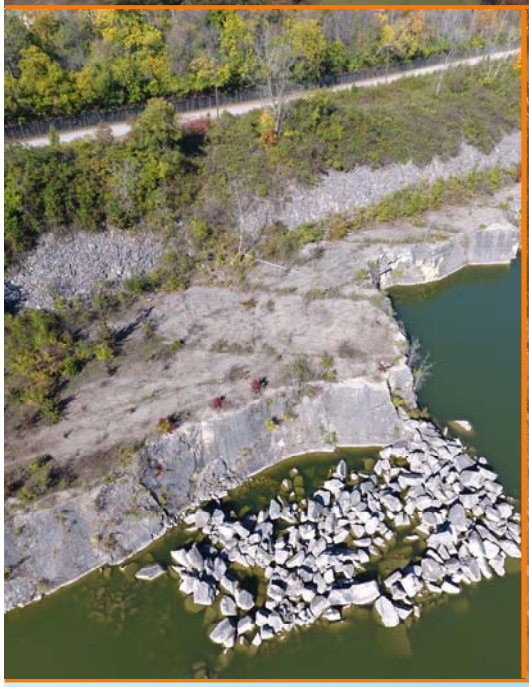


Marble Cliff Quarry Development Project

Type II Variance Request

Dublin Road, Columbus, OH 43204

PID: 560-154669, 560-154616, 560-154643, 560-154658

E.P. Ferris & Associates, Inc.

Attn. Sean W. Gillilan, P.E., LEED AP
(614) 299-2999
sgillilan@epferris.com

wagenbrenner DEVELOPMENT

E. P. FERRIS AND ASSOCIATES INC
Consulting Civil Engineers and Surveyors

E. P. FERRIS AND ASSOCIATES INC
CONSULTING CIVIL ENGINEERS AND SURVEYORS
880 KING AVENUE
COLUMBUS, OHIO 43212
614-299-2999
614-299-2992 FAX

June 12, 2017

City of Columbus
John Newsome, P.E. Administrator, DOSD
Attn: Greg Fedner, P.E., Private Development Section Manager
Stormwater and Regulatory Management Section
910 Dublin Road
Columbus, Ohio 43215

Re: Type II Variance Request
Marble Cliff Quarry Property

Project Name: Marble Cliff Quarry Development Project
Property Address: Dublin Road, Columbus, Ohio 43204
PID: 560-154669, 560-154616, 560-154643, 560-154658
Primary Contact: E.P. Ferris & Associates, Inc.
Attn: Sean W. Gillilan, P.E., LEED AP
(614) 299-2999
Email: sgillilan@epferris.com

Dear Mr. Fedner,

On behalf of Marble Cliff Canyon, LLC, E.P. Ferris and Associates, Inc. is seeking a Type II variance from the City of Columbus Stormwater Drainage Manual Section 1.4. According to this section of the manual, fill within the FEMA 100-year floodplain outside of the Stream Corridor Protection Zone must be compensated by removing an equivalent volume of material or greater. In order to remove the equivalent amount of material, this project would experience constructability hardship in addition to various design challenges that would inhibit the site's recreational opportunities.

The removal and mining of material throughout this quarry's life significantly altered its surface features and created an additional floodplain area within the site. A Type II variance will allow the Marble Cliff Quarry Development Project to fill approximately 210,000 cubic yards of material within this non-intentional/man-made 100-year floodplain with the purpose of preparing a 130-acre site, 66 Ac. of which will be park land. The proposed site will support a variety of senior, multi-family, single-family, and commercial properties as well as dedicated public Metro Parks that will present numerous positive impacts to the surrounding community and ecological improvements to the site.

Please find enclosed our technical request for the variance briefly mentioned previously.

Very truly yours,

E. P. FERRIS & ASSOCIATES, INC.

Sean W. Gillilan, P.E., LEED AP

Associate, Senior Project Manager

Table of Contents

Introduction

On behalf of Marble Cliff Canyon, LLC, E.P. Ferris and Associates, Inc. has submitted this application for a Type II Storm Water Variance from Section 1.4 of the City of Columbus Stormwater Drainage Manual. This variance is being sought in order to redevelop the existing limestone quarry site and relieve the potential constructability hardship its unique conditions present to the project.

Section 1.4 prohibits the filling of FEMA designated floodplains without compensation due to potential for challenges associated with flooding, erosion, and environmental impact. It specifically states that fill within the FEMA 100-year floodplain outside of the Stream Corridor Protection Zone must be compensated by removing an equivalent volume of material or greater. However, proposed site plans for the Marble Cliff Quarry Development Project are unable to adhere to this requirement due to the constructability, land use, and recreational hardships it creates.

This project incorporates over 130 acres of mixed-use and recreational development throughout an existing property that includes over 100 acres of land previously used as a limestone quarry and landfill. In preparation for this potential construction, grading plans were developed for the site, which require approximately 210,000 cubic yards of fill below the FEMA 100-year floodplain. Included within this quantity are 33,100 cubic yards of material to cap an area of solid waste that currently has two feet or less of cover.

There are several conditions that factor into why the development is not able to remove an equivalent volume of material, which are presented in this report. These include the limitations of providing compensatory storage in a site with shallow limestone rock formations that would require blasting for removal, the issue of mitigating storage within existing landfill areas, and the adverse effects compensatory storage would have on the recreational goals of this development. The fill associated with this project is also within an unnatural floodplain that results from man-made conditions.

If the project's variance request is granted and its preferred alternative plan is allowed, impacts regarding this particular Stormwater Drainage Manual policy will be sufficiently addressed while still allowing this site to fulfill its potential land re-development and recreational opportunities.

Project and Site Information

The proposed project property is located in a mixed commercial, industrial, and residential area east of Dublin Road and north of Trabue Road in the west central portion of the City of Columbus. The property consists of over 100 acres of land previously used as a limestone quarry and landfill, which is identified by all of Franklin County parcel identification numbers 560-154669 and 560-154616, and parts of parcel numbers 560-154643 and 560-154658. The Scioto River borders the property to the east and the approximate latitude/longitude coordinates at the center of the property are 40.000732/-83.085820.

Historical records indicate that the property was developed as a limestone quarry in the 1850's as part of a larger area known as the Marble Cliff Quarry that encompassed nearly 2,000 acres. When the Marble Cliff Quarry began along the banks of the Scioto River, it was considered one of the largest limestone deposits in the world. The stone from this quarry was used in building multiple Columbus area landmarks, such as the Ohio Statehouse, Ohio Stadium, and LeVeque Tower. Prior to June 1974, much of the property's eastern portion was used as a landfill. After the sale of the Marble Cliff Quarry Co. in approximately 1985, mining operations extended into its northern sections. Land around the property was developed into tracts of residential and commercial property as quarry operations ceased. Significant development in this area in recent years has resulted from the City of Columbus 2011 "Trabue/Roberts Area Plan" that established guidelines for new commercial, industrial, and residential development (Figure 1).

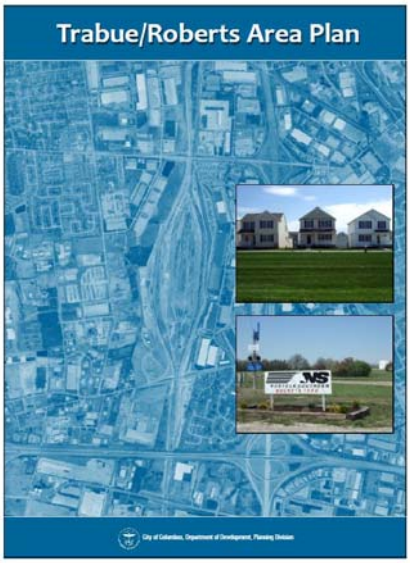


Figure 1: City of Columbus 2011 Trabue/Roberts Area Plan.

Throughout the western side of the property are areas of shallow water with a thin silty substrate, underlain by rock and gravel from previous quarry activities. The eastern portion of the property consists of former landfill areas with a surface cover of rock, boulders, and loose limestone aggregate with a thin cover of previously stripped topsoil overburden. The majority of the property is vegetated by various trees and shrubs, consisting of bush honeysuckle, invasive pear trees (callery pear), buckeye, cottonwood, ash, box elder, and hackberry.

Investigation of the site's current conditions revealed that approximately 25.54 acres contain solid waste. These areas are located on the eastern side of the site adjacent to the Scioto River and have been identified to fall within Ohio Environmental Protection Agency (OEPA) Rule 13 property

boundaries. The total area includes approximately 8.44 acres of solid waste with a minimum of four feet of cover and 17.10 acres of solid waste with two feet or less of cover. After mapping out waste locations, 2.07 acres with two feet or less of cover were found to overlap the 100-year floodplain that extends throughout the site. Proposed development does not intend to excavate within these solid waste areas, but approximately 33,100 cubic yards of material will be used for capping the shallower waste zones that also overlap the 100-year floodplain. Exhibits of these solid waste areas can be seen below in Figure 2 and found in Appendix A.

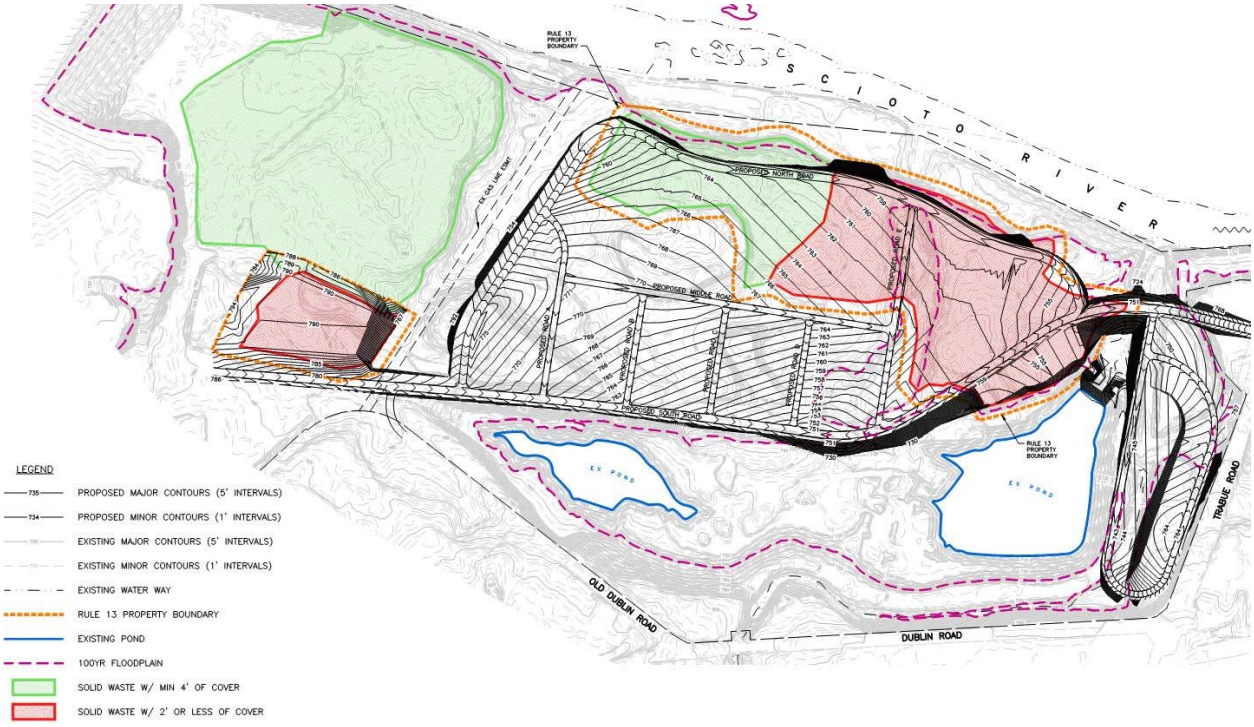


Figure 2: Approximate solid waste locations within site.

The current property contains two large quarry ponds on the southwest and northwest portions that have a combined surface water area of approximately 16.91 acres. These ponds were created by former limestone quarry operations and were not created by the impoundment of a jurisdictional stream. There are no observed inflow or outflow structures associated with these ponds. Based on the review of historical topographic maps for the property, it appears a drainage channel previously crossed the central portion of the property in a general east/west direction. This drainage is identified as Roberts Milkin ditch west of the property and is carried through a culvert beneath Dublin Road, where it then enters the property near its west central portion (Figure 3). Mapping indicates drainage through the property was altered or eliminated before 1955 due to limestone quarry activities, then re-routed sometime between 1989 and 1995 to direct water flow from areas west of the property to outside the limits of the mining areas. According to a "Report of Jurisdictional Determination" prepared by Geotechnical Consultants Inc. (GCI) and an "Approved

Jurisdictional Determination" issued by the United States Army Corps of Engineers (Corps), both ponds and the constructed drainage channel through the property are not considered to be jurisdictional waters of the United States. GCI's report also did not observe any areas throughout the site exhibiting wetland characteristics. These reports can be referenced in Appendices B and C in addition to property location maps, a Franklin County Auditor's GIS Map, USGS (Northwest Columbus and Southwest Columbus, Ohio) topographic maps, and aerial photographs showing the approximate site. Photographs showing representative vegetation, property features, and views from several locations around the site are also included in Appendix B.

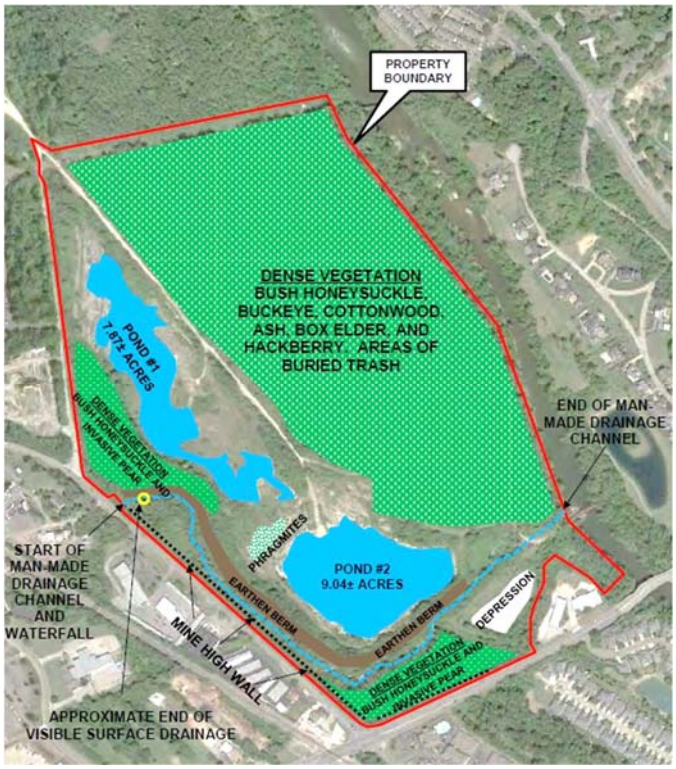


Figure 3: Map of existing site features.

Upon reviewing the Federal Emergency Management Agency (FEMA) mapping for flood information in the property area, several flood zones were identified. According to the most recent flood insurance rate mapping, the northeast portion of the property is within Zone X. The western and southern portions of the property were determined to be in Zone AE. These are areas where the base flood elevation has been determined. The eastern portions of the property, bordering the Scioto River, were determined to be in areas designated as Floodway Areas in Zone AE. This designation was described as the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. These designated flood zones have evolved over time due to development around the site in addition to the substantial quarry operations. Fill associated with the project has been proposed in Zone AE, below the 100-year flood elevation of 744.00 near the central and southwestern areas of the site. Several exhibits describing these areas and the fill associated with each one are provided in Appendix A.

As noted in the City of Columbus' 2011 "Trabue/Roberts Area Plan", the reuse of existing quarries should involve a manner of restoration that is compatible with the community and maximizes recreational potential. This is exactly how the Marble Cliff Canyon, LLC development group intends to use this site and why efforts are being made to collaborate with Metro Parks. Proposed development within the Marble Cliff quarry site will include a variety of senior, multi-family,

single-family, and commercial properties. Throughout the development will be over 15,000 linear feet of new roadway serving the entire community and connecting it to the adjacent River Oaks Apartments and neighborhood directly to the west. Also included within more than half of the overall development will be parks and recreational areas developed by Metro Parks (Figure 4).

Figure 4: Preferred alternative development plan.
(Detailed map in Appendix A)

Proposed recreational portions of the site will incorporate numerous areas for Columbus community members to share. The park areas will cover a large amount of the site's western side around the two existing quarry ponds and will promote a variety of activities such as kayaking, biking, running, hiking, paddle boarding, ice-skating, and fishing. Recreational features will include multiple trail systems, picnic areas, a dog park, pavilions/shelters, fitness zones, and several docking/portage sites. The park also has the opportunity to provide a unique kayaking and canoeing area where users can traverse a new drainage channel built between the existing quarry ponds. This waterway will include calmer sections for casual use as well as sections with whitewater flumes for more experienced and adventurous community members. A conceptual exhibit outlining the potential park associated with this site can be seen in Figure 4, which is also provided in Appendix A.

Section 1 – Reason Variance is Requested

Through the process of creating various conceptual drawings, proposed grading plans, and site development plans, the Marble Cliff Canyon, LLC project team attempted to minimize all environmental impacts this project introduces. However, in order to prepare a site that adequately supports the new community, roadways, and parks previously described, fill is necessary within the existing 100-year floodplain. Section 1.4 of The City of Columbus Stormwater Drainage Manual prohibits filling of FEMA designated floodplains without equivalent compensation, but this project faces unique design challenges and hardships by providing such storage. Due to these challenges, the Marble Cliff Quarry site is not able to adhere to this policy and meet its specific development goals. For this reasoning, E.P. Ferris and Associates, Inc. on behalf of Marble Canyon, LLC is seeking a Type II non-stream protection variance from the City of Columbus Stormwater Drainage Manual.

The project's site condition presents its first unique design challenge that prohibits our team from providing equivalent compensatory storage. This site resides on what was formerly one of the largest limestone deposits in the world that encompasses nearly 2,000 acres (Figure 5). This condition creates a situation where removing material will be substantially more difficult than on a site with typical subgrade material that can be simply excavated. Providing adequate storage within or around the site would involve blasting operations into the underlying limestone, which would introduce considerable constructability challenges, both monetarily and physically.

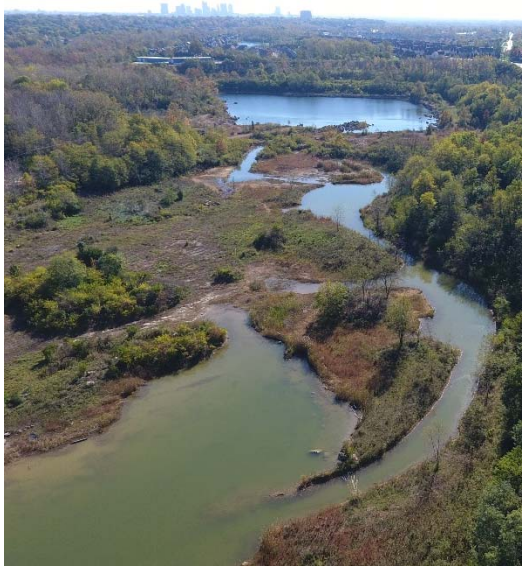


Figure 5: Existing quarry conditions.

An additional issue that compensatory storage introduces to the site is that areas without shallow underlying limestone are already filled with solid waste. The development team does not prefer to excavate any material from areas where a former landfill has been indicated. This makes close to a quarter of the site unavailable for storage mitigation and significantly limits reasonable use of the land. Our preferred alternative will instead cap solid waste areas and prepare them for our intended development. Part of this capping involves filling over an area where waste was found with two feet or less of cover, which also overlaps the 100-year floodplain. The Ohio EPA generally recognizes that capping an existing landfill is an acceptable and preferred method of remediation versus the removal of waste material. Filling in this area will not only adequately prepare the site's foundation, but it will eliminate direct exposure to waste and prevent contamination of surface and ground water.

Our team's preferred alternative will also create recreational areas that will cover more than half of the entire site. Providing compensatory storage between and around the two existing quarry ponds where these areas are proposed will not only be difficult due to the limestone subgrade, but will have adverse effects to the recreational opportunities of the site. Removals in this area would also affect programming of the unique improved aquatic potential for the park. This development project aims to restore the quarry in a manner that is compatible with the community and that maximizes recreational use, which cannot be accomplished if storage equivalent to the site's fill within the 100-year floodplain is met.

The project's final unique circumstance is that it intends to place fill within a 100-year floodplain that results from significant mining operations and altered surface features. It can be projected based on research of the site's conditions and aerial photographs that millions of cubic yards of material were mined around the proposed fill locations, which directly impacted the 100-year floodplain within this site (Figure 6). According to conservative projections, the proposed fill back into the current 100-year floodplain only replaces a fraction of what has been mined out over the quarry's operation. The relatively minor amount of fill required by this site within the current floodplain is essentially replacing mined material and is not expected to significantly alter flood conditions as substantial landfilling and mining operations have in the past. An explanation of anticipated floodplain impacts due to the project's fill within the 100-year floodplain can be found in Appendix D.

Figure 6: Surface feature comparison between 1957 and 2004.

Due to these conditions, strict adherence to the compensatory storage requirements of the Stormwater Drainage Manual cannot be achieved without inducing major impacts to this project's recreational goals and depriving site development and infrastructure opportunities. The development team also faces constructability hardship associated with excavating limestone material as previously discussed if compensatory storage is required. We hope that this variance request will allow for the approval of our preferred alternative plan, which will ensure practical use of the site and maximize its recreational potential.

Section 2 – Site Development Alternatives

Minimal Impact/Degradation Development Alternative Plan:

The minimal impact option for this site involves providing compensatory storage where there is not already shallow solid waste that this development plans to cap. Based on site topography, cut/fill projections, and additional unique circumstances, the only logical location for this storage is between the site's existing quarry ponds. Unfortunately, this is where the project's main and most crucial recreational programming is proposed (Figure 7 and Appendix A).

By cutting into the shallow limestone subgrade between the site's two ponds, equivalent storage could be provided, but at significant expense and hardship to this project's opportunities. As previously discussed, creating over 210,000 cubic yards of storage within an area that sits on a significant limestone deposit will require blasting. This operation would introduce planning, programming, and constructability hardship to the redevelopment of this project.

Figure 7: Minimal impact plan area of concern.

Equivalent compensatory storage between the ponds would also remove a majority of this project's proposed unique recreational opportunities and potential for providing the City of Columbus with a new Metro Park. The canoeing/kayaking areas, beach, trail system, and other features around this area would be eliminated. The unique nature of the plan would be reduced to a point where park programming would be limited and ecological benefits would be hindered. The enhanced drainage channel that would improve water quality and hydraulic capacities would no longer be possible since it would have to be located between the existing ponds. The minimal impact alternative for this project comes with significant negative impacts to its plan for providing an improved site that the entire community can benefit from.

Preferred Development Plan:

Our team's preferred alternative will include the site features previously described in this report without providing compensatory storage for fill placed within the current 100-year floodplain. The site will maximize its recreational potential, improve its existing drainage channel, and cap solid waste areas where there are less than two feet of cover. This plan will adequately prepare the site to support senior, multi-family, single-family, and commercial properties, over 15,000 linear feet of new roadway, and a large park area that will be available for the City of Columbus' Metro Park system.

