



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:*

Guilford

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-5345 - Replacement of Bridge No. 456 over Brush Creek on SR 2136
(Fleming Road)

WBS #

46059.1.1

(for NCDOT use only)

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

- 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?*

- Nationwide Permit (NWP)
 Regional General Permit (RGP)

Nationwide Permit (NWP) Number:

03 - Maintenance

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

- 401 Water Quality Certification - Regular
 Non-404 Jurisdictional General Permit
 401 Water Quality Certification - Express
 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

3_B-5345 - Buffer - CF 02.pdf

88.44KB

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: *

jsmason@ncdot.gov

1c. Primary Contact Phone: *

(xxx)xxx-xxxx

(919)707-6136

1d. Who is applying for the permit?

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: *

C. Project Information and Prior Project History

1. Project Information

1a. Name of project:*

B-5345 - Replacement of Bridge No. 456 over Brush Creek on SR 2136
(Fleming Road)

1b. Subdivision name:

(if appropriate)

1c. Nearest municipality / town:*

Greensboro

1d. Driving directions*

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

From Raleigh - Take I-40W to Exit 212B in Greensboro (I-73N); Continue to Exit 3 on I-73N (signs for Bryan Blvd/PTI Airport); Keep right at the fork, follow signs for Bryan Blvd E/Downtown and merge onto Joseph M Bryan Blvd; Take the Fleming Rd Exit off of Bryan Blvd, turn left; Continue on Fleming Rd ~2.5 miles to bridge location over Brush Creek (just past Brass Eagle Loop on right).

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:*

36.140239

ex: 34.208504

Longitude:*

-79.913884

-77.796371

3. Surface Waters

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

Brush Creek

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

WS-III NSW

[Surface Water Lookup](#)

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

Cape Fear

[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: *

Fleming Rd. is classified as a Rural Major Collector in the Statewide Functional Classification System and is not a National Highway System Route. Land use within the vicinity primarily consists of forested land and medium density residential.

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:

0.23

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

(intermittent and perennial)

213 (Brush Creek and a UT of Brush Creek [SB])

4f. Explain the purpose of the proposed project:

To replace a structurally deficient and functionally obsolete bridge.

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

The project will consist of replacing the existing three-span, 75-foot structure with a one-span, 85-foot structure on the existing alignment. An on-site detour will be employed. 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

5_B-5345_Permit Drawings_20161108_Revised by JSM.pdf	3.64MB
6_B-5345_Permit Drawings_BUFFER_20161108.pdf	757.88KB
7_B-5345_Roadway Plans_11x17.pdf	2.36MB

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:

Site visit on April 10, 2012 by Thomas Brown (USACE); no JD issued.

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-2012-00600 (from original NWP 3 issuance)

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

Name (if known):

Dwayne Huneycutt

Agency/Consultant Company:

Michael Baker Engineering

Other:

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

Site visit 4/10/12.

5d1. Jurisdictional determination upload

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

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

6b. If yes, please give the DWR Certification number or the Corps Action ID (exp. SAW-0000-00000).

USACE Action ID SAW-2012-00600 (NWP 3); expired 3/18/2017; work will not commence until after the 1-year grace period for this permit has ended. DWR Project No. 20161131 (WQC 3883 and Jordan Lake Buffer Authorization).

Project History Upload

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

File type must be PDF

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
2 -Perm. Fill Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Bottomland Hardwood Forest	WD	Yes	Corps (404, 10) or DWR (401, other)	0.080 (acres)
2-Mechanized Clearing Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Bottomland Hardwood Forest	WD	Yes	Corps (404, 10) or DWR (401, other)	0.005 (acres)

2a. Site # - Reason for impact	2b. Impact type *	2c. Type of wetland	2d. Wetland name	2e. Forested	2f. Jurisdiction type	2g. Impact area
3-Perm. Fill Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Bottomland Hardwood Forest	WB	Yes	Corps	0.100 (404, 10) or DWR (acres) (401, other)
3-Mechanized Clearing Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Bottomland Hardwood Forest	WB	Yes	Corps	0.030 (404, 10) or DWR (acres) (401, other)
4-Mechanized Clearing Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Bottomland Hardwood Forest	WC	Yes	Corps	0.010 (404, 10) or DWR (acres) (401, other)
5-Mechanized Clearing Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Bottomland Hardwood Forest	WA	Yes	Corps	0.005 (404, 10) or DWR (acres) (401, other)

2g. Temporary Wetland Impact

0.000

2g. Permanent Wetland Impact

0.230

2g. Total Wetland Impact

0.230

2h. Comments:

Sites 2 and 3 are associated with the on-site detour.

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
1-Temp. Causeways (#1 and #2) Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Fill	Brush Creek	Perennial Perennial (PER) or intermittent (INT)	Corps	Average 25 (feet)	52 (linear feet)
1-Bank Stabilization (DET.) Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Bank Stabilization	Brush Creek	Perennial Perennial (PER) or intermittent (INT)	Corps	Average 25 (feet)	16 (linear feet)
1-Temp. Bank Stabilization (DET.) Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Bank Stabilization	Brush Creek	Perennial Perennial (PER) or intermittent (INT)	Corps	Average 25 (feet)	10 (linear feet)
1-Bank Stabilization Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Bank Stabilization	Brush Creek	Perennial Perennial (PER) or intermittent (INT)	Corps	Average 25 (feet)	21 (linear feet)
1-Temp. Bank Stabilization Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Bank Stabilization	Brush Creek	Perennial Perennial (PER) or intermittent (INT)	Corps	Average 25 (feet)	10 (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:

37

3i. Total temporary stream impacts:

72

3i. Total stream and tributary impacts:

109

3j. Comments:

Total area of temporary causeway impacts is 0.04 acres.

Causeway #1 blocks more than 50% of the channel. Therefore, 1 @ 30" temporary pipe to be installed with causeway to help convey the average daily flow.

Causeways #1 and #2 should not be in place at the same time. There is an overlap in impact area between the causeways. However, the Total Temporary Surface Water Impacts remain 0.04 acres due to the minimal overlap area.

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.

6a. Project is in which protect basin(s)? *

Check all that apply.

- Neuse
- Catawba
- Goose Creek
- Other
- Tar-Pamlico
- Randleman
- Jordan Lake

6b. Impact Type	6c. Per or Temp	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact	6g. Zone 2 impact
1- Bridge Location and Exempt, Allowable, allowable w/ mitigation	P Permanent (P) or Temporary (T)	Brush Creek	No	5,387 (square feet)	1,203 (square feet)
1-Road Crossing Location and Exempt, Allowable, allowable w/ mitigation	P Permanent (P) or Temporary (T)	Brush Creek	No	1,902 (square feet)	3,008 (square feet)
2-Impacts Other Than Road Crossings Location and Exempt, Allowable, allowable w/ mitigation	P Permanent (P) or Temporary (T)	Brush Creek	Yes	263 (square feet)	(square feet)

6h. Total buffer impacts:

	Zone 1	Zone 2
Temporary impacts:	0.00	0.00

	Zone 1	Zone 2
Permanent impacts:	7,552.00	4,211.00

	Zone 1	Zone 2
Total buffer impacts:	7,552.00	4,211.00

6i. Comments:

For impacts associated with Site 1, there are Wetlands in Buffers totaling 155 square feet in Zone 1 and 0 square feet in Zone 2 within the Bridge buffer impacts.

For impacts associated with Site 1, there are Wetlands in Buffers totaling 158 square feet in Zone 1 and 1,862 square feet in Zone 2 within the Road Crossing buffer impacts.

For impacts associated with Site 2, there are 115 square feet of Wetlands in Buffers in Zone 1. The wetland impact supercedes the buffer impact and will be counted in the wetland mitigation. Therefore, only 148 square feet on Zone 1 impacts at Site 2 will be considered for mitigation.

Supporting Documentation - i.e. Impact Maps, Plan Sheet, etc.

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

File must be PDF

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 proposed bridge is 10 feet longer than the existing bridge; Standard V ditches, Lateral V ditches, and Special Cut ditches will be employed on the detour for stormwater management; Lateral V ditches and a grassed swale will be employed on the L-line; bank stabilization will be installed where one of the V ditches ties into Brush Creek on the detour and where the grassed swale ties into the creek on the L-line to prevent scouring and erosion; no additional permanent fill will occur in Brush Creek.

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

Due to the project's location within the Jordan Lake Watershed, Design Standards in Sensitive Watersheds will be employed; NCDOT Best Management Practices for Construction and Maintenance Activities and Best Management Practices for the Protection of Surface Waters will be employed.

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 Corps

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

Mitigation bank 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.

Yes

4b. Stream mitigation requested:

(linear feet)

0

4c. If using stream mitigation, stream temperature:

4d. Buffer mitigation requested (DWR only):

(square feet)

148 square ft., Zone 1 @ 3:1 = 444 square ft.

4e. Riparian wetland mitigation requested:

(acres)

0.23 ac. @ 2:1 = 0.46 ac.

4f. Non-riparian wetland mitigation requested:

(acres)

0

4g. Coastal (tidal) wetland mitigation requested:

(acres)

0

4h. Comments

DMS letter covers the mitigation required for impacts to 148 square ft of Zone 1 buffers. Please see the attached Permittee Responsible Mitigation Plan to offset impacts to 0.23 acres of riparian wetland impacts.

5. Complete if Using a Permittee Responsible Mitigation Plan

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan including mitigation credits generated.

Please see the attached Permittee Responsible Mitigation Plan to offset impacts to 0.23 acres of riparian wetland impacts.

5b. Mitigation Plan Upload

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

4_B-5345 Updated Debit Ledger_FINAL.pdf

87.28KB

File type must be pdf

6. Buffer mitigation (State Regulated Riparian Buffer Rules) - required by DWR

6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation? If yes, you must fill out this entire form - please contact DWR for more information.

Yes No

6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation calculate the amount of mitigation required in the table below.

	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1	Impacts Other Than Road Crossings	148	3	444
Zone 2		0	1.5	0

6f. Total buffer mitigation required

444

6g. If buffer mitigation is required, is payment to a mitigation bank or NC Division of Mitigation Services proposed?

Yes No

6h. Attach the acceptance letter from the mitigation bank or NC Division of Mitigation Services.

(PDF only)

6i. If no, then discuss what type of mitigation is proposed.

6j. Comments:

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 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

2b. All buffer impacts and high ground impacts require diffuse flow or other form of stormwater treatment. Include a plan that fully documents how diffuse flow will be maintained.

If, due to site constraints, a BMP other than a level spreader is proposed, please provide a plan for stormwater treatment as outlined in Chapter 8 of the [NC Stormwater BMP Manual](#) and attach a BMP Supplement Form

What documentation are you providing?

Level Spreader

Other BMP

(check all that apply)

Diffused Flow Documentation

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

File type must be PDF

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.

Raleigh

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

Yes

No

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

NC Natural Heritage Program data, USFWS website, NCDOT field surveys; No habitat present for small whorled pogonia; no impact to bald eagle; the northern long-eared bat (NLEB) is covered by the Programmatic Biological Opinion for Divisions 1 through 8.

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? *

NMFS County Index

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? *

NEPA 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

Email to USACE regarding additional information request_12012016.pdf

157.1KB

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

Mason, James S

From: Mason, James S
Sent: Thursday, December 01, 2016 4:28 PM
To: Bailey, David E CIV USARMY CESAW (US)
Cc: Dagnino, Carla S; Wanucha, Dave
Subject: RE: Request for Additional Information; B-5345, Guilford County
Attachments: B-5345 CE 11-12-15 FINAL.pdf

Dave-

I have spoken to our Hydraulics Unit and also gathered the information related to the detour, Section 7, and NHPA questions. I have also attached a copy of the CE for your reference. A copy of this CE, as well as all CEs and other NEPA documents for projects in the permitting stage, is also available on the NCDOT Website at <https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>, under *Quick Links > Environmental Documents*. The answers in this email are in the order of the questions/comments from your previous email.

1. From Jason Lawing at Kimley-Horn, who did the hydraulic design: We had not considered putting down fabric in the wetland areas. We are calling to re-grade/re-establish the ground impacted by the detour. See the cross sections in the permit package. One issue is the detour covers over the existing roadside ditches along the main line. Therefore, they need to be re-established once the detour is removed, which the cross sections show. In order to achieve an acceptable ditch depth the ground outside the proposed ditch was slightly higher than the existing condition ground. We did our best to match natural ground when possible with the design, but in some cases were unable to. If we call to put fabric down and remove the detour back down to the pre-existing contours then the proposed ditch will no longer function as designed.
2. Section 7 ESA and Section 106 NHPA issues
 - a. Section 7 ESA:
 - i. A habitat assessment for small whorled pogonia was completed in 2012; it was determined by biologists from Michael Baker Engineering that no habitat was present and no surveys were required. A biological conclusion of No Effect was rendered for this species.
 - ii. The US Fish and Wildlife Service has developed a programmatic biological opinion (PBO) in conjunction with the Federal Highway Administration (FHWA), the US Army Corps of Engineers (USACE), and NCDOT for the northern long-eared bat (NLEB) (*Myotis septentrionalis*) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. The programmatic determination for NLEB for the NCDOT program is **May Affect, Likely to Adversely Affect**. The PBO provides incidental take coverage for NLEB and will ensure compliance with Section 7 of the Endangered Species Act for five years for all NCDOT projects with a federal nexus in Divisions 1-8, which includes Guilford County, where B-5345 is located. This level of incidental take is authorized from the effective date of a final listing determination through April 30, 2020.
 - iii. A nesting survey for bald eagle within 660 feet of the study area was performed in April 2012 due to the presence of foraging habitat within 1.0 mile of the project (Lake Higgins). No bald eagle nests were observed within the search polygon. Due to the lack of observed nests or known occurrences and minimal impact anticipated for this project, it has been determined that this project will not affect this species.

- iv. A review of the NC Natural Heritage Program database on December 1, 2016 (updated October 2016), revealed no known occurrences of any species within 1.0 mile of the project.
- b. Section 106 NHPA:
 - i. *Historic Architecture:* NCDOT – Human Environment Section, under the provisions of a Programmatic Agreement with FHWA, NCDOT, Historic Preservation Office (HPO), Office of State Archaeology (OSA) and the Advisory Council on Historic Preservation (effective July 1, 2009), reviewed the proposed project and determined that no historic properties are located within the project’s area of potential effect and that no surveys are required (see form dated January 4, 2012 in the CE Appendix).
 - ii. *Archaeology:* NCDOT – Human Environment Section, under the provisions of a Programmatic Agreement with FHWA, NCDOT, HPO, OSA and the Advisory Council on Historic Preservation (effective July 1, 2009), reviewed the proposed project and determined that no prehistoric or historic properties are located within the project’s area of potential effects and that no surveys are required (see form dated January 10, 2012 in the CE Appendix).

3. Justification for use of on-site detour vs. off-site detour (this information was also provided via email on 11/29/2016)

- a. Below is the language for the on-site detour justification from the B-5345 CE:

“Although the environmental impacts are higher for the replace in-place with an onsite detour alternative compared with an offsite detour alternative, the almost 5 mile offsite detour would significantly impact the school buses and vehicular traffic utilizing SR 2136 (Fleming Road). Given the use of SR 2136 (Fleming Road) by school buses and emergency vehicles, the delay created by the detour is undesirable. NCDOT Division 7 concurs that the preferred alternative is a replace in-place with an onsite detour.”

- b. Below is the comment from the CE about the school system preference for the on-site detour:

“The only project specific comment received was from Guilford County Schools. They expressed concern about the off-site detour alternatives due to increased bus route times and the safety of buses traveling on narrow detour routes.”

- c. Additionally, below is the traffic information from the CE:

“The current traffic volume of 5,700 vehicles per day (VPD) is expected to increase to 9,900 VPD by the year 2040. The projected volume includes one percent truck-tractor semi-trailer (TTST) and two percent dual-tired (DT) vehicles. The posted speed limit is 45 miles per hour in the project area. Eighteen school buses cross the bridge on their morning and afternoon routes daily.”

Please let me know if you require any additional information or have any questions about the information provided.

Thanks,

Jim

-----Original Message-----

From: Bailey, David E CIV USARMY CESAW (US) [mailto:David.E.Bailey2@usace.army.mil]

Sent: Wednesday, November 30, 2016 8:00 AM

To: Mason, James S <jsmason@ncdot.gov>

Cc: Dagnino, Carla S <cdagnino@ncdot.gov>; Wanucha, Dave <dave.wanucha@ncdenr.gov>

Subject: Request for Additional Information; B-5345, Guilford County

Jim,

Thank you for the PCN and plans for the above referenced project. I have a few questions to resolve prior to processing the Nationwide Permit 3 verification. Please respond to the items below:

1) The wetland impacts for the temporary detour causeway/bridge are labeled as permanent. However, typically wetland areas within the temporary detour corridor would be restored after the temporary detour is removed. If these wetland areas can be restored, please change those impacts on the PCN and plans to temporary, include a paragraph describing the restoration of those wetland areas (i.e. re-establishing grade, prepping compacted soils, replanting, timeline, etc.), and recalculate total permanent wetland impacts to determine if compensatory mitigation is still required. If these wetland impacts cannot be restored please describe why this is not practicable.

2) Please provide documentation to resolve Section 7 ESA and Section 106 NHPA issues. References were made in the PCN to NEPA documentation, but this was not included in the permit application package.

3) Please provide information (brief) as to why an offsite detour is not practicable for this project, for avoidance and minimization purposes.

Please submit the requested information above (via e-mail is fine) within 30 days of receipt of this Notification, otherwise we may deny verification of the use of the Nationwide Permit or consider your application withdrawn and close the file. If you have any questions please let me know.

-Dave Bailey

David E. Bailey, PWS
Regulatory Project Manager
US Army Corps of Engineers
CE-SAW-RG-R
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587
Phone: (919) 554-4884, Ext. 30.
Fax: (919) 562-0421
Email: David.E.Bailey2@usace.army.mil

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 the Customer Satisfaction Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0.

Email correspondence to and from this sender is subject to the N.C. Public Records Law and may be disclosed to third parties.

Bryan Boulevard Mitigation Site
ONEID 041-006

The Bryan Boulevard Mitigation Site is located in Guilford County within the USGS hydrologic unit 03030002 of the Cape Fear River. NCDOT acquired the 23.93 acre site to mitigate for unavoidable, jurisdictional impacts associated with TIP U-0608. Monitoring requirements were performed from 1996 to 2000 and the site was closed out in 2003. Table 1 shows the final mitigation quantities approved for the site. The site has been placed on the NCDOT On-site Debit Ledger for use within HUC 03030002. Tables 2-4 indicate all mitigation debits that have occurred per regulatory agency approval.

In order to offset unavoidable impacts associated with B-5345, NCDOT will be debiting 0.23 acres of Riparian wetland restoration at a 2:1 ratio, totaling 0.46 acres from the Bryan Blvd mitigation site.

Table 1. Mitigation Quantities Approved

HUC	Mitigation Type	Starting Amount (Ac)	Additional Notes
3030002	Riparian Wetland Restoration (Ac.)	3.8	
3030002	Riparian Wetland Enhancement (Ac.)	1.9	NO CREDIT REMAINING
3030002	Riparian Wetland Creation (Ac.)	24	NO CREDIT REMAINING

Table 2. Mitigation Debts – Riparian Wetland Restoration

Mitigation Type	Debit Amount (Ac)	Status	Site TIP	Action ID#	NOTES
Riparian Wetland Restoration	1	Close Out	U-608	199100369	
Riparian Wetland Restoration	0.34	Close Out	U-5538	2013-01456	AICDZ
Riparian Wetland Restoration	0.46	Close Out	B-5345		0.23 @2:1 ratio = 0.46

Table 3. Mitigation Debts – Riparian Wetland Enhancement

Mitigation Type	Debit Amount (Ac)	Status	Site TIP	Action ID#	NOTES
Riparian Wetland Enhancement	1.9	Close Out	U-608	199100369	

Table 4. Mitigation Debts – Riparian Wetland Creation

Mitigation Type	Debit Amount (Ac)	Status	Site TIP	Action ID#	NOTES
Riparian Wetland Creation	24	Close Out	U-608	199100369	



PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

November 14, 2016

Mr. Philip S. Harris, 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: EEP Mitigation Acceptance Letter:

B-5345, Replace Bridge No. 456 over Brush Creek on SR 2136, Division 7, Guilford County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the buffer mitigation for the subject project. Based on the information supplied by you on November 9, 2016, the buffer impacts are located in CUs 03030002 of the Cape Fear River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Stream and Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands			Riparian Buffer	
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts	Cape Fear	03030002	CP	0	0	0	0	0	0	148	

All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWR's Buffer Authorization Certification, DMS will transfer funds from the NCDOT 2984 Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its riparian buffer mitigation responsibility for TIP Number B-5345. Subsequently, DMS will conduct a review of current NCDOT ILF Program mitigation projects in the river basin to determine if available buffer mitigation credits exist. If there are buffer mitigation credits available, then the Riparian Restoration Buffer Fund will purchase the appropriate amount of buffer mitigation credits from NCDOT ILF Program.

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.

Mr. Harris
October 14, 2016
Page Two
NCDOT B-5345

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

Sincerely,



James B. Stanfill
DMS Credit Management Supervisor

Cc: Mr. David Bailey, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NC Division of Water Resources
File: B-5345



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR NCDOT PROJECTS



(Version 2.05; Released April 2016)

WBS Element: 46059.1.1 TIP No.: B-5345 County(ies): Guilford Page 1 of 3

General Project Information

WBS Element:	46059.1.1	TIP Number:	B-5345	Project Type:	Bridge Replacement	Date:	5/11/2016
NCDOT Contact:	Christopher Lewis, PE		Contractor / Designer:	Kimley-Horn & Associates			
Address:	NCDOT Hydraulics Unit 1020 Birch Ridge Drive Raleigh, NC 27610		Address:	421 Fayetteville Street Suite 600 Raleigh, NC 27601			
	Phone:	919-707-6714		Phone:	919-677-2153		
	Email:	crlewis2@ncdot.gov		Email:	jason.lawing@kimley-horn.com		
City/Town:	Greensboro		County(ies):	Guilford			
River Basin(s):	Cape Fear		CAMA County?	No			
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	0.14 miles	Surrounding Land Use:	Rural
	Proposed Project		Existing Site
Project Built-Upon Area (ac.)	0.6 ac.		0.4 ac.
Typical Cross Section Description:	2 @ 12' wide lanes with typical 4' paved shoulders and side slopes that vary from 2:1 to 3:1 and lateral ditches with 3:1 front slopes and 3:1 back slopes.		2 @ 12' wide lanes with grass shoulders
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 9900	Year: 2040	Existing: 6450 Year: 2017
General Project Narrative: (Description of Minimization of Water Quality Impacts)	<p>Replacement of Bridge No. 400456 on SR 2136 (Fleming Road) in Guilford County. The existing bridge, overall length (OAL) = 75' and width = 25', will be replaced with a bridge having an OAL = 85' and width of 42'. The new bridge is wider than the existing bridge to provide the required shoulders necessary for roadway and drainage. The roadway is being widened to provide the minimum lanes for safe travel. A detour bridge, overall length 65' and width 28.5', will be constructed east of the existing/proposed bridge. This bridge will be removed and area allowed to re-vegetate once the primary bridge has been replaced. Roadside ditches that were affected due to the detour and mainline fill slopes were replaced in kind. No new roadside ditches were introduced as part of this project.</p> <p>Wetlands on the left (west) side of the roadway should only have a minimal impact. No fill or excavation is anticipated in these wetlands. There are small areas of the wetlands that are located within the proposed PDE. Mechanized clearing has been shown in these areas as a worst case scenario, but ultimately impacts are not anticipated. Wetlands on the right (east) side of the roadway will be impacted due to the detour. The detour roadway embankment will be graded back down to natural ground elevation after the proposed bridge is constructed. This will provide an environment for the wetlands to potentially re-establish over time.</p> <p>Rip rap is placed on the bridge sloping abutments to act as slope stabilization and prevent erosion. Runoff from the bridge is captured on the low side of the bridge in shoulder berm gutter and traffic bearing 2GI's on either side of the road in the roadway sag. The system is designed to outfall outside of buffer zone 2 in the area of an existing wetland that will be disturbed by the detour. Once this wetland is allowed to re-establish it will provide treatment for the system outfall.</p> <p>The roadside ditch on the begin bridge right side that is being replaced due to the detour impacts is being replaced as a grass swale. This ditch will treat the additional impervious area from the paved shoulder on the begin bridge right side. The velocity of the swale entering the wetland is less than 2.0 fps.</p>		

Waterbody Information

Surface Water Body (1):	Brush Creek		NCDWR Stream Index No.:	16-11-4-(1)			
NCDWR Surface Water Classification for Water Body	Primary Classification:	Water Supply III (WS-III)					
	Supplemental Classification:	Nutrient Sensitive Waters (NSW)					
Other Stream Classification:							
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	SA		Buffer Rules in Effect:	Jordan Lake			
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?	N/A		
Deck Drains Discharge Over Water Body?	No	(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)

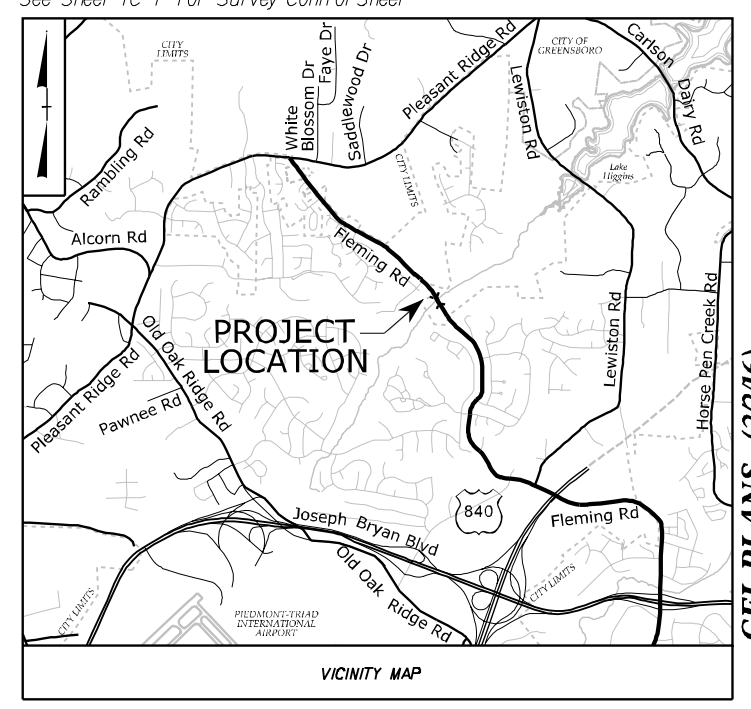
WBS Element: 46059.1.1 **TIP No.:** B-5345 **County(ies):** Guilford **Page** 2 **of** 3

