



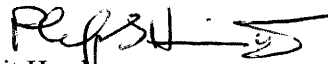
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

October 31, 2005

MEMORANDUM TO: Mr. S. P. Ivey, P.E.  
Division 9 Engineer

FROM: Philip S. Harris, III, P.E.   
Natural Environment Unit Head  
Project Development and  
Environmental Analysis Branch

SUBJECT: Rowan County, I-85 Improvements from North of SR 1002 to  
North of SR 2120; Federal Project No. IR-IM-85-3(132)74;  
State Project No. 8.1631503; TIP Number I-2511CB

Attached is the U. S. Army Corps of Engineers 404 Individual Permit Number and the Division of Water Quality 401 Permit. All environmental permits have been received for the construction of this project.

PSH/gyb

Attachment

cc: Mr. Art McMillan, P.E.  
Mr. Jay Bennett, P.E.  
Mr. David Chang, P.E.  
Mr. Randy Garris, P.E.  
Mr. Greg Perfetti, P.E.  
Mr. Mark Staley  
Mr. John F. Sullivan, III, FHWA  
Mr. Omar Sultan  
Ms. Diane Hampton, P.E., Division 9 DEO  
Mr. Rodger Rochelle, P.E.

**MAILING ADDRESS:**  
NC DEPARTMENT OF TRANSPORTATION  
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS  
1598 MAIL SERVICE CENTER  
RALEIGH NC 27699-1598

TELEPHONE: 919-733-3141  
FAX: 919-733-9794

WEBSITE: [WWW.DOT.ORG](http://WWW.DOT.ORG)

**LOCATION:**  
TRANSPORTATION BUILDING  
1 SOUTH WILMINGTON STREET  
RALEIGH NC

## PROJECT COMMITMENTS

ROWAN COUNTY  
I-85 IMPROVEMENTS FROM NORTH OF SR 1002 TO NORTH OF SR 2120

FEDERAL-AID PROJECT NO. IR-IM-85-3(132)74  
STATE PROJECT NO. 8.1631503  
TIP NO. I-2511CB

All conditions of the original Department of Army permit (October 7, 2004) and the original Division of Water Quality, Water Quality Certification (April 20, 2004), including the expiration date (December 31, 2008), and of all subsequent modifications to each, remain applicable, with the exception of the revised permanent stream impact linear footage and the natural channel design technique requirement listed below.

### *Project Development and Environmental Analysis (PDEA)*

DWQ Water Quality Certification Condition No. 13. *Summary of Compensatory Mitigation:* Compensatory mitigation shall be the same as that approved by the US Army Corp of Engineers, as long as the mitigation required equals a ratio of 1:1 restoration or creation of lost wetland acres as described in 15A NCAC 2H.0506 (h)(6), and consists of the following:

#### I-2511 Section CB

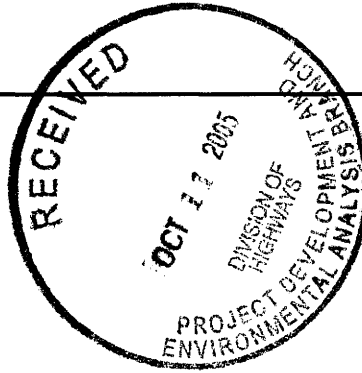
- 195 linear feet of stream impacts will be mitigated through NCDENR Ecosystem Enhancement Program (EEP).
- 0.47 acres of impacts to non-riverine wetlands will be mitigated through EEP.
- 1375 linear feet of on-site stream relocation using natural channel design technique (plans submitted with February 20, 2004 application and modification on August 9, 2005). The natural channel design technique shall include the relocation of as much riffle substrate from the existing Town Creek channel into the relocated channel as feasible. NCDOT shall investigate and determine the amount of riffle substrate suitable for relocation to the new channel. Construction practicality may be taken into account in this determination. Riffle substrate will be relocated at the time that the live stream is moved into the new channel. Additional riffle material may be provided from appropriate offsite sources and shall be similar to existing material as much as practical.



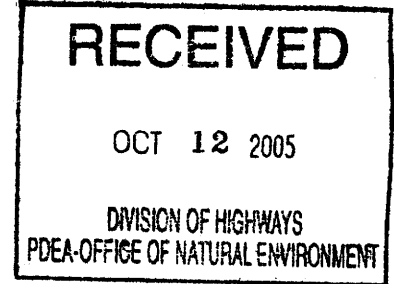
Barrett

Michael F. Easley, Governor  
William G. Ross Jr., Secretary  
North Carolina Department of Environment and Natural Resources

Alan W. Klimek, P.E., Director  
Division of Water Quality  
Coleen H. Sullins, Deputy Director  
Division of Water Quality



October 6, 2005



Mr. Gregory J. Thorpe, Ph.D., Director  
Planning and Environmental Branch  
North Carolina Department of Transportation  
1548 Mail Service Center  
Raleigh, NC, 27699-1548

Dear Dr. Thorpe:

Re: Modification of Certification Pursuant to Section 401 of the Federal Clean Water Act,  
Improvements to Interstate 85 from north of SR 1002 to north of SR 2120 in Rowan county.  
Federal Aid Project No. IR-IM-85-3(132)74; State Project No. 8.1631503, TIP I-2511CB.  
WQC Project No. 040271

Attached hereto is a copy of Certification No. 3456 issued to The North Carolina Department of Transportation originally issued on April 20, 2004, modified January 7, 2005, and modified February 9, 2005. This modification is being issued to address changes to the impact and mitigation summary as well as modifications to the natural channel design for Town Creek.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Alan W. Klimek, P.E.

Attachments

Pc: Eric Alsmeyer, USACE Raleigh Field Office  
Bill Barrett, NCDOT, PDEA  
Marla Chambers, NCWRC  
Marella Buncick, USFWS  
Diane K. Hampton, P.E., DEE, NCDOT Div. 9, 2125 Cloverdale Ave., Winston-Salem, NC 27103  
DWQ Winston-Salem Regional Office  
DWQ Wetlands 401/Transportation Unit  
DWQ Central Files



**NORTH CAROLINA 401 WATER QUALITY CERTIFICATION**

**THIS CERTIFICATION** is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15 NCAC 2H, Section .0500. This certification authorizes the NCDOT to incur the following permanent impacts:

**Wetland Impacts**

Site	Riverine (acres)	Non-Riverine (acres)	Total (acres)
4	0.002	0.0	0.002
6	0.047	0.0	0.047
8	0.0	0.47	0.47
<b>Total</b>	<b>0.049</b>	<b>0.47</b>	<b>0.519</b>

**Surface Water Impacts**

Site	Temporary Stream Impacts (linear feet)	Permanent Stream Impacts (linear feet)	On-Site Natural Channel Design (linear feet)	Mitigation Required
1	30	102	0	102
2	20	163	0	163
3	10	80	0	0
4	10	90	0	90
5	0	864	1375	864
6	30	200	0	37
7A	10	162	0	0
7B	30	200	0	200
8	20	85	0	0
9	40	114	0	114
10	0	0	0	
<b>Total</b>	<b>200</b>	<b>2060</b>	<b>1375</b>	<b>1570</b>

I-2511CB shall be constructed pursuant to the application dated February 20, 2004 and any approved modifications, to improve I-85 from north of SR 1002 to north of SR 2120 in Rowan County.

The application provides adequate assurance that the discharge of fill material into the waters of nine unnamed tributaries to Town Creek in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application, as described in the Public Notice. Should your project change, you are required to notify the DWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future exceed one acre, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Non-discharge and Water Supply watershed regulations.

This Certification shall expire three (3) years from the date of the cover letter from DWQ or on the same day as the expiration date of the corresponding US Army Corps of Engineers Permit, whichever is later.

**Condition(s) of Certification:**

1. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:
  - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
  - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
  - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
  - d. Any reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.
2. No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the Application. All construction activities shall be performed so that no violations of state water quality standards, statutes, or rules occur.
3. Sediment and erosion control measures shall not be placed in wetlands or waters to the maximum extent practicable. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, they shall be removed and the natural grade restored within 30 days after the project has been released.
4. The outside wetland or water boundary as well as along the construction corridor within these boundaries approved under this authorization shall be clearly marked by orange fabric fencing for the areas that have been approved to infringe within the wetland or water prior to any land disturbing activities.

5. NCDOT and its contractors and/or agents shall not excavate, fill, or perform mechanized land clearing at any time in the construction or maintenance of this project within waters and/or wetlands, except as authorized by this Certification, or any modification to this Certification. There shall be no excavation from or waste disposal into jurisdictional wetlands or waters associated with this Certification without appropriate modification. If this occurs, compensatory mitigation will be required since it is a direct impact from road construction activities.
6. Excavation of stream crossings should be conducted in the dry unless demonstrated by the applicant or its authorized agent to be unfeasible. Sandbags, cofferdams, flexible pipe, or other diversion structures should be used to minimize excavation in flowing water.
7. Stormwater management shall be constructed in accordance with the hydraulic design plans submitted in the February 20, 2004 application.
8. Culverts that are less than 48-inch in diameter should be buried to a depth equal to or greater than 20% of their size to allow for aquatic life passage. Culverts that are 48-inch diameter or larger should be buried at least 12 inches below the stream bottom to allow natural stream bottom material to become established in the culvert following installation and to provide aquatic life passage during periods of low flow. *TI* any of the existing pipes are perched, they shall be removed and replaced, and re-installed correctly, unless demonstrated that this is topographically unfeasible.
9. Live or fresh concrete shall not come into contact with waters of the state until the concrete has hardened. This will lessen the chance of a fish kill.
10. Discharging hydroseeding mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is strictly prohibited.
11. The removal of vegetation in riparian areas should be minimized. NCDQT is encouraged to use existing on-site vegetation and materials for stream bank stabilization and to minimize the use of rip rap. Riprap shall not be placed in the stream bottom. Riparian vegetation, using native trees and shrubs, must be re-established within the construction limits of the project by the end of the growing season following completion of construction to reestablish the riparian zone and to provide long-term erosion control.
12. Heavy equipment should be operated from the bank rather than in the stream channel unless demonstrated by the applicant or its authorized agent to be unfeasible. All mechanized equipment operated near surface waters should be inspected and maintained regularly to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids or other toxic substances.
13. *Summary of Compensatory Mitigation:* Compensatory mitigation shall be the same as that approved by the US Army Corps of Engineers, as long as the mitigation required equals a ratio of 1:1 restoration or creation of lost wetland acres as described in 15A NCAC 2H.0506 (h)(6), and consists of the following:

I-2511 Section CB

- 195 linear feet of stream impacts will be mitigated through NCDENR Ecosystem Enhancement Program (EEP).
- 0.47 acres of impacts to non-riverine wetlands will be mitigated through EEP.

