



State of Ohio Environmental Protection Agency

OHIO E.P.A.

MAILING ADDRESS:

STREET ADDRESS:

Lazarus Government Center
50 W. Town St., Suite 700
Columbus, Ohio 43215

TELE: (614) 644-3020 FAX: (614) 644-3184
www.epa.state.oh.us

OCT 28 2009 P.O. Box 1049
Columbus, OH 43216-1049

ENTERED DIRECTOR'S JOURNAL

Certified Mail

October 28, 2009

City of Avon Lake
Municipal Utilities Department
201 Miller Road
Avon Lake, Ohio 44012

I certify this to be a true and accurate copy of the
official documents as filed in the records of the Ohio
Environmental Protection Agency.

By: DMJ Cassider Date: 10-28-09

Attn: John Kneipper, Director

Re: Lorain County/Carlisle and Eaton Townships/Cities of North Ridgeville, Avon and Avon Lake
Grant of Section 401 Water Quality Certification (Minimal Degradation Alternative & application dated 2/20/08, revised most recently on 10/14/09 and per this 401 certification)
Project: Lorain County Rural Sanitary Sewer Collection Project – Phase I
ACOE Project No. 2007-01753
Ohio EPA ID No. 083343

Ladies and Gentlemen:

The Director of Ohio Environmental Protection Agency hereby authorizes the above referenced project under the following authority, subject to the following modifications and/or conditions:

Section 401 Water Quality Certification

Pursuant to Section 401 of the Federal Water Pollution Control Act, Public Law 95-217, the Director of Ohio Environmental Protection Agency hereby certifies that the above-referenced project will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the Federal Water Pollution Control Act.

This authorization is specifically limited to a Section 401 Water Quality Certification (WQC) with respect to water pollution and does not relieve the applicant of further Certifications or Permits as may be necessary under the law. I have determined that a lowering of water quality in the Black and Rocky River watersheds (04110001) as authorized by this Section 401 WQC is necessary. I have made this determination based upon the consideration of all public comments, and including the technical, social and economic considerations concerning this application and its impact on waters of the state.

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

Ohio EPA is an Equal Opportunity Employer

I. ON-SITE WATER RESOURCES AND IMPACTS

Site Setting: This section 401 WQC authorizes wetlands and stream fill impacts associated with the construction of approximately 135,000 linear feet (LF) of 8- to 30-inch gravity sanitary sewer line, approximately 314,000 LF (of which 75,000 LF is a dual force main) of 1.25- to 16-inch force main, and 15 pump stations, primarily along existing rights-of-way for roads, utility lines and railroads. The project is proposed to replace approximately 1,200 existing individual residential septic systems and to serve an additional 1,200 to 1,400 homes over the next 10 years in Carlisle and Eaton Townships in Lorain County.

An overview of the proposed alignment, including pump station locations is provided in Attachment 1 of this certification.

HUC (04110001): Black and Rocky River watersheds

Designated aquatic life use: Warmwater Habitat

Impacts

A. Streams

The minimal degradation alternative will impact up to, but not greater than, a total of 1,805 linear feet (LF) of streams at 52 separate waterbody crossings. The project will impact 852.5 LF of ephemeral, 562.5 LF of intermittent, and 390 LF of perennial streams, respectively. Authorized stream impacts are described in greater detail in Attachment 2 of this WQC.

B. Wetlands

The minimal degradation alternative will impact up to, but not greater than, 9.64 acres of wetlands at 83 separate crossings. The project will impact 5.432 acres of non-forested category 1 wetlands, 0.145 acre of forested category 1 wetlands, 0.147 acres of non-forested category 2 wetlands, and 3.905 acres of forested category 2 wetlands. Authorized wetland impacts are described in further details in Attachment 3 of this WQC.

C. Ponds

Impacts to ponds are not authorized under this Section 401 Water Quality Certification.

II. GENERAL CONDITIONS

- A. By December 31 of each year following the date of this Section 401 WQC and through the duration of construction, a "project update report" shall be submitted to Ohio EPA. The report shall document the status of filling activities at the development site, including dates filling started, was completed or are expected to be started and completed. If filling activities have not been completed, a drawing shall be provided, which shows the locations and acreage/feet of wetland/streams that have not yet been filled.
- B. A copy of this WQC, including all attachments, shall remain on the construction project site for the duration of the project.
- C. A copy of this WQC, including all attachments, shall remain at the on-site mitigation implementation site throughout mitigation construction and monitoring activities.
- D. All water resources and their buffers, extra work area setbacks, and refueling restricted areas must clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete. These materials shall remain in place and be maintained throughout the construction process.
- E. All spoil from minor (drainage area less than 1 square mile) and intermediate (drainage area greater than 1 square mile and stream channel less than 20 feet wide) waterbody crossings and upland spoil from major waterbody crossings must be placed at least 10 feet from the water's edge.
- F. The use of low-ground weight construction equipment or normal equipment operating on timber rip-rap, prefabricated equipment mats, or terra mats is required in standing water or saturated soils or if the construction equipment is likely to cause ruts or mixing of the topsoil and soil in wetlands.
- G. Work shall only take place during low water conditions in order to minimize adverse impacts to water quality away from the project site.
- H. Temporary fill shall consist of suitable non-erodible material or shall be stabilized to prevent erosion.

- I. Materials used in this project for fill or bank protection shall consist of suitable material free from toxic contaminants in other than trace quantities. Broken asphalt is specifically excluded from use as bank protection or fill.
- J. Cadmium chromium arsenate (CCA) and creosote treated lumber shall not be used in structures in contact with waters of the state.
- K. Best Management Practices (BMPs) must be employed throughout the course of this project to avoid the creation of unnecessary turbidity which may degrade water quality or adversely affect aquatic life outside of the project area.
- L. Procedures shall be developed and implemented to eliminate the possibility of spills and to control dust that may enter the waterway by runoff or point discharge.
- M. BMPs shall be utilized during construction to minimize erosion.
- N. Storm water management measures (i.e., sediment and erosion control structures) shall be inspected immediately after each rainfall and at least daily during periods of prolonged rainfall. Specifications for any necessary repairs and removal of sediment depositions shall be developed as needed in the Storm Water Pollution Prevention Plan for the project.
- O. All disturbed areas in uplands that will lie dormant for over 21 days must be stabilized within seven days of the date the area becomes inactive.
- P. BMPs shall be utilized upon completion of this project, to ensure bank stability. This may include, but is not limited to, bank seeding.
- Q. Blasting will not be done within or near stream channels without prior consultation with the Ohio Department of Natural Resources, Division of Wildlife, to determine what protective measures should be taken to minimize damage to fish and other aquatic life.
- R. The applicant shall notify Ohio EPA in writing of any proposed changes to the project alignment, including any changes in the quantity and location of streams or wetlands impacts, prior to construction occurring within the new alignment.

- S. Unpermitted impacts to surface water resources and/or their buffers occurring as a result of this project will be reported within 24 hours of occurrence to Ohio EPA for further evaluation.
- T. Pesticide application(s) for the control of plants and animals shall be applied in accordance with rule 3745-1-01 of the Ohio Administrative Code, and may require a site specific application permit from Ohio EPA. Such a permit may be obtained by calling 614-644-2001 and speaking with the Toxicology Specialist.
- U. Representatives from Ohio EPA will be allowed to inspect the authorized activity at any time deemed necessary to insure that it is being or has been accomplished in accordance with the terms and conditions of this water quality certification.
- V. In the event that there is a conflict between the Section 401 WQC application and the conditions within this water quality certification, the condition shall prevail unless Ohio EPA agrees, in writing, that the Section 401 application or other provision prevails.
- W. The applicant shall notify Ohio EPA in writing upon the start and completion of site development and mitigation.
- X. The applicant shall provide electronic maps of the development area and the mitigation area to Ohio EPA 401 Section within 30 days of the date of this certification. When sending the electronic files, include the Ohio EPA ID Number and the Army Corps of Engineers Number (if applicable). If possible these electronic maps shall be GIS shape files or Geodatabase files. If this is not possible, the electronic maps shall be in another electronic format readable in GIS (GIF, TIF, etc). The electronic files shall be sent to the following e-mail address: mike.smith@epa.state.oh.us. If the files are too large to send by e-mail, a disk containing the electronic files shall be mailed to the following address: Mike Smith, Ohio EPA, Division of Surface Water, P.O. Box 1049, Columbus, OH 43216-1049.
- Y. This proposal may require other permits from Ohio EPA. For information concerning application procedures, contact the Ohio EPA District Office at the following address:

Northeast District Office, 2110 East Aurora Road, Twinsburg, Ohio 44087
Telephone: (330) 963-1200

III. SPECIFIC CONDITIONS

- A. The applicant shall schedule a pre-construction meeting with Ohio EPA at a mutually acceptable date and time, prior to initiating construction. The purpose of the pre-construction meeting is to review activities required to adequately protect water resources during construction and to summarize requirements for post-construction restoration of wetlands and streams throughout the project area. No impacts to wetlands or stream shall occur until this condition is met
- B. In disturbed areas within 50 feet of a stream or wetland, site re-grading and re-seeding will be accomplished within 2 days after disturbance.
- C. Permanent trench and slope breakers shall be installed adjacent to streams and at both ends of wetlands to prevent draining the wetlands or streams, maintain original wetland or stream hydrology, control sedimentation, and control trench slumping.
- D. Excavation equipment and vehicles shall operate outside of the flowing portion of the stream.
- E. All construction activities within streams shall be confined to a 10 foot wide temporary construction easement.
- F. Clearing of stream bank vegetation shall be limited to areas of trenching. If extra work space is needed, it shall be set back at least 10 feet from the stream bank to avoid disturbing any more bank vegetation.
- G. Stream bottom elevations and substrate composition shall be restored to pre-project conditions.
- H. Where stream crossings will be implemented using the horizontal directional drilling (HDD) method, construction will comply with the "*LORCO Wastewater Collection System, Horizontal Directional Drill, Frac-out Contingency Plan*", dated August 2009.
- I. The applicant shall notify the Ohio EPA, 401 Section at least 7 days prior to the start of HDD of stream crossings.
- J. All construction activities within wetlands shall be confined to a 30 foot wide temporary construction easement.

