

APPENDIX B
LAKE OF THE OZARKS PERMIT REQUIREMENTS
A Reference Guide for Property Owners and Builders/Contractors

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LAKE OF THE OZARKS PERMIT REQUIREMENTS

A Reference Guide for Property Owners and Builders/Contractors

1.0 INTRODUCTION

Lake of the Ozarks is one of the world's largest reservoirs and a thriving tourist area. Nearly 1,150 miles of resort area shoreline, created by building Bagnell Dam on the Osage River, provide access to water sports for increasing numbers of visitors, residents, and second home owners.

Ameren Missouri, formerly known as Union Electric Company, owns the shoreline (project lands) and owns/operates Bagnell Dam. As the owner, Ameren Missouri is required by its license from FERC to conduct certain shoreline management activities, which include regulating docks, bank stabilization construction, and other structures on the lake. The license also authorizes Ameren Missouri to collect permit fees to cover the cost of these shoreline management activities.

In recent years, development around the shoreline has grown rapidly, and the number of permit applications processed each year has grown from 900 in 1990 to more than 3,000 annually. Both the cost and the complexity of permit processing and shoreline management continue to increase. In the spring of 2003, Ameren Missouri moved its shoreline management office to Lake of the Ozarks to increase its effectiveness in managing the shoreline and its permitting process. The Shoreline Management office is located at 3 Willmore Lane in Lake Ozark, Missouri. This office is open to the public, and representatives are available daily to work through permitting questions and provide shoreline information to visitors.

Ameren Missouri created its permit requirements and fee schedules to ensure Ameren Missouri's compliance with its Federal license and to offset shoreline management costs. The requirements were developed after several months of proposals and revisions that incorporated suggestions from a wide range of organizations and individuals. The permit program helps ensure that docks, bank stabilization construction, and other structures meet standards to prevent them from becoming hazards to navigation, causing pollution of the lake, or interfering with the safe and reliable operation of Bagnell Dam and the Osage Power Plant.

This guideline booklet addresses the requirements for Ameren Missouri permits for installation, modification, or transfer of boat docks, bank stabilization construction (i.e., vegetation, riprap, and seawalls), breakwaters, boat ramps, and any other structures including excavation and fill within the FERC project boundary for the Osage Project.

2.0 PERMIT APPLICATION

Prior to any ground disturbing activity or the installation or construction of any structure on or affecting project lands, a permit application must be approved by and a permit issued from Ameren Missouri.

Any activity (except installation or construction of boat docks) located lakeward of elevation 658.5 feet, affecting a wetland or a rare, threatened, or endangered species, or specific activities as defined below also requires approval from the Corps of Engineers and possible review from additional resource agencies if deemed necessary by Ameren Missouri.

2.1 Instructions

A completed application packet must contain the following information. Forms are included at the back of this guideline booklet.

If the application is incomplete or the appropriate drawings or any other required submittal are not included, the packet will be returned to the applicant for more information.

1. Application for an Ameren Missouri Permit - Include name, address, and a detailed description of the proposed project, its location, **county parcel number**, a description of the appropriateness of the proposed activity in relation to the surrounding environment, an explanation of compliance with Ameren Missouri guidelines, and other required information.
2. Specification Sheet(s) (**Complete for Docks and Bank Stabilization**)
3. Drawings to scale on a maximum of 11"x17" paper. Larger drawings may be submitted as supporting information. Drawings must show the following information:

ALL ACTIVITIES:

1. General vicinity map showing the property in relation to the nearest lake mile.
2. Location of the activity within the applicant's property lines extended lakeward.

DOCK (See Example Drawing 6):

1. Drawing showing the location of the dock in relation to docks on either side and across the cove or channel from the applicant's dock.
2. Distance from the dock to the applicant's property lines extended lakeward.
3. Distance from the end of the dock to the center of the channel or cove and the distance across the channel or cove.
4. Distance to the nearest dock on each side of applicant's dock.
5. Dimensions and square footage of the proposed dock and any attachments thereto.

The dock location drawing must be drawn to scale.

BANK STABILIZATION (Drawing 2 and 3, Specification Sheet and Construction Drawing):

1. Vegetation/Riprap – Height of the eroded bank and elevation (in feet) at the toe of the bank.
2. Seawall – Height of the eroded bank, elevation at top of footing, elevation of lake bottom (lakeside of wall), distance from toe of bank to wall (maximum 3 feet), wall and footing dimensions.

2.2 Checklist

Does your application packet include:

- Completed and signed application** for Ameren Missouri permit.
- Specification sheet(s) (for docks, pumps, breakwaters, and bank stabilization).
- A summary of the proposed uses expected impact on the environment and compliance with Ameren Missouri guidelines. Applicants for Large Docks and Marinas should refer to Attachment 6.
- For proposed uses that will require FERC review and approval (See Table 4 in the SMP), an explanation of compatibility with Commission-approved management plans, project operations and purposes, applicable license requirements, as well as Ameren Missouri’s Permit Requirements.
- Drawings to scale (on max. 11”x 17” paper) showing all measurements and elevations as specified. Bank stabilization and dredging should include plan and profile drawings.
- Mitigation plan and schedule – required for dredging.
- Approved permit or electrical system inspection (participating fire districts listed at www.amerenmissouri.com/lake).
- Processing & Permit Fees (according to the Fee Schedule).

Mail your application packet to:

Ameren Missouri
3 Willmore Lane
Lake Ozark, MO 65049

After your application packet is received, Ameren Missouri will:

1. Review the application.
2. Request any necessary approvals from federal, state, or local agencies.
3. Approve the application as submitted, approve the application with conditions, or deny the application.

3.0 APPLICATION PROCESSING

The application will be reviewed to make sure it contains all the necessary information. The application will be evaluated based on the location, elevation, and potential environmental impacts of the proposed facility or use. For boat docks, the location of the proposed dock and property boundaries in relation to existing docks and impact on navigation will be considered.

The review of the application may require approval or comments from federal, state, or local agencies and, in some cases, final approval by FERC (see Table 4 in the SMP for a listing of uses requiring agency notification and FERC approval). Applicants must comply with the requirements of all other applicable regulations, restrictions, covenants, and ordinances.

Since every possible situation cannot be anticipated, Ameren Missouri reserves the absolute right and discretion to make appropriate exceptions or modifications to Ameren Missouri's requirements, to make special rulings, and impose additional requirements, including the requirement that the applicant provide a survey to verify the facility was installed in conformance with the permitted location.

Once the review process is complete, the application will be approved, approved with conditions, or denied. If the application is denied and resubmitted at a later date, a new processing fee is required.

Failure to provide any of the required information may result in denial of the application or delay the processing of the application.

Construction may not proceed until a permit has been issued. Ameren Missouri has the right to direct the removal of docks or other structures and evoke enforcement fees if construction begins without a permit.

Permits will not be issued for houses or other habitable structures, dumping leaves, or disposing of other debris into the lake.

4.0 FEES AND FEE SCHEDULE

4.1 Permit Processing Fees (Non-Refundable)

A non-refundable processing fee must be submitted along with the completed application packet. The submittal of permit application fees or the depositing of those fees does not constitute approval for the proposed activity, nor guarantee the issuance of a permit. The fee schedule is below.

<u>Permit Type</u>		<u>Fee</u>
<u>Dock:</u>		
Any size	New or modification:	\$550
<u>Breakwater:</u>		
	New installation:	\$1000
	Renewal permit:	\$500
<u>Bank Stabilization:</u>		
Seawall, Rip Rap, Stacked Stone, Vegetation:	100 feet long (or less):	\$300
	Greater than 100 feet long:	\$300 + (_____ # of feet over 100' x \$1)
<u>Dredging:</u>		
		\$500
<u>Boat Ramp:</u>		
		\$300
<u>Accessory Structures:</u>		
Pier:		\$100
Deck, Patio:		\$100
Steps:		\$50
<u>Utilities:</u>		
Lake water pump:	2 horsepower (or less)	\$75
	Greater than 2 horsepower:	\$100
Geothermal Heat Coil:		\$100
<u>Permit Extension:</u>		
		\$50
<u>Permit Transfer:</u> (1 fee transfers all valid permits, except a breakwater permit)		
		\$100
Permit Transfer with Late Fee (more than 24 months after a land transfer)		\$200
Permit Transfer of a Breakwater permit		\$500
<u>FERC submittal:</u>		
		\$2000
<u>Other:</u> (i.e. unlisted structures, review, enforcement fees, etc.)		

4.2 Permit Fees and Annual Fees

In addition to the payment of permit fees, owners of docks and breakwaters that occupy more than 3,000 square feet of water space will be charged an **annual permit fee** based on total square footage described below.

The square footage used to determine the permit fee includes the total surface area of the dock (including the area within boat slips), lifts or other structures attached to the dock, ramps, and breakwater structures. If the property has more than one dock, the total area of the individual docks will be added together to determine the fee. The area occupied and the annual permit fee will be determined by Ameren Missouri as shown in the fee schedule.

Permit fees do not apply to construction activities by public agencies, for public use.

If a pier is approved to cantilever over a seawall or extend over the lake, it will be assessed a permit fee at the same rate as a boat dock.

Annual Permit Fee:

Docks and breakwaters that use and occupy over 3,000 square feet will pay an annual permit fee of \$0.06/square foot of area of water space occupied as determined by Ameren Missouri.

Permit Fee:

New docks and modifications to existing docks will be charged a permit fee of \$550 for docks of any size.

Any subsequent modifications to existing docks will require the payment of the permit fee.

4.3 Enforcement Fees

Property owners and Certified Dock Builders who fail to obtain a permit or whose facilities do not comply with the conditions of their permit may be charged an enforcement fee, as shown in the fee schedule. The payment of the enforcement fee does not waive any applicable processing or use fees. Future permits will not be issued for a property until all fees are paid.

All fees collected by Ameren Missouri will be applied to Ameren Missouri’s shoreline management costs at Lake of the Ozarks.

Enforcement Fees

- Failure to obtain a permit up to \$2,000
- Failure to comply with permit conditions up to \$2,000
- Damage to sensitive habitats or areas (wetlands, head-of-cove)..... up to \$8,000

Any dock or property owner, or Certified Dock Builder who fails to obtain a permit, fails to comply with the terms of a permit issued, or fails to comply with Ameren Missouri policies or directives at Lake of the Ozarks shall be liable for all costs – including attorney’s fees and interest – incurred in the enforcement of Ameren Missouri’s permit provisions.

5.0 PERMITTING POLICIES

5.1 Rare, Threatened, and Endangered Species

Limitations may be imposed upon shoreline development in the vicinity of known locations of rare, threatened, and endangered species. In all such proposals, the applicant and/or Ameren Missouri shall solicit input and recommendation from the Missouri Department of Conservation (MDC) and U.S. Fish and Wildlife Service (USFWS) prior to development.

5.2 Historic Properties

There are areas around Lake of the Ozarks where historic properties have been identified. Development in these areas will be limited and only occur after recommendation and approval from the Missouri State Historic Preservation Officer (SHPO), and other appropriate agencies consistent with the procedures in the companion Historic Properties Management Plan.

5.3 Wetlands

Wetland areas occur in many areas of Lake of the Ozarks around shallow waters. Disturbance of these areas may be limited or prohibited without the review and approval of the Corps of Engineers and, in some cases, the Missouri Department of Natural Resources.

5.4 Lake Fluctuation Policy

Ameren Missouri operates Bagnell Dam under an operating License granted by the Federal Energy Regulatory Commission. At present, the provisions of the operating License permit lake fluctuations down to 654 feet under normal conditions and to 645 feet under emergency conditions.

Ameren Missouri suggests that the lake fluctuations mentioned above be factored into the design characteristics of docks. Designing a dock to withstand lake drawdown to 654 feet will prevent most damage due to drawdown. Designing it to withstand drawdowns to 645 feet will ensure a minimum amount of problems due to drawdowns.

Drawdowns of such magnitude are not typical. It is significant to note, however, that the lake usually reaches its lowest point during the winter-early spring period. If you are not a year-round resident, arrange to have someone take care of your dock during winter absences.

Ameren Missouri uses the Osage Power Plant at Bagnell Dam to optimize system power generation. High customer demand, downstream navigation, weather, upstream releases, and equipment malfunction are all factors in determining plant usage. These variables account for year-to-year, as well as day-to-day, fluctuations in the lake level. Such fluctuations should be expected. Also, these same variables make any forecasts concerning lake levels questionable except for very short periods.

Ameren Missouri hopes the foregoing information is of value. Please be assured that Ameren Missouri will work hard to cooperate with lake area residents.

For further information, please call Ameren Missouri's lake level information line at 573.365.9205.

5.5 Non-conforming Structures

A considerable number of structures have been located within the project boundary along the shoreline of the lake over the last 80 years, some prior to adoption of formal permitting procedures and policies and some since, which do not conform to current shoreline management standards and which, except as described in this section, could not be permitted under Ameren Missouri's past or current guidelines or license. These structures are referred to as non-conforming structures.

On June 5 and supplemented on June 12, 2013, Ameren Missouri filed an encroachment report identifying 215 non-conforming structures on project lands. This report identified approximately 4,500 additional unpermitted structures that were encroaching into the project boundary. On February 28, 2014, FERC approved the Encroachment Report and directed Ameren Missouri to file a summary report confirming that all existing encroachments have been permitted. On September 26, 2016, Ameren Missouri filed the required summary report with the FERC. During the course of this submittal, an additional 62 non-conforming structures were identified and 3 previously registered non-conforming facilities have been removed. As of September 2016, a total of 277 non-conforming structures are now registered within the project boundary.

Registration of Non-Conforming Structures

All non-conforming structures must either be permitted, if appropriate, or registered with Ameren Missouri. Should Ameren Missouri locate or find a non-conforming or unpermitted structure not previously registered or permitted it will be evaluated using the same methodology as established for the encroachment report filing. This methodology relies on the guidelines that were in place at the time of construction. Those structures that did not comply with the guidelines in place at the time of construction and found to not adversely affect project lands or resources will be registered as non-conforming and those that comply with the guidelines that were in place at the time of construction will be permitted.

The conveyance of an interest in a nonconforming structure, if approved, may be made subject to the following terms and conditions and covenants and restrictions:

A grantee of an interest in project property (including subsequent grantees, hereinafter collectively "grantees") shall not make such use of the interest or the non-conforming structure(s) for which the interest was conveyed as may endanger health, create a nuisance, or otherwise be incompatible with overall project uses.

A grantee of an interest in project property shall take all reasonable precautions to ensure that the non-conforming structure(s) for which the interest was conveyed and the activities of the grantee involving such non-conforming structure(s) will exist or occur in a manner that will protect the scenic, recreational, and environmental values of the project.

A grantee may not enlarge, alter, increase, expand, or extend the non-conforming structure(s) for which the interest is conveyed.

If a non-conforming structure for which Ameren Missouri transferred an interest becomes, in the determination of Ameren Missouri or any duly authorized official, physically unsafe or unlawful, due to lack of repairs or maintenance or otherwise, or is deemed abandoned by Ameren Missouri or any duly authorized official due to physical condition, location or inability to determine ownership or otherwise, then such non-conforming structure may not thereafter be restored, repaired, or rebuilt, except as otherwise provided herein.

A grantee may not move a non-conforming structure in whole or in part to any other property, lot or tract within the project boundary.

A grantee may perform maintenance work on non-conforming structures for ordinary repairs consisting of nonbearing structural members, plumbing, wiring, and similar improvements.

Should a non-conforming structure be destroyed by any means to an extent of more than sixty percent (60%) of its total replacement cost at the time of the destruction, a grantee shall not reconstruct the non-conforming structure except as otherwise provided herein.

Should any such non-conforming structure be moved for any reason for any distance whatever, it shall thereafter conform to all Ameren Missouri guidelines and location standards.

In the event a grantee violates any of the foregoing terms, conditions, covenants or restrictions, or in the event a non-conforming structure is determined to be unsafe, unlawful or abandoned and cannot be restored, repaired or rebuilt in conformity with the provisions herein, then Ameren Missouri may terminate the interest conveyed and may require that the non-conforming structure be removed.

5.6 Vegetative Cover Policy

The following policies regarding vegetation modification and land disturbance apply to shoreline property owned by Ameren Missouri adjacent to the Lake of the Ozarks.

