



Public Notice

U.S. Army Corps
of Engineers
Tulsa District

Reply To:

U.S. Army Corps of Engineers
ATTN: Regulatory Office
1645 South 101st East Avenue
Tulsa, OK 74128-4609

SWT-2012-947
Public Notice No.

April 25, 2013
Public Notice Date

May 26, 2013
Expiration Date

PURPOSE

The purpose of this public notice is to inform you of a proposal for work in which you might be interested and to solicit your comments and information to better enable us to make a reasonable decision on factors affecting the public interest.

SECTION 10

The U.S. Army Corps of Engineers is directed by Congress through Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) to regulate all work or structures in or affecting the course, condition, or capacity of navigable waters of the United States. The intent of this law is to protect the navigable capacity of waters important to interstate commerce.

SECTION 404

The U.S. Army Corps of Engineers is directed by Congress through Section 404 of the Clean Water Act (33 USC 1344) to regulate the discharges of dredged and fill material into all waters of the United States. These waters include lakes, rivers, streams, mudflats, sandflats, sloughs, wet meadows, natural ponds, and wetlands adjacent to other waters. The intent of the law is to protect these waters from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical, and biological integrity.

NOTICE TO PUBLISHERS

This public notice has been provided as a public service and may be reprinted at your discretion. However, any cost incurred as a result of reprinting or further distribution shall not be a basis for claim against the Government.



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

Application No. SWT-2012-947

JOINT PUBLIC NOTICE
U.S. ARMY CORPS OF ENGINEERS (CORPS)
AND
OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ)
(30-DAY COMMENT PERIOD)

Interested parties are hereby notified that the District Engineer (DE) has received an application for a Department of the Army permit and water quality certification pursuant to Sections 404 and 401 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. The Oklahoma DEQ hereby incorporates this public notice and procedure as its own public notice and procedure by reference thereto.

The applicant proposes to construct a new Barge Fleeting Area (BFA). The overall purpose of this request is for the permanent placement of fill material into approximately 985 linear feet of stream channel, identified as the former Verdigris River and Bird Creek channels and 2.52 acres of associated wetlands, Rogers County, Oklahoma.

Name of Applicant: Mr. David Yarbrough
The City of Tulsa – Rogers County Port Authority
5350 Cimarron Road
Catoosa, Oklahoma 74015

Name of Agent: Mr. Craig S. Swengle, P.E.
Dewberry Engineers Inc.
1350 S. Boulder Ave, Suite 600
Tulsa, OK 74119

Location: Just south of the Port of Catoosa. Approximate center of proposed activity is Latitude 36.218172 N, Longitude 95.729290 W decimal degrees, located in Sections 8, 17, and 18, Township 20 North, Range 15 East, Rogers County, Oklahoma.

Purpose: The basic purpose of this work is for the construction of a new safe and reliable BFA to be used by the Port of Catoosa.

A water dependency determination [see 40 CFR 230.10 (a)(3)] will be made upon consideration of the basic purpose which is to provide a safe and reliable BFA. The proposed activity will have an effect to a special aquatic site; thus a water dependency determination will be required.

The overall purpose of this work is to provide a new BFA ensuring the Port of Catoosa has an additional safe and reliable mooring area for barge storage and providing economic benefits to the regional area.

Description of Work: The Port has proposed to construct, operate, and maintain the BFA within a former channel of the Verdigris River at approximately Verdigris River Mile (RM) 50. The BFA

would be located west of the McClellan- Kerr Arkansas River Navigation System (MKARNS) channel, south of the Bird Creek Cut-off, east of the former Bird Creek channel and north of the Burlington Northern Santa Fe Railroad. The former channel of the Verdigris River was disconnected from the main river channel when a straighter, dredged connection to the Port was constructed in the early 1970s. This portion of the former river channel now consists of a shallow, silted-in side channel connected to the Bird Creek Cut-off. There is little flow through this side channel, which is expected to continue to silt-in over time. The BFA would be used to store empty and loaded barges prior to and after transfer of cargo at the existing Port terminal. In effect, the proposed BFA would serve as a temporary “parking lot” for the barges using the docks. In order for construction of the BFA to proceed, the Port has proposed to acquire approximately 87 acres through a lease of USACE-owned property located immediately south of and adjacent to the Port’s existing facility. Portions of the site were once used as a dredge disposal facility, but have not been used as such since the construction of the MKARNS. The property is a triangular “island” parcel bounded by the Bird Creek constructed channel (called the Bird Creek Cut-off) to the north, the former Bird Creek channel to the west, and the former Verdigris River channel to the east, all of which are shallow watercourses. The Port owns the property on the opposite bank of the former Bird Creek channel, as well as the majority of the property on the opposite bank of the former Verdigris River channel. Given its distance from the MKARNS navigation channel and the generally shallow depth of the streams surrounding it, the USACE has abandoned its use of this property as a dredge disposal facility in favor of using three other dredge disposal facilities directly adjacent to the MKARNS.

The proposed BFA would have a 2,300-foot long, 300-foot wide toe-to-toe mooring area and a capacity to store more than 60 barges, assuming the barges are the standard, covered hopper barge size of 195 feet long by 35 feet wide. Barges would be moored three abreast on both sides of the BFA, with 90 feet of clear water between the moored barges to allow for towboat operations. The final grades would be constructed at three vertical to one horizontal, grassed side slopes, using the material excavated from the BFA (See Enclosures for grading plans and cross sections). Rock riprap would be placed on the side slopes of the BFA from 10 feet above the normal pool water surface to the slope toe for stabilization due to minor wave action. Mooring deadmen and cables would be installed high on the side slopes along each bank for the barges to be attached (tied off) to. A maintenance road at the top of the east bank would be constructed to an elevation of 582.00, and to 584.00 on the west bank. The Maximum Possible Flood elevation is 580.00 along this stretch of the Verdigris River. The proposed BFA can be constructed using conventional grading construction techniques. It is anticipated that native soils, sandstone and shale bedrock will be encountered. Excavation of the material should be possible with conventional equipment such as backhoes, loaders, etc, and blasting will not be required.

It is estimated that there would be a total of approximately 1.55 million cubic yards (CY) of excavation; approximately 1.225 million CY of this material would be hauled to the proposed barge fleeting fill area (BFFA). The remaining excavated material would be used to achieve the final grades desired for the BFA. The BFFA consists of approximately 292 acres on the north side of Bird Creek, south of the existing Port Industrial Park. Soil would be placed in eight-inch lifts and compacted to 90 percent of Standard Proctor density. The proposed grading plans for the BFA and BFFA are included in the enclosures. The excavated material would be graded to an elevation approximately one foot higher than the 100-year floodwater surface elevation, which ranges from

571.90 at the Burlington Northern Santa Fe – Bird Creek Bridge to 564.50 at the northeast corner of the proposed BFFA.

A temporary single span structure would be installed across the Bird Creek Cut-off to allow earth material to be transported from the BFA to the BFFA. The 90-foot long single span structure will have a horizontal clearance of approximately 14 feet. The location of the temporary structure was selected based upon the narrowest section of the Bird Creek Cut-off and will span the Cut-off approximately 70 feet between the rock walls of the channel. The bridge would be designed for HS20 vehicular traffic loads. Bridge abutments would be constructed of precast concrete blocks. The final design and selection of the temporary bridge structure and foundation will be the responsibility of the contractor, under the final approval by the Port's project engineer. Once construction of the BFA has been completed, the temporary haul road would be removed, but the temporary Bird Creek Cut-off crossing would remain in place until a permanent vehicle bridge has been constructed. All disturbed areas would be restored to original grades and replanted with native vegetation in order to prevent erosion.

Avoidance and Minimization Information: The applicant provided the following statement with regard to how avoidance and minimization of impacts to aquatic resources were incorporated into the project plan:

The proposed project has the potential to result in both impacts and benefits to the built, natural, and social environments. In order to select the most appropriate alternative that meets the proposed project's purpose and need, an analysis of alternatives was conducted. This section summarizes the extensive planning that led to the recommendation of the Preferred Alternative (PA). The process that led to the recommendation of the PA was a multi-phase evaluation which began with the project team's development of several BFA construction options which were considered in order to meet the project's purpose and need. By the end of the screening process, a total of eight concepts were developed. These initial concepts were evaluated to determine if they would meet the proposed project's purpose and need. Due to the proposed project's water dependency, concepts were considered along waterways, including Verdigris River cut-off (RM 49.5), former private terminal west of Bird Creek, Verdigris River cut-off near Rogers Point Park, oxbow south of I-44 bridge, east bank of the Verdigris River channel (RM 49.5), Yonkipin Lake (RM 49.5), and American Electric Power Service Company of Oklahoma (AEP-PSO) Black Fox site at approximate RM 32. For comparison purposes, the No Action Alternative was included as one of the eight initial concepts. Figure 6 presents the locations of the alternative concepts in relation to the Port (Enclosure 8).