- K. Cleared timber shall not be windrowed or stacked in wetland areas.
- L. Diversion ditches shall not be constructed within wetlands.
- M. Wetland soils will be removed, stockpiled during construction and replaced to pre-construction contours.
- N. Vehicular traffic through wetlands during construction shall be limited to sewer line installation and ground restoration. A backhoe shall be used for final grading of wetlands. Wetlands shall not be finished with a clean smooth grade, but shall contain slight irregularities and variations in topography.
- O. Any seeding to restore wetland vegetation within the 30 foot temporary construction easement shall be accomplished using hand-held broadcast seeders or by land-based vehicles that do not rut the restored wetland area.
- P. To minimize potential impacts to roosting Indiana Bats, tree clearing will not occur between April 1 and September 30.

IV. MITIGATION

A. Description of Required Mitigation

The applicant shall complete stream and wetlands mitigation as proposed in the "On-site Compensatory Stream and Wetland Mitigation Plan" dated September 23, 2009, the "Conceptual Mitigation Plan For The Elk Creek Mitigation Site, Lorain County, Ohio" dated October 9, 2009, and as revised by this certification.

Streams

1. On-site Stream Restoration

For fill impacts to 1,805 LF of stream, the applicant shall restore all streams located within the project alignment to pre-impact conditions as measured by either a Qualitative Habitat Evaluation Index (QHEI) or a Headwater Habitat Evaluation Index (HHEI) score greater than or equal to the pre-construction score as documented in Attachment 2 of this Water Quality Certification.

Revised Conceptual Plan Views of Mitigation and Impacts Sites will be provided as follows:

- **Figures 3 and 4** – revise to include:
 1. Provide the specific reference **on the drawing** to the re-vegetation seed mix to be used (p 53 currently);
 2. Add a note 3) stating restore all stream bed substrate to pre-construction conditions.

- **Figure 5** – revise to include:
 1. Identify the construction easement width on the drawing;
 2. Provide the specific reference **on the drawing** to the re-vegetation seed mix to be used (not included in the mitigation plan currently-please add).

The revised on-site mitigation plan shall identify the wetland indicator status for all species shown on the stream restoration planting list.

2. **Off-site Stream Restoration**

For fill impacts to 344.5 LF of high quality streams, the applicant shall create 7 acres of forested stream buffer, 5 acres of headwater tributary stream buffer (to be seeded with native wet mesic forbs, grasses and woody plants), and 10 acres of upland buffer (to be seeded with native mesic forbs and grasses) along an approximately 0.6 mile reach of Elk Creek and an unnamed headwater tributary to Elk Creek in Lorain County. The location of the 35 acre mitigation site is shown in Attachment 4 of this WQC and is east of Oberlin and south of Carlisle Reservation, on undeveloped land owned by Lorain County Metroparks.

The applicant shall submit a baseline (pre-construction) QHEI or HHEI score, as applicable, for the segments of Elk Creek and its unnamed tributary adjacent to the stream buffer mitigation area.

The off-site stream mitigation site will be permanently protected by an Environmental Covenant meeting the requirements of Section 5301.68 of the Ohio Revised Code.

Wetlands

1. **On-site Wetlands Restoration**

For fill impacts to 5.577 acres of category 1 and 4.052 acres of category 2 wetlands, the applicant shall restore all wetlands located within the project alignment to the pre-impact conditions documented by the Ohio Rapid Assessment Method (ORAM) scores provided in Attachment 3 of this WQC.

Revised Conceptual Plan Views of Mitigation and Impact Sites will be provided as follows:

- **Figure 1** – revise to include:
 1. Silt fencing along the outer boundaries of the 30 foot construction easement;
 2. Provide the specific reference **on the drawing** to the wetland re-vegetation seed mix to be used (pp. 52 and 53 currently);
 3. Revise the arrows indicating where replanting is to occur to specifically identify replanting within the 10 foot utility line area.

- **Figure 2** – revise to include:
 1. Provide the specific reference **on the drawing** to the re-vegetation seed mix to be used (not included in the mitigation plan currently-please add);
 2. Identify the construction easement width on the drawing.

"Quantitative *On-site Wetland Restoration Characterization*" data collection forms and assessment methodology, as referenced in Item IV.C.5.a of this certification, will be provided with the revised on-site mitigation plan (reference section IV.B) for Ohio EPA review and approval.

The revised on-site mitigation plan shall identify the soils as hydric, non-hydric with inclusions, or non-hydric on the soils maps provided on pages 11-21.

The revised on-site mitigation plan shall identify the wetland indicator status for all species shown on the wetlands planting list.

2. **Off-site Wetlands Restoration**

To compensate for permanent loss of forested conditions in 0.145 acre of existing category 1 and 3.905 acres of existing category 2 forested wetlands, the applicant shall create 6 acres of forested wetlands at the same Elk Creek site where stream mitigation will occur. The current land use, where the mitigation wetlands will be created, is agricultural. The majority of the land surface drains directly to Elk Creek.

The off-site wetland mitigation site will be permanently protected by an Environmental Covenant meeting the requirements of Section 5301.68 of the Ohio Revised Code.

- B. Timing of Mitigation Requirements - The applicant shall complete the mitigation as required below:

Within 30 days of the date of this WQC, the applicant shall submit a revised on-site and off-site mitigation plans consistent with all of the applicable conditions outlined in this WQC. No fill may be placed in any wetlands or streams until this condition is met and the Ohio EPA has provided written approval of the revised mitigation plan.

Within 30 days of the date of this WQC, the applicant shall submit a draft environmental covenant, including the legal description and physical survey of the mitigation site.

Within 90 days of the date of Ohio EPA's approval of the draft Environmental Covenant, the applicant shall submit an acceptable, notarized, recorded, and filed Environmental Covenant held by an organization meeting the requirements of section 5301.68 of the Ohio Revised Code.

The mitigation monitoring period for stream and wetlands restoration shall commence immediately following completion of mitigation construction and shall continue through a five-year monitoring period, except as may be provided for in part E, below.

Streams

1. On-site Restoration

Original stream bed elevations and stream bank contours will be restored to native substrate and composition and using native stream bank materials (no rip-rap).

Within 48 hours of backfilling, stream banks within the temporary construction limits shall be fully restored, including final contouring, final seeding and stabilization using jute matting.

Stream banks will be re-vegetated and/or stabilized with native species of herbaceous or shrub species consistent with pre-construction vegetated conditions using the following species:

- *Bidens cernua*, Nodding Bur Marigold
- *Carex vulpinoidea*, Fox Sedge
- *Eupatorium maculatum*, Spotted Joe-Pye Weed
- *Eupatorium perfoliatum*, Boneset
- *Glyceria septentrionalis*, American Manna grass
- *Juncus effusus*, Soft Rush
- *Scirpus cyperinus*, Wool Grass
- *Solidago patula*, Rough Leaved Goldenrod
- *Verbena hastata*, Blue Vervain
- *Panicum virgatum*, Witch grass
- *Elymus virginicus*, Virginia wild Rye
- *Viburnum acerifolium*, Maple-Leaved Viburnum
- *Alnus serrulata*, Alder

In areas where shrub or tree cover is disturbed:

- *Viburnum acerifolium*, Maple-Leaved Viburnum
- *Alnus serrulata*, Alder
- *Cornus racemosa*, Gray dogwood
- *Amelanchier laevis*, Shad bush

The five (5) year post construction monitoring period for each stream crossing shall commence upon completion of planting of the final vegetative cover.

2. **Off-site Restoration**

Off-site stream mitigation implementation will begin no later than the end of calendar year 2010.

Wetlands

1. **On-site Restoration**

Temporary re-grading and re-seeding will be accomplished within 2 days after disturbance of wetlands.

Original wetland elevations and contours will be restored during final re-grading and re-seeding.

Topsoil shall be replaced and final vegetative cover shall be planted at each wetland no later than the first growing season after all pipeline construction activities are complete at the wetlands crossing, using the following species:

- *Bidens cernua*, Nodding Bur Marigold
- *Caltha palustris*, Marsh Marigold
- *Carex baileyi*, Bailey's Sedge
- *Carex cosmosa*, Cosmos/Bristly Sedge
- *Carex lurida*, Lurid/Shallow Sedge
- *Carex vulpinoidea*, Fox Sedge
- *Eupatorium maculatum*, Spotted Joe Pye Weed
- *Eupatorium perfoliatum*, Boneset
- *Glyceria septentrionalis*, American Mannagrass
- *Juncus effusus*, Soft Rush
- *Leersia oryzoides*, Rice Cutgrass
- *Penthorum sedoides*, Ditch Stonecrop
- *Rumex verticillatus*, Swamp Dock
- *Scirpus (Schoenoplectus) acutus*, Hard Stemmed Bulrush
- *Scirpus atrovirens*, Green Bulrush
- *Scirpus cyperinus*, Wool Grass
- *Scirpus polyphyllus*, Many Leaved Bulrush
- *Scirpus validus*, Soft Stem Bulrush
- *Solidago patula*, Rough Leaved Goldenrod
- *Verbena hastata*, Blue Vervain

The five (5) year post construction monitoring period for each stream crossing shall commence upon completion of planting of the final vegetative cover.

2. **Off-site Restoration**

Wetland mitigation implementation will begin no later than the end of Calendar year 2010.

