STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

October 20, 2017

U.S. Army Corps of Engineers
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

ATTN: Mr. James Lastinger
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permits 13, 23, and 33,** for the Proposed Replacement of Bridge 95 on SR 1100 (Lasater Road) over Blanket Creek in Forsyth County, Division 9, TIP No. B-5152 (17BP.9.R.99); Debit $240 from WBS# 17BP.9.R.99.

Dear Mr. Lastinger:

The North Carolina Department of Transportation (NCDOT) proposes to replace bridge number 95 on SR 1100 (Lasater Road) over Blanket Creek in Forsyth County. The existing bridge will be abandoned, rather than replaced, as the substructure appears to share a foundation with the adjacent house and spillway. A new bridge, an approximately 137-foot, two-span structure, 21-inch core slab units @ 55 feet, and 33-inch box beam units @ 80 feet will be constructed downstream of the existing bridge, along with associated new roadway. The new roadway alignment will require that a 7' X 6' single-barrel RCBC be constructed in an unnamed tributary to Blanket Creek. The existing bridge will continue to be used during the construction of the new bridge to maintain traffic. There will be a total of 250 linear feet of permanent stream impact, with 72 linear feet being bank stabilization; and 0.03 acre (224 lf) of associated temporary stream impact. Additionally, there will be 0.10 acre of permanent wetland impact.

Please see enclosed copies of the Pre-Construction Notification (PCN), DMS Acceptance Letter, Stormwater Management Plan, Permit Drawings, and Roadway Plan Sheets. A Programmatic Categorical Exclusion (PCE) was completed in December 2015 and distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of January16, 2018 and a review date of November 28, 2017; however, the let date may advance as additional funding becomes available.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
NATURAL ENVIRONMENT SECTION
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Fax: (919) 212-5785
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

A copy of this permit application and its distribution list will be posted on the NCDOT Website at: http://connect.ncdot.gov/resources/Environmental. If you have any questions or need additional information, please call Bill Barrett at (919) 707-6103.

Sincerely,

Philip S. Harris III, P.E., C.P.M.
Natural Environment Section Head

Cc:
NCDOT Permit Application Standard Distribution List

Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits

(along with corresponding Water Quality Certifications)

June 28, 2017 Ver 1.8

*Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.*

Below is a link to the DRAFT online help file.

http://edocs.deq.nc.gov/WaterResources/0/doc/549884/Page1.aspx

A. Processing Information

County (or Counties) where the project is located:*

Forsyth

Is this project a public transportation project?*

(•) Yes ( ) No

Is this a NCDOT Project?*

(•) Yes ( ) No

(NCDOT only) T.I.P. or state project number:

B-5152

WBS #

17BP.9.R.99

(for NCDOT use only)

1a. Type(s) of approval sought from the Corps:*

- [x] Section 404 Permit (wetlands, streams and waters, Clean Water Act)
- [ ] Section 10 Permit (navigable waters, tidal waters, Rivers and Harbors Act)

1b. What type(s) of permit(s) do you wish to seek authorization?*

- [x] Nationwide Permit (NWP)
- [ ] Regional General Permit (RGP)

Nationwide Permit (NWP) Number: **13 - Bank Stabilization**

Nationwide Permit (NWP) Number: **23 - Categorical Exclusions**

Nationwide Permit (NWP) Number: **33 - Temporary Construction**

NWP Number Other:

List all NW numbers you are applying for not on the drop down list.

1c. Type(s) of approval sought from the DWR:*

check all that apply

- [x] 401 Water Quality Certification - Regular
- [ ] 401 Water Quality Certification - Express
- [ ] Non-404 Jurisdictional General Permit
- [ ] Riparian Buffer Authorization

1d. Is this notification solely for the record because written approval is not required? *

For the record only for DWR 401 Certification: ○ Yes ◉ No

For the record only for Corps Permit: ○ Yes ◉ No

1e. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts?

If so, attach the acceptance letter from mitigation bank or in-lieu fee program.

◉ Yes ○ No

Acceptance Letter Attachment

Click the upload button or drag and drop files here to attach document

B-5152 Revised - STR - RW - YD 101.pdf 64.72KB

FILE TYPE MUST BE PDF

1f. Is the project located in any of NC's twenty coastal counties? *

○ Yes ◉ No

B. Applicant Information

1a. Who is the Primary Contact? *

NCDOT

1b. Primary Contact Email: *

wabarrett@ncdot.gov

1c. Primary Contact Phone: *

(xxx)xxx-xxxx

(919)707-6103

1d. Who is applying for the permit?

- [x] Owner
- [ ] Applicant (other than owner)
- [ ] Agent/Consultant

(Check all that apply)

2. Owner Information

2a. Name(s) on recorded deed:

2b. Deed book and page no.:

2c. Responsible party:

(for Corporations)

2d. Address

Street Address

Address Line 2

City State / Province / Region

Postal / Zip Code Country

2e. Telephone Number:

(xxx)xxx-xxxx

2f. Fax Number:

(xxx)xxx-xxxx

2g. Email Address: *

pharris@ncdot.gov

C. Project Information and Prior Project History

1. Project Information

1a. Name of project: *

Relacement of Bridge No. 95 on SR 1100 (Lasater Road) over Blanket Creek.

1b. Subdivision name:

(if appropriate)

1c. Nearest municipality / town: *

Clemmons

1d. Driving directions *

If it is a new project and can not easily be found in a GPS mapping system. Please provide directions.

I-40 exit #182 (Harper Road) north, left on Fair Oaks Drive, left on Lasater Road.

2. Project Identification

2a. Property Identification Number:

(tax PIN or parcel ID)

2b. Property size:

(in acres)

2c. Project Address

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

2d. Site coordinates in decimal degrees

Please collect site coordinates in decimal degrees. Use between 4-6 digits (unless you are using a survey-grade GPS device) after the decimal place as appropriate, based on how the location was determined. (For example, most mobile phones with GPS provide locational precision in decimal degrees to map coordinates to 5 or 6 digits after the decimal place.)

Latitude: *

36.025545

ex: 34.208504

Longitude: *

-80.419677

-77.796371

3. Surface Waters

3a. Name of the nearest body of water to proposed project: *

Blanket Creek

3b. Water Resources Classification of nearest receiving water: *

WS-IV

Surface Water Lookup

3c. What river basin(s) is your project located in? *

Yadkin-PeeDee

River Basin Lookup

4. Project Description

4a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: *

The project is located within the municipal limits of trhe Village of Clemmons. Development in the area is residential in nature.

4b. Attach an 8 1/2 X 11 excerpt from the most recent version of the USGS topographic map indicating the location of the project site. (for DWR)

Click the upload button or drag and drop files here to attach document

File type must be pdf

4c. Attach an 8 1/2 X 11 excerpt from the most recent version of the published County NRCS Soil Survey map depicting the project site. (for DWR)

Click the upload button or drag and drop files here to attach document

File type must be pdf

4d. List the total estimated acreage of all existing wetlands on the property:

0.28

4e. List the total estimated linear feet of all existing streams on the property:

(intermittent and perennial)

1,194

4f. Explain the purpose of the proposed project:

Bridge No. 95 has a sufficiency rating of 26.27 out of a possible 100 for a new structure. Classified as a fracture critical structure, the bridge would collapse withthe loss of a single member. The bridge is considered structurally deficient due to a superstructure condition of 4 out of 9 and a subsructure condition of 4 out of 9 according to FHWA.

4g. Describe the overall project in detail, including the type of equipment to be used:

The existing bridge, at a stone waterfall (Lasater Mill Dam), will be abandoned, as the substructure appears to share a foundation with the adjacent house and spillway. A new 137-foot long bridge (and new roadway) will be relocated further downstream on Blanket Creek. Standard road building equipment, such as trucks, dozers, and cranes will be used.

4h. Please upload project drawings for the proposed project.

Click the upload button or drag and drop files here to attach document

B5152_Permit_UTIL_RDWY.pdf 9.26MB

File type must be pdf

5. Jurisdictional Determinations

5a. Have the wetlands or streams been delineated on the property or proposed impact areas? *

(•) Yes ( ) No ( ) Unknown

Comments:

Initial JD in 2009; updated PJD in 2016

5b. If the Corps made a jurisdictional determination, what type of determination was made? *

(•) Preliminary ( ) Approved ( ) Unknown

Corps AID Number:

Example: SAW-2017-99999

SAW-2009-01741

5c. If 5a is yes, who delineated the jurisdictional areas?

Name (if known): John Jamison

Agency/Consultant Company: HDR Engineering

Other:

5d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.

November 22, 2016.

5d1. Jurisdictional determination upload

Click the upload button or drag and drop files here to attach document

B-5152 PJD 11-28-2016 .pdf 614.05KB

File type must be PDF

6. Project History

6a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past? *

○ Yes ◉ No ○ Unknown

7. Future Project Plans

7a. Is this a phased project? *

○ Yes ◉ No

Are any other NWP(s), regional general permit(s), or individual permits(s) used, or intended to be used, to authorize any part of the proposed project or related activity? This includes other separate and distant crossing for linear projects that require Department of the Army authorization but don't require pre-construction notification.

D. Proposed Impacts Inventory

1. Impacts Summary

1a. Where are the impacts associated with your project? (check all that apply):

☑ Wetlands ☑ Streams-tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

2a. Site # - Reason for impact	2b. Impact type *	2c. Type of wetland	2d. Wetland name	2e. Forested	2f. Jurisdiction type	2g. Impact area
1 - Excavation Map label (e.g. Road Crossing 1)	**P** Permanent (P) or Temporary (T)	**Headwater Forest**	**WA**	**Yes**	**Corps** (404, 10) or DWR (401, other)	**0.020** (acres)
1 - Fill Map label (e.g. Road Crossing 1)	**P** Permanent (P) or Temporary (T)	**Headwater Forest**	**WA**	**Yes**	**Corps** (404, 10) or DWR (401, other)	**0.040** (acres)
2 - Fill Map label (e.g. Road Crossing 1)	**P** Permanent (P) or Temporary (T)	**Bottomland Hardwood Forest**	**WC**	**Yes**	**Corps** (404, 10) or DWR (401, other)	**0.040** (acres)

2g. Temporary Wetland Impact

0.000

2g. Permanent Wetland Impact

0.100

2g. Total Wetland Impact

0.100

2h. Comments:

PJD Site verification determined 1:1 mitigation ratio for impacts to Wetlands WA and WC.

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Site # - Reason for impact	3b.Impact type	3c. Type of impact	3d. Stream name	3e. Stream Type	3f. Jurisdiction type	3g. Stream width	3h. Impact length
2 - road crossing Map label (e.g. Road Crossing 1)	**P** Permanent (P) or Temporary (T)	**Culvert**	**SC**	**Perennial** Perennial (PER) or intermittent (INT)	**Both**	Average **3** (feet)	**88** (linear feet)
2 - road crossing Map label (e.g. Road Crossing 1)	**T** Permanent (P) or Temporary (T)	**Culvert**	**SC**	**Perennial** Perennial (PER) or intermittent (INT)	**Both**	Average **3** (feet)	**11** (linear feet)
2 - road crossing Map label (e.g. Road Crossing 1)	**P** Permanent (P) or Temporary (T)	**Bank Stabilization**	**SC**	**Perennial** Perennial (PER) or intermittent (INT)	**Both**	Average **3** (feet)	**26** (linear feet)
3 - bridge Map label (e.g. Road Crossing 1)	**T** Permanent (P) or Temporary (T)	**Other**	**Blanket Ck**	**Perennial** Perennial (PER) or intermittent (INT)	**Both**	Average **20** (feet)	**186** (linear feet)
3 - bridge Map label (e.g. Road Crossing 1)	**P** Permanent (P) or Temporary (T)	**Bank Stabilization**	**Blanket Ck**	**Perennial** Perennial (PER) or intermittent (INT)	**Both**	Average **20** (feet)	**46** (linear feet)
4 - pipe Map label (e.g. Road Crossing 1)	**P** Permanent (P) or Temporary (T)	**Fill**	**SA**	**Perennial** Perennial (PER) or intermittent (INT)	**Both**	Average **2** (feet)	**90** (linear feet)
4 - pipe Map label (e.g. Road Crossing 1)	**T** Permanent (P) or Temporary (T)	**Other**	**SA**	**Perennial** Perennial (PER) or intermittent (INT)	**Both**	Average **2** (feet)	**27** (linear feet)
Utility - Sewer Map label (e.g. Road Crossing 1)	**T** Permanent (P) or Temporary (T)	**Excavation**	**Blanket Ck**	**Perennial** Perennial (PER) or intermittent (INT)	**Both**	Average **20** (feet)	**3** (linear feet)

** All Perennial or Intermittent streams must be verified by DWR or delegated local government.

3i. Total jurisdictional ditch impact in square feet:

0

3i. Total permanent stream impacts:

250

3i. Total temporary stream impacts:

227

3i. Total stream and tributary impacts:

477

3j. Comments:

PJD Site verification determined 1:1 mitigation ratio for impacts to Streams SA and SC.

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

5. Pond or Lake Construction

If pond or lake construction is proposed, then complete the chart below.

6. Buffer Impacts (for DWR)

If project will impact a protected riparian buffer, then complete the chart below. Individually list all buffer impacts below.

E. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing the project: *

The bridge spans Blanket Creek, and the bridge runoff is routed to a proposed storm drain system that outlets to a riprap-lined ditch prior to entering UT to Blanket Creek. Grass swale treatment provided to maximum extent practicable. Vegetated conveyance used where Grass Swale treatment was not met. Bank stabilization is provided at interior bent #1 to protect the outside side slopes of Blanket Creek.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques: *

Best Management Practices for Surface Waters will be used during all phases of construction.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?

(•) Yes ( ) No

2c. If yes, mitigation is required by (check all that apply):

[ ] DWR [x] Corps

2d. If yes, which mitigation option(s) will be used for this project?

[ ] Mitigation bank [x] Payment to in-lieu fee program [ ] Permittee Responsible Mitigation

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.

[x] Yes

4b. Stream mitigation requested:

(linear feet)

178

4c. If using stream mitigation, stream temperature:

warm

4d. Buffer mitigation requested (DWR only):

(square feet)

4e. Riparian wetland mitigation requested:

(acres)

0.10

4f. Non-riparian wetland mitigation requested:

(acres)

4g. Coastal (tidal) wetland mitigation requested:

(acres)

4h. Comments

NCDOT will mitigate for the 0.10 acre of permanent wetland impacts, and for 178 linear feet of permanent stream impacts. The permanent wetland impacts (Wetlands WA and WC and permanent stream impacts (Streams SA and SC) require 1:1 mitigation, per the 2016 PJD site verification visit.
NCDOT does not propose mitigation for the72 linear feet of bank stabilization impact, as it does not require fill in the stream bed and therefore, under Section 404 of the Clean Water Act, does not constitute Loss of Waters of the U.S. and is not subject to compensatory mitigation. Furthermore, the proposed bank stabilization is necessary to prevent erosion and sedimentation by preventing bank de-stabilization and thereby minimizing impacts to the environment.

F. Stormwater Management and Diffuse Flow Plan (required by DWR)

1a. Does this project require a Stormwater Management Plan?

(•) Yes ( ) No

1b. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan:

See attached Permit Drawings

1c. What is the overall percent imperviousness of this project?

%

1d. Who will be responsible for the review of the Stormwater Management Plan? *

- [ ] Certified Local Government
- [ ] DEMLR Stormwater Review
- [ ] DWR 401 & Buffer Permitting Branch
- [x] DWR Transportation Permitting Branch

2. Diffuse Flow Plan

2a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?

( ) Yes (•) No

If no, explain why:

5. DWR 401 Stormwater Review

5a. Is the Stormwater Management Plan (including BMP Supplemental Forms and Operation and Maintenance Agreements) attached?

(•) Yes ( ) No

Stormwater Management Plan Upload

Click the upload button or drag and drop files here to attach document

file type must be pdf

G. Supplementary Information

1. Environmental Documentation

1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? *

(•) Yes ( ) No

1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)? *

◉ Yes ○ No

1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) *

◉ Yes ○ No

NEPA or SEPA Final Approval Letter

Click the upload button or drag and drop files here to attach document

FILE TYPE MUST BE PDF

2. Violations (DWR Requirement)

2a. Is the site in violation of DWR Water Quality Certification Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), or DWR Surface Water or Wetland Standards or Riparian Buffer Rules (15A NCAC 2B .0200)? *

○ Yes ◉ No

2b. Is this an after-the-fact permit application? *

○ Yes ◉ No

2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):

3. Cumulative Impacts (DWR Requirement)

3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? *

○ Yes ◉ No

3b. If you answered "no," provide a short narrative description.

Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.

4. Sewage Disposal (DWR Requirement)

4a. Describe, in detail, the treatment methods and dispositions (non-discharge or discharge) of wastewater generated from the proposed project. If the wastewater will be treated at a treatment plant, list the capacity available at that plant.

5. Endangered Species and Designated Critical Habitat (Corps Requirement)

5a. Will this project occur in or near an area with federally protected species or habitat? *

◉ Yes ○ No

5b. Have you checked with the USFWS concerning Endangered Species Act impacts? *

◉ Yes ○ No

5c. If yes, indicate the USFWS Field Office you have contacted.

Asheville

5d. Is this a DOT project located within Division's 1-8? *

○ Yes

◉ No

5e. Will you cut any trees in order to conduct the work in waters of the U.S.? *

◉ Yes ○ No

5f. Does this project involve bridge maintenance or removal? *

○ Yes ◉ No

5f(1). If yes, have you inspected the bridge for signs of bat use such as staining, guano, bats, etc.? Representative photos of signs of bat use can be found in the NLEB SLOPES, Appendix F, pages 3-7.

○ Yes ◉ No

Link to the NLEB SLOPES document: http://saw-reg.usace.army.mil/NLEB/1-30-17-signed_NLEB-SLOPES&apps.pdf

If you answered "Yes" to 5f(1), did you discover any signs of bat use? *

○ Yes ○ No ◉ Unknown

If yes, please show the location of the bridge on the permit drawings/project plans.

Click the upload button or drag and drop files here to attach document

File must be PDF

5g. Does this project involve the construction/installation of a wind turbine(s)? *

○ Yes ◉ No

If yes, please show the location of the wind turbine(s) on the permit drawings/project plans.

Click the upload button or drag and drop files here to attach document

File must be PDF

5h. Does this project involve (1) blasting, and/or (2) other percussive activities that will be conducted by machines, such as jackhammers, mechanized pile drivers, etc.? *

◉ Yes ○ No

If yes to either, please provide details to include type of percussive activity, purpose, duration, and specific location of this activity on the property.