1. Ameren Missouri prohibits removing any tree larger than 4 inches in diameter unless it is threatening safety or property, or any dogwood, redbud or serviceberry tree regardless of size, without replacing each with a suitable native tree of a minimum diameter of 1.5 inches or larger. Replacement trees shall be planted within 25 feet of the shoreline and within the disturbed area where possible. Location of replacement trees may be managed to provide appropriate view-scapes. Except for an access path and/or recreational use area, native ground cover should be preserved or established. Ameren Missouri encourages residents to use native grasses and perennial plants in this shoreline zone, or allow it to develop into natural forest, for shoreline protection.
2. Ameren Missouri reserves the right to plant aquatic and terrestrial vegetative materials within the project boundary. Ameren Missouri may require, at the property owner's expense, the removal of any unauthorized improvements and restoration of Ameren Missouri land to a natural state.
3. Ameren Missouri requires landscaping with native species for all plantings within Ameren Missouri's project boundary. The use of non-native, invasive species for planting (for example Bradford Pear, bush or Japanese honeysuckle, Russian buckthorn or autumn olive trees, sericea lespedeza, crown vetch or other problem weeds) is prohibited. Appropriate trees include dogwood, redbud, serviceberry, persimmon,

mulberry, native Missouri oaks or hickories, sugar maple and green or white ash. Suitable native grasses and perennial plants include big and little bluestem, Indiangrass, switchgrass, fescue and the full assortment of wildflowers, sedges and ferns that are native to Missouri.

4. Removal and/or replacement of vegetative cover within Heads of Coves shall only occur in line with the Shoreline Management Plan's policies on vegetative materials and only after Ameren Missouri review and approval of a vegetative management plan, which may include consultation with the state resource agencies and any appropriate federal agency.

Any unauthorized clearing of trees or vegetation or failure to restore trees and/or vegetation as outlined above may result in the immediate cancellation of the individual's permit(s), as well as, possible legal action to require the revegetation of the affected area. Ameren Missouri may require residential and non-residential non-project use proposals to include vegetation protection and/or replacement plans where appropriate. Ameren Missouri reserves the right to suspend, revoke and/or limit other requested facilities (i.e., dock slips) for developments that violate the provisions of this policy.

On properties where Ameren Missouri has only easement interests, landowners shall also adhere to the provisions of this section. In these areas, it is recommended that a minimum of 25 feet be maintained as a vegetative buffer from all shoreline and stream tributaries of the lake.

Nothing contained in this policy shall be construed to require the removal of any permitted landscaping or other permitted improvements in existence when the Shoreline Management Plan is adopted.

5.7 Yard Waste Disposal Policy

Missouri Clean Water Law specifies that it is a violation for commercial or industrial businesses to dispose of leaves by placing them into waters of the state.

Ameren Missouri discourages shoreline residents from disposing of or burning leaves and other organic material in the lake. The following is a summary of findings based on existing policy, scientific opinion, and resource agency direction that supports Ameren Missouri's policy.

1. The MDNR does not approve residential dumping of leaves into waters of the state. Section 644.051.1(1) of the Missouri Clean Water Law states that it is unlawful for any person to cause pollution of any waters of the state or to place or cause or permit to be placed any water contaminate in a location where it is reasonably certain to cause pollution of any waters of the state. Leaves, however, naturally drop into waters of the state and, under normal conditions, do not pose a threat of pollution.
2. Nutrient cycling is a dynamic process whereby inputs of organic material into lakes and streams occur naturally, and the system enters a balance between nutrient inputs and uptake (Schueler and Holland, 2000).
3. Missouri Department of Conservation sampling results indicate that the Lake of the Ozarks is a mildly eutrophic lake as measured by chlorophyll and nitrogen levels (personal communication with D. Obrecht, Missouri Extension Service, University of Missouri, on October 2, 2003).
4. Nutrient movement from lawns to streams has been documented in the book *The Practice of Watershed Protection* (Schueler and Holland, 2000). Authors conclude that grass

clippings mowed during the course of a year can contain a large amount of nutrients. Meyer (1995) states that clippings can have up to 235 pounds of nitrogen and 77 pounds of phosphorus per acre. Thus, the disposal of grass clippings in the lake has no benefit to the lake as it already has plenty of nutrients.

5. The *Lake Pocket Book* (Phillips et al., 2000) is a guide book with helpful hints for lakefront homeowners that directs people to “Rake and dispose of leaves away from the lake,” and “Do not burn leaves near the shoreline; nutrients concentrate in the ash and are easily washed into the lake.”

The Lake of the Ozarks already has sufficient nutrients and organic matter. A large amount of organic matter, such as leaves that fall each autumn, makes its way into the lake naturally, and any benefits (habitat or otherwise) to having leaf litter in the lake are achieved through natural processes. Any additional leaf litter may be unnecessary and even negative. Additionally, the disposal of yard waste into lake waters can compromise the aesthetic and recreation experiences of downstream residences. Routine or chronic violators of this policy are subject to enforcement fees and/or suspension of shoreline permits.

6.0 PERMITTING GUIDELINES

6.1 Resource Protection Guidelines

Certain areas along the shoreline are worthy of an additional level of protection that is not afforded to all of the lands covered by the Lake of the Ozarks Permit Requirements. These areas are identified along undeveloped shoreline with the following resources present: wetlands, heads of coves, historic properties, and areas of woody debris. These areas are of special concern to resource agencies and Ameren Missouri. Within these areas, an increased level of assessment, consultation and/or protection will be required, as appropriate.

Development may occur in these areas but the resources must be afforded protection. Within the individual areas, there may be certain aquatic or terrestrial resources or habitat characteristics that need complete protection to avoid adverse impacts. Development within these areas will be carefully reviewed by Ameren Missouri and resource agencies, to ensure resource protection. Identification of these areas are derived from known and modeled resource areas and given a resource-specific buffer as appropriate.¹ The extent of the resource area or buffer will be field verified on a case-by-case basis by Ameren Missouri in consultation with resource agencies.

Any proposed disturbance in these areas must include a plan that contains measures to avoid, minimize, or mitigate impacts to important environmental features within the area. Approval of the proposed activities and the plan to avoid, minimize, or mitigate the impacts will be decided on a case-by-case basis.

In addition to the above guidelines, there are restrictions in areas of wetlands, historic properties, heads of coves, and woody debris, as described in the following sections.

6.1.1 Wetlands

The USACE strictly controls wetlands in accordance with the rules and regulations established in Section 404(B) of the Clean Water Act (CWA) of 1977. In addition to other local, county, state and federal permit certifications, any development that impacts wetland areas is subject to the terms of the CWA and requires a 404 permit approved by the USACE and 401 water quality certification as approved by the MDNR.

All facilities must comply with all applicable local, state, and federal regulations. The applicant must obtain all necessary governmental permits or approvals and written authorization prior to beginning any activity/construction within the project boundary. All land disturbing and construction activities must not occur within these areas during the months of March, April, May, and June to protect aquatic and terrestrial resources related to fish spawning habitat.

¹ Wetlands will be field verified to avoid inaccuracies inherent in the mapping process; heads of cove areas will also be field verified and are defined as the portions of any cove, regardless of size, which lie landward of a perpendicular line drawn across the cove, this line being located at the point at which the natural stream channel bottom (flooded by the lake water) is at the 652-foot elevation (if no natural stream channel can be identified, the perpendicular line will be located at the point farthest in to the cove where a 652-foot elevation is found); historic properties are known locations and receive a 300-foot buffer; and field-verified areas of woody debris are defined by the area occupied by the debris as determined by Ameren Missouri in conjunction with the MDC.

Disturbance of land upland of wetlands (above project boundary) have the potential to damage the wetlands, and the public will be guided by applicable state and federal regulatory requirements.

The following activities will not be permitted within a wetland area:

1. Dredging.
2. Seawalls (located lakeward of 659.5 elevation), (boat) ramps, and similar improvements requiring excavation. Erosion must be evident to inspectors for favorable consideration of stabilization landward of 659.5 elevation.
3. Shoreline stabilization other than native plant species, riprap, or other habitat enhancing methods. Erosion must be evident to inspectors for favorable consideration of stabilization landward of 659.5 elevation.
4. Removal of wetland - Ameren Missouri reserves the right to suspend, revoke and/or limit other requested facilities (i.e., dock slips) for developments that violate the provisions of this policy on vegetation and native trees exceeding 1.5 inches in diameter within Ameren Missouri owned land.
5. Facilities with toilets, showers, or any other type of device that could cause any wastewater to be discharged into the lake.
6. Boat fueling facilities.

The floating portions of boat docks are permitted within wetland areas provided that installation of the dock and access to the dock can be achieved without adversely impacting the wetland.

6.1.2 Historic Properties

Each application will be reviewed to determine if the proposed development is located within 300 feet of a historic property. If it is determined that the proposed development is located within 300 feet of a historic property, Ameren Missouri will notify the owner that the area has been designated as an historic property site and that consultation and signoff from the SHPO will be required before a permit can be issued. Ameren Missouri will follow the documented recommendations from the SHPO. Further, if historic artifacts or human remains are encountered during construction of any permitted facility, all construction must cease; and the owner must contact Ameren Missouri and the Missouri SHPO and notify them of any unanticipated finds or new discoveries related to Historic Properties. Also, the owner should immediately contact the local law enforcement agency and the Missouri SHPO in accordance with RSMO-Section 194.400-410 Missouri Revised Statutes should human remains be encountered. Ameren Missouri will consult with the SHPO and any tribes that might attach religious or cultural significance to the discovered materials, to determine what steps need to be taken to evaluate the discovery and, if found to be eligible for the National Register of Historic Places, to mitigate any adverse effects. The permittee shall not resume work at the site until notified by Ameren Missouri.

6.1.3 Heads of Coves

The quality of the recreational fishery, one of many facets upon which the tourism industry is dependent, is directly dependent on the survival of small young fish. Shallow water habitat and food resources are crucial for spawning, feeding, and avoiding predation. Shallow water habitats exist along much of the shoreline but are concentrated in the shallow end of the coves, referred to

as the Head of Cove. Dredging eliminates shallow water habitat and extensive covering of this habitat type with structures can degrade it to levels which will negatively impact fisheries. Because of the importance of shallow water habitat to the recreational fisheries added protection is required.

The Head of Cove definition to be used for implementing habitat protection measures is:

That portion of any cove, regardless of size, which lies landward of a perpendicular line drawn across the cove, this line being known as the Head of Cove boundary line. The Head of Cove boundary line is located at the point at which the natural stream channel bottom or the lowest elevation along the perpendicular line (flooded by the lake water) is at the 652-foot elevation. If no natural stream channel can be identified, the perpendicular line will be located at the point farthest in to the cove where a 652-foot elevation is found.

There may be instances in determining the head of cove where the cove is exceptionally shallow; resulting in the elevation-based designation of head of cove encompassing the majority or all of an individual cove. In these instances, Ameren Missouri will review permit requests on a case-by-case basis. Ameren Missouri may allow certain uses within these coves provided no prohibited uses (listed here) are proposed in the back 1/3 of the cove; determined as the area defined behind a perpendicular to a center line extending from the back of the cove 1/3 of the total distance of the length of the cove. If an exemption is allowed, dredging will be limited to the footprint of the structure. Access dredging will be limited to a lateral from the structure to the central channel of the cove.

Developed and undeveloped head of cove areas have been identified throughout the project and additional resource protection is required within these settings as provided below.

The following activities will not be permitted within a **Head of Cove** regardless of development:

- Dredging, except at existing permitted structures where dredging may be permitted as allowed in the Dredging-Excavation /Fill Guidelines in Appendix B. “Existing permitted structures” shall include any dock appropriately permitted prior to March 30, 2007.
- Dredging will be limited to 900 square feet under docks properly permitted after March 30, 2007.

The following activities will not be permitted within an undeveloped Head of Cove area:

1. Docks greater than 10 slips and Marinas.
2. Dredging, except at existing permitted structures where dredging may be permitted as allowed in the Dredging-Excavation /Fill Guidelines. “Existing permitted structures” shall include any dock appropriately located and permitted prior to March 30, 2007.
3. Seawalls (located lakeward of 659.5 elevation), (boat) ramps, and similar improvements requiring excavation. Erosion must be evident to inspectors for favorable consideration of bank stabilization landward of 659.5 elevation.
4. Shoreline stabilization other than native plant species, riprap, or other habitat enhancing methods. Erosion must be evident to inspectors for favorable consideration of bank stabilization landward of 659.5 elevation.

5. Removal of wetland vegetation and native trees exceeding 1.5 inches in diameter within Ameren Missouri owned land.
6. Facilities with toilets, showers, or any other type of device that could cause any wastewater to be discharged into the lake are prohibited.
7. Boat fueling facilities.

6.1.4 Island Development

There are several islands throughout Lake of the Ozarks. These islands were formed when high points in the ridgeline were disconnected from the mainland as the lake filled. Many islands may be connected through an underwater saddle which provides unique aquatic habitat. Some islands may be periodically inundated and contain wetland habitat. Due to the isolated environment, island vegetation has been largely undisturbed for more than 80 years which also creates aesthetic value for these islands.

Project lands on undeveloped islands shall be designated as **low-intensity development**. Island development should be designed, configured, and developed to minimize damage to ecological functions even when the island is fully built out. Development on these areas should be designed to prevent cumulative impacts associated with storm water runoff, wastewater disposal systems, introduction of pollutants, and vegetation clearing. New island development should be designed to minimize vegetation removal to the greatest extent feasible.

The construction of causeways or bridges to access islands is prohibited. Docks servicing islands will be limited to 2,000 square feet, with at least 200 feet of shoreline between docks. Ameren Missouri may consider community docks in favor of individual docks where placement of a community dock results in significant areas of shoreline left undisturbed.

6.1.5 Woody Debris

Ameren Missouri prohibits the removal of existing submerged woody debris from the lake, unless such debris constitutes a navigational or public safety hazard. Ameren Missouri must approve removal of such woody debris from the lake. Woody debris that falls into the lake as a result of storms or natural occurrence should be left in place unless such debris constitutes a navigational or public safety hazard. Woody debris that has broken loose from submerged trunks and is floating in such a manner that constitutes a navigational or safety hazard may be removed from the lake. In the placement and construction of new docks, these facilities should be placed to minimize removal of woody debris. Property owners may be required by Ameren Missouri and/or resource agencies to mitigate at a 2:1 ratio for removal of woody debris from the lake in nearby areas, depending upon the type and age of submerged woody debris. Such mitigation may include, but is not limited to, the design and construction of enhancement or mitigation measures for fish habitat.

6.2 Public Access

To the greatest extent possible, shoreline property owners must strive not to prohibit public access to shoreline areas. The public has the right to access the shoreline within the project boundary on lands owned or controlled by Ameren Missouri. Fences upon or within the project boundary are prohibited. Properly permitted docks are private property and the presence on a dock or mooring without the permission of the owner constitutes trespass. This is not to be

construed as allowing and/or encouraging public access to project lands through private properties outside of Ameren Missouri's control.

6.3 Pollution Prevention

Care shall be taken to keep machinery out of the lake and waterways leading to the lake. Fuel, oil, other petroleum products, equipment and any solid waste shall not be stored lakeward of the ordinary high-water mark as defined by the USACE (658.5). All precautions shall be taken to avoid the release of wastes, fuel or any toxic or harmful material to streams and other adjacent water bodies as a result of this operation. Petroleum products spilled into any water body or on the banks where the material may enter waters of the state shall be immediately cleaned up and disposed of properly. Spill or petroleum must be reported as soon as possible to the Missouri Department of Natural Resources' 24-Hour Environmental Emergency Response number at (573) 634-2436 and in accordance with federal and state laws and rules regarding petroleum products.

6.4 Dredging-Excavation / Fill Guidelines

For the purpose of this section, Dredging is considered removal of any earthen material below elevation 658.5 feet Union Electric Datum (UED), and Excavation is considered removal of any earthen material within the project boundary located above elevation 658.5 feet (UED).

USACE General Permit 38 (Lake of the Ozarks Shoreline Development Activities) was issued to Ameren Missouri by USACE on July 1, 2006 and revised in 2011 and 2016 with general and special conditions under the authority of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. General Permit 38 authorizes Ameren Missouri to permit various shoreline development activities including common excavation, dredging, fill activities, and other work lakeward of the ordinary high water mark (658.5 feet UED). The corresponding 401 WQ Certification with conditions was issued by MDNR on May 15, 2006, and revised in 2011 and 2016.

