



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY PERDUE
GOVERNOR

EUGENE CONTI
SECRETARY

October 18, 2010

MEMORANDUM TO: Mr. Pat Ivey, PE
Division Nine Engineer PE

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

SUBJECT: Rowan-Davidson Counties, North of SR 2120 (Exit 81) in Rowan County to US
29-52-70/I-85 Business (Exit 87) in Davidson County; T.I.P. Number I-2304 A;
Federal Aid Project No. NHF-85-3(164)80; State Project No. 8.1631403

Attached are the modifications to the U.S. Army Corps of Engineers Section 404 Individual Permit, N.C. Division of Water Quality Section 401 Individual Water Quality Certification and Letter of Correction to Section 401 Modification for the above referenced project. All environmental permits have been received for the construction of this project.

A copy of this permit package will be posted on the NCDOT website at:
<http://www.ncdot.gov/doh/preconstruct/pe/neu/permit.html>

PSH/gyb

Attachment

Cc: W/attachment
Mr. Randy Garris, P.E. State Contract Officer
Ms. Kent Boyer, Division Environmental Officer

Cc: W/o attachment (see website for attachments)
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Jay Bennett, P.E., Roadway Design
Dr. David Chang, P.E., Hydraulics
Mr. Art McMillan, P.E., Highway Design
Mr. Tom Koch, P.E., Structure Design
Mr. Dewayne Sykes, P.E., Utilities Unit
Mr. Mark Staley, Roadside Environmental
Mr. John F. Sullivan, FHWA
Mr. Ron Hancock, P.E., State Roadway Construction Engineer
Mr. Mike Robinson, P.E., State Bridge Construction Engineer
Ms. Beth Harmon, EEP
Mr. Eric Midkiff, P.E., PDEA Central Region Unit Head

PROJECT COMMITMENTS

I-85

North of SR 2120 (Exit 81) in Rowan County to US 29-52-70/I-85 Business (Exit 87)
in Davidson County, Rowan-Davidson Counties
Federal Aid Project No. NHF-85-3(164)80
State Project No. 8.1631403
WBS Project No. 35871.1.1
T.I.P. Project No. I-2304 A

COMMITMENTS DEVELOPED THROUGH PROJECT DEVELOPMENT AND DESIGN

Project Development and Environmental Analysis Branch (PDEA)

Because the subject project lies within a Federal Energy Regulatory Commission (FERC)-licensed hydro plant project boundary (the Yadkin Project), approval for land transfer must be obtained by NCDOT in the form of a FERC license revision. Coordination with the proper FERC officials shall take place, and the process to obtain a FERC permit will be followed

A portion of the subject project lies within the Yadkin Hydroelectric Project boundary. (Project No. 2197), as licensed by the Federal Energy Regulatory Commission (FERC). For this reason, NCDOT must receive prior written permission from Alcoa Power Generating, Incorporated (APGI), before beginning construction. This permission would most likely be in the form of a Construction Permit and/or easement, in accordance with the Yadkin Project Shoreline Management Plan (SMP). More specifically, the Industrial Use Approval Procedures are outlined in Appendix F to the SMP. Because the project is considered a 'new bridge or road,' the SMP requires 1) agency consultation, 2) 45-day prior notices to FERC and 3) APGI written permission (SMP Appendix F, Table 2). The Transportation Program Management Unit will coordinate with the proper APGI officials to obtain a FERC permit revision for this project.

Geotechnical Unit

It is anticipated that the proposed widening of I-85 and interchange reconstruction along I-85 will encroach on one property identified as an underground storage tank (UST) site. The project has been designed to minimize impacts to this UST site to prevent the possibility of long-term, costly remediation. This impacted site will be further evaluated before the project's construction.

Project Development and Environmental Analysis Branch

Due to its historical significance, Bridge # 46, which carries US 29-70 over the Yadkin River in the southbound direction, will remain in place but will be closed to vehicular traffic. The bridge will remain in place to serve pedestrian and bicycle traffic.

Ownership, liability, and maintenance responsibilities are currently being discussed by the Rowan and Davidson County Commissioners, the Transportation Museum, and the State Historic Preservation Office (SHPO). It is anticipated that these issues will be resolved before the project construction. The issues related to ownership, liability, and maintenance responsibilities have not been resolved by the above-mentioned parties. These issues continue to be discussed by the local officials.

Rehabilitation of Bridge No. 46 (Wil-Cox Bridge) is not an option due to the present state of deterioration. After submission of the Notice of Adverse Effect to the Council in February 2009, FHWA entered into negotiations with NCDOT, NC HPO and other consulting parties to develop a Memorandum of Agreement (MOA) to mitigate the effects of the project on the Yadkin River Crossing Historic District. Davidson and Rowan Counties attended the initial meeting and informed all parties that they may not be able to honor their original intention to take ownership of the historic Wil-Cox Bridge. Rowan County commissioners voted against participating in preservation of the bridge, while Davidson County commissioners have decided to work in good faith with FHWA and NCDOT towards taking ownership of the Wil-Cox Bridge, once the entire I-85 Yadkin River Bridge Project is completed. The ultimate fate of the bridge is unknown at this time, but the attached MOA has been drafted to accommodate for the effects of either outcome.

Right of Way Branch

It is anticipated that thirteen Geodetic Survey markers will be impacted by this project. The North Carolina Geodetic Survey will be contacted prior to construction regarding the relocation of survey markers along the project.

Project Development and Environmental Analysis Branch / Structure Design Unit

Removal of Bridge #137, which spans the Yadkin River, results in potentially 1,254 cubic yards of temporary fill. NCDOT will implement Best Management Practices for Bridge Demolition and Removal.

Upon further analysis of the amount of temporary fill resulting from bridge demolition, it was determined that only the amount of fill from the substructure would result in temporary fill. The likely potential amount of fill resulting from bridge demolition will be approximately 430 cubic yards. NCDOT will implement Best Management Practices for Bridge Demolition and Removal.

Project Development and Environmental Analysis Branch

The project may have an impact on a low income community in the Williams Trailer Park area located along I-85 south of SR 2124 (Hackett Road). During the project development process, no concerns have been raised by the public or local government officials concerning environmental justice issues. NCDOT will aggressively seek participation of this low-income community in the public involvement process.

NCDOT held two meetings with the citizens of the Williams Trailer Park. The first meeting was held in the Spencer Town Hall on 6/19/2001, and the second meeting was held in the North Carolina Transportation Museum on 6/24/2002. During these meetings, the design was presented to the trailer park residents, and their input and concerns related to the project were obtained. In addition to these meetings, a more detailed analysis was performed to determine the impacts to this area, and the determination has been made that this project does not create impacts related to Environmental Justice for the Williams Trailer Park.

An on-site community studies review and analysis was conducted by the NCDOT Community Studies staff on March 6, 2009. No major area development or land use changes were observed inside the project limits since the Design Public Hearing was held.

Project Development and Environmental Analysis Branch / Design Services Unit

Based on preliminary studies, five areas were identified as possible noise barrier locations. These noise barriers were determined to be unreasonable, due to the cost of the noise reduction benefits versus the cost of the abatement measures. However, the project will be re-evaluated for noise abatement measures once more detailed designs are complete.

The project was re-evaluated for noise abatement measures. Noise mitigation in the form of a wall was analyzed for several areas along the project. For the I-2304AA section, one location, known as Barrier Location 2, it was determined that a barrier in this location is considered reasonable and feasible by NCDOT guidelines. Hence, a noise wall is recommended in this area. Further coordination with the affected residents and/or business will take place concerning this proposed noise wall.

One traffic noise barrier is proposed for construction on I-2304AA and is located on the west side of I-85, immediately south of the I-85 Business/I-85 interchange. The projects are proposed to be concurrently let as Design/Build. To facilitate the Design/Build process, NCDOT will revise the existing Design Noise Reports by using the current TNM® versinn2.5 software and incorporating the analytical results for both project sections into one report. The proposed noise barrier is anticipated to remain. Completion of the revised NCDOT Design Noise Report is expected in mid-May 2009

Project Development and Environmental Analysis Branch / Design Services Unit / Construction Unit

A roadside memorial exists within the project limits; however it is not anticipated to be impacted by this project. This memorial, dedicated in 1929 by the North Carolina

Historic Commission, which currently owns the property, was investigated for its historical significance. It was determined that this Trading Ford Monument is not eligible for the National Register of Historic Places. Based on this site visit and other information compiled by NCDOT, no additional archaeological work was deemed necessary for this site. The Historic Preservation Office has requested that the bronze plaque be returned to them if the monument has to be removed during construction. Additionally, NCDOT will coordinate with local officials and SHPO to determine if there is a more suitable location for the marker.

According to the current plans, the roadside memorial (Trading Ford Monument) will not be affected by the construction of this project.

Design Services Unit / Structure Design Unit

In accordance with the FERC requirements, a Construction Permit will be issued to NCDOT once all requested information is reviewed and approved by FERC. The construction permit will contain a condition, among many others, that with regard to existing bridges, that NCDOT will be required to remove all concrete down to the existing muck line so that it will not be a hazard or act as a "catch" for floating debris.

Project Development and Environmental Branch

The biological conclusion for the bald eagle was revised to "Not Likely to Adversely Affect." This conclusion was approved by the USFWS. Because eagles may potentially nest in this area prior to bridge construction, NCDOT will re-survey for bald eagles prior to the project's construction.

As of January 31, 2008, the United States Fish and Wildlife Service (USFWS) lists two federally protected species for Davidson County. Those species are the bog turtle and Schweinitz's sunflower. The USFWS lists one federally protected species for Rowan County, which is Schweinitz's sunflower. No new species have been added by the USFWS since the completion of the Environmental Assessment (EA); however, the bald eagle has been delisted since then. The bald eagle was officially delisted on August 8, 2007 (CFR 50 part 17) and is still afforded protection under the Bald and Golden Eagle Protection Act. The biological conclusion of "No Effect" remains valid for the above mentioned species. The NCDOT Natural Environment Unit will update the project Threatened or Endangered Species Report during the fall 2009 survey window.

The NCDOT Natural Environment Unit updated the Threatened and Endangered Species Surveys in September 2009. None of the above mentioned threatened species were found during the survey.

COMMITMENTS DEVELOPED THROUGH PERMITTING

SECTION 401 WATER QUALITY CERTIFICATION CONDITIONS FROM 2004 PERMIT

Division 9, Roadside Environmental Unit (REU)

Sediment and erosion control measures shall not be placed in wetlands or waters to the maximum extent practicable. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, they shall be removed and the natural grade restored within 30 days after the project has been released.

Division 9

Stormwater management shall be constructed in accordance with the hydraulic design plans submitted in the February 20, 2004 application.

Hydraulics Unit

The hazardous spill catch basins (I-2304AA Plan Sheet 9) shall be designed and located to afford ready access to maintenance and emergency response personnel and equipment.

- The volume of spill containment storage provided will be approximately 10,000 gallons plus the estimated runoff volume from rainfall intensity equating to a two year return period event.
- A means will be provided such that the normal free flow of runoff at the basin outlet can be interrupted to cause containment of hazardous runoff. This can be accomplished by providing a mechanical control gate or by constructing a minimum control section in the outlet channel. The mechanical gate alternative will generally be utilized in areas where normal operational activities would allow close scrutiny and control, reducing the potential for problems with vandalism.
- Maintenance plans for constructed basins shall be developed in accordance with Best Management Practices (BMPs) and good engineering practices. Additional guidance for properly maintaining containment basins can be found at 40 CFR Part 112, §112.7, et al. (Spill Prevention Control and Countermeasures).
- Inspections of the hazardous spill catch basin and opening/shutting of the gate should be performed annually at a minimum, and within six (6) months after a spill incident to ensure integrity of the catch basin.
- Repairs should occur in a timely manner.
- NCDOT should provide annually, a site location map of all hazardous spill catch basins and similar devices to Federal (USEPA, USCG), DENR, State Emergency Response Coordinator, and all applicable county and urban center response groups.

- Signage indicating the presence of a hazardous spill catch basin shall be provided.

Roadside Environmental Unit, Division 9

The removal of vegetation in riparian areas should be minimized. NCDOT is encouraged to use existing on-site vegetation and materials for stream bank stabilization and to minimize the use of rip rap. Rip rap shall not be placed in the stream bottom. Riparian vegetation, using native trees and shrubs, must be re-established within the construction limits of the project by the end of the growing season following completion of construction to re-establish the riparian zone and to provide long-term erosion control.

Division 9

Culverts that are less than 48-inch in diameter should be buried to a depth equal to or greater than 20% of their size to allow for aquatic life passage. Culverts that are 48-inch diameter or larger should be buried at least 12 inches below the stream bottom to allow natural stream bottom material to become established in the culvert following installation and to provide aquatic life passage during periods of low flow. If any of the existing pipes are perched, they shall be removed and replaced, and re-installed correctly, unless demonstrated that this is topographically unfeasible.

Project Development and Environmental Analysis Unit

Summary of Compensatory Mitigation: Compensatory mitigation shall be the same as that approved by the US Army Corps of Engineers, as long as the mitigation required equals a ratio of 1: 1 restoration or creation of lost wetland acres as described in 15A NCAC 2H.0506 (h)(6), and consists of the following:

I-2304 Section AA

- 0.02 acres of on-site riverine wetland restoration within I-2304 Section AA.
- 2644 linear feet of stream impacts will be mitigated through NCDENR Ecosystem Enhancement Program (EEP).
- 1.08 acres of impacts to non-riverine wetlands will be mitigated through EEP.

I-2304 Section AB

- 1.03 acres of on site riverine wetland restoration within I-2304 Section AA.
- 1811 linear feet of stream will be mitigated through EEP.
- 0.16 acres of impacts to non-riverine wetlands will be mitigated through EEP.

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

Payment has been sent to EEP.

Division 9, Design Services Unit, Hydraulics Unit

Two copies of the final construction drawings shall be furnished to NCDWQ prior to the pre-construction meeting. Written verification shall be provided that the final construction drawings comply with the permit drawings contained in the Application dated February 20, 2004 and May 11, 2004.

Division 9

The dimension, pattern and profile of the stream above and below the crossing should not be modified by widening the stream channel or reducing the depth of the stream. Disturbed floodplains and streams should be restored to natural geomorphic conditions. All stream relocation and restoration activities shall comply with the final natural channel design plans approved by the NC Division of Water Quality.

Division 9, Roadside Environmental Unit

All channel relocations will be constructed in a dry work area, and stabilized before stream flows are diverted. Channel relocations will be competed and stabilized prior to diverting water into the new channel. Whenever possible, channel relocations shall be allowed to stabilize for an entire growing season. Vegetation used for bank stabilization shall be limited to native woody species, and should include establishment of a 30 foot wide wooded and adjacent 20 foot wide vegetated buffer on both sides of the relocated channel to the maximum extent practical. A transition phase incorporating coir fiber and seeding establishment is allowable. Also, rip-rap may be allowed if it is necessary to maintain the physical integrity of the stream, but NCDOT must provide written justification and any calculations used to determine the extent of rip-rap coverage requested.

All temporary fills in wetlands and surface waters shall be removed upon completion of the project. In addition, the post-construction removal of any temporary bridge structures or fill will need to return the project site to its pre-construction contours and elevations. The revegetation of the impacted areas with appropriate native species will be required.

