

APPENDIX N

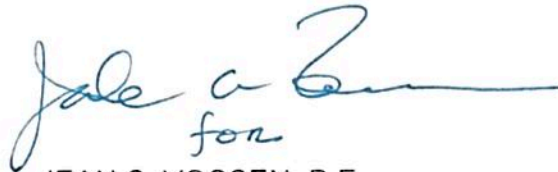
404 (b)(1)

CEMVN-EDH

MEMORANDUM FOR Chief, Environmental Branch (CEMVN-PDN/ Marshall Harper)

SUBJECT: Request for Water Quality Input for 404(b)(1) Evaluation for Proposed BBA Mitigation, Pine Island Swamp Creation, St. Tammany Parish, Louisiana.

1. As requested, enclosed are the completed sections of the 404(b)(1) evaluation relating to impacts to water quality from Proposed BBA Mitigation, Pine Island Swamp Creation, St. Tammany Parish, Louisiana (Encl 1). Also included is a memorandum of explanation for these completed sections (Encl 2).
2. An electronic copy is available in Microsoft Word.
3. Point of contact is Whitney Hickerson, x-2607.



JEAN S. VOSSSEN, P.E.
Chief, Engineering Division

2 Encls

The following short form 404(b)(1) evaluation follows the format designed by the Office of the Chief of Engineers, (OCE). As a measure to avoid unnecessary paperwork and to streamline regulation procedures while fulfilling the spirit and intent of environmental statutes, New Orleans District is using this format for all proposed project elements requiring 404 evaluation, but involving no adverse significant impacts.

PROJECT TITLE. BBA Mitigation, Pine Island Swamp Creation, St. Tammany Parish, Louisiana

PROJECT DESCRIPTION. The proposed project involves creation of up to a total of approximately 1,965 acres of swamp habitat over eight separate areas as compensatory mitigation for some of the swamp impacts resulting from construction of BBA projects (Figure 1). The swamp creation areas (mitigation areas) would be located in open waters around Milton Island on the north shore of Lake Pontchartrain. This site is located Southwest of the town of Madisonville adjacent to the Tchefuncte River in St. Tammany Parish.

Required earthwork prior to dredging would first consist of dike construction or rehabilitation around the perimeter of each of the eight mitigation areas up to an elevation of +5.0 NAVD88 with a 5-ft wide crown. Existing material within each mitigation area will be used to construct or rehabilitate the containment dikes. Submerged pipelines will be placed on the bottom of the canals that run between the mitigation areas as well as underneath the roads separating them as indicated on the attached drawing. Following dike construction, a cutterhead dredge will hydraulically place material from within the borrow area indicated on the attached drawing into the mitigation areas using the shown pipeline routes. After filling the mitigation areas is complete, a one-year settlement period will pass prior to dike degrading and planting.

Native canopy and midstory plants typical of swamp habitats would be installed in mitigation Areas 1 – 8 following completion of the initial earthwork, dredging, settlement period, and degrading of the dikes.

The approximate maximum planted acreage within the proposed mitigation areas would be as follows:

Mitigation Area	Area (AC)
Area 1	218
Area 2	262
Area 3	524
Area 4	226
Area 5	72
Area 6	337
Area 7	142

Area 8	184
Total	1,965

PROPOSED PLANTING:

Assumed total plantings within the swamp mitigation areas (approximate):

Mitigation Area	Swamp Canopy Seedlings	Swamp Midstory Seedlings
Area 1	118,810	29,648
Area 2	142,790	35,632
Area 3	285,580	71,264
Area 4	123,170	30,736
Area 5	39,240	9,792
Area 6	183,665	45,832
Area 7	77,390	19,312
Area 8	100,280	25,024
Total	1,070,925	267,240

Assume swamp canopy plants species will be installed on an 8ft by 10ft grid (545 seedlings per acre)

Assume swamp midstory plants species will be installed on a 16ft by 20ft grid (136 seedlings per acre)

Mowing poles (PVC pipes extending roughly 6 feet above grade) would be installed on each planted row every 50' to 100' to guide mowing operations.

