



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
**JACKSONVILLE DISTRICT CORPS OF ENGINEERS**  
**COCOA REGULATORY FIELD OFFICE**  
**400 HIGH POINT DRIVE, SUITE 600**  
**COCOA, FLORIDA 32926**

**October 29, 2008**

Cocoa Permits Section  
SAJ-2008-3923 (NW-AWP)

FDOT, District 5  
Attn: Patrick Muench  
719 South Woodland Blvd.  
DeLand, Florida 32720

Dear Mr. Muench:

Your application for a Department of the Army permit received on December 28, 2007, has been assigned number SAJ-2008-3923 (NW-AWP). A review of the information and drawings provided shows the proposed work impacts 0.49 acre of waters of the United States (wetlands) for the installation of helper bent piles and the excavation of wetlands associated with the Interstate 4 bridges over Reedy Creek. The project is located at FDOT bridges 920098 and 920099, in Section 23, Township 25 South, Range 27 East, Osceola County, Florida.

Your project, as depicted on the received drawings, is authorized by Nationwide Permit (NWP) Number 14. In addition, project specific conditions have been enclosed. This verification is valid until October 31, 2010. Please access the U.S. Army Corps of Engineers' Jacksonville District's Regulatory web address at <http://www.saj.usace.army.mil/regulatory/permitting/nwp/nwp.htm> to access web links to view the Final Nationwide Permits, Federal Register Vol. 72, dated March 12, 2007, the Corrections to the Final Nationwide Permits, Federal Register 72, May 8, 2007, and the List of Regional Conditions. These files contain the description of the Nationwide Permit authorization, the Nationwide Permit general conditions, and the regional conditions, which apply specifically to this verification for NWP 14. Additionally, enclosed is a list of the six General Conditions, which apply to all Department of the Army authorizations. You must comply with all of the special and general conditions and any project specific condition of this authorization or you may be subject to enforcement action. In the event you have not completed construction of your project

within the specified time limit, a separate application or re-verification may be required.

The following special conditions are included with this verification:

1. Within 60 days of completion of the work authorized, the attached "Self-Certification Statement of Compliance" must be completed and submitted to the U.S. Army Corps of Engineers. Mail the completed form to the Regulatory Division, Enforcement Section, Post Office Box 4970, Jacksonville, Florida 32232-0019.

2. The Permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structures or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the Permittee will be required, upon due notice from the U.S. Army Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

3. No structure or work shall adversely affect or disturb properties listed in the National Register of Historic Places or those eligible for inclusion in the National Register. Prior to the start of work, the Permittee or other party on the Permittee's behalf, shall conduct a search in the National Register Information System (NRIS). Information can be found at; <http://www.cr.nps.gov/nr/research/nris.htm>. Information on properties eligible for inclusion in the National Register can be identified by contacting the Florida Master File Office by email at [fmsfile@dos.state.fl.us](mailto:fmsfile@dos.state.fl.us) or by telephone at 850-245-6440.

If unexpected cultural resources are encountered at any time within the project area that was not the subject of a previous cultural resource assessment survey, work should cease in the immediate vicinity of such discoveries. The permittee, or other party, should notify the SHPO immediately, as well as the

appropriate Army Corps of Engineers office. After such notifications, project activities should not resume without verbal and/or written authorization from the SHPO.

If unmarked human remains are encountered, all work shall stop immediately, and the proper authorities notified in accordance with Section 872.05, Florida Statutes, unless on Federal lands. After such notifications, project activities on non-Federal lands shall not resume without verbal and/or written authorization from the Florida State Archaeologist for finds under his or her jurisdiction.

This letter of authorization does not obviate the necessity to obtain any other Federal, State, or local permits, which may be required. In Florida, projects qualifying for this NWP must be authorized under Part IV of Chapter 373 by the Department of Environmental Protection, a water management district under §. 373.069, F.S., or a local government with delegated authority under §. 373.441, F.S., and receive Water Quality Certification (WQC) and Coastal Zone Consistency Concurrence (CZCC) (or a waiver), as well as any authorizations required by the State for the use of sovereignty submerged lands. You should check State-permitting requirements with the Florida Department of Environmental Protection or the appropriate water management district.

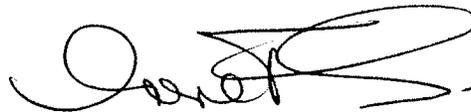
This letter does not give absolute Federal authority to perform the work as specified on your application. The proposed work may be subject to local building restrictions mandated by the National Flood Insurance Program. You should contact your local office that issues building permits to determine if your site is located in a flood-prone area, and if you must comply with the local building requirements mandated by the National Flood Insurance Program.

If you are unable to access the internet or require a hardcopy of any of the conditions, limitations, or expiration date for the above referenced NWP, please contact Andrew Phillips by telephone at 321-504-3771 ex 14.

Thank you for your cooperation with our permit program. The Corps Jacksonville District Regulatory Division is committed to improving service to our customers. We strive to perform our duty in a friendly and timely manner while working to preserve our environment. We invite you to take a few minutes to visit the following link and complete our automated Customer Service Survey:

[http://www.saj.usace.army.mil/permit/forms/customer\\_service.htm](http://www.saj.usace.army.mil/permit/forms/customer_service.htm).  
Your input is appreciated - favorable or otherwise.

Sincerely,

A handwritten signature in black ink, appearing to read 'Irene F. Sadowski', with a large, stylized flourish extending to the right.

Irene F. Sadowski  
Chief, Cocoa Permits Section

Enclosures

cc: Jim Bassett

GENERAL CONDITIONS  
33 CFR PART 320-330

PUBLISHED FEDERAL REGISTER DATED 13 NOVEMBER 1986

1. The time limit for completing the work authorized ends on **date identified in the letter**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
  
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
  
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
  
4. If you sell the property associated with this permit you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
  
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
  
6. You must allow a representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

SELF-CERTIFICATION STATEMENT OF COMPLIANCE

Permit Number: NW-14

Application Number: SAJ-2008-3923

Permittee's Name & Address (please print or type): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Location of the Work: \_\_\_\_\_

\_\_\_\_\_

Date Work Started: \_\_\_\_\_ Date Work Completed: \_\_\_\_\_

Description of the Work (e.g., bank stabilization, residential or commercial filling, docks, dredging, etc.): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Acreage or Square Feet of Impacts to Waters of the United States:

\_\_\_\_\_

Describe Mitigation completed (if applicable): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Describe any Deviations from Permit (attach drawing(s) depicting the deviations): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\*\*\*\*\*

I certify that all work, and mitigation (if applicable) was done in accordance with the limitations and conditions as described in the permit. Any deviations as described above are depicted on the attached drawing(s).