Dredging beneath boat docks should be conducted as a last resort. Before pursuing dredging, property owners should attempt to relocate the dock to frontage containing deeper water or extend the dock over deeper water by installing a walkway of sufficient length so as to eliminate the need for dredging, provided the location of the dock meets all other permitting guidelines. **Ameren Missouri will consider dredging or excavations only when all other options have been exhausted. Reference Drawing 1.**

The following dredging-excavation or filling activities are **prohibited**:

1. Dredging-Excavation or filling of wetlands.
2. Dredging-Excavation within an undeveloped Head of Cove area except at existing docks appropriately located and permitted prior to March 30, 2007.
3. Dredging-Excavation or filling of stream channels or the mouths of streams.
4. Dredging-Excavation from areas above elevation 655.5 feet UED.
5. Dredging from areas below elevation 652.0 feet UED, except immediately under an existing boat lift. Dredging to elevation 650.0 feet UED will be authorized only to accommodate an existing boat lift.*

Dredging may be necessary to access existing shallow water mooring facilities and private properties. Limited dredging, when allowed, must meet the following standards:

1. All dredging must be located a minimum of 25 feet lakeward of the ordinary high water mark (OHWM) elevation 658.5 feet UED.*
2. Dredging to accommodate a boat dock placed prior to 2007, is limited to the exact authorized foot print of the dock.
3. Dredging to accommodate a proposed boat dock or dock placed after 2007, is limited to 900 square feet, except where community docks are proposed. Dredging under community docks will be permitted only where significant areas of shoreline and/or shoreline habitat can be preserved by installing the community dock. Proposals to construct community docks that under the Osage SMP require dredging have been infrequent to date, and assessments of impacts to significant areas of shoreline and/or shoreline habitat in these cases are conducted on a case-by-case basis by assessing the amount of shoreline and/or habitat that would be preserved.
4. Dredging must have a 1 vertical on 3 horizontal slope between the bottom of the excavated area and the natural lake bottom at the boundary of the excavation.*
5. Access channels or boat lanes must not be wider than 15 feet at the bottom, and side slopes must be no steeper than 1 vertical on 2 horizontal or shallower than 1 vertical on 3 horizontal.*
6. Dredged material must be disposed of in a non-wetland site above elevation 665 feet UED, and stabilized so as to not re-enter the lake. Applicants must designate the disposal location and may be required to provide a stabilization plan.
7. Dredging-excavation cannot take place between March 15 and June 15 of any year to prevent disruption of fish spawning activity.
8. Mitigation is required for this activity. Acceptable mitigation is the installation of a single anchored cedar tree or other fish attraction device for each 10 cubic yards of material removed from the Lake. Trees must have an approximately four-inch-diameter trunk, anchored with a noncorrosive material, and placed where the lakebed is at or lower than elevation 647.0 UED.
9. All proposed dredging-excavation of project property shall require review and approval from all appropriate resource agencies (MDC) and a permit from Ameren Missouri that follows the requirements of GP38 Appendix IV as issued by the Corps of Engineers.
10. Dredging-excavation of lakebed sediments for non-commercial use by private individuals for landscaping purposes or backfill for seawalls is prohibited.
11. Dredging-excavation that involves the removal of more than 500 cubic yards of material also requires approval from the Federal Energy Regulatory Commission.

*These limits may be imposed as conditions on issued permits or varied slightly, if appropriate, when the excavation application otherwise satisfies the criteria for minor excavation under normal size docks.

Fill will not be allowed on project property without permission.

6.5 Bank Stabilization Guidelines

Bank stabilization must be contained within the applicant's property lines extended lakeward and not to exceed 3 feet from the eroded bank following the contour of the shoreline (See **Drawings 2 and 3**). Bank stabilization must be constructed as close to the eroded shoreline as possible and must be constructed for erosion control only. Proposed seawalls, which are not deemed

necessary for bank stabilization purposes, will not be permitted within the project boundary. The placement of riprap is the preferred method for bank stabilization. In 2004, Ameren Missouri implemented a waiver that allows riprap to be placed below the waterline between March 15 and June 15, as long as no excavation is involved below the waterline at the time of construction. Riprap must be clean limestone or native rock that is 8 to 12 inches in diameter or larger. Stacked stone (ledge rock) may also be used to stabilize the shoreline. See Stacked Stone Detail (See **Drawing 4**) for correct installation.

A minimum of 24 inches of vertical erosion must be evident before a seawall will be considered for bank stabilization. Ameren Missouri will conduct an on-site evaluation for each bank stabilization request before a permit for bank stabilization is issued. Riprap, stacked stone with riprap, and/or vegetation should be pursued in all cases where vertical erosion is less than 24 inches. In cases where a seawall is permitted, the permittee will be required to place five horizontal feet of riprap at the toe of the seawall.

Seawalls cannot be constructed to gain or reclaim usable property. Seawalls will not be allowed below elevation 658.5 feet, except for cases of extreme erosion. Applications for seawalls below 658.5 feet will require additional documentation or studies and require approval from the Corps of Engineers. Seawalls permitted within a wetland or undeveloped head of cove area must be constructed landward of elevation 659.5 feet.

Guidelines for the replacement of existing seawalls are as follows:

1. Existing walls shall be stabilized with riprap or a new concrete footing, whenever possible.
2. If the wall cannot be stabilized and is located above elevation 658.5 feet, a new wall can be constructed against the existing wall, if the new wall is not below elevation 658.5 feet.
3. If the existing wall cannot be stabilized and is located below elevation 658.5 feet, **the existing wall must be removed and either installed at the same elevation or brought back to a higher elevation, as specified by Ameren Missouri.**

Construction of seawalls cannot occur from March 15 to June 15, if construction requires excavation below the waterline at the time of construction, to minimize the disruption of fish spawning activities.

6.6 Boat Ramps

Private and public boat ramps are allowed on shoreline properties in appropriate settings. Ramps are not permitted in wetlands or undeveloped head-of-cove areas. Only one ramp is allowed per single family residence or property. For multi-family properties the minimum spacing between ramps must be 100 feet.

Boat ramps must be setback a minimum of 5 ft. inside of a side property line extended lakeward and should be oriented perpendicular to the shoreline. The width of the ramp is limited to 30 feet or less. If the ramp is intended for all-year use, the ramp should extend from 2 feet above the full pool level of 660 to the low water level of 654 feet UED or below.

Construction of the ramp is only authorized during winter drawdown (February 1st through April 15th) and no excavation below the water surface is allowed during the March 15 to June 15 spawning season. If the construction of the new ramp will require the excavation of lakebed material, the excavation is limited to the area necessary for the site preparation. All excavated

materials must be stabilized and disposed of above the 662 feet contour elevation. The construction of the ramp is limited to 50 cubic yards of concrete below the ordinary high water mark (658.5 feet). Wet concrete is caustic to aquatic organisms. Care must be taken to prevent wet concrete from entering the lake. Sandbag berms or other diversionary techniques should be used to keep concrete out of the lake until the concrete is cured.

All new ramps must install a 5-foot-wide blanket of riprap along both edges of the ramp. The riprap must be 6-8 inches or larger of clean, well-graded limestone or native rock with minimum fines. Ramps that pose a hazard must be repaired or removed and the shoreline restored.

6.7 Lake-Access Steps

Lake-access steps not integral to a seawall or steps that extend lakeward of a seawall must be authorized by a valid permit. Typical construction materials including masonry, concrete, steel, wood, or stacked stone may be used in constructing steps. The maximum allowable width is 8 feet. The volume of fill placed below the 658.5 foot elevation must be less than 10 cubic yards.

6.8 Electric Power

Electric power extensions to permitted structures are the responsibility of the applicant. All extensions of such power should be performed by a qualified electrician in conformance with local, state, and national electrical standards. In all cases power sources on boat docks or other structures near water must utilize protective measures such as proper grounding, bonding of attachments, ground fault circuit interrupters (GFCI) or low voltage systems. Many lake area fire districts have adopted electric codes and a separate permitting requirement for docks. An approved electrical permit is required for all new and modified dock and pump permits that are within participating fire districts. Transfers of permits must include an approved electrical inspection report in participating fire districts. Participating fire districts can be found at www.amerenmissouri.com/lake. Proof of compliance with electrical requirements must be submitted as part of the permitting process. Ameren Missouri may revoke any permit where it is discovered that the standards of the fire district having jurisdiction have not been met and/or it is discovered that a dock's electrical installation is deemed not safe. All other City or County building regulations and/or fire codes must be adhered to. The dock permittee is wholly responsible for periodic inspections, repairs and maintenance to achieve electrical safety at all times.

6.9 Sewer Effluent Lines that Discharge into Project Waters

Individual wastewater systems are not permitted within the Ameren Missouri project boundary unless specifically approved by Ameren Missouri after written recommendation from the County Health Department and/or the Missouri Department of Natural Resources (MDNR). Ameren Missouri will also seek FERC approval for any systems which are proposed to discharge into project waters. City/County Health Departments and the MDNR must approve all other marina effluent removal systems facilities within the project boundary. Unauthorized systems within the project boundary shall be removed at the offending party's expense.

6.10 Large Docks and Marinas

All proposed large docks and marinas, or the cumulative total of existing and proposed slips exceeding 10 slips, must be reviewed by the MDNR, MDC, WPD and any other appropriate agency deemed necessary by Ameren Missouri to ensure that such docks are compatible with the developed and natural environment of the area. All dock proposals where the proposed slips, or the cumulative total of existing and proposed slips exceed 50, will require agency review outlined above and will also be forwarded to FERC for a final review and approval before permits are issued by Ameren Missouri.

All proposed Marinas must be located no closer than ½ mile (measured over project waters) from an existing Marina. In addition, all Marina proposals where proposed slips or the cumulative total of existing and proposed slips exceed 10 will require agency review outlined above and will also be forwarded to FERC for a final review and approval before permits are issued by Ameren Missouri.

These guidelines are intended to assist permit applicants in providing information that will be necessary for a review of the application for large docks or marinas based on Commission requirements and guidance. The permit application will serve as the basis for an environmental analysis of the request, and therefore must include:

1. A description of the proposed facility or use;
2. A description of the affected environment;
3. An evaluation of how the proposed use is compatible with Commission-approved plans, project operation and purposes, and the SMP;
4. A description of the potential impact on the affected environment; and
5. A description of any proposed practices or measures to minimize or mitigate for any specific impacts of the facility or use.

Attachment 6 to this Reference Guide provides detailed direction to assist permit applicants in preparing this information.

6.11 Pier Guidelines

Piers are stationary walkways that are perpendicular to the shoreline and supported by posts, pillars or pylons. All piers must be located within the applicant's property lines extended lakeward. Piers must have minimum setback of 5 feet from the extended side property line and must be constructed with environmentally safe materials (i.e., wood, vinyl or plastic decking, metal or similar materials). Wood treated with creosote or penta is prohibited. Piers may have a roof but cannot be enclosed. Fixed boat lifts attached to or supported by the lakebed are not permitted adjacent to piers.

Piers must be 6 feet or less in width, and must not extend more than 30 feet lakeward of elevation 658.5 feet. The bottom surface of the structure must be constructed above elevation 660.0 feet.

Construction of piers cannot occur from March 15 to June 15, if construction requires excavation below the waterline at the time of construction, to minimize the disruption of fish spawning activities.

6.12 Breakwater Guidelines for Commercial, Condominium and Individual Docks

Breakwaters are artificial structures designed to protect boat docks and watercraft from wave action resulting from boat traffic. As the intensity of wave action from boat traffic increases, an increasing number of boat dock owners have expressed interest in installing breakwaters to protect boat docks from wave damage. Such structures have the potential to create navigation and safety concerns, if not properly maintained. Approval of a breakwater permit is a site-specific determination, and such structures are **NOT** appropriate at all locations. Below is an overview of breakwater requirements:

- **Location Restrictions.** Breakwaters are generally located along the main channel, the Gravois, Glaze and Niangua arms of Lake of the Ozarks and immediately adjacent cove areas. Within coves, placement is restricted to the first 250 – 500 feet from the mouth, depending upon the width of such cove. In addition, to minimize navigation hazards, installation of breakwaters is limited to thirty (30) feet from the end of the applicant's boat dock and within the area approved by the Company. **Breakwaters shall not be configured in such a manner that they appear to enclose or fence in water for private use.**
- **Ten Year Permit Term.** To ensure breakwaters at the lake are properly maintained and repaired, permit terms are limited to ten (10) years after which a renewal application is required. Renewal applications must include a certification from a professional engineer that attests to the ongoing structural integrity of the breakwater and the sufficiency and adequacy of design, construction and installation. Familiarity with the intensity of wave action and the size and volume of watercraft at Lake of the Ozarks is essential. Sample certification forms are located at the end of these Guidelines. For breakwater permits issued prior to August 15, 2021, please see subsection 3(b) for additional guidance.
- **Technical Requirements for New Permits.** Permit applications must include engineering drawings depicting the size, layout, anchoring system and estimated wave force calculations anticipated for the structure. Acceptable breakwater designs include, but are not limited to, *concrete encapsulated floatation and steel frame with encapsulated floatation (see e.g. Attachment A).*
- **Transfer of Permits.** A transfer application containing an engineering certification and inspection report is required whenever the sale of property includes an existing breakwater and dock.
- **Relocation of Breakwaters.** Breakwaters relocated from original permitted locations (i.e. permit holder moves to a new property and relocates breakwater) must comply with the location restrictions and design requirements for new installations.
- **Permit fees are as follows:**

new installation.....	\$1,000
renewal permits.....	\$500
transfer applications.....	\$500

Note: The size of the breakwater will be included as part of calculations used for determining annual use fees.

Prospective applicants should contact the Shoreline Management Office (SMO) prior to submittal. The SMO will provide a preliminary, screening-level assessment regarding the desired placement location. SMO will issue a final, written determination following a comprehensive review of the application submittal. The review process may include the following: a site visit by SMO; completeness review of engineering drawings; third-party review, if necessary (additional fees may apply); and consultation with the Missouri State Highway Patrol – Water Patrol Division (WPD) to minimize navigational hazards. **Ameren Missouri reserves the right to deny or revoke permits where breakwater placement may have an adverse impact on adjacent facilities or shoreline or may have the potential to create a navigation or safety hazard.**

1. **Location Requirements.**

Breakwater structures must conform to the following location requirements:

- a. **General.** Breakwaters may not extend more than thirty (30) feet from the end of the residential dock to the outermost edge of the proposed breakwater and must be located within the surface water area designated by the SMO. Note: location placement less than thirty (30) feet could be required by the SMO due to unique configurations or special circumstances, as determined by Ameren Missouri in consultation with the WPD. See Drawing 5 in Attachment 1 (Drawings), for a drawing that depicts setback requirements.
- b. **Commercial & Condominium Docks.** For breakwaters located near commercial and condominium docks, the SMO will make case-by-case determinations as to appropriate setback requirements. (As a general rule, breakwater structures cannot exceed the commercial or condominium dock perimeter by more than 1.5 times the length of the slips in the protected dock.)
- c. **Distance to Docks – Opposing Shoreline.** Within coves, and to minimize the force of reflective waves, a distance of five hundred (500) feet must exist between the breakwater and the nearest boat dock structure located along the opposing shoreline, unless calculations are submitted showing the expected reflective or rebound wave force emanating from the breakwater will have no negative impact.
- d. **Placement to Shoreline.** To minimize the impact on adjacent boat docks, breakwaters must be configured and anchored in parallel alignment with the shoreline. Perpendicular alignments may be authorized in limited circumstances (e.g. the protected dock is located at the entry of the cove and there are **no adjacent docks** that could be affected by the breakwater.) **Note:** The main channel side of the breakwater should have no neighboring facilities or potential for future neighboring facilities.
- e. **Coves GREATER than 500 feet wide.** Breakwater structures are limited to the first five hundred (500) feet inside the cove that connects to the main channel, or the three main branches of Lake of the Ozarks (Gravois, Glaize, and Big Niangua arms). Determinations

as to distance and location of the mouth of a cove will be made by Ameren Missouri in consultation with the WPD.

- f. **Coves LESS than 500 feet wide.** For smaller coves, breakwater structures may be located only within the first 250 feet inside the cove that connects to the main channel, or the three main branches of Lake of the Ozarks (Gravois, Glaize, and Big Niangua arms). Determinations as to distance and location of the mouth of a cove will be made by Ameren Missouri in consultation with the WPD.

2. Design Requirements

- a. **General.** Breakwaters must be constructed with material sufficiently sturdy to float on the lake surface and resist high intensity wave action from boats and other watercraft.
- b. **Anchoring Systems.** Anchoring systems shall be used to secure the breakwater to the lake bottom. Connecting mechanisms (i.e. cables, ropes, chains) shall not extend across or under adjacent docks, or water passageways used by neighboring property owners or boaters. **The applicant (in conjunction with the applicant's engineer) is solely responsible for assessing the intensity and volume of wave action and the necessary weight and anchoring mechanism to secure the breakwater.**
- c. **Navigational Lighting.** To minimize navigational hazards, **all** breakwater structures must be illuminated and be clearly visible to nighttime recreational users. Below are minimum standards:
 - i. Amber or yellow lighting along the entire length and on each end of the structure. Lights should be spaced no more than 30 feet apart and intermittently flash with a sequence of 1 flash every 4 seconds.
 - ii. Lights must be elevated at least **3 feet above** the deck of a structure and reflect 360 degrees around the horizon.
 - iii. Light system shall be on from dusk to dawn and powered by solar battery or other method to ensure reliability and reduce the risk of electrical shock or hazard.
 - iv. Lighting requirements are perpetual and applicants assume all liability for the structure and maintaining proper lighting for the life of the structure.

