DRG/WSSI Maryland Statewide Umbrella Mitigation Bank

Maryland Statewide

WSSI #MD7001.01

Final Prospectus

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DRG/WSSI Maryland Statewide Umbrella Mitigation Bank

Final Prospectus
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DRG/WSSI Maryland Statewide Umbrella Mitigation Bank
Final Prospectus Narrative

1. Overview

Davey Resource Group, Inc. dba Davey Mitigation, as Bank Sponsor, proposes to prepare and submit an Umbrella Mitigation Banking Instrument (UMBI) in accordance with 33 CFR 332, Compensatory Mitigation for Losses of Aquatic Resources ("Mitigation Rule"). The purpose of this prospectus is to outline the development of an UMBI, which will govern the establishment, use, operation, maintenance, and closure of the umbrella mitigation bank by establishing guidelines and responsibilities for use by Federal Clean Water Act and State of Maryland permit applicants where appropriate within the approved service area of the UMBI.

The Bank Sponsor proposes to use a combination of restoration, creation, enhancement, and preservation of aquatic resources (wetlands and streams) and uplands for the purpose of generating compensatory mitigation credits and Total Maximum Daily Load (TMDL) and/or National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) credits under the proposed UMBI. The Bank Sponsor proposes to manage the development, release, and use of mitigation credits under the proposed UMBI with approval by the Interagency Review Team (IRT). Mitigation credits generated will be generated on a site-specific basis and approved by the IRT and may be used as compensatory mitigation for jurisdictional impacts within the mitigation site-specific service area. Mitigation site-specific details including service area, mitigation type, release schedule, etc. for each site (Bank Site) under the proposed UMBI will be provided as part of Site-Specific Mitigation Plans included as Addenda to the approved UMBI. The Lake Elkhorn Mitigation Bank (LEMB) is the first mitigation bank site identified for inclusion in the proposed UMBI. The LEMB Final Prospectus, including a Conceptual Mitigation Plan and impact exhibits, is included as Addendum 1 to this document. As additional bank sites are developed, addenda for newly proposed mitigation bank sites will be prepared and submitted to the IRT for review and approval.

The UMBI will establish a framework and eliminate redundancy in administration as individual bank sites are added facilitating the focus of review on technical issues related to the development, implementation, and success of individual bank sites as they are added. The roles and responsibilities of the IRT will be outlined, including responsibilities related to review of future site-specific mitigation plans within the UMBI.

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2. Identify the objectives of the proposed UMBI

The goal of the UMBI is to establish the framework for restoring, enhancing, creating and/or preserving tidal and non-tidal wetlands, riparian systems, streams, and contiguous buffer corridors, as well as uplands and/or other aquatic resources as may be approved by the IRT, and their functions and values to compensate for unavoidable and permitted Waters of the U.S. (wetland and stream) impacts, or other purposes such as water quality improvements to satisfy TMDL and/or NPDES/MS4 compliance requirements as may be approved by the IRT, for proposed improvement projects completed by users with appropriate Federal Clean Water Act and/or State of Maryland permit applications. The Bank Sponsor's goals in establishing the UMBI include:

- Streamline Clean Water Act Sections 404/402/401 and Rivers and Harbors Act Section 10 permit evaluation processes by providing compensation in advance for unavoidable wetland, stream, water quality, etc., impacts resulting from improvement projects by various permittees.
- Provide high function and value, advanced compensatory mitigation based on a watershed approach.
- Restore and preserve aquation and semi-aquatic resources based on environmental priorities and relative probability of successfully achieving self-maintaining ecological uplift.
- Support mitigation priorities established in the US Army Corps of Engineers (USACE)/ Environmental Protection Agency (EPA) Mitigation Rule (33 CFR Part 332 and 40 CFR Part 230), the Maryland Department of Environment (MDE), and the Maryland Department of Natural Resources (MDNR).
- Achieve efficiencies for DRG/WSSI, permit applicants, and the entire IRT review process by eliminating repetitive practices and redundant review processes thereby reducing costs and addressing permitting priorities in a more expedient time frame.

Compensatory mitigation for jurisdictional impacts in Maryland has primarily been provided under a typical permittee-responsible mitigation (PRM) framework. This framework generally results in smaller ecologically insignificant projects that result in temporal delays with respect to the replacement of loss of the wetland and stream functions and values. Future jurisdictional impacts will continue to require compensatory wetland and stream mitigation and/or water quality improvements, and there is currently a lack of suitable mitigation banks. Establishment of mitigation sites under this proposed UMBI will provide a means to develop advanced mitigation that is ecologically significant and prevents the temporal loss of wetland and stream functions and values. Potential, future mitigation bank sites will be located in areas where impacts (i.e. need) are most prevalent and the functional uplift can be maximized.

3. Describe how the mitigation bank will be established and operated.

The UMBI will be developed by the Bank Sponsor in coordination with the USACE, MDE and the IRT. It will contain detailed information governing the establishment, use, operation, and maintenance of the Umbrella Mitigation Bank. The Umbrella Mitigation Bank will include all mitigation sites that fall (or will fall) under the UMBI, including the LEMB and future, proposed bank sites. The

development of the UMBI and the development and operation of individual bank sites that will become part of the UMBI will be in accordance with the Mitigation Rule requirements.

The Bank Sponsor will develop wetland and/or stream mitigation and water quality improvement projects throughout Maryland to comply with Clean Water Act Section 404/402/401 permits, Rivers and Harbors Act Section 10 permit requirements, and related state laws and regulations. Mitigation sites that will be included as part of the UMBI will be referred to as "Bank Sites." Bank Sites may be comprised of one or more land parcels, may include one or more mitigation types (i.e. wetland and/or stream provided through restoration, creation, enhancement, and/or preservation), and provide variety of mitigation functions/values. Each Bank Site will be subject to the terms of the UMBI as well as site-specific final mitigation plans.

Once mitigation credits are available through the approval of the UMBI, approval of the LEMB and/or future mitigation Bank Sites in accordance with this UMBI and the Mitigation Rule, compensatory mitigation can be accomplished through the withdrawal of credits. Credit withdrawals require final approval from the USACE and MDE, in consultation with the IRT.

a. Establishment of the Umbrella Mitigation Bank and Bank Sites

i. Establishment of the Umbrella Mitigation Bank: The Bank Sponsor will obtain all appropriate environmental documentation, permits, or other authorizations needed to establish and maintain the Umbrella Mitigation Bank. The UMBI will not fulfill or substitute for such authorization, but would rather fulfill authorization for establishment, use, operation, and maintenance of an Umbrella Mitigation Bank to be administered by the Sponsor.

ii. Establishment of Future Bank Sites and UMBI Addenda: The Bank Sponsor will obtain all appropriate environmental documentation, permits, or other authorizations needed to establish and maintain future Bank Sites under the UMBI. The UMBI would not fulfill or substitute for such authorizations. The UMBI and site-specific Addenda or mitigation plans would fulfill authorization for the establishment, use, operation, and maintenance of Bank Sites to be administered via the UMBI.

iii. Perpetual Protection/Real Estate Provisions: Property subject to the UMBI and authorized by the USACE and MDE as a mitigation Bank Site will be protected in perpetuity and preserved through management agreements, plat and restrictive covenants with third party enforcement, or conservation easements, and/or Declaration of Restrictive Covenants on a project-by-project basis, unless otherwise approved by the USACE and MDE. Conservation Easements are the preferred method for protecting the bank property and will be used when possible. These provisions will conform to the Mitigation Rule with the language modified on a case-by-case basis to allow for existing elements such as road/utility easements, road/bridge/utility crossings, hike/bike trails, and other activities that are pertinent to each site proposed for bank use.

iv. Financial Assurances: The Bank Sponsor will provide the required financial assurances for each Bank Site. The amount and form of the required financial assurances is subject to written approval of the IRT. The financial assurances will be maintained, renewed, extended, or replaced so that it remains effective until the IRT determines that a Bank Site is successful in accordance with its approved Performance Standards and that its financial assurance is

eligible for release. Financial assurances will be addressed during the review of each addendum and cover any new site and project proposed under this UMBI.

b. Operation of Umbrella Mitigation Bank and Bank Sites

i. Umbrella Mitigation Bank Geographic Service Area: The Geographical Service Area for this UMBI will be statewide, in Maryland. The Bank Sponsor will establish separate GSA's for each individual Bank Site as they are proposed. Each Bank Site will have a primary service area and may also have an additional secondary service area as proposed and approved by the IRT. Primary and secondary service areas will be based on USGS 8-Digit HUCs, and will also consider physiographic regions, EPA ecoregions, or other relevant considerations. For individual Bank Sites, the GSA will be presented to the USACE, MDE, in coordination with the IRT, for approval. Use of a Bank Site to compensate for impacts beyond the geographic service area may be considered by the USACE and MDE, in coordination with the IRT, on a case-by-case basis.

ii. Preliminary Draft Prospectus: A Preliminary Draft Prospectus will be developed by the Bank Sponsor and submitted to the IRT for each Bank Site. The purpose of the Preliminary Draft Prospectus is to provide basic site information and solicit preliminary approval from the IRT in advance of the submittal of the Site-Specific Mitigation Plan/UMBI Addendum (described in Section B.3, below). The Preliminary Draft Prospectus will contain information such as:

- Location of the site including maps detailing physiographic province, river basin, watershed, hydrologic unit, ecoregion.
- Site condition including present/recent land use and adjacent area land use.
- Ownership of the bank site and status of land exchange/control by the Bank Sponsor; encumbrances, utility easements, etc. on the land.
- Preliminary Site Plan and functional goals.
- Available Monitoring Reports (for previously approved consolidated mitigation sites).

iii. Site Specific Mitigation Plans/UMBI Addenda: For each Bank Site, site specific Mitigation Plans/UMBI Addenda will be developed by the Bank Sponsor and submitted to the USACE and MDE, for the USACE's distribution and approval by the IRT. The UMBI Addenda will include the following detailed information on each Bank Site as per CFR 332.4(c)(2)-(14):

a) *Objectives*: A description of the resource type(s) and amount(s) that will be provided, the site-specific geographic service area, the method of compensation (i.e., restoration, establishment, enhancement, and/or preservation), and the way in which the resource functions of the compensatory mitigation project will address the needs of the watershed, ecoregion, physiographic province, or other geographic area of interest.

b) *Site selection*: A description of the site selection process, including consideration of watershed needs (based on existing watershed plans and studies, if available), on-site alternatives where applicable, and the practicality of establishing ecologically self-sustaining resource mitigation at the Bank Site.

c) *Site protection instrument (conservation easement, declaration of restrictive covenants, title transfer, etc.)*: A description of the legal arrangements and instrument, including site ownership that will be used to ensure the long-term protection of the Bank Site. Recordation of a conservation easement with a conservation easement holder may result in an additional credit yield.

d) *Baseline information*: A description of ecological characteristics of the proposed mitigation Bank Site, including descriptions of historic and existing plant communities, and mitigation site(s) or the geographic coordinates for those site(s), and other site characteristics appropriate to the type of resource proposed as compensation. The baseline information will also include a delineation of existing Waters of the United States (wetlands, streams, and other aquatic resources) on the proposed Bank Site. For stream mitigation projects this will include a discussion of the existing stream system (watershed, stream, and associated riparian area) in terms of the Stream Functions Pyramid.

e) *Determination of credits*: Description of the number and type of mitigation credits to be provided, including a brief explanation of the rationale for this determination.

f) *Mitigation Work Plan*: A detailed written specification and work descriptions for the mitigation Bank Site, may include, but not be limited to, the geographic boundaries of the project; construction methods, timing, and sequence; source(s) of water, including connections to existing waters and uplands; methods for establishing the desired plant community; plans to control invasive plant species; the proposed grading plan, including elevations and slopes of the substrate; soil management; and erosion control measures. For stream compensatory mitigation projects, the mitigation work plan may also include other relevant information, such as planform geometry, channel form (e.g., typical channel cross-sections), watershed size, design discharge, and riparian area plantings.

g) *Maintenance Plan*: A description and schedule of maintenance requirements to ensure the continued viability of the resource once initial construction is completed.

h) *Performance Standards*: Ecologically based, measurable, and repeatable standards used to determine whether the project is achieving its objectives as established or approved by the IRT.

i) *Monitoring and Reporting Requirements*: A schedule for yearly monitoring and reporting will be provided. As well as a description of the metrics to be monitored in order to determine if the compensatory mitigation project is on track to meet performance standards. Monitoring reports will discuss corrective actions or adaptive management, if needed.

j) *Long-Term Management Plan*: A Long-Term Management Plan (LTMP) that outlines the management of the Bank Site after it has met all performance standards will be included. The LTMP will ensure long-term sustainability of the site, and will include long-term financing mechanisms, if appropriate, and the party responsible for long-term management.

k) *Adaptive Management Plan*: An adaptive management strategy to address unforeseen changes in site conditions or other components of the mitigation project will be included. It will identify the party or parties responsible for implementing adaptive management measures. The plan will establish a framework to guide decisions for revising compensatory mitigation plans and implementing measures to address unforeseeable circumstances that adversely affect compensatory mitigation success.

l) *Financial Assurances*: The Sponsor shall provide sufficient Financial Assurances to ensure that aquatic functions will be restored, established, and maintained at each mitigation bank site.

m) *Credit Release Schedule*: The credit release schedule will reserve a share of the total credits for release only after full achievement of ecological performance standards. All credit releases will be approved by the USACE and MDE, in consultation with the IRT, based on the confirmation that the required milestones have been achieved.

n) *Bank Closure*: Bank closure provisions will be clearly spelled out in the UMBI.

4. Mitigation Ratios and Establishment and Use of Credits

The UMBI will outline mitigation credit ratios agreements between the Bank Sponsor and the IRT. The UMBI will outline compensation ratios and/or other approved wetland or stream crediting scenarios (such as the Maryland Stream Mitigation Framework (MSMF)) based on anticipated ecological uplift for specific wetland classifications and stream uses. This will be based on coordination with and approval by the USACE and MDE, in consultation with the IRT.

The UMBI will also outline the Bank Sponsor's responsibility for accounting of credits and debits in the UMBI. A ledger will be developed for each mitigation site and will be coordinated through the IRT. Accounting procedures for the site will be in accordance with the Federal Mitigation Rule. Each credit for mitigation will be comprised of an appropriate accounting metric determined in consultation with the IRT consistent with the terms of the UMBI and/or site-specific Addenda.

Use of credits from the Umbrella Mitigation Bank to offset wetland and stream impacts authorized by USACE and MDE wetland/waterway permits must be in compliance with the Federal and State regulations, including:

- Sections 401 and 404 of the Clean Water Act (33 U.S.C 1344)
- Sections 9 and 10 of the Rivers and Harbors Act of 1899 (33 U.S.C 401 and 403)
- MD Nontidal Wetlands Protection Act, Environmental Article, Section 5-901, et Seq.
- MD Waterway Construction Law, Environmental Article, Sec. 5-503
- MD Tidal Wetlands Law, Environmental Article, Section 16-101
- National Environmental Policy Act (NEPA) and all other applicable Federal and State legislation, rules, and regulations.

a. Credit Determination: Credits for all proposed wetland mitigation Bank Sites will be determined based on mitigation type employed (creation of wetlands from uplands, restoration of wetlands, enhancement, preservation, etc.), and enumerated by acres (or fractions thereof) by mitigation type

of wetlands created (open water, emergent, scrub- shrub, forested, etc.). The measure of aquatic functions will be based on resources restored, established/created, enhanced or preserved. The Bank Sponsor proposes 1:1 ratio for both wetland restoration (re-establishment) and wetland creation (establishment), with anticipated higher ratios for enhancement (re-habilitation) and preservation both to be determined on a case-by-case basis. Additionally, the Bank Sponsor may also propose wetland mitigation credits for terrestrial resources that provide important support functions to the aquatic mitigation habitat elements and/or the watershed (e.g., buffers, preservation, or enhancement). The wetland credits will be based on the IRT accepted method of credit determination. The number of stream mitigation credits created by development of mitigation Bank Sites will be determined by anticipated functional uplift, by linear feet of each activity, and/or based on an IRT- approved method of calculating functional uplift, and corresponding credit ratios for those activities, such as the MSMF or other agency approved protocols.

b. Credit Release Schedule: The Bank Sponsor will recommend withdrawal of credits for permitted impacts within the defined GSA of a specific Bank Site based on agreed-upon Bank Site site-specific credit release schedules. Final approval from the IRT, will be required regarding use and withdrawal of mitigation credit from the UMBI. For Bank Sites under the UMBI, the Bank Sponsor proposes the following credit release schedules as a guideline schedule for all mitigation Bank Sites established under the UMBI, unless otherwise approved as part of a Final Mitigation Plan:

Table 1. Wetland Mitigation Bank Site Credit Release Schedule

Milestone	Accelerated Release[1]		Conventional Release		Range[2]
	Credit Received	Cumulative	Credit Received	Cumulative	
MBI Approved by IRT	35%	35%	15%	15%	15% - 50%
As-Built Plan Approval by IRT	40%	75%	15%	30%	15% - 50%
1st Monitoring Report (Year 2)	5%	80%	20%	50%	5% - 20%
2nd Monitoring Report (Year 3)	5%	85%	10%	60%	5% - 20%
3rd Monitoring Report (Year 5)	5%	90%	15%	75%[3]	5% - 20%
4th Monitoring Report (Year 7)	5%	95%	10%	85%[3]	5% - 20%
5th Monitoring Report (Year 10)	5%	100%	15%	100%[3]	5% - 20%

[1] Per RGL 19-01.

[2] Range denotes that any Bank Site may propose an alternative credit release based on a given site's level of risk of success, market need, level of financial assurances, and level of agency confidence.

[3] All remaining credits are proposed for release following two consecutive years of meeting the approved performance standards.

Table 2. Stream Mitigation Bank Site Credit Release Schedule

Milestone	Accelerated Release[1]		Conventional Release		Range[2]
	Credit Received	Cumulative	Credit Received	Cumulative	
MBI Approved by IRT	35%	35%	15%	15%	15% - 50%
As-Built Plan Approval by IRT	40%	75%	25%	40%	15% - 50%
1st Monitoring Report (Year 2)	5%	80%	20%	60%	5% - 20%
2nd Monitoring Report (Year 3)	5%	85%	10%	70%	5% - 20%
3rd Monitoring Report (Year 5)	5%	90%	15%	85%[3]	5% - 20%
4th Monitoring Report (Year 7)	5%	95%	10%	95%[3]	5% - 20%
5th Monitoring Report (Year 10)	5%	100%	5%	100%[3]	5% - 20%

[1] Per RGL 19-01.

[2] Range denotes that any Bank Site may propose an alternative credit release based on a given site's level of risk of success, market need, level of financial assurances, and level of agency confidence.

[3] All remaining credits are proposed for release following two consecutive years of meeting the approved performance standards.

If the Sponsor elects to adhere to the accelerated credit release schedule the Sponsor shall provide adequate Financial Assurance, in an amount approved by the IRT, to provide a high degree of confidence that the ecological performance standards will be achieved.

Credits for water quality mitigation for TMDL/MS4 compliance will be released on agency approved milestones.

Note that credits cannot be released until all milestones included in the approved UMBI have been met, such as financial assurances, site protection mechanism is in place, and permits have been approved.

c. Annual Report: The Bank Sponsor will prepare an annual report on each anniversary of the date of execution of the UMBI and will describe the condition of the Umbrella Mitigation Bank as a whole. The UMBI will outline annual reporting requirements related to documentation of all credits used and balance of credits remaining until all credits have been utilized or the UMBI agreement is terminated. The report will summarize the credits withdrawn by Bank Site(s), the corresponding withdrawn percentage, and the remaining credits by type. The actual credit withdrawal summary will reference consistency or inconsistency with the established credit release schedule in relation to the success criteria. If inconsistencies are identified during the annual reporting period, the Bank Sponsor will coordinate with the USACE, MDE, and the IRT to remedy the situation. Annual reports on the Umbrella Mitigation Bank will be submitted each year until termination of the UMBI.

5. Maintenance/Monitoring of Bank Sites

The Bank Sponsor agrees to establish and maintain the mitigation Bank Sites and ownership until the banking activity is terminated or a third-party organization adopts the long-term site management/maintenance responsibilities. The Bank Sponsor will propose future, ecologically sustainable mitigation Bank Sites, and will avoid establishing Bank Sites that require regular or intensive maintenance. The Bank Sponsor accepts full responsibility for any required maintenance activities that may be necessary related to achievement of performance standards, such as addressing invasive species control, tree/vegetation replacement, or structure repair. Any required maintenance activities proposed by the Bank Sponsor will be coordinated through USACE and MDE, in consultation with the IRT, prior to execution.

The Bank Sponsor understands that banking activity can only be terminated through coordination and approval by the USACE and MDE, in consultation with the IRT. As part of the Bank Sponsor's required maintenance, the Bank Sponsor will monitor all Bank Sites over a 10-year period, and recommend maintenance activities related to performance standards, or other possible maintenance activities such as repairing broken fences, cleaning up trash or vandalized areas, among others. The Bank Sponsor will continue to submit regular Mitigation Monitoring Reports to the USACE, MDE, and the IRT describing site conditions in relation to the performance standards outlined in the UMBI and/or Site-Specific Final Mitigation Plans. Additionally, the Bank Sponsor will be responsible for developing an adaptive management plan, in coordination with the IRT, if the site fails to achieve the goals and objectives laid out in the Final Mitigation Plan.

The UMBI will define site "close-out" procedures, Bank Sponsor/USACE/MDE/IRT responsibilities related to close- out and will define a timeline for acceptable termination of maintenance activities.

a. Monitoring: The UMBI will outline the Bank Sponsor's requirements with respect to monitoring the Bank Sites and to demonstrate compliance with the established success criteria. Bank Sponsor will be obligated to the completion of Bank Site site-specific monitoring requirements. Success criteria will be based on USACE and MDE guidance, IRT input, and those criteria outlined in the Site-Specific Mitigation Plans. Monitoring goals and schedules will be developed and submitted for each Bank Site as documented in Site Specific Final Mitigation Plans. Monitoring procedures, duration, and reporting criteria, and scope will also be outlined in the UMBI.

   It is anticipated that any wetlands restoration, enhancement, or creation sites incorporated into the Umbrella Mitigation Bank will be monitored per the 2018 Mitigation Monitoring Protocols for Non-Tidal Wetland Mitigation Sites or other suitable monitoring protocols. Stream restoration or enhancement sites incorporated into the Umbrella Mitigation Bank will follow monitoring protocols established by the IRT, or a suitable alternative proposed by Bank Sponsor, current at the time Addenda is approved. Monitoring will occur for 10 years following construction completion or until performance standards have been met whichever is longer, with a final assessment in the last year of monitoring. At that time, the Bank Sponsor will either recommend remedial measures, continue monitoring, or will deem the Bank Site successful and recommend site closure and commencement of long- term management. Monitoring reports will be prepared by the Bank Sponsor (for the required monitoring years) summarizing findings and will be made available to the IRT electronically or by hard copy as requested and will be uploaded to RIBITS.

b. Long-term Management: The UMBI will outline the Bank Sponsor's commitment to implementing long-term management measures towards maintaining the ecological integrity of their mitigation Bank Sites and managing and maintaining these sites in perpetuity as functioning

wetlands, streams, or other aquatic systems after meeting all performance standards. On completion of all phases of mitigation construction, the Bank Sponsor will either continue to ensure long-term sustainability or may assign its long-term management and maintenance responsibility to a third party approved by the IRT (e.g., nonprofit entity, state conservation agency or a land trust), who would be responsible for the long-term conservation goals and managing the lands in perpetuity.

The Bank Sponsor anticipates typical long-term management provisions for Bank Sites may include invasive species control, upkeep of physical barriers such as fences and gates, collection/removal of excessive trash, repair of vandalized structures, and rectification of trespass impacts, for example. Fence and gate maintenance and repair frequency will be dependent on trespass and access control issues, as well as whether grazing is utilized as a vegetation management technique and to what extent. Grazing may also be discouraged by use of fencing based on its incompatibility with the goal of achieving mitigation objectives. Case-by-case long-term management opportunities will be determined through coordination with the USACE and MDE, in consultation with the IRT.

The Bank Sponsor's approach to the long-term management of the Bank Site(s) will be to conduct periodic site examinations after the ten-year monitoring period and achievement of performance standards to determine stability and ongoing trends of the created, restored, enhanced, or preserved resources. The Bank Sponsor, or as may be assigned to the Long-Term Steward, will observe/assess the Bank Site's condition, degree of erosion, invasion of exotic species, fire hazard, and/or other aspects that may warrant management actions. The objective of the long-term management plan will be to conduct periodic site investigations to identify any issues that arise and implement adaptive management strategies to determine what actions will be most appropriate for individual Bank Sites, if required.

c. Assurance of Success: The UMBI will outline the Bank Sponsor's responsibility for assuring the success of the restoration, creation, enhancement, and preservation activities at the Bank Sites, and for the overall operation, maintenance, and management of the Umbrella Mitigation Bank. If a Bank Site is assigned to a third party, that third party will be required to assure the success of the Bank Site per the UMBI agreement with the mechanism of assurance to be determined by the USACE and MDE, in consultation with the IRT.

d. Accounting Procedures: The UMBI will outline all mitigation tracking requirements /responsibilities of the Bank Sponsor. The monitoring section of the UMBI will outline requirements related to tracking debits related to permitted projects and any mitigation accrued when success criteria are met as specified in the UMBI. The cumulative total area of impacts to wetlands/streams/aquatic resources permitted to use credits from the Umbrella Mitigation Bank shall not exceed the total area of wetlands/streams/aquatic resources created by the mitigation Bank Sites. If the Umbrella Mitigation Bank and/or the Bank Sites is constructed in phases, the accounting credits shall duly reflect this phasing of work. A ledger for tracking debits, available credits, and permitted projects will be submitted to the USACE, MDE, and the IRT. The Bank Sponsor will submit the ledger annually.

e. Default, Contingency/Adaptive Management/Remedial Action Plan: The Bank Sponsor will develop necessary contingency/adaptive management plans and implement appropriate remedial actions in coordination with the USACE and MDE if a Bank Site is not on a trajectory to meet performance criteria or permit requirements. A general contingency/remedial action plan will be

developed for the UMBI, and if necessary, for individual Bank Sites addressing site-specific existing or proposed conditions. The adaptive management plan will establish the framework by which the Bank Sponsor will proceed to correct deficiencies identified on a given Bank Site. Before considering any adaptive management changes, the Bank Sponsor, in coordination with the IRT, will consider whether such actions will help ensure the continued viability of a Bank Site's biological resources. In that corrective actions cannot be determined at this time, or at the time of the preparation of the site-specific Final Mitigation Plan, the Bank Sponsor retains the right to adaptively manage required amendments to the corrective action plans, as appropriate, upon identification of remedial needs in the future, and with approval from the IRT.

If the Bank Sponsor or the IRT determines that a Bank Site is operating at a deficit, or has failed to meet the success criteria, the USACE and MDE, in consultation with the IRT and the Bank Sponsor, will determine what corrective actions are necessary to correct the situation. In the event the Bank Sponsor fails to implement necessary corrective actions within one (1) growing season (by November 1 of the following year) after notification by the USACE and/or MDE of necessary corrective action to address any failure in meeting the success criteria, the IRT will notify the Bank Sponsor and the appropriate authorizing agencies and direct appropriate remedial actions. As determined by the USACE and/or MDE, in coordination with the IRT and the Bank Sponsor, if conditions at the Bank Site do not improve or continue to deteriorate within one growing season from the date that the need for remedial action was first identified in writing to the Bank Sponsor by the USACE or MDE, the IRT may suspend credit transactions for that Bank Site until the deficiencies are corrected.

Following implementation of corrective actions and at the written request of the Bank Sponsor, the IRT will perform a compliance visit to determine whether identified remedial actions have been implemented successfully and, if necessary, lift the suspension on credit transactions for that Bank Site.

6. Responsibility of the IRT

The IRT will be co-chaired by a representative of the USACE, Baltimore District and the MDE. The IRT shall facilitate establishment of the UMBI and facilitate reaching consensus on future individual Bank Sites. It is anticipated that members of this Umbrella Mitigation Bank's IRT team will include participants from:

- U.S. Army Corps of Engineers, Baltimore District;
- US Environmental Protection Agency;
- US Fish and Wildlife Service;
- Maryland Department of the Environment;
- Maryland Critical Area Commission;
- National Marine Fisheries Service; and,
- Maryland Department of Natural Resources.

In coordination with the USACE and MDE, the IRT will be responsible for providing appropriate oversight in carrying out the provisions of the UMBI. The IRT agency representatives agree to use their best efforts to review and provide comments on the UMBI, and subsequent site-specific mitigation Prospectuses, Draft and Final Mitigation Plans/UMBI Addenda, monitoring reports, success criteria, credit review reports, accounting ledgers, and remedial action plans for individual Bank Sites. The

USACE and MDE retain final authority for approval of the UMBI and site-specific Addenda. The IRT will also be responsible for adhering to time frames defined in the Mitigation Rule.

The UMBI will outline and define the USACE and MDE roles, as co-chairs of the IRT, regarding their responsibility for initiating IRT conflict resolution regarding UMBI development or use of a mitigation Bank Site for purposes of Section 404, Section 10 and other related state permit compliance when consensus cannot be reached. The UMBI will also establish timeframes for IRT comment periods and USACE and MDE final decisions.

7. Sponsor Qualifications

DRG, dba Davey Mitigation will be the Bank Sponsor. DRG is a direct, wholly owned subsidiary of The Davey Tree Expert Company, which had company-wide revenue for 2019 of $1,143,720,000 and a Net Worth of $186,460,000. This information can be found at http://www.davey.com/about/corporate-information/secfilings/. DRG will provide the capital to establish and complete the proposed mitigation bank.

Wetland Studies and Solutions, Inc. (WSSI) will be contracted by the Bank Sponsor to provide all required services associated with the development and operation of the bank. WSSI has a long and successful history with mitigation banking. They have developed 5 wetland banks, totaling over 1,200 acres, and including the first wetland mitigation bank in Virginia (Julie J. Metz) in 1994. In addition, WSSI developed the first stream mitigation bank in Virginia (the Northern Virginia Stream Restoration Bank) in 2006, which includes over 11 miles of stream restoration. All WSSI's mitigation banks have met up to 10 years of success criteria.

8. Miscellaneous

The UMBI will address other administrative or technical elements related to the Umbrella Mitigation Bank establishment, use, operation, and maintenance through coordination with the IRT. Other potential elements that will be addressed in the UMBI that are not part of this prospectus may include, but is not limited to:

- Effective Date of UMBI and amendment/modification process/approval requirements;
- Dispute resolution process;
- Authorities;
- Process for IRT participation termination;
- Delays/Defaults;
- Force Majeure;
- Catastrophic Events;
- Eminent Domain;
- Notice;
- Counterparts;
- Binding nature of agreement;
- Third Party Beneficiaries;
- Governing Laws;
- UMBI Amendments;
- IRT Contracts; and,
- Responsibility for Compensatory Mitigation.

DRG/WSSI Maryland Statewide Umbrella Mitigation Bank

Addendum 1: Lake Elkhorn Stream Mitigation Site

Howard County, Maryland

Final Prospectus

June 17, 2021

Prepared for:
Davey Resource Group, Inc.
1500 N. Mantua St.
Kent, Ohio 44240

Prepared by:
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WSSI Maryland Statewide Umbrella Mitigation Bank

Addendum 1: Lake Elkhorn Stream Mitigation Site
Howard County, Maryland

Prospectus
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Lake Elkhorn Stream Mitigation Site
Final Prospectus Narrative

1. Overview

a. Property Owner Interest: The property owner, Columbia Association (CA), would like to have a stream mitigation bank developed on their property, as shown on the Project Overview Map (Exhibit 1). Through its wholly owned subsidiary, Wetland Studies and Solutions, Inc. (WSSI), Davey Resources Group, Inc. (DRG) has a contract with the property owner giving it an exclusive right to perform all work necessary to permit, design, construct and operate a stream mitigation bank on the Property. A letter of interest from CA is provided in Exhibit 2.

b. Proposed Bank Name: Lake Elkhorn Stream Mitigation Site.

c. Bank Purpose: The purpose of the Lake Elkhorn Stream Mitigation Site (LESMS) is to provide compensatory stream and wetland mitigation credits for unavoidable impacts to jurisdictional streams and wetlands authorized by the U.S. Army Corps of Engineers (USACE) and the Maryland Department of the Environment (MDE) under Section 404 of the Clean Water Act.

The LESMS is the first Mitigation Site proposed for inclusion in the DRG/WSSI Maryland Statewide Umbrella Mitigation Bank and shall be included as Addendum 1.

