APPENDIX C

SCREENING CRITERIA RATIONALE

The Project Delivery Team (PDT) evaluated over 5,000 alternative measures for the BBA Construction Project Mitigation during screening. Measures included proposed USACE-constructed mitigation projects on public and private lands, as well as alternatives to purchase credits from mitigation banks. Screening criteria were developed by the PDT and are described in detail below. Screening criteria respond to Congressional authority and other laws, policies and guidance, and the CEMVN Commander's Intent, and include, but are not limited to, constraints. Alternatives that did not meet any one of the screening criteria were discarded without further investigation.

Screening Criteria

No conversion of existing wetlands to uplands.

- Definition/Application

This criterion specifies that no existing wetlands would be converted to create an upland project such as a BLH-ridge. The application of this criterion eliminated any projects converting marsh, swamp or BLH-wet to BLH-dry.

- Justification/Legal and Policy References
    - No net loss of wetlands. WRDA 1990, Section 307.
    - Avoid and minimize impacts to wetlands. E.O. 11990.
    - Mitigation Planning Objectives. Mitigation planning objectives are clearly written statements that prescribe specific actions to be taken and identifies specific amounts (units of measurement, e.g., habitat units) of compensation required to replace or substitute for remaining, significant unavoidable losses.ER 1105-2-100 C-3 b(13).
    - (c) Fundamental to the Guidelines is the precept that dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern. (d) From a national perspective, the degradation or destruction of special aquatic sites, such as filling operations in wetlands, is considered to be among the most severe environmental impacts covered by these Guidelines. The guiding principle should be that degradation or destruction of special sites may represent an irreversible loss of valuable aquatic resources. Federal Water Pollution Control Act, 33 U.S.C. 1344 (b)(1); 40 CFR 230.1

- (a) Except as provided under section 404(b)(2), no discharge of dredge or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. (Section 404(b)(2) established the National Pollutant Discharge Elimination System (NPDES) to control water pollution by regulating point sources that discharge pollutants into waters of the United States.) 33 U.S.C. 1344 (b)(1); 40 CFR 230.10

Additionally, conversion of wetlands to uplands would require mitigation, decreasing the cost effectiveness of such a project.

Compliant with applicable laws and policies

- Definition/Application

A given mitigation alternative must be compliant with all federal laws and policies. In application, laws such as WRDA 2007 ("Mitigation plans should comply with the mitigation standards and policies established pursuant to the regulatory programs administered by the Secretary of the Army." §2036(a)) served as a framework from which to develop additional screening criteria, rather than a screening criteria in and of itself. Other laws were applied directly as screening criteria. One example is the application of 31 U.S.C. 1301, under which projects authorized under other authorities were screened out.

- Justification/Legal and Policy References

The following Engineering Regulations require that project alternatives comply with applicable laws and policies:

- The objectives and requirements of applicable laws and executive orders are considered throughout the planning process in order to meet the federal objective. USACE ER 1105-2-100, 2-2.

- Each alternative shall be formulated in consideration of four criteria described in the [Principles & Guidelines]: completeness, efficiency, effectiveness, and acceptability… Acceptability is the extent to which the alternatives are acceptable in terms of applicable laws, regulations and public policies. USACE ER 1105-2-100, 2-3.

- Civil Works studies and projects should be in compliance with all applicable Federal environmental statutes and regulations and with applicable State laws and regulations where the Federal government has clearly waived sovereign immunity. USACE ER 1105-2-100, 2-7.

Additionally, two principles of fiscal law prohibit the use of funds appropriated under one authority from being expended on actions pursuant to a different authority. First, 31 USC 1301(a) posits that appropriations may be used only for their intended purposes. Second, as a

general principle, when both specific and general authorizations/ appropriations exist, the specific always rules over the general such that agencies do not have an option. For example, if a specific appropriation exists for a particular item, then that appropriation must be used and it is improper to "charge" the more general appropriation or any other appropriation. These principles were used to screen out projects that were authorized under authorities other than the BBA Construction Project Mitigation authority.