SECTION 404 INDIVIDUAL PERMIT CONDITIONS FROM 2004 PERMIT

Compliance With Plans

Division 9, Design Services Unit

All work must be performed in strict compliance with the plans, which are a part of the Section 404 permit. Any modification to the permit plans must be approved by the US Army Corps of Engineers (USACE) prior to implementation.

Construction Plans

NCDOT will ensure that the construction design plans for this project do not deviate from the permit plans. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the Corps of Engineers, Raleigh Regulatory Field Office prior to any active construction in waters or wetlands.

Sedimentation and Erosion Control Measures

Division 9, Roadside Environmental Unit

NCDOT shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades in those areas, prior to project completion.

Mitigation

Project Development and Environmental Analysis Unit

NCDOT shall mitigate for 2.29 acres of wetland impacts, and 4,455 linear feet of impacts to streams with important aquatic function, for this project, as described below (1.05 acres of riverine bottomland hardwood wetland restoration at the Yadkin River Swamp Hardwoods Restoration Mitigation Site. And 2.48 acres of restoration equivalent non-riverine wetlands, and 8,910 linear feet of restoration equivalent warm water stream channel, through EEP, in the Yadkin River basin (Cataloging Unit 03040103).

The Department of the Army (DA) permit was modified October 7, 2010, to state that NCDOT will provide 2.54 acres of restoration wetland credits from the onsite wetland restoration project instead of the current 1.05 acres of wetland restoration credits.

YADKIN RIVER SWAMP HARDWOODS RESTORATION MITIGATION SITE

NCDOT shall implement the compensatory wetland mitigation plan entitled "Restoration Plan for Swamp Hardwoods Wetlands At Existing Bridge Causeway of the 1-85 Yadkin River In Rowan County", dated July 12, 2004, to provide the restoration described in conditions below. NCDOT shall complete grading for the mitigation within one year of demolition of the existing 1-85 Yadkin River bridge, and complete planting of the site within the first planting season (November 15 to March 15) after grading is completed. NCDOT shall contact the Corps of Engineers, Raleigh Regulatory Field Office NCDOT Regulatory Project Manager, a minimum of sixty days before completion of grading at the mitigation site, and inform the Project Manager of the expected completion date of the grading.

NCDOT shall mitigate for 1.05 acres of unavoidable impacts to riverine bottomland hardwood forest wetlands associated with this project with 1.05 acres of riverine

bottomland hardwood forest wetland restoration, at the Yadkin River Swamp Hardwoods Restoration Mitigation Site (Yadkin Site).

NCDOT will do a boundary survey of the 1.05 acres of wetland restoration at the Yadkin Site, and submit a copy of the survey to the District Engineer within 90 days after construction of the site is completed.

NCDOT will monitor the site vegetation between June 1 and November 30, inclusively, of each year, and document plant mortality and stress. A minimum of one 0.05-acre sample plots will be established within the 1.05 acre restoration area, and will be placed randomly within a representative position. NCDOT will continue monitoring of the planting area annually until the specified performance criteria is met, as described below.

The Department of the Army (DA) permit was modified October 7, 2010, to state that NCDOT will provide 2.54 acres of restoration wetland credits from the onsite wetland restoration project instead of the current 1.05 acres of wetland restoration credits.

YADKIN SITE MITIGATION MONITORING

Project Development and Environmental Analysis Unit, Division 9, Roadside Environmental Unit

Performance criteria for tree planting areas will be met if sample plots demonstrate that for each of the first three complete years of monitoring, 320 target-species trees per acre have survived, such that at the end of three years, 320 three-year old target-species trees per acre have survived on the site, and, in years four and five, 288 and 260 trees per acre, respectively, have survived on the site, such that at the end of year five, 260 five year old target-species trees per acre have survived on the site.

If for any monitoring year, vegetation survival is not favorable, as determined by the Corps of Engineers, any remedial action required by the Corps of Engineers will be performed, the required restoration areas will be replanted, and the five-year monitoring period will begin again with year one.

GENERAL WETLANDS MITIGATION

NCDOT and subsequent property owners shall maintain the Yadkin Site in its natural condition, as altered by work in the mitigation plan, in perpetuity. Prohibited activities within the mitigation site specifically include, but are not limited to: the construction or placement of roads, walkways, buildings, signs, or structures of any kind (i.e., billboards, interior fences, etc.); filling, grading, excavation, leveling, or any other earth moving activity or activity that may alter the drainage patterns on the property; the cutting, mowing, destruction, removal, or other damage of any vegetation; disposal or storage of any debris, trash, garbage, or other waste material; except as may be authorized by the mitigation plans, or subsequent modifications that are approved by the

Corps of Engineers. In addition, NCDOT shall take no action, whether on or off the mitigation property, which will adversely impact the wetlands on the mitigation property, except as specifically authorized by this permit, or subsequent modifications that are approved by the Corps of Engineers.

NCDOT shall make every effort to convey the Yadkin Site property to a nonprofit conservation organization or a natural resource agency, which is willing to hold the areas in perpetuity for conservation purposes, and which is acceptable to the Corps of Engineers. The annual monitoring reports, as required, will include the status of the conveyance efforts.

NCDOT shall not sell or otherwise convey any interest in the property used to satisfy mitigation requirements for this permit, to any third party, without 10 days prior notification to Wilmington District Corps of Engineers in writing, which writing shall reference this permit Action ID number.

Any sale, lease, or other conveyance of the mitigation site property shall include restrictions on the use of the property as described in conditions above, which conditions shall be enforced by the North Carolina Department of Transportation. Such restrictions shall include language providing for third party enforcement rights in favor of the Corps of Engineers. Such restrictions must be approved prior to conveyance by the Corps of Engineers.

GENERAL MITIGATION

Project Development and Environmental Analysis Unit

NCDOT shall contact the Corps of Engineers, Raleigh Regulatory Field Office NCDOT Regulatory Project Manager, to provide that individual with that opportunity to attend the yearly mitigation monitoring efforts.

NC-EEP STREAM AND WETLAND MITIGATION:

Project Development and Environmental Analysis Unit

Compensatory mitigation for the unavoidable impacts to 1.24 acres of non-riverine wetlands, and 4,455 linear feet of stream associated with the proposed project shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letter dated April 30, 2004 from William D. Gilmore, EEP Transition Manager. Pursuant to the EEP Memorandum of Agreement (MOA) between the State of North Carolina and the

US Army Corps of Engineers signed on July 22, 2003, the EEP will provide 2.48 acres of restoration equivalent non-riverine wetlands, and 8,910 linear feet of restoration equivalent warm water stream channel in the Yadkin River basin (Cataloging Unit 03040103) by one year of the date of this permit. For wetlands, a minimum of 1: 1 (impact to mitigation) must be in the form of wetland restoration. The NCDOT shall, within 30 days of the issue date of this permit, certify that sufficient funds have been

provided to EEP to complete the required mitigation, pursuant to Paragraph V. of the MOA.

The Department of the Army (DA) permit was modified October 7, 2010, to state that NCDOT will provide 2.54 acres of restoration wetland credits from the onsite wetland restoration project instead of the current 1.05 acres of wetland restoration credits.

Navigation

Division 9, Hydraulics Unit, Structure Design Unit

The authorized fill and structures, and associated activities, in the Yadkin River must not interfere with the public's right to free navigation on the river. No attempt will be made by NCDOT to prevent the full and free use by the public of the river at or adjacent to the authorized work for reason other than safety. NCDOT shall not modify the design of the temporary work bridges to provide an unobstructed main channel less than fifty feet wide, with no vertical structural obstructions from the work bridges extending into the opening.

Construction Plans

Division 9, Hydraulics Unit, Design Services Unit

Prior to commencing construction within jurisdictional waters of the United States, NCDOT shall forward the latest version of project construction drawings to the USACE, Raleigh Regulatory Field Office NCDOT Regulatory Project Manager. Half-size drawings are acceptable.

Historic Property

Division 9, Project Development and Environmental Analysis Unit

NCDOT shall leave Bridge NO. 46, which currently carries US 29-70 over the Yadkin River in the southbound direction, in place, due to its historical significance. NCDOT shall close the bridge to vehicle traffic, but it will serve pedestrian and bicycle traffic. NCDOT shall work out ownership and maintain responsibilities with the Rowan and Davidson County Commissioners, the Transportation Museum, and the North Carolina State Historic Preservation Office.

PERMIT CONDITIONS THROUGH SITE 2 PERMIT MODIFICATION

All other conditions written into previous Water Quality Certification no. 3455 dated March 19, 2004 with a modification issued November 22, 2004 still apply except where they are superseded by this certification.

Natural Environmental Unit

Compensatory mitigation for impacts to 0.21 acres of riverine wetlands will be conducted through on-site mitigation. See table 3 below for tracking of wetland mitigation credits. The permittee shall comply with the on-site wetland mitigation plan submitted on July 30, 2004 dated received August 4, 2004. All on-site mitigation sites shall be protected in perpetuity by a conservation easement or through NCDOT fee simple acquisition and recorded in the NCDOT Natural Environment Unit mitigation geodatabase.

On-site Riparian Wetland Mitigation Restoration Credits Table

| | Total Mitigation generated on-site (acres) | Amount Deducted with 2004 permit and modification no.1 (acres) | Amount Deducted with modification no.2 (acres) | Amount of on-site Mitigation remaining (acres) |
|----------------------------|--|--|--|--|
| On-site Mitigation Credits | 2.74 | 1.05 | 0.21 | 1.48 |

Hydraulics Unit

All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to biological criteria exceedances shall not discharge stormwater directly to surface waters. Stormwater shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands; detention ponds, etc.) prior to discharging to surface waters. This condition shall supersede Condition 4 of Water Quality Certification No. 3455 dated March 19, 2004.

NCDOT shall design, construct, operate and maintain hazardous spill catch basins (HSCBs) at all crossings of the Yadkin River. These HSCBs shall be designed to function as dry detention basins for post construction stormwater treatment, in accordance with additional information submitted for this permit modifications dated received September 16, 2010, and September 27, 2010. This condition refers only to the I-85 crossing of the Yadkin River at permit site 2.

Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (Hazardous Spill Catch basin-Dry Detention basin combinations) before entering the stream in accordance with additional information submitted for this permit modifications dated received September 16, 2010, and September 27, 2010.

Division 9

Turbidity curtains shall be used to isolate all work areas from the stream at the Yadkin River, including pile or casement installation, placement of riprap, excavation or filling. Strict adherence to the Construction and Maintenance Best Management Practices will be required.

Division 9/Roadside Environmental Unit

The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species.

Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this certification.

Division 9

Strict adherence to the most recent version of NCDOT's Best Management Practices For Bridge Demolition and Removal approved by the US Army Corps of Engineers is a condition of the 401 Water Quality Certification.

Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from NCDWQ first.

No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated, and disposed of properly.

All bridge construction shall be performed from the existing bridge, temporary work bridges, temporary causeways, or floating or sunken barges. If work conditions require barges, they shall be floated into position and then sunk. The barges shall not be sunk and then dragged into position. Under no circumstances should barges be dragged along the bottom of the surface water.



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

October 7, 2010

Regulatory Division

Action ID. 199821203; TIP No. I-23^{0 56}~~04~~A

Dr. Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA
N.C. Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

Reference is made to your Department of the Army (DA) permit issued on December 16, 2004, authorizing the discharge of fill material into waters of the United States (jurisdictional waters) for construction of Section A of the Interstate 85 (I-85) Improvements (T.I.P. No. I-2304A), from north of SR 2120 (Exit 81), northeast of Spence, in Rowan County, to north of I-85 Business (Exit 87), southwest of Lexington, in Davidson County, North Carolina. The project is adjacent to jurisdictional waters of the Yadkin River, Potts Creek, and unnamed tributaries of the Yadkin River. Reference also your written request of September 13, 2010, for a modification to your DA permit to authorize additional impacts to jurisdictional waters associated with site 2 (proposed work bridge and I-85 bridge over the Yadkin River). The additional impacts include 6.59 acres of hand clearing to jurisdictional wetlands, 0.21 acres of fill of jurisdictional wetlands associated with bridge pile construction, and 0.03 acre of surface water impacts. You also agreed to provide 0.21 acre of restoration wetland credits from the onsite wetland restoration project leaving 1.48 acres of restoration wetland credits in the project.

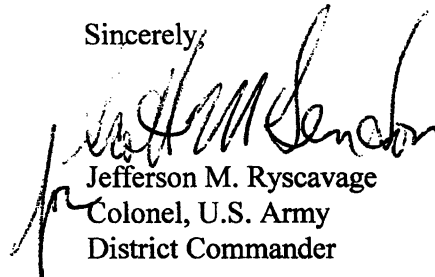
We have reviewed your request and concur that the provided 0.21 acre of restoration wetland credits is appropriate compensatory mitigation for the proposed additional impacts of 0.21 acre of fill of jurisdictional wetlands associated with bridge pile construction. However, your proposed 6.59 acres of hand clearing to jurisdictional wetlands (i.e. mature bottomland forest) would result in more than a minor net habitat function loss to jurisdictional waters. Accordingly, 1.3 acre of restoration wetland credits (1 to 5 ratio) from the onsite wetland restoration project is appropriate and necessary compensatory mitigation associated with your referenced DA permit modification request. Therefore, special conditions p, q, r & s of your existing DA permit will be modified to state that you will provide 2.54 acres of restoration wetland credits from the onsite wetland restoration project instead of the current 1.05 acres of wetland restoration credits.

With reference and inclusion of the above changes to your existing DA permit special conditions, we have determined that the proposed additional temporary/permanent impacts including acreage and/or function to jurisdictional waters are either minor or will be replaced to an adequate extent by the additional referenced compensatory mitigation. Therefore, a supplemental public notice is not necessary. The permit is hereby modified to include the additional impacts to jurisdictional waters as described in the September 13, 2010, modification request. It is understood that all other conditions of the original permit and previous modifications remain applicable, including the permit expiration date of December 31, 2013.

If the permitted work is not completed on or before the date herein specified, the authorization, if not previously revoked or specifically further extended, will cease and become null and void. If additional time is required to complete the project, you should contact this office with a request for an additional time extension.

Should you have questions, please contact Mr. John Thomas, Raleigh Regulatory Field Office, telephone (919) 554-4884 extension 25.

Sincerely,

A handwritten signature in black ink, appearing to read "Jefferson M. Ryscavage". The signature is written in a cursive style with a large, prominent "J" and "M".

Jefferson M. Ryscavage
Colonel, U.S. Army
District Commander



North Carolina Department of Environment and Natural Resources

Division of Water Quality
Coleen H. Sullins
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

October 15, 2010

Dr. Greg Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina, 27699-1548

Subject: Correction to 401 Water Quality Certification No. 3455 v. 3, NCDWQ Project No. 20040275, v.
3

Dear Dr. Thorpe:

This letter is in regards to the Individual Water Quality Certification No. 3455 v. 3 issued September 27, 2010. It specifically addresses conditions 5 and 8.