The development of the DRG/WSSI UMBI and the operation of the Mitigation Site will be in accordance with the "Compensatory Mitigation for Losses of Aquatic Resources: Final Rule, 33 CFR 332 ("Mitigation Rule")." The UMBI serves to establish guidelines and responsibilities for the Bank Sponsor within the approved service area. The objective of the UMBI is to provide compensatory mitigation for unavoidable impacts to Waters of the U.S. (WOTUS) and their functions resulting from permitted projects authorized under Section 404 and 401 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, Maryland Non-tidal Wetlands Protection Act, and the Maryland Tidal Wetlands Protection Act provided the project has met all applicable requirements and been authorized.

d. Bank Location: The LESMS is located on an unnamed Tributary to the Little Patuxent River in Columbia, Howard County, Maryland. The LESMS is in the Piedmont physiographic province in the Patuxent River watershed, Hydrologic Unit Code (HUC) 02060006. A Vicinity Map is provided in Exhibit 3 and a HUC Map is provide in Exhibit 4.

e. Bank Contacts:

Property Owner: Columbia Association
6310 Hillside Court, Suite 100
Columbia, Maryland 21046

Bank Sponsor: Davey Resource Group, Inc. dba Davey Mitigation
1500 N. Mantua St.
Kent, Ohio 44240

Attn: T.J. Mascia
252-723-0815
tj.mascia@davey.com

Consultants: Wetland Studies and Solutions, Inc.
1131 Benfield Blvd., Suite L
Millersville, Maryland 21180

Primary Liaison/Point of Contact:
Scott Petrey, P.E.
703-679-5651
spetrey@wetlands.com

f. Adjacent Property Owners and Appropriate Local Officials. The names and Mailing addresses for adjacent property owners and local elected officials are provided in Exhibit 5.

g. RTE and Historic Property Information: Trilogy Coordination has been initiated for the project area, and response letters from the Maryland Department of Natural Resources (DNR), the U.S. Fish and Wildlife Service (USFWS), and the Maryland Historical Trust (MHT) are provided in Exhibit 6. The trilogy coordination has indicated no impacts to RTE or historic properties.

2. Identify the objectives of the proposed mitigation bank.

a. Proposed Resource Type: The proposed mitigation site will consist of approximately 33,000 linear feet of restoration to degraded intermittent and perennial streams, the enhancement of 20 acres of palustrine forested (PFO) wetlands, and the creation of 5 acres of PFO wetlands.

b. Amount of Compensation: The LESMS will consist of approximately 33,000 linear feet[1] of stream restoration, or 15,155 functional feet (as calculated by the Maryland Steam Mitigation Framework (MSMF), and 10 acres of PFO wetland mitigation credit. MSMF Crediting sheets are provided in Exhibit 7 and justification for the USRM are provided as follows.

Stream Mitigation Credit Summary

Practice	Credits (Functional Feet)
Stream Restoration	15,155
TOTAL	**15,155**

Wetland Mitigation Credit Summary

Practice	Area (Acres)	Credit Ratio	Credits (Acres)
Creation	5	1:1	5
Enhancement	20	4:1	5
		TOTAL	**10**

[1] This stream length measurement is based on Howard County GIS data, it will be updated as the stream thalweg is surveyed. This may result in adjustments to the projected credit total.

c. Methods of Compensation: All credit calculations will follow the Interagency Review Team guidelines. Stream credits described in Section 2.b were calculated using the MSMF and are presented in terms of functional feet. Wetland credits described in Section 2.b were calculated using MDE's "*Typical Nontidal Wetland Mitigation Crediting Ratios by Mitigation Type*".

d. Proposed Aquatic Functions: The streams proposed for restoration are degraded across all functional levels with respect to the Stream Functions Pyramid[2]. This stream mitigation project will result in an improvement to aquatic resource function and passage and help prevent future stream and riparian corridor degradation. In terms of the Stream Functions Pyramid, this project will result in significant improvements to Hydraulics (Level 2) by reestablishing a floodplain connection; Geomorphology (Level 3) by restoring a stable channel configuration (cross section, pattern, and profile), restoring the riparian buffer, creating a contiguous forested stream corridor within the project area, connecting the adjacent forested stream corridor, and connecting stream reaches that are currently segmented by head cuts at culverts and within the stream reaches; and, Physiochemical (Level 4) by reducing stream bank erosion and improving in-stream nutrient processing. Improvement to Biology (Level 5) will be obtained by improving in-stream habitat and creating aquatic organism connection from the Little Patuxent River to the project area through the Lake Elkhorn dam and disconnected roadway culverts. Limited improvement is expected to Hydrology (Level 1).

e. Public Funding Received: No public funding has been received for this project.

3. Describe how the mitigation bank will be established and operated.

a. Address and Site Coordinates: There is no site address associated with the LESMS, it is located on CA open space property between High Tor Hill and Lake Elkhorn. The upstream extent of the proposed mitigation site is located at a culvert outfall under High Tor Hill (39°13'23.3"N 76°48'53.7"W). A vicinity map showing the project location is included as Exhibit 3.

b. Type of Bank: Commercial.

c. Scope of Work: The LESMS will be developed as a single phase, though the stream and wetland areas will be split into multiple, smaller, more manageable plan sets for design, permit, and construction. The scope of work can be broken down into pre-design/baseline, design/permitting, construction, and post-construction monitoring as described below.

Baseline/Pre-Design: Prior to starting design work, WSSI will complete the following baseline studies.

i. *Wetland Delineation* - WSSI will identify any waters of the United States (WOTUS), including jurisdictional non-tidal wetlands that may exist within the project area. A formal Wetland Delineation will be conducted in accordance with the *1987 Corps of Engineers Wetland Delineation Manual, and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) dated April 2012*. The limits of any jurisdictional areas will be identified with numbered pink surveyors' tape as required by the USACE and the flags will be

[2] Harman, et al. 2012. *A Function-Based Framework for Stream Assessment and Restoration Projects.*

survey located. Following the delineation WSSI will prepare a wetland delineation and submit to the USACE and MDE for approval in the form of a JD.

ii. *Forest Stand Delineation (FSD)* - WSSI will conduct an FSD Study in accordance with the 1999 Howard County Forest Conservation Manual. As part of this study, WSSI will flag any specimen trees (trees >30" in diameter) on the site, as required by Howard County regulations. WSSI will prepare a Simplified FSD Plan in accordance with the requirements of Howard County and the State Forest Conservation Technical Manual. This plan will identify the locations of forest stands, specimen trees, and other significant environmental features on the site.

iii. *Existing Conditions Survey* – WSSI will obtain a 0.5' contour interval topographic aerial survey. Additional collected survey data will include existing infrastructure within the project vicinity (existing fences, upstream and downstream bridge dimensions, visible utilities, structures, etc.); and stream and riparian features (thalweg survey including existing stream facet and water surface data and top of stream bank, trees greater than 12-inches DBH). Except in the vicinity of existing bridges, existing GIS data will be used for trail locations.

iv. *Hydrologic Study* – WSSI staff will develop a hydrologic model and subsequent flow rates (bankfull and standard engineering design storms) to serve as the basis for the restored channel sizing and the subsequent analysis of the hydraulic performance and stability of the proposed channel and floodplain.

v. *Geomorphic and Functional Assessment* - WSSI staff will conduct a geomorphic and functional assessment along the proposed mitigation area. Data collected will include a sediment analysis (pebble count), bank condition assessment, an EPA Rapid Bioassessment, and a fish survey upstream and downstream of Lake Elkhorn. This data will be used in conjunction with data collected as part of Task B Existing Conditions Survey to classify the existing stream type and condition. WSSI staff will use the geomorphic data, existing conditions, survey, and hydrologic data to complete an existing conditions function stream assessment (based on the Stream Functions Pyramid) and complete the MSMF to show functional uplift.

Design/Permitting: WSSI will prepare the detailed mitigation design plans, sealed by a professional engineer, that meet the requirements of the IRT as well as Howard County and the CA. These measures will be designed using best practices to accomplish ecological lift and maintain existing resources on the project site. The designs will adhere to the *Waterway Construction Guidelines* and the *2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control*. WSSI will meet with the agencies at set project milestones to review design plans and solicit comments.

Construction: Construction will be completed by a qualified stream restoration contractor and will adhere to local, state, and federal requirements (i.e. time-of-year restrictions, noise ordinances, etc.). Qualified WSSI staff will provide full-time construction oversight. The construction will occur "in the dry" and we foresee this will be accomplished by utilizing pump around channel diversions, and not constructing during rain events or times of excessive stream flow (i.e. flood events). Following earthwork with project area will be planted with a diverse mix

of native trees and shrubs. Necessary construction best management practices will be implemented to minimize the incidental take of plants and animals within the work area.

Post-Construction Monitoring and Maintenance: It is anticipated that post-construction monitoring and maintenance will occur for 10-years following the completion of construction (i.e. as-built acceptance). Post-construction monitoring will be conducted in accordance with the approved MBI and will take place in the August/September timeframe of each monitoring year. Post-construction monitoring reports will be submitted to the IRT by December 31 for each monitoring year.

d. Conceptual Mitigation Work Plan: A Concept Plan is provided in Exhibit 8.

e. Projected Credits: The proposed mitigation site is expected to yield 15,155 function feet of stream restoration credit, and 10 acres of PFO wetland mitigation credit described in Section 2.b.

f. Credit Release Schedule:

Mitigation Site Milestones	Credit % Released	Cumulative % Released
MBI Approved by IRT	20	20
Successful Post-Construction As-Built	50	70
After Year-1 Performance Standards Met	0	70
After Year-2 Performance Standards Met	10	80
After Year-3 Performance Standards Met	5	85
After Year-4 Performance Standards Met*	0	85
After Year-5 Performance Standards Met*	5	90
After Year-6 Performance Standards Met*	0	90
After Year-7 Performance Standards Met*	5	95
After Year-8 Performance Standards Met*	0	95
After Year-9 Performance Standards Met*	0	95
After Year-10 Performance Standards Met*	5	100
*Starting in Year 5, if performance standards are met for two consecutive years, all remaining credits are proposed for release.		

g. Public Notice/Permit Application: The prospectus public notice is not going to serve as the public notice for an USACE individual permit or state public notice. A Joint Permit Application (JPA) will be completed in conjunction with the stream restoration design plans. We anticipate permitting this mitigation site with a Nationwide Permit 27 from the USACE and a Letter of Authorization from MDE. During the bank approval process (prior to design and permitting), we will hold a pre-application and Jurisdictional Determination (JD) meeting with USACE and MDE.

4. Geographic Service Area

a. Site Location Map: The site is located in Columbia, Maryland. A Vicinity Map is provided in Exhibit 3, and a HUC Map showing the sites location within the larger watershed is provided in Exhibit 4.

b. Watershed-Based Rationale for Service Area: The proposed primary service area is the Patuxent Watershed (HUC 02060006), and the proposed secondary service areas are the piedmont physiographic province of the Gunpowder-Patapsco (HUC 02060003). This secondary service area was chosen because the proposed mitigation site's location is directly adjacent to the Gunpowder-Patapsco HUC and the coastal plain portion of the Patuxent. These service areas were further chosen because they have some of the highest stream impacts in the state. A Service Area Map is provided in Exhibit 9. Sales outside of the Primary and Secondary Service Area will be subject to IRT approval on a case-by-case basis.

5. Identify the general need and technical feasibility of the proposed mitigation bank.

a. Describe the overall watershed where the proposed mitigation bank is located (major tributaries, existing development trends, watershed needs, etc.): The proposed mitigation site is in the headwaters of the Patuxent River on an unnamed tributary. The upstream extent of the proposed mitigation site is located where the stream starts at the end of a culvert pipe. There is currently ongoing and proposed residential, commercial, and transportation development projects within the proposed service area that creates some of the greatest mitigation need in the state.

b. Describe the factors considered during the site selection process, including watershed scale features such as existing watershed plans, aquatic habitat diversity, habitat connectivity, relationships to hydrologic sources, land use trends, ecological benefits, and compatibility with adjacent present and proposed land uses: This proposed mitigation site was identified for multiple reasons, including its proximity to jurisdictional impact areas, high likelihood of success, and location in a contiguous stream valley. There is currently a need for a stream and wetland mitigation bank in this service area as there are currently no approved stream mitigation banks located within the 8-Digit Hydrologic Unit Code (HUC) associated with this project area.

Due to the mitigation need within the Patuxent Watershed (HUC 02060006), WSSI conducted an extensive stream and wetland mitigation site search in Howard, Anne Arundel, Prince George's, Calvert, and St. Mary's counties to identify a project site with enough stream length to economically support a stream mitigation bank. We looked for sites that had one continuous stream network, and a single owner (private property only – local, state, and federal lands were excluded), a viable long-term steward, and a forested buffer (or potential for a forested buffer). The proposed LESMS meets these criteria – it is a continuous, large-scale stream system (33,000 linear feet of restoration) with the required riparian buffer and one landowner who will serve as the long-term steward. Further, the selected streams have the potential for maximum functional uplift, and the scale of the restoration will provide greater ecological benefit when compared to multiple, small, segmented projects. In addition, there is the opportunity to enhance 20 acres of degraded PFO wetlands and to create 5 acres of PFO wetland. Once developed, this large-scale mitigation project will help to minimize any watershed level spatial and temporal loss of stream area and function from jurisdictional stream impacts.

This project site was specifically targeted because it contains impaired streams and wetlands. This impairment has been documented in several published studies. The CA's 2009 watershed study specifically identified impaired streams above Lake Elkhorn with 21% eroded banks, 11% missing buffers, and 303d listing (Little Patuxent watershed) for biology, total suspended solids, phosphorus, and cadmium. The study concludes this area has low ecological value or ecologically significant areas but has high restoration opportunities (Versar 2009). Also, the Maryland Biological Stream Survey (MBSS) reported BIBI and FIBI scores across 14 sites within Lake Elkhorn watershed as "very poor". A Howard County Implementation Study also identified streams within Lake Elkhorn drainage as impaired (KCI 2009). The on-going stream degradation is resulting in the downstream transport of large quantities of sediment and associated pollutants. In addition to negatively effecting water quality, the ongoing stream erosion is a financial burden on CA. They anticipate spending $9.5 million over the next 20 years to dredge and maintain their three lakes, including Jackson Pond and Lake Elkhorn. Sediment deposition into these lakes can be significantly reduced by restoring and stabilizing channels upstream, thereby reducing dredging frequency and cost.

As documented in the above referenced studies and WSSI's initial site assessments, the streams proposed for restoration within the Lake Elkhorn watershed are degraded across all the stream functional levels (the stream degradation with respect to the Stream Functions Pyramid is described below in Section 8.e.). This stream mitigation project will result in an improvement to aquatic resource function and passage and assist with preventing future stream and forest corridor degradation. As stated in Section 2.d., this project will result in uplift across all stream functional levels (significant uplift is proposed for levels 2 through 4 and minimal uplift is proposed for levels 1 and 5). When CA was initially developed, the stormwater management philosophy was to route stormwater directly to the stream valleys with no quality or quantity controls, which resulted in streams that are "Functioning at Risk" or "Not Functioning". The existing streams throughout the project area are currently incised channels, with steep, and actively eroding banks. Lateral and vertical migration of the channels have also resulted in impacts to adjacent infrastructure, including stormwater culverts, bridges, pedestrian trails, and utilities. In addition to the functional improvements, this mitigation project will help to protect the surrounding infrastructure. Finally, the implementation of the restoration, including site studies, construction, and post construction monitoring, is facilitated by relatively easy access from the existing road and trail network.

Identify any regional or local benefits derived from the bank: The proposed mitigation site will have ecological and societal benefits for Columbia and the greater region. Ecologically the stream restoration will improve water quality through the reduction of stream bank erosion and the downstream transport of associated pollutants, improve instream nutrient processing[3,4,5]. It will provide improvements instream habitat, and to the populations of animal species such as dragonflies, frog and amphibian populations, and forest interior dwelling bird species, and

[3] Craig, L.S., Palmer, M.A., Richardson, D.C., Filoso, S., Bernhardt, E.S., Bledsoe, B.P., Doyle, M.W., Groffman, P.M., Hassett, B.A., Kaushal, S.S., Mayer, P.M., Smith, S.M., and Wilcock, P.R. 2008. Stream Restoration Strategies for Reducing River Nitrogen Loads. Frontiers in Ecology 6(10): 529-538.

[4] Ensign, S.H. and Doyle, M.W. 2005. In-Channel Transient Storage and Associated Nutrient Retention: Evidence From Experimental Manipulation. Limnology and Oceanography 50: 1740-51.

[5] Groffman, P.M., Dorsey, A.M., and Mayer, P.M., 2005. N Processing within Geomorphic Structures in Urban Streams. Journal of the North American Benthological Society 24: 613-25.

pollution tolerant benthic macroinvertebrates and fish, and improvements to stream baseflow[6,7,8,9]. Further as part of this project a connection will be made through the Lake Elkhorn dam that will facilitate aquatic organism passage from the Little Patuxent River into the project area, improving species diversity and populations. Additional environmental benefit will be provided by the reduction of the environmental impact associated with sedimentation (from upstream stream bed and bank erosion) in two in-line ponds (Jackson Pond and Lake Elkhorn), and the reduction of the impacts associated with the regular dredging of the ponds and placement of the spoils. Degraded wetland systems will be enhanced through invasive species removal and supplemental planting with a diverse mix of native tree and shrub species.

There are several societal benefits that will be provided by this project[10]. First, the mitigation will be in close proximity to the communities that are disproportionately affected by the jurisdictional impacts (i.e. they will see the beneficial offset to the impact).[11,12] As shown in the following environmental justice summary table the proposed project area contains two demographic groups that would benefit from the proposed restoration.

Environmental Justice Analysis*

Demographic Indicator	LESMB Value	State Average	Area Percentile Within State
People of Color Population	61%	49%	62
Low Income Population	20%	22%	54
* From the Environmental Protection Agency's *EJ Screen: Environmental Justice Screening and Mapping Tool*			

Second, it will provide an enormous educational opportunity to the community with respect to streams and watersheds. Third, it will provide a natural amenity to Columbia's residents that can

[6] https://ibe.colostate.edu/wp-content/uploads/sites/5/2019/01/Urban-River-Restoration_v5.pdf.

[7] https://publicworks.baltimorecity.gov/pw-bureaus/water-wastewater/surface/restoration.

[8] Newcomer Johnson, T.A., Kaushal, S.S., Mayer P.M. and Grese, M.M. 2014. Effects of Stormwater Management and Stream Restoration on Watershed Nitrogen Retention. Biogeochemistry 121: 81–106.

[9] Daniluk, T.L., Lautz, L.K., Gordon, R.P. and Endreny, T.A. 2013. Surface Water–Groundwater Interaction at Restored Streams and Associated Reference Reaches. Hydrological Processes 27: 3730-3746.

[10] Kenney, Melissa A., Peter R. Wilcock, Benjamin F. Hobbs, Nicholas E. Flores, and Daniela C. Martinez, 2012. Is Urban Stream Restoration Worth It? Journal of the American Water Resources Association (JAWRA) 48(3): 603-615. DOI: 10.1111/j.1752-1688.2011.00635.

[11] Per Maryland's Commission on Environmental Justice and Sustainable Communities (CEJSC): *"…environmental justice means that no group of people including racial, ethnic or socioeconomic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, land-use planning and zoning, municipal and commercial operations or the execution of federal, state, local and municipal programs and policies.*"

[12] Per the Chesapeake Executive Council: "*As our country works to overcome a pandemic and a legacy of racial injustice, we need to have safe and accessible public spaces to recreate; places to interact with nature;… clean air and water.*"

be passively enjoyed. This highly visible project will offer a good showcase for the MDE, USACE mitigation program.

c. Identify any potential threats to the bank site or resource type: There are no foreseen threats to the mitigation site or the associated resources. The stream valley's where the work is proposed are already set aside as green space and will be further protected by a perpetual conservation easement. Further, the contributing watershed is built out, and any future redevelopment (to the already developed areas) would require up-to-date stormwater management that would be a benefit to the mitigation area.

d. Identify and describe the access to the proposed bank property: Site access during construction, the monitoring/maintenance period, and during the long-term monitoring period will utilize the trail network through an ingress/egress agreement with CA to minimize disturbance to the riparian area. Construction access paths from the trail to the stream will be selectively planned such that they limit and minimize any unnecessary disturbance.

e. Describe the proposed construction work required to develop the bank and the feasibility of these techniques to develop the bank. Mitigation banks should be designed to be self-sustaining over time with minimal maintenance: The construction process is detailed in Section 3.c., above. This process will comply with industry and regulatory standards and practices. The as-constructed stream condition will be designed and constructed such that the restored streams are self-sustaining with minimal maintenance required.

6. Identify the proposed ownership arrangements and long-term management strategy.

a. Proposed long-term ownership: The proposed mitigation site is on CA green space property. Following the successful completion of this project, CA will continue to own the land and will be the long-term steward. The mitigation area will remain as a forested riparian area with passive recreation, (i.e. trails for walking, running, biking).

b. Identify the party responsible for long-term management. The Columbia Association will be responsible for long-term management.

c. Site protection mechanism: The proposed site protection mechanism is a deed restriction and/or perpetual conservation easement.

d. Site protection mechanism the "holder: The Sponsor will select a qualified non-profit conservation organization to serve as the holder of a conservation easement, if applicable.

7. Sponsor Qualifications

DRG, dba Davey Mitigation will be the Bank Sponsor. DRG is a direct, wholly owned subsidiary of The Davey Tree Expert Company, which had company-wide revenue for 2019 of $1,143,720,000 and a Net Worth of $186,460,000. This information can be found at http://www.davey.com/about/corporate-information/secfilings/. DRG will provide the capital to establish and complete the proposed mitigation bank.
WSSI will be contracted by the Bank Sponsor to provide all required services associated with the development and operation of the bank. WSSI has a long and successful history with mitigation

banking. They have developed 5 wetland banks, totaling over 1,200 acres, and including the first wetland mitigation bank in Virginia (Julie J. Metz) in 1994. In addition, WSSI developed the first stream mitigation bank in Virginia (the Northern Virginia Stream Restoration Bank) in 2006, which includes over 11 miles of stream restoration. All of WSSI's mitigation banks have met up to 10 years of success criteria.

8. Describe the ecological suitability of the site to achieve the objectives of the proposed mitigation bank, including the physical, chemical, and biological characteristics of the bank site and how that site will support the planned types of aquatic resources and functions.

a. Provide a current (within one year of submittal) preliminary title report indicating any easements or other encumbrances and a figure depicting all relevant property lines, easements, right-of-ways, etc. on the bank property. Note, any liens and easements on the bank property that may affect a bank's viability will need to be resolved before a bank can be approved. A title search and report has been complete for the project area, and there are no existing easements that would encumber the project area besides existing utility easements. The existing utility easements will be excluded from the permanent conservation easement, and no mitigation credit will be proposed within these existing utility easements; however, restoration may extend through these areas to provide connectivity and stability. A summary of the results are presented in Exhibit 10, the full title report is available upon request.

b. Provide a property assessment that summarizes and explains each recorded or unrecorded lien or encumbrance on, or interest in, the proposed bank property, including, each exception listed in the preliminary title report and describing the manner in which each encumbrance may affect the mitigation bank's operation or habitat services. See response to 8.a above and attached title report summary in Exhibit 10.

c. Include a title insurance policy insuring clear title to the Bank lands. A MD-Alta Commitment for Title Insurance for each parcel associated with the mitigation site and is available upon request.

d. Identify all other existing or proposed crediting types that affect the property (e.g., TMDL, forest conservation, Critical Area mitigation, Natural Resource Conservation Service conservation programs, species conservation, etc.). No other existing crediting types affect the property.

e. Summarize baseline ("without project condition") site conditions including land use, vegetation, hydrology, and soils. Photographs are encouraged. The baseline is described below in terms of the Stream Functions Pyramid. Existing condition photographs are provided in Exhibit 11.

i. *Level 1 – Hydrology* - Hydrology encountered within the stream as a result of rainfall-runoff process within the watershed. The degraded streams that are being proposed for restoration are located within an urban/suburban watershed in Columbia, Maryland. Developed in the 1970's without stormwater management controls, uncontrolled stormwater is released directly into the stream channels. Please note that the CA and Howard County have recently installed stormwater controls into the watershed. The hydrologic function within the Lake Elkhorn watershed is heavily influenced by the impervious areas. The downstream extent of the proposed Lake Elkhorn Stream Restoration has a drainage area of 1,715 acres (2.68 square miles) with an average

impervious percentage of 26%. Based on the land/use and high impervious area within the Lake Elkhorn watershed and the point discharges into the streams, the hydrologic function of the pre-construction watershed is in the "Not Functioning" category.

ii. *Level 2 – Hydraulic* - The primary stream impairment in the Lake Elkhorn watershed related to hydraulic function involves floodplain access. All the sections of the Lake Elkhorn streams are incised and do not have a floodplain connection (except during extreme rain events). The confined stormwater flows to the channel exacerbated stream bed and bank erosion. Existing channels upstream of Lake Elkhorn are classified as "Not Functioning".

iii. Level 3 – Geomorphology - The geomorphology of the stream includes the condition of the riparian area, lateral stability, and the extent of bedform diversity. The existing condition of the streams are primarily classified as either F (primarily mainstem) or G (primarily tributaries) in accordance with the Rosgen classification system. Neither of these stream types are considered stable and therefore are not functioning to the full potential defined in this level. Over time, the streams may evolve to a more stable form, but this may take many more decades. The portions of the Lake Elkhorn streams that are classified as F channels may naturally evolve to stable C channels (or B channels in steeper valleys), given enough time. The G channels will over time widen into F channels, then within those banks create a new floodplain and lower channel thalweg as they evolve into more stable C (or B) channels. However, these processes can take many years and result in tons of sediment and associated nutrients to be transported to downstream receiving waters.

The streams within this project area are evolving to an equilibrium but are many years/decades away from achieving stability. Banks are vertical, raw, and actively eroding. Stream bank erosion, the primary source of sediment load, has an adverse effect on the bedform diversity by filling in pools and creating large transverse, mid-channel sediment bars in many areas of the project site. In addition, infrastructure such as culverts, bridges, utility lines, etc. caused further impairments to the geomorphic function.

An important tool in assessing a stream bank's resistance to erosion is the Bank Erosion Hazard Index (BEHI) rating. The BEHI rating is determined based on an analysis of several characteristics, including the bank height, bankfull height, root depth, root density, surface protection, bank angle, bank material, and stratification. These variables are assigned index values, which are then totaled to obtain an overall qualitative description that depicts the stability of the bank. The BEHI ratings range from "very low" to "extreme". Reaches in the upper Lake Elkhorn watershed were assessed in 2016 by the USFWS under contract with CA. Results show all BEHI categorical ratings identified through the proposed restoration area with the dominate rating of "High" and included the highest ratings of 'very high' and 'extreme' . This reflects the unstable and currently evolving nature of these reaches and indicates that the streams are contributing sediment and associated nutrients to downstream waters, including the Chesapeake Bay.

There is a forested riparian area of varying width and condition along the entire length of the proposed stream restoration project area. Trees located along the stream banks are

currently falling and many others are at risk of falling due to stream bank erosion. Not only does this exacerbate future erosion but it is also a safety risk in these heavily utilized stream valleys. WSSI staff performed site reconnaissance of the riparian areas in June 2019 and again in the fall 2020 to assess the general plant communities through the proposed stream restoration reaches. The adjacent riparian area is predominantly covered by healthy, early to mid-successional deciduous/mixed-hardwood forest with areas of maintained lawn immediately adjacent to the paved pedestrian footpaths, roadways, and stormwater pipe outfalls. Some of the dominant tree species identified included red maple (*Acer rubrum*), American beech (*Fagus grandifolia*), yellow poplar (*Liriodendron tulipifera*), hickory (Carya species), and black walnut (*Juglans nigra*). Many areas have light to moderate cover of invasive species that include Japanese honeysuckle (*Lonicera japonica*), stilt grass (*Microstegium vimineum*), mile-a-minute vine (*Persicaria perfoliata*), English ivy (*Hedera helix*), multiflora rose (*Rosa multiflora*) autumn olive (*Eleagnus umbellata*), garlic mustard (*Alliaria petiolata*), and wineberry (*Rubus phoenicolasius*). Emerald ash borer activity was evident in multiple areas. The pre-restoration geomorphic condition of the streams is "Not Functioning".

iv. *Level 4 – Physiochemical* - Level 4 deals primarily with water quality, expressed as the prevalence of turbidity and the presence/character of the organic matter in the stream. Sediment deposition from the unstable banks, along with the associated nutrients bound to the sediments, has an adverse effect on the water quality of the streams and downstream lakes. The direct input of stormwater runoff from the highly impervious contributing watershed had (and continues to have) a detrimental effect on water quality. As such, the existing physiochemical condition of Lake Elkhorn streams is "Not Functioning".

v. *Level 5 – Biology* - Level 5 of the Stream Functions Pyramid relates to stream biology and ecology, which focuses on the populations, biodiversity, and interactions among the flora and fauna within the stream corridor. Over the last 15 years, DNR has sampled over 3,400 stream sites around the State to evaluate the health of our streams. The data is publicly available as the Maryland Biological Stream Survey (MBSS)[13]. Fourteen MBSS study sites are upstream of Lake Elkhorn. MBSS typically reports the Benthic Index of Biotic Integrity (BIBI) Rating at each sample site. BIBI Rating directly determines the quality of streams by measuring degradation of a biological resource (i.e., the benthic assemblage). All study sites upstream of Lake Elkhorn had a BIBI Rating of "Poor", that were a result of a combination of lower diversity and discovery of few to no species that are typically sensitive to pollution. The pre-restoration biological condition of the streams is "Not Functioning".

f. Identify previous land uses of the site and adjacent properties: Historically, the project area and its contributing drainage was primarily agricultural farmsteads. In the 1970's the watershed was developed as part of the town of Columbia, and is currently residential neighborhoods, schools, and shopping centers. The project area itself is in preserved, primarily forested, open space that is owned by the CA.

[13] Maryland Department of Natural Resources. Maryland Biological Stream Survey (MBSS). https://geodata.md.gov/streamhealth/. Last accessed on June 17, 2019.

g. Identify current zoning and any existing and proposed development adjacent to the bank. Identify current zoning within the bank site. There are seven different zoning types within the projects watershed. New Town comprises a majority of the watershed, and while it does not specify "units per acre", it must have a minimum of 36% open space, and caps are placed on the amount of apartments, commercial, and industrial uses. In order of prevalence, the other zoning types are:

- R-SC – Medium Density Residential – clustering of single-family detached and attached dwellings to promote sensitive use for the land as well as to provide compatibility with other residential districts.
- R-12 – Medium Density Residential – single-family detached and semi-detached residential uses.
- RC-DEO – Rural Residential (Blandair Regional Park) – (RC) conserve farmland and to encourage agricultural activities, to preserve significant blocks of farmland in the rural area of the county and intended to encourage the clustering of residential development in areas where the development will not have an adverse impact on farm operations.
- R-20 – Low Density Residential – single-family detached dwelling units at approximately two units per acre.
- M-1 – Industrial – mix of manufacturing, warehousing and business uses with provisions for limited retail sales.
- R-SA-8 – High Density Residential – clustered attached dwelling units.

h. Summarize the historical hydrology of the site: Site hydrology has been and is primarily from rainfall/runoff and groundwater. Prior to the 1970's the land use was primarily agriculture.

i. If applicable, identify any ecological monitoring that has been performed for the site and for what period (e.g., well data, vegetation diversity, channel morphology, erosion pins, crest gage, macro invertebrates, etc.). As discussed in section 5.b. above, CA and Howard County have each published watershed plans that include the proposed project area. In addition, there have been extensive MBSS assessments within the project area. WSSI had conducted preliminary site assessments associated with the MSMF and a fish survey, performed in accordance with the Maryland Biological Stream Survey (MBSS) is planned for June 2021.

j. Reference information. The boundaries of mitigation site overlaid on reference data as follows: 2018 Aerial Photograph (Exhibit 12), National Wetland Inventory (NWI) (Exhibit 13), and State Wetland map (Exhibit 14), NRCS soil survey (Exhibit 15), FEMA Digital Flood Insurance Rate Map (Exhibit 17), 7.5-minute USGS map (Exhibit 18), and 8-digit HUC map (Exhibit 4).

k. Wetland Delineation and Project Impacts. For the purposes of this prospectus, a wetland desktop reconnaissance was performed to estimate the wetland areas and associated impacts associated with this project. For the desktop reconnaissance, WSSI reviewed available sources of potential WOTUS information in GIS to evaluate and illustrate approximate areas that are medium to high potential areas for jurisdictional WOTUS including wetlands, streams, and ponds, on the property. This data includes, but not limited to the county soil survey, National Wetland Inventory maps, color infrared and natural color imagery, floodplain, existing hydrology, and 0.5-ft topographic data. An in-field, formal, wetland delineation and location survey to determine the wetland boundary will be completed prior to the submittal of the MBI and a JD will be

provided with the MBI. Jurisdictional impacts will be calculated as part the permitting associated with the final design plans. A general discussion of impacts is provided below, and an Impact Map is provided in Exhibit 16.