Dike Construction/Rehabilitation:

Total perimeter retention would be required to retain dredged material and to allow for vertical accretion. The total length of each mitigation area which would require dike construction, rehabilitation, or lifting are as follows:

Mitigation Area	Perimeter (ft)
Area 1	14,925
Area 2	22,366
Area 3	22,132
Area 4	19,090
Area 5	9,050
Area 6	16,948
Area 7	12,343
Area 8	30,628
Total	147,482

Any existing features such as existing perimeter dikes, access roads, and or ridges will be used for retention of dredged material. If dike rehabilitation is required, material for dike maintenance will come from within the proposed footprint of the swamp sites. Existing dikes will be used to the extent practical. The retention dikes will be constructed to elevation +5.0 NAVD88, with a 5'-wide crown to assure dike integrity. The borrow ditch will be offset a minimum of 40' from the dike to assure dike stability.

Plugs would be left in the borrow ditch at 1,000- foot intervals to minimize water flow and material loss during pumping operations. Spill boxes and/or weirs would be constructed at locations along the northern and western retention dikes as necessary to allow for effluent water release from within the swamp creation area for approximately one year after construction, when the perimeter dikes are breached and degraded. If deemed necessary by the construction contractor, a low-level interior weir or baffle dikes would be constructed to assist in vertical stacking of dredged material. The gaps would be spaced with care being taken to locate gaps at existing natural bayous, canals, or other openings. The gaps would require a 25-foot bottom at approximately elevation +0.0 NAVD88 (lower limit of existing nearby marsh platform) to assure water interchange with the existing marsh.

Dredging:

A hydraulic cutterhead dredge would be used to pump approximately 8.9 million cubic yards of material via a pipeline from the proposed 2,238 acre borrow site in Lake Pontchartrain to the swamp creation sites. Initial elevation for dredge fill would be to approximate elevation +2.5 feet NAVD88 for to ultimately result in a target swamp elevation of between + 2.0ft final elevation. The maximum allowable dig depth within the borrow excavation would be -20 feet NAVD88 plus a 1-foot allowable overdepth to account for inaccuracies in the dredging process.

Three 75-ft corridors are indicated on the drawing and run from the borrow site into Areas 4 and 7 have been established to place subline for pumping material from the proposed borrow site to the mitigation areas. The first pipeline corridor runs down the middle of the entrance channel to the east of Milton Island and to the east of an area indicated to be a shell reef site. All activities related to this proposed work will avoid this

area. All pipeline corridors would be placed and located in a manner which does not impact existing wetlands.

DURATION:

Per the PDT, the assumed start date for construction is 1 June 2020. Necessary dike construction and initial pumping of sediment into the mitigation areas would be completed around June 2021. After a year-long settlement period, degrading of dike would begin in June 2022 and be completed by at least March 2023. Initial planting activities would likely be conducted in November 2023 through mid-March 2024. Notice of Construction Completion (NCC) would be issued soon after completion of the initial planting event.

Monitoring to determine success of the initial plantings would likely occur in October 2024 with the report submitted in December 2024. If this monitoring showed success criteria had been satisfied, a second monitoring event would likely occur in October 2025 with the report submitted in December 2025. Assuming this latter report showed applicable success criteria had been satisfied, the overall project would be turned over to the Non-Federal Sponsor in January 2026.

SITE ACCESS:

Access to the project site would be as follows:

From the north, Guste Island Road runs between Areas 1 and 8. This road then splits into Grand Rue Port Louis Road which runs between Areas 4, 5, and 7. South Chenier Drive runs between Area 2 and Area 3. Access to the mitigation areas can also be made via the many canals that run between all the areas.

STAGING:

Staging of equipment for initial dike construction activities would be via barge on or near the Lake Pontchartrain coast as indicated on the attached drawing. The Contractor would determine where within the mitigation areas during the dredge pumping phase to place staging and laydown areas suitable for the Contractor's means and methods to meet the required project period of performance. The proposed staging area would first be submitted for Government approval. The Contractor would be permitted to place crushed stone paving for parking and laydown areas along with a temporary construction trailer. No utilities would be provided by the Government, and the Contractor must obtain all permissions and permits for utilities. The trailer, crushed stone paving, and temporary utilities would have to be removed by the Contractor and the end of the project and the disturbed area would have to be planted with native grasses by the Contractor leaving the project site.

