

**IN THE UNITED STATES DISTRICT COURT  
FOR  
THE MIDDLE DISTRICT OF TENNESSEE, NASHVILLE**

**PUBLIC EMPLOYEES FOR  
ENVIRONMENTAL RESPONSIBILITY,  
a Washington, D.C., non-profit  
corporation**

**Plaintiff,**

**vs.**

**GERALD NICELY, in his official  
capacity as COMMISSIONER OF THE  
TENNESSEE DEPARTMENT OF  
TRANSPORTATION, and**

**THE TENNESSEE DEPARTMENT OF  
TRANSPORTATION, and**

**UNKNOWN CONTRACTORS for the  
Tennessee Department of Transportation,**

**Defendants.**

**CASE NO. 3:09-cv-0276**

**JUDGE KEVIN H. SHARP  
MAGISTRATE JOHN S. BRYANT**

**CONSENT JUDGMENT**

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**CONSENT JUDGMENT**

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It appearing to the Court that the parties in this Clean Water Act case have negotiated a settlement of all issues presented by this case and now seek entry of a Consent Judgment that acknowledges the terms of their settlement agreement and that provides for the dismissal of this cause of action with prejudice;

And it further appearing to the Court that, for and in consideration of the dismissal of this Clean Water Act case with prejudice, the Defendant Tennessee Department of Transportation has offered (1) to purchase credits from the Friends of Bells Bend and the Metropolitan

Government of Nashville and Davidson County, Tennessee (Metro Parks) for the restoration of ten acres of the Bells Bend wetland mitigation site in Davidson County, Tennessee to supplement the previously constructed on-site State Route 12 mitigation located at Bull Run Creek and the Harpeth Wetland Bank wetland mitigation credits already applied to comply with relevant State Route 12 wetland mitigation conditions of the federal and state environmental permits, as modified in 2006 [thereby leaving the on-site mitigation and those wetland credits in place as currently approved by the U.S. Army Corps of Engineers and the Tennessee Department of Environment and Conservation and adding the credits from the restoration of the Bells Bend site (which shall be developed and maintained by the Friends of Bells Bend, Metro Parks and/or their contractor) to further mitigate the loss of wetlands due to the improvement of State Route 12] and (2) to pay the sum of \$75,000.00 for attorney fees and expert fees already incurred by the Plaintiff for the prosecution of this Clean Water Act claim\*;

And it further appearing to the Court that that the Plaintiff in this case has accepted the offer of the Defendant Tennessee Department of Transportation that is set forth hereinabove and has agreed to dismiss this Clean Water Act claim with prejudice upon entry of this Consent Judgment;

And it further appearing to the Court that the Court has previously determined that the Defendants in this cause are not liable for any civil penalties;

And it further appearing to the Court that on the 15th day of January 2012 the parties in this cause submitted this Consent Judgment to the Attorney General for the United States via the United States Department of Justice and to the Administrator of the Environmental Protection Agency (EPA) for review in accordance with 23 U.S.C. § 1365 and 40 C.F.R. § 135.5, and the parties in this cause hereby notify the Court that this Consent Judgment shall not be entered prior

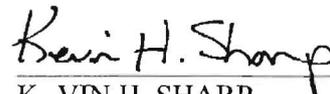
\*: A copy of the Mitigation Plan (with exhibits) agreed to by the parties is filed herewith as Ex. 1.

to 45 days following receipt of a copy of this Consent Judgment by both the Department of Justice and the EPA.

IT IS THEREFORE ORDERED, ADJUDGED AND DECREED BY THE COURT that with the consent of the parties in this cause, as evidenced by their approval of this Consent Judgment, the Court hereby approves this Consent Judgment and dismisses this Clean Water Act case with prejudice.

The Defendant Tennessee Department of Transportation shall pay all lawful court costs assessed by the Clerk of this Court.

ENTERED on this 3rd day of April, 2012.

  
K VIN H. SHARP  
United States District Judge

APPROVED AND SUBMITTED FOR ENTRY:

/S/ Ray T. Throckmorton  
Ray T. Throckmorton, BPR No. 16313  
2016 8th Avenue South  
Nashville, Tennessee 37204  
615-255-3559

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/S/ David Randolph Smith  
David Randolph Smith  
Law Offices of David Randolph Smith  
1913 21st Avenue, S  
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Nashville, Tennessee 37212  
(615) 742-1775

*Attorneys for Plaintiff*

/S/ Larry M. Teague  
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Deputy Attorney General  
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Nashville, Tennessee 37202-0207  
(615) 741-3493

*Attorney for Defendants*

### Objectives

Metro Nashville Parks and the Friends of Bells Bend are interested in partnering to restore wetland resources on floodplain of the Cumberland River at Bells Bend Park (Figure 1). Approximately 11.2 acres of wetlands will be restored and enhanced. The project will serve as compensatory mitigation for impacts to wetland resources at John C. Tune Airport (Tune, TDEC ARAP #NRS11-005, Corps §404 #2008-01550) and at Tennessee State Route 12 (SR12, TDEC ARAP #NRS93-402, Corps §404 52-982-00). The project will provide critical wetland habitat, restore native vegetation, process nutrients through biogeochemical cycling in wet-dry processes and provide additional hydrologic storage.

