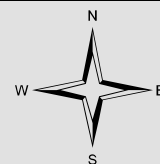
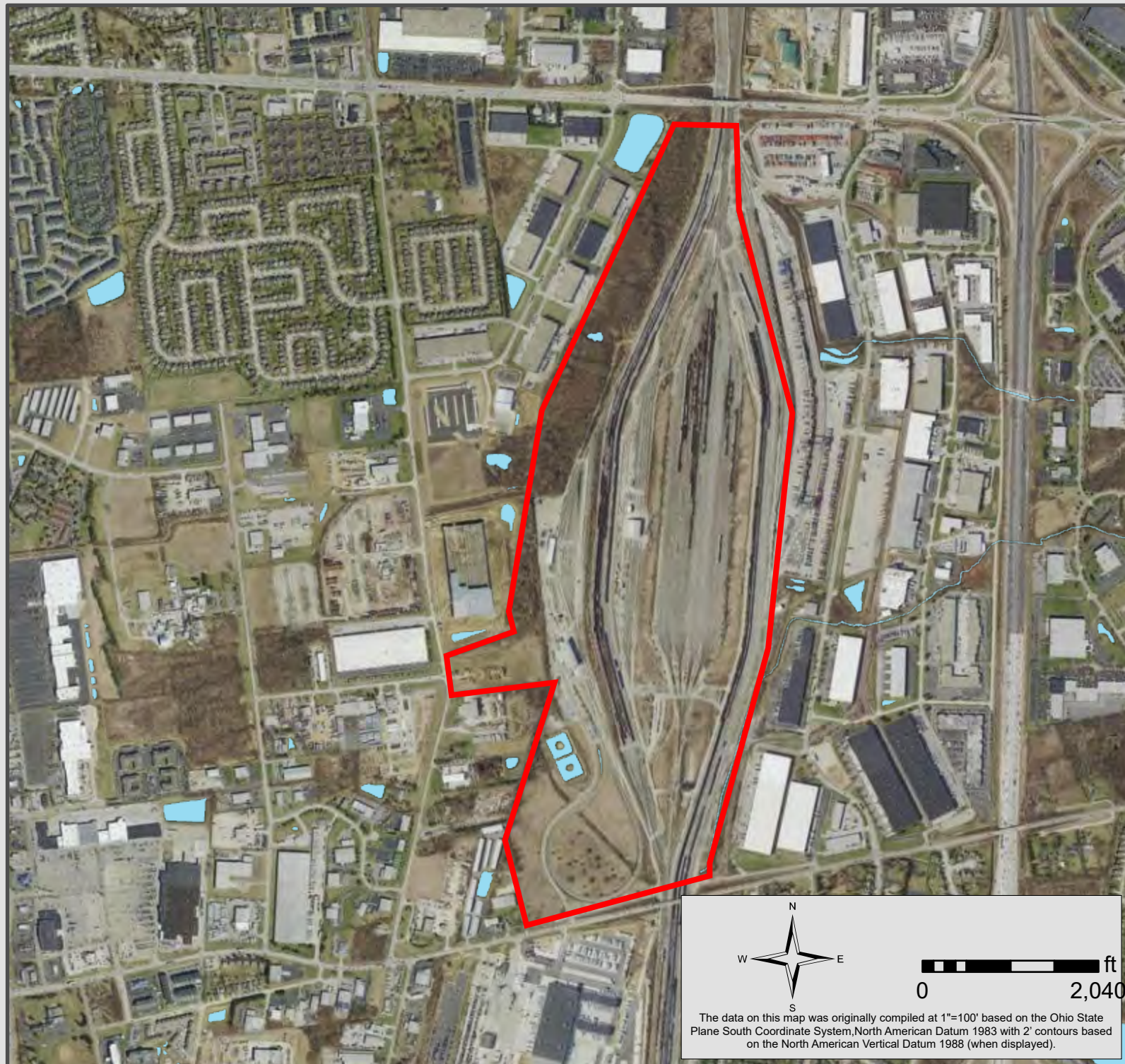
-  Spot Elevation
-  Index Contour
-  Intermediate Contour

Appraisal Legend

Source: Franklin County Auditor & Engineer

-  Parcel IDs
-  Parcel Dimensions
-  Lot Numbers
-  123 Main St Site Address
-  Parcel Boundary
-  Subdivision Boundary
-  Condominium Boundary
-  County Boundary
-  City or Village Boundary
-  Tax District Boundary
-  School District Boundary
-  Zip Code Boundary

This map is prepared for the real property inventory within the county. It is compiled from record deeds, survey plats, and other public records and data. Users of this map are notified that the public primary information sources should be considered for verification of the information contained on this map. The county and the mapping companies assume no legal responsibility for the information contained on this map. Please notify the Franklin County Auditor's GIS Department of any discrepancies.



The data on this map was originally compiled at 1"=100' based on the Ohio State Plane South Coordinate System, North American Datum 1983 with 2' contours based on the North American Vertical Datum 1988 (when displayed).

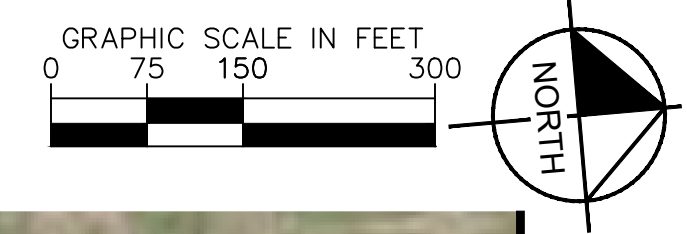


Appendix A: Social and Economic Justification for Stream Relocation Table (Table 1)

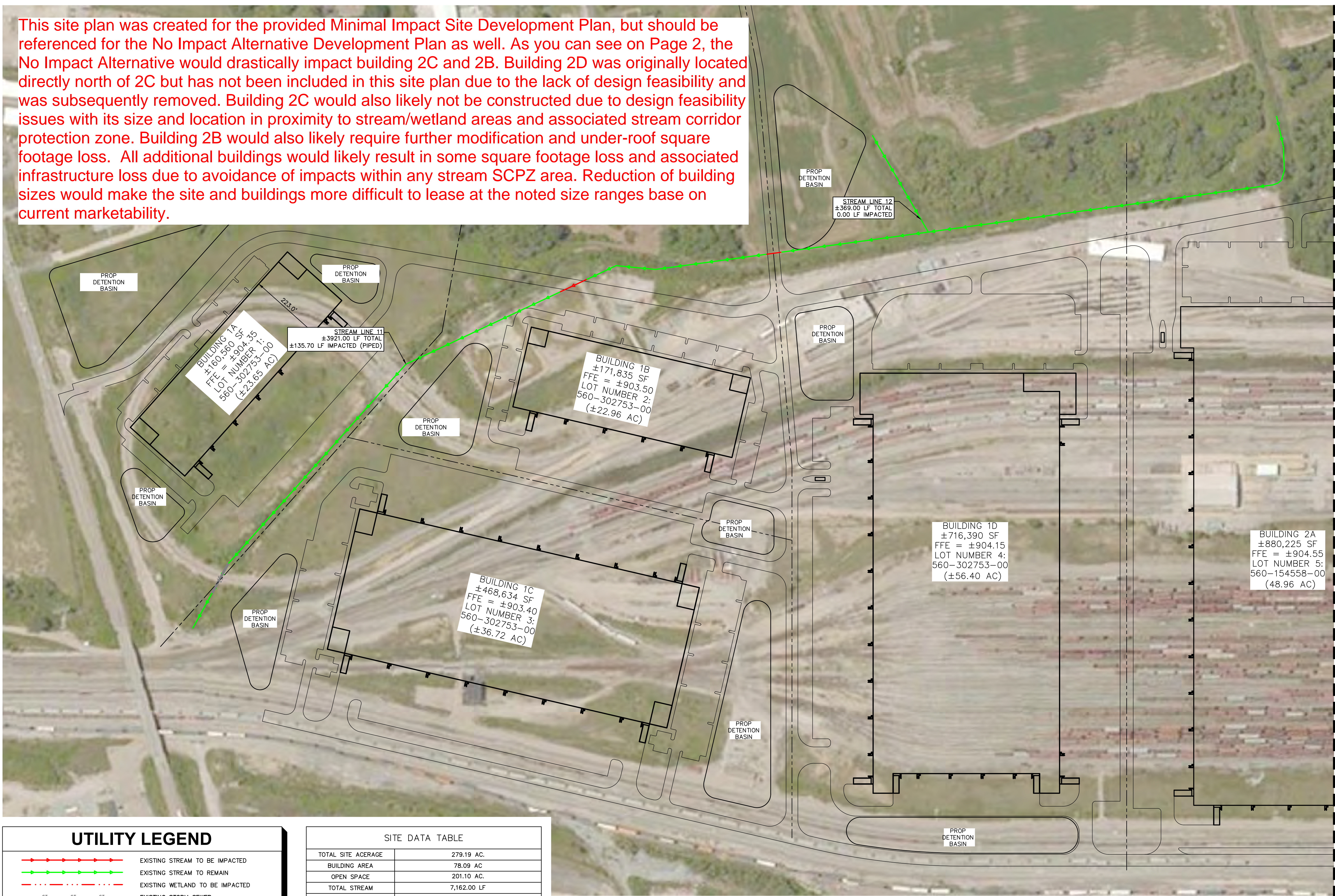
Table 1. Social and Economic Justification For Proposed Stream Relocation/Restoration

<u>Item</u>	<u>Preferred Design</u>	<u>Minimal Design</u>	<u>No Impact Design</u>
	Stream Relocation as currently proposed	Lose building 2D. Size decrease on all 7 remaining buildings.	Lose building 2D. Size decrease on all 7 remaining buildings.
Square Foot and Space Use	4,155,392 (warehouse distribution)	3,297,104 (warehouse distribution)	3,297,104 (warehouse distribution)
New Permanent Jobs	510	410	410
New Temporary Jobs	1,600	1,300	1,300
Estimated Permanent Payroll	\$16,011,000	\$12,704,000	\$12,704,000
Est. Temporary Payroll	\$45,000,000	\$36,600,000	\$36,600,000
Estimated Permanent Payroll Taxes/Year	\$3,522,420	\$2,794,880	\$2,794,880
Est. Temporary Payroll Taxes/Year	\$1,125,000	\$915,000	\$915,000
Property Taxes Generated Per Year	\$7,449,000	\$5,776,000	\$5,776,000

Appendix B: No Impact Alternative Development Plan



This site plan was created for the provided Minimal Impact Site Development Plan, but should be referenced for the No Impact Alternative Development Plan as well. As you can see on Page 2, the No Impact Alternative would drastically impact building 2C and 2B. Building 2D was originally located directly north of 2C but has not been included in this site plan due to the lack of design feasibility and was subsequently removed. Building 2C would also likely not be constructed due to design feasibility issues with its size and location in proximity to stream/wetland areas and associated stream corridor protection zone. Building 2B would also likely require further modification and under-roof square footage loss. All additional buildings would likely result in some square footage loss and associated infrastructure loss due to avoidance of impacts within any stream SCPZ area. Reduction of building sizes would make the site and buildings more difficult to lease at the noted size ranges base on current marketability.



MATCHLINE

UTILITY LEGEND	
	EXISTING STREAM TO BE IMPACTED
	EXISTING STREAM TO REMAIN
	EXISTING WETLAND TO BE IMPACTED
	EXISTING STORM SEWER
	PROPOSED FACE OF CURB
	PROPOSED LOT LINE
	SITE BOUNDARY

SITE DATA TABLE	
TOTAL SITE ACERAGE	279.19 AC.
BUILDING AREA	78.09 AC.
OPEN SPACE	201.10 AC.
TOTAL STREAM	7,162.00 LF
IMPACTED STREAM	322.12 LF
TOTAL WETLAND AREA	0.78 AC.
IMPACTED WETLAND AREA	0.78 AC.
TOTAL POND AREA	0.23 AC.
IMPACTED POND AREA	0.02 AC.

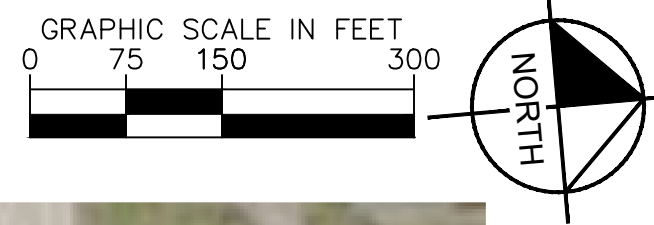
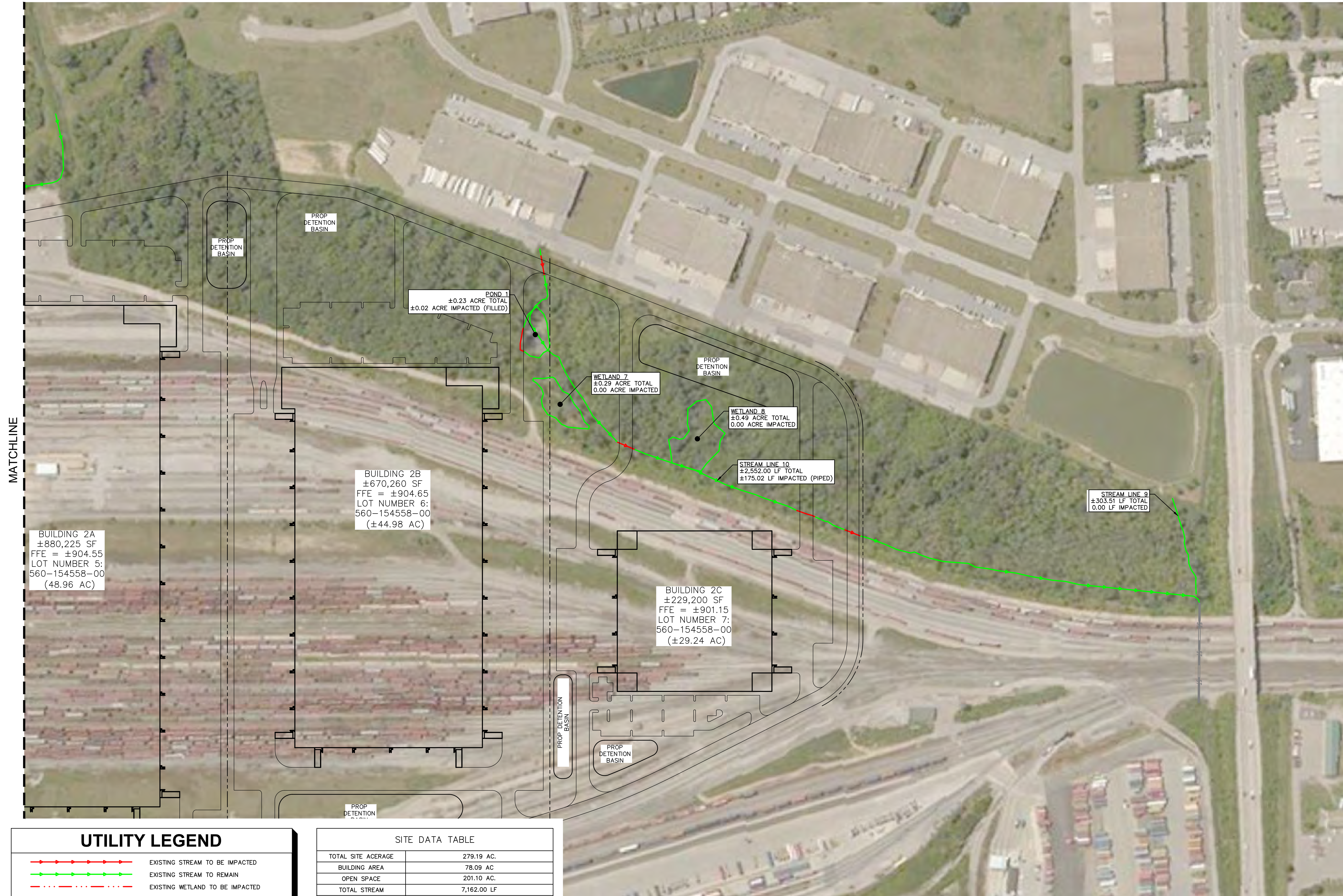
Drawing name: K:\CIB_LDEA\190118000_3ddec_Buckeye_Yard_Columbus_OH_2_Design\CAD\Exhibits\ANSI\Exhibits\103-WetlandsProfiles.dwg 1 OVERALL SITE LAYOUT Nov 30, 2021 12:22pm by: Gavin Rivers
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NO IMPACT SITE LAYOUT	BUCKEYE YARD COLUMBUS, OHIO	ORIGINAL ISSUE: 10/05/2021 KHA PROJECT NO. 190118000 SHEET NUMBER <div style="text-align: center;"> --- OF --- 7 </div>	DESIGNED BY: NSS DRAWN BY: NSS CHECKED BY: JMM	© 2021 KIMLEY-HORN AND ASSOCIATES, INC. 7865 NORTH HIGH STREET, SUITE 200 COLUMBUS, OH 43235 PHONE: 614-472-8646 WWW.KIMLEY-HORN.COM	REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>DATE</th> <th>BY</th> <th>APR DATE</th> <th>APR BY</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No.	DATE	BY	APR DATE	APR BY					
No.	DATE	BY	APR DATE	APR BY											

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MATCHLINE



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	EXISTING STREAM TO REMAIN
	EXISTING WETLAND TO BE IMPACTED
	EXISTING STORM SEWER
	PROPOSED FACE OF CURB
	PROPOSED LOT LINE
	SITE BOUNDARY

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TOTAL POND AREA	0.23 AC.
IMPACTED POND AREA	0.02 AC.

No.	REVISIONS	DATE	BY	APR DATE	APR BY

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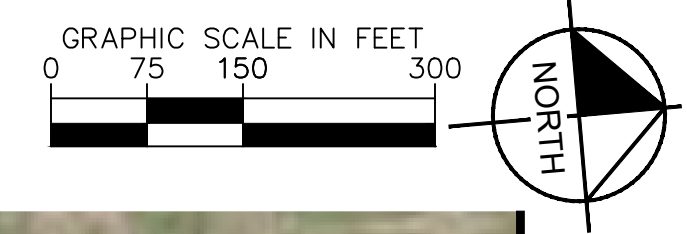
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**NO IMPACT
 SITE LAYOUT**

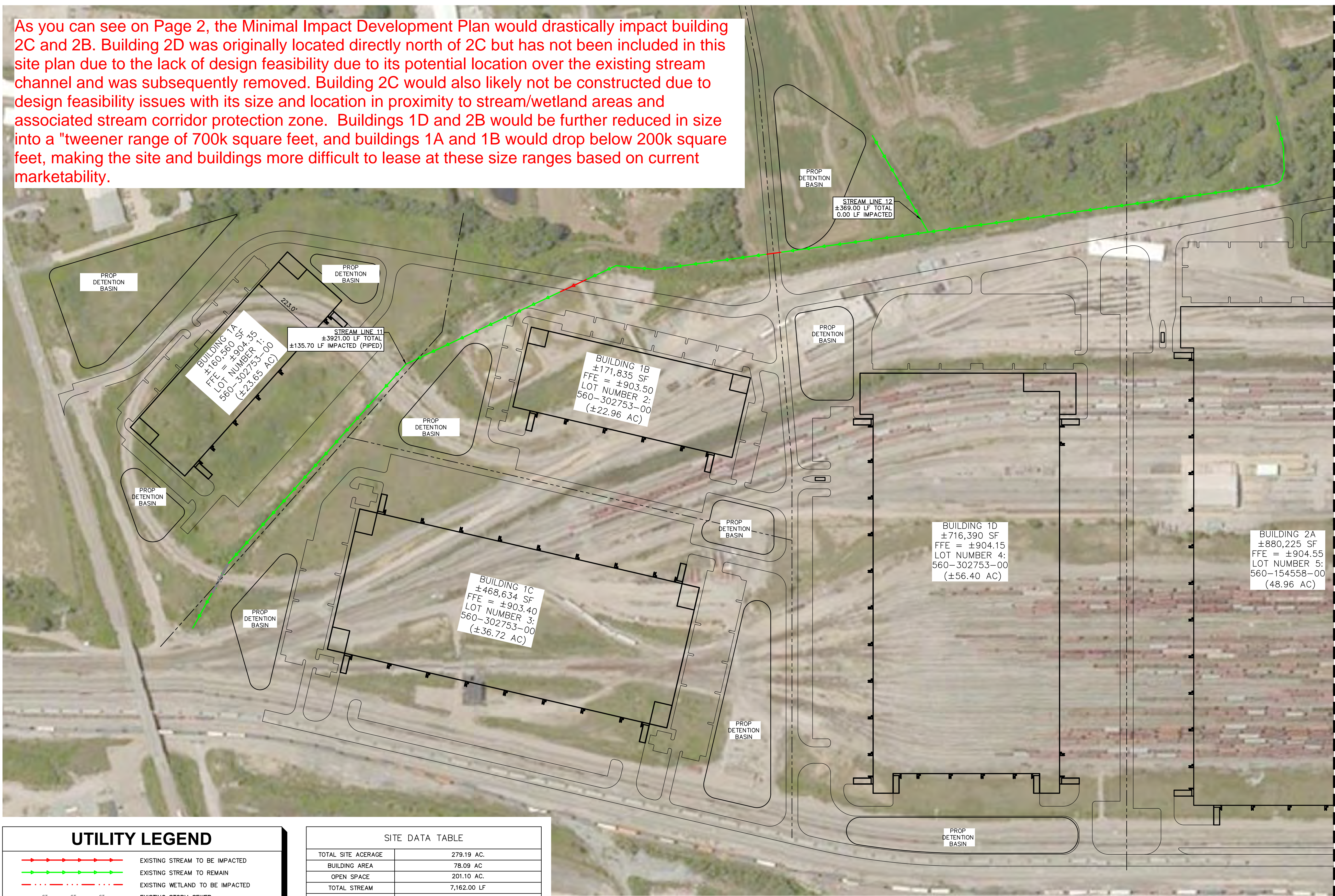
BUCKEYE YARD
 COLUMBUS, OHIO

ORIGINAL ISSUE:
 10/05/2021
 KHA PROJECT NO.
 190118000
 SHEET NUMBER
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 7

Appendix C: Minimal Impact Alternative Development Plan



As you can see on Page 2, the Minimal Impact Development Plan would drastically impact building 2C and 2B. Building 2D was originally located directly north of 2C but has not been included in this site plan due to the lack of design feasibility due to its potential location over the existing stream channel and was subsequently removed. Building 2C would also likely not be constructed due to design feasibility issues with its size and location in proximity to stream/wetland areas and associated stream corridor protection zone. Buildings 1D and 2B would be further reduced in size into a "tweener range of 700k square feet, and buildings 1A and 1B would drop below 200k square feet, making the site and buildings more difficult to lease at these size ranges based on current marketability.



MATCHLINE

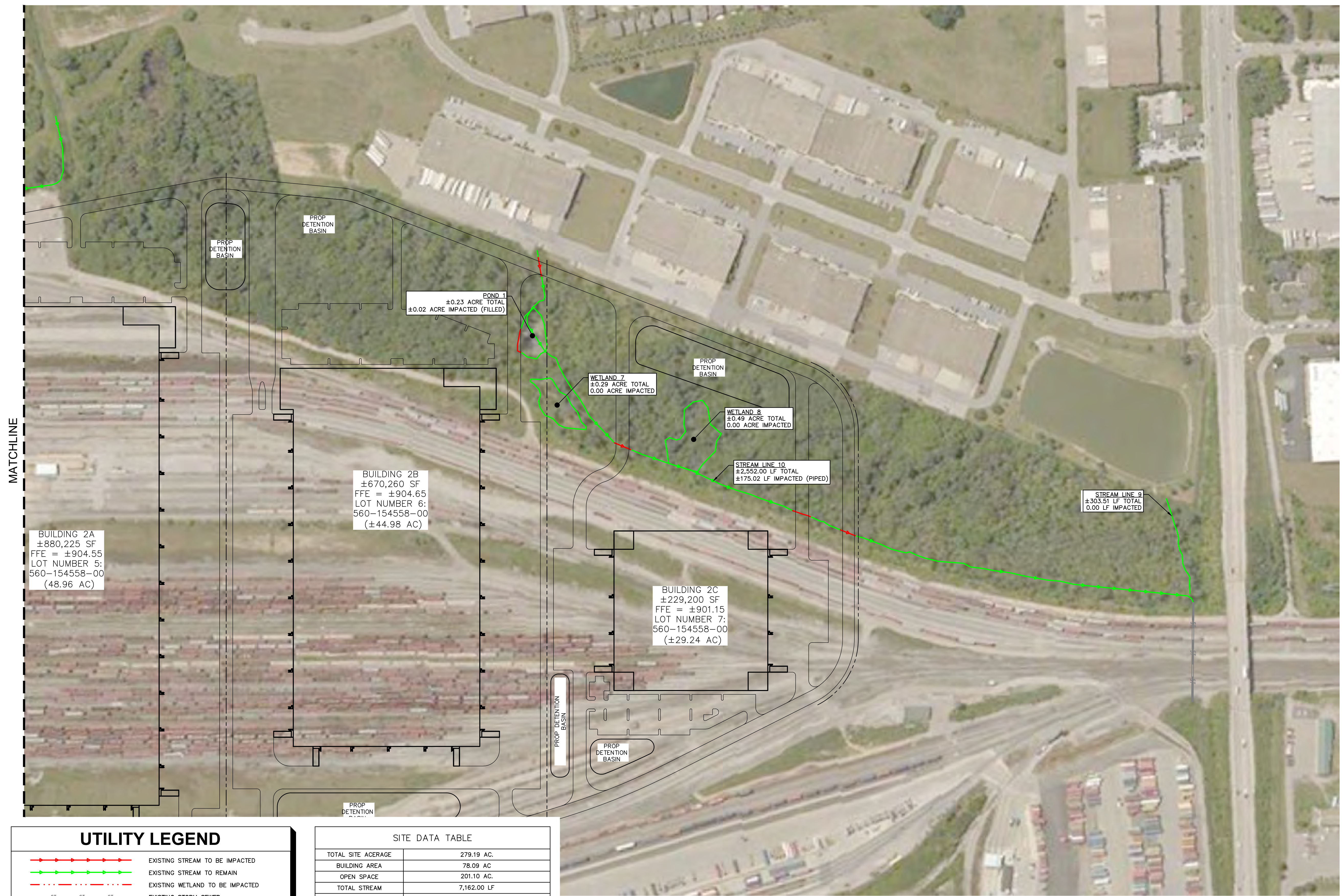
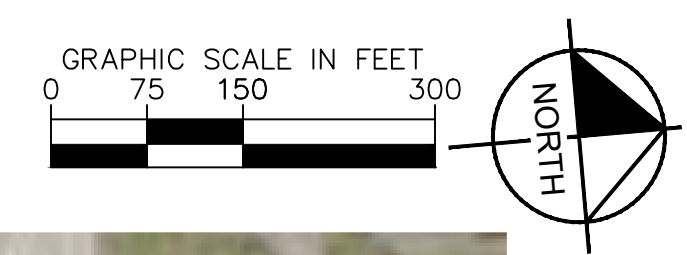
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BUCKEYE YARD COLUMBUS, OHIO		ORIGINAL ISSUE: 10/05/2021 KHA PROJECT NO. 190118000 SHEET NUMBER 7 OF 7	
SCALE:		REVISIONS	
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UTILITY LEGEND	
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	EXISTING STREAM TO REMAIN
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No.	REVISIONS	DATE	BY	APR DATE	APR BY

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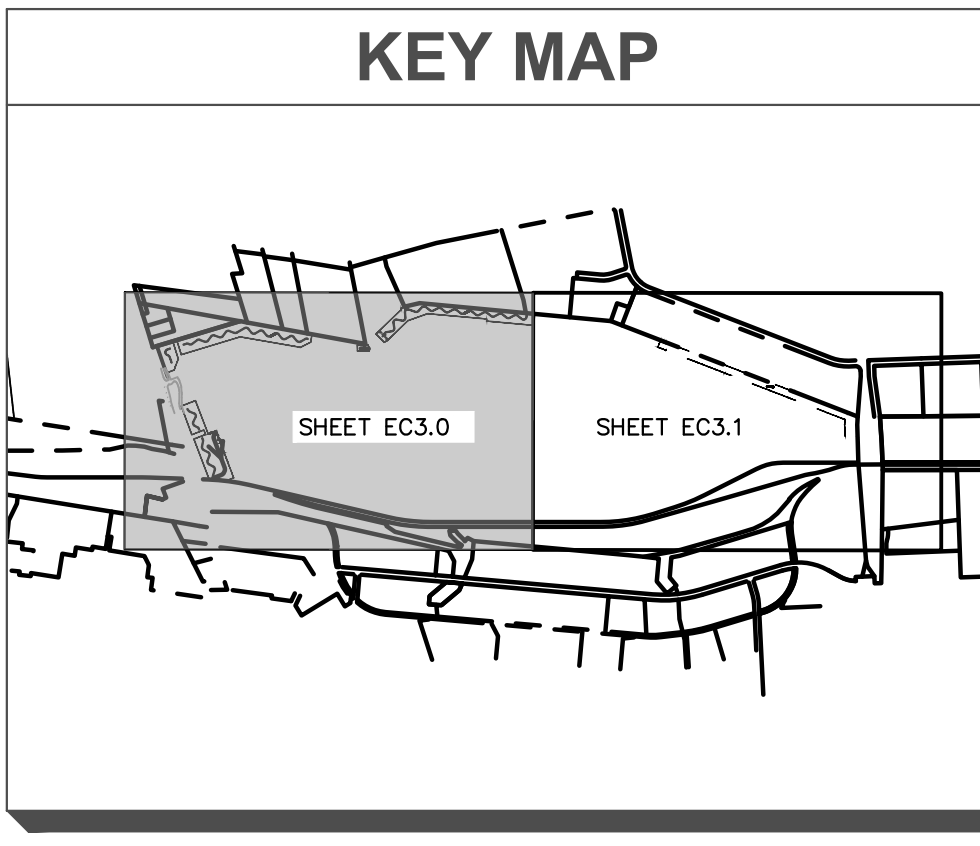
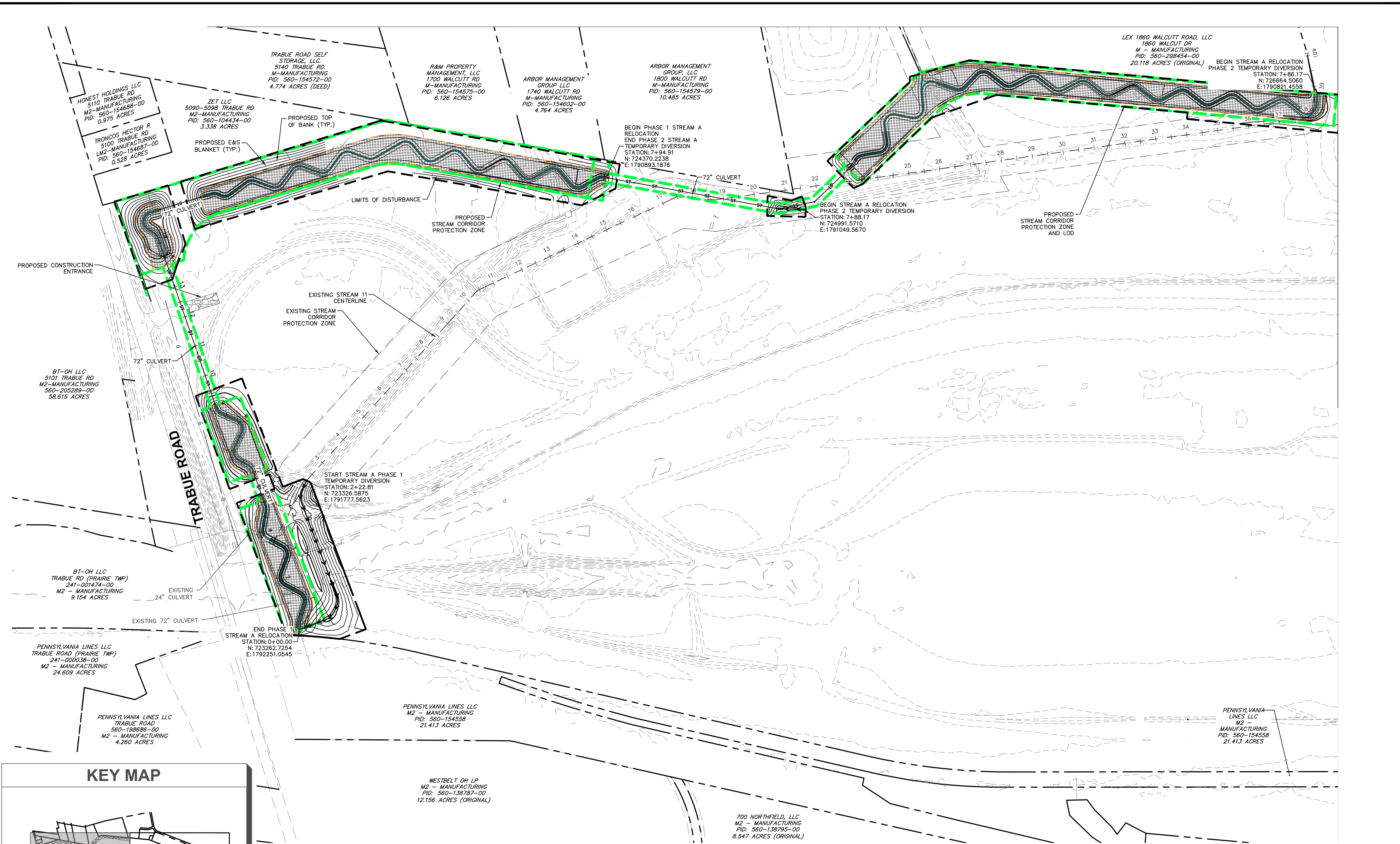
MINIMAL IMPACT SITE LAYOUT

BUCKEYE YARD
 COLUMBUS, OHIO

ORIGINAL ISSUE:
 10/05/2021
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 190118000
 SHEET NUMBER
7 OF 7

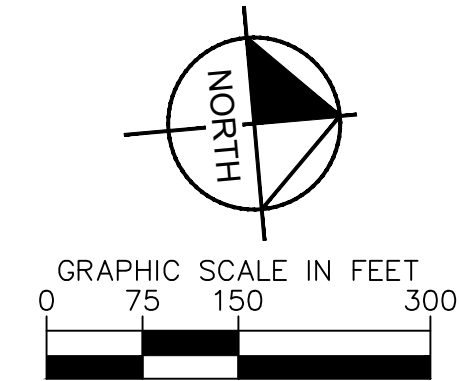
Appendix D: Preferred Alternative Development Plan

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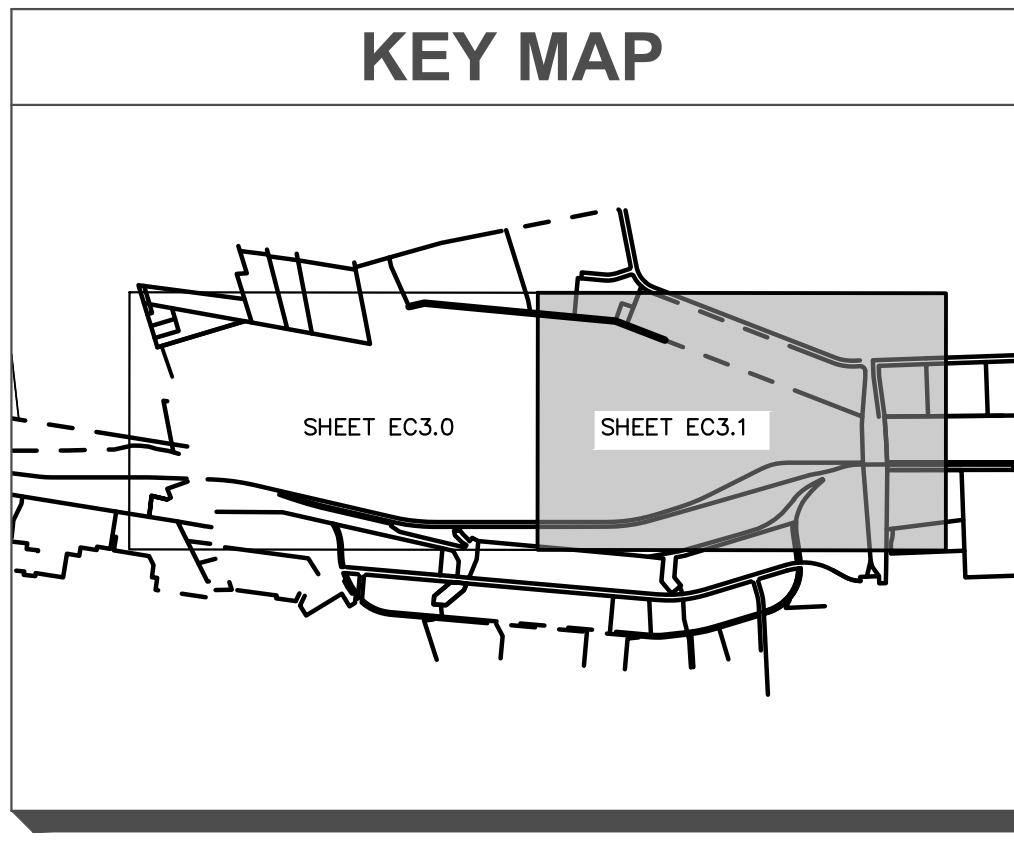
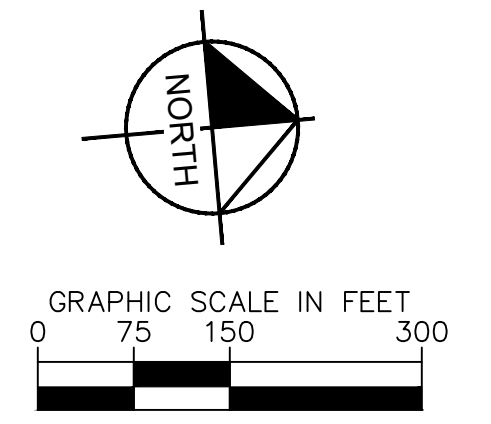
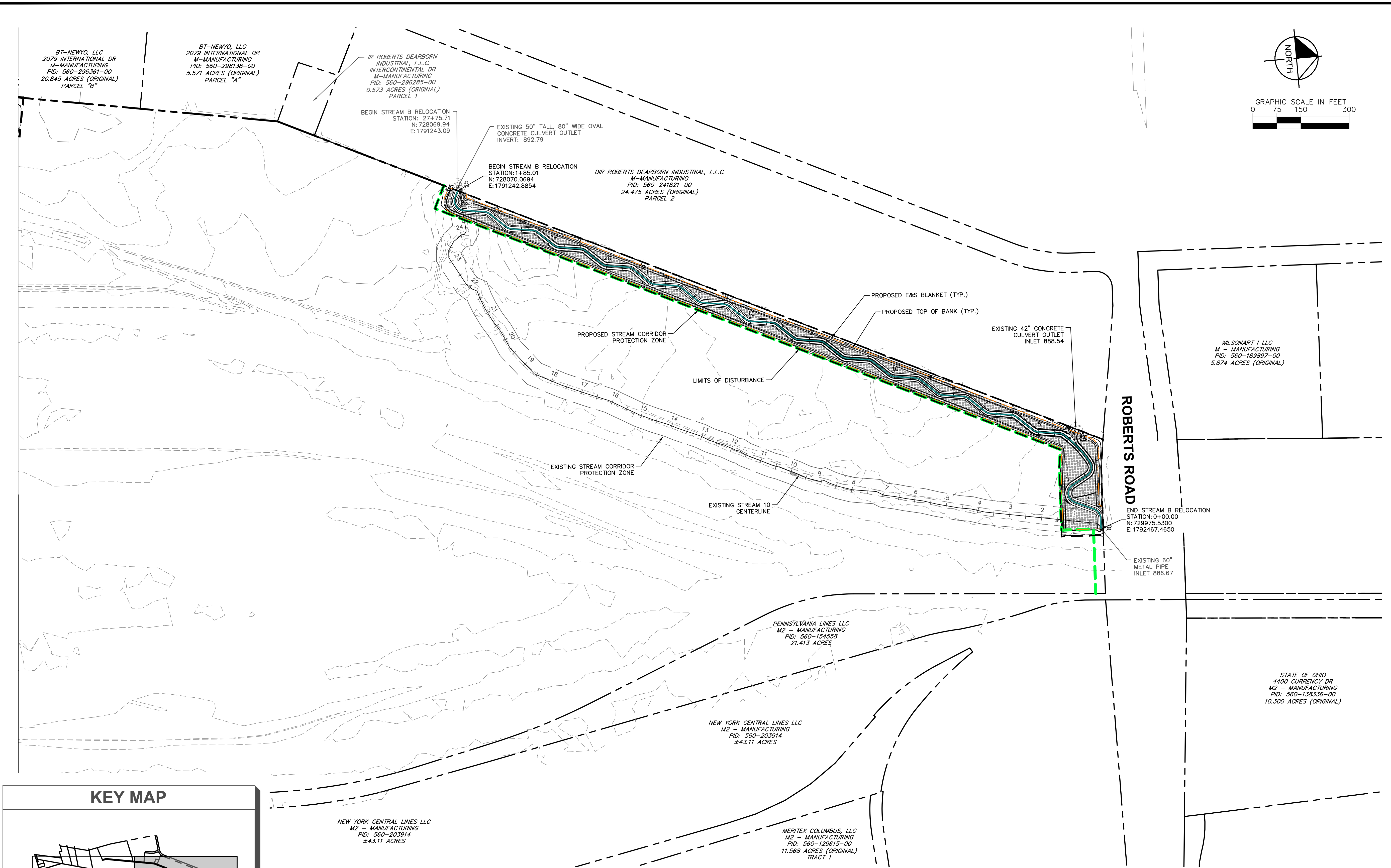
LEGEND

- EXISTING PROPERTY LINE
- - - EXISTING RIGHT OF WAY
- EXISTING PAVEMENT
- EXISTING STORM
- EXISTING STREAM CENTERLINE
- EXISTING GAS LINE
- EXISTING OVERHEAD LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED STORM
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED STREAM CORRIDOR PROTECTION LIMITS
- PROPOSED FLOODPLAIN LIMITS
- PROPOSED STREAM CENTERLINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED BOLDER VANE AND J-HOOK (SEE DETAILS)
- PROPOSED TOE WOOD (SEE DETAILS)
- PROPOSED STREAM CHANNEL
- PROPOSED E&S BLANKET
- PROPOSED ROCK CONSTRUCTION ENTRANCE
- PROPOSED RIFLE (SEE DETAILS)



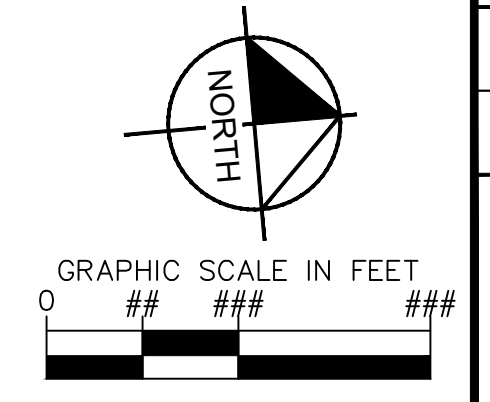
<p>Kimley-Horn</p> <p>© 2022 KIMLEY-HORN AND ASSOCIATES, INC. 7965 NORTH HIGH STREET, SUITE 200 COLUMBUS, OH 43235 PHONE: 614-472-8546 WWW.KIMLEY-HORN.COM</p>	<p>PREFERRED IMPACT SITE LAYOUT</p>										
<p>DESIGNED BY: MCS DRAWN BY: MCS CHECKED BY: JMM</p>	<p>SCALE:</p>										
<p>STREAM RELOCATION PLANS BUCKEYE YARD</p> <p>CITY OF COLUMBUS, FRANKLIN COUNTY, OH</p>											
<p>ORIGINAL ISSUE: 03/28/2022 KHA PROJECT NO. 190118000</p>											
<p>SHEET NUMBER EC3.0</p>											
<p>REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>DATE</th> <th>BY</th> <th>APR DATE</th> <th>APR BY</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No.	DATE	BY	APR DATE	APR BY						
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LEGEND	
	EXISTING PROPERTY LINE
	EXISTING RIGHT OF WAY
	EXISTING PAVEMENT
	EXISTING STORM
	EXISTING STREAM CENTERLINE
	EXISTING GAS LINE
	EXISTING OVERHEAD LINE
	PROPOSED RIGHT-OF-WAY
	PROPOSED STORM
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	PROPOSED STREAM CORRIDOR PROTECTION LIMITS
	PROPOSED FLOODPLAIN LIMITS
	PROPOSED STREAM CENTERLINE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED STREAM CHANNEL
	PROPOSED E&S BLANKET
	PROPOSED ROCK CONSTRUCTION ENTRANCE
	PROPOSED RIFFLE (SEE DETAILS)
	PROPOSED BOULDER VANE AND J-HOOK (SEE DETAILS)
	PROPOSED TOE WOOD (SEE DETAILS)

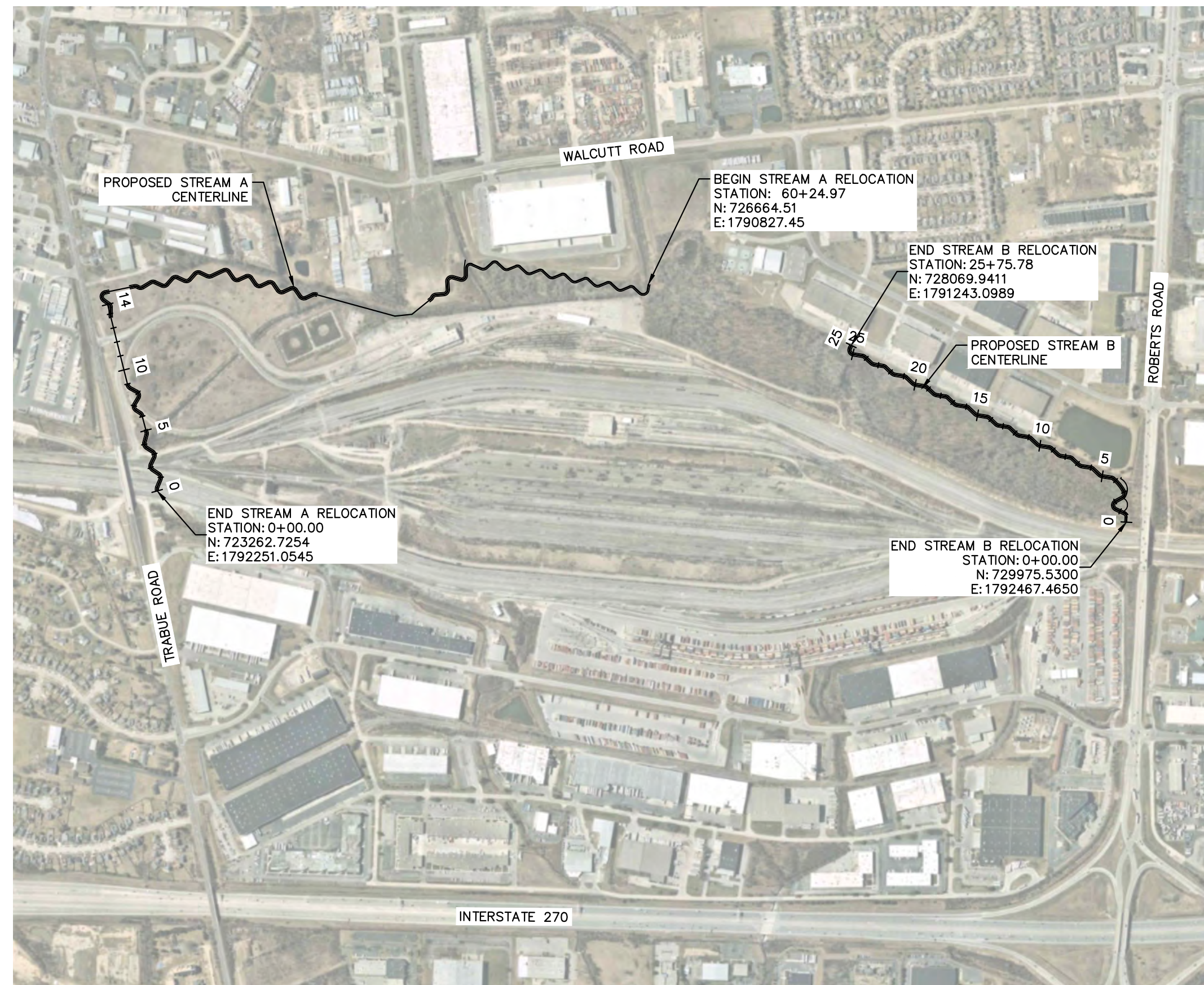
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CHECKED BY: JMM	No.				
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STREAM RELOCATION PLANS BUCKEYE YARD CITY OF COLUMBUS, FRANKLIN COUNTY, OH					
ORIGINAL ISSUE: 03/28/2022 KHA PROJECT NO. 190118000 SHEET NUMBER EC3.1					



Appendix E: Stream Relocation Construction Plan(s)

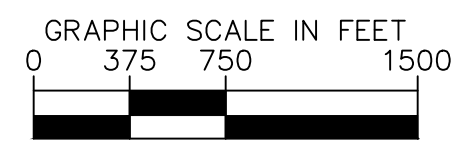
BUCKEYE XO, LLC BUCKEYE YARD STREAM RELOCATION

STATE OF OHIO, FRANKLIN COUNTY
CITY OF COLUMBUS
2022



SITE LOCATION MAP

IMAGE TEXT TAKEN FROM OGRIP. ACCESSED 03/05/2021

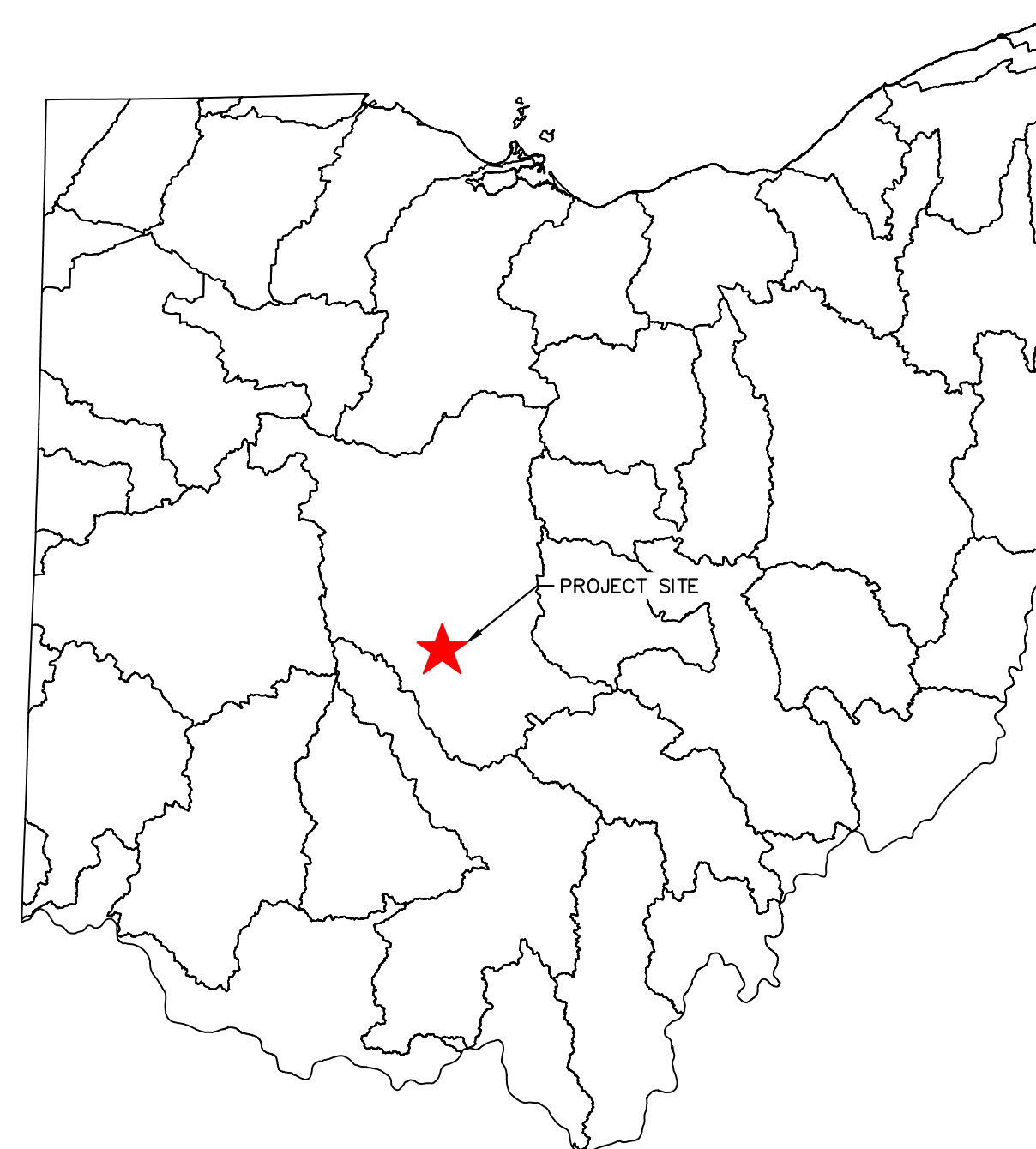


MITIGATION TABLE			
PROJECT LENGTH			
REACH	EXISTING (LF)	PROPOSED TOTAL (LF)	IMPACTED TOTAL (LF)
STREAM RELOCATION	7162	7194	7194
TOTAL	7162	7194	7194

VOLUME TABLE			
DESCRIPTION	CUT (CY)	FILL (CY)	NET (CY)
CUT/FILL VOLUME	135,354	12,360	122,994 (CUT)

Sheet List Table	
Sheet Number	Sheet Title
EC0.0	COVER SHEET
EC2.0	EXISTING CONDITIONS
EC2.1	EXISTING CONDITIONS
EC3.0	EROSION AND SEDIMENT CONTROL PLAN - OVERVIEW A
EC3.1	EROSION AND SEDIMENT CONTROL PLAN - OVERVIEW B
EC3.2	EROSION AND SEDIMENT CONTROL PLAN
EC3.3	EROSION AND SEDIMENT CONTROL PLAN
EC3.4	EROSION AND SEDIMENT CONTROL PLAN
EC5.0	PLANTING NOTES
EC5.1	PLANTING PLAN - OVERVIEW A
EC5.2	PLANTING PLAN - OVERVIEW B
EC5.3	PLANTING PLAN
EC5.4	PLANTING PLAN
EC5.5	PLANTING PLAN

STANDARD CONSTRUCTION DRAWINGS	
CITY OF COLUMBUS	
AA-S153	AA-S134B



USGS 8-DIGIT HUC BOUNDARY MAP

UPPER SCIOTO
HUC ID: 05060001
NOT TO SCALE



UPPER PORTION OF EXISTING STREAM 11



LOWER PORTION OF EXISTING STREAM 11



UPPER PORTION OF EXISTING STREAM 10



LOWER PORTION OF EXISTING STREAM 10

PROJECT TEAM

DEVELOPER/OWNER
BUCKEYE XO, LLC
2100 ROSS AVE, STE. 895
DALLAS, TX 75201
TEL: (469) 226-1269
EMAIL: WILLIAMS@XEBECREALTY.COM
CONTACT: WILLIAM SHANNON

CIVIL ENGINEER
KIMLEY-HORN AND ASSOCIATES, INC.
7965 NORTH HIGH STREET, SUITE 200
COLUMBUS, OH 43235
TEL: (614) 454-6696
CONTACT: JUSTIN MULLER, P.E.
EMAIL: JUSTIN.MULLER@KIMLEY-HORN.COM

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COLUMBUS, OH 43235
PHONE: 614-472-8646
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SCALE:
DESIGNED BY: MCS
DRAWN BY: MCS
CHECKED BY: JMM

COVER SHEET

STREAM RELOCATION PLANS
BUCKEYE YARD
CITY OF COLUMBUS, FRANKLIN COUNTY, OH

ORIGINAL ISSUE:
03/28/2022

KHA PROJECT NO.
190118000

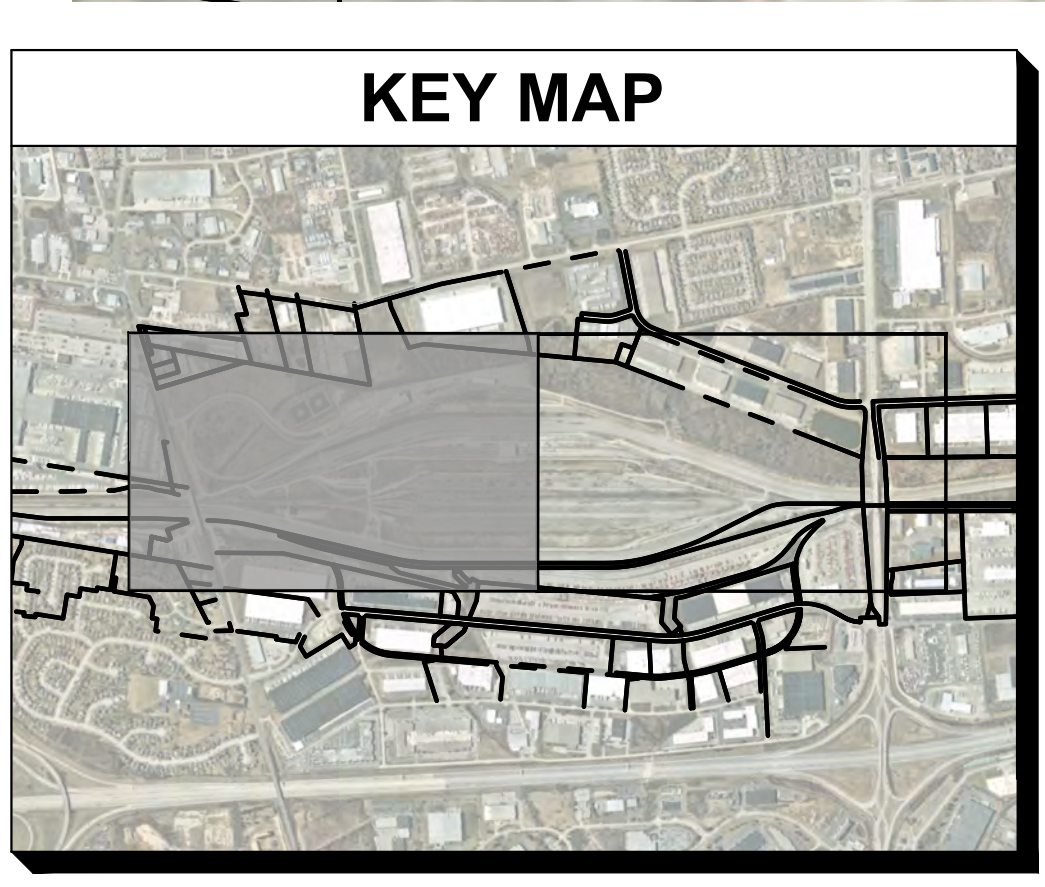
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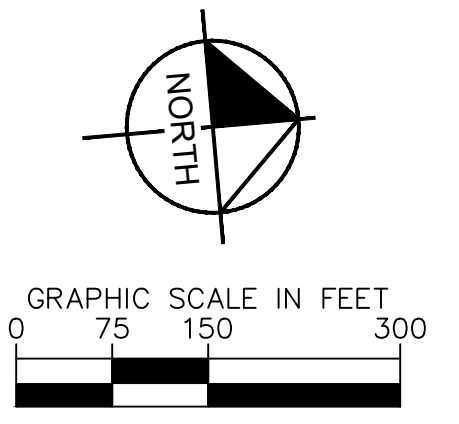
No.	REVISIONS	DATE	BY	APR DATE	APR BY
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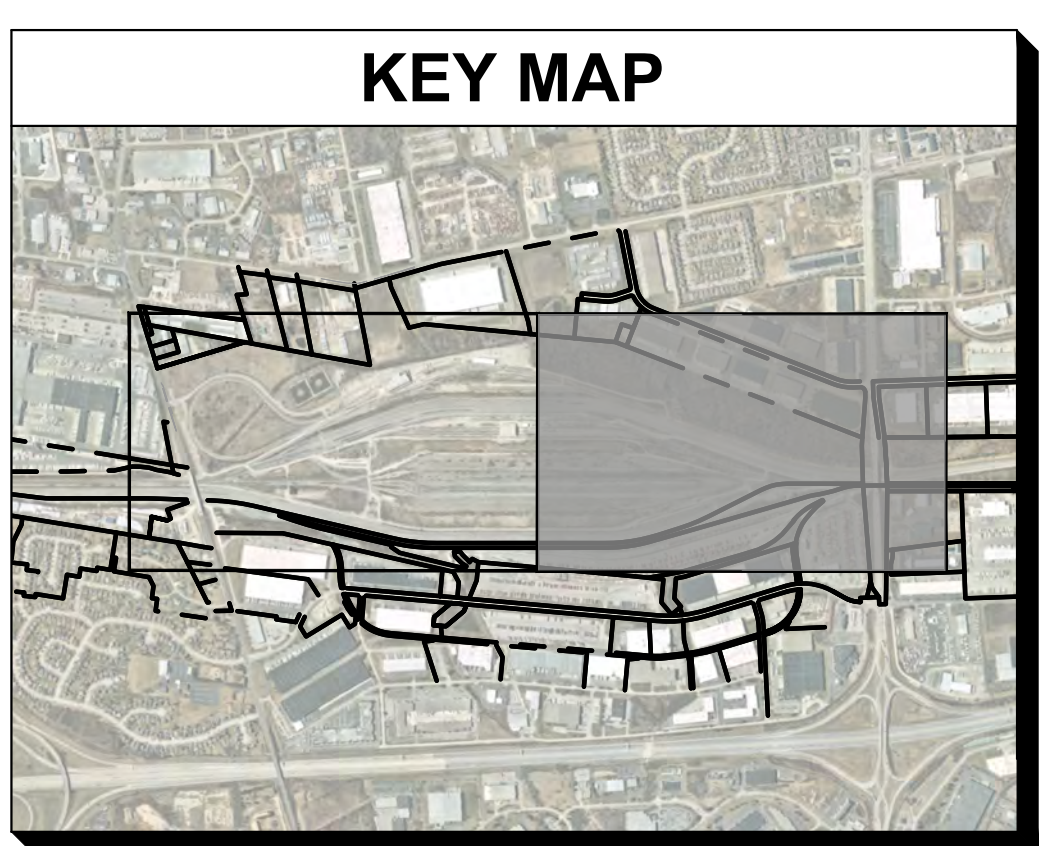
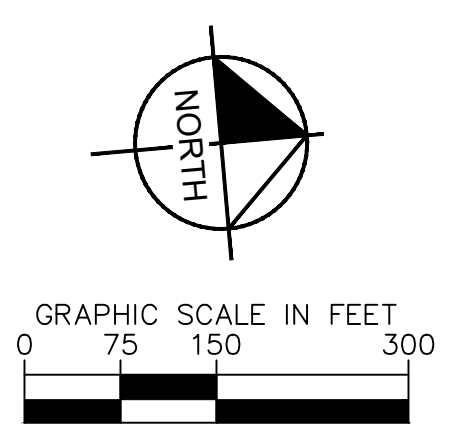
LEGEND

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	EXISTING RIGHT OF WAY		EXISTING WATER LINE
	EXISTING EASEMENT		EXISTING GAS LINE
	EXISTING PAVEMENT		EXISTING OVERHEAD LINE
	EXISTING CENTERLINE		EXISTING ELECTRIC
	EXISTING STORM		EXISTING STREAM CORRIDOR PROTECTION ZONE
	EXISTING SANITARY		



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SCALE:		DESIGNED BY: MCS		DRAWN BY: MCS	
 © 2022 KIMLEY-HORN AND ASSOCIATES, INC. 7865 NORTH HIGH STREET, SUITE 200 COLUMBUS, OH 43235 PHONE: 614-472-8946 WWW.KIMLEY-HORN.COM		EXISTING CONDITIONS		STREAM RELOCATION PLANS BUCKEYE YARD CITY OF COLUMBUS, FRANKLIN COUNTY, OH	
ORIGINAL ISSUE: 03/28/2022		KHA PROJECT NO. 190118000		SHEET NUMBER	
EC2.0				REVISIONS No. DATE BY APR DATE BY APR BY	

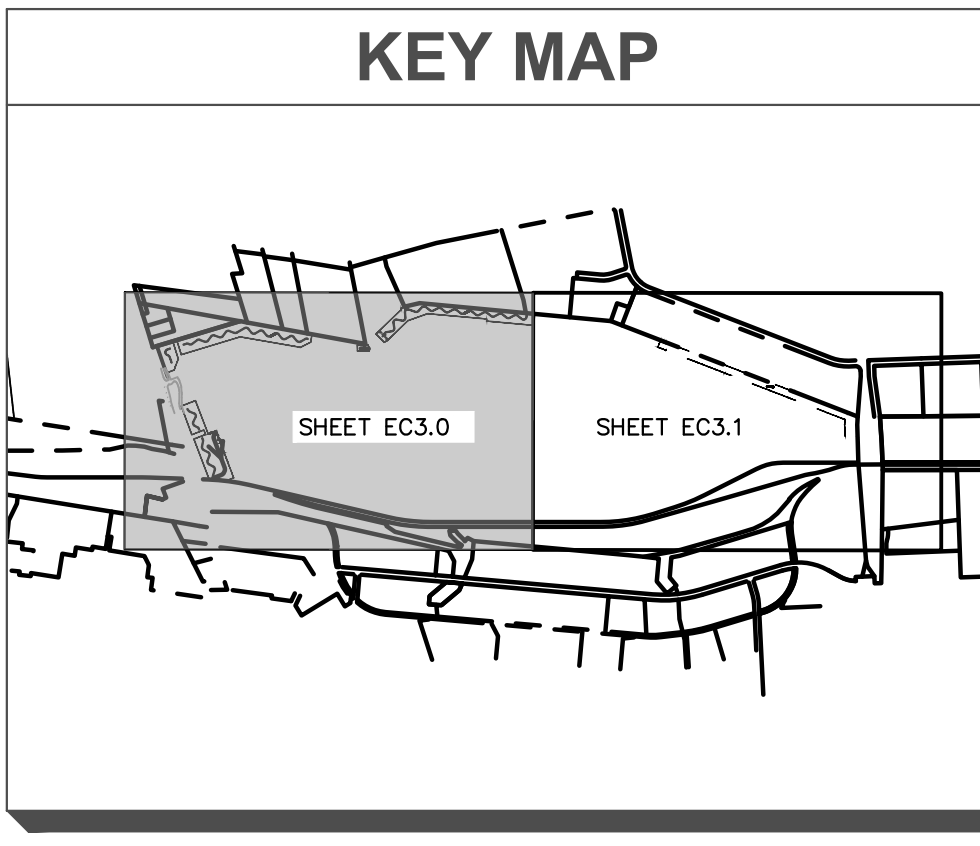
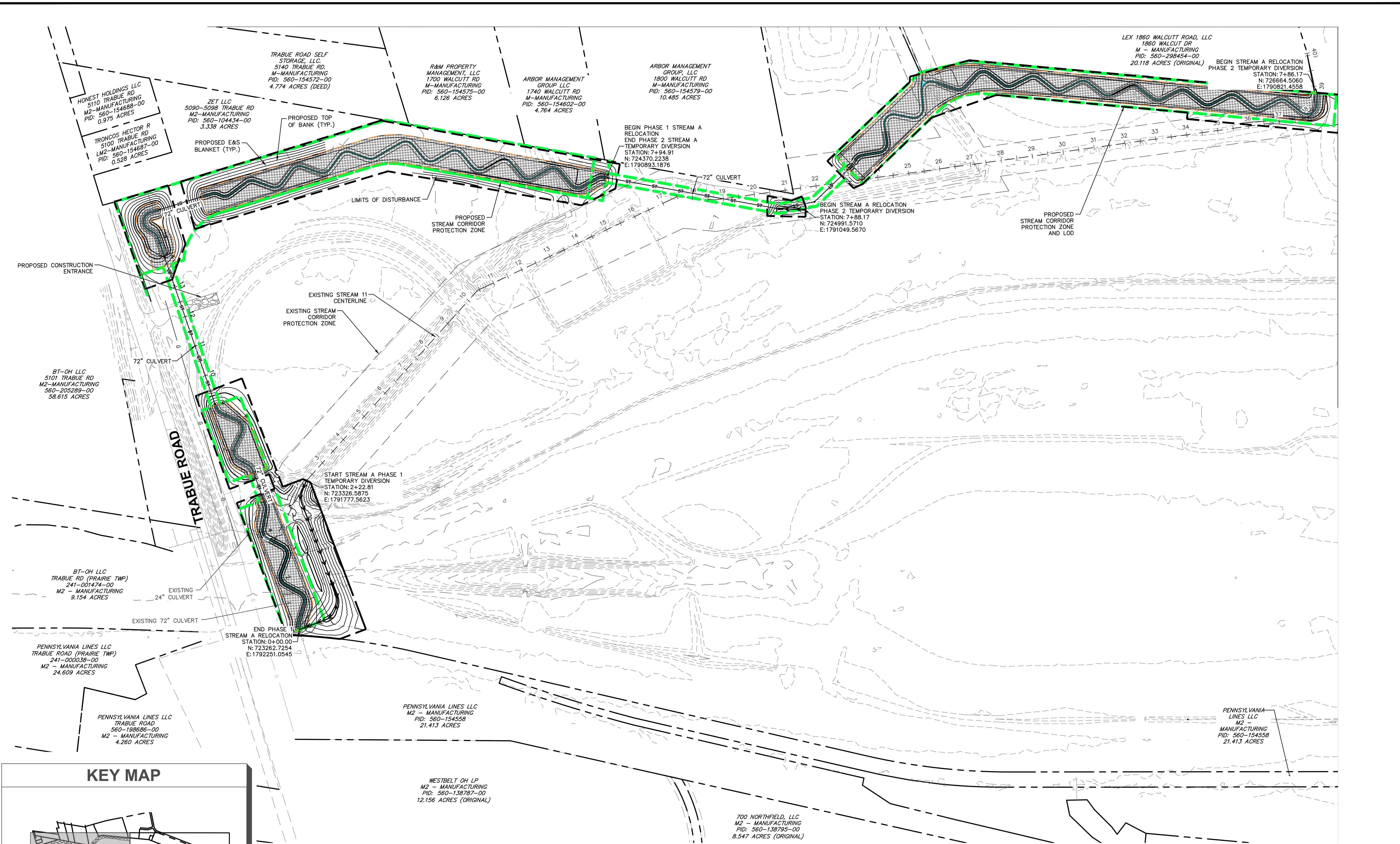
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LEGEND	
	EXISTING PROPERTY LINE
	EXISTING RIGHT OF WAY
	EXISTING EASEMENT
	EXISTING PAVEMENT
	PROPOSED FIRE HYDRANT
	PROPOSED WATER
	PROPOSED STORM
	PROPOSED PROJECT BOUNDARY
	PROPOSED EASEMENT
	PROPOSED RIGHT-OF-WAY
	STANDARD PITCH CONCRETE CURB AND GUTTER
	PROPOSED BUILDING SETBACK
	PROPOSED FIRE LANE
	PROPOSED SANITARY

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DESIGNED BY: MCS	CHECKED BY: JMM
DRAWN BY: MCS	CHECKED BY: JMM
EXISTING CONDITIONS	
STREAM RELOCATION PLANS BUCKEYE YARD	
CITY OF COLUMBUS, FRANKLIN COUNTY, OH	
ORIGINAL ISSUE:	03/28/2022
KHA PROJECT NO.	190118000
SHEET NUMBER	EC2.1
REVISIONS	DATE BY APR DATE BY
No.	

