02/05/09 ROADWAY DESIGN STAFF MEETING

Roadway Design Unit Conference Room
9:00 a.m. – 11:00 a.m.

- **3-D Modeling – Building 3 Dimensional Models (30 minute presentation) - Walls**

Ted Walls showed a 25 minute presentation for 3-D modeling for linear construction projects (highway/roadway construction). The department is transitioning into the use of 3-D modeling for its design practices and procedures. Microstation/Geopak criteria will be phased out and templates will be used to create models for typical sections, cross-sections and earthwork computations. This transition will take place over the next 1-2 years. The continued use of criteria for plan development will run concurrently with the introduction of design templates and 3-D models. Additional information will be provided this summer.

- **21st Century Transportation Funding Recommendations http://www.ncleg.net/documentsites/committees/21stCenturyTransportation/Homepage/ - Bennett**

See the attachment for additional information.

- **Roadway Design Unit Business – Bennett & Sykes**
  Day to day business
  Correspondence

Jay Bennett discussed how he would like to process mail and information through the front office, since Scott's and Ron's positions are vacant.

- **Municipal Agreements - Bennett**
  Local Programs Management Office – Manager (Acting) Sandy Nance
  Eastern Region Contract Officer – Sylvia Marshall
  Central Region Contract Office – Sheila Gibbs
  Western Region Contract Officer – Sheila Elliott

Please let the Local Programs Management Group know about extra work, such as lighting, signal mast arms, fencing, that requires reimbursement to the state. The information needs to be part of the agreement or the current agreement needs to be amended to cover the reimbursement.

- **Slope Recommendation Letter from the Geotechnical Unit, Njoroge Wainaina, PE. - Bennett**

The Slope Recommendations Letter should be received 3-12 months prior to right of way acquisition. Today, it is generally received approximately 1 month after the FROM HYDRO date. The six month R/W meeting monitors the delivery

of this information. If you need project specific geotechnical information prior to these dates, please coordinate the request with the Geotechnical Unit. Please continue to provide the completion date information on the form letter request. (Request for Roadway Inventory and Foundation Recommendations and the Request for Preliminary Recommendations (Bridge Replacement).

- **Median U – Turn Bulb Design for Directional Crossover with Median U – Turns (Update) - Bennett**

The revised U-turn Bulb Design reduces the bulb radius to 34 feet and modifies the configuration of the concrete island. A turning vehicle may need to use the 4 foot paved shoulder to complete the turn. Please see Jay Bennett's memo dated February 5, 2009 for detailed information.

- **Project Status Report – Sykes**

Project Status Reports will be prepared by the project engineer and turned into Dewayne prior to the next Planning Document Review Meeting. Attached are four examples for the project Status Report.

- **FEP – HEC – FE – PE classes canceled for the spring semester (current FE and PE classes will finish) - Bennett**

Comment noted.

- **Open Discussion – Bennett**

Pavement Structure Volume calculations were discussed. The July 17, 2003 memo is still valid and applies to current practices.

Minutes Approved By: _____

Jay A Bennett, PE
State Roadway Design Engineer
05/01/09

21st Century Transportation Committee Funding Recommendations:

Eliminate Transfers. The Committee recommends eliminating all remaining transfers of funds from the Highway Trust Fund and the Highway Fund to the General Fund.

Highway Use Tax. The Committee recommends increasing the Highway Use Tax from3% to 4% over two years.

Vehicle Miles Traveled {VMT} Fee. The Committee recognizes the State needs an alternative or supplement to the motor fuels tax. This fee would be a true user-fee independent of type or amount of fuel consumed.

Vehicle Registration Fees. The Committee recommends increasing the passenger vehicle registration fee (currently $28) by $30 over three years.

Vehicle Registration Fees based on weight. The Committee recommends the General Assembly consider charging registration fees based on vehicle weight for passenger vehicles.

Bonds. The Committee recommends that the General Assembly authorize a referendum for general obligation bonds to accelerate construction on high traffic, high congestion roadways.

Special Federal Funding. The Committee recommends that the State seek special federal funding for the Yadkin River Bridge Project and that NCDOT take needed actions to clear regulatory hurdles and prepare for letting to construction of this project.