Mitigation Basins

- Definition/Application

In accordance with the USACE Implementation Guidance for Section 2036 of the WRDA 2007, Mitigation for Fish and Wildlife and Wetlands Losses, and the standards and policies set forth in 33 CFR Part 332, compensatory mitigation was formulated to occur within the same watershed as the impacts and to replace the functions and services of each habitat type with functions and services of the same habitat type. The watershed where the impacts are occurring for the BBA Construction Projects is the Lake Pontchartrain (LP) Basin. Because the mitigation need is so large, the PDT also explored opportunities within the larger watershed that encompasses the southern part of the Mississippi Alluvial Plain. Projects outside of the LP Basin would be deferred to once the projects within the LP Basin are exhausted.

The boundaries of the LP Basin can be generally described as follows: North boundary = Interstate 12 (I-12); South boundary = east bank of the Mississippi River; East and West boundary = from the I-12 intersection with the western boundary of the Pearl River Basin, then southward along this boundary, then southward through Breton Sound and Chandeluer Sound inside the barrier islands; West boundary = the east bank of the Mississippi River to the intersection of Interstate 10 with the river.

The boundaries of the southern Mississippi Alluvial Plain can be generally described as follows: Ecoregion 73 along the Mississippi River and within the state of Louisiana with boundaries to the North = State of Louisiana; South = Gulf of Mexico; East = Ecoregion 74 and West = Ecoregion 35.

During the screening process, potential mitigation sites were excluded from further consideration in cases where the mitigation site was located outside of LP basin or the southern Mississippi Alluvial Plain. In cases where the applicable mitigation basin boundary ran through a potential mitigation site, such a mitigation site was also excluded from further consideration.

- Justification/Legal and Policy References
    - Mitigation plans shall comply with the standards and policies of the regulatory program as listed below. WRDA 2007, Section 2036.
    - The mitigation plans are to set forth the mitigation activities that are to be undertaken within the watershed in which the losses occur or in any case in which the mitigation will occur outside the watershed, the mitigation plan shall set forth a detailed

explanation for undertaking the mitigation outside the watershed. WRDA 2007, Section 2036.

- In general, the required compensatory mitigation should be located within the same watershed as the impact site, and should be located where it is most likely to successfully replace lost functions and services, taking into account such watershed scale features as aquatic habitat diversity, habitat connectivity, relationships to hydrologic sources (including the availability of water rights), trends in land use, ecological benefits, and compatibility with adjacent land uses. 33 CFR Part 332, Section 332.3(b)(1), and; 40 CFR Part 230, Section 230.93(b)(1).

- Where permitted impacts are not in the service area of an approved mitigation bank or in-lieu fee program that has the appropriate number and resource type of credits available, permittee-responsible mitigation is the only option. Where practicable and likely to be successful and sustainable, the resource type and location for the required permittee-responsible compensatory mitigation should be determined using the principles of a watershed approach as outlined in paragraph (c) of this section. 33 CFR Part 332, Section 332.3(b)(4), and; 40 CFR Part 230, Section 230.93(b)(4).

- The district engineer must use a watershed approach to establish compensatory mitigation requirements in DA permits to the extent appropriate and practicable. Where a watershed plan is available, the district engineer will determine whether the plan is appropriate for use in the watershed approach for compensatory mitigation. In cases where the district engineer determines that an appropriate watershed plan is available, the watershed approach should be based on that plan. Where no such plan is available, the watershed approach should be based on information provided by the project sponsor or available from other sources. The ultimate goal of a watershed approach is to maintain and improve the quality and quantity of aquatic resources within watersheds through strategic selection of compensatory mitigation sites. 33 CFR Part 332, Section 332.3(c)(1), and; 40 CFR Part 230, Section 230.93(c)(1)

- The size of watershed addressed using a watershed approach should not be larger than is appropriate to ensure that the aquatic resources provided through compensation activities will effectively compensate for adverse environmental impacts resulting from activities authorized by DA permits. The district engineer should consider relevant environmental factors and appropriate locally developed standards and criteria when determining the appropriate watershed scale in guiding compensation activities. 33 CFR Part 332, Section 332.3(c)(4), and; 40 CFR Part 230, Section 230.93(c)(4).