Beginning in the summer of 2009, progress meetings among the project team members, including the Port, were held to discuss, develop and ultimately decide on the concepts that would be dismissed or advanced. Four of the eight concepts were dismissed based upon their distance from the Port or development/construction issues. A summary of the concepts that were considered and dismissed is provided in Table 2, below.

Table 2 Concepts Considered and Dismissed

Concept	Reason for Abandonment/Dismissal
Concept 4	Eliminated due to its proximity to Rogers Point Park and potential impacts to the park facility related to the site's development as a barge fleeting area.
Concept 6	This property is designated as an active USACE dredge disposal facility, requiring USACE approval and disposal prior to its development as a barge fleeting area, making it economically impractical with time constraints. In addition, unsafe conditions exist for barge storage due to exposure to the river current.
Concept 7	Removed from consideration due to the lake's perched condition over bedrock, 20 ft above the Verdigris River, which if excavated would drain Yonkipin Lake.
Concept 8	Eliminated due to its 15-mile one-way distance from the Port terminal (below Johnson's Port 33), making it economically and operationally impractical.

Build Alternatives (formerly called concepts) 2, 3, and 5, as well as the No Action Alternative (1), were advanced as part of the alternatives analysis process. As part of the analysis conducted to evaluate build alternatives, environmental constraints maps were developed for the entire project study area. The constraints maps included information from online state and federal agency websites, Geographic Information System (GIS) data layers, and responses to requests from regulatory agencies. Furthermore, a preliminary site reconnaissance was conducted to field verify and/or add environmental constraints to the maps. The environmental constraints maps were reviewed by the project team during the initial analysis of build alternatives and helped guide the decision making process by highlighting environmental concerns for each of the alternatives. Because the proposed project seeks to safely and efficiently expand the Port's fleeting capacity, those sites located in closest proximity to the Verdigris River and to the Port terminal were favored over more distant sites. Alternative 2 emerged as the recommended PA based on its access and proximity to the existing port terminal operations and the MKARNS.

Table 3. Alternatives Screening Matrix

Criteria	Build Alternatives			No Action Alt.
	2 (PA)	3	5	1
Meets Purpose and Need	yes	yes	yes	no
Barge Mooring Capacity	62	50	77	n/a

Land Acquisition	40 ac. (usace)	13 ac. (usace)	25 ac. (usace) 25 ac. (private island) 40 ac. (private, west river bank)	n/a
Open Water Impacts	985 lf.	496 lf.	300 lf.	n/a
Distance to Port	1,000 ft.	5,500 ft.	3 miles	n/a
Fleeting Area Current	Yes; slow	No	Yes, slow	n/a
Fleeting Area Oxygenation	Floating aerators	Floating aerators	Floating aerators	n/a
Est. Maintenance Cost (yr)	\$50,000	\$100,000	\$50,000	n/a
Est. Operational Cost (yr)	\$130,000	\$182,000	\$260,000	n/a
Est. Capital Cost (yr)	\$11,800,000	\$40,000,000	\$16,800,000	n/a

Mitigation: The applicant proposes the following as compensatory mitigation for the unavoidable impacts to aquatic resources expected from the proposed project:

The excavation of the BFA would result in 2.52 acres of disturbance to USACE-regulated wetlands (Wetland E), 5.81 acres of disturbance to riparian forest, and 21.43 acres of impact to upland forest. The placement of material at the terminus of the BFA (12,000 cubic yards below OHW, and 121,000 cubic yards above OHW) will result in the filling of 985 linear feet of the former channels of the Verdigris River and Bird Creek (Stream F), which are Waters of the U.S. Table 1 below provides a summary of these aquatic and terrestrial (forested) impacts and the mitigation measures that will address them.

Table 1

Impact Type	Impact Quantity	Mitigation Type	Mitigation Ratio	Mitigation Quantity
Wetland E (Forested Wetland)	2.52 acres	Forested wetland creation	2:1	5.49
Stream F (waterway)	985 linear feet	Stream channel & open water pond creation	2:1	2,330 linear feet stream (8 feet average width) & 1.53 acres of open water ponds

Riparian Buffer	5.81 acres	Riparian buffer creation	1:1	6.06 acres
Upland Forest	21.43 acres	Forest preservation	1:1	65 acres

The search for potential mitigation sites began with investigating existing Port properties for their potential to support accepted mitigation strategies. These sites, and their suitability in light of the impacts to be mitigated, were discussed and vetted during a series of meetings and conference calls with the USACE, the first of which was in July 2009. The selection of the mitigation site was based on the site features, including the presence of hydric soils, shallow groundwater and adjacent wetlands/open waters, both on the eastern and western ends of the mitigation area.

As noted above, the construction of the open water channel/stream would reconnect the isolated wetland, believed to be a former meander of Bird Creek, to that water body. The site's location in the floodplain of Bird Creek makes it ideal for use as a mitigation site to be preserved in perpetuity. The presence of the floodplain makes the use of this area incompatible with projects that would result in the placement of fill, such as commercial or residential development. The site's continued use as an agricultural field, while proven to be historically compatible, does not provide the ecological functions that the site may have historically provided, prior to its agricultural conversion. Consequently, it is believed that the likelihood of success in this area is excellent, given its likely prior condition as a bottomland hardwood area, its remaining hydric soils and the presence of wetlands/open waters on both sides.

The proposed mitigation area will have a monitoring and maintenance plan to ensure the desired results are obtained at the mitigation site.

This mitigation plan is the applicant's proposal. The Corps has made no determination at this time with regard to the adequacy of the proposed mitigation relative to the federal mitigation rules and guidance, including Tulsa District's Mitigation and Monitoring Guidelines. The Corps is accepting comments on the need for and nature of the proposed mitigation in addition to comments on the applicant's primary proposal. The Corps bears the final decision on the need for and extent of mitigation required if the project proposed herein is authorized.

Project Setting: The proposed construction area is located within the Midwest Regional ecoregion of northeast Oklahoma. The Midwest Regional ecoregion is differentiated from surrounding regions mainly by the combination of a relatively low level of topographic relief, a humid climate with moderate to abundant rainfall, mixed prairie and hardwood natural vegetation, and the predominance of agricultural land uses including the extensive use of agricultural drainage systems. (ERDC/EL TR-08-27, 2008). The localized general vicinity of this subject property includes undeveloped land, industrial/marine ports, and recent residential development with associated infrastructure. Habitat on the subject property includes mixed-age bottomland forest, mixed-age

upland forest, dissected upland dominated by grasses, developed areas, and waterbodies. Within the bottomland forest dominant plant species included pecan (*Carya illinoensis*), boxelder (*Acer negundo*), American elm (*Ulmus americana*), sycamore (*Platanus occidentalis*), hackberry (*Celtis occidentalis*), black willow (*Salix nigra*), deciduous holly (*Ilex decidua*), and Northern red oak (*Quercus rubra*). The forested wetland is included in this habitat type. The upland forest site was dominated by post oak (*Quercus stellata*), blackjack oak (*Quercus marilandica*), gum bully (*Sideroxylon lanuginosum*), buckbrush (*Symphoricarpos orbiculatus*), frost flower (*Verbesina virginica*), and saw greenbrier (*Smilax bona-nox*). The waterbodies did not have plants specifically associated with them. Introduced and invasive plant species were common in disturbed areas and were observed predominantly within mowed or maintained ROWs. These species included sericea lespedeza (*Lespedeza cuneata*), Bermudagrass (*Cynodon dactylon*), and Johnsongrass (*Sorghum halepense*).