- 1375 linear feet on on-site stream relocation using natural channel design technique (plans submitted with February 20, 2004 application and modification August 9, 2005). The natural channel design technique shall include the relocation of as much riffle substrate from the existing Town Creek channel into the relocated channel as feasible. NCDOT shall investigate and determine the amount of riffle substrate suitable for relocation to the new channel. Construction practicality may be taken into account in this determination. Riffle substrate will be relocated at the time that the live stream is moved into the new channel. Additional riffle material may be provided from appropriate offsite sources and shall be similar to existing material as much as practical.

In accordance with 15A NCAC 2R. .0500, this contribution will satisfy NC Division of Water Quality's compensatory mitigation requirements under 15A NCAC 2H .0506(h). Until the EEP receives and clears your payments, wetland or stream fill shall not occur. The payments to EEP shall be sent within two (2) months of issuance of the 404 permit.

14. Rock check dams at culvert outlets should be removed at project completion to avoid blocking movement of aquatic life.
15. Two copies of the final construction drawings shall be furnished to NCDWQ prior to the pre-construction meeting. Written verification shall be provided that the final construction drawings comply with the attached permit drawings contained in the Application dated February 20, 2004.
16. Upon completion of the project, the NCDOT shall complete and return the enclosed "Certification of Completion Form" to notify DWQ when all work included in the 401 Certification has been completed. The responsible party shall complete the attached form and return it to the 401/Wetlands Unit of the Division of Water Quality upon completion of the project.
17. NCDOT and its authorized agents shall conduct its activities in a manner consistent with State water quality standards and any other appropriate requirements of State law and Federal law. If DWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, DWQ may reevaluate and modify this Certification to include conditions appropriate to assure compliance with such standards and requirements in accordance with 15A NCAC 2H.0507(d). Before modifying the Certification, DWQ shall notify NCDOT and the US Army Corps of Engineers, provide public notice in accordance with 15A NCAC 2H.0503 and provide opportunity for public hearing in accordance with 15A NCAC 2H.0504. Any new or revised conditions shall be provided to NCDOT in writing, shall be provided to the United States Army Corps of Engineers for reference in any permit issued pursuant to Section 404 of the Clean Water Act, and shall also become conditions of the 404 Permit for the project.

NCDOT shall require its contractors (and/or agents) to comply with all of the terms of this Certification, and shall provide each of its contractors (and/or agents) a copy of this Certification.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal Permit. This Certification shall expire upon the expiration of the 404 Permit.

Gregory J. Thorpe, Ph.D.  
§401 Water Quality Certification No. 3456  
I-2511CB  
October 6, 2005

If you do not accept any of the conditions of this certification, you may ask for an adjudicatory hearing. You must act within 60 days of the date that you receive this letter. To ask for a hearing, send a written petition that conforms to Chapter 1SOB of the North Carolina General Statutes to the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. This certification and its conditions are final and binding unless you ask for a hearing.

This the 6<sup>th</sup> day of October 2005

DIVISION OF WATER QUALITY

A handwritten signature in black ink, appearing to read "Alan W. Klimek". The signature is fluid and cursive, with a long horizontal stroke at the end.

*ju* Alan W. Klimek, P.E.



Gregory J. Thorpe, Ph.D.  
§401 Water Quality Certification No. 3456  
I-2511CB  
October 6, 2005

WQC No. 3456

DWQ Project No.: \_\_\_\_\_

County: \_\_\_\_\_

Applicant: \_\_\_\_\_

Project Name: \_\_\_\_\_

Date of Issuance of 401 Water Quality Certification: \_\_\_\_\_

**Certificate of Completion**

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401/Wetlands Unit, North Carolina Division of Water Quality, 1650 Mail Service Center, Raleigh, NC, 27699-1650. This form may be returned to DWQ by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

***Applicant's Certification***

I, \_\_\_\_\_, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

***Agent's Certification***

I, \_\_\_\_\_, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

***Engineer's Certification***

\_\_\_\_\_ Partial      \_\_\_\_\_ Final

I, \_\_\_\_\_, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project, for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification, the approved plans and specifications, and other supporting materials.

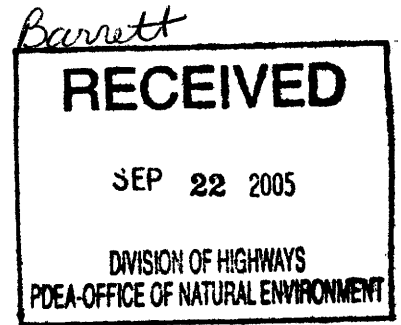
Signature: \_\_\_\_\_ Registration No.: \_\_\_\_\_ Date: \_\_\_\_\_



DEPARTMENT OF THE ARMY  
WILMINGTON DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 1890  
WILMINGTON, NORTH CAROLINA 28402-1890

IN REPLY REFER TO

September 20, 2005



Regulatory Division

SUBJECT: Action ID 200221534; TIP No. I-2511CB

Gregory J. Thorpe, Ph.D.  
Environmental Management Director, PDEA  
N.C. Department of Transportation  
1548 Mail Service Center  
Raleigh, NC 27699-1548

Dear Dr. Thorpe:

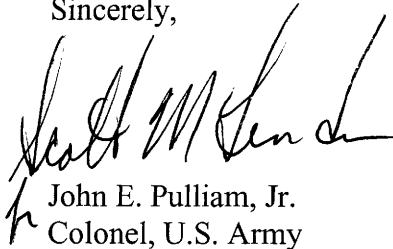
Reference the Department of the Army permit issued on October 7, 2004, to authorize the discharge of dredged and fill material into the waters of United States, for construction of Section CB of the I-85 widening and improvements (T.I.P.No. I-2511CB), impacting Town Creek and its unnamed tributaries, from north of SR 1002 (Bringle Ferry Road) to north of SR 2120 (Long Ferry Road), east of Spencer, in Rowan County, North Carolina. Reference also your August 9, 2005, letter requesting modification of the permit to authorize minor design changes that are proposed for the project including special staging requirements for the construction of the onsite Town Creek relocation. You also included documentation that a service road bridge to be constructed over Town Creek will not cause impacts to the stream. The original permit authorized permanent fill impacts to 994 linear feet of stream channel of Town Creek, 1,224 linear feet of stream channel of unnamed tributaries of Town Creek, 0.051-acre of riverine wetlands, and 0.47-acre non-riverine wetlands adjacent to Town Creek. The design modification as defined by the plans included with your request would result in an overall decrease of 158 linear feet of permanent stream channel impacts and 0.002 acre of riverine wetland impacts.

We have reviewed your proposal and have determined that the proposed construction modification that would result in reduction of impacts to waters of the United States are minor, and an additional public notice is not necessary. Therefore, the permit is hereby modified to authorize the construction modification as shown in the attached drawing. No additional mitigation will be required for this modification.

It is understood that all other conditions of the permit, including the expiration date, remain applicable. Please note that the current permit expiration date is December 31, 2008.

If you have questions, please contact John Thomas of the Raleigh Regulatory Field Office, at telephone (919) 876-8441, extension 25.

Sincerely,

A handwritten signature in black ink, appearing to read "John E. Pulliam, Jr.", written in a cursive style.

John E. Pulliam, Jr.  
Colonel, U.S. Army  
District Engineer

Enclosure

Copies Furnished (without enclosure):

Federal Highway Administration  
310 New Bern Ave., Rm. 410  
Raleigh, North Carolina 27601-1442


Mr. John Hennessy  
Division of Water Quality  
North Carolina Department of  
Environment and  
Natural Resources  
1650 Mail Service Center  
Raleigh, NC 27699-1650

REVISIONS


09-AUG-2005 JFC  
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# I-2511CB PERMIT SITES WITH CONTOURS

## 8/10/05


**THE LPA GROUP**  
 TRANSPORTATION CONSULTANTS

THE LPA GROUP OF North Carolina, p.a.  
 5600 77 Center Drive, Suite 200  
 Charlotte, North Carolina 28217