MAINTENANCE/MANAGEMENT ACTIVITIES:

After completion of all dike construction, dredge pumping, and soil preparation activities but prior to initial plantings, herbicides may be applied to the mitigation area to help control invasive and nuisance plant species. Mowing may also be performed in the mitigation area during this time period. After the mitigation area is initially planted and before the success of these plantings is evaluated (monitored), herbicide applications and/or mowing may also occur to help suppress undesirable vegetation. Throughout this period, access/maintenance roads would be maintained as necessary as would be any new drainage features established.

The first monitoring event would occur in the fall of the year of the initial plantings. This report could show additional plantings are needed or it may not. Regardless, various mowing events and herbicide application events would take place during the period from the first monitoring event to the second monitoring event performed the next year. It is assumed that the second monitoring event would show success criteria for the plantings had been achieved as were success criteria about control of invasive and nuisance plants. In this case, the Non-Federal Sponsor would take over the project including all management and maintenance work.



Figure 1 – Plan Layout

1. Review of Compliance (§230.10 (a)-(d)).

A review of this project indicates that:

	Preliminary ¹		Final ²	
a. The discharge represents the least environ-mentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose (if no, see section 2 and information gathered for environmental assessment alternative);	<div style="border: 1px solid black; padding: 5px; display: inline-block;">YES</div>	NO*	YES	NO
b. The activity does not appear to: (1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the Clean Water Act; (2) jeopardize the existence of Federally listed endangered or threatened species or their habitat; and (3) violate requirements of any Federally designated marine sanctuary (if no, see section 2b and check responses from resource and water quality certifying agencies);	FOR (1) ONLY <div style="border: 1px solid black; padding: 5px; display: inline-block;">YES</div>	NO*	YES	NO
c. The activity will not cause or contribute to significant degradation of waters of the United States including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, esthetic, and economic values (if no, see section 2);	<div style="border: 1px solid black; padding: 5px; display: inline-block;">YES</div>	NO*	YES	NO
d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (if no, see section 5).	<div style="border: 1px solid black; padding: 5px; display: inline-block;">YES</div>	NO*	YES	NO

2. Technical Evaluation Factors (Subparts C-F).

N/A

Not
Significant

Significant

a. Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C).

- (1) Substrate impacts.
- (2) Suspended particulates/turbidity impacts.
- (3) Water column impacts.
- (4) Alteration of current patterns and water circulation.
- (5) Alteration of normal water fluctuations/hydroperiod.
- (6) Alteration of salinity gradients.

	X	
		X
	X	
		X
	X	
	X	

b. Biological Characteristics of the Aquatic Ecosystem (Subpart D).

- (1) Effect on threatened/endangered species and their habitat.
- (2) Effect on the aquatic food web.
- (3) Effect on other wildlife (mammals, birds, reptiles, and amphibians).

	X	
	X	
	X	

c. Special Aquatic Sites (Subpart E).

- (1) Sanctuaries and refuges.
- (2) Wetlands.
- (3) Mud flats.
- (4) Vegetated shallows.
- (5) Coral reefs.
- (6) Riffle and pool complexes.

	X	
	X	
	X	
	X	
X		
X		

d. Human Use Characteristics (Subpart F).

- (1) Effects on municipal and private water supplies.
- (2) Recreational and commercial fisheries impacts.
- (3) Effects on water-related recreation.
- (4) Esthetic impacts.
- (5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves.

X		
	X	
	X	
	X	
	X	

Remarks. Where a check is placed under the significant category, the preparer has attached explanation.

3. Evaluation of Dredged or Fill Material
(Subpart G).³

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material.

