STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY PERDUE
GOVERNOR

EUGENE CONTI
SECRETARY

November 23, 2011

MEMORANDUM TO: Mr. Barry Moose, PE
Division 10 Engineer

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

SUBJECT: Mecklenburg County, Charlotte Outer Loop/ I-485;

R-2248 E Federal Aid Project No. NHF-117-1(38)
WBS Element 33410

R-2123 CE Federal Aid Project No. NHF-0485(26)
WBS Element 34379

Attached are the U.S. Army Corps of Engineers Section 404 Individual Permit, and the N.C. Division of Water Quality Section 401 Water Quality Certification.
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

cc:
Dr. Gregory J. Thorpe, PhD, PDEA Unit Manager
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Jay Bennett, P.E., Roadway Design Unit
Mr. Dewayne Sykes, P.E. Utilities Unit
Dr. David Chang, P.E., Hydraulics Unit
Mr. Greg Perfetti, P.E., Structure Design Unit
Mr. Ron Hancock, P.E., State Roadway Construction Engineer
Mr. Mike Robinson, P.E., State Bridge Construction Engineer
Ms. Teresa Hart, P.E., CPM, Western Region Section Head
Mr. Larry Thompson, RS, PWS, Division Environmental Officer
Mr. Rodger Rochelle, P.E., Transportation Program Management Unit

MAILING ADDRESS:
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LOCATION:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610-4328

PROJECT COMMITMENTS

T.I.P. No. R-2123CE
I-485/I-85 Interchange Creation/ Modification
Mecklenburg County
Federal Aid Project No.
WBS Number 34379.1.17

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Division 10

The project involves construction activities on, or adjacent to, FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit, upon completion of project construction, certifying that the drainage structure(s) and roadway embankments are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

Division 10, Natural Environment Unit

Utility relocations on Mallard Creek Road, west of I-85, should completely avoid the sunflower populations. If it is not possible, utilities should be directionally bored to reduce impacts on the surrounding populations.

Utilities will be directionally bored, and will avoid all impacts to sunflower populations.

For trees surrounding the sunflower population on Mallard Creek Road, trees should be hand cleared (instead of mechanically cleared) in order to protect and improve sunflower habitat along the south side of Mallard Creek Road.

The clearing limits have changed in the vicinity and impacts have been avoided.

Natural Environment Unit

Prior to construction, or any staging of equipment along Mallard Creek Road west of I-85, NCDOT will place orange “avoidance” fencing around the sunflower populations to avoid impacts to the population.

This commitment has been fulfilled.

During construction resulting in adjacent ground disturbing activities, NCDOT will use native seeding. Future maintenance of the population will be done using standard roadside management techniques adjacent to federally protected plant species.

Hydraulics Unit

The Hydraulics Unit will coordinate with Charlotte-Mecklenburg Storm Water Services for approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR). A Mecklenburg Floodplain Development Permit is also anticipated.

Roadway Design Unit

Mallard Creek Road Bridge over I-85: The existing Mallard Creek Road bridge will be replaced to the north with a bridge of sufficient width such that it could be widened in the future to a four-lane section with bike lanes in each direction and sidewalks along both sides as described in the Municipal Agreement provided by MUMPO.

COMMITMENTS FROM PERMITTING

Division 10

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

The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall provide the USACE, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, with a copy of the final plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time when the USACE and North Carolina Division of Water Quality (NCDWQ) Project Managers can attend. The permittee shall invite the Corps and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting.

Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands.

The North Carolina Division of Water Quality has issued a conditioned Water Quality Certification for your project. The conditions of that certification are hereby incorporated as special conditions of this permit. For your convenience, a copy of the certification is attached as Exhibit A. These referenced conditions are hereby incorporated as special conditions of this permit.

All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-5083, Ext. 526 or (800) 662-7956 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter ll3A Article 4).

The permittee 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.

During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

No fill or excavation for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless it is included on the plan drawings and specifically authorized by this permit.

The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

Violations of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.

The permittee will ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. 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, Asheville Regulatory Field Office prior to any active construction in waters or wetlands.

Prior to commencing construction within jurisdictional waters of the United States for any portion of the proposed project, the permittee shall forward the latest version of project construction drawings to the Corps of Engineers, Asheville Regulatory Field Office NCDOT Regulatory Project Manager. Half-size drawings will be acceptable.

Measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bank full flow can be used as a comparable level.

Unless otherwise requested in the applicant's application and Merger team meeting notes, culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The bottom of the culvert must be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Destabilizing the channel and head cutting upstream should be considered in the placement of the culvert. A waiver from the depth specifications in this condition may be requested in writing. The waiver will be issued if it can be demonstrated that the proposal would result in the least impacts to the aquatic environment.

To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands.

Compensatory mitigation for the unavoidable impacts to 622 acres of riparian wetlands, 0.42 acres non-riparian wetlands and 6,800 linear feet of stream fill within the Yadkin River Basin; 0.17 acres of riparian wetlands and 551 linear feet of stream fill within the Catawba River Basin associated with R-2248 E and to 0.79 acres of riparian wetlands and 5,639 linear feet of stream fill associated with R-2123 CE shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letters dated April 21, 2011 and June 7, 2011 respectively from William D. Gilmore, EEP Director. Pursuant to the In-Lieu Fee Instrument signed July 28, 2010 between the State of North Carolina, Ecosystem Enhancement Program and the US Army Corps of Engineers the EEP will provide 0.34 acres restoration equivalent riparian wetlands and 1,102 linear feet of restoration equivalent warm water stream channel in the Catawba River Basin (Hydrologic Cataloging Unit 03050101) and 16.44 acres equivalent riparian wetlands, 0.84 acres equivalent non-riparian wetlands and 24,878 linear feet of restoration equivalent warm water stream channel in the Yadkin River Basin 03040105 in accordance with Section F of the instrument.

The applicant will implement the recommendations outlined in the US FWS concurrence letter dated March 24, 2010 specifically relating to the R-2123 CE project:

1) Place orange fencing around sunflower Units C, D and G in order to avoid equipment staging or storage.
2) Avoid completely or directionally bore (instead of trenching) relocated utility lines in the vicinity of Units D and E.
3) Clear trees by hand where sunflowers are currently being shaded out in the tree-clearing limits of sunflower Unit A.
4) Use NCDOT Roadside Environmental Unit's native seed mix for erosion control along Mallard Creek Road.

Many of the stream impacts on the project result from culvert extensions on either the up or downstream end of an existing pipe with the exception of the installation of new culvert at Permit Site 8. Therefore, DWQ will not require the burial of culverts at Permit Sites 1, 2, 3, 5, 7, 9, 10, 11, 13 and 17. At Permit Site 8, the culvert shall be placed below the elevation of the streambed by one (1) foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

Riprap at the outlets of the 42" RCP and the 48" RCP (Permit Site 2) shall be Class I as indicated on the revised drawings dated and received August 12, 2011 (not Class B as indicated on Detail DO).

Class II riprap shall be used at the confluence of the Permit Site 2 and Permit Site 5 as depicted in Detail LL.

Riprap at the outlet of the 30" RCP, at the inlet of Permit Site 5, shall be placed on the banks only and not in the streambed.

The streams at Permit Sites 7 and 15 will be relocated and rock vanes and j-hooks will be constructed throughout the relocated stream channels. DWQ is requiring that the Division 10 Environmental Officer

and/or Environmental Specialist be present to direct the construction of these structures in the relocated channel. Additionally, coir fiber matting shall be used on all relocated stream banks.

Class I riprap shall be used on the banks at Permit Sites 8 and 11 as indicated on the revised plans received August 12, 2011.

Riprap located at the outlet of the 18" RCP (from the basin) at Permit Site 10 shall be placed on the banks only and be of sufficient size to prevent migration of the riprap into the active stream channel.

Class I riprap shall be used at the outlet of the 30" RCP and embedded in the relocated stream at Permit Site 14 such that low flow of water and aquatic passage are not impeded.

All Class II riprap shall be embedded in the relocated channel at Permit Site 16.

Class II riprap shall be used in lieu of Class B where the ditch ties into the stream at the outlet of Permit Site 17.

DWQ is concerned about the stability of the reinforced slope both during and after construction at the outlet of Permit Site 2, along Stony Creek (a 303d listed stream for impaired ecological/biological integrity). The appropriate erosion control measures must be installed and maintained on this slope in order to prevent sediment deposition in the stream. In addition, tree removal along the banks must be minimized to ensure stream bank stability.

DWQ is concerned about the proximity of the cut slope from the jurisdictional stream depicted on Permit Drawing Sheet 41 of 56 at approximately Station 75. Appropriate construction staging and erosion control measures must be installed and maintained in order to prevent sediment deposition in the stream and/or stream bank failure.

Stream impacts associated with the sewer line relocation at Permit Site 15 shall not exceed those authorized in this certification. If additional impacts are required, this certification must be modified.

Compensatory mitigation for 5,476 linear feet of impact to streams and 0.79 acres of wetlands for Project R-2123CE is required. We understand that the North Carolina Ecosystem Enhancement Program (EEP) has agreed to implement the stream mitigation for the project. EEP has indicated in a letter dated June 7, 2011, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the North Carolina Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument signed July 28, 2010.

All culverts shall be placed below the elevation of the streambed by one (1) foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

If multiple pipes or barrels are required, they shall be designed to mimic the natural stream cross section as closely as possible, including pipes or barrels at floodplain elevation and/or sills, where appropriate. Widening the stream channel shall be avoided. Stream channel widening at the inlet or outlet end of the

structure(s) typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

The site shall be graded to its preconstruction contours and revegetated with appropriate native species for the 1,035 linear feet of streams being impacted due to site dewatering activities.

The riprap used for stream bank stabilization, ditchline stabilization along stream banks and floodplain bench construction shall be of sufficient size to prevent migration of the riprap into the active stream channel.

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.

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.

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.

The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.

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.

Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.

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.

All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.

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.

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.

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.

The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.

Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT (or their authorized agent) shall complete and return the enclosed "Certification of Completion Form" to notify NCDWQ when all work included in the 401 Certification has been completed.

Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.

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.

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.

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

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

PROJECT COMMITMENTS

T.I.P. No. R-2248E
I-485/ Charlotte Outer Loop
from NC 115 (Old Statesville Road) to interchange with I-85
Mecklenburg County
Federal Aid Project NHF-117-1(38)
State Project No. 8.U672206

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Project Development and Environmental Analysis Branch:

The three proposed crossroads over I-485 within the project study area, Prosperity Ridge Road, Loganville Road, and relocated Prosperity Church Road, will be included in the overall permit applications for R-2248E. In addition, relocated Johnston-Oehler Road/DeArmon Road and the proposed Ridge Road extension (up to relocated Prosperity Ridge Road), will also be included in the permit application. For all other proposed roads in the study area to be constructed by developers and/or the City of Charlotte, permits will need to be obtained by the developers and/or the City of Charlotte.

This information was provided in the permit application.

Project Development and Environmental Analysis Branch, Roadway Design Unit, Roadside Environmental Unit, and Division 10 Engineer:

In order to provide protection for the Schweinitz's sunflower population (Element Occurrence 224) during construction, the area will be delineated with construction fencing and further protected by identification as an "environmentally sensitive" area on the construction plans. Also, native seeding will be used in the adjacent area, and after construction, the population will be cataloged and managed with mowing restrictions by NCDOT. Fencing will also be erected on the boundary between the plants and the subdivision to prevent unauthorized moving or other disturbance.

The area as already been delineated with the materials as described above.

Hydraulics Unit

The Hydraulics Unit will coordinate with Charlotte-Mecklenburg Storm Water Services for approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

This process has been completed.

Division 10

This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

COMMITMENTS FROM PERMITTING

Division 10

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

The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall provide the USACE, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, with a copy of the final plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time when the USACE and North Carolina Division of Water Quality (NCDWQ) Project Managers can attend. The permittee shall invite the Corps and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting.

Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands.

The North Carolina Division of Water Quality has issued a conditioned Water Quality Certification for your project. The conditions of that certification are hereby incorporated as special conditions of this (the 404) permit. For your convenience, a copy of the certification is attached as Exhibit A. These referenced conditions are hereby incorporated as special conditions of this permit.

All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-5083, Ext. 526 or (800) 662-7956 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter ll3A Article 4).

The permittee 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.

During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

No fill or excavation for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless it is included on the plan drawings and specifically authorized by this permit.

The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

Violations of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee' s discovery of the violation.

The permittee will ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. 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, Asheville Regulatory Field Office prior to any active construction in waters or wetlands.

Prior to commencing construction within jurisdictional waters of the United States for any portion of the proposed project, the permittee shall forward the latest version of project construction drawings to the Corps of Engineers, Asheville Regulatory Field Office NCDOT Regulatory Project Manager. Half-size drawings will be acceptable.

Measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bank full flow can be used as a comparable level.

Unless otherwise requested in the applicant's application and Merger team meeting notes, culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The bottom of the culvert must be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Destabilizing the channel and head cutting upstream should be considered in the placement of the culvert. A waiver from the depth specifications in this condition may be requested in writing. The waiver will be issued if it can be demonstrated that the proposal would result in the least impacts to the aquatic environment.

To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands.

Compensatory mitigation for the unavoidable impacts to 622 acres of riparian wetlands, 0.42 acres non-riparian wetlands and 6,800 linear feet of stream fill within the Yadkin River Basin; 0.17 acres of riparian wetlands and 551 linear feet of stream fill within the Catawba River Basin associated with R-2248 E and to 0.79 acres of riparian wetlands and 5,639 linear feet of stream fill associated with R-2123 CE shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letters dated April 21, 2011 and June 7, 2011 respectively from William D. Gilmore, EEP Director. Pursuant to the In-Lieu Fee Instrument signed July 28, 2010 between the State of North Carolina, Ecosystem Enhancement Program and the US Anny Corps of Engineers the EEP will provide 0.34 acres restoration equivalent riparian wetlands and 1,102 linear feet of restoration equivalent warm water stream channel in the Catawba River Basin (Hydrologic Cataloging Unit 03050101) and 16.44 acres equivalent riparian wetlands, 0.84 acres equivalent non-riparian wetlands and 24,878 linear feet of restoration equivalent warm water stream channel in the Yadkin River Basin 03040105 in accordance with Section F of the instrument.

The applicant will also implement the recommendations outlined in the US FWS concurrence letter dated August 25, 2009. And, in order to further protect the population throughout the project's construction, the population is surrounded by orange safety fencing and clearly marked on the plans. Upon completion of the project, 50 feet of woven wire fencing, centered about the population will be installed to separate the population from the adjacent property lines.

The riprap at Permit Sites 1, 2 and 8 must be embedded such that low flow of water and aquatic passage are not impeded. Additionally, the riprap shall be Class I as indicated on the revised plans received June 9, 2011.

The outfall of the ditch on the upstream side of Permit Site 11 must be Class II riprap as per detail M21 on plans.

Fifty (50) feet of stream is being proposed as mitigation. An existing culvert will be removed from the stream at Permit Site 14, resulting in 50 feet of "daylighted" stream. In order to receive mitigation credit for "daylighting" this stream, the mitigation area must be constructed in accordance with Permit Drawing 8 of 108, revised mitigation/reforestation plans received August 22, 2011. DWQ will not require monitoring for this site, however, DWQ will visit the site periodically upon completion of construction to ensure that the stream buffer is adequate.

Class II riprap shall be provided on the face of the constructed floodplain bench at Permit Site 14 as depicted on the revised plans received June 9, 2011.

Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, shall not be buried. These pipes shall be installed at natural ground elevation.

DWQ is very concerned with potential construction impacts that could adversely affect the Nature Conservancy Site (Sheet 208). NCDOT shall take all necessary precautions (i.e., signage) to avoid direct impacts to this site during construction.

All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to turbidity (Rocky River) shall be designed, constructed, and operated with sediment and erosion control measures that meet Design Standards in Sensitive Watersheds [15A NCAC 48 .0124]. However, due to the size of the project, NC DOT shall not be required to meet 15A NCAC 48 .0124(a) regarding the maximum amount of uncovered acres.

All portions of the proposed project draining to 303(d) listed watersheds (Rocky River, Clarks Creek and Stony Creek) that are impaired due to biological criteria exceedances shall not discharge storm water directly to surface waters. Storm water shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters.

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.

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.

All pile driving or drilling activities shall be enclosed in turbidity curtains unless otherwise approved by NCDWQ in this certification.

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 shall the barges be dragged along the bottom of the surface water.

At Permit Sites 8, 11 and 16, where ponds will be drained, proper measures will be taken to drain the pond with limited impact to upstream and downstream channel stability as well as to native aquatic species. Proper measures will be taken to avoid sediment release and/or sediment accumulation downstream as a result of pond draining. If typical pond draining techniques will create a significant disturbance to native aquatic species, additional measures such as collection and relocation may be necessary to prevent a significant fish kill. NCDOT shall consult with the North Carolina Wildlife Resources staff to determine if there are any sensitive species, and the most appropriate measures to limit impacts to these species. The Permittee shall observe any natural channel re-establishment, or utilize natural channel construction techniques, to ensure that the jurisdictional stream channel above and below the drained pond remain stable and that no additional impacts occur within the natural stream channel as a result of draining the pond.

Compensatory mitigation for 7,364 linear feet of impact to streams and 7.62 acres of wetlands for Project R-22248E is required. We understand that the North Carolina Ecosystem Enhancement Program (EEP) has agreed to implement the stream mitigation for the project. EEP has indicated in a letter dated April 21, 2011, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the North Carolina Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument signed July 28, 2010.

All culverts shall be placed below the elevation of the streambed by one (1) foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

If multiple pipes or barrels are required, they shall be designed to mimic the natural stream cross section as closely as possible, including pipes or barrels at floodplain elevation and/or sills, where appropriate. Widening the stream channel shall be avoided. Stream channel widening at the inlet or outlet end of the structure(s) typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

The site shall be graded to its preconstruction contours and revegetated with appropriate native species for the 1,035 linear feet of streams being impacted due to site dewatering activities.

The riprap used for stream bank stabilization, ditchline stabilization along stream banks and floodplain bench construction shall be of sufficient size to prevent migration of the riprap into the active stream channel.

If concrete is used during construction, a day 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.

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.

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.

The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.

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.

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.

All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3: 1, unless otherwise authorized by this certification.

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.

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.

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, storm water management rules, soil erosion and sedimentation control requirements, etc.

The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.

Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT (or their authorized agent) shall complete and return the enclosed "Certification of Completion Form" to notify NCDWQ when all work included in the 401 Certification has been completed.

Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.

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.

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.

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

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

DEPARTMENT OF THE ARMY PERMIT

Permittee **North Carolina Department of Transportation**

Permit No. **SAW-2011-01237**

Issuing Office **CESAW-RG-A**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: **to impact jurisdictional waters of the U.S. in order to facilitate the completion of the North Charlotte Outer Loop (I-485, R-2248 E) and the I-485/I-85 interchange modification (R-2123 CE) in Mecklenburg and Cabarrus Counties, North Carolina. Permanent impacts include 14,155 linear feet of stream channel and 7.64 acres of wetlands. Temporary impacts total 1, 035 linear feet of stream channel and 0.05 acre wetland. Impacts to jurisdictional waters of the U.S. are associated with the construction and installation of culverts, pipes, wingwalls, roadway fill, temporary work bridges, bridge construction, mechanized land clearing, and bank stabilization.**

Project Location: **North Charlotte Outer Loop (I-485, R-2248 E) and the I-485/I-85 interchange modification (R-2123 CE) in Mecklenburg and Cabarrus Counties, North Carolina**

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2016.** If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit,

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit, Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

E. L. Link for Gregory J. Thorpe, PhD 11-18-11

(PERMITTEE) **North Carolina Department of Transportation** *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

M. Scott Jones FOR STEVEN A. BAKER, COL 22 NOV 2011

(DISTRICT COMMANDER) **STEVEN A. BAKER COLONEL** *(DATE)*

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) *(DATE)*

*U.S. GOVERNMENT PRINTING OFFICE: 1986 - 717-425

SPECIAL CONDITIONS
Action ID: SAW-2011-01237

Work Limits

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

b) The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall provide the USACE, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, with a copy of the final plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time when the USACE and North Carolina Division of Water Quality (NCDWQ) Project Managers can attend. The permittee shall invite the Corps and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting.

c) Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

d) Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands.

Related Laws

f) The North Carolina Division of Water Quality has issued a conditioned Water Quality Certification for your project. The conditions of that certification are hereby incorporated as special conditions of this permit. For your convenience, a copy of the certification is attached as Exhibit A. These referenced conditions are hereby incorporated as special conditions of this permit.

g) All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the

permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-5083, Ext. 526 or (800) 662-7956 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

Project Maintenance

h) The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

i) Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

j) The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

k) The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).

l) The permittee 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.

m) During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodable materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

n) No fill or excavation for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless it is included on the plan drawings and specifically authorized by this permit.

o) The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

Enforcement

p) Violations of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.

q) The permittee will ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. 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, Asheville Regulatory Field Office prior to any active construction in waters or wetlands.

r) Prior to commencing construction within jurisdictional waters of the United States for any portion of the proposed project, the permittee shall forward the latest version of project construction drawings to the Corps of Engineers, Asheville Regulatory Field Office NCDOT Regulatory Project Manager. Half-size drawings will be acceptable.

s) Measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bankfull flow can be used as a comparable level.

t) Unless otherwise requested in the applicant's application and Merger team meeting notes, culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The bottom of the culvert must be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Destabilizing the channel and head cutting upstream should be considered in the placement of the culvert. A waiver from the depth specifications in this condition may be requested in writing. The waiver will be issued if it can be demonstrated that the proposal would result in the least impacts to the aquatic environment.

u) To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands.

v) The permittee shall take measures to prevent live or fresh concrete from coming into contact with any surface waters until the concrete has hardened.

Mitigation

w) Compensatory mitigation for the unavoidable impacts to 6.22 acres of riparian wetlands, 0.42 acres non-riparian wetlands and 6,800 linear feet of stream fill within the Yadkin River Basin; 0.17 acres of riparian wetlands and 551 linear feet of stream fill within the Catawba River Basin associated with R-2248 E and to 0.79 acres of riparian wetlands and 5,639 linear feet of stream fill associated with R-2123 CE shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letters dated April 21, 2011 and June 7, 2011 respectively from William D. Gilmore, EEP Director. Pursuant to the In-Lieu Fee Instrument signed July 28, 2010 between the State of North Carolina, Ecosystem Enhancement Program and the US Army Corps of Engineers the EEP will provide 0.34 acres restoration equivalent riparian wetlands and 1,102 linear feet of restoration equivalent warm water stream channel in the Catawba River Basin (Hydrologic Cataloging Unit 03050101) and 16.44 acres equivalent riparian wetlands, 0.84 acres equivalent non-riparian wetlands and 24,878 linear feet of restoration equivalent warm water stream channel in the Yadkin River Basin 03040105 in accordance with Section F of the instrument.

x) The applicant will implement the recommendations outlined in the US FWS concurrence letter dated March 24, 2010 specifically relating to the R- 2123 CE project:

1. Place orange fencing around sunflower Units C, D, and G in order to avoid equipment staging or storage
2. Avoid completely or directionally bore (instead of trenching) relocated utility lines in the vicinity of Units D and E.
3. Clear tees by hand where sunflowers are currently being shaded out in the tree-clearing limits of sunflower Unit A.
4. Use NCDOT Roadside Environmental Unit's native seed mix for erosion control along Mallard Creek Road.

y) The applicant will also implement the recommendations outlined in the US FWS concurrence letter dated August 25, 2009. And, in order to further protect the population throughout the project's construction, the population is surrounded by orange safety fencing and clearly marked on the plans. Upon completion of the project, 50 feet of woven wire fence, centered about the population will be installed to separate the population from the adjacent property lines.

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action I.D.: **2011-01237** County: **Mecklenburg and Cabarrus**

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Agent: **North Carolina Department of Transportation**
Address: **1598 Mail Service Center**
Raleigh, NC 27699

Property description:
Size (acres): 26,732 lf and 14.84 acres Nearest Town: Charlotte/Concord
Nearest Waterway: Stony Creek and its Ut's, Rocky River and its UT's, UT to Dixon Branch, Clarks Creek and UT's, UT to Rocky River
River Basin: Catawba and Yadkin
Coordinates: 35.3645 N and -80.8225 W/ 35.3363 N and -80.7430 W
Hydrologic Unit Code: 03050101, 03040105

Location Description: The project site is located between NC 115 and the existing I-485/I-85 interchange, north of the town of Charlotte and south of the town of Concord in Mecklenburg and Cabarrus Counties , North Carolina.

Indicate Which of the Following Apply:

A. Preliminary Determination

- Based on preliminary information, there may be waters on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. Approved Determination

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

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

- We strongly suggest you have the waters on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

- The waters on your property have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

X **The waters have been delineated and surveyed and are accurately depicted on the maps submitted to this office dated August 2010. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.**

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

Action Id.: 2011-01237

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

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Liz Hair** at **828-271-7980**.

C. Basis For Determination

The site contains wetlands as determined by the USACE 1987 Wetland Delineation Manual and is adjacent to stream channels located on the property that exhibit indicators of ordinary high water marks. The stream channels on the property is are known as Stony Creek and its UT's, Rocky River and its UT's, UT to Dixon Branch, Clarks Creek and UT's, UT to Rocky River which flows into the Cataba River (TNW) and Yadkin-Pee Dee River (TNW).

D. Remarks

E. Attention USDA Program Participants

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

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

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

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

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by January 16, 2012.

It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Liz Hair HAIR.SARAH.E A.1054693512 Digitally signed by HAIR.SARAH.E A.1054693512 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=HAIR.SARAH.E A.1054693512 Date: 2011.11.16 16:27:23 -05'00'

Issue Date: **November 16, 2011** Expiration Date: **November 16, 2016**

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 attached customer Satisfaction Survey or visit http://per2.nwp.usace.army.mil/survey.html to complete the survey online.

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Water Quality

Beverly Eaves Perdue
Governor

Coleen H. Sullins
Director

Dee Freeman
Secretary

October 14, 2011

Gregory J. Thorpe, Ph.D., Environmental Management Director
North Carolina Department of Transportation
Project Development and Environmental Analysis Branch
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: **401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with Additional Conditions for the Proposed Construction of the Charlotte Outer Loop (I-485) between NC 115 and the I-85 Interchange and I-85/I-485 Interchange Modification Mecklenburg County, TIP No.s R-2248E and R-2123CE, WBS Element No.s 34410.3.GV2 and 34379.1.17, NCDWQ Project No. 11-0431**

Dear Dr. Thorpe:

Attached hereto is a copy of Certification No. 3868 issued to The North Carolina Department of Transportation (NCDOT) dated October 14, 2011.

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

Sincerely,

Coleen H. Sullins
for Director

Attachments

cc: Sarah Hair, US Army Corps of Engineers, Asheville Field Office
Chris Militscher, Environmental Protection Agency (electronic copy only)
Marla Chambers, NC Wildlife Resources Commission (electronic copy only)
Marella Buncick, US Fish and Wildlife Service (electronic copy only)
William Gilmore, Ecosystem Enhancement Program
Michael Turchy, NCDOT PDEA
Larry Thompson, NCDOT Division 10 Environmental Officer
Sonia Carrillo, NCDWQ Transportation Permitting Unit
Polly Lespinasse, NCDWQ Mooresville Regional Office
Brian Wrenn, NCDWQ Transportation Permitting Unit
File Copy

Mooresville Regional Office
Location: 610 East Center Ave., Suite 301 Mooresville, NC 28115
Phone: (704) 663-1699 \ Fax: (704) 663-6040 \ Customer Service: 1-877-623-6748
Internet: http://portal.ncdenr.org/web/wq

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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 authorizes the NCDOT to **permanently impact** 14,134 linear feet of jurisdictional streams, 8.14 acres of jurisdictional wetlands, and **temporarily impact** 1,035 linear feet of streams and 0.66 acres of jurisdictional wetlands in Mecklenburg County. The project shall be constructed pursuant to the applications received May 6, 2011, June 8, 2011, and additional information received electronically on June 6, 2011, August 12, 2011, August 25, 2011, and September 1, 2011. The authorized impacts are as described below:

Stream Impacts in the Catawba River Basin R-2248E

Permit Site No. / Station No.s	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
Site 1/Station -L-(1259+00/1260+50)	297 lf (culvert)				297 lf	179 lf*
Site 2/Station -L-1266+00/1266+50)	602 lf (culvert)				602 lf	372 lf**
Total	**899 lf**	**0**	**0**	**0**	**899 lf**	**551 lf**

***Mitigation for 118 lf previously provided under TIP No. R-2248D leaving 179 lf requiring mitigation.**
****Mitigation for 230 lf previously provided under TIP No. R-2248D leaving 372 lf requiring mitigation.**

Total Stream Impacts for Catawba River Basin: 899 linear feet

Stream Impacts in the Yadkin-Pee Dee River Basin R-2248E

Permit Site No. / Station No.s	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
Site 3/Station –Y10-(65+50)			72 lf (48 lf for culvert, 24 lf for bank stabilization)	38 lf	110 lf	0
Site 4/Station –L-(1297+00/1299+50)			497 lf (428 for culvert, 69 lf for bank stabilization	8 lf	505 lf	497 lf
Site 5/Station –L-(1342+00/1343+00)			545 lf (489 lf for culvert, 56 lf for bank stabilization)	184 lf	729 lf	545 lf
Site 6/Station –L-(1345+00)			312 lf (276 lf for culvert, 36 lf for bank stabilization)	96 lf	408 lf	312 lf
Site 7/Station –L-(1355+00/1367+00)	46 lf for culvert		1,515 lf (1,494 lf for culvert and 21 lf bank stabilization)	127 lf	1,688 lf	1,561 lf
Site 8/Station –L-(1390+00/1415+00)	835 lf for culvert		1,690 lf (1,662 lf for culvert and 28 lf bank stabilization	56 lf	2,581 lf	2,525 lf

Site 9/Station –L-(1421+00)	118 lf (81 lf for culvert, 37 lf for bank stabilization	8 lf			126 lf	0
Site 10/Station –L-(1441+00)	95 lf (44 lf for culvert, 51 lf for bank stabilization)	18 lf			113 lf	0
Site 11/Station –L-(1465+00/1476+00)			138 lf for culvert	48 lf	186 lf	0
Site 14/Station –L-(1486+00/1495+00) and –Y25-(23+23)	838 lf (803 lf for culvert, 35 lf for bank stabilization	91 lf			929 lf	838 lf
Site 15/Station –Y22-(86+00/90+00)	97 lf for culvert	21 lf	248 lf (198 lf for culvert and 50 lf bank stabilization		366 lf	345 lf
Site 16/Station –L-(1526+20/1526+45)	190 lf (30 lf for culvert and 160 lf for stream stabilization				190 lf	190 lf
Total	**2,219 lf**	**138 lf**	**5,017 lf**	**557 lf**	**7,931 lf**	**6,813 lf**

Total Stream Impacts for Yadkin-Pee Dee River Basin (R-2248E): 7,931 linear feet

Stream Impacts in the Yadkin-Pee Dee River Basin R-2123CE

Permit Site No. / Station No.s	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
Site 1/Station RPG 28+00 RT			49 lf for culvert		49 lf	0
Site 2/Station L83+50CL RPF 33+80 RT			1,132 (1,069 lf for culvert, 63 lf for bank stabilization)	47 lf	1,179 lf	1,132 lf
Site 3/Station L 80+50 RT			239 lf for culvert		239 lf	239 lf
Site 5/Station Y 71+00 RT & LT			651 lf (456 lf for culvert, 195 lf for bank stabilization	27 lf	678 lf	651 lf
Site 6/Station RPB 28+00 RT & LT			80 lf for bank stabilization	92 lf	172 lf	0
Site 7/Station PG 28+20 RT RPF 56+95 L	1,461 lf for culvert	37 lf			1,498 lf	1,461 lf
Site 8/Station RPE 67+75 CL	280 lf for culvert	11 lf			291 lf	280 lf
Site 9/Station RPE 68+00 CL	147 lf for culvert	16 lf			163 lf	0
Site 10/Station L 98+00 LT	286 lf (276 lf for culvert, 10 lf for bank stabilization)	20 lf			306 lf	286 lf
Site 11/Station L 100+50 LT	55 lf (45 lf for culvert, 10 lf for bank stabilization)	11 lf			66 lf	0

*Site 12/Station Y 61+00 LT	151 lf for stream relocation				151 lf	151 lf
Site 13/Station Y 62+50 RT			48 lf for culvert		48 lf	0
*Site 14/Station Y 61+40-66+75 LT			554 lf for stream relocation	20 lf	574 lf	554 lf
*Site 15/Station Y 69+00 LT			198 lf for stream relocation	10 lf	208 lf	198 lf
*Site 16/Station Y 131+50-135+60 RT			524 lf for stream relocation	23 lf	547 lf	524 lf
Site 17/Station Y 148+00 LT & RT			144 lf (62 lf for culvert, 82 lf for bank stabilization)	26 lf	170 lf	0
Total	**2,380 lf**	**95 lf**	**3,619 lf**	**245 lf**	**6,339 lf**	**5,476 lf**

***Note: These stream relocations are not eligible for mitigation credit.**

Total Stream Impacts for Yadkin-Pee Dee River Basin (R-2123CE): 6,339 linear feet

Total Stream Impacts for Yadkin-Pee Dee River Basin (R-2248E and R-2123CE): 14,270 linear feet
Total Stream Impacts for both R-2248E and R2123CE (Catawba and Yadkin-Pee Dee River Basins): 15,169 linear feet

Wetland Impacts in the Catawba River Basin (Riverine) R-2248E

Permit Site No./ Station No.s	Permanent Fill/Excavation/ Clearing Impacts (ac)	Temporary Impacts (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)
Site 1/Station -L- (1259+00/1260+50)	0.39 ac (fill), 0.02 ac (clearing)		0.41 ac	0.11 ac*
Site 2/Station –L- (1266+00/1266+50)	0.22 ac (fill), 0.03 ac (clearing)		0.25 ac	0.06 ac**
Total	**0.66 ac**	**0**	**0.66 ac**	**0.17 ac**

***Mitigation for 0.30 ac previously provided under TIP No. R-2248D leaving 0.11 ac requiring mitigation.**
****Mitigation for 0.19 ac previously provided under TIP No. R-2248D leaving 0.06 ac requiring mitigation.**

Total Wetland Impacts for Catawba River Basin: 0.66 acres

Wetland Impacts in the Yadkin-Pee Dee River Basin (Riverine) R-2248E

Permit Site No./ Station No.s	Permanent Fill/Excavation/ Clearing Impacts (ac)	Temporary Impacts (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)
Site 3/Station -Y10- (65+50)	0.03 ac (0.02 ac. fill, 0.01 ac clearing)		0.03 ac	0.03 ac

Site 4/Station –L- (1297+00/1299+50)	0.63 ac (0.51 fill, 0.04 excavation, 0.08 ac clearing)		0.63 ac	0.63 ac
Site 5/Station –L- (1342+00/1343+00)	0.12 ac (fill)		0.12 ac	0.12 ac
Site 7/Station –L- (1355+00/1367+00)	1.78 ac (1.72 ac fill in 4 separate wetlands, 0.06 ac clearing in 1 wetland)		1.78 ac	1.78 ac
Site 8/Station –L- (1390+00/1415+00)	1.06 ac (fill in 2 separate wetlands)		1.06 ac	1.06 ac
Site 11/Station –L- (1465+00/1476+00)	0.14 ac (fill)		0.14 ac	0.14 ac
Site 12/Station –Y22- (54+00/60	1.80 ac (1.64 ac fill, 0.16ac clearing)	0.66 ac (0.05 ac temporary fill and 0.61 ac hand clearing)	2.46 ac	2.50 ac
Site 14/Station –L- (1486+00/1495+00) and –Y25- (23+23)	0.62 ac (fill in 2 separate wetlands)		0.62 ac	0.62ac
Site 15/Station –Y22- (86+00/90+00)	0.09 acre (0.08 ac fill, 0.01 ac clearing)		0.09	0.09 ac
Total	**6.27 ac**	**0.66 ac**	**6.93 ac**	**6.27 ac**

Total Wetland Impacts for Yadkin-Pee Dee River Basin (Riverine): 6.93 acres

Wetland Impacts in the Yadkin-Pee Dee River Basin (Non-Riverine and Isolated) R-2248E

Permit Site No./ Station No.s	Permanent Fill/Excavation/ Clearing Impacts (ac)	Temporary Impacts (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)
Site 12/Station -Y22- (54+00/60+00)	0.05 ac (fill)		0.05 ac	0.05 ac
Site 13/Station –Y20- (41+00/48+00)	0.34 ac (0.31 ac fill in 3 separate wetlands, 0.03 ac clearing)		0.34 ac	0.34 ac
Site 16/Station –L- (1526+20/1526+45)	0.03 ac (fill)		0.03 ac	0.03 ac
Total	**0.42 ac**	**0**	**0.42 ac**	**0.42 ac**

Total Wetland Impacts for Yadkin-Pee Dee River Basin (Non-Riverine and Isolated): 0.42 acres

Total Wetland Impacts (Riverine and Non-Riverine) for the Yadkin-Pee Dee River Basin (R-2248E): 8.01 acres

Wetland Impacts in the Yadkin-Pee Dee River Basin (Riverine) R-2123CE

Permit Site No./ Station No.s	Permanent Fill/Excavation/ Clearing Impacts (ac)	Temporary Impacts (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)
Site 2/Station L 83+50CL RPF 33+80 RT	0.04 ac (fill)		0.04 ac	0.04 ac
Site 4/Station RPH 70+00 RT	0.72 ac (fill)		0.72 ac	0.72 ac
Site 10/Station L 98+00 LT	0.02 ac (fill)		0.02 ac	0.02 ac
Site 14/Station Y 61+40-66+75 LT	0.01 ac (fill)		0.01 ac	0.01 ac
Total	**0.79 ac**	**0**	**0.79 ac**	**0.79 ac**

Total Wetland Impacts for Yadkin-Pee Dee River Basin (R-2123CE): 0.79 acres

Total Wetland Impacts for Yadkin-Pee Dee River Basin (R-2248E and R-2123CE): 8.14 acres
Total Wetland Impacts for both R-2248E and R2123CE (Catawba and Yadkin-Pee Dee River Basins): 8.80 acres

Open Water Impacts in the Yadkin-Pee Dee River Basin R-2248E

Permit Site No.	Permanent Fill/ Draining in Open Waters (ac)	Temporary Fill/ Draining in Open Waters (ac)	Total Fill/ Draining in Open Waters (ac)
Site 8	1.56 ac (fill)		1.56 ac
Site 11	0.13 ac (fill)		0.13a ac
Site 16	0.67 ac (draining)		0.67 ac
Total	**2.36 ac**	**0**	**2.36 ac**

Total Open Water Impacts for Yadkin-Pee Dee River Basin: 2.36 acres
***No open water impacts in the Catawba River Basin**

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

This approval is only valid for the purpose and design that you submitted in your application dated May 6, 2011, June 8, 2011, and additional information received electronically on June 6, 2011, August 12, 2011, August 25, 2011, and September 1, 2011. Should your project change, you are required to notify the 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.

Specific Conditions of Certification for R-2248E:

1. The riprap at Permit Sites 1, 2 and 8 must be embedded such that low flow of water and aquatic passage are not impeded. Additionally, the riprap shall be Class I as indicated on the revised plans received June 9, 2011.

2. The outfall of the ditch on the upstream side of Permit Site 11 must be Class II riprap as per detail M21 on plans.

3. Fifty (50) feet of stream is being proposed as mitigation. An existing culvert will be removed from the stream at Permit Site 14, resulting in 50 feet of "daylighted" stream. In order to receive mitigation credit for "daylighting" this stream, the mitigation area must be constructed in accordance with Permit Drawing 8 of 108, revised mitigation/reforestation plans received August 22, 2011. DWQ will not require monitoring for this site, however, DWQ will visit the site periodically upon completion of construction to ensure that the stream buffer is adequate.

4. Class II riprap shall be provided on the face of the constructed floodplain bench at Permit Site 14 as depicted on the revised plans received June 9, 2011.

5. Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, shall not be buried. These pipes shall be installed at natural ground elevation.

6. DWQ is very concerned with potential construction impacts that could adversely affect the Nature Conservancy Site (Sheet 20B). NCDOT shall take all necessary precautions (i.e., signage) to avoid direct impacts to this site during construction.

7. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to turbidity (Rocky River) 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.

8. All portions of the proposed project draining to 303(d) listed watersheds (Rocky River, Clarks Creek and Stony Creek) 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.

9. 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.

10. 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.

11. All pile driving or drilling activities shall be enclosed in turbidity curtains unless otherwise approved by NCDWQ in this certification.

12. 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 shall be barges be dragged along the bottom of the surface water.

13. At Permit Sites 8, 11 and 16, where ponds will be drained, proper measures will be taken to drain the pond with limited impact to upstream and downstream channel stability as well as to native aquatic species. Proper measures will be taken to avoid sediment release and/or sediment accumulation downstream as a result of pond draining. If typical pond draining techniques will create a significant disturbance to native aquatic species, additional measures such as collection and relocation may be necessary to prevent a significant fish kill. NCDOT shall consult with the North Carolina Wildlife Resources staff to determine if there are any sensitive species, and the most appropriate measures to limit impacts to these species. The Permittee shall observe any natural channel re-establishment, or utilize natural channel construction techniques, to ensure that the jurisdictional stream channel above and below the drained pond remain stable and that no additional impacts occur within the natural stream channel as a result of draining the pond.

14. Compensatory mitigation for 7,364 linear feet of impact to streams and 7.62 acres of wetlands for Project R-22248E is required. We understand that the North Carolina Ecosystem Enhancement Program (EEP) has agreed to implement the stream mitigation for the project. EEP has indicated in a letter dated April 21, 2011, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the North Carolina Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument signed July 28, 2010.

Specific Conditions of Certification for R-2123CE:

15. Many of the stream impacts on the project result from culvert extensions on either the up or downstream end of an existing pipe with the exception of the installation of new culvert at Permit Site 8. Therefore, DWQ will not require the burial of culverts at Permit Sites 1, 2, 3, 5, 7, 9, 10, 11, 13 and 17. At Permit Site 8, the culvert shall be placed below the elevation of the streambed by one (1) foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

16. Riprap at the outlets of the 42" RCP and the 48" RCP (Permit Site 2) shall be Class I as indicated on the revised drawings dated and received August 12, 2011 (not Class B as indicated on Detail DD).

17. Class II riprap shall be used as the confluence of the Permit Site 2 and Permit Site 5 as depicted in Detail LL.

18. Riprap at the outlet of the 30" RCP, at the inlet of Permit Site 5, shall be placed on the banks only and not in the streambed.

19. The streams at Permit Sites 7 and 15 will be relocated and rock vanes and j-hooks will be constructed throughout the relocated stream channels. DWQ is requiring that the Division 10 Environmental Officer and/or Environmental Specialist be present to direct the construction of these structures in the relocated channel. Additionally, coir fiber matting shall be used on all relocated streambanks.

20. Class I riprap shall be used on the banks at Permit Sites 8 and 11 as indicated on the revised plans received August 12, 2011.

21. Riprap located at the outlet of the 18" RCP (from the basin) at Permit Site 10 shall be placed on the banks only and be of sufficient size to prevent migration of the riprap into the active stream channel.

22. Class I riprap shall be used at the outlet of the 30" RCP and embedded in the relocated stream at Permit Site 14 such that low flow of water and aquatic passage are not impeded.

23. All Class II riprap shall be embedded in the relocated channel at Permit Site 16.

24. Class II riprap shall be used in lieu of Class B where the ditch ties into the stream at the outlet of Permit Site 17.

25. DWQ is concerned about the stability of the reinforced slope both during and after construction at the outlet of Permit Site 2, along Stony Creek (a 303d listed stream for impaired ecological/biological integrity). The appropriate erosion control measures must be installed and maintained on this slope in order to prevent sediment deposition in the stream. In addition, tree removal along the banks must be minimized to ensure streambank stability.

26. DWQ is concerned about the proximity of the cut slope from the jurisdictional stream depicted on Permit Drawing Sheet 41 of 56 at approximately Station 75. Appropriate construction staging and erosion control measures must be installed and maintained in order to prevent sediment deposition in the stream and/or streambank failure.

27. Stream impacts associated with the sewer line relocation at Permit Site 15 shall not exceed those authorized in this certification. If additional impacts are required, this certification must be modified.

28. Compensatory mitigation for 5,476 linear feet of impact to streams and 0.79 acres of wetlands for Project R-2123CE is required. We understand that the North Carolina Ecosystem Enhancement Program (EEP) has agreed to implement the stream mitigation for the project. EEP has indicated in a letter dated June 7, 2011, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the North Carolina Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument signed July 28, 2010.

Conditions for both R-2248E and R-2123CE:

29. All culverts shall be placed below the elevation of the streambed by one (1) foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

30. If multiple pipes or barrels are required, they shall be designed to mimic the natural stream cross section as closely as possible, including pipes or barrels at floodplain elevation and/or sills, where appropriate. Widening the stream channel shall be avoided. Stream channel widening at the inlet or outlet end of the structure(s) typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

31. The site shall be graded to its preconstruction contours and revegetated with appropriate native species for the 1,035 linear feet of streams being impacted due to site dewatering activities.

32. The riprap used for streambank stabilization, ditchline stabilization along streambanks and floodplain bench construction shall be of sufficient size to prevent migration of the riprap into the active stream channel.

33. 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.

34. 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.

35. 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.

36. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.

37. 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.

38. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.

39. 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.

40. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.

41. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.

42. 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.

43. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.

44. 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.

45. 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.

46. 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.

47. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.

48. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT (or their authorized agent) shall complete and return the enclosed "Certification of Completion Form" to notify NCDWQ when all work included in the 401 Certification has been completed.

49. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.

50. 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.

51. 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.

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

53. 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 Permit. This Certification shall expire upon the expiration of the 404 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:

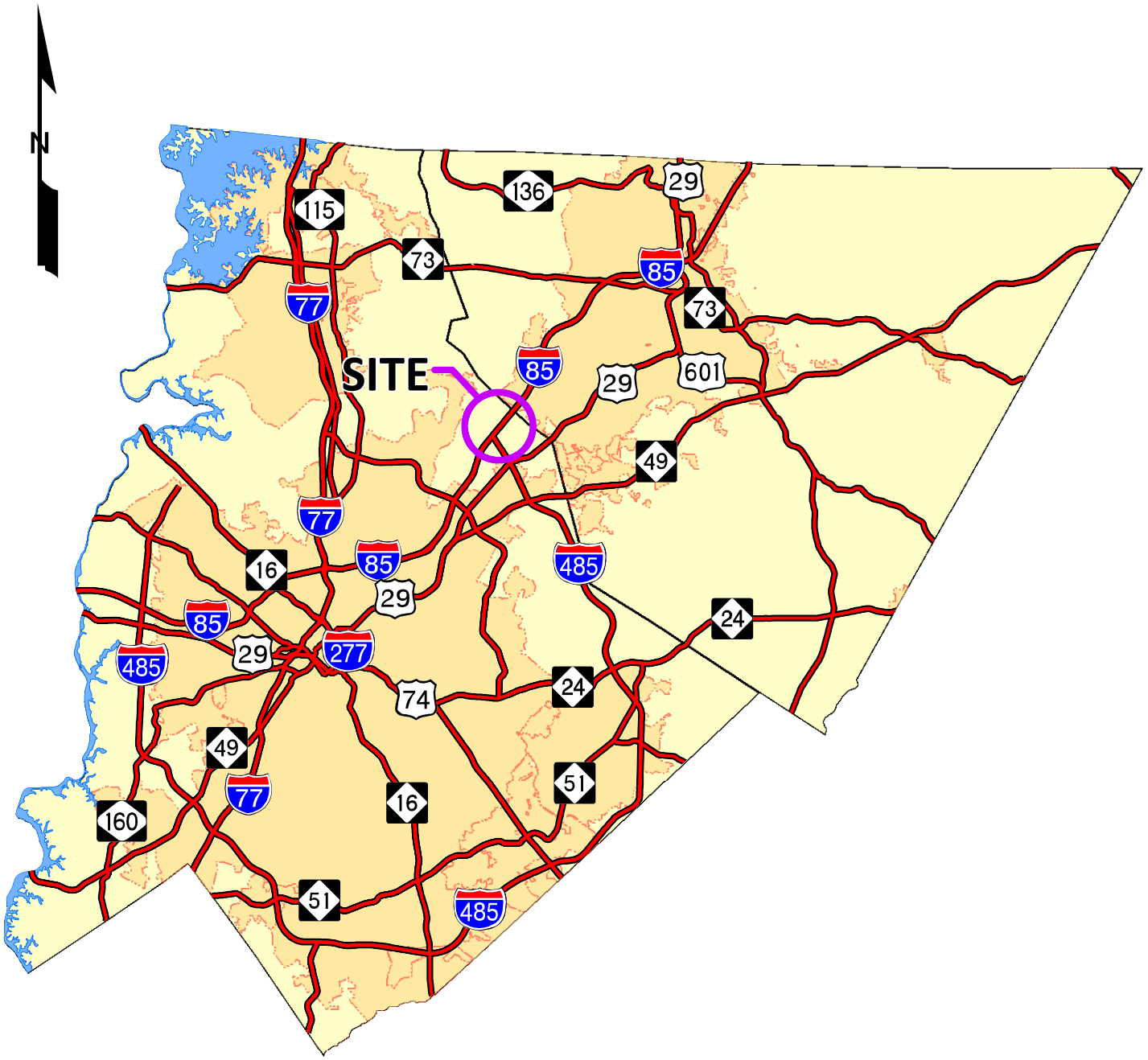
Ms. Mary Penny Thompson, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

This, the 14th day of October 2011

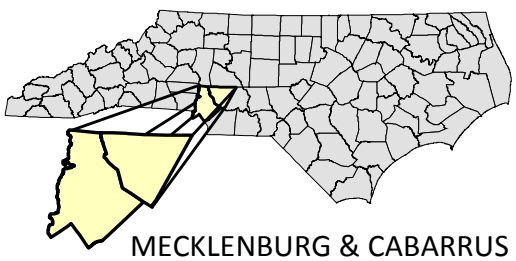
DIVISION OF WATER QUALITY

Coleen H. Sullins
Director

WQC No. 3868



VICINITY MAP



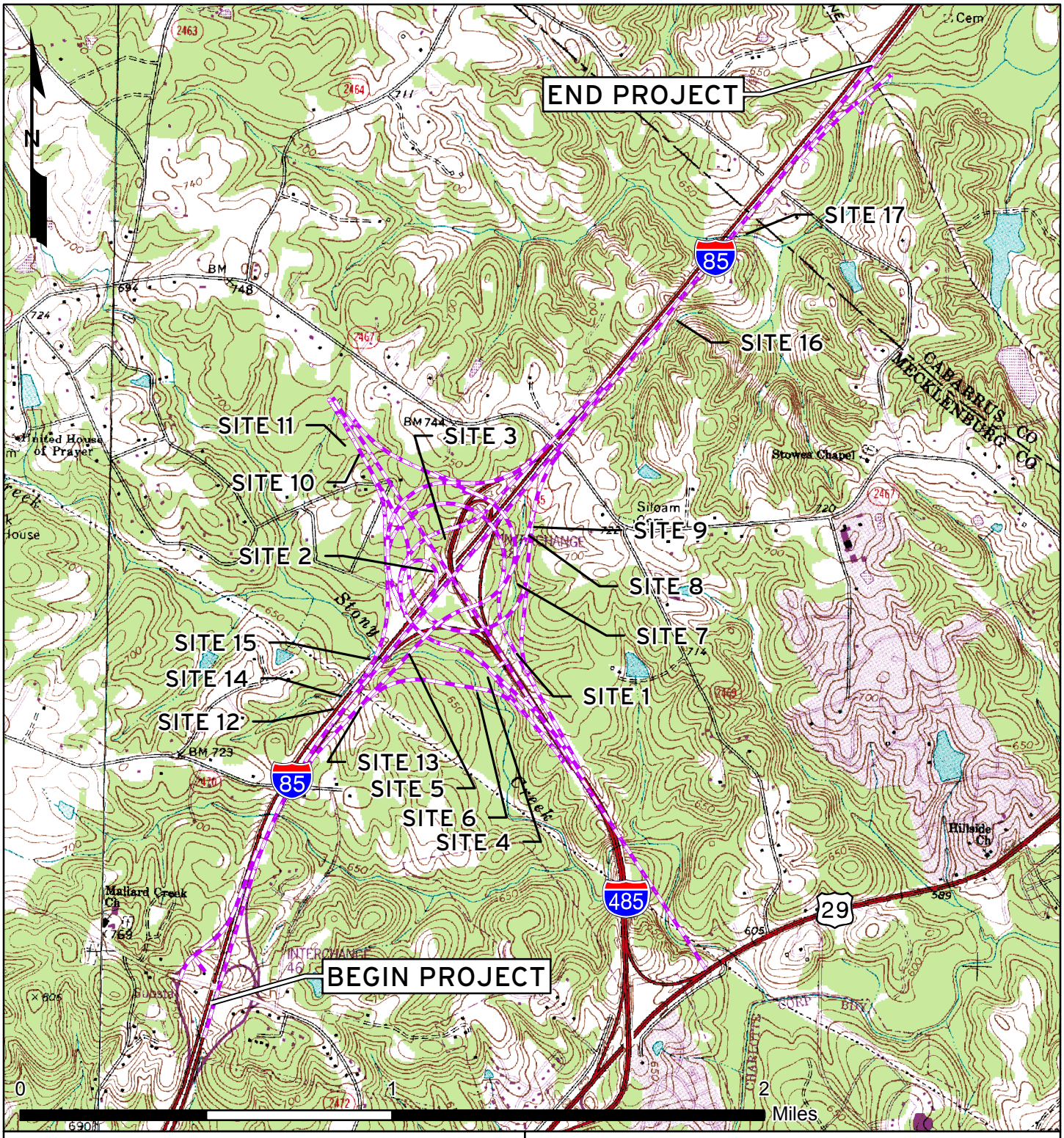
MECKLENBURG & CABARRUS

NCDOT

DIVISION OF HIGHWAYS
MECKLENBURG AND CABARRUS COUNTIES

PROJECT C202523 (R-2123CE)
I-85/ I-485 INTERCHANGE

SHEET 1



LOCATION MAP

NCDOT

DIVISION OF HIGHWAYS
MECKLENBURG AND CABARRUS COUNTIES

PROJECT C202523 (R-2123CE)
I-85/ I-485 INTERCHANGE

SHEET 2

Source: USGS 7.5 Minute Quadrangle, Harrisburg, NC

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	RPG 28+00 RT	48" RCP						0.01		49		
2	L 83+50CL RPF 33+80RT	48" RCP	0.04					0.06	0.01	1132	47	
3	L 80+50 RT	42" RCP						0.03		239		
4	RPH 70+00 RT	84" RCP	0.72									
5	Y 71+00 RT & LT	2@ 9'X10' RCBC						0.27	0.01	651	27	
6	RPB 28+00 RT & LT	84" LRFD						0.03	0.04	80	92	
7	PG 28+20RT RPF 56+95L	84" RCP						0.14	0.00 *	1461	37	
8	RPE 67+75 CL	66" RCP						0.03	0.00 *	280	11	
9	RPE 68+00 CL	66" RCP						0.01	0.00 *	147	16	
10	L 98+00 LT	30" CSP	0.02					0.02	0.00 *	286	20	
11	L 100+50 LT	30" RCP						0.01	0.00 *	55	11	
12	Y 61+00 LT	NA						0.01		151		
13	Y 62+50 RT	36" RCP						0.00 *		48		
14	Y 61+40-66+75 LT	NA	0.01					0.07	0.00 *	554	20	
15	Y 69+00 LT	NA						0.03	0.00 *	198	10	
16	Y 131+50-135+60 RT	NA						0.07	0.00 *	524	23	
17	Y 148+00 LT & RT	6' X 8' RCBC						0.04	0.01	144	26	
TOTALS:			0.79					0.83	0.09	5999	340	

*: < 0.01ac

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

MECKLENBURG AND CABARRUS COUNTIES
PROJECT: C202523 (R-2123CE)

PERMIT DRAWING SHEET 3 OF 56

ATN Revised 3/31/05

R:\Hydraulics\Calculations\Permit\New_wetland_Summary.xls

LABELS FOR PROPERTY OWNERS
LOCATED UNDER SEPARATE COVER

WETLAND AND STREAM IMPACTS

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

MECKLENBURG AND CABARRUS COUNTIES
PROJECT: C202523 (R-2123CE)

PERMIT DRAWING SHEET 4 OF 56

R:\Hydraulics\Calculations\Permit\Wetprop.xls

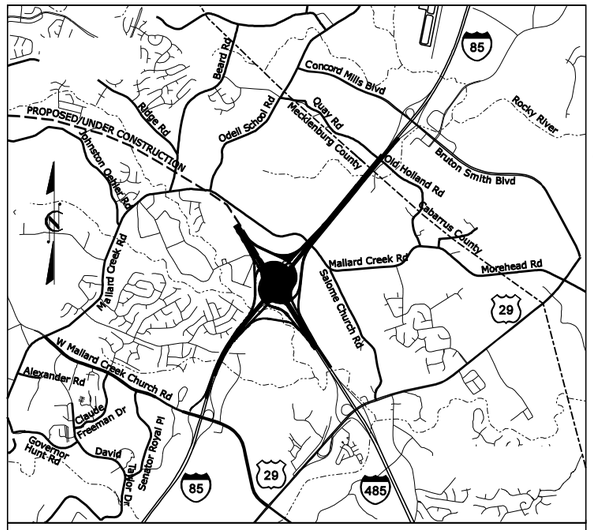
TIP PROJECT: R-2123CE

CONTRACT: C202523

$FILE$

$DATE$

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



VICINITY MAP N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & CABARRUS COUNTY

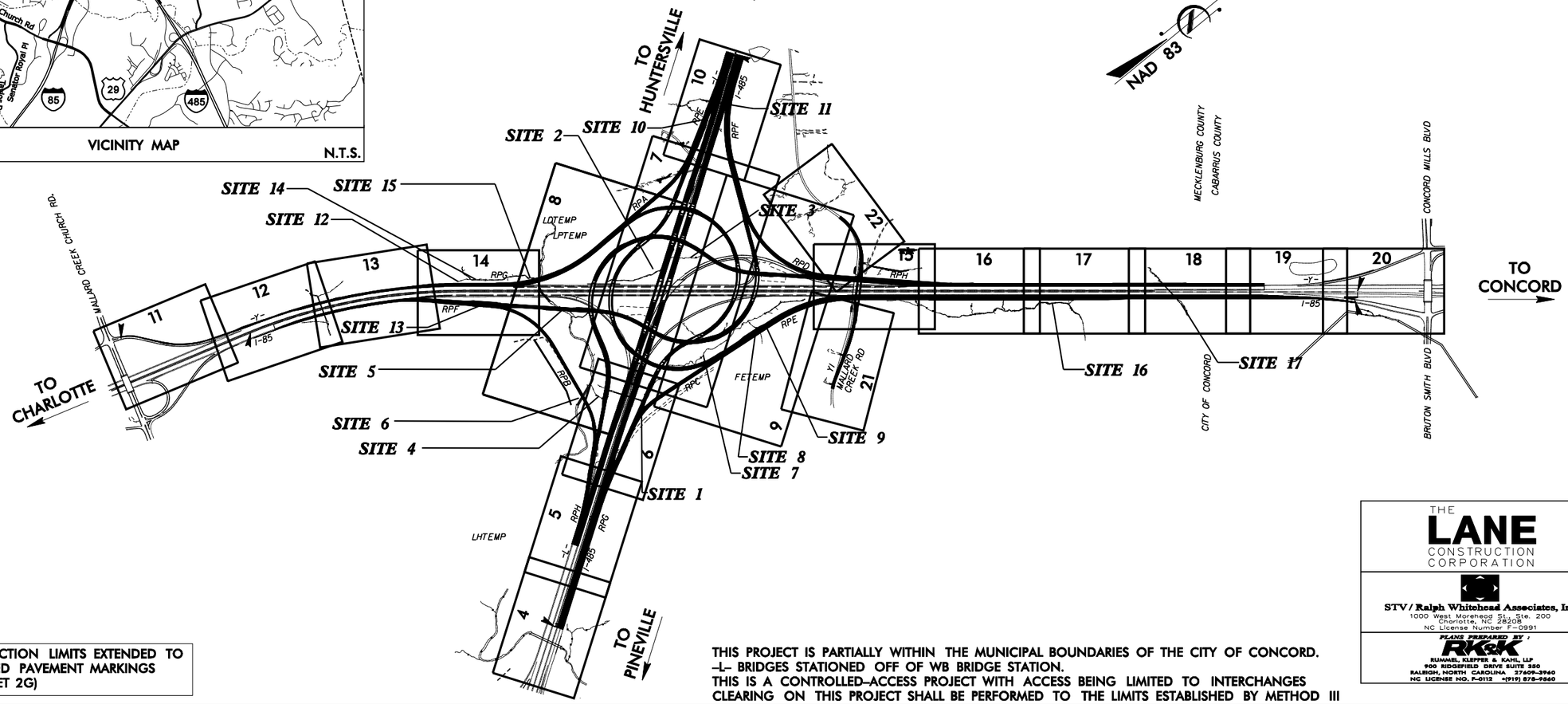
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2123CE	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34379.1.1	NHF-0485(26)	PE
34379.2.1		R/W & UTILITY
34379.3.1		CONST.

PERMIT DRAWING
SHEET 5 OF 56

LOCATION: I-485 (CHARLOTTE EASTERN OUTER LOOP) / I-85

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING, CULVERTS, AND STRUCTURES



NOTE: CONSTRUCTION LIMITS EXTENDED TO COVER PROPOSED PAVEMENT MARKINGS (SEE DETAIL SHEET 2G)

THIS PROJECT IS PARTIALLY WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF CONCORD.
-L- BRIDGES STATIONED OFF OF WB BRIDGE STATION.
THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

THE LANE CONSTRUCTION CORPORATION

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 *(919) 878-9560

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

I-485 (-L-)

ADT 2008 = 66,600
ADT 2035 = 155,800
DHV = 10%
D = 55%
T = 13% *
V = 70 mph

FUNCTIONAL CLASSIFICATION: INTERSTATE
* (TTST 8% + DUAL 5%)

DESIGN DATA

I-85 (-Y-)

ADT 2008 = 104,600
ADT 2035 = 190,400
DHV = 10%
D = 55%
T = 15% *
V = 70 mph

FUNCTIONAL CLASSIFICATION: INTERSTATE
* (TTST 10% + DUAL 5%)

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-2123CE = 1.270 MILES

LENGTH OF STRUCTURE TIP PROJECT R-2123CE = 0.135 MILES (BASED ON WB BRIDGES)

TOTAL LENGTH OF TIP PROJECT R-2123CE = 1.405 MILES

NCDOT CONTACT: RODGER ROCHELLE, PE
Project Engineer – Alternate Delivery Unit

PLANS PREPARED FOR THE NCDOT BY:
STV/RALPH WHITEHEAD ASSOCIATES, INC.
1000 West Morehead St., Ste. 200, Charlotte NC, 28208
NC License Number F-0991

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 28, 2010

LETTING DATE: SEPTEMBER 28, 2010

JOHN N. JOHNSON, PE
PROJECT ENGINEER

JOSEPH A. FREEMAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

THE LANE CONSTRUCTION CORPORATION

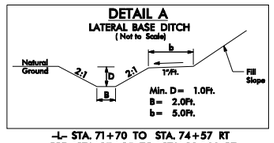
STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-9960
NC LICENSE NO. F-0112 v(919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	DITCH DETAILS I
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

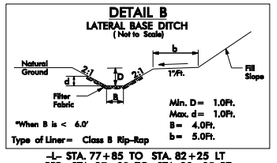
PERMIT DRAWING
SHEET 6 OF 56

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



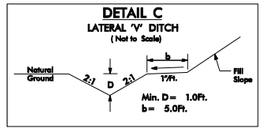
–L– STA. 71+70 TO STA. 74+57 RT
–RPE– STA. 37+25 TO STA. 39+00 RT
–RPG– STA. 33+50 TO STA. 34+00 LT
–RPG– STA. 39+60 TO STA. 41+75 LT
–Y– STA. 56+50 TO STA. 59+00 LT
–FETEMP– STA. 53+50 TO STA. 57+00 RT
–LDTEMP– STA. 14+75 TO STA. 16+50 RT

DETAIL B
LATERAL BASE DITCH
(Not to Scale)



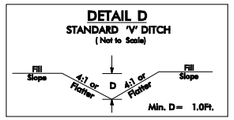
–L– STA. 77+85 TO STA. 82+25 LT
–RPB– STA. 27+89 TO STA. 28+35 RT
–RPE– STA. 39+00 TO STA. 41+10 RT
–RPE– STA. 67+73 TO STA. 68+25 RT
–Y– STA. 59+00 TO STA. 61+47 LT
–Y– STA. 146+50 TO STA. 149+53 RT
–Y– STA. 146+67 TO STA. 150+00 LT

DETAIL C
LATERAL 'V' DITCH
(Not to Scale)



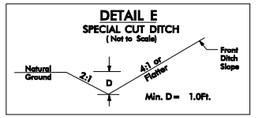
–L– STA. 79+90 TO STA. 82+00 RT
–L– STA. 83+13 TO STA. 86+00 LT
–L– STA. 83+35 TO STA. 85+50 RT
–RPE– STA. 65+50 TO STA. 67+50 LT
–RPG– STA. 34+00 TO STA. 35+75 LT
–RPH– STA. 15+23.28 TO STA. 23+20.13 LT
–Y– STA. 167+00 TO STA. 169+50 RT
–Y1– STA. 20+00 TO STA. 22+00 RT

DETAIL D
STANDARD 'V' DITCH
(Not to Scale)



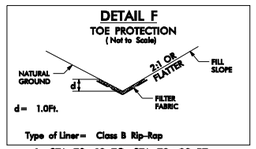
–L– STA. 54+50 TO STA. 60+00 RT
–RPB– STA. 29+50 TO STA. 31+33.99 LT
–RPG– STA. 63+00 TO STA. 65+50 RT

DETAIL E
SPECIAL CUT DITCH
(Not to Scale)



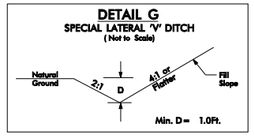
–L– STA. 42+50 TO STA. 43+50 LT
–L– STA. 92+50 TO STA. 98+00 LT
–L– STA. 104+50 TO STA. 106+50 RT
–RPB– STA. 25+00 TO STA. 27+50 LT
–RPC– STA. 11+60.65 TO STA. 14+13.15 RT
–RPD– STA. 12+73.34 TO STA. 15+88.41 RT
–RPE– STA. 19+90 TO STA. 21+90 RT
–RPF– STA. 68+50 TO STA. 72+00 RT
–RPH– STA. 20+50 TO STA. 23+50 RT
–RPH– STA. 33+25 TO STA. 34+00 RT
–RPH– STA. 37+50 TO STA. 41+50 RT
–Y– STA. 48+00 TO STA. 50+00 RT
–Y– STA. 105+00 TO STA. 108+00 RT
–Y– STA. 128+00 TO STA. 131+00 LT
–Y– STA. 157+00 TO STA. 160+50 RT
–Y– STA. 157+50 TO STA. 160+00 LT
–Y1– STA. 29+50 TO STA. 31+00 RT

DETAIL F
TOE PROTECTION
(Not to Scale)



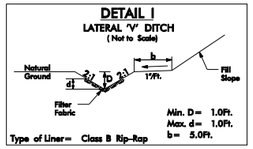
–L– STA. 78+10 TO STA. 79+90 RT
–RPE– STA. 47+35 TO STA. 47+85 LT
–RPF– STA. 17+50 TO STA. 24+00 LT
–RPF– STA. 30+00 TO STA. 33+50 LT
–RPG– STA. 27+00 TO STA. 32+15 LT
–RPG– STA. 41+45 TO STA. 41+95 LT
–RPG– STA. 51+50 TO STA. 52+50 RT
–RPG– STA. 79+40 TO STA. 81+10 LT
–RPH– STA. 69+00 TO STA. 72+10 LT
–Y– STA. 135+65 TO STA. 136+25 RT
–FETEMP– STA. 53+50 TO STA. 65+00 LT
–LHTEMP– STA. 61+00 TO STA. 63+30 RT
–LPTEMP– STA. 62+50 TO STA. 63+50 LT
–LPTEMP– STA. 68+00 TO STA. 68+85 LT

DETAIL G
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



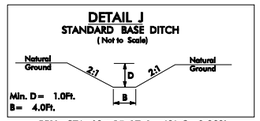
–RPC– STA. 14+13.15 TO STA. 17+50 RT
–RPF– STA. 79+84 TO STA. 80+78 LT
–Y– STA. 113+00 TO STA. 114+80 RT
–Y1– STA. 21+00 TO STA. 23+70 LT
–LHTEMP– STA. 50+00 TO STA. 52+00 LT
–LHTEMP– STA. 52+00 TO STA. 53+50 RT

DETAIL I
LATERAL 'V' DITCH
(Not to Scale)



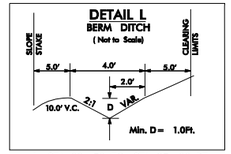
–RPF– STA. 30+50 TO STA. 32+75 RT
–RPF– STA. 55+25 TO STA. 58+00 LT
–RPF– STA. 63+00 TO STA. 65+50 LT
–Y– STA. 145+50 TO STA. 146+67 LT

DETAIL J
STANDARD BASE DITCH
(Not to Scale)



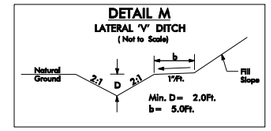
–RPH– STA. 63+85 LT; L=43', S=3.33%
BEG EL=631.43, END EL=630.00
(TIE TO PROPOSE PIPE)

DETAIL L
BERM DITCH
(Not to Scale)



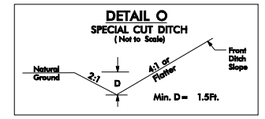
–L– STA. 89+50 TO STA. 95+00 RT
–L– STA. 105+50 TO STA. 107+00 RT
–RPD2– STA. 17+00 TO STA. 18+75 RT
–RPE– STA. 63+50 TO STA. 66+00 RT
–RPF– STA. 45+25 TO STA. 46+00 LT
–RPF– STA. 71+80 TO STA. 74+00 RT
–RPF– STA. 74+00 TO STA. 76+50 RT
–RPF– STA. 78+87 TO STA. 80+75 RT
–RPH– STA. 35+65 TO STA. 41+75 RT
–Y– STA. 45+18 TO STA. 55+00 RT
–Y– STA. 53+50 TO STA. 55+50 LT
–Y– STA. 112+44 TO STA. 114+50 LT
–Y– STA. 129+50 TO STA. 132+50 LT

DETAIL M
LATERAL 'V' DITCH
(Not to Scale)



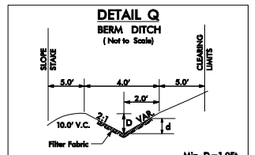
–Y– STA. 91+96 TO STA. 96+70 LT
–Y1– STA. 31+00 TO STA. 32+20 RT
–FETEMP– STA. 55+00 TO STA. 55+90 LT

DETAIL O
SPECIAL CUT DITCH
(Not to Scale)



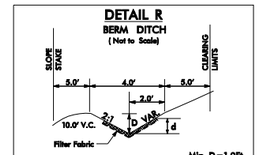
–RPB– STA. 19+50 TO STA. 28+50 RT

DETAIL Q
BERM DITCH
(Not to Scale)



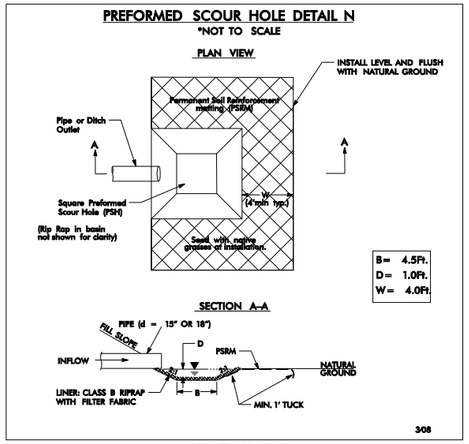
–RPD– STA. 12+90 TO STA. 15+88.41 RT
–RPD2– STA. 18+75 TO STA. 21+50 RT
–RPE– STA. 61+50 TO STA. 63+50 RT
–RPF– STA. 76+50 TO STA. 78+87 RT
–RPG– STA. 57+25 TO STA. 58+65 RT
–Y– STA. 132+50 TO STA. 135+40 LT

DETAIL R
BERM DITCH
(Not to Scale)

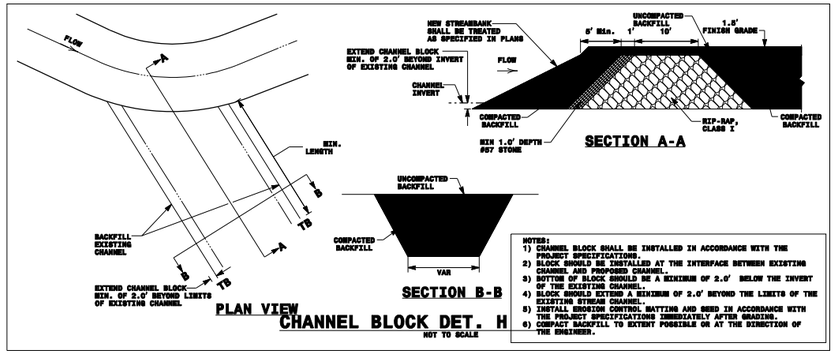


–L– STA. 88+00 TO STA. 89+50 RT
–L– STA. 98+00 TO STA. 105+50 RT
–RPD2– STA. 21+50 TO STA. 24+00 RT
–RPF– STA. 70+75 TO STA. 71+80 RT
–RPG– STA. 52+50 TO STA. 57+25 RT
–RPG– STA. 46+00 TO STA. 70+00 LT
–RPH– STA. 23+20 TO STA. 25+20 RT
–Y– STA. 55+00 TO STA. 61+50 RT
–Y– STA. 55+50 TO STA. 56+50 LT
–Y– STA. 114+50 TO STA. 119+15 LT
–Y– STA. 155+00 TO STA. 159+00 LT

DETAIL N
PREFORMED SCOUR HOLE DETAIL N
*NOT TO SCALE

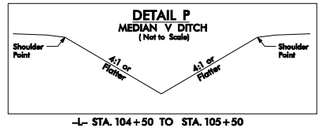


–RPE– STA. 60+90 LT
–RPE– STA. 66+52 LT
–RPF– STA. 55+11 RT
–RPF– STA. 55+25 RT
–RPH– STA. 68+68 RT
–Y– STA. 129+59 RT



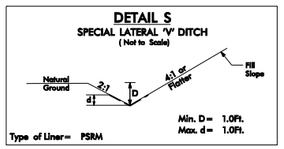
–RPE– STA. 59+00 LT
–RPF– STA. 56+60 RT
–RPF– STA. 57+33 RT
–RPG– STA. 82+35 RT

DETAIL P
MEDIAN 'V' DITCH
(Not to Scale)



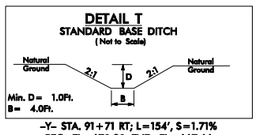
–L– STA. 104+50 TO STA. 105+50

DETAIL S
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



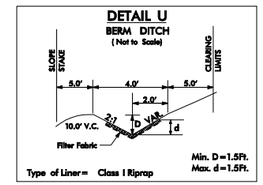
–RPE– STA. 17+07.54 TO STA. 18+42.12 RT

DETAIL T
STANDARD BASE DITCH
(Not to Scale)



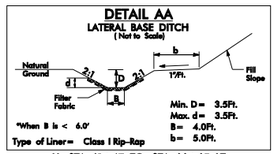
–Y– STA. 91+71 RT; L=154', S=1.71%
BEG EL=670.30, END EL=667.66
(TIE TO EXISTING DITCH)

DETAIL U
BERM DITCH
(Not to Scale)



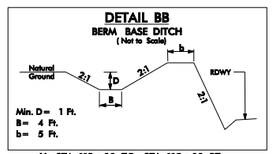
–RPD– STA. 15+88.41 TO STA. 23+40 RT

DETAIL AA
LATERAL BASE DITCH
(Not to Scale)



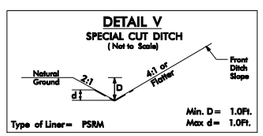
–Y– STA. 61+47 TO STA. 66+65 LT

DETAIL BB
BERM BASE DITCH
(Not to Scale)



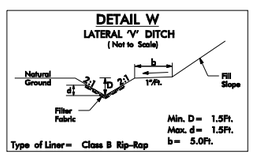
–Y– STA. 112+00 TO STA. 115+00 RT

DETAIL V
SPECIAL CUT DITCH
(Not to Scale)



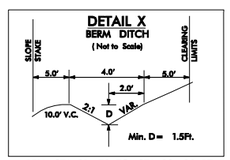
–RPD– 15+88.41 STA. TO STA. 18+50 RT
–L– 42+50 STA. TO STA. 43+50 LT

DETAIL W
LATERAL 'V' DITCH
(Not to Scale)



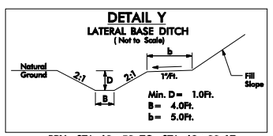
–Y1– STA. 32+20 TO STA. 33+00 RT

DETAIL X
BERM DITCH
(Not to Scale)



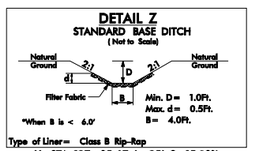
–RPH– STA. 21+70 TO STA. 23+20 RT

DETAIL Y
LATERAL BASE DITCH
(Not to Scale)



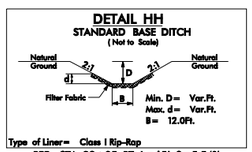
–RPH– STA. 60+50 TO STA. 69+00 LT
–Y– STA. 114+80 TO STA. 115+92 RT
–LDTEMP– STA. 27+00 TO STA. 33+50 LT
–LPTEMP– STA. 66+00 TO STA. 68+00 LT

DETAIL Z
STANDARD BASE DITCH
(Not to Scale)



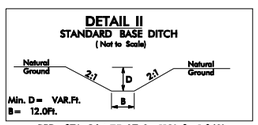
–Y– STA. 127+35 LT; L=25', S=15.08%
BEG EL=656.77, END EL=653.00

DETAIL HH
STANDARD BASE DITCH
(Not to Scale)



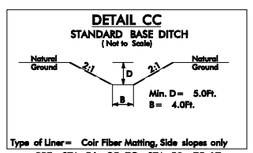
–RPB– STA. 28+35 RT; L=65', S=5.54%
BEG EL=617.30, END EL=613.70

DETAIL II
STANDARD BASE DITCH
(Not to Scale)



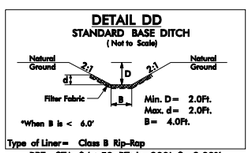
–RPB– STA. 26+75 LT; L=110', S=1.36%
BEG EL=620.00, END EL=618.50

DETAIL CC
STANDARD BASE DITCH
(Not to Scale)



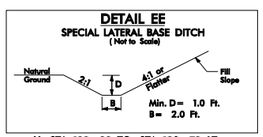
–RPE– STA. 56+25 TO STA. 59+75 LT
–RPE– STA. 63+75 TO STA. 68+45 LT
–RPE– STA. 67+53 LT; L=50', S=1.00%
BEG EL=657.9, END EL=657.4

DETAIL DD
STANDARD BASE DITCH
(Not to Scale)



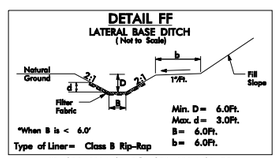
–RPF– STA. 34+50 RT; L=200', S=2.00%
BEG. EL=624.0, END EL=620.0

DETAIL EE
SPECIAL LATERAL BASE DITCH
(Not to Scale)



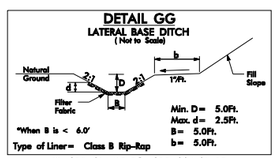
–Y– STA. 122+00 TO STA. 123+72 LT
–Y– STA. 126+50 TO STA. 127+65 LT

DETAIL FF
LATERAL BASE DITCH
(Not to Scale)



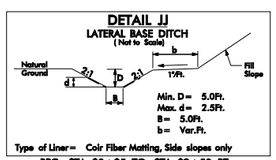
–Y– STA. 131+65 TO STA. 135+65 RT
(MATCH TO EXIST. STREAM)

DETAIL GG
LATERAL BASE DITCH
(Not to Scale)



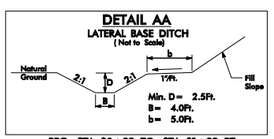
–Y– STA. 61+47 TO STA. 66+65 LT

DETAIL JJ
LATERAL BASE DITCH
(Not to Scale)



–RPG– STA. 80+35 TO STA. 82+50 RT

DETAIL AA
LATERAL BASE DITCH
(Not to Scale)



–RPG– STA. 30+92 TO STA. 31+92 RT

$FILE$
$DATE$

THE LANE CONSTRUCTION CORPORATION

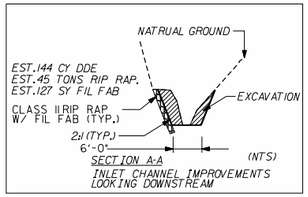
STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

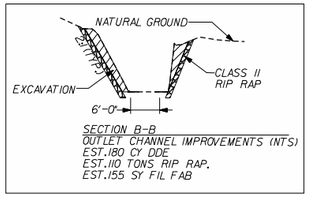
PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-9960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	DITCH DETAILS 2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

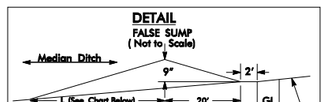
PERMIT DRAWING
SHEET 7 OF 56

DETAIL KK
UT TO ROCKY RIVER RCBC EXCAVATION





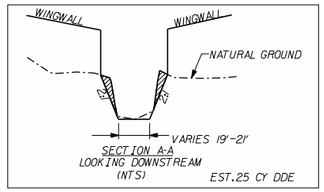
DETAIL
FALSE SUMP
(Not to Scale)

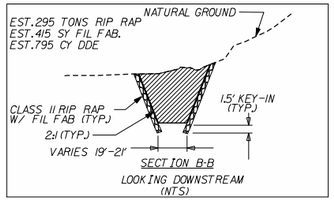


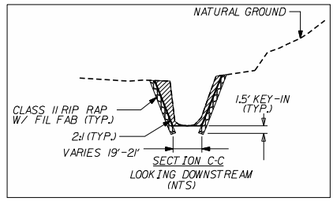
S=Ditch Slope			
Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

-Y- STA. 148+00

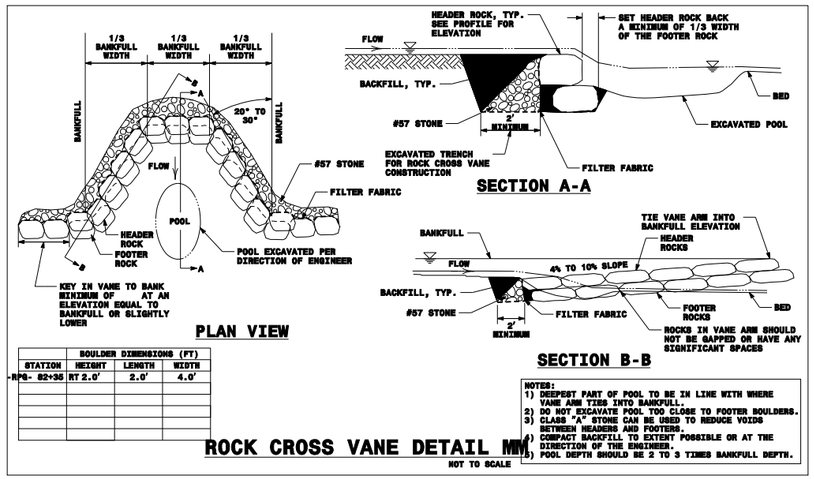
DETAIL LL
STONY CREEK RCBC EXCAVATION







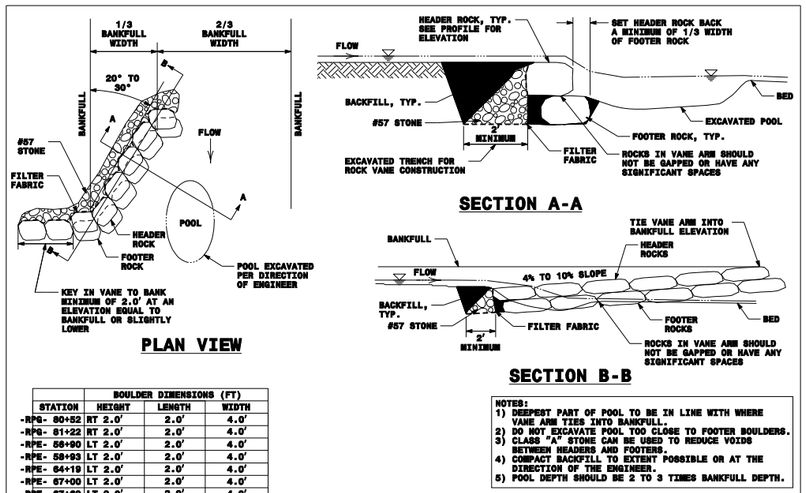
-Y- STA. 70+00



STATION	BOULDER DIMENSIONS (FT) HEIGHT	LENGTH	WIDTH
-RPG- 82+35	RT 2.0'	2.0'	4.0'

NOTES:
1) DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2) DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3) CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5) POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

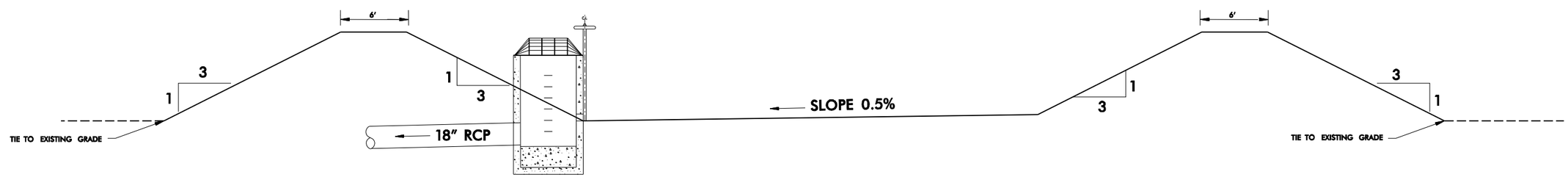
ROCK CROSS VANE DETAIL MM
NOT TO SCALE



STATION	BOULDER DIMENSIONS (FT) HEIGHT	LENGTH	WIDTH
-RPG- 80+52	RT 2.0'	2.0'	4.0'
-RPG- 81+22	RT 2.0'	2.0'	4.0'
-RPE- 58+90	LT 2.0'	2.0'	4.0'
-RPE- 58+93	LT 2.0'	2.0'	4.0'
-RPE- 64+19	LT 2.0'	2.0'	4.0'
-RPE- 67+00	LT 2.0'	2.0'	4.0'
-RPE- 67+69	LT 2.0'	2.0'	4.0'

NOTES:
1) DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2) DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3) CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5) POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

ROCK VANE DETAIL NN
NOT TO SCALE



TYPICAL SECTION A–A – MODIFIED BASIN

N.T.S.

$FILE$

$DATE$

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-9960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 8 OF 56

NAD 83

63 KRATT ENTERPRISES LLC

MATCHLINE -RPB- STA 30+00 (SHEET 8)

MATCHLINE -RPH- STA 72+00 (SHEET 8)

MATCHLINE (SHEET 8)

MATCHLINE -L- STA 52+00 (SHEET 5)

MATCHLINE -L- STA 65+00 (SHEET 7)

EXISTING R/W

INV=642.0

611.66

612.15

612.86

15" CSP 2 ELBOWS ROD & LUG

2GI

STANDARD V DITCH SEE DETAIL D

-RPB-

-RPH-

80+00

35+00

75+00

AREA UNDER CONSTRUCTION

-LHTEMP-

TOE PROTECTION SEE DETAIL F

INV=625.1

2GI SP. DET.

LATERAL BASE DITCH SEE DETAIL Y

5' X 5' CONC

-L-

I-485 EB

55+00

60+00

FS

DI

RETAIN SYSTEM

I-485 WB

LOCATION UNKNOWN OUTLET NOT FOUND MAY FLOW INTO CULVERT

PLUG

REMOVE DI

DI PLUGGED (PER OLD FILES)

ENSURE 18" IS PLUGGED IF NOT, PLUG AND FILL

RETAIN 5' x 7' RCBC

JB wMH

24" CSP 2 ELBOWS ROD & LUG

REMOVE 27' 15" RCP

Conv. DI TO JB wMH

15" RCP-III

2GI

15" CSP 2 ELBOWS ROD & LUG

JB wSlab Lid SP. DET.

TOE PROTECTION SEE DETAIL F

INV=625.2

TBJB wSlab Lid

48" RCP-V

36" RCP-V

94" RCP-V

AREA UNDER CONSTRUCTION

-RPG-

20+00

25+00

30+00

15+00

20' CURB CUT & ISBW

+29.26 85.00'

+84.58 70.00'

TDE

GRADE TO DRAIN

36" RCP-III

JB wSlab Lid

PDE

INV=654.0 15" CSP 2 ELBOWS ROD & LUG

INV=647.6

ROAD CONSTRUCTION MATERIALS AREA

SPECIAL CUT DITCH SEE DETAIL E

PROP 48" CHAIN LINK FENCE REMOVE EXIST WW FENCE

64 CROSLAND INC

w/Slab Lid

48" RCP-V

-RPC-

DIVERT GORE AREA DRAINAGE AROUND TOP OF PIPE

SP. LAT. V DITCH SEE DETAIL G

CROSLAND INC CROSLAND-MALLARD LAKE LLC

EXISTING WW

MATCHLINE -RPC- STA 18+00 (SHEET 9)

SITE 1

SITE 7 CON'T ON PSH 9

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEETS 23 & 24 FOR -L- PROFILE
SEE SHEET 27 FOR -RPB- PROFILE
SEE SHEET 28 FOR -RPC- PROFILE
SEE SHEET 36 FOR -RPG- PROFILE
SEE SHEET 41 FOR -RPH- PROFILE

$FILE$

$DATE$

THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
	R-2123CE	6
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PERMIT DRAWING SHEET 9 OF 56

KRATT ENTERPRISES, LLC

NAD 83

MATCHLINE -RPB- STA 30+00 (SHEET 8)

MATCHLINE -RPH- STA 72 (SHEET 8)

MATCHLINE (SHEET 8)

MATCHLINE -L- STA 52+00 (SHEET 5)

MATCHLINE -L- STA 65+00 (SHEET 7)

MATCHLINE -RPC- STA 18+00 (SHEET 9)

EXISTING R/W

INV=642.0

611.66

612.15

512.86

15" CSP
2 ELBOWS
ROD & LUG

2GI

STANDARD V DITCH
SEE DETAIL D

TOE PROTECTION
SEE DETAIL F

INV=625.1

2GI
SP. DET.

LATERAL BASE DITCH
SEE DETAIL Y

5' x 5' CONC

AREA UNDER CONSTRUCTION

-LHTEMP-

-RPH-

-RPB-

-RPC-

-RPG-

-L-

I-485 EB

I-485 WB

80+00

35+00

45+00

55+00

60+00

20+00

25+00

30+00

15+00

FS

DI

RETAIN
SYSTEM

LOCATION UNKNOWN
OUTLET NOT FOUND
MAY FLOW INTO CULVERT

PLUG

REMOVE DI

DI
PLUGGED
(PER OLD FILES)

ENSURE 18" IS PLUGGED
IF NOT, PLUG AND FILL

RETAIN
5' x 7' RCBC

15" RCP-III

24" CSP
2 ELBOWS
ROD & LUG

JB wMH

REMOVE 27' DI
15" RCP

Conv. DI TO
JB wMH

STANDARD V DITCH
SEE DETAIL D

20L-12R CABLE & ISBW

2GI

36" RCP-III

JB wSlab Lid

TBJB wSlab Lid

JB wSlab Lid
SP. DET.

INV=625.2

48" RCP-V

36" RCP-V

TOE PROTECTION
SEE DETAIL F

TIDE
GRADE
TO DRAIN

INV=654.0
15" CSP
2 ELBOWS
ROD & LUG

INV=647.6

ROAD CONSTRUCTION
MATERIALS AREA

SPECIAL CUT DITCH
SEE DETAIL E

PROP 48" CHAIN LINK FENCE
REMOVE EXIST WW FENCE

CROSLAND INC

CROSLAND INC CROSLAND-MALLARD LAKE LLC

SP. LAT. V DITCH
SEE DETAIL G

DIVERT GORE AREA
DRAINAGE AROUND
TOP OF PIPE

84" RCP-V

SITE 1

SITE 7
CON'T
ON
PSH 9

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEETS 23 & 24 FOR -L- PROFILE
SEE SHEET 27 FOR -RPB- PROFILE
SEE SHEET 28 FOR -RPC- PROFILE
SEE SHEET 36 FOR -RPG- PROFILE
SEE SHEET 41 FOR -RPH- PROFILE

$FILE$

$DATE$

8/23/99

0 20 40

PROJ. REFERENCE NO.	SHEET NO.
R-2123CE	X-1

PERMIT DRAWING
SHEET 10 OF 56

SITE 7

-RPH- 69+89 -L- 62+50 -RPG- 28+92

820 780 740 700 660 620 580

NO STREAM; WETLAND AREA
WLB
WLB
PROP.84" RCP
EXIST.5'X7' RCBC
PROP.84" RCP
PROP.LAT. BASE DITCH

560 520 480 440 400 360 320 280 240 200 160 120 80 40 0 40 80 120 160 200 240 280 320 360 400 440 480 520 560 600 640

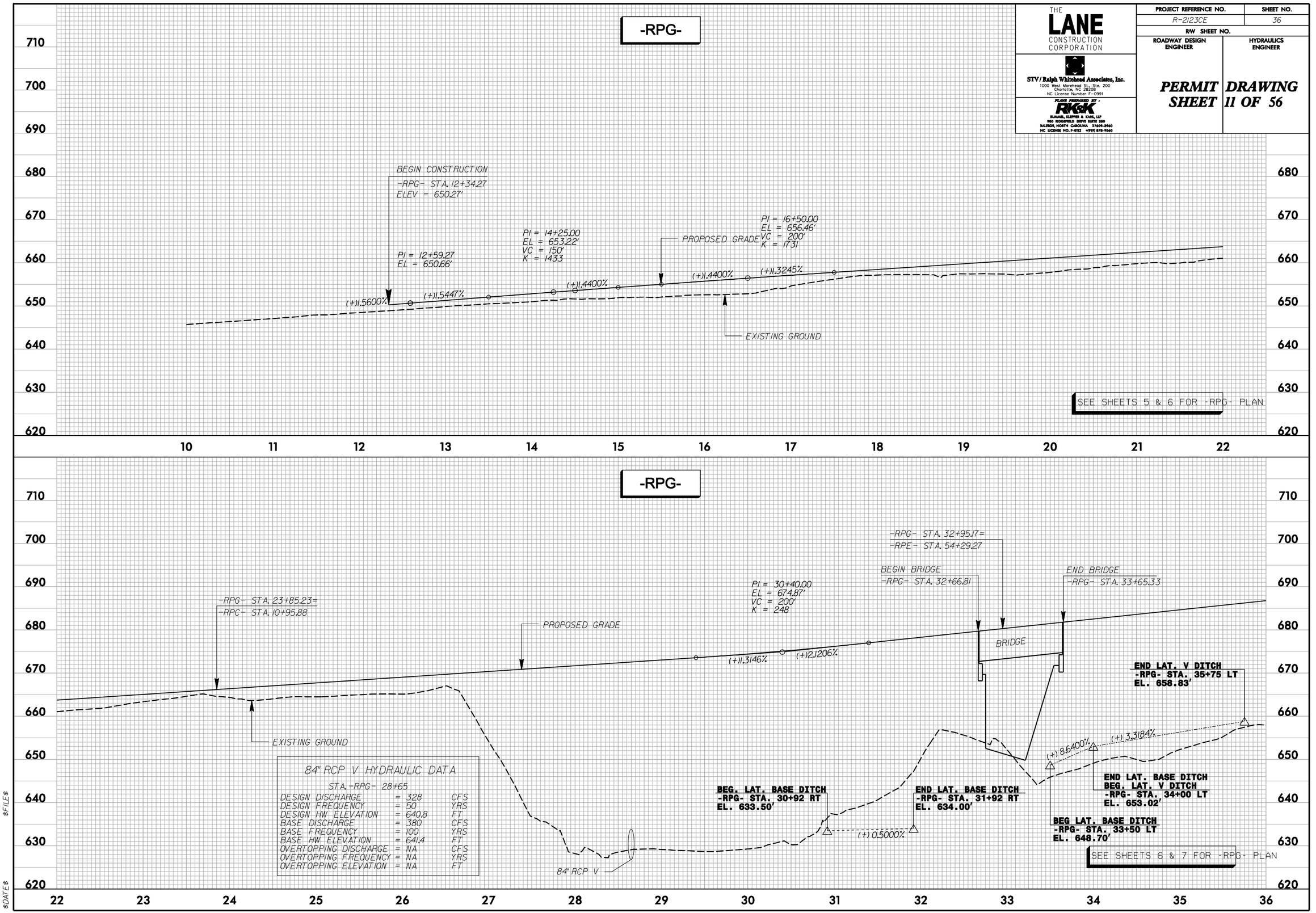
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mcook

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-9960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PERMIT SHEET	DRAWING 11 OF 56



THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO. R-2930C	SHEET NO. 7
STV/Ralph Whitehead Associates, Inc.	SW SHEET NO.	
PARSONS BRINCKERHOFF	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 12 OF 56

SHEET 7A

SHEET 7B

MATCHLINE -Y- STA 78+50 (SHEET 8)

MATCHLINE (SHEET 8)

MATCHLINE -RPA- STA 20+00 (SHEET 8)

MATCHLINE -L- STA 65+00 (SHEET 6)

MATCHLINE -L- STA 93+00 (SHEET 10)

MATCHLINE (SHEET 9)

MATCHLINE -RPE- STA 56+00 (SHEET 9)

MATCHLINE -RPF- STA 69+00 (SHEET 9)

MATCHLINE -Y- STA 95+00 (SHEET 9)

SITE 2

SITE 3

SITE 7

I-485 EB

I-485 WB

-L-

-RPC-

-RPD-

-RPE-

-RPF-

-RPG-

-RPH-

-Y-

-LP TEMP-

-D TEMP-

-E TEMP-

-F TEMP-

-G TEMP-

-H TEMP-

-J TEMP-

NAD 83

N 33°09'16.6" W

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENGLISH

SEE SHEETS 24 & 25 FOR -L- PROFILE
SEE SHEET 26 FOR -RPA- PROFILE
SEE SHEET 29 FOR -RPD- PROFILE
SEE SHEETS 30 & 31 FOR -RPE- PROFILE
SEE SHEETS 34 & 35 FOR -RPF- PROFILE
SEE SHEETS 36, 37, & 38 FOR -RPG- PROFILE
SEE SHEETS 39 & 40 FOR -RPH- PROFILE
SEE SHEET 44 FOR -Y- PROFILE
SEE SHEETS 2-H THRU 2-J FOR BRIDGE SKETCHES
SEE SHEETS 2-N THRU 2-T FOR TEMP ALIGNMENTS

SHEET 7A

SHEET 7B

PERMIT DRAWING
SHEET 13 OF 56

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates Inc.

PARSONS

PROJECT REFERENCE NO.	SHEET NO.
R-2923CE	7
SW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83

MATCHLINE -Y- STA 78+50 (SHEET 8)

MATCHLINE (SHEET 8)

MATCHLINE -RPA- STA 20+00 (SHEET 8)

MATCHLINE (SHEET 8)

MATCHLINE -L- STA 65+00 (SHEET 6)

MATCHLINE -L- STA 93+00 (SHEET 10)

MATCHLINE (SHEET 9)

MATCHLINE -RPE- STA 56+00 (SHEET 9)

MATCHLINE (SHEET 9)

MATCHLINE (SHEET 9)

MATCHLINE -RPF- STA 69+00 (SHEET 9)

MATCHLINE -RPG- STA 76+00 (SHEET 10)

MATCHLINE -Y- STA 95+00 (SHEET 9)

SITE 1

SITE 2

SITE 3

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENGLISH

SEE SHEETS 24 & 25 FOR -L- PROFILE
SEE SHEET 26 FOR -RPA- PROFILE
SEE SHEET 29 FOR -RPD- PROFILE
SEE SHEETS 30 & 31 FOR -RPE- PROFILE
SEE SHEETS 34 & 35 FOR -RPF- PROFILE
SEE SHEETS 36, 37, & 38 FOR -RPG- PROFILE
SEE SHEETS 39 & 40 FOR -RPH- PROFILE
SEE SHEET 44 FOR -Y- PROFILE
SEE SHEETS 2-H THRU 2-J FOR BRIDGE SKETCHES
SEE SHEETS 2-N THRU 2-T FOR TEMP ALIGNMENTS

THE LANE CONSTRUCTION CORPORATION

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 ✆(919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	7A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 14 OF 56

ENGLISH

SITE 2

NAD 83

FILL EXIST. CHANNEL

15" CSP 2 ELBOWS ROD & LUG

8" RCP-IV

JB w/ Slab Lid

RETAIN SYSTEM

15" RCP-III

REMOVE SYSTEM

15" CSP 2 ELBOWS ROD & LUG INV=638.15

LATERAL BASE DITCH SEE DETAIL Y

INV=635.84

REMOVE

2-2GIs ANGLED GRATES 15" CSP 2 ELBOWS ROD & LUG

GRADE TO DRAIN

TOE PROTECTION SEE DTAIL F INV=640.9

INV=640.9

PSRM

BM #104 -BYO- STA 65+80 39 LEFT ELEV. 658.59'

-LP- ST STA 71+92.77= -Y- POT STA 79+85.76, 53.00' LT

-RPH-

-LDTEMP-

-RPE-

-RPF-

-RPA-

-RPG-

-LP TEMP-

S-T07-547-E

LATERAL BASE DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL A

15" RCP-III INV=639.4

JB wMH

48" LRCP

HW #3 642.06

INV=642.0

GRAU-350

BDO 15" CSP 2 ELBOWS ROD & LUG INV=662.0

15" CSP 2 ELBOWS ROD & LUG INV=671.5

2-2GIs

BERM DITCH SEE DETAIL R

24" RCP-III

14 6" SCUPPERS AT 6' CENTERS

GRADE TO DRAIN

I-85 SB (EXIST SHLDR)

RETAIN SYSTEM

PROP CONCRETE BARRIER

DRAWN PER RECORD

INV=642.97

INV=650.3

INV=658.8

650.31

INV=661.0

652.19

24" CSP 2 ELBOWS ROD & LUG

LATERAL V DITCH SEE DETAIL C

18" RCP-III

42" RCP-V

15" RCP-IV

I-485 EB

I-485 WB

15" CSP 2 ELBOWS ROD & LUG

15" CMP

18" RCP

SITE 2

SITE 3

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

THE LANE CONSTRUCTION CORPORATION

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 ☎(919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	7A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 15 OF 56

ENGLISH

SITE 2

FILL EXIST. CHANNEL
15" CSP 2 ELBOWS ROD & LUG
INV=620.97
8" RCP-IV
2GI
CAT-1
GRAU-350
PSRM
B-77
55+00
35+00
-LDTEMP-
-RPH-
-LPTEMP-
BM #104
-BYO- STA 65+80
39 LEFT
ELEV. 658.59'
JB w/ Slab Lid
50+00
RETAIN SYSTEM
15" RCP-III
48" RCP
RETAIN
LATERAL BASE DITCH SEE DETAIL B
15" RCP-III INV=639.4
JB wMH
LATERAL BASE DITCH SEE DETAIL A
40+00
-RPE-
48" RCP
HW 642.06
INV=642.0
642.97
-85 SB (EXIST SHLD)
-85 SB (EXIST SHLD)
60+00
RETAIN SYSTEM
PROP CONCRETE BARRIER
PROP CONCRETE BARRIER
DRAWN PER RECORD
INV=661.0
INV=650.3
INV=658.8
650.31
652.19
-LP TEMP-
LATERAL BASE DITCH SEE DETAIL B
24" CSP 2 ELBOWS ROD & LUG
18" RCP-III
42" RCP-V
15" RCP-V
LATERAL V DITCH SEE DETAIL C
15" CSP 2 ELBOWS ROD & LUG
INV=638.15
REMOVE SYSTEM
LATERAL BASE DITCH SEE DETAIL Y
INV=635.84
REMOVE
17+00
-LP- ST STA 71+92.77= -Y- POT STA 79+85.76, 53.00' LT
2-2GIs ANGLED GRATES
15" CSP 2 ELBOWS ROD & LUG
15" RCP-III
GRADE TO DRAIN
TOE PROTECTION SEE DTAIL F
INV=640.9
-RPF-
40+00
ERT RAISED FOR RMWATER NTION
INV=640.9
BDO 15" CSP 2 ELBOWS ROD & LUG INV=662.0
NAD 83
24" RCP-III
S 10°07'54"E
30+00
-RPA-
BERM DITCH SEE DETAIL R
INV=671.5
2-2GIs
14 6" SCUPPERS AT 6' CENTERS
GRADE TO DRAIN
GRAU-350
-RPG-
45+00
-RPH-
B-77 GRAU-350
15" RCP-III
LATERAL V DITCH SEE DETAIL C
I-485 EB
I-485 WB
70+00
75+00
80+00
REMOVE
15" CSP 2 ELBOWS ROD & LUG
15" RCP-III
REMOVE
15" CMP
18" RCP
PSRM
-L-
18" RCP-III
15" CSP 2 ELBOWS ROD & LUG

F F DENOTES FILL IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SITE 2

SITE 3

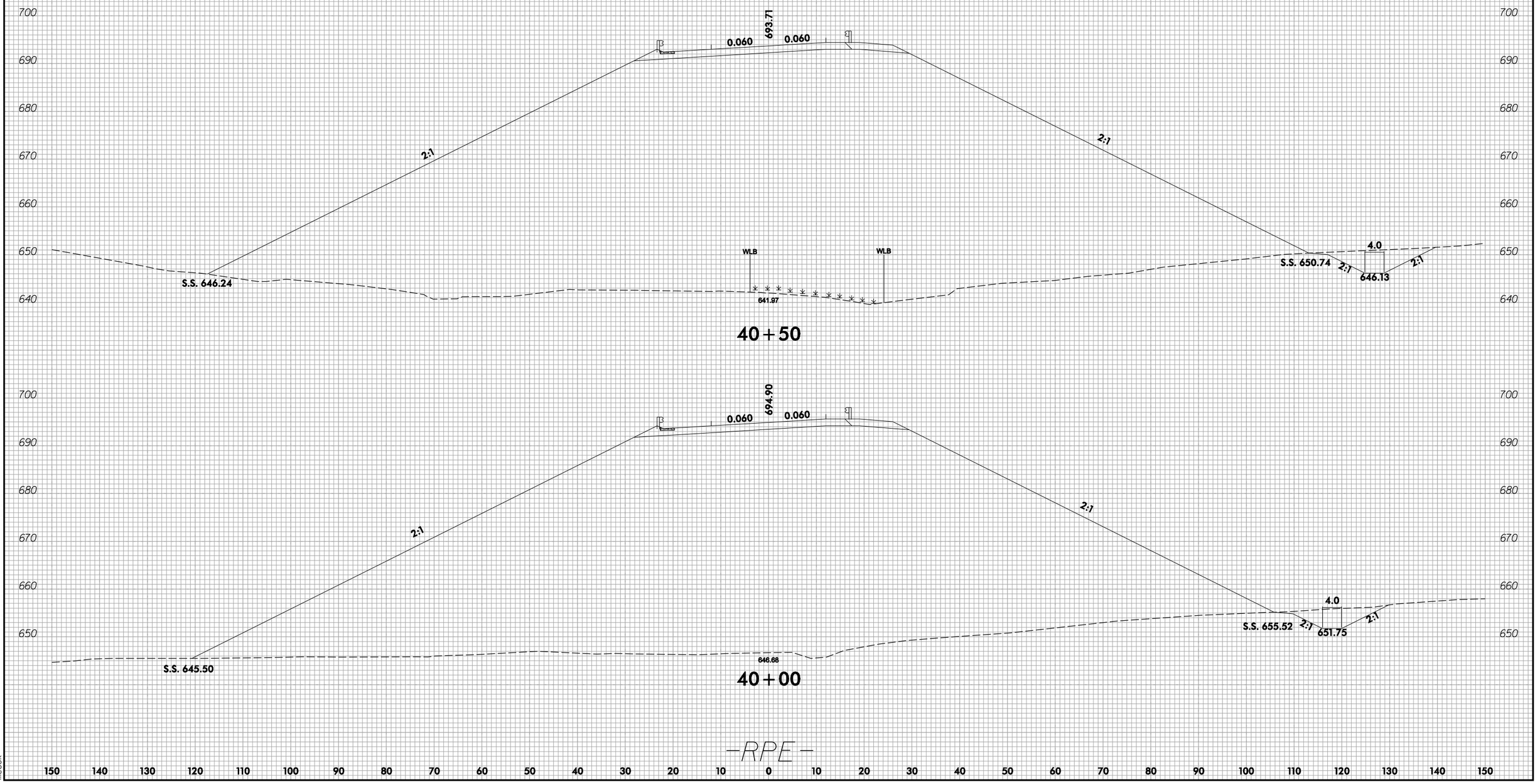
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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2123CE	X-234

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

PERMIT DRAWING
SHEET 16 OF 56

SITE 2



150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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mcook

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-5960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	7B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 17 OF 56

SITE 2

SITE 3

NAD 83

I-485 EB

I-485 WB

I-85 SB (EXIST SHLD)

I-85 NB (EXIST SHLD)

PROP CONCRETE BARRIER

RETAIN SYSTEM

REMOVE SYSTEM

REMOVE

LATERAL BASE DITCH SEE DETAIL A

LATERAL BASE DITCH SEE DETAIL B

LATERAL V DITCH SEE DETAIL C

LATERAL V DITCH SEE DETAIL C

LATERAL V DITCH SEE DETAIL C

TOE PROTECTION SEE DETAIL F

TIE ROADWAY CUT DITCH TO EXIST. DITCH

BERM DITCH SEE DETAIL L

BERM DITC SEE DETAIL

LINE DITCHES W/PSRM

DETAIL D

SPECIAL CUT

INV=670.4

INV=650.3

INV=658.8

650.31

INV=661.0

652.19

INV=667.0

INV=690.0

INV=7

HW 642.06

642.97

GRADE TO DRAIN

GRAU-350

DRAWN PER RECORD

-LP TEMP

-RPH-

-L-

75+00

80+00

85+00

90+00

95+00

18" RCP-III

24" CSP 2 ELBOWS ROD & LUG

15" CSP 2 ELBOWS ROD & LUG

42" RCP-Y

42" RCP-III

36" RCP-III

30" RCP-III

24" CSP 2 ELBOWS ROD & LUG INV=690.0

15" RCP-III

15" RCP-IV

15" CMP

18" RCP

JB

WMH

FS

FS CGAU CAT-1

PSRM

2GI

2GI-A

2GI-D

2-2GIs

B-77

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 ☎(919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	7B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 18 OF 56

SITE 2

SITE 3

NAD 83

I-485 EB

I-485 WB

I-85 SB (EXIST SHLD)

I-85 NB (EXIST SHLD)

PROP CONCRETE BARRIER

RETAIN SYSTEM

REMOVE SYSTEM

GRADE TO DRAIN

GRAU-350

HW 642.06

642.97

INV=650.3

INV=658.8

650.31

INV=661.0

652.19

INV=670.4

INV=667.0

INV=690.0

24" CSP 2 ELBOWS ROD & LUG

15" CSP 2 ELBOWS ROD & LUG

18" RCP-III

15" RCP-III

42" RCP-III

36" RCP-III

30" RCP-III

24" RCP-III

42" RCP-V

LATERAL BASE DITCH SEE DETAIL B

LATERAL V DITCH SEE DETAIL C

LATERAL BASE DITCH SEE DETAIL A

TOE PROTECTION SEE DETAIL F

TIE ROADWAY CUT DITCH TO EXIST. DITCH

BERM DITCH SEE DETAIL L

LINE DITCHES W/PSRM

DETAIL D

JB

MH

FES

FS

PSRM

B-77

2GI

2GI-A

2GI-D

2-2GIs

CAT-1

FS CGAL

15" CMP

18" CMP

24" CMP

48" RCP

72" RCP

60" RCP

MTL

DRAWN PER RECORD

POSSIBLE JB

RETAIN

REMOVE

SPECIAL CUT

75+00

80+00

85+00

90+00

-L-

-LP TEMP-

-RPH-

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 300
Charlotte, NC 28208
(704) 342-2179

PARSONS BRINCKERHOFF
PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC. AND PARSONS BRINCKERHOFF INTERNATIONAL, INC.