### Site Selection

The site was selected due to landscape characteristics and proximity to the permitted impacts. The mitigation site is located in the same eight-digit Hydrologic Unit Code (HUC) as both the Tune and the SR12 sites (Figure 2). The proposed project is within the service area of the Swamp Road Wetland Mitigation Bank (SRWMB), however the SRWMB is within a different HUC than both the Tune and SR12 sites (Figure 2). During the Tennessee Department of Environment and Conservation (TDEC) Aquatic Resources Alteration Permit (ARAP) process for the Tune impacts, comments were received requesting that compensatory mitigation for impacts be located within the same HUC. There is no approved In-Lieu Fee (ILF) program with available credits, no available watershed study identifying preferential mitigation sites exists, and no location on-site suitable for mitigation at either the Tune or SR12 locations. The preferential mitigation location, in the same HUC would therefore be an off-site alternative, such as the Bells Bend Park location, as proposed.

### Baseline Information

The proposed mitigation site exists on a floodplain adjacent to the Cumberland River. The site had been in active agriculture for years prior to the establishment of the Bells Bend Park. Since the park opened in 2007 the area has been maintained by periodic mowing. The site has an existing ditch that used to drain the area to utilize a greater area for agricultural production. Accumulated depositional sediments have created some small topographic features that will be as the boundary of restored wetland.

A small pond-like feature with mature vegetation exists inland and up-gradient from the proposed restoration area. This area has an understory with evident non-native, invasive vegetation, including privet, bush honeysuckle and multiflora rose.

Soils in the restoration area display relic hydric conditions, including some mottles and concretions, and in the time that the site has been left fallow, some hydrophytic vegetation has begun to establish within the ditch line.

Detailed topographic information available from Metropolitan Nashville and Davidson County (Metro) was also utilized to interpolate high resolution contours and develop a terrain model to assess elevations and site hydrology to determine flow distribution and approximate water table elevations.

### Determination of Credits

The conversion of the ditched, mowed and maintained area to wetland will result in a net benefit of wetland services such as flood storage, habitat, biogeochemical cycling and passive recreation opportunities through the addition of 9.2 wetland acres on-site. Removal of invasive species will enhance the natural resource functions in 2 acres of the upper area, providing additional benefits to the ecological integrity of the area. A full accounting of credit calculations is provided in Table 1.

Table 1. Compensatory Mitigation Credit Calculations				
Impacts				Acres
John C. Tune Airport				0.6
TDOT State Route 12				3.1
Compensatory Mitigation				
Area	Acres	Treatment	Ratio	Credits
1	1.2	Restoration	2:1	0.6
2	8	Restoration	2:1	4
3	2	Enhancement	3:1	0.67

Area 1 (1.2 acres) of the mitigation area will offset the 0.6 acres of impact at MNAA at a 2:1 ratio. 8 acres of the restoration and 2 acres of enhancement will offset the impact of 3.1 acres at TDOT SR 12 (8 acres at 2:1 + 2 acres at 3:1 = 4.67 credits, 3.1 credits for the original impact and 1.5 credits for the time-resource loss).

Mitigation Work Plan

The proposed restoration and enhancement activities at this site include the re-grading of drainage systems in the previous agricultural area, eradication of invasive species, the construction of a water-control system to enhance hydrology and replanting in an effort to create a feature dominated by native wetland plant species. These actions are proposed based on extensive research of the soils, hydrology, topography, and vegetation assemblages in the mitigation area.

Detailed plan sheets, including grading and landscape plans, are included as Appendix A.

*Recontouring of Wetland Area*

Utilizing the detailed topographic data we have developed a plan to recontour the mitigation area to achieve elevations that support vegetation dominated by wetland species. Currently wetland vegetation is found only in the ditch line. Our goal is to expand this habitat type throughout the site and enhance the areas that are currently marginal wetland resources primarily as a result of their topographic position. This will also have the dual purpose of discouraging invasion by non-native invasive plants by creating saturated soil conditions, as these species are currently thriving in the dryer portions of the site.

