PROJECT COMMITMENTS

Proposed widening of NC 16 from North Tower Road (SR 1895) to Claremont Road (SR 1801), Catawba County
Federal Aid Project No. STP – 16 (4)
State Project No. 8.1792501
WBS No. 34522.1.1
T.I.P No. R-3100

Changes or additions to the project commitments as shown in the environmental documents for the project are printed in *italics.*

Project Development and Environmental Analysis Unit/Division-Construction

- NCDOT's Design Standards for Sensitive watersheds will be implemented. Provisions to preclude unnecessary contamination by toxic substance during the construction interval will also be strictly enforced to protect the High Quality Waters on Maiden Creek.

Project Development and Environmental Analysis Unit/Roadway Design Unit

- *Dwarf- flowered heartleaf is considered a 5 year survey species, therefore additional surveys will be conducted no later than the spring of 2014.*

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

June 15, 2012

MEMORANDUM TO: John F. Sullivan III, P.E., Division Administration
Federal Highway Administration

FROM: Gregory J. Thorpe, Ph.D., Manager FOR
Project Development and Environmental Analysis Branch

SUBJECT: Reevaluation of Environmental Assessment and Finding of No Significant Impact for the Proposed Widening of NC 16 from North Tower Road (SR 1895) to Claremont Road (SR 1801), Catawba County **WBS 34522.1.1, Federal Aid No. STP-16(4) TIP: R-3100A/B**

The following is a reevaluation of the Environmental Assessment (EA) and the Finding of No Significant Impact (FONSI) for sections A and B of TIP Project R-3100, which proposes to widen NC 16 from North Tower Road (SR 1895) to Claremont Road (SR 1801), Catawba County (Figure 1). This memorandum describes the methodology used and the results of the reevaluation, performed in accordance with the Federal Highway Administration (FHWA) Technical Advisory T 6640.8A and the National Environmental Policy Act (NEPA) regulations as cited in CFR 771.129(b) and (c).

Background

NC 16 is a major north-south route in the western piedmont of North Carolina. The portion of NC 16 studied in this report serves as a radial route between Charlotte and Newton. NC 16 is also heavily used to access Interstate 40. The purpose of widening NC 16 is to improve traffic service for motorists in the project area.

Currently in the project area, NC 16 is a two-lane roadway with unpaved shoulders and open ditches. It is designated as major north-south thoroughfare in the Comprehensive Transportation Plan Highway Network.

Traffic volumes along NC 16 in the project area ranged from 7,100 to 10,200 vehicles per day in 2008. Current Capacity analysis results indicate that the existing two-lane facility operated at Level of Service (LOS) E or better. Mainline volumes along NC 16 in the project area range from 15,800 to 19,800 vehicles per day in the year 2035. The No-Build analysis results indicate that most intersections will operate at LOS F in the year 2035. However, the

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LOCATION:
CENTURY CENTER, BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

proposed four-lane median divided facility is expected to operate at LOS B or better in the 2035 build scenario.

Planning, engineering, and environmental studies for TIP Project R-3100 began in late 1990. The Environmental Assessment (EA) was approved by the FHWA in January 1998 and the Finding of No Significant Impact (FONSI) was approved in December 1998. For funding purposes, R-3100 was broken down into the following sections (Figure 1):

Section A:	Tower Road SR (1895) to Providence Mill Road/ Ball's Creek Road (SR 1810), 5.3 miles.
Section B:	Providence Mill Road (SR 1810) to Claremont Road (SR 1801), 2.7 miles.
Section C:	Claremont Road (SR 1801) to Caleb Setzer Road (SR 1800), 1.0 mile. (Construction Complete)

In the fall of 2011 the last section, CA (from SR 1386 in Lincoln County to SR 1895 in Catawba County) of new NC 16 under TIP Project R-2206 was opened for traffic. From Charlotte to Newton, the proposed NC 16 widening from SR 1895 (Tower Road) to SR 1801 (Claremont Road) is the only portion which remains a two-lane facility. If proposed TIP Project R-3100 is not built, the existing two-lane road will create a bottleneck for future traffic along this corridor.

The 1998 proposal for section A of this project consisted of widening NC 16 from Tower Road to Providence Mill Road/Ball's Creek Road from a two-lane road to a four-lane divided facility with a 46-foot median. Section B of R-3100, from Providence Mill Road to Claremont Road, proposes a five-lane 64-foot wide face to face of curbs, curb and gutter facility.

Findings

The reevaluation addresses changes in the proposed project that have occurred since the completion of the EA and FONSI.

- Preferred Alternative
- Affected Environment
- Environmental Impacts

Preferred Alternative

Design changes have been made to the preferred alternative that warrant review under this reevaluation. The preferred alternative as presented in the FONSI for section A consisted of a four-lane divided facility with a 46-foot median. The new proposed design for section A and B consists of superstreet design.

Superstreets are thoroughfares where the left-hand turns from side streets are re-routed, as is traffic from side streets that need to cross the thoroughfare. In both instances, drivers are first required to make a right turn and then make a U-turn around a broad median at dedicated locations.

Section A is four-lane divided facility with a 23-foot raised median and 1'-6" curb and gutter. (See typical cross section for Section A).