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date

DEPARTMENT OF THE ARMY PERMIT TRANSFER REQUEST

PERMIT NUMBER: \_\_\_\_\_

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. Although the construction period for works authorized by Department of the Army permits is finite, the permit itself, with its limitations, does not expire.

To validate the transfer of this permit and the associated responsibilities associated with compliance with its terms and conditions, have the transferee sign and date below and mail to the U.S. Army Corps of Engineers, Enforcement Branch, Post Office Box 4970, Jacksonville, FL 32232-0019.

\_\_\_\_\_  
(TRANSFEREE-SIGNATURE)

\_\_\_\_\_  
(SUBDIVISION)

\_\_\_\_\_  
(DATE)

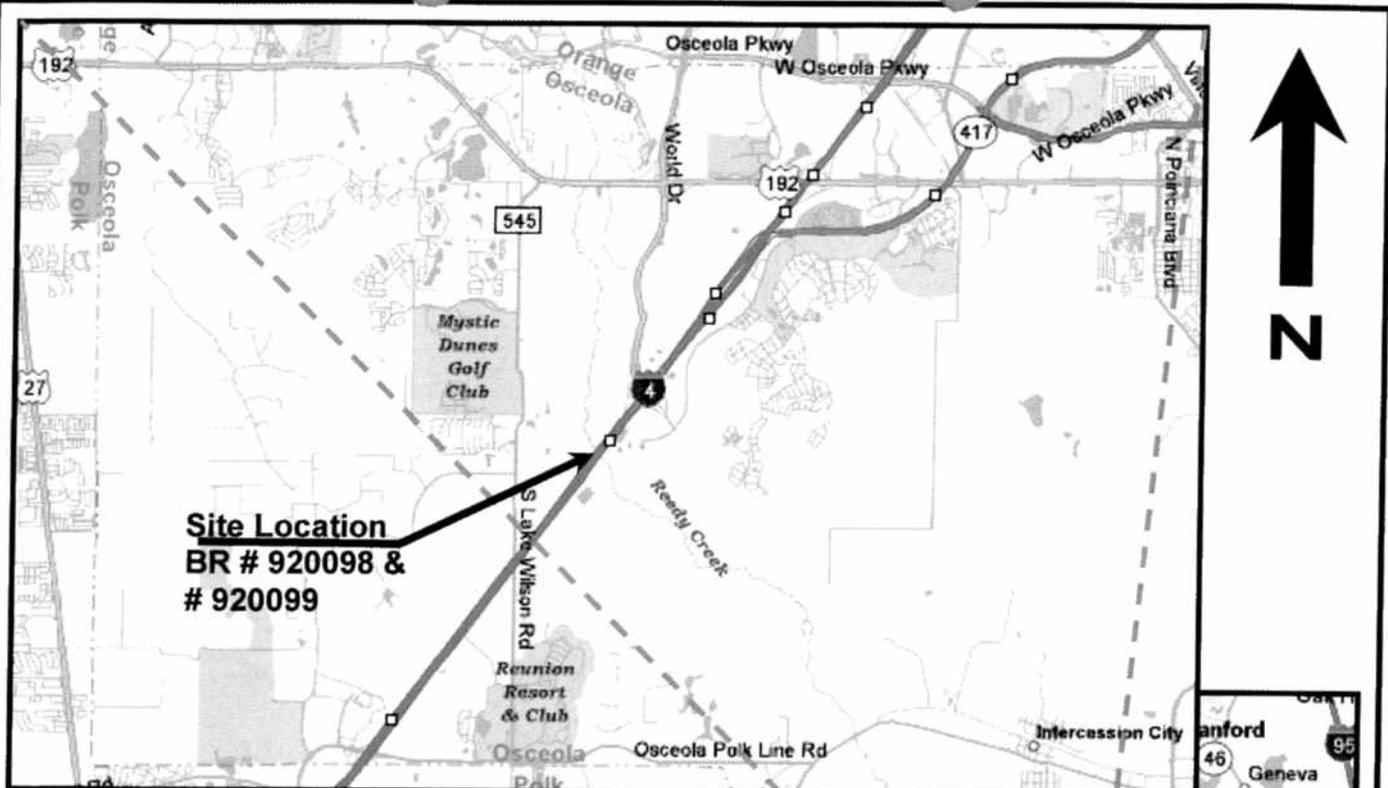
\_\_\_\_\_  
(LOT)      (BLOCK)

\_\_\_\_\_  
(NAME-PRINTED)

\_\_\_\_\_  
(STREET ADDRESS)

\_\_\_\_\_  
(MAILING ADDRESS)

\_\_\_\_\_  
(CITY, STATE, ZIP CODE)