Figure 8: Whitewater kayaking potential.

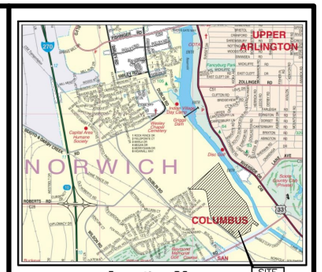
As discussed previously, the preferred plan development plan will require approximately 210,000 cubic yards of fill below the FEMA 100-year floodplain to adequately grade the site and support these features. Due to concerns that this loss of upstream floodplain storage will impact 100- year peak flows and flood elevations, it was necessary to perform an unsteady flow analysis in order to evaluate how much of the overall 100-year flood volume is currently stored in the quarry area and how much will be stored after fill is placed as proposed. Analyses indicate the proposed loss of storage in the quarry area will have an insignificant impact on 100-year peak flow rates and peak flood elevations at any location along the Scioto River. For both existing and proposed conditions, it appears the available off-channel storage in the quarry area is essentially full prior to the passing of peak flows during the 100-year flood. Thus, although the loss of storage under proposed conditions will have a slight impact on downstream flow rates and flood elevations during the initial portion of the 100-year flood, HEC-RAS modeling indicates it will not adversely impact the associated peak flow rates and flood elevations. A summary of this investigation is provided in Appendix D.

This plan will also follow recommendations established in the City of Columbus 2011 "Trabue/Roberts Area Plan" by restoring the existing quarry in a manner that is compatible with the community and maximizes recreational potential. A more detailed version of our preferred development plan that specifically labels proposed features throughout the site can be referred to in Appendix A. Exhibits are also available in the appendix that provide specific locations of proposed fill below the 100-year floodplain.

Section 3 – Executive Summary

Unique conditions of the Marble Cliff Quarry site present various constructability challenges to its development. However, by granting the Type II Stormwater Drainage Manual variance sought by this request, the City of Columbus will allow proper improvements to be completed through this project's preferred alternative plan. This plan will fill within the 100-year floodplain with the intention of adequately grading the site. Following this plan, the reuse of this former active quarry and landfill can be accomplished while utilizing development opportunities compatible with the community and maximizing the site's recreational potential.

Appendix A – Site Layouts, FEMA Mapping



Location Map
Not To Scale

RULE 13 PROPERTY BOUNDARY

S C I O T O R I V E R

EX GAS LINE ESMT

PROPOSED NORTH ROAD

PROPOSED MIDDLE ROAD

PROPOSED SOUTH ROAD

PROPOSED ROAD A

PROPOSED ROAD B

PROPOSED ROAD C

PROPOSED ROAD E

EX POND

EX POND

RULE 13 PROPERTY BOUNDARY

100 YR FLOOD PROFILE ALIGNMENT

OLD DUBLIN ROAD

DUBLIN ROAD

TRABUE ROAD

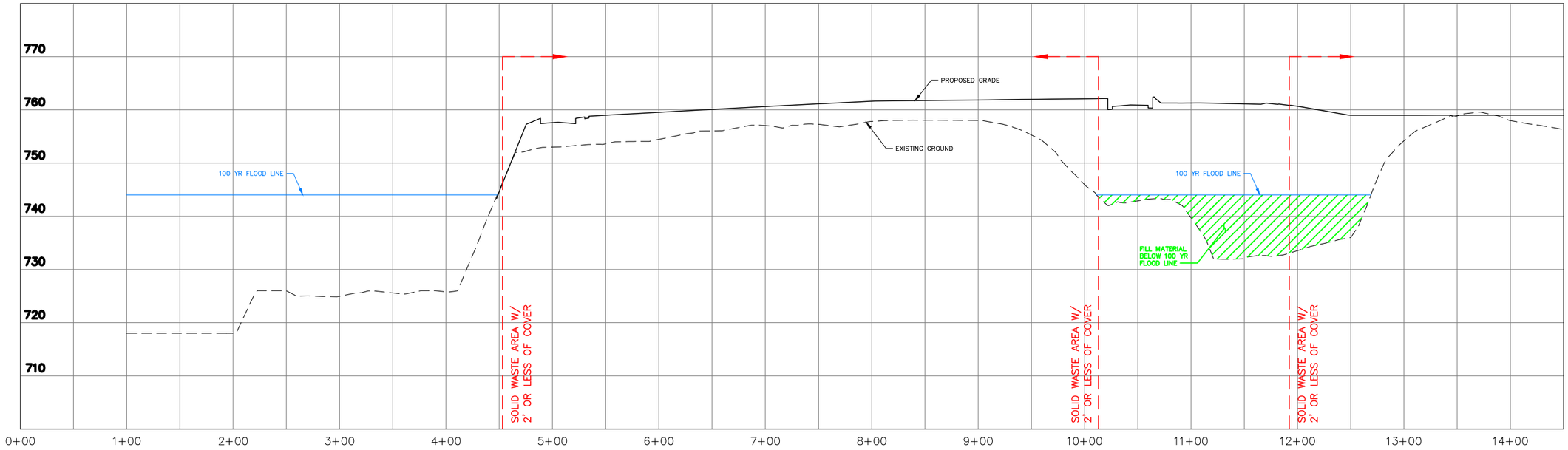
LEGEND

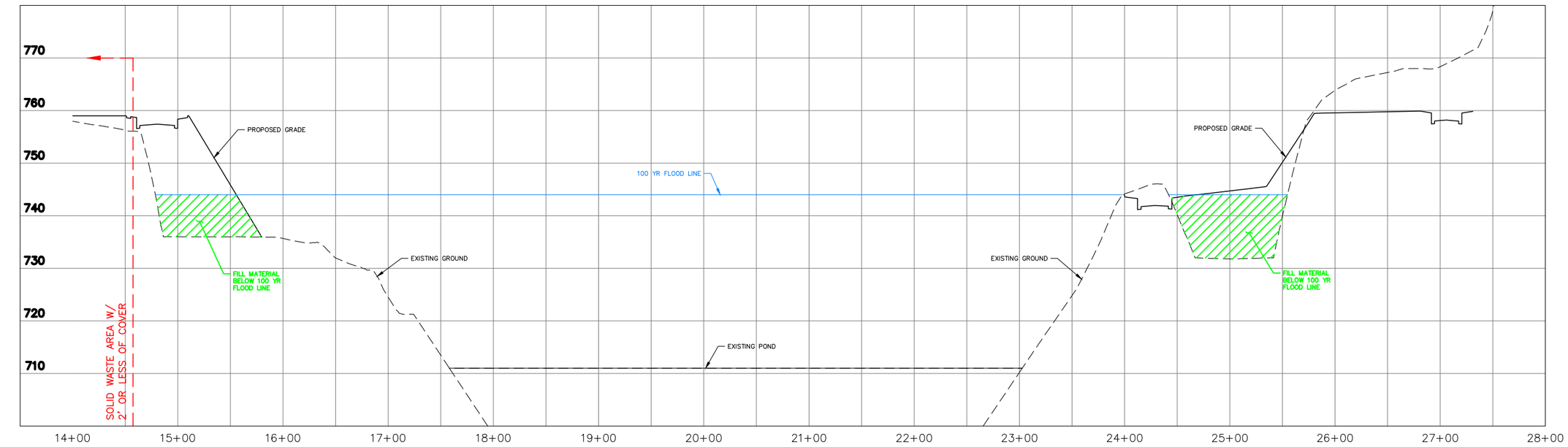
- PROPOSED MAJOR CONTOURS (5' INTERVALS)
- PROPOSED MINOR CONTOURS (1' INTERVALS)
- EXISTING MAJOR CONTOURS (5' INTERVALS)
- EXISTING MINOR CONTOURS (1' INTERVALS)
- EXISTING WATER WAY
- RULE 13 PROPERTY BOUNDARY
- EXISTING POND
- 100YR FLOODPLAIN
- SOLID WASTE W/ MIN 4' OF COVER
- SOLID WASTE W/ 2' OR LESS OF COVER

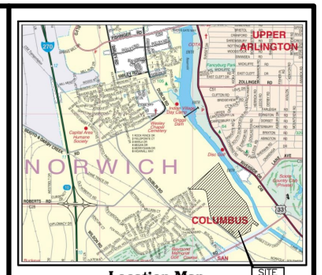
EXHIBIT A
EXISTING SITE CONDITIONS & PROPOSED GRADING

CITY OF COLUMBUS, OHIO

MARBLE CLIFF QUARRY DEVELOPMENT PROJECT







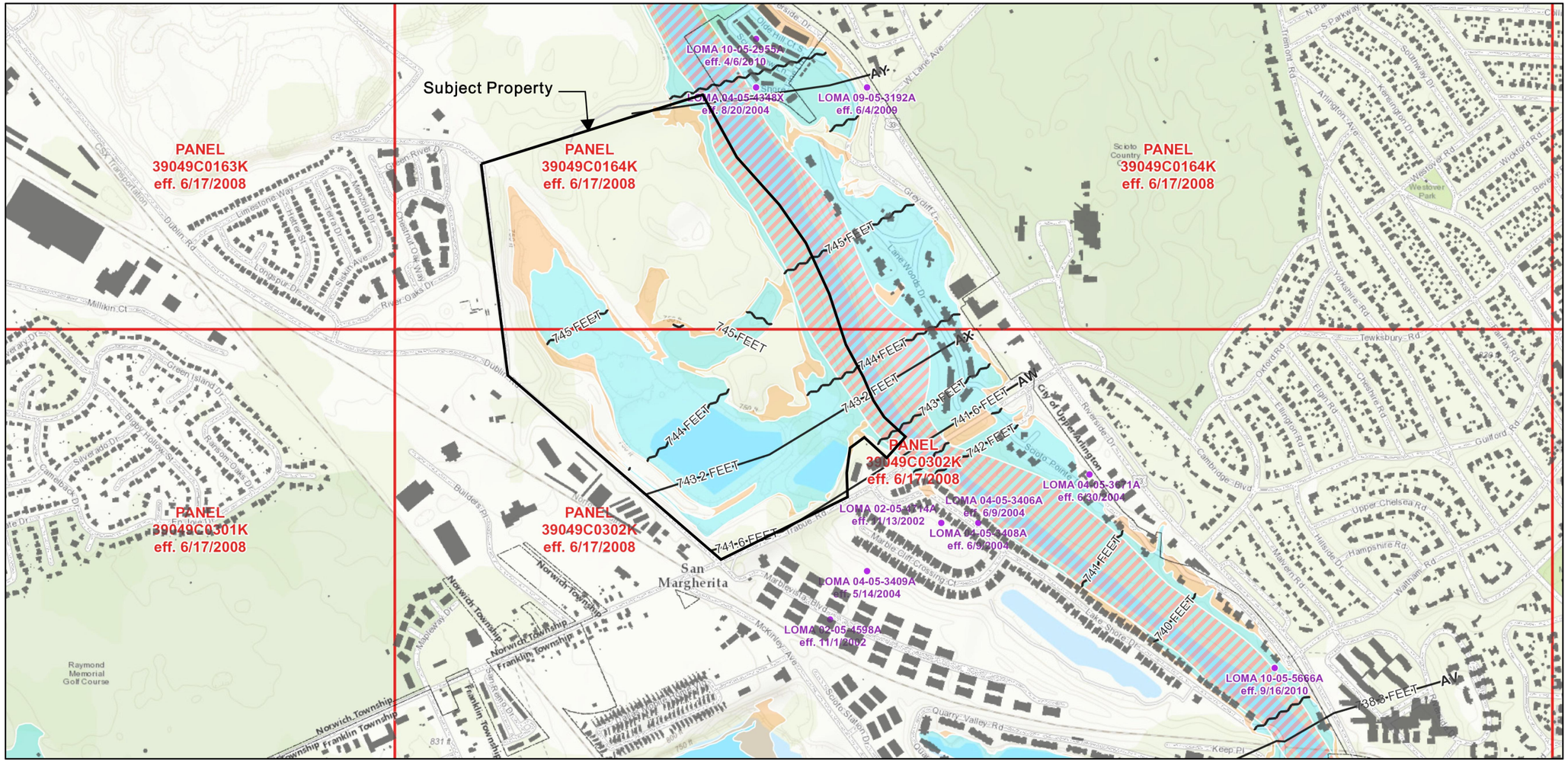
Location Map
Not To Scale

EXHIBIT B
FILL PROJECTIONS WITHIN 100-YEAR FLOODPLAIN (ELEVATION 744.00)

CITY OF COLUMBUS, OHIO

MARBLE CLIFF QUARRY DEVELOPMENT PROJECT

FEMA National Flood Hazard



March 24, 2017

Tax Parcels

LOMRs
- Effective
- LOMAs
- FIRM Panels
- Coastal Gages
- Gages

- Cross-Sections
- Base Flood Elevations
- Coastal Barrier Resources System Area

Levees
- Unaccredited Levee
- Accredited Levee

General Structures
- Flood Structure
- Bridge
- Dam, Weir, Jetty
- Other Structure

Flood Hazard Boundaries
- Other Boundaries
- Limit Lines
- SFHA / Flood Zone Boundary

Flood Hazard Zones
- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee

1:11,517

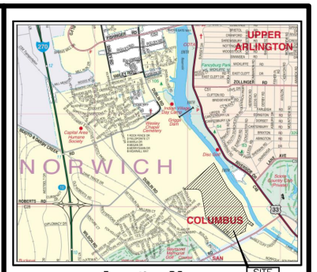
0 0.1 0.2 0.4 mi

0 0.1 0.2 0.4 km

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

FEMA

Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA | Franklin County Auditor's Office |



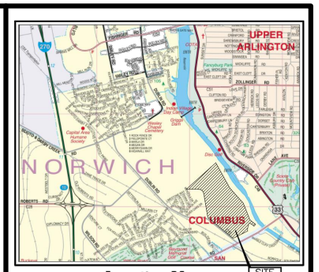
Location Map
Not To Scale

EXHIBIT C
CURRENT FEMA FLOODPLAIN

N

CITY OF COLUMBUS, OHIO

MARBLE CLIFF QUARRY DEVELOPMENT PROJECT

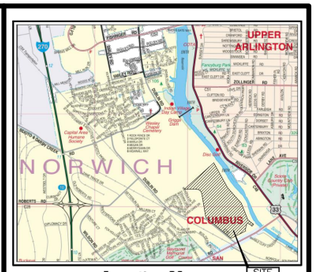


Location Map
Not To Scale

EXHIBIT D
PREFERRED ALTERNATIVE

CITY OF COLUMBUS, OHIO

MARBLE CLIFF QUARRY DEVELOPMENT PROJECT



Location Map
Not To Scale

EXHIBIT E
TYPE II VARIANCE
MINIMAL IMPACT PLAN

N

CITY OF COLUMBUS, OHIO

MARBLE CLIFF QUARRY DEVELOPMENT PROJECT

Appendix B – Geotechnical Consultants Inc. Report of Jurisdictional Determination

GEOTECHNICAL CONSULTANTS INC.

MAIN OFFICE
720 Greencrest Drive
Westerville, OH 43081
614.895.1400 phone
614.895.1171 fax

YOUNGSTOWN OFFICE
8433 South Avenue
Bldg 1, Suite 1
Boardman, OH 44514
330.965.1400 phone
330.965.1410 fax

www.gci2000.com

REPORT OF JURISDICTIONAL DETERMINATION

MARBLE CLIFF QUARRY PROPERTY
DUBLIN ROAD
COLUMBUS, FRANKLIN COUNTY, OHIO

GCI PROJECT NO. 16-E-19414-A

Prepared for:

Wagenbrenner Development, Inc.
c/o Mr. Gilbert Black
842 North 4th Street, Suite 200
Columbus, Ohio 43215

Prepared by:

GEOTECHNICAL CONSULTANTS, INC. (GCI)
720 Greencrest Dr.
Westerville, OH 43081

July 5, 2016

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APPENDIX INFORMATION

General Property Location Map
Property Location Map
Franklin County Auditor's GIS Map
Franklin County Auditor Parcel Information Sheets (8 pages)
1903/1925, 1955, 1965, 1973/82, 1982/84, 1995, and 2013 USGS Topographic Maps
USDA Web Soil Survey Map
National Wetland Inventory (NWI) Map
FEMA Flood Insurance Rate Map
Aerial Photographs Dated:

- 1938,
- 1957,
- 1964,
- 1971,
- 1979,
- 1986,
- 1989,
- 1995,
- 2004,
- 2007,
- 2009,
- 2013, and
- 2015

Site Features Map
Photo Key
Photographs (Photo 1 through Photo 54)
Approved Jurisdictional Determination Form (9 pages)

1.0 INTRODUCTION

Wagenbrenner Development, Inc. retained Geotechnical Consultants, Inc. (GCI) to perform an assessment to determine the presence or absence of jurisdictional waters at the Marble Cliff Quarry property on Dublin Road in Columbus, Franklin County, Ohio ("the property" or "site").

The assessment consisted of three parts: 1) preliminary off-site determination (research of existing published data), 2) on-site assessment, and 3) data compilation/report preparation.

The intent of this assessment was to determine if jurisdictional waters were present on the property. GCI performed this assessment for specific application to the property described herein, in accordance with the U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (1987) and the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region.

This report is an instrument of professional service prepared by GCI for the sole use of Wagenbrenner Development, Inc. and other parties that may be designated jointly by Wagenbrenner Development, Inc. and GCI. Any other party that wishes to use or rely upon this report, or that wishes to duplicate, otherwise reproduce or copy, or excerpt from, or quote this report must apply for authorization to do so. Any unauthorized use of or reliance on this report shall release GCI from any liability resulting from such use or reliance. Any unauthorized duplication, other reproduction or copying, or excerption or quotation of this report shall expose the violator to all legal remedies available to GCI. This report will become public information upon submittal to the USACE.

2.0 PROPERTY DESCRIPTION

The property is located in a mixed commercial, industrial, and residential area east of Dublin Road and north of Trabue Road in the west central portion of the City of Columbus. The property consists of 150± acres of land previously used as a limestone quarry and landfill. The property is identified by all of Franklin County parcel identification numbers 560-154669 and 560-154616, and parts of parcel numbers 560-154643 and 560-154658. The property is bordered to the east by the Scioto River. Approximate latitude / longitude coordinates for the center of the property are 40.000732 / -83.085820.

Historical records indicate the property was developed as a limestone quarry in the mid-1800s, and has also been utilized for landfilling operations. The property is not currently in use. The property contains large quarry ponds on the southwest and northwest portions. Between the two quarry ponds are areas of shallow water with a thin silty substrate, underlain by rock and gravel from previous quarry activities. The eastern portion of the property consists of former landfill areas with a surface cover of rock, boulders, and loose limestone aggregate with a thin cover of previously stripped topsoil overburden. The majority of the property is vegetated by various trees and shrubs, consisting of bush honeysuckle, invasive pear trees (callery pear), buckeye, cottonwood, ash, box elder, and hackberry.

Property location maps, a Franklin County Auditor's GIS Map, USGS (Northwest Columbus and Southwest Columbus, Ohio) topographic maps, and aerial photographs showing the approximate site area are attached to this report. Photographs showing representative vegetation, property features, and views from several locations around the site are also included.

GCI identified two (2) ponds and one (1) man-made drainage channel within the property boundary. Combined surface areas of the two ponds totaled **16.91± acres**. Total length of the man-made drainage channel was **3,366± linear feet**. GCI did not observe areas exhibiting wetlands characteristics on the property. Attached to the report is a **Site Features Map** showing the locations of the on-property ponds and the man-made drainage channel.

The following report provides additional information, and should be read entirely.

3.0 RECORDS REVIEW AND DETERMINATION

The preliminary off-site determination consisted of a desktop review of published information including United States Geological Survey (USGS) topographic maps, United States Department of Agriculture (USDA) soils map, United States Fish & Wildlife Service (USFWS) National Wetland Inventory (NWI) map, and aerial photographs from local governmental agencies. GCI used this information to determine the geo-morphological setting at the property, soil types present, whether disturbed conditions existed at the property, and to determine the appropriate field delineation method to be used.

3.1 TOPOGRAPHY

GCI reviewed the 1903 *Dublin, Ohio* and 1925 *West Columbus* USGS 15-minute series topographic maps. The northern-half of the property was located on the Dublin quadrangle, and the southern-half of the property was located on the West Columbus quadrangle. These maps indicated depressions on the southern portion of the property with rail spurs crossing the property in a general north/south direction. A rail spur was also shown on the southeast portion of the property, extending across the Scioto River. This information indicates the property was likely used as a limestone quarry during these years. An unnamed tributary of the Scioto River was shown crossing the central portion of the property in a general east/west direction. The Scioto River was shown bordering the east side of the property.

GCI also reviewed the 1955, 1965, 1982, 1995, and 2013 *Northwest Columbus, Ohio* and 1955, 1965, 1973, 1984, 1995, and 2013 *Southwest Columbus, Ohio* USGS 7.5-minute series topographic maps. The northern-half of the property was located on the Northwest Columbus quadrangle, and the southern-half of the property was located on the Southwest Columbus quadrangle.

The 1955 maps indicated a limestone quarry within the property boundary. Pits and depressions were indicated on the northern and southern portions of the property. Green tint, indicating wooded vegetation, was indicated on the southern, eastern, and west central portions of the property. High walls were indicated along the west and south property lines. Rail spurs were shown crossing the property in a general north/south direction, with an addition rail spur shown on the southeast portion of the property. Unimproved roads and trails were also indicated on the property, with several small structures shown on the northern, central, and western parts of the site. Roberts Millikin Ditch and a second unnamed tributary converged west of Dublin Road, approximately 600 feet southwest of the property. Roberts Millikin Ditch and the unnamed tributary were shown to enter and terminate on the west central portion of the property. The stream channel previously indicated on the property on the 1903/25 map was not shown on the 1955 map.

The 1965 maps were generally similar in appearance to the 1955 maps. However, pits and depressions previously apparent on the northeastern portion of the property appeared to have been filled, as indicated by changes in topographic contours. Several ponds were scattered on the southern and central parts of the property. Much of the site was indicated in green tint.

Site features on the 1973/82 and 1982/84 maps were similar in appearance to the 1965 maps. The exception was active or recent quarry operations indicated on the northeast portion of the property.

The 1995 maps indicated quarry operations on the northeast portion of the property. Two pits were shown in purple tint on the southern portion of the property. A small pond was indicated on the central portion of the site. Quarry areas were indicated on the northeast portion of the property with a depression or pit on the northwest portion of the property.

The 2013 maps indicated were similar in appearance to the 1995 maps, with the exception of additional pits and depressions on the western portion of the property.

Based on review of available topographic maps for the property, it appears a drainage previously crossed the central portion of the property in a general east/west direction. Mapping indicates this drainage was altered or eliminated before 1955 due to limestone quarry activities that have historically taken place on the property. Several pits, ponds, and depressions have been created on the property as a result of the extensive land disturbance associated with limestone quarry activities. The maps indicated no wetlands on the property. No mapped streams were indicated on the property in the 1955 through the 2013 topographic maps.

GCI used the USGS topographic map as an indicator of watershed characteristics on the property. USGS maps should not be relied upon to identify wetlands, ponds, or streams because the maps are created from widely scattered spot elevations averaged across an area. The maps may not identify small depressional areas or streams and are not updated frequently. The appendix of this report includes photocopies of portions of these USGS maps showing the property area.

