STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

ROADWAY DESIGN UNIT
OCT 6 2006
ALLEN ✓ BELEWIS ✓ SYKES ✓
BOLW ✓ C. HOUSER ✓ M. HOUSER ✓
LOWERING ✓ D. TAYLOR ✓ GOODNIGHT ✓
MOORE ✓ C. MOORE ✓ SPEER ✓
MOORE ✓ THOMAS ✓
MUMFORD ✓ WALLS ✓
THORNTON
PREPARE RESPONSE ✓ SIGN ITEMS
REVIEW WITH

CC:

October 5, 2006

MEMORANDUM TO: Mr. J. Stuart Bourne, P.E.
State Work Zone Traffic Engineer

Mr. Jay Bennett, P.E.
State Roadway Design Engineer

Mr. Greg Perfetti, P.E.
State Bridge Design Engineer

FROM: Njoroge Wainaina, P.E.
State Geotechnical Engineer

SUBJECT: Temporary Shoring Recommendations

TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC WILL BE IDENTIFIED & COORDINATED THROUGH THE WORK ZONE TRAFFIC CONTROL UNIT. THEY WILL PROVIDE US WITH THE ROADWAY PAY ITEMS. ADDITIONAL DETAILS WILL FOLLOW SHOWING ROLES & RESPONSIBILITIES. THE TEMPORARY SHORING DETAILS WILL BE SHOWN IN THE 2-SERIES SHEETS OF THE ROADWAY PLANS. MORE INFORMATION WILL BE AVAILABLE SOON. JAY

The Geotechnical Engineering Unit (GEU) has completed the development of new standard notes on plans and a standard special provision for temporary shoring. When temporary shoring recommendations are requested, the GEU will provide a special provision and recommendations using the attached form letter that includes the required project specific notes. Any details required will be sent directly to Roadway Design.

Electronic copies of the special provision and notes are available upon request. The provision has been sent to Project Services for implementation beginning with the December 2006 letting. If there are any questions regarding this memorandum, please contact Scott Hidden, P.E. or Mohammed Mulla, P.E. at (919) 250-4088.

Attachment: Standard Temporary Shoring Recommendations Form Letter

cc: John Pilipchuk, L.G., P.E.
K. J. Kim, Ph.D., P.E.
Don Moore, L.G.
Victor Barbour, P.E., Project Services Unit
Roger Worthington, P.E., Utilities Section Engineer

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-250-4088
Fax: 919-250-4237

Website: www.ncdot.org./doh

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

October 5, 2006

MEMORANDUM TO: Mr. _____, P.E.
Responsible Unit Head Title

ATTENTION: Mr./Ms. _____, P.E.
Responsible Unit Project Engineer Title

FROM: Njoroge W. Wainaina, P.E.
State Geotechnical Engineer

STATE PROJECT: WBS El. # (TIP #)
FEDERAL PROJECT: N/A
COUNTY:

DESCRIPTION:

SUBJECT: Temporary Shoring Recommendations

The Geotechnical Engineering Unit has received the following proposed temporary shoring locations.

Shoring ID No.	Begin Sta. & Ref. Line	Offset (Lt/Rt)	End Sta. & Ref. Line	Offset (Lt/Rt)	Shoring Type
No. 1					Roadway and/or Structure
No. 2					Roadway and/or Structure

(List all temporary shoring and 1.5:1 slope locations in table.)

The Geotechnical Engineering Unit recommends placing the following notes on the Traffic Control, Roadway or Structure Plans for the referenced project. The Geotechnical Engineering Unit also recommends the use of a temporary 1.5:1 (H:V) slope in lieu of temporary shoring for shoring ID nos. . *(optional)*

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-250-4088
Fax: 919-250-4237

Website: www.ncdot.org./doh

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

Temporaray Shoring No. 1
(Insert notes as necessary and fill in blanks. Choices are shown in italics.)

USE A 1.5:1 (H:V) SLOPE OR FLATTER IN LIEU OF TEMPORARY SHORING FROM STATION _____, _____FT (m) _____, TO STATION _____, _____FT (m) _____ AS SHOWN ON THE PLANS.

FOR TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

DO NOT USE STANDARD SHORING FROM STATION _____, _____FT (m) _____, TO STATION _____, _____FT (m) _____. CONTRACTOR DESIGNED SHORING IS REQUIRED. SEE TEMPORARY SHORING SPECIAL PROVISION.