The Division of Water Quality (Division) is clarifying condition 5 which reads:

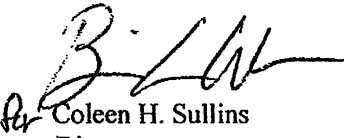
“NCDOT shall design, construct, operate and maintain hazardous spill catch basins (HSCBs) at all crossings of the Yadkin River. These HSCBs shall be designed to function as dry detention basins for post construction stormwater treatment, in accordance with additional information submitted for this permit modifications dated received September 16, 2010, and September 27, 2010. “

Condition 5 refers only to the I-85 crossings of the Yadkin River at permit site 2.

The Division is removing condition 8 from the Individual Water Quality Certification. Condition 8 reads: “Due to the possibility that compaction and/or other site alterations might prevent the temporary and hand clearing wetland impacts from re-attaining jurisdictional wetland status, the permittee shall provide an annual update on the wetland areas at Site 2. This annual update will consist of photographs and a brief report on the progress of these temporarily impacted areas in re-attaining wetland jurisdictional status. Three years after project completion, the permittee shall schedule an agency field meeting with the NC Division of Water Quality to determine if the wetland areas temporarily impacted by this project have re-attained jurisdictional wetland status. If at the end of three years the wetland areas temporarily impacted by this project have not re-attained jurisdictional wetland status, NCDWQ shall determine if compensatory wetland mitigation will be required.”

Please keep a copy of this letter with the original certification. If we can be of further assistance, do not hesitate to contact us.

Sincerely,


Per Coleen H. Sullins
Director

Transportation Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
Location: 2321 Crabtree Blvd., Raleigh, North Carolina 27604
Phone: 919-733-1786 | FAX: 919-733-6893
Internet: <http://h2o.enr.state.nc.us/ncwetlands/>

One
North Carolina
Naturally

cc: John Thomas, US Army Corps of Engineers, Raleigh Field Office
Anne Gamber, NCDOT Hydraulics
Pat Ivey, PE, Division 9 Engineer
Kent Boyer, Division 9 Environmental Officer
Chris Militscher, Environmental Protection Agency (electronic copy only)
Marla Chambers, NC Wildlife Resources Commission
Jason Elliott, NCDOT, PDEA- Natural Environmental Unit
File Copy



North Carolina Department of Environment and Natural Resources

Division of Water Quality
Coleen H. Sullins
Director

ROADSIDE ENVIRONMENTAL UNIT
Unit Head _____
Public Operations _____
EC & Veg. Mgt. _____
Field Oper. Eng. _____
Dee Freeman
Secretary

Beverly Eaves Perdue
Governor

SEP 29 2010

September 27, 2010

Design _____
S & W Engineering _____
Rest Area _____
Vegetation Mgt. _____
Beautification _____

Dr. Greg Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina, 27699-1548

Subject: Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for Proposed Reconstruction and Widening of I-85 from north of SR 2120 (Long Ferry Road) in Rowan County to south of NC 150 in Davidson County. Federal Aid Project No. NHFIMF-85-3(197)81, WBS 35156.3.GV3, Division 9, TIP No. I-2304AC. NCDWQ Project No. 20040275, v.3.

Dear Dr. Thorpe:

Attached hereto is a modification of Certification No. 3455 issued to The North Carolina Department of Transportation (NCDOT) dated March 19, 2004 with a modification issued November 22, 2004.

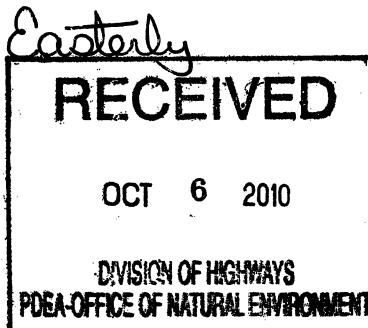
If we can be of further assistance, do not hesitate to contact us.

Sincerely,

for Coleen H. Sullins
Director

Attachments

- cc: John Thomas, US Army Corps of Engineers, Raleigh Field Office
- Pat Ivey, PE, Division 9 Engineer
- Kent Boyer, Division 9 Environmental Officer
- Chris Militscher, Environmental Protection Agency (electronic copy only)
- Marla Chambers, NC Wildlife Resources Commission
- Jason Elliott, NCDOT, Roadside Environmental Unit
- Beth Harmon, Ecosystem Enhancement Program
- Wetlands/401 Transportation Permitting Unit
- File Copy



Transportation Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
Location: 2321 Crabtree Blvd., Raleigh, North Carolina 27604
Phone: 919-733-1786 \ FAX: 919-733-6893
Internet: <http://h2o.enr.state.nc.us/ncwetlands/>

One
North Carolina
Naturally

Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (NCDWQ) Regulations in 15 NCAC 2H .0500. This certification authorized the NCDOT to impact 7.99 acres of jurisdictional wetlands, 2644 linear feet of jurisdictional streams, and 0.03 acres of open water in Rowan and Davidson Counties. The project shall be constructed pursuant to the modification dated received September 2, 2010 with additional information received September 16, 2010 and September 27, 2010. The authorized impacts are as described below:

Table 1: Wetland Impacts in the Yadkin River Basin

| Site | Fill (ac) | Fill (temporary) (ac) | Excavation (ac) | Mechanized Clearing (ac) | Hand Clearing (ac) | Total Wetland Impact (ac) | Wetland Impacts Requiring Mitigation (ac) |
|--|-----------|-----------------------|-----------------|--------------------------|--------------------|---------------------------|---|
| Previously permitted impacts at Site 2 | 0.10 | 0.02 | 0 | 0 | 0 | 0 | 0.10 |
| Revised Impacts at Site 2* | 0.07 | 0.02 | 0 | 0.14 | 6.59 | 6.82 | 0.21 |

Total Wetland Impacts for I-2304AC Project: 7.99 acres.

Table 2: Open Water Impacts in the Yadkin River Basin

| Site | Permanent Fill in Open Waters (ac) | Temporary Fill in Open Waters (ac) | Total Fill in Open Waters (ac) |
|--|------------------------------------|------------------------------------|--------------------------------|
| Original approved impacts at Site 2* | 0.10 | 0.01 | 0.11 |
| Revised impacts with this approval at Site 2 | <0.01 | 0.02 | 0.03 |

Total Open Water Impacts for I-2304AC Project: 0.03 acres

*Originally permitted as stream impacts

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

This approval is only valid for the purpose and design that you submitted in your modified application dated received September 3, 2010 with additional information received September 16, 2010 and September 27, 2010. All the authorized activities and conditions of certification associated with the original Water Quality Certification no. 3455 dated March 19, 2004 and a modification dated November 22, 2004 still apply except where superseded by this certification. Should your project change, you are required to notify NCDWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Condition(s) of Certification:

Project Specific Conditions

1. All other conditions written into previous the Water Quality Certification no. 3455 dated March 19, 2004 with a modification issued November 22, 2004 still apply except where they are superseded by this certification.
2. Compensatory mitigation for impacts to 0.21 acres of riverine wetlands will be conducted through on-site mitigation. See table 3 below for tracking of wetland mitigation credits. The permittee shall comply with the on-site wetland mitigation plan submitted on July 30, 2004 dated received August 4, 2004. All on-site mitigation sites shall be protected in perpetuity by a conservation easement or through NCDOT fee simple acquisition and recorded in the NCDOT Natural Environment Unit mitigation geodatabase.

Table 3: On-site Riparian Wetland Mitigation Restoration Credits

| | Total Mitigation generated on-site (acres) | Amount Deducted with 2004 permit and modification no. 1 (acres) | Amount Deducted with modification no. 2 (acres) | Amount of On-site Mitigation remaining (acres) |
|----------------------------|--|---|---|--|
| On-site Mitigation Credits | 2.74 | 1.05 | 0.21 | 1.48 |

3. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to turbidity shall be designed, constructed, and operated with sediment and erosion control measures that meet Design Standards in Sensitive Watersheds [15A NCAC 4B .0124]. However, due to the size of the project, NC DOT shall not be required to meet 15A NCAC 4B .0124(a) regarding the maximum amount of uncovered acres.
4. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to biological criteria exceedances shall not discharge stormwater directly to surface waters. Stormwater shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters. This condition shall supersede Condition 4 of Water Quality Certification No. 3455 dated March 19, 2004.
5. NCDOT shall design, construct, operate and maintain hazardous spill catch basins (HSCBs) at all crossings of the Yadkin River. These HSCBs shall be designed to function as dry detention basins for post construction stormwater treatment, in accordance with additional information submitted for this permit modifications dated received September 16, 2010, and September 27, 2010.
6. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (Hazardous Spill Catch basin-Dry Detention basin combinations) before entering the stream in accordance with additional information submitted for this permit modifications dated received September 16, 2010, and September 27, 2010.
7. Turbidity curtains shall be used to isolate all work areas from the stream at the Yadkin River, including pile or casement installation, placement of riprap, excavation or filling. Strict adherence to the Construction and Maintenance Best Management Practices will be required.
8. Due to the possibility that compaction and/or other site alterations might prevent the temporary and hand clearing wetland impacts from re-attaining jurisdictional wetland status, the permittee shall provide an annual update on the wetland areas at Site 2. This annual update will consist of photographs and a brief report on the progress of these temporarily impacted areas in re-attaining wetland jurisdictional status. Three years after project completion, the permittee shall schedule an agency field meeting with the NC Division of Water Quality to determine if the wetland areas temporarily impacted by this project have re-attained jurisdictional wetland status. If at the end of three years the wetland areas temporarily impacted by this project have not re-attained jurisdictional wetland status, NCDWQ shall determine if compensatory wetland mitigation will be required.
9. The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species.

10. Strict adherence to the most recent version of NCDOT's Best Management Practices For Bridge Demolition and Removal approved by the US Army Corps of Engineers is a condition of the 401 Water Quality Certification.
11. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from NCDWQ first.
12. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated, and disposed of properly.
13. All bridge construction shall be performed from the existing bridge, temporary work bridges, temporary causeways, or floating or sunken barges. If work conditions require barges, they shall be floated into position and then sunk. The barges shall not be sunk and then dragged into position. Under no circumstances should barges be dragged along the bottom of the surface water.
14. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.

General Conditions

15. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.
16. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.
17. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.
18. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If NCDWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, NCDWQ may reevaluate and modify this certification.
19. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.
20. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.
21. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.
22. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.
23. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.
24. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify NCDWQ when all work included in the 401 Certification has been completed.
25. Native riparian vegetation must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.
26. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.

27. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:
 - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
 - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
 - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
 - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.
 - e. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
28. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.
29. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.
30. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage.
31. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.
32. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.

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

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission. The mailing address for the Office of Administrative Hearings is:

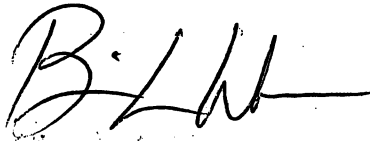
Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919)-733-2698, Facsimile: (919)-733-3478

A copy of the petition must also be served on DENR as follows:

Ms. Mary Penny Thompson, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

This the 27th day of September 2010

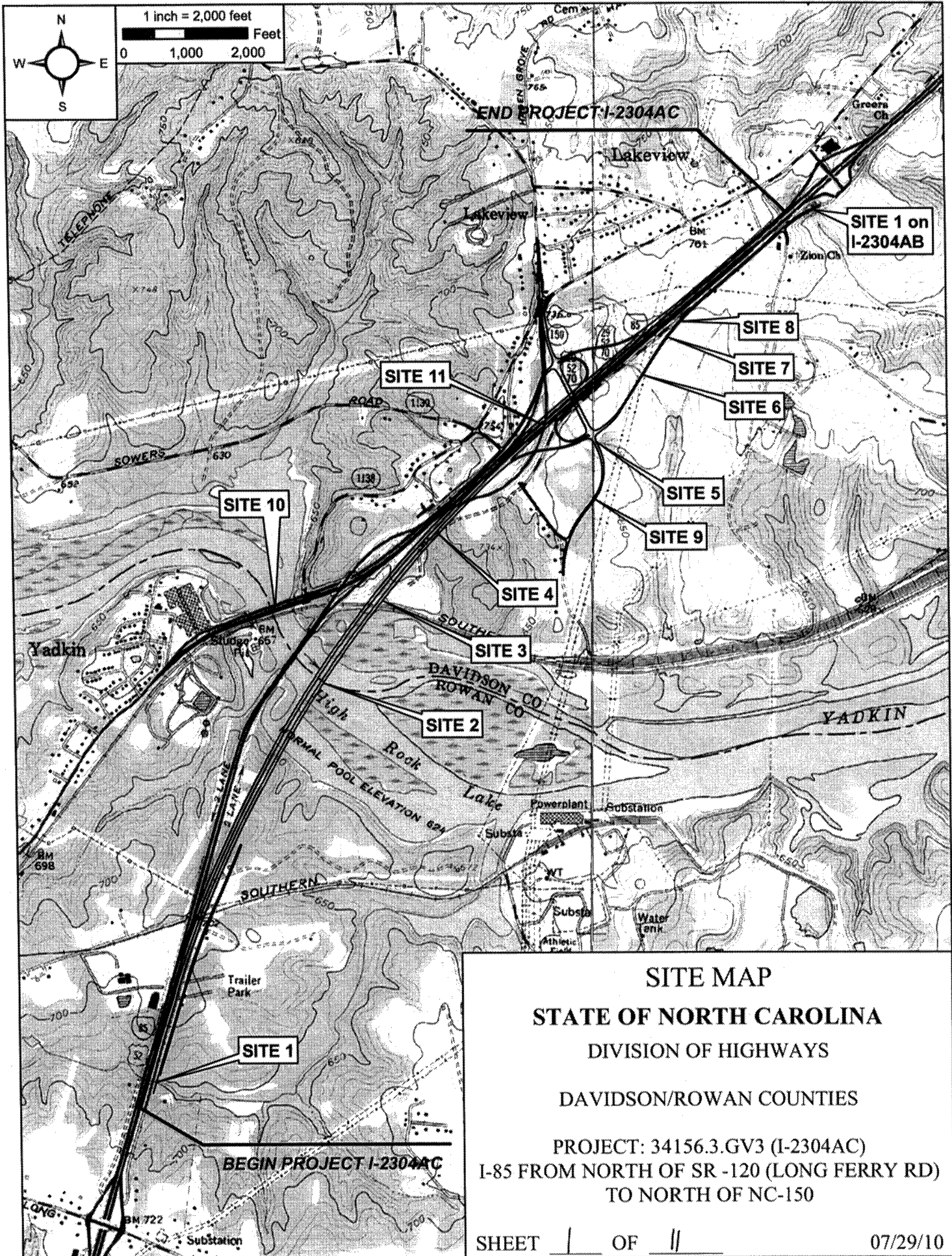
DIVISION OF WATER QUALITY



By  Coleen H. Sullins
Director

WQC No. 3455 v. 3

September 22, 2010



SITE MAP
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 DAVIDSON/ROWAN COUNTIES
 PROJECT: 34156.3.GV3 (I-2304AC)
 I-85 FROM NORTH OF SR -120 (LONG FERRY RD)
 TO NORTH OF NC-150
 SHEET | OF || 07/29/10

WETLAND PERMIT IMPACT SUMMARY

| Site No. | Station (From/To) | Structure Size / Type | WETLAND IMPACTS | | | | | SURFACE WATER IMPACTS | | | | | | |
|----------------|-------------------------|-----------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|------|------|
| | | | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW Impacts (ac) | Temp. SW Impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) | | |
| 2 | 868+60 TO 897+27 -LREV- | BRIDGE | 0.07 | 0.02 | | 0.14 * | 6.59 | <0.01 | 0.02 | | | | | |
| | | | 0.07 | 0.02 | 0.00 | 0.00 | 6.59 | <0.01 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| TOTALS: | | | | | | | | | | | | | | |

* Mechanized clearing was based on a 4.5ft wide area along the bridge piers in case stumps or roots need to be removed for drilling the piers. This is a conservative estimate and the entire area will not be mechanically cleared.