3.2 SOILS

GCI reviewed the United States Department of Agriculture (USDA) Web Soil Survey website[1] for the property area, the USDA Natural Resources Conservation Service (NRCS) Hydric Soils website[2], and the list of Hydric Soils of the United States (published by NRCS in cooperation with the National Technical Committee for Hydric Soils). According to these sources, the property does not contain hydric soil units.

GCI reviewed the USDA Web Soil Survey website[3] for the property area. This publication indicated the mapping unit for the property as Pt-Pits, Quarry. According to soil survey, these are areas where limestone or shale bedrock have been surface mined. Most quarries have a high wall on one or more sides. Overburden, consisting of the original soils, is usually scalped and piled to the areas not used for quarrying.

[1] http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm
[2] http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/
[3] http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

Two small areas on the west central portion of the property were indicated to have Ritchey silt loam (RhD2) and Milton silt loam (MoB) soils. These soils appeared to be outside the limits of quarry operations.

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. (Note: high organic levels in soils can present construction challenges and thus should be geotechnically assessed by a soils engineer for load bearing capacities if construction is planned in areas having organic soils.)

3.3 NATIONAL WETLANDS INVENTORY (NWI) MAP

GCI reviewed the NWI Map for wetlands information in the property area. The United States Fish and Wildlife Service (USFWS) produced NWI mapping as an attempt to document wetlands in the United States. The USFWS drafted NWI maps using high-altitude infrared aerial photography to identify areas with saturated or inundated soils. Areas that are saturated or inundated are typically lower in temperature than dryer areas, giving wet areas unique heat signatures compared with surrounding upland areas. The USFWS mapped these cooler areas as wetlands without field verification.

GCI uses NWI maps as a desk top determination tool. NWI maps may not reflect actual field conditions due to meteorological or seasonal conditions that may have existed at the time of data collection. GCI typically uses NWI maps to plan field reconnaissance and as an indicator of areas that may support wetlands; however, USACE-approved delineations often deviate significantly from the NWI Maps.

The NWI map indicated five wetland mapping symbols within the property boundary. Two of these symbols, indicated on the southwest and northwest portions of the property, were PUBGx, meaning these areas were palustrine, unconsolidated bottom, intermittently exposed, and excavated. These mapping symbols appear to be existing quarry ponds. Between these two apparent quarry ponds was a PUBG symbol, indicating an area which was palustrine, unconsolidated bottom, and intermittently exposed. Bordering the west side of the northern most PUBGx symbol was a PEM1F symbol, indicated an area which was palustrine, emergent, persistent, and semi permanently flooded. A wetland mapping symbol was also shown on the southeast portion of the property, along the western boundary of the Scioto River. This symbol was PFO1A, meaning the area was palustrine, forested, broad-leaved deciduous, and temporary flooded.

The appendix of this report includes a copy of the NWI map for the property area.

3.4 FEMA FLOOD INSURANCE RATE MAP (FIRM)

GCI reviewed information from The Federal Emergency Management Agency (FEMA) Map Service Center website[4] for flood information in the property area. According to this source, the northeast portion of the property is within Zone X. Zone X is defined as areas of the 0.2% annual chance flood; areas of 1% annual chance flood with average depth of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood. The western and southern portions of the property were determined to be in Zone AE; areas where the base flood elevation has been determined. The eastern portions of the property, bordering the Scioto River, were determined to be in areas designated as Floodway Areas In Zone AE. This designation was described as the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

3.5 AERIAL PHOTOGRAPHS

Current regulations require that wetland delineations be performed in accordance with the 1987 USACE Wetland Delineation Manual and the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region. These manuals specify two primary methods of delineation: the *routine method* and the *disturbed condition method*. The *routine method* is used on undisturbed properties and is preferred by USACE because wetland boundaries can be accurately identified by a wetland professional based on actual field boundaries. The *disturbed condition method* is used on properties that have had previous land disturbance. Disturbed properties often require reliance on historical aerial photography, soil maps, and NWI maps, and can result in an over-estimation of jurisdictional water area size.

GCI reviewed historical aerial photographs dated 1938, 1957, 1964, 1971, 1979, 1986, 1989, 1995, 2004, 2007, 2009, 2013, and 2015. GCI used the aerial photographs as an indicator to determine whether the property had been significantly disturbed within the past few years.

Review of available aerial photographs indicated the property has been part of a large quarry operation since at least 1938. Apparent quarrying activities were also visible north, east, and south of the property. Landscape features on the property varied throughout the years. Ground surfaces throughout the property were significantly disturbed throughout these years.

The 1938 and 1957 aerial photographs indicate ground surface disturbance throughout much of the property. Roadways and/or railroad tracks were apparent crossing the property in a general north-south direction. A drainage apparently enters the west central portion of the property and crosses the central portion of the property in an east/west direction. Areas adjacent to the drainage appear wooded or vegetated. Areas to the north, east, and south also contain disturbed surface soils, indicative of mining activities. Areas to the west of the property consist of a mixture of agricultural, residential, and commercial properties.

The 1967 aerial photograph indicated the property was increasingly vegetated. The northeast and east central portions of the property appeared to contain numerous trenches and paths, representative of former landfilling activities that occurred in these

[4] https://msc.fema.gov/portal

areas. High walls were apparent along the west and south sides of the property during this year. An east/west linear drainage crossed the central portion of the property. A pond was apparent in-line with this drainage, near the center of the property. Ponds were also apparent on the southern and northwestern portions of the property.

The 1971 aerial photograph indicated significant ground surface disturbance on the northeast portion of the property. This disturbance appeared to be associated with fill and grading activities. The east/west drainage channel previously apparent crossing the central portion of the property was not discernable during this year due to the dense vegetation on the central part of the property.

Property features on the 1979 aerial photograph were similar in appearance to the 1971 aerial photograph. Some vegetation had been removed from the central portion of the property, making the east/west drainage visible once again.

The 1986 aerial photograph indicates the property in relatively unused land. An area of ground surface disturbance is apparent on the northeast portion of the property. Much of the property had become increasingly vegetated. Ponds or standing water were apparent on the northwest and southwest portions of the property. The east/west drainage crossing the central portion of the property is apparent during this year.

The 1989 aerial photograph shows the resurgence of mine activates on the southern portion of the property. Several large pits and disturbed surface soils are apparent on the southern portion of the property. Shadows indicate high walls along the south and west property boundary. The east-west drainage channel is not discernable during this year.

The 1995 indicates increased quarry activities on the northwest portion of the property. The southern and western-half of the property appear to be undergoing mining activities. The northeast and east central portions appear wooded and/or vegetated. The east/west drainage previously apparent crossing the central portion of the property has be re-routed to follow the west property boundary, along an apparent high wall, before turning east and traversing the southern portion of the property.

The 2004 through 2015 aerial photographs are representative of current site features. A drainage can clearly be seen entering the west central portion of the property, from the west, across Dublin Road. Upon entering the property, the drainage travels in a southerly direction along the west property boundary. Near the southwest corner of the property, the drainage is directed east/northeasterly, and crosses the southern portion of the property. The channel appears to connect to the Scioto River, which borders the east side of the property. A small pond is visible in-line with the drainage on the southeast portion of the property in several of these aerial photographs. A large quarry pond is apparent north and east of the channelized drainage. A quarry pond is also apparent on the northwest portion of the property. These two quarry ponds appeared to be connected by surface channels. The remainder of the property is wooded or vegetated by brush and shrubs. Areas to the west of the property, across Dublin Road, have become increasingly developed with residential, commercial, and light industrial properties during these years.

The 2013 and 2015 aerial photographs indicated the property was similar in appearance to what was observed during our site visits conducted in January, April, and June 2016.

Copies of the aerial photographs showing the assessed area are attached to this report.

3.6 RECORDS REVIEW DETERMINATION CONCLUSIONS

Review of published information indicates the property has historically been used as a limestone quarry. As such, surface features at the property have been significantly altered since the mid-1800's when the quarry first began operations. Maps and aerial photographs indicate several ponds created by quarry activities exist on the property. Much of the eastern portion of the property was also used as a landfill after quarry operations ceased. The maps and aerial photographs indicated a drainage, identified as Roberts Millikin Ditch (west of the property), previously crossed the central portion of the property in a general east/west direction. This drainage was re-routed sometime between 1989 and 1995 to direct water flow from areas west of the property to outside the limits of the mining areas. The NWI map also indicated the potential presence of wetlands on the northeast portion of the property, and along the eastern property boundary.

The potential for wetlands, ponds, and streams within an area cannot be determined solely from a records review determination; therefore, an on-property investigation is required to verify the on-property conditions.

4.0 JURISDICTIONAL WATERS DETERMINATION

GCI performs field visits for Jurisdictional Waters Determinations 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 wetlands. The delineation method and vegetation sampling methodology uses the procedures for Routine Determinations found in the 1987 and 2010 manuals.

On-property drainages (streams) were assessed in accordance with guidelines from the USACE pertaining to potential jurisdictional waters of the United States. Potential wetlands, streams, and drainage ditches were followed to determine the flow regime and whether a significant nexus to a jurisdictional water of the U.S. could be established.

The field investigation was conducted by walking and visually surveying the subject property and in the vicinity to collect wetland and stream data, as necessary.

Photographic documentation of the on-property drainages (streams), ponds, vegetation, and general landscape photographs are attached**.**

The published information reviewed indicated property conditions were generally unchanged for several years prior to this delineation, such that the property was considered undisturbed for data collection. Therefore, the routine method was used in this assessment.

5.0 PROPERTY VISIT AND ON-PROPERTY DETERMINATION

Mr. Matthew R. Kaminski with GCI conducted site visits on the following dates:

- January 19, 2016,
- April 12, 2016,
- April 15, 2016,
- April 20, 2016, and
- June 14, 2016.

GCI intentionally performed multiple site visits to determine flow characteristics of the drainage on the property and opine as to the jurisdictional status of the man-made drainage channel. The majority of the property is vegetated by bush honeysuckle. Access to the eastern portions of the property is difficult due to the dense vegetation rocky terrain.

Section 404 of the Clean Water Act requires a pre-discharge notification to the USACE for approval, prior to placing dredged or fill material into jurisdictional waters connected to navigable waters. Connection to navigable waters is characterized as any surface water connection with a defined bed and bank to streams or other open waters. House Bill 231 requires an Ohio Isolated Wetland Permit (OIWP) from Ohio EPA prior to impacting isolated wetlands not determined to be connected to navigable waters.

Three wetland criteria are required to be present to establish the presence of wetlands: hydric soils, hydrophytic vegetation, and wetland hydrology; and, 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. GCI followed the methods described in the manual in performing the delineation. No other warranty is expressed or implied.

After collecting pertinent information through the preliminary off-site determination, GCI used the routine method to determine if wetland areas existed on property. The approach used for the routine determination was the plant community assessment procedure. This approach required initial identification of representative plant community types in the subject area followed by characterization of vegetation, soils, and hydrology for each community type.

5.1 HYDRIC SOILS CRITERIA

GCI performed soil probes to evaluate hydric soil characteristics at the property. The presence of hydric soils is determined by comparing soil samples to a Munsell soil color chart, as soil colors often reveal whether a soil is hydric or non-hydric (see data forms). 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. GCI did not observe these soil characteristics at the property. Generally, the site has a thin layer of soil or overburden underlain by a rocky/gravel substrate associated with former mining activities. Therefore, the property does not satisfied the hydric soil criteria for jurisdictional wetlands.

5.2 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 hydrology.

Wetland hydrology is 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. GCI performed a site walkovers January 19, April 12, April 15, April 20, and June 14, 2016. During our April and June site visits, ground surfaces were generally dry. The unconsolidated material associated with former limestone mining operations at the property are generally not conducive for saturated conditions. With exception of the quarry ponds, GCI did not observe areas exhibiting primary or secondary wetland hydrology indicators. Therefore, the property does not satisfy the hydrology criteria for jurisdictional wetlands.

5.3 HYDROPHYTIC VEGETATION CRITERIA

Hydrophytic vegetation is 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 Midwest 2012 Final Regional Wetland Plant List published by the USACE. GCI used this data, and determined hydrophytic vegetation dominance was present on the property. Dominant hydrophytic vegetation observed on the property consisted of Common Reed (*Phragmites australis).* Common Reed is an invasive species that can grow in disturbed moist/wet areas. GCI observed this vegetation on the central portion of the property, in shallow standing water between the two quarry ponds. Therefore, the property meets the hydrophytic vegetation criteria for wetlands in this area. GCI did not observe a dominance of hydrophytic vegetation in any other areas of the property. *Note* GCI was not able assess the floodplain areas of the Scioto River due to rocky, rough terrain, and dense vegetation.

5.4 ON-PROPERTY DETERMINATION CONCLUSIONS

The field investigations confirmed:

- Two (2) quarry ponds are located on the property; one on the northwest portion and one on the southwest portion.
- One (1) man-made, channelized drainage crosses the western and southern portions of the property from west to east.
- No areas exhibiting wetland characteristics are located on the property.

6.0 POTENTIALLY JURISDICTIONAL WATERS

According to Section 404 of the Clean Water Act (CWA), the USACE asserts jurisdiction over Traditional Navigable Waters, which includes all waters as outlined in 33 C.F.R. § 328.3(a)(l), and 40 C.F.R. § 230.3 (s)(l). This includes non-navigable tributaries of traditional navigable waters that flow relatively permanently for at least 3 months of the year. Moreover, the USACE will also assert jurisdiction over non-navigable, not relatively permanent tributaries, where such tributaries have a significant nexus to traditional navigable waters.

GCI identified two ponds within the property boundary. These ponds were **7.87± acres** and **9.04± acres** in size, and identified as Pond #1 and Ponds #2, respectively, on the attached Site Features Map. The calculated acreage of Pond #1 includes the shallow surface water areas

between the two deep water quarry ponds. The coordinates for the center of Pond #1 are 40.000986 / -83.089575. The coordinates for the center of Pond #2 are 39.997504 / -83.085103. These ponds were created due to former limestone quarry operations, and were not created by impoundment of a jurisdictional stream. GCI did not observe inflow or outflow structures associated with these ponds. Wetland vegetation was not observed growing in the ponds or around the pond perimeters.

GCI identified one (1) drainage totaling **3,366± linear feet** within the property boundary. The approximate start coordinates for this drainage are 39.998577 / -83.089805. The approximate end coordinates for this drainage are 39.998594 / -83.081150. It is GCI's opinion that this drainage is considered non-jurisdictional. Below is our summary of this finding, based on review of published information and several site observations. Photo documentation correlating to our description of the drainage is included in the appendix of the report.

- USGS topographic maps reviewed and discussed previously indicated a drainage (Roberts Millikin Ditch) entered the site from the west, beneath Dublin Road. West of the property, Roberts Millikin Ditch is shown as a blue line stream on Northwest Columbus and Southwest Columbus quadrangles. Roberts Millikin Ditch and the blue line stream designation on the USGS map terminate shortly after entering the site east of Dublin Road. The original course of this drainage through the site cannot be determined, because the site has been an active quarry since the 1850s. The earliest USGS topographic maps available, dating from 1903, indicated the drainage previously crossed the central portion of the property in a general east/west direction.
- West of Dublin Road, Roberts Millikin Ditch appears to have perennial flow over exposed limestone (photos 1 & 2). The average width of the drainage, west of the site, is between 5 to 8 feet. The drainage flows beneath Dublin Road (photos 4 & 5), at which time it enters the property boundary. The drainage continues its flow over exposed limestone (photos 6, 7, & 8) for an additional 100± feet before the water flows over a mine high wall, creating a waterfall (photos 9, 11, & 13). The waterfall has been created by the elevation change associated with the native elevation of the drainage, and the previously quarried areas where stone has been removed. Water pools beneath the waterfall (photos 10, 11, & 12), while overflow is directed westerly, via a man-made channel (photos 13-32). The channel had been cut between quarry high-walls and man-made berms of topsoil and overburden (photos 22 & 23). The substrate of the channel consists of unconsolidated limestone materials or quarry overburden. Site observations indicate surface water flows in an easterly direction within the channel for as little as 175± linear feet before percolating into the unconsolidated substrate material of the channel and disappearing into the ground (photos 15-19). It is speculated that upon entering the ground, the water from the drainage enters fractured limestone associated with former quarry activities; hence becomes ground water. This ground water may responsible for the inundation of the former quarry pits to the west, which have previously identified as Pond #1 and Pond #2.
- Surveyed elevations conducted by EP Ferris & Associates indicates the surface water elevation of Pond #1 is 727.9± feet above mean sea level (AMSL) and the surface water elevation of Pond #2 is 719.5± feet AMSL. The man-made drainage channel has elevations ranging from 730.1± feet AMSL to 753.4± feet AMSL. The highest elevation of the drainage channel is located on the west central portion of the property, where it originates east of the waterfall. The difference in elevation of the constructed drainage channel and the quarry ponds, in conjunction with the unconsolidated substrate of the channel and underlying fractured limestone, indicates that surface water entering the

site from the west via Roberts Millikin Ditch may become ground water that has an influence on the adjacent quarry ponds (Pond #1 and Pond #2).

- The man-made drainage channel does not show evidence of year round flow and is not a relatively permanent water. The channel has been cut across the property with a final termination at the Scioto River (photo 33). Site observations indicate continuous flow throughout the entire channel exists only during, and directly after, a heavy rain or snow melt. Flow during and after rain events is swift and of short duration. Otherwise, the channel does not have continuous flow, even though flow coming into the site from the west is perennial.

7.0 PERMITS

Ohio EPA issues section 401 permits of the Clean Water Act. Section 401 deals with how a specific activity will affect water quality. Parameters such as sedimentation and nutrients are considered in 401 permitting. Wetlands are able to trap sediment and convert nutrients; hence, negative wetland or stream impacts effectively may lower water quality downstream. The Ohio EPA has jurisdiction over wetlands or other waters the USACE has determined to be "isolated" and not connected to navigable waters by direct surface water drainage.

The USACE issues section 404 permits of the Clean Water Act. Section 404 deals with the physical aspects of ground modification or "impacts" (e.g., draining, dredging, and filling.) Mucking out a wetland and culverting a stream for a road crossing are examples of such impacts. The USACE must generally be involved in all jurisdictional wetland, pond, or stream related activities.

Individual section 401 and 404 permits generally are costly and often take several months to receive complete regulatory agency review. Under the Clean Water Act, Nationwide Permits (NWPs) were issued to speed up the permitting process for minor activities. Whether filling, re-routing, or enhancing, the USACE must be notified at a minimum under most NWPs.

Under the NWPs, stream impacts are generally limited to 300 linear feet, while wetland impacts are generally limited to ½ acre. Wetland and stream impacts exceeding the NWP thresholds will require Individual Permit review. Limitations and conditions vary from permit to permit and are dependent on property development plans. Mitigation may be necessary for impacts to jurisdictional waters. The NWPs cannot be used if any the following are to be impacted:

- high quality, isolated, or rare wetlands,
- wetlands within the 100 year flood plain,
- state or National Scenic Rivers,
- navigable waterways,
- areas where endangered species are known to exist,
- areas where historic or archeological sites or structures are known to exist,
- areas containing a large concentration of shellfish beds,
- areas where water quality will be significantly degraded, and
- Critical Resource Waters.

8.0 CLOSING

GCI identified one (1) drainage totaling **3,366± linear feet** and two ponds with a combined surface water area of **16.91± acres**. GCI did not observe areas exhibiting wetland characteristics on the property.

The ponds on the property were created by former limestone quarry operations, and were not created by impoundment of a jurisdictional stream. GCI did not observe inflow or outflow structures associated with these ponds. It is GCI's opinion that these ponds are isolated, non-wetland features, which would not be regulated by the USACE or Ohio EPA.

It is GCI's opinion that the man-made drainage channel traversing the west and south portions of the property is considered non-jurisdictional. However, a significant nexus finding may be required to determine if this drainage is jurisdictional under the Clean Water Act (CWA). GCI's review of the significant nexus definition indicates the drainage lacks a significant nexus to a Traditional Navigable Waterway (TNW) for the following reasons:

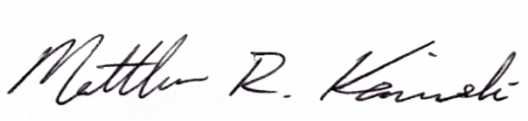
- The drainage does not have more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW (in this case, the Scioto River).
- The drainage lacks in volume.
- Continuous flow throughout the entire channel exists only during, and directly after, a heavy rain or snow melt. These flow events would be infrequent and of short duration. The channel lacks surface water flow (except for approximately 175 liner feet west of the waterfall and pool) during the majority of the year, even though flow coming into the site from the west is perennial.
- The proximity of the water source to the termination is approximately 3,266 linear feet (total length of man-made channel, minus 100 feet of channel between Dublin Road and the waterfall which is natural). This distance makes the effect on the TNW speculative or insubstantial.
- The channel does not support aquatic fish, amphibian, or vegetation.
- The man-made channel bed consists of a layer of limestone spoils and gravel over previously mined limestone bedrock.
- The drainage channel does not support wetlands; there are no wetlands adjacent to the drainage.
- The drainage channel was excavated/constructed in uplands and drains only uplands and does not carry a relatively permanent flow of water.
- The drainage does not support wildlife, does not transport sediment, does not support nutrient cycling, does not retain sediment, and does not trap pollutants or improve water quality of TNW.

Based on the above criteria, it is GCI's opinion that the man-made drainage channel located within the property boundary is non-jurisdictional and does not meet the minimum requirement under the significant nexus determination. Provided in the appendix of this report is a completed Approved Jurisdictional Determination Form supporting this conclusion.

With your authorization, we will issue a copy of this report to the USACE, Huntington, WV District Office for verification. With this reported information and/or a property visit, the USACE will make the official determination of jurisdiction for all waters on site.

GCI appreciates the opportunity to serve you on this project. Please contact our office with any questions or concerns regarding our report.

