

**FINAL
ENVIRONMENTAL ASSESSMENT AND
HABITAT CONSERVATION PLAN**

**ISSUANCE OF AN ENDANGERED SPECIES ACT §10(a)(1)(B)
INCIDENTAL TAKE PERMIT TO**

LONG POINT HOMEOWNER'S ASSOCIATION LLC

FOR TAKE OF LAKE ERIE WATER SNAKE

May 2003

**U.S. Fish and Wildlife Service
1 Federal Drive
BHW Federal Building
Fort Snelling, MN 55111**

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- B. Federal Register Notice of Intent to Hold a 30-Day Scoping Period to Solicit Public Comments for a National Environmental Policy Act (NEPA) Decision on a Proposed Habitat Conservation Plan for the Lake Erie Water Snake
- C. U.S. Fish and Wildlife Service Interim Lake Erie Water Snake Guidelines
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- G. Legal Description –Lots Within the Long Point Subdivision
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- I. Native Plant List for Long Point
- J. § 955.22 Ohio Revised Code for Dogs
- K. Independent Estimate of Fill on Lot 1
- L. Kelleys Island Village Council April 9, 2002 Meeting Notes
- M. Ohio Department of Natural Resources, Office of Coastal Management Coastal Consistency Letter to Long Point Homeowner's Association LLC
- N. Federal Register Notice of Availability of a Draft Environmental Assessment/Habitat Conservation Plan Related to Application for an Incidental Take Permit for the Long Point Homeowner's Association Development

ACRONYMS AND ABBREVIATIONS

BHE	BHE Environmental, Inc.
CFR	Code of Federal Regulations
ESA	Endangered Species Act
HCP	Habitat Conservation Plan
ITP	Incidental Take Permit
LEWS	Lake Erie water snake (<i>Nerodia sipedon insularum</i>)
LLC	A business structure that is a hybrid of a partnership and a corporation. Owners are shielded from personal liability, and all profits and losses pass directly to the owners without taxation of the entity itself.
LP	Long Point
LPLLC	Long Point LLC
OEPA	Ohio Environmental Protection Agency
OHW	Ordinary high watermark, meaning the line on the shore established by fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328.3). On the 15-acre tract, and depending in part upon specifics of the lot topography, OHW may be 50 ft or more landward of the shoreline.
NHPA	National Historic Preservation Act
T&E	Threatened and Endangered

GLOSSARY

changed circumstances	Changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the Service and that can be planned for (50 CFR 17.3).
covered species	Species that have been adequately addressed in an HCP and are therefore included on the permit or, alternately, for which assurances are provided to the permittee that such species will be added to the permit if listed under certain circumstances. Covered species are also subject to the assurances of the No Surprises Rule.
cumulative effects	Under NEPA regulations, the incremental environmental impact or effect of the action together with impacts of past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (40 CFR 1508.7). Under ESA § 7 regulations, the effects of future state or private activities not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation (50 CFR 402.02).
direct effects	Effects caused by the action that occur at the same time and place (40 CFR 1508.8).
endangered species	“...species which is in danger of extinction throughout all or a significant portion of its range” [§ 3(6) of ESA].
footprint	The area on the ground surface that is covered and made inaccessible to LEWS.
forest	A dense growth of trees and underbrush covering a large tract.
harm	Defined in regulations implementing the ESA promulgated by the Department of the Interior as an act “which actually kills or injures” listed wildlife; harm may include “significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering” (50 CFR 17.3).
harass	Defined in regulations implementing the ESA promulgated by the Department of the Interior as “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, and sheltering” (50 CFR 17.3).
incidental take	Take of any federally listed wildlife species that is incidental to, but not the purpose of, otherwise lawful activities [ESA §10(a)(1)(B)].
Incidental Take Permit	A permit that exempts a permittee from the take prohibition of §9 of the ESA issued by the Service or NMFS pursuant to §10(a)(1)(B) of the ESA.
indirect effects	Effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur (50 CFR 402.02).
No Surprises Rule	The Habitat Conservation Plan Assurances Rule, which codifies assurances provided through §10(a)(1)(B) permits issued under the ESA. The Rule provides regulatory assurances to the holder of an Incidental Take Permit that no additional land use restrictions or financial compensation will be required of the permit holder with respect to species covered by the permit, even if unforeseen circumstances arise after the permit is issued, provided the HCP is being properly implemented.
take	Under § 3(18) of the ESA, “...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” with respect to federally listed endangered species of wildlife. Federal regulations provide the same taking prohibitions for threatened wildlife species [50 CFR 17.31(a)].
threatened species	“...species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range” [§ 3(19) of the ESA].
woodland	For purposes of this Environmental Assessment, areas with tree cover between 10% and 40%, characteristic of developed areas with sparse/scattered tree cover in maintained landscapes.

**FINAL ENVIRONMENTAL ASSESSMENT AND HABITAT CONSERVATION PLAN
FOR THE ISSUANCE OF AN ENDANGERED SPECIES ACT
§10(A)(1)(B) INCIDENTAL TAKE PERMIT TO LONG POINT HOMEOWNER'S
ASSOCIATION LLC FOR TAKE OF THE LAKE ERIE WATER SNAKE**

1.0 PROJECT PURPOSE AND NEED

1.1 BACKGROUND

In 1999, Long Point LLC (LPLLC) purchased approximately 15 acres on Long Point, Kelleys Island, Ohio (Figure 1–1). Long Point is a 100± acre peninsula at the northeastern extreme of Kelleys Island. LPLLC divided the land into seven lots for development of seven private residences intended primarily for seasonal occupation. Although specific design and precise locations for residences and other proposed developments on each lot have not yet been developed, LPLLC prepared a conceptual depiction of the proposed development (Figure 1–2).

Lake Erie water snakes (*Nerodia sipedon insularum*), a federally-listed threatened species, inhabit Kelleys Island, including Long Point (King 1998). Lake Erie water snakes (LEWS) were observed in May, 2000, in and around an old stone foundation on the 15-acre tract, in the grassy inland areas on Long Point, as well as along the shoreline and in the nearby water (pers. comm., B. Fazio and A. Boyer, USFWS; pers. comm., R. King and K. Stanford, Northern Illinois University).

In an October 29, 1999 letter, the Reynoldsburg, Ohio Field Office of the U.S. Fish and Wildlife Service (Service) notified LPLLC that the proposed development had potential to affect the LEWS (Appendix A). The Service suggested LPLLC prepare a Habitat Conservation Plan (HCP) in compliance with §10(a)(1)(B) of the Endangered Species Act of 1973, as amended.

1.2 PURPOSE

This Environmental Assessment (EA) evaluates an application for an Incidental Take Permit (ITP) and Habitat Conservation Plan (HCP) submitted by the LP Homeowner's Association LLC for take of LEWS that may result from construction and use of seven residences on the 15-acre Long Point tract. The §10(a)(1)(B) permit process ensures effects of incidental take will be minimized and mitigated to the maximum extent practicable and will not appreciably reduce the likelihood of the survival and recovery of the LEWS in the wild.

1.3 NEED

Any alternative selected by the Service must limit effects to the species to the maximum extent practicable, and not preclude recovery of the LEWS. All three seasonal phases (summer habitat, winter hibernation habitat, and travel corridors between these two habitats) must be protected along with minimizing direct harm to individual snakes. Because the Service must treat HCP/ITP applicants as equitably as possible, it is necessary that the Service must not include components in a selected alternative that it could not extend, without risk to the species, to future HCP/ITP applicants for similar actions, given consideration of specific circumstances and current information. Since an HCP/ITP application is a voluntary action by the applicant, the economic impacts to and developmental latitude for the landowners need to be considered. The Service has no ability under the ESA to preclude or control development of private land, although such development may be influenced through the HCP/ITP

process. The Service seeks to work in partnership with the LP Homeowner's Association LLC to conserve the LEWS while meeting landowner needs.

1.4 PUBLIC PARTICIPATION

Public participation consisted of a 30-day public comment period announced in the Federal Register on July 26, 2001 (Appendix B). Public input was considered and addressed in preparation of the HCP and the Environmental Assessment. A Notice of Availability of the Draft EA/HCP and ITP application was published in the Federal Register on March 17, 2003 (Appendix N). The notice was followed by a 60-day comment period prior to final decision by the USFWS.

Figure 1-1. Location of residential development proposed by the LP Homeowner's Association LLC on Long Point, Kelleys Island, in western Lake Erie, Erie County, Ohio.



Figure 1-2. Conceptual design of proposed residential development on the 15-acre tract.
 Location and size of forest clearing and other design elements are for display purposes only.

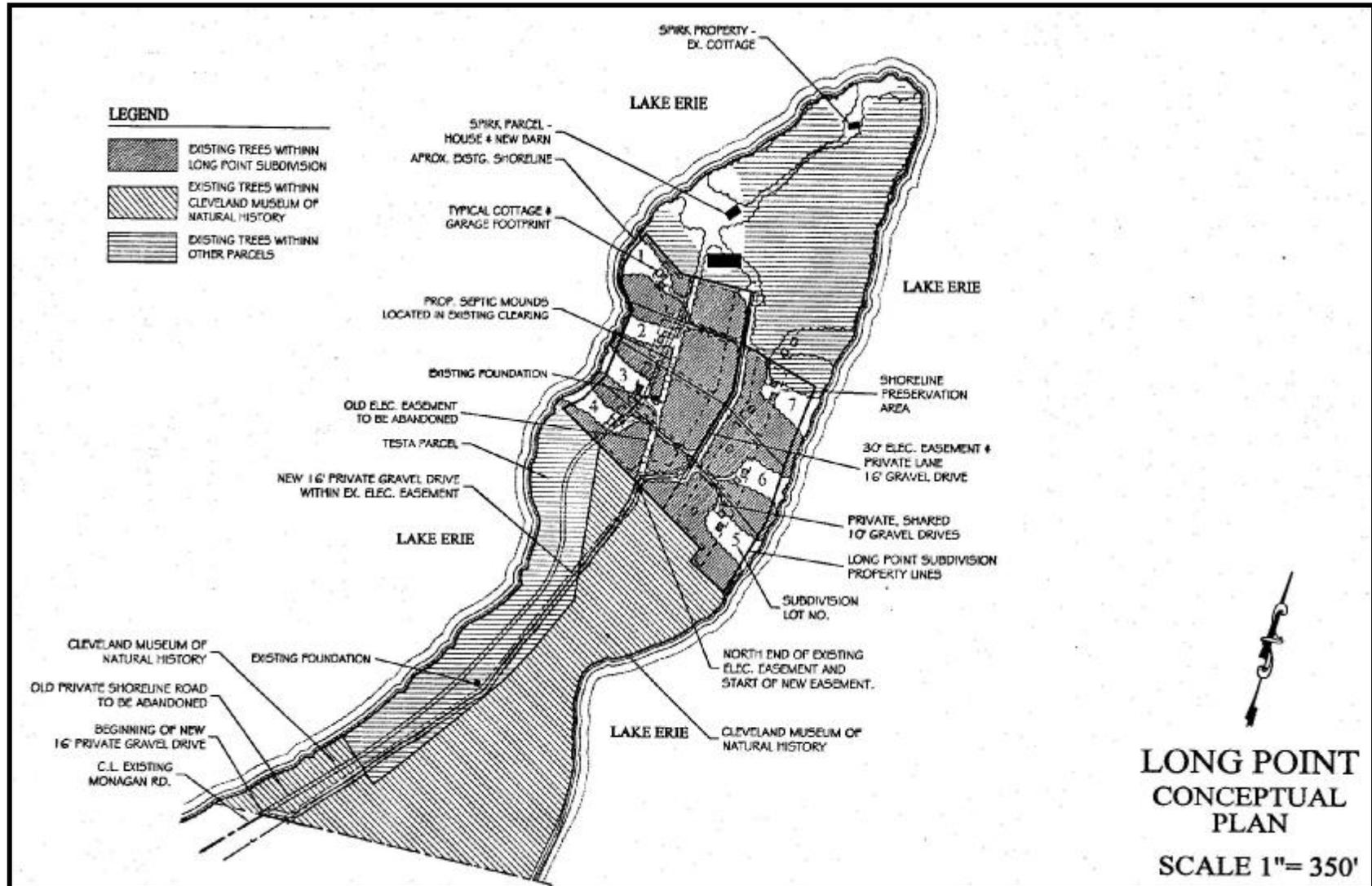


Figure 1-3. Management Zones on 15-acre Long Point Subdivision

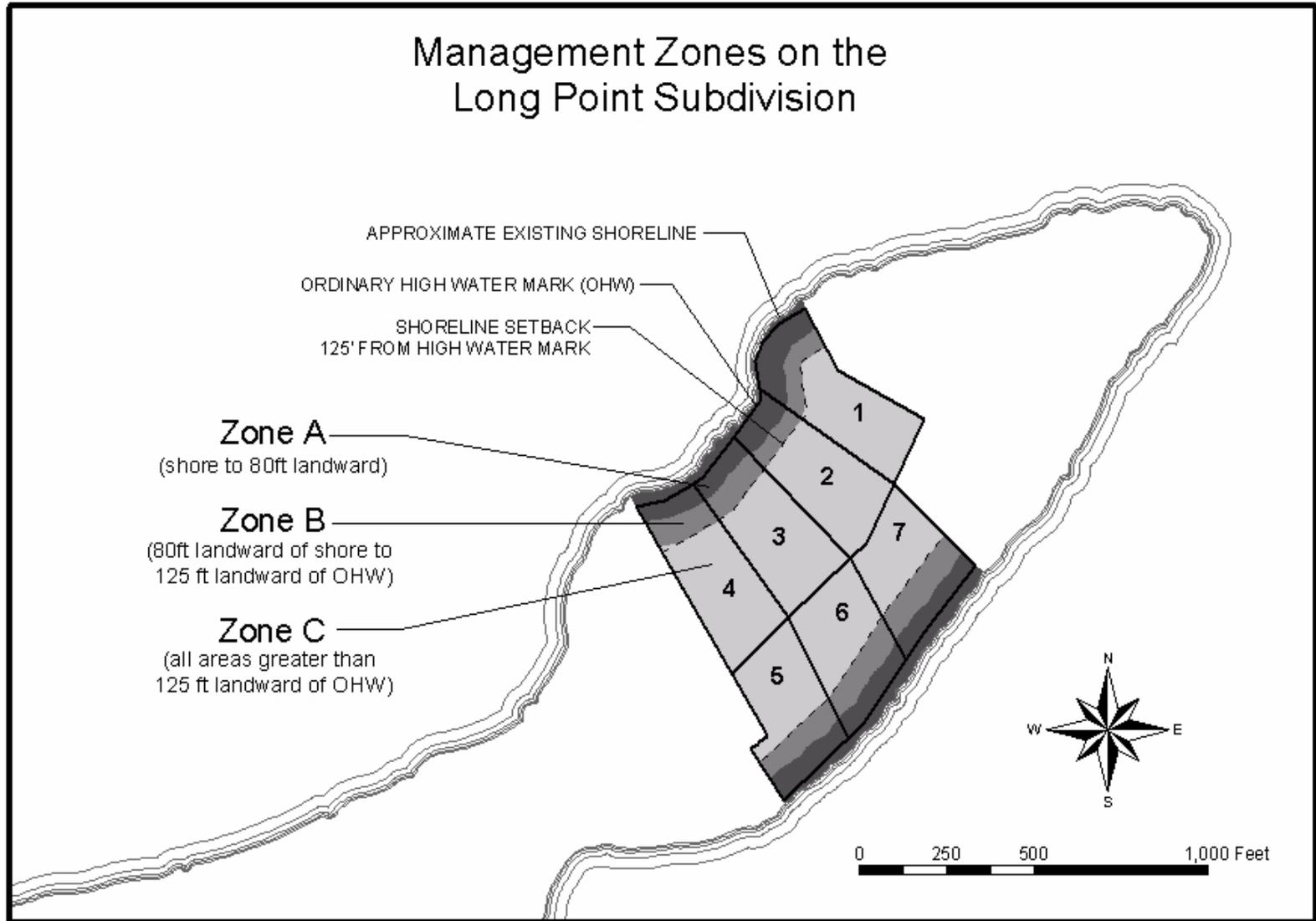
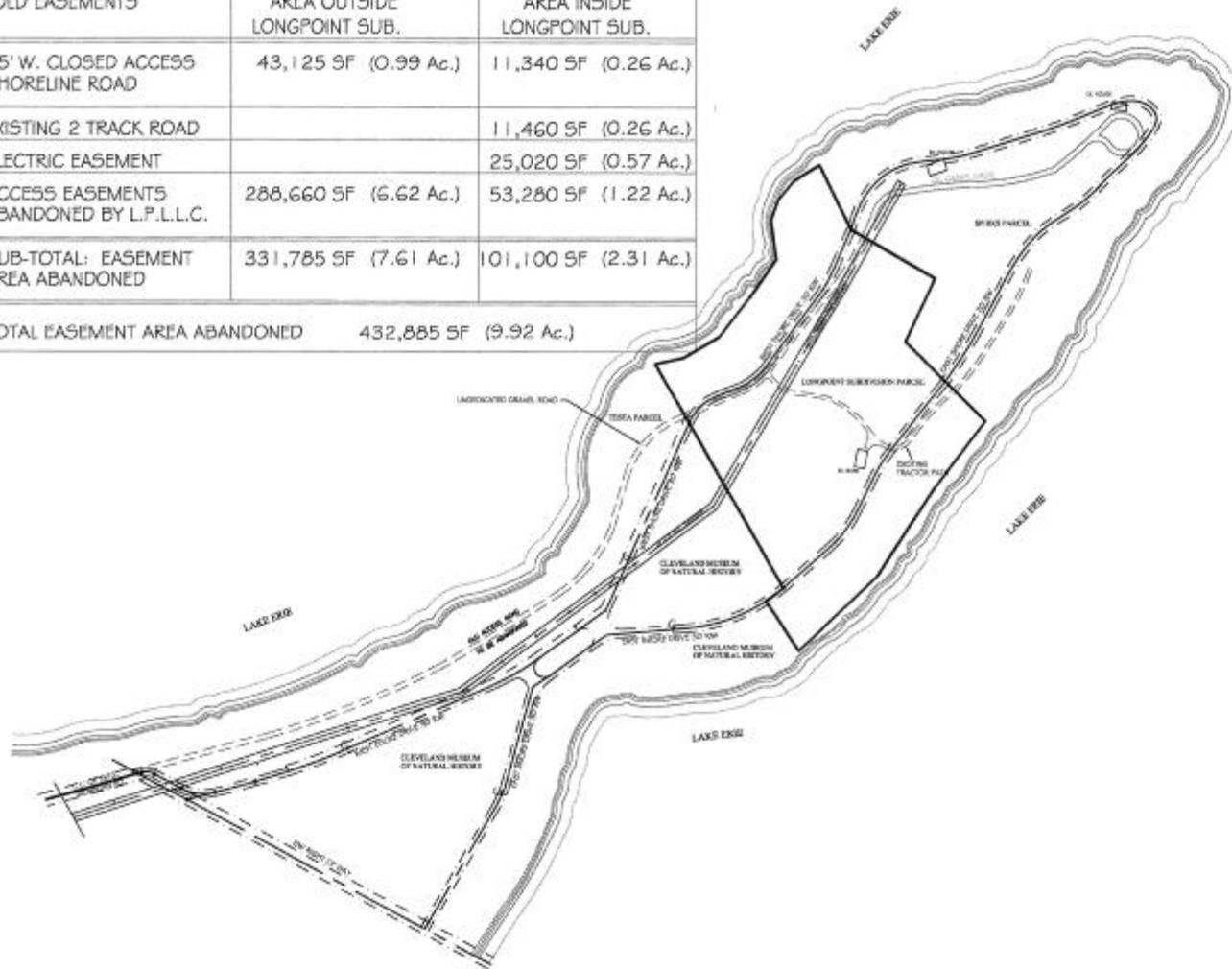


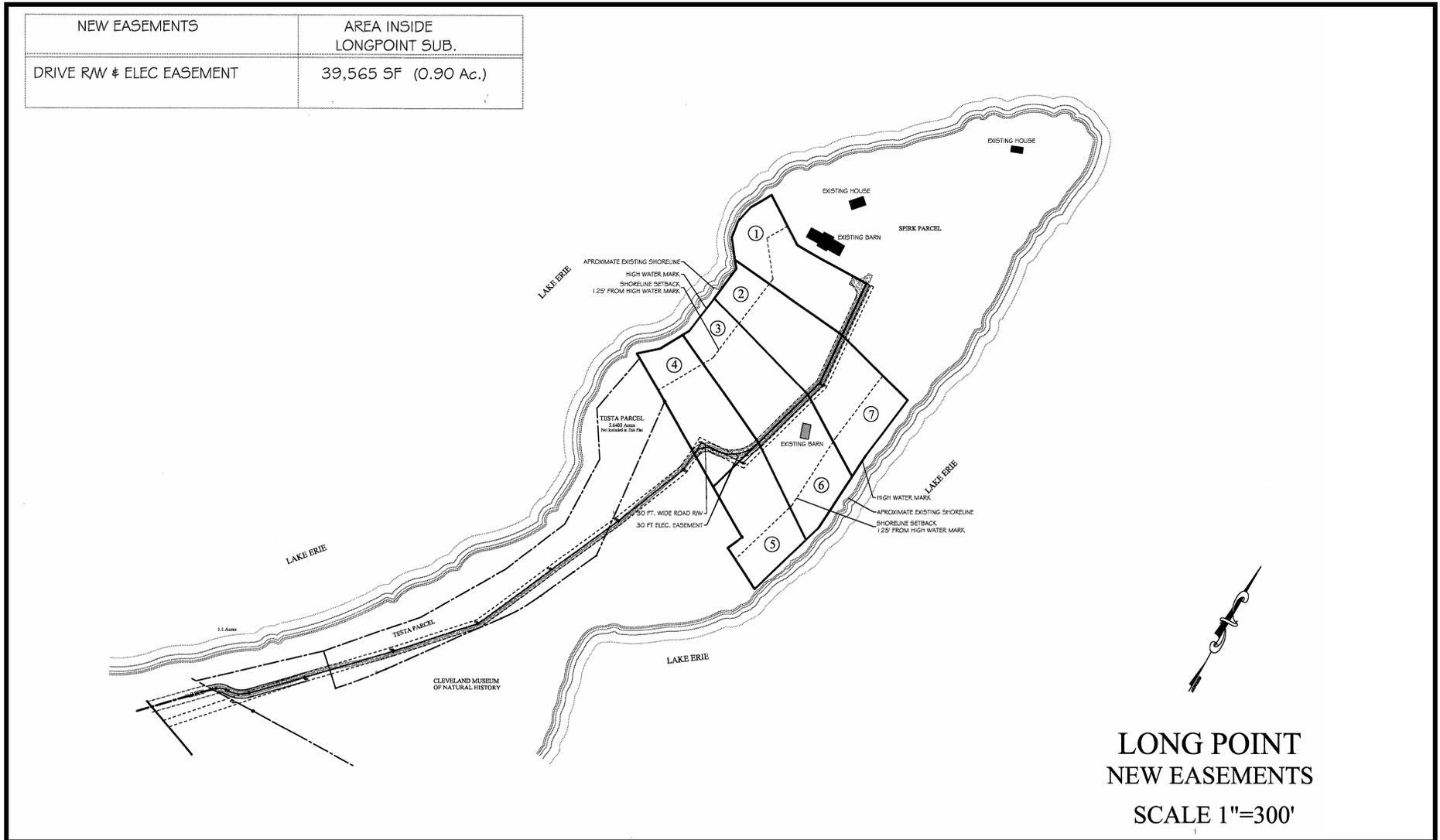
Figure 1–4a. Old Easements Outside and Inside the Long Point Subdivision

OLD EASEMENTS	AREA OUTSIDE LONGPOINT SUB.	AREA INSIDE LONGPOINT SUB.
15' W. CLOSED ACCESS SHORELINE ROAD	43,125 SF (0.99 Ac.)	11,340 SF (0.26 Ac.)
EXISTING 2 TRACK ROAD		11,460 SF (0.26 Ac.)
ELECTRIC EASEMENT		25,020 SF (0.57 Ac.)
ACCESS EASEMENTS ABANDONED BY L.P.L.L.C.	288,660 SF (6.62 Ac.)	53,280 SF (1.22 Ac.)
SUB-TOTAL: EASEMENT AREA ABANDONED	331,785 SF (7.61 Ac.)	101,100 SF (2.31 Ac.)
TOTAL EASEMENT AREA ABANDONED	432,885 SF (9.92 Ac.)	