Permanent stream fill from bridge piles:
 =10 bents * 2 piles/bent * 15.9043 sf/pile = 318.09 sf

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 ROWAN/DAVIDSON COUNTY
 WBS - 34156.1.1 (I-2304AC)

SHEET *2 of 11* 8/30/2010

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

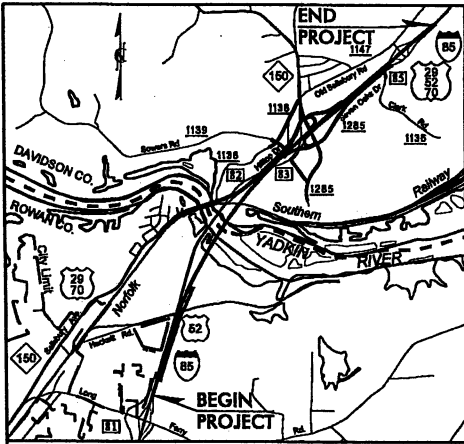
ROWAN & DAVIDSON COUNTY

LOCATION: SOUTH SECTION FROM STA. 807+00 TO 901+00
RECONSTRUCTION OF I-85 FROM NORTH OF SR 2120
IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

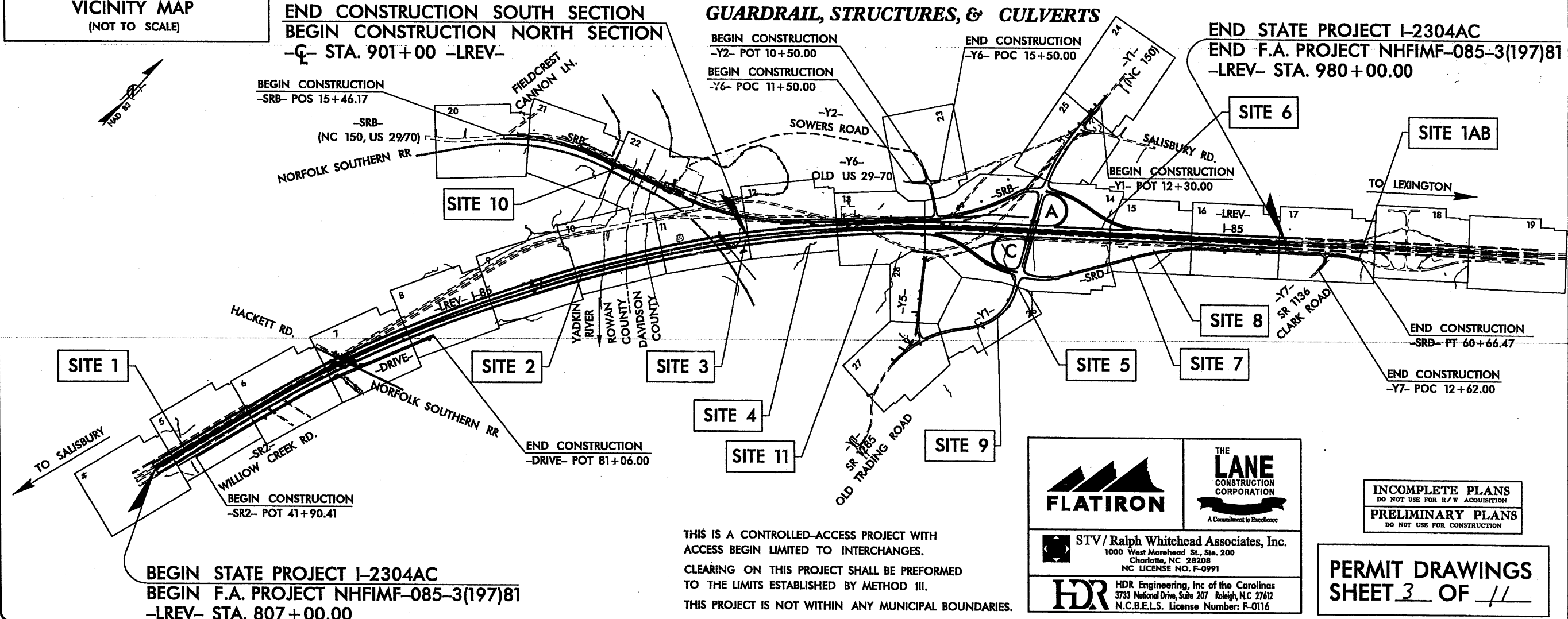
TYPE OF WORK: GRADING, DRAINAGE, PAVING, WIDENING, RESURFACING,
GUARDRAIL, STRUCTURES, & CULVERTS

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | I-2304AC | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 34156.1.1 | NHF-85-3(164)80 | PE | |
| 34156.2.4 | | RW UTL. | |
| 34156.3.GV3 | NHFIMF-085-3(197)81 | CONST. | |

WETLAND AND STREAM IMPACTS
SUBMITTED: 08-31-2010
SUBMITTAL #S-014R



VICINITY MAP
(NOT TO SCALE)



TIP PROJECT: I-2304AC

CONTRACT: C 202383

PENTABLE: \$PENTBL\$
TIME: \$TIME\$
SCALE: \$SCALES\$

PLOT DRIVER: \$PLTDV\$
USER: \$USER\$
DATE: \$DATE\$
FILE: \$PWVVAULTPATHDESC\$

BEGIN STATE PROJECT I-2304AC
BEGIN F.A. PROJECT NHFIMF-085-3(197)81
-LREV- STA. 807+00.00

END STATE PROJECT I-2304AC
END F.A. PROJECT NHFIMF-085-3(197)81
-LREV- STA. 980+00.00

THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEGIN LIMITED TO INTERCHANGES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

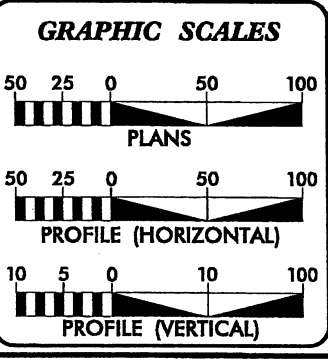
STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC LICENSE NO. F-0991

A Commitment to Excellence

HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

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

PERMIT DRAWINGS
SHEET 3 OF 11



DESIGN DATA

| | |
|--------------------|---------|
| ADT 2009 = | 58,800 |
| ADT 2035 = | 109,200 |
| DHV = | 10 % |
| D = | 55 % |
| T = | 25 % * |
| V = | 70 MPH |
| RURAL INTERSTATE | |
| * TTST=19% DUAL=6% | |

PROJECT LENGTH

| | |
|---|----------|
| LENGTH ROADWAY TIP PROJECT I-2304AC = | 2.70 MI. |
| LENGTH STRUCTURE TIP PROJECT I-2304AC = | 0.58 MI. |
| TOTAL LENGTH TIP PROJECT I-2304AC = | 3.28 MI. |

DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: _____

LETTING DATE:
APRIL 22, 2010

PROJECT ENGINEER: _____

PROJECT DESIGN ENGINEER: _____

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

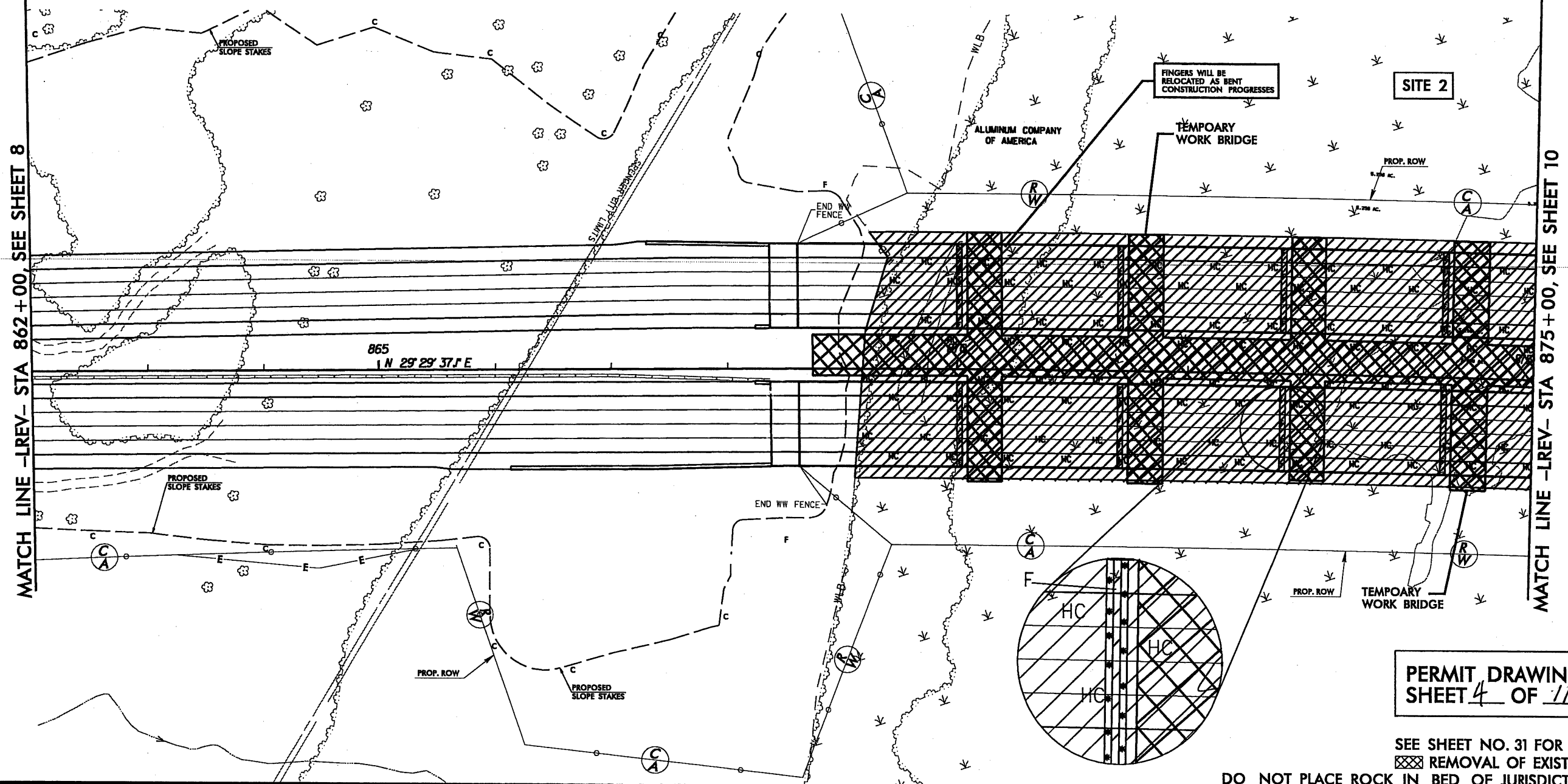
SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

| | |
|---|---|
| PROJECT REFERENCE NO. L-2304AC | SHEET NO. 9 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION | |
| PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |
| | THE LANE CONSTRUCTION CORPORATION |
| STV / Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC LICENSE NO. F-0991 | |
| HDR Engineering, Inc. of the Carolinas 3783 National Drive, Suite 207 Raleigh, N.C. 27612 N.C.B.E.L.S. License Number: F-0116 | |

- LEGEND**
- DENOTES IMPACTS IN SURFACE WATER
 - DENOTES TEMPORARY FILL IN WETLAND
 - DENOTES HAND CLEARING
 - TEMPORARY WORK BRIDGE
 - DENOTES MECHANIZED CLEARING



FINGERS WILL BE RELOCATED AS BENT CONSTRUCTION PROGRESSES

SITE 2






PERMIT DRAWINGS
SHEET 4 OF 11

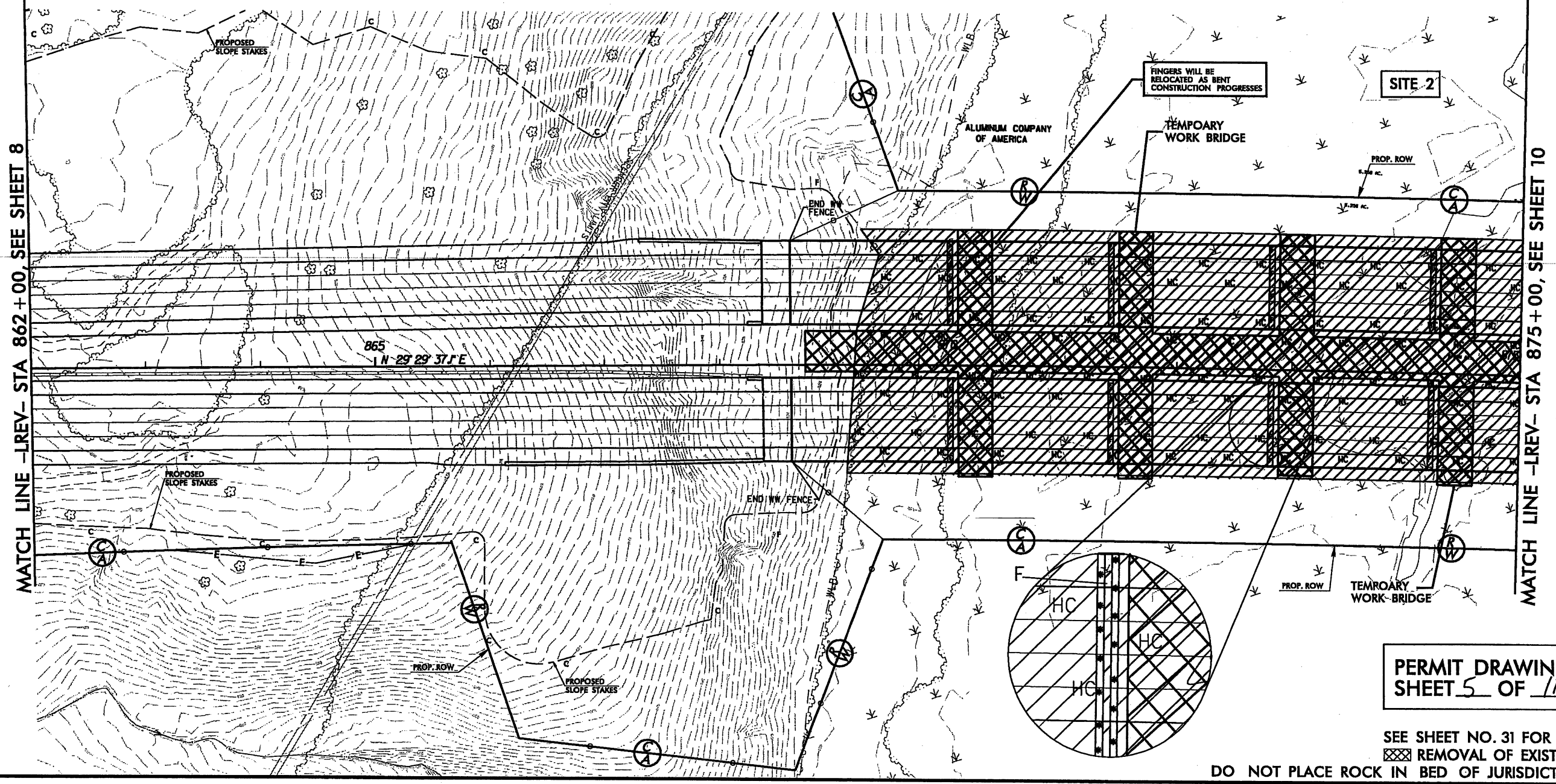
SEE SHEET NO. 31 FOR -LREV- PROFILE.
 REMOVAL OF EXISTING PAVEMENT
 DO NOT PLACE ROCK IN BED OF JURISDICTIONAL STREAMS.