3. Permits

- a. **New Installations.** Submittals must include the following:
 - i. Dock Specification Sheet containing square footage; and
 - ii. Engineer's Certification; and
 - iii. Technical Report prepared by a Certified Professional Engineer and contain the following:

1. Proposed placement location and justification for installation of a breakwater;
 2. Assessment of potential impacts on neighboring structures and areas including adjacent docks, shoreline, navigation, and protected resources (i.e., fishing areas), if any;
 3. Justification for any proposed configuration that is not parallel to the shoreline;
 4. Design criteria including **Wave Force Calculations** (main channel and reflective waves);
 5. Anchoring Plan; and
 6. Drawings with detailed information including the following:
 - a. Identify all existing and proposed structures within 500 feet of proposed structure and distance to structures located on opposing shoreline;
 - b. Distance between mouth of cove and proposed structure;
 - c. Usable water space for applicant's parcel;
 - i. Projection of property lines as extended towards the lake;
 - ii. Maximum allowable dock length limit;
 - iii. Allowable breakwater perimeter; and
 - iv. Navigational Lighting Design.
- b. **Breakwaters Permitted Prior to August 15, 2021.** Breakwaters permitted prior to August 15, 2021 are exempt from the above location restrictions but expire per the schedule below. Permit holders must submit a renewal application six (6) months prior to the expiration date.
- i. **Permits issued prior to January 1, 2000 will expire on August 15, 2022**
 - ii. **Permit issued between January 1, 2000 and December 31, 2010 will expire on August 15, 2023**
 - iii. **Permits issued between January 1, 2011 and August 15, 2021 will expire on August 15, 2025.**
- c. **Transfer Applications (Inspection Report & Certification).**
- i. An application for the transfer of a breakwater permit (i.e., breakwater and dock are included in sale of property) must include an Inspection Report and Engineer's Certification that:

- a. the breakwater is structurally sound;
 - b. the anchoring system functions properly and the breakwater is located in its original permitted location; and
 - c. the lighting system operates properly.
- d. **Renewal of Permits (Inspection Report & Certification).** Renewal of a breakwater permit must include an Inspection Report and Engineer's or Manufactures Certification that:
- i. the breakwater is structurally sound;
 - ii. the anchoring system functions properly and the breakwater is located in its original permitted location; and
 - iii. the lighting system operates properly.

For breakwater structures permitted **after** August 15, 2021, the permit holder must submit a renewal application sixty (60) days prior to the permit's ten-year expiration date.

4. Miscellaneous

- a. **Displaced Breakwaters.** The return of a displaced breakwater to a permitted location and alignment **will not** trigger permit renewal requirements **unless** the approved anchoring plan has been materially altered. In such case, an Inspection Report and Engineer's Certification is required.
- b. **Variances.** Variance requests from specific criteria or location requirements must be supported by a description of the condition and the anticipated hardship that would result from compliance with the Guidelines. The granting or denial of a variance shall be determined solely by Ameren Missouri and shall be based upon a consideration of site-specific factors as well as the potential impact to the public, neighboring properties, natural resources and other recreational users.
- c. **Permit Rescission & Removal.** Ameren Missouri, in consultation with the WPD, reserves the right to remove, or require the removal of any breakwater presenting a safety or navigation hazard. In addition, Ameren Missouri reserves the right to modify or rescind the breakwater permit in the event such structure poses an unacceptable risk or adversely affects neighboring dock(s) and/or shoreline.
- d. **Recovery of Costs.** Ameren Missouri reserves the right to recover costs and expenses incurred in connection with the removal of a breakwater structure.

Attachment A



Attachment B

SAMPLE FORM

PROFESSIONAL ENGINEER – ORIGINAL APPLICATION

I certify and attest that I am a professional engineer licensed in the State of Missouri. I have reviewed Ameren Missouri's Breakwater Guidelines and I am familiar with Lake of the Ozarks, the watercraft used by recreational users and the wave action that can result from the use of such watercraft. I certify that the application and reports submitted in support of the breakwater permit application conform to the requirements of those guidelines.

BY: _____

Seal

PROFESSIONAL ENGINEER – RENEWAL APPLICATION AND CERTIFICATION

I certify and attest that I am a professional engineer licensed in the State of Missouri. I have reviewed Ameren Missouri's Breakwater Guidelines. I or my agent have inspected the breakwater that is the subject of this renewal application and certify that the breakwater is structurally sound, contains a functional lighting system that conforms to the Guidelines and that the breakwater is located within its approved location as originally permitted.

BY: _____

Seal

Manufacture – RENEWAL APPLICATION AND CERTIFICATION

I certify and attest that I am a representative of the original manufacture of the breakwater system. I have inspected the breakwater that is the subject of this renewal application and certify that the breakwater is structurally sound, contains a functional lighting system that conforms to the Guidelines and that the breakwater is located within its approved location as originally permitted.

Signed _____
Name (print) _____
Manufacture _____

6.13 Boat Dock Placement

This section presents Ameren Missouri’s guidelines for boat dock placement or positioning. Section 7.0 presents detailed information on boat dock construction, engineering, and materials.

1. The applicant must own or have rights to the shoreline property landward of the area where the proposed dock is to be located. Documentary proof of such ownership or permission must be provided with application submittals (e.g., warranty deed, permission letter).
 - a. Applicants who do not own shoreline property must provide written permission from the shoreline property owner for the placement of the dock lakeward of their property. In addition to shoreline property owner permission/agreement, the permit will be issued to the shoreline property owner.
 - b. Docks cannot be located adjacent to subdivision easements, common ground, or docking areas (hereinafter referred to as “Lands”) without a written agreement from the current subdivision trustees or other governing body that controls said “Lands”. The written approval from the governing body should indicate the approved dock location and the distance(s) between docks. The governing body should also review and approve the drawing that is to be submitted to Ameren Missouri (such approval should be indicated on the submitted drawing). The governing body’s (i.e. homeowner association) rules, regulations and/or bylaws regulating said “Lands” or dock permits should be submitted to Ameren Missouri to be kept on file with this policy. Any revisions or changes to such documents should be submitted in a timely fashion. In the absence of subdivision trustees or other governing body, and only in that absence, the applicant may adhere to the following guidelines:
 - The applicant must be able to show legal rights to access, cross and/or use that portion of said “Lands” required for placement of the dock (i.e. ingress/egress to dock).
 - The applicant should petition Ameren Missouri to grant a dock permit at this location and demonstrate that such a grant will not completely dissolve other users of said “Lands” rights (i.e. swimming, fishing, access to shoreline, etc.).
 - The applicant must demonstrate sufficient space for the new or modified dock.
 - The applicant must gain written approval from their neighboring dock owners (this includes at a minimum, the dock to each side of the applicant’s dock); such approval should not be arbitrarily withheld.
2. Docks (including anchoring systems above the water surface) must be placed within the applicant’s side property lines extended lakeward. For purposes of this provision, “side property line” shall include the lakeward projection of such line on the same bearing it had at its intersection with the shoreline. In areas this is not possible (i.e. back of coves), Ameren Missouri will determine if the water space is being used equitably.
3. Residential docks (10 slips or fewer), and any watercraft more than temporarily moored to a dock, must be set back at least 5 feet from the side property line extended lakeward (See **Drawing 6**). Docks with slips, external lifts or accessories that are 15 feet in length (or greater), and placed parallel with the shoreline, must be set back a minimum distance of 1½ times the length of the slip, lift or accessory from the extended property line (See **Drawing 7**). Docks with slips, external lifts, or accessories that are less than 15 feet in length and placed parallel with the shoreline, must be set back a minimum distance of 1 times the length

of the slip, lift, or accessory from the extended property line. Lifts attached perpendicular to the shoreline must be set back a minimum of 5 feet inside the extended side property line.

Boat lifts must be attached to a permitted dock. Stand-alone boat lifts are not allowed. Boat lifts cannot be anchored to the lake bed. All lifts and accessories shall be constructed with environmentally safe materials.

Lifts and accessories may not be configured so they enclose or fence-in water space for private use. Lifts and accessories may not be located in such a way that may adversely impact safe navigation. Ameren Missouri may deny any dock attachment where it is determined that adjacent property or navigation is adversely affected.

4. Large docks (11 or more slips) with slips placed parallel to the shoreline must be set back a minimum distance of 1¾ times the length of the longest slip from the extended property line and adjacent docks within the same property. (See **Drawing 8**).
5. The maximum boat slip size shall not exceed 55 feet in length for residential permits and 60 feet for commercial (marina) permits. Any watercraft moored within slips permitted after March 30, 2008 shall not extend beyond the mouth of the slip.
6. The maximum dock width shall be limited to 125 feet for residential/noncommercial docks and 150 feet for commercial and multi-family residential docks. Double ramps and similar configurations that completely block angler access are prohibited.
7. In coves up to 500 feet wide, boat docks and breakwaters may not extend more than one-third the distance to the opposite shoreline or 25 feet to the center of the cove, whichever is more limiting, up to a maximum of 100 feet. In coves wider than 500 feet, docks and breakwaters may not extend more than 20 percent the distance to the opposite shoreline, up to a maximum of 350 feet (See **Drawing 9**).
8. Within the main channels of the lake (i.e., Osage, Gravois, Grand Glaize, Niangua and Little Niangua) the total length of the dock including breakwaters and a 100-foot buffer may not extend lakeward more than 25 percent of the distance to the opposite shoreline. The maximum length of any dock including breakwaters shall be 350 feet. In channel settings less than 1,000 feet wide, the 100-foot buffer may be reduced provided no docks exceed 20 percent of the total channel width. All cove and channel measurements shall be measured shore-to-shore perpendicular to the channel at the dock location (See **Drawing 10**).
9. Docks may not be configured so that they enclose or fence-in water for private use. Signage on docks may not discourage public or angler access to all parts of the reservoir.
10. Docks may not be located in close proximity and/or across navigation ways, submerged stream channels or river channels necessary for safe navigation.
11. Dock builders who have docks under construction or completed docks to be sold do not require individual permits for those docks if they are moved from the property within 6 months. The location of all docks must still meet all of the dock placement requirements.
12. Concrete anchor points and piers can be used to stabilize floating docks on the Lake of the

Ozarks. These anchor points and piers are commonly used for dock walkways, or attaching stiff arms and/or cables. When installed landward of the seawall, these structures do not require a separate permit, if included as part of a dock proposal or currently-permitted dock. When concrete anchor points or piers are installed lakeward of the seawall or below elevation 662', if a seawall is not present, the following guidelines apply:

- a. Concrete piers used to stabilize a dock walkway should be 8 feet in width or less, and use less than 10 cubic yards of concrete/fill for the walkway, even if multiple concrete piers are poured.
- b. Concrete anchor points used to attach stiff-arms or cables must be less than three (3) cubic yards of material and should be located along the shoreline. Up to 3 concrete anchor points or piers can be installed as part of a proposed dock or currently-permitted dock.
- c. Typical anchor points or piers would include 1 pier for the walkway, and up to 2 additional anchor points for stiff-arms or cables. Proposed new anchor points and piers should be illustrated on all dock drawings. If additional concrete anchor points or piers are required, or if the structures exceed the size outlined above, a separate Ameren permit is required.
- d. The base of all piers should be protected with appropriately sized rip-rap to prevent erosion of the structure.

6.14 Enclosed Storage, Fishing, Commercial Enclosures, and Walled Structures

Temporary or permanent enclosures used for living, entertainment, gathering, or similar activities are not acceptable on docks. Walled and/or roofed enclosures on docks for storage shall not exceed 80 square feet total per dock. Sunshades or fabric material installed to create an enclosure or similar structure, regardless if they can be temporarily rolled up are also prohibited. The installation of kitchen appliances, sinks (except for those used exclusively for fish cleaning), garbage disposals, dishwashers, hot water heaters, toilets, and similar household items that have a potential to discharge waste or pollution are strictly prohibited on all docks.

Enclosures used for commercial ship stores, gas docks, and similar uses associate with marinas shall be limited to 200 square feet.

Enclosures used for fishing shall be limited to 200 square feet. At least 1/3 of the fishing enclosure floor must be open to the water at all times and railings should be installed around the opening. Trap doors or any type of cover cannot be used to cover / close the fish opening. Fish attractors and habitat should be placed under the fishing enclosure.

Enclosure square footage shall be calculated on the outside dimensions of the structure.

6.15 Water Withdrawals and Private Irrigation Systems

Submersible pumps are not designed for use in open water, or where swimmers may be present. Therefore, submersible pumps are prohibited unless documentation can be obtained showing the Underwriters Laboratories (UL) listing allows for use of the pump where swimming is allowed. Centrifugal pumps are permissible under the Osage Project FERC license and the US Army Corps of Engineers General Permit 38 (GP38), provided they are properly permitted and do not exceed 1 million gallons per day (MGD).

Installation of any water withdrawal system requires a permit. Ameren Missouri may grant permission for facilities that do not exceed 1 million gallons per day (MGD). Ameren Missouri has determined that a pump 2 HP or less serving one adjacent single property and/or dock shall be permitted under the normal permitting procedure including a properly completed application submitted with a system drawing and paid fee. A pump exceeding 2 HP requires additional supporting documentation prepared by a Missouri professional engineer as follows:

1. A property map or site plan showing the location of the withdrawal system including the intake pipe and pump as well as the location of the area to be served by the system.
2. A design drawing and calculations for the withdrawal system that includes the following:
 - pump size
 - type and size of intake and discharge pipes
 - number and type of pipe fittings (i.e. 90 degrees, 45 degrees, 22.5 degrees, T-run, T-branch, etc.)
 - length of pipes
 - vertical distance between the intake and discharge
 - pump curve for the specific pump(s) to be used for the system(s)
 - other information that may be deemed necessary to verify the maximum withdrawal capacity

Design drawings of the intake pipe should include specific information about its proposed height from the lake bottom and grating or screening to protect lake wildlife and fish.

3. An estimate of the amount of daily, weekly, and monthly flow from the lake through the system and maximum capacity of the pumping system, including proof that the estimated daily flow is less than 1 million gallons per day based on continuous pump operation in a 24 hour period.

If it is determined that the system is likely to exceed 1 MGD or if the system has the capability of exceeding 1 MGD during a 24 hour period, the request shall be reviewed as a 1 MGD system and must also be forwarded to FERC for final approval. FERC submittals necessitate an assessment of the system's possible impact on the environment and applicable federal and state agency review.

Applications for all withdrawal systems must clearly show that safety and environmental impacts have been addressed. Intakes should be screened to prevent the removal of young / larval fish from the lake. To protect fry, the National Marine Fisheries Service specifies the following: approach velocity less than or equal to 0.4 foot per second and a screened opening less than or equal to 3/32 of an inch. Ameren Missouri will require removal of unapproved, non-conforming, or environmentally insensitive existing systems.

During times of low water or drought conditions, Ameren Missouri may request that operation of all withdrawal systems cease. Failure to comply with such a request may result in permanent termination of the permit and removal of the system at the property owner's expense.

Owners of systems approved for 1 MGD or more are required to pay an annual fee of \$500 and will be inspected on an annual basis to ensure that they are performing as approved and all environmental safeguards and / or mitigation are provided and maintained. Systems not adhering to the daily flow limitations and / or not meeting permit conditions shall subject the owner to enforcement fees, permit revocation and ordered removal of the system.

6.16 Fish Attractors

Ameren Missouri allows the placing of fish attractors made of natural woody debris (brush, natural evergreen trees, etc.) that are securely tied together and properly anchored so as to remain at sufficient depth and not cause a hazard to navigation or be allowed to float away and potentially impact the operation of the Osage Project. No materials that are environmentally unacceptable (e.g., tires, railroad ties, other treated lumber), as determined by the MDC may be used in the placing of such attractors.

6.17 Heat Exchange Coils for Heat Pumps

Ameren Missouri permits heat exchange coils for heat pumps provided they are located as to not cause a navigational or similar public hazard. The coils must be securely anchored at or below elevation 649 within the lake area immediately adjacent to the applicant's property. This is 5 feet below the normal low pool level. The coolant used in the coils must be environmentally safe. The supply lines must be buried or protected from damage as the lines enter and exit the lake.