Impacts from Mitigation (waterways, open water, floodplain): The proposed mitigation is located within existing stream valleys and adjacent to two existing ponds and will result in both temporary and permanent impacts to Waters of the United States (WOTUS); however, there will be a net gain in the aquatic resource function of the stream channels. These streams are currently unstable with steep, vertical, actively eroding stream banks; the proposed project will eliminate the existing erosion and restore the channel to a more stable pattern and profile, thus preventing the export of excess sediment and associated nutrients to downstream receiving waters, and the further loss of stream channel (through evolution of chute cutoffs). Since this project will provide a functional improvement to the aquatic environment, it is WSSI's opinion that the proposed impacts are justified and self-mitigating. No impacts are proposed to open water. A portion of the proposed mitigation area is located within a FEMA flood zone (Exhibit 17). The impacts to the floodplain will be limited to small amounts of excavation (i.e. no fill will be placed in the floodplain). A summary of impacts to waterways and floodplain is provided below:

Summary of Waterway and Floodplain Impacts

Resource Type	USACE Impacts		MDE Impacts	
	Impact Duration	Area/Length	Impact Duration	Area/Length
Perennial Stream	Temporary	33,323 lf	Temporary	33,323 lf
Floodplain	N/A	N/A	Temporary	35.2 ac (1,533,312 sf)

Impacts from Mitigation (wetlands): Due to the nature of this project, the direct impacts to the stream and adjacent wetlands cannot be avoided. The temporary disturbances to jurisdictional wetlands and WOTUS will be limited to the minimum necessary to achieve the project purpose. Any wetlands temporarily impacted as part of this project will be restored following construction. Where possible, the stream channel will be designed to avoid wetland impacts while maintaining a stable pattern, cross-section, and profile. Access roads and staging areas will be configured to avoid impacts to wetlands whenever reasonably feasible. A summary of impacts to wetlands and wetland buffers is provided below:

Summary of Wetland Impacts

Resource Type	USACE Impacts		MDE Impacts	
	Impact Duration	Area	Impact Duration	Area
Wetland (PFO)	Temporary	20.9 ac (910,404 sf)	Temporary	20.9 ac (910,404 sf)
Wetland Buffer (25')	N/A	N/A	Temporary	9.6 ac (418,176 sf)

l. Identify the stream order and type (Rosgen or Cowardin classification). The streams proposed for inclusion in this mitigation site are a combination of intermittent and perennial. This will be confirmed as part of the wetland delineation. NWI and DNR wetland maps showing the entire

mitigation site area are included as Exhibit 13 and Exhibit 14, respectively. The existing Rosgen stream types were identified as part of the baseline survey and include B, C, G, and F stream types.

9. Include assurance of sufficient water rights and/or hydrological influences on the site to support the long-term sustainability of the mitigation bank.

a. Describe the relationship between the mitigation bank site and other aquatic resources within the sub-watershed and methods that will be implemented to ensure sufficient water rights to support the long-term sustainability of the proposed mitigation bank. The project sponsor must have sufficient control over hydrology inputs and outputs on the project site to ensure that hydrology is available. In addition, the proposed project should not result in the interruption of downstream flows or the flooding of upstream properties. The control of the site hydrology is not an issue. The contributing drainage area to the project is significant and there are no known or anticipated interruptions to runoff or stream flow. The restoration project will be designed such that there will be no interruption of downstream flows or flooding of upstream of adjacent properties.

b. Describe any existing hydrological disturbances on and adjacent to the site over which the Sponsor has no control. There are no known hydrological disturbances on or adjacent to the site for which the Sponsor has no control.

c. Describe any temporary or long-term structural management requirements (e.g., levees, weirs, culverts, etc.) needed to assure hydrological/vegetative restoration. There are no temporary or long-term structure management requirements needed to assure hydrological/vegetative restoration.

d. Describe water source(s) and losses (e.g., precipitation, surface runoff, groundwater, stream, tidal). Precipitation, surface runoff, and groundwater are the primary sources of water to the stream and wetlands.

e. Describe hydroperiod (seasonal depth, duration, and timing of inundations and/or saturation). The streams proposed to be included in this mitigation site are a combination of intermittent and perennial.

f. Describe the contributing drainage area (map and size). The drainage area to the downstream extent of the project is 1,715 acres (2.68 square miles). A drainage area map is shown in Exhibit 19.

Lake Elkhorn Stream Mitigation Site
Project Overview Map

- Columbia Association Inc. Properties
- Proposed Stream Restoration: ± 33,323 linear feet
- Proposed Restoration Easement: ± 133 acres
- Trails (10-feet width)
- Howard County-Mapped Hydrology

Data Source: Howard County Digital Data
Imagery Source: National Agriculture Imagery Program (NAIP) 2018

NORTH
0 500
Feet

Wetland Studies and Solutions, Inc.
a DAVEY company

Reach 1 - SEE INSET

INSET - REACH 1 STREAM RESTORATION

Restoration to begin at downstream end of concrete apron

Total Length: ± 3,780 l.f.

End restoration upstream of Jackson Pond

NORTH
0 200
Feet
Original Scale:
1 " = 200 '

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Columbia Association
Department of Open Space and Facilities Services 9450 Gerwig Lane Columbia, Maryland 21046 410.312.6330

March 2, 2021

Ms. Beth Bachur
U.S. Army Corps of Engineers
Baltimore District, Regulatory Branch
2 Hopkins Plaza
Baltimore, Maryland 21201

Ms. Kelly Neff
Maryland Department of the Environment
Wetlands and Waterways Program
Mitigation and Technical Assistance Section
1800 Washington Boulevard, Suite 430
Baltimore, Maryland 21230

Re: Lake Elkhorn Stream Mitigation Bank - Letter of Support

Dear Ms. Bachur and Ms. Neff:

Columbia Association (CA) is in full support of the Lake Elkhorn Stream Mitigation Bank being proposed by Wetland Studies and Solutions, Inc. (WSSI). CA has provided WSSI with a contract, granting exclusive rights to perform all work necessary to permit, design, construct, and operate a stream mitigation bank on our property. Additionally, the CA Board of Directors passed a resolution on January 28, 2021 to grant WSSI an easement to establish and develop the proposed stream mitigation bank.

CA published the Columbia Watershed Management Plan, dated April 22, 2009 which identified the need for stream restoration in the Lake Elkhorn watershed. These streams are badly degraded and negatively affecting the water quality. Further, the streams deposit tons of sediment into both Jackson Pond and Lake Elkhorn, necessitating the need for regular dredging which causes additional impact to the environment. In addition to water quality improvements, the restored streams will become an

amenity for our residents, and provide them with an opportunity to learn about healthy streams and watersheds.

Should you wish to discuss this matter further, please do not hesitate to contact me by phone (410.381.3551) or email (Albert.Edwards@ColumbiaAssociation.org).

Sincerely,
Columbia Association

Albert F. Edwards, P.E.
Assistant Director - Open Space and Facilities Services

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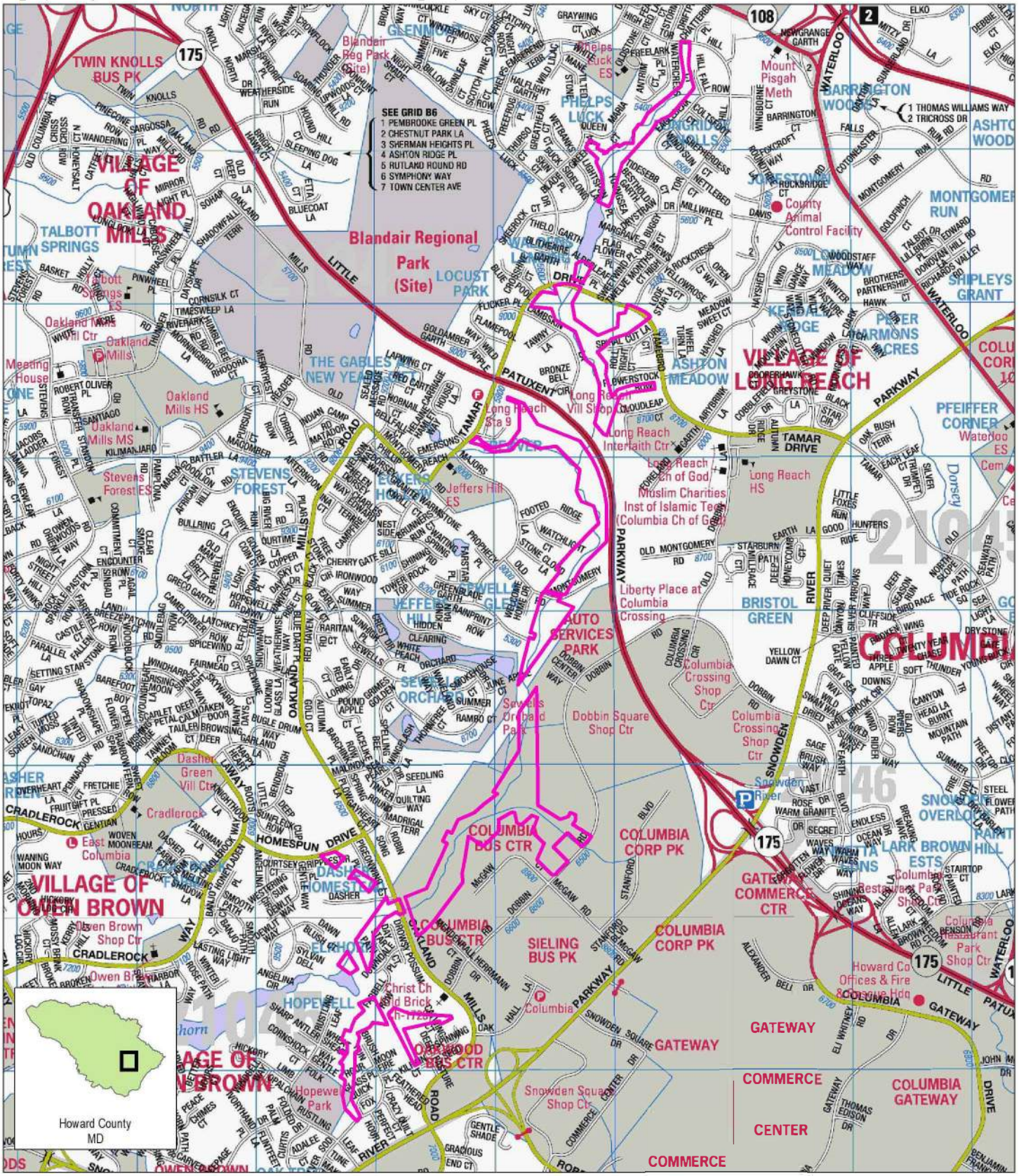

Vicinity Map
Lake Elkhorn Stream Mitigation Site

ADC Map/Column/Row: 4935H10
Source: ADC 2008-2012

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Exhibit 3

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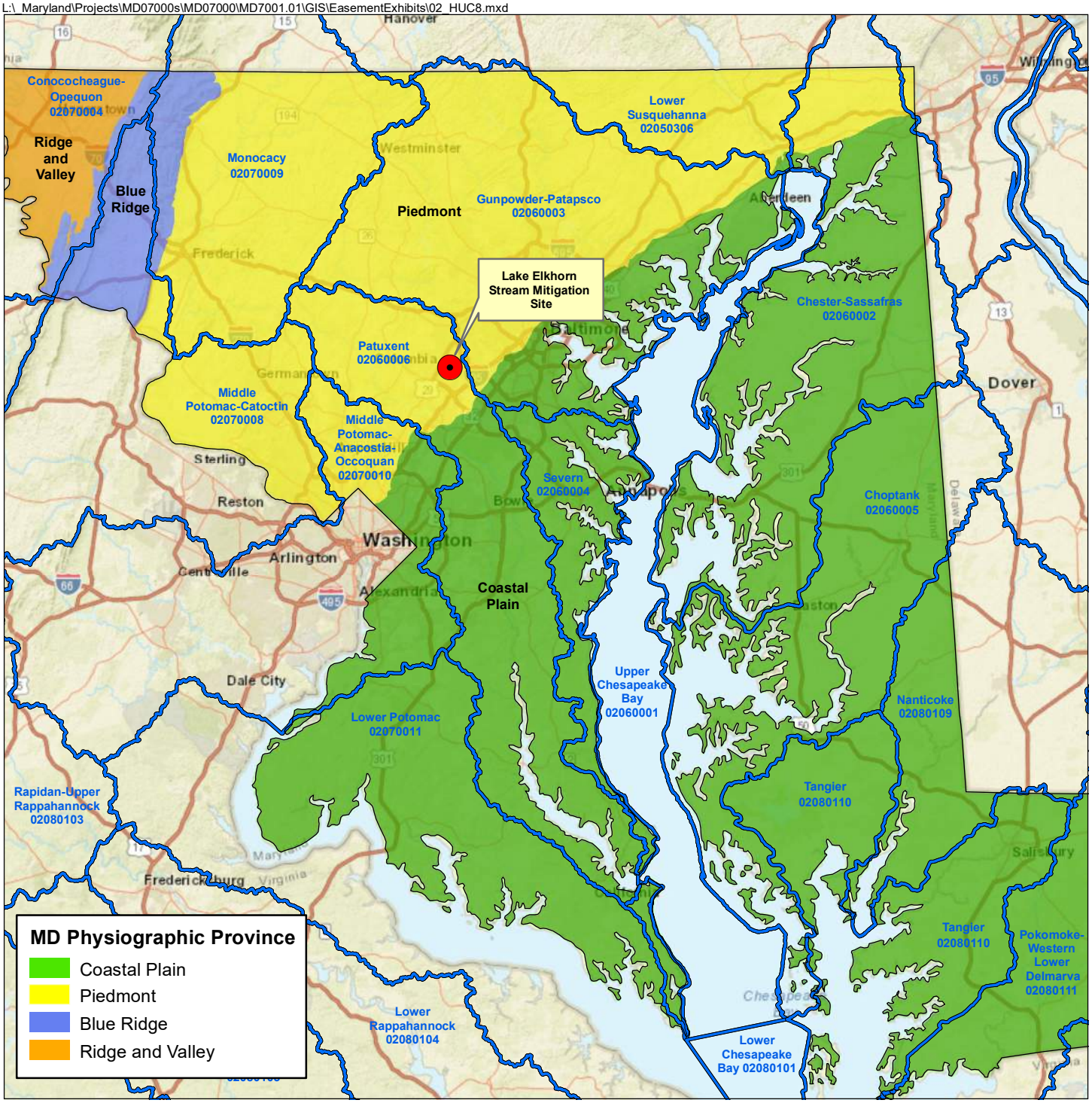

Lake Elkhorn Stream Mitigation Site

8-Digit HUC Boundary

Maryland Boundary

Hydrologic Unit Code Map (USGS WBD 8-Digit) Lake Elkhorn Stream Mitigation Site

NORTH

0 15

Miles

Watershed Boundary Dataset (WBD) 8-Digit HUC source: USGS and USDA-NRCS-National Cartographic and Geospatial Center's (NCGC). https://water.usgs.gov/GIS/huc.html

Wetland Studies and Solutions, Inc.
a DAVEY company

Exhibit 4

Project Name: Lake Elkhorn
WSSI #MD7001.01

PIN	Owner Name	Owner Address	Parcel Address
1406439470	VESTRY OF CHRIST CHURCH	6800 OAKLAND MILLS RD COLUMBIA MD 21045	6800 OAKLAND MILLS RD COLUMBIA 21046
1406459447	HOWARD COUNTY MARYLAND	3430 COURT HOUSE DR ELLICOTT CITY MD 21043	OAKLAND MILLS RD COLUMBIA 21045
1406473458	HOWARD COUNTY MARYLAND	3430 COURT HOUSE DRIVE ELLICOTT CITY MD 21043	SE HIDDEN CLEARING COLUMBIA 21045
1406552641	COLUMBIA PARK AND RECREATION	10221 WINCOPIN CIR STE 100 COLUMBIA MD 21044	NE DASHER CT COLUMBIA 21045
1406563961	PFAU MICHAEL	6212 DEVON DR COLUMBIA MD 21044	SW WELCOME HOME DR COLUMBIA 21045
1406582184	SHANKLIN TERESA A	8902 OLD MONTGOMERY RD COLUMBIA MD 21045	8902 OLD MONTGOMERY ROAD COLUMBIA 21045
1406582192	IPANAQUE DIEGO ALONSO	8906 OLD MONTGOMERY RD COLUMBIA MD 21045	8906 OLD MONTGOMERY ROAD COLUMBIA 21045
1406582206	SIMONS KINGSLEY L III	8910 OLD MONTGOMERY RD COLUMBIA MD 21045	8910 OLD MONTGOMERY ROAD COLUMBIA 21045
1406582214	ELKHORN OVERLOOK HOA INC	5072 DORSEY HALL DRIVE ELLICOTT CITY MD 21042	OLD MONTGOMERY RD COLUMBIA 21045
1416062944	FOREST WALK HOMEOWNERS ASSOC INC	5735 YELLOWROSE CT COLUMBIA MD 21045	YELLOWROSE CT COLUMBIA 21045
1416064017	WOODED RIDGE TOWN HOUSE ASSOC	PO BOX 642 COLUMBIA MD 21045	LAMBSKIN LN COLUMBIA 21045
1416065102	MCCARTY SHAUN C	9033 QUEEN MARIA CT COLUMBIA MD 21045	9033 QUEEN MARIA CT COLUMBIA 21045
1416065692	HOWARD COUNTY HOUSING COMM	9770 PATUXENT WOODS DR STE 100 COLUMBIA MD 21046	8838 TAMAR DR COLUMBIA 21045
1416066206	GLUCKMAN JOSHUA M	5536 EAGLEBEAK ROW COLUMBIA MD 21045	5536 EAGLEBEAK ROW COLUMBIA 21045
1416066974	BRADY JOSHUA KEITH	8957 QUEEN MARIA CT COLUMBIA MD 21045	8957 QUEEN MARIA CT COLUMBIA 21045
1416066982	IRVIN LYNDA M	8955 QUEEN MARIA CT COLUMBIA MD 21045	8955 QUEEN MARIA CT COLUMBIA 21045
1416066990	GAGNIER MICHELLE	8953 QUEEN MARIA CT COLUMBIA MD 21045	8953 QUEEN MARIA CT COLUMBIA 21045
1416067008	KELLER JEAN A	126 MONTCLAIR CIR DURHAM NC 27713	8951 QUEEN MARIA CT COLUMBIA 21045
1416067059	HOWARD COUNTY HOUSING COMM	9770 PATUXENT WOODS DR STE 100 COLUMBIA MD 21046	8927 TAMAR DR COLUMBIA 21045
1416067547	BANNISTER SUSAN CAMPBELL	5418 HIGH TOR HILL COLUMBIA MD 21045	5418 HIGH TOR HILL COLUMBIA 21045
1416068926	PAGELSEN C ROBERT	8924 FOOTED RIDGE COLUMBIA MD 21045	8924 FOOTED RIDGE COLUMBIA 21045
1416069752	PEMBERTON RICHARD K	5511 HILLFALL CT COLUMBIA MD 21045	5511 HILLFALL CT COLUMBIA 21045
1416069779	ROBINSON TIMOTHY J	8922 FOOTED RIDGE COLUMBIA MD 21045	8922 FOOTED RIDGE COLUMBIA 21045
1416070238	HUSAIN NAJIMA	9040 WATCHLIGHT CT COLUMBIA MD 21045	9040 WATCHLIGHT CT COLUMBIA 21045
1416072826	CBC DOBBIN LLC	2328 W JOPPA RD STE 200 LUTHERVILLE MD 21093	6490 DOBBIN ROAD COLUMBIA 21045
1416072834	CBC DOBBIN LLC	2328 W JOPPA RD STE 200 LUTHERVILLE MD 21093	DOBBIN RD COLUMBIA 21045
1416072842	CBC DOBBIN LLC	2328 W JOPPA RD STE 200 LUTHERVILLE MD 21093	6480 DOBBIN ROAD COLUMBIA 21045
1416072974	APPLE GROVE LLC	8800 STANFORD BLVD COLUMBIA MD 21045	8910 MCGAW CT COLUMBIA 21045
1416072982	8924 MCGAW COURT LLC	ATTN: JONATHAN H. HYDE 8924 MCGAW CT COLUMBIA MD 21045	8924 MCGAW CT COLUMBIA 21045
1416073016	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	MCGAW RD COLUMBIA 21046
1416073024	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	MCGAW RD COLUMBIA 21046
1416073040	HARVEST LLC	8800 STANFORD BLVD COLUMBIA MD 21045	8916 MCGAW CT COLUMBIA 21045
1416073059	SEOUL SHIK POOM, INC	360 S VAN BRUNT ST ENGLEWOOD NJ 7631	6560 DOBBIN ROAD COLUMBIA 21045
1416073067	ARCUS DATA SECURITY INC	1 FEDERAL STRET BOSTON MA 2110	8928 MCGAW CT COLUMBIA 21045
1416073393	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	ROUTE 108 COLUMBIA 21044
1416073946	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	PHELPS LUCK DR COLUMBIA 21045
1416073997	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	TAMAR DR COLUMBIA 21045
1416074772	BEULAH LARRY A	8928 FOOTED RIDGE COLUMBIA MD 21045	8928 FOOTED RIDGE COLUMBIA 21045
1416078654	SHEA DONALD J	6929 DEER PASTURE DR COLUMBIA MD 21045	6929 DEER PASTURE DR COLUMBIA 21045
1416079537	JORDAN PAUL LOUIS	5519 HILLFALL CT COLUMBIA MD 21045	5519 HILLFALL CT COLUMBIA 21045
1416079685	KELLETT MICHAEL C	6355 TAMAR DR COLUMBIA MD 21045	6355 TAMAR DR COLUMBIA 21045
1416080888	SCHRER CHARLOTTE E	5364 STORM DRIFT COLUMBIA MD 21045	5364 STORMDRIFT COLUMBIA 21045
1416081256	HOLLOWAY JIM	8967 QUEEN MARIA CT COLUMBIA MD 21045	8967 QUEEN MARIA CT COLUMBIA 21045
1416081957	GREEN SPRING DEVELOPMENT CO LLP	10701 GREENSPRING AVE LUTHERVILLE MD 21093	6570 DOBBIN ROAD COLUMBIA 21045
1416083011	NADJE PATRICK K	9035 QUEEN MARIA CT COLUMBIA MD 21045	9035 QUEEN MARIA CT COLUMBIA 21045
1416083089	QUACH VICTOR	6932 DEER PASTURE DR COLUMBIA MD 21045	6932 DEER PASTURE DR COLUMBIA 21045
1416083356	STANLEY PHILIP	5627 LIGHTSPUN LN COLUMBIA MD 21045	5627 LIGHTSPUN LANE COLUMBIA 21045
1416085065	JOHNSON MICHAEL A	5568 EAGLEBEAK ROW COLUMBIA MD 21045	5568 EAGLEBEAK ROW COLUMBIA 21045
1416088196	POWELL JAMES L	9247 HOURGLASS PL COLUMBIA MD 21045	9247 HOURGLASS PL COLUMBIA 21045
1416088242	ROBINSON ROBERT MATTHEW	631 WESTMORELAND PL SEVERNA PARK MD 21146	9251 HOURGLASS PL COLUMBIA 21045
1416088285	JONES EUGENE JR	9255 HOURGLASS PL COLUMBIA MD 21045	9255 HOURGLASS PL COLUMBIA 21045
1416088323	THORPE IAN F	9252 HOURGLASS PL COLUMBIA MD 21045	9252 HOURGLASS PL COLUMBIA 21045
1416088374	JOFFE RICHARD D	9248 HOURGLASS PL COLUMBIA MD 21045	9248 HOURGLASS PL COLUMBIA 21045
1416088412	VENTRE BRIAN D	9244 HOURGLASS PL COLUMBIA MD 21045	9244 HOURGLASS PL COLUMBIA 21045
1416088560	WILKINSON JAMES RICHARD TRUSTEE	9255 BRUSH RUN COLUMBIA MD 21045	9255 BRUSH RUN COLUMBIA 21045
1416088595	VESTRY CHRIST EPISCOPA CHURCH	6800 OAKLAND MILLS RD COLUMBIA MD 21045	9259 BRUSH RUN COLUMBIA 21045
1416088625	RIVERA BRIAN M	9263 BRUSH RUN COLUMBIA MD 21045	9263 BRUSH RUN COLUMBIA 21045
1416088641	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	OAKLAND MILLS RD COLUMBIA 21045
1416088668	KUHLMAN DOROTHY	9267 BRUSH RUN COLUMBIA MD 21045	9267 BRUSH RUN COLUMBIA 21045
1416088692	STREIFEL BENJAMIN C	9271 BRUSH RUN COLUMBIA MD 21045	9271 BRUSH RUN COLUMBIA 21045
1416088714	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	COLUMBIA 21045
1416088722	EVERETT ALEXANDER B	9275 BRUSH RUN COLUMBIA MD 21045	9275 BRUSH RUN COLUMBIA 21045
1416088757	PALARDY KAREN A	9276 BRUSH RUN COLUMBIA MD 21045	9276 BRUSH RUN COLUMBIA 21045
1416088919	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	ANGELINA CIR COLUMBIA 21045
1416089222	EVANS DAVID M	9247 MOONFIRE PL COLUMBIA MD 21045	9247 MOONFIRE PL COLUMBIA 21045
1416089257	SARMIENTO ELIDA	9246 MOONFIRE PL COLUMBIA MD 21045	9246 MOONFIRE PL COLUMBIA 21045
1416089680	GOLDMAN ERIC	9340 RIPPLESTIR PL COLUMBIA MD 21045	9340 RIPPLESTIR PL COLUMBIA 21045
1416089710	JACKSON RACHEL A	9336 RIPPLESTIR PL COLUMBIA MD 21045	9336 RIPPLESTIR PL COLUMBIA 21045
1416089745	HODGE ANDREW R	9335 RIPPLESTIR PL COLUMBIA MD 21045	9335 RIPPLESTIR PL COLUMBIA 21045

Notes:

1. Parcel owner data derived from Howard County MD Online Mapper
2. N/A denotes data not available.
3. Bold Italics indicate HOA Properties with multiple units
4. ROW indicates Right - of -Way

Project Name: Lake Elkhorn
WSSI #MD7001.01

PIN	Owner Name	Owner Address	Parcel Address
1416089788	MAGANA ANGEL	9331 RIPPLESTIR PL COLUMBIA MD 21045	9331 RIPPLESTIR PL COLUMBIA 21045
1416091294	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	YOUNG SEA PL COLUMBIA 21045
1416092312	FELICIO LUIS	9225 QUICK FOX COLUMBIA MD 21045	9225 QUICK FOX COLUMBIA 21045
1416092347	SCHULMAN EUGENE M	9221 QUICK FOX COLUMBIA MD 21045	9221 QUICK FOX COLUMBIA 21045
1416092371	CHAYKOVSKY MICHAEL	9217 QUICK FOX COLUMBIA MD 21045	9217 QUICK FOX COLUMBIA 21045
1416092428	ELLIS NAN SUE	9213 QUICK FOX COLUMBIA MD 21045	9213 QUICK FOX COLUMBIA 21045
1416092452	EL SHANAWANY ALI SAHAR S	9209 QUICK FOX COLUMBIA MD 21045	9209 QUICK FOX COLUMBIA 21045
1416092487	TRAN THONG T	9205 QUICK FOX COLUMBIA MD 21045	9205 QUICK FOX COLUMBIA 21045
1416092517	DE LOS REYES RODNEY V JR	9201 QUICK FOX COLUMBIA MD 21045	9201 QUICK FOX COLUMBIA 21045
1416094072	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	TAMAR DR COLUMBIA 21045
1416094137	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	S OLD MONTGOMERY RD COLUMBIA 21045
1416094145	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	TAMAR DR COLUMBIA 21045
1416094153	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	ROUTE 175 COLUMBIA 21045
1416094447	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	COLUMBIA 21045
1416094471	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	COLUMBIA 21045
1416094498	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	BK LGHTSPN LN TAMAR DR COLUMBIA 21045
1416094501	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	COLUMBIA 21045
1416094552	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	TAMAR DR COLUMBIA 21045
1416094609	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	DOBBIN RD COLUMBIA 21045
1416094617	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	NW MENDENHALL COLUMBIA 21045
1416094641	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	GENTLE FOLK COLUMBIA 21045
1416094692	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	DEER PASTURE DR COLUMBIA 21045
1416094722	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	MOONFIRE PL COLUMBIA 21045
1416094749	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	SNOWDEN RIVER PKY COLUMBIA 21045
1416094773	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	HOURGLASS PL COLUMBIA 21045
1416094846	NAP PROPERTIES LLC	131 A SLADE AM BALTIMORE MD 21208	9017 MENDENHALL CT COLUMBIA 21045
1416094854	HOWARD COUNTY MD	3430 COURT HOUSE DR ELLICOTT CITY MD 21043	9020 MENDENHALL CT COLUMBIA 21045
1416095176	CUSICK SANDRA	5523 HILLFALL CT COLUMBIA MD 21045	5523 HILLFALL CT COLUMBIA 21045
1416095362	PRAO LEONIE	9364 RUSTLING LEAF COLUMBIA MD 21045	9364 RUSTLING LEAF COLUMBIA 21045
1416095397	GOODWIN SARENA S	9046 WATCHLIGHT CT COLUMBIA MD 21045	9046 WATCHLIGHT CT COLUMBIA 21045
1416095931	JEFFERS GLEN COMMUNITY ASSOC INC	8961 FOOTED RIDGE COLUMBIA MD 21045	FOOTED RIDGE COLUMBIA 21045
1416096687	JONES LEON E & WF	5411 CHATTERBIRD PL COLUMBIA MD 21045	5411 CHATTERBIRD PL COLUMBIA 21045
1416097608	KELLY DESIREEE Q	9031 QUEEN MARIA CT COLUMBIA MD 21045	9031 QUEEN MARIA CT COLUMBIA 21045
1416097780	KING CHARLES COMMONS	CLUSTER SS QUEEN MARIA CT PO BOX 1 COLUMBIA MD 21045	BLADE GREEN LN COLUMBIA 21045
1416098744	KRISTENSEN CHRISTIAN O	5611 LIGHTSPUN LN COLUMBIA MD 21045	5611 LIGHTSPUN LANE COLUMBIA 21045
1416101087	JB TIMBERS LLC	37 GRAHAM ST STE 200 SAN FRANCISCO CA 94129	8786 CLOUDLEAP CT COLUMBIA 21045
1416101907	ROBERSON KIMBERLY S	8960 BLUE POOL COLUMBIA MD 21045	8960 BLUE POOL COLUMBIA 21045
1416102083	NAPOLEON JEAN ANOUSSE	8971 BLADE GREEN LN COLUMBIA MD 21045	8971 BLADE GREEN LANE COLUMBIA 21045
1416102172	MARGERUM MELVIN & WF	6928 DEER PASTURE DR COLUMBIA MD 21045	6928 DEER PASTURE DR COLUMBIA 21045
1416102350	ADSON ANTHONY JR	6959 SPINNING SEED COLUMBIA MD 21045	6959 SPINNING SEED COLUMBIA 21045
1416103209	BROOKS TIMOTHY J	8961 BLUE POOL COLUMBIA MD 21045	8961 BLUE POOL COLUMBIA 21045
1416103799	RIDGE INVESTMENTS LLC	PO BOX 782 ELLICOTT CITY MD 21041	8916 FOOTED RIDGE COLUMBIA 21045
1416105384	MOTLEY ADOLPH JR TRUSTEE	5615 LIGHTSPUN LN COLUMBIA MD 21045	5615 LIGHTSPUN LANE COLUMBIA 21045
1416105910	BENDER CHARLES R	8918 FOOTED RIDGE COLUMBIA MD 21045	8918 FOOTED RIDGE COLUMBIA 21045
1416106003	SIERRA WOODS LIMITED PARTNERSHIP	312 N MARTIN LUTHER KING JR BLVD 3RD FL BALTIMORE MD 21201	TAMAR DR COLUMBIA 21045
1416106151	KLINGAMAN WILLIAM	8961 QUEEN MARIA CT COLUMBIA MD 21045	8961 QUEEN MARIA CT COLUMBIA 21045
1416106585	8909 MCGAW LLC	C/O GRIFFITH PROPERTIES LLC 22 BOSTON WHARF RD 7TH FL BOSTON MA 02210	8909 MCGAW CT COLUMBIA 21045
1416106593	6656 DOBBIN ROAD INVESTORS LLC	13516 NARROW LEAF CT CLARKSVILLE MD 21029	6656 DOBBIN ROAD COLUMBIA 21045
1416107387	HUGHES RUTH A	8849 YOUNG SEA PL COLUMBIA MD 21045	8849 YOUNGSEA PL COLUMBIA 21045
1416107425	OSTERMAN ELIZABETH GAIL	5635 LIGHTSPUN LN COLUMBIA MD 21045	5635 LIGHTSPUN LANE COLUMBIA 21045
1416107565	PEREZ OLGA	8920 FOOTED RIDGE COLUMBIA MD 21045	8920 FOOTED RIDGE COLUMBIA 21045
1416107972	MAHER JOSEPH ANDREW	6955 SPINNING SEED COLUMBIA MD 21045	6955 SPINNING SEED COLUMBIA 21045
1416108138	PATUXENT INVESTMENT CORP	PO BOX 2548 PURCELLVILLE VA 20134	6400 DOBBIN CENTER WAY COLUMBIA 21045
1416108553	GOULD MARTIN S	5527 HILLFALL CT COLUMBIA MD 21045	5527 HILLFALL CT COLUMBIA 21045
1416108936	GORMAN ROBERT JON	5524 EAGLEBEAK ROW COLUMBIA MD 21045	5524 EAGLEBEAK ROW COLUMBIA 21045
1416110787	ARMSTRONG MARK A	8853 YOUNGSEA PL COLUMBIA MD 21045	8853 YOUNGSEA PL COLUMBIA 21045
1416111090	PROSPECT WALK OF LONGREACH	PO BOX 202 COLUMBIA MD 21045	ALDERLEAF PL COLUMBIA 21045
1416111104	PROSPECT WALK OF LONGREACH	PO BOX 202 COLUMBIA MD 21045	ALDERLEAF PL COLUMBIA 21045
1416111724	DOVER ROBERT A	6354 TAMAR DR COLUMBIA MD 21045	6354 TAMAR DR COLUMBIA 21045
1416111910	WELD AKALE	9037 QUEEN MARIA CT COLUMBIA MD 21045	9037 QUEEN MARIA CT COLUMBIA 21045
1416112453	SURASKY NEAL H	8965 QUEEN MARIA CT COLUMBIA MD 21045	8965 QUEEN MARIA CT COLUMBIA 21045
1416112798	SANTOS CHRISTIAN M	5623 LIGHTSPUN LN COLUMBIA MD 21045	5623 LIGHTSPUN LANE COLUMBIA 21045
1416112909	KONARSKA DOUGLAS W	6928 CATWING CT COLUMBIA MD 21045	6928 CATWING CT COLUMBIA 21045
1416113093	SASSO ALBERTO R JR	5368 STORM DRIFT COLUMBIA MD 21045	5368 STORMDRIFT COLUMBIA 21045
1416113425	ALLEYNE YOLANDA B	6932 CATWING CT COLUMBIA MD 21045	6932 CATWING CT COLUMBIA 21045
1416113859	MURPHY GRANT J	9347 GENTLE FOLK COLUMBIA MD 21045	9347 GENTLE FOLK COLUMBIA 21045
1416113867	MINAH GLENN E & WF	9351 GENTLE FOLK COLUMBIA MD 21045	9351 GENTLE FOLK COLUMBIA 21045
1416113875	MAAS CORDELL	9355 GENTLE FOLK COLUMBIA MD 21045	9355 GENTLE FOLK COLUMBIA 21045
1416113883	CONWAY RYAN P	218 NEW PETERSBURG DR APT. B MARTINEZ GA 30907	9354 GENTLE FOLK COLUMBIA 21045