**LONG POINT
OLD EASEMENTS
SCALE 1"=300'**

Figure 1-4b. New Easements Inside the Long Point Subdivision



1.5 SCOPE OF ANALYSIS

In accordance with the National Environmental Policy Act, and applicable Council on Environmental Quality (CEQ) guidance, issues and resources with reasonable potential to be affected by proposed alternatives are central to this EA. Other issues (e.g., air quality; hazardous, toxic, or radio active wastes or materials) were considered, but were not present on the site or would not be substantially affected by the alternatives, and therefore did not play an important role in this analysis. The effects analysis in this EA focuses upon the issues pertinent to the proposed activity, the resources with potential to be affected, and the decision to be made.

1.6 PREVIOUS GROUND DISTURBING ACTIVITIES

1.6.1 Construction of an Access Road in an Existing Easement Outside the 15-acre Tract

An access road has been constructed from the existing public Monagan Road to the 15-acre LP tract. An Easement Agreement (Appendix D) was created among LPLLC, Cleveland Museum of Natural History, the Lake Erie Electric Cooperative (owners of the utility easement), and owners of land upon which the existing shoreline access road occurs, along the west shore of Kelleys Island. The MOA documents concurrence among the parties on the following issues, among others:

- The LP Homeowner's Association LLC has constructed an access road within an existing, previously cleared, mowed utility easement from Monagan Road to the LP 15-acre tract. Certain other multiple easements within which roads could be built across the properties have been terminated.
- The west shoreline access road has been closed and abandoned to prevent vehicular strikes of snakes in this area and to prevent ~~to~~ further destruction of shoreline habitat.

Construction of the access road occurs within an existing utility line easement that has been regularly mowed for over a decade. The trees within this utility line easement have been removed previously and regular mowing of the corridor prevents the growth of woody vegetation. Construction of the access road did not require removal of additional trees.

For safety reasons, access to Long Point properties within and around the 15-acre tract was discussed during the Kelleys Island Village Council meeting on April 9, 2002 (for meeting notes see Appendix L). As a result of these discussions, the access road was constructed to establish an approved fire department access to the 15-acre tract and the adjacent land tracts on Long Point.

The access road outside the 15-acre Tract was constructed prior to the LP Homeowner's Association LLC completing an approved HCP and receiving an ITP from the Service to ensure compliance with the ESA should incidental take occur during or result from the construction activities. Although the access road was constructed for legitimate purposes, it was constructed without the coverage of an ITP. The following avoidance, minimization, and mitigation measures have been or will be implemented by the LP Homeowner's Association LLC to reduce the potential take of LEWS during construction, use, and maintenance activities of the road.

- The Service believes the road was built in accordance with the Service's Interim LEWS Guidelines (Appendix C)

- Construction occurred within an existing utility line easement that has been regularly mowed for over a decade. No forest clearing was required for construction of the road outside the 15-acre tract.
- The abandoned road was adjacent to the shoreline where the most LEWS occur during the warm months. Residences constructed on the 15-acre tract will be used most often during the warmer months. The placement of the new road should reduce the occurrence of vehicular strikes of LEWS and prevent further destruction of shoreline habitat.
- The west shoreline access road has been closed and abandoned to prevent vehicular strikes of snakes in this area and to prevent further destruction of shoreline habitat.
- LPLLC received approval from the Village for a 16 ft-wide access road. The LPLLC constructed the road with a reduced width from 12 to 14 ft wide, thus reducing habitat disturbance along the access road by a 2 to 4 ft width.
- Light colored gravel covers the road, which may discourage use of the road by sunning snakes, relative to dark gravel or paving.
- Gravel was placed directly on the ground surface, or upon a geotechnical construction fabric, to minimize ground-disturbing activities.
- No culverts or roadside ditches have been constructed.
- Disturbed areas have been seeded.
- The corridor was strictly monitored for snakes during all construction activities to avoid injury or mortality of LEWS.
- LP Homeowner's Association LLC will mow no more than 5 ft width along either side of the road.

The access road was constructed without the coverage of an ITP although it appears that the construction met both the Service's Interim LEWS Guidelines and the attached HCP specification. The following additional measures have or will be implemented by the LP Homeowner's Association LLC to offset any adverse affects to the LEWS that resulted from the construction of the road prior to completion of a HCP.

- LP Homeowner's Association LLC terminated all other access easements on Long Point outside the 15-acre tract. The area of easement forfeitures combined with the area of the shoreline access road abandoned outside the 15-acre tract is a total area of 7.6 acres.

1.6.2 Construction of an Access Road within the 15-acre Tract

The access road within the 15-acre tract was constructed to establish an approved fire department access to the Subdivision and to the adjacent land tracts on Long Point outside of the 15-acre tract. Additionally, the LP Homeowner's Association LLC was contractually required to provide access to the Long Point landowner North of the 15-acre tract.

The construction of the access road on the 15-acre tract required clearing of 0.9 acres (approximately 0.1 acre per lot) of forest cover and the permanent loss of this area as winter habitat for the LEWS. The access road within the 15-acre tract was constructed prior to the LP Homeowner's Association LLC

completing an approved HCP and receiving an ITP from the Service to ensure compliance with the ESA should incidental take occur during or result from the construction activities. Although the access road was constructed for legitimate purposes, it was constructed without the coverage of an ITP. The following avoidance, minimization, and mitigation measures have been or will be implemented by the LP Homeowner's Association LLC to reduce the potential take of LEWS during construction, use, and maintenance activities of the road.

- Road was built in accordance with the Service's Interim LEWS Guidelines.
- The west shoreline access road has been closed and abandoned to prevent vehicular strikes of snakes in this area and to prevent further destruction of shoreline habitat.
- LPLLC received approval from the Village for a 16 ft-wide access road. The LP Homeowner's Association LLC constructed the road with a reduced width from 12 to 14 ft wide, thus reducing habitat disturbance along the access road by a 2 to 4 ft width.
- Light colored gravel covers the road, which may discourage use of the road by sunning snakes, relative to dark gravel or paving.
- No culverts or roadside ditches have been constructed.
- Disturbed areas have been seeded.
- The corridor was strictly monitored for snakes during all construction activities to avoid injury or mortality of LEWS.
- LP Homeowner's Association LLC will mow no more than 5 ft width along either side of the road.
- Signs would be posted on the 15-acre tract along the access road promoting low vehicular speeds and alerting users of the potential presence of LEWS

Although the access road was constructed for legitimate purposes, approximately 0.9 acres (~ 0.1 acre per lot) of the 15-acre tract was made inaccessible to the LEWS for cover and hibernation without the coverage of an ITP. The following additional measures have or will be implemented by the LP Homeowner's Association LLC to offset any adverse affects to the LEWS that resulted from the construction of the road prior to completion of a HCP.

- A representative of the Homeowners Association will act as consult to the public in the aide of writing an HCP. This does not mean an HCP will be written by that person, merely the act of being accessible to answer questions and to be available as a resource in the development of an HCP.
- LP Homeowner's Association LLC terminated all other access easements within the 15-acre tract. The area of easement forfeitures combined with the area of the shoreline access road abandoned within the 15-acre tract is a total area of 2.3 acres.

1.6.3 Ground disturbing activities on Lot 1 of the 15-acre Tract

In July 2002 an unknown amount of rock and soil (fill), native to Kelleys Island, from the construction activities on the adjacent land to the north was placed on Lot I within the 15-acre tract. The fill location was within Zones A and B (Figure 1-3) approximately 75'-100' from the shoreline. (Appendix K) This fill

was placed on the lot with the owner's permission but not in his presence. The owner of Lot 1 did not have knowledge as to the amount of fill or the exact location of the fill until a later date. The Spirk contractor responsible for the fill may have removed an unspecified amount of the fill while smoothing or grading the fill area. Some fill (soil) was removed from the site due to seasonal rains. An amount of fill which has been left on Lot 1 has a foot print of approximately 20' x 30' and an average depth of 24". The cubic quantity is about 40-45 yards.

Permission to conduct this activity was granted by the owner of Lot 1. This authorization was given prior to the LP Homeowner's Association LLC receiving an ITP from the Service to ensure compliance with the ESA should incidental take occur during or result from the construction activities. However, this type of activity, placement of rock and soil material on the ground surface within Zones A and B, is not an activity that would be authorized by the HCP for the 15-acre tract. Therefore, the Service has requested the following offsetting measures be performed to compensate for adverse affects to LEWS habitat that occurred as a result of the activity:

- The shoreline access road and all existing pathways/2-tracks on the 15-acre tract (not including the newly constructed access road) be returned to native vegetation by the owners of Lot 1. This will provide an additional 0.75 acre of natural cover habitat for the LEWS.
- The fill material should remain in place to avoid additional disturbance to the LEWS and its habitat by excavation equipment.

2.0 ALTERNATIVES

2.1 ALTERNATIVES NOT CONSIDERED IN DETAIL

2.1.1 Alternatives Utilizing A Central Waste Management System

There has been interest in evaluating the feasibility of establishing a sanitary waste management system on the 15-acre tract utilizing a single wastewater "package plant," rather than the septic mounds proposed in Alternatives 2, 3, and 4 of this EA. Early in the process of evaluating the 15-acre tract for development, LPLLC met with the Ohio Environmental Protection Agency (OEPA). The OEPA conducted an on-site inspection of the 15-acre tract in 1999, and reviewed preliminary plans for seven privately owned lots with one residence each. After evaluating this information carefully, the OEPA recommended against installation of a package plant, and indicated they would decline to issue a permit for this type of system. Technical concerns of the OEPA centered upon the plant's function when only minimal waste flow would be generated from a small number of houses, especially when use of the residences would be intermittent (e.g., typically only used periodically on weekends), and seasonal in nature (i.e., use of the residences would be minimal in cooler months). This issue would be exaggerated if construction of the residences was spread over a long period of time, and even fewer than seven residences fed the system over an extended period. Package plants are generally designed to process a relatively stable flow of waste. OEPA determined that a package plant was not a feasible solution to handle sanitary waste on the 15-acre tract. Additional concerns with a central treatment plant included:

- problematic odors from, and undesirable aesthetics of, a plant installed in a residential area,
- the expense of purchasing and constructing a package plant (estimated at \$70,000), and

- the expense and difficulty involved with permitting, operation, and maintenance of the plant.

OEPA recommended lot-specific treatment systems, and deferred specifics on this issue to the Erie County General Health District. LPLLC's coordination with the Erie County General Health District yielded the mounded septic system design included in Alternatives 2, 3, and 4 of the EA. In response to public input received following the Notice of Intent issued in 2001, LPLLC again discussed this issue with OEPA and the Erie County Health Department. Both agencies indicated conclusions and recommendations they made previously were still valid and appropriate. Based upon this information, alternatives including a central waste treatment facility were not assessed in detail in this EA.

2.1.2 Development of Approximately 17 Acres on Long Point

Initial consideration was given to an alternative that involved development of approximately 17 acres in eight lots on Long Point. LP Homeowner's Association LLC owns approximately 15 acres of this land, which has been divided into seven lots. Over an extended period during development of the HCP and EA, ownership of the additional 2-acre lot changed. The lot was excluded from the EA and HCP.

2.2 ALTERNATIVE 1 – NO ACTION

Under the No Action Alternative, the Service would not issue an ITP and no HCP would be implemented. This alternative does not forbid sale of the land or construction and development of the property. The property owners could reasonably be expected to sell their lots, or proceed with construction in a manner similar to that currently occurring in numerous places on Kelleys Island and on other islands inhabited by the LEWS. If lot owners constructed without an ITP, violations of §9 of the ESA may result and warrant civil and criminal enforcement actions by the Service. If development on the 15-acre tract occurred on limited areas, and occurred sporadically over a number of years as has occurred in numerous locations along the shoreline of Kelleys Island, it is reasonable to expect that the actions on single lots may not be sufficient to elicit enforcement actions.

If development on the 15-acre tract occurred without an HCP and ITP, it is likely few if any of the measures designed to avoid and minimize take proposed herein would be implemented. It is likely that the shoreline access road would be reopened to vehicular traffic.

2.3 ASPECTS COMMON TO ALL ACTION ALTERNATIVES

Alternative 2 (Minimal Development), Alternative 3 (Minimal Development with 15-Year ITP/Proposed Action), and Alternative 4 (Development Emphasis) include the development of portions of seven, approximately 2-acre seasonal residential lots on approximately 15 acres that are currently undeveloped.

Each of the alternatives includes substantial measures to avoid or minimize take, relative to the typical construction practices currently occurring in numerous locations within the LEWS range. Many of the same measures are proposed features of more than one action alternative. Design features common to Alternative 2, Alternative 3, and Alternative 4 are described below (see also Table 2–2).

2.3.1 Seasonal Constraints on Ground-Disturbing Construction

To minimize the potential for effects to hibernating LEWS, and in accordance with the Interim Lake Erie Water Snake Guidelines (USFWS 2000, Appendix C), proposed ground-disturbing excavation/construction, and burning associated with these activities, in Alternatives 2, 3, and 4 would occur only between May 1 and November 1 when both air and ground temperatures have been above

65°F for five consecutive days prior to excavation/construction, including burning associated with these activities. On the day of excavation and/or burning associated with these activities, the air and ground temperatures would be above 65°F.

2.3.2 Abandonment and Closure of the Old Shoreline Access Road.

The shoreline access road has been abandoned and closed to vehicular travel. Abandonment and closure of the road to vehicular traffic does not limit occasional use of the roadbed (e.g., pedestrians, bicycles). The roadbed within the 15-acre tract will be restored to a natural state.

2.3.3 Construction of Driveways

In the 15-acre tract driveways would be constructed by placing gravel directly on the ground surface, or would be placed upon a geotechnical construction fabric. No culverts or ditches would be constructed. Disturbed areas, if any, would be seeded. Light colored gravel would cover the driveways (and may discourage use of the road by sunning snakes, relative to dark gravel or paving). The proposed width of driveways varies in the alternatives. Portions of the driveways to each of the seven lots may be shared between adjacent properties (depicted conceptually in Figure 1–2). Brick pavers may be used in auto court areas (portion of driveway at the house/garage).

2.3.4 Construction of Seven Seasonal Residences including Decks/Patios and Garages

The 15-acre tract would contain seven residences (one per lot), each with a deck/patio, garage and miscellaneous outbuildings/facilities. Precise locations and designs of the buildings are not yet developed. The residential buildings would be individually owned and maintained. Because ferry transport to and from the island ceases during winter months, most residents leave the island during winter, returning when warmer months arrive. The vast majority of use of the lots would occur during the warm season. The size of residences, decks/patios, and garages vary in the proposed alternatives.

Any features of these structures that may attract LEWS because they contain water (e.g., fountains, pools, and hot tubs) will be constructed above-ground only, with excavation limited to topsoil removal within the construction footprint. Water in these structures will be de-chlorinated prior to draining. Hot tubs will be covered when not in use to prevent access by snakes. Such features will not be constructed within Zones A and B.

In Alternatives 2, 3, and 4, the existing stone building foundation in Lot No. 3 that provides habitat for the LEWS will not be disturbed by construction or other activities.

2.3.5 Construction of Boardwalks, Trails, and Walkways

Boardwalks and other paths would be constructed on the lots, including areas within Zones A and B. Boardwalks would include open areas between wooden planks, and space between the boardwalk and ground that would allow LEWS to move freely under or atop of the structure. During the summer season, LEWS are commonly observed beneath decks constructed in this style (pers. comm., A. Boyer, USFWS). Other trails and walkways would be constructed of paving stones/natural rock. Boardwalk/trail construction within Zones A and B would be limited to a single path per lot no wider than 6 ft, constructed similarly to a deck, or in another manner that does not include ground coverings impervious to LEWS. The paths may terminate in platforms no larger than 600 ft², which may be within Zones A and B. The platform would be constructed as a deck or rock crib platform. The crib would be

filled with Size A (18 inch to 30 inch) and/or Size B (12 inch to 24 inch) rock, and would be constructed in a manner similar to the cribs commonly frequented by LEWS elsewhere on the island. The rock crib design does not include the usage of mesh, wiring, or paneling of any kind that would make the interior of the structure inaccessible to the LEWS. The rock would be excavated during construction activities described herein, or would be collected/purchased from areas not providing LEWS habitat (e.g. a quarry). The rock would not be collected from the shoreline area of Kelleys Island or from other areas that might provide winter or summer habitat. Rock crib platforms may be capped with concrete.

Inclusion of boardwalks and any other facilities in this analysis does not preclude the need for other permits, if any.

2.3.6 Removal of an Existing Sheet Metal Pole Barn

An existing pole barn with a gravel floor, measuring approximately 30 ft x 40 ft, would be removed. No excavation would be required. The road to the existing barn would be abandoned and restored to natural conditions.

2.3.7 Construction/Placement of Utilities Including Sewage Treatment Facilities

Septic systems would be constructed on each lot. Due to the shallow average soil depth on the 15-acre tract, and with the recommendation of Karen Gerold, Director of Environmental Health, Erie County General Health District, leach beds would be constructed in soil mounds. The mounds would require a non-forested area approximately 86 ft long and 62 ft wide, and would be approximately 5 ft in height (Appendix E). Landscaping at the mounds would not include rock or other features providing cover to discourage LEWS from using the mounds to reduce the chance of LEWS exposure to household waste (e.g. wastewater, cleaners, detergents).

A private water well and filtration system would be developed on each lot. These facilities would require little surface area, and would be developed within a cleared area. Electric and telephone lines would be run underground from the central utility corridor/access road within the cleared area created for driveways to each residence.

2.3.8 Areas of Vegetative Clearing, Thinning, and Maintenance

A limited area, varying in size for Alternatives 2, 3, and 4, within each lot would be cleared of forest cover. Outside the footprint of structures, trees would be cut near the ground surface, and stumps with a diameter ≥ 6 inches at the ground surface would be left in place. Stumps with a diameter < 6 inches at the ground surface may be removed if no base cavities are present. Stumps < 6 inches diameter with base cavities will not be removed. Existing stumps may not be removed but may be trimmed to ground level.

To minimize effects to summer and winter habitat, three management zones on the 15-acre tract will be utilized (Figure 1-3). Zone A is defined as the shoreline to 80 ft landward. Zone B is defined as 80 ft landward from the shoreline to 125 ft landward of OHW. Zone C includes all areas landward from 125 ft of OHW.

The width these management zones were developed are based upon:

- The existing local zoning restriction regarding the construction of structures within the area 125 ft shoreward of the OHW. (OHW is not representative of the actual shoreline. Currently, 125 ft landward of OHW is approximately 150 ft landward of the shoreline)

- The area most frequently used by LEWS during the active summer period (within 82 ft [25 meters] of the shore; King 2002). To a lesser extent, the shoreline zone also encompasses and protects winter habitat. Fifty percent of hibernacula identified by King (2002) occur within 112 ft of the shore.

Although areas within Zones A and B may be periodically mowed in accordance with management guidelines specified in Table 2-1, no areas within Zones A and B will be converted to turf grass. Other portions of the areas in which trees are cut would not be maintained. The proportion of area in which trees are cut that will be converted to turf-grass lawn varies in the action alternatives.

Portions of these areas would be converted to turf-grass lawns, landscaped areas, or other maintained areas. Use of lawn care/gardening products (e.g., herbicides, pesticides, fertilizers, mulch) would be limited to use in Zone C and spot treatment of poison ivy property wide. All such materials would be applied in strict compliance with label directions.

- Spot treatment of poison ivy, or other noxious plants, could be conducted anywhere on the lots. This activity would be minimized to the extent practical. Only herbicides for the removal of poison ivy may be applied in Zones A and B. Application will be by the following standards:
 1. Only herbicides that contain either glyphosate or 2,4-dichlorophenoxyacetic acid (2,4-D, esters or salts) as their active ingredient would be used.
 2. Prior to application, search the area within 20 ft of the target plant for the presence of LEWS. Do not apply herbicides if LEWS are present within 20 ft of the treatment site.
 3. Do not apply when weather conditions favor drift or runoff from treated site.
 4. Do not spray this product in a way that it will contact LEWS directly or through drift.
 5. Application will be hand sprayer only. Treat individual plants only. No broadcast spraying.
 6. Do not apply within 20 ft of water bodies.
 7. Do not allow LEWS to touch treated plant until the herbicide has dried on the plant (i.e., 3 to 5 minutes following application).
 8. Do not spray when drift could carry into water.
 9. Follow weed-specific directions.
 10. Apply only between noon and sunset.
 11. Mix as directed on label.
 12. Apply only for approved uses and follow all general use directions as specified on label.
 13. Do not mix, store, or apply glyphosate-based products or spray solutions in galvanized steel or unlined steel (except stainless steel) containers.