6.18 Floating Water Toys, Trampolines, and Similar Structures

A permit is not required for temporary placement of floating water toys, trampolines, and similar structures. These structures must be located within the owners extended property lines and in compliance with dock setbacks outlined in section 6.13. They may not create a hazard to navigation or prevent angler access to the shoreline. Structures found not in compliance with these guidelines are subject to removal at the owner's expenses.

Floating water parks and other pay-for-use facilities are not allowed.

6.19 Decks, Patios, Walkways

Decks, patios and walkways may be permitted and installed within the project boundary under the following provisions:

1. Constructed of environmentally safe materials (e.g., wood, vinyl, plastic decking, concrete, masonry pavers or similar materials).
2. Located no closer than 5 feet from the applicant's extended side property line.
3. Shall not exceed 150 square feet of total size within the project boundary.
4. The maximum width may not exceed 15 percent of the total lot width or 15 linear feet, whichever is more limiting.
5. All construction elements must be placed landward of the 660 foot elevation.
6. No structure may cantilever or extend beyond or over the shoreline, eroded bank, or water surface. Decks and patios will not be allowed to be directly supported or placed over seawalls or any other structure with footings at or below the 658.5 foot elevation (USACE jurisdiction).
7. No portion of the structure may be roofed.

Ameren Missouri may prohibit the construction of decks, patios, and walkways in any setting where environmental or cultural resources warrant additional protection.

7.0 BOAT DOCK SPECIFICATIONS

7.1 General

All docks must be constructed so they meet or exceed the following specifications. This section also may be used as a minimum structural standard for breakwaters; however, all breakwater designs must include engineering certification as to structure durability and effectiveness for the lake location. Alternate structure designs that meet or exceed the following specifications will be considered if the plans are sealed by a Registered Professional Engineer.

7.2 Certified Dock Builders

As of January 1, 2004, all new docks and modifications to docks, including breakwater structures, must be completed by a Certified Dock Builder or individual property owners desiring to construct their own docks. Certified Dock Builders are subject to qualification standards and inspections outlined below in the boat dock specifications and fee schedule. Individual property owners also must meet minimum specifications and pass a dock inspection.

All docks and breakwaters, including additions, modifications, and refoaming activities must be completed by a Certified Dock Builder or the owner of the property where the structure is located. Ameren Missouri will maintain and periodically update a Certified Dock Builder list. Certified Dock Builders must meet the following minimum standards:

1. Possess a valid Ameren Missouri permit prior to commencing construction on any structure on Lake of the Ozarks.
2. Provide proof of commercial liability insurance of not less than \$1,000,000 with Ameren Missouri listed as additionally insured.
3. Proof of worker's compensation insurance and employer's liability insurance with limits no less than \$500,000, and as provided by state law.
4. Provide an affidavit or proof of proper disposal of waste foam and materials.
5. Pass an initial certification inspection and random inspections thereafter.

7.3 Specific Provisions for Docks

1. No habitable structures will be permitted on boat docks.
2. No installation of kitchen appliances, sinks (except those used exclusively for fish cleaning), garbage disposals, dishwashers, water heaters or similar household items, and points of discharge and/or possible water quality pollution are permitted on docks inside or outside of proposed or existing enclosures.
3. Docks may not contain toilets, showers or any other type of device which could cause any liquid or solid waste to be discharged into the lake.
4. All construction or modifications of docks shall have the plans, applications and drawings submitted by a Certified Dock Builder or individual experienced in floating dock design or construction. All construction shall conform to the specifications outlined below.
5. All construction or modifications of docks totaling more than 3,000 square feet and all breakwater structures must have the plans, specifications, and required calculations submitted and signed by a Registered Professional Engineer experienced in floating dock

- design for commercial docks or marinas with boat size, wind conditions, and anchorage design equal to or greater than the design being submitted.
6. The Americans with Disabilities Act (ADA) or any related standard is not addressed in these specifications. The accessibility requirements provided in these specifications are not intended to comply with ADA or any related standards. The dock owner shall bear full responsibility for any ADA requirements.
 7. American Society of Civil Engineers (ASCE) Manuals and Reports on Engineering Practice No. 50, Planning and Design Guidelines for Small Craft Harbors, is a recognized standard and may be used along with the requirements herein. The requirements provided in this specification shall govern over the ASCE No. 50 standard.
 8. Dock walkways shall be designed to provide safe access and shall be limited to 6 feet in width for residential docks and 8 feet in width for commercial and multi-family/condominium docks.

In extreme situations, emergency temporary repairs may be completed to ensure the safety of private property and persons. Such temporary repairs must meet all federal, state, and local requirements and be reported to Ameren Missouri's Shoreline Management office within 48 hours of the repair.

7.4 Flotation

1. Only Ameren Missouri approved encapsulated flotation may be installed at Lake of the Ozarks. Ameren Missouri will maintain, and periodically update, a list of approved flotation manufacturers for distribution to Certified Dock Builders and interested property owners. The list can be accessed online at www.amerenmissouri.com/lake
2. The use of new or recycled plastic or metal drums for encasement or floats is prohibited.
3. Flotation material shall be extruded polystyrene, expanded polystyrene, or a copolymer of polyethylene and polystyrene. Flotation material shall have a minimum density of 0.8 lbs./cu. ft., be of consistent quality throughout the float, beads shall be firmly fused together, and there shall be no voids inside the encasement.
4. Flotation material shall have a water absorption of less than 3.0 lbs./cu. ft. at 7 days when tested by "The Hunt Absorption Test." The float being used must be certified to meet this test either by a statement in the float manufacturer's literature or by a letter signed by the president of the float manufacturing company. Certification must also contain a statement which guarantees the minimum thickness of the encasement.
5. The encasement shall be solid polyethylene or a polyurethane type coating, both of which shall be watertight and have a minimum thickness of 0.125 inches. All floats shall be warranted for a minimum of eight years against sinking, becoming waterlogged, cracking, peeling, fragmenting, and losing beads and shall not be subject to damage by animals. A copy of the manufacturer's warranty shall be included with the certification of water absorption and encasement thickness. Existing floats that become inadequate to carry the existing design loads shall be replaced with totally encapsulated floats meeting these new requirements and outlined on the Ameren Missouri approved flotation list. If floats furnished under this new specification become punctured exposing the foam to erosion or deterioration, they shall be replaced immediately.
6. Ameren Missouri reserves the right to field-test any float to assure compliance with these float requirements. All flotation manufacturers are subject to annual and random testing. Floats will be tested by an independent testing source at the manufacturer's cost.

7. A float manufacturer that believes it has floats which are equal to or superior to floats meeting Ameren Missouri's specifications may submit sample floats and documentation and reasoning for waiving Ameren Missouri's specification. Ameren Missouri may require the float to be tested by an independent testing company at the manufacturer's cost.

7.5 Flotation Attachments

1. Flotation shall be positively attached by the dock builder with 3/8-inch-minimum diameter plated bolts, 0.120-inch-minimum thickness fender washers and lock nut, to prevent the flotation from coming loose, and yet be attached in such a manner the flotation can be easily replaced if necessary. Puncturing of the encasement for attaching is unacceptable without specific approval from Ameren Missouri.
2. Outside J bolts are prohibited.
3. All floats must be attached in accordance with the manufacturer's recommendation.

7.6 Dead Load

1. Dead load is defined as the weight of the entire dock structure including all permanent attachments such as bumpers, dock boxes, winch stands, roof structures, etc.
2. Under dead load, the distance from the top of the water to the bottom of the structural frame shall be a minimum of 7 inches. Any additions or modifications, where the pre-existing structure has less than 7 inches of freeboard, will not be permitted unless the noncompliant structure is brought up to the 7-inch minimum or the modification/addition meets or exceeds the 7-inch minimum.
3. Outer ends of finger or slip walkways shall be level or within 3 inches of the center walkway or dock to which it is attached.
4. Actual dead load freeboard shall be within plus or minus 2 inches of the dead load freeboard shown on the drawings.
5. At the outer ends of finger piers, there shall be less than 3/8-inch difference in freeboard between the outer corners per 3 feet of width.

7.7 Vertical Live Load

1. Deck live loading for flotation calculations on uncovered docks shall be 20 pounds per square foot (psf). Decks shall also be designed to carry a minimum 400-pound concentrated load on any 1 square foot (sq. ft.). These two loads need not occur simultaneously.
2. Roof live load for flotation and structural calculations on covered docks shall be a minimum of 11.5 psf unreduced. Flotation shall carry the full dead load of docks and roof and the roof live load.
3. The outer ends of fingers shall not lose more than 4 inches of freeboard under a concentrated load of 400 pounds placed 2 feet from the end of the finger.

7.8 Horizontal Live Load

1. Docks shall be designed to endure the wave action of their proposed location and at a minimum able to withstand a minimum of one-foot high wave action. A specific site may

often warrant a larger wave loading as specified by a Registered Professional Engineer or certified dock builder.

2. Docks, roofs, anchorage, and connections shall be designed to resist the loading from a wind with 77 miles per hour (mph) design basic wind speed (using the projected area method, this wind loading is approximately 15 psf in any direction).
3. In lieu of more precise analysis, the projected area for wind loads shall be defined by the product of the distance between the extreme outer corners of the dock system and the average boat height for the entire dock system. The exposed area shall carry 100 percent of the projected load and an additional 15 percent for each hidden boat.
4. Finger piers shall be designed to withstand an impact from the average boat expected to use the slip striking the end of the finger at 10 degrees off center line moving at a speed of 2 mph (approximately 3 feet per second).

7.9 Access Structures (Dock Bridges/Ramps)

Access structures shall be designed to carry dead and live loads. Minimum live loads shall be 30 psf on deck.

7.10 Materials

All docks and breakwaters shall be constructed with environmentally safe materials as defined below.

7.10.1 Steel

1. All steel shall be powder coated, galvanized, or painted with a primer and painted with a minimum thickness of 3.5 mils. All dock primary substructure metal and angle iron shall be a minimum of 1½ x 1½ inches x 3/16 inch or 2 x 2 inches x 1/8 inch. Round rod shall be a minimum ½ inch. Smaller thickness, nonessential frame metal and angle iron may be used when approved by a Registered Professional Engineer and shall be no less than 1 inch x 1 inch x 1/8 inch.
2. All holes, cuts, or wells on steel members shall be made prior to hot dip galvanizing or painting.
3. After assembly of new docks, repairs or modifications, etc., all welds must be touched up in the field with the appropriate coating (i.e., cold galvanizing or paint).
4. Connectors shall be plated steel or stainless steel.
5. All structural steel welding shall conform to American Welding Society Standard (AWS) D1.1, latest edition. All structural steel welding electrodes shall conform to AWS A5.1 or A5.5 E-70XX. All exposed welded connections shall be free of excessive burs and sharp edges.

7.10.2 Cold Formed Steel

1. Cee shapes, zee shapes, and other cold rolled shapes shall be designed in accordance with the Light Gauge Structural Steel Design Handbook.
2. Cold-formed steel joists, purlins, beams, etc., shall be galvanized with a G-60 coating meeting ASTM standards or equivalent.
3. Metal panels shall be plated, galvanized, powder coated, or painted to provide adequate corrosion resistance.

4. Cold-formed structural steel and roof panels shall have gauge and strength required to resist dead loads, live loads, and construction loads.
5. Roof systems shall be designed to support the appropriate loads.
6. Roof panel design and structural load carrying capacity shall be as recommended by the panel manufacturer.

7.10.3 Wood

1. Wood frame substructures are prohibited unless specifically approved by Ameren Missouri and engineered to meet the wave loading of the site.
2. Wood used for deck boards and banding trim must be pressure treated and be consistent with the latest Environmental Protection Agency (EPA) regulations.

7.10.4 Anchorage

1. Dock builders and owners assume full responsibility for adequately anchoring docks and breakwaters. Anchorage for all docks should be designed to withstand 77 mph wind loading.
2. Cables or chains shall be designed with a minimum working load safety factor of 3.0 for cables and 2.0 for chains.
3. All cables or chains shall be galvanized or stainless steel.
4. Anchor design shall be completed with sound engineering practice and the soil properties assumed (if soil testing was not completed) shall be shown on the plan documents. Submerged anchors must be positioned to accommodate low water levels, as not to present a navigational hazard.

7.10.5 Miscellaneous

Structural framing members shall provide corrosion resistance and strength as required by a Registered Professional Engineer.

8.0 PERMIT CONDITIONS

8.1 Expiration of Permits

Construction of docks and breakwaters or approved modifications to docks must be completed within one year from the date the permit or modification approval is issued. All other activities (bank stabilization construction, excavation, etc.) must be completed within two years from the date the permit was issued. If the work is not complete within the permit timeframe, the permittee may apply for one (1) extension, to complete the work. A permit extension, if granted, will extend the permit for ½ of the original permit timeframe and the extension would begin on the date that the original timeframe expired. The extension will be granted, provided there have not been any changes in the information that was submitted with the original application and the proposal complies with current guidelines for issuing permits. **If the permit expires, the permit is null and void. Prior to any construction, a new application must be submitted and new permit issued.**

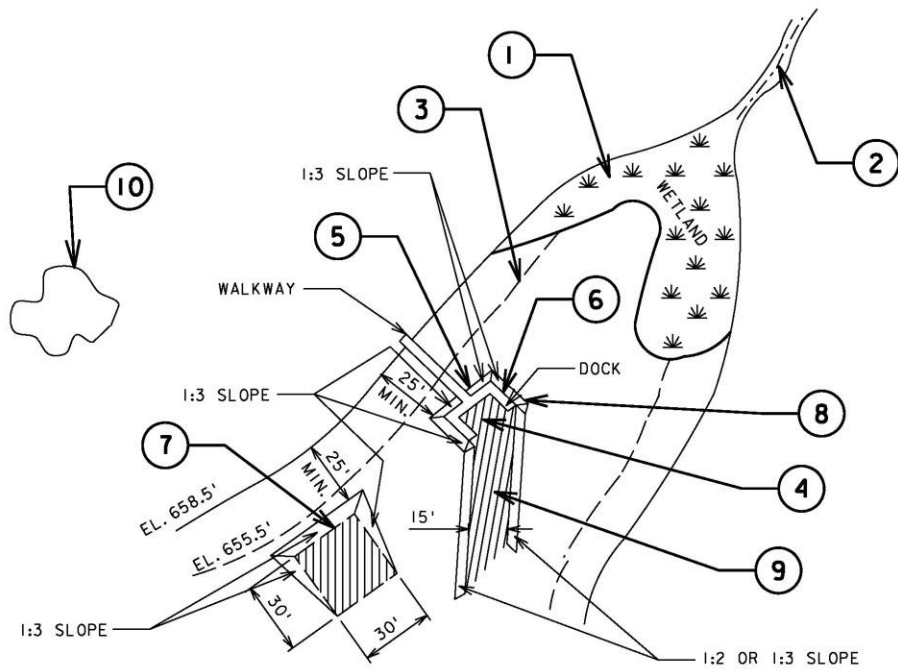
8.2 Transfer of Ownership

If the ownership of the property, dock, or other permitted facilities changes, Ameren Missouri must be notified. If the property is transferred to a new owner, the **existing permits** are required to be transferred to the new owner. Fees to transfer permits are shown on the fee schedule above. A permit can be transferred by completing the permit transfer application below. If a dock is sold and moved to a different property, a new permit is required for the new location unless the new location already has a dock permit. If the location is home to an existing dock, a permit modification is required for the replacement. **The existing permit number stays with the property. It does not move with the dock.**

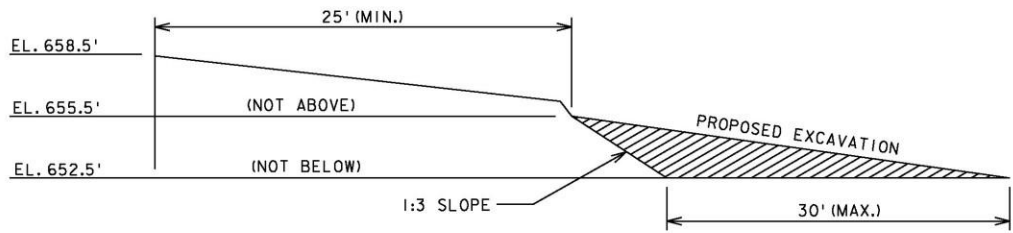
8.3 Permit Number Posting Requirement

As soon as a dock is completed or moved to a permitted location, the owner, occupant, or person in charge of the dock shall affix the correct Ameren Missouri permit number and 911 street address to the structure. The numbers shall be affixed on the lake side of the dock in a location most visible from the channel or cove. The permit number and address shall be posted in a manner so it is legible and distinguishable with numerals painted or applied of a contrasting color to the background, of not less than three (3) inches in height. Letters and numbers may be affixed directly to the dock structure if this results in a legible, visible posting. Script lettering or similar unconventional type styles are not recommended (See **Drawing 11**).