The preferred alternative as presented in the FONSI for section B consisted of a five-lane curb and gutter section. As with Section A, the new proposed design will be a four-lane divided facility with a 23-foot raised median and 1'-6" curb and gutter. (See typical cross section for Section B).

Summary of Impacts

The Build Alternative for this project will generate quantifiable impacts as summarized below in Table 1.

TABLE 1a: Summary of Impacts

Category	Units	1998 EA	Current Proposed
Project Length	Miles	8 Miles	8 Miles
Residential Displacements	Minority/Total	0/34	2/44
Business Displacements	Minority/Total	0/4	2/7
Non-Profit Displacements	Minority/Total	0/1	0/0
Total Displacements	Each	39	51
Wetlands	Acres	0.6	0.3
Streams	Linear Feet	3,206	3,039

Table 1b: Project Costs

Category	Units	1998 EA [4]	Current Proposed
Construction Cost (A+B) [1]	Dollars	*$16,000,000*	($24,600,000+$15,000,000) $39,600,000 [2]
Right of Way Cost (ROW) [1]	Dollars	*$14,000,500*	$12,682,000 [3]
Total Cost (Excluding Utilities Cost) [1]	Dollars	*$30,000,500*	$52,282,000

1. Construction and ROW costs are based on preliminary design and subject to change for final design.
2. Construction cost was calculated on 05/26/2011.
3. ROW cost was calculated on 08/01/2011.
4. 1998 Dollars

Project Purpose and Need

The purpose of widening NC 16 is to improve traffic service for motorists in the project area. NC 16 is a major north-south route in the western piedmont of North Carolina. The portion of NC 16 studied in this report serves as a radial route between Charlotte and Newton. Also NC 16 is heavily used to access Interstate 40.

Human Environment

As per the October 30, 2009 Community Impact Assessment (CIA), between 1990 and 2000 Newton and Maiden grew at growth rates of 27.5 percent and 35 percent respectively. Catawba County grew at a rate of 19.7 percent. The Direct Community Impact Area (DCIA) grew at a rate of 31.1 percent while the state population grew at a rate of 21.4 percent during the last census decade.

Physical Impacts / Relocations

The proposed project will result in direct displacements of residential development along the corridor, as well as some portions of the front and rear yards of some residences.

Preliminary plans show an expansion of the existing 60 to 100-foot right-of way to approximately 200 to 250 feet. Due to growth in the area since the FONSI was completed in 1998, residential relocations will increase from 34 to 44, business relocations will increase from 4 to 7, and Non-Profit relocations will decrease from 1 to 0. The exact impacts will be determined when final design is completed.

This project proposes an asymmetrical, best-fit alignment that shifts the widening to avoid or minimize impacts to the relocations. However, based upon the nature of the project, avoidance of most impacts is not possible. However NCDOT will try to minimize impacts by decreasing fill slopes, providing retaining walls and reducing the shoulder width where practical during final design.

These relocations should not disrupt community or neighborhood cohesion. Overall, the residents will benefit from improved mobility along the project corridor. The proposed project will probably have an overall positive impact to businesses, offices and institutions along the project corridor and in the Direct Community Impact Area (DCIA) by improving the level of service and reducing congestion along NC 16.

The project Area of Potential Effects (APE) was resurveyed on August 27, 2008 for any new eligible sites. No historic resources were documented in the APE. The APE has been re-assessed for any potential eligible site and, similar to the 1998 EA/FONSI, **no eligible sites have been identified**. Therefore no additional compliance with either section 106 of the National Historic Preservation Act of 1966 or with the Section 4(f) of the Department of Transportation Act of 1966 is required.

The NCDOT and the North Carolina State Historic Preservation Office (HPO) have consulted several times regarding this project's potential impacts to archaeological sites. On 9/13/1995 HPO reviewed project information via the State Clearinghouse (96-E-4220-0168) and recommended no archaeological survey. NCDOT provided updated project information to HPO on 9/2/2008, and on 10/7/2008 HPO had "no comment" on the undertaking (ER 08-2127). On 6/22/2009 the NCDOT provided the Office of State Archaeology (OSA) with updated project information, and OSA reaffirmed the recommendation of no archaeological survey. Based on these consultations, no archaeological work is necessary for this project.

Public Involvement

A Citizens Informational Workshop was held on June 6, 2011 from 4:00 to 7:00 p.m. at the Newton Main Library Auditorium. The purpose of the workshop was to present information, answer questions, and receive comments from citizens regarding this project. Approximately 232 individuals attended the workshop, and a total of 90 written comments were received. Among written responses, about 67% were related to Abernethy Laurels Retirement Community. The majority was in favor of the five-lane section and did not like the proposed four-lane divided section. The main concern was that the retirement community, which houses close to 400 residents who drive in/out of the community on daily basis, will be confused by the four-lane divided section.

However, the superstreet design reduces the number of traffic conflict points from 32 to 14 when compared to a conventional intersection. Additionally NCDOT studies have found superstreet installations to substantially reduce crashes after they have been implemented.