9.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS



Prepared by: _____

Matthew R. Kaminski, EP
Senior Project Manager – Environmental Services

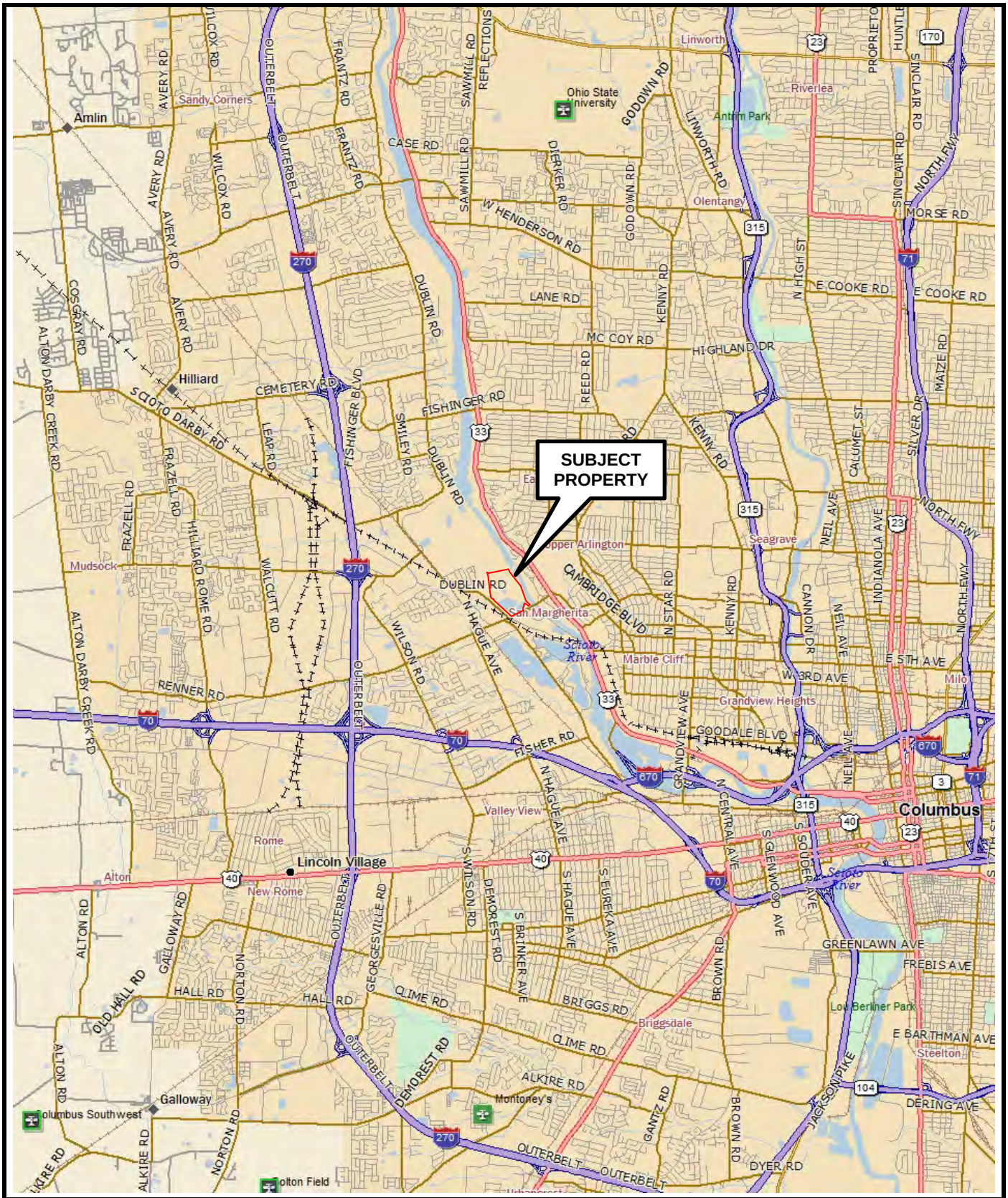
Reviewed by: _____

Bruce A. Savage
Principal, Director Environmental Services

GEOTECHNICAL
CONSULTANTS INC.

APPENDIX INFORMATION

GENERAL PROPERTY LOCATION MAP **GCI PROJECT #16-E-19414-A**



North

MARBLE CLIFF QUARRY PROPERTY
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COLUMBUS, FRANKLIN COUNTY, OHIO

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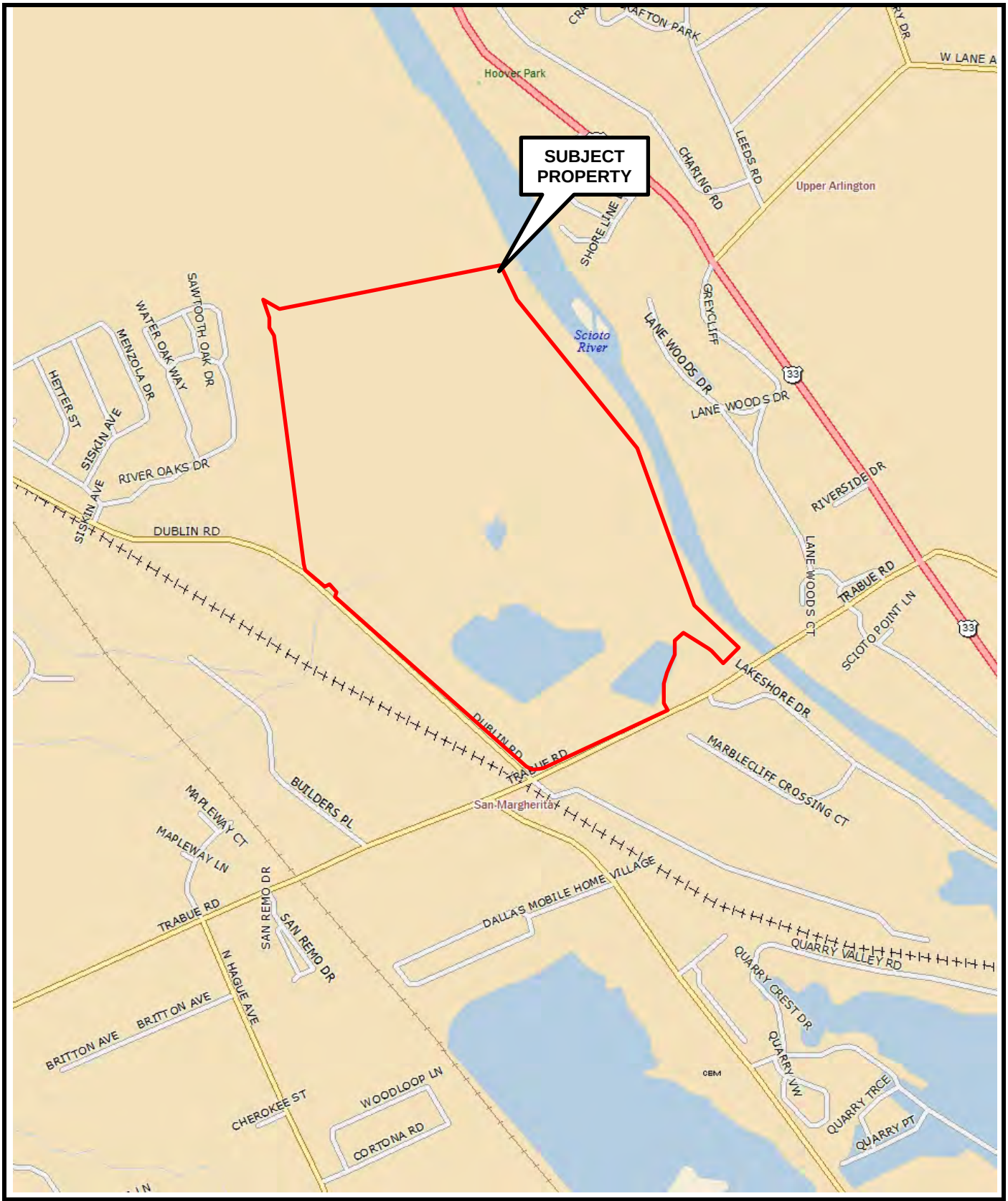
PROPERTY LOCATION MAP **GCI PROJECT #16-E-19414-A**



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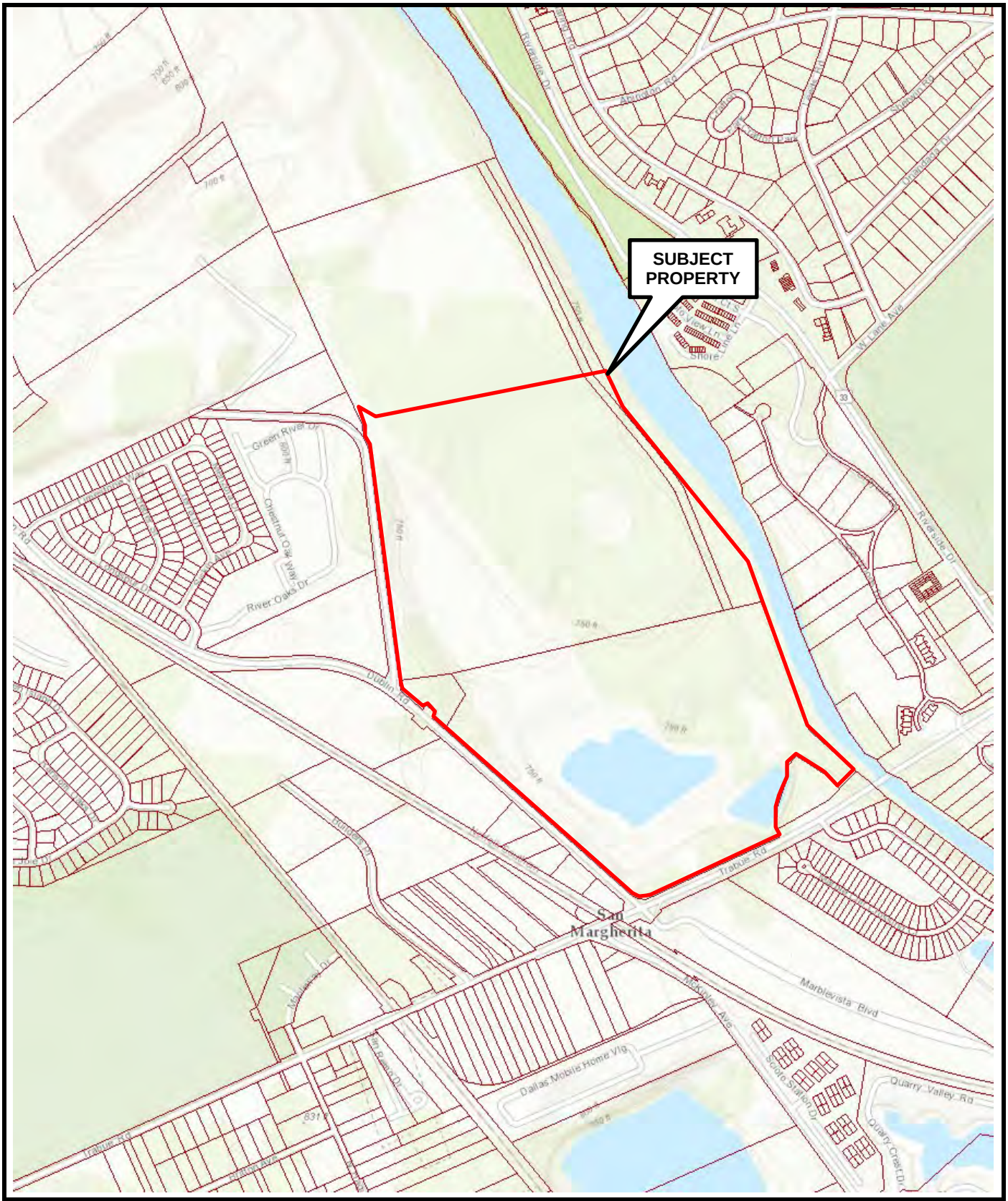
FRANKLIN COUNTY AUDITOR'S GIS MAP **GCI PROJECT #16-E-19414-A**



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ParcelID: 560-154669-00 **Map-Rt: 560-O065D -035-00**
TRABUE DUBLIN LLC **TRABUE RD**

Owner

Owner	TRABUE DUBLIN LLC
Owner Address	8191 E KAISER BLVD ANAHEIM CA 92808
Legal Description	TRABUE RD OQ 1000 ENTRY 544 67.400 ACRES
Calculated Acres	67.19
Legal Acres	67.4
Tax Bill Mailing	TRABUE DUBLIN LLC ATTN TAX DEPT 8191 E KAISER BLVD ANAHEIM CA 92808
	View Google Map

Most Recent Transfer

Transfer Date	AUG-25-2010
Transfer Price	$0

2015 Tax Status

Property Class	I - Industrial
Land Use	380 - MINE OR QUARRY
Tax District	560 - COLUMBUS-HILLIARD CSD
School District	2510 - HILLIARD CSD
City/Village	COLUMBUS CITY
Township	
Appraisal Neighborhood	X0400
Tax Lien	No
CAUV Property	No
Owner Occ. Credit	2015: No 2016: No
Homestead Credit	2015: No 2016: No
Board of Revision	No
Zip Code	43228

2015 Current Market Value

	Land	Improvements	Total

Base	505,500	0	505,500
TIF			
Exempt			
Total	505,500	0	505,500
CAUV	0		

2015 Taxable Value

	Land	Improvements	Total
Base	176,930	0	176,930
TIF			
Exempt			
Total	176,930	0	176,930

2015 Taxes

Net Annual Tax	Taxes Paid	CDQ
16,219.18	16,653.76	2015

Site Data

Frontage	Depth	Acres	Historic District
		67.4	

ParcelID: 560-154616-00 **Map-Rt: 560-O065D -034-01**
TRABUE DUBLIN LLC **DUBLIN RD**

Owner

Owner	TRABUE DUBLIN LLC
Owner Address	8191 E KAISER BLVD ANAHEIM CA 92808
Legal Description	ROBINSON PIKE OQ1000 ENTRY 544 2.183 ACRES
Calculated Acres	1.92
Legal Acres	0
Tax Bill Mailing	TRABUE DUBLIN LLC ATTN TAX DEPT 8191 E KAISER BLVD ANAHEIM CA 92808
	View Google Map

Most Recent Transfer

Transfer Date	AUG-25-2010
Transfer Price	$0

2015 Tax Status

Property Class	I - Industrial
Land Use	380 - MINE OR QUARRY
Tax District	560 - COLUMBUS-HILLIARD CSD
School District	2510 - HILLIARD CSD
City/Village	COLUMBUS CITY
Township	
Appraisal Neighborhood	X0400
Tax Lien	No
CAUV Property	No
Owner Occ. Credit	2015: No 2016: No
Homestead Credit	2015: No 2016: No
Board of Revision	No
Zip Code	43228

2015 Current Market Value

	Land	Improvements	Total

Base	15,800	0	15,800
TIF			
Exempt			
Total	15,800	0	15,800
CAUV	0		

2015 Taxable Value

	Land	Improvements	Total
Base	5,530	0	5,530
TIF			
Exempt			
Total	5,530	0	5,530

2015 Taxes

Net Annual Tax	Taxes Paid	CDQ
506.94	520.52	2015

Site Data

Frontage	Depth	Acres	Historic District
		2.183	

ParcelID: 560-154643-00 **Map-Rt: 560-O065B -019-00**
TRABUE DUBLIN LLC **2650 DUBLIN RD**

Owner

Owner	TRABUE DUBLIN LLC
Owner Address	8191 E KAISER BLVD ANAHEIM CA 92808
Legal Description	ROBINSON PIKE ENTRY 544 OQ1000 WHITE CEMETERY
Calculated Acres	124.95
Legal Acres	132.657
Tax Bill Mailing	TRABUE DUBLIN LLC ATTN TAX DEPT 8191 E KAISER BLVD ANAHEIM CA 92808
	View Google Map

Most Recent Transfer

Transfer Date	AUG-25-2010
Transfer Price	$0

2015 Tax Status

Property Class	I - Industrial
Land Use	380 - MINE OR QUARRY
Tax District	560 - COLUMBUS-HILLIARD CSD
School District	2510 - HILLIARD CSD
City/Village	COLUMBUS CITY
Township	
Appraisal Neighborhood	X0400
Tax Lien	No
CAUV Property	No
Owner Occ. Credit	2015: No 2016: No
Homestead Credit	2015: No 2016: No
Board of Revision	No
Zip Code	43228

2015 Current Market Value

	Land	Improvements	Total

Base	987,600	14,100	1,001,700
TIF			
Exempt			
Total	987,600	14,100	1,001,700
CAUV	0		

2015 Taxable Value

	Land	Improvements	Total
Base	345,660	4,940	350,600
TIF			
Exempt			
Total	345,660	4,940	350,600

2015 Taxes

Net Annual Tax	Taxes Paid	CDQ
32,139.52	33,000.67	2015

Site Data

Frontage	Depth	Acres	Historic District
		132.66	

ParcelID: 560-154658-00 **Map-Rt: 560-O065B -020-00**
TRABUE DUBLIN LLC **TRABUE RD**

Owner

Owner	TRABUE DUBLIN LLC
Owner Address	8191 E KAISER BLVD ANAHEIM CA 92808
Legal Description	TRABUE RD ENTRY 544 4.62 ACS
Calculated Acres	4.36
Legal Acres	0
Tax Bill Mailing	TRABUE DUBLIN LLC ATTN TAX DEPT 8191 E KAISER BLVD ANAHEIM CA 92808
	View Google Map

Most Recent Transfer

Transfer Date	AUG-25-2010
Transfer Price	$0

2015 Tax Status

Property Class	I - Industrial
Land Use	380 - MINE OR QUARRY
Tax District	560 - COLUMBUS-HILLIARD CSD
School District	2510 - HILLIARD CSD
City/Village	COLUMBUS CITY
Township	
Appraisal Neighborhood	X0400
Tax Lien	No
CAUV Property	No
Owner Occ. Credit	2015: No 2016: No
Homestead Credit	2015: No 2016: No
Board of Revision	No
Zip Code	43026

2015 Current Market Value

	Land	Improvements	Total

Base	34,700	0	34,700
TIF			
Exempt			
Total	34,700	0	34,700
CAUV	0		

2015 Taxable Value

	Land	Improvements	Total
Base	12,150	0	12,150
TIF			
Exempt			
Total	12,150	0	12,150

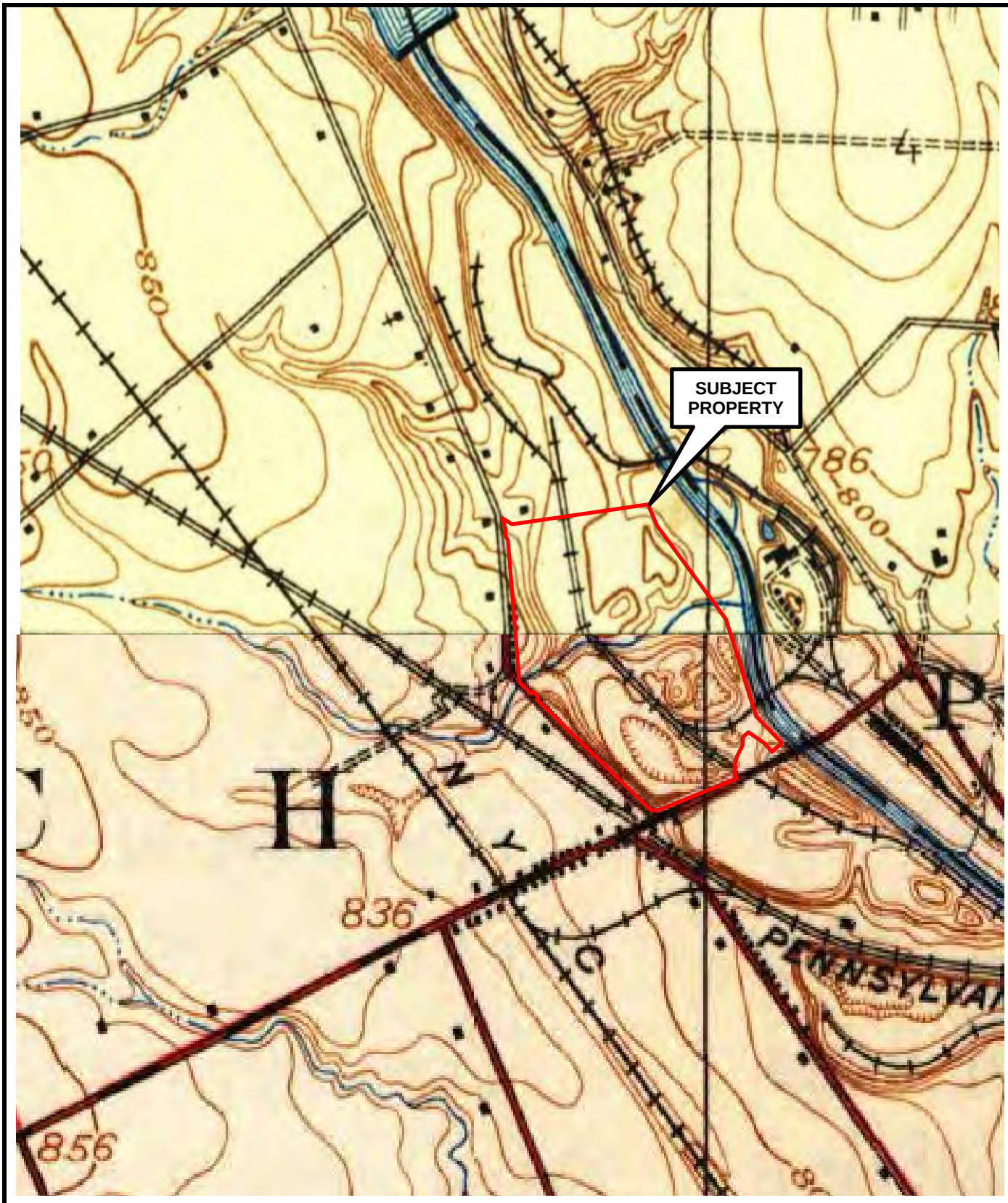
2015 Taxes

Net Annual Tax	Taxes Paid	CDQ
1,113.80	1,143.65	2015

Site Data

Frontage	Depth	Acres	Historic District
		4.62	

1903/25 USGS TOPOGRAPHIC MAP **GCI PROJECT #16-E-19414-A**



North

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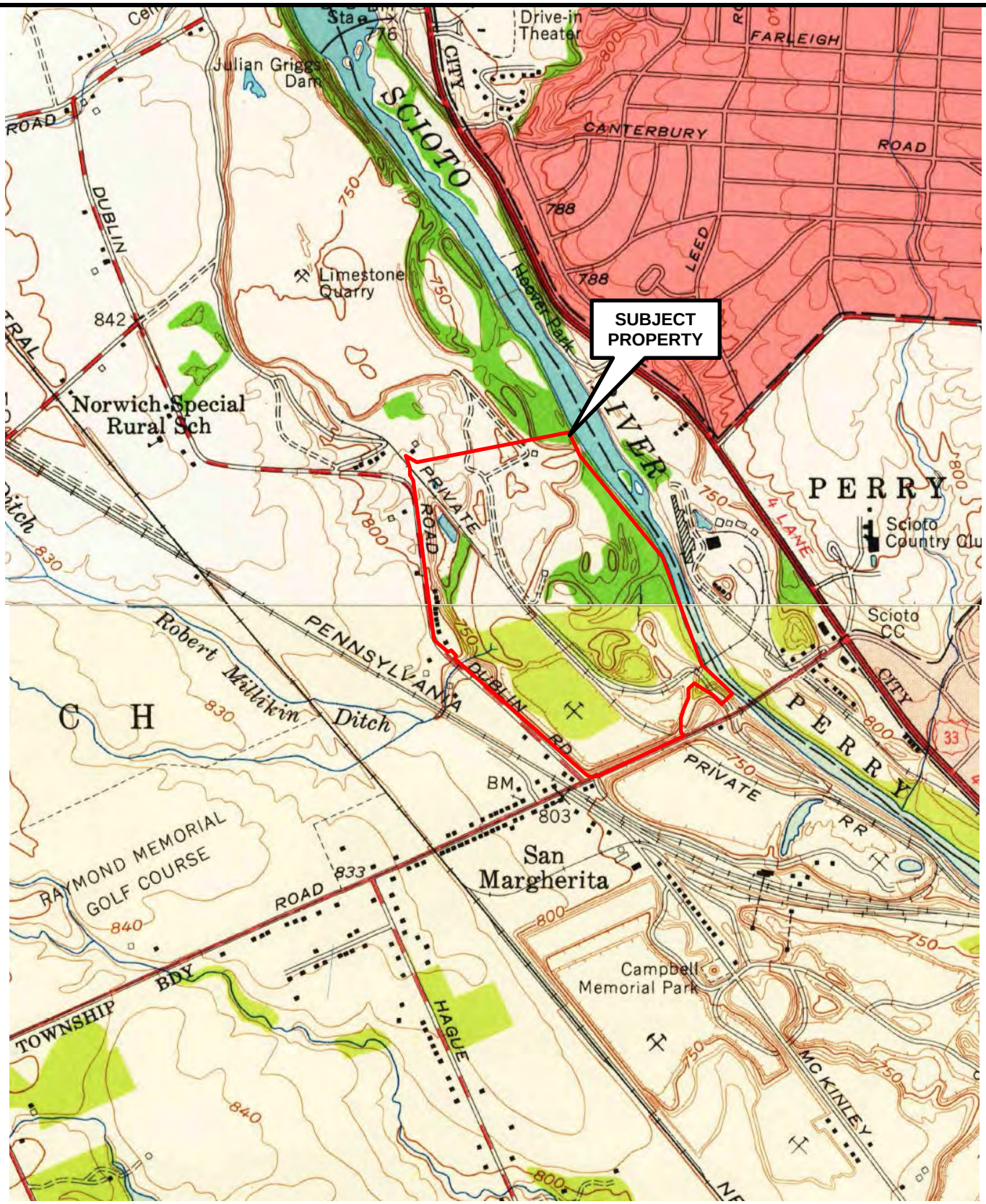
1955 USGS TOPOGRAPHIC MAP **GCI PROJECT #16-E-19414-A**