Additional Waterbody Information

Surface Water Body (2):	Unnamed Tributary to Brush Creek		NCDWR Stream Index No.:	N/A	
NCDWR Surface Water Classification for Water Body	Primary Classification:	Water Supply III (WS-III)			
	Supplemental Classification:	Nutrient Sensitive Waters (NSW)			
Other Stream Classification:					
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SB		Buffer Rules in Effect:	Jordan Lake	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	No	Dissipator Pads Provided in Buffer?	N/A
Deck Drains Discharge Over Water Body?	No	(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)				

TIP PROJECT: B-5345

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 for Survey Control Sheet



CFI PLANS (2/2/16)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
GUILFORD COUNTY

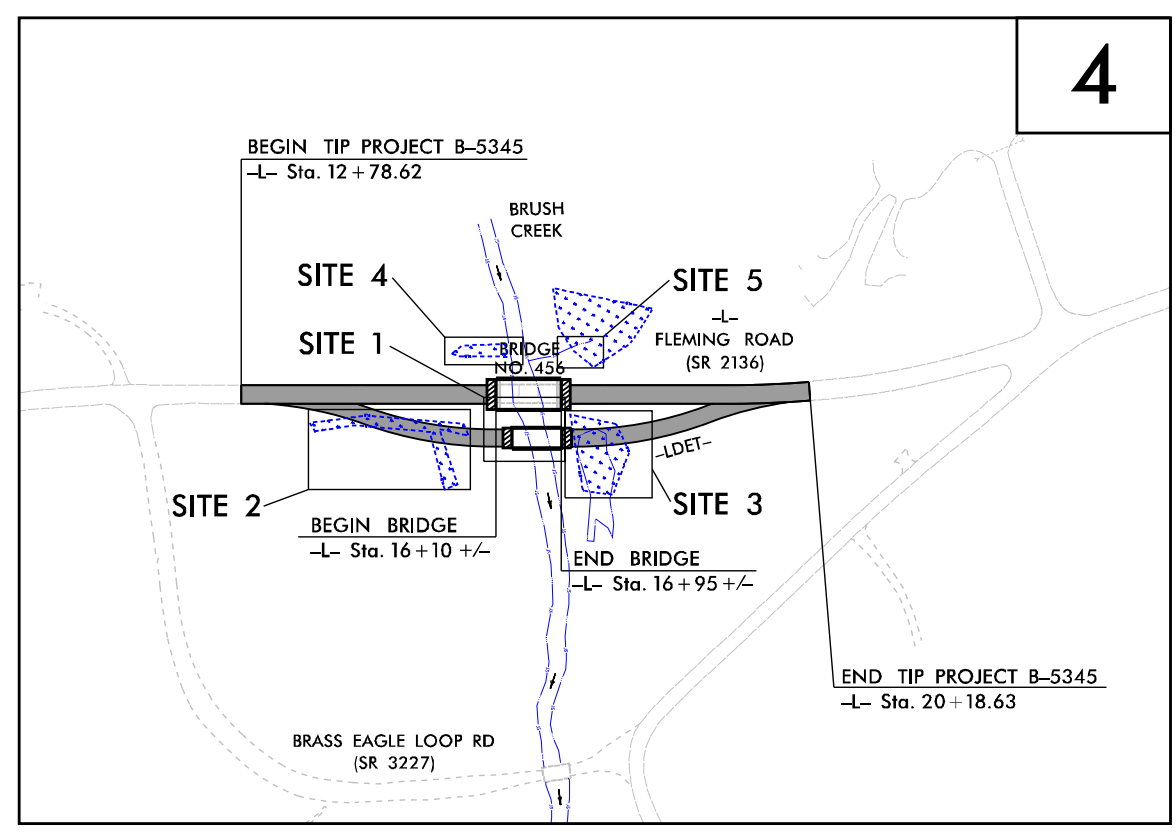
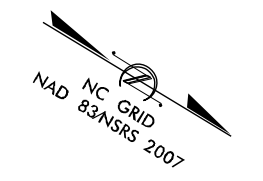
LOCATION: BRIDGE NO. 456 OVER BRUSH CREEK ON SR 2136 (FLEMING ROAD)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

WETLAND AND SURFACE WATER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5345	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46059.1.1	BRSTP-2136(5)	P.E.	

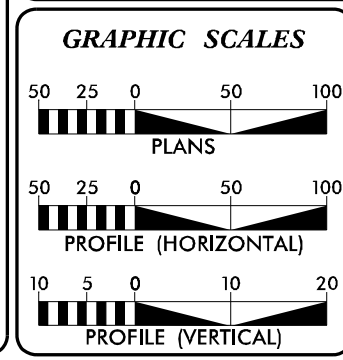
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 1 OF 15



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF GREENSBORO
*DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCE
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

CONTRACT:



DESIGN DATA

ADT 2017 = 6450 vpd
ADT 2040 = 9900 vpd
K = 11%
D = 60%
T = 3%*
V = 50 MPH
VDET = 40 MPH
*TTST = 1% DUAL = 2%
FUNC CLASS = RURAL LOCAL
"SUBREGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5345	=	0.124 MILES
LENGTH STRUCTURE TIP PROJECT B-5345	=	0.016 MILES
TOTAL LENGTH TIP PROJECT B-5345	=	0.140 MILES

PLANS PREPARED FOR THE NCDOT BY:

Kimley»Horn
INCORPORATED
1000 W. HARRIS BLVD.
RALEIGH, NC 27601
PHONE 919.876.2000

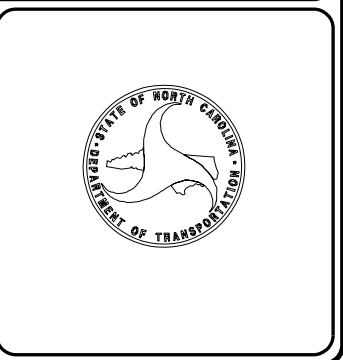
2012 STANDARD SPECIFICATIONS	JEFFREY W. MOORE, P.E. PROJECT ENGINEER
RIGHT OF WAY DATE: JUNE 17, 2016	CATHERINE A. MURRELL, P.E. PROJECT DESIGN ENGINEER
LETTING DATE: JUNE 20, 2017	JAMES A. SPEER, P.E. PROJECT ENGINEER NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



6/20/2016 K:\RAL_Roadway\01036275 - B-5345\Hydraulics\PERMITS_Environmental\Drawings\2016-06-20\B5345_hyd_drm_wet_tsh.dgn

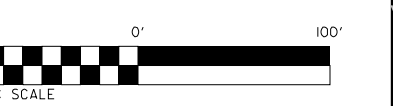
PROJECT REFERENCE NO.	SHEET NO.
B-5345	5
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY ENGINEER	

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

THERESA ANN WEISS
 DOUGLAS C. WEISS

JAMES A NELSON
 ELISABETH S. NELSON

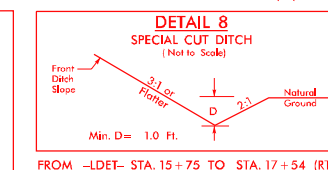
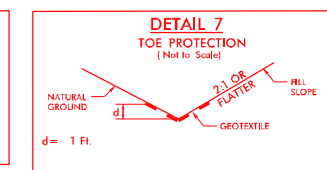
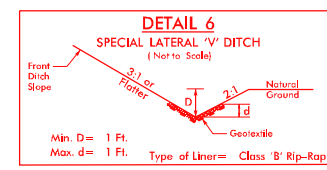
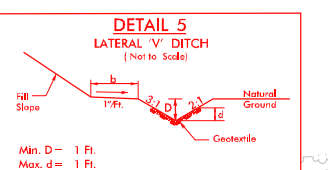
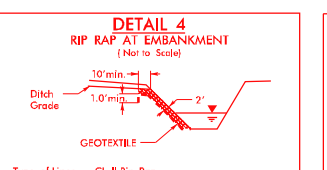
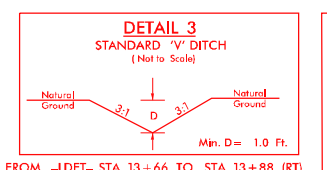
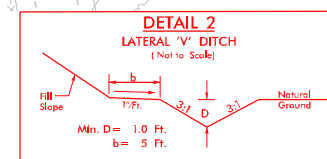
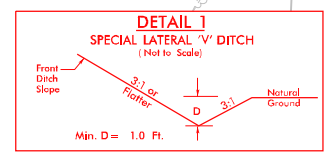
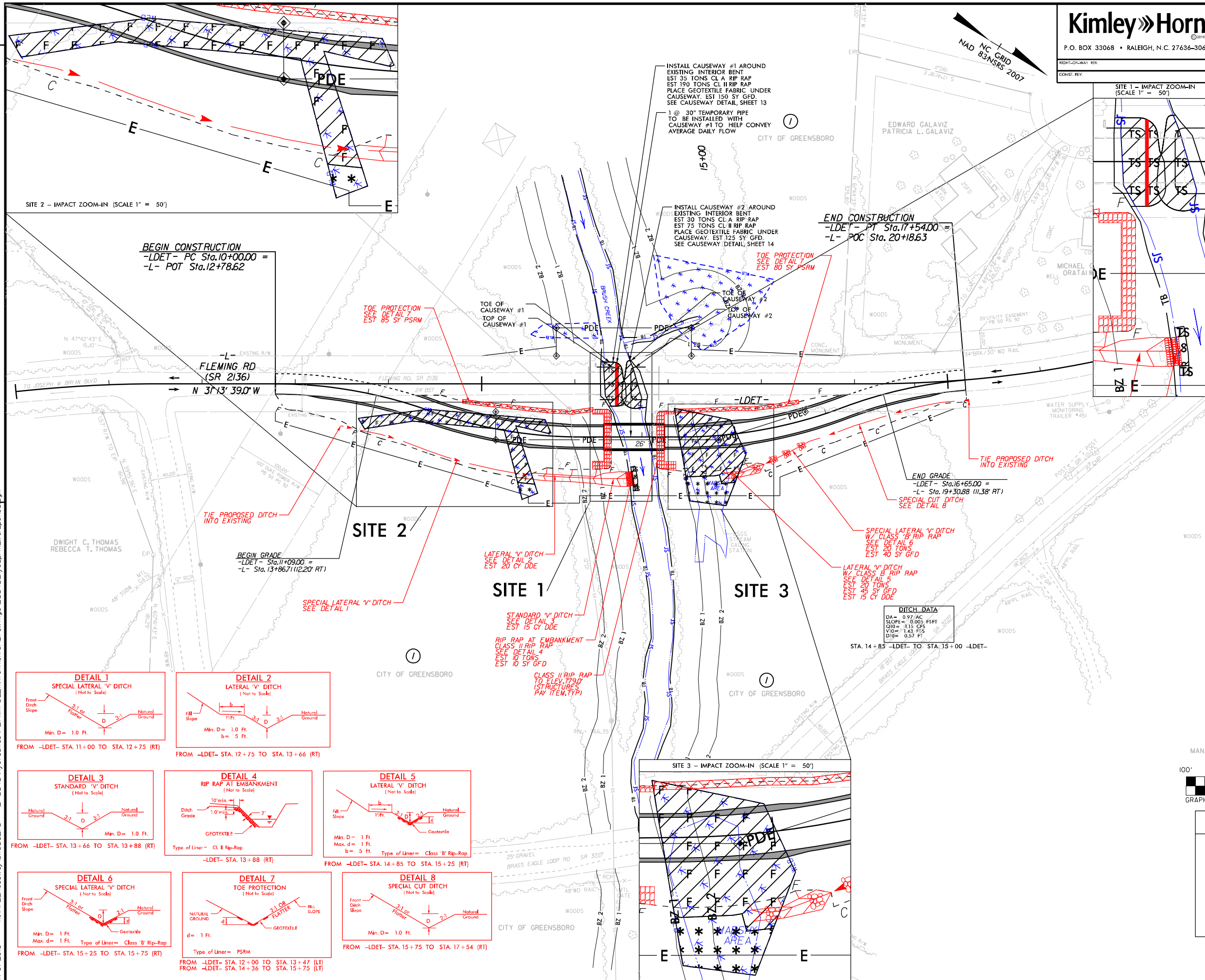
RALPH W. GUFFEY
 PATRICIA A. GUFFEY
 (GUFFEY PROPERTY
 MANAGEMENT - TAX LISTING)



LEGEND

	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING

PERMIT DRAWING
 SHEET 2 OF 15
 SEE SHEET 6 FOR -LDET- PROFILE



REVISIONS

K:\RAL_Roadway\01036275 - B-5345-Hydraulics\PERMITS-Environmental\Drawings\B5345_hyd_perm_wet_dso105.dgn
 11/8/2016

PROJECT REFERENCE NO. B-5345	SHEET NO. 5
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY ENGINEER	

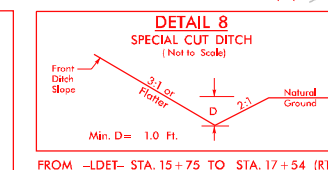
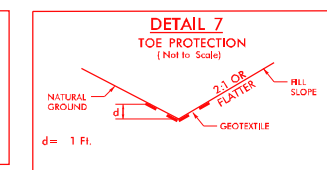
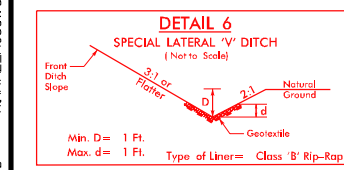
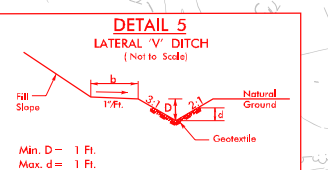
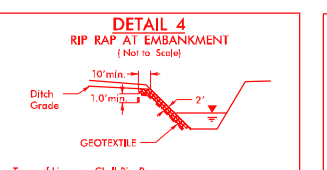
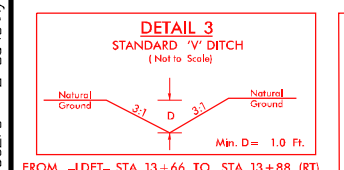
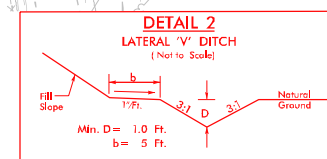
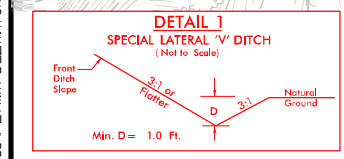
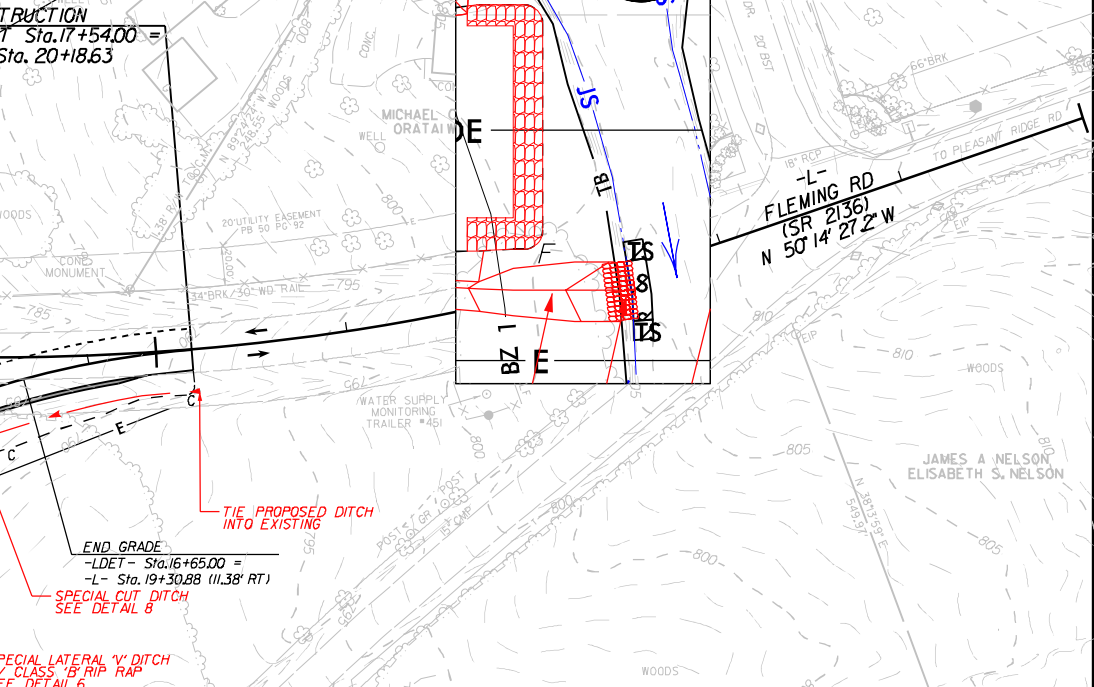
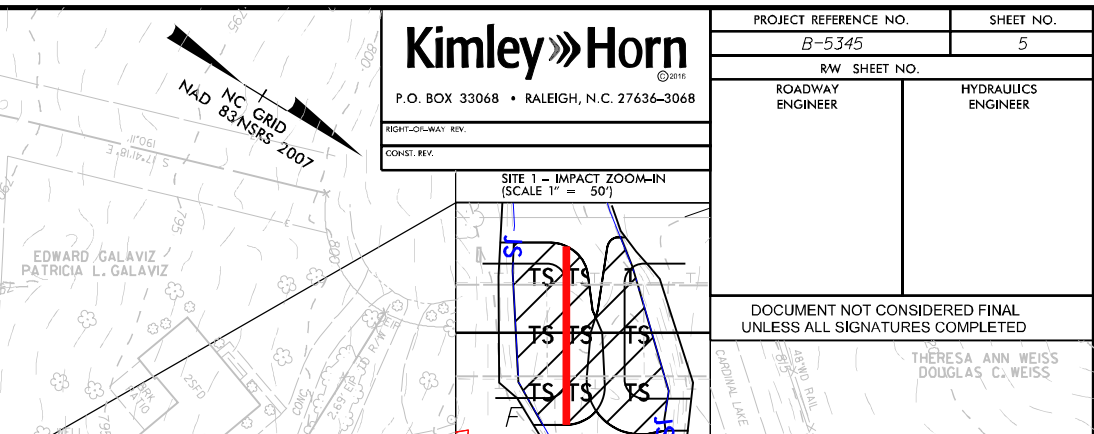
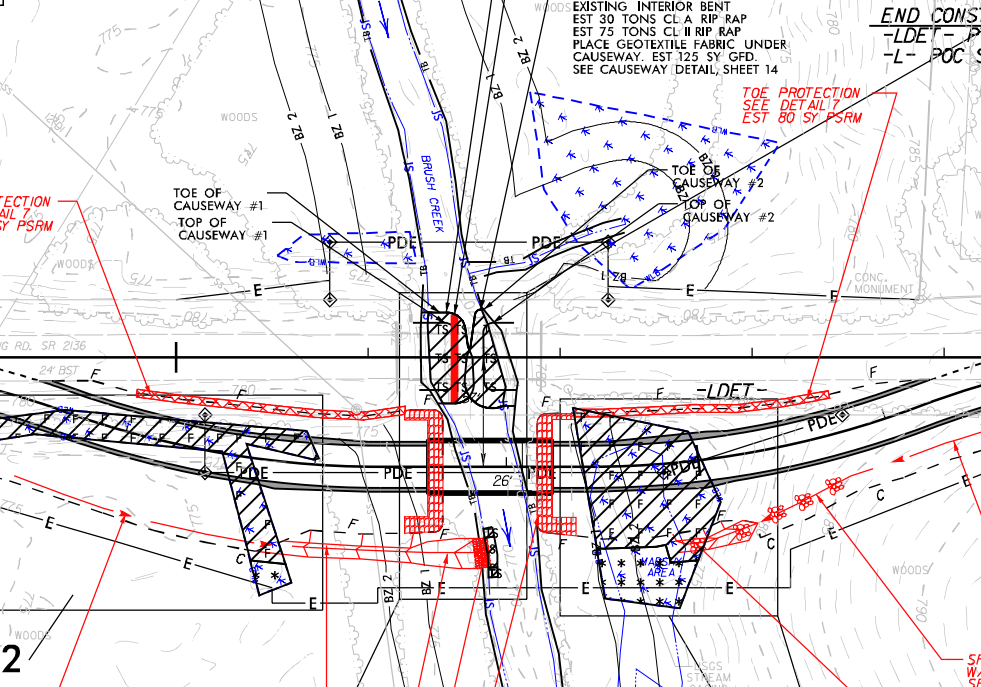
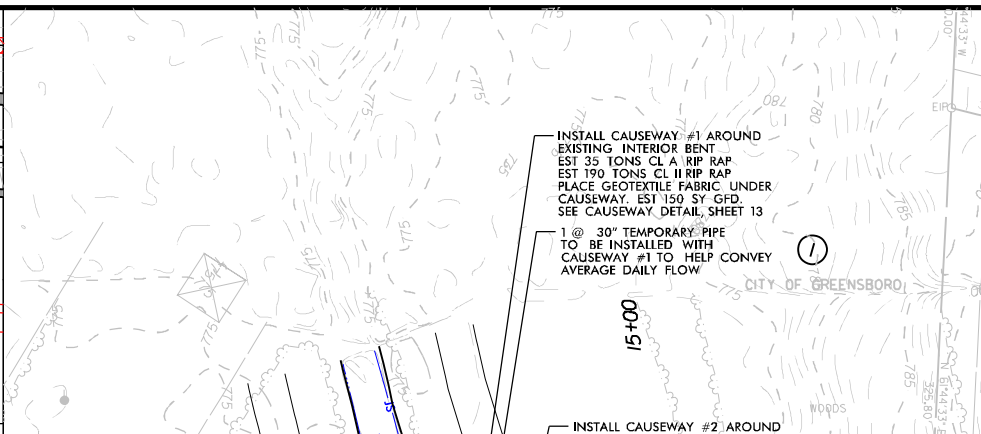
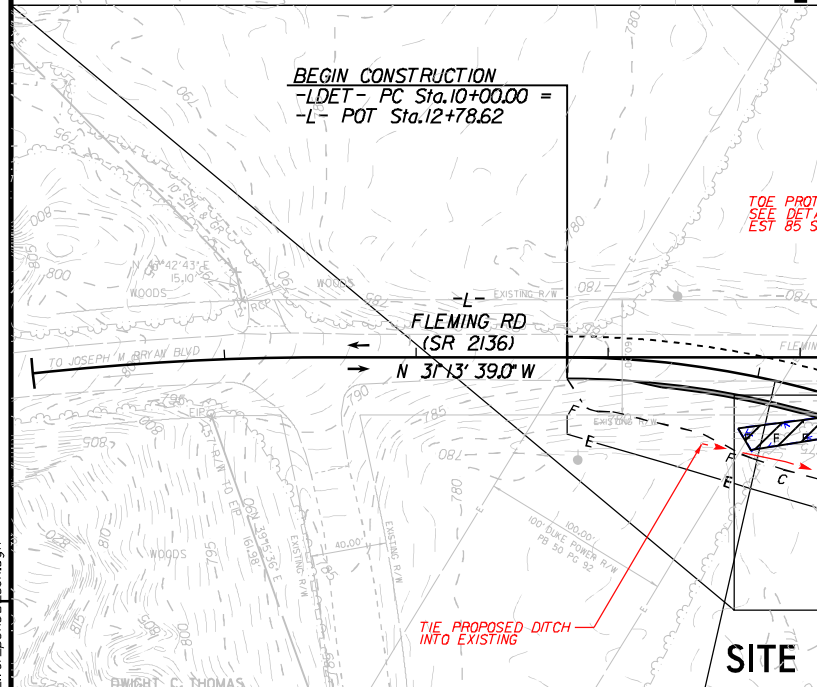
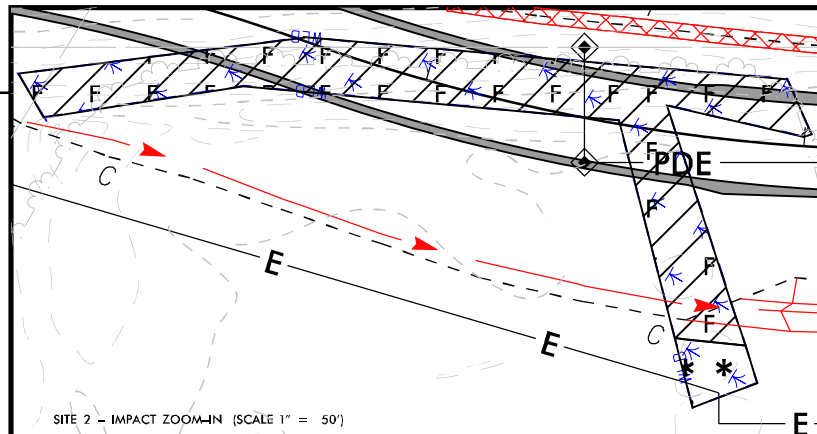
DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

THERESA ANN WEISS
 DOUGLAS C. WEISS

JAMES A. NELSON
 ELISABETH S. NELSON

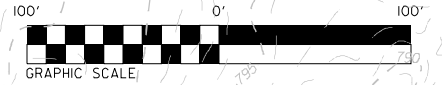
RALPH W. GUFFEY
 PATRICIA A. GUFFEY
 GUFFEY PROPERTY
 MANAGEMENT - TAX LISTING

REVISIONS



DITCH DATA

DA = 0.97 AC
SLOPE = 0.065 FEET
Q10 = 1.15 CFS
V10 = 1.43 FPS
D10 = 0.57 FT



LEGEND

[Symbol]	DENOTES FILL IN WETLAND
[Symbol]	DENOTES IMPACTS IN SURFACE WATER
[Symbol]	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
[Symbol]	DENOTES MECHANIZED CLEARING