PROJECT REFERENCE NO.	SHEET NO.
R-2923CE	8
RW SHEET NO.	
ROADWAY DESIGNER: ENGINEER	HYDRAULICS ENGINEER

SHEET 8B

NAD 83

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

ENGLISH

PERMIT DRAWING
SHEET 19 OF 56

SITE 5

SITE 6

SITE 4

MATCHLINE -RPB- STA 16+00 (SHEET 14)
MATCHLINE -RPF- STA 28+55 (SHEET 14)
MATCHLINE -Y- STA 69+00 (SHEET 14)
MATCHLINE -Y- STA 78+50 (SHEET 7)
MATCHLINE (SHEET 7)
MATCHLINE -RPA- STA 20+00 (SHEET 7)
MATCHLINE -RPB- STA 30+00 (SHEET 6)
MATCHLINE -RPH- STA 12+00 (SHEET 6)
MATCHLINE (SHEET 6)

KRATT ENTERPRISES LLC
RHEIN ROBERT C INTERESTS INC
WILLIAM V ETHRIDGE AND EVELYN R
NCDOT
DEMOND MCNEILL

SEE SHEET 26 FOR -RPA- PROFILE
SEE SHEET 27 FOR -RPB- PROFILE
SEE SHEETS 33 & 34 FOR -RPF- PROFILE
SEE SHEET 38 FOR -RPC- PROFILE
SEE SHEETS 40 & 41 FOR -RPH- PROFILE
SEE SHEET 2-J FOR BRIDGE SKETCH

SHEET 8A

THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
	R-2923CE	8
STV/Ralph Whitehead Associates, Inc.	SW SHEET NO.	
PARSONS BRINCKERHOFF	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

PERMIT DRAWING
SHEET 20 OF 56

SHEET 8B

SHEET 8A

SITE 5

SITE 6

SITE 4

MATCHLINE -RPB- STA 16+00 (SHEET 14)

MATCHLINE -RPF- STA 28+55 (SHEET 14)

MATCHLINE -Y- STA 69+00 (SHEET 14)

MATCHLINE -Y- STA 78+50 (SHEET 7)

MATCHLINE -RPA- STA 20+00 (SHEET 7)

MATCHLINE (SHEET 7)

MATCHLINE -RPB- STA 30+00 (SHEET 6)

MATCHLINE -RPH- STA 12+00 (SHEET 6)

MATCHLINE (SHEET 6)

KRATT ENTERPRISES LLC

RHEIN ROBERT C INTERESTS INC

WILLIAM H ETHRIDGE AND EVELYN R

NCDOT

DEMOND MCNEILL

SEE SHEET 26 FOR -RPA- PROFILE
SEE SHEET 27 FOR -RPB- PROFILE
SEE SHEETS 33 & 34 FOR -RPF- PROFILE
SEE SHEET 38 FOR -RPG- PROFILE
SEE SHEETS 40 & 41 FOR -RPH- PROFILE
SEE SHEET 2-J FOR BRIDGE SKETCH

THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	R-2123CE	8A
PLANS PREPARED BY: RK&K RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-9960 NC LICENSE NO. F-0112 (919) 878-9560	R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PERMIT SHEET	DRAWING 21 OF 56	

SITE 6

SITE 4

KRATT ENTERPRISES LLC

NAD 83

RISER 30" CMP

-RPB- 25+00

S 80° 36' 02.8" E

SPECIAL CUT DITCH SEE DETAIL E

LATERAL BASE DITCH SEE DETAIL B

623.00

24" CSP 2 ELBOWS ROD & LUG

INV=617.3

36" RCP

STANDARD BASE DITCH SEE DETAIL HH INV=613.7

36" RCP

2GI

15" RCP-III

2GI

INV=618.3

STANDARD BASE DITCH SEE DETAIL II

PROP. CHANNEL TIES IN 3.0' ABOVE MAIN CHANNEL BOTTOM ELEV

618.04

612.75

12'x14' RCBC

RETAIN RCBC

2-11' X 10' CONC

614.24

615.75

616.45

INV=624.3

2-2GIs

15" CSP 2 ELBOWS ROD & LUG

36" RCP-V

HW

INV= 630.0

INV=631.4

30" RCP-V

65+00

612.88

EXISTING R/W

611.66

612.75

PROP. REINFORCED SLOPE SEE DETAIL SHEET 2-Z

GRAU-350

-RPB-

Q10=263.9cfs V10=1.98ft/s

STANDARD V DITCH SEE DETAIL D

INV=622.8

PSH SEE DETAIL N

INV=623.5

15" CSP 2 ELBOWS ROD & LUG

15" RCP-III

2GI

STANDARD V DITCH SEE DETAIL D

STANDARD BASE DITCH SEE DETAIL J

REMOVE SYSTEM

12" CMP

-RPH-

LATERAL BASE DITCH SEE DETAIL Y

2GI

CAT-1

S 39° 53' 54.4" E

75+00

-RPH-

-LH TEMP-

TOE PROTECTION SEE DETAIL F

2GI SP. DET.

INV=625.1

LATERAL BASE DITCH SEE DETAIL Y

INV=659.2

35+00

S 39° 53' 54.4" E

15" CSP 2 ELBOWS ROD & LUG

2GI-D

15" RCP-III

2GI-D

15" RCP-III

2-2GIs

CAT-1

B-77

B-77

B-77

GRADE TO DRAIN

2GI

-LHTEMP-

I-485 EB

55+00

-L-

60+00

FS

DI

RETAIN SYSTEM

LOCATION UNKNOWN OUTLET NOT FOUND MAY FLOW INTO CULVERT

PLUG

REMOVE DI

DI PLUGGED (PER OLD FILES)

CGAU

MTL

ENSURE 18" IS PLUGGED IF NOT, PLUG AND FILL

RETAIN 5' x 7' RCBC

I-485 WB

JB wMH

2GI

15" RCP-III

24" CSP 2 ELBOWS ROD & LUG

STANDARD V DITCH SEE DETAIL D

GRAU-350

2GI

15" RCP-III

2GI

15" CSP 2 ELBOWS ROD & LUG

2GI-A

30" RCP-III

30" RCP-III

2GI

24" RCP-III

REMOVE SYSTEM

Conv. DI TO JB wMH

N 26° 25' 34.0" W

25+00

JB wSlab Lid SP. DET.

2GI

TBJB wSlab Lid

INV=625.2

TOE PROTECTION SEE DETAIL F

TOE PROTECTION SEE DETAIL F

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO. R-2123CE / SHEET NO. 8A
STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	R/W SHEET NO.
PLANS PREPARED BY: RK&K BUMGARNER, KLEPPER & KANE, LLP 900 RIDGEFIELD DRIVE SUITE 280 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 (919) 878-9560	ROADWAY DESIGN ENGINEER / HYDRAULICS ENGINEER
	PERMIT SHEET / **DRAWING 22 OF 56**

SITE 6

SITE 4

NAD 83

KRATT ENTERPRISES LLC

-RPB- 25+00

S 80° 36' 02.8" E

LATERAL BASE DITCH SEE DETAIL B

SPECIAL CUT DITCH SEE DETAIL E

623.00

24" CSP 2 ELBOWS ROD & LUG

INV=617.3

2GI

15" RCP-III

STANDARD BASE DITCH SEE DETAIL HH

INV=613.7

36" RCP

STANDARD BASE DITCH SEE DETAIL II

INV=618.3

618.04

612.75

12'x14' RCBC

PROP. CHANNEL TIES IN 3.0' ABOVE MAIN CHANNEL BOTTOM ELEV

RETAIN RCBC

2-11' x 10' CONC

614.24

615.75

616.45

INV=624.3

2-2GIs

15" CSP 2 ELBOWS ROD & LUG

36" RCP-V

HW

INV= 630.0

INV=631.4

30" RCP-V

65+00

PROP. REINFORCED SLOPE SEE DETAIL SHEET 2-Z

EXISTING R/W

611.66

612.75

612.86

GRAU-350

-RPB-

Q10=263.9cfs
V10=1.98ft/s

STANDARD V DITCH SEE DETAIL D

INV=622.8

PSH SEE DETAIL N

INV=623.5

15" RCP-III

2GI

15" CSP 2 ELBOWS ROD & LUG

36" RCP-V

STANDARD BASE DITCH SEE DETAIL J

REMOVE SYSTEM

LATERAL BASE DITCH SEE DETAIL Y

S 39° 53' 54.4" E

75+00

35+00

-RPH-

-LH TEMP-

CAT-1

TOE PROTECTION SEE DETAIL F

2GI SP. DET.

INV=625.1

INV=659.2

15" CSP 2 ELBOWS ROD & LUG

2GI-D

15" RCP-III

2-2GIs

B-77

GRADE TO DRAIN

I-485 EB

I-485 WB

55+00

60+00

-L-

FS

DI

RETAIN SYSTEM

JB wMH

15" CMP

24" CSP 2 ELBOWS ROD & LUG

STANDARD V DITCH SEE DETAIL D

Conv. DI TO JB wMH

N 26° 25' 34.0" W

25+00

LOCATION UNKNOWN OUTLET NOT FOUND MAY FLOW INTO CULVERT

PLUG

REMOVE DI

DI PLUGGED (PER OLD FILES)

ENSURE 18" IS PLUGGED IF NOT, PLUG AND FILL

RETAIN 5' x 7' RCBC

CGAU

GRAU-350

JB wSlab Lid SP. DET.

TBJB wSlab Lid

INV=625.2

TOE PROTECTION SEE DETAIL F

2GI-A

30" RCP-III

REMOVE 35' 15" RCP

REMOVE SYSTEM

24" RCP-III

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

8/23/99

0 20 40

PROJ. REFERENCE NO.	SHEET NO.
R-2123CE	X-1

0 560 520 480 440 400 360 320 280 240 200 160 120 80 40 0 40 80 120 160 200 240 280 320 360 400 440 480 520 560 600 640

PERMIT DRAWING
SHEET 23 OF 56

SITE 4

820
780
740
700
660
620
580

-RPH- 69+89 -L- 62+50 -RPG- 28+92

820
780
740
700
660
620
580

560 520 480 440 400 360 320 280 240 200 160 120 80 40 0 40 80 120 160 200 240 280 320 360 400 440 480 520 560 600 640

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mcook

8/23/99

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	R-2123CE	

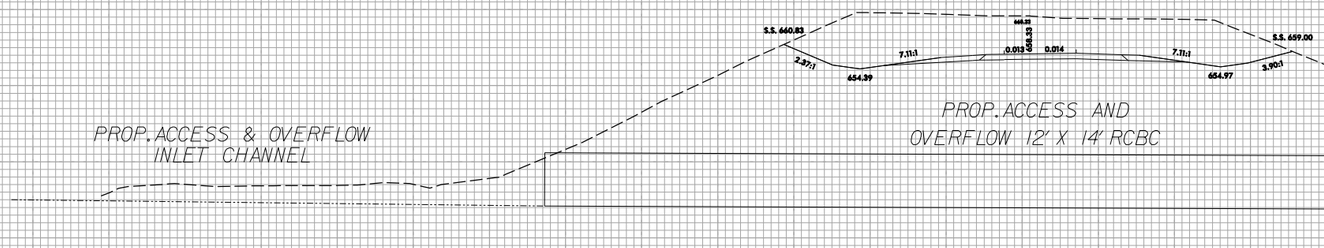
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PERMIT DRAWING
SHEET 24 OF 56

SITE 6

710
690
670
650
630
610
590
570

-RPB- 27+52



710
690
670
650
630
610
590
570

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

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mcook

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-9960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT SHEET

DRAWING 25 OF 56

-RPB-

BEGIN CONSTRUCTION
-RPB- STA. 10+00.00
ELEV = 666.18'

PI = 11+05.00
EL = 664.87'
VC = 180'
K = 598

(-)11.2476%

(-)11.5486%

PI = 13+71.70
EL = 660.74'
VC = 200'
K = 160

(-)11.5486%

(-)0.3004%

EXISTING GROUND

PROPOSED GRADE

24" RCP III

(-) 0.3000%

BEG. SP. CUT DITCH
-RPB- STA. 19+50 RT
EL. 654.47'

BM # 104
-RPB- STA 18+53.05
880.77' LT
ELEV = 658.59'

SEE SHEETS 8 & 14 FOR -RPB- PLAN

-RPB-

LOW POINT
-RPB- STA. 25+52.70
ELEV = 657.27'

PI = 26+00.00
EL = 657.05'
VC = 200'
K = 175

EXISTING GROUND

PROPOSED GRADE

HIGH POINT
-RPB- STA. 33+37.93
ELEV = 662.71'

PI = 33+85.94
EL = 663.65'
VC = 350'
K = 151

END CONSTRUCTION
-RPB- STA. 35+93.43
ELEV = 660.59'

BEG. SP. CUT DITCH
-RPB- STA. 25+00 LT
EL. 653.71'

(-)0.3004%

(+)0.8398%

PI -RPB- STA. 27+00 LT
EL. 653.11'

(-) 0.3000%

(+) 3.1200%

END SP. CUT DITCH
-RPB- STA. 27+50 LT
EL. 654.67'

(+) 3.3368%

PI -RPB- STA. 27+55 RT
EL. 652.06'

BEG. STD. V DITCH
-RPB- STA. 29+50 LT
EL. 656.72'

(+) 0.8207%

END STD. V DITCH
-RPB- STA. 31+33.99 LT
EL. 658.23'

(+)0.8398%

(-)1.4748%

END SP. CUT DITCH
-RPB- STA. 28+50 RT
EL. 655.23'

BM # 103
-RPB- STA 17+16.63
2622.81' LT
ELEV = 684.00'

BEG. LAT. BASE DITCH
-RPB- STA. 27+89 RT
EL. 623.00'

END LAT. BASE DITCH
-RPB- STA. 28+35 RT
EL. 617.30'

(-)12.2913%

12'x14' RCBC

EXIST. 2@11'X10' RCBC

12'X14' RCBC HYDRAULIC DATA
STA. -RPB- 27+49

DESIGN DISCHARGE	= 3,100	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 628.0	FT
BASE DISCHARGE	= 3,400	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 628.8	FT
OVERTOPPING DISCHARGE	= 5,430	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 634.2	FT
DATE OF SURVEY	= 10/2010	
W.S.ELEVATION AT DATE OF SURVEY	= 614.2	FT

BEG. LAT. BASE DITCH
-RPB- STA. 33+25 RT
EL. 613.40'

(-) 1.0500%

END LAT. BASE DITCH
-RPB- STA. 35+25 RT
EL. 611.30'

SEE SHEETS 6 & 8 FOR -RPB- PLAN

$FILE$

$DATE$

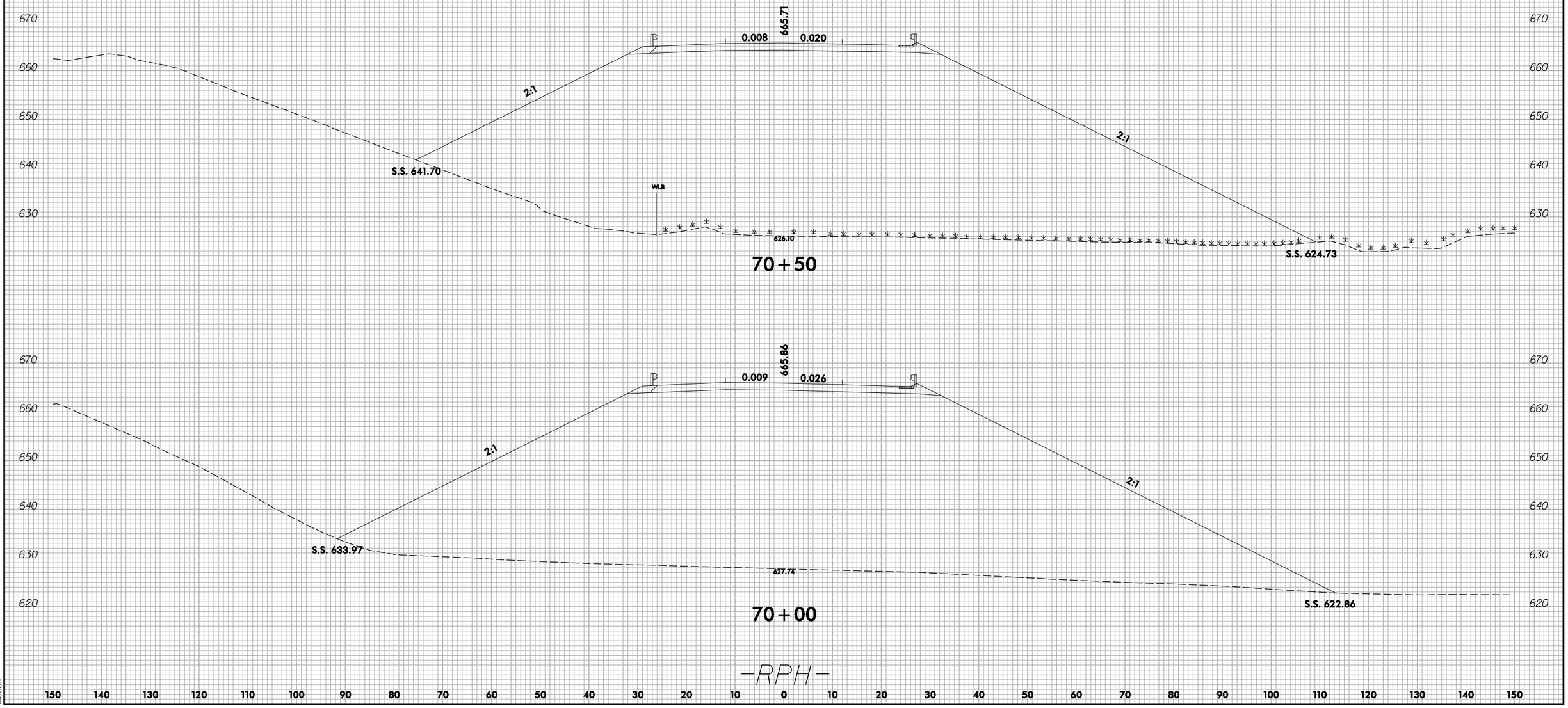
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	R-2123CE	X-362

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PERMIT DRAWING
SHEET 26 OF 56

SITE 4



—RPH—

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mcook

THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	R-2123CE	41
PLANS PREPARED BY: RK&K RAMME, KLEPPER & KANE, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-9960 NC LICENSE NO. F-0112 (919) 878-9560	R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PERMIT SHEET	**DRAWING 27 OF 56**	

-RPH-

36" RCP V HYDRAULIC DATA

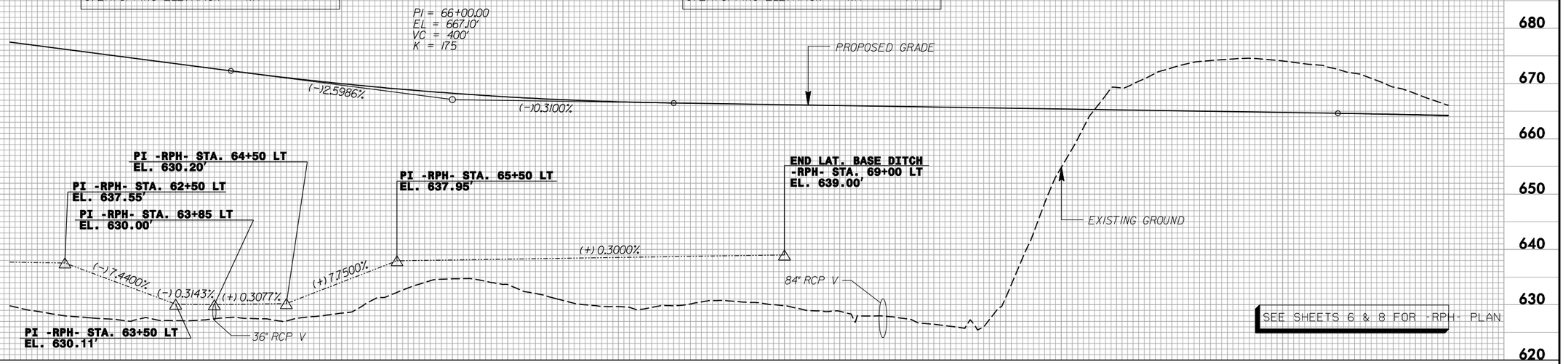
STA. -RPH- 63+85

DESIGN DISCHARGE	= 42	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 633.8	FT
BASE DISCHARGE	= 58	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 634.1	FT
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING ELEVATION	= NA	FT

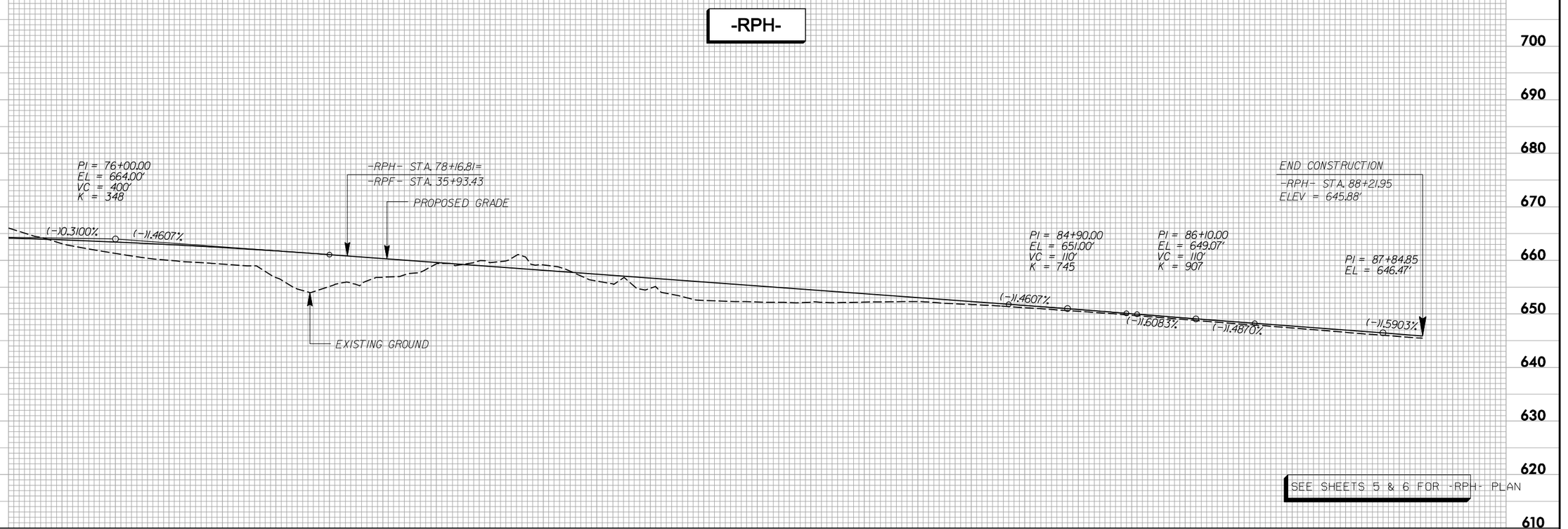
84" RCP V HYDRAULIC DATA

STA. -RPH- 69+89

DESIGN DISCHARGE	= 328	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 640.8	FT
BASE DISCHARGE	= 380	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 641.4	FT
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING ELEVATION	= NA	FT



-RPH-



$FILE$

$DATE$

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 ☎(919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	8B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT SHEET | **DRAWING 28 OF 56**

SITE 15

NAD 83

SITE 5

SITE 5

SITE 2
SEE PSH 7A

INTERESTS INC

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NCDOT

WILLIAM H ETHRIDGE AND B

LATERAL BASE DITCH
SEE DETAIL JJ
ROCK VANE
SEE DETAIL NN

RCBC EXCAVATION
SEE DETAIL LL: A-A

2@9'x10' RCBC

INV=624.5

36" CSP
2 ELBOWS
ROD & LUG

JB wMH

2-2GIs

TOE PROTECTION
SEE DETAIL F

INV=643.0
15" CSP
2 ELBOWS
ROD & LUG

4OTCB

24" RCP-III
FS

15" CSP
2 ELBOWS
ROD & LUG

2GI

RETAIN

RETAIN SYSTEM

30" RCP-III

2GI-A

15" RCP-III

JB wMH
15" CSP
2 ELBOWS
ROD & LUG
OUTLET
THROUGH
RCBC WALL
INV=628.6

RCBC EXCAVATION
SEE DETAIL LL: B-B

LATERAL V DITCH
SEE DETAIL I

SEE UTILITY PLANS FOR PROP. SEWER LINE

RCBC EXCAVATION
SEE DETAIL LL: C-C

FILL EXIST. CHANNEL

STANDARD BASE DITCH
SEE DETAIL DD
INV=624.0

48" RCP-IV

JB w/ Slab Lid

PSRM

B-77

BM #104
-BY0- STA 65+80
39 LEFT
ELEV. 658.59'

-RPA-
-RPB-
-RPC-
-RPF-
-RPH-
-LDT EMP-
-LPT EMP-

I-85 NBL (EXIST)
I-85 SBL (EXIST SHLD)
I-85 NB & SB

N 43° 13' 32.5" E
N 39° 22' 34" E

15+00
20+00
35+00
55+00
75+00

SITE 15

SITE 5

SITE 5

SITE 2
SEE PSH 7A

NAD 83

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 ☎(919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	8B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT SHEET | **DRAWING 29 OF 56**

INTERESTS INC.

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NCDOT

WILLIAM H ETHRIDGE AND B

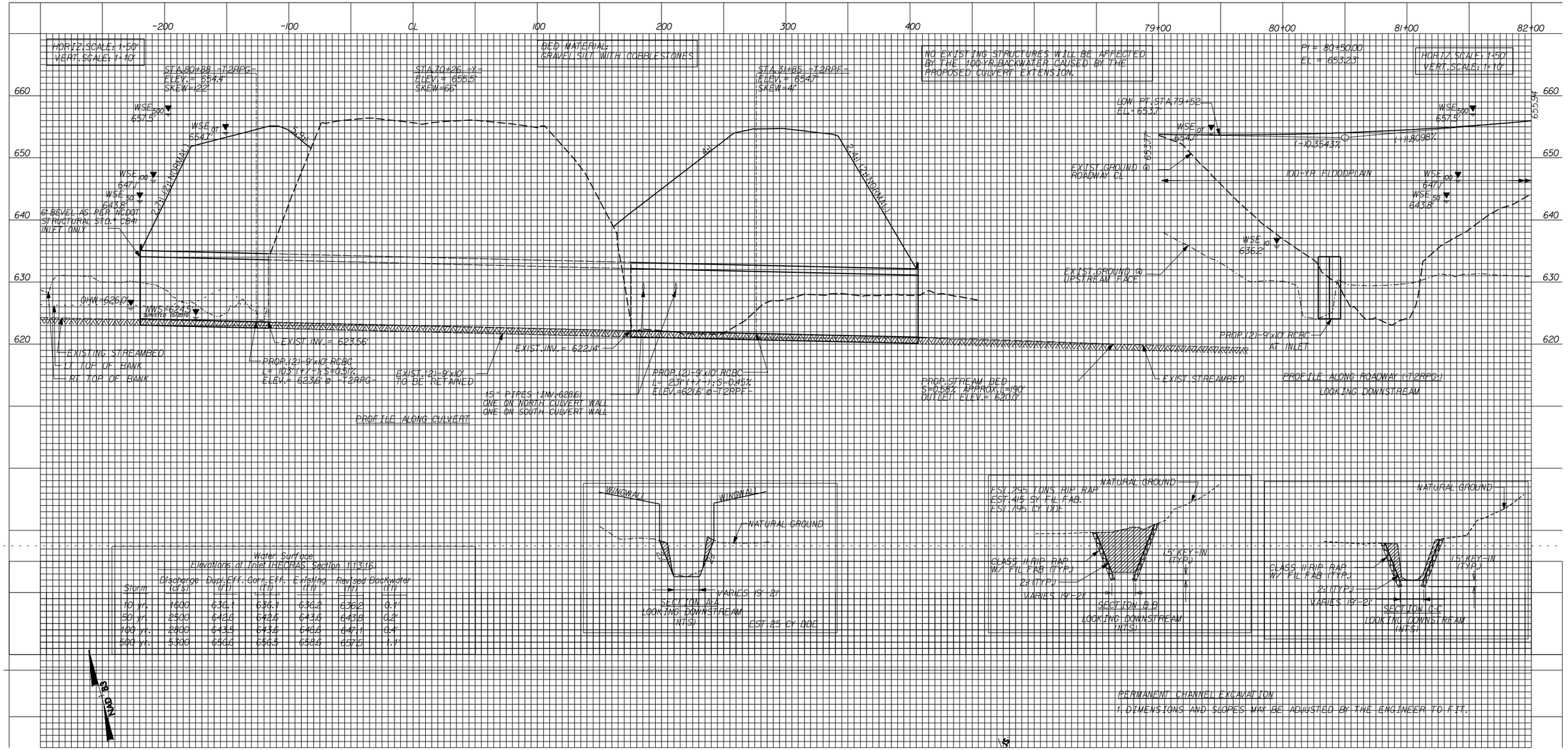
BM #104
-BY0- STA 65+80
39 LEFT
ELEV. 658.59'

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
R-2123CE	

SITE 5

PERMIT DRAWING
SHEET 30 OF 56



Water Surface Elevations at Inlet (HEC-RAS Section 1 (13.16)

Storm	Discharge (cfs)	Dupl. Eff. (ft)	Corr. Eff. (ft)	Existing (ft)	Revised (ft)	Backwater (ft)
10 yr.	1600	636.1	636.1	636.2	636.2	0.1'
50 yr.	2500	642.6	642.6	643.6	643.8	0.2'
100 yr.	2800	643.5	643.5	646.8	647.1	0.4'
500 yr.	5300	656.6	656.5	658.6	657.5	1.1'

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mcook

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
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RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-9960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PERMIT SHEET	**DRAWING 31 OF 56**

-RPF-

BEGIN CONSTRUCTION
-RPF- STA. 10+00.00
ELEV = 683.82'

PI = 12+00.00
EL = 680.45'
VC = 180'
K = 3484

PI = 15+00.00
EL = 675.55'
VC = 180'
K = 449

(-)1.6850%

(-)1.6333%

(-)1.2324%

EXISTING GROUND

PROPOSED GRADE

-RPA- STA. 22+41.38
-RPB- STA. 10+00.00

36" RCP III

36" RCP III HYDRAULIC DATA
STA. -RPF- 22+15

DESIGN DISCHARGE	= 83	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 656.0	FT
BASE DISCHARGE	= 96	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 657.4	FT
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING ELEVATION	= NA	FT

SEE SHEETS 13 & 14 FOR -RPF- PLAN

-RPF-

2@9'X10' RCBC HYDRAULIC DATA
STA. -RPF- 31+85

DESIGN DISCHARGE	= 2,500	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 643.2	FT
BASE DISCHARGE	= 2,800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 646.8	FT
OVERTOPPING DISCHARGE	= 4,018	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 654.5	FT
DATE OF SURVEY	= 10/2010	
W.S. ELEVATION AT DATE OF SURVEY	= 624.3	FT

PI = 32+00.00
EL = 654.60'
VC = 200'
K = 759

PI = 36+80.00
EL = 647.42'
VC = 345'
K = 97

LOW POINT
-RPF- STA. 36+52.02
ELEV = 648.92

-RPF- STA. 36+02.43=
-RPH- STA. 59+51.94

(-)1.2324%

(-)1.4958%

(-)14.3289%

(+)2.0750%

EXISTING GROUND

PROPOSED GRADE

24" RCP III

BEG. LAT. V DITCH
-RPF- STA. 30+50 RT
EL. 652.61'

END LAT. V DITCH
-RPF- STA. 32+75 RT
EL. 620.37'

BM # 104
-RPF- STA 36+27.04
358.56' LT
ELEV = 658.59'

SEE SHEETS 8 & 14 FOR -RPF- PLAN

$FILE$

$DATE$

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-9960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PERMIT SHEET	DRAWING 32 OF 56

-RPG-

PI = 65+15.00
EL = 666.98'
VC = 200'
K = 166

EXISTING GROUND

(-)2.5542%

(+)0.3000%

(-)1.3497%

END V DITCH
-RPG- STA. 65+50 RT
EL. 666.53'

PROPOSED GRADE

PI = 73+50.00
EL = 655.71'
VC = 200'
K = 201

(-)1.3497%

(-)0.3543%

BM # 104
-RPG- STA 75+18.03
301.46' LT
ELEV = 658.59'

SEE SHEETS 7 & 8 FOR -RPG- PLAN

-RPG-

LOW POINT
-RPG- STA. 79+51.74
ELEV = 653.67

PI = 80+50.00
EL = 653.23'
VC = 300'
K = 146

PROPOSED GRADE

(-)0.3543%

(+)1.6999%

PI = 84+98.26
EL = 660.85'
VC = 180'
K = 151.49

PI = 86+63.00
EL = 663.67'

END CONSTRUCTION
-RPG- STA. 87+12.78
ELEV = 664.39'

(+)1.7118%

(+)1.4464%

(+)1.6999%

EXISTING GROUND

(-)0.8372%

BEG. LAT. BASE DITCH
-RPG- STA. 80+35 RT
EL. 624.70'

END LAT. BASE DITCH
-RPG- STA. 82+50 RT
EL. 626.50'

2@9'X10' RCBC HYDRAULIC DATA
STA. -RPG- 80+88

DESIGN DISCHARGE	= 2,500	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 643.2	FT
BASE DISCHARGE	= 2,800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 646.8	FT
OVERTOPPING DISCHARGE	= 4,018	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 654.5	FT
DATE OF SURVEY	= 10/2010	
W.S. ELEVATION AT DATE OF SURVEY	= 624.3	FT

SEE SHEETS 8 & 14 FOR -RPG- PLAN

$FILE$

$DATE$

THE LANE CONSTRUCTION CORPORATION

STIV/Ralph Whitehead Associates Inc.

PARK

PROJECT REFERENCE NO.	SHEET NO.
R-2923CE	9
SHEET NO.	
ROADWAY DESIGNER	HYDRAULICS ENGINEER

NAD 83

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENGLISH

PERMIT DRAWING
SHEET 33 OF 56

SHEET 9A

SHEET 9B

SITE 7

SITE 7

SITE 8

SITE 9

MATCHLINE -RPC- STA 18+00 (SHEET 6)

MATCHLINE (SHEET 7)

MATCHLINE -RPE- STA 56+00 (SHEET 7)

MATCHLINE -Y- STA 95+00 (SHEET 7)

MATCHLINE -RPF- STA 60+00 (SHEET 7)

MATCHLINE -Y- STA 105+00 (SHEET 15)

PROP. 48' CHAIN LINK FENCE REMOVE EXIST MW FENCE

END 48' CHAIN LINK FENCE -RPE- STA 62+80.00, 150.00' RT

CROSLAND INC CROSLAND-MALLARD LAKE LLC

CRAFT HOLDINGS, LLC

MECKLENBURG COUNTY

THE HOLLAND LIVING TRUST HOYLE N. HOLLAND NANCY N. HOLLAND

BAIN WILSON

JAMES F. FESPERMAN SHIRLEY L. FESPERMAN

PROP 48' W.R. FENCE

SEE SHEET 28 FOR -RPC- PROFILE
SEE SHEET 29 FOR -RPD- PROFILE
SEE SHEETS 31 & 32 FOR -RPE- PROFILE
SEE SHEETS 34 & 35 FOR -RPF- PROFILE
SEE SHEET 39 FOR -RPH- PROFILE
SEE SHEET 44 FOR -Y- PROFILE
SEE SHEET 2-K FOR BRIDGE SKETCH
SEE SHEET 2-N THRU 2-T FOR TEMP ALIGNMENTS

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates Inc.
1000 West Morehead St.,Ste. 300
NC License No. C-1269
Charlotte, NC 28208

PARSONS BRINCKERHOFF
PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.
NC LICENSE NO. C-1269 (704)332-7244

PROJECT REFERENCE NO.	SHEET NO.
R-2923CE	9
SW SHEET NO.	
ROADWAY DESIGNER: BHEID-MBS	HYDRAULICS ENGINEER:

NAD 83

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENGLISH

PERMIT DRAWING
SHEET 34 OF 56

SHEET 9A

SHEET 9B

SITE 7

SITE 7

SITE 8

SITE 9

MATCHLINE -RPC- STA 18+00 (SHEET 6)

MATCHLINE (SHEET 7)

MATCHLINE -RPE- STA 56+00 (SHEET 7)

MATCHLINE (SHEET 7)

MATCHLINE -Y- STA 95+00 (SHEET 7)

MATCHLINE (SHEET 7)

MATCHLINE -RPF- STA 60+00 (SHEET 7)

MATCHLINE (SHEET 7)

MATCHLINE -Y- STA 105+00 (SHEET 15)

PROP 48" CHAIN LINK FENCE
REMOVE EXIST WW FENCE

END 48" CHAIN LINK FENCE
-RPC- STA 62+82.80, 120.25' RT

CROSLAND INC CROSLAND-MALLARD LAKE LLC

CRAFT HOLDINGS, LLC

MECKLENBURG COUNTY

THE HOLLAND LIVING TRUST
NANCY H. HOLLAND

JAMES F. FESPERMAN
SHELLEY L. FESPERMAN

BAIN WILSON

- SEE SHEET 28 FOR -RPC- PROFILE
- SEE SHEET 29 FOR -RPD- PROFILE
- SEE SHEETS 31 & 32 FOR -RPE- PROFILE
- SEE SHEETS 34 & 35 FOR -RPF- PROFILE
- SEE SHEET 39 FOR -RPH- PROFILE
- SEE SHEET 44 FOR -Y- PROFILE
- SEE SHEET 2-K FOR BRIDGE SKETCH
- SEE SHEET 2-N THRU 2-T FOR TEMP ALIGNMENTS

THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
	R-2123CE	9A
STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	R/W SHEET NO.	
PLANS PREPARED BY: RK&K BUMGARNER, KLEPPER & KANE, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 (919) 878-9560	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	PERMIT SHEET	DRAWING 35 OF 56

SITE 7

SITE 7

NAD 83

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENGLISH

CROSLAND INC CROSLAND-MALLARD LAKE LLC

304.60'
S 32°01'17" E

PROP 48" CHAIN LINK FENCE
REMOVE EXIST WW FENCE

END 48" CHAIN LINK FENCE

EXISTING R/W

EXISTING R/W

SP. DET.

TOE PROTECTION SEE DETAIL F

TOE PROTECTION SEE DETAIL F

TBJB wSlab Lid

INV=625.2

48" RCP-V

GRAU-350

30" RCP-III

2GI

2GI-A

B-77

24" RCP-III

2GI

24" RCP-III

BDO
24" CSP
2 ELBOWS
ROD & LUG
INV=668.6

REMOVE

BERM DITCH SEE DETAIL L

LATERAL BASE DITCH SEE DETAIL A

LATERAL V DITCH SEE DETAIL C

15" RCP-III

2GI

FS

15" RCP-III

15" RCP-III

84" RCP-V

HW

15" CSP
2 ELBOWS
ROD & LUG

REMOVE

2GI-A

30" RCP-III

INV=
633.5

INV=
634.0

LATERAL BASE DITCH SEE DETAIL AA

DIVERT GORE AREA DRAINAGE AROUND TOP OF PIPE

SP. LAT. V DITCH SEE DETAIL G

72" RCP-III

INV=635.0

HW

INV=648.0

18" RCP-III

2GI

GRAU-350

GRADE TO DRAIN

GRADE TO DRAIN

STANDARD BASE DITCH SEE DETAIL CC
ROCK VANE SEE DETAIL NN

CHANNEL BLOCK SEE DETAIL H

INV=652.0
PSH
SEE DET N

18" RCP-III

BERM DITCH SEE DETAIL Q

RETAIN

FS

2GI

FS

BDO
15" CSP
2 ELBOWS
ROD & LUG
INV=673.6

12 6" SCUPPERS AT 6' CENTERS

INV=666.7

LATERAL BASE DITCH SEE DETAIL A

15" CSP
2 ELBOWS
ROD & LUG

INVERT RAISED 1.0' FOR STORMWATER RETENTION

STANDARD BASE DITCH SEE DETAIL T

666.01

664.52

15" RCP-III

INV=663.5

2GI

659.18

30" RCP-V

640.48

658.43

TOE PROTECTION SEED DETAIL F

TBJB wSlab Lid

RETAIN

649.17

649.65

GRADE TO DRAIN

GRAU-350

450.59

ANGLED GRATES
2-2GI

INV=669.8

STANDARD BASE DITCH SEE DETAIL CC

PSH
SEE DET N

15" CSP
2 ELBOWS
ROD & LUG

18" RCP-III

PSH
SEE DET N

CHANNEL BLOCK SEE DETAIL H

PSH
SEE DET N

INV=662.8

687.37

GRAU-350

2GI

15" CSP
2 ELBOWS
ROD & LUG

N 61° 53' 53.5" E
65.00'

N 61° 53' 53.5" E
65.00'

25.00'

50.00'

55.00'

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 ✆(919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	9A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PERMIT SHEET	DRAWING 36 OF 56

SITE 7

NAD 83

SP. DET.
TOE PROTECTION SEE DETAIL F
TOE PROTECTION SEE DETAIL F
TBJB w/Slab Lid
INV=625.2
48" RCP-V
GRAU-350
30+00
2GI
15" RCP-III
84" RCP-V
HW
DIVERT GORE AREA DRAINAGE AROUND TOP OF PIPE
INV= 633.5
LATERAL BASE DITCH SEE DETAIL AA
15" CSP 2 ELBOWS ROD & LUG
REMOVE
2GI-A
30" RCP-III
INV= 634.0
72" RCP-III
INV=635.0
HW
55+00
B-77
SP. LAT. V DITCH SEE DETAIL G
INV=648.0
18" RCP-III
25+00
2GI
N 61°35'35" E
RPE
RPC
RPG
RFC
EXISTING R/W
PROP 48" CHAIN LINK FENCE
REMOVE EXIST WW FENCE
CROSLAND INC CROSLAND-MALLARD LAKE LLC
304.60'
S 32°01'17" E
END 48" CHAIN LINK FENCE
LATERAL BASE DITCH SEE DETAIL A
LATERAL V DITCH SEE DETAIL C
24" RCP-III
BDO 24" CSP 2 ELBOWS ROD & LUG INV=668.6
REMOVE
BERM DITCH SEE DETAIL L
GRAU-350
B-77
STANDARD BASE DITCH SEE DETAIL CC ROCK VANE SEE DETAIL NN
CHANNEL BLOCK SEE DETAIL H
GRADE TO DRAIN
INV=632.0 PSH SEE DET N
18" RCP-III
RETAIN
649.17
649.65
650.59
GRAU-350
FETEMP
BDO 15" CSP 2 ELBOWS ROD & LUG INV=673.6
BERM DITCH SEE DETAIL Q
STANDARD BASE DITCH SEE DETAIL CC
12 6" SCUPPERS AT 6' CENTERS
INV=666.7
PSRM
LATERAL BASE DITCH SEE DETAIL A
15" CSP 2 ELBOWS ROD & LUG
INVERT RAISED 1.0' FOR STORMWATER RETENTION
STANDARD BASE DITCH SEE DETAIL T
664.52
666.01
15" RCP-III
INV=663.5
30" RCP-V
659.18
658.43
TOE PROTECTION SEED DETAIL F
TBJB w/Slab Lid
GRADE TO DRAIN
ANGLED GRATES 2-2GI
INV=669.8
LATERAL V D SEE DETAIL I
PSH SEE DET N
15" CSP 2 ELBOWS ROD & LUG
18" RCP-III
CHANNEL BLOCK SEE DETAIL H
65+00
N 61°35'35" E
INV=662.8
687.37
2GI
15" CSP 2 ELBOWS ROD & LUG
658.53

FS DENOTES IMPACTS IN SURFACE WATER

TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENGLISH

8/23/99

0 20 40

PROJ. REFERENCE NO.	SHEET NO.
R-2123CE	X-1

0 560 520 480 440 400 360 320 280 240 200 160 120 80 40 0 40 80 120 160 200 240 280 320 360 400 440 480 520 560 600 640

PERMIT DRAWING
SHEET 37 OF 56

SITE 7

820
780
740
700
660
620
580

-RPH- 69+89 -L- 62+50 -RPG- 28+92

820
780
740
700
660
620
580

560 520 480 440 400 360 320 280 240 200 160 120 80 40 0 40 80 120 160 200 240 280 320 360 400 440 480 520 560 600 640

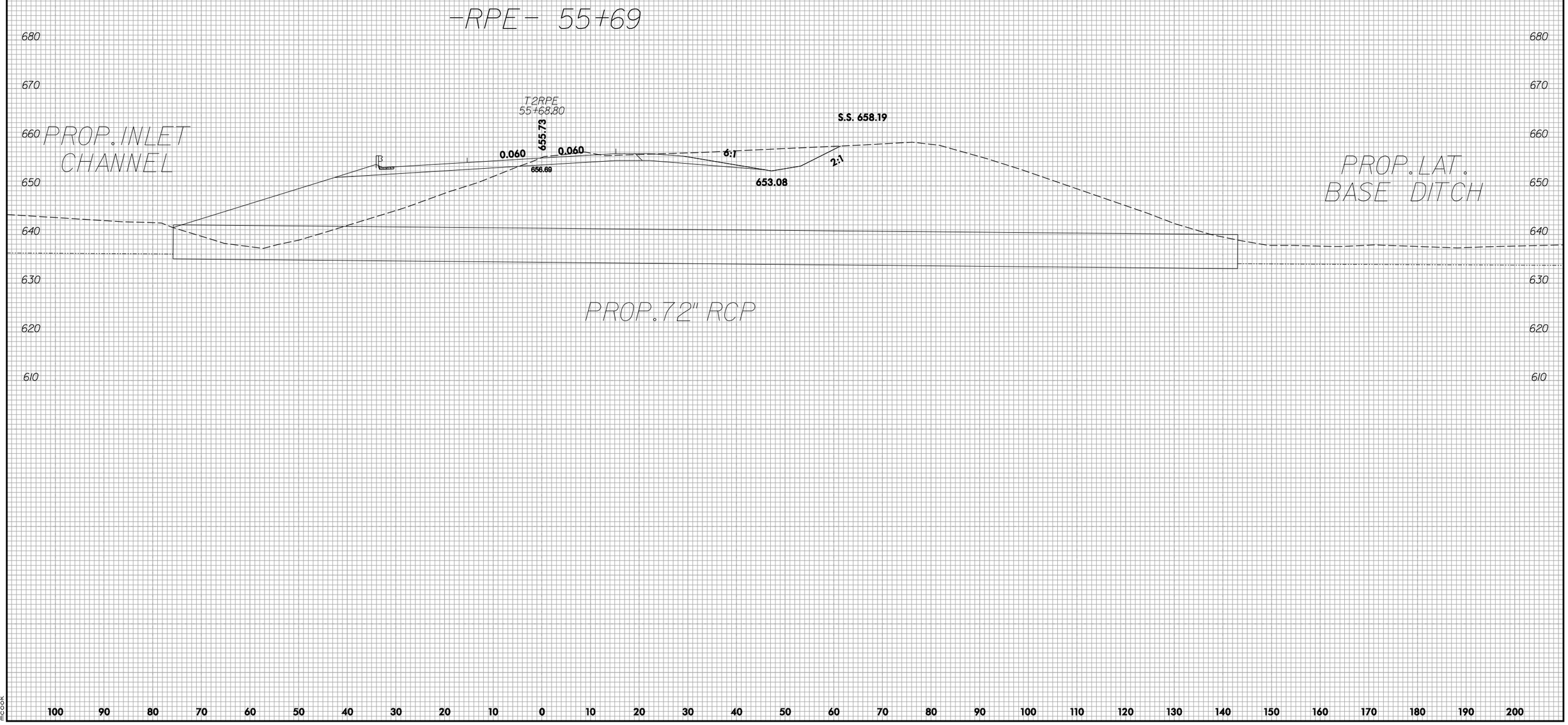
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mcook

8/23/99

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	R-2123CE	

PERMIT DRAWING
SHEET 38 OF 56

SITE 7



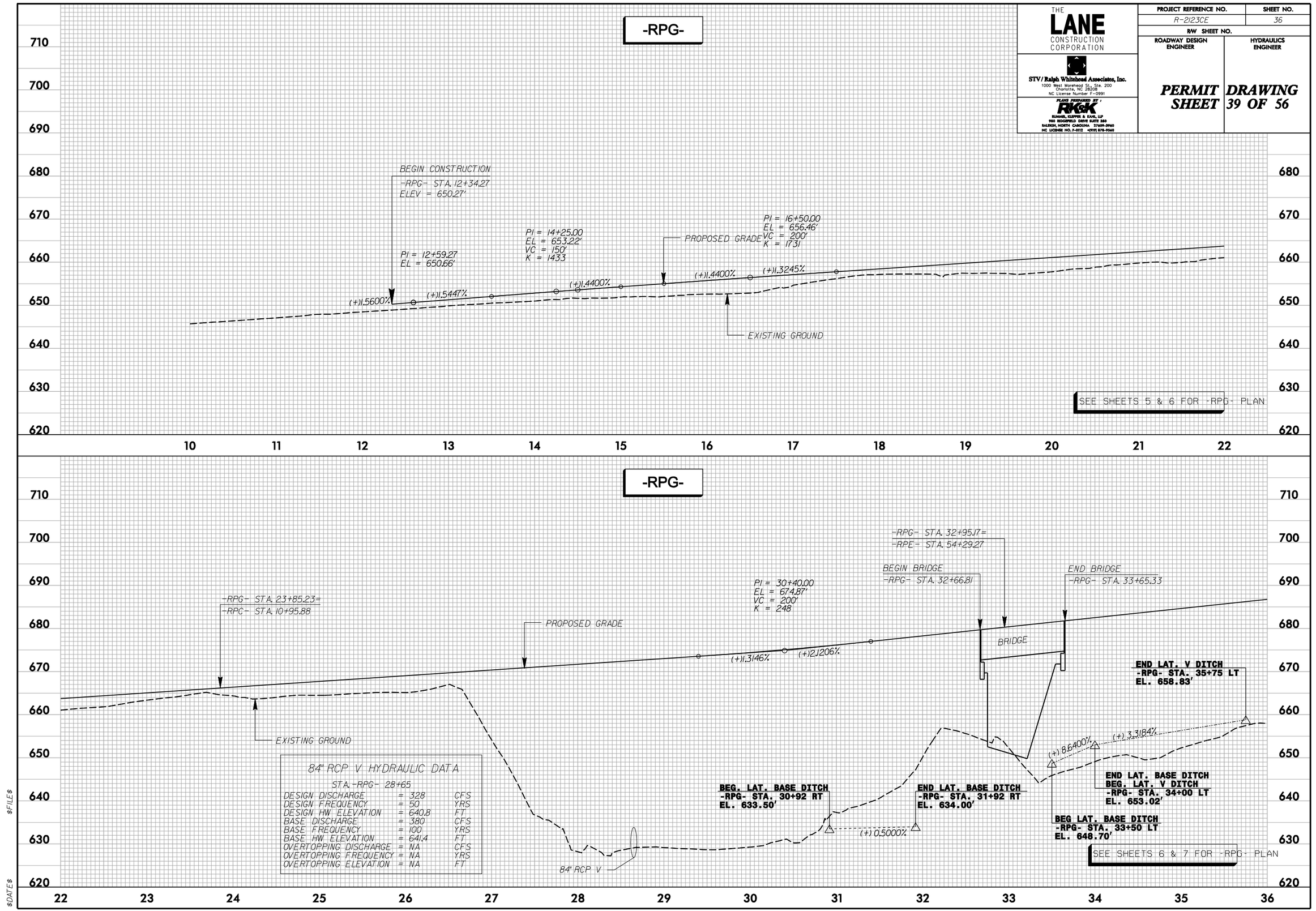
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mcook

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-9960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PERMIT SHEET	DRAWING 39 OF 56



THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT SHEET

DRAWING 40 OF 56

-RPE-

PROPOSED GRADE

BEGIN BRIDGE
-RPE- STA. 41+10.28

PI = 42+00.00
EL = 690.15'
VC = 200'
K = 107

-RPE- STA. 42+09.28=
-Y- STA. 78+95.90

-RPE- STA. 44+79.01=
-RPF- STA. 38+59.22

END BRIDGE
-RPE- STA. 45+41.28

(-)2.3725%

(-)4.2362%

BRIDGE

BEG. LAT. BASE DITCH
-RPE- STA. 37+25 RT
EL. 670.00'

PI -RPE- STA. 39+00 RT
EL. 663.00'

(-)4.0000%

EXISTING GROUND

(-)11.2476%

BM # 104
-RPE- STA. 41+45.23
225.94' RT
ELEV = 658.59'

END LAT. BASE DITCH
-RPD- STA. 41+10 RT
EL. 639.38'

SEE SHEET 7 FOR -RPE- PLAN

-RPE-

72" RCP III HYDRAULIC DATA

STA. -RPE- 55+69

DESIGN DISCHARGE	= 298	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 643.7	FT
BASE DISCHARGE	= 345	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 644.8	FT
OVERTOPPING DISCHARGE	= 587	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 653.0	FT

LOW POINT
-RPE- STA. 52+98.98
ELEV = 652.20

-RPE- STA. 51+67.42=
-L- STA. 67+46.84

PI = 51+95.00
EL = 648.00'
VC = 605'
K = 96

-RPE- STA. 54+17.20=
-RPG- STA. 32+90.64

PROPOSED GRADE

(-)4.2362%

(+)2.0690%

BEG. STANDARD BASE DITCH
-RPE- STA. 56+25 LT
EL. 636.00'

EXISTING GROUND

(+) 2.5143%

72" RCP III

END STANDARD BASE DITCH
-RPE- STA. 59+75 LT
EL. 644.80'

SEE SHEETS 7 & 9 FOR -RPE- PLAN

$FILE$

$DATE$

SITE 7

SITE 8

SITE 9

CROSLAND INC CROSLAND-MALLARD LAKE LLC

CRAFT HOLDINGS, LLC

CRAFT HOLDINGS, LLC

BDO 15" CSP 2 ELBOWS ROD & LUG INV=673.6

STANDARD BASE DITCH SEE DETAIL CC

ANGLED GRATES 2-2GI

INV=669.8

PSH SEE DET N

CHANNEL BLOCK SEE DETAIL H

LATERAL V DITCH SEE DETAIL I

GRADE TO DRAIN

BERM DITCH SEE DETAIL L

15" CSP 2 ELBOWS ROD & LUG

INV=662.6

INV=656.9

CHANNEL BLOCK SEE DETAIL H

ROCK VANE SEE DETAIL NN

LATERAL BASE DITCH SEE DETAIL B INV=661.6

INV=665.4

66" RCP-III BURIED 1.0'

HW 662.88

DITCH

18" RCP-III

REMOVE

PLUG

LATERAL V DITCH SEE DETAIL M

FILL W/ FLOWABLE FILL

SPECIAL CUT DITCH SEE DETAIL E

FILL JB 2 PLUGS

REMOVE DI AND 30' 18" RCP

POSSIBLE 24" PROP. CONC. PAPER

BM#103 -BYO- STA 86+76 13 LEFT ELEV. 684.00'

RETAIN SYSTEM

POWER POLE

DRAWN PER RECORD

36" RCP

RETAIN

I-85 NB

I-85 SB

UNDER CONSTRUCTION

NAD 83

ENGLISH

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	9B
RW SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 41 OF 56

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

SITE 7

SITE 8

SITE 9

CROSLAND INC CROSLAND-MALLARD LAKE LLC

CRAFT HOLDINGS, LLC

CRAFT HOLDINGS, LLC

BDO 15" CSP 2 ELBOWS ROD & LUG INV=673.6

STANDARD BASE DITCH SEE DETAIL CC

ANGLED GRATES 2-2GI

INV=669.8

LATERAL V DITCH SEE DETAIL I

PSH SEE DET N

15" CSP 2 ELBOWS ROD & LUG

18" RCP-IV

CHANNEL BLOCK SEE DETAIL H

INV=662.6

15" CSP 2 ELBOWS ROD & LUG

BERM DITCH SEE DETAIL L

66" RCP-III BURIED 1.0'

LATERAL BASE DITCH SEE DETAIL B INV=661.6

INV=665.4

INV=656.9

ROCK VANE SEE DETAIL NN

GRADE TO DRAIN

TBJB w/Slab Lid

RETAIN

GRAU-350

-FETEMP-

-RPF-

-RPE-

UNDER CONSTRUCTION

REMOVE

PLUG

LATERAL V DITCH SEE DETAIL M

FILL W/ FLOWABLE FILL

SPECIAL CUT DITCH SEE DETAIL E

FILL JB 2 PLUGS

REMOVE DI AND 30' 18" RCP

POSSIBLE 24" RCP

PROP. CONC. BARRIER

15" CONC. LOCATION APPROXIMATE 18" RCP

POWER POLE

OHP

DRAWN PER RECORD

RETAIN SYSTEM

BM#103 -BYO- STA 86+76 13 LEFT ELEV. 684.00'

I-85 NB

I-85 SB

36" RCP

18" RCP-III

18" RCP

45" RW (SBW)

304.60' S 32°01'17" E

657.57

657.61

658.66

662.88

663.89

665.26

667.38

667.75

677.73

677.30

649.17

649.65

650.59

658.53

659.18

659.17

657.37

657.61

45+00

60+00

75+00

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	9B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 42 OF 56

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RUMMEL, KLEPPER & KAHL, LLP
900 ROCKFIELD DRIVE SUITE 250
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

ENGLISH

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

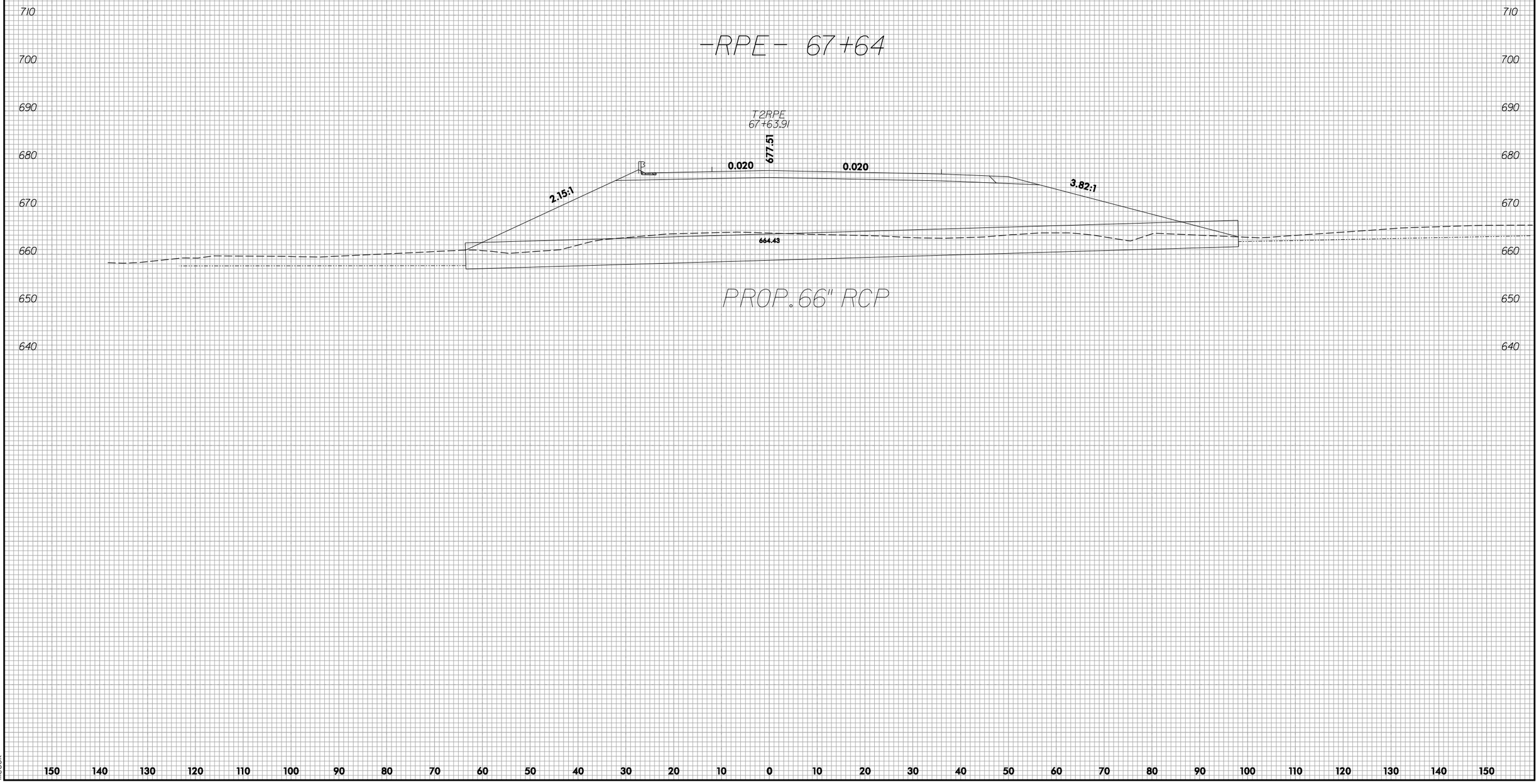
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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2123CE	

PERMIT DRAWING
SHEET 43 OF 56

SITE 8



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mcook

THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
	R-2123CE	32
STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	R/W SHEET NO.	
PLANS PREPARED BY: RK&K RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 (919) 878-9560	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	PERMIT SHEET	**DRAWING 44 OF 56**

-RPE-

66" RCP III HYDRAULIC DATA

STA. -RPE- 67+64

DESIGN DISCHARGE	= 132	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 668.0	FT
BASE DISCHARGE	= 151	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 668.5	FT
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING ELEVATION	= NA	FT

-RPE- STA. 62+33.72=
-RPC- STA. 26+24.03

PI = 65+00.00
EL = 675.00'
VC = 300'
K = 268

PROPOSED GRADE

(+)2.0690%

(+)0.9500%

BEG. STANDARD BASE DITCH
-RPE- STA. 63+75 LT
EL. 652.50'

66" RCP III

(+) 5.3846%

EXISTING GROUND

END LAT. BASE DITCH
-RPE- STA. 68+25 RT
EL. 665.40'

(+) 1.4255%

BEG. LAT. BASE DITCH
-RPE- STA. 67+73 RT
EL. 662.60'

END STANDARD BASE DITCH
-RPE- STA. 68+45 LT
EL. 659.20'

BM * 22
-RPE- STA 73+51.46
337.66' LT
ELEV = 682.08'

SEE SHEET 9 FOR -RPE- PLAN

-RPE-

EXISTING GROUND

HIGH POINT
-RPE- STA. 78+09.82
ELEV = 686.76

PI = 77+82.00
EL = 687.18'
VC = 232'
K = 151

(+)0.9500%

(-)0.5825%

END CONSTRUCTION
-RPE- STA. 81+88.06
ELEV = 684.61'

PI = 81+13.00
EL = 685.25'

PI = 81+63.00
EL = 684.86'

(-)0.7807%

(-)0.9999%

PROPOSED GRADE

SEE SHEETS 9 & 15 FOR -RPE- PLAN

$FILE$

$DATE$

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PERMIT SHEET	**DRAWING 45 OF 56**

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

TO BE DESIGNED, INSTALLED AND IMPACTS PERMITTED BY THE R-2248E DESIGN-BUILD TEAM

SITE 10

SITE 11

NAD 83

MATCHLINE -L- STA 93+00 (SHEET 7)

MATCHLINE -RPF- (SHEET 7) STA 76+00

ALMA C. VEREEN

CHARLES A. FERGUSON

GWENDOLYN ABLE

WILLIAM THOMAS GRAVES, JR

MATTIE FETHERSON

IRIS H. JORDAN

THE HOLLAND LIVING TRUST
HOYLE N. HOLLAND
NANCY H. HOLLAND

JOHN C. FOSTER

BOBBY EUGENE BOST
ELIZABETH W. BOST

NCDOT

I-485 EB

I-485 WB

-L-

-RPA-

-RPE-

-RPF-

HOMEWOOD DRIVE

PROP GUIDERAIL

PROP 48"W.W. FENCE

MODIFIED BASIN
SEE DETAIL
SECTION A-A

CREST
ELEV=684.0
BASIN INVERT ELEV=681.5

SP. LAT. V DITCH
SEE DETAIL S

SPECIAL CUT DITCH
SEE DETAIL E

BERM DITCH
SEE DETAIL L

BERM DITCH
SEE DETAIL R

BERM DITCH
SEE DETAIL Q

MEDIAN V DITCH
SEE DETAIL P

POND DRAINAGE AREA
TO BE CONTAINED
WITHIN R-2248E SYSTEM

BREACH POND DAM
& DRAIN POND
SEE DETAIL M23

30" CSP
2 ELBOWS
ROD & LUG

15" CSP
2 ELBOWS
ROD & LUG

18" CSP
2 ELBOWS,
ROD & LUG

30" RCP-III

15" RCP-III

18" RCP-III

24" RCP-III

42" RCP-III

48" WW & ISBW

CAT-I

2GI

2GI-A

JB wMH

BDO

FS

INV=720.0

INV=679.3

INV=681.9

INV=679.0

INV=680.0

INV=692.0

INV=695.5

INV=710.0

ELEV=685.5 PROP

681.35

682.51

684.66

679.97

681.09

681.72

681.73

682.35

695.49

695.65

696.88

712.84

716.03

717.80

718.30

95+00

100+00

105+00

110+00

115+00

80+00

85+00

90+00

S 29° 09' 16.6" E

N 33° 09' 16.6" W

S 03°56'55" W 209.92'

S 01°57'01" W 365.46'

S 07°07'33" E 239.55'

S 03°40'25" E 229.36'

N 35°20'26" E 449.15'

N 69°54'45" E 402.43'

S 72°29'54" W 249.29'

-TZRP- STA. 10+66.11

-L LP- STA. 104+99.57

STA. 1524+52

END 380

EMERGENCY SHUNT (EL = 688.50)

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENGLISH

SEE SHEET 25 FOR -L- PROFILE
SEE SHEET 26 FOR -RPA- PROFILE
SEE SHEET 30 FOR -RPE- PROFILE
SEE SHEET 35 FOR -RPF- PROFILE

$FILE$

$DATE$

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PERMIT SHEET	DRAWING 46 OF 56

TO BE DESIGNED, INSTALLED AND IMPACTS PERMITTED BY THE R-2248E DESIGN-BUILD TEAM

NAD 83

SITE 10

SITE 11

-L- STA 93+00 (SHEET 7)

MATCHLINE -RPE- STA 20+00

MATCHLINE -RPF- (SHEET 7) STA 76+00

ALMA C. VEREEN

CHARLES A. FERGUSON

GWENDOLYN ABLE

WILLIAM THOMAS GRAVES, JR

MATTIE FETHERSON

HOMEWOOD DRIVE

NCDOT

MODIFIED BASIN SEE DETAIL SECTION A-A

CREST ELEV=684.0
BASIN INVERT ELEV=681.5

SPECIAL CUT DITCH SEE DETAIL E

SP. LAT. V DITCH SEE DETAIL S

30" CSP 2 ELBOWS ROD & LUG

15" CSP 2 ELBOWS ROD & LUG

18" CSP 2 ELBOWS, ROD & LUG

BERM DITCH SEE DETAIL L

BERM DITCH SEE DETAIL R

BERM DITCH SEE DETAIL Q

MEDIAN V DITCH SEE DETAIL P

POND DRAINAGE AREA TO BE CONTAINED WITHIN R-2248E SYSTEM

BREACH POND DAM & DRAIN POND SEE DETAIL M23

IRIS H. JORDAN

THE HOLLAND LIVING TRUST
HOYLE N. HOLLAND
NANCY H. HOLLAND

JOHN C. FOSTER

BOBBY EUGENE BOST
ELIZABETH W. BOST

I-485 EB

I-485 WB

PROP GUIDERAIL

PROP 48" W.W. FENCE

48" WW & ISBW

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENGLISH

SEE SHEET 25 FOR -L- PROFILE
SEE SHEET 26 FOR -RPA- PROFILE
SEE SHEET 30 FOR -RPE- PROFILE
SEE SHEET 35 FOR -RPF- PROFILE

$FILE$

$DATE$

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2123CE	X-83

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290

PERMIT DRAWING
SHEET 47 OF 56

720
710
700
690
680
670

698.41
6:1 6:1 0.020 0.020 6:1
sp 174
sp el.695.86
D.P. 696.59

98+50

720
710
700
690
680

698.80
6:1 6:1 0.020 0.020 6:1
sp 172
sp el.695.47
D.P. 696.98

98+00

SITE 10

WETLAND IS BETWEEN CROSS SECTIONS

730
720
710
700
690

699.33
6:1 6:1 0.020 0.020 6:1 S.S. 698.34
6:1
695.53
D.P. 697.51

97+50

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290

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mcook

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 48 OF 56

SITE 15
SEE PSH 8B

SITE 12

SITE 14

SITE 13

NAD 83

MATCHLINE -Y- STA 56+00 (SHEET 13)

MATCHLINE -Y- STA 69+00 (SHEET 8)

MATCHLINE -RPB- STA 16+00 -RPF- STA 28+55 (SHEET 8)

-BY- PINC 47+78.17

ROBERT D CROOK

TIMOTHY WRIGHT & SHAMIKA WRIGHT

NICHOLE STANTON

CHARLOTTE INC MAPLEWOOD HOMEOWNERS ASSOC

MICHAEL E HORTON & JACLYN L HORTON

KRATT ENTERPRISES LLC

LATERAL BASE DITCH SEE DETAIL A

LATERAL BASE DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL GG

LATERAL BASE DITCH SEE DETAIL JJ
ROCK CROSS VANE SEE DETAIL MM
CHANNEL BLOCK SEE DETAIL H

BERM DITCH SEE DETAIL R

TOE PROTECTION SEE DETAIL F

15" CSP 2 ELBOWS ROD & LUG

18" CSP 2 ELBOWS ROD & LUG

18" RCP-IV

15" RCP-III

24" RCP-III

30" RCP-III

36" RCP-III

36" RCP-III SP

24" CSP

GRAU-350

2GI

2GI-A

JB wMH

JB w/ Slab Lid

RETAIN SYSTEM

REMOVE

COLLAR

CONC HW

CAT-I

INV=649.4

INV=661.0

INV=649.8

INV=653.4

INV=632.5

INV=664.0

649.71

650.25

628.93

634.53

I-85 SB

I-85 NB

-RPF-

-RPG-

-RPB-

-Y-

60+00

65+00

85+00

20+00

25+00

15+00

N 39° 22' 34.1" E

N 43° 01' 32.5" E

+36.74 100.00'

+80.00 100.00'

+70.00 100.00'

+85.00 100.75'

+87.20 97.13'

PROP 48" W.W. FENCE

REMOVE W.W. FENCE

48" WW & ISBW

EXISTING R/W

EXISTING W.W.

ENGLISH

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 27 FOR -RPB- PROFILE
SEE SHEET 33 FOR -RPF- PROFILE
SEE SHEET 38 FOR -RPG- PROFILE
SEE SHEET 43 FOR -Y- PROFILE

$FILE$

$DATE$

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-9960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 49 OF 56

SITE 15
SEE PSH 8B

SITE 12

SITE 14

SITE 13

NAD 83

MATCHLINE -Y- STA 56+00 (SHEET 13)

MATCHLINE -Y- STA 69+00 (SHEET 8)

MATCHLINE -RPB- STA 16+00 (SHEET 8)

MATCHLINE -RPF- STA 28+55 (SHEET 8)

ROBERT D CROOK

TIMOTHY WRIGHT & SHAMIKA WRIGHT

NICHOLE STANTON

MICHAEL E HORTON & JACLYN L HORTON

CHARLOTTE INC MAPLEWOOD HOMEOWNERS ASSOC

KRATT ENTERPRISES LLC

-BY- PINC 47+78.17

-RPG-

-RPF-

-RPB-

-Y-

I-85 SB

I-85 NB

60+00

65+00

85+00

20+00

25+00

15+00

N 39° 22' 34.1" E

N 43° 01' 32.5" E

LATERAL BASE DITCH SEE DETAIL A

LATERAL BASE DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL GG

LATERAL BASE DITCH SEE DETAIL JJ

ROCK CROSS VANE SEE DETAIL MM

CHANNEL BLOCK SEE DETAIL H

BERM DITCH SEE DETAIL R

TOE PROTECTION SEE DETAIL F

15" CSP 2 ELBOWS ROD & LUG

18" CSP 2 ELBOWS ROD & LUG

INV=661.0

INV=649.4

INV=632.5

INV=653.4

INV=649.8

INV=664.0

649.71

650.42

628.93

24" RCP-III

30" RCP-III

36" RCP-III

15" RCP-III

18" RCP-IV

18" RCP-III

36" RCP-III SF

24" CMP RETAIN

24" RCP

36" RCP

GRAU-350

24" CSP

2GI

2GI-A

JB wMH

JB w/ Slab Lid

COLLAR

CONC HW

REMOVE

RETAIN SYSTEM

RETAIN

CAT-1

FS

BDO

CB

DI

EP

PROP 48" W.W. FENCE

REMOVE W.W. FENCE

48" WW (SBW

EXISTING R/W

EXISTING W.W.

MTL

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 27 FOR -RPB- PROFILE
SEE SHEET 33 FOR -RPF- PROFILE
SEE SHEET 38 FOR -RPG- PROFILE
SEE SHEET 43 FOR -Y- PROFILE

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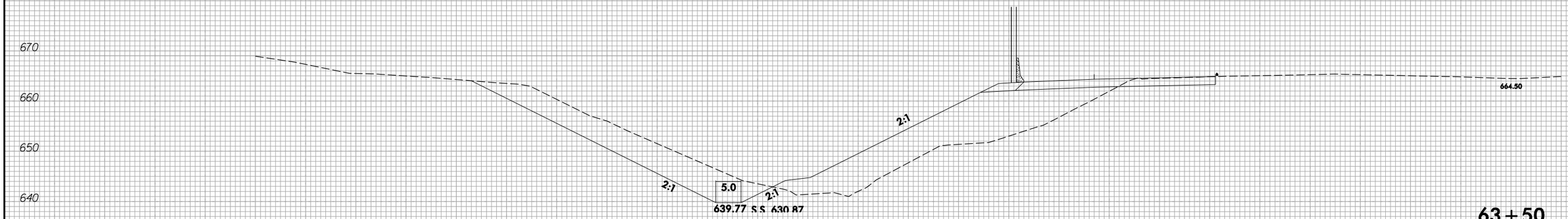
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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2123CE	X-100

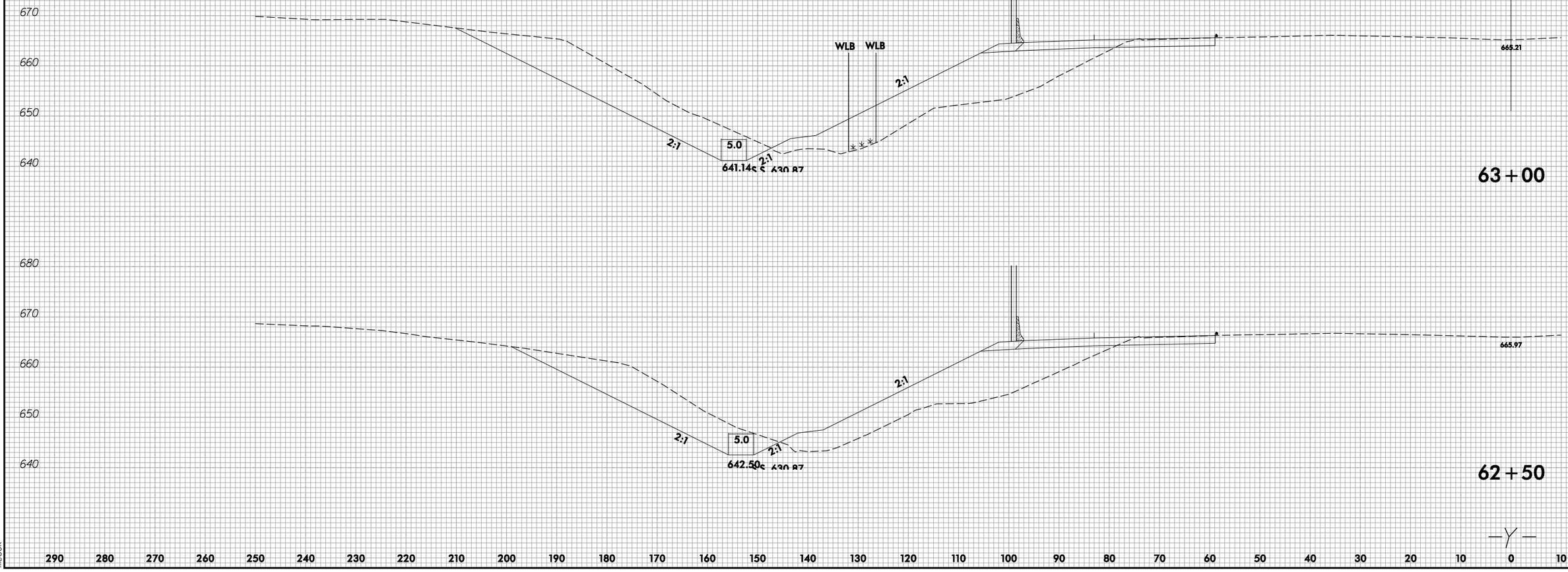
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PERMIT DRAWING
SHEET 50 OF 56



63+50

SITE 14



63+00

62+50

290 280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10

—Y—

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mcook

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-9960
NC LICENSE NO. F-0112 ☎(919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PERMIT SHEET	**DRAWING 51 OF 56**

NAD 83

(85) SPEEDWAY MOTORSPORTS INC

SPEEDWAY MOTORSPORTS INC

(91) DAVIDLAND, LLC

MATCHLINE -Y- STA 131+00 (SHEET 16)

MATCHLINE -Y- STA 144+00 (SHEET 18)

BERM DITCH SEE DETAIL L

BERM DITCH SEE DETAIL Q

PROP 48" W.W. FENCE

60" WW & ISBW

EXISTING R/W

651.92

650.62

INV. DITCH TO 24" RCP

24" RCP-III

FS

COLLAR

FES

POWER METER & SIGN

MTL

I-85 SBL

I-85 NBL

135+00

140+00

-Y-

N 39° 22' 34.1" E

RETAIN SYSTEM

PROP TRANSITIONAL BARRIER

INV=632.0

15" RCP-III

2GI

REMOVE

-BYO- STA 128+78
13 LEFT
ELEV. 642.53'

FBM #101

INV=625.5

622.06

18" RCP-III

624.93

CAT-1

POWER METER

FIBER MARKER

DIRECT BURIAL FIBER MARKER

PLUG

FILL W/ FLOWABLE FILL

BEGIN 300' TAPER +43.24

END 300' TAPER +43.24

SLOPE DRAIN

JB wSlab Lid

18" CSP
2 ELBOWS
ROD & LUG

ARMOR OUTSIDE BEND W/CLASS II RIPRAP W/FILTER FABRIC

626.40

624.40

631.03

INV=630.9

LATERAL BASE DITCH SEE DETAIL FF

24" CSP
2 ELBOWS
ROD & LUG

INV=630.0

TBJB wSlab Lid

INV=637.8

623.33

TOE PROTECTION SEE DETAIL F

INV=623.8

PROP SBG

PROP 48" W.W. FENCE

(89) WC&C INC.

(87) WAYNE FITE KEITH
RENEE W KEITH

(86) JOHN NEIL BLUM
DB 17856 PG 127

DAVID M AUMAN AND PENNY C AUMAN

SITE 16

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 45 FOR -Y- PROFILE

$FILE$

$DATE$

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-9960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 52 OF 56

NAD 83

85 SPEEDWAY MOTORSPORTS INC

SPEEDWAY MOTORSPORTS INC

91 DAVIDLAND, LLC

STA 131+00 (SHEET 16)

STA 144+00 (SHEET 18)

MATCHLINE -Y- STA 131+00 (SHEET 16)

MATCHLINE -Y- STA 144+00 (SHEET 18)

BERM DITCH SEE DETAIL L

BERM DITCH SEE DETAIL Q

PROP 48" W.W. FENCE

60" WW & ISBW

EXISTING R/W

651.92

650.62

FS

EXIST. DITCH TO 24" RCP

COLLAR

24" RCP-III

POWER METER & SIGN

MTL

I-85 SBL

135+00

140+00

-Y-

N 39° 22' 34.1" E

I-85 NBL

RETAIN

RETAIN SYSTEM

15" RCP

18" RCP

24" RCP

INV=632.0

15" RCP-III

2GI

REMOVE

FBM #101
BYO- STA 128+78
13 LEFT
ELEV. 642.53'

INV=625.5

622.06

18" RCP-III

624.93

FES

COLLAR

CAT-1

DIRECT OPTIC MARKER

FIBER MARKER

RETAIN SYSTEM

PROP TRANSITIONAL BARRIER

PLUG

FILL W/ FLOWABLE FILL

18" RCP-III

TBJB wSlab Lid

2GI

CAT-1

JB wSlab Lid

18" CSP
2 ELBOWS
ROD & LUG

ARMOR OUTSIDE BEND
W/CLASS II RIPRAP
W/FILTER FABRIC

626.40

624.40

INV=637.8

INV=630.9

INV=630.0

LATERAL BASE DITCH
SEE DETAIL FF

24" CSP
2 ELBOWS
ROD & LUG

623.33

TOE PROTECTION
SEE DETAIL F

INV=623.8

REMOVE

BEGIN 300' TAPER +43.24

END 300' TAPER +43.24

SLOPE DRAIN

PROP 48" W.W. FENCE

89 WC&C INC.

87 WAYNE FITE KEITH
RENEE W KEITH

86 JOHN NEIL BLUM
DB 17856 PG 127

DAVID M AUMAN AND PENNY C AUMAN

SITE 16

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 45 FOR -Y- PROFILE

$FILE$

$DATE$

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-9960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PERMIT SHEET	***DRAWING 53 OF 56***

NAD 83

SITE 17

STA 144+00 (SHEET 17) -Y- STA 157+00 (SHEET 19)
MATCHLINE -Y-
MATCHLINE -Y-

DAVIDLAND, LLC
(93) DAVIDLAND, LLC
(90) DEBORAH LYNN WARD DB 534 PG 90
(86) JOHN NEIL BLUM DB 17856 PG 127
(92) DEBORAH LYNN WARD
CABARRUS CO. MECKLENBURG

I-85 SB
I-85 NB
N 39° 22' 34.1" E

PROP 48" W.W. FENCE
PROP SBG
EXISTING R/W
60" WW & ISBW
LATERAL V DITCH SEE DETAIL I
LATERAL BASE DITCH SEE DETAIL B
BERM DITCH SEE DETAIL R
INV=617.6
INV=621.2
INV=605.3 EXISTING R/W
INV=605.2
INV=616.7
RCBC EXCAVATION SEE DETAIL KK: A-A
6' x 8' RCBC
BM #8 W.W. FENCE STA 135+99 2 LEFT ELEV. 626.34'
15" CSP 2 ELBOWS ROD & LUG
24" CSP 2 ELBOWS ROD & LUG
15" CSP 2 ELBOWS ROD & LUG
GRAU-350
2-2GIs
2GI
FS
PLUG
FILL W/ FLOWABLE FILL
RETAIN SYSTEM
RETAIN RCBC
REMOVE
REMOVE DI
REMOVE 2' 18" RCP
18" RCP-III
24" RCP-III
15" RCP-III
TBJB wSlab Lid
CAT-1
SLOPE DRAIN
POWER METER
48" WD RAIL&WW
GR
TDE
JS
TS

RCBC EXCAVATION SEE DETAIL KK: B-B
8' X 6' CONC

EXCAVATION DETAIL KK: A-A

EXCAVATION DETAIL KK: B-B

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

SEE SHEET 46 FOR -Y- PROFILE

$FILE$
$DATE$

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

PLANS PREPARED BY:
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PERMIT SHEET	***DRAWING 54 OF 56***

NAD 83

SITE 17

MATCHLINE -Y- STA 144+00 (SHEET 17)

MATCHLINE -Y- STA 157+00 (SHEET 19)

-Y- 145+00 150+00 155+00

N 39° 22' 34.1" E

I-85 SB

I-85 NB

DAVIDLAND, LLC

(93) DAVIDLAND, LLC

(90) DEBORAH LYNN WARD
DB 534 PG 90

(86) JOHN NEIL BLUM
DB 17856 PG 127

(92) DEBORAH LYNN WARD

CABARRUS CO
MECKLENBURG

PROP 48" W.W. FENCE

EXISTING R/W

LATERAL BASE DITCH
SEE DETAIL B

LATERAL V DITCH
SEE DETAIL I

BERM DITCH
SEE DETAIL R

60" WW & ISBW

TDE

RCBC EXCAVATION
SEE DETAIL KK: A-A

6' x 8' RCBC

BM -Y- STA 135+99
2 LEFT
ELEV. 626.34'

15" CSP
2 ELBOWS
ROD & LUG

GRAU-350

2-2GIs

PLUG

FILL W/ FLOWABLE FILL

RETAIN SYSTEM

RETAIN RCBC

REMOVE

REMOVE 2' 18" RCP

REMOVE DI

15" CMP DIRECTION ONLY

TBJB wSlab End

18" CMP

18" RCP-III

24" RCP-III

2GI

FS

SLOPE DRAIN

INV=621.2

INV=605.3 EXISTING R/W

INV=605.2

INV=616.7

RCBC EXCAVATION
SEE DETAIL KK: B-B

8' x 8' RCBC

15" RCP-III

24" CSP
2 ELBOWS
ROD & LUG

CAT-1

15" CSP
2 ELBOWS
ROD & LUG

TBJB wSlab Lid

24" CONC FES

48" WD RAIL&WW

GR

JS

B

A

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

ENGLISH

SEE SHEET 46 FOR -Y- PROFILE

$FILE$

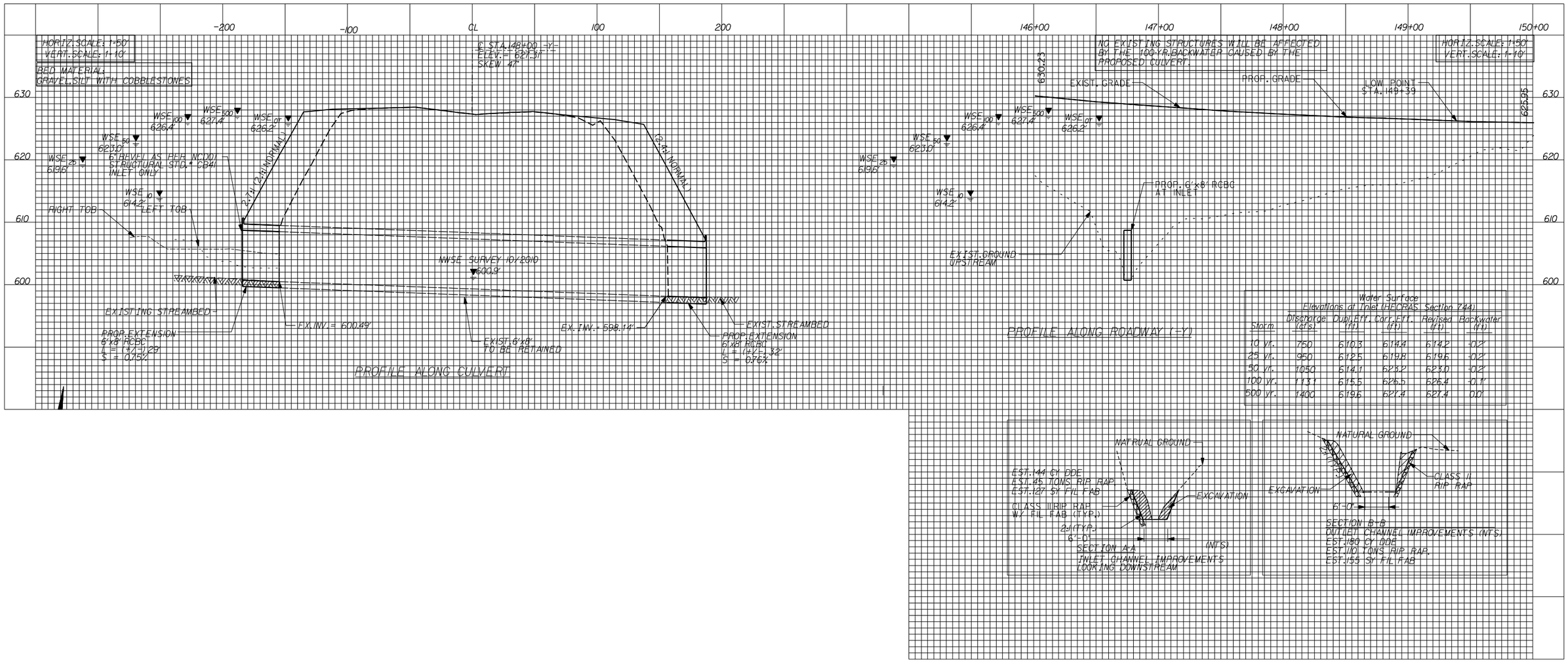
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8/23/99

	PROJ. REFERENCE NO.	SHEET NO.
	R-2123CE	

PERMIT DRAWING
SHEET 55 OF 56

SITE 17



Water Surface
Elevations at Inlet (HECRAS, Section 744)

Storm	Discharge (cfs)	Dub.Eff. (ft)	Corr.Eff. (ft)	Revised (ft)	Backwater (ft)
10 yr.	750	614.3	614.4	614.2	-0.2'
25 yr.	950	619.5	619.8	619.6	-0.2'
50 yr.	1050	623.1	623.2	623.0	-0.2'
100 yr.	1131	626.5	626.6	626.4	-0.1'
500 yr.	1400	627.4	627.4	627.4	0.0'

05\25\11 13:56:22
r:\hydraulics\permits_environmental\Xsc\R2123CE_CULVERT_XPL_Site18.dgn
mcook

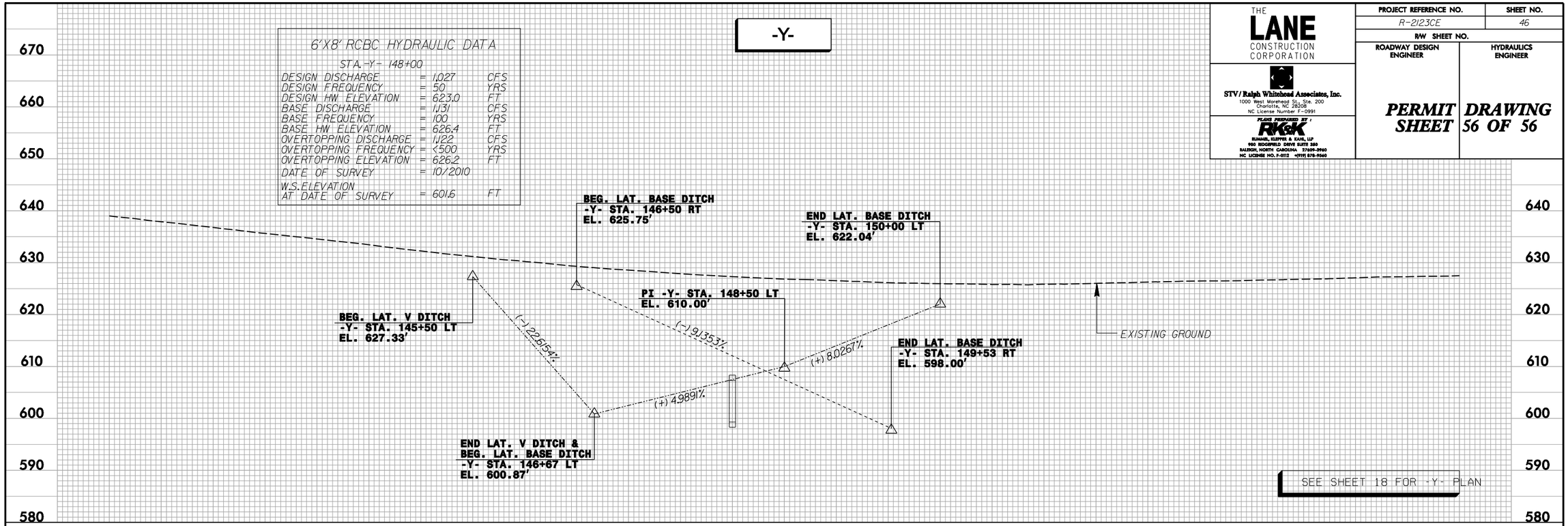
THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
	R-2123CE	46
STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	R/W SHEET NO.	
PLANS PREPARED BY: RK&K RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-9960 NC LICENSE NO. F-0112 (919) 878-9560	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	PERMIT SHEET	DRAWING 56 OF 56

6'X8' RCBC HYDRAULIC DATA

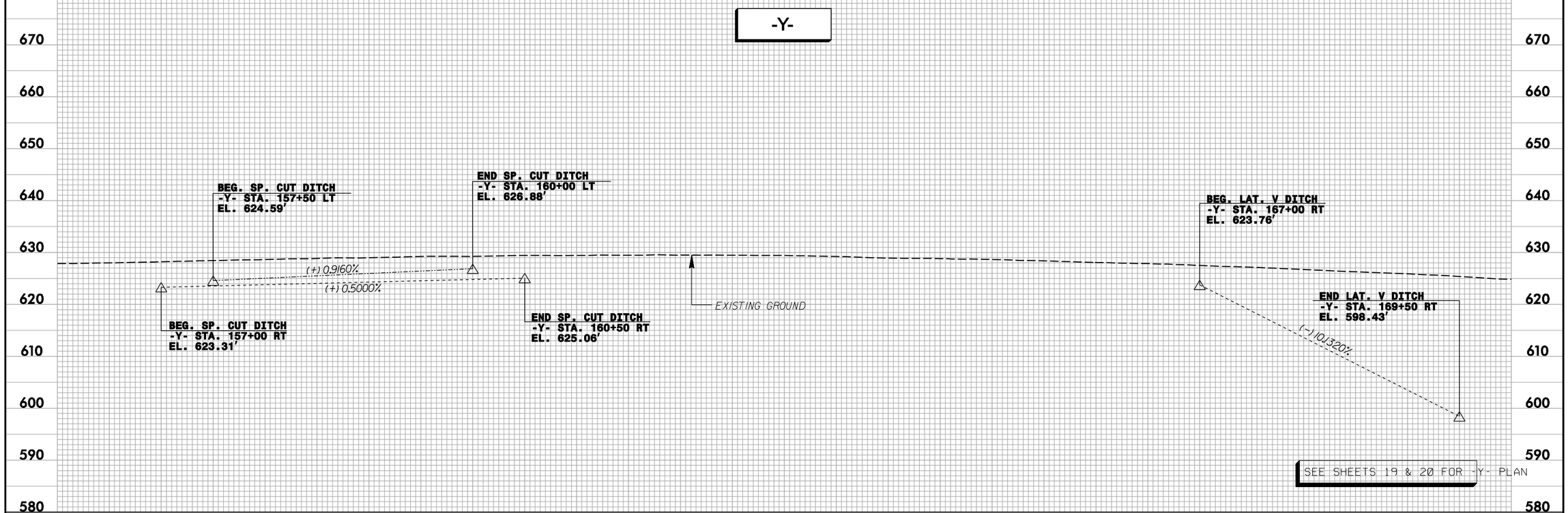
STA. -Y- 148+00

DESIGN DISCHARGE	= 1,027	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 623.0	FT
BASE DISCHARGE	= 1,131	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 626.4	FT
OVERTOPPING DISCHARGE	= 1,122	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 626.2	FT
DATE OF SURVEY	= 10/2010	
W.S. ELEVATION AT DATE OF SURVEY	= 601.6	FT

-Y-



-Y-



$FILE$

$DATE$

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2123CE	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34379.1.1	NHF-0485(26)	PE
34379.2.1		R/W & UTILITY
34379.3.1		CONST.

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & CABARRUS COUNTY

PERMIT APPLICATION SUBMITTAL
SUBMITTED: 05-24-11
SUBMITTAL #D-017

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

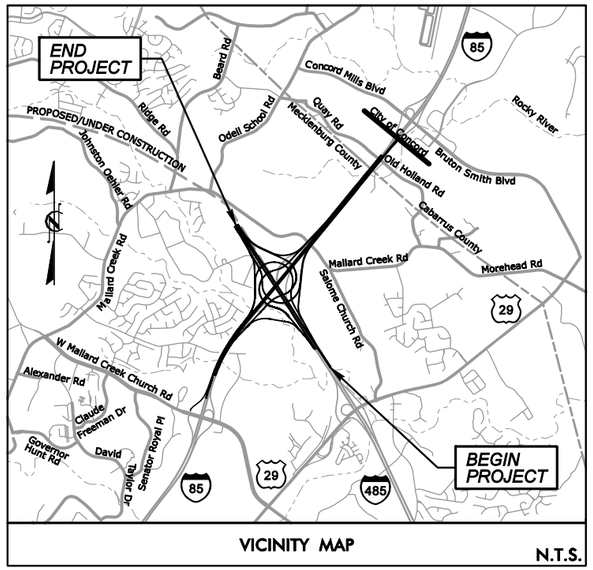
TIP PROJECT: R-2123CE

CONTRACT: C202523

RIGHT OF WAY PLANS

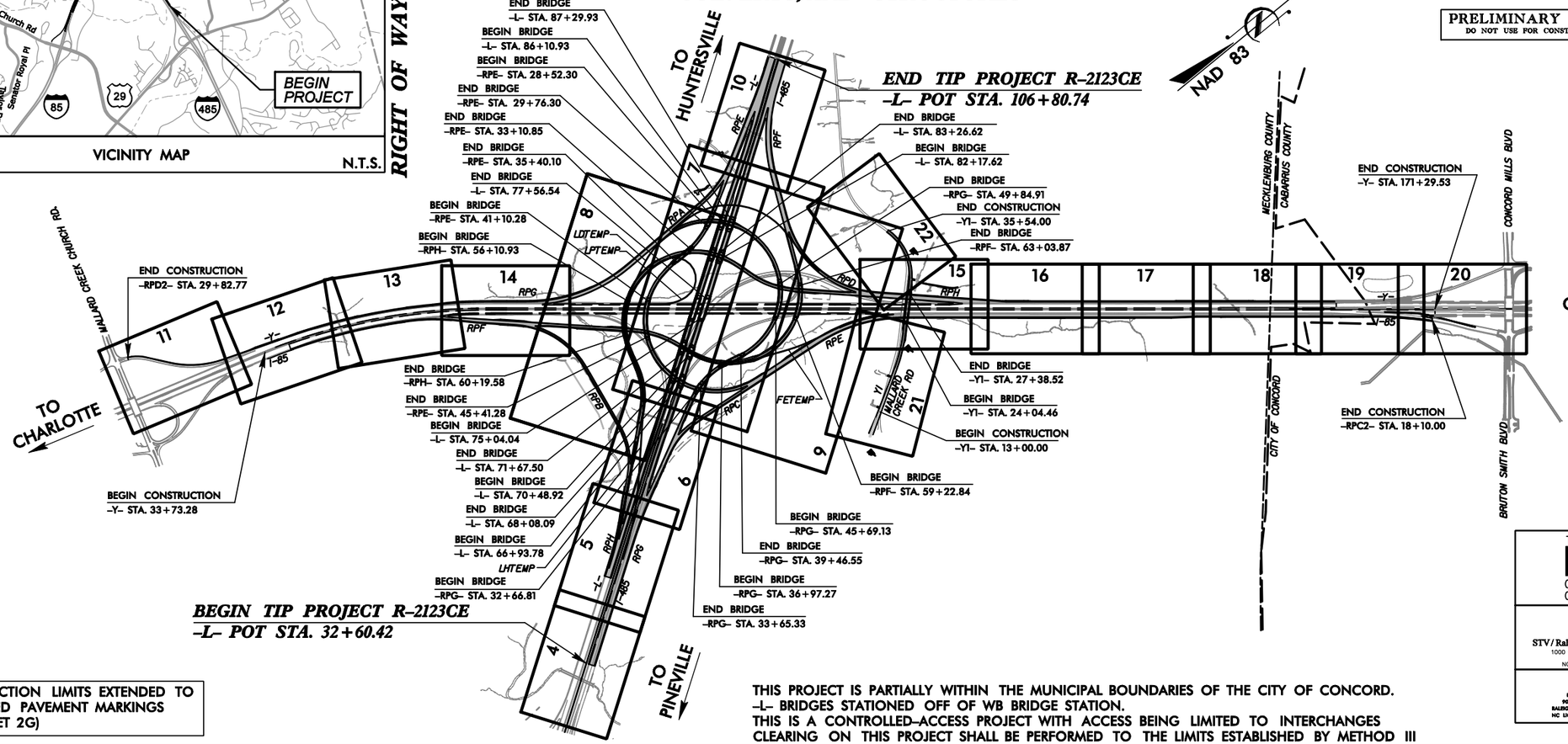
LOCATION: I-485 (CHARLOTTE EASTERN OUTER LOOP) /I-85

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING, CULVERTS, AND STRUCTURES



VICINITY MAP

N.T.S.



NOTE: CONSTRUCTION LIMITS EXTENDED TO COVER PROPOSED PAVEMENT MARKINGS (SEE DETAIL SHEET 2G)

THIS PROJECT IS PARTIALLY WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF CONCORD.
-L- BRIDGES STATIONED OFF OF WB BRIDGE STATION.
THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

THE LANE CONSTRUCTION CORPORATION

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

I-485 (-L-)

ADT 2008 = 66,600
ADT 2035 = 155,800
DHV = 10%
D = 55%
T = 13% *
V = 70 mph

FUNCTIONAL CLASSIFICATION: INTERSTATE
* (TTST 8% + DUAL 5%)

DESIGN DATA

I-85 (-Y-)

ADT 2008 = 104,600
ADT 2035 = 190,400
DHV = 10%
D = 55%
T = 15% *
V = 70 mph

FUNCTIONAL CLASSIFICATION: INTERSTATE
* (TTST 10% + DUAL 5%)

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-2123CE = 1.270 MILES

LENGTH OF STRUCTURE TIP PROJECT R-2123CE = 0.135 MILES (BASED ON WB BRIDGES)

TOTAL LENGTH OF TIP PROJECT R-2123CE = 1.405 MILES

NCDOT CONTACT: RODGER ROCHELLE, PE
Project Engineer – Alternate Delivery Unit

PLANS PREPARED FOR THE NCDOT BY:
STV/RALPH WHITEHEAD ASSOCIATES, INC.
1000 West Morehead St., Ste. 200, Charlotte NC, 28208
NC License Number F-0991

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 28, 2010

LETTING DATE: SEPTEMBER 28, 2010

JOHN N. JOHNSON, PE
PROJECT ENGINEER

JOSEPH A. FREEMAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

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5/24/2011

THE LANE CONSTRUCTION CORPORATION

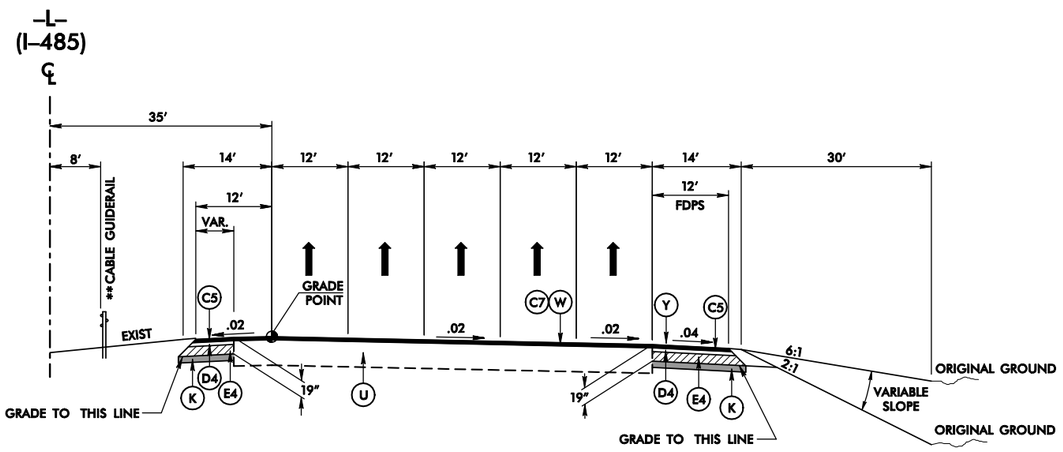
STV/Ralph Whitehead Associates, Inc.
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Charlotte, NC 28208
NC License Number F-0991

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NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

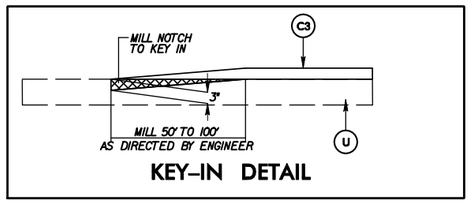
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

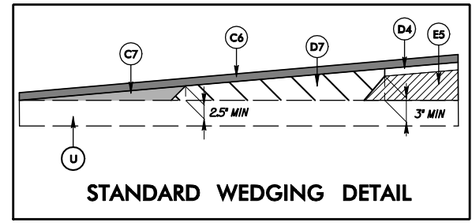


TYPICAL SECTION NO. 1

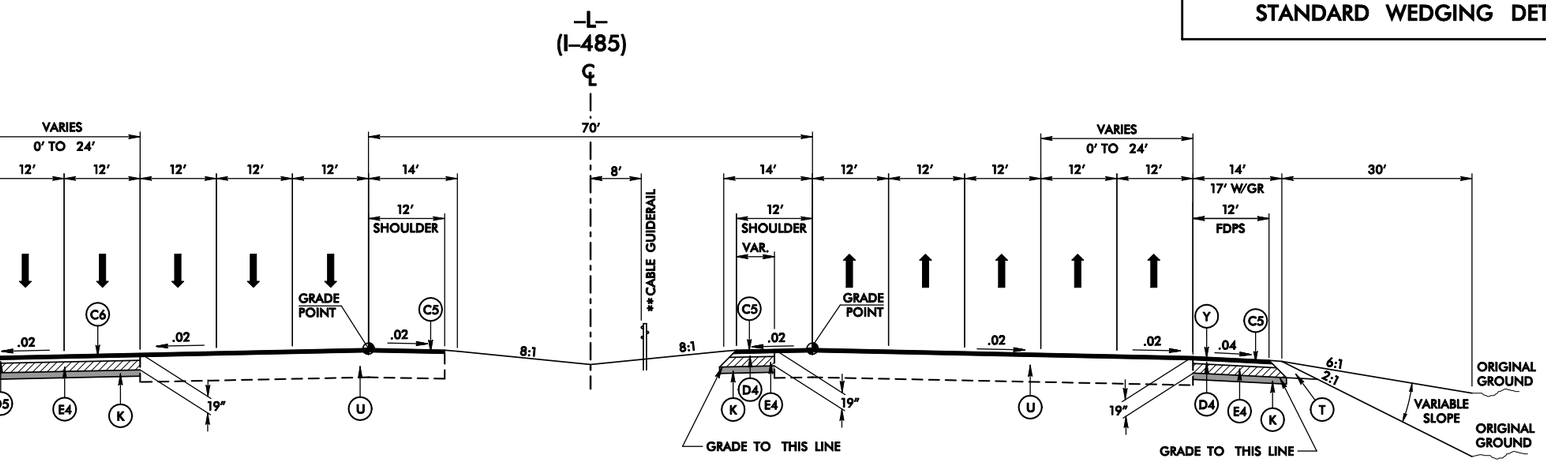
–L– STA 32+60.42 RT TO 43+00.00 RT



KEY–IN DETAIL



STANDARD WEDGING DETAIL



TYPICAL SECTION NO. 2

–L– STA 43+00.00 TO 59+10.00

NOTES:

ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE

TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY, SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS.