- | | |
|---|---------------|
| (1) Physical characteristics | <u> X </u> |
| (2) Hydrography in relation to known or anticipated sources of
contaminants | <u> X </u> |
| (3) Results from previous testing of the material or similar material in
the vicinity of the project | <u> X </u> |
| (4) Known, significant sources of persistent pesticides from land runoff
or percolation | <u> </u> |
| (5) Spill records for petroleum products or designated (Section 311 of
CWA) hazardous substances | <u> X </u> |
| (6) Other public records of significant introduction of contaminants
from industries, municipalities, or other sources | <u> X </u> |
| (7) Known existence of substantial material deposits of substances
which could be released in harmful quantities to the aquatic environment
by man-induced discharge activities | <u> </u> |
| (8) Other sources (specify) | <u> </u> |

Appropriate references: See memorandum (Encl 2)

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or the material meets the testing exclusion criteria.

YES

NO*

4. Disposal Site Delineation
(§230.11(f)).

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

- | | |
|---|---------------|
| (1) Depth of water at disposal site | <u> X </u> |
| (2) Current velocity, direction, and variability at disposal site | <u> </u> |
| (3) Degree of turbulence | <u> X </u> |
| (4) Water column stratification | <u> X </u> |
| (5) Discharge vessel speed and direction | <u> </u> |
| (6) Rate of discharge | <u> </u> |
| (7) Dredged material characteristics (constituents, amount, and type of
material, settling velocities) | <u> X </u> |

- (8) Number of discharges per unit of time
(9) Other factors affecting rates and patterns of mixing (specify)

Appropriate references:

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable.

YES

NO*

5. Actions to Minimize Adverse Effects
(Subpart H).

All appropriate and practicable steps have been taken, through application of the recommendations of §230.70-230.77 to ensure minimal adverse effects of the proposed discharge.

YES

NO*

6. Factual Determination (§230.11).

A review of appropriate information as identified in items 2-5 above indicates that there is minimal potential for short- or long-term environmental effects of the proposed discharge as related to:

a. Physical substrate at the disposal site (review sections 2a, 3, 4, and 5 above). YES NO*

b. Water circulation, fluctuation and salinity (review sections 2a, 3, 4, and 5). YES NO*

c. Suspended particulates/turbidity (review sections 2a, 3, 4, and 5) YES NO*

d. Contaminant availability (review sections 2a, 3, and 4). YES NO*

e. Aquatic ecosystem structure and function (review sections 2b and c, 3, and 5). YES NO*

f. Disposal site (review sections 2, 4, and 5). YES NO*

g. Cumulative impact on the aquatic ecosystem.

YES NO*

h. Secondary impacts on the aquatic ecosystem.

YES NO*

*A negative, significant, or unknown response indicates that the project may not be in compliance with the Section 404(b)(1) Guidelines.

¹Negative responses to three or more of the compliance criteria at this stage indicates that the proposed projects may not be evaluated using this "short form procedure". Care should be used in assessing pertinent portions of the technical information of items 2a-d, before completing the final review of compliance.

²Negative responses to one of the compliance criteria at this stage indicates that the proposed project does not comply with the guidelines. If the economics of navigation and anchorage of Section 404(b)(2) are to be evaluated in the decision-making process, the "short form" evaluation process is inappropriate.

³If the dredged or fill material cannot be excluded from individual testing, the "short form" evaluation process is inappropriate.

7. Evaluation Responsibility.

a. This evaluation was prepared by:

Name: Whitney Hickerson

Position: Hydraulic Engineer

Organization: U.S. Army Corps of Engineers, New Orleans District

Date: August 2, 2019

b. This evaluation was reviewed by:

Name: Eric Glisch

Position: Environmental Engineer

Organization: U.S. Army Corps of Engineers, New Orleans District

Date: August 9, 2019

8. Findings.

a. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines

..... X

b. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines with the inclusion of the following conditions

.....

.....

c. The proposed disposal site for discharge of dredged or fill material does not comply with the Section 404(b)(1) guidelines for the following reason(s):

(1) There is a less damaging practicable alternative
.....

(2) The proposed discharge will result in significant degradation of the aquatic ecosystem
.....

(3) The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem
.....