PERMIT DRAWING
 SHEET 3 OF 15
 SEE SHEET 6 FOR -LDET- PROFILE

K:\RAL_Roadway\01036275 - B-5345-Hydraulics\PERMITS-Environmental\Drawings\B5345_hyd_perm_wet_dsr05.dwg
 11/8/2016

PROJECT REFERENCE NO.	SHEET NO.
B-5345	4
RW SHEET NO.	
ROADWAY ENGINEER	HYDRAULICS ENGINEER

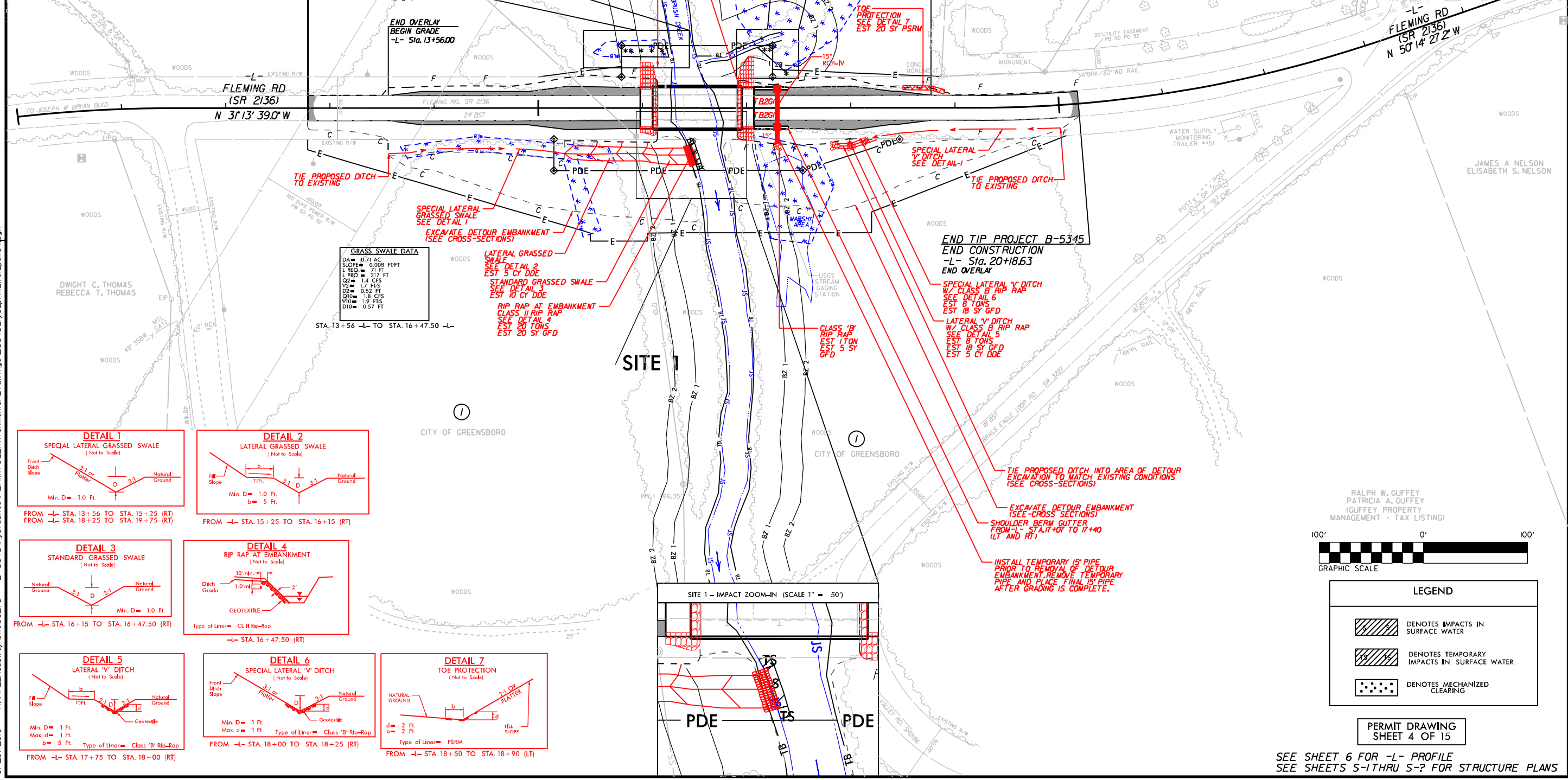
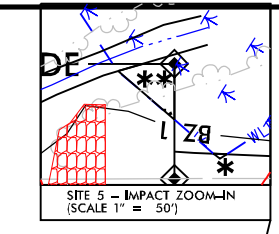
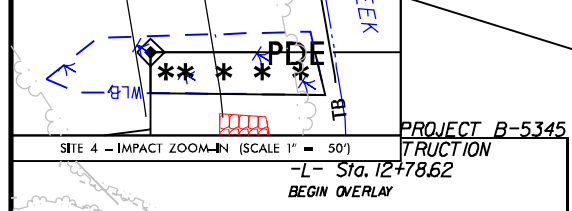
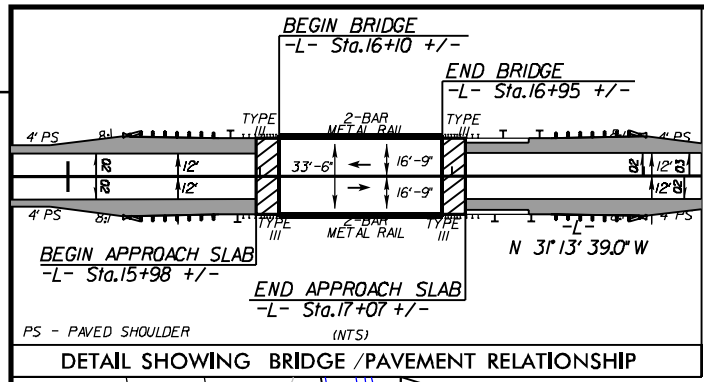
DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

EDWARD GALAVIZ
 PATRICIA L. GALAVIZ

MICHAEL C. BURGER
 ORATAI WONGSIRI

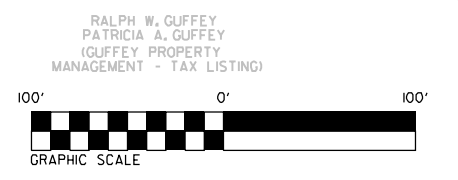
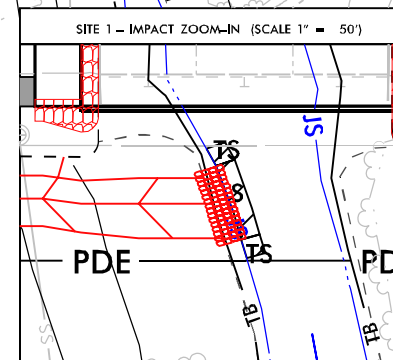
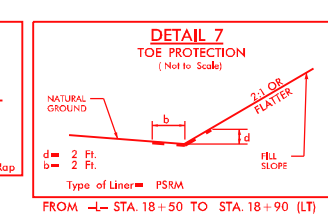
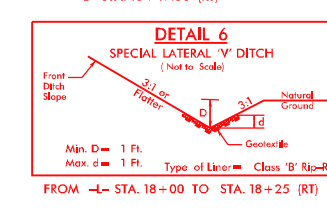
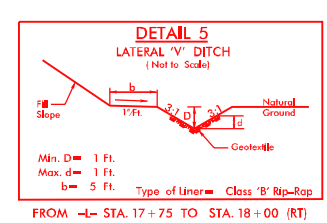
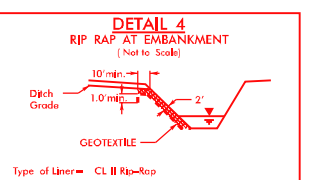
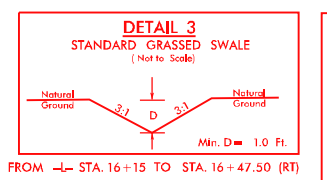
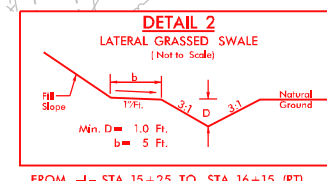
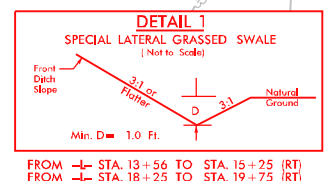
THERESA ANN WEISS
 DOUGLAS C. WEISS

JAMES A. NELSON
 ELISABETH S. NELSON



GRASS SWALE DATA

DA = 0.71 AC
SLOPE = 0.068 F1F1
L REQ = 71 FT
L PRD = 317 FT
Q2 = 1.4 CFS
V2 = 1.7 F1S
LQ2 = 0.52 FT
Q10 = 1.8 CFS
W10 = 1.9 F1S
D10 = 0.57 FT



LEGEND

	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING

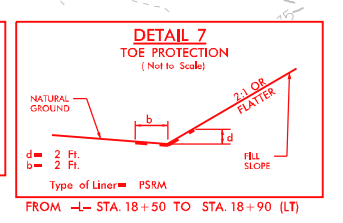
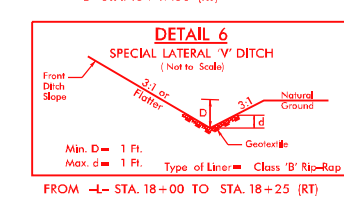
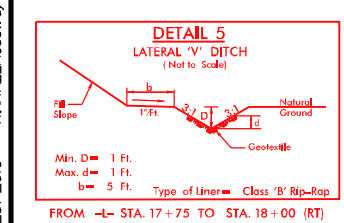
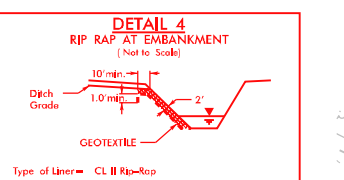
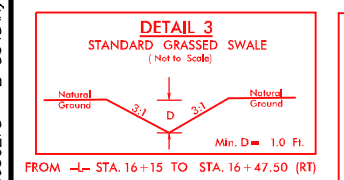
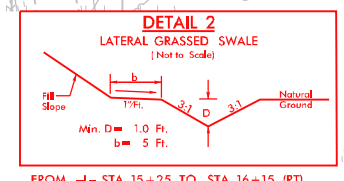
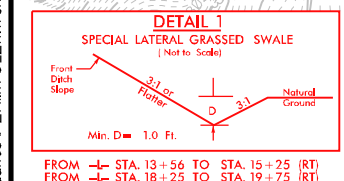
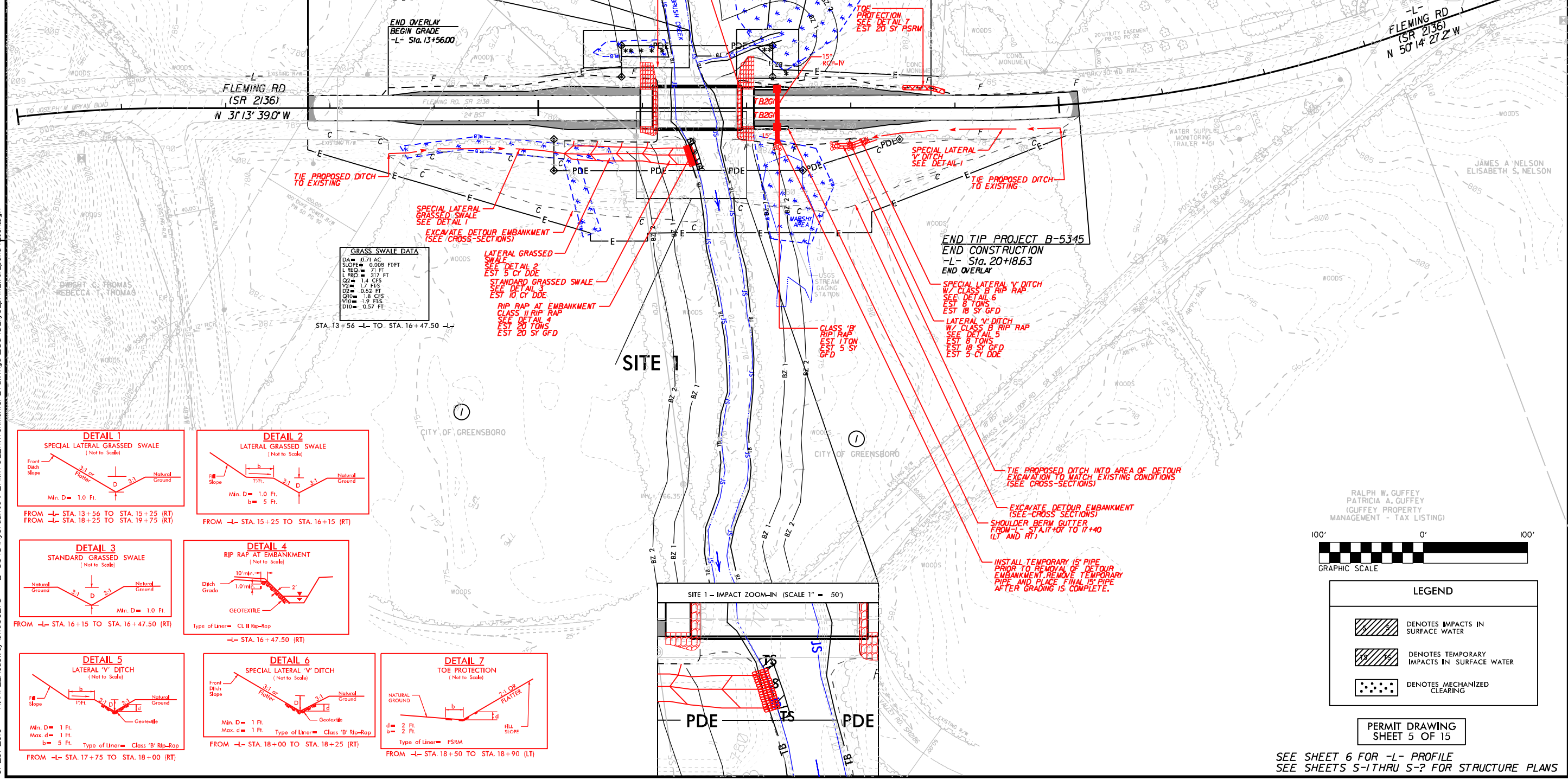
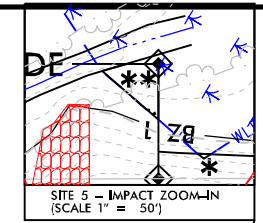
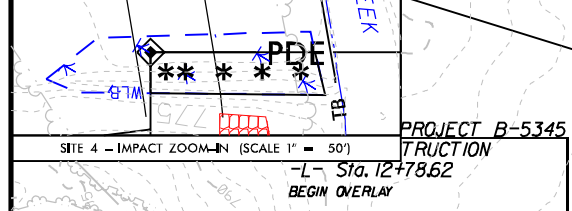
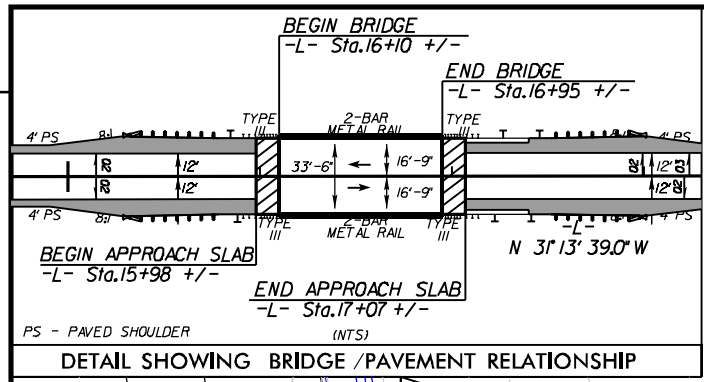
PERMIT DRAWING
 SHEET 4 OF 15

SEE SHEET 6 FOR -L- PROFILE
 SEE SHEETS S-1 THRU S-2 FOR STRUCTURE PLANS

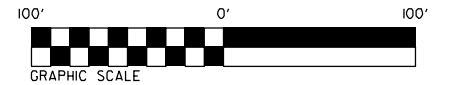
REVISIONS

6/23/2016 K:\PAL_Roadway\01036275 - B-5345\Hydraulics\PERMITS-Environmental\Drawings\B5345_hyd_perm_wet_per04.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-5345	4
ROADWAY ENGINEER	HYDRAULICS ENGINEER



RALPH W. GUFFEY
 PATRICIA A. GUFFEY
 (GUFFEY PROPERTY MANAGEMENT - TAX LISTING)



LEGEND

	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING

PERMIT DRAWING
 SHEET 5 OF 15

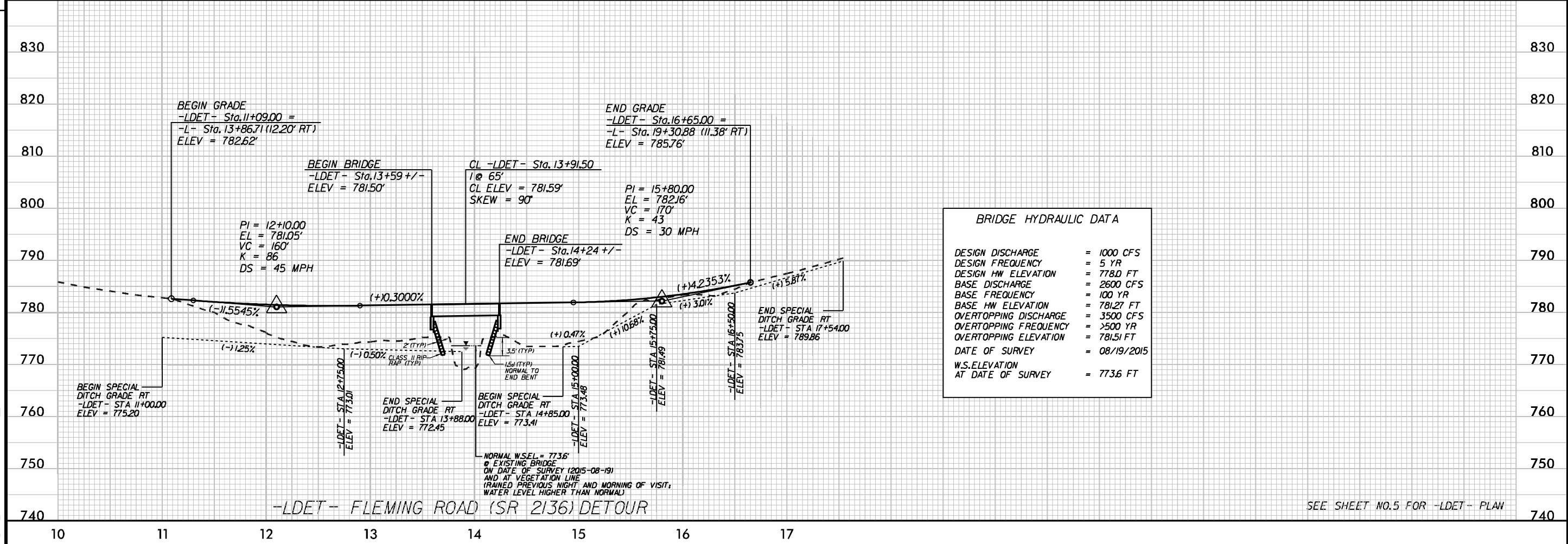
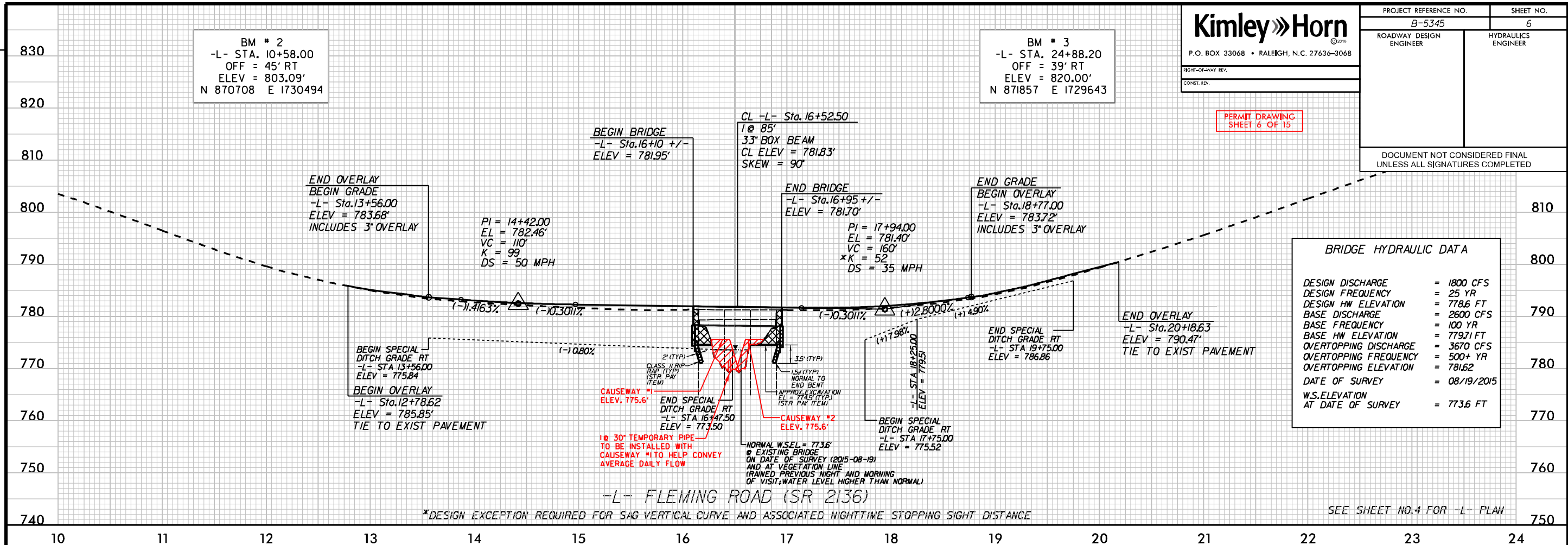
SEE SHEET 6 FOR -L- PROFILE
 SEE SHEETS S-1 THRU S-2 FOR STRUCTURE PLANS

REVISIONS

6/23/2016 K:\PAL_Roadway\01036275 - B-5345\Hydraulics\PERMITS-Environmental\Drawings\B5345_hyd_perm_wet_per04.candgn

PERMIT DRAWING
SHEET 6 OF 15

PROJECT REFERENCE NO. B-5345	SHEET NO. 6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