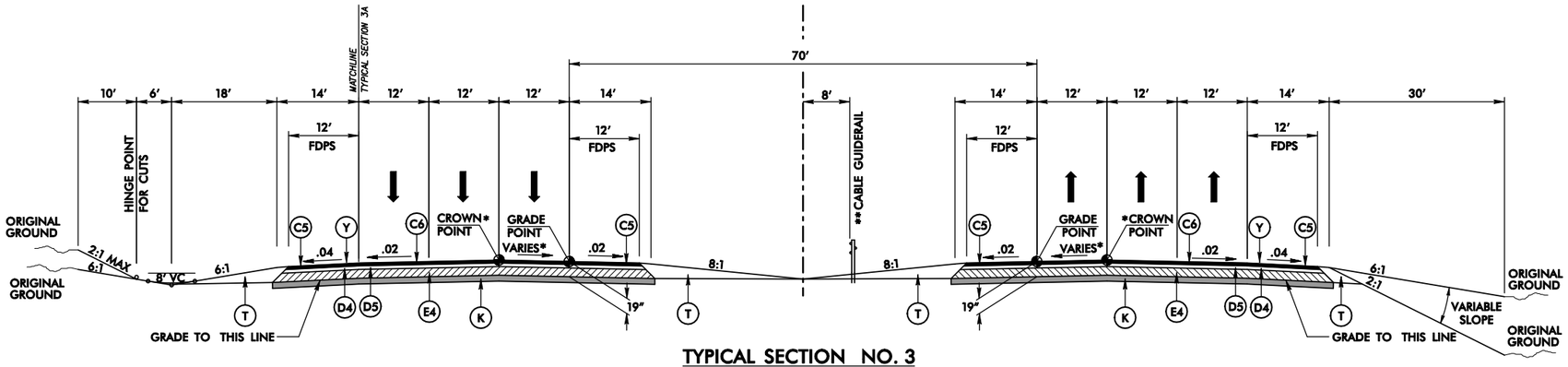
PAVEMENT SCHEDULE

A1	PROPOSED APPROXIMATE 10.5" JOINTED CONCRETE WITHOUT DOWELS	C5	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.	D5	PROP. APPROX. 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0D, AT AN AVERAGE RATE OF 399 LBS. PER SQ.YD.	E5	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5" IN DEPTH.	R4	PROPOSED DOUBLE FACED CONCRETE BARRIER
A2	13" DOWEL JOINTED CONCRETE WITH 15' UNIFORM JOINT SPACING	C6	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.	D6	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ.YD.	J1	PROPOSED 10" AGGREGATE BASE COURSE	T	EARTH MATERIAL
A3	14" DOWEL JOINTED CONCRETE WITH 15' UNIFORM JOINT SPACING	C7	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.	D7	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0D, AT AN AVERAGE RATE OF 114 LBS. PER SQ.YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.	J2	PROPOSED 8" AGGREGATE BASE COURSE	U	EXISTING PAVEMENT
C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ.YD.	D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ.YD.	E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ.YD.	K	SUBGRADE STABILIZATION	W	VARIABLE DEPTH ASPHALT (SEE WEDGING DETAIL)
C2	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.	D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ.YD.	E2	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.	R1	EXPRESSWAY GUTTER	X1	PROPOSED 3" PERMEABLE ASPHALT DRAINAGE COURSE (PADC)
C3	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ.YD.	D3	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ.YD.	E3	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.	R2	SHOULDER BERM GUTTER	X2	PROPOSED 4" PERMEABLE ASPHALT DRAINAGE COURSE (PADC)
C4	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.	D4	PROP. APPROX. 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ.YD.	E4	PROP. APPROX. 12.5" ASPHALT CONCRETE BASE COURSE TYPE B25.0C, AT AN AVERAGE RATE OF 475 LBS. PER SQ.YD. IN EACH OF THREE LAYERS.	R3	PROPOSED SINGLE FACED CONCRETE BARRIER	Y	RUMBLE STRIPS

PAVEMENT SLOPES ARE 1:1UNLESS OTHERWISE NOTED.

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3/4/2011

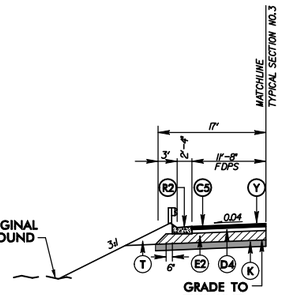


TYPICAL SECTION NO. 3

–L– STA 59+10.00 TO 66+93.78 (BEGIN BRIDGE)
–L– STA 68+08.09 (END BRIDGE) TO 70+48.92 (BEGIN BRIDGE)
–L– STA 71+67.50 (END BRIDGE) TO 75+04.04 (BEGIN BRIDGE)
BRIDGES STATIONED OFF OF WB BRIDGE

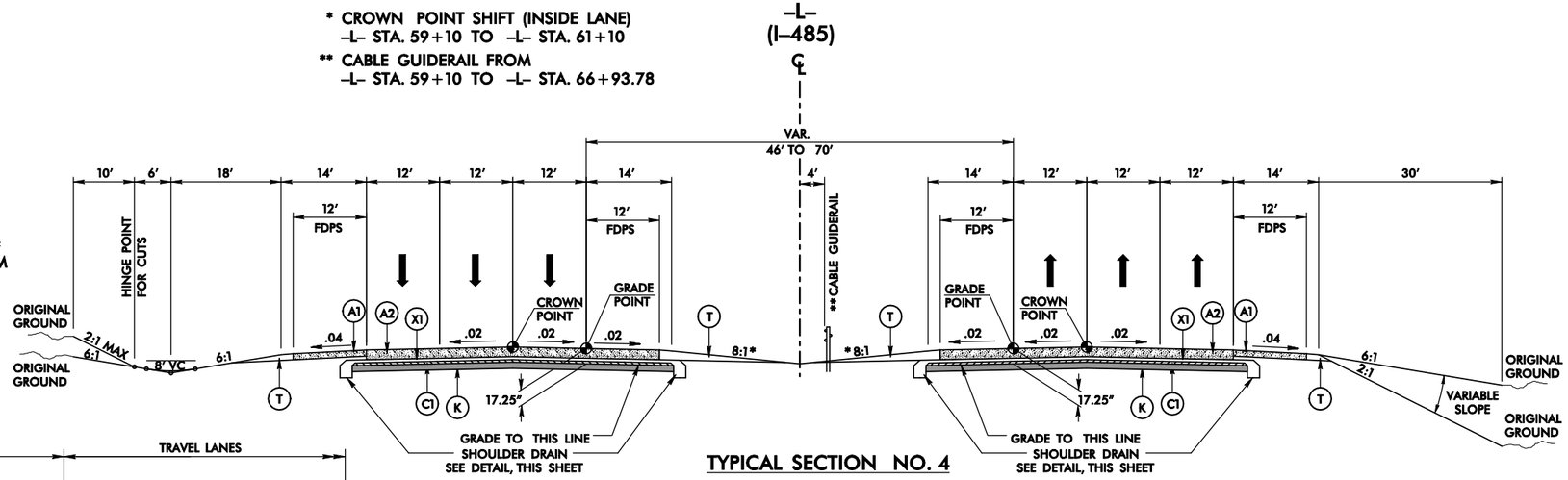
* CROWN POINT SHIFT (INSIDE LANE)
–L– STA. 59+10 TO –L– STA. 61+10

** CABLE GUIDERAIL FROM
–L– STA. 59+10 TO –L– STA. 66+93.78



TYPICAL SECTION NO. 3A

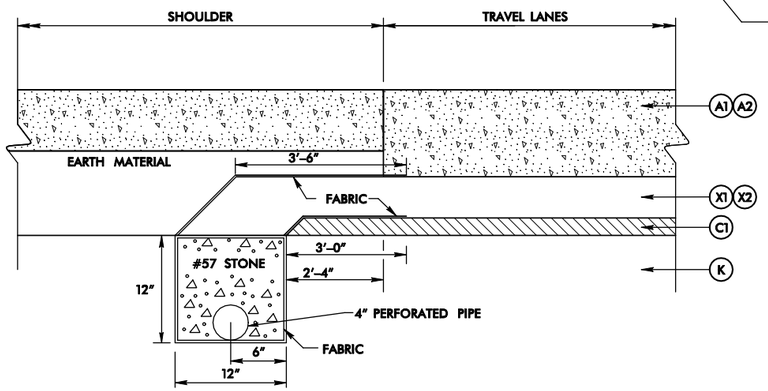
SEE PLANS FOR SHOULDER BERM GUTTER LOCATIONS



TYPICAL SECTION NO. 4

–L– STA 77+56.54 (END BRIDGE) TO 82+17.62 (BEGIN BRIDGE)
–L– STA 83+26.62 (END BRIDGE) TO 86+10.93 (BEGIN BRIDGE)
–L– STA 87+29.93 (END BRIDGE) TO 95+41.22

BRIDGES STATIONED OFF OF WB BRIDGE
* SLOPES VARIES FROM 6:1 TO 8:1 DEPENDING ON MEDIAN WIDTH.
** CABLE GUIDERAIL FROM
–L– STA. 87+29.93 –L– STA. 95+41.22



SHOULDER DRAIN DETAIL

(LIMITS TO BE PROVIDED IN FUTURE SUBMITTAL)

NOTES:

ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE

TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY, SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS.

A1	10.5″ CONCRETE
A2	13″ CONCRETE
A3	14″ CONCRETE
C1	1.25″ S9.5A
C2	1.5″ S9.5D
C3	2″ S9.5C
C4	3″ S9.5B
C5	3″ S9.5C
C6	3″ S9.5D
C7	VAR. S9.5D
D1	2.5″ I19.0B
D2	3″ I19.0B
D3	3″ I19.0C
D4	3.5″ I19.0C
D5	3.5″ I19.0D
D6	4″ I19.0C
D7	VAR. I19.0D
E1	3″ B25.0B
E2	7″ B25.0C
E3	8″ B25.0C
E4	12.5″ B25.0C
E5	VAR. B25.0C
J1	10″ ABC
J2	8″ ABC
K	SUBGRADE STABILIZATION
R1	EXPRESSWAY GUTTER
R2	SHOULDER BERM GUTTER
R3	SINGLE FACED CONCRETE BARRIER
R4	DOUBLE FACED CONCRETE BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING
X1	9″ PADC
X2	4″ PADC
Y	RUMBLE STRIPS

PAVEMENT SLOPES ARE 1:1UNLESS OTHERWISE NOTED.

THE LANE CONSTRUCTION CORPORATION

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NC License Number F-0991

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RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

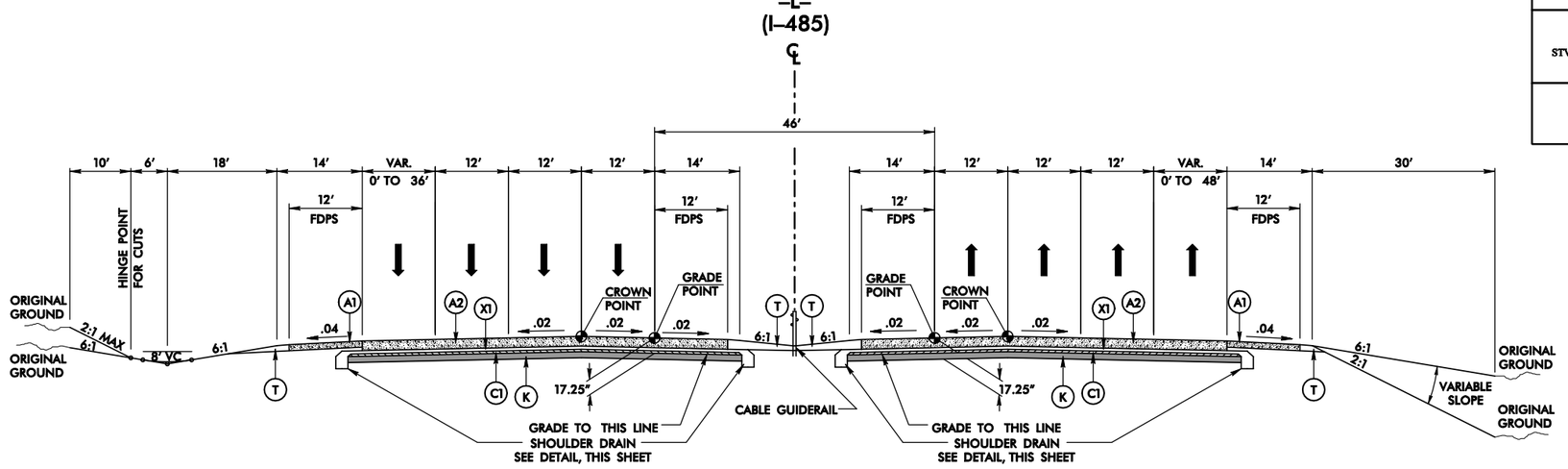
PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	2-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

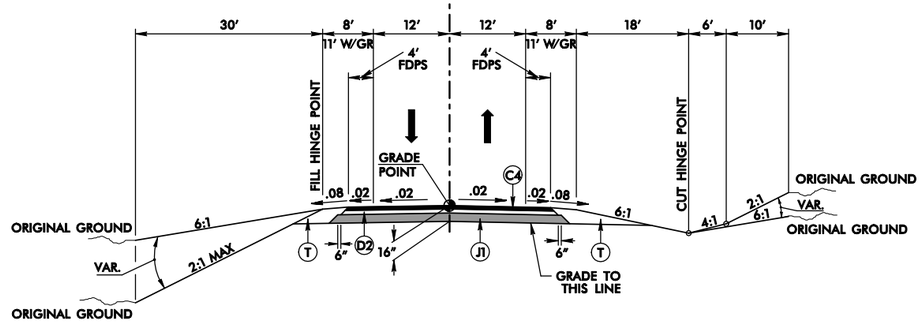
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3/4/2011



TYPICAL SECTION NO. 5

–L– STA 95+41.22 TO 106+80.74



TYPICAL SECTION NO. 6

–Y1– STA. 13+00.00 TO 24+07.85 (BEGIN BRIDGE)
–Y1– STA. 27+37.76 (END BRIDGE) TO 35+54.00

NOTES:

ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE

TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY, SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS.

A1	10.5″ CONCRETE
A2	13″ CONCRETE
A3	14″ CONCRETE
C1	1.25″ S9.5A
C2	1.5″ S9.5D
C3	2″ S9.5C
C4	3″ S9.5B
C5	3″ S9.5C
C6	3″ S9.5D
C7	VAR. S9.5D
D1	2.5″ I19.0B
D2	3″ I19.0B
D3	3″ I19.0C
D4	3.5″ I19.0C
D5	3.5″ I19.0D
D6	4″ I19.0C
D7	VAR. I19.0D
E1	3″ B25.0B
E2	7″ B25.0C
E3	8″ B25.0C
E4	12.5″ B25.0C
E5	VAR. B25.0C
J1	10″ ABC
J2	8″ ABC
K	SUBGRADE STABILIZATION
R1	EXPRESSWAY GUTTER
R2	SHOULDER BERM GUTTER
R3	SINGLE FACED CONCRETE BARRIER
R4	DOUBLE FACED CONCRETE BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING
X1	3″ PADC
X2	4″ PADC
Y	RUMBLE STRIPS

PAVEMENT SLOPES ARE 1:1UNLESS OTHERWISE NOTED.

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
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NC License Number F-0991

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NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

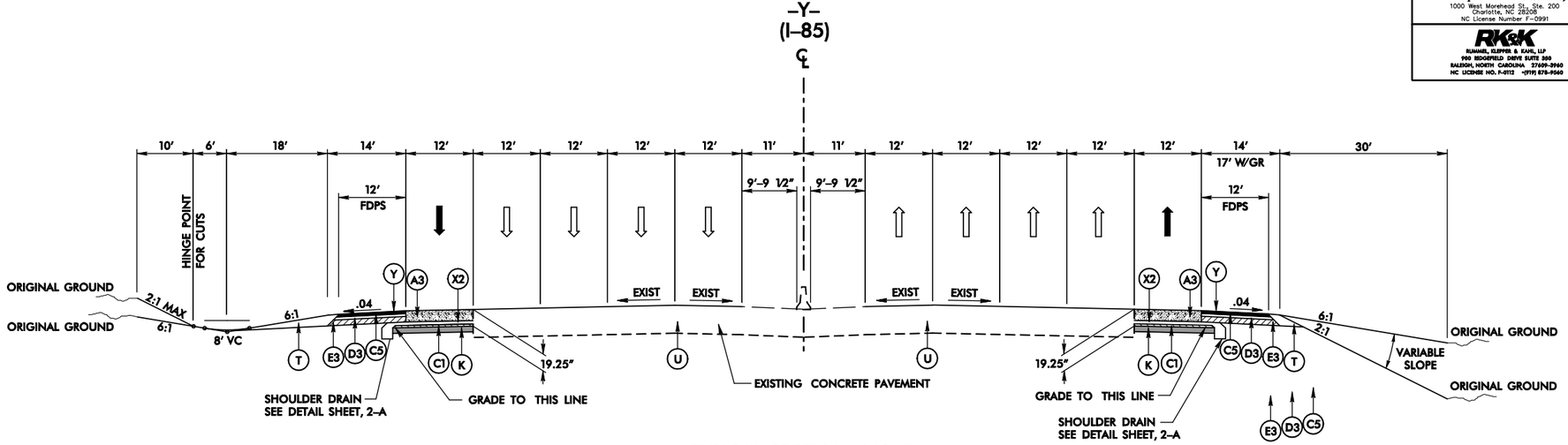
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NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	2-C
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

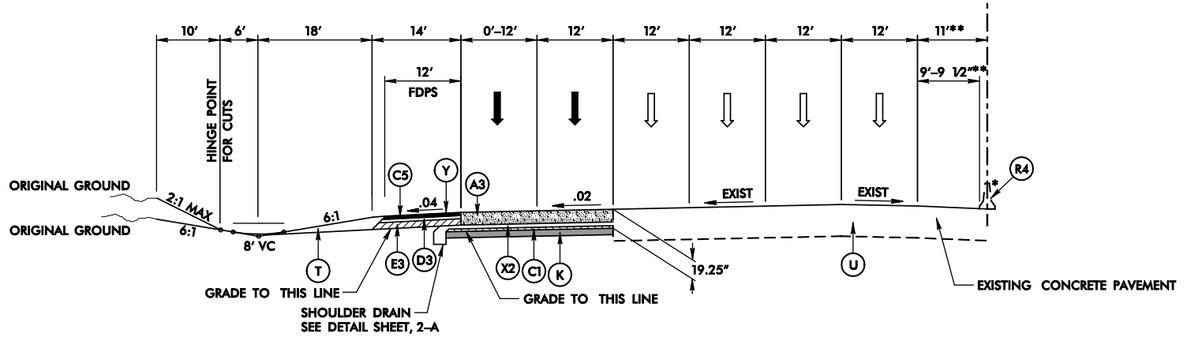
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 7

–Y– STA 36+67.98 TO 50+32.58



TYPICAL SECTION NO. 8

–Y– STA 50+32.58 TO 63+87.96

* SLOPES VARIES FROM 6:1 TO 8:1 DEPENDING ON MEDIAN WIDTH.

** 7.67′ IN AREAS OF MEDIAN BENTS.

NOTES:

ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE

TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY, SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS.

A1	10.5″ CONCRETE
A2	13″ CONCRETE
A3	14″ CONCRETE
C1	1.25″ S9.5A
C2	1.5″ S9.5D
C3	2″ S9.5C
C4	3″ S9.5B
C5	3″ S9.5C
C6	3″ S9.5D
C7	VAR. S9.5D
D1	2.5″ I19.0B
D2	3″ I19.0B
D3	3″ I19.0C
D4	3.5″ I19.0C
D5	3.5″ I19.0D
D6	4″ I19.0C
D7	VAR. I19.0D
E1	3″ B25.0B
E2	7″ B25.0C
E3	8″ B25.0C
E4	12.5″ B25.0C
E5	VAR. B25.0C
J1	10″ ABC
J2	8″ ABC
K	SUBGRADE STABILIZATION
R1	EXPRESSWAY GUTTER
R2	SHOULDER BERM GUTTER
R3	SINGLE FACED CONCRETE BARRIER
R4	DOUBLE FACED CONCRETE BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING
X1	3″ PADC
X2	4″ PADC
Y	RUMBLE STRIPS

PAVEMENT SLOPES ARE 1:1UNLESS OTHERWISE NOTED.

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

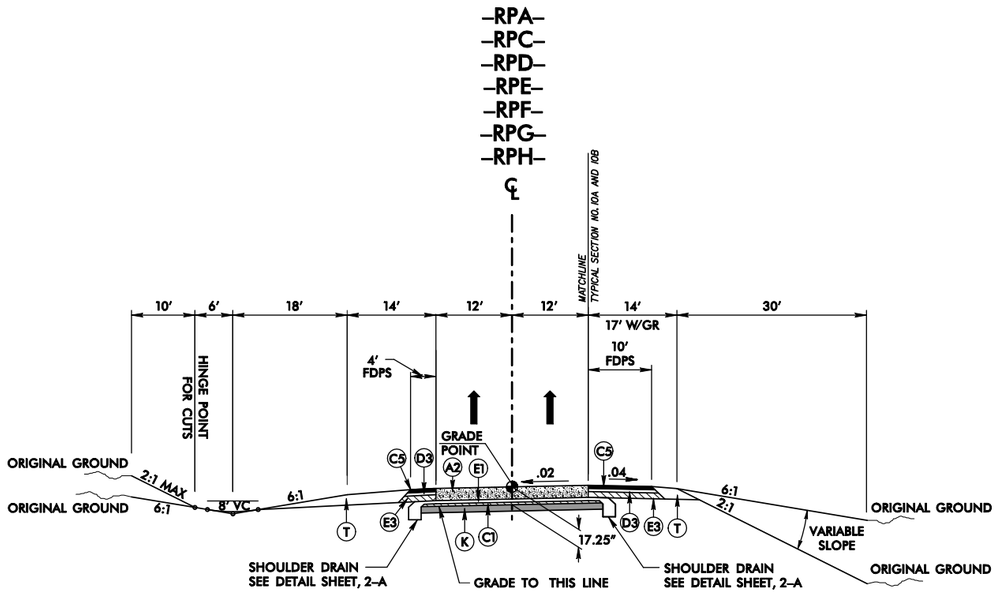
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NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	2-E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

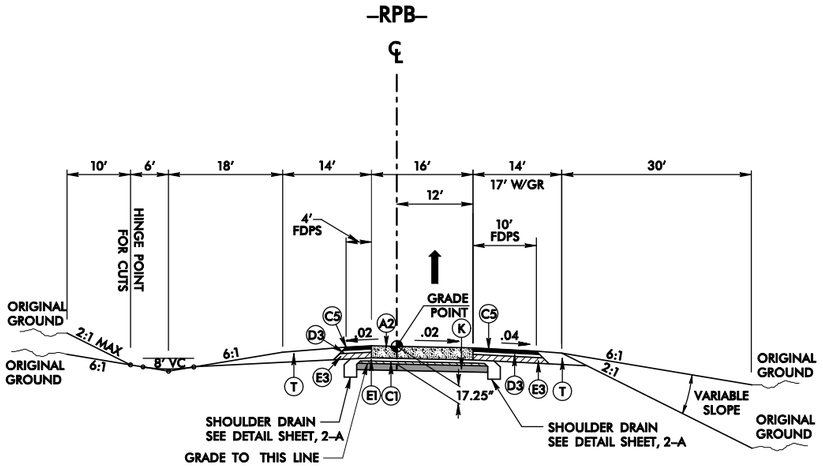


TYPICAL SECTION NO. 11

–RPA– STA 10+00.00 TO 23+84.85
–RPC– STA 10+00.00 TO 26+24.03
–RPD– STA 10+00.00 TO 26+39.04
–RPE– STA 20+90.48 TO 28+52.30 (BEGIN BRIDGE)
–RPE– STA 29+76.30 (END BRIDGE) TO 33+10.85 (BEGIN BRIDGE)
–RPE– STA 35+40.10 (END BRIDGE) TO 41+10.28 (BEGIN BRIDGE)
–RPF– STA 10+00.00 TO 59+22.84 (BEGIN BRIDGE)
–RPG– STA 26+76.96 TO 32+61.08 (BEGIN BRIDGE)
–RPG– STA 33+61.58 (END BRIDGE) TO 37+00.81 (BEGIN BRIDGE)
–RPG– STA 39+46.83 (END BRIDGE) TO 45+69.13 (BEGIN BRIDGE)
–RPH– STA 25+61.27 TO 56+10.93 (BEGIN BRIDGE)

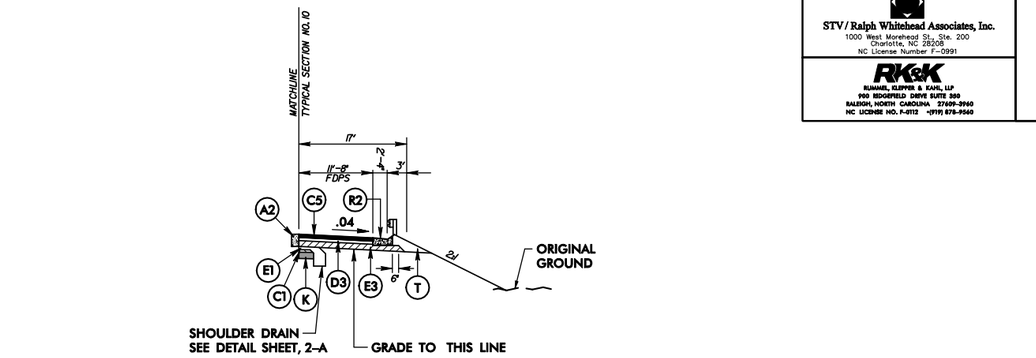
TYPICAL SECTION NO. 11A

SEE PLANS FOR SHOULDER BERM GUTTER LOCATIONS



TYPICAL SECTION NO. 12

–RPB– STA 10+00.00 TO 35+93.43



TYPICAL SECTION NO. 13

–RPE– STA 10+00.00 TO 20+90.48
–RPE– STA 62+33.72 TO 81+88.06
–RPF– STA 68+45.44 TO 87+60.92
–RPH– STA 10+00.00 TO 25+61.27

NOTES:

ALL PAVEMENT SLOPES 1:1 UNLESS NOTED OTHERWISE

TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY, SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS.

10′ SHOULDER SHOULD BE USED ON THE INSIDE OF CURVES THROUGH CENTRAL AREA OF INTERCHANGE. FLIP FOR RAMPS A & C.

A1	10.5″ CONCRETE
A2	13″ CONCRETE
A3	14″ CONCRETE
C1	1.25″ S9.5A
C2	1.5″ S9.5D
C3	2″ S9.5C
C4	3″ S9.5B
C5	3″ S9.5C
C6	3″ S9.5D
C7	VAR. S9.5D
D1	2.5″ I19.0B
D2	3″ I19.0B
D3	3″ I19.0C
D4	3.5″ I19.0C
D5	3.5″ I19.0D
D6	4″ I19.0C
D7	VAR. I19.0D
E1	3″ B25.0B
E2	7″ B25.0C
E3	8″ B25.0C
E4	12.5″ B25.0C
E5	VAR. B25.0C
J1	10″ ABC
J2	8″ ABC
K	SUBGRADE STABILIZATION
R1	EXPRESSWAY GUTTER
R2	SHOULDER BERM GUTTER
R3	SINGLE FACED CONCRETE BARRIER
R4	DOUBLE FACED CONCRETE BARRIER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING
X1	3″ PADC
X2	4″ PADC
Y	RUMBLE STRIPS

PAVEMENT SLOPES ARE 1:1UNLESS OTHERWISE NOTED.

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3/4/2011

ALIGNMENT CURVE DATA

CURVE DATA -L-

PI Sta 59+00.44
Δ = 1° 43' 16.6" (RT)
D = 0° 17' 11.3"
L = 600.84'
T = 300.44'
R = 20,000.00'
e = NC

PI Sta 64+96.84
Δ = 1° 41' 45.0" (LT)
D = 0° 17' 11.3"
L = 591.96'
T = 296.00'
R = 20,000.00'
e = NC

PI Sta 99+71.23
Δ = 1° 52' 08.9" (LT)
D = 0° 23' 42.5"
L = 473.03'
T = 236.53'
R = 14,500.00'
e = NC

PI Sta 104+44.25
Δ = 1° 52' 08.9" (RT)
D = 0° 23' 42.5"
L = 473.03'
T = 236.53'
R = 14,500.00'
e = NC

CURVE & SPIRAL DATA -Y-

Pls Sta 33+64.17
Θs = 1° 51' 22.5"
Ls = 450.00'
LT = 300.02'
ST = 150.02'

PI Sta 46+75.74
Δ = 18° 59' 25.1" (RT)
D = 0° 49' 30.0"
L = 2,301.86'
T = 1,161.58'
R = 6,944.94'
e = EXIST

Pls Sta 59+66.02
Θs = 1° 51' 22.5"
Ls = 450.00'
LT = 300.02'
ST = 150.02'

CURVE & SPIRAL DATA -RPC-

Pls Sta 11+33.40
Θs = 5° 30' 33.2"
Ls = 200.00'
LT = 133.40'
ST = 66.73'

PI Sta 14+24.79
Δ = 24° 23' 35.3" (RT)
D = 5° 30' 33.2"
L = 442.77'
T = 224.79'
R = 1,040.00'
e = 5.8%
RUNOFF = 200'

Pls Sta 17+09.50
Θs = 5° 30' 33.2"
Ls = 200.00'
LT = 133.40'
ST = 66.73'

CURVE & SPIRAL DATA -RPD-

Pls Sta 11+33.39
Θs = 4° 56' 21.4"
Ls = 200.00'
LT = 133.39'
ST = 66.71'

PI Sta 18+86.02
Δ = 61° 11' 59.7" (RT)
D = 4° 56' 21.4"
L = 1,239.04'
T = 686.02'
R = 1,160.00'
e = 5.6%
R = 200'

Pls Sta 25+05.76
Θs = 4° 56' 21.4"
Ls = 200.00'
LT = 133.39'
ST = 66.71'

CURVE & SPIRAL DATA -RPE-

Pls Sta 10+45.19
Θs = 0° 57' 17.80"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 12+21.30
Δ = 2° 05' 24.5" (RT)
D = 0° 57' 17.80"
L = 218.88'
T = 109.45'
R = 6,000.00'
e = 2.6%
RUNOFF = 200'

Pls Sta 13+97.40
Θs = 0° 57' 17.80"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

Pls Sta 29+14.16
Θs = 5° 43' 46.5"
Ls = 200.00'
LT = 133.40'
ST = 66.73'

PI Sta 31+41.39
Δ = 18° 15' 03.4" (RT)
D = 5° 43' 46.5"
L = 318.54'
T = 160.63'
R = 1,000.00'
e = 5.9%
RUNOFF = 200'

Pls Sta 33+66.03
Θs = 5° 43' 46.5"
Ls = 200.00'
LT = 133.40'
ST = 66.73'

Pls Sta 36+32.73
Θs = 6° 52' 41.7"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

PI Sta 85+64.24
Δ = 160° 34' 03.0" (LT)
D = 6° 52' 41.7"
L = 2,334.43'
T = 4,864.94'
R = 833.00'
e = 6.0%
RUNOFF = 200'

Pls Sta 61+00.48
Θs = 6° 52' 41.7"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

Pls Sta 70+37.90
Θs = 3° 42' 59.34"
Ls = 240.00'
LT = 160.04'
ST = 80.03'

PI Sta 75+40.07
Δ = 25° 42' 42.0" (RT)
D = 3° 05' 49.5"
L = 830.19'
T = 422.21'
R = 1,850.00'
e = 5.6%
RUNOFF = 240'

Pls Sta 80+28.09
Θs = 3° 42' 59.3"
Ls = 240.00'
LT = 160.04'
ST = 80.03'

CURVE & SPIRAL DATA -RPA-

Pls Sta 11+33.39
Θs = 4° 56' 21.4"
Ls = 200.00'
LT = 133.39'
ST = 66.71'

PI Sta 13+85.22
Δ = 18° 08' 39.0" (RT)
D = 4° 56' 21.4"
L = 367.34'
T = 185.22'
R = 1,160.00'
e= 5.6%
RUNOFF = 200'

Pls Sta 16+34.06
Θs = 4° 56' 21.4"
Ls = 200.00'
LT = 133.39'
ST = 66.71'

CURVE & SPIRAL DATA -RPB-

Pls Sta 11+33.40
Θs = 5° 43' 46.5"
Ls = 200.00'
LT = 133.40'
ST = 66.73'

PI Sta 16+13.34
Δ = 44° 54' 51.7" (RT)
D = 5° 43' 46.5"
L = 783.90'
T = 413.34'
R = 1,000.00'
e = 5.9%
RUNOFF = 200'

Pls Sta 20+50.63
Θs = 5° 43' 46.5"
Ls = 200.00'
LT = 133.40'
ST = 66.73'

Pls Sta 29+35.11
Θs = 6° 52' 41.7"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

PI Sta 32+01.25
Δ = 26° 56' 45.0" (RT)
D = 6° 52' 41.7"
L = 391.75'
T = 199.57'
R = 833.00'
e = 6.0%
RUNOFF = 200'

Pls Sta 34+60.19
Θs = 6° 52' 41.7"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

CURVE & SPIRAL DATA -RPC2-

Pls Sta 11+33.34
Θs = 1° 06' 06.6"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 16+33.25
Δ = 9° 31' 31.5" (RT)
D = 1° 06' 06.6"
L = 864.50'
T = 433.25'
R = 5,200.00'
e = EXIST

Pls Sta 21+31.17
Θs = 1° 06' 06.6"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

CURVE DATA -Y1-

PI Sta 12+21.44
Δ = 39° 36' 18.1" (RT)
D = 9° 18' 59.0"
L = 425.11'
T = 221.44'
R = 615.00'
e = 4.0%
RUNOFF = 84'

PI Sta 20+32.27
Δ = 14° 22' 02.0" (LT)
D = 3° 04' 49.50"
L = 446.41'
T = 234.43'
R = 1,860.00'
e = 4.5%
RUNOFF = 108'

PI Sta 32+44.12
Δ = 61° 10' 04.2" (LT)
D = 8° 48' 53.0"
L = 693.93'
T = 384.16'
R = 650.00'
e = 4.0%
RUNOFF = 84'

CURVE & SPIRAL DATA -RPD2-

Pls Sta 11+33.39
Θs = 4° 56' 21.50"
Ls = 200.00'
LT = 133.39'
ST = 66.71'

PI Sta 18+86.02
Δ = 61° 11' 59.80" (RT)
D = 4° 56' 21.50"
L = 1,239.04'
T = 686.02'
R = 1,160.00'
e = EXIST

Pls Sta 25+05.76
Θs = 4° 56' 21.50"
Ls = 200.00'
LT = 133.39'
ST = 66.71'

CURVE & SPIRAL DATA -RPF-

Pls Sta 11+18.36
Θs = 0° 49' 55.45"
Θs = 2° 51' 53.24"
Ls = 200.00'
LT = 118.36'
ST = 81.70'

PI Sta 12+94.45
Δ = 5° 24' 26.8" (RT)
D = 2° 51' 53.2"
L = 188.76'
T = 94.45'
R = 2,000.00'
e = 5.4%
RUNOFF = 200'

Pls Sta 14+55.44
Θs = 2° 51' 53.2"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

Pls Sta 37+35.65
Θs = 4° 56' 21.4"
Ls = 200.00'
LT = 133.39'
ST = 66.71'

PI Sta 39+82.89
Δ = 17° 42' 02.3" (RT)
D = 4° 56' 21.4"
L = 358.36'
T = 180.62'
R = 1,160.00'
e = 5.6%
RUNOFF = 200'

Pls Sta 42+27.34
Θs = 4° 56' 21.4"
Ls = 200.00'
LT = 133.39'
ST = 66.71'

Pls Sta 44+94.06
Θs = 6° 52' 41.7"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

PI Sta 60+75.66
Δ = 122° 23' 37.7" (LT)
D = 6° 52' 41.7"
L = 1,779.43'
T = 1,515.03'
R = 833.00'
e = 6.0%
RUNOFF = 200'

Pls Sta 64+06.82
Θs = 6° 52' 41.7"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

Pls Sta 76+60.31
Θs = 3° 07' 51.30"
Ls = 200.00'
LT = 133.36'
ST = 66.69'

PI Sta 81+25.69
Δ = 24° 35' 03.10" (RT)
D = 3° 07' 51.3"
L = 785.21'
T = 398.74'
R = 1,830.00'
e = 5.6%
RUNOFF = 200'

Pls Sta 85+86.36
Θs = 0° 23' 49.52"
Θs = 3° 07' 51.3"
Ls = 200.00'
LT = 125.86'
ST = 74.20'

CURVE & SPIRAL DATA -RPH-

Pls Sta 33+32.39
Θs = 5° 43' 46.5"
Ls = 200.00'
LT = 133.40'
ST = 66.73'

PI Sta 35+75.27
Δ = 19° 59' 43.6" (RT)
D = 5° 43' 46.5"
L = 348.99'
T = 176.29'
R = 1,000.00'
e = 5.9%
RUNOFF = 200'

Pls Sta 38+14.70
Θs = 5° 43' 46.5"
Ls = 200.00'
LT = 133.40'
ST = 66.73'

Pls Sta 40+81.40
Θs = 6° 52' 41.7"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

PI Sta 62+04.26
Δ = 135° 53' 40.0" (LT)
D = 6° 52' 41.7"
L = 1,975.71'
T = 2,056.29'
R = 833.00'
e = 6.0%
RUNOFF = 200'

Pls Sta 61+90.44
Θs = 6° 52' 41.7"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

Pls Sta 64+57.12
Θs = 6° 52' 41.7"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

PI Sta 66+79.31
Δ = 21° 09' 54.9" (RT)
D = 6° 52' 41.7"
L = 307.71'
T = 155.63'
R = 833.00'
e = 5.6%
RUNOFF = 200'

Pls Sta 68+98.15
Θs = 6° 52' 41.7"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

Pls Sta 83+44.89
Θs = 1° 38' 13.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

PI Sta 85+16.78
Δ = 3° 26' 39.7" (RT)
D = 1° 38' 13.3"
L = 210.40'
T = 105.23'
R = 3,500.00'
e = 3.9%
RUNOFF = 200'

Pls Sta 86+88.62
Θs = 1° 38' 13.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

CURVE & SPIRAL DATA -RPG-

Pls Sta 30+67.83
Θs = 5° 43' 46.5"
Ls = 200.00'
LT = 133.40'
ST = 66.73'

PI Sta 34+03.46
Δ = 30° 06' 58.5" (RT)
D = 5° 43' 46.5"
L = 525.63'
T = 269.04'
R = 1,000.00'
e = 5.9%
RUNOFF = 200'

Pls Sta 37+26.78
Θs = 5° 43' 46.5"
Ls = 200.00'
LT = 133.40'
ST = 66.73'

Pls Sta 39+93.49
Θs = 6° 52' 41.7"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

PI Sta N/A
Δ = 179° 46' 14.6" (LT)
D = 6° 52' 41.7"
L = 2,613.61'
T = 416,338.31'
R = 833.00'
e = 6.0%
RUNOFF = 200'

Pls Sta 67+40.43
Θs = 6° 52' 41.7"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

Pls Sta 73+39.01
Θs = 3° 45' 25.6"
Ls = 240.00'
LT = 160.04'
ST = 80.03'

PI Sta 79+60.94
Δ = 32° 59' 37.7" (RT)
D = 3° 07' 51.3"
L = 1,053.81'
T = 541.96'
R = 1,830.00'
e = 5.6%
RUNOFF = 240'

Pls Sta 85+52.81
Θs = 3° 45' 25.6"
Ls = 240.00'
LT = 160.04'
ST = 80.03'

THE LANE CONSTRUCTION CORPORATION

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900 ROGERSFIELD DRIVE SUITE 200
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

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NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

ALL SS MH'S IN THIS AREA SEALED

2-11' X 12' CONC

EXISTING R/W

CONC HW

ELECTRIC TRAFFIC SIGN

RETAIN SYSTEM

18" CMP

24" RCP

15" CMP

18" RCP

11' BST

I-485 60' BST

10' BST

30+00

RETAIN RCBC

I-485 36' BST

36' BST

12" CMP

BOX CULVERT
2 @ 11'X12' CONC

36"

ALL SS MH'S IN THIS AREA SEALED

BEGIN TIP PROJECT R-2123CE
-L- POT Sta. 32+60.42
(SEE SHEET 2-G FOR CONSTRUCTION LIMITS)

N 33° 10' 48.2" W

35+00

-L-

CGAU

MATCH EXIST.

I-485 WB

I-485 BST

REMOVE

36" RCP

30" RCP-III

2GI-A

0402

0401

18

MATCHLINE -L- STA 39+00 (SHEET 5)

SEE SHEET 23 FOR -L- PROFILE

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
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NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

-LH TEMP- POT Sta. 42+19.33= -L- POT Sta. 42+19.33, 41.00' RT

-RPH- ST Sta. 88+21.95= -L- POT Sta. 44+06.54, 83.00' LT

CS Sta. 86+21.95

SC Sta. 84+11.55

TS Sta. 82+11.55

(63) KRATT ENTERPRISES LLC
DB 21600 PG 680
PB 1735 PG 548

MATCHLINE -L- STA 39+00 (SHEET 4)

MATCHLINE -L- STA 52+00 (SHEET 6)

EXISTING R/W

ELECTRIC TRAFFIC SIGN

AREA UNDER CONSTRUCTION

SPECIAL CUT DITCH SEE DETAIL V

I3803-9
-BL- PINC 29+13.46

END 300' LANE TAPER +16.64
51.3' (TYP)

8 TONS CL B RIPRAP W/21 SY FIL FAB

15" RCP-III

30" RCP-III

REMOVE 25' 18"RCP

+58.81
24.33'

+78.81
25.56'

2GI

0508

FS
24.8' (TYP)

0507

0509

0506

TBJB w Slab Lid

GRADE TO DRAIN

0505

18" CSP

2GI

10' BST

-RPH-

85+00

MATCH EXIST.

RETAIN SYSTEM

105.3' (TYP)

I-485 EB

I-485 60' BST

11' BST

40+00

45+00

-L-

50+00

N 33° 10' 48.2" W

CGAU CGAU

PROP GUIDERAIL

RETAIN

GRADE TO DRAIN

-LHTEMP-

I-485 WB

N 29° 10' 48.2" W

0513

REMOVE

GRAU-350

COLLAR

24" RCP-III

CAT-1

2GI

EXPRESSWAY GUTTER

18" RCP-III

GRAU-350

15" RCP-III

0501

0510-77

REMOVE DI

2GI

0503

15" RCP-III

0504

4' PLUG

JB w/MH

FILL W/ FLOWABLE FILL

-RPG-

2GI-A

0515

24" RCP-III

24" RCP

+49.94
107.00'

+73.94
110.00'

FS

0514

2GI-A

+70.83
38.00'

+39.83
34.00'

0512

0511

BEGIN CONSTRUCTION I-485 EB
-L- POT Sta. 43+00.00

BEGIN RETAINING WALL & CONC. BARRIER
-RPG- Sta. 14+89.73, 38.00' RT

BEGIN EXP. GUTTER
-RPG- Sta. 10+67.56, 36.00' RT

-RPG- POT Sta. 10+00.00= -L- POT Sta. 44+35.26, 71.00' RT.

PROP 48" CHAIN LINK FENCE
REMOVE EXIST WW FENCE

BEGIN 48" CHAIN LINK FENCE
-RPG- Sta. 12+06.68, 129.29' RT

(64) CROSLAND INC
CROSLAND-MALLARD LAKE LLC
DB 17427 PG 737
PB 46 PG 153

A-A
8.0'
0.0'
1.5'
RIPRAP LINED OUTFALL
2.5'

SEE SHEET 23 FOR -L- PROFILE
SEE SHEET 36 FOR -RPG- PROFILE
SEE SHEET 41 FOR -RPH- PROFILE
SEE TCP PLANS FOR LAYOUT OF TEMPOARY ALIGNMENT

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

KRATT ENTERPRISES LLC
DB 21600 PG 680
PB 1735 PG 548

CS Sta. 33+93.43

SC Sta. 30+01.68

MATCHLINE -RPB STA 30+00 (SHEET 8)

MATCHLINE -RPH- STA 72+00 (SHEET 8)

-RPB- ST Sta. 35+93.43=
-RPH- Sta. 78+16.81, 12.00' RT.

PROP. REINFORCED SLOPE SEE DETAIL SHEET 2-Z

STANDARD V DITCH SEE DETAIL D

1 TONS CL B RIPRAP W/5 SY FIL FAB

CLASS I RIPRAP UP TO ELEVATION 625.0'

15" CSP 2 ELBOWS ROD & LUG

BEGIN 300' LANE TAPER +16.95

S 39° 53' 54.4" E

MATCHLINE (SHEET 8)

TOE PROTECTION SEE DETAIL F

LATERAL BASE DITCH SEE DETAIL Y

PC Sta. 56+00.00

PRC Sta. 62+00.84

BEGIN CROWN PT SHIFT LT&RT, +10

-LHTEMP-

BL-I
-BL- PINC 38+97.95

I-485 EB

N 33° 10' 48.2" W

PROP GUIDERAIL

RETAIN SYSTEM

LOCATION UNKNOWN OUTLET NOT FOUND MAY FLOW INTO CULVERT

PLUG

REMOVE DI

DI-7 DI PLUGGED (PER OLD FILES)

ENSURE 18" IS PLUGGED IF NOT, PLUG AND FILL

RETAIN 5' x 7' RCBC

I-485 WB

JB wMH

REMOVE 27' 15" RCP

Conv. DI TO JB wMH

24" CSP 2 ELBOWS ROD & LUG

15" RCP-III

PROP SBG

GRAU-350

JB wSlab Lid SP. DET.

TOE PROTECTION SEE DETAIL F

TBJB wSlab Lid

48" RCP-V

36" RCP-V

84" RCP-V

CS Sta. 18+23.66

ST Sta. 20+23.66

15" CSP 2 ELBOWS ROD & LUG 1 TONS CL B RIPRAP W/5 SY FIL FAB

GRADE TO DRAIN

SPECIAL CUT DITCH SEE DETAIL E

SC Sta. 12+95.88

PROP 48" CHAIN LINK FENCE REMOVE EXIST WW FENCE

-RPC- TS Sta. 10+95.88=
-RPG- POT Sta. 23+85.23, 12.00' RT.

CROSLAND INC
CROSLAND-MALLARD LAKE LLC
DB 17427 PG 737
PB 46 PG 153

CROSLAND INC CROSLAND-MALLARD LAKE LLC
DB 18751 PG 893

CS Sta. 15+70.68

ST Sta. 17+70.68

DIVERT GORE AREA DRAINAGE AROUND TOP OF PIPE

SP. LAT. V DITCH SEE DETAIL G

MATCHLINE -RPC- STA 18+00 (SHEET 9)

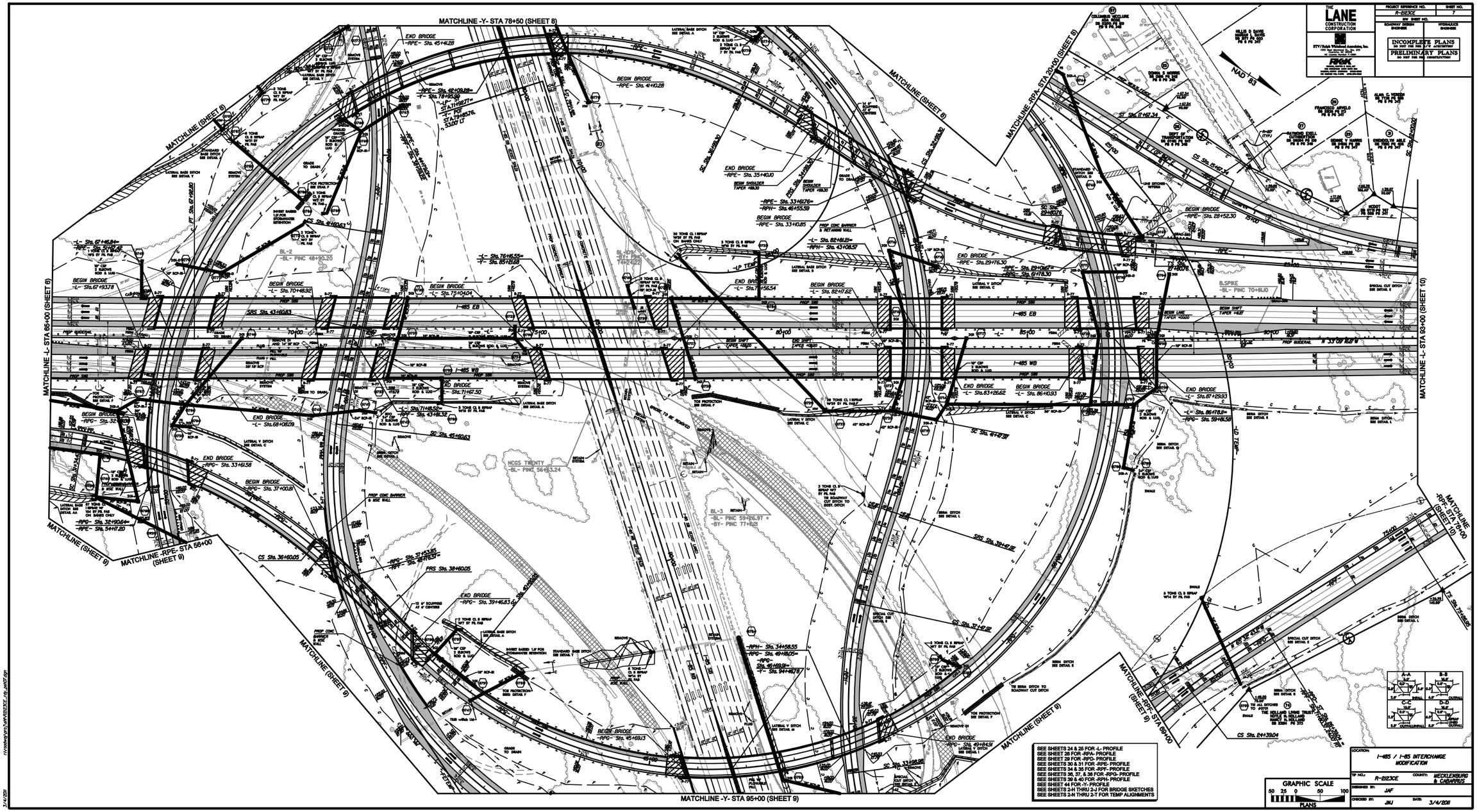
MATCHLINE -L- STA 52+00 (SHEET 5)

MATCHLINE -L- STA 65+00 (SHEET 7)

SEE SHEETS 23 & 24 FOR -L- PROFILE
SEE SHEET 27 FOR -RPB- PROFILE
SEE SHEET 28 FOR -RPC- PROFILE
SEE SHEET 36 FOR -RPG- PROFILE
SEE SHEET 41 FOR -RPH- PROFILE
SEE SHEETS 2-N THRU 2-V FOR TEMP ALIGNMENTS

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5/24/2011


MATCHLINE -Y- STA 78+50 (SHEET 8)
MATCHLINE (SHEET 8)
MATCHLINE -RPA- STA 20+00 (SHEET 8)
MATCHLINE -L- STA 85+00 (SHEET 6)
MATCHLINE -L- STA 83+00 (SHEET 10)
MATCHLINE -RPE- STA 56+00 (SHEET 9)
MATCHLINE -RPF- STA 69+00 (SHEET 10)
MATCHLINE (SHEET 9)
MATCHLINE -Y- STA 95+00 (SHEET 9)
I-485 EB
I-485 WB
NAD 83
SEE SHEETS 24 & 25 FOR -L- PROFILE
SEE SHEET 28 FOR -RPA- PROFILE
SEE SHEET 29 FOR -RPD- PROFILE
SEE SHEETS 30 & 31 FOR -RPE- PROFILE
SEE SHEETS 34 & 35 FOR -RPF- PROFILE
SEE SHEETS 36, 37, & 38 FOR -RPG- PROFILE
SEE SHEET 39 & 40 FOR -RPH- PROFILE
SEE SHEET 44 FOR -Y- PROFILE
SEE SHEETS 2-H THRU 2-J FOR BRIDGE SKETCHES
SEE SHEETS 2-N THRU 2-T FOR TEMP ALIGNMENTS
GRAPHIC SCALE
50 25 0 50 100
PLANS
THE LANE CONSTRUCTION CORPORATION
STV/Ralph Whitehead Associates, Inc.
RPA K
PROJECT REFERENCE NO. R-2123CE
SHEET NO. 7
RW SHEET NO.
INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
LOCATION: I-485 / I-85 INTERCHANGE MODIFICATION
TIP NO.: R-2123CE
COUNTY: MECKLENBURG & CABARRUS
DESIGNED BY: JAF
CHECKED BY: JMJ
DATE: 3/4/2011

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.

RK&K

PROJECT REFERENCE NO.	SHEET NO.
R-2923CE	5
RW SHEET NO.	
ROADWAY DESIGN: BVD/HHB	HYDRAULICS: BVD/HHB

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

NAD 83

MATCHLINE -RPB- STA 16+00 (SHEET 14)

MATCHLINE -RPF- STA 29+55 (SHEET 14)

MATCHLINE -Y- STA 69+00 (SHEET 14)

MATCHLINE -Y- STA 78+50 (SHEET 7)

MATCHLINE (SHEET 7)

MATCHLINE -RPA- STA 20+00 (SHEET 7)

MATCHLINE -RPB- STA 30+00 (SHEET 6)

MATCHLINE -RPH- STA 72+00 (SHEET 6)

MATCHLINE (SHEET 6)

-RPH- Sta. 57+10.58
-F- Sta.76+58.88
BEGIN BRIDGE
-RPH- Sta. 56+10.93

-LTEMP- POT Sta. 37+00.00
-RPH- PC Sta. 54+69.00,17.00 RT

END BRIDGE
-RPH- Sta. 60+19.58

TS Sta. 36+09.01
-RPH- Sta. 60+41.84
-RPF- Sta. 36+06.43

-LTEMP- PC Sta. 54+80.00
-RPH- PC Sta. 54+80.00,13.00 LT

-RPH- ST Sta. 63+46.50
-RPF- SC Sta. 69+70.18, 20.00 RT.

-BY-* PSC 62+06.23

TS Sta. 84+00.68

SC Sta. 84+21.68

CS Sta. 68+31.40

ST Sta. 70+31.40

-LTEMP-

-RPH-

-RPF-

-BY-

-F-

-L-

-LT-

-RT-

KRATT ENTERPRISES LLC
DB 30000 PG 600

KRATT ENTERPRISES LLC
DB 30000 PG 600
PB 1728 PG 348

NCDOT
DB 7244 PG 559

WILLIAM H ETHRIDGE AND EVELYN R
DB 3048 PG 501

EDWARD HOWELL
DB 33946 PG 924

2009 ADT
2035 ADT

I-485 / I-85
TRAFFIC DIAGRAM

83,000 I-85	11,200 34,800	34,800 52,600	104,600 180,400
34,800	14,300 27,200	52,600 67,000	

SEE SHEET 28 FOR -RPA- PROFILE
SEE SHEET 27 FOR -RPB- PROFILE
SEE SHEETS 33 & 34 FOR -RPF- PROFILE
SEE SHEET 38 FOR -RPG- PROFILE
SEE SHEETS 40 & 41 FOR -RPH- PROFILE
SEE SHEET 2-J FOR BRIDGE SKETCH
SEE SHEETS 2-H THRU 2-V FOR TEMP ALIGNMENTS

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION: I-485 / I-85 INTERCHANGE MODIFICATION
TIP NO.: R-2123CE
COUNTY: MECKLENBURG & CABARRUS
DESIGNED BY: JAF
CHECKED BY: JMJ
DATE: 5/25/2011

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5/25/2011

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1751 Yorkchester Dr, Ste. 109
NC License No. C-2779

RPK
RPK Group, PLLC
NC License No. C-3752

PROJECT REFERENCE NO.	SHEET NO.
R-2923CE	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE -RPC- STA 18+00 (SHEET 6)

MATCHLINE (SHEET 7)

MATCHLINE -RPE- STA 56+00 (SHEET 7)

MATCHLINE (SHEET 7)

MATCHLINE -Y- STA 95+00 (SHEET 7)

MATCHLINE (SHEET 7)

MATCHLINE -RPF- STA 89+00 (SHEET 7)

MATCHLINE (SHEET 7)

MATCHLINE -Y- STA 105+00 (SHEET 15)

SEE SHEET 28 FOR -RPC- PROFILE
SEE SHEET 29 FOR -RPD- PROFILE
SEE SHEETS 31 & 32 FOR -RPE- PROFILE
SEE SHEETS 34 & 35 FOR -RPF- PROFILE
SEE SHEET 39 FOR -RPH- PROFILE
SEE SHEET 44 FOR -Y- PROFILE
SEE SHEET 2-K FOR BRIDGE SKETCH
SEE SHEET 2-N THRU 2-T FOR TEMP ALIGNMENTS

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:	I-485 / I-85 INTERCHANGE MODIFICATION
TIP NO.: R-2923CE	COUNTY: MECKLENBURG & CABARRUS
DESIGNED BY:	JAF
CHECKED BY:	JNJ
DATE:	3/4/2011

3/4/2011

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

THE LANE CONSTRUCTION CORPORATION

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RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

NAD 83

D-D 4.5' 0.0' 2.0' INFALL 2.0'
A-A 7.0' 0.0' 2.5' OUTFALL 3.0'
B-B 9.0' 0.0' 3.5' OUTFALL 4.5'
C-C 2.5' 0.0' 1.5' OUTFALL 1.0'

ALMA C. VEREEN
DB 7738 PG 958
PB 8 PG 347

GWENDOLYN ABLE
DB 7550 PG 406
PB 8 PG 347

CHARLES A. FERGUSON
DB 7695 PG 955
PB 8 PG 347

WILLIAM THOMAS GRAVES, JR
DB 3655 PG 092
PB 8 PG 347

MATTIE FETHERSON
PB 008 PG 347

MAZIE GRAHAM TAYLOR
DB 7893 PG 818
PB 29 PG 016

JOHN C. FOSTER
DB 2757 PG 031

IRIS H. JORDAN
DB 2883 PG 204

BOBBY EUGENE BOST
ELIZABETH W. BOST
DB 2343 PG 361

THE HOLLAND LIVING TRUST
HOYLE N. HOLLAND
NANCY H. HOLLAND
DB 20771 PG 299

MODIFIED BASIN SEE DETAIL SECTION A-A

3 TONS CL B RIPRAP W/10 SY FIL FAB ON BANKS ONLY

15 TONS CL I RIPRAP W/30 SY FIL FAB ON BANKS ONLY

11 TONS CL I RIPRAP W/22 SY FIL FAB ON BANKS ONLY

8 TONS CL B RIPRAP W/21 SY FIL FAB

8 TONS CL B RIPRAP W/21 SY FIL FAB

-RPA- PC Sta. 97+34.69 -RPE- POT Sta. 20+90.48, 24.00' RT.

-RPE- 20+00 S 29° 09' 16.6" E

-RPF- ST Sta. 15+30.73 CS Sta. 13+30.73 PRC Sta. 102+07.12 SC Sta. 111+11.85 -RPF- POT Sta. 9+11.85 = -L- POT Sta. 106+29.33, 59.00' LT.

-BL- PINC 75+79.36

-BL- PINC 84+24.65

BL-54 -BL- PINC 84+24.65

BL-55 -BL- PINC 80+77.63

-L- 95+00 100+00 105+00 N 33° 09' 16.6" W

I-485 EB

I-485 WB

MATCHLINE -L- STA 93+00 (SHEET 7)

MATCHLINE -RPF- STA 76+00 (SHEET 7)

-RPF- ST Sta. 87+12.16 = -L- POT Sta. 103+90.31, 71.00' RT.

PT Sta. 106+80.74

SC Sta. 77+26.95

GS Sta. 85+12.16

POND DRAINAGE AREA TO BE CONTAINED WITHIN R-2248E SYSTEM

END TIP PROJECT R-2123CE
END CONSTRUCTION
-L- POT Sta. 106+80.74
TIE TO TIP PROJECT R-2248E Sta. 1525+52.20 (BY OTHERS)

SEE SHEET 25 FOR -L- PROFILE
SEE SHEET 26 FOR -RPA- PROFILE
SEE SHEET 30 FOR -RPE- PROFILE
SEE SHEET 35 FOR -RPF- PROFILE

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

STV / Ralph Whitehead Associates, Inc.
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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

HP
END CONSTRUCTION
-RPD2- POT STA. 29+82.77

NO DITCH

MATCH EXISTING SUPER

S 20° 55' 54.0" W

POT Sta. 31+27.05

PT Sta. 30+11.81

PC Sta. 27+79.29

30+00

S 51° 54' 53.5" W
-RPD2-

25+00

PT Sta. 24+88.36

1101 2GI 18" RCP-III 1102 FS

2 TONS CL B RIPRAP W/7 SY FIL FAB

BERM DITCH SEE DETAIL R

15" CSP 2 ELBOWS ROD & LUG BDO 1103

1104 2GI-D 18" RCP-III FS COLLAR 1105

REMOVE

BERM DITCH SEE DETAIL Q

15" CSP 2 ELBOWS ROD & LUG EXISTING R/W 1106

BDO 1107 2GI-D 24" RCP-III FS COLLAR 1108

PC Sta. 18+53.85

-BY- * PINC 17+89.18

BERM DITCH SEE DETAIL L

S 20° 18' 08.2" W

20+00

NCGS MEK45
-BY2- PINC 18+84.37

BL-115
-BY- POT 5+00.00 =
-BY2- PINC 21+44.96

BM #5
-BY0- STA 11+74
128 RIGHT
ELEV. 711.67'

N 16° 40' 24.0" E

-Y- I-85 SB

MATCHLINE -Y- STA 30+00 (SHEET 12)

ABANDONED 18" RCP PLUGGED ON BOTH ENDS

SR 2472 MALLARD CREEK CHURCH RD BST

I-85 SBL 48' CONC

I-85 NBL 56' CONC

I-85 NBL 60' CONC

I-85 NBL 49' CONC

RETAIN SYSTEM

RETAIN

EXISTING R/W

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3/4/2011

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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE -Y- STA 30+00 (SHEET 11)

MATCHLINE -Y- STA 43+00 (SHEET 13)

TS Sta. 30+64.15

SC Sta. 35+14.15

BM #106
-BY0- STA 22+97
1LEFT
ELEV. 707.56'

BEGIN CONSTRUCTION
-RPD2- POT STA.10+00.00

-RPD2- POT Sta.10+00.00 = -Y- POC Sta.37+29.03,59.00' LT

-BY- # PINC 25+82.87

EXISTING R/W

BERM DITCH
SEE DETAIL L

1 TONS CL B RIPRAP
W/5 SY FIL FAB

15" RCP-III

TIE TO EXIST.GR
+51.29
85.00'

+26.29
16.00'

+43.78
26.00'

+61.39
27.00'

+37.39
24.00'

CAT-1

GRAU-350

4" FD PS

-RPD2- 16' CONC

S 20° 18' 08.2" W

15+00

11' BST

I-85 SBL 60' CONC

I-85 SB

18" RCP

RETAIN RCBC

35+00

CONC WALL

-Y-

12' BST

RETAIN SYSTEM

40+00

10' BST

N 16° 40' 24.0" E

JB

18" RCP

I-85 NB

I-85 NBL 57" CONC

MATCH EXIST.

BEGIN CONSTRUCTION
-Y- POT STA.33+73.28

+73.28
80.00'

+90.59
80.00'

+85.33
85.00'

+90.00
85.00'

TIE PROPOSED
CUT DITCH TO
EXISTING DITCH

MTL

RETAIN

48" WW ISBW

A–A
22.0'
0.0'
2.5'
ROADSIDE

SEE SHEET 43 FOR -Y- PROFILE

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THE LANE CONSTRUCTION CORPORATION

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NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

SELBURN CREEK LLC
DB 11664 PG 277

JAMES PARKER II LUMPKIN AND C/O HUNTER PROPERTIES
DB 9756 PG 691

ROBERT CASTLE
DB 20141 PG 531

MICHAEL E HORTON & JACLYN L HORTON
DB 19816 PG 254

JAMES WATTS GARRISON
DB 02698 PG 463

MATCHLINE -Y- STA 43+00 (SHEET 12)

MATCHLINE -Y- STA 56+00 (SHEET 14)

I-85 SB

I-85 NB

-BY- * PINC 35+88.76

-BY- * PINC 36+89.07

BM #23
-BYO- STA 35+79
8 RIGHT
ELEV. 696.65'

BM #105
-BYO- STA 38+37
11 LEFT
ELEV. 683.96'

BEGIN NOISE WALL & CONC BARRIER
-Y- Sta. 51+06.90, 86.42' LT

BEGIN 300' LANE TAPER +05.85

PROP TRANSITIONAL BARRIER

-RPF-

-Y-

RETAIN SYSTEM

RETAIN RCBC

PLUG

FILL W/ FLOWABLE FILL

SPECIAL CUT DITCH SEE DETAIL E

BERM DITCH SEE DETAIL L

BERM DITCH SEE DETAIL R

REMOVE W.W. FENCE

PROP 48" W.W. FENCE

Conv. DI TO JB

15" RCP-III FS

2GI-D

MTL CANOPY

ISBKD

POOL

GALLOWAY RD

EXISTING R/W

-RPF- ST Sta. 10+00.00=
-Y- POC Sta. 50+32.58, 59.00' RT.

SC Sta. 12+00.00

CS Sta. 13+88.75

SEE SHEET 33 FOR -RPF- PROFILE
SEE SHEET 43 FOR -Y- PROFILE

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5/24/2011

THE LANE CONSTRUCTION CORPORATION

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900 RIDGEFIELD DRIVE SUITE 350
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NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE -Y- STA 56+00 (SHEET 13)

MATCHLINE -Y- STA 69+00 (SHEET 8)

MATCHLINE -RPF- STA 28+55 (SHEET 8)

MATCHLINE -RPB- STA 16+00 (SHEET 8)

ST Sta. 62+66.01

-RPG- ST Sta. 87+12.78 =
-Y- POT Sta. 63+87.96, 59.00' LT.

SC Sta. 84+72.78

CS Sta. 58+16.01

-BY- PINC 47+78.17

ST Sta. 15+88.75

-RPB- ST Sta. 10+00.00 =
-RPF- Sta. 22+41.34, 12.00' RT

SC Sta. 12+00.00

-RPG- Sta. 81+82.78

(4) MICHAEL E HORTON
JACLYN L HORTON
DB 19816 PG 254

ROBERT D CROOK
DB 20219 PG 731

TIMOTHY WRIGHT &
SHAMIKA WRIGHT
DB 20210 PG 662

NICHOLE STANTON
DB 21671 PG 879

CHARLOTTE INC MAPLEWOOD
HOMEOWNERS ASSOC
DB 11544 PG 175

(16) CHARLOTTE INC MAPLEWOOD
HOMEOWNERS ASSOC
DB 11611 PG 613

(61) KRATT ENTERPRISES LLC
DB 21600 PG 680

(62) KRATT ENTERPRISES LLC
DB 21600 PG 680

DUKE POWER EASEMENT

I-85 SB

I-85 NB

I-85 SBL 48" CONC

I-85 NBL 49" CONC

-Y-

-RPG-

-RPF-

-RPB-

CONC WALL

N 39° 22' 34.1" E

N 43° 01' 32.5" E

N 53°21'57" W 321.86'

S 53°21'40" E 384.01'

150.00'

N 54°48'23" E 231.48'

N 32°35'49" W 127.00'

N 57°25'42" E 158.72'

S 88°57'37" W 165.08'

S 45°27'44" E 140.74'

N 32°35'49" W 74.93'

S 76°13'31" E 140.70'

N 19°05'29" E 115.98'

N 34°10'59" W 22.08'

S 64°38'54" E 82.88'

N 35°59'15" E 131.70'

S 76°13'31" E 52.20'

N 36°38'20" E 134.20'

N 36°48'38" W 83.83'

S 66°42'24" E 90.25'

N 33°33'19" E 146.16'

S 64°38'54" E 40.70'

S 58°06'07" E 72.92'

END 300' LANE TAPER 105.88

BEGIN 300' LANE TAPER +88.75

END 300' LANE TAPER +88.75

LATERAL BASE DITCH
SEE DETAIL A

LATERAL BASE DITCH
SEE DETAIL B

LATERAL BASE DITCH
SEE DETAIL GG

LATERAL BASE DITCH
SEE DETAIL JJ

ROCK CROSS VANE
SEE DETAIL MM

CHANNEL CHECK
SEE DETAIL HH

BERM DITCH
SEE DETAIL R

15" CSP
2 ELBOWS
ROD & LUG
2 TONS CL I RIPRAP
W/7 SY FIL FAB

5 TONS CL I RIPRAP
W/14 SY FIL FAB

11 TONS
CL I RIPRAP
W/22 SY FIL FAB

15 TONS CL I RIPRAP
W/30 SY FIL FAB

5 TONS CL B RIPRAP
W/14 SY FIL FAB

24" RCP-III COLLAR

36" RCP-III

30" RCP-III

18" RCP-IV

18" CSP
2 ELBOWS
ROD & LUG

15" CSP
2 ELBOWS
ROD & LUG

24" CSP
2 ELBOWS
ROD & LUG

GRAU-350

CONC HW COLLAR

JB wMH

JB w/ Slab Lid

2GI

2GI-A

FES

BDO

TOE PROTECTION
SEE DETAIL F

PROP 48" W.W. FENCE

REMOVE W.W. FENCE

60" WW & ISBW

48" WW I SBW

EXISTING R/W

RETAIN SYSTEM

SEE SHEET 27 FOR -RPB- PROFILE
SEE SHEET 33 FOR -RPF- PROFILE
SEE SHEET 38 FOR -RPG- PROFILE
SEE SHEET 43 FOR -Y- PROFILE

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5/24/2011

THE LANE CONSTRUCTION CORPORATION

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RK&K
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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE -Y1- STA 30+00 (SHEET 22)

MATCHLINE -Y- STA 105+00 (SHEET 9)

MATCHLINE -Y- STA 118+00 (SHEET 16)

MATCHLINE -Y1- STA 22+00 (SHEET 21)

BAIN WILSON
DB 1313 PG 297

(40) JAMES F. FESPERMAN
SHIRLEY L. FESPERMAN
DB 8199 PG 197

(82) WM R BROOKS SONIC FINANCIAL CORP
DB 20152 PG 483

(41) P JACOB MCANULTY
LENA H MCANULTY
DB 01422 PG 269

(42) GLORIA D P WATTERSON
DB 01889 PG 463

(85) SPEEDWAY MOTORSPORTS INC
DB 1311 PG 734

(77) CRAFT HOLDINGS, LLC
DB 21556 PG 219
DB 21564 PG 790

(83) WC&C INC.
DB 22671PG 428

-RPD- ST Sta. 10+00.00=
-RPH- POT Sta. 22+47.71, 24.00' RT.

-Y1- POT Sta. 26+79.94=
-RPH- POC Sta. 19+56.43

-Y1- PC Sta. 28+59.96

BEGIN FULL C/A
-Y1- Sta. 23+59.96, 53.00' RT

END BRIDGE
-Y1- Sta. 27+37.76

NCGS SALOME
-BY- PINC 98+28.54 =
-BY- PINC 18+50.19

-BY- PINC 102+06.62

BY4-118
-BYI- PINC 16+22.25

-RPD-

-RPH-

-RPE-

-Y- I-85 NB & SB

S 43° 22' 34.1" W

N 39° 22' 34.1" E

-RPE- ST Sta. 81+88.06=
-Y- POT Sta. 110+30.35, 59.00' RT.

-Y- POT Sta. 109+52.39=
-Y1- POT Sta. 25+52.05

BEGIN BRIDGE
-Y1- Sta. 24+07.85

END FULL C/A
-Y1- Sta. 23+34.42, 136.48' LT
TIE TO EXIST C/A

BEGIN FULL C/A
-Y1- Sta. 23+25.95, 55.00' RT

-Y1- PT Sta. 22+64.25

CS Sta. 19+48.06

SPECIAL CUT DITCH SEE DETAIL E

BERM DITCH SEE DETAIL R

BERM DITCH SEE DETAIL X

BERM DITCH SEE DETAIL L

PROP 48" W.W. FENCE

36" CSP 2 ELBOWS ROD & LUG

15" RCP-IV

15" CSP PROP MSE WALL

15" RCP-III

24" CSP 2 ELBOWS ROD & LUG

LATERAL V DITCH SEE DETAIL C

SP. LATERAL V DITCH SEE DETAIL G

SP. LAT. V DITCH SEE DETAIL G

LATERAL BASE DITCH SEE DETAIL M

BERM DITCH SEE DETAIL BB

TRENCHLESS INSTALLATION 30" WELDED STEEL

FILL W/FLOWABLE FILL

FILL BOTH DIs AND 24" RCP

4 PLUGS

RETAIN SYSTEM

GRADE TO DRAIN

PROP MSE WALL

TBJB w/Slab Lid

8 TONS CL B RIPRAP W/21 SY FIL FAB

3 TONS CL B RIPRAP W/10 SY FIL FAB

EXISTING R/W

EXIST BRIDGE TO BE REMOVED

I-85 SBL 50' CONC

I-85 SBL 40' CONC

I-85 NBL 46' CONC

I-85 NBL 36' CONC

A–A
8.0'
0.0'
1.6'
2.5'
RIPRAP LINED INFALL

B–B
11.0'
TRACE
4.5'
3.0'
OUTFALL

C–C
10.0'
0.1'
5.0'
6.0'
OUTFALL

SEE SHEET 29 FOR -RPD- PROFILE
SEE SHEET 32 FOR -RPE- RROFILE
SEE SHEET 39 FOR -RPH- PROFILE
SEE SHEET 42 FOR -Y1- PROFILE
SEE SHEET 44 FOR -Y- PROFILE
SEE SHEET 2-K FOR BRIDGE SKETCH

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE -Y- STA 118+00 (SHEET 15)

MATCHLINE -Y- STA 131+00 (SHEET 17)

-RPH- POT Sta. 8+10.39=
-Y- POT Sta. 121+11.15, 47.00' LT.

(85) SPEEDWAY MOTORSPORTS INC
DB 13111 PG 734

(83) WC&C INC.
DB 22671 PG 428

BM #102
-BY0- STA 107+05
6 LEFT
ELEV. 674.45'

BL-105
-BY- PINC 109+84.56

BM #7
-BY0- STA 115+29
182 RIGHT
ELEV. 665.53'

10+00 S 43° 22' 34.1" W

120+00

125+00

130+00

N 39° 22' 34.1" E

-Y-

I-85 SB

I-85 NB

I-85 SBL 48' CONC

I-85 NBL 36' CONC

11' BST

13' BST

PROP TRANSITIONAL BARRIER

RETAIN SYSTEM

REMOVE

SBG +50.00

PROP SBG

SPECIAL LATERAL BASE DITCH SEE DETAIL EE

30" RCP-III

TIE EXIST. DITCH TO 30" RCP

SWALE

BERM DITCH SEE DETAIL R

BERM DITCH SEE DETAIL L

STANDARD BASE DITCH A SEE DETAIL Z

SPECIAL CUT DITCH SEE DETAIL E

24" RCP-III

COLLAR

18" CSP 2 ELBOWS ROD & LUG

SLOPE DRAIN

BDO +80.00 188.76'

18" CMP 2GI-D

18" RCP-III JB w/Slab Lid

FS

15" CSP 2 ELBOWS ROD & LUG

COLLAR 18" RCP-III

COLLAR 30" RCP-III

8 TONS CL B RIPRAP W/21 SY FIL FAB

5 TONS CL B RIPRAP W/14 SY FIL FAB

PSH SEE DETAIL N

PDE

+44.00 169.95' +44.00 177.00'

+74.00 169.94' +74.00 177.00'

S 27°23'56" W 548.94'

S 33°46'39" W 500.66'

FIBER OPTIC MARKER

POWER METER

EXISTING R/W

60" WW

4" HDPE

A–A: 9.0' / 0.0' / 3.0' / 1.5' INFALL

B–B: 10.0' / 0.1' / 4.5' / 4.0' OUTFALL

C–C: 8.0' / 0.0' / 2.5' / 5.0' OUTFALL

SEE SHEET 45 FOR -Y- PROFILE

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3/4/2011

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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE -Y- STA 131+00 (SHEET 16)

MATCHLINE -Y- STA 144+00 (SHEET 18)

(85) SPEEDWAY MOTORSPORTS INC
DB 1311 PG 734

(91) DAVIDLAND, LLC
DB 0599 PG 019

BERM DITCH SEE DETAIL L
+76.00 210.00'
+00.00 220.00'
+56.48 210.43'
BERM DITCH SEE DETAIL Q

BL-104 -BY- PINC 120+18.93

BL-103 -BY- PINC 130+39.22

EXISTING R/W

60" WW & ISBW

FIBER OPTIC MARKER

TIE EXIST. DITCH TO 24" RCP

1707 COLLAR

24" RCP-III

2 TONS CL B RIPRAP W/7 SY FIL FAB
15" RCP-III

1714

2GI

1713

REMOVE

18" RCP

BM #101
-BYO- STA 128+78
13 LEFT
ELEV. 642.53'

+00.00 97.00'
+84.00 95.00'

3 TONS CL B RIPRAP W/10 SY FIL FAB
18" RCP-III

1717 COLLAR

CAT-1

POWER METER & SIGN

FIBER ORSAC

12' BST

I-85 SBL 48" CONC

I-85 SBL 36" CONC

11' BST

14' BST

24" RCP

18" RCP

135+00

140+00

I-85 SBL

I-85 NBL

-Y-

N 39° 22' 34.1" E

RETAIN SYSTEM

PROP TRANSITIONAL BARRIER

PLUG

FILL W/ FLOWABLE FILL

95'

+06.25 109.00'

SBG +00.00

+22.26 107.00'

18" RCP-III

TBJB wSlab Lid

PROP SBG

JB wSlab Lid

1719 1703 1709 1704 1705 1711 1712 1706 1710 1720

18" CSP 2 ELBOWS ROD & LUG

ARMOR OUTSIDE BEND W/CLASS II RIPRAP W/FILTER FABRIC

+26.68 169.86'

+24.00 228.00'

+14.00 209.00'

+60.00 209.00'

+26.68 209.00'

3 TONS CL B RIPRAP LATERAL BASE DITCH SEE DETAIL FF

3 TONS CL B RIPRAP W/10 SY FIL FAB ON BANKS ONLY

RELOCATED CHANNEL PER LANE EXTENSION

24" CSP 2 ELBOWS ROD & LUG

ARMOR OUTSIDE BEND W/CLASS II RIPRAP W/FILTER FABRIC

+62.64 209.00'

2 TONS CL B RIPRAP W/7 SY FIL FAB

18" CSP 2 ELBOWS ROD & LUG

3 TONS CL B RIPRAP W/10 SY FIL FAB TOE PROTECTION SEE DETAIL F

5 TONS CL B RIPRAP W/14 SY FIL FAB ON BANKS ONLY

+55.83 171.22'

+60.00 200.00'

+00.00 230.00'

+05.85 238.60'

BEGIN 300' TAPER +43.24

END 300' TAPER +43.24

SLOPE DRAIN

(89) WC&C INC.
DB 06044 PG 925

(87) WAYNE FITE KEITH
RENEE W KEITH
DB 04438 PG 804

(86) JOHN NEIL BLUM
DB 17856 PG 127

A-A
12.0'
0.0'
5.5'
4.0'
RIPRAP LINED INFALL

B-B
7.0'
0.0'
2.0'
3.5'
RIPRAP LINED OUTFALL

C-C
18.0'
0.3'
6.0'
6.0'
OUTFALL

SEE SHEET 45 FOR -Y- PROFILE

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

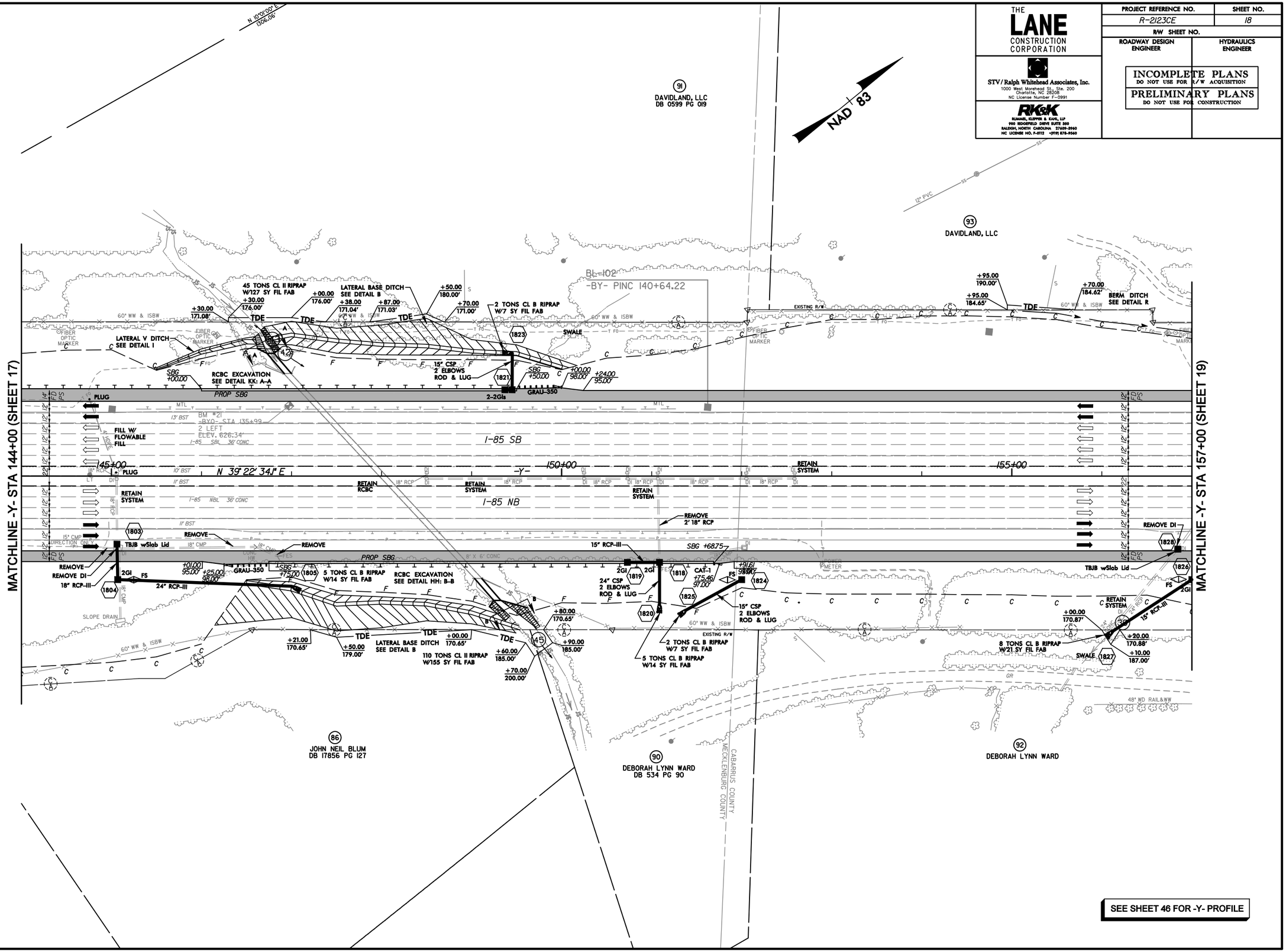
STV / Ralph Whitehead Associates, Inc.
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900 RIDGEFIELD DRIVE SUITE 350
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NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 46 FOR -Y- PROFILE

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

MATCHLINE -Y- STA 157+00 (SHEET 18)

MATCHLINE -Y- STA 168+00 (SHEET 20)

NAD 83

N 85°41'04" W
783.56'

CITY OF CONCORD

EXISTING R/W

60.00'

18" PVC

CONCORD MILLS MALL, LP
DB 4160 PG 175

POND
WE 620'

JESSE W. FOX
DB 0599 PG 019

BM #100
-BY0- STA 148+63
4 LEFT
ELEV. 627.91'

SWALE

BERM DITCH
SEE DETAIL R

60" WW & ISBW

48" WW & ISBW

BDO

REMOVE 2 DIs
AND 32' 30" CMP

30" CSP
2 ELBOWS
ROD & LUG

FS

2GH-D

30" RCP-III

CONVERT DI TO JB w/MH

SPECIAL CUT DITCH
SEE DETAIL E

BL-101
-BY- PINC 149+56.02

FIBER OPTIC MARKER

RIP RAP

RETAIN SYSTEM

12" CMP

MTL

END CONSTRUCTION I-85 SB
-Y- POT STA 159+74.12
TIE TO TIP PROJ.I-3803B (BYOTHERS)

160+00

165+00

N 39° 22' 34.1" E

-Y-

I-85 SB

I-85 SBL 36" CONC

I-85 NB

I-85 NBL 36" CONC

11" BST

14" BST

30" RCP

RETAIN SYSTEM

15" CMP

-RPC2-

GRAU-350

+02.39
95.00'

+21.52
98.00'

+92.67
97.00'

+08.67
95.00'

+56.94
22.00'

+88.94
267.5'

PROP SBG

SBG
+24.66

CAT-1

-RPC2- TS Sta. 10+00.00=
-Y- Sta. 162+87.41, 71.00' RT

-RPC2- SC Sta. 12+00.00

LATERAL V DITCH
SEE DETAIL C

CITY OF CONCORD
DB 2797 PG 001

CITY OF CONCORD SUB-STATION

96" CHL & 3SBW

GR

30" C&G

BST

CB

15" RCP

ISBK&BLKBUS

CEC ENTERTAINMENT, INC
DB 3071PG 245

SUITE CAROLINA, INC,
ALICE LYLES LANE, LLC,
SAMMY LYLES LANE, LLC
DB 7470 PG 047

24" RCP

S 50°46'43" E
179.79'

S 50°39'06" E
183.01'

S 50°27'06" E
61.84'

S 50°27'06" E
222.05'

S 50°27'06" E (TOTAL 283.07')
268.30'

14.77'

(92)
DEBORAH LYNN WARD

SEE SHEET 26 FOR -RPC2- PROFILE
SEE SHEET 46 FOR -Y- PROFILE

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3/4/2011

THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
	R-2123CE	20
STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	R/W SHEET NO.	
RK&K RUMMEL, KLEPPER & KAHL, LLP 900 ROCKFIELD DRIVE SUITE 200 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 *(919) 878-9560	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONCORD MILLS MALL, LP
DB 4160 PG 175

BRINKER NORTH CAROLINA, INC.
DB 3807 PG 225

MATCHLINE -Y- STA 168+00 (SHEET 19)

NAD 83

BL-100
-BY- PINC 158+64.69

END CONSTRUCTION
-Y- POT STA.170+25.32
TIE TO TIP PROJECT
I-3803B (BY OTHERS)

MODIFICATION OF GORE
AREA TO BE COORDINATED
WITH TIP PROJECT I-3803B

END CONSTRUCTION
-RPC2- POT STA. 18+10.00

TIE TO
EXISTING GR
SBG +91.36

2 TONS CL B RIPRAP
W/7 SY FIL FAB

15" CSP
2 ELBOWS
ROD & LUG

LATERAL V DITCH
SEE DETAIL C

-RPC2- CS Sta. 20+64.50

-RPC2- ST Sta. 22+64.50

-RPC2- POT Sta. 27+27.48

POT Sta. 180+96.53

BY5-400
-BY- * PINC 160+74.29 =
-BY5- * PINC 33+31.40

BM #8
-BYO-
STA 168+73
4 RIGHT
ELEV. 631.201

BL-13
-BY5- PINC 35+35.83

CONCORD MILLS MARKETPLACE, LP
DB 5083 PG 155

RAJ KUMAR AND
PAVAN KUMAR
DB 5032 PG 305

BASSETT DIRECT NC, LLC
DB 2877 PG 120

TRICOR CONCORD, LLC
DB 2871PG 078

BEF REIT, INC
DB 2863 PG 246

BRUTON SMITH BLVD

CONCORD MILLS BLVD

I-85 NB

I-85 SBL

I-85 NBL

RETAIN SYSTEM

RETAIN RCBC

SEE SHEET 26 FOR -RPC2- PROFILE
SEE SHEET 46 FOR -Y- PROFILE

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

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NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

N 6047137E
609.98'

79 CRAFT HOLDINGS, LLC
DB 21556 PG 219
DB 21564 PG 790

CRAFT HOLDINGS, LLC
DB 21556 PG 219
DB 21564 PG 790

77 CRAFT HOLDINGS, LLC
DB 21556 PG 219
DB 21564 PG 790

BY4-I20
-BYI- POT 5+00.00

MTL CANOPY
48" WD RAIL & WW
W/LT
WD DK
ISBRD
"40" CONC
EIP
GR
ISFD
SHED
TELEPHONE BOOTH
8" PLASTIC
12" RCP
18" RCP
24" RCP
SR 2401 (TYVOLA ROAD)
"B" MAIN
SIDEWALK
RETAIN
A
N 15.92
N 28°14'16" W
+25.00
33.90'
EIP
+18.00
50.00'
+18.00
20.26'
15"
2101
MATCH EXIST. 104
102 103 104 103 102 101 102 101 102 103 104 105 106
15.00'
N 29°17'16.0" W
EXISTING R/W
+25.11
45.00'
CUT/FILL TRANSITION
2 TONS CL B RIPRAP
W/7 SY FIL FAB
BEGIN CONSTRUCTION
-Y1- POT Sta.13+00.00
-Y1- PT Sta. 14+25.11
-Y1- PC Sta. 10+00.00
GAS TEST STATION
SILOAM PRESBYTERIAN CHURCH
DB 150 PG 478
CEM
S 04°52'51" W
183.38'
60°52'
3,425,154.28 S
N 85°22'23" E
70.01'
83 WC&C INC.
DB 22671 PG 428
+82.49
70.00
+83.51
56.88
+97.84
55.00
-Y1- PC Sta. 17+97.84
BY4-II9
-BYI- PINC II+10.22
PAVEMENT REMOVAL
SWALE
1 TONS CL B RIPRAP
W/5 SY FIL FAB
EXISTING R/W
2104
2103
2102
15" RCP-III
139'
2GI
FS
20+00
SP. LAT. V DITCH
SEE DETAIL G
FEOI
GAS TEST STATION
LATERAL V DITCH
SEE DETAIL C
+15.37
55.00'
2 TONS CL B RIPRAP
W/7 SY FIL FAB
E
+14.41
73.74'
+91.12
79.58'
+93.31
55.00'
MATCHLINE -Y1- STA 22+00 (SHEET 15)

A–A
4.0'
0.0'
0.8'
ROADSIDE

SEE SHEET 42 FOR -Y1- PROFILE

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

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Charlotte, NC 28208
NC License Number F-0991

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RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCHLINE -Y1- STA 30+00 (SHEET 15)

NO RIPRAP DUE TO ENVIRONMENTALLY SENSITIVE AREA

(14)

BX4-122
-BY- PINC 23+55

SPECIAL CUT DITCH
SEE DETAIL E

LATERAL V DITCH
SEE DETAIL M

+80.00
53.00'

+20.00
62.00'

+45.00
53.00'

(2201)

LATERAL V DITCH
SEE DETAIL W

(82)
WM R BROOKS SONIC FINANCIAL CORP
DB 20152 PG 483

SWALE

(81)
LLC SPEEDWAY BOULEVARD PARTNERS
DB 21236 PG 519

BAIN WILSON
DB 1313 PG 297

EXISTING R/W

END CONSTRUCTION
-Y1- PT Sta.35+54.00

-Y1- POT Sta. 38+03.76

S 75° 10' 31.8" W

MATCH LINE

35+00

+53.89
31.71'

+53.89
45.00'

+53.89
53.00'

+16.09
45.00'

+22.80
31.44'

SWALE

(74)
THE HOLLAND LIVING TRUST
HOYLE N. HOLLAND
NANCY H. HOLLAND
DB 23214 PG 373

S 17° 49' 47" W
306.39'

ISBKD

ISFD

WD DK

48" WD RAIL

TIMBERS

24" BST

WALNUT CREEK RD

4" PLASTIC

15" RCP

24" RCP

A–A
4.5'
0.0'
0.7'
1.5'
ROADSIDE

B–B
8.0'
0.0'
2.5'
2.0'
OUTFALL

SEE SHEET 42 FOR -Y1- PROFILE

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3/4/2011

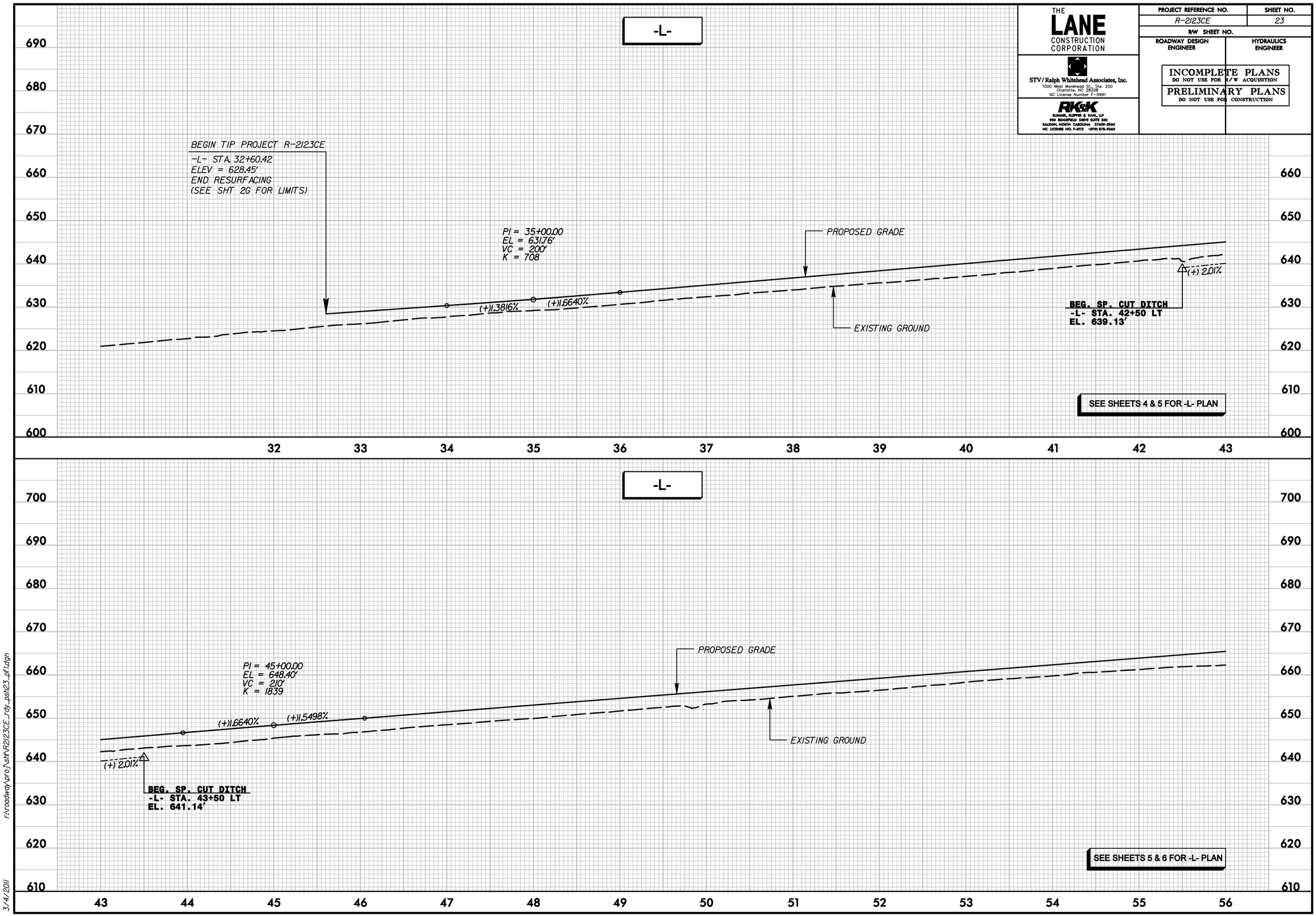
THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
	R-2123CE	23
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

INCOMPLETE PLANS
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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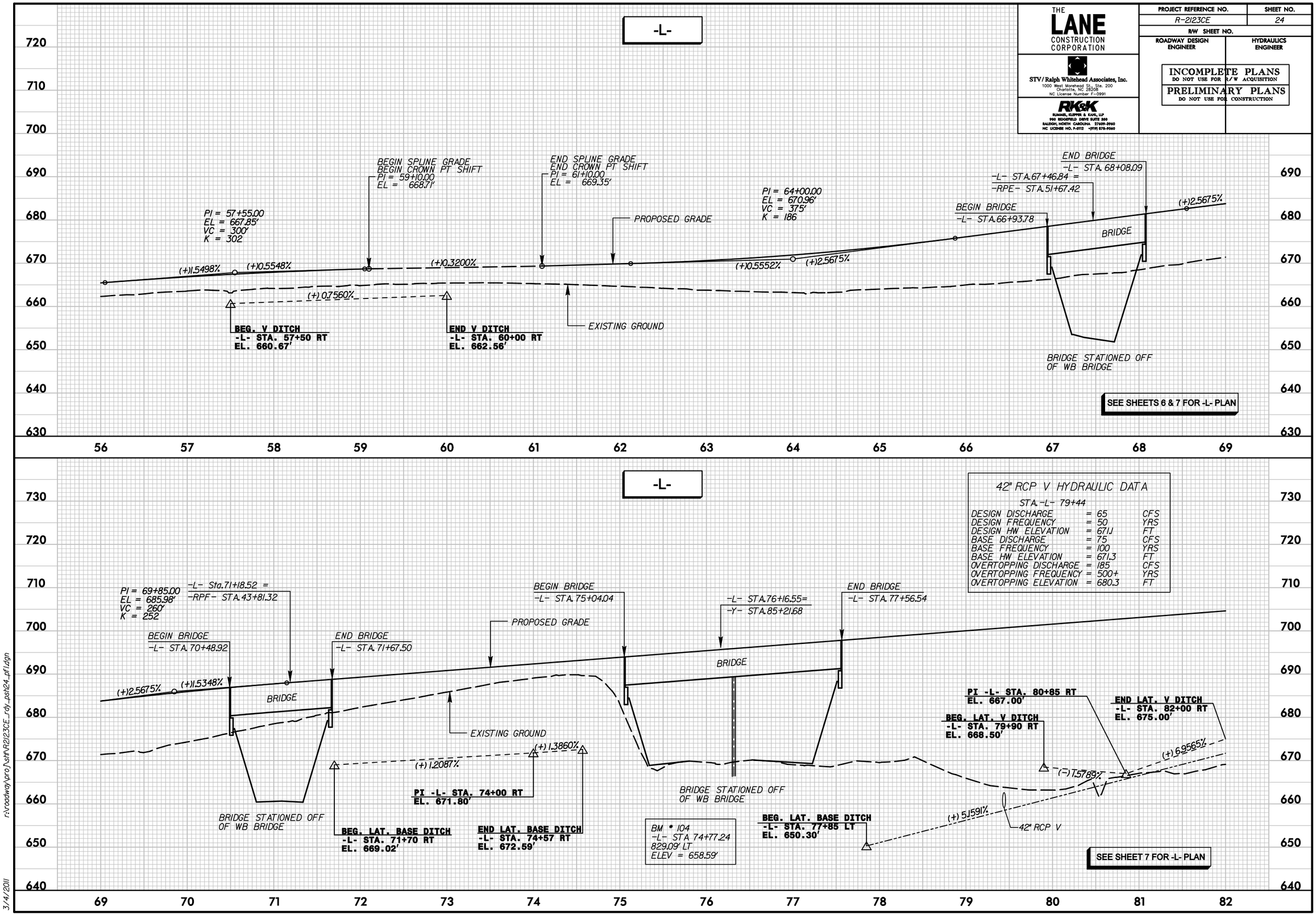
THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
	R-2123CE	24
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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Charlotte, NC 28208
NC License Number F-0991

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900 ROCKFIELD DRIVE SUITE 200
RALEIGH, NORTH CAROLINA 27609-3960
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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3/4/2011

THE LANE CONSTRUCTION CORPORATION

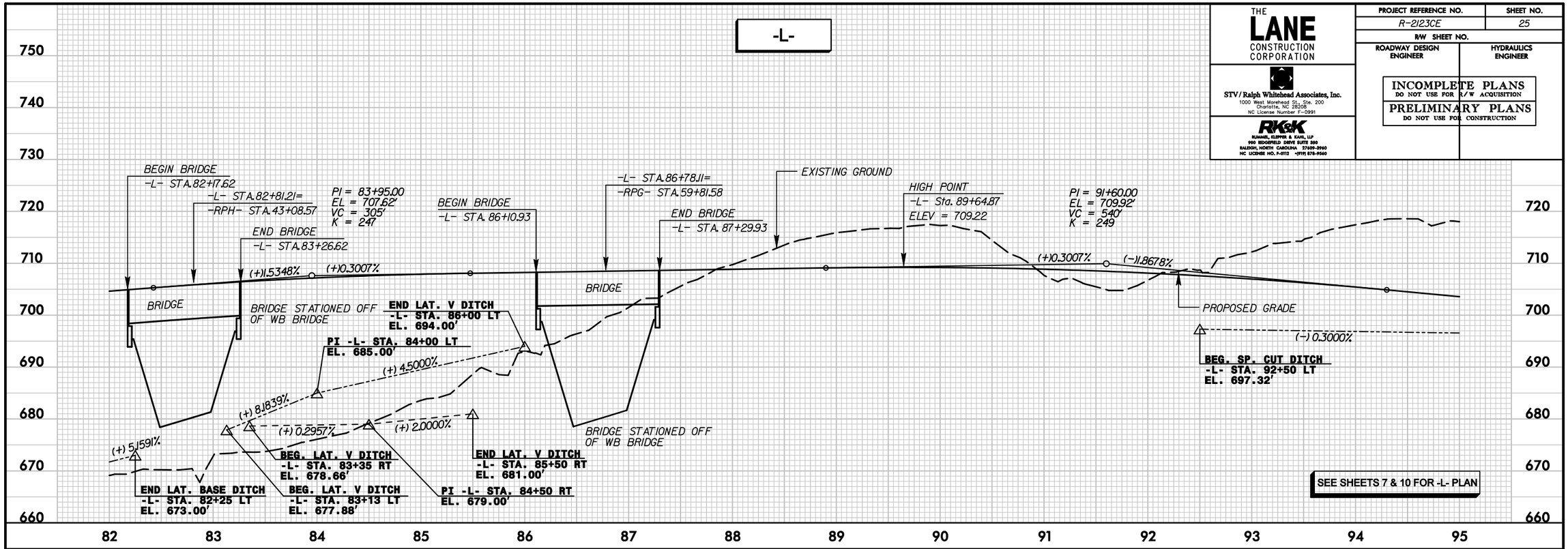
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Charlotte, NC 28208
NC License Number F-0991

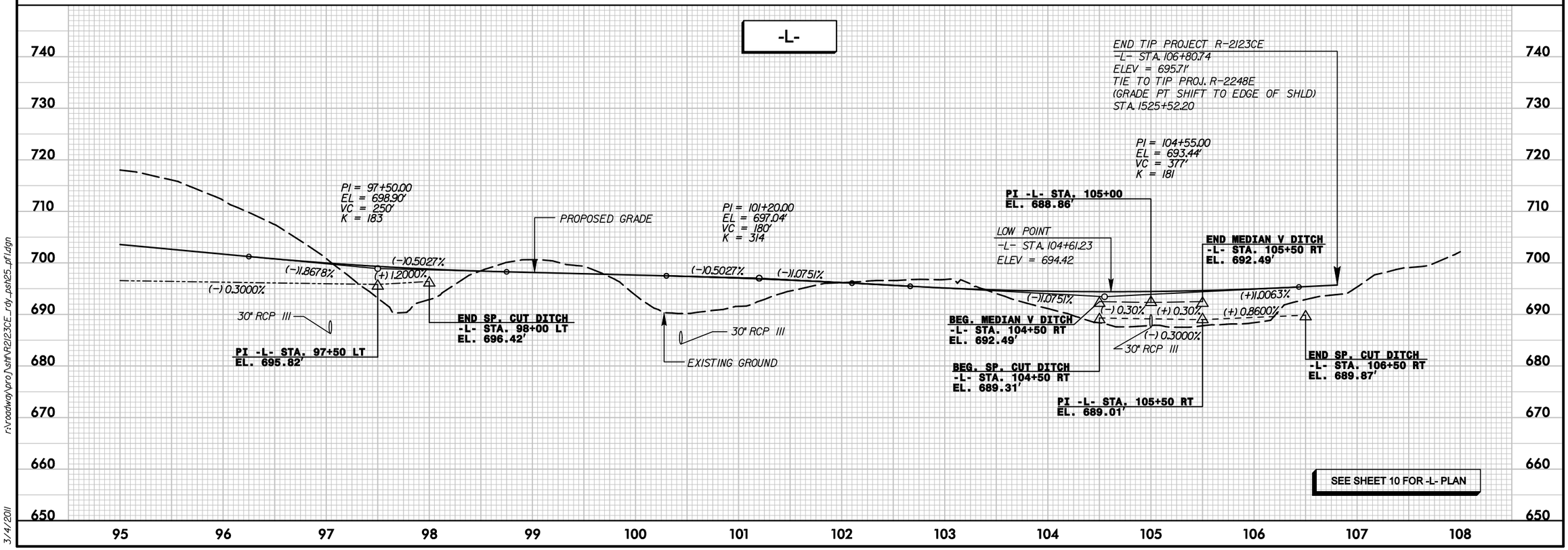
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RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