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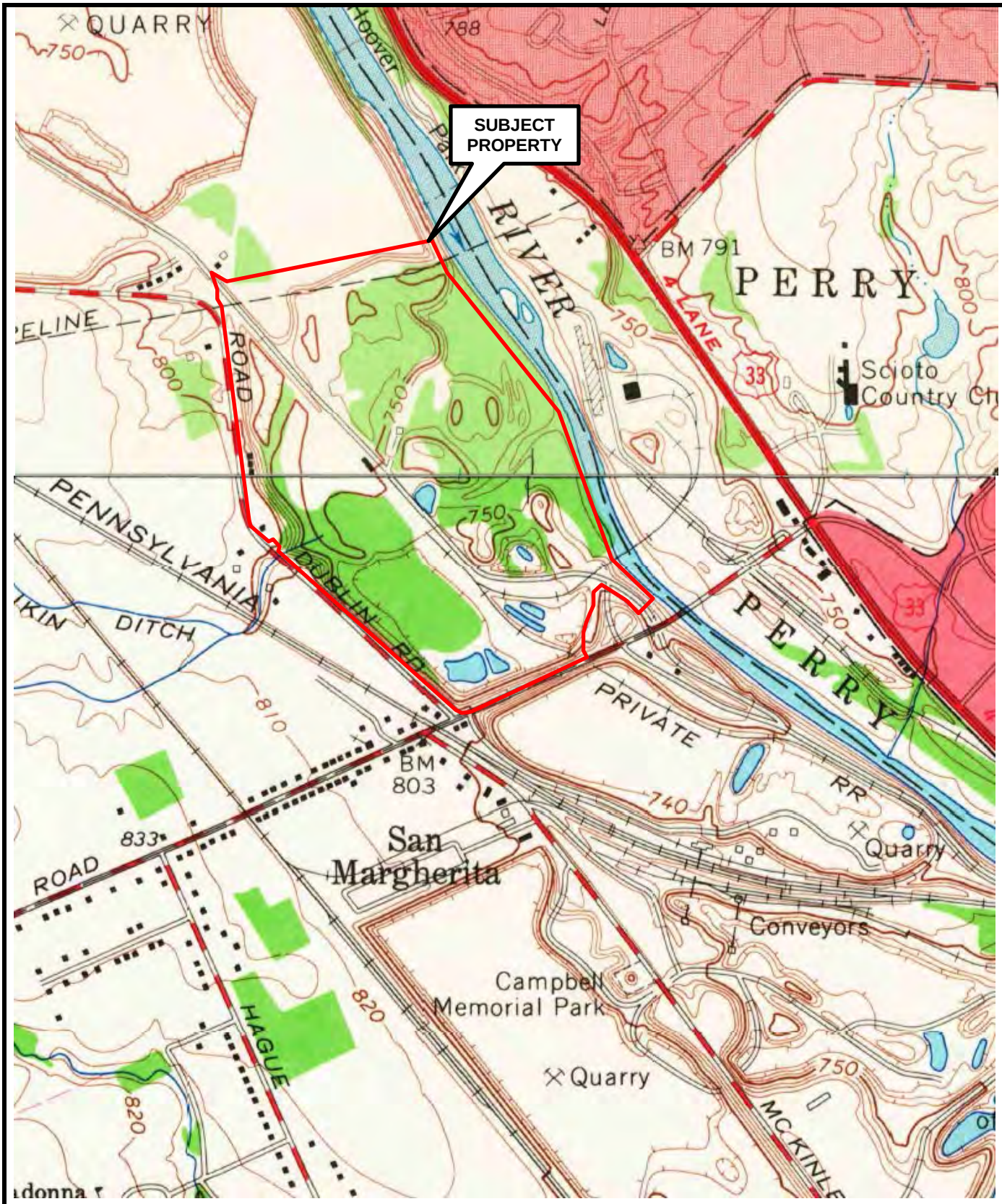
1965 USGS TOPOGRAPHIC MAP **GCI PROJECT #16-E-19414-A**



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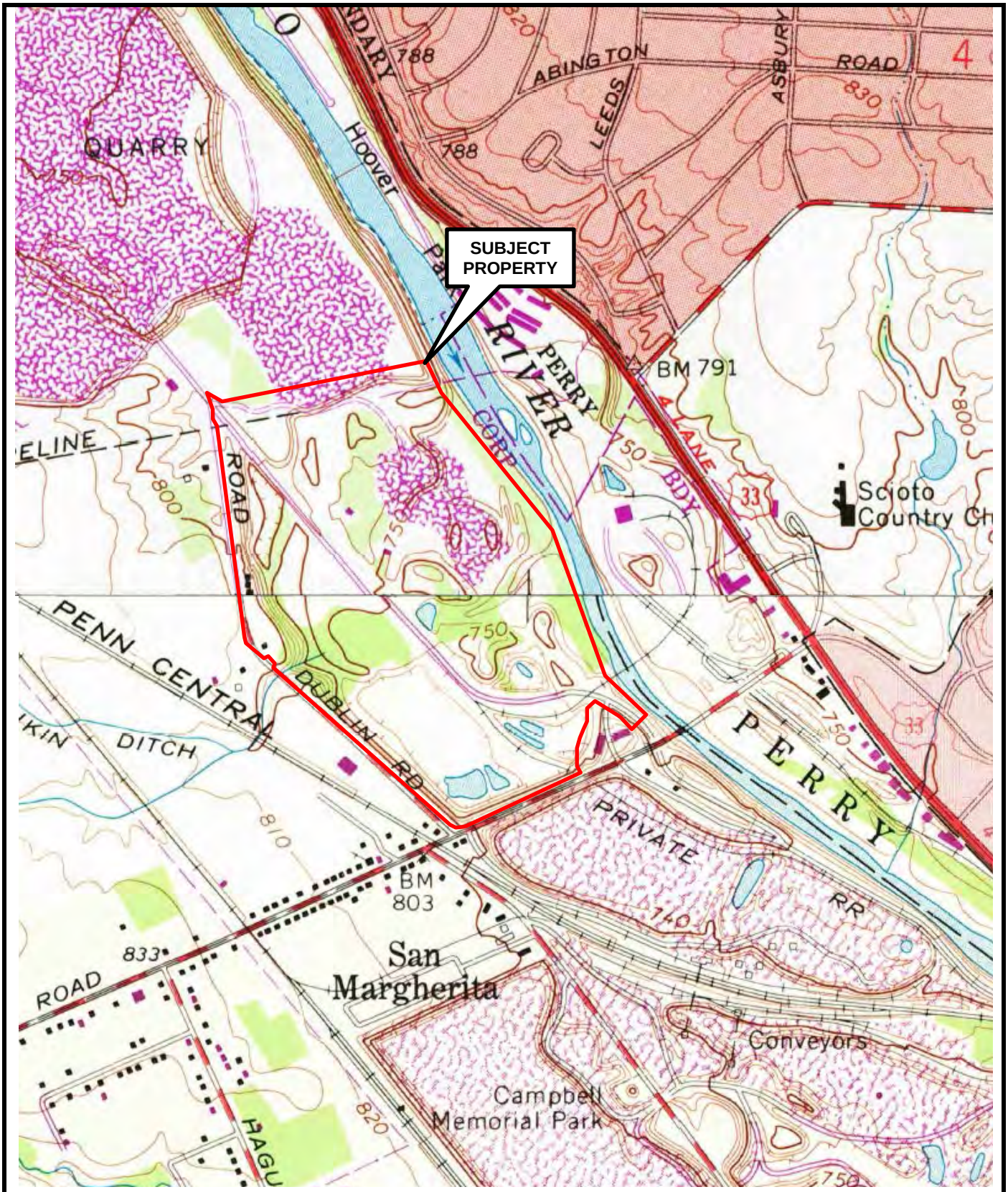
1973/82 USGS TOPOGRAPHIC MAP **GCI PROJECT #16-E-19414-A**



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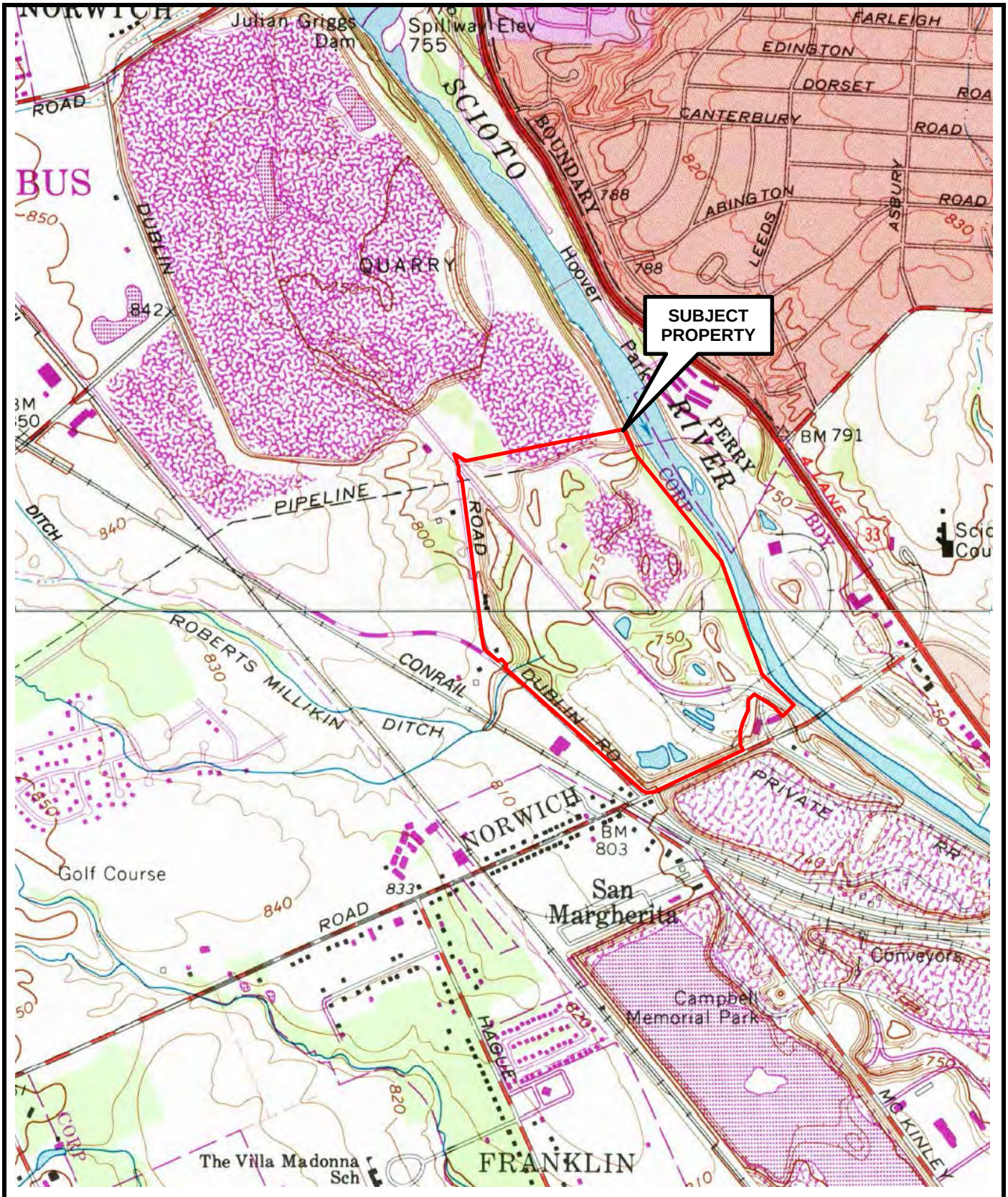
1982/84 USGS TOPOGRAPHIC MAP **GCI PROJECT #16-E-19414-A**



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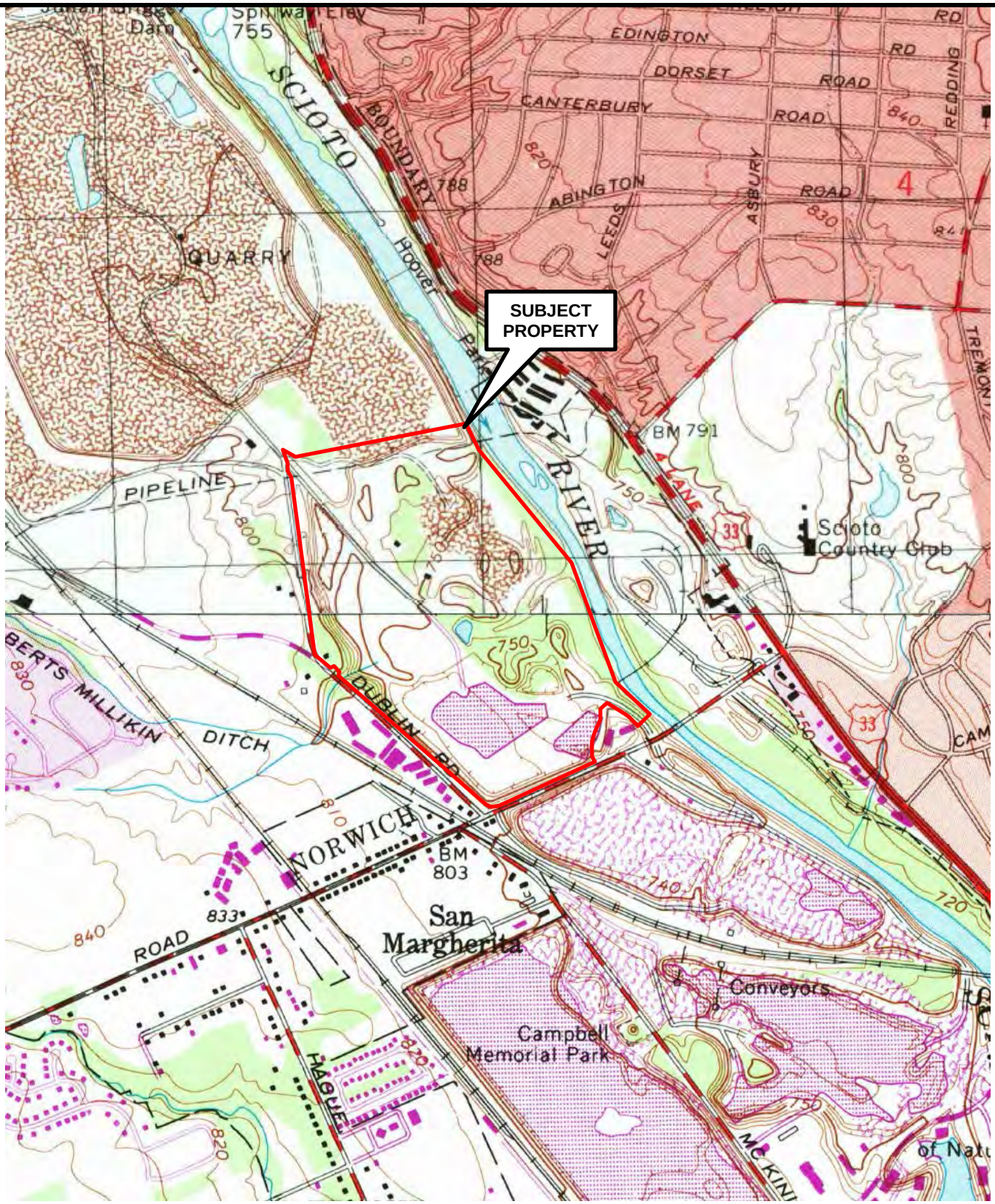
1995 USGS TOPOGRAPHIC MAP **GCI PROJECT #16-E-19414-A**



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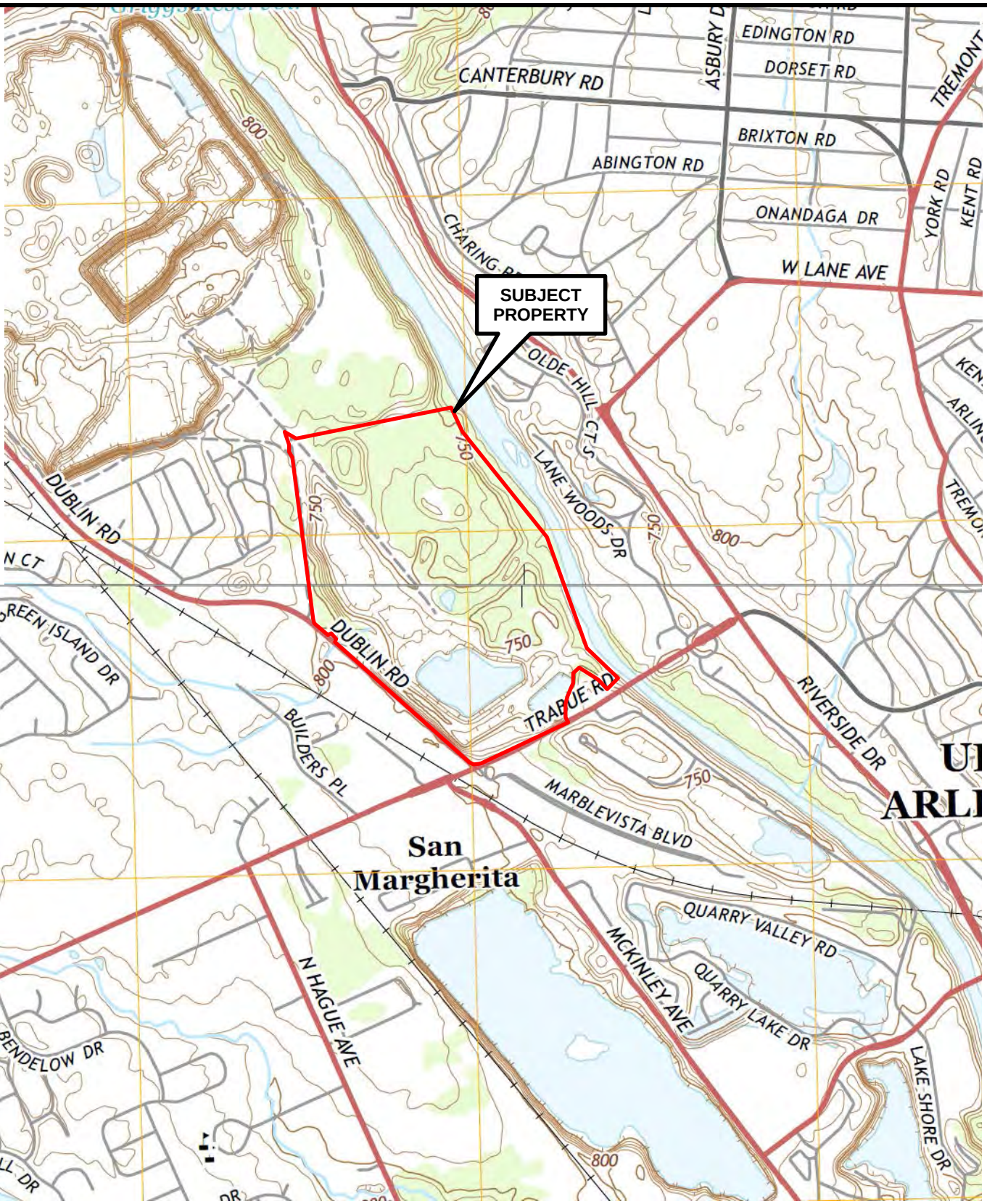
2013 USGS TOPOGRAPHIC MAP **GCI PROJECT #16-E-19414-A**



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USDA WEB SOIL SURVEY MAP **GCI PROJECT #16-E-19414-A**

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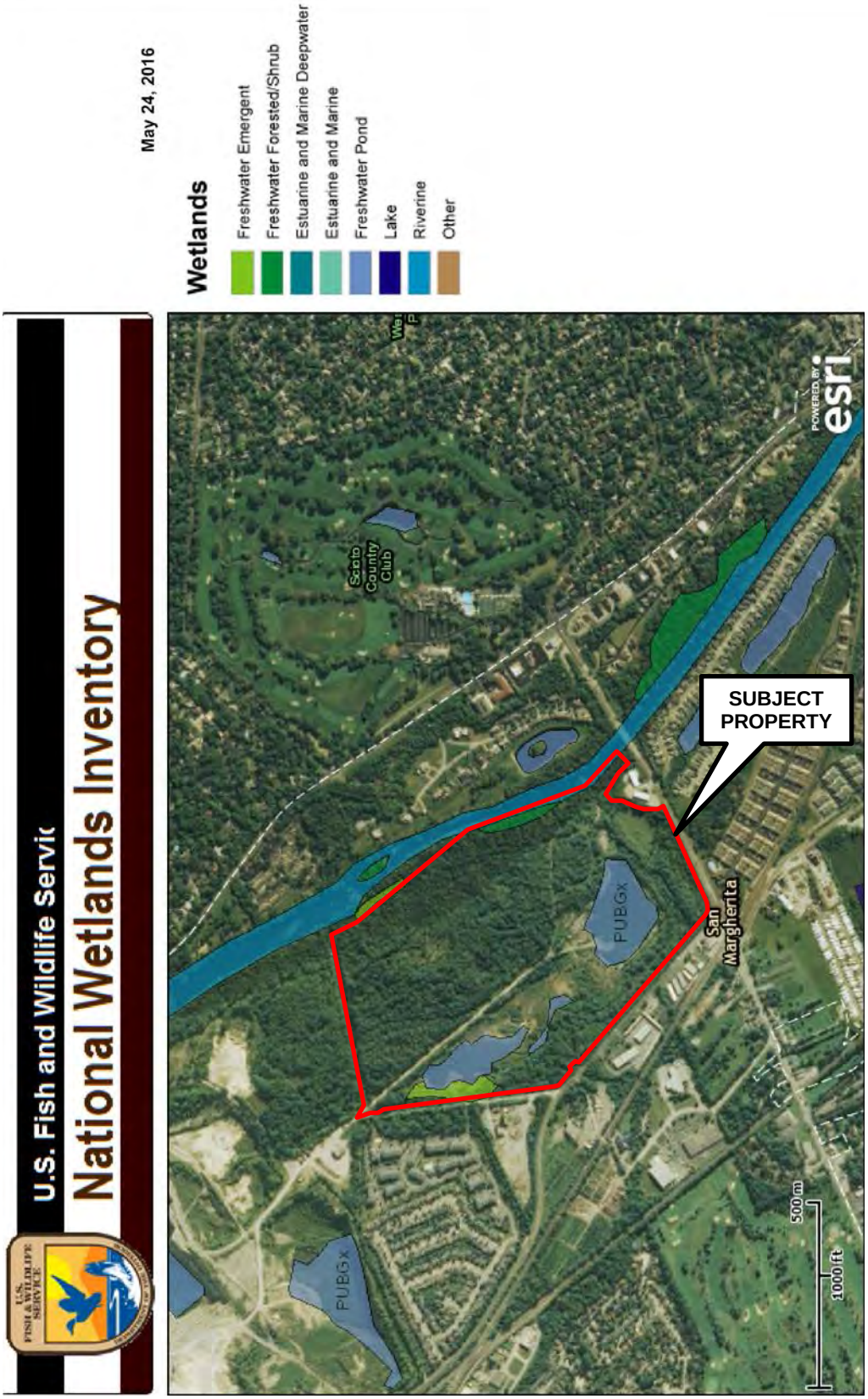