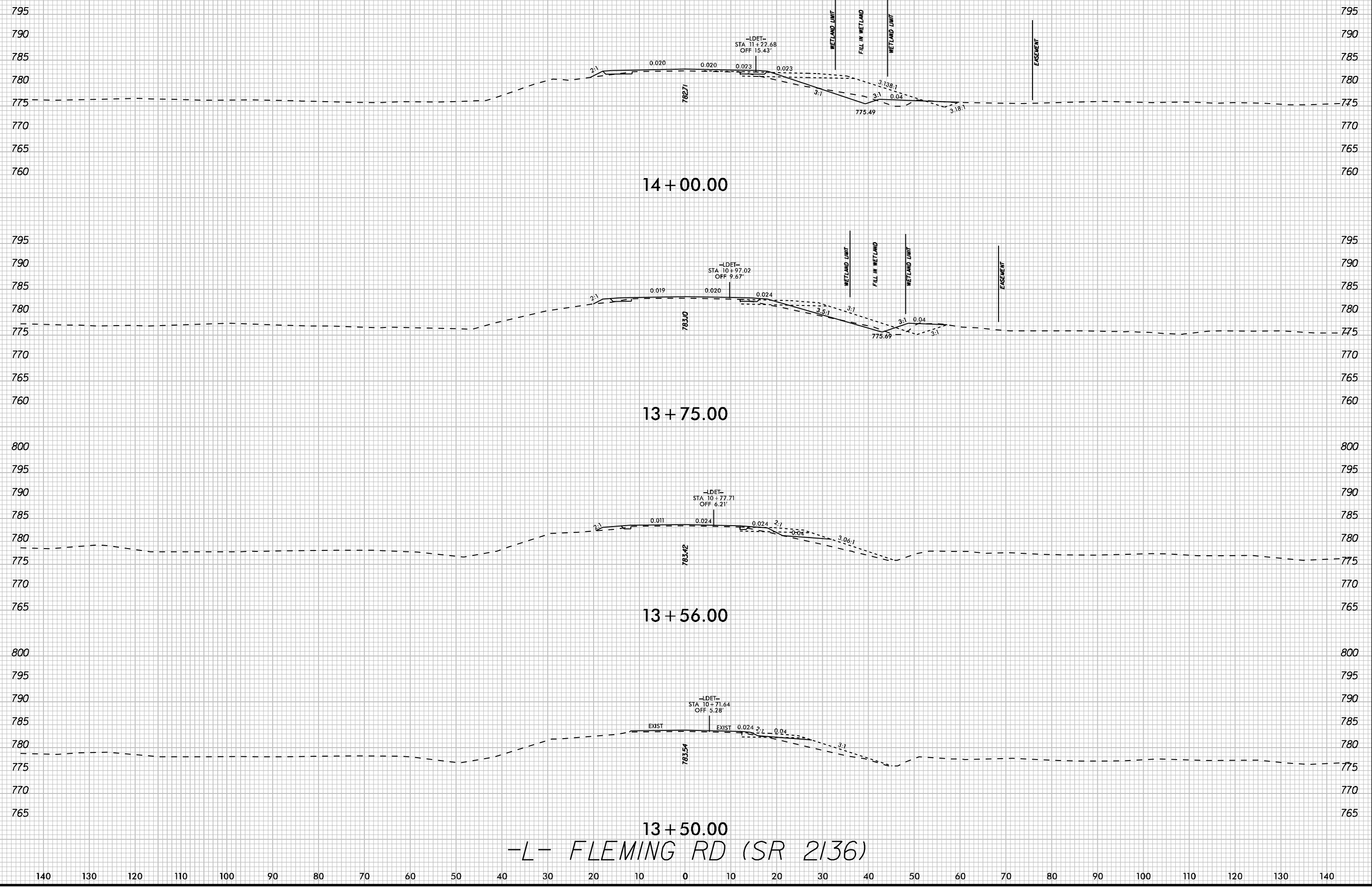
REVISIONS

\$FILE\$

\$DATE\$

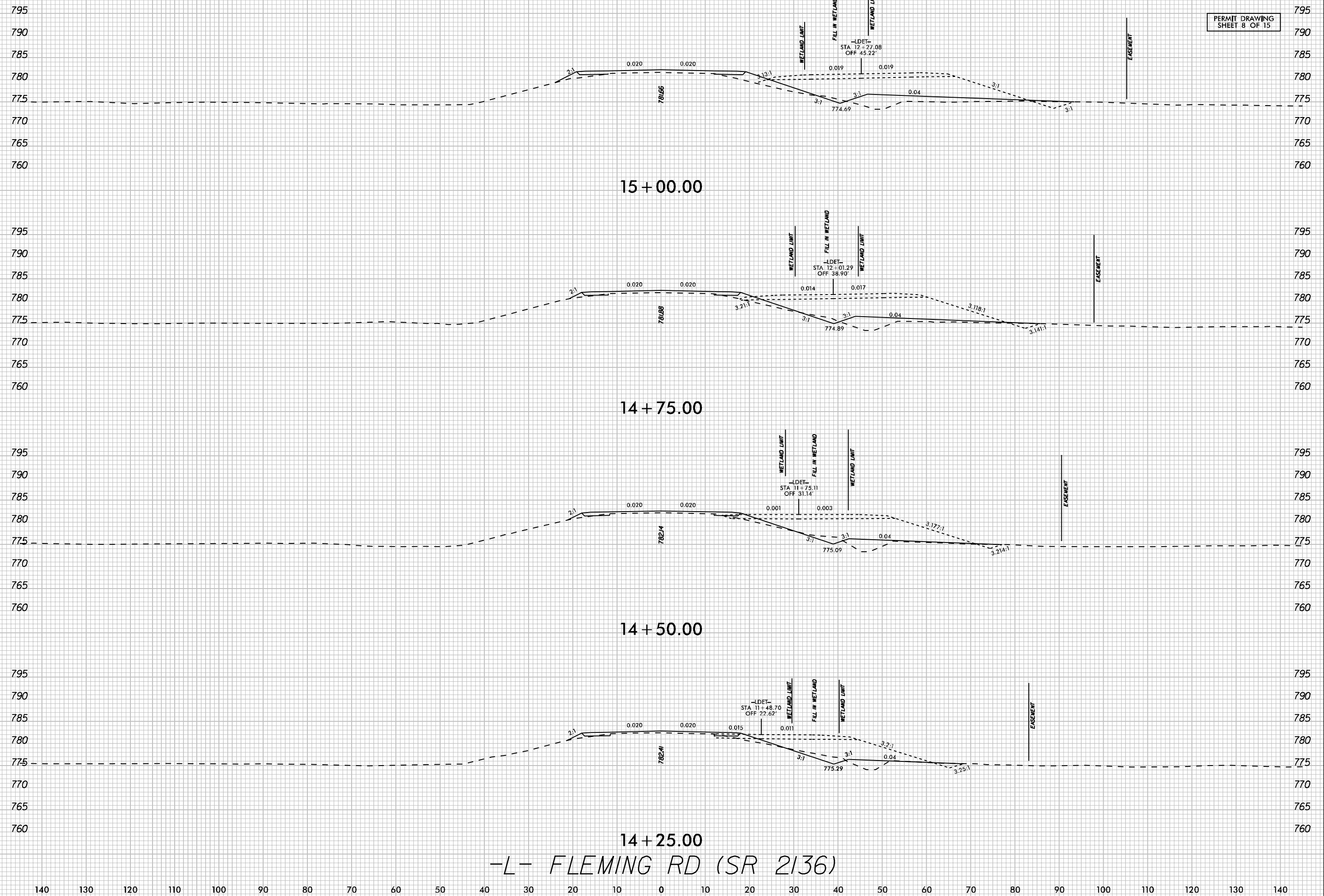
PERMIT DRAWING
SHEET 7 OF 15

K:\PAL_Roadway\01036275 - B-5345\Hydraulics\PERMITS_Environment\Drawings\B5345_hyd_perm_wet_xpl_L.LDET.dgn
5/10/2016



13+50.00
-L- FLEMING RD (SR 2136)

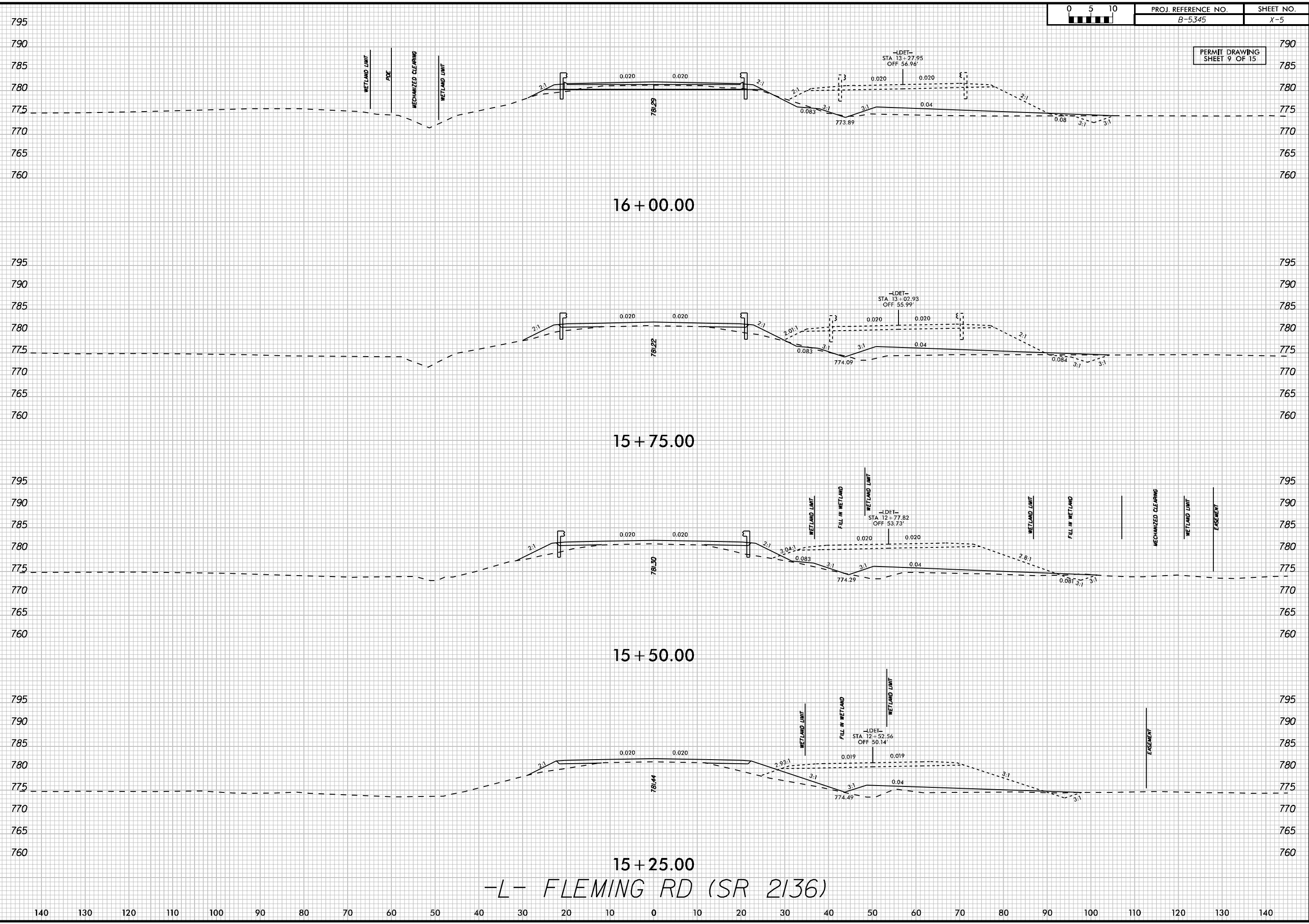
PERMIT DRAWING
SHEET 8 OF 15



14+25.00
-L- FLEMING RD (SR 2136)

K:\PAL_Roadway\01036275 - B-5345\Hydro\Drawings\PERMITS_Environmental\Drawings\B5345_hyd_perm_wet_xpl.L.DDET.dgn 5/10/2016

PERMIT DRAWING
SHEET 9 OF 15

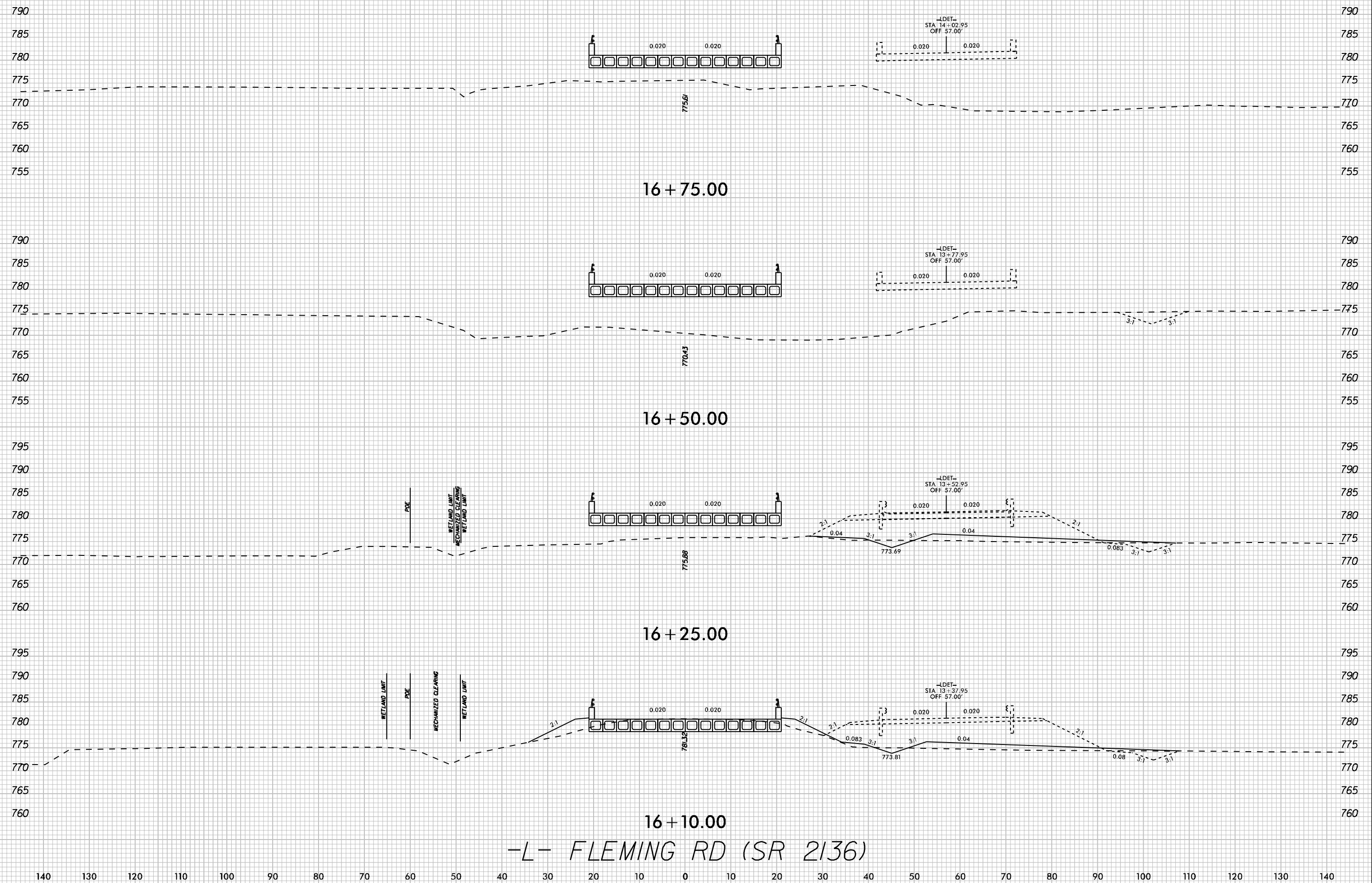


15+25.00
-L- FLEMING RD (SR 2136)

K:\PAL_Roadway\01036275 - B-5345\Hydro\Drawings\PERMITS_Environmental\Drawings\B5345_hyd_perm_wet_xpl.L.DET.dgn
 5/10/2016

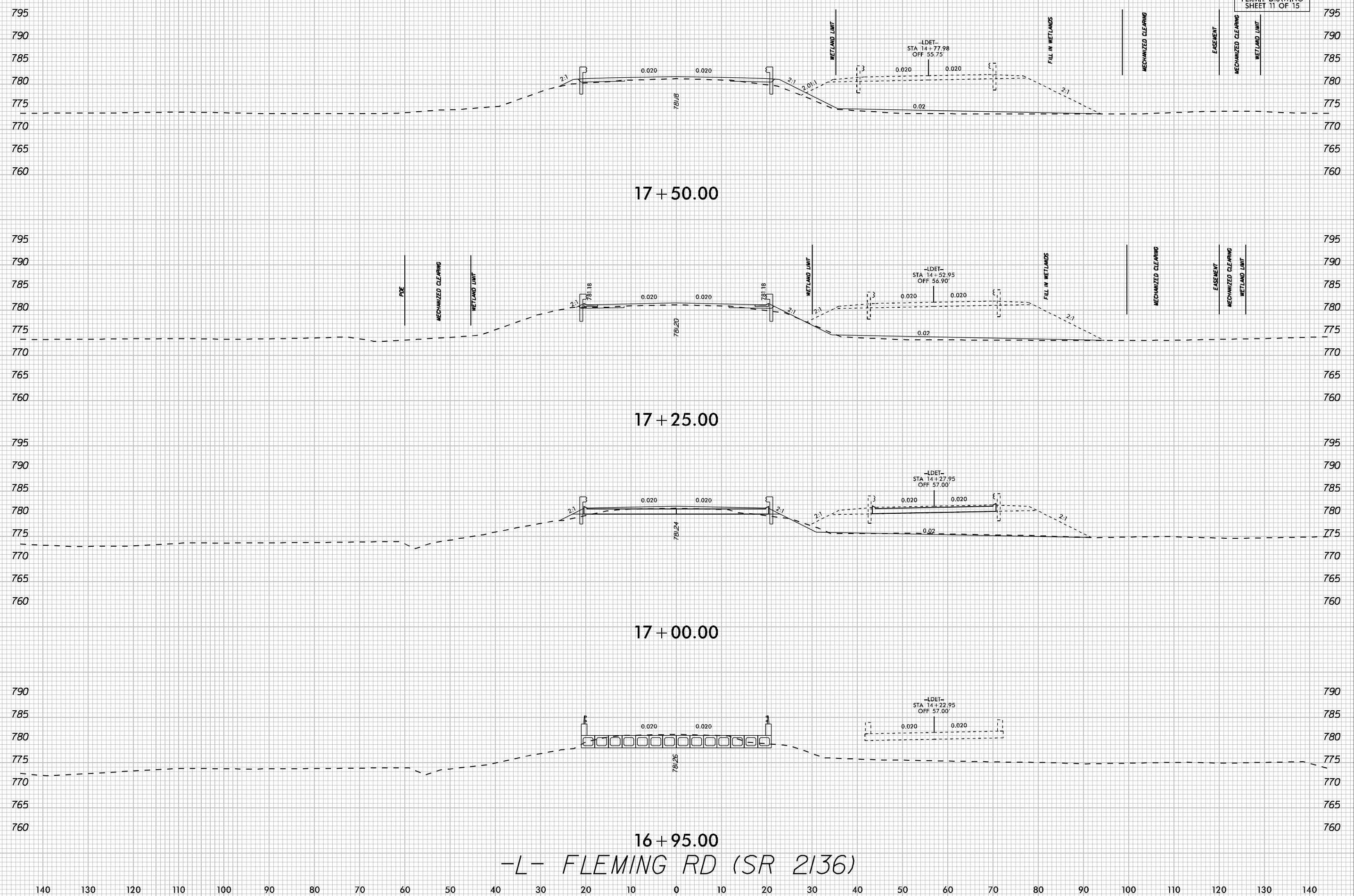
PERMIT DRAWING
SHEET 10 OF 15

K:\PAL_Roadway\01036275 - B-5345\Hydraulic\PERMITS_Environment\Drawings\B5345_hyd_perm_wet_xpl.LDET.dgn
5/10/2016



-L- FLEMING RD (SR 2136)

PERMIT DRAWING
SHEET 11 OF 15

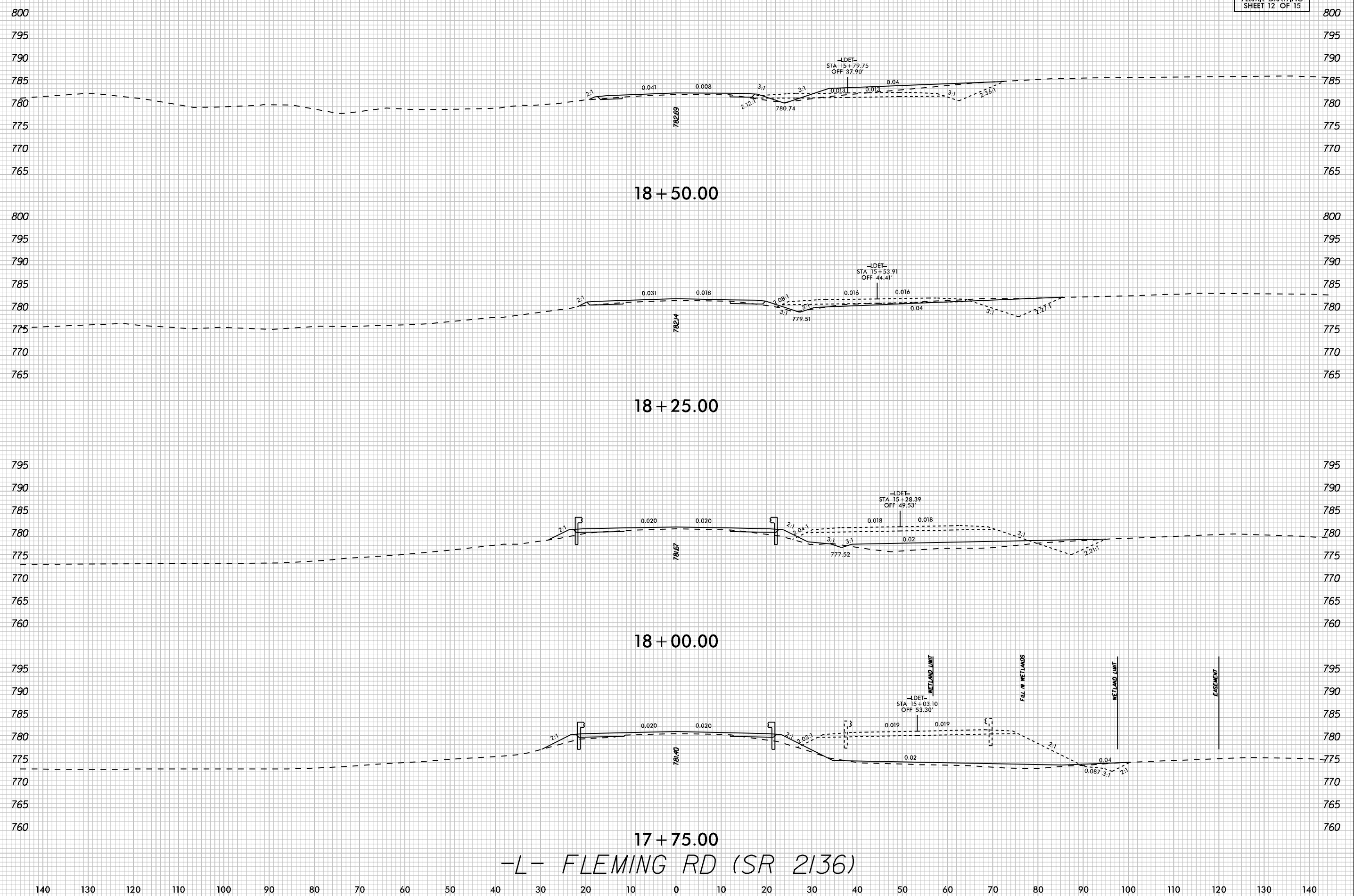


K:\PAL_Roadway\01036275 - B-5345\Hydrolics\PERMITS_Environment\Drawings\B5345_hyd_brm_wet_xpl_L-DET.dgn 11/8/2016

16+95.00
-L- FLEMING RD (SR 2136)

PERMIT DRAWING
SHEET 12 OF 15

K:\PAL_Roadway\01036275 - B-5345\Hydraulics\PERMITS_Environment\Drawings\B5345_hyd_prm_wet_xpl.LLDET.dgn
5/10/2016



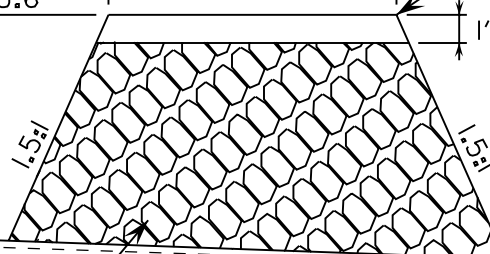
17+75.00
-L- FLEMING RD (SR 2136)

CAUSEWAY NO.1 DETAIL (NOT TO SCALE)

CAUSEWAY WIDTH = 35'

TOP OF CAUSEWAY
ELEV. = 775.6'

WORKPAD
(CLASS 'A' RIP RAP)



ROCK CAUSEWAY
(CLASS II RIP RAP)

GEOTEXTILE FABRIC

PERMIT DRAWING SHEET 13 OF 15

NCDOT

DIVISION OF HIGHWAYS
GUILFORD COUNTY
PROJECT: B-5345
BRIDGE NO. 456 OVER
BRUSH CREEK ON
SR 2136 (FLEMING RD)

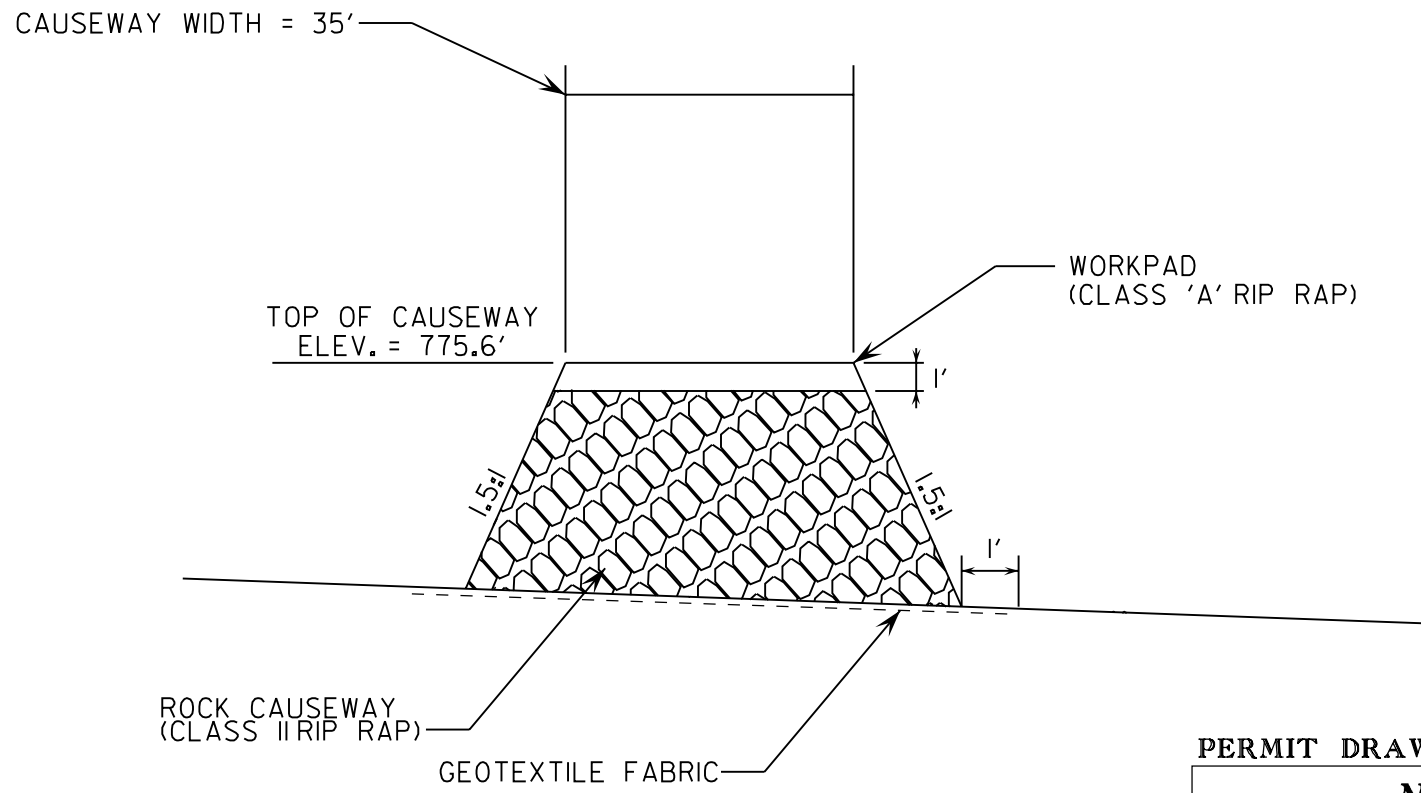
05 // 04 // 2016

QUANTITIES OF ESTIMATES: CAUSEWAY
 VOLUME OF CLASS 'A' RIP RAP= 25 yds³
 AREA OF CLASS 'A' RIP RAP= 0.02 acres
 Estimate 35 Tons Class 'A' Rip Rap
 VOLUME OF CLASS II RIP RAP= 135 yds³
 AREA OF CLASS II RIP RAP= 0.03 acres
 Estimate 190 Tons Class II Rip Rap
 Estimate 150 SY of Geotextile Fabric

Causeway #1Detail_prm_wet.dgn

5/10/2016

CAUSEWAY NO. 2 DETAIL
(NOT TO SCALE)