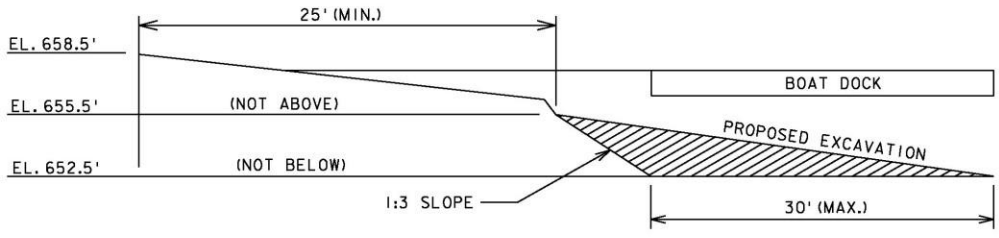
ATTACHMENT 1
DRAWINGS



PLAN VIEW OF MINOR EXCAVATION



TYPICAL CROSS SECTION EXCAVATION FOR PROPOSED BOAT DOCK



TYPICAL CROSS SECTION EXCAVATION FOR EXISTING BOAT DOCK

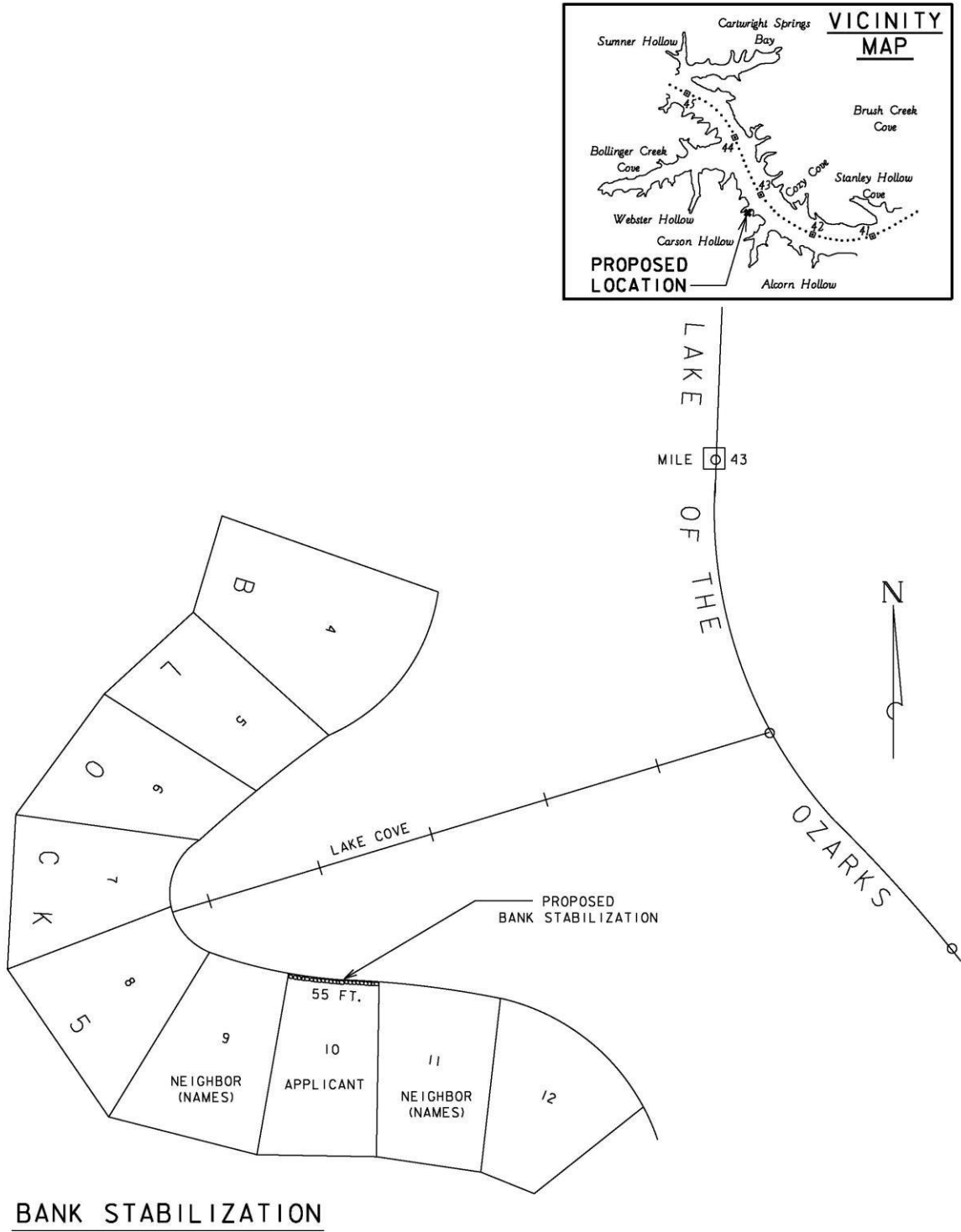
BOTTOM EXCAVATION DIMENSIONS NOT TO EXCEED OUTSIDE DIMENSIONS OF EXISTING BOAT DOCK

DRAWING 1

Legend: Dredging is prohibited in: (1) Undeveloped head of cove and wetland areas, (2) Stream channels or the mouths of streams, (3) Areas above 655.5 feet UED, (4) Below 652.0 feet UED except under a boat lift, where dredging will be authorized to 650.0 feet UED.

Dredging is allowed: (5) At least 25 Feet from the ordinary high water mark elevation of 658.5 feet UED, (6) Under the footprint of a dock placed prior to 2007, or (7) Limited to 900 square feet for a dock placed after 2007. (8) All dredging must have a 1 vertical to 3 horizontal slope. (9) Boat lanes or access channels cannot be wider than 15 feet or lower than 652 feet UED, and (10) Dredged material must be disposed of in a non-wetland area above the 665 foot UED.

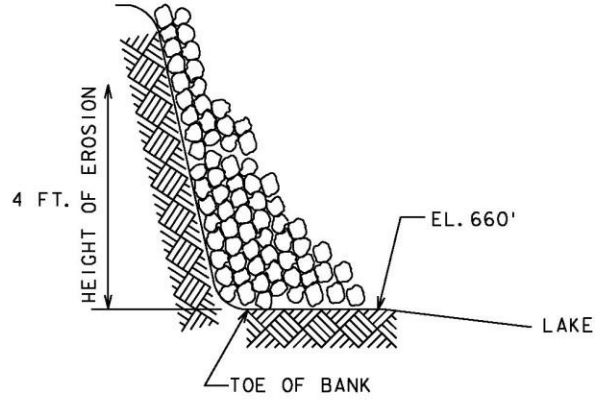
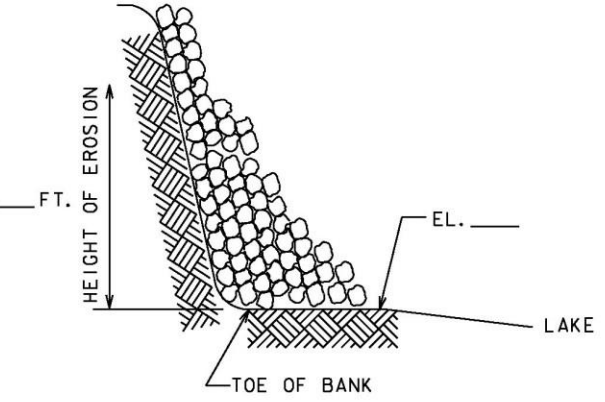
BANK STABILIZATION LOCATION DRAWING (SAMPLE)



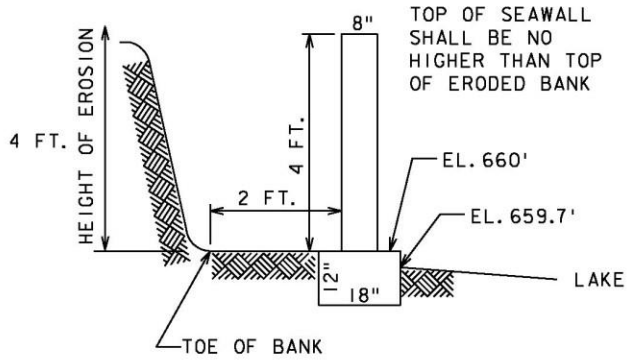
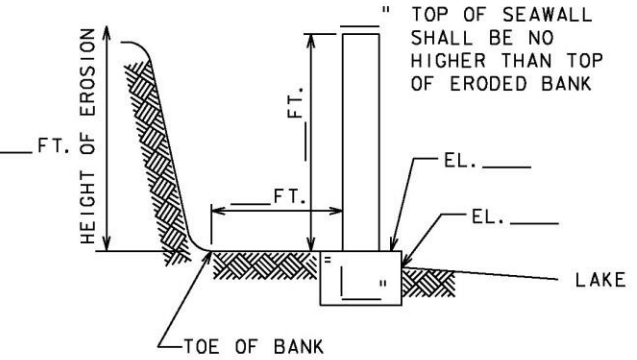
DRAWING 2

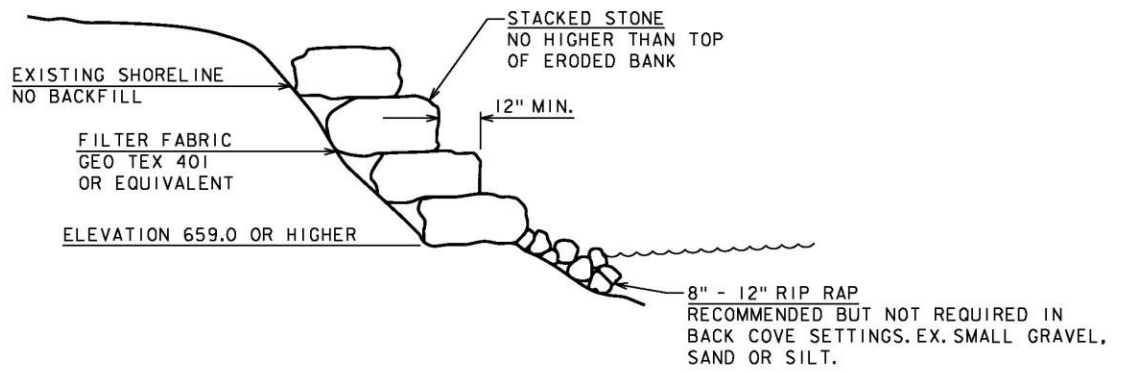
PROPOSED BANK STABILIZATION DRAWING - RIP RAP AND SEAWALL

VEGETATION OR RIP RAP

SAMPLE	APPLICANT WORKSHEET
<p data-bbox="186 367 787 409"><u>VEGETATION OR RIP RAP OPTION</u></p> 	<p data-bbox="868 367 1469 409"><u>VEGETATION OR RIP RAP OPTION</u></p> 

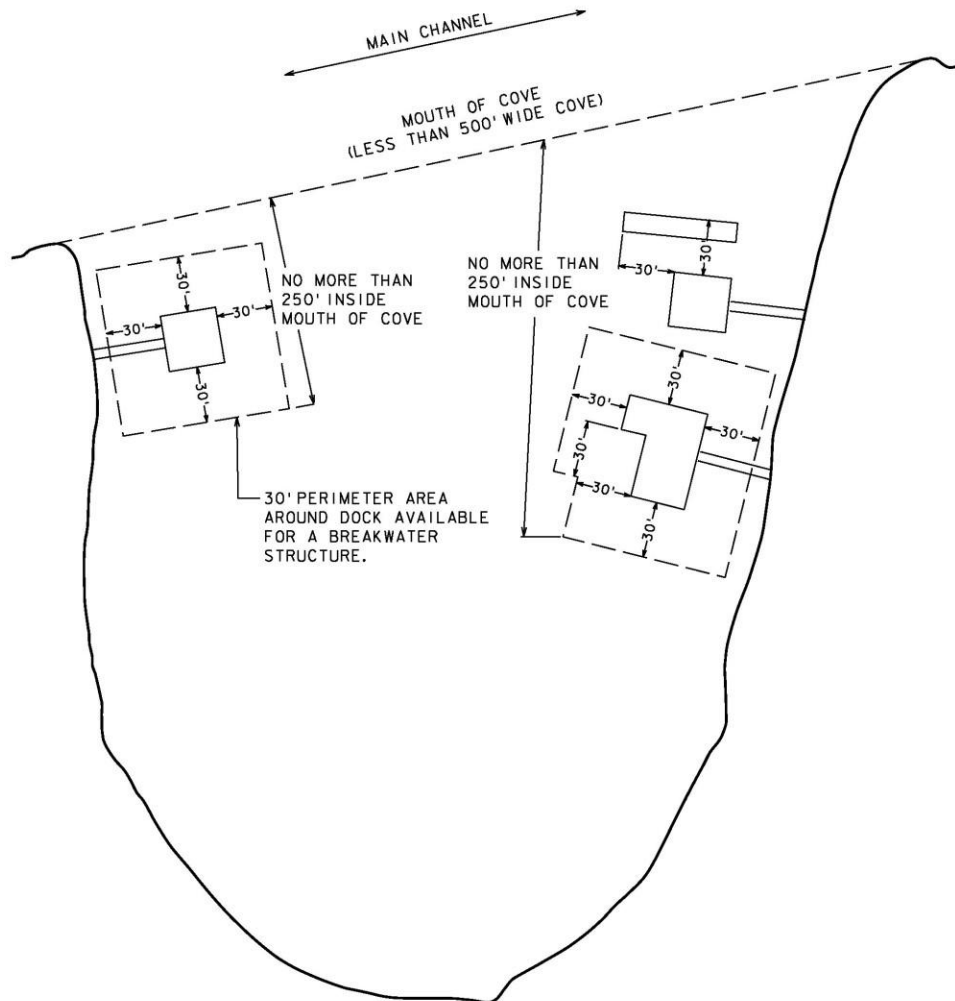
SEAWALL

SAMPLE	APPLICANT WORKSHEET
<p data-bbox="235 1159 738 1201"><u>CONCRETE SEAWALL OPTION</u></p>  <p data-bbox="170 1732 787 1764">SEAWALLS MUST BE WITHIN 3' OF ERODED SHORELINE.</p>	<p data-bbox="917 1159 1421 1201"><u>CONCRETE SEAWALL OPTION</u></p>  <p data-bbox="868 1732 1485 1764">SEAWALLS MUST BE WITHIN 3' OF ERODED SHORELINE.</p>