Two berms will be constructed in the mitigation area. One will delineate the areas being utilized as compensatory mitigation for the different impacts, such that the Tune mitigation and SR12 mitigation are physically separated from one another. The second will be located on the slope between the enhancement area and the restoration area to encourage the development of site hydrology. Although soil test pits indicate hydrology exists in this area, the berm will serve to enhance hydrology through the slope area.

The result of these actions will result in a net gain of high quality wetland resources due to the restoration of historic agricultural area.

*Revegetation*

Upon completion of earth moving and soil amendment activities, the entire site will be revegetated with a wetland seed mix made up of regionally appropriate species. All the plants used for revegetation will

be native to the region and from local genotypes when possible. Additionally, woody species in bare root seedling form will be planted on 12-16" centers throughout the wetland in natural groupings. A small number of wetland shrubs will also be incorporated into this enhancement activity, primarily along the periphery of the wetland. A summary of typical species proposed for the revegetation is included as with the landscape plan.

#### Hydrology

The proposal includes installing a water control structure at the wetland discharge point. The structure will be constructed of concrete with adjustable inlets to of various heights to allow for seasonal flooding of the area to discourage invasion by upland species and encourage germination and survival of wetland plantings. The normal wetland elevation will be set to the height of the current seasonal water table, which is 93.5 feet msl. The proposed maximum height of this structure is 95.5 feet msl, allowing for a maximum flood event of 2 feet above normal pool.

This structure will be properly engineered to accommodate large volume flows associated with storm events since local overbank events from the Cumberland River have been known to occur during infrequent significant storm events. This will serve to augment hydrology within the wetland.

#### Maintenance Plan

No scheduled maintenance will be required at the site. In order to ensure germination of solely hydrophytic species, the drop-board structure may be utilized to increase the duration of saturation and ponding in the initial two growing seasons, and variably beyond the monitoring period. This will not be required to ensure site hydrology establishes, as the mitigation activities will ensure that the minimum elevation of the proposed outlet structure will ensure that wetland hydrology will be maintained without any maintenance or modification. The structure will allow periodic over-flooding that will help hydrophytic vegetation establish in the first few planting seasons. After that, it the minimum elevation will guarantee wetland hydrology while allowing for optional periods of further inundation. The structure will never allow for draining site hydrology.

#### Performance standards

Performance standards are established to meet several objectives, including measuring the success of a project's specific objectives, and comparing the ecological improvement or increase in function and value of pre- and post-restoration/enhancement efforts. Success criteria for the applicable aspects of a project (vegetation and hydrology) shall consist of the following:

- *Vegetation* - A minimum of 200 stems per acre, comprised of both planted and desirable seedlings from natural regeneration (must be on approved native species planting list) shall remain growing at the end of the monitoring period.
- *Hydrology* – the site hydrology will meet the requirements for wetland hydrology in all monitoring years with typical climatic conditions.

#### Monitoring requirements

The success of the mitigation efforts will be determined by following an established monitoring plan. This plan will document the success of the wetland restoration and enhancements by monitoring and documenting vegetation establishment and hydrology.

The annual qualitative and quantitative assessment of the mitigation wetland will include the following:

1. Annual narrative description

2. Annual photo documentation
3. Annual vegetation survey in 3 locations
4. Annual visual assessments
5. Annual hydrology documentation

#### *Photographic Monitoring Stations*

Five permanent photography stations will be identified at the mitigation wetland. Four stations will be positioned to capture images along each of the cardinal directions and the fifth will be located in the center of the wetland to provide a visual approximation of vegetation density. Additional photographs will be taken throughout the survey to document significant observations such as natural recruitment of species. Photographs from these same stations will be taken in the subsequent years to document the evolution and development of the area.

#### *Vegetation Sampling*

The establishment of vegetation within the wetland area will be documented utilizing a regimented sampling protocol. This will include three 1m<sup>2</sup> plots that will be placed randomly throughout the wetland. The location of the plots will be marked with rebar and a GPS location will be recorded so that the sample plots can be sampled annually. All species present within each of these plots will be identified to species level when possible and be assigned an estimation of percent cover. Percent cover for the entire plot will also be assigned and recorded for an estimation of vegetation density.

One vegetation sampling plot will be within in the area identified as mitigation for Tune impacts and two within the mitigation area for SR12 impacts.

#### *Soil*

Three random soil samples from the mitigation wetland area will be extracted from a depth of 12 inches to assess the development of hydric soil characteristics. The soil color will be determined using a Munsell Soil Color Chart and notable features such as density of mottles and the presence of either hydric soil indicators such as concretions or oxidized rhizospheres will be documented.

#### *Hydrology*

The hydrology of the wetland will be documented both by observable indicators such as water lines or saturated soils and the data collected from Ecotone™ Water Level Recorders. The water level recorders will be installed such that one is included in the area identified as mitigation for Tune impacts and one in the area for SR12 impacts. They will be programmed to record the elevation of the water every 12 hours so that subtle fluctuations can be documented such as the response of the water level to precipitation.