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
 USER: jmassroc DATE: 8/30/2010
 PENTABLE: NCDOT_permits_nocom.tbi
 TIME: 12:33:43 PM SCALE: 1:100
 FILE: Ralph_Whitehead_and_Associates\RW\FlatIron_Lane_Yadkin_I_85\12304AC\Hydraulics\PERMITS_Environmental\Drawings\12304AC_HYD_PRM_PLANSHEETS.dgn

REVISIONS

| | |
|--|--|
| PROJECT REFERENCE NO. I-2304AC | SHEET NO. 9 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |
| FLATIRON | THE LANE CONSTRUCTION CORPORATION |
| STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC LICENSE NO. F-0991 | |
| HDR HDR Engineering, Inc. of the Carolinas 3723 National Drive, Suite 207 Raleigh, NC 27612 N.C.B.E.L.S. License Number: F-0116 | |

- LEGEND**
-  DENOTES IMPACTS IN SURFACE WATER
 -  DENOTES TEMPORARY FILL IN WETLAND
 -  DENOTES HAND CLEARING
 -  TEMPORARY WORK BRIDGE
 -  DENOTES MECHANIZED CLEARING



PERMIT DRAWINGS
SHEET 5 OF 11

SEE SHEET NO. 31 FOR -LREV- PROFILE.
 REMOVAL OF EXISTING PAVEMENT
 DO NOT PLACE ROCK IN BED OF JURISDICTIONAL STREAMS.

PLOT DRIVER: NCDOT_pdf_color_eng_100.pit
 USER: jmoseroc DATE: 8/30/2010
 PENTABLE: NCDOT_permits.tbl
 TIME: 2:01:57 PM SCALE: 1:100
 FILE: Ralph_Whitehead_and_Associates\RWI_Flatiron_Lane_Yadkin_85\I2304AC\Hydraulics\PERMITS_Environmental\Drawings\I2304AC_HYD_PRM_PLANS\I2304AC.dgn

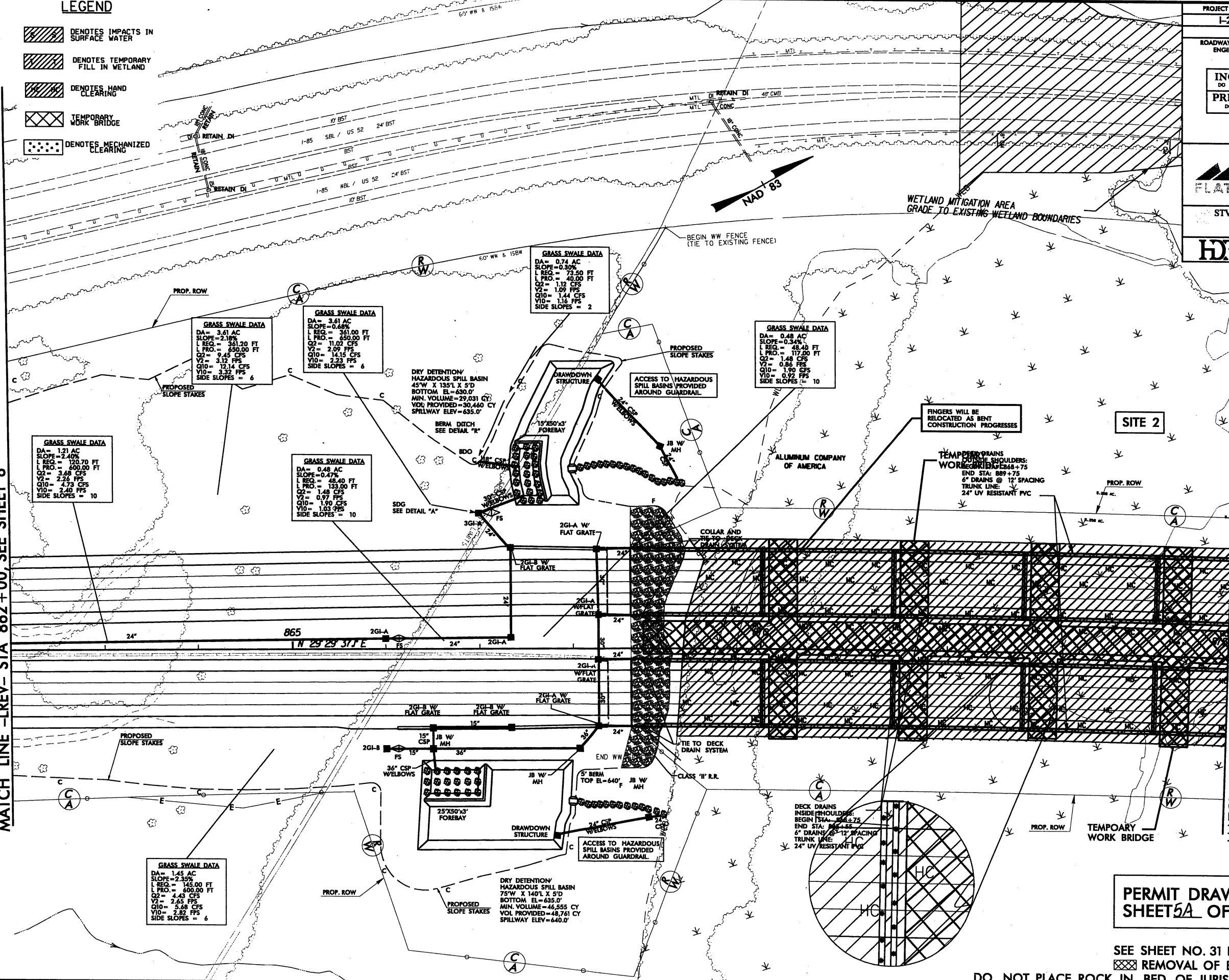
LEGEND

- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES HAND CLEARING
- TEMPORARY WORK BRIDGE
- DENOTES MECHANIZED CLEARING

| | |
|---|--|
| PROJECT REFERENCE NO. I-2304AC | SHEET NO. 9 |
| RW SHEET NO. ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR A/E ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |
| | THE LANE CONSTRUCTION CORPORATION |
| STV/Ralph Whitehead Associates, Inc. 1000 West Marshall St., Ste. 200 Charlotte, NC 28208 NC LICENSE NO. P-0991 | |
| HDR Engineering, Inc. of the Carolinas 3733 National Drive, Suite 207 Raleigh, N.C. 27612 N.C.B.E.L.S. License Number: F-0116 | |

MATCH LINE -LREV- STA 862+00, SEE SHEET 8

MATCH LINE -LREV- STA 875+00, SEE SHEET 10







PERMIT DRAWINGS
SHEET 5A OF 11








SEE SHEET NO. 31 FOR -LREV- PROFILE.
 REMOVAL OF EXISTING PAVEMENT
 DO NOT PLACE ROCK IN BED OF JURISDICTIONAL STREAMS.

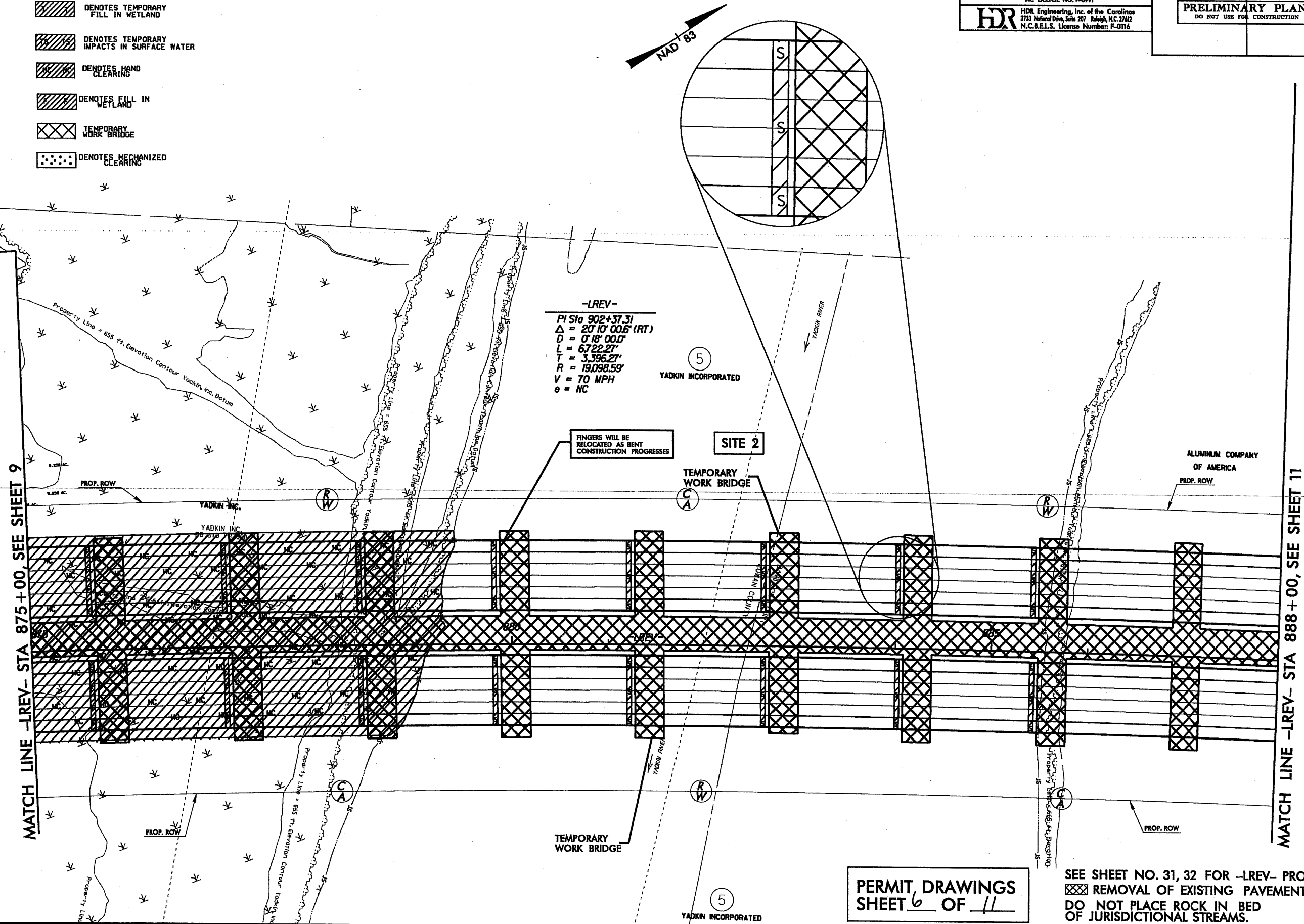
PLOT DRIVER: NCD0T_pdf_color_eng_100.plt
 USER: jmassoc DATE: 9/17/2010
 PENTABLE: NCD0T_permifs_ncon.tbl
 TIME: 9:28:11 AM SCALE: 1:100
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PLOT DRIVER: NCDOT_pdr_color_eng_100.plt
 USER: jmassroc DATE: 8/30/2010
 FILE: Ralph_Whitehead_and_Associates\RW\Flatiron_Lane_Yadkin_I_85\12304AC\Hydr\Drawings\12304AC_HYD_PRM_PLANSHEETS.dgn
 PENTABLE: NCDOT_permits_nocom.tbl
 TIME: 12:34:47 PM SCALE: 1:100
 REVISIONS

| | | | |
|---|--|--|--|
| PROJECT REFERENCE NO. I-2304AC | | SHEET NO. 10 | |
| RW SHEET NO. | | HYDRAULICS ENGINEER | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
|   | | INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION | |
| | | PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |
|  STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC LICENSE NO. F-0991 | |  HDR Engineering, Inc. of the Carolinas 3733 National Drive, Suite 207 Raleigh, NC 27612 N.C.B.E.L.S. License Number: F-0116 | |

LEGEND

-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY FILL IN WETLAND
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-  DENOTES HAND CLEARING
-  DENOTES FILL IN WETLAND
-  TEMPORARY WORK BRIDGE
-  DENOTES MECHANIZED CLEARING



-LREV-
 PI Sta 902+37.31
 $\Delta = 20' 10'' 00.6''$ (RT)
 $D = 0' 18'' 00.0''$
 $L = 6722.27'$
 $T = 3396.27'$
 $R = 19,098.59'$
 $V = 70$ MPH
 $e = NC$

FINGERS WILL BE RELOCATED AS BENT CONSTRUCTION PROGRESSES

SITE 2


TEMPORARY WORK BRIDGE

ALUMINUM COMPANY OF AMERICA
 PROP. ROW

MATCH LINE -LREV- STA 875+00, SEE SHEET 9

MATCH LINE -LREV- STA 888+00, SEE SHEET 11








PERMIT DRAWINGS
 SHEET 6 OF 11


SEE SHEET NO. 31, 32 FOR -LREV- PROFILE.
 REMOVAL OF EXISTING PAVEMENT
 DO NOT PLACE ROCK IN BED OF JURISDICTIONAL STREAMS.