Existing Condition: The area is within the floodplain of Bird Creek and the Verdigris River. The study area is rural and wooded consisting primarily of bottomland forest, improved pasture, agricultural fields, road and railroads and associated right-of-ways, and areas where fill has been deposited. The stream physical substrate consists mainly of silt deposits, with few areas of gravel and shale/ limestone cobble. The streams have steep bare or vegetated banks commonly found within the Verdigris River watershed of northeast Oklahoma.

Plans and Data: Plans showing the location of the proposed activity and other data are enclosed with this notice (Enclosures 1 through 9). The application is on file and may be viewed during normal working hours at the Tulsa District, U.S. Army Corps of Engineers, 1645 South 101st East Avenue, Tulsa, Oklahoma. If additional information is desired, it may be obtained from Mr. Ed Parisotto, U.S. Army Corps of Engineers, Tulsa District, ATTN: Regulatory Office, 1645 South 101st East Avenue, Tulsa, OK 74128-4609, or telephone 918-669-7549.

Cultural Resources: The DE has consulted the National Register of Historic Places (Register) and has determined that there are no properties currently listed in the Register which would be directly affected by the proposed work. The DE has also consulted the listing of Eligibility Determinations for Oklahoma and determined that the proposed project is not in the vicinity of properties eligible for listing. This public notice is also being sent to the State Historic Preservation Officer and to Native American Tribal Governments to reveal if other known historic or archeological resources that might be eligible for listing in the National Register exist in the project area and which could be directly affected by the proposed work. This coordination is being done to fulfill our requirements under the National Historic Preservation Act of 1966 and associated historic preservation laws. If we are made aware, as a result of comments received in response to this notice, or by other means, of specific archeological or other historic properties which might be affected by the proposed work, the DE will immediately take the appropriate action necessary pursuant to the National Historic Preservation Act of 1966 (Public Law 89-665), as amended, and 36 CFR Part 800, in accordance with implementing regulations 33 CFR 325, Appendix C.

Threatened and Endangered Species: The following Federally-listed species are known to occur in the vicinity or are listed for the county in which the proposed action is located: American burying beetle (*Nicrophorus americanus*), interior least tern (*Sterna antillarum*), whooping crane (*Grus americana*) and the piping plover (*Charadrius melodus*). A copy of this notice is being furnished to

the U.S. Fish and Wildlife Service and appropriate State agencies. This notice constitutes a request to those agencies for information on whether any other listed or proposed-to-be-listed endangered or threatened species may be present in the area which would be affected by the proposed activity.

Our preliminary determination is that the proposed activity will not affect listed Threatened or Endangered Species or their critical habitat.

Environmental Considerations: The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity and its intended use on the public interest. That decision will reflect the National concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownerships, and, in general, the needs and welfare of the people. A permit will be denied if the discharge does not comply with the Environmental Protection Agency's 404(b)(1) guidelines. Subject to the 404(b)(1) guidelines and any other applicable guidelines or criteria, a permit will be granted unless the DE determines that it would be contrary to the public interest.

Comments: The Corps is soliciting comments from the public; Federal, State, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Comments concerning the issuance of this permit should be received by the DE not later than 30 days from the date of this public notice. Any comments received will be considered by the Corps to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. The Corps has received previous comments in the preparation of an Environmental Assessment pursuant to the National Environmental Policy Act for this proposed project. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. Any person may request in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

At the request of the Oklahoma Water Resources Board's National Flood Insurance Program (NFIP) State Coordinator, we are sending a copy of this notice to the local flood plain administrator to apprise the administrator of proposed development within their jurisdiction. In accordance with 44 CFR Part 60 (Flood Plain Management Regulations Criteria for Land Management and Use), participating communities are required to review all proposed development to determine if a flood plain development permit is required. The local Flood Plain Administrator is required to perform this review for all proposed development and maintain records of such review.

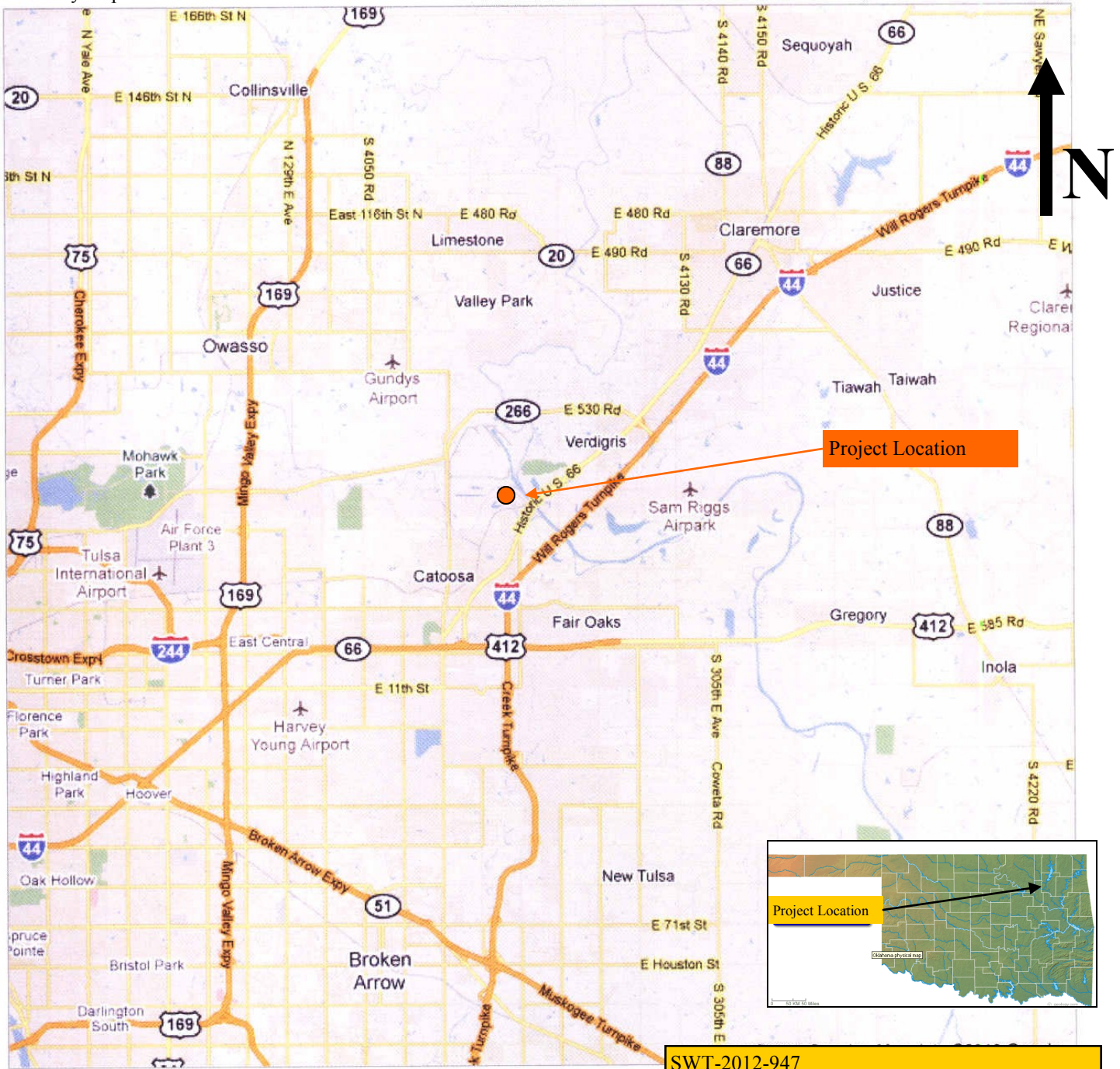
The DEQ hereby incorporates this public notice and procedure as its own public notice and

procedure by reference thereto. Comments concerning water quality impacts will be forwarded to the DEQ for consideration in issuing a water quality certification for the proposed project. A final decision will not be made on the permit application until a decision has been made on the required water quality certification pursuant to Section 401 of the Clean Water Act.