On July 25, 2011, NCDOT staff held a separate meeting with business community leaders, first responders and county officials at the request of the Catawba County Commissioner. NCDOT explained the benefits of the four-lane divided highway in term of improved safety, less congestion, improved travel speed and increased roadway capacity. NCDOT also provided assurance to emergency responders that a depressed median will be provided to permit left turns by emergency vehicles at the new fire station, as well as at Abernethy Laurels Retirement Community.

Physical Environment

The physical environment within the project area has undergone changes since the EA and FONSI were approved. Locations, quantities, and characteristics of prime and important farmlands, water resources, floodplains/floodways, and hydrology were confirmed and verified.

Natural Environment

An updated Natural Systems Technical Report (NRTR) was completed for this reevaluation on May, 2009. The findings suggest the characteristics of the natural

environment have not experienced significant changes in the last fourteen years. The locations of jurisdictional waters and wetlands identified and confirmed in 2008 and were determined to be consistent with finding in the EA and FONSI. One federally protected species, the Dwarf-flowered heartleaf, is listed for Catawba County. During April 8, 2009 survey, no individuals of dwarf-flowered heartleaf were observed. A review of NCNHP records on December 1, 2008, indicated no known dwarf-flowered heartleaf occurrences within 1.0 mile of the study area therefore biological conclusion of **No-Effect** is valid. However, Dwarf- flowered heartleaf is considered a 5 year survey species, therefore additional surveys will be conducted no later than the spring of 2014.

Jurisdictional Streams

Twenty-five (25) jurisdictional streams were identified in the study area. Many streams consist of several segments due to the feature exiting and entering the project corridor. The locations of streams are depicted on Figures 3a thru k in the May 2009 Natural Resources Technical Report.

Perennial and Intermitted Stream Impacts for this project were calculated based on preliminary design. No total stream impacts were calculated in the existing EA and FONSI, however the following table compares the impacts based on existing 46' median cross-section and proposed 23' median cross-section with 25 ft. buffer zone on both sides beyond the slope stakes. Total stream impacts for the project are 3039 linear feet, which is a reduction of 167 feet of stream impacts compare to the existing (1998 EA) preferred alternative. The jurisdictional characteristics of the water resources in the study area are provided below in Table 2.

Table (2) Study Area Stream Impact comparison:

Current Proposed Preferred Alternative and the 1998 EA Preferred Alternative

S.NO	Map ID	Study Area Stream Impacts (ft.)	Preferred Alternative Stream Impacts	1998 EA Preferred Alternative Stream	Reduction in Stream Impacts (ft.)	Classification	Compensatory Mitigation Required *	River Basin Buffer
1	S1 (a+b)	0	0	0	0	Perennial	Yes	N/A
2	S2 (a+b+c	536	92	84	-8	Perennial	Yes	N/A
3	S3 (a+b)	280	166	150	-16	Perennial	Yes	N/A
4	S4 (a+b)	749	398	390	-8	Perennial	Yes	N/A
5	S5 (a+b+c	1288	205	197	-8	Perennial	Yes	N/A
6	S6 (a+b+c+d +e+f)	1594	225	217	-8	Perennial	Yes	N/A
7	S7 (a+b)	561	0	0	0	Perennial	Yes	N/A
8	8	45	0	0	0	Intermittent	Yes	N/A
9	S9 (a+b+c	530	274	310	36	Perennial	Yes	N/A
10	S10 (a+b)	372	172	196	24	Perennial	Yes	N/A
11	S11	465	0	0	0	Perennial	Yes	N/A
12	S12(a+b)	363	159	182	23	Perennial	Yes	N/A
13	S13 (a+b+c+d)	1432	322	370	48	Perennial	Yes	N/A
14	S14 (a+b+	450	164	188	24	Perennial	Yes	N/A
15	S15 (a+b)	791	68	68	0	Perennial	Yes	N/A
16	S16 (a+b)	232	39	39	0	Perennial	Yes	N/A
17	S17	10	45	45	0	Intermittent	No**	N/A
18	S18	20	0		0	Perennial	Yes	N/A
19	S19	10	0		0	Intermittent	Yes	N/A
20	S20	76	0		0	Intermittent	Yes	N/A
21	S21 (a+b+	564	65	77	12	Intermittent	Yes	N/A
22	S22	78	258	270	12	Intermittent	Yes	N/A
23	S23 (a+b)	365			0	Intermittent	Yes	N/A
24	S24 (a+b)	588	287	311	24	Perennial	Yes	N/A
25	S25	206	100	112	12	Intermittent	Yes	N/A
	Perennial Total	**10458**	**2513**	**2588**	**131**	**linear feet**	Reduction in Stream Impacts	
	Intermittent Total	**1496**	**526**	**618**	**36**	**linear feet**	Reduction in Stream Impacts	
	Total	**11954**	**3039**	**3206**	**167**	**linear feet**	Reduction in Stream Impacts	

* Mitigation required: Final mitigation status is at the discretion of the USACE

** Small roadside ditch. Regulatory agencies determined no mitigation required during March 10 2009 Visit.

Jurisdictional Surface Waters

Two (2) jurisdictional surface waters were identified in the study area. The locations of the surface waters are depicted on Figures 3a thru k in the May 2009 NRTR. Surface water one (SW1) is associated with Stream 3 and Surface water two (SW2) is associated with Stream 7. **None of the jurisdictional surface waters will be impacted by this project.**