Under Alternatives 2 and 3 only, the LP Homeowner's Association LLC will provide access routes for LEWS from the water towards the center of the peninsula along property lines. These routes will be dominated by vegetation types that now occur on the site, and will be at least 5 ft in width on both sides of property lines (i.e., total of 10 ft wide) that run approximately perpendicular to the water's edge.

These strips will likely be crossed by the driveway accessing each lot. Snakes are commonly observed crossing roads and it is unlikely the driveways will present an obstacle to movement of LEWS.

2.3.9 Mowing

Maintenance by mowing would be managed to avoid or minimize to the extent practicable effects to LEWS (Table 2–1). The following requirements apply to each action alternative.

Table 2–1. Limits on the season and area of mowing included in each action alternative.

Zone A Shore to 80 ft landward	Mowing, thinning, reduction of vegetation up to 60% of zone	
	Vegetation \geq 6 inches at all times	
	No mowing when temperatures are below 65° F	
Zone B 80 ft landward of shore to 125 ft landward of OHW	Mowing, thinning, reduction of vegetation up to 60% of zone	
	Vegetation \geq 6 inches from September through May	
	Vegetation \geq 4 inches from June through August	
	No mowing when temperatures are below 65° F	
Zone C All areas greater than 125 ft landward of OHW	Alternatives 2 and 3	Alternative 4
	temporary clearing of 1.0 acre/lot and permanent clearing of .75 acre/lot (.25 acre/lot returned to natural state)	temporary clearing of 1.25 acre/lot and permanent clearing of 1.00 acre/lot (.25 acre/lot returned to natural state)
	No temperature and height restrictions on mowing during June through August and November through March	
	No mowing when temperatures are below 65° F during April, May, September, and October	

2.3.10 Minimization of Actions Within Zones A and B

To avoid and minimize effects to potentially suitable LEWS habitat in Zones A and B where the snakes occur most often, the LP Homeowner’s Association LLC proposes only minimal modifications to this area. Specifically:

- No residences, garages, or other outbuildings, roads, driveways, access roads, or septic mounds will be constructed within Zones A and B.

- No excavation or topsoil stripping will occur within Zones A and B, except as needed to install rock crib terminal platforms.
- No docks, breakwaters, or similar structures will be constructed in the water.
- Modification to existing vegetation and construction of facilities within Zones A and B is limited to the thinning of existing trees, mowing, and construction of no more than one boardwalk and deck/platform per lot.
- If trees are cut within Zones A and B, they will be removed using a chain saw, and will not be cleared by use of heavy equipment/earth moving equipment. Stumps with a diameter ≥ 6 inches at the ground surface would be left in place. Stumps with a diameter < 6 inches at the ground surface may be removed if no base cavities are present. Stumps < 6 inches diameter with base cavities will not be removed. Existing stumps may not be removed but may be trimmed to ground level.
- Mowing in the management zones will be implemented only as described in Table 2–1. To minimize ground disturbance, and the areas in which landscaping materials would be applied, turf grasses will not be established within Zones A and B. Herbicides, pesticides, fertilizer, and any mulch containing materials other than natural wood products will not be applied within Zones A and B, with the exception of spot treatment of poison ivy, which may occur property wide.
- The proposed boardwalks (a single path per lot no wider than 6 ft) and platforms (a single platform per lot no larger than 600 ft²) near the shore are described in Section 2.3.6, above.

2.3.11 Management of Pets

Domestic or feral pets, especially cats, can be formidable predators of reptiles. Likewise, certain livestock (e.g., fowl, pigs) can prey upon snakes, while others can adversely modify LEWS habitat by removing vegetation and compacting soil (pers. Comm., R. King). The LP Homeowner’s Association LLC will implement the following to avoid or minimize the potential for interactions between pets and LEWS:

- Domestic cats will remain indoors at all times.
- Livestock (e.g., pigs, goats, horses) are not to be kept on the 15-acre tract.
- Dogs must be under control of the owner or owner's designee in accordance with Ohio Revised Code § 955.22 (Appendix J).

2.3.12 Access to the Long Point 15-Acre Tract

Access to the LP 15-acre tract by Service or Ohio Department of Natural Resources, Division of Wildlife representatives to observe or monitor LEWS would be as put forth by the following guidelines:

- (1) Service or Ohio Division of Wildlife will contact a LP Homeowner’s Association LLC representative in writing to request a mutually agreeable access date and time.

(2) The Homeowner's Association representative will in turn contact the Service or Ohio Division of Wildlife in writing on the feasibility (convenience to the individual lot owners) of the access for that particular date and time.

(3) A Homeowner's Association representative will meet the Service or Ohio Division of Wildlife to escort them onto the 15-acre tract and will stay with them to assist in questions and/or directions.

(4) All lot owners would be notified of the access. This provision does not grant access to private residences, garages, or outbuildings.

2.3.13 Reporting of Mortalities and Injuries of LEWS on the 15-acre Tract

LP Homeowner's Association LLC shall report mortalities of, and injuries to, LEWS on the 15-acre tract to the Service within 24 hours of occurrence, or, if the take occurs during a weekend or holiday, by the end of the next business day.

2.3.14 Responsibility of Lot Owners

Conveyance of the seven lots from LPLLC to the LP Homeowner's Association LLC included a deed restriction requiring that present and future owners comply with HCP/ITP for the duration of the permit (Appendix F). Additionally, Lot owners would advise all visitors/renters/lessees of the LEWS protection measures and restrictions in the HCP/ITP.

2.4 ALTERNATIVE 2 – MINIMAL DEVELOPMENT

Alternative 2 would result in the issuance of an ITP with duration of 10 years. Substantial aspects of this alternative are described in Section 2.3, above. Additional features of Alternative 2 are described below.

2.4.1 Construction of Driveways

The gravel residential driveways would be constructed in a manner identical to that described in Section 2.3.3 above. The driveways would be no wider than 12 ft. Additionally, signs that promote slow vehicular speeds and advise drivers of the potential occurrence of LEWS would be posted along the new access road.

2.4.2 Construction of Seven Seasonal Residences including Decks/Patios and Garages

Each of the seven parcels may have a building limited to a footprint of 3500 ft². Architecture of such structures would utilize 1½- or 2-story elements. Residences would be constructed with concrete-floored crawlspaces. Foundation walls would be constructed in a manner that would exclude LEWS from the crawlspaces beneath buildings to minimize the potential that LEWS will access areas within structures and become a nuisance. An attached or detached garage on each lot would be no larger than 1500 ft². One or more decks/patios not exceeding a combined total of 2500 ft² would be erected on each lot.

Excavation would be limited to the trench for construction of the foundation/footers. Excess topsoil, beyond what is required for building codes, would be stripped in areas where concrete slabs will be constructed. Stripped topsoil would be used in construction of the septic mounds, artificial hibernacula,

or would be removed from the site and disposed of in an area of unsuitable winter or summer LEWS habitat.

Buildings would not occur within management Zones A and B.

2.4.3 Areas of Vegetative Clearing, Thinning, and Maintenance

Vegetative clearing, thinning, and maintenance would occur as described in Section 2.3.8 and 2.3.9 above, with the following additional requirements:

- No more than 1.0 acre within Zone C of each lot would be cleared of forest cover to accommodate temporary construction needs,
- In Zone C, structures and facilities, including the driveways on the 15-acre tract would be built on, and turf-grass lawns and landscaped areas would be maintained on, no more than 0.75 acres of the initial 1.0 acre cleared,
- At least 0.25 acres of the initial 1.0 acre cleared in Zone C of each lot would be allowed to revert to natural conditions, and
- Fire pits will be limited to one per lot in a permanent location in Zone B or C. Fire pits will be a maximum of 10 ft² each and will not be filled with materials (e.g. brush, leaves, branches, logs) until the time of burning to avoid LEWS injuries.

2.4.4 Construction of Artificial LEWS Hibernacula

To mitigate for the loss of winter habitat on the 15-acre tract, natural rock would be used to construct 2 hibernacula per lot, if practicable, for a guarantee of 14 hibernacula across all 7 lots. This number was calculated using the Long Point population estimates by King 2002 (Calculations are on page 20, Table 2–2 of this document). These enhancements may be constructed in forested areas. The rock would be excavated during construction activities described herein, or would be collected/purchased from areas not providing LEWS habitat (e.g. a quarry). The rock would not be collected from the shoreline area of Kelleys Island or from other areas that might provide winter or summer habitat.

Hibernacula would be constructed within Zone C as near as possible to disturbed natural hibernacula. Hibernacula will not be constructed within 20 ft of septic mounds. Each hibernacula will have at least 12 ft² of frost-free area. Similar hibernacula have been constructed for, and utilized by, other species of snakes (Zappalorti and Reinert 1994).

Excess topsoil from construction activities in Zone C may be used to cap the hibernacula.

Table 2–2. Hibernacula required on the 15-acre Tract based on LEWS population estimates by King (2002). Calculations are based on the assumption that all adult LEWS that summer on LP also hibernate there. Management Zones are discussed in Fig. 1–3.

A	LEWS on 15-acre LP tract	47.7
B	Percentage of hibernacula in Zone C (greater than 150 ft from shore)	32% (King 2002)
C	# LEWS hibernating in Zone C (A x B = C)	15.3
D	Acres of 15-acre tract in Zone C (62% of subdivision)	9.4
E	# LEWS per acre hibernating in Zone C (C / D = E)	1.6
F	Acres unavailable for hibernacula in Zone C	6.1 (Alt. 2 & 3) 7.9 (Alt. 4)
G	# Hibernacula affected throughout 15-acre LP tract (E x F = G)	9.8 (Alt. 2 & 3) 12.6 (Alt. 4)
H	# Hibernacula affected per lot (G / 7 = H)	1.4 (Alt. 2 & 3) 1.8 (Alt. 4)
I	Constructed hibernacula required on each lot* (At a mitigation ratio of 1.5 replacement : 1 lost) (H x 1.5 = I)	2

*2 hibernacula per lot, if practicable, for a guarantee of 14 hibernacula across all 7 lots (for Alternatives 2 and 3).

2.4.5 Research Support and Pre-construction Coordination

LP Homeowner's Association LLC would provide access, in writing, to the 15-acre tract to researchers studying the LEWS. By facilitating this research, the LP Homeowner's Association LLC would aid researchers in characterizing the hibernation/hibernacula and movements of LEWS. Additionally, the LP Homeowner's Association LLC would notify the USFWS prior to initiating substantial development/construction activities on the 15-acre tract.

2.4.6 Monitoring Duration and Frequency

Monitoring, as described in the HCP, would be required annually for the first five years, year 7, and year 10 (i.e., years 1, 2, 3, 4, 5, 7, and 10). Constructed LEWS hibernacula will be monitored at a rate of 6 hibernacula-years over the duration of the ITP (one hibernacula-year = monitoring of one artificial hibernacula during one Spring emergence period). Annual cost of monitoring is estimated at \$1,250. Total cost of monitoring is estimated at \$12,500.

2.5 ALTERNATIVE 3 – MINIMAL DEVELOPMENT WITH 15-YEAR ITP/PROPOSED ACTION

Alternative 3 is the proposed action and is as described for Alternative 2, above; however the duration of the ITP would be 15 years. An HCP has been developed as part of this alternative to mitigate (avoid, minimize, and/or compensate) for incidental take of the LEWS that may occur during site development activities. This alternative would allow use of the property in accordance with the applicants' financial and aesthetic requirements, with a conservation plan that would minimize and mitigate potential impacts to the LEWS by providing specific conservation and protection measures.

Monitoring and reporting, as described in the HCP, would occur annually for the first five years, year 7, 10, and 15 (1, 2, 3, 4, 5, 7, 10, 15). Constructed LEWS hibernacula will be monitored at a rate of 6 hibernacula-years over the duration of the ITP (one hibernacula-year = monitoring of one artificial hibernacula during one Spring emergence period). Annual cost of monitoring is estimated at \$1,250. Total cost of monitoring is estimated at \$18,750. If construction is not complete on the lots by the close of year 15, an amendment to the ITP would be required.

2.6 ALTERNATIVE 4 – DEVELOPMENT EMPHASIS

Except as specified below, Alternative 4 proposes activities as described for Alternative 2, above. The action would result in the issuance of an ITP with duration of 10 years. In general, this alternative places fewer constraints upon proposed activities, emphasizes prompt completion of construction, proposes a monitoring period and ITP of shorter duration/less expense, while proposing measures to avoid, minimize, and mitigate for effects to LEWS and their habitat to the maximum extent practicable.

If construction is not complete on the lots by the close of year 10, the ITP could be extended without preparation of a revised HCP, assuming no substantive new issues arise and take was appropriately characterized in the original HCP.

2.6.1 Construction of Driveways

Residential driveways would be constructed as described in Section 2.3.3 above. Additionally, signs that promote slow vehicular speeds and advise drivers of the potential occurrence of LEWS would be posted along the access road. Gravel driveways would be no greater than 16 ft wide.

2.6.2 Construction of Seven Seasonal Residences including Decks/Patios and Garages

Construction of residences on each of the seven lots within the 15-acre tract would occur in a manner identical with that described in Section 2.4.2 above, with the following exceptions:

- each of the seven parcels may have a residence limited to a footprint of 4000 ft²,
- one or more decks/patios not exceeding a combined total of 2700 ft² would be erected on each lot.

2.6.3 Areas of Vegetative Clearing, Thinning, and Maintenance

Vegetative clearing, thinning, and maintenance would occur as described in Section 2.3.9 above, with the following exceptions:

- no more than 1.25 acre within Zone C of each lot would be cleared of forest cover to accommodate temporary construction needs,
- all structures and facilities would be built on, and turf-grass lawns and landscaped areas would be maintained on, no more than 1.0 acres of the initial 1.25 acre cleared in Zone C of each lot, and
- 0.25 acres of the initial 1.25 acre cleared in Zone C of each lot would be allowed to revert to natural conditions
- Alternative 4 does not include the preservation of forested strips along property lines generally perpendicular to the shoreline to provide cover for water snakes moving from shoreline habitat towards interior areas of Long Point.
- Stumps may be removed property-wide.
- Alternative 4 does not place any restrictions on the size, number, placement of materials, and location of fire pits within the 15-acre tract.

2.6.4 Construction of 1000 ft² Common-Use Barn

Alternative 4 includes a pole barn with a footprint of 1000 ft² for common use on the 15-acre tract. An area 15 ft wide around the barn would be cleared, for a total footprint of 4000 ft² within Zone C. Precise location of the barn on the 15-acre tract has not been determined. The barn would be constructed without a foundation or concrete floor.

2.6.5 Construction of Artificial LEWS Hibernacula

In Alternative 4, artificial LEWS hibernacula would not be constructed to mitigate for the loss winter habitat on the 15-acre tract.

2.6.6 Research Support and Pre-construction Coordination

To minimize the time and effort required to coordinate activities not directly associated with construction, the LP Homeowner’s Association LLC would no longer provide access to the 15-acre tract to researchers studying the LEWS. Additionally, the LP Homeowner’s Association LLC would not notify the USFWS prior to initiating substantial development/construction activities on the 15-acre tract.

2.6.7 Monitoring Duration and Frequency

Monitoring and reporting would be required in years 1 through 5, 7, and 10. Constructed LEWS hibernacula will be monitored at a rate of 6 hibernacula-years over the duration of the ITP (one hibernacula-year = monitoring of one artificial hibernacula during one Spring emergence period). Total cost of monitoring is estimated at \$12,500.

2.7 MEASURES TO AVOID AND MINIMIZE TAKE

Measures to avoid or minimize take, or to enhance LEWS habitat on Long Point, vary in the proposed alternatives. These measures are an integral portion of the alternatives (Table 2–2).

Table 2–3. Summary of measures to avoid or minimize take, or to enhance LEWS habitat on the 15-acre tract, integral to proposed alternatives.

Measure to Avoid and Minimize Take	Alt. 1	Alt. 2	Alt. 3	Alt. 4
A "buffer area" would be established on each lot, consisting of all areas from the shoreline to 125 ft landward of the OHW (Zones A and B). No residences, garages, or other outbuildings, roads, driveways, access roads, or septic mounds will be constructed within this area.	no	yes	yes	yes
LP Homeowner’s Association LLC will provide access routes for LEWS from the water towards the center of the peninsula along property lines. These routes will be dominated by vegetation types that now occur on the site, and will be at least 5 ft in width on both sides of property lines (i.e., total of 10 ft wide) that run approximately perpendicular to the water's edge.	no	yes	yes	no
To avoid effects to near shore habitat where most hibernacula occur, no turf-grass lawns would be established with Zones A and B. Herbicides, pesticides, fertilizer, and any mulch containing materials other than natural wood products will not be applied within Zones A and B, except for spot treatment of poison ivy	no	yes	yes	yes
The existing stone building foundation in Lot No. 3 provides habitat for LEWS and shall not be disturbed	no	yes	yes	yes

Measure to Avoid and Minimize Take	Alt. 1	Alt. 2	Alt. 3	Alt. 4
by construction or other activities.				
Two artificial hibernacula per lot, if practicable, for a guarantee of 14 hibernacula, would be constructed on the 15-acre tract in Zone C.	no	yes	yes	no
Pets would be controlled as specified in Section 2.3	no	yes	yes	yes
LP Homeowner's Association LLC has abandoned all roadway easements, including the shoreline access road, for a total area of 5.36 acres of easements on Long Point.	yes	yes	yes	yes
Signs would be posted on the 15-acre tract along the access road promoting low vehicular speeds and alerting users of the potential presence of LEWS.	no	yes	yes	yes
Ground-disturbing activities on the 15-acre tract would be permitted only between May 1 to November 1 when both air and ground temperatures have been above 65°F for five consecutive days prior to excavation and/or construction. On the day of excavation or burning, air and ground temperatures are to be above 65°F in accordance with the Service's Interim Lake Erie Water Snake Guidelines (Appendix C).	No seasonal limit on activities	yes	yes	yes
Fire pits will be limited to one per lot in a permanent location in Zone B or C. Fire pits will be a maximum of 10 ft ² each and will not be filled with materials (e.g. brush, leaves, branches, logs) until the time of burning to avoid harming snakes that may seek shelter in piles of debris.	no	yes	yes	no
To avoid or minimize to the extent practicable effects to LEWS, mowing would implemented only as specified in Section 2.3.9	no	yes	yes	yes
Water features (e.g., fountains, pools, hot tubs) will be constructed above ground to discourage access by LEWS, with excavation limited to topsoil removal within the construction footprint. Water in these structures will be de-chlorinated prior to draining. Hot tubs will be covered when not in use to prevent access by snakes. Such features will not be constructed within Zones A and B.	no	yes	yes	yes
Constructed trails within Zones A and B would be limited to a single boardwalk no wider than 6 ft. The boardwalks could terminate in platforms in Zones A and B no larger than 600 ft ² built as a deck or in a rock-crib design.	no limit	yes	yes	yes

Measure to Avoid and Minimize Take	Alt. 1	Alt. 2	Alt. 3	Alt. 4
LP Homeowner's Association LLC would contribute to LEWS conservation by providing in-kind services with the approximate value of \$50,000 in the form of planning and landscape design while working with the Service to prepare and implement the HCP.	no	yes	yes	yes
LP Homeowner's Association LLC would continue to provide access, in writing, to the 15-acre tract to facilitate research being conducted by Dr. R.B. King of N. Illinois Univ. By facilitating this research, LP Homeowner's Association LLC would aid researchers in characterizing the hibernation/hibernacula and movements of LEWS.	no	yes	yes	no
LP Homeowner's Association LLC would notify the Service prior to initiating substantial development/construction activities on the 15-acre tract.	no	yes	yes	no
Access to the LP 15-acre tract by Service or Ohio Division of Wildlife representatives to observe or monitor LEWS would be requested and granted in writing at a mutually agreeable access date and time. This provision does not grant access to private residences, garages, or outbuildings.	no	yes	yes	yes
LP Homeowner's Association LLC shall report mortalities of, and injuries to, LEWS on the 15-acre tract to the Service within 24 hours of occurrence, or, if the take occurs during a weekend or holiday, by the end of the next business day.	no	yes	yes	yes
During forest clearing in areas outside the footprint of buildings, trees would be cut near the ground surface, and stumps with a diameter \geq 6 inches at the ground surface would be left in place. Stumps with a diameter $<$ 6 inches at the ground surface may be removed if no base cavities are present. Stumps $<$ 6 inches diameter with base cavities will not be removed. Existing stumps may not be removed but may be trimmed to ground level.	No limits on tree removal	yes	yes	All stumps may be removed
Conveyance of the seven lots from LPLLC to private ownership included a deed restriction requiring that present and future owners comply with HCP/ITP for the duration of the permit (Appendix F).	no	yes	yes	yes
Lot owners would advise all visitors/renters/lessees of the LEWS protection measures and restrictions in the HCP/ITP.	no	yes	yes	yes
Maximum area of each lot to be cleared of forest cover for construction of residences, each with a	entire lot	1.0 acre	1.0 acre	1.25 acres

Measure to Avoid and Minimize Take	Alt. 1	Alt. 2	Alt. 3	Alt. 4
deck/patio, garage, septic mound, and driveway.				
Maximum cleared area to be within footprint of buildings, driveways, concrete slab or maintained in turf-grass lawn/landscaped areas in Zone C	entire lot	0.75 acre	0.75 acre	1.0 acre
Material used to construct driveways.	Any, assume asphalt paving	light-colored gravel	light-colored gravel	light-colored gravel
Maximum width of driveways to residential areas.	No maximum	12 ft	12 ft	16 ft
Duration of Incidental Take Permit	n/a	10 years	15 years	10 years

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 SITE DESCRIPTION

Only the area within Lots 1-7 in the Long Point Subdivision is addressed in this HCP. This 15-acre tract is on Long Point, the northeastern-most extension of Kelleys Island, Erie County, Ohio.

To the north is an approximate 12-acre tract (Spirk property), which currently contains three residential structures and other facilities. The farthest structure/house from the 15-acre tract has been recently dismantled and rebuilt with expansions. A second, closer house has been recently remodeled and expanded. The approximate footprint of these structures is unknown. A new barn and apartment with a footprint of 4,000 sq.ft. has recently been built on the Spirk property with associated tree, vegetation and topsoil clearing of which a total amount is unknown.

Much of the 12-acre tract (Spirk property) of existing woodland has been recently cleared. The owner plans to maintain the general character of the site in its current condition, and is not planning to subdivide the area (pers. Comm., E. Meyers Arter and Hadden, LLP). The 2-acre lot originally known as Lot 8 in the LP Subdivision is part of this 12-acre tract. Lot 8 has been removed from the LP Subdivision and is not covered by this EA/HCP.

The Cleveland Museum of Natural History (Museum) owns the tract along the east/south shore south of the 15-acre tract. There are no reasonably foreseeable development plans for this area.