PLOT DRIVER: NCDOT_pdf_color_eng_100.plt
 USER: jmcassroc DATE: 8/30/2010
 FILE: Ralph.Whitehead.assoc.assoc.assoc.vrwh_flatiron_lane_yadkin_i_8512304AC_HydrolicsPERMITS_Envir.ament.d\Drawings\12304AC_HYD_PRM_PLANSHEETS.dgn

REVISIONS

LEGEND

-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY FILL IN WETLAND
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-  DENOTES HAND CLEARING
-  DENOTES FILL IN WETLAND
-  TEMPORARY WORK BRIDGE
-  DENOTES MECHANIZED CLEARING

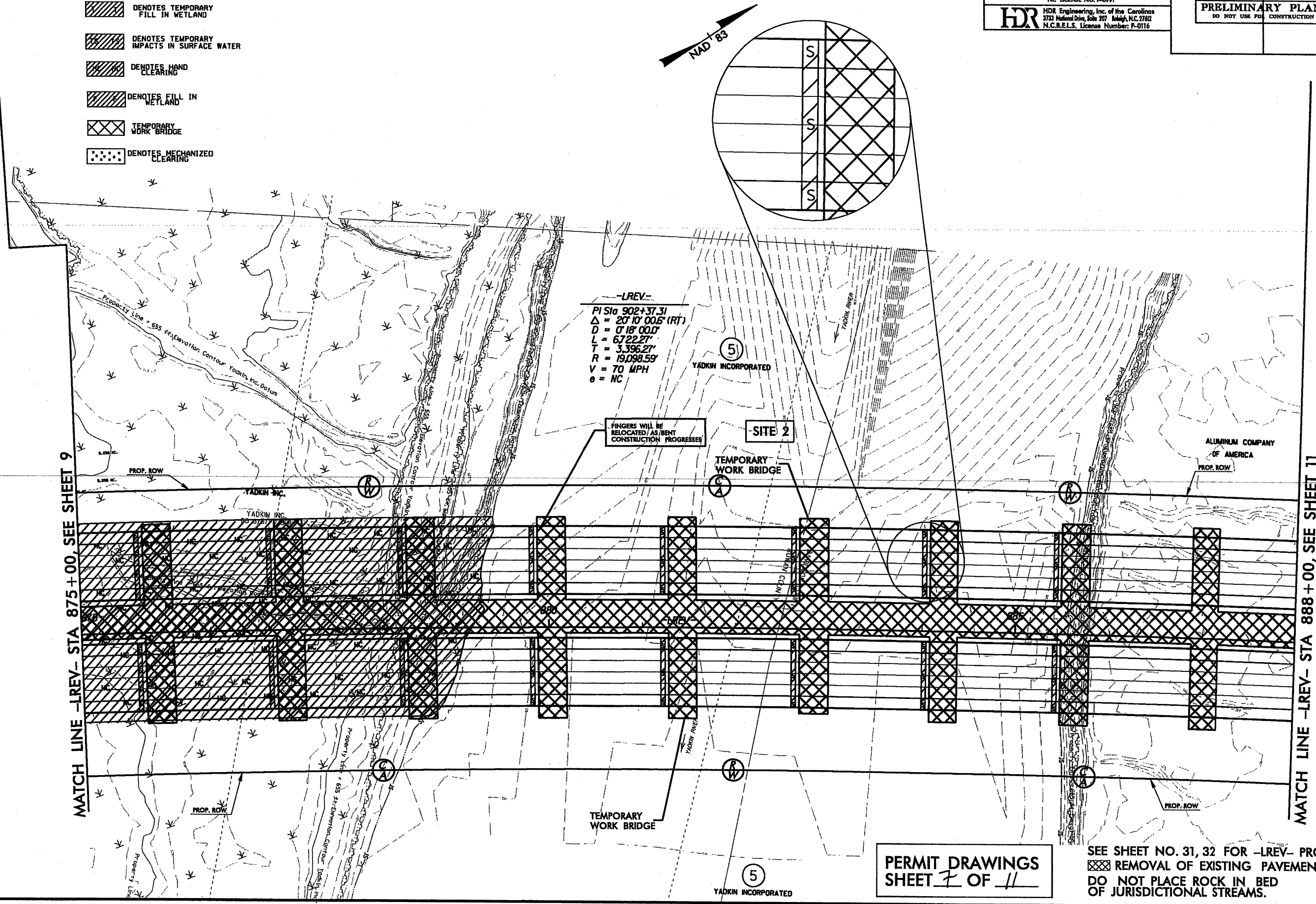
| | | |
|---|-----------------------------------|-----------------|
|  THE LANE CONSTRUCTION CORPORATION | PROJECT REFERENCE NO. I-2304AC | SHEET NO. 10 |
| | RW SHEET NO. | |
| STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC LICENSE NO. F-6991 | ROADWAY DESIGN ENGINEER | |
|  HDR Engineering, Inc. of the Carolinas 3733 National Drive, Suite 207 Raleigh, NC 27602 N.C.B.E.L.S. License Number: F-0116 | HYDRAULICS ENGINEER | |

INCOMPLETE PLANS
 DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

MATCH LINE -LREV- STA 875+00, SEE SHEET 9

MATCH LINE -LREV- STA 888+00, SEE SHEET 11



-LREV-
 PI Sta 902+37.31
 $\Delta = 20' 10' 00.5" (RT)$
 $D = 0' 18' 00.0"$
 $L = 67' 22.27"$
 $T = 3,396.27'$
 $R = 19,098.59'$
 $V = 70 \text{ MPH}$
 $e = NC$


FINGERS WILL BE RELOCATED/AS BENT CONSTRUCTION PROGRESSES

SITE 2

TEMPORARY WORK BRIDGE

TEMPORARY WORK BRIDGE

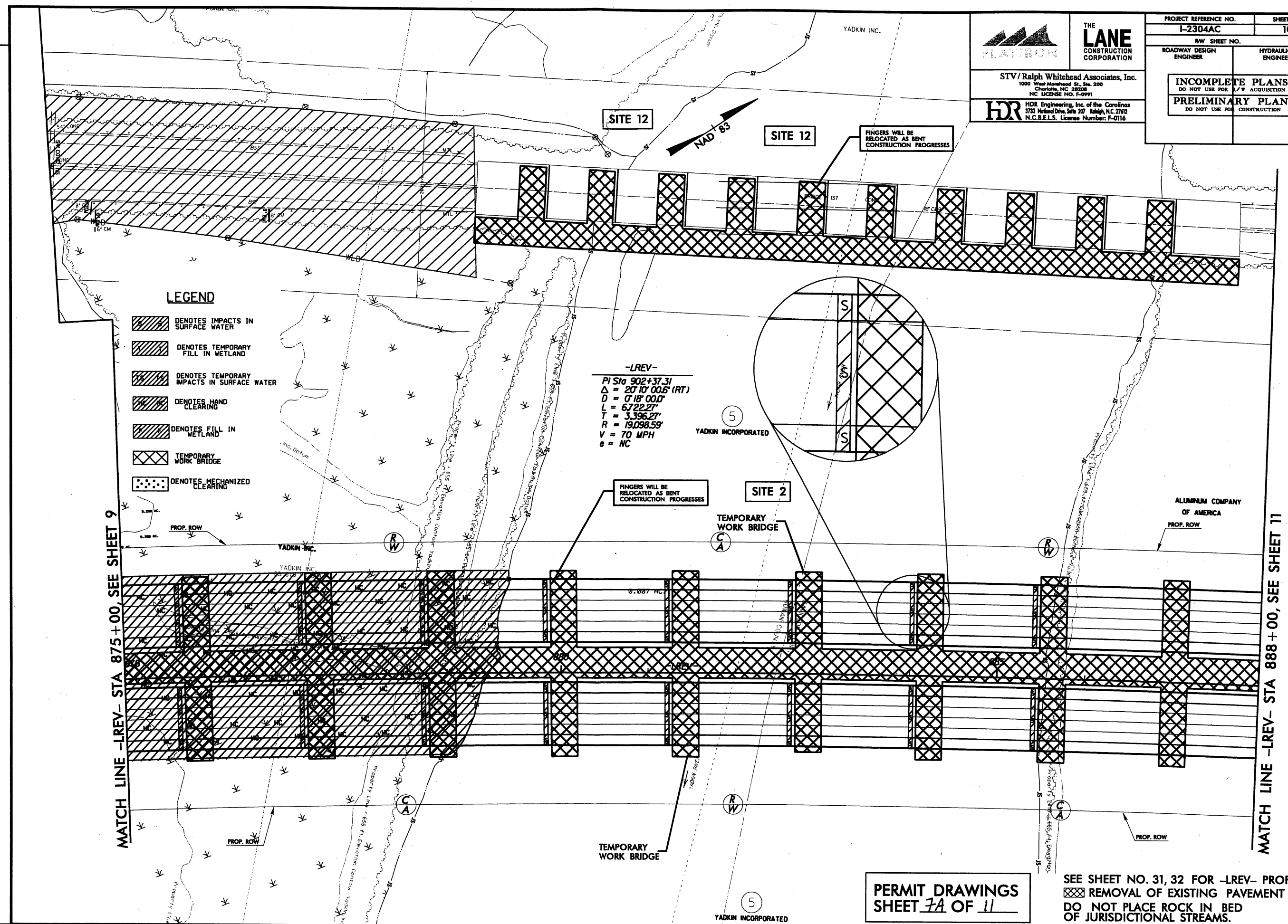
PERMIT DRAWINGS
 SHEET 7 OF 11

SEE SHEET NO. 31, 32 FOR -LREV- PROFILE.
 REMOVAL OF EXISTING PAVEMENT
 DO NOT PLACE ROCK IN BED OF JURISDICTIONAL STREAMS.

PLOT DRIVER: NCDOT.pcf_color_eng.100.plt
 USER: jmasroc DATE: 9/3/2010
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 TIME: 9:57:54 AM SCALE: 1:100
 FILE: Ralph.Whitehead_and_Associates\VRW.Flatiron.Lane.Yadkin.I.85\I2304AC\Hydrolics\PERMITS.Environmental\Drawings\I2304AC_HYD_PLM_PLANSHEETS.dgn

REVISIONS

| | | | |
|---|--|--|--|
| PROJECT REFERENCE NO. I-2304AC | | SHEET NO. 10 | |
| RW SHEET NO. | | HYDRAULICS ENGINEER | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| STV / Ralph Whitehead Associates, Inc. 1000 West Marshall St., Ste. 200 Charlotte, NC 28208 NC LICENSE NO. F-0991 | | HDR HDR Engineering, Inc. of the Carolinas 3733 National Drive, Suite 207 Raleigh, N.C. 27612 N.C.B.E.L.S. License Number: F-0116 | |
| | | | |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | | PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |



- LEGEND**
- DENOTES IMPACTS IN SURFACE WATER
 - DENOTES TEMPORARY FILL IN WETLAND
 - DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 - DENOTES HAND CLEARING
 - DENOTES FILL IN WETLAND
 - TEMPORARY WORK BRIDGE
 - DENOTES MECHANIZED CLEARING

-LREV-
 PI Sta 902+37.31
 $\Delta = 20' 10'' 00.6''$ (RT)
 $D = 0' 18'' 00.0''$
 $L = 67' 22.27''$
 $T = 3,396.27'$
 $R = 19,098.59'$
 $V = 70$ MPH
 $e = NC$

PERMIT DRAWINGS
 SHEET 7A OF 11

SEE SHEET NO. 31, 32 FOR -LREV- PROFILE.
 REMOVAL OF EXISTING PAVEMENT
 DO NOT PLACE ROCK IN BED OF JURISDICTIONAL STREAMS.

PLOT DRIVER: NCDOT_pdf_color_eng_100.dpt
 USER: jmasseroc DATE: 8/30/2010
 FILE: Ralph.Whitehead.assoc\RW\Flatiron.Lane_Yadkin_I_85\12304AC\Hydraulics\PERMITS_Env\Environment\Drawings\12304AC-HYD-PRM-PLANS\SHEETS.dgn

REVISIONS


MATCH LINE -LREV- STA 888+00, SEE SHEET 10


MATCH LINE -LREV- STA 901+00, SEE SHEET 12

SEE SHEET NO. 32, 33 FOR -LREV- PROFILE.
 SEE SHEET NO. 42 FOR -SRBREV- PROFILE.
 [X] REMOVAL OF EXISTING PAVEMENT
 DO NOT PLACE ROCK IN BED OF JURISDICTIONAL STREAMS.

PERMIT DRAWINGS
 SHEET 6 OF 11

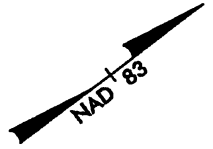
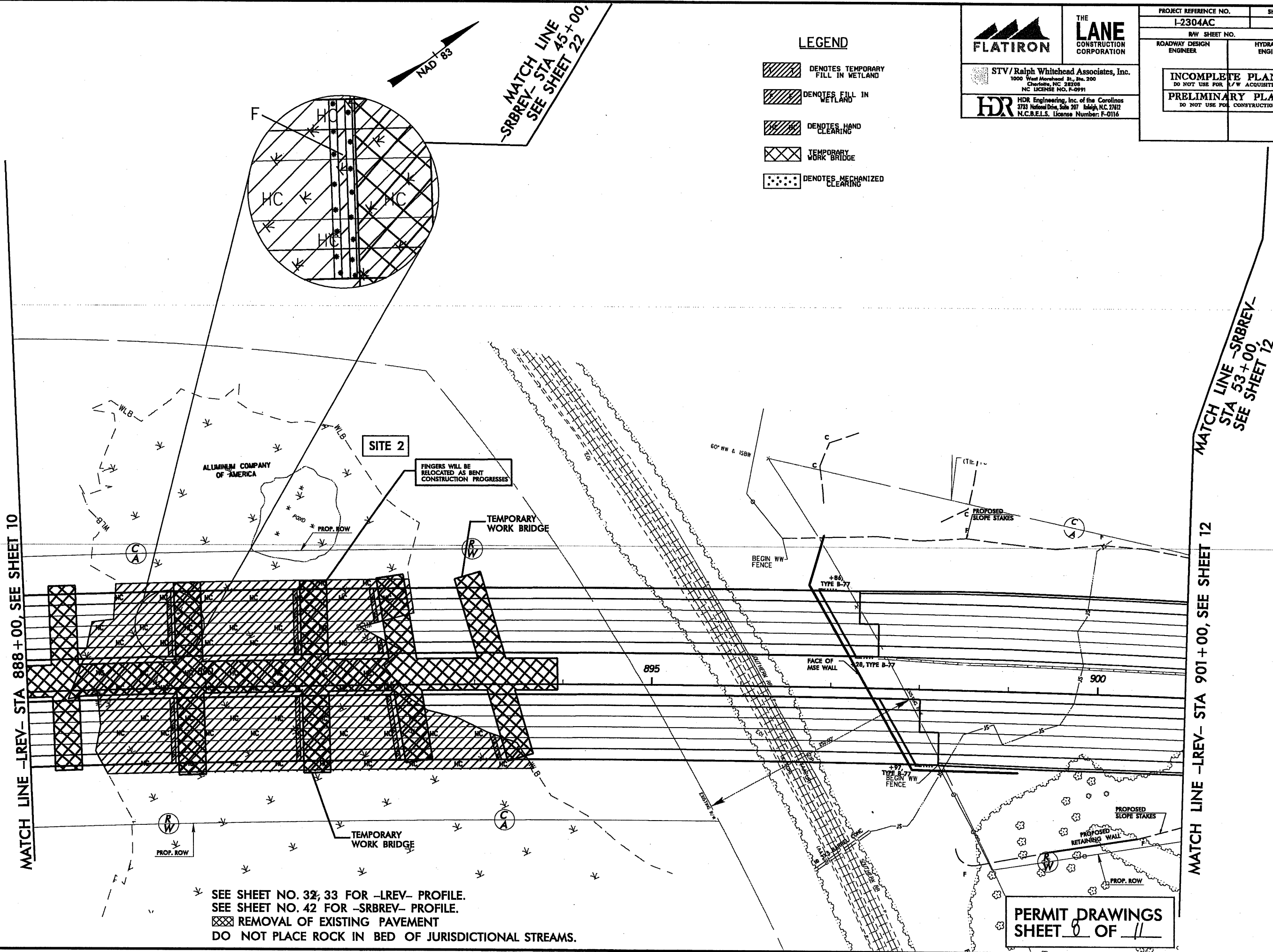
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|--|--|---------------------|--|
| PROJECT REFERENCE NO. I-2304AC | | SHEET NO. 11 | |
| RW SHEET NO. | | HYDRAULICS ENGINEER | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | | | |


 STV/Ralph Whitehead Associates, Inc.
 1000 West Morehead St., Ste. 200
 Charlotte, NC 28208
 NC LICENSE NO. F-0991


 HDR Engineering, Inc. of the Carolinas
 2733 National Drive, Suite 207
 Raleigh, NC 27612
 N.C.B.E.L.S. License Number: F-0116

LEGEND

- [Diagonal Hatching] DENOTES TEMPORARY FILL IN WETLAND
- [Diagonal Hatching] DENOTES FILL IN WETLAND
- [Diagonal Hatching] DENOTES HAND CLEARING
- [Cross-hatching] TEMPORARY WORK BRIDGE
- [Dotted Pattern] DENOTES MECHANIZED CLEARING



MATCH LINE -SRBREV- STA 45+00, SEE SHEET 22

MATCH LINE -SRBREV- STA 53+00, SEE SHEET 12

PLOT DRIVER: NCDOT_permit_color_eng_100.plt
 USER: jmaesroc DATE: 8/30/2010
 FILE: Ralph.Whitehead_and_Associates\RWHL\Flatiron.Lane.Yadkin_I_85\I2304AC\Hydr\Utilities\PERMITS_Environment\I2304AC_HYD_PRM_PLANSHEETS.dgn

PENTABLE: NCDOT_permits.tbl
 TIME: 1:59:55 PM SCALE: 1:100






REVISIONS

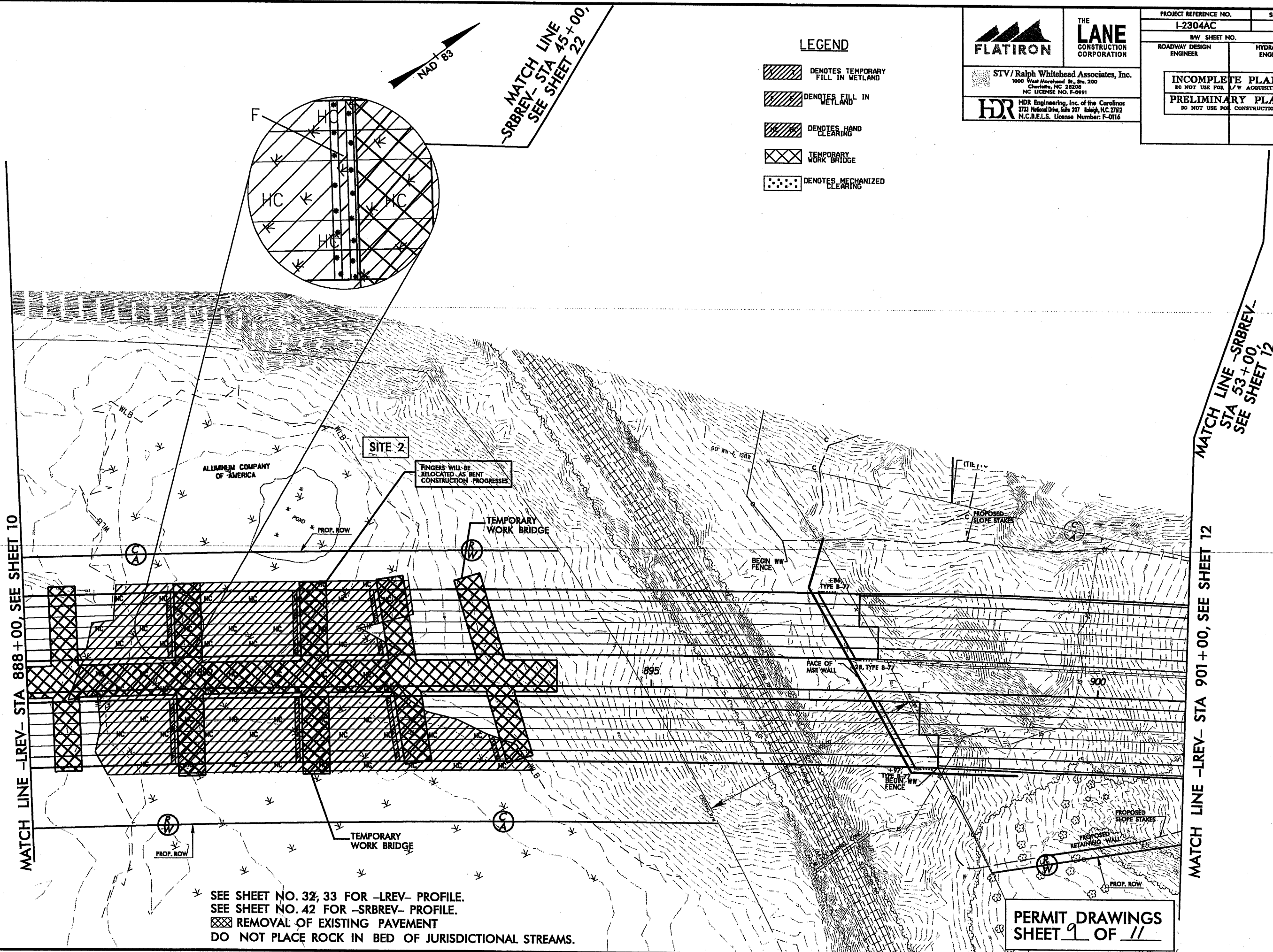
FLATIRON
 STV/Ralph Whitehead Associates, Inc.
 1000 West Marshhead St., Ste. 200
 Charlotte, NC 28208
 NC LICENSE NO. F-0991

THE LANE CONSTRUCTION CORPORATION
 HDR Engineering, Inc. of the Carolinas
 3733 National Drive, Suite 207 Raleigh, N.C. 27612
 N.C.B.E.L.S. License Number: F-0116

| | |
|--|---------------------|
| PROJECT REFERENCE NO. I-2304AC | SHEET NO. 11 |
| NW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

LEGEND

-  DENOTES TEMPORARY FILL IN WETLAND
-  DENOTES FILL IN WETLAND
-  DENOTES HAND CLEARING
-  TEMPORARY WORK BRIDGE
-  DENOTES MECHANIZED CLEARING



SEE SHEET NO. 32, 33 FOR -LREV- PROFILE.
 SEE SHEET NO. 42 FOR -SRBREV- PROFILE.
 ☒ REMOVAL OF EXISTING PAVEMENT
 DO NOT PLACE ROCK IN BED OF JURISDICTIONAL STREAMS.

PERMIT DRAWINGS
 SHEET 9 OF 11

LEGEND

- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES FILL IN WETLAND
- DENOTES HAND CLEARING
- TEMPORARY WORK BRIDGE
- DENOTES MECHANIZED CLEARING

| | | | |
|--|--|------------------------|--|
| PROJECT REFERENCE NO. I-2304AC | | SHEET NO. 11 | |
| RW SHEET NO. | | HYDRAULICS ENGINEER | |
| ROADWAY DESIGN ENGINEER | | CONSTRUCTION | |

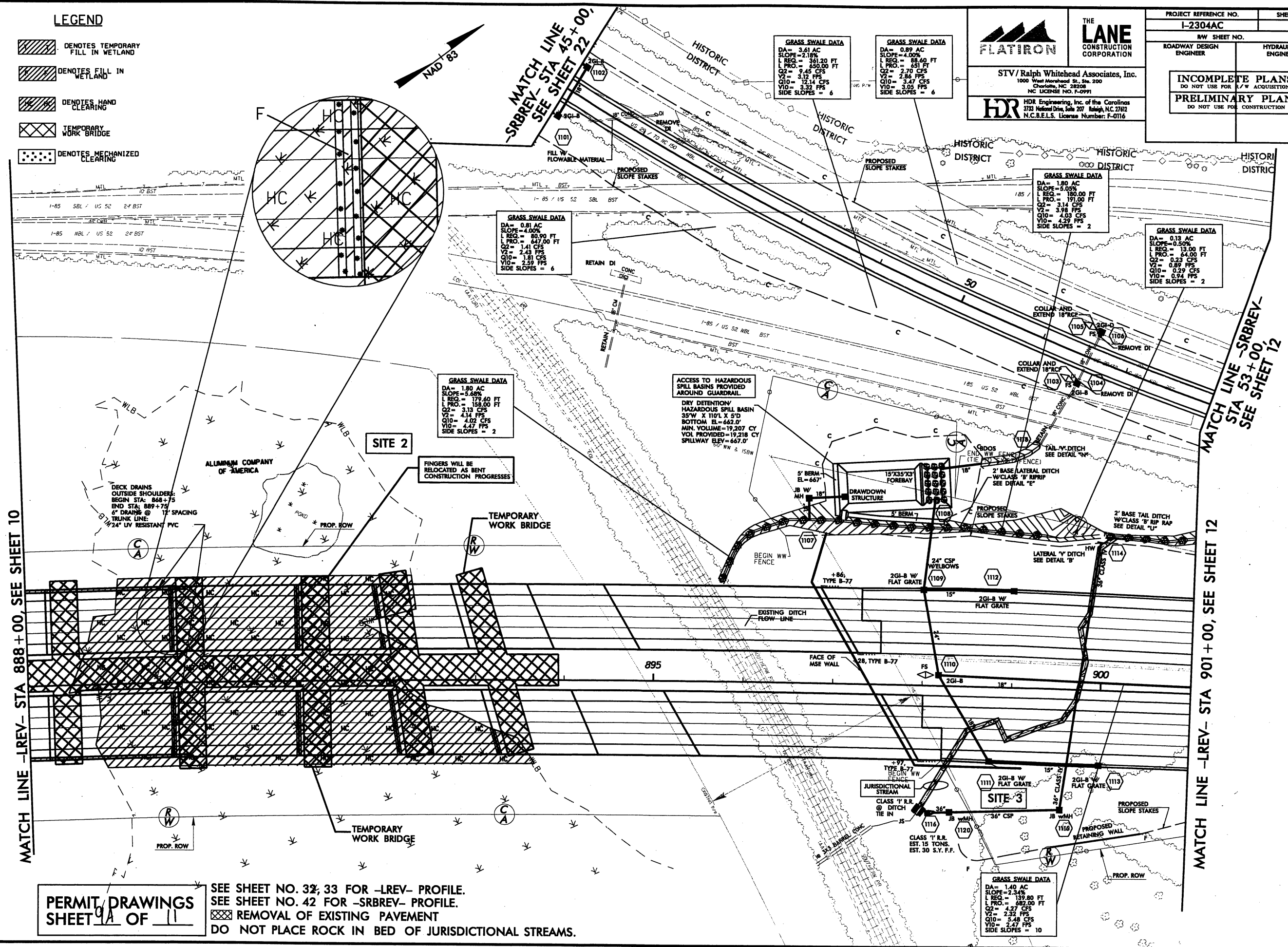
FLATRION THE **LANE** CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Northwood St., Ste. 200
Charlotte, NC 28208
NC LICENSE NO. F-0991

HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, NC 27612
N.C.E.E.L.S. License Number: F-0116

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



MATCH LINE -LREV- STA 888+00, SEE SHEET 10

MATCH LINE -SRBREV- STA 53+00, SEE SHEET 12

MATCH LINE -LREV- STA 901+00, SEE SHEET 12

PERMIT DRAWINGS
SHEET 9A OF 11

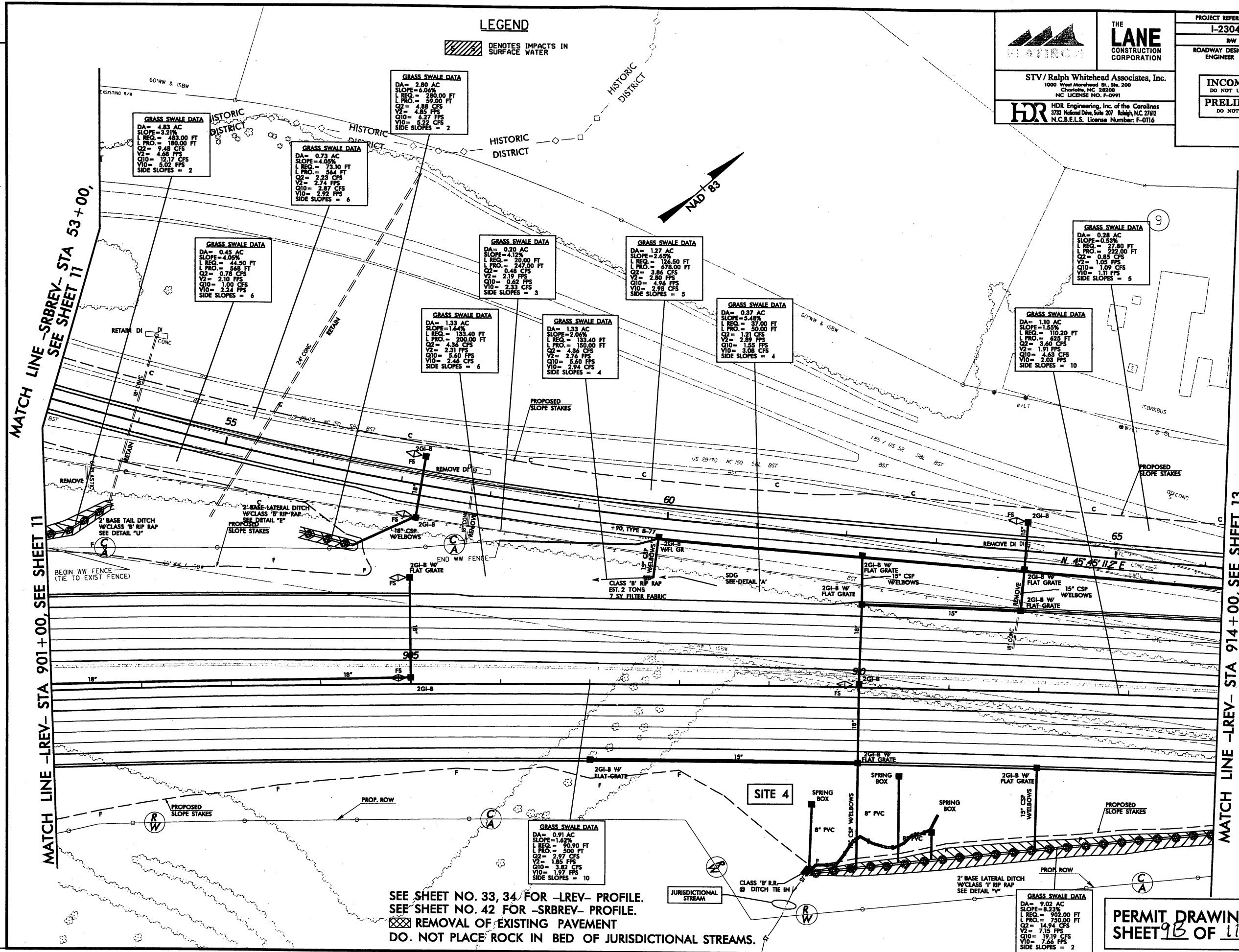
SEE SHEET NO. 32, 33 FOR -LREV- PROFILE.
SEE SHEET NO. 42 FOR -SRBREV- PROFILE.
REMOVAL OF EXISTING PAVEMENT
DO NOT PLACE ROCK IN BED OF JURISDICTIONAL STREAMS.