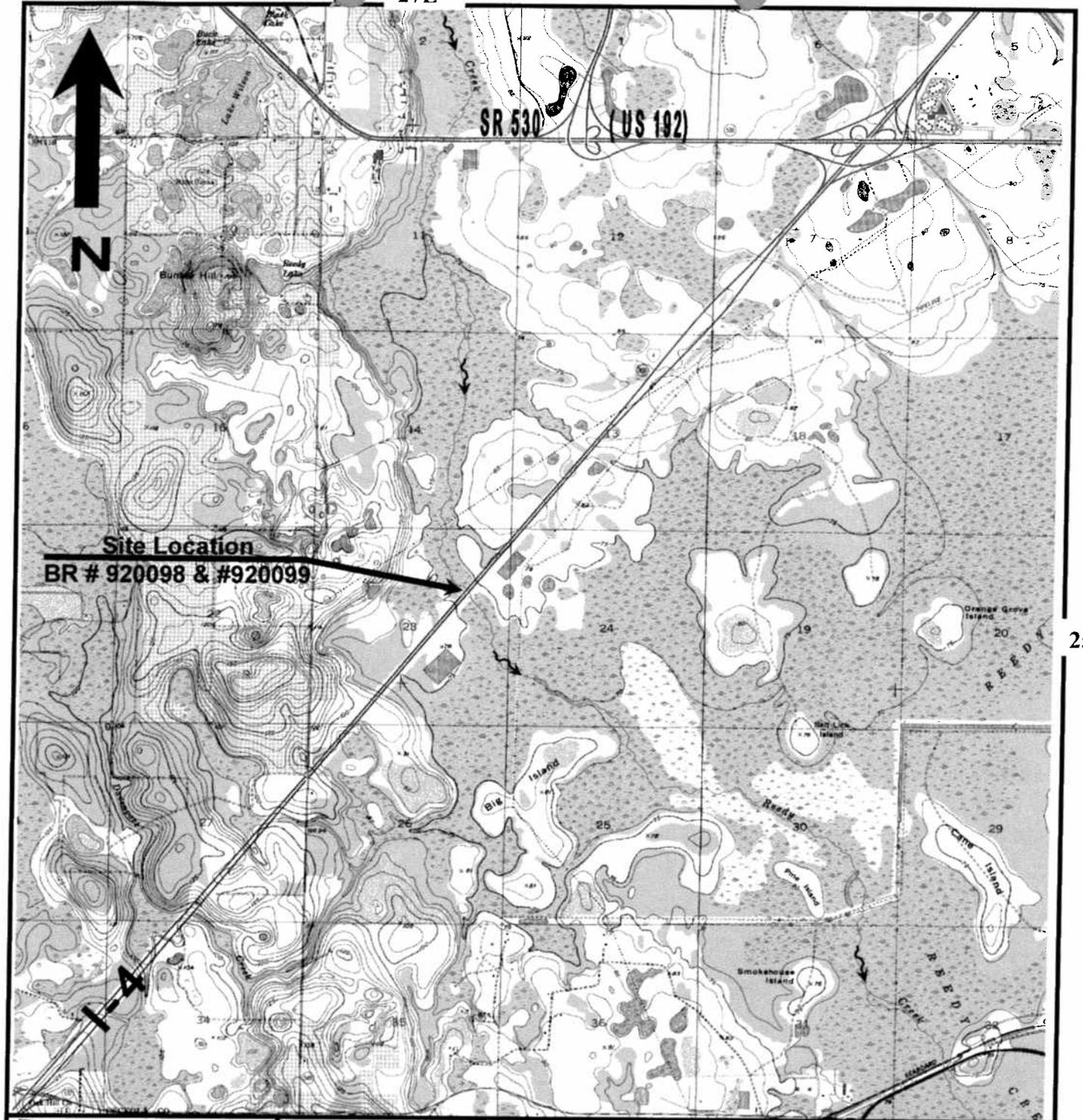


SCALE: N.T.S.

LOCATION MAP  
 OSCEOLA COUNTY  
 BR # 920098 & # 920099  
 FLORIDA DEPARTMENT OF  
 TRANSPORTATION



FIGURE 1




**KCA**

SCALE: 1"=3910'