Causeway #2 Detail_perm_wet.dgn

5/10/2016

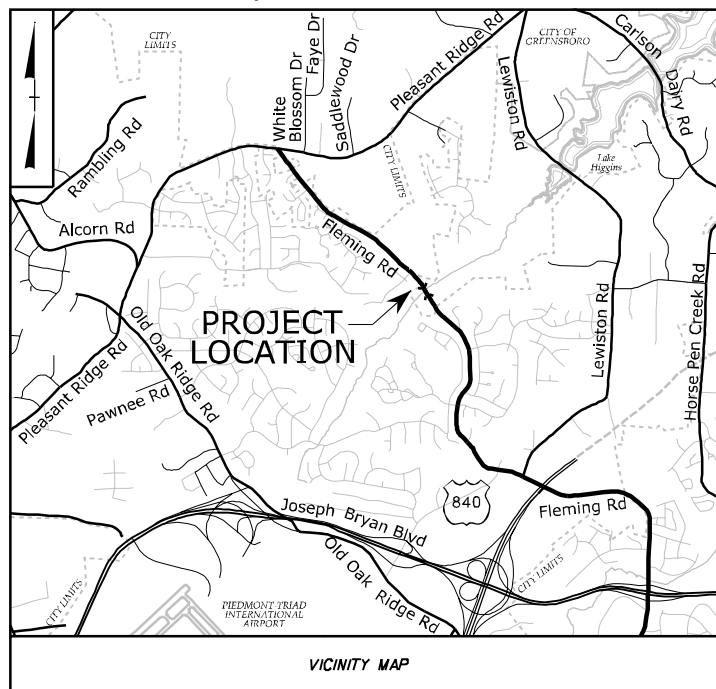
QUANTITIES OF ESTIMATES: CAUSEWAY
 VOLUME OF CLASS 'A' RIP RAP= 20 yds³
 AREA OF CLASS 'A' RIP RAP= 0.01 acres
 Estimate 30 Tons Class 'A' Rip Rap
 VOLUME OF CLASS II RIP RAP= 50 yds³
 AREA OF CLASS II RIP RAP= 0.02 acres
 Estimate 75 Tons Class II Rip Rap
 Estimate 125 SY of Geotextile Fabric

PERMIT DRAWING SHEET 14 OF 15

NCDOT
 DIVISION OF HIGHWAYS
 GUILFORD COUNTY
 PROJECT: B-5345
 BRIDGE NO. 456 OVER
 BRUSH CREEK ON
 SR 2136 (FLEMING RD)
 05 // 04 // 2016

TIP PROJECT: B-5345

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 For Survey Control Sheet



CFI PLANS (2/2/16)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
GUILFORD COUNTY

**LOCATION: BRIDGE NO. 456 OVER BRUSH CREEK
ON SR 2136 (FLEMING ROAD)**

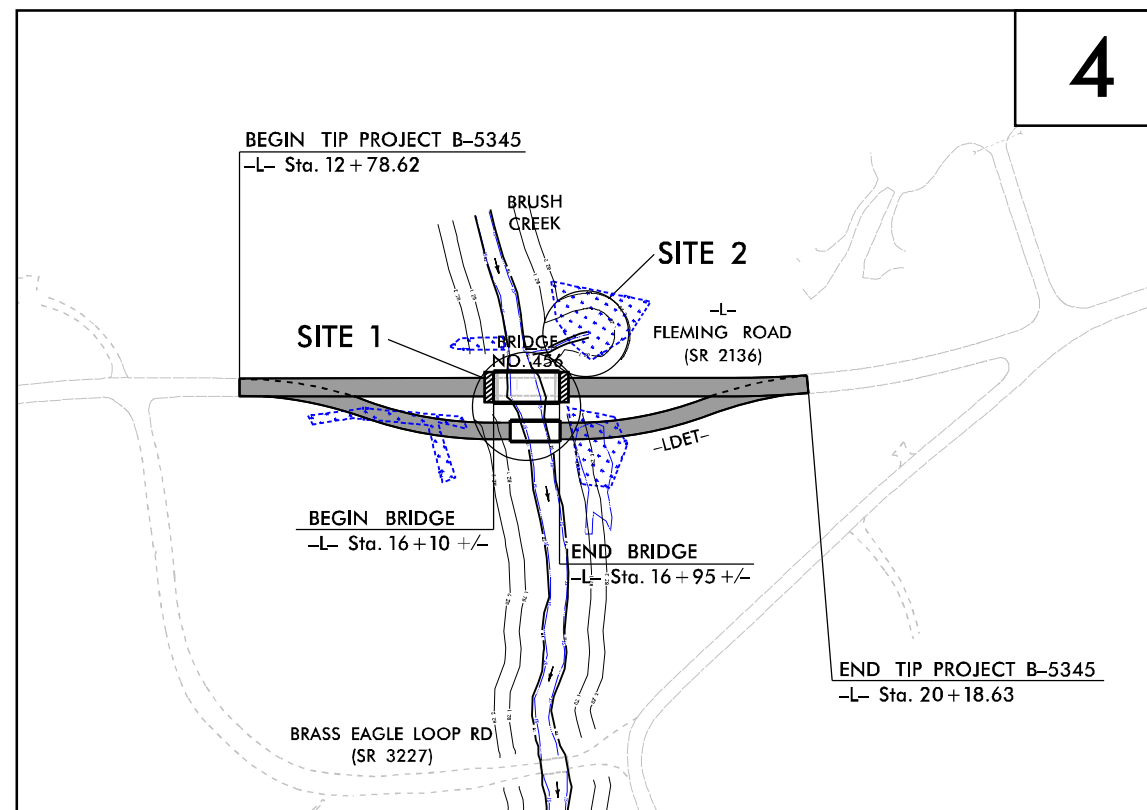
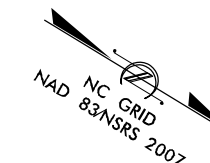
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

BUFFER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5345	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46059.1.1	BRSTP-2136(5)	P.E.	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

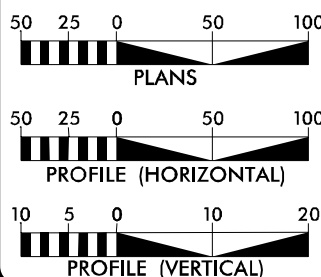
BUFFER DRAWING
SHEET 1 OF 4



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF GREENSBORO
*DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCE
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

CONTRACT:

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 6450 vpd
ADT 2040 = 9900 vpd
K = 11%
D = 60%
T = 3%*
V = 50 MPH
VDET = 40 MPH
*TTST = 1% DUAL = 2%
FUNC CLASS = RURAL LOCAL
"SUBREGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5345 = 0.124 MILES
LENGTH STRUCTURE TIP PROJECT B-5345 = 0.016 MILES
TOTAL LENGTH TIP PROJECT B-5345 = 0.140 MILES

PLANS PREPARED FOR
THE NCDOT BY:

Kimley»Horn

NC LICENSE #44192
PA-0217 0049
REG. FOR NORTH CAROLINA, 2/1/02
PROJECT #16177 2016

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 17, 2016

LETTING DATE:
JUNE 20, 2017

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

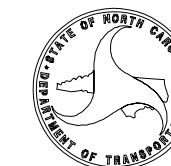
CATHERINE A. MURRELL, P.E.
PROJECT DESIGN ENGINEER

JAMES A. SPEER, P.E.
PROJECT ENGINEER
NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEER

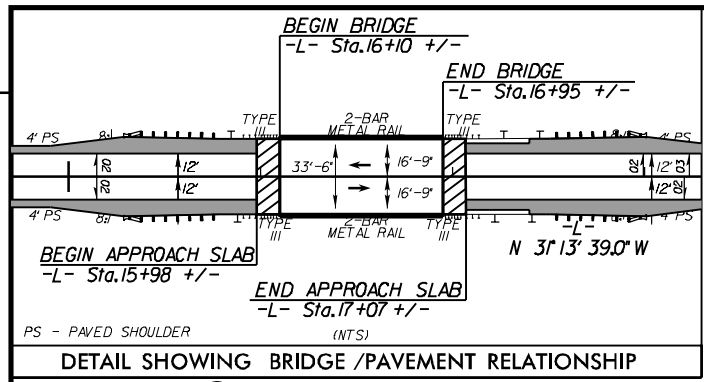
SIGNATURE: _____
ROADWAY DESIGN ENGINEER

SIGNATURE: _____
P.E.



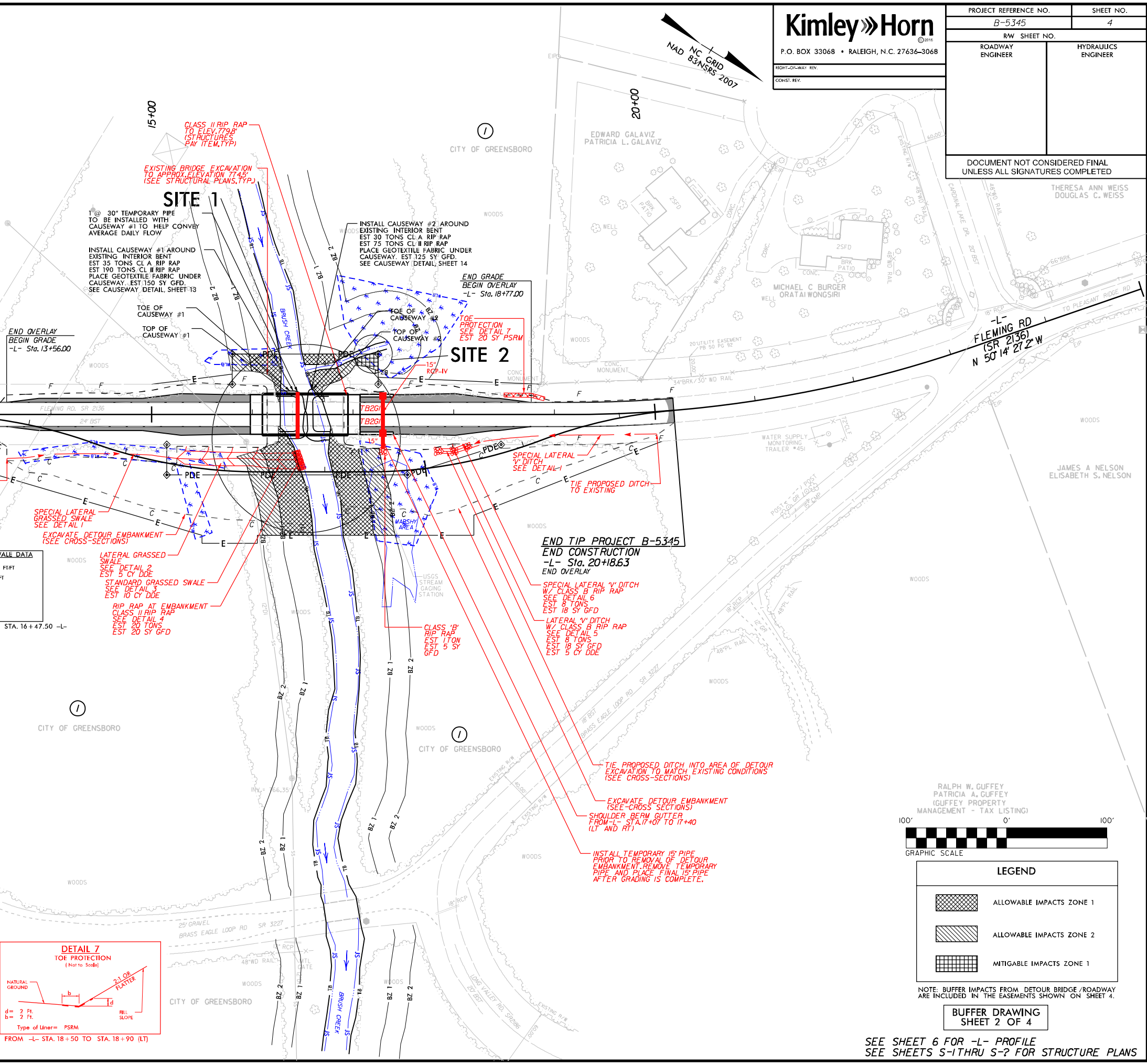
DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

THERESA ANN WEISS
 DOUGLAS C. WEISS



CITY OF GREENSBORO

BEGIN TIP PROJECT B-5345
BEGIN CONSTRUCTION
 -L- Sta. 12+78.62
BEGIN OVERLAY



SITE 1
 1 @ 30" TEMPORARY PIPE TO BE INSTALLED WITH CAUSEWAY #1 TO HELP CONVEY AVERAGE DAILY FLOW
 INSTALL CAUSEWAY #1 AROUND EXISTING INTERIOR BENT
 EST 35 TONS CL A RIP RAP
 EST 190 TONS CL II RIP RAP
 PLACE GEOTEXTILE FABRIC UNDER CAUSEWAY. EST 150 SY GFD. SEE CAUSEWAY DETAIL, SHEET 13
 END OVERLAY
 BEGIN GRADE
 -L- Sta. 13+56.00

INSTALL CAUSEWAY #2 AROUND EXISTING INTERIOR BENT
 EST 30 TONS CL A RIP RAP
 EST 75 TONS CL II RIP RAP
 PLACE GEOTEXTILE FABRIC UNDER CAUSEWAY. EST 125 SY GFD. SEE CAUSEWAY DETAIL, SHEET 14
 END GRADE
 BEGIN OVERLAY
 -L- Sta. 18+77.00

SITE 2
 TOE PROTECTION SEE DETAIL 7
 EST 20 SY PSRM
 -L- Sta. 18+77.00

END TIP PROJECT B-5345
END CONSTRUCTION
 -L- Sta. 20+18.63
END OVERLAY

GRASS SWALE DATA

DA=	0.71 AC
SLOPE=	0.008 FT/FT
L REQ=	71 FT
L PRO=	317 FT
Q1=	1.4 CFS
V2=	1.7 FT/S
D1=	0.92 FT
Q10=	1.8 CFS
V10=	1.9 FT/S
D10=	0.57 FT

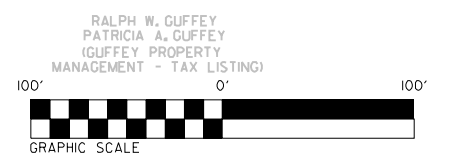
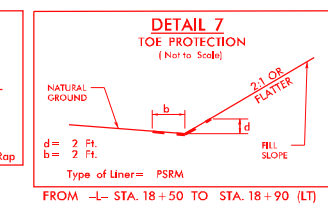
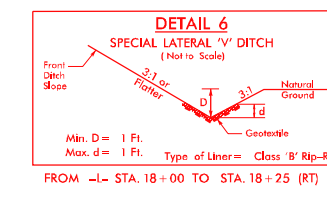
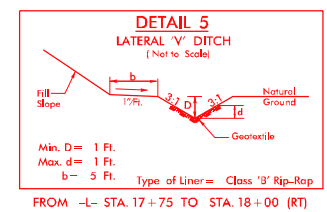
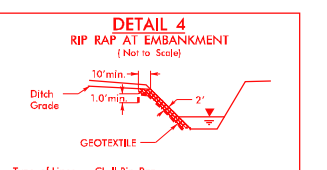
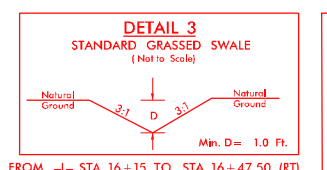
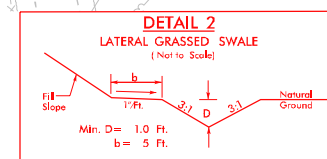
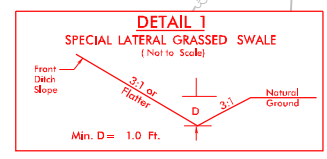
LATERAL GRASSED SWALE
 SEE DETAIL 2
 EST 5 CY DOE
STANDARD GRASSED SWALE
 SEE DETAIL 3
 EST 10 CY DOE
 RIP RAP AT EMBANKMENT
 CLASS II RIP RAP
 SEE DETAIL 4
 EST 20 TONS
 EST 20 SY GFD

SPECIAL LATERAL 'V' DITCH
 W/ CLASS B RIP RAP
 SEE DETAIL 6
 EST 8 TONS
 EST 18 SY GFD
LATERAL 'V' DITCH
 W/ CLASS B RIP RAP
 SEE DETAIL 5
 EST 8 TONS
 EST 18 SY GFD
 EST 5 CY DOE
CLASS 'B' RIP RAP
 EST 170N
 EST 5 SY GFD

TIE PROPOSED DITCH INTO AREA OF DETOUR EXCAVATION TO MATCH EXISTING CONDITIONS (SEE CROSS-SECTIONS)

EXCAVATE DETOUR EMBANKMENT (SEE CROSS-SECTIONS)
 SHOULDER BERM GUTTER FROM -L- STA. 17+00 TO 17+40 (LT AND RT)

INSTALL TEMPORARY 15" PIPE PRIOR TO REMOVAL OF DETOUR EMBANKMENT. REMOVE TEMPORARY PIPE AND PLACE FINAL 15" PIPE AFTER GRADING IS COMPLETE.



LEGEND

	ALLOWABLE IMPACTS ZONE 1
	ALLOWABLE IMPACTS ZONE 2
	MITIGABLE IMPACTS ZONE 1

NOTE: BUFFER IMPACTS FROM DETOUR BRIDGE /ROADWAY ARE INCLUDED IN THE EASEMENTS SHOWN ON SHEET 4.

BUFFER DRAWING
SHEET 2 OF 4

SEE SHEET 6 FOR -L- PROFILE
 SEE SHEETS S-1 THRU S-2 FOR STRUCTURE PLANS

REVISIONS

K:\RAL_Roadway\01036275 - B-5345\Hydraulics\PERMITS_Environmental\Drawings\B5345_hyd_prm_buf_psr04.dgn
 11/8/2016

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE			ZONE 1 (ft ²)	ZONE 2 (ft ²)
			ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)	ZONE 1 (ft ²)	ZONE 2 (ft ²)	TOTAL (ft ²)		
1	Road	15+80/17+41.78 -L-	X			1902	3008	4910					
1	Bridge	16+10/16+95 -L-		X		5387	1203	6590					
2	Road	17+02.25/17+25 -L- (LT)			X				263	0	263		
TOTAL:						7289	4211	11500	263	0	263		

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

 GUILFORD COUNTY
 PROJECT: 46059.1.1 (B-5345)

 11/8/2016
 SHEET 3 OF 4

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS	
			ZONE 1 (ft ²)	ZONE 2 (ft ²)
1	15+80 -L- (LT)	16+25.36 -L- (LT)	294	185
1	17+08.07 -L- (RT)	17+41.78 -L- (RT)	19	1677
2	17+10.34 -L- (LT)	17+25 -L- (LT)	115	0
TOTAL:			428	1862

Note:
 Site 1 includes 158 SF of Zone 1 Buffer Impacts in Road Crossings.
 Site 1 includes 1862 SF of Zone 2 Buffer Impacts in Road Crossings.
 Site 1 includes 155 SF of Zone 1 Buffer Impacts in Bridge.
 Site 1 includes 0 SF of Zone 2 Buffer Impacts in Bridge.

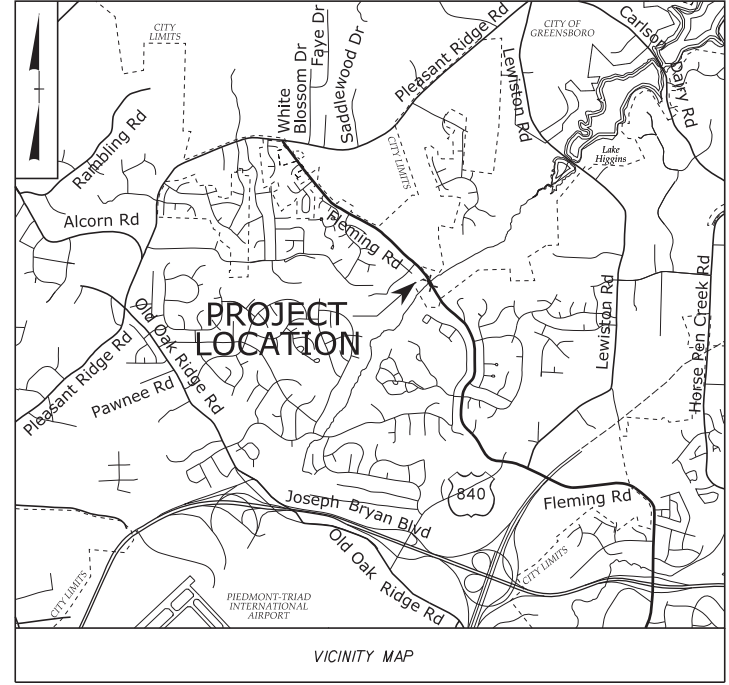
N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

GUILFORD COUNTY
 PROJECT: 46059.1.1 (B-5345)

11/8/2016
 SHEET 4 OF 4

TIP PROJECT: B-5345

See Sheet 1A For Index of Sheets
 See Sheet 1B For Conventional Symbols
 See Sheet 1C-1 For Survey Control Sheet



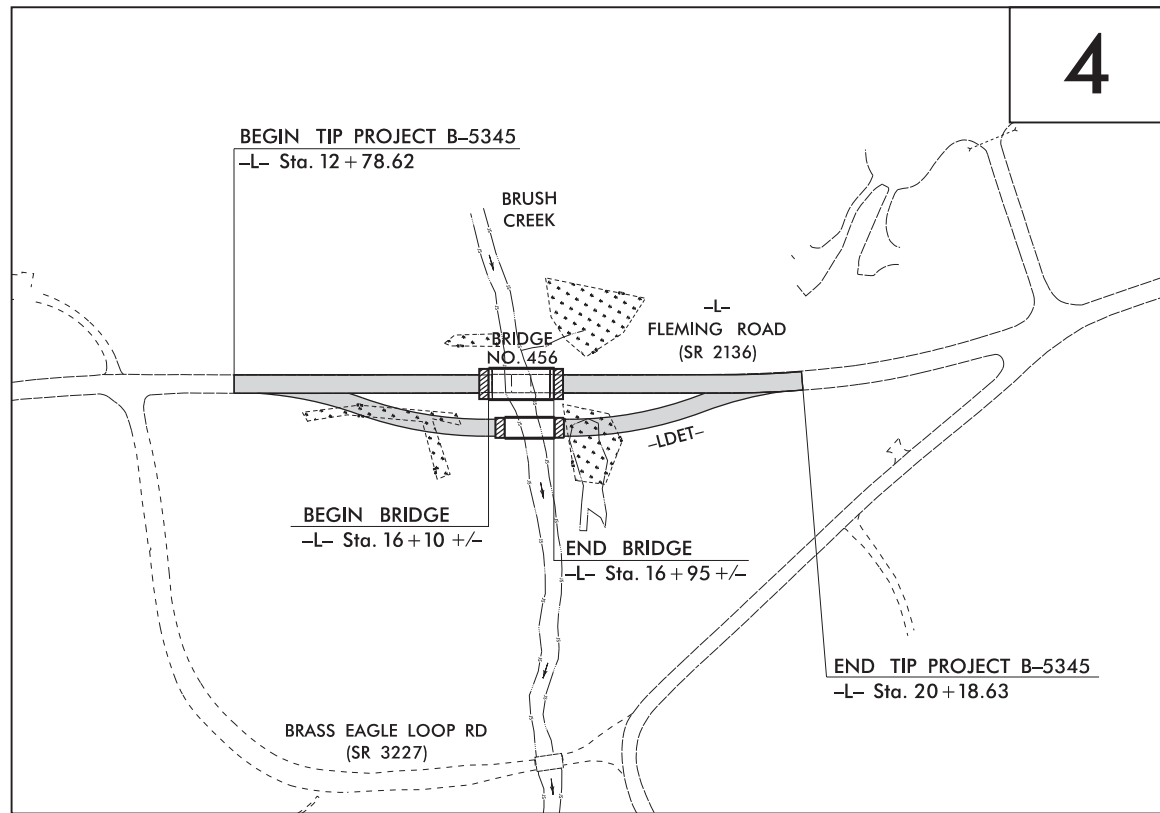
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
GUILFORD COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5345	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46059.1.1	BRSTP-2136(5)	P.E.	
46059.2.1		RIGHT-OF-WAY	
46059.2.1		UTILITIES	

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

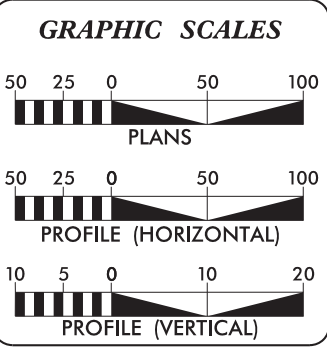
LOCATION: BRIDGE NO. 456 OVER BRUSH CREEK
 ON SR 2136 (FLEMING ROAD)

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



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF GREENSBORO
 *DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCE
 CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

CONTRACT:



DESIGN DATA

ADT 2017	=	6450 vpd
ADT 2040	=	9900 vpd
K	=	11%
D	=	60%
T	=	3%*
V	=	50 MPH
VDET	=	40 MPH
*TTST	=	1% DUAL = 2%

FUNC CLASS= RURAL LOCAL
 "SUBREGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5345	=	0.124 MILES
LENGTH STRUCTURE TIP PROJECT B-5345	=	0.016 MILES
TOTAL LENGTH TIP PROJECT B-5345	=	0.140 MILES

PLANS PREPARED FOR THE NCDOT BY:

Kimley Horn

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 17, 2016

LETTING DATE: JUNE 20, 2017

JEFFREY W. MOORE, P.E.
 PROJECT ENGINEER

CATHERINE A. MURRELL, P.E.
 PROJECT DESIGN ENGINEER

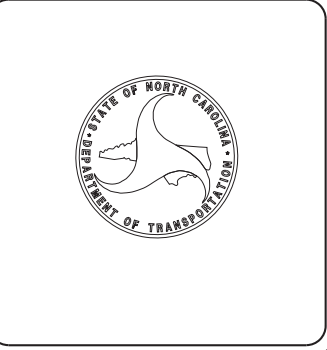
JAMES A. SPEER, P.E.
 PROJECT ENGINEER
 NCDOT ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