No known HTRW risk

- Definition/Application

Hazardous, toxic, and radioactive waste (HTRW) includes various materials defined in Section 4.a.(1) of ER 1165-2-132 (USACE, 1992). Examples of such materials include, but are not

limited to any material listed as a "hazardous substance" under the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. 9601 et seq.).

In screening potential mitigation sites, CEMVN reviewed various information sources to determine if there could be Recognized Environmental Conditions (REC) present within a particular site. The term "REC" is defined in Section 1.1.1 of ASTM Standard Practice E 1527-05 (ASTM, 2005). This term basically refers to the presence or likely presence of HTRW on a property under conditions which indicate an existing or past release, or a material threat of a release of HTRW into structures on the property or into the ground, ground water, or surface water of the property. It does not include *de minimis* conditions that commonly do not present a threat to human health or the environment.

The following information sources (databases) were consulted and searched as part of the review process: (a) Federal records - United States Environmental Protection Agency's (USEPA) National Priorities List; State and local records – Louisiana Department of Natural Resources wells and pipelines database.

The potential mitigation sites were determined to have a low probability of encountering HTRW.

The development of a response plan for dealing with HTRW, as well as response measures to relocate HTRW or to treat the HTRW in place is 100% Non-Federal cost. USACE ER 1165-2-132.

In kind replacement of impact AAHUs by habitat type (exception: BLH-Dry can be mitigated as BLH-Wet)

- Definition/Application

This criterion specifies that impacts must be mitigated by replacing the same habitat type as was originally impacted. In kind is defined as a resource of a similar structural and functional type to the impacted resource (40 CFR 230.92). Functions mean the physical, chemical and biological processes that occur in ecosystems (40 CFR 230.92). The application of this criterion eliminated projects that attempted to mitigate swamp impacts with anything other than a swamp project, BLH-dry impacts with anything other than a BLH project, and BLH-wet impacts with anything other than a BLH-wet project. In addition, protected side projects for flood side impacts were eliminated since a loss of functions and values inherent in flood side habitats would occur resulting in out of kind mitigation. These definitions of in-kind were developed in coordination with Federal and state resource agencies.

- Justification/Legal and Policy References

    - Comply with the Fish and Wildlife Coordination Act by giving full consideration to reports and recommendations furnished by the Secretary of the Interior (U. S. Fish and Wildlife Service), the Secretary of Commerce (National Marine Fisheries Service), and the appropriate head of the State agency exercising administration over the fish and wildlife resources. ER 1105-2-100, Section d(3)(b).

- Mitigation plans shall ensure that impacts to bottomland hardwood forests are mitigated in kind, to the extent possible. WRDA 1986, 33 U.S.C 2283(a).

- Other habitat types are mitigated to not less than in kind condition to the extent possible. WRDA 2007, Section 2036(a).

- (1) In general, in-kind mitigation is preferable to out-of-kind mitigation because it is most likely to compensate for the functions and services lost at the impact site. For example, tidal wetland compensatory mitigation projects are most likely to compensate for unavoidable impacts to tidal wetlands, while perennial stream compensatory mitigation projects are most likely to compensate for unavoidable impacts to perennial streams. Thus, except as provided in paragraph (e)(2) of this section, the required compensatory mitigation shall be of a similar type to the affected aquatic resource. (2) If the district engineer determines, using the watershed approach in accordance with paragraph (c) of this section that out-of-kind compensatory mitigation will serve the aquatic resource needs of the watershed, the district engineer may authorize the use of such out-of-kind compensatory mitigation. The basis for authorization of out-of-kind compensatory mitigation must be documented in the administrative record for the permit action. 40 CFR Part 230.93(e)

- (5) Permittee-responsible mitigation through on-site and in-kind mitigation. In cases where a watershed approach is not practicable, the district engineer should consider opportunities to offset anticipated aquatic resource impacts by requiring on-site and in-kind compensatory mitigation. The district engineer must also consider the practicability of on-site compensatory mitigation and its compatibility with the proposed project. (6) Permittee-responsible mitigation through off-site and/or out-of-kind mitigation. If, after considering opportunities for on-site, in-kind compensatory mitigation as provided in paragraph (b)(5) of this section, the district engineer determines that these compensatory mitigation opportunities are not practicable, are unlikely to compensate for the permitted impacts, or will be incompatible with the proposed project, and an alternative, practicable off-site and/or out-of-kind mitigation opportunity is identified that has a greater likelihood of offsetting the permitted impacts or is environmentally preferable to on-site or in-kind mitigation, the district engineer should require that this alternative compensatory mitigation be provided. 33 CFR Part 332.3(b).