Click the upload button or drag and drop files here to attach document

File must be PDF

5i. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? *

USFWS and NHP website were used.
A Memo, dated March 17, 2016, was submitted to USFWS-Asheville on January 30, 2017, when this project was still federally funded, regarding the northern long-eared bat (NLEB), noting that NCDOT has determined that the proposed action does not require separate consultation on the grounds that the proposed action is consistent with the final Section 4(d) rule, codified at 50 C.F.R. 17.40(o) and effective February 16, 2016.
Regarding 5f and 5f1., the existing bridge, at a stone waterfall (Lasater Mill Dam), will be abandoned, rather than removed, as the substructure appears to share a foundation with the adjacent house and spillway.

6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as an Essential Fish Habitat? *

○ Yes ◉ No

6b. What data sources did you use to determine whether your site would impact an Essential Fish Habitat? *

N/SEPA Documentation

7. Historic or Prehistoric Cultural Resources (Corps Requirement)

Link to the State Historic Preservation Office Historic Properties Map (does not include archaeological data: http://gis.ncdcr.gov/hpoweb/

7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)? *

○ Yes ◉ No

7b. What data sources did you use to determine whether your site would impact historic or archeological resources? *

N/SEPA Documentation

7c. Historic or Prehistoric Information Upload

Click the upload button or drag and drop files here to attach document

File must be PDF

8. Flood Zone Designation (Corps Requirement)

Link to the FEMA Floodplain Maps: https://msc.fema.gov/portal/search

8a. Will this project occur in a FEMA-designated 100-year floodplain? *

(•) Yes ( ) No

8b. If yes, explain how project meets FEMA requirements:

NCDOT Hydraulics Unit coordination with FEMA

8c. What source(s) did you use to make the floodplain determination? *

FEMA Maps

Miscellaneous attachments not previously requested.

Click the upload button or drag and drop files here to attach document

B-5152 NLEB email_Memo.pdf	190KB
B-5152 Permit App CL.pdf	29.16KB

File must be PDF

Signature

*

☑ By checking the box and signing below, I certify that:

- I have given true, accurate, and complete information on this form;
- I agree that submission of this PCN form is a “transaction” subject to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the “Uniform Electronic Transactions Act”);
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the PCN form.

Full Name: *

Colin Mellor

Signature

Colin Mellor

Environmental Quality

ROY COOPER
Governor

October 19, 2017

Mr. Philip S. Harris, III, P.E., CPM
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: Mitigation Acceptance Letter:

B-5152, Replace Bridge Number 95 over Blanket Creek on SR 1100 (Lasater Road), Forsyth County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream and wetland mitigation for the subject project. Based on the information supplied by you on October 19, 2017, the impacts are located in CU 03040101 of the Yadkin River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Yadkin 03040101 CP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	178.0	0.10	0	0	0	0

*Some of the stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

This mitigation acceptance letter replaces the mitigation acceptance letter issued on October 27, 2017. The impacts and associated mitigation needs were under projected by the NCDOT in the 2017 impact data. DMS will commit to implement sufficient compensatory stream and wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Beth Harmon at 919-707-8420.

Sincerely,

James B. Stanfill
Credit Management Supervisor

cc: Mr. James Lastinger, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NCDWR
File: B-5152 Revised

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2009-01741** County: **Forsyth** U.S.G.S. Quad: **NC-CLEMMONS**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Applicant: **NCDOT**
William Barrett
Address: **1598 Mail Service Center**

Raleigh, NC, 27699

Telephone Number: 919 707-6148

Size (acres)	50	Nearest Town	Clemmons
Nearest Waterway	**Blanket Creek**	River Basin	**Upper Pee Dee**
USGS HUC	**03040101**	Coordinates	Latitude: **36.02536**
			Longitude: **-80.41988**

Location description: NC DOT Br 95 SR 1100 (Lasater Road) adjacent to Blanket Creek, Clemmons, Forsyth County, North Carolina. TIP B-5152

Indicate Which of the Following Apply:

A. Preliminary Determination

X There are waters, including wetlands, on the above described project area, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The waters, including wetlands, have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.

_ There are wetlands on the above described property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the waters, including wetlands, have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the waters, including wetlands, at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the waters of the U.S. on your property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

_ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are waters of the U.S., including wetlands, on the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ We recommend you have the waters of the U.S. on your property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

_ The waters of the U.S., including wetlands, on your project area have been delineated and the delineation has been verified by the Corps. If you wish to have the delineation surveyed, the Corps can review and verify the survey upon completion. Once verified, this survey will provide an accurate depiction of all areas subject to CWA and/or RHA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

_ The waters of the U.S., including wetlands, have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on _____. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are no waters of the U.S., to include wetlands, present on the above described project area which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Morehead City, NC, at (252) 808-2808 to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **John Thomas at 919-554-4884 x25 or John.T.Thomas.JR@usace.army.mil**.

C. Basis For Determination: *Site includes tributary of Blanket Creek which flows to the Yadkin River and on to the Atlantic Ocean.*

D. Remarks: The Corps concurs with the preliminary jurisdictional determinations depicted on provided maps included in agents/applicants review request and site inspection conducted on November 15, 2016.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

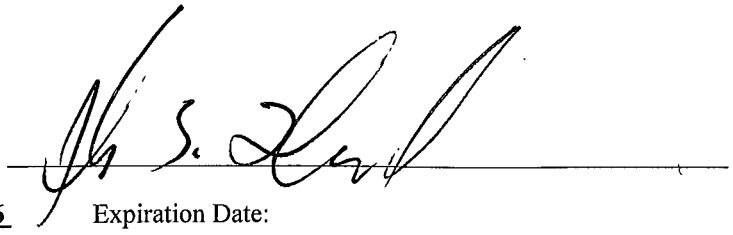
F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by_____.
It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

SAW-2009-01741

Corps Regulatory Official: 

Date: **November 22, 2016** Expiration Date:

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our Customer Satisfaction Survey, located online at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0.

Copy Furnished:

HDR Engineering of the Carolinas, Inc.
John Jamison
555 Fayetteville Street Suite 900

Raleigh, NC, 27601

H:\Projects\000166_NorthCarolinaDeptofTransportation\0250532_NCDOT-B5152TO#1(c)\map_docs\mxd\working\Figure 3 NRTR.mxd | Last Updated: 09.09.2015

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT

REPLACE BRIDGE NO. 95
SR 1100 (LASATER ROAD)
FORSYTH COUNTY
TIP PROJECT B-5152

FIGURE 3 - JURISDICTIONAL FEATURES

Barrett, William A

From: Barrett, William A
Sent: Monday, January 30, 2017 10:35 AM
To: andrew_henderson@fws.gov
Cc: Dagnino, Carla S; Matthews, Monte K SAW (Monte.K.Matthews@usace.army.mil); 'Lastinger.James@usace.army.mil'
Subject: B-5152 NLEB
Attachments: B-5152 NLEB sec 7 4d.pdf

Tracking:

Recipient	Delivery
andrew_henderson@fws.gov	
Dagnino, Carla S	Delivered: 1/30/2017 10:35 AM
Matthews, Monte K SAW (Monte.K.Matthews@usace.army.mil)	
'Lastinger.James@usace.army.mil'	

Hi Andrew,

Please find attached a Memo for NLEB for B-5152, dated March 17, 2016, for the replacement of Bridge No. 95 over Blanket Creek on SR 1100, in Forsythe County.

With this submittal, NCDOT has determined that the proposed action does not require separate consultation on the grounds that the proposed action is consistent with the final Section 7 4(d) rule, codified at 50 C.F.R. 17.40(o) and effective February 16, 2016. Section 7 responsibilities are therefore considered fulfilled for NLEB.

Please let me know if you have any questions or would like to discuss further.

Thanks

Bill

William A. Barrett
Environmental Coordination & Permitting
PDEA-Natural Environment Section
North Carolina Department of Transportation

919 707 6103 office
wabarrett@ncdot.gov

1598 Mail Service Center
Raleigh, NC 27699-1598

1020 Birch Ridge Drive
Raleigh, NC 27610

Transportation

PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

March 17, 2016

TO: Bill Barrett, Environmental Senior Specialist
Environmental Coordination & Permitting Group Western, NES - PDEA

CC: Gene Tarascio, Project Development Engineer
Project Development Group - Western Region, PDEA

FROM: Cheryl Gregory, Environmental Program Consultant
Biological Surveys Group, NES - PDEA

SUBJECT: *Streamline Section 7 Consultation for the Northern Long-Eared Bat* associated with the replacement of Bridge 95 over Blanket Creek on SR 1100 in Forsyth County, **TIP No. B-5152**.

The North Carolina Department of Transportation (NCDOT, Division 9) proposes to replace Bridge No. 95 over Blanket Creek on SR 1100 in Forsyth County, TIP No. B-5152. The existing bridge is a single span structure that consists of a reinforced concrete deck on a steel girder floor beam system with an asphalt wearing surface. The end bent abutment walls consist of mass concrete with no interior bents. The substructure appears to share a foundation with the adjacent house and spillway. The left guardrail is also constructed of concrete, the right guardrail is metal. The overall length of the structure is 41 feet. The replacement structure will be approximately 130 feet in length. The bridge will be of sufficient width to provide for two 11 foot travel lanes, two 5-foot bike lanes, and a 5.5-foot sidewalk on the north side. The replacement structure will be on a new parallel alignment south of the existing structure. This requires roadway curvature on each end that mimics the existing curvature, but results in new roadway grades on the approaches and bridge. A brief temporary offsite detour may be necessary due to traffic control needs near the end of construction.

The project to replace Bridge No. 95 has been reviewed for effects on the northern long-eared bat (NLEB). As of May 4, 2015, NLEB is listed by the U.S. Fish and Wildlife Service (USFWS) as "Threatened" under the Endangered Species Act of 1973. As of March 10, 2016, NLEB is listed by USFWS (http://www.fws.gov/raleigh/species/cntylist/nc_counties.html) as "Probable/Potential" in Forsyth County. USFWS also established a final rule under the authority of section 4(d) of the Endangered Species Act that provides measures for the conservation of NLEB. The USFWS has tailored the final 4(d) rule to prohibit the take of NLEB from certain activities within areas where they are in decline. This incidental take protection applies only to known NLEB occupied maternity roost trees and known NLEB hibernacula. Effective February 16, 2016, incidental take resulting from tree removal is prohibited if it 1) occurs within a ¼ mile radius of known NLEB hibernacula; or 2) cuts or destroys known occupied maternity roost trees or any other trees within a 150-foot radius from the known maternity tree during the pup season (June 1-July 31).

According to the North Carolina Natural Heritage Program (NHP) Biotics Database, most recently updated October 2015, the nearest NLEB hibernacula record is 77 miles away (EO ID 32171) and no known NLEB roost trees occur within 150 feet of the project area. EO 32171 represents Black Rock Cliffs Cave sites with multiple observations from 1986 to 2011.

For the proposed action, NCDOT has committed to the conservation measures listed below:

1) No alterations of a known hibernaculum's entrance or interior environment if it impairs an essential behavioral pattern, including sheltering Northern long-eared bats (January 1 through December 31);
2) No tree removal within a 0.25 mile radius of a known hibernacula (January 1 through December 31); and
3) No cutting or destroying a known, occupied maternity roost tree, or any other trees within a 150-foot radius from the known, occupied maternity tree during the period from June 1 through and including July 31.

NCDOT has determined that the proposed action does not require separate consultation on the grounds that the proposed action is consistent with the final Section 4(d) rule, codified at 50 C.F.R. § 17.40(o) and effective February 16, 2016. Service concurrence with this determination is not required. If the service does not respond within 30 days of notice, NCDOT may presume its determination is informed by best available information and consider Section 7 responsibilities fulfilled for NLEB.

If you need any additional information, please contact Cheryl Gregory at 919-707-6142.

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.05; Released April 2016)

WBS Element: 42313.1.1 **TIP No.:** B-5152 **County(ies):** Forsyth

General Project Information

WBS Element:	42313.1.1	**TIP Number:**	B-5152	**Project Type:**	Bridge Replacement	**Date:**	4/28/2017
NCDOT Contact:	Bill Elam			**Contractor / Designer:**	James Rice		
	Address: 1020 Birch Ridge Dr. Raleigh, NC 27610			**Address:**	555 Fayetteville St., Suite 900 Raleigh, NC 27601		
	Phone: 919-707-6718			**Phone:**	919-232-6621		
	Email: belam@ncdot.gov			**Email:**	james.rice@hdrinc.com		
City/Town:	Clemmons			**County(ies):**	Forsyth		
River Basin(s):	Yadkin-Pee Dee			**CAMA County?**	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	0.21	**Surrounding Land Use:**	Rural/Residential

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	1.1 ac.	0.6 ac.
Typical Cross Section Description:	New road location, (2) 11' travel lanes w/ (2) 5' FDPS; New bridge location, 5' 6" sidewalk, 2' paved shoulder, 5' bike lane, (2) 11' travel lanes, 5' paved shoulder	(2) varies 9'-11' travel lanes w/no paved shoulder; 21.5' bridge deck width, 20.167' clear roadway for 2 lanes
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 1,580 Year: 2038	Existing: 1,340 Year: 2018

General Project Narrative: (Description of Minimization of Water Quality Impacts)

Replace Bridge 95 over Blanket Creek on SR 1100 (Lasater Road). Existing bridge at stone waterfall (Lasater Mill Pond Dam) to be abandoned while new road and bridge relocated further downstream Blanket Creek. Existing bridge allows roadway runoff onto the surface waters. Proposed bridge does not have deck drains. The bridge runoff is routed to a proposed storm drain system that outlets to a rip rap lined ditch prior to entering UT to Blanket Creek. Provided Grass Swale treatment to maximum extent practicable. Vegetated conveyance used where Grass Swale treatment was not met. Bank Stabilization is provided at interior bent #1 to protect the outside side sloeps of Blanket Creek.

Waterbody Information

Surface Water Body (1):	Blanket Creek	**NCDWR Stream Index No.:**	12-90-(2)
NCDWR Surface Water Classification for Water Body	**Primary Classification:**	Water Supply IV (WS-IV)	
	Supplemental Classification:	None	
Other Stream Classification:	None		
Impairments:	None		
Aquatic T&E Species?	No Comments:		
NRTR Stream ID:	Blanket Creek	**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	N/A
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)	**Dissipator Pads Provided in Buffer?** N/A
(If yes, provide justification in the General Project Narrative)			(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.05; Released April 2016)

Additional Waterbody Information

Surface Water Body (2):	UT to Blanket Creek		**NCDWR Stream Index No.:**	12-90-(2)		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply IV (WS-IV)			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	SA			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Surface Water Body (3):	UT to Blanket Creek		**NCDWR Stream Index No.:**	12-90-(2)		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply IV (WS-IV)			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	SB			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Surface Water Body (4):	UT to Blanket Creek		**NCDWR Stream Index No.:**	12-90-(2)		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply IV (WS-IV)			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	SC			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Surface Water Body (5):	Lasater Lake		**NCDWR Stream Index No.:**	12-90-(2)		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply IV (WS-IV)			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	Lasater Lake			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.05; Released April 2016)

WBS Element: 42313.1.1 **TIP No.:** B-5152 **County(ies):** Forsyth

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
4	-DRW- 10+50 Lt. 36.024911 / -80.420011	(2)UT to Blanket	0.0	4.0	2.0	0.1	10	40	0.84%	0.2	1.0	0.3	1.1	No	No

Additional Comments

TIP PROJECT: B-5152

CONTRACT:

See Sheet 1A-1 for Index of Sheets
See Sheet 1B for Sheet Symbology
See Sheet 1C-1 thru 1C-? for Survey Control Sheets

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5152	1	

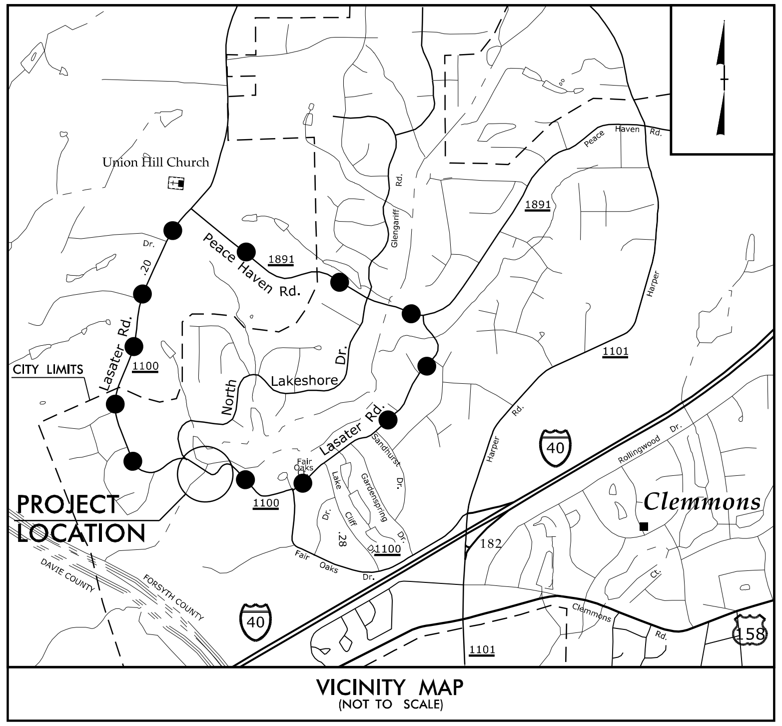
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
42313.1.1	BRZ-1100(23)	P.E.
42313.2.1		R/W