Notes:

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2. N/A denotes data not available.
3. Bold Italics indicate HOA Properties with multiple units
4. ROW indicates Right - of -Way

Project Name: Lake Elkhorn
WSSI #MD7001.01

PIN	Owner Name	Owner Address	Parcel Address
1416114332	FLETCHER PATRICIA DIAMOND	5459 WATERCRESS PL COLUMBIA MD 21045	5459 WATERCRESS PL COLUMBIA 21045
1416114340	HOGAN DONALD DORIS & WF	5455 WATERCRESS PL COLUMBIA MD 21045	5455 WATERCRESS PL COLUMBIA 21045
1416114359	WORKMAN GLENN MARK	5451 WATERCRESS PL COLUMBIA MD 21045	5451 WATERCRESS PL COLUMBIA 21045
1416114367	PORTELLA LESLIE	5447 WATERCRESS PL COLUMBIA MD 21045	5447 WATERCRESS PL COLUMBIA 21045
1416114375	CHESNUT J CASSIDY JR	5443 WATERCRESS PL COLUMBIA MD 21045	5443 WATERCRESS PL COLUMBIA 21045
1416114383	GUERRERO GRACE E	5439 WATERCRESS PL COLUMBIA MD 21045	5439 WATERCRESS PL COLUMBIA 21045
1416114391	STOOGENKE SAUL JONATHAN	5435 WATERCRESS PL COLUMBIA MD 21045	5435 WATERCRESS PL COLUMBIA 21045
1416114405	MARCINKOWSKI GREGORY R	5431 WATERCRESS PL COLUMBIA MD 21045	5431 WATERCRESS PL COLUMBIA 21045
1416114413	BOYLE MARY F	5427 WATERCRESS PL COLUMBIA MD 21045	5427 WATERCRESS PL COLUMBIA 21045
1416114421	HUGHES JAMES V JR	5423 WATERCRESS PL COLUMBIA MD 21045	5423 WATERCRESS PL COLUMBIA 21045
1416114448	CHURCHILL SETH C	5419 WATERCRESS PL COLUMBIA MD 21045	5419 WATERCRESS PL COLUMBIA 21045
1416114456	ELLIS ROBERT L & WF	5415 WATERCRESS PL COLUMBIA MD 21045	5415 WATERCRESS PL COLUMBIA 21045
1416114464	HARAJCHI NAHID	5411 WATERCRESS PL COLUMBIA MD 21045	5411 WATERCRESS PL COLUMBIA 21045
1416114472	MCFARLAND SUSAN	5407 WATERCRESS PL COLUMBIA MD 21045	5407 WATERCRESS PL COLUMBIA 21045
1416114480	ODUM LINDA	10129 HYLA BROOK COLUMBIA MD 21045	5403 WATERCRESS PL COLUMBIA 21045
1416114499	CLAIR WILLIAM TIMOTHY	5540 EAGLEBEAK ROW COLUMBIA MD 21045	5540 EAGLEBEAK ROW COLUMBIA 21045
1416114502	BOOKER JOHN WESLEY	5554 EAGLEBEAK ROW COLUMBIA MD 21045	5554 EAGLEBEAK ROW COLUMBIA 21045
1416114510	GOULD BRUCE	5564 EAGLEBEAK ROW COLUMBIA MD 21045	5564 EAGLEBEAK ROW COLUMBIA 21045
1416115053	ABRAMS KENNETH	6931 CATWING CT COLUMBIA MD 21045	6931 CATWING CT COLUMBIA 21045
1416115193	MINN HWANG K	6916 KILRAIN CT COLUMBIA MD 21045	6916 KILRAIN CT COLUMBIA 21045
1416115258	FRIED PAGE G IV	9355 WHEATSHEAF WAY COLUMBIA MD 21045	9355 WHEATSHEAF WAY COLUMBIA 21045
1416115266	ROLLER BRIAN	9351 WHEATSHEAF WAY COLUMBIA MD 21045	9351 WHEATSHEAF WAY COLUMBIA 21045
1416115290	TELSCHER BRIAN CHRISTOPHER	9354 WHEATSHEAF WAY COLUMBIA MD 21045	9354 WHEATSHEAF WAY COLUMBIA 21045
1416115304	HIGGINS LEVI	9347 WHEATSHEAF WAY COLUMBIA MD 21045	9347 WHEATSHEAF WAY COLUMBIA 21045
1416115312	GARCIA AMAYA JOSE ELMER	9356 RUSTLING LEAF COLUMBIA MD 21045	9356 RUSTLING LEAF COLUMBIA 21045
1416115339	CLEM GREGORY J	9352 RUSTLING LEAF COLUMBIA MD 21045	9352 RUSTLING LEAF COLUMBIA 21045
1416115347	HINES FRED A	9360 RUSTLING LEAF COLUMBIA MD 21045	9360 RUSTLING LEAF COLUMBIA 21045
1416118044	PUNCHES DEDRIK	9281 PIGEON WING PL COLUMBIA MD 21045	9281 PIGEON WING PL COLUMBIA 21045
1416118052	FARRAKK GARY F	9285 PIGEON WING PL COLUMBIA MD 21045	9285 PIGEON WING PL COLUMBIA 21045
1416118060	HALL WILLIAM E & WF	9286 PIGEON WING PL COLUMBIA MD 21045	9286 PIGEON WING PL COLUMBIA 21045
1416118079	WOMACK DONNIE N	9282 PIGEON WING PL COLUMBIA MD 21045	9282 PIGEON WING PL COLUMBIA 21045
1416118095	ZAHNEN KURT J	9274 PIGEON WING PL COLUMBIA MD 21045	9274 PIGEON WING PL COLUMBIA 21045
1416118451	YARN EZRA CLIFTON	6676 DROWSY DAY COLUMBIA MD 21045	6676 DROWSY DAY COLUMBIA 21045
1416118478	THOMPSON MICHAEL F	6672 DROWSY DAY COLUMBIA MD 21045	6672 DROWSY DAY COLUMBIA 21045
1416118486	SWIFT RASHAN K	6675 DROWSY DAY COLUMBIA MD 21045	6675 DROWSY DAY COLUMBIA 21045
1416118494	ZIMMERMAN MARK S	6679 DROWSY DAY COLUMBIA MD 21045	6679 DROWSY DAY COLUMBIA 21045
1416118583	HESLOP ROXZANE	6668 STAR PATH COLUMBIA MD 21045	6668 STAR PATH COLUMBIA 21045
1416118591	ROMICH DENNIS B	6667 STAR PATH COLUMBIA MD 21045	6667 STAR PATH COLUMBIA 21045
1416119199	SAGAWA KIICHI & WF	9343 WHEATSHEAF WAY COLUMBIA MD 21045	9343 WHEATSHEAF WAY COLUMBIA 21045
1416120537	THORNE STEVEN J	9000 FLICKER PL COLUMBIA MD 21045	9000 FLICKER PL COLUMBIA 21045
1416122386	WESCHLER THOMAS M	17309 MACDUFF AVE OLNEY MD 20832	9039 QUEEN MARIA CT COLUMBIA 21045
1416122505	HARRIS O MORTON JR	8857 YOUNGSEA PL COLUMBIA MD 21045	8857 YOUNGSEA PL COLUMBIA 21045
1416122602	CONTESSOTO NEVSA ALVES	18 AUTUMN WINDS CT REISTERSTOWN MD 21136	9038 WATCHLIGHT CT COLUMBIA 21045
1416122874	COHEN MICHAEL J	5515 HILLFALL CT COLUMBIA MD 21045	5515 HILLFALL CT COLUMBIA 21045
1416123331	JOHNSON SHAWN	9044 WATCHLIGHT CT COLUMBIA MD 21045	9044 WATCHLIGHT CT COLUMBIA 21045
1416123684	CONDON JOHN R & WF	5639 LIGHTSPUN LN COLUMBIA MD 21045	5639 LIGHTSPUN LANE COLUMBIA 21045
1416124575	ROSS HOLLIS LYNDON JR	5560 EAGLEBEAK ROW COLUMBIA MD 21045	5560 EAGLEBEAK ROW COLUMBIA 21045
1416124915	BUHL PAULINE SANDRA	5528 EAGLEBEAK ROW COLUMBIA MD 21045	5528 EAGLEBEAK ROW COLUMBIA 21045
1416124923	HOLMES ALLEN E	5532 EAGLEBEAK ROW COLUMBIA MD 21045	5532 EAGLEBEAK ROW COLUMBIA 21045
1416125512	PYNE KENNETH T	5546 EAGLEBEAK ROW COLUMBIA MD 21045	5546 EAGLEBEAK ROW COLUMBIA 21045
1416126225	TUCKER EDWARD E & WF	5631 LIGHTSPUN LN COLUMBIA MD 21045	5631 LIGHTSPUN LANE COLUMBIA 21045
1416127213	ABRAMS MARCIA A	5619 LIGHTSPUN LN COLUMBIA MD 21045	5619 LIGHTSPUN LANE COLUMBIA 21045
1416127523	MEYER DONALD J	8926 FOOTED RIDGE COLUMBIA MD 21045	8926 FOOTED RIDGE COLUMBIA 21045
1416127574	HARTMAN STEVEN G	6358 TAMAR DR COLUMBIA MD 21045	6358 TAMAR DR COLUMBIA 21045
1416127868	SHARRETTS JACK R	5520 EAGLEBEAK ROW COLUMBIA MD 21045	5520 EAGLEBEAK ROW COLUMBIA 21045
1416128201	VILLANUEVA JEREMY L	9350 WHEATSHEAF WAY COLUMBIA MD 21045	9350 WHEATSHEAF WAY COLUMBIA 21045
1416130206	LENNON RONDA	8963 QUEEN MARIA CT COLUMBIA MD 21045	8963 QUEEN MARIA CT COLUMBIA 21045
1416130486	HAWKER ISLANDE	5607 LIGHTSPUN LN COLUMBIA MD 21045	5607 LIGHTSPUN LANE COLUMBIA 21045
1416130583	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	DOBBIN RD COLUMBIA 21045
1416131377	WALDONS LANDING COMMUNITY ASSOC	5721 PHELPS LUCK DR COLUMBIA MD 21045	E PHELPS LUCK DR COLUMBIA 21045
1416131822	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	OAKLAND MILLS RD COLUMBIA 21045
1416139912	WOODED RIDGE TOWN HOUSE ASSOC	PO BOX 642 COLUMBIA MD 21045	SW LAMBSKIN LN COLUMBIA 21045
1416141143	WEIERMILLER MARY K	9098 LAMBSKIN LN COLUMBIA MD 21045	9098 LAMBSKIN LANE COLUMBIA 21045
1416141151	NANNYOMBI PROSCOVIA	9096 LAMBSKIN LN COLUMBIA MD 21045	9096 LAMBSKIN LANE COLUMBIA 21045
1416141178	MAXIM JUSTIN PAUL	9094 LAMBSKIN LANE COLUMBIA 21045	9094 LAMBSKIN LANE COLUMBIA 21045
1416142999	PATUXENT INVESTMENT CORP	PO BOX 2548 PURCELLVILLE VA 20134	6460 DOBBIN CENTER WAY COLUMBIA 21045

Notes:

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Project Name: Lake Elkhorn
WSSI #MD7001.01

PIN	Owner Name	Owner Address	Parcel Address
1416144495	COLUMBIA ASSOCIATION	10221 WINCOPIN CIR COLUMBIA MD 21044	NE RUSTLING LEAF COLUMBIA 21045
1416144509	COLUMBIA ASSOCIATION INC	6310 HILLSIDE CT SUITE 100 COLUMBIA MD 21046	9200 RUSTLING LEAF COLUMBIA 21045
1416154466	HARVEST LLC	8800 STANFORD BLVD COLUMBIA MD 21045	MCGAW CT COLUMBIA 21045
1416166170	HOWARD COUNTY	3450 COURT HOUSE DR ELLICOTT CITY MD 21043	N/A
1416166294	HOWARD COUNTY	3450 COURT HOUSE DR ELLICOTT CITY MD 21043	OAKLAND MILLS RD COLUMBIA 21045
1416167290	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR COLUMBIA MD 21044	S OLD MONTGOMERY RD COLUMBIA 21045
1416180173	CBC DOBBIN LLC	2328 W JOPPA RD STE 200 LUTHERVILLE MD 21093	6450 DOBBIN ROAD COLUMBIA 21045
1416180181	CBC DOBBIN LLC	2328 W JOPPA RD STE 200 LUTHERVILLE MD 21093	6410 DOBBIN ROAD COLUMBIA 21045
1416200433	COLUMBIA ASSOCIATION	10221 WINCOPIN CIR COLUMBIA MD 21044	OAKLAND MILLS RD COLUMBIA 21045
1416202797	HOWARD COUNTY HOUSING COMM	9770 PATUXENT WOODS DR STE 100 COLUMBIA MD 21046	8905 TAMAR DR COLUMBIA 21045
1416213039	MERRITT CCP LLC	2066 LORD BALTIMORE DR BALTIMORE MD 21244	8890 MCGAW ROAD COLUMBIA 21045
1416213047	MERRITT-CCP LLC	2066 LORD BALTIMORE DR BALTIMORE MD 21244	8845 STANFORD BLVD COLUMBIA 21045
N/A	***WALLACE H. CAMPBELL & CO. , INC***	***6212 YORK ROAD BALTIMORE MD 21212***	***8867 ROLL RIGHT COURT COLUMBIA 21045***
N/A	***A TREOVER CONDOMINIUM INC***	***5913 TAMAR DRIVE COLUMBIA MD 21045***	***5913 TAMAR DRIVE COLUMBIA MD 21045***
N/A	***A TREOVER CONDOMINIUM INC***	***5913 TAMAR DRIVE COLUMBIA MD 21045***	***5913 TAMAR DRIVE COLUMBIA MD 21045***
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
ROW	ROW	ROW	ROW
ROW	ROW	ROW	ROW
ROW	ROW	ROW	ROW
Local Elected Official	Opel Jones	3430 Courthouse Drive Ellicott City MD 21043	N/A

Notes:

1. Parcel owner data derived from Howard County MD Online Mapper
2. N/A denotes data not available.
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4. ROW indicates Right - of -Way

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Jeannie Haddaway-Riccio, Secretary

March 8, 2021 21-MIS-121

Mike Zarecor
Wetland Studies and Solutions, Inc.
1131 Benfield Boulevard, Suite L
Millersville, MD 21108

Subject: Fisheries Scoping Information for Columbia Association Stream Restoration Howard County, MD

Dear Mr. Zarecor;

The above referenced project has been reviewed to determine fisheries species near the proposed project area. The proposed activities include Columbia Association Stream Restoration in the Little Patuxent Watershed in Howard County. The project may impact several unnamed tributaries to the Little Patuxent River which is classified as a Use IV-P (supports adult trout and is a public water supply) stream. Generally no in-stream work should be performed in Use IV-P between March 1st and May 31st of any given year in order to protect spawning fish. The Department would ask that the applicant adhere to the approved sediment and erosion control plan during all construction activities.

The Little Patuxent River and its tributaries support many resident fish species. Species documented by our Maryland Biological Stream Survey in this and other nearby streams can be accessed via the MDDNR web page at http://streamhealth.maryland.gov.

Please note that this fisheries review is for scoping purposes only and does not constitute a full environmental review by the Department of Natural Resources Environmental Review Program. Once a final permit application has been submitted with a full set of plans to MDE, a determination will be made if further review by the MDDNR Environmental Review Program is warranted. If you have any further questions, please feel free to contact me

Sincerely;

Tony Redman
Director, Environmental Review Program

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Jeannie Haddaway-Riccio, Secretary
Charles Glass, Deputy Secretary

April 14, 2021

Mr. Mike Zarecor
Wetland Studies and Solutions, Inc.
1131 Benfield Boulevard
Suite L
Millersville, MD 21108

RE: Environmental Review for Lake Elkhorn Stream Mitigation Bank, 8988 Old Montgomery Road, Columbia, Howard County, Maryland

Dear Mr. Zarecor:

The Wildlife and Heritage Service has determined that there are no official State or Federal records for listed plant or animal species within the delineated area shown on the map provided. However, our remote analysis suggests that the forested area on this property provides habitat for Forest Interior Dwelling Birds. Many species of forest interior breeding birds are declining in Maryland. This group of bird species requires large, contiguous blocks of forest to successfully breed. Most FIDS are neotropical migrants; these long distance migratory birds breed in North America and winter in Central and South America. The declines in FIDS have been attributed largely to the loss and fragmentation of forests in the eastern United States due to urbanization, agriculture and some forest management practices. Tropical deforestation on the wintering grounds also is an important factor.

The key to maintaining suitable breeding habitat for FIDS, and halting or reversing their declines, is the protection of extensive, unbroken forested areas throughout the region. We recommend that the following guidelines be incorporated into the project plan (as applicable) to help conserve potential habitat for these declining species: 1) Do not remove or disturb forest habitat during April-August, the breeding season for most FIDS. This seasonal restriction may be expanded to February-August if certain early nesting FIDS (e.g., Barred Owl) are present. 2) Avoid creating canopy openings, and maintain canopy closure over any trails. 3) Retain snags and retain woody debris on the forest floor.

Please be sure to let us know if the limits of proposed disturbance or overall site boundaries change and we will provide you with an updated evaluation. Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2021.0335.ho

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127
http://www.fws.gov/chesapeakebay/
http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html

In Reply Refer To: May 20, 2021
Consultation Code: 05E2CB00-2021-SLI-1391
Event Code: 05E2CB00-2021-E-03345
Project Name: Lake Elkhorn Stream Mitigation Bank

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

To Whom It May Concern:

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

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

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

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

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

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

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

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

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

This species list is provided by:

Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
(410) 573-4599

Project Summary

Consultation Code: 05E2CB00-2021-SLI-1391
Event Code: 05E2CB00-2021-E-03345
Project Name: Lake Elkhorn Stream Mitigation Bank
Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES
Project Description: 33,000 linear feet of stream restoration
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@39.201563750000005,-76.8208265326502,14z

Counties: Howard County, Maryland

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

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

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

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

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis*	Threatened

No critical habitat has been designated for this species.

This species only needs to be considered under the following conditions:

- Projects with a federal nexus that have tree clearing = to or > 15 acres: 1. REQUEST A SPECIES LIST 2. NEXT STEP: EVALUATE DETERMINATION KEYS 3. SELECT EVALUATE under the Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule Consistency key

Species profile: https://ecos.fws.gov/ecp/species/9045

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

LAKE

- L1UBHh

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1C
- PEM5A

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1A
- PSS1/EM5A
- PSS1A
- PFO/SS1A

FRESHWATER POND

- PUBHh

RIVERINE

- R4SBC
- R5UBH

PROJECT REVIEW FORM

Request for Comments from the Maryland Historical Trust/ MDSHPO on State and Federal Undertakings

MHT USE ONLY
Date Received: 6/21/19 F COE DLM 20190398 Log Number:

Project Name: Lake Elkhorn Phase 1 at Columbia Association- Stream Mitigation County: Howard

Primary Contact:

Contact Name: John P. Mullen Company/Agency: Wetland Studies and Solutions, Inc.
Mailing Address: 5300 Wellington Branch Drive
City: Gainesville State: Virginia Zip: 20155
Email: jmullen@wetlands.com Phone Number: +1 (703) 679-5617 Ext.

Project Location:

Address: SW of intersection of High Torr Hill City/Vicinity: Columbia
Coordinates (if known): Latitude: Longitude: Waterway: Lake Elkhorn

Project Description:

List federal and state sources of funding, permits, or other assistance (e.g. Bond Bill Loan of 2013, Chapter #; HUD/ CDBG; MDE/COE permit; etc.).	Agency Type	Agency/Program/Permit Name	Project/Permit/Tracking Number (if applicable)
	Federal	USACE/ MDE JF/SA permit	
	State		

This project includes (check all applicable): ☐ New Construction ☐ Demolition ☐ Remodeling/Rehabilitation
☐ State or Federal Rehabilitation Tax Credits ☒ Excavation/Ground Disturbance ☒ Shoreline/Waterways/Wetlands
Other\Additional Description: Stream restoration design and construction

Known Historic Properties:

This project involves properties (check all applicable): ☒ Listed in the National Register ☐ Subject to an easement held by MHT
☒ Included in the Maryland Inventory of Historic Properties ☐ Designated historic by a local government
☐ Previously subject to archeological investigations
Property\District\Report Name: See attachment for details HO-666-Indig.

Attachments:

All attachments are required. Incomplete submittals may result in delays or be returned without comment.
☒ Aerial photograph or USGS Quad Map section with location and boundaries of project clearly marked.
☒ Project Description, Scope of Work, Site Plan, and\or Construction Drawings.
☒ Photographs (print or digital) showing the project site including images of all buildings and structures.
☒ Description of past and present land uses in project area (wooded, mined, developed, agricultural uses, etc).

MHT Determination:

☒ There are **NO HISTORIC PROPERTIES** in the area of potential effect
☐ The project will have **NO EFFECT** on historic properties
☐ The project will have **NO ADVERSE EFFECT** on historic properties
☐ The project will have **NO ADVERSE EFFECT WITH CONDITIONS**
☐ The project will have **ADVERSE EFFECTS** on historic properties
☐ **MHT REQUESTS ADDITIONAL INFORMATION**

MHT Reviewer: Date: 7/12/19

Submit printed copy of form and all attachments by mail to: Beth Cole, MHT, 100 Community Place, Crownsville, MD 21032

Revised 6/21/2013

Maryland Stream Mitigationframework - Beta Version

Summary of Reach Level Stream Function-Based Rapid Assessment Field Data Sheets

Assessment Paramater	Measurement Method	Reach	1A		1B-C		2		3A		3B-C		3-1		4		5A-B		6	
		Condition	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr
		Stream Length (ft)	1,395	1,395	1,991	1,991	394	394	1381	1381	1255	1255	172	172	432	432	1175	1175	503	503
Hydrology	1	Concentrated Flow	3	4	3	4	3	4	4	5	5	6	5	6	5	6	5	6	2	3
	2	Flashiness	2	4	3	3	2	4	2	2	2	2	4	6	6	8	2	4	2	4
Hydraulics	3	BHR	1	10	2	10	1	10	2	10	2	10	1	10	2	10	3	10	1	10
	4	Entrenchment	5	10	7	10	6	10	4	10	7	10	5	10	4	10	6	10	10	10
	5	Floodplain Drainage	4	7	5	7	4	7	4	7	4	7	4	7	2	3	2	3	2	3
	6	Vertical Stability	2	10	6	10	5	10	7	10	7	10	7	10	7	10	7	10	8	10
Geomorphology	7	Riparian Vegetation Zone																		
		Left Bank	6	7	7	10	4	7	7	10	5	7	4	10	2	10	4	7	4	10
		Right Bank	4	7	6	7	4	7	6	7	7	7	4	10	8	10	6	10	3	7
	8	Dominant Bank Erosion Rate Potential																		
		Right Bank	2	10	3	10	1	10	2	10	3	10	2	10	4	10	4	10	1	10
		Left Bank	3	10	3	10	1	10	2	10	3	10	2	10	4	10	4	10	1	10
	9	Lateral Stability	3	10	6	10	3	10	3	10	5	10	4	10	4	10	3	10	2	10
	10	Shelter for Fish & Macro Invertebrates	4	10	4	10	3	10	4	10	4	10	4	10	4	10	4	10	4	10
	11	Pool-to-Pool Spacing	1	10	1	10	1	10	4	10	2	10	2	10	1	10	3	10	2	10
	12	Pool Max Depth Ratio / Depth Variability	9	10	10	10	9	10	9	10	8	10	9	10	8	10	10	10	9	10
Physiochemical	13	Water Appearance and Nutrient Enrichment	4	8	4	8	3	8	4	8	4	8	4	8	4	8	4	8	2	8
	14	Detritus	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8	4	8
Biology	15	Macroinvertebrate	5	7	5	7	3	5	6	8	6	8	3	5	3	5	7	9	3	5
	16	Macroinv. Tolerance	3	5	3	5	3	5	3	5	3	5	3	5	3	5	3	5	2	4
	17	Fish Presence	4	6	4	6	3	5	4	8	4	8	4	8	4	8	4	8	3	8
		Total =	**69**	**153**	**86**	**155**	**63**	**150**	**81**	**158**	**85**	**156**	**75**	**163**	**79**	**161**	**85**	**158**	**65**	**150**
		Reach Score (Total/170) =	0.41	0.90	0.51	0.91	0.37	0.88	0.48	0.93	0.50	0.92	0.44	0.96	0.46	0.95	0.50	0.93	0.38	0.88

RBRSA Key

- Functioning
- Functioning-at-Risk
- Not Functioning

Maryland Stream Mitigationframework - Beta Version

Summary of Reach Level Stream Function-Based Rapid Assessment Field Data Sheets

Assessment Paramater	Measurement Method	Reach	7		8A-B		8C-D		9A		9B		10		11		12		13	
		Condition	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr
		Stream Length (ft)	639	639	2793	2793	1800	1800	1074	1074	980	980	752	752	427	427	794	794	352	352
Hydrology	1	Concentrated Flow	3	4	3	4	4	5	2	3	4	5	1	2	7	8	3	4	4	5
	2	Flashiness	1	1	2	2	2	2	1	3	2	2	2	4	1	3	2	4	1	1
Hydraulics	3	BHR	1	10	2	10	3	10	2	10	2	10	1	10	1	10	1	10	1	10
	4	Entrenchment	10	10	7	10	3	10	5	10	5	10	10	10	9	10	7	10	5	10
	5	Floodplain Drainage	2	3	4	7	5	7	2	3	4	7	1	3	2	3	1	3	2	3
	6	Vertical Stability	7	10	7	10	7	10	4	10	7	10	5	10	2	10	1	10	4	10
Geomorphology	7	Riparian Vegetation Zone																		
		Left Bank	4	7	7	10	7	10	2	7	3	10	5	10	8	10	3	7	3	10
		Right Bank	5	7	6	10	6	10	2	7	3	7	5	10	7	10	4	7	3	10
	8	Dominant Bank Erosion Rate Potential																		
		Right Bank	2	10	2	10	1	10	4	10	4	10	2	10	3	10	2	10	4	10
		Left Bank	2	10	2	10	1	10	4	10	4	10	2	10	3	10	2	10	4	10
	9	Lateral Stability	3	10	3	10	3	10	3	10	3	10	1	10	3	10	3	10	3	10
	10	Shelter for Fish & Macro Invertebrates	4	10	4	10	4	10	4	10	4	10	3	10	3	10	2	10	2	10
	11	Pool-to-Pool Spacing	2	10	5	10	6	10	1	10	1	10	1	10	1	10	1	10	1	10
	12	Pool Max Depth Ratio / Depth Variability	9	10	9	10	8	10	8	10	9	10	9	10	8	10	10	10	8	10
Physiochemical	13	Water Appearance and Nutrient Enrichment	4	8	4	8	4	8	4	8	4	8	4	8	4	8	3	8	1	8
	14	Detritus	4	8	4	8	4	8	4	8	4	8	4	8	4	8	3	8	3	8
Biology	15	Macroinvertebrate	4	6	6	8	4	6	5	7	2	4	2	4	1	3	1	3	1	3
	16	Macroinv. Tolerance	3	5	3	5	3	5	3	5	3	5	2	4	1	3	1	3	1	3
	17	Fish Presence	4	8	4	8	4	8	4	8	4	8	3	8	2	8	2	8	2	8
		Total =	**74**	**147**	**84**	**160**	**79**	**159**	**64**	**149**	**72**	**154**	**63**	**151**	**70**	**154**	**52**	**145**	**53**	**149**
		Reach Score (Total/170) =	0.44	0.86	0.49	0.94	0.46	0.94	0.38	0.88	0.42	0.91	0.37	0.89	0.41	0.91	0.31	0.85	0.31	0.88

RBRSA Key

- Functioning
- Functioning-at-Risk
- Not Functioning

Maryland Stream Mitigationframework - Beta Version

Summary of Reach Level Stream Function-Based Rapid Assessment Field Data Sheets

Assessment Paramater	Measurement Method	Reach	14		15A		15B		15C		15-1		15-2		16		17A-B		17-1	
		Condition	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr	Ex	Pr
		Stream Length (ft)	904	904	2454	2454	2410	2410	1233	1233	215	215	136	136	557	557	1445	1445	213	213
Hydrology	1	Concentrated Flow	2	3	4	5	3	4	4	5	4	5	8	9	5	6	5	6	5	6
	2	Flashiness	2	4	2	2	1	1	1	1	1	3	1	3	1	3	1	3	1	1
Hydraulics	3	BHR	1	10	2	10	2	10	1	10	1	10	1	10	1	10	2	10	1	10
	4	Entrenchment	5	10	3	10	3	10	3	10	9	10	10	10	3	10	3	10	9	10
	5	Floodplain Drainage	1	3	4	7	5	7	5	7	2	3	2	3	2	3	4	7	4	7
	6	Vertical Stability	3	10	5	10	6	10	6	10	3	10	3	10	3	10	2	10	4	10
Geomorphology	7	Riparian Vegetation Zone																		
		Left Bank	3	7	4	10	4	10	3	7	5	10	4	10	2	7	5	10	5	10
		Right Bank	3	7	4	10	4	10	3	7	5	10	4	10	3	7	5	10	3	7
	8	Dominant Bank Erosion Rate Potential																		
		Right Bank	1	10	1	10	2	10	2	10	3	10	3	10	3	10	2	10	3	10
		Left Bank	1	10	1	10	2	10	2	10	3	10	3	10	3	10	2	10	3	10
	9	Lateral Stability	1	10	3	10	3	10	2	10	3	10	3	10	3	10	3	10	5	10
	10	Shelter for Fish & Macro Invertebrates	3	10	4	10	4	10	3	10	0	0	4	10	4	10	4	10	2	10
	11	Pool-to-Pool Spacing	1	10	9	10	9	10	1	10	0	0	1	10	1	10	5	10	1	10
	12	Pool Max Depth Ratio / Depth Variability	9	10	8	10	8	10	9	10	0	0	1	10	9	10	9	10	8	10
Physiochemical	13	Water Appearance and Nutrient Enrichment	3	8	4	8	4	8	3	8	0	0	4	8	2	8	4	8	2	8
	14	Detritus	4	8	4	8	4	8	4	8	0	0	3	8	3	8	4	8	3	8
Biology	15	Macroinvertebrate	2	4	5	7	5	7	3	5	0	0	3	5	2	4	5	7	1	3
	16	Macroinv. Tolerance	2	4	3	5	3	5	3	5	0	0	3	5	2	4	3	5	1	3
	17	Fish Presence	3	8	4	8	4	8	4	8	0	0	3	8	2	8	4	8	1	8
		Total =	**50**	**146**	**74**	**160**	**76**	**158**	**62**	**151**	**39**	**91**	**64**	**159**	**54**	**148**	**72**	**162**	**62**	**151**
		Reach Score (Total/170) =	0.29	0.86	0.44	0.94	0.45	0.93	0.36	0.89	0.23	0.54	0.38	0.94	0.32	0.87	0.42	0.95	0.36	0.89

RBRSA Key

- Functioning
- Functioning-at-Risk
- Not Functioning

Maryland Stream Mitigationframework - Beta Version

Summary of Reach Level Stream Function-Based Rapid Assessment Field Data Sheets

Assessment Paramater	Measurement Method	Reach / Condition / Stream Length (ft)	18 Ex 843	18 Pr 843	19 Ex 212	19 Pr 212	20 Ex 535	20 Pr 535	21A-B Ex 1319	21A-B Pr 1319	22 Ex 628	22 Pr 628	23 Ex 1908	23 Pr 1908
Hydrology	1	Concentrated Flow	3	4	5	6	2	3	4	5	4	5	3	4
	2	Flashiness	1	3	2	2	1	3	1	1	1	1	3	3
Hydraulics	3	BHR	1	10	2	10	1	10	2	10	2	10	1	10
	4	Entrenchment	8	10	1	10	6	10	1	10	7	10	5	10
	5	Floodplain Drainage	4	7	5	7	2	3	4	7	2	3	1	3
	6	Vertical Stability	4	10	3	10	1	10	6	10	3	10	2	10
Geomorphology	7	Riparian Vegetation Zone												
		Left Bank	4	10	5	7	5	7	6	7	4	7	4	7
		Right Bank	4	10	4	7	6	10	6	7	4	7	6	7
	8	Dominant Bank Erosion Rate Potential												
		Right Bank	4	10	4	10	1	10	2	10	3	10	2	10
		Left Bank	4	10	4	10	1	10	2	10	3	10	2	10
	9	Lateral Stability	3	10	3	10	1	10	3	10	3	10	3	10
	10	Shelter for Fish & Macro Invertebrates	4	10	4	10	0	0	4	10	4	10	4	10
	11	Pool-to-Pool Spacing	1	10	4	10	0	0	1	10	3	10	1	10
	12	Pool Max Depth Ratio / Depth Variability	10	10	8	10	0	0	9	10	9	10	9	10
Physiochemical	13	Water Appearance and Nutrient Enrichment	3	8	4	8	0	0	4	8	4	8	4	8
	14	Detritus	4	8	3	8	0	0	4	8	4	8	4	8
Biology	15	Macroinvertebrate	4	6	4	6	0	0	5	7	2	4	3	5
	16	Macroinv. Tolerance	3	5	3	5	0	0	3	5	3	5	3	5
	17	Fish Presence	4	8	4	8	0	0	4	8	3	8	3	8
		Total =	**73**	**159**	**72**	**154**	**27**	**86**	**71**	**153**	**68**	**146**	**63**	**148**
		Reach Score (Total/170) =	0.43	0.94	0.42	0.91	0.16	0.51	0.42	0.90	0.40	0.86	0.37	0.87

RBRSA Key

- Functioning
- Functioning-at-Risk
- Not Functioning

STREAM MITIGATION CALCULATOR

Background Information		
Corps Project ID #:	Corps PM:	Jack Dinne
Project Name: Lake Elkhorn	Date:	02/16/2021
Lat/Long: 39°12'19.1"N 76°49'13.5"W	Sponsor:	Davey Resource Group
County: Howard	Collaborators:	Wetland Studies and Solutions, Inc.