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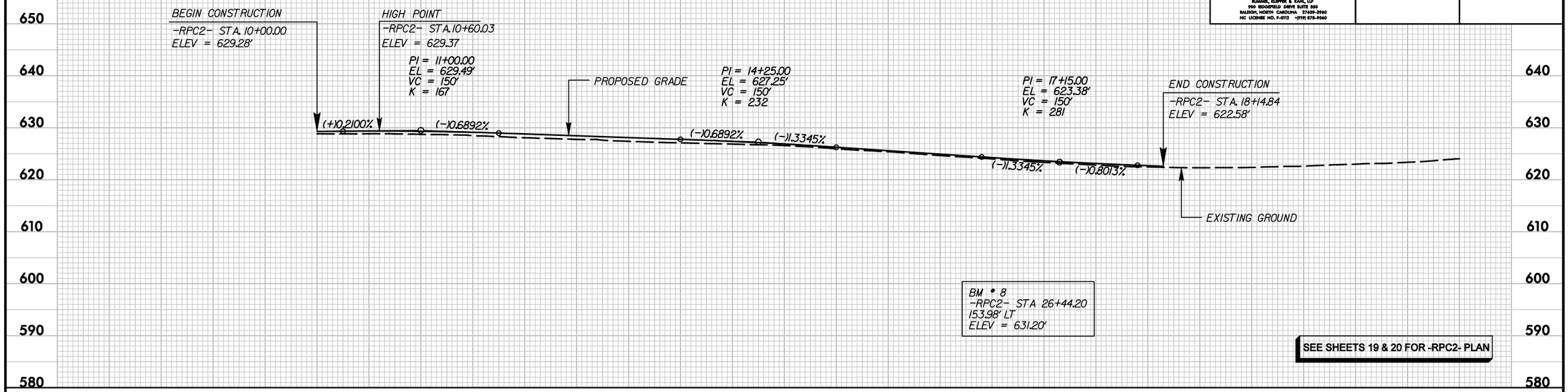
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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

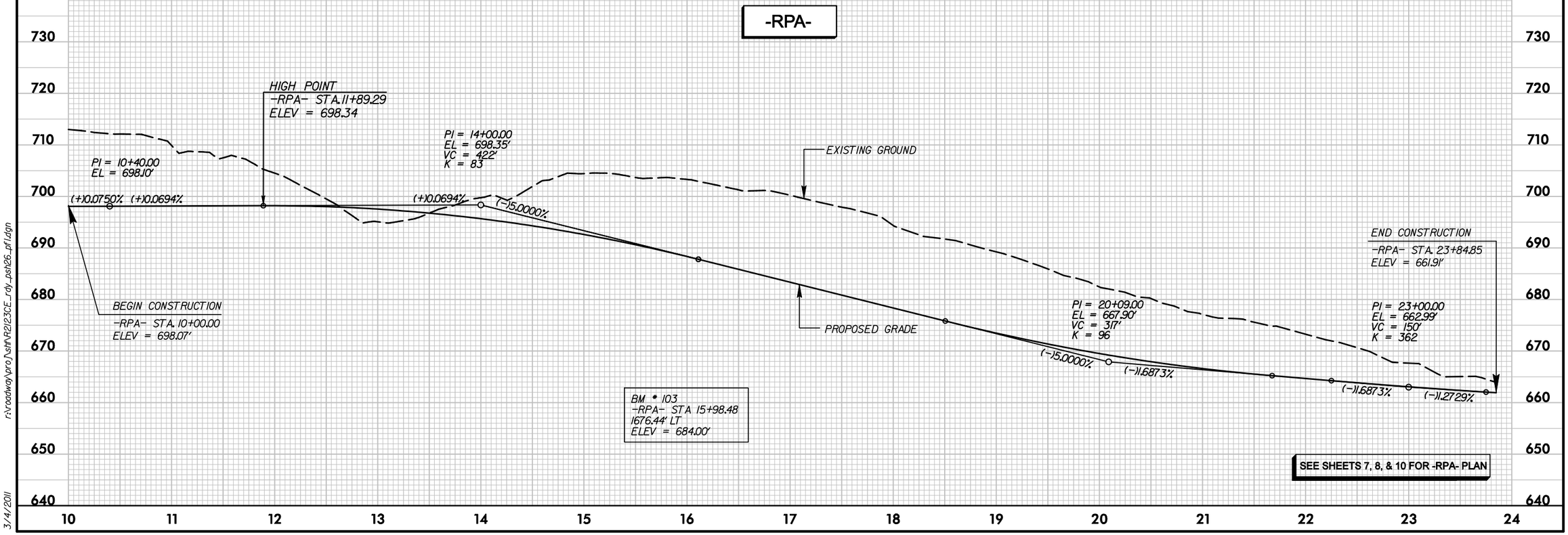
-RPC2-



BM * 8
-RPC2- STA 26+44.20
153.98' LT
ELEV = 631.20'

SEE SHEETS 19 & 20 FOR -RPC2- PLAN

-RPA-



BM * 103
-RPA- STA 15+98.48
1676.44' LT
ELEV = 684.00'

SEE SHEETS 7, 8, & 10 FOR -RPA- PLAN

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THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
	R-2123CE	27
STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	RW SHEET NO.	
RK&K RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. P-0112 *(919) 878-9560	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPB-

BEGIN CONSTRUCTION
-RPB- STA. 10+00.00
ELEV = 666.18'

PI = 11+05.00
EL = 664.87'
VC = 180'
K = 598

(−)1.2476%

(−)1.5486%

PI = 13+71.70
EL = 660.74'
VC = 200'
K = 160

(−)1.5486%

(−)0.3004%

EXISTING GROUND

PROPOSED GRADE

24" RCP III

(−) 0.3000%

BEG. SP. CUT DITCH
-RPB- STA. 19+50 RT
EL. 654.47'

BM # 104
-RPB- STA 18+53.05
880.77' LT
ELEV = 658.59'

SEE SHEETS 8 & 14 FOR -RPB- PLAN

-RPB-

LOW POINT
-RPB- STA. 25+52.70
ELEV = 657.27

PI = 26+00.00
EL = 657.05'
VC = 200'
K = 175

EXISTING GROUND

PROPOSED GRADE

HIGH POINT
-RPB- STA. 33+37.93
ELEV = 662.71

PI = 33+85.94
EL = 663.65'
VC = 350'
K = 151

END CONSTRUCTION
-RPB- STA. 35+93.43
ELEV = 660.59'

BEG. SP. CUT DITCH
-RPB- STA. 25+00 LT
EL. 653.71'

(−)0.3004%

PI -RPB- STA. 27+00 LT
EL. 653.11'

(+)0.8398%

END SP. CUT DITCH
-RPB- STA. 27+50 LT
EL. 654.67'

(−) 0.3000%

(+) 3.1200%

(−) 0.3000%

PI -RPB- STA. 27+55 RT
EL. 652.06'

(+) 3.3368%

END SP. CUT DITCH
-RPB- STA. 28+50 RT
EL. 655.23'

BEG. STD. V DITCH
-RPB- STA. 29+50 LT
EL. 656.72'

(+) 0.8207%

END STD. V DITCH
-RPB- STA. 31+33.99 LT
EL. 658.23'

(+)0.8398%

(−)1.4748%

BM # 103
-RPB- STA 17+16.63
2622.81' LT
ELEV = 684.00'

BEG. LAT. BASE DITCH
-RPB- STA. 27+89 RT
EL. 623.00'

END LAT. BASE DITCH
-RPB- STA. 28+35 RT
EL. 617.30'

(−) 12.3913%

12'x14' RCBC

12'X14' RCBC HYDRAULIC DATA
STA.-RPB- 27+49

DESIGN DISCHARGE	= 3,100	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 628.0	FT
BASE DISCHARGE	= 3,400	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 628.8	FT
OVERTOPPING DISCHARGE	= 5,430	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 634.2	FT
DATE OF SURVEY	= 10/2010	
W.S.ELEVATION AT DATE OF SURVEY	= 614.2	FT

BEG. LAT. BASE DITCH
-RPB- STA. 33+25 RT
EL. 613.40'

(−) 1.0500%

END LAT. BASE DITCH
-RPB- STA. 35+25 RT
EL. 611.30'

SEE SHEETS 6 & 8 FOR -RPB- PLAN

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5/25/2011

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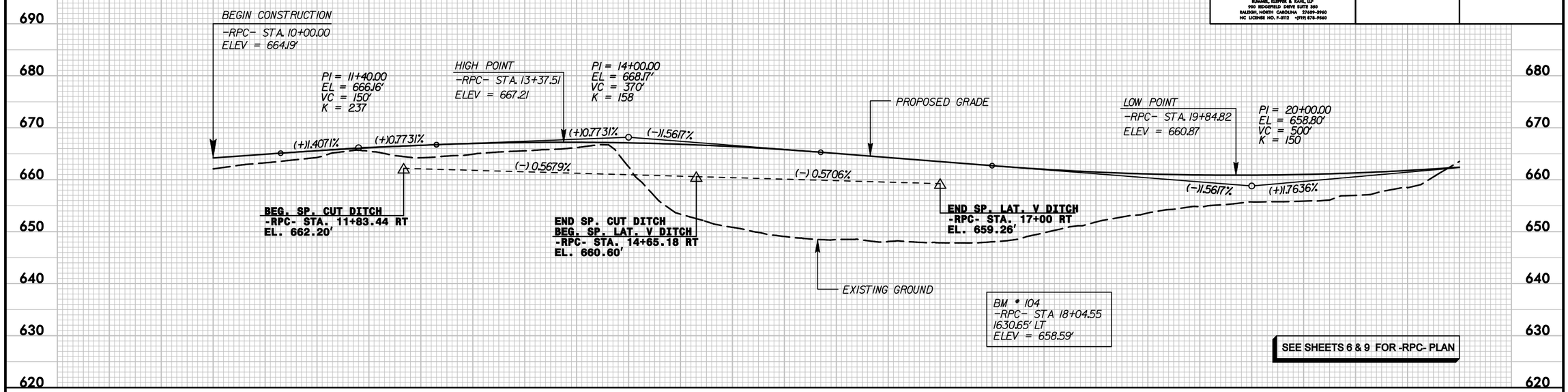
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RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	28
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPC-



-RPC-



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3/4/2011

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

THE LANE CONSTRUCTION CORPORATION

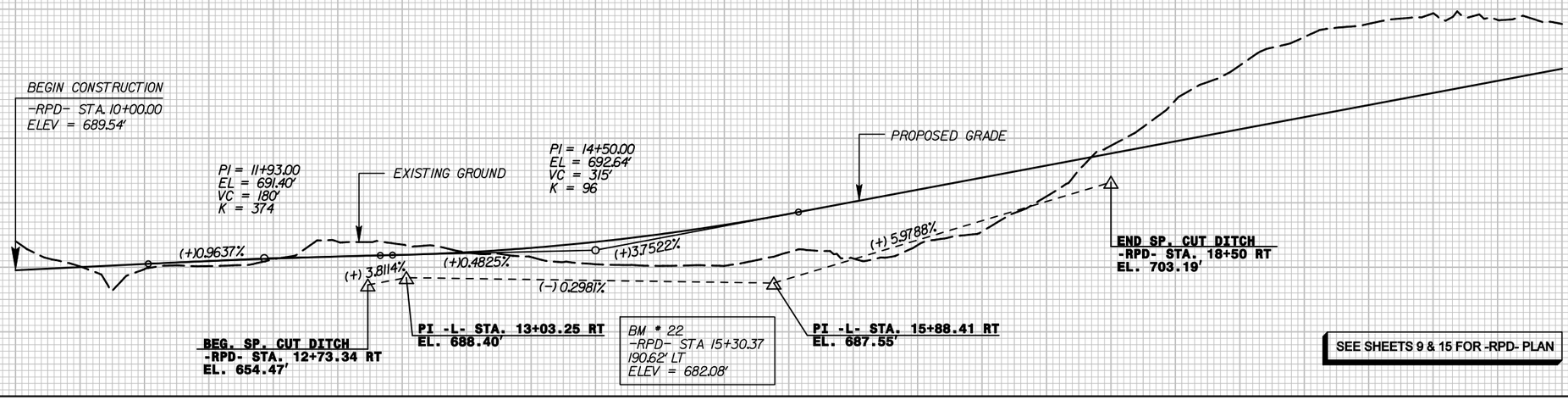
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1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

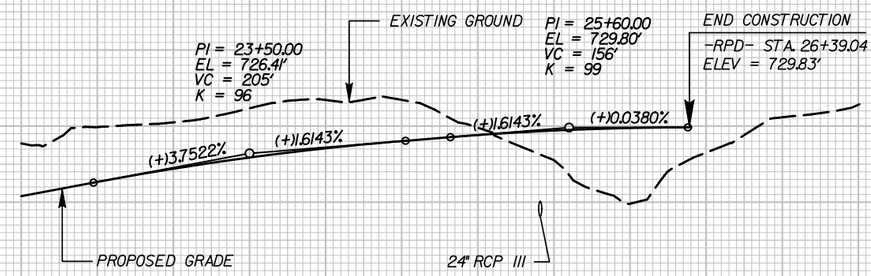
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPD-



SEE SHEETS 9 & 15 FOR -RPD- PLAN

-RPD-



SEE SHEETS 7 & 9 FOR -RPD- PLAN

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

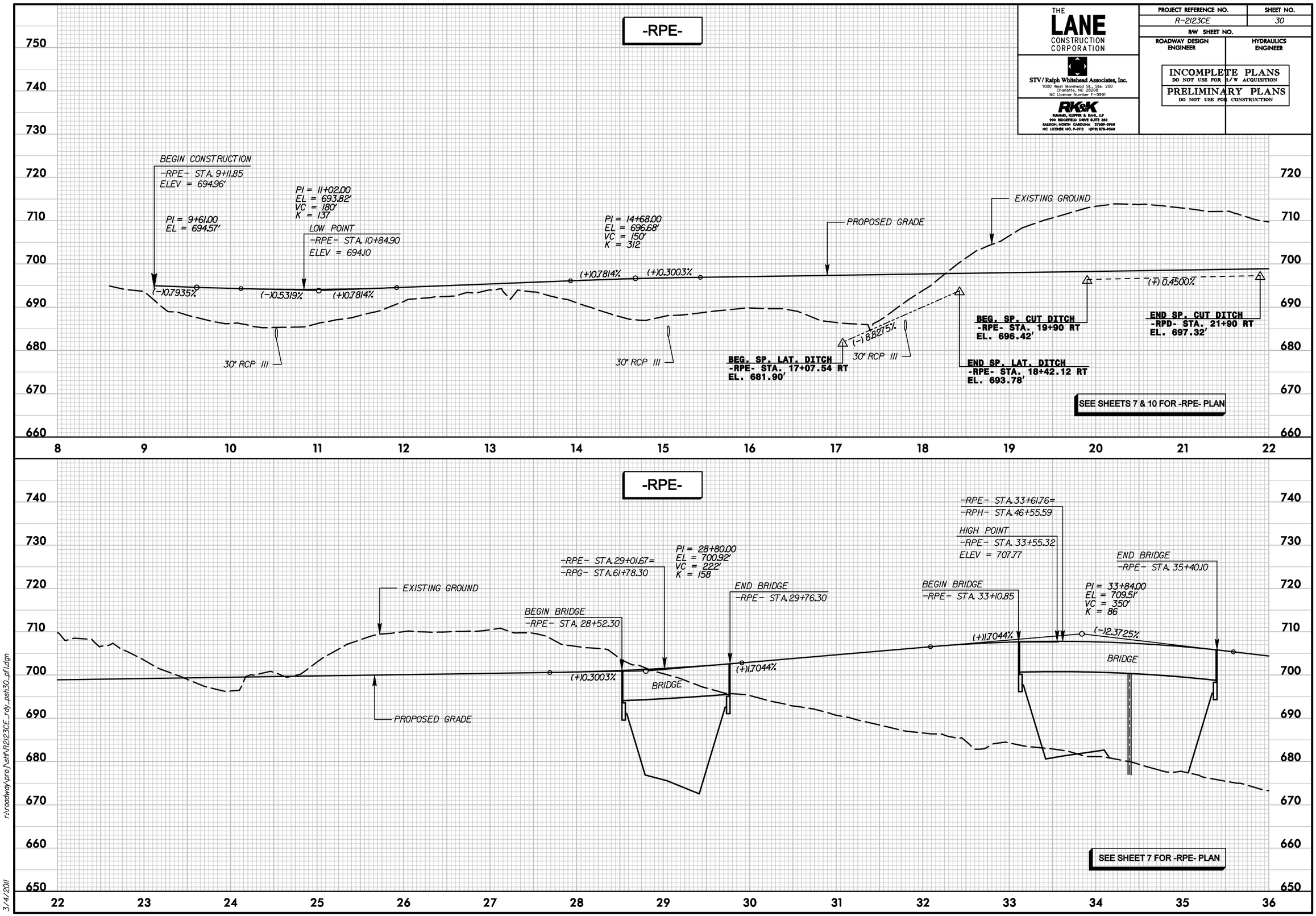
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NC License Number F-0991

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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



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3/4/2011

THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
	R-2123CE	31
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NC License Number F-0991

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RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPE-

PROPOSED GRADE

BEGIN BRIDGE
-RPE- STA. 41+10.28

PI = 42+00.00
EL = 690.15'
VC = 200'
K = 107

-RPE- STA. 42+09.28=
-Y- STA. 78+95.90

-RPE- STA. 44+79.01=
-RPF- STA. 38+59.22

END BRIDGE
-RPE- STA. 45+41.28

(-)2.3725%

(-)4.2362%

BRIDGE

BEG. LAT. BASE DITCH
-RPE- STA. 37+25 RT
EL. 670.00'

PI -L- STA. 39+00 RT
EL. 663.00'

(-)4.0000%

EXISTING GROUND

(-)11.2476%

BM # 104
-RPE- STA 41+45.23
225.94' RT
ELEV = 658.59'

END LAT. BASE DITCH
-RPD- STA. 41+10 RT
EL. 639.38'

SEE SHEET 7 FOR -RPE- PLAN

720 710 700 690 680 670 660 650 640 630

36 37 38 39 40 41 42 43 44 45 46 47 48 49

-RPE-

84" RCP III HYDRAULIC DATA
STA. -RPE- 55+69

DESIGN DISCHARGE	= 298	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 643.7	FT
BASE DISCHARGE	= 345	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 644.8	FT
OVERTOPPING DISCHARGE	= 587	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 653.0	FT

LOW POINT
-RPE- STA. 52+98.98
ELEV = 652.20

-RPE- STA. 51+67.42=
-L- STA. 67+46.84

PI = 51+95.00
EL = 648.00'
VC = 605'
K = 96

-RPE- STA. 54+17.20=
-RPG- STA. 32+90.64

PROPOSED GRADE

(-)4.2362%

(+)2.0690%

BEG. STANDARD BASE DITCH
-RPE- STA. 56+25 LT
EL. 636.00'

EXISTING GROUND

(+) 2.5143%

END STANDARD BASE DITCH
-RPE- STA. 59+75 LT
EL. 644.80'

84" RCP III

SEE SHEETS 7 & 9 FOR -RPE- PLAN

710 700 690 680 670 660 650 640 630 620

49 50 51 52 53 54 55 56 57 58 59 60 61 62

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3/4/2011

THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
	R-2123CE	32
STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	R/W SHEET NO.	
RK&K RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 (919) 878-9560	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

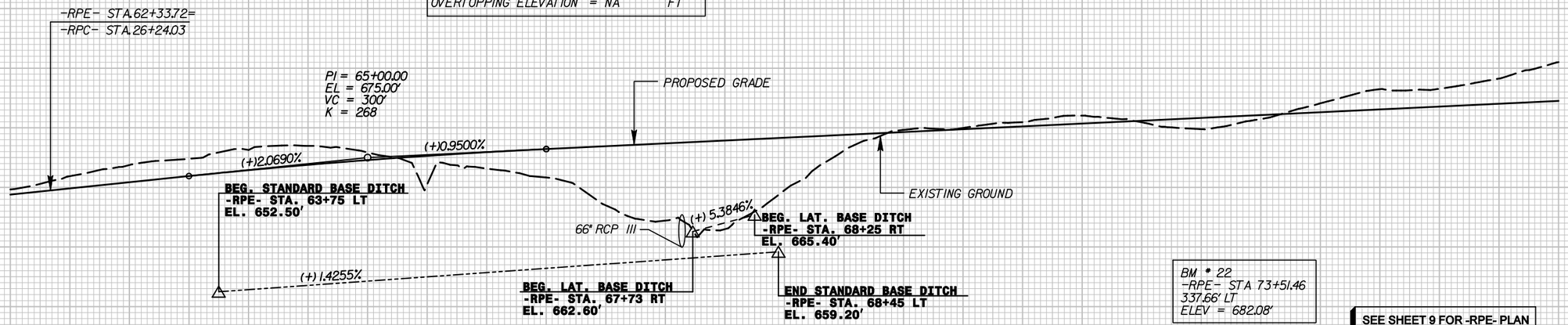
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPE-

66" RCP III HYDRAULIC DATA

STA. -RPE- 67+64

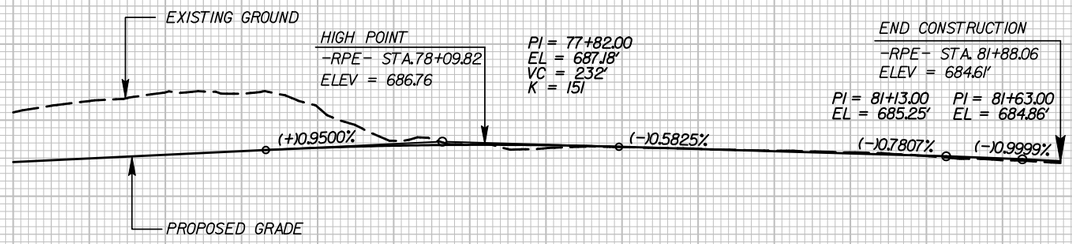
DESIGN DISCHARGE	= 132	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 668.0	FT
BASE DISCHARGE	= 151	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 668.5	FT
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING ELEVATION	= NA	FT



BM # 22
-RPE- STA 73+51.46
337.66' LT
ELEV = 682.08'

SEE SHEET 9 FOR -RPE- PLAN

-RPE-



SEE SHEETS 9 & 15 FOR -RPE- PLAN

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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

THE LANE CONSTRUCTION CORPORATION

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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPF-

BEGIN CONSTRUCTION
-RPF- STA. 10+00.00
ELEV = 683.82'

PI = 12+00.00
EL = 680.45'
VC = 180'
K = 3484

PI = 15+00.00
EL = 675.55'
VC = 180'
K = 449

(-)1.6850%

(-)1.6333%

(-)1.2324%

EXISTING GROUND

PROPOSED GRADE

-RPA- STA. 22+41.38
-RPB- STA. 10+00.00

36" RCP III HYDRAULIC DATA

STA. -RPF- 22+15

DESIGN DISCHARGE	= 83	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 656.0	FT
BASE DISCHARGE	= 96	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 657.4	FT
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING ELEVATION	= NA	FT

36" RCP III

SEE SHEETS 13 & 14 FOR -RPF- PLAN

-RPF-

2@9'X10' RCBC HYDRAULIC DATA

STA. -RPF- 31+85

DESIGN DISCHARGE	= 2,500	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 643.2	FT
BASE DISCHARGE	= 2,800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 646.8	FT
OVERTOPPING DISCHARGE	= 4,018	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 654.5	FT
DATE OF SURVEY	= 10/2010	
W.S. ELEVATION AT DATE OF SURVEY	= 624.3	FT

PI = 32+00.00
EL = 654.60'
VC = 200'
K = 759

PI = 36+80.00
EL = 647.42'
VC = 345'
K = 97

LOW POINT
-RPF- STA. 36+52.02
ELEV = 648.92

-RPF- STA. 36+02.43=
-RPH- STA. 59+51.94

(-)1.2324%

(-)1.4958%

(+)2.0750%

(-)14.2978%

EXISTING GROUND

PROPOSED GRADE

24" RCP III

BEG. LAT. V DITCH
-RPF- STA. 30+50 RT
EL. 652.61'

END LAT. V DITCH
-RPE- STA. 32+75 RT
EL. 620.44'

BM # 104
-RPF- STA 36+27.04
358.56' LT
ELEV = 658.59'

SEE SHEETS 8 & 14 FOR -RPF- PLAN

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3/4/2011

THE LANE CONSTRUCTION CORPORATION

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 208
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPF-

-RPF- STA. 38+59.22=
-RPE- STA. 44+79.01

PI = 36+80.00
EL = 647.42'
VC = 345'
K = 97

(+)2.0750%

PROPOSED GRADE

PI = 43+20.00
EL = 660.70'
VC = 300'
K = 190

-RPF- STA. 43+81.32=
-L- STA. 71+18.52

(+)2.0750%

(+)0.5000%

EXISTING GROUND

-RPF- STA. 48+76.57=
-RPG- STA. 37+53.85

PI = 50+00.00
EL = 664.10'
VC = 500'
K = 113

(+)0.5000%

(+)4.9416%

SEE SHEETS 7 & 8 FOR -RPF- PLAN

-RPF-

BEGIN BRIDGE
-RPF- STA. 59+22.84

-RPF- STA. 60+23.29=
-Y- STA. 96+82.02

PI = 60+95.00
EL = 718.21'
VC = 350'
K = 94

-RPF- STA. 62+40.50=
-RPH- STA. 32+21.74

END BRIDGE
-RPF- STA. 63+03.87

(+)4.9416%

(+)1.2000%

BRIDGE

PROPOSED GRADE

EXISTING GROUND

(+) 8.6182%

(+) 5.3600%

END LAT. V DITCH
-RPF- STA. 58+00 LT
EL. 693.50'

18" RCP IV

BEG. LAT. V DITCH
-RPF- STA. 55+25 LT
EL. 669.80'

PI -RPF- STA. 65+00 LT
EL. 696.50'

BEG. LAT. V DITCH
-RPF- STA. 63+00 LT
EL. 685.78'

BM # 103
RPF- STA 61+25.12
74.22' RT
ELEV = 684.00'

SEE SHEETS 7 & 9 FOR -RPF- PLAN

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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

THE LANE CONSTRUCTION CORPORATION

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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPF-

PI = 73+00.00
EL = 732.67'
VC = 500'
K = 92

HIGH POINT
-RPF- STA. 71+60.65
ELEV = 730.33

PROPOSED GRADE

(+)11.2000%

(−)4.2225%

(+)3.9900%

(−)1.6000%

(+)2.8960%

(+)5.1550%

(+)31.0000%

END LAT. V DITCH
-RPF- STA. 67+50 LT
EL. 722.31'

PI -RPF- STA. 65+50 LT
EL. 712.00'

BEG. SP. CUT DITCH
-RPF- STA. 68+50 RT
EL. 720.01'

PI -RPF- STA. 69+50 RT
EL. 724.00'

PI -RPF- STA. 70+75 RT
EL. 722.00'

EXISTING GROUND

END SP. CUT DITCH
-RPF- STA. 72+00 RT
EL. 725.62'

SEE SHEETS 7, 9, & 10 FOR -RPF- PLAN

-RPF-

EXISTING GROUND

PI = 81+60.00
EL = 696.36'
VC = 540'
K = 138

PI = 85+02.00
EL = 695.33'
VC = 100'
K = 229

PI = 86+13.00
EL = 694.51'

PI = 86+70.00
EL = 694.18'

END CONSTRUCTION
-RPF- STA. 87+12.16
ELEV = 694.08'

(−)6.0319%

(−)4.2221%

(−)0.3012%

(−)0.7387%

(−)0.5789%

(−)0.2372%

30" RCP III

BEG. SP. LAT. V DITCH
-RPF- STA. 79+84 LT
EL. 701.20'

BEG. SP. LAT. V DITCH
-RPF- STA. 80+78 LT
EL. 695.53'

30" RCP III

PROPOSED GRADE

SEE SHEET 10 FOR -RPF- PLAN

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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPG-

BEGIN CONSTRUCTION
-RPG- STA. 10+00.00
ELEV = 646.61'

PI = 11+20.00
EL = 648.38'

(+)1.4750%

(+)1.3797%

PROPOSED GRADE

EXISTING GROUND

SEE SHEETS 5 & 6 FOR -RPG- PLAN

-RPG-

-RPG- STA. 22+79.22=
-RPC- STA. 10+00.00

PROPOSED GRADE

EXISTING GROUND

(+)1.3797%

PI = 30+40.00
EL = 674.87'
VC = 200'
K = 270

(+)2.1206%

-RPG- STA. 32+90.64=
-RPE- STA. 54+17.20

BEGIN BRIDGE
-RPG- STA. 32+61.08

END BRIDGE
-RPG- STA. 33+61.58

BRIDGE

(+) 0.4098%

(+) 3.3184%

BEG. LAT. BASE DITCH
-RPG- STA. 30+67 RT
EL. 633.50'

BEG. LAT. BASE DITCH
-RPG- STA. 31+89 RT
EL. 634.00'

END SP. CUT DITCH
-RPG- STA. 35+75 LT
EL. 658.83'

BEG SP. CUT DITCH
-RPG- STA. 33+30 LT
EL. 650.70'

84" RCP V

84" RCP V HYDRAULIC DATA

STA. -RPG- 28+65

DESIGN DISCHARGE	= 328	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 640.8	FT
BASE DISCHARGE	= 380	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 641.4	FT
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING ELEVATION	= NA	FT

SEE SHEETS 6 & 7 FOR -RPG- PLAN

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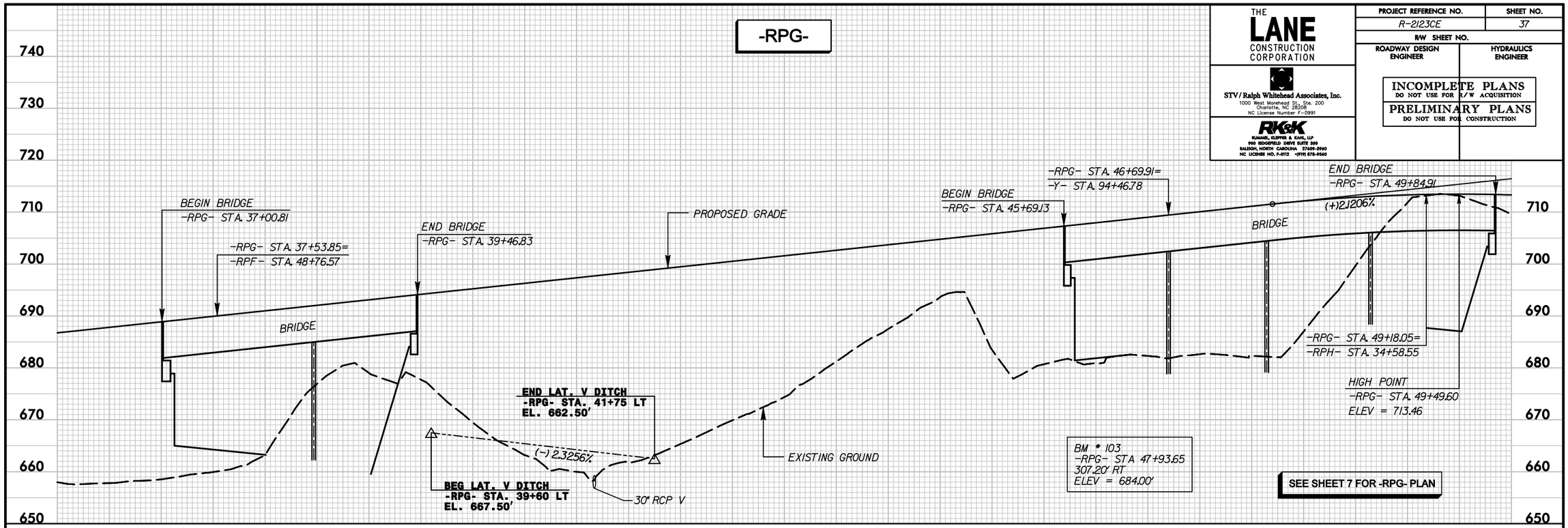
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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	37
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

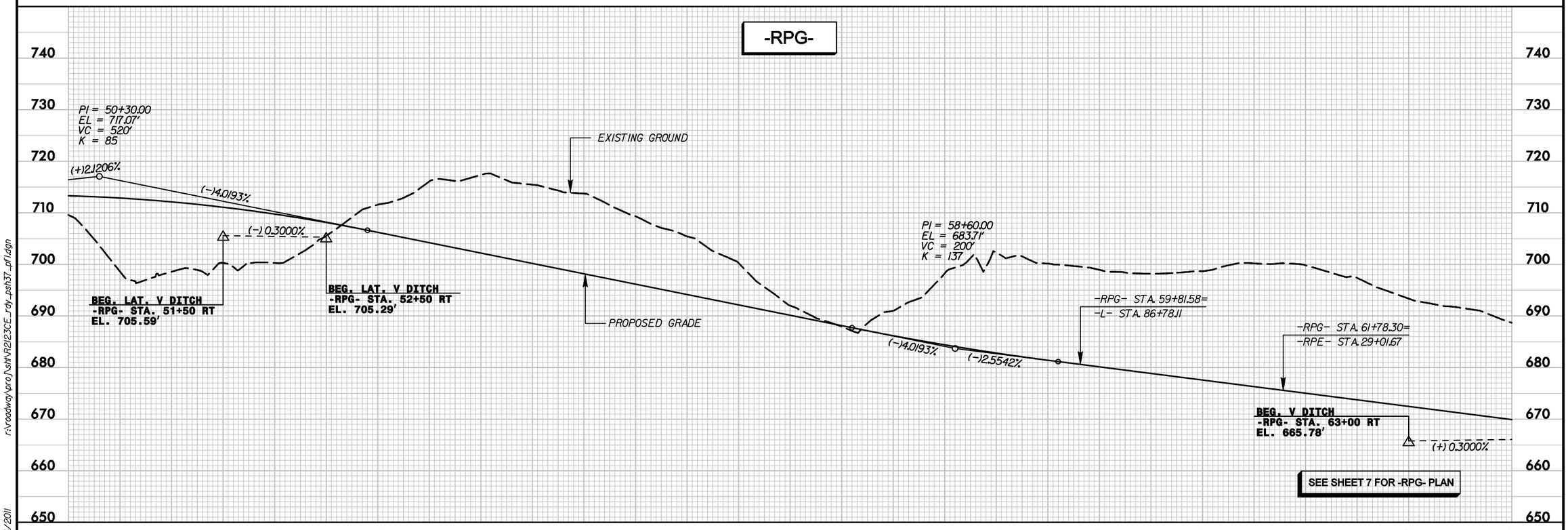
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPG-



SEE SHEET 7 FOR -RPG- PLAN

-RPG-



SEE SHEET 7 FOR -RPG- PLAN

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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPG-

PI = 65+15.00
EL = 666.98'
VC = 200'
K = 166

EXISTING GROUND

(−)12.5542%

(+)0.3000%

(−)11.3497%

BEG. V DITCH
-RPG- STA. 65+50 RT
EL. 666.53'

PROPOSED GRADE

PI = 73+50.00
EL = 655.71'
VC = 200'
K = 201

(−)11.3497%

(−)10.3543%

BM * 104
-RPG- STA 75+18.03
301.46' LT
ELEV = 658.59'

SEE SHEETS 7 & 8 FOR -RPG- PLAN

-RPG-

LOW POINT
-RPG- STA. 79+51.74
ELEV = 653.67

PI = 80+50.00
EL = 653.23'
VC = 300'
K = 146

(−)0.3543%

(+)11.6999%

PROPOSED GRADE

PI = 84+98.26
EL = 660.85'
VC = 180'
K = 15149

(+)11.6999%

PI = 86+63.00
EL = 663.67'

(+)11.7118%

(+)11.4464%

END CONSTRUCTION
-RPG- STA. 87+12.78
ELEV = 664.39'

EXISTING GROUND

(−) 0.8372%

BEG. LAT. BASE DITCH
-RPG- STA. 80+35 RT
EL. 624.70'

END LAT. BASE DITCH
-RPG- STA. 82+50 RT
EL. 626.50'

2@9'X10' RCBC HYDRAULIC DATA

STA. -RPG- 80+88

DESIGN DISCHARGE	= 2,500	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 643.2	FT
BASE DISCHARGE	= 2,800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 646.8	FT
OVERTOPPING DISCHARGE	= 4,018	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 654.5	FT
DATE OF SURVEY	= 10/2010	
W.S. ELEVATION AT DATE OF SURVEY	= 624.3	FT

SEE SHEETS 8 & 14 FOR -RPG- PLAN

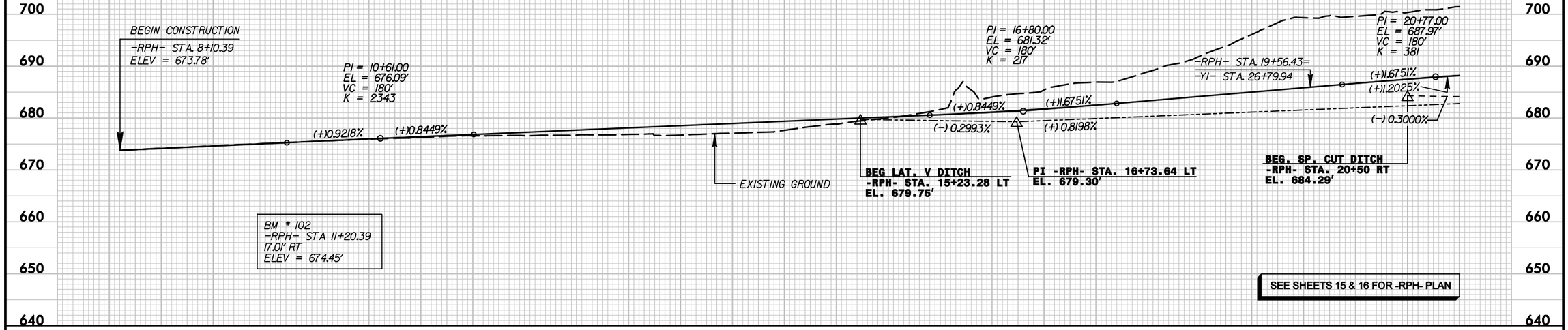
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	R-2123CE	39
STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	R/W SHEET NO.	
RK&K RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 208 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 (919) 878-9560	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

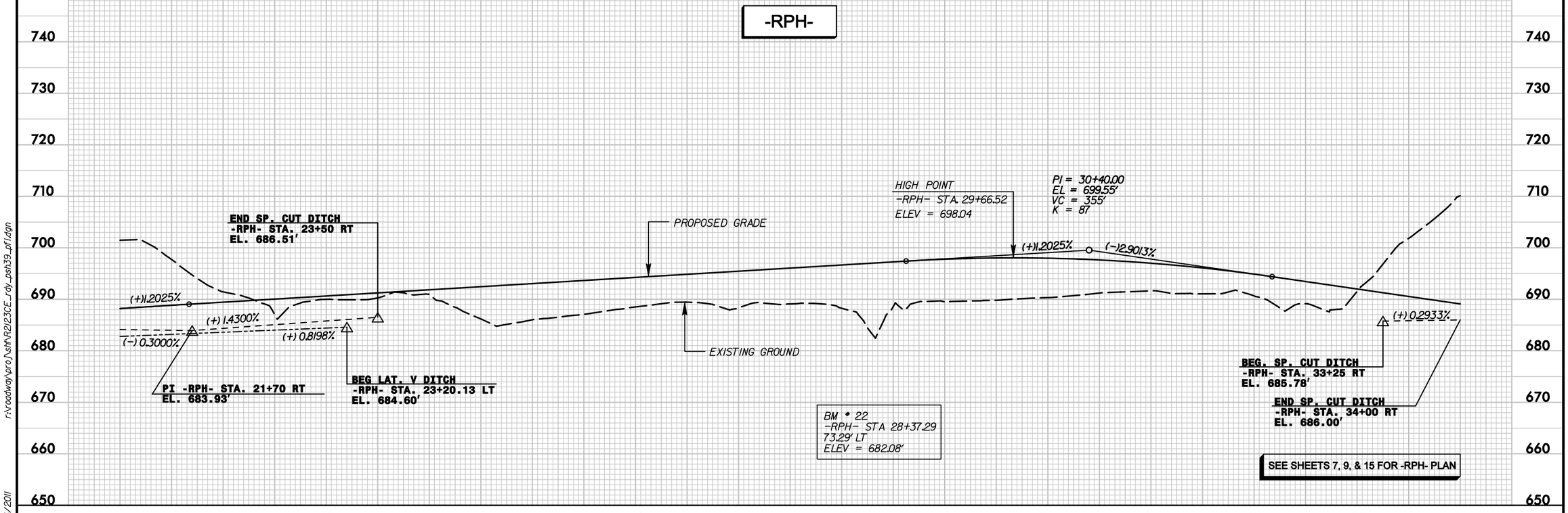
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPH-



SEE SHEETS 15 & 16 FOR -RPH- PLAN

-RPH-



SEE SHEETS 7, 9, & 15 FOR -RPH- PLAN

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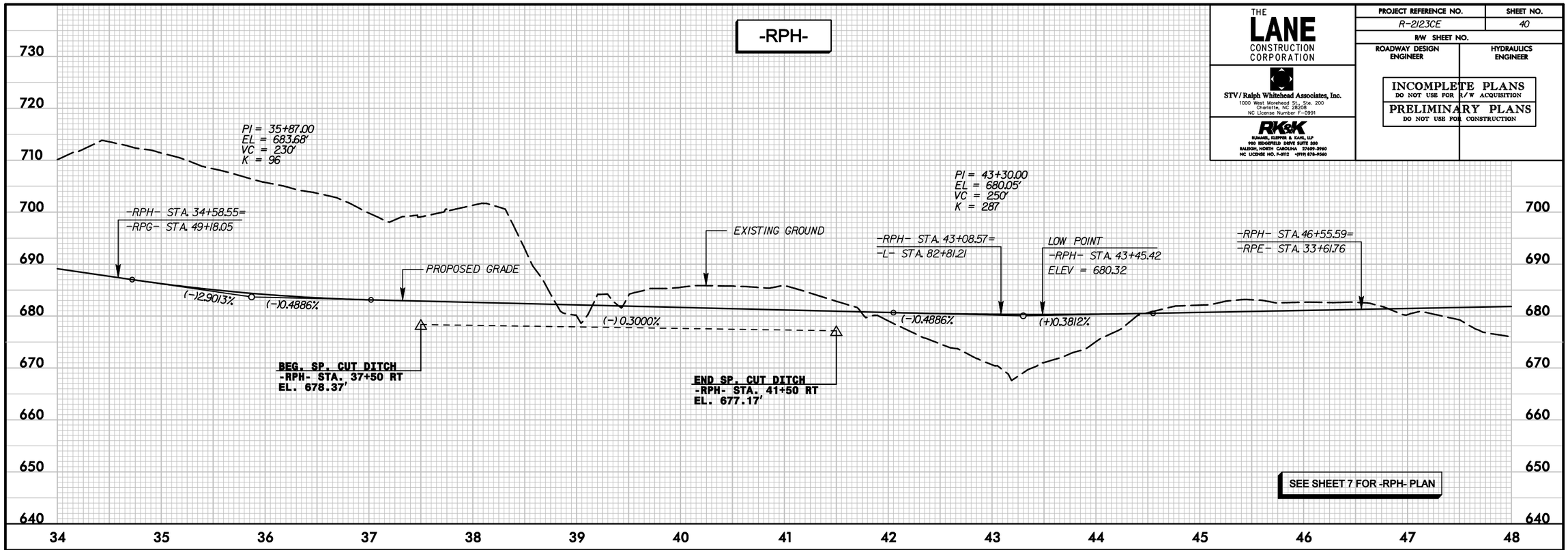
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NC License Number F-0991

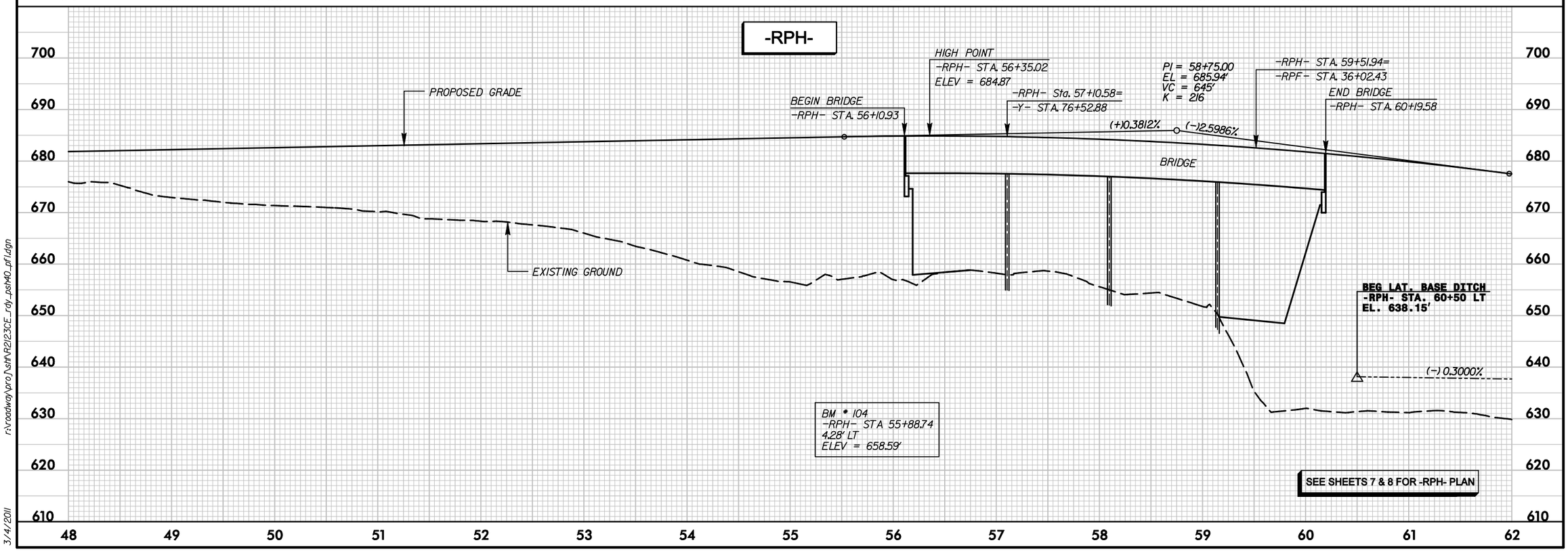
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RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	41
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPH-

36" RCP V HYDRAULIC DATA

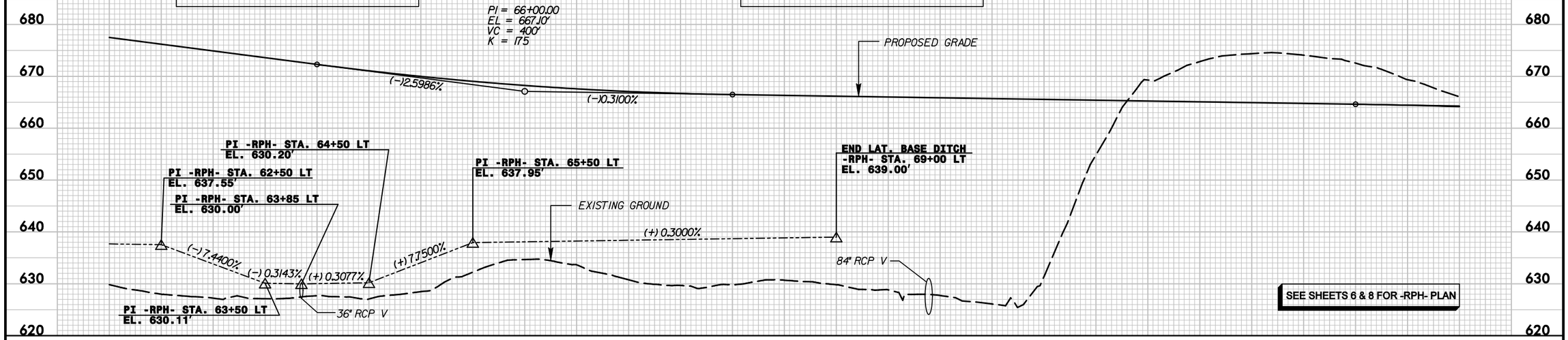
STA. -RPH- 63+85

DESIGN DISCHARGE	= 42	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 633.8	FT
BASE DISCHARGE	= 58	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 634.1	FT
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING ELEVATION	= NA	FT

84" RCP V HYDRAULIC DATA

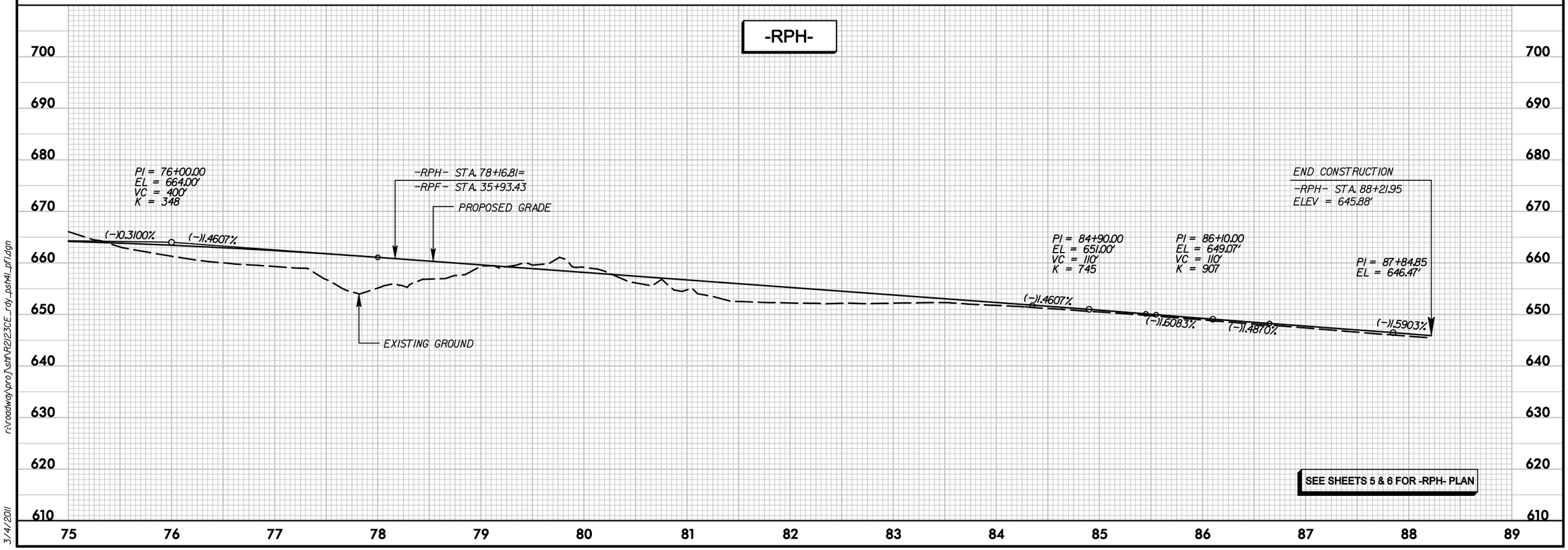
STA. -RPH- 69+89

DESIGN DISCHARGE	= 328	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 640.8	FT
BASE DISCHARGE	= 380	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 641.4	FT
OVERTOPPING DISCHARGE	= NA	CFS
OVERTOPPING FREQUENCY	= NA	YRS
OVERTOPPING ELEVATION	= NA	FT



SEE SHEETS 6 & 8 FOR -RPH- PLAN

-RPH-



SEE SHEETS 5 & 6 FOR -RPH- PLAN

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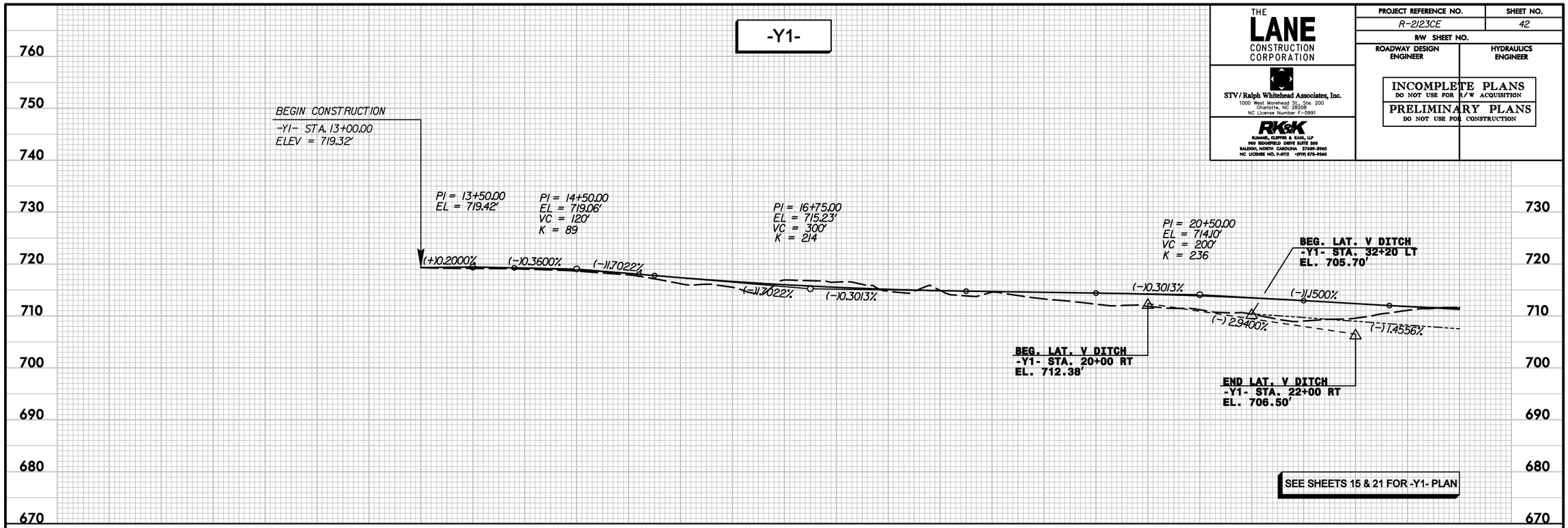
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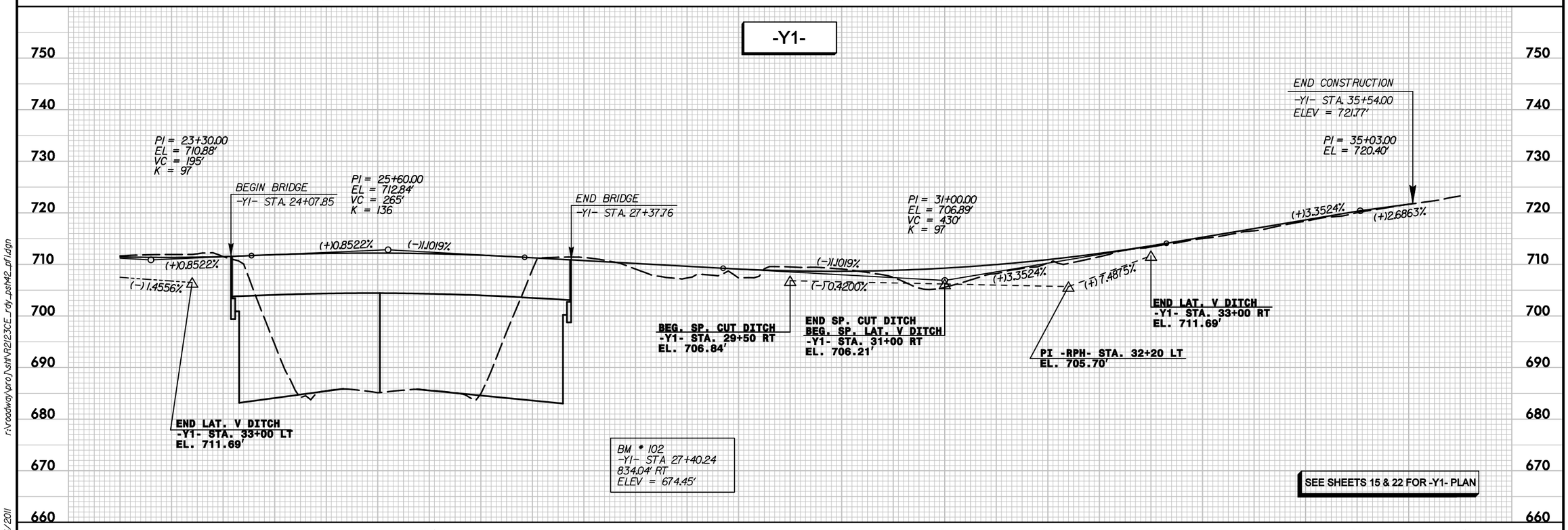
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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	42
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





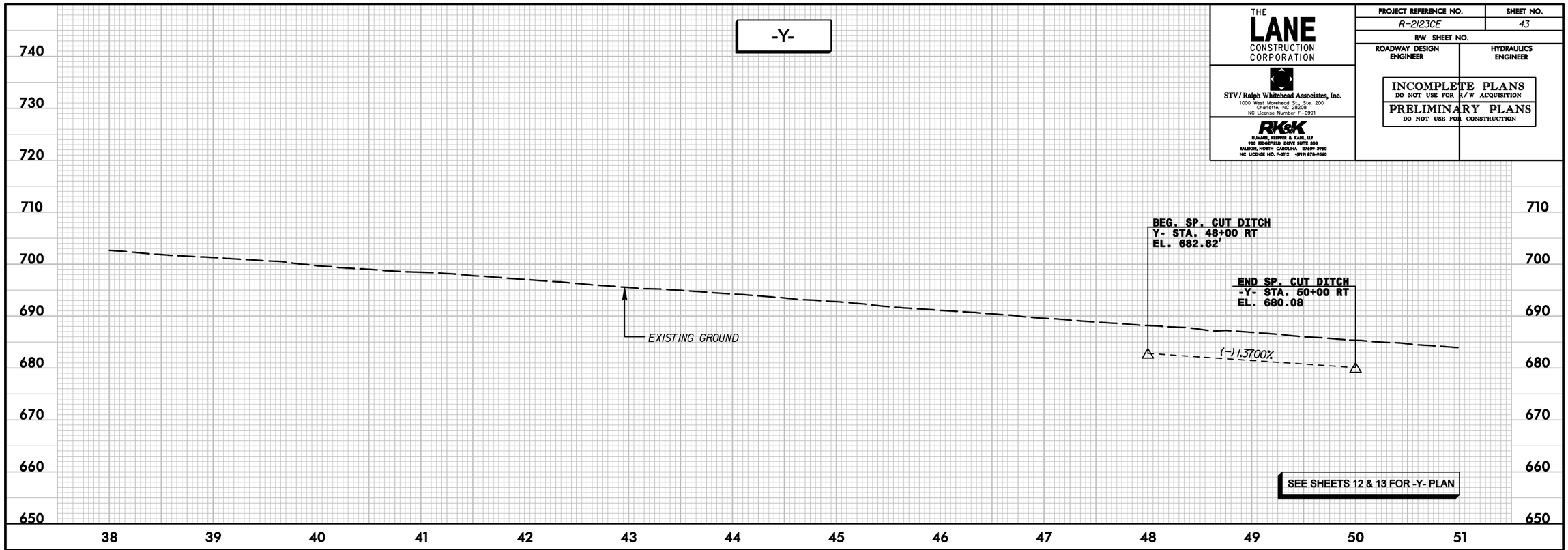
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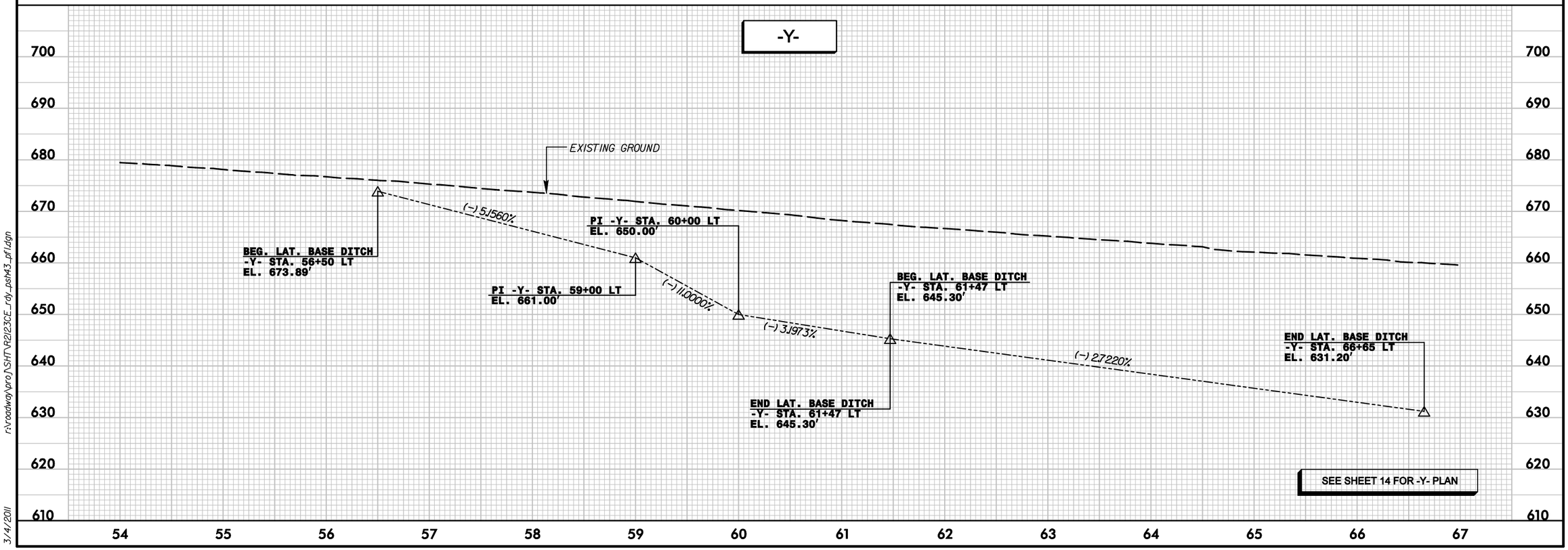
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THE LANE CONSTRUCTION CORPORATION	PROJECT REFERENCE NO.	SHEET NO.
	R-2123CE	43
STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	R/W SHEET NO.	
RK&K RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 208 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 *(919) 878-9560	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





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3/4/2011

THE LANE CONSTRUCTION CORPORATION

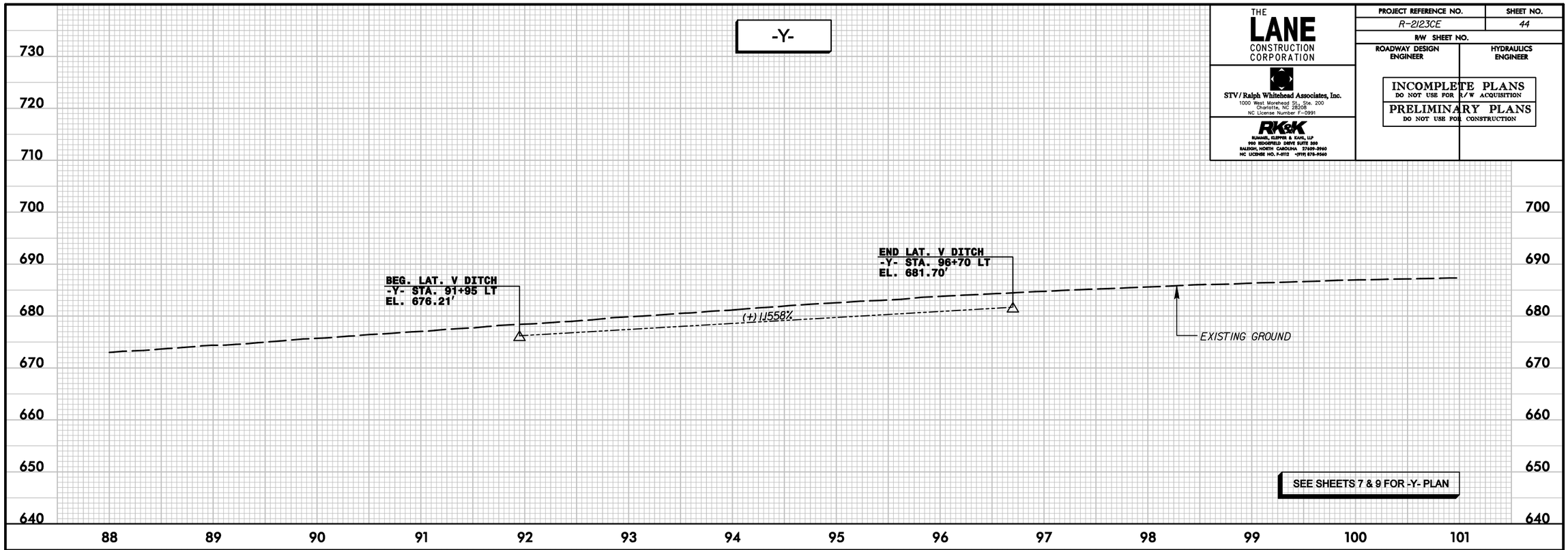
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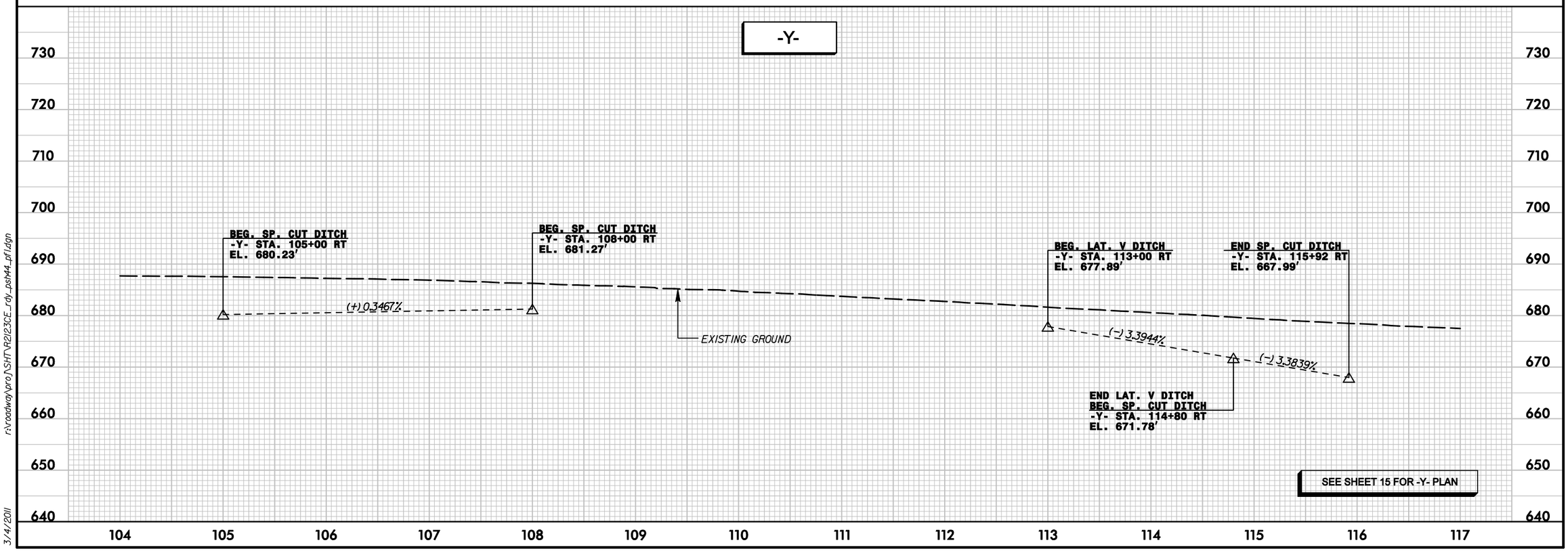
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RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 208
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	44
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





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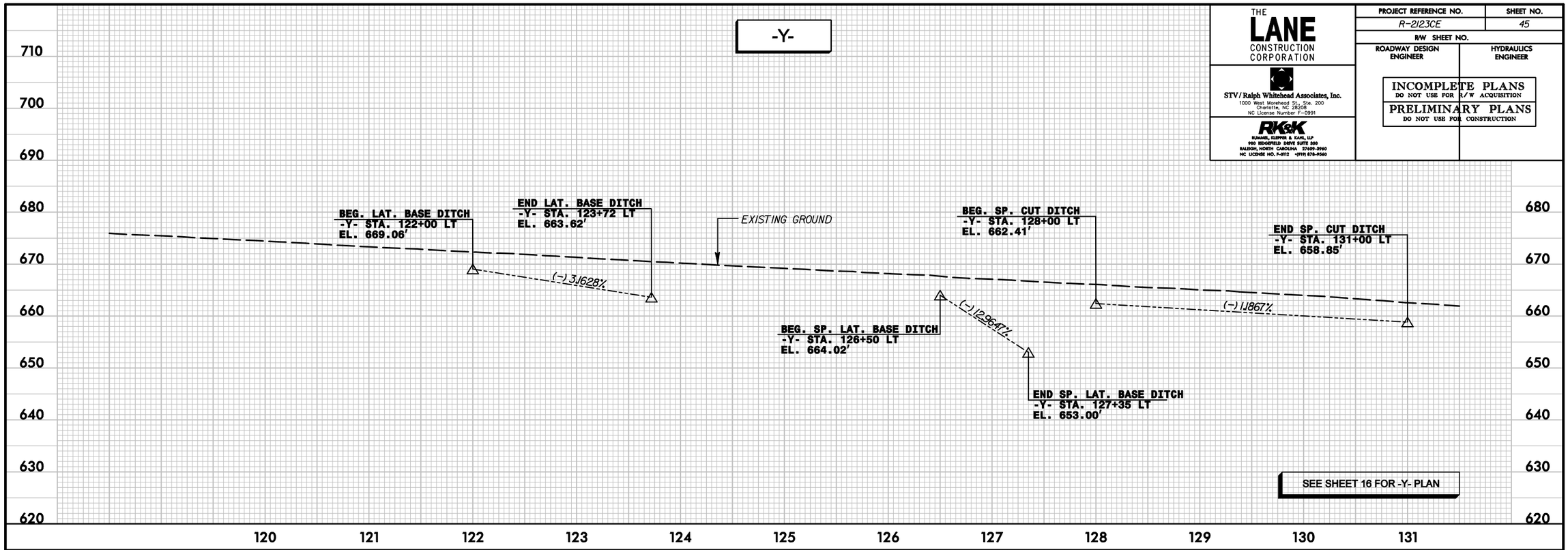
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Charlotte, NC 28208
NC License Number F-0991

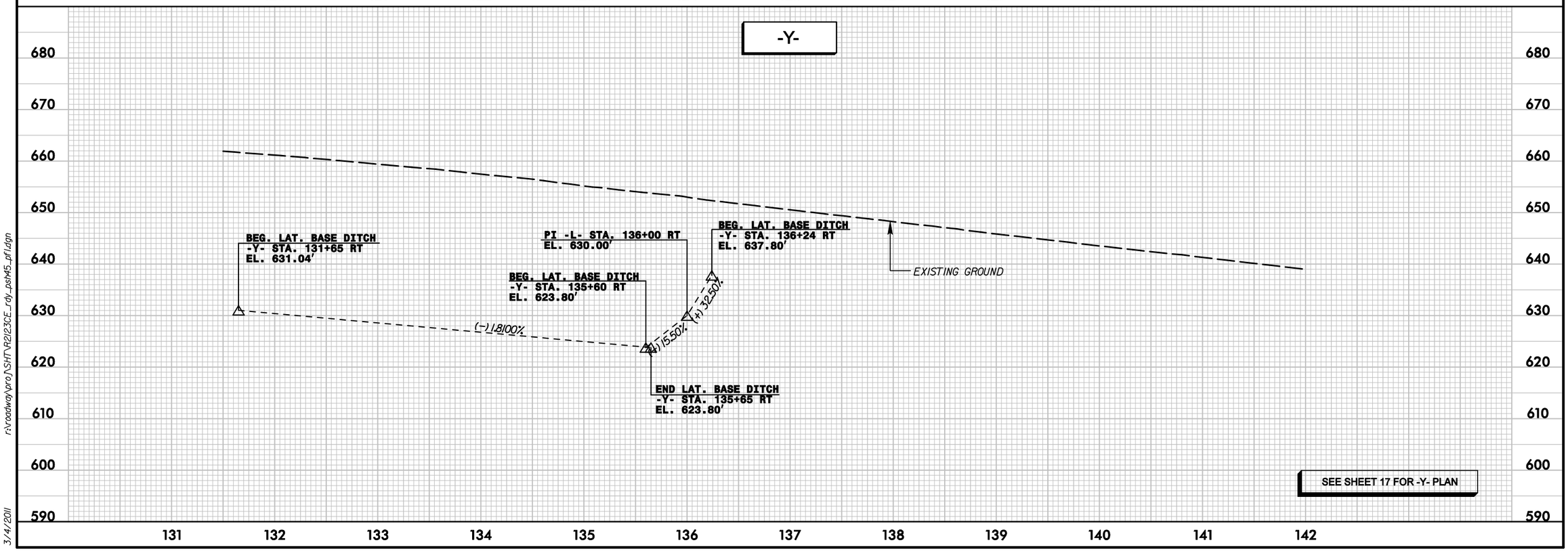
RK&K
RUMMEL, KLEPPER & KAHL, LLP
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PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	45
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





r:\roadwy\pro\SHT\R2123CE_rdy_pshf45_pf1.dgn

3/4/2011

PROJECT REFERENCE NO.	SHEET NO.
R-2123CE	46
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

THE LANE CONSTRUCTION CORPORATION

STV/Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28208
NC License Number F-0991

RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 ROCKFIELD DRIVE SUITE 200
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 (919) 878-9560

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

6'X8' RCBC HYDRAULIC DATA

STA. -Y- 148+00

DESIGN DISCHARGE	= 1,027	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 623.0	FT
BASE DISCHARGE	= 1,131	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 626.4	FT
OVERTOPPING DISCHARGE	= 1,122	CFS
OVERTOPPING FREQUENCY	= <500	YRS
OVERTOPPING ELEVATION	= 626.2	FT
DATE OF SURVEY	= 10/2010	
W.S. ELEVATION AT DATE OF SURVEY	= 601.6	FT

-Y-

BEG. LAT. BASE DITCH
-Y- STA. 146+50 RT
EL. 625.75'

END LAT. BASE DITCH
-Y- STA. 150+00 LT
EL. 622.04'

PI -L- STA. 148+50 LT
EL. 614.00'

BEG. LAT. V DITCH
-Y- STA. 145+50 LT
EL. 627.33'

(-) 22.8154%

(-) 9.1353%

(+) 8.0267%

END LAT. BASE DITCH
-Y- STA. 149+53 RT
EL. 598.07'

(+) 4.9891%

END. LAT. V DITCH &
BEG. LAT. BASE DITCH
-Y- STA. 146+67 LT
EL. 600.87'

EXISTING GROUND

SEE SHEET 18 FOR -Y- PLAN

-Y-

BEG. SP. CUT DITCH
-Y- STA. 157+50 LT
EL. 624.59'

END SP. CUT DITCH
-Y- STA. 160+00 LT
EL. 626.88'

BEG. LAT. V DITCH
-Y- STA. 167+00 RT
EL. 623.76'

(+) 0.9160%

(+) 0.5000%

BEG. SP. CUT DITCH
-Y- STA. 157+00 RT
EL. 623.31'

END SP. CUT DITCH
-Y- STA. 160+50 RT
EL. 625.06'

EXISTING GROUND

BEG. LAT. V DITCH
-Y- STA. 169+50 RT
EL. 598.43'

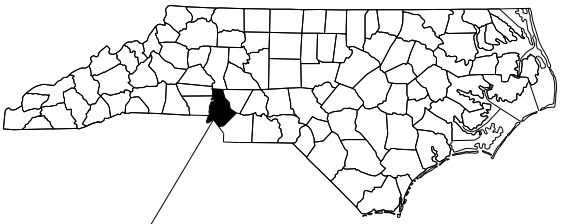
(-) 10.1320%

SEE SHEETS 19 & 20 FOR -Y- PLAN

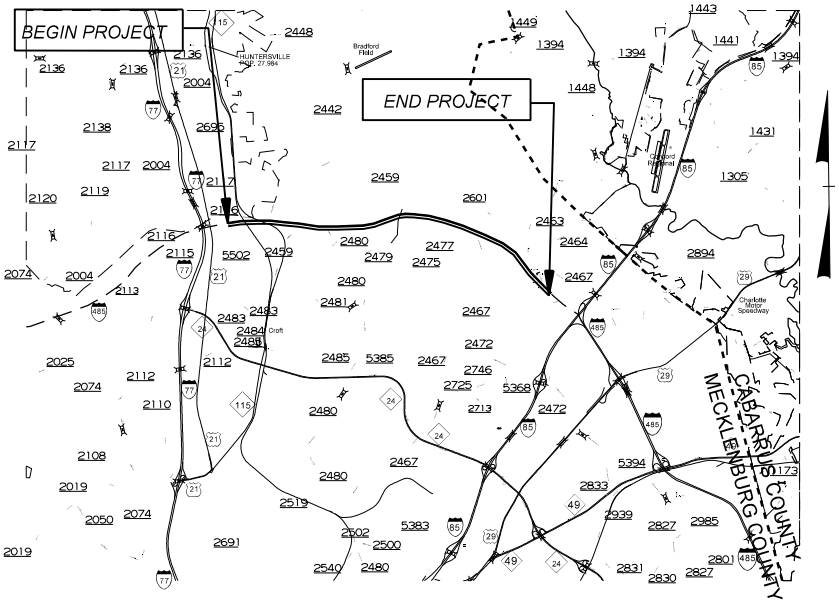
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3/4/2011

NORTH CAROLINA



MECKLENBURG COUNTY



VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS
MECKLENBURG COUNTY
PROJECT: C202521 (R–2248E)

I–485 (CHARLOTTE OUTER LOOP)
FROM EAST OF I–77 TO
WEST I–85

Permit Drawing
Sheet 1 of 108

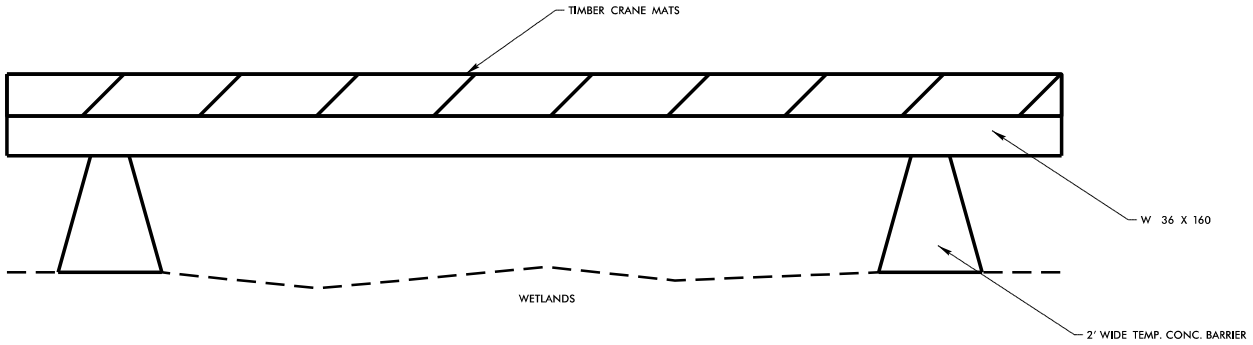
WETLAND PERMIT IMPACT SUMMARY

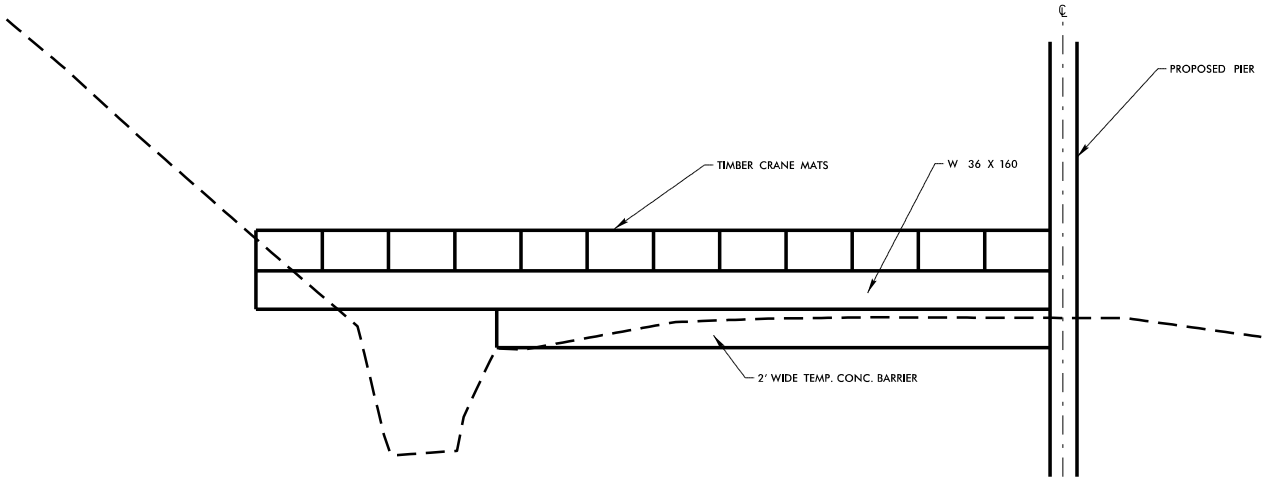
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- (1259+00/1260+50)	Roadway Fill	0.385			0.020		0.02		297		
2	-L- (1266+00/1266+50)	Roadway Fill	0.222			0.028		0.05		602		
3	-Y10- (65+50)	54" Pipe	0.015			0.011		<0.01	<0.01	48	38	
3		Bank Stabilization								24		
4	-L- (1297+00/1299+50)	84" Pipe	0.507		0.042	0.079		0.08	<0.01	428	8	
4		Bank Stabilization								69		
5	-L- (1342+00/1343+00)	8'x7' RCBC	0.116					0.04	0.01	489	184	
5		Bank Stabilization								56		
6	-L- (1345+00)	9'X7' RCBC						0.02	<0.01	276	96	
6		Bank Stabilization								36		
7	-L- (1355+00/1367+00)	Roadway Fill	1.723			0.061		0.09	0.01	1561	127	
7		Bank Stabilization								21		
8	-L- (1390+00/1415+00)	Roadway Fill	1.060					0.22	<0.01	2497	56	
8		Bank Stabilization								28		
9	-L- (1421+00)	42" Pipe						<0.01	<0.01	81	8	
9		Bank Stabilization								37		
10	-L- (1441+00)	60" Pipe						<0.01	<0.01	44	18	
10		Bank Stabilization								51		
11	-L- (1465+00/1476+00)	Roadway Fill	0.144					<0.01	<0.01	138	48	
12	-Y22- (54+00/60+00)	Roadway Fill	1.609			0.164						
12		Temp. Wrk. Br.		0.051								
12		Bridge/Int. Bents	0.010				0.612					
12		Bridge/Splash Pads	0.017									
13	-Y20- (41+00/48+00)	Roadway Fill	0.311			0.030						
14	-L- (1486+00/1495+00)	Roadway Fill	0.596					0.40	<0.01	803	34	
14	-Y25- (23+23)	2 @ 7' x 8' RCBC	0.021					0.01	0.01		57	
14		Bank Stabilization								35		
15	-Y22- (86+00/90+00)	72" Pipe	0.080			0.012		0.03	<0.01	295	21	
15		Bank Stabilization								50		
16	-L- (1526+20/1526+45)	48" Pipe	0.031					0.01		190		
TOTALS:			6.85	0.05	0.04	0.41	0.61	1.00	0.08	8156	695	0

Site 8 - 1.556 ac. Perm. Surface Water Impact - Fill in Isolated Pond
Site 11 - 0.128 ac. Perm. Surface Water Impact - Fill in Isolated Pond
Site 14 - 50 lf of 24" rcp Pipe Removal
Site 16 - 0.667 ac. Perm. Surface Water Impact - Drained Isolated Pond

ATN Revised 3/31/05

STA. 52 + 90 -Y22- WORK BRIDGE TYPICAL
2 - 90' X 36' TIMBER WORK BRIDGES





NCDOT

DIVISION OF HIGHWAYS
MECKELNBURG COUNTY
PROJECT: C202521 (R-2248E)

I-485 (CHARLOTTE OUTER LOOP)
FROM EAST OF I-77 TO
WEST OF I-85

09/08/99

TIP PROJECT: R-2248E

CONTRACT: C202521

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2248E	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34410.3.GV2	NHF-04GS(27)	PE



BLYTHE

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

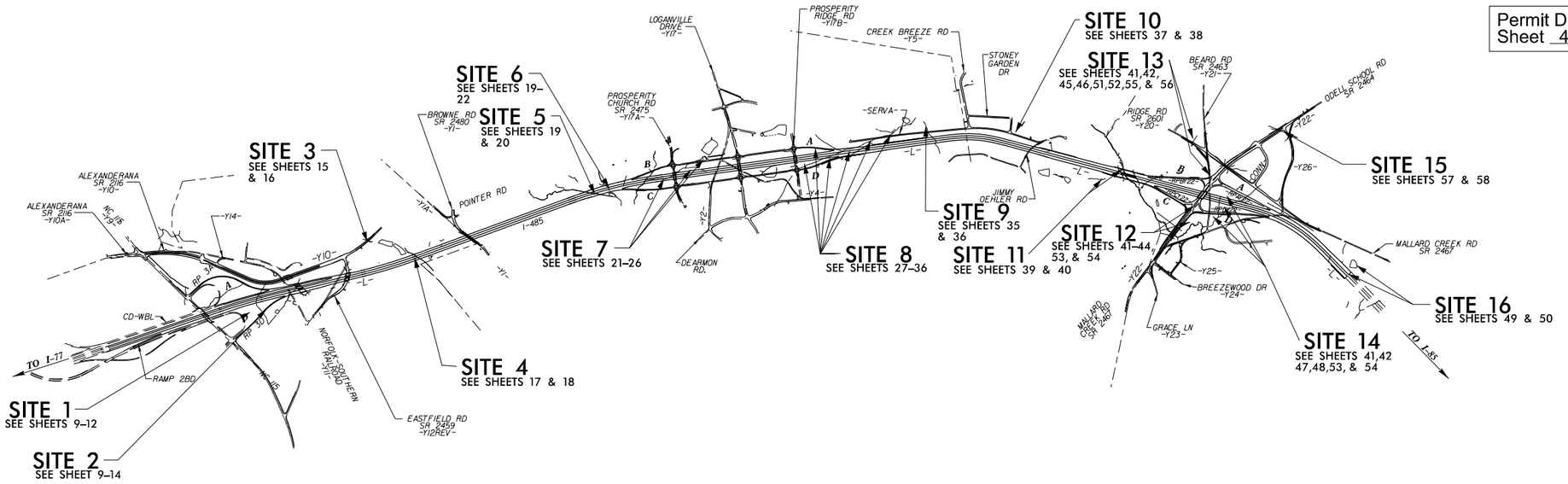
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WETLAND & STREAM IMPACT PERMIT DRAWINGS

LOCATION: I-485 (CHARLOTTE OUTER LOOP) FROM EAST OF I-77 TO WEST I-85

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERTS, NOISE WALLS, RETAINING WALLS, SIGNING AND SIGNALS

Permit Drawing
Sheet 4 of 108



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF CHARLOTTE AND THE TOWN OF HUNTERSVILLE

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2006 = 62,000
ADT 2035 = 161,600
DHV = 10 %
D = 55 %
T = 15 % *
V = 70 m/h
* TTST 10% DUAL 5%
FUNCTIONAL CLASSIFICATION
FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2248E = 5.594 miles

LENGTH STRUCTURES TIP PROJECT R-2248E = 0.121 miles

TOTAL LENGTH OF TIP PROJECT R-2248E = 5.715 miles

Prepared In the Office of:
WILBUR SMITH ASSOCIATES
421 Fayetteville Street, Suite 1303, Raleigh, NC 27601 Phone (919) 755-0583

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

DAVID L. WILVER, P.E.
PROJECT ENGINEER

PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

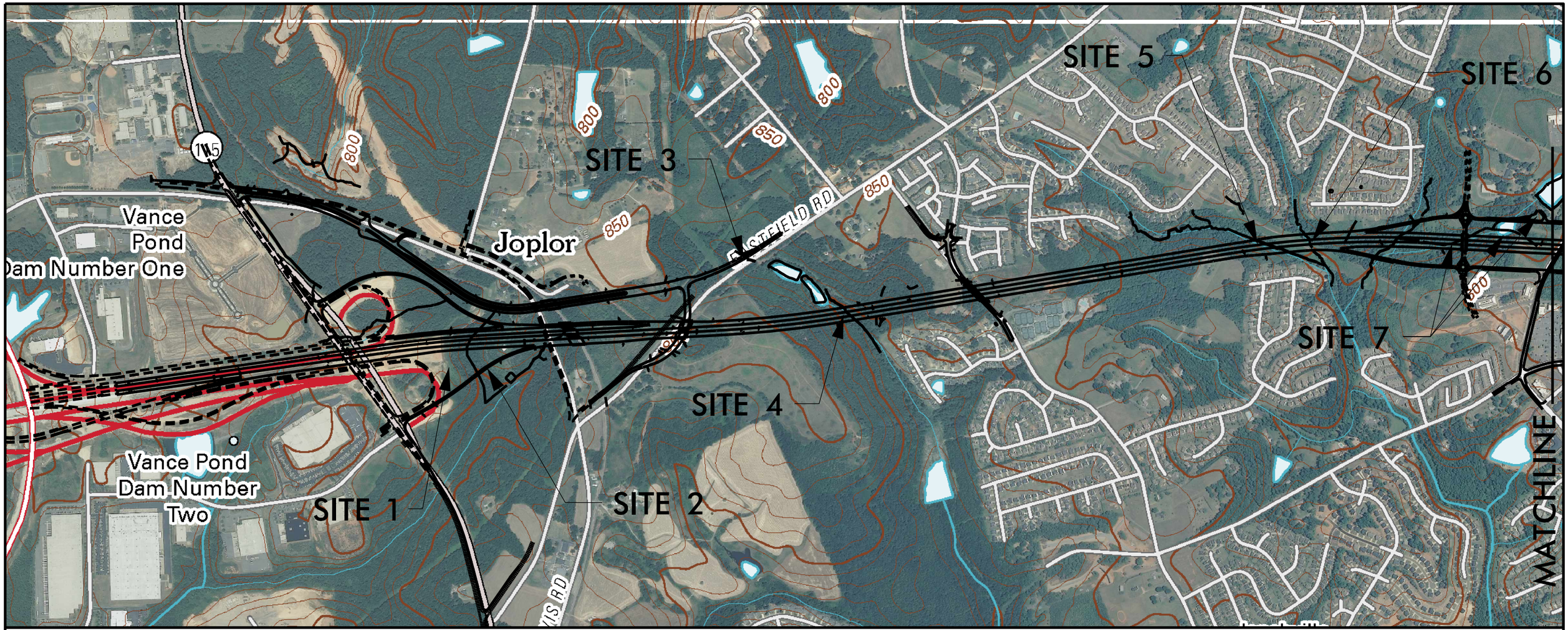
ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\r2248e_mtl_tsh_01.dgn
DATE: 4/2011 4:33:55 PM



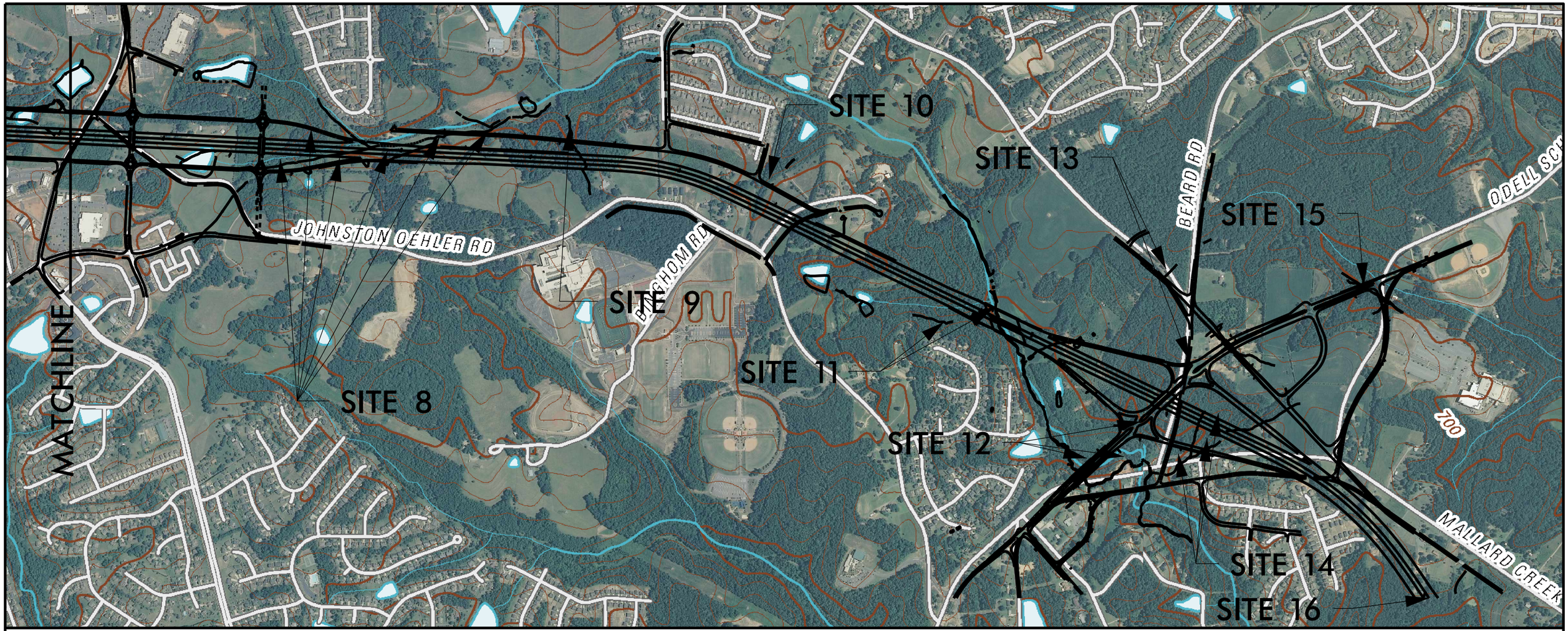
VICINITY MAPS

Permit Drawing
Sheet 5 of 108

NCDOT

DIVISION OF HIGHWAYS
MECKLENBURG COUNTY
PROJECT: C202521 (R–2248E)

I–485 (CHARLOTTE OUTER LOOP)
FROM EAST OF I–77 TO
WEST I–85



VICINITY MAPS

Permit Drawing
Sheet 6 of 108

NCDOT

DIVISION OF HIGHWAYS
MECKLENBURG COUNTY
PROJECT: C202521 (R–2248E)

I–485 (CHARLOTTE OUTER LOOP)
FROM EAST OF I–77 TO
WEST I–85

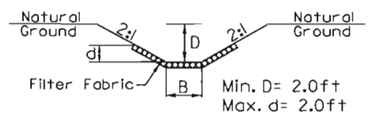
PROJECT REFERENCE NO.	SHEET NO.
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing
Sheet 7 of 108

Revised 6-9-2011

SITE 1

DETAIL M38
OUTLET CHANNEL DETAIL
(Not to Scale)



Min. D= 2.0ft
Max. d= 2.0ft
B= 1.0ft

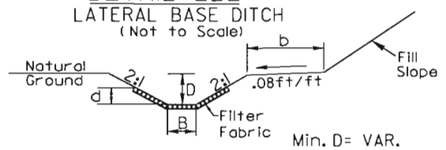
•When B is < 6.0ft

Type of Liner= CLASS I Rip-Rap

–RP3D– STA. 19+36(LT)

SITE 2

DETAIL LB2
LATERAL BASE DITCH
(Not to Scale)



Min. D= VAR.
Min. d= D
B= 3.0ft
b= 5.0ft

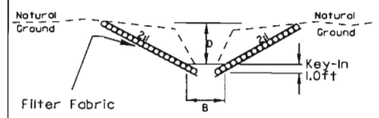
•When B is < 6.0ft

Type of Liner= CL. I Rip-Rap

–L– STA.1266+17 (RT) TO STA.1267+06 (RT)

SITE 3

DETAIL M39
OUTLET CHANNEL DETAIL
(Not to Scale)

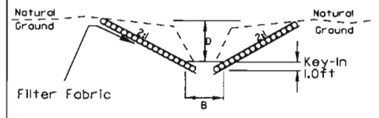


B=6.0ft
MIN D= 4.0ft
Est.= 33 Tons of Class I Rip-Rap
Est.=62 SY FF

–Y10– STA. 66+11 (RT)

SITE 4&7

DETAIL MI4
OUTLET CHANNEL DETAIL
(Not to Scale)

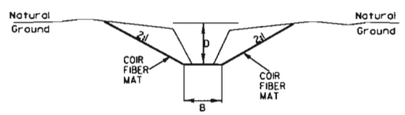


B=2.0ft-5.0ft VAR
MIN D= 4.0ft
Est.= 75 Tons of Class I Rip-Rap
Est.= 135 SY FF

–RPCY17A– STA. 16+89 (RT)
–L– STA. 1299+41 (RT)

SITE 5

DETAIL M9
INLET CHANNEL DETAIL
(Not to Scale)

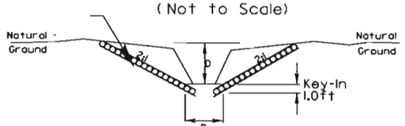


B=5.0ft-8.0ft VAR
MIN D= 1.5ft
DDE=20cy

–L– STA. 1339+24 (LT)

SITE 5

DETAIL MI0
Filter Fabric
OUTLET CHANNEL DETAIL
(Not to Scale)

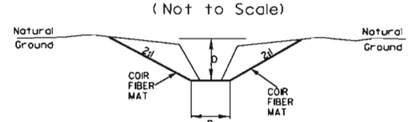


B=3.0ft-8.0ft VAR
MIN D= 1.0ft
Est.= 65 Tons of Class I Rip-Rap
DDE=25cy

–L– STA. 1343+50 (RT)

SITE 6

DETAIL MI2
INLET CHANNEL DETAIL
(Not to Scale)

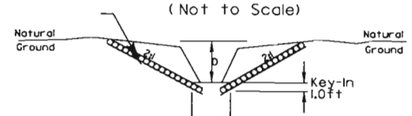


B=3.0ft-9.0ft VAR
MIN D= 3.0ft
DDE = 15 cy

–L– STA. 1344+65 (LT)

SITE 6

DETAIL MI3
Filter Fabric
OUTLET CHANNEL DETAIL
(Not to Scale)

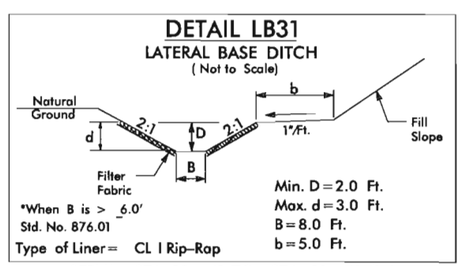


B=4.0ft-9.0ft VAR
MIN D= 2.0ft
Est.= 55 Tons of Class I Rip-Rap
DDE=40cy

–L– STA. 1345+32 (RT)

SITE 8

DETAIL LB31
LATERAL BASE DITCH
(Not to Scale)



Min. D=2.0 Ft.
Max. d=3.0 Ft.
B=8.0 Ft.
b=5.0 Ft.

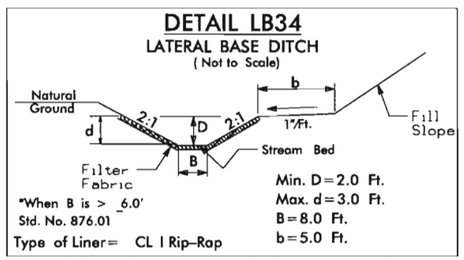
*When B is > 6.0'
Std. No. 876.01

Type of Liner= CL I Rip-Rap

–SERVA– STA. 19+41 TO STA. 21+41 (LT)

SITE 8

DETAIL LB34
LATERAL BASE DITCH
(Not to Scale)



Min. D=2.0 Ft.
Max. d=3.0 Ft.
B=8.0 Ft.
b=5.0 Ft.

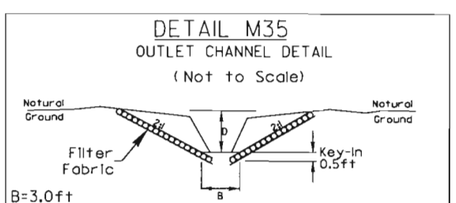
*When B is > 6.0'
Std. No. 876.01

Type of Liner= CL I Rip-Rap

–SERVA– STA. 17+57 TO STA. 17+73 (LT)

SITE 9

DETAIL M35
OUTLET CHANNEL DETAIL
(Not to Scale)

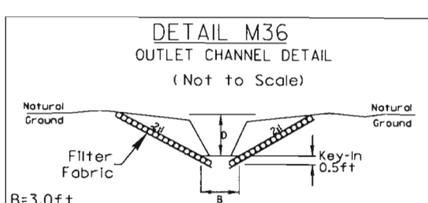


B=3.0ft
MIN D= 2.0ft
Est.= 25 Tons of Class I Rip-Rap
DDE=6cy
Est.= 45 SY FF

–SERVA– STA. 28+32 (LT)

SITE 10

DETAIL M36
OUTLET CHANNEL DETAIL
(Not to Scale)



B=3.0ft
MIN D= 3.0ft
Est.= 45 Tons of Class I Rip-Rap
DDE=17cy
Est.= 90 SY FF

–SERVA– STA. 49+32 (LT)

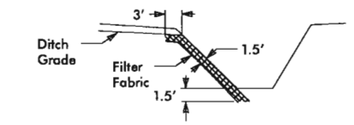
PROJECT REFERENCE NO.	SHEET NO.
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing
Sheet 8 of 108

Revised 6-9-2011

SITE 11

DETAIL M21
RIP RAP AT EMBANKMENT
(Not to Scale)

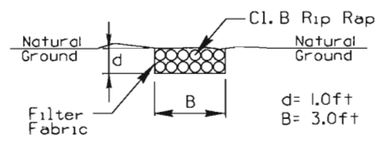


Type of Liner= 75 TONS,CL II Rip-Rap
Filter Fabric= 100 sy

–L– STA. 1465+60 (LT)

SITE 12

DETAIL M29
SPLASH PAD
(Not to Scale)



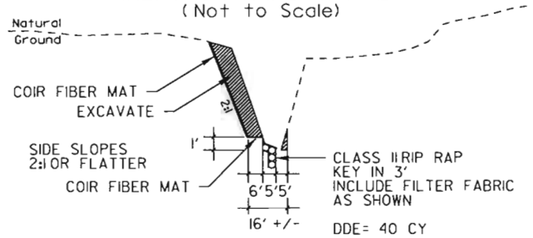
ALIGN UNDER DECK DRAINS

DETAIL M29:

–L– STA. 1465+56 TO STA. 1466+38 & STA. 1466+74 TO STA. 1468+75 WB LT
–L– STA. 1466+59 TO STA. 1467+09 & STA. 1467+39 TO STA. 1469+64 WB RT
–L– STA. 1466+79 TO STA. 1467+23 & STA. 1467+50 TO STA. 1469+84 EB LT
–L– STA. 1467+62 TO STA. 1468+10 & STA. 1468+69 TO STA. 1470+75 EB RT
–Y22– STA. 52+33 TO STA. 52+61 & STA. 53+01 TO STA. 54+25 LT
–Y22– STA. 52+30 TO STA. 52+61 & STA. 53+01 TO STA. 54+25 RT

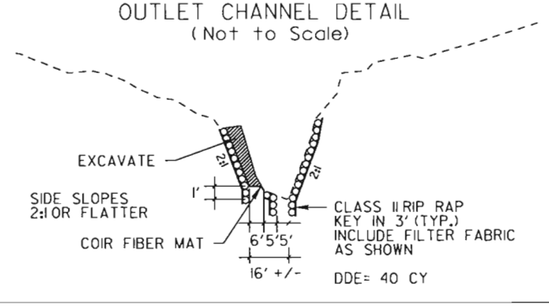
SITE 14

DETAIL M31
INLET CHANNEL DETAIL
(Not to Scale)



–Y25– STA. 23+23 (LT)

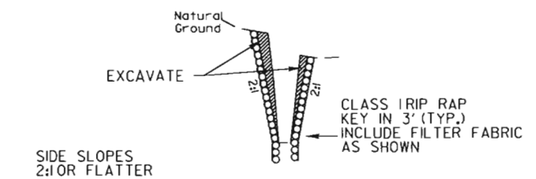
DETAIL M32
OUTLET CHANNEL DETAIL
(Not to Scale)



–Y25– STA. 23+23 (RT)

SITE 15

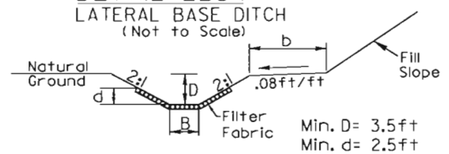
DETAIL M33
OUTET CHANNEL DETAIL
(Not to Scale)



–Y26– STA. 12+51 (LT)

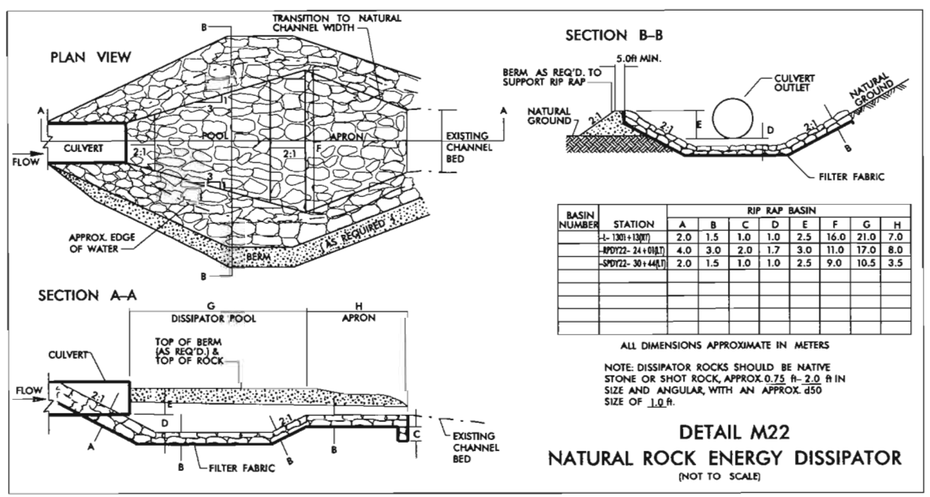
SITE 15

DETAIL LB34
LATERAL BASE DITCH
(Not to Scale)



–Y26– STA. 10+83.50 TO STA. 11+32.50 (RT)

SITE 14



BASIN NUMBER	STATION	RIP RAP BASIN							
		A	B	C	D	E	F	G	H
	–L– 1301+13(RT)	2.0	1.5	1.0	1.0	2.5	16.0	21.0	7.0
	SPDY22– 24+01(LT)	4.0	3.0	2.0	1.7	3.0	11.0	17.0	8.0
	SPDY22– 30+44(LT)	2.0	1.5	1.0	1.0	2.5	9.0	10.5	3.5

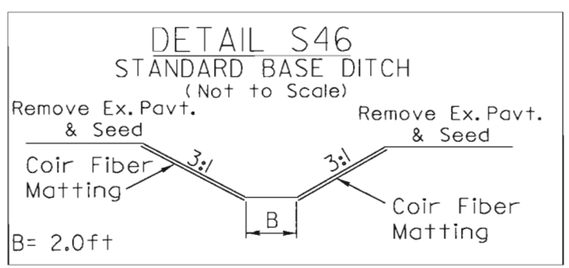
ALL DIMENSIONS APPROXIMATE IN METERS

NOTE: DISSIPATOR ROCKS SHOULD BE NATIVE STONE OR SHOT ROCK, APPROX. 0.75 ft– 2.0 ft IN SIZE AND ANGULAR, WITH AN APPROX. d50 SIZE OF 1.0 ft.