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

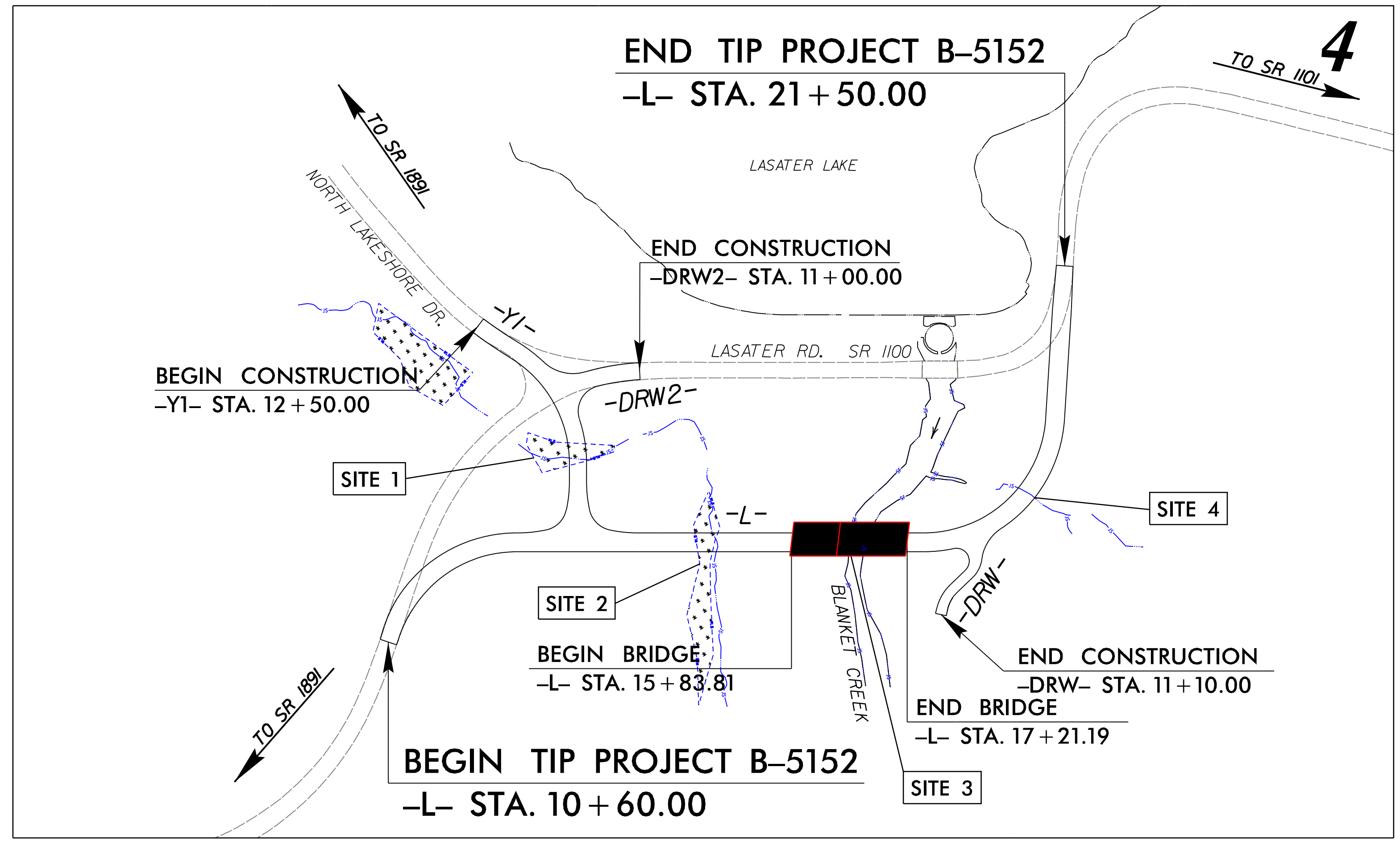
***LOCATION:* BRIDGE NO. 95 OVER BLANKET CREEK ON SR 1100**

***TYPE OF WORK:* GRADING, DRAINAGE, PAVING, CULVERT AND STRUCTURE**



DETOUR

WETLAND AND SURFACE WATER IMPACTS PERMIT



NAD 83/NSRS 2007

PERMIT DRAWING SHEET 1 OF 8

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE VILLAGE OF CLEMMONS

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

DESIGN DATA

ADT 2018 = 1340
ADT 2038 = 1580
K = 13 %
D = 70 %
T = 3 %
V = 25 MPH
(TTST=1% + DUAL=2%)
FUNC CLASS =
LOCAL RURAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5152 = 0.180 MILES
LENGTH STRUCTURES TIP PROJECT B-5152 = 0.026 MILES
TOTAL LENGTH TIP PROJECT B-5152 = 0.206 MILES

Prepared in the Office of:
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, NC 27601
N.C.B.E.L.S. License Number: F-0116

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 31, 2017

LETTING DATE:
JANUARY 16, 2018

PHILLIP E. ROGERS, P.E.
PROJECT ENGINEER

ANTHONY G. THOMPSON, P.E.
PROJECT DESIGN ENGINEER

GARY LOVERING, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

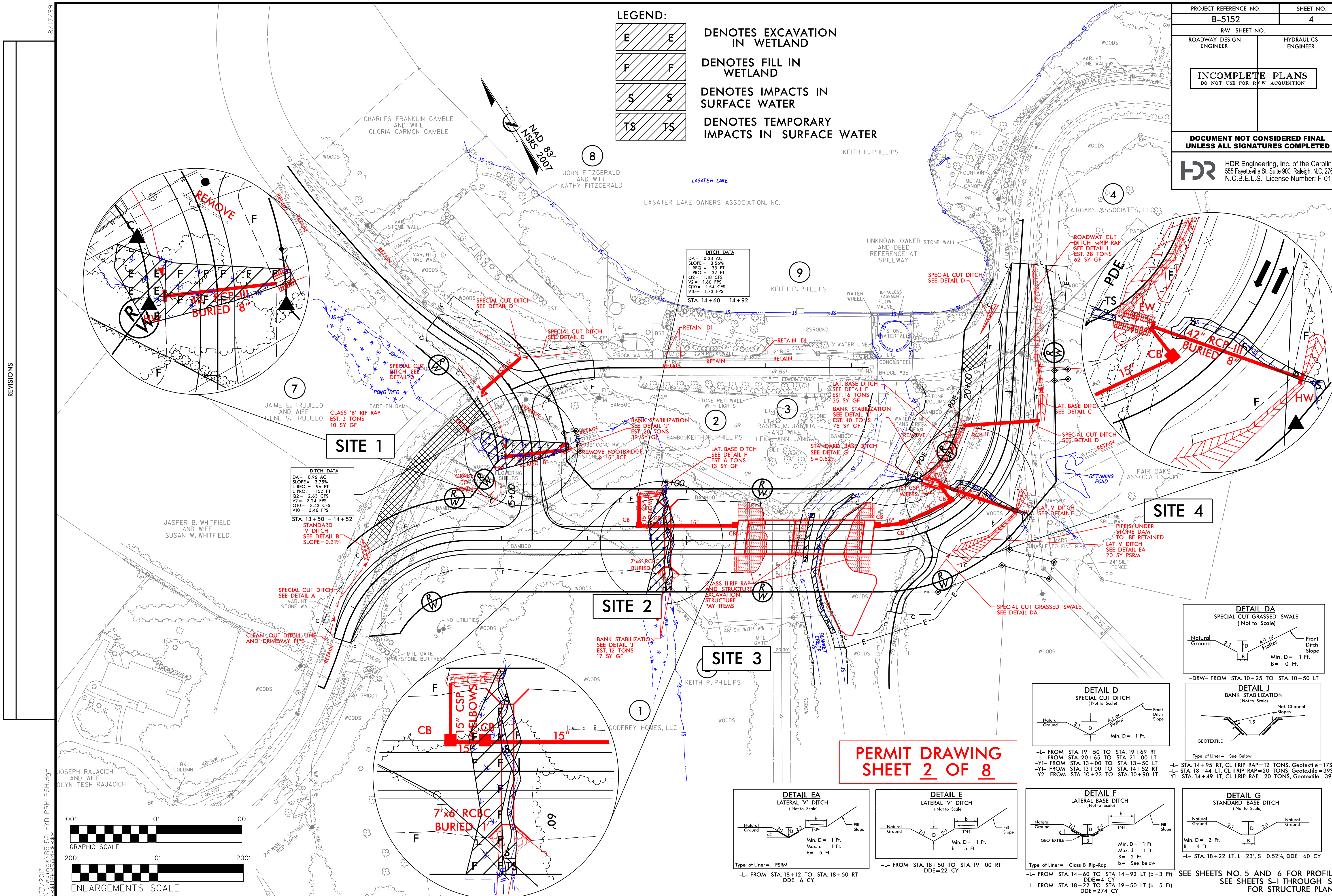
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •


LEGEND:
E E DENOTES EXCAVATION IN WETLAND
F F DENOTES FILL IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
PROJECT REFERENCE NO. B-5152
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116
NAD 83/ NSRS 2007
CHARLES FRANKLIN GAMBLE AND WIFE GLORIA GARMON GAMBLE
JOHN FITZGERALD AND WIFE KATHY FITZGERALD
LASATER LAKE
LASATER LAKE OWNERS ASSOCIATION, INC.
KEITH P. PHILLIPS
UNKNOWN OWNER AND DEED REFERENCE AT SPILLWAY
FAIROAKS ASSOCIATES, LLC
JAIME E. TRUJILLO AND WIFE ILENE S. TRUJILLO
JASPER B. WHITFIELD AND WIFE SUSAN W. WHITFIELD
JOSEPH RAJACICH AND WIFE OLYN TESH RAJACICH
RASHID M. JANJUA AND WIFE LEIGH ANN JANJUA
GODFREY HOMES, LLC
FAIR OAKS ASSOCIATES, LLC
DITCH DATA
DA= 0.33 AC
SLOPE= 3.56%
L REQ.= 33 FT
L PRO.= 32 FT
Q2= 1.18 CFS
V2= 1.60 FPS
Q10= 1.54 CFS
V10= 1.73 FPS
STA. 14+60 - 14+92
DITCH DATA
DA= 0.96 AC
SLOPE= 3.75%
L REQ.= 96 FT
L PRO.= 152 FT
Q2= 2.63 CFS
V2= 3.24 FPS
Q10= 3.43 CFS
V10= 3.46 FPS
STA. 13+50 - 14+52
STANDARD 'V' DITCH SEE DETAIL B SLOPE=0.31%
SITE 1
SITE 2
SITE 3
SITE 4
42" RCP-III BURIED 8"
7'x6' RCBC BURIED 1'
15" CSP ELBOWS
24" RCP-III
18" RCP-IV
CLASS 'B' RIP RAP EST. 3 TONS 10 SY GF
SPECIAL CUT DITCH SEE DETAIL D
SPECIAL CUT DITCH SEE DETAIL A
CLEAN OUT DITCH LINE AND DRIVEWAY PIPE
BANK STABILIZATION SEE DETAIL 'J' EST. 20 TONS 39 SY GF
BANK STABILIZATION SEE DETAIL 'J' EST. 40 TONS 78 SY GF
BANK STABILIZATION SEE DETAIL 'J' EST. 12 TONS 17 SY GF
LAT. BASE DITCH SEE DETAIL F EST. 16 TONS 35 SY GF
LAT. BASE DITCH SEE DETAIL F EST. 6 TONS 13 SY GF
LAT. BASE DITCH SEE DETAIL C
STANDARD BASE DITCH SEE DETAIL G S=0.52%
ROADWAY CUT DITCH w/RIP RAP SEE DETAIL H EST. 28 TONS 62 SY GF
REMOVE FOOTBRIDGE & 15" RCP
CLASS II RIP RAP AND STRUCTURE EXCAVATION, STRUCTURE PAY ITEMS
LAT. V DITCH SEE DETAIL E
PIPE(S) UNDER STONE DAM TO BE RETAINED
LAT. V DITCH SEE DETAIL EA 20 SY PSRM
SPECIAL CUT GRASSED SWALE SEE DETAIL DA
GRADE TO DRAIN
RETAINING POND
PERMIT DRAWING SHEET 2 OF 8
DETAIL DA
SPECIAL CUT GRASSED SWALE (Not to Scale)
Min. D= 1 Ft. B= 0 Ft.
-DRW- FROM STA. 10+25 TO STA. 10+50 LT
DETAIL D
SPECIAL CUT DITCH (Not to Scale)
Min. D= 1 Ft.
-L- FROM STA. 19+50 TO STA. 19+69 RT
-L- FROM STA. 20+65 TO STA. 21+00 LT
-Y1- FROM STA. 13+00 TO STA. 13+50 LT
-Y1- FROM STA. 13+00 TO STA. 14+52 RT
-Y2- FROM STA. 10+23 TO STA. 10+90 LT
DETAIL J
BANK STABILIZATION (Not to Scale)
Type of Liner= See Below
-L- STA. 14+95 RT, CL I RIP RAP=12 TONS, Geotextile=17SY
-L- STA. 18+44 LT, CL I RIP RAP=20 TONS, Geotextile=39SY
-Y1- STA. 14+49 LT, CL I RIP RAP=20 TONS, Geotextile=39SY
DETAIL EA
LATERAL 'V' DITCH (Not to Scale)
Min. D= 1 Ft. Max. d= 1 Ft. b= 5 Ft.
Type of Liner= PSRM
-L- FROM STA. 18+12 TO STA. 18+50 RT DDE=6 CY
DETAIL E
LATERAL 'V' DITCH (Not to Scale)
Min. D= 1 Ft. b= 5 Ft.
-L- FROM STA. 18+50 TO STA. 19+00 RT DDE=22 CY
DETAIL F
LATERAL BASE DITCH (Not to Scale)
Min. D= 1 Ft. Max. d= 1 Ft. B= 2 Ft. b= See below
Type of Liner= Class B Rip-Rap
-L- FROM STA. 14+60 TO STA. 14+92 LT (b=3 Ft) DDE=4 CY
-L- FROM STA. 18+22 TO STA. 19+50 LT (b=5 Ft) DDE=274 CY
DETAIL G
STANDARD BASE DITCH (Not to Scale)
Min. D= 2 Ft. B= 4 Ft.
-L- STA. 18+22 LT, L=23', S=0.52%, DDE=60 CY
SEE SHEETS NO. 5 AND 6 FOR PROFILES
SEE SHEETS S-1 THROUGH S-? FOR STRUCTURE PLANS.
GRAPHIC SCALE 100' 0' 100'
ENLARGEMENTS SCALE 200' 0' 200'
REVISIONS
8/17/99
4/27/2017 ...\Drawings\B5152_HYD_PRM_PSH.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5152	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

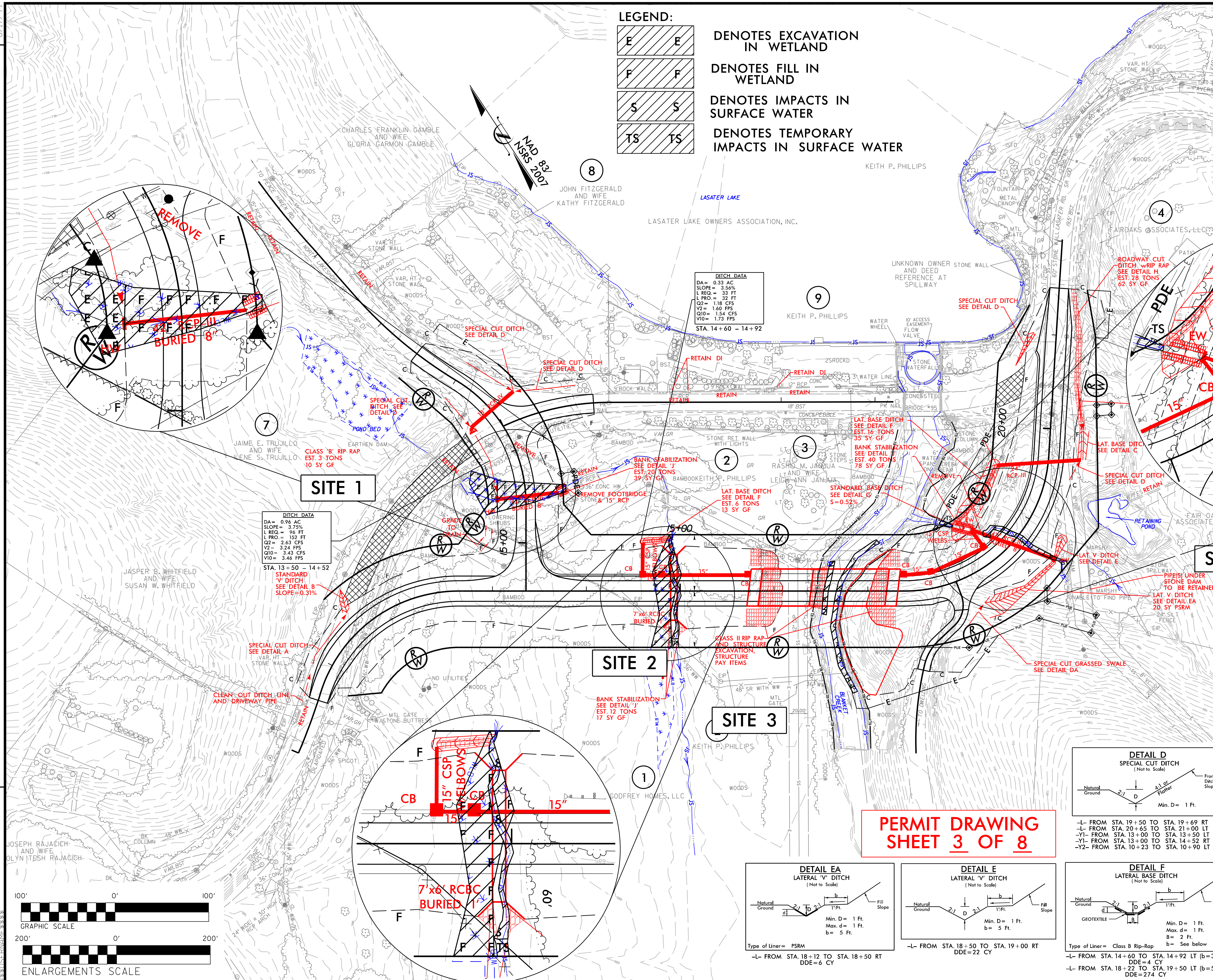
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

LEGEND:

- E E — DENOTES EXCAVATION IN WETLAND
- F F — DENOTES FILL IN WETLAND
- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER


NAD 83/ NSRS 2007
CHARLES FRANKLIN GAMBLE AND WIFE GLORIA GARMON GAMBLE
JOHN FITZGERALD AND WIFE KATHY FITZGERALD
LASATER LAKE
LASATER LAKE OWNERS ASSOCIATION, INC.
KEITH P. PHILLIPS
FAIROAKS ASSOCIATES, LLC
UNKNOWN OWNER AND DEED REFERENCE AT SPILLWAY
JAIME E. TRUJILLO AND WIFE ILENE S. TRUJILLO
JASPER B. WHITFIELD AND WIFE SUSAN W. WHITFIELD
RASHID M. JAMJUA AND WIFE LEIGH ANN JAMJUA
GODFREY HOMES, LLC
JOSEPH RAJACICH AND WIFE LYN TESH RAJACICH
SITE 1
SITE 2
SITE 3
SITE 4
DITCH DATA
DA= 0.33 AC
SLOPE= 3.56%
L REQ.= 33 FT
L PRO.= 32 FT
Q2= 1.18 CFS
V2= 1.60 FPS
Q10= 1.54 CFS
V10= 1.73 FPS
STA. 14+60 – 14+92
DITCH DATA
DA= 0.96 AC
SLOPE= 3.75%
L REQ.= 96 FT
L PRO.= 152 FT
Q2= 2.63 CFS
V2= 3.24 FPS
Q10= 3.43 CFS
V10= 3.46 FPS
STA. 13+50 – 14+52
STANDARD 'V' DITCH SEE DETAIL B SLOPE= 0.31%
SPECIAL CUT DITCH SEE DETAIL D
SPECIAL CUT DITCH SEE DETAIL A
CLASS 'B' RIP RAP EST. 3 TONS 10 SY GF
BANK STABILIZATION SEE DETAIL 'J' EST. 20 TONS 39 SY GF
BANK STABILIZATION SEE DETAIL 'J' EST. 12 TONS 17 SY GF
LAT. BASE DITCH SEE DETAIL F EST. 6 TONS 13 SY GF
LAT. BASE DITCH SEE DETAIL F EST. 16 TONS 35 SY GF
BANK STABILIZATION SEE DETAIL J EST. 40 TONS 78 SY GF
STANDARD BASE DITCH SEE DETAIL G S=0.52%
ROADWAY CUT DITCH w/RIP RAP SEE DETAIL H EST. 28 TONS 62 SY GF
LAT. V DITCH SEE DETAIL E
LAT. V DITCH SEE DETAIL EA 20 SY PSRM
PIPE(S) UNDER STONE DAM TO BE RETAINED
SPECIAL CUT GRASSED SWALE SEE DETAIL DA
CLASS II RIP RAP AND STRUCTURE EXCAVATION, STRUCTURE PAY ITEMS
CLEAN OUT DITCH LINE AND DRIVEWAY PIPE
REMOVE FOOTBRIDGE STONE & 15" RCP
42" RCP-III BURIED 8"
7'x6' RCBC BURIED 1'
15" CSP ELBOWS
CB
EW
HW
PDE
15+00
20+00
GRAPHIC SCALE 100' 0' 100'
ENLARGEMENTS SCALE 200' 0' 200'

PERMIT DRAWING SHEET 3 OF 8

DETAIL DA — SPECIAL CUT GRASSED SWALE (Not to Scale)
Natural Ground; 2:1; D; B; 4:1 or Flatter; Front Ditch Slope; Min. D= 1 Ft. B= 0 Ft.
-DRW- FROM STA. 10+25 TO STA. 10+50 LT

DETAIL D — SPECIAL CUT DITCH (Not to Scale)
Natural Ground; 2:1; D; 4:1 or Flatter; Front Ditch Slope; Min. D= 1 Ft.
- -L- FROM STA. 19+50 TO STA. 19+69 RT
- -L- FROM STA. 20+65 TO STA. 21+00 LT
- -Y1- FROM STA. 13+00 TO STA. 13+50 LT
- -Y1- FROM STA. 13+00 TO STA. 14+52 RT
- -Y2- FROM STA. 10+23 TO STA. 10+90 LT

DETAIL J — BANK STABILIZATION (Not to Scale)
Nat. Channel Slopes; 1.5'; GEOTEXTILE; Type of Liner= See Below
- -L- STA. 14+95 RT, CL I RIP RAP=12 TONS, Geotextile=17SY
- -L- STA. 18+44 LT, CL I RIP RAP=20 TONS, Geotextile=39SY
- -Y1- STA. 14+49 LT, CL I RIP RAP=20 TONS, Geotextile=39SY

DETAIL EA — LATERAL 'V' DITCH (Not to Scale)
Natural Ground; b; d; D; 1' Ft.; Fill Slope; Min. D= 1 Ft. Max. d= 1 Ft. b= 5 Ft.; Type of Liner= PSRM
-L- FROM STA. 18+12 TO STA. 18+50 RT DDE=6 CY

DETAIL E — LATERAL 'V' DITCH (Not to Scale)
Natural Ground; b; D; 2:1; 1' Ft.; Fill Slope; Min. D= 1 Ft. b= 5 Ft.
-L- FROM STA. 18+50 TO STA. 19+00 RT DDE=22 CY

DETAIL F — LATERAL BASE DITCH (Not to Scale)
Natural Ground; b; d; D; B; 1' Ft.; Fill Slope; GEOTEXTILE; Min. D= 1 Ft. Max. d= 1 Ft. B= 2 Ft. b= See below; Type of Liner= Class B Rip-Rap
- -L- FROM STA. 14+60 TO STA. 14+92 LT (b=3 Ft) DDE=4 CY
- -L- FROM STA. 18+22 TO STA. 19+50 LT (b=5 Ft) DDE=274 CY

DETAIL G — STANDARD BASE DITCH (Not to Scale)
Natural Ground; 2:1; D; B; Natural Ground; Min. D= 2 Ft. B= 4 Ft.
-L- STA. 18+22 LT, L=23', S=0.52%, DDE=60 CY

SEE SHEETS NO. 5 AND 6 FOR PROFILES
SEE SHEETS S-1 THROUGH S-? FOR STRUCTURE PLANS.

8/17/99
REVISIONS
4/27/2017

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5152	X-10

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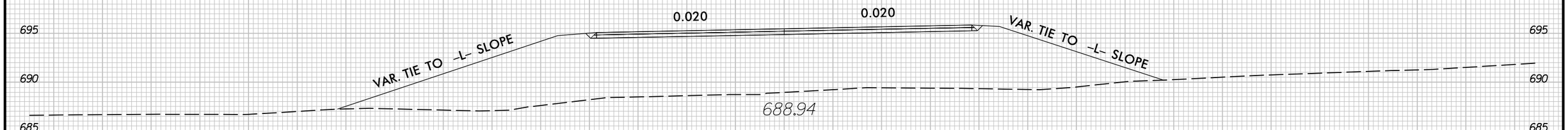

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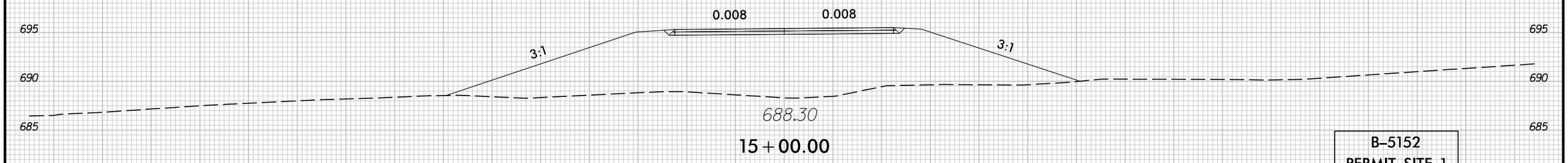

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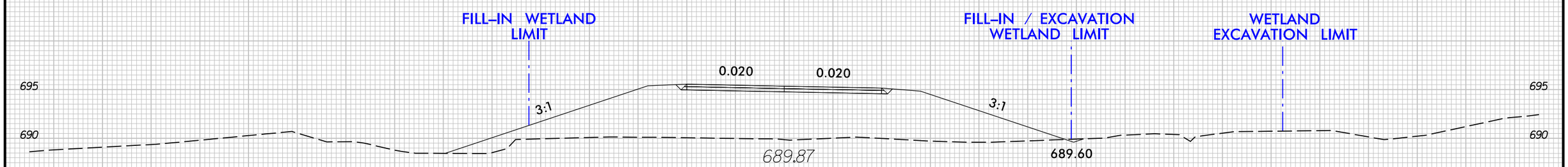
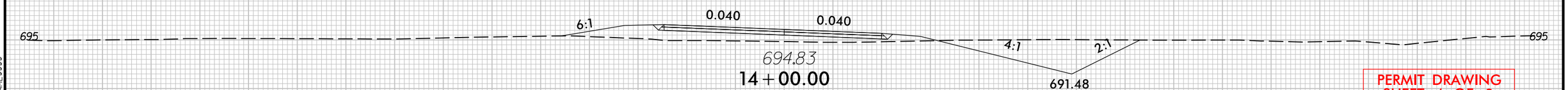
B-5152
PERMIT SITE 1



14+50.00



14+00.00

-Y1-

PERMIT DRAWING
SHEET 4 OF 8

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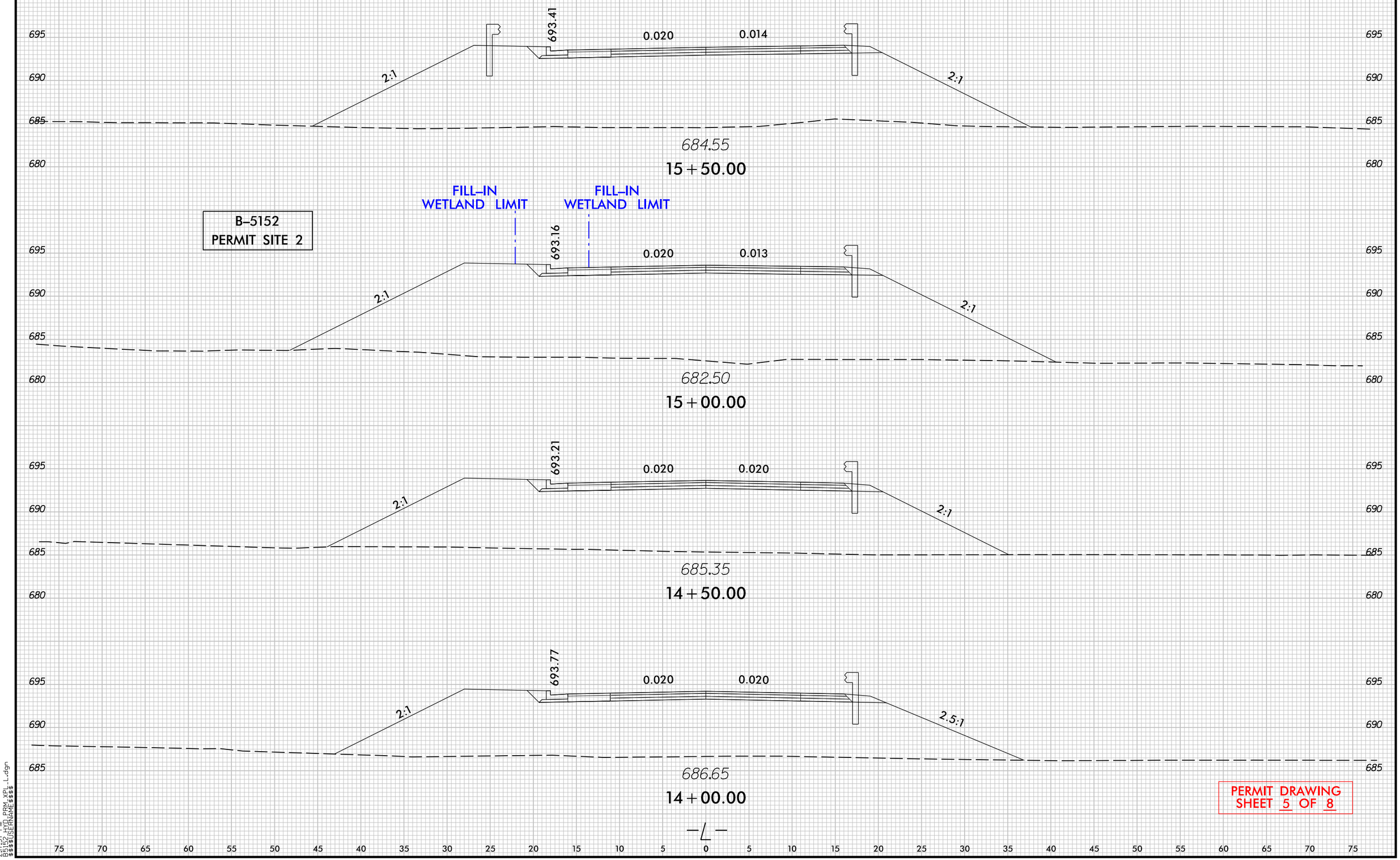
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	B-5152	X-3

B–5152
PERMIT SITE 2



PERMIT DRAWING
SHEET 5 OF 8

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HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

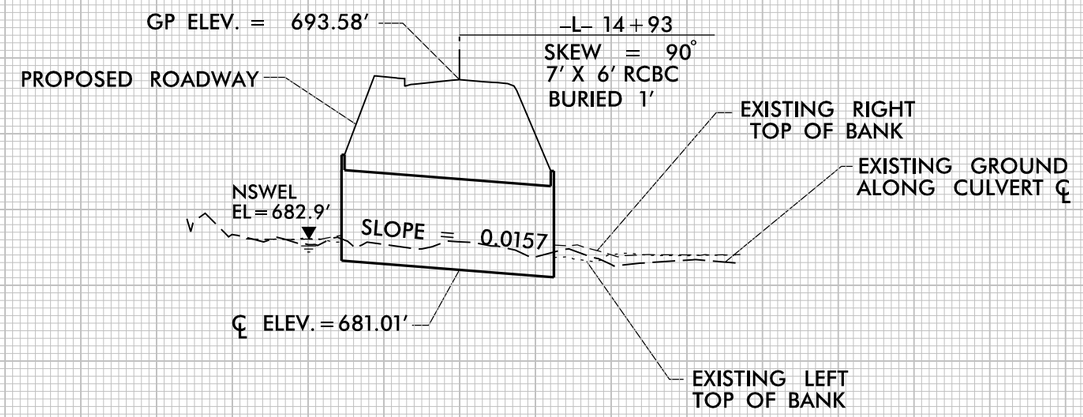
PROJECT REFERENCE NO.	SHEET NO.
B-5152	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PROFILE ALONG ℄ OF CULVERT

720 710 700 690 680 670 660 650 640

250 200 150 100 50 0 50 100 150 200 250

B-5152
PERMIT SITE 2

PERMIT DRAWING
SHEET 6 OF 8

REVISIONS

5/14/99

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HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

SEE SHEET 4 FOR PLAN VIEW

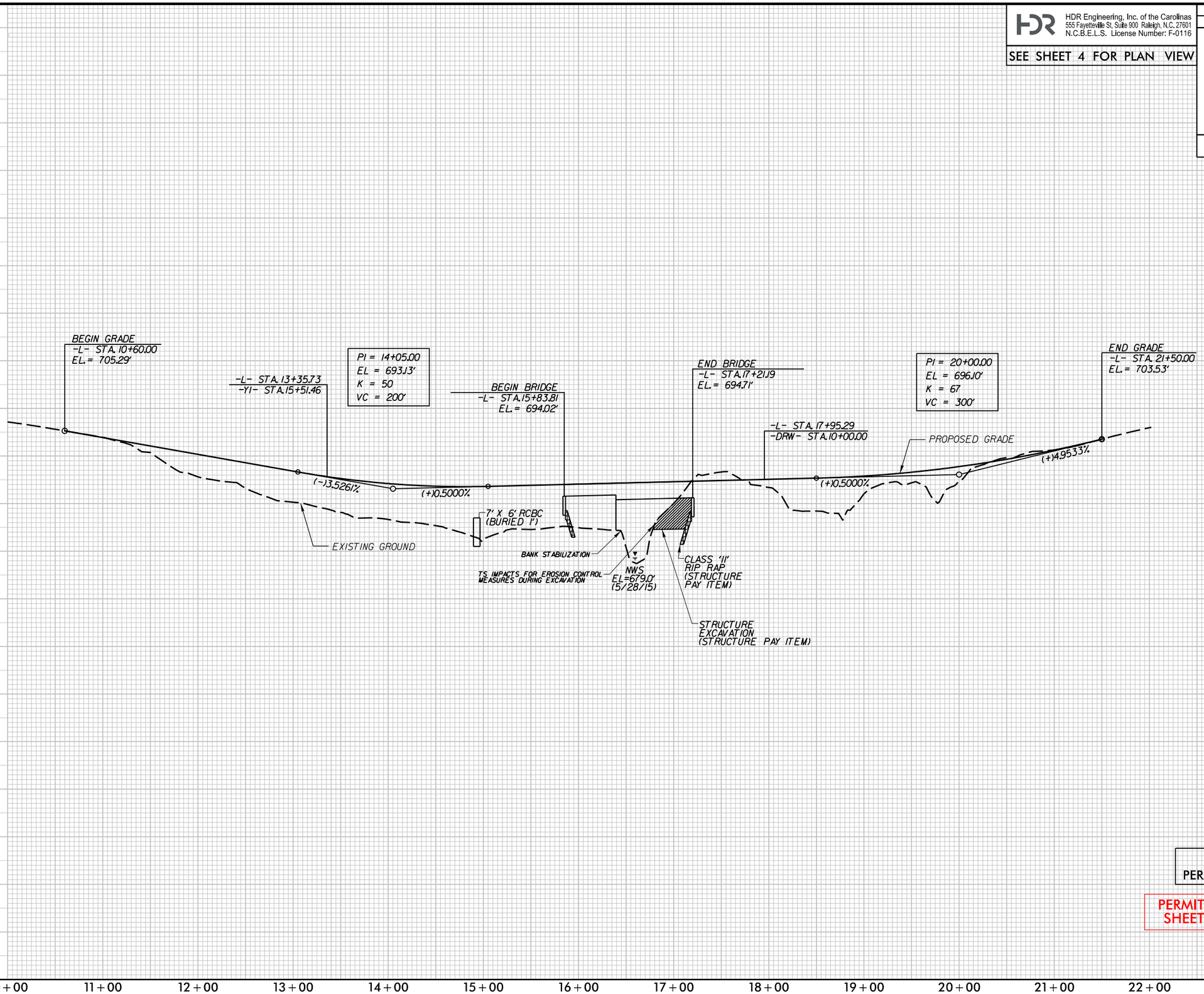
PROJECT REFERENCE NO.	SHEET NO.
B-5152	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



B-5152
PERMIT SITE 3

PERMIT DRAWING
SHEET 7 OF 8

REVISIONS 5/14/99

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DATE: 2/23/2017
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WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	14+04 to 14+48 -Y1-	ROADWAY DITCH			0.02							
1	14+36 to 14+70 -Y1-	ROADWAY FILL	0.04									
2	15+00 -L-	7'x6' RCBC	0.04					< 0.01	< 0.01	88	11	
2	15+00 -L-	BANK STABILIZATION						< 0.01		26		
3	16+60 -L-	BRIDGE							0.02		186	
3	16+60 -L-	BANK STABILIZATION						< 0.01		46		
4	18+78 -L-	42' RCP-III						0.01	< 0.01	90	27	
TOTALS*:			0.08		0.02			0.03	0.03	250	224	