- The Secretary of Commerce is required to obtain the views of Federal agencies affected by the program, including the Department of the Interior, and to ensure that these views have been given adequate consideration before approval of Coastal Zone Management Plans. 16 U.S.C. 1451-1464.

- It is preferable, in most cases, to recommend ways to replace such habitat value losses in-kind. FR Vol 46. No. 15. 23 Jan 1981.

- Mitigation plans shall ensure that adverse impacts to bottomland hardwood forests are mitigated in-kind, to the extent possible. The intent is that the bottomland hardwood forest as an ecological system be mitigated rather than mitigating for faunal species in an upland hardwood forest habitat type. In this instance "to the extent possible" shall take into consideration the availability of manageable units of existing or restorable bottomland hardwood forests and the practicability and feasibility of implementing management measures to accomplish in-kind mitigation. In-kind does not necessarily mean acre-for-acre, but may be restoration or the increased management of bottomland hardwood forests to compensate for the loss of biological productivity (habitat quality). Consultation with appropriate Federal and non-Federal agencies is required in complying with this requirement. ER 1105-2-100, C-3 e(6).

Under the above provision of WRDA 1986, the PDT considered that BLH-D habitat could be mitigated with BLH-W habitat in cases where it is not possible to mitigate BLH-D. The PDT sees this habitat exchange as providing equal habitat value to that which was lost through BLH-D. BLH-W habitat is a more diverse habitat while still supporting the species found in BLH-D habitat. BLH-W also has wetland functions and values not found in BLH-D habitat. BLH-W is thus seen as more valuable habitat because it can support both BLH-W and BLH-D species and has added habitat functions and values. It is not acceptable to mitigate BLH-W impacts with BLH-D habitat because the wetland functions and values as well as some diversity would be lost. The justification for eliminating the use of protected side projects for flood-side impacts stems from the notion that aquatic ecosystems lose habitat value when the natural hydrology of the ecosystem is altered by impoundment. This notion is supported by the metrics used in the Wetland Value Assessment Methodology Community Models used to quantify impacts and benefits for the BBA Construction Project Mitigation.

- Coastal Wetlands Planning, Protection and Restoration Act, Wetland Value Assessment Methodology, Bottomland Hardwood Community Model - Variable V4, Hydrology: Bottomland hardwood stands in the Louisiana Coastal Zone generally occur in one of four basic hydrology classes or water regimes: 1) efficient forced drainage system, 2) irregular periods of inundation due to an artificially lowered water table, 3) extended inundation or impoundment because of artificially raised water table, and 4) essentially unaltered. The optimum bottomland hardwood hydrology (SI= 1.0) is one that is essentially unaltered, allowing natural wetting and drying cycles which are beneficial to vegetation and associated fish and wildlife species. When a bottomland hardwood stand is part of an efficient forced drainage system, the vegetative component provides some habitat value, but wildlife species which are dependent on water would essentially be excluded year round, and the area would not in any way serve to promote fish production (SI = 0.1). With a moderately lowered water table, the vegetative component of the site could provide excellent habitat for many wildlife species and temporary habitat for wildlife species which are dependent on water, but fish would generally be excluded (SI = 0.5). With a raised water table, fish habitat and habitat for water-dependent wildlife could be equivalent to an unaltered system;

however, other wildlife species could be adversely affected because of water-related impacts to the vegetative components of the stand (SI = 0.5).