#### Report

All collected data will be assessed and summarized annually for submittal to both TDEC and USACE for five years to ensure that it serves as a suitable replacement for impacted wetlands. The results of the annual monitoring will be provided to TDEC and also USACE by the 31<sup>st</sup> of October in each monitoring year. Corrective actions will be undertaken if mitigation efforts are deemed to be unsuccessful at any point during the monitoring process.

#### Long-term management plan

Following the completion of the mandated monitoring period, the area will be visually inspected by Metro Park employees and members of the Friends of Bells Bend Park during normal park operation

activities. If any observations indicate required maintenance, both TDEC and USACE will be consulted prior to conducting maintenance activities within the mitigation area.

#### Adaptive Management and Maintenance Plan

Should any portion or aspect of the mitigation project not meet the specified success criteria based on reporting and/or additional visual observations in a monitoring year, the nature and cause(s) of the resulting condition shall be thoroughly investigated and documented. If it is determined that corrective action to a perceived problem area is not warranted at the time, the rationale for such a decision shall be stated. Continued monitoring of the condition or area, including the use of more detailed methodologies and at a more intensive rate, may be most appropriate. These actions shall also be documented. In instances where the Corps of TDEC determine corrective action is necessary, a plan shall be prepared which includes proposed actions, a schedule and revised monitoring plan.

#### Site Protection Instrument

Metro Parks has agreed to

#### Financial Assurances

The Friends of Bells Bend Park have received funds to complete the proposed mitigation activities. In the instance that these funds prove insufficient to conduct the necessary compensatory mitigation, the Friends of Bells Bend Park are committed to providing the necessary resources to adequately compensate for the necessary resource values.

#### No Net Loss of Resource Value

The calculated credits indicate that a surplus of credit will be generated by the project (3.7 impact acres, versus 5.27 credits generated), indicating that no net loss of resource value will occur as a result of the projects.

#### Sequencing

The proposed mitigation work would occur in 2012, with planting taking place in late 2012 to early 2013, depending on availability of woody plantings.

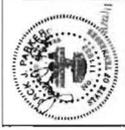
#### Erosion Control Plan

Erosion control measures are detailed in the grading plans included in Appendix A.

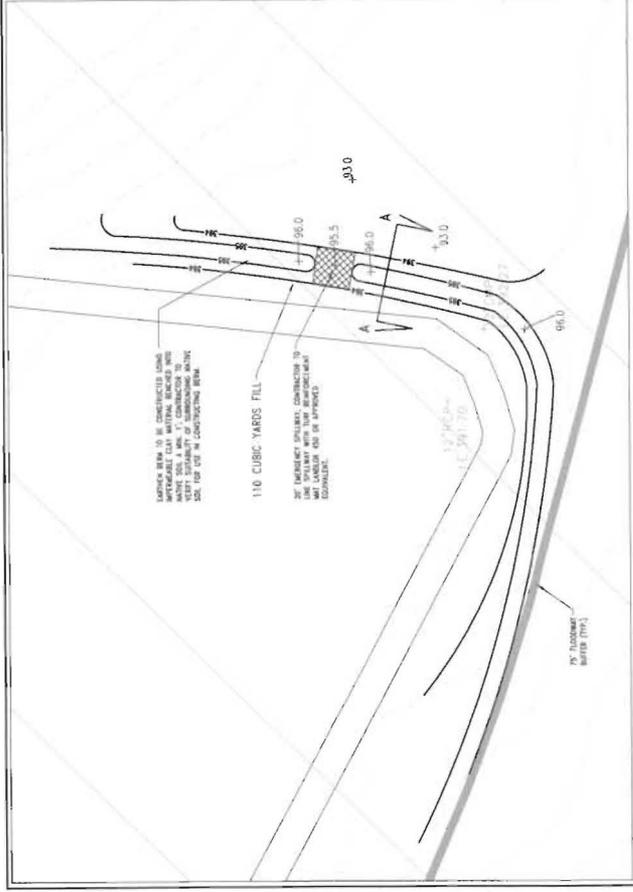
#### Construction Methods

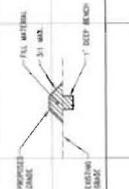
The activities will likely utilize a variety of heavy equipment and hand tools to complete the excavation, construct berms, and perform the finish grading, stabilization and planting. There would likely be a bulldozer, with the possibility of a track hoe, pan grader and small skid steer with various attachments.