**MA Engineering**  
 CONSULTANTS, INC.  
 598 East Chatham Street Suite 137 Cary, NC 27511

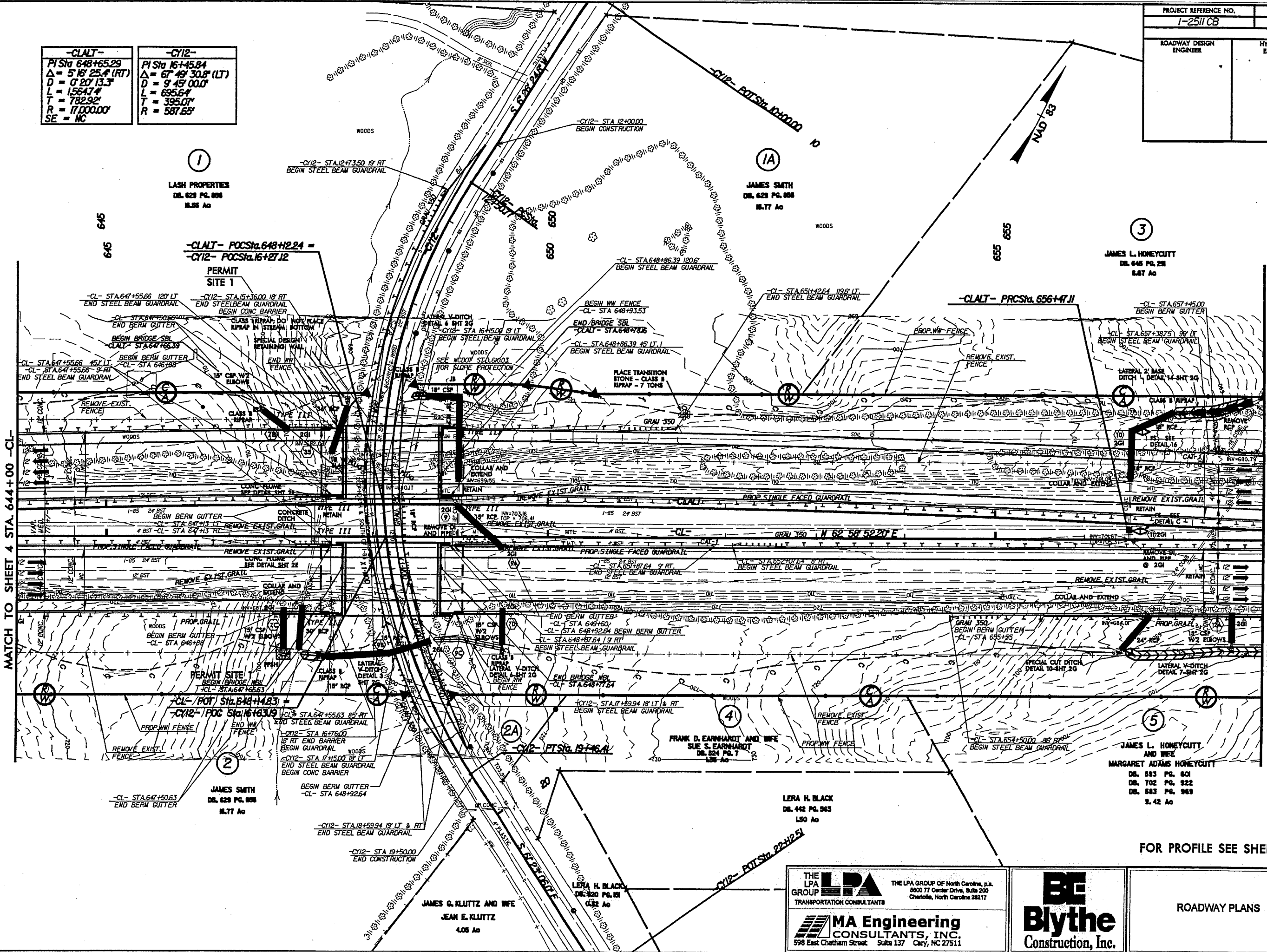

**BE Blythe**  
 Construction, Inc.

PERMIT SITES

PROJECT REFERENCE NO. 1-2511 CB	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

<b>-CLALT-</b> PI Sta 648+65.29 $\Delta = 5^{\circ} 16' 25.4" (RT)$ D = 0' 20' 13.3" L = 156.47' T = 782.92' R = 17,000.00' SE = NC	<b>-CY12-</b> PI Sta 16+45.84 $\Delta = 67^{\circ} 49' 30.8" (LT)$ D = 9' 45' 00.0" L = 695.64' T = 395.07' R = 587.65'
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FOR PROFILE SEE SHEET 17

**THE LPA GROUP**  
TRANSPORTATION CONSULTANTS

**MA Engineering CONSULTANTS, INC.**  
596 East Chatham Street, Suite 137, Cary, NC 27511

THE LPA GROUP OF North Carolina, p.a.  
6600 77 Center Drive, Suite 200  
Charlotte, North Carolina 28217

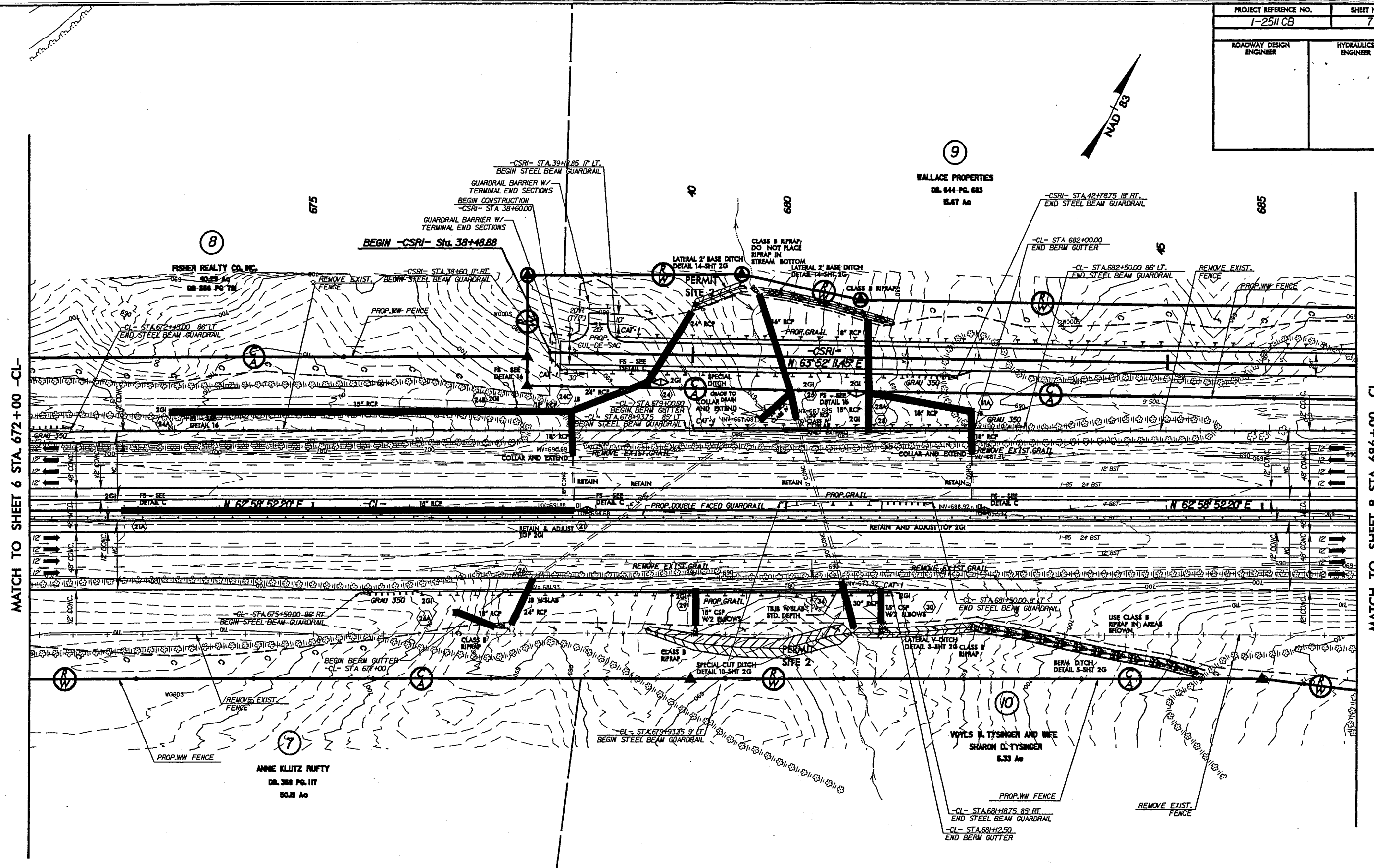
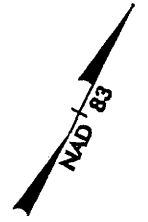
**Blythe Construction, Inc.**

ROADWAY PLANS

MATCH TO SHEET 6 STA. 658 + 00 -CL-

MATCH TO SHEET 4 STA. 644 + 00 -CL-

PROJECT REFERENCE NO.	SHEET NO.
I-2511 CB	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