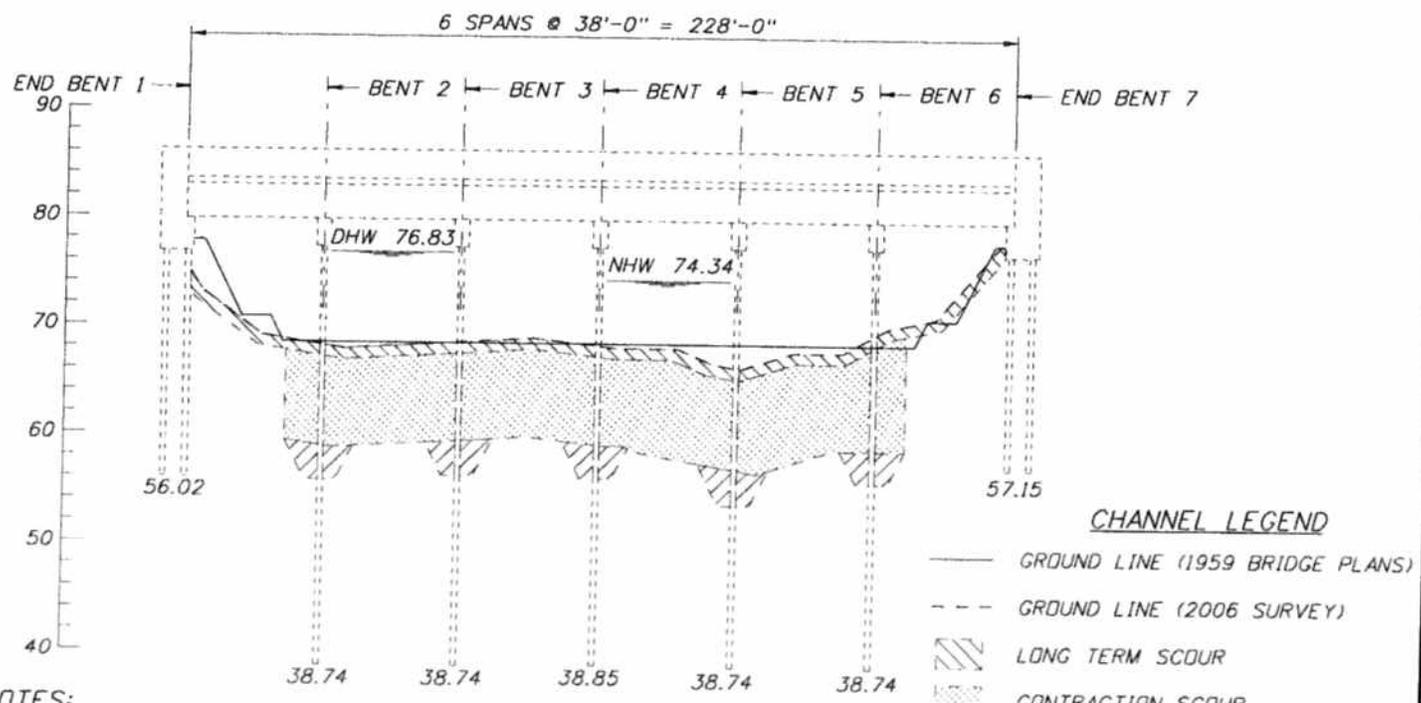
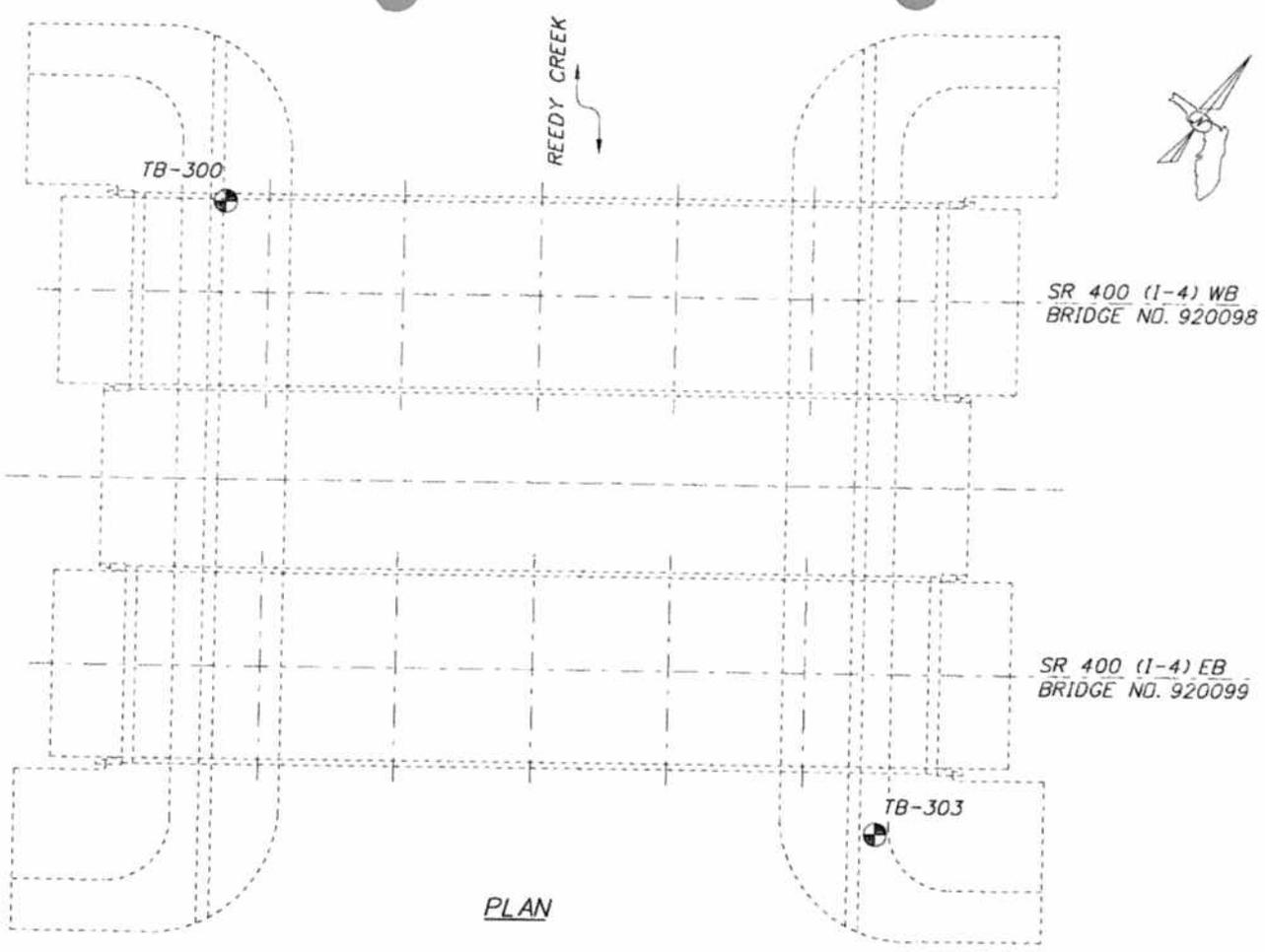
**USGS QUAD MAP**  
**INTERCESSION CITY, FLORIDA (1985)**  
**BR # 920098 & # 920099**  
**FLORIDA DEPARTMENT OF**  
**TRANSPORTATION**