PLOT DRIVER: NCDDOT.pcf_color_eng.100.bpt
USER: jmassr oc DATE: 9/3/2010
PENTABLE: NCDDOT_permit.dwg SCALE: 1:100
TIME: 10:11:11 AM
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LEGEND

DENOTES IMPACTS IN SURFACE WATER

| | | | |
|---|--|------------------------|--|
| PROJECT REFERENCE NO. I-2304AC | | SHEET NO. 12 | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| | | | |
| STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC LICENSE NO. F-0991 | | | |
| | | | |
| HDR Engineering, Inc. of the Carolinas 3732 National Drive, Suite 207 Raleigh, N.C. 27612 N.C.B.E.L.S. License Number: F-0116 | | | |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | | | |
| PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | | | |



MATCH LINE -SRBREV- STA 53+00, SEE SHEET 11

MATCH LINE -LREV- STA 901+00, SEE SHEET 11

MATCH LINE -LREV- STA 914+00, SEE SHEET 13

SEE SHEET NO. 33, 34 FOR -LREV- PROFILE.
 SEE SHEET NO. 42 FOR -SRBREV- PROFILE.
 REMOVAL OF EXISTING PAVEMENT
 DO NOT PLACE ROCK IN BED OF JURISDICTIONAL STREAMS.

PERMIT DRAWINGS
 SHEET 9B OF 11

PLOT DRIVER: NCDOT.pdf_color_eng.100.plt
 USER: jmassroc DATE: 9/3/2010
 PENTABLE: NCDOT_permits.NOCOM.tbl
 TIME: 9:26:39 AM SCALE: 1:100
 FILE: Ralph.Whitehead Associates\RW\Flatiron.Lane.Yadkin.I.85\I2304AC\Hydraulics\PERMITS_Environment\Drawings\I2304AC.HYD.PRM_PLANS\SHEETS.dgn

REVISIONS

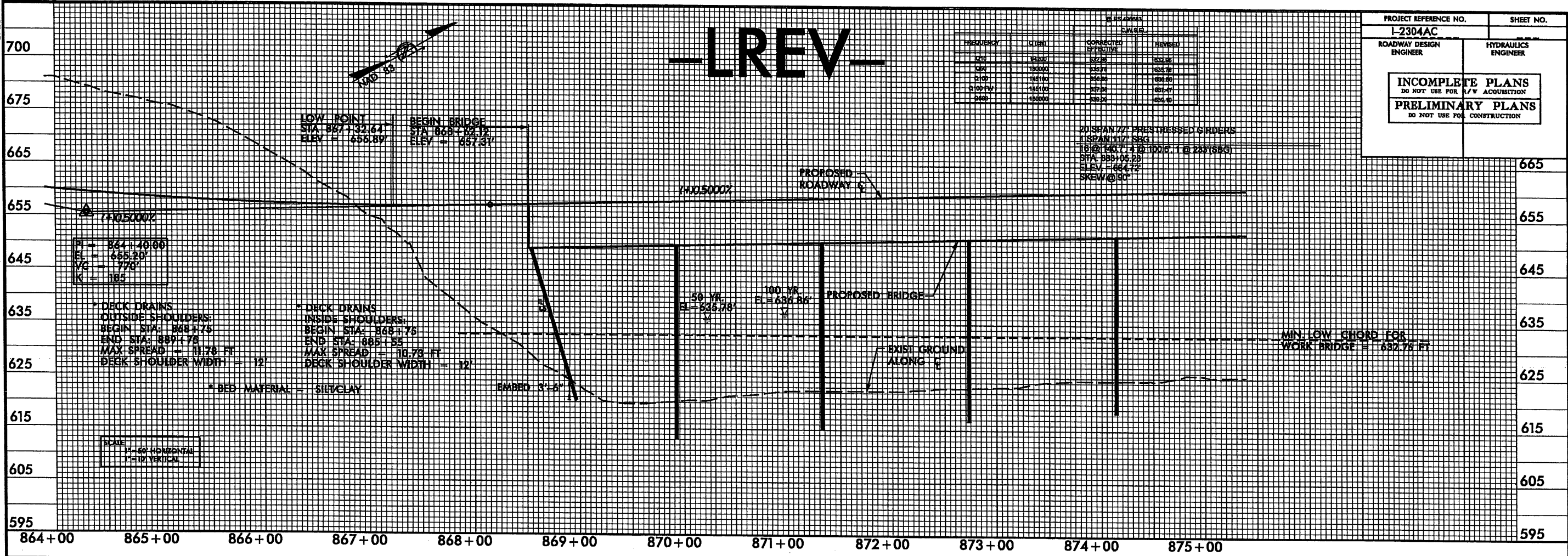
5/28/99

-LREV-

| FREQUENCY | G (ft) | CORRECTED EFFECTIVE | REVISION |
|-----------|--------|---------------------|----------|
| 0.10 | 34200 | 33278 | 652.36 |
| 0.50 | 18000 | 17574 | 652.76 |
| 1.00 | 14510 | 14030 | 652.76 |
| 2.00 FW | 11510 | 10730 | 651.47 |
| 5.00 | 7500 | 6830 | 651.40 |

| | |
|---|---------------------|
| PROJECT REFERENCE NO. I-2304AC | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION | |
| PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

20 SPAN 77' PRESTRESSED GIRDERS
1 SPAN 117' SBG
G @ 100.7' @ 100.5' 1 @ 233' (SBG)
STA: 868+05.29
ELEV: 664.72
SKEW @ 90°



PI = 864+40.00
EL = 655.20
VC = 178'
K = 185

* DECK DRAINS
OUTSIDE SHOULDERS:
BEGIN STA: 868+75
END STA: 889+75
MAX SPREAD = 11.78 FT
DECK SHOULDER WIDTH = 12'

* DECK DRAINS
INSIDE SHOULDERS:
BEGIN STA: 868+75
END STA: 885+55
MAX SPREAD = 16.73 FT
DECK SHOULDER WIDTH = 12'

SCALE
1" = 60' HORIZONTAL
1" = 10' VERTICAL

8/5/2009 AC_RDY_PFL031.dgn

-LREV-

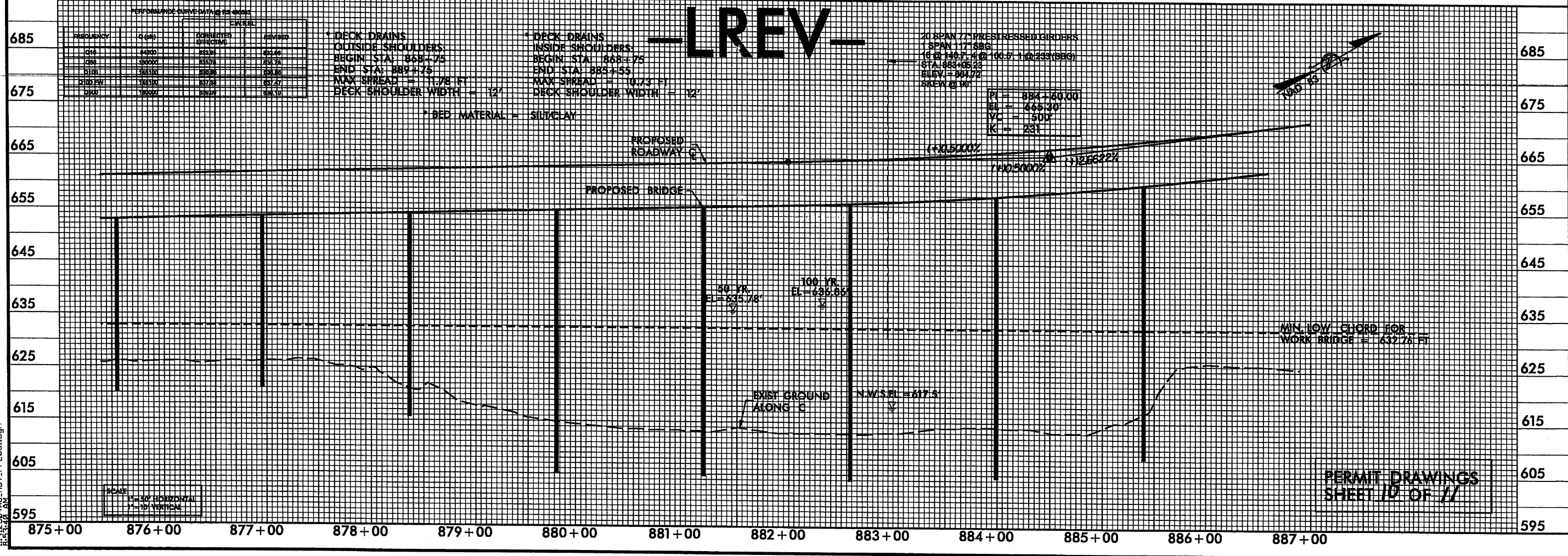
| FREQUENCY | G (ft) | CORRECTED EFFECTIVE | REVISION |
|-----------|--------|---------------------|----------|
| 0.10 | 34200 | 33278 | 652.36 |
| 0.50 | 18000 | 17574 | 652.76 |
| 1.00 | 14510 | 14030 | 652.76 |
| 2.00 FW | 11510 | 10730 | 651.47 |
| 5.00 | 7500 | 6830 | 651.40 |

* DECK DRAINS
OUTSIDE SHOULDERS:
BEGIN STA: 868+75
END STA: 889+75
MAX SPREAD = 11.78 FT
DECK SHOULDER WIDTH = 12'

* DECK DRAINS
INSIDE SHOULDERS:
BEGIN STA: 868+75
END STA: 885+55
MAX SPREAD = 16.73 FT
DECK SHOULDER WIDTH = 12'

20 SPAN 77' PRESTRESSED GIRDERS
1 SPAN 117' SBG
G @ 100.7' @ 100.5' 1 @ 233' (SBG)
STA: 868+05.29
ELEV: 664.72
SKEW @ 90°

PI = 884+60.00
EL = 665.30
VC = 501'
K = 231



SCALE
1" = 60' HORIZONTAL
1" = 10' VERTICAL

PERMIT DRAWINGS
SHEET 10 OF 17

5/28/99

| PERFORMANCE CURVE DATA @ 888+00 | | | |
|---------------------------------|---------|--------------------|----------|
| D.W.E.I. | | | |
| PROPOSED | Q (cfs) | ADJUSTED EFFECTIVE | DESIGNED |
| 12" | 11.20 | 10.20 | 12.20 |
| 18" | 20.00 | 18.00 | 22.00 |
| 24" | 28.00 | 26.00 | 30.00 |
| 30" | 35.00 | 33.00 | 37.00 |
| 36" | 41.00 | 39.00 | 43.00 |
| 42" | 47.00 | 45.00 | 49.00 |
| 48" | 53.00 | 51.00 | 55.00 |
| 54" | 59.00 | 57.00 | 61.00 |
| 60" | 65.00 | 63.00 | 67.00 |

DECK DRAINS
OUTSIDE SHOULDERS
BEGIN STA: 888+76
END STA: 889+76
MAX SPREAD = 11.76 FT
DECK SHOULDER WIDTH = 12'

DECK DRAINS
INSIDE SHOULDERS
BEGIN STA: 888+75
END STA: 889+55
MAX SPREAD = 10.73 FT
DECK SHOULDER WIDTH = 12'

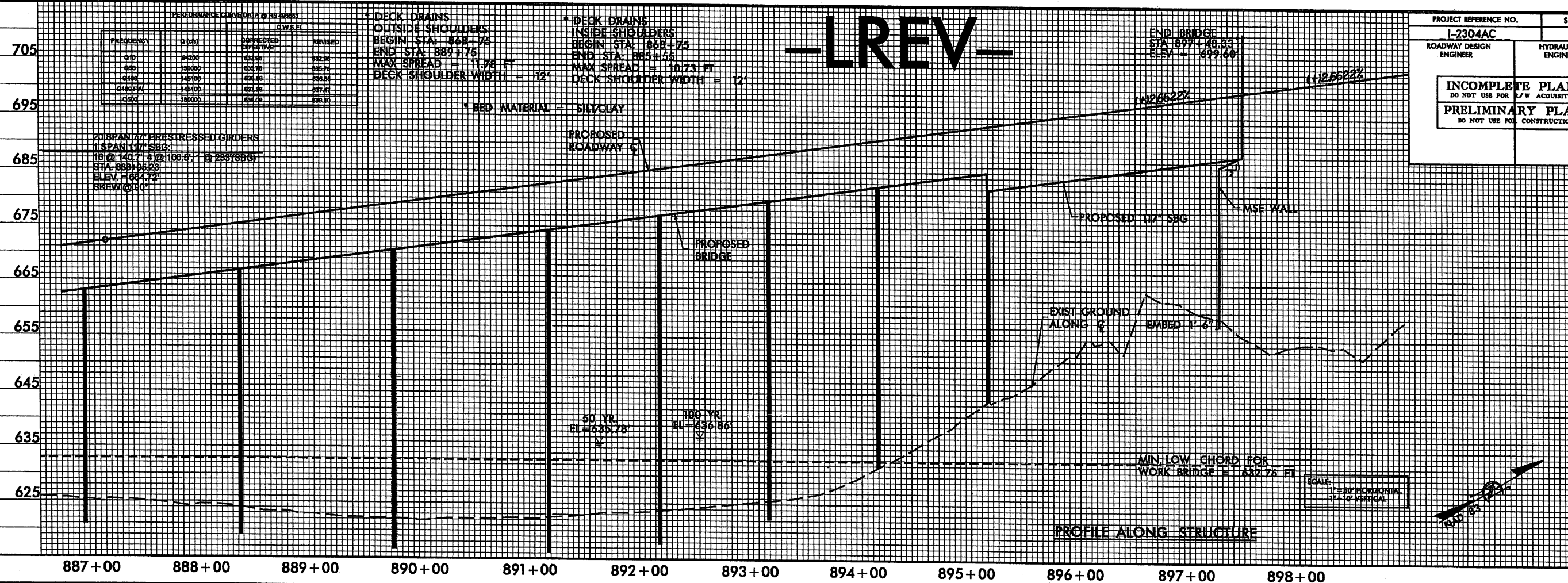
* BED MATERIAL = SILTCLAY

-LREV-

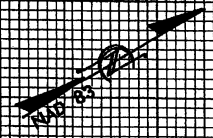
END BRIDGE
STA: 897+48.33
ELEV: 699.60'

| | |
|--|---------------------|
| PROJECT REFERENCE NO. L-2304AC | SHEET NO. |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION | |

20 SPAN 177' PRESTRESSED GIRDERS
1 SPAN 117' SBG
17' @ 140.71' @ 100.0' @ 233' @ 888



SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL



8/5/2000
R.2.2.20
8/5/2000
R.2.2.20

PERMIT DRAWINGS
SHEET 11 OF 11