C. Mitigation Monitoring/Reporting Requirements

1. **General Requirements**

- a. **Monitoring Reports-** Annual Reports containing the data listed in the appropriate subsections below shall be submitted to Ohio EPA for each of five consecutive years following completion of mitigation construction (see Attachment 5). The first annual report is due to Ohio EPA by December 31 of the first full year following completion of on-site mitigation construction. All subsequent reports shall be submitted by December 31st of each of the subsequent monitoring years. The applicant may include any additional information that it believes relevant for Ohio EPA's consideration.
- b. **As-built Drawings-** At a minimum, the first, third, and fifth year annual reports shall contain current drawings no larger than 11" by 17" of each of the on-site mitigation streams and wetlands.
- c. **Photographs-** Post-construction photographs shall be taken simultaneous with QHEI, HHEI, VIBI, and/or quantitative on-site wetland restoration characterizations in July of the first, third, and fifth monitoring years.
- d. **3rd Year Site Visit-**The applicant shall arrange a mitigation meeting and mitigation site visit with Ohio EPA during the growing season after the third year report has been submitted. The purpose of this inspection is to determine if the on-site wetlands mitigation project has been constructed in accordance with the agreement between the applicant and Ohio EPA. If necessary, Ohio EPA may make recommendations to improve the wetlands. The applicant is responsible for undertaking any reasonable modifications identified by Ohio EPA.

2. **On-site Stream Restoration**

The following monitoring requirements apply only to streams restored on the project site.

- a. **Physical Measurements**- A cross section including bankful width, bankful maximum depth, flood prone area width, entrenchment ratio, bankful cross-sectional area, and bank height is required for each mitigated stream.
- b. **Photographs** - Photos of on-site stream restoration shall be taken at the same locations as the photos referenced in Attachment 2 of this WQC.

3. **Off-site Stream Mitigation**

The following monitoring requirements apply only to off-site stream mitigation referenced in this WQC.

- a. **Vegetation Monitoring** - the location and name of each plant community type within the mitigation area and buffer area shall be marked on a scaled drawing of scaled aerial photograph (base map) and named.

A representative observation point shall be selected in each plant community type in each distinct wetland mitigation area. This shall be a point which best represents the characteristics of the entire plant community. The observation points shall be marked on the base map.

The dominant plant species shall be visually determined in each vegetation layer of each community type, and the scientific names of these species shall be included in the report. Dominant species are those species which have the greatest relative basal area (woody overstory), greatest height (woody overstory), greatest percentage of aerial coverage (herbaceous understory), and/or greatest number of stems (woody vines).

- b. **Floristic Quality Assessment Index (FQAI)** – using the method outlined in Andreas, B.K., J.J. Mack, and J.S. McCormac, 2004, shall be performed prior to off-site stream mitigation (baseline) and during the third and fifth monitoring years after construction is complete.

4. **All Stream Mitigation**

The following monitoring requirements apply to all stream mitigation referenced in this WQC.

- a. **Quality Habitat Evaluation Index (QHEI)/Headwater Habitat Evaluation Index (HHEI)**- scores using the most current version of that document available at the time the assessment is performed, shall be completed during years one, three and five as appropriate.
- b. **Hydrology Monitoring**- Water level data and estimated flow shall be collected in May and late August of each monitoring year.

5. **On-site Wetlands Restoration**

The following monitoring requirements apply only to wetlands restored on the project site.

- a. **Quantitative On-site Wetland Restoration Characterization** – with the exception of the wetland restoration areas identified in item IV.C.5.b below, all on-site wetland restoration areas will be assessed in monitoring years one, three and five to determine the percentage of the plant community dominated by wetland vegetation classified as:
 - obligate hydrophytic, as identified in the most current version of the applicable United States Army Corps of Engineers (US ACOE) Wetland Delineation Manual;
 - facultative hydrophytic, as identified in the most current version of the applicable US ACOE Wetland Delineation Manual;
 - invasive species, as identified in the most current version of the Ohio Rapid Assessment Method (ORAM) User's Manual.
- b. **Vegetative Index of Biotic Integrity (VIBI)** – the applicant shall assess the condition of the wetlands listed below, in the area adjacent to the temporary construction right-of-way, to obtain VIBI score, as appropriate, during the growing season of the third and

fifth years after restoration is complete in the right-of-way wetlands. The VIBI score will be obtained according to methods approved by Ohio EPA
(http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection_reports.aspx)

Wetlands AG, AW, AZ, BA, BC, and BD

- c. **Photographs** - Photos of on-site wetland restoration shall be taken at the same locations as the photos referenced in Attachment 3 of this WQC.

6. **Off-site Wetlands Restoration**

The following monitoring requirements apply only to wetlands restored off-site.

- a. **Water Chemistry Monitoring** – a grab sample shall be collected in May of each monitoring year in each wetland mitigation area. The samples shall be analyzed for ammonia, nitrates, nitrite, carbon, total sulfates, total iron, total manganese, specific conductivity, pH, turbidity, total suspended solids, heavy metals and biochemical oxygen demand.
- b. **Vegetation Monitoring** - the location and name of each plant community type within the mitigation area and buffer area shall be marked on a scaled drawing of scaled aerial photograph (base map) and named.

A representative observation point shall be selected in each plant community type in each distinct wetland mitigation area. This shall be a point which best represents the characteristics of the entire plant community. The observation points shall be marked on the base map.

The dominant plant species shall be visually determined in each vegetation layer of each community type, and the scientific names of these species shall be included in the report. Dominant species are those species which have the greatest relative basal area (woody overstory), greatest height (woody overstory), greatest

percentage of aerial coverage (herbaceous understory), and/or greatest number of stems (woody vines).

- c. The applicant shall assess the mitigation wetlands to a VIBI score as appropriate, according to methods approved by Ohio EPA (http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection_reports.aspx) during the growing season of the third and fifth years after completion of construction of the mitigation wetlands.
- d. **Soils Monitoring** – a minimum of one soil probe or test pit per acre of mitigated wetland shall be collected. The soils monitoring shall describe the soil profile and hydric soil indicators, indicate the soil map unit name (soil series and phase) and the taxonomic subgroup.

7. **All Wetlands Restoration**

The following monitoring requirements apply to all mitigation wetlands.

- a. **Physical Measurements**- A plan view and at least one cross-section through the short axis and another through the long axis is required for each mitigated wetland.
- b. **Hydrology Monitoring**- Water level data shall be collected in May and late August of each monitoring year. Ground water levels shall be measured in the absence of inundated conditions.

D. Performance Criteria

1. **On-site Stream Restoration**

- a. Within five (5) years after completion of project construction, the on-site mitigation streams shall develop a minimum of 1,805 linear feet of jurisdictional stream channel attaining the applicable Qualitative Habitat Evaluation Index (QHEI) or Headwater Habitat Evaluation Index (HHEI) score greater than or equal to the pre-construction scores documented in Attachment 2 of this Water Quality Certification.

- b. Within five (5) years after completion of project construction, on-site restored riparian areas will have 80% areal coverage of native Ohio species and contain less than 5% invasive species.

2. **Off-site Stream Mitigation**

- a. Within five (5) years after completion of project construction, the off-site stream mitigation area shall develop a minimum of 7 acres of forested stream buffer, 5 acres of headwater tributary stream buffer, and 10 acres of upland buffer.
- b. Within five (5) years after completion of project construction, survival rate of planted tree species shall be greater than 75% at the off-site stream mitigation area.
- c. Within five (5) years after completion of project construction, FQAI scores calculated using equation 6 will be 20 or greater.

3. **On-site Wetlands Restoration**

- a. Invasive species treatment will be applied if the cover of invasive species is greater than 5% within 1 year of wetland or stream bank restoration planting.
- b. Within five (5) years after completion of project construction, the applicant shall have developed 5.577 acres of non-forested category 1 wetlands, and 4.052 acres of non-forested category 2 wetlands.
- c. Within five (5) years after completion of project construction, all restored on-site wetlands will meet the wetlands soil, hydrology and vegetation criteria as defined in the most current United States Army Corps of Engineers Wetlands Delineation Manual and/or Supplement.
- d. Within five (5) years after completion of on-site wetland restoration, vegetation in all wetlands will have 80% areal coverage of native Ohio obligate and facultative wetland hydrophytic species and contain less than 5% invasive species.

- e. Within five (5) years after completion of on-site wetland restoration, wetlands AG, AW, AZ, BA, BC, and BD adjacent to the restored right-of-way shall achieve a VIBI score of 45 or higher.
- f. Within five (5) years after completion of on-site wetland restoration, all restored on-site wetlands shall have less than 10% of total area as “unvegetated open water” defined as inundated areas where there is no or minimal emergent, rooted aquatic bed (e.g. *Nuphar advena*, *Nymphaeae odorata*, *Potamogeton* spp.) or submersed or floating non-rooted aquatic bed (e.g. *Utricularia* spp., *Ceratophyllum* spp., excluding species in the *Lemnaceae*) vegetation growing in the area of inundation.

4. **Off-site Wetlands Restoration**

- a. Within ten (10) years after completion of project construction, the applicant shall have developed 6.0 acres of forested category 2 wetlands.
- b. Within five (5) years after completion of project construction, all wetlands will meet the wetlands soil, hydrology and vegetation criteria as defined in the most current United States Army Corps of Engineers Wetlands Delineation Manual and/or Supplement.
- c. Within five (5) years after completion of wetland restoration, vegetation in all wetlands will have 80% areal coverage of native Ohio obligate, facultative wet, and facultative wetland hydrophytic species and contain less than 5% invasive species.
- d. Within ten (10) years after completion of wetland restoration, wetlands shall achieve a VIBI score of 61 or higher.

E. Contingency Plans

If any mitigation area is not performing as proposed by the end of the fifth year of post-construction monitoring, the monitoring period for that area may be extended and/or the applicant may be required to revise the existing mitigation or seek out new or additional mitigation areas.

Ohio EPA may reduce or increase the number of years for which monitoring is required to be conducted based on the effectiveness of the mitigation.