Andrew R. Commer
Chief, Regulatory Office

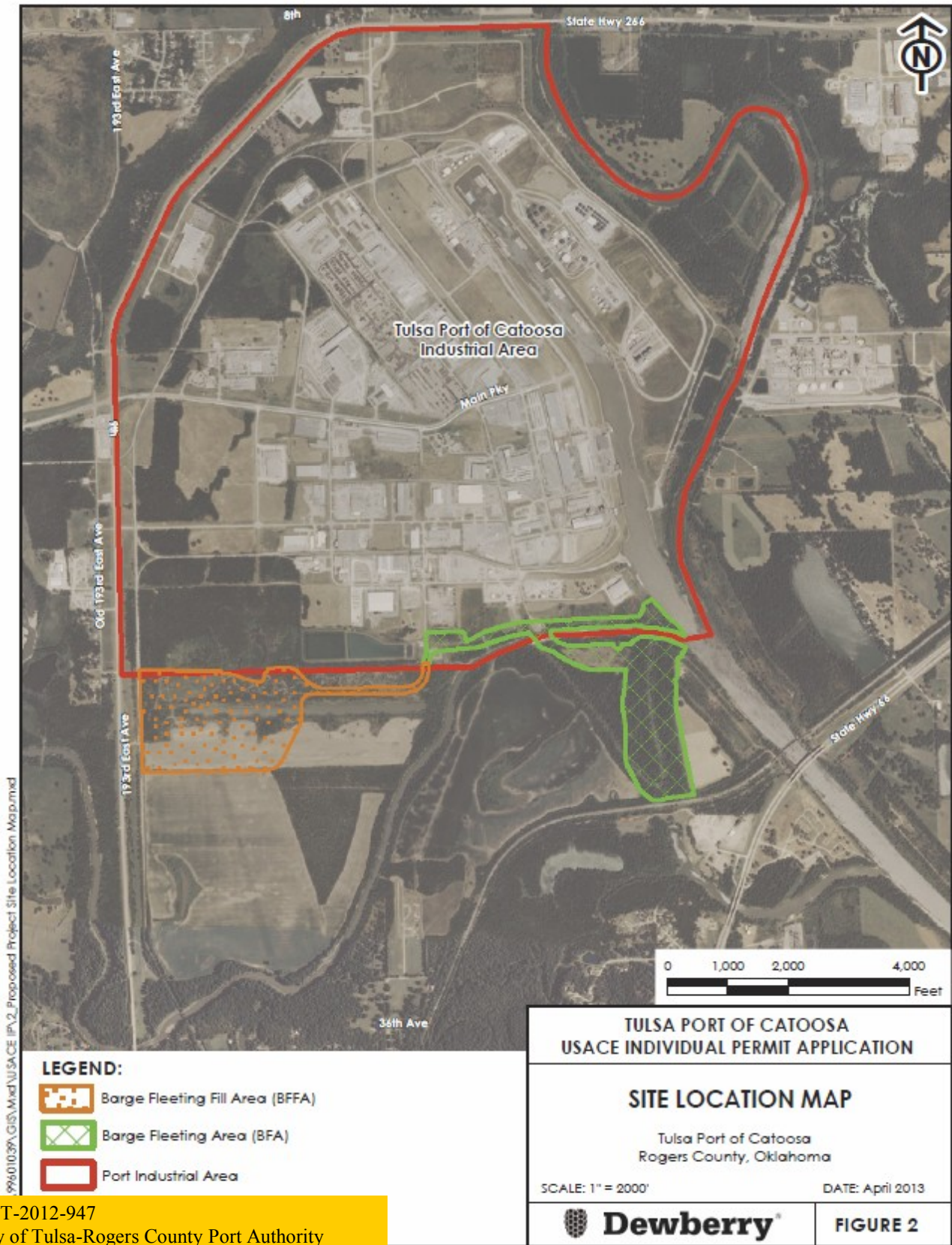
Enclosures

Vicinity map:

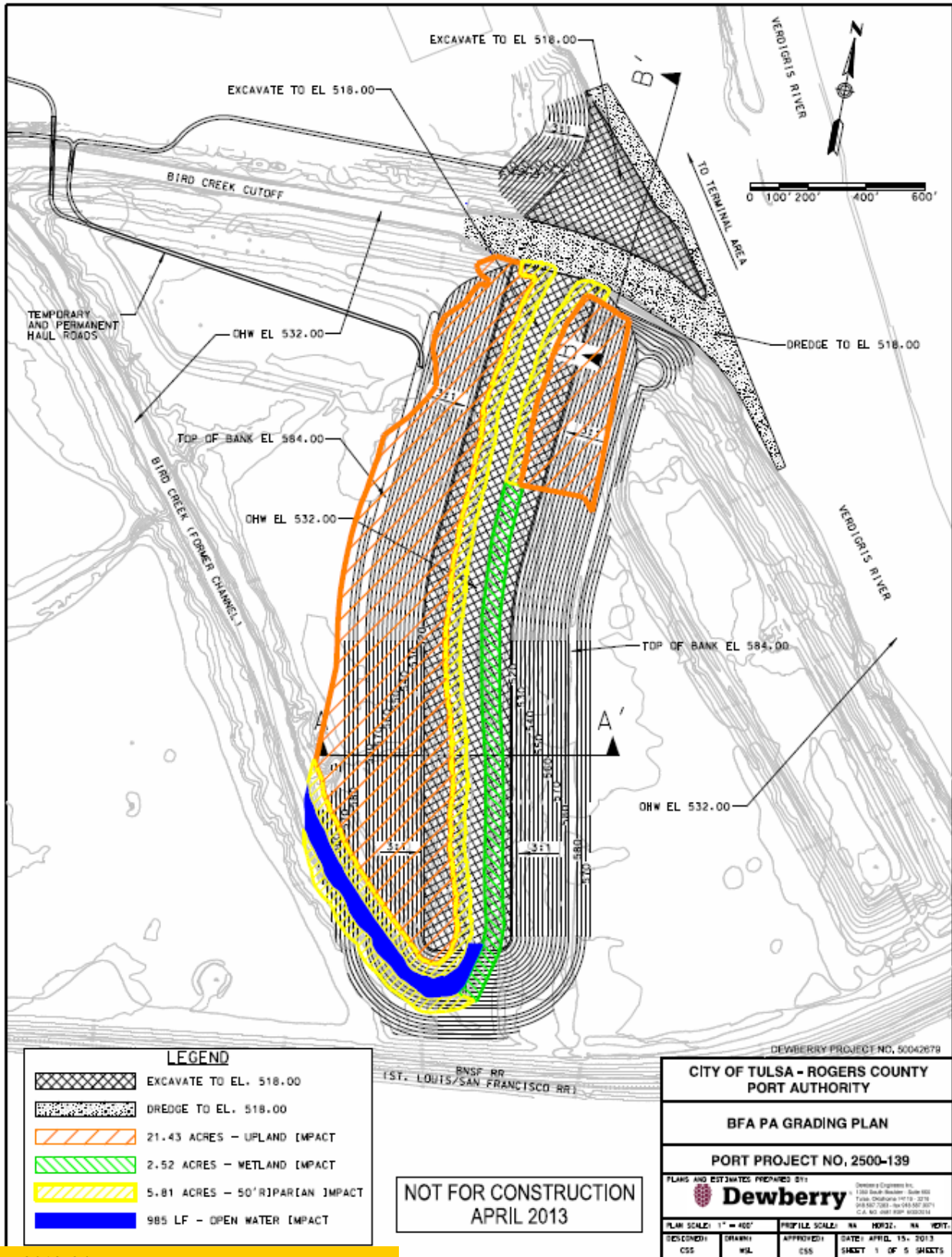


SWT-2012-947
City of Tulsa-Rogers County Port Authority
Port of Catoosa
Barge Fleeting Area Project
Verdigris River and Bird Creek, Rogers Co. OK.
Enclosure 1 of 10