DETAIL M22
NATURAL ROCK ENERGY DISSIPATOR
(NOT TO SCALE)

SITE 14

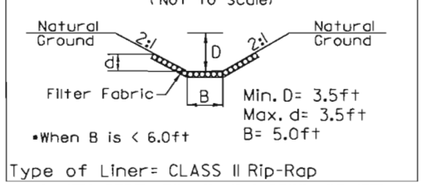
DETAIL S46
STANDARD BASE DITCH
(Not to Scale)



–Y25– STA. 24+71 TO STA. 25+21 (LT) (DDE=22CY)

SITE 16

DETAIL S29
STANDARD BASE DITCH
(Not to Scale)



–L– STA. 1527+50 TO STA. 1528+38 (RT)

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR RIGHT OF WAY ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 9 of 108

MATCH TO SHEET 5 - -L- POT 17+72.00

MATCH TO SHEET 25 - -YTO- POT 33+00.00

MATCH TO SHEET 26 - -SF- POT 59+00.00

MATCH TO SHEET 7 - -L- POT 12+68.00

MATCH TO SHEET 7 - -YTO- POT 23+30.00

MATCH TO SHEET 26 - -RP3D- POT 21+00.00

SITE 1

SITE 2

NC GRID NAD 83

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

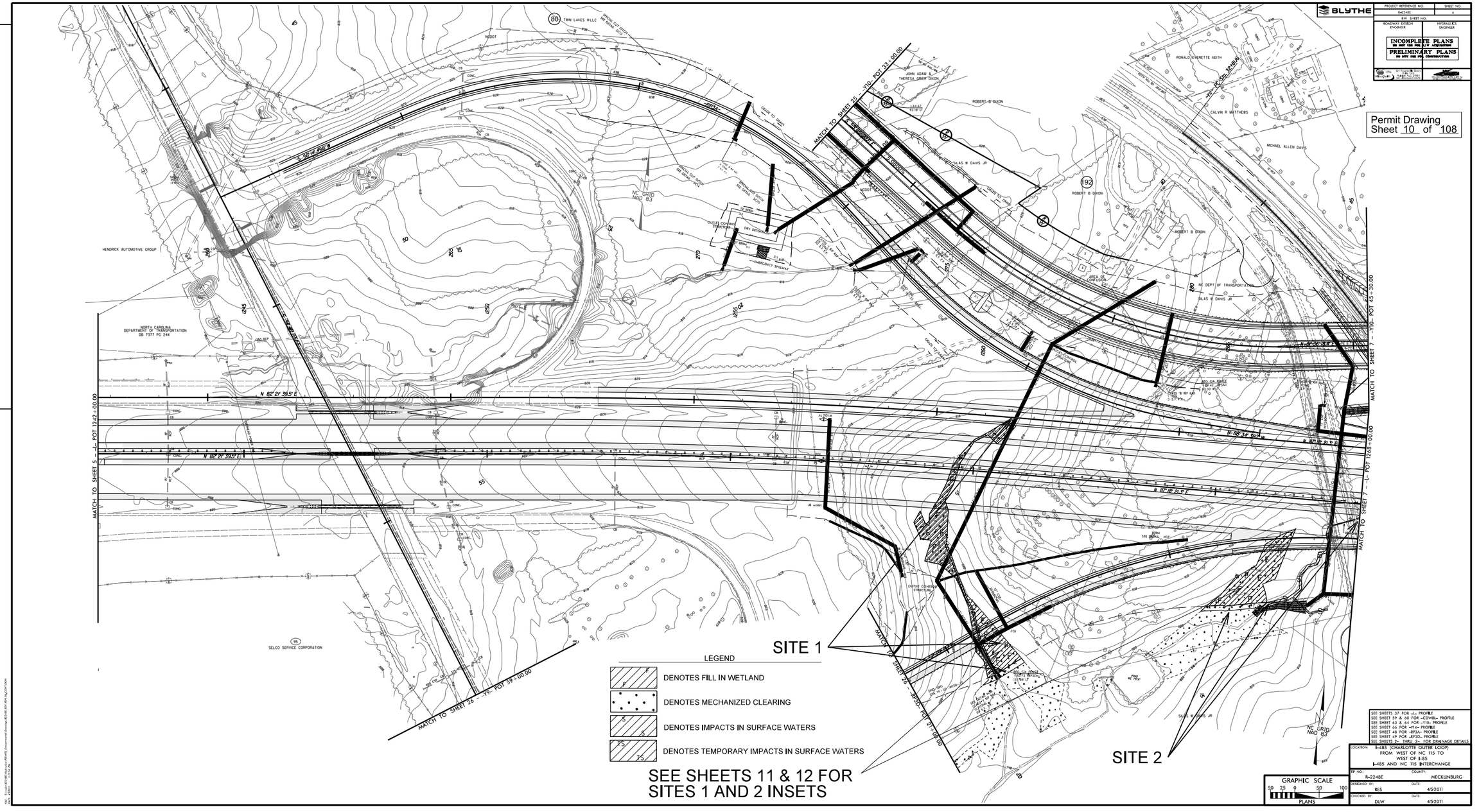
SEE SHEETS 11 & 12 FOR SITES 1 AND 2 INSETS

SEE SHEETS 37 FOR -L- PROFILE
SEE SHEET 59 & 60 FOR -CDWBL- PROFILE
SEE SHEET 63 & 64 FOR -YTO- PROFILE
SEE SHEET 66 FOR -YT4- PROFILE
SEE SHEET 48 FOR -RP3D- PROFILE
SEE SHEET 49 FOR -RP3D- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION: I-485 (CHARLOTTE OUTER LOOP) FROM WEST OF NC 115 TO WEST OF I-85 I-485 AND NC 115 INTERCHANGE

TIP NO.	COUNTY
R-2248E	MECKLENBURG
DESIGNED BY: RES	DATE: 4/5/2011
CHECKED BY: DLW	DATE: 4/5/2011


BLYTHE
PROJECT REFERENCE NO.
R-2248E
SHEET NO.
2
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR RIGHT OF WAY ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing
Sheet 10 of 108
TWIN LAKES HLLC
NCDOT
HENDRICK AUTOMOTIVE GROUP
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DB 1377 PG 244
SELCO SERVICE CORPORATION
JOHN ADAM & THERESA GREER DIXON
ROBERT B DIXON
RONALD EVERETTE KEITH
CALVIN R MATTHEWS
MICHAEL ALLEN DAVIS
NC DEPT OF TRANSPORTATION
SILAS B DAVIS JR
NC GRID NAD 83
MATCH TO SHEET 25 -Y1D- POT 23+00.00
MATCH TO SHEET 5 -L- POT 174+00.00
MATCH TO SHEET 7 -L- POT 23+30.00
MATCH TO SHEET 7 -L- POT 126+00.00
MATCH TO SHEET 26 -Y9- POT 89+00.00
MATCH TO SHEET 76 -RPBD- POT 21+00.00
SITE 1
SITE 2
LEGEND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATERS
DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
SEE SHEETS 11 & 12 FOR SITES 1 AND 2 INSETS
SEE SHEETS 37 FOR -L- PROFILE
SEE SHEET 59 & 60 FOR -CDWBL- PROFILE
SEE SHEET 63 & 64 FOR -Y1D- PROFILE
SEE SHEET 66 FOR -Y1C- PROFILE
SEE SHEET 48 FOR -RPBA- PROFILE
SEE SHEET 49 FOR -RPBD- PROFILE
SEE SHEETS 2= THRU 2= FOR DRAINAGE DETAILS
LOCATION: I-485 (CHARLOTTE OUTER LOOP) FROM WEST OF NC 115 TO WEST OF I-85 I-485 AND NC 115 INTERCHANGE
TIP NO.: R-2248E
COUNTY: MECKLENBURG
DESIGNED BY: RES
DATE: 4/5/2011
CHECKED BY: DLW
DATE: 4/5/2011
GRAPHIC SCALE
50 25 0 50 100
PLANS

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	6A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

Permit Drawing Sheet 11 of 108

REVISIONS

FILE: K:\nc6o\K2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PH 6A_SITE 1&2.DGN
DATE: 4/5/2011 5:16:09 PM

SITE 1

SITE 2

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	6A

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 12 of 108

REVISIONS

FILE: R:\rocks\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PH_4A_CONT_SITE 1&2.DGN
DATE: 4/5/2011 5:16:28 PM

SITE 1

SITE 2

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEETS 15 & 16
FOR SITE 3 INSET

SITE 3

SITE 2

MATCH TO SHEET 6 – -Y10- POT 45+30.00

MATCH TO SHEET 7 – -Y10- POT 37+68.00

MATCH TO SHEET 8 – -L- POT 1274+00.00

NC GRID
NAD 83

BLYTHE

PROJECT REFERENCE NO. R-2248E
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR RIGHT OF WAY ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 13 of 108

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEETS 38 FOR -L- PROFILE
SEE SHEET 59 & 60 FOR -CDWBL- PROFILE
SEE SHEETS 63, 64 & 65 FOR -Y10- PROFILE
SEE SHEET 66 FOR -Y12B- PROFILE
SEE SHEETS 2A THRU 2C FOR DRAINAGE DETAILS

LOCATION: I-485 CHARLOTTE OUTER LOOP
FROM WEST OF NC 115 TO
WEST OF I-85
-Y12B- OVER -L- & -Y10- -L- & -CDWBL- OVER -Y11-
TIP NO.: R-2248E COUNTY: MECKLENBURG
DESIGNED BY: RES DATE: 4/5/2011
CHECKED BY: DLW DATE: 4/5/2011

GRAPHIC SCALE
50 25 0 50 100
PLANS

SEE SHEETS 15 & 16
FOR SITE 3 INSET

SITE 3

SITE 2

MATCH TO SHEET 6 – -Y10- POT 45+30.00

MATCH TO SHEET 7 – -L- POT 37+68.00

MATCH TO SHEET 8 – -L- POT 129+00.00

NC GRID
NAD 83

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR RIGHT OF WAY ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 14 of 108

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

GRAPHIC SCALE
50 25 0 50 100
PLANS

SEE SHEETS 38 FOR -L- PROFILE
SEE SHEET 59 & 60 FOR -CDWBL- PROFILE
SEE SHEETS 63,64 & 65 FOR -Y10- PROFILE
SEE SHEET 66 FOR -Y12- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

LOCATION: I-485 (CHARLOTTE OUTER LOOP) FROM WEST OF NC 115 TO WEST OF I-85
-Y12- OVER -L- & -Y10- -L- & -CDWBL- OVER -Y11-
TIP NO. R-2248E COUNTY MECKLENBURG
DESIGNED BY: RES DATE: 4/5/2011
CHECKED BY: DLW DATE: 4/5/2011

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	7A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE

WilburSmith — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 15 of 108

NC GRID
NAD 83

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SITE 3

5' X 10' RIP RAP PAD
CLASS 'B' RIP RAP
EST. 5 TONS
7 S.Y. F.F.

-Y10- PT Sta. 67+62.17

96

PROGRESSIVE PARTNERS TWO

DOUBLE M HOLDINGS, LLC

TOE PROTECTION
SEE DETAIL M4

TOP=822.54'

TOP=820.71'

TOP=820.12'

4' BASE LATERAL DITCH
CLASS 'I' RIP RAP
SEE DETAIL LB4

CLASS I RIP RAP
BANKS ONLY
SEE DETAIL M39
33 TONS
62 SY FF

LATERAL 'V' DITCH
SEE DETAIL SV1

+12.30
104.42' RT

+90.54
131.38' RT

+37.97
83.03' RT

54" RCP-III

24" RCP-III

EXISTING R/W

(AATUR)

REVISIONS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E RDY_PLN_7A_SITE 3.DGN
DATE: 4/5/2011 5:37:37 PM

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	7A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE
WilburSmith — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378
CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

NC GRID
NAD 83

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

-Y10- PT Sta. 67+62.17

Permit Drawing
Sheet 16 of 108

SITE 3

5' X 10' RIP RAP PAD
CLASS 'B' RIP RAP
EST. 5 TONS
7 S.Y. F.F.

96

PROGRESSIVE PARTNERS TWO

DOUBLE M HOLDINGS, LLC

TOE PROTECTION
SEE DETAIL M4

TOP=822.54'

TOP=820.71'

TOP=820.12'

24" RCP-III

EXISTING R/W

(AATUR)

CLASS I RIP RAP
BANKS ONLY
SEE DETAIL M39
33 TONS
62 SY FF

4' BASE LATERAL DITCH
CLASS 'I' RIP RAP
SEE DETAIL LB4

LATERAL 'V' DITCH
SEE DETAIL SV1

+12.30
104.42' RT

+90.54
131.38' RT

+37.97
83.03' RT

N 59° 40' E

REVISIONS

FILE: R:\noda\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PLN_7A_CONT_SITE 3.DGN
DATE: 4/5/2011 5:38:28 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
KIMLEY-HORN AND ASSOCIATES — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 17 of 108

REVISIONS

THOMAS BRAGG MCLEOD II

NC GRID NAD 83

2 MARGARET DARDEN MCLEOD

3 VICTORIA TEMPLETON GRIFFITH

4A BEN D & VICTORIA T GRIFFITH

1 DOUBLE M HOLDINGS, LLC

MATCH TO SHEET 7 – –L– POT 1294+00.00

MATCH TO SHEET 9 – –L– POT 1307+00.00

4' BASE DITCH CLASS 'I' RIP RAP SEE DETAIL S45 MAXIMUM SLOPE = 0.2%

USE 1.75:1 REINFORCED FILL SLOPE FROM STA. 1295+25 TO STA. 1296+25

POND W.E. 803.8

+30.27 214.49' LT
+40.67 222.67' LT
+18.34 205.11' LT
+08.90 197.67' LT
+16.95 185.81' LT
+70.43 185.78' LT

2' LATERAL BASE DITCH CLASS 'I' RIP RAP SEE DETAIL LB3

3' STD. BASE DITCH W/CL. I RIP RAP SEE DETAIL S7

SPECIAL 3' LATERAL BASE DITCH SEE DETAIL SB1

SPECIAL LATERAL DITCH SEE DETAIL LV3

CLASS 'B' RIP RAP 2 TONS 7 S.Y. F.F.

CL I RIP RAP BANKS ONLY SEE DETAIL M14

TOE PROTECTION SEE DETAIL M20

BEGIN SBG STA.1294+91 –L– LT

BEGIN SBG STA.1295+50 –L– RT

BEGIN SBG STA.1303+56 –L– LT

END SBG STA.1303+52 –L– RT

18" RCP-III
15" RCP-IV
24" RCP-III
42" RCP - IV
15" CSP W/ELBOWS
18" RCP-III

TOE PROTECTION SEE DETAIL M6

CL I RIP RAP BANKS ONLY SEE DETAIL M14

CLASS 'B' RIP RAP 1 TON 4 S.Y. F.F.

NATURAL ROCK ENERGY DISSIPATOR SEE DETAIL M22

SITE 4

+75.73 200.29' RT
+76.76 200.29' RT
+85.29 211.04' RT
+74.39 219.67' RT
+53.94 235.88' RT
+62.60 229.01' RT

AMBER RIDGE HOMEOWNERS ASSOC

196

BERTA & ANTONIO DIAZ
AMY D. LOCHMONDY
TAIRA O. CASE
VANESSA VERNA TRAPP
JILL ANN MCATEER
RICHARD H. MURPHY
DAVID TURNER
WILLIAM H TAYLOR JR
QUINCY E CLARK
CLIFTON L RENDLEMEN
RANDALL K ZONGER
JAMES HILDEBRAND, JR.
DIDI MARSHALL
BRIAN C VILLEGAS
TAMMY L. FONTENOT
GEORGINA S. HADLEY
DONALD P FONTENOT SR

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEET 39 FOR –L– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental Drawings\R2248E_RDY_PSH_08.DGN
DATE: 4/5/2011 5:18:15 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
KIMLEY-HORN AND ASSOCIATES — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 18 of 108

REVISIONS

MATCH TO SHEET 7 – –L– POT 1294+00.00

MATCH TO SHEET 9 – –L– POT 1307+00.00

THOMAS BRAGG MCLEOD II

MARGARET DARDEN MCLEOD

VICTORIA TEMPLETON GRIFFITH

BEN D & VICTORIA T GRIFFITH

DOUBLE M HOLDINGS, LLC

BRIAN C VILLEGAS

AMBER RIDGE HOMEOWNERS ASSOC

BERTA & ANTONIO DIAZ

AMY D. LOCHMONDY

TAIRA O. CASE

VANESSA VERNA TRAPP

JILL ANN MCATEER

RICHARD H. MURPHY

DAVID TURNER

WILLIAM H TAYLOR JR

QUINCY E CLARK

CLIFTON L RENDLEMEN

RANDALL K ZONGER

JAMES HILDEBRAND, JR.

DIDI MARSHALL

DONALD P FONTENOT SR

TAMMY L. FONTENOT

GEORGINA S. HADLEY

SITE 4

NC GRID NAD 83

POND W.E. 803.8

4' BASE DITCH CLASS 'I' RIP RAP SEE DETAIL S4S MAXIMUM SLOPE = 0.2%

USE 1.75:1 REINFORCED FILL SLOPE FROM STA. 1295+25 TO STA. 1296+25

2' LATERAL BASE DITCH CLASS 'I' RIP RAP SEE DETAIL LB3

3' STD. BASE DITCH W/CL. I RIP RAP SEE DETAIL S7

SPECIAL LATERAL DITCH SEE DETAIL LV3

SPECIAL 3' LATERAL BASE DITCH SEE DETAIL SB1

CLASS 'B' RIP RAP 2 TONS 7 S.Y. F.F.

CL. I RIP RAP BANKS ONLY SEE DETAIL M14

TOE PROTECTION SEE DETAIL M20

NATURAL ROCK ENERGY DISSIPATOR SEE DETAIL M22

CLASS 'B' RIP RAP 1 TON 4 S.Y. F.F.

BEGIN SBG STA.1294+91 -L- LT

BEGIN SBG STA.1295+50 -L- RT

BEGIN SBG STA.1303+56 -L- LT

END SBG STA.1303+52 -L- RT

N 81° 07' 24.2" E

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEET 39 FOR –L– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental Drawings\R2248E_RDY_PSH_08_CONT.DGN
DATE: 4/5/2011 5:18:36 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing Sheet 19 of 108

REVISIONS

MATCH TO SHEET 10 – -L- POT 1333+00.00

MATCH TO SHEET 12 – -L- POT 1346+00.00

SITE 5

SITE 6

MARSHA A SMITH

DAVID XIONG
BAO VANG

FARMS OWNERS ASSOC INC
SINCLAIR PLACE AT WALLACE
DB 17872 PG 956
PB 037 PG 831

KELLEY E. VIZURRAGA

THOMAS HELLER

ADRIAN WILLIAMS

MADISON PARK OWNERS

JASON A NELSEN

WAYNE C

DANIEL SIMON

RANDOLPH H NEAL JR

TERESA J. CROMEDY

LORIA MILLER
DB 8592
PG 0996

ERIN PATRICIA NORTHEY

MICHAEL BUNTON

DEBORAH L. JAMES

KEVIN LOUGHLIN

6
THOMAS BARRY &
MAE MOORHEAD DAVIS

7
THOMAS BARRY &
MAE MOORHEAD DAVIS

11

12
SQUIRES ENTERPRISES INC

937A

TDE

TDE
INLET CHANNEL DETAIL
SEE DETAIL M9

TOE PROTECTION
SEE DETAIL M4

INLET CHANNEL DETAIL
SEE DETAIL M12

TOE PROTECTION
SEE DETAIL M6

(CHORD)

N 8°07'24" E

NC DEPT OF TRANSPORTATION

15" RCP-III

42" RCP-III

48" RCP-III

18" RCP-III

36" RCP-IV

8'W x 7'H RCBC

10'PVC

12'PVC

15"PVC

8"VC

2GI

2GI TYPE-A

FS

2SBK/FD

2SFD

ISFD

ISBHD

1340

1335

1345

1121

OUTLET CHANNEL DETAIL
SEE DETAIL M10

CL TRIP RAP BANKS ONLY
SEE DETAIL M13

ANTHONY C DIMINO

HOWARD S. GASTON

SONIA R. SMITH

KELLI WALLACE
YVONNE L. WALLACE

WESLEY P. & JOANN FRONEBERGER

EDMUND SCHRAMEL

KRISTIAN & PILAR PENDERSON

JOSEPH A OLZEWSKI

JACQUELINE SPELLER

BRYAN K. & PAMELA E. CARTER

DANNY L MONTGOMERY

LAURIE PARIANO

JAMES W CARTER II

TARA HEATH

JAMES F KEATING

ALICIA RAYE ELLIOTT

SUSAN R HANEY

GEORGE R. CONNOR
JADON CONNOR

CAROLINE ABANUKAM

NC GRID
NAD 83

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEET 40 FOR -L- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

FILE: R:\ndot\R2248E\Hydraulics\PERMITS_Environmental Drawings\R2248E_RDY_PSH_11.DGN
DATE: 4/5/2011 5:19:01 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 20 of 108

REVISIONS

SITE 6

SITE 5

MATCH TO SHEET 10 – -L- POT 1333+00.00

MATCH TO SHEET 12 – -L- POT 1346+00.00

N 8°07'24" E

(CHORD)

MARSHA A SMITH

DAVID XIONG
BAO VANG

FARMS OWNERS ASSOC INC
SINCLAIR PLACE AT WALLACE
DB 17872 PG 956
PB 037 PG 831

KELLEY E. VIZURRAGA

APPROXIMATE

THOMAS HELLER

ADRIAN WILLIAMS

MADISON PARK OWNERS

JASON A NELSEN

WAYNE C

DANIEL SIMON

TERESA J. CROMEDY

RANDOLPH H NEAL JR

DEBORAH L JAMES

ERIN PATRICIA NORTHEY

LORI A MILLER
DB 8592
PG 0996

MICHAEL BUNTON

KEVIN LOUGHLIN

SQUIRES ENTERPRISES INC

THOMAS BARRY & MAE MOORHEAD DAVIS

NC DEPT OF TRANSPORTATION

NC DEPT OF TRANSPORTATION

ANTHONY C DIMINO

HOWARD S GASTON

SONIA R. SMITH

KELLI WALLACE
YVONNE L WALLACE

WESLEY R. & JOANN PRONEBERGER

EDMUND SCHRAMEK

KRISTIAN & PILAR PENDERSON

JOSEPH A OLZEWSKI

JACQUELINE SPELLER

BRYAN K. & PAMELA E. CARTER

DANNY J MONTGOMERY

JAMES W CARTER II

JAMES F KEATING

SUSAN R HANEY

LAURIE PARIANO

TARA HEATH

ALICIA RAYE ELLIOTT

GEORGE R. CONNOR
JADON CONNOR

CAROLINE ABANJKAM

TOE PROTECTION SEE DETAIL M4

TDE

TDE INLET CHANNEL DETAIL SEE DETAIL M9

INLET CHANNEL DETAIL SEE DETAIL M12

TOE PROTECTION SEE DETAIL M6

OUTLET CHANNEL DETAIL SEE DETAIL M10

CLASS B RIP RAP BANKS ONLY SEE DETAIL M13

15" RCP-III

42" RCP-III

48" RCP-III

18" RCP-III

36" RCP-III

15" RCP-IV

18" RCP-IV

PROP. 12' X 8' PEDESTRIAN CULVERT

2GI TYPE-A

NC GRID NAD 83

LEGEND

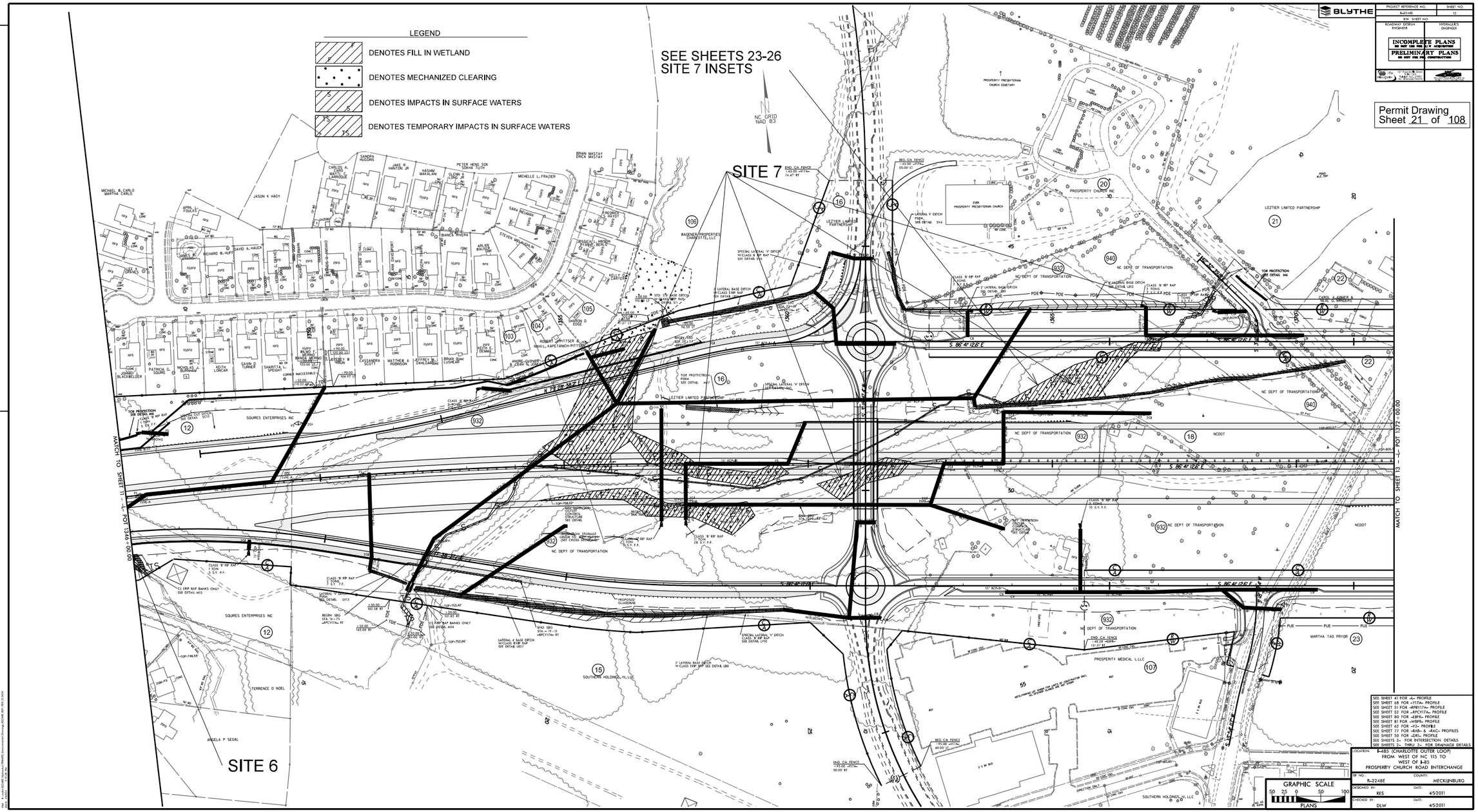
DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEET 40 FOR -L- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E RDY_PLN_11_CONT.DGN
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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2224BE	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR RIGHT OF WAY ACQUISITIONS
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 21 of 108

SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 68 FOR -Y17A- PROFILE
SEE SHEET 51 FOR -RPBY17A- PROFILE
SEE SHEET 53 FOR -RPCY17A- PROFILE
SEE SHEET 80 FOR -LBFR- PROFILE
SEE SHEET 81 FOR -JWSFR- PROFILE
SEE SHEET 62 FOR -Y2- PROFILE
SEE SHEET 77 FOR -RA6- & -RA7- PROFILES
SEE SHEET 50 FOR -DR1- PROFILE
SEE SHEETS 2- FOR INTERSECTION DETAILS
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

LOCATION:	I-485 (CHARLOTTE OUTER LOOP) FROM WEST OF NC 115 TO WEST OF I-85 PROSPERITY CHURCH ROAD INTERCHANGE
TIP NO.:	COUNTY: MECKLENBURG
DESIGNED BY: RES	DATE: 4/5/2011
CHECKED BY: DLW	DATE: 4/5/2011

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEETS 23-26
SITE 7 INSETS

SITE 7

SITE 6

MATCH TO SHEET 11 -L- POT 1346.00

MATCH TO SHEET 13 -L- POT 1372.00

BLYTHE

PROJECT REFERENCE NO. R-2248E
RW SHEET NO.
SHEET NO. 12
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR RIGHT OF WAY ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 22 of 108

SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 68 FOR -Y17A- PROFILE
SEE SHEET 51 FOR -RPBY17A- PROFILE
SEE SHEET 53 FOR -RPCY17A- PROFILE
SEE SHEET 80 FOR -LBFR- PROFILE
SEE SHEET 81 FOR -JWBFR- PROFILE
SEE SHEET 62 FOR -Y2- PROFILE
SEE SHEET 77 FOR -RAR- & -RAC- PROFILES
SEE SHEET 50 FOR -DR1- PROFILE
SEE SHEETS 2- FOR INTERSECTION DETAILS
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

LOCATION: I-485 (CHARLOTTE OUTER LOOP)
FROM WEST OF NC 115 TO
WEST OF I-85
PROSPERITY CHURCH ROAD INTERCHANGE

TIP NO.: R-2248E
COUNTY: MECKLENBURG
DESIGNED BY: RES
DATE: 4/5/2011
CHECKED BY: DLW
DATE: 4/5/2011

GRAPHIC SCALE
50 25 0 50 100
PLANS

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	12A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing Sheet 23 of 108

REVISIONS

FILE: R:\Indot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PH1_12A_SITE 7.DGN
DATE: 4/5/2011 5:20:29 PM

SITE 7

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	12A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
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Permit Drawing Sheet 24 of 108

REVISIONS

FILE: R:\ndot\R2248E\Hydraulics\PERMITS_Environmental Drawings\R2248E_RDY_PRT_12A_CONT_SITE 7.DGN
DATE: 4/5/2011 5:20:57 PM

SITE 7

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	12B
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, NC 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 25 of 108

REVISIONS

PROSPERITY CHURCH INC
LEZTIER LIMITED PARTNERSHIP
HIGHLAND CREEK RETAIL, LLC
CAROL A. COMER & NEAL D. SANDERS
NC DEPT OF TRANSPORTATION
NCDOT
TAYLOR FAMILY TRUST
DRY DETENTION OUTLET CONTROL STRUCTURE SEE DETAIL
TOE PROTECTION SEE DETAIL M6
2' LATERAL BASE DITCH SEE DETAIL LB9
4' LATERAL BASE DITCH SEE DETAIL LB12
SPECIAL LATERAL 'Y' DITCH CLASS 'B' RIP RAP SEE DETAIL SYM2
CLASS 'B' RIP RAP 2 TONS 7 S.Y. F.F.
CLASS 'B' RIP RAP 3 TONS 10 S.Y. F.F.
CLASS B RIP RAP EST 2 TNS RR EST 7 SY FF
CLASS B RIP RAP EST 3 TNS RR EST 10 SY FF
CLASS B RIP RAP EST 3 TNS RR EST 10 SY FF NCDOT
JB w/MH
MATCHLINE AA
SITE 7

LEGEND

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PLN_12B_SITE 7.DGN
DATE: 4/5/2011 5:21:16 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	12B
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, NC 27601, NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 26 of 108

REVISIONS

PROSPERITY CHURCH INC
LEZTIER LIMITED PARTNERSHIP
HIGHLAND CREEK RETAIL, LLC
CAROL A. SOMER & NEAL D. SANDERS
NC DEPT OF TRANSPORTATION
NCDOT
TAYLOR FAMILY TRUST
2SBK PERITY PRESBYTERIAN CHURCH
POND W.E.794'
MATCHLINE AA
SITE 7

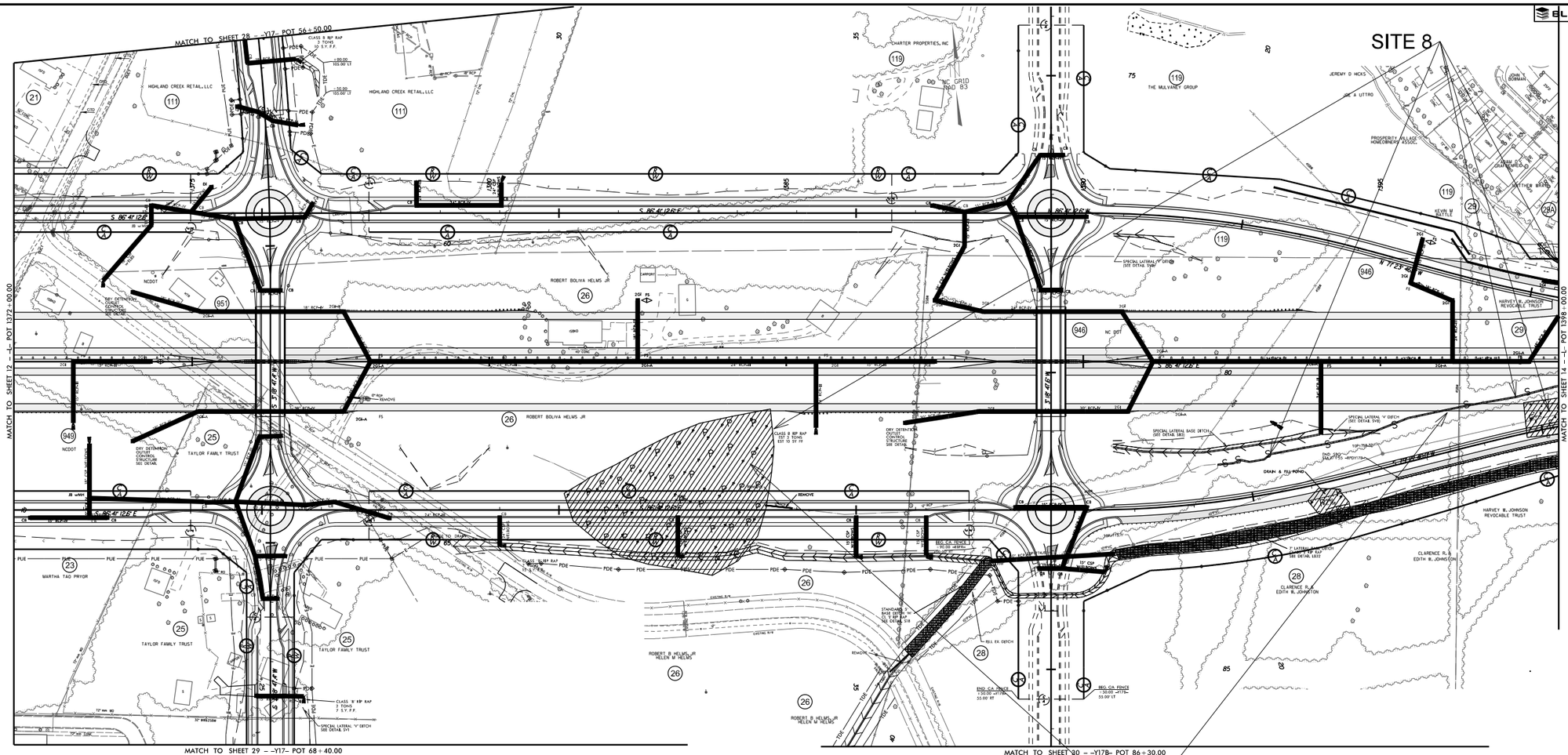
LEGEND

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_ROY_PMT_12B_CONT_SITE 7.DGN
DATE: 4/5/2011 5:21:37 PM



LEGEND

- F — DENOTES FILL IN WETLAND
- S — DENOTES IMPACTS IN SURFACE WATERS
- TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
- P — DENOTES IMPACTS IN SURFACE WATERS (POND)

SEE SHEETS 42 FOR -L- PROFILE
SEE SHEET 67 & 68 FOR -Y17- PROFILE
SEE SHEET 69 FOR -Y17B- PROFILE
SEE SHEETS 80 FOR -L8BR- PROFILE
SEE SHEETS 81 FOR -L9BR- PROFILE
SEE SHEET 51 FOR -RPLY178- PROFILE
SEE SHEET 53 FOR -RPDY178- PROFILE
SEE SHEET 77 FOR -RAA-, -RAD-, -RAE-, AND -RAF- PROFILES
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	13
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR RIGHT OF WAY ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 27 of 108

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION: I-485 (CHARLOTTE OUTER LOOP) FROM WEST OF NC 115 TO WEST OF I-85
PROSPERITY CHURCH ROAD INTERCHANGE

TIP NO.	COUNTY:
R-2248E	MECKLENBURG
DESIGNED BY:	DATE:
RES	4/5/2011
CHECKED BY:	DATE:
DLW	4/5/2011

SITE 8

MATCH TO SHEET 28 – -Y17- POT 56+50.00

MATCH TO SHEET 12 – -L- POT 1372+00.00

MATCH TO SHEET 14 – -L- POT 1396+00.00

MATCH TO SHEET 29 – -Y17- POT 68+40.00

MATCH TO SHEET 30 – -Y17B- POT 86+30.00

Permit Drawing
Sheet 28 of 108

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
- DENOTES IMPACTS IN SURFACE WATERS (POND)

SEE SHEETS 29-32
FOR SITE 8 INSETS

SEE SHEETS 42 FOR -L- PROFILE
SEE SHEET 67 & 68 FOR -Y17- PROFILE
SEE SHEET 69 FOR -Y17B- PROFILE
SEE SHEETS 80 FOR -SB9- PROFILE
SEE SHEETS 81 FOR -WB9- PROFILE
SEE SHEET 51 FOR -RPDY178- PROFILE
SEE SHEET 53 FOR -RPDY179- PROFILE
SEE SHEET 77 FOR -RA5-, -RA5-, -RA5-, AND -RA5- PROFILES
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION: I-485 (CHARLOTTE OUTER LOOP)
FROM WEST OF NC 115 TO
WEST OF I-85
PROSPERITY CHURCH ROAD INTERCHANGE

TIP NO.: R-2248E
COUNTY: MECKLENBURG
DESIGNED BY: RES
DATE: 4/5/2011
CHECKED BY: DLW
DATE: 4/5/2011

ELYTHE

PROJECT REFERENCE NO.: R-2248E
SHEET NO.: 12
RW SHEET NO.:
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR RIGHT OF WAY ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	13A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, NC, 27601, NC Licensure F-0378

HNTB — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 29 of 108

REVISIONS

FILE: R:\ndot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PLN_13A_SITE 8.DGN
DATE: 4/5/2011 5:22:58 PM

S 86° 41' 12.6" E
N 86° 41' 12.6" W
N 71° 23' 46.1" W
S 3° 18' 47.6" W
-WBFR-
-EBFR-
-RPAY17B-
-RPDY17B-
-Y17B-
1385
1390
1395
80
75
119
946
26
28
THE MULVANEY GROUP
NC DOT
ROBERT BOLIVA HELMS JR
LIVA HELMS JR
CLARE EDITH W
MATCHLINE AA
CARPORT
ISBKD
40" CONC
48" WW
18" RCP-III
24" RCP-III
30" RCP-III
36" RCP-III
42" RCP-III
15" RCP-III
15" RCP-IV
30" RCP-IV
12" RCP
18" CSP W/ELBOWS
15" CSP W/ELBOWS
2GI
2GI-A
FS
CB
HW
SSBW
45SBW
10"PVC
CLASS B RIP RAP
EST 3 TONS
EST 10 SY FF
CLASS B RIP RAP
EST 2 TNS RR
EST 7 SY FF
SPECIAL LATERAL 'V' DITCH
(SEE DETAIL SV8)
SPECIAL LATERAL BASE DITCH
(SEE DETAIL SB3)
END SBG
STA 17 + 55 -RPDY17B-
DRAIN & FILL POND
7' LATERAL BASE DITCH
CLASS 'I' RIP RAP
SEE DETAIL LB32
LATERAL 'V' DITCH
(SEE DETAIL LV6)
LATERAL BASE DITCH
(SEE DETAIL LB10)
BEG. C/A FENCE
+90.00 -EBFR-
50.00' RT
DRY DETENTION
OUTLET
CONTROL
STRUCTURE
SEE DETAIL
STANDARD 5'
BASE DITCH W/
CL 'I' RIP RAP
SEE DETAIL S18
FILL EX. DITCH
SPECIAL V DITCH
(SEE DETAIL S5)
REMOVE
EXISTING R/W
PDE
TDE
RAP
TOP=758.30
TOP=713.71
TOP=774.95

SITE 8

LEGEND

- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
- DENOTES IMPACTS IN SURFACE WATERS (POND)

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	13A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, NC 27601
NC Licensure F-0378

CENTENNIAL ENGINEERING
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 30 of 108

REVISIONS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PH1_13A_CONT_SITE 8.DGN
DATE: 4/5/2011 5:23:15 PM

SITE 8

LEGEND

- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
- DENOTES IMPACTS IN SURFACE WATERS (POND)

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	13B
RW SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith — 421 Fayetteville Street Suite 1300 Raleigh, N.C. 27601 NC Licensure # C-0170

Permit Drawing Sheet 31 of 108

Revised 6-9-2011

REVISIONS

NC GRID NAD 83

THOMAS F. & GRACE B OEHLER LIVING TRUST

LATERAL BASE DITCH (SEE DETAIL LB28)

TOE PROTECTION SEE DETAIL M6

8' LATERAL BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL LB34)

PROPOSED 8' X 9' RCBC

-SERVA- S 86°41'12.6" E

4' LATERAL BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL LB28)

8' LATERAL BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL LB30)

3'-STANDARD BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL SB)

PROP. EARTH BERM

2' LATERAL BASE DITCH (SEE DETAIL LB9)

HARVEY W. JOHNSON REVOCABLE TRUST

-RPAY17B-

-L- S 86°41'12.6" E

END SBG STA.1405+33 -L-

DRAIN & FILL POND

7' LATERAL BASE DITCH CLASS 'I' RIP RAP SEE DETAIL LB32

LATERAL 'V' DITCH (SEE DETAIL LV6)

SPECIAL LATERAL 'V' DITCH (SEE DETAIL SV8)

SPECIAL LATERAL 'V' DITCH SEE DETAIL SV8

SPECIAL LATERAL 'V' DITCH SEE DETAIL SV8

SITE 8

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
- DENOTES IMPACTS IN SURFACE WATERS (POND)

FILE: K:\rodot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PMT_13B_SITE 8.DGN
DATE: 6/9/2011 4:30:23 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	13B
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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KIMLEY-HORN AND ASSOCIATES, INC. — 500 JOHN FRANKLIN RD., SUITE 400, RALEIGH, NORTH CAROLINA 27609

Permit Drawing Sheet 32 of 108

Revised 6-9-2011

REVISIONS

FILE: R:\model\(R2248E)Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_13B_CONT_SITE 8.DGN
DATE: 6/9/2011 4:33:39 PM

SITE 8

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
- DENOTES IMPACTS IN SURFACE WATERS (POND)

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	14
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378
500 JONES FRANKLIN RD., SUITE 100 RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 33 of 108
Revised
6-9-2011

REVISIONS

LEGEND

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

DENOTES IMPACTS IN SURFACE WATERS (POND)

SITE 8

NC GRID NAD 83

MATCH TO SHEET 13 –L– POT 1398+00.00

MATCH TO SHEET 15 –L– POT 1411+00.00

MATCH TO SHEET 15 –SERVA– POT 19+00.00

JOHN T BOWMAN

TAMIKA N THOMPSON

BENJAMIN G MUCHIRI

MELISSA R. BEST
MICHAEL S. DENNIS

COREY R BOULDER

THOMAS A POPE

LAURIL V GARNER

EDWARD R SETSER

RICHARD T HENDERSON

RALPH W BARNES JR

JAMES A & WILLIE HUDSON

BRIAN KEYON FRAZER & LEKIESHA INEZ CHILDRESS

KRISTIE R. BLEVINS

ROBERT HALL

KRISTIN CAPUTO

SUSAN R. DESOTO

PATRICK & SHELLY D. CANNON

THOMAS F. & GRACE B GEHLER LIVING TRUST

GRAVEN R. & SUE R. GEHLER

HARVEY W. JOHNSON REVOCABLE TRUST

LATERAL BASE DITCH (SEE DETAIL LB28)

TOE PROTECTION SEE DETAIL M6

PROPOSED 8' X 9' RCBC

S 86°41'26" E

N 84°21'02" W

4' LATERAL BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL LB28)

8' LATERAL BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL LB30)

8' LATERAL BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL LB31)

8' LATERAL BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL LB34)

3'-6" STANDARD BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL SV)

LAT 2' BASE DITCH W/CL I RIP RAP SEE DETAIL LB8

PROP. EARTH BERM

2' LATERAL BASE DITCH (SEE DETAIL LB9)

15" RCP-IV

36" RCP-IV

66" RCP-IV

END SBG STA.1405+33 –L–

DRAIN & FILL POND

7' LATERAL BASE DITCH CLASS 'I' RIP RAP SEE DETAIL LB32

LATERAL 'V' DITCH (SEE DETAIL LV6)

SPECIAL LATERAL 'V' DITCH (SEE DETAIL SV8)

SPECIAL LATERAL 'V' DITCH SEE DETAIL SV8

SPECIAL LATERAL 'V' DITCH SEE DETAIL SV8

HW

SEE SHEET 43 FOR –L– PROFILE
SEE SHEET 78 & 79 FOR –SERVA– PROFILE
SEE SHEET 51 FOR –RPAY17B– PROFILE
SEE SHEET 53 FOR –RPDY17B– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\radat\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PRM_14.DGN
DATE: 6/9/2011 11:58:55 AM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith — 421 Fayetteville Street, Suite 1300, Raleigh, N.C. 27601, NC Licensure F-0378
100 JOHN PRANGLIN RD., SUITE 104, RALEIGH, NORTH CAROLINA 27603

Permit Drawing
Sheet 34 of 108

Revised
6-9-2011

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
- DENOTES IMPACTS IN SURFACE WATERS (POND)

SITE 8

NC GRID NAD 83

MATCH TO SHEET 13 –L– POT 1398+00.00

MATCH TO SHEET 15 –L– POT 1417+00.00

MATCH TO SHEET 15 –SERVA– POT 19+00.00

SEE SHEET 43 FOR –L– PROFILE
SEE SHEET 78 & 79 FOR –SERVA– PROFILE
SEE SHEET 51 FOR –RPAY178– PROFILE
SEE SHEET 53 FOR –RPDY178– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

REVISIONS

FILE: R:\radot\8224E\Hydraulics\PERMITS_Environmental\Drawings\8224E_RDY_PPK_14_CONT.DGN
DATE: 6/9/2011 11:59:57 AM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	15
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
KIMLEY-HORN AND ASSOCIATES — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 35 of 108

REVISIONS

SITE 8

SITE 9

NC GRID NAD 83

CRAVEN R. & SUE B. OEHLER (122)

MYRTLE P. THOMPSON (35)

HARVEY W. JOHNSTON REVOCABLE TRUST (34)

8' LATERAL BASE DITCH (SEE DETAIL LB31)

CL I RIP RAP EST 7 TON EST 15 SY FF

CL I RIP RAP BANKS ONLY SEE DETAIL M35

CL B RIP RAP EST 1 TON EST 5 SY FF

CL B RIP RAP EST 2 TON EST 7 SY FF

DETENTION STORAGE SEE PROFILE AND CROSS SECTIONS

DRY DETENTION BASIN OUTLET CONRTROL STRUCTURE SEE SPECIAL DETAIL

15" CSP W/ELBOWS

SHOULDER BERM GUTTER TO STA 1423+00 -L- LT

18" CSP W/ELBOW

STD. BERM DITCH STA. 1411+35 TO STA. 1415+00 -L- RT

LATERAL V DITCH SEE DETAIL LV3

SPEC. LAT V DITCH SEE DETAIL SV8

3' BASE DITCH W/CL I RIP RAP SEE DETAIL S7

FS TO EL 759.1

MATCH TO SHEET 14 -SERVA- POT 19+00.00

MATCH TO SHEET 14 -L- POT 1411+00.00

MATCH TO SHEET 16 -SERVA- POT 31+95.00

MATCH TO SHEET 16 -L- POT 1424+00.00

S 86° 41' 12.6" E

S 84° 02' 40.9" E

LEGEND

DENOTES IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 78 FOR -SERVA- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental Drawings\R2248E_RDY_PSH_15.DGN
DATE: 4/5/2011 5:24:44 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	15
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing Sheet 36 of 108

REVISIONS

SITE 8

SITE 9

NC GRID NAD 83

CRAVEN R. & SUE B. OEHLER

MYRTLE P. THOMPSON

HARVEY W. JOHNSTON REVOCABLE TRUST

8' LATERAL BASE DITCH (SEE DETAIL LB31)

CL I RIP RAP EST 7 TON EST 15 SY FF

CL I RIP RAP BANKS ONLY SEE DETAIL M35

CL B RIP RAP EST 1 TON EST 5 SY FF

CL B RIP RAP EST 2 TON EST 7 SY FF

DETENTION STORAGE SEE PROFILE AND CROSS SECTIONS

DRY DETENTION BASIN OUTLET CONRTROL STRUCTURE SEE SPECIAL DETAIL

SHOULDER BERM GUTTER TO STA 1423+00 –L– LT

18" CSP W/ELBOW

STD. BERM DITCH STA. 1411+35 TO STA. 1415+00 –L– RT

LATERAL V DITCH SEE DETAIL LV3

SPEC LAT V DITCH SEE DETAIL SV8

3' BASE DITCH W/CL I RIP RAP SEE DETAIL S7

MATCH TO SHEET 14 –SERVA– POT 19+00.00

MATCH TO SHEET 14 – –L– POT 1411+00.00

MATCH TO SHEET 16 –SERVA– POT 31+95.00

MATCH TO SHEET 16 – –L– POT 1424+00.00

S 86° 41' 12.6" E

S 84° 02' 40.9" E

LEGEND

DENOTES IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEET 43 FOR –L– PROFILE
SEE SHEET 78 FOR –SERVA– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Enviornmental\Drawings\R2248E RDY_PLN_15_CONT.DGN
DATE: 4/5/2011 5:25:01 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	17
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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Permit Drawing Sheet 37 of 108

LEGEND

DENOTES IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SITE 10

NC GRID NAD 83

MATCH TO SHEET 16 –SERVA– POT 45+68.00

MATCH TO SHEET 16 – –L– POT 1437+00.00

MATCH TO SHEET 18 – –L– POT 1450+00.00

REVISIONS

WALLACE RIDGE LAND TRUST

VALERIE C GRAY

GENE SMITH

GREGORY L THOMAS

SARAH BATISTA

DAVID M & JOANIL. YERTY

RHONDA B NIXON

JEFFREY F MEYER & CATHERINE R. MOWRY

BENJAMIN MICHAEL OEHLER

JAY MACK OEHLER & CONSTANCE J OEHLER (REV/TST)

JAY MACK & CONSTANCE J. OEHLER

JASON ROBERT OEHLER

JOSHUA DANIEL OEHLER

JAY MACK OEHLER

O. THOMPSON JR

COHEEN PROPERTIES, INC

CLARENCE ROSS RITCHIE III & YVONNE POOLE RITCHIE

S 17° 17' 37.1" W

S 60° 43' 35.7" E

N 83° 32' 27.1" E

S 63° 50' 46.6" E

SPEC LAT V DITCH W/PSRM SEE DETAIL SV20

CL I RIP RAP BANKS ONLY SEE DETAIL M36

TOE PROTECTION SEE DETAIL M34

CL B RIP RAP EST 2 TON EST 7 SY FF

CL B RIP RAP EST 1 TON EST 5 SY FF

DRY DETENTION BASIN OUTLET CONTROL STRUCTURE SEE SPECIAL DETAIL

4' BASE DITCH W/CL I RIP RAP SEE DETAIL S45

REMOVE

SPECIAL BERM SEE DETAIL M37

CL B RIP RAP EST 5 TONS EST 16 SY FF

SHOULDER BERM GUTTER STA 1440+00 TO 1442+00 –L– LT

STD. BERM DITCH STA. 1435+35 TO STA. 1438+00 –L– RT

SPECIAL DITCH GRADE FROM STA 1433+50 TO STA 1438+00 –L– RT SEE PROFILE FOR GRADE

SPECIAL DITCH GRADE STA 1444+50 TO STA 1446+50 –L– RT SEE PROFILE FOR GRADE

SEE SHEET 44 FOR –L– PROFILE
SEE SHEET 79 FOR –SERVA– PROFILE
SEE SHEET 65 FOR –Y6– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PLN_17.DGN
DATE: 4/5/2011 5:25:15 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	17
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 38 of 108

LEGEND

DENOTES IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

NC GRID NAD 83

SITE 10

MATCH TO SHEET 16 –SERVA– POT 45+68.00

MATCH TO SHEET 16 – –L– POT 1437+00.00

MATCH TO SHEET 18 – –L– POT 1450+00.00

REVISIONS

WALLACE RIDGE LAND TRUST

VALERIE C GRAY

GENE SMITH

GREGORY L THOMAS

SARAH BATISTA

DAVID M & JOANIL. YERTY

RHONDA B NIXON

JEFFREY F MEYER & CATHERINE R. MOWRY

JAY MACK & CONSTANCE J. OEHLER

JAY MACK OEHLER CONSTANCE J OEHLER (REV TST)

JASON ROBERT OEHLER

JOSHUA DANIEL OEHLER

BENJAMIN MICHAEL OEHLER

O. THOMPSON JR

COHEEN PROPERTIES INC

CLARENCE ROSS RITCHIE III & YVONNE POOLE RITCHIE

S 17°17'37" W

S 60°43'35" E

N 63°32'27" E

S 63°50'46" E

1440

1445

SPEC LAT V DITCH W/PSRM SEE DETAIL SV20

CL I RIP RAP BANKS ONLY SEE DETAIL M36

TOE PROTECTION SEE DETAIL M34

CL B RIP RAP EST 2 TON EST 7 SY FF

CL B RIP RAP EST 1 TON EST 5 SY FF

DRY DETENTION BASIN OUTLET CONTROL STRUCTURE SEE SPECIAL DETAIL

4' BASE DITCH W/CL I RIP RAP SEE DETAIL S45

SPECIAL BERM SEE DETAIL M37

CL B RIP RAP EST 5 TONS EST 16 SY FF

SHOULDER BERM GUTTER STA 1440+00 TO 1442+00 –L– LT

STD BERM DITCH STA. 1435+35 TO STA. 1438+00 –L– RT

SPECIAL DITCH GRADE FROM STA 1433+50 TO STA 1438+00 –L– RT SEE PROFILE FOR GRADE

SPECIAL DITCH GRADE STA 1444+50 TO STA 1446+50 –L– RT SEE PROFILE FOR GRADE

30" RCP–III

24" RCP–III

42" RCP–III

36" RCP–III

24" CSP W/ELBOW

JB w/MH

SEE SHEET 44 FOR –L– PROFILE
SEE SHEET 79 FOR –SERVA– PROFILE
SEE SHEET 65 FOR –Y6– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental Drawings\R2248E_RDY_PLN_17_CONT.DGN
DATE: 4/5/2011 5:25:31 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E R-2248E	19
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 39 of 108

REVISIONS

NC GRID NAD 83

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
- DENOTES IMPACTS IN SURFACE WATERS (POND)

MATCH TO SHEET 18 –L– POT 1463+00.00

MATCH TO SHEET 20 –L– POT 1476+00.00

MATCH TO SHEET 20 –RPBY22– POT 13+70.00

MATCH TO SHEET 20 –RPCY22– POT 14+50.00

47 WILLIAM L. MOWRY, DONNA E. MOWRY, HERMITAGE PARTNERS, LLC

49 ESTHER F. OEHLER, LIFE TENANT, DONALD L. OEHLER, THOMAS F. OEHLER, CRAVEN R. OEHLER

50 OEHLER LIVING TRUST

128

52 BARBARA ALLISON

48 W SAMUEL & JOHNSIE R. RABORN

50 OEHLER LIVING TRUST

BEAZER HOMES CORP, ROBYNS GLEN HOMEOWNERS ASSOC

SITE 11

CHARLOTTE CITY LIMITS

STD. 5' BASE DITCH W/CL. I RIP RAP SEE DETAIL S31

SEE DETAIL M21

BEGIN SBG STA. 1464+52 –L– LT

END C/A FENCE +37.37 –L– 102.62' LT

BEG. C/A FENCE +98.62 –L– 102.62' LT

CLASS 'B' RIP RAP 3 TONS 10 S.Y. F.F.

TOE PROTECTION SEE DETAIL M6

CLASS 'B' RIP RAP 2 TONS 7 S.Y. F.F.

END SBG STA. 11+55 –RPBY22– LT

3' BASE LATERAL DITCH SEE DETAIL LB29

CLASS 'B' RIP RAP 2 TONS 7 S.Y. F.F.

S 76° 11' 43.0" E

S 63° 50' 46.6" E

PROPOSED GUARDRAIL

SPLASH PAD W/CLASS 'B' RIP RAP SEE DETAIL M29

SPLASH PAD W/CLASS 'B' RIP RAP SEE DETAIL M29

END C/A FENCE +42.63 –L– 102.63' RT

BEG. C/A FENCE +03.88 –L– 102.63' RT

CLASS I RIP RAP EST. 29 TONS EST. 43 SY F.F.

4' BASE DITCH SEE DETAIL S32

CLASS 'B' RIP RAP 5 TONS 14. S.Y F.F. LATERAL 3' BASE DITCH SEE DETAIL LB23

30" RCP-III; 66" RCP-IV; 15" RCP-IV; 54" RCP-IV; 15" RCP-III; 18" RCP-IV; 24" RCP-IV; 15" CSP W/ELBOWS; 15" CSP W/ELBOWS; 2GI GRAU 350; 2GI TYPE-A; FS; JB w/MH; HW; TOP=703.77'; TOP=699.97'; TOP=668.05'; 24"PVC; 8"PVC; TDE; PASTE

SEE SHEET 45 FOR –L– PROFILE
SEE SHEET 55 FOR –RPBY22– PROFILE
SEE SHEET 56 FOR –RPCY22– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental Drawings\R2248E_RDY_PSH_19.DGN
DATE: 4/5/2011 5:25:48 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E R-2248E	19
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 40 of 108

REVISIONS

NC GRID NAD 83

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
- DENOTES IMPACTS IN SURFACE WATERS (POND)

MATCH TO SHEET 18 –L– POT 1463+00.00

MATCH TO SHEET 20 –RPBY22– POT 13+70.00

MATCH TO SHEET 20 –L– POT 1476+00.00

MATCH TO SHEET 20 –RPCY22– POT 14+50.00

47 WILLIAM L. MOWRY, DONNA E. MOWRY, HERMITAGE PARTNERS, LLC

49 ESTHER F. OEHLER, LIFE TENANT; DONALD L. OEHLER; THOMAS F. OEHLER; CRAVEN R. OEHLER

50 OEHLER LIVING TRUST

128

52 BARBARA ALLISON

48 W. SAMUEL & JOHNSIE R. RABORN

50 OEHLER LIVING TRUST

BEAZER HOMES CORP; ROBYNS GLEN HOMEOWNERS ASSOC

SITE 11

SEE DETAIL M21

TOE PROTECTION SEE DETAIL M6

PROPOSED GUARDRAIL

END C/A FENCE +37.37 –L– 102.62' LT

BEG. C/A FENCE +98.62 –L– 102.62' LT

END C/A FENCE +42.63 –L– 102.63' RT

BEG. C/A FENCE +03.88 –L– 102.63' RT

CLASS I RIP RAP EST. 29 TONS EST. 43 SY F.F.

4' BASE DITCH SEE DETAIL S336

S 63°50'46.6" E

S 76°11'43.0" E

–RPBY22–

–RPCY22–

30" RCP-III; 66" RCP-IV; 18" RCP-III; 15" RCP-IV; 15" CSP W/ELBOWS; 24" CSP W/ELBOWS; 24" RCP-IV; 18" RCP-IV; 15" RCP-III; 15" CSP; 15" RCP-III; 54" RCP-IV; 24" RCP-IV; 24PVC; 18PVC

2GI TYPE-A; 2GI; FS; JB w/MH; HW; 15" CSP W/ELBOWS 2GI GRAU 350

SEE SHEET 45 FOR –L– PROFILE
SEE SHEET 55 FOR –RPBY22– PROFILE
SEE SHEET 56 FOR –RPCY22– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\roads\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PH_19_CONT.DGN
DATE: 4/5/2011 5:26:03 PM

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEETS 45 & 46 FOR SITE 13 INSET

SITE 13

SITE 12

SITE 14

SEE SHEETS 43 & 44 FOR SITE 12 INSET

SEE SHEETS 47 & 48 FOR SITE 14 INSET

MATCH TO SHEET 34 -Y2D- POT 70+75.00

MATCH TO SHEET 34 -CONN- POT 18+00.00

MATCH TO SHEET 34 -Y2D- POT 51+00.00

MATCH TO SHEET 21 -Y2E- POT 62+00.00

MATCH TO SHEET 19 -L- POT 1476+00.00

MATCH TO SHEET 19 -RPPY22- POT 22+75.00

MATCH TO SHEET 33 -Y2Z- POT 57+50.00

MATCH TO SHEET 21 -L- POT 1602+00.00

BLYTHE

PROJECT REFERENCE NO. R-2248E | SHEET NO. 2D

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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

Permit Drawing
Sheet 41 of 108

SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 70 & 71 FOR -Y2D- PROFILE
SEE SHEET 73 & 74 FOR -Y2Z- PROFILE
SEE SHEET 69 FOR -CONN- PROFILE
SEE SHEET 54 FOR -RPAY22- PROFILE
SEE SHEET 58 FOR -SPAY22- PROFILE
SEE SHEET 55 FOR -RPBY22- PROFILE
SEE SHEET 58 FOR -SPBY22- PROFILE
SEE SHEET 56 FOR -RPCY22- PROFILE
SEE SHEET 58 FOR -SPCY22- PROFILE
SEE SHEET 57 FOR -RPDY22- PROFILE
SEE SHEET 58 FOR -SPDY22- PROFILE
SEE SHEETS 2- FOR INTERSECTION DETAILS
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

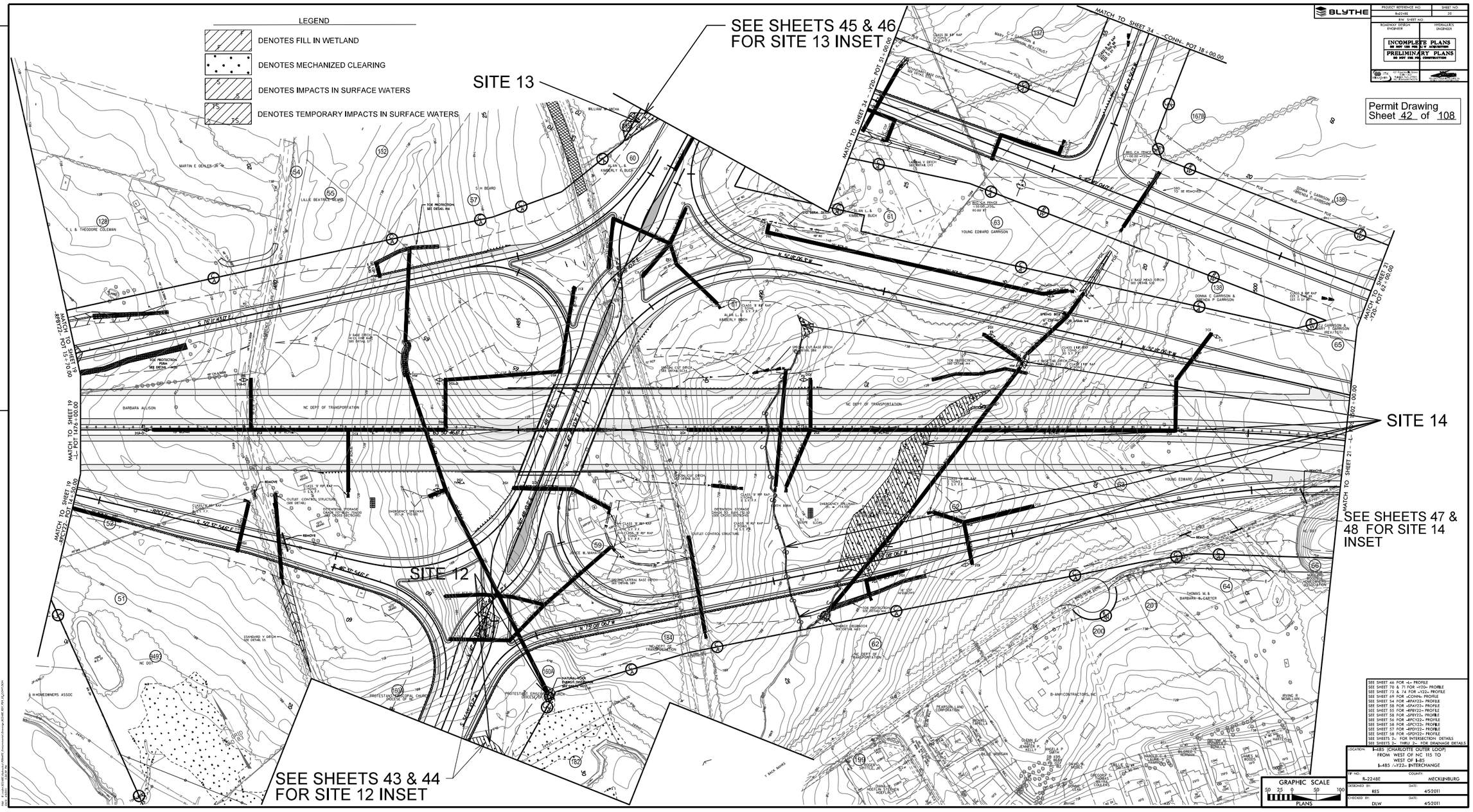
LOCATION: I-485 (CHARLOTTE OUTER LOOP) FROM WEST OF NC 115 TO WEST OF I-85
I-485 -Y22- INTERCHANGE

TIP NO: R-2248E | COUNTY: MECKLENBURG

DESIGNED BY: RES | DATE: 4/5/2011

CHECKED BY: DLW | DATE: 4/5/2011

GRAPHIC SCALE
50 25 0 50 100
PLANS


LEGEND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES IMPACTS IN SURFACE WATERS
DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
SEE SHEETS 45 & 46 FOR SITE 13 INSET
SITE 13
SITE 14
SITE 12
SEE SHEETS 47 & 48 FOR SITE 14 INSET
SEE SHEETS 43 & 44 FOR SITE 12 INSET
MATCH TO SHEET 34 - CONN. POT 18+00.00
MATCH TO SHEET 21 -Y2D- POT 62+00.00
MATCH TO SHEET 19 -L- POT 1476+00.00
MATCH TO SHEET 19 -L- POT 1502+00.00
MATCH TO SHEET 21 -Y2D- POT 51+00.00
BLYTHE
INCOMPLETE PLANS DO NOT USE FOR RIGHT OF WAY ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
Permit Drawing Sheet 42 of 108
SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 70 & 71 FOR -Y2D- PROFILE
SEE SHEET 73 & 74 FOR -Y22- PROFILE
SEE SHEET 69 FOR -CONN- PROFILE
SEE SHEET 54 FOR -RPAY22- PROFILE
SEE SHEET 55 FOR -RPBY22- PROFILE
SEE SHEET 56 FOR -RPCY22- PROFILE
SEE SHEET 57 FOR -RPDY22- PROFILE
SEE SHEET 58 FOR -RPEY22- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS
SEE SHEETS 7- FOR INTERSECTION DETAILS
LOCATION: I-485 CHARLOTTE OUTER LOOP FROM WEST OF NC 115 TO WEST OF I-85 I-485 /-Y22- INTERCHANGE
TIP NO. R-2248E
COUNTY: MECKLENBURG
DESIGNED BY: RES
DATE: 4/5/2011
CHECKED BY: DLW
DATE: 4/5/2011
GRAPHIC SCALE
50 25 0 50 100
PLANS

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	20A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

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Permit Drawing
Sheet 43 of 108

REVISIONS

TEMPORARY WORK BRIDGES SEE DETAIL SHEET

SITE 12

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES HAND CLEAR IN WETLAND

FILE: R:\roddot\R2248E\Hydraulics\PERMITS_Environmental Drawings\R2248E_RDY_PH1_20A_SITE 12.DGN
DATE: 4/5/2011 5:26:55 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	20A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 184, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 44 of 108

REVISIONS

TEMPORARY WORK BRIDGES SEE DETAIL SHEET

SITE 12

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES HAND CLEAR IN WETLAND

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PSH_20A_CONT_SITE 12.DGN
DATE: 4/5/2011 5:27:12 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	208
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 45 of 108

REVISIONS

NC DEPT OF TRANSPORTATION

129

NC GRID NAD 83

CONSERVANCY SITE

SITE 13

133

DANIEL S & VIVIAN B ROBBINS

134

DONALD P & MARY C BEARD

135

WILLIAM M MICHA

WILLIAM M. & JUDY A. MICHA

ALAN L. & KIMBERLY K. BUCH

54

LAWRENCE GRAY ESTATE

50

OEHLER LIVING TRUST

132

S H BEARD

57

60

LEGEND

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

SPECIAL CUT DITCH SEE DETAIL SC31

SPECIAL CUT DITCH SEE DETAIL SC33

SPECIAL CUT DITCH SEE DETAIL SC30

SPECIAL CUT DITCH SEE DETAIL SC26

BEG. C/A FENCE
+57.45 -Y21-
55.00' LT

END C/A FENCE
+50.00 -Y20-
90.00' RT

S 50° 09' 17.2" E

S 42° 49' 04.0" E

S 55° 39' 44.5" W

CLASS 'B' RIP RAP
1 TON
5 S.Y. E.F.

FILE: R:\nc6or\R2248E\Hydraulics PERMITS_Environmental\Drawings\R2248E_ROY_PH1_208_SITE 13.DGN
DATE: 4/5/2011 5:27:26 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	208
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 46 of 108

REVISIONS

NC GRID NAD 83

NC DEPT OF TRANSPORTATION

DANIEL S & VIVIAN B ROBBINS

DONALD P & MARY C BEARD

WILLIAM M MICHA

WILLIAM M. & JUDY A. MICHA

ALAN L. & KIMBERLY A. BUCK

LAWRENCE GRAY ESTATE

OEHLER LIVING TRUST

CONSERVANCY SITE

SITE 13

S 50° 09' 17.2" E

S 42° 49' 04.0" E

S 5° 39' 44.5" W

-Y20-

-Y21-

-Y22-

BEG. C/A FENCE
+57.45 -Y21-
^55.00' LT

END C/A FENCE
+50.00 -Y20-
90.00' RT

SPECIAL CUT DITCH SEE DETAIL SC33

SPECIAL CUT DITCH SEE DETAIL SC31

SPECIAL CUT DITCH SEE DETAIL SC30

SPECIAL CUT DITCH SEE DETAIL SC26

GRADE TO DRAIN

CLASS 'B' RIP RAP
1 TON
3 SY E.F.

15" CSP W/ELBOWS

LEGEND

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PLN_208_CONT_SITE 13.DGN
DATE: 4/5/2011 5:27:43 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	20C
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WBuySmith
421 Fayetteville Street
Suite 1903
Raleigh, N.C. 27601
NC Licensure F-0378

Rev 6-9-2011
Permit Drawing
Sheet 47 of 108

REVISIONS

SITE 14

SITE 14

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

FILE: R:\radar\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PRM_DOC_SITE 14.DGN
DATE: 6/9/2011 3:19:11 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	20C
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith
421 Fayetteville Street
Suite 1300
Raleigh, N.C. 27601
NC Licensure F-0378

RBI JONES FRANKLIN RD. SUITE 154
RALEIGH, NORTH CAROLINA 27615

Permit Drawing
Sheet 48 of 108

Revised 6-9-2011

REVISIONS

SITE 14

SITE 14

LEGEND

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

FILE: h:\under\823485\Hydraulics\PERMITS_Environmental\Drawings\823485_607_PH_20C_CONT_SITE 14.DGN
DATE: 6/9/2011
5:22:09 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	22
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 49 of 108

REVISIONS

NC GRID NAD 83

SITE 16

HICKORY GROVE BAPTIST CHURCH

MATCH TO SHEET 21 – -Y20- POT 75+60.00

MATCH TO SHEET 21 – -L- POS 1515+00.00

S 64° 31' 31.0" E

SR 2467 MALLARD CREEK RD

WINDSTREAM COMM

NATHANIEL HICKLEN, SR
SHIRLEY H. HICKLEN

ARTHUR L. BEST

JOHN C. & SYLVIA K. FOSTER

BOBBY EUGENE BOST
ELIZABETH W. BOST

FRED SMITH
CLARA C. SMITH

KATRINA H. FRAZIER

SHERMAN CELESTER HARRIS
SYLVIA L. HARRIS

MAHMOUD ALOOLAQ

THE FAMILY TRUST UNDER
THE MAIZIE GRAHAM TAYLOR
REVOCABLE TRUST

NCDOT

STD. BERM DITCH
STA. 1521+00 TO 1522+50 –L– LT

BREACH POND DAM
& DRAIN POND
SEE DETAIL M23

4' BASE HEAD DITCH
CLASS I RIP RAP
SEE DETAIL M23

BEGIN
SBG
STA. 1521+00 –L– RT.

END
SBG
STA. 1525+52 –L– RT.

EMERGENCY SPILLWAY
(EL. = 688.50)

OUTLET CONTROL STRUCTURE

DETENTION STORAGE
(SEE CROSS SECTIONS)

CLASS I RIP RAP
EST 10 TNS RR
EST 23 SY FF

GRAU 350

4' LATERAL BASE DITCH
W/CLASS II RIP RAP
SEE DETAIL LB6

5' STANDARD BASE DITCH
W/CLASS II RIP RAP
SEE DETAIL S29

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS
- DENOTES IMPACTS IN SURFACE WATERS (POND)

SEE SHEET 47 FOR –L– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\radot\R2248E\Hydraulics\PERMITS_Environmental Drawings\R2248E_RDY_PH_22.DGN
DATE: 4/5/2011 5:28:29 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	22
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 50 of 108

REVISIONS

MATCH TO SHEET 21 – -Y20- POT 75+60.00

MATCH TO SHEET 21 – -L- POS 1515+00.00

HICKORY GROVE BAPTIST CHURCH

WINDSTREAM COMM

SR 2467 MALLARD CREEK RD

S 64° 31' 31.0" E

NATHANIEL HICKLEN, SR
SHIRLEY H. HICKLEN

JOHN C. & SYLVIA K. FOSTER

ARTHUR L. BEST

BOBBY EUGENE BOST
ELIZABETH W. BOST

FRED SMITH
CLARA C. SMITH

KATRINA H. FRAZIER

SHERMAN CELESTER HARRIS
SYLVIA L. HARRIS

MAHMOUD ALOOLAQ

NCDOT

THE FAMILY TRUST UNDER
THE MAIZIE GRAHAM TAYLOR
REVOCABLE TRUST

STD. BERM DITCH
STA. 1521+00 TO 1522+50 –L– LT

BEGIN
SBG
STA. 1521+00 –L– RT.

END
SBG
STA. 1525+52 –L– RT.
EMERGENCY SPILLWAY
(EL. = 688.50)

BREACH POND DAM
& DRAIN POND
SEE DETAIL M23

4' BASE HEAD DITCH
CLASS I RIP RAP
SEE DETAIL M23

4' LATERAL BASE DITCH
W/CLASS II RIP RAP
SEE DETAIL LB6

5' STANDARD BASE DITCH
W/CLASS II RIP RAP
SEE DETAIL S29

CLASS I RIP RAP
EST 10 TNS/RR
EST 23 SY FF

OUTLET CONTROL STRUCTURE

DETENTION STORAGE
(SEE CROSS SECTIONS)

SITE 16

LEGEND

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATERS

DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

DENOTES IMPACTS IN SURFACE WATERS (POND)

SEE SHEET 47 FOR –L– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Hydraulics\PERMITS_Environmental Drawings\R2248E_RDY_PSH_22_CONT.DGN
DATE: 4/5/2011 5:28:46 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	31
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 51 of 108

REVISIONS

LEGEND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING

NC GRID
NAD 83

NC DEPT OF TRANSPORTATION

129
NC DEPT OF TRANSPORTATION

133
DANIEL S & VIVIAN B ROBBINS

134
DONALD P & MARY C BEARD

135
WILLIAM M. & JUDY A. MICHA

132
LAWRENCE GRAY, ESTATE

50
OEHLER LIVING TRUST

54

57
S H BEARD

MARTIN E OEHLER JR

CONSERVANCY SITE

SITE 13

SITE 13

TIE TO EXISTING DITCH

CLASS 'B' RIP RAP PAD 3 TONS 10 S.Y. F.F.

RETAIN

REMOVE

GRADE TO DRAIN

SPECIAL CUT DITCH SEE DETAIL SC33

SPECIAL CUT DITCH SEE DETAIL SC31

SPECIAL CUT DITCH SEE DETAIL SC30

LATERAL V-DITCH SEE DETAIL SV12

S 5° 39' 44.5" W

S 50° 09' 17.2" E

S 42° 49' 04.0" E

BEG. C/A FENCE
+57.45 –Y21–
55.00' LT

END C/A FENCE
+50.00 –Y20–
90.00' RT

STD. 3' BASE DITCH SEE DETAIL S40

15" RCP

18" RCP

24" RCP-IV

30" RCP-IV

36" RCP-IV

42" RCP-IV

15" CSP W/ELBOWS

PUE

REM.

MATCH TO SHEET 34 – –Y20– POT 46+00.00

MATCH TO SHEET 20

SEE SHEET 70 FOR –Y20– PROFILE
SEE SHEET 72 FOR –Y21– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\rcdot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_ROY_PM_31.DGN
DATE: 4/5/2011 5:28:59 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	31
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
HNTB — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 52 of 108

REVISIONS

LEGEND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING

NC DEPT OF TRANSPORTATION
NC GRID NAD 83
CONSERVANCY SITE
DANIEL S & VIVIAN B ROBBINS
DONALD P & MARY C BEARD
OEHLER LIVING TRUST
LAWRENCE GRAY ESTATE
MARTIN E OEHLER JR
S H BEARD
WILLIAM M. & JUDY A. MICHA

SITE 13

RETAIN
TIE TO EXISTING DITCH
CLASS 'B' RIP RAP PAD
SPECIAL CUT DITCH SEE DETAIL SC33
SPECIAL CUT DITCH SEE DETAIL SC31
SPECIAL CUT DITCH SEE DETAIL SC30
REMOVE
GRADE TO DRAIN
LATERAL 'Y' DITCH SEE DETAIL SY12
CLASS 'B' RIP RAP 3 TONS 10 S.Y. F.F.
CLASS 'B' RIP RAP 1 TON 5 S.Y. F.F.
BEG. C/A FENCE +57.45 –Y21– 55.00' LT
END C/A FENCE +50.00 –Y20– 90.00' RT
STD. 3' BASE DITCH SEE DETAIL S40
PUE
15" RCP-IV
18" RCP-IV
24" RCP-IV
2GI
13" CSP W/ELBOWS
MTL. CANOPY
SHED
REM.

S 5° 39' 44.5" W
S 50° 09' 17.2" E
S 42° 49' 04.0" E
168.445
S48°03'00"E
9.384
S48°03'54"E

MATCH TO SHEET 34 – –Y20– POT 46+00.00
MATCH TO SHEET 20

SEE SHEET 70 FOR –Y20– PROFILE
SEE SHEET 72 FOR –Y21– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\nctdot\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PM_31_CONT.DGN
DATE: 4/5/2011 5:29:13 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street, Suite 1300, Raleigh, N.C. 27601, NC Licensure F-0378
KIMLEY-HORN AND ASSOCIATES, INC.
100 JOHN FRANKLIN RD., SUITE 144, CULLOWHEE, NORTH CAROLINA 28723

Permit Drawing
Sheet 53 of 108

Revised
6-9-2011

REVISIONS

MATCH TO SHEET 32 – -Y22- POT STA. 47+50.00

MATCH TO SHEET 20 – -Y22- POT 57+50.00

MATCH TO SHEET 32 – -Y25- POT STA. 12+70.00

TEMPORARY WORK BRIDGES SEE DETAIL SHEET

SITE 12

SITE 14

LEGEND

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES HAND CLEAR IN WETLAND

SEE SHEET 73 FOR -Y22- PROFILE
SEE SHEET 75 FOR -Y25- PROFILE
SEE SHEETS 2-_ THRU 2-_ FOR DRAINAGE DETAILS

FILE: R:\radwf\R2248E\Hydraulics\RSMITS_Environmental\Drawings\R2248E_RDY_PRT_33.DGN
DATE: 6/9/2011 5:16:51 PM

REVISIONS

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- HC — DENOTES HAND CLEAR IN WETLAND

MATCH TO SHEET 32 – –Y22– POT STA. 47+50.00

MATCH TO SHEET 20– –Y22– POT 57+50.00

MATCH TO SHEET 32 – –Y25– POT STA. 12+70.00

TEMPORARY WORK BRIDGES - SEE DETAIL SHEET

SITE 12

SITE 14

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1305 Raleigh, N.C. 27601 NC Licensure F-0375

HDR — 800 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 54 of 108

Revised 6-9-2011

SEE SHEET 73 FOR –Y22– PROFILE
SEE SHEET 75 FOR –Y25– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\radet\R2248E\Hydraulics\RSMITS_Environmental\Drawings\R2248E_RDY_PRV_33_CONT.DGN
DATE: 6/9/2011 5:18:07 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	34
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

HNTB — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 55 of 108

REVISIONS

MATCH TO SHEET 31 – –Y20– POT 46+00.00

MATCH TO SHEET 20 – –Y22– POC 70+75.00

MATCH TO SHEET 20 – –Y20– POT 51+00.00

MATCH TO SHEET 35 – –Y22– POT 83+50.00

MATCH TO SHEET 20 –CONN– POT 18+00.00

SITE 13

NC GRID NAD 83

DONALD P & MARY C BEARD (134)

WILLIAM M MICHA (135)

C J GARRISON & MARY T GARRISON REV/TRUST (137)

ALAN L. & KIMBERLY K. BUCH (60)

ALAN L. & KIMBERLY K. BUCH (61)

C J GARRISON & MARY T GARRISON REV/TRUST (167B)

–Y22– N 67° 58' 22.6" E

S 42° 49' 10.0" E

S 22° 01' 37.4" E

S 47° 10' 56.0" W

SPECIAL CUT DITCH SEE DETAIL SC26

LATERAL K-DITCH SEE DETAIL LV5

STD. BERM DITCH FROM STA. 79+66 TO STA. 81+00 RT.

SPECIAL LATERAL BASE DITCH SEE DETAIL SB6

15" CSP W/ELBOW

CLASS I RIP RAP EST. 10 TNS RR EST. 23 SY FF

TOE PROTECTION SEE DETAIL M6

CLASS B RIP RAP EST. 3 TNS RR EST. 11 SY FF

15" RCP-III; 15" RCP-IV; 18" RCP-III; 24" RCP-III; 36" RCP-III; 2GI; 2GI TYPE-A; FS; DI; CB; HW; CA; PUE; –CONN–

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEET 70 FOR –Y20– PROFILE
SEE SHEET 74 FOR –Y22– PROFILE
SEE SHEET 69 FOR –CONN– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\nc6or\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_ROY_PMT_34.DGN
DATE: 4/5/2011 5:29:55 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	34
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 56 of 108

REVISIONS

MATCH TO SHEET 31 – –Y20– POT 46+00.00

MATCH TO SHEET 20 – –Y22– POC 70+75.00

MATCH TO SHEET 20 – –Y20– POT 51+00.00

MATCH TO SHEET 35 – –Y22– POT 83+50.00

MATCH TO SHEET 20 –CONN– POT 18+00.00

SITE 13

N NC GRID NAD 83

DONALD P & MARY C BEARD (134)

WILLIAM M MICHA (135)

C J GARRISON & MARY T GARRISON REV/TRUST (137)

ALAN L. & KIMBERLY K. BUCH (60)

(61)

(167B)

SPECIAL CUT DITCH SEE DETAIL SC26

LATERAL V-DITCH SEE DETAIL LV3

STD. BERM DITCH FROM STA. 79+66 TO STA. 81+00 RT.

SPECIAL LATERAL BASE DITCH SEE DETAIL SB6

–Y22– N 67° 58' 22.6" E

S 42° 49' 04.0" E

S 22° 01' 31.4" E

S 47° 10' 56.0" W

–CONN–

15" RCP-III
15" RCP-IV
18" RCP-III
24" RCP-III
15" CSP W/ELBOW
2GI
2GI TYPE-A
FS
DI
CB
HW

CLASS I RIP RAP
EST. 10 TNS RR
EST. 23 SY FF

TOE PROTECTION SEE DETAIL M6

CLASS B RIP RAP
EST. 3 TNS RR
EST. 11 SY FF

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEET 70 FOR –Y20– PROFILE
SEE SHEET 74 FOR –Y22– PROFILE
SEE SHEET 69 FOR –CONN– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\nc601\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PLN_34_CONT.DGN
DATE: 4/5/2011 5:30:10 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	35
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
KIMLEY-HORN AND ASSOCIATES — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing Sheet 57 of 108

SITE 15

NC GRID NAD 83

MATCH TO SHEET 34 – –Y22– POC 83+50.00

MATCH TO SHEET 35A – –Y26– POC 15+00.00

137 C J GARRISON & MARY T GARRISON REV/TRUST

163 JANET ELAINE & CHARLES MICHAEL BLANCHARD

164 RICHARD MICHAEL & DIXIE ANN MCCOY

165

166 HICKORY GROVE BAPTIST CHURCH

TOE PROTECTION CL. B RIP RAP SEE DETAIL M6

LATERAL BASE DITCH W/PSRM SEE DETAIL LB7

CLASS B RIP RAP EST. 3 TNS RR EST. 10 SY FF

CLASS B RIP RAP EST. 4 TNS RR EST. 14 SY FF

15" CSP W/ELBOWS

15" RCP-IV

SPECIAL CUT DITCH w/HINGE SEE DETAIL SC21

SPECIAL CUT DITCH SEE DETAIL SC3

–Y22–

N 67° 58' 22.6" E

BEGIN SBG STA. 1462+28 –L– RT

CLASS B RIP RAP EST. 3 TNS RR EST. 17 SY FF

CLASS B RIP RAP EST. 1 TNS RR EST. 5 SY FF

OUTLET CONTROL STRUCTURE

EMERGENCY SPILLWAY (EL. = 700.50)

DETENTION STORAGE GRADE TO ELEV. 698.00 (SEE CROSS SECTIONS)

CLASS B RIP RAP EST. 1 TNS RR EST. 5 SY FF

FILL EX. CHANNEL

S 22° 01' 37.4" E

GRADE TO DRAIN

OBLITERATE EX. DITCH

CLASS B RIP RAP EST. 2 TNS RR EST. 7 SY FF

RETAIN EX. DITCH

6' BASE LATERAL DITCH W/CL. II RIP RAP SEE DETAIL LB34

4' BASE LATERAL DITCH W/CL. I RIP RAP SEE DETAIL LB4

15" CSP W/2 ELB, ROD & LUG W/ SLEEVE GASKETS

CLASS B RIP RAP EST. 2 TNS RR EST. 7 SY FF

LATERAL 'V' DITCH SEE DETAIL LV14

LATERAL 'V' DITCH W/PSRM SEE DETAIL LV13

SPECIAL LATERAL 'V' DITCH W/PSRM SEE DETAIL SV1

48" RCP-IV

CLASS I RIP RAP ON BANKS ONLY SEE DETAIL M33

–Y26–

REMOVE

72" CMP

72" CML

1800 mm CML

15" HDPE

24" RCP

PUE

EXISTING R/W

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEET 74 & 75 FOR –Y22 PROFILE
SEE SHEET 76 FOR –Y26– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

REVISIONS

FILE: R:\rocket\R2248E\Hydraulics\PERMITS_Environmental\Drawings\R2248E_RDY_PH_35.DGN
DATE: 4/5/2011 5:30:22 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	35

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 58 of 108

SITE 15

NC GRID NAD 83

MATCH TO SHEET 34 – –Y22– POC 83+50.00

MATCH TO SHEET 35A – –Y26– POC 15+00.00

137 C J GARRISON & MARY T GARRISON REV TRUST

163 JANET ELAINE & CHARLES MICHAEL BLANCHARD

164 RICHARD MICHAEL & DIXIE ANN MCCOY

165

166 HICKORY GROVE BAPTIST CHURCH

CLASS B RIP RAP EST. 3 TNS RR EST. 10 SY FF

CLASS B RIP RAP EST. 4 TNS RR EST. 14 SY FF

15" CSP W/ ELBS

15" RCP-IV

18" RCP-III

2GI

FS

CLASS B RIP RAP EST. 3 TNS RR EST. 17 SY FF

OUTLET CONTROL STRUCTURE

EMERGENCY SPILLWAY (EL. = 700.00)

CLASS B RIP RAP EST. 1 TNS RR EST. 5 SY FF

DETENTION STORAGE GRADE TO ELEV 698.00 (SEE CROSS SECTIONS)

PDE

72" RCP-IV

15" CSP W/ 2 ELB, ROD & LUG W/ SLEEVE GASKETS

CLASS B RIP RAP EST. 2 TNS RR EST. 7 SY FF

45° CSP ELBOWS

RCP

HW

TOE

CLASS I RIP RAP ON BANKS ONLY SEE DETAIL M33

REM

REMOVE

GRADE TO DRAIN

CLASS B RIP RAP EST. 2 TNS RR EST. 7 SY FF

CAT-1

15" RCP-III

WINDSTREAM COMM.

PUE

15" HDPE

12" CMP

72" CML

1800 mm CML

–Y22–

–Y26–

N 67° 58' 22.6" E

S 22° 01' 37.4" E

79.248
N64° 49' 49"E

N 66° 38' 02"E

LEGEND

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATERS
- DENOTES TEMPORARY IMPACTS IN SURFACE WATERS

SEE SHEET 74 & 75 FOR –Y22 PROFILE
SEE SHEET 76 FOR –Y26– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

REVISIONS

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DATE: 4/5/2011 5:30:39 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	39
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 59 of 108

-L-

SITE 4

838.86

PROPOSED GRADE

(-)12.4000%

807.66

SPECIAL LATERAL DITCH

SPECIAL 3' LATERAL BASE DITCH

2' LATERAL BASE DITCH

4' BASE DITCH

795.17
1296+13 (LT)
BEGIN GRADE

795.10
1296+50 (LT)
END GRADE

794.00
1296+63 (LT)
END GRADE

794.50
1297+00 (LT)

803.34
1299+00 (LT)

(+) 9.12%

(+) 4.42%

(+) 1.35%

(-) 0.0%

(+) 1.27%

811.46
1300+00 (LT)
BEGIN GRADE

810.76
1301+00 (LT)
BEGIN GRADE

806.32
1301+73 (LT)

809.86
1304+50 (LT)
END GRADE

1 @ 84" CLASS V RCP (INLET END)

EXISTING GROUND

SEE SHEET 8 FOR -L-

-L- STA. 1294+00.00 TO 1307+00.00

1294 1295 1296 1297 1298 1299 1300 1301 1302 1303 1304 1305 1306 1307

BM1 ELEV 822.80
N 593366 E 1461574
-L- STA 1310+61.65 (216.51 RT)
RR SPIKE IN BASE OF 26" OAK

-L-

807.66

(-)12.4000%

PI = 1310+00.00
EL = 800.46'
VC = 250'
K = 195
Vs = 70mph

L = POT. STA. 1311+34.46
Y1 = POT. STA. 1311+38.99

(-)11.2000%

EXISTING GROUND

PROPOSED GRADE

789.29

SEE SHEET 9 FOR -L-

-L- STA. 1307+00.00 TO 1320+00.00

1307 1308 1309 1310 1311 1312 1313 1314 1315 1316 1317 1318 1319 1320

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	40
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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KIMLEY-HORN AND ASSOCIATES 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 60 of 108

-L-

EXISTING GROUND

PROPOSED GRADE

(-)1.2000%

77926

77470

SEE SHEET 10 FOR -L-

-L- STA. 1320+00.00 TO 1333+00.00

850 840 830 820 810 800 790 780 770 760

1320 1321 1322 1323 1324 1325 1326 1327 1328 1329 1330 1331 1332 1333

BM2 ELEV 783.06
N 593678 E 1464186
-L- STA 1336+91.38 (311.35 RT)
RR SPIKE IN BASE OF 24" OAK

-L-

SITE 5

SITE 6

EXISTING GROUND

PROPOSED GRADE

(-)1.2000%

(+)0.6000%

77470

76401

PI = 1343+75.00
EL = 762.66'
VC = 350'
K = 203
Vs = 70mph

-RCP/ITA- ST. Sta. 0+00.00 - 7.00' RT.
& TOC Sta. 3+45.00 RT.

1 @ 8' X 7' RCBC (INV. BURIED 1.0')
(INLET END)

1 @ 9' X 7' RCBC (INV. BURIED 1.0')
(INLET END)

PROP. 1 @ 12' X 8' PEDESTRIAN RCBC
STA. 1344+38 -L- LT.)