V. NOTIFICATIONS TO OHIO EPA

All notifications, correspondence, and reports regarding this Section 401 Water quality Certification and/or Isolated Wetlands Permit shall reference the following information:

Applicant:	LORCO/City of Avon Lake
Project:	LORCO Phase 1
Ohio EPA ID#:	083343

and shall be sent to:

Ohio EPA, Division of Surface Water, 401 Unit
Lazarus Government Center
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, Ohio 43216-1049

You are hereby notified that this action of the Director is final and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00 which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

City of Avon Lake
October 28, 2009
Page 21

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, Ohio 43215

Sincerely,



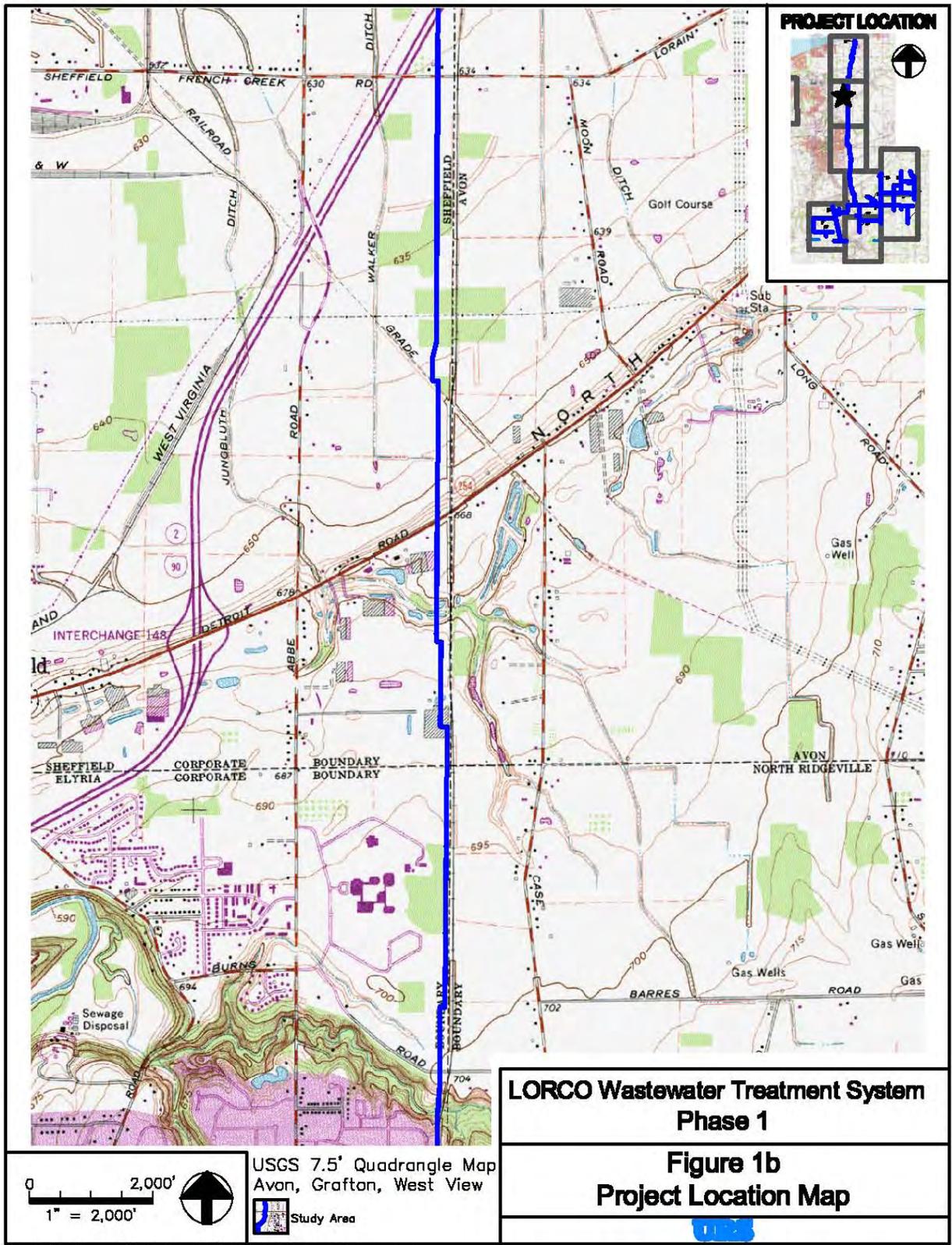
Chris Korleski
Director

Attachments:

- Attachment 1 -LORCO, Phase 1 Alignment
- Attachment 2 -LORCO, Phase I Authorized Stream Impacts
- Attachment 3 -LORCO, Phase I Authorized Wetlands Impacts
- Attachment 4 -LORCO, Phase I Elk Creek Mitigation Area Location Map
- Attachment 5 -LORCO, Phase I Stream and Wetland Mitigation Reporting

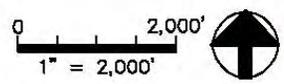
cc: Fred Alspach, LORCO, P.O. Box 158, Wellington, OH 44090-0158
Peter Krakowiak, U.S. Army Corps of Engineers, Buffalo District
Kevin Pierard, U.S. EPA, Region V
Mary Knapp, U.S. Fish & Wildlife Service
Vicki Derr, Envirotech Consultants, 5380 Twp Rd 143 NE, Somerset, OH 43783
Jim Kooser, URS, 1375 Euclid Avenue, Suite 600, Cleveland, OH 44115-1808
Dave Snyder, Ohio Historical Preservation, 1982 Velma, Columbus, OH 43211
Chuck Allen, Northeast District Office
Dan Bogoevski, Northeast District Office
Rich Blasick, Northeast District Office
Jim Bonk, Division of Environmental & Financial Assistance
Mike Settles, Public Interest Center
Darla Peelle, Public Interest Center
Michael Joseph, Division of Surface Water
Mike Smith, Division of Surface Water
Lauren McEleney, Division of Surface Water

Attachment 1
LORCO, Phase 1 Alignment



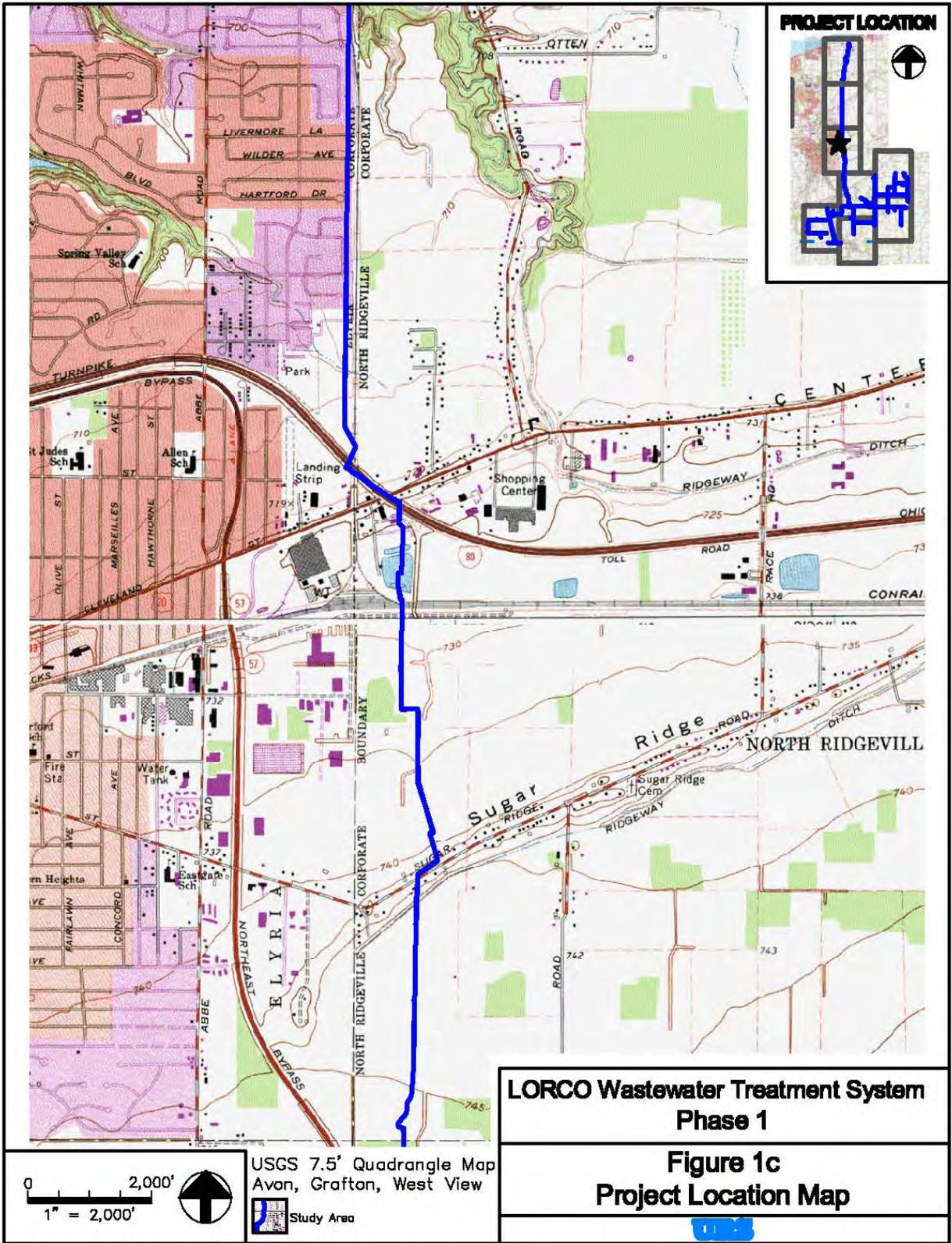
**LORCO Wastewater Treatment System
Phase 1**

**Figure 1b
Project Location Map**



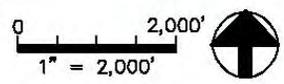
USGS 7.5' Quadrangle Map
Avon, Grafton, West View