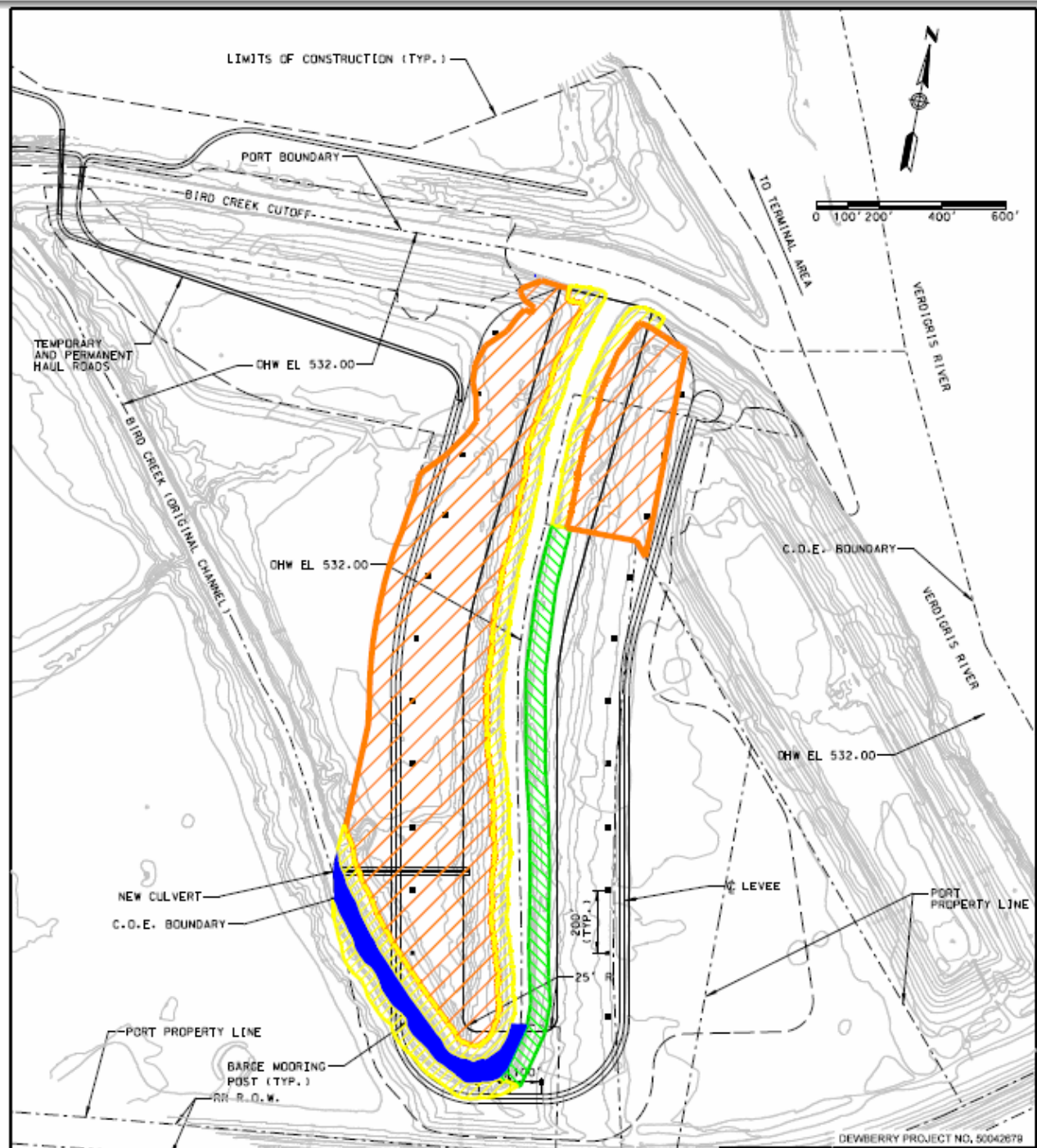
Aerial imagery map:



SWT-2012-947
City of Tulsa-Rogers County Port Authority
Port of Catoosa
Barge Fleeting Area Project
Verdigris River and Bird Creek, Rogers Co. OK.
Enclosure 2 of 10



SWT-2012-947
 City of Tulsa-Rogers County Port Authority
 Port of Catoosa
 Barge Fleeting Area Project
 Verdigris River and Bird Creek, Rogers Co. OK.
 Enclosure 3 of 10

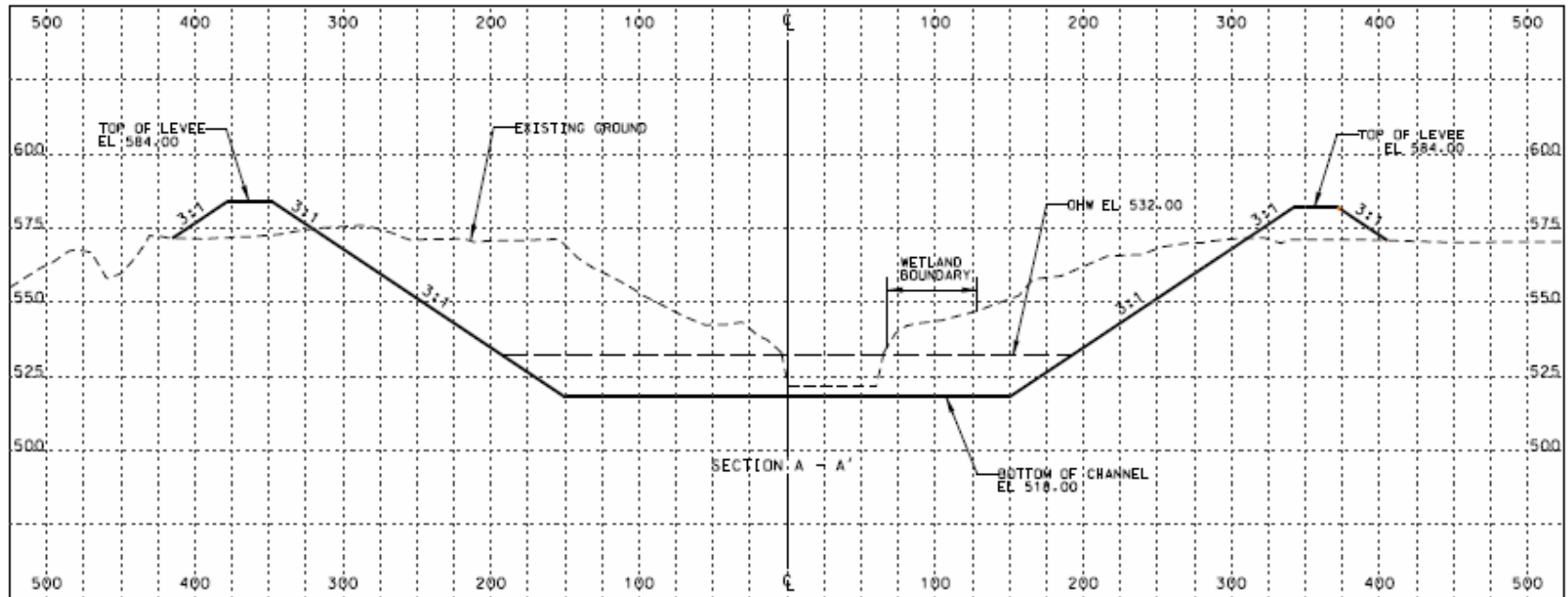


LEGEND	
	LIMITS OF CONSTRUCTION
	21.43 ACRES - UPLAND IMPACT
	2.52 ACRES - WETLAND IMPACT
	5.81 ACRES - 50' RIPARIAN IMPACT
	985 LF - OPEN WATER IMPACT

**NOT FOR CONSTRUCTION
APRIL 2013**

CITY OF TULSA - ROGERS COUNTY PORT AUTHORITY			
BFA PA SITE PLAN			
PORT PROJECT NO. 2500-139			
PLANS AND ESTIMATES PREPARED BY:			
		Dewberry Engineers Inc. 1300 South Rockwell - Suite 100 Tulsa, Oklahoma 74106-1210 918.487.7083 - fax 918.487.8071 C.O. #001000100000000000	
PLAN SCALE:	1" = 400'	PROFILE SCALE:	NA HORIZ. NA VERT.
DESIGNED BY:	CSS	DRAWN BY:	WIL
APPROVED BY:	CSS	DATE:	APRIL 15, 2013
		SHEET 2 OF 5 SHEETS	

SWT-2012-947
 City of Tulsa-Rogers County Port Authority
 Port of Catoosa
 Barge Fleeting Area Project
 Verdigris River and Bird Creek, Rogers Co. OK.
 Enclosure 4 of 10



SWT-2012-947
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 Port of Catoosa
 Barge Fleeting Area Project
 Verdigris River and Bird Creek, Rogers Co. OK.
 Enclosure 5 of 10

NOT FOR CONSTRUCTION
 APRIL 2013


DEWBERRY PROJECT NO. 50042679

**CITY OF TULSA - ROGERS COUNTY
 PORT AUTHORITY**

SECTION A - A'