DO NOT USE STANDARD TEMPORARY SHORING FROM STATION _____, _____FT (m) _____, TO STATION _____, _____FT (m) _____. A TEMPORARY MSE WALL OR CONTRACTOR DESIGNED SHORING IS REQUIRED. SEE TEMPORARY SHORING SPECIAL PROVISION.

DO NOT USE A TEMPORARY MSE WALL FROM STATION _____, _____FT (m) _____, TO STATION _____, _____FT (m) _____. STANDARD TEMPORARY SHORING OR CONTRACTOR DESIGNED SHORING IS REQUIRED. SEE TEMPORARY SHORING SPECIAL PROVISION.

USE A TEMPORARY MSE WALL FROM STATION _____, _____FT (m) _____, TO STATION _____, _____FT (m) _____. SEE TEMPORARY SHORING SPECIAL PROVISION AND STANDARD TEMPORARY MSE WALL DETAILS.

TEMPORARY SHORING IS REQUIRED FOR THE PIPE, DROP INLET OR UTILITY INSTALLATION FROM STATION _____, _____FT (m) _____, TO STATION _____, _____FT (m) _____. SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN USING CONTRACTOR DESIGNED SHORING FROM STATION _____, _____FT (m) _____, TO STATION _____, _____FT (m) _____, USE THE FOLLOWING SOIL PARAMETERS:

UNIT WEIGHT OF SOIL ABOVE WATER TABLE, γ = _____ PCF (KN/M^3)
UNIT WEIGHT OF SOIL BELOW WATER TABLE, γ = _____ PCF (KN/M^3)
FRICTION ANGLE, ϕ = _____ DEGREES
COHESION, c = _____ PSF (KPA)

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION _____, _____FT (m) _____, TO STATION _____, _____FT (m) _____ *WILL OR MAY* NOT PENETRATE BELOW ELEVATION _____ FT (m) DUE TO THE PRESENCE OF AN OBSTRUCTION, VERY DENSE OR HARD SOIL, WEATHERED OR HARD ROCK. SEE SUBSURFACE INFORMATION FOR ADDITIONAL DETAILS.

IT MAY BE PREFERRED OR NECESSARY TO ANCHOR THE TEMPORARY SHORING FROM STATION _____, _____FT (m) _____, TO STATION _____, _____FT (m) _____. THE TEMPORARY SHORING SPECIAL PROVISION DOES NOT APPLY TO ANCHORED TEMPORARY SHORING. IF ANCHORED TEMPORARY SHORING IS PROPOSED, THE ENGINEER WILL PROVIDE AN APPLICABLE SPECIAL PROVISION.

FOR CONTRACTOR DESIGNED SHORING, SURVEY THE SHORING LOCATION TO DETERMINE EXISTING ELEVATIONS AND ACTUAL DESIGN HEIGHTS BEFORE BEGINNING DESIGN.

FOR PORTABLE CONCRETE BARRIERS ABOVE AND BEHIND TEMPORARY SHORING, USE AN NCDOT PORTABLE CONCRETE BARRIER (UNANCHORED OR ANCHORED) OR AN OREGON TALL "F" SHAPE CONCRETE BARRIER IN ACCORDANCE WITH THE TEMPORARY SHORING SPECIAL PROVISION.

NO SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION _____, _____FT (m) _____, TO STATION _____, _____FT (m) _____. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

WHEN BACKFILL FOR A _____ *RETAINING WALL OR REINFORCED BRIDGE APPROACH FILL* OVERLAPS WITH THE REINFORCED ZONE OF A TEMPORARY MSE WALL, USE EITHER SHORING BACKFILL OR THE MATERIAL SPECIFIED FOR THE _____ *RETAINING WALL OR REINFORCED BRIDGE APPROACH FILL,* WHICHEVER IS BETTER, IN THE REINFORCED ZONE.

Temporaray Shoring No. 2
(Repeat as necessary for each location.)

The following estimated average shoring heights may be used for quantity calculation purposes. *(Only provide for roadway shoring for maintenance of traffic.)*

Shoring ID No.	Estimated Average Height (ft/m)
No. 1	
No. 2	

The Geotechnical Engineering Unit recommends including the attached Temporary Shoring Special Provision in the contract documents for the referenced project. Temporary Shoring Details have been sent to the Roadway Design Unit under a separate cover. *(optional)* Please call Primary Contact or Secondary Contact at Phone # if there are any questions concerning this memorandum.

NWW/

Attachment