During development of this HCP/EA, a group of private individuals purchased a narrow strip of land south and west of the 15-acre tract along the western shoreline. The owners anticipate construction of a single residence on this tract, accessed using a driveway from the new access road to lots owned by the LP Homeowner's Association LLC (pers. comm., P. Testa).

Electric utility lines run through Long Point to the northeastern tip of the peninsula. Sewer lines, public water, and natural gas utilities are not available on Long Point. The 15-acre tract includes seven lots:

Lot 1: 2.3378 acres
 Lot 2: 2.1744 acres

Lot 4: 2.2969 acres
 Lot 5: 2.0458 acres

Lot 6: 2.0461 acres
 Lot 7: 2.0046 acres

Lot 3: 2.2601 acres

A survey and legal description of the LP Subdivision was completed (Appendix G).

3.2 VEGETATION

Nearly 100% of the 15-acre tract is forested. Typical trees on the property are short (< 40 ft tall), and of small diameter (< 10 inches diameter at breast height). Review of available aerial photography shows the areas to be "vacant wooded land surrounded by same" in photographs from 1950, 1969, 1973, and 1986. The dominant tree species is hackberry (*Celtis occidentalis*). Other less common species include Ohio buckeye (*Aesculus glabra*), eastern red cedar (*Juniperus virginiana*), oak (*Quercus* sp.), black willow (*Salix nigra*), hickory (*Carya* sp.), dogwood (*Cornus* sp.), honey locust (*Gleditsia triacanthos*), and cottonwood (*Populus deltoides*). Cultivated grass (*Poa* sp., *Festuca* sp.) is common in areas of open canopy. A weedy herbaceous understory is nearly ubiquitous.

According to mapping in the Kelleys Island Master Plan, approximately 47% of Kelleys Island is wooded (PKG 2001). Historically much of the island was forested with red cedar. By 1813 the island's timber was being lumbered for firewood to supply steam ships, and was being cleared for agriculture. By the mid 1800s most of the island had been deforested. With the island's economic and population decline during the early 20th century, some parts of the island reforested with hardwood species (Section 3.2), as reflected in the island's existing 1243 acres of woodland.

"Island Reserve Lands" comprise 25% of the island. These areas are clustered near the center and on the north side of the island, and are composed largely of State-owned lands maintained in "their natural state with few amenities and improvements" (PKG 2001).

3.3 WILDLIFE

Although no surveys were completed to identify wildlife species using the 15-acre tract, anecdotal information is available regarding species observed on Kelleys Island by the local residents. Sightings include 241 bird species, 45 butterfly species, 26 dragonfly species, one amphibian species, and six reptile species (see www.kelleysisland.ws).

The forest on Long Point provides habitat for a variety of wildlife; however, there are no known ecologically unique/critical characteristics present on Long Point. Although one of the two largest contiguous forests on the island, the entirety of the northeast corner of Kelleys Island is of insufficient size to support bird species referred to as "forest-interior species" (e.g., scarlet tanager [*Piranga olivacea*], eastern wood-pewee [*Contopus virens*], wood thrush [*Hylocichla mustelina*]). Robbins et al. (1989) found breeding forest interior bird species are less common as forest patch size diminishes from 250 acres. The Illinois Department of Conservation (in Herkert et al. 1993) indicates only 75% to 80% of (breeding) forest interior species would be present in forest patches as small as 250 acres. Management guidelines (e.g., Maryland Partners in Flight 1997) typically recommend forests of 2500 acres (approximately the size of Kelleys Island) for the successful management of forest interior breeding birds. Others (e.g., Rosenberg et al. 1999) indicate 2500-acre areas with 70% or greater forest cover provide high quality habitat for forest interior birds.

The shape of Long Point and the forest cover there also presents limiting factors for forest interior birds. Sandilands and Hounsell (1994) found breeding forest interior bird species avoided areas closer than approximately 300 ft from the forest edge. The 15-acre tract ranges from approximately 850 to 900 ft in width. A mowed, 30 ft wide powerline corridor approximately parallels the northwestern shore, and is

approximately 300 ft from the shoreline. The 15-acre tract therefore has little if any area greater than 300 ft from a forest edge, and little if any habitat exists there for breeding forest interior species.

Long Point is reported to support numbers of birds during spring and fall migration. This issue became the central focus of assessing the impact of the alternative actions on non-listed wildlife.

3.3.1 Migrating Birds

Many birds migrate across Lake Erie, spending summers in Canada and the United States and winters in Mexico, the Caribbean, Central America, and South America. Some species fly non-stop and many others utilize stopover locations (steppingstones) during migration. Along the approximately 40-mile distance across Lake Erie from Point Pelee to Marblehead, there are a number of sizable islands including Pelee, North Bass, Middle Bass, South Bass, Kelleys, and Catawba, as well as other smaller islands that migrating birds use as steppingstones. Steppingstones are used as resting points by birds where they feed and find shelter. In particular circumstances, coastal steppingstones may be important as many species of birds make nonstop flights over water, some as long as 80 miles.

Migrating birds traveling across the lake use Kelleys Island, as well as the other Lake Erie islands. Migrating birds utilize much of Kelleys Island and do not use Long Point exclusively. Stopover points used by migrating birds are generally not as habitat specific as are the preferences shown by breeding birds. The presence of food, rather than specific habitat characteristics, appears to be important for migrants (pers. comm., B. Peterjohn, USFWS). Evidence also shows that birds flying across Lake Erie reach the shoreline of the Island and follow it around to the opposite shoreline, where they resume the flight across the Lake (pers. comm., B. Peterjohn, USFWS). Few birds are believed to routinely fly directly across Kelleys Island (pers. comm., B. Peterjohn, USFWS).

3.3.2 Rare Species

The Habitat Conservation Plan was prepared in anticipation of an incidental take statement for the LEWS. Five species federally listed as endangered or threatened, and a federal candidate species are known to occur in Erie County, Ohio:

- Lake Erie water snake (*Nerodia sipedon insularum*) - Threatened
- Great Lakes piping plover (*Charadrius melodus*) - Endangered
- Indiana bat (*Myotis sodalis*) - Endangered
- Lakeside daisy (*Hymenoxys herbacea*) - Threatened
- Bald eagle (*Haliaeetus leucocephalus*) - Threatened
- Eastern massasauga rattlesnake (*Sistrurus catenatus*) – Candidate

There is one official record of a Kirtland's warbler sighting on Kelleys Island (pers. comm., J. McCormac, Secretary of Ohio Bird Records Committee). Robert Harlan observed the male Kirtland's warbler on May 14, 1997. Because use of the island by the species is so rare, no take is likely to occur as a result of the development on the 15-acre tract, and the species will not be further addressed in this HCP.

Of the federally-listed and candidate species that occur in the county, only the LEWS and lakeside daisy are known to occur on Kelleys Island. The lakeside daisy occurrence is a reintroduced population within the Kelleys Island quarry, approximately 1.5 miles southwest of the 15-acre tract.

A search of Ohio's Natural Heritage Database indicates no known occurrences of state-listed species on the 15-acre tract other than LEWS.

3.3.2.1 Lake Erie water snake

3.3.2.1.1 Background

The Service listed the LEWS on August 30, 1999 as threatened under the Endangered Species Act of 1973, as amended (Federal Register Vol. 64, No. 167, pages 47126-47134). The LEWS inhabits a restricted range less than 25 miles in diameter made up of the islands in western Lake Erie that are more than a mile from the Ohio or Canada mainland (King 1998). Kelleys Island, Erie County, Ohio is within the known range of the LEWS (King July 2001, King February 2001). Shoreline habitat destruction and deliberate persecution by humans were the primary threats leading to the species listing (50 CFR Part 17, Volume 64, No. 64, 30 August 1999). The Service found the designation of critical habitat was not prudent when the species was listed in 1999. To date, no critical habitat has been designated.

King (1986) estimated the total adult population of LEWS at 1262. King (1998) increased the estimate to 1220 to 3223 adults on Ohio islands inclusively. Based upon the several different methods of calculation and data sets generated over multiple years, King (2002) estimates a population of 5473 adult LEWS inhabiting the U.S. and Canadian Islands where LEWS are afforded legal protection (excludes Johnson's Island and Willow Point). The density of Lake Erie water snakes across all 30 sites was 185 adults per mile of shoreline.

Additionally, King (2002) reports estimates for 20 of these 30 sites (including approximately 12 miles of shoreline) based upon mark-recapture data at 2949. The density of Lake Erie water snakes across all 20 sites was 251 adults per mile of shoreline.

These estimates are based upon data collected over a 20-year period and may not represent the "standing crop" of Lake Erie water snakes at any one moment in time. Each of the reports emphasized the preliminary nature of the population estimates. It appears the range-wide LEWS population well exceeds the 1262 estimate made in 1986 (pers. comm., R. King, Northern Illinois University).

3.3.2.1.2 Life History

Throughout most of its range, this aggressive, non-venomous snake is slate gray with no bands or blotches, or is brown with faded or incomplete crossbands and blotches along its entire body length. The average size of an adult female LEWS is 32 inches snout to vent, while the average size of an adult male is approximately 25 inches snout to vent (King 1986). LEWS are born in August and September; the average litter size is 23 young. Concentrations of newborn LEWS occur on the landscape following birth in the fall and following spring emergence from hibernation. Roughly the size of a pencil, these neonates remain inactive and highly vulnerable through the winter hibernation months. The LEWS feeds primarily upon fish and amphibians.

The LEWS is largely restricted to areas near the island's shorelines (King 1998). They hibernate in lakeside or upland locations above the waterline and above freezing temperature. The snakes hibernate in and under fallen logs, hollow trees, cisterns, wells, foundations, rock crevices, and debris piles. LEWS hibernate from approximately November through April, and emerge during April and May. During this time, the water snakes move closer to the shoreline to forage among inland wetlands, if present, especially when Lake Erie water is cool. As water temperatures increase in late May and early June, the snakes move to open, rocky, and sunny areas of the shore and use piled rock drifts as shelters. LEWS also seek summer shelter in underbrush, rock outcrops, and crevices that occur along the water and shoreline bluffs. Manmade structures including crib docks, underground pipes, and rock piles are used extensively by LEWS on Kelleys Island during the non-hibernating period. The snakes are most commonly observed on the south side of the island where residential and commercial development is prevalent (pers. comm., K. Stanford, Northern Illinois University). The south shore of Kelleys Island has

the highest recorded density of LEWS at 1809/mi (King 2002). Gulls, herons, raptors, blue racers, and raccoons are thought to be the snake's most frequent natural predators among the western Lake Erie islands.

3.3.2.1.3 Lake Erie Water Snake on U.S. Islands

Locations of hibernacula are being defined in ongoing research led by Dr. Richard King of Northern Illinois University (King 2002). King located 50 hibernacula used by 44 separate LEWS. Of the 50, 30 were located directly inland from summer activity areas of the snakes. Hibernacula of the other 20 were "located inland from shoreline areas outside... [areas] used during the summer active season." Snakes apparently moved from 66 ft to 4626 ft along the shore before moving inland. LEWS hibernacula (n = 50) were an average of 112 ft from the shoreline (range = 3 ft to 903 ft). Seventy-five percent hibernated within 295 ft of shoreline; 90% hibernated within 712 ft, 95% hibernated within 1207 ft, and 99% hibernated within 3232 ft. Hibernacula recorded during the study included small (several inches in diameter) entrance holes in the ground surface, and areas beneath/within rock rubble, a foundation and a cellar, concrete steps, boards, a sewer line, a rock wall, tree roots, and other dense vegetation (King 2002).

King (2002) found the snakes (n = 47) used an average of approximately 840 ft (a linear distance measured parallel to the shore) of shallow water area/shoreline (range = 230 to 1181 ft) during the "active season" between July and September. This area of concentrated summertime activity extends approximately 85 ft inland from the shore (King 2002). Four of the 16 snakes monitored in 2000 used crib docks extensively during the active season, and moved inland to hibernate.

Preliminary findings (King 2002) appear to indicate that interior hardwood forest is not a critically important habitat attribute; the snakes are frequently observed in mowed and uncut grass and herbaceous vegetation, especially where these habitat types meet other vegetation types (pers. comm., K. Stanford, Northern Illinois University).

3.3.2.1.4 Lake Erie Water Snake on the 15-acre Tract

Areas of suitable habitat exist on the 15-acre tract, and summer and winter occurrence of the species has been documented on the 15-acre tract (King 2002, King February 2001, King July 2001). During warm months, LEWS are found at or near the shoreline of Long Point. The rocky shoreline of Long Point provides shelter, breeding, foraging, and hibernation habitat for LEWS. The snakes forage for small fish and amphibians near these locations and use spaces among rocks and along the shoreline for rest, reproduction, and protection from predators. The shoreline/vegetation interface on Long Point is used during summer and winter (King 2002, King February 2001, King July 2001). King (July 2002) estimated the population of LEWS along 1.7 miles of the Long Point shoreline, including the 15-acre tract, at approximately 240 adults, or approximately 140 adults per mile.

3.3.2.2 Indiana Bat

The Indiana bat (*Myotis sodalis*) is a federally-listed endangered species that occurs over most of the eastern half of the United States. Large hibernating populations are found in Indiana, Missouri, and Kentucky, and smaller populations have been recorded from Alabama, Arkansas, Connecticut, Florida, Georgia, Illinois, Iowa, Maryland, Massachusetts, Michigan, Mississippi, New Jersey, New York, North

Carolina, Ohio, Oklahoma, Pennsylvania, Tennessee, Vermont, Virginia, and West Virginia. During winter, Indiana bats hibernate in caves and abandoned mines. During periods of activity, Indiana bats typically roost under the exfoliating bark of live or dead trees. Indiana bat maternity and foraging habitat includes small stream corridors with well-developed riparian woods, and upland, largely deciduous, forests.

Potentially suitable foraging habitat for Indiana bats occurs on Long Point. Surveys have not been completed to assess the presence of the species on Long Point or on Kelleys Island.

The 15-acre tract contains no suitable hibernating sites (caves, mines), and Indiana bats would therefore not utilize the area in winter.

A wide range of upland and riparian areas throughout the Midwest provides suitable summer foraging habitat. Following verbal coordination with the Service, LPLLC removed trees from the property that exhibited characteristics of potentially suitable Indiana bat roost trees. The trees were removed in late September 2001, outside the summer maternity season. With the removal of potential roost trees, the Service concurred that the project would not affect Indiana bats, and this species is not further addressed in this EA.

3.4 WETLANDS AND OTHER SURFACE WATER FEATURES

An investigation (Lawhon & Associates 1999) found no wetlands on the 15-acre tract. With the exception of Lake Erie, there are no streams, rivers, ponds, or other waters of the United States on the site.

3.5 GEOLOGY/SOILS

Fragmented bedrock rests at varying depths on the 15-acre tract. Soil depth varies up to approximately 24 inches. The ground surface on Long Point is generally flat, with well to poorly drained soils that are shallow and commonly underlain by limestone rubble (SCS 1971). In Castalia, very channery silt loams (0-2% slopes) that occur on the majority of the 15-acre tract, the rubble consists of fragments of limestone 3 to 10 inches in diameter, and it may make up more than 50% of the material in the upper soil horizons. The rubble can extend to depths of 42 inches to 15 ft. Below this depth, solid limestone bedrock exists. The degree to which interstitial spaces between the rubble is filled with soil decreases with depth. Soils of the Lewisburg Series, moderately shallow variant (0-2% slopes) are less common on the 15-acre tract. Subsoils are a clay loam that may contain small gravel to larger limestone fragments; solid bedrock typically occurs at depths of 20 to 40 inches.

The northeast portion of Kelleys Island, including Long Point, is surrounded by rocky shoreline extending from the "tree line" outward tens of feet to the water's edge. The shoreline varies from a sand-like substrate apparently consisting of crushed mussel shells to large, car-sized slabs of limestone and exposed limestone bedrock planes. There are no prime farmlands on Long Point.

3.6 LAND USE

A draft of the Kelleys Island Master Plan was updated in December 2001 (PKG 2001). Concerning the northeast portion of the island, the draft plan noted Long Point is zoned for low-density residential development. The Plan recommends development principally on 2 to 5 acre lots, and establishment or retention of vegetation to screen views between homes and road rights of way. The 15-acre tract is bordered by Lake Erie to the east and west, and by private land to the north and south. Two residences exist and a barn with a residence exist on land to the north of the project site. The project area is not

visible from road rights of way or properties to the south (i.e., from areas on the central part of the island); it is screened from view by 1500 to 1800 ft of wooded private land.

The 15-acre tract is currently wooded; it comprises 2% of the wooded area on Kelleys Island. Approximately one-third of Kelleys Island is in tree cover (PKG 2001). This cover type is represented broadly across the island, with the largest contiguous areas occurring in the northeast (including Long Point), northwest, and east.

There are no local, state, or federal parklands on Long Point.

All alternatives assessed herein are in accordance with land use plans. No adverse effects to local land use are anticipated from proposed alternatives, and this issue therefore is not a specific focus of this EA.

3.7 AIR QUALITY

Information on quantitative air quality of the project area is unavailable. Casual observation indicates local air quality is good within this non-industrial, rural, residential area. Because this project is unlikely to have measurable effects on local or regional air quality, this issue was not specifically a focus of this EA.

3.8 WATER QUALITY

There are no known sources of groundwater or surface water contamination at the site (Lawhon & Associates 1999). No substantial effects to water quality are expected. In all alternatives, ground disturbance would likely take place sporadically over time, and in disjunct locations on the 15-acre tract. Because of the small size of the lots (less than a 5 acre threshold), preparation of a Storm Water Pollution Prevention Plan and compliance with National Pollution Elimination Discharge System rules would not be mandatory. Because the topography of Long Point is flat, and the site lacks streams, creeks, or other water conveyances, it is unlikely that substantial runoff from construction activities would occur. Local zoning codes prohibit construction of structures within 125 ft of the OHW. We anticipate the flat site topography, and vegetation between areas of ground disturbance and the lake will adequately minimize the movement of sediment to the lake, therefore detailed analysis of effects to water quality caused by proposed alternatives was not a focus of this EA.

3.9 HAZARDOUS, TOXIC, OR RADIOACTIVE MATERIALS

Based upon an Environmental Site Assessment completed at the site, there are no known sources of hazardous, toxic, or radioactive wastes or materials on the property (Lawhon & Associates 1999). Proposed alternatives would not generate materials of this type, and although this issue was considered carefully, it did not warrant detailed analysis in the EA.

3.10 ENVIRONMENTAL JUSTICE

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 Federal Register 7629 (1994), directs federal agencies to incorporate environmental justice in their decision making processes. Federal agencies are directed to identify and address as appropriate, any disproportionately high and adverse environmental effects of their programs, policies, and activities on minority or low-income populations.

No environmental justice issues exist for any of the alternatives. The 15-acre tract is currently unoccupied and unused for agricultural, industrial, or any other economic activity. As the alternatives propose construction on seven residential lots, none of the alternatives would create substantial levels of pollution. No minority or low-income populations would be displaced or negatively affected in any other way by the proposed action or by any alternative in this EA.

3.11 CULTURAL RESOURCES

The entire landmass of Kelleys Island is listed on the National Register of Historic Places (NRHP). The NRHP includes properties of significance in American historical architecture, archeology, engineering, and culture. In compliance with §106 of the National Historic Preservation Act, Federal agencies must take into account the effects of actions on any property listed on, or eligible for, the NRHP. On behalf of the Service, BHE Environmental, Inc. consulted with the Ohio Historic Preservation Office, researched available information, and surveyed the project area for the presence of cultural resources. Kelleys Island has a history of prehistoric and historic occupation. Prehistoric peoples were present on the island over the entire temporal range in the Great Lakes region; however occupation does not seem to intensify until the Late Woodland period (ca. 700 AD to 1200 AD). The majority of known intense occupations from this period are along the island's southern shore, facing the mainland. The first recorded settler on Kelleys Island was William Cunningham who resided there from 1808-12, during which time he conducted trade with the Indians. By 1813, the island's timber (predominately red cedar) was being lumbered, but it wasn't until the 1830s when the island's most abundant resource, limestone, was exploited. The Kelley brothers acquired much of the property on the island and sold stone to markets in Detroit, Buffalo, and Cleveland. Supplying firewood for steam ships combined with clearing for agricultural use destroyed the lumber industry on the island by the mid-1800s.

Limestone mining/production had the greatest impact on the cultural landscape of Kelleys Island. Construction of roads, docks, and housing were initially developed in response to this growing industry. Quarries consumed at least 16% of the island's total surface area. Other industries such as agriculture and viticulture also contributed to the cultural landscape. The temperate lake climate and rich lime soils combined to provide ideal growing conditions for corn, wheat, and pork that were exported for market as early as the 1830s. The growing of grapes and the production of wine eclipsed other commercial activities during the mid to late 1800s when almost every family on the island devoted land and/or time to its production. The island's population more than tripled from 1849 to 1863. The unprecedented prosperity and increased population during this period accounts for most of the architectural resources extant on the island today. Towards the end of the 19th century viticulture declined. Commercial and recreational fishing on the island provided an additional and constant source of food and income. A number of fishing ports dating from the late 19th to early 20th centuries were located along the eastern and southern shorelines.

The decline of viticulture and quarrying industries during the early 20th century resulted in serious population and economic decline. Not until the 1960s with the rebirth of quarrying activities and the growth of tourism did economic recovery for the island began. In the last decade, tourism above all other industries has contributed greatly to the island's economy.

The majority of historic activities that have contributed to the cultural landscape of Kelleys Island seemed to have occurred outside of Long Point. Three archaeological sites and at least two historic house foundations have been identified on Long Point:

- Watkin house foundation
- Lincoln house foundation
- Rock wall along Monagan Road
- Prehistoric Site No. 1
- Prehistoric Site No. 2

The Watkin foundation is within Lot No. 3. The foundation first appears on the 1874 atlas, and is no longer evident on a map produced in 1919. The assumption is that, along with the Lincoln house foundation located just east of the abandoned shoreline access road on private property, about 1400 ft southwest of the 15-acre tract, is associated with owners that participated in agriculture/viticulture activities. Both foundations are contributing elements to the Kelleys Island Historic District. Near the Watkin foundation, a line of rocks placed end to end was identified running approximately 200 ft east-west within Lot 5. In many cases, glacial erratics were used instead of the ubiquitous limestone slabs. The rocks appear to mark a former property line, possibly the line separating the Watkin property from the Lincoln property to the southwest.

A historic rock wall runs along the eastern side of the abandoned shoreline access road stopping south of the 15-acre tract southern property line. Additionally, there are two small sites on Long Point outside the 15-acre tract where prehistoric lithic scatters were found.