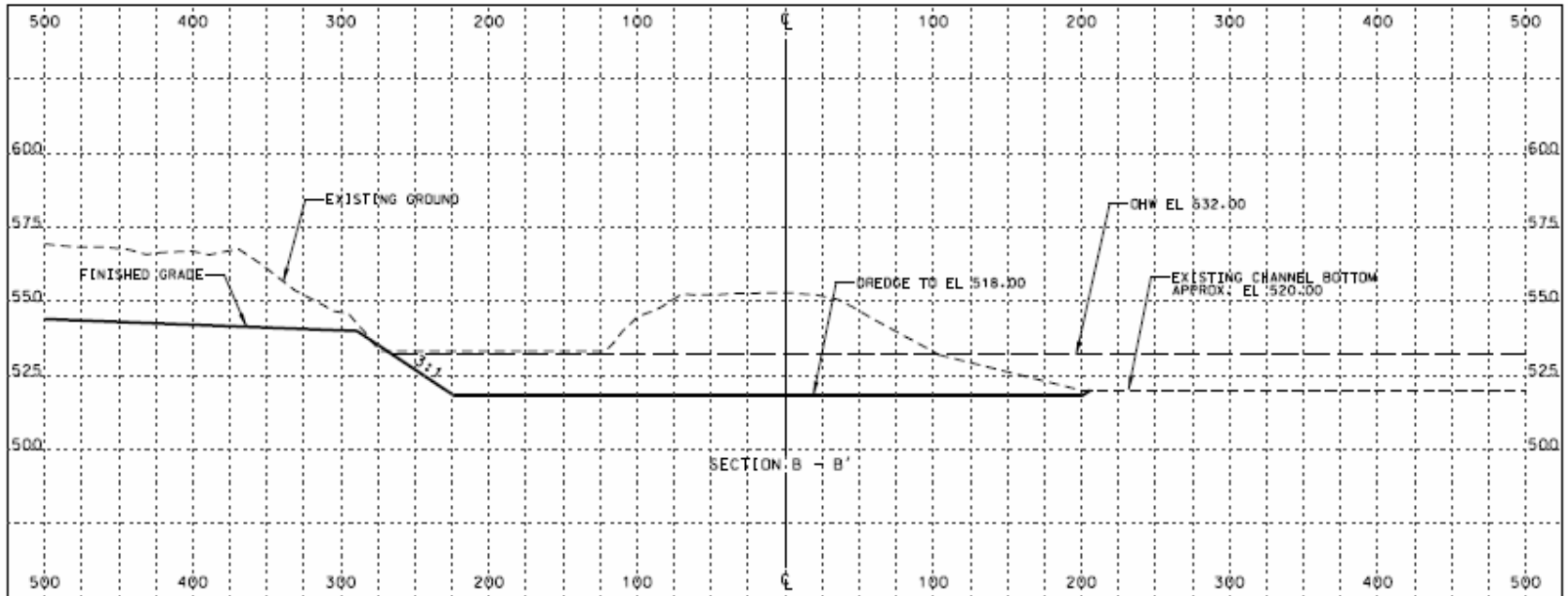
PORT PROJECT NO. 2500-139

PLANS AND ELEVATIONS PREPARED BY:

 **Dewberry**

© 2012 Dewberry, Inc.
 1100 South Boulder - Suite 600
 Tulsa, Oklahoma 74119 - 2010
 (918) 582-2200 - (918) 582-2071
 U.S. NO. 0001274P-00000004

PLAN SCALE: NA	PROFILE SCALE: 1"=60' HORIZ. 1"=60' VERT.
DESIGNED: CSS	DRAWN: WNL
APPROVED: CSS	DATE: APRIL 15, 2013
SHEET 3 OF 5 SHEETS	



SWT-2012-947
 City of Tulsa-Rogers County Port Authority
 Port of Catoosa
 Barge Fleeting Area Project
 Verdigris River and Bird Creek, Rogers Co. OK.
 Enclosure 6 of 10

NOT FOR CONSTRUCTION
 APRIL 2013

DEWBERRY PROJECT NO. 50042679

**CITY OF TULSA - ROGERS COUNTY
 PORT AUTHORITY**

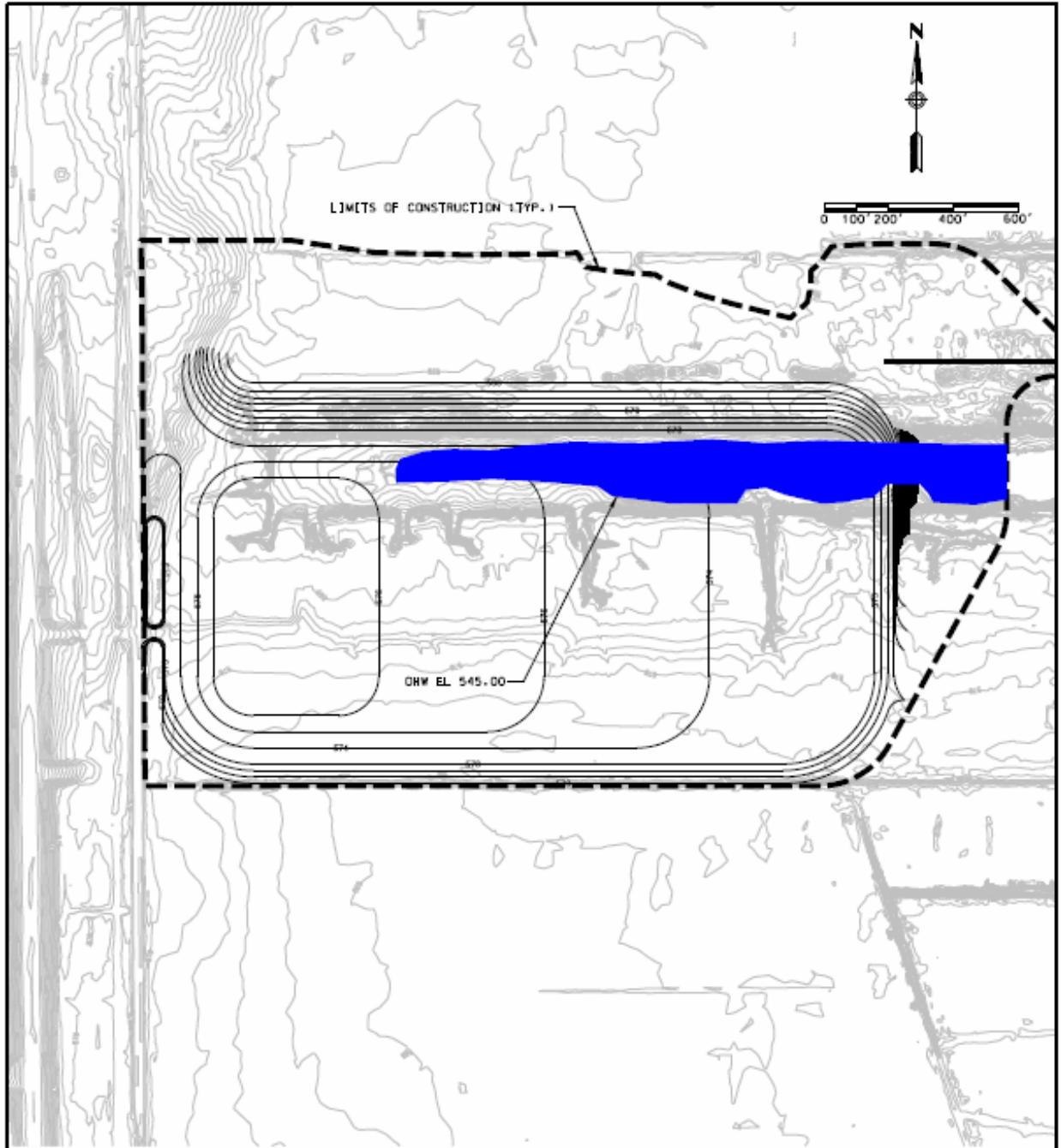
SECTION B - B'

PORT PROJECT NO. 2500-139

PLANS AND ESTIMATES PREPARED BY:

Dewberry
DewberryEngineering Inc.
 • 1700 North Houston - Suite 800
 Tulsa, Oklahoma 74119 - 3218
 918.592.2823 • FAX 918.592.9071
 U.S. AND CANADIAN PROFESSIONAL ENGINEERS

PLAN SCALE: 1"=40'	HA	PROFILE SCALE: 1"=40' HORIZ. 1"=40' VERT.	
DESIGNED BY: CSS	DRAWN BY: WML	APPROVED BY: CSS	DATE: APRIL 15, 2013
			SHEET 4 OF 5 SHEETS



LEGEND	
--- 602 ---	EXISTING 1' CONTOUR
--- 600 ---	EXISTING 5' CONTOUR
--- 602 ---	PROPOSED 1' CONTOUR
--- 600 ---	PROPOSED 5' CONTOUR
[Blue Box]	1895 LF - OPEN WATER IMPACT

NOT FOR CONSTRUCTION
APRIL 2013

DEWBERRY PROJECT NO. 55042879

**CITY OF TULSA - ROGERS COUNTY
PORT AUTHORITY**

BFFA GRADING PLAN

PORT PROJECT NO. 2500-139

PLANS AND ESTIMATES PREPARED BY:
Dewberry
1000 North Boulder, Suite 400
Tulsa, Oklahoma 74116-2016
P.O. Box 5200 - Tulsa, OK 74116
U.S. NO. 0001 0001 00000001

PLAN SCALE: 1" = 400'	PROFILE SCALE: 1" = 10' VERT.
DESIGNED BY: CSS	DRAWN BY: WIL
APPROVED BY: CSS	DATE: APRIL 15, 2013
SHEET 5 OF 5 SHEETS	

SWT-2012-947
 City of Tulsa-Rogers County Port Authority
 Port of Catoosa
 Barge Fleeting Area Project
 Verdigris River and Bird Creek, Rogers Co. OK.
 Enclosure 7 of 10

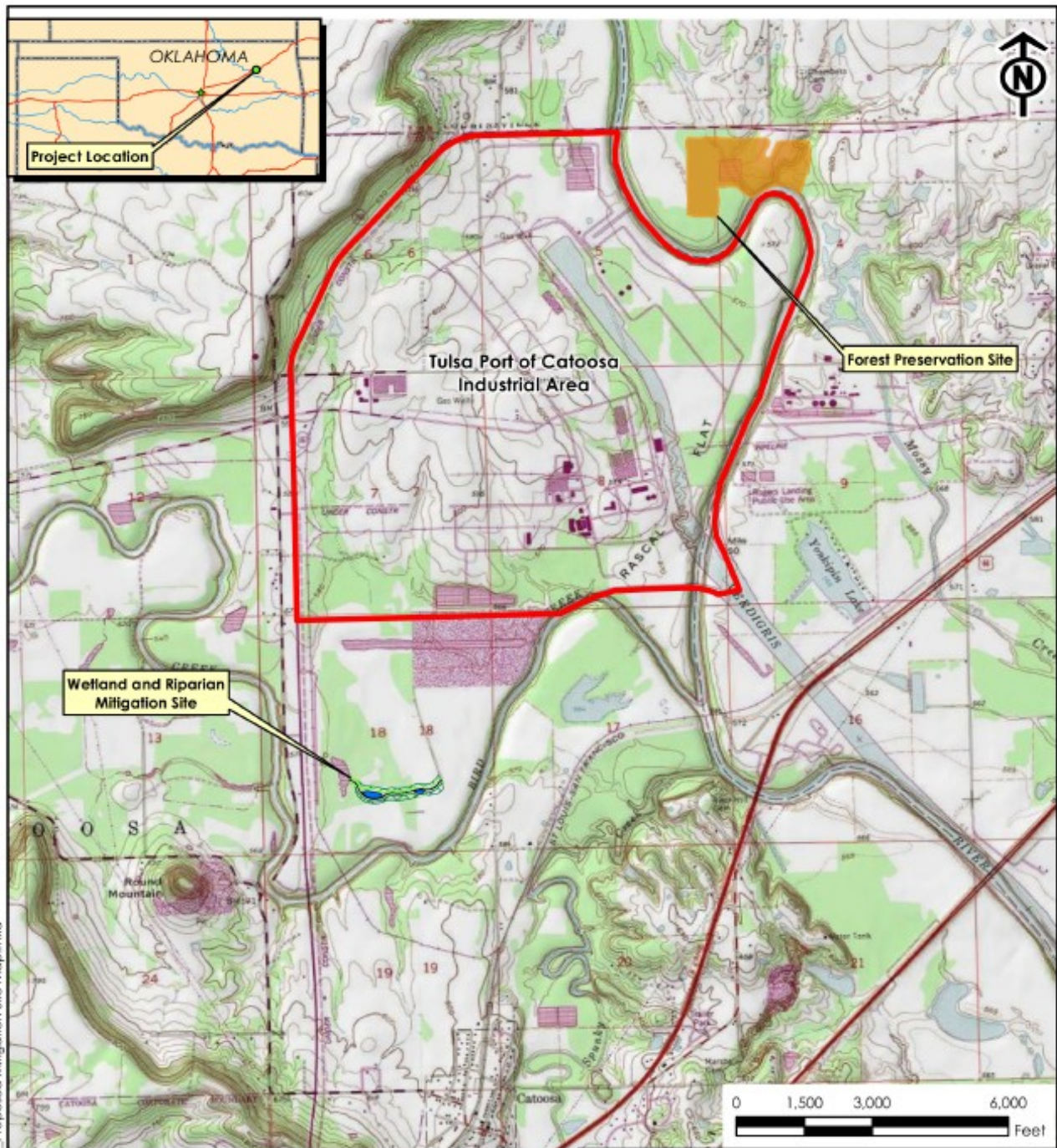


SWT-2012-947
 City of Tulsa-Rogers County Port Authority
 Port of Catoosa
 Barge Fleeting Area Project
 Verdigris River and Bird Creek, Rogers Co. OK.
 Enclosure 8 of 10

Path: G:\19\940103P\GIS\Map\USA\CE\PA\6

- 1 No Action
- 2 Initial Preferred Alternative-Former Verdigris River Channel
- 3 Former Private Terminal West of Bird Creek
- 4 Former Verdigris River Channel Adjacent to Rogers Point Access Area
- 5 Oxbow South of I-44 Bridge
- 6 East Bank of the Verdigris River, Adjacent to Terminal Area
- 7 Yonkipin Lake
- 8 Former Black Fox Power Station Site

TULSA PORT OF CATOOSA USACE INDIVIDUAL PERMIT APPLICATION	
ALTERNATIVE CONCEPTS	
Tulsa Port of Catoosa Rogers County, Oklahoma	
SCALE: 1" = 2000'	DATE: April 2013
Dewberry	FIGURE 6