Local Option Sales Tax. The Committee recommends that the General Assembly authorize a local option sales tax of up to 1% for transportation for counties, cities, and metropolitan regions.

Indexing Fees. The Committee recommends that the General Assembly index all fixed fees (such as registration, title, drivers license, etc.) to the consumer price index so that the fees would automatically change without legislative action.

Differential Fuel Tax Rates. The Committee recommends that the General Assembly consider adopting differential fuel tax rates for diesel and gasoline *Intermodal Recommendations.* The Committee recommends dedicating $ 170 million per year to fund the Intermodal Initiative recommended in the Interim Report of the 21st Century Transportation Committee.

Revision to Intermodal Draft Legislation in Interim Report. The Committee recommends the language in proposed G.S. 136-252(a) be revised to read as follows, with the new language about Article 25 appearing in italics: a) Cities, counties, *transportation authorities under Article 25 of Chapter 160A of the General Statutes,* regional public transportation authorities under Article 26 of Chapter 160A of the General Statutes, and regional transportation authorities under Article 27 of Chapter 160A of the General Statutes may receive grants from the fund for public transportation purposes, including planning and engineering.

Committee Proceedings

The 21st Century Transportation Committee was established by the President Pro Tempore of the Senate and the Speaker of the House of Representatives pursuant to G.S. 120-19.6(a1), Rule 31 of the Rules of the Senate of the 2007 General Assembly, and Rule 26(a) of the Rules of the House of Representatives of the 2007 General Assembly. The 21st Century Transportation Committee held thirteen meetings from November 2007 to December 2008.

In accordance with the charge, the committee studied the following:

(1) Ways to improve the transportation systems of the State in order to promote economic growth and ensure that the State can compete and participate in the global economy.

(2) Innovative methods to fund the transportation needs of the State, including an examination of traditional and nontraditional methods of financing transportation infrastructure.

(3) Priorities of the Department of Transportation, including methods to ensure adequate funding for corridors and projects of statewide significance.

(4) Methods to use new and innovative technology to improve the transportation system.

(5) Local funding options for transportation.

(6) Ways to adequately fund road construction to address urban congestion and to improve mobility.

(7) Methods to spend transportation funds in the most effective and cost efficient manner, including ways to use recycled materials, and reuse and recycle road materials.

(8) Ways to maintain the continued safety of the current transportation system, including an analysis of the safety and reliability of bridges in the State.

(9) The appropriate division of responsibility for transportation infrastructure between State and local government and any federal role in providing transportation infrastructure needs.

(10) An examination of the role of ports, airports, mass transit, rail, and pedestrian and cycling access in providing the transportation needs of the State.

(11) A review of public transportation needs in urban areas.

(12) Methods to encourage fuel conservation and energy conservation in North Carolina.

The 21st Century Transportation Committee members traveled to several cities across the state in 2007 and 2008, including Asheville, Charlotte, Raleigh and Wilmington, to gain information on transportation issues facing North Carolina as well as potential mobility solutions.

SAMPLE -
SLOPE RECOMMENDATION
LETTER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

January 23, 2009

MEMORANDUM TO:	Mr. Jay Bennett, P.E. State Roadway Design Engineer
ATTENTION:	Tony Houser, P.E.
FROM:	Njoroge Wainaina, P.E. State Geotechnical Engineer
STATE PROJECT: COUNTY:	34839(U-2579C) FORSYTH
DESCRIPTION:	WINSTON-SALEM NORTHERN BELTWAY (EASTERN SECTION) FROM US 311 TO US 158 (FUTURE I-74)
SUBJECT:	Geotechnical Report – Right of Way Recommendations

The Geotechnical Engineering Unit has conducted a review of the plans and of the local subsurface conditions. In order to facilitate the preparation of right-of-way plans, we offer the following slope design recommendations in advance. The complete Geotechnical Recommendations will be submitted at a later date.

I. SLOPE/EMBANKMENT/STRUCTURE STABILITY

(a) Slope Design

We recommend all roadway slopes, (fill and cut slope) be constructed no steeper than 2:1(H:V).