Off the shores of Kelleys Island lie 20 or more shipwrecks. The shallow water surrounding the island allows for relative ease of identification and mapping of these wrecks. Two wrecks lie off the west coast of Long Point: the steamship *Adventure* and a scow schooner *W.R. Hanna*. A third shipwreck, a sidewheel steamer named *The Saint Louis*, is located 1.5 miles off of the east coast. Plans to develop Ohio's first underwater archaeological preserve have been initiated; however, details are not yet available.

Except for the Watkin house foundation and associated rock marker line, now described as Site 33ER499, all cultural resources described above occur outside the 15-acre tract.

A Phase I cultural resource survey of the 15-acre tract was conducted by BHE Environmental. Prior to the cultural resource survey, a plan was developed that discussed the survey methods and the cultural context in which the 15-acre tract occurs. BHE conducted background research on previously identified cultural resources on and near the 15-acre tract, and interviewed individuals associated with the Kelleys Island Historical Society and knowledgeable of the history of Long Point. Additionally, a predictive model was generated that was then used to develop a Phase I survey strategy for the proposed development.

The Phase I fieldwork was conducted the week of November 5, 2001. The survey included visual inspection and systematic evaluation of material removed from small holes dug with a shovel ("shovel tests") in the project area, and was completed in coordination with the Ohio State Historic Preservation Office. The fieldwork did not result in identification of any previously unrecorded historic resources.

BHE Environmental submitted the reports titled "Phase I Cultural Resource Survey for the Proposed Long Point, LLC Subdivision on Kelleys Island, Erie County, Ohio" and "Management Plan and Survey Strategy for the Long Point, LLC Subdivision on Kelleys Island, Erie County, Ohio" to the Ohio State Historic Preservation Office for review on December 26, 2001. On January 28, 2002, the Ohio State Historic Preservation Office provided a response in writing stating that no historic properties should be affected by proposed Long Point development. A copy of the Ohio State Historic Preservation Office's January 2002 clearance letter is included in Appendix A

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 ALTERNATIVE 1 - NO ACTION

Under the No Action Alternative, the Service would not issue an ITP, and an HCP would not be prepared or implemented. This alternative does not forbid sale of the land, or on-site construction/development of the property. The property owner would be likely to construct in a manner similar to that evident at numerous other locations on Kelleys Island, where there may be no specified management practices intended to limit effects to LEWS.

If lot owners constructed without an ITP, violations of §9 of the ESA may result and warrant civil and criminal enforcement actions by the Service. If development on the 15-acre tract occurred on limited areas, and occurred sporadically over a number of years as has occurred in numerous locations along the shoreline of Kelleys Island, it is reasonable to expect that the actions on single lots may not be sufficient to elicit enforcement actions.

4.1.1 Direct and Indirect Effects

4.1.1.1 *Vegetation*

Alternative 1 would affect vegetative resources on Long Point through clearing of forest and other proposed ground-disturbing activities. Over time, the area of forest removal, forest conversion to maintained turf-grass lawns, roadways and the like, conducted without protections included in the HCP, could be expected to include the entire 15-acre tract. Forest cover on the island could be reduced from 46.8% to 46.2%. The abandoned shoreline access road along the western shore outside the 15-acre tract would be reopened and natural vegetative succession in this area immediately along the shoreline would not occur.

4.1.1.2 *Migrating Birds*

The permanent alteration of vegetation expected in Alternative 1 would reduce the habitat available for wildlife that now utilize the forest on Long Point. Loss/conversion of forest habitat would total approximately 15 acres.

Species likely to be present on Long Point and temporarily or permanently displaced by the proposed action are common in small wooded areas throughout Kelleys Island (e.g., cottontail rabbit, white-tailed deer). Wildlife on Kelleys Island, including migrating birds, survive there because they exploit habitat present in at least partially developed landscapes.

Alternative 1 would likely involve the construction of residences that may have large windows. Because migrating birds utilize Long Point, we anticipate some birds may collide with the windows. Some birds would be temporarily stunned and others may be killed by the impact. While the number of birds that may be harmed is uncertain, we anticipate a situation generally similar to what occurs on the rest of Kelleys Island, and believe that impacts to populations would be negligible.

The development of the 15-acre tract as described in this alternative is not likely to greatly affect migrating birds utilizing Long Point. Assuming the forest would be thinned considerably and replaced by sparse woodland (i.e., lawns with occasional trees) and areas of maintained landscapes, migrating birds would likely find some habitat suitable for use during migration. Migrating birds successfully traverse highly developed areas during migration throughout the world. While it is unlikely the

anticipated forest removal/thinning would substantively affect the viability of populations of those species that use the island, individual migrating birds could be temporarily or permanently displaced. Because migrating birds are known to use much of Kelleys Island, the Service anticipates no measurable direct or indirect effects to migrating bird populations under this or other alternatives presented in this analysis.

4.1.1.3 Lake Erie Water Snake

If current or future owners cleared land and constructed individual residences or other developments on the 15-acre tract, this activity may occur sporadically/incrementally over a long period and therefore not elicit focused attention of the Service. Although the specifics of such development are unpredictable, these activities could result in direct and indirect effects causing take of LEWS substantially higher than that anticipated for any of the action alternatives proposed herein.

LEWS utilizing both summer and winter habitat could be adversely affected by unregulated construction and other development activities. Description of effects based upon numbers of LEWS affected is not possible based upon available information, however we believe effects of the following categories, generally quantified in terms of “area of habitat affected,” are possible.

4.1.1.3.1 Summer habitat removal and/or degradation

Without benefit of the management approaches of the HCP, we anticipate docks or similar construction would occur on each of the seven lots, and that construction may occur any time of year. Assuming average dock size was 15 ft by 75 ft, or approximately 1200 ft², and that the docks were placed on the shoreline and in shallow water, approximately 8400 ft² of summer habitat, along with any temporary work space would be temporarily lost. As is evident on the south side of Kelleys Island, we anticipate that the docks would be built of wood or metal crib design, and that LEWS would soon begin to utilize the structures.

Direct modification of shoreline habitat would require federal review and permitting under the Clean Water Act. During the permitting process, the Service would have opportunity to influence the proposed actions to avoid take, or to influence the U.S. Army Corps of Engineers to decline issuance of the subject permits. For this reason, we believe wholesale unregulated development of the shoreline through construction of seawalls or similar structures is unlikely, and the take caused by such actions is not reasonably foreseeable. However, it is reasonable to expect unquantified and unpermitted minor shoreline modifications including the development of unregulated boat ramps, small floodwalls, piers, and similar structures.

We further expect degradation of those upland areas most commonly used by LEWS during the summer - the area within approximately 82 ft (25 meters) of shore. We anticipate this area of each lot would be converted to turf-grass lawn or other maintained landscape. The habitat quality of these areas would be degraded as natural cover protecting the snakes, and potentially harboring prey species of the snake, would be removed. We anticipated these effects would occur on each lot over a total area of approximately 3 acres.

4.1.1.3.2 Winter/transitional habitat removal and/or degradation

Without benefit of the management approaches of the HCP, we anticipate substantial grading and earthmoving activities on the seven lots largely unconstrained by seasonal limits included in action alternatives. We anticipate that most, if not all, existing hibernacula on the 15-acre tract would be lost if Alternative 1 were implemented. We also anticipate that natural ground cover would be removed from the entire 15-acre tract. Without seasonal restraints placed on construction as identified in this HCP, we anticipate that construction would occur year round, resulting in the direct mortality of hibernating water

snakes. Removal of areas with natural ground cover could expose LEWS moving from and to winter habitat to increased predation. The risk of predation would be further increased because we anticipate that LEWS would need to travel a greater distance to find suitable winter habitat. Documented predators of Lake Erie water snakes include herring gulls (*Larus argentatus*), great blue herons (*Ardea herodias*), robins (*Turdus migratorius*), and blue racers (*Coluber constrictor*) (USFWS 1999).

The historic Watkin house foundation, which provides winter habitat, would be without a protective mechanism. It is reasonable to assume the foundation would be buried or otherwise adversely affected or destroyed during earthmoving/grading for development. Severe loss of winter LEWS habitat on the property would result in lower over-winter survival and would probably have a negative impact on the local population utilizing this 15-acre area.

4.1.1.3.3 Harassment and/or predation caused by pets

We anticipate each home may have one or more dogs and/or cats. Additionally, we expect some owners may keep horses or other livestock/pets (e.g., pot-bellied pigs). We assume that in general the pets would not be restrained and would have full access to the 15-acre tract. Although it is not possible to quantify the number/frequency of adverse interactions between LEWS and the pets, or the number of those interactions that would cause the death of a LEWS, we anticipate lethal and non-lethal interactions would occur periodically across the entire 15-acre tract.

4.1.1.3.4 Mortality caused by lawn mowing

The potential for mortality caused by lawn mowing is proportional to the area of the 15-acre tract in maintained lawn, and area in which unmanaged mowing will occur. In the absence of management guidelines adopted in action alternatives of this analysis, mowing may cause the direct mortality of LEWS, or expose them to disturbance as discussed in the following section. Assuming that the entire 15-acre parcel would be cleared, graded, developed, or be converted to maintained turf-grass lawn, and that this turf-grass lawn area would be maintained by “unmanaged” mowing, the potential for LEWS mortality caused by lawn mowers is highest for the no action alternative. Available information does not support estimates of the number of LEWS that might be killed.

4.1.1.3.5 Disturbance/disruption of normal behavior

Some concern has been raised regarding the potential adverse effects caused by the presence of humans and the activities in which they partake (e.g., walking along the shoreline, lighting near residences, noise). Although no research directly addresses this issue in regard to the LEWS, anecdotal evidence indicates this may not be an important issue during the summer months. Although disturbance does cause the snakes to retreat or otherwise move away, the common and ongoing presence of LEWS in docks, jetties, breakwaters, and similar structures in developed areas of the island commonly frequented by humans at least anecdotally indicates important life functions of the snakes may not be substantially disrupted by the disturbance.

Likewise, we expect that disturbance will not cause take during the hibernation period. The snakes are secluded in areas protected from disturbance, and human activity/presence on the island and on Long Point during these months is minimal.

We anticipate the greatest potential for disturbance exists when LEWS move between summer and winter habitat. LEWS moving overland do not have the benefit of the presence of water as an escape mechanism. This effect could be most pronounced the greater the distance between the shoreline and the hibernacula. No method exists to quantify the number of LEWS that will experience this situation, however we believe the number will be correlated with the proportion of the upland converted from existing vegetation (e.g., herbaceous cover, leaf cover, woody debris that may provide cover for the LEWS) to turf-grass lawn or other maintained area. It is in these areas that human presence is most

common. Additionally, it is likely protective cover for snakes in these areas will be reduced, and LEWS will react more adversely to disturbance when they lack cover. We believe Alternative 1 may have the greatest potential for disruption of natural behavior because natural vegetative cover will be removed from the entire 15-acre tract.

4.1.1.3.6 Vehicular strikes

The potential for vehicular strikes in the action area increases proportionately with the number and speed of vehicles present on the 15-acre tract, and the proximity of roads to areas frequented by LEWS. For purposes of this analysis, only seven residences are proposed in each action alternative. Assuming the number of vehicles per residence is constant among all alternatives, expected vehicular traffic does not vary among alternatives. However, in the absence of management proposed in Alternatives 2-4 regarding posted speed limits and other signs alerting motorists to the potential presence of LEWS, we believe the potential for vehicular strikes is greatest in Alternative 1. Increased vehicular strikes may occur should unmanaged development include the construction of paved/blacktop roads. Blacktop roads facilitate higher vehicle speeds and the dark color of the roads is more likely to attract snakes during cool periods (relative to gravel roads).

4.1.1.4 Cultural Resources

With haphazard/episodic development of the site likely to occur without involvement of the Service or other Federal agency, requirements of §106 of the National Historic Preservation Act would not apply, and the Watkin house foundation would be without a protective mechanism. It is reasonable to assume the foundation would be buried or otherwise adversely affected or destroyed during earthmoving/grading for development.

4.1.2 Cumulative Effects

The following analysis considers past, ongoing, and reasonably foreseeable future actions that may affect the resource in question. Where appropriate, we widened the area of analysis from the 15-acre tract to include large portions, or the entirety of, Kelleys Island. The analysis utilizes the best available land planning data regarding future development of the island: the current draft of the Kelleys Island Master Plan (2001). For this Alternative, we assumed future development of the island will proceed in a manner similar to that described in Alternative 1.

4.1.2.1 Vegetation

Past actions on Long Point and Kelleys Island have resulted in the vegetation present on the island today, as described previously.

Implementation of Alternative 1, in combination with island-wide actions anticipated in the Kelleys Island Master Plan are assessed here. The clearing/conversion of 15 acres of forest on Long Point would reduce the total forest area on Kelleys Island from 46.8% to 46.2%. The draft Master Plan for Kelleys Island (PKG 2001) depicts substantial forested land on the island as "available" for development, however no imminent development plans are addressed in the plan.

Kelleys Island draft Master Plan anticipates future development of many existing privately owned, wooded properties on the island (PKG 2001). For purposes of this cumulative effect analysis, we assume future removal of forest cover in these areas will occur in a similar manner to that proposed in Alternative 1 (i.e., the sites will be cleared of forest vegetation). In addition, we assume that future island "build-out" will occur as predicted by the plan (Year 2020) and will occur generally according to

zoning depicted in the Master Plan. This scenario results in approximately 68% of the island's existing forest cover being cleared and converted to residential land use. Remaining forests would comprise approximately 15% of the island.

The draft Master Plan describes preservation of over 400 acres of state-owned woodlands and Island Preserve Lands, which contain forest generally similar to that on private properties.

4.1.2.2 Migrating Birds

Species that utilize Long Point are adapted to small habitat patches characteristic of areas that have been affected by development. The anticipated loss of 15 acres of forest on Long Point in the no action alternative would decrease the forest cover on Kelleys Island from 1243 acres to 1228 acres.

As discussed in Section 4.1.2.1, the draft Master Plan predicts development of many privately-owned, wooded properties on the island (PKG 2001). Assuming the "build-out" will occur as anticipated in the plan, roughly 68% of existing woodland across the island would be converted to residential land use. For purposes of this cumulative effect analysis, we assumed future residential development will occur in a manner similar to the development proposed in Alternative 1 (i.e., forests will be entirely cleared from developed lots). Given these assumptions, by the year 2020 approximately 400 acres of forestland will remain on the island, all within protected areas (e.g., state owned lands).

The number of birds that may be harmed by colliding with residential windows is uncertain, however, we anticipate a situation generally similar to what occurs on the rest of Kelleys Island, and believe that impacts to populations would be negligible.

Some birds fly non-stop and many others utilize stopover locations (steppingstones) during migration. Along the approximately 40-mile distance across Lake Erie from Point Pelee to Marblehead, there are a number of sizable islands including Pelee, North Bass, Middle Bass, South Bass, Kelleys, and Catawba, as well as other smaller islands that migrating birds use as steppingstones, or resting points by birds where they feed and find shelter. Migrating birds traveling across the Lake use wooded areas of Kelleys Island, as well as the other Lake Erie islands. Resting points used by migrating birds are not believed to be habitat-specific, as compared to nesting habitat. Stopover points used by migrating birds are generally not as habitat specific as are the preferences shown by breeding birds. Migrants focus on food rather than habitat (pers. comm., B. Peterjohn, USFWS). We expect a 68% reduction in forest cover will measurably reduce the numbers of migrating birds present island-wide during migration. Given the number of other nearby islands supporting forest vegetation, and the proximity of the mainland to Kelleys Island, we believe it unlikely the anticipated 68% reduction in forest cover on Kelleys Island will jeopardize populations of migrating birds that utilize the Lake Erie shoreline (pers. comm., B. Peterjohn, USFWS).

4.1.2.3 Lake Erie Water Snake

The LEWS population on Kelleys Island declined dramatically through the 1800's as a result of European settlement of the Island, habitat modifications, and direct attempts to exterminate snakes. Their decline continued into recent times with further habitat modifications and tourism of the island. However, population estimates generated during studies conducted during the early 1980's and in 1996-1997 suggest the recent number of Lake Erie water snakes has remained relatively stable on Kelleys Island (King 1998). Past activities on Long Point and on Kelleys Island are thought to have reduced the population, and resulted in the population present on the site today.

Anticipated future actions and their potential effects to LEWS are difficult to predict, however available information supports predictions regarding the amount of the island's shoreline, where LEWS are

generally concentrated, is likely to be developed. According to maps developed for the Kelleys Island Master Plan, the Island has roughly 66,800 ft of shoreline, 27,800 ft of which are undeveloped (PKG 2001).

The Master Plan anticipates future shoreline development on approximately 17,500 ft of currently undeveloped lakefront property. If the existing restriction regarding the construction of structures within 125 ft of the OHW persists, and if shoreline development is similar in nature to that predicted in Alternative 1, the development near the shoreline would consist of clearing and conversion to turf-grass lawn and/or maintained landscapes, and the development of docks, piers, and similar structures. Therefore, between 2002 and 2020 when build out is anticipated, undeveloped shoreline will be reduced from 27,800 ft to approximately 10,000 ft (15% of the island's total shoreline).

Without seasonal restraints being placed on construction as in Alternatives 2, 3, and 4, it is anticipated that ground disturbing activities would occur year round and without regards for the LEWS, resulting in the direct mortality of hibernating water snakes and the reduction of suitable over-wintering sites. Without island-wide implementation of conservation measures identified in Alternatives 2 and 3, many existing hibernacula would be lost/buried. Additionally, it is anticipated that many clearing and construction activities, including mowing, would occur without the implementation of LEWS conservation measures resulting in the removal/loss of natural ground cover. The habitat quality would be degraded as natural cover protecting the snakes, and potentially harboring prey species of the snake, would be removed. Removal of areas with natural ground cover could expose LEWS moving from and to winter habitat to increased predation. Therefore, it is reasonable to assume that the LEWS population would decrease island-wide if development occurred in this manner resulting from construction during hibernation, lost hibernacula, and increased predation during migration. The anticipated cumulative loss of safe hibernacula from unrestricted and unmitigated development would probably be the primary cause of a long-term reduction in the LEWS population.

If regulatory conditions similar to that expected in Alternative 1 prevail during future development of the shoreline, HCPs would not be prepared, nor Incidental Take Permits issued for these activities. Haphazard development of the remaining undeveloped shoreline on Kelleys Island would occur, and it is unlikely measures to protect LEWS would be implemented. Although we anticipate the development would include some enhancements of summer habitat with the construction of numerous rock crib piers, docks, and similar structures commonly utilized by LEWS during the summer period, we also anticipate that destruction of LEWS winter habitat would cause the LEWS population to decrease island-wide.

4.1.2.4 Cultural Resources

With development of the island likely to occur without involvement of the Service (and in the vast majority of cases without other Federal agency involvement), requirements of §106 of the National Historic Preservation Act would not apply. The Service would not have a means to promote the preservation of cultural resources, and it is reasonable to assume certain cultural resources would be adversely affected. Information is not available at this time to quantify the effects, but it is reasonable to expect the effects would be more severe than would be experienced if the Service and State Historic Preservation Office were consulted during the development.

4.2 ALTERNATIVE 2 - MINIMAL DEVELOPMENT

4.2.1 Direct and Indirect Effects

4.2.1.1 *Vegetation*

Alternative 2 would affect vegetative resources on Long Point through clearing of forest and other proposed ground-disturbing activities. Effects are expected to be markedly less than those anticipated in Alternative 1. More specifically:

- The closure of the newly abandoned west shoreline access road would provide an area approximately equivalent in size to the new access road in which natural vegetative would be restored on the 15-acre tract.
- The construction of seven residences, each with a deck/patio, garage, septic mound, and driveway, would require the initial clearing of approximately 7.0 acres in Zone C.
- Approximately 6.1 acres of natural vegetation in Zone C would be permanently removed (i.e., would be beneath structures, driveways, the access road, or maintained as a turf-grass lawn). To avoid effects to any LEWS hibernacula outside this 6.1 acre area, trees would be cut near the ground surface, and stumps with a diameter ≥ 6 inches at the ground surface would be left in place. Stumps with a diameter < 6 inches at the ground surface may be removed if no base cavities are present. Stumps < 6 inches diameter with base cavities will not be removed. Existing stumps will not be removed but may be trimmed to ground level.
- The construction and placement of utilities, including sewage treatment facilities, would result in no additional disturbance of vegetation on the 15-acre tract. Any ground disturbance required for construction or installation of utilities would occur on acreage cleared for construction (as discussed above).
- Construction of boardwalks, trails, and walkways within Zones A and B would result in minimal disturbance to the vegetation. Because these structures would be constructed off ground or directly on the existing surface they would require minimal if any excavation (e.g., boardwalk posts would be set into small excavated holes), and minimal impact to vegetation is expected.
- Removal of the existing sheet metal pole barn would result in re-vegetation of 600 ft².
- In total, proposed ground-disturbing activities in Zone C would initially remove 7.0 acres of forest cover. Following re-growth within temporary construction areas, forest reduction will total 6.1 acres and will reduce the forest cover on Kelleys Island from 46.8% to 46.6%.
- Thinning/clearing of up to 60% of trees in Zones A and B may occur but natural vegetation (natives grasses and forbs) must be maintained throughout these Zones.

4.2.1.2 *Migrating Birds*

The effects of Alternative 2 on migrating birds are similar to effects discussed for Alternative 1 and that discussion is incorporated here by reference. Initial tree removal/thinning would be conducted on approximately 7.0 acres in addition to the 0.9 acres that has already been cleared for the new access road, and 6.1 of these acres, including the area cleared for the access road, would be maintained in a relatively

open condition. Species utilizing forest habitat on Long Point would experience similar effects to those discussed for Alternative 1, but the reduction in habitat conversion would likely be reflected in a reduction in the number of animals permanently or temporarily displaced relative to Alternative 1.

Alternative 2 involves the construction of seven residences that may have large picture windows. Because migrating birds utilize Long Point, we anticipate some birds may collide with the windows. Some birds would be temporarily stunned and others may be killed by the impact. While the number of birds that may be harmed is uncertain, we anticipate a situation generally similar to what occurs on the rest of Kelleys Island, and believe that impacts to populations would be negligible.

4.2.1.3 Lake Erie Water Snake

Implementation of Alternative 2 includes substantive measures to avoid, minimize, and mitigate for effects to the LEWS. There is potential for effects to Lake Erie water snakes utilizing both summer and winter habitat caused by the actions proposed in Alternative 2. Description of the number of snakes affected is not possible based upon the best available information, however we believe effects of the following types, generally quantified in terms of “area of habitat affected” are possible.