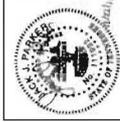


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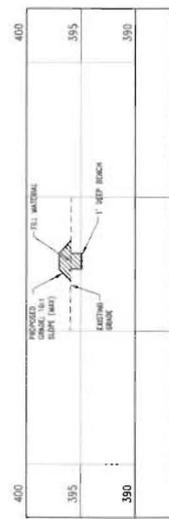
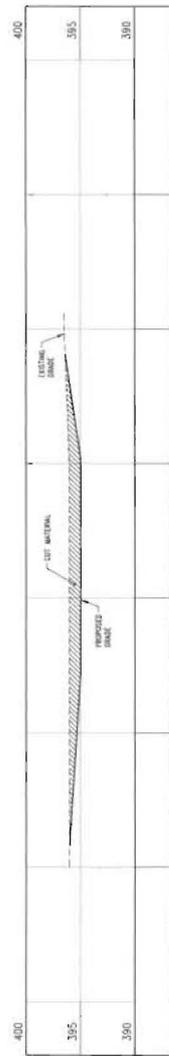


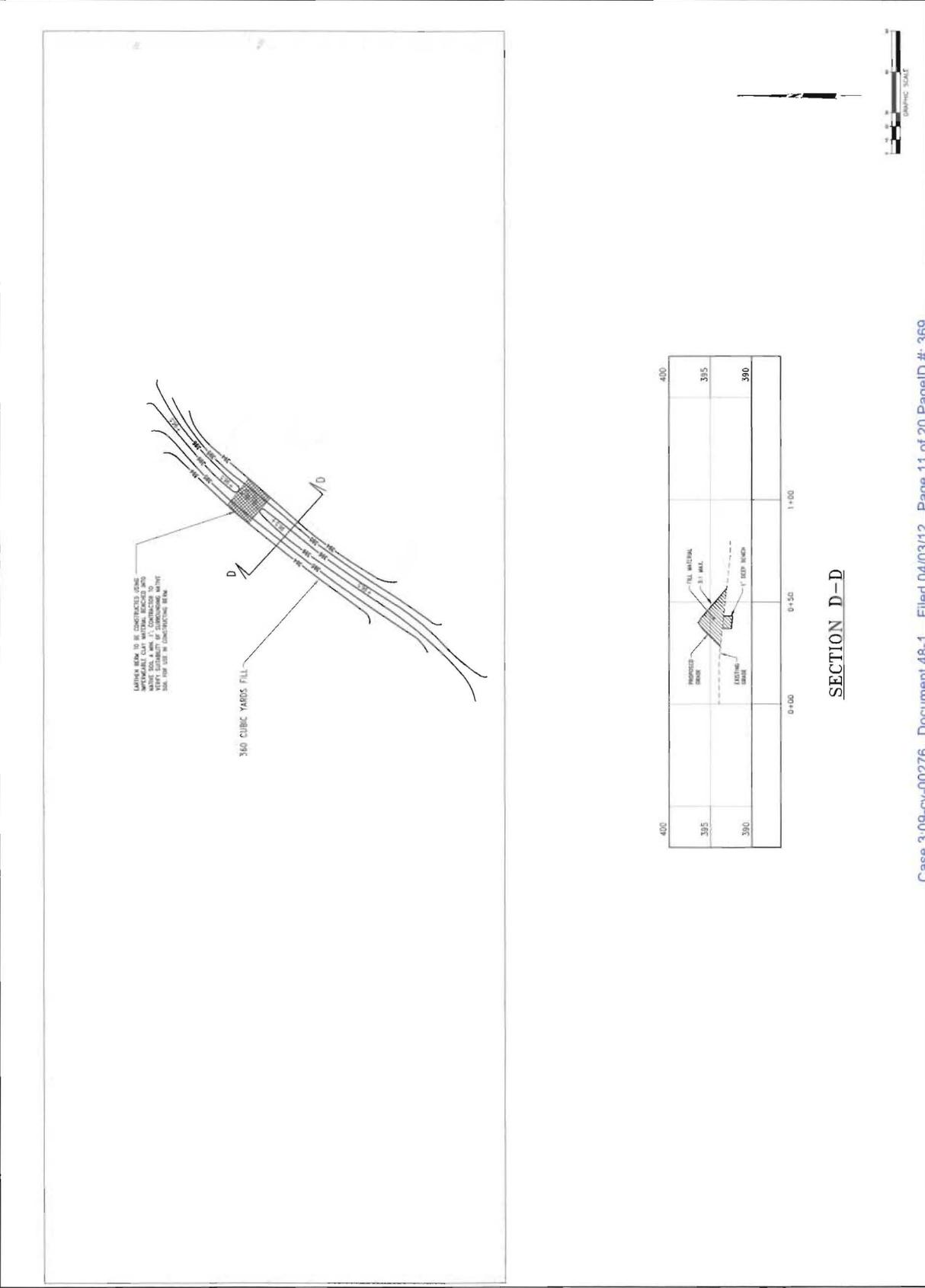
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**SECTION A-A**