MATCH TO SHEET 6 STA. 672+00 -CL-

MATCH TO SHEET 8 STA. 686+00 -CL-

FOR PROFILE SEE SHEETS 19, 39

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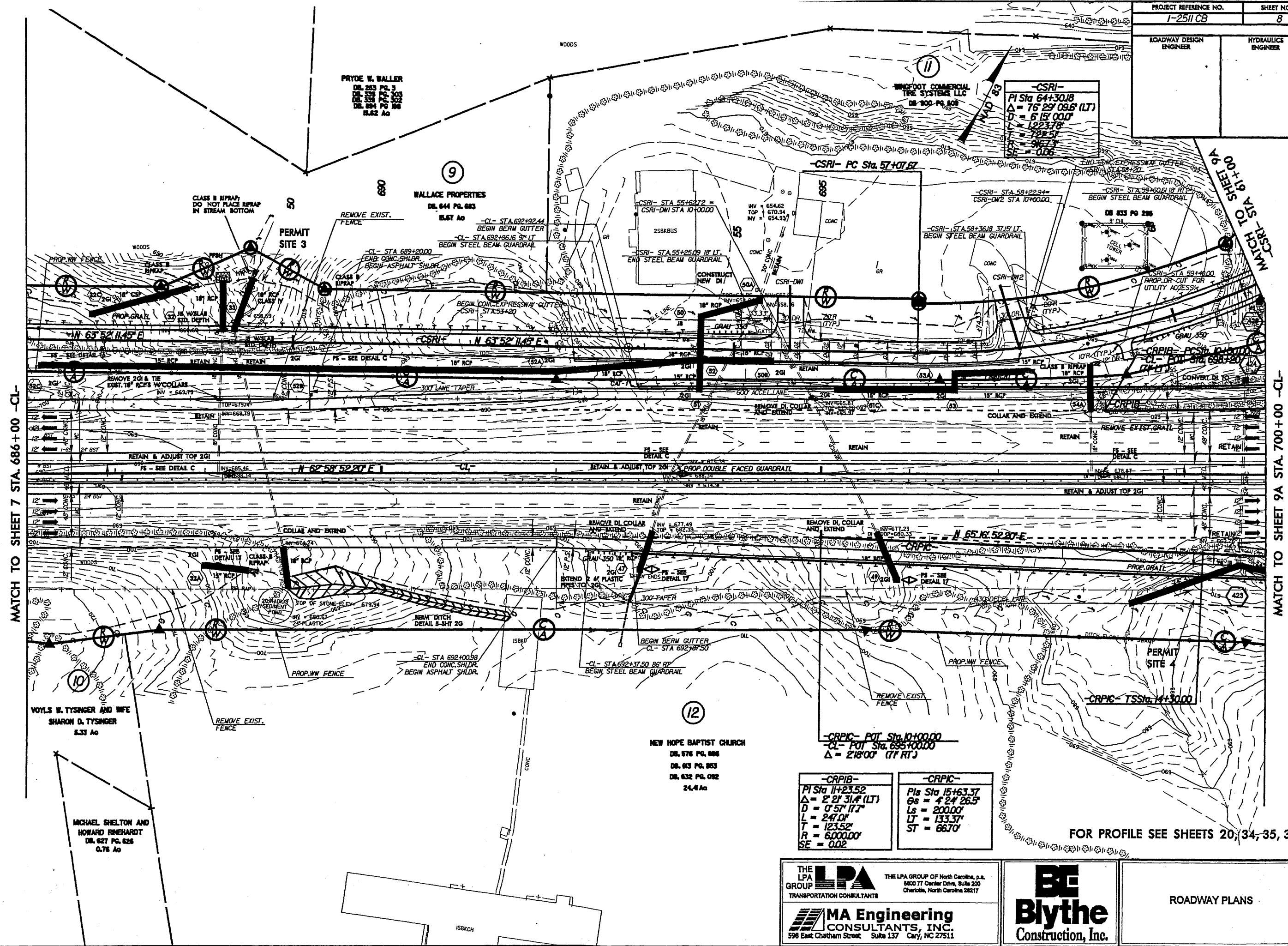
**THE LPA GROUP**  
TRANSPORTATION CONSULTANTS

THE LPA GROUP OF North Carolina, p.a.  
8800 77 Center Drive, Suite 200  
Charlotte, North Carolina 28217

**MA Engineering**  
CONSULTANTS, INC.  
598 East Chatham Street Suite 137 Cary, NC 27511

**BE Blythe**  
Construction, Inc.

ROADWAY PLANS



MATCH TO SHEET 7 STA. 686+00 -CL-

MATCH TO SHEET 9A STA. 700+00 -CL-

8/17/15  
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VOYLS W. TYSINGER AND WIFE  
SHARON D. TYSINGER  
5.33 Ac

MICHAEL SHELTON AND  
HOWARD RINEHARDT  
DL 627 PG. 626  
0.76 Ac

PRYDE W. WALLER  
DL 283 PG. 3  
DL 284 PG. 4  
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DL 379 PG. 99  
DL 380 PG. 100

WALLACE PROPERTIES  
DL 644 PG. 683  
15.67 Ac

NEW HOPE BAPTIST CHURCH  
DL 576 PG. 686  
DL 613 PG. 683  
DL 632 PG. 692  
24.4 Ac

-CRPIB-  
PI Sta 11+23.52  
Δ = 2' 21' 31.4" (LT)  
D = 0' 57' 17.7"  
L = 247.0'  
T = 123.52'  
R = 6,000.00'  
SE = 0.02

-CRPIC-  
PIs Sta 15+63.37  
Gs = 4' 24' 26.5"  
Ls = 200.00'  
LT = 133.37'  
ST = 667.0'

FOR PROFILE SEE SHEETS 20, 34, 35, 39

THE LPA GROUP  
TRANSPORTATION CONSULTANTS

**MA Engineering**  
CONSULTANTS, INC.  
596 East Chatham Street, Suite 137, Cary, NC 27511

THE LPA GROUP OF North Carolina, p.a.  
1800 TT Center Drive, Suite 200  
Charlotte, North Carolina 28217

**BE Blythe**  
Construction, Inc.

ROADWAY PLANS

8/17/99  
 REVISIONS  
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-CRPIB-

PI Sta 11+23.52 Δ = 2° 21' 31.4" (LT) D = 0' 57" 17.7" Ls = 247.0' T = 123.52' R = 6000.00' SE = 0.02	PIs Sta 13+54.41 Os = 0' 51' 32.8" Ds = 3' 13' 23.6" Ls = 180.00' LT = 107.4' ST = 72.67'	PI Sta 15+90.01 Δ = 1° 38' 03.9" (LT) Ds = 3' 34' 51.8" Ls = 324.89' T = 163.01' R = 1600.00' SE = 0.06	PIs Sta 18+41.92 Os = 3' 13' 22.4" Ls = 180.00' LT = 120.02' ST = 60.02'
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-CSRI-

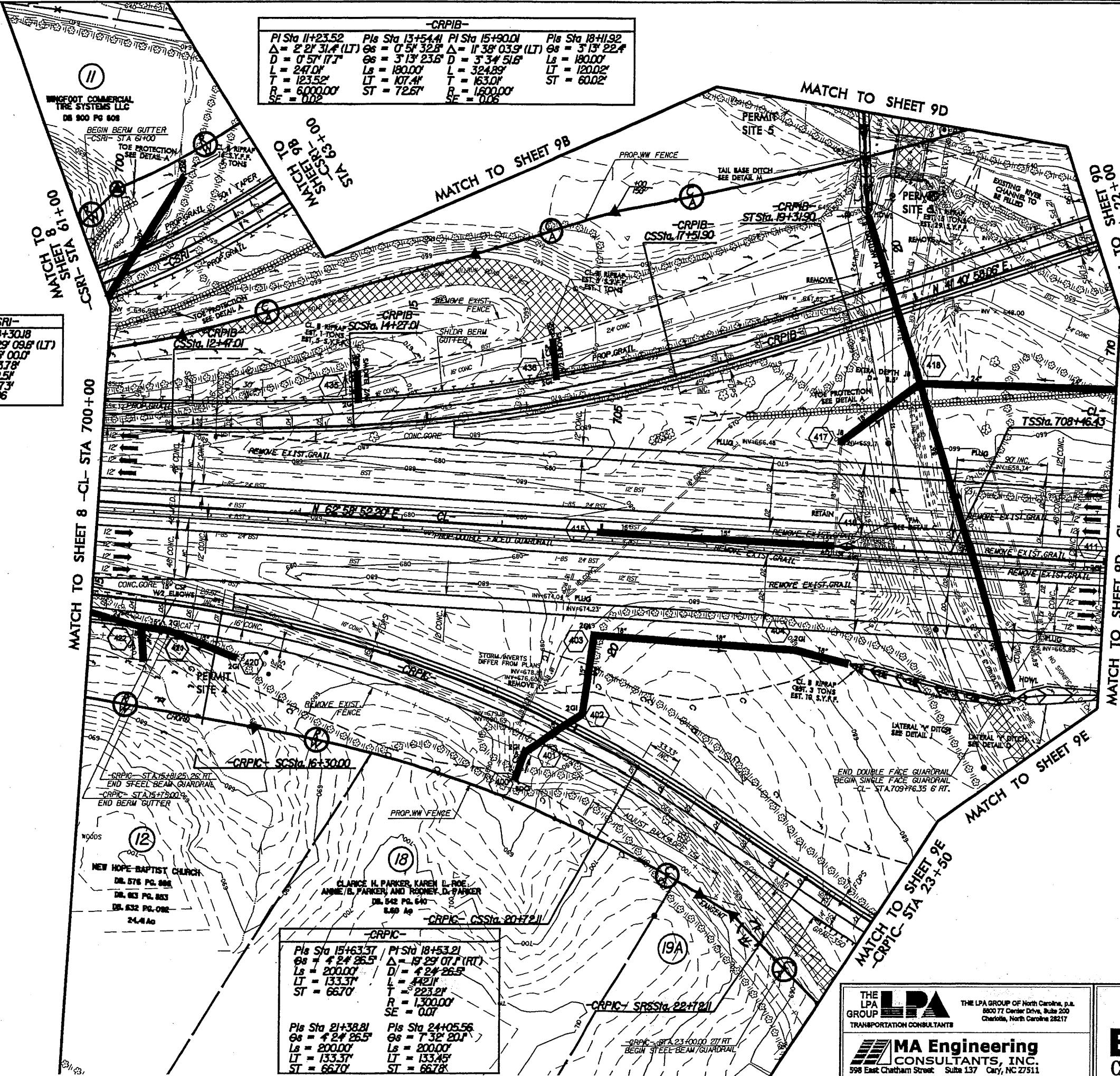
PI Sta 64+30.18 Δ = 76° 29' 09.6" (LT) D = 6' 15" 00.0" L = 1223.78' T = 722.51' R = 91673' SE = 0.06
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-CL-

PIs Sta 710+86.44 Os = 1° 47' 59.5" Ls = 360.00' LT = 240.01' ST = 120.01'
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-CRPIC-

PIs Sta 15+63.57 Os = 4° 24' 26.5" Ls = 200.00' LT = 133.37' ST = 66.70'	PI Sta 18+53.21 Δ = 19° 29' 07.1" (RT) Ds = 4° 24' 26.5" Ls = 442.11' T = 223.21' R = 1300.00' SE = 0.07	PIs Sta 21+38.81 Os = 4° 24' 26.5" Ls = 200.00' LT = 133.37' ST = 66.70'	PIs Sta 24+05.56 Os = 7° 32' 20.1" Ls = 200.00' LT = 133.35' ST = 66.78'
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 PAVEMENT REMOVAL  
 FOR PROFILE SEE SHEETS 21, 34, 35, 39

**LPA GROUP** THE LPA GROUP OF North Carolina, p.a.  
 TRANSPORTATION CONSULTANTS 6600 77 Center Drive, Suite 200  
 Charlotte, North Carolina 28217  
  