Stream Gains (Functional Feet) **7733**

Raw Change in Reach Value (Functional Feet)											Stream Mitigation Adjustments			Stream Gains (Functional Feet)	REMARKS
Reach	Physiographic Region	Evaluation	Activity	Resource Type	Length (Feet)	Quality	Channel Thread	Drainage Area (sqmi)	Raw Reach Value (Functional Feet)	Raw Change in Value (Functional Feet)	Site Sensitivity	Site Protection	Buffer Adjustment		
1A	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	1,395	0.41	Primary 1	0.16 0.49	279	340	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 81	436	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	1,395	0.90	Primary 1	0.163 0.49	619		**38**	19	39		
1B-C	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	1,991	0.51	Primary 1	0.26 0.59	594	476	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 105	645	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	1,991	0.91	Primary 1	0.26 0.59	1070		**56**	28	84		
2	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	394	0.37	Primary 1	0.04 0.41	60	83	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 87	109	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	394	0.88	Primary 1	0.04 0.41	143		**10**	5	12		
3A	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	1,381	0.48	Primary 1	0.53 0.78	512	487	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 66	590	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	1,381	0.93	Primary 1	0.53 0.78	999		**51**	26	26		
3B-C	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	1,255	0.50	Primary 1	0.87 0.95	593	495	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 65	596	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	1,255	0.92	Primary 1	0.87 0.95	1088		**52**	26	23		
3-1	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	172	0.44	Primary 1	0.05 0.41	31	37	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 179	59	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	172	0.96	Primary 1	0.05 0.41	68		**5**	3	15		
4	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	432	0.46	Primary 1	0.10 0.41	82	85	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 118	123	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	432	0.95	Primary 1	0.10 0.41	168		**11**	5	22		
5A-B	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	1,175	0.50	Primary 1	0.24 0.57	337	290	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 113	397	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	1,175	0.93	Primary 1	0.24 0.57	627		**35**	17	56		
6	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	503	0.38	Primary 1	0.07 0.41	79	103	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 159	162	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	503	0.88	Primary 1	0.074 0.41	182		**14**	7	38		
7	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	639	0.44	Primary 1	0.05 0.41	114	113	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 48	135	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	639	0.86	Primary 1	0.052 0.41	227		**12**	6	5		
8A-B	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	2,793	0.49	Primary 1	1.22 1.08	1491	1349	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 126	1728	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	2,793	0.94	Primary 1	1.219 1.08	2839		**150**	75	154		
8C-D	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	1,800	0.46	Primary 1	1.47 1.16	973	985	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 88	1199	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	1,800	0.94	Primary 1	1.471 1.16	1957		**104**	52	58		
9A	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	1,074	0.38	Primary 1	0.10 0.41	166	220	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 52	266	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	1,074	0.88	Primary 1	0.095 0.41	386		**23**	12	11		
9B	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	980	0.42	Primary 1	0.17 0.50	209	238	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 140	345	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	980	0.91	Primary 1	0.172 0.50	447		**30**	15	62		
10	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	752	0.37	Primary 1	0.06 0.41	114	160	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 120	228	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	752	0.89	Primary 1	0.055 0.41	274		**20**	10	39		
11	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	427	0.41	Primary 1	0.03 0.41	72	86	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 158	136	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	427	0.91	Primary 1	0.034 0.41	159		**12**	6	32		
12	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	794	0.31	Primary 1	0.06 0.41	100	178	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 38	207	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	794	0.85	Primary 1	0.058 0.41	278		**18**	9	1		
13	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	352	0.31	Primary 1	0.09 0.41	45	81	1 0.1	Accredited 0.05	Buffer Width (ft) 177	128	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	352	0.88	Primary 1	0.086 0.41	126		**11**	6	30		
14	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	904	0.29	Primary 1	0.07 0.41	109	209	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 38	243	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	904	0.86	Primary 1	0.066 0.41	318		**21**	11	2		

STREAM MITIGATION CALCULATOR

Background Information		
Corps Project ID #:	Corps PM:	Jack Dinne
Project Name: Lake Elkhorn	Date:	02/16/2021
Lat/Long: 39°12'19.1"N 76°49'13.5"W	Sponsor:	Davey Resource Group
County: Howard	Collaborators:	Wetland Studies and Solutions, Inc.

Stream Gains (Functional Feet)	7422

Raw Change in Reach Value (Functional Feet)

Reach	Physiographic Region	Evaluation	Activity	Resource Type	Length (Feet)	Quality	Channel Thread	Drainage Area (sqmi)	Raw Reach Value (Functional Feet)	Raw Change in Value (Functional Feet)	Stream Mitigation Adjustments: Site Sensitivity	Site Protection	Buffer Adjustment	Stream Gains (Functional Feet)	REMARKS
15A	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	2,454	0.44	Primary 1	1.88 1.28	1366	1588	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 110	1954	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	2,454	0.94	Primary 1	1.878 1.28	2954		**170**	85	112		
15B	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	2,410	0.45	Primary 1	2.45 1.42	1527	1648	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 125	2046	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	2,410	0.93	Primary 1	2.447 1.42	3175		**178**	89	131		
15C	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	1,233	0.36	Primary 1	2.68 1.47	661	948	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 44	1098	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	1,233	0.89	Primary 1	2.68 1.47	1609		**96**	48	7		
15-1	Piedmont	Existing	Preliminary Resource Evaluation	Ephemeral	215	0.23	Primary 1	0.02 0.41	20	27	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 199	56	
	Piedmont	Proposed	Restoration/Enhancement	Ephemeral	215	0.54	Primary 1	0.024 0.41	47		**5**	2	21		
15-2	Piedmont	Existing	Preliminary Resource Evaluation	Intermittent	136	0.38	Primary 1	0.01 0.41	21	31	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 199	51	
	Piedmont	Proposed	Restoration/Enhancement	Intermittent	136	0.94	Primary 1	0.008 0.41	52		**4**	2	14		
16	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	557	0.32	Primary 1	0.07 0.41	73	126	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 38	146	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	557	0.87	Primary 1	0.071 0.41	199		**13**	6	1		
17A-B	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	1,445	0.42	Primary 1	0.25 0.58	356	445	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 35	512	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	1,445	0.95	Primary 1	0.25 0.58	802		**45**	22	0		
17-1	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	213	0.36	Primary 1	0.01 0.41	32	46	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 35	53	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	213	0.89	Primary 1	0.011 0.41	78		**5**	2	0		
18	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	843	0.43	Primary 1	0.06 0.41	148	175	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 35	201	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	843	0.94	Primary 1	0.059 0.41	323		**17**	9	0		
19	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	212	0.42	Primary 1	0.13 0.44	40	45	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 83	59	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	212	0.91	Primary 1	0.125 0.44	85		**5**	3	6		
20	Piedmont	Existing	Preliminary Resource Evaluation	Ephemeral	535	0.16	Primary 1	0.06 0.41	35	76	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 129	123	
	Piedmont	Proposed	Restoration/Enhancement	Ephemeral	535	0.51	Primary 1	0.058 0.41	111		**11**	5	31		
21A-B	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	1319	0.42	Primary 1	0.26 0.59	324	374	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 66	459	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	1319	0.90	Primary 1	0.256 0.59	698		**40**	20	25		
22	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	628	0.40	Primary 1	0.09 0.41	103	118	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 66	150	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	628	0.86	Primary 1	0.085 0.41	221		**13**	7	12		
23	Piedmont	Existing	Preliminary Resource Evaluation	Perennial Headwater	1908	0.37	Primary 1	0.08 0.41	290	391	1 0.1	Accredited Easement 0.05	Buffer Width (ft) 83	514	
	Piedmont	Proposed	Restoration/Enhancement	Perennial Headwater	1908	0.87	Primary 1	0.079 0.41	681		**45**	22	56		
	Not Selected	Existing	NA	NA			NA 0 FALSE		0	0	0 0	NA 0	Buffer Width (ft)	NA	
	Not Selected	Proposed	NA	NA			NA 0 FALSE		0		**0**	NA	0		
	Not Selected	Existing	NA	NA			NA 0 FALSE		0	0	0 0	NA 0	Buffer Width (ft)	NA	
	Not Selected	Proposed	NA	NA			NA 0 FALSE		0		**0**	NA	0		
	Not Selected	Existing	NA	NA			NA 0 FALSE		0	0	0 0	NA 0	Buffer Width (ft)	NA	
	Not Selected	Proposed	NA	NA			NA 0 FALSE		0		**0**	NA	0		
	Not Selected	Existing	NA	NA			NA 0 FALSE		0	0	0 0	NA 0	Buffer Width (ft)	NA	
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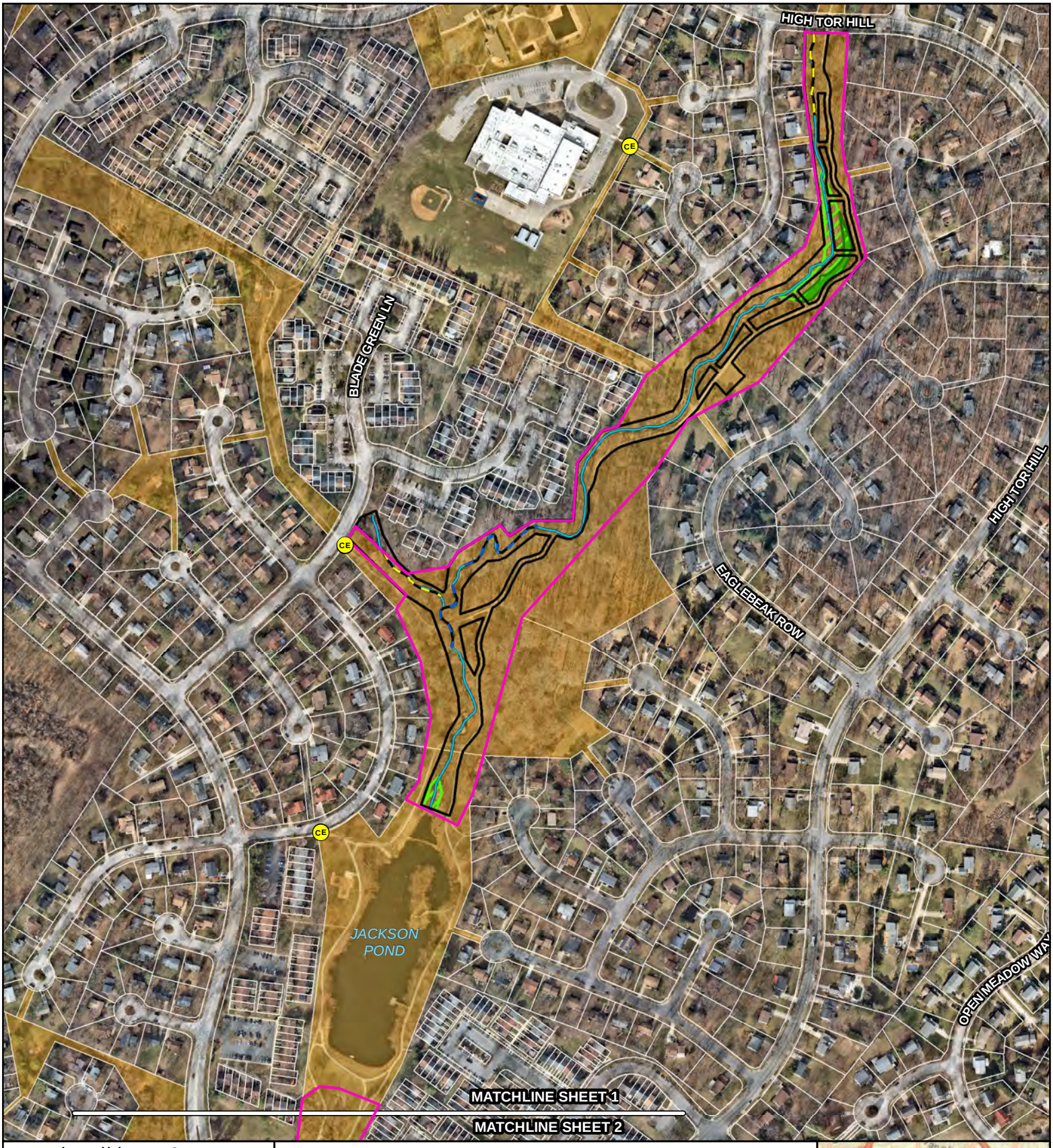


Lake Elkhorn Stream Mitigation Site
Preliminary Concept Map
Sheet 1 of 6

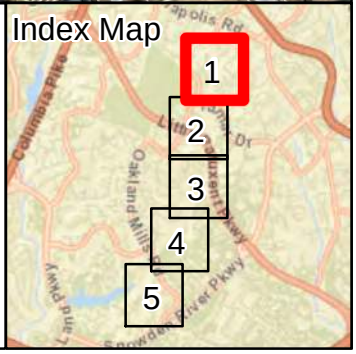
NORTH

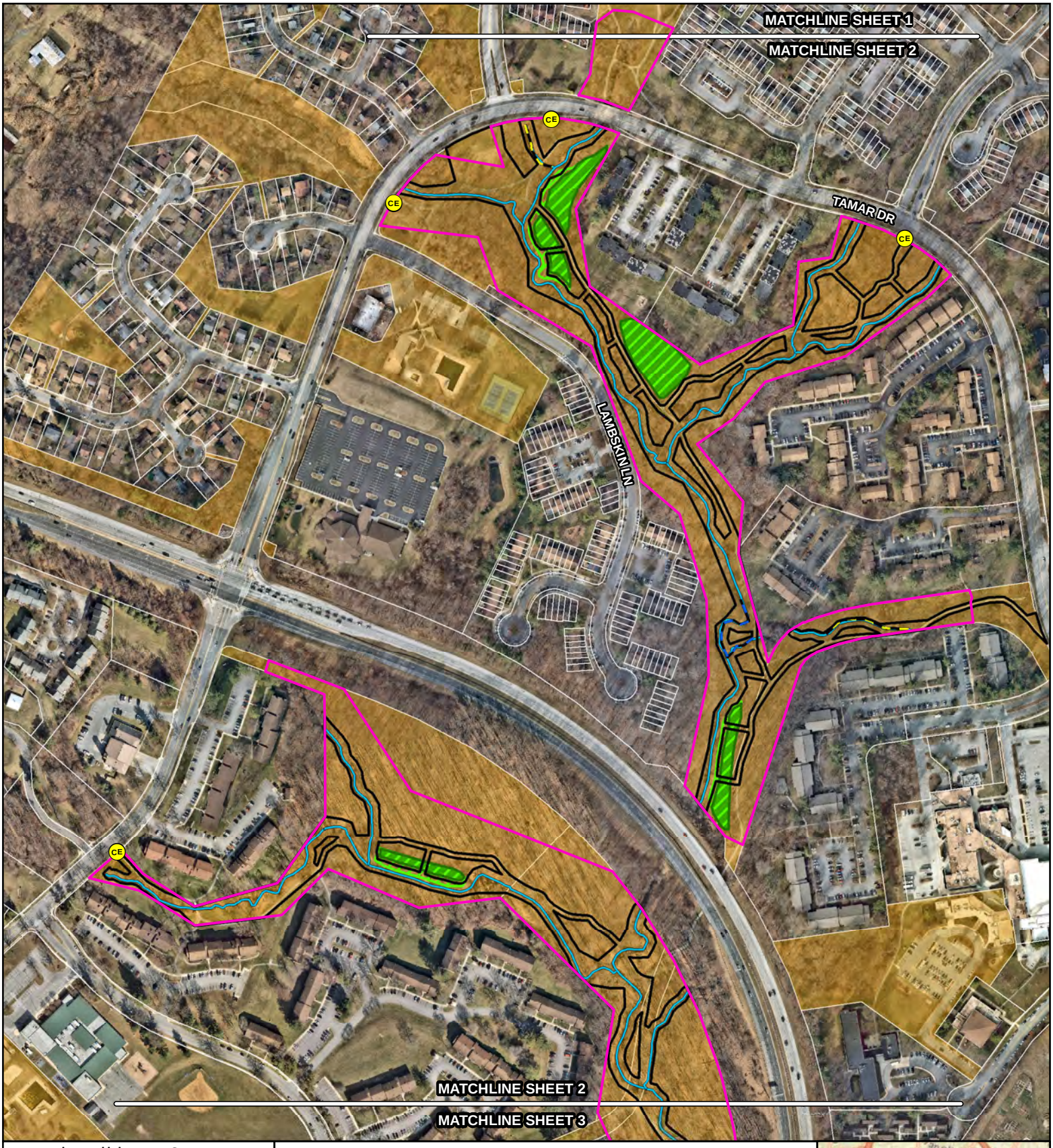
0 100 200 400 Feet

- Easement Area
- Limits of Disturbance
- NCD Restoration
- Stream in Utility Easement
- SPSC Restoration
- Establish Meandor
- Existing Wetlands
- Proposed Wetland Enhancement
- Columbia Association Property
- CE Construction Entrance

For concept plan narrative see sheet 6

Index Map





Lake Elkhorn Stream Mitigation Site
Preliminary Concept Map
Sheet 2 of 6

NORTH

0 100 200 400 Feet

- Easement Area
- Limits of Disturbance
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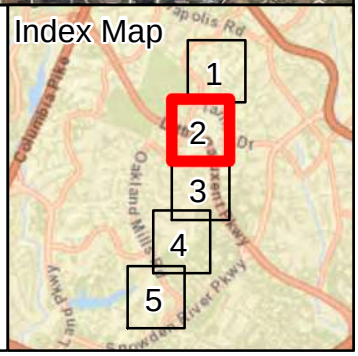
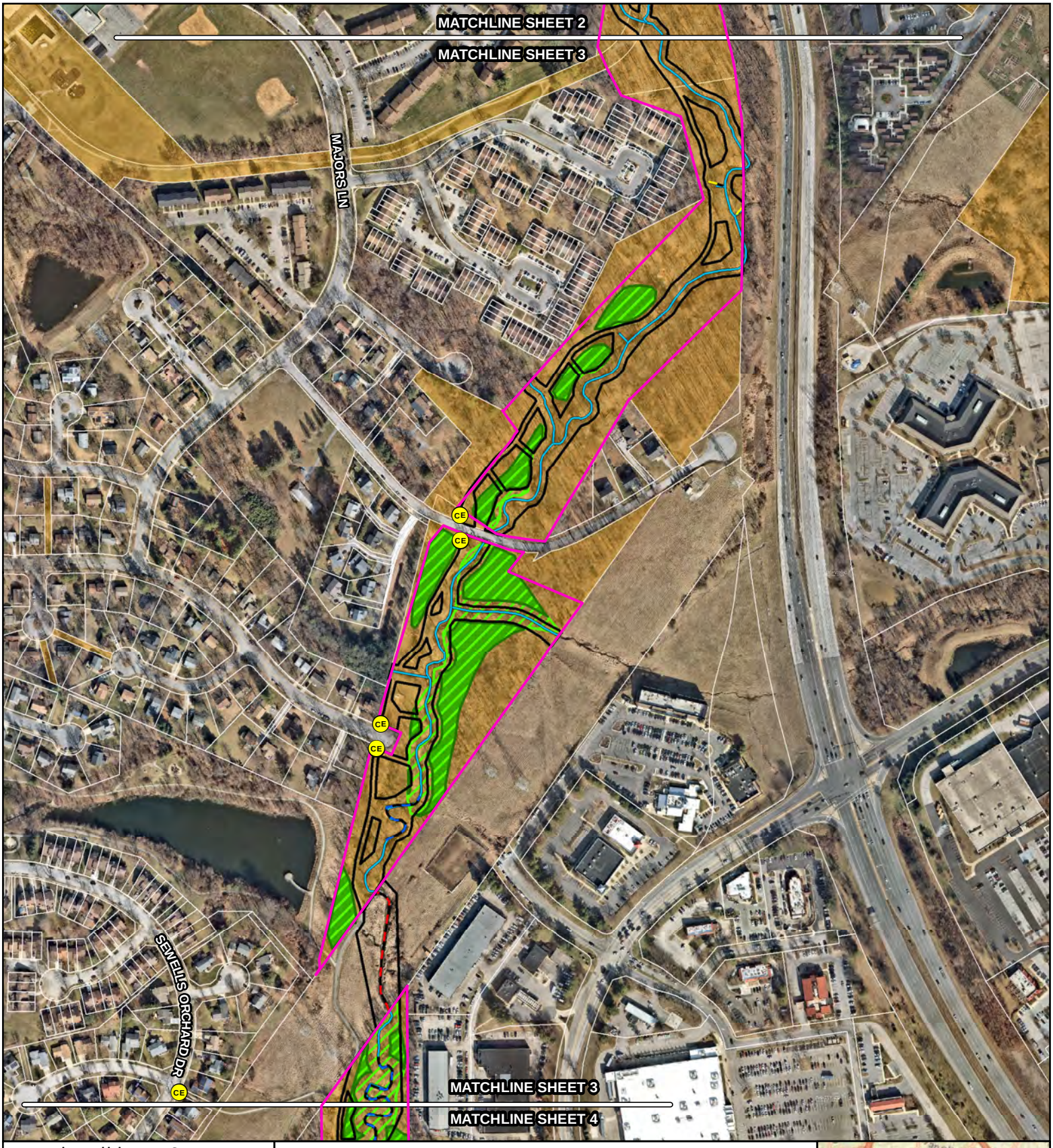
- SPSC Restoration
- Establish Meandor
- Existing Wetlands
- Proposed Wetland Enhancement
- Columbia Association Property
- CE Construction Entrance

For concept plan narrative see sheet 6





Lake Elkhorn Stream Mitigation Site
Preliminary Concept Map
Sheet 3 of 6

NORTH

0 100 200 400 Feet

- Easement Area
- Limits of Disturbance
- NCD Restoration
- Stream in Utility Easement
- SPSC Restoration
- Establish Meandor
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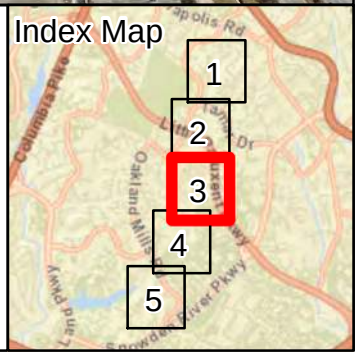
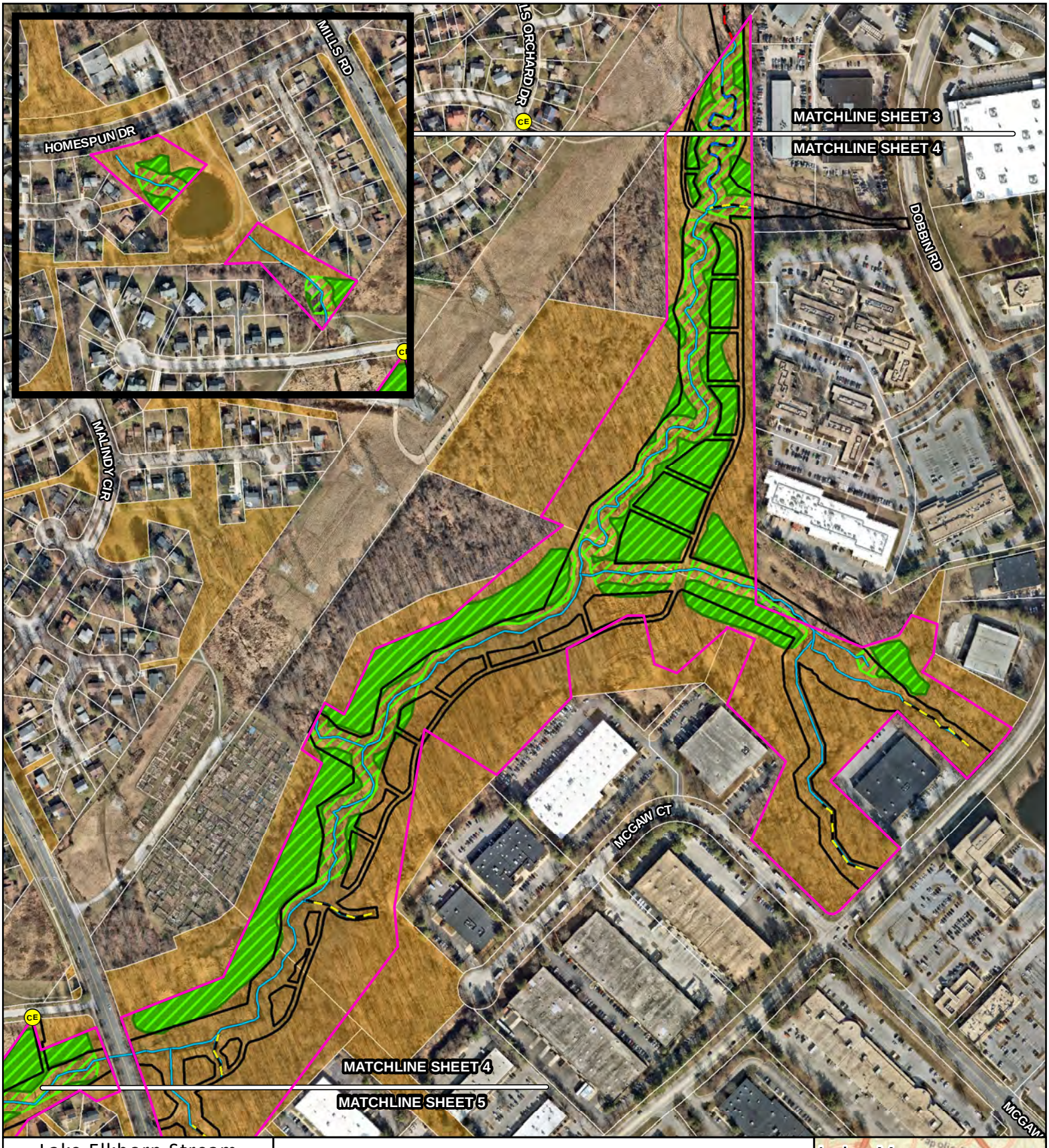
- Proposed Wetland Enhancement
- Columbia Association Property
- CE Construction Entrance

For concept plan narrative see sheet 6





Lake Elkhorn Stream Mitigation Site
Preliminary Concept Map
Sheet 4 of 6

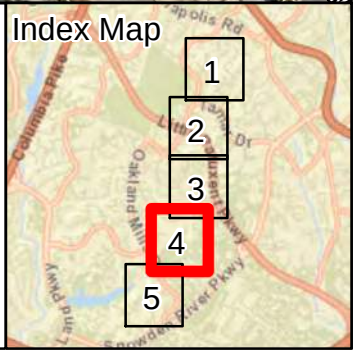
NORTH

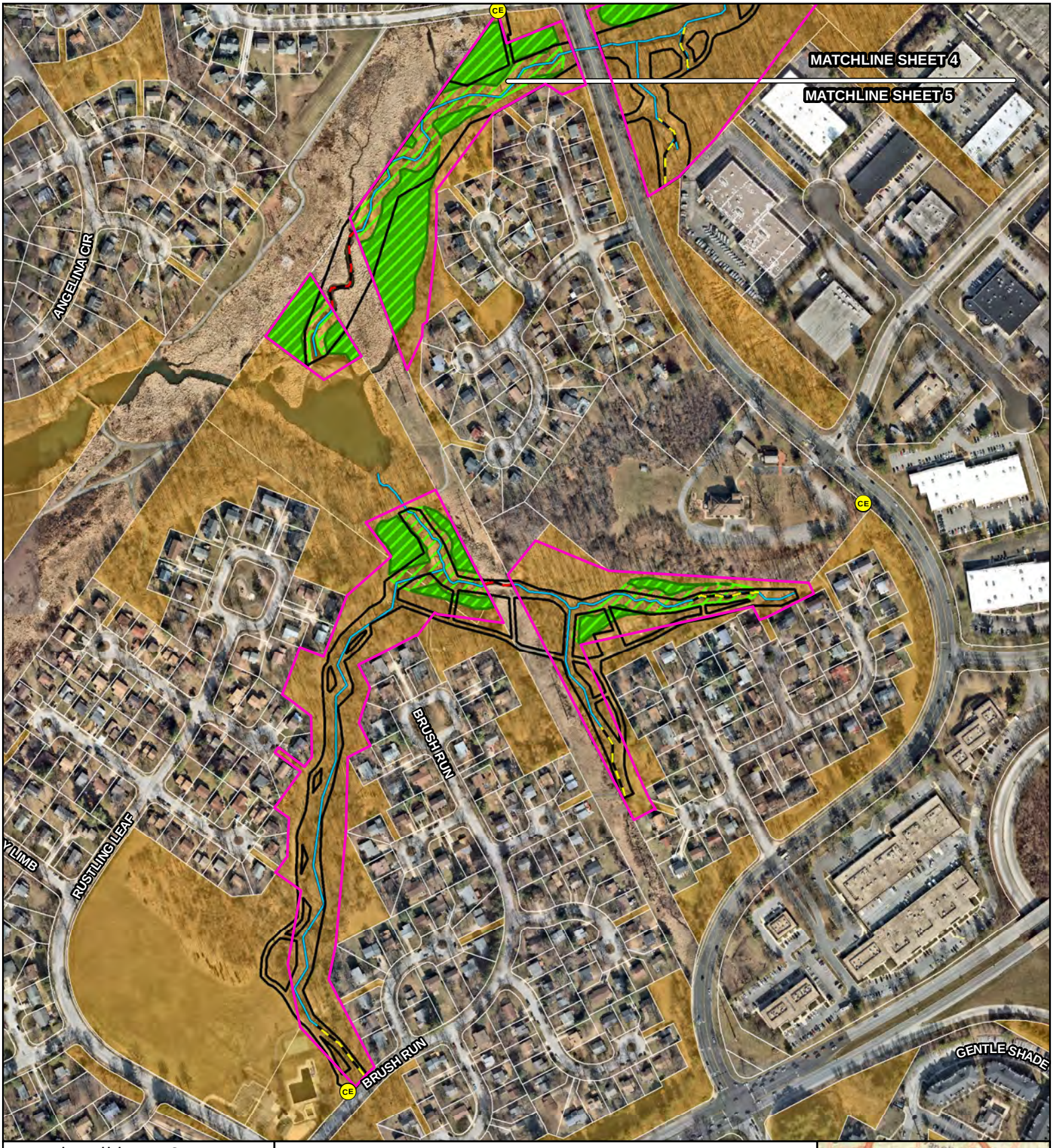
0 100 200 400 Feet

- Easement Area
- Limits of Disturbance
- NCD Restoration
- Stream in Utility Easement
- SPSC Restoration
- Establish Meandor
- Existing Wetlands
- Proposed Wetland Enhancement
- Columbia Association Property
- CE Construction Entrance

For concept plan narrative see sheet 6

Index Map





Lake Elkhorn Stream Mitigation Site
Preliminary Concept Map
Sheet 5 of 6

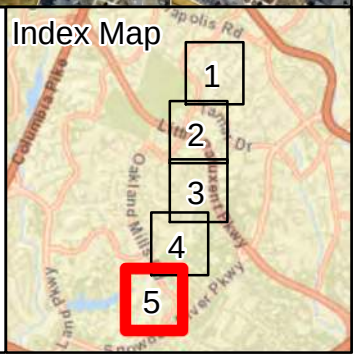
NORTH

0 100 200 400 Feet

- Easement Area
- Limits of Disturbance
- NCD Restoration
- Stream in Utility Easement
- SPSC Restoration
- Establish Meandor
- Existing Wetlands
- Proposed Wetland Enhancement
- Columbia Association Property
- CE Construction Entrance

For concept plan narrative see sheet 6

Index Map



Narrative

The overall restoration goal is to provide the maximum amount of functional uplift to the degraded Lake Elkhorn stream system across all functional levels (hydrology, hydraulics, geomorphology, physiochemical, and biology) with respect to the stream functions pyramid. This will include the reduction of stream bed and bank erosion, and the downstream transport of associated pollutants (total nitrogen and total phosphorus). Further, the project will reduce sediment deposition to downstream receiving waters including Columbia's lakes). To achieve this goal three design approaches will be implemented: Natural Channel Design (NCD), Step Pool Stormwater Conveyance (SPSC), and wetland enhancement.