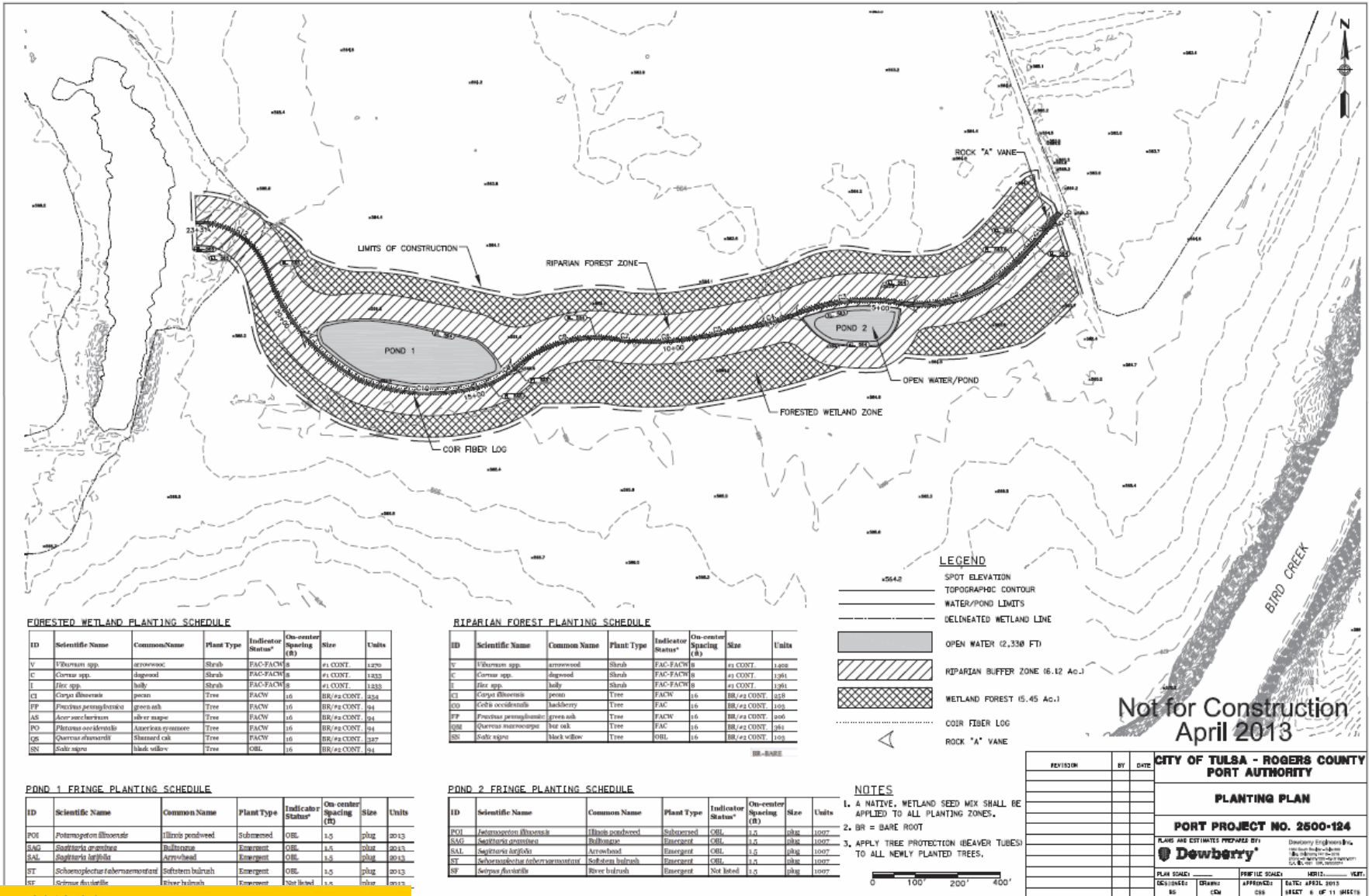
C:\99401039\GIS\Map\USACE\PA\11_Proposed Mitigation Site Map.mxd

LEGEND:

- Port Industrial Area
- Forest Preservation
- Open Water
- Riparian Buffer Zone
- Wetland Forest

TULSA PORT OF CATOOSA USACE INDIVIDUAL PERMIT APPLICATION	
MITIGATION SITE MAP	
Tulsa Port of Catoosa Rogers County, Oklahoma	
SCALE: 1" = 3000'	DATE: April 2013
Dewberry	FIGURE 1

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 City of Tulsa-Rogers County Port Authority
 Port of Catoosa
 Barge Fleeting Area Project
 Verdigris River and Bird Creek, Rogers Co. OK.
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FORESTED WETLAND PLANTING SCHEDULE

ID	Scientific Name	Common Name	Plant Type	Indicator Status*	On-center Spacing (ft)	Size	Units
V	<i>Viburnum spp.</i>	arrowwood	Shrub	FAC-FACW	8	#1 CONT.	1,270
C	<i>Cornus spp.</i>	dogwood	Shrub	FAC-FACW	8	#1 CONT.	1,333
I	<i>Ilex spp.</i>	holly	Shrub	FAC-FACW	8	#1 CONT.	1,333
CI	<i>Carya illinoensis</i>	pecan	Tree	FACW	16	BR/#2 CONT.	254
FP	<i>Fraxinus pennsylvanica</i>	green ash	Tree	FACW	16	BR/#2 CONT.	94
AS	<i>Acer saccharinum</i>	silver maple	Tree	FACW	16	BR/#2 CONT.	94
PO	<i>Platanus occidentalis</i>	american sycamore	Tree	FACW	16	BR/#2 CONT.	94
QS	<i>Quercus shumardii</i>	shumard oak	Tree	FACW	16	BR/#2 CONT.	127
SN	<i>Salix nigra</i>	black willow	Tree	OBL	16	BR/#2 CONT.	94

RIPARIAN FOREST PLANTING SCHEDULE

ID	Scientific Name	Common Name	Plant Type	Indicator Status*	On-center Spacing (ft)	Size	Units
V	<i>Viburnum spp.</i>	arrowwood	Shrub	FAC-FACW	8	#1 CONT.	1,270
C	<i>Cornus spp.</i>	dogwood	Shrub	FAC-FACW	8	#1 CONT.	1,333
I	<i>Ilex spp.</i>	holly	Shrub	FAC-FACW	8	#1 CONT.	1,333
CI	<i>Carya illinoensis</i>	pecan	Tree	FACW	16	BR/#2 CONT.	254
CO	<i>Celtis occidentalis</i>	hackberry	Tree	FAC	16	BR/#2 CONT.	155
FP	<i>Fraxinus pennsylvanica</i>	green ash	Tree	FACW	16	BR/#2 CONT.	265
QS	<i>Quercus macrocarpa</i>	bur oak	Tree	FAC	16	BR/#2 CONT.	261
SN	<i>Salix nigra</i>	black willow	Tree	OBL	16	BR/#2 CONT.	155

POND 1 FRINGE PLANTING SCHEDULE

ID	Scientific Name	Common Name	Plant Type	Indicator Status*	On-center Spacing (ft)	Size	Units
POI	<i>Potamogeton illinoensis</i>	Illinois pondweed	Submersed	OBL	1.5	plug	2013
SAG	<i>Sagittaria arifolia</i>	Bullfinch	Emergent	OBL	1.5	plug	2013
SAL	<i>Salvinia helicoides</i>	Arrowhead	Emergent	OBL	1.5	plug	2013
ST	<i>Scheuchzeria palustris</i>	Softstem bulrush	Emergent	OBL	1.5	plug	2013
RF	<i>River bulrush</i>	River bulrush	Emergent	Not listed	1.5	plug	2013

POND 2 FRINGE PLANTING SCHEDULE

ID	Scientific Name	Common Name	Plant Type	Indicator Status*	On-center Spacing (ft)	Size	Units
POI	<i>Potamogeton illinoensis</i>	Illinois pondweed	Submersed	OBL	1.5	plug	1007
SAG	<i>Sagittaria arifolia</i>	Bullfinch	Emergent	OBL	1.5	plug	1007
SAL	<i>Salvinia helicoides</i>	Arrowhead	Emergent	OBL	1.5	plug	1007
ST	<i>Scheuchzeria palustris</i>	Softstem bulrush	Emergent	OBL	1.5	plug	1007
RF	<i>River bulrush</i>	River bulrush	Emergent	Not listed	1.5	plug	1007

LEGEND
 SPOT ELEVATION
 TOPOGRAPHIC CONTOUR
 WATER/POND LIMITS
 DELINEATED WETLAND LINE
 OPEN WATER (2,330 FT)
 RIPARIAN BUFFER ZONE (6.12 Ac.)
 WETLAND FOREST (5.45 Ac.)
 COIR FIBER LOG
 ROCK "A" VANE

- NOTES**
1. A NATIVE, WETLAND SEED MIX SHALL BE APPLIED TO ALL PLANTING ZONES.
 2. BR = BARE ROOT
 3. APPLY TREE PROTECTION (BEAVER TUBES) TO ALL NEWLY PLANTED TREES.



Not for Construction
 April 2013

REVISION	BY	DATE	CITY OF TULSA - ROGERS COUNTY PORT AUTHORITY PLANTING PLAN PORT PROJECT NO. 2600-124 Dewberry <small>Dewberry Engineers Inc. 12000 Parkside Drive Tulsa, Oklahoma 74134 Tel: 918.437.2200 Fax: 918.437.2201 www.dewberry.com</small>
PLAN SCALE: 1"=100' DESIGNER: BS DRAWN: CNU	PUBLIC SCALE: 1"=100' APPROVED: CDS	DATE: APRIL 2013 SHEET 6 OF 11 SHEETS	URL: www.dewberry.com VERT:

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