**MA Engineering**  
 CONSULTANTS, INC.  
 596 East Chatham Street, Suite 137 Cary, NC 27511

**BE**  
**Blythe**  
 Construction, Inc.

ROADWAY PLANS

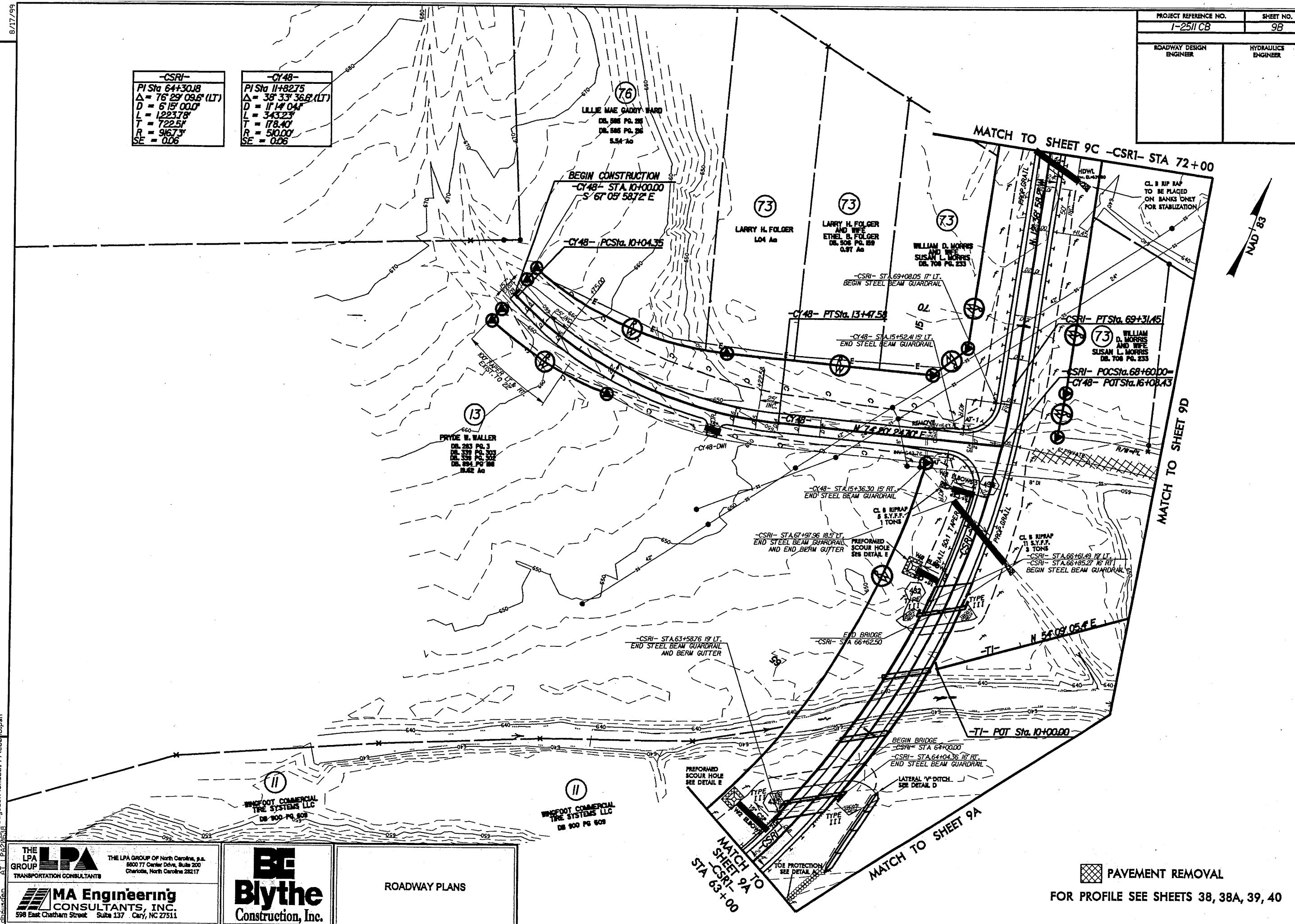


PROJECT REFERENCE NO.	SHEET NO.
I-25/11 CB	9B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**-CSRI-**  
 PI Sta 64+30.18  
 $\Delta = 76^{\circ} 29' 09.6''$  (LT)  
 D = 6' 15" 00.0"  
 L = 1223.78'  
 T = 722.51'  
 R = 9167.3'  
 SE = 0.06

**-CY48-**  
 PI Sta 11+82.75  
 $\Delta = 38^{\circ} 33' 36.6''$  (LT)  
 D = 11' 14" 04"  
 L = 343.23'  
 T = 178.40'  
 R = 510.00'  
 SE = 0.06

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 chadman



**THE LPA GROUP**  
**LPA**  
 TRANSPORTATION CONSULTANTS  
 THE LPA GROUP OF North Carolina, p.a.  
 6600 77 Center Drive, Suite 200  
 Charlotte, North Carolina 28217  
**MA Engineering CONSULTANTS, INC.**  
 598 East Chatham Street Suite 137 Cary, NC 27511

**BE Blythe Construction, Inc.**  
 ROADWAY PLANS

PAVEMENT REMOVAL  
 FOR PROFILE SEE SHEETS 38, 38A, 39, 40



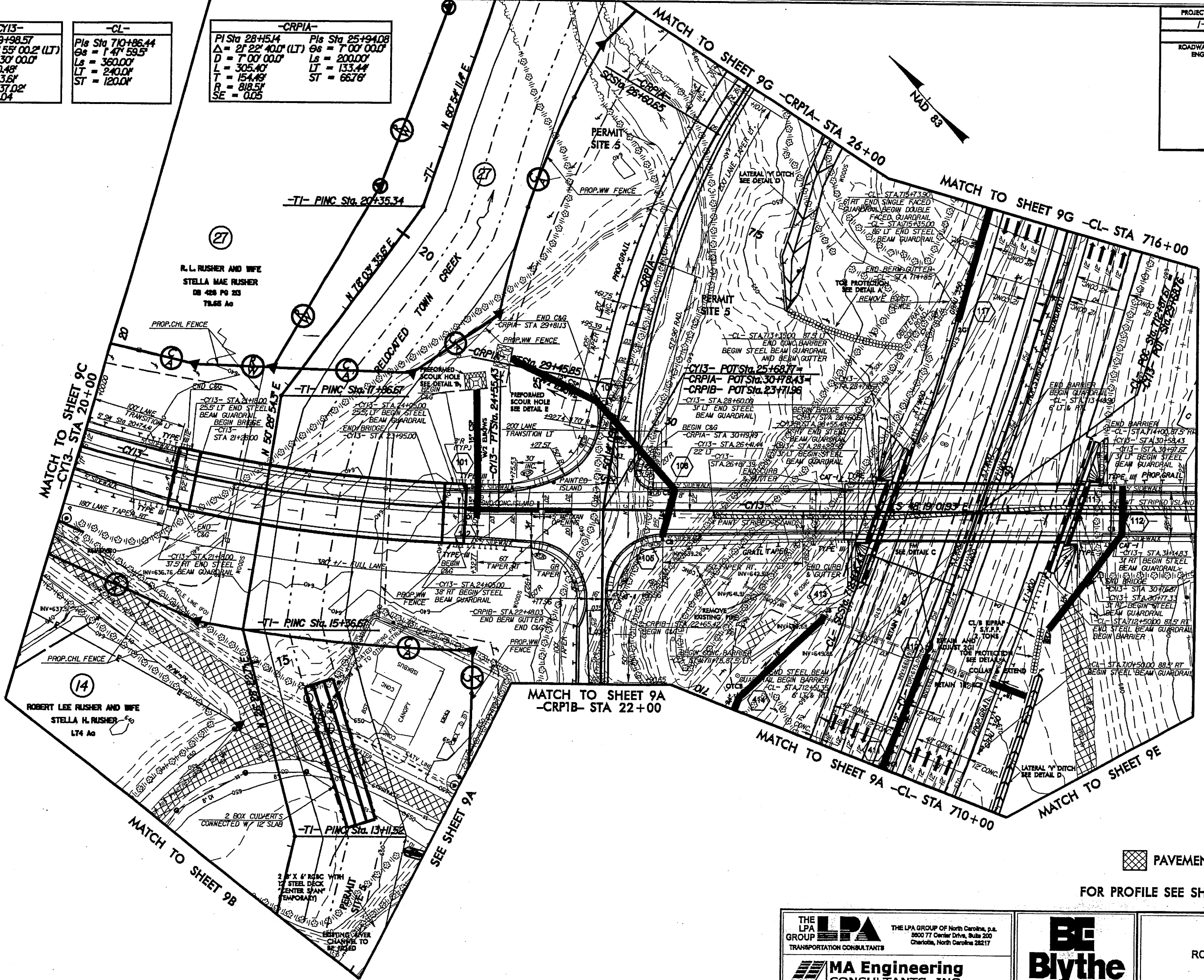
8/17/99

-CY13-	
PI Sta 19+98.57	$\Delta = 32' 55" 00.2' (LT)$
$D = 3' 30" 00.0'$	$L = 940.48'$
$T = 483.64'$	$R = 1637.02'$
$SE = 0.04$	

-CL-	
PIs Sta 710+86.44	$Es = 1' 47" 59.5'$
$Ls = 360.00'$	$LT = 240.00'$
$ST = 120.00'$	

-CRPIA-	
PI Sta 28+54.4	PIs Sta 25+94.08
$\Delta = 21' 22" 40.0' (LT)$	$Es = 7' 00" 00.0'$
$D = 7' 00" 00.0'$	$Ls = 200.00'$
$L = 305.40'$	$LT = 133.44'$
$T = 154.49'$	$ST = 66.76'$
$R = 818.51'$	
$SE = 0.05$	

PROJECT REFERENCE NO.	SHEET NO.
I-25/11 CB	9D
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