Date: 03/12/20



Marshall K. Harper
Chief, New Orleans District
Environmental Branch



US Army Corps of Engineers
New Orleans District

To: File

From: Whitney Hickerson, CEMVN-EDH

CC: *Whitney Hickerson*

Date: August 2, 2019

Re: 404(b)(1) Evaluation for the Proposed BBA Mitigation, Pine Island Swamp Creation, St. Tammany Parish, Louisiana

A short form 404 (b)(1) evaluation of the Federal actions for the subject project was performed by ED-HW for water quality impacts. Existing data were used to make factual determinations for the subject actions. The following summarizes the review process and comments noted:

I. Subpart B – Review of Compliance

- a. *230.10 (b) (1)*: After consideration of disposal site dilution and dispersion, there are no expected violations of State water quality from the proposed Federal actions.

II. Subpart C – Physical and Chemical Characteristics of the Aquatic Ecosystem

- a. *230.20 - Substrate Impacts*: Required earthwork prior to dredging would first consist of dike construction or rehabilitation around the perimeter of each of the eight mitigation areas up to an elevation of +5.0 NAVD88 with a 5-ft wide crown. Existing material within each mitigation area will be used to construct or rehabilitate the containment dikes. Submerged pipelines will be placed on the bottom of the canals that run between the mitigation areas as well as underneath the roads separating them as indicated on the attached drawing. Following dike construction, a cutterhead dredge will hydraulically place material from within the borrow area indicated on the attached drawing into the mitigation areas using the shown pipeline routes. After filling the mitigation areas is complete, a one-year settlement period will pass prior to dike degrading and planting.

Necessary dike construction and initial pumping of sediment into the mitigation areas would be completed around June 2021. After a year-long settlement period, degrading of dike would begin in June 2022 and be completed by at least March 2023. Initial planting activities would likely be conducted in November 2023 through mid-March 2024. Notice of Construction Completion (NCC) would be issued soon after completion of the initial planting event.

Plugs would be left in the borrow ditch at 1,000-foot intervals to minimize water flow and material loss during pumping operations. Spill boxes and/or weirs would be constructed at locations along the northern and western retention dikes as necessary to allow for effluent water release from within the swamp creation area for approximately one year after construction, when the perimeter dikes are breached and degraded. If deemed necessary by the construction contractor, a low-level interior weir or baffle dikes would be constructed to assist in vertical stacking of dredged material. The gaps would be spaced with care being taken to locate gaps at existing natural bayous, canals, or other openings. The gaps would require a 25-foot bottom at approximately elevation +0.0 NAVD88 (lower limit of existing nearby marsh platform) to assure water interchange with the existing marsh.

Project dredged material discharges would adversely affect immobile organisms, as they would be smothered by dredged material. Following construction of the proposed restoration project, organisms suited for newly constructed marsh and shoreline habitat are expected to gradually reestablish within the project footprint by organisms in adjacent marsh and shoreline habitats not affected by restoration activities.

Sediment physical data for waterbottom materials in the borrow area vicinity suggests that these materials may have a relatively high sand content. Sediment samples collected in the borrow area vicinity and analyzed under the USEPA Environmental Monitoring and Assessment Program reveal levels of some metals indicative of low-level contamination, but not at levels that are generally associated with adverse effects to benthic organisms (EPA 2019a, 2019b; NOAA 2008). 10-day benthic toxicity test results using the amphipod *Ampelisca abdita* show relatively high (greater than 93.5-95.7%) overall survival. Sediment chemistry results in combination with benthic toxicity test results do not suggest borrow area vicinity sediments will have any adverse long-term impacts to benthic organisms, and suggest borrow area material is relatively free of contaminants.