Respectfully Submitted,

Respectfully Submitted,

Clint Little, L.G.
Regional Geological Engineer

John Fargher, P.E
Western Regional Design Engineer

REQUEST - LETTER
ROADWAY
DESIGN

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

MEMO TO: Njoroge W. Wainaina, PE
State Geotechnical Engineer

FROM:
Roadway Design Project Engineer

DATE:

SUBJECT: Project: ( ) County
F. A. Project:

Request for Roadway Inventory and Foundation Recommendations

Enclosed are three sets of full size plans and cross sections for this project. Please review these plans and inform us of your proposed level of investigation and information.

_____ Roadway Foundation Recommendations, but no Inventory

_____ Roadway Foundation Recommendations with Inventory

Please proceed in accordance with the scheduled date in developing the recommendations and inventory, if applicable. Please also provide the names of the contact persons.
The current R/W date is and the current Let is .

	Scheduled Date:	Actual Date:
Roadway Foundation Recommendations:	*(Approx. 12 Months before R/W and 11 months for bridge projects)* _____	_____

Project Geological Engineer: _____

Geotechnical Design Engineer: _____

(Add this statement if there are retaining walls:)
Retaining walls will be utilized on this project. A request to initiate the retaining wall design process, along with plan sheets, cross sections, and preliminary wall envelope(s) will be submitted under separate cover.

If you need additional information, please contact , Project Design Engineer or me at 250-4016. Please return a copy of the signed letter to , PE, Project Engineer.

/
Enclosures
cc: Jay A. Bennett, PE

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN UNIT
1582 MAIL SERVICE CENTER
RALEIGH NC 27699-1582

TELEPHONE: 919-250-4016
FAX: 919-250-4036

WEBSITE: WWW.NCDOT.ORG/DOH

LOCATION:
CENTURY CENTER COMPLEX
BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC

REQUEST LETTER - ROADWAY DESIGN

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

MEMO TO: Njoroge W. Wainaina, PE
State Geotechnical Engineer

FROM:
Roadway Design Project Engineer

DATE:

SUBJECT: Project: ( ) County
F. A. Project:

Request for Preliminary Geotechnical Recommendations (Bridge Replacement)

This is a request for preliminary Geotechnical Recommendations in accordance with the Bridge Replacement Projects- Plan and Permit Review Process. Attached are the preliminary designs for each alternative currently being studied for the environmental document.

Please proceed in accordance with the scheduled date in developing this information.

	Scheduled Date:	Actual Date:
Preliminary Geotechnical Recommendations	*Use est. date of Scoping / Alternative Selection Meeting*	

If you need additional information, please contact , Project Design Engineer or me at 250-4016.

Please return a copy of the signed letter to , PE, Project Engineer.

/
Attachment
cc: Jay A. Bennett, PE
Charlie Brown, PE, PLS
Greg Perfetti, PE
Bill Goodwin, PE

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN UNIT
1582 MAIL SERVICE CENTER
RALEIGH NC 27699-1582

TELEPHONE: 919-250-4016
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LOCATION:
CENTURY CENTER COMPLEX
BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

MEMORANDUM TO: Roadway Design Project Engineers
Roadway Design Project Design Engineers
Division Design Construction Engineers
Rodger Rochelle, PE

FROM: Jay A. Bennett, PE
State Roadway Design Engineer

SUBJECT: Median U-Turn Bulbs

DATE: February 5, 2009

In an effort to reduce right of way impacts and minimize costs, the median U-turn bulb-out design for a 46' median has been revised.

The revised design reduces the bulb radius to 34' and modifies the configuration of the concrete island. A turning vehicle may need to use the 4' paved shoulder to complete the turn. This design will accommodate WB-50 and WB-65 design vehicles.

Plans that will be submitted for right of way acquisition on June 19, 2009, and beyond should incorporate this update. Design changes for other projects will be evaluated on a case–by–case basis. Please discuss the need to incorporate these changes with the Division Construction Engineer or Resident Engineer. If you have any questions regarding this information, please contact Jay A. Bennett, PE at 919-250-4016.