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PAVEMENT REMOVAL

FOR PROFILE SEE SHEETS 22, 31, 33, 34

THE LPA GROUP  
TRANSPORTATION CONSULTANTS

**MA Engineering CONSULTANTS, INC.**  
598 East Chatham Street Suite 137 Cary, NC 27511

**BE Blythe**  
Construction, Inc.

ROADWAY PLANS

PROJECT REFERENCE NO. I-25/11 CB	SHEET NO. 96
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-CRPIA-

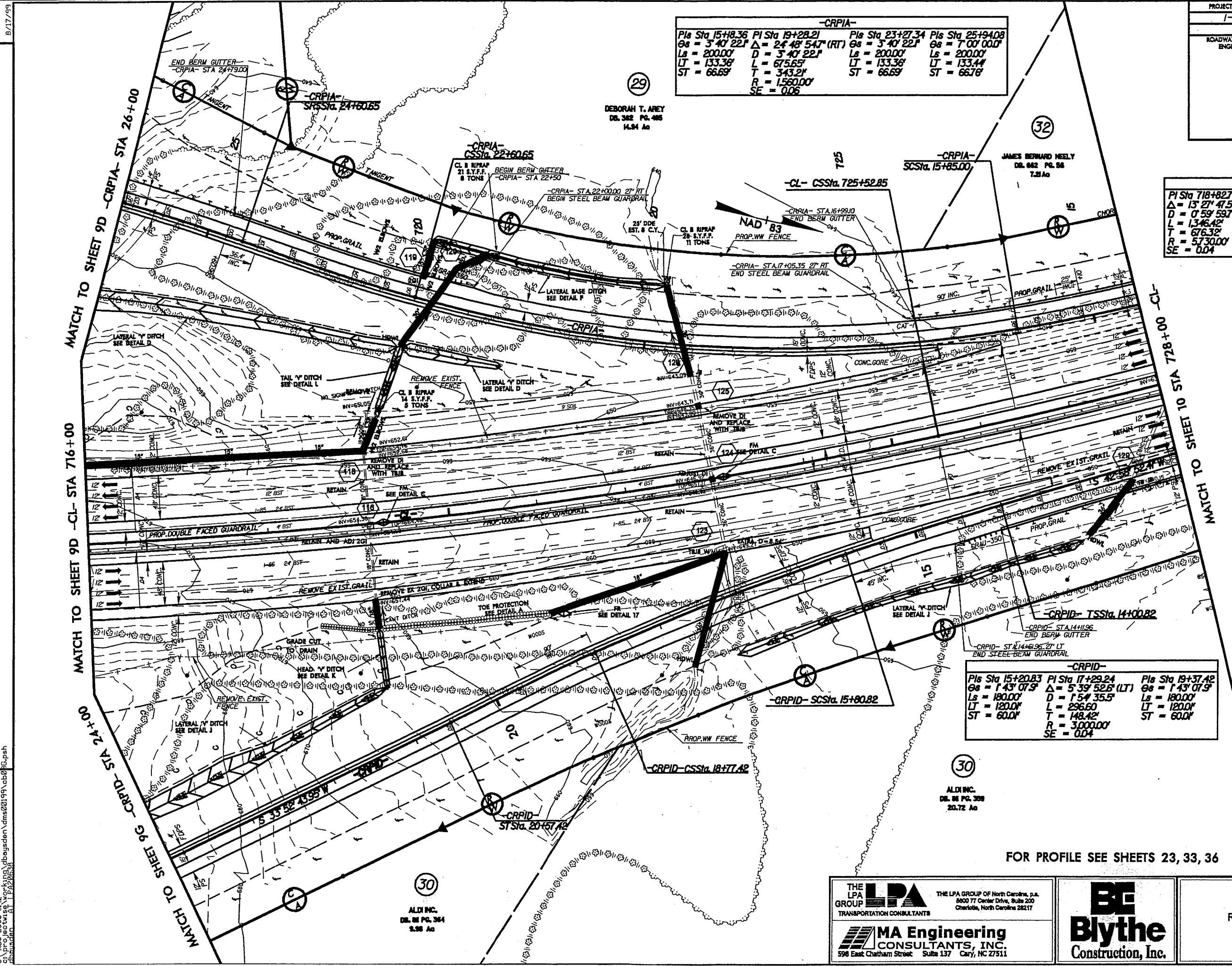
Pls Sta 15+18.36	Pls Sta 19+28.21	Pls Sta 23+27.34	Pls Sta 25+19.08
Os = 3' 40" 22"	Os = 2' 48" 54" (RT)	Os = 3' 40" 22"	Os = 7' 00" 00"
Ls = 200.00'	D = 3' 40" 22"	Ls = 200.00'	Ls = 200.00'
LT = 133.36'	L = 675.65'	LT = 133.36'	LT = 133.44'
ST = 66.69'	T = 343.21'	ST = 66.69'	ST = 66.76'
	R = 1,560.00'		
	SE = 0.06		

-CL-

Pls Sta 718+82.75	Pls Sta 727+20.89
Δ = 13' 27" 47.5" (LT)	Os = 1' 11" 59.8"
D = 0' 59" 59.7"	Os = 1' 47" 59.8"
L = 1,346.42'	Ls = 360.00'
T = 676.32'	LT = 192.04'
R = 5,730.00'	ST = 168.04'
SE = 0.04	

-CRPID-

Pls Sta 15+20.83	Pls Sta 17+29.24	Pls Sta 19+37.42
Os = 1' 43" 07.9"	Δ = 5' 39" 52.6" (LT)	Os = 1' 43" 07.9"
Ls = 180.00'	D = 1' 54" 35.5"	Ls = 180.00'
LT = 120.00'	L = 296.60'	LT = 120.00'
ST = 60.00'	T = 148.42'	ST = 60.00'
	R = 3,000.00'	
	SE = 0.04	



REVISIONS

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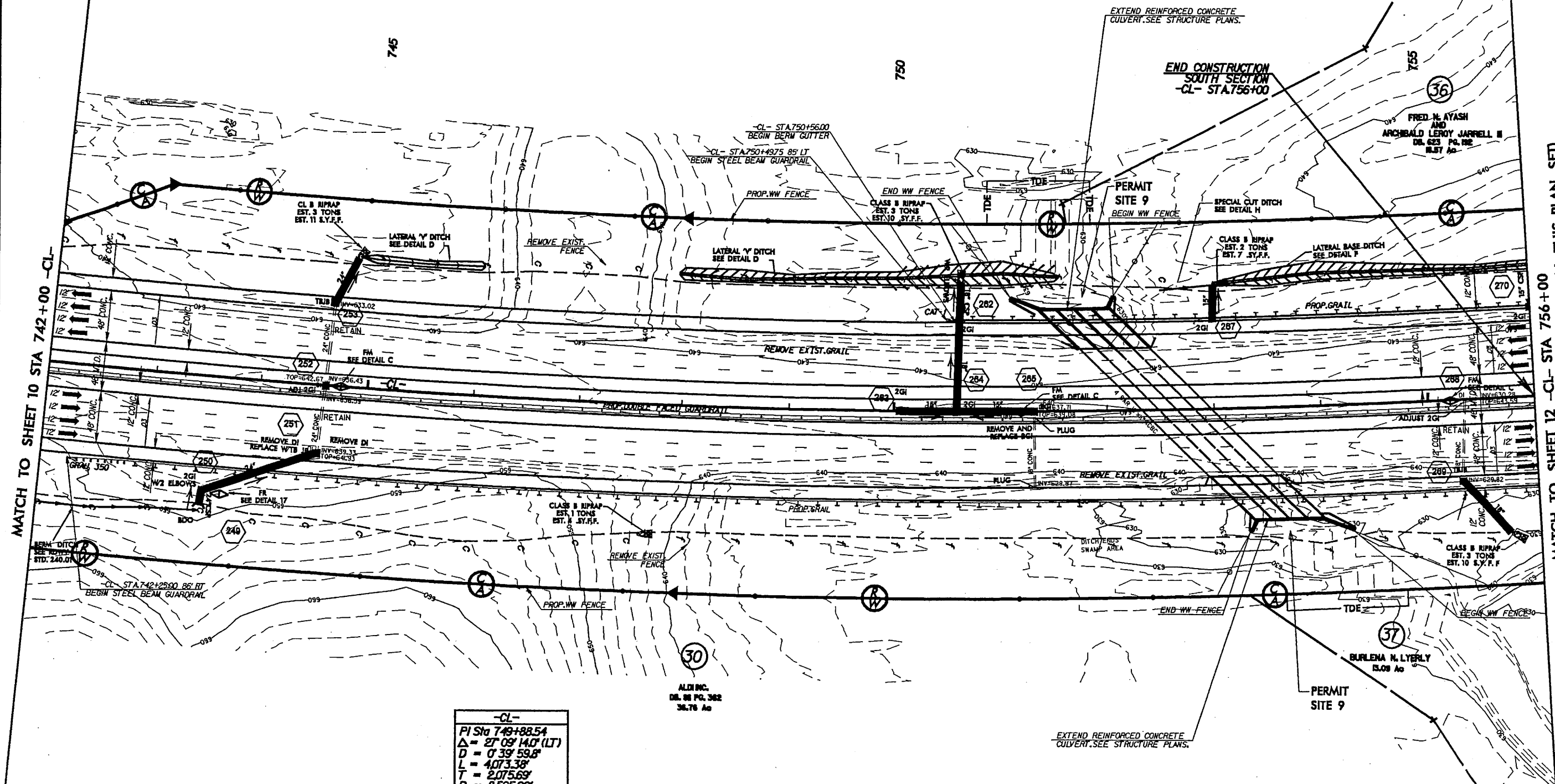
FOR PROFILE SEE SHEETS 23, 33, 36