 Study Area



**LORCO Wastewater Treatment System
Phase 1**

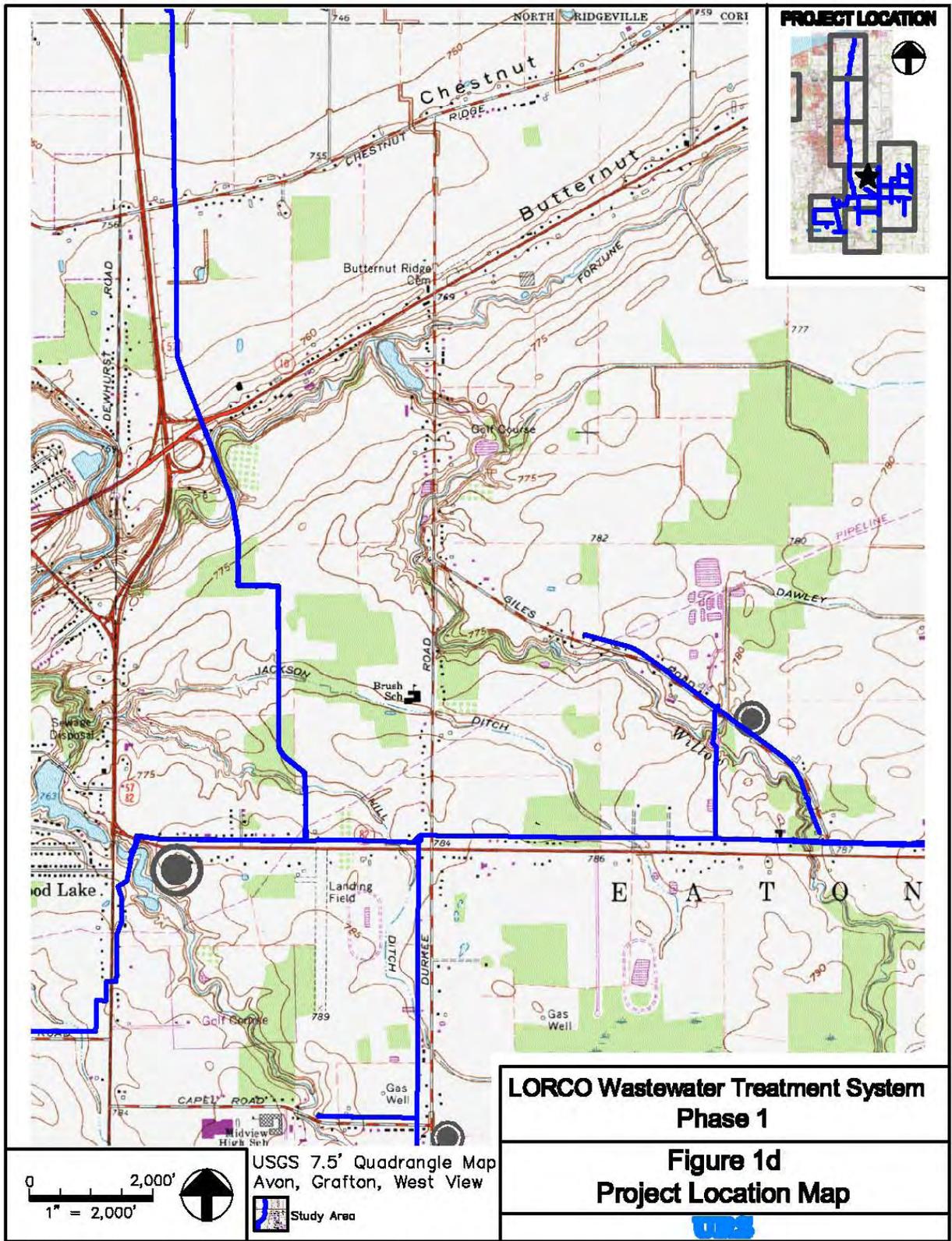
**Figure 1c
Project Location Map**

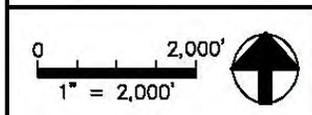
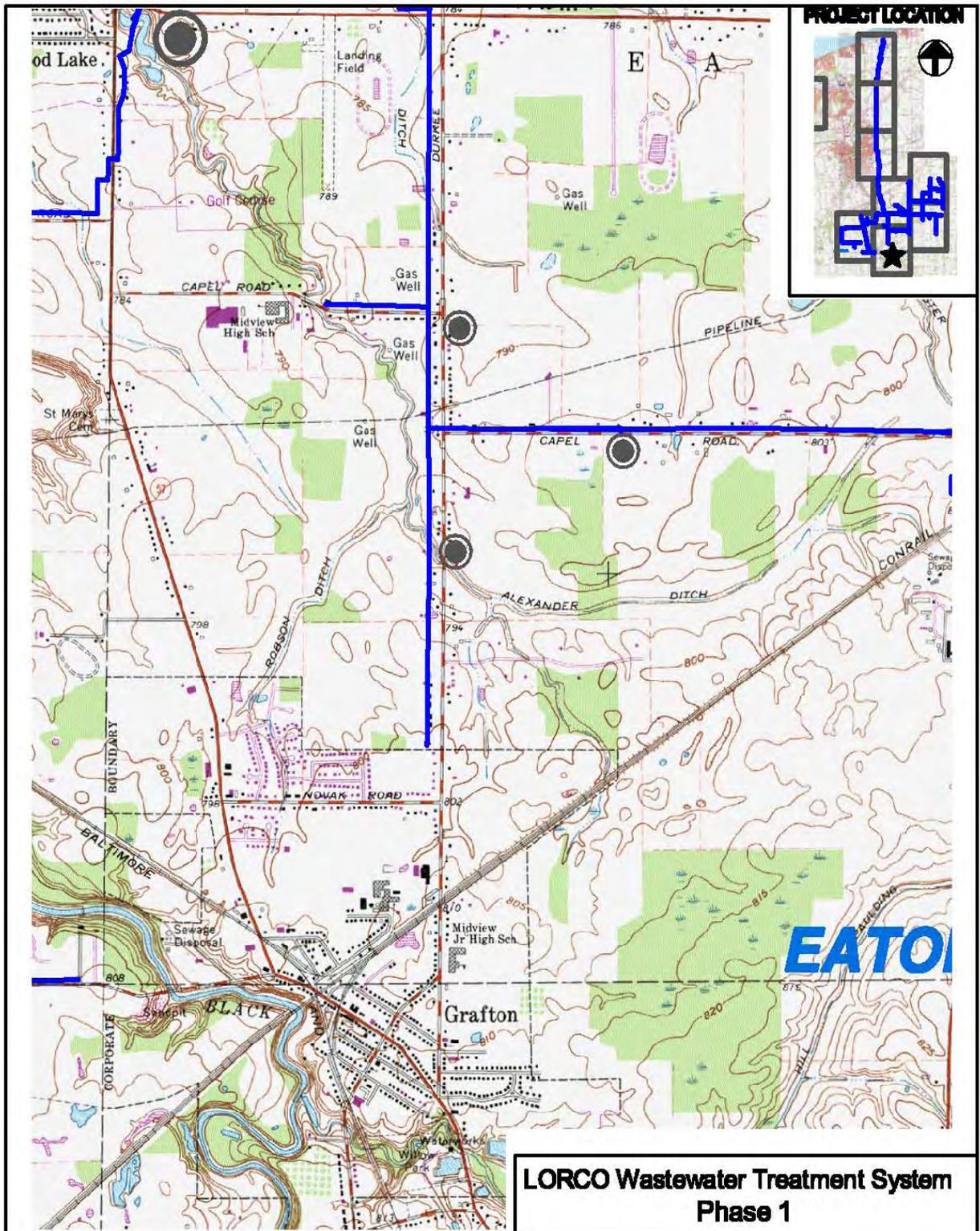