SEE SHEET 11 FOR -L-

-L- STA. 1333+00.00 TO 1346+00.00

810 800 790 780 770 760 750 740 730 720

1333 1334 1335 1336 1337 1338 1339 1340 1341 1342 1343 1344 1345 1346

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	41
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 61 of 108

-L-

-L- PI 1347+60.00
-L- POT Sta.1347+60.00
-NRBYTA- CS Sta.10+00.00 - 7100' LT.=

764.01

(+)0.6000%

PROPOSED GRADE

777.81

SITE 7

EXISTING GROUND

1 @ 84" CLASS IV RCP

SEE SHEET 12 FOR -L-

-L- STA. 1346+00.00 TO 1359+00.00

1346 1347 1348 1349 1350 1351 1352 1353 1354 1355 1356 1357 1358 1359

BM3 ELEV 777.43
N 594206 E 1466820
-L- STA 1363+70.46 (159.14 LT)
RR SPIKE IN BASE OF 14" PINE

-L-

-L- PI 1349+45.34=
-L- POT Sta.1349+71.50
-NRBYTA- CS Sta.49+45.34=

777.81

EXISTING GROUND

(+)0.6000%

PROPOSED GRADE

779.50

SEE SHEET 12 FOR -L-

-L- STA. 1346+00.00 TO 1372+00.00

1359 1360 1361 1362 1363 1364 1365 1366 1367 1368 1369 1370 1371 1372

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	45
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

Permit Drawing
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BM23 ELEV 756.34
N 593133 E 1475705
-L- STA 1452+72.33 (464.15 LT)
RR SPIKE IN BASE OF 18" OAK

-L-

EXISTING GROUND

PROPOSED GRADE

750.73

(-)12.2720%

722.82

SEE SHEET 18 FOR -L-

-L- STA. 1450+00.00 TO 1463+00.00

BM7 ELEV 699.90
N 591893 E 1477178
-L- STA 1471+41.24 (0.28 LT)
RR SPIKE IN BASE OF 12" OAK

-L-

PI = 1464+00.00
EL = 720.41'
VC = 350'
K = 209
Vs = 75mph

722.82

(-)12.2720%

(-)0.6000%

SITE 11

BEGIN BRIDGE
-L- POT 1465+40.00

END BRIDGE
-L- POT 1470+01.25

PROPOSED GRADE

EXISTING GROUND

693.90
1472+17 (RT)
END GRADE

(+) 0.3%

694.15
1473+00 (RT)

(-) 0.4%

694.30
1473+38 (RT)
BEGIN GRADE

PI = 1475+50.00
EL = 713.5'
VC = 250'
K = 202

713.57

(+)0.6400%

(-)0.6000%

SEE SHEET 19 FOR -L-

-L- STA. 1463+00.00 TO 1476+00.00

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	73
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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KIMLEY-HORN AND ASSOCIATES, INC. 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 63 of 108

–Y22–

BEGIN GRADE
STA 38+70.00 -Y22-
EL. 727.54

PI = 40+50.00
EL = 734.58'
VC = 275'
K = 35
Vs = 35mph

(+)3.9000%

(-)2.02%

(-)1.4000%

-Y22- POT Sta.42+44.30=
-Y23- POT Sta.10+00.00

PI = 43+25.00
EL = 723.58'
VC = 275'
K = 60
Vs = 35mph

-Y22- POT Sta.44+87.00=
-Y24- POT Sta.10+00.00

PI = 46+25.00
EL = 725.24'
VC = 300'
K = 78
Vs = 40mph

(+)0.5600%

(-)0.87%

(-)3.2800%

PROPOSED GRADE

EXISTING GROUND

STA. 39+50 -Y22- (RT)
ELEV. = 727.34

STA. 42+00 -Y22- (RT)
ELEV. = 722.29

STA. 46+50 -Y22- (RT)
ELEV. = 720.03

STA. 46+50 -Y22- (RT)
ELEV. = 719.16

713.57

SEE SHEET 32,33 FOR -Y22-

-Y22- STA. 38+70.00 TO 51+00.00

38 39 40 41 42 43 44 45 46 47 48 49 50 51

–Y22–

BM25 ELEV 692.01
N 590479 E 1478487
-Y22- STA 59+00.78 (583.84 RT)
RR SPIKE IN BASE OF 54" POPLAR

SITE 12

PI = 51+25.00
EL = 708.84'
VC = 600'
K = 97
Vs = 40mph

713.57

BEGIN BRIDGE
-Y22- POT 52+10.00

END BRIDGE
-Y22- POT 54+60.00

PROPOSED GRADE

(+)2.9200%

-Y22- POT Sta.57+72.75=
-SPOT22- POT Sta.36+49.09

-Y22- POT Sta.58+11.84=
-SPOT22- POT Sta.24+02.32

-Y22- POT Sta.62+18.75=
-RPOT22- POT Sta.24+58.05

-Y22- POT Sta.63+04.75=
-RPOT22- POT Sta.31+14.16

BEGIN BRIDGE
-Y22- POT 63+13.47

745.20

EXISTING GROUND

SEE SHEET 20,33 FOR -Y22-

-Y22- STA. 51+00.00 TO 64+00.00

51 52 53 54 55 56 57 58 59 60 61 62 63 64

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DATE: 3/4/2011 11:12:22 AM

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PROJECT REFERENCE NO.	SHEET NO.
R-2248E	75
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

Permit Drawing
Sheet 64 of 108

–Y22–

END GRADE
STA 99+00.00 -Y22-
EL. 713.35

PI = 94+75.00
EL = 725.93'
VC = 500'
K = 64
Vs = 45mph

(+)4.8800% (–)2.9600%

(-) 2.92%

(-) 0.30%

705.70

713.10
93+00 (LT)
END GRADE

714.56
93+50 (LT)

715.37
96+20.20 (LT)
BEGIN GRADE

SEE SHEET 35 FOR -Y22-

-Y22- STA. 90+00.00 TO 97+50.00

–Y25–

BEGIN GRADE
STA 10+20.00 -Y25- =
STA 14+92.99 -Y24-
EL. 729.37

PI = 15+00.00
EL = 733.21'
VC = 400'
K = 63
Vs = 45mph

(+)0.8000%

(+)0.78%

EXISTING GROUND

PROPOSED GRADE

STA. 10+36 -Y25- (RT)
ELEV. = 726.6

STA. 11+00 -Y25- (RT)
ELEV. = 727.10

PI = 20+00.00
EL = 705.21'
VC = 100'
K = 83
Vs = 45mph

(-)1.16%

(-)4.04%

(-)4.4000%

STA. 18+00 -Y25- RT
ELEV. = 713.33

STA. 19+00 -Y25- RT
ELEV. = 706.21

STA. 20+50 -Y25- RT
ELEV. = 700.15

SEE SHEET 32,33 FOR -Y25-

-Y25- STA. 10+00.00 TO 21+16.00

END GRADE
STA 24+40.00 -Y25-
EL. 694.36

PI = 23+25.00
EL = 690.91'
VC = 230'
K = 37
Vs = 25mph

SITE 14

(+)5.0000%

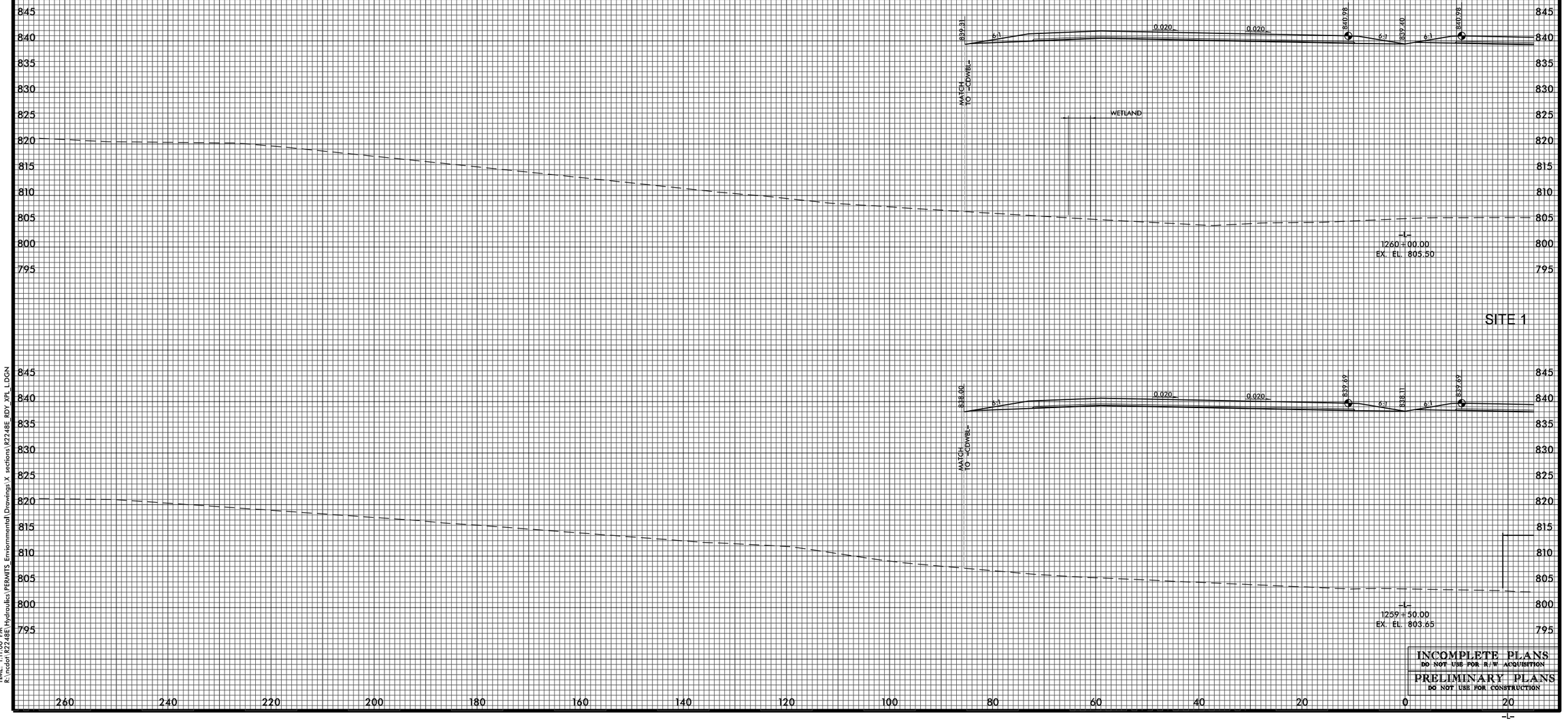
2.0' LOW FLOW SILL
PROPOSED 1 @ 7'X 8' RCBC
W/BURIED 1'-2.0' LOW FLOW SILL
IN LINE AHEAD BARREL

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BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-4	457

Permit Drawing
Sheet 65 of 108

SITE 1



SITE 1

DATE: 3/4/2011
TIME: 1:11:00 PM
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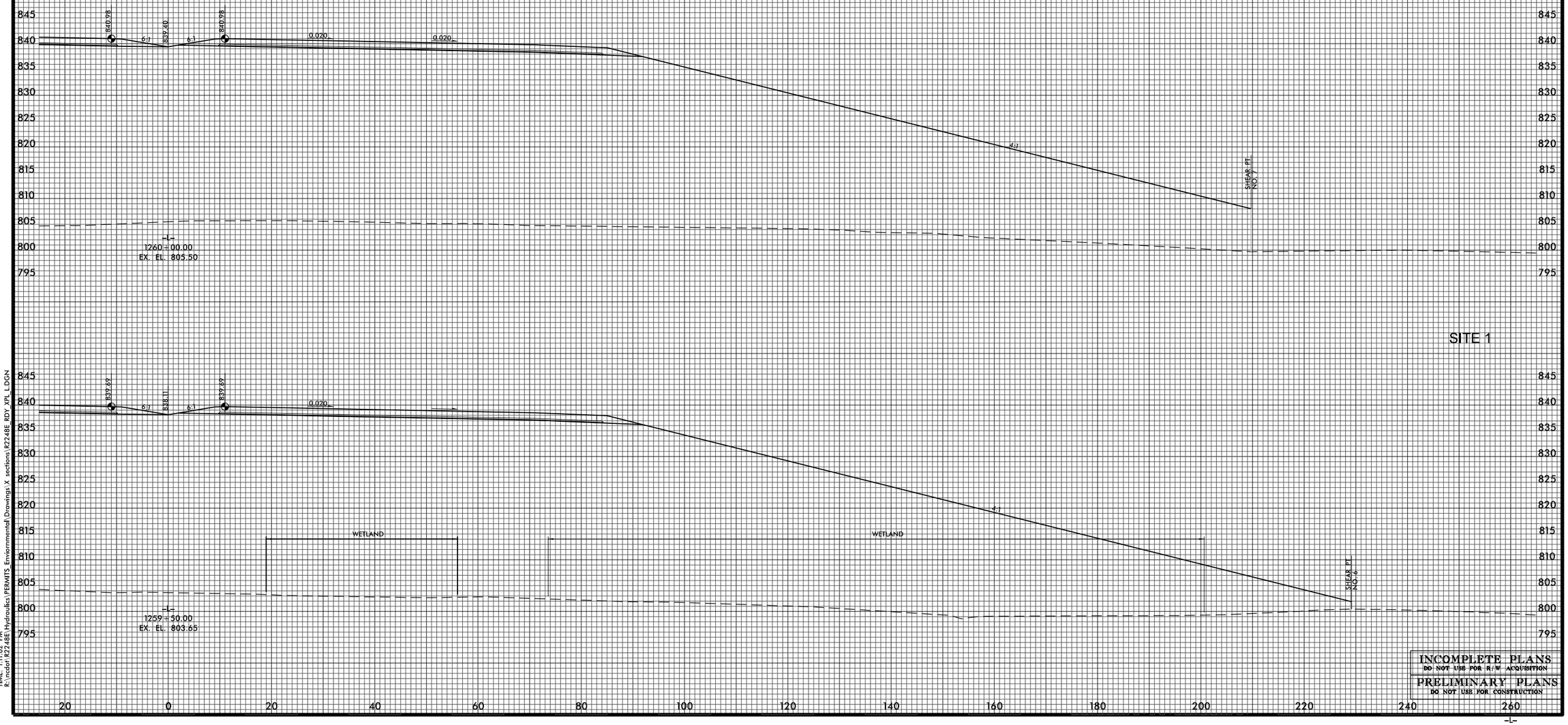
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-4A	457

Permit Drawing
Sheet 66 of 108



SITE 1

INCOMPLETE PLANS
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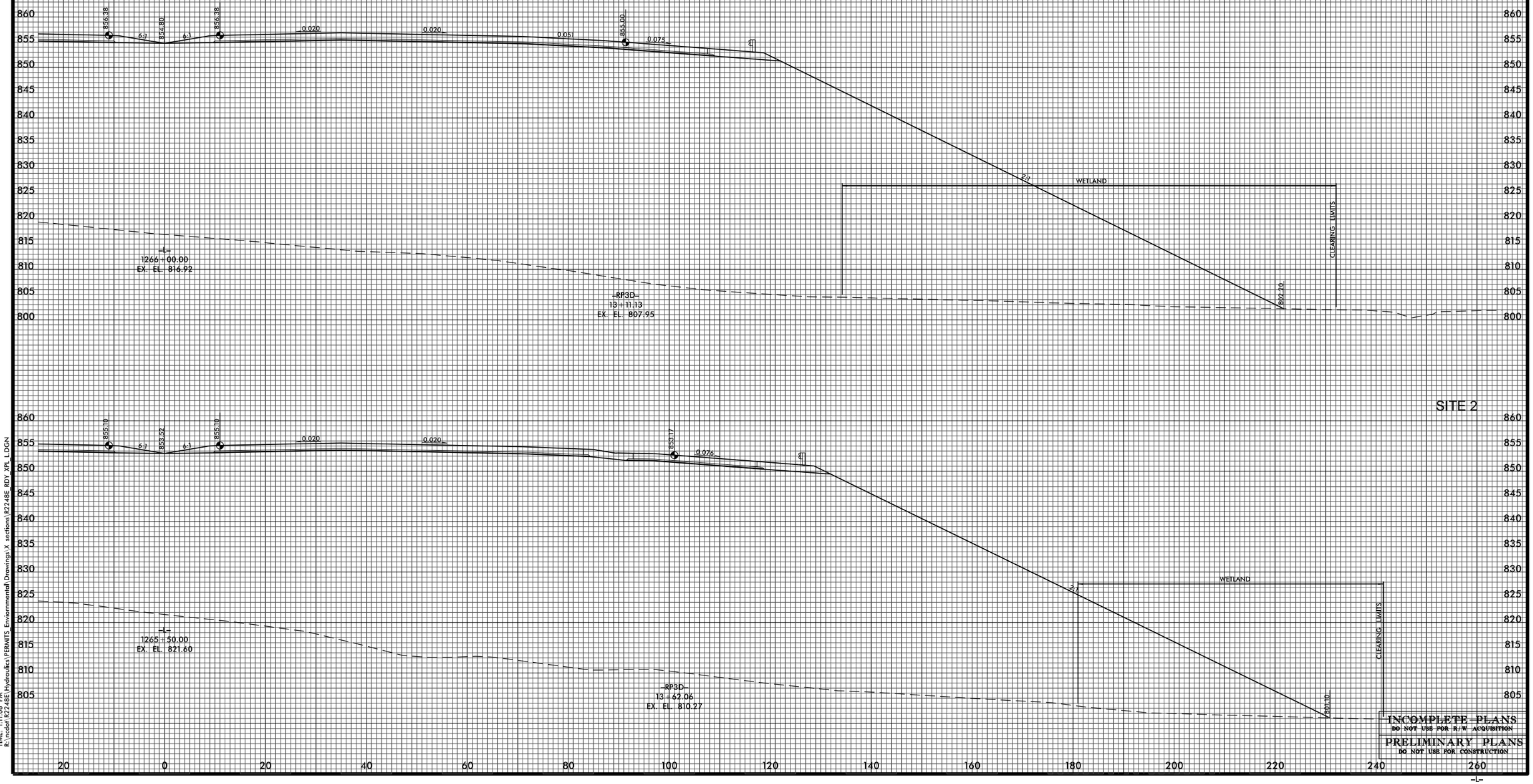
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DO NOT USE FOR CONSTRUCTION

DATE: 3/14/2011
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BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
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Permit Drawing
Sheet 67 of 108

SITE 2



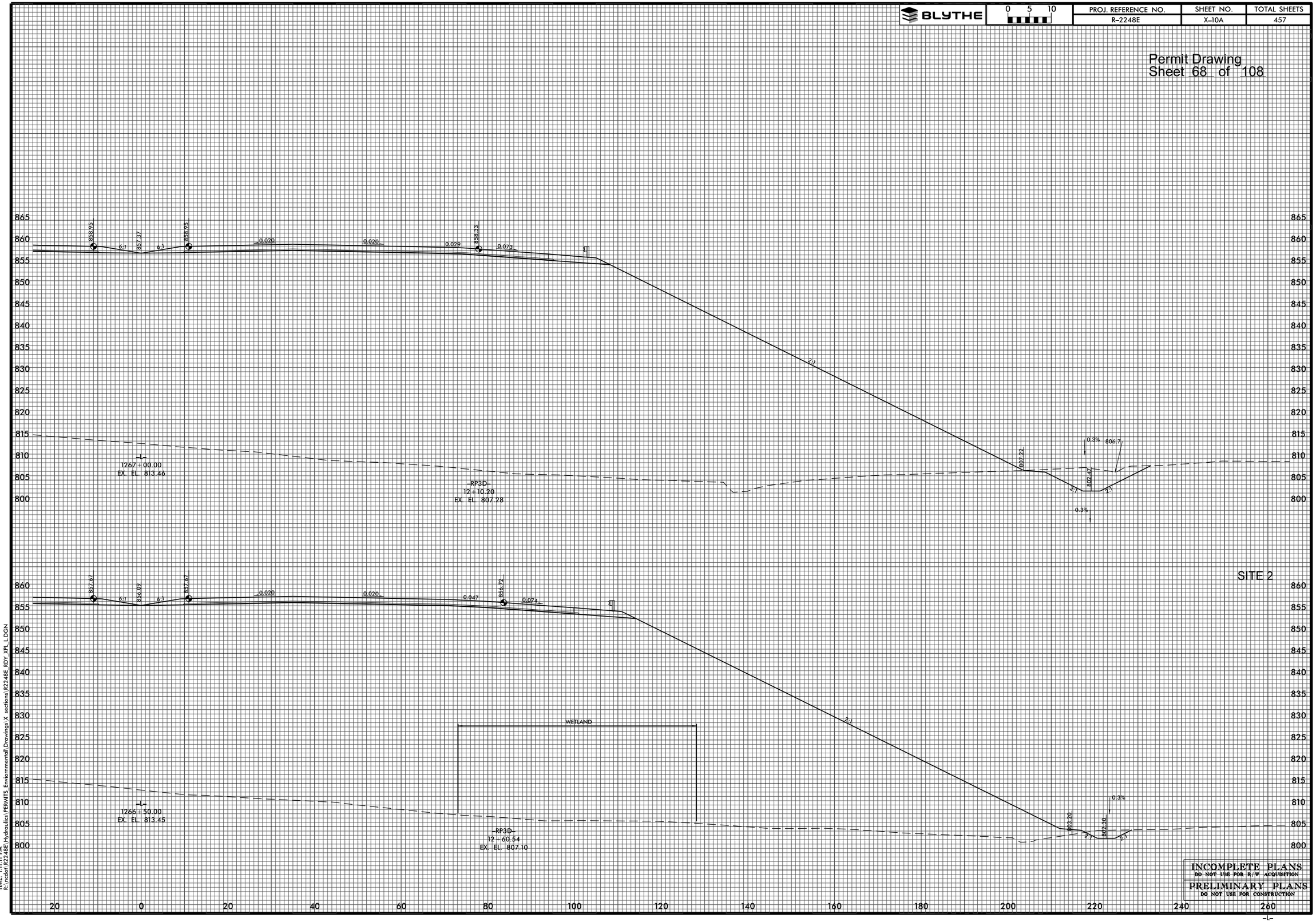
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-10A	457

Permit Drawing
Sheet 68 of 108



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

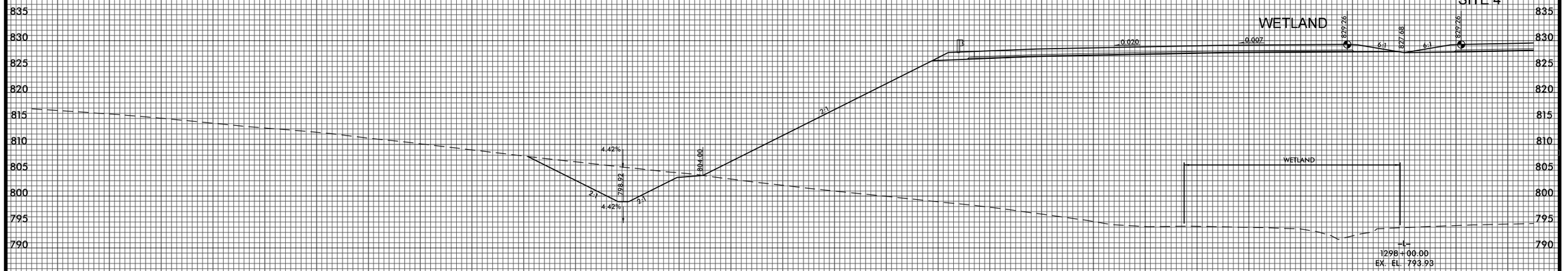
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DATE: 3/4/2011
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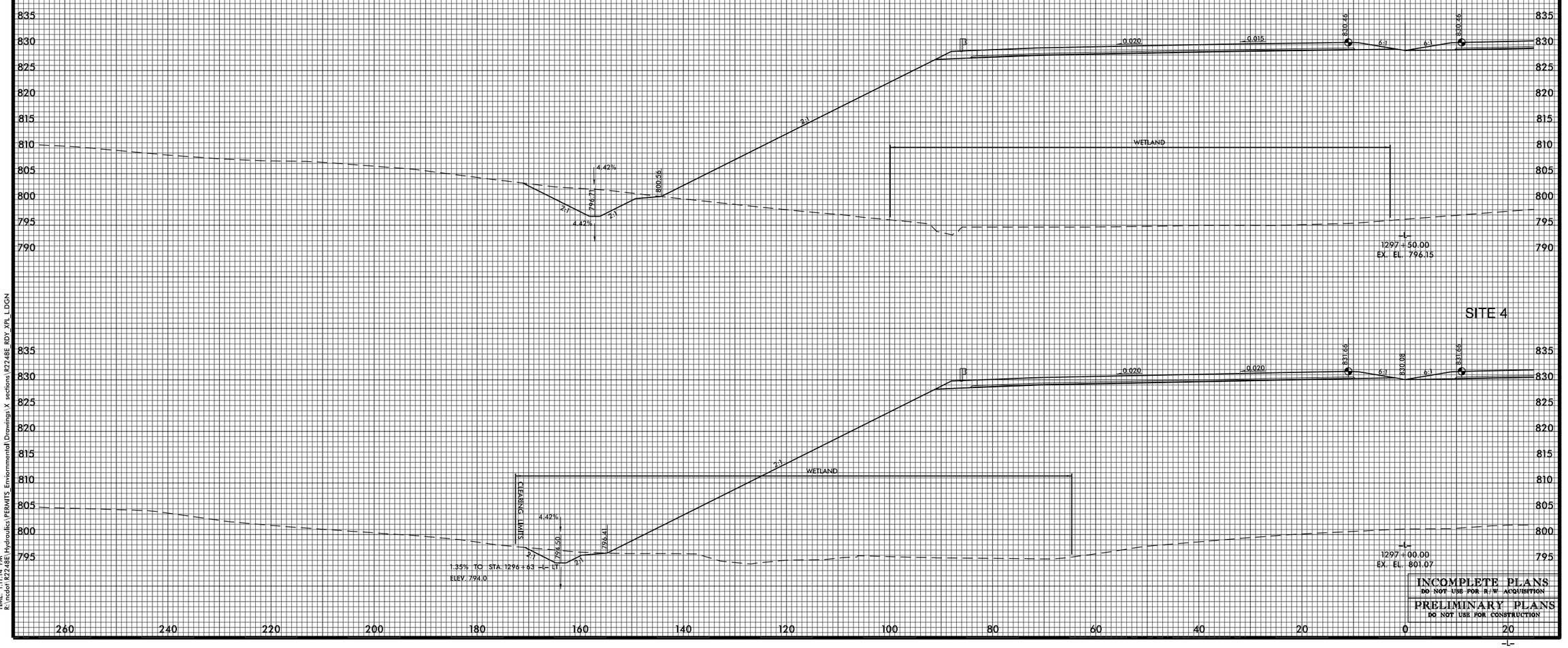
BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-31	457

Permit Drawing
Sheet 69 of 108

SITE 4



SITE 4



SITE 4

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

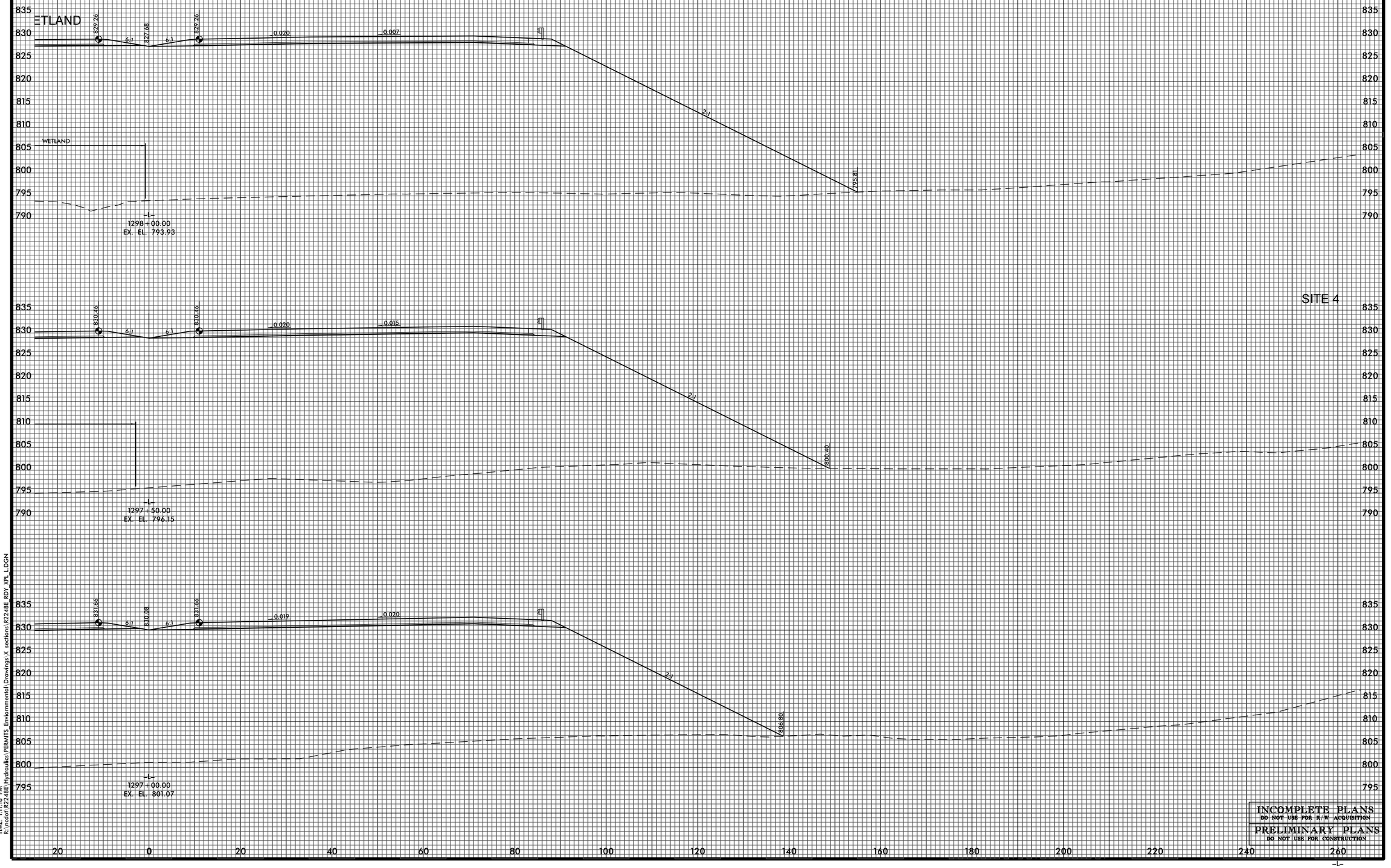
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DO NOT USE FOR CONSTRUCTION

DATE: 3/4/2011
TIME: 1:11:14 PM
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BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-31A	457

Permit Drawing
Sheet 70 of 108

SITE 4



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

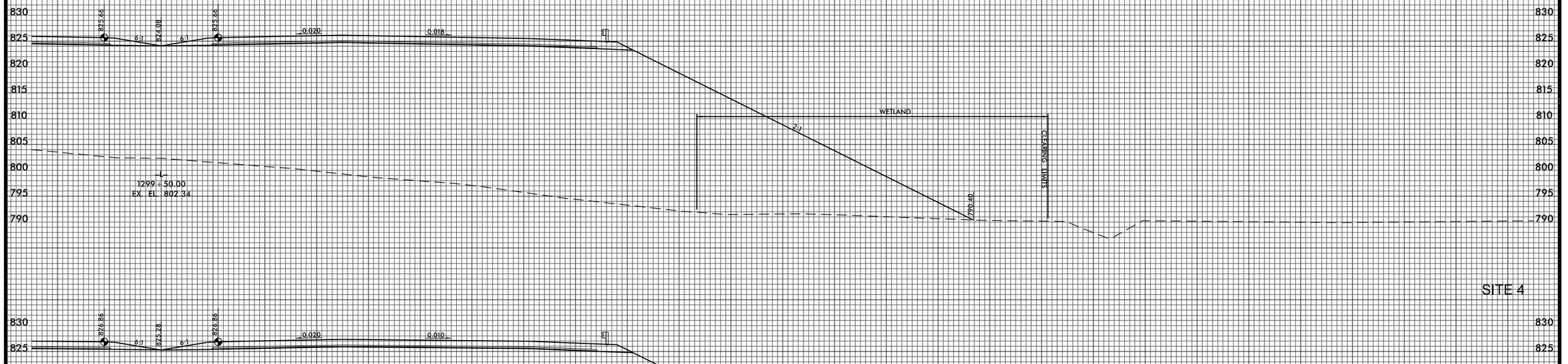
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DATE: 3/4/2011
TIME: 1:11:16 PM
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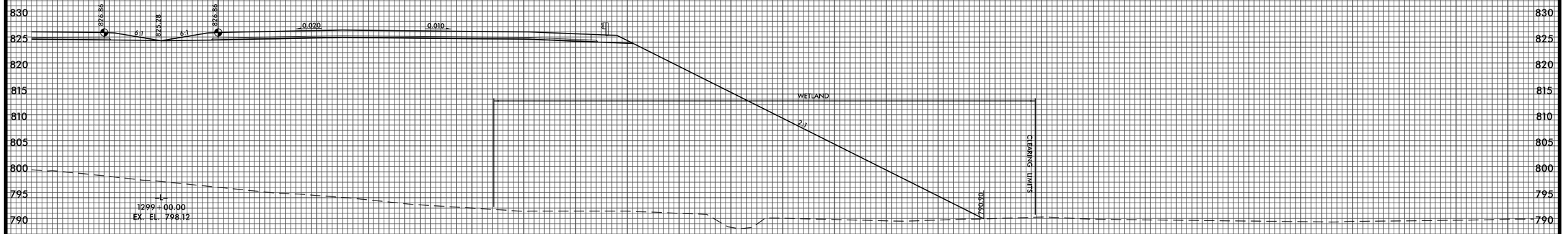
BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-32A	457

Permit Drawing
Sheet 71 of 108

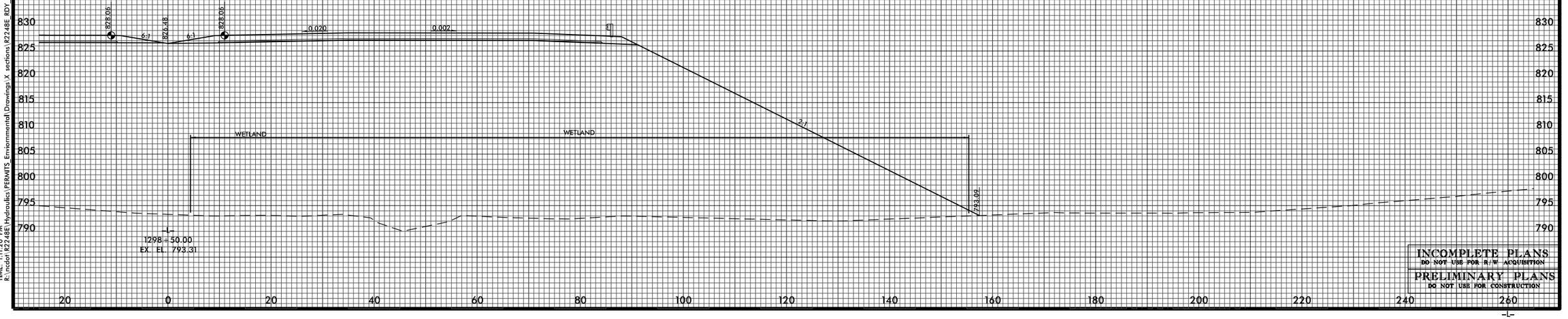
SITE 4



SITE 4



SITE 4



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
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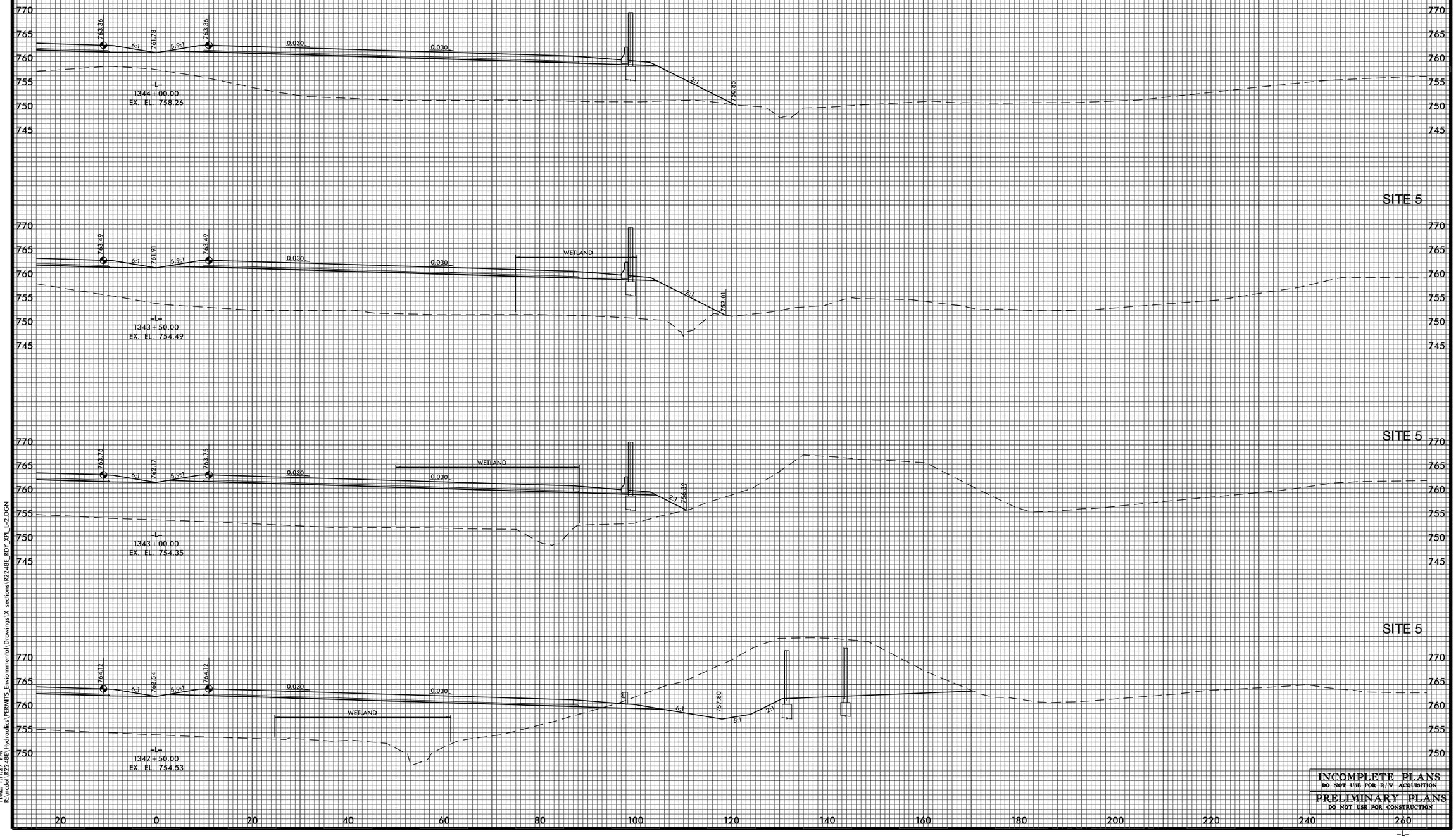
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BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-58A	457

Permit Drawing
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DATE: 3/4/2011
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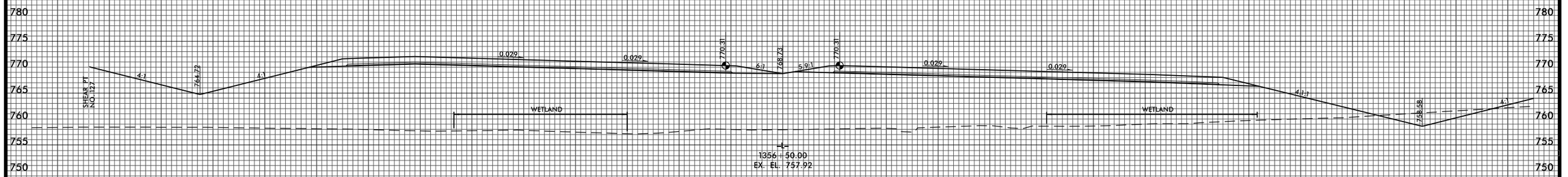
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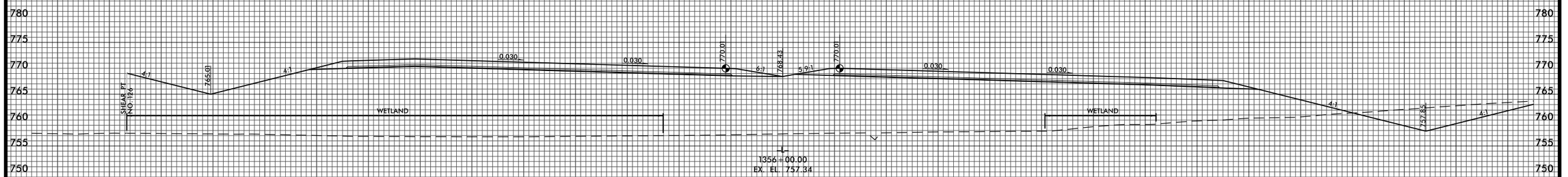
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Permit Drawing
Sheet 73 of 108

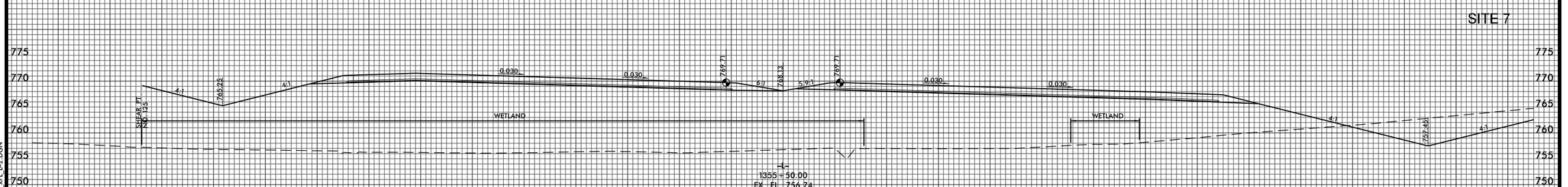
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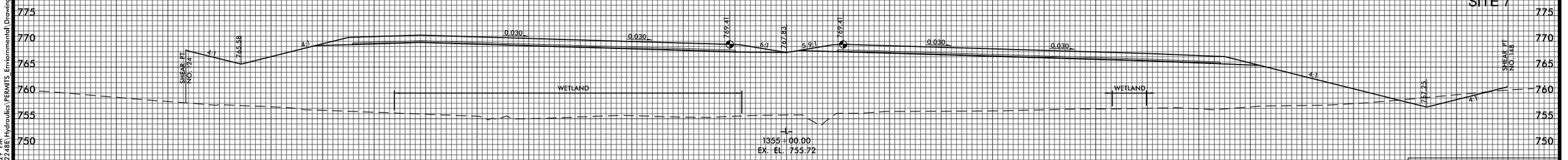
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INCOMPLETE PLANS
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

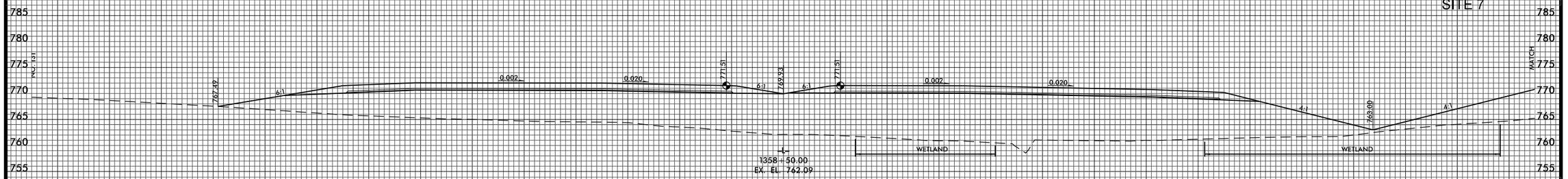
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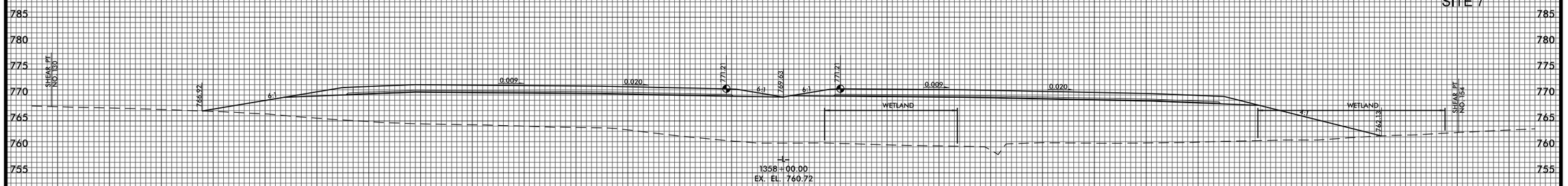
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Permit Drawing
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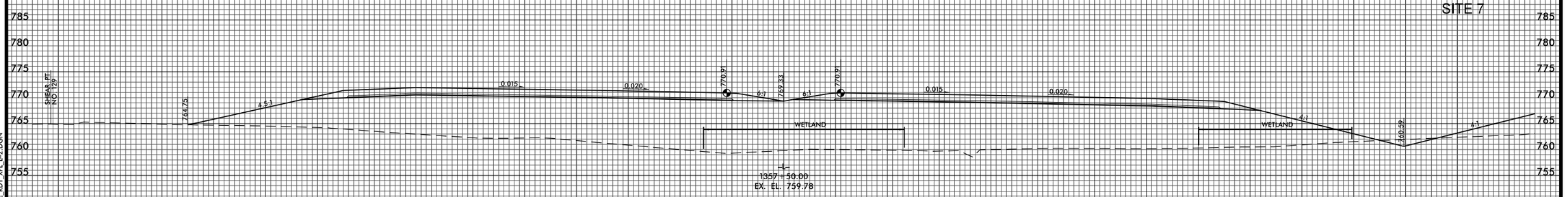
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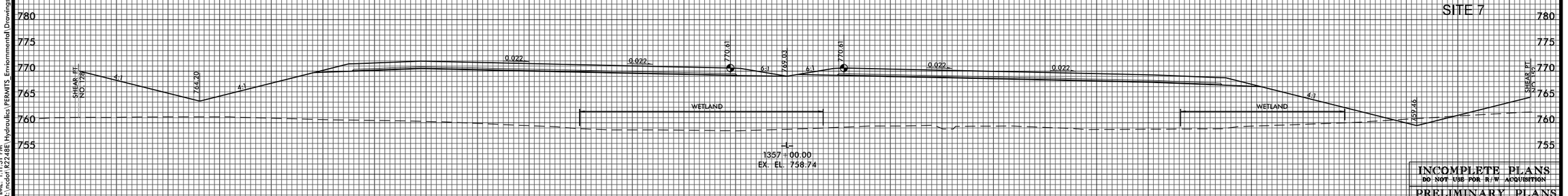
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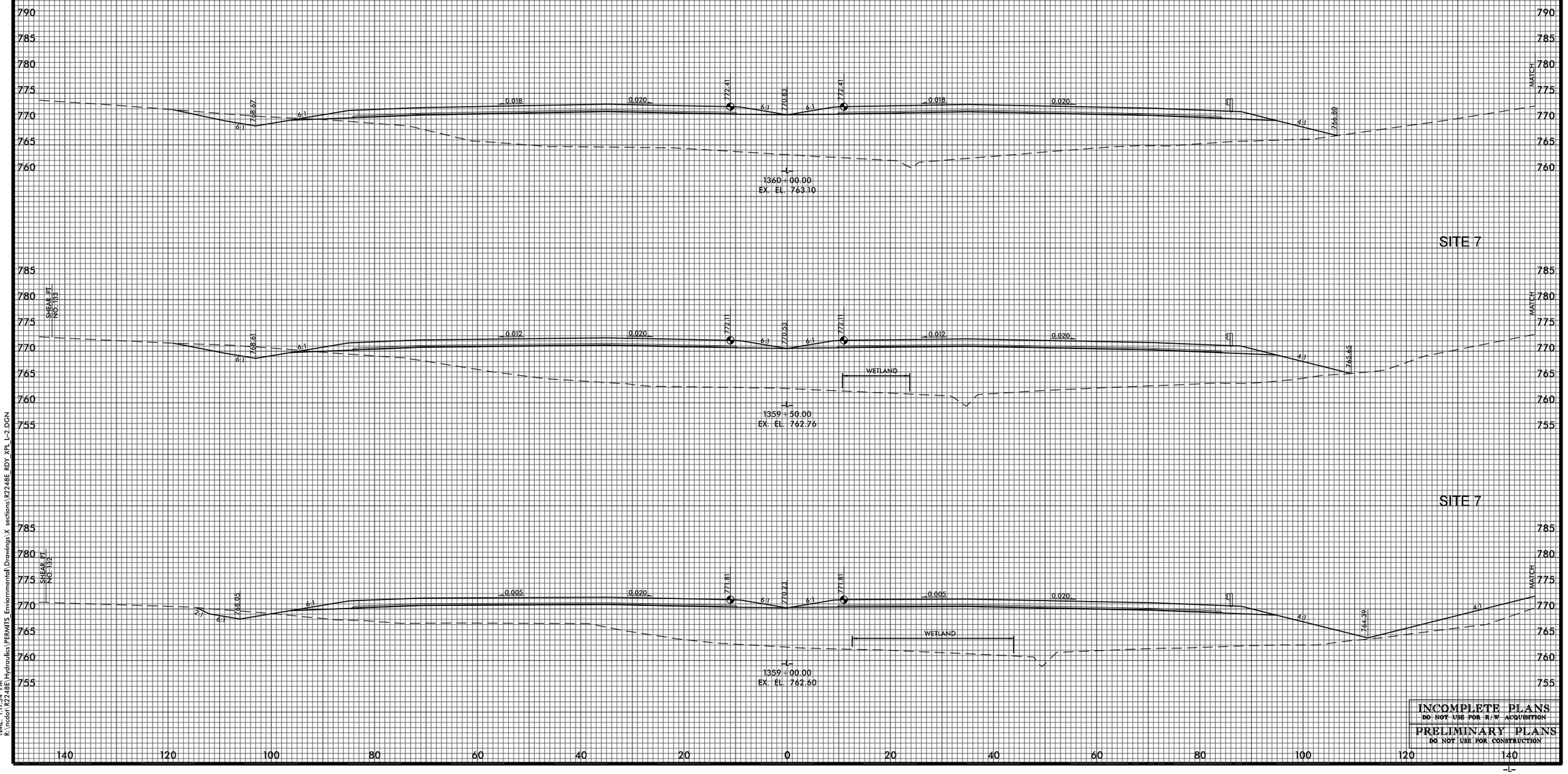
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Permit Drawing
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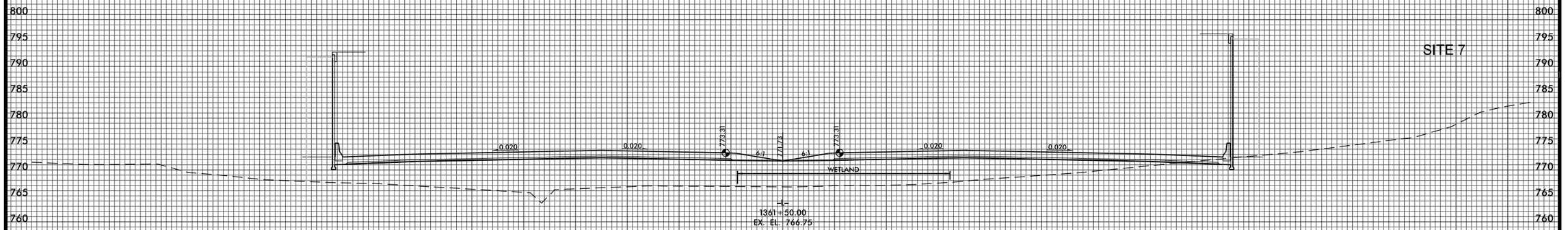
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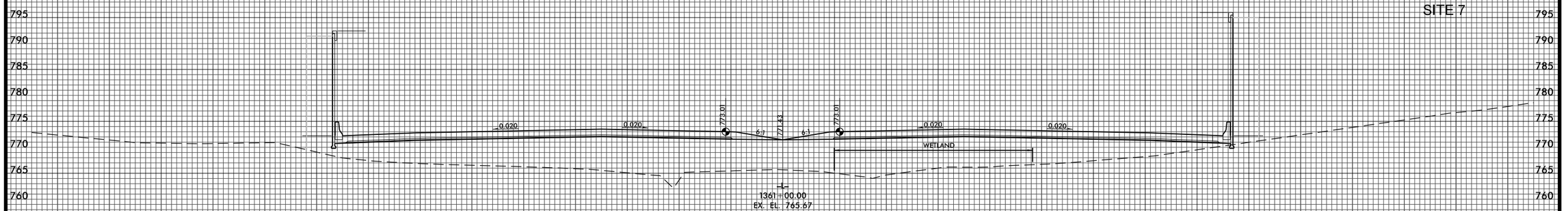
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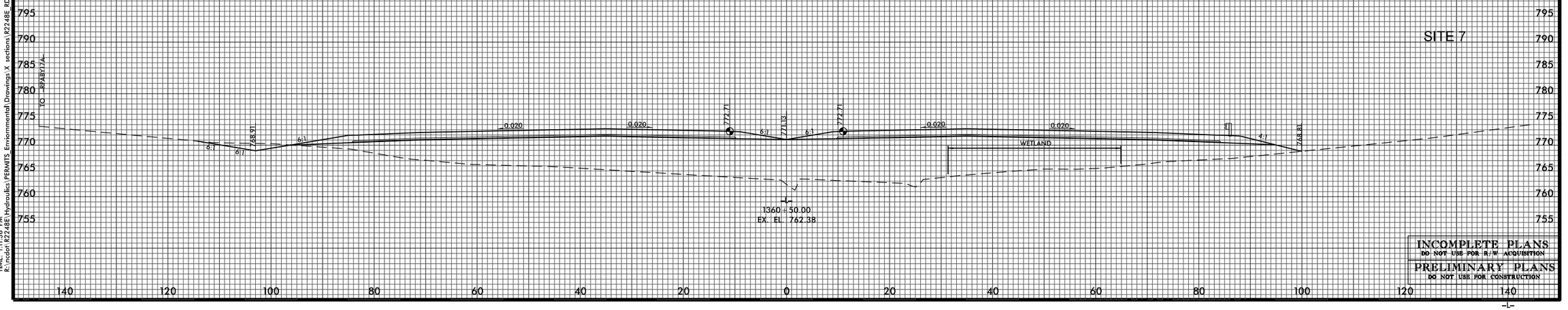
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BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
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Permit Drawing
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DATE: 3/4/2011
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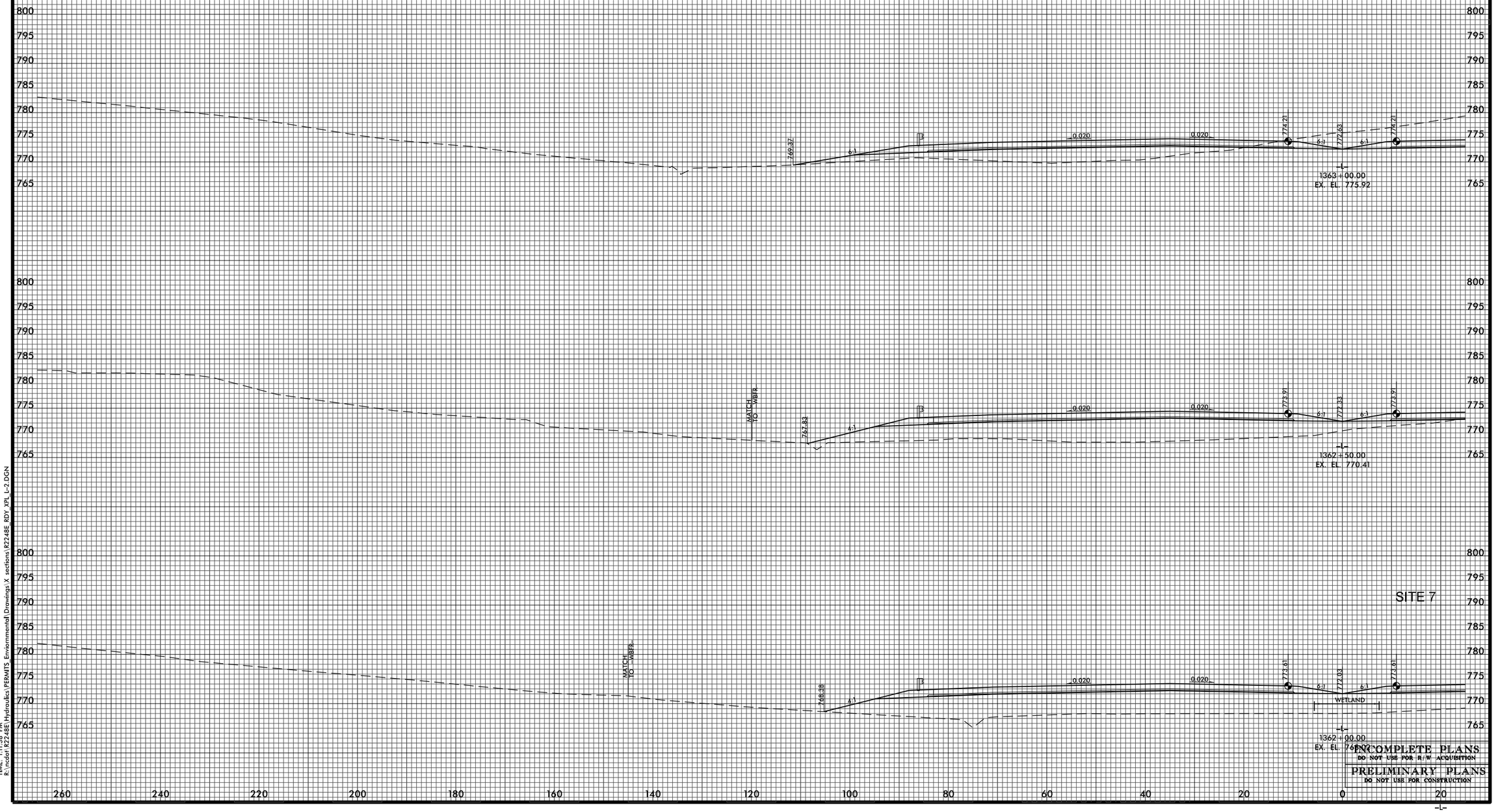
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DO NOT USE FOR CONSTRUCTION

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BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
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Permit Drawing
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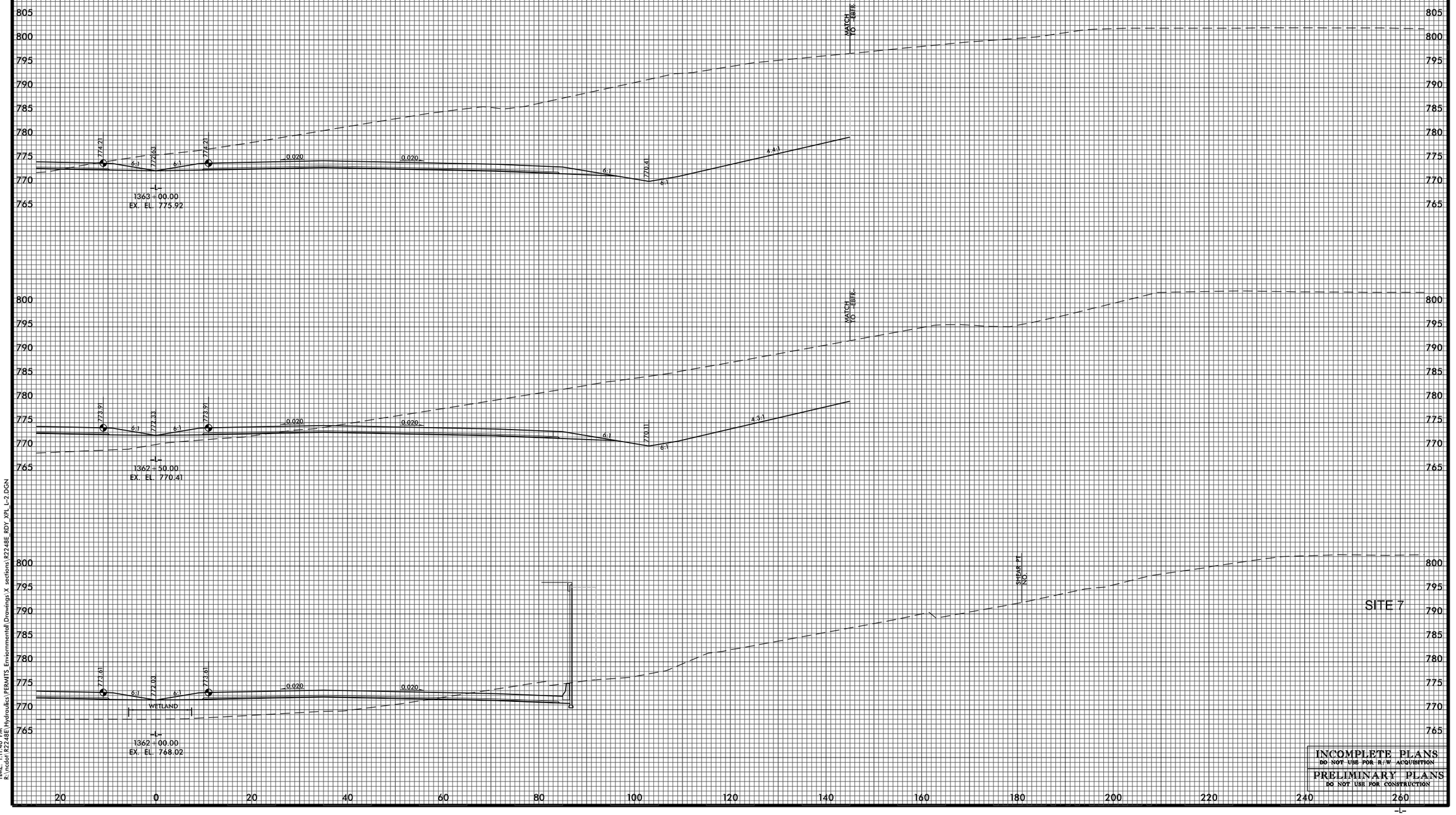
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
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Permit Drawing
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

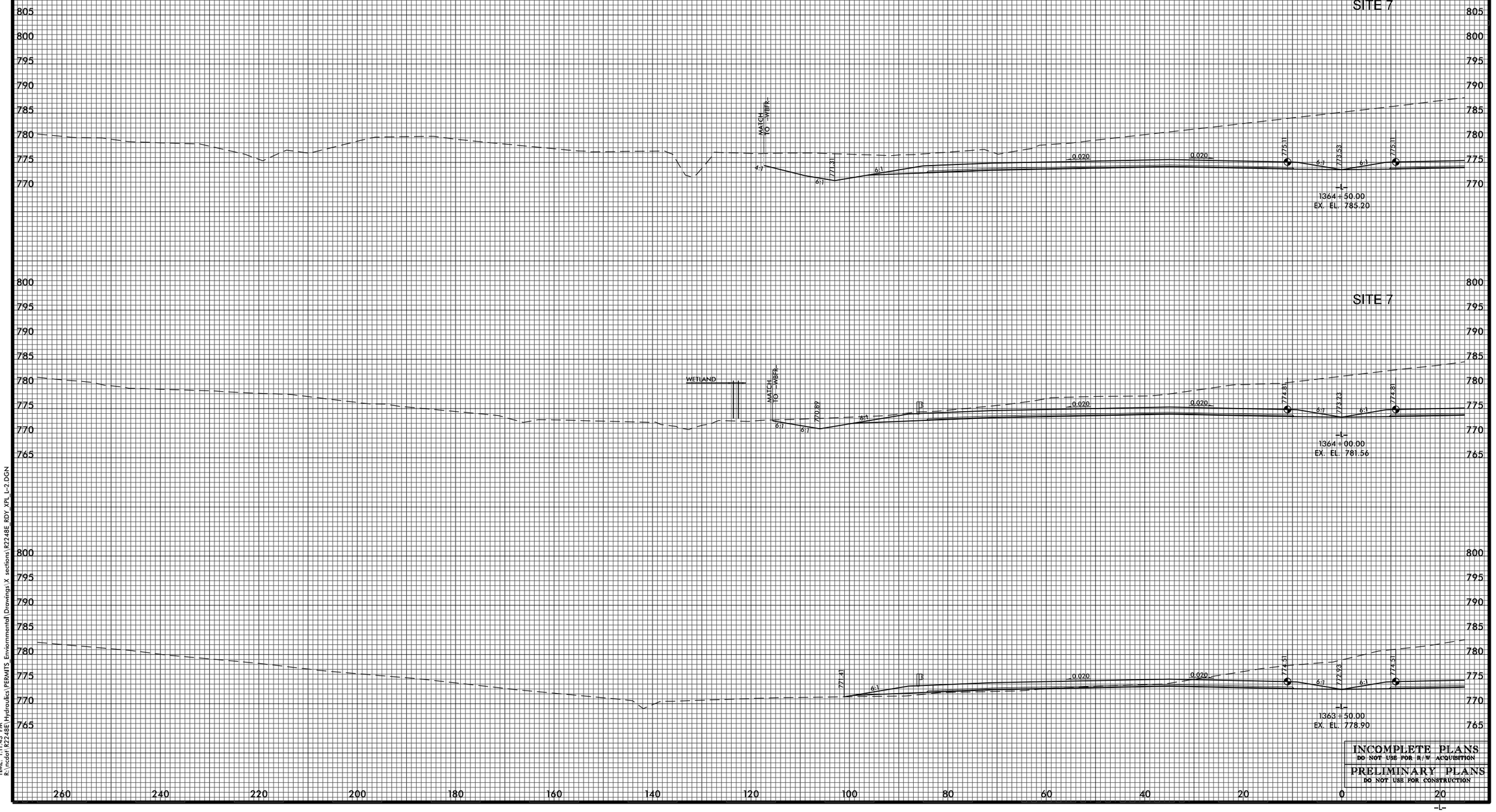
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Permit Drawing
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SITE 7



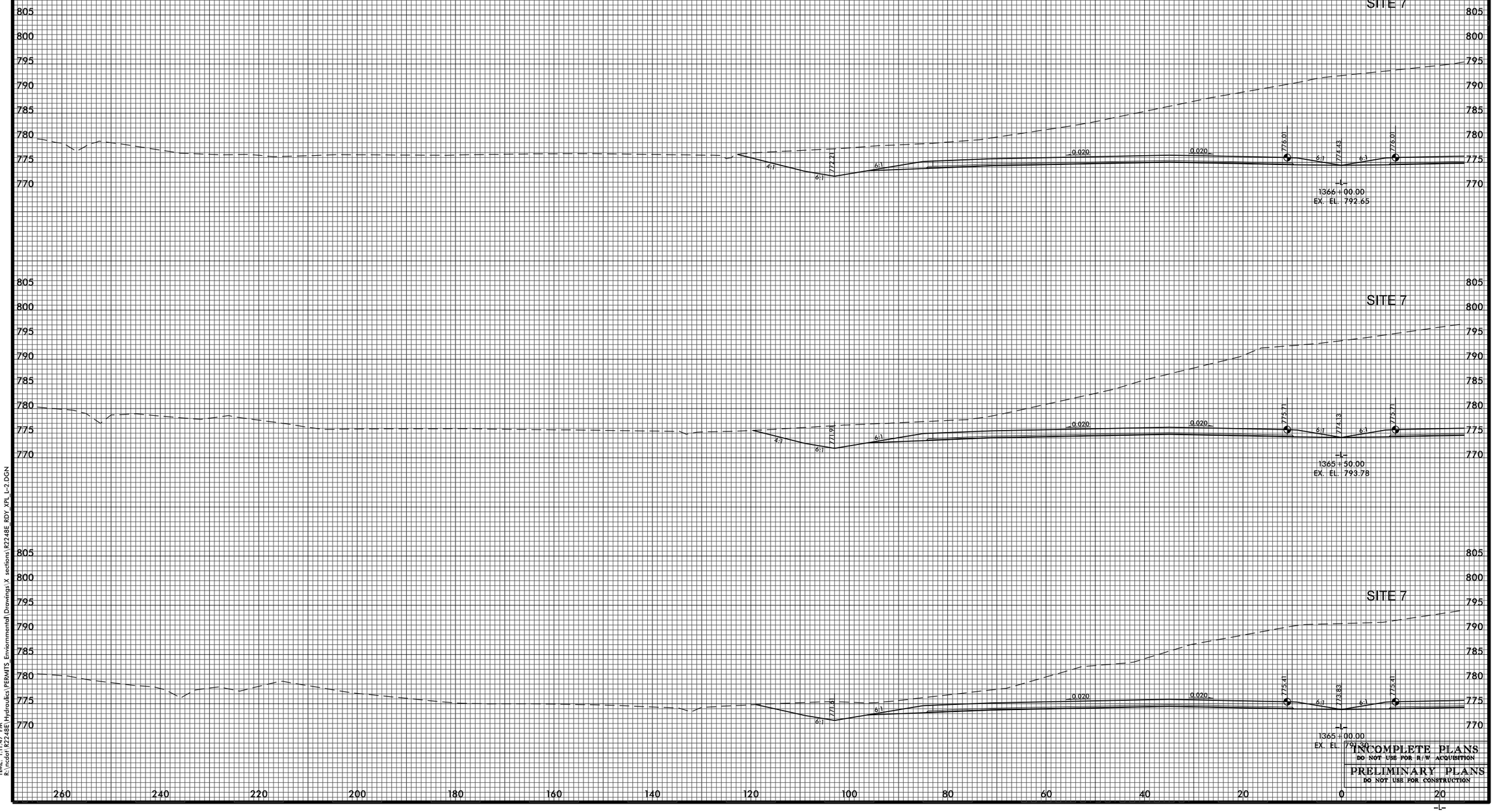
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Permit Drawing
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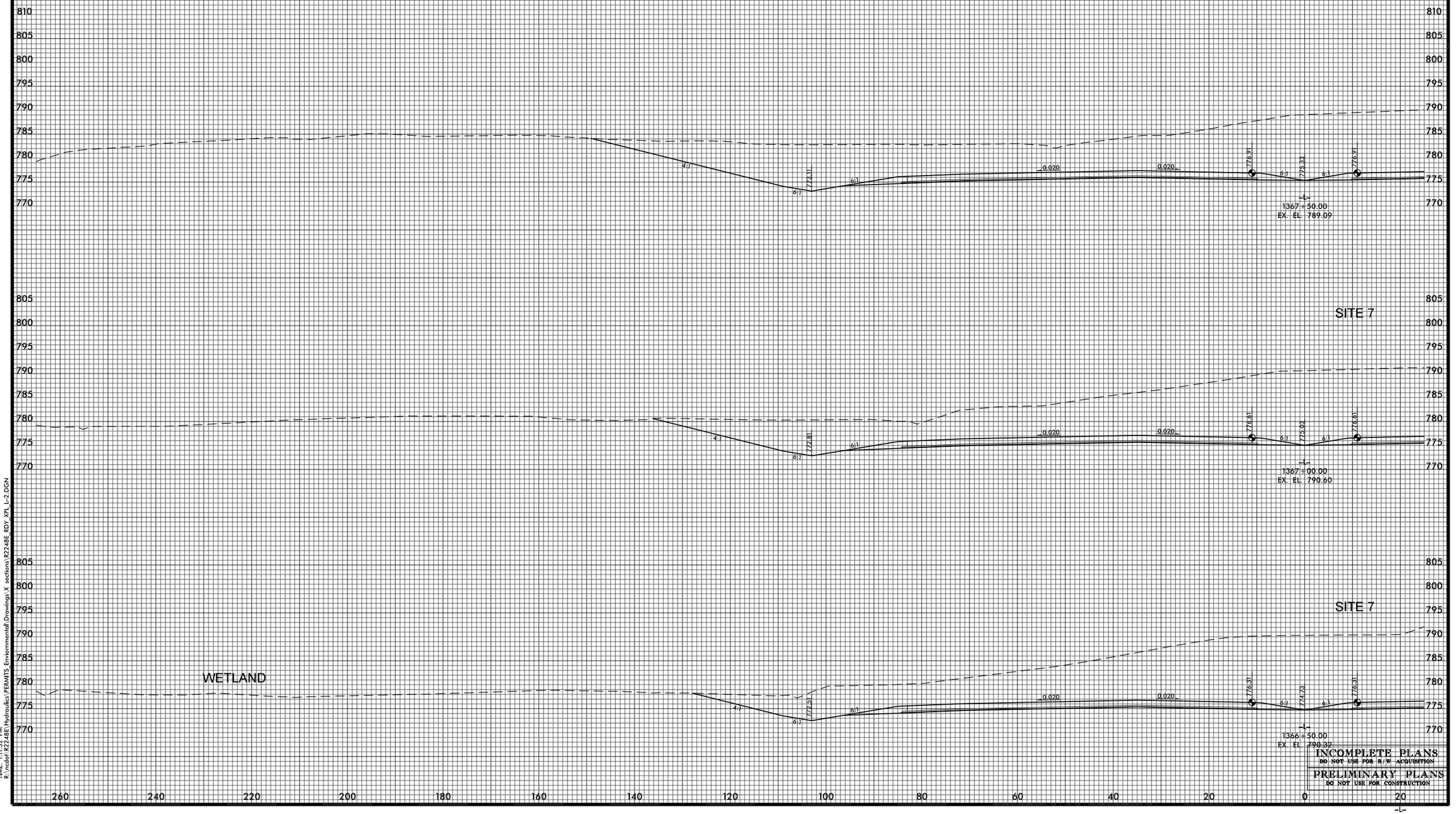
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
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Permit Drawing
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

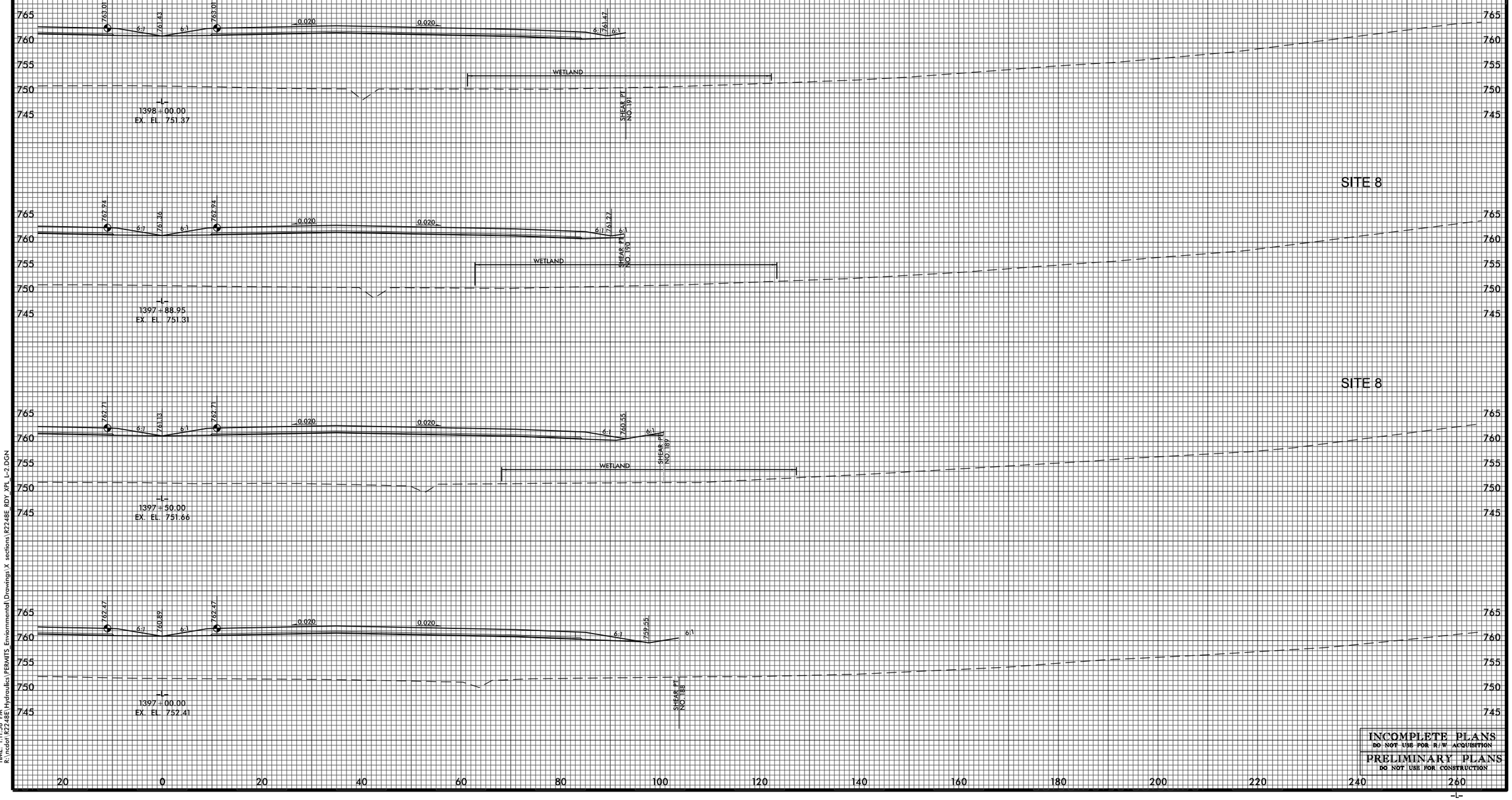
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BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
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Permit Drawing
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SITE 8



SITE 8

SITE 8

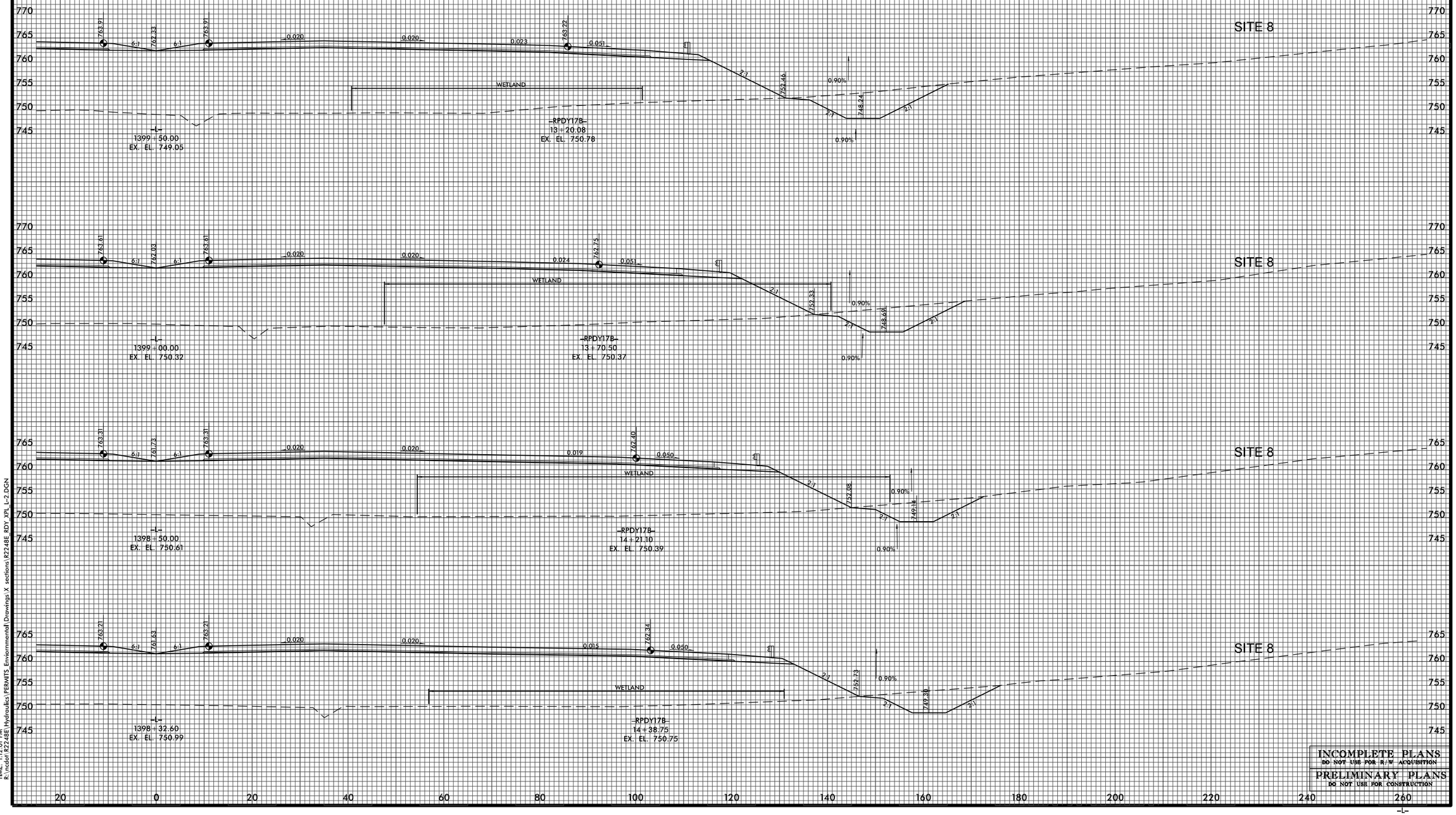
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DO NOT USE FOR CONSTRUCTION

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Permit Drawing
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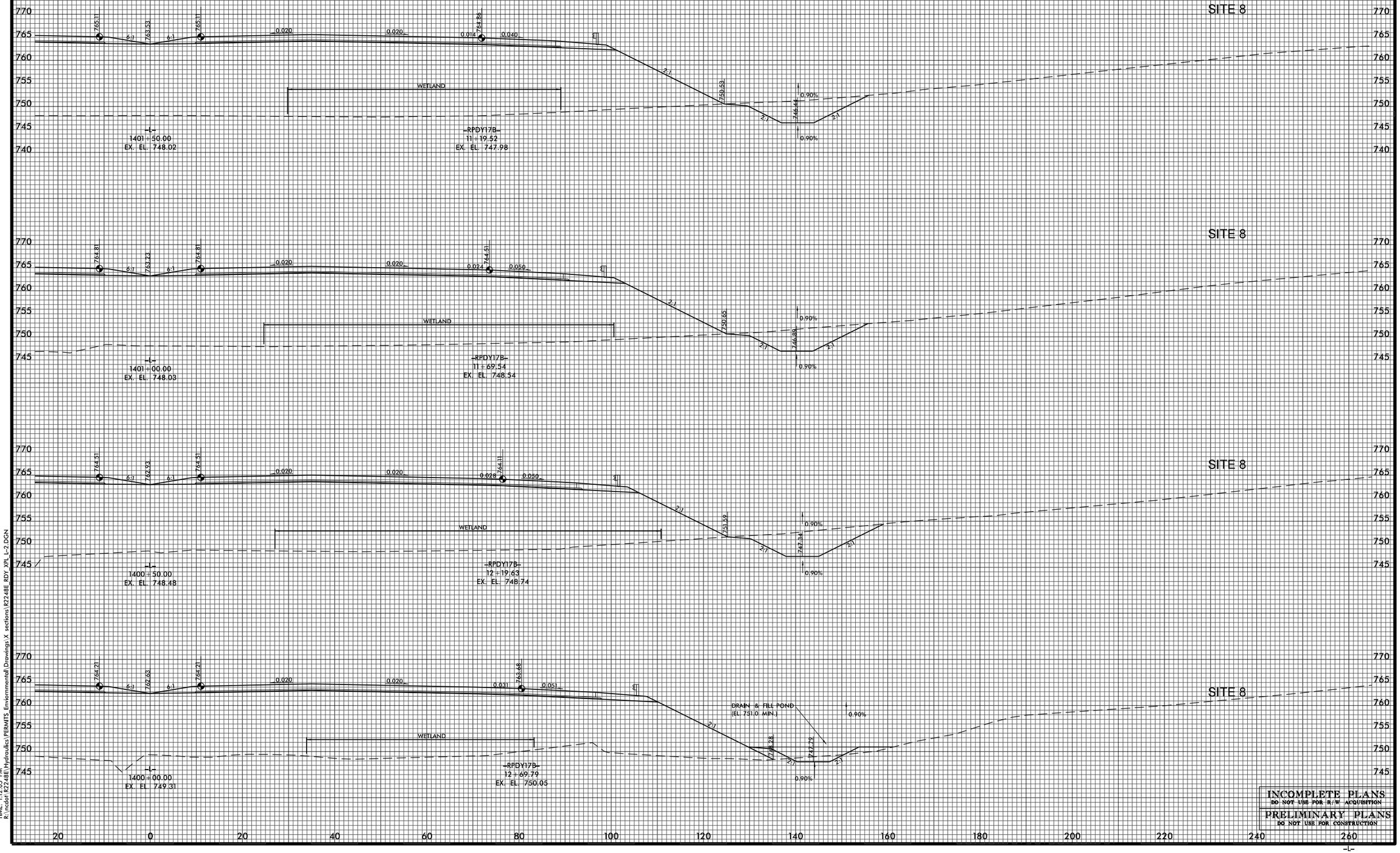
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DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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Permit Drawing
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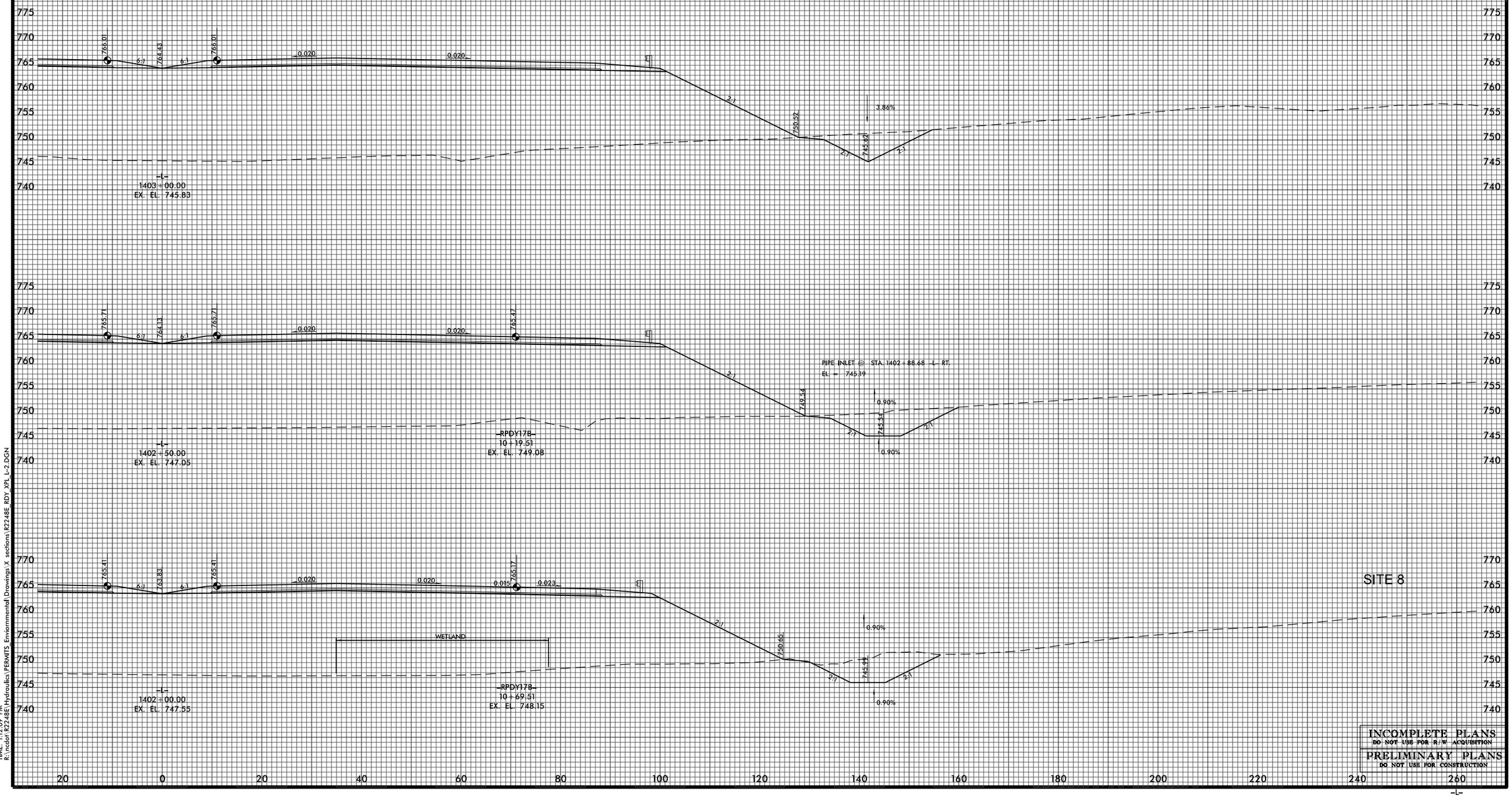
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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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Permit Drawing
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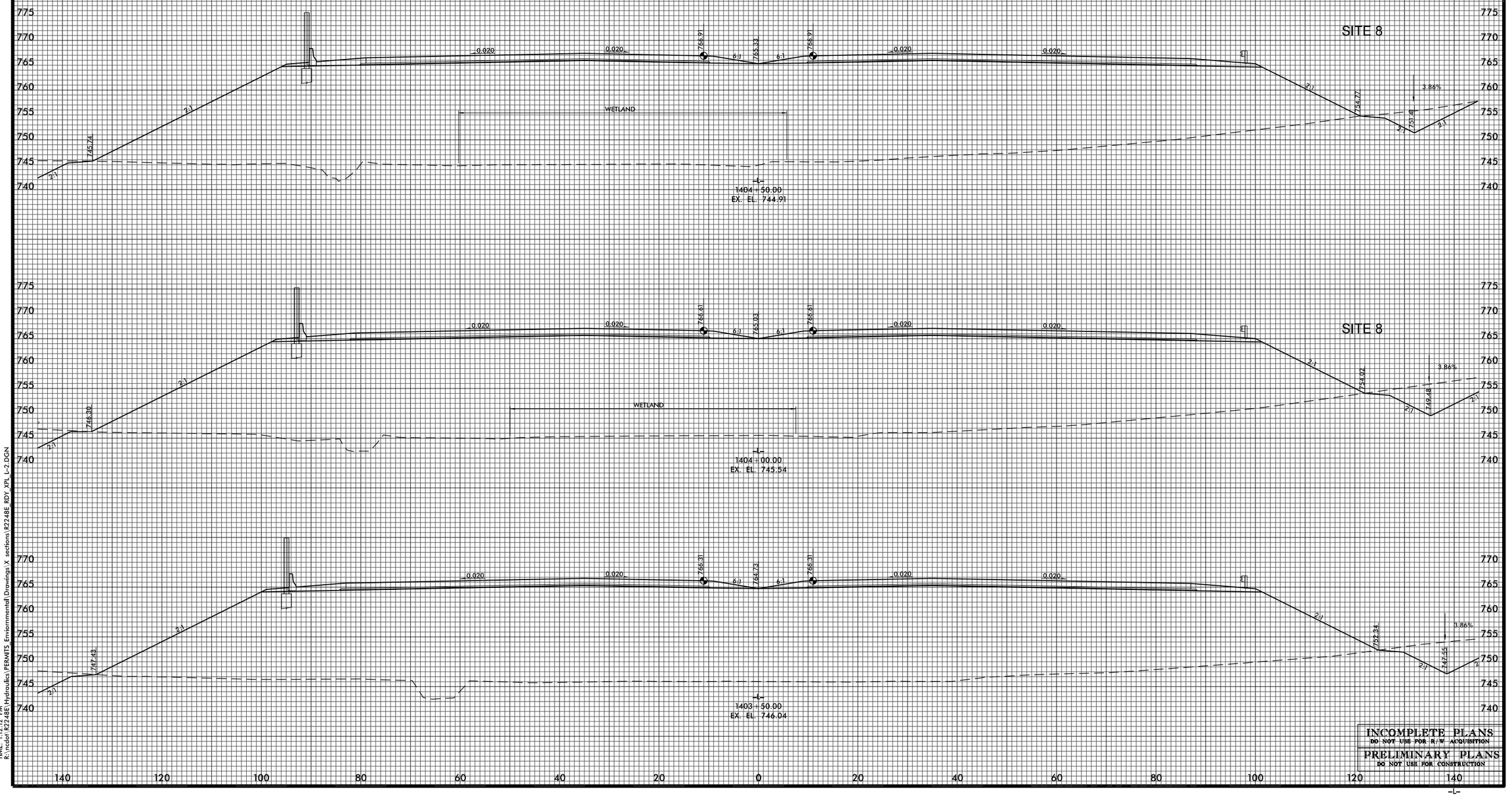
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Permit Drawing
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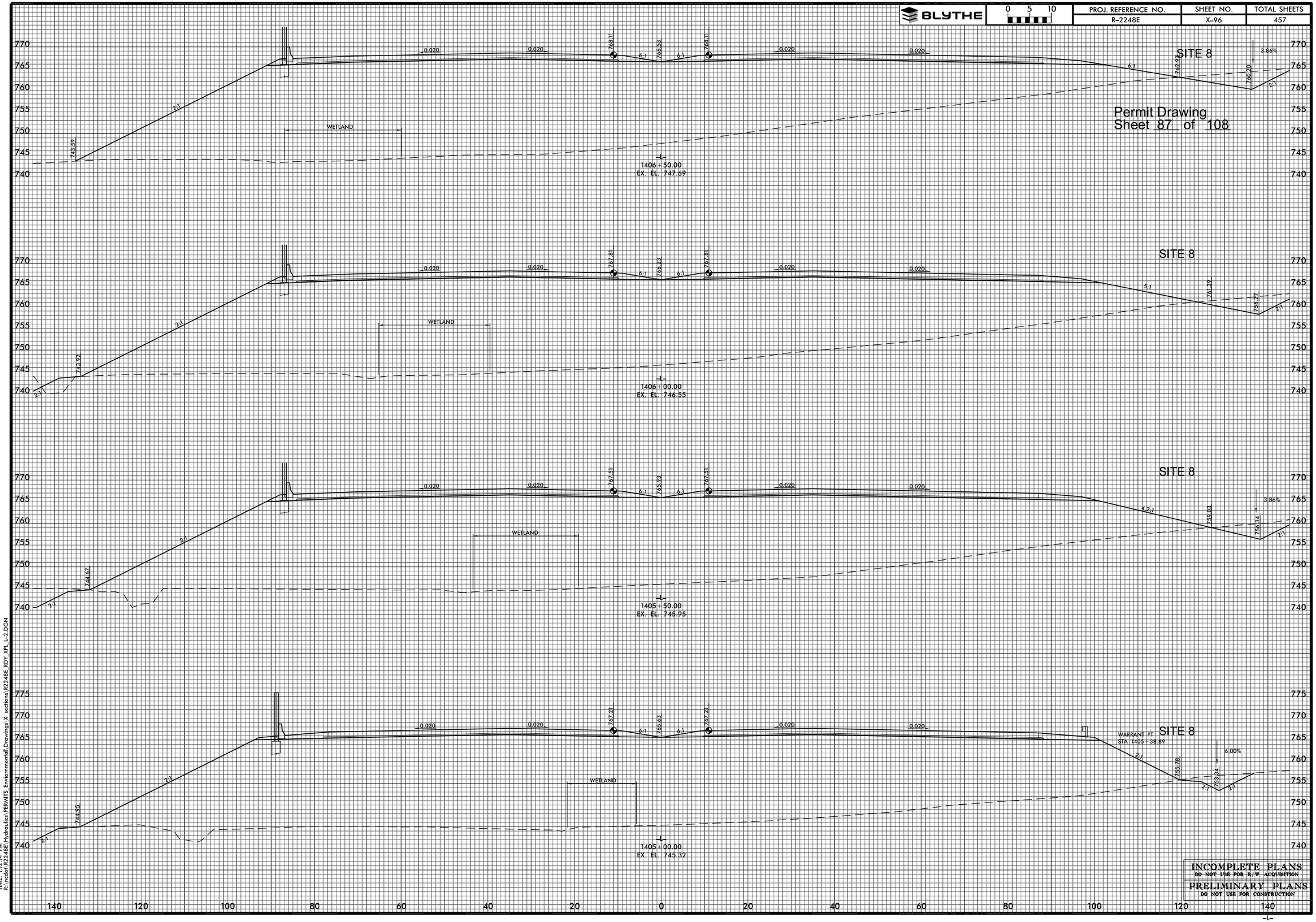


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Permit Drawing
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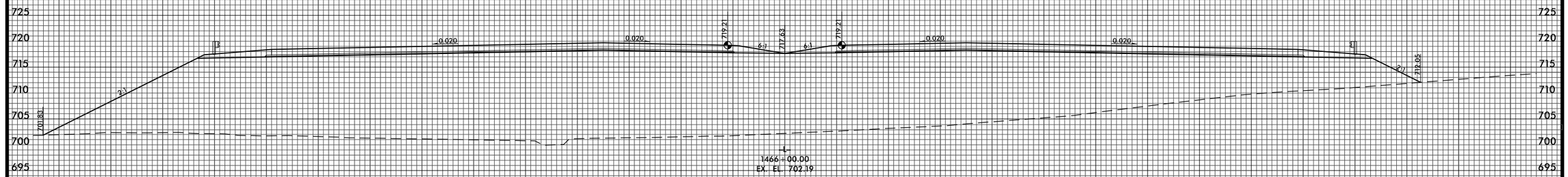
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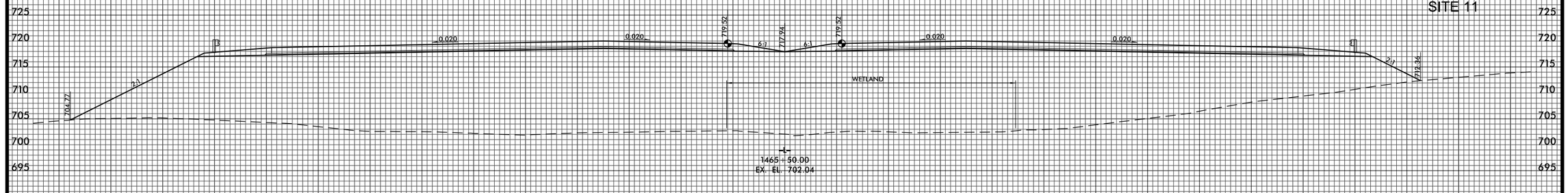
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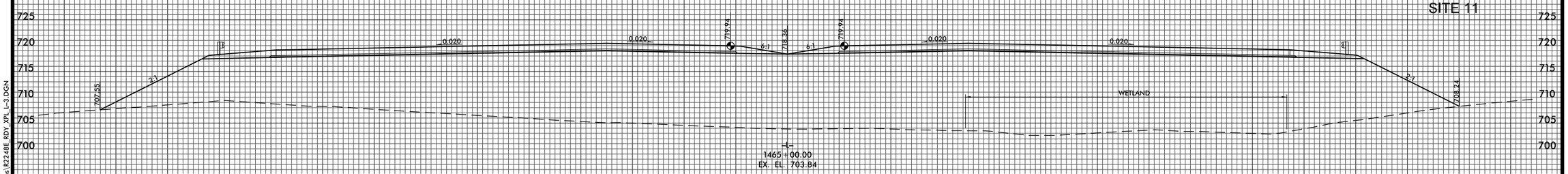
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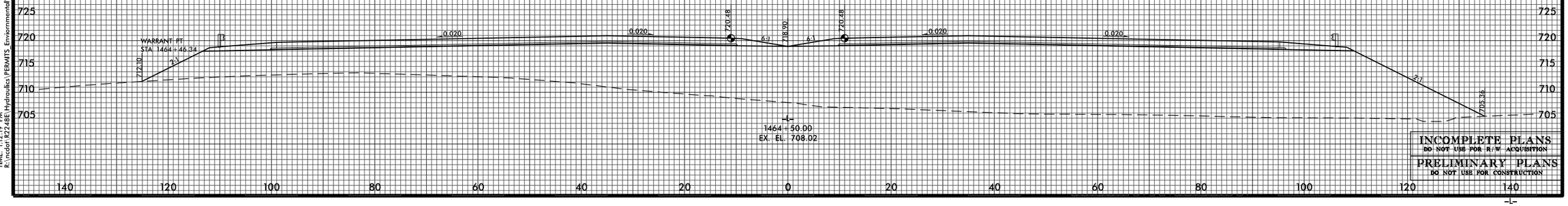
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Permit Drawing
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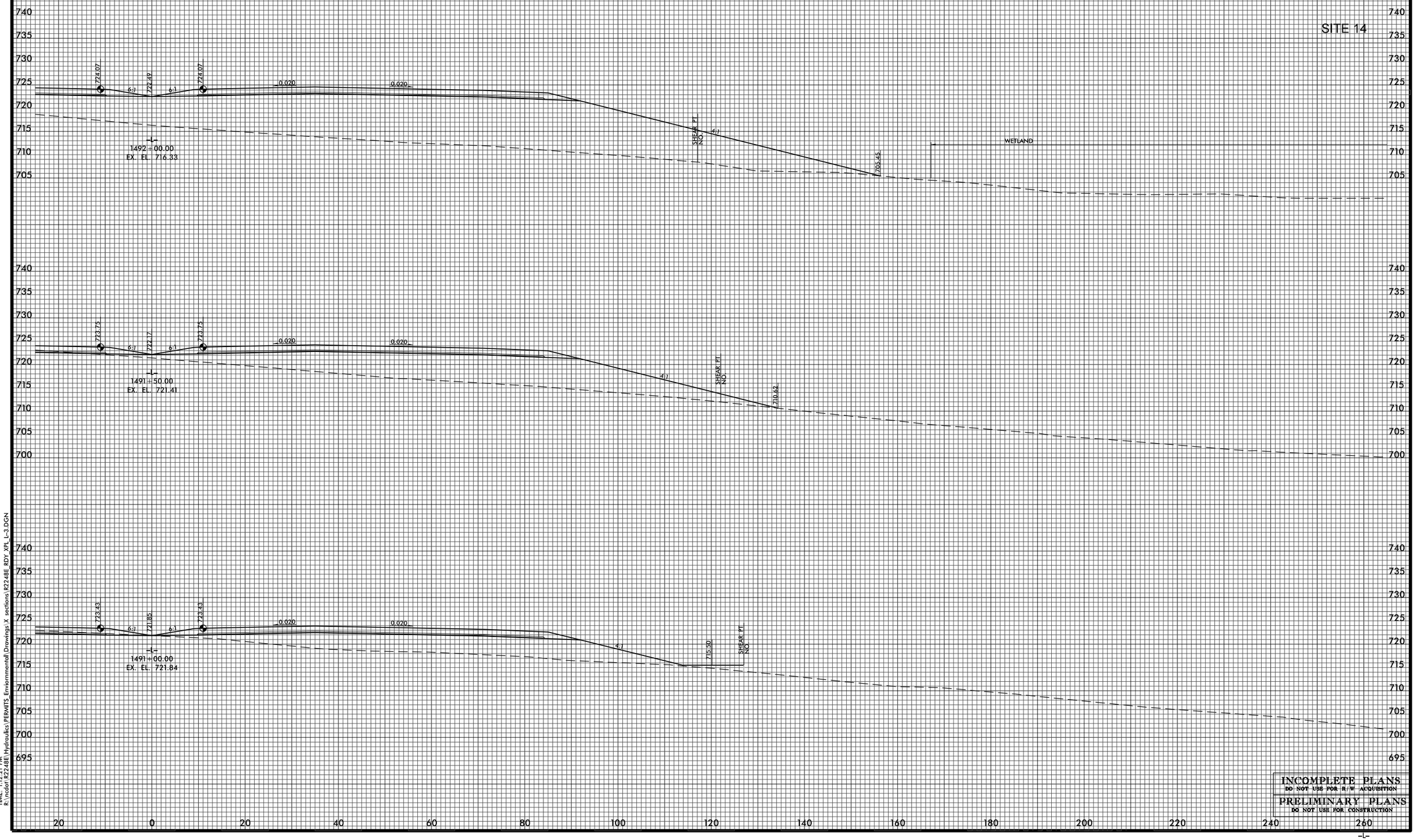
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BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
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Permit Drawing
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SITE 14



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DO NOT USE FOR R/W ACQUISITION

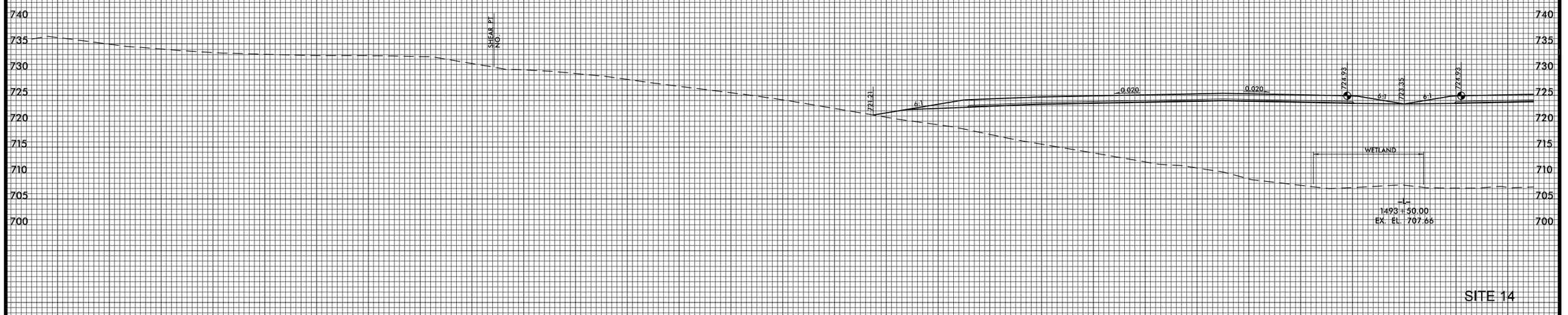
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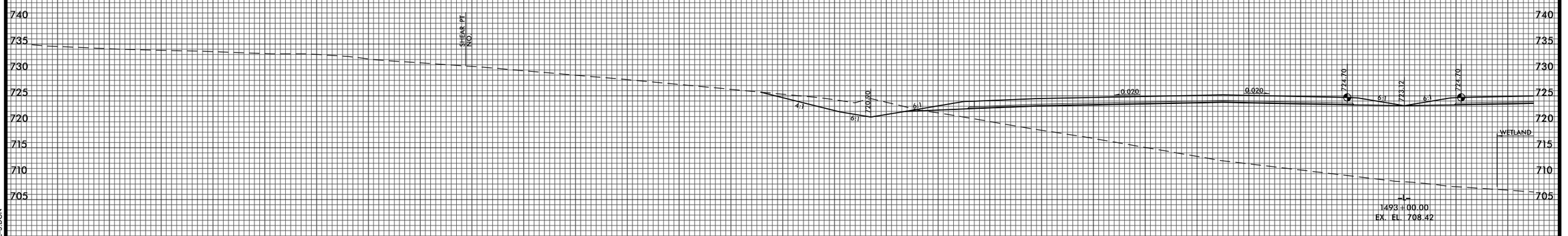
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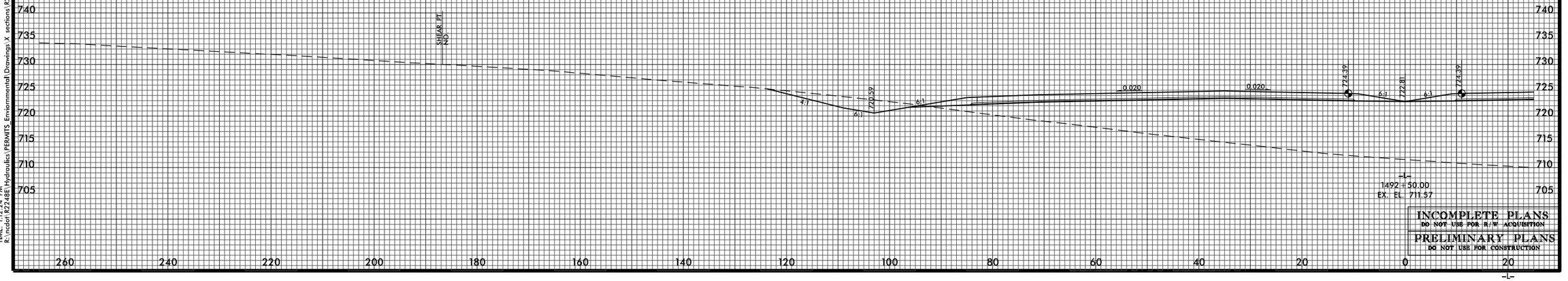
Permit Drawing
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SITE 14



SITE 14





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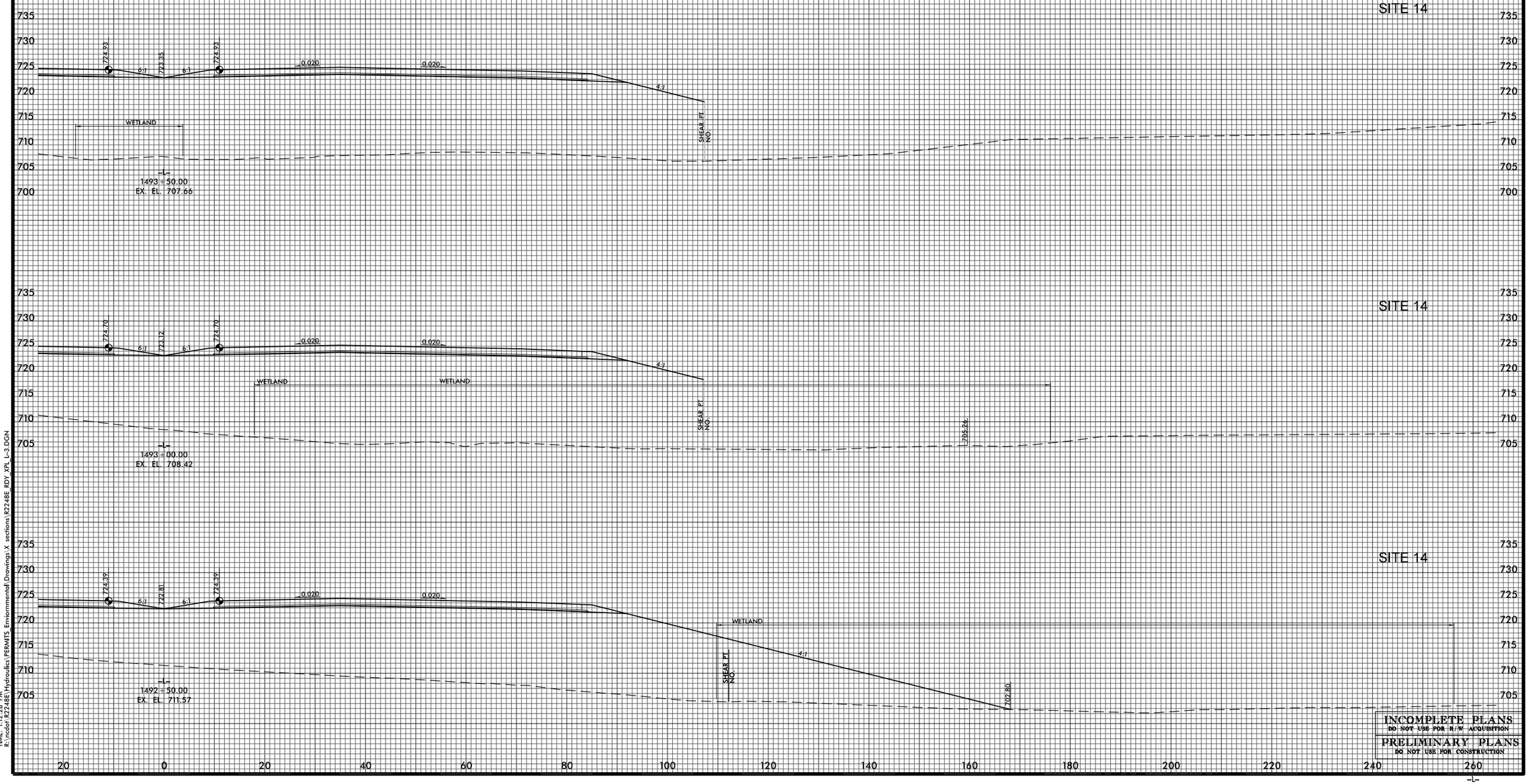
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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Permit Drawing
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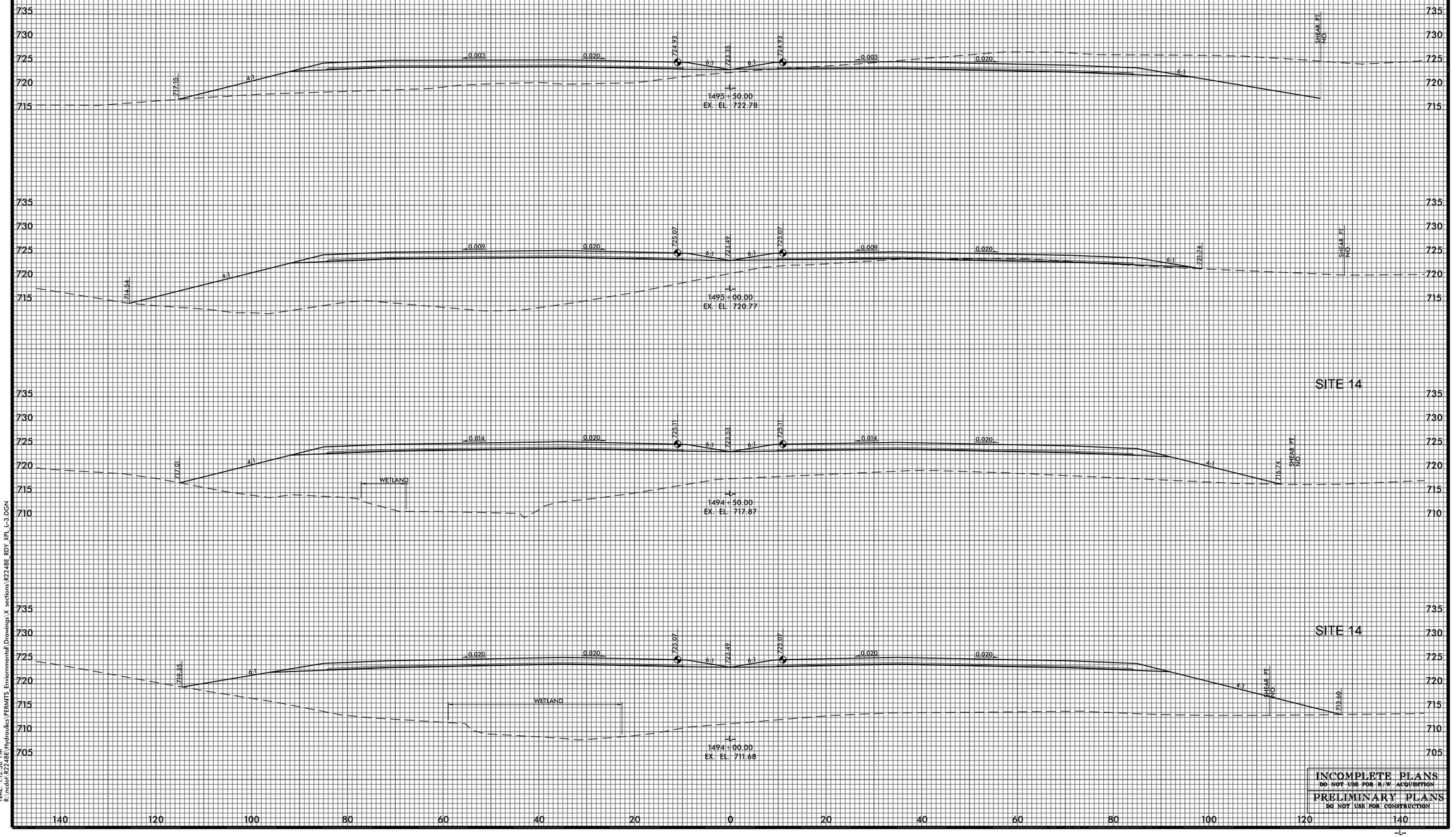
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BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

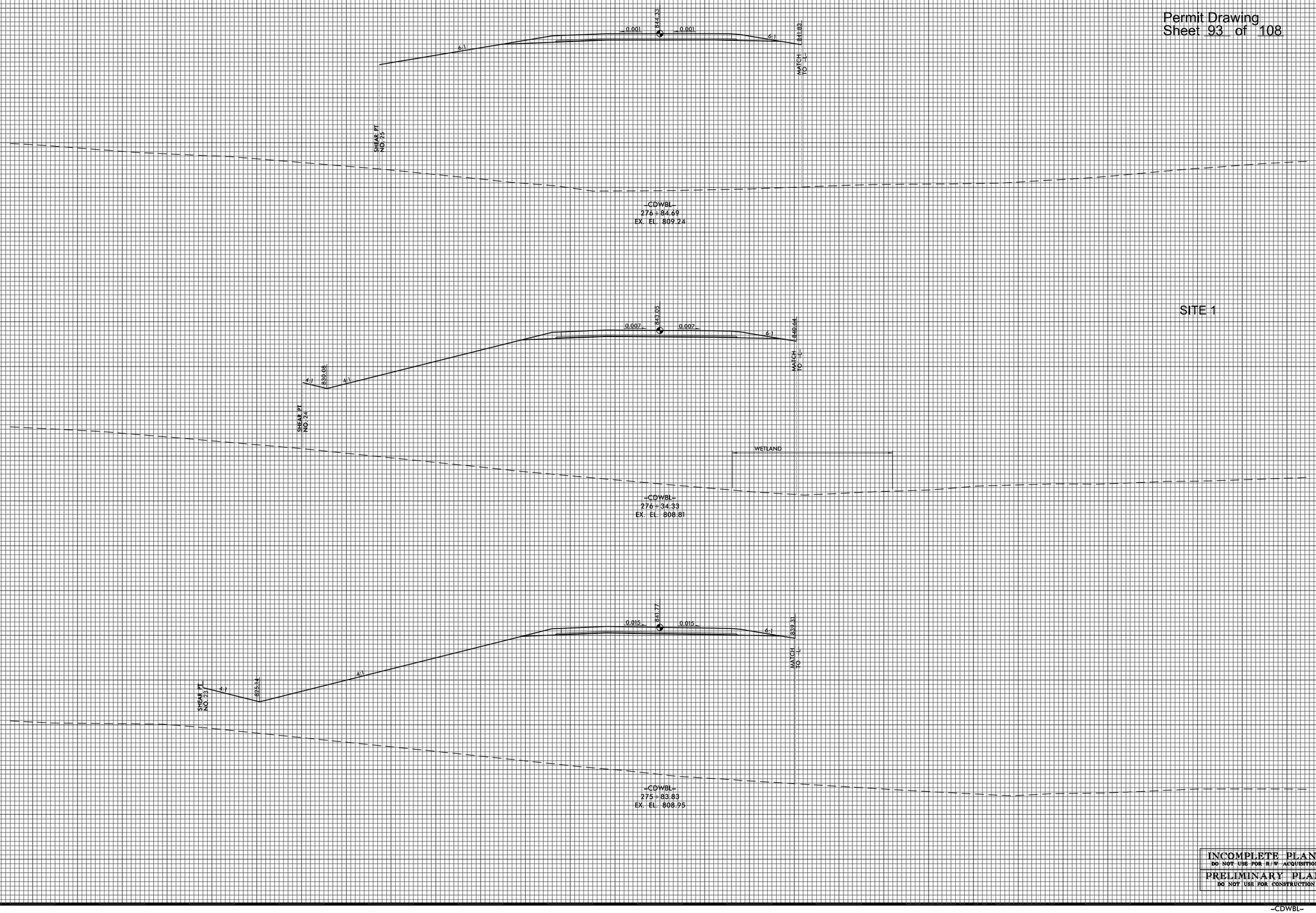
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-L-

BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-165	457

Permit Drawing
Sheet 93 of 108

SITE 1



DATE: 3/4/2011
TIME: 1:12:34 PM
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

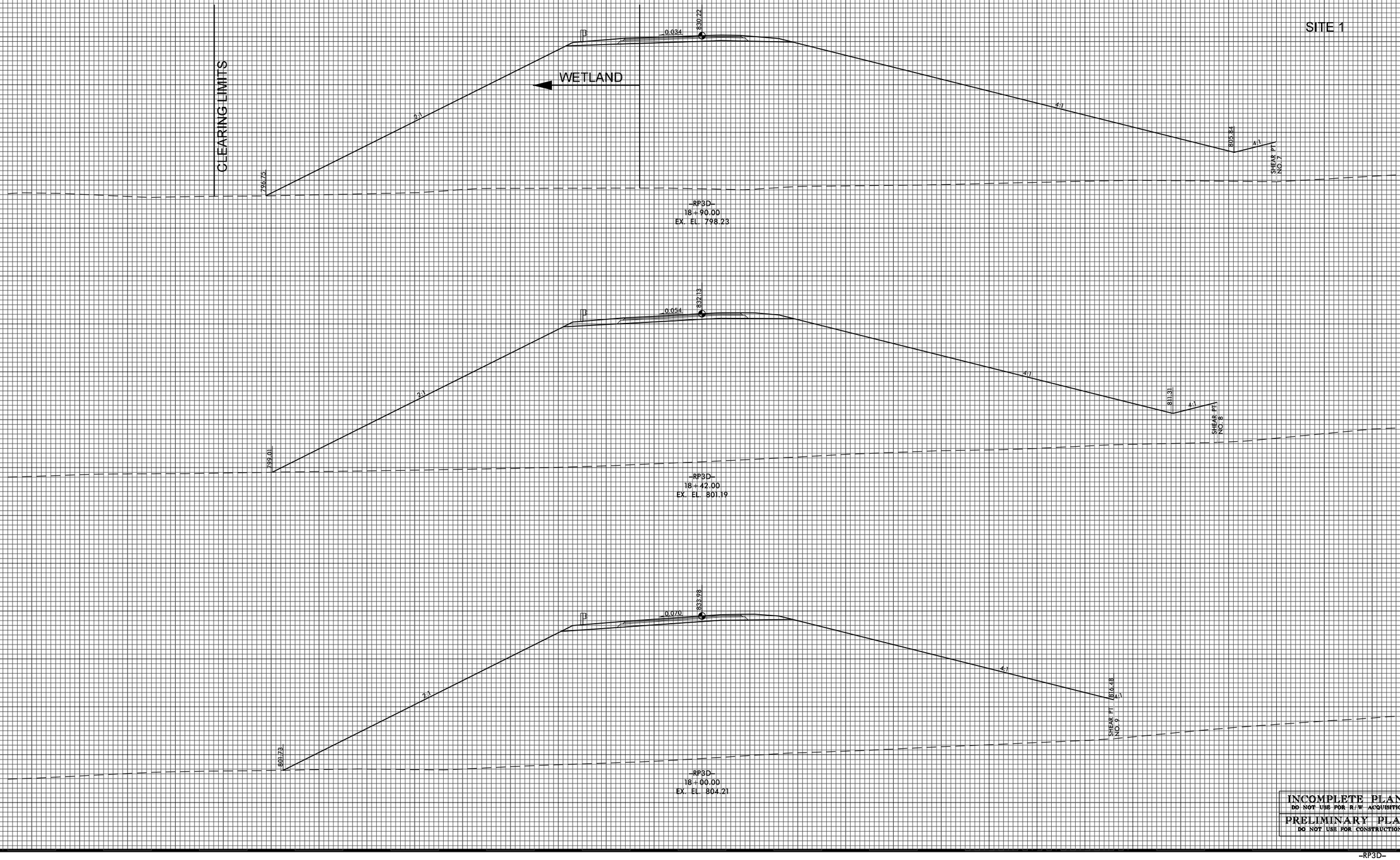
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

–CDWBL–

BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
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Permit Drawing
Sheet 94 of 108