4.2.1.3.1 Summer habitat removal and/or degradation

Alternative 2 does not include the construction of docks, breakwaters, or other similar structures in the water. A single boardwalk and platform per lot would be constructed within Zone A and B. These structures would be built in a manner (deck-style, or rock crib construction), and schedule (according to established seasonal constraints) that is unlikely to directly harm any LEWS.

The portions of the boardwalks and platforms that are built similarly to a traditional deck (i.e., posts, joists, deck boards) would disturb areas only for installation of posts. No harm is anticipated from this construction. The structures may in fact enhance habitat suitability in that LEWS frequently can be found near these structures (pers. comm., A. Boyer, USFWS).

Construction of rock crib platforms would likely temporarily displace water snakes during construction, however we do not anticipate the construction will directly injure any snakes. Each platform would replace up to 600 ft² of existing habitat (or a combined total 4200 ft² on the seven lots), however these structures are “beneficial to water snakes because...[they] provide summer habitat and winter shelter for snakes” (USFWS 2000). Rock crib platforms would not be constructed in the water.

Direct modification of shoreline habitat (any construction below OHW mark) would require federal review and permitting under the Clean Water Act. During the permitting process, the Service would have opportunity to influence the actions or to influence the U.S. Army Corps of Engineers to decline issuance of the subject permits.

No turf grass lawns will be established within Zones A and B (approximating that area used most frequently by the LEWS during the active summer period), and the existing natural herbaceous vegetation will provide cover for LEWS in this area. The removal of up to 60% of trees within Zones A and B is unlikely to directly injure water snakes as the tree thinning will be done by hand, and the water snakes will have ample opportunity to move away from the temporary disturbance. The tree stumps left in place in the shoreline buffer area will rot and may provide hibernacula for the water snakes.

Mowing on the 15-acre tract will occur only as described in Table 2–1, and therefore the anticipated effects to the LEWS are minimized to the extent practicable. We anticipate the occasional, though unquantifiable, mortalities will result from mowing according to the guidelines previously presented.

4.2.1.3.2 Winter/transitional habitat removal and/or degradation

Alternative 2 proposes the initial clearing of 1.0 acre per lot in Zone C. Following construction, 0.75 acre per lot in Zone C would be maintained by mowing or otherwise be within the footprint of structures, driveways or other proposed facilities.

Conservation measures included in Alternative 2 avoid or minimize to the extent practicable the potential for adverse effects to the LEWS. These measures include, but are not limited to:

- area limits on ground disturbing activities,
- seasonal limits on ground disturbing activities as described in the Interim Lake Erie Water Snake Guidelines (USFWS 2000),
- protection of the abandoned rock foundation providing winter habitat

Ground disturbance will not occur within Zones A and B, other than for the construction of boardwalks and platforms. This will avoid the physical disturbance of the area near the shore where King (2002) found over 50% of hibernacula. Winter and transition habitat may be converted to areas generally inaccessible to or unsuitable for the snakes (e.g., under structures or concrete slabs). However, because turf-grass lawns, seasonal residences, garages, driveways, and the like would be positioned greater than 125 ft from the OHW (within Zone C), chances these sites would provide hibernacula are reduced. The width of driveways is minimized in this alternative (12 ft as opposed to 16 ft in Alternative 4) to reduce the area of natural habitat buried under the road surface. Hibernacula where houses, patios, and garages will be built may be destroyed during construction or become inaccessible. The number of hibernacula potentially affected cannot be quantified but rather estimated (Table 2–2).

Alternative 2 includes the construction of artificial LEWS hibernacula on each lot within Zone C would provide additional hibernation sites. Likewise, the preservation of the abandoned stone foundation in Lot No. 3 would retain suitable winter habitat.

Alternative 2 maintains corridors of undisturbed vegetation between lots. These areas may serve as travel lanes as snakes move between winter and summer habitat.

Ground disturbing activities proposed in Alternative 2 will occur only within the schedule and temperatures identified in the Lake Erie Water Snake Guidelines (USFWS 2002). These activities are therefore unlikely to directly injure water snakes.

4.2.1.3.3 Harassment and/or predation caused by pets

We anticipate owners of each of the seven residences may have one or more dogs and/or cats. Interactions between LEWS and domestic cats will not occur as all cats would remain indoors. Potential interactions between LEWS and livestock will be avoided because these animals will not be kept on the lots. The potential for interactions between dogs and water snakes has been avoided or minimized to the extent practicable by the requirement that dogs be in the control of owners or their designee.

4.2.1.3.4 Mortality caused by lawn mowing

The potential for mortality caused by lawn mowing is proportional to the area of the 15-acre tract in maintained turf-grass lawn, and area in which unmanaged mowing will occur. Approximately 5.3 acres will be maintained in turf-grass lawn across the seven lots in Zone C (the actual acreage of turf-grass lawns will be less than this total as some of this area will be used for the construction of residences, garages, driveways, and other facilities described herein).

LEWS are typically found in Zone A during the summer and hibernating throughout the 15-acre property during the winter. LEWS may be encountered throughout the property during spring and fall as they migrate between summer and winter habitat. Under Alternatives 2, mowing in Zone A, the area most frequently used by LEWS, may only occur when temperatures are $\geq 65^{\circ}\text{F}$, a temperature at which snakes can move rapidly and should be able to avoid mowers. Additionally, mowing in Zone A may only occur on 60 % of the area and vegetation must be maintained at a height ≥ 6 inches to maintain adequate cover for protection from predation. Mowing in Zone B is similar to Zone A except that the vegetation may be reduced to 4 inches from June through August when LEWS are not usually present in this area. Since LEWS are typically found in Zone C only during April, May, September, and October, mowing during these months in Zone C will only occur when temperatures are $\geq 65^{\circ}\text{F}$. We believe the potential for lethal take of water snakes has been avoided, and harm via disturbance has been minimized to the extent practicable by implementation of seasonal, temperature, and height restrictions described in Table 2–1. These measures are designed to reduce the likelihood that LEWS will be encountered while mowing.

4.2.1.3.5 Disturbance/disruption of normal behavior

Effects of disturbance/disruption are as described in Alternative 1. However, as discussed in that portion of the analysis, we anticipate the greatest potential for disturbance exists when LEWS move between summer and winter habitat. LEWS moving overland do not have the benefit of the presence of water as an escape mechanism. This effect could be most pronounced the greater the distance between the shoreline and the hibernacula. No method exists to quantify the number of LEWS that will experience this situation, however we believe the number will be correlated with the proportion of the upland converted from existing vegetation that may provide cover for the LEWS (e.g., herbaceous cover, leaf cover, woody debris) to turf-grass lawn or other maintained area. It is in these areas that human presence is most common. Additionally, it is likely protective cover for snakes in these areas will be reduced, and LEWS will react more adversely to disturbance when they lack cover. The potential for disturbance has been reduced in Alternative 2 relative to Alternative 1 because natural vegetative cover will be removed permanently only from 6.1 acres (as compared to 15 acres in Alternative 1). Additionally, Alternative 2 includes the retention of natural vegetation along property lines to provide travel corridors for the LEWS.

Development of Lots 1-7 will be primarily for use during the summer. Disturbance/disruption of LEWS by human activities during the summer has been reduced due to timing, temperature, and vegetative maintenance restrictions designed to avoid or minimize adverse affects to LEWS.

Human activity on the 15-acre tract is expected to be very minimal during the winter when LEWS are hibernating. Therefore, disturbance/disruption to LEWS during this period should be avoided. Furthermore, we believe that the applicants are knowledgeable and sensitive to the needs of the LEWS and that disturbance is unlikely to occur as a result.

4.2.1.3.6 Vehicular strikes

The potential for vehicular strikes in the action area increases proportionately with the number and speed of vehicles present on the 15-acre tract, and the proximity of roads to areas frequented by LEWS. No means exist to accurately estimate the number of water snakes that may be struck. For purposes of this analysis we assumed the number of vehicles per residence is constant among all alternatives, and the number of expected residences is constant. The volume of vehicular traffic therefore does not vary among alternatives.

Alternative 2 includes light colored-gravel, as opposed to blacktop/paved driveways. Additionally, Alternative 2 includes the posting of signs encouraging slow speeds and alerting drivers to the presence of the LEWS. We believe the potential for vehicular strikes is minimized in Alternative 2, because:

- Light colored gravel will reduce the likelihood LEWS will bask on the driveways and/or roads.

- Signs alerting drivers to the presence of LEWS and the need for slow speeds will reduce the incidence of vehicular strikes.
- The closure and abandonment of the shoreline access road along the west shore and the newly constructed access road will reduce the potential for strikes in this area adjacent to the shore and prevent further destruction of shoreline habitat.

4.2.1.4 Cultural Resources

The project would alter the existing setting of Long Point, but it should have limited effects to the cultural setting. Long Point has been allowed to revert back to a wooded condition, a condition that predates most of Kelleys Island recorded history. This wooded condition would continue south of the project area within the Cleveland Museum of Natural History property, and presumably north of the 15-acre tract as well. No standing historic structures are present on the 15-acre tract, and there are no documented prehistoric sites within the area of effect.

The Watkin house foundation is within the proposed project area; however, it would be protected from construction activities by the LP Homeowner's Association LLC. BHE Environmental, Inc. completed a cultural resources management plan and survey strategy (BHE 2001a), and literature review and Phase I investigation (BHE 2001b) of the 15-acre tract, and concluded in a document presented to the Ohio Historic Preservation Office that the line of marker rocks associated with the Watkin foundation is not a contributing element to the Watkin site. The line of rocks was documented in the Phase I field survey. The Lincoln house foundation to the south is not within the 15-acre tract and would not be affected by proposed activities. A finding of "no historic properties affected" was the conclusion of the Phase I cultural resources survey completed on the project area by BHE. The Ohio State Historic Preservation Office provided concurrence with this determination in a January 2002 letter to BHE.

The limestone wall (ERI-1664) would not have to be breached to allow the rerouting of the shoreline access road. Instead the road would pass through an existing opening in the wall. In a letter dated January 28, 2002 from the Ohio Historic Preservation Office to BHE, Mr. David Snyder, Archaeology Reviews Manager, indicates the Watkin Site (33-EER-499) is not a sensitive contributing element to the Kelleys Island Historic District (Appendix A). Further, the letter states:

"No properties were identified within or immediately surrounding the project area that contribute significantly to our understanding of the Kelleys Island Historic District. As designed, the project will not introduce prominent, new visual elements into the viewshed of significant properties within the ...Historic District and the project will not result in the construction of prominent, new structures along the shoreline of Kelleys Island. Given the design of the proposed project it is our opinion that there will be no historic properties affected and that there will be no historic properties affected by the proposed project."

4.2.2 Cumulative Effects

The following analysis considers past, ongoing, and reasonably foreseeable future actions that may affect the resource in question. Where appropriate, we widened the area of analysis from the 15-acre tract to include large portions, or the entirety of, Kelleys Island. The analysis utilizes the best available land planning data regarding future development of the island: the current draft of the Kelleys Island Master Plan (2001). For this Alternative, we assumed future development of the island would proceed in a manner similar to that described in Alternative 2.

4.2.2.1 Vegetation

Past actions on Long Point and Kelleys Island have resulted in the vegetation present on the island today, as described previously.

Implementation of Alternative 2, in combination with island-wide actions anticipated in the Kelleys Island Master Plan are assessed here. In the absence of any other development on the island, the clearing/conversion of 7.0 acres of forest (in addition to the 0.9 acres previously cleared for the new access road) for construction in Zone C (leaving 6.1 acres of forest permanently removed/thinned in Zone C) and the 60% clearing of trees in Zones A and B on the 15-acre tract would reduce the area of forest on the island from 46.8% to 46.6%.

The draft Master Plan for Kelleys Island (PKG 2001) depicts substantial forested land on the island as "available" for development, however no imminent development plans are addressed in the plan. The Plan anticipates future development of many existing privately-owned, wooded properties on the island (PKG 2001). For purposes of this cumulative effect analysis, we assume future removal of forest cover in these areas will occur in a similar manner to that proposed in Alternative 2 (i.e., approximately 50% of each wooded lot to be cleared, and 38% of each lot would be maintained in open areas or substantially thinned forest). In addition, we assume that future island "build-out" will occur by 2020 as predicted by the plan. This scenario results in the initial clearing/thinning of approximately 422 acres (34% of the existing forest cover), with 316 acres (25% of existing forest cover) being maintained in this more open state. Island-wide forest cover would be reduced from 46.8% to 34.9%.

The draft Master Plan describes preservation of approximately 400 acres of state-owned woodlands and Island Preserve Lands, which contain forest generally similar to that on private properties.

4.2.2.2 Migrating Birds

Species that utilize Long Point are adapted to small habitat patches characteristic of areas that have been affected by development. The anticipated permanent loss of 6.1 acres (temporary loss of 7.9 acres) in Zone C and the 60% clearing of trees in Zones A and B on the 15-acre tract in Alternative 2 would decrease the forest cover on Kelleys Island from 1243 acres (46.8% of the island land area) to 1237 acres (46.6%).

As discussed in Section 4.1.2.1, the draft Master Plan predicts development of many privately-owned, wooded properties on the island (PKG 2001). As described in the analysis of cumulative effects to vegetation associated with Alternative 2, approximately 34% of existing woodland across the island would be cleared or substantially thinned initially, and 25% of existing woodland would remain cleared.

Using the same logic described in the analysis of cumulative effects associated with Alternative 1, we expect a 34% initial reduction, and 25% permanent reduction in forest cover will measurably reduce the numbers of migrating birds present island-wide during migration. Given the number of other nearby islands supporting forest vegetation, and the proximity of the mainland to Kelleys Island, we believe it unlikely that the 25% permanent reduction in forest cover on Kelleys Island will jeopardize populations of migrating birds that utilize the Lake Erie shoreline (pers. comm., B. Peterjohn, USFWS).

4.2.2.3 Lake Erie Water Snake

Anticipated future actions and their potential effects to LEWS are difficult to predict, however available information supports predictions regarding the amount of the island's shoreline, where LEWS are generally concentrated, is likely to be developed. According to maps developed for the Kelleys Island Master Plan, the Island has approximately 66,800 ft of shoreline, 27,800 ft of which are undeveloped

(PKG 2001). The Master Plan anticipates future shoreline development on approximately 17,500 ft of currently undeveloped lakefront property.

If the existing restriction regarding the construction of structures within 125 ft of the OHW persists, and if shoreline development is similar in nature to that predicted in Alternative 2, the development near the shoreline would consist of very low impact construction (e.g., development of a single boardwalk per lot) and/or habitat enhancement features like rock crib platforms. Existing vegetation would be left largely intact, modified by hand removal/thinning of trees, and mowing according to standards designed to avoid effects to water snakes. The mowing restrictions are designed to reduce the likelihood that LEWS will be encountered while mowing and to maintain adequate cover for snakes. The potential for interactions between dogs and LEWS has been avoided or minimized by the requirement that dogs be in the control of owners or their designee. Therefore, between 2002 and 2020 when build out is anticipated, the only shoreline development that would occur island-wide would be as proposed in Alternative 2. Shoreline habitat quality would not be measurably reduced from the baseline condition island-wide.

We anticipate that adverse impacts to winter habitat under Alternatives 2 would be minimal. Disturbance/destruction of hibernacula would be avoided, minimized, and mitigated by placement, seasonal, and temperature restrictions on activities and by constructing artificial hibernacula to replace existing hibernacula that are lost. If other future development on the Island followed this pattern, the current level of winter habitat should be maintained and the LEWS population should remain stable.

We anticipate that if LEWS conservation measures similar to those in Alternative 2 were carried out island-wide, adverse affects to the LEWS and its summer, winter, and transitional habitat would be avoided, minimized, and/or offset. We anticipate that, utilizing Alternative 2, the LEWS population would remain relatively stable on Kelleys Island even if development occurs as projected in the Kelleys Island Master Plan (2001).

4.2.2.4 Cultural Resources

For this analysis, we assumed future development of the island would proceed with occasional involvement of the USFWS in the form of habitat conservation planning. Those private landowners, especially those with shoreline property, with proposed development likely to affect the LEWS would engage in the HCP process with the USFWS. Other landowners proposing actions unlikely to affect the species would not.

On those lots where a federal nexus existed through the HCP process (or through any other process), the USFWS or other lead federal agency would be bound by requirements of §106 of the National Historic Preservation Act (NHPA) and coordination with the State Historic Preservation Office would ensue. We anticipate this process would enhance the protection and appropriate management of valuable cultural resources. Information is not available at this time to quantify the effects, but it is reasonable to expect cultural resources unprotected by the Act would suffer greater impact.

4.3 ALTERNATIVE 3 – MINIMAL DEVELOPMENT WITH 15-YEAR ITP/PROPOSED ACTION

The effects anticipated as a result of implementation of Alternative 3 would be identical to those presented for Alternative 2. However, Alternative 3 proposes an ITP with duration of 15 years. It is reasonable to expect LEWS on Long Point would benefit from the extended 5 additional years during which impact avoidance, minimization, and mitigation measures; and monitoring would apply. Expenses for impact avoidance, minimization, and mitigation would likely be unchanged from Alternative 2 because the cost of these measures would be realized within the first few years of the ITP when construction occurs.

4.4 ALTERNATIVE 4 – DEVELOPMENT EMPHASIS

4.4.1 Direct and Indirect Effects

4.4.1.1 Vegetation

The effects to the vegetation of Long Point expected to occur as a result of activities proposed in Alternative 4 would be the same as those described for Alternative 2 and Alternative 3 with the following exceptions.

- Driveways would be 16 ft wide, removing approximately 25% more area (than utilized by driveways in Alternative 2 and 3) from vegetative cover due to driveway construction.
- The construction of seven residences, each with a deck/patio, garage, septic mound, and driveway, and the construction of a 1000 ft² common use pole barn, would require the initial clearing of approximately 8.8 acres, in addition to the 0.9 acres previously cleared for the access road. Natural reforestation would be permitted to occur on approximately 1.75 acres (0.25 acres on each of the seven lots) following construction. Permanent loss of forest on the 15-acre tract would reduce island-wide forest cover from 46.8% to 46.5%. Grubbing of tree stumps between May 1 and November 1 could occur in any and all cleared/thinned areas to facilitate mowing.

4.4.1.2 Migrating Birds

The effects of Alternative 4 on migrating birds are similar to effects discussed for Alternative 1 and that discussion is incorporated here by reference. Initial tree removal/thinning would be conducted on approximate 8.8 acres, and 7.9 of these acres would be maintained in a relatively open condition. Species utilizing forest habitat on Long Point would experience similar effects to those discussed for Alternative 1, but the reduction in habitat conversion would likely be reflected in a reduction in the number of animals permanently or temporarily displaced relative to Alternative 1.

4.4.1.3 Lake Erie Water Snake

Alternative 4 includes substantive measures to avoid, minimize, and mitigate for effects to the LEWS, while concurrently emphasizing the proposed construction and relatively rapid conclusion to the monitoring period and ITP. Monitoring of LEWS facilitated in other alternatives by providing site access to LEWS researchers would not occur. With site access denied to these parties, important information generated by the ongoing research of R. King and others would no longer be collected on the 15-acre tract. Although this data could be collected in other locales, ongoing research would be disrupted, the expense of the research would likely increase, and the efficiency of the study would decline.

There is potential for effects to Lake Erie water snakes utilizing both summer and winter habitat caused by the actions proposed in Alternative 4. Description of the number of snakes affected is not possible based upon the best available information, however we believe effects of the following types, generally quantified in terms of “area of habitat affected” are possible.

4.4.1.3.1 Summer habitat removal and/or degradation

Effects of docks, breakwaters, boardwalks and platforms within Zones A and B are as described for Alternative 2. Modification of shoreline below the OHW would require federal review and permitting

under the Clean Water Act. During the permitting process, the Service would have opportunity to influence the actions or to influence the U.S. Army Corps of Engineers regarding issuance of the permits.

No turf-grass lawns will be established within Zones A and B (approximating that area used most frequently by the LEWS during the active summer period), and the existing natural herbaceous vegetation will provide cover for LEWS in this area. The removal of trees within Zones A and B is unlikely to directly injure water snakes as the tree thinning will be done by hand, and the water snakes will have ample opportunity to move away from the temporary disturbance.

4.4.1.3.2 Winter/transitional habitat removal and/or degradation

Effects to winter/transitional habitat and water snakes using these areas are as described for Alternative 2, with the following exceptions:

Alternative 4 proposes the initial clearing of 1.25 acres per lot in Zone C, or 0.25 acre per lot greater than Alternatives 2 and 3. Following construction, 1.0 acre per lot in Zone C would be maintained by mowing or otherwise be within the footprint of structures, driveways or other proposed facilities (again 0.25 acres per lot greater than Alternatives 2 and 3).

Ground disturbance will not occur within Zones A and B, other than for the construction of boardwalks and platforms. This will avoid the physical disturbance of the area near the shore where King (2002) found over 50% of hibernacula. Winter and transition habitat may be converted to areas generally inaccessible to or unsuitable for the snakes (e.g., under gravel roads).

The width of driveways is increased in this alternative relative the Alternative 2 and 3; (16 ft as opposed to 12 ft). Hibernacula where houses, patios, and garages will be built may be destroyed during construction or become inaccessible. The number of hibernacula potentially affected cannot be quantified, but rather estimated (Table 2-2), however a combined total on the seven lots of between 0.8 and 1.2 acres would become inaccessible (depending upon the construction technique used for the deck/patios).

Alternative 4 does not include the construction of artificial LEWS hibernacula on each lot within Zone C to provide hibernation sites to mitigate for the loss of existing sites. Additionally, because tree grubbing may occur anywhere on the site, we anticipate some loss of hibernacula. Because grubbing would be conducted in accordance with seasonal constraints, no direct take of individual water snakes is anticipated. Alternative 4 retains potential hibernation habitat by preserving the abandoned Watkin stone foundation in Lot No. 3.

Unlike Alternatives 2 and 3, Alternative 4 does not maintain corridors of undisturbed vegetation between lots. Although the water snakes are observed crossing areas in turf-grass lawn or other maintained vegetation when areas of natural vegetation are available nearby (pers. comm., R. King, Northern Illinois University), it is likely snakes using areas of natural vegetation may benefit from enhanced cover/protection from predators; LEWS may experience a slight increase in mortality due to the absence of these corridors.

Adverse impacts to winter habitat under Alternative 4 would be much greater than under Alternatives 2 and 3. More hibernacula would be lost due to construction and development activities and lost hibernacula would not be replaced. Adverse impacts to winter habitat under Alternative 4 would be much less than Alternative 1 due to seasonal, temperature, size, and placement restrictions on activities which are absent under Alternative 1.

4.4.1.3.3 Harassment and/or predation caused by pets

The effects of harassment and or predation caused by pets in Alternative 4 are the same as described for Alternative 2 and 3.