- Coastal Wetlands Planning, Protection and Restoration Act, Wetland Value Assessment Methodology, Swamp Community Model - Variable V3, Water regime: This variable considers the duration and amount of water flow/exchange. Four flow/exchange and four flooding duration categories are described to characterize the water regime. The optimal water regime is assumed to be seasonal flooding with abundant and consistent riverine/tidal input and water flow-through (SI=1.0). Seasonal flooding with periodic drying cycles is assumed to contribute to increased nutrient cycling (primarily through oxidation and decomposition of accumulated detritus), increased vertical structure complexity (due to growth of other plants on the swamp floor), and increased recruitment of dominant overstory trees. In addition, abundant and consistent input and water flow-through is optimal, because under that regime the full functions and values of a swamp in providing fish and wildlife habitat are assumed to be maximized. Temporary flooding is also assumed to be desirable. Habitat suitability is assumed to decrease as water exchange between the swamp and adjacent systems is reduced. The combination of permanently flooded conditions and no water exchange (e.g., an impounded swamp where the only water input is through rainfall and the only water loss is through evapotranspiration and ground seepage) is assumed to be the least desirable (SI=0.1).

Technically viable (e.g. salinity suitable for target habitat type)

- Definition/ Application

As applied to BBA Construction Project Mitigation, technically viable means capable of achieving ecological functionality from a scientific or engineering standpoint. As specifically applied during screening, alternatives were only screened under this criterion if the conditions in the vicinity of the proposed alternative were not supportive of a target habitat type. In addition, projects that did not produce positive mitigation benefits were not considered further.

- Justification/Legal and Policy References

WRDA 2007 requires that mitigation for water resources projects achieve ecological success. Additionally, USACE regulations specify that civil works projects must be implementable, feasible, constructible, reliable, and functional. Specific excerpts of WRDA 2007 and these regulations are provided below:

- MITIGATION REQUIREMENTS…INCLUSIONS.—A specific mitigation plan for a water resources project … shall include, at a minimum—(i) a plan for monitoring the implementation and ecological success of each mitigation measure, including the cost and duration of any

monitoring, and, to the extent practicable, a designation of the entities that will be responsible for the monitoring; (ii) the criteria for ecological success by which the mitigation will be evaluated and determined to be successful based on replacement of lost functions and values of the habitat, including hydrologic and vegetative characteristics; … and (v) a contingency plan for taking corrective actions in cases in which monitoring demonstrates that mitigation measures are not achieving ecological success in accordance with criteria under clause (ii)… DETERMINATION OF SUCCESS…CONSULTATION.—In determining whether a mitigation plan is successful under subparagraph (A), the Secretary shall consult annually with appropriate Federal agencies and each State in which the applicable project is located on at least the following: (i) The ecological success of the mitigation as of the date on which the report is submitted. (ii) The likelihood that the mitigation will achieve ecological success, as defined in the mitigation plan. (iii) The projected timeline for achieving that success. (iv) Any recommendations for improving the likelihood of success. WRDA 2007, Section 2036 (a) (3) (a).

- [Principles and Guidelines] Evaluation Criteria: (1)… Two primary dimensions to acceptability are implementability and satisfaction. Implementability means that the alternative is feasible from technical, environmental, economic, financial, political, legal, institutional, and social perspectives. If it is not feasible due to any of these factors, then it cannot be implemented, and therefore is not acceptable. An infeasible plan should not be carried forward for further consideration. USACE ER 1105-2-100, E-3. General Policies a. The Planning Process, (4) Step 4- Evaluate alternative plans.

- Evaluation of Alternatives. Engineering staff shall assist in the evaluation of alternatives to identify those that are constructible and the degree to which safety, reliability, and functional requirements and objectives are met including operations and maintenance. The type and extent of HTRW contamination shall be determined and alternatives and costs for remedial action developed. Proposed alternatives that do not satisfy the constructability, reliability, safety, or functional requirements shall be recommended for withdraw[al] from further consideration. This recommendation shall be discussed and agreed upon by the full PDT. USACE ER 1110-2-1150, Section 13.4.

- …habitat-based evaluation methodologies, supplemented with production, user-day, population census, and/or other appropriate information, shall be used to the extent possible to describe and evaluate ecological resources and impacts associated with alternative plans. ER 1105-2-100, Section C-3 d(5).