NO.	REVISIONS
10/21/11	20110004







**CONTRACT FOR PURCHASE OF  
COMPENSATORY WETLAND MITIGATION**

THIS CONTRACT ("Contract") is made and entered into as of the **xx<sup>th</sup>** day of **MONTH**, 2012, by and between **FRIENDS OF BELLS BEND PARK**, hereinafter referred to as "FOBBP", and the **TENNESSEE DEPARTMENT OF TRANSPORTATION**, hereinafter referred to as "TDOT".

WITNESSETH THAT:

FOBBP and TDOT do hereby contract and agree as follows:

1. PURCHASE. TDOT agrees to purchase from FOBBP, upon the terms and conditions herein set forth, and contingent upon approval of the Metropolitan Government, 10 acres of wetland restoration conducted by FOBBP within Nashville Metropolitan Board of Parks and Recreation's Bells Bend Park in Davidson County, Tennessee.
2. PRICE. The purchase price for the Bells Bend Park wetland restoration shall be Thirty Thousand and 00/100 Dollars (\$30,000.00) per acre, a total of Three Hundred Thousand and 00/100 Dollars (\$300,000.00).
3. PAYMENT. TDOT shall pay the purchase price for wetland mitigation within 60 days of final approval of the Bells Bend Wetland Restoration Plan, dated **MONTH DAY**, 2012, described on Exhibit "A" attached hereto and incorporated herein by reference ("Mitigation Plan"), by the Tennessee Department of Environment and Conservation, Division of Water Pollution Control ("TDEC") and the U.S. Army Corps of Engineers ("Corps"). If TDEC and the Corps do not approve TDOT's use of the wetland restoration credit to be purchased under this contract for use as wetland mitigation, this Contract shall be null and void, and TDOT shall have no obligation to pay FOBBP any part of the purchase price. If the entire purchase price is not received as specified in this section of the Contract, this Contract shall be null and void, and FOBBP shall have no obligation to provide the wetland mitigation services.
4. TITLE. TDOT acknowledges that its purchase from FOBBP of the 10 acres of wetland restoration services in no way conveys whole or partial title of the mitigation site, Bells Bend Park or any other assets of FOBBP to TDOT. TDOT further acknowledges that the purchase price of the 10 acres of wetland restoration is for services rendered to TDOT by FOBBP regarding restoration of the Bells Bend Mitigation Site, and not for the sale, exchange, or other conveyance of real property.
5. PERFORMANCE. FOBBP shall be solely responsible for ensuring that 10 acres of wetland restoration services sold to TDOT is generated through implementation of the Mitigation Plan of the Bells Bend Mitigation Site. If, for any reason, FOBBP is unsuccessful in generating the 10 acres of wetland mitigation sold to TDOT, FOBBP will not seek additional financial or other assistance from TDOT in any further attempt to generate the wetland mitigation derived from the Bells Bend Mitigation Site and that it is solely responsible for rectifying any wetland mitigation generation deficits that might result from FOBBP selling more wetland mitigation credits than the Bells Bend Mitigation Site ultimately generates.

[1]

6. REGULATORY REQUIREMENTS. FOBBP understands that TDOT is buying 10 acres of wetland restoration from FOBBP in order to meet the compensatory mitigation requirements of certain permits issued to TDOT for its construction activities elsewhere in the state. FOBBP shall perform according to the requirements of the relevant permits all inspections and periodic or continuous monitoring and generate and submit at the required times to TDOT and the relevant authorities all required reports. FOBBP shall provide to TDOT financial assurances in the form of an escrow account to ensure the mitigation will be constructed, monitored and maintained until such time as the wetland mitigation shall be deemed successful by the Corps and TDEC and handed over for long term management. FOBBP shall notify Corps District Engineer and TDEC when remedial work is required and obtain approval from each for proposed remedial work and expenditure of maintenance funds. FOBBP shall provide to TDOT documentation that 5% of the purchase price or \$15,000 is placed in a separate escrow account to be called the Maintenance and Monitoring Fund. One-fifth of this fund shall be released on each February 1st after the Corps District Engineer approves the most recently submitted monitoring report that documents the site satisfies the Performance Standards. The last one-fifth of the fund shall be held until the final monitoring report is submitted and approved.
  
7. DEFAULTS. If the purchase of the wetland mitigation contemplated by this Contract is not consummated due to a default of FOBBP, then TDOT's earnest money deposit, if any, shall be promptly refunded to TDOT.
  