North

MARBLE CLIFF QUARRY PROPERTY
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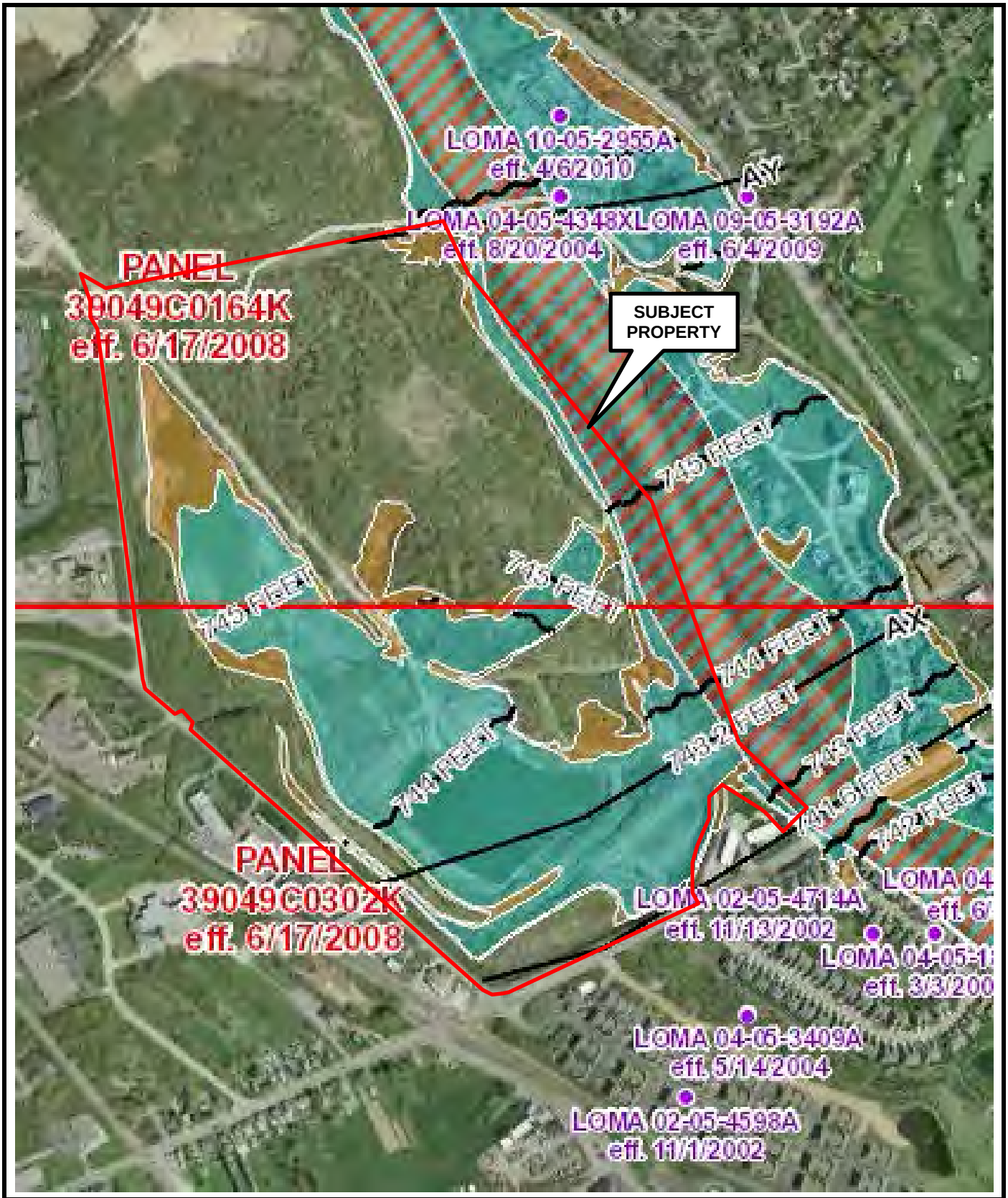
COLUMBUS, FRANKLIN COUNTY, OHIO

FEMA FLOOD INSURANCE RATE MAP **GCI PROJECT #16-E-19414-A**



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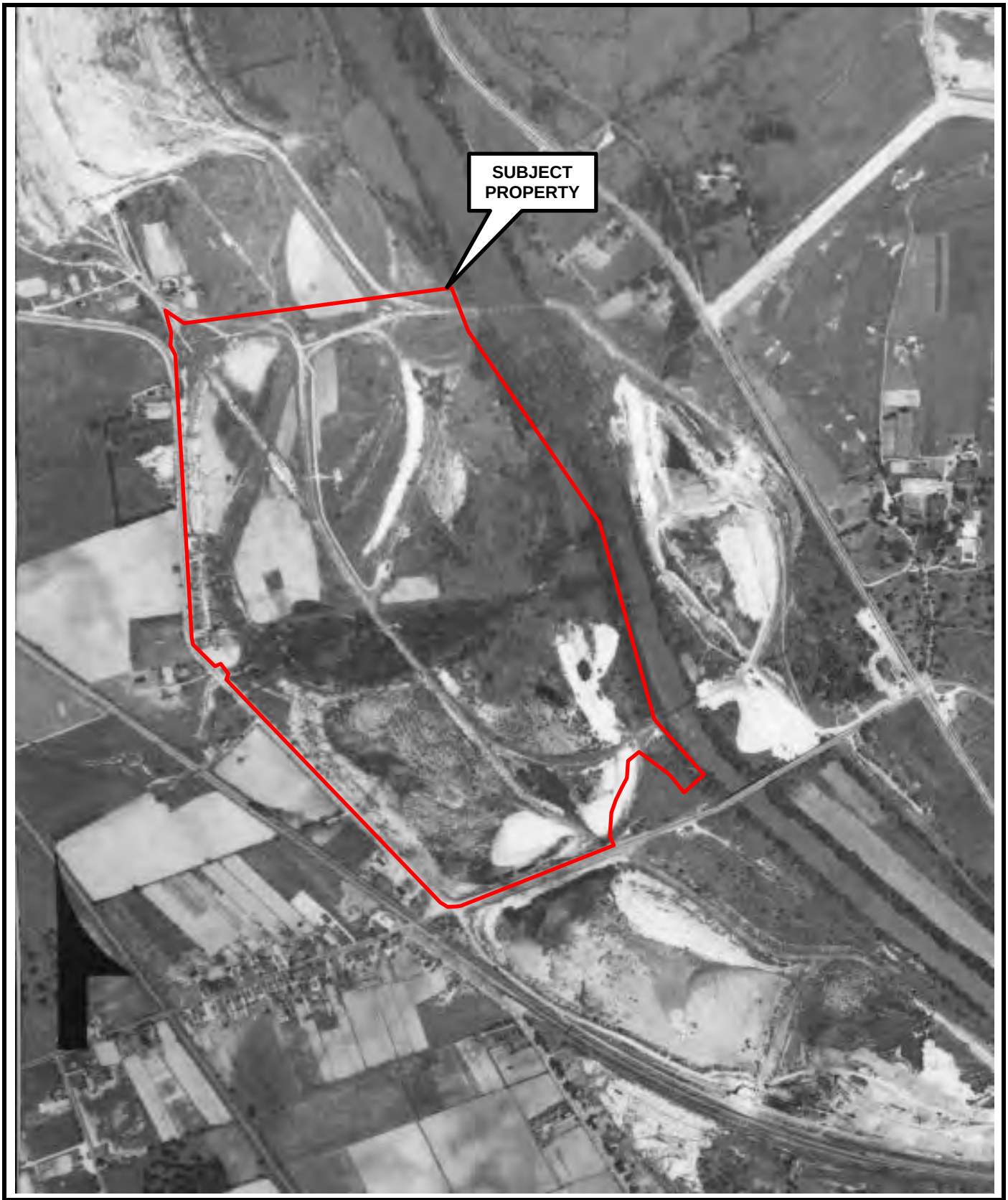
1938 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**



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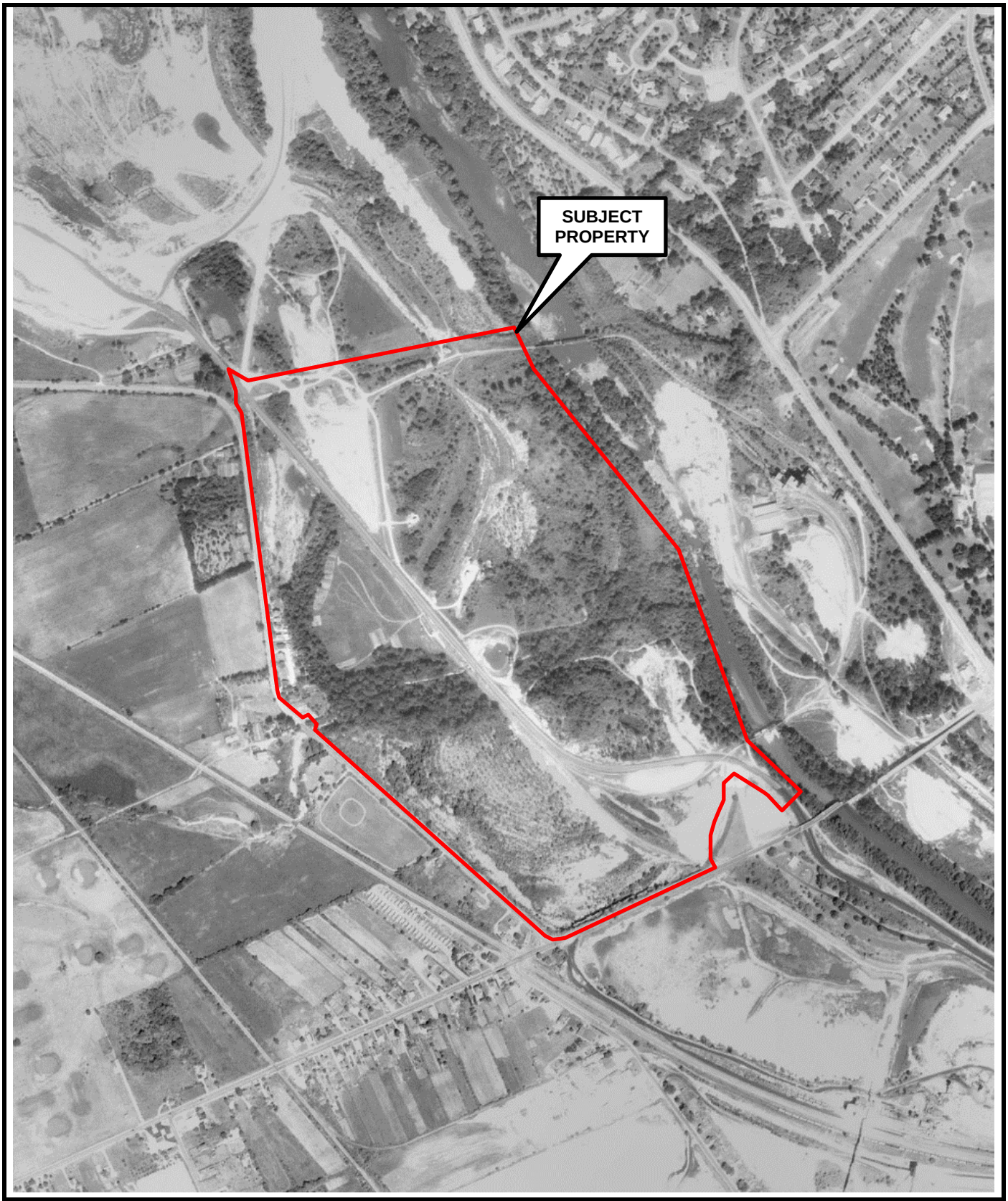
1957 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**



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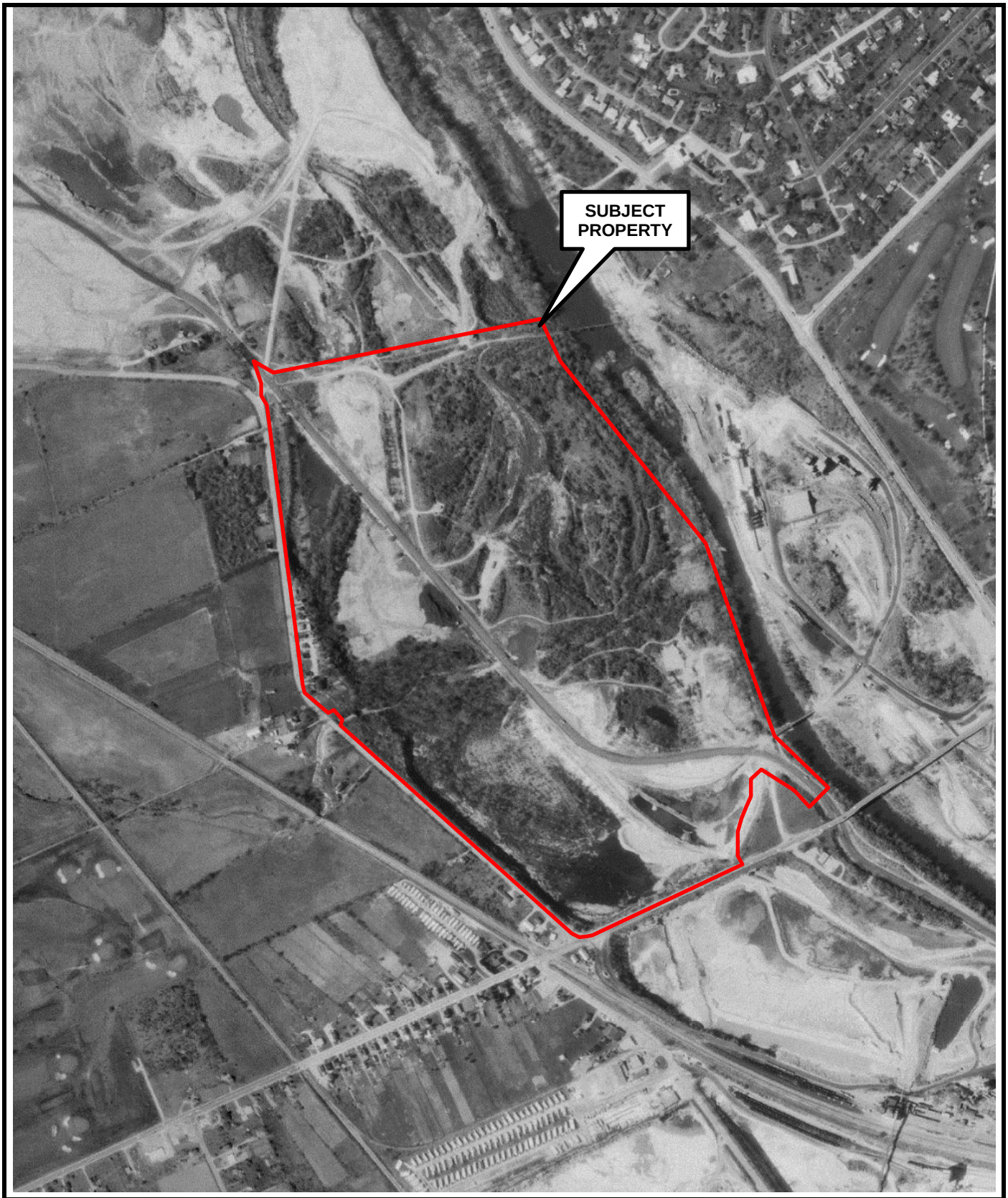
1964 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**



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1971 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**

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1979 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**

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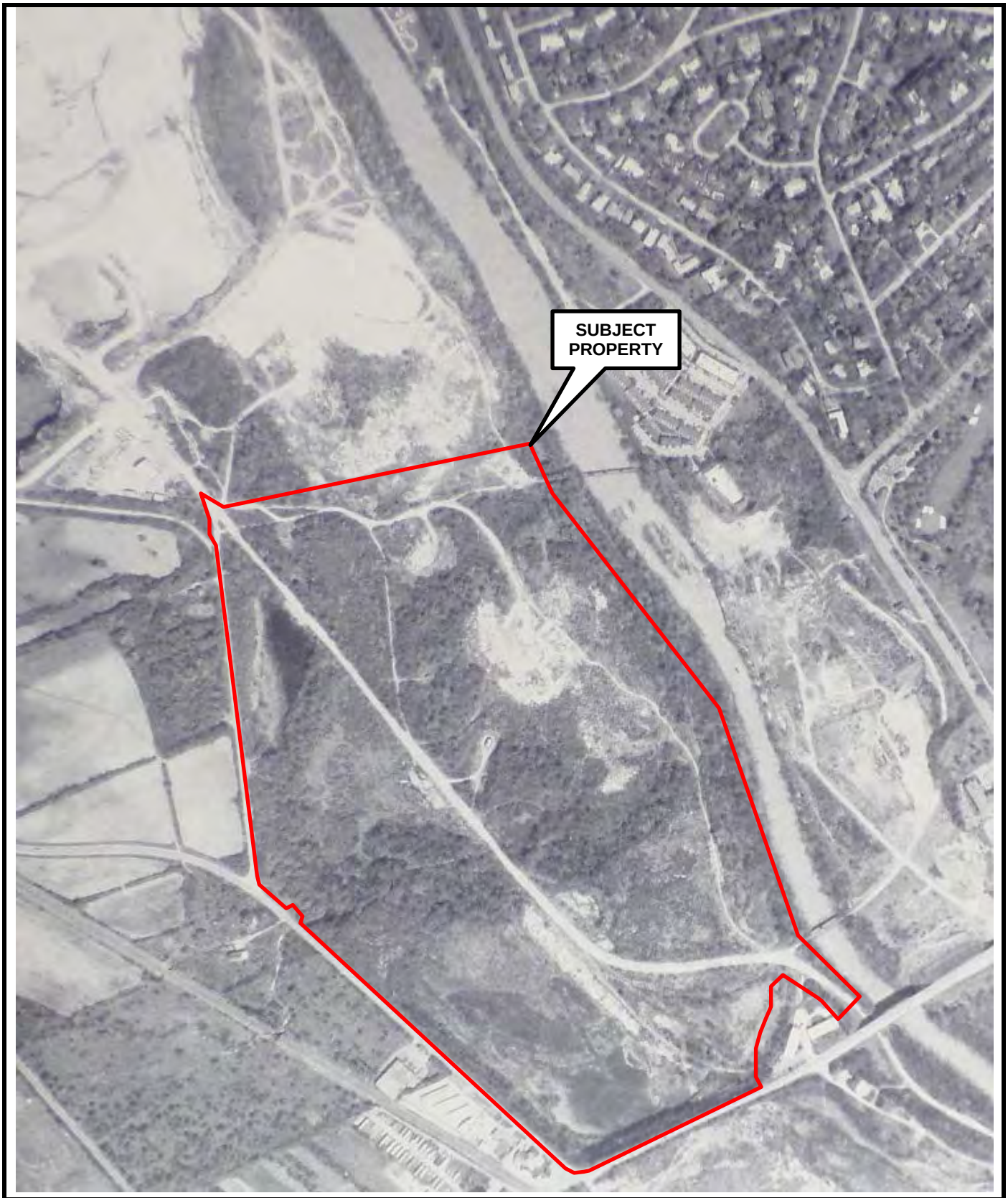
1986 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**



North

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1989 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**

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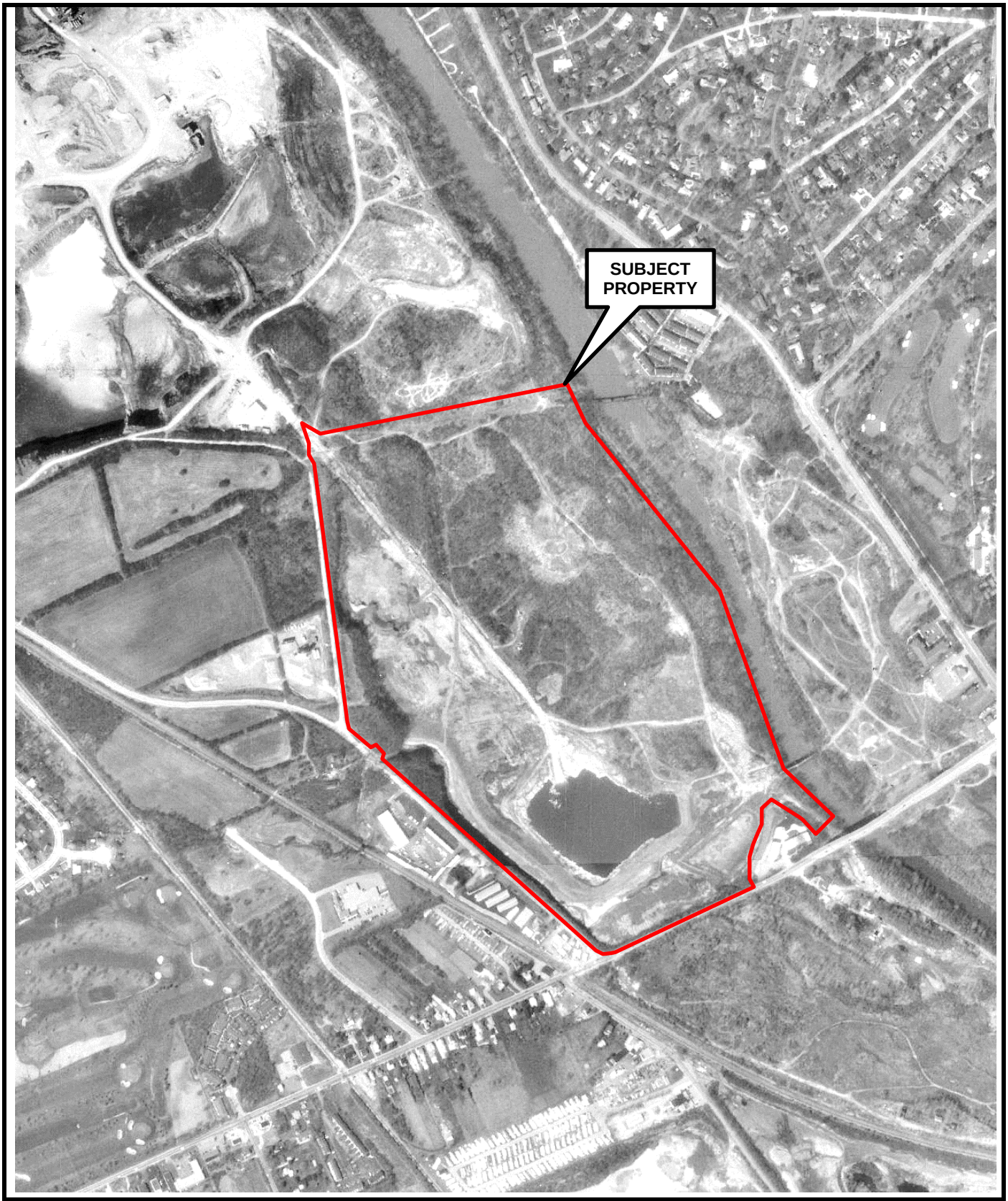
1995 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**