**STATE OF FLORIDA**  
**DEPARTMENT OF TRANSPORTATION**

**FIGURE 3**

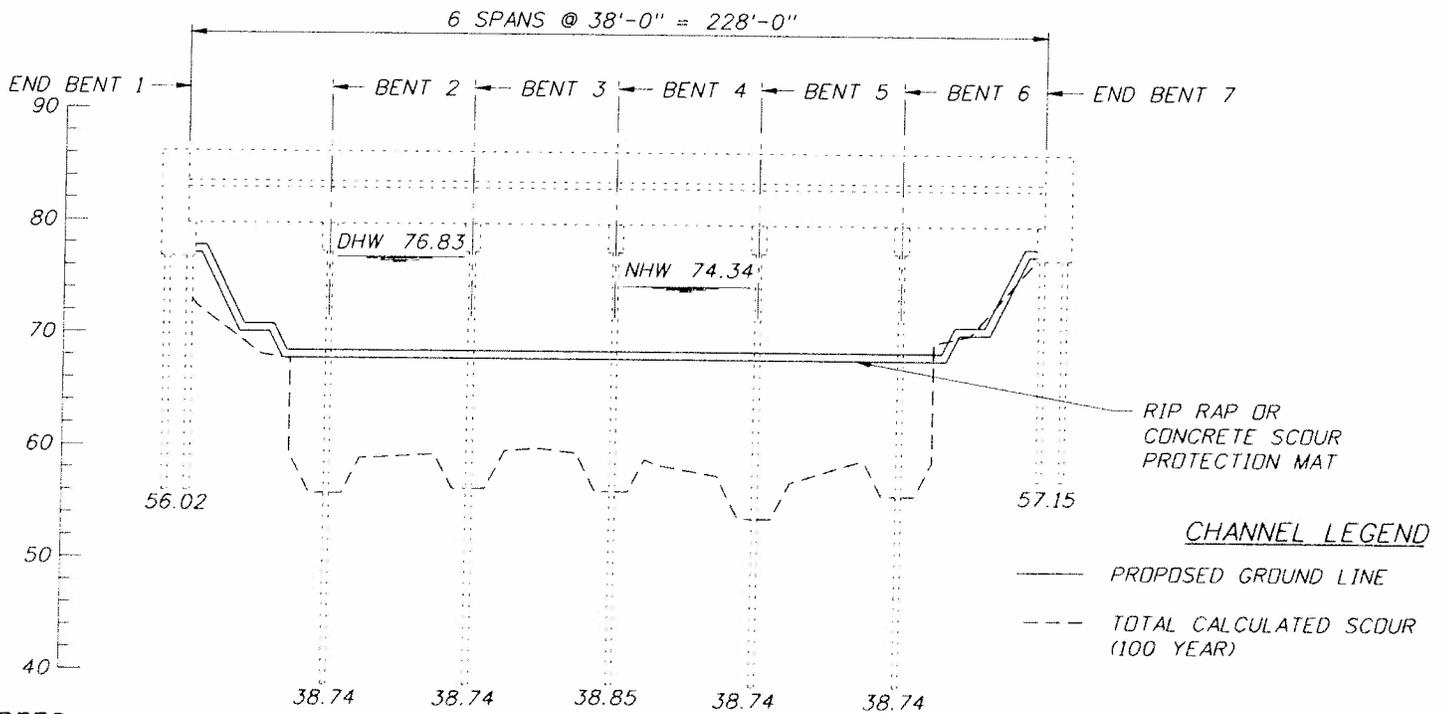
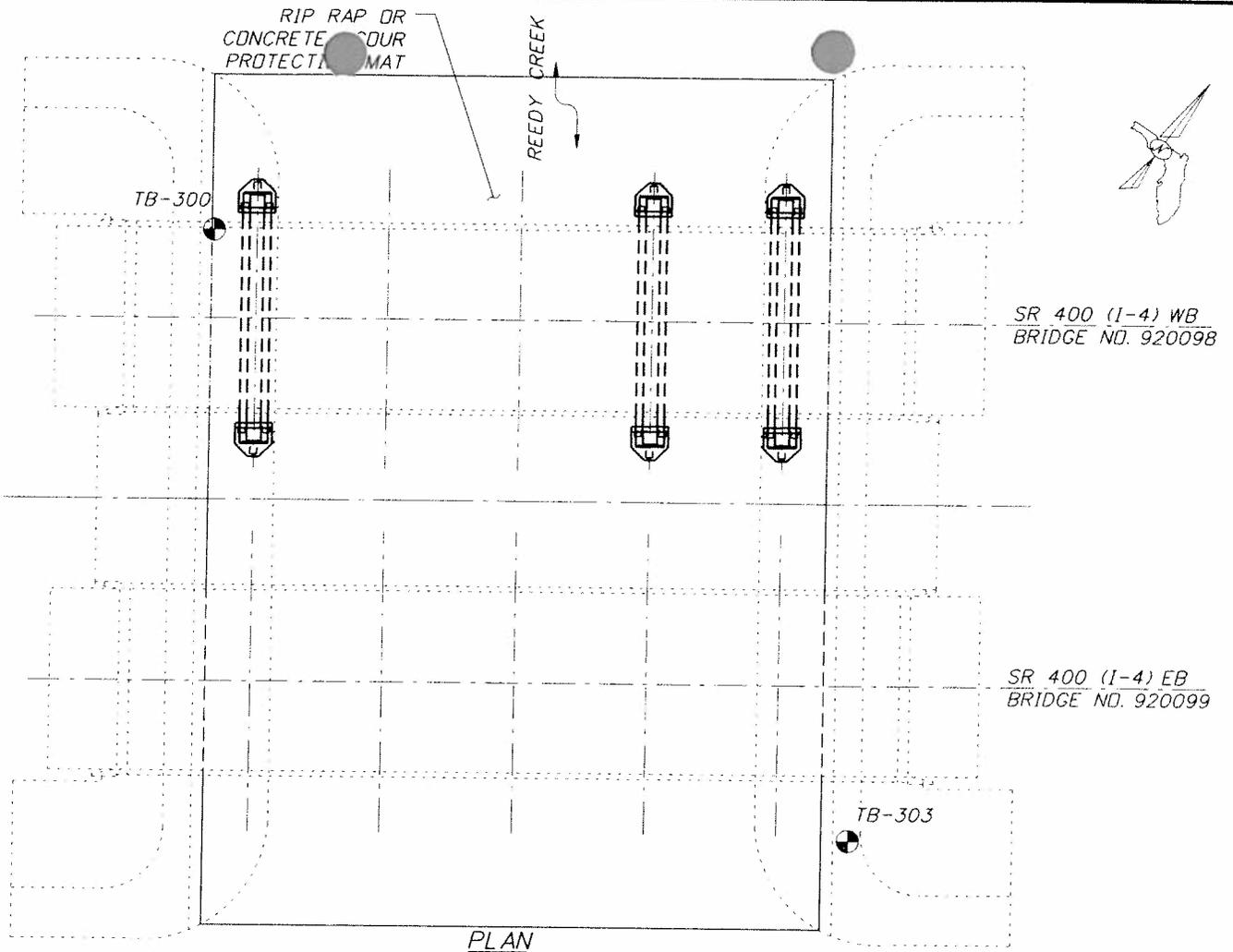




NOTES:

- PILE TIP ELEVATIONS BASED ON 31 PILE DRIVING RECORDS.
- VERTICAL SCALE IS EXAGGERATED.

ENGINEER OF RECORD: Kisinger Campo & Associates Corp. 2203 N. Lois Ave. Suite 1200 Tampa, FL 33607 Florida C.O.A. No. 02317 David B. Thompson, PE No. 45403	SHEET TITLE: <b>PLAN AND ELEVATION</b>	FIGURE NO. <b>2</b>
PROJECT NAME: <b>SR 400 (I-4) OVER REEDY CREEK</b>		



**NOTES:**

- PILE TIP ELEVATIONS BASED ON 1981 PILE DRIVING RECORDS.
- VERTICAL SCALE IS EXAGGERATED.

ELEVATION  
BRIDGE NO. 920099

ENGINEER OF RECORD:  
Kisinger Campo & Associates Corp.  
2203 N. Lois Ave.  
Suite 1200  
Tampa, FL 33607  
Florida C.O.A. No. 02317  
David B. Thompson, PE No. 45403

SHEET TITLE:

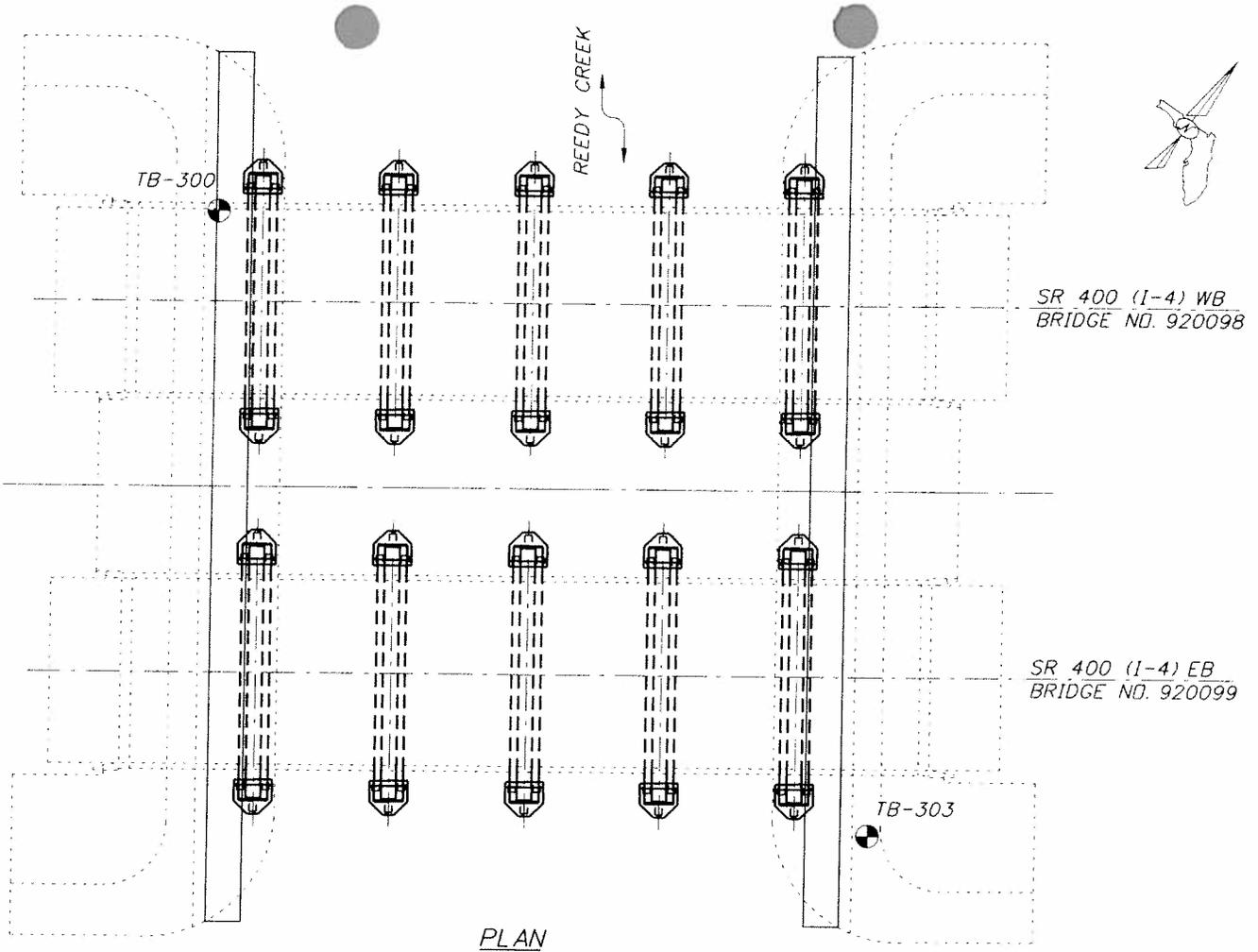
ALTERNATIVE 1

PROJECT NAME:

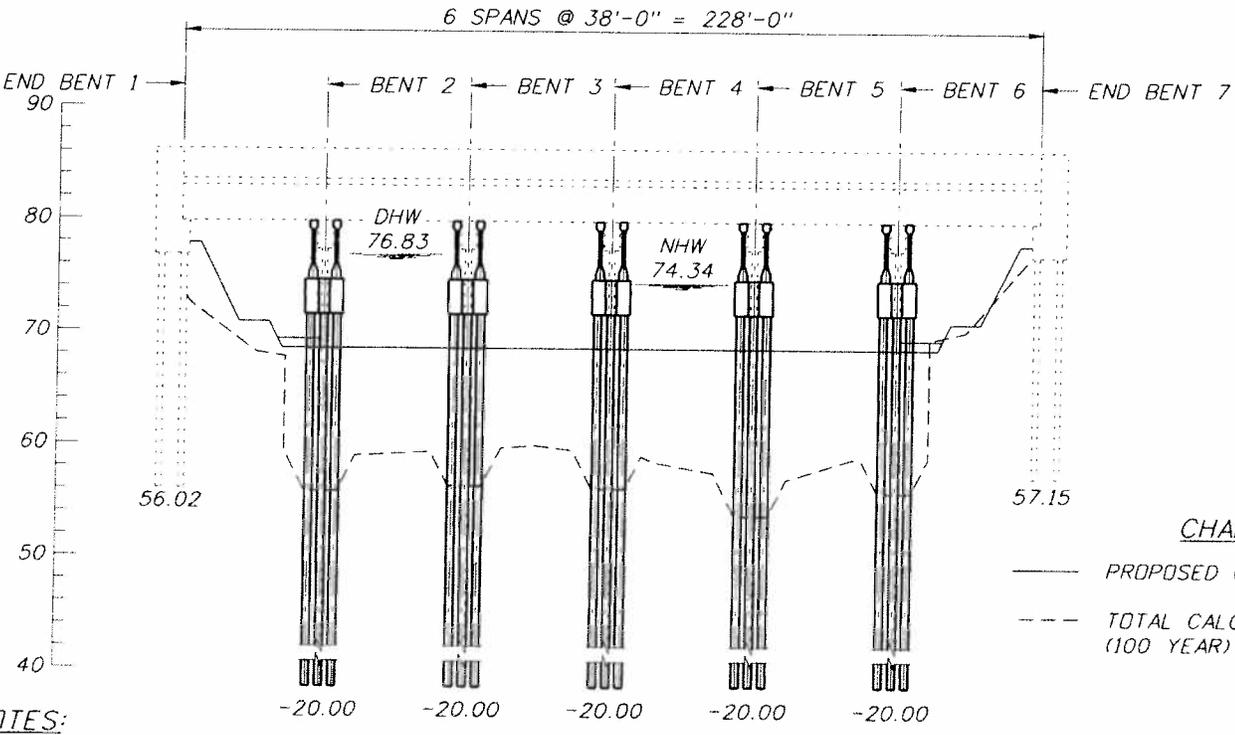
SR 400 (I-4) OVER REEDY CREEK

FIGURE NO.