USGS 7.5' Quadrangle Map
Avon, Grafton, West View



Study Area



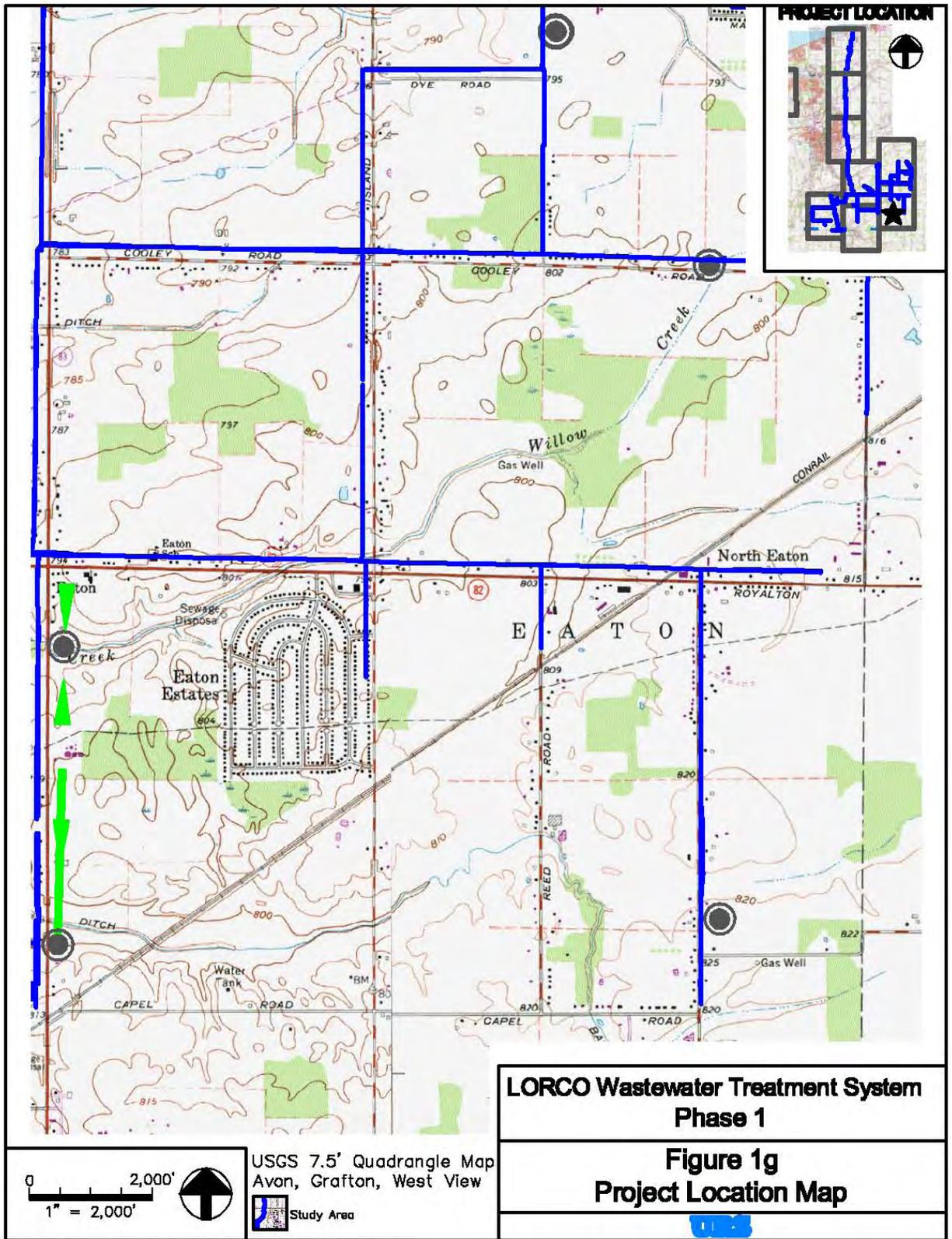


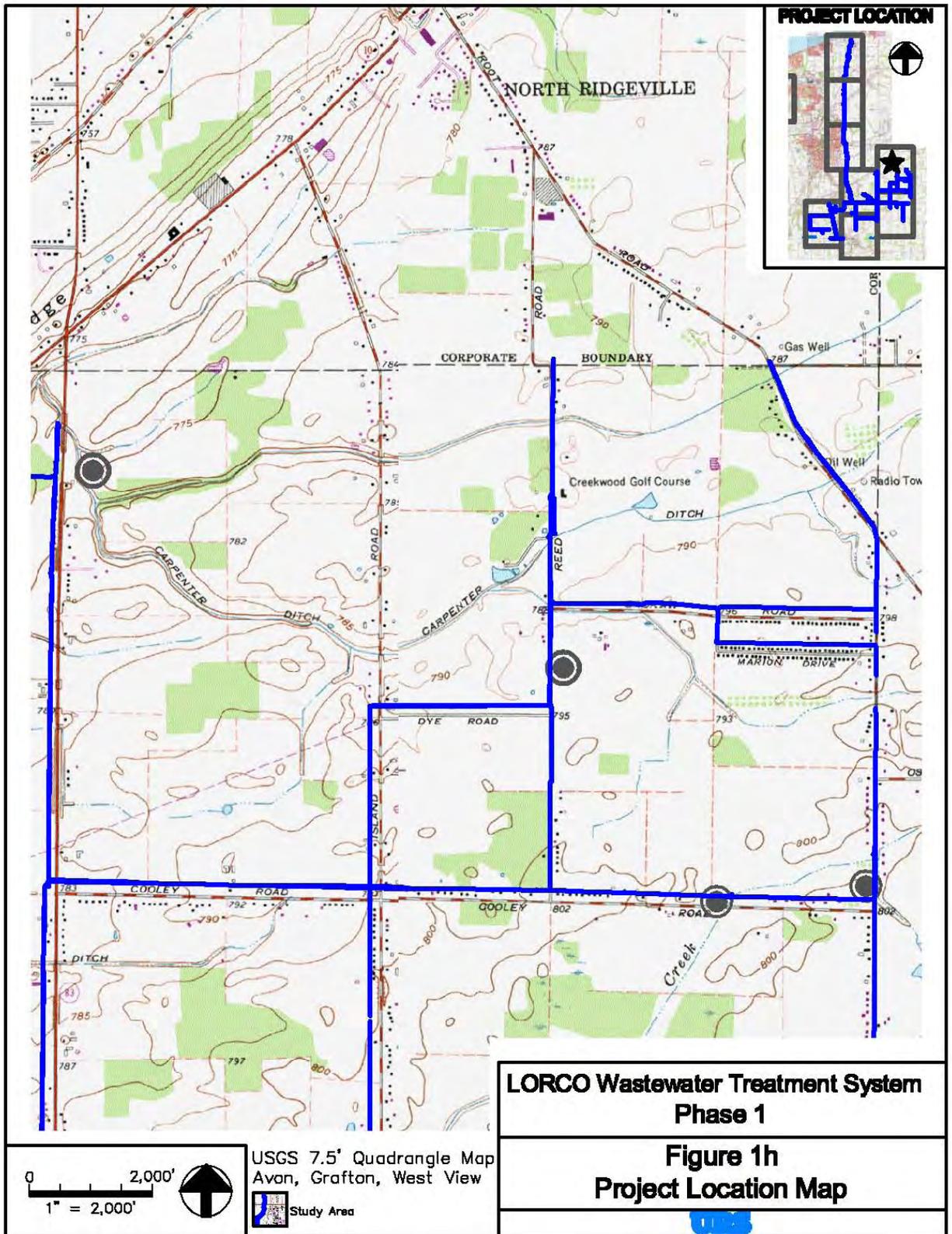
USGS 7.5' Quadrangle Map
 Avon, Grafton, West View
 Study Area

**LORCO Wastewater Treatment System
 Phase 1**

**Figure 1f
 Project Location Map**







Avon 45 5000 10000 15000 20000 25000 30000 35000 40000 45000 50000 55000 60000 65000 70000 75000 80000 85000 90000 95000 100000

Attachment 2
LORCO, Phase I
Authorized Stream Impacts

Attachment 2, LORCO Stream Impacts, October 14, 2009 version

Stream ID	Stream Name	Photo/Plan Sheet #s	Type* E, I, or P	Stream Class*	QHEI/HHEI Score*	Total Width on Site (lf)	Total Width Impacted (lf)	Impact Type	% Avoided
STR 1	Carpenter Ditch trib	86/01-50	I	PHWH 2	51	2	2	SC	0%
STR 2	Carpenter Ditch trib	87/01-47	I	PHWH 2	44	3.5	3.5	SC	0%
STR 4	Carpenter Ditch trib	89/01-39	P	PHWH 2	40	3.5	3.5	SC	0%
STR 5	Willow Creek	none/01-25	P	WWH	36	5	5	SC	0%
STR 5A	Willow Cr trib	none/02-17	P	PHWH 1	21	3	3	SC	0%
STR 5-2	Willow Creek	90/02-16	P	WWH	50	16	16	SC	0%
STR B	Willow Creek	6/01-22	P	PHWH 2	56	56	11	11	0%
STR 6	Willow Creek trib	91/02-23	E	PHWH 1	28	3	3	SC	0%
STR 7	Willow Creek trib	92/01-07	E	PHWH 2	42	2.5	2.5	SC	0%
STR 8	Willow Creek trib	93/02-27	I	PHWH 1	19	4.5	4.5	SC	0%
STR 9	Dawley Ditch	94/02-25	P	WWH	47.5	17	17	SC	0%
STR 10	Willow Creek	95/02-28	P	WWH	58	22	22	SC	0%
STR 11	Bannister Ditch	96/02-35	P	WWH	45.5	23	23	SC	0%
STR 12	Willow Creek	97/02-31	I	WWH	54.5	13.5	13.5	SC	0%
STR 13	Willow Creek trib	98/02-31,32	E	PWHW 1	20	3	3	SC	0%
STR 14	Trib to Willow Cr trib	99/02-31	E	PWHW 1	15	3	3	SC	0%
STR 15	Willow Creek	100/02-11	E	PWHW 1	7	3	3	SC	0%
STR 16	Willow Creek	101/02-11	P	MWH	31	30	30	SC	0%
STR 17	Jackson Ditch	102/02-09	P	PHWH 2	43	3.5	3.5	SC	0%
STR 18	Alexander Ditch	103/03-57	I	MWH	46	3	3	SC	0%

Attachment 2, LORCO Stream Impacts, October 14, 2009 version

STR 19	E Br Black River trib	104/03-06	I	PHWH 2	54	5.5	5.5	SC	0%
STR 23	E Br Black River trib	108/03-24	I	WWH	50.5	2.5	2.5	SC	0%
STR 24	E Br Black River trib	109/03-18	I	PHWH 2	59	6	6	SC	0%
STR 24B	E Br Black River trib	110/03-27	P	PHWH 2	64	5.5	5.5	SC	0%
STR 25	E Br Black River trib	111/03-27	P	PHWH 2	52	15	15	SC	0%
STR 26	W Br Black River trib	112/03-29	E	PWHW 2	46	488	488	SC	0%
STR 27	E Br Black River trib	113/03-46	I	PWHW 2	45	4	4	SC	0%
STR 28	Dent Ditch	114/03-41	P	LRW	26	8.5	8.5	SC	0%
STR 29	Dent Ditch	115/03-34	P	WWH	60.5	120	100	SC	17%
STR 30	Dent Ditch trib	116-03-33	I	PWHW 2	38	4.5	4.5	SC	0%
STR 31	Dent Ditch trib	117/03-34	E	PWHW 2	44	100	80	SC	20%
STR 32	E Br Black River	118/03-09	P	WWH	62	90	0	HDD	100%
STR 33(A)	E Br Black River trib	A-7B, -8B, -10, -11;119/03-03	P	WWH	53	35	25	SC	29%
STR 34	Fortune Ditch	120/05-54	P	EWB	79	30	0	HDD	100%
STR 35	Fortune Ditch trib	121/05-55	I	PHWH 1	13	2	2	SC	0%
STR 36	Jackson Ditch trib	122/05-58	P	WWH	53	9	9	SC	0%
STR 37	Jackson Ditch trib	123/05-59	E	PHWH 1	18	4	4	SC	0%
STR 38	Ridgeway Ditch	124/05-45	P	LRW	18	15	15	SC	0%
STR 39	Ridgeway Ditch trib	125/05-48,49	P	PHWH 2	44	12	12	SC	0%
STR 40	Ridgeway Ditch trib	126/05-42	P	PHWH 2	58	30	24	SC	20%
STR 41	Trib to Ridgeway Ditch trib	127/05-43	E	PHWH 2	44	243	243	SC	0%