4.4.1.3.4 Mortality caused by lawn mowing

Mowing on the 15-acre tract will occur only as described in Table 2–1. The potential for mortality caused by lawn mowing is proportional to the area of the 15-acre tract in maintained turf-grass lawn, and area in which unmanaged mowing will occur. Approximately 7.9 acres in Zone C, as compared to 6.1 acres in Alternatives 2 and 3, may be permanently maintained in turf-grass lawn across the seven lots (the actual acreage of turf-grass lawns will be less than these totals as some of this area will be used for the construction of residences, garages, driveways, and other facilities described herein). We believe the potential for lethal take of water snakes has been avoided, and harm via disturbance has been minimized to the extent practicable by implementation of management described in Table 2–1.

4.4.1.3.5 Disturbance/disruption of normal behavior

Effects of disturbance/disruption are as described in Alternative 1. However, as discussed in that portion of the analysis, we anticipate the greatest potential for disturbance exists when LEWS move between summer and winter habitat. LEWS moving overland do not have the benefit of the presence of water as an escape mechanism. This effect could be most pronounced the greater the distance between the shoreline and the hibernacula. No method exists to quantify the number of LEWS that will experience this situation, however we believe the number will be correlated with the proportion of the upland converted from existing vegetation that may provide cover for the LEWS (e.g., herbaceous cover, leaf cover, down woody debris) to turf-grass lawn or other maintained area. It is in these areas that human presence is most common. Additionally, it is likely protective cover for snakes in these areas will be reduced, and LEWS will react more adversely to disturbance when they lack cover. The potential for disturbance has been reduced in Alternative 4 relative to Alternative 1 because natural vegetative cover will be removed permanently only from approximately 7.9 acres (as compared to 15 acres in Alternative 1). Alternatives 2 and 3 include the permanent removal of approximately 6.1 acres of forest cover on the 15-acre tract.

4.4.1.3.6 Vehicular strikes

Potential effects of vehicle strikes should Alternative 4 be implemented are as described for Alternative 2 and 3.

4.4.1.4 Cultural Resources

The effects of Alternative 4 on Cultural Resources are identical to those described for Alternatives 2 and 3.

4.4.2 Cumulative Effects

The following analysis considers past, ongoing, and reasonably foreseeable future actions that may affect the resource in question. Where appropriate, we widened the area of analysis from the 15-acre tract to include large portions, or the entirety of, Kelleys Island. The analysis utilizes the best available land planning data regarding future development of the island: the current draft of the Kelleys Island Master Plan (2001). For this Alternative, we assumed future development of the island would proceed in a manner similar to that described in Alternative 4.

4.4.2.1 Vegetation

Past actions on Long Point and Kelleys Island have resulted in the vegetation present on the island today, as described previously.

Implementation of Alternative 4, in combination with island-wide actions anticipated in the Kelleys Island Master Plan are assessed here. In the absence of any other development on the island, the Alternative proposes clearing/conversion of 8.8 acres of forest on the 15-acre tract, and the permanent maintenance of 7.9 acres in turf-grass lawn or open woodland or other maintained areas, including the access road. The total forest area on Kelleys Island would be permanently reduced from 46.8% to 46.5%.

The draft Master Plan for Kelleys Island (PKG 2001) depicts substantial forested land on the island as "available" for development, however no imminent development plans are addressed in the plan. The Plan anticipates future development of many existing privately-owned, wooded properties on the island (PKG 2001). For purposes of this cumulative effect analysis, we assume future removal of forest cover in these areas will occur in a similar manner to that proposed in Alternative 4 (i.e., approximately 63% of each wooded lot to be developed will be cleared for construction, and 50% of each lot would be maintained in a relatively open state). In addition, we assume that future island "build-out" will occur by 2020 as predicted by the plan. This scenario results in the initial clearing/thinning of approximately 527 acres (42% of the existing forest cover), with 422 acres (34% of existing forest cover) being maintained in this more open state. Remaining forests would comprise approximately 31% of the island.

The draft Master Plan describes preservation of over 400 acres of state-owned woodlands and Island Preserve Lands, which contain forest generally similar to that on private properties.

4.4.2.2 Migrating Birds

Species that utilize Long Point are adapted to small habitat patches characteristic of areas that have been affected by development. The anticipated permanent loss of 7.9 acres (temporary loss of 8.8 acres: 1.25 acres on each of seven lots) on the 15-acre tract in Alternative 4 would decrease the forest cover on Kelleys Island from 1243 acres (46.8% of the island land area) to 1235 acres (46.5%).

As discussed in Section 4.1.2.1, the draft Master Plan predicts development of many privately-owned, wooded properties on the island (PKG 2001). As described in the analysis of cumulative effects to vegetation associated with Alternative 4, approximately 34% of existing forest across the island would be permanently cleared, and approximately 822 acres of forestland will remain on the island.

Using the same logic described in the analysis of cumulative effects associated with Alternative 1, we expect a 42% initial reduction, and 34% permanent reduction in forest cover will measurably reduce the numbers of migrating birds present island-wide during migration. Given the number of other nearby islands supporting forest vegetation, and the proximity of the mainland to Kelleys Island, we believe it unlikely that the 34% permanent reduction in forest cover on Kelleys Island will jeopardize populations of migrating birds that utilize the lake Erie shoreline (pers. comm., B. Peterjohn, USFWS).

4.4.2.3 Lake Erie Water Snake

Anticipated future actions and their potential effects to LEWS are difficult to predict, however available information supports predictions regarding the amount of the island's shoreline, where LEWS are generally concentrated, is likely to be developed. According to maps developed for the Kelleys Island Master Plan, the Island has approximately 66,800 ft of shoreline, 27,800 ft of which are undeveloped

(PKG 2001). The Master Plan anticipates future shoreline development on approximately 17,500 ft of currently undeveloped lakefront property.

If the existing restriction regarding the construction of structures within 125 ft of the OHW persists, and if shoreline development is similar in nature to that predicted in Alternative 4, the development near the shoreline would consist of very low impact construction (e.g., development of a single boardwalk per lot) and/or habitat enhancement features like rock crib platforms. Existing vegetation would be left largely intact, modified by hand removal/thinning of trees, and mowing according to standards designed to avoid effects to water snakes. Therefore, between 2002 and 2020 when build out is anticipated, the only shoreline development that would occur island-wide would be as proposed in Alternative 4. Shoreline habitat quality would not be measurably reduced from the baseline condition island-wide.

If regulatory conditions similar to that expected in Alternative 4 prevail during future development of the shoreline, HCPs would be prepared, and Incidental Take Permits issued for activities likely to affect the LEWS. Although no docks or similar structures are proposed on the 15-acre tract in the water, it is likely owners of other shoreline property would propose these structures. Assuming the structures were constructed according to existed USFWS guidance, it is unlikely this construction would adversely affect the LEWS. To the contrary, appropriately construction docks and similar structures may enhance the quality and availability of summer and winter habitat.

We anticipate that if LEWS conservation measures similar to those in Alternative 4 were carried out island-wide, adverse impacts to the LEWS summer habitat would be avoided, minimized, and/or offset. However, adverse affects to the LEWS and its winter habitat would be greater than in Alternatives 2 and 3. We anticipate that the LEWS population on Kelleys Island would likely decline due to the loss of available hibernacula.

4.4.2.4 Cultural Resources

The cumulative effects to Cultural Resources caused by Alternative 4 are as described for Alternatives 2 and 3.

Table 4-1. Summary of anticipated effects of Alternatives 1 through 4.

Resource	Alternative 1 – No Action	Alternative 2 – Minimal Development and Alternative 3 – Minimal Development with 15-Year ITP/Proposed Action	Alternative 4 – Development Emphasis
Direct and indirect effects			
Vegetation	Island forest cover reduced from 46.8 to 46.2%. Natural vegetative succession outside the 15-acre tract and re-seeding in the 15-acre tract would not occur along shoreline access road because shoreline access road would be reopened.	Island forest cover reduced from 46.8 to 46.6%. Natural vegetative succession outside the 15-acre tract and re-seeding in the 15-acre tract would occur along the abandoned shoreline access road which has been closed.	Island forest cover reduced from 46.8 to 46.5%. Natural vegetative succession outside the 15-acre tract and re-seeding in the 15-acre tract would occur along the shoreline access road which has been closed.
Migrating birds	15 acres of permanent forest habitat loss/conversion would occur (individuals would be temporarily or permanently displaced relative to acres of lost/converted habitat). Some loss of individuals would occur due to collisions with windows; loss expected to be negligible.	7.9 acres of temporary, and 6.1 acres of permanent forest habitat loss/conversion would occur (individuals would be temporarily or permanently displaced relative to acres of lost/converted habitat). Some loss of individuals would occur due to collisions with windows; loss expected to be negligible.	9.2 acres of temporary, and 7.9 acres of permanent forest habitat loss/conversion would occur (individuals would be temporarily or permanently displaced relative to acres of lost/converted habitat). Some loss of individuals would occur due to collisions with windows; loss expected to be negligible.
Lake Erie water snake			
Summer habitat removal and/or degradation	8400 ft ² of shoreline summer habitat converted with installation of docks. All areas (~3 acres) within 82 ft (25 m) of shore developed. Unquantified take from unregulated mowing. Take high relative to action alternatives - no seasonal restrictions on ground disturbing activities.	Up to 4200 ft ² of shoreline summer habitat enhanced with installation of rock crib platforms. No direct mortality from construction activities within 82 ft (25 m) of shore developed. No direct mortality from regulated mowing. Take low relative to no-action alternative.	Up to 4200 ft ² of shoreline summer habitat enhanced with installation of rock crib platforms. No direct mortality from construction activities within 82 ft (25 m) of shore developed. No direct mortality from regulated mowing. Take similar to Alternatives 2 and 3.

Resource	Alternative 1 – No Action	Alternative 2 – Minimal Development and Alternative 3 – Minimal Development with 15-Year ITP/Proposed Action	Alternative 4 – Development Emphasis
Winter/transitional habitat removal and/or degradation	<p>Hibernacula on 15 acres lost. Hibernating snakes taken if grading occurs in winter. All hibernacula used by 48 adult LEWS would be lost.</p> <p>No compensation for lost winter habitat</p> <p>All existing hibernacula lost/buried. Without seasonal constraints on ground disturbing activities, direct mortality of hibernating water snakes is likely.</p>	<p>Existing hibernacula lost only within footprints of houses, garages, patios, driveways, septic system, and turf grass lawns. Combined footprint of areas made inaccessible to hibernating water snakes on 7 lots would total 6.1 acres. Hibernacula for 10 adult LEWS would be lost on the 15 acres.</p> <p>Compensation for lost winter habitat includes construction of 2 artificial hibernacula per lot, if practicable, for a guarantee of 14 hibernacula across all 7 lots.</p> <p>No direct mortality with application of seasonal constraints on ground disturbing activities.</p>	<p>Existing hibernacula lost only within footprints of houses, garages, patios, driveways, septic system, and turf grass lawns. Combined footprint of areas made inaccessible to hibernating water snakes on 7 lots would total 7.9 acres. Hibernacula for 13 adult LEWS would be lost on the 15 acres.</p> <p>No compensation for lost winter habitat which would probably result in a reduced local population.</p> <p>No direct mortality with application of seasonal constraints on ground disturbing activities.</p>
Harassment and/or predation caused by pets	Unregulated pets would result in lethal and non-lethal interactions of pets and water snakes.	Implementation of management guidelines reduces to the extent practicable the potential for interactions between pets and water snakes.	Same as described for Alternatives 2 and 3.
Mortality caused by lawn mowing	Potential for lethal take and disturbance highest of all alternatives due to unregulated mowing across entire 15 acres.	<p>Turf-grass lawn area limited to maximum of 5.3 acres.</p> <p>No lethal take anticipated.</p> <p>Occasional disturbance of water snakes possible.</p>	<p>Turf-grass lawn area limited to maximum of 7.0 acres.</p> <p>No lethal take anticipated.</p> <p>Occasional disturbance of water snakes possible.</p>
Disturbance/disruption of normal behavior	Highest of all alternatives due to loss of natural cover on 15 acres.	Reduced relative to Alternative 1. Natural vegetation to be permanently removed from only 6.1 acres in Zone C. Retained vegetation along property lines may provide travel corridors to further limit take.	Reduced relative to Alternative 1. Natural vegetation to be permanently removed from only 7.9 acres. Retained vegetation along property lines may provide travel corridors to further limit take.

Resource	Alternative 1 – No Action	Alternative 2 – Minimal Development and Alternative 3 – Minimal Development with 15-Year ITP/Proposed Action	Alternative 4 – Development Emphasis
Vehicular strikes	Take of LEWS substantially higher than any other action alternative.	Frequency of vehicular strikes will be greatly reduced relative to Alternative 1 due to the use of light colored gravel, posting of speed limits, and closure of west shoreline access road.	Same as described for Alternatives 2 and 3.
Length of Incidental Take Permit (ITP)	No HCP would be implemented and no ITP would be issued.	Length of ITP for Alt. 2 would be 10 years. Length of ITP for Alt.3 would be 15 years. The additional 5 years of incidental take coverage under Alt. 3, the proposed action, means that conservation measures described in Alt. 2 for the LEWS would be carried out for an additional 5 years. It is reasonable to expect LEWS on Long Point would benefit from the 5 additional years during which impact avoidance, minimization, mitigation, and monitoring would apply.	Length of ITP would be 10 years.
Cultural resources	Watkin house foundation would likely be lost/buried; cultural resources left without a protective mechanism.	Watkin house foundation preserved. No historic properties affected.	Same as described for Alternative 2 and 3.
Cumulative effects			
Vegetation	By 2020, 68% of the existing forest would be cleared or substantially thinned. Island-wide forest cover would be reduced from 46.8% to 15.1%.	By 2020, 25% of the existing forest would be cleared or substantially thinned. Island-wide forest cover would be reduced from 46.8% to 34.9%.	By 2020, 34% of the existing forest would be cleared or substantially thinned. Island-wide forest cover would be reduced from 46.8% to 30.9%.
Migrating birds	By 2020, 68% of existing woodland would be cleared or substantially thinned causing a measurable reduction in the number of migrating birds that utilize the island. By 2020, approximately 400 acres of forest would remain island-wide.	By 2020, 25% of existing woodland would be cleared or substantially thinned causing a measurable reduction in the number of migrating birds that utilize the island. By 2020, approximately 927 acres of forest would remain island-wide.	By 2020, 34% of existing woodland would be cleared or substantially thinned causing a measurable reduction in the number of migrating birds that utilize the island. By 2020, approximately 822 acres of forest would remain island-wide.
Lake Erie Water Snake	By 2020, undeveloped shoreline island-wide would	By 2020, shoreline construction may enhance	By 2020, shoreline construction may enhance

Resource	Alternative 1 – No Action	Alternative 2 – Minimal Development and Alternative 3 – Minimal Development with 15-Year ITP/Proposed Action	Alternative 4 – Development Emphasis
	<p>be reduced from 27,800 ft (42%) to 10,000 ft (15%).</p> <p>Unrestricted development may cause some cumulative loss of summer habitat. It is reasonable to expect that unrestricted development would cumulatively produce severe reductions in winter habitat and corresponding reductions in the LEWS population.</p>	<p>and will not measurably reduce the amount of undeveloped shoreline habitat for the Lake Erie water snake.</p> <p>Adverse impacts to winter habitat would be offset under Alternatives 2 and 3 because the disturbance/destruction of hibernacula would be avoided, minimized, and mitigated by placement, seasonal, and temperature restrictions on activities and by constructing artificial hibernacula to replace existing hibernacula that are lost. If other future development on the Island followed this pattern, the current level of winter habitat should be maintained and the LEWS population should remain stable.</p> <p>HCPs would be written for development on other areas of Kelleys Island, and ITPs would be issued with measures to avoid, minimize, or mitigate for take of the LEWS.</p>	<p>and will not measurably reduce the amount of undeveloped shoreline habitat for the Lake Erie water snake.</p> <p>Adverse impacts to winter habitat under Alternative 4 would be much greater than under Alternatives 2 and 3. More hibernacula would be lost due to construction and development activities and lost hibernacula would not be replaced. Adverse impacts winter habitat under Alternative 4 would be noticeably less than Alternative 1 due to seasonal, temperature, size, and placement restrictions on activities, which are absent under Alternative 1. If future Island development followed this pattern, winter habitat would be measurably reduced from lack of mitigation and the Island LEWS population would be expected to decline as a result, but the decline should be less drastic than for Alternative 1.</p>
Cultural Resources	<p>Effects difficult to quantify, likely to be most severe of all alternatives due to lack of federal agency involvement in most development. Requirements of Section 106 of the NHPA would not apply.</p>	<p>Development with potential to affect the LEWS would be managed through preparation of HCPs. The potential for effects to cultural resources would be evaluated and coordinated with the USFWS and the OHPO. Requirements of Section 106 of the NHPA would apply.</p>	<p>Same as described for Alternatives 2 and 3.</p>

5.0 LIST OF PREPARERS

Table 5–1. The following individuals prepared portions of the Habitat Conservation Plan and/or the Environmental Assessment.

Name	Affiliation	Role
Armstrong, Russell	Long Point Homeowner's Association LLC, Managing Partner	HCP preparation
Boyer, Angela	U.S. Fish and Wildlife Service, Reynoldsburg, Ohio Field Office	HCP and EA preparation
Eaton, Rita Bash	Esq.	Agency coordination and HCP preparation
Fasbender, Pete	U.S. Fish and Wildlife Service Regional Office, Fort Snelling, MN	HCP preparation
Fazio, Buddy	U.S. Fish and Wildlife Service Reynoldsburg, Ohio Field Office	Early coordination
Gosse, Jeff	U.S. Fish and Wildlife Service Regional Office, Fort Snelling, MN	EA preparation
Knight, Kevin	Long Point Homeowner's Association LLC, Managing Partner	HCP preparation
Knight, Laurie	B.S. Natural Resources, Wildlife Mgmt., The Ohio State University and Long Point Homeowner's Association LLC Member	HCP preparation
Mertz, Kely	BHE Environmental, Inc	HCP and EA preparation
Rommé, Russ	BHE Environmental, Inc.	HCP & EA preparation and agency coordination

6.0 CONSULTATION AND COORDINATION WITH THE PUBLIC AND OTHERS

The Service issued a public "Notice of Intent to Hold a 30-day Scoping Period to Solicit Public Comments for a National Environmental Policy Act (NEPA) Decision on a Proposed Habitat Conservation Plan for the Lake Erie Water Snake" in the Federal Register on July 26, 2001. The Service received over 30 letters, emails, and telephone calls from private citizens, federal, state and local government agencies and representatives, local landowners, and environmental groups.

The Service issued a public “Notice of Availability of a Draft Environmental Assessment/Habitat Conservation Plan Related to Application for an Incidental Take Permit for the Long Point Homeowner’s Association Development” in the Federal Register on March 17, 2003. On the same date, a press release was distributed to all public media in the State of Ohio announcing the availability of these documents and seeking comments. During the 60-day comment period, The Service received 10 letters and emails from Private citizens, federal, state and local government agencies and representatives, local landowners, and environmental groups.

7.0 PUBLIC COMMENT ON DRAFT EA AND RESPONSE

This chapter of the Environmental Assessment presents comments that were received on the draft EA/HCP and provides the Service’s response to the comments.

Respondent	Comment	Response
Audubon Ohio	Supported the concept of developing an HCP for the protection of the LEWS in concert with the landowners.	The Service appreciates the support and review of organizations in the environmental community like Audubon. Such review is important in bringing balance between development and protection.
Ohio Department of Natural Resources, Office of Coastal Management	Issuance of an Incidental Take Permit for this location are subject to a consistency review by the ODNR. The ITP cannot be issued until the ODNR Office of Coastal Management (OCM) has concurred with a consistency certification statement signed by the applicant.	The applicant submitted a consistency certification to the ODNR Office of Coastal Management. In a May 9, 2003 letter (Appendix M), the ODNR OCM stated that they concurred with the consistency certification and no further action was required on the part of the applicant.
Erie County General Health District	Commented that the typical septic system raised leach bed design in Appendix E shows the perimeter drainage to be located only about 1.25 feet from the leaching tiles of the raised leach bed. Perimeter drainage of at least 10 feet will have to be provided for those lots having less than 24 inches of native soil around and below the bases of the raised leach beds.	Comment noted. The applicant is required to adhere to all local, County, State, and Federal laws and regulations in addition to those measures required in the ITP and HCP. The drawings of a typical septic system in Appendix E have been replaced with typical drawings provided by Erie County.

<p>United States Environmental Protection Agency, Region 5 (received late)</p>	<p>Utilized their discretionary authority to review the Environmental Assessment, although they typically review only Environmental Impact Statements. The EA was given a cursory review and EPA determined that there were no significant concerns meriting comment.</p>	<p>The Service appreciates the NEPA reviews and guidance that EPA provides to it. We are pleased that they found this document acceptable.</p>
<p>2 private citizens</p>	<p>Stated that requiring an HCP (and accompanying EA) for the construction of a single family dwelling was too much of a hardship. Suggested instead that construction be simply done under the “Interim Lake Erie Water Snake Guidelines”</p>	<p>We agree that for a single family dwelling, development of an HCP and probably an Environmental Assessment requires much effort on both the applicant and the reviewing agency. In this particular instance, seven potential dwellings were involved and the costs to the applicants were still high. However, Service policy requires that in order to issue an Incidental Take Permit, an HCP be prepared, which will typically also require the preparation of an EA. Having now developed a site specific HCP for LEWS, the Service hopes to develop a county-wide HCP/EA for LEWS and development of residences. Once developed, this would allow someone wanting to build a single family dwelling to agree to the requirements of the HCP and then be covered by the existing Incidental Take Permit.</p>
<p>private citizen</p>	<p>Stated that research indicated that LEWS thrived in the presence of humans and had their lowest densities in uninhabited areas.</p>	<p>While in some instances, LEWS densities are high in areas inhabited by humans, it is an oversimplification to state that they thrive in the presence of humans. It would be more accurate to state that under the proper circumstances, LEWS and humans can co-exist quite well. One of the major reasons given for the long-term decline of the LEWS population has been habitat destruction by humans and intentional persecution by humans.</p> <p>Under the protection of the ESA, and when development is done with proper understanding, this trend can be reversed. As the writer states, by developing dock and breakwater facilities appropriately, and by providing for other habitat types, densities of LEWS can increase. Proper education of humans and awareness of the protection provided by the ESA has helped to reduce</p>

		intentional destruction of LEWS by humans.
private citizen	Concerned that no scientific evidence was presented to support the assumption that using light-colored gravel instead of darker material for road surfaces would provide a less attractive basking area for snakes.	Darker surfaces absorb heat more readily than do lighter surfaces. LEWS seek out warm surfaces for basking. Using light-colored gravel rather than a darker paved asphalt surface along with other minimization measures limiting the width of the driveways and using signage to alert drivers of the potential presence of snakes will minimize, to the maximum extent practicable, utilization of roads and driveways by LEWS where they would be vulnerable.
	Commented that because the final listing rule for the snake indicates that habitat destruction is the major cause of its decline, it is essential to ensure that adequate measures are included in the HCP to not only replace lost area, but to replace with enhancement.	Our responsibility in issuing an ITP is to see that the impacts of incidental take are minimized and mitigated to the maximum extent practicable. It is our judgement that the measures in the HCP have met this responsibility for the proposed alternative. The Service cannot require an applicant to enhance the area beyond the baseline status.