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	○
Property Corner	-----
Property Monument	□
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-----
Proposed Wetland Boundary	-----
Existing Endangered Animal Boundary	-----
Existing Endangered Plant Boundary	-----
Existing Historic Property Boundary	-----
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	○
Well	○
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	⊕
Building	□
School	⊕
Church	⊕
Dam	⊕

HYDROLOGY:

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

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	-----
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	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite R/W Marker	-----
Proposed Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----
Proposed Permanent Easement with Iron Pin and Cap Marker	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb Ramp	-----
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	-----

EXISTING STRUCTURES:

MAJOR:	-----
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	-----
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	-----
Storm Sewer	-----

UTILITIES:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

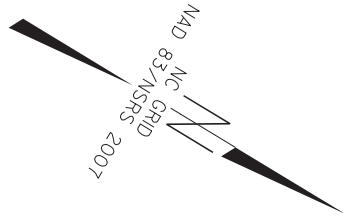
Sanitary Sewer Manhole	-----
Sanitary Sewer Cleanout	-----
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
SS Forced Main Line LOS B (S.U.E.*)	-----
SS Forced Main Line LOS C (S.U.E.*)	-----
SS Forced Main Line LOS D (S.U.E.*)	-----

MISCELLANEOUS:

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

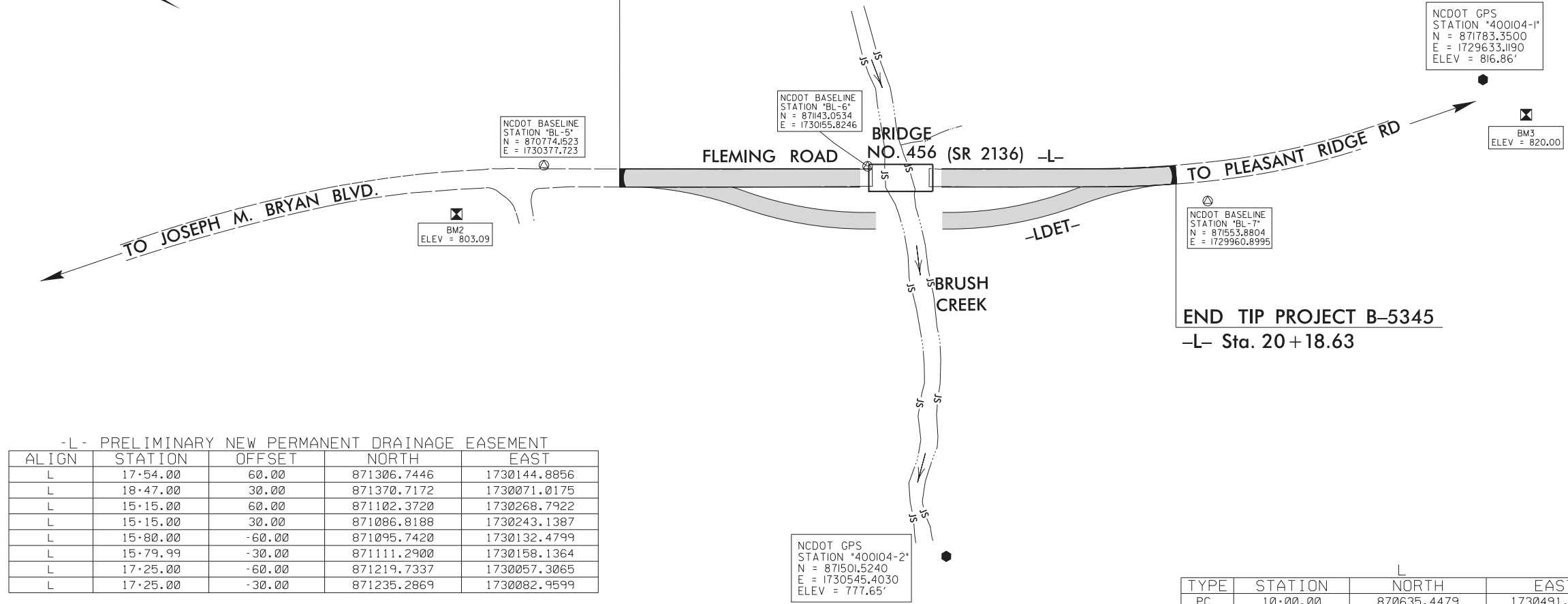
K:\RAL_Roadway\01036275 - B-5345\Roadway\Pro\B5345_rdy_1shdgn 5/26/2016

B-5345 SURVEY CONTROL SHEET



BEGIN TIP PROJECT B-5345
-L- Sta. 12 + 78.62

END TIP PROJECT B-5345
-L- Sta. 20 + 18.63



-L- PRELIMINARY NEW PERMANENT DRAINAGE EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	17+54.00	60.00	871306.7446	1730144.8856
L	18+47.00	30.00	871370.7172	1730071.0175
L	15+15.00	60.00	871102.3720	1730268.7922
L	15+15.00	30.00	871086.8188	1730243.1387
L	15+80.00	-60.00	871095.7420	1730132.4799
L	15+79.99	-30.00	871111.2900	1730158.1364
L	17+25.00	-60.00	871219.7337	1730057.3065
L	17+25.00	-30.00	871235.2869	1730082.9599

TYPE	STATION	NORTH	EAST
PC	10+00.00	870635.4479	1730491.4221
PT	11+50.25	870759.3614	1730406.5860
PC	19+20.50	871418.0134	1730007.2599
PT	23+18.71	871718.3765	1729748.5947
POT	25+00.00	871834.3203	1729609.2325

BASELINE DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
5	BL-5	870774.1523	1730377.7230	790.07	11+77.86	17.01 LT
6	BL-6	871143.0534	1730155.8246	780.52	16+08.35	15.51 LT
7	BL-7	871553.8804	1729960.8995	794.81	20+56.62	38.76 RT
A1	400104-1	871783.3500	1729633.1190	816.86	24+49.04	23.91 LT

BENCHMARK DATA

.....
 BM2 ELEVATION = 803.09
 N 870708 E 1730494
 L STATION 10+58.00 45' RIGHT

 BM3 ELEVATION = 820.00
 N 871857 E 1729643
 L STATION 24+88.20 39' RIGHT

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "400104-2"
 WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 871501.5240(±) EASTING: 1730545.4030(±±) ELEVATION: 777.65(±±)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999608137
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "400104-2" TO -L- STATION 12+78.62 IS
 S 17°59'28" W 664.90'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

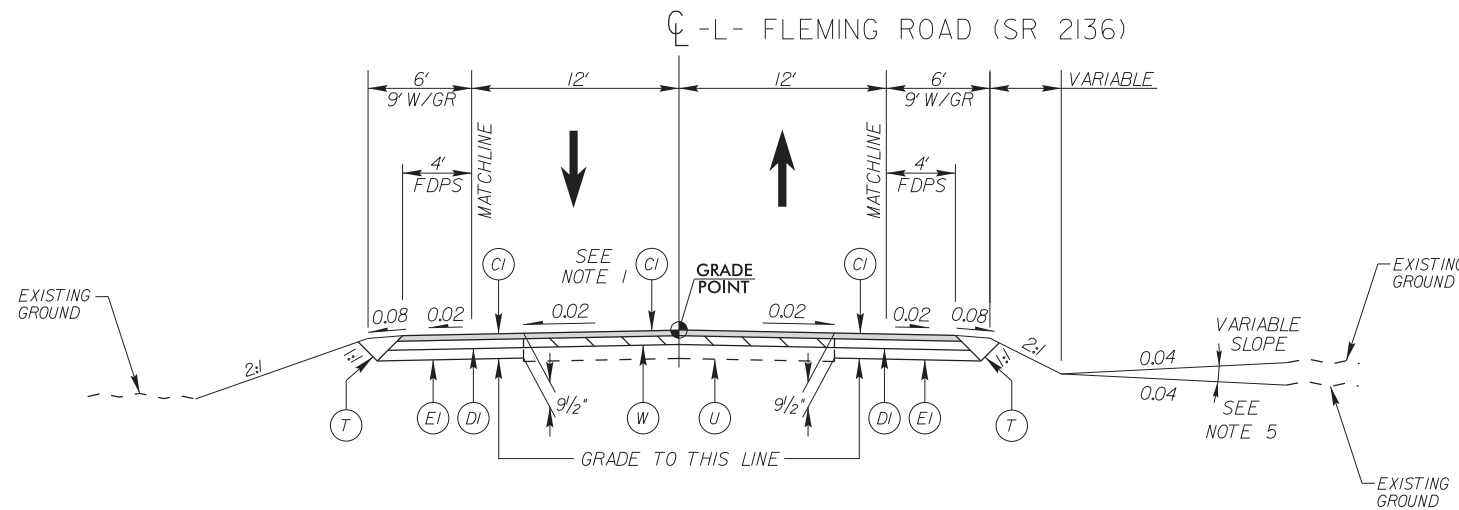
NOTES

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCTHIGHWAYLOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstructhighwaylocation/project/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 B5345_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.
 NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

NOTE: DRAWING NOT TO SCALE

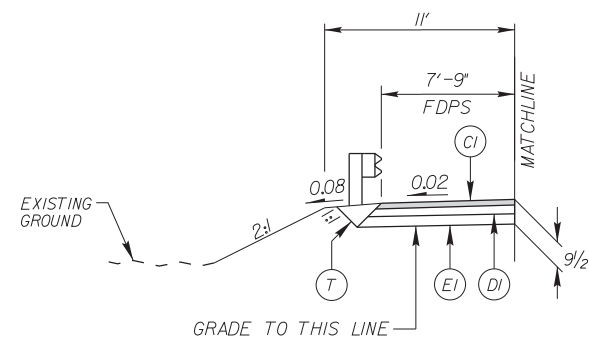
01/14/2016
 05-MAY-2016 11:01 AM
 C:\RAI\Projects\11036275 - B-5345\Roadway\Proj\B5345-1s-1c-1.dgn
 \$\$\$\$ USER:RMM \$\$\$\$

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 1

-L- STA 13+56.00 TO STA 16+10 +/- (BEGIN BRIDGE)
-L- STA 16+95 +/- (END BRIDGE) TO STA 18+77.00

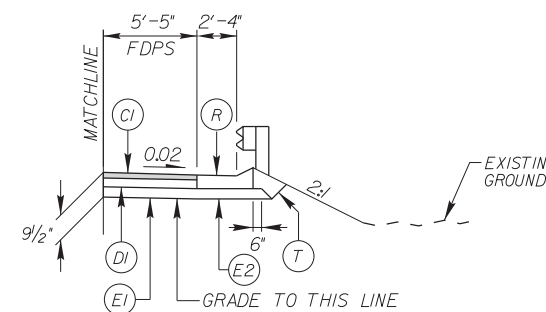


TYPICAL SECTION NO. 1A

USE IN CONJUNCTION WITH GUARDRAIL LOCATIONS AS FOLLOWS:

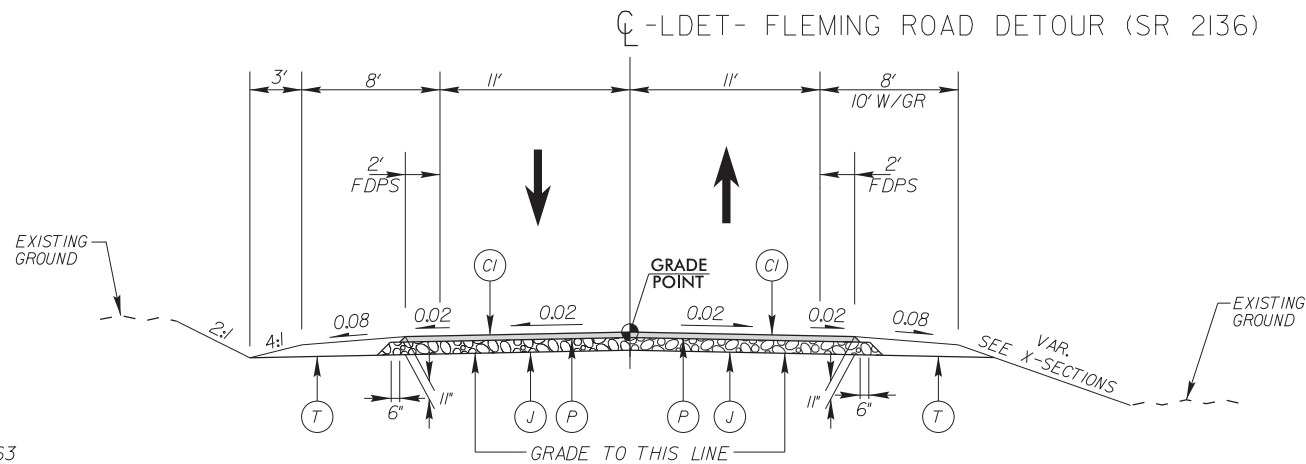
- L- STA 15+28.75 TO STA 16+10.00 (LT)
- L- STA 15+28.75 TO STA 16+10.00 (RT)
- L- STA 16+95.00 TO STA 18+01.25 (LT)
- L- STA 16+95.00 TO STA 18+01.25 (RT)

NOTE: TRANSITION FROM 6' TO 11' SHOULDERS IN THE AREAS OF 8:1 TAPERS



TYPICAL SECTION NO. 1B

-L- STA 17+07.00 TO STA 17+40.00 (LT)
-L- STA 17+07.00 TO STA 17+40.00 (RT)



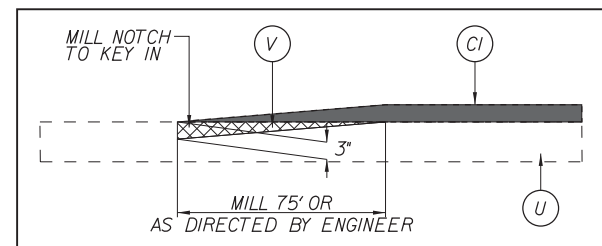
TYPICAL SECTION NO. 2

-LDET- STA 11+09.00 TO STA 13+59 +/- (BEGIN BRIDGE)
-LDET- STA 14+24 +/- (END BRIDGE) TO STA 16+65.00

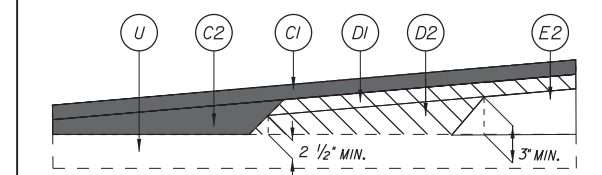
NOTES:

- OVERLAY FROM -L- STA 12+78.62 TO STA 13+56.00 AND FROM -L- STA 18+77.00 TO STA 20+18.63 (3" S9.5B)
- MILL NOTCH TO KEY-IN S9.5B FROM -L- STA 12+78.62 TO STA 13+53.62 AND -L- STA 19+43.63 TO STA 20+18.63
- TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 2
-LDET- STA 10+00.00 TO STA 11+09.00
- TRANSITION FROM TYPICAL SECTION NO. 2 TO EXISTING
-LDET- STA 16+65.00 TO STA 17+54.00
- EXCAVATE DETOUR EMBANKMENT AS SHOWN ON DITCH DETAILS (SHEET 4) AND CROSS SECTIONS.
- PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

PAVEMENT DESIGN	
CI	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH
DI	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
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" IN DEPTH 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 SQ. YD.
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" IN DEPTH OR GREATER THAN 5.5" IN DEPTH
J	8" AGGREGATE BASE COURSE
P	PRIME COAT AT THE RATE OF 0.35 GAL PER SQ. YD.
R	PROP. SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT 0" TO 3" (SEE DETAIL BELOW)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL BELOW)



PROFILE KEY-IN DETAIL



WEDGING DETAIL FOR RESURFACING

REVISIONS

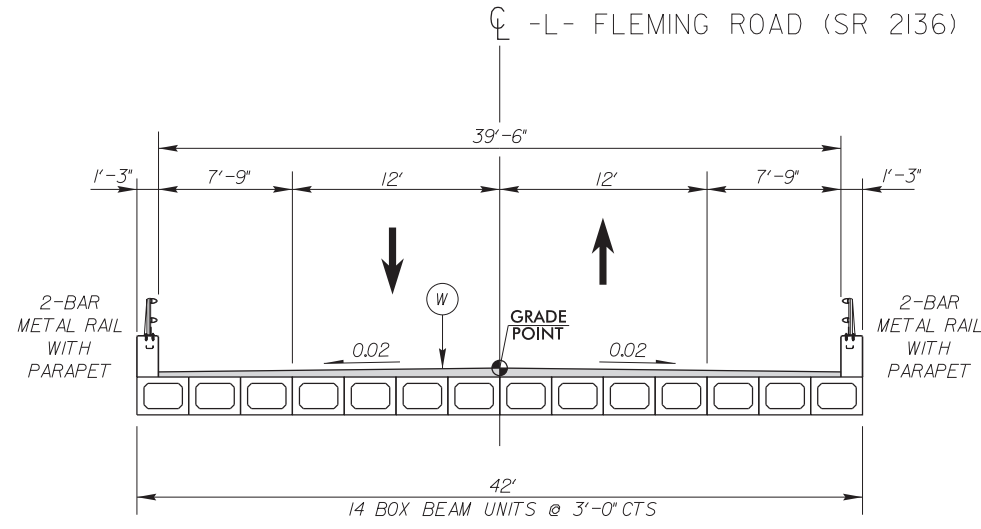
K:\RAL_Roadway\01036275 - B-5345\Roadway\Pro\B5345_rdy_tjpdgn

5/26/2016

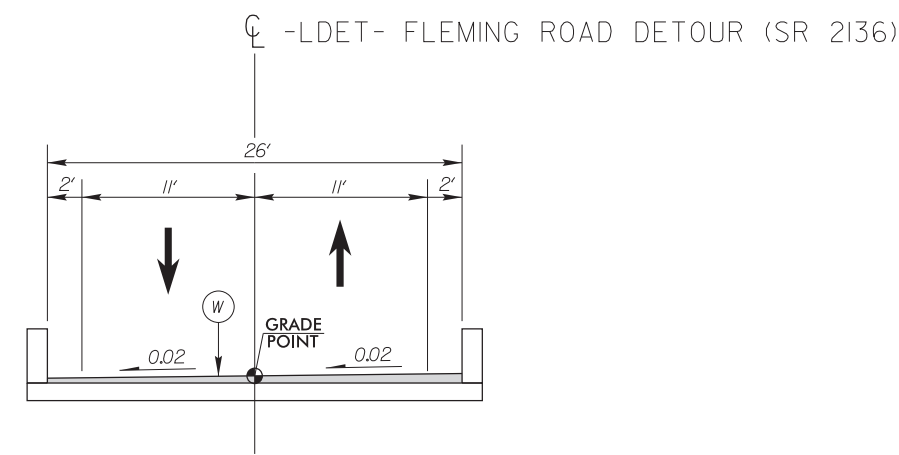
PROJECT REFERENCE NO. B-5345	SHEET NO. 2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

PAVEMENT DESIGN	
C1	3" S9.5B
C2	VAR. DEPTH S9.5B
D1	2.5" I19.0B
D2	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B
J	8" AGGREGATE BASE COURSE
P	PRIME COAT
R	PROP. SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT



BRIDGE TYPICAL SECTION NO. 1
 -L- STA 16+10 +/- TO STA 16+95 +/-



BRIDGE TYPICAL SECTION NO. 2
 -LDET- STA 13+59 +/- TO STA 14+24 +/-

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
B-5345	4
RW SHEET NO.	
ROADWAY ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

THERESA ANN WEISS
DOUGLAS C. WEISS
DB 6665 PG 143

-L- POT Sta. 25+00.00

-GPS- 400104-1

MICHAEL C BURGER
ORATAI WONGSIRI
WELL DB 7409 PG 2452

FLEMING RD (SR 2136)
N 50°14'27.2" W

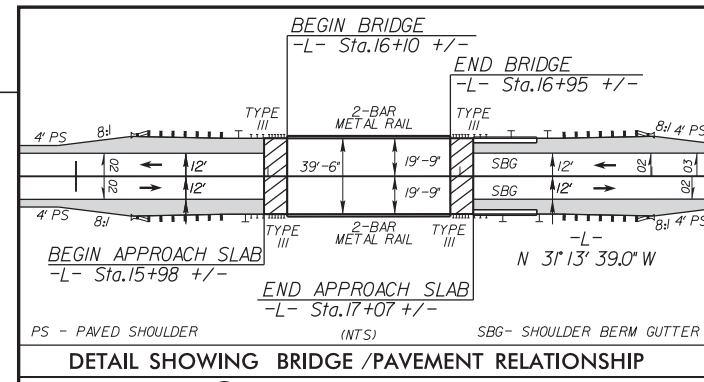
BM #3 SEE SHEET IC-1
ELEV=820.00'

JAMES A NELSON
ELISABETH S. NELSON
DB 6424 PG 1844

RALPH W. GUFFEY
PATRICIA A. GUFFEY
(GUFFEY PROPERTY MANAGEMENT - TAX LISTING)
DB 4328 PG 1078

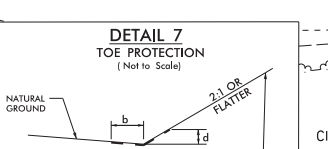
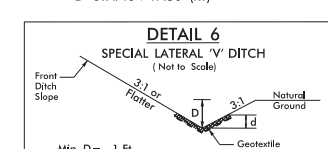
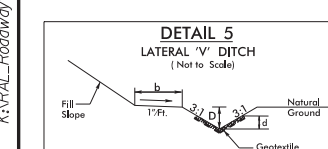
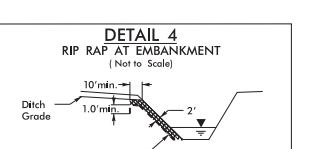
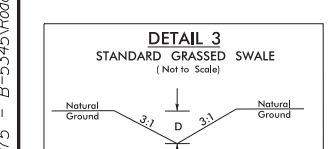
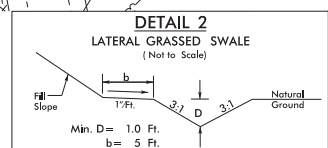
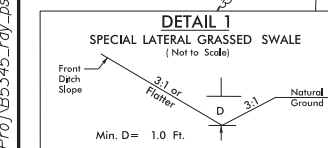
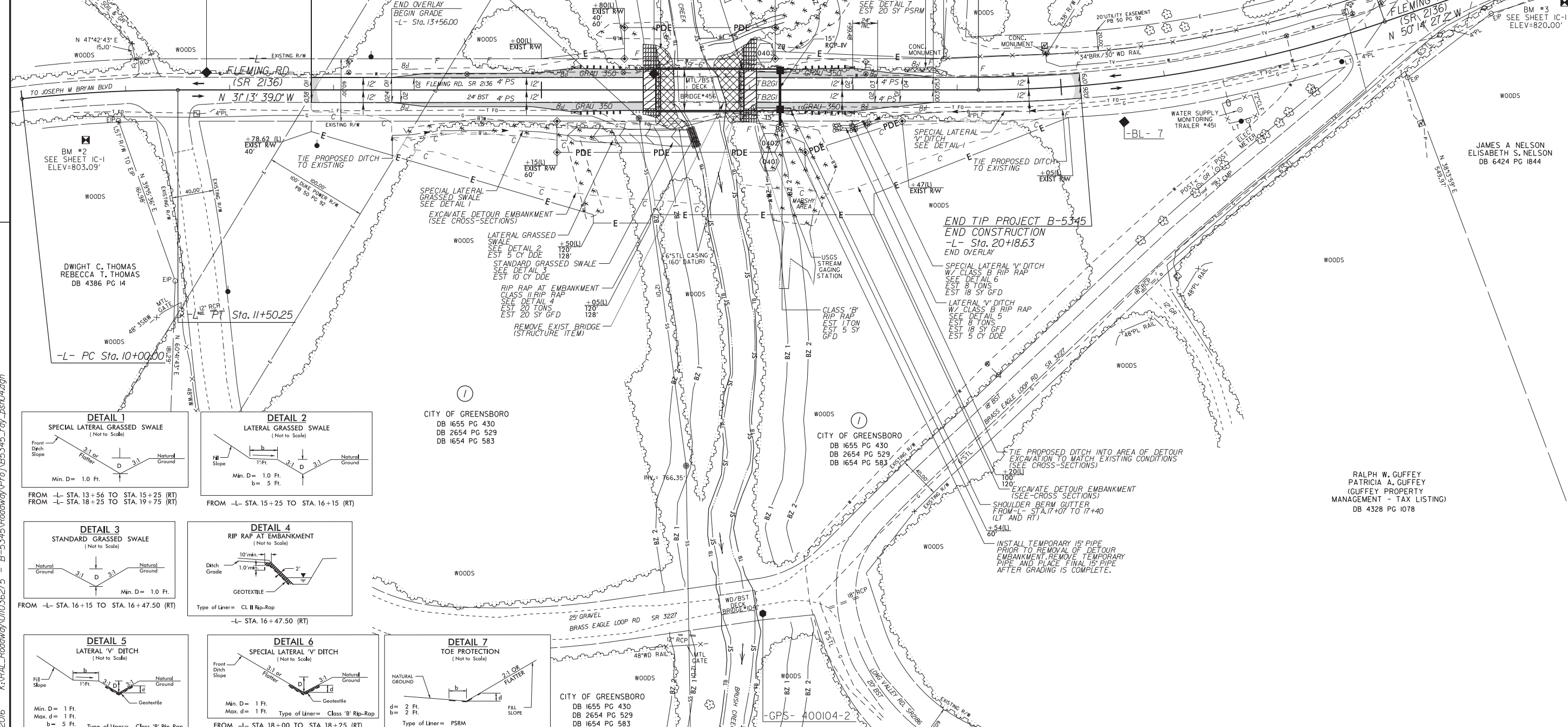
PI Sta 10+75.20 Δ = 6' 20" 21.1" (RT)
D = 4' 13" 08.9"
L = 150.25'
T = 75.20'
R = 1,358.00'
DS = 50 MPH
SE = EXIST
RO = EXIST

PI Sta 21+21.45 Δ = 19' 00" 48.2" (LT)
D = 4' 46" 28.7"
L = 398.22'
T = 200.96'
R = 1,200.00'
DS = 50 MPH
SE = EXIST
RO = EXIST