Attachment 2, LORCO Stream Impacts, October 14, 2009 version

STR 42	Ridgeway Ditch	128/05-33	P	WWH	65	27	27	SC	0%
STR 43	Ridgeway Ditch trib	129/05-33	I	PHWH 2	56	2.5	2.5	SC	0%
STR 44	Black R trib	130/05-33	I	PHWH 1	18	6	6	SC	0%
STR 44B	Jungbluth Ditch	131/05-26	P	WWH	61	15	15	SC	0%
STR 46	Ridgeway Ditch trib	133/05-30	E	PHWH 2	36	5	5	SC	0%
STR 47	Ridgeway Ditch trib	134/05-30	I	PHWH 1	18	503	503	SC	0%
STR 49	Ridgeway Ditch trib	136/05-30	E	PHWH 1	13	9	9	SC	0%
STR 52	French Creek	139/05-14	P	WWH	65.5	33	0	HDD	100%
STR 55	Klingshirn Ditch trib	149/05-12	E	PHWH 1	7	3	3	SC	0%
STR 56	Klingshirn Ditch trib	150/05-12	E	PHWH 1	7	3	3	SC	0%
STR 57	Klingshirn Ditch trib	151/05-13	E	PHWH 1	7	3	3	SC	0%
			* provided by applicant		TOTALS	2,014	1,805		9%
E= ephemeral; I = intermittent; P = perennial; HDD = horizontal directional drilling; SC = stream crossing; BOLD text = additional off-site stream mitigation required									

Attachment 3
LORCO, Phase I
Authorized Wetlands Impacts

Attachment 3, LORCO Wetlands Impacts, October 22, 2009 version

Wetland ID	Subwatershed & nearest waterway	Photo/Plan Sheet #'s	F/NF*	Category/ORAM*	Total Acreage on Site	Total Acreage Impacted	% Avoided
A	E Br Black R/Carpenter Ditch	1/01-51	NF	1/12.5	0.020	0.020	0%
B	E Br Black R/Carpenter Ditch	2/01-50	NF	1/29	0.010	0.010	0%
D	E Br Black R/Carpenter Ditch	4/01-48	NF	1/20	0.005	0.005	0%
E	E Br Black R/Willow Creek	5/01-44	NF	1/23.5	0.004	0.004	0%
F	E Br Black R/Willow Creek	A-7-A/01-22	NF	1/29	0.059	0.059	0%
I	E Br Black R/Carpenter Ditch	9/01-37	NF	1/18	0.021	0.012	43%
J	E Br Black R/Carpenter Ditch trib	10/01-39	NF	1/25	0.007	0.007	0%
K	E Br Black/Dawley Ditch	11/01-27	NF	1/17	0.033	0.033	0%
L	E Br Black R/Willow Creek	12/02-16	NF	1/20	0.061	0.061	0%
M	E Br Black R/Willow Creek	13/02-13,14	NF	1/12.5	0.016	0.016	0%
N	E Br Black/Dawley Ditch	14/01-10	NF	1/16	0.002	0.002	0%
O	E Br Black R/Carpenter Ditch trib	15/01-7	NF	1/16	0.071	0.071	0%
P	E Br Black R/Fortune Ditch trib	16/01-06	NF	1/15	0.011	0.011	0%
R	E Br Black R/Fortune Ditch trib	18/01-5	NF	1/26	0.116	0.116	0%
S	Carpenter Ditch	19/01-4	NF	1/16.5	0.117	0.117	0%
T	E Br Black R/Bannister Ditch	20/02-12	NF	1/12.5	0.034	0.034	0%
V	Rocky R/Plum Creek	22/02-49	NF	1/21.5	0.003	0.003	0%
W	E Br Black R/Willow Creek	23/02-20	NF	1/14	0.012	0.012	0%
Y	E Br Black R/Bannister Ditch	25/02-35	NF	2/30.5	0.016	0.016	0%

Attachment 3, LORCO Wetlands Impacts, October 22, 2009 version

Z	E Br Black R/Bannister Ditch	26/02-34	NF	1/21.5	0.16	0.16	0%
AA	E Br Black R/Fortune Ditch	27/02-31	NF	1/19	0.062	0.062	0%
AB	E Br Black R/Fortune Ditch	28/02-11	NF	1/15.5	0.005	0.005	0%
AC	E Br Black R/Fortune Ditch	29/02-11	NF	1/13.5	0.046	0.046	0%
AD	E Br Black R/Jackson Ditch	30/02-10	NF	1/20	0.073	0.073	0%
AE	E Br Black R/Jackson Ditch	31/02-09	NF	1/21	0.177	0.177	0%
AF	E Br Black R/Hill Ditch	32/02-07,08	NF	1/19	0.182	0.182	0%
AG	E Br Black R/Alexander Ditch	33/02-38	F	2/48	0.025	0.025	0%
AH	E Br Black R/Jackson Ditch	34/02-39	NF	1/19	0.017	0.017	0%
AI	E Br Black R/Jackson Ditch	35/02-40	NF	1/29.5	0.003	0.003	0%
AJ	E Br Black R/Hill Ditch	36/02-03; 05-63	NF	1/20	0.086	0.086	0%
AK	E Br Black R/Hill Ditch	37/02-04,05; 05-61,62	NF	1/14	0.091	0.091	0%
AL	E Br Black R/Hill Ditch	38/02-05; 05-61	NF	1/14.5	0.046	0.046	0%
AM	E Br Black R/Hill Ditch	39/02-06	NF	1/20.5	0.053	0.053	0%
AN	E Br Black R/Hill Ditch	40/02-06,07	NF	1/16.5	0.151	0.151	0%
AO	E Br Black R trib	41/03-24	NF	1/13.5	0.013	0.013	0%
AP	E Br Black R trib	42/03-24	NF	2/35	0.037	0.037	0%
AR	E Br Black R trib	44/03-18	NF	1/14	0.017	0.017	0%
AS	E Br Black R trib	45/03-27	NF	1/25	0.005	0.005	0%
AU	E Br Black R trib	46/03-43	NF	1/16	0.002	0.002	0%
AV	W Br Black R/Dent Ditch	47/03-40	NF	1/15.5	0.002	0.002	0%

Attachment 3, LORCO Wetlands Impacts, October 22, 2009 version

AW	E Br Black R/Alexander Ditch	48, A-8A,9/03-03	F	2/41	0.141	0.003	98%
AZ	E Br Black R/Fortune Ditch	50/05-55	F	2/40	0.151	0.151	0%
BA	E Br Black R/Fortune Ditch	51/05-56,57	F	2/37.5	0.212	0.212	0%
BC	E Br Black R/Hill Ditch	53/05-59	F	2/45	0.001	0.001	0%
BD	E Br Black R/Fortune Ditch	54/05-53	F	2/36	0.326	0.326	0%
BE	E Br Black R/Ridgeway Ditch	55/05-48	F	1/26.5	0.062	0.062	0%
BF	E Br Black R/Ridgeway Ditch	56/05-49,50,51	NF	1/20.5	0.028	0.028	0%
BG	E Br Black R trib	57/05-42,43	NF	1/21.5	0.254	0.254	0%
BH	E Br Black R/Ridgeway Ditch	58/05-34 to 37	F	2/32.5	2.685	2.685	0%
BI	E Br Black R/Ridgeway Ditch	59/05-37	F	2/32.5	0.361	0.361	0%
BJ	E Br Black R trib	60/05-38	NF	1/22.5	0.048	0.048	0%
BK	E Br Black R trib	61/05-38,39	NF	1/22.5	0.193	0.193	0%
BL	E Br Black R/French Creek	62/05-26	NF	1/17.5	0.021	0.021	0%
BN	E Br Black R trib	64/05-32	NF	1/19.5	0.074	0.074	0%
BO	E Br Black R/Kline Ditch	65/05-20	NF	1/20.5	0.047	0.026	45%
BP	E Br Black R/Jungbluth Ditch	66/05-21	NF	1/17.5	0.116	0.116	0%
BQ/DB/DD/DE	E Br Black R/Jungbluth Ditch	67/05-22,23	NF	1/24.5	0.961	0.961	0%
BR	E Br Black R/Kline Ditch	68/05-19	NF	1/20.5	0.020	0.020	0%
BS	E Br Black R/Kline Ditch	69/05-19	NF	1/16	0.002	0.002	0%
BT	E Br Black R/Kline Ditch	70/05-16	NF	1/17	0.060	0.060	0%
BY	E Br Black R/Kline Ditch	71/05-16	NF	1/17.5	0.010	0.010	0%

Attachment 3, LORCO Wetlands Impacts, October 22, 2009 version

BZ	E Br Black R/Kline Ditch	73/05-17	NF	1/18	0.006	0.006	0%
CA	E Br Black R/Kline Ditch	74/05-17	NF	1/24	0.010	0.010	0%
CB	E Br Black R/Kline Ditch	75/05-17,18	NF	1/21	0.089	0.089	0%
CC	E Br Black R/Kline Ditch	76/05-18,19	NF	1/20.5	0.049	0.049	0%
CG	E Br Black R/French Creek	80/05-14	NF	1/21	0.289	0.289	0%
CH	Lake Erie trib	81/05-06,07	NF	1/18	0.470	0.470	0%
CI	Lake Erie trib	82/05-08	NF	1/18	0.062	0.062	0%
CJ	Lake Erie trib	83,84/05-08,09	NF	1/18	0.185	0.185	0%
CK	Lake Erie trib	85A/05-10; P-10	NF	1/21.5	0.514	0.514	0%
CL	Lake Erie trib	85B/05-06	NF	1/20	0.109	0.109	0%
CM	E Br Black/Klingshirn Ditch	142/05-11	NF	2/30	0.072	0.072	0%
CN	E Br Black/Klingshirn Ditch	143/05-11,12	F	2/33	0.141	0.141	0%
CO	E Br Black/Klingshirn Ditch	144/05-12	F	1/29	0.017	0.017	0%
CP	E Br Black/Klingshirn Ditch	145/05-12	F	1/28	0.016	0.016	0%
CQ	E Br Black/Klingshirn Ditch	146/05-12	F	1/28	0.013	0.013	0%
CR	E Br Black/Klingshirn Ditch	147/05-12,13	F	1/28	0.037	0.037	0%
CS	E Br Black/Klingshirn Ditch	148/05-13	NF	1/16	0.058	0.058	0%
CT	E Br Black R/Jungbluth Ditch	none/05-31	NF	1/19	0.007	0.007	0%
CU	E Br Black R/Jungbluth Ditch	none/05-23	NF	2/33	0.022	0.022	0%
BOLD Text = additional off-site mitigation required		* As provided by applicant		TOTALS	9.81	9.642	2%