Attachment
JAB/blm

cc: Jon Nance, PE
Deborah Barbour, PE
Art McMillan, PE
Teresa Bruton, PE
Cynthia Perry, PE
Dewayne Sykes, PE
Jimmy Travis, PE
John Wadsworth, PE
Frankie Draper

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN UNIT
1582 MAIL SERVICE CENTER
RALEIGH NC 27699-1582

TELEPHONE: 919-250-4016
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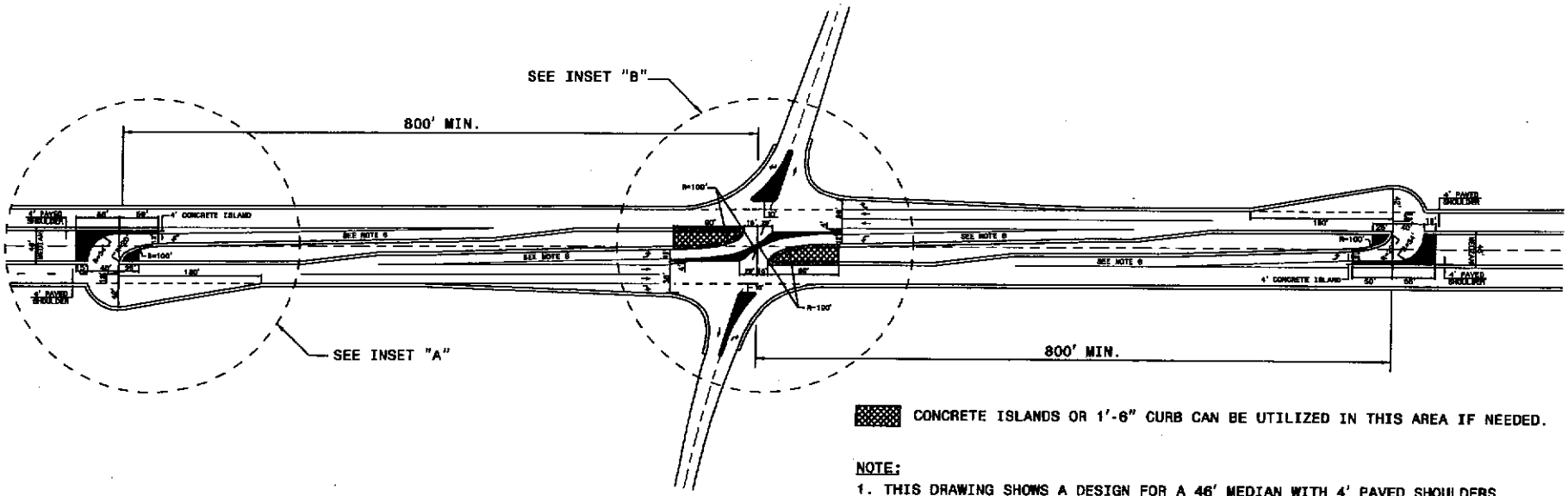
LOCATION:
CENTURY CENTER COMPLEX
BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC

DIRECTIONAL CROSSOVER WITH MEDIAN U-TURNS

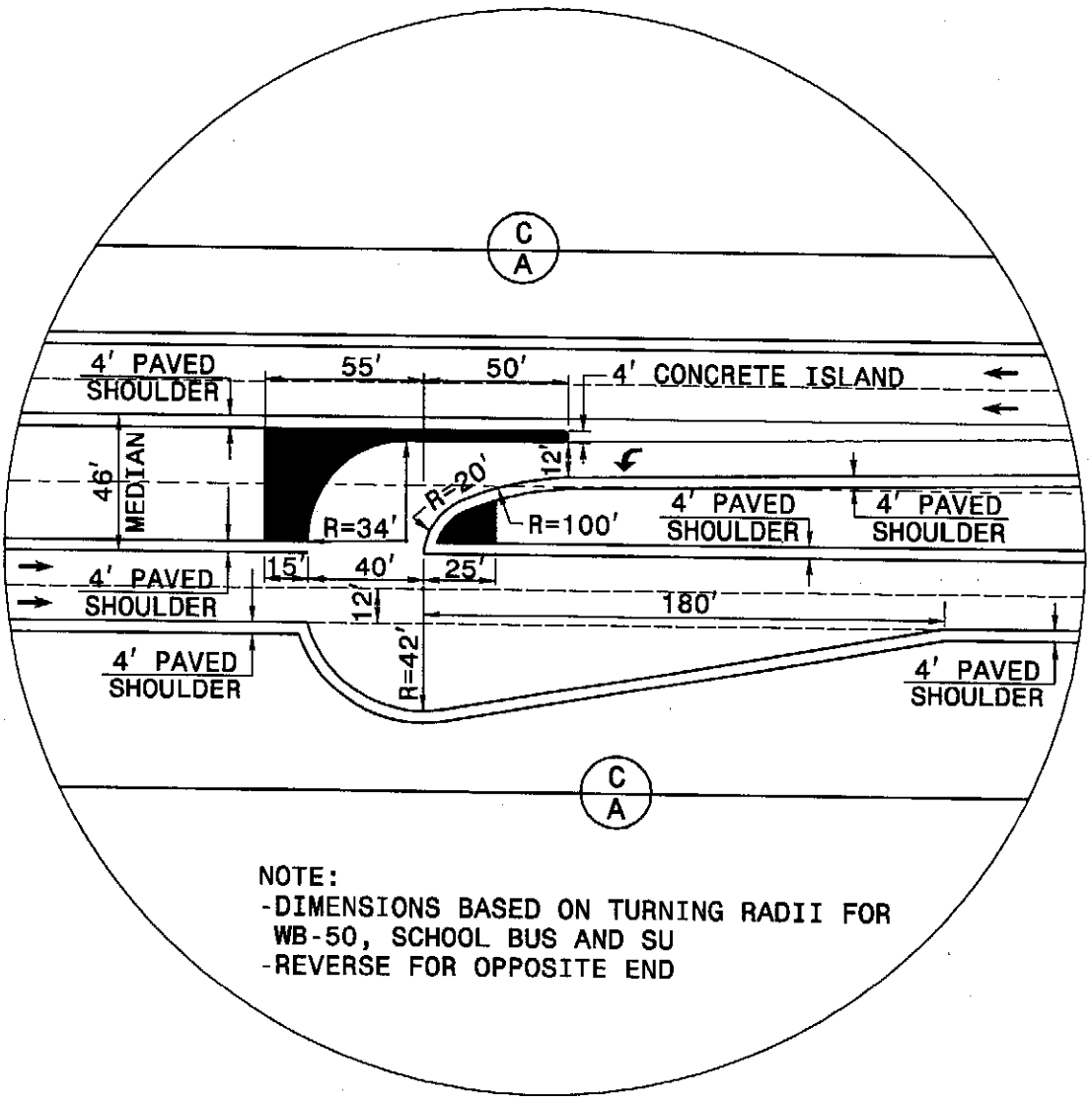


PLAN

CONCRETE ISLANDS OR 1'-6" CURB CAN BE UTILIZED IN THIS AREA IF NEEDED.

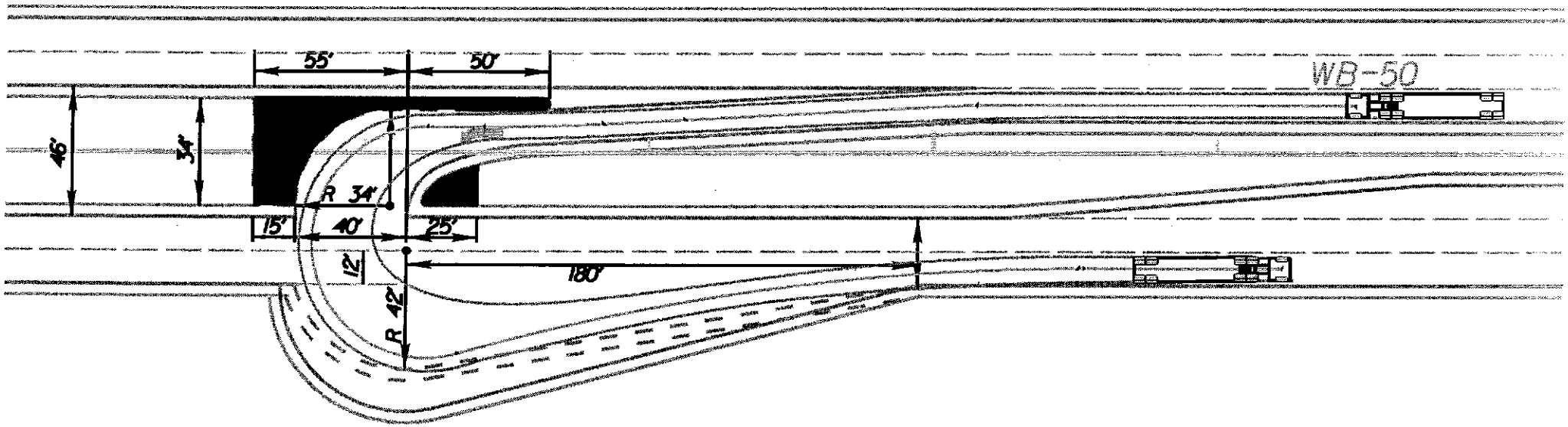
NOTE:

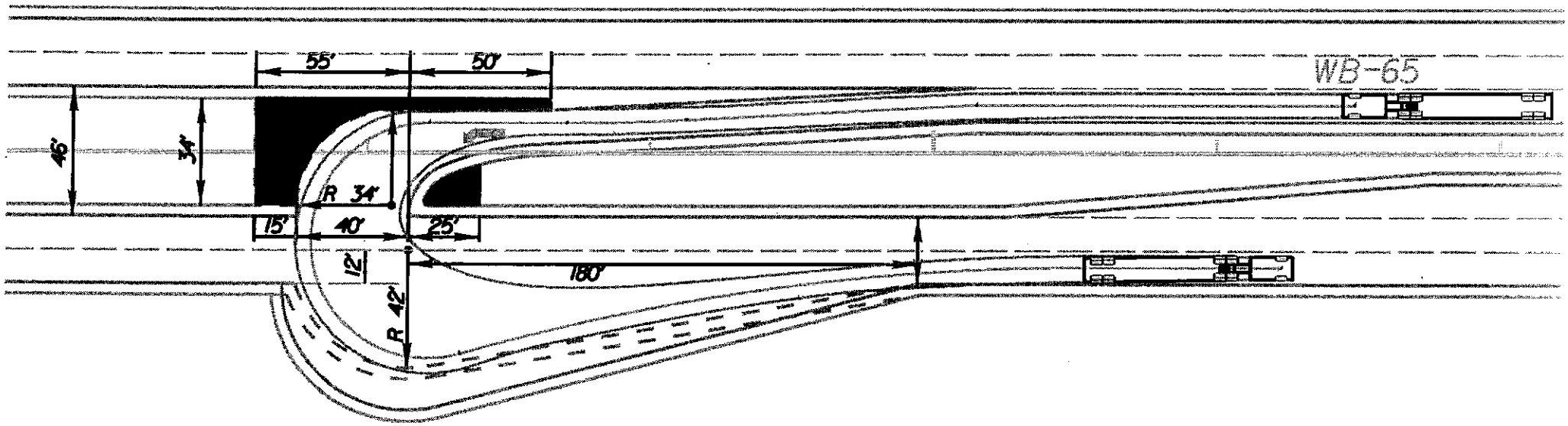
1. THIS DRAWING SHOWS A DESIGN FOR A 46' MEDIAN WITH 4' PAVED SHOULDERS (MEDIAN AND OUTSIDE) ASSUMING A 55 MPH POSTED SPEED. WHEN OTHER MEDIAN WIDTHS, PAVED SHOULDERS, AND POSTED SPEEDS ARE USED, ENGINEERING JUDGEMENT SHOULD BE USED TO ESTABLISH APPROPRIATE GEOMETRY.
2. AT -Y- LINES ONLY PASSENGER CAR U-TURNS ARE ACCOMMODATED.
3. DESIGN BULB OUTS TO ACCOMODATE WB-50. IN AREAS WHERE THERE ARE R/W OR ENVIRONMENTAL CONSTRAINTS, BULB OUT DIMENSIONS MAY BE REDUCED.
4. ALL DIMENSIONS ARE SUBJECT TO FIELD CONDITIONS.
5. FULL CONTROL OF ACCESS SHOULD BE OBTAINED THROUGHOUT LIMITS OF THE BULB OUT ON BOTH SIDES OF ROADWAY.
6. USE 575' MINIMUM LENGTH FOR ALL LEFT TURN LANES (INCLUDES TAPER AND FULL STORAGE LENGTH).