8. COMMISSIONS. FOBBP has not employed the services of a broker in connection with this purchase, and FOBBP agrees to indemnify TDOT against any claim for commission or compensation by any real estate broker or other person claiming by, through or under FOBBP.
  
9. SPECIAL STIPULATIONS. This Contract does not include any special provisions and stipulations other than the provisions already identified and explicitly stated in this Contract.
  
10. SURVIVAL. All covenants, terms, and conditions of this Contract not fully performed prior to closing shall survive the closing of the Contract.
  
11. MISCELLANEOUS. This Contract constitutes the entire agreement between FOBBP and TDOT and may not be modified or amended except by an instrument in writing signed by the parties. This Contract shall be binding upon and shall inure to the benefit of the parties hereto and their respective heirs, executors, administrators, representatives, successors, and permitted assigns. Time is of the essence for this Contract. The paragraph headings contained herein are for reference only and are not to be construed as a part of any term, provision, or condition hereof.

IN WITNESS WHEREOF, the parties have caused this Contract to be executed and to become effective as of the date the Contract is last executed by the parties as indicated below.

**FRIENDS OF BELLS BEND PARK**

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

Friends of Bells Bend Park, Treasurer  
\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

**TENNESSEE DEPARTMENT OF  
TRANSPORTATION**

\_\_\_\_\_  
Signature

John C. Schroer  
\_\_\_\_\_  
Printed Name

TDOT – Commissioner  
\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

**Approved as to Form and Legality**

\_\_\_\_\_  
Signature

John H. Reinbold  
\_\_\_\_\_  
Printed Name

TDOT – General Counsel  
\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

### Objectives

Metro Nashville Parks and the Friends of Bells Bend are interested in partnering to restore wetland resources on floodplain of the Cumberland River at Bells Bend Park (Figure 1). Approximately 11.2 acres of wetlands will be restored and enhanced. The project will serve as compensatory mitigation for impacts to wetland resources at John C. Tune Airport (Tune, TDEC ARAP #NRS11-005, Corps §404 #2008-01550) and at Tennessee State Route 12 (SR12, TDEC ARAP #NRS93-402, Corps §404 52-982-00). The project will provide critical wetland habitat, restore native vegetation, process nutrients through biogeochemical cycling in wet-dry processes and provide additional hydrologic storage.

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Mitigation Work Plan

The proposed restoration and enhancement activities at this site include the re-grading of drainage systems in the previous agricultural area, eradication of invasive species, the construction of a water-control system to enhance hydrology and replanting in an effort to create a feature dominated by native wetland plant species. These actions are proposed based on extensive research of the soils, hydrology, topography, and vegetation assemblages in the mitigation area.

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be native to the region and from local genotypes when possible. Additionally, woody species in bare root seedling form will be planted on 12-16" centers throughout the wetland in natural groupings. A small number of wetland shrubs will also be incorporated into this enhancement activity, primarily along the periphery of the wetland. A summary of typical species proposed for the revegetation is included as with the landscape plan.

#### *Hydrology*

The proposal includes installing a water control structure at the wetland discharge point. The structure will be constructed of concrete with adjustable inlets to of various heights to allow for seasonal flooding of the area to discourage invasion by upland species and encourage germination and survival of wetland plantings. The normal wetland elevation will be set to the height of the current seasonal water table, which is 93.5 feet msl. The proposed maximum height of this structure is 95.5 feet msl, allowing for a maximum flood event of 2 feet above normal pool.

This structure will be properly engineered to accommodate large volume flows associated with storm events since local overbank events from the Cumberland River have been known to occur during infrequent significant storm events. This will serve to augment hydrology within the wetland.

#### Maintenance Plan

No scheduled maintenance will be required at the site. In order to ensure germination of solely hydrophytic species, the drop-board structure may be utilized to increase the duration of saturation and ponding in the initial two growing seasons, and variably beyond the monitoring period. This will not be required to ensure site hydrology establishes, as the mitigation activities will ensure that the minimum elevation of the proposed outlet structure will ensure that wetland hydrology will be maintained without any maintenance or modification. The structure will allow periodic over-flooding that will help hydrophytic vegetation establish in the first few planting seasons. After that, it the minimum elevation will guarantee wetland hydrology while allowing for optional periods of further inundation. The structure will never allow for draining site hydrology.

#### Performance standards

Performance standards are established to meet several objectives, including measuring the success of a project's specific objectives, and comparing the ecological improvement or increase in function and value of pre- and post-restoration/enhancement efforts. Success criteria for the applicable aspects of a project (vegetation and hydrology) shall consist of the following:

- *Vegetation* - A minimum of 200 stems per acre, comprised of both planted and desirable seedlings from natural regeneration (must be on approved native species planting list) shall remain growing at the end of the monitoring period.
- *Hydrology* – the site hydrology will meet the requirements for wetland hydrology in all monitoring years with typical climatic conditions.