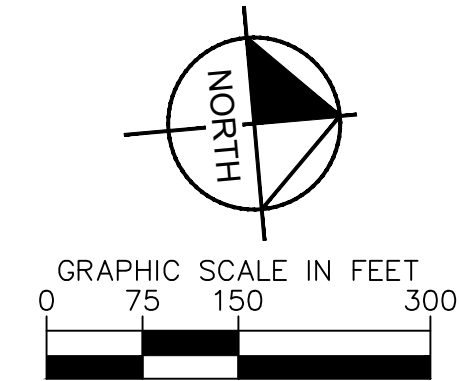
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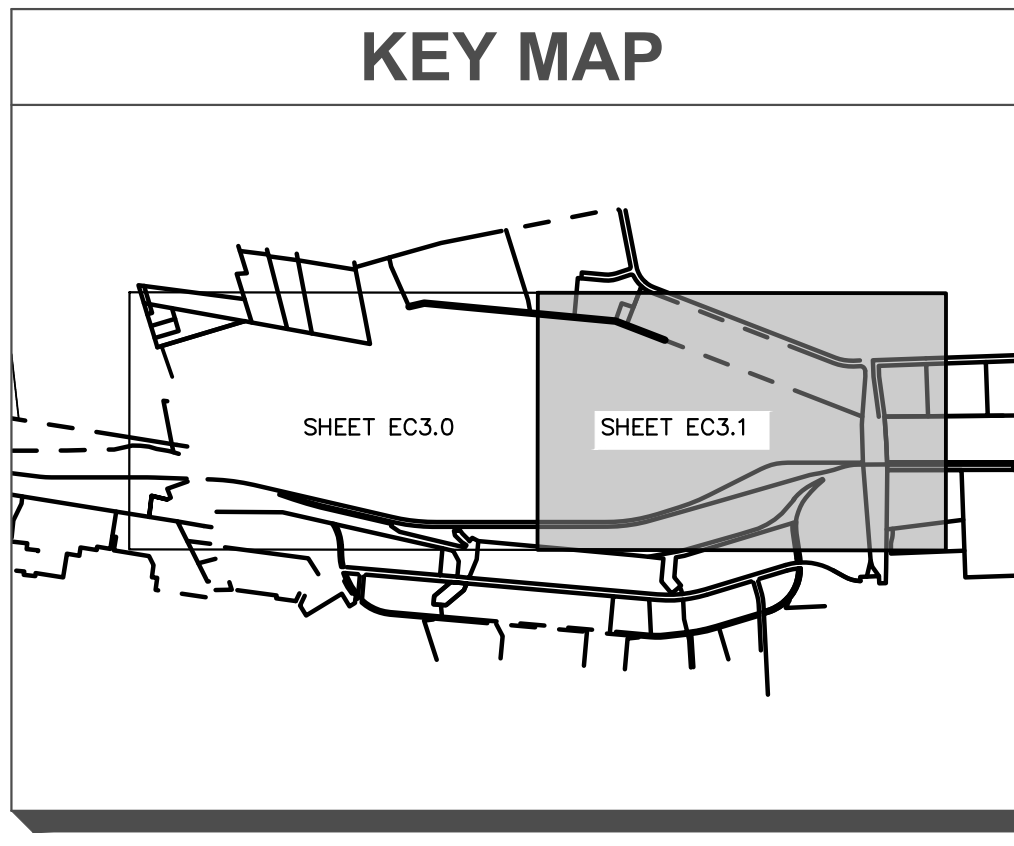
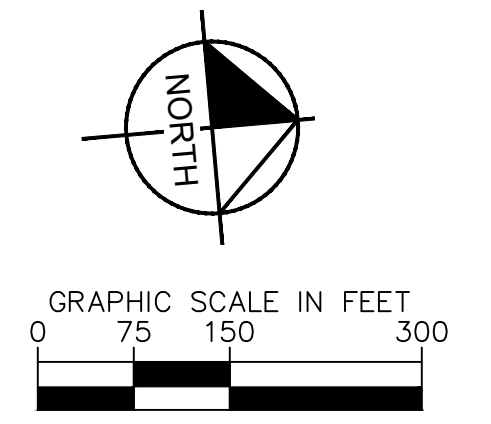
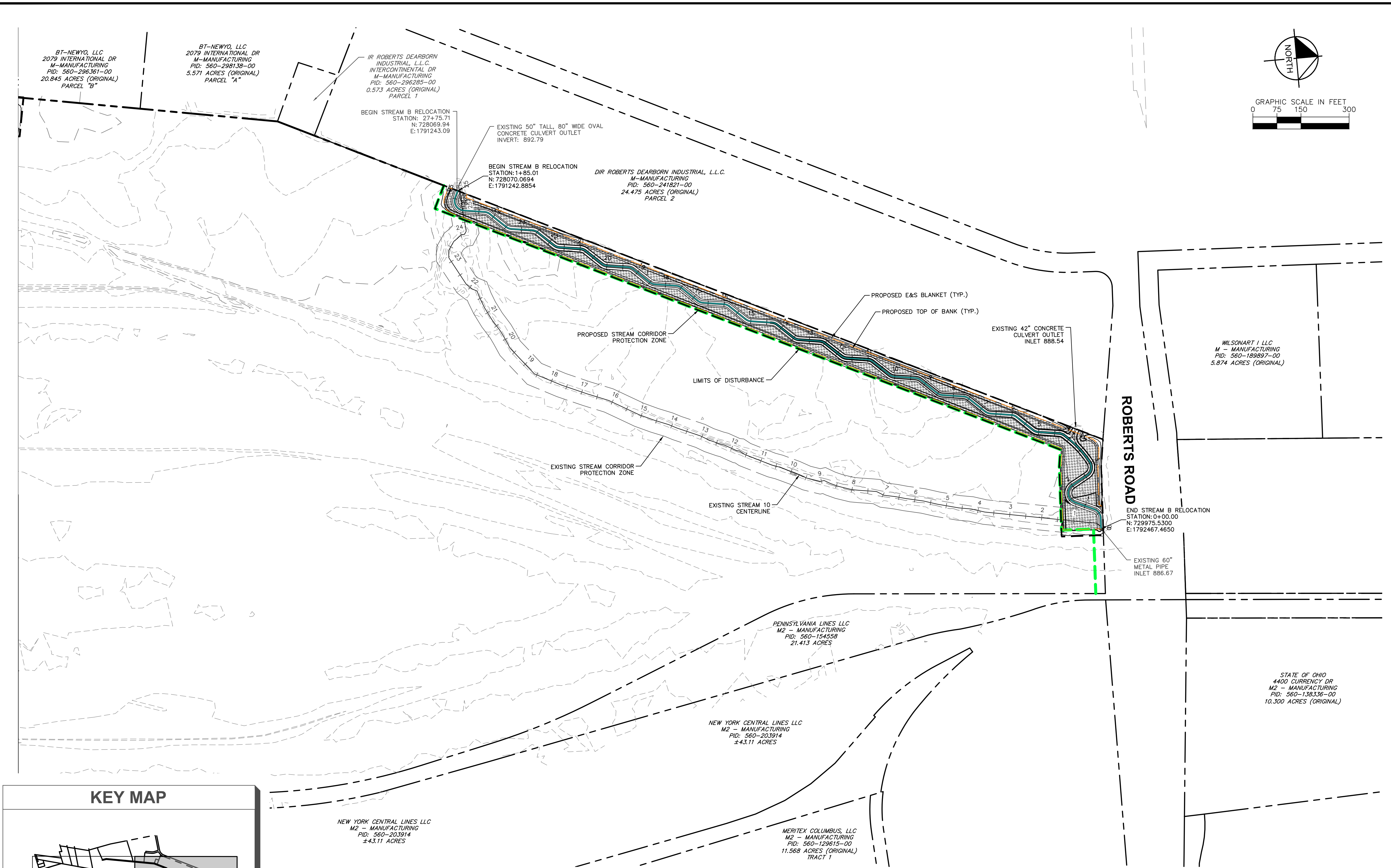
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	EXISTING PAVEMENT		PROPOSED STREAM CORRIDOR PROTECTION LIMITS		PROPOSED E&S BLANKET
	EXISTING STREAM CENTERLINE		PROPOSED FLOODPLAIN LIMITS		PROPOSED ROCK CONSTRUCTION ENTRANCE
	EXISTING GAS LINE		PROPOSED STREAM CENTERLINE		PROPOSED RIFFLE (SEE DETAILS)
	EXISTING OVERHEAD LINE		EXISTING MAJOR CONTOUR		PROPOSED BOULDER VANE AND J-HOOK (SEE DETAILS)
	PROPOSED RIGHT-OF-WAY		EXISTING MINOR CONTOUR		PROPOSED TOE WOOD (SEE DETAILS)
			PROPOSED MAJOR CONTOUR		

LIMITS OF DISTURBANCE (LOD) = 21.5268 AC



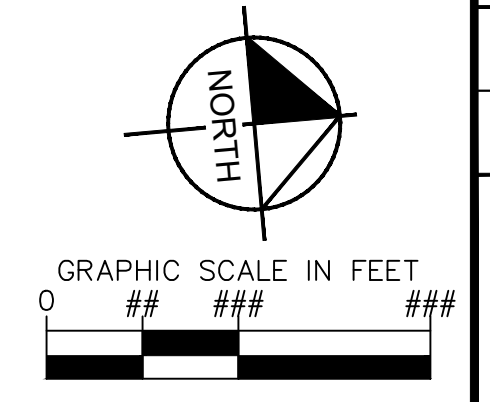
EROSION AND SEDIMENT CONTROL PLAN - OVERVIEW A	STREAM RELOCATION PLANS BUCKEYE YARD CITY OF COLUMBUS, FRANKLIN COUNTY, OH
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ORIGINAL ISSUE: 03/28/2022 KHA PROJECT NO. 190118000 SHEET NUMBER EC3.0	REVISIONS No. DATE BY APR DATE APR BY

Drawing name: K:\CIBL\DEVA\190118000_4dec_Buckeye_Yard_Columbus_OH\2_Design\CAD\PlanSheets\8_StreamRelocation\EROSION AND SEDIMENT CONTROL PLAN.dwg OVERVIEW B - Mar 29, 2022 12:23pm by: Colin Rivera
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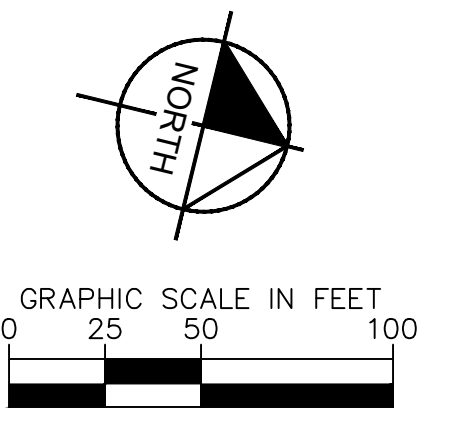
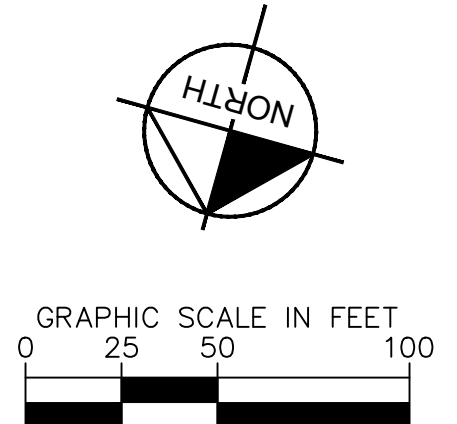
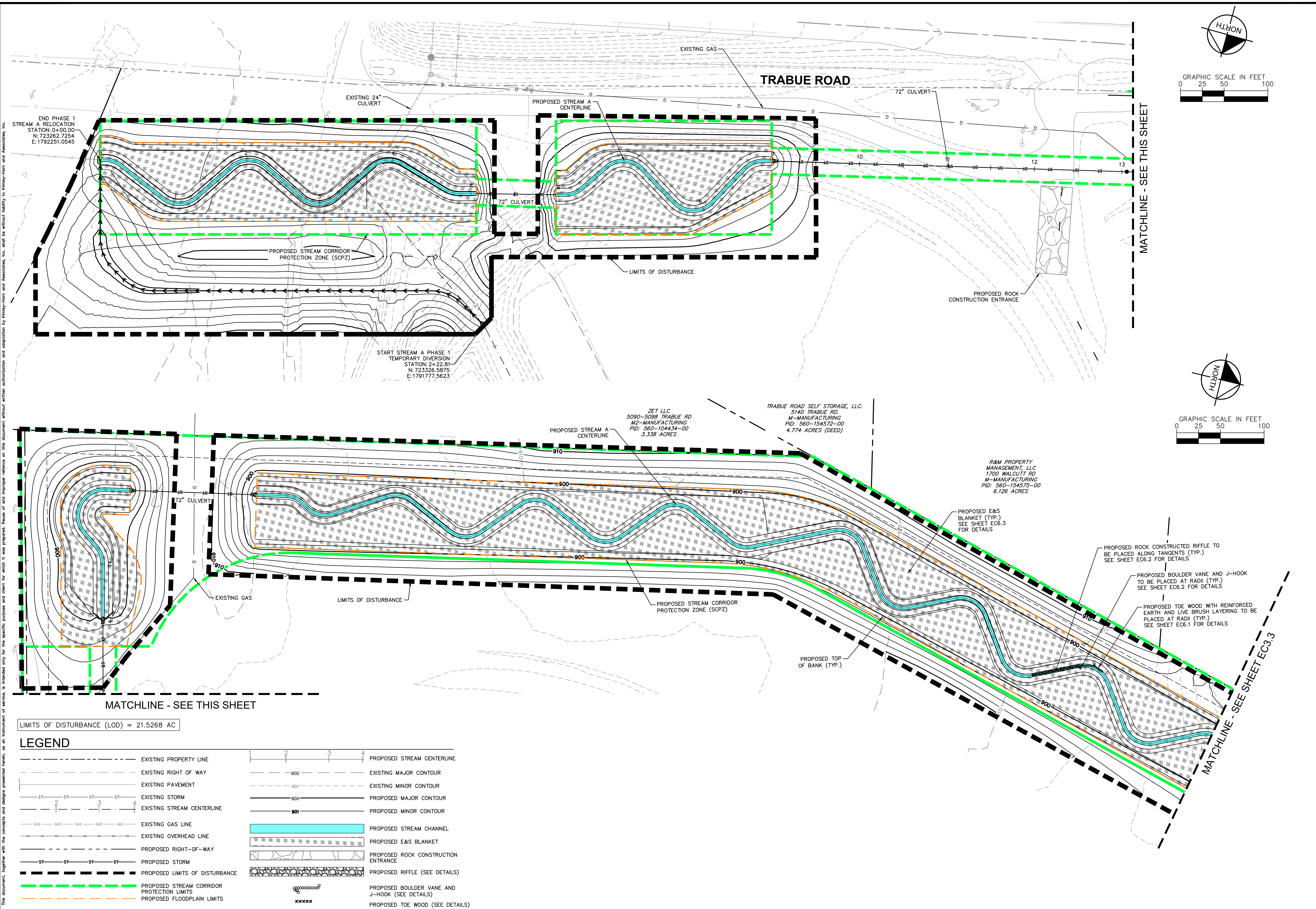
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	EXISTING OVERHEAD LINE
	PROPOSED RIGHT-OF-WAY
	PROPOSED STORM
	PROPOSED LIMITS OF DISTURBANCE
	PROPOSED STREAM CORRIDOR PROTECTION LIMITS
	PROPOSED FLOODPLAIN LIMITS
	PROPOSED STREAM CENTERLINE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED STREAM CHANNEL
	PROPOSED E&S BLANKET
	PROPOSED ROCK CONSTRUCTION ENTRANCE
	PROPOSED RIFFLE (SEE DETAILS)
	PROPOSED BOULDER VANE AND J-HOOK (SEE DETAILS)
	PROPOSED TOE WOOD (SEE DETAILS)

LIMITS OF DISTURBANCE (LOD) = 21.5268 AC



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SCALE:	BY: _____
EROSION AND SEDIMENT CONTROL PLAN - OVERVIEW B	
STREAM RELOCATION PLANS BUCKEYE YARD CITY OF COLUMBUS, FRANKLIN COUNTY, OH	
ORIGINAL ISSUE: 03/28/2022	
KHA PROJECT NO. 190118000	
SHEET NUMBER	
EC3.1	

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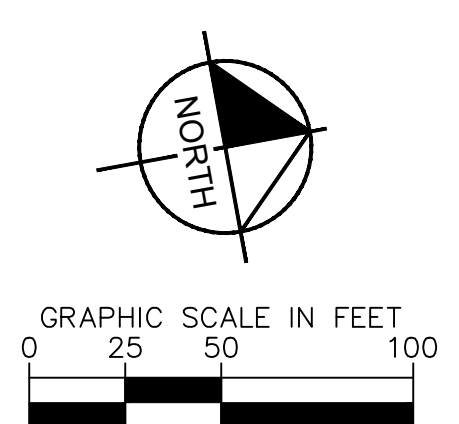
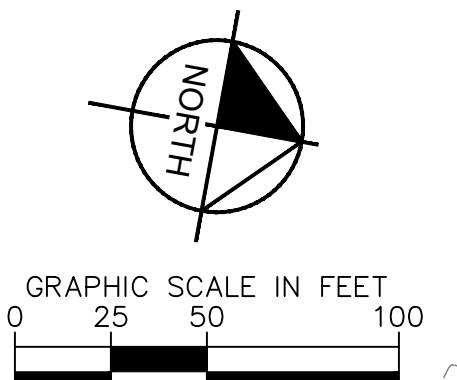
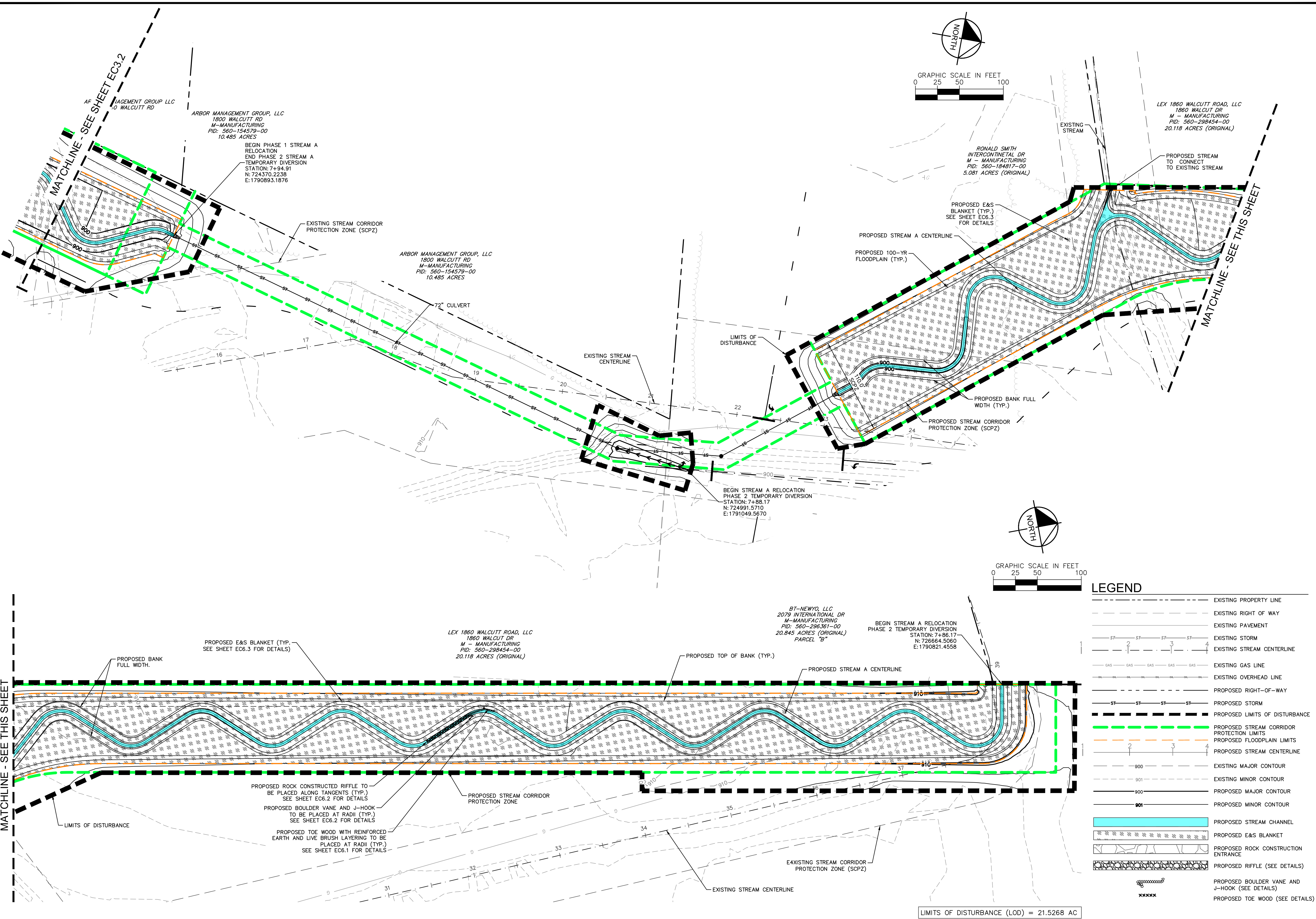


LIMITS OF DISTURBANCE (LOD) = 21.5268 AC

LEGEND	
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	EXISTING RIGHT OF WAY
	EXISTING PAVEMENT
	EXISTING STORM
	EXISTING STREAM CENTERLINE
	EXISTING GAS LINE
	EXISTING OVERHEAD LINE
	PROPOSED RIGHT-OF-WAY
	PROPOSED STORM
	PROPOSED LIMITS OF DISTURBANCE
	PROPOSED STREAM CORRIDOR PROTECTION LIMITS
	PROPOSED FLOODPLAIN LIMITS
	PROPOSED STREAM CENTERLINE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED STREAM CHANNEL
	PROPOSED E&S BLANKET
	PROPOSED ROCK CONSTRUCTION ENTRANCE
	PROPOSED RIFFLE (SEE DETAILS)
	PROPOSED BOULDER VANE AND J-HOOK (SEE DETAILS)
	PROPOSED TOE WOOD (SEE DETAILS)

<h2 style="margin: 0;">EROSION AND SEDIMENT CONTROL PLAN</h2>	<p style="margin: 0;">Kimley-Horn</p> <p style="font-size: 8px; margin: 0;">© 2022 KIMLEY-HORN AND ASSOCIATES, INC. 7965 NORTH HIGH STREET, SUITE 200 COLUMBUS, OH 43235 PHONE: 614-472-8546 WWW.KIMLEY-HORN.COM</p>
<p style="margin: 0;">STREAM RELOCATION PLANS BUCKEYE YARD</p> <p style="font-size: 8px; margin: 0;">CITY OF COLUMBUS, FRANKLIN COUNTY, OH</p>	<p style="margin: 0;">SCALE: DESIGNED BY: MCS DRAWN BY: MCS CHECKED BY: JMM</p>
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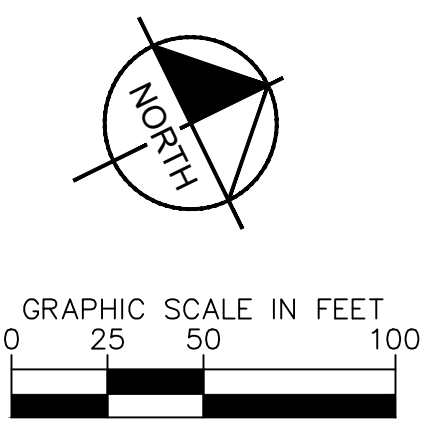
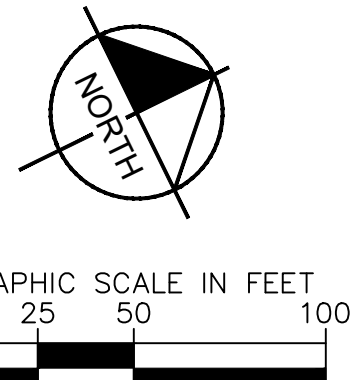
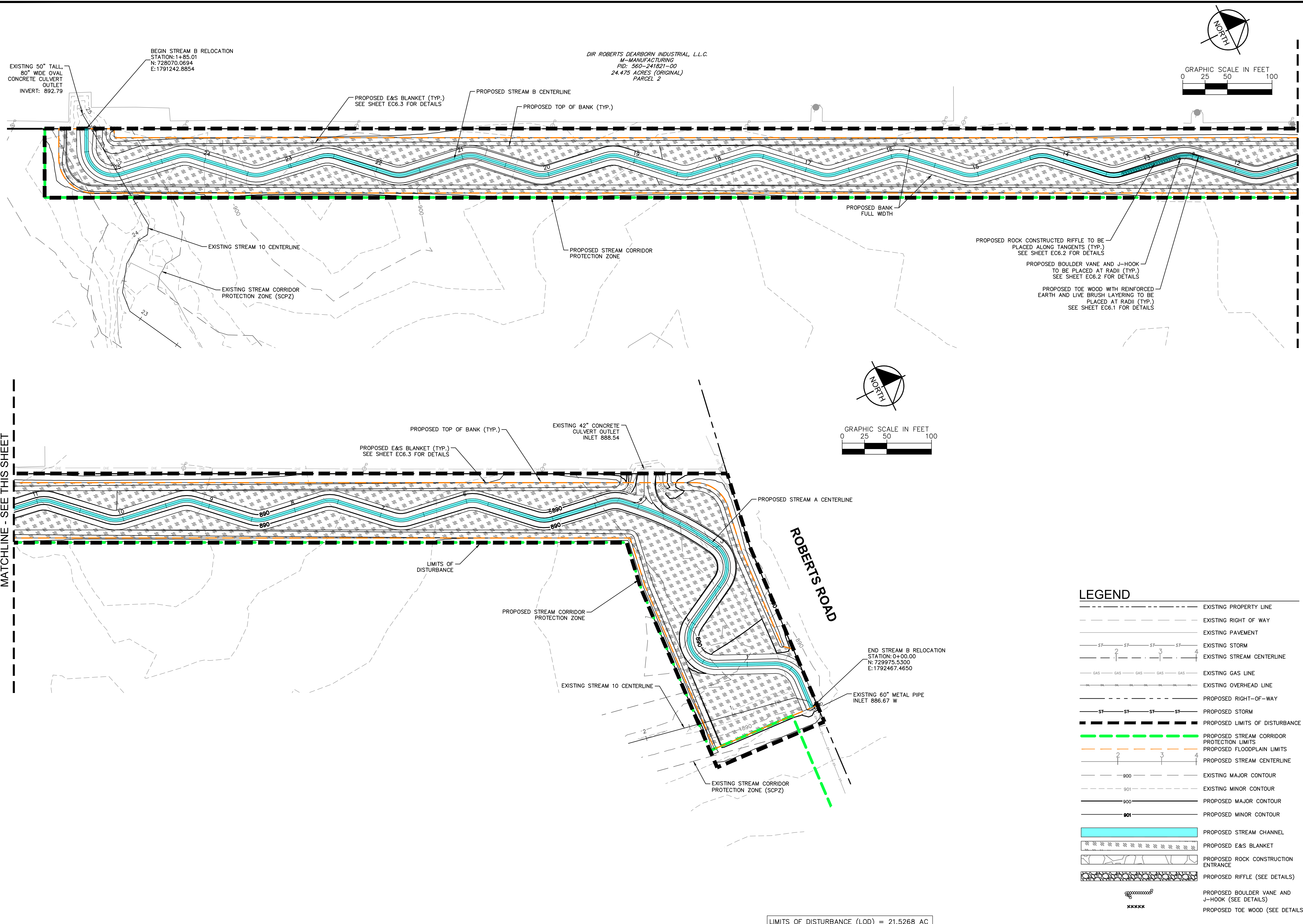


LEGEND	
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	EXISTING RIGHT OF WAY
	EXISTING PAVEMENT
	EXISTING STORM
	EXISTING STREAM CENTERLINE
	EXISTING GAS LINE
	EXISTING OVERHEAD LINE
	PROPOSED RIGHT-OF-WAY
	PROPOSED STORM
	PROPOSED LIMITS OF DISTURBANCE
	PROPOSED STREAM CORRIDOR
	PROPOSED FLOODPLAIN LIMITS
	PROPOSED STREAM CENTERLINE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED STREAM CHANNEL
	PROPOSED E&S BLANKET
	PROPOSED ROCK CONSTRUCTION ENTRANCE
	PROPOSED RIFFLE (SEE DETAILS)
	PROPOSED BOULDER VANE AND J-HOOK (SEE DETAILS)
	PROPOSED TOE WOOD (SEE DETAILS)

LIMITS OF DISTURBANCE (LOD) = 21.5268 AC

<h2 style="margin: 0;">EROSION AND SEDIMENT CONTROL PLAN</h2>	<h3 style="margin: 0;">STREAM RELOCATION PLANS BUCKEYE YARD</h3> <p style="margin: 0; font-size: small;">CITY OF COLUMBUS, FRANKLIN COUNTY, OH</p>
<p style="margin: 0; font-size: x-small;">© 2022 KIMLEY-HORN AND ASSOCIATES, INC. 7965 NORTH HIGH STREET, SUITE 200 COLUMBUS, OH 43235 PHONE: 614-472-8546 WWW.KIMLEY-HORN.COM</p>	
SCALE: DESIGNED BY: MCS DRAWN BY: MCS CHECKED BY: JMM	REVISIONS No. DATE BY APR. DATE APR. BY

Drawing name: K:\CIB_LDEA\190118000_3dloc_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlanSheets\8_StreamRelocation\EROSION AND SEDIMENT CONTROL PLAN.dwg STREAM B Mar 28, 2022, 12:23pm by: Gavin Rivera
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LEGEND	
	EXISTING PROPERTY LINE
	EXISTING RIGHT OF WAY
	EXISTING PAVEMENT
	EXISTING STORM
	EXISTING STREAM CENTERLINE
	EXISTING GAS LINE
	EXISTING OVERHEAD LINE
	PROPOSED RIGHT-OF-WAY
	PROPOSED STORM
	PROPOSED LIMITS OF DISTURBANCE
	PROPOSED STREAM CORRIDOR PROTECTION LIMITS
	PROPOSED FLOODPLAIN LIMITS
	PROPOSED STREAM CENTERLINE
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED STREAM CHANNEL
	PROPOSED E&S BLANKET
	PROPOSED ROCK CONSTRUCTION ENTRANCE
	PROPOSED RIFFLE (SEE DETAILS)
	PROPOSED BOULDER VANE AND J-HOOK (SEE DETAILS)
	PROPOSED TOE WOOD (SEE DETAILS)

LIMITS OF DISTURBANCE (LOD) = 21.5268 AC

MATCHLINE - SEE THIS SHEET

MATCHLINE - SEE THIS SHEET

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SCALE:
 DESIGNED BY: MCS
 DRAWN BY: MCS
 CHECKED BY: JMM

EROSION AND SEDIMENT CONTROL PLAN

STREAM RELOCATION PLANS
BUCKEYE YARD
 CITY OF COLUMBUS, FRANKLIN COUNTY, OH

ORIGINAL ISSUE:
 03/28/2022
 KHA PROJECT NO.
 190118000
 SHEET NUMBER
EC3.4

Drawing name: K:\CIB_LDE\190118000_4dec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlanSheets\8_StreamRelocation\PLANTING PLAN.dwg OVERVIEW A - Mar 29, 2022, 12:23pm by: Gabe Rivera
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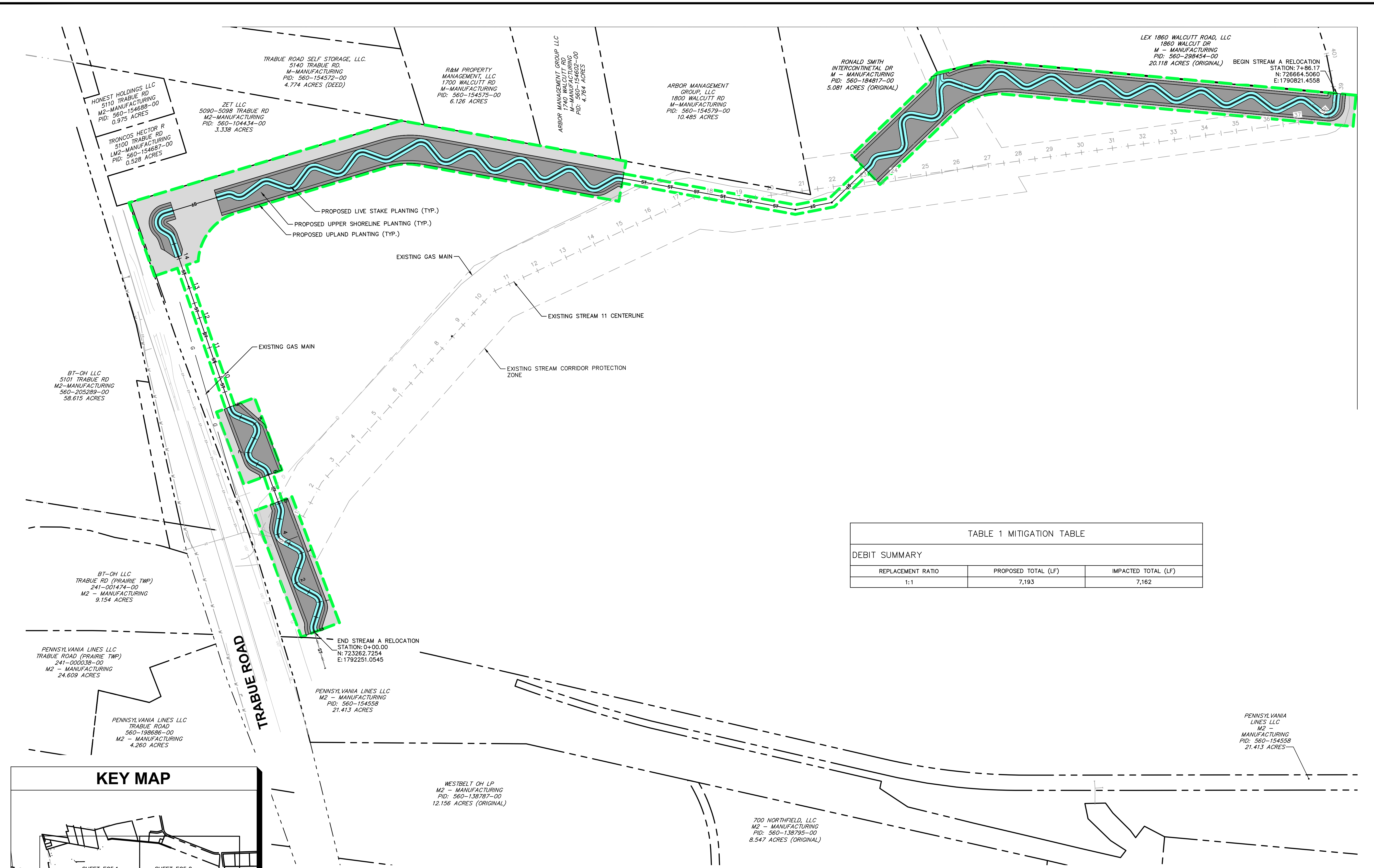
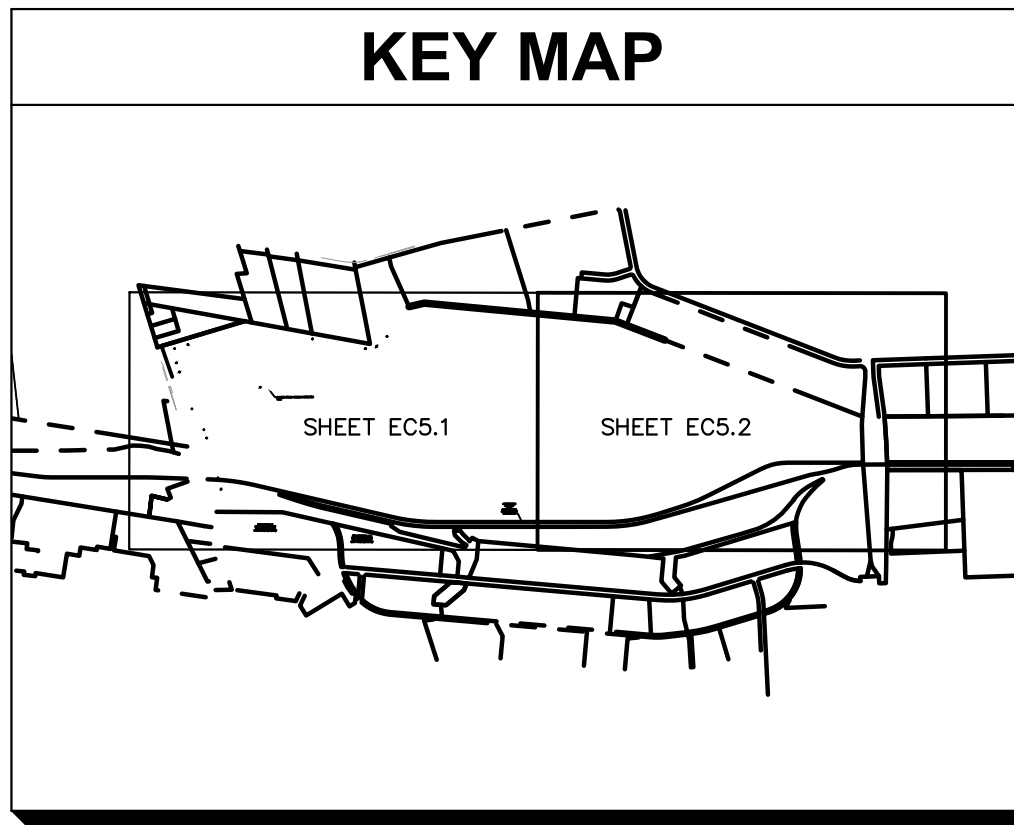
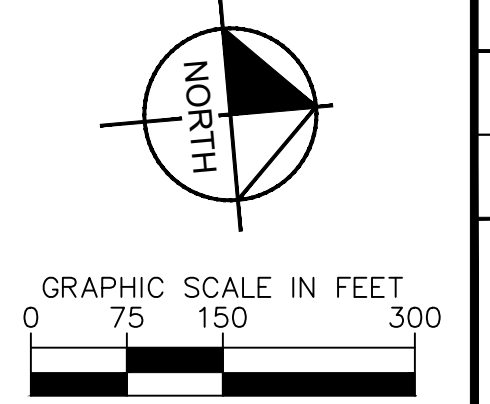


TABLE 1 MITIGATION TABLE		
DEBIT SUMMARY		
REPLACEMENT RATIO	PROPOSED TOTAL (LF)	IMPACTED TOTAL (LF)
1:1	7,193	7,162



LEGEND

- EXISTING PROPERTY LINE
- - - EXISTING RIGHT OF WAY
- - - EXISTING EASEMENT
- EXISTING PAVEMENT
- - - EXISTING CENTERLINE
- - - EXISTING STORM
- - - EXISTING SANITARY
- EXISTING PAVEMENT
- - - EXISTING WATER LINE
- - - EXISTING GAS LINE
- - - EXISTING OVERHEAD LINE
- - - EXISTING ELECTRIC
- - - PROPOSED RIGHT-OF-WAY
- - - PROPOSED STORM
- - - PROPOSED STREAM CORRIDOR PROTECTION LIMITS
- - - PROPOSED UPPER SHORELINE LIMITS
- LIVESTAKE PLANTING (3.58 AC.)
- UPPER SHORELINE PLANTING (7.75 AC.)
- UPLAND PLANTING (4.70 AC.)



No.	REVISIONS	DATE	BY	APR DATE	APR BY

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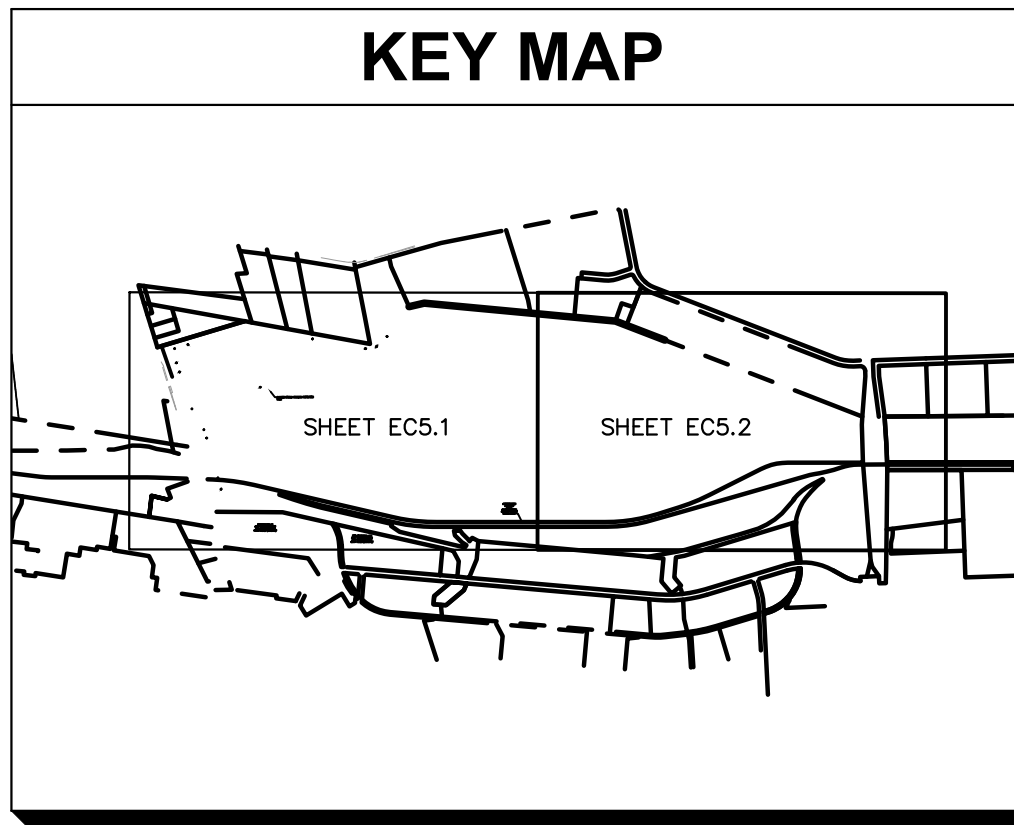
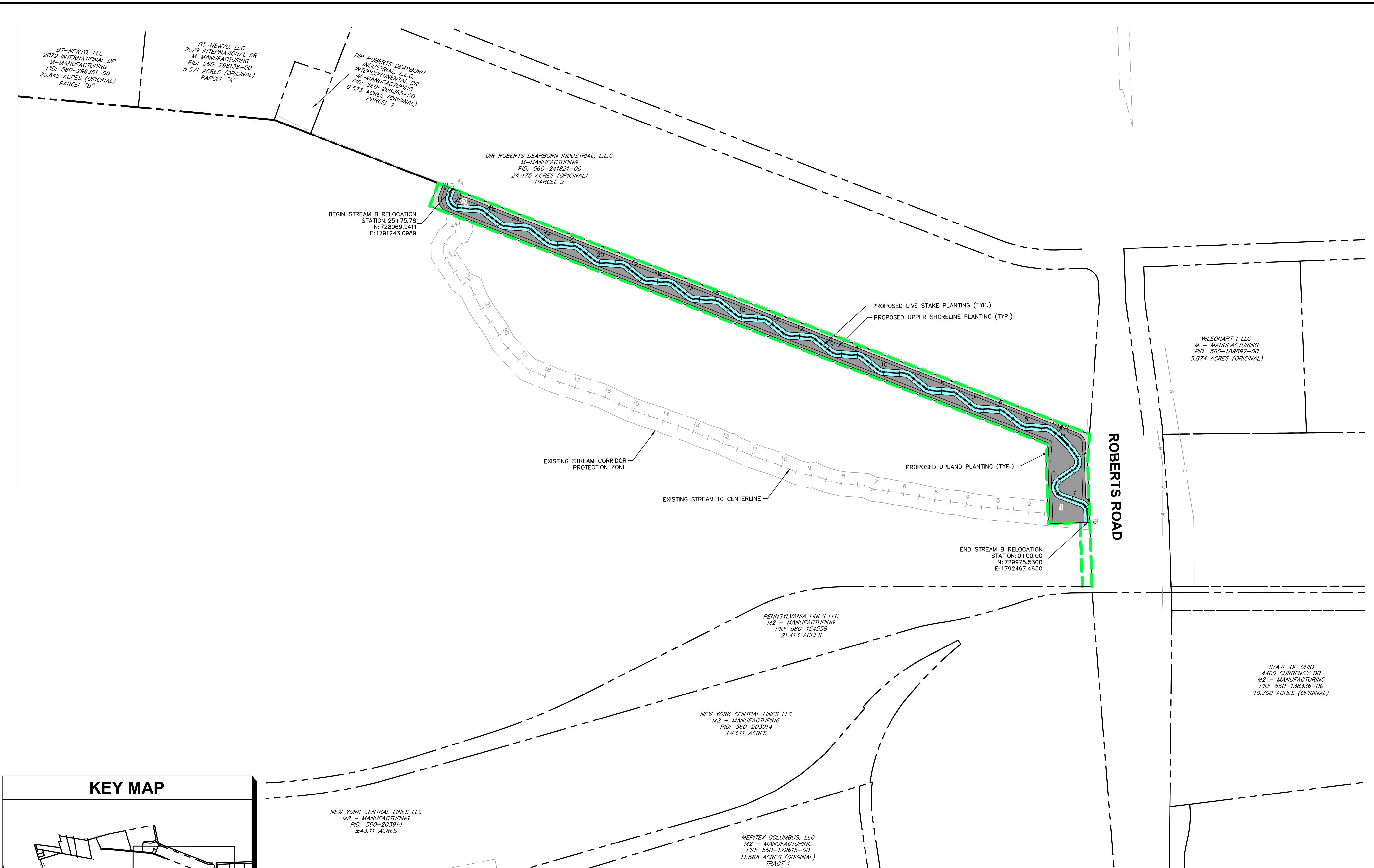
SCALE:
 DESIGNED BY: MCS
 DRAWN BY: MCS
 CHECKED BY: JMM

**PLANTING PLAN -
 OVERVIEW A**

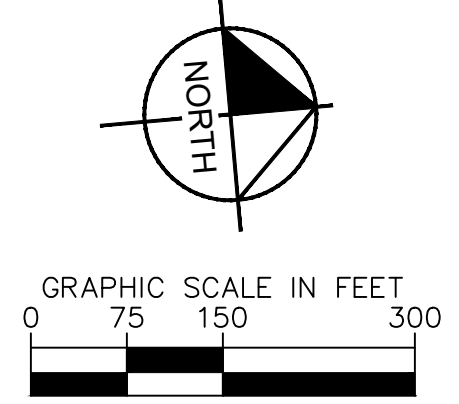
STREAM CORRIDOR PROTECTION ZONE
 REFORESTATION PLANS
BUCKEYE YARD
 CITY OF COLUMBUS, FRANKLIN COUNTY, OH

ORIGINAL ISSUE:
 03/28/2022
 KHA PROJECT NO.
 190118000
 SHEET NUMBER
EC5.1

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LEGEND					
	EXISTING PROPERTY LINE		EXISTING PAVEMENT		PROPOSED STREAM CORRIDOR PROTECTION LIMITS
	EXISTING RIGHT OF WAY		EXISTING WATER LINE		PROPOSED UPPER SHORELINE LIMITS
	EXISTING EASEMENT		EXISTING GAS LINE		LIVESTAKE PLANTING (3.58 AC.)
	EXISTING PAVEMENT		EXISTING OVERHEAD LINE		UPPER SHORELINE PLANTING (7.75 AC.)
	EXISTING CENTERLINE		EXISTING ELECTRIC		UPLAND PLANTING (4.70 AC.)
	EXISTING STORM		PROPOSED RIGHT-OF-WAY		
	EXISTING SANITARY		PROPOSED STORM		



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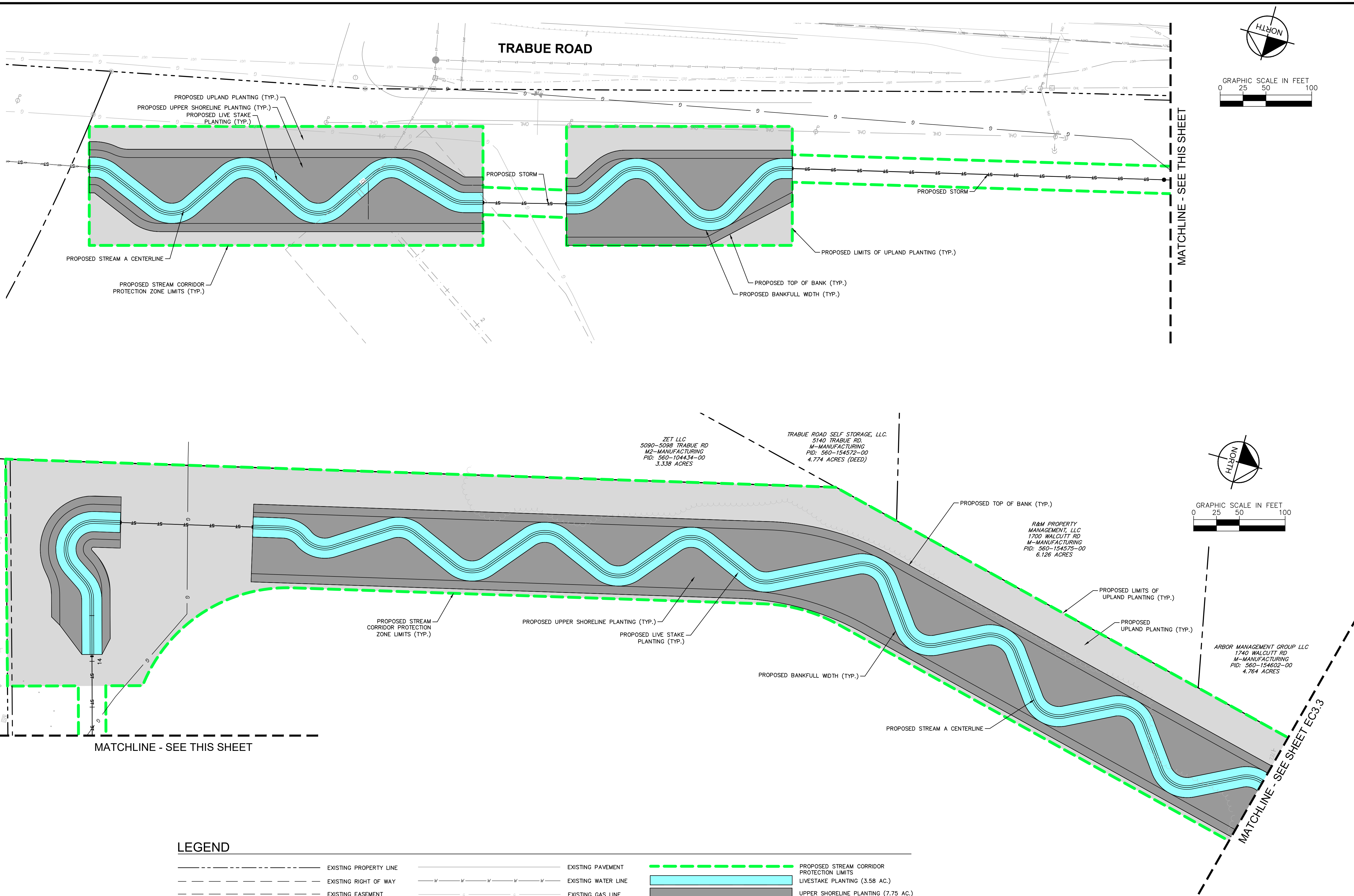
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 DRAWN BY: MCS
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PLANTING PLAN - OVERVIEW B

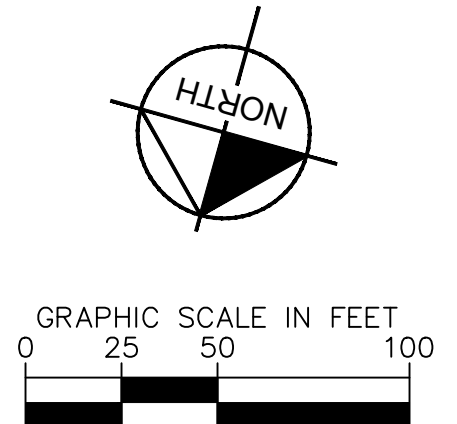
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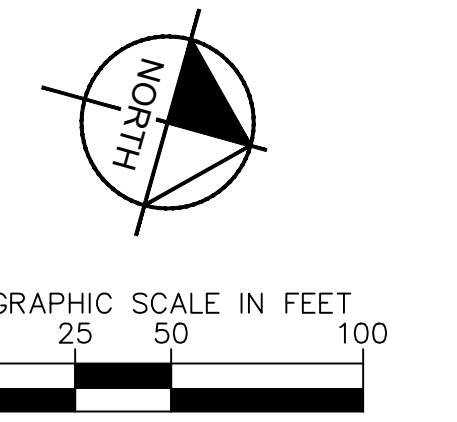
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TRABUE ROAD



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MATCHLINE - SEE THIS SHEET

MATCHLINE - SEE SHEET EC3.3

LEGEND

	EXISTING PROPERTY LINE		EXISTING PAVEMENT		PROPOSED STREAM CORRIDOR PROTECTION LIMITS
	EXISTING RIGHT OF WAY		EXISTING WATER LINE		LIVESTAKE PLANTING (3.58 AC.)
	EXISTING EASEMENT		EXISTING GAS LINE		UPPER SHORELINE PLANTING (7.75 AC.)
	EXISTING PAVEMENT		EXISTING OVERHEAD LINE		UPLAND PLANTING (4.70 AC.)
	EXISTING CENTERLINE		EXISTING ELECTRIC		
	EXISTING STORM		PROPOSED RIGHT-OF-WAY		
	EXISTING SANITARY		PROPOSED STORM		

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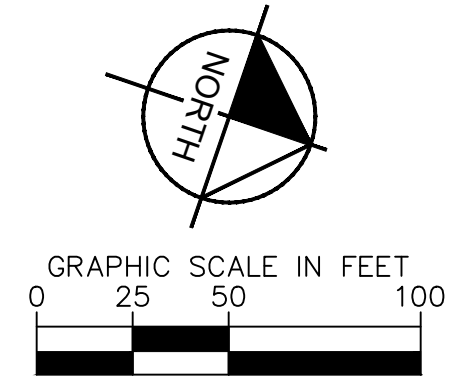
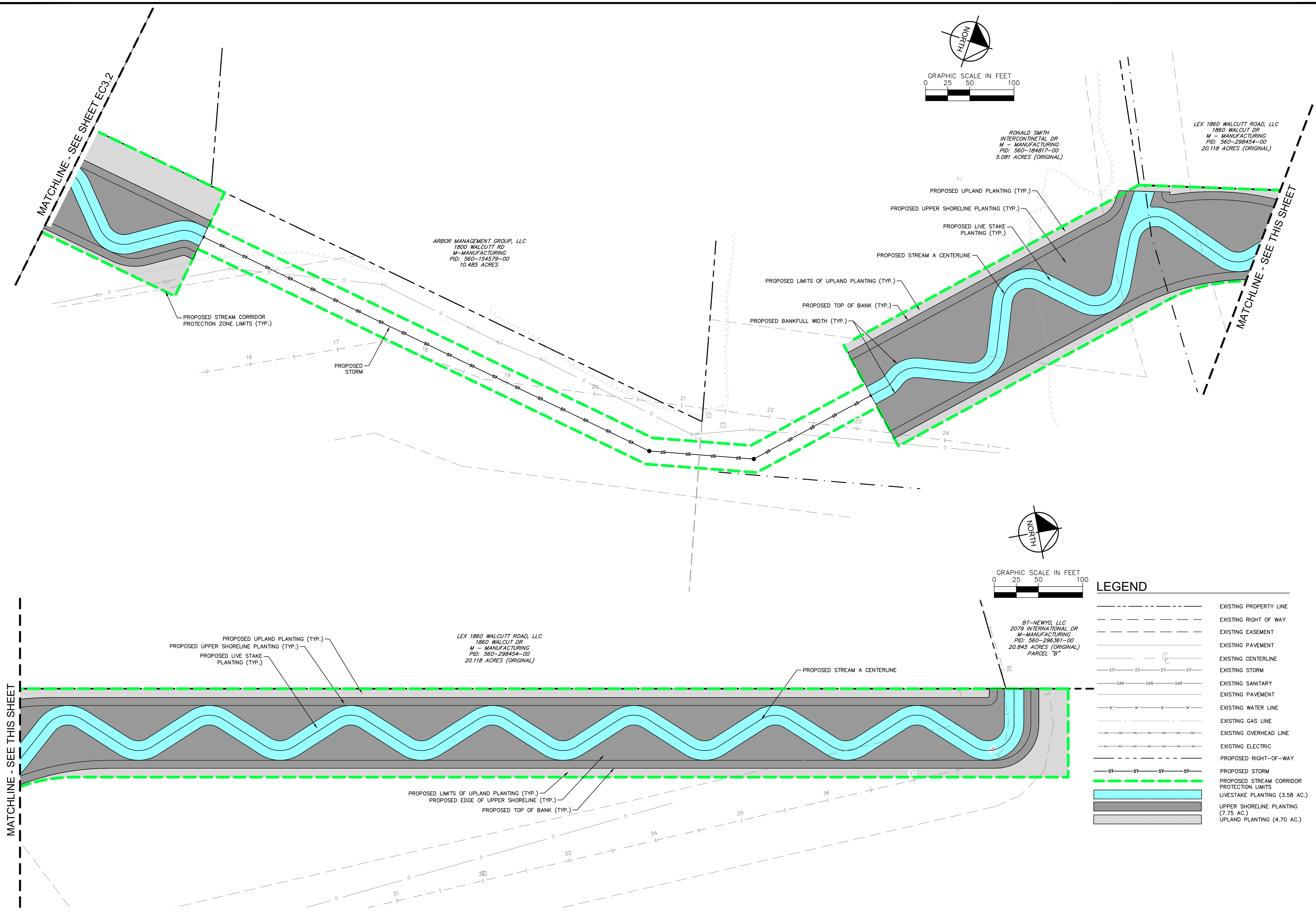
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 DRAWN BY: MCS
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PLANTING PLAN

STREAM CORRIDOR PROTECTION ZONE
 REFORESTATION PLANS
BUCKEYE YARD
 CITY OF COLUMBUS, FRANKLIN COUNTY, OH

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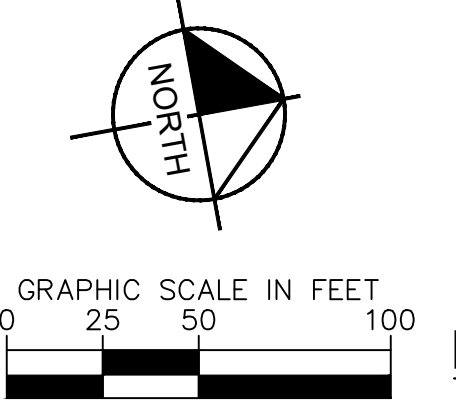


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 INTERCONTINENTAL DR
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 5.081 ACRES (ORIGINAL)

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 1860 WALCUTT DR
 M - MANUFACTURING
 PID: 560-298454-00
 20.118 ACRES (ORIGINAL)

ARBOR MANAGEMENT GROUP, LLC
 1800 WALCUTT RD
 M - MANUFACTURING
 PID: 560-154579-00
 10.485 ACRES

LEX 1860 WALCUTT ROAD, LLC
 1860 WALCUTT DR
 M - MANUFACTURING
 PID: 560-298454-00
 20.118 ACRES (ORIGINAL)



LEGEND

---	EXISTING PROPERTY LINE
---	EXISTING RIGHT OF WAY
---	EXISTING EASEMENT
---	EXISTING PAVEMENT
---	EXISTING CENTERLINE
---	EXISTING STORM
---	EXISTING SANITARY
---	EXISTING PAVEMENT
---	EXISTING WATER LINE
---	EXISTING GAS LINE
---	EXISTING OVERHEAD LINE
---	EXISTING ELECTRIC
---	PROPOSED RIGHT-OF-WAY
---	PROPOSED STORM
---	PROPOSED STREAM CORRIDOR PROTECTION LIMITS
---	LIVESTAKE PLANTING (3.58 AC.)
---	UPPER SHORELINE PLANTING (7.75 AC.)
---	UPLAND PLANTING (4.70 AC.)

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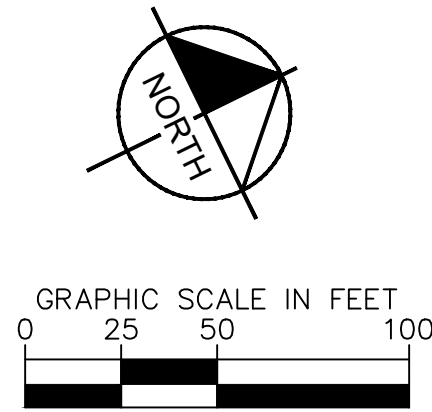
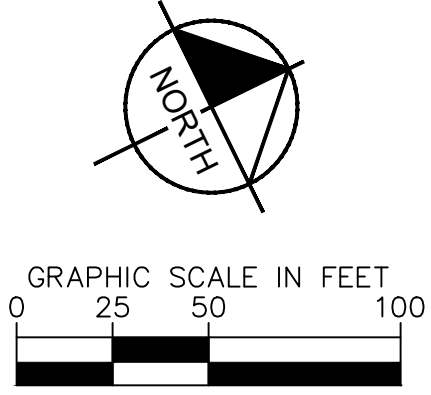
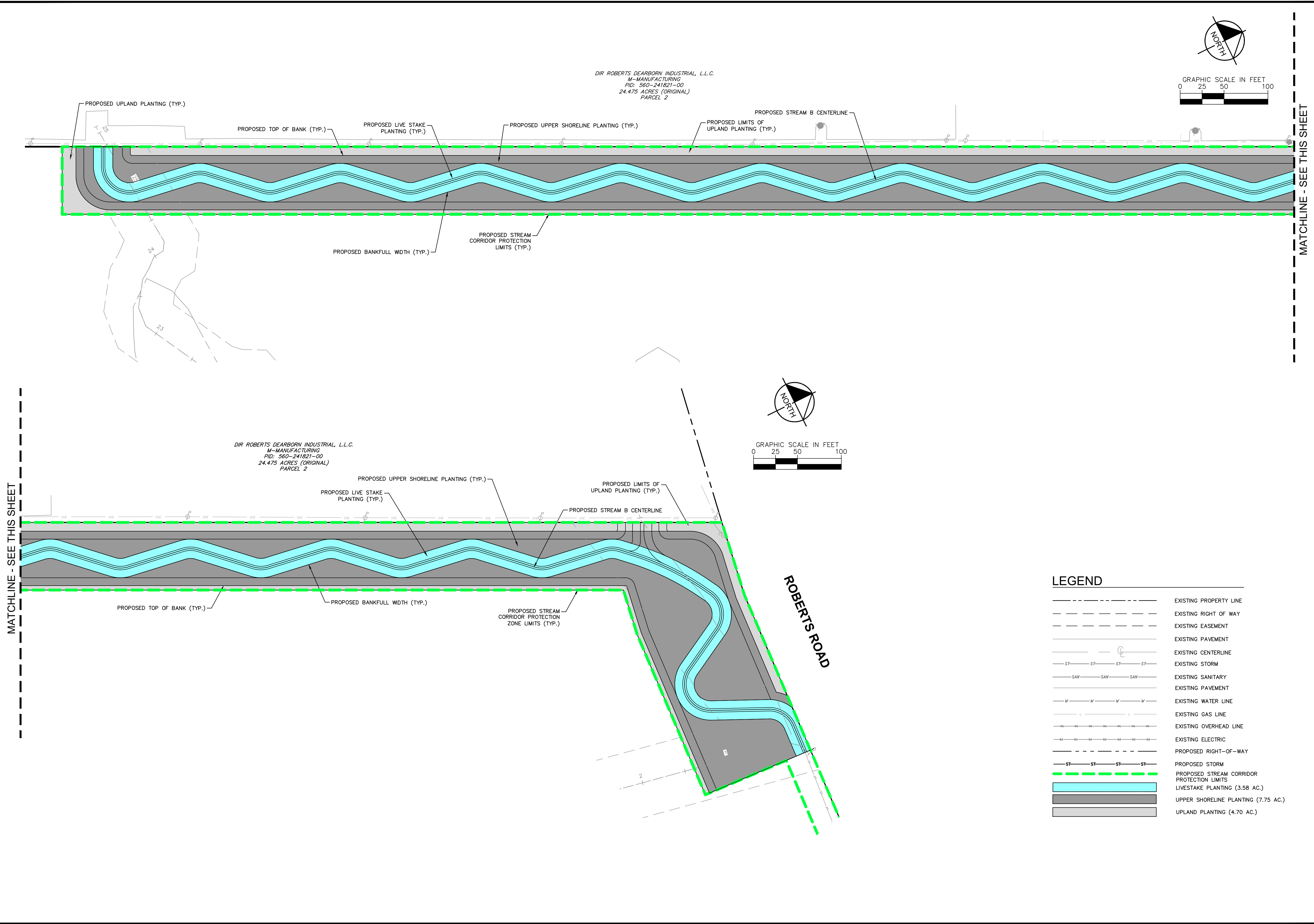
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 DRAWN BY: MCS
 CHECKED BY: JMM

PLANTING PLAN

STREAM CORRIDOR PROTECTION ZONE
 RESTORATION PLANS
BUCKEYE YARD
 CITY OF COLUMBUS, FRANKLIN COUNTY, OH

ORIGINAL ISSUE:
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 SHEET NUMBER
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LEGEND

	EXISTING PROPERTY LINE
	EXISTING RIGHT OF WAY
	EXISTING EASEMENT
	EXISTING PAVEMENT
	EXISTING CENTERLINE
	EXISTING STORM
	EXISTING SANITARY
	EXISTING PAVEMENT
	EXISTING WATER LINE
	EXISTING GAS LINE
	EXISTING OVERHEAD LINE
	EXISTING ELECTRIC
	PROPOSED RIGHT-OF-WAY
	PROPOSED STORM
	PROPOSED STREAM CORRIDOR PROTECTION LIMITS
	LIVESTAKE PLANTING (3.58 AC.)
	UPPER SHORELINE PLANTING (7.75 AC.)
	UPLAND PLANTING (4.70 AC.)