NOTE:
-DIMENSIONS BASED ON TURNING RADII FOR WB-50, SCHOOL BUS AND SU
-REVERSE FOR OPPOSITE END

INSET "A"


55'
50'
WB-50
46'
34'
R 34'
15'
40'
25'
12'
180'
R 42'


55'
50'
WB-65
46'
34'
R 34'
15'
40'
25'
12'
180'
R 42'

PROJECT STATUS REPORT

R-3601
Mumford
Date: 1/27/09

TIP: R-3601

Planning Doc. Date: EA October 2009

WBS: 38868

R/W: March 2011

County: Brunswick

Let: July 2012

Division: 3

Description: US 17-74-76 from NC 133/SR 1472 interchange to to the US 421/NC 133 interchange

Region: Eastern

Concurrence Point achieved: Non-Merger Project

Next Upcoming Major Milestone or Activity: Completion of preliminary designs (May 2009).

What does PDEA need from Roadway Design to meet the planning document schedule?
PDEA needs preliminary designs.

What does Roadway Design need from PDEA to complete the preliminary designs?
Roadway has what we need.

What other issues need to be addressed to keep the project on schedule?
Division has asked us to look at an alternate design to add a loop to the NC 133 interchange. The scope creep resulting from the incorporation of this loop would be a significant cost increase for the project.

PROJECT STATUS REPORT

R-3620

TIP: R-3620

WBS: 34548

County: Washington

Division: 1

Description: New Route from US 64 to NC 32

Region: Eastern

Planning Doc. Date: EA- 2/09 FONSI- 2/10

R/W: 6/12

Let: 12/13

Concurrence Point achieved: 2

Next Upcoming Major Milestone or Activity: Completion of the EA.

What does PDEA need from Roadway Design to meet the planning document schedule?

Completed preliminary design was submitted on 7/25/2008.

What does Roadway Design need from PDEA to complete the preliminary designs?

N/A

What other issues need to be addressed to keep the project on schedule?

None

PROJECT STATUS REPORT

U-3337
Brew

TIP: U-3337

WBS: 38993

County: Brunswick
Division: 3

Description: Interchange at US 74 and SR 1437

Region: Eastern

Planning Doc. Date: EA 12/09

R/W: 2/2012

Let: PY

Concurrence Point achieved: none

Next Upcoming Major Milestone or Activity: Preliminary design for alternatives.

What does PDEA need from Roadway Design to meet the planning document schedule?
Preliminary designs and cost estimates.

What does Roadway Design need from PDEA to complete the preliminary designs?
Constraints and delineations.

What other issues need to be addressed to keep the project on schedule?
Project has been placed in a defer status.

G. Lovering 1/20/09

PROJECT STATUS REPORT

U-3465
Lovering / Cox

TIP: U-3465

WBS: 39017

County: Harnett

Division: 06

Planning Doc. Date:

EA:	**12/08 (B)**	
	02/09 (F)	
R/W:	**05/11 (B)**	
	07/11 (F)	
Let:	**11/12 (B)**	
	01/13 (F)	

Description: Fayetteville – SR 1121 (Ray Rd) from NC 210 to SR 1120 (Overhills Rd)

Region: Eastern

Concurrence Point achieved:
Non Merger

Next Upcoming Major Milestone or Activity:
TLOC 8/08 (complete)
PDS 11/08 (complete)
DPH 05/09

What does PDEA need from Roadway Design to meet the planning document schedule?
Preliminary Design Submittal (PDS) on schedule for 11/08.
Design Public Hearing scheduled for 5/09, depending on EA completion.

What does Roadway Design need from PDEA to complete the preliminary designs?
Nothing at this time

What other issues need to be addressed to keep the project on schedule?