- Mitigation plan components include documentation of the functions and values that will result from the mitigation. WRDA 2007, Section 2036(a).

Screen out measures that are in the Future Without Project Condition

- Definition/Application

The Future Without Project Condition for BBA Construction Project Mitigation is defined in part by the measures (projects) that would likely exist in the absence of the implementation of the BBA Construction Project Mitigation. Projects included in the Future Without Project Condition are displayed in Appendix B Table 18 of the Main Report. Projects included in the Future Without Project Condition were screened out as potential BBA Construction Project Mitigation projects.

- Justification/Legal and Policy References

Establishment of the Future Without Project Condition is required for alternative plan evaluation in USACE civil works planning, as described in the below bullets. The impacts of alternatives, including benefits, are qualitatively or quantitatively described as the different between the Future Without and Future With Project Condition. Specific excerpts of these regulations are provided below:

- The second step of the planning process is to develop an inventory and forecast of critical resources (physical, demographic, economic, social, etc.) relevant to the problems and opportunities under consideration in the planning area. This information is used to further define and characterize the problems and opportunities. A quantitative and qualitative description of these resources is made, for both current and future conditions, and is used to define existing and future without-project conditions. Existing conditions are those at the time the study is conducted. The forecast of the future without-project condition reflects the conditions expected during the period of analysis…The future without-project condition provides the basis from which alternative plans are formulated and impacts are assessed. Since impact assessment is the basis for plan evaluation, comparison and selection, clear definition and full documentation of the without-project condition are essential. Gathering information about historic and existing conditions requires an inventory. Gathering information about potential future conditions requires forecasts, which should be made for selected years over the period of analysis to indicate how changes in economic and other conditions are likely to have an impact on problems and opportunities. Information gathering and forecasts will most likely continue throughout the planning process. USACE ER 1105-2-100, Section 2-3 b.

- The without-project condition is the most likely condition expected to exist in the future in the absence of a proposed water resources project. Proper definition and forecast of the future without-project condition are critical to the success of the planning process. The future without-project condition constitutes the benchmark against which plans are evaluated. Forecasts of future without-project conditions

> shall consider all other actions, plans and programs that would be implemented in the future to address the problems and opportunities in the study area in the absence of a Corps project. Forecasts should extend from the base year (the year when the proposed project is expected to be operational) to the end of the period of analysis. ER 1105-2-100, Section 2-4 b (1).

Must have independent utility (not dependent on implementation of or modification to other projects)

- Definition/ Application

The project would not be dependent on implementation of or modification to other projects for ecological success and fulfillment of Average Annual Habitat Unit (AAHU) requirement. If the sustainability or technical viability would be reliant upon another project, the net benefits of the project could not be guaranteed such that mitigation credit could be secured.

- Justification/Legal and Policy References

  - Evaluation of management features shall be based upon the features' completeness, effectiveness, efficiency and acceptability in fulfilling established management (mitigation or enhancement) objectives. ER 1105-2-100, Section C-3 d(1)(b).

A project without independent utility may not meet the P&G "completeness" criteria. Completeness is the extent to which a given alternative plan provides and accounts for all necessary investments or other actions to ensure the realization of the planned effects. If the success of a project depends upon factors beyond the control of the planning team that are required to make the plan's effects (benefits) a reality, it would not meet the completeness criteria.

> - …mitigation, including acquisition of the lands or interests – (A) shall be undertaken or acquired before any construction of the project …,or (B) shall be undertaken or acquired concurrently with lands and interests in lands for project purposes (other than mitigation of fish and wildlife losses)… WRDA 1986, 33 U.S.C. 2283(a).

If a project's ecological success relies upon the implementation or modification of another project, there is increased risk in delay of mitigation implementation.

- Temporal loss is the time lag between the loss of aquatic resource functions caused by the permitted impacts and the replacement of aquatic resource functions at the compensatory mitigation site. Higher compensation ratios may be required to compensate for temporal loss. When the compensatory mitigation project is initiated prior to, or concurrent with, the permitted impacts, the district engineer may determine that compensation for temporal loss is not necessary, unless the resource has a long development time. 33 CFR Part 332.2.