The NCD approach, which restores a degraded stream by mimicking a natural stable stream system, will be implemented through most of the project area. The NCD restored channels will include floodplain reconnection (either connecting to the existing floodplain or lowering the floodplain to the existing stream), creation of a stable stream cross section, pattern and profile, and establishment of a healthy and diverse riparian corridor. Further, in stream-structures will be incorporated into the design to provide grade control, bank protection, and instream habitat. These structures may include reinforced (constructed) riffles and geomorphic structures (cross vanes, step pools, in-stream sills/weirs, etc.), and woody habitat features. Site constraints will dictate pattern, profile, and floodplain connection strategy such that the design minimizes tree impacts, while avoiding/protecting infrastructure and private property.

The SPSC approach, which is a series of shallow aquatic pools with riffle grade control and an underlying sand/woodchip mix filter media will be incorporated at the end of stormwater outfalls. This technique will provide grade control, energy dissipation, and stormwater attenuation and treatment.

Stream side wetlands will be preserved and enhanced. By reconnecting the stream to its floodplain, local ground water levels will be restored, improving hydrology, and nutrient processing. Invasive species will be controlled, and the vegetation will be supplemented with native tree and shrub planting.

Following the earthwork a robust native seed mix (that contains both warm and cool season erosion control species and permanent seed) will be spread across the disturbed area. In addition, the project area will be planted with a high density of native trees and shrubs. The heavy planting densities proposed have proven to be cost effective in terms of a reduction in replanting requirements, reduced stream maintenance requirements, and overall project success. The re-establishment of the floodplain connection coupled with the post-construction planting will improve the function of the riparian buffer (particularly in filtering flood flows).
Jackson Pond

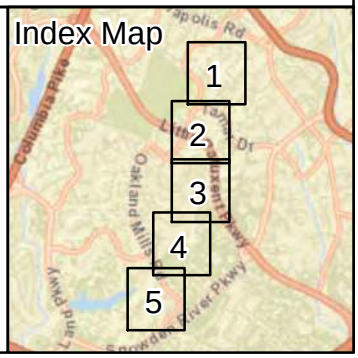
General Notes

1) Total easement area = 133 acres
2) Easement boundary was set to approximately 100 feet from the top of the stream bank. In areas where the Columbia Association property was not wide enough to accommodate, the easement was set at the boundary of the Columbia Association property.
3) The easement boundaries as presented are based on Howard County GIS Parcel Boundary data. Final surveyed easement boundary plats will be prepared as stream reaches are restored. The easement boundary as shown on this document may be modified based on surveyed property boundaries, existing easements, existing infrastructure, etc.; however, the total easement area will not be increased without Columbia Association Approval. All surveyed plats will be presented to Columbia Association for review and approval.

Lake Elkhorn Stream Mitigation Site
Preliminary Concept Map
Sheet 6 of 6

NORTH

Easement Area
Limits of Disturbance
NCD Restoration
Stream in Utility Easement
SPSC Restoration
Establish Meandor
Existing Wetlands
Proposed Wetland Enhancement
Columbia Association Property
CE Construction Entrance



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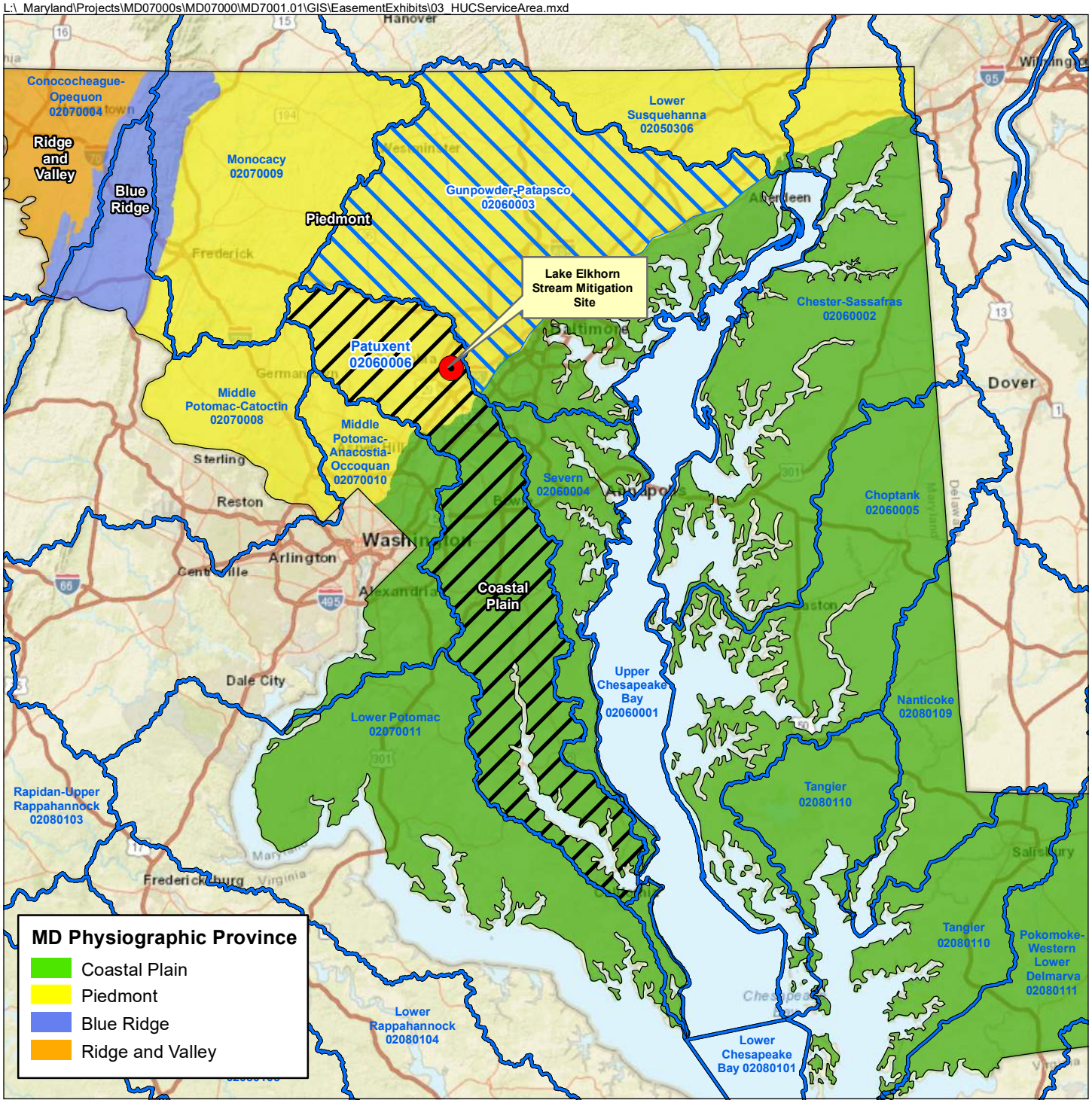

Lake Elkhorn Stream Mitigation Site

Primary Service Area

Secondary Service Area

8-Digit HUC Boundary

Maryland Boundary

Service Area Map
(USGS WBD 8-Digit)
Lake Elkhorn Stream Mitigation Site

NORTH

0 15

Miles

Watershed Boundary Dataset (WBD) 8-Digit HUC source: USGS and USDA-NRCS-National Cartographic and Geospatial Center's (NCGC). https://water.usgs.gov/GIS/huc.html

Wetland Studies and Solutions, Inc.
a DAVEY company

Exhibit 9

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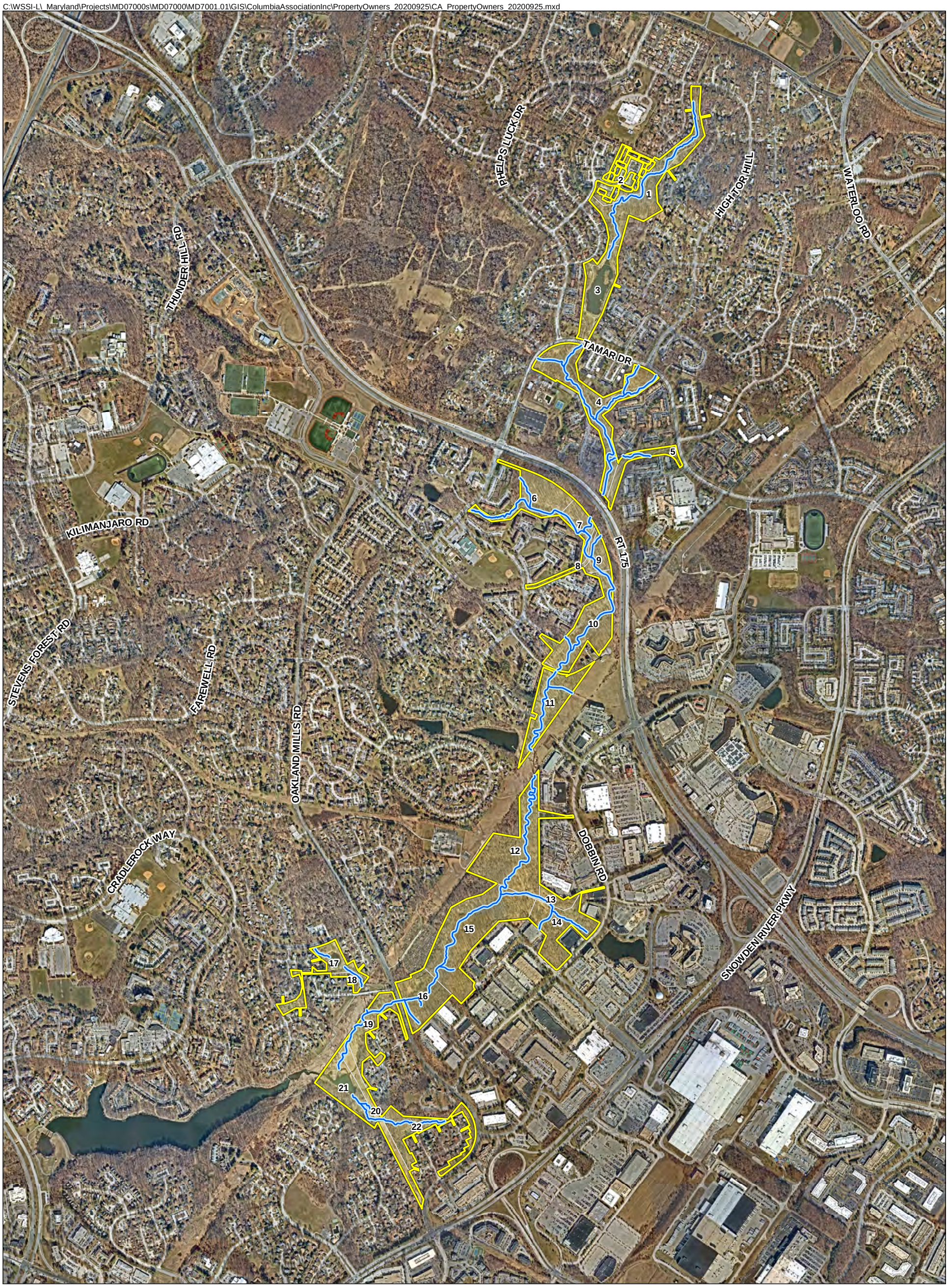

Project Area
Proposed Restoration Properties
Proposed Restoration Streams

Property Owner Map
Lake Elkhorn Stream Mitigation Bank

NORTH
0 0.25
Miles
Original Scale:
1 " = 0.25 miles

Exhibit 10

Source: Howard County GIS
Photo Source: NearMap® (2020)

Wetland Studies and Solutions, Inc.
a DAVEY company

MAP ID	PARCEL	ACCOUNT ID	OWNER NAME	OWNER ADDRESS	OWNER CITY	OWNER STATE	OWNER ZIP
1	37312	1416094501	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
2	39600	1416097780	KING CHARLES COMMONS	CLUSTER SS QUEEN MARIA CT	COLUMBIA	MD	21045
3	41089	1416094498	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
4	43389	1416094471	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
5	46303	1416094072	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
6	46850	1416094145	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
7	48514	N/A	N/A	N/A	N/A	N/A	N/A
8	49557	1416094137	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
9	49707	1416094153	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
10	915193	N/A	N/A	N/A	N/A	N/A	N/A
11	54347	1416167290	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
12	58344	1416200433	COLUMBIA ASSOCIATION	10221 WINCOPIN CIR	COLUMBIA	MD	21044
13	59879	1416072834	CBC DOBBIN LLC	4920 ELM ST	BETHESDA	MD	20814
14	62538	1416073016	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
15	62276	1416073024	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
16	63974	1416131822	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
17	63524	1416088919	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
18	64182	1406552641	COLUMBIA PARK AND RECREATION	10221 WINCOPIN CIR STE 100	COLUMBIA	MD	21044
19	64553	1416088641	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
20	65394	N/A	N/A	N/A	N/A	N/A	N/A
21	65611	1416088714	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044
22	66497	1416094692	COLUMBIA ASSOCIATION INC	10221 WINCOPIN CIR	COLUMBIA	MD	21044

Lake Elkhorn Title Report Summary

Subject	Liber	Folio	Map IDs	Additional Information And Notes
Reservation of a Graveyard as contained in Deed dated January 10, 1866	22	111	1, 2, 3, 4, 6, 7, 8, 9, 10	from Worthington to C. Lewis Hammond and as reasserted in Deed Liber 328, Folio 227 (Kindler to Shaw)
Right of Way as contained in Deed	22	580	16, 17, 19, 21, 22	
Right of Way Agreement as contained in Deed	32	58	5	and reasserted in Deed: Liber 201, Folio 592
Grant of Easement as contained in Deed	74	399	1, 2, 3, 4, 6, 7, 8, 9, 10	
Reservations of a Graveyard as contained in Deed	98	435	11, 12, 13, 14, 15	dated February 15, 1915 from Emily L. Dorsey to John H. Sieling and Anna Sieling his wife
Right of Way Agreement	100	268	5	
Perpetual Right of Way use with others of road as contained in Deed	102	553	1, 3, 4	
Right of Way grant to Chesapeake and Potomac Telephone in Agreement	122	429	1, 2, 3, 4, 6, 7, 8, 9, 10	
Reservation of Water Usage as contained in Deed	132	301	5	
Deed	144	117	16, 17, 19, 21, 22	
Deed	144	222	16, 17, 19, 21, 22	
Deed	144	225	16, 17, 18, 19, 21, 22	
Reservation of Rights as contained in Deed	144	261	1, 2, 3, 4, 6, 7, 8, 9, 10	
Reservation of Rights to Use as contained in Deed	144	337	11, 12, 13, 14, 15	
Reservation of Rights to Use as contained in Deed	144	343	11, 12, 13, 14, 15	
Reservation of Rights as contained in Deed	144	394	5	
Reservation of Rights as contained in Deed	145	8	5	
Deed	145	13	16, 17, 19, 21, 22	
Reservation of Rights as contained in Deed	145	46	5	
Pole Line Agreement	150	416	5	
Pole Line Agreement	157	53	16, 17, 19, 21, 22	
Pole Line Agreement	157	275	16, 17, 19, 21, 22	
Pole Line Agreement	157	277	16, 17, 19, 21, 22	
Pole Line Agreement	157	278	16, 17, 19, 21, 22	
Pole Line Agreement	160	262	16, 17, 19, 21, 22	
Pole Line Agreement	162	252	5	
Pole Line Agreement	163	549	16, 17, 19, 21, 22	
Pole Line Agreement	163	551	11, 12, 13, 14, 15	
Pole Line Agreement	165	122	16, 17, 19, 21, 22	
Agreement AT&T	167	71	5	
Right of Way Easement as contained in Right of Way Agreement	173	346	1, 3, 4	
Right of Way Agreement	174	153	5	
Pole Line Agreement	180	420	5	
Pole Line Agreement	182	431	16, 17, 19, 21, 22	

Lake Elkhorn Title Report Summary

Subject	Liber	Folio	Map IDs	Additional Information And Notes
Pole Line Agreement	185	234	5	
Pole Line Agreement	185	556	1, 2, 3, 4, 6, 7, 8, 9, 10	
Right of Way use with others as contained in Deed	191	514	1, 2, 3, 4, 6, 7, 8, 9, 10	
Grant of Right of Way as contained in Right of Way Agreement	201	539	1, 2, 3, 4, 6, 7, 8, 9, 10	
Pole Line Agreement	203	268	1, 2, 3, 4, 6, 7, 8, 9, 10	
Right of Way Agreement	215	332	5	
Pole Line Agreement	224	566	16, 17, 19, 21, 22	
Right of Way use with others as contained in Deed	228	258	16, 17, 19, 21, 22	
Pole Line Agreement	229	319	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	
Pole Line Agreement	238	469	11, 12, 13, 14, 15	
Pole Line Agreement	238	470	16, 17, 19, 21, 22	
Pole Line Agreement	242	207	11, 12, 13, 14, 15	
Pole Line Agreement	246	415	16, 17, 19, 21, 22	
Pole Line Agreement	253	1	1, 2, 3, 4, 6, 7, 8, 9, 10	
State Road Commission Deed	260	101	5, 6, 7, 8, 9, 10	and Plats 12448-12450
State Road Commission Deed	261	17	1, 4, 5, 6, 7, 8, 9, 10	and Plat 12450
Terms of Deed	261	101	1, 3, 4	together with State Road Commission Plats 12448, 12449, and 12450
Right of Way use with others as contained in Deed	262	492	16, 17, 19, 21, 22	
Reservation of Right of Way and Reservation of Private Graveyard and Right of Way for agreements contained in Deed	263	539	5	
Pole Line Agreement	265	565	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	
Pole Line Agreement	265	598	16, 17, 19, 21, 22	
Right of Way for Pipeline	266	249	5	
Pole Line Agreement	267	109	1, 2, 3, 4, 6, 7, 8, 9, 10	
Certificate of Articles of Transfer	280	315	18	
Reservation of Right of Way and other Rights in Deed	289	1	5	
Deed of Right of Way	292	142	5	
Pole Line Agreement	295	149	1, 2, 3, 4, 5, 7, 10	
Deed of Right of Way	296	291	5	
Deed of Right of Way	296	295	5	
Deed of Right of Way for Gas lines	297	153	1, 2, 3, 4, 7, 10	called "Pole Line Agreement" for Map IDs 2, 7, 10 but same liber/folio
Deed of Right of Way	297	156	5	
Pole Line Agreement	307	56	16, 17, 19, 21, 22	
Pole Line Agreement	321	591	11, 12, 13, 14, 15	

Lake Elkhorn Title Report Summary

Subject	Liber	Folio	Map IDs	Additional Information And Notes
Pole Line Agreement	327	357	5	
Pole Line Agreement	329	395	16, 17, 19, 21, 22	
Pole Line Agreement	330	106	11, 12, 13, 14, 15	
Right of Way as contained in Deed	335	295	1, 2, 3, 4, 6, 7, 8, 9, 10	
Pole Line Agreement	338	551	1, 2, 3, 4, 5, 7, 10	
Easement Agreement contained in Deed	349	308	5	
Reservation of Right of Way contained in Deed	349	311	5	
Pole Line Right of Way Agreement	354	52	1, 2, 3, 4, 7, 10	called "Pole Line Agreement" for Map IDs 2, 7, 10 but lists same liber/folio
Pole Line Agreement	363	330	16, 17, 19, 21, 22	
Grant of Right of Way (ingress/egress) contained in Deed	363	415	1, 2, 3, 4, 6, 7, 8, 9, 10	
Pole Line Agreement	364	166	1, 2, 3, 4, 7, 10	
Pole Line Agreement	379	125	16, 17, 19, 21, 22	
Pole Line Agreement	385	624	1, 2, 3, 4, 7, 10	
Reservation of Right of Way contained in Deed	386	103	5	
Right of Way Agreement mentioned in Deed	399	195	5	
Right of Way use with others as contained in Deed	399	480	16, 17, 19, 21, 22	
Pole Line Agreement	403	402	5	
Reservation of Rights as contained in Deed	413	513	1, 3, 4	
Deed, Agreement and Declaration of Covenants, Easements, Charges and Liens	463	158	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22	called "Deed, Agreement and Declaration of Covenants" for Map ID 18 but lists same liber/folio
Pole Line Agreement	468	239	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 22	called "Right of Way Utility Agreement" for Map IDs 2,6,7,8,9,10,11,12,13,14,15,16,17,19,21,22 but lists same liber/folio
Right of Way Utility Agreement	523	179	14, 15	
Deed and Agreement of Easement	525	605	7, 8, 9, 10	
Deed and Agreement	529	363	18	
Deed and Agreement of Easement	530	181	12, 14, 15	
Long Reach Village Covenants, Deed, Agreement and Declaration	532	181	1, 2, 3, 4, 6, 7, 8, 9, 10, 11	
Deed and Agreement	533	472	14, 15, 17, 19, 21, 22	called "Deed" for Map IDs 17,19,21,22 but lists same liber/folio
Deed and Agreement	538	743	13	
Deed and Agreement	544	137	16	
Deed and Agreement	545	146	17	
Declaration of Annexation	550	324	1, 2, 3, 4, 6, 7, 8, 9, 10, 11	

Lake Elkhorn Title Report Summary

Subject	Liber	Folio	Map IDs	Additional Information And Notes
Right of Entry as contained in Deed and Agreement	551	294	4	
Deed and Agreement	551	425	18, 19, 21	
Deed and Agreement	551	618	11	
Deed of Easement	552	473	11	
Declaration of Annexation	559	630	5	
Easements and Rights of Way as contained in Deed	566	305	1, 4, 6, 7, 8, 9, 10, 11	
Right of Entry as contained in Deed and Agreement	566	329	3	
Deed and Agreement	572	763	18	
Deed and Agreement	585	20	6	
Pole Line Agreement	589	456	3	
Deed, Agreement and Declaration	594	473	16, 17, 19, 21, 22	
Restrictions on Deed, Agreement, and Declaration	594	546	14, 15	
Deed and Agreement	605	304	14, 15, 16	
Right Of Way Utility Agreement	606	735	2	
Easement and Right of Way as contained in Deed and Agreement	610	431	4, 5	
Declaration of Covenants, Conditions and Restrictions	613	560	2	
Right of Way Utility Agreement	618	712	16	
Trust Agreement	623	313	12, 15, 16, 17, 18, 19, 21, 22	
Declaration of Annexation	632	253	14, 15	
Deed, Agreement and Declaration of Covenants, Easements, Charges and Liens	638	552	13	
State Road Commission Deed	642	740	4, 6, 7, 8, 9, 10	and Plat 43566
Right of Way Utility Agreement	645	392	2	
Sewer Right of Way as contained in a Deed and Agreement	647	16	4	
Road Dedication Deeds	648	478	1, 4, 6, 7, 8, 9, 10, 11	as contained in deeds, Map ID 1 also listed liber 660, Folio 527 as an additional source
Deed and Agreement	654	136	5	
State Road Commission Deed	656	465	4, 6, 7, 8, 9, 10	and Plats 37806-37810, 37812, 37813, 41569, 41570, 41572-41583 and 43566, Map IDs 6,7,8,9,10 also listed Plats 41412-41421
Road Dedication as contained in Deed	660	527	4, 11	
Covenants as contained in Deed	661	637	2	
Declaration of Covenants, Conditions and Restrictions	662	574	2	
Easement	680	409	2	
Deed and Agreement	681	293	17	

Lake Elkhorn Title Report Summary

Subject	Liber	Folio	Map IDs	Additional Information And Notes
First Supplemental Trust Agreement	696	644	12, 15, 16, 17, 18, 19, 21	
First Supplemental Trust Agreement	696	644	22	
Deed and Agreement	698	119	19	
Deed and Agreement	716	50	18	
Declaration of Annexation	721	236	11	
Restrictions as contained in Deed	726	532	1, 3, 4, 6, 7, 8, 9, 10	
Deed and Agreement of Easement	727	60	12, 13	called "Deed and Agreement" for Map ID 13 but lists same liber/folio
Deed and Agreement	727	69	13	
Covenants as contained in Deed	762	532	7, 8, 9	
Financing Statement	775	609	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Second Supplemental Trust Agreement	775	612	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Deed and Agreement re municipal utilities, sewers, etc	800	623	1, 3, 4, 5, 6, 7, 8, 9, 10	
Third Supplemental Trust Agreement	807	192	12, 15, 16, 17, 18, 19, 21, 22	
Declaration of Annexation	825	234	16, 17, 19, 21, 22	
Fourth Supplemental Trust Agreement	833	463	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	833	487	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Continuation Statement	847	322	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Deed and Agreement	847	676	13	
Fifth Supplemental Trust Agreement	864	550	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	864	574	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Deed	886	220	14, 15	
Deed	889	518	21, 22	
Sixth Supplemental Trust Agreement	901	275	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	901	300	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	

Lake Elkhorn Title Report Summary

Subject	Liber	Folio	Map IDs	Additional Information And Notes
Deed	922	70	14, 15	
Deed	922	76	19, 21	
Seventh Supplement Trust Agreement	928	549	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	928	576	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Deed	965	372	19	
Eighth Supplemental Trust Agreement	1000	443	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	1000	469	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Ninth Supplemental Trust Agreement	1020	57	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	1020	82	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Deed	1029	171	17	
Tenth Supplemental Trust Agreement	1065	27	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	1065	52	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	1065	55	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Eleventh Supplement Trust Agreement	1090	594	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	1090	619	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	1142	147	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Twelfth Supplemental Trust Agreement	1144	187	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	1144	216	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	

Lake Elkhorn Title Report Summary

Subject	Liber	Folio	Map IDs	Additional Information And Notes
Deed, Agreement and Declaration of Covenants, Easements, Charges and Liens	1221	733	13	
Easements and Rights of Way as contained in Deed	1335	118	13	
Thirteenth Supplemental Trust Agreement	1342	80	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	1342	110	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Fourteenth Supplemental Trust Agreement	1662	563	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Fifteenth Supplemental Trust Agreement	1662	591	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	1662	616	1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 17, 18, 19, 21, 22	
Restrictions as contained in Deed	1742	44	11	
Declaration of Annexation	1965	498	14, 15	
Deed	2030	249	15	
Sixteenth Supplemental Trust Agreement	2055	16	4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	
Sixteenth Supplemental Trust Agreement	2055	17	1, 3	
Financing Statement	2055	43	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	
Deed of Easement and Agreement	2177	409	13	
Revertible Drainage and Utility Easement	2223	1	16	
Financing Statement	2284	670	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	
Agreement and Declaration of Annexation	2288	130	12	
Seventeenth Supplemental Trust Agreement	2311	132	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	2311	153	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	
Eighteenth Supplemental Trust Agreement	2540	506	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	

Lake Elkhorn Title Report Summary

Subject	Liber	Folio	Map IDs	Additional Information And Notes
Financing Statement	2540	529	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	
Nineteenth Supplemental Trust Agreement	3148	120	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	3148	147	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	
Twentieth Supplemental Trust Agreement	3308	191	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	
Financing Statement	3308	215	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	
Maintenance Agreement	3668	244	18	
Right of Way Agreement	3818	633	18	
Second Partial Release of Restrictions	4640	561	13	
Deed of Easement	4719	20	22	
Construction Strip Easement Agreement	4964	559	1, 3, 5, 7, 8, 9, 10	
Deed	5105	397	18	
Covenants as contained in Deed	5112	458	12	
Deed of Easement	5236	134	18	
Deed of Forest Conservation Easement	5236	246	18	
Right of Way Utility Agreement	5682	489	13	
Right of Way Utility Agreement	6085	619	13	
Amendment to UCC Financing Statement	7683	456	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	listed twice for Map ID 12
Amendment to UCC Financing Statement	8322	366	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	listed twice for Map ID 12
Confirmatory Deed of Easement and Agreement	9614	643	16	
Amendment to Deed, Agreement and Declaration	9637	646	14, 15	
Amendment to UCC Financing Statement	14610	204	1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 21, 22	
Deed of Trust, Security Agreement, Financing Statement, and Assignment of Rents	18164	427	13	
Assignment of Leases and Rents	18164	475	13	
Maintenance Agreement	18530	289	17	
Deed of Easement	18530	296	17	

Lake Elkhorn Title Report Summary

Subject	Liber	Folio	Map IDs	Additional Information And Notes
Restrictions as shown on Plats 18/48, 18/51, 18/52 and 18/53			1	
Restrictions as shown on Plat: 18/53, 22/75, 22/76, and 24/58			2	
Restrictions as shown on Plats 18/48, 18/51, and 18/55			3	
Restrictions as shown on Plats 18/58, 18/59, and 18/63.			4	
Restrictions as shown on Plat 21/83.			5	
Restrictions as shown on Plat 21/21			6	
Restrictions as shown on Plat 21/23			7, 8, 9	
Restrictions as shown on Plat 21/25			10	
Restrictions as shown on Plat: 21/28; Plat 5067			11	
Restrictions as shown on Plat 9849			12	
Restrictions as shown on Plat 25/48, 4875, 5915, 8506.			13	
Restictions as shown on plat: 24/62, 25/91			14	
Restrictions as shown on Plat 24/63, 24/64, 31/6, 5748.			15	
Plat 12449-12450			16, 17, 19, 21, 22	
Restrictions as shown on Plat 27/78, 31/5.			16	
Restrictions as shown on Plat 27/68, 27/69, 24876-24877			17	
Restrictions as shown on Plat 27/67, 11337			19	
Restrictions as shown on Plat 27/67			21	
Restrictions as shown on Plat 25/16-26.			22	

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 1: Reach 1A, looking downstream, 4' actively eroding stream bank.

Photo 2: Reach 1B, looking downstream towards Jackson Pond, 3' actively eroding bank with minimal riparian vegetation.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 3: Reach 2, looking downstream near Blade Green Ln, 3' actively eroding stream banks. The riparian area contains a high concentration of invasive species.

Photo 4: Reach 3-1, looking downstream towards Reach 3A, 4'actively eroding stream bank.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 5: Reach 3A, looking downstream towards Lamb Skin Ln, 6' actively eroding bank.