SITE 1



DATE: 3/4/2011
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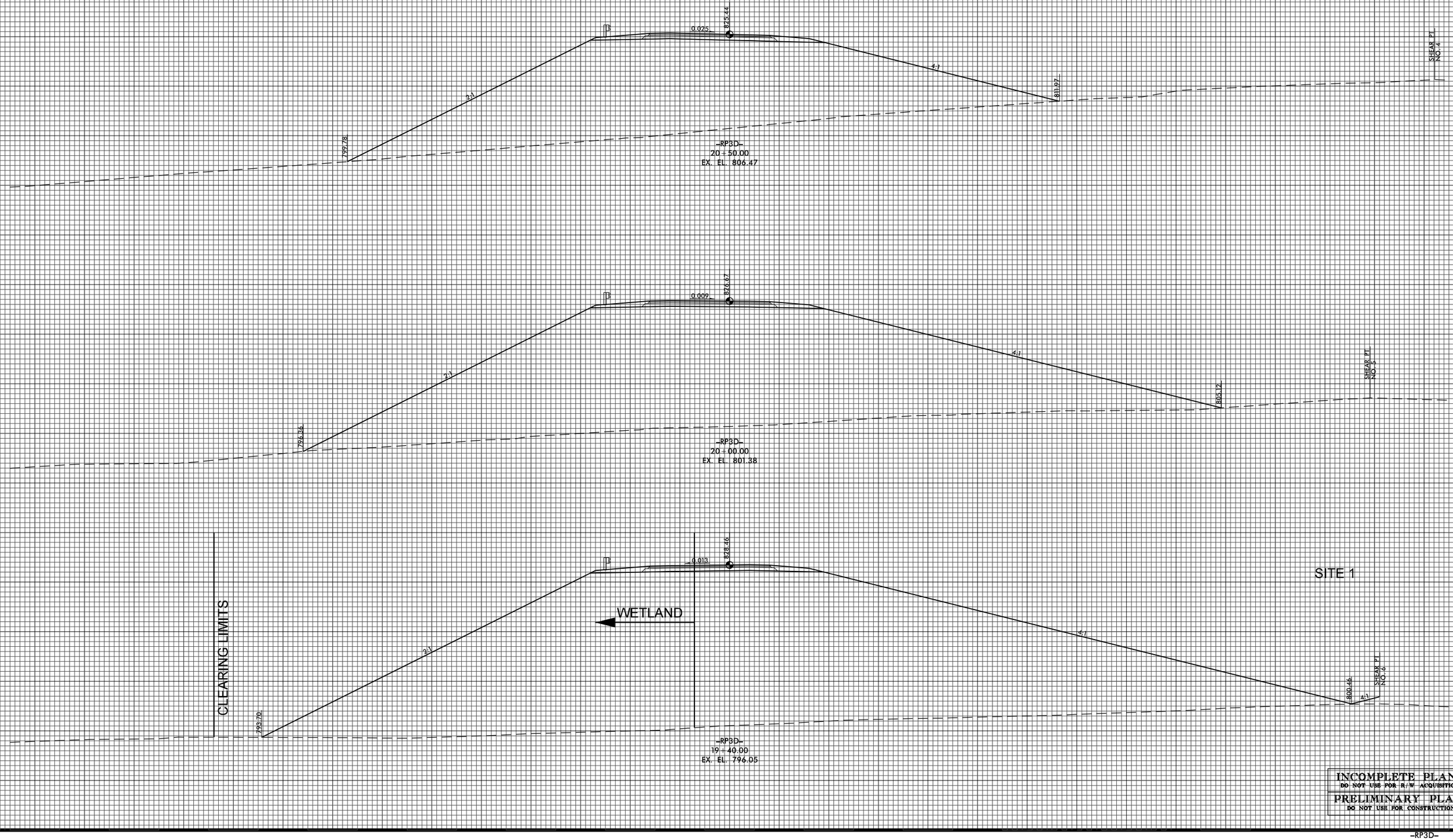
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RP3D-

BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-192	457

Permit Drawing
Sheet 95 of 108



DATE: 3/4/2011
TIME: 1:12:39 PM
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

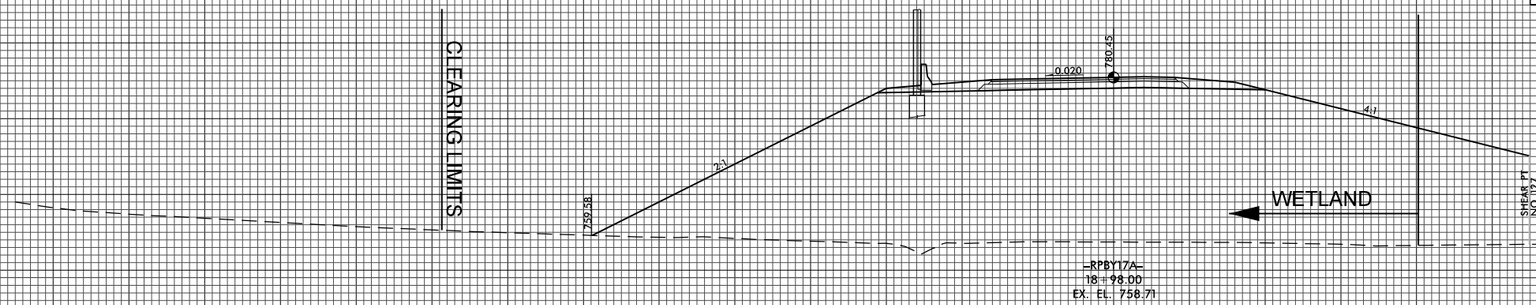
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DO NOT USE FOR CONSTRUCTION

-RP3D-

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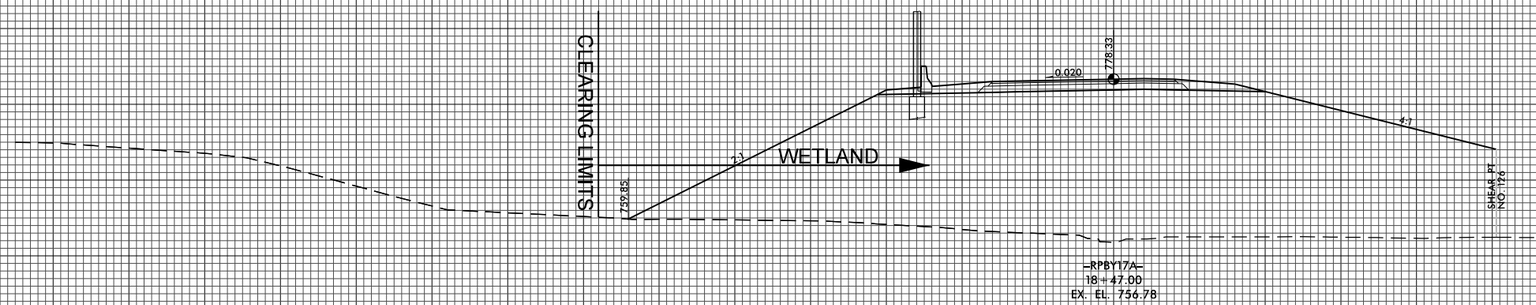
Permit Drawing
Sheet 96 of 108

SITE 7



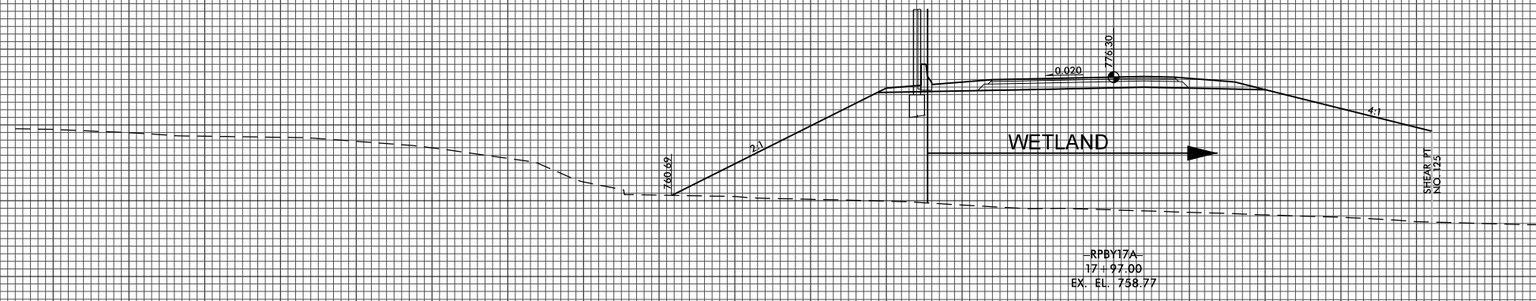
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EX. EL. 758.71

SITE 7

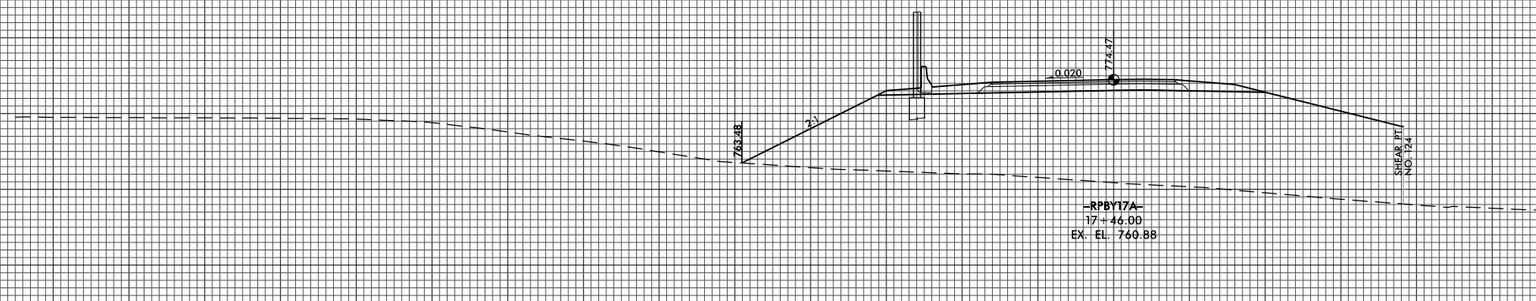


-RPBY17A-
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EX. EL. 756.78

SITE 7



-RPBY17A-
17+97.00
EX. EL. 758.77



-RPBY17A-
17+46.00
EX. EL. 760.88

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

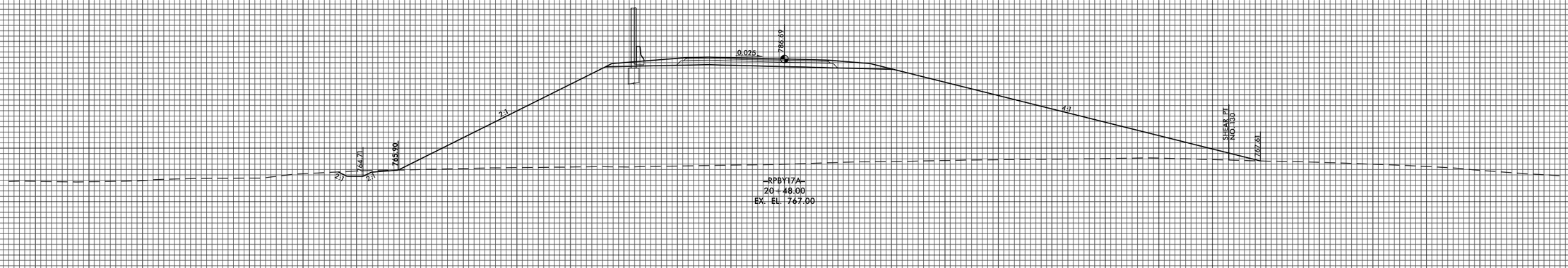
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DO NOT USE FOR CONSTRUCTION

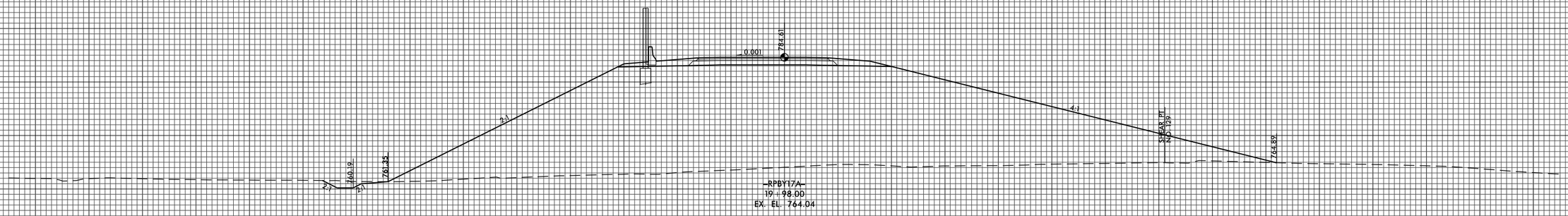
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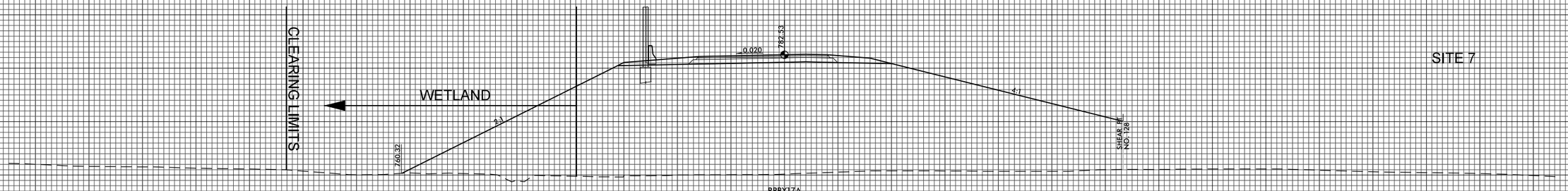
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BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-203	457

Permit Drawing
Sheet 97 of 108







SITE 7

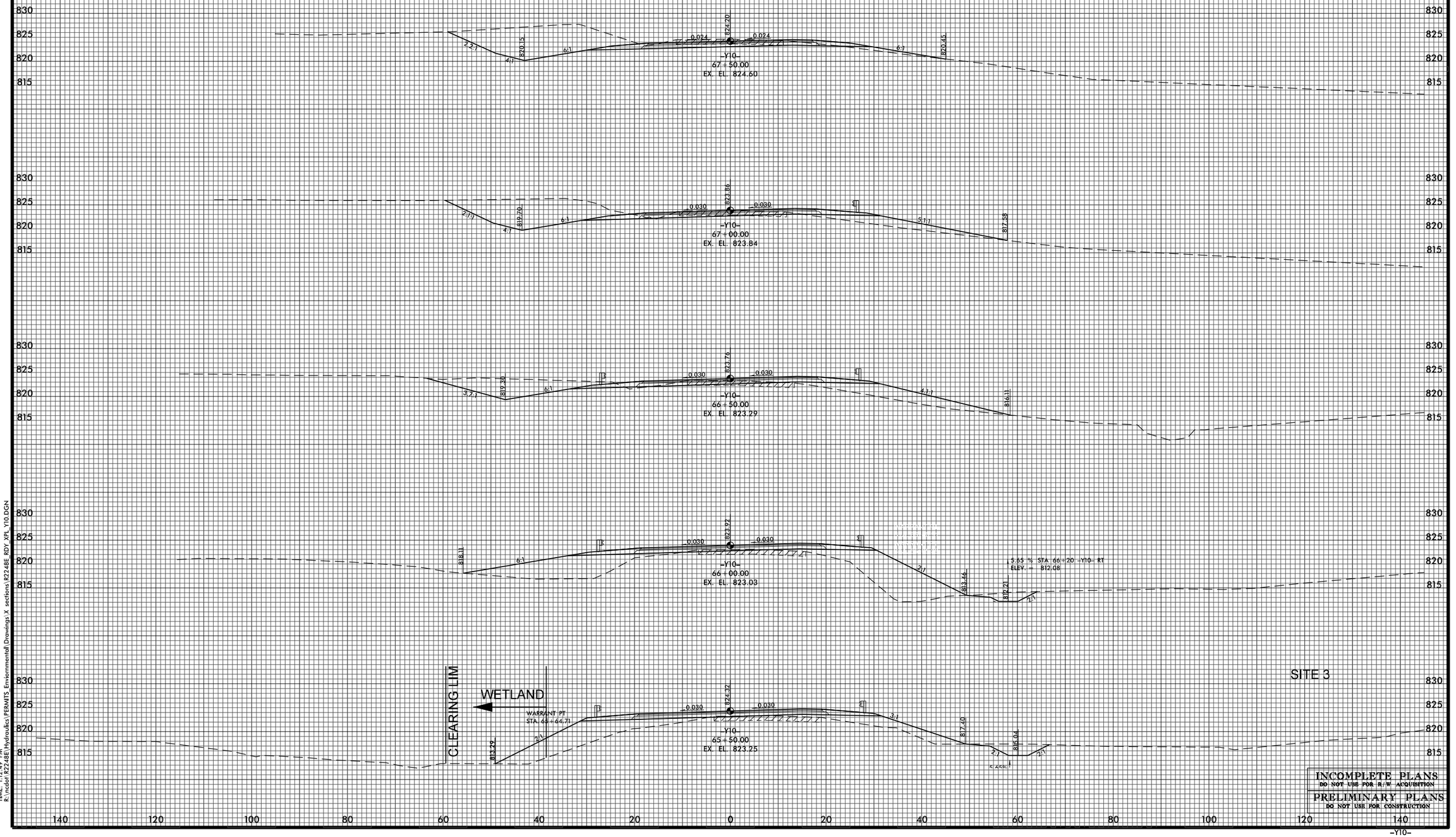
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-328	457

Permit Drawing
Sheet 98 of 108



DATE: 3/4/2011
TIME: 1:12:49 PM
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

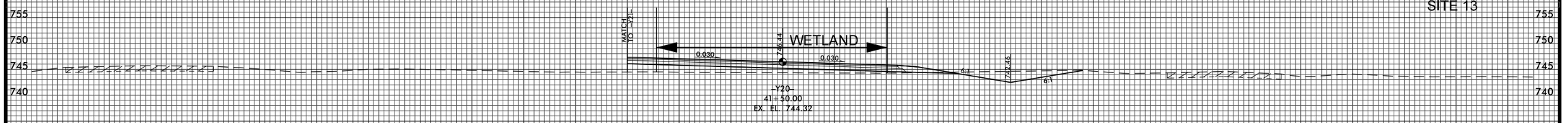
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE | 0 5 10

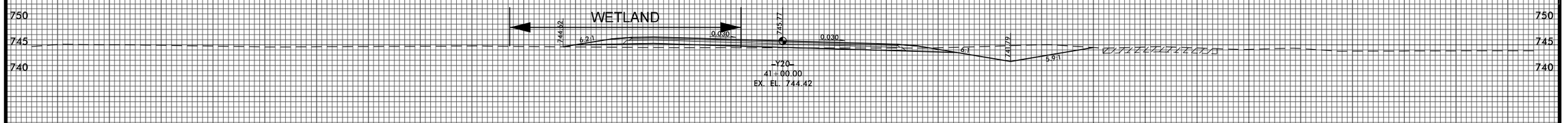
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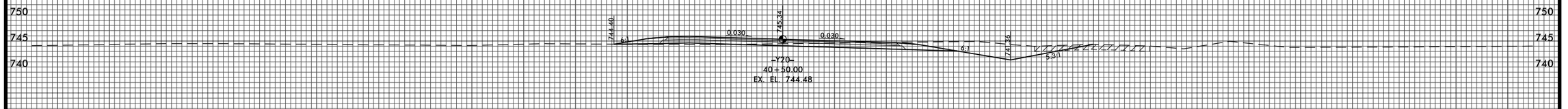
Permit Drawing
Sheet 99 of 108

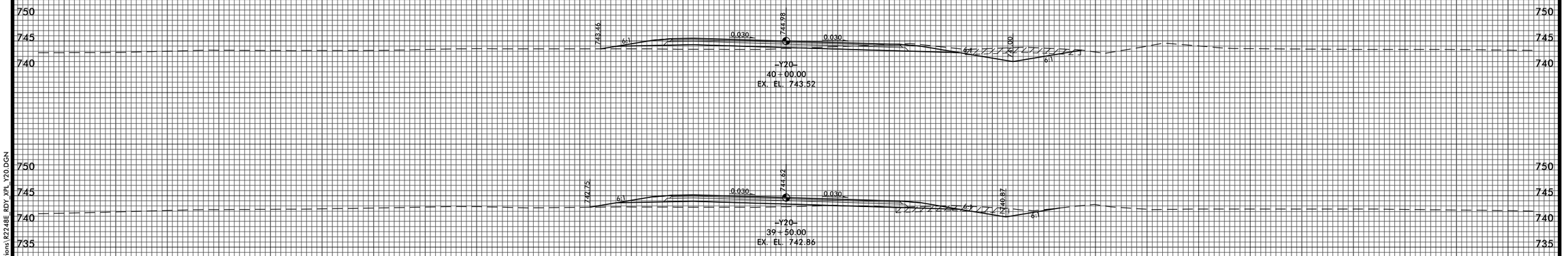
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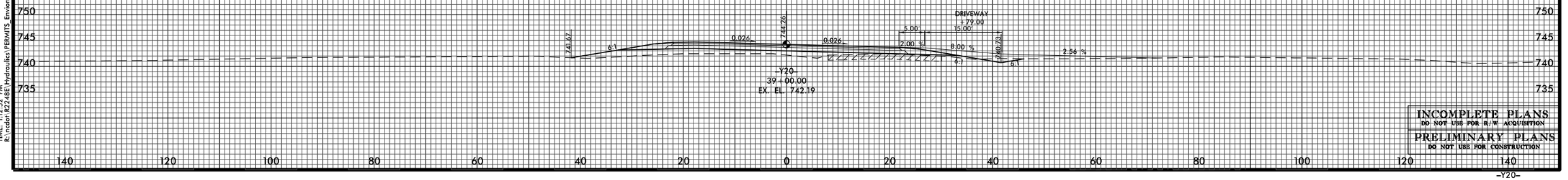


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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

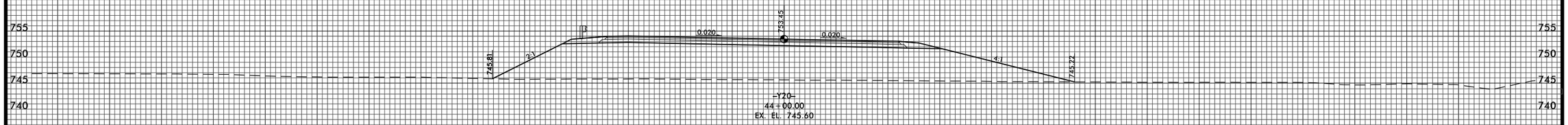
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DO NOT USE FOR CONSTRUCTION

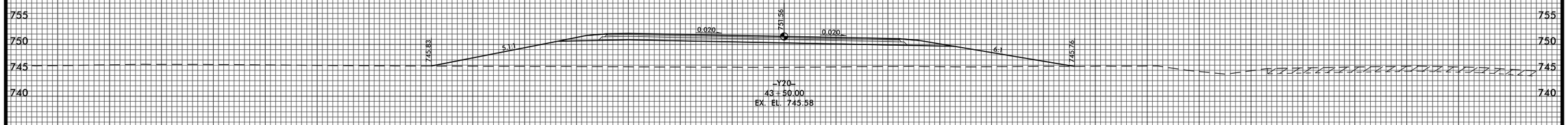
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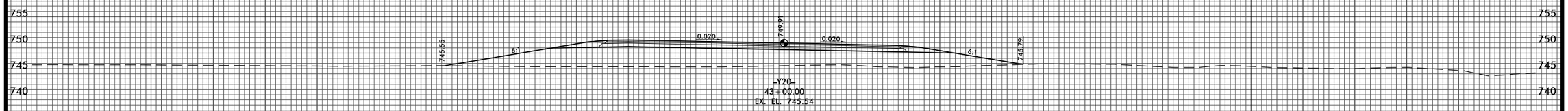
-Y20-

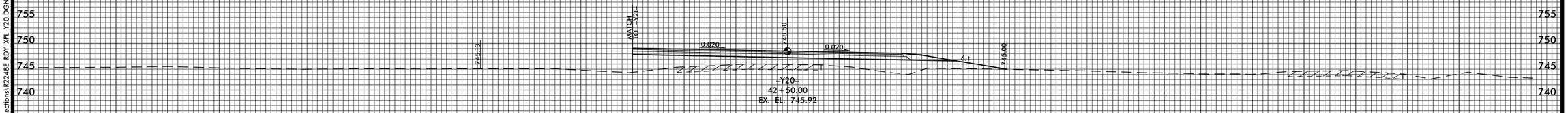
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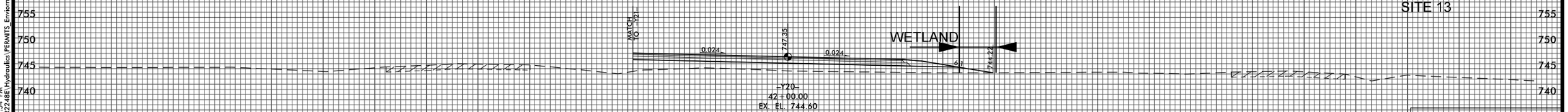
Permit Drawing
Sheet 100 of 108











INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

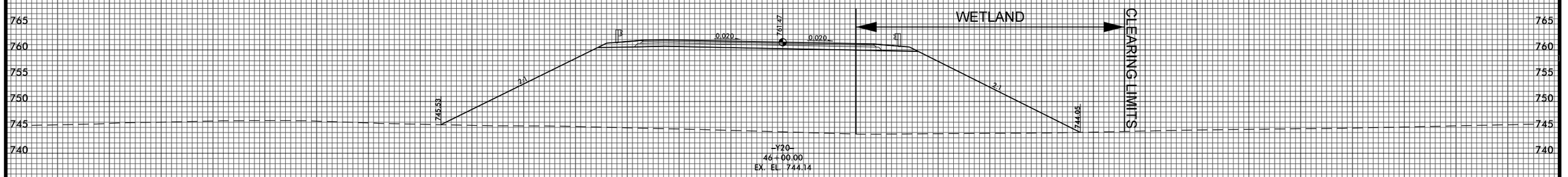
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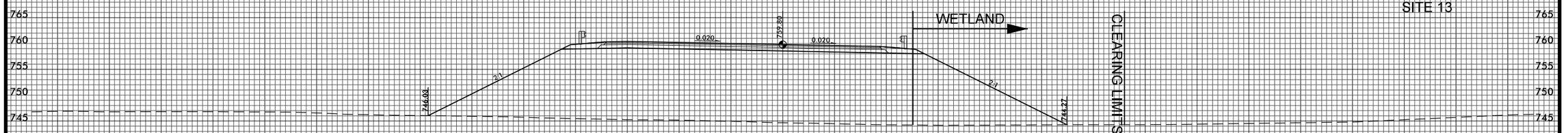
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Permit Drawing
Sheet 101 of 108

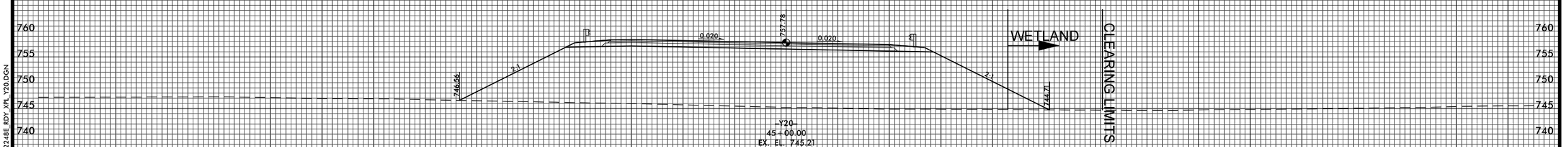
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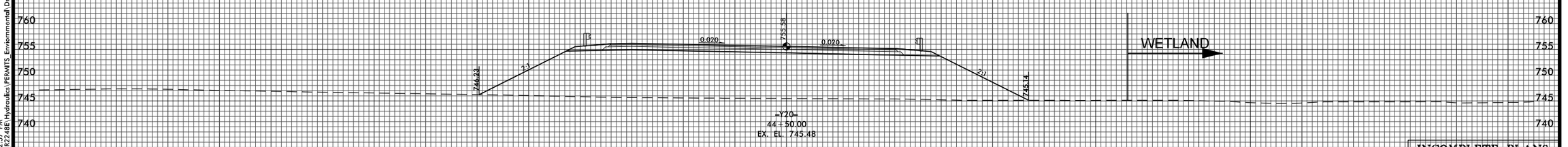
SITE 13



SITE 13



SITE 13



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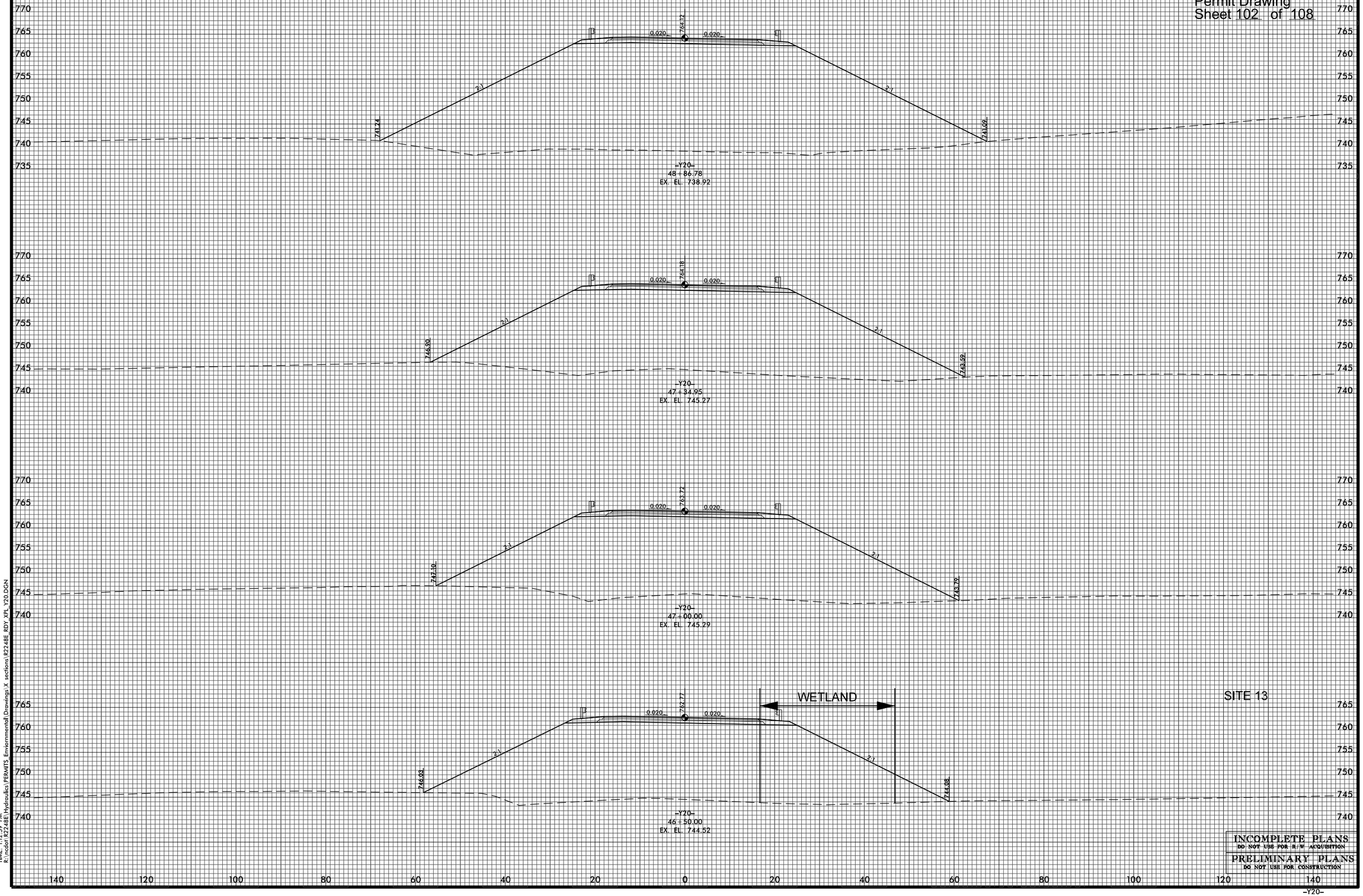
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DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-Y20-

BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-366	457

Permit Drawing
Sheet 102 of 108



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

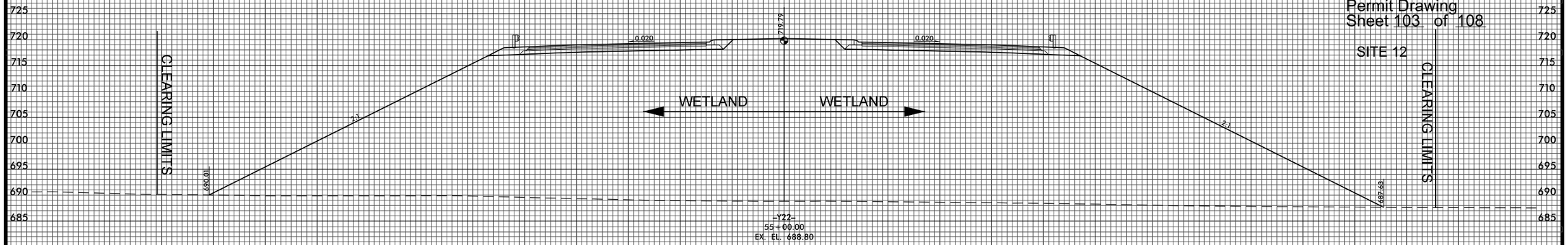
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DO NOT USE FOR CONSTRUCTION

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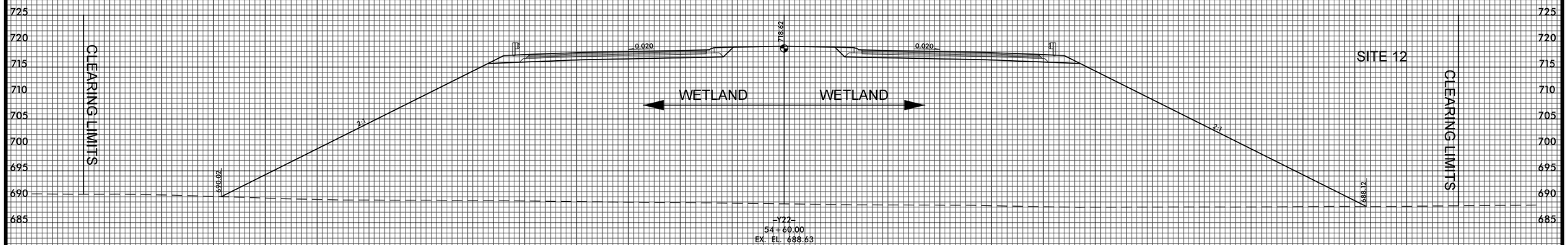
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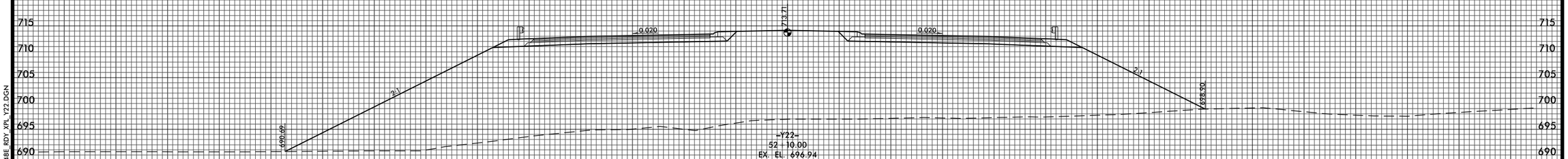
Permit Drawing
Sheet 103 of 108

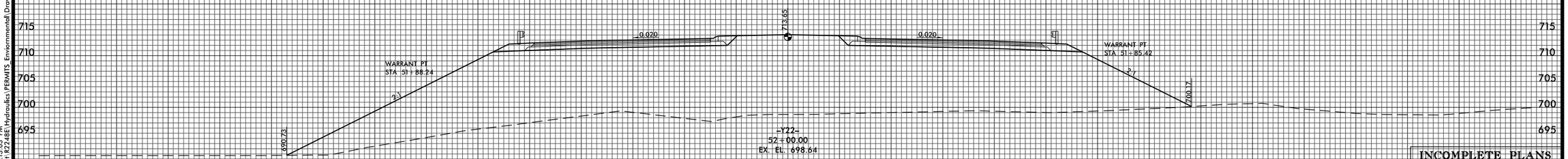
SITE 12



SITE 12







INCOMPLETE PLANS
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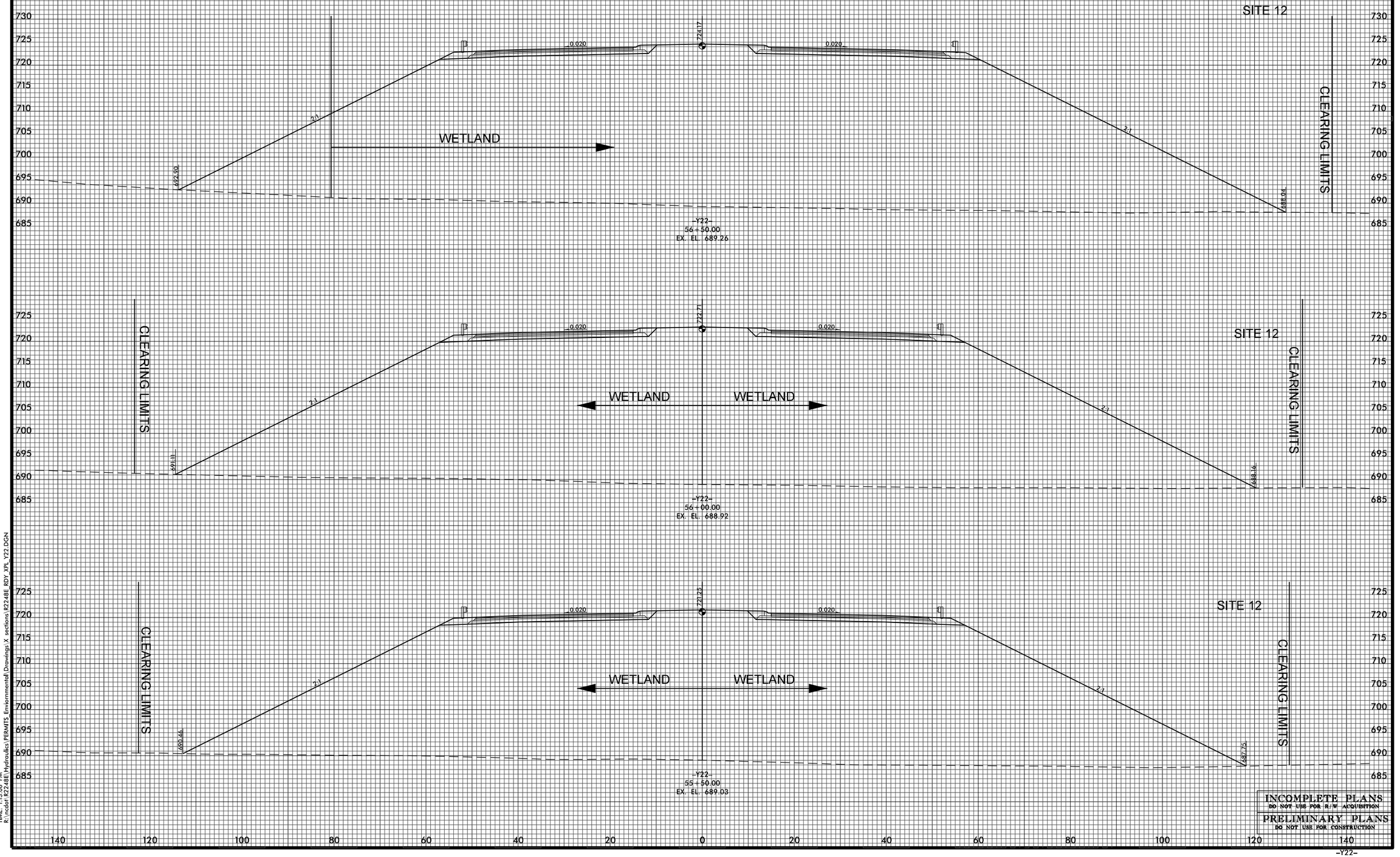
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-Y22-

BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
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Permit Drawing
Sheet 104 of 108



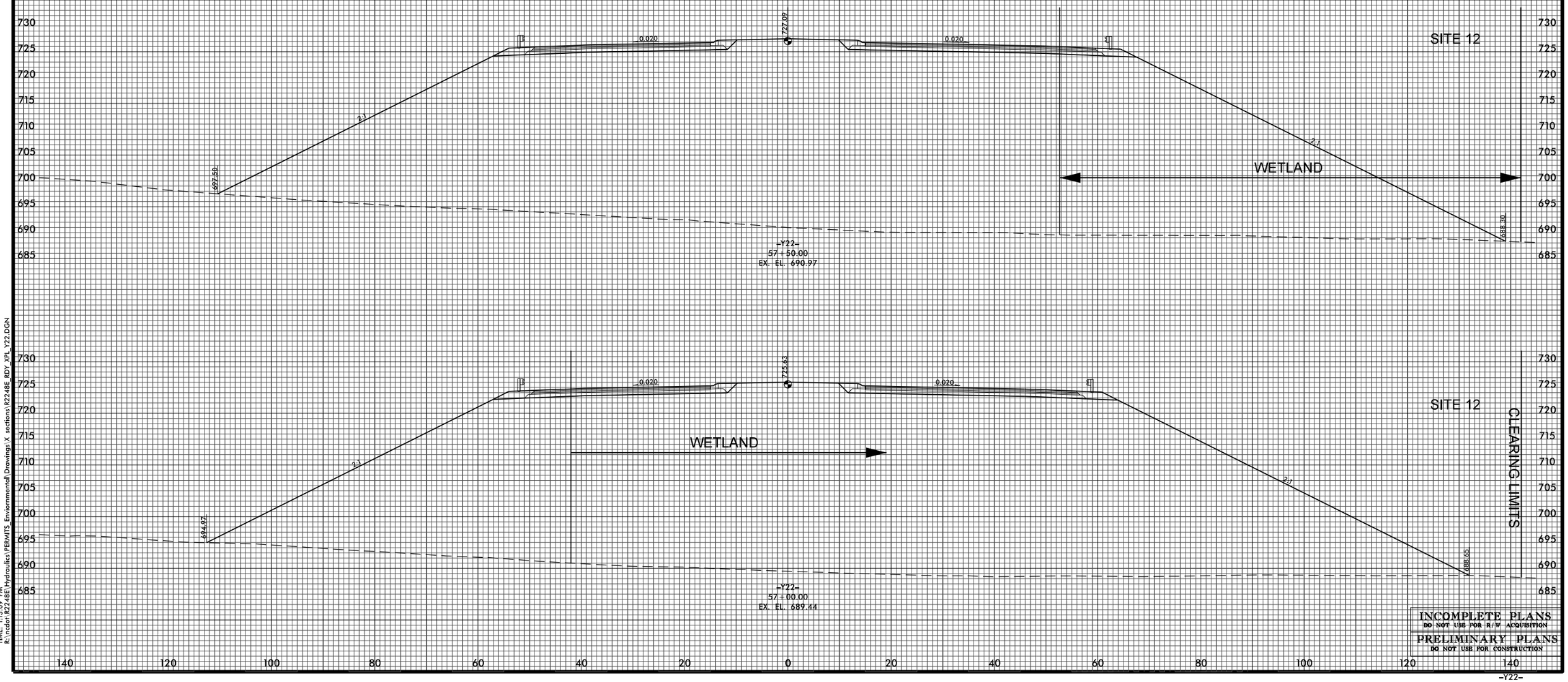
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DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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Permit Drawing
Sheet 105 of 108



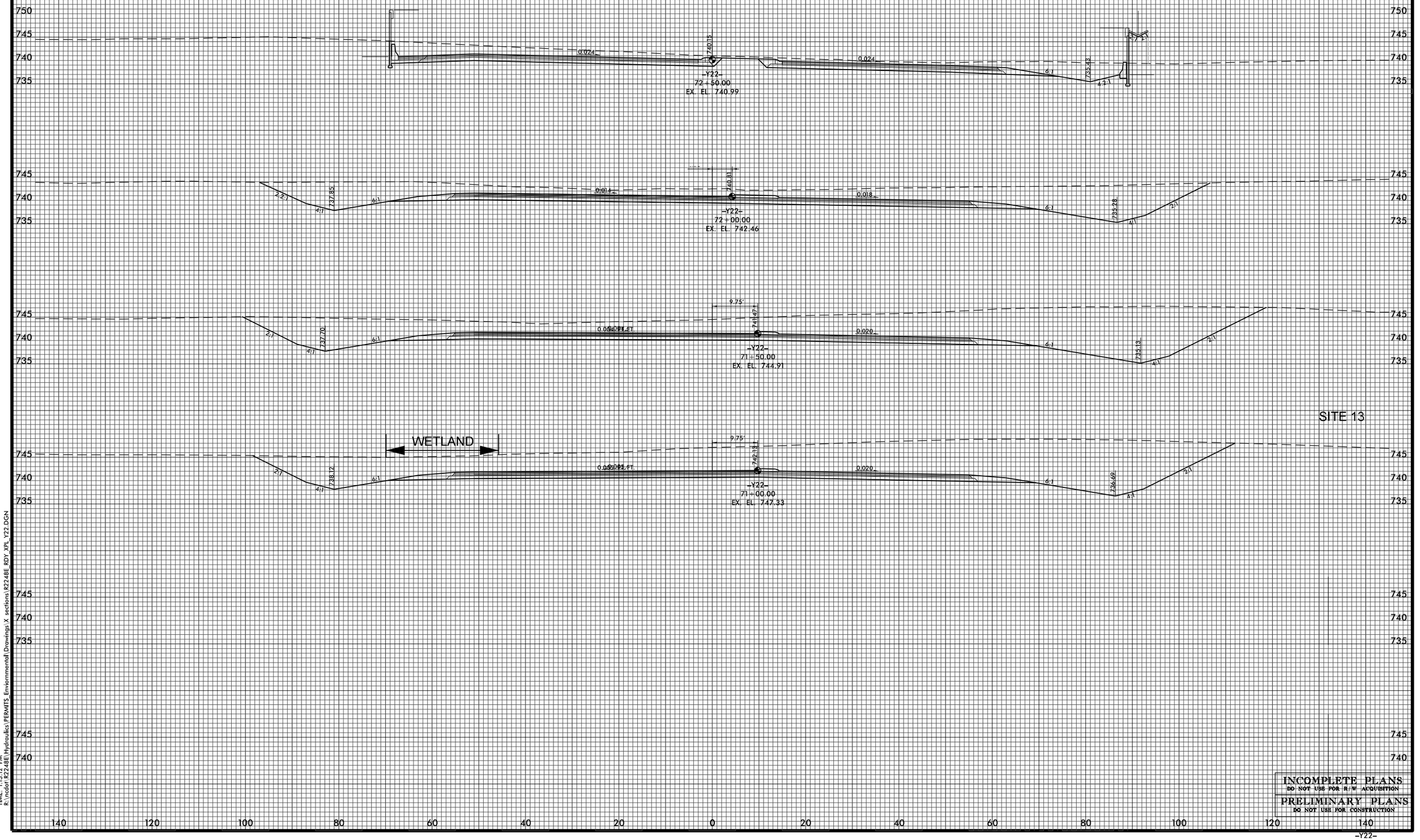
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INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-397	457

Permit Drawing
Sheet 106 of 108



SITE 13

DATE: 3/4/2011
TIME: 1:13:12 PM
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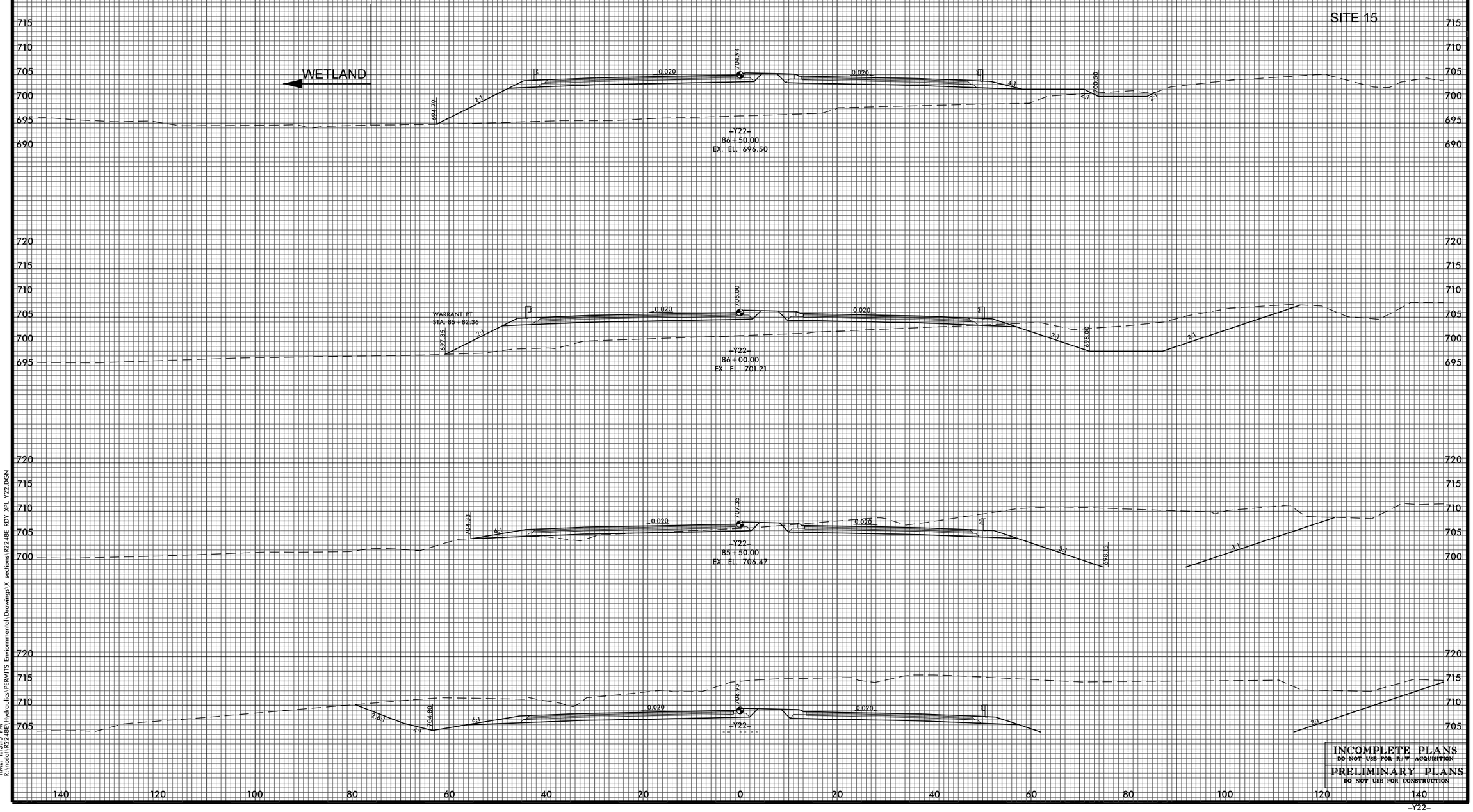
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
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Permit Drawing
Sheet 107 of 108

SITE 15



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

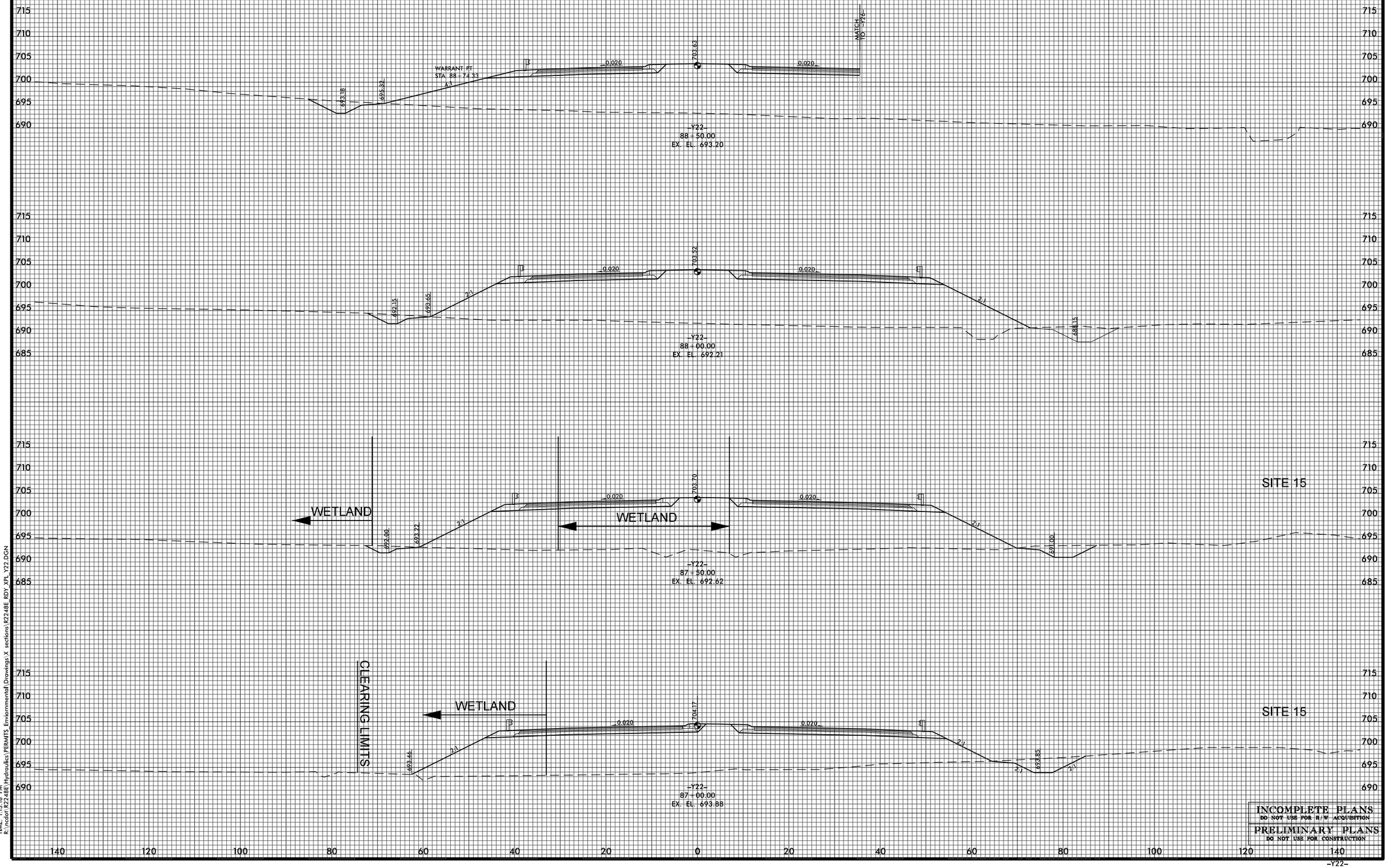
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DO NOT USE FOR CONSTRUCTION

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TIME: 1:13:15 P.M.
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-Y22-

BLYTHE	0 5 10	PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
		R-2248E	X-403	457

Permit Drawing
Sheet 108 of 108



INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

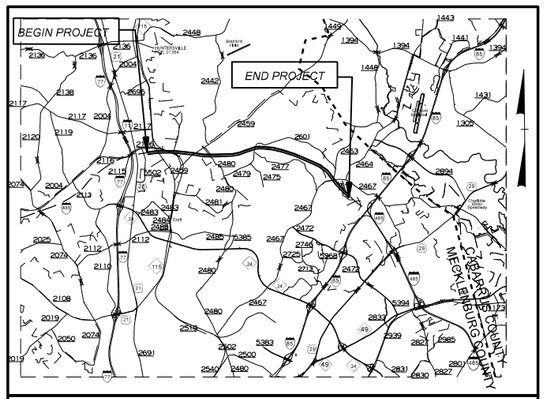
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09/08/99

TIP PROJECT: R–2248E

CONTRACT: C202521

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R–2248E	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
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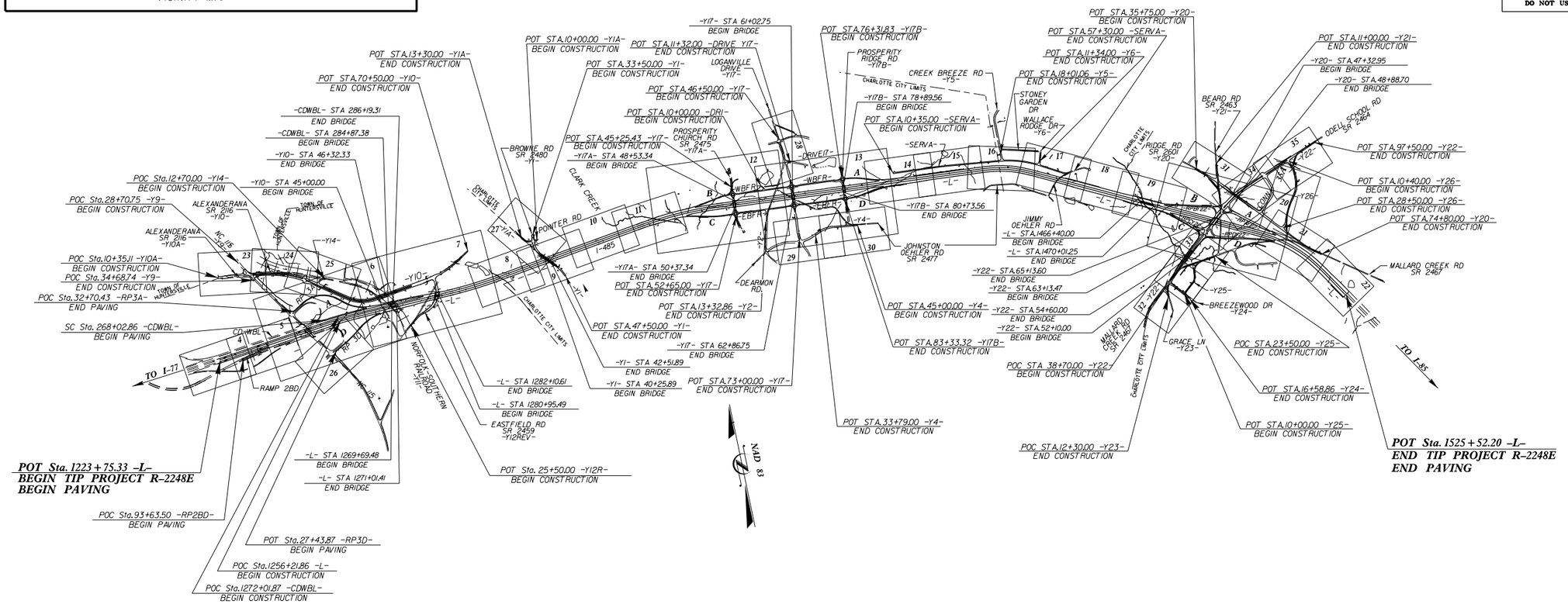
LOCATION: *I–485 (CHARLOTTE OUTER LOOP) FROM EAST OF I–77 TO WEST I–85*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, STRUCTURES, CULVERTS, NOISE WALLS, RETAINING WALLS, SIGNING AND SIGNALS*

BLYTHE

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF CHARLOTTE AND THE TOWN OF HUNTERSVILLE

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2006	=	62,000
ADT 2035	=	161,600
DHV	=	10 %
D	=	55 %
T	=	15 % *
V	=	70 m/h
* TTST 10%		DUAL 5%

FUNCTIONAL CLASSIFICATION
FREEWAY

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R–2248E = 5.594 miles

LENGTH STRUCTURES TIP PROJECT R–2248E = 0.121 miles

TOTAL LENGTH OF TIP PROJECT R–2248E = 5.715 miles

Prepared in the Office of:
WILBUR SMITH ASSOCIATES
421 Fayetteville Street, Suite 1303, Raleigh, NC 27601 Phone (919) 755–0583

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 3, 2011

LETTING DATE: MAY 21, 2011

DAVID L. WILVER, P.E.
PROJECT ENGINEER

TODD H. BUCKNER, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

FILE: R:\ncdot\R2248E\Roadway Proj\r2248e_rdy_tsh_01.dgn
DATE: 4/5/2011 5:10:38 PM

PRELIMINARY PAVEMENT SCHEDULE

A1	13" JOINTED CONCRETE PAVEMENT WITH DOWELS.	J1	PROP. 8" AGGREGATE BASE COURSE.
A2	CONCRETE SHOULDER ADJACENT TO 13" PAVEMENT WITH DOWELS	J2	PROP. 10" AGGREGATE BASE COURSE.
C1	PROP. APPROX. 1.25" ASPHALT CONC. SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS/SY.	J3	PROP. VAR. DEPTH AGGREGATE BASE COURSE.
C2	PROP. APPROX. 3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS/SY IN EACH OF TWO LAYERS.		
C3	PROP. APPROX. 3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS/SY IN EACH OF TWO LAYERS.	K	SUBGRADE STABILIZATION
		P	PRIME COAT
D1	PROP. APPROX. 3" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS/SY.	R1	1'-6" CONCRETE CURB AND GUTTER.
D2	PROP. APPROX. 4" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS/SY.	R2	2'-6" CONCRETE CURB AND GUTTER.
D3	PROP. APPROX. 4" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C AT AN AVERAGE RATE OF 456 LBS/SY.		
		R4	12" CONCRETE ISLAND COVER.
E1	PROP. APPROX. 3" ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS/SY.	R5	STANDARD CONC BARRIER (SINGLE FACED)
E2	PROP. APPROX. 4" ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS/SY.	R6	6" CONCRETE DRIVEWAY
E3	PROP. APPROX. 5.5" ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS/SY.	R7	2'-9" CONCRETE CURB AND GUTTER.
E4	PROP. APPROX. 4" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS/SY.	R8	SHOULDER BERM GUTTER
		S	4" CONCRETE SIDEWALK.
		T	EARTH MATERIAL.
		U	EXISTING PAVEMENT.
		V1	RETAINING WALL
		V2	NOISE WALL
		W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE STANDARD WEDGING DETAIL SHEET No. 2)
		X	PROP. APPROX. 3" PERMEABLE ASPHALT DRAINAGE COURSE (PADC) TYPE P-57 AT AN AVERAGE RATE OF 270 LBS/SY.
		Y	MILLED RUMBLE STRIPS
		Z	THERMOPLASTIC RUMBLE STRIPS (SEE DETAIL SHEET _)

NOTES:

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

SHOULDERS TO BE PAVED TO FACE OF GUARDRAIL.

REVISIONS

FILE: R:\rodol\R2248E\Roadway Proj\R2248E_RDY_TYP_2.dgn
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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	2
R/W SHEET NO.	

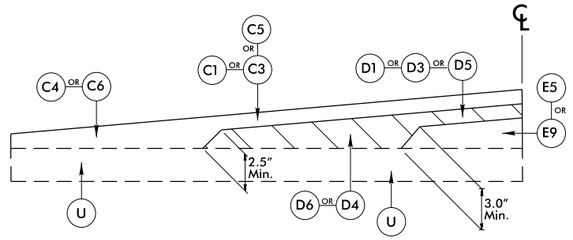
ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

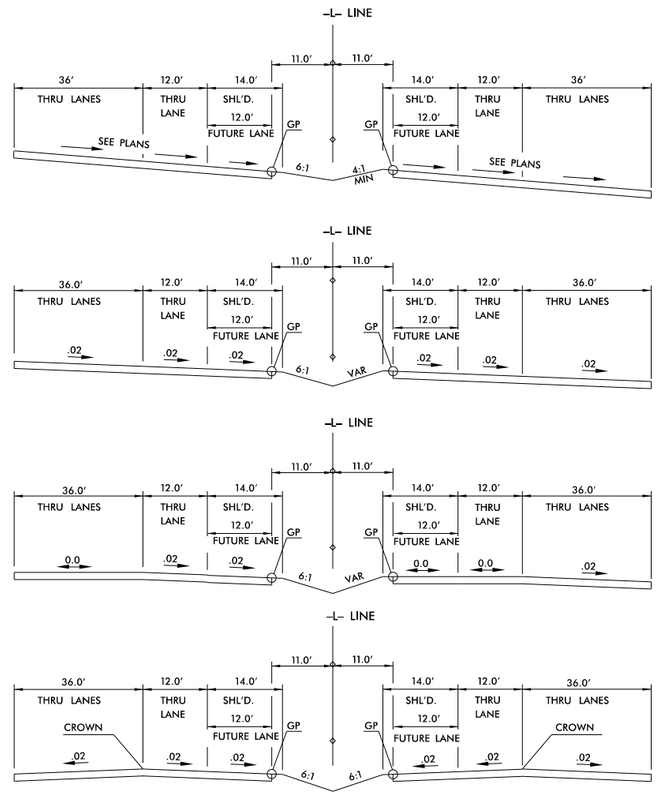
WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1592 MAIL SERVICE CENTER
RALEIGH, NC 27699-1593



LINE	SURFACE				INTERMEDIATE					BASE				
	C3	C4	C5	C6	D1	D3	D4	D5	D6	E3	E5	E6	E7	E9
Y10 (USE WITH TYP. SECTION 12& 16)	X	X				X	X				X			
Y17 (USE WITH TYP. SECTION 20)	X	X				X	X				X			
Y20 (USE WITH TYP. SECTION 23)			X	X				X	X			X		X
Y21 (USE WITH TYP. SECTION 25)			X	X				X	X			X		X
Y22 (USE WITH TYP. SECTION 27)			X	X				X	X				X	X
Y4 (USE WITH TYP. SECTION 33)	X	X			X		X				X			
Y23&Y25 (USE WITH TYP. SECTION 37)	X	X								X	X			
Y24 (USE WITH TYP. SECTION 38)	X	X								X	X			
Y26 (USE WITH TYP. SECTION 40)	X	X			X		X			X	X			

DETAIL SHOWING METHOD OF WEDGING



METHOD OF OBTAINING SUPER ELEVATIONS

(NOT TO SCALE)

PAVEMENT SCHEDULE & WEDGING DETAIL

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	2-A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

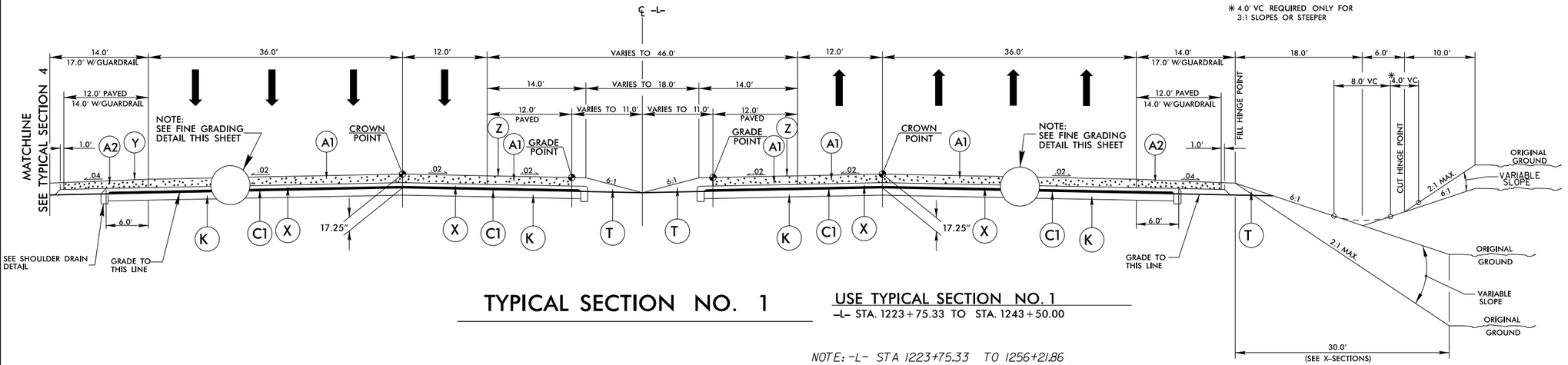
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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NC Licensure F-0378

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PAVEMENT MANAGEMENT UNIT
1592 MAIL SERVICE CENTER
RALEIGH, NC 27699-1593

REVISIONS

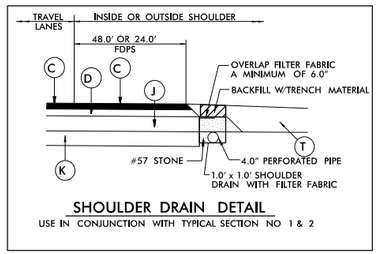
MATCHLINE SEE TYPICAL SECTION 4



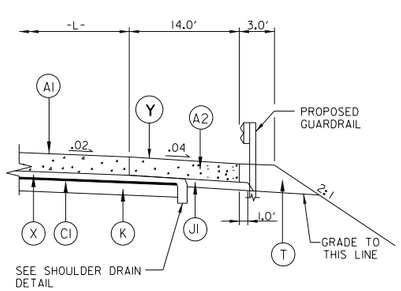
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA. 1223+75.33 TO STA. 1243+50.00

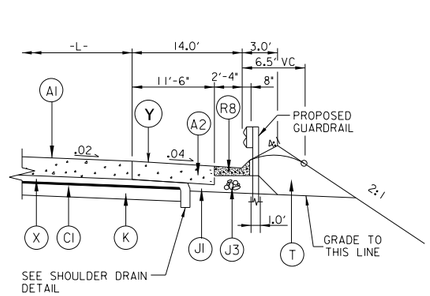
NOTE: -L- STA 1223+75.33 TO 1256+21.86 HAS BEEN GRADED UNDER PREVIOUS CONTRACT. SEE FINE GRADING DETAIL THIS SHEET



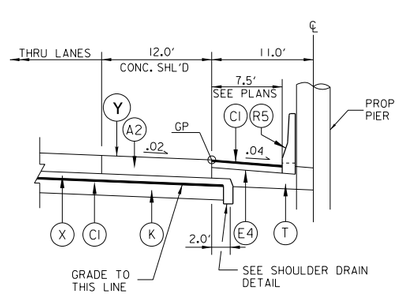
SHOULDER DRAIN DETAIL
USE IN CONJUNCTION WITH TYPICAL SECTION NO 1 & 2



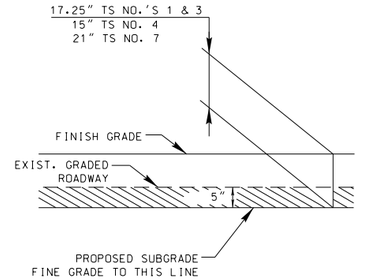
INSERT "A"
-L- SHOULDER
WHEN GUARDRAIL IS REQUIRED
(USE IN CONJUCTION W/ TS NO.1& 2)



INSERT "B"
GUARDRAIL WITH SHOULDER BERM GUTTER IS REQUIRED
(USE IN CONJUCTION W/ TS NO.1& 2)



INSERT "C"
PAVED MEDIAN - PIER PROTECTION
(USE IN CONJUNCTION W/ TS NO.1, 2 & 3)



FINE GRADING DETAIL
USE WITH TYPICAL SECTION 1, 3, 4 AND 7

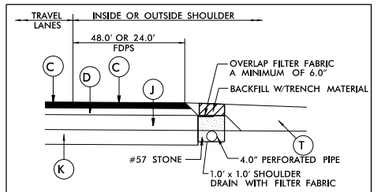
PAVEMENT SCHEDULE

A1	13" CONC
A2	CONC SHL'D
C1	1.25" SF9.5A
C2	3" S9.5B
C3	3" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	5.5" B25.0B
E4	4" B25.0C
J1	8" ABC
J2	10" ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1'-6" C&G
R2	2'-6" C&G
R4	12" CONCRETE ISLAND COVER
R5	STD. CONC BARRIER (SINGLE FACED)
R6	6" CONC. DRIVEWAY
R7	2'-9" C&G
R8	SHLD BERM GUTTER
S	4" CONC SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING
X	3" PADL
Y	MILLED RUMBLE STRIPS
Z	THERMOPLASTIC RUMBLE STRIPS

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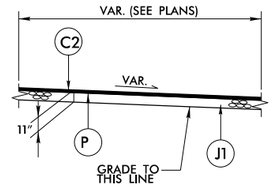
-L- TYPICAL SECTIONS & MISC. DETAILS

REVISIONS

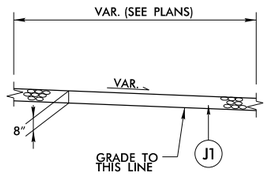


SHOULDER DRAIN DETAIL

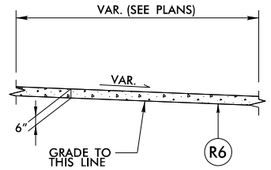
USE IN CONJUNCTION WITH TYPICAL SECTION NO 1 & 2



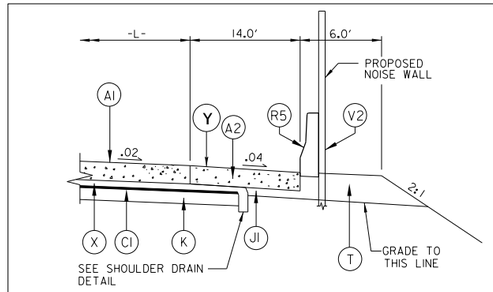
ROADWAY	REMARKS
MISC. PAVED PRIVATE DRIVES	SEE PLANS FOR LOCATIONS
TURNAROUNDS	SEE PLANS FOR LOCATIONS



ROADWAY	REMARKS
MISC. UNPAVED PRIVATE DRIVES	SEE PLANS FOR LOCATIONS



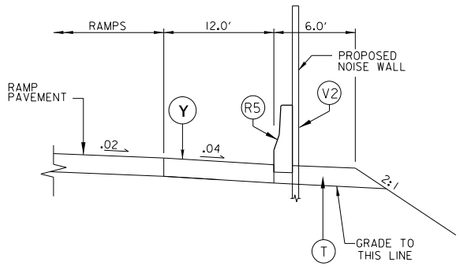
ROADWAY	REMARKS
MISC. CONC PRIVATE DRIVES	SEE PLANS FOR LOCATIONS



DETAIL SHOWING PLACEMENT OF NOISE WALL ON SHOULDERS

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 2

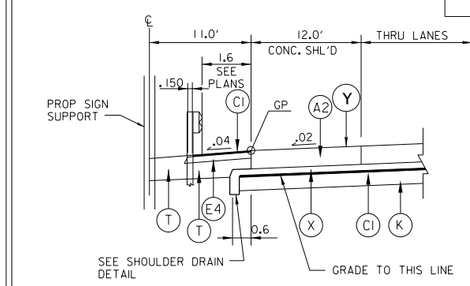
–L– STA. 1337+93.000 TO STA. 1347+60.000 LT.
–L– STA. 1335+82.022 TO STA. 1345+00.000 RT.
–L– STA. 1402+51.000 TO STA. 1407+52.350 LT.



DETAIL SHOWING PLACEMENT OF NOISE WALL ON SHOULDERS

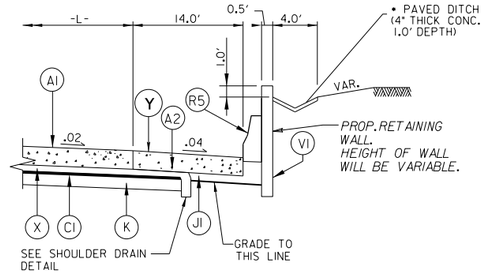
USE IN CONJUNCTION WITH TYPICAL SECTION NO. 4

–RPAY17B– STA. 10+00.000 TO STA. 19+58.654 RT.
–RPBY17A– STA. 10+00.000 TO STA. 20+54.065 LT.
–RPCY17A– STA. 10+00.000 TO STA. 16+75.650 RT.



INSERT "D"

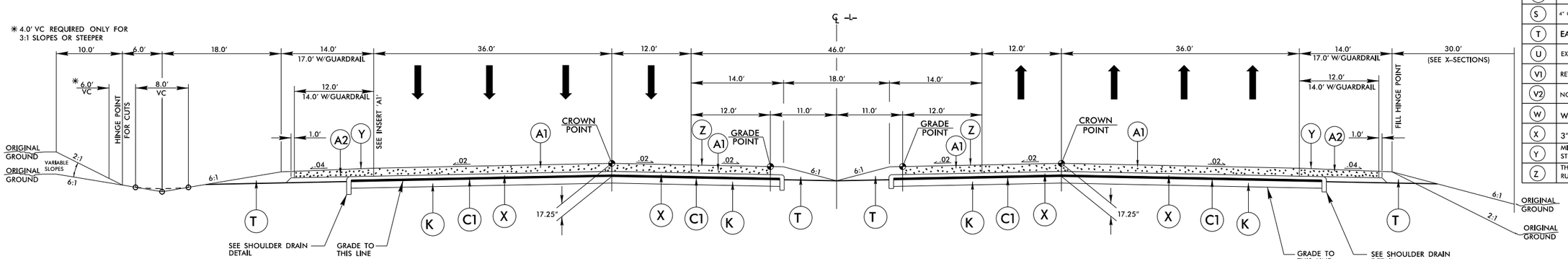
PAVED MEDIAN - OVERHEAD SIGN PROTECTION
(USE IN CONJUNCTION W/ TS NO. 1, 2 & 3)



DETAIL SHOWING PLACEMENT OF RETAINING WALL

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 2
SEE PLANS FOR LOCATIONS

* SEE STD. 850.01 FOR 4" CONC. PAVED DITCH GENERAL NOTES
–L– UNDER –Y22–



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

–L– STA. 1243+50.00 TO STA. 1269+69.12 (BEG. BRIDGE)
–L– STA. 1271+01.77 (END BRIDGE) TO STA. 1280+95.49 (BEG. BRIDGE)
–L– STA. 1282+10.61 (END BRIDGE) TO STA. 1466+40.00 (BEG. BRIDGE)
–L– STA. 1470+01.25 (END BRIDGE) TO STA. 1525+52.20

–L– TYPICAL SECTIONS & MISC. DETAILS

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	2B
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

WilburSmith ASSOCIATES
421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1592 MAIL SERVICE CENTER
RALEIGH, NC 27699-1593

PAVEMENT SCHEDULE

A1	13" CONC
A2	CONC SHL'D
C1	1.25" SF9.5A
C2	3" S9.5B
C3	3" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	5.5" B25.0B
E4	4" B25.0C
J1	8" ABC
J2	10" ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1'-6" C&G
R2	2'-6" C&G
R4	12" CONCRETE ISLAND COVER
R5	STD. CONC BARRIER (SINGLE FACED)
R6	6" CONC. DRIVEWAY
R7	2'-9" C&G
R8	SHLD BERM GUTTER
S	4" CONC SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING
X	3" PADL
Y	MILLED RUMBLE STRIPS
Z	THERMOPLASTIC RUMBLE STRIPS

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	2C
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER

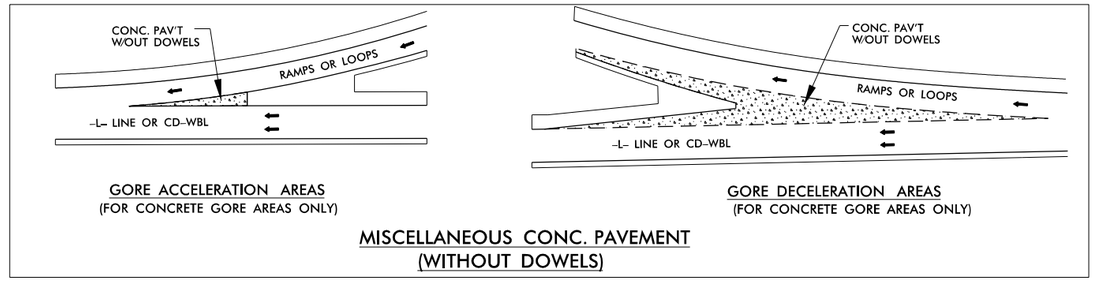
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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NC DEPARTMENT OF TRANSPORTATION
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1592 MAIL SERVICE CENTER
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REVISIONS

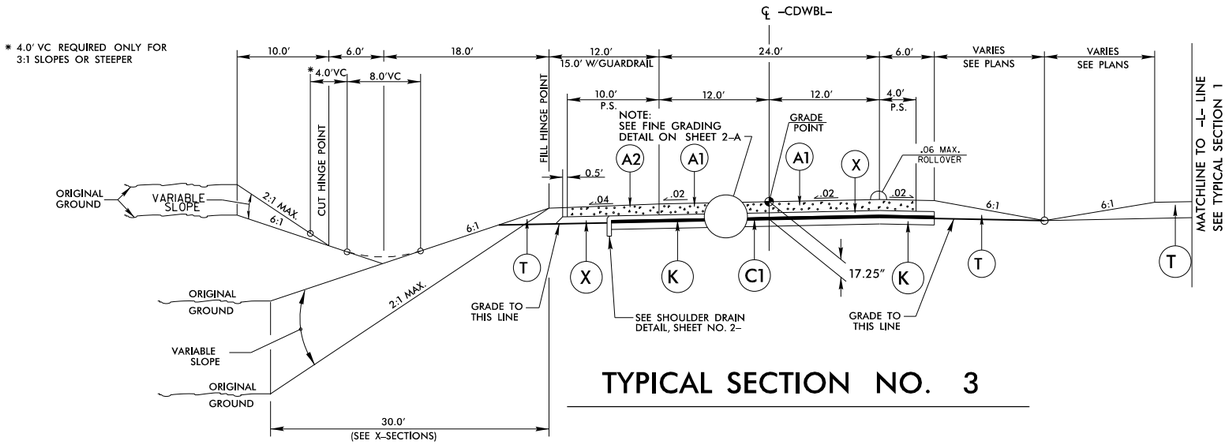


GORE ACCELERATION AREAS
(FOR CONCRETE GORE AREAS ONLY)

GORE DECELERATION AREAS
(FOR CONCRETE GORE AREAS ONLY)

MISCELLANEOUS CONC. PAVEMENT (WITHOUT DOWELS)

* 4.0' VC REQUIRED ONLY FOR 3:1 SLOPES OR STEEPER



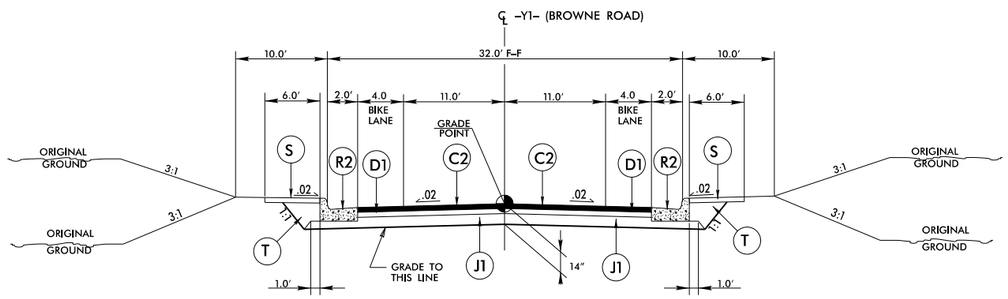
TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

NOTE: –CDWBL– STA.268+02.86 TO STA.272+01.87 HAS BEEN GRADED UNDER PREVIOUS CONTRACT, SEE FINE GRADING DETAIL SHEET 2–A.

–CDWBL– STA. 268+02.86 TO STA. 284+87.38 (BEGIN BRIDGE)
–CDWBL– STA. 286+19.31 (END BRIDGE) TO STA. 292+55.08

* 4.0' VC REQUIRED ONLY FOR



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

–Y1– STA. 33+50.000 TO STA. 35+17.54, TRANSITION FROM EXISITING TO T.S. 8

–Y1– STA. 35+17.54 TO STA. 40+25.99 (BEG. BRIDGE)

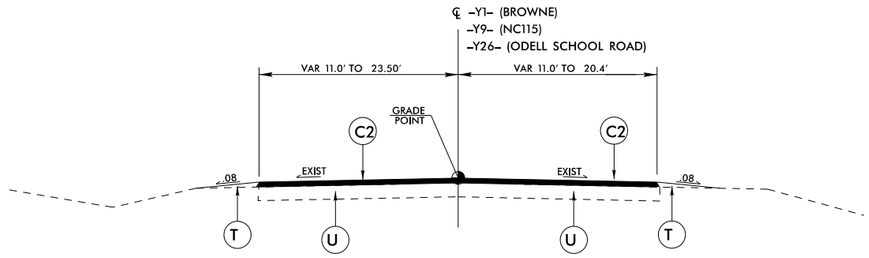
–Y1– STA. 42+51.79 (END BRIDGE) TO STA. 45+25.00

PAVEMENT SCHEDULE

A1	13" CONC
A2	CONC SHL'D
C1	1.25" SF9.5A
C2	3" S9.5B
C3	3" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	5.5" B25.0B
E4	4" B25.0C
J1	8" ABC
J2	10" ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1'–6" C&G
R2	2'–6" C&G
R4	12" CONCRETE ISLAND COVER
R5	STD. CONC BARRIER (SINGLE FACED)
R6	6" CONC. DRIVEWAY
R7	2'–9" C&G
R8	SHLD BERM GUTTER
S	4" CONC SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING
X	3" PADL

TYPICAL SECTIONS –CDWBL– RAMPS & –Y1–

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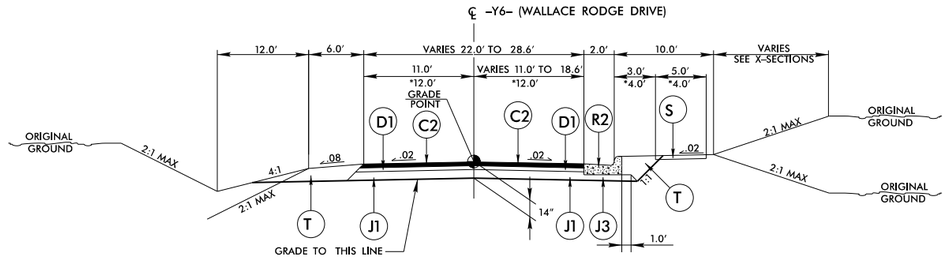
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

–Y1– STA. 45+25.00 TO STA. 47+50.000

–Y9– STA. 33+27.42 TO STA. 34+68.74

–Y26– STA. 16+80.00 TO STA. 25+40.00



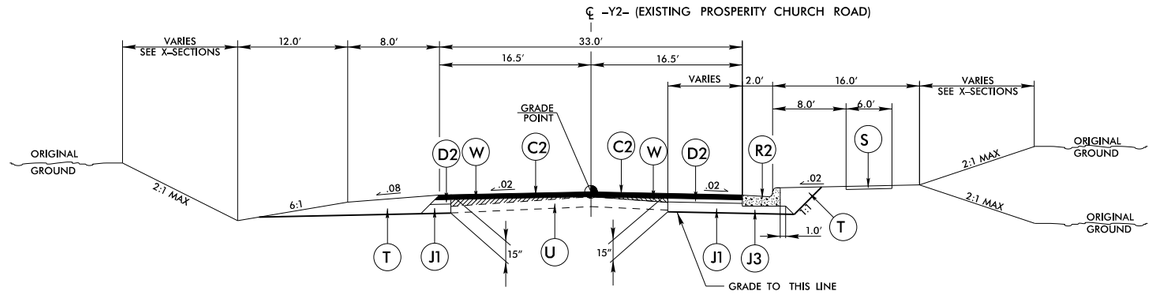
TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6

–Y1A– STA. 10+20.05 TO STA. 12+46.28

–Y1A– STA. 12+46.28 TO STA. 13+30.00, TRANSITION FROM T.S. 6 TO EXISTING

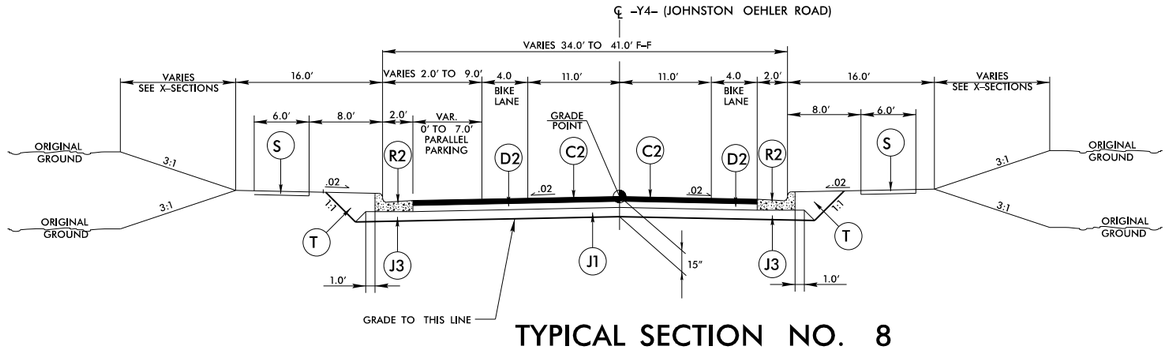
*–Y6– STA. 11+34.00 TO STA. 12+25.37



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7

–Y2– STA. 10+50.19 TO STA. 13+30.00



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8

–Y4– STA. 33+79.00 TO STA. 42+00.00

REVISIONS

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R–2248E	2–D
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1592 MAIL SERVICE CENTER
RALEIGH, NC 27699–1593

PAVEMENT SCHEDULE

A1	13" CONC
A2	CONC SHL'D
C1	1.25" SF9.5A
C2	3" S9.5B
C3	3" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	5.5" B25.0B
E4	4" B25.0C
J1	8" ABC
J2	10" ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1'–6" C&G
R2	2'–6" C&G
R4	12" CONCRETE ISLAND COVER
R5	STD. CONC BARRIER (SINGLE FACED)
R6	6" CONC. DRIVEWAY
R7	2'–9" C&G
R8	SHLD BERM GUTTER
S	4" CONC SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING

TYPICAL SECTIONS

–Y1–, –Y1A–,
–Y2–, –Y4–, & –Y26–

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	2-E
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

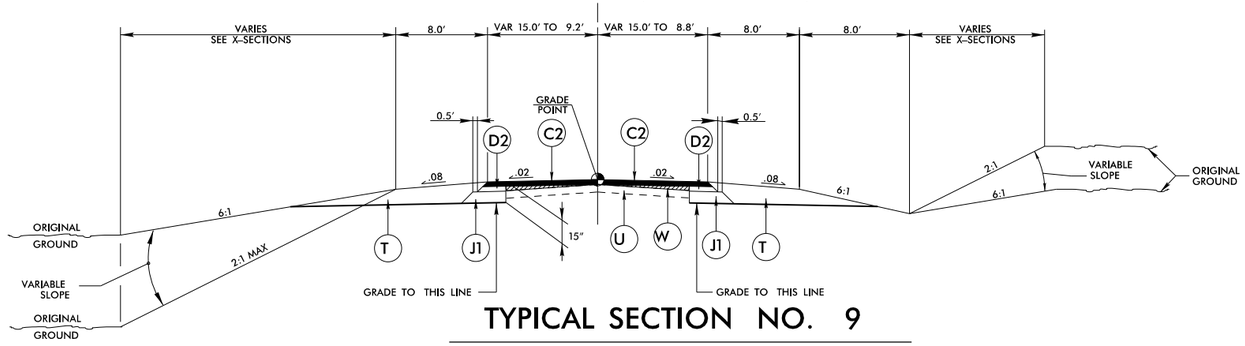
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1592 MAIL SERVICE CENTER
RALEIGH, NC 27699-1593

REVISIONS

C –Y4– (JOHNSTON OEHLER ROAD)



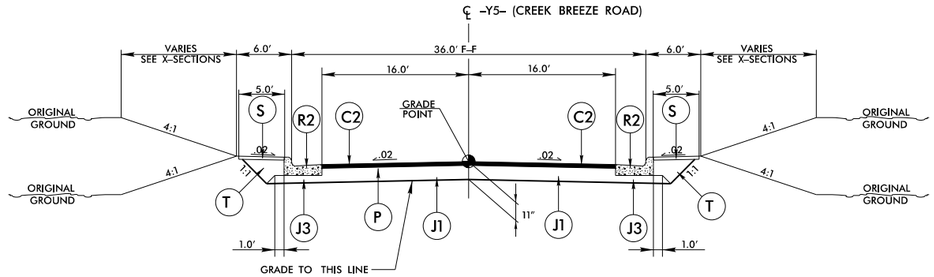
TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9

–Y4– STA. 42+00.00 TO STA. 43+96.00, TRANSITION FROM T.S. 8 TO T.S. 9

–Y4– STA. 43+96.00 TO STA. 45+00.00

℄ –Y5– (CREEK BREEZE ROAD)



TYPICAL SECTION NO. 10

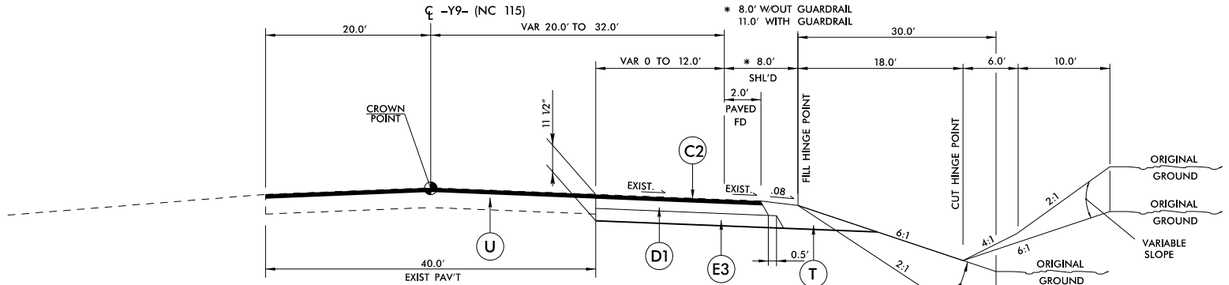
USE TYPICAL SECTION NO. 10

–Y5– STA. 18+00.00 TO STA. 19+30.91

PAVEMENT SCHEDULE	
A1	13" CONC
A2	CONC SHL'D
C1	1.25" SF9.5A
C2	3" S9.5B
C3	3" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	5.5" B25.0B
E4	4" B25.0C
J1	8" ABC
J2	10" ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1'-6" C&G
R2	2'-6" C&G
R4	12" CONCRETE ISLAND COVER
R5	STD. CONC. BARRIER (SINGLE FACED)
R6	6" CONC. DRIVEWAY
R7	2'-9" C&G
R8	SHLD BERM GUTTER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING

℄ –Y9– (NC 115)

* 8.0' W/OUT GUARDRAIL
11.0' WITH GUARDRAIL

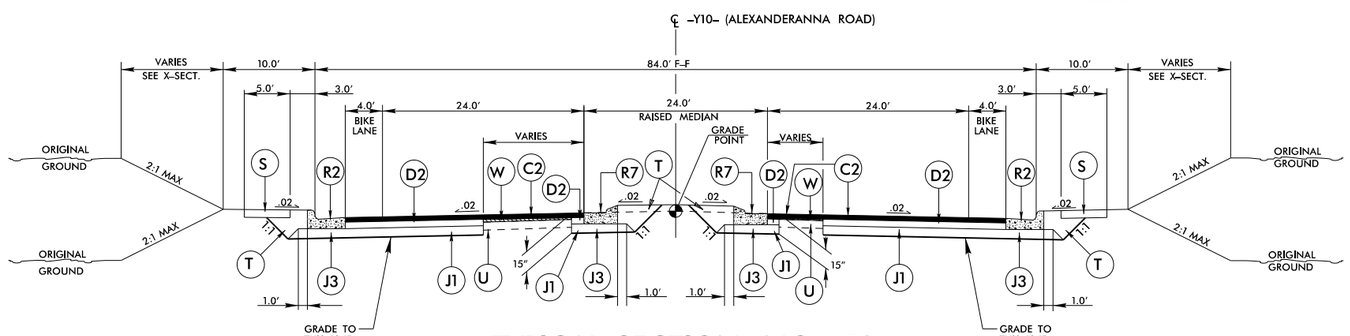


TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11

–Y9– STA. 28+70.75 TO STA. 30+97.03

℄ –Y10– (ALEXANDERANNA ROAD)



TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12

–Y10– STA. 10+63.41 TO STA. 19+85.00

TYPICAL SECTIONS –Y4–, –Y5–, –Y9– & –Y10–

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PROJECT REFERENCE NO.	SHEET NO.
R-2248E	2-F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

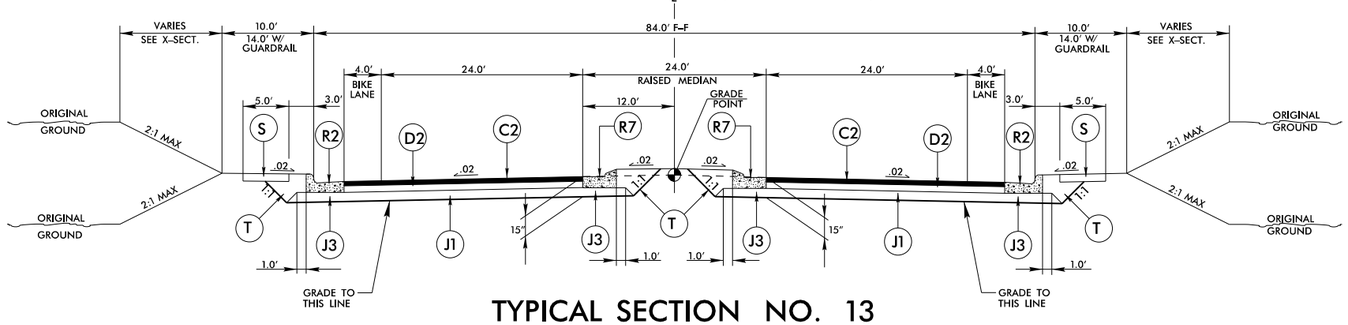
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1592 MAIL SERVICE CENTER
RALEIGH, NC 27699-1593

REVISIONS

℄ -Y10- (ALEXANDERANNA ROAD)

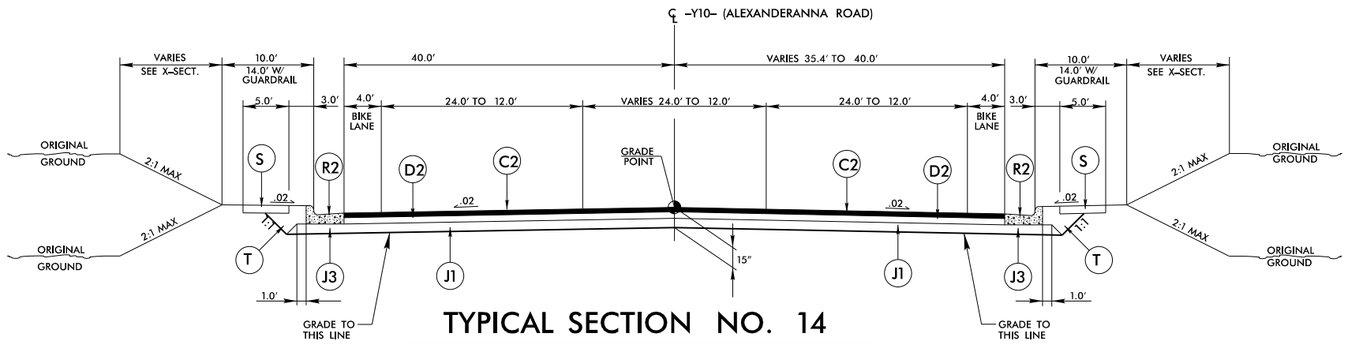


TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13

-Y10- STA. 19+85.00 TO STA. 45+00.00 (BEG. BRIDGE)
-Y10- STA. 46+32.33 (END BRIDGE) TO STA. 53+46.22

℄ -Y10- (ALEXANDERANNA ROAD)

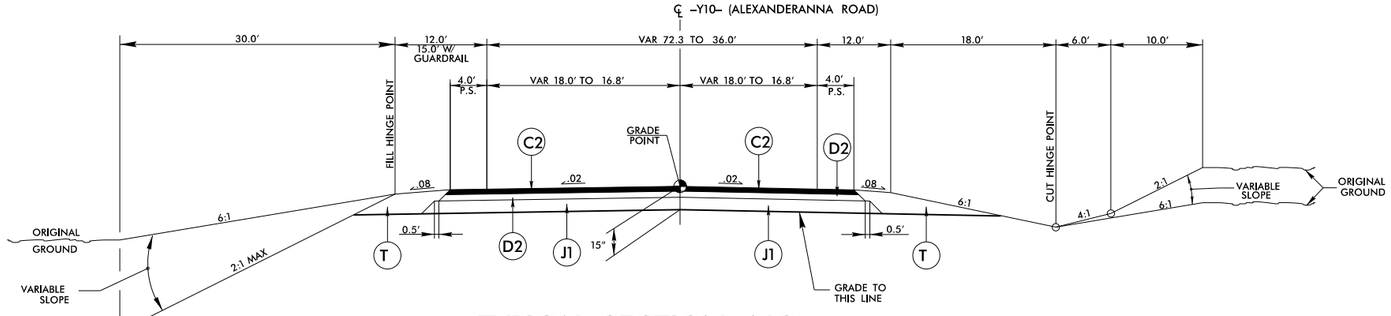


TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14

-Y10- STA. 53+46.22 TO STA. 60+00

℄ -Y10- (ALEXANDERANNA ROAD)



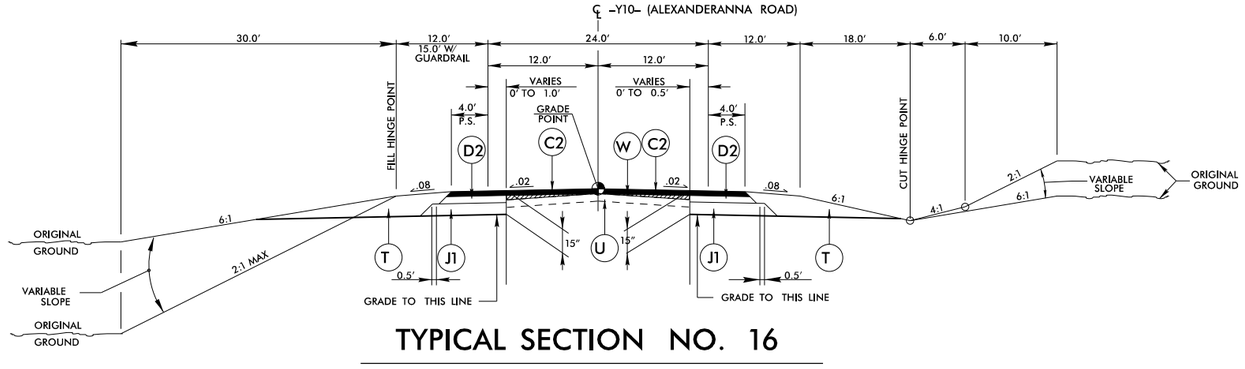
TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15

-Y10- STA. 60+00 TO STA. 60+70, TRANSITION FROM T.S. 14 TO T.S. 15

-Y10- STA. 60+70.00 TO STA. 62+50.00

℄ -Y10- (ALEXANDERANNA ROAD)



TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16

-Y10- STA. 62+50.00 TO STA. 68+50.00, TRANSITION FROM T.S. 15 TO T.S. 16

-Y10- STA. 68+50.00 TO STA. 70+00.00

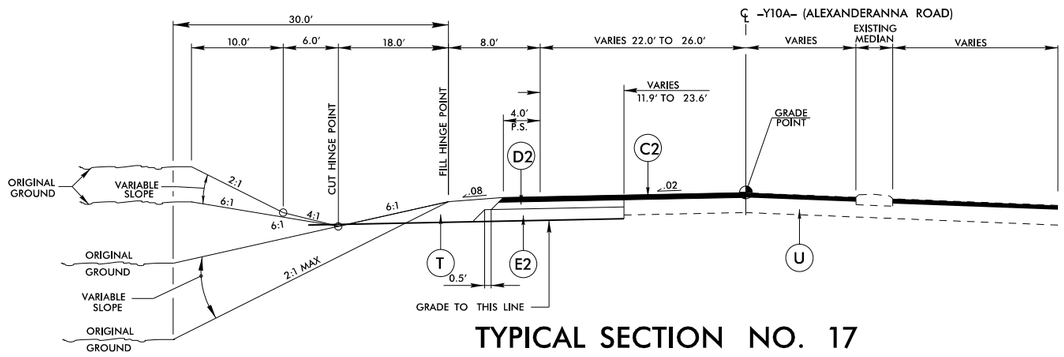
-Y10- STA. 70+00.00 TO STA. 70+50.00, TRANSITION FROM T.S. 16 TO EXISTING

PAVEMENT SCHEDULE

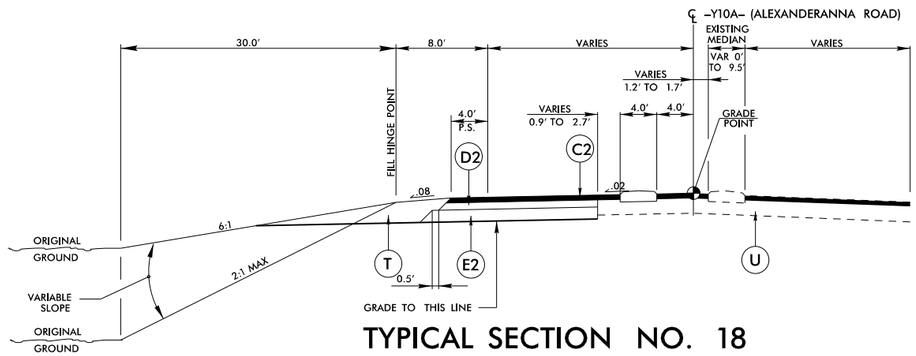
A1	13" CONC
A2	CONC SHL'D
C1	1.25" SF9.5A
C2	3" S9.5B
C3	3" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	5.5" B25.0B
E4	4" B25.0C
J1	8" ABC
J2	10" ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1'-6" C&G
R2	2'-6" C&G
R4	12" CONCRETE ISLAND COVER
R5	STD. CONC BARRIER (SINGLE FACED)
R6	6" CONC. DRIVEWAY
R7	2'-9" C&G
R8	SHLD BERM GUTTER
S	4" CONC SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING

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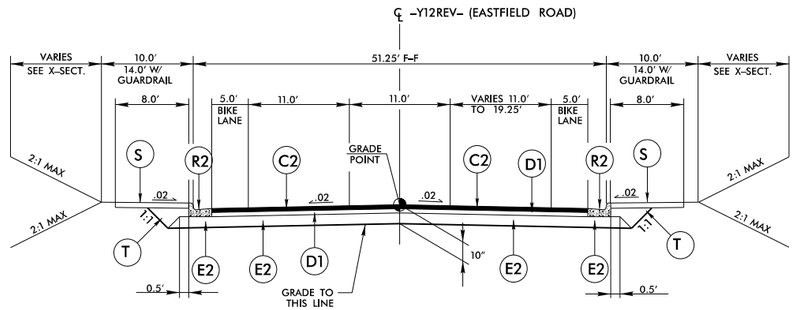
TYPICAL SECTIONS
-Y10-



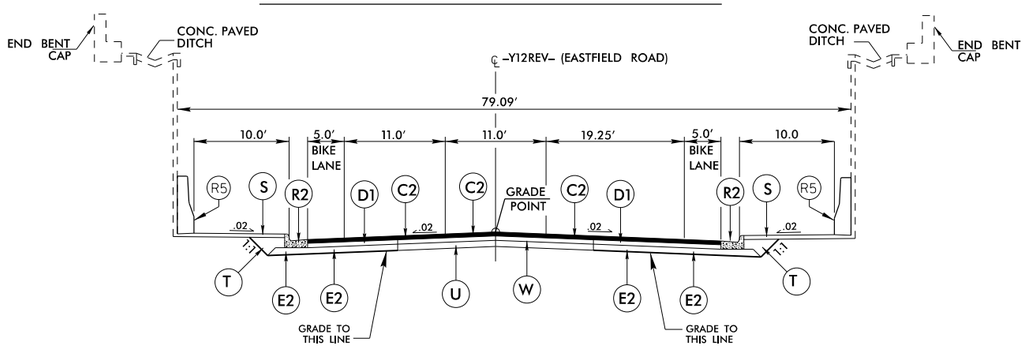
TYPICAL SECTION NO. 17



TYPICAL SECTION NO. 18



TYPICAL SECTION NO. 19



TYPICAL SECTION NO. 20

REVISIONS

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R–2248E	2–G
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

WilburSmith ASSOCIATES
421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1592 MAIL SERVICE CENTER
RALEIGH, NC 27699–1593

USE TYPICAL SECTION NO. 17

–Y10A– STA. 10+35.00 TO STA. 12+60.36

USE TYPICAL SECTION NO. 18

–Y10A– STA. 12+60.36 TO STA. 14+50.00
TRANSITION FROM T.S. 17 TO T.S. 18

–Y10A– STA. 14+50.00 TO STA. 17+81.72

USE TYPICAL SECTION NO. 19

–Y12REV– STA. 11+24.44 TO STA. 13+46.94
–Y12REV– STA. 16+57.26 TO STA. 19+05.00

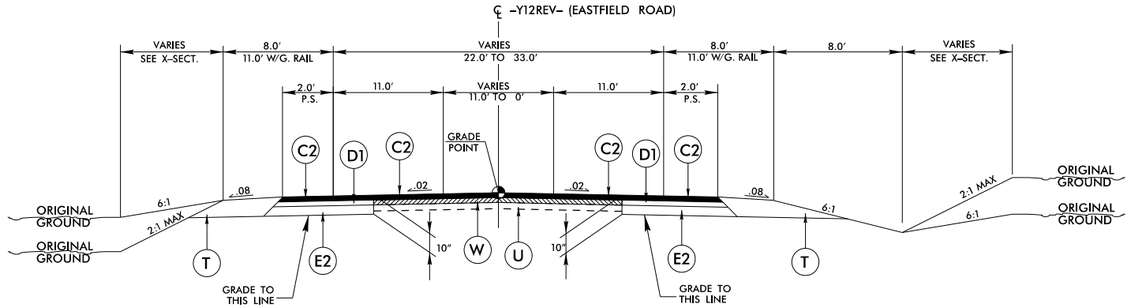
USE TYPICAL SECTION NO. 20

–Y12REV– STA. 13+46.94 TO STA. 16+57.26

PAVEMENT SCHEDULE

A1	13″ CONC
A2	CONC SHL'D
C1	1.25″ SF9.5A
C2	3″ S9.5B
C3	3″ S9.5C
D1	3″ I19.0B
D2	4″ I19.0B
D3	4″ I19.0C
E1	3″ B25.0B
E2	4″ B25.0B
E3	5.5″ B25.0B
E4	4″ B25.0C
J1	8″ ABC
J2	10″ ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1′–6″ C&G
R2	2′–6″ C&G
R4	12″ CONCRETE ISLAND COVER
R5	STD. CONC. BARRIER (SINGLE FACED)
R6	6″ CONC. DRIVEWAY
R7	2′–9″ C&G
R8	SHLD BERM GUTTER
S	4″ CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING

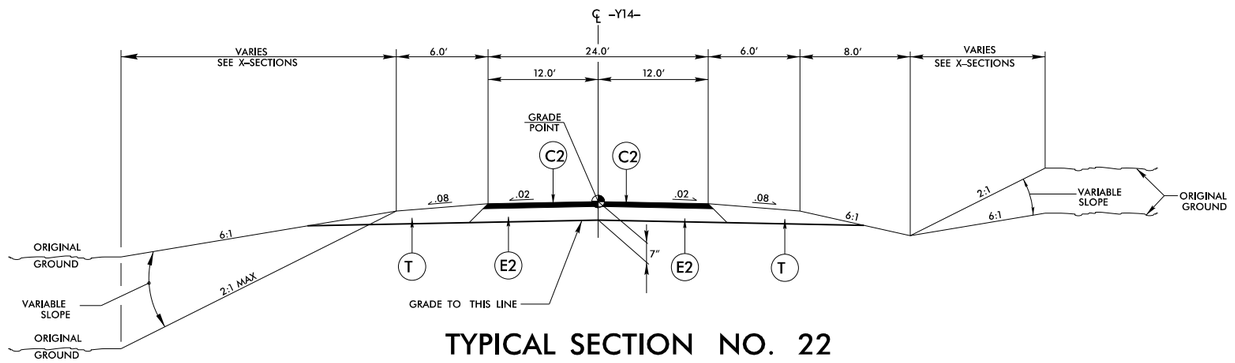
TYPICAL SECTIONS
–Y10A– & –Y12REV–



TYPICAL SECTION NO. 21

USE TYPICAL SECTION NO. 21

–Y12REV– STA. 19+05.00 TO STA. 22+51.25, TRANSITION FROM T.S. 19 TO T.S. 21



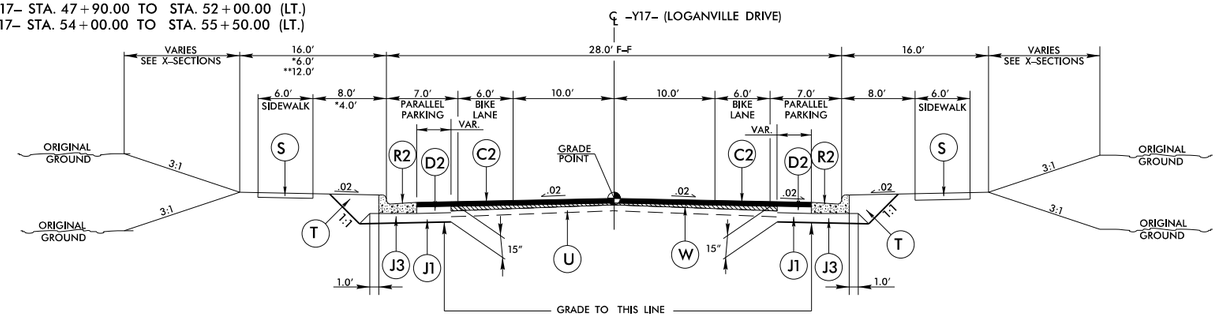
TYPICAL SECTION NO. 22

USE TYPICAL SECTION NO. 22

NOTE: –Y14– STA. 12+70.00 TO STA. 12+81.14, TRANSITION FROM EXISTING TO T.S. 22

–Y14– STA. 12+81.14 TO STA. 14+69.44

*–Y17– STA. 47+90.00 TO STA. 52+00.00 (LT.)
**–Y17– STA. 54+00.00 TO STA. 55+50.00 (LT.)