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MATCHLINE - SEE THIS SHEET

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SCALE:
 DESIGNED BY: MCS
 DRAWN BY: MCS
 CHECKED BY: JMM

PLANTING PLAN

STREAM CORRIDOR PROTECTION ZONE
 REFORESTATION PLANS
BUCKEYE YARD
 CITY OF COLUMBUS, FRANKLIN COUNTY, OH

ORIGINAL ISSUE:
 03/28/2022

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SHEET NUMBER

EC5.5

Appendix F: SCPZ Reforestation Plan(s)

BUCKEYE XO, LLC

BUCKEYE YARD STREAM CORRIDOR PROTECTION ZONE REFORESTATION PLANS

STATE OF OHIO, FRANKLIN COUNTY
CITY OF COLUMBUS
2022

SHEET LIST TABLE	
Sheet Number	Sheet Title
EC0.0	COVER SHEET
EC1.0	GENERAL NOTES
EC2.0	EXISTING CONDITIONS AND TREE REMOVAL PLAN
EC2.1	EXISTING CONDITIONS AND TREE REMOVAL PLAN
EC3.0	PLANTING PLAN OVERVIEW
EC3.1	PLANTING PLAN OVERVIEW
EC3.2	PLANTING PLAN
EC3.3	PLANTING PLAN
EC3.4	PLANTING PLAN
EC4.0	REFORESTATION PLAN OVERVIEW
EC4.1	REFORESTATION PLAN OVERVIEW
EC4.2	REFORESTATION PLAN
EC4.3	REFORESTATION PLAN
EC4.4	REFORESTATION PLAN
EC5.0	STREAM CORRIDOR PROTECTION ZONE REFORESTATION SUMMARY TABLE
EC5.1	STREAM CORRIDOR PROTECTION ZONE REFORESTATION SUMMARY TABLE
EC5.2	STREAM CORRIDOR PROTECTION ZONE REFORESTATION SUMMARY TABLE
EC5.3	STREAM CORRIDOR PROTECTION ZONE REFORESTATION SUMMARY TABLE
EC6.0	DETAILS
EC6.1	DETAILS
EC6.2	DETAILS
EC6.3	DETAILS



UPPER PORTION OF EXISTING STREAM 11



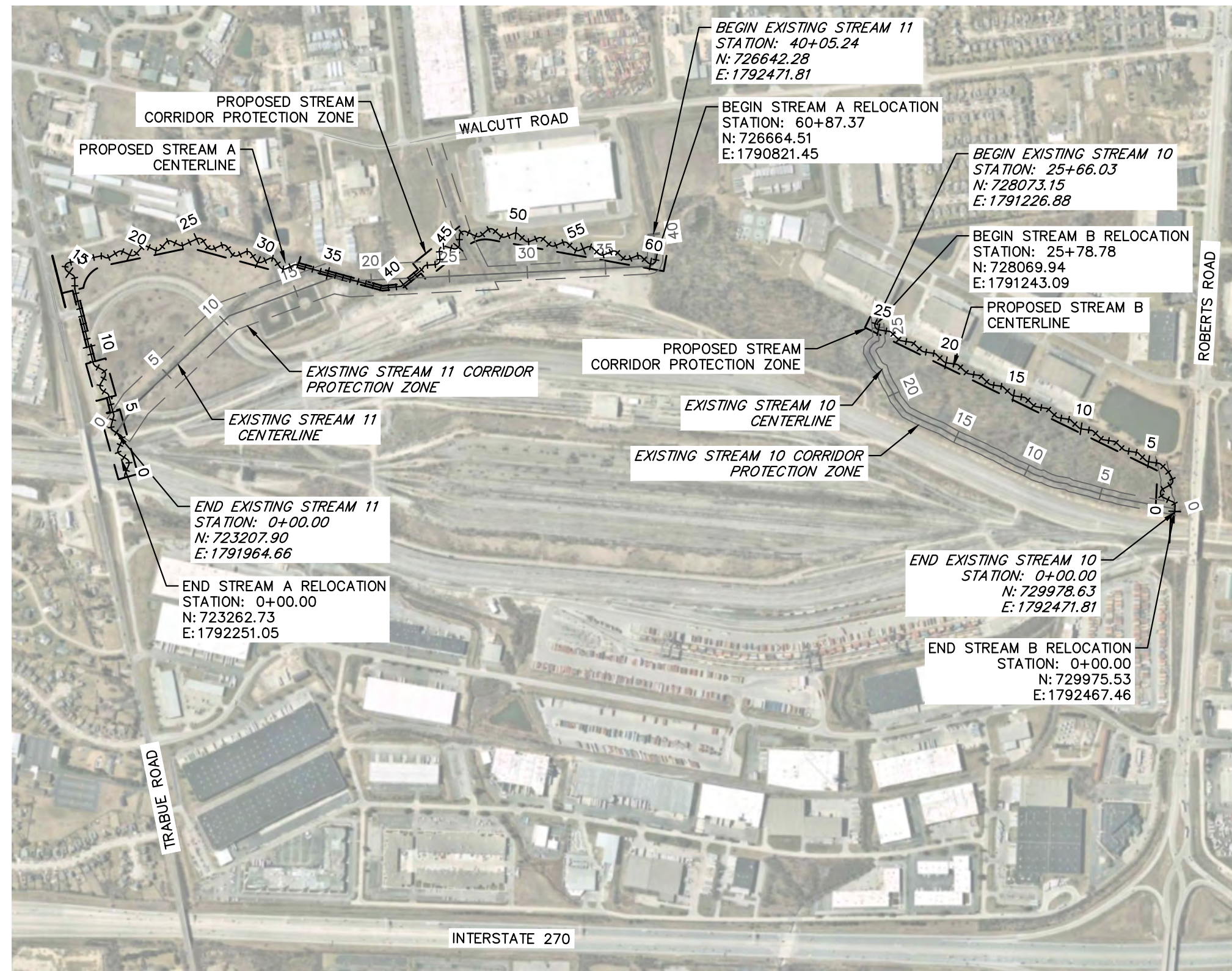
LOWER PORTION OF EXISTING STREAM 11



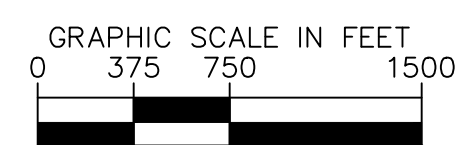
UPPER PORTION OF EXISTING STREAM 10



LOWER PORTION OF EXISTING STREAM 10



SITE LOCATION MAP



USGS 8-DIGIT HUC BOUNDARY MAP

UPPER SCIOTO
HUC ID: 05060001
NOT TO SCALE



PROJECT TEAM

DEVELOPER/OWNER
BUCKEYE XO, LLC
2100 ROSS AVE., STE. 895
DALLAS, TX 75201
TEL: (469) 226-1269
EMAIL: WILLIAMS@XEBECREALTY.COM
CONTACT: WILLIAM SHANNON

CIVIL ENGINEER
KIMLEY-HORN AND ASSOCIATES, INC.
7965 NORTH HIGH STREET, SUITE 200
COLUMBUS, OH 43235
TEL: (614) 454-6696
CONTACT: JUSTIN MULLER, P.E.
EMAIL: JUSTIN.MULLER@KIMLEY-HORN.COM

STREAM CORRIDOR PROTECTION ZONE
REFORESTATION PLANS
BUCKEYE YARD
CITY OF COLUMBUS, FRANKLIN COUNTY, OH

ORIGINAL ISSUE:
03/28/2022

KHA PROJECT NO.
190118000

SHEET NUMBER

EC0.0

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DESIGNED BY: MCS
DRAWN BY: MCS
CHECKED BY: JMM

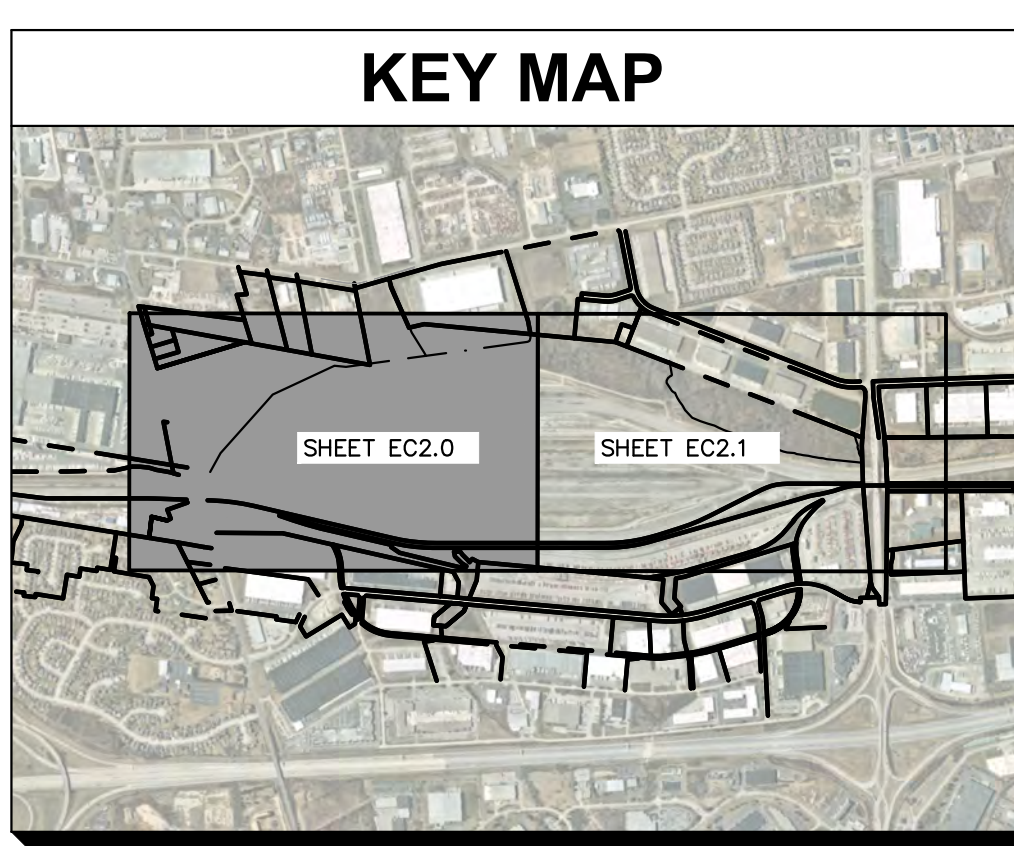
COVER SHEET

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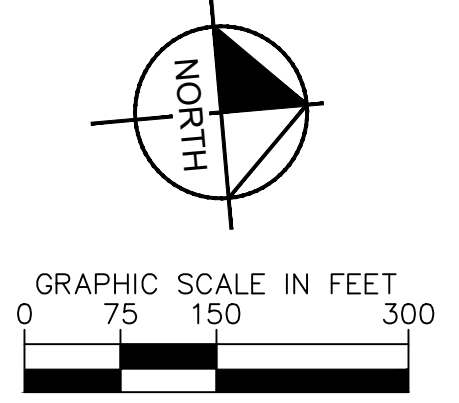
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LEGEND

- | | | | | | |
|-----------|------------------------|-----|--|-----|-------------------------------|
| --- | EXISTING PROPERTY LINE | --- | EXISTING PAVEMENT | ▨ | LIMITS OF TREES TO BE REMOVED |
| - - - | EXISTING RIGHT OF WAY | --- | EXISTING WATER LINE | --- | |
| - · - · - | EXISTING EASEMENT | --- | EXISTING GAS LINE | --- | |
| --- | EXISTING PAVEMENT | --- | EXISTING OVERHEAD LINE | --- | |
| --- | EXISTING CENTERLINE | --- | EXISTING ELECTRIC | --- | |
| --- | EXISTING STORM | --- | EXISTING STREAM CORRIDOR PROTECTION ZONE | --- | |
| --- | EXISTING SANITARY | | | | |



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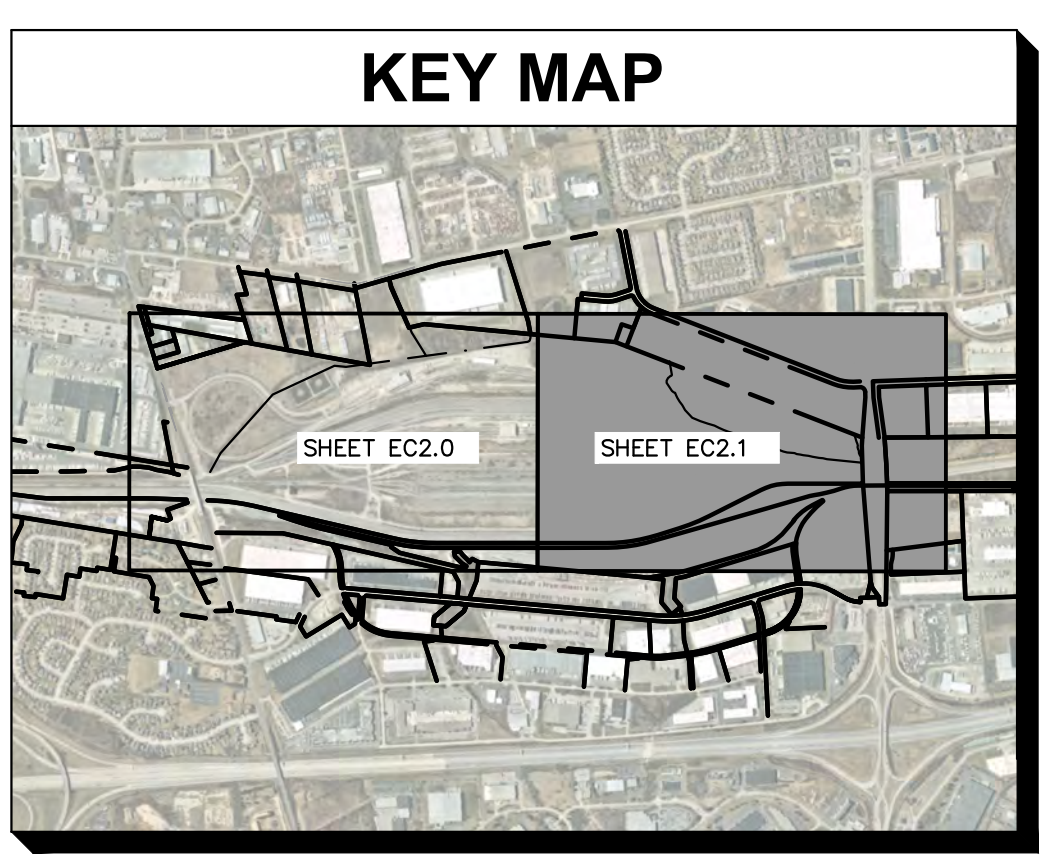
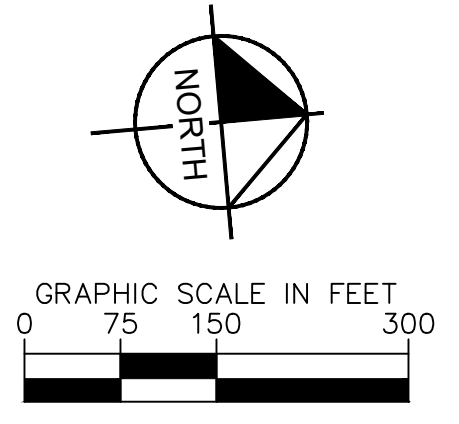
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 DRAWN BY: MCS
 CHECKED BY: JMM

**EXISTING
 CONDITIONS AND
 TREE REMOVAL
 PLAN**

STREAM CORRIDOR PROTECTION ZONE
 RESTORATION PLANS
BUCKEYE YARD
 CITY OF COLUMBUS, FRANKLIN COUNTY, OH

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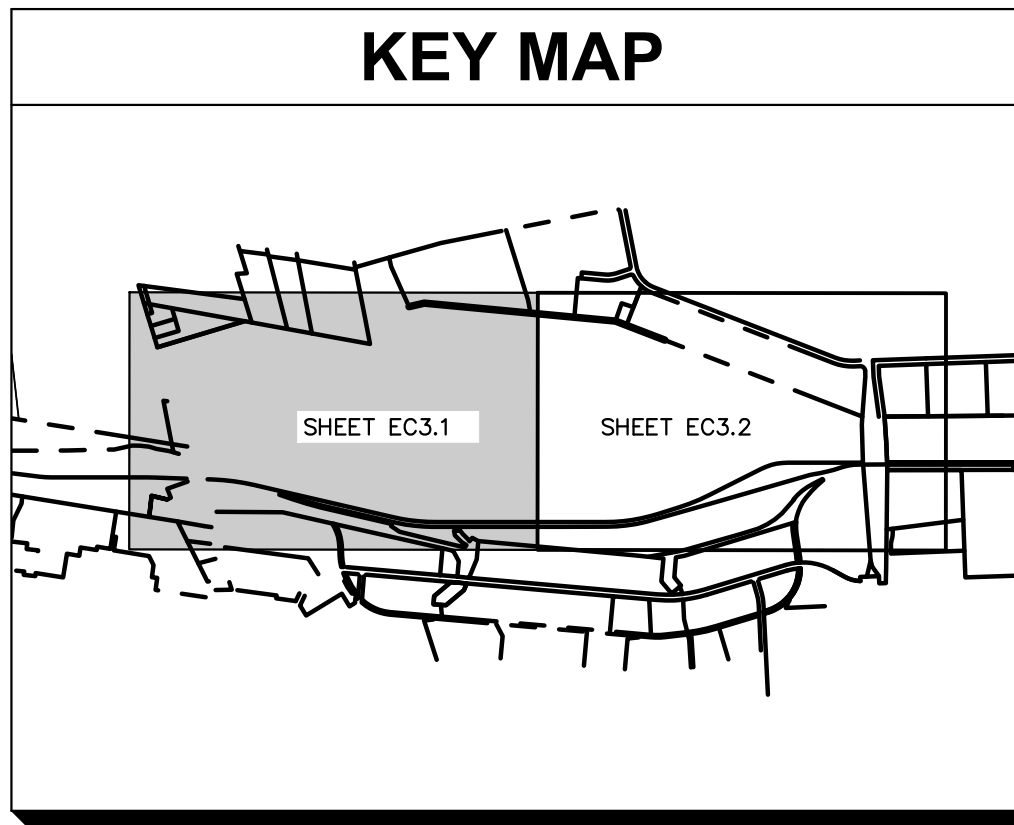
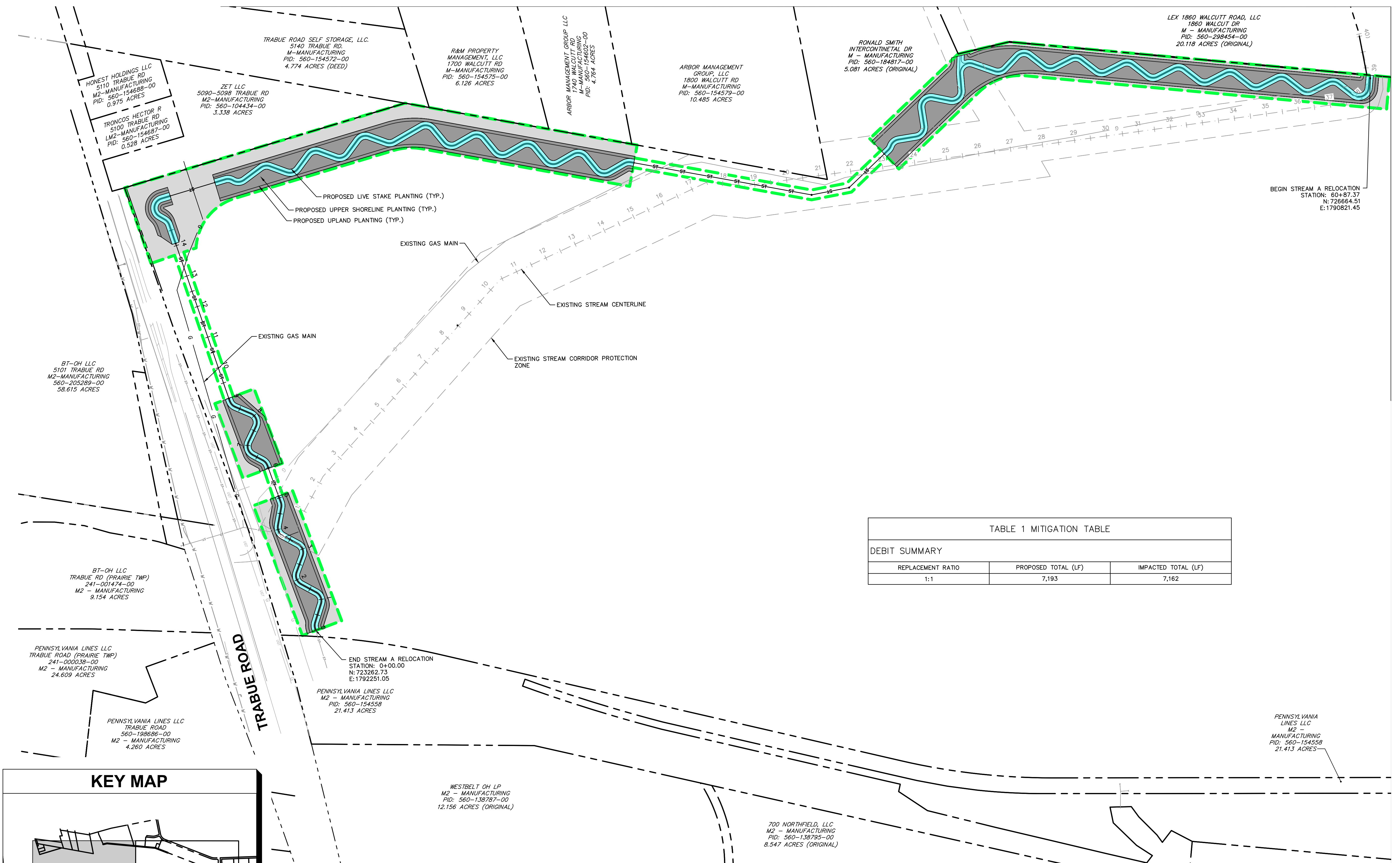


LEGEND

- | | | | | | |
|----------------------------|------------------------|---------------------------|------------------------|---------------------------------------|--|
| --- | EXISTING PROPERTY LINE | --- | EXISTING PAVEMENT | ▨ | LIMITS OF TREES TO BE REMOVED |
| - - - | EXISTING RIGHT OF WAY | — W — W — W — W — W — W — | EXISTING WATER LINE | — GAS — GAS — GAS — GAS — GAS — GAS — | EXISTING GAS LINE |
| - · - · - | EXISTING EASEMENT | — — — — — | EXISTING OVERHEAD LINE | — — — — — | EXISTING ELECTRIC |
| — — — — — | EXISTING PAVEMENT | — — — — — | EXISTING CENTERLINE | — — — — — | EXISTING STREAM CORRIDOR PROTECTION ZONE |
| — ST — ST — ST — ST — ST — | EXISTING STORM | — SAN — SAN — SAN — SAN — | EXISTING SANITARY | | |

DESIGNED BY: MCS	CHECKED BY: JMM
DRAWN BY: MCS	DATE: _____
SCALE: _____	
EXISTING CONDITIONS AND TREE REMOVAL PLAN	
STREAM CORRIDOR PROTECTION ZONE RESTORATION PLANS BUCKEYE YARD	
CITY OF COLUMBUS, FRANKLIN COUNTY, OH	
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Drawing name: K:\CIB_LDE\19018000_4dec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlanSheets\9_Stream\Restoration\Planting Plan.dwg OVERVIEW A - Mar 29, 2022, 12:29pm by: Matt Shiflett
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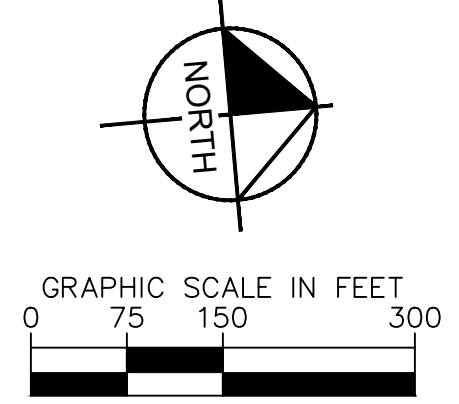


LEGEND

- | | | | | | |
|-------|------------------------|-----|------------------------|-----|--|
| --- | EXISTING PROPERTY LINE | --- | EXISTING WATER LINE | --- | PROPOSED STREAM CORRIDOR PROTECTION LIMITS |
| - - - | EXISTING RIGHT OF WAY | --- | EXISTING GAS LINE | --- | LIVESTAKE PLANTING (3.58 AC.) |
| - - - | EXISTING EASEMENT | --- | EXISTING OVERHEAD LINE | --- | UPPER SHORELINE PLANTING (7.75 AC.) |
| --- | EXISTING PAVEMENT | --- | EXISTING ELECTRIC | --- | UPLAND PLANTING (4.70 AC.) |
| --- | EXISTING CENTERLINE | --- | PROPOSED RIGHT-OF-WAY | --- | |
| --- | EXISTING STORM | --- | PROPOSED STORM | --- | |
| --- | EXISTING SANITARY | --- | | --- | |

TABLE 1 MITIGATION TABLE

DEBIT SUMMARY		
REPLACEMENT RATIO	PROPOSED TOTAL (LF)	IMPACTED TOTAL (LF)
1:1	7,193	7,162



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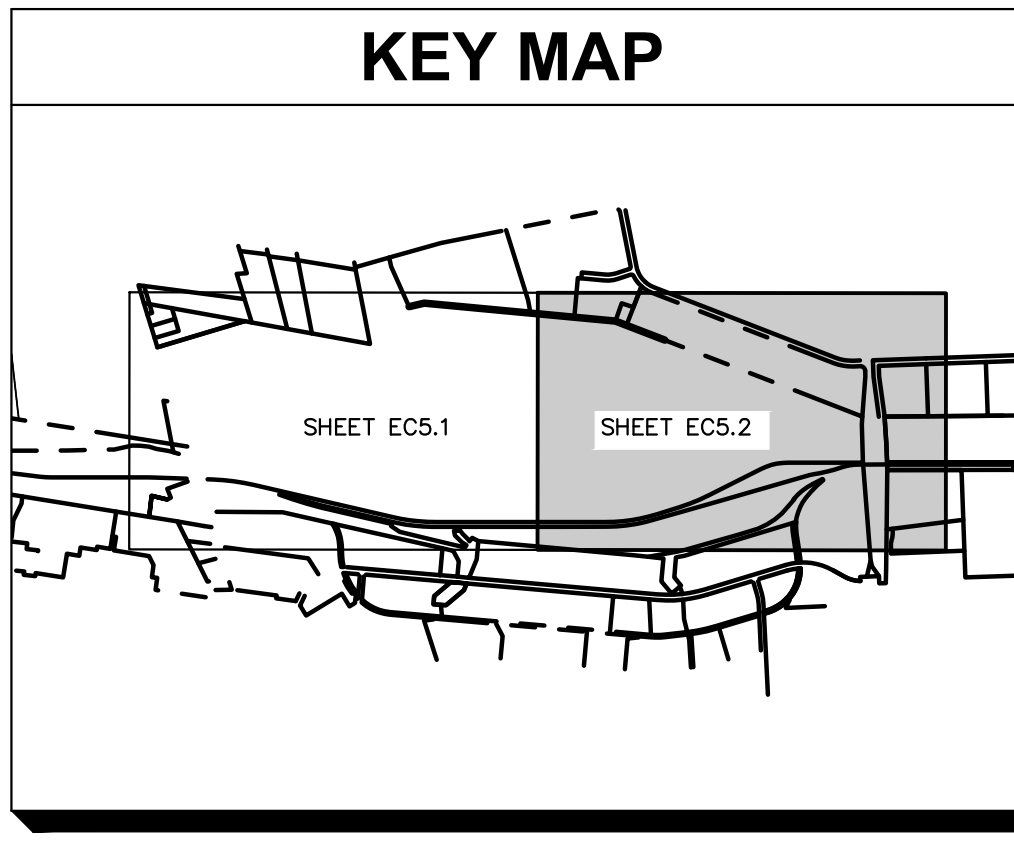
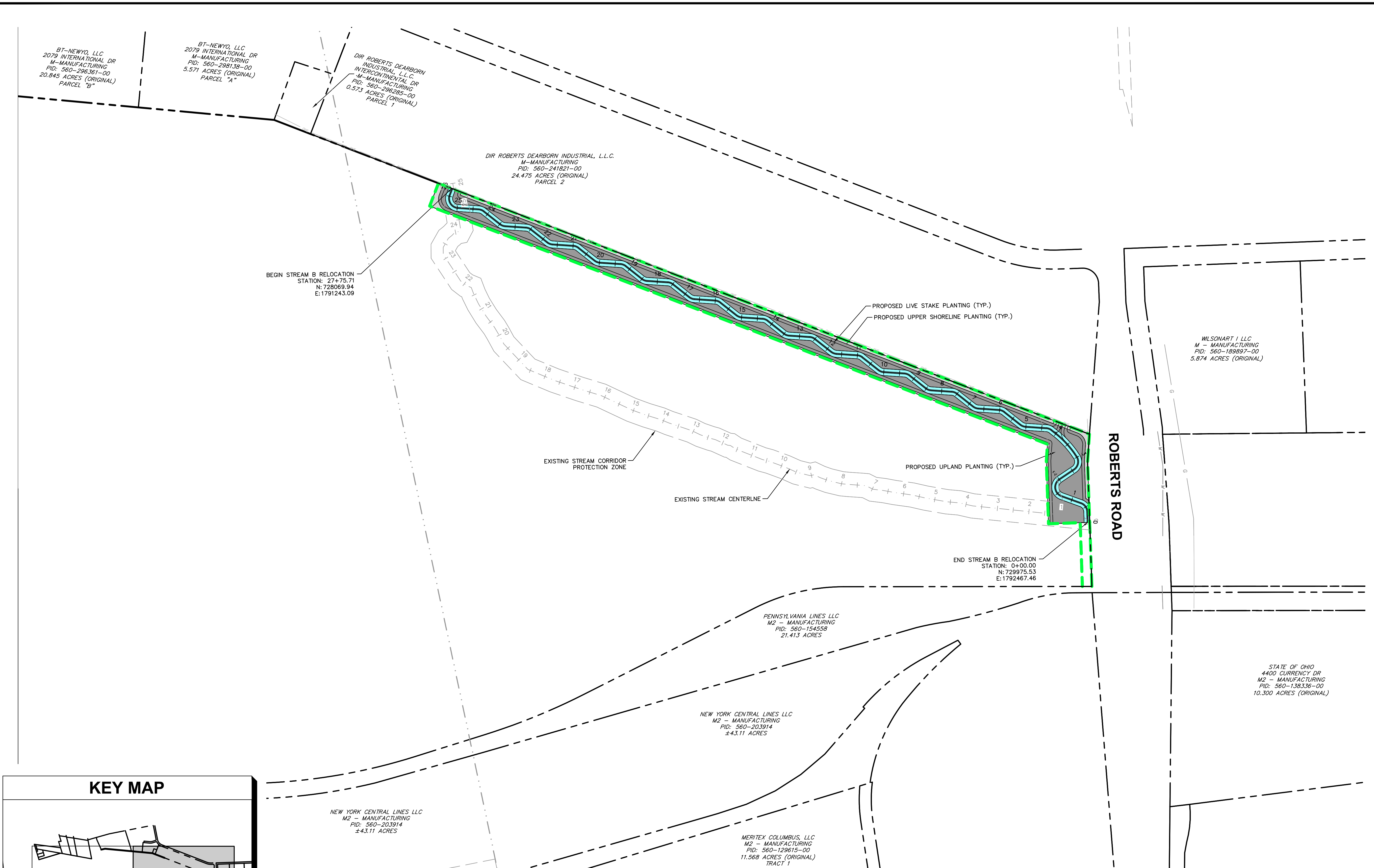
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 DRAWN BY: MCS
 CHECKED BY: JMM

PLANTING PLAN OVERVIEW

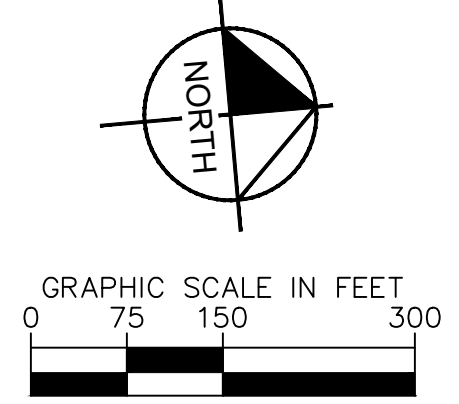
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	EXISTING RIGHT OF WAY		EXISTING GAS LINE		LIVESTAKE PLANTING (3.58 AC.)
	EXISTING EASEMENT		EXISTING OVERHEAD LINE		UPPER SHORELINE PLANTING (7.75 AC.)
	EXISTING PAVEMENT		EXISTING ELECTRIC		UPLAND PLANTING (4.70 AC.)
	EXISTING CENTERLINE		PROPOSED RIGHT-OF-WAY		
	EXISTING STORM		PROPOSED STORM		
	EXISTING SANITARY				



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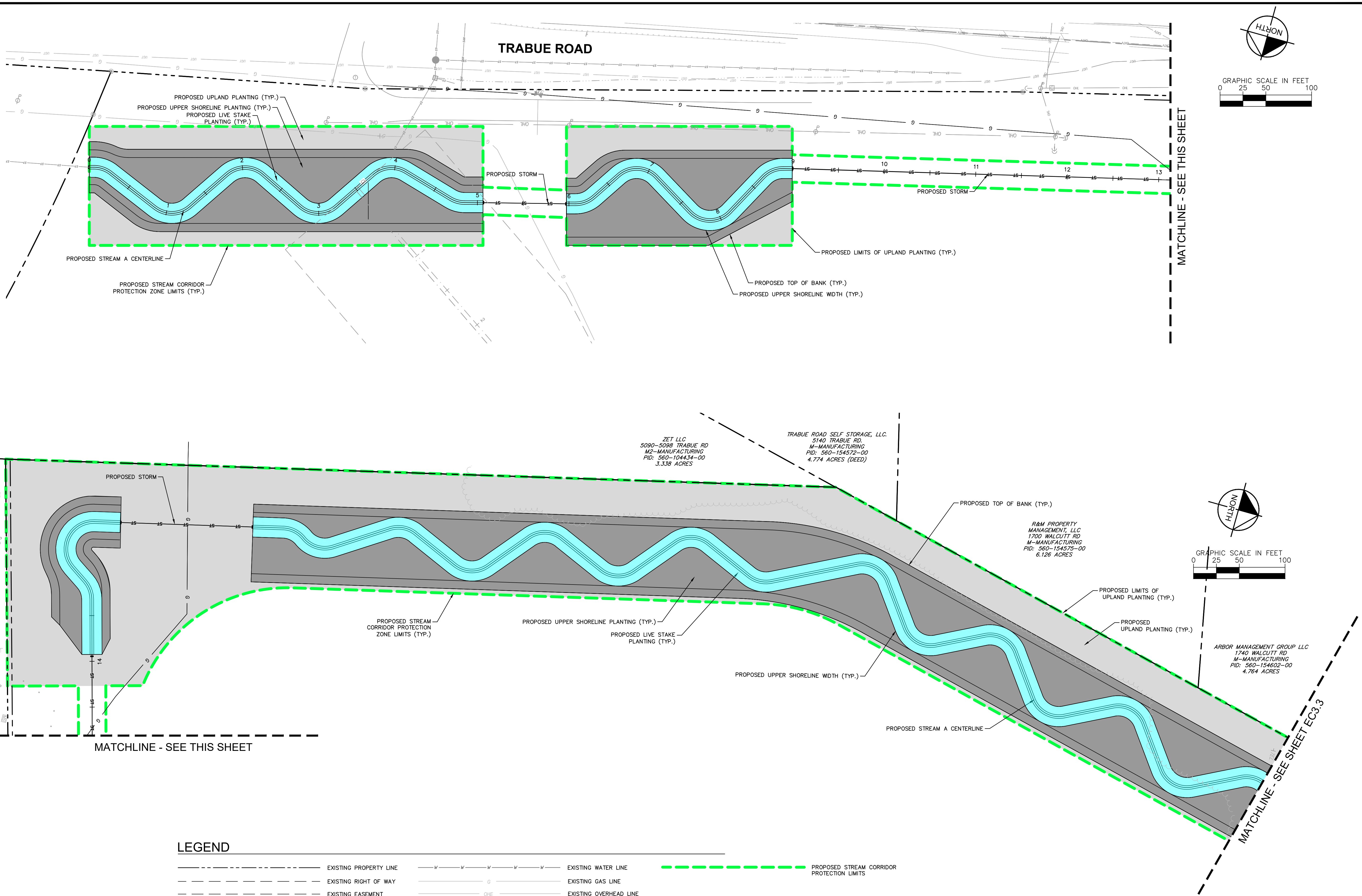
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 DRAWN BY: MCS
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PLANTING PLAN OVERVIEW

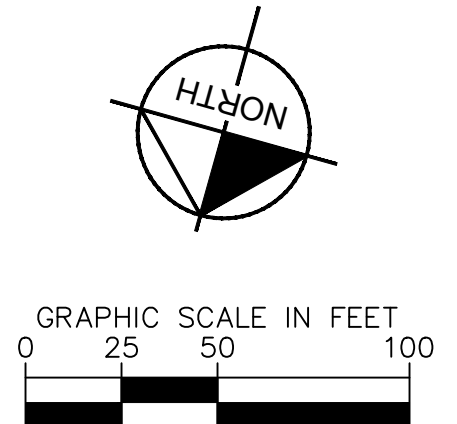
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 SHEET NUMBER
EC3.1

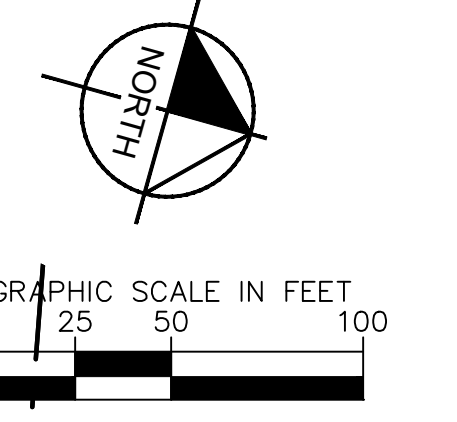
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TRABUE ROAD



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LEGEND

	EXISTING PROPERTY LINE		EXISTING WATER LINE		PROPOSED STREAM CORRIDOR PROTECTION LIMITS
	EXISTING RIGHT OF WAY		EXISTING GAS LINE		LIVESTAKE PLANTING (3.58 AC.)
	EXISTING EASEMENT		EXISTING OVERHEAD LINE		UPPER SHORELINE PLANTING (7.75 AC.)
	EXISTING PAVEMENT		EXISTING ELECTRIC		UPLAND PLANTING (4.70 AC.)
	EXISTING CENTERLINE		PROPOSED RIGHT-OF-WAY		
	EXISTING STORM		PROPOSED STORM		
	EXISTING SANITARY				

No.	REVISIONS	DATE	BY	APR DATE	APR BY

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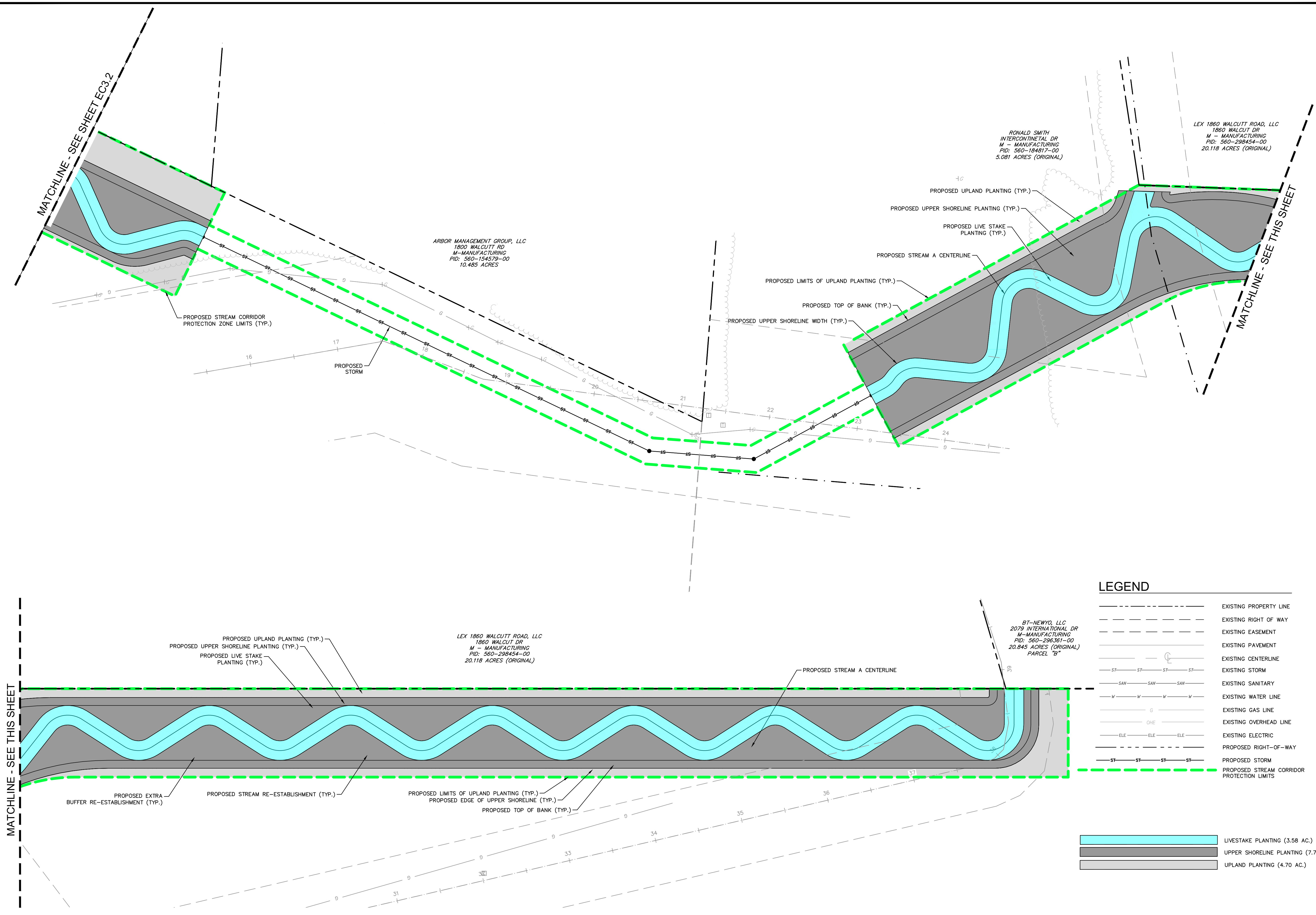
SCALE:
 DESIGNED BY: MCS
 DRAWN BY: MCS
 CHECKED BY: JMM

PLANTING PLAN

STREAM CORRIDOR PROTECTION ZONE
 RESTORATION PLANS
BUCKEYE YARD
 CITY OF COLUMBUS, FRANKLIN COUNTY, OH

ORIGINAL ISSUE:
 03/28/2022
 KHA PROJECT NO.
 190118000
 SHEET NUMBER
EC3.2

Drawing name: K:\CIB_LDEA\190118000_3dec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlanSheets\9_StreamRestoration\Planting Plan.dwg STREAM A - 2 Mar 29, 2022, 12:29pm by: Matt Shifflett
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LEGEND

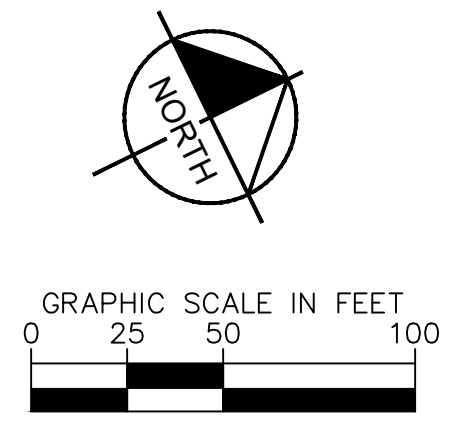
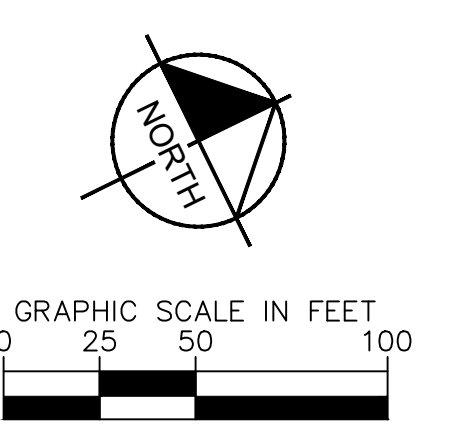
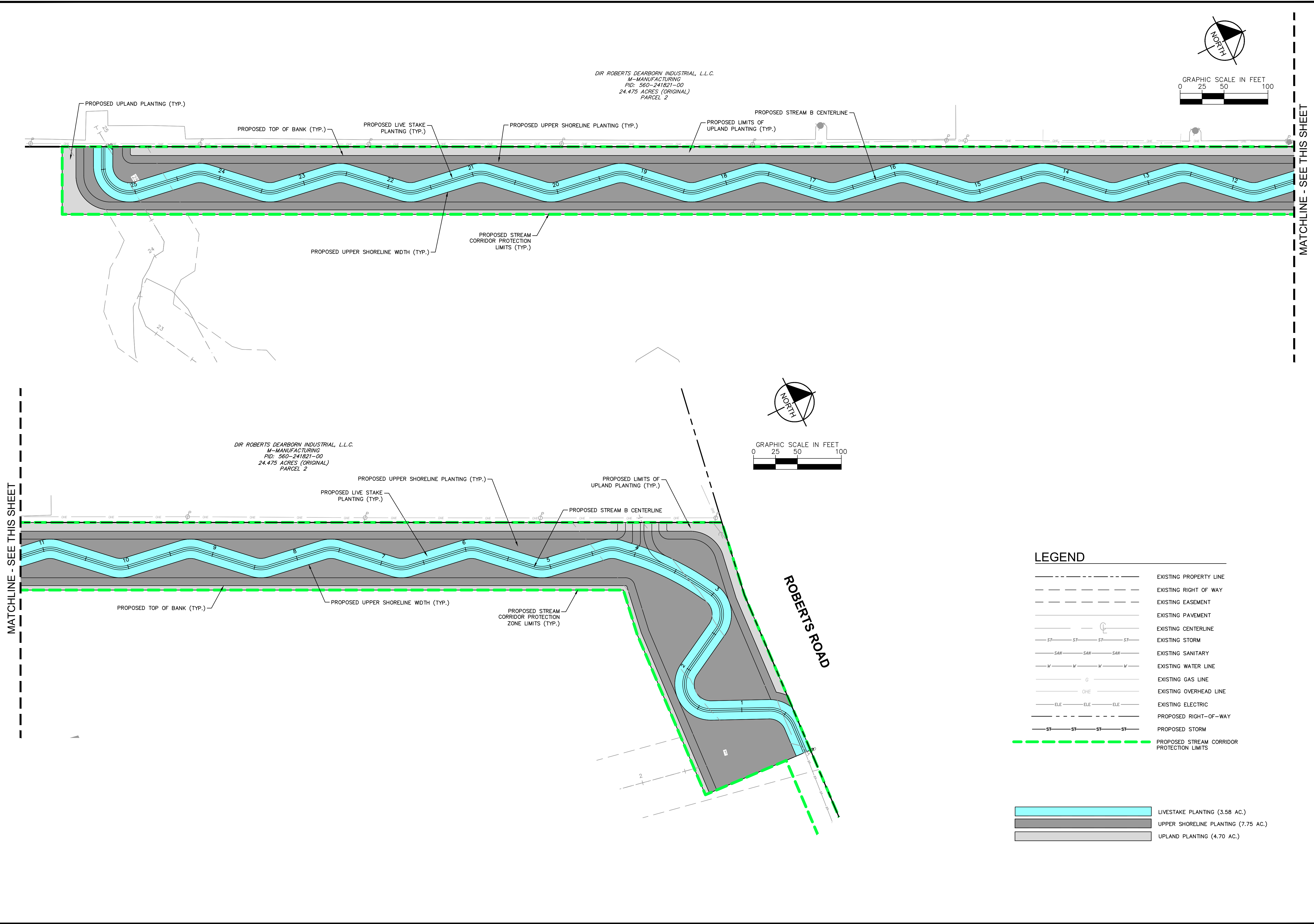
	EXISTING PROPERTY LINE
	EXISTING RIGHT OF WAY
	EXISTING EASEMENT
	EXISTING PAVEMENT
	EXISTING CENTERLINE
	EXISTING STORM
	EXISTING SANITARY
	EXISTING WATER LINE
	EXISTING GAS LINE
	EXISTING OVERHEAD LINE
	EXISTING ELECTRIC
	PROPOSED RIGHT-OF-WAY
	PROPOSED STORM
	PROPOSED STREAM CORRIDOR PROTECTION LIMITS

	LIVESTAKE PLANTING (3.58 AC.)
	UPPER SHORELINE PLANTING (7.75 AC.)
	UPLAND PLANTING (4.70 AC.)

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DESIGNED BY: MCS	CHECKED BY: JMM
DRAWN BY: MCS	DATE: APR 28, 2022
SCALE:	BY: APR DATE
<h2>PLANTING PLAN</h2>	
STREAM CORRIDOR PROTECTION ZONE RESTORATION PLANS BUCKEYE YARD CITY OF COLUMBUS, FRANKLIN COUNTY, OH	
ORIGINAL ISSUE: AC.) 03/28/2022 KHA PROJECT NO. 190118000	
SHEET NUMBER <h1>EC3.3</h1>	

Drawing name: K:\CIB\LDEA\19018000_3dhec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlanSheets\9_StreamRestoration\Planting Plan.dwg STREAM B Mar. 29, 2022 12:29pm by: Matt Shiffert

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LEGEND

- EXISTING PROPERTY LINE
- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- EXISTING PAVEMENT
- EXISTING CENTERLINE
- ST --- ST --- ST --- ST --- EXISTING STORM
- SAN --- SAN --- SAN --- EXISTING SANITARY
- W --- W --- W --- W --- EXISTING WATER LINE
- G --- EXISTING GAS LINE
- OHE --- EXISTING OVERHEAD LINE
- ELE --- ELE --- ELE --- EXISTING ELECTRIC
- ST --- ST --- ST --- ST --- PROPOSED RIGHT-OF-WAY
- ST --- ST --- ST --- ST --- PROPOSED STORM
- PROPOSED STREAM CORRIDOR PROTECTION LIMITS

- [Light Blue Box] LIVESTAKE PLANTING (3.58 AC.)
- [Dark Blue Box] UPPER SHORELINE PLANTING (7.75 AC.)
- [Grey Box] UPLAND PLANTING (4.70 AC.)

MATCHLINE - SEE THIS SHEET

MATCHLINE - SEE THIS SHEET

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PLANTING PLAN								
STREAM CORRIDOR PROTECTION ZONE REFORESTATION PLANS BUCKEYE YARD CITY OF COLUMBUS, FRANKLIN COUNTY, OH								
ORIGINAL ISSUE: 03/28/2022								
KHA PROJECT NO. 190118000								
SHEET NUMBER								
EC3.4								
				DATE	BY	APR DATE	APR BY	

Drawing name: K:\CIB_LDEA\19018000_4dec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlanSheets\9_Stream\Reforestation\REFORESTATION_PLAN.dwg OVERVIEW A - Mar 29, 2022, 12:29pm by: Matt Shiflett
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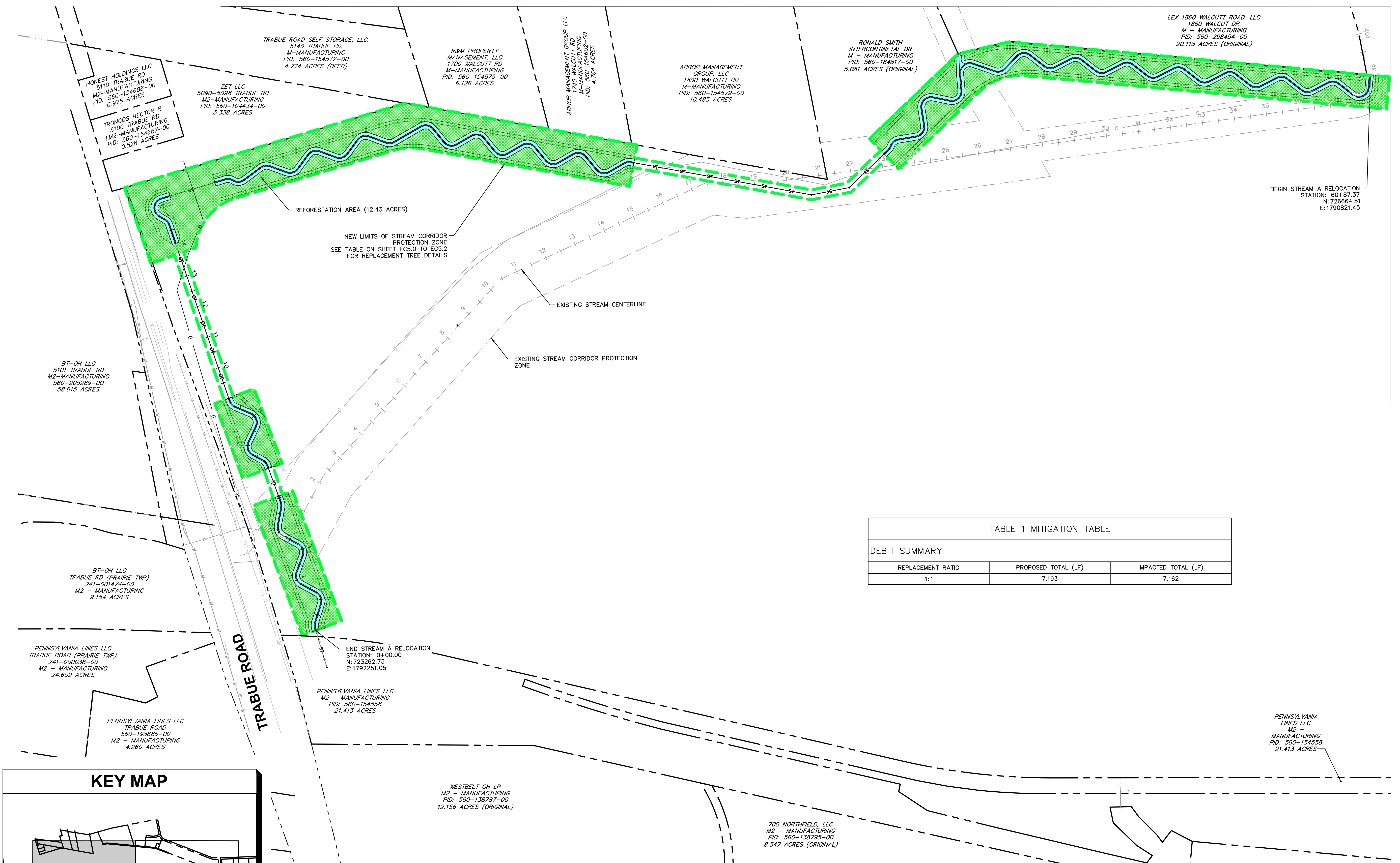
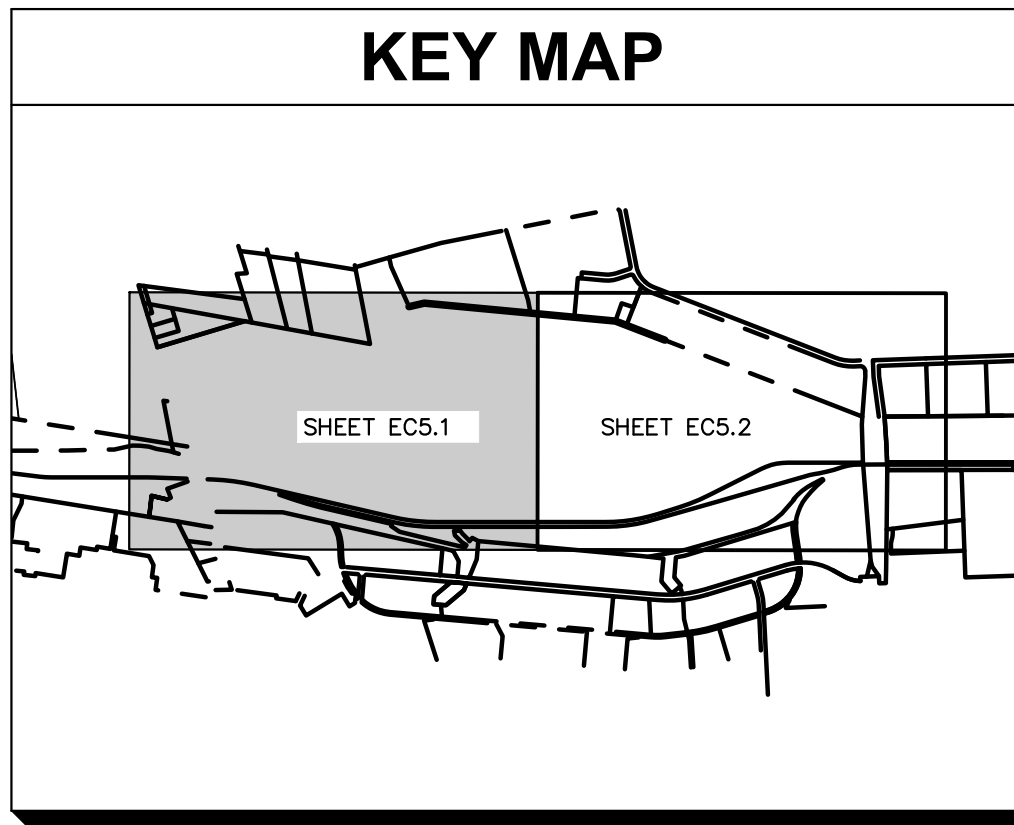


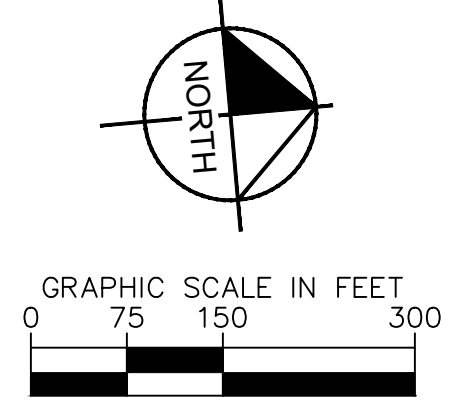
TABLE 1 MITIGATION TABLE

DEBIT SUMMARY		
REPLACEMENT RATIO	PROPOSED TOTAL (LF)	IMPACTED TOTAL (LF)
1:1	7,193	7,162



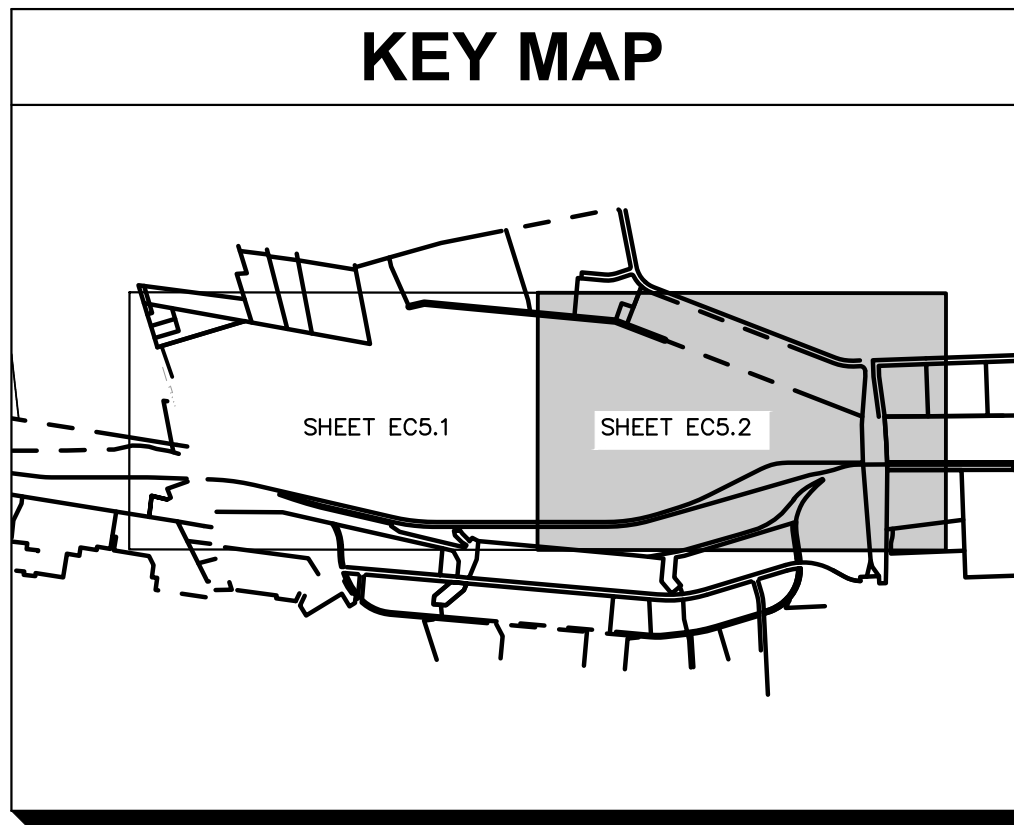
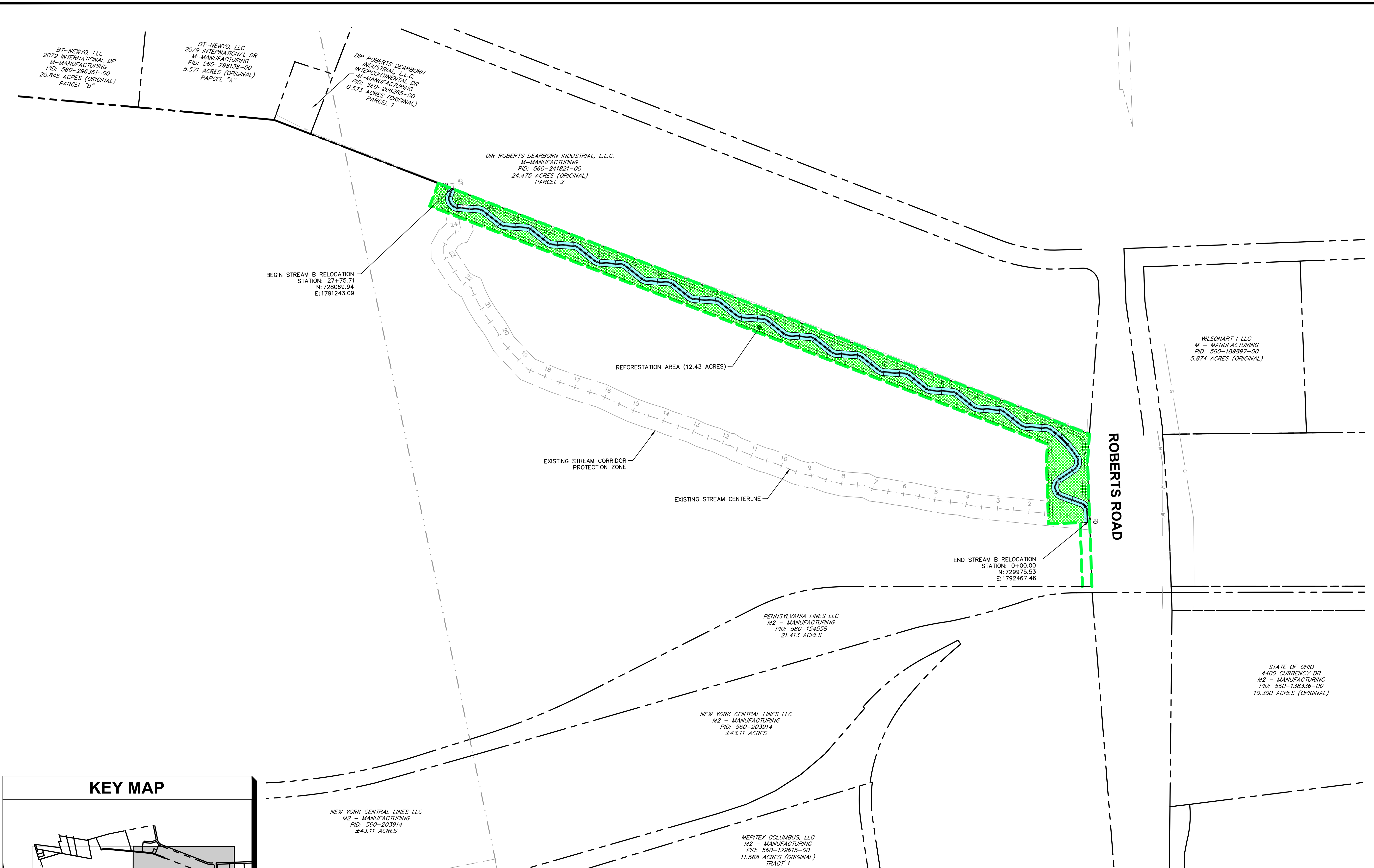
LEGEND

	EXISTING PROPERTY LINE		EXISTING PAVEMENT		PROPOSED STREAM CORRIDOR PROTECTION LIMITS
	EXISTING RIGHT OF WAY		EXISTING WATER LINE		REFORESTATION AREA (12.43 AC.)
	EXISTING EASEMENT		EXISTING GAS LINE		
	EXISTING PAVEMENT		EXISTING OVERHEAD LINE		
	EXISTING CENTERLINE		EXISTING ELECTRIC		
	EXISTING STORM		PROPOSED RIGHT-OF-WAY		
	EXISTING SANITARY		PROPOSED STORM		

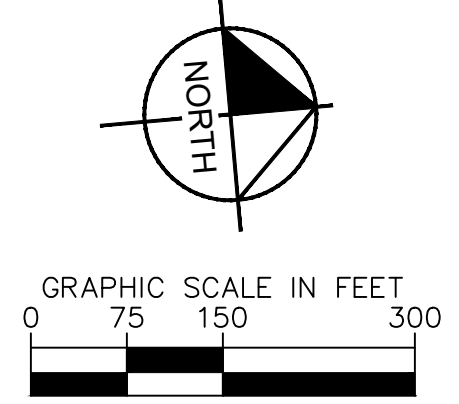


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SCALE: _____ DESIGNED BY: MCS DRAWN BY: MCS CHECKED BY: JMM	ORIGINAL ISSUE: 03/28/2022 KHA PROJECT NO. 190118000 SHEET NUMBER EC4.0
No. _____ DATE _____ BY _____ APR DATE _____ APR BY _____	

Drawing name: K:\CIB_LDEA\19018000_4dec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlanSheets\9_StreamReforestation\REFORESTATION_PLAN.dwg OVERVIEW B - Mar 29, 2022, 12:29pm by: Matt Shiflett
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LEGEND					
	EXISTING PROPERTY LINE		EXISTING PAVEMENT		PROPOSED STREAM CORRIDOR PROTECTION LIMITS
	EXISTING RIGHT OF WAY		EXISTING WATER LINE		REFORESTATION AREA (12.43 AC.)
	EXISTING EASEMENT		EXISTING GAS LINE		
	EXISTING PAVEMENT		EXISTING OVERHEAD LINE		
	EXISTING CENTERLINE		EXISTING ELECTRIC		
	EXISTING STORM		PROPOSED RIGHT-OF-WAY		
	EXISTING SANITARY		PROPOSED STORM		



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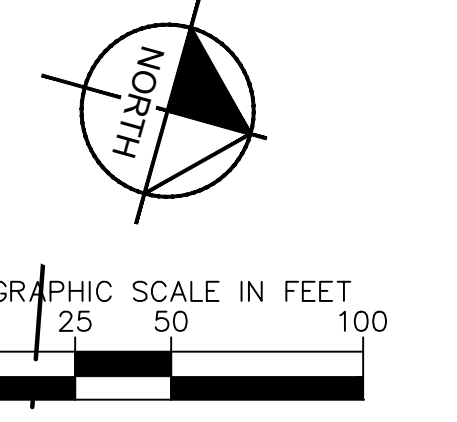
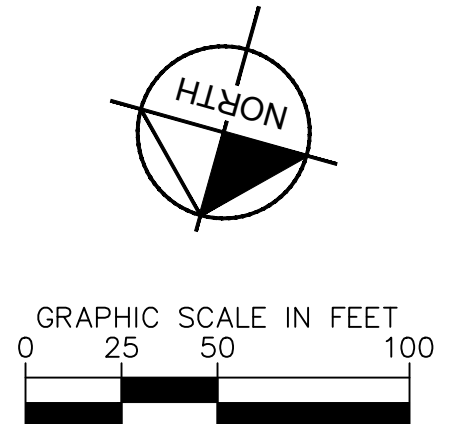
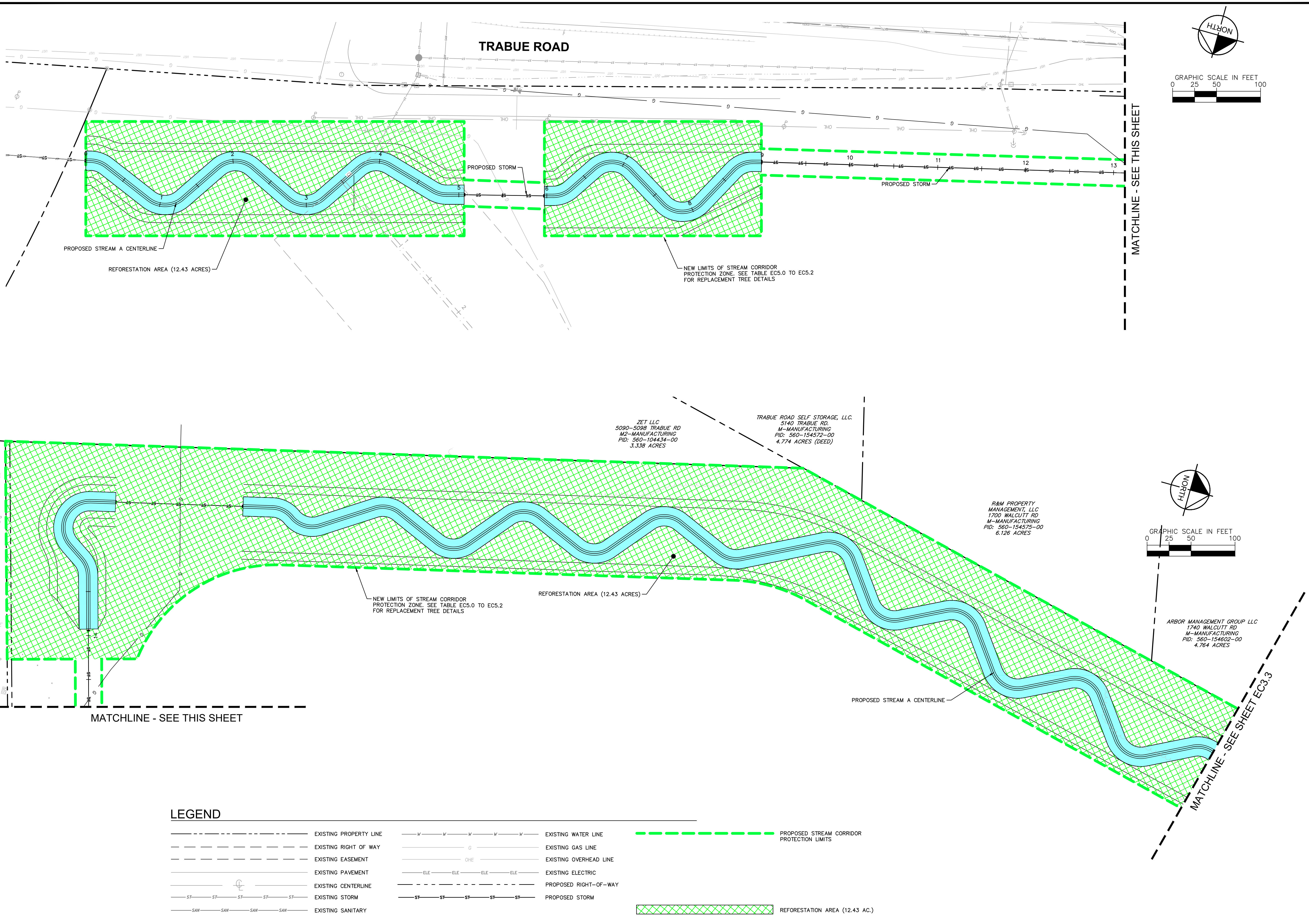
SCALE:
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REFORESTATION PLAN OVERVIEW

STREAM CORRIDOR PROTECTION ZONE
 REFORESTATION PLANS
BUCKEYE YARD
 CITY OF COLUMBUS, FRANKLIN COUNTY, OH

ORIGINAL ISSUE:
 03/28/2022
 KHA PROJECT NO.
 19018000
 SHEET NUMBER
EC4.1

Drawing name: K:\CIB_LDEA\190118000_3ddec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlanSheets\9_StreamReforestation\REFORESTATION_PLAN.dwg STREAM A - 1 Mar 29, 2022, 12:29pm by: Matt Shifflet
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LEGEND

---	EXISTING PROPERTY LINE	—W—W—W—W—W—W—	EXISTING WATER LINE	---	PROPOSED STREAM CORRIDOR PROTECTION LIMITS
---	EXISTING RIGHT OF WAY	—G—	EXISTING GAS LINE	---	REFORESTATION AREA (12.43 AC.)
---	EXISTING EASEMENT	—OHE—	EXISTING OVERHEAD LINE		
---	EXISTING PAVEMENT	—ELE—ELE—ELE—ELE—	EXISTING ELECTRIC		
---	EXISTING CENTERLINE	---	PROPOSED RIGHT-OF-WAY		
—ST—ST—ST—ST—ST—	EXISTING STORM	---	PROPOSED STORM		
—SAN—SAN—SAN—SAN—	EXISTING SANITARY				

No.	REVISIONS	DATE	BY	APR DATE	APR BY

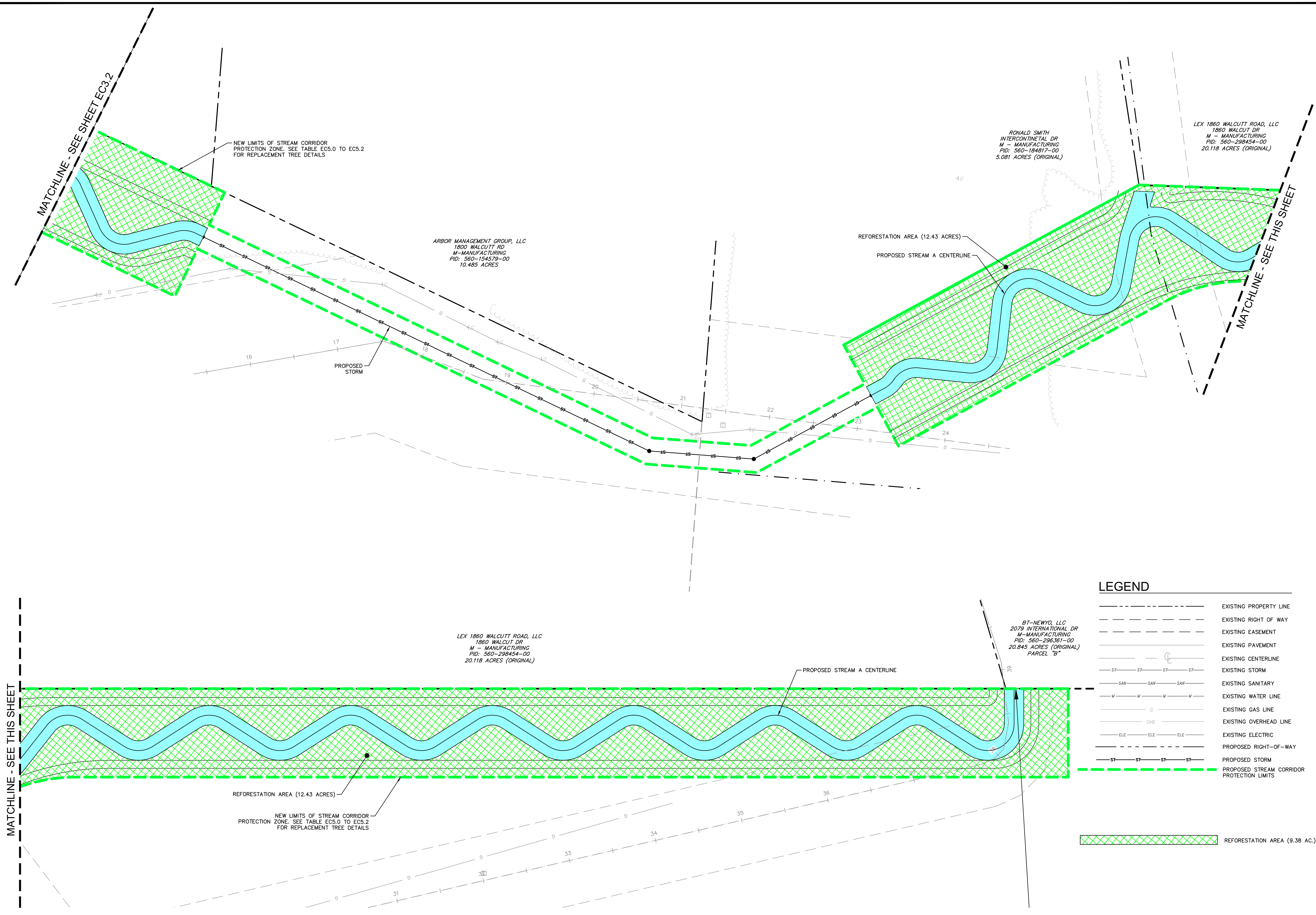
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SCALE:
 DESIGNED BY: MCS
 DRAWN BY: MCS
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REFORESTATION PLAN
 STREAM CORRIDOR PROTECTION ZONE
 REFORESTATION PLANS
BUCKEYE YARD
 CITY OF COLUMBUS, FRANKLIN COUNTY, OH

ORIGINAL ISSUE:
 03/28/2022
 KHA PROJECT NO.
 190118000
 SHEET NUMBER
EC4.2

Drawing name: K:\CIB_LDEA\19018000_3dec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlanSheets\9_Stream\Reforestation\REFORESTATION_PLAN.dwg STREAM A - 2 Mar 29, 2022, 12:29pm by: Matt Shifflet
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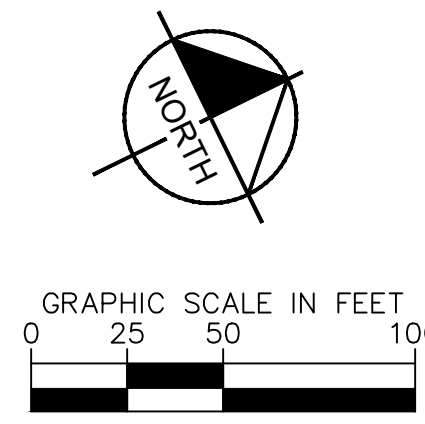
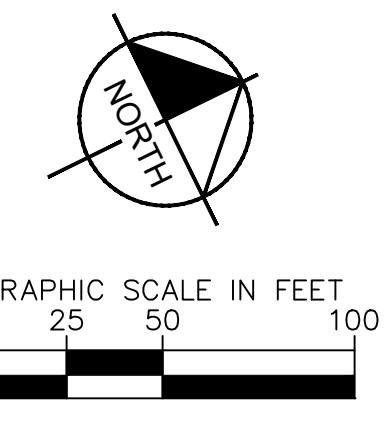
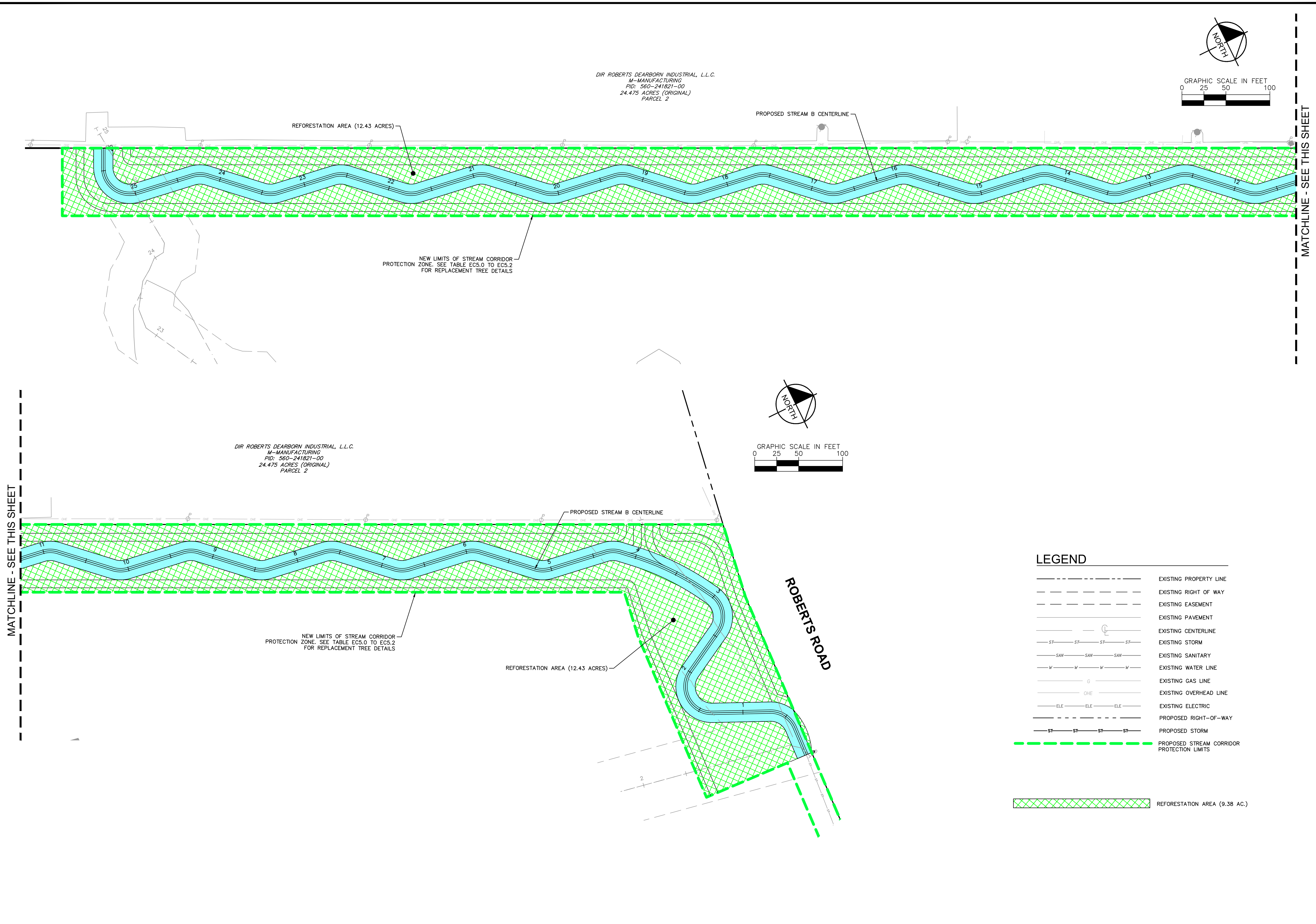


LEGEND

	EXISTING PROPERTY LINE
	EXISTING RIGHT OF WAY
	EXISTING EASEMENT
	EXISTING PAVEMENT
	EXISTING CENTERLINE
	EXISTING STORM
	EXISTING SANITARY
	EXISTING WATER LINE
	EXISTING GAS LINE
	EXISTING OVERHEAD LINE
	EXISTING ELECTRIC
	PROPOSED RIGHT-OF-WAY
	PROPOSED STORM
	PROPOSED STREAM CORRIDOR PROTECTION LIMITS
	REFORESTATION AREA (9.38 AC.)