*Rounded totals are sum of actual impacts

NOTES:
- Site 1: Wetland is being considered a total take
- TS impacts for Site 3 were included to account for erosion control measures to protect stream during excavation
- PS impacts for Site 3 were included to account for RIP RAP from pier installment along stream bank

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
04/28/2017
FORSYTH
B-5152
42313.1.1
SHEET 8 OF 8

Revised 2013 10 24

T.I.P. NO.	SHEET NO.
B–5152	UC–1

TIP PROJECT: B–5152

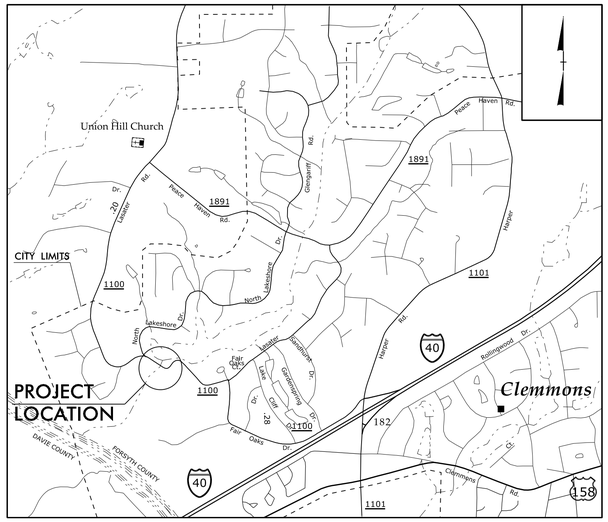
CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

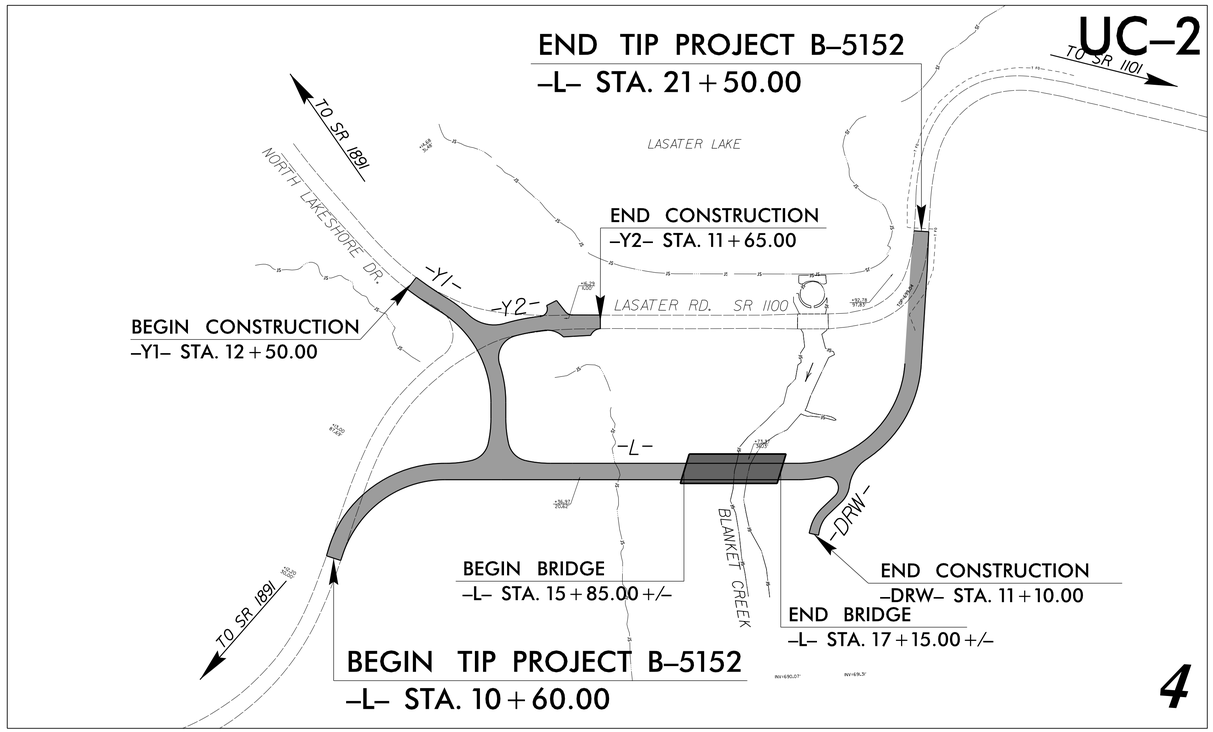
ENVIRONMENTAL PERMIT DRAWINGS
FORSYTH COUNTY

LOCATION: BRIDGE No. 95 OVER BLANKET CREEK ON SR 1100

TYPE OF WORK: UTILITY CONSTRUCTION



VICINITY MAP
(NOT TO SCALE)



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UC–1	*TITLE SHEET*
UC–2	*PLAN SHEET*

WATER AND SEWER OWNERS ON PROJECT

(A) WATER – CITY OF WINSTON SALEM
(B) SANITARY SEWER – CITY OF WINSTON SALEM

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 14908 ENGINEER D.S. JACKSON

DIVISION OF HIGHWAYS UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4151

Donna S. Jackson, PE	*CENTRAL UTILITIES MANAGER*
Donald W. Proper	*UTILITIES PROJECT ENGINEER*
Ed Reams	*UTILITIES AREA COORDINATOR*
Tanga N. Sampson	*UTILITIES COORDINATOR*

ENVIRONMENTAL PERMIT DRAWINGS

PROJECT REFERENCE NO.	SHEET NO.
B-5152	UC-02

DESIGNED BY: DWP	
DRAWN BY: DWP	
CHECKED BY: DSJ	
APPROVED BY: DSJ	
REVISED:	

NORTH CAROLINA PROFESSIONAL SEAL 14908 ENGINEER D. S. JACKSON

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919)707-6690
FAX: (919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

-Y1- PC Sta. 10+00.00

-Y1- PT Sta. 10+75.75

-Y1- PC Sta. 11+60.68

-Y1- PRC Sta. 13+00.59

-L- PC Sta. 10+00.00

-L- PRC Sta. 10+68.52

BEGIN TIP PROJECT B-5152
-L- POC Sta. 10+60.00

BEGIN CONSTRUCTION
-Y1- Sta. 12+50.00

-Y1- POC Sta. 13+71.11
-DRW2- PC Sta. 10+00.00

END CONSTRUCTION
-DRW2- Sta. 11+00.00
-DRW2- PT Sta. 11+17.57

END TIP PROJECT B-5152
-L- POT Sta. 21+50.00

-DRW2- POT Sta. 14+19.56

-Y1- POT Sta. 15+51.46
-L- POT Sta. 13+35.73

-Y1- PT Sta. 14+58.92

-L- PT Sta. 12+63.98

-L- POT Sta. 22+01.95

-L- PT Sta. 19+71.33

-L- POC Sta. 17+95.29
-DRW- POT Sta. 10+00.00

-DRW- PC Sta. 10+15.53

-DRW- PT Sta. 10+50.75

-DRW- PC Sta. 10+74.96

-DRW- POC Sta. 11+03.78

END CONSTRUCTION
-DRW- STA. 11+10.00
-DRW- PT Sta. 11+99.31

-L- PC Sta. 17+39.09

CHARLES FRANKLIN GAMBLE AND WIFE GLORIA GARMON GAMBLE
DB 1858 PG 539
DB 1606 PG 750
PB 18 PG 51

JOHN FITZGERALD AND WIFE KATHY FITZGERALD
DB 2197 PG 106
PB 18 PG 51

LASATER LAKE OWNERS ASSOCIATION, INC.
DB 1665 PG 1467

KEITH P. PHILLIPS
DB 2893 PG 46

KEITH P. PHILLIPS
DB 2932 PG 3988

UNKNOWN OWNER AND DEED REFERENCE AT SPILLWAY

FAIROAKS ASSOCIATES, LLC
PB 2539 PG 514
PB 20 PG 14

GERALD R. BOUCHARD AND WIFE
VAR. H JERYL C. BOUCHARD
BK WALL DB 2721 PG 2039
PB 50 PG 147

FAIR OAKS ASSOCIATES, LLC
PB 2539 PG 514
PB 50 PG 147

RASHID M. JANJUA AND WIFE LEIGH ANN JANJUA
DB 3083 PG 1732
PB 54 PG 59

JAIME E. TRUJILLO AND WIFE ILENE S. TRUJILLO
DB 1484 PG 1342
AS PER RECORDED PLAT BOOK 18 PAGE 51 AND PLAT BOOK 50 PAGE 147

JASPER B. WHITFIELD AND WIFE SUSAN W. WHITFIELD
DB 1806 PG 2821

B GODFREY HOMES, LLC
DB 3265 PG 2296

SITE #1 - TEMPORARY SURFACE WATER IMPACTS AT TEMPORARY CAUSEWAY TO BE STAGED SO THAT NO MORE THAN 50 PERCENT OF THE WATERWAY AND BRIDGE OPENING IS OBSTRUCTED AT ANY TIME DURING THE CONSTRUCTION PERIOD.

TS TS DENOTES TEMPORARY SURFACE WATER IMPACTS

302.14 SF = 0.0069 ACRES OF TEMPORARY IMPACTS IN SURFACE WATER

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	16+53 to 16+68	12" SANITARY SEWER							0.01		3.0	
TOTALS*:										0	3	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

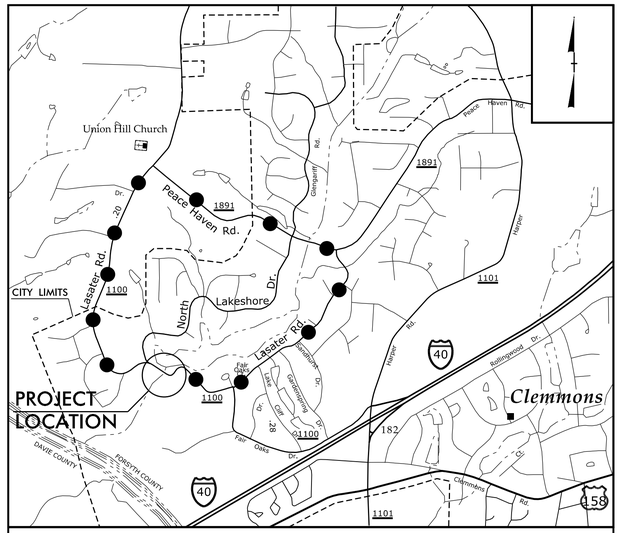
Forsyth County
B-5152
42313.1.1
SHEET 1 OF 1

Revised 2013 10 24

09/08/99

TIP PROJECT: B–5152

See Sheet 1A-1 for Index of Sheets
See Sheet 1B for Sheet Symbology
See Sheet 1C-1 thru 1C-? for Survey Control Sheets



VICINITY MAP
(NOT TO SCALE)

DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–5152	1	23

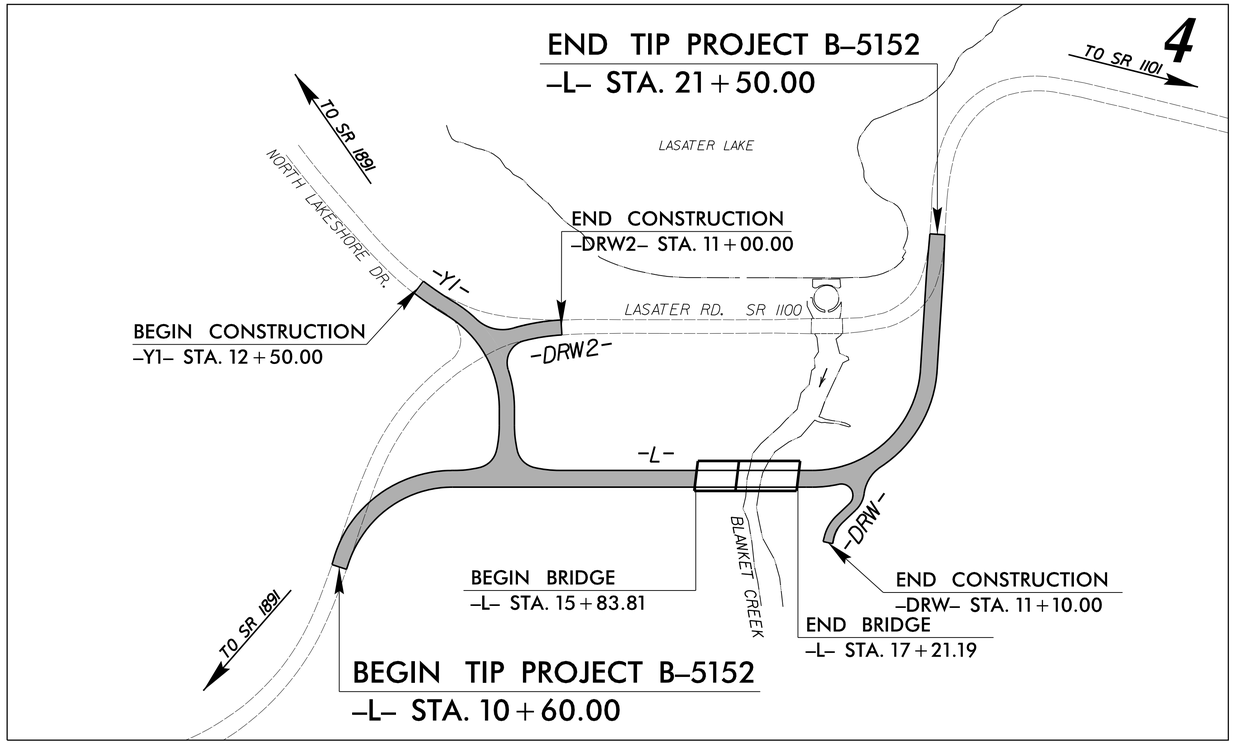
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
42313.1.1	BRZ–1100(23)	P.E.
42313.2.1		R/W

LOCATION: BRIDGE NO. 95 OVER BLANKET CREEK ON SR 1100

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERT AND STRUCTURE

ROW PLANS

NAD 83/
NSRS 2007



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE VILLAGE OF CLEMMONS

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 5 2.5 0 5 10

DESIGN DATA

ADT 2018 = 1340
ADT 2038 = 1580
K = 13 %
D = 70 %
T = 3 %
V = 25 MPH
(TTST = 1% + DUAL = 2%)
FUNC CLASS =
LOCAL RURAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B–5152 = 0.180 MILES

LENGTH STRUCTURES TIP PROJECT B–5152 = 0.026 MILES

TOTAL LENGTH TIP PROJECT B–5152 = 0.206 MILES

Prepared in the Office of:
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, NC 27601
N.C.B.E.L.S. License Number: F-0116

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 31, 2017

LETTING DATE:
JANUARY 16, 2018

PHILLIP E. ROGERS, P.E.
PROJECT ENGINEER

ANTHONY G. THOMPSON, P.E.
PROJECT DESIGN ENGINEER

GARY LOVERING, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

1/30/2017
11:34:38 AM
...\Roadway\Proj\B5152_RDY_TSH.dgn

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
B-5152	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

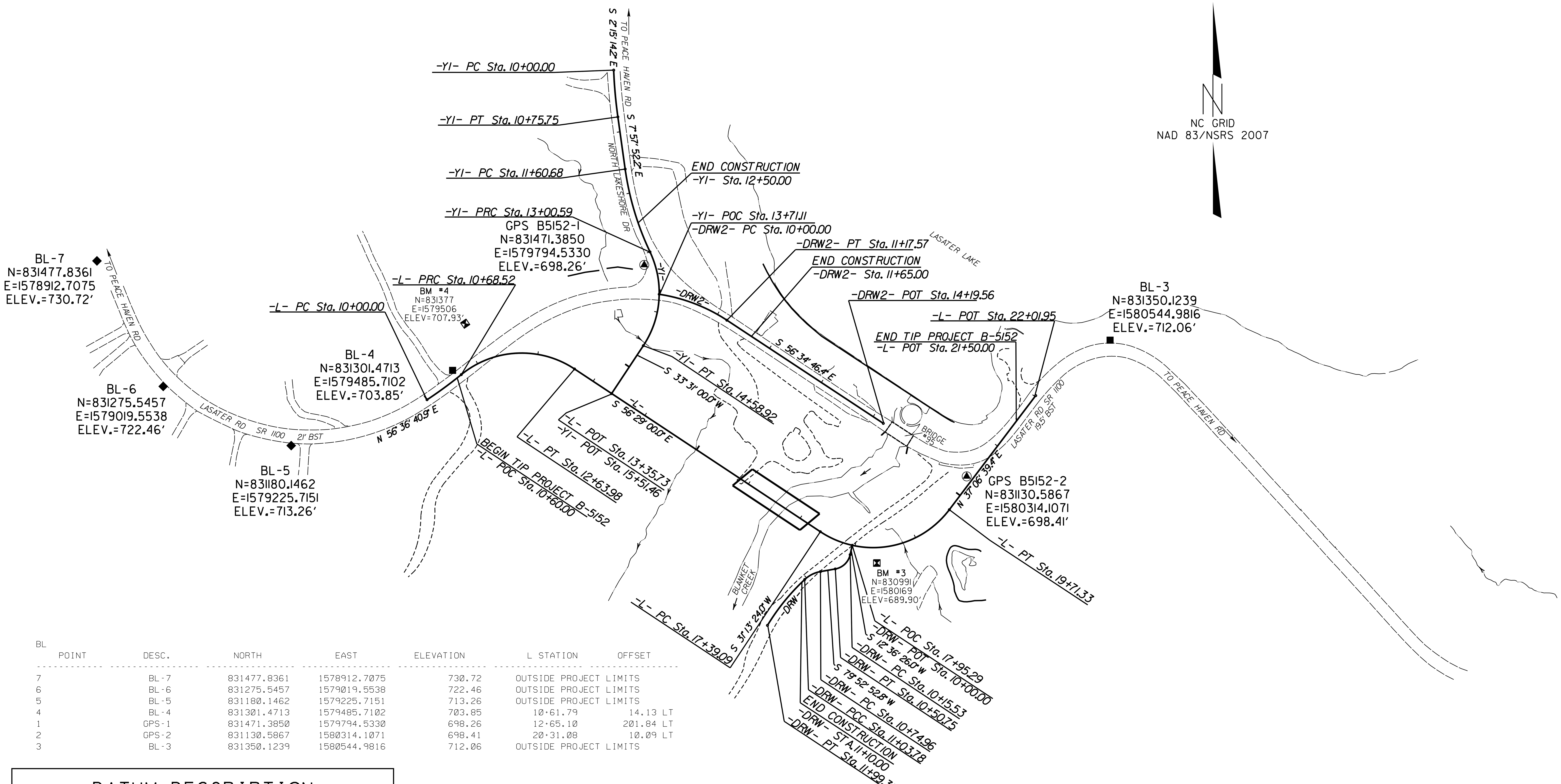
MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

4/30/2017
4:33:23 PM
K:\Roadway\Proj\B5152_RDY_TSH.dgn

PROJECT REFERENCE NO.	SHEET NO.
B5152	1C-1
Location and Surveys	

SURVEY CONTROL SHEET B5152



BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
7	BL-7	831477.8361	1578912.7075	730.72	OUTSIDE PROJECT LIMITS	
6	BL-6	831275.5457	1579019.5538	722.46	OUTSIDE PROJECT LIMITS	
5	BL-5	831180.1462	1579225.7151	713.26	OUTSIDE PROJECT LIMITS	
4	BL-4	831301.4713	1579485.7102	703.85	10+61.79	14.13 LT
1	GPS-1	831471.3850	1579794.5330	698.26	12+65.10	201.84 LT
2	GPS-2	831130.5867	1580314.1071	698.41	20+31.08	10.09 LT
3	BL-3	831350.1239	1580544.9816	712.06	OUTSIDE PROJECT LIMITS	

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5152-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 831471.385 (ft) EASTING: 1579794.533(ft)
ELEVATION: 698.26(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99993563
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5152-1" TO -L- STATION 10+00.00 IS
S 58° 09' 59.35 W 411.92'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BM#1 ELEVATION = 703.85'
N 831301 E 1579486
L STATION 10+62.00 14' LEFT
REBAR WITH ALUMINUM CAP STAMPED "BL-4"
(SET FLUSH WITH GROUND).