Photo 6: Reach 3B, looking downstream towards Lamb Skin Ln, 4' actively eroding bank with fallen tree.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 7: Reach 4, looking downstream towards Reach 3A, 3’ actively eroding bank.

Photo 8: Reach 5, looking downstream towards Reach 3B, 3’ actively eroding bank.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 9: Reach 6, looking downstream near Tamar Drive, 9’ eroding bank.

Photo 10: Reach 7, looking downstream near Cloudleap Ct, 3’ actively eroding bank with minimal riparian vegetation.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 11: Reach 8A, looking downstream near Majors Ln, 8' actively eroding bank impacting nearby pedestrian path.

Photo 12: Reach 8B, looking downstream near Route 175, 12' actively eroding bank with disconnected and exposed pipes.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 13: Reach 8D, looking downstream near confluence with Reach 14, 4' actively eroding bank undercutting large tree.

Photo 14: Reach 9A, looking downstream near Majors Ln, 7' actively eroding bank with minimal riparian vegetation.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 15: Reach 10, looking at side channel near the corner of Tamar Drive and Route 175, 7' eroding bank where apartment complex outfall meets Reach 10.

Photo 16: Reach 11, looking downstream near confluence with Reach 8A, 3' actively eroding bank with over widened channel.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 17: Reach 12, looking upstream near Stone Cloud Rd, 3' head cut.

Photo 18: Reach 13, looking downstream near utility easement, 4' actively eroding banks. The riparian area contains a high concentration of invasive species.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 19: Reach 14, looking downstream near Tamar Drive, 4' actively eroding bank. The riparian area contains a high concentration of invasive species.

Photo 20: Reach 15-2, looking upstream near culvert under a pedestrian path, 2' head cut that is beginning to undercut a tree.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 21: Reach 15A, looking downstream near confluence with Reach 16, 8' actively eroding bank and large fallen tree.

Photo 22: Reach 15B, looking upstream near Oakland Mills Rd, 9' actively eroding bank undercutting large tree

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 23: Reach 15C, looking downstream near Drowsy Day Drive, 4' actively eroding bank with exposed sewer line and over-widened channel.

Photo 24: Reach 15C, looking downstream pond that ties into Lake Elkhorn, the pond is routinely dredged due to the high sediment load.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 25: Reach 16, looking upstream near the confluence with Reach 15A, 4' eroding banks with minimal riparian vegetation.

Photo 26: Reach 17, looking at outfall near Dobin Rd, the pipe has broken and is disconnected from the reach.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 27: Reach 17, looking downstream near confluence with Reach 18 , 3' actively eroding bank.

Photo 28: Reach 20, looking upstream near Oakland Mills Rd, 9' head cut and actively eroding banks.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 29: Reach 21A, looking at concrete swale near DeerPasture Dr, swale is disconnected from the stream and near failure.

Photo 30: Reach 22, looking upstream near DeerPasture Dr, 3' head cut. The riparian area contains a high concentration of invasive species.

Lake Elkhorn Stream Restoration
Exhibit 11 – Existing Condition Photos
WSSI #7001.01

Photo 31: Reach 23, looking upstream near Hourglass Place, 6' eroding banks.

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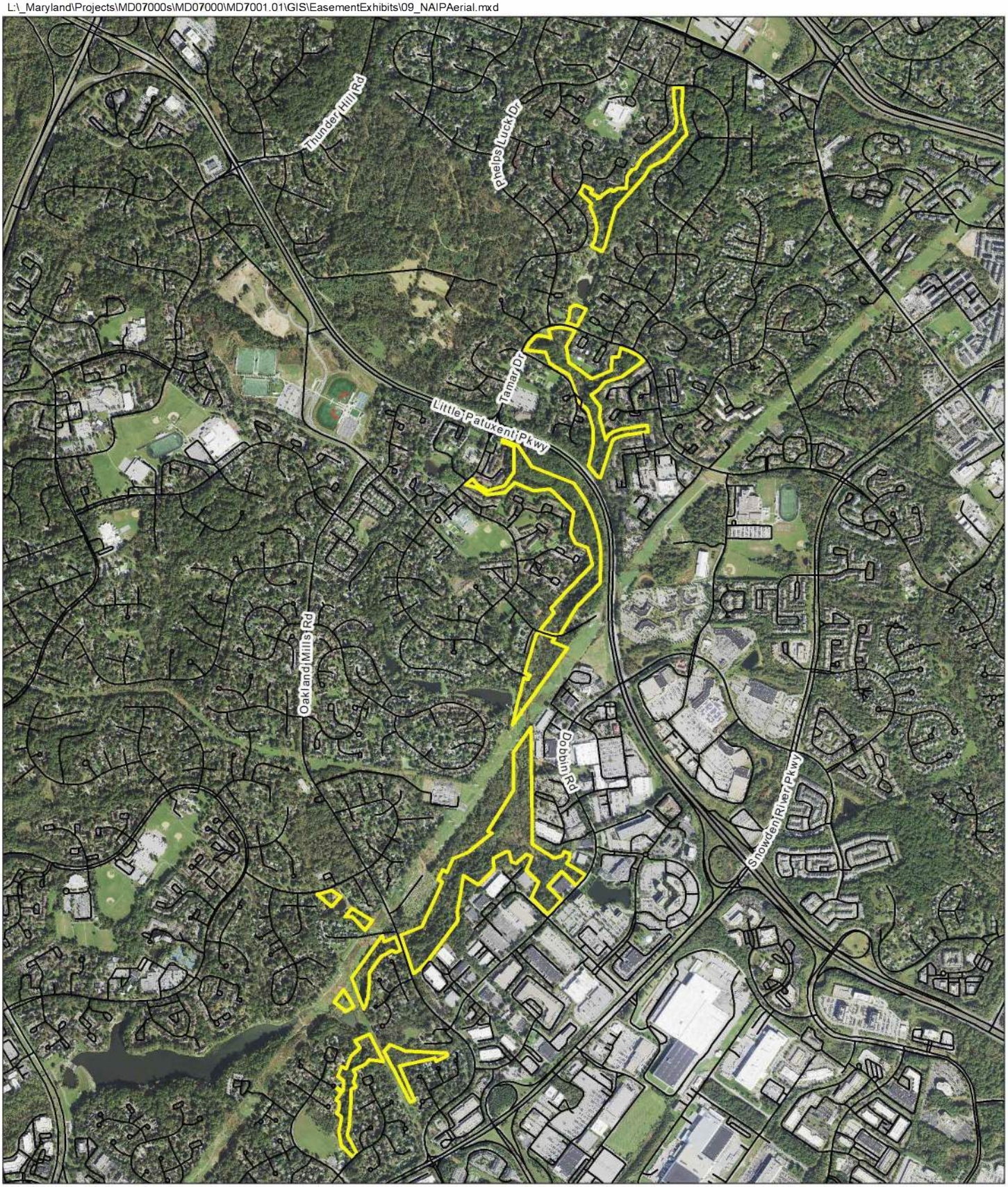


Site

Summer 2018 Natural Color Imagery
Lake Elkhorn Stream Mitigation Site

NORTH

0 2,000

Feet

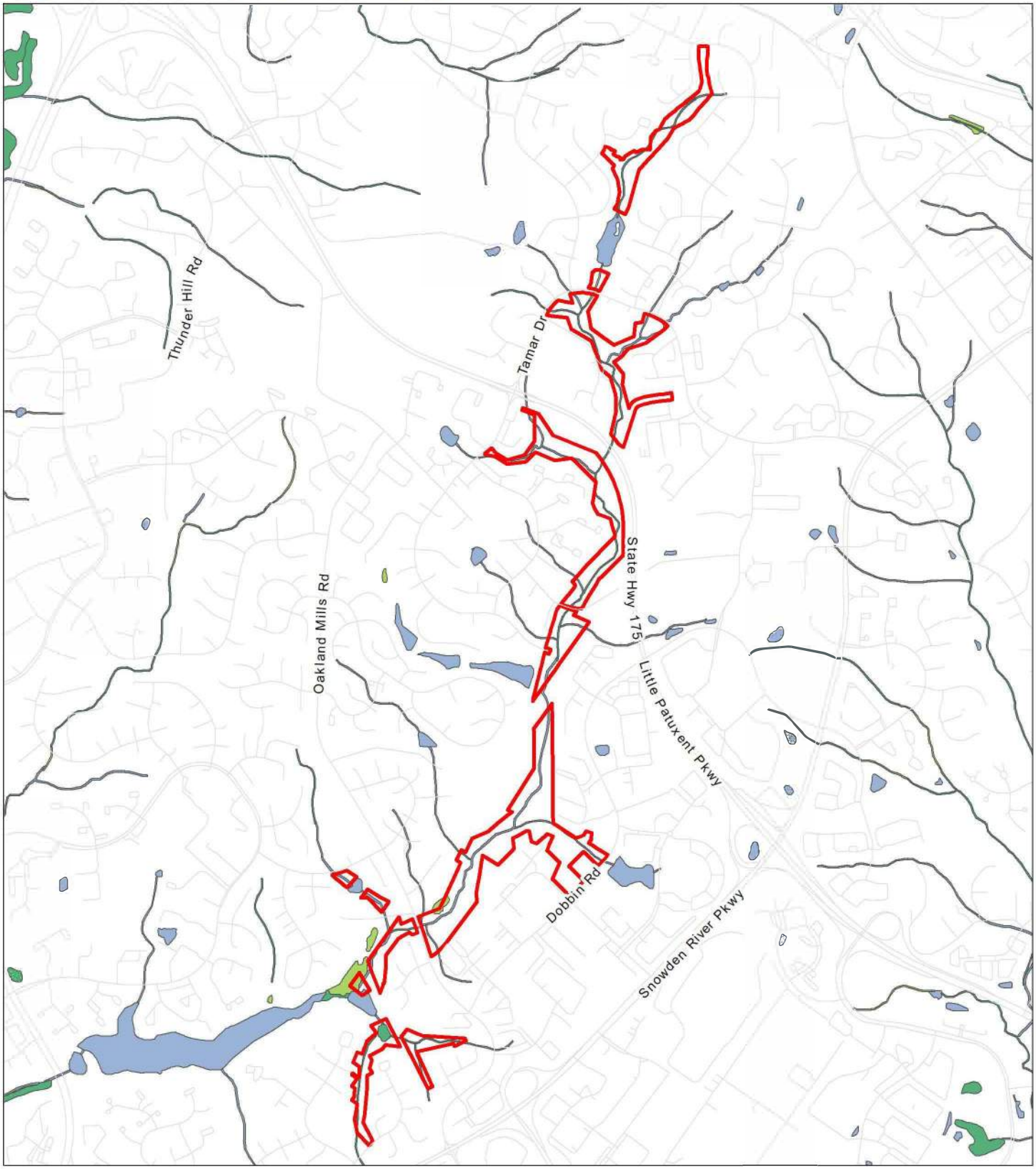
Original Scale:
1 " = 2,000 '

Source: NAIP

Wetland Studies and Solutions, Inc.
a DAVEY company

Exhibit 12

L:_Maryland\Projects\MD07000s\MD07000\MD7001.01\GIS\EasementExhibits\04_NWI.mxd



Site

Wetland Type

- Open Water
- Freshwater Forested/Shrub Wetland
- Freshwater Emergent Wetland
- Estuarine and Marine Wetland

Source: U.S. Fish and Wildlife Service; October 2020

Digital National Wetlands Inventory Map
Lake Elkhorn Stream Mitigation Site

NORTH

0 2,000

Feet

Original Scale:
1 " = 2,000 '

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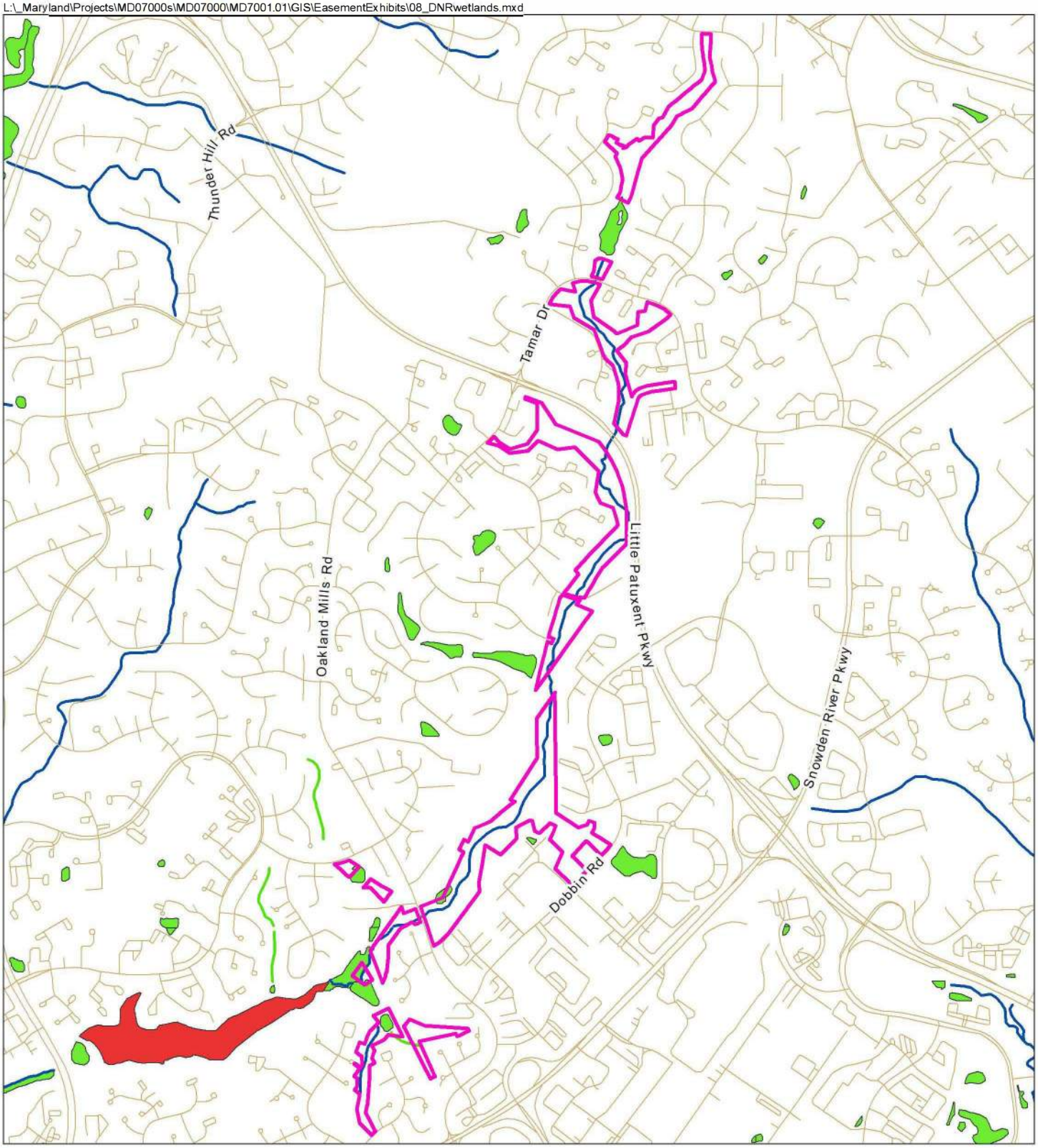
Exhibit 13

L:_Maryland\Projects\MD07000s\MD07000\MD7001.01\GIS\EasementExhibits\08_DNRwetlands.mxd



Site

Wetland Type

- Estuarine
- Lacustrine
- Marine
- Palustrine
- Riverine

DNR Wetlands
Lake Elkhorn Stream Mitigation Site

NORTH

0 2,000

Feet

Original Scale:
1 " = 2,000 '

Source: MD Department of Natural Resources (DNR); September 2018

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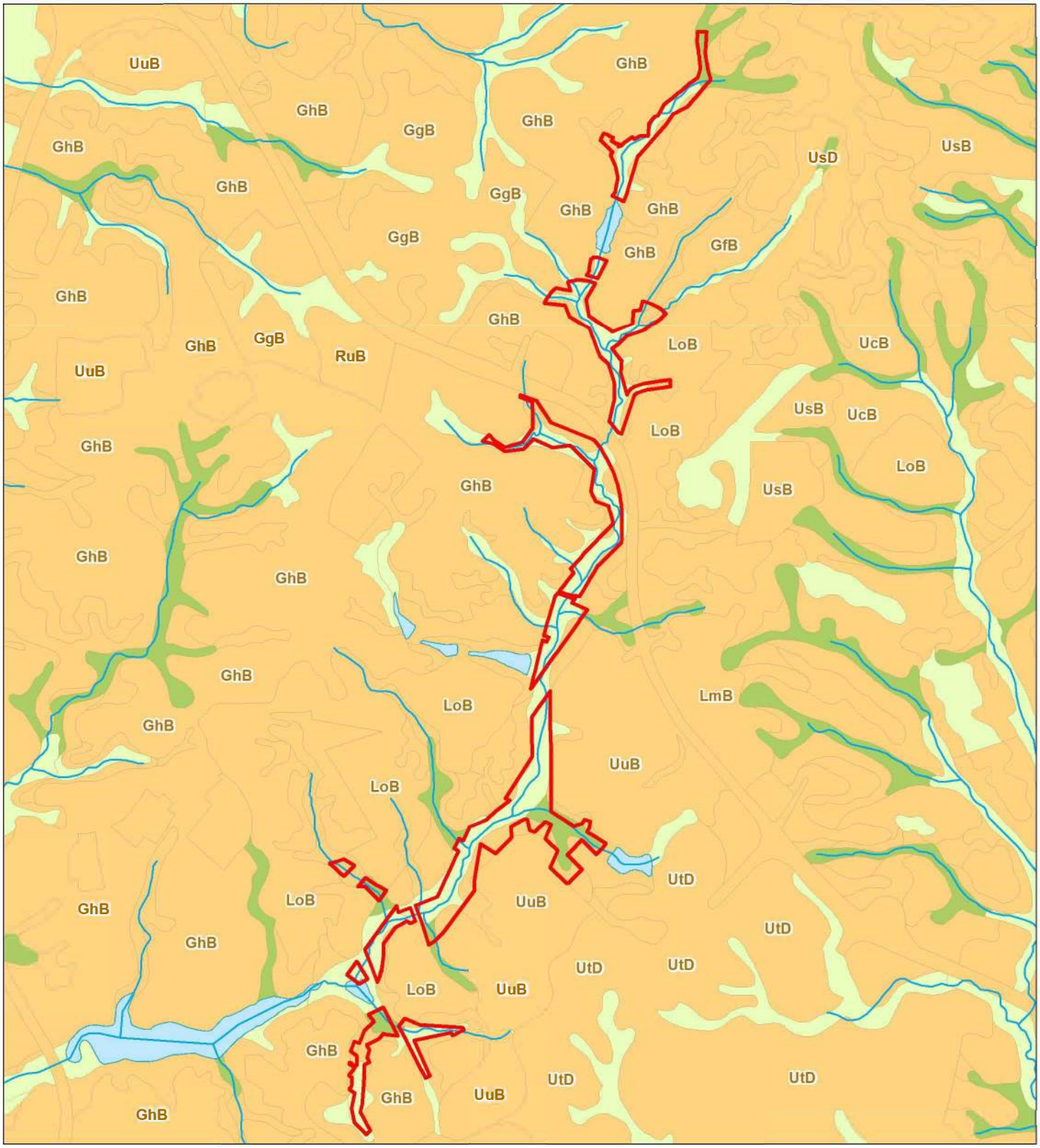
Exhibit 14

L:_Maryland\Projects\MD07000s\MD07000\MD7001.01\GIS\EasementExhibits\06_Soils.mxd



Site
Hydric Soil
Soil with Hydric Inclusion
Non-Hydric Soil
Water

Soils Map
Lake Elkhorn Stream Mitigation Site

NORTH
0 2,000
Feet
Original Scale:
1 " = 2,000 '

Major Land Resource Area: Northern Piedmont, 148; Northern Coastal Plain, 149A
Land Resource Region: Northern Atlantic Slope Diversified Farming Region, S; Northern Atlantic Slope Diversified Farming Region, S
Source: Howard County Digital Data, U.S. Department of Agriculture, 2019

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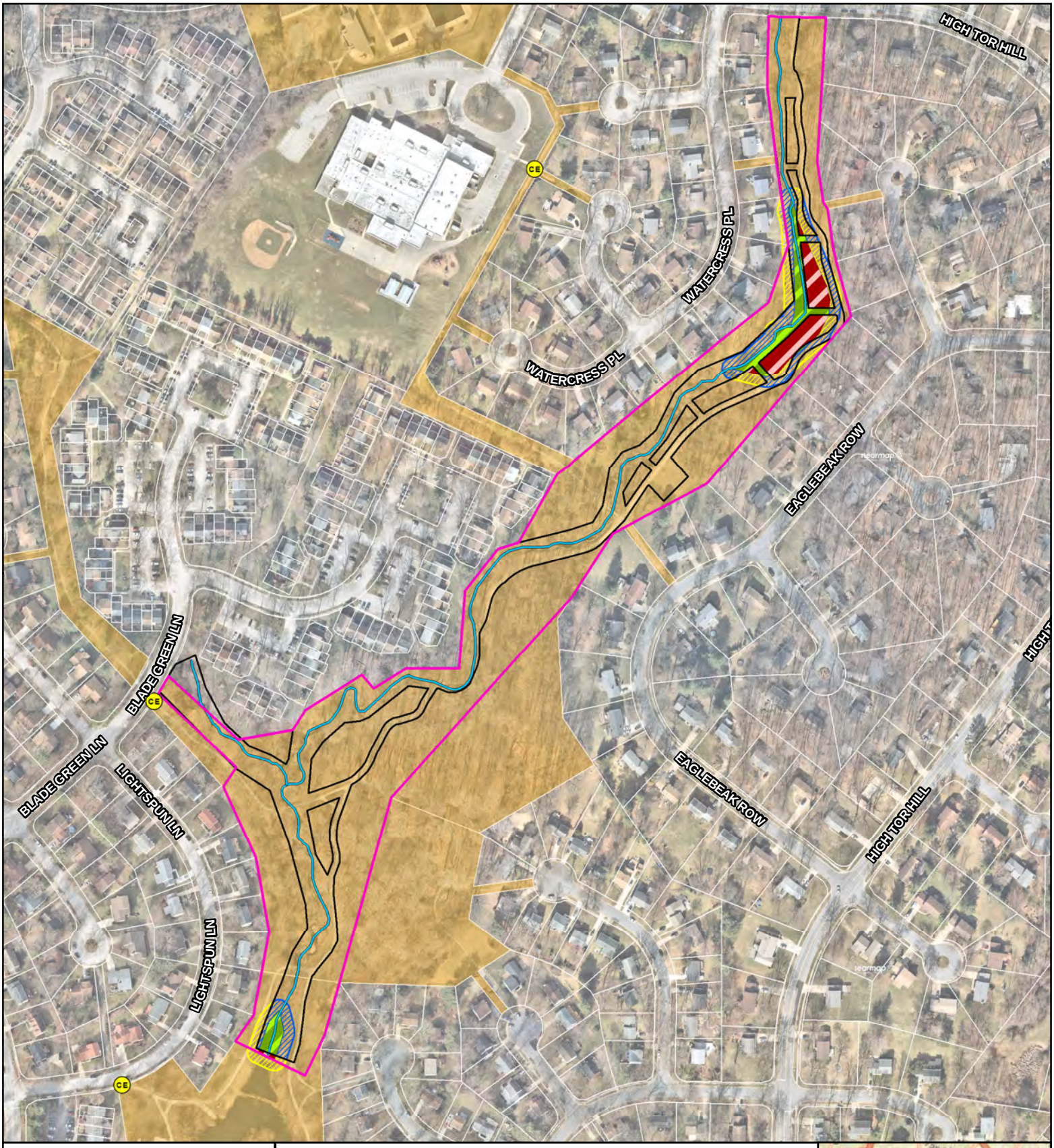
Exhibit 15



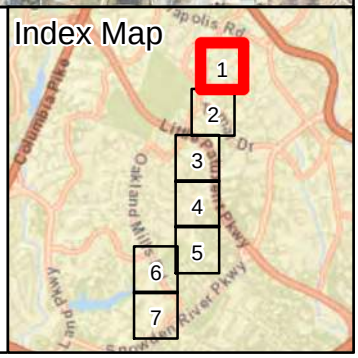
Lake Elkhorn Stream Mitigation Site Impact Map Sheet 1 of 7

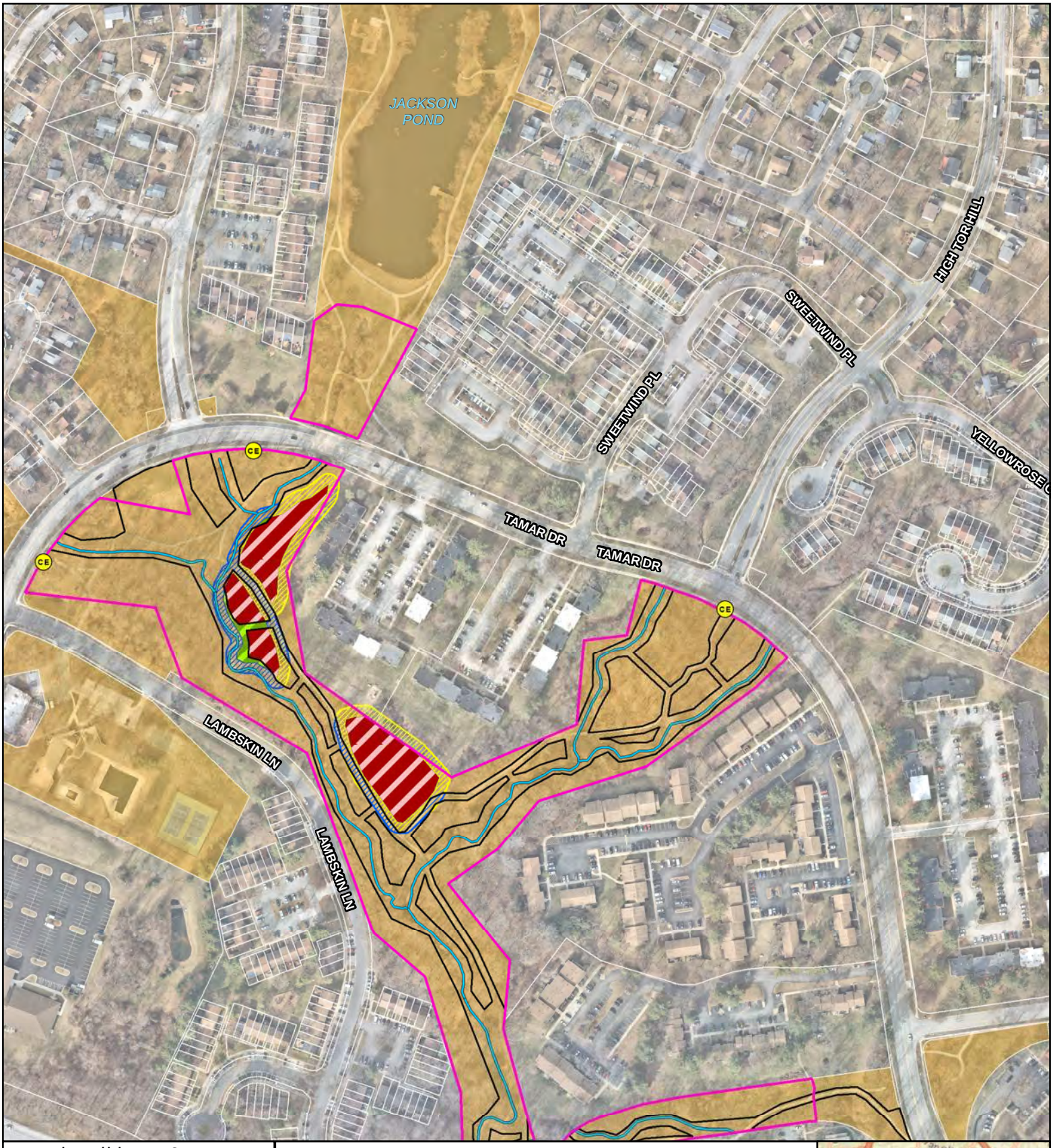
NORTH

0 100 200 300 400 Feet

- Easement Area (132.3 a.c.)
- Limits of Disturbance (50.5 a.c.)
- Perennial Stream Impact (33,323 l.f.)
- Columbia Association Property
- CE Construction Entrance
- PFO Impact (20.9 a.c.)
- Existing Wetland (Non-Impacted)
- 25' Impacted Wetland Buffer (9.6 a.c.)
- 25' Non-Impacted Wetland Buffer
- FEMA 100 Year Floodplain Impacts (35.2 a.c.)
- FPL FEMA 100 Year Floodplain

Index Map





Lake Elkhorn Stream Mitigation Site Impact Map Sheet 2 of 7

NORTH

0 100 200 300 400 Feet

- Easement Area (132.3 a.c.)
- Limits of Disturbance (50.5 a.c.)
- Perennial Stream Impact (33,323 l.f.)
- Columbia Association Property
- CE Construction Entrance
- PFO Impact (20.9 a.c.)
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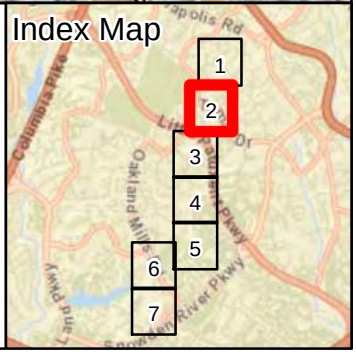
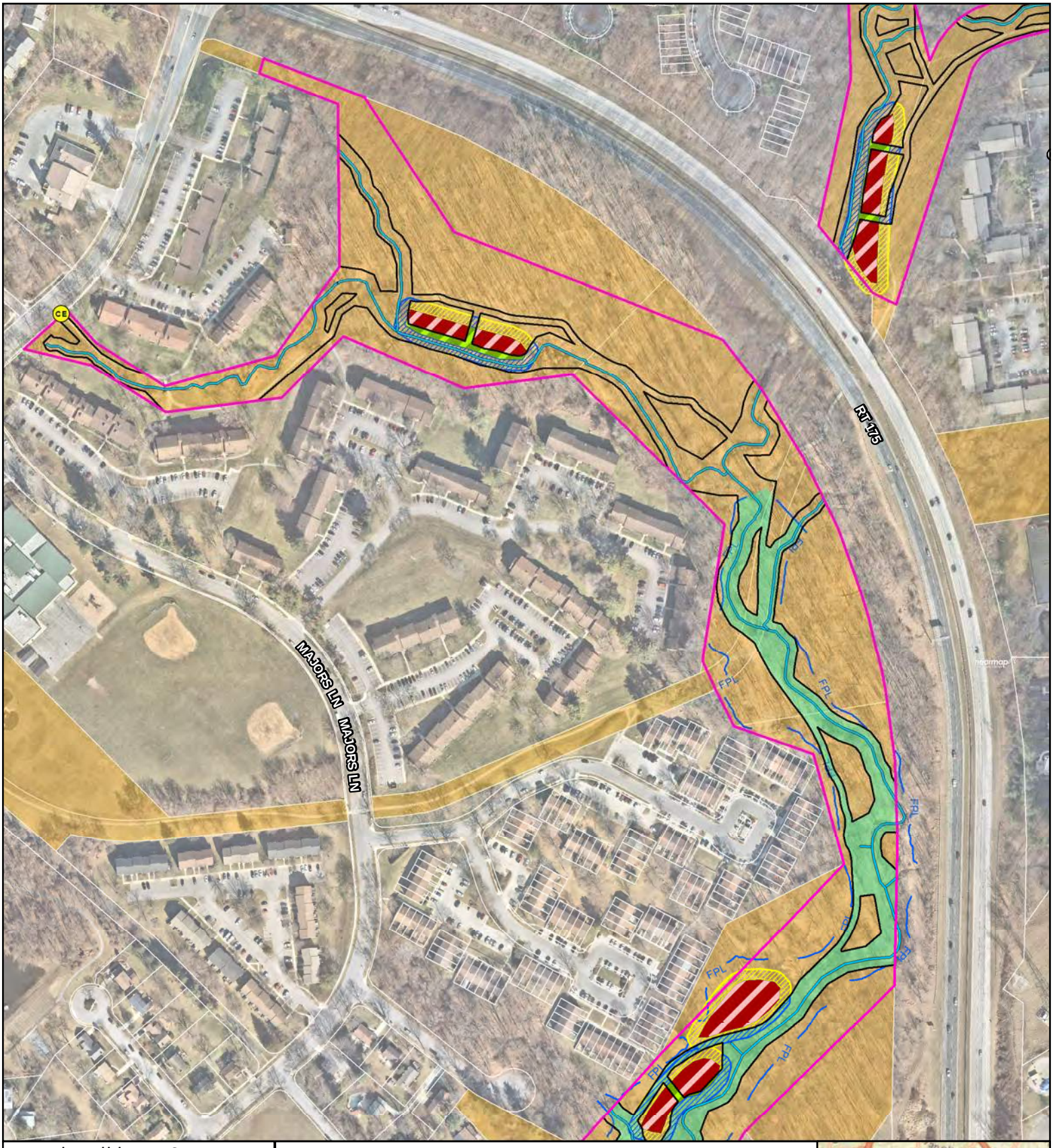
Index Map