Jurisdictional Wetlands

Seven (7) jurisdictional wetlands were identified within the study area (Figures 3a thru k in the May 2009 NRTR). All wetlands in the study area are within the Catawba River Basin (USGS Hydrologic Units 03050101 and 03050102). **Only jurisdictional wetlands W4, W5, W6 and W7 may be impacted by this project.**

Table 3. Jurisdictional Characteristics of Wetlands in the Study Area

Map ID	Cowardin Classification[a]	Hydrologic Classification[b]	DWQ Wetland Quality Rating	Vegetative Community	Area (Ac.)
W4	PSS	Non-riparian	42	Maintained/Disturbed	<0.1
W5	PSS	Riparian	50	Maintained/Disturbed	0.1
W6	PFO	Riparian	35	Maintained/Disturbed	<0.1
W7	PFO	Riparian	72	Dry Oak Hickory	0.1
				TOTAL AREA (Ac.):	**0.3**

[a] Wetland Type: PFO palustrine forested, PEM palustrine emergent, PSS palustrine scrub-shrub
[b] Riparian wetland is those wetlands that are within the "zone of influence" of a stream, creek, or river. Non-riparian wetlands are those wetlands that are not adjacent to or hydrologically influenced by a stream, creek, or river.

Avoidance and Minimization

This project proposes an asymmetrical, best-fit alignment that shifts the widening to avoid or minimize impacts to jurisdictional areas. However, based upon the location and extent of wetlands and surface waters within the project study area, avoidance of all jurisdictional impacts is not possible. When avoidance is not possible, minimization of impacts will be achieved by decreasing fill slopes at ponds, streams, and wetland crossings. Optimizing culvert locations will minimize further degradation of water quality and reduce adverse impacts on aquatic habitat viability in streams and tributaries.

Traffic Noise Analysis

An updated Traffic Noise Analysis was completed on July 23, 2009 for this reevaluation. Based on these preliminary studies, traffic noise abatement is not recommended, and no noise abatement measures are proposed. This evaluation completes the highway traffic noise requirements of Title 23 CFR Part 772. Unless a major project change develops, **no additional noise reports are necessary for this project.**

Air Quality Analysis

An updated Air Quality Analysis for this reevaluation was completed on May 22, 2012. The project is located in Catawba County, which previously was within the Hickory-Morgan-Lenoir nonattainment area for fine particles PM 2.5 as defined by the EPA. However on December 19, 2011 the United States Environmental Planning Agency (USEPA) designated Catawba County from "non-attainment" to "attainment" and approved the PM2.5 maintenance plan. Therefore, **it is not anticipated to create any adverse effects on the air quality of this attainment area.**

Clean Water Act Permits

Due to the number of stream crossings, a USACE Section 404 Individual Permit (IP) will likely be applicable. The USACE holds the final discretion as to what permit will be required to authorize project construction. No isolated waters were identified within the study area alleviating any need for an isolated wetlands permit from NCDWQ

In addition to the Section 404 permit, other required authorizations include a corresponding Section 401 Water Quality Certification from the NCDWQ. A NCDWQ Section 401 Individual Water Quality Certification will be required prior to the issuance of a Section 404 Permit.

Environmental Impacts

It is unlikely that the project will have substantial, if any more impacts to land use, the social structure of the community, or the economy than what was documented in the EA and the FONSI. **The findings in the NRTR suggest that no significant changes have occurred that would warrant selecting a different preferred alternative.**

Updated Information/Documents

The following information/documents have been updated for the reevaluation and are on file with NCDOT:

- Natural Systems Technical Report
- Traffic Forecast
- Geo-Environmental Pre-scoping Report
- Historical Architecture Survey Report
- Community Impact Assessment
- Noise Report
- Air Quality Report

Conclusion

A review of the existing conditions compared with those documented in the EA and FONSI indicates that there has been minimal change in the human, physical, and natural environments in the project area. Since there have not been any significant changes, it is unlikely that the impacts associated with the recommended alternative will be any greater than what has already been anticipated. **Therefore, it has been determined that anticipated social, economic, and environmental impacts were accurately described in the previously referenced EA and FONSI and, the original Administrative Action remains valid.**

NCDOT Concurrence

Zahid M Baloch, P.E., Project Planning Engineer — 6-15-2012
Project Development and Environmental Analysis Unit — Date