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		DRAWN BY: MCS	REVISIONS	No.			
<p>REFORESTATION PLAN</p> <p>STREAM CORRIDOR PROTECTION ZONE REFORESTATION PLANS BUCKEYE YARD CITY OF COLUMBUS, FRANKLIN COUNTY, OH</p>		SCALE:					
		CHECKED BY: JMM					
<p>ORIGINAL ISSUE: 03/28/2022</p> <p>KHA PROJECT NO. 190118000</p> <p>SHEET NUMBER EC4.3</p>							

Drawing name: K:\CIB_LDEA\190118000_3drec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlanSheets\9_Stream\Reforestation\REFORESTATION_PLAN.dwg STREAM B Mar 28, 2022 12:29pm by: Matt Shifflett
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LEGEND

---	EXISTING PROPERTY LINE
---	EXISTING RIGHT OF WAY
---	EXISTING EASEMENT
---	EXISTING PAVEMENT
---	EXISTING CENTERLINE
—ST—ST—ST—ST—ST—	EXISTING STORM
—SAN—SAN—SAN—SAN—	EXISTING SANITARY
—W—W—W—W—W—	EXISTING WATER LINE
—G—G—G—G—G—	EXISTING GAS LINE
—OHE—OHE—OHE—	EXISTING OVERHEAD LINE
—ELE—ELE—ELE—	EXISTING ELECTRIC
---	PROPOSED RIGHT-OF-WAY
—ST—ST—ST—ST—	PROPOSED STORM
---	PROPOSED STREAM CORRIDOR PROTECTION LIMITS
[Green Cross-hatch Pattern]	REFORESTATION AREA (9.38 AC.)

MATCHLINE - SEE THIS SHEET

MATCHLINE - SEE THIS SHEET

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SCALE:
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REFORESTATION PLAN

STREAM CORRIDOR PROTECTION ZONE
 REFORESTATION PLANS
BUCKEYE YARD
 CITY OF COLUMBUS, FRANKLIN COUNTY, OH

ORIGINAL ISSUE:
 03/28/2022
 KHA PROJECT NO.
 190118000
 SHEET NUMBER
EC4.4

Drawing name: K:\CBE\JDEA\19018000_04ec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlantSheets\9_Stream\Reforestation\REForestation_SUMMARY_TABLE.dwg Layout1 Mar 29, 2022, 12:29pm by: Matt-Shiflett
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ID	LATIN NAME	COMMON NAME	CONDITION	D.B.H. (INCHES)	NOTES	NORTHING	EASTING	REPLACEMENT QUANTITY	REPLACEMENT SPECIES
2004	<i>Maclura pomifera</i>	OSAGE ORANGE	GOOD	7	2 TRUNK	728172.5	1791643.6	1	<i>Maclura pomifera</i>
2009	<i>Salix ssp.</i>	WILLOW	GOOD	8	2 TRUNK	725559.2	1790975.9	1	<i>Salix nigra</i>
2013	<i>Carya glabra</i>	HICKORY	GOOD	7	2 TRUNK	726471.3	1790864.8	1	<i>Carya glabra</i>
2014	<i>Acer ssp.</i>	MAPLE	GOOD	8	2 TRUNK	725490.2	1790838	1	<i>Acer saccharum</i>
2015	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	8	2 TRUNK	725508.4	1790869.5	1	<i>Prunus serotina</i>
2017	<i>Populus deltoides</i>	EASTERN COTTONWOOD	POOR	21	2 TRUNK	726653.2	1790914.1	3	<i>Populus deltoides</i>
2023	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	8		728017.4	1791387.3	1	<i>Gleditsia tricanthos</i>
2024	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	8	2 TRUNK	728266.7	1791814.4	1	<i>Populus deltoides</i>
2025	<i>Quercus rubra</i>	NORTHERN RED OAK	GOOD	6		728286.7	1791802.1	1	<i>Quercus rubra</i>
2026	<i>Quercus rubra</i>	NORTHERN RED OAK	GOOD	9		728286.8	1791802.8	1	<i>Quercus rubra</i>
2027	<i>Quercus rubra</i>	NORTHERN RED OAK	GOOD	13	2 TRUNK	728267.9	1791735.8	2	<i>Quercus rubra</i>
2030	<i>Quercus rubra</i>	NORTHERN RED OAK	GOOD	18	2 TRUNK	728564.6	1791941.4	2	<i>Quercus rubra</i>
2037	<i>Ulmus americana</i>	ELM	GOOD	8	3 TRUNK	729146.6	1792218	1	<i>Ulmus americana</i>
2038	<i>Ulmus americana</i>	ELM	GOOD	7	3 TRUNK	729147.4	1792218.6	1	<i>Ulmus americana</i>
2039	<i>Juglans nigra</i>	WALNUT	POOR	14	2 TRUNK	729051.4	1792175.3	2	<i>Juglans nigra</i>
2044	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12	2 TRUNK	728679.3	1792040.8	2	<i>Populus deltoides</i>
2045	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	15		729088	1792239.1	2	<i>Populus deltoides</i>
2046	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	13	2 TRUNK	729183.7	1792272.4	2	<i>Populus deltoides</i>
2047	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14	2 TRUNK	729477.6	1792355.6	2	<i>Populus deltoides</i>
2048	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	18	2 TRUNK	729519.6	1792365.8	2	<i>Populus deltoides</i>
2051	<i>Populus deltoides</i>	EASTERN COTTONWOOD	POOR	16	2 TRUNK	729807.2	1792431.5	2	<i>Populus deltoides</i>
2052	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	17	2 TRUNK	729815.5	1792432.8	2	<i>Populus deltoides</i>
2053	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	6	2 TRUNK	729945.2	1792480.4	1	<i>Prunus serotina</i>
2054	<i>Acer ssp.</i>	MAPLE	GOOD	12	2 TRUNK	729946.8	1792447.3	2	<i>Acer saccharum</i>
2055	<i>Ulmus americana</i>	ELM	GOOD	9	2 TRUNK	729824.2	1792392.5	1	<i>Ulmus americana</i>
2056	<i>Ulmus americana</i>	ELM	GOOD	9	2 TRUNK	729819	1792415.4	1	<i>Ulmus americana</i>
2057	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	15		729955.8	1792434	2	<i>Populus deltoides</i>
2059	<i>Acer ssp.</i>	MAPLE	GOOD	10	2 TRUNK	729920.6	1792185.4	1	<i>Acer saccharum</i>
2060	<i>Salix ssp.</i>	WILLOW	POOR	9	4 TRUNK	729954.8	1792298.9	1	<i>Salix nigra</i>
2061	<i>Salix ssp.</i>	WILLOW	POOR	7	4 TRUNK	729954.7	1792299.5	1	<i>Salix nigra</i>
2062	<i>Salix ssp.</i>	WILLOW	POOR	6	4 TRUNK	729954.6	1792300.1	1	<i>Salix nigra</i>
2063	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	12	2 TRUNK	723304	1791845.9	2	<i>Prunus serotina</i>
2065	<i>Juniperus virginiana</i>	EASTERN RED CEDAR	GOOD	4		723582	1791510.3	1	<i>Juniperus virginiana</i>
381037	<i>Acer ssp.</i>	MAPLE	GOOD	8		724005.9	1791146.4	1	<i>Acer saccharum</i>
381039	<i>Acer ssp.</i>	MAPLE	GOOD	6	3 TRUNK	724380.2	1790985	1	<i>Acer saccharum</i>
391001	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	20		728095.8	1791600.6	3	<i>Populus deltoides</i>
391005	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	7		728032.8	1791616	1	<i>Gleditsia tricanthos</i>
391009	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	31		728102.6	1791633.2	5	<i>Populus deltoides</i>
391010	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	31		728095.8	1791629.7	5	<i>Populus deltoides</i>
391011	<i>Ulmus americana</i>	ELM	GOOD	6		728113.6	1791629	1	<i>Ulmus americana</i>
391012	<i>Ulmus americana</i>	ELM	GOOD	6		728021	1791607.5	1	<i>Ulmus americana</i>
391016	<i>Ulmus americana</i>	ELM	POOR	6		728072.1	1791579.3	1	<i>Ulmus americana</i>
391017	<i>Ulmus americana</i>	ELM	GOOD	8		728079.2	1791569.1	1	<i>Ulmus americana</i>
391018	<i>Salix ssp.</i>	WILLOW	GOOD	12		728082.1	1791561.3	2	<i>Salix nigra</i>
391019	<i>Ulmus americana</i>	ELM	POOR	11		728057.8	1791558	1	<i>Ulmus americana</i>
391020	<i>Ulmus americana</i>	ELM	GOOD	11		728061.1	1791547.7	1	<i>Ulmus americana</i>
391021	<i>Salix ssp.</i>	WILLOW	GOOD	13		728086.1	1791523.4	2	<i>Salix nigra</i>
391022	<i>Catalpa speciosa</i>	CATALPA	GOOD	11		728081.9	1791514.7	1	<i>Catalpa speciosa</i>
391023	<i>Crataegus pennsylvanica</i>	HAWTHORN	GOOD	6		728106.6	1791521.4	1	<i>Crataegus pennsylvanica</i>
391024	<i>Juglans nigra</i>	WALNUT	GOOD	13		728108.8	1791543	2	<i>Juglans nigra</i>
391026	<i>Ulmus americana</i>	ELM	GOOD	6		728122.2	1791552.2	1	<i>Ulmus americana</i>
391027	<i>Liriodendron tulipifera</i>	TULIP POPLAR	POOR	7		728126.1	1791548.7	1	<i>Liriodendron tulipifera</i>
391029	<i>Ulmus americana</i>	ELM	GOOD	6		728137.2	1791541.6	1	<i>Ulmus americana</i>
391031	<i>Ulmus americana</i>	ELM	POOR	6		728145.7	1791575.3	1	<i>Ulmus americana</i>
391032	<i>Liriodendron tulipifera</i>	TULIP POPLAR	POOR	7		728147	1791583.1	1	<i>Liriodendron tulipifera</i>
391033	<i>Ulmus americana</i>	ELM	GOOD	10		728139.7	1791593.3	1	<i>Ulmus americana</i>
391034	<i>Ulmus americana</i>	ELM	GOOD	6		728142.1	1791610.7	1	<i>Ulmus americana</i>
391035	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		728132.1	1791623.3	1	<i>Populus deltoides</i>
391036	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		728116.9	1791595	2	<i>Populus deltoides</i>
391040	<i>Maclura pomifera</i>	OSAGE ORANGE	GOOD	8	2 TRUNK	728171.8	1791643.6	1	<i>Maclura pomifera</i>
391041	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	6		728172.4	1791647.7	1	<i>Prunus serotina</i>
391042	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		728147.6	1791662.3	2	<i>Populus deltoides</i>
391043	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10	2 TRUNK	728155.1	1791663	1	<i>Populus deltoides</i>
391044	<i>Ulmus americana</i>	ELM	GOOD	6		728158.9	1791660.7	1	<i>Ulmus americana</i>
391045	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	13		728161.7	1791670.3	2	<i>Populus deltoides</i>
391046	<i>Ulmus americana</i>	ELM	GOOD	6		728171	1791664.6	1	<i>Ulmus americana</i>
391047	<i>Ulmus americana</i>	ELM	GOOD	8		728141.2	1791630.3	1	<i>Ulmus americana</i>
391048	<i>Ulmus americana</i>	ELM	GOOD	8		728153.1	1791639	1	<i>Ulmus americana</i>
391049	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	10		728178.7	1791663.2	1	<i>Prunus serotina</i>
391065	<i>Maclura pomifera</i>	OSAGE ORANGE	GOOD	6		728084.6	1791492.3	1	<i>Maclura pomifera</i>

ID	LATIN NAME	COMMON NAME	CONDITION	D.B.H. (INCHES)	NOTES	NORTHING	EASTING	REPLACEMENT QUANTITY	REPLACEMENT SPECIES
391072	<i>Quercus rubra</i>	RED OAK	GOOD	15		728080	1791415.7	2	<i>Quercus rubra</i>
391073	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	12		728076.1	1791409.1	2	<i>Gleditsia tricanthos</i>
391074	<i>Salix ssp.</i>	WILLOW	LEANING	10		728056.1	1791410.2	1	<i>Salix nigra</i>
391075	<i>Salix ssp.</i>	WILLOW	LEANING	7		728050.8	1791411.1	1	<i>Salix nigra</i>
391076	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	12		728074.1	1791386.9	2	<i>Gleditsia tricanthos</i>
391077	<i>Liriodendron tulipifera</i>	TULIP POPLAR	GOOD	12		728067.3	1791383.1	2	<i>Liriodendron tulipifera</i>
391078	<i>Ulmus americana</i>	ELM	GOOD	10		728096.3	1791389	1	<i>Ulmus americana</i>
391079	<i>Juglans nigra</i>	WALNUT	GOOD	16		728097.7	1791397.1	2	<i>Juglans nigra</i>
391080	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	15		728099.2	1791378.1	2	<i>Gleditsia tricanthos</i>
391081	<i>Ulmus americana</i>	ELM	GOOD	7		728114.5	1791385.9	1	<i>Ulmus americana</i>
391082	<i>Carya glabra</i>	HICKORY	GOOD	7		728109.6	1791373.9	1	<i>Carya glabra</i>
391088	<i>Acer ssp.</i>	MAPLE	GOOD	9		728099.6	1791441.6	1	<i>Acer saccharum</i>
391101	<i>Ulmus americana</i>	ELM	GOOD	6		728105.5	1791286.6	1	<i>Ulmus americana</i>
391102	<i>Maclura pomifera</i>	OSAGE ORANGE	GOOD	11		728089.9	1791283.9	1	<i>Maclura pomifera</i>
391103	<i>Maclura pomifera</i>	OSAGE ORANGE	GOOD	12		728090	1791289.2	2	<i>Maclura pomifera</i>
391104	<i>Ulmus americana</i>	ELM	GOOD	12		728085.7	1791290.4	2	<i>Ulmus americana</i>
391105	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	11		728095.4	1791310.7	1	<i>Gleditsia tricanthos</i>
391106	<i>Crataegus pennsylvanica</i>	HAWTHORN	GOOD	8		728111.4	1791318.3	1	<i>Crataegus pennsylvanica</i>
391107	<i>Ulmus americana</i>	ELM	GOOD	12		728108.1	1791328.5	2	<i>Ulmus americana</i>
391109	<i>Ulmus americana</i>	ELM	GOOD	7		728105.2	1791353.9	1	<i>Ulmus americana</i>
401006	<i>Ulmus americana</i>	ELM	GOOD	6		724636.6	1790937.9	1	<i>Ulmus americana</i>
401007	<i>Acer ssp.</i>	MAPLE	GOOD	6	2 TRUNK	724672	1790941	1	<i>Acer saccharum</i>
401011	<i>Liriodendron tulipifera</i>	TULIP POPLAR	GOOD	7		725018.2	1791014.8	1	<i>Liriodendron tulipifera</i>
401012	<i>Liriodendron tulipifera</i>	TULIP POPLAR	GOOD	7		725058.7	1791013.1	1	<i>Liriodendron tulipifera</i>
401013	<i>Liriodendron tulipifera</i>	TULIP POPLAR	GOOD	6		725396.6	1790982.9	1	<i>Liriodendron tulipifera</i>
401014	<i>Acer ssp.</i>	MAPLE	GOOD	7		725504.4	1790974.1	1	<i>Acer saccharum</i>
401015	<i>Salix ssp.</i>	WILLOW	GOOD	8		725562	1790960.4	1	<i>Salix nigra</i>
401016	<i>Salix ssp.</i>	WILLOW	GOOD	8	2 TRUNK	725559.2	1790961.2	1	<i>Salix nigra</i>
401020	<i>Acer ssp.</i>	MAPLE	GOOD	6		724675.3	1790939.6	1	<i>Acer saccharum</i>
401022	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	7		724546.3	1790908	1	<i>Prunus serotina</i>
401023	<i>Populus deltoides</i>	EASTERN COTTONWOOD	POOR	16		726282	1790896.4	2	<i>Populus deltoides</i>
401024	<i>Populus deltoides</i>	EASTERN COTTONWOOD	POOR	14		726244	1790895.2	2	<i>Populus deltoides</i>
401025	<i>Populus deltoides</i>	EASTERN COTTONWOOD	POOR	16		726190.6	1790905.6	2	<i>Populus deltoides</i>
401026	<i>Acer ssp.</i>	MAPLE	GOOD	6		726027.3	1790885.2	1	<i>Acer nigrum</i>
401027	<i>Acer ssp.</i>	MAPLE	GOOD	9		725682.6	1790959.1	1	<i>Acer nigrum</i>
401028	<i>Acer ssp.</i>	MAPLE	GOOD	9		725676.2	1790963.6	1	<i>Acer nigrum</i>
401029	<i>Acer ssp.</i>	MAPLE	GOOD	10		725648.2	1790962.5	1	<i>Acer nigrum</i>
401030	<i>Acer ssp.</i>	MAPLE	GOOD	6		725626.5	1790964.4	1	<i>Acer nigrum</i>
401031	<i>Acer ssp.</i>	MAPLE	GOOD	6		725619.6	1790916.6	1	<i>Acer nigrum</i>
401051	<i>Acer ssp.</i>	MAPLE	GOOD	9		725486.1	1790778.1	1	<i>Acer nigrum</i>
401052	<i>Carya glabra</i>	HICKORY	GOOD	9		726453.1	1790884.6	1	<i>Carya glabra</i>
401053	<i>Carya glabra</i>	HICKORY	GOOD	9		726463.6	1790880.7	1	<i>Carya glabra</i>
401054	<i>Carya glabra</i>	HICKORY	GOOD	9		726467.7	1790863.8	1	<i>Carya glabra</i>
401055	<i>Carya glabra</i>	HICKORY	GOOD	7	2 TRUNK	726472	1790864.8	1	<i>Carya glabra</i>
401056	<i>Populus deltoides</i>	EASTERN COTTONWOOD	POOR	6		726483.2	1790880.7	1	<i>Populus deltoides</i>
401057	<i>Carya glabra</i>	HICKORY	GOOD	6		726479.9	1790858	1	<i>Carya glabra</i>
411001	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	15		725242	1790219.9	2	<i>Populus deltoides</i>

Drawing name: K:\CIBL\JDEA\190118000_04ec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlotSheets\9_Stream\Reforestation\REForestation_SUMMARY_TABLE.dwg EC5 STREAM CORRIDOR PROTECTION ZONE REFORESTATION SUMMARY TABLE Mar 28, 2022 12:28pm By: Matt Shiflett
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. None of and no part of this document without written authorization and approval by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

ID	LATIN NAME	COMMON NAME	CONDITION	D.B.H. (INCHES)	NOTES	NORTHING	EASTING	REPLACEMENT QUANTITY	REPLACEMENT SPECIES
411041	<i>Juglans nigra</i>	WALNUT	GOOD	6		726697.8	1790816	1	<i>Juglans nigra</i>
411044	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	22		728145.3	1791735.5	3	<i>Populus deltoides</i>
411045	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	18		728152.4	1791744	2	<i>Populus deltoides</i>
411048	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	20		728148.8	1791709.7	3	<i>Populus deltoides</i>
411049	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	8		728137.9	1791700.6	1	<i>Prunus serotina</i>
411054	<i>Ulmus americana</i>	ELM	GOOD	6		728142.8	1791679.8	1	<i>Ulmus americana</i>
411055	<i>Maclura pomifera</i>	OSAGE ORANGE	GOOD	6		728147.5	1791675.1	1	<i>Maclura pomifera</i>
411056	<i>Maclura pomifera</i>	OSAGE ORANGE	GOOD	6		728142.5	1791666.9	1	<i>Maclura pomifera</i>
411058	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	6		728128.1	1791651.8	1	<i>Populus deltoides</i>
411059	<i>Ulmus americana</i>	ELM	GOOD	6		728123	1791665	1	<i>Ulmus americana</i>
411065	<i>Ulmus americana</i>	ELM	GOOD	6		728237	1791822.8	1	<i>Ulmus americana</i>
411066	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	18		728275.4	1791855.8	2	<i>Populus deltoides</i>
411067	<i>Juglans nigra</i>	WALNUT	GOOD	8		728279.2	1791861.4	1	<i>Juglans nigra</i>
411068	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	19		728342.9	1791883.8	3	<i>Populus deltoides</i>
411069	<i>Juglans nigra</i>	WALNUT	GOOD	6		728349.4	1791900.5	1	<i>Juglans nigra</i>
411072	<i>Carya glabra</i>	HICKORY	GOOD	7		728399.9	1791911.3	1	<i>Carya glabra</i>
411073	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		728418.2	1791924.9	1	<i>Populus deltoides</i>
411074	<i>Ulmus americana</i>	ELM	GOOD	8		728422.3	1791922.8	1	<i>Ulmus americana</i>
411075	<i>Populus deltoides</i>	EASTERN COTTONWOOD	POOR	12		728428.8	1791923.9	2	<i>Populus deltoides</i>
411076	<i>Salix ssp.</i>	WILLOW	POOR	19		728431.5	1791924.1	3	<i>Salix nigra</i>
411077	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	19		728490.1	1791945.8	3	<i>Populus deltoides</i>
411078	<i>Salix ssp.</i>	WILLOW	GOOD	19		728493.9	1791948.4	3	<i>Salix nigra</i>
411079	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	11		728508.5	1791955	1	<i>Populus deltoides</i>
411080	<i>Ulmus americana</i>	ELM	GOOD	10		728508	1791961	1	<i>Ulmus americana</i>
411081	<i>Quercus alba</i>	WHITE OAK	GOOD	7		728501.4	1791975.3	1	<i>Quercus alba</i>
411082	<i>Liriodendron tulipifera</i>	TULIP POPLAR	GOOD	6		728520.1	1791972.7	1	<i>Liriodendron tulipifera</i>
411083	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	21		728552.5	1791982.5	3	<i>Populus deltoides</i>
411084	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	6		728546.1	1791979.7	1	<i>Populus deltoides</i>
411085	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		728562.9	1791985.7	2	<i>Populus deltoides</i>
411086	<i>Ulmus americana</i>	ELM	GOOD	6		728568.8	1791990	1	<i>Ulmus americana</i>
411087	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		728606	1792006.9	2	<i>Populus deltoides</i>
411088	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		728613.4	1792010.1	2	<i>Populus deltoides</i>
411089	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	6		728620.5	1792049	1	<i>Populus deltoides</i>
421011	<i>Liriodendron tulipifera</i>	TULIP POPLAR	GOOD	12		727995.6	1791443	2	<i>Liriodendron tulipifera</i>
421014	<i>Populus deltoides</i>	EASTERN COTTONWOOD	POOR	13		727973.3	1791440	2	<i>Populus deltoides</i>
421016	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		727967.8	1791439.7	1	<i>Populus deltoides</i>
421029	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	18		727994	1791409.7	2	<i>Populus deltoides</i>
421032	<i>Malus ssp.</i>	APPLE	GOOD	12		728006.7	1791403.1	2	<i>Malus coronaria</i>
421045	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	12		728016.5	1791387.1	2	<i>Gleditsia tricanthos</i>
421047	<i>Liriodendron tulipifera</i>	TULIP POPLAR	POOR	9		728046.1	1791355.7	1	<i>Liriodendron tulipifera</i>
421048	<i>Salix ssp.</i>	WILLOW	POOR	16		728051.2	1791371	2	<i>Salix nigra</i>
421054	<i>Maclura pomifera</i>	OSAGE ORANGE	GOOD	12		728059.7	1791271.3	2	<i>Maclura pomifera</i>
421056	<i>Ulmus americana</i>	ELM	GOOD	9		728059.6	1791300.3	1	<i>Ulmus americana</i>
421057	<i>Maclura pomifera</i>	OSAGE ORANGE	GOOD	12		728060.5	1791313.9	2	<i>Maclura pomifera</i>
421058	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	12		728065.7	1791317	2	<i>Gleditsia tricanthos</i>
421059	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	7		728068.8	1791321.1	1	<i>Gleditsia tricanthos</i>
421060	<i>Carya glabra</i>	HICKORY	GOOD	11		728071.5	1791318.3	1	<i>Carya glabra</i>
421061	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	8		728073.3	1791325.6	1	<i>Gleditsia tricanthos</i>
421062	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	8		728069.2	1791330.4	1	<i>Gleditsia tricanthos</i>
421063	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	9		728065.8	1791337.3	1	<i>Gleditsia tricanthos</i>
421064	<i>Ulmus americana</i>	ELM	GOOD	6		728310.8	1791855.3	1	<i>Ulmus americana</i>
421065	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		728307	1791854.9	2	<i>Populus deltoides</i>
421066	<i>Carya ovata</i>	SHAG BARK HICKORY	GOOD	7		728312.7	1791835	1	<i>Carya ovata</i>
421067	<i>Maclura pomifera</i>	OSAGE ORANGE	GOOD	37		728335.3	1791834.6	5	<i>Maclura pomifera</i>
421070	<i>Carya ovata</i>	SHAG BARK HICKORY	GOOD	9		728352.2	1791844.7	1	<i>Carya ovata</i>
421071	<i>Ulmus americana</i>	ELM	GOOD	7		728336.9	1791852.2	1	<i>Ulmus americana</i>
421072	<i>Carya ovata</i>	SHAG BARK HICKORY	GOOD	6		728357.2	1791858.1	1	<i>Carya ovata</i>
421073	<i>Carya ovata</i>	SHAG BARK HICKORY	GOOD	6		728358.5	1791863.7	1	<i>Carya ovata</i>
421074	<i>Carya glabra</i>	HICKORY	GOOD	6		728360.5	1791860.9	1	<i>Carya glabra</i>
421075	<i>Carya ovata</i>	SHAG BARK HICKORY	GOOD	12		728372.6	1791858.8	2	<i>Carya ovata</i>
421087	<i>Quercus rubra</i>	RED OAK	GOOD	10		728308.5	1791798	1	<i>Quercus rubra</i>
421091	<i>Quercus rubra</i>	RED OAK	GOOD	7		728302.5	1791818.7	1	<i>Quercus rubra</i>
421092	<i>Quercus rubra</i>	RED OAK	GOOD	10		728292.9	1791816.9	1	<i>Quercus rubra</i>
421093	<i>Quercus rubra</i>	RED OAK	GOOD	8		728288.3	1791810.3	1	<i>Quercus rubra</i>
421094	<i>Ulmus americana</i>	ELM	GOOD	6		728292.9	1791836.4	1	<i>Ulmus americana</i>
421095	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	16		728275.1	1791817.9	2	<i>Populus deltoides</i>
421096	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	16		728267.2	1791814.4	2	<i>Populus deltoides</i>
421097	<i>Ulmus americana</i>	ELM	GOOD	7		728257.4	1791816.9	1	<i>Ulmus americana</i>
421098	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		728263.2	1791807	2	<i>Populus deltoides</i>
421100	<i>Quercus rubra</i>	RED OAK	GOOD	7		728286.6	1791801.5	1	<i>Quercus rubra</i>

ID	LATIN NAME	COMMON NAME	CONDITION	D.B.H. (INCHES)	NOTES	NORTHING	EASTING	REPLACEMENT QUANTITY	REPLACEMENT SPECIES
421109	<i>Quercus rubra</i>	RED OAK	GOOD	13		728270.8	1791778.4	2	<i>Quercus rubra</i>
421111	<i>Quercus rubra</i>	RED OAK	GOOD	11		728270.6	1791787.1	1	<i>Quercus rubra</i>
421112	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	17		728255.9	1791800.4	2	<i>Populus deltoides</i>
421113	<i>Ulmus americana</i>	ELM	GOOD	11		728238.2	1791789.4	1	<i>Ulmus americana</i>
451001	<i>Carya ovata</i>	SHAG BARK HICKORY	GOOD	8		728231.6	1791751.9	1	<i>Carya ovata</i>
451002	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	13		728228.9	1791761.4	2	<i>Populus deltoides</i>
451003	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	22		728226.8	1791765	3	<i>Populus deltoides</i>
451004	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	19		728220.4	1791763.9	3	<i>Populus deltoides</i>
451005	<i>Populus deltoides</i>	EASTERN COTTONWOOD	POOR	22		728213.4	1791767	3	<i>Populus deltoides</i>
451006	<i>Juglans nigra</i>	WALNUT	GOOD	9		728212.9	1791742.1	1	<i>Juglans nigra</i>
451007	<i>Ulmus americana</i>	ELM	GOOD	6		728208.1	1791742.3	1	<i>Ulmus americana</i>
451008	<i>Ulmus americana</i>	ELM	GOOD	11		728206	1791734.1	1	<i>Ulmus americana</i>
451010	<i>Ulmus americana</i>	ELM	GOOD	7		728193.4	1791719	1	<i>Ulmus americana</i>
451011	<i>Crataegus pennsylvanica</i>	HAWTHORN	GOOD	6		728198.5	1791706.3	1	<i>Crataegus pennsylvanica</i>
451012	<i>Ulmus americana</i>	ELM	GOOD	6		728192.4	1791700.2	1	<i>Ulmus americana</i>
451013	<i>Liriodendron tulipifera</i>	TULIP POPLAR	GOOD	7		728188.5	1791687.6	1	<i>Liriodendron tulipifera</i>
451022	<i>Carya ovata</i>	SHAG BARK HICKORY	GOOD	11		728385.9	1791871.5	1	<i>Carya ovata</i>
451023	<i>Carya glabra</i>	HICKORY	GOOD	7		728418.2	1791880	1	<i>Carya glabra</i>
451024	<i>Carya glabra</i>	HICKORY	GOOD	7		728415.6	1791892.8	1	<i>Carya glabra</i>
451025	<i>Carya glabra</i>	HICKORY	GOOD	11		728433.2	1791887.3	1	<i>Carya glabra</i>
451026	<i>Quercus alba</i>	WHITE OAK	GOOD	11		728435.7	1791882.6	1	<i>Quercus alba</i>
451027	<i>Carya glabra</i>	HICKORY	GOOD	6		728426.2	1791882.9	1	<i>Carya glabra</i>
451028	<i>Ulmus americana</i>	ELM	GOOD	7		728454.6	1791882.5	1	<i>Ulmus americana</i>
451029	<i>Acer ssp.</i>	MAPLE	GOOD	11		728457.2	1791884	1	<i>Acer rubrum</i>
451036	<i>Carya ovata</i>	SHAG BARK HICKORY	GOOD	10		728528	1791927.8	1	<i>Carya ovata</i>
451037	<i>Carya ovata</i>	SHAG BARK HICKORY	GOOD	6		728521	1791943.3	1	<i>Carya ovata</i>
451038	<i>Carya ovata</i>	SHAG BARK HICKORY	GOOD	11		728541.8	1791934.8	1	<i>Carya ovata</i>
451039	<i>Quercus rubra</i>	RED OAK	GOOD	18		728564.6	1791942.3	2	<i>Quercus rubra</i>
451040	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		728552.1	1791965.4	2	<i>Populus deltoides</i>
451041	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	11		728590.3	1791985.1	1	<i>Populus deltoides</i>
451042	<i>Juglans nigra</i>	WALNUT	GOOD	6		728597.3	1791979.1	1	<i>Juglans nigra</i>
451048	<i>Quercus rubra</i>	RED OAK	GOOD	12		728670.5	1792003.6	2	<i>Quercus rubra</i>
451049	<i>Carya glabra</i>	HICKORY	GOOD	6		728668	1792000.9	1	<i>Carya glabra</i>
451054	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		728688	1792033.8	1	<i>Populus deltoides</i>
451055	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	6		728674	1792019	1	<i>Prunus serotina</i>
451056	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		728682.3	1792031	1	<i>Populus deltoides</i>
451057	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		728743.8	1792024.5	2	<i>Populus deltoides</i>
451061	<i>Carya glabra</i>	HICKORY	GOOD	8		728766.6	1792025.5	1	<i>Carya glabra</i>
451063	<i>Juglans nigra</i>	WALNUT	GOOD	12		728761	1792043.3	2	<i>Juglans nigra</i>
451064	<i>Juglans nigra</i>	WALNUT	GOOD	11		728780.7	1792042.7	1	<i>Juglans nigra</i>
451066	<i>Ulmus americana</i>	ELM	GOOD	8		728779.4	1792066.6	1	<i>Ulmus americana</i>
451070	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	10		728806	1792081.9	1	<i>Prunus serotina</i>
451071	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		728819.7	1792091.2	1	<i>Populus deltoides</i>
451072	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	11		728832	1792094.8	1	<i>Populus deltoides</i>
451073	<i>Salix ssp.</i>	WILLOW	FAIR	6		729225.5	1792275.2	1	<i>Salix nigra</i>
451074	<i>Ulmus americana</i>	ELM	GOOD	6		729229.4	1792270.8	1	<i>Ulmus americana</i>
451075	<i>Ulmus americana</i>	ELM	GOOD	11		729233.3	1792257		

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 Stream CORRIDOR PROTECTION ZONE REFORESTATION SUMMARY TABLE - Mar 29, 2022, 12:29pm by: MottShiffert
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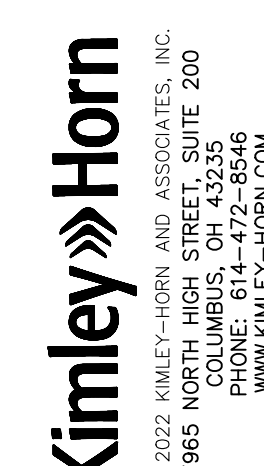
ID	LATIN NAME	COMMON NAME	CONDITION	D.B.H. (INCHES)	NOTES	NORTHING	EASTING	REPLACEMENT QUANTITY	REPLACEMENT SPECIES
451113	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	13		728999.6	1792179.7	2	<i>Populus deltoides</i>
451114	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		728994.3	1792178	2	<i>Populus deltoides</i>
451116	<i>Ulmus americana</i>	ELM	GOOD	13		728915.4	1792133.8	2	<i>Ulmus americana</i>
451117	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		728912.5	1792136.6	1	<i>Populus deltoides</i>
451118	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		728910.8	1792133.9	1	<i>Populus deltoides</i>
451119	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		728892.7	1792130.9	1	<i>Populus deltoides</i>
451120	<i>Ulmus americana</i>	ELM	GOOD	10		728899.3	1792105.1	1	<i>Ulmus americana</i>
451121	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	6		728871.9	1792119.5	1	<i>Populus deltoides</i>
451122	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	16		728867.9	1792115.2	2	<i>Populus deltoides</i>
451123	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	8		728850.7	1792110.3	1	<i>Populus deltoides</i>
451124	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	8		728844.2	1792103.7	1	<i>Populus deltoides</i>
451125	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		728841.9	1792101.8	2	<i>Populus deltoides</i>
461000	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	9		729247.5	1792273.4	1	<i>Populus deltoides</i>
461001	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	19		729263.8	1792278.9	3	<i>Populus deltoides</i>
461002	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	21		729269.4	1792277.2	3	<i>Populus deltoides</i>
461009	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		729325.4	1792293.9	2	<i>Populus deltoides</i>
461010	<i>Ulmus americana</i>	ELM	GOOD	9		729345.1	1792299.1	1	<i>Ulmus americana</i>
461011	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	16		729364.2	1792299.7	2	<i>Populus deltoides</i>
461012	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	7		729396.6	1792315.5	1	<i>Populus deltoides</i>
461013	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	8		729400.4	1792316.8	1	<i>Populus deltoides</i>
461014	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		729421.8	1792317.2	2	<i>Populus deltoides</i>
461015	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		729451.6	1792328.4	2	<i>Populus deltoides</i>
461016	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		729465.9	1792330.3	2	<i>Populus deltoides</i>
461017	<i>Ulmus americana</i>	ELM	GOOD	12		729475.4	1792327	2	<i>Ulmus americana</i>
461020	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	13		729482.9	1792332.9	2	<i>Populus deltoides</i>
461021	<i>Ulmus americana</i>	ELM	GOOD	7		729499.2	1792327.2	1	<i>Ulmus americana</i>
461022	<i>Ulmus americana</i>	ELM	FAIR	7		729530.1	1792342	1	<i>Ulmus americana</i>
461023	<i>Liriodendron tulipifera</i>	TULIP POPLAR	GOOD	10		729535	1792332.6	1	<i>Liriodendron tulipifera</i>
461024	<i>Morus ssp.</i>	MULBERRY	GOOD	10		729540.7	1792334.4	1	<i>Morus rubra</i>
461025	<i>Ulmus americana</i>	ELM	GOOD	8		729531.9	1792324.3	1	<i>Ulmus americana</i>
461027	<i>Ulmus americana</i>	ELM	POOR	6		729539.5	1792345.8	1	<i>Ulmus americana</i>
461028	<i>Ulmus americana</i>	ELM	POOR	6		729556.8	1792343.7	1	<i>Ulmus americana</i>
461029	<i>Ulmus americana</i>	ELM	POOR	11		729579.7	1792355.7	1	<i>Ulmus americana</i>
461031	<i>Ulmus americana</i>	ELM	POOR	7		729595.9	1792362	1	<i>Ulmus americana</i>
461032	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	16		729593.2	1792365.8	2	<i>Populus deltoides</i>
461034	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	6		728663.9	1792035.9	1	<i>Populus deltoides</i>
461035	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	13		728675.2	1792039.7	2	<i>Populus deltoides</i>
461036	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	6		728678.7	1792040.6	1	<i>Populus deltoides</i>
461037	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		728688	1792047.2	2	<i>Populus deltoides</i>
461038	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	7		728698.2	1792050.5	1	<i>Populus deltoides</i>
461039	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	11		728698.2	1792052.4	1	<i>Populus deltoides</i>
461041	<i>Ulmus americana</i>	ELM	GOOD	6		728724.1	1792063	1	<i>Ulmus americana</i>
461042	<i>Ulmus americana</i>	ELM	GOOD	6		728727.5	1792069.9	1	<i>Ulmus americana</i>
461043	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		728732.1	1792067.1	2	<i>Populus deltoides</i>
461044	<i>Populus deltoides</i>	EASTERN COTTONWOOD	FAIR	13		728736.3	1792069.6	2	<i>Populus deltoides</i>
461045	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		728782.8	1792093.4	1	<i>Populus deltoides</i>
461046	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	13		728790.2	1792096.3	2	<i>Populus deltoides</i>
461047	<i>Populus deltoides</i>	EASTERN COTTONWOOD	FAIR	12		728792.3	1792094.2	2	<i>Populus deltoides</i>
461048	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		728797.7	1792098.8	2	<i>Populus deltoides</i>
461049	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		728849.1	1792122.2	1	<i>Populus deltoides</i>
461050	<i>Ulmus americana</i>	ELM	POOR	9		728864.9	1792132.9	1	<i>Ulmus americana</i>
461051	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	16		728876.1	1792135.4	2	<i>Populus deltoides</i>
461052	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		728912.4	1792152.2	2	<i>Populus deltoides</i>
461053	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		728931.2	1792161	1	<i>Populus deltoides</i>
461054	<i>Ulmus americana</i>	ELM	GOOD	8		728936.1	1792163.7	1	<i>Ulmus americana</i>
461055	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	11		729000.9	1792193.7	1	<i>Populus deltoides</i>
461056	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	17		729004.9	1792194.4	2	<i>Populus deltoides</i>
461057	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		729020.2	1792201	2	<i>Populus deltoides</i>
461058	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	8		729018.4	1792203.5	1	<i>Populus deltoides</i>
461059	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	11		729026	1792206.8	1	<i>Populus deltoides</i>
461060	<i>Populus deltoides</i>	EASTERN COTTONWOOD	POOR	8		729048.7	1792215.8	1	<i>Populus deltoides</i>
461061	<i>Ulmus americana</i>	ELM	GOOD	8		729082.8	1792235.4	1	<i>Ulmus americana</i>
461062	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		729087.5	1792239	2	<i>Populus deltoides</i>
461063	<i>Populus deltoides</i>	EASTERN COTTONWOOD	FAIR	16		729135	1792252.2	2	<i>Populus deltoides</i>
461065	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		729183.2	1792272.4	2	<i>Populus deltoides</i>
461066	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	17		729213.1	1792288.6	2	<i>Populus deltoides</i>
461067	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		729215.2	1792284	2	<i>Populus deltoides</i>
461068	<i>Ulmus americana</i>	ELM	GOOD	6		729257.6	1792295	1	<i>Ulmus americana</i>
461069	<i>Ulmus americana</i>	ELM	GOOD	6		729313.1	1792330	1	<i>Ulmus americana</i>
461070	<i>Juglans nigra</i>	WALNUT	GOOD	6		729312.7	1792328.3	1	<i>Juglans nigra</i>
461071	<i>Populus deltoides</i>	EASTERN COTTONWOOD	FAIR	22		729339.5	1792315	3	<i>Populus deltoides</i>

ID	LATIN NAME	COMMON NAME	CONDITION	D.B.H. (INCHES)	NOTES	NORTHING	EASTING	REPLACEMENT QUANTITY	REPLACEMENT SPECIES
461072	<i>Acer ssp.</i>	MAPLE	GOOD	7		729343.3	1792342.9	1	<i>Acer rubrum</i>
461073	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	17		729382.9	1792331.5	2	<i>Populus deltoides</i>
461074	<i>Acer ssp.</i>	MAPLE	GOOD	6		729385.3	1792347.4	1	<i>Acer rubrum</i>
461075	<i>Juglans nigra</i>	WALNUT	GOOD	6		729387.5	1792355.5	1	<i>Juglans nigra</i>
461076	<i>Ulmus americana</i>	ELM	GOOD	10		729397.2	1792359.7	1	<i>Ulmus americana</i>
461077	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		729401.5	1792331.1	1	<i>Populus deltoides</i>
461078	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		729402.3	1792334.3	2	<i>Populus deltoides</i>
461079	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	15		729415.4	1792334.1	2	<i>Populus deltoides</i>
461080	<i>Populus deltoides</i>	EASTERN COTTONWOOD	FAIR	14		729418	1792338.1	2	<i>Populus deltoides</i>
461081	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	18		729425.2	1792341.5	2	<i>Populus deltoides</i>
461082	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		729428.9	1792338.3	1	<i>Populus deltoides</i>
461083	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	11		729431.7	1792339.6	1	<i>Populus deltoides</i>
461084	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	15		729436.2	1792341.3	2	<i>Populus deltoides</i>
461085	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		729438.9	1792344	2	<i>Populus deltoides</i>
461086	<i>Ulmus americana</i>	ELM	GOOD	10		729432.8	1792371.9	1	<i>Ulmus americana</i>
461087	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	14		729445.3	1792343.2	2	<i>Populus deltoides</i>
461088	<i>Ulmus americana</i>	ELM	GOOD	10		729447.8	1792342.2	1	<i>Ulmus americana</i>
461089	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		729466.5	1792350.5	1	<i>Populus deltoides</i>
461090	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	10		729477.2	1792355.6	1	<i>Populus deltoides</i>
461091	<i>Ulmus americana</i>	ELM	GOOD	8		729482.8	1792386.8	1	<i>Ulmus americana</i>
461092	<i>Juglans nigra</i>	WALNUT	GOOD	8		729486.3	1792385.8	1	<i>Juglans nigra</i>
461093	<i>Juglans nigra</i>	WALNUT	GOOD	8		729500.2	1792379.5	1	<i>Juglans nigra</i>
461094	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	23		729520.3	1792365.9	3	<i>Populus deltoides</i>
461095	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	17		729528.4	1792364.9	2	<i>Populus deltoides</i>
461096	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	15		729570.5	1792383.6	2	<i>Populus deltoides</i>
461097	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	15		729577.8	1792382.9	2	<i>Populus deltoides</i>
461098	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	19		729595.7	1792386.5	3	<i>Populus deltoides</i>
461099	<i>Juglans nigra</i>	WALNUT	GOOD	11		729591.8	1792396.6	1	<i>Juglans nigra</i>
461104	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	6		729622.8	1792403	1	<i>Populus deltoides</i>
461105	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	6		729663.4	1792402.3	1	<i>Populus deltoides</i>
461106	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	8		729678.1	1792404.3	1	<i>Populus deltoides</i>
461107	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	16		729686.5	1792407.1	2	<i>Populus deltoides</i>
461108	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	19		729694.4	1792415.3	3	<i>Populus deltoides</i>
461109	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	8		729707.9	1792426.4	1	<i>Populus deltoides</i>
461110	<i>Carya ovata</i>	SHAG BARK HICKORY	GOOD	8		729742.6	1792434.1	1	<i>Carya ovata</i>
461111	<i>Populus deltoides</i>	EASTERN COTTONWOOD	POOR	14		729806.4	1792431.4	2	<i>Populus deltoides</i>
461112	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	13		729814.9	1792432.7	2	<i>Populus deltoides</i>
461113	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	22		729915	1792443.9	3	<i>Populus deltoides</i>
461114	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	6		729944.8	1792481.2	1	<i>Prunus serotina</i>
461115	<i>Gleditsia tricanthos</i>	HONEY LOCUST	GOOD	12		729941.7	1792463.7	2	<i>Gleditsia tricanthos</i>
461116	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	6		729930.8	1792461.8	1	<i>Prunus serotina</i>
461117	<i>Acer ssp.</i>	MAPLE	GOOD	12		729947.3	1792447.3	2	<i>Acer rubrum</i>
461118	<i>Ulmus americana</i>	ELM	POOR	8		728426.2	1791898.7	1	<i>Ulmus americana</i>
461119	<i>Ulmus americana</i>	ELM	POOR	8		728451.9	1791901.5	1	<i>Ulmus americana</i>
461120	<i>Ulmus americana</i>	ELM	GOOD	9		7			

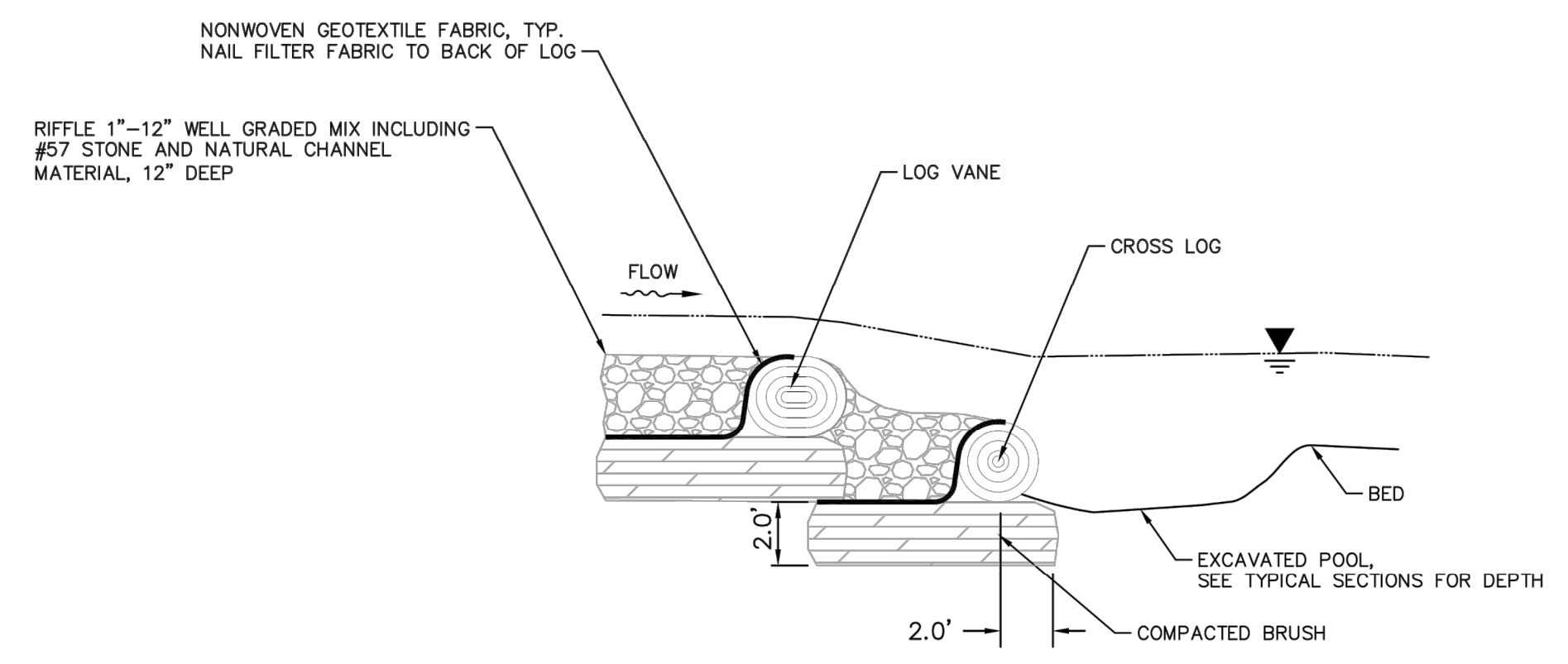
Drawing name: K:\CIB\LDEA\19018000_4dec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlanSheets\9_StreamReforestation\REFORESTATION_SUMMARY_TABLE.dwg REFORESTATION_SUMMARY_TABLE Mar 29, 2022, 12:29pm by Matt Shiflett
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ID	LATIN NAME	COMMON NAME	CONDITION	D.B.H. (INCHES)	NOTES	NORTHING	EASTING	REPLACEMENT QUANTITY	REPLACEMENT SPECIES
471025	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	18		729957.5	1792382.7	2	<i>Populus deltoides</i>
471026	<i>Crataegus pennsylvanica</i>	HAWTHORN	GOOD	7		729943.9	1792377.9	1	<i>Crataegus pennsylvanica</i>
471027	<i>Ulmus americana</i>	ELM	GOOD	8		729931.6	1792368.2	1	<i>Ulmus americana</i>
471028	<i>Ulmus americana</i>	ELM	GOOD	8		729929.4	1792331.8	1	<i>Ulmus americana</i>
471029	<i>Acer ssp.</i>	MAPLE	GOOD	8		729949.1	1792323.6	1	<i>Acer rubrum</i>
471031	<i>Ulmus americana</i>	ELM	GOOD	6		729889.4	1792303.5	1	<i>Ulmus americana</i>
471032	<i>Ulmus americana</i>	ELM	GOOD	9		729916.9	1792279.3	1	<i>Ulmus americana</i>
471033	<i>Ulmus americana</i>	ELM	GOOD	9		729930	1792281.9	1	<i>Ulmus americana</i>
471034	<i>Ulmus americana</i>	ELM	GOOD	9		729934.6	1792284.1	1	<i>Ulmus americana</i>
471035	<i>Ulmus americana</i>	ELM	GOOD	6		729922	1792260.8	1	<i>Ulmus americana</i>
471036	<i>Ulmus americana</i>	ELM	GOOD	11		729914.5	1792257.5	1	<i>Ulmus americana</i>
471037	<i>Ulmus americana</i>	ELM	GOOD	9		729891.1	1792259.7	1	<i>Ulmus americana</i>
471038	<i>Ulmus americana</i>	ELM	GOOD	9		729887.2	1792247.1	1	<i>Ulmus americana</i>
471039	<i>Crataegus pennsylvanica</i>	HAWTHORN	GOOD	6		729897.2	1792243.2	1	<i>Crataegus pennsylvanica</i>
471040	<i>Ulmus americana</i>	ELM	GOOD	8		729906.3	1792231	1	<i>Ulmus americana</i>
471041	<i>Ulmus americana</i>	ELM	GOOD	13		729895	1792221.3	2	<i>Ulmus americana</i>
471042	<i>Ulmus americana</i>	ELM	GOOD	12		729880.5	1792213.8	2	<i>Ulmus americana</i>
471043	<i>Ulmus americana</i>	ELM	GOOD	6		729909.5	1792218.1	1	<i>Ulmus americana</i>
471044	<i>Ulmus americana</i>	ELM	GOOD	9		729932.5	1792220.6	1	<i>Ulmus americana</i>
471045	<i>Crataegus pennsylvanica</i>	HAWTHORN	FAIR	6		729916.8	1792188.6	1	<i>Crataegus pennsylvanica</i>
471046	<i>Acer ssp.</i>	MAPLE	GOOD	10		729921.8	1792185.2	1	<i>Acer rubrum</i>
471047	<i>Juglans nigra</i>	WALNUT	GOOD	6		729872.4	1792173.8	1	<i>Juglans nigra</i>
471048	<i>Juglans nigra</i>	WALNUT	GOOD	6		729861.9	1792139.1	1	<i>Juglans nigra</i>
471049	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	25		729935.9	1792172.4	4	<i>Populus deltoides</i>
471050	<i>Populus deltoides</i>	EASTERN COTTONWOOD	FAIR	25		729981.9	1792191.6	4	<i>Populus deltoides</i>
471051	<i>Ulmus americana</i>	ELM	GOOD	9		729947.7	1792200.5	1	<i>Ulmus americana</i>
471052	<i>Ulmus americana</i>	ELM	GOOD	9		729958.2	1792203.2	1	<i>Ulmus americana</i>
471053	<i>Ulmus americana</i>	ELM	POOR	9		729954.5	1792240.6	1	<i>Ulmus americana</i>
471054	<i>Ulmus americana</i>	ELM	POOR	9		729956.6	1792255.1	1	<i>Ulmus americana</i>
471055	<i>Ulmus americana</i>	ELM	FAIR	11		729952	1792256.2	1	<i>Ulmus americana</i>
471056	<i>Ulmus americana</i>	ELM	FAIR	12		729953.7	1792264.5	2	<i>Ulmus americana</i>
471057	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	10		729993.7	1792265.4	1	<i>Prunus serotina</i>
471058	<i>Salix ssp.</i>	WILLOW	POOR	10		729954.7	1792298.3	1	<i>Salix nigra</i>
471059	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	24		729965.5	1792339.5	3	<i>Populus deltoides</i>
471060	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		729965.5	1792348.2	2	<i>Populus deltoides</i>
471061	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	19		729965.5	1792355.7	3	<i>Populus deltoides</i>
471062	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	9		729984	1792363.8	1	<i>Prunus serotina</i>
471063	<i>Salix ssp.</i>	WILLOW	POOR	8		729969.4	1792373.3	1	<i>Salix nigra</i>
471064	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	12		729974.4	1792408.2	2	<i>Populus deltoides</i>
471065	<i>Populus deltoides</i>	EASTERN COTTONWOOD	GOOD	18		729983.4	1792437.1	2	<i>Populus deltoides</i>
4E+06	<i>Liquidamber styraciflua</i>	SWEETGUM	POOR	9		723843.3	1791327.9	1	<i>Liquidamber styraciflua</i>
4E+06	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	6		723795.3	1791371.6	1	<i>Prunus serotina</i>
4E+06	<i>Pyrus calleryana</i>	ORNAMENTAL PEAR	GOOD	6		723698.5	1791456.6	1	<i>Malus coronaria</i>
4E+06	<i>Prunus serotina</i>	BLACK CHERRY	POOR	6		723466	1791677.2	1	<i>Prunus serotina</i>
4E+06	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	9		723303.5	1791845.9	1	<i>Prunus serotina</i>
4E+06	<i>Prunus serotina</i>	BLACK CHERRY	GOOD	6		723228.3	1791937	1	<i>Prunus serotina</i>
4E+06	<i>Juniperus virginiana</i>	EASTERN RED CEDAR	GOOD	6		723262.7	1791929.2	1	<i>Juniperus virginiana</i>
4E+06	<i>Acer negundo</i>	BOX ELDER	GOOD	6		723318.6	1791766.6	1	<i>Acer negundo</i>
4E+06	<i>Juniperus virginiana</i>	EASTERN RED CEDAR	GOOD	6		723581.2	1791510.7	1	<i>Juniperus virginiana</i>
TOTAL								661	

- *Locations are approximate and based on sub-meter accuracy GPS provided by CESO Survey, dated 02/18/2022.
- *The diameter at breast height value shown in the table above for multi-trunk tree(s) is the average diameter of the multiple tree stems.
- *This tree inventory and associated mitigation has been conducted in accordance with the City of Columbus Executive Order 2015-01 and coordination with Columbus Recreation & Parks Dept.
- * Deviations from the proposed replacement species must be approved in advance by the City of Columbus Recreation and Parks Department.
- *All replacement trees to be planted within the new 9.38 acre reforestation portion of the SCPZ at a 20-foot on center (10-foot radius per tree) distribution.
- *All plant materials shall be in accordance with the most recent ANSI Z60.1 publication.
- *Per City of Columbus requirements, all replacement trees shall be between 2 to 3 inches diameter at breast height (caliper).
- *In addition to replacement of 661 Trees within the SCPZ, additional bare root plantings are anticipated to be conducted to ensure that at the end of USACE/OEPA monitoring requirements, the SCPZ exhibits at least 400 native woody plants per acre, of which at least 200 acre tree species.

 © 2022 KIMLEY-HORN AND ASSOCIATES, INC. 7865 NORTH HIGH STREET, SUITE 200 COLUMBUS, OH 43235 PHONE: 614-472-8546 WWW.KIMLEY-HORN.COM	SCALE: DESIGNED BY: MCS DRAWN BY: MCS CHECKED BY: JMM	STREAM CORRIDOR PROTECTION ZONE PROTECTION PLANS REFORESTATION BUCKEYE YARD CITY OF COLUMBUS, FRANKLIN COUNTY, OH	STREAM CORRIDOR PROTECTION ZONE PROTECTION PLANS REFORESTATION BUCKEYE YARD CITY OF COLUMBUS, FRANKLIN COUNTY, OH	ORIGINAL ISSUE: 03/28/2022 KHA PROJECT NO. 190118000 SHEET NUMBER EC5.3	REVISIONS No. DATE BY APR DATE APR BY	No. DATE BY APR DATE APR BY	No. DATE BY APR DATE APR BY

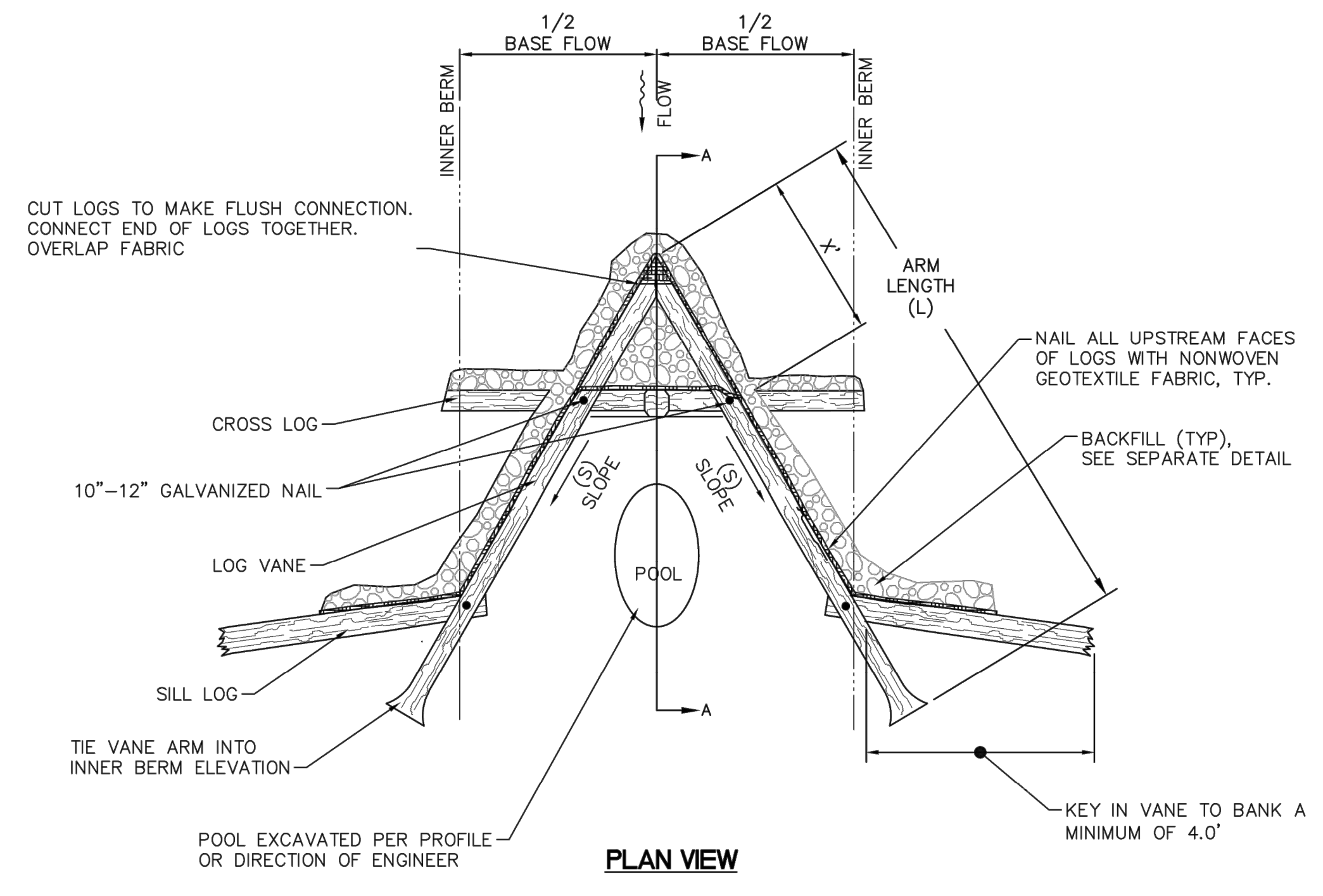
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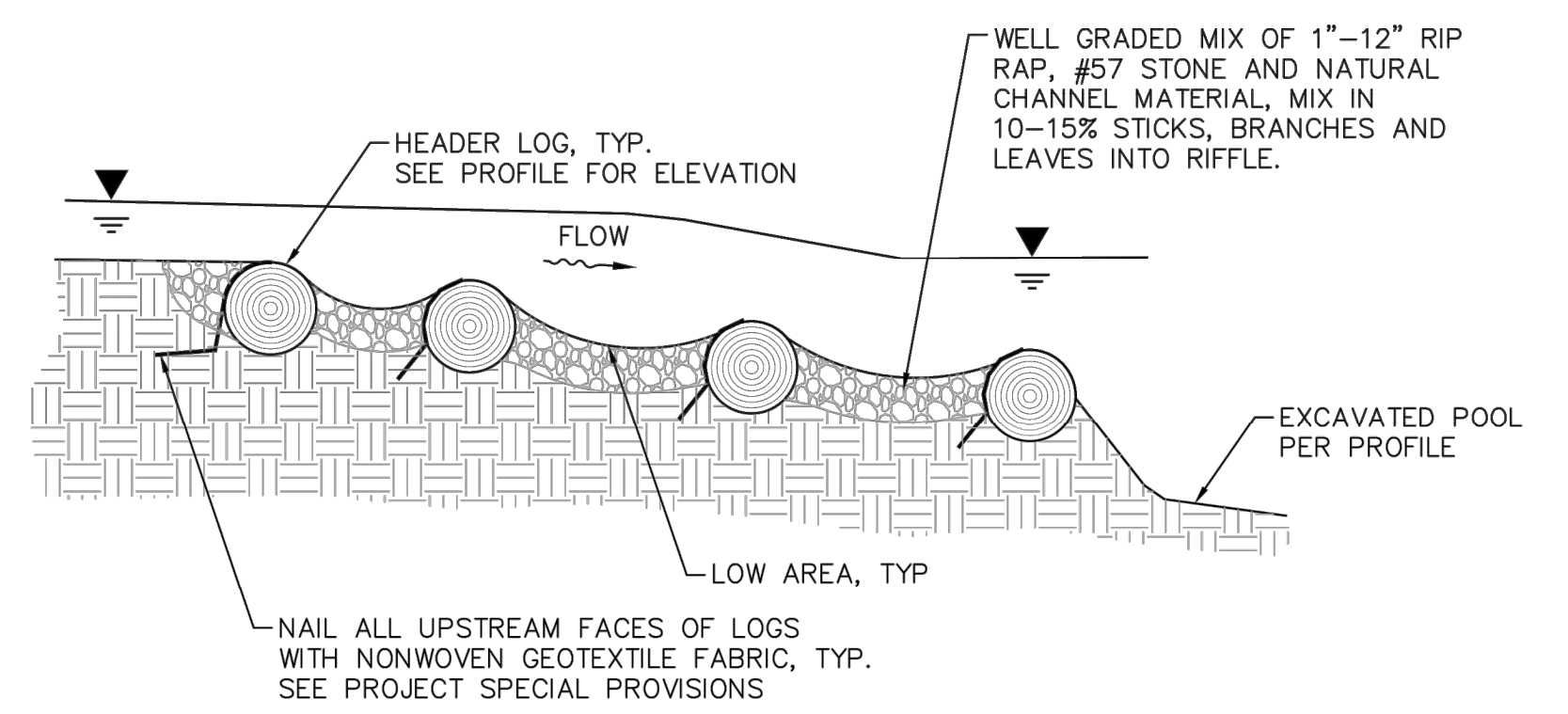
SECTION A-A

REACH	WBRR TRIE
ARM LENGTH (L)	15'
ARM TIE-IN HEIGHT	0.3'
ARM SLOPE (S)	1.0%-2.0%
STEP SPACING (X)	5'

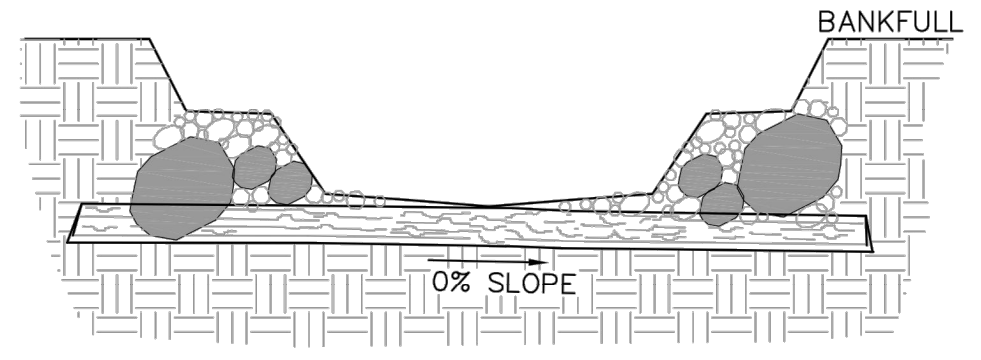
- NOTES:
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO THE BANK.
 2. BACKFILL MIX TO BE USED TO REDUCE VOIDS BETWEEN LOGS.
 3. ALL LOGS TO BE HARDWOOD SPECIES, 8"-10" DIAMETER MINIMUM.