#### Monitoring requirements

The success of the mitigation efforts will be determined by following an established monitoring plan. This plan will document the success of the wetland restoration and enhancements by monitoring and documenting vegetation establishment and hydrology.

The annual qualitative and quantitative assessment of the mitigation wetland will include the following:

1. Annual narrative description

2. Annual photo documentation
3. Annual vegetation survey in 3 locations
4. Annual visual assessments
5. Annual hydrology documentation

#### *Photographic Monitoring Stations*

Five permanent photography stations will be identified at the mitigation wetland. Four stations will be positioned to capture images along each of the cardinal directions and the fifth will be located in the center of the wetland to provide a visual approximation of vegetation density. Additional photographs will be taken throughout the survey to document significant observations such as natural recruitment of species. Photographs from these same stations will be taken in the subsequent years to document the evolution and development of the area.

#### *Vegetation Sampling*

The establishment of vegetation within the wetland area will be documented utilizing a regimented sampling protocol. This will include three 1m<sup>2</sup> plots that will be placed randomly throughout the wetland. The location of the plots will be marked with rebar and a GPS location will be recorded so that the sample plots can be sampled annually. All species present within each of these plots will be identified to species level when possible and be assigned an estimation of percent cover. Percent cover for the entire plot will also be assigned and recorded for an estimation of vegetation density.

One vegetation sampling plot will be within in the area identified as mitigation for Tune impacts and two within the mitigation area for SR12 impacts.

#### *Soil*

Three random soil samples from the mitigation wetland area will be extracted from a depth of 12 inches to assess the development of hydric soil characteristics. The soil color will be determined using a Munsell Soil Color Chart and notable features such as density of mottles and the presence of either hydric soil indicators such as concretions or oxidized rhizospheres will be documented.

#### *Hydrology*

The hydrology of the wetland will be documented both by observable indicators such as water lines or saturated soils and the data collected from Ecotone™ Water Level Recorders. The water level recorders will be installed such that one is included in the area identified as mitigation for Tune impacts and one in the area for SR12 impacts. They will be programmed to record the elevation of the water every 12 hours so that subtle fluctuations can be documented such as the response of the water level to precipitation.

#### Report

All collected data will be assessed and summarized annually for submittal to both TDEC and USACE for five years to ensure that it serves as a suitable replacement for impacted wetlands. The results of the annual monitoring will be provided to TDEC and also USACE by the 31<sup>st</sup> of October in each monitoring year. Corrective actions will be undertaken if mitigation efforts are deemed to be unsuccessful at any point during the monitoring process.

#### Long-term management plan

Following the completion of the mandated monitoring period, the area will be visually inspected by Metro Park employees and members of the Friends of Bells Bend Park during normal park operation

activities. If any observations indicate required maintenance, both TDEC and USACE will be consulted prior to conducting maintenance activities within the mitigation area.

#### Adaptive Management and Maintenance Plan

Should any portion or aspect of the mitigation project not meet the specified success criteria based on reporting and/or additional visual observations in a monitoring year, the nature and cause(s) of the resulting condition shall be thoroughly investigated and documented. If it is determined that corrective action to a perceived problem area is not warranted at the time, the rationale for such a decision shall be stated. Continued monitoring of the condition or area, including the use of more detailed methodologies and at a more intensive rate, may be most appropriate. These actions shall also be documented. In instances where the Corps of TDEC determine corrective action is necessary, a plan shall be prepared which includes proposed actions, a schedule and revised monitoring plan.

#### Site Protection Instrument

Metro Parks has agreed to

#### Financial Assurances

The Friends of Bells Bend Park have received funds to complete the proposed mitigation activities. In the instance that these funds prove insufficient to conduct the necessary compensatory mitigation, the Friends of Bells Bend Park are committed to providing the necessary resources to adequately compensate for the necessary resource values.

#### No Net Loss of Resource Value

The calculated credits indicate that a surplus of credit will be generated by the project (3.7 impact acres, versus 5.27 credits generated), indicating that no net loss of resource value will occur as a result of the projects.

#### Sequencing

The proposed mitigation work would occur in 2012, with planting taking place in late 2012 to early 2013, depending on availability of woody plantings.

#### Erosion Control Plan

Erosion control measures are detailed in the grading plans included in Appendix A.

#### Construction Methods

The activities will likely utilize a variety of heavy equipment and hand tools to complete the excavation, construct berms, and perform the finish grading, stabilization and planting. There would likely be a bulldozer, with the possibility of a track hoe, pan grader and small skid steer with various attachments.