CITY OF GREENSBORO
DB 1655 PG 430
DB 2654 PG 529
DB 1654 PG 583

BEGIN TIP PROJECT B-5345
BEGIN CONSTRUCTION
-L- Sta. 12+78.62
BEGIN OVERLAY
-BL- 5



SEE SHEET 6 FOR -L- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURE PLANS

5/26/2016 K:\RAL_Roadway\01036275 - B-5345\Roadway\Proj\B5345_rdy_dsn04.dgn

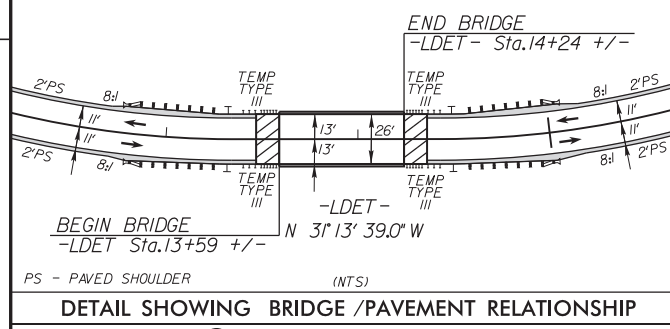
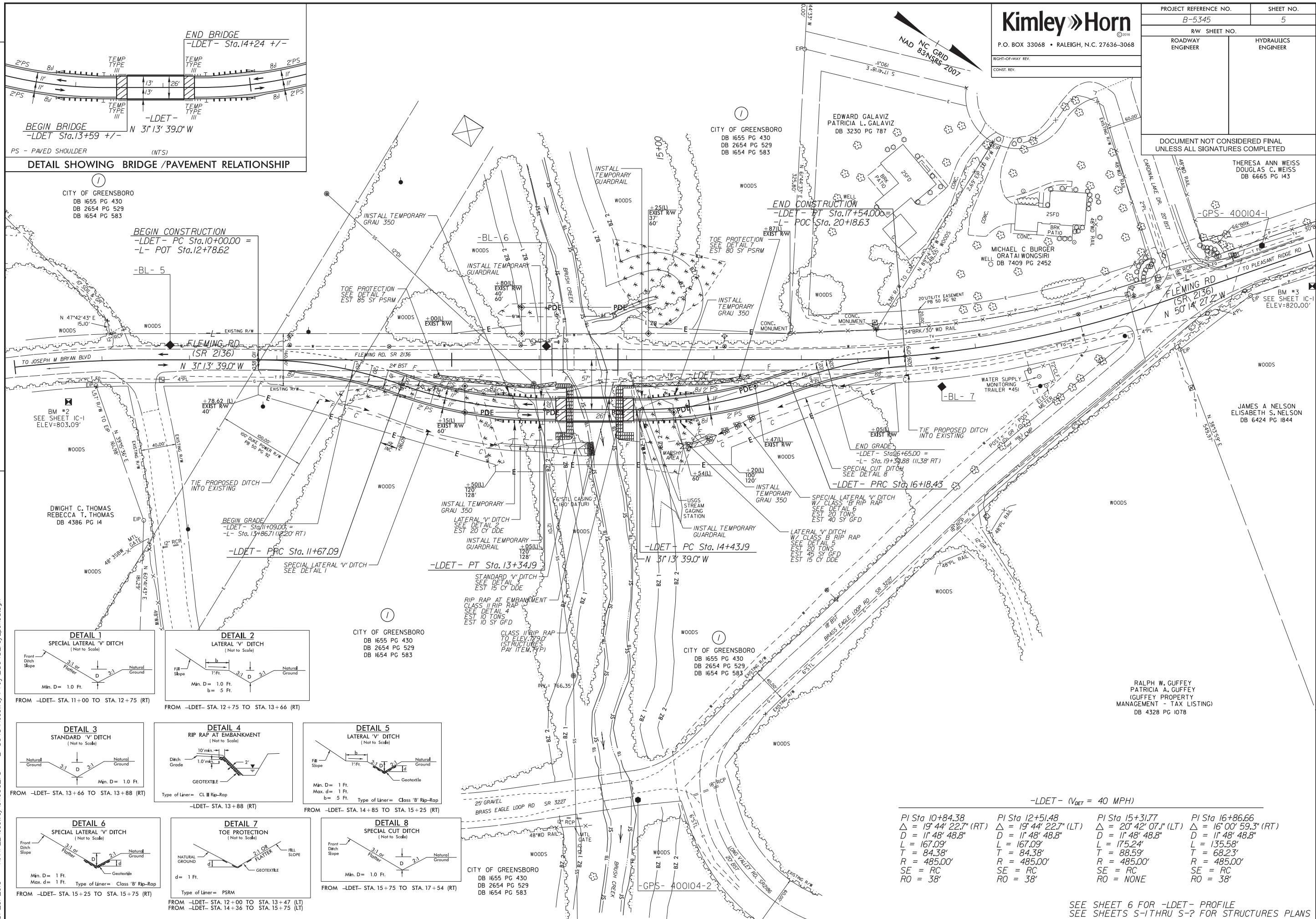
PROJECT REFERENCE NO. B-5345	SHEET NO. 5
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY ENGINEER	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

THERESA ANN WEISS
DOUGLAS C. WEISS
DB 6665 PG 143

JAMES A NELSON
ELISABETH S. NELSON
DB 6424 PG 1844

RALPH W. GUFFEY
PATRICIA A. GUFFEY
(GUFFEY PROPERTY
MANAGEMENT - TAX LISTING)
DB 4328 PG 1078



CITY OF GREENSBORO
DB 1655 PG 430
DB 2654 PG 529
DB 1654 PG 583

BEGIN CONSTRUCTION
-LDET- PC Sta.10+00.00 =
-L- POT Sta.12+78.62

-BL- 5

BM #2
SEE SHEET IC-1
ELEV=803.09'

DWIGHT C. THOMAS
REBECCA T. THOMAS
DB 4386 PG 14

BEGIN GRADE
-LDET- Sta.11+09.00 =
-L- Sta.13+86.71 (122.20' RT)

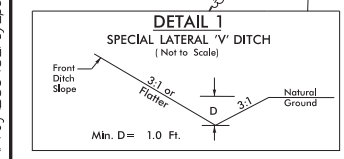
-LDET- PRC Sta.11+67.09

-LDET- PT Sta.13+34.19

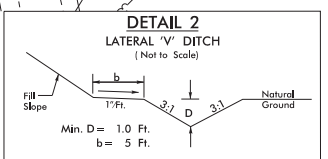
-LDET- PC Sta.14+43.19

END GRADE
-LDET- Sta.16+65.00 =
-L- Sta.19+39.88 (11.38' RT)

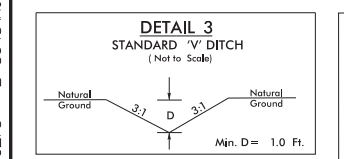
-LDET- PRC Sta.16+18.43



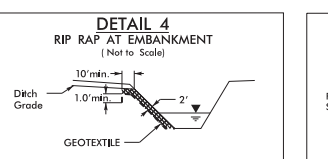
FROM -LDET- STA. 11+00 TO STA. 12+75 (RT)



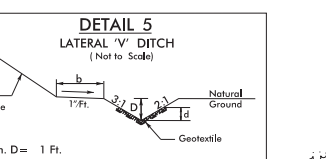
FROM -LDET- STA. 12+75 TO STA. 13+66 (RT)



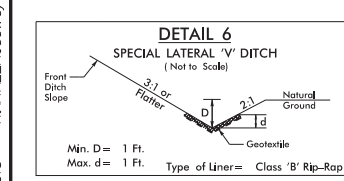
FROM -LDET- STA. 13+66 TO STA. 13+88 (RT)



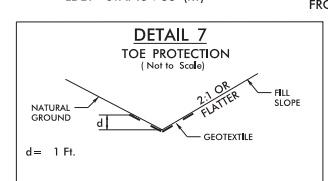
-LDET- STA. 13+88 (RT)



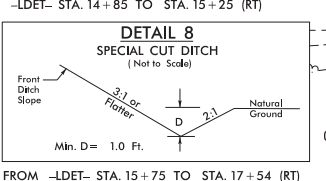
FROM -LDET- STA. 14+85 TO STA. 15+25 (RT)



FROM -LDET- STA. 15+25 TO STA. 15+75 (RT)



FROM -LDET- STA. 12+00 TO STA. 13+47 (LT)
FROM -LDET- STA. 14+36 TO STA. 15+75 (LT)



FROM -LDET- STA. 15+75 TO STA. 17+54 (RT)

-LDET- (V_{DET} = 40 MPH)

PI Sta 10+84.38 Δ = 19' 44" 22.7" (RT) D = 11' 48" 48.8" L = 167.09' T = 84.38' R = 485.00' SE = RC RO = 38'	PI Sta 12+51.48 Δ = 19' 44" 22.7" (LT) D = 11' 48" 48.8" L = 167.09' T = 84.38' R = 485.00' SE = RC RO = 38'	PI Sta 15+31.77 Δ = 20' 42" 07.1" (LT) D = 11' 48" 48.8" L = 175.24' T = 88.59' R = 485.00' SE = RC RO = NONE	PI Sta 16+86.66 Δ = 16' 00" 59.3" (RT) D = 11' 48" 48.8" L = 135.58' T = 68.23' R = 485.00' SE = RC RO = 38'
---	---	--	---

SEE SHEET 6 FOR -LDET- PROFILE
SEE SHEETS S-1 THRU S-? FOR STRUCTURES PLANS

REVISIONS

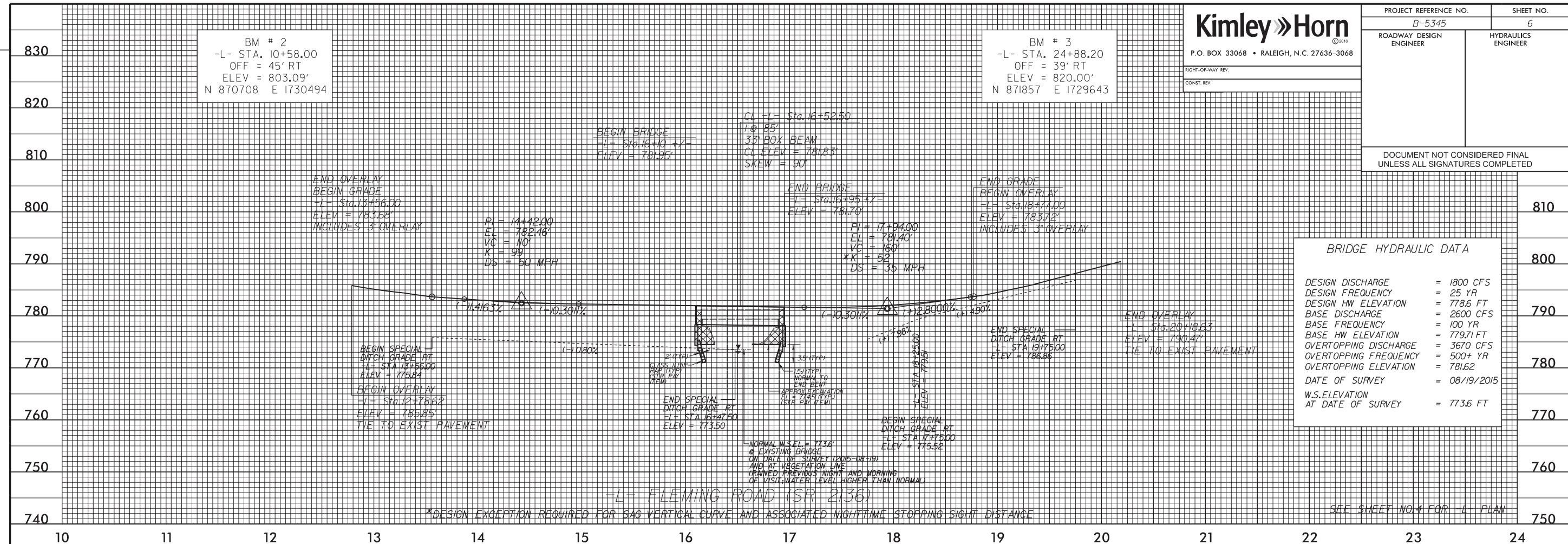
5/26/2016 K:\PAL_Roadway\01036275 - B-5345\Roadway\Proj\B5345_rdy_05.dgn

PROJECT REFERENCE NO. B-5345	SHEET NO. 6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BM # 2
-L- STA. 10+58.00
OFF = 45' RT
ELEV = 803.09'
N 870708 E 1730494

BM # 3
-L- STA. 24+88.20
OFF = 39' RT
ELEV = 820.00'
N 871857 E 1729643

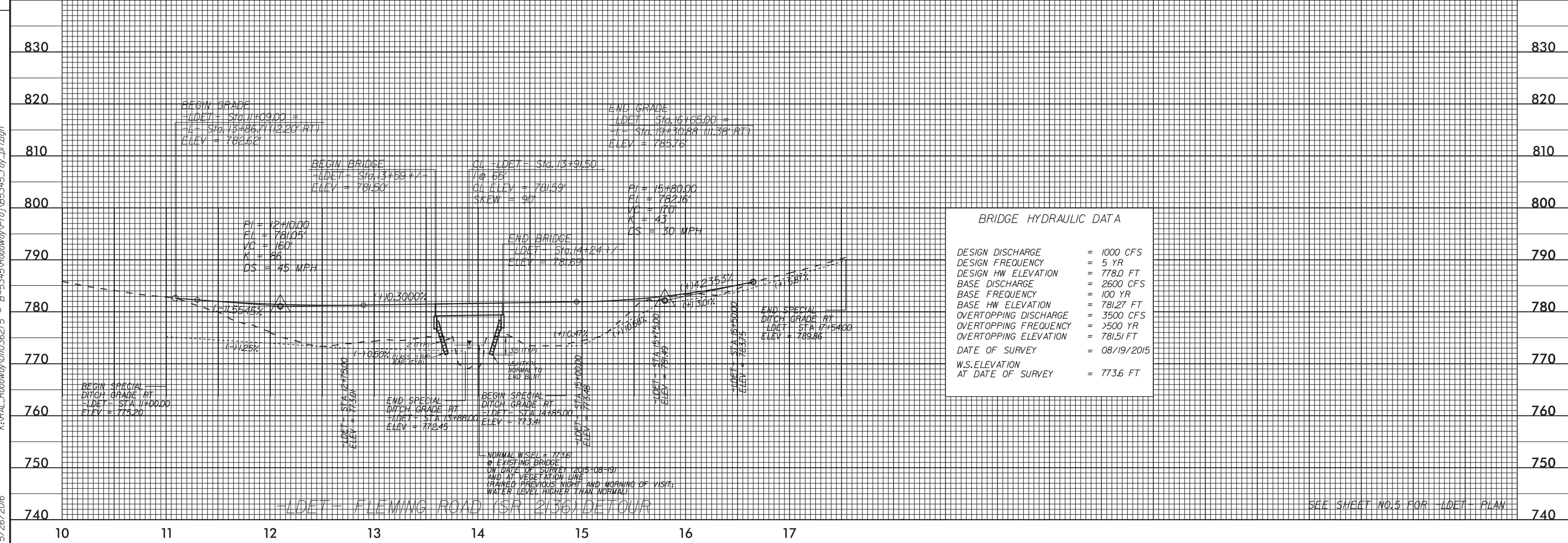


BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1800 CFS
DESIGN FREQUENCY	= 25 YR
DESIGN HW ELEVATION	= 778.6 FT
BASE DISCHARGE	= 2600 CFS
BASE FREQUENCY	= 100 YR
BASE HW ELEVATION	= 779.71 FT
OVERTOPPING DISCHARGE	= 3670 CFS
OVERTOPPING FREQUENCY	= 500+ YR
OVERTOPPING ELEVATION	= 781.62
DATE OF SURVEY	= 08/19/2015
W.S. ELEVATION AT DATE OF SURVEY	= 773.6 FT

*DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE AND ASSOCIATED NIGHTTIME STOPPING SIGHT DISTANCE

SEE SHEET NO. 4 FOR L- PLAN



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 1000 CFS
DESIGN FREQUENCY	= 5 YR
DESIGN HW ELEVATION	= 778.0 FT
BASE DISCHARGE	= 2600 CFS
BASE FREQUENCY	= 100 YR
BASE HW ELEVATION	= 781.27 FT
OVERTOPPING DISCHARGE	= 3500 CFS
OVERTOPPING FREQUENCY	= >500 YR
OVERTOPPING ELEVATION	= 781.51 FT
DATE OF SURVEY	= 08/19/2015
W.S. ELEVATION AT DATE OF SURVEY	= 773.6 FT

-LDET- FLEMING ROAD (SR 2136) DETOUR

SEE SHEET NO. 5 FOR LDET PLAN

K:\RAL_Roadway\01036275 - B-5345_Roadway\Pro\B5345_rdy.dwg

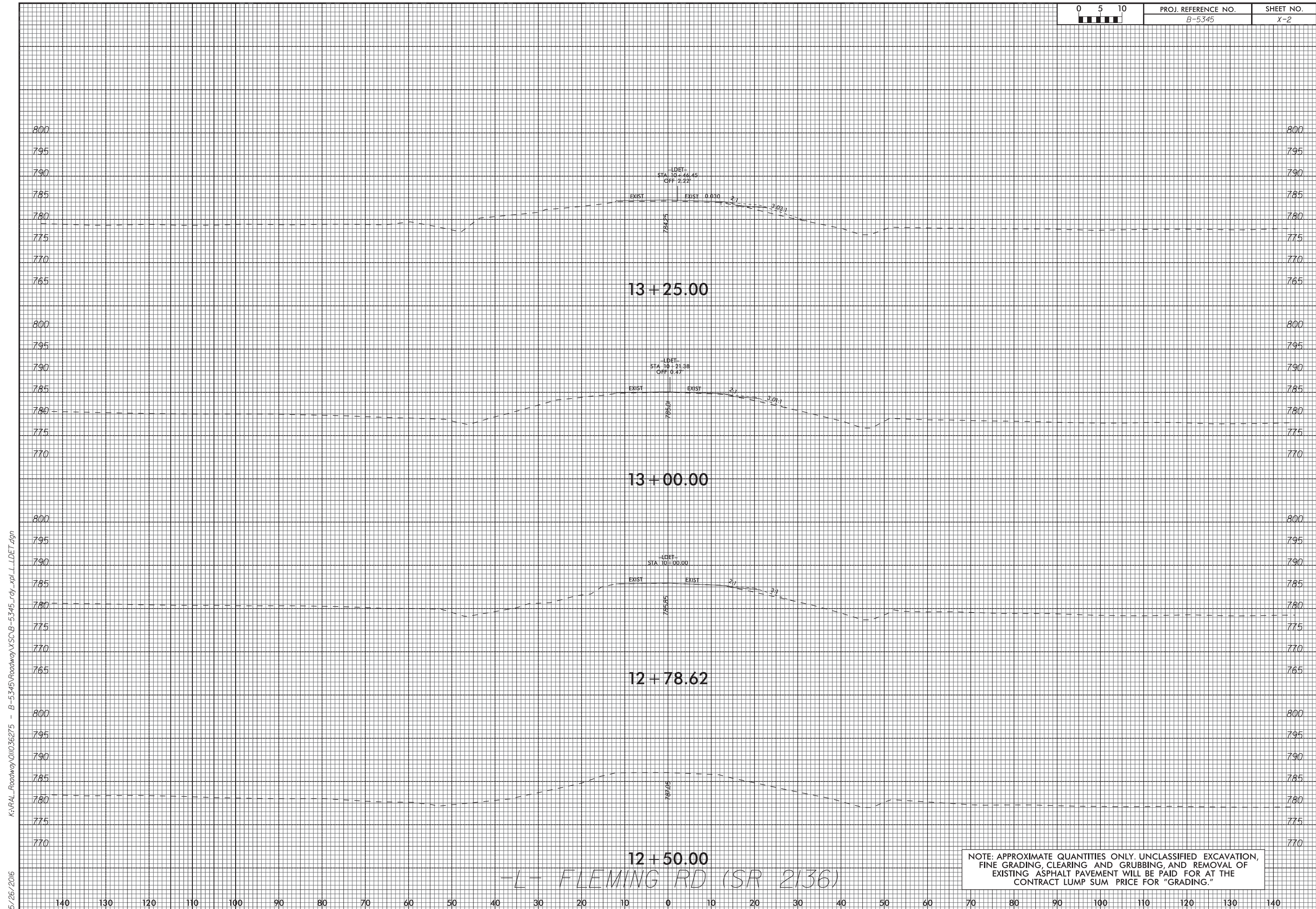
5/26/2016

REVISIONS

*B-5345 - REPLACEMENT OF BRIDGE NO. 456
CROSS SECTION INDEX*

-L- FLEMING ROAD (SR 2136)

X-2 THRU X-10

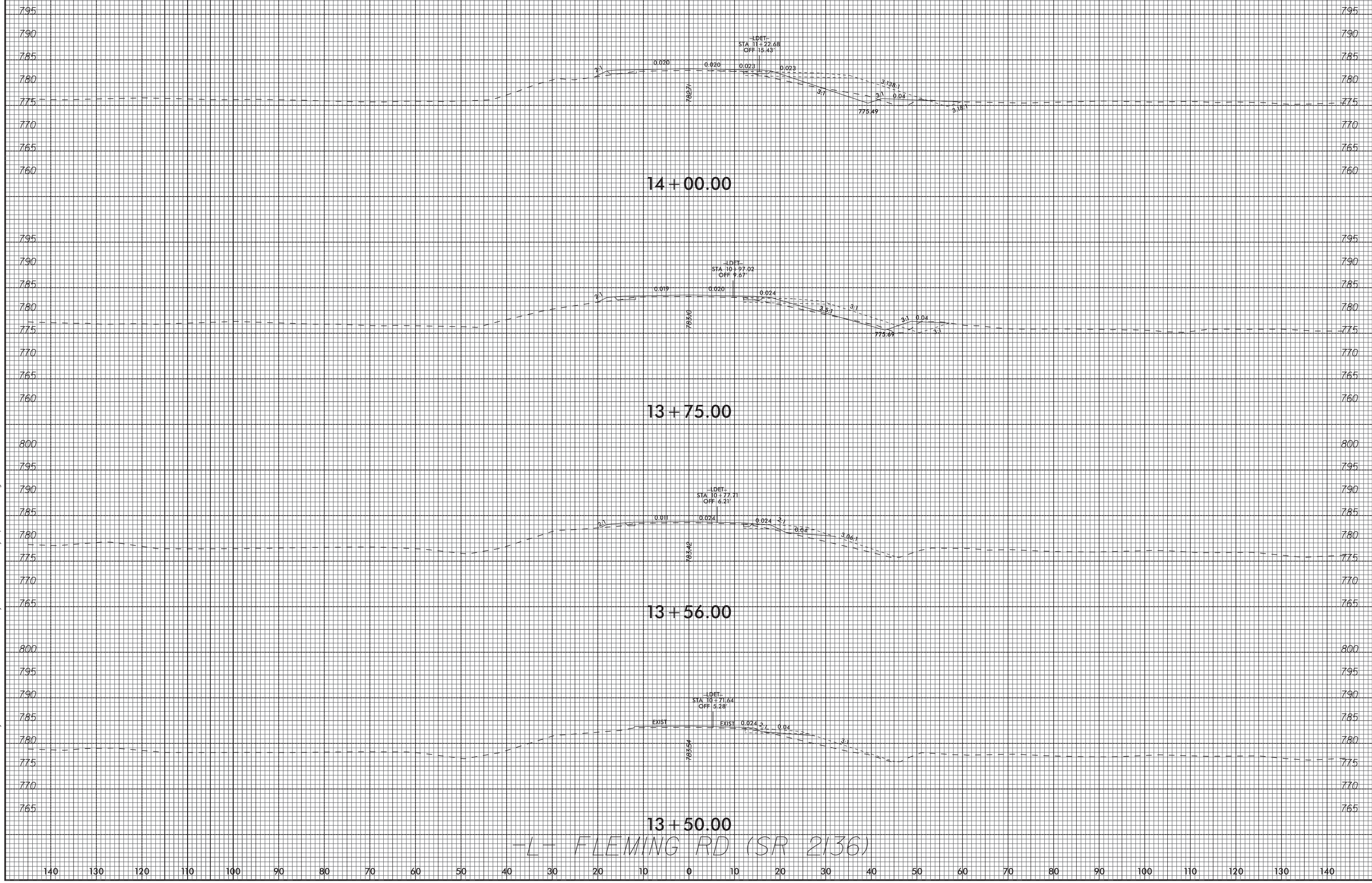


K:\PAL_Roadway\01036275 - B-5345\Roadway\SCB-5345_rdy_xpl.LDET.dgn
5/26/2016

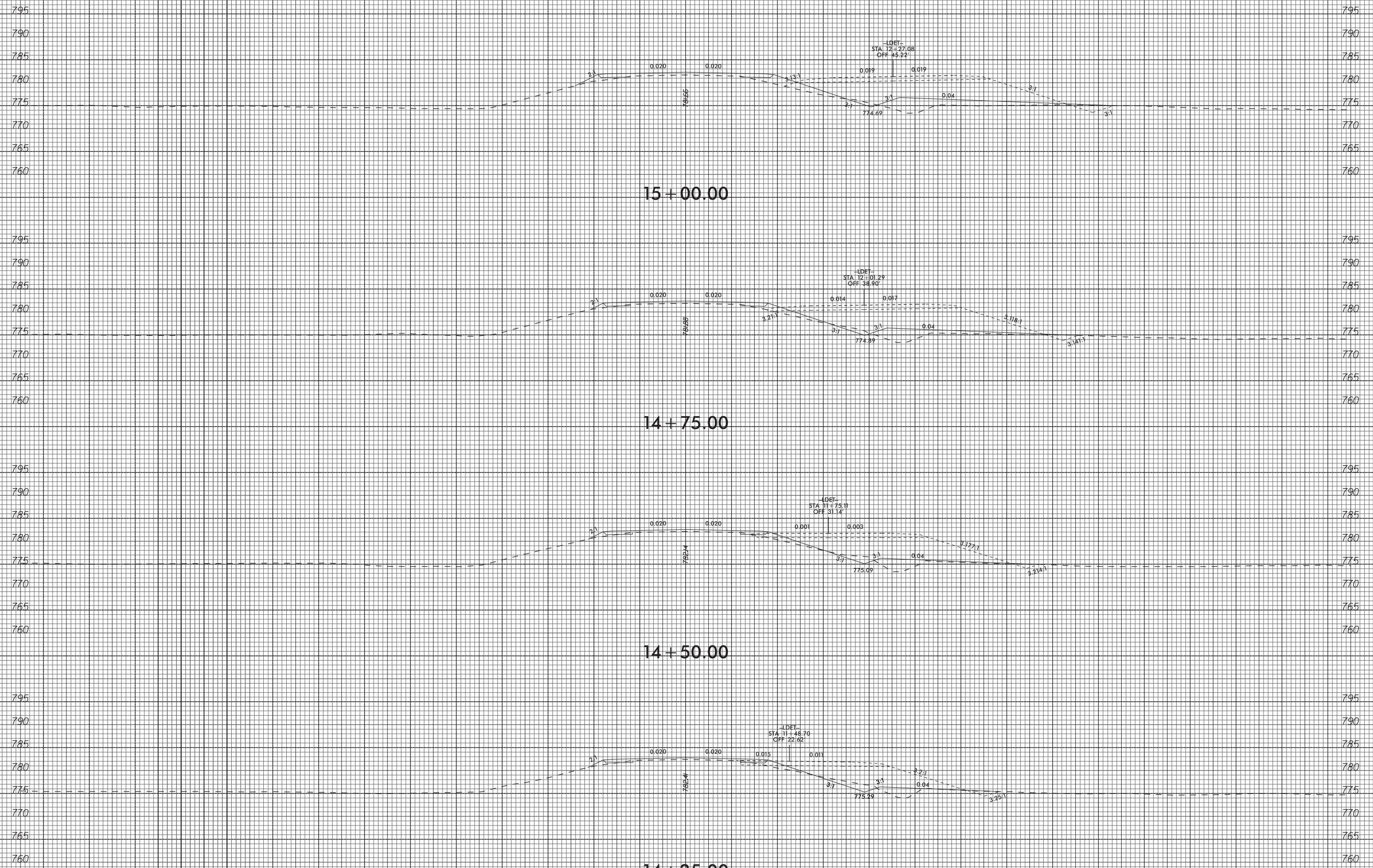
-L- FLEMING RD (SR 2136)