	<p>Commented that movement corridors between residences should, at a minimum, equal the width of driveways plus the width of boardwalks.</p>	<p>Recent research on LEWS movements has found that LEWS cross roads and yards to reach hibernacula (pers comm. with Kristin Stanford, NIU). There is no scientific evidence to support that the LEWS requires densely vegetated corridors for travel. The travel corridors with a minimum width of 10 feet provided for in the HCP will provide opportunity for cover the LEWS but will not preclude the usage of more open areas for travel. Restrictions on mowing activities during the spring and fall migratory period of the LEWS are a component of the HCP. These measures should help ensure that direct mortality of LEWS will be avoided during the migratory periods in the spring and fall.</p>
	<p>Commented that planking on boardwalk and patio should be spaced to allow escape of the LEWS between the boards and that decking on boardwalk and patios should be positioned above the substrate to allow the LEWS to move freely.</p>	<p>LEWS presence on boardwalks and decks is anticipated. The HCP requires that boardwalks include open areas between wooden planks, and space between the boardwalk and ground that would allow LEWS to move freely under or on top of the structure. The only known predator on adult LEWS are humans and pets. The applicant is aware of the presence of LEWS on their property. The applicant also is aware of the protection afforded to the LEWS under the ESA. As described in the HCP, State law requires that pets be under control of their owners at all times.</p>
	<p>Rock crib terminals should allow LEWS to freely move in and out. Placement of mesh or wiring that could restrict LEWS movement into or onto the rock cribs should be restricted.</p>	<p>We agree. The rock crib design approved by the USFWS and included in this HCP does not include the usage of mesh, wiring, or paneling of any kind that would make the interior of the structure inaccessible to the LEWS. Changes were made in the EA to state this clearly.</p>
	<p>Seasonal constraints on in-water construction may be required to protect gravid LEWS.</p>	<p>The Service's season-based guidelines for protecting LEWS during construction activities utilize the most current scientific information available. Seasonal restrictions on in-water work to avoid LEWS have not been established. LEWS, including gravid females, can move out of harms way while in-water work is occurring during the warm months. Under this EA/HCP, no in-water structures are planned.</p>

	<p>Concerned that the number of artificial hibernacula proposed to be constructed on each lot in the project area is not likely adequate. Analysis assumes that artificial hibernacula are as successful as natural structures- Are there any data determining success/effectiveness of artificial hibernacula?</p>	<p>We have utilized the most current scientific information available to determine the number of artificial hibernacula needed to mitigate for loss of natural hibernacula. Ongoing research by Northern Illinois University has documented LEWS successfully utilizing man-made structures, including rock piles, for hibernation. Artificial hibernacula similar in design to those proposed under this HCP have been successful for other snake species.</p>
	<p>Commented that they were unable to follow the calculation of artificial hibernacula to be constructed per lot in Table 2-2. Requested clarification on how the number of LEWS was determined for the 15-acre tract and how the number of existing hibernacula in Zone C was calculated.</p>	<p>The number of adult LEWS on the 15-acre tract was calculated using King 2002 estimates that the density of adult LEWS on Long Point to be 87 LEWS/km shoreline. There are 0.549 km of shoreline (rounded to 0.5 km in Table 2-2) within the 15-acre HCP tract. By multiplying the density of LEWS on Long Point (87 LEWS/km) by the length of shoreline on the 15-acre tract (.549 km) we find that an estimated 47.7 LEWS are within the HCP property. The number of existing hibernacula in Zone C was calculated using the estimate of LEWS within the HCP property (47.7), the area of the HCP property within Zone C (9.4 acres or 62%) and the percentage of LEWS hibernating greater than 150 feet from the shoreline. By multiplying the number of LEWS property-wide (47.7) by the percent of LEWS hibernating >150 feet from the shoreline (32%, this is derived from Figure 4, page 31 of King 2002) we find that there are an estimated 15.3 LEWS hibernating in Zone C. Research indicated that LEWS hibernate individually on the U.S. islands so we estimate that there are 15.3 hibernacula within Zone C (one hibernacula per LEWS). By dividing the number of hibernacula in Zone C (15.3) by the number of acres in Zone C (9.4) we find that there are approximately 1.6 hibernacula per acre in Zone C. The HCP states that up to 6.1 acres in Zone C will be made unavailable for hibernation. By multiplying the density of hibernacula in Zone C (1.6 per acre) by the acres of hibernation habitat lost in Zone C (6.1 acres) we find that approximately 9.8 hibernacula will be lost within Zone C of the 15-acre tract.</p>
	<p>Requested clarification on accuracy of the citation in the 2nd sentence in section 2.4.4</p>	<p>Changes were made in the EA to state the citation more clearly.</p>

	<p>Commented that there seems to be a conflict between the distance from shore that constitutes Zone C: a value of >125 feet from shore is presented in Figure 1-3 and Table 2-1, but a value of >150 feet is presented in Table 2-2.</p>	<p>Figure 1-3 and Table 2-1 state correctly that Zone C is all areas on the 15-acre tract >125 feet landward of the Ordinary High Water mark (OHW). OHW is a known value and is not representative of the actual shoreline which fluctuates daily. Table 2-2 utilizes data from King 2002 in which data was recorded on LEWS movement from the actual shoreline. Currently and at the time the research data was gathered, Lake Erie water levels were below the OHW level. On the 15-acre tract, the average distance between the shoreline and the OHW mark is 25 feet. Therefore, Table 2-2 correctly states that Zone C is all area on the 15-acre tract >150 feet landward of the shoreline.</p>
	<p>Impacts from potential disturbance or noise during hibernation should be investigated.</p>	<p>We recognize that while use of residences on the property will be mainly during the summer, they may occasionally be used during the winter when LEWS are hibernating. However, ferry service to the island is discontinued during the winter months when Lake Erie freezes over, making intermittent use difficult. During hibernation, LEWS are unable to move and are vulnerable to any disturbance of their hibernation sites. Ground disturbing activities on the 15-acre tract will be permitted only between May 1 and November 1 when both air and ground temperatures have been above 65 °F for five consecutive days prior to and on the day of excavation and/or construction. Research on hibernating LEWS does not indicate that LEWS are disturbed by noise during hibernation.</p>
	<p>Additional measures are likely required to adequately protect not only the current distribution and abundance of the LEWS but also provide habitat for future population growth.</p>	<p>We find that impacts on the LEWS and its habitat will be minimized and mitigated to the maximum extent practicable by implementation of the HCP. The impacts of the action will not appreciably reduce the likelihood of the survival and recovery of the LEWS. It is our biological opinion that this action will not jeopardize the existence of the LEWS. The Service cannot require an HCP applicant to enhance habitat beyond the existing baseline.</p>

2 private citizens	Enforcement regulations will be difficult to enforce.	<p>The Service has enforcement jurisdiction in this matter. Should terms of the ITP be violated, the permit could be revoked. Violations also could result in law enforcement action under section 9 of the Act. Further consequences are those resulting from criminal or civil penalties in section 11 of the Act for violation of section 9. The Implementing Agreement (IA) provides a process to be followed by the Association in the event of violations by its members. As development of the HCP progressed, the Service found the applicants to be reasonable in their positions and they appeared to be sincerely concerned about protecting the LEWS. We agree that enforcement can be difficult and should be a last resort. We believe that an informed permittee with a good conservation ethic is the best protection for the LEWS.</p>
private citizen	Opposes issuance of the ITP because the proposed development is located in a fairly pristine area of the island containing unique habitat for LEWS.	An application for an ITP has been submitted. Regulations found in 50 CFR 17.22(b)(2) state that the Director shall issue the permit if the issuance criteria have been met. We have determined that the issuance criteria have been met. The Service has no authority to prohibit the project on this private land. The applicant voluntarily applied for the permit and provided protection measures for the LEWS.
	The length of the ITP seems arbitrary. Does it mean the LEWS will find somewhere else to live in 10 or 15 years?	The length of the ITP is based on the current knowledge of the species and timing of potential impacts to the LEWS. Incidental take of the LEWS is most likely to occur during the construction phase and during other ground disturbing activities.—The applicants informed the FWS construction of houses on all lots would likely be completed within 10 years of ITP issuance. In order to evaluate the potential impacts of the development on the LEWS population, we determined a minimum of 5 years post-project monitoring is necessary. Thus, we have selected the Preferred Alternative, which allows for a 15-year ITP.

private citizen	<p>Minimization measures (i.e., restrictions on ground disturbing activities, pesticides/fertilizers, size and placement of structures, etc.) are difficult to enforce. What happens if permittee violates conditions?</p>	<p>The applicant voluntarily applied for the permit and provided protection measures for the LEWS in coordination with the Service. Should terms of the ITP be violated, the permit could be revoked. Violations also could result in law enforcement action under section 9 of the Act. Further consequences are those resulting from criminal or civil penalties in section 11 of the Act for violation of section 9. The Implementing Agreement (IA) provides a process to be followed by the Association in the event of violations by its members.</p>
	<p>Establishment of a shoreline buffer and construction of artificial hibernating areas is still a net loss of habitat. If you want to protect the habitat, do not allow the development.</p>	<p>The applicant, in close coordination with the Service, developed measures to minimize and mitigate potential impacts to the LEWS to the maximum extent practicable by implementation of the HCP. Establishment of a shoreline buffer is a key component in the HCP to protect the LEWS. The Service has no authority to prohibit the project on this private land. The discretion as to the use of this property lies with the owners and with other regulatory bodies, such as local planning commission. The Service's role is limited to the minimization and mitigation of impacts to the listed species.</p>
	<p>Concern with the 15-year monitoring period. What will the Service do if the HCP does not work? Reclaim the land?</p>	<p>The measures to minimize and mitigate potential impacts to the LEWS have been developed using the available scientific data on this species. If additional data becomes available showing the Permittees measures are not working, the Service will work with the landowners to attempt to improve the habitat conditions for the LEWS. The Service has no authority to do reclamation on this private land.</p>

	<p>Since the property is in private hands, they should be able to develop it as they see fit.</p>	<p>The Service has authority to enforce the prohibitions of section 9 of the Endangered Species Act against the take of listed species. Depending on the circumstances of a situation, enforcement of Section 9 could lead to modifications in the use of private property. We also have authority to issue permits to allow take and enter into agreements with private landowners to protect listed species. The owners of Long Point applied for an ITP and developed, with our help, a mutually agreeable conservation plan. The Service is not in a position to unilaterally dictate measures of the conservation plan. Instead, we worked with the landowners to develop measures for the protection of LEWS that would minimize and mitigate the impacts of incidental take to the maximum extent practicable and at the same time allow the landowners to obtain their primary objectives. We have agreed on a conservation plan that meets the criteria for issuance of an ITP and for meeting our own obligations under NEPA and section 7 of the Act.</p>
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8.0 HABITAT CONSERVATION PLAN

This HCP was prepared as part of a combined NEPA/ESA compliance effort. It incorporates analyses and narratives included in the EA and specifically addresses Alternative 3, the proposed action.

The Long Point LLC parties to this Habitat Conservation Plan (HCP) recognize that they are individually liable for any violation of the terms of this agreement. While any one party may not be held jointly and severally liable for the acts of any other individual who is a party to this agreement, the members recognize that there is an obligation on the part of Long Point Homeowner’s Association LLC to enforce the terms of the HCP against a violating member. Further, in the event the Homeowner’s Association fails to enforce the terms of this HCP, the members recognize that the protections provided by the anticipated Incidental Take Permit may be forfeited.

8.1 BIOLOGICAL GOALS AND OBJECTIVES

This HCP includes measures to manage and conserve the LEWS and its habitat in the project area, and measures to avoid, minimize, and mitigate for unavoidable effects of actions proposed by the LP Homeowner’s Association LLC. The following biological goals and objectives were developed jointly by the Service and the LP Homeowner’s Association LLC, and formed the basis for LEWS conservation measures described in the HCP.

Goal 1: Protect shoreline and near-shoreline habitat for use by LEWS.

- Objective 1.a.: A "buffer area" should be established on each lot, consisting of all areas within Zones A and B (shoreline to 125 ft landward of the OHW). No construction of roads, driveways, or buildings should occur within the buffer area.
- Objective 1.b.: Adverse habitat modification of habitat quality within Zones A and B should be minimized.

Goal 2: Enhance habitat for the LEWS on the 15-acre tract by providing manmade structures that reflect the natural habitat of the species, and by preserving such structures that currently exist on the 15-acre tract.

- Objective 2.a.: The existing stone building foundation near the center of Lot No. 3 shall not be disturbed by construction activities.
- Objective 2.b.: Construct artificial LEWS hibernacula within Zone C.

Goal 3: Reduce the chance of lethal vehicle-caused mortality of LEWS.

- Objective 3.a.: Close and abandon the west shoreline access road.
- Objective 3.b.: Post road signs promoting low vehicular speeds and alerting users of the potential presence of LEWS.

Goal 4: Facilitate research regarding the Lake Erie water snake to aid in future preparation of a Recovery Plan and development of guidelines for the management of the species.

- Objective 4.a.: The applicant should continue to provide access to the project area, at a mutually agreed upon time, to facilitate research being conducted by Dr. R.B. King of Northern Illinois University, the Ohio Division of Wildlife, and the Service.

Goal 5: Conduct proposed activities in accordance with the Service's Interim Lake Erie Water Snake Guidelines.

- Objective 5.a.: All ground-disturbing activities should occur between May 1 and November 1 to avoid the incidental take of hibernating LEWS.

Goal 6: Coordinate with the Service during implementation of the HCP

- Objective 6.a.: Notify the Service prior to initiation of substantial development/construction activities on 15-acre tract.
- Objective 6.b.: Promptly notify the Service regarding mortalities of, and injuries to, LEWS on the 15-acre tract.

Goal 7: Minimize the take of Lake Erie water snakes by managing construction activities such that the maximum area of habitat is conserved.

- Objective 7.a.: Minimize the width of required driveway surfaces.
- Objective 7.b.: Minimize the area converted from forest cover to turf-grass lawns.

- Objective 7.c: Minimize the footprint of structures that remove habitat or otherwise make LEWS habitat unavailable to the species.
- Objective 7.d: Utilize pesticides and other similar chemicals only in strict compliance with label directions.

Goal 8: Assure provisions set forth by the HCP and ITP transfer to future owners for the duration of the permit.

- Objective 8.a: Include ITP and HCP compliance as a deed restriction when ownership of lots within the 15-acre tract are transferred.

8.2 IMPACTS OF THE PROPOSED ACTION

Direct, indirect, and cumulative effects of the proposed action are discussed in detail in Section 4 of the Environmental Assessment, and are hereby incorporated by reference.

8.3 IMPACT AVOIDANCE, MINIMIZATION, AND MITIGATION

Measures to avoid, minimize, and mitigate for effects to LEWS of the proposed action are discussed in detail in Section 2.7 of the attached Environmental Assessment, and are hereby incorporated by reference.

8.4 MONITORING

By December 31 of each year in which monitoring is required, the LP Homeowner’s Association LLC will submit a written report to the Service discussing the progress of proposed construction, and compliance with impact avoidance, minimization, and mitigation measures included in Alternative 3. Compliance monitoring will be facilitated by site access provided the Service in Alternative 3. Monitoring and reporting will be required annually for the first five years, and in years 7, 10, and 15 (i.e., years 1, 2, 3, 4, 5, 7, 10 and 15). Constructed LEWS hibernacula will be monitored at a rate of 6 hibernacula-years over the duration of the ITP (one hibernacula-year = monitoring of one artificial hibernacula during one Spring emergence period)

8.5 CONSISTENCY OF THE PROPOSED ACTION WITH THE RECOVERY PLAN

A recovery plan is under development but has not been completed for the LEWS. The HCP complies with and supports concepts promoted in the Interim Lake Erie Water Snake Guidelines (U.S. Fish and Wildlife Service 2000).

8.6 PROJECT FUNDING

Development of each of the seven 15-acre tract lots will be funded by the lot owners. Most objectives in this HCP will be met by tailoring construction/development and use of the 15-acre tract to meet objectives and goals in Section 8.1. Certain objectives will require one-time only funding (Table 8–1). Approximately \$750 in one-time only costs will be incurred to initiate implementation of the HCP (Table 8-1). Approximately \$1,250 will be required to implement each annual monitoring and reporting event. The LP Homeowner’s Association LLC has the capacity to collect the fees necessary to implement the HCP from future lot owners (Appendix H).

8.7 CHANGED OR UNFORESEEN CIRCUMSTANCES

The Habitat Conservation Plan Assurances (“No Surprises”) Rule (50 CFR §17.32(b)(5);63 Fed. Reg. 8859 (February 23, 1998)) provides regulatory assurances to holders of ITPs issued under §10(a)(1)(B) of the ESA that, generally, no additional land-use restrictions will be required of the permit holder with respect to species covered by that permit, even if changed or unforeseen circumstances arise after the permit is issued, provided the HCP is being properly implemented.

“Unforeseen circumstances” means “changes in circumstances affecting a species or geographic area covered by an HCP that could not reasonably have been anticipated by plan developers and the Service at the time of the HCP’s negotiation and development, and that result in a substantial and adverse change in the status of the covered species” (50 CFR §17.3). Unforeseen circumstances generally include such occurrences as global climate change, non-point source pollution, and disease. Specific to the LEWS, unforeseen circumstances that could result in substantial decreases in snakes on Long Point, Kelleys Island, Ohio, include high mortality of snakes from disease, predation, bio-accumulation of toxins, or drowning of snakes due to high Lake Erie water levels.

“Changed circumstances” means “changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated by Plan developers and the Service and that can be planned for (e.g., the listing of a new species, or a fire or other natural catastrophic event in areas prone to such events)” (50 CFR §17.3). This HCP provides measures that will substantively mitigate potential negative impacts to LEWS resulting from development of the 15-acre tract under reasonably foreseeable, changed circumstances.

If there is the changed circumstance of a substantial LEWS decline in the future, the Service may suggest and the LP Homeowner’s Association LLC may consider changes in the operating conservation program in the future, provided such changes are consistent with this HCP and agreed to by the LP Homeowner’s Association LLC (50 CFR §17.22(b)(5)) (Table 8–2).

Should the Service determine, based on considerations outlined in 50 CFR §17.22(b)(5)(iii)(c), that unforeseen circumstances have arisen during the permit term, the Service and the LP Homeowner’s Association LLC will consider potential measures to address such unforeseen circumstances consistent with 50 CFR §17.22(b)(5)(iii).

Table 8–1. HCP implementation requiring funding beyond that supporting development and construction activities.

Activity	Funding Schedule	Estimated Cost	Funding Mechanism
Posting two road signs to slow traffic on the access road in the 15-acre tract	One time expense to be incurred.	\$500 (\$250 each for 2 signs, including post, sign, & installation)	\$1,000 exists in LP Homeowner’s Association LLC funding and has been obligated for this task.
Posting one sign notifying visitors of HCP requirements along access road at southwestern property line of 15-acre tract	One time expense to be incurred.	\$250	\$250 exists in the LP Homeowner’s Association LLC funding and has been obligated for this task.
Annual biological (effects and effectiveness) monitoring and reporting	Year 1, 2, 3, 4, 5, 7, 10, and 15. Artificial hibernacula will be monitored at a rate of 6 hibernacula-years over the duration of the ITP .	\$1,250, each occurrence, \$18,750 cumulative total	\$5000 exists in the LP Homeowner’s Association LLC funding and has been obligated for this task.

Table 8–2. Response to changed circumstances.

Changed Circumstance	Response
The USFWS changes the status of the LEWS to endangered	No change in management and conservation activities described herein
The USFWS delists the LEWS	The incidental take permit, and requirements specified in the ITP and HCP will be cancelled.
Proposed construction is not completed within the duration of the ITP/HCP	The ITP/HCP will be extended for a period of time sufficient to include proposed construction. If full implementation of the construction proposed herein is not anticipated, written verification will be provided to the Service with the final annual monitoring report, and the ITP/HCP will expire in 15 years from the date of issuance.

8.8 HCP ASSURANCES

This HCP incorporates by reference the permit assurances set forth in the Habitat Conservation Plan Assurances (“No Surprises”) Rule adopted by the Service and published in the Federal Register on February 23, 1998. Under the No Surprises Rule, if unforeseen circumstances occur, the LP Homeowner’s Association LLC will not be obligated to establish additional land restrictions or provide additional financial compensation in support of the LEWS, provided the LP Homeowner’s Association LLC is properly implementing the HCP. While development of unforeseen circumstances may promote

minor changes to the HCP, modified activities conducted by the LP Homeowner's Association LLC will be as close as possible to the terms of the original HCP and will be limited to modifications within the project boundary described in the HCP. Additional or modified activities outside those described in the HCP will be at the discretion of the permittees.

8.9 AMENDMENTS TO THE HCP

This HCP may be amended without amending the associated ITP, provided the following conditions are met:

- amendments are of a minor or technical nature, and
- effects to LEWS resulting from the amendments are not substantially different than those described in the original HCP.

Examples of minor amendments to the project HCP that will not require permit amendment include revisions to monitoring or reporting protocols. The LP Homeowner's Association LLC will coordinate with the Service regarding amendments to the HCP, if any.

8.10 AMENDMENTS TO THE PERMIT

Amendment of both the HCP and associated ITP is required for any change in the following:

- Substantive change in management adversely affecting habitat quality or Lake Erie water snakes;
- the listing under the ESA or identification on-site of a species not currently addressed in the HCP that may be affected by project activities;
- modification of any important project action or mitigation component of the HCP, including funding, that may substantially affect authorized take levels, effects of the project, or the nature or scope of the mitigation program; and
- other modification of the project likely to result in significant adverse effects to LEWS not addressed in the original HCP and ITP.

Amendment of the ITP typically will require a revised HCP and permit application form, payment of the application fee, and a 60-day public comment period. Specific documentation needed to support a permit amendment varies depending on the nature of the amendment.

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