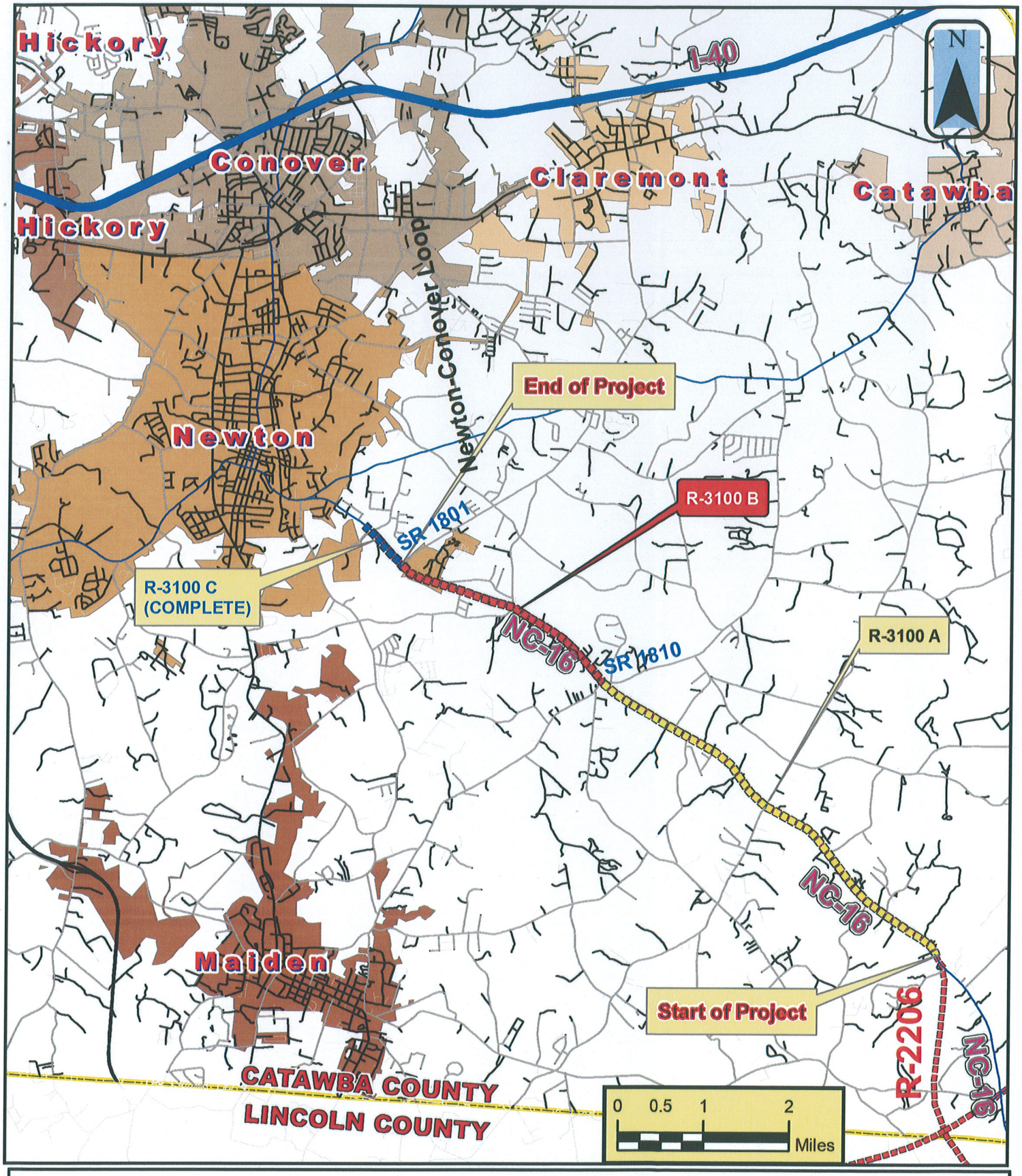
John G. Conforti, REM, Project Engineer — 6-15-2012
Project Development and Environmental Analysis Unit — Date

for Gregory J. Thorpe, Ph.D., Manager — 6/15/12
Project Development and Environmental Analysis Unit — Date

FHWA Concurrence

for John F. Sullivan III, Division Administrator — 6-19-12
Federal Highway Administration — Date

Appendix A Figures



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

VICINITY MAP
WIDENING OF NC 16 FROM NORTH OF TOWER ROAD(SR 1895) TO CALEB SETZER ROAD (SR 1800), NEWTON.

CATAWBA COUNTY
TIP PROJECT R-3100

County:	CATAWBA
Div: 12	TIP# R-3100
WBS:	34522.1.1
Date:	MAY 2012

Figure 1

CITIZENS INFORMATIONAL WORKSHOP MAP

R-3100A & R-3100B
CATAWBA COUNTY
NC 16 FROM SR 1895 (TOWER RD) TO SR 1801 (CLAREMONT RD)

SHEET 1 OF 4

THERE IS PARTIAL CONTROL OF ACCESS ON THIS PROJECT.

R-3100C | R-3100B

BEGIN TIP PROJECT R-3100B

NOTE: PARTIAL CONTROL OF ACCESS IS DEFINED AS ONE ACCESS POINT PER PARCEL. FOR PROPERTIES WITH LARGE ROAD FRONTAGES (FOR EXAMPLE, 2000 FEET OR GREATER), MORE THAN ONE ACCESS POINT MAY BE CONSIDERED. FOR PROPERTIES THAT HAVE ACCESS, SUCH AS NOS 4 SIDE ROADS, ACCESS TO NC 16 (-A-) MAY BE ELIMINATED.

TRAFFIC DATA
YEAR 2008 ADT
YEAR 2035 ADT
COLEY FISH POND RD
SR 1895

NC 16 7900 21000 | 7700 20000 NC 16

TO NEWTON

CATAWBA RD (SR 1801)

COLEY FISH POND RD (SR 1895)

BETHANY CHURCH RD (SR 1807)

SMYRE FARM RD (SR 1890)

TRAFFIC DATA
YEAR 2008 ADT
YEAR 2035 ADT
BETHANY CHURCH RD
SR 1807

NC 16 7700 20000 | 16300 19000 NC 16

SMYRE FARM RD
SR 1890

MINIMUM 800 FT.