North

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2004 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**

North

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2007 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**

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2009 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**

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2013 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**

North

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2015 AERIAL PHOTOGRAPH **GCI PROJECT #16-E-19414-A**

North

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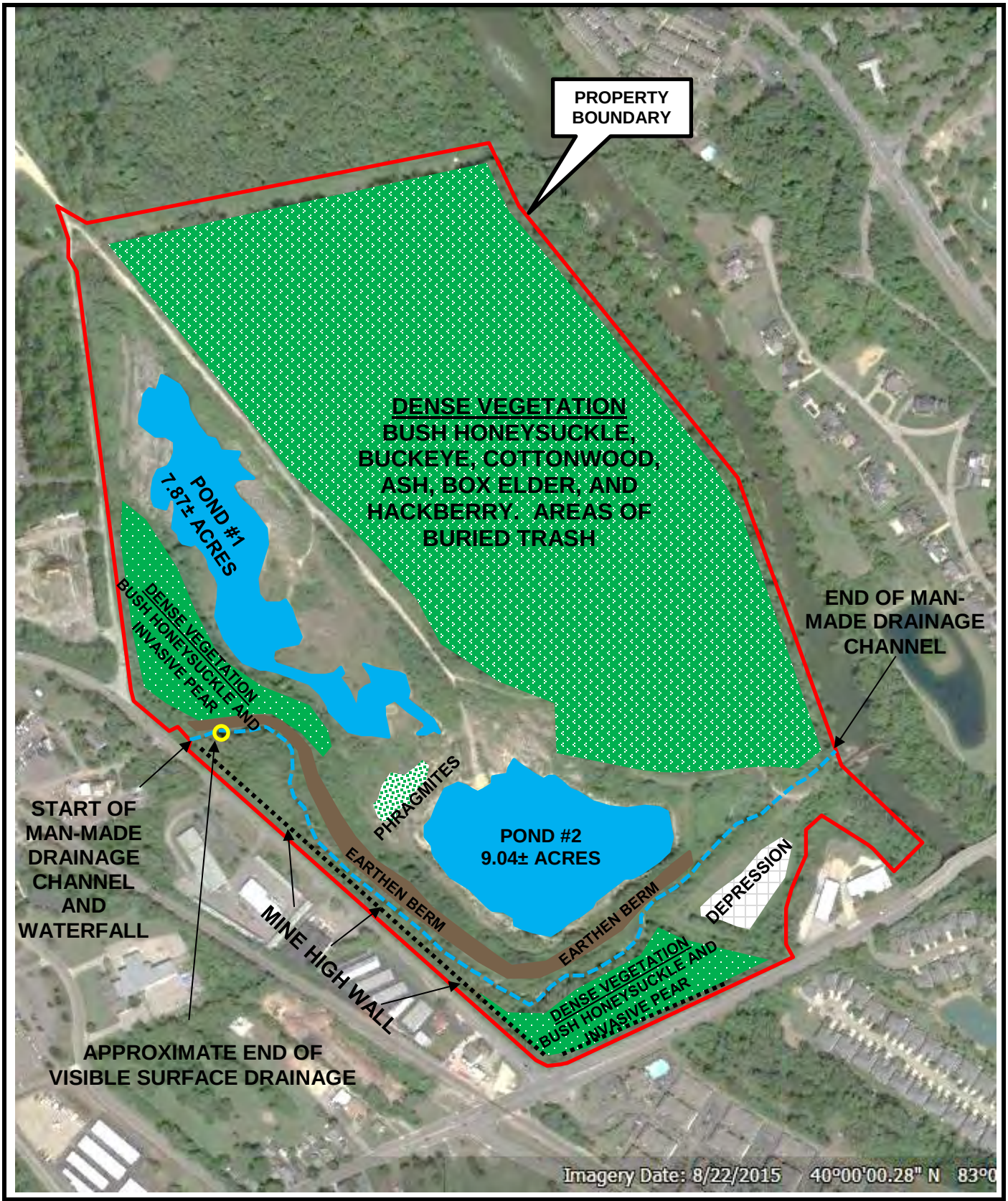
SITE FEATURES MAP **GCI PROJECT #16-E-19414-A**



North

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PHOTO KEY **GCI PROJECT #16-E-19414-A**

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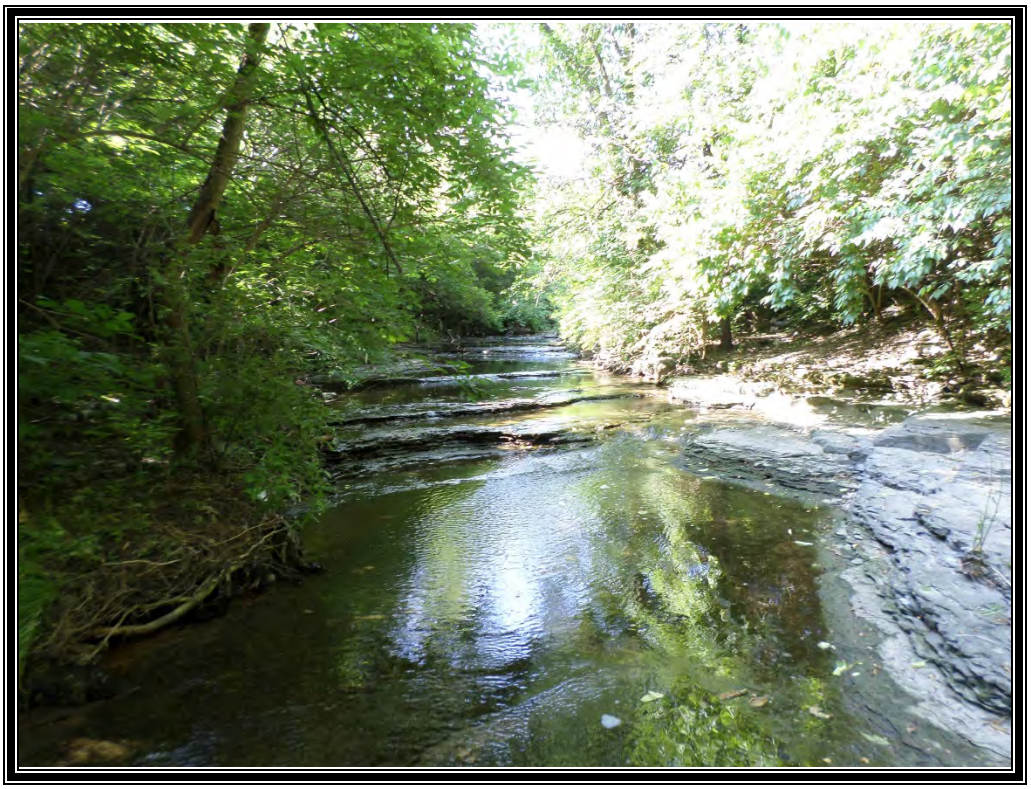

Photo 1 (6/14/16): View of Roberts Millikin Ditch, as seen from the west side of Dublin Road (off property). This ditch appears to have perennial flow in this location, even during sparse and infrequent rainfall events.

Photo 2 (6/14/16): View of Roberts Millikin Ditch, as seen from Dublin Road (off property).

Photo 3 (6/14/16): Westerly view across Dublin Road. Roberts Millikin Ditch enters the site from beneath Dublin Road.

Photo 4 (6/14/16): Easterly view along Roberts Millikin Ditch and the culvert beneath Dublin Road. This photo is from off-site, west of Dublin Road.

Photo 5 (6/14/16): Easterly view towards the site from the culvert beneath Dublin Road.

Photo 6 (6/14/16): Westerly (upstream) view of Roberts Millikin Ditch as it enters the site. Flow is over exposed limestone bedrock.

Photo 7 (6/14/16): Easterly view along Roberts Millikin Ditch as the flow approaches the quarried rock face, creating a waterfall.

Photo 8 (6/14/16): View of the flow of water just before the quarried rock face.

Photo 9 (6/14/16): View of the flow of water as it reaches the precipice.

Photo 10 (6/14/16): Easterly view from the precipice at the pool beneath.

Photo 11 (6/14/16): Westerly view at the waterfall created by the drainage from the west falling over a quarried rock face. Note the change in elevation of approximately 20 feet.

Photo 12 (6/14/16): Easterly view along the drainage exiting the plunge pool beneath the waterfall.

Photo 13 (6/14/16): Westerly view towards the waterfall at the man-made drainage channel directing water away from the plunge pool. The channel is widest at this location.

Photo 14 (6/14/16): View of surface water drainage just east of the plunge pool. The drainage is limited to a 2-3 feet wide area at this point.

Photo 15 (6/14/16): Visible surface flow from the area seen in photo 14. Note the unconsolidated material comprising the bed of the man-made channel.

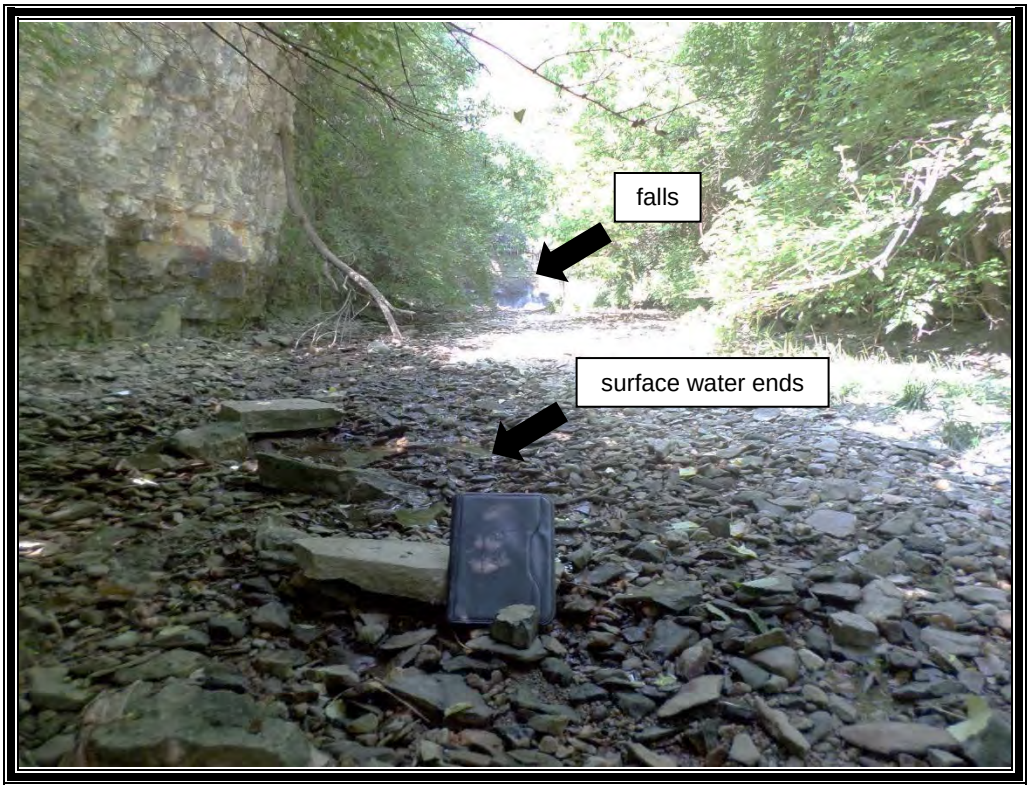

Photo 16 (6/14/16): Westerly view toward the waterfall. This photo was taken approximately 175 feet from the falls. The notebook has been placed for reference. Note the high wall on the left side of the photo.

Photo 17 (6/14/16): Northerly view from the location as photo 16.

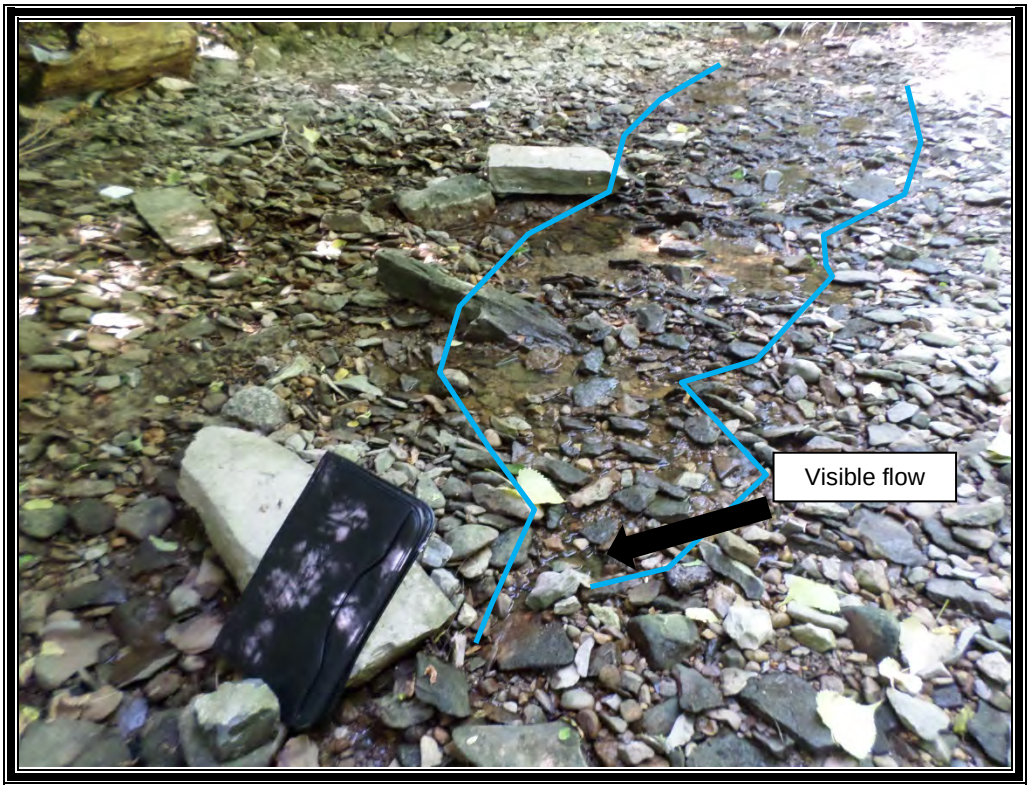

Photo 18 (6/14/16): Southwesterly view from the location as photo 16. Note visible flow.

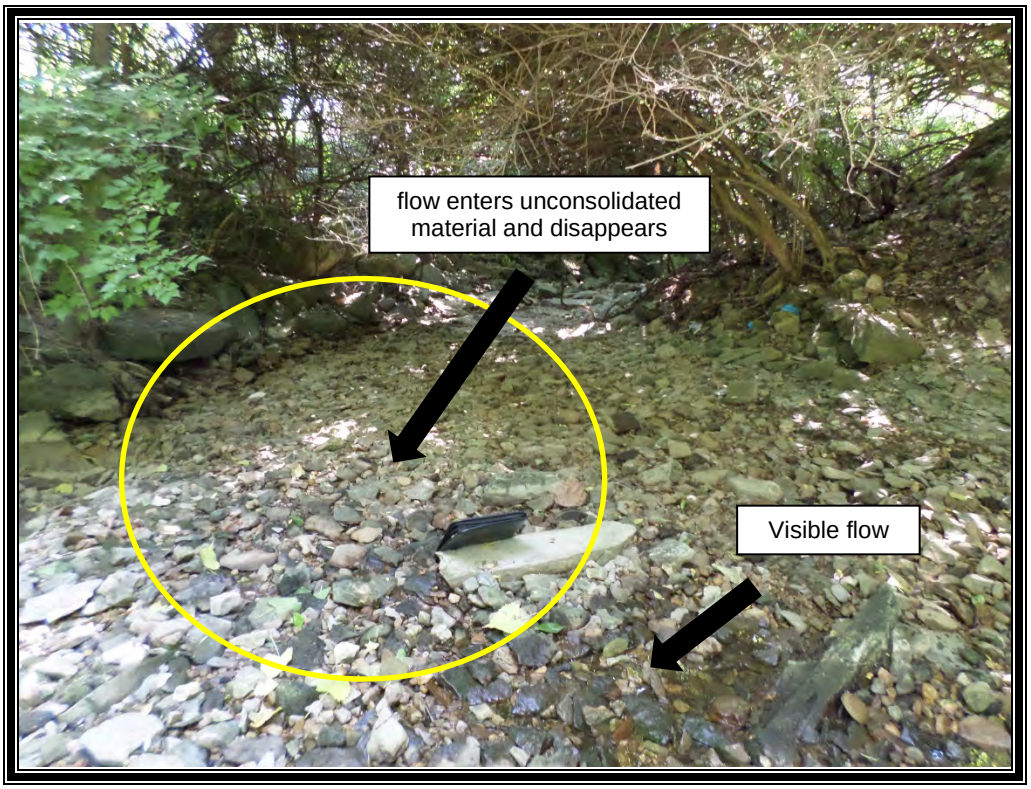

Photo 19 (6/14/16): Southeasterly view from the same general location as photo 16-18. Note visible flow in the bottom right of the picture. The flow enters unconsolidated material and disappears approximately 175 feet from the waterfall.

Photo 20 (6/14/16): Southeasterly view of the man-made drainage channel further down-gradinet from the location of photos 16 through 19. Although perennial flow enters the property, this drainage channel does not carry surface water flow throughout. Flow enters unconsolidated material and becomes ground water.

Photo 21 (4/20/16): View of the man-made channel on the west central portion of the property. This channel is located between a mine high wall and a steep berm.

Photo 22 (4/20/16): Typical view of the mine high wall along the west side of the man-made drainage channel as it crosses the southwest portion of the property.

Photo 23 (4/20/16): Typical view of the steep sidewalls of the berm along the eastern side of the man-made drainage channel.

Photo 24 (4/20/16): Northwesterly view of the drainage channel on the southwest portion of the property.

Photo 25 (4/20/16): Southeasterly view of the drainage channel on the southwest portion of the property.

Photo 26 (4/20/16): Northeasterly view along the drainage channel as it traverses the southern portion of the property.

Photo 27 (4/20/16): Southwesterly view of the drainage channel on the south central portion of the property.

Photo 28 (4/20/16): View of the berm along the north side of the drainage channel on the south central portion of the property.

Photo 29 (4/20/16): View of drift deposits visible along the edge of the channel on the south central portion of the property. The drift deposits indicate the channel does accept heavy, fast flow of short duration during significant rain events.

Photo 30 (4/20/16): Northeasterly view of the drainage channel on the southeast portion of the property.

Photo 31 (4/20/16): Southwesterly view of the drainage channel on the southeast portion of the property.

Photo 32 (4/20/16): Southwesterly view of the drainage channel on the southeast portion of the property.

Photo 33 (4/20/16): View from a bridge over the Scioto River at the termination of the man-made drainage ditch.

Photo 34 (4/20/16): Northerly view along the Scioto River bordering the east side of the property.

Photo 35 (4/15/16): Southeasterly view across a depression on the southern portion of the property.

Photo 36 (4/15/16): Typical view of exposed ground surfaces in the depression on the southern portion of the property, and throughout much of the quarry.

Photo 37 (4/15/16): Southeasterly view across the quarry pond on the southeastern portion of the property (Pond #2)

Photo 38 (4/20/16): Northwesterly view across the quarry pond on the southeastern portion of the property (Pond #2)

Photo 39 (4/20/16): Northerly view across the quarry pond on the southeastern portion of the property (Pond #2)

Photo 40 (4/20/16): Northeasterly view along the southern edge of the quarry pond on the southeastern portion of the property (Pond #2)

Photo 41 (4/15/16): Typical view of vegetation and surface cover in the areas north of Pond #2.

Photo 42 (4/15/16): View of common reed (Phragmites australis) growing is shallow water waste areas north of Pond #2. These areas had a rock and gravel substrate with a very thin layer of silt or sand. These areas did not contain hydric soil conditions.

Photo 43 (4/15/16): Northwesterly view across shallow water areas on the west central portion of the property. These shallow water areas were considered the southwestern portion of Pond #1.

Photo 44 (4/15/16): Northerly view across shallow water areas of Pond #1.

Photo 45 (6/14/16): Northwesterly view across shallow water areas of Pond #1.

Photo 46 (6/14/16): Easterly view across shallow water areas of Pond #1.

Photo 47 (6/14/16): View of a channel cut southwest of the quarried portion of Pond #1.

Photo 48 (6/14/16): View of a channel cut southwest of the quarried portion of Pond #1.

Photo 49 (6/14/16): Northerly view across the deep water portion of Pond #1.

Photo 50 (4/15/16): Northwesterly view across the deep water portion of Pond #1.

Photo 51 (4/15/16): Typical view of the wooded areas comprising the eastern half of the property.

Photo 52 (4/15/16): Another view of the wooded areas comprising the eastern half of the property.

Photo 53 (4/15/16): Typical substrate observed in the wooded areas comprising the eastern half of the property.

Photo 54 (4/15/16): Evidence of buried trash in the wooded areas comprising the eastern half of the property. Eastern portions of the property were previously used as a landfill.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State:Ohio County/parish/borough: Franklin City: Columbus
Center coordinates of site (lat/long in degree decimal format): Lat. 40.000732° **N**, Long. -83.085820° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: Roberts Millikin Ditch
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Scioto River
Name of watershed or Hydrologic Unit Code (HUC): 050600011205

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

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

☐ Office (Desk) Determination. Date:
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "***navigable waters of the U.S.***" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [***Required***]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "***waters of the U.S.***" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [***Required***]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☒ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: 3,366 linear feet: 6 width (ft) and/or 0.463 acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): 753 AMSL.