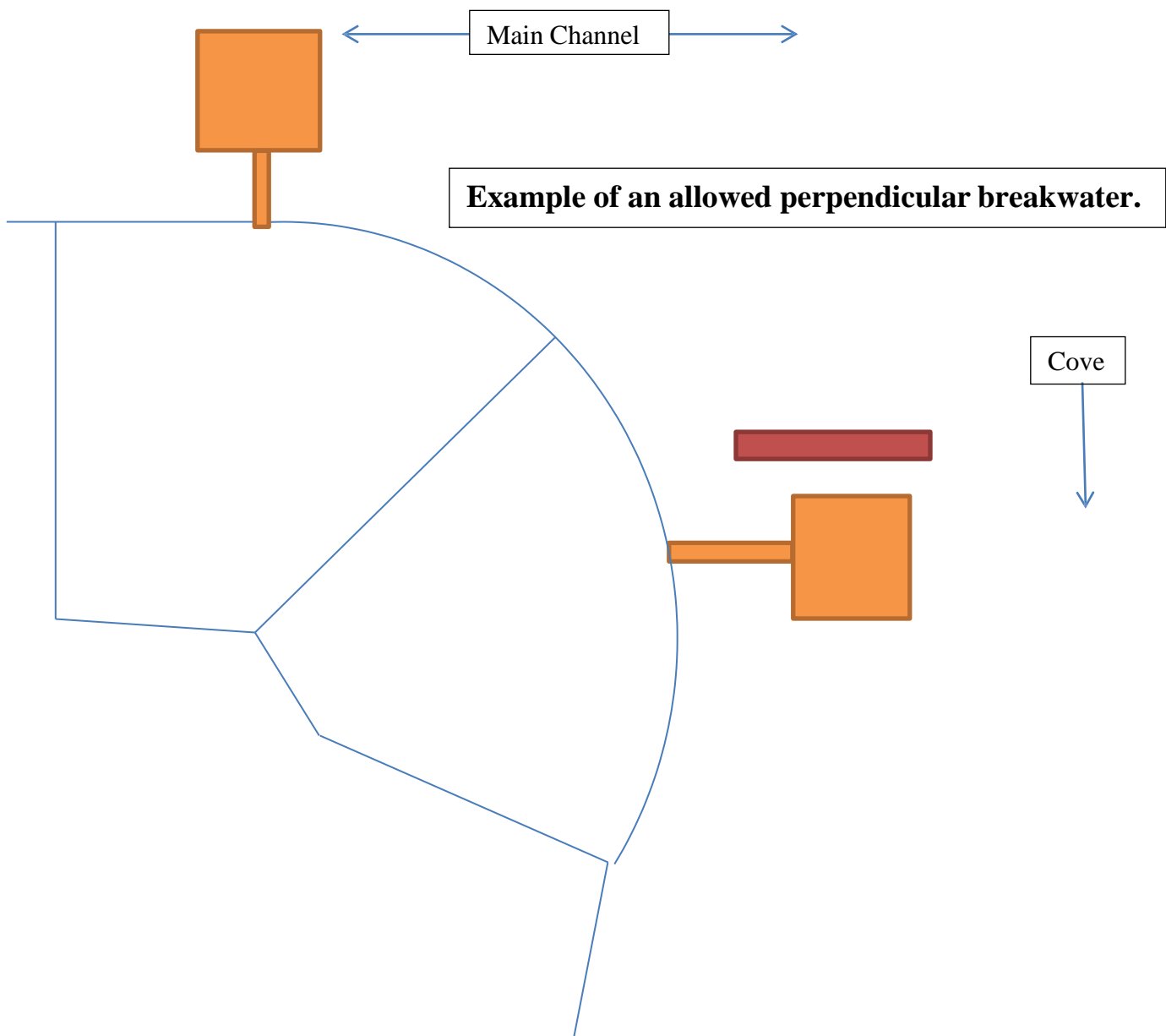
PROPOSED BANK STABILIZATION DRAWING
STACKED STONE/RIP RAP

BREAKWATER GUIDELINE DRAWING



NOTES:

- COVES GREATER THAN 500 FT. IN WIDTH MAY BE ALLOWED A BREAKWATER STRUCTURE UP TO 500 FT. INSIDE THE MOUTH OF THE COVE.
- BREAKWATER STRUCTURES CANNOT BE LOCATED BEYOND THE MAXIMUM COVE OR CHANNEL % LIMIT, AS DETAILED IN AMEREN MISSOURI'S PERMIT GUIDLINES FOR BOAT DOCK PLACEMENT.

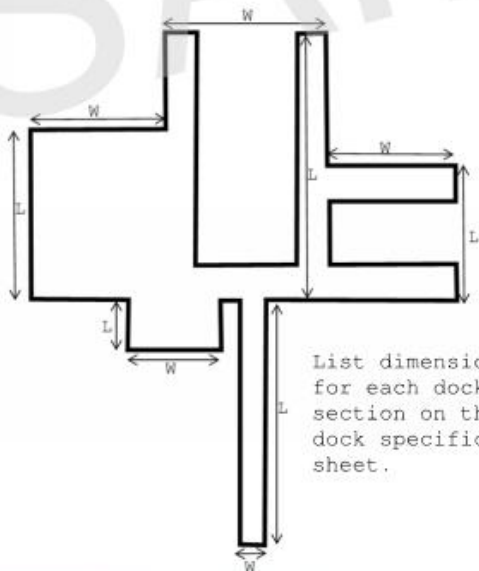
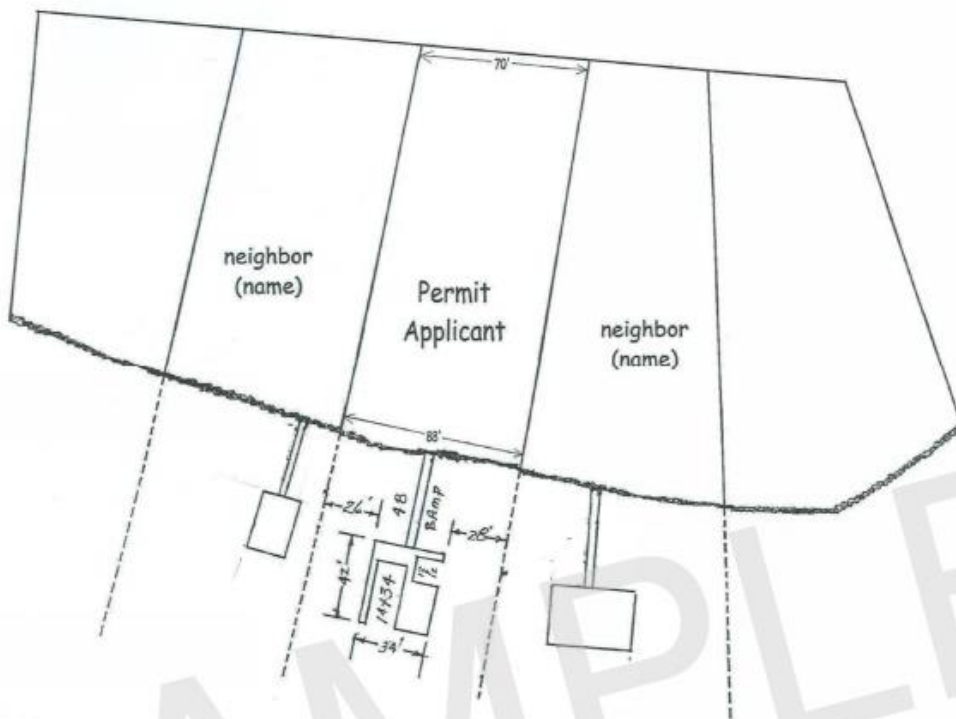


Example of an allowed perpendicular breakwater.

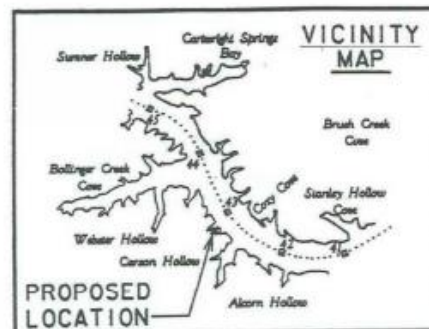
DOCK LOCATION DRAWING (SAMPLE)

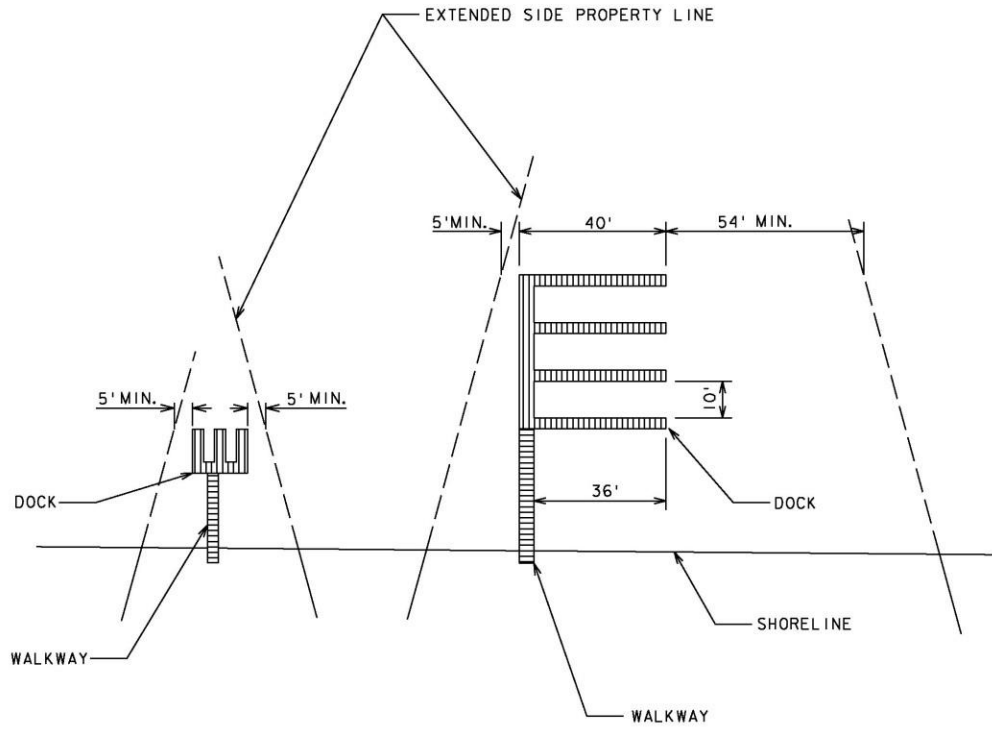
Drawing 1-1

*The dashed line represents an imaginary, extended property line.
*Drawing should be to scale. (Ex. 1" = 30' or 1" = 50', etc.)



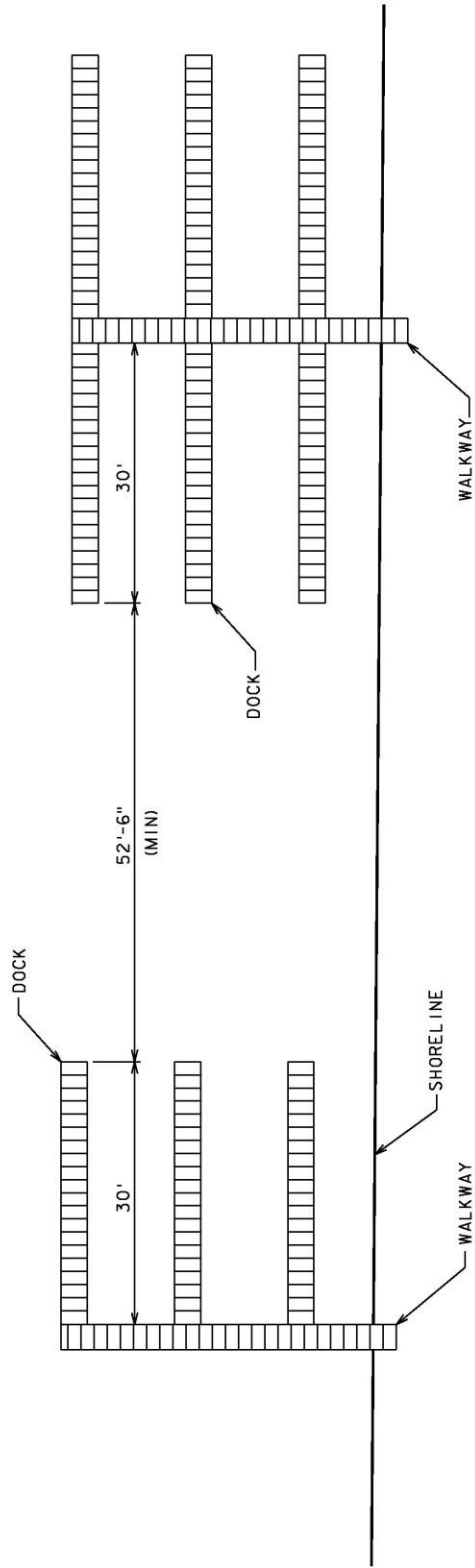
List dimensions for each dock section on the dock specification sheet.



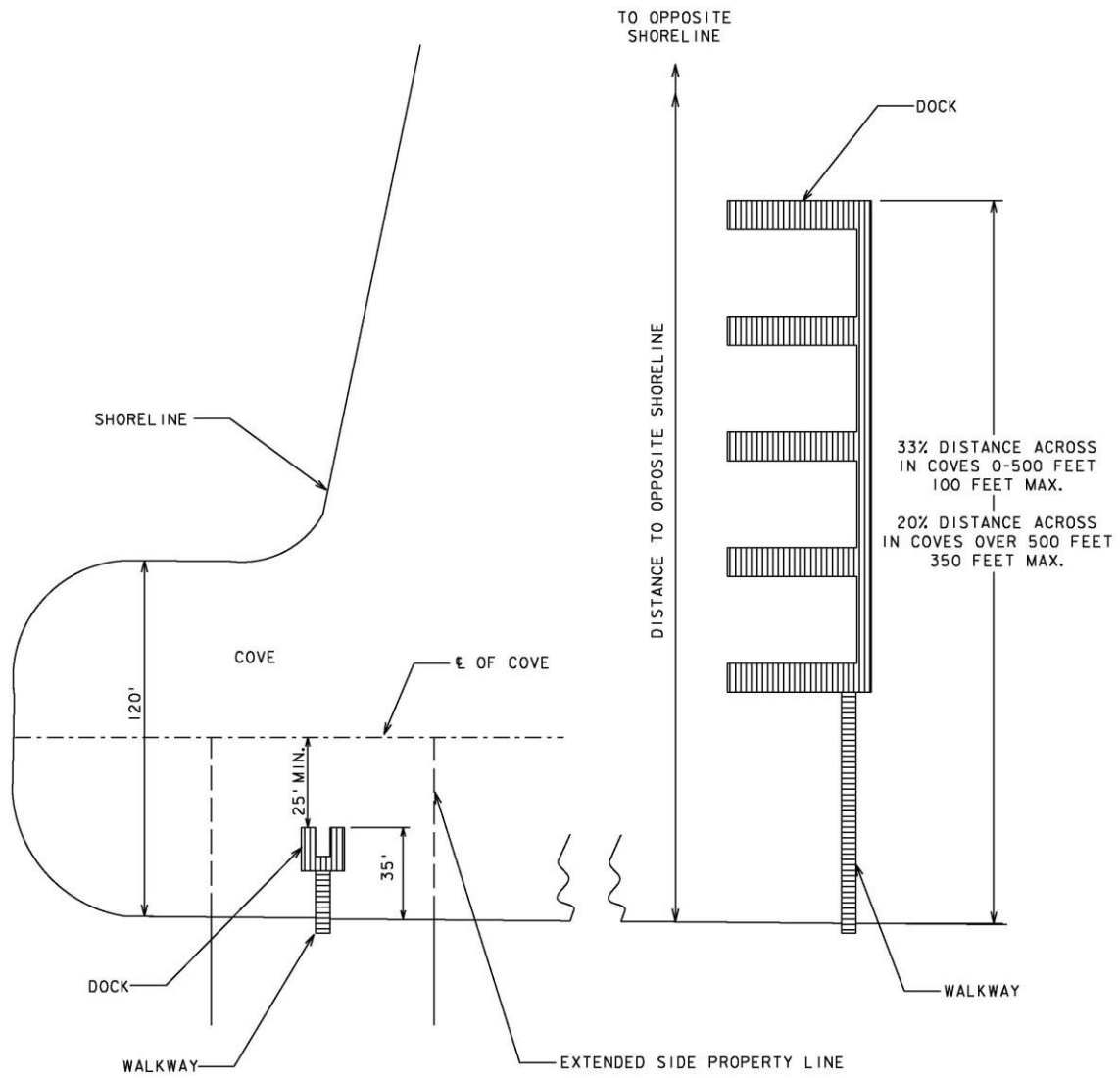


SETBACK REQUIREMENTS

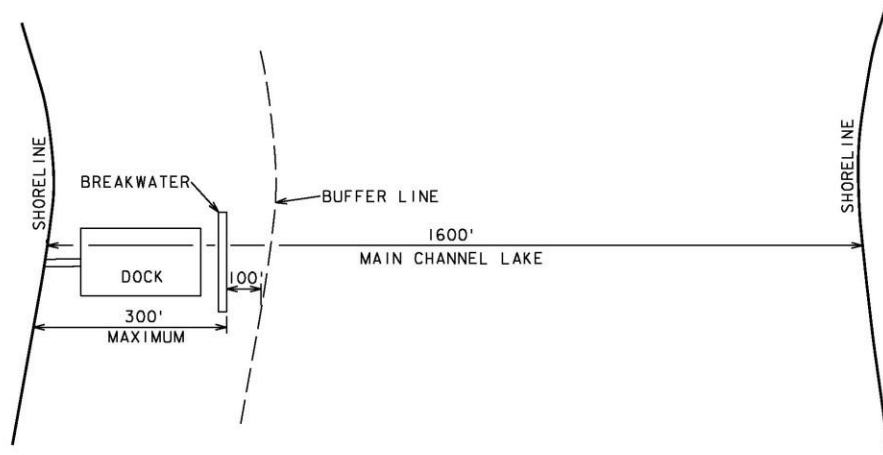
DRAWING 8



FAIRWAY AISLE REQUIREMENTS FOR DOCKS EXCEEDING 10 SLIPS=SLIP SIZE x 1.75
EXAMPLE 30'x1.75=52'6" FAIRWAY AISLE BETWEEN DOCKS

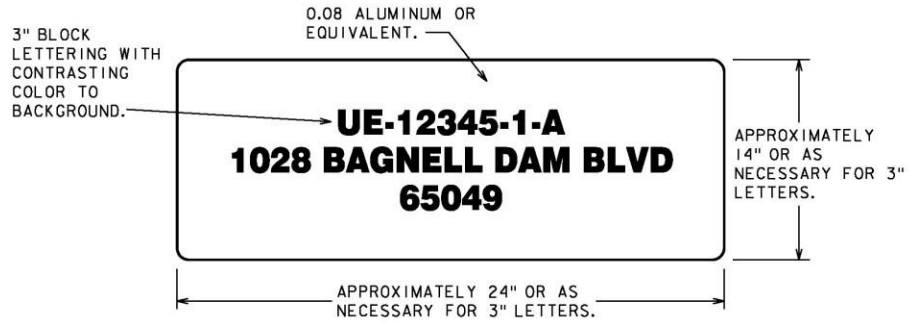


MAXIMUM DOCK LENGTH ALLOWED
IN COVE SETTING



MAXIMUM DOCK LENGTH ALLOWED
IN MAIN CHANNEL SETTING

AMEREN MISSOURI PERMIT NUMBER & 911 ADDRESS POSTING REQUIREMENTS



THE SIGN SHALL BE MOUNTED ON THE LAKE SIDE OF THE DOCK IN A LOCATION MOST VISIBLE FROM THE COVE OR THE MAIN CHANNEL.