LOG CROSS VANE
NOT TO SCALE

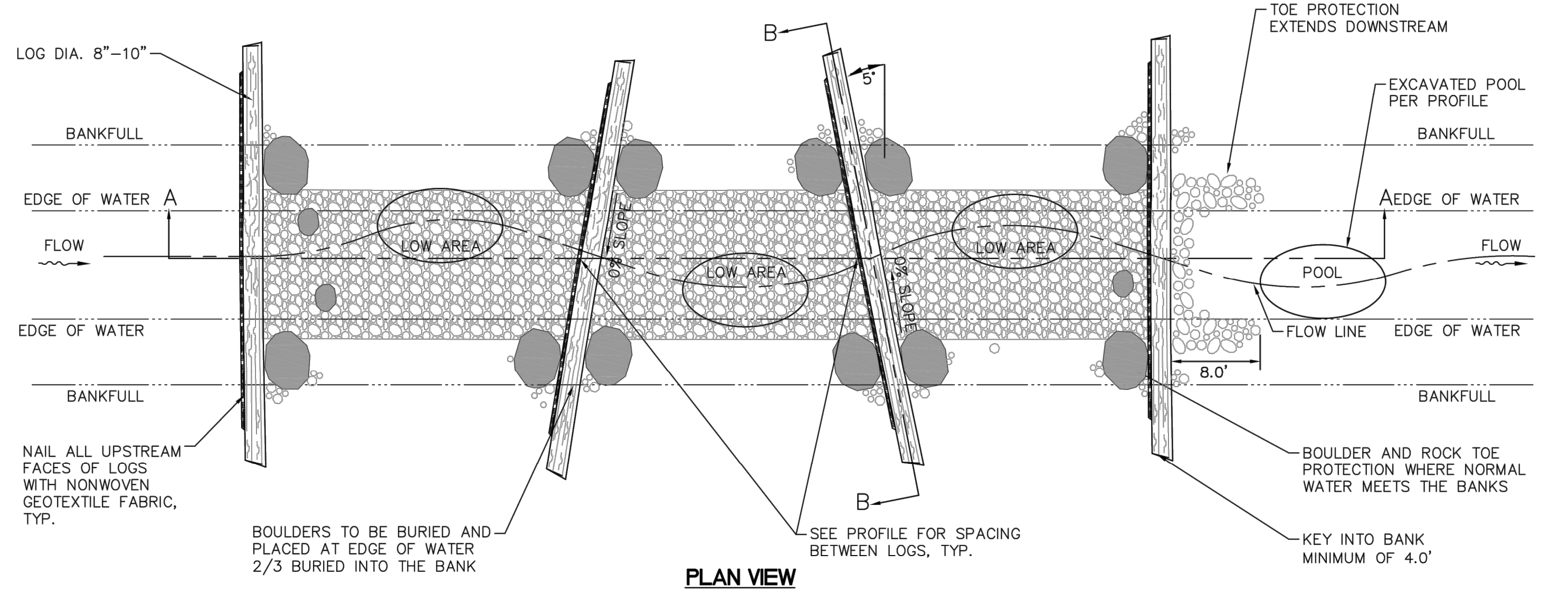


SECTION A-A



SECTION B-B

- NOTES:
1. PLACE FABRIC ON THE UPSTREAM SIDE OF THE MOST UPSTREAM LOG SILL IN THE CONSTRUCTED RIFFLE.
 2. BOULDERS SHALL BE USED TO ANCHOR LOGS IF NEEDED.
 3. LOG SILLS SHALL OVERLAP AND ANCHOR THE LOG SILL DIRECTLY UPSTREAM.
 4. THE LOG SILL SHALL ALL BE DESIGNED TO BE SUBMERGED OR COVERED AT LOW FLOWS.
 5. BOULDERS SHALL BE 18" MIN.
 6. AFTER ENGINEER HAS ACCEPTED STRUCTURE, THE NONWOVEN GEOTEXTILE FABRIC SHOULD BE TRIMMED TO MINIMIZE THE AMOUNT VISIBLE ON TOP OF LOG.



LOG AND ROCK RIFFLE
NOT TO SCALE

No.	REVISIONS	DATE	BY	APR DATE	APR BY

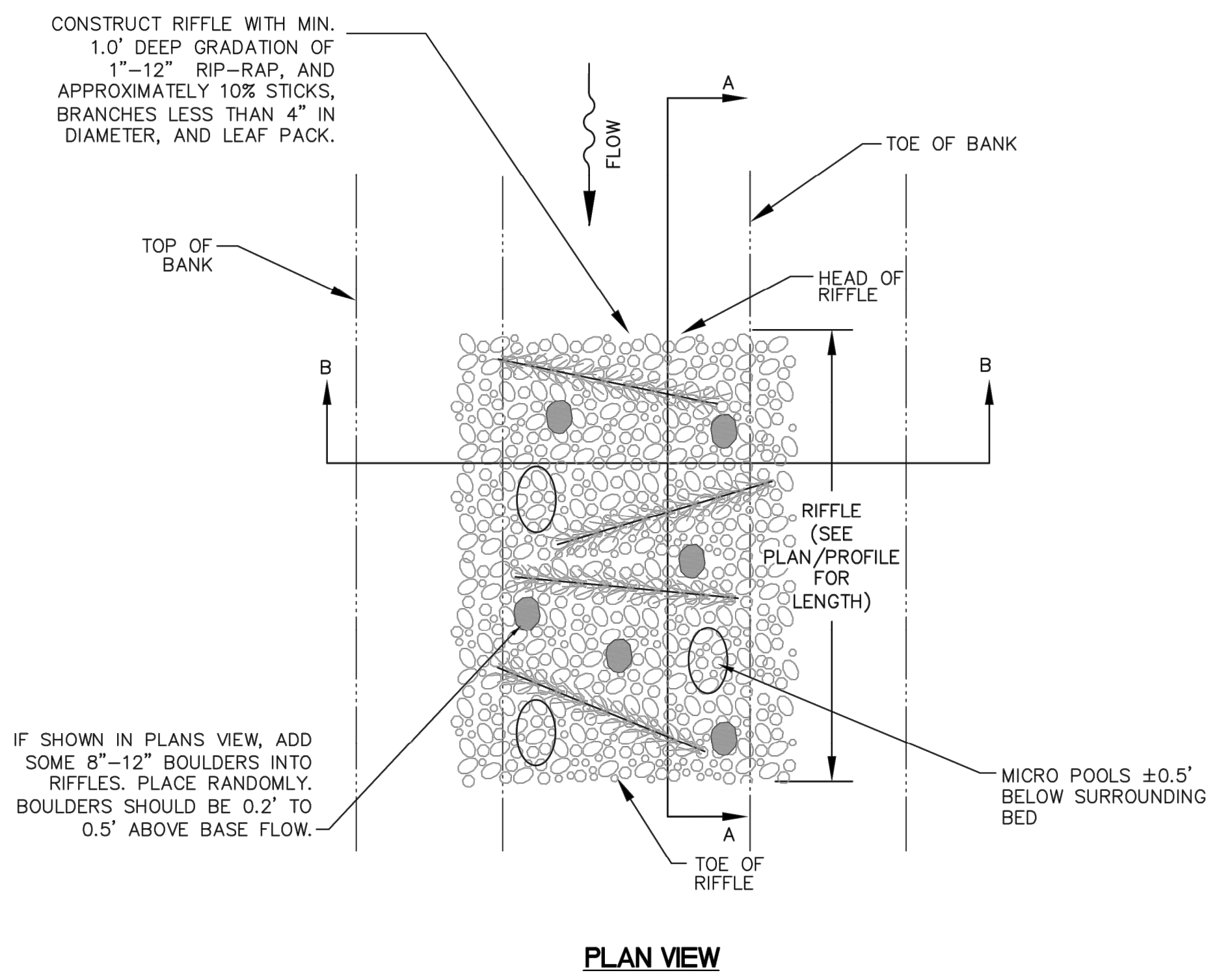
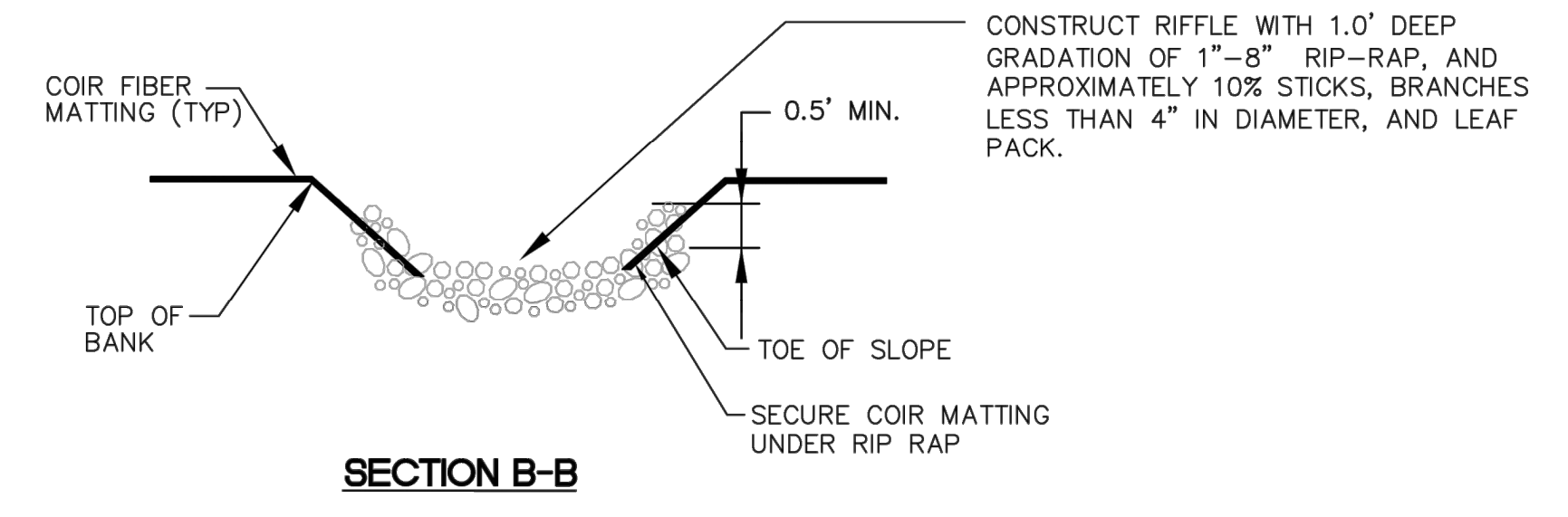
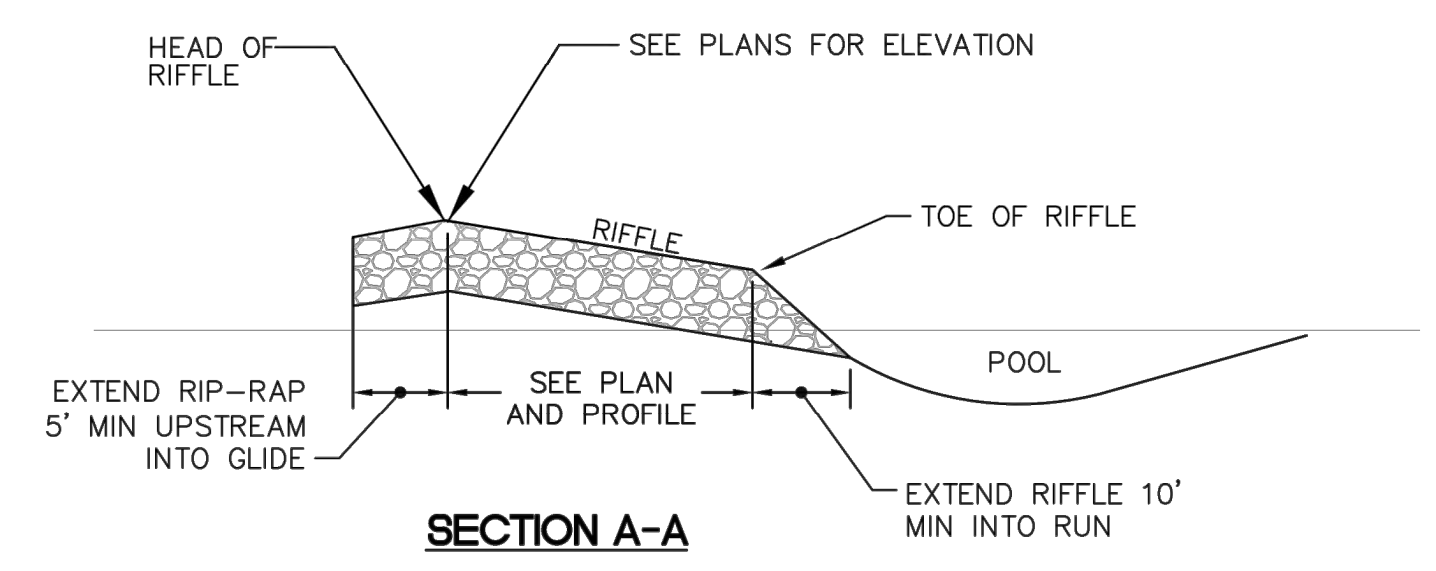
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DETAILS

STREAM CORRIDOR PROTECTION ZONE
 REFORESTATION PLANS
BUCKEYE YARD
 CITY OF COLUMBUS, FRANKLIN COUNTY, OH

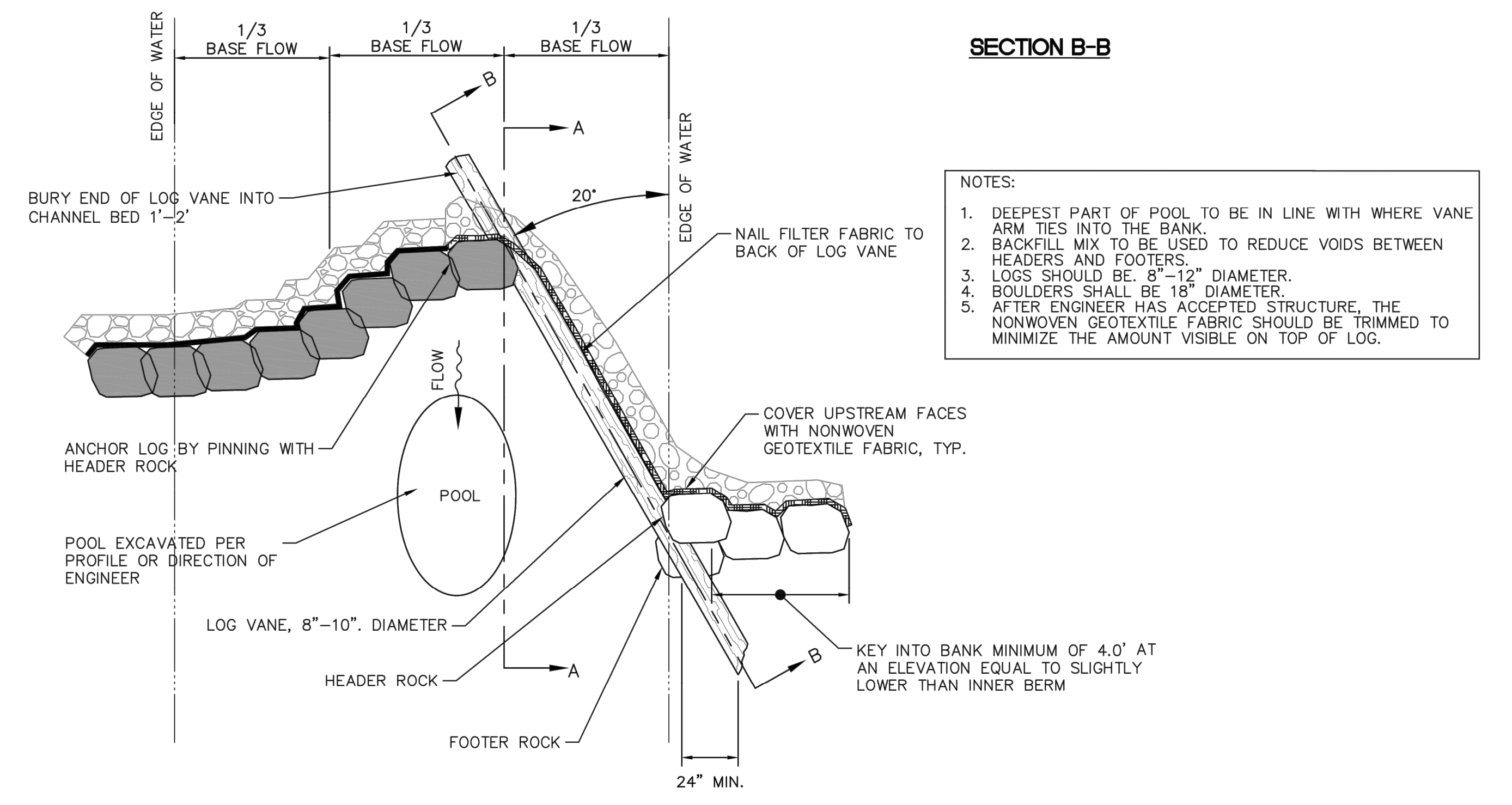
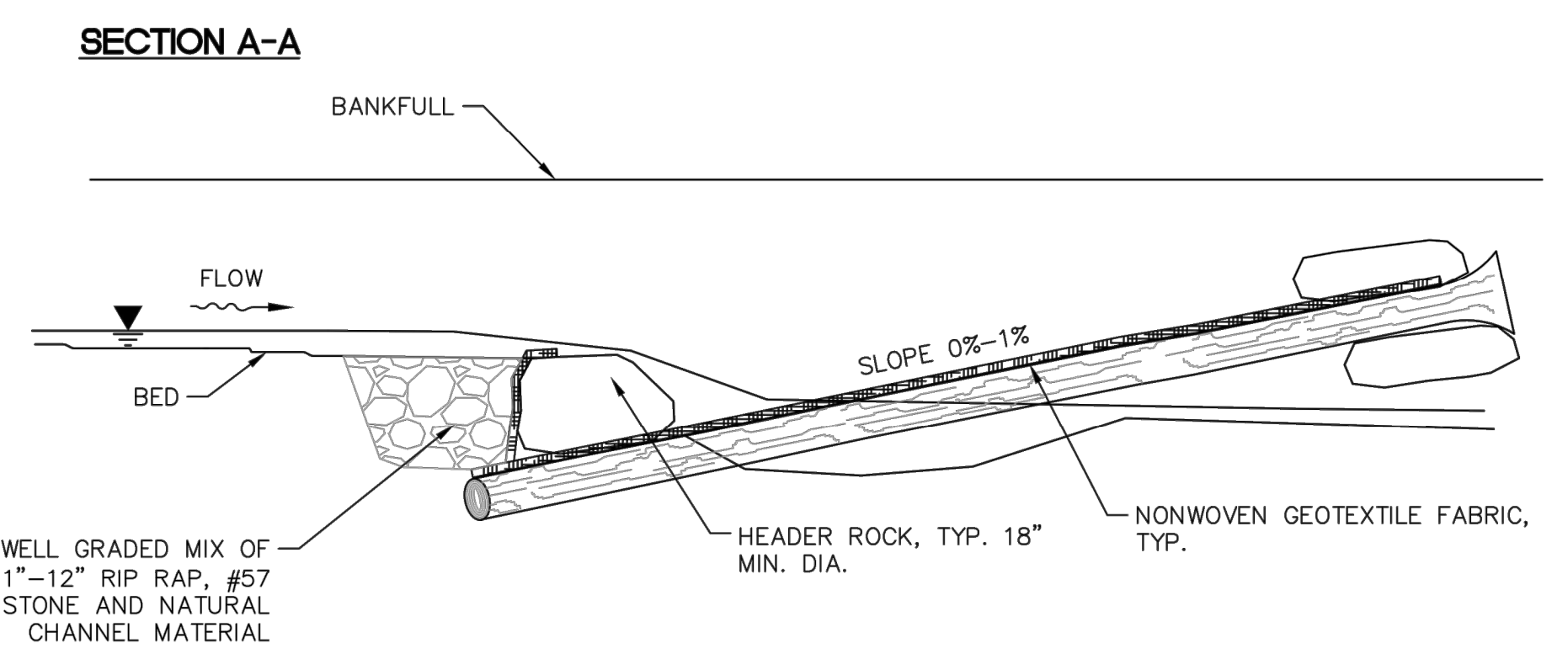
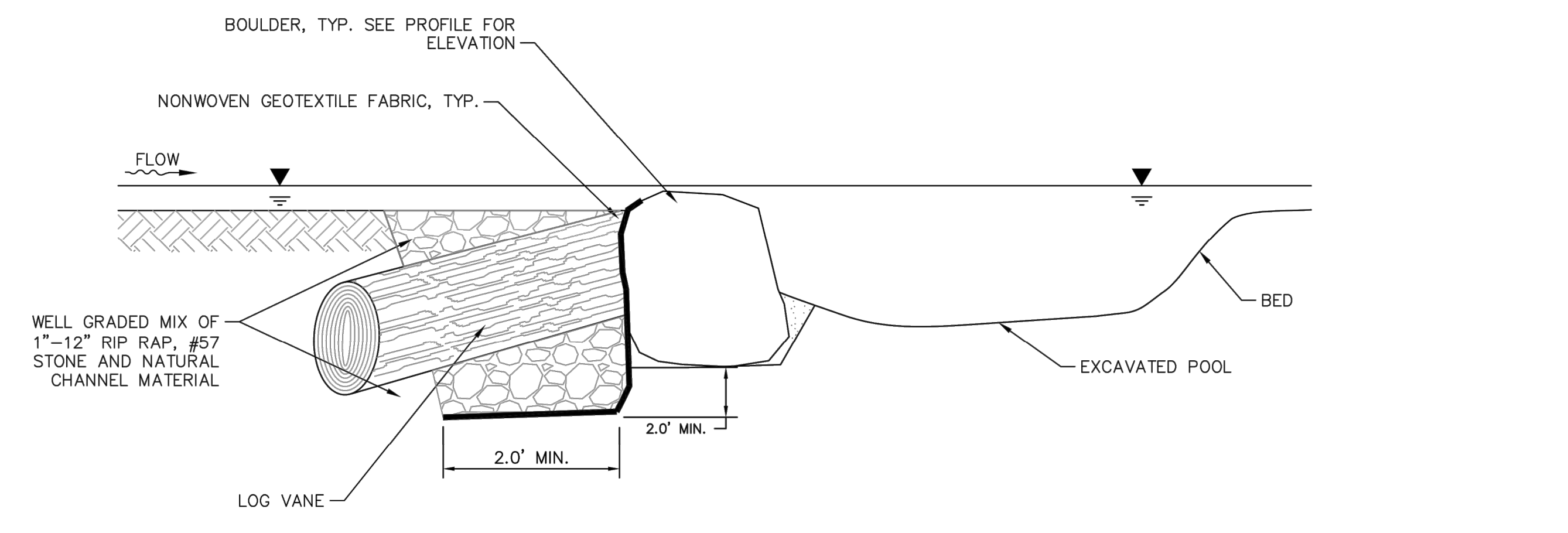
ORIGINAL ISSUE:
 03/28/2022
 KHA PROJECT NO.
 190118000
 SHEET NUMBER
EC6.0

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- NOTES:
1. MAJORITY OF BRUSH SHOULD BE AT 0.5"-2.0" IN DIAMETER AND NO LARGER THAN 6" AND EXTEND INTO THE BANK 2 FEET ON EACH SIDE. WOOD MATERIAL SHALL BE VARYING DIAMETER TO ALLOW MATERIAL TO BE COMPACTED.

CONSTRUCTED RIFFLE
NOT TO SCALE

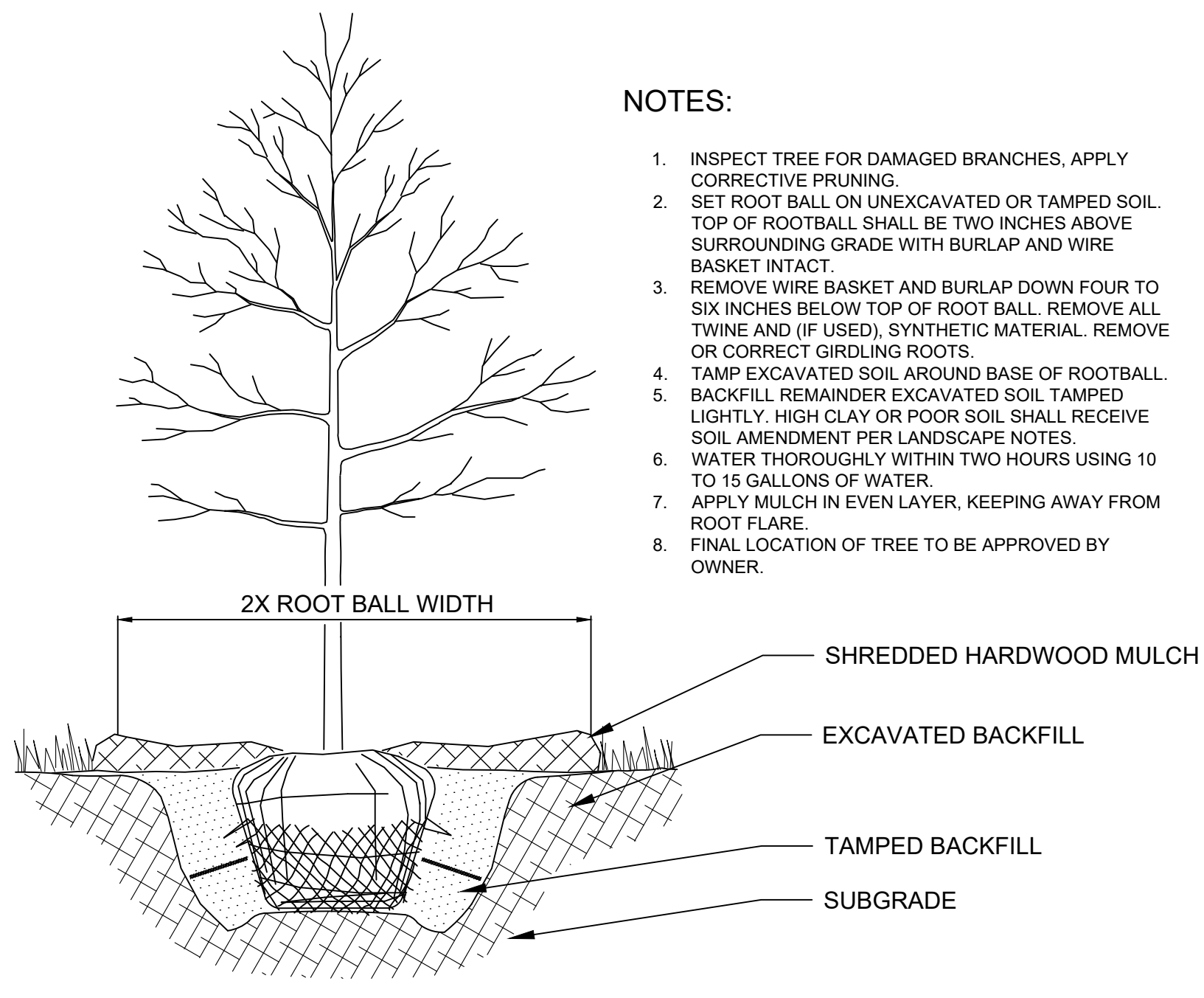


- NOTES:
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO THE BANK.
 2. BACKFILL MIX TO BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
 3. LOGS SHOULD BE 8"-12" DIAMETER.
 4. BOULDERS SHALL BE 18" DIAMETER.
 5. AFTER ENGINEER HAS ACCEPTED STRUCTURE, THE NONWOVEN GEOTEXTILE FABRIC SHOULD BE TRIMMED TO MINIMIZE THE AMOUNT VISIBLE ON TOP OF LOG.

LOG J-HOOK
NOT TO SCALE

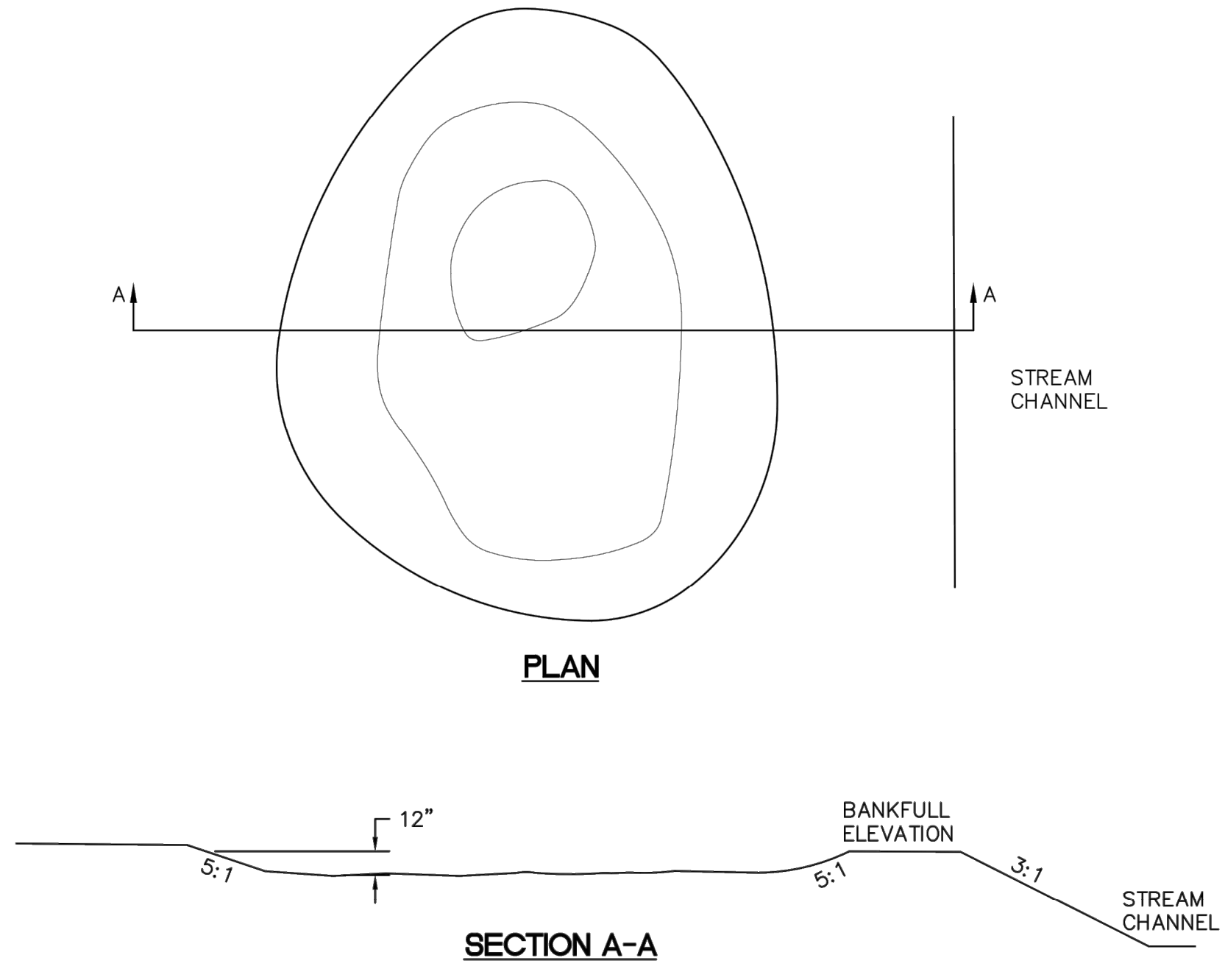
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REVISIONS					
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ORIGINAL ISSUE: 03/28/2022 KHA PROJECT NO. 190118000 SHEET NUMBER EC6.2					

Drawing name: K:\CIB\JDE\190118000_4dec_Buckeye_Yard_Columbus_OH_2_Design\CAD\PlanSheets\9_StreamRestoration\DETAILS.dwg Layout (5) Mar 29, 2022 12:29pm by: Matt Shiffert
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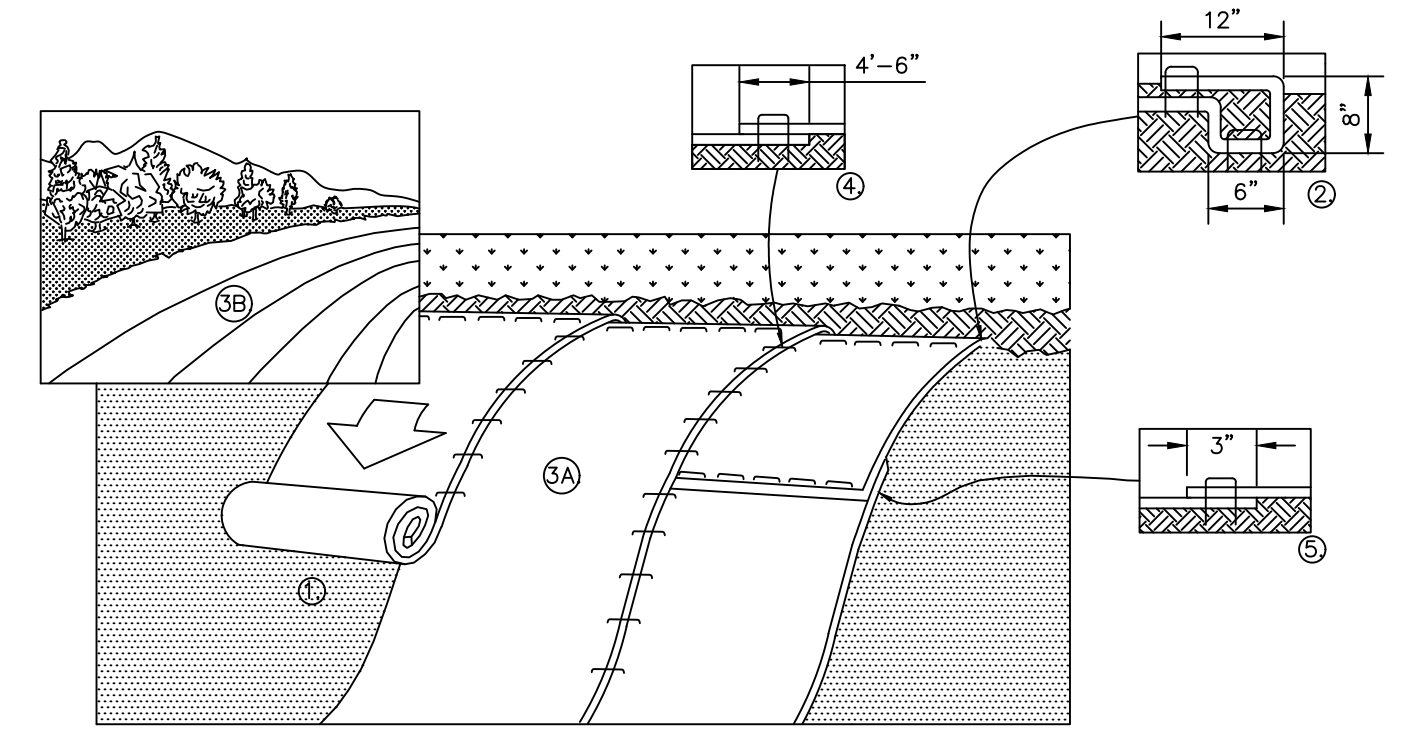


- NOTES:**
1. INSPECT TREE FOR DAMAGED BRANCHES, APPLY CORRECTIVE PRUNING.
 2. SET ROOT BALL ON UNEXCAVATED OR TAMPED SOIL. TOP OF ROOTBALL SHALL BE TWO INCHES ABOVE SURROUNDING GRADE WITH BURLAP AND WIRE BASKET INTACT.
 3. REMOVE WIRE BASKET AND BURLAP DOWN FOUR TO SIX INCHES BELOW TOP OF ROOT BALL. REMOVE ALL TWINE AND (IF USED), SYNTHETIC MATERIAL. REMOVE OR CORRECT GIRDLING ROOTS.
 4. TAMP EXCAVATED SOIL AROUND BASE OF ROOTBALL. BACKFILL REMAINDER EXCAVATED SOIL TAMPED LIGHTLY. HIGH CLAY OR POOR SOIL SHALL RECEIVE SOIL AMENDMENT PER LANDSCAPE NOTES.
 5. WATER THOROUGHLY WITHIN TWO HOURS USING 10 TO 15 GALLONS OF WATER.
 6. APPLY MULCH IN EVEN LAYER, KEEPING AWAY FROM ROOT FLARE.
 7. FINAL LOCATION OF TREE TO BE APPROVED BY OWNER.

TREE PLANTING DETAIL
NOT TO SCALE



VERNAL POOL DETAIL
NOT TO SCALE

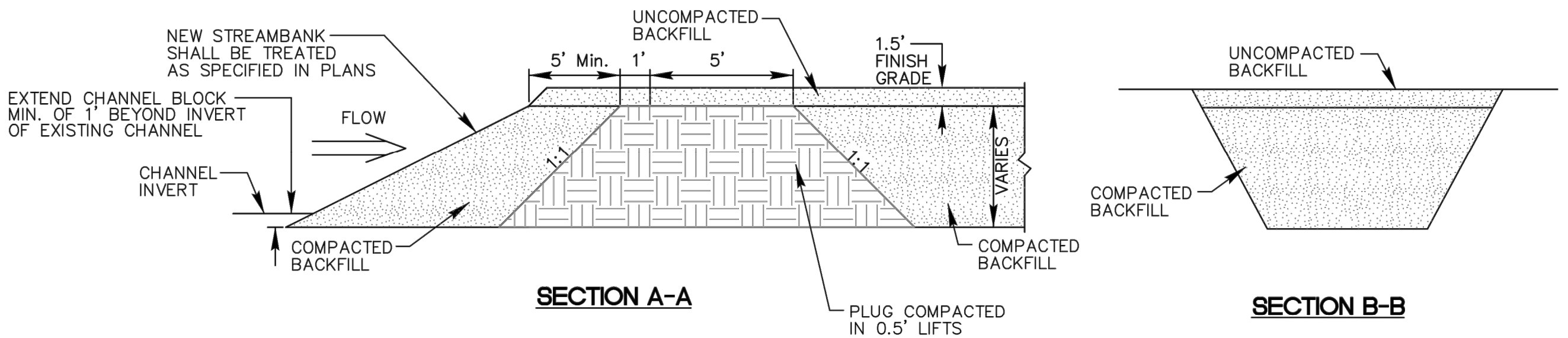


1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH AS SHOWN IN DETAIL 2. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS PER MANUFACTURER'S RECOMMENDATION.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH MINIMUM 6" OVERLAP. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.
6. PLACE STAPLES/STAKES PER MANUFACTURER'S RECOMMENDATION FOR THE APPROPRIATE SLOPE BEING APPLIED.

- NOTES:**
1. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
 2. FOLLOW EROSION CONTROL TECHNOLOGY COUNCIL SPECIFICATION FOR PRODUCT SELECTION.
 3. PERVIOUS LAND WITH SLOPES RUNNING GREATER THAN OR EQUAL TO 4:1 SHALL CONTAIN SLOPE STABILIZATION BLANKET.
 4. ALL BLANKETS SHALL BE INSPECTED REGULARLY AFTER INSTALLATION, ESPECIALLY AFTER STORMS TO CHECK FOR EROSION OR UNDERMINING OF THE PRODUCT. MAKE NEEDED REPAIRS IMMEDIATELY, ADDRESSING RILLS OR GULLIES THAT HAVE DEVELOPED PRIOR TO REPLACING THE R.E.C.P.. IN THE CASE EROSION REPAIRS, ASSURE THAT SUBSEQUENT RUNOFF ACROSS THE AREA IS DISPERSED OR ADEQUATELY SPREAD.
 5. ALL BLANKETS SHALL MEET THE SPECIFICATIONS BELOW:

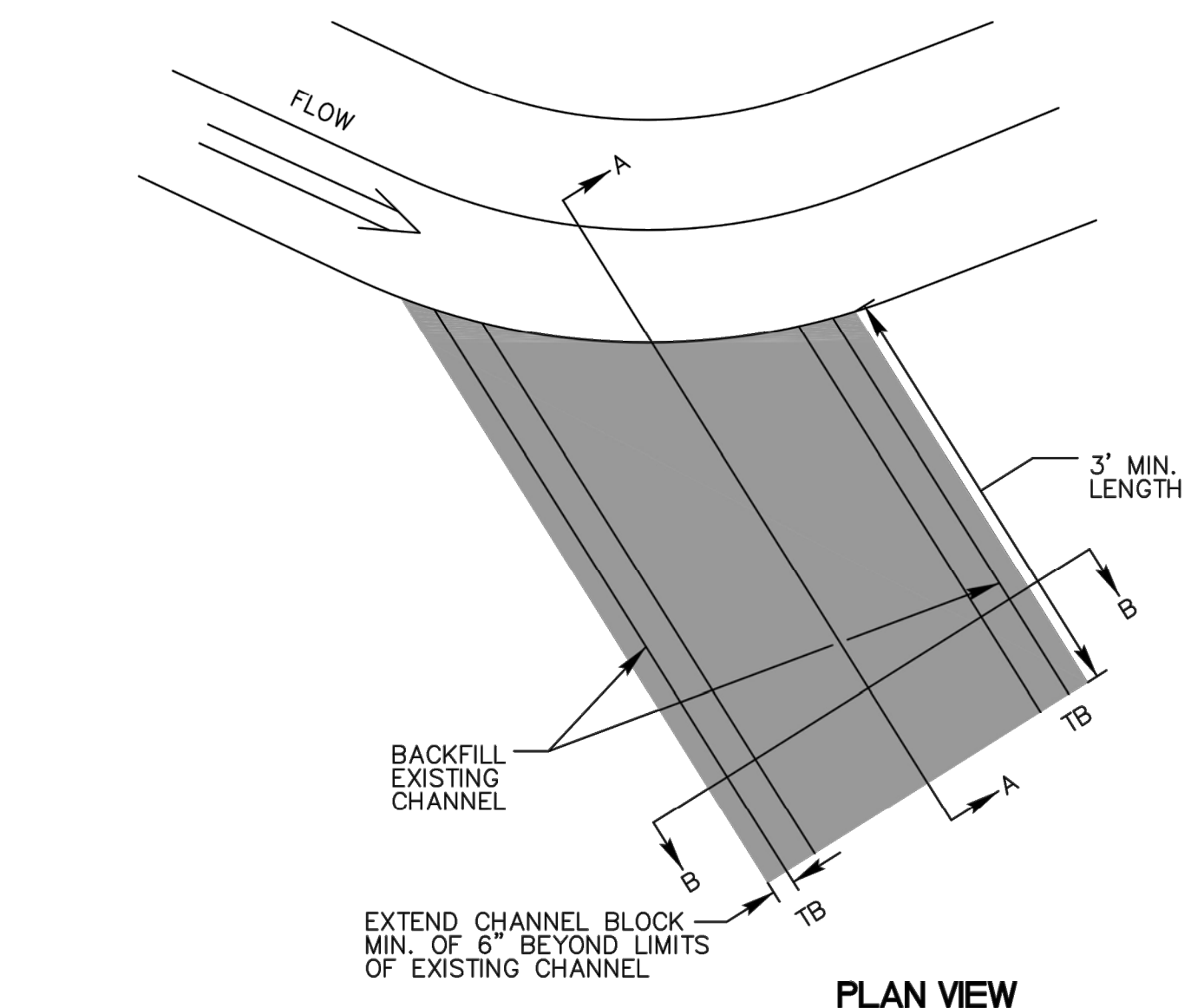
MATERIAL	MAXIMUM LENGTH OF PROTECTION
STRAW	10-12 MONTHS
STRAW/COCONUT	24 MONTHS
COCONUT	36 MONTHS
EXCELSIOR	36 MONTHS

EROSION CONTROL BLANKET
NOT TO SCALE



SECTION A-A

SECTION B-B



PLAN VIEW

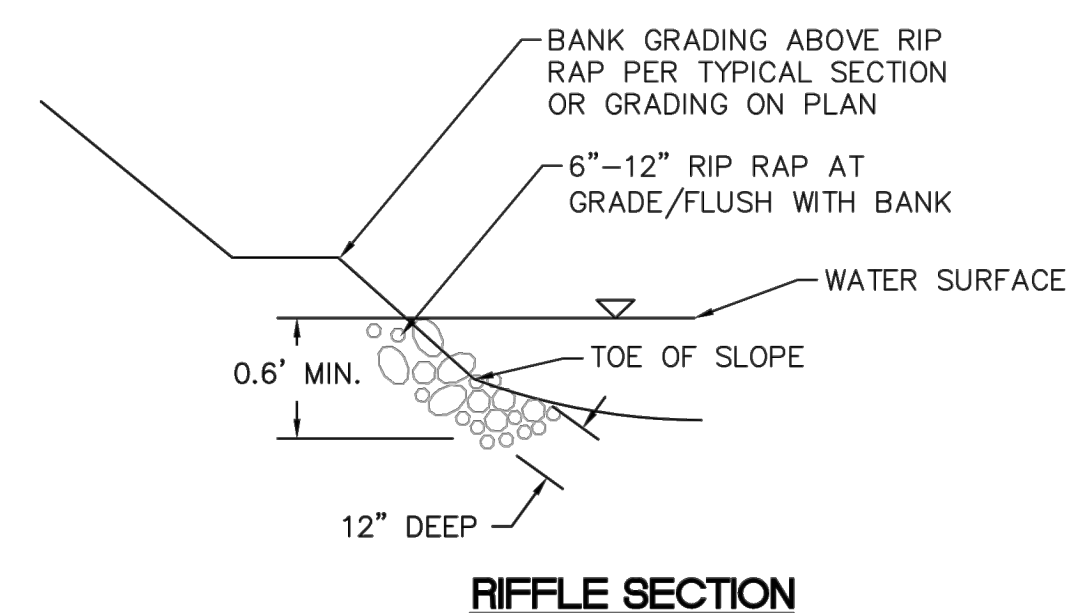
CHANNEL BLOCK
NOT TO SCALE

- NOTES:**
1. BOTTOM OF BLOCK SHOULD BE A MINIMUM OF 1' BELOW THE INVERT OF THE EXISTING CHANNEL.
 2. COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.

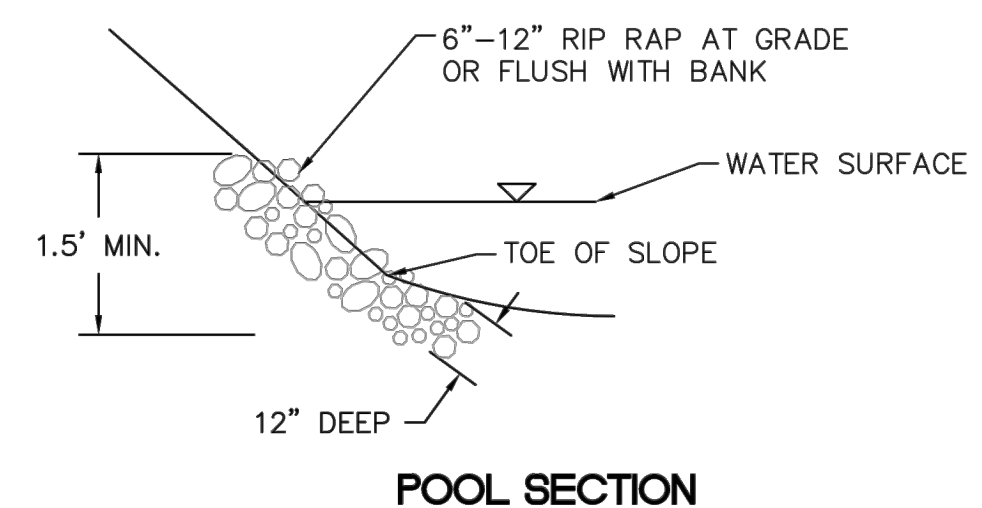
STABILIZATION TYPE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
PERMANENT SEEDING			A			*	*	*				
DORMANT SEEDING	B										B	
TEMPORARY SEEDING			C			D						
SODDING			E									
MULCHING	F											

- A KENTUCKY BLUEGRASS 90 LBS/ACRE MIXED WITH PERENNIAL RYEGRASS 30 LBS/ACRE
 B KENTUCKY BLUEGRASS 135 LBS/ACRE MIXED WITH PERENNIAL RYEGRASS 45 LBS/ACRE + 2 TONS STRAW MULCH/ACRE
 C SPRING OATS 100 LBS/ACRE
 D WHEAT OR CEREAL RYE 150 LBS/ACRE
 E SOD
 F STRAW MULCH 2 TONS/ACRE
 * WATERING NEEDED DURING JUNE AND JULY
 ** WATERING NEEDED FOR 2 TO 3 WEEKS AFTER APPLYING SOD

SEEDING CHART
NOT TO SCALE



RIFFILE SECTION



POOL SECTION

ROCK TOE PROTECTION
NOT TO SCALE

NO.	DATE	BY	APR. DATE	APR. BY

Kimley-Horn
 © 2022 KIMLEY-HORN AND ASSOCIATES, INC.
 7865 NORTH HIGHWAY STREET, SUITE 200
 COLUMBUS, OH 43235
 PHONE: 614-472-8646
 WWW.KIMLEY-HORN.COM

SCALE:
 DESIGNED BY: MCS
 DRAWN BY: MCS
 CHECKED BY: JMM

DETAILS

STREAM CORRIDOR PROTECTION ZONE
 RESTORATION PLANS
BUCKEYE YARD
 CITY OF COLUMBUS, FRANKLIN COUNTY, OH

ORIGINAL ISSUE:
 03/28/2022
 KHA PROJECT NO.
 190118000

SHEET NUMBER
EC6.3

Appendix G: USGS Stream Stats Data

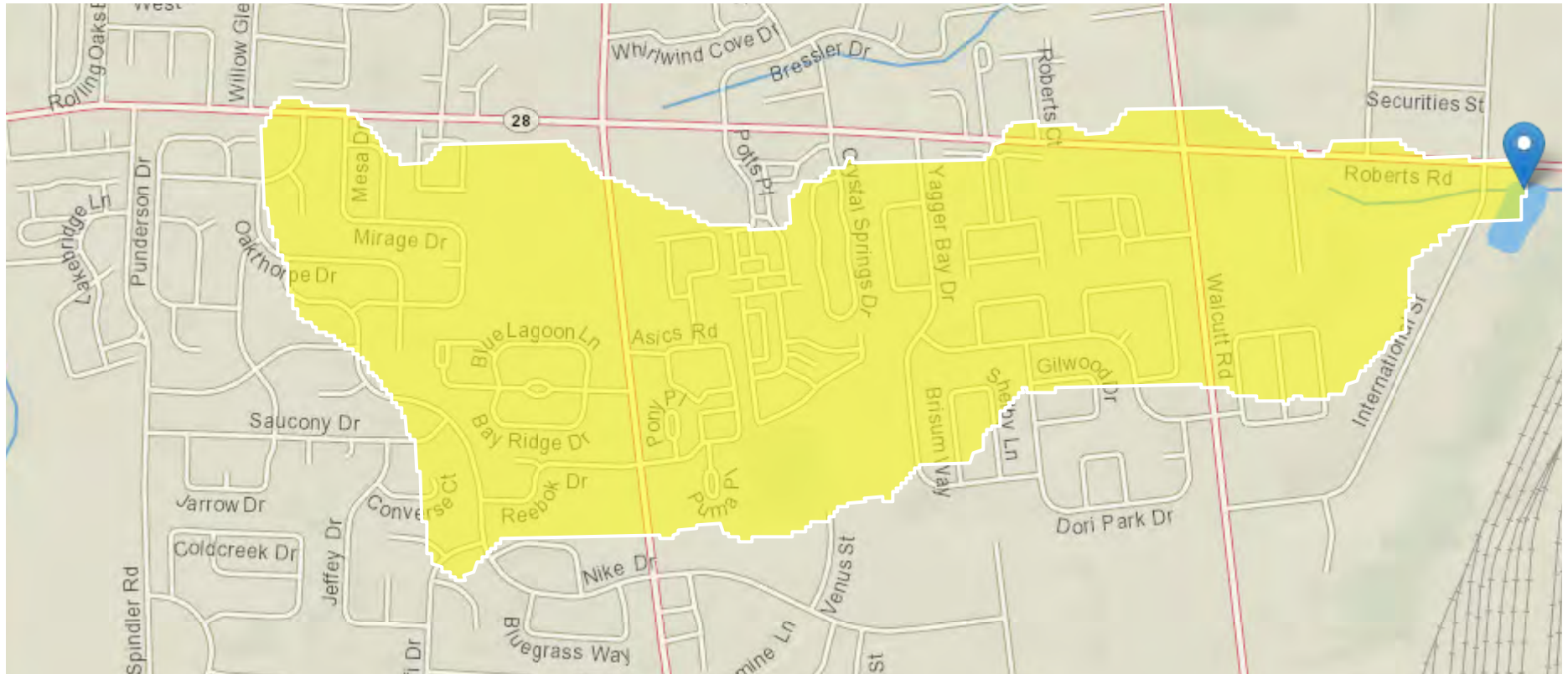
StreamStats Report

Region ID: OH

Workspace ID: OH20220207194235446000

Clicked Point (Latitude, Longitude): 40.00244, -83.13024

Time: 2022-02-07 14:42:55 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.64	square miles
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	1.01	percent
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.66	dimensionless
LAT_CENT	Latitude of Basin Centroid	40.0001	decimal degrees

General Flow Statistics Parameters [Low Flow LatLE 41.2 wri02 4068]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.64	square miles	0.12	7422
LC92STOR	Percent Storage from NLCD1992	1.01	percent	0	19
STREAM_VARG	Streamflow Variability Index from Grid	0.66	dimensionless	0.25	1.13
LAT_CENT	Latitude of Basin Centroid	40.0001	decimal degrees	38.68	41.2

General Flow Statistics Flow Report [Low Flow LatLE 41.2 wri02 4068]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
Harmonic Mean Streamflow	0.0519	ft ³ /s	65.9	65.9

General Flow Statistics Citations

Koltun, G. F., and Whitehead, M. T., 2002, Techniques for Estimating Selected Streamflow Characteristics of Rural, Unregulated Streams in Ohio: U. S. Geological Survey Water-Resources Investigations Report 02-4068, 50 p

(<https://pubs.er.usgs.gov/publication/wri024068>)

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Application Version: 4.6.2

StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.2

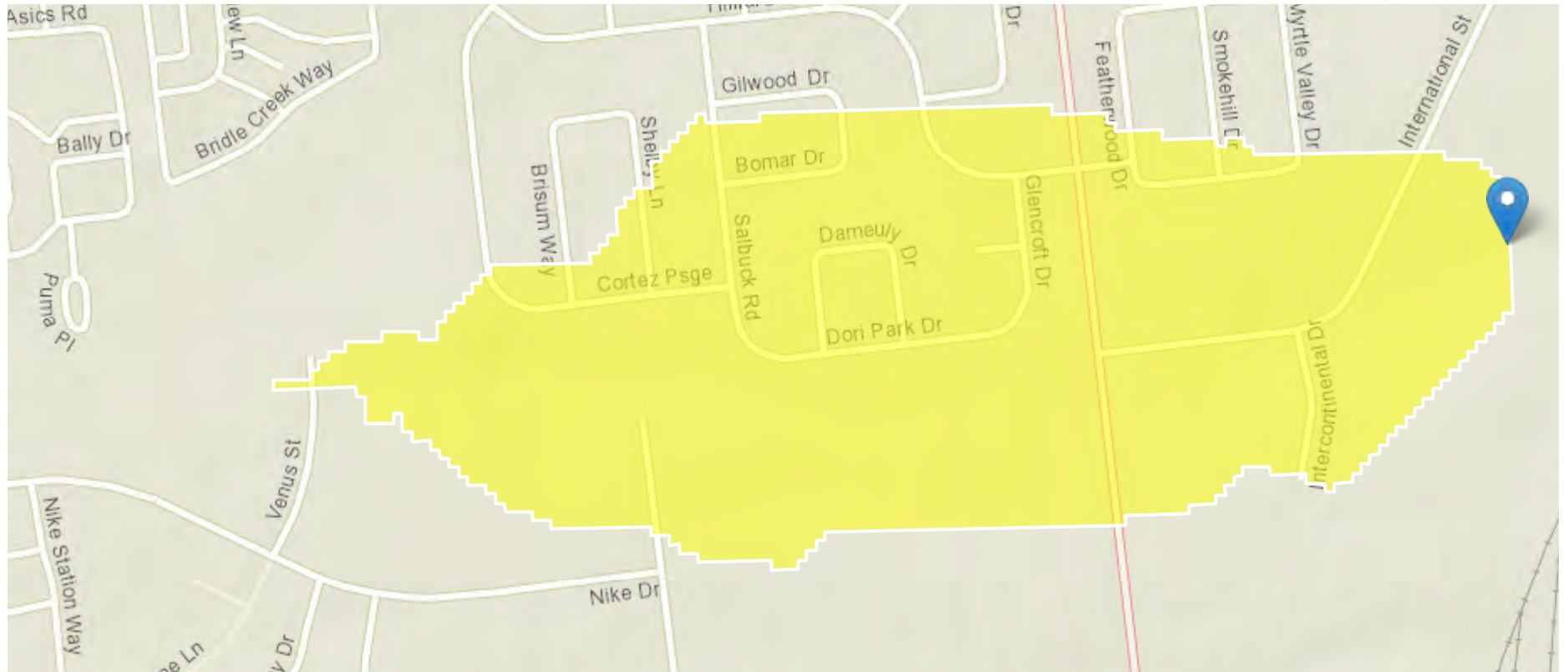
Stream 10 - StreamStats Report

Region ID: OH

Workspace ID: OH20220207194655215000

Clicked Point (Latitude, Longitude): 39.99724, -83.13273

Time: 2022-02-07 14:47:14 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.18	square miles
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	2.95	percent
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.66	dimensionless
LAT_CENT	Latitude of Basin Centroid	39.9964	decimal degrees

General Flow Statistics Parameters [Low Flow LatLE 41.2 wri02 4068]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.18	square miles	0.12	7422
LC92STOR	Percent Storage from NLCD1992	2.95	percent	0	19
STREAM_VARG	Streamflow Variability Index from Grid	0.66	dimensionless	0.25	1.13
LAT_CENT	Latitude of Basin Centroid	39.9964	decimal degrees	38.68	41.2

General Flow Statistics Flow Report [Low Flow LatLE 41.2 wri02 4068]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
Harmonic Mean Streamflow	0.0196	ft ³ /s	65.9	65.9

General Flow Statistics Citations

Koltun, G. F., and Whitehead, M. T., 2002, Techniques for Estimating Selected Streamflow Characteristics of Rural, Unregulated Streams in Ohio: U. S. Geological Survey Water-Resources Investigations Report 02-4068, 50 p

(<https://pubs.er.usgs.gov/publication/wri024068>)

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Application Version: 4.6.2

StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.2

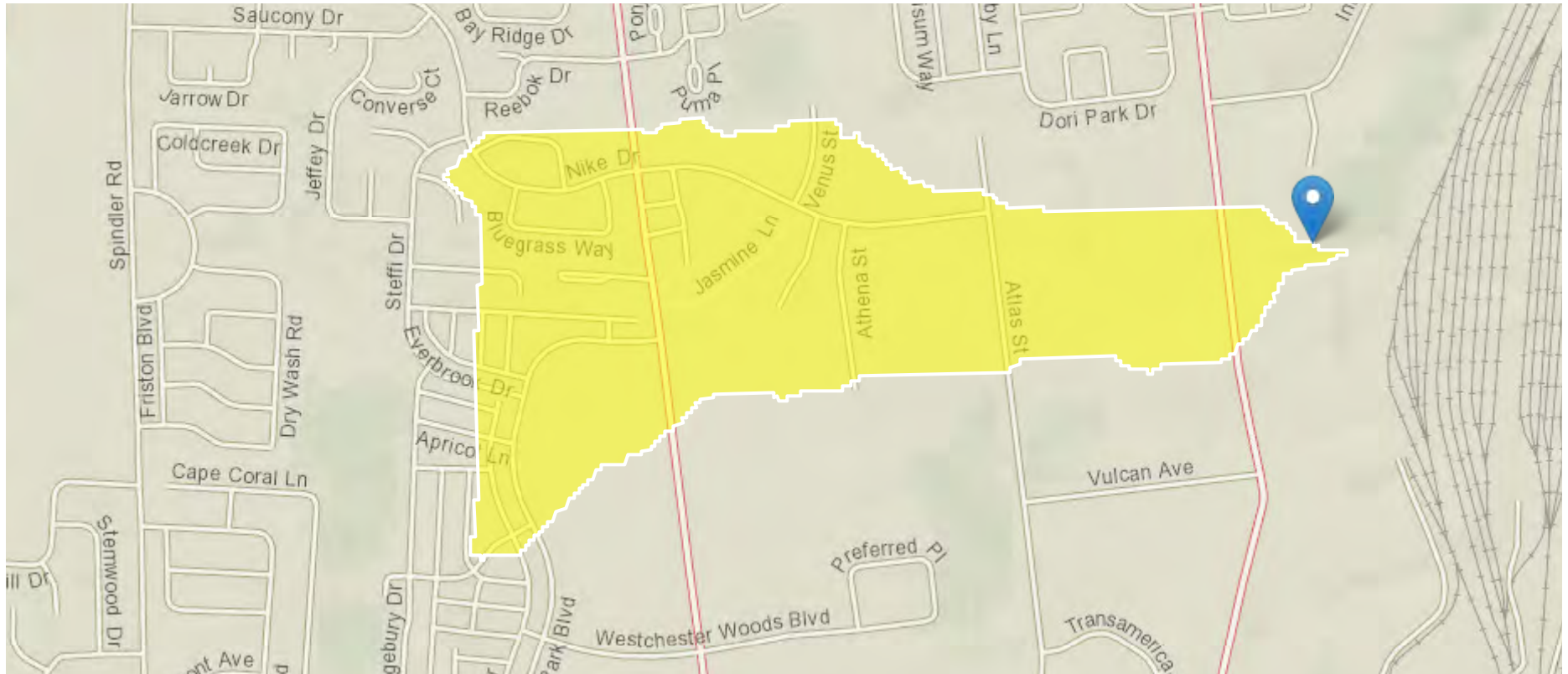
Stream 11 - StreamStats Report

Region ID: OH

Workspace ID: OH20220207195037975000

Clicked Point (Latitude, Longitude): 39.99343, -83.13523

Time: 2022-02-07 14:50:57 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.36	square miles
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	0	percent
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.66	dimensionless
LAT_CENT	Latitude of Basin Centroid	39.9925	decimal degrees

General Flow Statistics Parameters [Low Flow LatLE 41.2 wri02 4068]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.36	square miles	0.12	7422
LC92STOR	Percent Storage from NLCD1992	0	percent	0	19
STREAM_VARG	Streamflow Variability Index from Grid	0.66	dimensionless	0.25	1.13
LAT_CENT	Latitude of Basin Centroid	39.9925	decimal degrees	38.68	41.2

General Flow Statistics Flow Report [Low Flow LatLE 41.2 wri02 4068]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
Harmonic Mean Streamflow	0.0208	ft ³ /s	65.9	65.9

General Flow Statistics Citations

Koltun, G. F., and Whitehead, M. T., 2002, Techniques for Estimating Selected Streamflow Characteristics of Rural, Unregulated Streams in Ohio: U. S. Geological Survey Water-Resources Investigations Report 02-4068, 50 p

(<https://pubs.er.usgs.gov/publication/wri024068>)

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Application Version: 4.6.2

StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.2

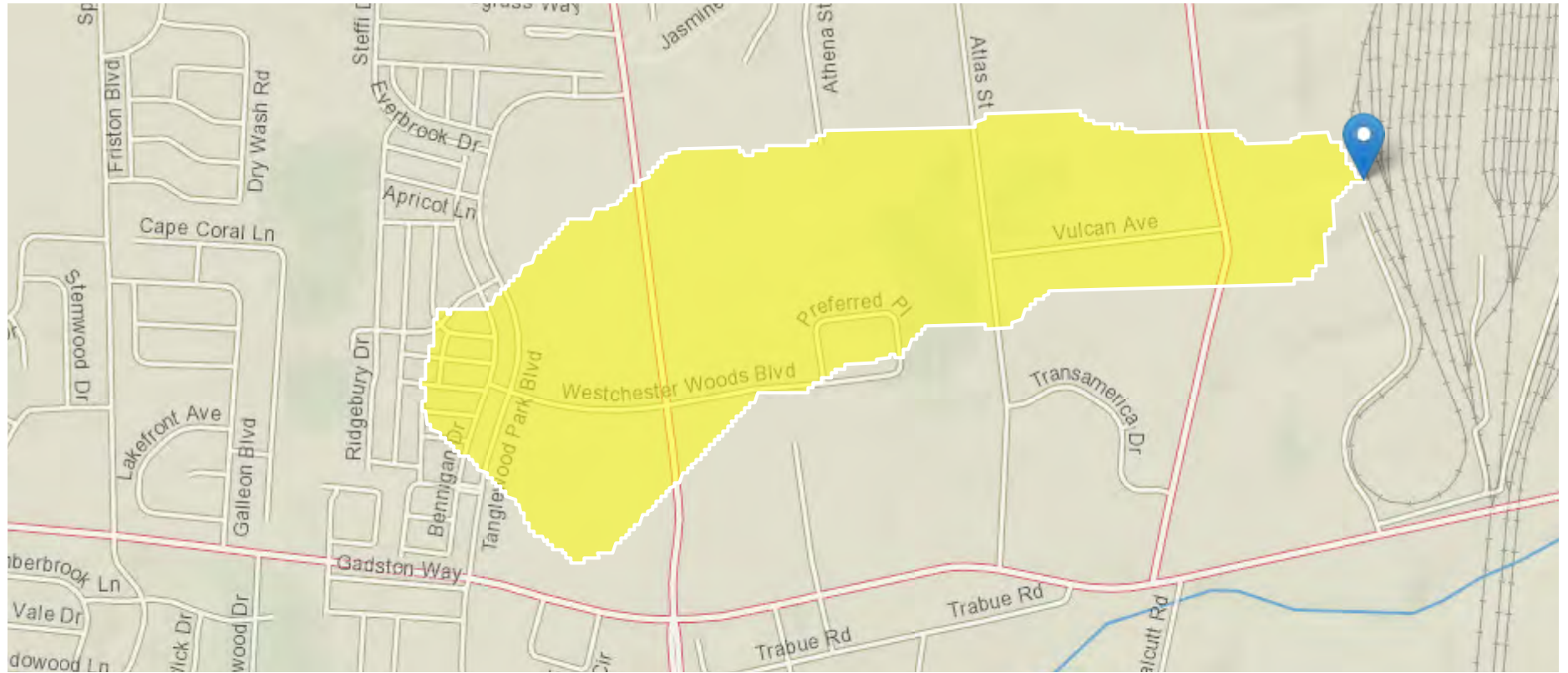
Stream 12 - StreamStats Report

Region ID: OH

Workspace ID: OH20220207195517589000

Clicked Point (Latitude, Longitude): 39.98984, -83.13300

Time: 2022-02-07 14:55:37 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.37	square miles
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	0.37	percent
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.66	dimensionless
LAT_CENT	Latitude of Basin Centroid	39.9878	decimal degrees

General Flow Statistics Parameters [Low Flow LatLE 41.2 wri02 4068]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.37	square miles	0.12	7422
LC92STOR	Percent Storage from NLCD1992	0.37	percent	0	19
STREAM_VARG	Streamflow Variability Index from Grid	0.66	dimensionless	0.25	1.13
LAT_CENT	Latitude of Basin Centroid	39.9878	decimal degrees	38.68	41.2

General Flow Statistics Flow Report [Low Flow LatLE 41.2 wri02 4068]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
Harmonic Mean Streamflow	0.0249	ft ³ /s	65.9	65.9

General Flow Statistics Citations

Koltun, G. F., and Whitehead, M. T., 2002, Techniques for Estimating Selected Streamflow Characteristics of Rural, Unregulated Streams in Ohio: U. S. Geological Survey Water-Resources Investigations Report 02-4068, 50 p

(<https://pubs.er.usgs.gov/publication/wri024068>)

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Application Version: 4.6.2

StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.2

Appendix H: Stream Habitat Assessment Datasheets (HHEI and QHEI) and Photolog



Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

60

SITE NAME/LOCATION Buckeye Yard Redevelopment, Franklin County, Ohio 43228
 SITE NUMBER Stream 9 RIVER BASIN Upper Scioto RIVER CODE 05060001 DRAINAGE AREA (m²) 0.64
 LENGTH OF STREAM REACH (ft) 200 LAT 40.002435 LONG -83.128997 RIVER MILE 0.00
 DATE 08/30/2021 SCORER J. Williams COMMENTS Modified/created channel to outlet adjacent storm water pond

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B		HHEI Metric Points Substrate Max = 40 10 A + B																																															
<table border="0"> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>BLDR SLABS [16 pts]</td><td>_____</td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td>SILT [3 pt]</td><td>30</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>BOULDER (>256 mm) [16 pts]</td><td>_____</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>LEAF PACK/WOODY DEBRIS [3 pts]</td><td>20</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>BEDROCK [16 pts]</td><td>_____</td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td>FINE DETRITUS [3 pts]</td><td>30</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>COBBLE (65-256 mm) [12 pts]</td><td>_____</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>CLAY or HARDPAN [0 pt]</td><td>20</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>GRAVEL (2-64 mm) [9 pts]</td><td>_____</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>MUCK [0 pts]</td><td>_____</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>SAND (<2 mm) [6 pts]</td><td>_____</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>ARTIFICIAL [3 pts]</td><td>_____</td></tr> </table>	<input type="checkbox"/>		<input type="checkbox"/>	BLDR SLABS [16 pts]	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SILT [3 pt]	30	<input type="checkbox"/>	<input type="checkbox"/>	BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	LEAF PACK/WOODY DEBRIS [3 pts]	20	<input type="checkbox"/>	<input type="checkbox"/>	BEDROCK [16 pts]	_____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	FINE DETRITUS [3 pts]	30	<input type="checkbox"/>	<input type="checkbox"/>	COBBLE (65-256 mm) [12 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	CLAY or HARDPAN [0 pt]	20	<input type="checkbox"/>	<input type="checkbox"/>	GRAVEL (2-64 mm) [9 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	MUCK [0 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	ARTIFICIAL [3 pts]	_____
<input type="checkbox"/>	<input type="checkbox"/>	BLDR SLABS [16 pts]	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SILT [3 pt]	30																																										
<input type="checkbox"/>	<input type="checkbox"/>	BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	LEAF PACK/WOODY DEBRIS [3 pts]	20																																										
<input type="checkbox"/>	<input type="checkbox"/>	BEDROCK [16 pts]	_____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	FINE DETRITUS [3 pts]	30																																										
<input type="checkbox"/>	<input type="checkbox"/>	COBBLE (65-256 mm) [12 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	CLAY or HARDPAN [0 pt]	20																																										
<input type="checkbox"/>	<input type="checkbox"/>	GRAVEL (2-64 mm) [9 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	MUCK [0 pts]	_____																																										
<input type="checkbox"/>	<input type="checkbox"/>	SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	ARTIFICIAL [3 pts]	_____																																										
2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):		Pool Depth Max = 30 30																																															
<table border="0"> <tr><td><input type="checkbox"/></td><td>> 30 centimeters [20 pts]</td><td><input type="checkbox"/></td><td>5 cm - 10 cm [15 pts]</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>> 22.5 - 30 cm [30 pts]</td><td><input type="checkbox"/></td><td>< 5 cm [5pts]</td></tr> <tr><td><input type="checkbox"/></td><td>> 10 - 22.5 cm [25 pts]</td><td><input type="checkbox"/></td><td>NO WATER OR MOIST CHANNEL [0pts]</td></tr> </table> COMMENTS <u>None</u> MAXIMUM POOL DEPTH (centimeters): <u>28</u>			<input type="checkbox"/>	> 30 centimeters [20 pts]	<input type="checkbox"/>	5 cm - 10 cm [15 pts]	<input checked="" type="checkbox"/>	> 22.5 - 30 cm [30 pts]	<input type="checkbox"/>	< 5 cm [5pts]	<input type="checkbox"/>	> 10 - 22.5 cm [25 pts]	<input type="checkbox"/>	NO WATER OR MOIST CHANNEL [0pts]																																			
<input type="checkbox"/>	> 30 centimeters [20 pts]	<input type="checkbox"/>	5 cm - 10 cm [15 pts]																																														
<input checked="" type="checkbox"/>	> 22.5 - 30 cm [30 pts]	<input type="checkbox"/>	< 5 cm [5pts]																																														
<input type="checkbox"/>	> 10 - 22.5 cm [25 pts]	<input type="checkbox"/>	NO WATER OR MOIST CHANNEL [0pts]																																														
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):		Bankfull Width Max=30 20																																															
<table border="0"> <tr><td><input type="checkbox"/></td><td>> 4.0 meters (> 13') [30 pts]</td><td><input type="checkbox"/></td><td>> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]</td></tr> <tr><td><input type="checkbox"/></td><td>> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]</td><td><input type="checkbox"/></td><td>≤ 1.0 m (≤ 3' 3") [5 pts]</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]</td><td></td><td></td></tr> </table> COMMENTS <u>None</u> AVERAGE BANKFULL WIDTH (meters): <u>2.6</u>			<input type="checkbox"/>	> 4.0 meters (> 13') [30 pts]	<input type="checkbox"/>	> 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	<input type="checkbox"/>	> 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/>	≤ 1.0 m (≤ 3' 3") [5 pts]	<input checked="" type="checkbox"/>	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]																																					
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<input checked="" type="checkbox"/>	> 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]																																																

This information must also be completed

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

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS _____

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

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

COMMENTS Possible elevated stream flow from recent precipitation event

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? Yes No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

WWH Name: Dry Run Distance from Evaluated Stream N/A
 CWH Name: _____ Distance from Evaluated Stream _____
 EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Hilliard/Galloway NRCS Soil Map Page: N/A NRCS Soil Map Stream Order: N/A
 County: Franklin Township/City: Columbus

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 8/28/2021 Quantity: 3.71 in

Photo-documentation Notes: Refer to attached photolog(s)

Elevated Turbidity?(Y/N): No Canopy (% open): No

Were samples collected for water chemistry?(Y/N): No Lab Sample # or ID (attach results): N/A

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

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

Additional comments/description of pollution impacts: Heavy trash in stream channel, which is assumed to be from roadside and upstream retention pond. Also, extremely heavy asian clam dominance in channel and substrate.