MINIMUM 800 FT.

MU NEEDED. RIGHT-TURN LANE LENGTHS DETERMINED BY TRAFFIC VOLUMES
NOTE: DO NOT PLACE U-TURN BULBS IN WETLANDS OR RIGHTS-OF-WAY SENSITIVE AREAS

DIRECTIONAL CROSSOVER WITH MEDIAN U-TURNS

(NOTE: *U-turns may be used with widening alternatives*)

MATCHLINE SHEET 2

DESIGN DATA R-3100B

FUNCTIONAL CLASS = COLLECTOR
DESIGN SPEED = 50 mph
MAX SUPERELEVATION = 0.04

R-3100B -L- NC 16

TYPICAL SECTION

TRAFFIC	
2008 ADT	10200
2035 ADT	19800

200' 0' 200' 400'
100'
(ENGLISH)

LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED CONSTRUCTION EASEMENT
- PROPOSED PARTIAL CONTROL OF ACCESS
- EXISTING ROADWAY
- PROPOSED ROADWAY
- PROPOSED PAVED SHOULDER
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE RETAINED
- EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE REMOVED
- PROPERTY LINES
- LAKES, RIVER, STREAMS AND PONDS
- GRASS MEDIAN
- PROPOSED TRAFFIC SIGNAL
- EXIST TRAFFIC SIGNAL
- WETLAND LIMITS BOUNDARY
- STREAM BUFFER ZONE

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CITIZENS INFORMATIONAL WORKSHOP MAP

R-3100A & R-3100B
CATAWBA COUNTY
NC 16 FROM SR 1895 (TOWER RD) TO SR 1801 (CLAREMONT RD)

SHEET 2 OF 4

THERE IS PARTIAL CONTOL OF ACCESS ON THIS PROJECT

NOTE: PARTIAL CONTROL OF ACCESS AS DEFINED AS ONLY ACCESS POINT PER PARCEL FOR PROPERTIES WITH LARGE ROAD FRONTAGES (OVER 1320LF/EA. 500 FEET OR MORE).AN ADDITIONAL ACCESS POINT MAY BE CONSIDERED FOR THESE PROPERTIES THAT HAVE ACCESS, SUCH AS VIA A SIDE ROAD.ACCESS TO NC 16 (-L-) MAY BE ELIMINATED.

MATCHLINE SHEET 1

MATCHLINE SHEET 3

R-3100B

R-3100A

CLAREMONT RD (SR 1801)

TRAFFIC DATA
YEAR 2008 ADT
YEAR 2035 ADT
CALDWELL RD
SR 1895
NC 16 2008 2035 NC 16

TRAFFIC DATA
YEAR 2008 ADT
YEAR 2035 ADT
NC 16 2008 2035 NC 16
SR 1801
CLAREMONT RD

TRAFFIC DATA
YEAR 2008 ADT
YEAR 2035 ADT
BALLS CREEK RD
NC 16 2008 2035 NC 16
SR 1895
PROVIDENCE MILL RD

MT BETHANY CHURCH RD (SR 1804)

MT BETHANY CHURCH RD

MINIMUM 800 FT

MINIMUM 800 FT

NOTE: DO NOT PLACE U-TURN BLISS IN WETLANDS OR RIGHT-OF-WAY
OF NEEDED RIGHT-TURN LANE LENGTHS DETERMINED BY TRAFFIC VOLUMES

DIRECTIONAL CROSSOVER WITH MEDIAN U-TURNS

(NOTE: *U-turns may be used with widening alternatives*)

DESIGN DATA R-3100B

FUNCTIONAL CLASS = COLLECTOR
DESIGN SPEED = 50 mph
MAX SUPERELEVATION = 0.04

DESIGN DATA R-3100A

FUNCTIONAL CLASS = COLLECTOR
DESIGN SPEED = 60 mph
MAX SUPERELEVATION = 0.08

LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED CONSTRUCTION EASEMENT
- PROPOSED PARTIAL CONTROL OF ACCESS
- EXISTING ROADWAY
- PROPOSED ROADWAY
- PROPOSED PAVED SHOULDER
- PROPOSED STRUCTURES, ISLANDS, CURB AND GUTTER
- EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE REMOVED
- EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE REMOVED
- PROPERTY LINES
- LAKES, RIVER, STREAMS AND PONDS
- GRASS MEDIAN
- PROPOSED TRAFFIC SIGNAL
- EXIST TRAFFIC SIGNAL
- WETLAND LIMITS BOUNDARY
- STREAM BUFFER ZONE

200' 0' 200' 400'
100'
(ENGLISH)

TRAFFIC
2008 ADT 10200
2035 ADT 19800

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CITIZENS INFORMATIONAL WORKSHOP MAP

R-3100A & R-3100B
CATAWBA COUNTY
NC 16 FROM SR 1895 (TOWER RD) TO SR 1801 (CLAREMONT RD)

SHEET 3 OF 4

THERE IS PARTIAL CONTROL OF ACCESS ON THIS PROJECT.