BM#2 ELEVATION = 712.06'
N 831350 E 1580545
L STATION 22+02.00
N 53°15'51.04" E DIST 149.40'
REBAR WITH ALUMINUM CAP STAMPED "BL-3"
(SET FLUSH WITH GROUND).

BM#3 ELEVATION = 689.90'
N 830991 E 1580169
L STATION 18+34.00 25' RIGHT
R/R SPIKE SET IN ROOT OF 24" BEECH TREE

BM#4 ELEVATION = 707.93'
N 831377 E 1579506
L STATION 11+08.00 67' LEFT
R/R SPIKE SET IN ROOT OF 20" MAPLE TREE

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

THE FILES TO BE FOUND ARE AS FOLLOWS:
B5152_LS_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

▲ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-5152	2A-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

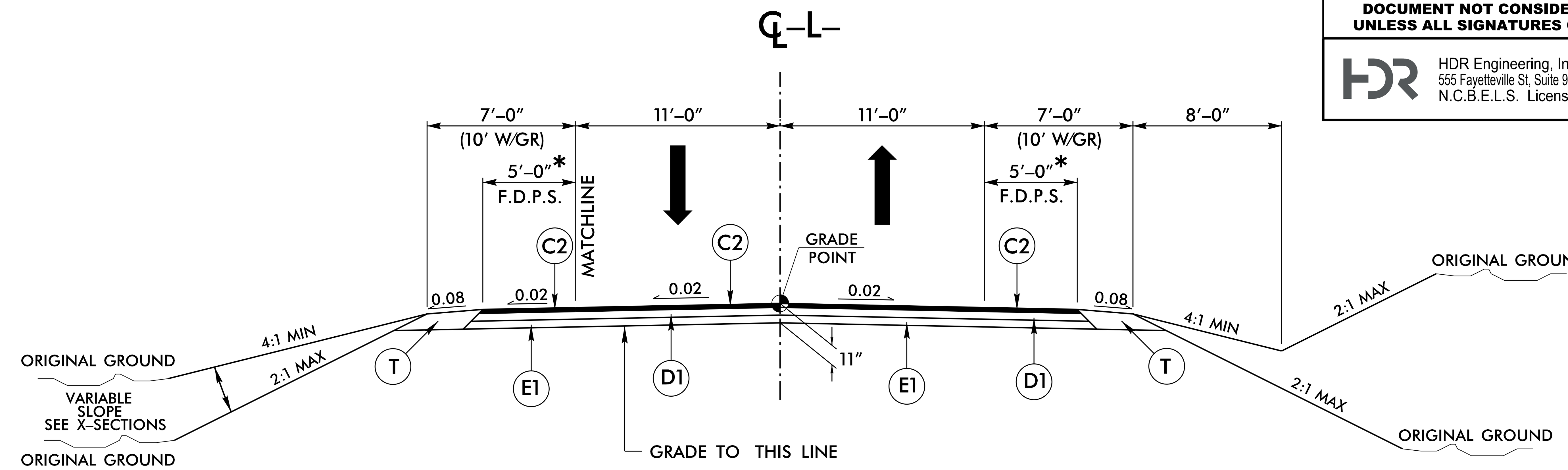
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 Lbs PER SQUARE YARD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 Lbs PER SQUARE YARD IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 Lbs PER SQUARE YARD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" OR GREATER THAN 4" IN DEPTH
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 Lbs PER SQUARE YARD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5 1/2" IN DEPTH
J1	PROP. 6" AGGREGATE BASE COURSE.
R1	PROP. 2'-6" CONCRETE CURB & GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL, SHEET 2A-1)
W2	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL, SHEET 2A-2)

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SHOWN.

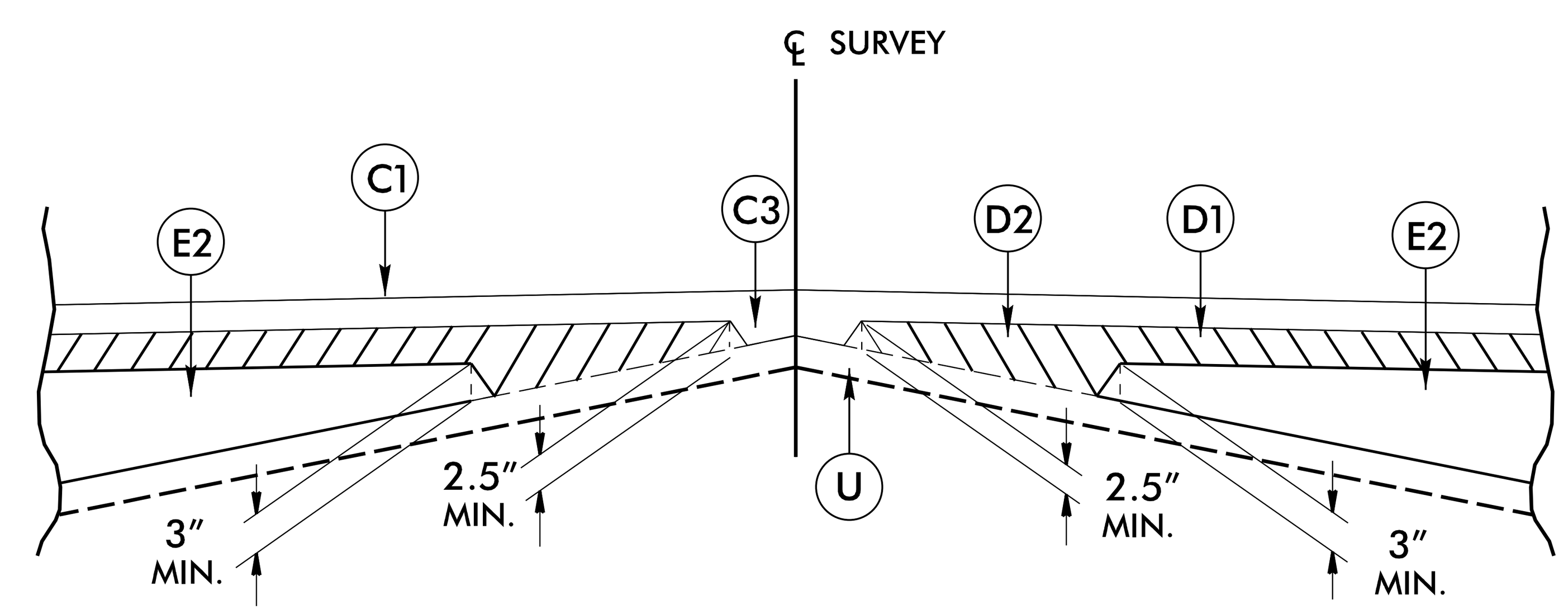
PAVEMENT DESIGN TO BE DETERMINED



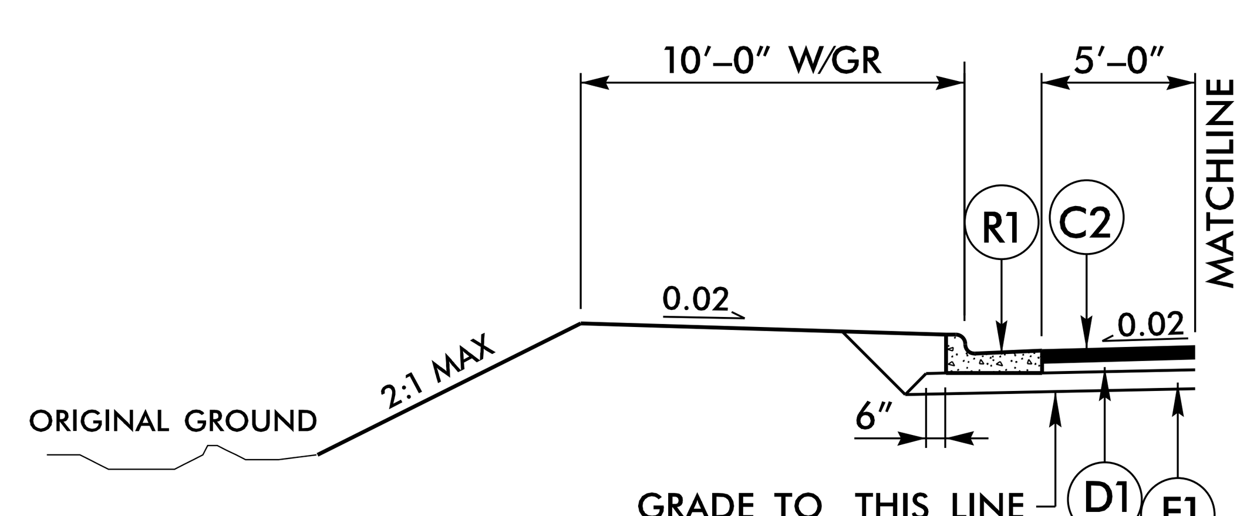
TYPICAL SECTION NO. 1

LINE	FROM STATION	TO STATION
-L-	10+60.00	15+83.81 (BEGIN BRIDGE)
-L-	17+21.19 (END BRIDGE)	21+50.00

* ADDITIONAL WIDTH FOR BICYCLE ACCOMMODATIONS



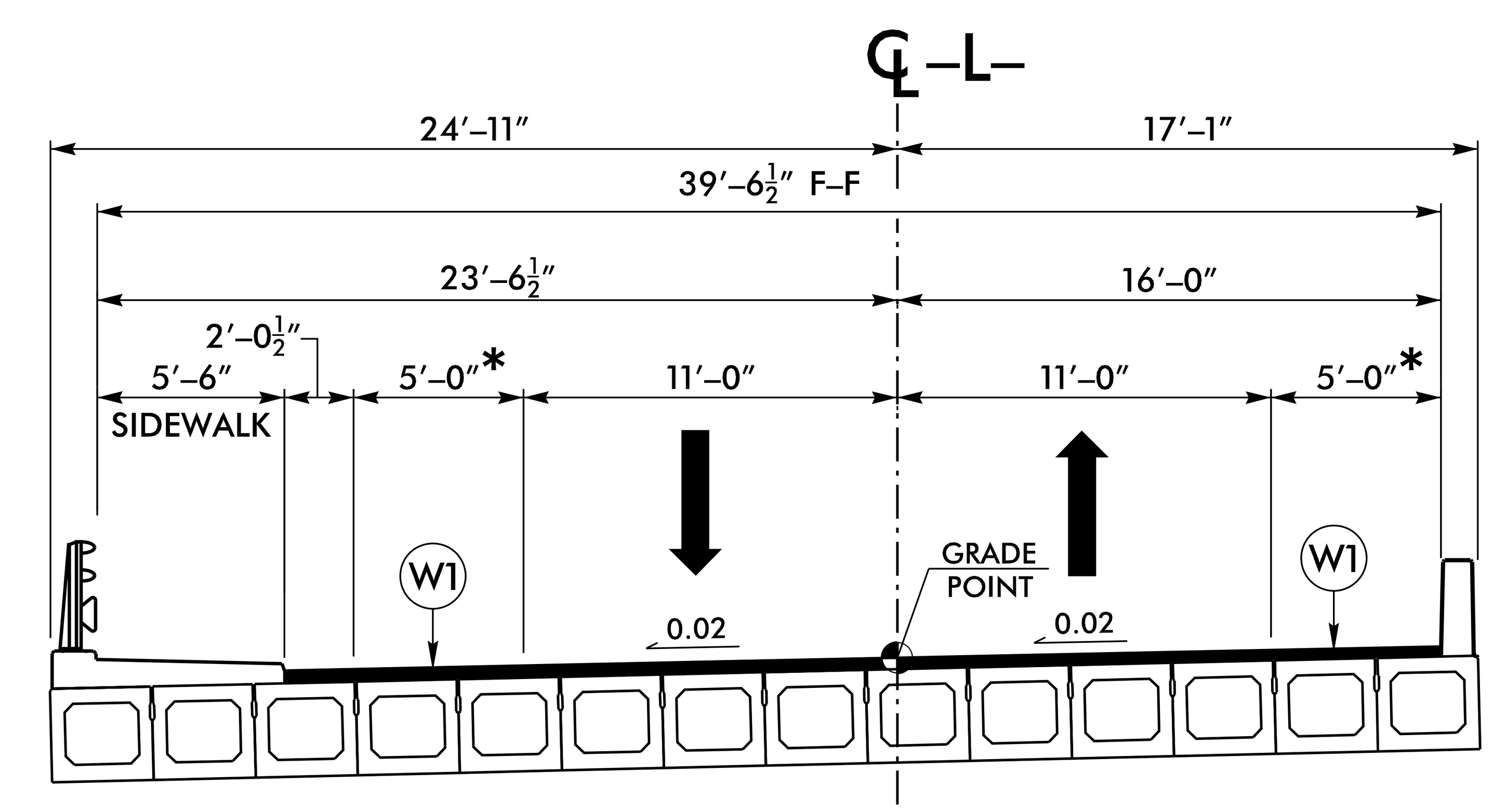
Detail Showing Method of Wedging: W1



TYPICAL SECTION NO. 1A

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 1

LINE	FROM STATION	TO STATION
-L-	13+50.00 LT	15+83.81 LT +/- (BEGIN BRIDGE)
-L-	17+21.19 LT +/- (END BRIDGE)	20+82.00 LT



TYPICAL SECTION NO. 2

14 – 33" BOX BEAM UNITS = 42'-0"

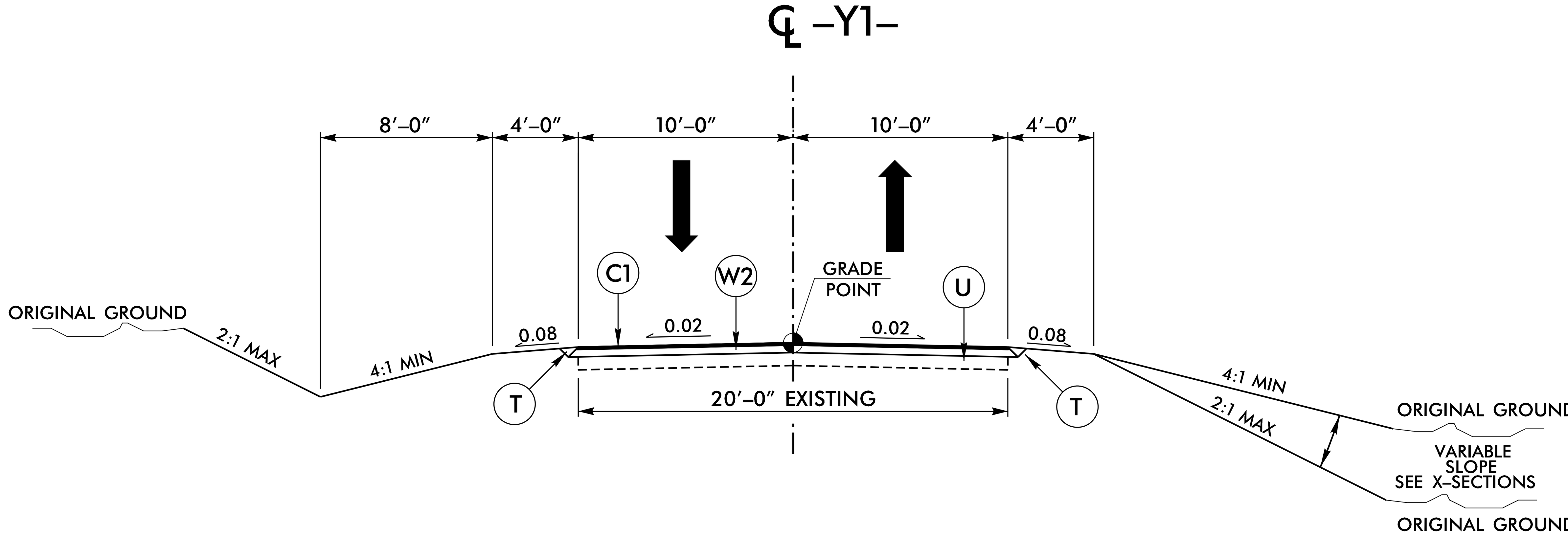
LINE	FROM STATION	TO STATION
-L-	15+83.81	17+21.19

* ADDITIONAL WIDTH FOR BICYCLE ACCOMMODATIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5152	2A-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