The potential time lag in implementation of mitigation for such projects could reduce their cost effectiveness due to higher compensation ratios and thus increased required acreage.

Can be easily scaled to meet changing mitigation acreage requirements.

- Definition/Application

The size of a given alternative must have the ability to increase or decrease the number of AAHUs it would provide over the 50 year project life in a practical, logical and technically feasible manner. For example, the PDT used aerial photography and GIS capabilities to determine whether adequate acreage was available to increase a particular project polygon in case mitigation requirements were increased.

- Justification/Legal and Policy References

Under the premise laid forth in the Antideficiency Act, 31 USC 1341 et seq., the Corps' ability to expend funds to produce AAHUs is limited to the mitigation requirement for BBA Construction Projects impacts. Funds expended for AAHUs above those required for BBA Construction Project Mitigation could be viewed as a violation of this fiscal law.

The exact BBA Construction Project Mitigation requirement will not be determined until all as-builts become available for BBA Construction Projects and final AAHUs of impact are determined. Early estimates of acreages needed are based on BBA Construction Projects designs rather than as-builts, as well as previous WVAs conducted for similar projects. The number of acres needed to mitigate for BBA Construction Projects unavoidable losses will continue to evolve throughout the planning and design phases, as impact acreage are revised. The selected projects must be scalable such that the mitigation designs can be adjusted to produce only the required AAHUs.

No standalone BLH-Dry measures (BLH-Dry requirements if identified will be mitigated contiguous with mitigation for other habitat types)

- Definition/Application:

This criterion specifies that the requirement for non-wet bottomland hardwood impacts will be mitigated adjacent to mitigation measures that are designed to address other BBA Construction Projects mitigation requirements. All other mitigation measures have hydrologic components. Flood side versus protected side does not affect BLH-Dry because BLH-Dry has no hydrologic component. The application of this criterion results in optimized mitigation plan element outputs (as described in the Justification paragraph below) and addresses multiple mitigation requirements in one geographic area.

- Justification/Legal and Policy References*:*

By limiting standalone BLH-dry mitigation measures, this criterion limits alternative combinations and increases ecological functions and values. The resulting combination requires less land to yield the needed AAHUs when the BLH-Dry component is combined with other wet

mitigation features. Without this limitation, the BLH-Dry mitigation requirement could be mitigated on virtually any upland (which yields lower AAHUS outputs) within the LP Basin or the southern Mississippi Alluvial Plain. Forcing BLH-Dry to be mitigated with one of the other mitigation requirements: 1) increases the contiguous habitat area included in the resulting mitigation plan which increases efficiency, i.e. cost effectiveness, (by increasing ecological outputs and taking advantages of cost efficiencies), 2) increases habitat functions and values by adding hydrologic functions adjacent to, and in some cases instead of, an upland system. The BLH WVA assigns increasing benefits as the acres of contiguous forested land increase (V5), and assesses benefits for surrounding land use with other forested areas and marsh receiving the greatest credit (V6). As such, preference is given to large contiguous tracts of forested land over smaller. Without this criterion, the lower outputs from standalone BLH-D WVAs would show these measures to be less cost effective [i.e. less efficient].

No preservation measures

- Definition/Application

Preservation is defined as the removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources typically through the implementation of appropriate legal mechanisms. Preservation does not produce a gain in aquatic resource area or functions.

- Justification/Legal and Policy References

Preservation was not chosen as a mitigation type for BBA Construction Projects Mitigation because:

1. There are proven methodologies for restoration of the aquatic resource types impacted by BBA Construction Projects such that utilization of preservation as justified in 33 CFR Part 332.3(e)(3) for difficult to replace resources is not justifiable;
2. There are multiple restoration mitigation projects available, which is the preferred mitigation type as stated in 33 CFR Part 332.3(a)(2); and
3. The use of preservation as a mitigation type does not provide an increase in aquatic resource area or functions.