3



PLAN



ELEVATION  
BRIDGE NO. 920099

**NOTES:**  
 1. PILE TIP ELEVATIONS BASED ON 1981 PILE DRIVING RECORDS.  
 2. VERTICAL SCALE IS EXAGGERATED.

ENGINEER OF RECORD:  
**Kisinger Campo & Associates Corp.**  
 2203 N. Lois Ave.  
 Suite 1200  
 Tampa, FL 33607  
 Florida C.O.A. No. 02317  
 David B. Thompson, PE No. 45403

SHEET TITLE:  
**ALTERNATIVE 2**

PROJECT NAME:  
**SR 400 (I-4) OVER REEDY CREEK**

FIGURE NO.  
**4**

## 1.0 SUMMARY OF FINDINGS

Based on the results of the geotechnical and structural assessments Bridge Number 920099, SR 400 (I-4) Eastbound over Reedy Creek in Osceola County (Figure 1), has been rated high-risk. Our assessment is based on using Limit State 1 and Limit State 3 loading combinations assuming zero drift loads from accumulation of debris, in accordance with the Florida Department of Transportation's (FDOT) Structures Design Guidelines (SDG) 2.12.

Bridge Number 920099 is 228 ft. long, consisting of six spans at 38 feet each. The bridge has been widened twice since originally constructed in 1960. Each intermediate bent is supported by eight 18-inch square prestressed concrete piles. All bents are normal to the centerline of the bridge.

The materials encountered in the 1995 boring generally consisted of layers of fine sand over layers of limestone. The materials above the 100-year and 500-year scour elevation do not meet FDOT criteria for non-scourable material. Bent 4 was chosen for the analysis of the existing bridge because the piles in this bent have the least amount of remaining embedment and greatest exposed lengths during the 100-year and 500-year scour events. The minimum embedment of Pile 7 at Bent 4 is 16.0 feet (100-year event) and 14.3 (500-year event). The remaining unsupported lengths are 23.15 feet and 24.85 feet, respectively. The vertical and lateral load analyses performed determined that Bent 4 is unstable for the calculated 100-year scour event and the 500-year scour events. The Phase 3 Scour assessment determined the scour critical elevation of the bridge to be 68.70 ft. This is approximately 8 ft above the current ground elevation at bent 4. This also leads to a minimum pile embedment of 30.0 ft.

### Recommendations:

Based on the above, it is recommended a permanent scour countermeasure should be installed to stabilize the bridge.

## 2.0 PLAN OF ACTION

The calculated critical scour elevation is the result of a 100-year storm. None of the intermediate bents meets the pile embedment requirement of 30.0 ft for stability after the 100-yr storm event scour. It is recommended that permanent structural scour countermeasures are installed immediately.

### Permanent Scour Countermeasures

Alternative 1 – Channel stabilization using an erosion control system such as concrete mats, in conjunction with a monitoring program for all intermediate bents.

Alternative 2 – Crutch bent installation on all intermediate bents.

The two alternatives were evaluated and the results of the evaluation are presented below. The major factors used to select the recommended permanent scour countermeasure were:

- 1.) Cost of the countermeasure
- 2.) Ease of installation, constructability
- 3.) Remaining service life of structure
- 4.) Current pile embedment
- 5.) Pile embedment after 100-yr storm event

Alternative 1: This alternative calls for channel stabilization using an erosion control system such as riprap or articulated concrete mats, as shown in figure 3. Since the concrete mats/riprap/engineering block have significant thicknesses, the channel should be re-graded to allow for the bed armoring to be installed without reducing the flow area under the bridge or raising the channel profile. The concrete mats are set on top of woven geotextile. Ground anchors can be used to improve mat resistance to wave attack. A monitoring program should be implemented in conjunction with this alternative. The cost for such an erosion control system is estimated at \$605,898 for bridge no. 920099, with a total cost for both bridges of \$1,624,129 (see Attachment A). Because this alternative requires modification of the existing channel profile, it will require a more substantial permitting effort than Alternative 2.

Alternative 2: This alternative calls for crutch bent installation for all interior bents, as shown in Figure 4. This method will increase the stability of the bridge by decreasing the amount of loading on each bent. Note that installing the crutch bents will impact the local scour and flood elevations. This should be addressed further in the design phase. The crutch bents will consist of a 6 pile system with 3 piles on each side of each bent. Since the scour elevation is lowest at Bent 5, this elevation will be used for the crutch bent stability analysis. The cost of this alternative is estimated at \$776,810 for bridge no. 920099, with a total cost for both bridges of \$1,553,620 (see attachment A)

### 3.0 MATERIALS AND DOCUMENTATION

- AASHTO LRFD Bridge Design Specifications (2007 Edition)
- FDOT SDG (January 2007)
- Bridge Plans SPN: 92130-3401 (dated 1959)
- Pile Driving Records (dated 1959)
- Bridge Widening Plans SPN: 92130-3413 (dated 1981)
- Pile Driving Records (dated 1981)
- Bridge Widening Plans SPN: 92130-3420 (dated 1996)
- Bridge Inspection Reports (dated 2002 & 2004)
- Phase 3 Scour Evaluation Report (dated September 2007)  
Kisinger Campo and Associates
- Phase 2 Scour Evaluation Report (dated December 2006)  
Kisinger Campo and Associates
- Phase 1 Scour Evaluation Report (dated July 1993)  
Kisinger Campo and Associates

- Attachment A – Cost Estimates
- Attachment B – Structural Calculations

29 October 2008

MEMORANDUM FOR RECORD

SUBJECT: Statement of Findings/Environmental Assessment/Finding  
of No Significant Impact/Public Interest Determination

1. For each of the reissued and new Nationwide Permits (NWP), HQUSACE issued a decision document that contains an Environmental Assessment (EA), Statement of Findings, public interest review, and as appropriate, a Section 404(b)(1) Guidelines analysis. The Office of the Chief of Engineers has determined that division and district engineers will impose, as necessary, additional conditions on the NWP authorization or exercise discretionary authority to address locally important factors relating to the public interest, including any potential adverse effects on the human environment, and to ensure that the authorized activity results in no more than minimal individual and cumulative adverse effects on the environment. Supplemental documentation was prepared for the division engineer to address the individual and cumulative effects of the NWP(s) on local resources. On 12 July 2007, the supplemental documentation was issued by the division engineer and the Jacksonville District's proposed regional conditions were approved. Where required by the terms of the permit, general conditions, and/or regional conditions, the Jacksonville District will continue to perform case-specific review to ensure that the NWP will authorize only activities with no more than minimal individual and cumulative adverse effects on the environment and those activities will not be contrary to the public interest.