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) No Species observed (if known): N/A

Frogs or Tadpoles Observed? (Y/N) No Species observed (if known): N/A

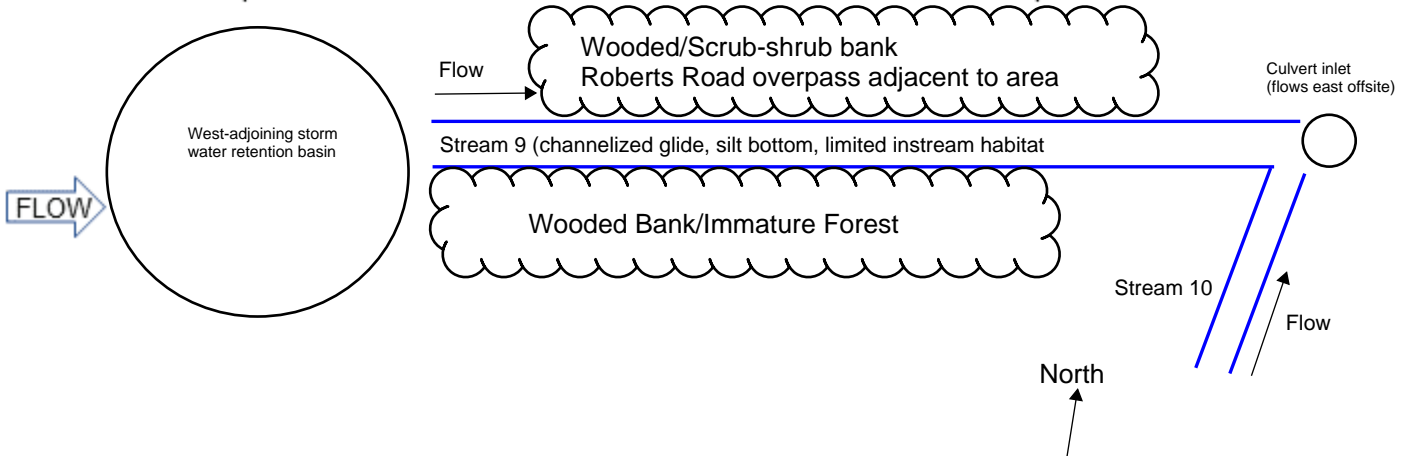
Salamanders Observed? (Y/N) No Species observed (if known): N/A

Aquatic Macroinvertebrates Observed? (Y/N) Yes Species observed (if known): Asian clams, extensive

Comments Regarding Biology: Heavy silt and potential water quality issues from upstream retention pond, allowing for Asian clam population dominance

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

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





Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

60

SITE NAME/LOCATION Buckeye Yard Redevelopment, Franklin County, Ohio 43228
 SITE NUMBER Stream 10 RIVER BASIN Upper Scioto RIVER CODE 05060001 DRAINAGE AREA (m²) 0.18
 LENGTH OF STREAM REACH (ft) 200 LAT 39.999011 LONG -83.129813 RIVER MILE N/A
 DATE 08/30/2021 SCORER J. Williams COMMENTS Modified/created channel to outlet adjacent storm water pond

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B		HHEI Metric Points Substrate Max = 40 9 A + B																																																												
<table border="0"> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>BLDR SLABS [16 pts]</td><td>_____</td><td><input checked="" type="checkbox"/></td><td><input type="checkbox"/></td><td>SILT [3 pt]</td><td>_____</td><td>30</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>BOULDER (>256 mm) [16 pts]</td><td>_____</td><td><input type="checkbox"/></td><td><input checked="" type="checkbox"/></td><td>LEAF PACK/WOODY DEBRIS [3 pts]</td><td>_____</td><td>40</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>BEDROCK [16 pts]</td><td>_____</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>FINE DETRITUS [3 pts]</td><td>_____</td><td>_____</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>COBBLE (65-256 mm) [12 pts]</td><td>_____</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>CLAY or HARDPAN [0 pt]</td><td>_____</td><td>_____</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>GRAVEL (2-64 mm) [9 pts]</td><td>_____</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>MUCK [0 pts]</td><td>_____</td><td>30</td></tr> <tr><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>SAND (<2 mm) [6 pts]</td><td>_____</td><td><input type="checkbox"/></td><td><input type="checkbox"/></td><td>ARTIFICIAL [3 pts]</td><td>_____</td><td>_____</td></tr> </table>	<input type="checkbox"/>		<input type="checkbox"/>	BLDR SLABS [16 pts]	_____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SILT [3 pt]	_____	30	<input type="checkbox"/>	<input type="checkbox"/>	BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	LEAF PACK/WOODY DEBRIS [3 pts]	_____	40	<input type="checkbox"/>	<input type="checkbox"/>	BEDROCK [16 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	FINE DETRITUS [3 pts]	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	COBBLE (65-256 mm) [12 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	CLAY or HARDPAN [0 pt]	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	GRAVEL (2-64 mm) [9 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	MUCK [0 pts]	_____	30	<input type="checkbox"/>	<input type="checkbox"/>	SAND (<2 mm) [6 pts]	_____	<input type="checkbox"/>	<input type="checkbox"/>	ARTIFICIAL [3 pts]	_____	_____	<table border="0"> <tr><td colspan="2">Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock</td><td><u>0</u></td><td>(A)</td><td><u>6</u></td><td>(B)</td><td><u>3</u></td></tr> </table>	Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock		<u>0</u>	(A)	<u>6</u>	(B)
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2. Maximum Pool Depth (Measure the maximum pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box):		Pool Depth Max = 30 30																																																												
<table border="0"> <tr><td><input type="checkbox"/></td><td>> 30 centimeters [20 pts]</td><td><input type="checkbox"/></td><td>5 cm - 10 cm [15 pts]</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>> 22.5 - 30 cm [30 pts]</td><td><input type="checkbox"/></td><td>< 5 cm [5pts]</td></tr> <tr><td><input type="checkbox"/></td><td>> 10 - 22.5 cm [25 pts]</td><td><input type="checkbox"/></td><td>NO WATER OR MOIST CHANNEL [0pts]</td></tr> </table>			<input type="checkbox"/>	> 30 centimeters [20 pts]	<input type="checkbox"/>	5 cm - 10 cm [15 pts]	<input checked="" type="checkbox"/>	> 22.5 - 30 cm [30 pts]	<input type="checkbox"/>	< 5 cm [5pts]	<input type="checkbox"/>	> 10 - 22.5 cm [25 pts]	<input type="checkbox"/>	NO WATER OR MOIST CHANNEL [0pts]																																																
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COMMENTS <u>None</u>		MAXIMUM POOL DEPTH (centimeters): <u>28</u>																																																												
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):		Bankfull Width Max=30 20																																																												
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COMMENTS <u>None</u>		AVERAGE BANKFULL WIDTH (meters): <u>2.4</u>																																																												

This information must also be completed

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

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

COMMENTS _____

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

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

COMMENTS Possible elevated stream flow from recent precipitation event

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? Yes No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

WWH Name: Dry Run Distance from Evaluated Stream N/A
 CWH Name: _____ Distance from Evaluated Stream _____
 EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Hilliard/Galloway NRCS Soil Map Page: N/A NRCS Soil Map Stream Order: N/A

County: Franklin Township/City: Columbus

MISCELLANEOUS

Base Flow Conditions? (Y/N): N Date of last precipitation: 8/28/2021 Quantity: 3.71 in

Photo-documentation Notes: Refer to attached photolog(s)

Elevated Turbidity?(Y/N): No Canopy (% open): No

Were samples collected for water chemistry?(Y/N): No Lab Sample # or ID (attach results): N/A

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

Is the sampling reach representative of the stream (Y/N) Yes If not, explain: None

Additional comments/description of pollution impacts: None

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) No Species observed (if known): N/A

Frogs or Tadpoles Observed? (Y/N) No Species observed (if known): N/A

Salamanders Observed? (Y/N) No Species observed (if known): N/A

Aquatic Macroinvertebrates Observed? (Y/N) No Species observed (if known): N/A

Comments Regarding Biology: None

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

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



Stream 10
(stream channel is generally very straight/channelized, all glide habitat, 12" deep approx consistently)

Adjacent rail yard area,
limited scrub/shrub riparian area (dominated by honeysuckle)

Bankfull width approx 8'10", wetted width approx 3'

→ North

Stream & Location: Stream 11 - Proposed Buckeye Yard Redevelopment RM: 5.1 Date: 08/30/21

Justin S. Williams, Environmental Scientist Scorers Full Name & Affiliation: Kimley-Horn

River Code: 05060001-12-05 STORET #: N/A Lat./ Long.: 39.993314, -83.134676 Office verified location [X]

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Check ONE (Or 2 & average). BEST TYPES: BLDR /SLABS [10], BOULDER [9], COBBLE [8], GRAVEL [7], SAND [6], BEDROCK [5]. OTHER TYPES: HARDPAN [4], DETRITUS [3], MUCK [2], SILT [2], ARTIFICIAL [0]. ORIGIN: LIMESTONE [1], TILLS [1], WETLANDS [0], HARDPAN [0], SANDSTONE [0], RIP/RAP [0], LACUSTURINE [0], SHALE [-1], COAL FINES [-2]. QUALITY: HEAVY [-2], MODERATE [-1], NORMAL [0], FREE [1], EXTENSIVE [-2], MODERATE [-1], NORMAL [0], NONE [1]. Substrate score: 1. Comments: Stream extremely channelized, limited substrate.

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts. AMOUNT: EXTENSIVE >75% [11], MODERATE 25-75% [7], SPARSE 5-<25% [3], NEARLY ABSENT <5% [1]. Undercut banks [1], Overhanging vegetation [1], Shallows [1], Rootmats [1]. Pools > 70cm [2], Rootwads [1], Boulders [1]. Oxbows, backwaters [1], Aquatic macrophytes [1], Logs or woody debris [1]. Cover score: 11. Comments: None.

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY: HIGH [4], MODERATE [3], LOW [2], NONE [1]. DEVELOPMENT: EXCELLENT [7], GOOD [5], FAIR [3], POOR [1]. CHANNELIZATION: NONE [6], RECOVERED [4], RECOVERING [3], RECENT OR NO RECOVERY [1]. STABILITY: HIGH [3], MODERATE [2], LOW [1]. Channel score: 5.5. Comments: None.

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). River right looking downstream. EROSION: NONE / LITTLE [3], MODERATE [2], HEAVY / SEVERE [1]. RIPARIAN WIDTH: WIDE > 50m [4], MODERATE 10-50m [3], NARROW 5-10m [2], VERY NARROW < 5m [1], NONE [0]. FLOOD PLAIN QUALITY: FOREST, SWAMP [3], SHRUB OR OLD FIELD [2], RESIDENTIAL, PARK, NEW FIELD [1], FENCED PASTURE [1], OPEN PASTURE, ROWCROP [0]. CONSERVATION TILLAGE [1], URBAN OR INDUSTRIAL [0], MINING / CONSTRUCTION [0]. Riparian score: 3. Comments: None.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH: > 1m [6], 0.7-<1m [4], 0.4-<0.7m [2], 0.2-<0.4m [1], < 0.2m [0]. CHANNEL WIDTH: POOL WIDTH > RIFFLE WIDTH [2], POOL WIDTH = RIFFLE WIDTH [1], POOL WIDTH < RIFFLE WIDTH [0]. CURRENT VELOCITY: TORRENTIAL [-1], SLOW [1], VERY FAST [1], INTERSTITIAL [-1], FAST [1], INTERMITTENT [-2], MODERATE [1], EDDIES [1]. Recreation Potential: Primary Contact, Secondary Contact. Pool / Current score: 4. Comments: Aveage depth was 26" to 37" throughout, wetted width was 14'9".

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]. RIFFLE DEPTH: BEST AREAS > 10cm [2], BEST AREAS 5-10cm [1], BEST AREAS < 5cm [metric=0]. RUN DEPTH: MAXIMUM > 50cm [2], MAXIMUM < 50cm [1]. RIFFLE / RUN SUBSTRATE: STABLE (e.g., Cobble, Boulder) [2], MOD. STABLE (e.g., Large Gravel) [1], UNSTABLE (e.g., Fine Gravel, Sand) [0]. RIFFLE / RUN EMBEDDEDNESS: NONE [2], LOW [1], MODERATE [0], EXTENSIVE [-1]. Riffle / Run score: 0. Comments: Entire channel was one deep glide. Highly channelized, very poor/limited channel habitat.

6] GRADIENT (30.6 ft/mi) DRAINAGE AREA (1.07 mi^2). VERY LOW - LOW [2-4], MODERATE [6-10], HIGH - VERY HIGH [10-6]. %POOL: 0, %GLIDE: 100, %RUN: 0, %RIFFLE: 0. Gradient score: 8.

AJ SAMPLED REACH

Check ALL that apply

METHOD

- BOAT
- WADE
- L. LINE
- OTHER

DISTANCE

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

meters

CANOPY

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

CLARITY

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

1st _____ cm

2nd _____ cm

CJ RECREATION

- AREA DEPTH
 POOL: >100ft² >3ft

BJ AESTHETICS

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

DJ MAINTENANCE

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

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- \bar{x} width
- \bar{x} depth
- max. depth
- \bar{x} bankfull width
- bankfull \bar{x} depth
- W/D ratio
- bankfull max. depth
- floodprone \bar{x}^2 width
- entrench. ratio

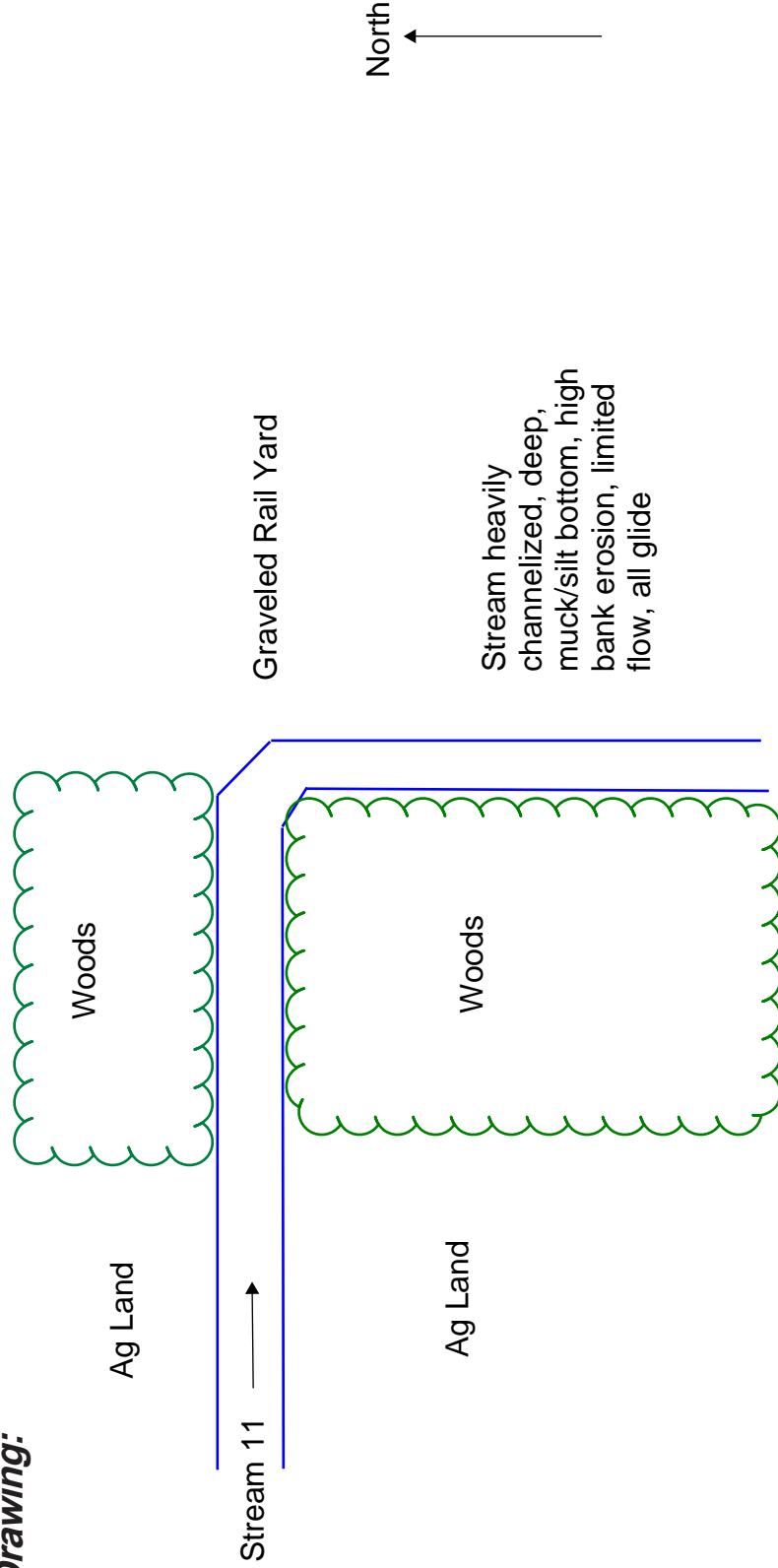
Legacy Tree:

Circle some & COMMENT

is one long glide with no flow changes or habitat variation to influence flow change. It is assumed the stream was historically modified and channelized due to the historic railroad yard construction and prior agricultural development.

Comment RE: Reach consistency/ Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc. Yes, stream channelize extremely channelized. Poor/very limited steam habitat characteristics and flow. Entire stream

Stream Drawing:



Stream & Location: Stream 12 - Proposed Buckeye Yard Redevelopment RM: 5.1 Date: 08/30/21

Justin S. Williams, Environmental Scientist Scorers Full Name & Affiliation: Kimley-Horn

River Code: 05060001-12-05 STORET #: N/A Lat./ Long.: 39.990095 183.134275 Office verified location [X]

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Check ONE (Or 2 & average). BEST TYPES: BLDR /SLABS [10], BOULDER [9], COBBLE [8], GRAVEL [7], SAND [6], BEDROCK [5]. OTHER TYPES: HARDPAN [4], DETRITUS [3], MUCK [2], SILT [2], ARTIFICIAL [0]. ORIGIN: LIMESTONE [1], TILLS [1], WETLANDS [0], HARDPAN [0], SANDSTONE [0], RIP/RAP [0], LACUSTURINE [0], SHALE [-1], COAL FINES [-2]. QUALITY: HEAVY [-2], MODERATE [-1], NORMAL [0], FREE [1], EXTENSIVE [-2], MODERATE [-1], NORMAL [0], NONE [1]. Substrate 1, Maximum 20.

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts. AMOUNT: EXTENSIVE >75% [11], MODERATE 25-75% [7], SPARSE 5-<25% [3], NEARLY ABSENT <5% [1]. Cover 11, Maximum 20.

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY: HIGH [4], MODERATE [3], LOW [2], NONE [1]. DEVELOPMENT: EXCELLENT [7], GOOD [5], FAIR [3], POOR [1]. CHANNELIZATION: NONE [6], RECOVERED [4], RECOVERING [3], RECENT OR NO RECOVERY [1]. STABILITY: HIGH [3], MODERATE [2], LOW [1]. Channel 5.5, Maximum 20.

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). RIPARIAN WIDTH: WIDE > 50m [4], MODERATE 10-50m [3], NARROW 5-10m [2], VERY NARROW < 5m [1], NONE [0]. FLOOD PLAIN QUALITY: FOREST, SWAMP [3], SHRUB OR OLD FIELD [2], RESIDENTIAL, PARK, NEW FIELD [1], FENCED PASTURE [1], OPEN PASTURE, ROWCROP [0]. CONSERVATION TILLAGE [1], URBAN OR INDUSTRIAL [0], MINING / CONSTRUCTION [0]. Riparian 3, Maximum 10.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH: > 1m [6], 0.7-<1m [4], 0.4-<0.7m [2], 0.2-<0.4m [1], < 0.2m [0]. CHANNEL WIDTH: POOL WIDTH > RIFFLE WIDTH [2], POOL WIDTH = RIFFLE WIDTH [1], POOL WIDTH < RIFFLE WIDTH [0]. CURRENT VELOCITY: TORRENTIAL [-1], SLOW [1], VERY FAST [1], INTERSTITIAL [-1], FAST [1], INTERMITTENT [-2], MODERATE [1], EDDIES [1]. Recreation Potential Primary Contact, Secondary Contact. Pool / Current 4, Maximum 12.

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]. RIFFLE DEPTH: BEST AREAS > 10cm [2], BEST AREAS 5-10cm [1], BEST AREAS < 5cm [metric=0]. RUN DEPTH: MAXIMUM > 50cm [2], MAXIMUM < 50cm [1]. RIFFLE / RUN SUBSTRATE: STABLE (e.g., Cobble, Boulder) [2], MOD. STABLE (e.g., Large Gravel) [1], UNSTABLE (e.g., Fine Gravel, Sand) [0]. RIFFLE / RUN EMBEDDEDNESS: NONE [2], LOW [1], MODERATE [0], EXTENSIVE [-1]. Riffle / Run 0, Maximum 8.

6] GRADIENT (32.2 ft/mi) DRAINAGE AREA (0.73 mi^2) VERY LOW - LOW [2-4], MODERATE [6-10], HIGH - VERY HIGH [10-6]. %POOL: 0, %GLIDE: 100, %RUN: 0, %RIFFLE: 0. Gradient 8, Maximum 10.

AJ SAMPLED REACH

Check ALL that apply

METHOD

- BOAT
- WADE
- L. LINE
- OTHER

DISTANCE

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

meters

CANOPY

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

CLARITY

- 1st --sample pass-- 2nd
- < 20 cm
- 20-<40 cm
- 40-70 cm
- > 70 cm/ C/TB
- SECCHI DEPTH

1st _____ cm
2nd _____ cm

CJ RECREATION

AREA DEPTH
POOL: >100ft² >3ft

BJ AESTHETICS

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

DJ MAINTENANCE

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

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
- HARDENED / URBAN / DIRT&GRIME
- CONTAMINATED / LANDFILL
- BMPs-CONSTRUCTION-SEDIMENT
- LOGGING / IRRIGATION / COOLING
- BANK / EROSION / SURFACE
- FALSE BANK / MANURE / LAGOON
- WASH H₂O / TILE / H₂O TABLE
- ACID / MINE / QUARRY / FLOW
- NATURAL / WETLAND / STAGNANT
- PARK / GOLF / LAWN / HOME
- ATMOSPHERE / DATA PAUCITY

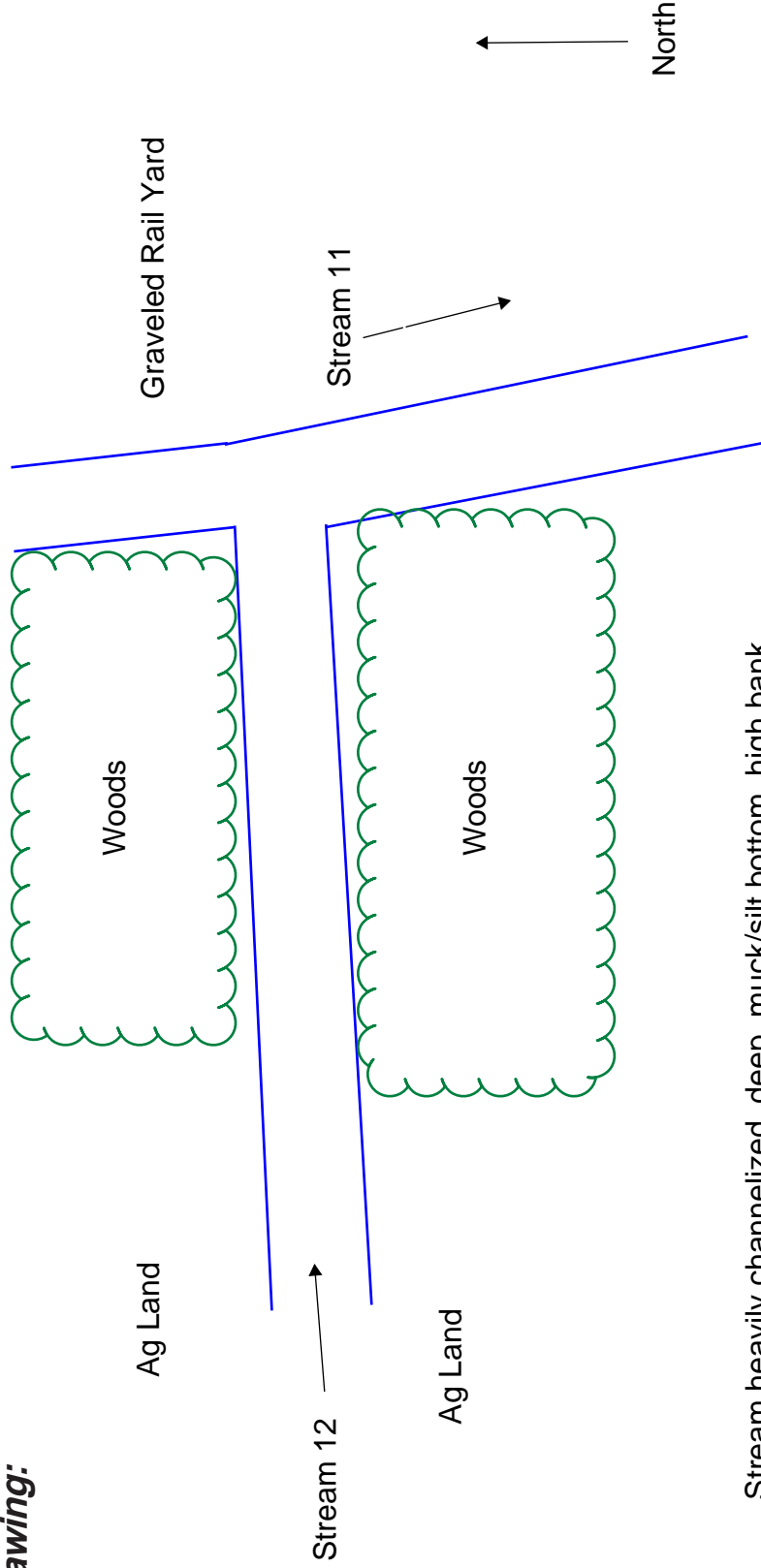
FJ MEASUREMENTS

- \bar{x} width
- \bar{x} depth
- max. depth
- \bar{x} bankfull width
- bankfull \bar{x} depth
- W/D ratio
- bankfull max. depth
- floodprone \bar{x}^2 width
- entrench. ratio

Legacy Tree:

Circle some & COMMENT

Stream Drawing:



Stream heavily channelized, deep, muck/silt bottom, high bank erosion, limited flow, all glide

Comment RE: Reach consistency/ Is reach typical of stream?, Recreation/ Observed - Inferred, Other/ Sampling observations, Concerns, Access directions, etc.
Yes, stream channelize extremely channelized. Poor/very limited stream habitat characteristics and flow. Entire stream is one long glide with no flow changes or habitat variation to influence flow change. It is assumed the stream was historically modified and channelized due to the historic railroad yard construction and prior agricultural development.



Photo 1: Representative view of forested Wetland 7 facing east. Photo taken April 9-13, 2021.



Photo 2: Representative view of forested Wetland 7 facing south. Photo taken April 9-13, 2021.



Photo 3: Representative view of forested Wetland 7 facing north. Photo taken February 10, 2022.



Photo 4: Representative view of forested Wetland 7 facing east. Photo taken February 10, 2022.



Photo 5: Representative view of forested Wetland 7 facing south. Photo taken February 10, 2022.



Photo 7: Representative view of emergent Wetland 8 facing east. Photo taken April 9-13, 2021.



Photo 6: Representative view of forested Wetland 7 facing west. Photo taken February 10, 2022.



Photo 8: Representative view of emergent Wetland 8 facing south. Photo taken April 9-13, 2021.



Photo 9: Representative view of emergent Wetland 8 facing north. Photo taken February 10, 2022.



Photo 11: Representative view of emergent Wetland 8 facing south. Photo taken February 10, 2022.



Photo 10: Representative view of emergent Wetland 8 facing east. Photo taken February 10, 2022.



Photo 12: Representative view of emergent Wetland 8 facing west. Photo taken February 10, 2022.



Photo 13: Representative view of Pond 1 facing northeast. Photo taken April 9-12, 2021.



Photo 15: Representative view of Pond 1 facing west. Photo taken February 10, 2022.



Photo 14: Representative view of Pond 1 facing southwest. Photo taken April 9-12, 2021.



Photo 16: Representative view of Pond 1 facing east. Photo taken February 10, 2022.



**Photo 17: Representative view of the western portion of Stream 9 facing east (downstream).
Photo taken April 9-12, 2021.**



**Photo 19: Representative view of the northwest stormwater basin that flows into Stream 9,
located just west of the Site. Photo taken April 9-12, 2021.**



**Photo 18: Representative view of western portion of Stream 9 facing west (upstream) toward
western stormwater basin. Photo taken April 9-12, 2021.**



Photo 20: Representative view of Stream 9 channel bottom. Photo taken August 30, 2021.



Photo 21: Representative view of Stream 9 channel bottom substrate (silt/detritus and Asian fingernail clams). Photo taken August 30, 2021.



Photo 23: Representative view of Stream 9 facing upstream (west). Photo taken August 30, 2021.



Photo 22: Representative view of Stream 9 channel bottom substrate (silt/detritus and Asian fingernail clams). Photo taken August 30, 2021.

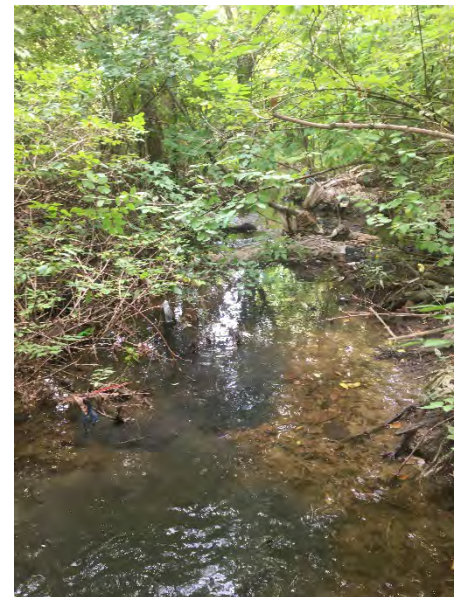


Photo 24: Representative view of Stream 9 facing downstream (east). Photo taken August 30, 2021.



Photo 25: Representative view of Stream 10 facing upstream (south). Photo taken April 9-12, 2021.



Photo 27: Representative view of Stream 10 facing upstream (south). Photo taken August 30, 2021.



Photo 26: Representative view of Stream 10 facing downstream (north) photo taken April 9-12, 2021.

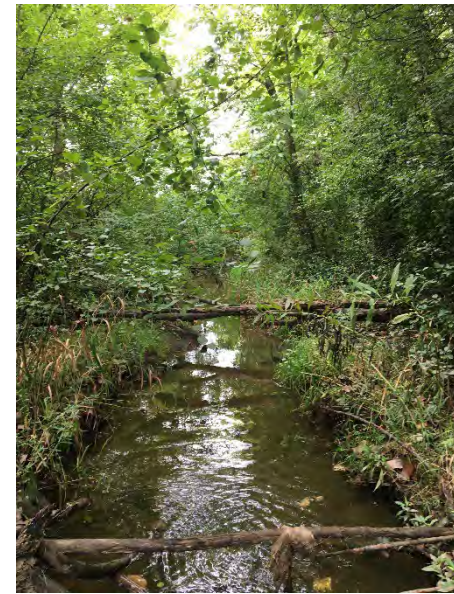


Photo 28: Representative view of Stream 10 facing downstream (north). Photo taken August 30, 2021.



Photo 29: Representative view of Stream 10 channel bottom substrate.



Photo 30: Representative view of Stream 10 channel bottom substrate.



Photo 31: Representative view of Stream 11 facing upstream (west) towards the west adjoining property. Photo taken April 9-12, 2021.



Photo 32: Representative view of Stream 11 facing downstream (east) as it flows onto the Site. Photo taken April 9-12, 2021.



Photo 33: Representative view of the central portion of Stream 11 facing upstream (west). Photo taken August 30, 2021.



Photo 35: Representative view of the central portion of Stream 11 facing western stream bank. Channel is extremely deep in this location; bottom substrate is unconsolidated muck/silt with no flow. Photo taken August 30, 2021.



Photo 34: Representative view of the central portion of Stream 11 facing western stream bank. Channel is extremely deep in this location; bottom substrate is unconsolidated muck/silt with no flow. Photo taken August 30, 2021.



Photo 36: View of the northern portion of Stream 11 (just north of Stream 12) facing upstream (north). Photo taken February 10, 2022.



Photo 36: Representative view of the southwest portion of Stream 11 (southeast of access road crossing) facing downstream (south). Photo taken February 10, 2022.



Photo 38: Representative view of Stream 12 facing west (upstream), just west of confluence with Stream 11. Photo taken August 30, 2021.



Photo 37: Representative view of southwest portion of Stream 11 channel bottom substrate (southeast of access road crossing). Photo taken February 10, 2022.



Photo 39: Representative view of Stream 12 facing east (downstream), just west of confluence with Stream 11. Photo taken August 30, 2021.



Photo 40: Representative view of the central portion of Stream 12 facing north stream bank. Channel is extremely deep in this location; bottom substrate is unconsolidated muck/silt with no flow. Photo taken August 30, 2021.



Photo 41: Representative view of the central portion of Stream 12 facing north stream bank. Channel is extremely deep in this location; bottom substrate is unconsolidated muck/silt with no flow. Photo taken August 30, 2021.

Appendix I: Pebble Count Datasheets

Pebble Count Data Sheet

Stream 9 - 320 LF Total

Size categories	Size ranges (mm)	Tallies (counts)	Stations
Silt/clay	< 0.06	100 (all silt)	1
Very fine sand	0.06 – 0.125		A - 32 lf
Fine sand	0.126 – 0.25		2
Medium sand	0.26 – 0.5		B - 64 lf
Coarse sand	0.5 – 1		3
Very coarse sand	1 - 2		C - 76 lf
Very fine gravel	2 - 4		4
Fine gravel	5 - 8		D - 128 lf
Medium gravel	9 - 16		5
Coarse gravel	17 - 32		E - 160 lf
Very coarse gravel	33 - 64		6
Small cobble	65 - 90		F - 192 lf
Medium cobble	91 - 128		7
Large cobble	129 - 180		G - 224 lf
Very large cobble	181 - 255		8
Small boulder	256 - 512		H - 256 lf
Medium boulder	513 - 1024		9
Large boulder	1025 – 2048		I - 288 lf
Very large boulder	> 2048		10
Bedrock	Large unbroken rock surface		J - 320 lf
Woody debris	Leaves, sticks etc.		Enter the tape positions

Indicate the method used below

<input type="checkbox"/>	Zigzag
<input type="checkbox"/>	% Habitat
<input checked="" type="checkbox"/>	Transects/Stations (Enter your tape position)

Total count

100

% Channel features (Estimate)

Riffles	Runs	Pools
5	85 (all glide)	10

Note: This data sheet incorporates both basic and advanced pebble count classification. Basic categories include silt, sand, fine and coarse gravel, cobble, boulder and bedrock. Pebble counts can be part of SOS levels 1-3 and should be performed at least once per year during low-water conditions. A version of the pebble count is included on all SOS biosurvey forms.

*Total stream length was divided up into approximately 10 sampling stations evenly located throughout the onsite stream portion. Sampling was conducted at each station (or within proximity), divided across the stream channel and ensuring that all representative habitat types were adequately sampled and accounted for.

Pebble Count Data Sheet

Stream 10 - 2,552 LF Total

Size categories	Size ranges (mm)	Tallies (counts)	Stations
Silt/clay	< 0.06	76 (all silt)	1
Very fine sand	0.06 – 0.125		A - 255.2 lf
Fine sand	0.126 – 0.25	3	2
Medium sand	0.26 – 0.5		B - 510.4 lf
Coarse sand	0.5 – 1	5	3
Very coarse sand	1 - 2	12	C - 765.6 lf
Very fine gravel	2 - 4	3	4
Fine gravel	5 - 8		D - 1,020.8 lf
Medium gravel	9 - 16	1	5
Coarse gravel	17 - 32		E - 1,276.0 lf
Very coarse gravel	33 - 64		6
Small cobble	65 - 90		F - 1,531.2 lf
Medium cobble	91 - 128		7
Large cobble	129 - 180		G - 1,786.4 lf
Very large cobble	181 - 255		8
Small boulder	256 - 512		H - 2,041.6
Medium boulder	513 - 1024		9
Large boulder	1025 – 2048		I - 2,296.8 lf
Very large boulder	> 2048		10
Bedrock	Large unbroken rock surface		J - 2,552.0 lf
Woody debris	Leaves, sticks etc.		Enter the tape positions

Indicate the method used below

<input type="checkbox"/>	Zigzag
<input type="checkbox"/>	% Habitat
<input checked="" type="checkbox"/>	Transects/Stations (Enter your tape position)

Total count

100

% Channel features (Estimate)

Riffles	Runs	Pools
10	80 (all glide)	10

Note: This data sheet incorporates both basic and advanced pebble count classification. Basic categories include silt, sand, fine and coarse gravel, cobble, boulder and bedrock. Pebble counts can be part of SOS levels 1-3 and should be performed at least once per year during low-water conditions. A version of the pebble count is included on all SOS biosurvey forms.

*Total stream length was divided up into approximately 10 sampling stations evenly located throughout the onsite stream portion. Sampling was conducted at each station (or within proximity), divided across the stream channel and ensuring that all representative habitat types were adequately sampled and accounted for.

Pebble Count Data Sheet

Stream 11 - 3,921 LF Total

Size categories	Size ranges (mm)	Tallies (counts)	Stations
Silt/clay	< 0.06	44	1
Very fine sand	0.06 – 0.125		A - 392.1 lf
Fine sand	0.126 – 0.25		2
Medium sand	0.26 – 0.5		B - 784.2 lf
Coarse sand	0.5 – 1	3	3
Very coarse sand	1 - 2		C - 1,176.3 lf
Very fine gravel	2 - 4	1	4
Fine gravel	5 - 8	9	D - 1,568.4 lf
Medium gravel	9 - 16	3	5
Coarse gravel	17 - 32	13	E - 1,960.5 lf
Very coarse gravel	33 - 64	3	6
Small cobble	65 - 90	12	F - 2,352.6 lf
Medium cobble	91 - 128	12	7
Large cobble	129 - 180		G - 2,744.7 lf
Very large cobble	181 - 255		8
Small boulder	256 - 512		H - 3,136.8 lf
Medium boulder	513 - 1024		9
Large boulder	1025 – 2048		I - 3,528.9 lf
Very large boulder	> 2048		10
Bedrock	Large unbroken rock surface		J - 3,921.0 lf
Woody debris	Leaves, sticks etc.		Enter the tape positions

Indicate the method used below

<input type="checkbox"/>	Zigzag
<input type="checkbox"/>	% Habitat
<input checked="" type="checkbox"/>	Transects/Stations (Enter your tape position)

Total count

100

% Channel features (Estimate)

Riffles Runs Pools

5	90 (all glide)	5
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Note: This data sheet incorporates both basic and advanced pebble count classification. Basic categories include silt, sand, fine and coarse gravel, cobble, boulder and bedrock. Pebble counts can be part of SOS levels 1-3 and should be performed at least once per year during low-water conditions. A version of the pebble count is included on all SOS biosurvey forms.

*Total stream length was divided up into approximately 10 sampling stations evenly located throughout the onsite stream portion. Sampling was conducted at each station (or within proximity), divided across the stream channel and ensuring that all representative habitat types were adequately sampled and accounted for.

Pebble Count Data Sheet

Stream 12 - 369 LF Total

Size categories	Size ranges (mm)	Tallies (counts)	Stations
Silt/clay	< 0.06	100 (all silt)	1
Very fine sand	0.06 – 0.125		A - 36.9 lf
Fine sand	0.126 – 0.25		2
Medium sand	0.26 – 0.5		B - 73.8 lf
Coarse sand	0.5 – 1		3
Very coarse sand	1 - 2		C - 110.7 lf
Very fine gravel	2 - 4		4
Fine gravel	5 - 8		D - 147.6
Medium gravel	9 - 16		5
Coarse gravel	17 - 32		E - 184.5 lf
Very coarse gravel	33 - 64		6
Small cobble	65 - 90		F - 221.4 lf
Medium cobble	91 - 128		7
Large cobble	129 - 180		G - 258.3 lf
Very large cobble	181 - 255		8
Small boulder	256 - 512		H - 295.2 lf
Medium boulder	513 - 1024		9
Large boulder	1025 – 2048		I - 332.1 lf
Very large boulder	> 2048		10
Bedrock	Large unbroken rock surface		J - 369 lf
Woody debris	Leaves, sticks etc.		Enter the tape positions

Indicate the method used below

<input type="checkbox"/>	Zigzag
<input type="checkbox"/>	% Habitat
<input checked="" type="checkbox"/>	Transects/Stations (Enter your tape position)

Total count

100

% Channel features (Estimate)

Riffles Runs Pools

100 (all glide)

Note: This data sheet incorporates both basic and advanced pebble count classification. Basic categories include silt, sand, fine and coarse gravel, cobble, boulder and bedrock. Pebble counts can be part of SOS levels 1-3 and should be performed at least once per year during low-water conditions. A version of the pebble count is included on all SOS biosurvey forms.

*Total stream length was divided up into approximately 10 sampling stations evenly located throughout the onsite stream portion. Sampling was conducted at each station (or within proximity), divided across the stream channel and ensuring that all representative habitat types were adequately sampled and accounted for.

Appendix J: Anticipated Stream Habitat Assessment Datasheets for Relocated Streams (HHEI and QHEI)



Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

76

SITE NAME/LOCATION Buckeye Yard Redevelopment, Franklin County, Ohio 43228
 SITE NUMBER: Stream 9 RIVER BASIN Upper Scioto RIVER CODE 05060001 DRAINAGE AREA (m²) 0.64
 LENGTH OF STREAM REACH (ft) 200 LAT 40.002435 LONG -83.128997 RIVER MILE 0.00
 DATE _____ SCORER J. Williams COMMENTS Anticipated Stream Restoration Score

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B.		HHEI Metric Points Substrate Max = 40 21 A + B																												
<table border="0"> <tr> <th>TYPE</th> <th>PERCENT</th> <th>TYPE</th> <th>PERCENT</th> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]</td> <td>_____</td> <td><input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]</td> <td>10</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]</td> <td>_____</td> <td><input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]</td> <td>5</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]</td> <td>_____</td> <td><input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]</td> <td>10</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]</td> <td>15</td> <td><input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]</td> <td>_____</td> </tr> <tr> <td><input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]</td> <td>30</td> <td><input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]</td> <td>_____</td> </tr> <tr> <td><input type="checkbox"/> <input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]</td> <td>30</td> <td><input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]</td> <td>_____</td> </tr> </table>	TYPE		PERCENT	TYPE	PERCENT	<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	10	<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5	<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	10	<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	_____	<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	_____	<input type="checkbox"/> <input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	30	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	_____	
TYPE	PERCENT		TYPE	PERCENT																										
<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____		<input type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	10																										
<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	5																											
<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	10																											
<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	15	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	_____																											
<input checked="" type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	_____																											
<input type="checkbox"/> <input checked="" type="checkbox"/> SAND (<2 mm) [6 pts]	30	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	_____																											
Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>15</u> (A) 15 (B) 6																														
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES: 15 TOTAL NUMBER OF SUBSTRATE TYPES: 6																														
2. Maximum Pool Depth (Measure the <u>maximum</u> pool depth within the 61 meter (200 feet) evaluation reach at the time of evaluation. Avoid plunge pools from road culverts or storm water pipes) (Check ONLY one box).		Pool Depth Max = 30 30																												
<table border="0"> <tr> <td><input type="checkbox"/> > 30 centimeters [20 pts]</td> <td><input type="checkbox"/> 5 cm - 10 cm [15 pts]</td> </tr> <tr> <td><input checked="" type="checkbox"/> > 22.5 - 30 cm [30 pts]</td> <td><input type="checkbox"/> < 5 cm [5 pts]</td> </tr> <tr> <td><input type="checkbox"/> > 10 - 22.5 cm [25 pts]</td> <td><input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]</td> </tr> </table>			<input type="checkbox"/> > 30 centimeters [20 pts]	<input type="checkbox"/> 5 cm - 10 cm [15 pts]	<input checked="" type="checkbox"/> > 22.5 - 30 cm [30 pts]	<input type="checkbox"/> < 5 cm [5 pts]	<input type="checkbox"/> > 10 - 22.5 cm [25 pts]	<input type="checkbox"/> NO WATER OR MOIST CHANNEL [0pts]																						
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COMMENTS <u>None</u> MAXIMUM POOL DEPTH (centimeters): 25																														
3. BANK FULL WIDTH (Measured as the average of 3 - 4 measurements) (Check ONLY one box):		Bankfull Width Max=30 25																												
<table border="0"> <tr> <td><input type="checkbox"/> > 4.0 meters (> 13') [30 pts]</td> <td><input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]</td> </tr> <tr> <td><input checked="" type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]</td> <td><input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]</td> </tr> <tr> <td><input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]</td> <td></td> </tr> </table>			<input type="checkbox"/> > 4.0 meters (> 13') [30 pts]	<input type="checkbox"/> > 1.0 m - 1.5 m (> 3' 3" - 4' 8") [15 pts]	<input checked="" type="checkbox"/> > 3.0 m - 4.0 m (> 9' 7" - 13') [25 pts]	<input type="checkbox"/> ≤ 1.0 m (≤ 3' 3") [5 pts]	<input type="checkbox"/> > 1.5 m - 3.0 m (> 4' 8" - 9' 7") [20 pts]																							
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COMMENTS <u>None</u> AVERAGE BANKFULL WIDTH (meters): 3.5																														

This information must also be completed

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

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

COMMENTS None

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

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

COMMENTS None

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? Yes No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

WWH Name: Dry Run Distance from Evaluated Stream N/A
 CWH Name: _____ Distance from Evaluated Stream _____
 EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Hilliard/Galloway NRCS Soil Map Page: N/A NRCS Soil Map Stream Order: N/A
County: Franklin Township/City: Columbus

MISCELLANEOUS

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

Photo-documentation Notes: N/A

Elevated Turbidity?(Y/N): No Canopy (% open): 0

Were samples collected for water chemistry?(Y/N): No Lab Sample # or ID (attach results): N/A

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

Is the sampling reach representative of the stream (Y/N) Yes If not, explain: Newly relocated/restored stream channel

Additional comments/description of pollution impacts: N/A

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) No Species observed (if known): N/A

Frogs or Tadpoles Observed? (Y/N) No Species observed (if known): N/A

Salamanders Observed? (Y/N) No Species observed (if known): N/A

Aquatic Macroinvertebrates Observed? (Y/N) No Species observed (if known): N/A

Comments Regarding Biology: None

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

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



Please refer to the provided stream relocation/restoration plans



Headwater Habitat Evaluation Index Field Form

HHEI Score (sum of metrics 1+2+3)

75

SITE NAME/LOCATION Buckeye Yard Redevelopment, Franklin County, Ohio 43228
 SITE NUMBER Stream 10 RIVER BASIN Upper Scioto RIVER CODE 05060001 DRAINAGE AREA (m²) 0.18
 LENGTH OF STREAM REACH (ft) 200 LAT 39.999011 LONG 83.129813 RIVER MILE N/A
 DATE 08/30/2021 SCORER J. Williams COMMENTS Anticipated Stream Restoration Score

NOTE: Complete All Items On This Form - Refer to "Headwater Habitat Evaluation Index Field Manual" for Instructions

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

1. SUBSTRATE (Estimate percent of every type present). Check ONLY two predominant substrate TYPE boxes. (Max of 32). Add total number of significant substrate types found (Max of 8). Final metric score is sum of boxes A & B		HHEI Metric Points Substrate Max = 40 20 A + B																												
<table border="0"> <tr> <th>TYPE</th> <th>PERCENT</th> <th>TYPE</th> <th>PERCENT</th> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]</td> <td>_____</td> <td><input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]</td> <td>10</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]</td> <td>_____</td> <td><input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]</td> <td>_____</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]</td> <td>_____</td> <td><input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]</td> <td>_____</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]</td> <td>20</td> <td><input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]</td> <td>10</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]</td> <td>30</td> <td><input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]</td> <td>_____</td> </tr> <tr> <td><input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]</td> <td>30</td> <td><input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]</td> <td>_____</td> </tr> </table>	TYPE		PERCENT	TYPE	PERCENT	<input type="checkbox"/> <input type="checkbox"/> BLDR SLABS [16 pts]	_____	<input checked="" type="checkbox"/> <input type="checkbox"/> SILT [3 pt]	10	<input type="checkbox"/> <input type="checkbox"/> BOULDER (>256 mm) [16 pts]	_____	<input type="checkbox"/> <input checked="" type="checkbox"/> LEAF PACK/WOODY DEBRIS [3 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> BEDROCK [16 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> FINE DETRITUS [3 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> COBBLE (65-256 mm) [12 pts]	20	<input type="checkbox"/> <input type="checkbox"/> CLAY or HARDPAN [0 pt]	10	<input type="checkbox"/> <input type="checkbox"/> GRAVEL (2-64 mm) [9 pts]	30	<input type="checkbox"/> <input type="checkbox"/> MUCK [0 pts]	_____	<input type="checkbox"/> <input type="checkbox"/> SAND (<2 mm) [6 pts]	30	<input type="checkbox"/> <input type="checkbox"/> ARTIFICIAL [3 pts]	_____	
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Total of Percentages of Bldr Slabs, Boulder, Cobble, Bedrock <u>20</u> (A) 15 (B) 5																														
SCORE OF TWO MOST PREDOMINATE SUBSTRATE TYPES:																														
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COMMENTS <u>None</u> AVERAGE BANKFULL WIDTH (meters): 3.5																														

This information must also be completed

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

RIPARIAN WIDTH (Per Bank)		FLOODPLAIN QUALITY (Most Predominant per Bank)	
L	R	L	R
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS None

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

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

COMMENTS None

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

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

STREAM GRADIENT ESTIMATE

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

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

QHEI PERFORMED? Yes No QHEI Score _____ (If Yes, Attach Completed QHEI form)

DOWNSTREAM DESIGNATED USE(S)

WWH Name: Dry Run Distance from Evaluated Stream N/A
 CWH Name: _____ Distance from Evaluated Stream _____
 EWH Name: _____ Distance from Evaluated Stream _____

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

USGS Quadrangle Name: Hilliard/Galloway NRCS Soil Map Page: N/A NRCS Soil Map Stream Order: N/A
County: Franklin Township/City: Columbus

MISCELLANEOUS

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

Photo-documentation Notes: N/A

Elevated Turbidity?(Y/N): No Canopy (% open): 0

Were samples collected for water chemistry?(Y/N): No Lab Sample # or ID (attach results): N/A

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

Is the sampling reach representative of the stream (Y/N) Yes If not, explain: Newly relocated/restored stream channel

Additional comments/description of pollution impacts: None

BIOLOGICAL OBSERVATIONS

(Record all observations below)

Fish Observed? (Y/N) No Species observed (if known): N/A

Frogs or Tadpoles Observed? (Y/N) No Species observed (if known): N/A

Salamanders Observed? (Y/N) No Species observed (if known): N/A

Aquatic Macroinvertebrates Observed? (Y/N) No Species observed (if known): N/A

Comments Regarding Biology: None

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

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



Please refer to the provided stream relocation/restoration plans

Stream & Location: Stream 11 - Proposed Buckeye Yard Redevelopment RM: 5.1 Date: 08/30/21

Anticipated Stream Restoration Score Scorers Full Name & Affiliation: Justin Williams, Kimley-Horn

River Code: 05060001-12-05 STORET #: N/A Lat./Long.: 39.993314, -83.134676 Office verified location

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present Check ONE (Or 2 & average)

Substrate assessment table with categories: BEST TYPES, OTHER TYPES, ORIGIN, QUALITY. Includes checkboxes for various substrate types and a score of 16.

Newly Relocated/Restored Stream Channel

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts

Instream Cover assessment table with categories: UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS, ROOTMATS, POOLS, BOULDERS, OXBOWS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS. Includes checkboxes and a score of 14.

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

Channel Morphology assessment table with categories: SINUOSITY, DEVELOPMENT, CHANNELIZATION, STABILITY. Includes checkboxes and a score of 13.

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

Bank Erosion and Riparian Zone assessment table with categories: EROSION, RIPARIAN WIDTH, FLOOD PLAIN QUALITY. Includes checkboxes and a score of 8.

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

Pool / Glide and Riffle / Run Quality assessment table with categories: MAXIMUM DEPTH, CHANNEL WIDTH, CURRENT VELOCITY. Includes checkboxes and a score of 6.

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

Riffle / Run Quality assessment table with categories: RIFFLE DEPTH, RUN DEPTH, RIFFLE / RUN SUBSTRATE, RIFFLE / RUN EMBEDDEDNESS. Includes checkboxes and a score of 0.

6] GRADIENT (30.6 ft/mi) DRAINAGE AREA (0.36 mi^2) Assessment table with categories: GRADIENT, DRAINAGE AREA, %POOL, %GLIDE, %RUN, %RIFFLE. Includes checkboxes and a score of 8.

AJ SAMPLED REACH

Check ALL that apply

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

Yes, stream channel recently relocated and restored

METHOD

BOAT

WADE

L. LINE

OTHER

STAGE

1st -sample pass- 2nd

HIGH

UP

NORMAL

LOW

DRY

DISTANCE

0.5 Km

0.2 Km

0.15 Km

0.12 Km

OTHER

_____ meters

CLARITY

1st --sample pass-- 2nd

< 20 cm

20-<40 cm

40-70 cm

> 70 cm/ CTB

SECCHI DEPTH

CANOPY

1st _____ cm

pass

2nd _____ cm

> 85%- OPEN

55%-<85%

30%-<55%

10%-<30%

<10%- CLOSED

BJ AESTHETICS

NUISANCE ALGAE

INVASIVE MACROPHYTES

EXCESS TURBIDITY

DISCOLORATION

FOAM / SCUM

OIL SHEEN

TRASH / LITTER

NUISANCE ODOR

SLUDGE DEPOSITS

CSOs/SSOs/OUTFALLS

DJ MAINTENANCE

PUBLIC / PRIVATE / BOTH / NA

ACTIVE / HISTORIC / BOTH / NA

YOUNG-SUCCESSION-OLD

SPRAY / SNAG / REMOVED

MODIFIED / DIPPED OUT / NA

LEVEED / ONE SIDED

RELOCATED / CUTOFFS

MOVING-BEDLOAD-STABLE

ARMOURED / SLUMPS

ISLANDS / SCOURED

IMPOUNDED / DESICCATED

FLOOD CONTROL / DRAINAGE

Circle some & COMMENT

EJ ISSUES

WWTP / CSO / NPDES / INDUSTRY

HARDENED / URBAN / DIRT&GRIME

CONTAMINATED / LANDFILL

BMPs-CONSTRUCTION-SEDIMENT

LOGGING / IRRIGATION / COOLING

BANK / EROSION / SURFACE

FALSE BANK / MANURE / LAGOON

WASH H₂O / TILE / H₂O TABLE

ACID / MINE / QUARRY / FLOW

NATURAL / WETLAND / STAGNANT

PARK / GOLF / LAWN / HOME

ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

\bar{x} width

\bar{x} depth

max. depth

\bar{x} bankfull width

bankfull \bar{x} depth

W/D ratio

bankfull max. depth

floodprone x² width

entrench. ratio

CJ RECREATION AREA DEPTH

POOL: >100ft² >3ft

Legacy Tree:

Stream Drawing:

Please refer to the provided stream relocation/restoration plans

Stream & Location: Stream 12 - Proposed Buckeye Yard Redevelopment RM: 5.1 Date: 08/30/21

Anticipated Stream Restoration Score Scorers Full Name & Affiliation: Justin Williams, Kimley-Horn

River Code: 05060001-12-05 STORET #: N/A Lat./ Long.: 39.990095, -83.134275 Office verified location [X]

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present. Check ONE (Or 2 & average). BEST TYPES: BLDR /SLABS [10], BOULDER [9], COBBLE [8], GRAVEL [7], SAND [6], BEDROCK [5]. OTHER TYPES: HARDPAN [4], DETRITUS [3], MUCK [2], SILT [2], ARTIFICIAL [0]. ORIGIN: LIMESTONE [1], TILLS [1], WETLANDS [0], HARDPAN [0], SANDSTONE [0], RIP/RAP [0], LACUSTURINE [0], SHALE [-1], COAL FINES [-2]. QUALITY: HEAVY [-2], MODERATE [-1], NORMAL [0], FREE [1], EXTENSIVE [-2], MODERATE [-1], NORMAL [0], NONE [1]. Substrate score: 16 (Maximum 20).

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts. AMOUNT: EXTENSIVE >75% [11], MODERATE 25-75% [7], SPARSE 5-<25% [3], NEARLY ABSENT <5% [1]. Comments: None. Cover score: 14 (Maximum 20).

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average). SINUOSITY: MODERATE [3]. DEVELOPMENT: GOOD [5]. CHANNELIZATION: RECOVERING [3]. STABILITY: MODERATE [2]. Comments: None. Channel score: 13 (Maximum 20).

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average). RIPARIAN WIDTH: MODERATE 10-50m [3]. FLOOD PLAIN QUALITY: FOREST, SWAMP [3]. CONSERVATION TILLAGE [1]. Comments: None. Riparian score: 8 (Maximum 10).

5] POOL / GLIDE AND RIFFLE / RUN QUALITY MAXIMUM DEPTH: 0.4-<0.7m [2]. CHANNEL WIDTH: POOL WIDTH = RIFFLE WIDTH [1]. CURRENT VELOCITY: SLOW [1]. Recreation Potential: Primary Contact, Secondary Contact. Comments: None. Pool / Current score: 6 (Maximum 12).

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). RIFFLE DEPTH: BEST AREAS 5-10cm [1]. RUN DEPTH: MAXIMUM < 50cm [1]. RIFFLE / RUN SUBSTRATE: MOD. STABLE [1]. RIFFLE / RUN EMBEDDEDNESS: MODERATE [0]. Riffle / Run score: 0 (Maximum 8).

6] GRADIENT (32.2 ft/mi) DRAINAGE AREA (0.37 mi^2). VERY LOW - LOW [2-4], MODERATE [6-10], HIGH - VERY HIGH [10-6]. %POOL: 30, %GLIDE: 20, %RUN: 20, %RIFFLE: 30. Gradient score: 8 (Maximum 10).

AJ SAMPLED REACH

Check ALL that apply

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

Yes, stream channel recently relocated and restored

METHOD STAGE

- BOAT
 - WADE
 - L. LINE
 - OTHER
- 1st-sample pass- 2nd
- HIGH
 - UP
 - NORMAL
 - LOW
 - DRY

DISTANCE

- 0.5 Km
- 0.2 Km
- 0.15 Km
- 0.12 Km
- OTHER

CLARITY

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

BJ AESTHETICS

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

DJ MAINTENANCE

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

Circle some & COMMENT

EJ ISSUES

- WWTP / CSO / NPDES / INDUSTRY
 HARDENED / URBAN / DIRT&GRIME
 CONTAMINATED / LANDFILL
 BMPs-CONSTRUCTION-SEDIMENT
 LOGGING / IRRIGATION / COOLING
 BANK / EROSION / SURFACE
 FALSE BANK / MANURE / LAGOON
 WASH H₂O / TILE / H₂O TABLE
 ACID / MINE / QUARRY / FLOW
 NATURAL / WETLAND / STAGNANT
 PARK / GOLF / LAWN / HOME
 ATMOSPHERE / DATA PAUCITY

FJ MEASUREMENTS

- \bar{x} width
- \bar{x} depth
- max. depth
- \bar{x} bankfull width
- bankfull \bar{x} depth
- W/D ratio
- bankfull max. depth
- floodprone x² width
- entrench. ratio

Legacy Tree:

CJ RECREATION

AREA DEPTH

POOL: >100ft² >3ft

CANOPY

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

1st _____ cm
 pass
 2nd _____ cm

meters

Stream Drawing:

Please refer to the provided stream relocation/restoration plans

Appendix K: USACE Jurisdictional Determination



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

REPLY TO
ATTENTION OF:

February 14, 2022

Regulatory Division
North Branch
LRH-2021-551-SCR-Unnamed Tributary Scioto River

PRELIMINARY JURISDICTIONAL DETERMINATION

Ms. Gretchen Kendrick
Buckeye XO, LLC
2100 Ross Avenue, Suite 895
Dallas, Texas 75201

Dear Ms. Kendrick:

I refer to the *Jurisdictional Waters Delineation Report for Buckeye Yard Trabue and Roberts Roads Columbus, Franklin County, Ohio* dated July 7, 2021. You have requested a preliminary jurisdictional determination (JD) for the potentially jurisdictional aquatic resources located within the review area. The review area is located north of Trabue Road and south of Roberts Road in the City of Columbus, Franklin County, Ohio (39.991777 latitude, -83.130647 longitude). Your request has been assigned the following file number: LRH-2021-551-SCR-Unnamed Tributary Scioto River. Please reference this file number on all future correspondence related to this JD request.

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

Based upon a review of the submitted report, this office has determined that approximately 7,162 linear feet of four (4) streams (Streams 9-12), 0.78 acre of two (2) wetlands (Wetlands 7-8), and 0.23 acre of one (1) open water impoundment are located within the JD review area and may be waters of the United States in accordance with the Regulatory Guidance Letter for JDs issued by the Corps on October 31, 2016 (Regulatory Guidance Letter No. 16-01). As indicated in the guidance, this Preliminary JD is non-binding and cannot be appealed (33 CFR 331.2) and only provides a written indication that waters of the United States, including wetlands, may be present on-site.

You have declined to exercise the option to obtain an approved JD in this instance and at this time for the aquatic resources mentioned above. However, for the purposes of the determination of impacts, compensatory mitigation, and other resource protection measures for

activities that require authorization from this office, these aquatic resources will be evaluated as if they are waters of the United States.

Enclosed please find a copy of the Preliminary JD. If you agree with the findings of this Preliminary JD and understand your options regarding the same, please sign and date a copy of the Preliminary JD form and return it to this office within 30 days of receipt of this letter. You should submit the signed copy electronically or to the following address:

United States Army Corps of Engineers
Huntington District
Attn: North Branch
502 Eighth Street
Huntington, West Virginia 25701

A copy of this letter will be provided to your agent, Mr. Justin Williams with Kimley-Horn and Associates, Inc. If you have any questions concerning the above information, please contact Ms. Katie Samples of the North Branch at 304-399-6933, by mail at the above address or by email at katie.e.samples@usace.army.mil.

Sincerely,

A handwritten signature in black ink that reads "Laurie A. Moore". The signature is written in a cursive style with a long horizontal flourish at the end.

Laurie A. Moore
Regulatory Project Manager
North Branch

Enclosure(s)

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD)

FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: 28 January 2022

B. NAME AND ADDRESS OF PERSON REQUESTING PJD:

Ms. Gretchen Kendrick
Buckeye XO, LLC
2100 Ross Avenue
Dallas, Texas 75201

C. DISTRICT OFFICE, FILE NAME, AND NUMBER:

Huntington District, Buckeye Yard Redevelopment Project, LRH-2021-551-SCR-Unnamed Tributary Scioto River

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: Ohio County/parish/borough: Franklin County City: Columbus

Coordinates of site (lat/long in degree decimal format):

Lat.: 39.991777 Long.: -83.130647

Universal Transverse Mercator: Zone 17

Name of nearest waterbody: Unnamed Tributary Scioto River

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

Office (Desk) Determination. Date: 11 February 2022

Field Determination. Date:

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
Stream 9	40.00236	-83.12951	320 linear feet	Non-wetland	Section 404
Stream 10	39.99726	-83.13266	2,552 linear feet	Non-wetland	Section 404
Stream 11	39.99333	-83.13414	3,921 linear feet	Non-wetland	Section 404
Stream 12	39.98991	-83.13470	369 linear feet	Non-wetland	Section 404
Wetland 7	39.99844	-83.13056	0.49 acre	Wetland	Section 404

Wetland 8	39.99730	-83.13108	0.29 acre	Wetland	Section 404
Pond 1	39.99715	-83.13184	0.23 acre	Non-wetland	Section 404

- 1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.


- 2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there "*may be*" waters of the U.S. and/or that there "*may be*" navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)


Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items: [Jurisdictional Waters Delineation Report for the Buckeye Yard Trabue and Roberts Road Columbus, Franklin County, Ohio dated 7 July 2021.](#)

- Maps, plans, plots or plat submitted by or on behalf of the PJD requestor: [Appendix 3- Wetland and Stream Delineation Map \(JD, July 2021\)](#)
- Data sheets prepared/submitted by or on behalf of the PJD requestor.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report. Rationale:
- Data sheets prepared by the Corps: _____
- Corps navigable waters' study: _____
- U.S. Geological Survey Hydrologic Atlas: _____
 - USGS NHD data
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: [Appendix 1- USGS Topographic Maps, Hilliard/Galloway Quads \(JD, July 2021\)](#)
- Natural Resources Conservation Service Soil Survey. Citation: [Appendix 1- USDA Web Soil Survey Map \(JD, July 2021\)](#)
- National wetlands inventory map(s). Cite name: [Appendix 1- National Wetland Inventory Map \(JD, July 2021\)](#)
- State/local wetland inventory map(s): _____
- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: _____ (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): [Appendix 2- Aerial Photographs \(JD, July 2021\)](#)
or Other (Name & Date): [Appendix 4- Photos 21-44](#)
- Previous determination(s). File no. and date of response letter: [LRH-2021-551-SCR dated 20 August 2021 \(JD, July 2021\)](#)
- Other information (please specify):

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



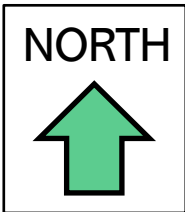
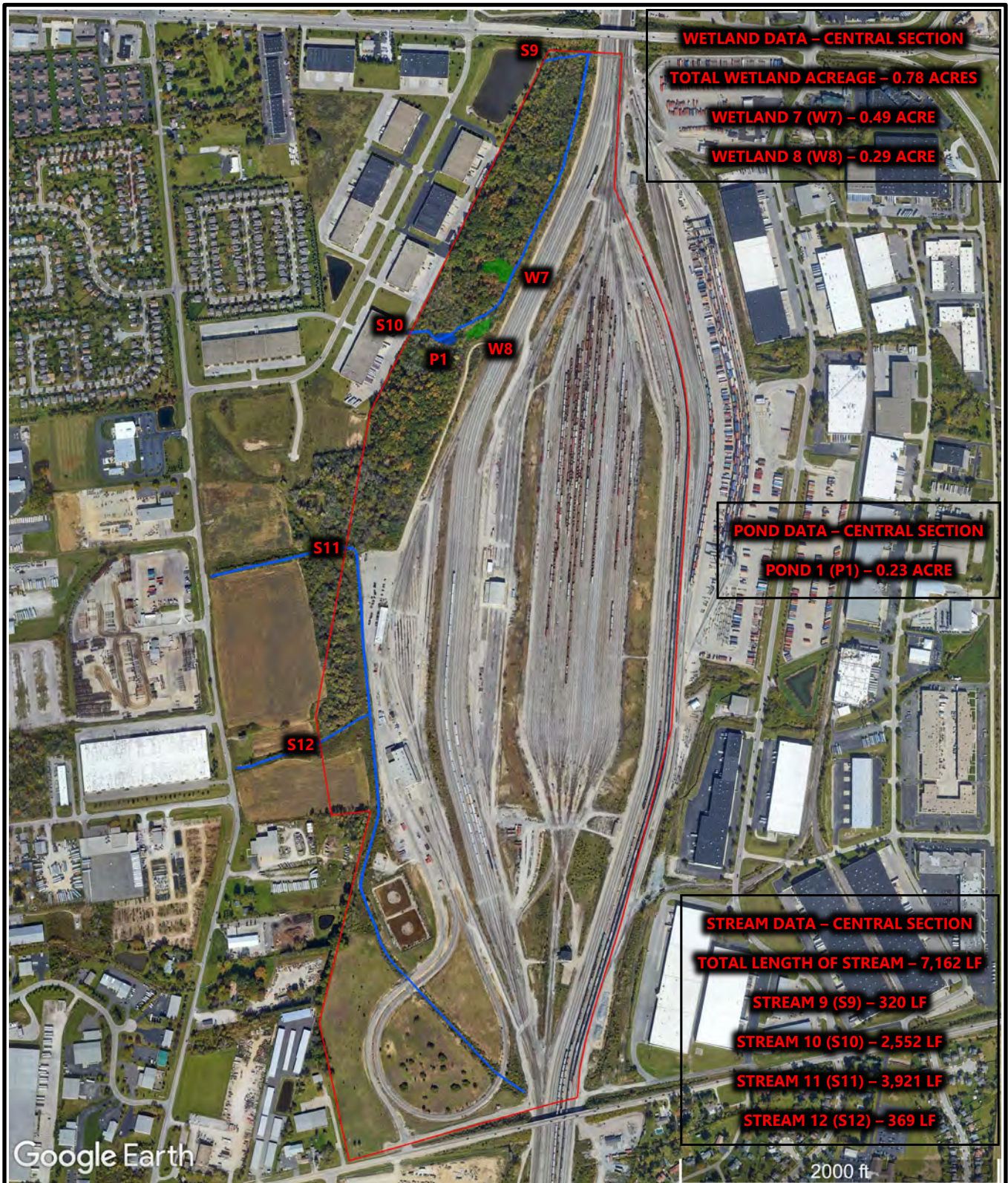
Signature and date of
Regulatory staff member
completing PJD

 2/14/2022

Signature and date of
person requesting PJD
(REQUIRED, unless obtaining
the signature is
impracticable)¹

¹ Districts may establish timeframes for requestor to return signed PJD forms. If the requestor does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

WETLAND AND STREAM DELINEATION MAP



BUCKEYE YARD
TRABUE AND ROBERTS ROADS
COLUMBUS, FRANKLIN COUNTY, OHIO
COWC PROJECT #120120007



Appendix L: USACE Public Notice / OEPA Complete Application Letter

Appendix L: USACE Public Notice / OEPA Complete Application Letter



Public Notices by Year

- [2022 \(4\)](#)
- [2021 \(29\)](#)
- [2020 \(50\)](#)
- [2019 \(47\)](#)
- [2018 \(30\)](#)
- [2017 \(53\)](#)
- [2016 \(46\)](#)
- [2015 \(27\)](#)
- [2014 \(55\)](#)
- [2013 \(40\)](#)
- [2012 \(46\)](#)

Disclaimer

The below listed documents may not be readable via Optical Character Recognition. To receive public notices via email for the **Huntington District Regulatory Division** please send an email to LRH.Permits@usace.army.mil indicating that you would like to be placed on the public notice electronic distribution list. Your email should include which state(s) **Ohio** and/or **West Virginia** in which you would like to receive public notices.