<p>THE LPA GROUP          TRANSPORTATION CONSULTANTS</p> <p><b>MA Engineering</b>          CONSULTANTS, INC.          596 East Chatham Street, Suite 137 Cary, NC 27511</p>	<p>THE LPA GROUP OF North Carolina, p.a.          5800 77 Center Drive, Suite 200          Charlotte, North Carolina 28217</p> <p><b>BE Blythe</b>          Construction, Inc.</p>	<p>ROADWAY PLANS</p>
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PROJECT REFERENCE NO. 1-2511 CB	SHEET NO. 11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



33  
CITY OF SALISBURY  
00.000 PG. 000  
00.00 Ac



-CL-  
PI Sta 749+88.54  
 $\Delta = 27^{\circ} 09' 14.0''$  (LT)  
D = 0' 39' 59.8"  
L = 4073.38'  
T = 2075.69'  
R = 8595.00'  
SE = 0.03

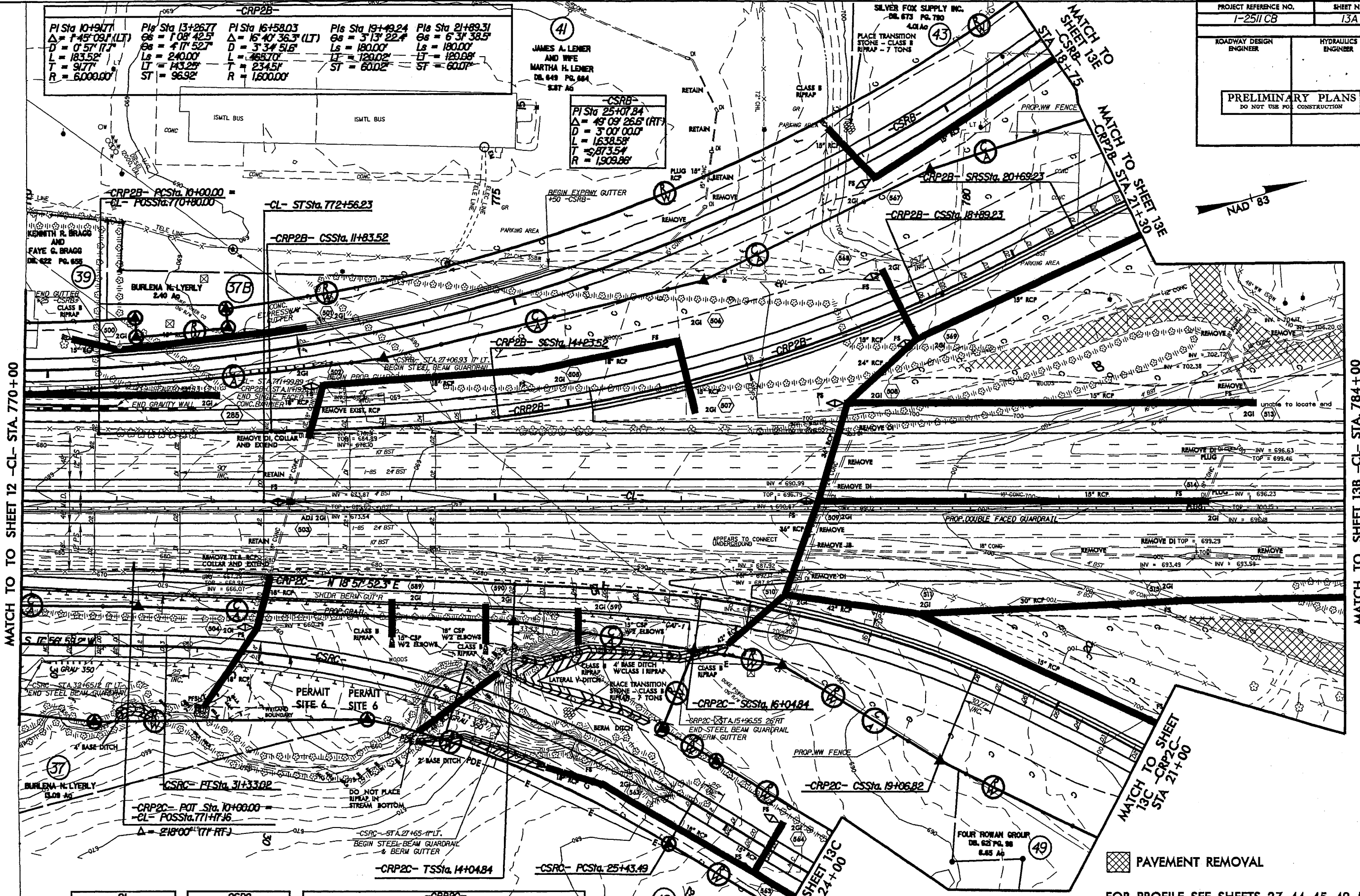
30  
ALDRINC.  
00.00 PG. 302  
36.76 Ac

FOR PROFILE SEE SHEET 25

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<p>THE LPA GROUP <b>LPA</b> TRANSPORTATION CONSULTANTS</p>	<p>THE LPA GROUP OF North Carolina, p.a. 5600 77 Center Drive, Suite 200 Charlotte, North Carolina 28217</p>	<p><b>BE</b> <b>Blythe</b> Construction, Inc.</p>	<p>ROADWAY PLANS</p>
<p><b>MA Engineering</b> CONSULTANTS, INC. 598 East Chatham Street Suite 137 Cary, NC 27511</p>			

8/17/99  
 REVISIONS  
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 11/20/03



-CRP2B-				
PI Sta 10+91.77 Δ = 1°45'09" (LT) D = 0°57'17" L = 183.52' T = 9.77' R = 6000.00'	PI Sta 13+26.77 Δ = 1°08'42.5" D = 4°17'52.7" Ls = 240.00' LT = 43.25' ST = 96.92'	PI Sta 16+58.03 Δ = 16°40'36.3" (LT) D = 3°34'51.6" L = 485.70' T = 234.51' R = 1600.00'	PI Sta 19+49.24 Δ = 5°13'22.4" D = 180.00' Ls = 180.00' LT = 120.02' ST = 60.02'	PI Sta 21+89.31 Δ = 6°31'38.5" D = 180.00' Ls = 180.00' LT = 120.02' ST = 60.02'

-CSRB-
PI Sta 25+107.84 Δ = 43°09'26.5" (RT) D = 3°00'00.0" L = 1638.58' T = 873.54' R = 1509.86'

-CL-
PI Sta 770+76.23 Δ = 0°53'59.8" Ls = 270.00' LT = 180.00' ST = 90.00'

-CSRC-
PI Sta 28+44.94 Δ = 29°30'00.0" (LT) D = 5°00'14.4" L = 589.53' T = 301.45' R = 1445.00'

-CRP2C-
PI Sta 15+38.23 Δ = 5°00'00.0" Ls = 200.00' LT = 133.39' ST = 66.72'

-CRP2C-
PI Sta 17+56.71 Δ = 15°05'55.7" (RT) D = 5°00'00.0" L = 301.98' T = 151.87' R = 1445.92'

-CRP2C-
PI Sta 19+73.53 Δ = 5°00'00.0" Ls = 200.00' LT = 133.39' ST = 66.72'

40  
 JERRY J. TREVEY  
 AND WIFE  
 LINDA P. TREVEY  
 JAMES E. EPTING  
 AND WIFE  
 HAZEL F. EPTING  
 DB. 624 PG. 98  
 10.450 Ac

PAVEMENT REMOVAL

FOR PROFILE SEE SHEETS 27, 44, 45, 49, 51

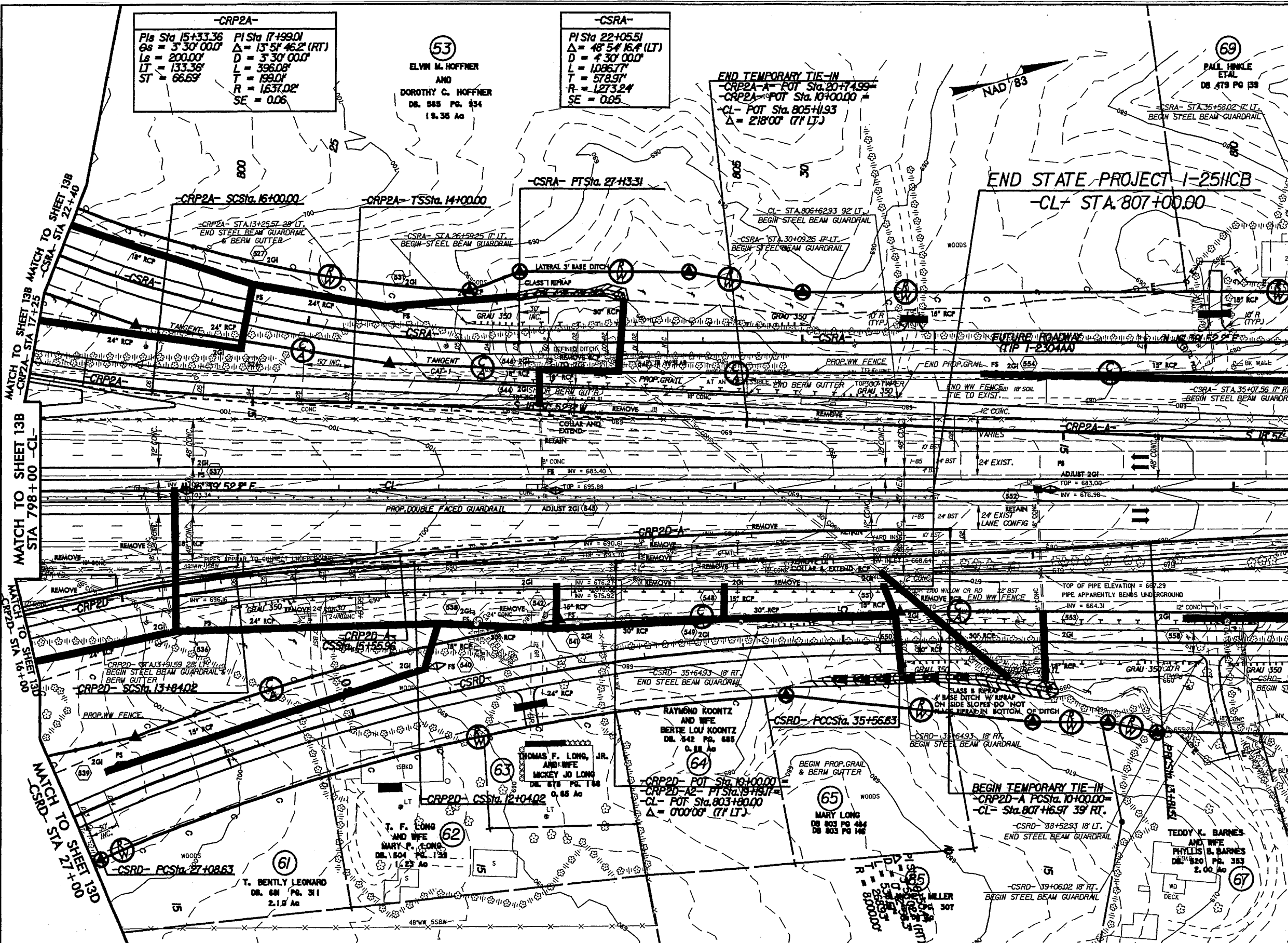
**LPA GROUP**  
 TRANSPORTATION CONSULTANTS  
**MA Engineering**  
 CONSULTANTS, INC.  
 598 East Chatham Street Suite 137 Cary, NC 27511