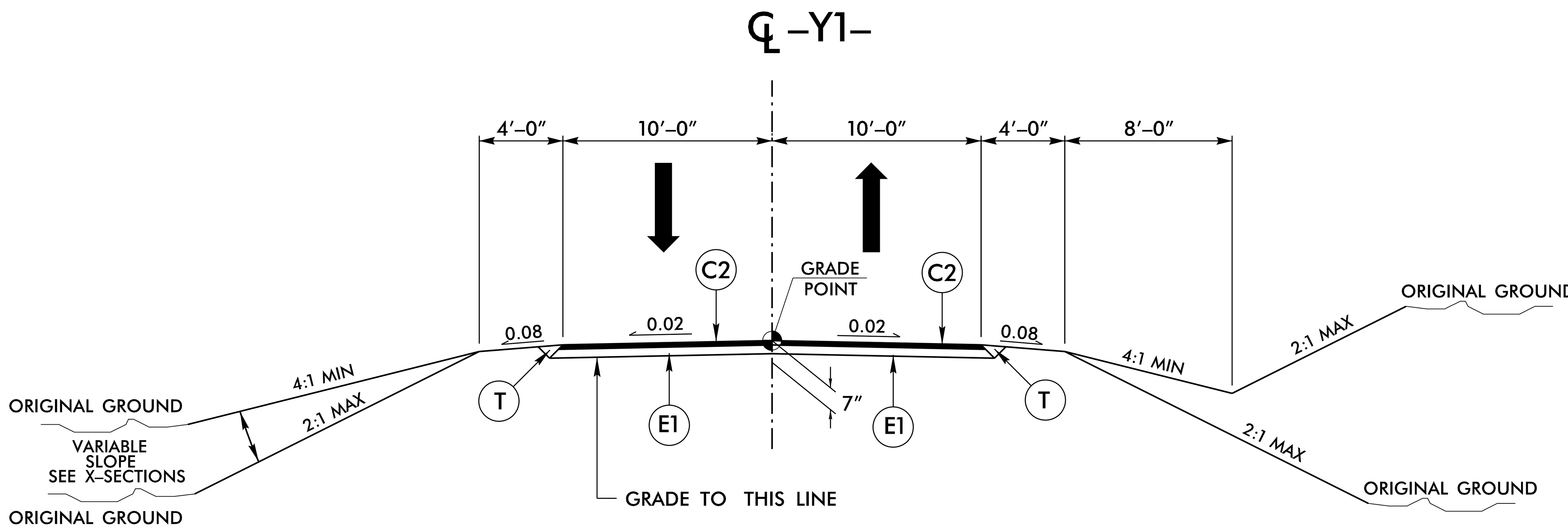
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116



TYPICAL SECTION NO. 3

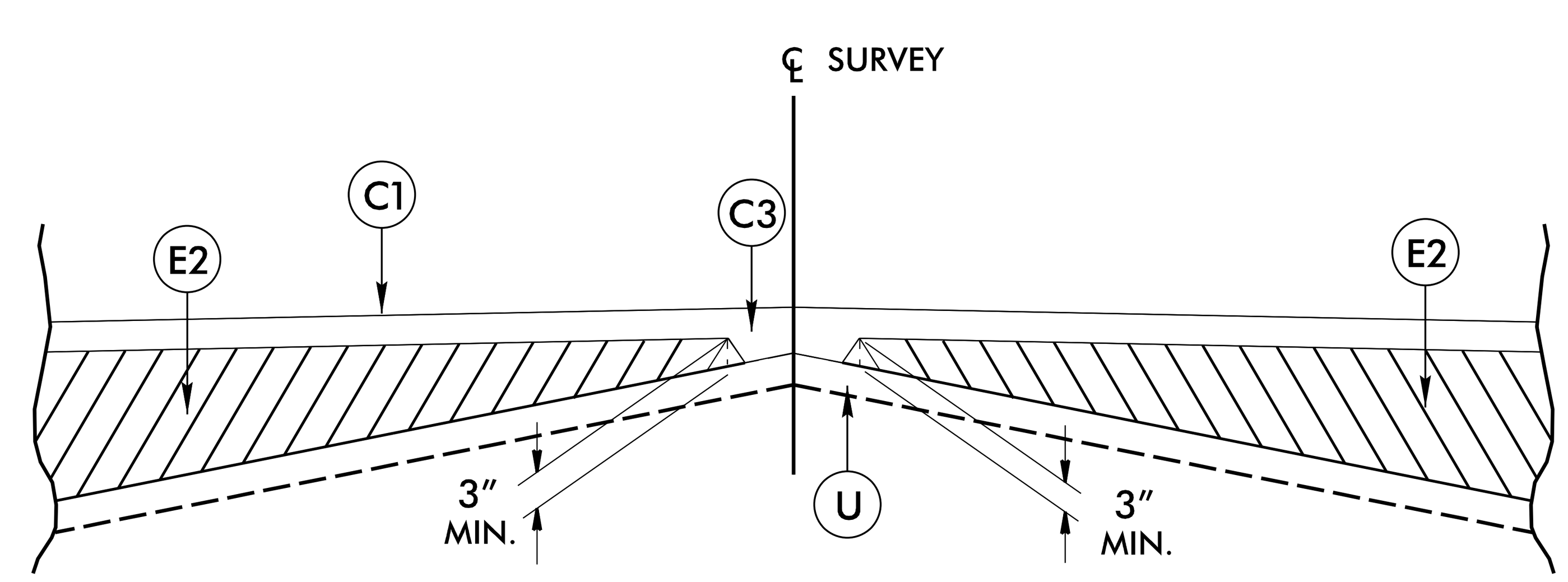
LINE	FROM STATION	TO STATION
-Y1-	12 + 50.00	13 + 20.00



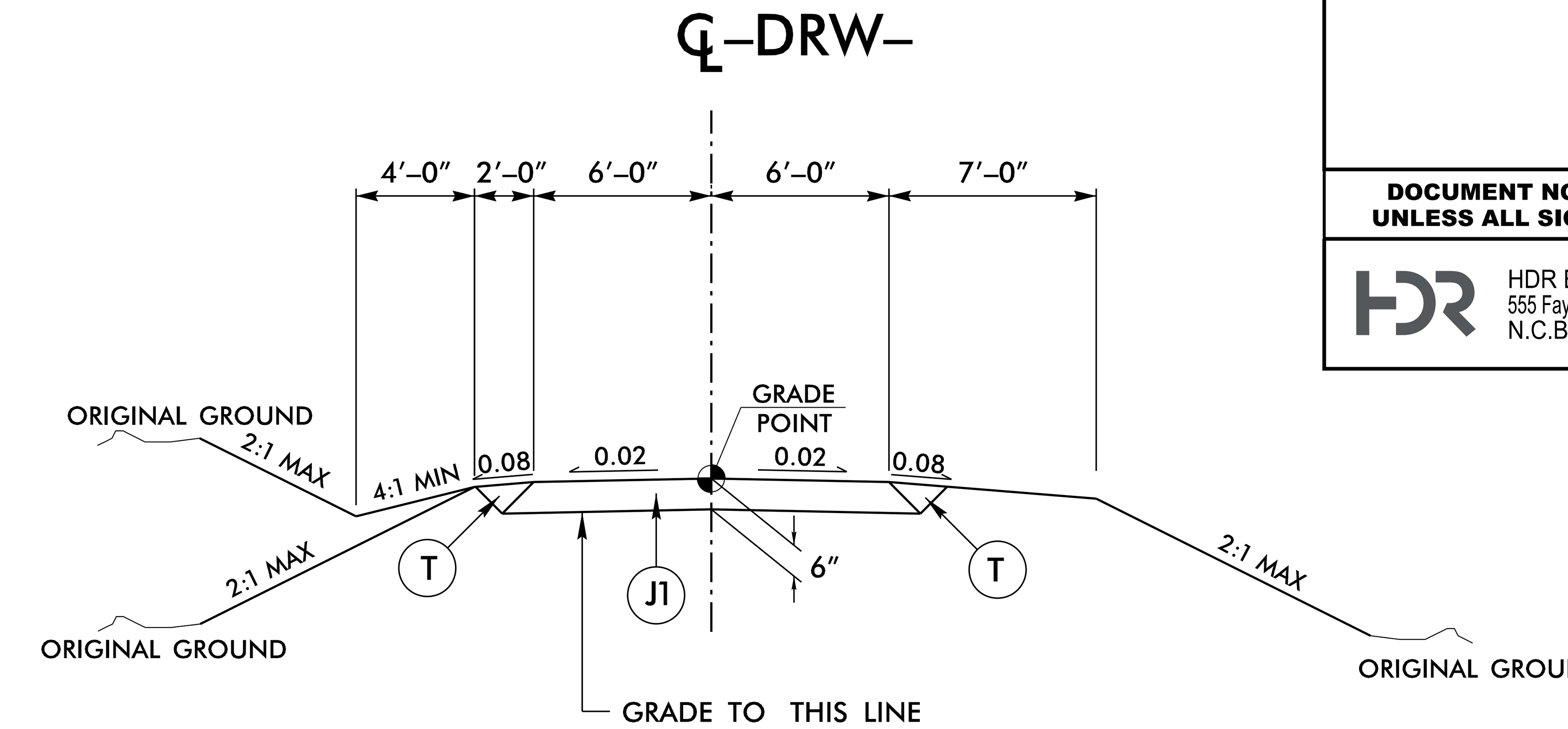
TYPICAL SECTION NO. 4

LINE	FROM STATION	TO STATION
-Y1-	13 + 20.00	15 + 40.46

FINAL PAVEMENT SCHEDULE	
C1	1.5" SF9.5A
C2	3" SF9.5A
C3	VAR SF9.5A
E1	4" B25.0B
E2	VAR B25.0B
J1	6" ABC
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W2	WEDGING

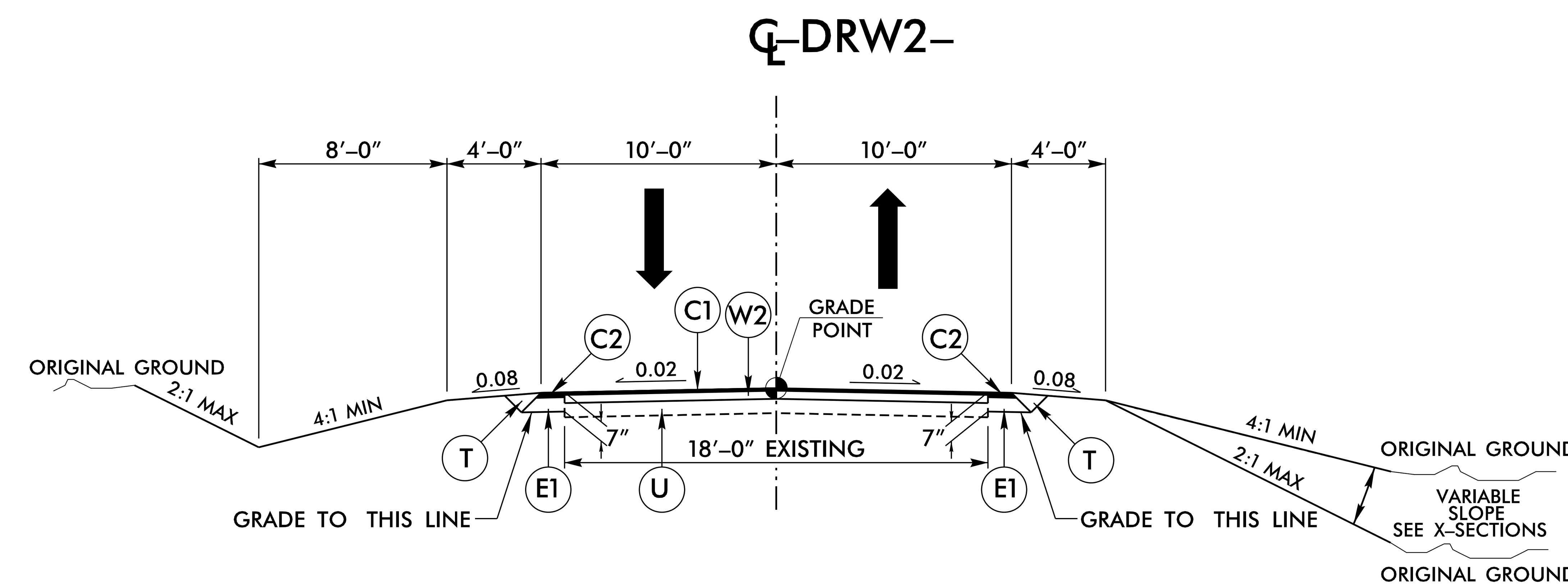


Detail Showing Method of Wedging: W2



TYPICAL SECTION NO. 5

LINE	FROM STATION	TO STATION
-DRW-	10 + 11.00	11 + 10.00



TYPICAL SECTION NO. 6

LINE	FROM STATION	TO STATION
-DRW2-	10 + 10.11	11 + 00.00

COMPUTED BY: AGT DATE: 01/05/2017	PROJECT NO.	SHEET NO.
CHECKED BY: PER DATE:01/06/2017	B-5152	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

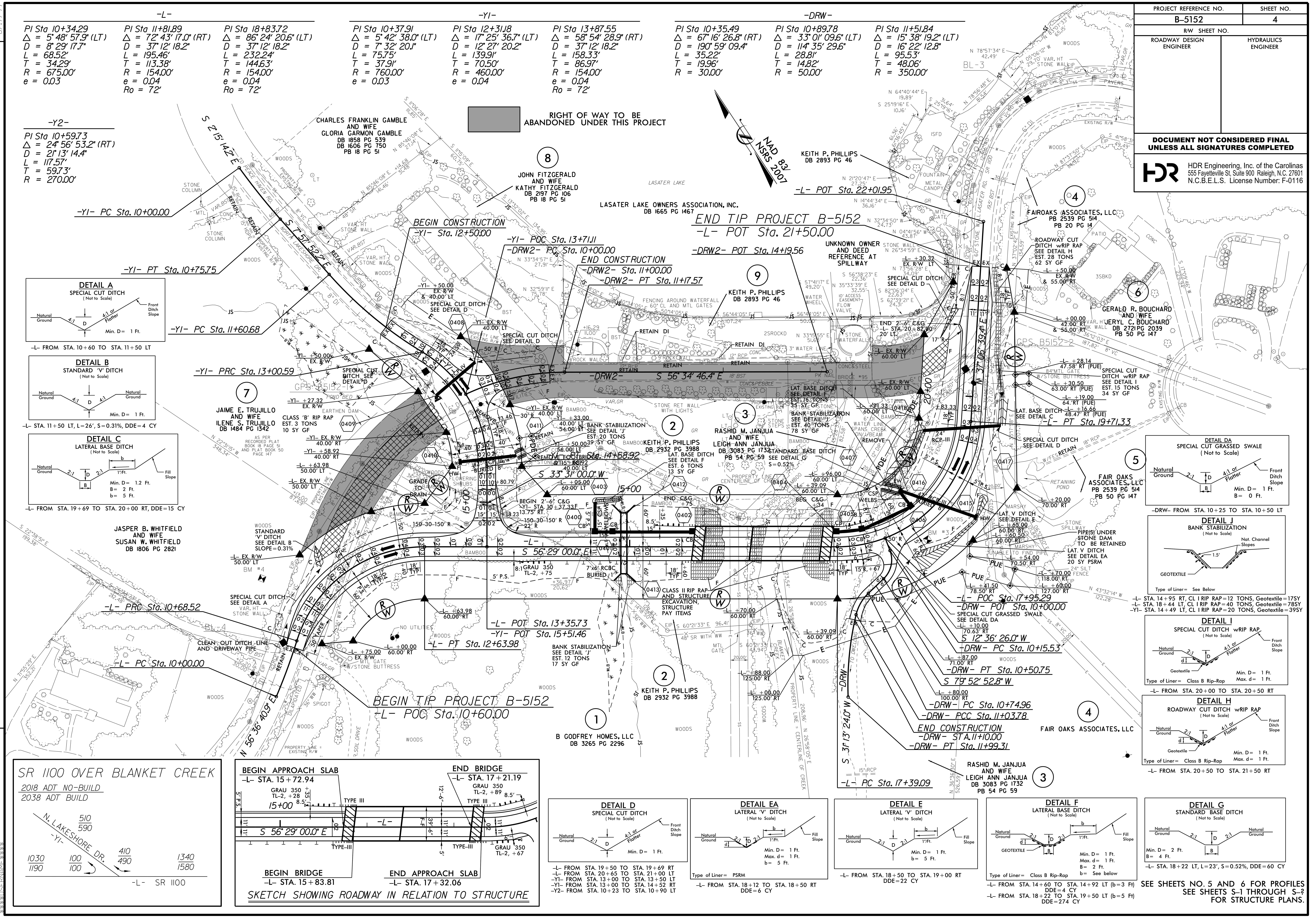
SUMMARY OF EARTHWORK

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- 10+60	15+85	77	7421	7344	
-L- 17+20	21+50	485	2696	2211	
-Y1- 12+50	15+25	331	1288	957	
-DRW- 10+25	11+10	773	5		768
-DRW2- 10+25	11+00	41	13		28
SUBTOTALS:		1707	11423	10512	796
SUBTOTALS:					
PROJECT TOTALS:		1707	11423	10512	796
WASTE TO REPLACE BORROW				-796	-796
PROJECT TOTALS:		1707	11423	9716	0
EST. 5% TOPSOIL ON BORROW PIT				486	
GRAND TOTALS:		1707	11423	10202	0
SAY:		**1710**	**11430**	**10210**	

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for grading.