LRH 2021-551-SCR

CELRH-RDN

Published Feb. 2, 2022 /

Expiration date: 3/4/2022

1

[PRINT](#) | [E-MAIL](#)

TO WHOM IT MAY CONCERN: The following application has been submitted for a Department of the Army (DA) Permit under the provisions of Section 404 of the Clean Water Act.

APPLICANT: Ms. Gretchen Kendrick
 Buckeye XO, LLC
 2100 Ross Avenue, Suite 895
 Dallas, Texas 75201

LOCATION: As depicted on the attached Sheet 1 of 3, the proposed project would be located north of Trabue Road and south of Roberts Road in the City of Columbus, Franklin County, Ohio (39.991777 latitude, -83.130647 longitude). The waters on site flow into an unnamed tributary to the Scioto River, a traditional navigable water of the United States.

DESCRIPTION OF PROPOSED WORK: The applicant has requested a DA authorization to discharge dredged and/or fill material into 0.78 acre of two (2) wetlands (Wetlands 7-8), 7,162 linear feet (1.97 acres) of four (4) streams (Streams 9-12), and 0.23 acre of one (1) open-water impoundment (Pond 1), as indicated on Table 1 of this Public Notice, in conjunction with the Buckeye Yard Development Project. Specifically, the project would involve the construction of eight (8) industrial logistics warehouse buildings and associated infrastructure such as a roadway, parking areas, trailer docks, and storm-water detention basins (Sheets 2-3 of 3).

ALTERNATIVES ANALYSIS: As a result of the proposal, dredged and/or fill material would be discharged into 0.49 acre of forested wetland, 0.29 acre of emergent wetland, 320 linear feet of intermittent stream, 6,842 linear feet of perennial stream, and 0.23 acre of open-water impoundment. The project does not require access, proximity to, or siting within special aquatic sites to fulfill its basic purpose and is considered a non-water dependent activity. The Section 404(b)(1) Guidelines state for non-water dependent activities, practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise. The applicant has submitted an alternatives analysis and it is currently under review. A complete copy of the applicant's alternatives analysis can be reviewed by appointment at the above address or by submitting a request in accordance with the Freedom of Information Act. No permit will be issued until our review of the alternative analysis clearly demonstrates that practicable upland alternatives are not available to achieve the overall project purpose.

AVOIDANCE AND MINIMIZATION: In evaluating a project area containing waters of the United States, consideration must be given to avoiding impacts on these sites. If waters of the United States cannot be avoided, then the impacts must be minimized. Approximately 0.78 acre of two (2) wetlands, 7,162 linear feet of four (4) streams, and 0.23 acre of one (1) open-water impoundment are located within the site. Based on a review of the submitted report, the existing streams were previously re-routed and channelized around the existing railyard area and exhibit a high degree of bank erosion, limited substrate, and moderate to high turbidity. The proposed design would result in permanent impacts to the aforementioned aquatic resources located within the project area; however, stream habitat would be relocated and restored on-site. Stormwater man...





US Army Corps of Engineers Huntington District Website

mud and/or earthen berms, temporary seeding, hay bales, silt protection, temporary collection basins, diversion ditches, and construction entrances. All disturbed areas would be seeded and/or revegetated with native plant species and native seed mixes after completion of construction activities.

COMPENSATORY MITIGATION PLAN: To compensate for the loss of waters of the United States associated with the proposed project, the applicant has proposed to purchase 1.3 acre of forested wetland credits and 0.6 acre of non-forested wetland credits from the Little Scioto Wetland Mitigation Bank and restore 7,359 linear feet of open stream channel on-site. A stream relocation/restoration plan is currently being prepared by Kimley-Horn on behalf of the applicant. After review of all the submitted information, the Corps will determine if the type and level of compensatory mitigation are adequate in the event a decision is made to issue a DA authorization.

WATER QUALITY CERTIFICATION: The applicant must obtain a Section 401 Water Quality Certification (WQC) from the Ohio Environmental Protection Agency assuring that applicable laws and regulations pertaining to water quality are not violated. This Public Notice serves as the notification to the Administrator of the United States Environmental Protection Agency (USEPA) pursuant to Section 401(a)(2) of the Clean Water Act. If USEPA determines that the proposed discharge may affect the quality of the waters of any state other than the state in which the discharge will originate, it will so notify such other state, the district engineer, and the applicant. If such notice or a request for supplemental information is not received within 30 days of issuance of this Public Notice, the district engineer will assume the USEPA has made a negative determination with respect to Section 401(a)(2). If the USEPA determines another state's waters may be affected, such state has 60 days from receipt of the USEPA's notice to determine if the proposed discharge will affect the quality of its waters so as to violate any water quality requirement in such state, to notify the USEPA and the district engineer in writing of its objection to permit issuance, and to request a public hearing. If such occurs, the district engineer will hold a public hearing in the objecting state. A DA permit, if otherwise warranted, would not be issued on this project until the Section 401 WQC has been issued or waived and the Section 401(a)(2) process has been completed. The Reasonable Period of Time for the certifying authority (Ohio Environmental Protection Agency) to act on the Section 401 WQC will be 270 days from the date the Ohio Environmental Protection Agency receives a complete application in accordance with their requirements. A waiver may be explicit or will be deemed to occur if the Ohio Environmental Protection Agency fails or refuses to act on a request for certification within 270 days after receipt of a complete Section 401 WQC application.

HISTORIC AND CULTURAL RESOURCES: The National Register of Historic Places (NRHP) has been consulted and it has been determined there are no properties currently listed on the NRHP that would be indirectly or directly affected by the proposed work. One (1) previously identified archaeological site (33FR1319) is located within the project area; however, this resource was determined to be ineligible for inclusion onto the NRHP. In addition, the site has been extensively disturbed by previous development and contains poorly drained and urban complex soils, which indicate a low potential for significant intact archaeological sites. By letter dated September 27, 2021, the Ohio State Historic Preservation Office (Ohio SHPO) stated that no historic properties would be affected by the undertaking (2021-FRA-52518).

Based on this information, the Corps has determined that no historic properties listed on, or eligible for listing on the NRHP would be affected by the proposed development and mitigation activities. A copy of this Public Notice will be furnished to Ohio SHPO for their review and response.

THREATENED AND ENDANGERED SPECIES: The proposed project is located within the known or historic range of the endangered Indiana bat (*Myotis sodalis*), the threatened northern long-eared bat (*Myotis septentrionalis*), and the endangered Scioto madtom (*Noturus trautmani*).

Suitable habitat for the Scioto madtom may be present anywhere preferred habitat is found in Franklin County, Ohio. Habitat includes well-developed riffle/run/pool complexes with firm-bottomed sand, cobble, and/or gravel substrates. The proposed project area does not include suitable habitat for the Scioto madtom, and the utilization of BMPs would limit sedimentation downstream. Therefore, the Corps has determined the proposed project would have no effect on the Scioto madtom.

Suitable habitat for the Indiana bat and the northern long-eared bat may be present anywhere preferred habitat is found in Ohio. The Corps is not aware of any caves or abandoned mines in the proposed project area. The Corps is also not aware of any abandoned railroad tunnels in the project area that could provide winter habitat for the Indiana bat or the northern long-eared bat. Based on a review of the technical assistance letter (03E15000-2021-TA-2114) provided by the United States Fish and Wildlife Service (USFWS) on September 3, 2021, the large amount of proposed tree clearing relative to the available habitat in the immediately surrounding area may result in indirect adverse effects to the Indiana bat. The USFWS recommended a summer survey be conducted to determine the presence or absence of Indiana bats within the project area.

The summer survey is anticipated to be conducted in June 2022 as soon as the survey season begins. The Corps will initiate coordination with the USFWS upon receipt of the completed summer survey report. The DA permit will not be issued until the requirements of Section 7(c) of the Endangered Species Act of 1972 (as amended) are fulfilled.





US Army Corps of Engineers Huntington District Website

water Act (40 CFR Part 230). The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both the protection and the utilization of important resources. The benefit that reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors that may be relevant to the proposal will be considered, including the cumulative effects thereof; among those factors are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

SOLICITATION OF COMMENTS: The Corps is soliciting comments from the public, federal, state and local agencies and officials, Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. For accuracy and completeness of the administrative record, all data in support of or in opposition to the proposed work should be submitted in writing (preferably via email if possible) setting forth sufficient detail to furnish a clear understanding of the reasons for support or opposition. Any person may request, in writing, within the comment period specified in the notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. Written statements, either physical or electronic, received in this office on or before the expiration date of this Public Notice will become a part of the record and will be considered in the final determination. A permit will be granted unless its issuance is found to be contrary to the public interest.

CLOSE OF COMMENT PERIOD: Comments and requests for additional information should be submitted electronically to Katie Samples by email at Katie.E.Samples@usace.army.mil.

If you do not have internet access, comments may be submitted through the U.S. Postal Service (USPS) to the following address:

United States Army Corps of Engineers
ATTN: CELRH-RD-N
Public Notice: LRH-2021-551-SCR
502 Eighth Street
Huntington, WV 25701-2070

Comments should only be provided through the USPS when electronic transmission is not possible. Precautionary internal mail handling procedures may be instituted to protect our workforce, which may result in longer than normal times to process and receive hard copy submissions. To be considered in our evaluation, comments submitted through the USPS should have a postmark dated on, or prior to, the close of the comment period listed on page one (1) of this Public Notice.

Table 1. Proposed Discharges of Dredged and/or Fill material into Waters of the United States associated with the Buckeye Yard Redevelopment Project.

Aquatic Resource ID	Latitude & Longitude		Flow Regime or Cowardin Class	Estimated Amount of Aquatic Resource in Review Area	Linear Feet and/or Acres of Fill in Impact Area
	(°N)	(°W)			
Wetland 7	39.998444	-83.130556	Palustrine Forested	0.49 acre	0.49 acre
Wetland 8	39.997300	-83.131078	Palustrine Emergent	0.29 acre	0.29 acre





US Army Corps of Engineers Huntington District Website

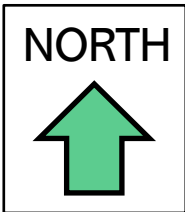
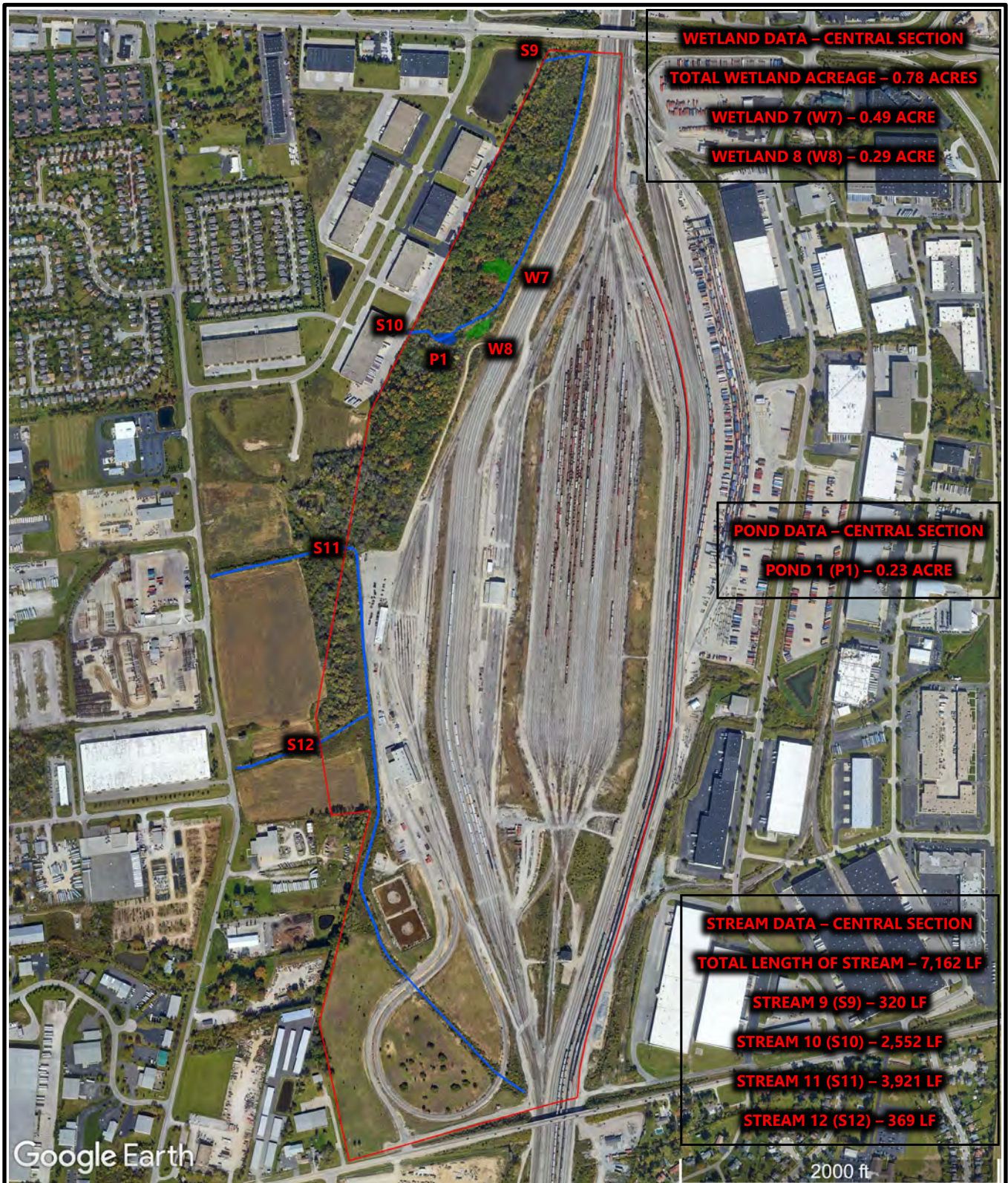
Stream 10	39.997258	-83.132658	Perennial	2,552 linear feet	2,552 linear feet (0.52 acre)
Stream 11	39.993333	-83.134142	Perennial	3,921 linear feet	3,921 linear feet (1.29 acres)
Stream 12	39.989911	-83.134697	Perennial	369 linear feet	369 linear feet (0.13 acre)
Pond 1	39.997153	-83.131842	Palustrine, Unconsolidated Bottom	0.23 acre	0.23 acre

Related Story: [LRH 2021-551-SCR Attachment 3](#)

Related Story: [LRH 2021-551-SCR Attachment 2](#)

Related Story: [LRH 2021-551-SCR Attachment 1](#)

WETLAND AND STREAM DELINEATION MAP



BUCKEYE YARD
TRABUE AND ROBERTS ROADS
COLUMBUS, FRANKLIN COUNTY, OHIO
COWC PROJECT #120120007



LRH-2021-551-SCR
Franklin County, Ohio
Sheet 1 of 3

CENTRAL OHIO



Mike DeWine, Governor
Jon Husted, Lt. Governor
Laurie A. Stevenson, Director

March 7, 2022

Transmitted Electronically

Justin Williams
Kimley-Horn and Associates, Inc.
795 North High Street, Suite 200
Columbus, OH 43235
justin.williams@kimley-horn.com

**Re: Buckeye Yard
Permit - Intermediate
Correspondence
401 Wetlands
Franklin County
DSW401227686A**

Subject: Complete Section 401 Water Quality Certification Application
Buckeye Yard Redevelopment
Corps Public Notice No. LRH-2021-551-SCR-UNT Scioto River
Ohio EPA ID No. 227686A

Dear Mr. Williams:

The Ohio Environmental Protection Agency (Ohio EPA) has reviewed the section 401 water quality certification application received by the Agency on January 24, 2022, and subsequent information provided on February 10 and 14, 2022, and has determined that it is administratively complete.

Ohio EPA will act on this application by June 21, 2022 (180 days from the date of receipt of application, as established by the U.S. Army Corps of Engineers). To determine the action that should be taken by the director, Ohio EPA may ask for additional information. You are encouraged to provide information requested during the technical review process in a timely manner as the lack of complete or inadequate plans may be grounds for a proposal to deny this certification.

Public Notice Requirements

As a part of the antidegradation review process, Ohio EPA must provide for public participation and intergovernmental coordination prior to taking action on all activities for which a section 401 water quality certification is required. In some instances, a public hearing may be required.

In accordance with section ORC 6111.30(C) the applicant is responsible for issuing a public notice regarding the application. In this specific case, Ohio EPA is not currently aware of significant public interest in this project nor does the information contained in the application indicate that a public hearing is mandatory pursuant to Ohio Administrative Code (OAC) 3745-1-05.

Attached is a draft public notice that Ohio EPA has prepared for this project. This notice

must be published in a newspaper of general circulation for the region in which the impacts are proposed to occur by **March 28, 2022**. Guidance for preparing the final public notice and getting it published in the correct newspaper is available at:

<https://epa.ohio.gov/static/Portals/35/401/APPLICANT%20PUBLIC%20NOTICE%20INSTRUCTION%20SHEET.pdf>

You may find a copy of Ohio EPA's rules and laws online at <https://epa.ohio.gov/dsw>. Information regarding Ohio's Section 401 and Isolated Wetlands Permitting programs is also available online at <https://epa.ohio.gov/wps/portal/gov/epa/divisions-and-offices/surface-water/permitting/water-quality-certification-and-isolated-wetland-permits>.

If you have any questions, please contact me at 740-380-5225 or via email at Carol.Siegley@epa.ohio.gov.

Sincerely,

Carol Siegley
Application Coordinator
401/Wetlands/Mitigation Section

CS/ms

Attachment

ec: Kayla Osbourne, Kayla.N.Osbourne@usace.army.mil, Department of the Army, Huntington District, Corps of Engineers
Gretchen Kendrick, Gretchenk@xebecrealty.com, Buckeye XO, LLC
Davis Bittner, DavisB@xebecrealty.com, Buckeye XO, LLC
Permit Processing Unit, Ohio EPA, DSW (epadswpermitsproces@epa.ohio.gov)
Rachel Taulbee, Rachel.Taulbee@epa.ohio.gov, Ohio EPA, DSW, SEDO

Date of Public Notice: **[DATE]**

Franklin County

PUBLIC NOTICE
NOTICE OF RECEIPT OF 401 APPLICATION

Public notice is hereby given that the Ohio Environmental Protection Agency (Ohio EPA) Division of Surface Water (DSW) has received an application for and has begun to consider whether to issue or deny, a Clean Water Act Section 401 water quality certification for a project to provide large-scale industrial logistics warehouse space with proximate access to rail and highway infrastructure located on the west side of the city of Columbus in Franklin County (39.991777°N/ -83.130647°W). The application was submitted by Buckeye XO, LLC. The Huntington District Corps of Engineers Public Notice Number for this project is LRH-2021-551-SCR-Unnamed Tributary Scioto River. The Ohio EPA ID Number for this project is DSW401227686A.

Discharges from the activity, if approved, would result in degradation to, or lowering of, the water quality of Roberts Millikin Ditch. Ohio EPA will review the application, and decide whether to grant or deny the certification, in accordance with OAC Chapters 3745-1 and 3745-32. In accordance with OAC rule 3745-1-05, an antidegradation review of the application will be conducted before deciding whether to allow a lowering of water quality. No exclusions or waivers, as outlined by OAC rule 3745-1-05, apply or may be granted.

Starting **[DATE OF PUBLICATION]**, copies of the application and technical support information may be inspected on Ohio EPA-DSW website:

<https://epa.ohio.gov/wps/portal/gov/epa/divisions-and-offices/surface-water/permitting/water-quality-certification-and-isolated-wetland-permits>

Persons wishing to 1) be on Ohio EPA's interested parties mailing list for this project, 2) request a public hearing, or 3) submit written comments for Ohio EPA's consideration in reviewing the application should do so by email to epa.dswcomments@epa.ohio.gov or writing to Ohio EPA-DSW, Attention: Permits Processing Unit, P.O. Box 1049, Columbus, Ohio 43216-1049 within thirty days of the date of this public notice.

Appendix M: Previous Wetlands Delineation Report



CENTRAL OHIO WETLAND CONSULTING, LLC

6260 Havens Rd.
Blacklick, Ohio 43004
mkaminski434@gmail.com
(614) 940-8771

JURISDICTIONAL WATERS DELINEATION REPORT

BUCKEYE YARD TRABUE AND ROBERTS ROADS COLUMBUS, FRANKLIN COUNTY, OHIO

Prepared by:

CENTRAL OHIO WETLAND CONSULTING, LLC

MATT KAMINSKI, OWNER
6260 HAVENS ROAD
BLACKLICK, OHIO 43004

Prepared for:

KIMLEY-HORN AND ASSOCIATES, INC.
C/O MR. JUSTIN M. MULLER
7965 N. HIGH ST.
SUITE 200
COLUMBUS, OHIO 43235

REPORT ISSUED APRIL 20, 2021
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COWC PROJECT #120120007

TABLE OF CONTENTS

<u>1.0 INTRODUCTION AND PURPOSE</u>	<u>1</u>
1.1 LIMITATIONS AND EXCEPTIONS OF ASSESSMENT	1
1.2 SPECIAL TERMS AND CONDITIONS	2
<u>2.0 EVALUATION AREA AND SURROUNDING AREA CHARACTERISTICS</u>	<u>2</u>
<u>3.0 RESEARCH AND REVIEW OF PUBLISHED INFORMATION</u>	<u>2</u>
3.1 USGS TOPOGRAPHIC MAPS	2
3.2 SOIL REVIEW	3
3.3 NATIONAL WETLANDS INVENTORY (NWI) MAP	4
3.4 AERIAL PHOTOGRAPHS	5
3.4.1 PUBLISHED INFORMATION REVIEW CONCLUSIONS	5
<u>4.0 FIELD RECONNAISSANCE/DELINEATION OF JURISDICTIONAL WATERS</u>	<u>6</u>
4.1 METHODOLOGY	7
4.1.1 HYDRIC SOIL CRITERIA	7
4.1.2 WETLAND HYDROLOGY CRITERIA	8
4.1.3 HYDROPHYTIC VEGETATION CRITERIA.....	8
4.2 JURISDICTIONAL WATERS DELINEATION FINDINGS	9
4.2.1 STREAMS	9
4.2.1 WETLANDS	10
4.2.2 PONDS	11
<u>5.0 FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS</u>	<u>12</u>
<u>6.0 SIGNATURE OF PROFESSIONAL PERSONNEL</u>	<u>13</u>

APPENDIX 1 – MAPS AND EVALUATION AREA INFORMATION

General Location Map of Evaluation Area

Location Map of Evaluation Area

Franklin County Auditor GIS Map

1954/1955, 1966, 1973, 1980/1981, and 2019 USGS Topographic Maps

USDA Web Soil Survey Map

National Wetlands Inventory (NWI) Map

APPENDIX 2 – AERIAL PHOTOGRAPHS

1956 Aerial Photograph

1964 Aerial Photograph

1979 Aerial Photograph

1989 Aerial Photograph

1994 Aerial Photograph

2002 Aerial Photograph

2009 Aerial Photograph

2019 Aerial Photograph

APPENDIX 3 – DELINEATION MAP

Wetland and Stream Delineation Map

Midwest Region Wetland Determination Data Forms (6 pages)

ORAM Scoresheets (20 pages)

APPENDIX 4 – EVALUATION AREA PHOTOGRAPHS

Photo Key

Field Reconnaissance Photos (Photo 21 through Photo 44)

1.0 INTRODUCTION AND PURPOSE

Central Ohio Wetland Consulting, LLC (COWC) has been contracted by Kimley-Horn and Associates, Inc. (Client) to perform a Jurisdictional Waters Delineation Report for the Buckeye Yard property located in the City of Columbus, Franklin County, Ohio. The "evaluation area" for this Jurisdictional Waters Delineation Report comprises 287± acres of land located north of Trabue Road and south of Roberts Road, identified by Franklin County parcel 560-154558. The evaluation area consists of former Norfolk-Southern railroad acreage, including former rail lines and ballast material, ancillary structures, open areas, waste land, and wooded land.

The purpose of COWC's services is to document the size/length, location, and quality of all potentially jurisdictional waters of the United States and/or isolated waters of the State of Ohio within the evaluation area. COWC performed this delineation for specific application to the evaluation area described herein, in accordance with the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual (1987) and the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region. The conclusions made within this Jurisdictional Waters Delineation Report are to be considered "preliminary" until verified by the USACE Huntington, WV District Office. This delineation report can be submitted to the USACE as part of a preliminary jurisdictional determination (PJD), approved jurisdictional determination (AJD), or pre-construction notification (PCN). The Ohio Environmental Protection Agency (Ohio EPA) will require a copy of the delineation report and an AJD letter issued by the USACE for all isolated wetland impacts, and ephemeral stream impacts greater than 300 linear feet.

The delineation includes three principal components: 1) research and review of published information, 2) field reconnaissance and delineation of jurisdictional waters (i.e. wetlands, ponds, and streams), and 3) data compilation/report preparation.

1.1 LIMITATIONS AND EXCEPTIONS OF ASSESSMENT

This Jurisdictional Waters Delineation Report has been prepared based upon field observations and COWC's professional interpretation of the USACE Wetlands Delineation Manual (1987) and the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region at the time of our field reconnaissance. The conclusions presented in this report are professional opinions based on data collected between the commencement date and the report date. The information in this report is true to the best of our knowledge. COWC obtained some of the information presented in this report from other agencies and sources. COWC assumes no responsibility for the accuracy or completeness of information provided by others. No warranty, expressed or implied, is made.

1.2 SPECIAL TERMS AND CONDITIONS

This report has been prepared by COWC as a professional service for the exclusive use of Kimley-Horn and Associates, Inc. and other parties that may be jointly affiliated by Kimley-Horn and Associates, Inc. and COWC. Any other entity that wishes to use or rely upon this report, or that wishes to duplicate, reproduce, copy, extract, or quote from this report must request permission from COWC to do so. Any unauthorized use of, or reliance upon, this report shall release COWC from any liability resulting from such use or reliance. Any unauthorized duplication, reproduction, copying, excerption, or quotation of this report shall expose the violator to all legal remedies available to COWC.

2.0 EVALUATION AREA AND SURROUNDING AREA CHARACTERISTICS

The evaluation area consists of former Norfolk-Southern railroad acreage, including former rail lines and ballast material, ancillary structures, open areas, waste land, and wooded land. The evaluation area consists of 287± acres of land located north of Trabue Road and south of Roberts Road, identified by Franklin County parcel 560-154558. Areas surrounding the evaluation area are developed for railroad, industrial, and commercial purposes. Approximate latitude / longitude coordinates for the central part of the evaluation area are 39.992969 / -83.129678.

Appendix 1 includes location maps, a Franklin County Auditor Geographic Information System (GIS) Map, United States Geological Survey (USGS) topographic maps (Hilliard, Ohio and Galloway, Ohio), United States Department of Agriculture (USDA) soil survey map, and the United States Fish & Wildlife Service (USFWS) National Wetland Inventory (NWI) map. Appendix 2 includes aerial photographs showing the evaluation area. Photographs depicting representative vegetation, property features, and views from several locations around the evaluation are provided in Appendix 4.

3.0 RESEARCH AND REVIEW OF PUBLISHED INFORMATION

COWC's research and review of published information includes: USGS topographic maps, the USDA soil survey map, USFWS NWI map, and aerial photographs from various local governmental agencies. COWC uses this information to determine historical uses of the evaluation area, the geo-morphological setting at the evaluation area, soil types present, whether the evaluation area has been significantly disturbed within the past few years, and for visual evidence of ponds, streams, or saturation or inundation on land surfaces, and the potential for wetlands. Copies of the reviewed information is appended.

3.1 USGS TOPOGRAPHIC MAPS

COWC reviewed 1954/1955, 1966, 1973, 1980/1981, and 2019 Hilliard, Ohio and Galloway, Ohio, USGS 7.5-minute series topographic maps for the evaluation area. COWC uses USGS topographic maps as an indicator of watershed characteristics in and around the evaluation area, and to identify small depressional areas,

streams, and wetland mapping symbols. The appendix of this report includes portions of these USGS maps showing the evaluation area.

The maps reviewed indicate the evaluation is predominately developed with rail lines on the 1973 through 2019 maps. Prior to 1973, the evaluation area is depicted as vacant land. The topographic maps show green tint, indicating wooded areas, on the northwest part of the evaluation area. One (1) wetland mapping symbol is also depicted within the green tint area on the northwest part of the evaluation area. Four (4) unnamed tributary streams are shown crossing the evaluation area in a general west to east direction on the 1954/1955 and 1966 maps. These tributary streams are not shown or have be redirected through or around rail lines on the 1973 through 2019 maps.

3.2 SOIL REVIEW

COWC reviewed information from the USDA Natural Resources Conservation Service (NRCS), the USDA Web Soil Survey website¹, and the list of Hydric Soils of the United States (published by NRCS in cooperation with the National Technical Committee for Hydric Soils). These sources indicate soils underlying the evaluation area consist of the following:

TABLE 1
EVALUATION AREA SOIL DESIGNATIONS

Map Unit ID	Map Unit Name	% Slope	Hydric Classification	% Hydric Component	Component Landform
CeB	Celina silt loam	2-6	Non-hydric with hydric components	Kokomo 5%	Depressions
CrA	Crosby silt loam	0-2	Non-hydric with hydric components	Kokomo 8%	Depressions
CrB	Crosby silt loam	2-6	Non-hydric with hydric components	Kokomo 8%	Depressions
Ko	Kokomo silty clay loam	0-2	Hydric	Kokomo 90%	Depressions
Us	Udorthents, loamy, steep	18-25	Non-hydric	-	-
Uv	Urban land-Celina complex, occasionally flooded	2-12	Non-hydric with hydric components	Kokomo 5%	Depressions

Celina silt loam (CeB) is generally described as a gently sloping, moderately well-drained soil on uplands. These soils are typically found on convex ridgetops, on side slopes above steeper areas, and along well-defined waterways.

Crosby silt loam (CrA and CrB) is generally described as a nearly level to gently sloping, somewhat poorly drained soil on narrow and broad upland areas. This mapping unit also contains areas of Kokomo soils located in depressions and Celina soils on low knolls.

¹ <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

Kokomo silty clay loam (Ko) is described as a nearly level, very poorly drained soil located in depressions and at the heads of drainageways on uplands. Runoff from adjacent higher elevations can cause ponding in Kokomo soils. Kokomo silty clay loam is considered a hydric soil.

Udorthents, loamy, steep (Us) is generally described as soils in borrow areas that have been subject to surface mining, particularly for use as fill material used under highways and buildings.

Urban land-Celina complex (Uv) is generally described as areas of urban land covered by streets, parking lots, buildings, railroad yards, and other structures. Soils in these areas have been altered to the extent specific soil identification is not feasible. Undeveloped portions of this soil unit are dominated by Celina soil.

The evaluation area is predominately comprised of Urban land-Celina complex soils. Wooded areas adjacent to the west of existing railroad lines are mapped with Crosby, Celina, and Kokomo soil units.

According to mapping available from the USDA NRCS, and the list of Hydric Soils of the United States published by the NRCS in cooperation with the National Technical Committee for Hydric Soils, the evaluation area contains hydric soil. Thin bands of mapped hydric Kokomo soils are located on the western portions of the evaluation area. The USGS topographic maps indicate these areas are likely drained by tributary streams.

3.3 NATIONAL WETLANDS INVENTORY (NWI) MAP

COWC reviewed the USFWS NWI website² for wetland mapping symbols depicted within the evaluation area. The USFWS produced NWI maps in an attempt to document wetlands throughout the United States. The USFWS generated NWI maps using high-altitude infrared aerial photography to identify areas of saturation or inundation on land surfaces. Areas that are saturated or inundated typically have lower infrared heat signatures than dry areas. The USFWS mapped these cooler infrared heat signature areas as wetlands without field verification. NWI maps may not reflect actual field conditions due to meteorological or seasonal conditions that may have existed at the time of data collection. COWC typically uses NWI maps to plan field reconnaissance, and as an indicator of areas that may support wetlands.

The NWI map shows one (1) PFO1A wetland mapping symbol located within the wooded northwest part of the evaluation area. The PFO1A designation indicates an area that is palustrine (non-tidal wetlands dominated by trees, shrubs, persistent emergent vegetation), forested (containing woody vegetation 20 feet in height and taller), broad-leaved deciduous (trees and shrubs with relatively wide, flat leaves that are shed during the cold and seasonally dry conditions), and

² <https://www.fws.gov/wetlands/Data/Mapper.html>

temporary flooded (areas where surface water is present for brief (days/weeks) periods during the growing season). This area was delineated as Wetland 7.

The NWI map shows streams/drainages in similar locations as depicted on the USGS maps. Drainage features within the evaluation area are depicted with R5UBH and R4SBC designations. The R5UBH designation indicates a permanently flooded (water covers the substrate throughout the year in all years), riverine habitat contained within a channel (open conduit either naturally or artificially created which may periodically or continuously contain moving water) that has an unconsolidated bottom (at least 25% cover of particles less than 6-7 centimeters and vegetative cover less than 30%). The unknown perennial modifier indicates the drainage cannot be distinguished from lower perennial and upper perennial. The R4SBC designation indicates a seasonally flooded, riverine habitat contained within a channel that has intermittent flow (water may flow only part of the year).

3.4 AERIAL PHOTOGRAPHS

COWC reviewed aerial photographs of the evaluation area dated 1956, 1964, 1979, and 1989 available from the Ohio Department of Transportation Office of CADD & Mapping website³; and 1994, 2002, 2009, and 2019 from Google Earth Pro⁴. Copies of the aerial photographs showing the evaluation area are provided in Appendix 2.

The 1956 through 1964 aerial photographs generally depict the evaluation area as vacant land with numerous streams crossing from west to east.

The 1979 through 2019 aerial photographs generally depict the evaluation area as developed for use as a rail yard. Undeveloped wooded land is located on the western part of the evaluation area. Streams previously apparent crossing the evaluation from west to east have been manipulated, channelized, and relocated as part of development for rail use.

The 2019 aerial photograph indicates the evaluation area is similar in appearance to what was observed during our field reconnaissance on April 9, April 12, and April 13, 2021.

3.4.1 PUBLISHED INFORMATION REVIEW CONCLUSIONS

Information obtained from USGS topographic maps, NWI maps, and aerial photographs indicate the potential for streams, wetlands, and ponds within the evaluation area.

³ <http://www.dot.state.oh.us/Divisions/Engineering/CaddMapping/Pages/default.aspx>

⁴ [Earth Versions – Google Earth](#)

The potential for wetlands and streams within an area cannot be determined solely from review of published information; therefore, an on-site investigation is required to verify current property conditions.

4.0 FIELD RECONNAISSANCE/DELINEATION OF JURISDICTIONAL WATERS

Matthew R. Kaminski, owner of Central Ohio Wetland Consulting, LLC, performed the field reconnaissance for the jurisdictional waters delineation during the morning and afternoon hours on Friday April 9, 2021, Monday April 12, 2021, and Tuesday April 13, 2021. Research and review of published information indicates physical property conditions were generally unchanged for several years prior to this delineation, such that the evaluation area was considered undisturbed for data collection. Therefore, the routine method was used in this assessment. Photographic documentation from the field reconnaissance and general landscape photographs are provided in Appendix 4.

COWC performs its field reconnaissance for jurisdictional waters delineations using criteria and guidance in the Corps of Engineers' Wetland Delineation Manual (USACE, 1987) and the 2010 Midwest Regional Supplement to the 1987 Wetland Delineation Manual. In this method, vegetation, hydrology, and soil criteria are used to identify jurisdictional/isolated wetlands. The delineation method and vegetation sampling methodology uses the procedures for Routine Determinations found in the 1987 and 2010 manuals.

To establish the presence of jurisdictional/isolated wetlands, three characteristics are required to be present. These wetland characteristics consist of hydric soils, a dominance of hydrophytic (i.e. wetland) vegetation, and wetland hydrology. All three criteria must be present for an area to be identified as wetland. These three criteria are defined and explained in detail in the Corps of Engineers' Wetland Delineation Manual (USACE, 1987) and the 2010 Midwest Regional Supplement to the 1987 Wetland Delineation Manual. The Wetlands Research Program of the USACE Waterways Experiment Station developed the manual in 1987. COWC followed the methods described in these manuals in performing the delineation.

Wetland and waterbody delineation of field-verified water features are made using COWC's professional judgment and interpretation of the USACE Jurisdictional Determination Form Instructional Guidebook (USACE, 2007). For the purposes of this report, "non-jurisdictional" or "excluded" is defined as aquatic features that are not regulated by the USACE under the provisions of Section 404 of the Clean Water Act (CWA). Isolated wetlands that do not have a surface water connection to waters of the U.S. and ephemeral streams are non-jurisdictional from the perspective of the USACE; however, are regulated by the Ohio EPA under the provisions of Section 401 of the CWA.

4.1 METHODOLOGY

After collecting pertinent information through the review of published information, COWC uses the routine method to determine if wetland areas exist within the evaluation area. The approach used for the routine determination is the plant community assessment procedure. This approach requires initial identification of representative plant community types in the subject area followed by characterization of vegetation, soils, and hydrology for each community type.

The evaluation area is assessed in accordance with guidelines from the USACE pertaining to potential jurisdictional waters of the United States and/or isolated waters of the State of Ohio. All potential wetlands, streams, and drainage ditches are followed to determine the flow regime and whether such features have a surface water connection to waters of the U.S.

The field investigation is conducted by walking and visually surveying the evaluation area, and in the vicinity, to collect wetland and stream data, as necessary. Upon identification of hydrophytic (wetland) and non-wetland communities, the wetland boundary is surveyed with a Spectra SP20 handheld Global Navigation Satellite System (GNSS) receiver with sub-meter accuracy. Field notes are taken at points where the dominant vegetation species change from wetland to upland or hydrologic or soil indicators become transitional. Areas saturated or inundated by surface water at the time of our field reconnaissance are presumed to contain hydric soil characteristics. COWC records observations concerning hydrology and vegetation on the appropriate Wetland Determination Data Form.

4.1.1 HYDRIC SOIL CRITERIA

COWC performs shovel test pits to characterize soil conditions and to evaluate the presence or absence of hydric soil features. A drain spade is used to collect soil samples from a maximum depth of approximately 20 inches below ground surface. COWC determines the presence or absence of hydric soils by comparing soil samples to a Munsell soil color chart, as soil colors often reveal whether a soil is hydric or non-hydric. The standardized Munsell soil colors consist of three components: hue, value, and chroma. Soil in hydric soil areas typically show yellow-red hues, varying gray color values, and chromas of one or two. Chromas of two or less are considered low, and are often diagnostic of hydric soils. Hydric mineral soils saturated for long periods of the growing season, but unsaturated for some time, often develop mottles and/or a low chroma matrix. Soils are considered hydric if at least one primary indicator, or at least one problematic hydric soil indicator is present, as defined by the USACE.

Mineral based soils (as opposed to carbon- or organic-based soils) generally contain significant amounts of iron and manganese. As the iron component of the soil matrix comes into contact with the atmosphere, the

iron tends to oxidize giving soils a high “chroma” or rust-like color. This characteristic is typically observed in upland (i.e., non-wetlands) areas where oxygen is abundant. On the contrary, mineral soils that are saturated for extended periods (e.g., hydric soils) tend to have oxygen ions stripped, chemically reducing iron and giving these soils bluish-grayish coloring or low chroma. This reduced condition in mineral soils is known as “gleying” and is typically observed in wetlands, where soil oxygen contents are generally lower relative to upland soils. Low oxygen levels in reduced soils also tend to slow decomposition, leading to increased organic content.

The evaluation area is predominately comprised of Urban land-Celina complex soils. Wooded areas adjacent to the west of existing railroad lines are mapped with Crosby, Celina, and Kokomo soil units. Areas saturated or inundated by surface water at the time of our field reconnaissance were presumed to contain hydric soil characteristics. COWC observed hydric soil characteristics within the areas delineated as Wetland 7 and Wetland 8.

4.1.2 WETLAND HYDROLOGY CRITERIA

Wetland hydrology is determined present in areas that are periodically inundated or have soils saturated to the surface sometime during the growing season. This is a dynamic characteristic and is usually not present during drier periods of the year. Primary wetland hydrology indicators include, but are not limited to, surface water, high water table, inundation, soil saturation in the upper 12 inches of the soil, water marks, sediment deposits, drift deposits, and water-stained leaves. Secondary wetland hydrology indicators include surface soil cracks, drainage patterns, dry-season water table, crayfish burrows, saturation visible on aerial imagery, stunted or stressed plants, geomorphic position, and FAC-Neutral Test of vegetation. One primary indicator or two or more secondary indicators are required to establish a positive indication of wetland hydrology.

COWC observed primary and secondary hydrology indicators for wetlands within the areas delineated as Wetland 7 and Wetland 8.

4.1.3 HYDROPHYTIC VEGETATION CRITERIA

Hydrophytic vegetation is determined present if more than 50 percent of plant species within a plant community have an indicator status of obligate wetland (OBL), facultative wetland (FACW), and/or facultative (FAC). The indicator status of plant species found in wetlands is listed in the 2018 National Wetland Plant List - Midwest Region published by the USACE⁵.

COWC used this data and determined hydrophytic vegetation dominance was present within the areas delineated as Wetland 7 and Wetland 8.

⁵ [NWPL Home v3.4-f9c \(army.mil\)](http://nwpl.home.v3.4-f9c.army.mil)

4.2 JURISDICTIONAL WATERS DELINEATION FINDINGS

COWC's field reconnaissance identified two (2) wetlands (Wetland 7 and Wetland 8) totaling 0.78± acre, four (4) streams (Stream 9 through Stream 12) totaling 7,162 linear feet, and one (1) pond (Pond 1) totaling 0.23± acre within the evaluation area. The centerline of the streams and the boundary of the pond and wetlands were surveyed with a Spectra SP20 handheld GNSS receiver with sub-meter accuracy. Appendix 3 provides a map showing the location of the delineated wetlands, pond, and streams. Multi-directional photographs of each stream and wetland, and general landscape photographs are provided in Appendix 4.

Several streams delineated within the evaluation area are depicted on USGS maps as unnamed tributaries to the Scioto River, prior to development of the evaluation area as a railroad yard. Streams within the evaluation area have been placed in culverts, channelized, and relocated as part of development of the evaluation area for railroad use in the mid to late 1960s.

4.2.1 STREAMS

COWC identified four (4) streams (Stream 9 through Stream 12) totaling 7,162 linear feet within the evaluation area. These streams were delineated as Stream 9 (320± LF), Stream 10 (2,552± LF), Stream 11 (3,921± LF), and Stream 12 (369± LF). These streams are further described below:

TABLE 2
STREAM INFORMATION

Stream ID	Length (On-Site)	Classification	Start Location	End Location
Stream 9	320± LF	Intermittent	40.002356 -83.129508	40.002489 -83.128431
Stream 10	2,552± LF	Perennial	39.997258 -83.132658	40.002511 -83.128356
Stream 11	3,921± LF	Perennial	39.993333 -83.134142	39.983883 -83.130006
Stream 12	369± LF	Perennial	39.989911 -83.134697	39.990389 -83.133558
Total	7,162± LF			

Stream 9 (320± linear feet)

Stream 9 is a west to east flowing intermittent stream on the north part of the evaluation area. Stream 9 originates at the outfall of a round concrete culvert pipe which discharges surface water from a west adjoining stormwater management pond. This stream is littered with trash and debris. Stream 9 has a direct surface water connection with Stream 10 on the northwest part of the evaluation area. Surface water was flowing within

Stream 9 during our field reconnaissance on April 13, 2021. Substrate material within Stream 9 consists of silt, sand, and gravel.

Stream 10 (2,552± linear feet)

Stream 10 is a general southwest to northeast flowing perennial stream on the northwest part of the evaluation area. Stream 10 originates at the outfall of an oval-shaped concrete culvert pipe near the western boundary of the evaluation area. This culvert discharges surface water from the west. Surface water was flowing within Stream 10 during our field reconnaissance on April 13, 2021. Substrate material within Stream 10 consists of cobble, silt, sand, and gravel. Stream 10 is partially impounded by Pond 1.

Stream 11 (3,921± linear feet)

Stream 11 is a north to south flowing perennial stream contained within a ditch on the southwest part of the evaluation area. Surface water was flowing within Stream 11 during our field reconnaissance on April 13, 2021.

Stream 12 (369± linear feet)

Stream 12 is a west to east flowing perennial stream contained within a ditch on the southwest part of the evaluation area. Surface water was flowing within Stream 12 during our field reconnaissance on April 13, 2021. Stream 12 has a direct surface water connection to Stream 11.

4.2.1 WETLANDS

COWC identified two (2) wetlands (Wetland 7 and Wetland 8) totaling 0.78± acre within the evaluation area. These areas exhibit a dominance of hydrophytic species, primary and secondary wetland hydrology indicators, and hydric soil characteristics. These wetlands were delineated as Wetland 7 (0.49± acre) and Wetland 8 (0.29± acre). These wetlands are further described below:

TABLE 3
WETLAND INFORMATION

Wetland ID	Acreage (On-Site)	Cowardin Classification	ORAM Score	Status	Location
Wetland 7	0.49±	Palustrine Forested (PFO)	49 (Cat. 2)	Jurisdictional	39.998444 -83.130556
Wetland 8	0.29±	Palustrine Emergent (PEM)	38 (Cat. 2)	Jurisdictional	39.997300 -83.131078
Total	0.78±				

COWC completed Ohio Rapid Assessment Method (ORAM) score sheets for the wetland areas delineated within the evaluation area. Wetland areas

identified within the evaluation area scored within Category 2, according to Ohio EPA standards. The ORAM forms are appended.

Using the USACE OMBIL Regulatory Module (ORM) Project Upload Template, COWC determined the Cowardin classification of wetlands within the evaluation area as palustrine emergent (PEM) and palustrine forested (PFO).

Wetland 7 (0.49± acre)

Wetland 7 is located within the wooded northwest part of the evaluation area. According to the USDA web soil survey map, this wetland is located within hydric Kokomo silty clay loam soils. Wetland 7 is mapped with a PFO1A designation on the NWI map. The wetland appears to receive hydrology from precipitation, overland flow from adjacent uplands, and flood waters from Stream 10. Stream 10 abuts the east side of the wetland and appears to provide surface water to Wetland 7 during prolonged precipitation events. Based on visual observation, Wetland 7 appears to be regularly inundated/saturated. Wetland 7 is generally dominated by American Elm (*Ulmus americana*), Swamp White Oak (*Quercus bicolor*), and Green Ash (*Fraxinus pennsylvanica*).

Wetland 8 (0.29± acre)

Wetland 8 is located within the wooded northwest part of the evaluation area. According to the USDA web soil survey map, this wetland is located within hydric Kokomo silty clay loam soils. The wetland appears to receive hydrology from precipitation, overland flow from adjacent uplands, and flood waters from Stream 10. Stream 10 abuts the north side of the wetland and appears to provide surface water to Wetland 8 during prolonged precipitation events. Based on visual observation, Wetland 8 appears to be seasonally saturated. Wetland 8 is generally dominated by Reed Canary Grass (*Phalaris arundinacea*) and Black Willow (*Salix nigra*).

4.2.2 PONDS

COWC identified one (1) pond (Pond 1) totaling 0.23± acre within the evaluation area. This pond was delineated as Pond 1 (0.23± acre), and further described below:

Pond 1 (0.23± acre)

Pond 1 is located on the western part of the evaluation area. Pond 1 appears to be a heavily silted excavation that partially impounds Stream 10, which flows through the central part of Pond 1. Pond 1 may provide a limited amount of stormwater retention from areas to the west of the evaluation area, and may help reduce the flow volume of Stream 10. This pond contains no rooted or emergent vegetation. Pond 1 is mapped with a PUBG designation on the NWI map.

TABLE 4
POND INFORMATION

Pond ID	Acreage	Description	Location
Pond 1	0.23±	Impoundment	39.997153 -83.131842
Total	0.23±		

5.0 FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

COWC identified two (2) wetlands (Wetland 7 and Wetland 8) totaling 0.78± acre, four (4) streams (Stream 9 through Stream 12) totaling 7,162 linear feet, and one (1) pond (Pond 1) totaling 0.23± acre within the evaluation area.

COWC followed the Navigable Waters Protection Rule (effective June 22, 2020) to determine the potential regulatory status of surface water features identified with the evaluation area. Per Title 33 (Navigation and Navigable Waters) of the Code of Federal Regulations (CFR), Chapter 2 (Corps of Engineers, Department of the Army, Department of Defense), Part 328 (Definition of Waters of the United States), Section 328.3 (Definitions), COWC has come to the following conclusions:

- Wetland 7 and Wetland 8 are likely considered waters of the U.S. per 33 CFR 328.3(a)(4), as they appear to meet the definition “adjacent wetlands” per 33 CFR 328.3(c)(1)(i)-(iv).
- Stream 9, Stream 10, Stream 11, and Stream 12 are likely considered waters of the U.S. per 33 CFR 328.3(a)(2), as they appear to meet the definition of “tributaries” per 33 CFR 328.3(c)(12).
- Pond 1 is likely considered waters of the U.S. per 33 CFR 328.3(a)(3), as Pond 1 appears to meet the definition of “lakes and ponds, and impoundments of jurisdictional waters” per 33 CFR 328.3(c)(6).

All surface water features identified within the evaluation area are likely to be regulated by the USACE. Section 404 of the CWA requires pre-construction notification (PCN) to the USACE and a Department of the Army (DA) permit prior to discharging dredged or fill material into waters of the U.S.

The USACE has authority to determine the jurisdictional status of surface water features identified within the evaluation area. Therefore, findings in this report are preliminary until verified by the USACE. COWC recommends obtaining an Approved Jurisdictional Determination (AJD) from the USACE Huntington, WV District Office for written verification of the findings documented within this report. With your authorization, COWC will supply the required information to process this request. With this reported information and/or a site visit, the USACE will make the official determination on jurisdiction. The findings and conclusions of this delineation report are subject to

change, pending USACE verification. This report will become public information upon submittal to the USACE.

6.0 SIGNATURE OF PROFESSIONAL PERSONNEL

To the best of our professional knowledge and belief, COWC personnel responsible for this report declare we have the specific qualifications based on education, training, and experience to assess the evaluation area for waters of the U.S. and isolated waters of the State of Ohio. The jurisdictional waters delineation has been conducted in a manner consistent with the criteria contained in the USACE Wetlands Delineation Manual (1987) and the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region, and with the level of care and skill ordinarily used by similar professionals performing similar services under similar conditions in the vicinity of the evaluation area.

COWC appreciates the opportunity to serve you on this project. Please contact COWC owner Matt Kaminski at mkaminski434@gmail.com with any questions or concerns regarding this report.

Respectfully submitted,

Central Ohio Wetland Consulting, LLC

Prepared by:

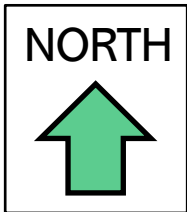
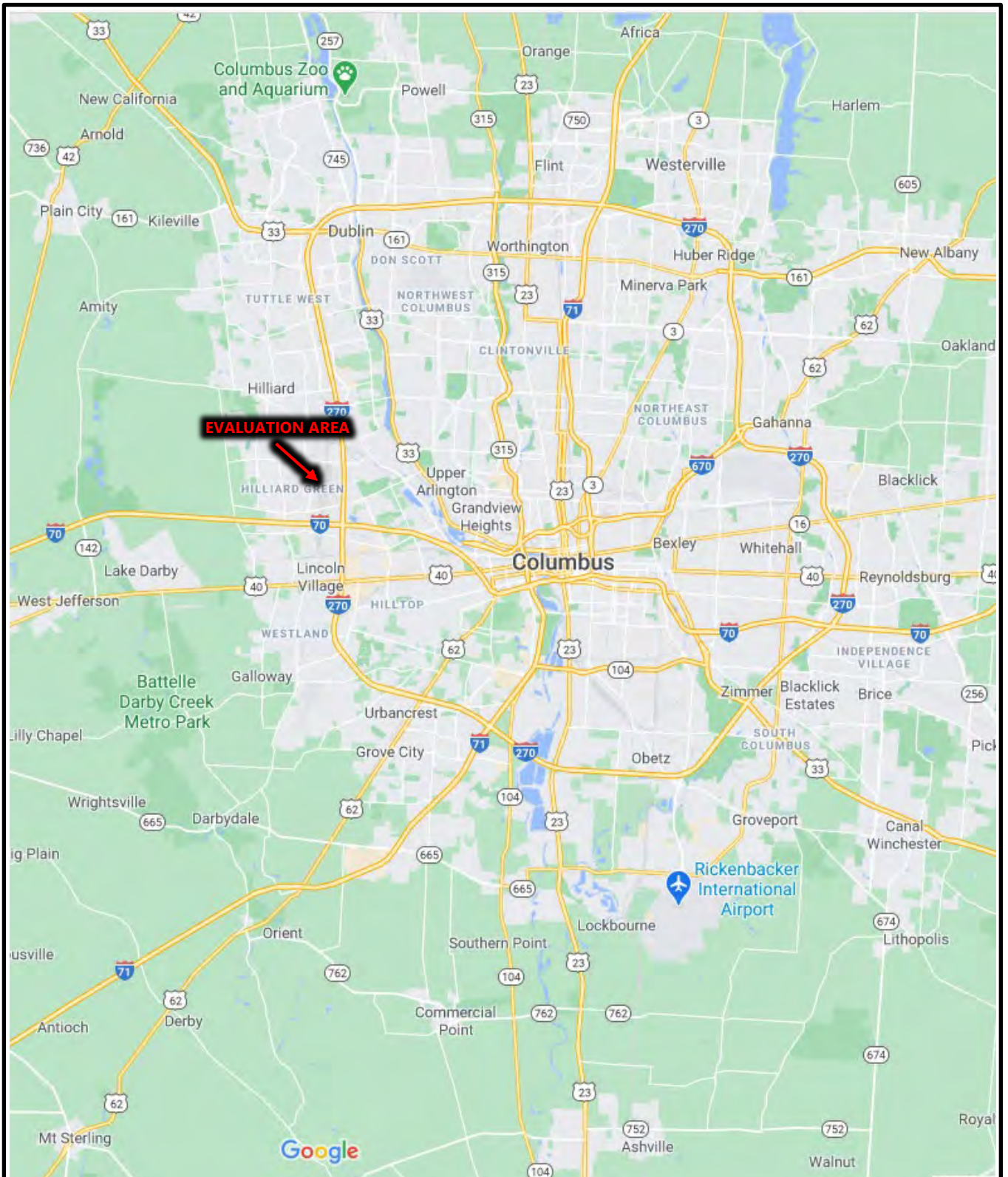


Matthew R. Kaminski, Owner
Wetland Scientist, 401/404 Specialist

Matthew R. Kaminski holds a Bachelor of Science Degree in Environmental Geography from Ohio University with 16 years of experience as an environmental consultant. Mr. Kaminski has completed hundreds of jurisdictional waters delineations throughout the State of Ohio upon completion of the 38 Hour Army Corps of Engineers Wetland Delineation & Management Training Program in 2006. Mr. Kaminski's experience includes wetland/stream delineation, plant identification, stream evaluations, 404/401 permitting, Ohio Rapid Assessment Method v. 5.0, Clean Water Act (CWA) regulations, Sections 7 & 9 of the Endangered Species Act (ESA), and Ohio Historic Preservation Office (OHPO) Section 106. Throughout his career, Mr. Kaminski has successfully facilitated regulatory approval of numerous residential, commercial, and institutional projects. Since September 2020, Mr. Kaminski has been sole proprietor of Central Ohio Wetland Consulting, LLC, offering comprehensive wetland and stream consultation and guidance for commercial and residential developers, architects, civil design professionals, and private individuals. Professional wetland and stream consulting services include preliminary jurisdictional waters assessments, wetland/stream delineation, approved and preliminary jurisdictional determination requests, and 404/401 permitting services.

APPENDIX 1

GENERAL LOCATION MAP OF EVALUATION AREA

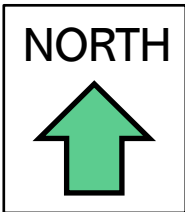
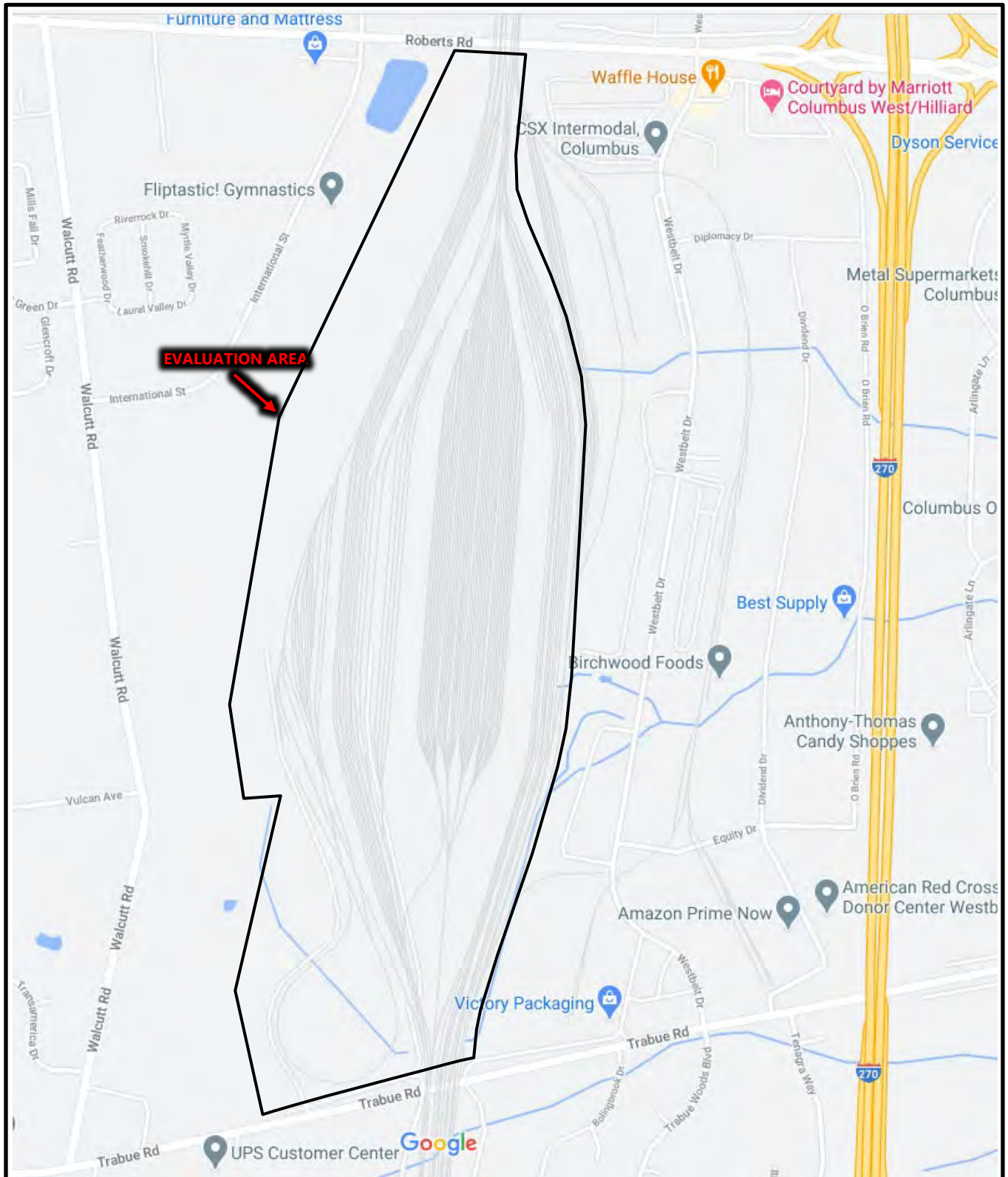


*BUCKEYE YARD
TRABUE AND ROBERTS ROADS
COLUMBUS, FRANKLIN COUNTY, OHIO
COWC PROJECT #120120007*



CENTRAL OHIO WETLAND CONSULTING, LLC

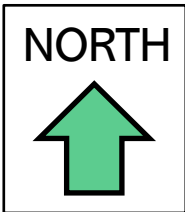
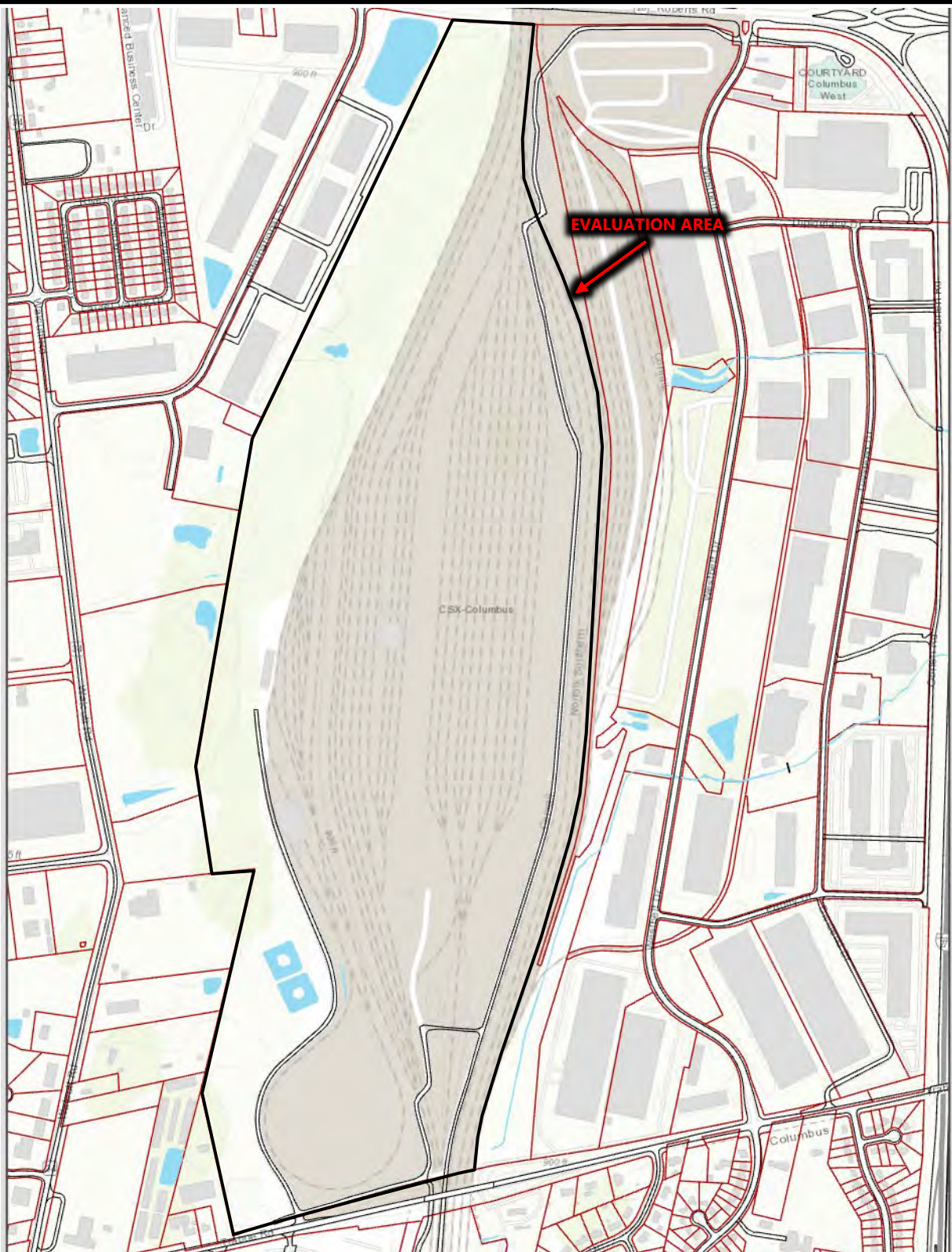
LOCATION MAP OF EVALUATION AREA



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COLUMBUS, FRANKLIN COUNTY, OHIO
COWC PROJECT #120120007*



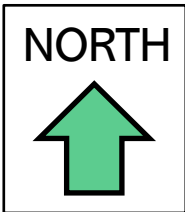
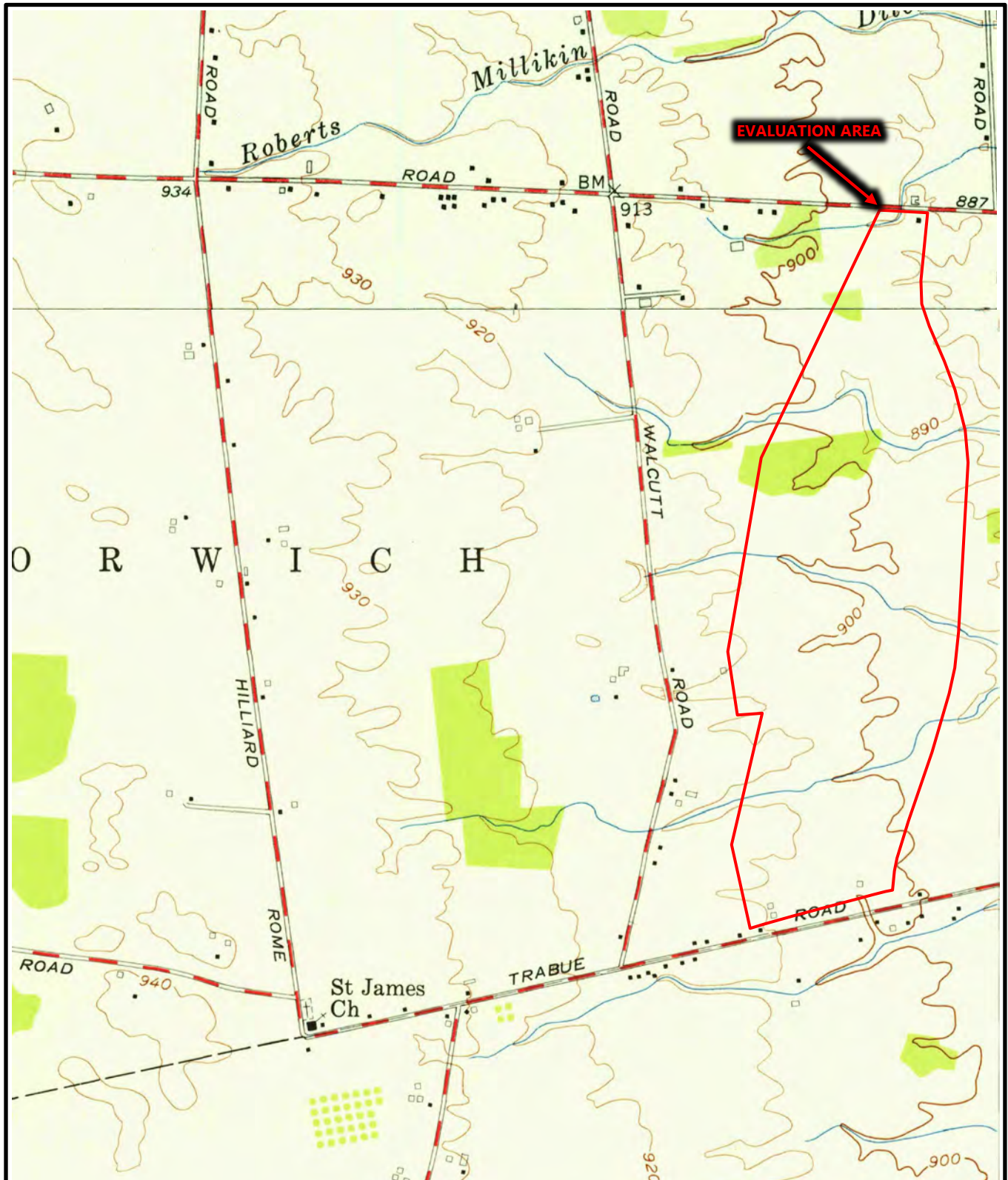
FRANKLIN COUNTY AUDITOR GIS MAP



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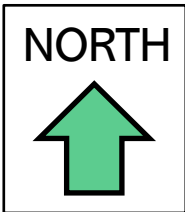
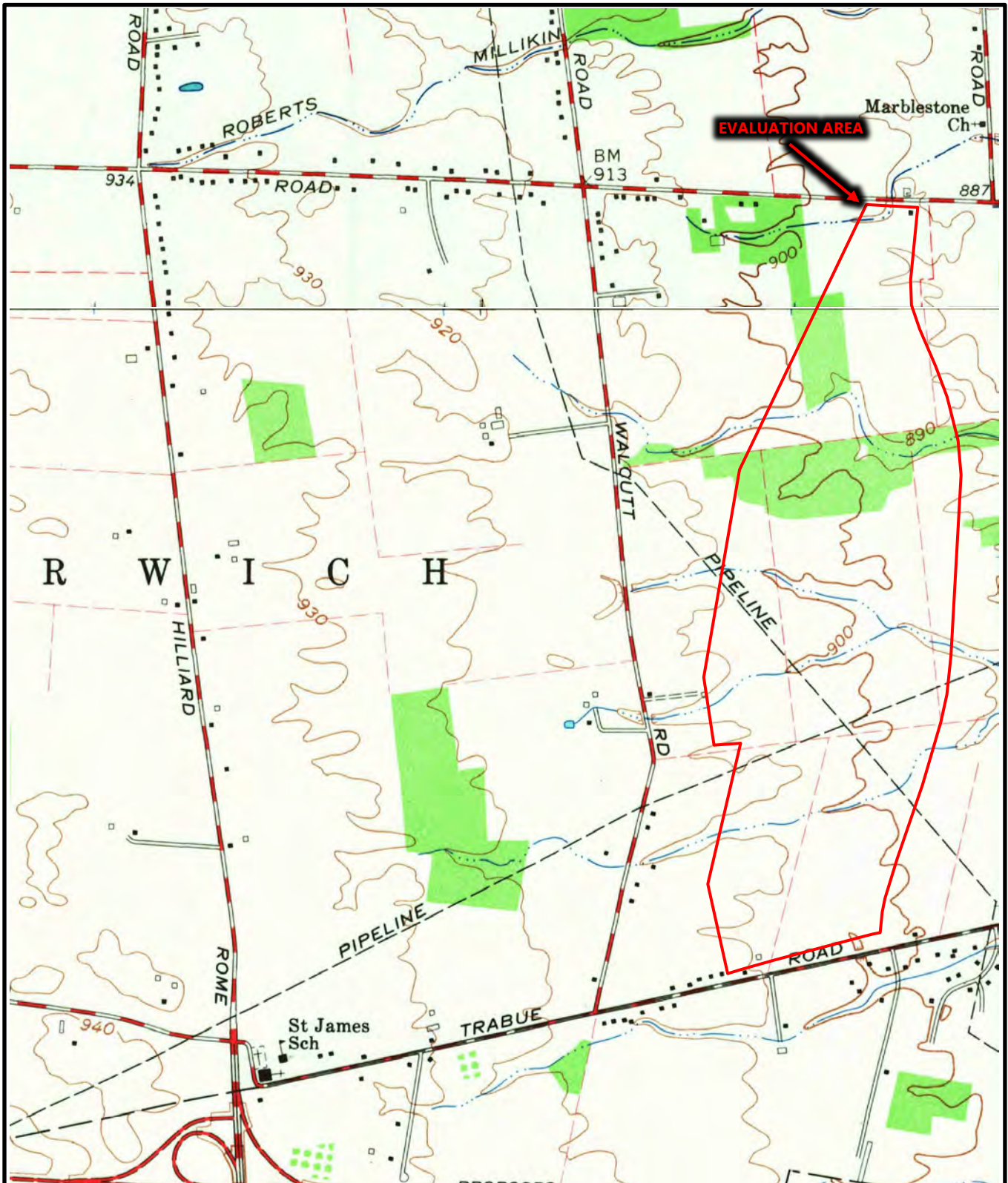
1954/1955 USGS (HILLIARD/GALLOWAY) TOPOGRAPHIC MAP