**BE Blythe**  
 Construction, Inc.

ROADWAY PLANS

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PROJECT REFERENCE NO. I-2511 CB	SHEET NO. 14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



FOR PROFILE SEE SHEETS 29, 43, 46, 48, 52, 53

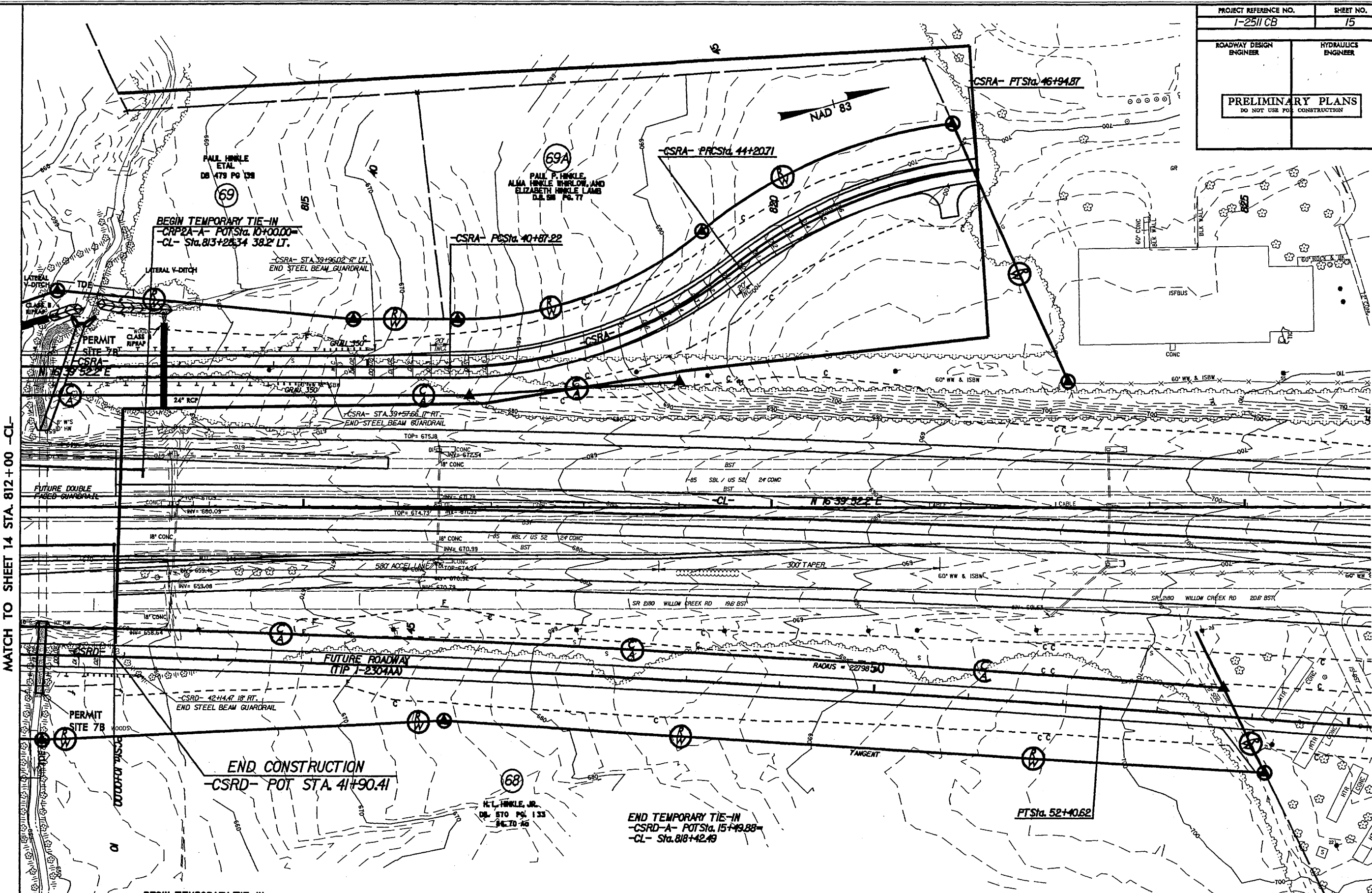
<b>-CRP2D-</b> PI Sta 11+02.02 $\Delta = 156' 53.8''$ (LT) $D = 0' 57' 17''$ $L = 204.02'$ $T = 102.02'$ $R = 6,000.00'$ SE = 0.02			<b>-CRP2D-A-</b> PI Sta 13+14.43 $\Delta = 0' 51' 32.8''$ $D = 3' 13' 23.6''$ $L = 180.00'$ $LT = 107.41'$ $ST = 72.67'$			<b>-CRP2D-</b> PI Sta 16+38.72 $\Delta = 18' 05' 22.3''$ (LT) $D = 3' 34' 51.8''$ $L = 505.18'$ $T = 254.70'$ $R = 1,600.00'$ SE = 0.06			<b>-CRP2D-A-</b> PI Sta 17+94.96 $\Delta = 154' 22.4''$ $D = 7' 09' 56.2''$ $L = 400.00'$ $LT = 239.00'$ $ST = 161.78'$			<b>-CRP2D-</b> PI Sta 12+78.18 $\Delta = 5' 18' 32.3''$ (LT) $D = 0' 57' 17''$ $L = 555.96'$ $T = 278.18'$ $R = 6,000.00'$ SE = 0.04			<b>-CRP2D-A-</b> PI Sta 31+38.58 $\Delta = 23' 19' 11.6''$ (RT) $D = 2' 45' 00.0''$ $L = 848.00'$ $T = 429.95'$ $R = 2,093.48'$ SE = 0.04			<b>-CRP2D-</b> PI Sta 41+20.00 $\Delta = 2' 50' 05.5''$ (RT) $D = 0' 15' 05.9''$ $L = 1,126.51'$ $T = 563.37'$ $R = 2,2768.04'$ SE = NC			<b>-CRP2D-</b> PI Sta 12+29.95 $\Delta = 17' 49' 07.8''$ (LT) $D = 11' 14' 04.1''$ $L = 158.61'$ $T = 79.95'$ $R = 510.00'$ SE = 0.06			<b>-CRP2D-A-</b> PI Sta 13+87.92 $\Delta = 17' 40' 46.5''$ (RT) $D = 11' 14' 04.1''$ $L = 157.37'$ $T = 79.31'$ $R = 510.00'$ SE = 0.06		
---	--	--	--	--	--	--	--	--	---	--	--	---	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**THE LPA GROUP**  
 TRANSPORTATION CONSULTANTS  
**MA Engineering**  
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THE LPA GROUP OF North Carolina, p.a.  
 1800 77 Center Drive, Suite 200  
 Charlotte, North Carolina 28217  
**BE Blythe**  
 Construction, Inc.

ROADWAY PLANS

8/17/99



REVISIONS

MATCH TO SHEET 14 STA. 812+00 -CL-

BEGIN TEMPORARY TIE-IN  
-CSRD-A- POT Sta. 10+00.00  
-CSRD-A- POT Sta. 41+90.41

PI Sta 11+02.21	PI Sta 12+89.65
$\Delta = 22^{\circ} 39' 57.3" (LT)$	$\Delta = 19^{\circ} 33' 28.5" (RT)$
$D = 11^{\circ} 04'$	$D = 11^{\circ} 04'$
$L = 201.75'$	$L = 174.09'$
$T = 102.21'$	$T = 87.90'$
$R = 510.00'$	$R = 510.00'$

-CSRD-

PI Sta 41+20.00
$\Delta = 2^{\circ} 50' 05.5" (RT)$
$D = 0^{\circ} 15' 05.5"$
$L = 1126.51'$
$T = 563.37'$
$R = 22768.04'$

-CSRA-

PI Sta 42+60.17	PI Sta 45+161.9
$\Delta = 37^{\circ} 27' 56.4" (LT)$	$\Delta = 30^{\circ} 48' 04.2" (RT)$
$D = 11^{\circ} 04'$	$D = 11^{\circ} 04'$
$L = 333.49'$	$L = 274.17'$
$T = 172.95'$	$T = 140.48'$
$R = 510.00'$	$R = 510.00'$

FOR PROFILE SEE SHEETS 30, 47, 48, 53

THE LPA GROUP  
TRANSPORTATION CONSULTANTS

**MA Engineering**  
CONSULTANTS, INC.  
598 East Chatham Street Suite 137 Cary, NC 27511

**BE Blythe**  
Construction, Inc.

ROADWAY PLANS

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