Note: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

EST. DDE = 385 CUBIC YARDS
EST. UNDERCUT EXCAVATION (Contingency) = 500 CUBIC YARDS
EST. SELECT GRANUALR MATERIAL (Contingency) = 500 CUBIC YARDS
EST. SHALLOW UNDERCUT (Contingency) = 100 CUBIC YARDS
EST. CLASS IV SUBGRADE STABILIZATION (Contingency) = 200 TONS
EST. SUBDRAIN EXCAVATION (Contingency) = 135 CUBIC YARDS
PER GEOTECH RECOMMENDATIONS SUBMITTED SEPTEMBER 13, 2016


PROJECT REFERENCE NO. B-5152
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116
-L-
PI Sta 10+34.29
Δ = 5° 48' 57.9" (LT)
D = 8° 29' 17.7"
L = 68.52'
T = 34.29'
R = 675.00'
e = 0.03
PI Sta 11+81.89
Δ = 72° 43' 17.0" (RT)
D = 37° 12' 18.2"
L = 195.46'
T = 113.38'
R = 154.00'
e = 0.04
Ro = 72'
PI Sta 18+83.72
Δ = 86° 24' 20.6" (LT)
D = 37° 12' 18.2"
L = 232.24'
T = 144.63'
R = 154.00'
e = 0.04
Ro = 72'
-Y1-
PI Sta 10+37.91
Δ = 5° 42' 38.0" (LT)
D = 7° 32' 20.1"
L = 75.75'
T = 37.91'
R = 760.00'
e = 0.03
PI Sta 12+31.18
Δ = 17° 25' 36.7" (LT)
D = 12° 27' 20.2"
L = 139.91'
T = 70.50'
R = 460.00'
e = 0.04
PI Sta 13+87.55
Δ = 58° 54' 28.9" (RT)
D = 37° 12' 18.2"
L = 158.33'
T = 86.97'
R = 154.00'
e = 0.04
Ro = 72'
-DRW-
PI Sta 10+35.49
Δ = 67° 16' 26.8" (RT)
D = 190° 59' 09.4"
L = 35.22'
T = 19.96'
R = 30.00'
PI Sta 10+89.78
Δ = 33° 01' 09.6" (LT)
D = 114° 35' 29.6"
L = 28.81'
T = 14.82'
R = 50.00'
PI Sta 11+51.84
Δ = 15° 38' 19.2" (LT)
D = 16° 22' 12.8"
L = 95.53'
T = 48.06'
R = 350.00'
-Y2-
PI Sta 10+59.73
Δ = 24° 56' 53.2" (RT)
D = 21° 13' 14.4"
L = 117.57'
T = 59.73'
R = 270.00'
RIGHT OF WAY TO BE ABANDONED UNDER THIS PROJECT
NAD 83/ NSRS 2007
REVISIONS
04/20/17 - ROW REVISION: ADDED PUE FROM -L- STA. 17+39.09 TO 17+60.50 RT. ON PARCELS 3 AND 4 AND REVISED TCE FROM -L- STA. 17+80.00 TO STA. 18+10.00 RT. ON PARCEL 3. - AGT
BEGIN CONSTRUCTION -Y1- Sta. 12+50.00
-Y1- POC Sta. 13+71.11
-DRW2- PC Sta. 10+00.00
END CONSTRUCTION -DRW2- Sta. 11+00.00
-DRW2- PT Sta. 11+17.57
END TIP PROJECT B-5152
-L- POT Sta. 21+50.00
-DRW2- POT Sta. 14+19.56
-L- POT Sta. 22+01.95
-Y1- PC Sta. 10+00.00
-Y1- PT Sta. 10+75.75
-Y1- PC Sta. 11+60.68
-Y1- PRC Sta. 13+00.59
-L- PT Sta. 19+71.33
-L- PRC Sta. 10+68.52
-L- PC Sta. 10+00.00
-L- POT Sta. 13+35.73
-Y1- POT Sta. 15+51.46
-L- PT Sta. 12+63.98
BEGIN TIP PROJECT B-5152
-L- POC Sta. 10+60.00
-L- POC Sta. 17+95.29
-DRW- POT Sta. 10+00.00
+DRW- PC Sta. 10+15.53
-DRW- PT Sta. 10+50.75
-DRW- PC Sta. 10+74.96
-DRW- PCC Sta. 11+03.78
END CONSTRUCTION -DRW- STA. 11+10.00
-DRW- PT Sta. 11+99.31
-L- PC Sta. 17+39.09
S 56° 29' 00.0" E
S 56° 34' 46.4" E
S 33° 31' 00.0" W
N 37° 06' 39.4" E
S 12° 36' 26.0" W
S 79° 52' 52.8" W
S 31° 13' 24.0" W
S 2° 15' 14.2" E
S 7° 57' 52.2" E
N 56° 36' 40.9" E
1 B GODFREY HOMES, LLC DB 3265 PG 2296
2 KEITH P. PHILLIPS DB 2932 PG 3988
3 RASHID M. JANJUA AND WIFE LEIGH ANN JANJUA DB 3083 PG 1732 PB 54 PG 59
4 FAIR OAKS ASSOCIATES, LLC
4 FAIROAKS ASSOCIATES, LLC PB 2539 PG 514 PB 20 PG 14
5 FAIR OAKS ASSOCIATES, LLC PB 2539 PG 514 PB 50 PG 147
6 GERALD R. BOUCHARD AND WIFE JERYL C. BOUCHARD DB 2721 PG 2039 PB 50 PG 147
7 JAIME E. TRUJILLO AND WIFE ILENE S. TRUJILLO DB 1484 PG 1342
8 JOHN FITZGERALD AND WIFE KATHY FITZGERALD DB 2197 PG 106 PB 18 PG 51
9 KEITH P. PHILLIPS DB 2893 PG 46
CHARLES FRANKLIN GAMBLE AND WIFE GLORIA GARMON GAMBLE DB 1858 PG 539 DB 1606 PG 750 PB 18 PG 51
LASATER LAKE OWNERS ASSOCIATION, INC. DB 1665 PG 1467
KEITH P. PHILLIPS DB 2893 PG 46
JASPER B. WHITFIELD AND WIFE SUSAN W. WHITFIELD DB 1806 PG 2821
UNKNOWN OWNER AND DEED REFERENCE AT SPILLWAY
DETAIL A SPECIAL CUT DITCH (Not to Scale) -L- FROM STA. 10+60 TO STA. 11+50 LT
DETAIL B STANDARD 'V' DITCH (Not to Scale) -L- STA. 11+50 LT, L=26', S=0.31%, DDE=4 CY
DETAIL C LATERAL BASE DITCH (Not to Scale) -L- FROM STA. 19+69 TO STA. 20+00 RT, DDE=15 CY
DETAIL DA SPECIAL CUT GRASSED SWALE (Not to Scale) -DRW- FROM STA. 10+25 TO STA. 10+50 LT
DETAIL J BANK STABILIZATION (Not to Scale)
-L- STA. 14+95 RT, CL I RIP RAP=12 TONS, Geotextile=17SY
-L- STA. 18+44 LT, CL I RIP RAP=40 TONS, Geotextile=78SY
-Y1- STA. 14+49 LT, CL I RIP RAP=20 TONS, Geotextile=39SY
DETAIL I SPECIAL CUT DITCH w/RIP RAP (Not to Scale) Type of Liner= Class B Rip-Rap -L- FROM STA. 20+00 TO STA. 20+50 LT
DETAIL H ROADWAY CUT DITCH w/RIP RAP (Not to Scale) Type of Liner= Class B Rip-Rap -L- FROM STA. 20+50 TO STA. 21+50 LT
DETAIL D SPECIAL CUT DITCH (Not to Scale)
-L- FROM STA. 19+50 TO STA. 19+69 RT
-L- FROM STA. 20+65 TO STA. 21+00 LT
-Y1- FROM STA. 13+00 TO STA. 13+50 LT
-Y1- FROM STA. 13+00 TO STA. 14+52 RT
-Y2- FROM STA. 10+23 TO STA. 10+90 LT
DETAIL EA LATERAL 'V' DITCH (Not to Scale) Type of Liner= PSRM -L- FROM STA. 18+12 TO STA. 18+50 RT DDE=6 CY
DETAIL E LATERAL 'V' DITCH (Not to Scale) -L- FROM STA. 18+50 TO STA. 19+00 RT DDE=22 CY
DETAIL F LATERAL BASE DITCH (Not to Scale) Type of Liner= Class B Rip-Rap
-L- FROM STA. 14+60 TO STA. 14+92 LT (b=3 Ft) DDE=4 CY
-L- FROM STA. 18+22 TO STA. 19+50 LT (b=5 Ft) DDE=274 CY
DETAIL G STANDARD BASE DITCH (Not to Scale) -L- STA. 18+22 LT, L=23', S=0.52%, DDE=60 CY
SEE SHEETS NO. 5 AND 6 FOR PROFILES
SEE SHEETS S-1 THROUGH S-? FOR STRUCTURE PLANS.
SR 1100 OVER BLANKET CREEK
2018 ADT NO-BUILD
2038 ADT BUILD
N. LAKESHORE DR. -Y1-
-L- SR 1100
BEGIN APPROACH SLAB -L- STA. 15+72.94
END BRIDGE -L- STA. 17+21.19
BEGIN BRIDGE -L- STA. 15+83.81
END APPROACH SLAB -L- STA. 17+32.06
SKETCH SHOWING ROADWAY IN RELATION TO STRUCTURE
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8/17/99

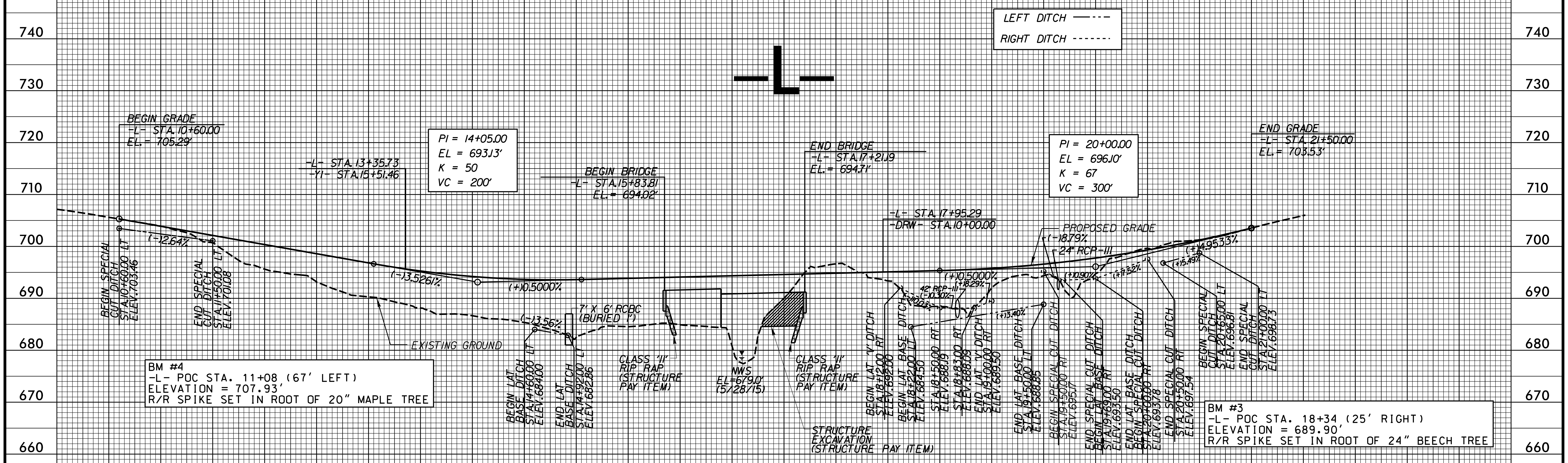
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
B-5152	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SEE SHEET 4 FOR PLAN VIEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-



CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1883	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 687.5	FT
BASE DISCHARGE	= 2478	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 688.05	FT
OVERTOPPING DISCHARGE	= > 3724	CFS
OVERTOPPING FREQUENCY	= > 500	YRS
OVERTOPPING ELEVATION	= 693.6	FT

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1883	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 687.5	FT
BASE DISCHARGE	= 2478	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 688.05	FT
OVERTOPPING DISCHARGE	= > 3724	CFS
OVERTOPPING FREQUENCY	= > 500	YRS
OVERTOPPING ELEVATION	= 693.6	FT
DATE OF SURVEY	= 09/13/16	
W.S.ELEVATION AT DATE OF SURVEY	= 679.0	FT

42" RCP-III, STA.18+67 (BURIED 8")

DRAINAGE AREA	= 26.97 AC
DESIGN FREQUENCY	= 25 YR
DESIGN DISCHARGE	= 52.00 CFS
DESIGN HW ELEVATION	= 691.83 FT
Q100 DISCHARGE	= 83.00 CFS
Q100 HW ELEVATION	= 694.28 FT
OVERTOPPING FREQUENCY	= 100+ YR
OVERTOPPING DISCHARGE	= 92.00 CFS
OVERTOPPING ELEVATION	= 695.19 FT

24" RCP-III, STA.19+64

DRAINAGE AREA	= 3.85 AC
DESIGN FREQUENCY	= 25 YR
DESIGN DISCHARGE	= 12.00 CFS
DESIGN HW ELEVATION	= 695.29 FT
Q100 DISCHARGE	= 13.00 CFS
Q100 HW ELEVATION	= 695.37 FT
OVERTOPPING FREQUENCY	= 100+ YR
OVERTOPPING DISCHARGE	= 18.00 CFS
OVERTOPPING ELEVATION	= 695.92 FT

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00

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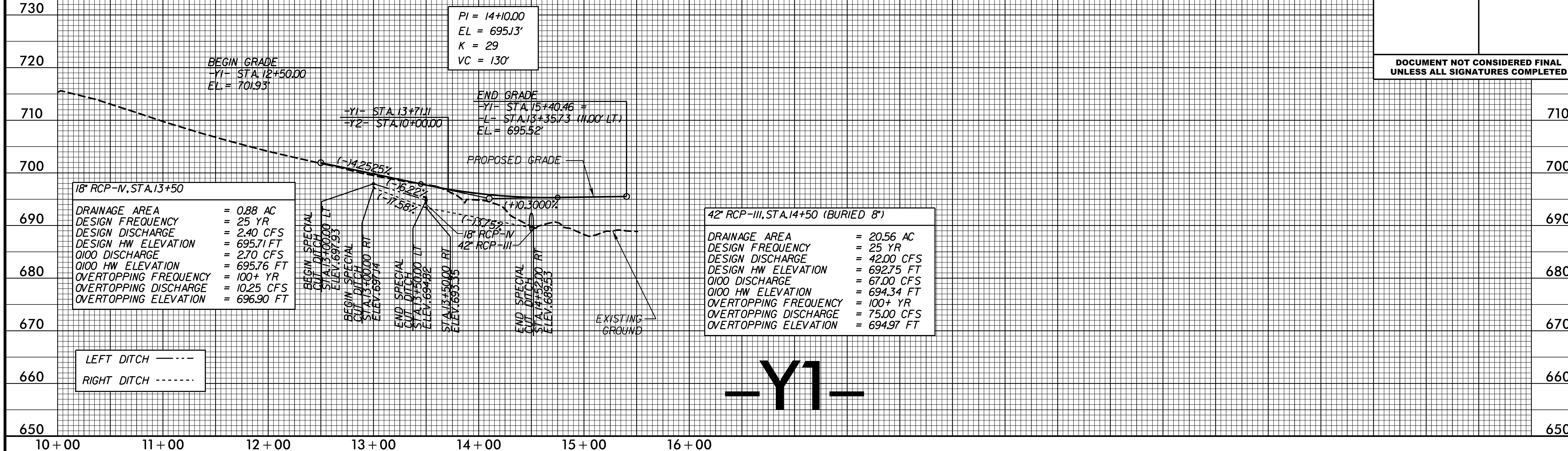
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
B-5152	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SEE SHEET 4 FOR PLAN VIEW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

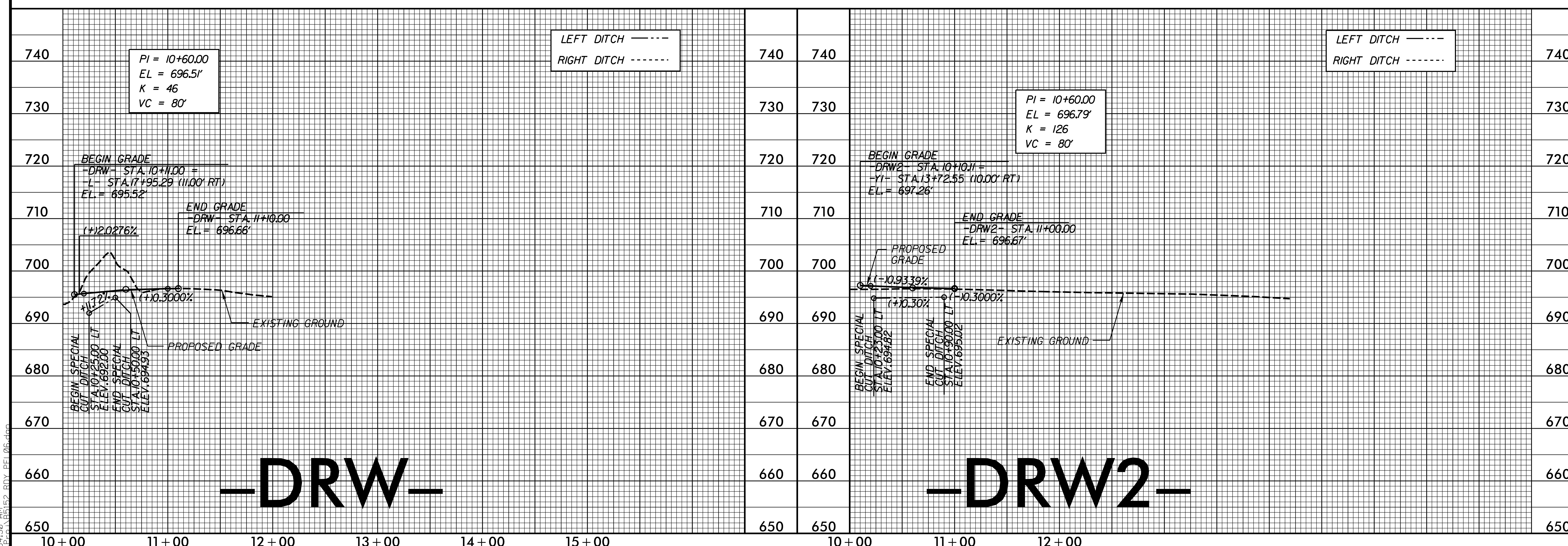


18" RCP-IV, STA. 13+50

DRAINAGE AREA	= 0.88 AC
DESIGN FREQUENCY	= 25 YR
DESIGN DISCHARGE	= 2.40 CFS
DESIGN HW ELEVATION	= 695.71 FT
Q100 DISCHARGE	= 2.70 CFS
Q100 HW ELEVATION	= 695.76 FT
OVERTOPPING FREQUENCY	= 100+ YR
OVERTOPPING DISCHARGE	= 10.25 CFS
OVERTOPPING ELEVATION	= 696.90 FT

42" RCP-III, STA. 14+50 (BURIED 8")

DRAINAGE AREA	= 20.56 AC
DESIGN FREQUENCY	= 25 YR
DESIGN DISCHARGE	= 42.00 CFS
DESIGN HW ELEVATION	= 692.75 FT
Q100 DISCHARGE	= 67.00 CFS
Q100 HW ELEVATION	= 694.34 FT
OVERTOPPING FREQUENCY	= 100+ YR
OVERTOPPING DISCHARGE	= 75.00 CFS
OVERTOPPING ELEVATION	= 694.97 FT



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