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: **1) The drainage does not have more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW (in this case, the Scioto River) 2) The drainage lacks in volume 3) Continuous flow throughout the entire channel exists only during, and directly after, a heavy rain or snow melt. These flow events would be infrequent and of short duration 4) The channel lacks surface water flow (except for approximately 175 liner**

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

feet west of the waterfall and pool) during the majority of the year, even though flow coming into the site from the west is perennial 5) The proximity of the water source to the termination of the man-made channel is approximately 3,266 linear feet (total length of man-made channel minus 100 feet of channel between Dublin Road and the waterfall which is natural). This distance makes the effect on the TNW speculative or insubstantial 6) The channel does not support aquatic fish, amphibian, or vegetation 7) The man-made channel bed consists of a layer of limestone spoils and gravel over previously mined limestone bedrock 8) The drainage channel does not support wetlands and there are no wetlands adjacent to the drainage 9) The drainage channel was excavated/constructed in uplands and drains only uplands and does not carry a relatively permanent flow of water 10) The drainage does not support wildlife, does not transport sediment, does not support nutrient cycling, does not retain sediment, and does not trap pollutants or improve water quality of TNW.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: **N/A**.

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": N/A.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: 2.9 **square miles**
Drainage area: **Pick List**
Average annual rainfall: 39.31 inches
Average annual snowfall: 26.7 inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☒ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **1 (or less)** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **1 (or less)** aerial (straight) miles from TNW.
Project waters are **1 (or less)** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: man-made drainage channel discharges directly into TNW.
Tributary stream order, if known: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☒ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: 6 feet
Average depth: 0 feet
Average side slopes: **4:1 (or greater).**

Primary tributary substrate composition (check all that apply):

☐ Silts	☐ Sands	☐ Concrete
☒ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	

☐ Other. Explain: substrate materials consist of limestone quarry overburden materials.

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: some erosion due to short, swift flow.
Presence of run/riffle/pool complexes. Explain: drainage typically dry.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 2 %

(c) Flow:

Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **6-10**
Describe flow regime: during and directly after rain event of 1" or more.
Other information on duration and volume: flow is of short duration with fast flow.

Surface flow is: **Confined.** Characteristics: man-made channel.

Subsurface flow: **Yes**. Explain findings: channel substrate consists of unconsolidated material. Channel constructed over previously mined limestone quarry containing fractured limestone bedrock. Surface water within the channel percolates into the unconsolidated material and fractured limestone.

☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☒ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: clear.
Identify specific pollutants, if known: .

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: Tributary does not have a significant nexus to to TNW. The drainage does not have more than a speculative or an insubstantial effect on the chemical, physical, and/or biological integrity of a TNW (in this case, the Scioto River); The drainage lacks in volume; Continuous flow throughout the entire channel exists only during, and directly after, a heavy rain or snow melt. These flow events would be infrequent and of short duration; The channel lacks surface water flow (except for approximately 175 liner feet west of the waterfall and pool) during the majority of the year, even though flow coming into the site from the west is perennial; The proximity of the water source to the termination of the man-made channel is approximately 3,266 linear feet (total length of man-made channel minus 100 feet of channel between Dublin Road and the waterfall which is natural). This distance makes the effect on the TNW speculative or insubstantial; The channel does not support aquatic fish, amphibian, or vegetation; The man-made channel bed consists of a layer of limestone spoils and gravel over previously mined limestone bedrock; The drainage channel does not support wetlands; there are no wetlands adjacent to the drainage; The drainage channel was excavated/constructed in uplands and drains only uplands and does not carry a relatively permanent flow of water; The drainage does not support wildlife, does not transport sediment, does not support nutrient cycling, does not retain sediment, and does not trap pollutants or improve water quality of TNW.

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   - ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   - ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☒ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "***SWANCC***," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☒ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☒ Non-wetland waters (i.e., rivers, streams): **3,366** linear feet, **6** width (ft).
☒ Lakes/ponds: 16.91 acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

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

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Northwest and Southwest Columbus, Ohio.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: .
☒ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .

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[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

- ☒ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): .
  or ☐ Other (Name & Date): .
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): GCI Jurisdictional Determination Report.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Appendix C – Army Corps of Engineers Non-Jurisdictional Determination

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

REPLY TO ATTENTION OF

October 6, 2016

Regulatory Division
North Branch
LRH-2016-593-SCR-Unnamed Tributary Scioto River

APPROVED JURISDICTIONAL DETERMINATION

Mr. Gilbert Black
Wagenbrenner Development
842 North 4th Street, Suite 200
Columbus, Ohio 43215

Dear Mr. Black:

I refer to the *Report of Jurisdictional Determination, Marble Cliff Quarry Property, Dublin Road, Columbus, Franklin County, Ohio* dated July 5, 2016, and submitted on your behalf by Geotechnical Consultants, Inc. (GCI). You have requested an approved jurisdictional determination (JD) for the non-jurisdictional features identified on the 150 acre study site located east of Dublin Road and north of Trabue Road in the west central portion of the City of Columbus, Franklin County, Ohio (40.0007° N, 83.085820° W). Your JD request has been assigned the following file number: LRH-2016-593-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 requires a Department of the Army (DA) permit be obtained prior to discharging 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 a navigable water. Our December 2, 2008 headquarters guidance entitled *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States* was followed in the final verification of Clean Water Act jurisdiction.

Based on a review of the information provided, a field investigation conducted on September 7, 2016 by a representative of this office, and other information available to us, there are two (2) open water quarry ponds (Pond 1-7.87 acres and Pond 2- 9.04 acres) and one (1) non-jurisdictional channel located within the project area. Pond 1 and Pond 2 are man-made features that have been constructed for limestone mining activities. Approximately 3,266 linear feet of a man-made drainage channel has been created in uplands to support the limestone mining activities. Based on this information, Pond 1, Pond 2, and the constructed drainage channel designed to meet the requirements of the Clean Water Act are not considered to be jurisdictional waters of the United States and are not be subject to Section 404.

This jurisdictional verification is valid for a period of five (5) years from the date of this letter unless new information warrants revision of the delineation prior to the expiration date. This letter contains an approved JD for the subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the Great Lakes and Ohio River Division Office at the following address:

Appeals Review Officer
Great Lakes and Ohio River Division
550 Main Street RM 10524
Cincinnati, Ohio 45202-3222
Phone: (513) 684-7261 Fax: (513) 684-2460

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by December 5, 2016. **It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.**

A copy of this letter will be provided to your consultant, Matthew R. Kaminski, with GCI, Inc. If you have any questions concerning the above, please contact Ms. Crystal Chambers of the North Branch at 304-399-5630, by mail at the above address, or by email at crystal.d.chambers@usace.army.mil.

Sincerely,

SPAGNA.TERESA.D.1229740519
Digitally signed by SPAGNA.TERESA.D.1229740519
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=SPAGNA.TERESA.D.1229740519
Date: 2016.10.06 14:18:00 -04'00'

Teresa D. Spagna
Chief, North Branch

Enclosure
cc:

Matthew R. Kaminski
Geotechnical consultants, Inc.
720 Greencrest Drive
Westerville, Ohio 43081

Appendix D – Summary of Preliminary Hydrologic and Hydraulic Analyses

Summary of Preliminary Hydrologic and Hydraulic Analyses
Marble Cliff Quarry Development
May 30, 2017

Introduction.
Hartman Engineering was requested by Wagenbrenner Development to make a preliminary assessment of the impact fill placed in the Scioto River floodplain as a part of their planned Marble Cliff Quarry development would have on the 100-year peak flow rates and flood elevations along the Scioto River downstream of the site. This report briefly summarizes the analyses thus made and the results obtained based on provided preliminary design plans.

Methodology.
Since the concern raised by the City regarding placement of the proposed fill relates to the impact of the fill on downstream 100-year peak flows and flood elevations associated with the loss of upstream floodplain storage, it was necessary to perform an unsteady flow analysis in order to evaluate how much of the overall 100-year flood volume is currently stored in the quarry area and how much will be stored after fill is placed as proposed. A steady flow HEC-RAS analysis is based only on peak flow rates input by the user and not the entire flood hydrograph and thus does not take into account reductions in peak flows from channel or off-channel storage.

Thus it was necessary to estimate the 100-year flood hydrograph for the Scioto River in the quarry area. For this estimate, historic Scioto River hydrograph information was obtained from the Dam Safety Section of the ODNR Division of Water Resources from a previous hydrologic study performed by the Corps of Engineers for Griggs Dam. This hydrograph information was modified such that the hydrograph peak flow rate matched the peak 100-year flow rate used in the effective FEMA floodplain study. The Corps of Engineers HEC-RAS computer program was then used to route the resulting estimated 100-year flood hydrograph from Griggs Dam on downstream to below Trabue Road using hydraulic model data for the Scioto River developed by FEMA.

Existing off-channel storage in the quarry area was included in an existing conditions HEC-RAS model and analyses were made to estimate the extent of existing storage in the quarry area used during the 100-year flood, given the duration of flooding and the existing restrictions to flow from the Scioto River into the quarry area (i.e. the flow capacity of the existing 84" culvert and the overtopping of the existing embankment at this culvert or just to the west of the culvert).

The existing conditions HEC-RAS model was then modified to reflect proposed conditions by reducing existing available storage in the quarry area based on the provided preliminary fill plan for the quarry development. The results of the two models provided a preliminary evaluation of the impact of the net loss of storage on upstream or downstream flood flows and peak flood elevations.

Old USGS maps were also reviewed in an attempt to evaluate how proposed conditions would compare to pre-mining conditions, since it appears a large part of the existing storage in the quarry area is manmade and not natural. Unfortunately, though, the old USGS maps are not detailed enough to make any such comparison that is accurate enough to be of any use.

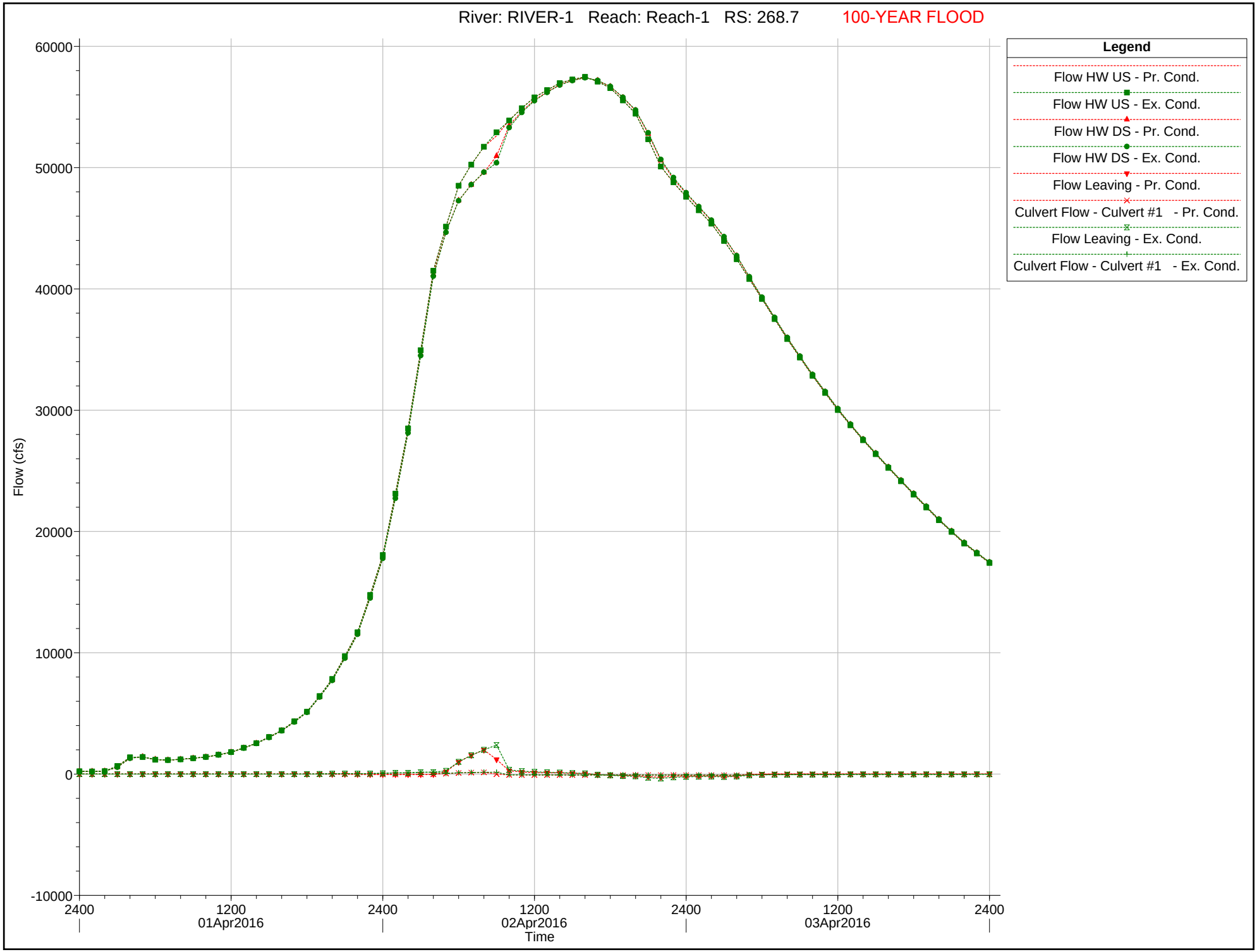
Results.
The HEC-RAS analyses, as described above, indicate the proposed loss of storage in the quarry area will have an insignificant impact on 100-year peak flow rates and peak flood elevations at any location along the Scioto River. For both existing and proposed conditions it appears the available off-channel storage in the quarry area is essentially full prior to the passing of peak flows during the 100-year flood. Thus, although the loss of storage under proposed conditions will have a slight impact on downstream flow rates and flood elevations during the initial portion of the 100-year flood, the HEC-RAS model indicates it will not adversely impact the associated peak flow rates and flood elevations.

HEC-RAS River: RIVER-1 Reach: Reach-1 Profile: Max WS 100-YEAR FLOOD

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	271	Max WS	Ex. Cond.	57580.00	722.50	747.31		747.84	0.00	6.41	10951.38	588.04	0.23
Reach-1	271	Max WS	Pr. Cond.	57580.00	722.50	747.32		747.84	0.00	6.41	10953.61	588.05	0.23
Reach-1	270.5	Max WS	Ex. Cond.	57549.22	716.80	746.00		746.69	0.00	7.04	9614.27	659.04	0.24
Reach-1	270.5	Max WS	Pr. Cond.	57549.61	716.80	746.00		746.70	0.00	7.04	9617.41	659.45	0.24
Reach-1	270.4	Max WS	Ex. Cond.	57548.57	716.80	745.86	731.00	746.66	0.00	7.52	8637.40	508.98	0.26
Reach-1	270.4	Max WS	Pr. Cond.	57548.97	716.80	745.86	731.00	746.67	0.00	7.52	8639.82	509.14	0.26
Reach-1	270.3			Bridge	(PIPE CROSSING)								
Reach-1	270.2	Max WS	Ex. Cond.	57493.63	716.80	745.93		746.63	0.00	7.18	9923.07	827.20	0.25
Reach-1	270.2	Max WS	Pr. Cond.	57495.90	716.80	745.93		746.64	0.00	7.18	9926.45	827.33	0.25
Reach-1	270.1	Max WS	Ex. Cond.	57493.45	716.80	746.09		746.57	0.00	6.16	12298.90	900.16	0.21
Reach-1	270.1	Max WS	Pr. Cond.	57495.77	716.80	746.09		746.57	0.00	6.16	12302.41	900.29	0.21
Reach-1	269	Max WS	Ex. Cond.	57487.48	715.00	745.65		746.18	0.00	6.96	12377.74	1036.03	0.22
Reach-1	269	Max WS	Pr. Cond.	57491.23	715.00	745.66		746.18	0.00	6.96	12382.16	1036.05	0.22
Reach-1	268.7			Lat Struct	(OVERFLOW TO QUARRY AREA)								
Reach-1	268.5	Max WS	Ex. Cond.	57464.30	713.00	743.75		745.29	0.00	11.09	6416.59	512.43	0.37
Reach-1	268.5	Max WS	Pr. Cond.	57476.45	713.00	743.75		745.29	0.00	11.09	6417.81	512.52	0.37
Reach-1	268.4	Max WS	Ex. Cond.	57463.83	713.00	743.61	732.64	745.18	0.00	11.19	6140.36	1883.02	0.39
Reach-1	268.4	Max WS	Pr. Cond.	57476.08	713.00	743.62	732.63	745.18	0.00	11.19	6141.63	1883.07	0.39
Reach-1	268.3			Bridge	(QUARRY BRIDGE)								
Reach-1	268.2	Max WS	Ex. Cond.	57463.83	713.00	743.00		744.56	0.00	10.78	5955.45	854.94	0.38
Reach-1	268.2	Max WS	Pr. Cond.	57476.08	713.00	743.00		744.56	0.00	10.78	5956.55	855.04	0.38
Reach-1	268.1	Max WS	Ex. Cond.	57463.57	713.00	742.85		744.55	0.00	11.64	6145.52	850.71	0.39
Reach-1	268.1	Max WS	Pr. Cond.	57475.85	713.00	742.85		744.55	0.00	11.64	6146.64	850.74	0.39
Reach-1	267.5	Max WS	Ex. Cond.	57460.96	710.50	742.29		744.00	0.00	11.71	6533.86	411.46	0.38
Reach-1	267.5	Max WS	Pr. Cond.	57473.51	710.50	742.29		744.00	0.00	11.71	6535.16	411.49	0.38
Reach-1	267.4	Max WS	Ex. Cond.	57460.71	712.50	742.20	730.30	743.74	0.00	9.96	5769.60	385.03	0.41
Reach-1	267.4	Max WS	Pr. Cond.	57473.28	712.50	742.20	730.31	743.74	0.00	9.96	5770.82	385.07	0.41
Reach-1	267.3			Bridge	(TRABUE ROAD BRIDGE)								
Reach-1	267.2	Max WS	Ex. Cond.	57439.98	712.50	741.91		743.52	0.00	10.19	5675.59	348.91	0.39
Reach-1	267.2	Max WS	Pr. Cond.	57448.13	712.50	741.91		743.52	0.00	10.19	5676.61	348.93	0.39
Reach-1	267.1	Max WS	Ex. Cond.	57439.84	712.50	742.34		743.41	0.00	8.85	8539.87	644.41	0.31
Reach-1	267.1	Max WS	Pr. Cond.	57448.03	712.50	742.34		743.41	0.00	8.84	8541.99	644.46	0.31
Reach-1	266	Max WS	Ex. Cond.	57433.21	709.30	741.12		741.79	0.00	7.42	10468.07	527.33	0.25
Reach-1	266	Max WS	Pr. Cond.	57442.90	709.30	741.12		741.79	0.00	7.42	10469.90	527.38	0.25
Reach-1	265.5	Max WS	Ex. Cond.	57425.77	711.10	739.75		740.43	0.00	6.88	9554.56	499.05	0.23
Reach-1	265.5	Max WS	Pr. Cond.	57436.64	711.10	739.75		740.43	0.00	6.88	9556.02	499.07	0.23
Reach-1	265.4	Max WS	Ex. Cond.	57425.36	711.10	739.64	724.44	740.29	0.00	6.44	8920.09	387.00	0.24
Reach-1	265.4	Max WS	Pr. Cond.	57436.29	711.10	739.65	724.42	740.29	0.00	6.44	8921.53	387.00	0.24
Reach-1	265.2	Max WS	Ex. Cond.	57425.25	711.10	739.60		740.24	0.00	6.45	8901.73	387.00	0.24
Reach-1	265.2	Max WS	Pr. Cond.	57436.19	711.10	739.60		740.25	0.00	6.45	8903.12	387.00	0.24
Reach-1	265.1	Max WS	Ex. Cond.	57425.07	711.10	739.55		740.20	0.00	6.73	9462.84	406.96	0.23
Reach-1	265.1	Max WS	Pr. Cond.	57436.04	711.10	739.55		740.21	0.00	6.73	9464.31	406.96	0.23
Reach-1	264.5	Max WS	Ex. Cond.	57399.30	709.80	738.24		739.50	0.00	9.12	6699.00	314.85	0.32
Reach-1	264.5	Max WS	Pr. Cond.	57406.59	709.80	738.24		739.50	0.00	9.12	6699.92	314.86	0.32
Reach-1	264.4	Max WS	Ex. Cond.	57399.29	708.90	738.21	724.49	739.36	0.00	8.62	6696.29	236.89	0.28
Reach-1	264.4	Max WS	Pr. Cond.	57406.59	708.90	738.21	724.50	739.36	0.00	8.62	6697.00	236.78	0.28
Reach-1	264.2	Max WS	Ex. Cond.	57399.27	708.90	738.05		739.24	0.00	8.86	6688.16	327.84	0.33
Reach-1	264.2	Max WS	Pr. Cond.	57406.59	708.90	738.05		739.24	0.00	8.86	6689.10	327.91	0.33
Reach-1	264.1	Max WS	Ex. Cond.	57399.23	708.90	737.98		739.15	0.00	8.85	7271.52	360.22	0.30
Reach-1	264.1	Max WS	Pr. Cond.	57406.57	708.90	737.99		739.15	0.00	8.85	7272.59	360.23	0.30
Reach-1	263	Max WS	Ex. Cond.	57390.62	707.50	736.59		736.78	0.00	3.58	17946.02	1308.35	0.12
Reach-1	263	Max WS	Pr. Cond.	57400.52	707.50	736.59		736.78	0.00	3.58	17950.17	1308.44	0.12
Reach-1	262	Max WS	Ex. Cond.	57383.38	707.20	734.16		736.23	0.00	11.83	5578.78	310.41	0.42

HEC-RAS River: RIVER-1 Reach: Reach-1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	262	Max WS	Pr. Cond.	57395.08	707.20	734.17		736.23	0.00	11.83	5579.76	310.49	0.42
Reach-1	261	Max WS	Ex. Cond.	57379.34	705.00	733.31	718.11	734.42	0.00	8.66	7750.51	450.53	0.29
Reach-1	261	Max WS	Pr. Cond.	57391.94	705.00	733.32	718.11	734.42	0.00	8.66	7752.05	450.61	0.29



1 in Horiz. = 0.4 1 in Vert. = 10000 ft

Plan: Pr. Cond. Storage Area: Quarry 1 Profile: Max WS

W.S. Elev (ft)	743.95	Overflow Weir	-14.92
SA Min El (ft)	720.00	LS 268.7	105.07
SA Area (acres)	0.02		
SA Volume (acre-ft)	0.48		
Inflow (cfs)	105.07		
Outflow (cfs)	14.92		
Net Flux (cfs)	90.15		

Plan: Pr. Cond. Storage Area: Quarry 1 Profile: Max WS

W.S. Elev (ft)	743.95	Overflow Weir	-14.92
SA Min El (ft)	720.00	LS 268.7	105.07
SA Area (acres)	0.02		
SA Volume (acre-ft)	0.48		
Inflow (cfs)	105.07		
Outflow (cfs)	14.92		
Net Flux (cfs)	90.15		

Plan: Pr. Cond. Storage Area: Quarry 2 Profile: Max WS

W.S. Elev (ft)	743.95	Overflow Weir	14.92
SA Min El (ft)	720.00		
SA Area (acres)	32.20		
SA Volume (acre-ft)	560.04		
Inflow (cfs)	14.92		
Outflow (cfs)	0.00		
Net Flux (cfs)	14.92		

Plan: Pr. Cond. Storage Area: Quarry 2 Profile: Max WS

W.S. Elev (ft)	743.95	Overflow Weir	14.92
SA Min El (ft)	720.00		
SA Area (acres)	32.20		
SA Volume (acre-ft)	560.04		
Inflow (cfs)	14.92		
Outflow (cfs)	0.00		
Net Flux (cfs)	14.92		