2. Name and address of applicant:

FDOT, District 5  
Attn: Patrick Muench  
719 South Woodland Blvd.  
DeLand, Florida 32720

3. Project description: A review of the information and drawings provided shows the proposed work impacts 0.49 acre of waters of the United States (wetlands) for the installation of helper bent piles and the excavation of wetlands associated with the Interstate 4 bridges over Reedy Creek.

The proposed fill in Reedy Creek is 0.02 acres of permanent surface water impacts, 0.14 acres of permanent wetland impacts and 0.33 acres of channel clearing and shaping (1722 cy) for a total impact of 0.49 acres.

CESAJ-RD-NC (1145b)

SUBJECT: Statement of Findings/Environmental Assessment/Finding of No Significant Impact/Public Interest Determination

This activity meets the terms and conditions for authorization under Nationwide Permit 14, as published in the 12 March 2007, issue of the Federal Register (72 FR 11092).

4. Project location: The project is located at FDOT bridges 920098 and 920099, in Section 23, Township 25 South, Range 27 East, Osceola County, Florida.

5. Existing site conditions: Herbaceous wetlands are located within the areas proposed to be filled with riprap on each side of the bridge. Under the existing bridge some wetlands areas dominated by herbaceous vegetation still exists along with alluvial sand deposits throughout.

The I-4 bridges # 920099 (Eastbound) and # 920098 (Westbound) over Reedy Creek are considered scour critical and the FDOT proposes the construction of helper bents. The construction of the helper bents are needed to stabilize the bridges and raise the National Bridge Inventory (NBI) scour critical code to a seven. The bridges, built in 1960, consist of six 38 foot long spans for a total length of 228 feet. Each intermediate bent is supported by eight 18-inch square pre-stressed concrete piles, and all bents are normal to the centerline of the bridge. The helper bents will consist of transverse beams installed to support the existing bridge beams at each side of the existing pile bents. The proposed beams will be supported by new 24" square concrete piles, installed within Reedy Creek outboard of the bridge on each side. The proposed beams will bear upon a new pile reinforced concrete cap. An area under the bridges will be excavated to allow the bridges to perform hydraulically, in a manner equal to the existing structure.

The bridges were determined to be scour critical and repairs are mandated through the Federal Highway Administration. The Phase 4 scour report (Kisinger Campo & Associates, January 2008) discussed two alternatives to repair the bridges. The first alternative included channel stabilization and the installation of helper bent on bents 2, 5 and 6. The second alternative included helper bent installation for all the interior bents and additional rubble riprap at the toe of slope.

Reedy Creek is not a navigable waterway at the project location and therefore does not have any vertical or horizontal navigation clearance criteria requirements. Due to the installation of the helper bents, the bridge has a 30' horizontal and 2' vertical clearance above the design flood elevation of 76.39 feet (NGVD 29).

CESAJ-RD-NC (1145b)

SUBJECT: Statement of Findings/Environmental Assessment/Finding of No Significant Impact/Public Interest Determination

6. Scope of Analysis: Our scope of analysis is limited to the immediate permit area.
7. Alternatives: See Decision Document for Nationwide Permit 14, which was approved by the Director of Civil Works on 1 March 2007, and Supplemental Environmental Assessment for Nationwide Permit 14, which was approved by the South Atlantic Division Commander on 12 July 2007.
8. Evaluation of the potential adverse environmental effects (direct, indirect, and cumulative) of the proposed activity: See Decision Document for Nationwide Permit 14, which was approved by the Director of Civil Works on 1 March 2007, and Supplemental Environmental Assessment for Nationwide Permit 14, which was approved by the South Atlantic Division Commander on 12 July 2007.
9. Mitigation required to ensure that the activity being verified by the U.S. Army Corps of Engineers (Corps) will have no more than minimal adverse effect on environment: No mitigation measures are proposed. The proposed work will alleviate possible bridge failure and potential adverse flooding associated with the installation of additional bents within the watershed. The wetlands proposed for impact are low quality disturbed herbaceous wetlands which are maintained by FDOT.
10. Other Federal, State, and Local Authorizations Obtained or Required and Pending:
  - a. Clean Water Act Section 401 Water Quality Certification (WQC): The St. Johns River Water Management District (SJRWMD) is currently reviewing an application for the proposed work. No permits have been issued to date.
  - b. Coastal Zone Management (CZM) consistency certification: The issuance of a permit by SJRWMD will certify the project is consistent with CZM.
  - c. Endangered Species Act compliance: The Corps has determined the proposed work will have no effect on any federally listed species.
  - d. National Historic Preservation Act (NHPA) compliance: NHPA concerns will be addressed by the placement of a special condition in the verification letter advising Permittees how to proceed should unexpected cultural resources be encountered.
  - e. Other authorizations: N/A.

CESAJ-RD-NC (1145b)

SUBJECT: Statement of Findings/Environmental Assessment/Finding of No Significant Impact/Public Interest Determination

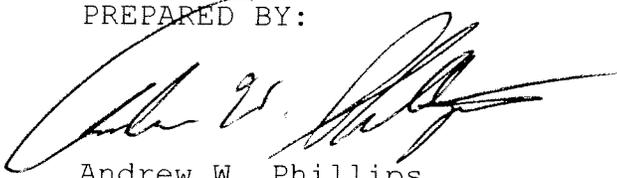
11. Special Conditions: No special conditions have been added to the verification.

12. Public interest review: See Decision Document for Nationwide Permit 14, which was approved by the Director of Civil Works on 1 March 2007, and Supplemental Environmental Assessment for Nationwide Permit 14, which was approved by the South Atlantic Division Commander on 12 July 2007.

13. Finding of No Significant Impact: See Decision Document for Nationwide Permit 14, which was approved by the Director of Civil Works on 1 March 2007.

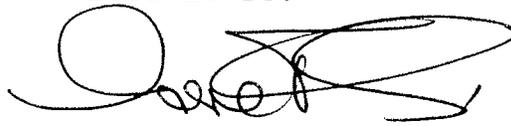
14. Public Interest Determination: This activity, if conducted in accordance with the terms and conditions of the NWP and the special conditions stated in the NWP verification letter, will not be contrary to the public interest.

PREPARED BY:



Andrew W. Phillips  
PROJECT MANAGER

REVIEWED BY:



Irene F. Sadowski  
Chief, Cocoa Permits Section