Attachment 4
LORCO, Phase I
Elk Creek Mitigation Area
Location Map

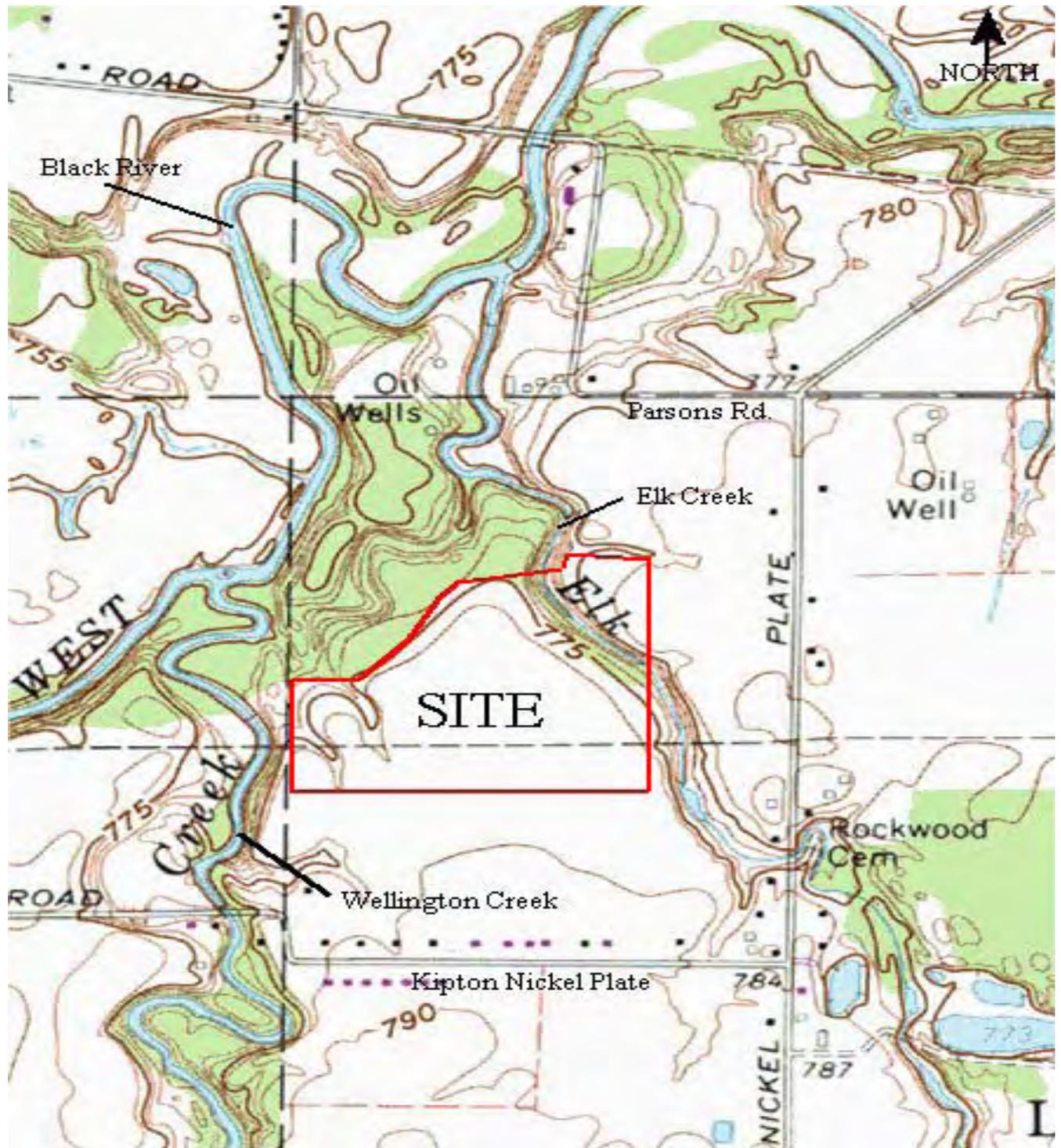
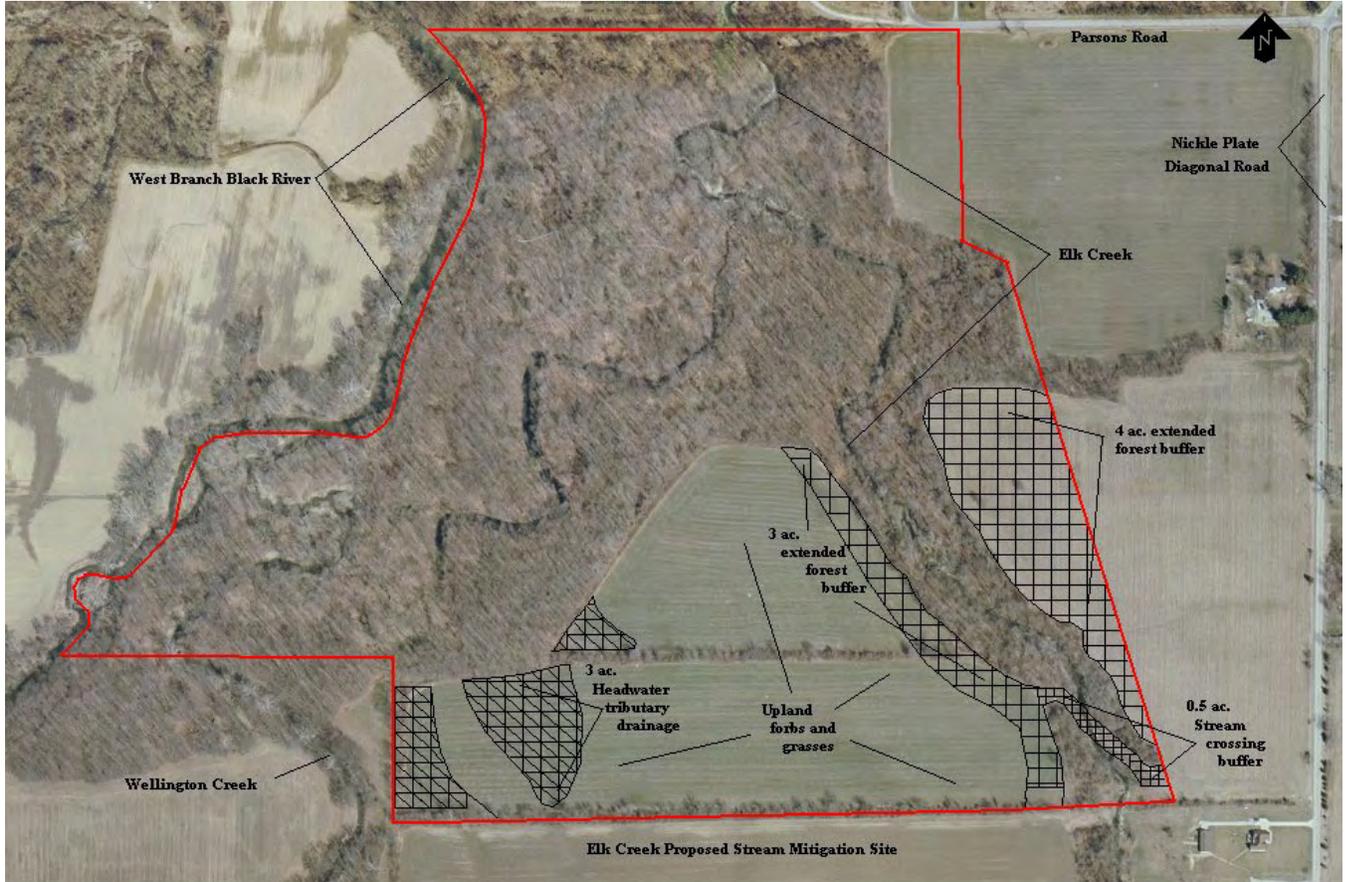


Figure 2: USGS Topographic Map of Mitigation Site



Elk Creek Proposed Stream Mitigation Site



Attachment 5
LORCO, Phase I
Stream and Wetland Mitigation
Reporting

Stream and Wetland Mitigation Report Submission Schedule
OEPA ID No. 083343

Streams Mitigation Reporting

	Year 1	Year 2	Year 3	Year 4	Year 5
Submit Report	X	X	X	X	X
As Built Drawings	X		X		X
Photos	X		X		X
QHEI/HHEI (Baseline prior to off-site construction only; on-site baselines are provided in Attachment 2)	X		X		X
Hydrology	X	X	X	X	X
Physical Measurements (onsite only)			X		X
Vegetation Monitoring (off-site only)	X		X		X
FQAI (off-site only)	Baseline prior to construction		X		X
Regulatory Site Visit			X		

On-site Wetlands Mitigation Reporting

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Submit Report	X	X	X	X	X
As Built Drawings	X		X		X
Photos	X		X		X
Physical Measurements	X		X		X
Hydrology Monitoring	X	X	X	X	X
Soils Monitoring	X		X		X
Quantitative Wetland Restoration Characterization	X		X		X
VIBI (wetlands AG, AW, AZ, BA, BC, and BD only)			X		X
Wetland Verification					X
Regulatory Site Visit			X		

Off-site Wetlands Mitigation Reporting

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10
Submit Report	X	X	X	X	X	X				
As Built Drawings	X		X		X					
Photos	X		X		X		X			X
Physical Measurements	X		X		X		X			X
Water Chemistry	X	X	X	X	X	X	X	X	X	X
Hydrology Monitoring	X	X	X	X	X	X	X	X	X	X
Soils Monitoring	X		X		X		X			X
Vegetation Monitoring	X		X		X		X			X
VIBI	X		X		X		X			X
Wetland Verification					X					X
Regulatory Site Visit			X				X			