- Compensatory mitigation may be performed using the methods of restoration, enhancement, establishment, and in certain circumstances preservation. Restoration should generally be the first option considered because the likelihood of success is greater and the impacts to potentially ecologically important uplands are reduced compared to establishment, and the potential gains in terms of aquatic resource functions are greater, compared to enhancement and preservation. 33 CFR Part 332.

- Preservation may be used to provide compensatory mitigation…when all the following criteria are met:

1. The resources to be preserved provide important physical, chemical, or biological functions for the watershed;
2. The resources to be preserved contribute significantly to the ecological sustainability of the watershed. In determining the contribution of those resources to the ecological sustainability of the watershed, the district engineer must use appropriate quantitative assessment tools, where available;
3. Preservation is determined by the district engineer to be appropriate and practicable;
4. The resources are under threat of destruction or adverse modifications; and
5. The preserved site will be permanently protected through an appropriate real estate or other legal instrument

In addition, when preservation is used as compensatory mitigation, to the extent appropriate and practicable the preservation should be done in conjunction with aquatic resource restoration, establishment, and/or enhancement activities. 33 CFR Part 332.3(h).

Coastal Zone swamp, Coastal Zone BLH and non-Coastal Zone BLH proposed mitigation measures must consist of at least 40 acres for swamp and 50 acres for BLH.

- Definition/Application:

This criterion specifies that any proposed BBA Construction Project Mitigation for BLH and Swamp proposed mitigation project must be at least 40 acres for Coastal Zone swamp, 50 acres for Coastal Zone BLH and non-Coastal Zone BLH.

- Justification/Legal and Policy References:

    - This criterion complies with the intent to create larger contiguous areas. s. Compliance with policy resulted in larger contiguous tracts of land for the purposes of greater ecological output within the watershed. In addition, the consolidation of mitigation projects produces cost efficiencies experienced during construction and O&M phases. Mitigation for protected-side impacts with flood-side mitigation projects was based on additional functions and values assessed for providing a restored hydrology and connectivity with other wetland habitats. The BLH WVA assigns increasing benefits as the acres of contiguous forested land increase (Variable V5), and assesses benefits for surrounding land use with contiguity with other forested and marsh areas that allow for wildlife movement receiving the greatest credit (Variable V6). Measures that consist of less than 40 contiguous acres would have low WVA outputs and be less cost effective [i.e. efficiency] than larger measures.

- *Detail Regarding Variable V5 – Size of Contiguous Forested Area:*

Although edge and diversity, which are dominant features of small forested tracts, are important for certain wildlife species, it is important to understand four concepts: 1) species which thrive in

edge habitat are highly mobile and presently occur in substantial numbers, 2) edge and diversity are readily available because of forest fragmentation and ongoing timber harvesting by man, 3) most species found in "edge" habitat are "generalists" in habitat use and are capable of existing in larger tracts, and 4) those species in greatest need of conservation are "specialists" in habitat use and require large forested tracts. Therefore, the basic assumption for this variable is that larger forested tracts are less common and offer higher quality habitat than smaller tracts. For this model, tracts greater than 500 acres in size are considered large enough to warrant being considered optimal and receive a suitability index of 1. Tracts up to 5 acres receive a SI of 0.2, tracts from 5.1 to 20 acres receive a SI of .4, tracts from 21.1 to 100 receive a SI of .4, and tracts from 100.1 to 500 acres receive a SI of .8.

- *Detail Regarding Variable V6– Suitability and Traversability of Surrounding Land Uses:*

Many wildlife species commonly associated with bottomland hardwoods will often use adjacent areas as temporary escape or resting cover and seasonal or diurnal food sources. Surrounding land uses which meet specific needs can render a given area of bottomland hardwoods more valuable to a cadre of wildlife species. Additionally, the type of surrounding land use may encourage, allow, or discourage wildlife movement between two or more desirable habitats. Land uses which allow such movement essentially increases the amount of habitat available to wildlife populations. The weighting factor assigned to various land uses reflects their estimated potential to meet specific needs and allow movement between more desirable habitats. For this model, contiguity with other forested areas and marsh receive the greatest suitability (1.0) because of the ability for contiguous habitats to allow wildlife movement.

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