NOTE: PARTIAL CONTROL OF ACCESS IS DEFINED AS ONE ACCESS POINT PER PARCEL FOR PROPERTIES WITH LARGE ROAD FRONTAGES (FOR EXAMPLE, 500 FEET OR MORE). ADDITIONAL ACCESS POINTS MAY BE CONSIDERED FOR ACCESS TO PROPERTIES THAT HAVE ACCESS, SUCH AS VIA A SIDE ROAD. ACCESS TO C-LOT MAY BE ELIMINATED.

TRAFFIC DATA
YEAR 2008 ADT 10200
YEAR 2035 ADT 19800
BUFFALO SHOALS RD

TRAFFIC DATA
YEAR 2008 ADT 10200
YEAR 2035 ADT 19800
RANEY DRUM RD

MATCHLINE SHEET 2

MATCHLINE SHEET 4

GOOD RANGE ROAD

BUFFALO SHOALS RD (SR 1801)

CLAREMONT RD (SR 1801)

DESIGN DATA R-3100A

FUNCTIONAL CLASS = COLLECTOR
DESIGN SPEED = 60 mph
MAX SUPERELEVATION = 0.04

TRAFFIC

2008 ADT 10200
2035 ADT 19800

LEGEND

- RoW=80'+RS
- EXISTING RIGHT OF WAY
- PROPOSED CONSTRUCTION EASEMENT
- PROPOSED PARTIAL CONTROL OF ACCESS
- EXISTING ROADWAY
- PROPOSED ROADWAY
- PROPOSED PAVED SHOULDER
- PROPOSED STRUCTURES, ISLAND, CURB AND GUTTER
- EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE REMOVED
- EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE REMOVED
- PROPERTY LINES
- LAKES, RIVER, STREAMS AND PONDS
- GRASS MEDIAN
- PROPOSED TRAFFIC SIGNAL
- EXIST TRAFFIC SIGNAL
- WL= WETLAND LIMITS BOUNDARY
- SB= STREAM BUFFER ZONE

INCOMPLETE PLANS
NOT FOR FINAL R/W ACQUISITION

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

200' 0' 200' 400'
100'
(ENGLISH)

MINIMUM 800 FT.

MINIMUM 800 FT.

MAY NEEDED, RIGHT-TURN LANE LENGTHS DETERMINED BY TRAFFIC VOLUMES
NOTE: DO NOT PLACE U-TURN BLABS IN WETLANDS OR RIGHTS-OF-WAY SENSITIVE AREAS

DIRECTIONAL CROSSOVER WITH MEDIAN U-TURNS

(NOTE: *U-turns may be used with widening alternatives*)

℄ NC 16

TYPICAL SECTION NO. 3

CITIZENS INFORMATIONAL WORKSHOP MAP

R-3100A & R-3100B
CATAWBA COUNTY
NC 16 FROM SR 1895 (TOWER RD) TO SR 1801 (CLAREMONT RD)

SHEET 4 OF 4

THERE IS PARTIAL CONTROL OF ACCESS ON THIS PROJECT.

NOTE: PARTIAL CONTROL OF ACCESS ALLOWS FOR ONE ACCESS POINT PER PARCEL. FOR PROPERTIES WITH LARGE ROAD FRONTAGES (FOR EXAMPLE, 500 FEET OR GREATER) ADDITIONAL ACCESS MAY BE ALLOWED. FOR ADJACENT PROPERTIES THAT HAVE ACCESS SUCH AS VIA A SIDE ROAD, ACCESS TO C.. MAY BE ELIMINATED.

MATCHLINE SHEET 3

TRAFFIC DATA
YEAR 2008 ADT
YEAR 2035 ADT
NC 16
AIRPORT RD
SR 1801 (CLAREMONT RD)

END TIP PROJECT R-3100A

TO DENVER

TRAFFIC DATA
YEAR 2008 ADT
YEAR 2035 ADT
NC 16
SR 1895 (TOWER RD)
ANDERSON MOUNTAIN RD
ANDERSON MOUNT RD

MINIMUM 800 FT.
MINIMUM 800 FT.

IF NEEDED, RIGHT-TURN LANE LENGTHS DETERMINED BY TRAFFIC VOLUMES
NOTE: DO NOT PLACE U-TURN BLISS IN WETLANDS OR RIGHT-OF-WAY SENSITIVE AREAS

DIRECTIONAL CROSSOVER WITH MEDIAN U-TURNS

(NOTE: *U-turns may be used with widening alternatives*)