PERMIT POSTING

ATTACHMENT 2
GLOSSARY OF TERMS

Glossary of Terms

Breakwater: A structure used to protect docks by stopping or slowing waves or wake.

Cantilever: Referring to a deck that extends over the lake or shoreline and is supported by a seawall or piers.

Commercial Dock: Mooring facilities associated with a restaurant, marina, gas dock or similar use intended to produce revenue as a primary or accessory business.

Conveyance deed: The deed a buyer receives from the seller when buying property (i.e., Warranty, Quit-Claim, or Special Warranty deed)

Dead load: The weight of the entire dock structure, including all permanent attachments such as bumpers, dock boxes, winch stands, and roof structures.

Dead load freeboard: The distance from the top of the water to the bottom of the dock's structural frame (a minimum of 7 inches in these regulations).

Development: As used in the Permit Requirement Guidelines, development means any non-project land use activity that will disturb the land or add to the man-made features at the Lake of the Ozarks and along the shoreline, and has the potential to impact environmental resources.

Head of Cove: That portion of any cove, regardless of size, which lies landward of a perpendicular line drawn across the cove, this line being known as the Head of Cove boundary line. The Head of Cove boundary line is located at the point at which the natural stream channel bottom (flooded by the lake water) is at the 652-foot elevation. If no natural stream channel can be identified, the perpendicular line will be located at the point farthest in to the cove where a 652-foot elevation is found.

Historic Property: Any pre-historic or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR 800.16(l)(1)).

Horizontal and vertical slope: This refers to the side of an excavated area. From the bottom of the excavation, the side must be sloped at 3 horizontal feet for each 1 foot vertical rise.

Lake mile: Mile markers on Lake of the Ozarks as established by the Corps of Engineers, for the main channel and arms of the Lake. Mile marker "0" starts at Bagnell Dam and runs upstream towards Truman Dam.

Live load: Vertical: the weight of people, ice and snow. Horizontal: the force of wind, waves and boat wakes against a dock.

Marina: A commercial facility located at the Lake that provides docking, storage, maintenance, and/or other facilities equipped to provide marine repair service, gassing, and supplies. It may also include land-based areas for car parking, boat ramps, and associated facilities and services.

Project lands: All of the property rights acquired for the construction of Bagnell Dam and the Osage Project as licensed by the Federal Energy Regulatory Commission. Ameren Missouri owns the majority of the shoreline property around the lake; however, the extent of this ownership varies. Carefully check ownership records for your property prior to any construction near the lake.

Purlins: The horizontal members of the roof structure used to support and attach the roof panels.

Residential Dock: Fishing, swimming or boat mooring structure located on the water and accessory to existing residential land development or uses.

Riprap: Clean limestone or native rock that is 8 inches to 12 inches in diameter or larger.

Setback: The distance between the side property line extended lakeward, and the closest point to the applicant's boat dock.

Toe of the bank: The bottom or lowest point of an eroded bank on the shoreline.

Waterspace: The area occupied by the dock (including the area within the slips) walkway, boat lifts, breakwater, and any other structures.

Wave action: The force of a wave against the exposed surfaces of the dock and boats. Expressed in pounds per square foot (psf), it is used to determine the size of the anchoring system.

Wetlands: Areas that are periodically or permanently inundated by surface or ground water and support vegetation adapted for life in saturated soil. These areas are also referred to as swamps, marshes, and bogs.

Wind loads: The force of wind against the exposed surfaces of the dock and boats. Expressed in pounds per square foot (psf), it is used to determine the size of the anchoring system.

ATTACHMENT 3
CONTACTS

CONTACTS

ABOUT SEAWALLS AND DOCK PERMITS

Ameren Missouri
3 Willmore Lane
Lake Ozark, MO 65049
E-mail address: lake@ameren.com
Phone: 573.365.9203
Lake level information: 573.365.9205
About problems or concerns affecting the lake:
Lake and Shoreline Protection Hotline: 573.365.9203

ABOUT NEW CONNECTIONS AND SERVICES PROVIDED BY LAKESIDE DISTRICT

800.552.7583

ABOUT U.S. ARMY CORPS OF ENGINEERS PERMITS

U.S. Army Corps of Engineers
Missouri State Regulatory
Office
515 East High Street, #202
Jefferson City, MO 65101
816.389.3986

ABOUT MISSOURI DEPARTMENT OF NATURAL RESOURCE PERMITS

Missouri Department of Natural Resources
Southwest Regional Office
2040 W. Woodland
Springfield MO 65807
PH 417-891-4300
Fax 417-891-4399

ABOUT HISTORIC PROPERTIES

State Historic Preservation Officer
Missouri Department of Natural Resources
1101 Riverside Drive
P.O. Box 176
Jefferson City, MO 65102
PH 573 751-7858

ABOUT MISSOURI DEPARTMENT OF CONSERVATION

Missouri Department of Conservation
783 Thunder Mountain Road
Camdenton MO 65020
573-346-2210

ABOUT BUOY PERMITS

Missouri State Highway Patrol
573-751-3313, Extension 1036

ABOUT FEDERAL ENERGY REGULATORY COMMISSION REQUIREMENTS

Federal Energy Regulatory Commission
Office of Energy Projects
1 (866) 208-3372

Visit our web site at
www.amerenmissouri.com/lake for additional information and to download forms

ATTACHMENT 4
ENVIRONMENTAL ASSESSMENT GUIDANCE
FOR MARINAS AND LARGE DOCKS

**ENVIRONMENTAL ASSESSMENT GUIDANCE
FOR MARINAS AND LARGE DOCKS
OSAGE PROJECT (FERC NO. 459)**

TABLE OF CONTENTS

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1.0	PURPOSE	1
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3.2	PROPOSED CONSTRUCTION	3
3.3	AFFECTED ENVIRONMENT	3
3.4	ENVIRONMENTAL ANALYSIS	3
3.5	CONCLUSIONS AND RECOMMENDATIONS	4
4.0	LITERATURE CITED	5

ATTACHMENTS

ATTACHMENT A - TYPICAL FERC ENVIRONMENTAL ASSESSMENT

ENVIRONMENTAL ASSESSMENT GUIDANCE FOR MARINAS AND LARGE DOCKS OSAGE PROJECT (FERC NO. 459)

1.0 PURPOSE

This guidance document is intended to assist land owners, developers, certified dock builders, and others who are seeking shoreline permits at Lake of the Ozarks to conduct and document an environmental review of the proposed shoreline development as required by Ameren Missouri's Shoreline Management Plan. This document will assist permittees seeking approval for docks with more than 10 slips, marinas, and other special uses that may be identified by Ameren Missouri.

This guidance document is intended to assist permit applicants in providing information that will be necessary for a review of applications for large docks or marinas based on Federal Energy Regulatory Commission (FERC) requirements and guidance. Ameren Missouri will use the information provided by the applicant to conduct an environmental analysis of the request. The information may be provided to resource agencies such as Missouri Department of Conservation (MDC), Water Patrol Division Missouri State Highway Patrol (WPD), and Missouri Department of Natural Resources (MDNR), and U.S. Fish and Wildlife Service (USFWS) for their review and comment. For some applications, as identified in the Shoreline Management Plan, Ameren Missouri may also provide the information to the FERC for their review before a permit can be issued.

Applicants should note that the information required here should be submitted along with a completed Application for an Ameren Missouri Permit, scaled drawings, and appropriate permit application fees in accordance Ameren Missouri's permitting requirements. It is recommended that applicants schedule a pre-application meeting with Ameren Missouri prior to seeking approval for marinas, docks over ten slips, and other special uses requiring extensive environmental review.

2.0 INTRODUCTION

Ameren Missouri is responsible for management of lands within the project boundary established for the Osage Project under provisions of its federal license for the operation of Bagnell Dam and the Osage Power Plant, issued by FERC in 2007. Ameren Missouri has developed a Shoreline Management Plan (SMP) to properly coordinate shoreline management activities on lands within the project boundary at Lake of the Ozarks. The goals and objectives of the SMP are to define the procedures and policies that Ameren Missouri has in place for successful shoreline management activities on lands within the project boundary, and the reasons the procedures and policies are needed and important to all stakeholders for protecting the energy, natural resources, and historic properties that are unique to the Osage Project.

As a part of its responsibility, Ameren Missouri is required to regulate docks, seawalls, and other structures around the lake, as well as the lands within the project boundary downstream of

Bagnell Dam, to ensure that these structures do not become an environmental hazard, an obstacle to navigation, adversely impact sensitive and critical environmental resources, or become a threat to the safe operation of the dam and power plant. The policies, guidelines, and existing programs to manage the Lake of the Ozarks shoreline are contained in the SMP. The SMP policies and procedures require notification of the MDC, Missouri Department of Natural Resources MDNR (including the State Historic Preservation Office [SHPO]), and USFWS for activities that may affect certain natural resources or known historic properties.

In accordance with the SMP, Ameren Missouri approves some shoreline permits without review by other entities. For larger permit requests (e.g. docks with 11-50 slips) or when special resources may be affected (e.g. historic properties), Ameren Missouri notifies state and federal agencies before issuing permits. Some shoreline permit requests are submitted to FERC for approval (docks with 51 or more slips, marinas, and other uses as identified in the SMP). In these cases, FERC may conduct a National Environmental Policy Act (NEPA) review before authorizing Ameren Missouri to issue shoreline use permits. This NEPA review is necessary to assess the effects of the proposed action on the human environment and is generally accomplished by conducting an environmental assessment.

It is the intention of this guidance document to instruct prospective permittees on the information necessary to complete an environmental assessment so that the applicant can provide needed information and thereby proceed most expeditiously through the shoreline permitting process.

3.0 DISCUSSION

During review of Large Dock² and Marina applications, Ameren Missouri, resource agencies, and FERC may consider the potential impacts to vegetation, shoreline stability, significant resources, existing land uses, and water quality within the project boundary. In addition to the information required in the Permit Application, applicants for large docks and marinas are required to submit an environmental review describing the affected environment, probable impacts, and proposed mitigation for the facilities to be permitted by Ameren Missouri under the SMP. This review should be a stand-alone document provided with the Application for an Ameren Missouri Permit. Ameren Missouri, resource agencies, and FERC may use the information to prepare an Environmental Assessment of the proposed permit application. Table 1 presents a typical FERC Environmental Assessment outline and contents, and identifies the information that large dock and marina permit applicants are required to provide. Attachment A is an Environmental Assessment recently completed by FERC for an Ameren Missouri shoreline use permit. Additional examples are available on Ameren Missouri's website.

In the environmental review, permit applicants should provide detailed, organized information on the proposed construction, the environment in which it will be built, and the probable impacts of the construction and use of the facilities to be permitted by Ameren Missouri. Applicants should describe how resource impacts were avoided where possible, and mitigated where they

² Large docks are defined as proposed docks, or the cumulative total of existing and proposed slips being 11 or more slips.

could not be avoided. Any proposed environmental resource enhancements should also be described.

**TABLE 1
TYPICAL FERC ENVIRONMENTAL ASSESSMENT OUTLINE AND INFORMATION
TO BE PROVIDED BY SHORELINE PERMIT APPLICANTS**

FERC Environmental Assessment Outline and Contents (See Attachment A)	Provided by permit applicant?	Comment
Purpose and Need for Action	No	
Proposed Action	Yes	See Attachment A, Section 3.1 Proposed Construction, pp. 2-5
No Action Alternative	No	
Agency Consultation and Public Involvement	Yes	Discuss with Ameren Missouri staff to determine agencies to be consulted.
Affected Environment	Yes	See Attachment A, Section 5.1. Permit applicants are expected to provide only specific information about the immediate location of the proposed construction to be permitted by Ameren Missouri, not general information about Lake of the Ozarks.
Environmental Analysis	Yes	See Attachment A, Section 5.2.1 Proposed Action, pp. 18-23
Conclusions and Recommendations	Yes	See Attachment A, Section 6.0, pp. 23-24.

Large Dock and Marina permit applicants should provide the following information (Sections 3.1 to 3.4) in a separate, stand-alone document in addition to the “Application for an Ameren Missouri Permit”.

3.1 Proposed Construction

This description should include maps or figures identifying the location and configuration of the proposed structures relative to the elevation based project boundary; and narrative information on location, dimensions, number, volumes, materials, colors, lights, construction methods and equipment, and designed uses. This description should clearly identify the structures to be permitted by Ameren Missouri, and should not include detailed information on any structures for which the applicant is not requesting an Ameren Missouri permit.

3.2 Affected Environment

This description of the environmental resources in the immediate vicinity of the proposed permitted area should include land ownership, soil type, vegetation, water depths, description of surrounding lake and land uses, and distance to existing shoreline development.

3.3 Environmental Analysis

This description of the expected impacts to environmental resources, nearby land owners, public access, and recreational use of the Lake of the Ozarks and its shorelands should be divided into

construction impacts and ongoing impacts. It should be focused on the impacts of the facilities to be permitted by Ameren Missouri.

Construction Phase

The expected duration of the construction phase and the equipment to be used (including the noise generated) should be discussed. The source of any fill materials to be brought to the site and/or the disposition of any materials excavated or dredged from the site should be included. The timing of construction as it relates to aquatic life cycles and recreation seasons should be discussed. This section should include a description of the visual impact of the proposed construction – distance and directions from which it will be visible. Impacts to vegetation, historic properties, and sensitive habitats and species should be discussed.

Use Phase

This discussion should include dimensions, numbers, and volumes of soils, vegetation, and habitats that will be permanently altered by the construction within the project boundary. A projection of use of the constructed facility should be presented, i.e. number of users, seasonality, probable impacts to other uses and users of the Lake.

3.4 Conclusions and Recommendations

Describe how resource impacts will be avoided where possible, and mitigated where they cannot be avoided; include any environmental resource enhancement measures proposed.

For the construction phase, present information on best management practices adopted to minimize run-off, noise impacts, and aquatic and terrestrial species disturbance related to construction of the facilities to be permitted by Ameren Missouri. Describe how high value resources such as wetlands were avoided by structure design and placement. Present and discuss any mitigation included in the project (such as vegetation plantings on adjacent shorelands).

For the use phase, present information on construction materials and design that minimize impacts on the environment and existing users and uses of the Lake and shorelands.

Applications for permits will vary in scope and detail, and no one protection, mitigation, and enhancement recommendation can be identified as appropriate for all permit applications. Nonetheless, applicants are advised to consider the following specific protection, mitigation, and enhancement measures when preparing this section of the environmental review:

- Lighting plans to adequately illuminate the permitted structures without causing excessive lighting of surrounding areas and navigation ways.
- Habitat enhancement, both aquatic and terrestrial, to address any unavoidable impacts.
- Fish beds under proposed docks.
- Fish exclosures to keep herbivores out to promote aquatic vegetation.

4.0 LITERATURE CITED

Federal Energy Regulatory Commission. 2007. Environmental Assessment Application for Non-Project Use of Project Lands and Waters, Osage Project 459-176 Missouri. Office of Energy Projects Division of Hydropower Administration and Compliance. August 2007.

ATTACHMENT A
TYPICAL FERC ENVIRONMENTAL ASSESSMENT