Lake Elkhorn Stream Mitigation Site Impact Map Sheet 3 of 7

NORTH

0 100 200 300 400 Feet

- Easement Area (132.3 a.c.)
- Limits of Disturbance (50.5 a.c.)
- Perennial Stream Impact (33,323 l.f.)
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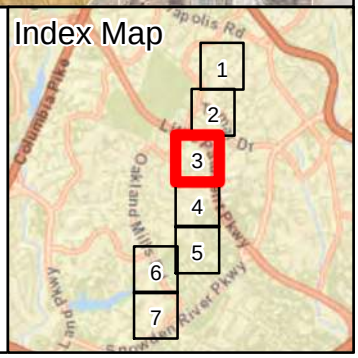
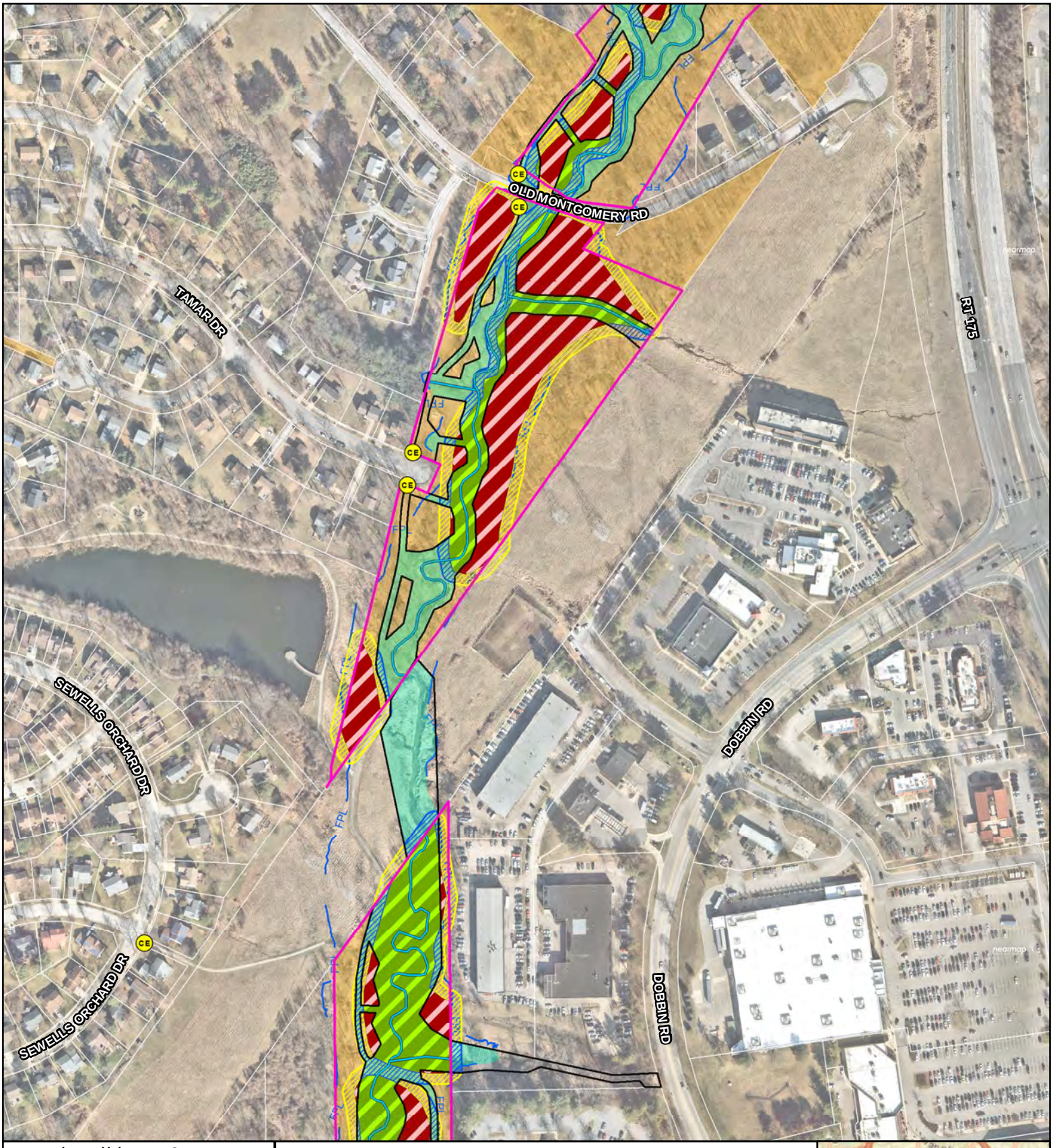
- FEMA 100 Year Floodplain Impacts (35.2 a.c.)
- FPL FEMA 100 Year Floodplain

Index Map





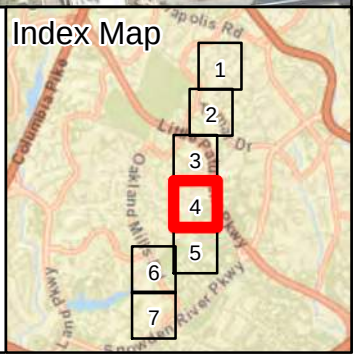
Lake Elkhorn Stream Mitigation Site Impact Map Sheet 4 of 7

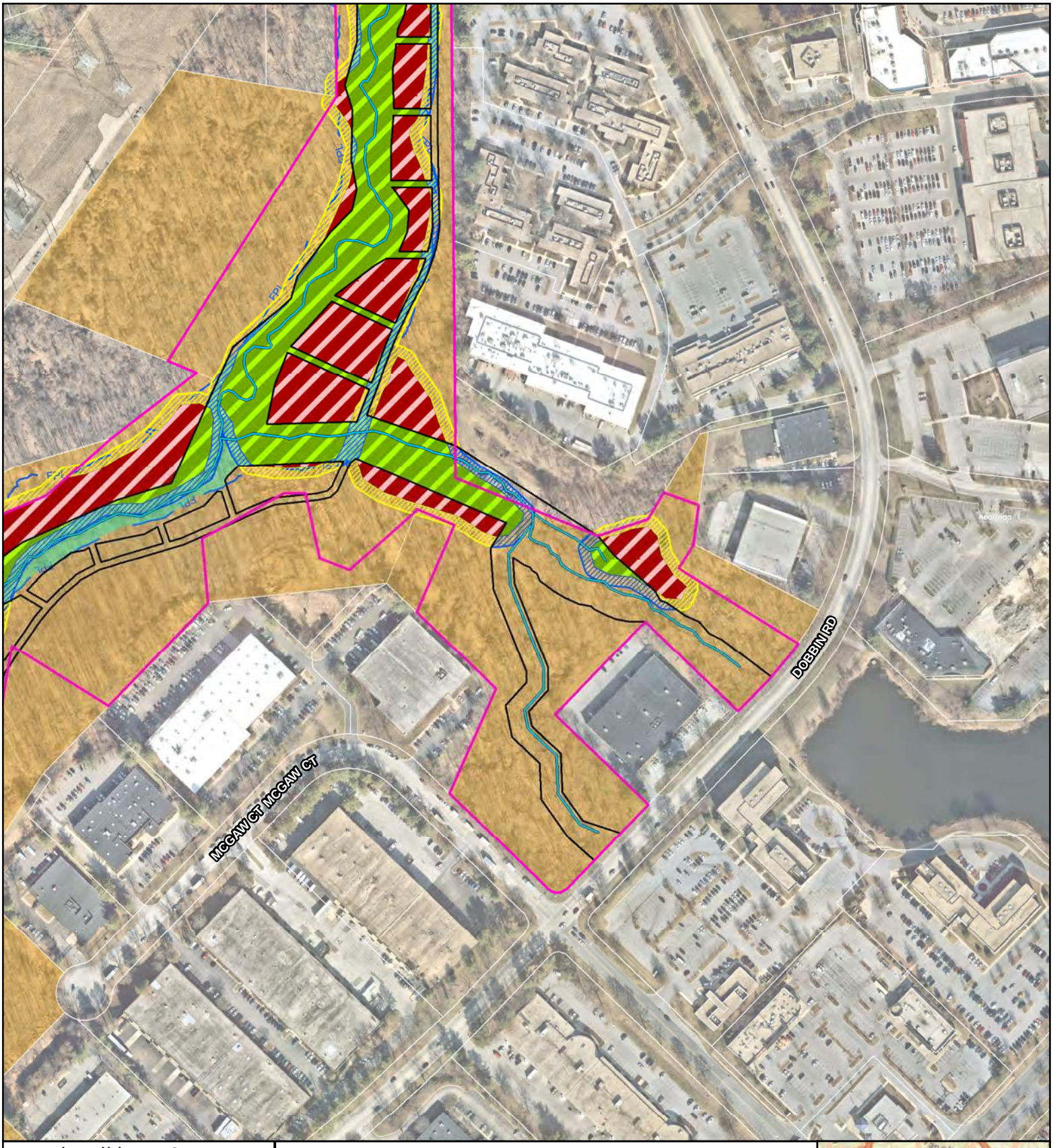
NORTH

0 100 200 300 400 Feet

- Easement Area (132.3 a.c.)
- Limits of Disturbance (50.5 a.c.)
- Perennial Stream Impact (33,323 l.f.)
- Columbia Association Property
- CE Construction Entrance
- PFO Impact (20.9 a.c.)
- Existing Wetland (Non-Impacted)
- 25' Impacted Wetland Buffer (9.6 a.c.)
- 25' Non-Impacted Wetland Buffer
- FEMA 100 Year Floodplain Impacts (35.2 a.c.)
- FPL FEMA 100 Year Floodplain

Index Map





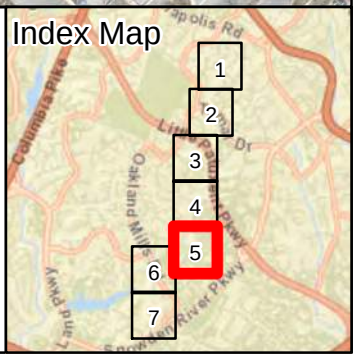
Lake Elkhorn Stream Mitigation Site Impact Map Sheet 5 of 7

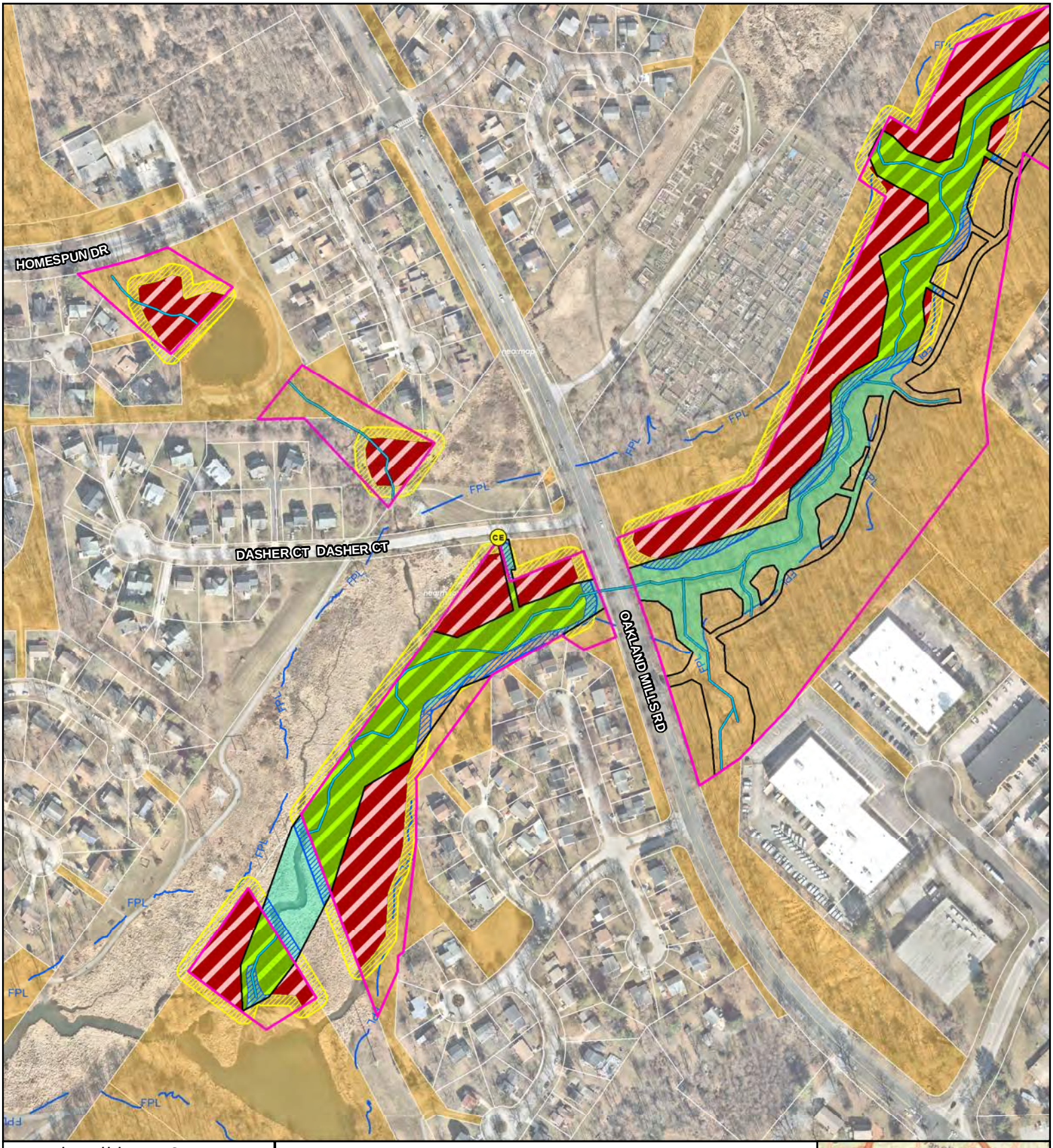
NORTH

0 100 200 300 400 Feet

- Easement Area (132.3 a.c.)
- Limits of Disturbance (50.5 a.c.)
- Perennial Stream Impact (33,323 l.f.)
- Columbia Association Property
- CE Construction Entrance
- PFO Impact (20.9 a.c.)
- Existing Wetland (Non-Impacted)
- 25' Impacted Wetland Buffer (9.6 a.c.)
- 25' Non-Impacted Wetland Buffer
- FEMA 100 Year Floodplain Impacts (35.2 a.c.)
- FPL FEMA 100 Year Floodplain

Index Map





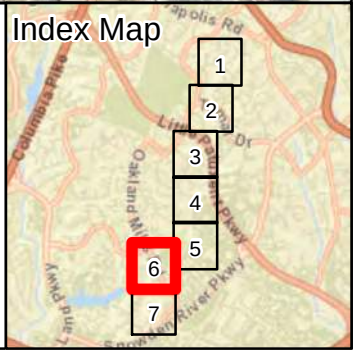
Lake Elkhorn Stream Mitigation Site Impact Map Sheet 6 of 7

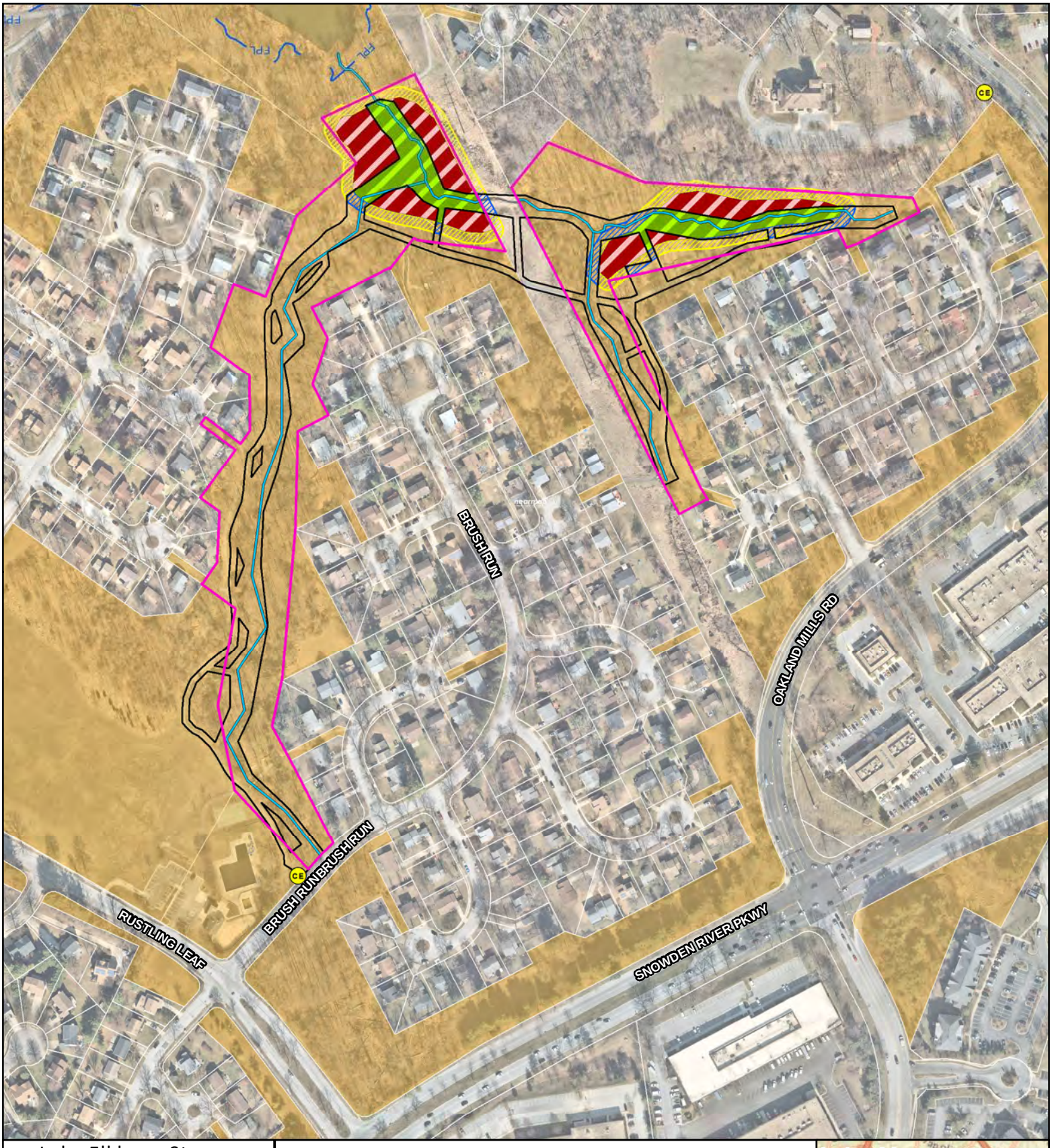
NORTH

0 100 200 300 400 Feet

- Easement Area (132.3 a.c.)
- Limits of Disturbance (50.5 a.c.)
- Perennial Stream Impact (33,323 l.f.)
- Columbia Association Property
- CE Construction Entrance
- PFO Impact (20.9 a.c.)
- Existing Wetland (Non-Impacted)
- 25' Impacted Wetland Buffer (9.6 a.c.)
- 25' Non-Impacted Wetland Buffer
- FEMA 100 Year Floodplain Impacts (35.2 a.c.)
- FPL FEMA 100 Year Floodplain

Index Map





Lake Elkhorn Stream Mitigation Site Impact Map Sheet 7 of 7

NORTH

0 100 200 300 400 Feet

- Easement Area (132.3 a.c.)
- Limits of Disturbance (50.5 a.c.)
- Perennial Stream Impact (33,323 l.f.)
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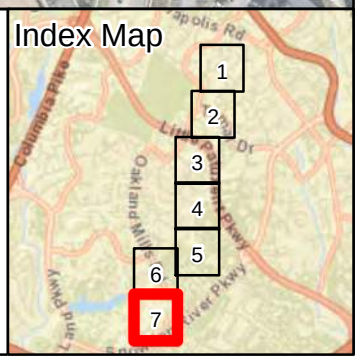
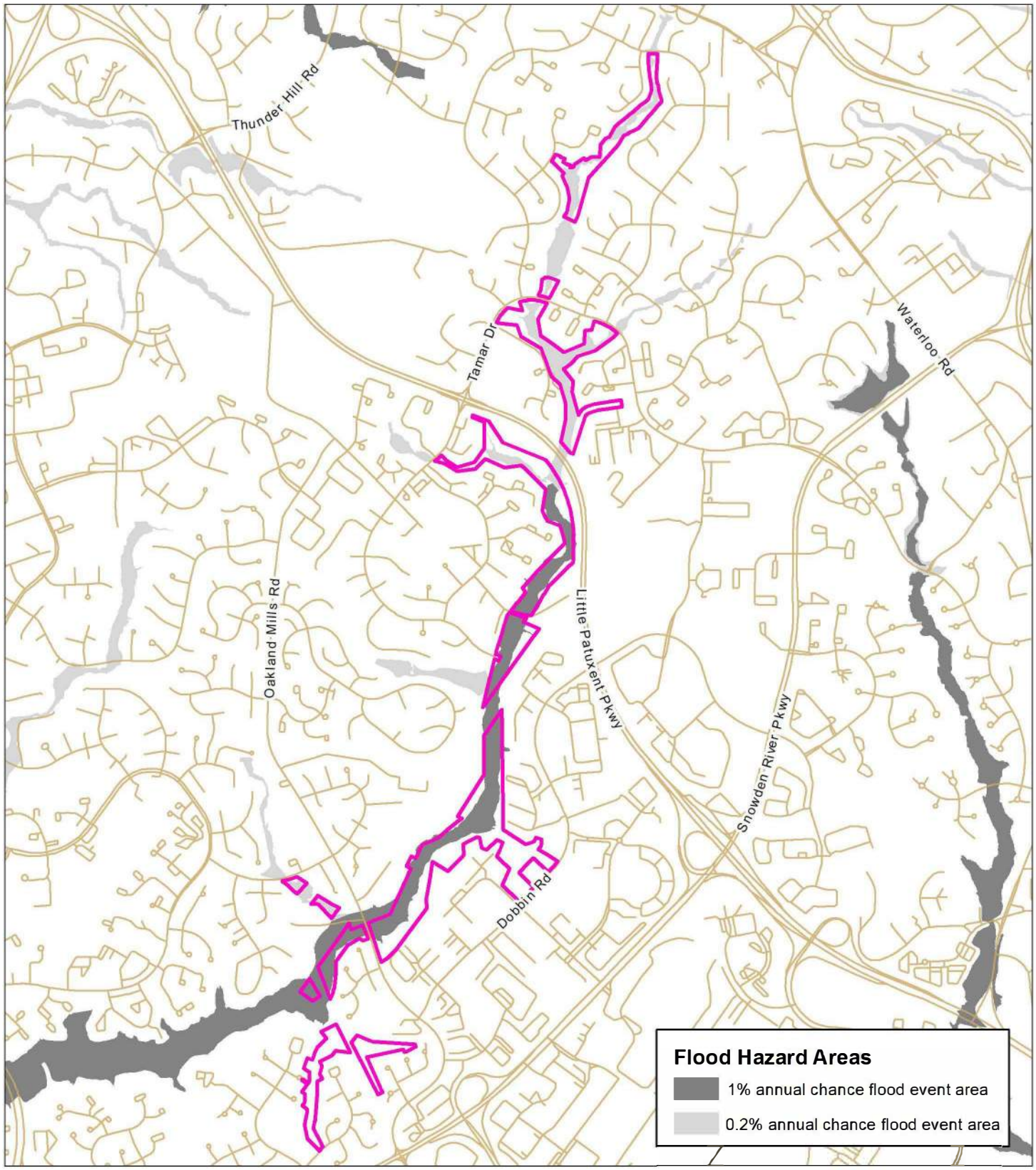
- FPL FEMA 100 Year Floodplain

Index Map



L:_Maryland\Projects\MD07000s\MD07000\MD7001.01\GIS\EasementExhibits\07_FEMA_DFIRM.mxd



Site

Roads

FEMA Digital Flood Insurance Rate Map
Lake Elkhorn Stream Mitigation Site

NORTH

0 2,000

Feet

Original Scale:
1 " = 2,000 '

Panel: 24027C0155D, Effective: 11/06/2013
Panel: 24027C0165D, Effective: 11/06/2013

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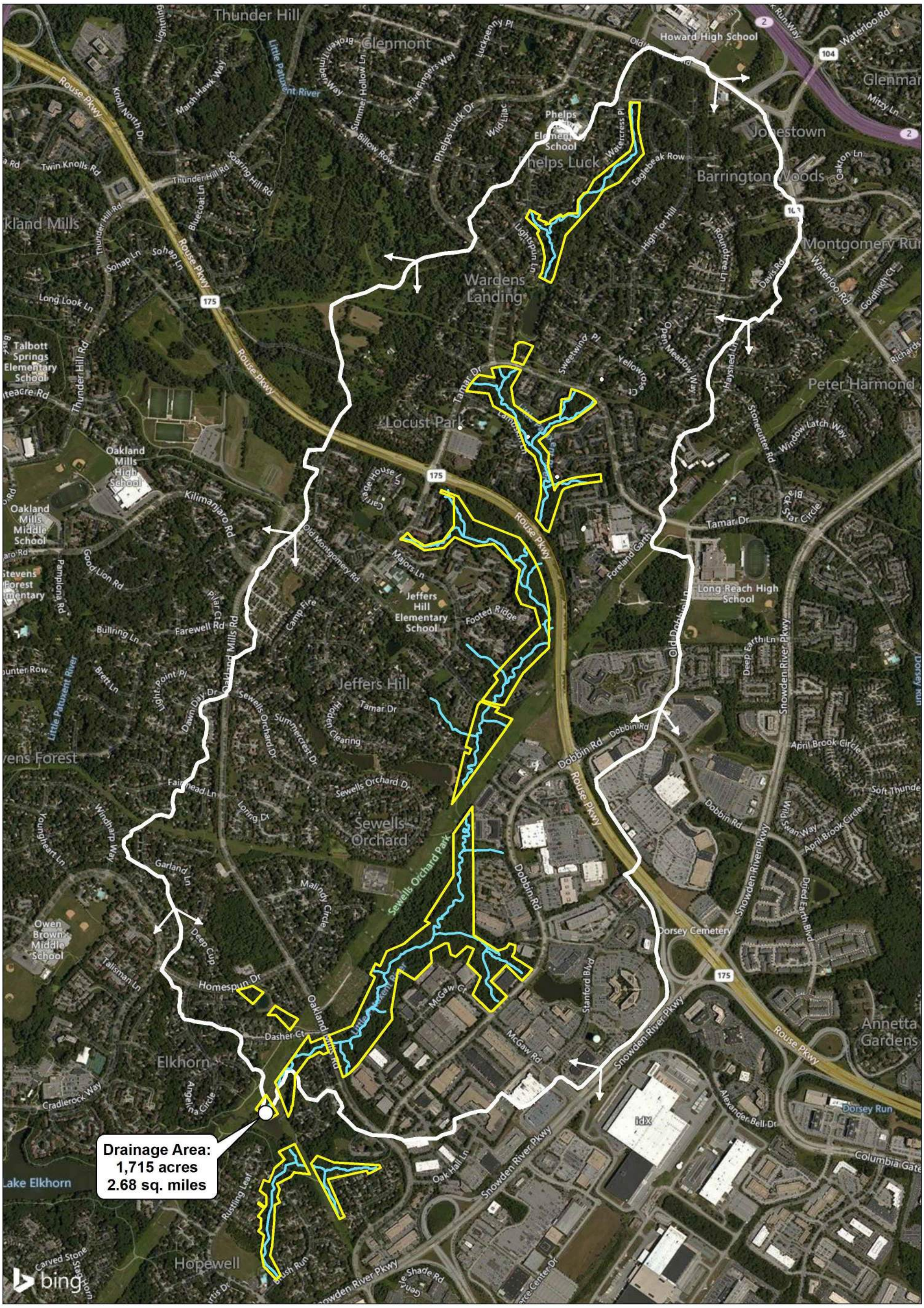
Exhibit 16

L:_Maryland\Projects\MD07000s\MD07000\MD7001.01\GIS\EasementExhibits\10_DrainageArea.mxd



Drainage Area Map
Lake Elkhorn Stream Mitigation Site

NORTH

0 0.125 0.25 Miles

Aerial: Bing

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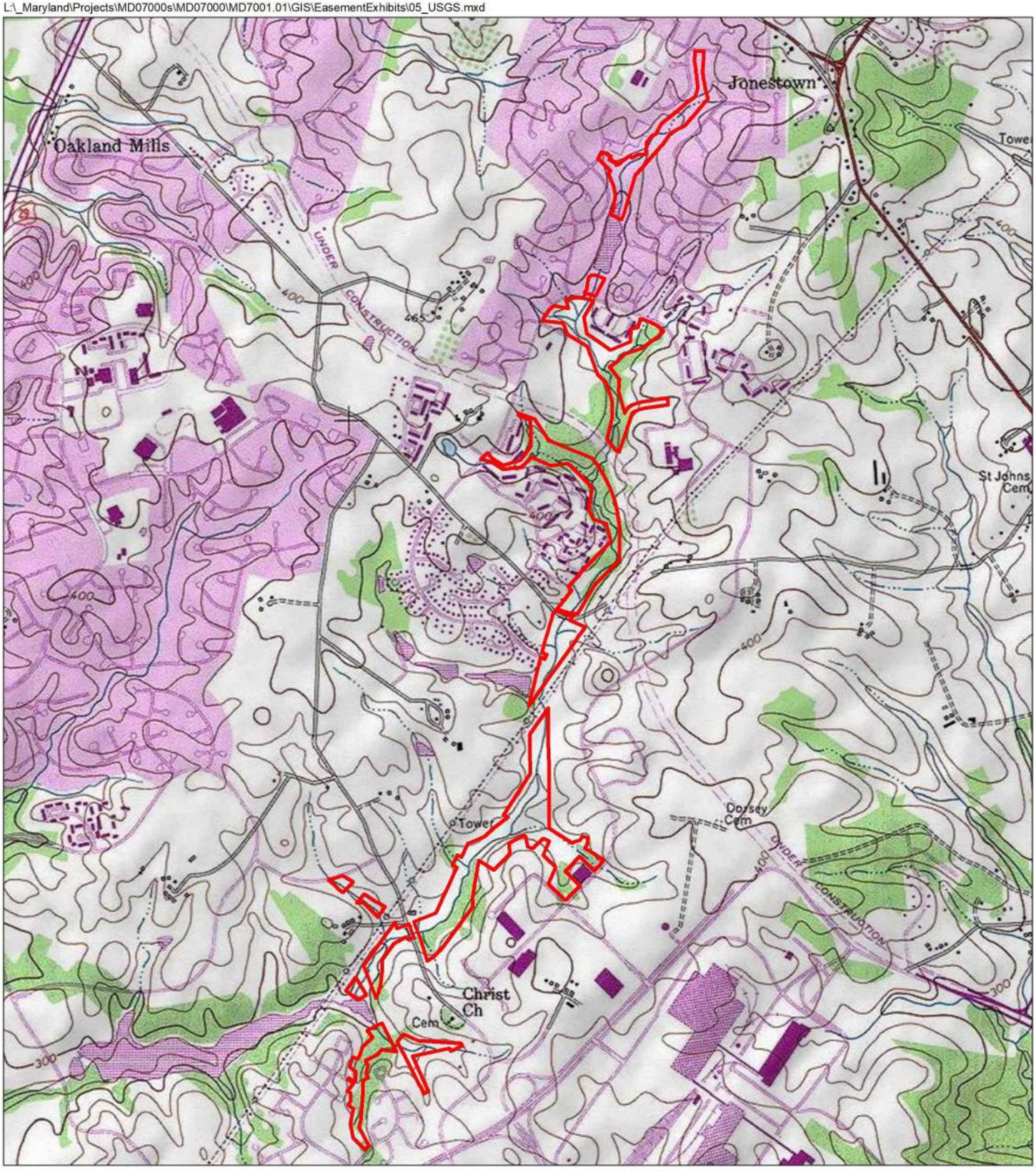
Exhibit 18

L:_Maryland\Projects\MD07000s\MD07000\MD7001.01\GIS\EasementExhibits\05_USGS.mxd



Site

USGS 7.5' Quadrangle Map
Lake Elkhorn Stream Mitigation Bank

NORTH

0 2,000 Feet

Original Scale: 1 " = 2,000 '

Savage, MD 1974
Latitude: 39°11'23"N
Longitude: 76°49'38"W
Hydrologic Unit Code (HUC): 020600060202
HUC12 Name: Dorsey Run-Little Patuxent River
COE Region: Atlantic and Gulf Coastal Plain; Eastern Mountains and Piedmont

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Exhibit 17