TO BE CONSTRUCTED BY OTHERS UNDER TIP R-2206A

DESIGN DATA R-3100A

FUNCTIONAL CLASS = COLLECTOR
DESIGN SPEED = 60 mph
MAX SUPERELEVATION = 0.08

TYPICAL SECTION NO. 3

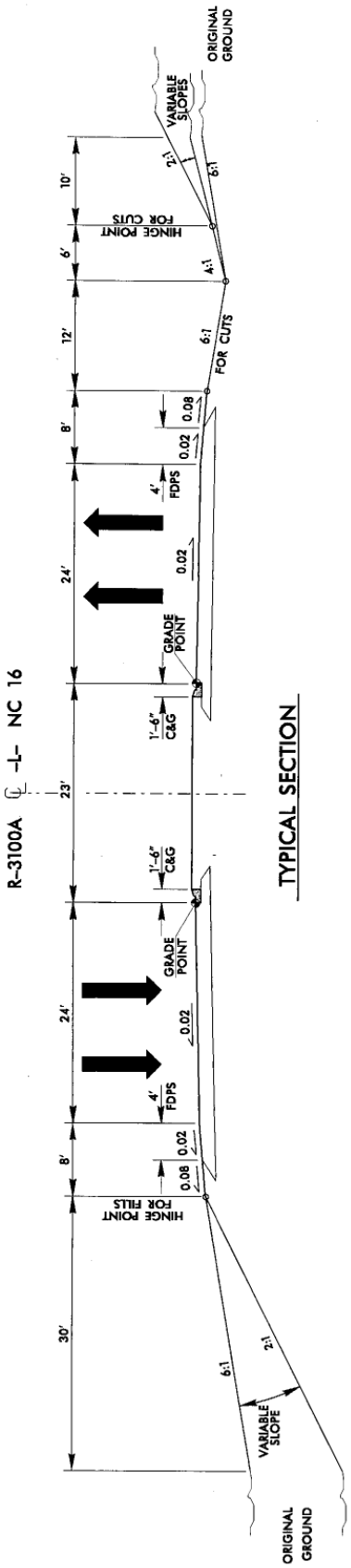
200' 0' 200' 400'
100'
(ENGLISH)

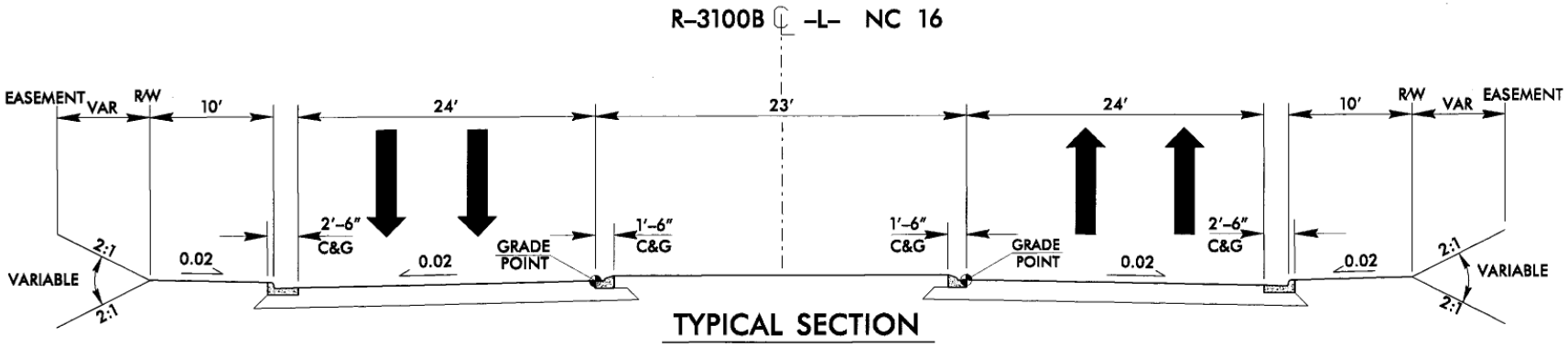
INCOMPLETE PLANS
DO NOT USE FOR ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TRAFFIC
2008 ADT 10200
2035 ADT 19800

LEGEND

- BUILDINGS
- EXISTING RIGHT OF WAY
- PROPOSED CONSTRUCTION EASEMENT
- PROPOSED PARTIAL CONTROL OF ACCESS
- EXISTING ROADWAY
- PROPOSED ROADWAY
- PROPOSED PAVED SHOULDER CONSTRUCTED BY OTHERS
- PROPOSED PAVED SHOULDERS TO BE CONSTRUCTED BY OTHERS
- PROPOSED CONCRETE ISLANDS TO BE CONSTRUCTED BY OTHERS
- EXISTING STRUCTURES, ISLAND, CURB AND GUTTER
- EXISTING STRUCTURES, ISLAND, CURB AND GUTTER TO BE REMOVED
- PROPERTY LINES
- LAKES, RIVER, STREAMS AND PONDS
- GRASS MEDIAN
- PROPOSED TRAFFIC SIGNAL
- EXIST TRAFFIC SIGNAL
- WETLAND LIMITS BOUNDARY
- STREAM BUFFER ZONE


R-3100A
-L- NC 16
TYPICAL SECTION
ORIGINAL GROUND
VARIABLE SLOPES
2:1
6:1
10'
HINGE POINT FOR CUTS
6'
4:1
12'
6:1 FOR CUTS
8'
0.08
0.02
4' FDPS
24'
0.02
GRADE POINT
1'-6" C&G
23'
1'-6" C&G
GRADE POINT
24'
0.02
4' FDPS
8'
0.02
0.08
HINGE POINT FOR FILLS
30'
6:1
2:1
VARIABLE SLOPE
ORIGINAL GROUND



TYPICAL SECTION