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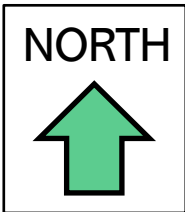
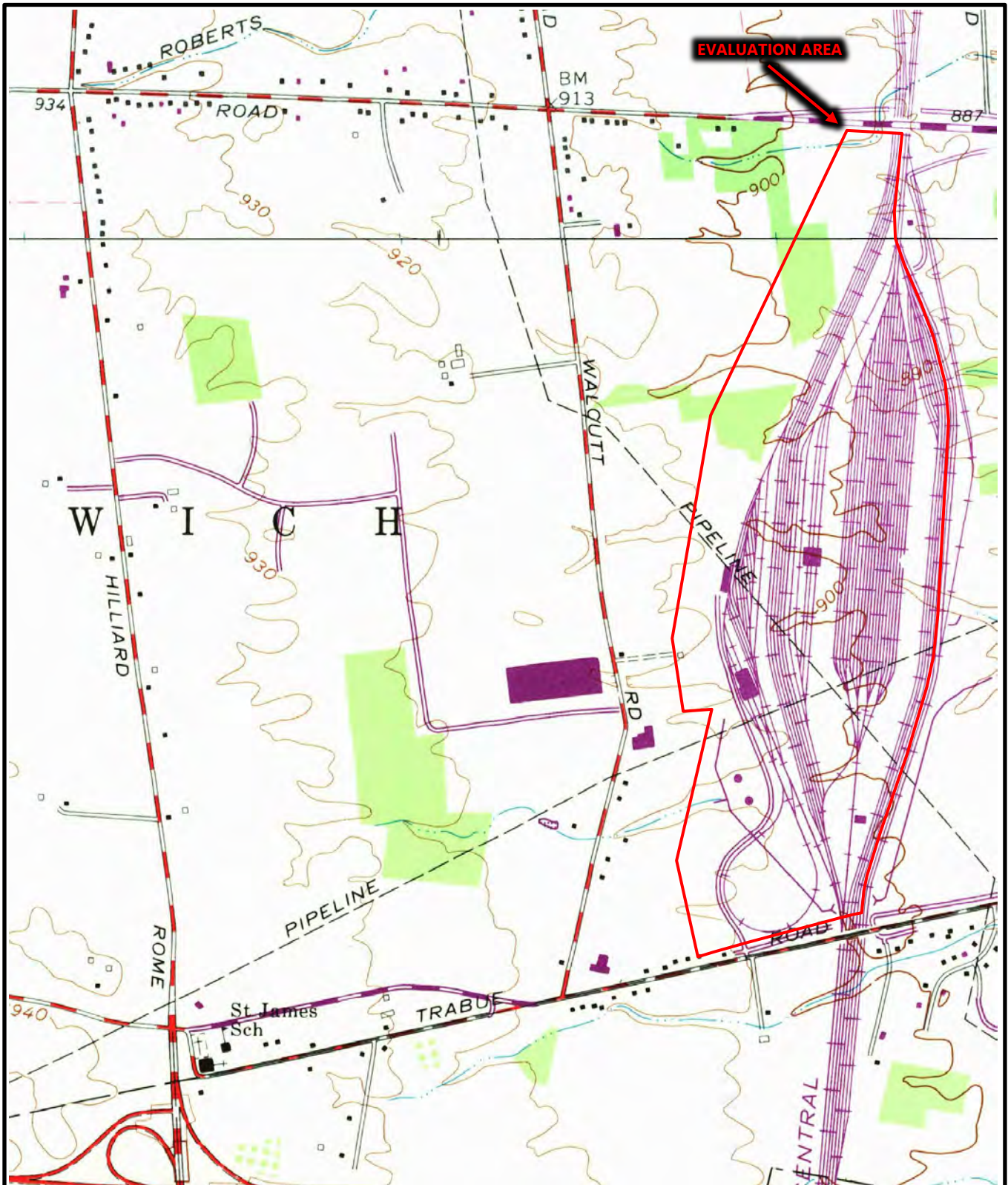
1966 USGS (HILLIARD/GALLOWAY) TOPOGRAPHIC MAP



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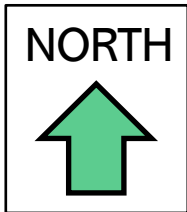
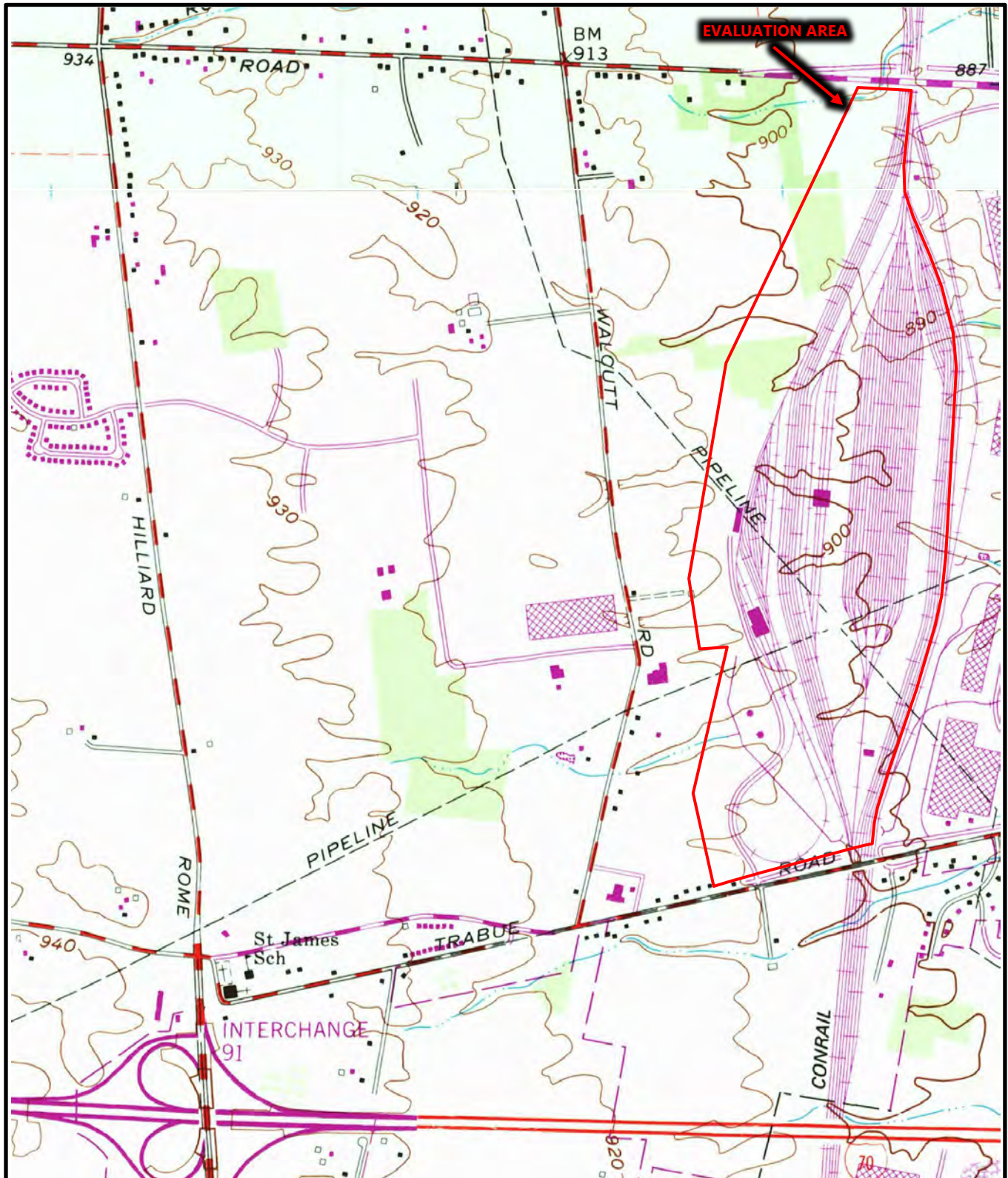
1973 USGS (HILLIARD/GALLOWAY) TOPOGRAPHIC MAP



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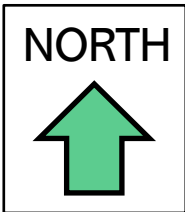
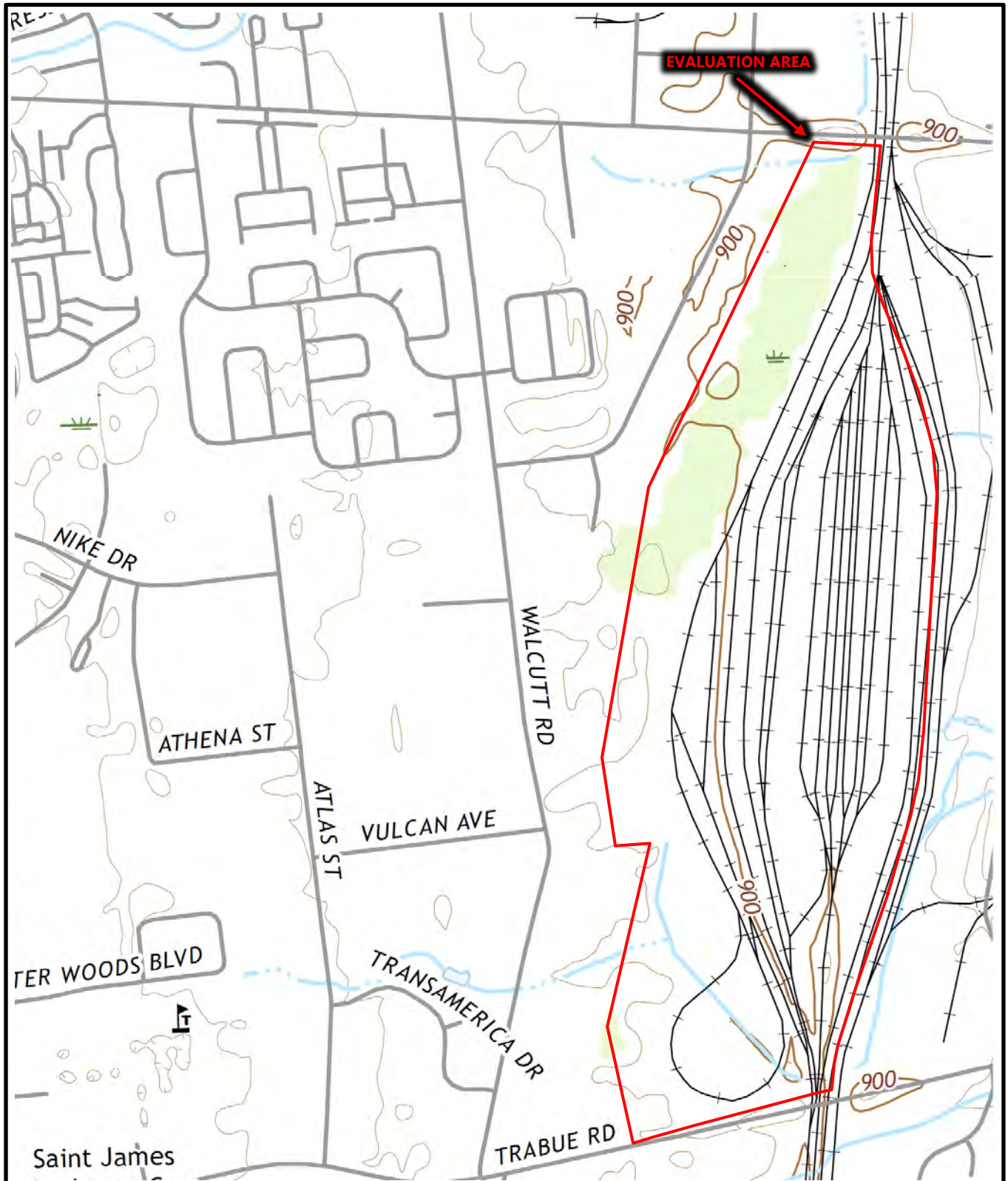
1980/1981 USGS (HILLIARD/GALLOWAY) TOPOGRAPHIC MAP



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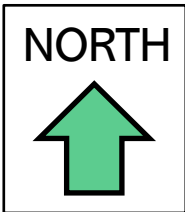


2019 USGS (HILLIARD/GALLOWAY) TOPOGRAPHIC MAP



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COLUMBUS, FRANKLIN COUNTY, OHIO
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NATIONAL WETLANDS INVENTORY (NWI) MAP

Wetlands



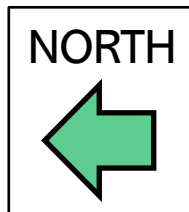
U.S. Fish and Wildlife Service
National Wetlands Inventory



Source: Esri, DigitalGlobe, GeoEye, EarthstarGeographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

This map is for general reference only. The US Fish & Wildlife Service is not responsible for the accuracy or current base data shown on this map. All wetlands related data be used in accordance with the layer metadata found Wetlands Mapper web site.

- November 20, 2020
- Wetlands**
-  Estuarine and Marine Deepwater
 -  Estuarine and Marine Wetland
 -  Freshwater Emergent Wetland
 -  Freshwater Forested/Shrub Wetland
 -  Freshwater Pond
 -  Lake
 -  Other
 -  Riverine



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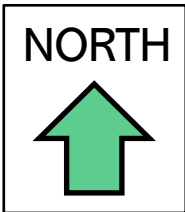


APPENDIX 2

1956 AERIAL PHOTOGRAPH



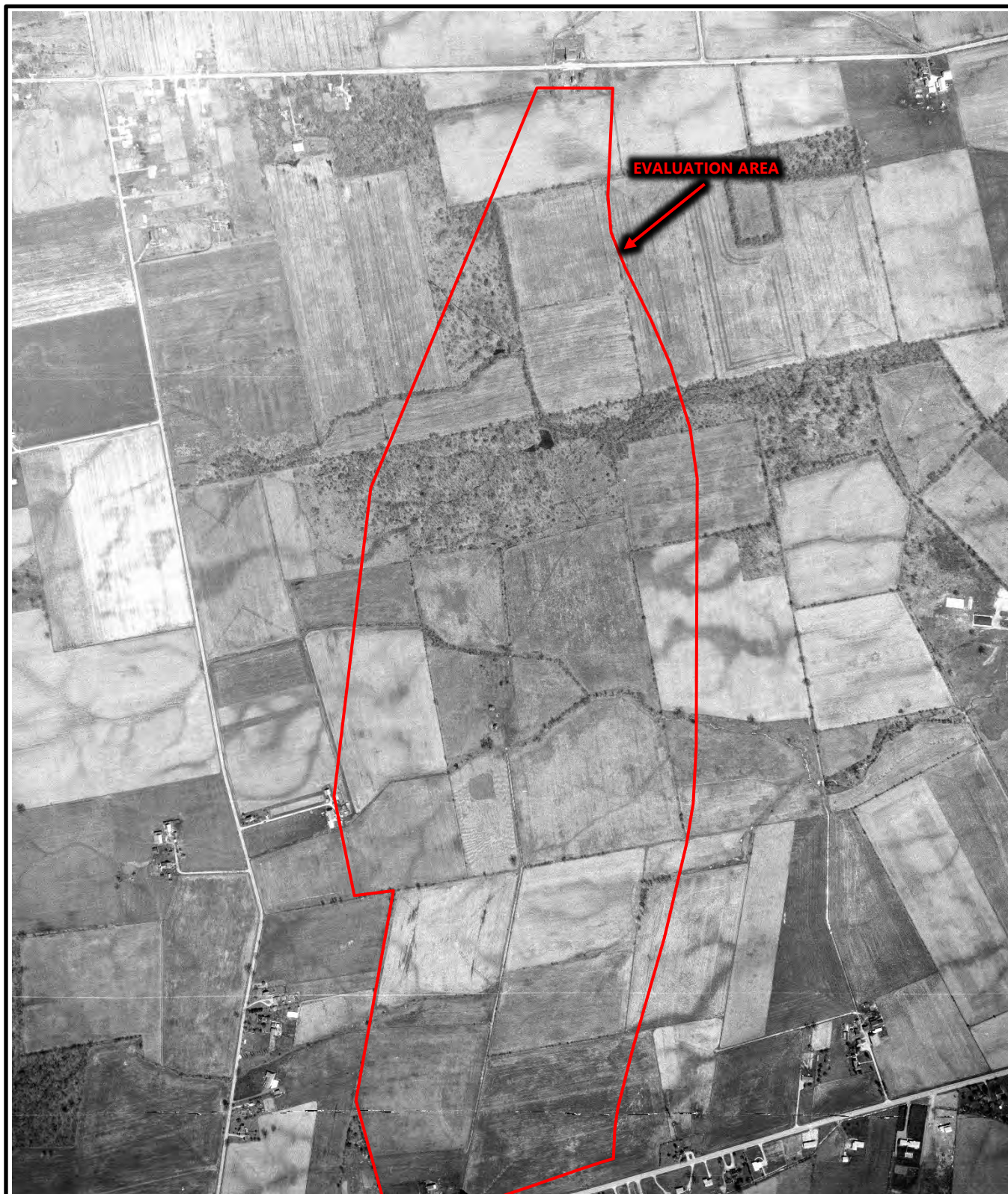
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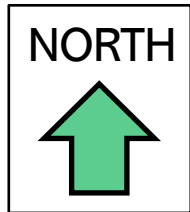
BUCKEYE YARD
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1964 AERIAL PHOTOGRAPH



EVALUATION AREA



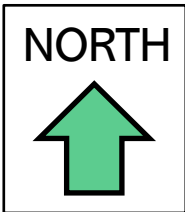
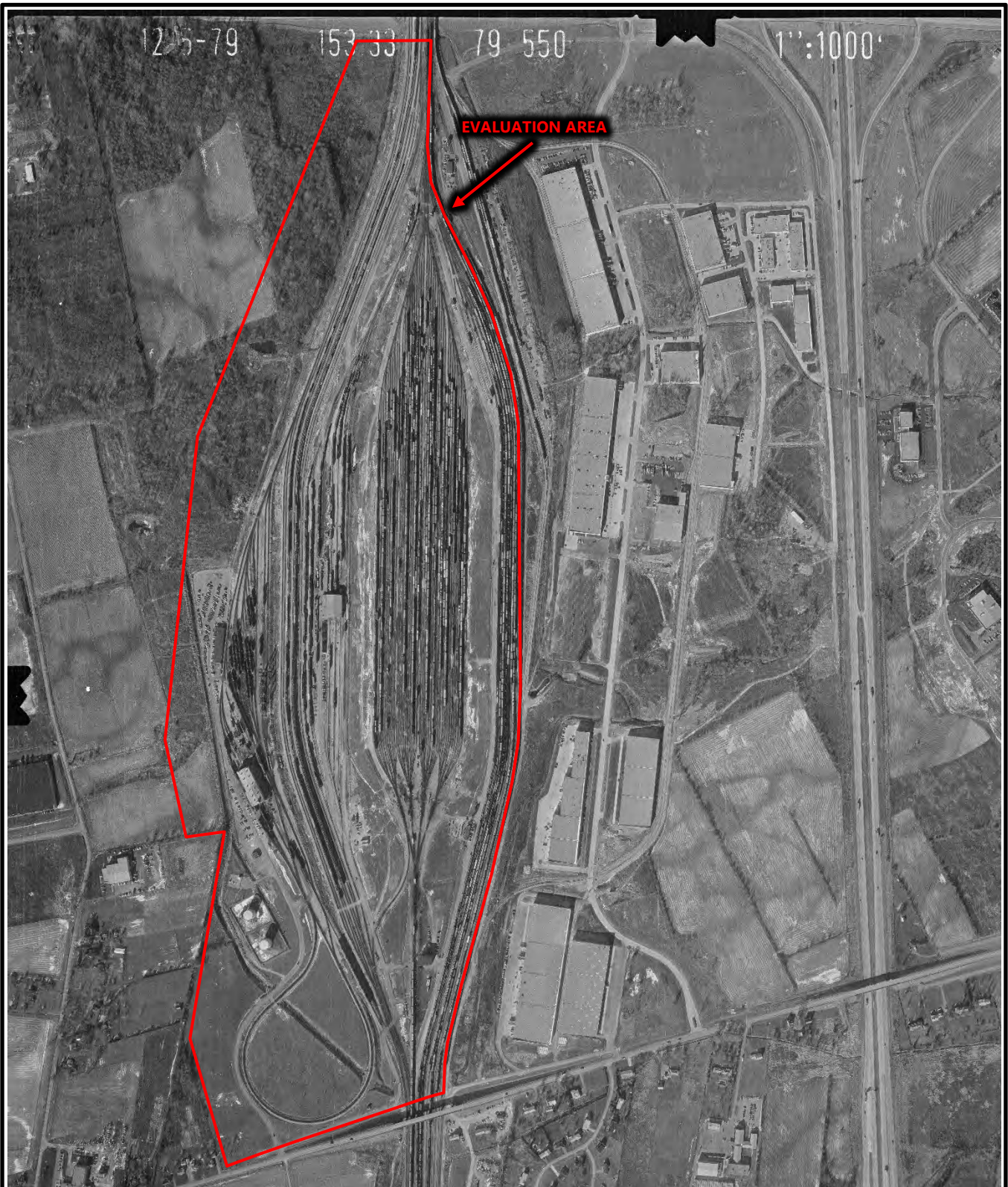
NORTH

*BUCKEYE YARD
TRABUE AND ROBERTS ROADS
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CENTRAL OHIO WETLAND CONSULTING, LLC

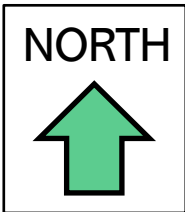
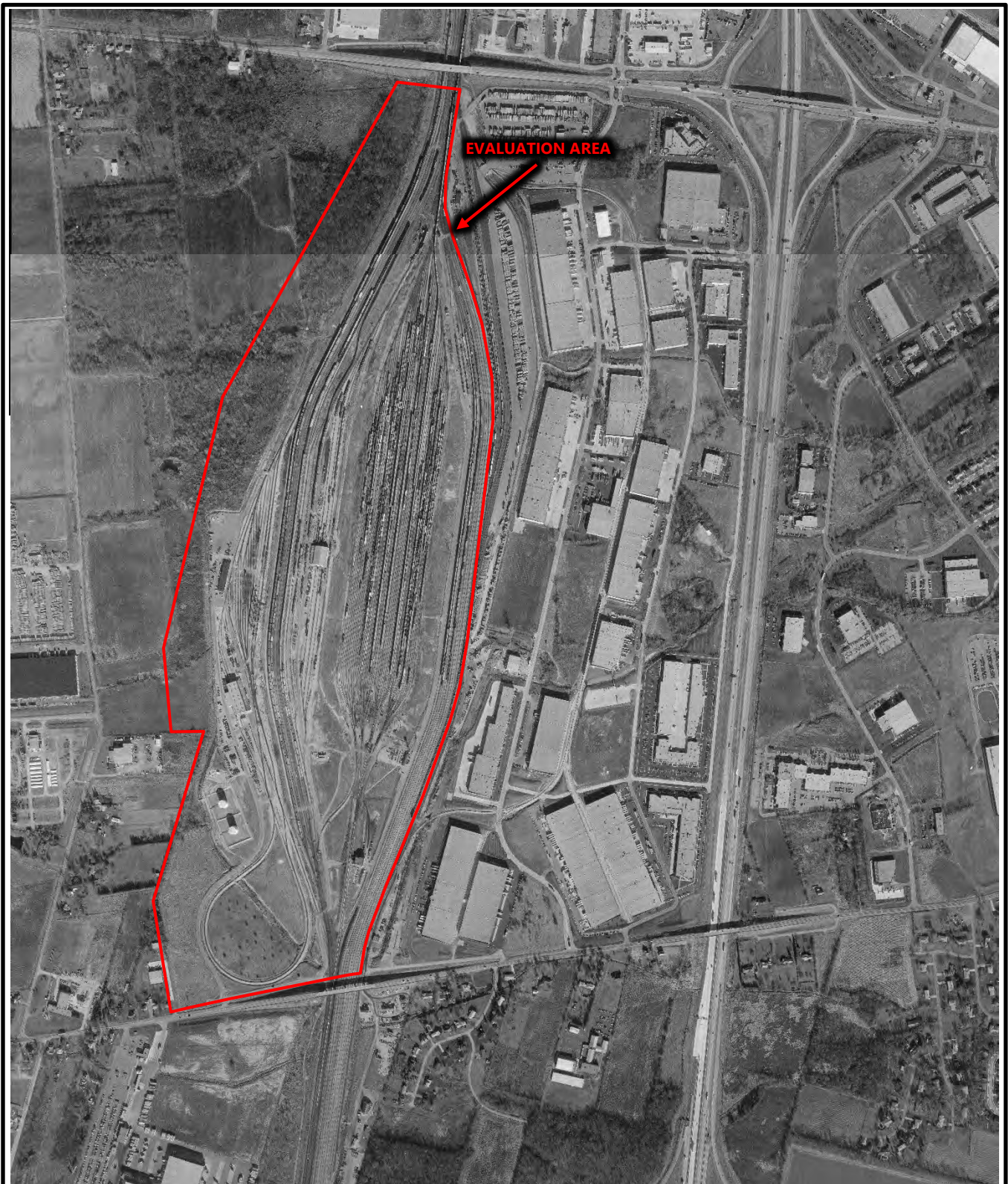
1979 AERIAL PHOTOGRAPH



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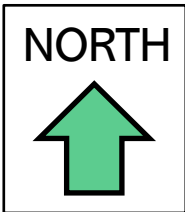
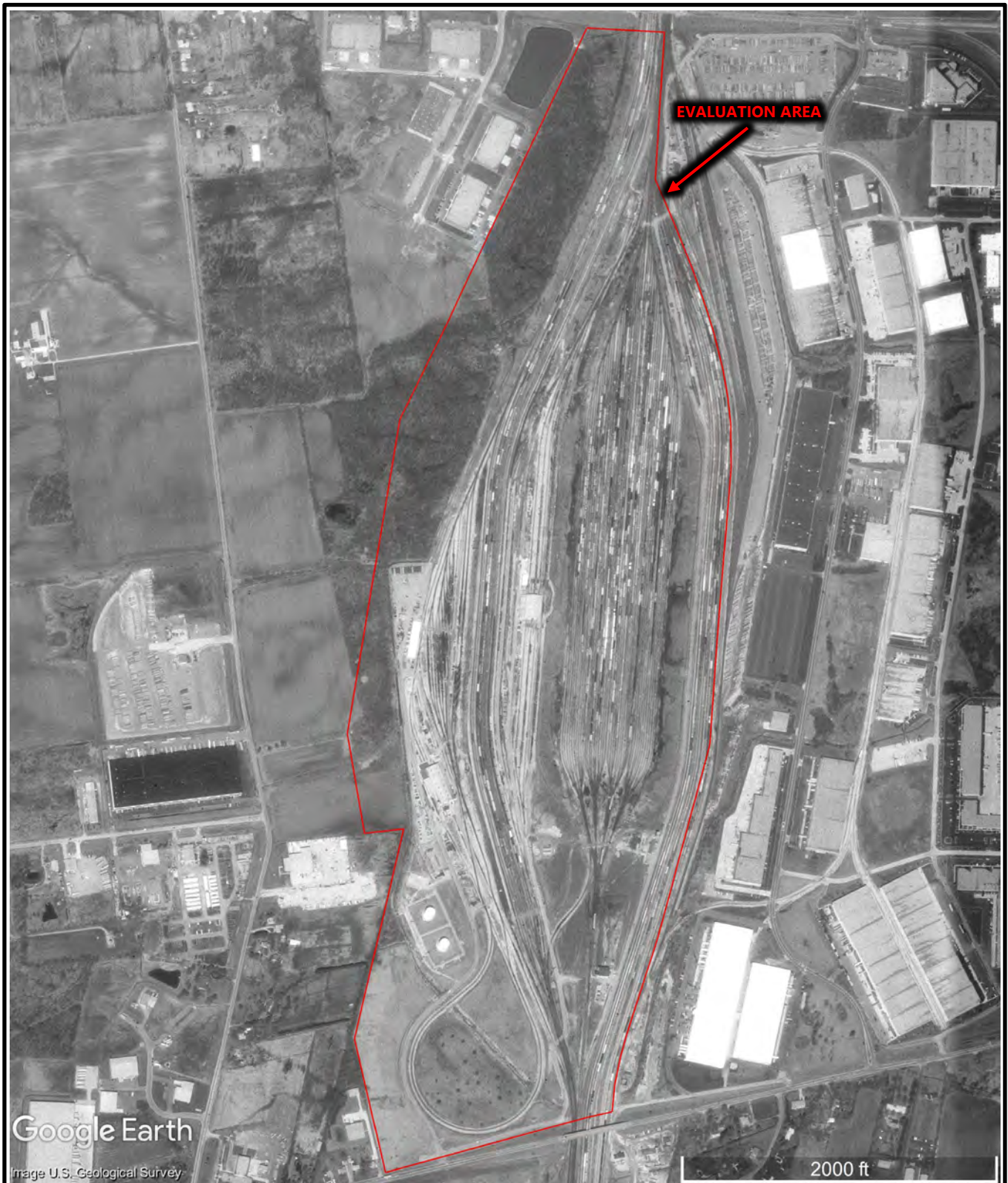
1989 AERIAL PHOTOGRAPH



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1994 AERIAL PHOTOGRAPH

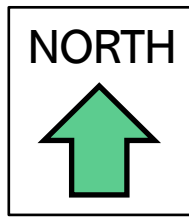
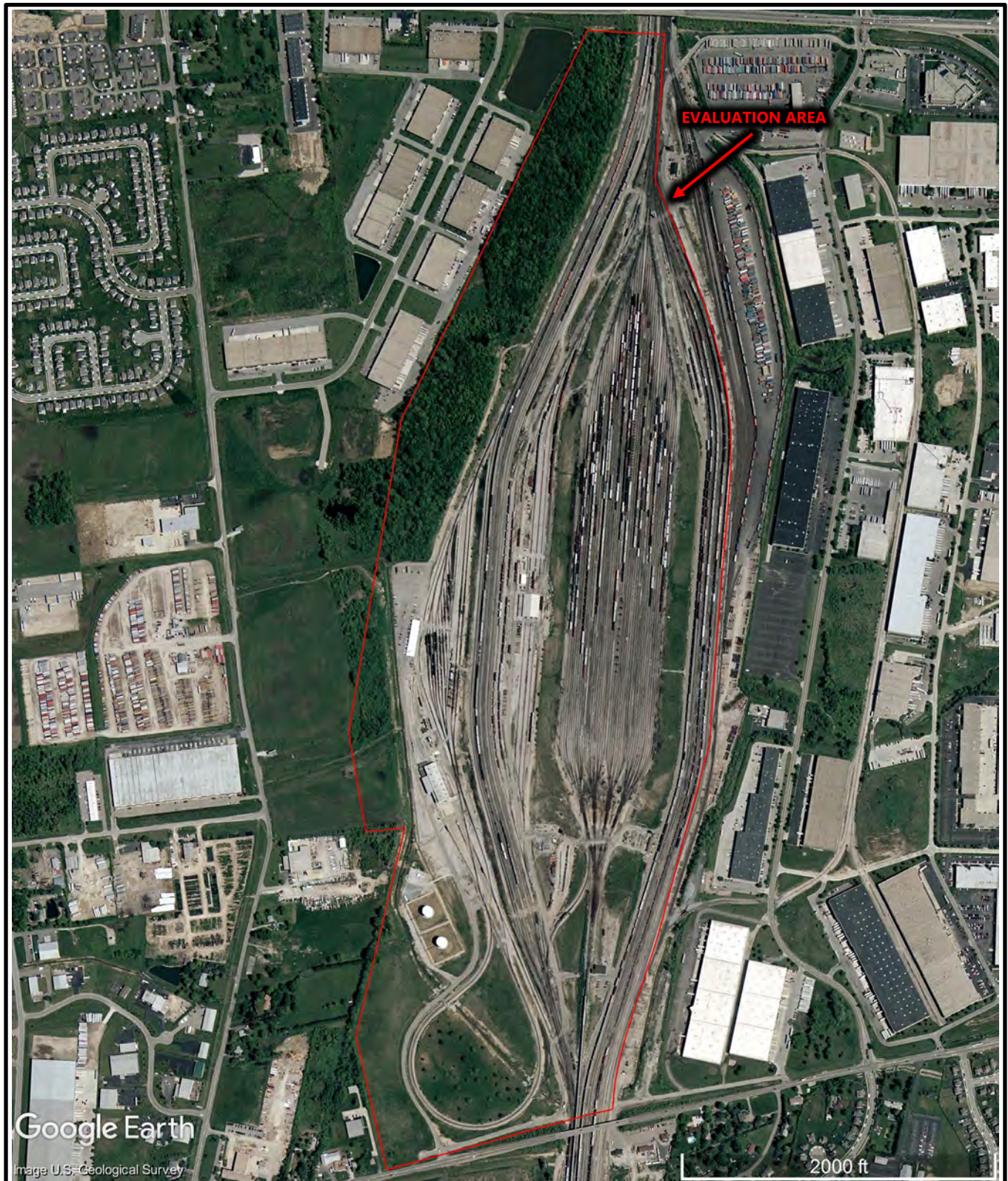


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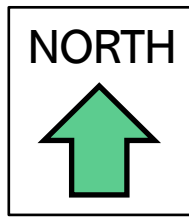
2002 AERIAL PHOTOGRAPH



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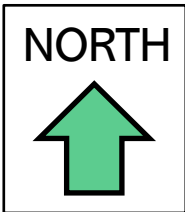
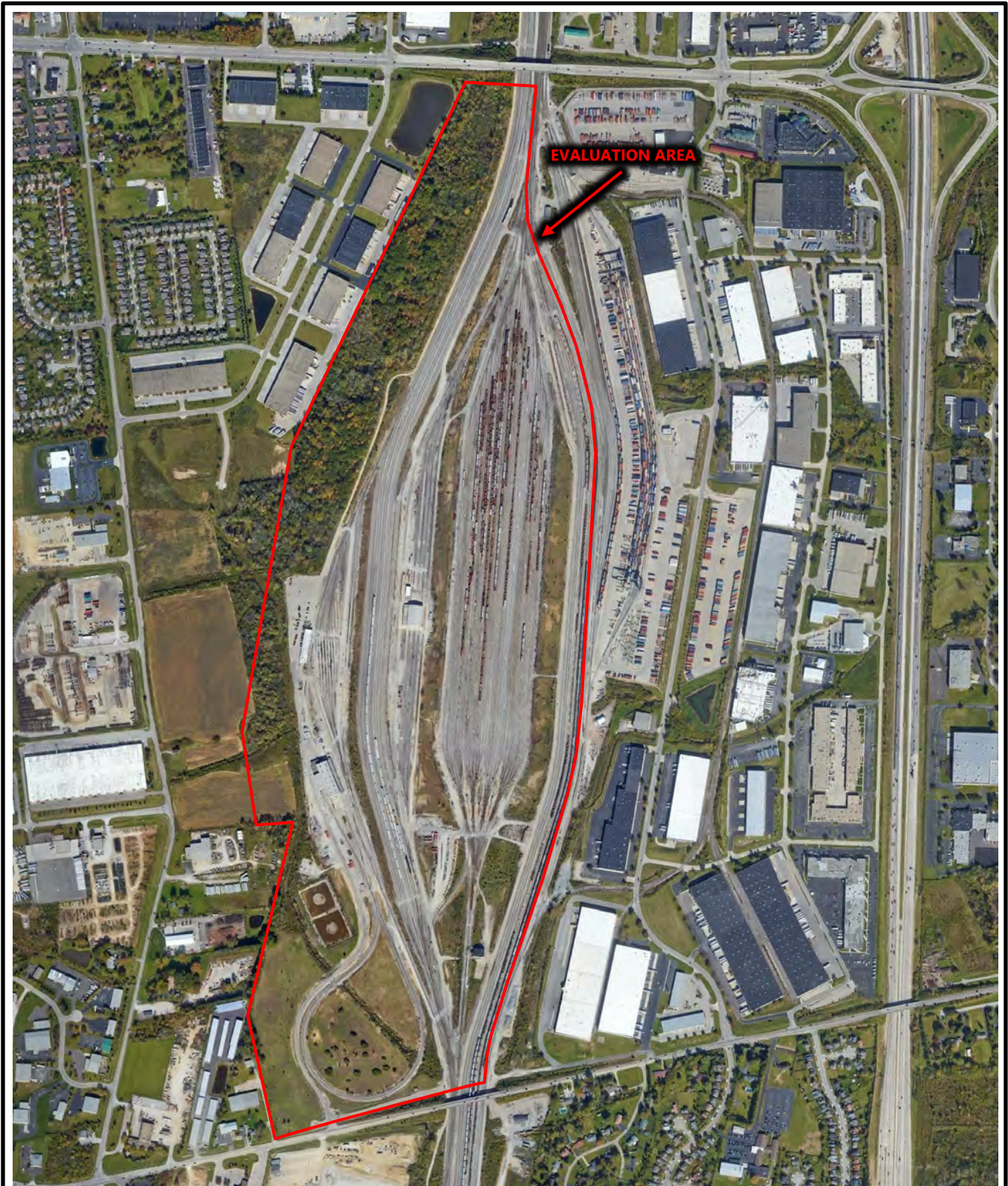
2009 AERIAL PHOTOGRAPH



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2019 AERIAL PHOTOGRAPH

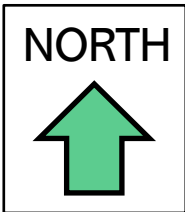
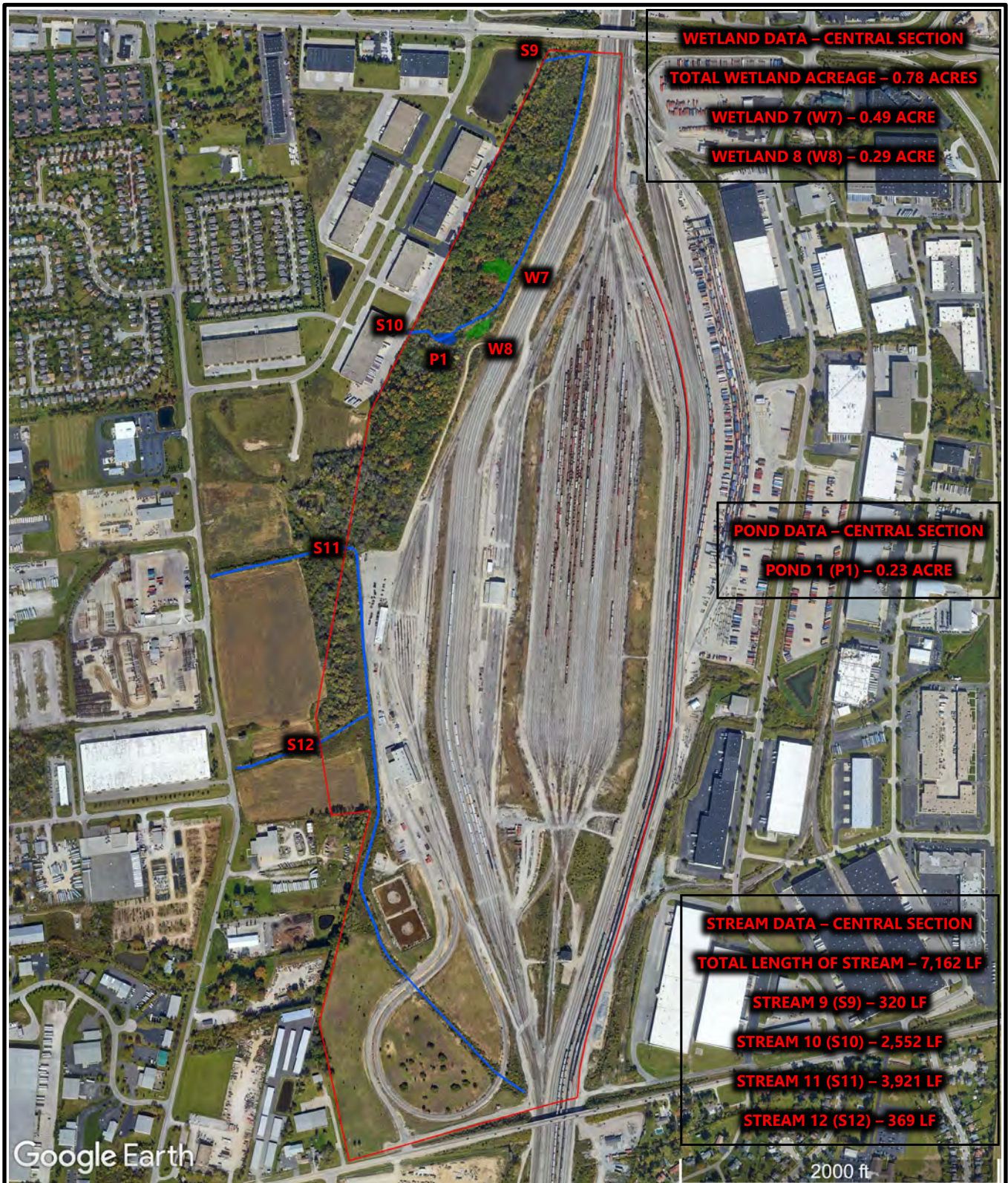


BUCKEYE YARD
TRABUE AND ROBERTS ROADS
COLUMBUS, FRANKLIN COUNTY, OHIO
COWC PROJECT #120120007



APPENDIX 3

WETLAND AND STREAM DELINEATION MAP



BUCKEYE YARD
TRABUE AND ROBERTS ROADS
COLUMBUS, FRANKLIN COUNTY, OHIO
COWC PROJECT #120120007



CENTRAL OHIO WETLAND CONSULTING, LLC

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Buckeye Yard City/County: Columbus/Franklin Sampling Date: 4/13/2021
 Applicant/Owner: Kimley-Horn State: OH Sampling Point: W-7
 Investigator(s): Matt Kaminski Section, Township, Range: _____
 Landform (hillside, terrace, etc.): till plains Local relief (concave, convex, none): concave
 Slope (%): 0-2 Lat: 39.998444 Long: -83.130556 Datum: Wetland 7
 Soil Map Unit Name: Kokomo silty clay loam (Ko) NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: Area delineated as Wetland 7	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Ulmus americana</u>		65	Yes	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)																
2. <u>Quercus bicolor</u>		20	Yes	FACW																	
3. <u>Fraxinus pennsylvanica</u>		10	No	FACW																	
4. _____																					
5. _____																					
		95 =Total Cover																			
Sapling/Shrub Stratum	(Plot size: <u>15'</u>)																				
1. <u>Fraxinus pennsylvanica</u>		15	Yes		Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>95</u></td> <td>x 2 = <u>190</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>95</u> (A)</td> <td><u>190</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>95</u>	x 2 = <u>190</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>95</u> (A)	<u>190</u> (B)	Prevalence Index = B/A = <u>2.00</u>	
Total % Cover of:	Multiply by:																				
OBL species <u>0</u>	x 1 = <u>0</u>																				
FACW species <u>95</u>	x 2 = <u>190</u>																				
FAC species <u>0</u>	x 3 = <u>0</u>																				
FACU species <u>0</u>	x 4 = <u>0</u>																				
UPL species <u>0</u>	x 5 = <u>0</u>																				
Column Totals: <u>95</u> (A)	<u>190</u> (B)																				
Prevalence Index = B/A = <u>2.00</u>																					
2. _____																					
3. _____																					
4. _____																					
5. _____																					
		15 =Total Cover																			
Herb Stratum	(Plot size: <u>5'</u>)																				
1. _____					Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 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.																
2. _____																					
3. _____																					
4. _____																					
5. _____																					
6. _____																					
7. _____																					
8. _____																					
9. _____																					
10. _____																					
		=Total Cover																			
Woody Vine Stratum	(Plot size: <u>30'</u>)																				
1. _____					Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
2. _____																					
		=Total Cover																			

Remarks: (Include photo numbers here or on a separate sheet.)
 Refer to photos 37 and 38 in COWC's delineation report.

SOIL

Sampling Point: W-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	95	10YR 5/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
8-16	10YR 5/2	85	10YR 5/6	15	C	M	Loamy/Clayey	Prominent redox concentrations

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- ? Coast Prairie Redox (A16)
- Iron-Manganese Masses (F12)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 1
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? Yes No Depth (inches): 0
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Buckeye Yard City/County: Columbus/Franklin Sampling Date: 4/13/2021
 Applicant/Owner: Kimley-Horn State: OH Sampling Point: W-8
 Investigator(s): Matt Kaminski Section, Township, Range: _____
 Landform (hillside, terrace, etc.): till plains Local relief (concave, convex, none): concave
 Slope (%): 0-2 Lat: 39.997300 Long: -83.131078 Datum: Wetland 8
 Soil Map Unit Name: Kokomo silty clay loam (Ko) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: Area delineated as Wetland 8	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Salix nigra</u>	15	Yes	OBL	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____	15	=Total Cover																		
Sapling/Shrub Stratum (Plot size: _____)																				
1. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td style="text-align: center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>15</u></td> <td>x 1 = <u>15</u></td> </tr> <tr> <td>FACW species <u>100</u></td> <td>x 2 = <u>200</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>115</u> (A)</td> <td><u>215</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>1.87</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>15</u>	x 1 = <u>15</u>	FACW species <u>100</u>	x 2 = <u>200</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>115</u> (A)	<u>215</u> (B)	Prevalence Index = B/A = <u>1.87</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>15</u>	x 1 = <u>15</u>																			
FACW species <u>100</u>	x 2 = <u>200</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>115</u> (A)	<u>215</u> (B)																			
Prevalence Index = B/A = <u>1.87</u>																				
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____	=Total Cover																			
Herb Stratum (Plot size: _____)																				
1. <u>Phalaris arundinacea</u>	100	Yes	FACW	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 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.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
_____	100	=Total Cover																		
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
2. _____	_____	_____	_____																	
_____	=Total Cover																			
Remarks: (Include photo numbers here or on a separate sheet.) Refer to photos 40 and 41 in COWC's delineation report.																				

SOIL

Sampling Point: W-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 5/2	95	10YR 5/6	5	C	M	Loamy/Clayey	Prominent redox concentrations

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

²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Dark Surface (S7)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input checked="" type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> ? Coast Prairie Redox (A16)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12)</p> <p><input type="checkbox"/> Red Parent Material (F21)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (F22)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
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³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<p>Restrictive Layer (if observed):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
--	--

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input checked="" type="checkbox"/> High Water Table (A2)</p> <p><input checked="" type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p> <p><input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> True Aquatic Plants (B14)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Gauge or Well Data (D9)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>	<p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input checked="" type="checkbox"/> Geomorphic Position (D2)</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>6</u></p> <p>Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u></p> <p>(includes capillary fringe)</p>	<p>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
--	--

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

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Buckeye Yard City/County: Columbus/Franklin Sampling Date: 4/13/2021
 Applicant/Owner: Kimley-Horn State: OH Sampling Point: UP-1
 Investigator(s): Matt Kaminski Section, Township, Range: _____
 Landform (hillside, terrace, etc.): till plains Local relief (concave, convex, none): none
 Slope (%): 0-2 Lat: 39.997969 Long: -83.130994 Datum: Upland
 Soil Map Unit Name: Crosby silt loam (CrA) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: Location is upland and representative of the wooded western portions of the evaluation area	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																																	
1. <u>Quercus rubra</u>	40	Yes	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																																
2. <u>Maclura pomifera</u>	20	Yes	FACU																																	
3. <u>Celtis occidentalis</u>	15	No	FAC																																	
4. <u>Ulmus americana</u>	10	No	FACW																																	
5. <u>Fraxinus pennsylvanica</u>	10	No	FACW																																	
	95 =Total Cover																																			
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																																				
1. <u>Lonicera morrowii</u>	65	Yes	FACU	Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: right;">Total % Cover of:</td> <td></td> <td style="text-align: right;">Multiply by:</td> <td></td> </tr> <tr> <td>OBL species</td> <td style="text-align: center;"><u>0</u></td> <td>x 1 =</td> <td style="text-align: center;"><u>0</u></td> </tr> <tr> <td>FACW species</td> <td style="text-align: center;"><u>20</u></td> <td>x 2 =</td> <td style="text-align: center;"><u>40</u></td> </tr> <tr> <td>FAC species</td> <td style="text-align: center;"><u>15</u></td> <td>x 3 =</td> <td style="text-align: center;"><u>45</u></td> </tr> <tr> <td>FACU species</td> <td style="text-align: center;"><u>125</u></td> <td>x 4 =</td> <td style="text-align: center;"><u>500</u></td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;"><u>0</u></td> <td>x 5 =</td> <td style="text-align: center;"><u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;"><u>160</u> (A)</td> <td></td> <td style="text-align: center;"><u>585</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A =</td> <td></td> <td style="text-align: center;"><u>3.66</u></td> </tr> </table>	Total % Cover of:		Multiply by:		OBL species	<u>0</u>	x 1 =	<u>0</u>	FACW species	<u>20</u>	x 2 =	<u>40</u>	FAC species	<u>15</u>	x 3 =	<u>45</u>	FACU species	<u>125</u>	x 4 =	<u>500</u>	UPL species	<u>0</u>	x 5 =	<u>0</u>	Column Totals:	<u>160</u> (A)		<u>585</u> (B)	Prevalence Index = B/A =			<u>3.66</u>
Total % Cover of:		Multiply by:																																		
OBL species	<u>0</u>	x 1 =	<u>0</u>																																	
FACW species	<u>20</u>	x 2 =	<u>40</u>																																	
FAC species	<u>15</u>	x 3 =	<u>45</u>																																	
FACU species	<u>125</u>	x 4 =	<u>500</u>																																	
UPL species	<u>0</u>	x 5 =	<u>0</u>																																	
Column Totals:	<u>160</u> (A)		<u>585</u> (B)																																	
Prevalence Index = B/A =			<u>3.66</u>																																	
2. _____																																				
3. _____																																				
4. _____																																				
5. _____																																				
	65 =Total Cover																																			
Herb Stratum (Plot size: <u>5'</u>)																																				
1. _____				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.																																
2. _____																																				
3. _____																																				
4. _____																																				
5. _____																																				
6. _____																																				
7. _____																																				
8. _____																																				
9. _____																																				
10. _____																																				
Woody Vine Stratum (Plot size: <u>30'</u>)																																				
1. _____				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>																																
2. _____																																				

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

SOIL

Sampling Point: UP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 5/3	95	10YR 5/6	5	C	M	Loamy/Clayey	Distinct redox concentrations

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 5 cm Mucky Peat or Peat (S3)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- Iron-Manganese Masses (F12)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Background Information

Name:	Matt Kaminski
Date:	4/13/2021
Affiliation:	Central Ohio Wetland Consulting, LLC (COWC)
Address:	6260 Havens Road, Blacklick, Ohio 43004
Phone Number:	614-940-8771
e-mail address:	mkaminski434@gmail.com
Name of Wetland:	Wetland 7
Vegetation Communit(ies):	forested (PFO)
HGM Class(es):	depressional
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
<p>Wetland 7 is located approximately 1,500 feet south of Roberts Road, and approximately 670 feet east of International Street, on the northwest portion of Franklin County parcel 560-154558. The approximate coordinates for this wetland are 39.998444 / -83.130556. Refer to COWC's delineation report and wetland and stream delineation map for additional information on the location of this wetland.</p>	
Lat/Long or UTM Coordinate	39.998444 / -83.130556
USGS Quad Name	Hilliard, Ohio and Galloway, Ohio
County	Franklin
Township	Columbus
Section and Subsection	
Hydrologic Unit Code	05060001
Site Visit	4/13/2021
National Wetland Inventory Map	PFO1A
Ohio Wetland Inventory Map	N/A
Soil Survey	Kokomo silty clay loam (Ko)
Delineation report/map	Wetland and Stream Delineation Map

Name of Wetland: Wetland 7	
Wetland Size (acres, hectares): 0.49 acre	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. WETLAND AND STREAM DELINEATION MAP	
<p>The map displays an aerial view of the Buckeye Yard area in Columbus, Ohio. Wetland 7 (W7) is highlighted in green, located in the wooded northwest section. Stream 10 (S10) runs along the east side of W7. Other streams shown include S9, S11, and S12. Pond 1 (P1) is located to the east of W7. Three data boxes provide specific metrics: Wetland Data (W7: 0.49 acre, W8: 0.29 acre, Total: 0.78 acres), Pond Data (P1: 0.23 acre), and Stream Data (S9: 320 LF, S10: 2,552 LF, S11: 3,921 LF, S12: 369 LF, Total Length: 7,162 LF). A north arrow is in the bottom left, and a map of Ohio is in the bottom right. Project details: BUCKEYE YARD, TRABUE AND ROBERTS ROADS, COLUMBUS, FRANKLIN COUNTY, OHIO, COWC PROJECT #120120007. Scale: 2000 ft.</p>	
Comments, Narrative Discussion, Justification of Category Changes: Wetland 7 is located within the wooded northwest part of the evaluation area. According to the USDA web soil survey map, this wetland is located within hydric Kokomo silty clay loam soils. Wetland 7 is mapped with a PFO1A designation on the NWI map. The wetland appears to receive hydrology from precipitation, overland flow from adjacent uplands, and flood waters from Stream 10. Stream 10 abuts the east side of the wetland and appears to provide surface water to Wetland 7 during prolonged precipitation events. Based on visual observation, Wetland 7 appears to be regularly inundated/saturated. Wetland 7 is generally dominated by American Elm (<i>Ulmus americana</i>), Swamp White Oak (<i>Quercus bicolor</i>), and Green Ash (<i>Fraxinus pennsylvanica</i>). The wetland scored 49 points, placing this wetland in Category 2.	
Final score : 49	Category: 2

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

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

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

Site: Buckeye Yard	Rater(s): Matt Kaminski	Date: 4/13/2021
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2	2
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Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

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

7	9
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Metric 2. Upland buffers and surrounding land use.

max 14 pts. subtotal

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

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

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

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

17	26
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Metric 3. Hydrology.

max 30 pts. subtotal

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed	
<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input checked="" type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

17	43
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Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

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

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

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

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

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

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

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input checked="" type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

43

subtotal this page

Wetland 7

Site: Buckeye Yard	Rater(s): Matt Kaminski	Date: 4/13/2021
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43

subtotal first page

0	43
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max 10 pts. subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

6	49
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max 20 pts. subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- Emergent
- Shrub
- 1 Forest
- Mudflats
- Open water
- Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

- 0 Vegetated hummocks/tussucks
- 1 Coarse woody debris >15cm (6in)
- 0 Standing dead >25cm (10in) dbh
- 0 Amphibian breeding pools

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

49

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

Wetland 7

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 1.
	Question 6. Bogs	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 7. Fens	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, Category 3	
Question 11. Relict Wet Prairies	YES <input type="radio"/> NO <input checked="" type="radio"/>	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	2	
	Metric 2. Buffers and surrounding land use	7	
	Metric 3. Hydrology	17	
	Metric 4. Habitat	17	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersions, microtopography	6	
	TOTAL SCORE	49	Category based on score breakpoints Category 2

Complete Wetland Categorization Worksheet.

Wetland 7

Wetland Categorization Worksheet

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

Final Category
 Choose one Category 1 **Category 2** Category 3

End of Ohio Rapid Assessment Method for Wetlands.

Background Information

Name:	Matt Kaminski
Date:	4/13/2021
Affiliation:	Central Ohio Wetland Consulting, LLC (COWC)
Address:	6260 Havens Road, Blacklick, Ohio 43004
Phone Number:	614-940-8771
e-mail address:	mkaminski434@gmail.com
Name of Wetland:	Wetland 8
Vegetation Communit(ies):	emergent (PEM)
HGM Class(es):	depressional
Location of Wetland: include map, address, north arrow, landmarks, distances, roads, etc.	
<p>Wetland 8 is located approximately 1,900 feet south of Roberts Road, and approximately 800 feet east of International Street, on the northwest portion of Franklin County parcel 560-154558. The approximate coordinates for this wetland are 39.997300 / -83.131078. Refer to COWC's delineation report and wetland and stream delineation map for additional information on the location of this wetland.</p>	
Lat/Long or UTM Coordinate	39.997300 / -83.131078
USGS Quad Name	Hilliard, Ohio and Galloway, Ohio
County	Franklin
Township	Columbus
Section and Subsection	
Hydrologic Unit Code	05060001
Site Visit	4/13/2021
National Wetland Inventory Map	N/A
Ohio Wetland Inventory Map	N/A
Soil Survey	Kokomo silty clay loam (Ko)
Delineation report/map	Wetland and Stream Delineation Map

Name of Wetland: Wetland 8	
Wetland Size (acres, hectares): 0.29 acre	
Sketch: Include north arrow, relationship with other surface waters, vegetation zones, etc. WETLAND AND STREAM DELINEATION MAP	
<p>WETLAND DATA - CENTRAL SECTION TOTAL WETLAND ACREAGE - 0.78 ACRES WETLAND 7 (W7) - 0.49 ACRE WETLAND 8 (W8) - 0.29 ACRE</p> <p>POND DATA - CENTRAL SECTION POND 1 (P1) - 0.23 ACRE</p> <p>STREAM DATA - CENTRAL SECTION TOTAL LENGTH OF STREAM - 7,162 LF STREAM 9 (S9) - 320 LF STREAM 10 (S10) - 2,552 LF STREAM 11 (S11) - 3,921 LF STREAM 12 (S12) - 369 LF</p> <p>NORTH</p> <p>BUCKEYE YARD TRABUE AND ROBERTS ROADS COLUMBUS, FRANKLIN COUNTY, OHIO COWC PROJECT #120120007</p> <p>CENTRAL OHIO WETLAND CONSULTING, LLC</p>	
Comments, Narrative Discussion, Justification of Category Changes: <p>Wetland 8 is located within the wooded northwest part of the evaluation area. According to the USDA web soil survey map, this wetland is located within hydric Kokomo silty clay loam soils. The wetland appears to receive hydrology from precipitation, overland flow from adjacent uplands, and flood waters from Stream 10. Stream 10 abuts the north side of the wetland and appears to provide surface water to Wetland 8 during prolonged precipitation events. Based on visual observation, Wetland 8 appears to be seasonally saturated. Wetland 8 is generally dominated by Reed Canary Grass (<i>Phalaris arundinacea</i>) and Black Willow (<i>Salix nigra</i>). The wetland scored 38 points, placing this wetland in Category 2.</p>	
Final score : 38	Category: 2

Scoring Boundary Worksheet

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

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

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

Narrative Rating

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

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

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

Table 1. Characteristic plant species.

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

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

Site: Buckeye Yard	Rater(s): Matt Kaminski	Date: 4/13/2021
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1	1
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Metric 1. Wetland Area (size).

max 6 pts. subtotal

Select one size class and assign score.

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

7	8
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Metric 2. Upland buffers and surrounding land use.

max 14 pts. subtotal

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

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

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

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

15	23
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Metric 3. Hydrology.

max 30 pts. subtotal

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

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

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

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

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

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

3b. Connectivity. Score all that apply.

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

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

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

Check all disturbances observed	
<input checked="" type="checkbox"/> ditch	<input type="checkbox"/> point source (nonstormwater)
<input type="checkbox"/> tile	<input type="checkbox"/> filling/grading
<input type="checkbox"/> dike	<input type="checkbox"/> road bed/RR track
<input type="checkbox"/> weir	<input type="checkbox"/> dredging
<input checked="" type="checkbox"/> stormwater input	<input type="checkbox"/> other _____

15	38
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Metric 4. Habitat Alteration and Development.

max 20 pts. subtotal

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

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

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

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

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

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

Check all disturbances observed	
<input type="checkbox"/> mowing	<input type="checkbox"/> shrub/sapling removal
<input type="checkbox"/> grazing	<input type="checkbox"/> herbaceous/aquatic bed removal
<input type="checkbox"/> clearcutting	<input type="checkbox"/> sedimentation
<input type="checkbox"/> selective cutting	<input type="checkbox"/> dredging
<input type="checkbox"/> woody debris removal	<input type="checkbox"/> farming
<input type="checkbox"/> toxic pollutants	<input type="checkbox"/> nutrient enrichment

38

subtotal this page

Wetland 8

Site: Buckeye Yard	Rater(s): Matt Kaminski	Date: 4/13/2021
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38

subtotal first page

0	38
max 10 pts.	subtotal

Metric 5. Special Wetlands.

Check all that apply and score as indicated.

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

0	38
max 20 pts.	subtotal

Metric 6. Plant communities, interspersions, microtopography.

6a. Wetland Vegetation Communities.

Score all present using 0 to 3 scale.

- Aquatic bed
- 1 Emergent
- Shrub
- Forest
- Mudflats
- Open water
- Other _____

6b. horizontal (plan view) Interspersion.

Select only one.

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

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

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

6d. Microtopography.

Score all present using 0 to 3 scale.

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

Vegetation Community Cover Scale

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

Narrative Description of Vegetation Quality

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

Mudflat and Open Water Class Quality

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

Microtopography Cover Scale

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

38

End of Quantitative Rating. Complete Categorization Worksheets.

ORAM Summary Worksheet

Wetland 8

		circle answer or insert score	Result
Narrative Rating	Question 1. Critical Habitat	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 2. Threatened or Endangered Species	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 3. High Quality Natural Wetland	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 4. Significant bird habitat	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 5. Category 1 Wetlands	YES <input checked="" type="radio"/> NO	If yes, Category 1.
	Question 6. Bogs	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 7. Fens	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 8a. Old Growth Forest	YES <input checked="" type="radio"/> NO	If yes, Category 3.
	Question 8b. Mature Forested Wetland	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9b. Lake Erie Wetlands - Restricted	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
	Question 9d. Lake Erie Wetlands – Unrestricted with native plants	YES <input checked="" type="radio"/> NO	If yes, Category 3
	Question 9e. Lake Erie Wetlands - Unrestricted with invasive plants	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.
Question 10. Oak Openings	YES <input checked="" type="radio"/> NO	If yes, Category 3	
Question 11. Relict Wet Prairies	YES <input checked="" type="radio"/> NO	If yes, evaluate for Category 3; may also be 1 or 2.	
Quantitative Rating	Metric 1. Size	1	
	Metric 2. Buffers and surrounding land use	7	
	Metric 3. Hydrology	15	
	Metric 4. Habitat	15	
	Metric 5. Special Wetland Communities	0	
	Metric 6. Plant communities, interspersion, microtopography	0	
	TOTAL SCORE	38	Category based on score breakpoints Category 2

Complete Wetland Categorization Worksheet.

Wetland 8

Wetland Categorization Worksheet

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

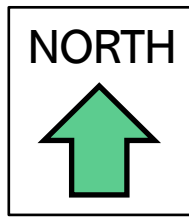
Final Category

Choose one	Category 1	Category 2	Category 3
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End of Ohio Rapid Assessment Method for Wetlands.

APPENDIX 4

PHOTO KEY



BUCKEYE YARD
TRABUE AND ROBERTS ROADS
COLUMBUS, FRANKLIN COUNTY, OHIO
COWC PROJECT #120120007



Field Reconnaissance Photos



Photo 21 – Southerly view of former railroad lines observed throughout the evaluation area.



Photo 22 – Northeasterly view of former railroad lines and waste areas between tracks on the central part of the evaluation area.

Field Reconnaissance Photos



Photo 23 – Northerly view of former railroad lines on the southern part of the evaluation area.



Photo 24 – Southerly view of former railroad lines and brushy land on the southwest part of the evaluation area.

Field Reconnaissance Photos



Photo 25 – Southerly view along a cleared utility corridor on the west central part of the evaluation area.



Photo 26 – Typical view of dense vegetation comprising the wooded western portions of the evaluation area.

Field Reconnaissance Photos



Photo 27 – Typical view of dense vegetation comprising the wooded western portions of the evaluation area.



Photo 28 – Westerly view along Stream 9 on the northwest part of the evaluation area.

Field Reconnaissance Photos



Photo 29 – Westerly view at the origination of Stream 9. This culvert pipe discharges surface water from a west adjoining storm water management pond.



Photo 30 – Southwesterly view at the west adjoining storm water management pond directing surface water to Stream 9.

Field Reconnaissance Photos



Photo 31 – Westerly view at the beginning of Stream 10 on the northwest part of the evaluation area.



Photo 32 – Northeasterly view across Pond 1 on northwest part of the evaluation area. This pond impounds Stream 10.

Field Reconnaissance Photos



Photo 33 – Southwesterly view across Pond 1 on northwest part of the evaluation area. This pond impounds Stream 10.



Photo 34 – Southerly (upstream) view along Stream 10 on northwest part of the evaluation area.

Field Reconnaissance Photos



Photo 35 – Northerly (downstream) view along Stream 10 on northwest of the evaluation area.



Photo 36 – Northeasterly view of the confluence of Stream 9 with Stream 10 on the northwest part of the evaluation area.

Field Reconnaissance Photos



Photo 37 – Southerly view of Wetland 7 on the northwest part of the evaluation area.



Photo 38 – Easterly view of Wetland 7 on the northwest part of the evaluation area.

Field Reconnaissance Photos



Photo 39 – Typical view of wooded areas to the north, south, and west of Wetland 7 on the northwest part of the evaluation area.



Photo 40 – Southwesterly view of Wetland 8 on the northwest part of the evaluation area.

Field Reconnaissance Photos



Photo 41 – Northeasterly view of Wetland 8 on the northwest part of the evaluation area.



Photo 42 – Easterly view of Stream 11 as it enters the west central part of the evaluation area from the west.

Field Reconnaissance Photos

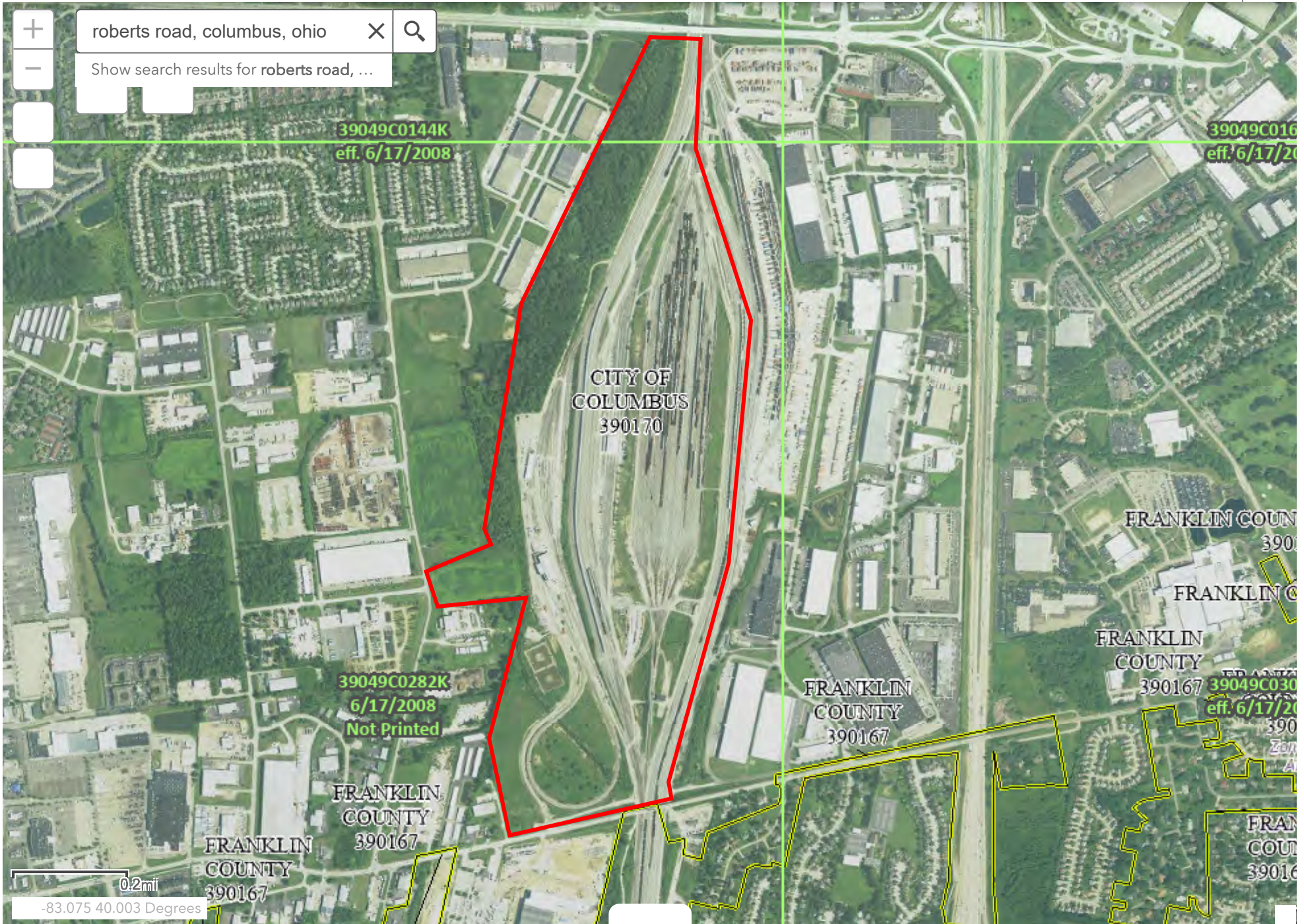


Photo 43 – Northwesterly view of Stream 11 on the west central part of the evaluation area.



Photo 44 – Southeasterly view of Stream 11 as it crosses the southwest part of the evaluation area.

Appendix N: Additional Supporting Documentation
(Historical Aerials, FEMA Map, HUC Map,
etc.)



National Flood Hazard Layer FIRMette



83°8'4"W 39°59'46"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
		Area of Undetermined Flood Hazard <i>Zone D</i>
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **11/16/2021 at 11:29 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

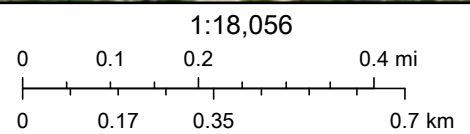
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Ohio EPA HUC Map - Site Location



2/4/2022, 10:33:58 AM

 Watershed Assessment Units (HUC12)



Maxar, USGS The National Map: National Hydrography Dataset. Data refreshed January, 2022.

(1 of 1)

WAU boundaries: Dry Run-Scioto River

HUC12 WAU	050600011205
HUC12 Spaced	05060001 12 05
Assessment Unit Name	Dry Run-Scioto River
WAULabel1	Dry Run
WAULabel2	Scioto R.
Acres	15,769.51
Sq_MILES	24.64
Sq_Km	63.82

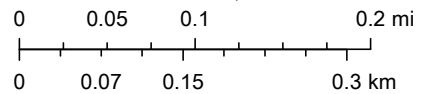
Site Location - Columbus Zoning Map



11/16/2021, 12:50:30 PM

1:9,028

- | | | |
|---------------------------|----------------------|-----------------------|
| Historic Properties | Excavation/Quarrying | Neighborhood General |
| Corporate Boundary | Institutional | Parking |
| Parcels | Manufactured Home | Research Park |
| Base Zoning | Manufacturing | Residential |
| Commercial | Multi-family | Town Center |
| Downtown District | Neighborhood Center | Special Parking Areas |
| East Franklinton District | Neighborhood Edge | Council Variance |



City of Columbus GIS



DEPARTMENT OF DEVELOPMENT

Zoning Report

Site Information

Address	
Mailing Address	2100 ROSS AVE STE 895 DALLAS TX 75201-6772
Owner	BUCKEYE XO LLC
Parcel Number	560302753
In Columbus?	Yes
County	FRANKLIN

Zoning Information

Zoning	Z83-102, Manufacturing, LM, 8/8/1984, H-35 Z79-057, Manufacturing, M, 7/23/1980, H-35 Z03-032, Manufacturing, LM, 1/14/2004, H-35 Z00-006, Manufacturing, LM, 7/5/2000, H-35 Z04-044, Manufacturing, LM, 10/19/2004, H-35
Historic District	None
Special Parking Area	None
Council Variance	None
Board of Zoning Adjustment (BZA) Variance	None
Commercial Overlay	None
Planning Overlay	None
Graphics Variance	None
Area Commission	West Scioto Area Commission Far West Side Area Commission
Historic Site	No
Flood Zone	Out
Airport Overlay Environs	None

Pending Zoning Action

Zoning	None
Board of Zoning Adjustment (BZA) Variance	None
Council Variance	None
Graphics Variance	None