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING ASPHALT PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

K:\PAL_Roadway\01036275 - B-5345\Roadway\SCB-5345_rdy_xpl.L.DET.dgn
5/26/2016

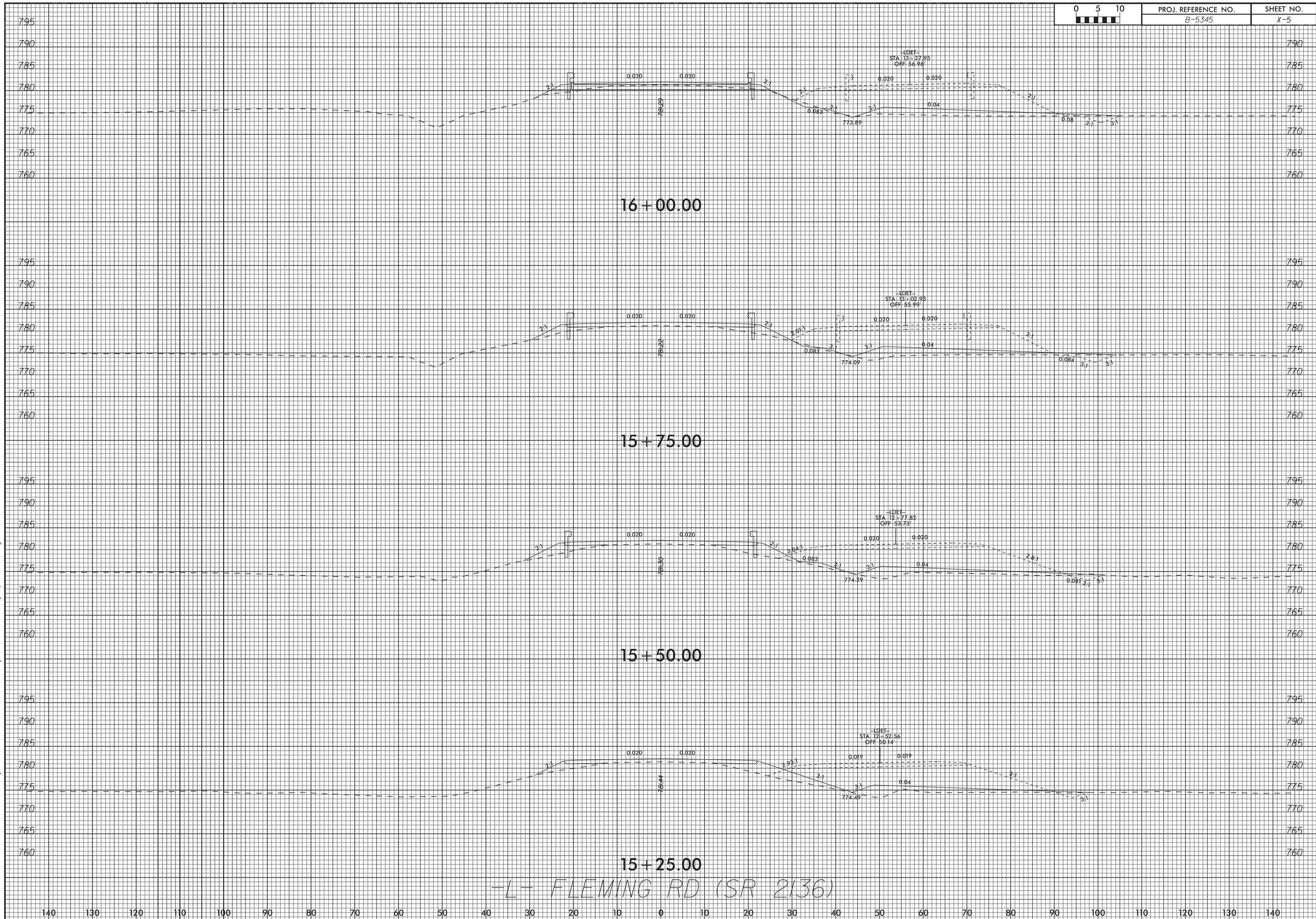


-L- FLEMING RD (SR 2136)



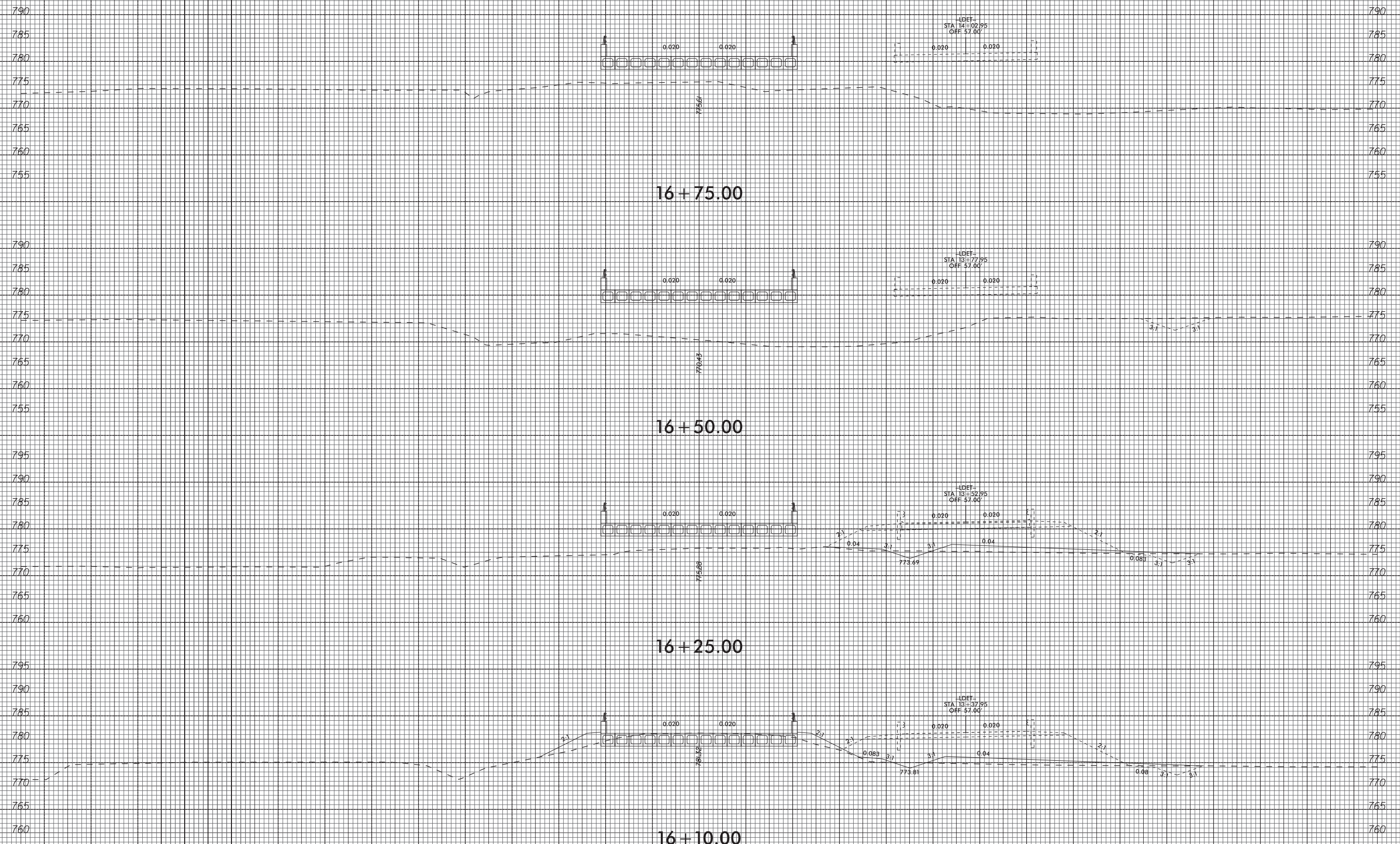
-L- FLEMING RD (SR 2136)

K:\PAL_Roadway\01036275 - B-5345\Roadway\SCB-5345_rdy_xpl.LDEI.dgn
5/26/2016



-L- FLEMING RD (SR 2136)

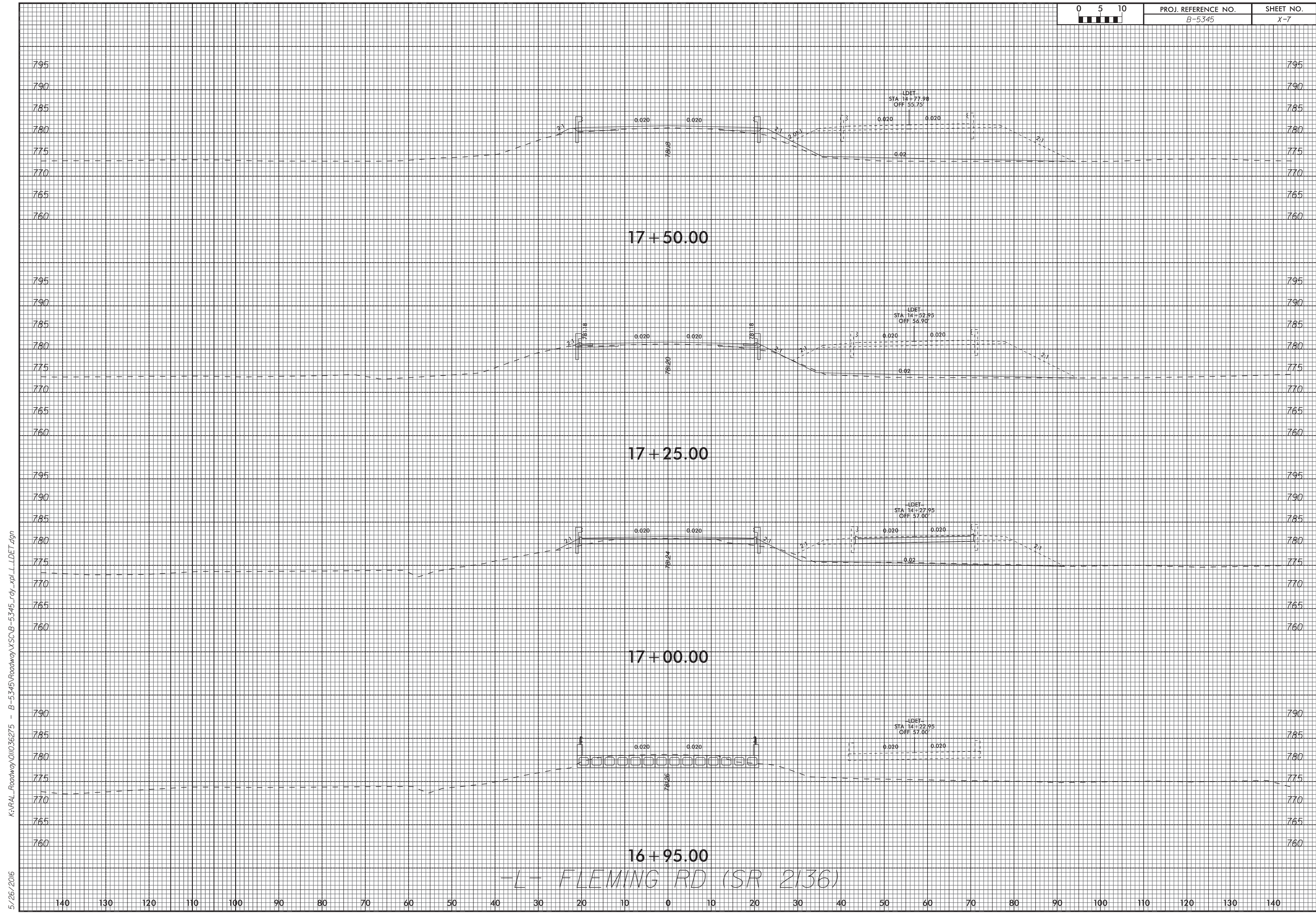
K:\PAL_Roadway\01036275 - B-5345\Roadway\SCB-5345_rdy_xpl-L.DET.dgn 5/26/2016



-L- FLEMING RD (SR 2136)

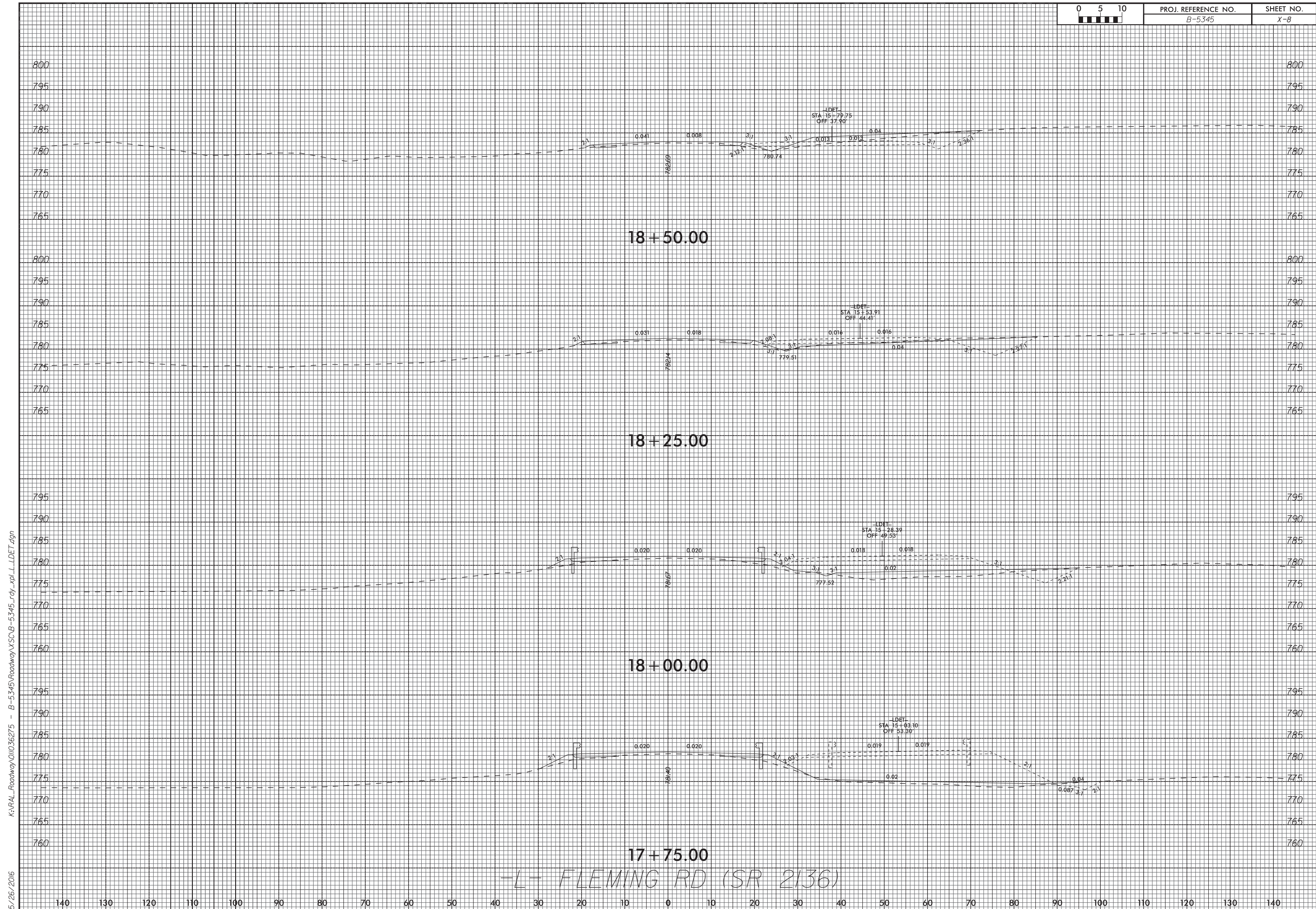
K:\PAL_Roadway\01036275 - B-5345\Roadway\SSCB-5345_rdy_xpl.LDET.dgn 5/26/2016

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140



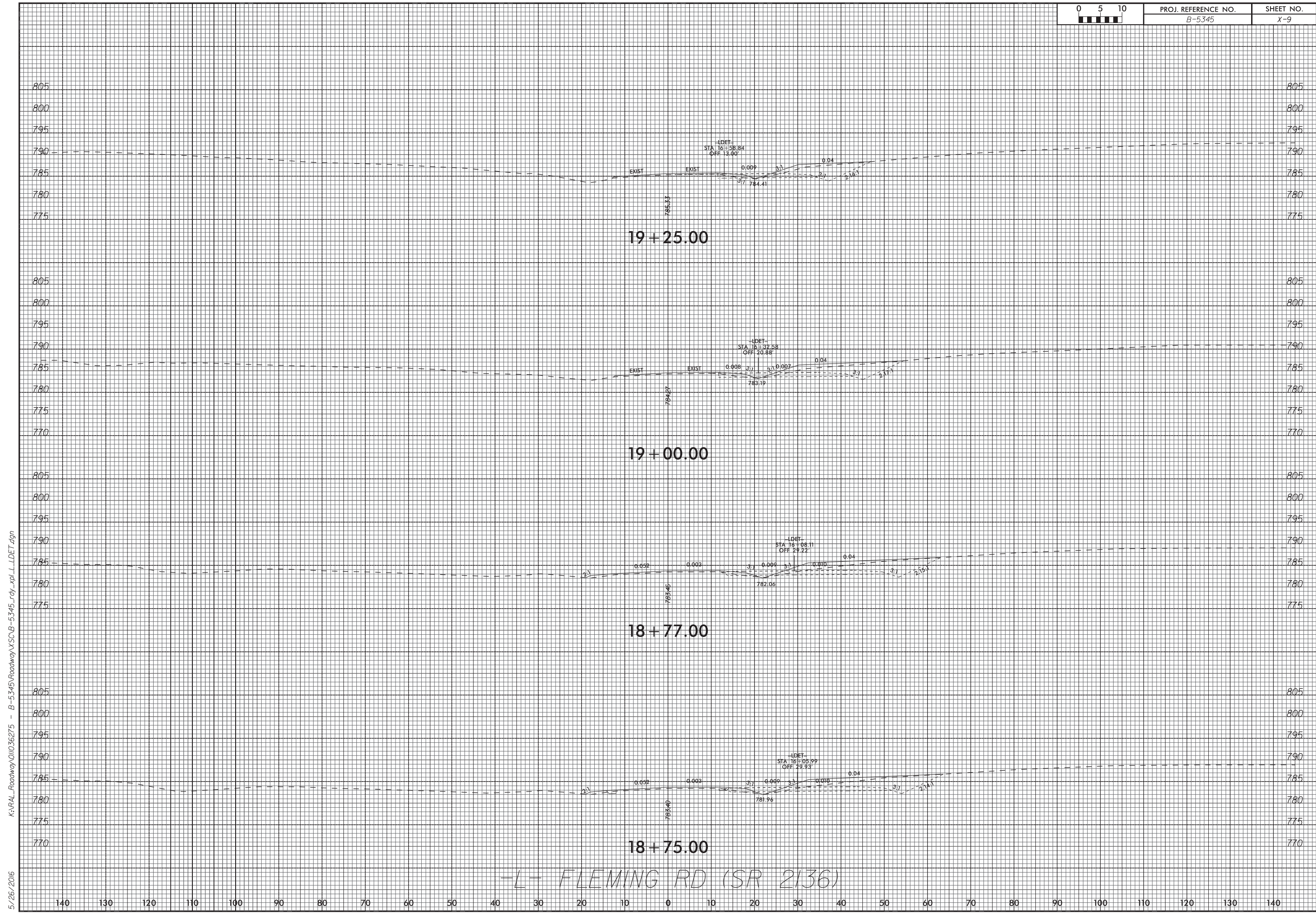
K:\PAL_Roadway\01036275 - B-5345\Roadway\SCB-5345_rdy_xpl.LDET.dgn
5/26/2016

16+95.00
-L- FLEMING RD (SR 2136)



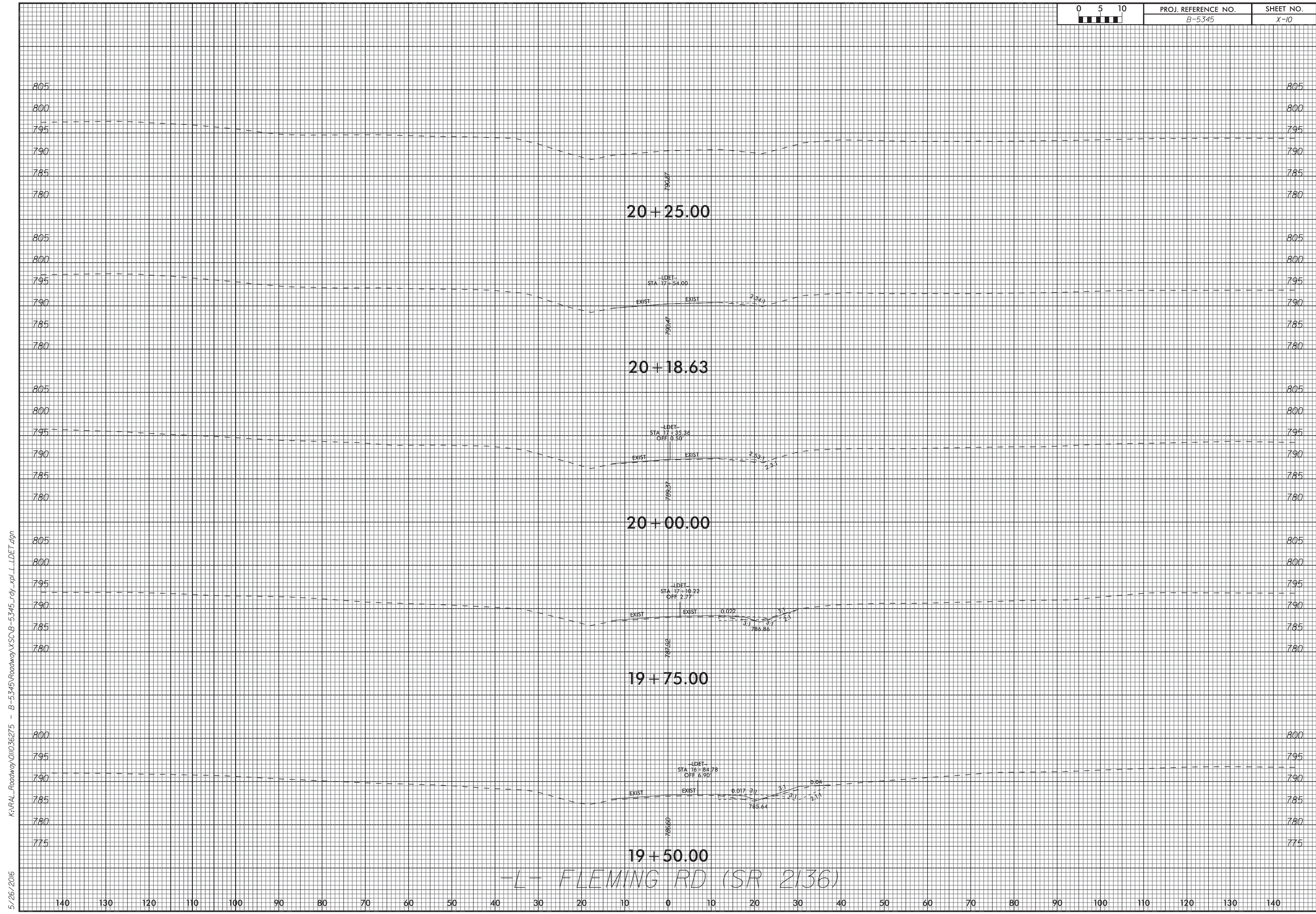
-L- FLEMING RD (SR 2136)

K:\PAL_Roadway\01036275 - B-5345\Roadway\SCB-5345_rdy_xpl.LDEI.dgn 5/26/2016



-L- FLEMING RD (SR 2136)

K:\PAL_Roadway\01036275 - B-5345\Roadway\SCB-5345_rdy_xpl.LDET.dgn 5/26/2016



K:\PAL_Roadway\01036275 - B-5345\Roadway\SCB-5345_rdy_xpl.LDET.dgn
5/26/2016