- b. *230.21 – Suspended Particulates Turbidity Impacts:* The proposed actions are not expected to directly result in significant, long-term impacts to water column suspended particulate and turbidity levels. Material dredged from Lake Pontchartrain would be hydraulically pumped into the marsh restoration area, where suspended particulates would largely be allowed to deposit within the restoration area prior to discharge of effluent from these areas (restoration area will be designed to maximize retention of solids in dredged material slurry pumped into this area). Effluent turbidity is expected to be elevated compared to ambient surface waters outside of marsh restoration area; following restoration activities, turbidity levels of these waters are expected to return to background conditions. Construction and rehabilitation of retention dikes would cause a temporary increase in suspended particulates and turbidity near the project location, but no significant long-term impacts are anticipated.
- c. *230.22 – Water Column Impacts:* Testing of sediments in the vicinity of the proposed borrow area does not suggest that borrow area sediments would be a significant source

of contaminants. The proposed disposal activity is therefore not expected to introduce levels of contaminants associated with adverse impacts to aquatic organisms into the water column. Material placement is expected to result in short-term and localized impacts to water column suspended particulates and turbidity levels.

- d. *230.23 – Alteration of Current Patterns and Water Circulation:* Construction of the proposed project is expected to directly alter the substrate elevation within its footprint, which would subsequently alter water circulation, current pattern, and water level fluctuations within and adjacent to the project. These are considered to be beneficial effects associated with construction of marsh from dredged material.
- e. *230.24 – Alteration of Normal Water Fluctuations Hydroperiod:* Retention features are expected to result in localized alterations to water level fluctuations and hydroperiod by hindering water exchange between restoration areas and adjacent waters during construction activities. Following degradation of the northern retention dike and gapping of the eastern and western dikes, project area hydrology would generally resemble that of adjacent existing marsh areas.
- f. *230.25 – Alteration of Salinity Gradients:* No significant alteration of salinity gradients is expected due to the proposed project.

III. Subpart F – Human Use Characteristics

- a. *230.50 – Effects on Municipal and Private Water Supplies:* N/A: the nearest surface water intake for drinking water is located over 30 miles away from the project site along the Mississippi River. This water intake would not be affected by the proposed actions.

IV. Subpart G – Evaluation of Dredged or Fill Material

- a. *230.61 (a) – Considerations in Evaluating the Biological Availability of Possible Contaminants in Dredged or Fill Material:* See II.a. Additionally, the U.S. Coast Guard National Response Center website containing spill reports (USCG 2019) was unavailable at the time of evaluation due to security vulnerabilities.

Appropriate references: See VIII below

- b. An evaluation of the appropriate information in VI(a) above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or the material meets the testing exclusion criteria: **YES**

V. Disposal Site Delineation

- a. *230.11 (f) – Considerations in Evaluating the Disposal Site:* See II.b-c.
- b. An evaluation of the appropriate factors in V(a) above indicates that the disposal site and/or size of mixing zone are acceptable: **YES**

VI. Subpart H - Actions to Minimize Adverse Effects

All appropriate and practicable steps have been taken, through application of the recommendations of 230.70 – 230.77 to ensure minimal adverse effects of the proposed discharge: **YES**

Factual Determinations

A review of appropriate information as identified in items I - VI above indicates that there is minimal potential for short- or long-term environmental effects of the proposed discharge:

- a. Physical substrate at the disposal site (review sections II, IV, V, and VI above): **YES**
- b. Water circulation, fluctuation and salinity (review sections II, IV, V, and VI): **YES**
- c. Suspended particulates (review sections II, IV, V, and VI): **YES**
- d. Contaminant availability (review sections II, IV, and V): **YES**

VIII. References

- a. Buchman, M. F. 2008. NOAA Screening Quick Reference Tables. NOAA OR&R Report 08-1. <http://response.restoration.noaa.gov/environmental-restoration-environmental-assessment-tools/squirt-cards.html>.
- b. U.S. Coast Guard (USCG). 2019. *National Response Center*. <https://www.epa.gov/emergency-response/national-response-center>.
- c. U.S. Geological Survey (USGS). 2002. *Lake Pontchartrain Basin: Bottom Sediments and Related Environmental Resources*. U.S. Geological Survey Professional Paper 1634. <http://pubs.usgs.gov/pp/p1634/>.
- d. U.S. Environmental Protection Agency (USEPA). 2019a. *About EMAP*. <http://www.epa.gov/emfjulte.html#about>.
- e. U.S. Environmental Protection Agency (USEPA). 2019b. *My WATERS Mapper*. <http://watersgeo.epa.gov/mwm/>.