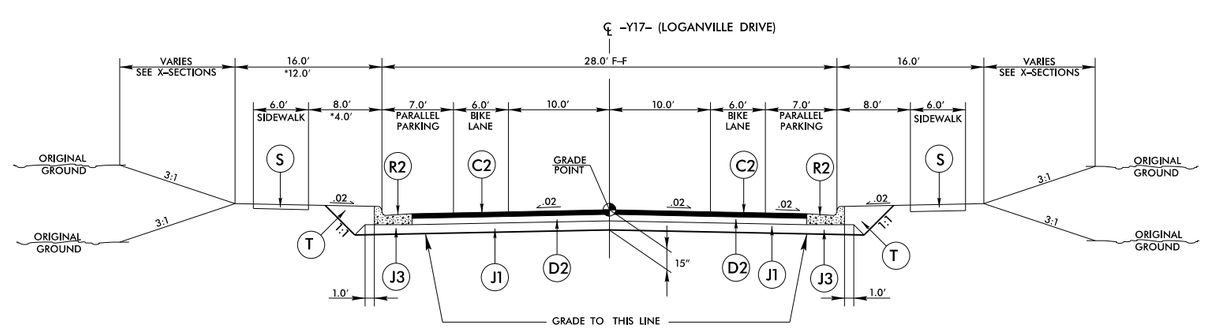


TYPICAL SECTION NO. 23

USE TYPICAL SECTION NO. 23

–Y17– STA. 47+90.00 TO STA. 52+48.00

–Y17– STA. 46+50.00 TO STA. 47+90.00, TRANSITION FROM EXISTING TO T.S. 23



TYPICAL SECTION NO. 24

USE TYPICAL SECTION NO. 24

–Y17– STA. 52+48.00TO STA. 56+93.04

–Y17– STA. 56+93.04 TO STA. 59+44.74, TRANSITION FROM T.S. 24 TO T.S. 25

–Y17– STA. 59+44.74 TO STA. 60+73.07, TRANSITION FROM T.S. 25 TO T.S. 24

–Y17– STA. 63+16.436 TO STA. 64+44.75, TRANSITION FROM T.S. 24 TO T.S. 25

–Y17– STA. 64+44.75 TO STA. 66+44.89, TRANSITION FROM T.S. 25 TO T.S. 24

–Y17– STA. 66+44.89 TO STA. 71+73.00

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R–2248E	2–H
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

WilburSmith ASSOCIATES
421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

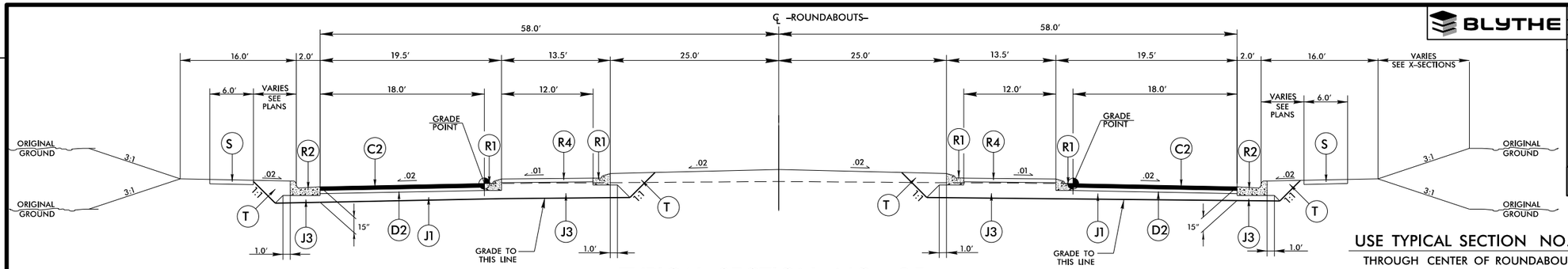
NC DEPARTMENT OF TRANSPORTATION PAVEMENT MANAGEMENT UNIT 1592 MAIL SERVICE CENTER RALEIGH, NC 27699–1592

PAVEMENT SCHEDULE

A1	13" CONC
A2	CONC SHL'D
C1	1.25" SF9.5A
C2	3" S9.5B
C3	3" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	5.5" B25.0B
E4	4" B25.0C
J1	8" ABC
J2	10" ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1'–6" C&G
R2	2'–6" C&G
R4	12" CONCRETE ISLAND COVER
R5	STD. CONC BARRIER (SINGLE FACED)
R6	6" CONC. DRIVEWAY
R7	2'–9" C&G
R8	SHLD BERM GUTTER
S	4" CONC SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING

TYPICAL SECTIONS
–Y12REV–, –Y14–
& –Y17–

FILE: R:\ncdot\R2248E\Roadway\Proj\R2248E_RDY_TYP_2H.dgn
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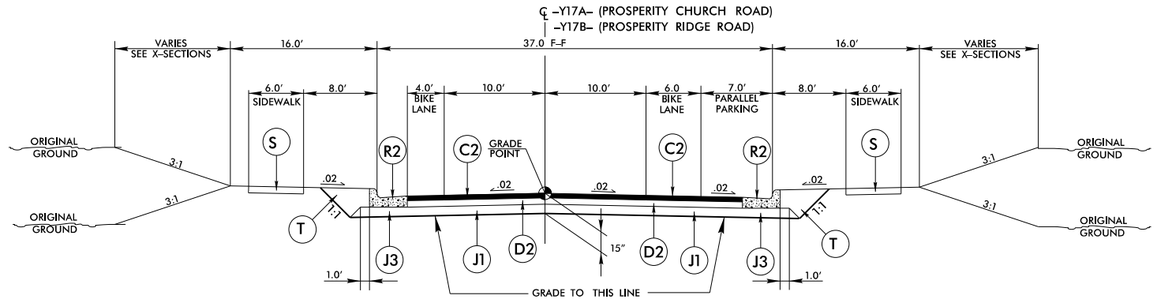


TYPICAL SECTION NO. 25

USE TYPICAL SECTION NO. 25

THROUGH CENTER OF ROUNDABOUT

–Y17– STA. 59+44.74 (RAE)
–Y17– STA. 64+44.75 (RAF)
–Y17A– STA. 46+95.34 (RAB)
–Y17A– STA. 51+95.34 (RAC)
–Y17B– STA. 77+31.56 (RAA)
–Y17B– STA. 82+31.56 (RAD)



TYPICAL SECTION NO. 26

USE TYPICAL SECTION NO. 26

–Y17A– STA. 45+10.49 TO STA. 46+95.34, TRANSITION FROM T.S. 26 TO T.S. 25

–Y17A– STA. 46+95.34 TO STA. 48+23.66 TRANSITION FROM T.S. 26 TO T.S. 25

–Y17A– STA. 50+67.03 TO STA. 51+95.34, TRANSITION FROM T.S. 26 TO T.S. 26

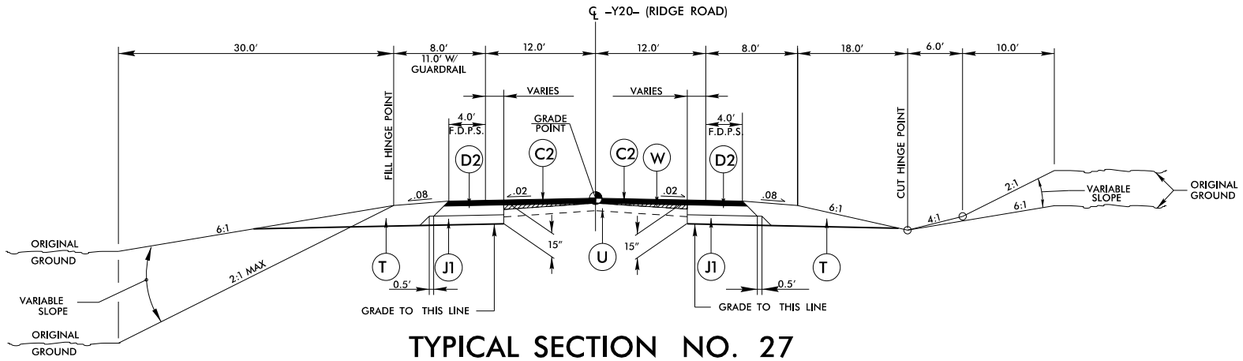
–Y17A– STA. 51+95.34 TO STA. 52+65.00, TRANSITION FROM T.S. 25 TO T.S. 26

–Y17B– STA. 76+31.83 TO STA. 77+31.56, TRANSITION FROM T.S. 26 TO T.S. 25

–Y17B– STA. 77+31.56 TO STA. 78+59.88 FROM T.S. 25 TO T.S. 26

–Y17B– STA. 81+03.25 +/– TO STA. 82+31.56, TRANSITION FROM T.S. 26 TO T.S. 25

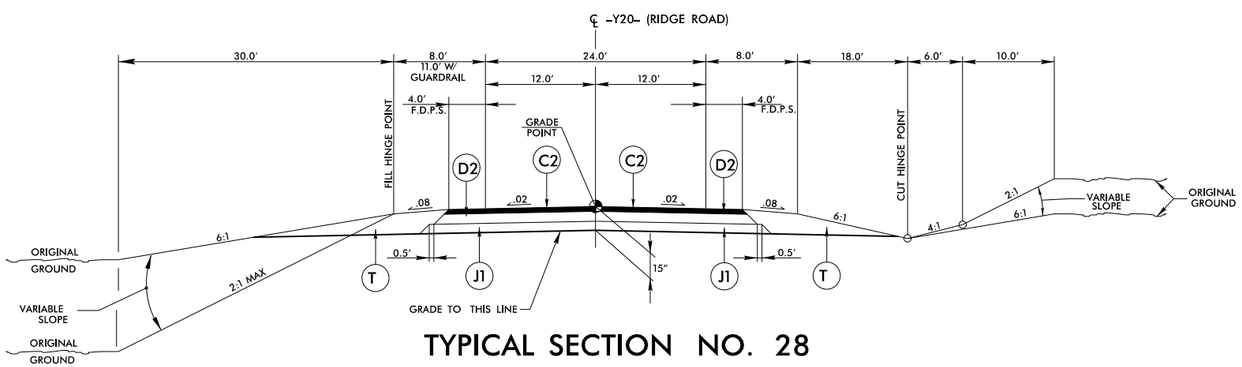
–Y17B– STA. 82+31.56 TO STA. 83+33.32, TRANSITION FROM T.S. 25 TO T.S. 26



TYPICAL SECTION NO. 27

USE TYPICAL SECTION NO. 27

–Y20– STA. 35+75.00 TO STA. 39+37.00
–Y20– STA. 70+86.65 TO STA. 74+40.00
–Y20– STA. 74+40.00 TO STA. 74+80.00, OVERLAY EXISTING PAVEMENT ONLY



TYPICAL SECTION NO. 28

USE TYPICAL SECTION NO. 28

–Y20– STA. 39+37.00 TO STA. 47+34.95(BEG. BRIDGE)
–Y20– STA. 48+86.78 (END BRIDGE) TO STA. 70+86.65

REVISIONS

FILE: R:\ncdot\R2248E\Roadway\Proj\R2248E_RDY_TYP_2Ls.dgn
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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	2-I
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

WilburSmith ASSOCIATES
421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

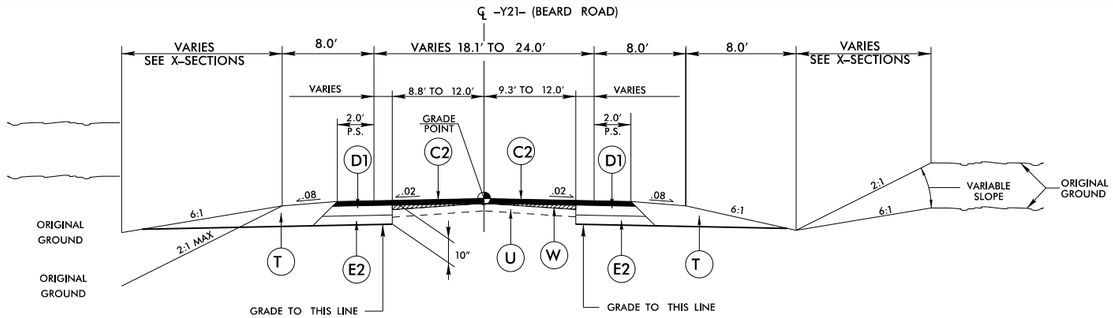
NC DEPARTMENT OF TRANSPORTATION PAVEMENT MANAGEMENT UNIT 1592 MAIL SERVICE CENTER RALEIGH, NC 27699-1593

PAVEMENT SCHEDULE

A1	13″ CONC
A2	CONC SHL'D
C1	1.25″ SF9.5A
C2	3″ S9.5B
C3	3″ S9.5C
D1	3″ I19.0B
D2	4″ I19.0B
D3	4″ I19.0C
E1	3″ B25.0B
E2	4″ B25.0B
E3	5.5″ B25.0B
E4	4″ B25.0C
J1	8″ ABC
J2	10″ ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1′–6″ C&G
R2	2′–6″ C&G
R4	12″ CONCRETE ISLAND COVER
R5	STD. CONC BARRIER (SINGLE FACED)
R6	6″ CONC. DRIVEWAY
R7	2′–9″ C&G
R8	SHLD BERM GUTTER
S	4″ CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING

TYPICAL SECTIONS
ROUNDABOUTS, –Y17A–, –Y17B– & –Y20–

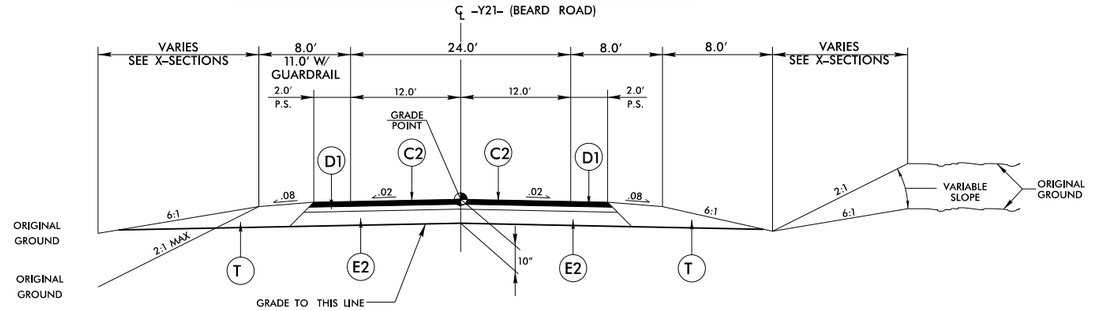
REVISIONS



TYPICAL SECTION NO. 29

USE TYPICAL SECTION NO. 29

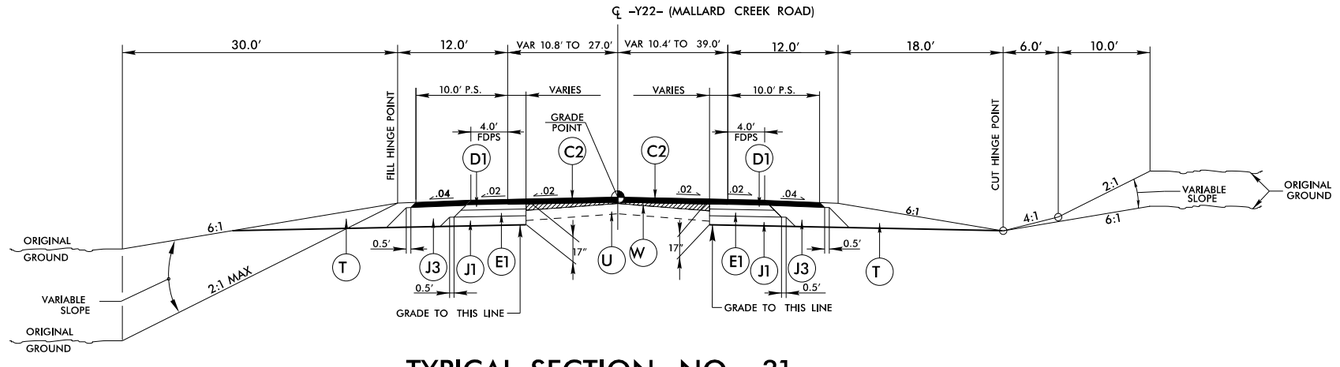
–Y21– STA. 11+00.00 TO STA. 13+28.00



TYPICAL SECTION NO. 30

USE TYPICAL SECTION NO. 30

–Y21– STA. 13+28.00 TO STA. 15+35.64

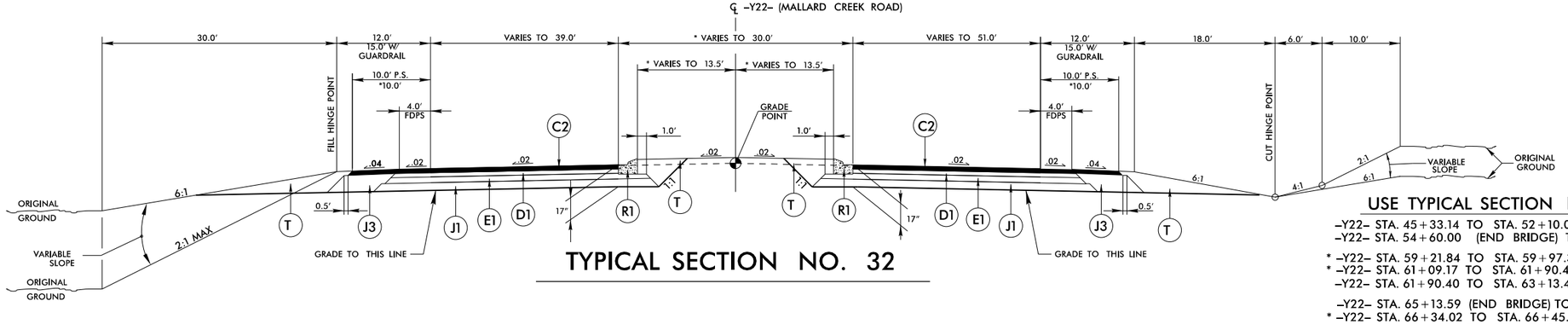


TYPICAL SECTION NO. 31

USE TYPICAL SECTION NO. 31

–Y22– STA. 38+49.51 TO STA. 45+33.14

–Y22– STA. 92+70.00 TO STA. 97+50.00



TYPICAL SECTION NO. 32

USE TYPICAL SECTION NO. 32

–Y22– STA. 45+33.14 TO STA. 52+10.00 (BEGIN BRIDGE)
–Y22– STA. 54+60.00 (END BRIDGE) TO STA. 59+21.84

* –Y22– STA. 59+21.84 TO STA. 59+97.31
* –Y22– STA. 61+09.17 TO STA. 61+90.40
–Y22– STA. 61+90.40 TO STA. 63+13.48 (BEGIN BRIDGE)

–Y22– STA. 65+13.59 (END BRIDGE) TO STA. 66+34.02
* –Y22– STA. 66+34.02 TO STA. 66+45.52
* –Y22– STA. 68+16.16 TO STA. 69+28.60

–Y22– STA. 69+28.60 TO STA. 88+72.09

TYPICAL SECTIONS
–Y21– & –Y22–

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R–2248E	2–J
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

WilburSmith ASSOCIATES
421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

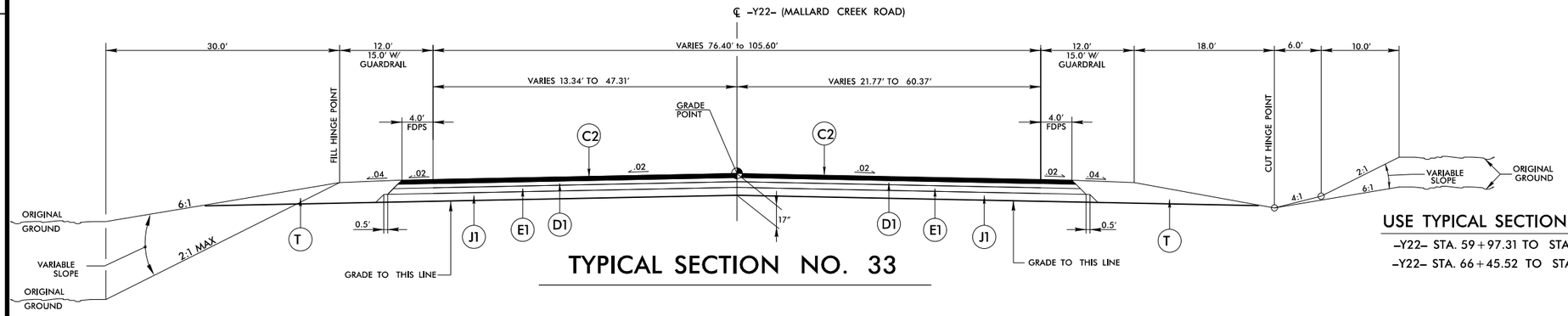
NC DEPARTMENT OF TRANSPORTATION PAVEMENT MANAGEMENT UNIT 1592 MAIL SERVICE CENTER RALEIGH, NC 27699–1593

PAVEMENT SCHEDULE

A1	13″ CONC
A2	CONC SHL'D
C1	1.25″ SF9.5A
C2	3″ S9.5B
C3	3″ S9.5C
D1	3″ I19.0B
D2	4″ I19.0B
D3	4″ I19.0C
E1	3″ B25.0B
E2	4″ B25.0B
E3	5.5″ B25.0B
E4	4″ B25.0C
J1	8″ ABC
J2	10″ ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1′–6″ C&G
R2	2′–6″ C&G
R4	12″ CONCRETE ISLAND COVER
R5	STD. CONC BARRIER (SINGLE FACED)
R6	6″ CONC. DRIVEWAY
R7	2′–9″ C&G
R8	SHLD BERM GUTTER
S	4″ CONC SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING

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REVISIONS

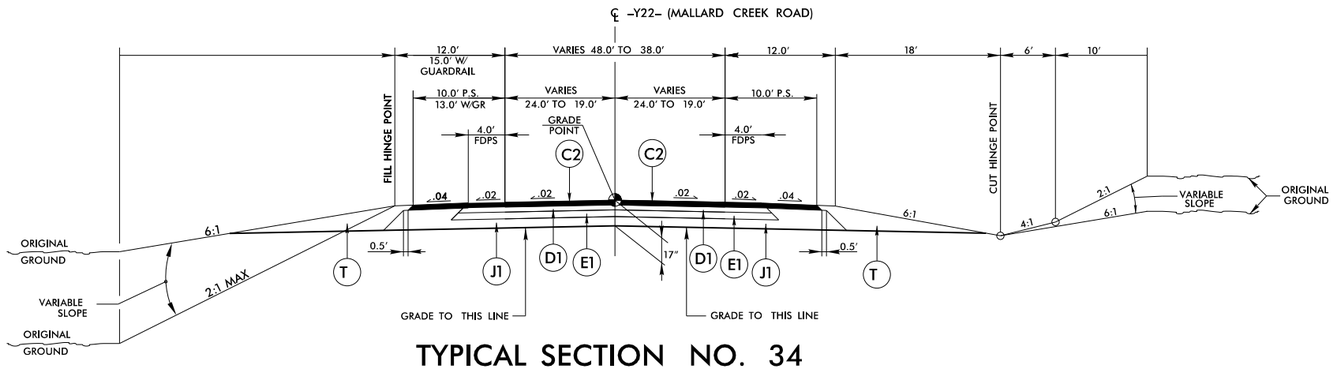


TYPICAL SECTION NO. 33

USE TYPICAL SECTION NO. 33

–Y22– STA. 59+97.31 TO STA. 61+09.17

–Y22– STA. 66+45.52 TO STA. 68+16.16

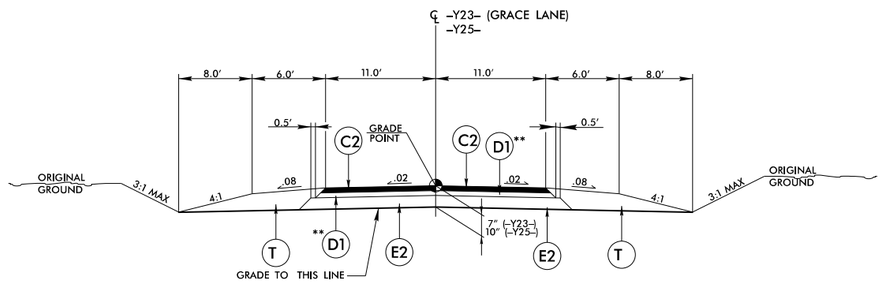


TYPICAL SECTION NO. 34

USE TYPICAL SECTION NO. 34

–Y22– STA. 88+72.09 TO STA. 90+20.00, TRANSITION FROM T.S. 32 TO T.S. 34

–Y22– STA. 90+20.00 TO STA. 92+70.00



TYPICAL SECTION NO. 35

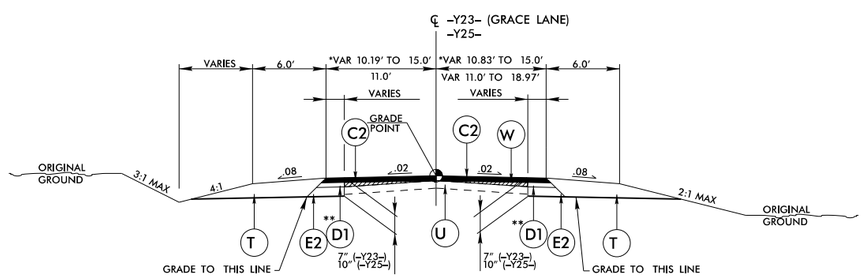
USE TYPICAL SECTION NO. 35

–Y23– STA. 10+40.00 TO STA. 11+41.00

NOTE: –Y23– STA. 11+41.00 TO STA. 12+30.00, TRANSITION FROM T.S. 35 TO T.S. 36

*–Y25– STA. 10+80.50 TO STA. 19+00.00

** OMIT D1 PAVEMENT LAYER FROM Y23



TYPICAL SECTION NO. 36

USE TYPICAL SECTION NO. 36

–Y23– STA. 12+24.89 TO STA. 12+30.00

*–Y25– STA. 19+00.00 TO STA 21+16.00

**OMIT D1 PAVEMENT LAYER FROM Y23

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R–2248E	2–K
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

WilburSmith ASSOCIATES
421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

NC DEPARTMENT OF TRANSPORTATION PAVEMENT MANAGEMENT UNIT 1592 MAIL SERVICE CENTER RALEIGH NC 27699–1593

PAVEMENT SCHEDULE

A1	13" CONC
A2	CONC SHL'D
C1	1.25" SF9.5A
C2	3" S9.5B
C3	3" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	5.5" B25.0B
E4	4" B25.0C
J1	8" ABC
J2	10" ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1'–6" C&G
R2	2'–6" C&G
R4	12" CONCRETE ISLAND COVER
R5	STD. CONC BARRIER (SINGLE FACED)
R6	6" CONC. DRIVEWAY
R7	2'–9" C&G
R8	SHLD BERM GUTTER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING

TYPICAL SECTIONS –Y22–, –Y23– & –Y25–

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	2-L
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER

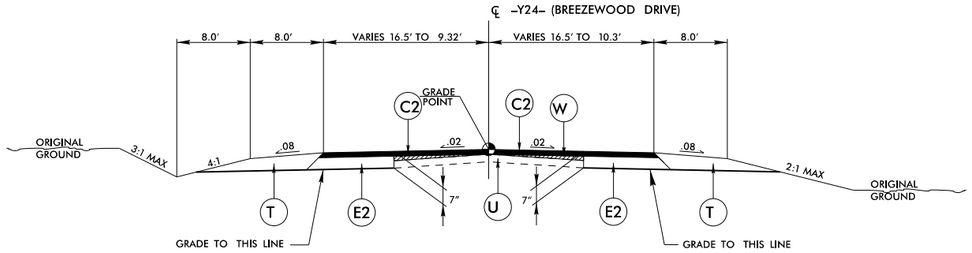
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1592 MAIL SERVICE CENTER
RALEIGH, NC 27699-1593

REVISIONS

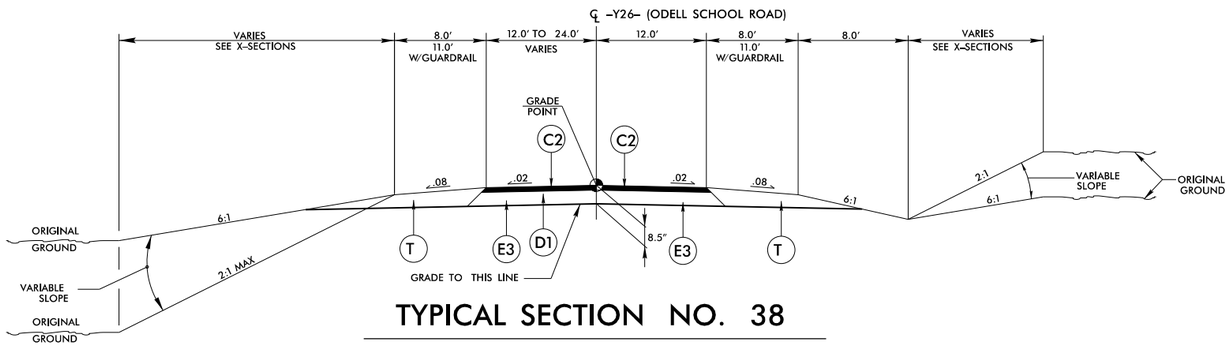


TYPICAL SECTION NO. 37

USE TYPICAL SECTION NO. 37

-Y24- STA. 10+40.00 TO STA. 15+23.00

-Y24- STA. 15+23.00 TO STA. 16+58.86, TRANSITION FROM T.S. 37 TO EXISTING

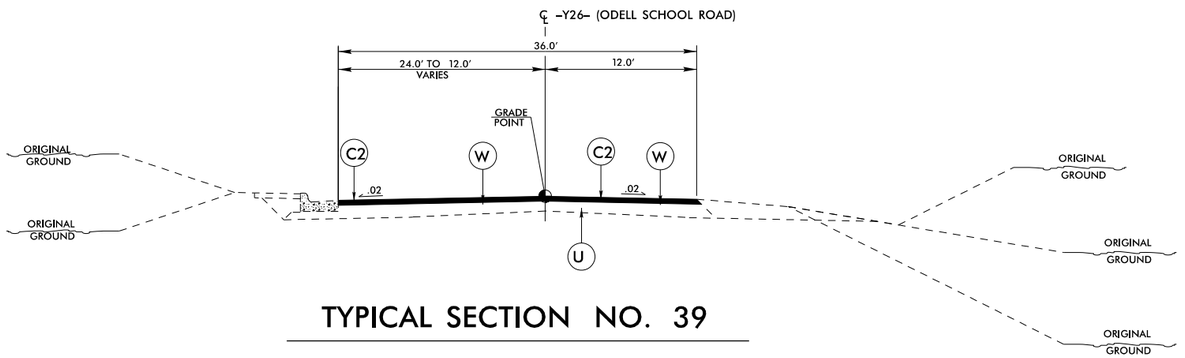


TYPICAL SECTION NO. 38

USE TYPICAL SECTION NO. 38

-Y26- STA. 10+40.00 TO STA. 15+12.79

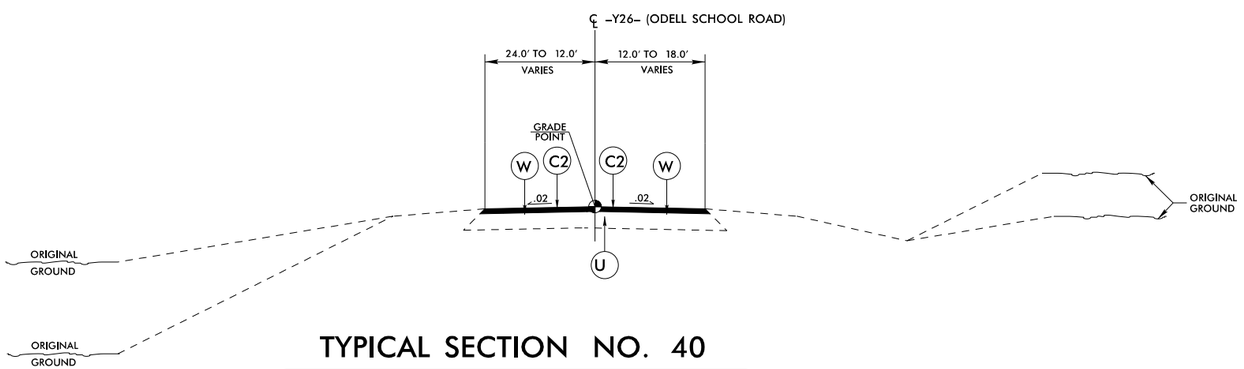
-Y26- STA. 25+40.00 TO STA. 28+58.29



TYPICAL SECTION NO. 39

USE TYPICAL SECTION NO. 39

-Y26- STA. 15+12.79 TO STA. 20+75.20



TYPICAL SECTION NO. 40

USE TYPICAL SECTION NO. 40

-Y26- STA. 20+75.20 TO STA. 25+40.00

PAVEMENT SCHEDULE

A1	13" CONC
A2	CONC SHL'D
C1	1.25" SF9.5A
C2	3" S9.5B
C3	3" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	5.5" B25.0B
E4	4" B25.0C
J1	8" ABC
J2	10" ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1'-6" C&G
R2	2'-6" C&G
R4	12" CONCRETE ISLAND COVER
R5	STD. CONC. BARRIER (SINGLE FACED)
R6	6" CONC. DRIVEWAY
R7	2'-9" C&G
R8	SHLD BERM GUTTER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING

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TYPICAL SECTIONS
-Y24- & -Y26-

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	2-M
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER

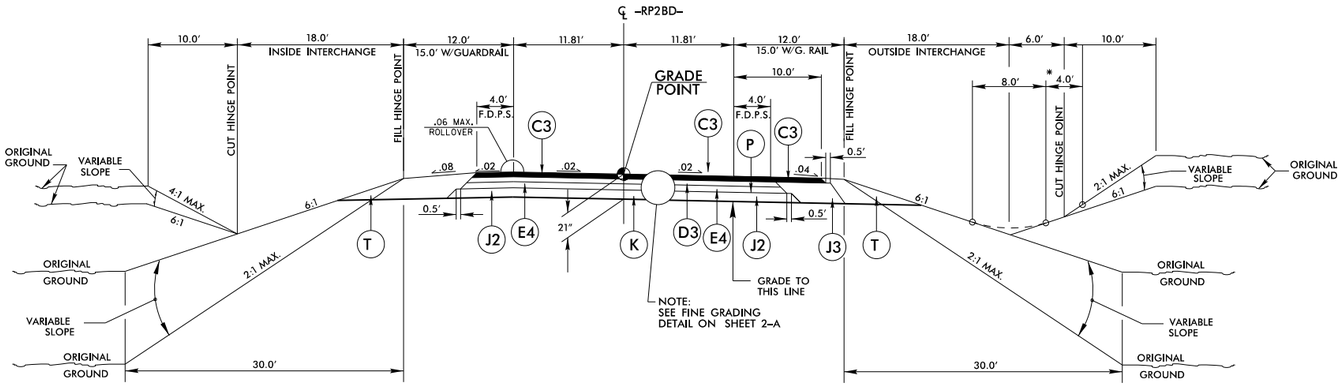
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1592 MAIL SERVICE CENTER
RALEIGH, NC 27699-1593

REVISIONS

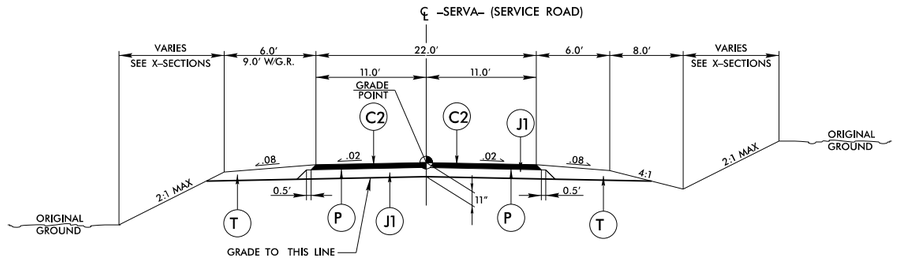


TYPICAL SECTION NO. 41

USE TYPICAL SECTION NO. 41

NOTE: -RP2BD- STA.93+63.50 TO STA.97+86.89 HAS BEEN GRADED UNDER PREVIOUS CONTRACT, SEE FINE GRADING DETAIL SHEET 2-A.

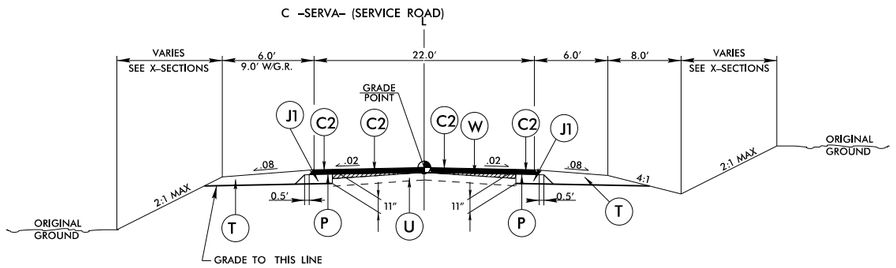
-RP2BD- STA. 93 + 63.50 TO STA. 97 + 86.89



TYPICAL SECTION NO. 42

USE TYPICAL SECTION NO. 42

-SERVA- STA. 10 + 35.00 TO STA. 55 + 93.17

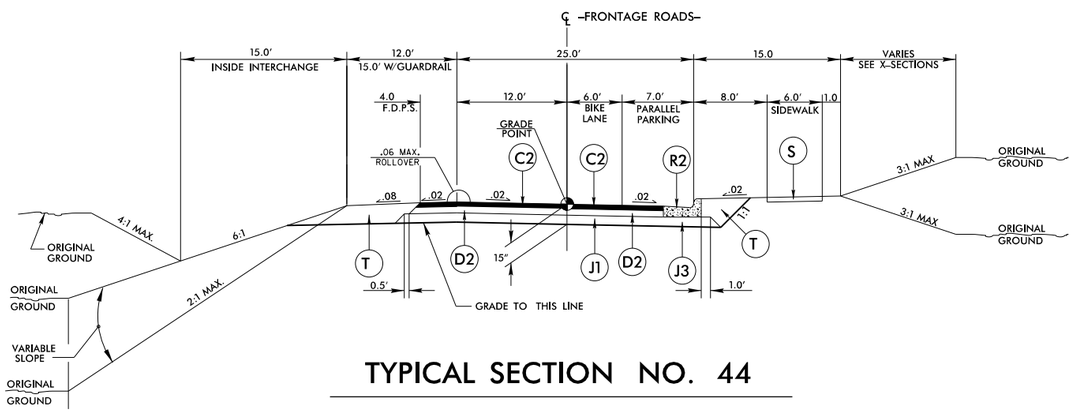


TYPICAL SECTION NO. 43

USE TYPICAL SECTION NO. 43

-SERVA- STA. 55 + 93.17 TO STA. 56 + 79.35

-SERVA- STA. 56 + 79.35 TO STA. 57 + 30.00, TRANSITION FROM T.S. 43 TO EXISTING



TYPICAL SECTION NO. 44

USE TYPICAL SECTION NO. 44

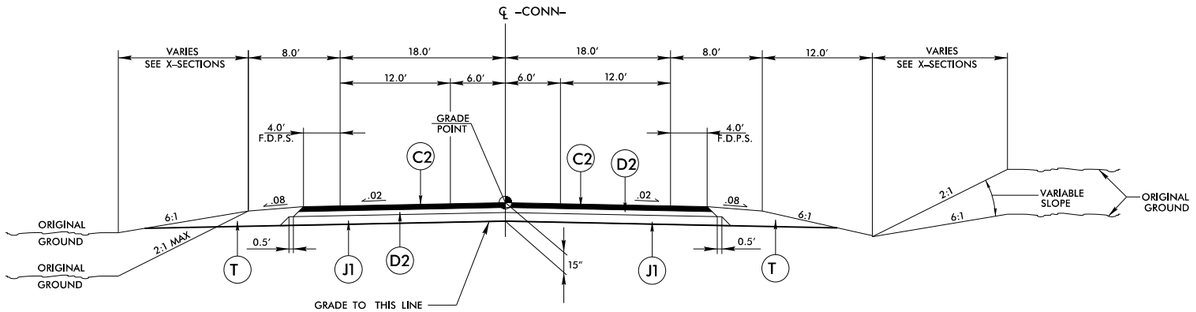
-EBFR- STA. 11 + 14.47 TO STA. 23 + 88.70
-EBFR- STA. 26 + 28.60 TO STA. 37 + 02.69
-WBFR- STA. 11 + 25.42 TO STA. 24 + 01.01 (REVERSE)
-WBFR- STA. 26 + 41.29 TO STA. 37 + 13.64 (REVERSE)

PAVEMENT SCHEDULE

A1	13" CONC
A2	CONC SHL'D
C1	1.25" SF9.5A
C2	3" S9.5B
C3	3" S9.5C
D1	3" I19.0B
D2	4" I19.0B
D3	4" I19.0C
E1	3" B25.0B
E2	4" B25.0B
E3	5.5" B25.0B
E4	4" B25.0C
J1	8" ABC
J2	10" ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1'-6" C&G
R2	2'-6" C&G
R4	12" CONCRETE ISLAND COVER
R5	STD. CONC BARRIER (SINGLE FACED)
R6	6" CONC. DRIVEWAY
R7	2'-9" C&G
R8	SHLD BERM GUTTER
S	4" CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING

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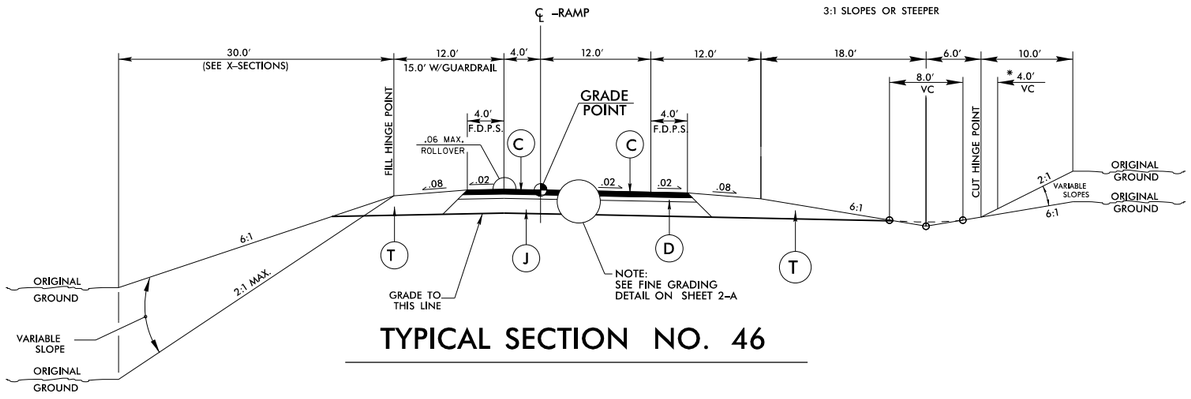
TYPICAL SECTIONS -RP2B2-, -SERVA- & FRONTAGE ROADS



TYPICAL SECTION NO. 45

USE TYPICAL SECTION NO. 45

–CONN– STA. 10+00.00 TO 21+29.95



TYPICAL SECTION NO. 46

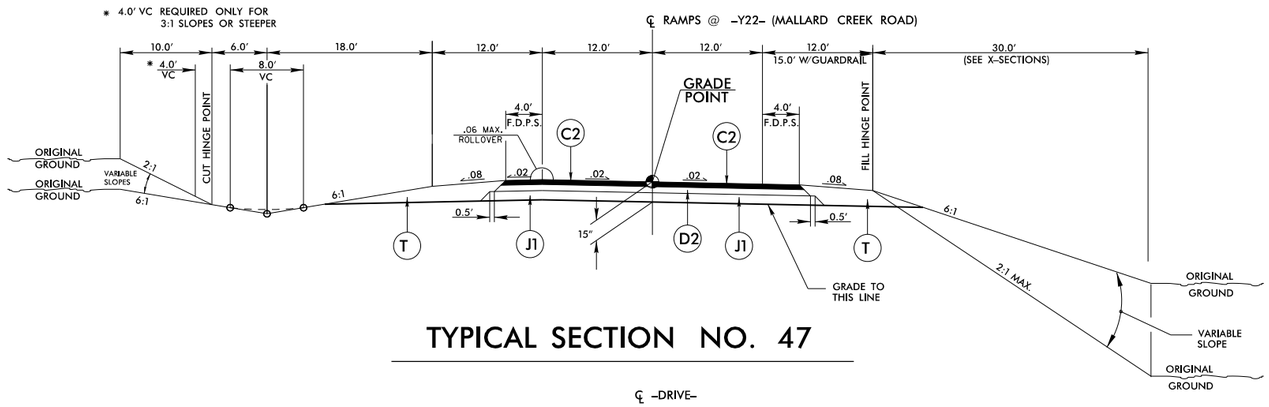
USE TYPICAL SECTION NO. 46

RAMP PAVEMENT SCHEDULE

ROADWAY	FROM STATION	TO STATION	C	D	E	J	PRIME	DEPTH	COMMENT
–RP3A–	13+23.91	32+70.43	C2	D1		J1		14″	
–RP3D–	13+70.52	27+43.87	C2	D1		J1		14″	REVERSE
–RPA Y17B–	14+62.49	22+08.77	C2	D2		J1		15″	
–RPB Y17A–	14+89.17	22+45.26	C2	D2		J2		15″	REVERSE
–RPC Y17A–	14+29.57	24+96.89	C2	D2		J2		15″	
–RPD Y17B–	14+37.35	22+32.09	C2	D2		J1		15″	REVERSE
–SPURA– Y22	25+73.26	29+79.60	C2	D2		J1		15″	
–SPURB– Y22	23+58.26	27+50.87	C2	D2		J1		15″	REVERSE
–SPURC– Y22	19+95.00	23+37.14	C2	D2		J1		15″	
–SPURD– Y22	27+02.67	30+78.89	C2	D2		J1		15″	REVERSE

NOTE: –RP3D– STA. 23+54.03 TO STA 27+43.87 HAS BEEN GRADED UNDER PREVIOUS CONTRACT. SEE FINE GRADING DETAIL SHEET 2–A.

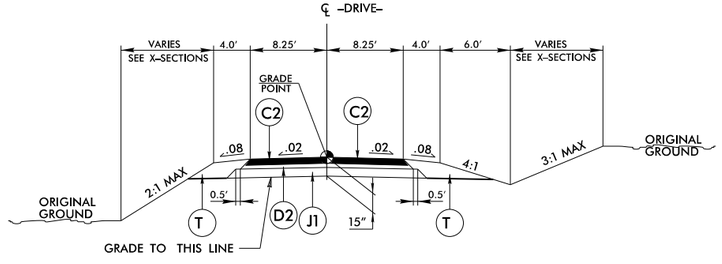
–RP3A– STA. 26+18.49 TO STA. 32+70.43 HAS BEEN GRADED UNDER PREVIOUS CONTRACT. SEE FINE GRADING DETAIL SHEET 2–A.



TYPICAL SECTION NO. 47

USE TYPICAL SECTION NO. 47

–RPAY22– STA. 10+00.00 TO STA. 30+61.32
–RPBY22– STA. 10+00.00 TO STA. 27+07.81 (REVERSE)
–RPCY22– STA. 10+00.00 TO STA. 23+77.99
–RPDY22– STA. 10+00.00 TO STA. 30+87.06 (REVERSE)



TYPICAL SECTION NO. 48

USE TYPICAL SECTION NO. 48

–DRIVE– STA. 10+82.00 TO STA. 11+38.48

REVISIONS

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	2–N
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

WilburSmith ASSOCIATES
421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1592 MAIL SERVICE CENTER
RALEIGH, NC 27699-1593

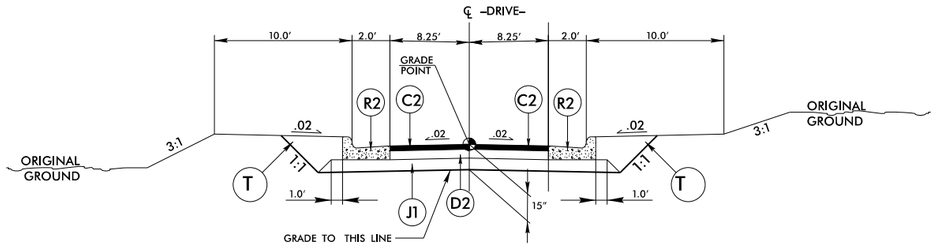
PAVEMENT SCHEDULE

A1	13″ CONC
A2	CONC SHL'D
C1	1.25″ SF9.5A
C2	3″ S9.5B
C3	3″ S9.5C
D1	3″ I19.0B
D2	4″ I19.0B
D3	4″ I19.0C
E1	3″ B25.0B
E2	4″ B25.0B
E3	5.5″ B25.0B
E4	4″ B25.0C
J1	8″ ABC
J2	10″ ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1′–6″ C&G
R2	2′–6″ C&G
R4	12″ CONCRETE ISLAND COVER
R5	STD. CONC BARRIER (SINGLE FACED)
R6	6″ CONC. DRIVEWAY
R7	2′–9″ C&G
R8	SHLD BERM GUTTER
S	4″ CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING

TYPICAL SECTION –CONN–, RAMPS & –DRIVE–

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

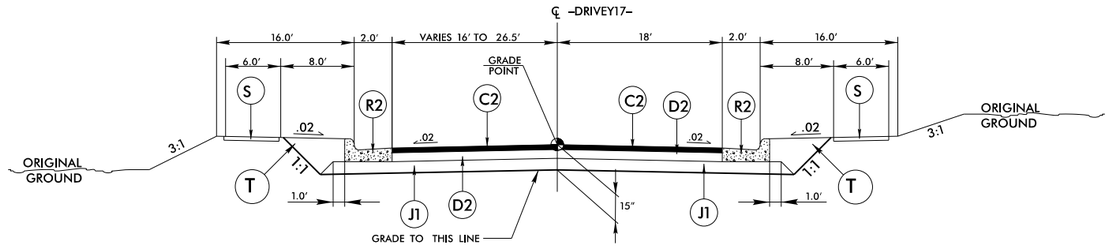
NC DEPARTMENT OF TRANSPORTATION
PAVEMENT MANAGEMENT UNIT
1592 MAIL SERVICE CENTER
RALEIGH, NC 27699-1593



TYPICAL SECTION NO. 49

USE TYPICAL SECTION NO. 49

–DRIVE– STA. STA. 11+38.48 TO STA. 11+81.31



TYPICAL SECTION NO. 50

USE TYPICAL SECTION NO. 50

–DRIVEY17– STA. 11+03.59 TO 11+32.00

PAVEMENT SCHEDULE

A1	13″ CONC
A2	CONC SHL'D
C1	1.25″ SF9.5A
C2	3″ S9.5B
C3	3″ S9.5C
D1	3″ I19.0B
D2	4″ I19.0B
D3	4″ I19.0C
E1	3″ B25.0B
E2	4″ B25.0B
E3	5.5″ B25.0B
E4	4″ B25.0C
J1	8″ ABC
J2	10″ ABC
J3	VAR. ABC
K	STABILIZATION
P	PRIME COAT
R1	1′-6″ C&G
R2	2′-6″ C&G
R4	12″ CONCRETE ISLAND COVER
R5	STD. CONC. BARRIER (SINGLE FACED)
R6	6″ CONC. DRIVEWAY
R7	2′-9″ C&G
R8	SHLD BERM GUTTER
S	4″ CONC. SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	RETAINING WALL
V2	NOISE WALL
W	WEDGING

REVISIONS

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TYPICAL SECTION
–DRIVE– & –DRIVEY17–

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

REVISIONS

235 | 1220 | 240 | 1225

MURATA WIEDEMANN INC
DB 6556 PG 49

J HENDRICK AUTOMOTIVE GROUP
DB 16697 PG 169
DB 16697 PG 173
DB 16697 PG 179
DB 16697 PG 189
DB 18019 PG 451

NC GRID NAD 83

BEGIN TIP PROJECT R-2248E
BEGIN PAVING
-L- POT Sta. 1223+75.33

-L- POT Sta. 1220+00.00

EXIST R/W

OVERHEAD SIGN

N 82° 21' 39.5" E

-CDWBL-

15" CMP

24" RCP

CONC. CB

11.81' PS

22.64' 35.43' 11.81' PS

I-485 CONC 35.43' CONC

ASPHALT

PAVED SHLDR.

I-485

30" RCP

PROPOSED GUIDERAIL

85 | 90

N 82° 21' 39.5" E

-L-

CONC. CB

ASPHALT

I-485 CONC 35.43' CONC

PAVED SHLDR.

I-485

30" RCP

22.64' 35.43' 11.81' PS

CONC. CB

11.81' PS

4,572 (15') SANITARY SEWER EASEMENT

OVERHEAD SIGN

ASPHALT

-RP2BD-

N 72° 49' 44.5" E

BRIDGE

CB

15" CMP

36" RCP

PB00,90 (SCM)

-RP2BD- TS Sta. 90+68.04

-RP2BD- SC Sta. 92+64.89

CB

36" RCP

EXIST R/W

EXIST R/W

REBAR

-RP2BD- POT Sta. 85+00.00

ONTARIO LAKESHORE PARTNERS
DB 7285 PG 582

CURVE DATA FOR LINE -RP2BD-

PIs Sta 91+99.28	PI Sta 98+03.23	PIs Sta 104+05.40
Θs = 0° 44' 15.8"	△ = 8° 03' 23.5" (RT)	Θs = 0° 44' 15.8"
Ls = 196.85'	D = 0° 44' 58.3"	Ls = 196.85'
LT = 131.23'	L = 1,074.89'	LT = 131.23'
ST = 65.62'	T = 538.33'	ST = 65.62'
	R = 7,644.36'	
	SE = RC	
	RUNOFF = 48'	
	DS = 50 mph	

BAM PROPERTY HOLDINGS, LLC
DB 18347 PG 409

S 80° 05' 35" E 104.46'

93

TWIN LAKES PARTNERSHIP
DB 21574 PG 724

MATCH TO SHEET 5 -L- POT 1229+00.00

SEE SHEET 36 FOR -L- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

FILE: R:\radar\R2248E\Roadway\Proj\r2248e_rdy_psh_04.dgn
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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

245 250 255 1230 1235 1240 100 95 105

HENDRICK AUTOMOTIVE GROUP
DB 16697 PG 169
DB 16697 PG 173
DB 16697 PG 179
DB 16697 PG 189
DB 18019 PG 451

NC GRID NAD 83

PERMANENT DRAINAGE EASEMENT

EXIST R/W

S 54°48'01" W 73.550

S 70°31'44" W 54.748

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DB 7377 PG 244

INV=777.63

N 82° 21' 39.5" E -CDWBL-

MATCH TO SHEET 4 -L- POT 1229+00.00

MATCH TO SHEET 6 -L- POT 1242+00.00

EDGE OF CONCRETE

I-485

PAVED SHLDR.

PROPOSED GUIDERAIL

N 82° 21' 39.5" E -L-

-RP2BD-

ASPHALT CONCRETE

SOLID YELLOW LINE SOLID WHITE LINE ASPHALT

EDGE OF ASPHALT

BEGIN TAPER RT

END TAPER RT

7'X6' BOX CULVERT

4,572 (15') CMUD SANITARY SEWER R/W

INV=771.90

REBAR EXIST R/W

BEGIN PAVING
-RP2BD- POC Sta.93+29.46

-RP2BD- CS Sta. 103+39.79

-RP2BD- ST Sta. 105+36.51 -69.88' RT =
-L- POT Sta.1241+22.79

93
TWIN LAKES PARTNERSHIP
DB 21574 PG 724

95
SELCO SERVICE CORPORATION
DB 9797 PG 525

SELCO SERVICE CORPORATION
DB 9797 PG 525

CURVE DATA FOR LINE -RP2BD-

PIs Sta 91+99.28	PI Sta 98+03.23	PIs Sta 104+05.40
Θs = 0° 44' 15.8"	△ = 8° 03' 23.5" (RT)	Θs = 0° 44' 15.8"
Ls = 196.85'	D = 0° 44' 58.3"	Ls = 196.85'
LT = 131.23'	L = 1,074.89'	LT = 131.23'
ST = 65.62'	T = 538.33'	ST = 65.62'
	R = 7,644.36'	
	SE = RC	
	RUNOFF = 48'	
	DS = 50 mph	

SEE SHEET 36 FOR -L- PROFILE
SEE SHEET 50 FOR -RP2BD- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

Blythe Development Company
431 Fayetteville Street
Suite 1100
Raleigh, N.C. 27601
Phone: (919) 890-0090
Fax: (919) 890-0095
NC Firm Registration C-2376

REVISIONS

MATCH TO SHEET 5 – –L– POT 12+42+00.00

MATCH TO SHEET 7 – –L– POT 45+30.00

MATCH TO SHEET 7 – –L– POT 12+68+00.00

MATCH TO SHEET 26 – –Y8– POT 59+00.00

MATCH TO SHEET 76 – –RP3D– POT 21+00.00

MATCH TO SHEET 25 – –Y10– POT 33+00.00

BEGIN PAVING –RP3A– POC Sta.26+18.45

END PAVING –RP3A– POC Sta.32+70.43

BEGIN CONSTRUCTION –L– POC Sta.1256+21.86

BEGIN CONSTRUCTION –CDWBL– POC Sta.272+01.87

–Y9– POT Sta.47+49.48=
–RP3A– POT Sta.34+08.09

–Y10– PC Sta. 32+16.16

–Y10– PT Sta. 43+53.42

–Y10– PC Sta. 36+10.94

–RP3A– ST Sta. 30+66.59

–RP3A– CS Sta. 28+74.59

–RP3A– SC Sta. 27+67

–RP3A– SRS Sta. 19+23.87

–RP3A– CS Sta. 17+31.87

–L– to. 1250+59.65

–L– Sta. 1251+49.65

–CDWBL– TS Sta. 265+56.80

–CDWBL– POT Sta. 262+38.01= BY13-338
–Y9– POT Sta. 52+12.27

–CDWBL– SC Sta. 1268+02.86

–L– POT Sta. 1247+22.56=
–Y9– POT Sta. 53+42.40

–RP3A– TS Sta. 10+59.03

–RP3A– POT Sta. 10+00.00
1200' RT =
–CDWBL– POT Sta. 281+65.00

–CDWBL– CS Sta. 276+96.00

–CS– Sta. 1260+48.64

–L– ST Sta. 1261+48.64

–CDWBL– T Sta. 278+01.06

–RP3C– SC Sta. 11+68.00

–RP3D– CS Sta. 18+03.50

–RP3D– ST Sta. 19+71.50

–RP3D– SC Sta. 20+63.57

–RP3D– SC Sta. 24+11.03

–RP3A– POT Sta. 10+00.00
1200' RT =
–CDWBL– POT Sta. 281+65.00

BY9-2

BY10-1

BY13-338

BL-76

BL-77

BL-78A

BL-79

BL-80

N 82° 21' 39.5" E

N 82° 21' 39.5" E

N 87° 18' 21.5" E

N 87° 18' 21.5" E

CURVE DATA FOR LINE –L–

PI Sta 1251+19.65	PI Sta 1255+99.38	PI Sta 1260+78.64
Θs = 17° 13' 30.0"	Δ = 4° 29' 41.8" (RT)	Θs = 17° 13' 30.0"
Ls = 90.00'	D = 17° 30' 00.0"	Ls = 90.00'
LT = 60.00'	L = 898.99'	LT = 60.00'
ST = 30.00'	T = 449.72'	ST = 30.00'
	R = 11,459.16'	
	SE = RC	
	RUNOFF = 90'	
	DS = 70 mph	

CURVE DATA FOR LINE –CDWBL–

PI Sta 267+20.84	PI Sta 271+79.06	PI Sta 276+37.02
Θs = 17° 36' 34.7"	Δ = 3° 43' 33.5" (RT)	Θs = 17° 36' 34.7"
Ls = 246.06'	D = 17° 29' 43.4"	Ls = 246.06'
LT = 164.04'	L = 752.14'	LT = 164.04'
ST = 82.02'	T = 376.20'	ST = 82.02'
	R = 11,565.92'	
	SE = RC	
	RUNOFF = 54'	
	DS = 60 mph	

CURVE DATA FOR LINE –RP3A–

PI Sta 11+87.10	PI Sta 14+96.21	PI Sta 17+95.92	PI Sta 20+45.97	PI Sta 25+30.43	PI Sta 29+38.69
Θs = 5° 31' 12.0"	Δ = 27° 38' 52.5" (RT)	Θs = 5° 31' 12.0"	Θs = 7° 15' 23.2"	Δ = 57° 21' 01.7" (LT)	Θs = 7° 15' 23.2"
Ls = 192.00'	D = 5° 45' 00.0"	Ls = 192.00'	Ls = 192.00'	D = 7° 53' 31.7"	Ls = 192.00'
LT = 128.06'	L = 480.83'	LT = 128.06'	LT = 128.11'	L = 758.73'	LT = 128.11'
ST = 64.06'	T = 245.91'	ST = 64.06'	ST = 64.10'	T = 414.55'	ST = 64.10'
	R = 996.45'			R = 758.00'	
	SE = .08			SE = .08	
	RUNOFF = 192'			RUNOFF = 192'	
	DS = 50 mph			DS = 50 mph	

CURVE DATA FOR LINE –RP3D–

PI Sta 11+12.02	PI Sta 14+92.01	PI Sta 18+59.52	PI Sta 22+90.93
Θs = 3° 38' 24.0"	Δ = 27° 32' 17.2" (LT)	Θs = 3° 38' 24.0"	Δ = 8° 48' 22.4" (RT)
Ls = 168.00'	D = 4° 27' 00.0"	Ls = 168.00'	= 11° 56' 25.5"
LT = 112.02'	L = 635.50'	LT = 112.02'	L = 455.85'
ST = 56.02'	T = 324.01'	ST = 56.02'	T = 227.56'
	R = 1,322.21'		R = 2,952.75'
	SE = .07		SE = .04
	RUNOFF = 168'		RUNOFF = 96'
	DS = 50 mph		DS = 50 mph

CURVE DATA FOR –Y10–
PI Sta 40+00.93
Δ = 43° 18' 40.7" (LT)
D = 5° 50' 00.0"
L = 742.48'
T = 389.99'
R = 982.29'
SE = .04
RUNOFF = 216'
DS = 50 mph

SEE SHEETS 37 FOR –L– PROFILE
SEE SHEET 39 & 60 FOR –CDWBL– PROFILE
SEE SHEET 63 & 64 FOR –Y10– PROFILE
SEE SHEET 66 FOR –Y14– PROFILE
SEE SHEET 48 FOR –RP3A– PROFILE
SEE SHEET 49 FOR –RP3D– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

LOCATION: I-485 (CHARLOTTE OUTER LOOP)
FROM WEST OF NC 115 TO
WEST OF I-85
I-485 AND NC 115 INTERCHANGE

TIP NO.	COUNTY:
R-2248E	MECKLENBURG
DESIGNED BY:	DATE:
RES	4/5/2011
CHECKED BY:	DATE:
DLW	4/5/2011

GRAPHIC SCALE
50 25 0 50 100
PLANS

NC GRID NAD 83

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BRIDGE SKETCH @ -Y10- OVER -Y11-

BRIDGE SKETCH @ -L- & -CDWBL- OVER -Y11-

BRIDGE SKETCH @ -L- OVER -Y12R-

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

BLYTHE
BLYTHE DEVELOPMENT COMPANY
421 Fayetteville Street
Suite 1000
Raleigh, N.C. 27601
Phone: 919.890.0090
NC Firm Lic. # C-0910

NC GRID NAD 83

REVISIONS

MATCH TO SHEET 6 -L- POT 1268+00.00

MATCH TO SHEET 8 -L- POT 1294+00.00

-Y10- POT Sta.45+59.79= -Y11- POC Sta.18+82.67

-CDWBL- POT Sta.285+50.80= -Y11- POT Sta.41+43.49

-CDWBL- TS Sta.287+80.42

-CDWBL- SC Sta.288+61.42

-CDWBL- CS Sta.291+03.76

-CDWBL- ST Sta.291+84.76

-Y10- PC Sta.56+34.97

-Y10- POC Sta.59+50.00 -Y12R- POT Sta.10+40.00

-Y10- PT Sta.67+62.17

-Y10- POT Sta.70+50.00 END CONSTRUCTION

-Y12R- POC Sta.14+16.66= -CDWBL- POT Sta.297+74.87

-CDWBL- POT Sta.299+89.84 - 59.00 LT.=

-L- POT Sta.1284+20.01

-L- SC Sta.1286+03.56

-L- TS Sta.1284+81.56

-Y12R- POC Sta.14+92.13= -L- POT Sta.1281+63.86

-L- POT Sta.1270+31.06= -Y11- POC Sta.42+76.19

-RP30- ST Sta.10+00.00 - 71.00 RT.=

-L- POT Sta.1269+10.00

-Y12R- PT Sta.23+02.29

-Y12R- POT Sta.19+50.00 END CONSTRUCTION

-Y12R- PC Sta.21+06.55

-Y12R- PT Sta.19+72.14

-Y12R- PC Sta.12+45.00

-Y10- PC Sta.5+34.97

-Y10- PT Sta.3+63.32

-Y10- PC Sta.46+06.40

-Y12R- PT Sta.25+42.03

CURVE DATA FOR LINE -Y11-
PI Sta 37+63.32
Δ = 28° 31' 54.4" (RT)
D = 3° 01' 17.1"
L = 944.32'
T = 482.17'
R = 1896.33'

CURVE DATA FOR LINE -L-
PI Sta 1285+62.89
Ds = 17° 18' 18.0"
Ls = 122.00'
LT = 81.33'
ST = 40.67'

PI Sta 1291+61.25
Δ = 5° 54' 21.7" (LT)
D = 0° 57' 00.0"
L = 1,143.50'
T = 557.69'
R = 1,149.16'
SE = RC
RUNOFF = 122'
DS = 70 mph

PI Sta 1297+58.73
Ds = 17° 18' 18.0"
Ls = 122.00'
LT = 81.33'
ST = 40.67'

CURVE DATA FOR LINE -Y10-
PI Sta 46+06.40
Δ = 21° 54' 15.5" (RT)
D = 3° 58' 38.3"
L = 752.54'
T = 380.64'
R = 1,068.50'

CURVE DATA FOR LINE -CDWBL-
PIs Sta 288+54.42
Ds = 17° 24' 18.0"
Ls = 81.00'
LT = 54.00'
ST = 27.00'

PIs Sta 289+82.61
Δ = 2° 55' 23.9" (RT)
D = 1° 00' 00.0"
L = 242.33'
T = 121.18'
R = 5,729.58'
SE = .03
RUNOFF = 81'
DS = 60 mph

PIs Sta 293+30.76
Ds = 17° 24' 18.0"
Ls = 81.00'
LT = 54.00'
ST = 27.00'

CURVE DATA FOR LINE -Y12R-
PI Sta 16+74.02
Δ = 76° 20' 59.6" (RT)
D = 10° 30' 00.0"
L = 727.14'
T = 429.02'
R = 545.67'
SE = .04
RUNOFF = 124'
DS = 40 mph

PI Sta 22+05.49
Δ = 20° 33' 00.0" (LT)
D = 10° 30' 00.0"
L = 195.74'
T = 98.93'
R = 545.67'
SE = .04
RUNOFF = 124' & 76'
DS = 40 mph

PI Sta 25+42.03
Δ = 1° 29' 02.8" (RT)
D = 5° 01' 00.0"
L = 47.62'
T = 23.81'
R = 1,838.37'

CURVE DATA FOR LINE -Y10-
PI Sta 62+07.39
Δ = 24° 36' 57.8" (LT)
D = 2° 11' 00.0"
L = 1,127.20'
T = 572.43'
R = 2,624.23'
SE = .03
RUNOFF = 162' & 90'
DS = 50 mph

PLANTATION PIPE LINE CO
DB 0017 PG 155

DORS MAXWELL FAMILY LLC
C/O JOHN MAXWELL
DB 2334 PG 758

PROGRESSIVE PARTNERS TWO
DB 16256 PG 875

PROGRESSIVE PARTNERS TWO
DB 06370 PG 079

THOMAS BRAGG MCLEOD II
DB 0564 PG 271

DOUBLE M HOLDINGS, LLC
DB 16279 PG 333
DB 18184 PG 150

MICHAEL ALLEN DAVIS
DB 04785 PG 969

JANET DAVIS DOVE
DB 04785 PG 925

BOBBIE GENE BRAHAN
DB 03663

MERLE & ELIZABETH L. KING

MERLE KING
DB 00977 PG 032
DB 03472 PG 456

MERLE KING
DB 00879 PG 957
DB 13472 PG 456

SEE SHEETS 3B FOR -L- PROFILE
SEE SHEET 59 & 60 FOR -CDWBL- PROFILE
SEE SHEETS 63, 64 & 65 FOR -Y10- PROFILE
SEE SHEET 66 FOR -Y12R- PROFILE
SEE SHEET 2-8 FOR INTERSECTION DETAIL
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

LOCATION: I-485 (CHARLOTTE OUTER LOOP) FROM WEST OF NC 115 TO WEST OF I-85
-Y12R- OVER -L- & -Y10-, -L-, & -CDWBL- OVER -Y11-
TIP NO: R-2248E
COUNTY: MECKLENBURG
DESIGNED BY: RES
DATE: 4/5/2011
CHECKED BY: DLW
DATE: 4/5/2011

GRAPHIC SCALE
50 25 0 50 100
PLANS

File: R_2248E_Roadway_Plan_SHEET_#07_Plan_07.dgn
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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

REVISIONS

THOMAS BRAGG MCLEOD II
DB 05641 PG 271

2 MARGARET DARDEN MCLEOD
DB 4555 PG 0746
HISTORIC PROPERTY

3 VICTORIA TEMPLETON GRIFFITH
DB 05015 PG 032
PB 004 PG 581

4A BEN D & VICTORIA T GRIFFITH
DB 2194 PG 0168

NC GRID NAD 83

MATCH TO SHEET 7 – –L– POT 1294+00.00

MATCH TO SHEET 9 – –L– POT 1307+00.00

TI-401
ELEV=798.20 IP&C SET
–L– CS Sta. 1297+18.06

TI-402
ELEV=797.25 IP&C SET –L– ST Sta. 1298+40.06

TI-403
ELEV=793.71
IP&C SET

TI-404
ELEV=791.02
IP&C SET

TI-405
ELEV=789.10
IP&C SET

TI-406
ELEV=787.69
IP&C SET

1 DOUBLE M HOLDINGS, LLC
DB 18279 PG 333
DB 18184 PG 150

4' BASE DITCH
CLASS 'I' RIP RAP
SEE DETAIL S45
MAXIMUM SLOPE = 0.2%

USE 1.75:1 REINFORCED FILL SLOPE FROM STA. 1295+25 TO STA. 1296+25

2' LATERAL BASE DITCH
CLASS 'I' RIP RAP
SEE DETAIL LB3

3' STD. BASE DITCH
W/CL. I RIP RAP
SEE DETAIL S7

SPECIAL LATERAL DITCH
SEE DETAIL LV3

SPECIAL 3' LATERAL BASE DITCH
SEE DETAIL SB1

CLASS 'B' RIP RAP
2 TONS
7 S.Y. F.F.

CL I RIP RAP
BANKS ONLY
SEE DETAIL M14

TOE PROTECTION
SEE DETAIL M20

PROPOSED GUARDRAIL

PROPOSED GUIDERAIL

BEGIN SBG
STA.1294+91 –L– LT

BEGIN SBG
STA.1295+50 –L– RT

BEGIN SBG
STA.1303+56 –L– LT

END SBG
STA.1303+52 –L– RT

BL-3

BL-4
-TI- = -BL-
NO POINT SET

BL-5

BL-6

BL-7

N 81° 07' 24.2" E

TOE PROTECTION
SEE DETAIL M6

CLASS 'B' RIP RAP
1 TON
4 S.Y. F.F.

NATURAL ROCK ENERGY DISSIPATOR
SEE DETAIL M22

CHARLOTTE CITY LIMITS

AMBER RIDGE HOMEOWNERS ASSOC
DB 11088 PG 594
PB 030 PG 635

196

BERTA & ANTONIO DIAZ
DB 23150 PG 244
PB 030 PG 635

AMY D. LOCHMONDY
DB 20839 PG 170
PB 030 PG 635

TAIRA Q. CASE
DB 20920 PG 099
PB 030 PG 635

VANESSA VERNA TRAPP
DB 10873 PG 749
PB 030 PG 635

BRIAN C VILLEGAS
DB 10852 PG 588
PB 030 PG 635

DB 2194 PG 0168

JILL ANN MCATEER
DB 17830 PG 064
PB 030 PG 635

RICHARD H. MURPHY
DB 20588 PG 088
PB 030 PG 635

DAVID TURNER
DB 24464 PG 029
PB 030 PG 635

QUINCY E CLARK
DB 11979 PG 177
PB 030 PG 635

WILLIAM H TAYLOR JR
DB 13285 PG 182
PB 030 PG 635

CLIFTON L RENDLEMEN
DB 11056 PG 187
PB 030 PG 635

RANDALL K ZONGER
DB 11056 PG 124
PB 030 PG 635

TAMMY L. FONTENOT
DB 18042 PG 656
PB 030 PG 635

DONALD P FONTENOT SR
DB 14190 PG 335
PB 030 PG 635

GEORGINA S. HADLEY
DB 23917 PG 446
PB 030 PG 635

JAMES HILDEBRAND, JR.
DB 23807 PG 535
PB 030 PG 635

DIDI MARSHALL
DB 22961 PG 493
PB 030 PG 635

ADJOE VALLEY DRIVE

CURVE DATA FOR LINE –L–

PIs Sta 1285+62.89	PI Sta 1291+61.25	PIs Sta 1297+58.73
Θs = 0° 18' 18.0"	Δ = 5° 34' 21.1" (LT)	Θs = 0° 18' 18.0"
Ls = 122.00'	D = 0° 30' 00.0"	Ls = 122.00'
LT = 81.33'	L = 1,114.50'	LT = 81.33'
ST = 40.67'	T = 557.69'	ST = 40.67'
	R = 11,459.16'	
	SE = RC	
	RUNOFF = 90'	
	DS = 70 mph	

SEE SHEET 39 FOR –L– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

KIMLEY-HORN — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

MATCH TO SHEET 27 –Y1– POT 37+50.00

MATCH TO SHEET 8 –L– POT 1307+00.00

MATCH TO SHEET 10 –L– POT 1320+00.00

VICTORIA TEMPLETON GRIFFITH DB 05015 PG 032 PB 004 PG 581

HUNTER DOWNS HOMEOWNERS ASSOC DB 11712 PG 028 PB 038 PG 505

LUIS MONTOYA MARTHA G. MONTOYA DB 17167 PG 840 PB 029 PG 337

ALLEN J. & OLA M. LOVE DB 2329 PG 302 PB 029 PG 337

STEPHEN R AUSTIN DB 15386 PG 145 PB 030 PG 761

ANTHONY WILSON DB 16393 PG 815 PB 030 PG 761

TERRILYN BAIRD DB 19864 PG 852 PB 030 PG 761

ARVID LEE ETRULIA LEE PB 033 DB 20280 PG 589 PG 032

MADISON PARK OWNERS DB 11880 PG 658 PB 029 PG 337

NC DEPT OF TRANSPORTATION DB 11864 PG 668

BEN D & VICTORIA T GRIFFITH DB 2194 PG 0168

BRIAN C VILLEGAS DB 10852 PG 588 PB 030 PG 635

VICTORIA TEMPLETON GRIFFITH DB 10678 PG 877 PB 030 PG 829

DB 10786 PG 065 PB 030 PG 635 DAVID ZAK TAFT BRUSSO

ALAN CRUMP DB 24761 PG 299 PB 030 PG 635

KIMBERLY WALKER DB 10593 PG 291 PB 031 PG 215

TROY A GRAHAM DB 10515 PG 279 PB 031 PG 215

JOHN N BLUM DB 15946 PG 147 PB 030 PG 829

LOIS E & DON D. REYNOLDS DB 10613 PG 568 PB 030 PG 829

MICHAEL R. DB 10508 PG 829

TAKIYAH MATEEN DB 17972 PG 312 PB 030 PG 829

EITH HOLMES DB 15006 PG 068 PB 030 PG 829

JOSE P. GUZMAN DB 17136 PG 936 PB 030 PG 829

CHARLOTTE RACQUET CLUB LLC DB 9509 PG 0201

CHARLOTTE CITY LIMITS

NC GRID NAD 83

-Y1- PT Sta. 39+52.19

-L- POT Sta.1311+34.16= -Y1- POT Sta.41+38.89

-Y1- PC Sta. 44+23.34

-Y1- PT Sta. 46+27.47

-Y1- POT Sta. 47+50.00 END CONSTRUCTION

-Y1- POT Sta. 48+13.47

BYI-2

BYI- 3

BL-8

BL-9

PROPOSED GUIDERAIL

PROPOSED GUARDRAIL

PROPOSED CONCRETE BARRIER

PROP. RET. WALL W/CONC. BARRIER

BERM DITCH W/PSRM SEE DETAIL M8

STD. BERM DITCH

PROP. CONC. SIDEWALK

PROP. 2'-6" C&G

GRAU 350

TYPE B-77

TYPE-III

18" CSP W/ELBOWS

24" RCP-III ATTENUATOR

30" RCP-III

18" RCP-III

REMOVE & REPLACE DI

REMOVE

RETAIN

PAVED SHLDR.

BORROW PIT

GAS LINE REDUCES IN THIS LOCATION

N 81°07'24.2" E

S 43°00'17.7" E

S 25°48'10.4" E

BRIDGE SKETCH @ -Y1- OVER -L-

PROPOSED BIKE LANE

BEGIN APPROACH SLAB –Y1– POT STA. 40+02.10

BEGIN BRIDGE –Y1– POT STA. 40+25.89

END APPROACH SLAB –Y1– POT STA. 42+75.68

END BRIDGE –Y1– POT STA. 42+51.89

CURVE DATA FOR LINE –Y1–

PI Sta 37+21.47	PI Sta 45+26.09
Δ = 51° 56' 58.0" (LT)	Δ = 16° 11' 57.9" (RT)
D = 10° 25' 02.7"	D = 7° 56' 08.5"
L = 498.68'	L = 204.13'
T = 267.95'	T = 102.75'
R = 550.00'	R = 722.00'
SE = .04	SE = .04
RUNOFF = 120'	RUNOFF = 104'
DS = 40 mph	DS = 40 mph

SEE SHEET 39 FOR –L– PROFILE
SEE SHEET 61 FOR –Y1 PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\radot\R2248E\Roadway\Proj\R2248E_RDY_PSH_09.DGN
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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

REVISIONS

MATCH TO SHEET 9 – -L- POT 1320+00.00

MATCH TO SHEET 11 – -L- POT 1333+00.00

EARL F FOXWORTH DB 12683 PG 630

WILLIAM EVERETTE SMITH DB 13423 PG 128 PB 033 PG 589

JONI M. JONES DB 24397 PG 654 PB 033 PG 589

ANTHONY D MOORE DB 12618 PG 717 PB 033 PG 589

DAVID J TROPEANO DB 13299 PG 490 PB 033 PG 589

JERRY ELLISON DB 12706 PG 729 PB 033 PG 589

KEVIN BURRELL BEVERLY C. BURELL DB 26827 PG 803 PB 033 PG 589

LINDA MCCAIN-WEST DB 12954 PG 659 PB 033 PG 589

JOSEPH A. RAPPOLD DAWN RAPPOLD DB 24259 PG 521 PB 033 PG 589

JOYCE Q COCHRANE DB 14891 PG 070 PB 033 PG 589

DUVEL C BLAKE DB 12493 PG 188 PB 033 PG 589

MARTY R. LONDON DB 24260 PG 238 PB 033 PG 589

DEUTSCHE BANK NATIONAL TRUST DB 24832 PG 149 PB 033 PG 589

KEITH DEVIN CHAPMAN DB 12954 PG 580 PB 033 PG 589

JOHN P DUNHAM CYNTHIA LEW-DUNHAM DB 20206 PG 271 PB 033 PG 589

ALEJANDRO MATA JIMENEZ DB 15216 PG 445 PB 033 PG 589

WIMO MERINO WANDA MERINO DB 17878 PG 577 PB 033 PG 589

JOSEPH W SMITH DB 12504 PG 561 PB 033 PG 589

GENICE R CLEMMONS DB 13059 PG 667 PB 033 PG 589

ERIK BRELAND KATTIE R. BRELAND DB 17296 PG 481 PB 033 PG 589

MADISON PARK OWNERS DB 11880 PG 658 PB 033 PG 589

WILLIAM R SHEERIN DB 11446 PG 437 PB 032 PG 883

PAUL M. WEATHERS AMANDA R. WEATHERS DB 22752 PG 205 PB 033 PG 589

PAUL N REDMAN DB 11719 PG 669 PB 033 PG 589

MARIA C. BASINI ANTHONY BASINI DB 24970 PG 830 PB 033 PG 589

KELLY L.B. PRATT III DB 11511 PG 272 PB 032 PG 882

THOMAS BARRY & MAE MOORHEAD DAVIS DB 3997 PG 0119

THOMAS BARRY & MAE MOORHEAD DAVIS DB 3720 PG 0780

CHARLES E DAVIS THOMAS B DAVIS SARAH DAVIS FORTNER DB 3676 PG 0092

CHARLOTTE RACQUET CLUB LLC DB 9509 PG 0201

NC DEPT OF TRANSPORTATION DB 11864 PG 668

BL-10

BL-11

N 81° 07' 24.2" E

30" RCP-III

36" RCP-III

42" RCP-III

18" RCP-III

PAVED SHLDR.

PROPOSED GUIDERAIL

TENNIS COURTS

T2-407' ELEV=770.0' IP&C SET

+30.33 -L- 226.35' LT

+82.05 203.47' LT

+53.24 205.11' LT

+51.81 179.95' LT

+92.61 192.81' LT

+68.01 -L- 174.99' LT

+91.73 177.38' LT

+30.19 -L- 174.91' LT

+47.00 150.00' LT

+30.33 224.14' RT

+30.06 174.77' RT

+24.08 174.84' RT

+11.57 174.86' RT

+79.17 174.85' RT

+22.09 209.84' RT

+77.00 212.97' RT

+55.614 19.29lm

+07.457 25.74lm

NC GRID NAD 83

SEE SHEET 40 FOR -L- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

FILE: R:\notes\R2248E Roadway Proj\R2248E_RDY_PSH_10.DGN
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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 184, RALEIGH, NORTH CAROLINA 27606

REVISIONS

MATCH TO SHEET 10 – -L- POT 1333+00.00

MATCH TO SHEET 12 – -L- POT 1346+00.00

-L- SC Sta. 1337+74.83

-L- TS Sta. 1335+52.83

BEGIN NOISE WALL

PROPOSED SLOPE STAKE

PROPOSED NOISE WALL

PROPOSED GUARDRAIL

PROPOSED GUIDERAIL

GRADE TO DRAIN

TOE PROTECTION SEE DETAIL M4

TOE PROTECTION SEE DETAIL M6

INLET CHANNEL DETAIL SEE DETAIL M9

INLET CHANNEL DETAIL SEE DETAIL M12

OUTLET CHANNEL DETAIL SEE DETAIL M17

CL TRIP RAP BANKS ONLY SEE DETAIL M13

-RPCY17A- -CS Sta. 10+00.00 – 71.00' RT.= -RPCY17A- -SC Sta. 10+72.00

-RPCY17A- -CS Sta. 10+00.00 – 71.00' RT.= -RPCY17A- -ST Sta. 11+45.00

BEGIN TAPER RT +80.00 -L-

END TAPER RT +80.00 -L-

BEGIN TAPER RT +60.00 -L-

END TAPER RT +60.00 -L-

BEGIN NOISE WALL

END NOISE WALL

PROPOSED NOISE WALL

PROPOSED SLOPE STAKE

T2-409 ELEV=765.84 IP&C SET

T2-410 ELEV=762.21 IP&C SET

T2-411 ELEV=762.20 IP&C SET

T2-412 ELEV=757.73 IP&C SET

T3-416 ELEV=756.06 IP&C SET

T3-417 ELEV=754.78 IP&C SET

T3-418 ELEV=753.10 IP&C SET

T3-419 ELEV=753.10 IP&C SET

N 8°07' 24.2" E

CURVE DATA FOR LINE -L-

PIs Sta 1337+00.83	PI Sta 1347+11.49	PIs Sta 1357+16.51
Θs = 0° 38' 51.0"	Δ = 10° 53' 41.2" (RT)	Θs = 0° 38' 51.0"
Ls = 222.00'	D = 0° 35' 00.0"	Ls = 222.00'
LT = 148.00'	L = 1,867.67'	LT = 148.00'
ST = 74.00'	T = 936.66'	ST = 74.00'
	R = 9,822.13'	
	SE = .03	
	RUNOFF = 222'	
	DS = 70 mph	

NC GRID NAD 83

BM #2 ELEV.=783.06

MARSHA A SMITH DB 11739 PG 701 PB 033 PG 589

DAVID XIONG BAO VANG DB 22933 PG 408 PB 033 PG 589

FARMS OWNERS ASSOC INC SINCLAIR PLACE AT WALLACE DB 17872 PG 956 PB 037 PG 831

MADISON PARK OWNERS DB 11880 PG 658 PB 033 PG 589

KELLEY E. VIZURRAGA DB 16867 PG 730 PB 037 PG 831

THOMAS HELLER DB 16882 PG 322 PB 037 PG 831

ADRIAN WILLIAMS DB 23343 PG 061 PB 037 PG 831

DB 08789 PG 694 JASON A NELSEN

TERESA J. CROMEDY DB 21187 PG 595 PB 026 PG 930

WAYNE C DB 08417 PG 930 PB 026 PG 930

DANIEL SIMON DB 14913 PG 289 PB 026 PG 930

RANDOLPH H NEAL JR DB 12699 PG 541 PB 031 PG 519

LORIA MILLER DB 8592 PG 0996

ERIN PATRICIA NORTHEY DB 23908 PG 063

MICHAEL BUNTON DB 25131 PG 064

DEBORAH L. JAMES DB 21711 PG 600 PB 031 PG 519

KEVIN LOUGHLIN DB 20847 PG 042 PB 031 PG 519

SQUIRES ENTERPRISES INC DB 09668 PG 083 DB 031 PG 519

THOMAS BARRY & MAE MOORHEAD DAVIS DB 3997 PG 0119

THOMAS BARRY & MAE MOORHEAD DAVIS DB 3720 PG 0780

NC DEPT OF TRANSPORTATION DB 11864 PG 675

NC DEPT OF TRANSPORTATION DB 13596 PG 177 PB 028 PG 556

ANTHONY C DIMINO DB 10405 PG 844 PB 028 PG 556

HOWARD S GASTON DB 10993 PG 128 PB 028 PG 556

SONIA R. SMITH DB 24707 PG 700 PB 028 PG 556

KELLI WALLACE YVONNE WALLACE DB 20761 PG 684 PB 028 PG 556

WESLEY P. & JOANN FRONEBERGER DB 19752 PG 620 PB 028 PG 556

EDMUND SCHRAMEL DB 10191 PG 360 PB 028 PG 556

KRISTIAN & PILAR PENDERSON DB 16893 PG 426 PB 028 PG 556

JOSEPH A OLZEWSKI DB 10769 PG 829 PB 028 PG 556

JACQUELINE SPELLER DB 18045 PG 284 PB 028 PG 556

BRYAN K. & PAMELA E. CARTER DB 20765 PG 542 PB 028 PG 556

DANNY L MONTGOMERY DB 11603 PG 407 PB 028 PG 556

LAURIE PARIANO DB 14749 PG 452 PB 028 PG 556

JAMES W CARTER II DB 9959 PG 011 PB 028 PG 556

JAMES F KEATING DB 15596 PG 892 PB 028 PG 556

TARA HEATH DB 20908 PG 728 PB 028 PG 556

ALICIA RAYE ELLIOTT DB 20444 PG 828 PB 028 PG 556

SUSAN R HANEY DB 10436 PG 847 PB 028 PG 556

GEORGE R. CONNOR JADON CONNOR DB 22713 PG 560 PB 028 PG 556

CAROLINE ABANUKAM DB 11899 PG 353 PB 028 PG 556

SEE SHEET 40 FOR -L- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

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PROJECT REFERENCE NO.	SHEET NO.
R-2248E	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE — 1951 431 Fayetteville Street Raleigh, N.C. 27601 NC Firm Lic. # C-2915 — TELEPHONE AND TELEGRAPH BUILDING

REVISIONS

CURVE DATA FOR LINE -RPBY17A-

PI Sta 10+30.00	PI Sta 11+70.00	PI Sta 13+41.67	PI Sta 15+13.13	PI Sta 20+50.79
Gs = 01°15' 38.2"	Gs = 1°18' 00.0"	Δ = 5°42' 03.8" (LT)	Gs = 1°18' 00.0"	Gs = 2°00' 24.0"
Ls = 90.00'	Ls = 120.00'	D = 2° 17' 00.0"	Ls = 120.00'	Ls = 76.00'
LT = 60.00'	LT = 80.00'	Ls = 263.11'	LT = 80.00'	LT = 50.62'
ST = 30.00'	ST = 40.00'	T = 131.67'	ST = 40.00'	ST = 25.34'
		R = 2,644.42'		
		SE = .13		
		RUNOFF = 120'		
		DS = 50 mph		

PI Sta 21+83.28
Δ = 11°44' 45.2" (RT)
D = 5° 30' 00.0"
L = 213.56'
T = 107.16'
R = 1,041.74'
SE = .54
RUNOFF = 76' & 68'
DS = 30 & 20 mph

CURVE DATA FOR LINE -RPCY17A-

PI Sta 10+44.55	PI Sta 12+49.31	PI Sta 13+67.22	PI Sta 19+67.22	PI Sta 21+11.73
Gs = 01°12' 40.5"	Δ = 12° 21' 49.0" (RT)	Δ = 2° 31' 12.0"	Gs = 7° 39' 00.0"	Δ = 5° 44' 35.5" (LT)
Gs = 1°15' 36.0"	D = 3° 39' 00.0"	Ls = 144.00'	Ls = 120.00'	D = 3° 45' 00.0"
Ls = 72.00'	L = 353.25'	T = 96.07'	LT = 80.00'	L = 208.84'
LT = 44.55'	T = 177.37'	ST = 48.01'	ST = 40.00'	T = 104.51'
ST = 27.45'	R = 1,637.02'			R = 2,093.48'
	SE = .06			SE = .05
	RUNOFF = 144'			RUNOFF = 120'
	DS = 50 mph			DS = 50 mph

PI Sta 22+56.07	
Gs = 7° 39' 00.0"	
Ls = 120.00'	
LT = 80.00'	
ST = 40.00'	

CURVE DATA FOR LINE -L-

PI Sta 1337+00.83	PI Sta 1347+11.49	PI Sta 1357+16.51	
Gs = 0° 38' 51.0"	Δ = 10° 53' 46.2" (RT)	Gs = 0° 38' 51.0"	
Ls = 222.00'	D = 0° 35' 00.0"	Ls = 222.00'	
LT = 148.00'	L = 1,867.67'	LT = 148.00'	
ST = 74.00'	T = 936.66'	ST = 74.00'	
	R = 9,822.13'		
	SE = .03		
	RUNOFF = 222'		
	DS = 70 mph		

CURVE DATA FOR LINE -Y17A-

PI Sta 42+00.12	PI Sta 1547+09.33			
Δ = 7° 44' 24.0" (RT)	Δ = 31° 59' 08.3" (LT)			
D = 2° 11' 00.0"	D = 7° 45' 00.0"			
L = 354.50'	L = 485.84'			
T = 177.52'	T = 252.06'			
R = 2,624.23'	R = 739.30'			
SE = .03	SE = .04			
RUNOFF = 60'	RUNOFF = 76'			
DS = 50 mph	DS = 45 mph			

CURVE DATA FOR LINE -Y17A-

PI Sta 11+52.70
Δ = 81° 59' 36.20" (RT)
D = 30° 59' 22.96"
L = 264.58'
T = 160.70'
R = 184.89'
SE = .03
RUNOFF = 5'
DS = 25 mph

NC GRID NAD 83

BEGIN CONSTRUCTION -Y17A- POT Sta.45+25.43

-RPBY17A- PC Sta. 10+00.00

-RPBY17A- SC Sta. 20+76.12

-RPBY17A- PT Sta. 12+64.58

-RPBY17A- SR Sta. 22+89.68

-RPBY17A- ST Sta. 10+00.00 - T1.00 LT = 167.13 LT
-L- POT Sta.1341+60.00

-RPBY17A- SRS Sta.10+90.00

-RPBY17A- SC Sta. 12+10.00

-RPBY17A- ST Sta. 15+93.13

-RPBY17A- CS Sta. 14+73.15

-RPCY17A- ST Sta. 15+60.25

-RPCY17A- SC Sta. 20+07.22

-RPCY17A- TS Sta. 18+87.22

-RPCY17A- CS Sta. 22+16.06

-RPCY17A- ST Sta. 23+36.06

-RPCY17A- POT Sta. 51+95.34

-RPCY17A- POT Sta. 26+13.76

-EBFR- POT Sta. 10+00.00

-Y17A- PT Sta. 43+77.71

-Y17A- POT Sta. 46+95.34

-WBFR- POT Sta. 10+00.00

-Y17A- POT Sta. 49+45.34

-L- POT Sta.1361+17.50

-Y17A- PC Sta. 52+53.27

-Y17A- POT Sta. 52+65.00

-EBFR- POT Sta. 18+03.80

-Y2- POT Sta. 10+82.00

-DRI- PC Sta. 11+38.47

-DRI- POT Sta. 11+90.50

-DRI- POT Sta. 12+16.15

-Y2- PC Sta. 10+22.19

-Y2- PRC Sta. 11+66.71

-Y2- POT Sta. 11+75.00

-Y2- PT Sta. 12+70.92

BEGIN CONSTRUCTION -DRI- POT Sta.10+82.00

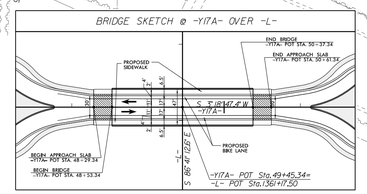
END CONSTRUCTION -Y17A- POC Sta.52+65.00

END CONSTRUCTION -Y2- POT Sta. 11+75.00

MATCH TO SHEET 11 – -L- POT 1346+00.00

MATCH TO SHEET 13 – -L- POT 1372+00.00

BRIDGE SKETCH ø -Y17A- OVER -L-



SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 68 FOR -Y17A- PROFILE
SEE SHEET 51 FOR -RPBY17A- PROFILE
SEE SHEET 52 FOR -RPCY17A- PROFILE
SEE SHEET 80 FOR -EBFR- PROFILE
SEE SHEET 81 FOR -WBFR- PROFILE
SEE SHEET 62 FOR -Y2- PROFILE
SEE SHEET 77 FOR -SAB- & -SAC- PROFILES
SEE SHEET 50 FOR -DRI- PROFILE
SEE SHEETS 2-1, 2-11 AND 2-Y FOR INTERSECTION DETAILS
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

LOCATION: I-485 (CHARLOTTE OUTER LOOP) FROM WEST OF NC 115 TO WEST OF I-85
PROSPERITY CHURCH ROAD INTERCHANGE

TIP NO.: R-2248E
COUNTY: MECKLENBURG
DESIGNED BY: RES
DATE: 4/5/2011
CHECKED BY: DLW
DATE: 4/5/2011

GRAPHIC SCALE
50 25 0 50 100
PLANS

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MATCH TO SHEET 28 – -Y17- POT 56+50.00

MATCH TO SHEET 12 – -L- POT 1372+00.00

MATCH TO SHEET 14 – -L- POT 1398+00.00

MATCH TO SHEET 29 – -Y17- POT 68+40.00

MATCH TO SHEET 30 – -Y17B- POT 86+30.00

BRIDGE SKETCH @ -Y17- OVER -L-

BRIDGE SKETCH @ -Y17B- OVER -L-

CURVE DATA FOR LINE -Y17-

CURVE DATA FOR LINE -Y17B-

CURVE DATA FOR LINE -RPAY17B-

BEG CONSTRUCTION -Y17B- POT Sta.76+31.83

BEG CONSTRUCTION -RPAY17B- PT Sta. 22+62.61

END CONSTRUCTION -Y17B- POT Sta.83+33.32

-RPAY17B- ST Sta.17+10.46

-RPAY17B- TS Sta.17+37.75

-RPAY17B- SC Sta.18+21.75

-RPAY17B- CS Sta.19+67.46

-RPDY17B- PT Sta. 22+81.86

-RPDY17B- ST Sta.16+45.98

-RPDY17B- CS Sta.15+25.98

-RPDY17B- TS Sta.17+96.99

-RPDY17B- SC Sta.19+01.99

-Y17- PT Sta.60+50.75

-Y17- POT Sta.61+94.75= -L- POT Sta.1376+31.83

-Y17- POT Sta.64+44.75= -EBFR- POT Sta.25+14.13

-Y17- POT Sta.59+44.74= -WBFR- POT Sta.25+12.72

-L- POT Sta.1389+45.61= -Y17B- POT Sta.79+81.56

-Y17B- POT Sta.77+31.56= -WBFR- POT Sta. 36+28.11

-RPAY17B- POT Sta. 23+22.61

-L- POT Sta.1389+45.61= -Y17B- POT Sta.79+81.56

-Y17B- POT Sta.82+31.56= -RPAY17B- POT Sta. 21+41.08

-EBFR- POT Sta. 38+28.11

-RPAY17B- POT Sta. 21+41.08

-EBFR- POT Sta. 38+28.11

-Y17- POT Sta.61+94.75= -L- POT Sta.1376+31.83

-Y17- POT Sta.64+44.75= -EBFR- POT Sta.25+14.13

-Y17- POT Sta.59+44.74= -WBFR- POT Sta. 25+12.72

-L- POT Sta.1389+45.61= -Y17B- POT Sta.79+81.56

-Y17B- POT Sta.77+31.56= -WBFR- POT Sta. 36+28.11

-RPAY17B- POT Sta. 23+22.61

-L- POT Sta.1389+45.61= -Y17B- POT Sta.79+81.56

-Y17B- POT Sta.82+31.56= -RPAY17B- POT Sta. 21+41.08

-EBFR- POT Sta. 38+28.11

-RPAY17B- POT Sta. 21+41.08

-EBFR- POT Sta. 38+28.11

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

431 Fayetteville Street
Suite 1515
Raleigh, North Carolina 27601
919.835.4282
NC Firm Lic. # C-0832
NC Firm Lic. # C-0832

SEE SHEETS 42 FOR -L- PROFILE
SEE SHEET 67 & 68 FOR -Y17- PROFILE
SEE SHEET 69 FOR -Y17B- PROFILE
SEE SHEETS 80 FOR -EBFR- PROFILE
SEE SHEETS 81 FOR -WBFR- PROFILE
SEE SHEET 51 FOR -RPAY17B- PROFILE
SEE SHEET 53 FOR -RPDY17B- PROFILE
SEE SHEET 77 FOR -RAA-, -RAD-, -RAE-, AND -RAF- PROFILES
SEE SHEETS 2-5, 2-V, 2-W, AND 2-Y FOR INTERSECTION DETAILS
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

GRAPHIC SCALE
50 25 0 50 100
PLANS

LOCATION:	I-485 (CHARLOTTE OUTER LOOP) FROM WEST OF NC 115 TO WEST OF I-85 PROSPERITY CHURCH ROAD INTERCHANGE
TIP NO.:	COUNTY:
R-2248E	MECKLINBURG
DESIGNED BY:	DATE:
RES	4/5/2011
CHECKED BY:	DATE:
DLW	4/5/2011

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 184, RALEIGH, NORTH CAROLINA 27606

REVISIONS

NC GRID NAD 83

JOHN T BOWMAN DB 11704 PG 497 PB 031 PG 847

TAMIKA N THOMPSON DB 12163 PG 336 PB 031 PG 847

BENJAMIN C MUCHIRI DB 13327 PG 758 PB 035 PG 323

COREY R BOUCHER DB 11871 PG 504 PB 031 PG 847

THOMAS A POPE DB 15380 PG 878 PB 031 PG 847

LAURIE V GARNER DB 12939 PG 466 PB 031 PG 847

RICHARD T HENDERSON DB 18417 PG 204 PB 031 PG 847

BRIAN KEYON FRAIZER & LEKIESHA INEZ CHILDRESS DB 23344PG 135

ROBERT HALL DB 12012 PG 716

DB 11820 PG 649

KRISTIN CAPUTO DB 13932 PG 212

DB 22995 PG 264

PB 034 PG 098

PATRICIA R MALONE

MELISSA R BEST MICHAEL S DENNIS DB 22004 PG 497 PB 031 PG 847

EDWARD R SETSER DB 12220 PG 928 PB 031 PG 847

RALPH W BARNES JR DB 11823 PG 590 PB 031 PG 847

G JAMES (JIM) HUDSON DB 20150 PG 883 PB 031 PG 847

KRISTIE R. BLEVINS DB 20329 PG 145 PB 031 PG 847

SUSAN K. DESOTO DB 25912 PG 200

FRANK T & SHIRLEY D. CANNON

THOMAS F. & GRACE B OEHLER LIVING TRUST DB 13032 PG 586

CRAVEN R. & SUE B. OEHLER DB 5552 PG 0412

HARVEY W. JOHNSTON REVOCABLE TRUST DB 18666 PG 379

WAVERLY LYNN LN 24' BST

PROSPERITY CT BST

-SERVA- POT Sta. 10+00.00

-SERVA- POT Sta. 10+35.00 BEGIN CONSTRUCTION

-RPAY17B- POT Sta. 10+00.00 - 71.00' LT.= -L- POT Sta.1402+51.00

-RPDY17B- SC Sta. 11+50.00

-RPDY17B- ST Sta. 10+00.00 - 71.00' RT.= -L- POT Sta.1402+69.51

S 86° 41' 12.6" E

N 84° 21' 02.6" W

MATCH TO SHEET 13 -L- POT 1398+00.00

MATCH TO SHEET 15 -SERVA- POT 19+00.00

MATCH TO SHEET 15 -L- POT 1411+00.00

LATERAL BASE DITCH (SEE DETAIL LB28)

TOE PROTECTION SEE DETAIL M6

PROPOSED GUARDRAIL

PROPOSED 8' X 9' RCBC

PROPOSED SLOPE STAKE

GRAU 350

4' LATERAL BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL LB28)

8' LATERAL BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL LB31)

8' LATERAL BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL LB30)

3' STANDARD BASE DITCH CLASS 'I' RIP RAP (SEE DETAIL S7)

LAT 2' BASE DITCH W/CL I RIP RAP SEE DETAIL LB8

PROP. EARTH BERM 2' LATERAL BASE DITCH (SEE DETAIL LB9)

PROPOSED NOISE WALL

BEGIN TAPER LT +82.52 -RPAY17B-

BEGIN TAPER RT +68.14 -L-

END NOISE WALL BL-27

TYPE B-77

PROPOSED GUIDERAIL

PAVED SHLDR.

BEGIN SBG STA.1405+33 -L-

BEGIN TAPER RT +50.00 -L-

DRAIN & FILL POND

POND W.S. 751

7' LATERAL BASE DITCH CLASS 'I' RIP RAP SEE DETAIL LB32

LATERAL 'V' DITCH (SEE DETAIL LV6)

SPECIAL LATERAL 'V' DITCH (SEE DETAIL SV8)

SPECIAL LATERAL 'V' DITCH SEE DETAIL SV8

CAT-1

CURVE DATA FOR LINE -RPAY17B-		
PIs Sta 12+09.32	PI Sta 14+07.68	PIs Sta 16+05.47
Θs = 2° 06' 00.0"	Δ = 8° 45' 16.0" (RT)	Θs = 2° 06' 00.0"
Ls = 144.00'	D = 2° 55' 00.0"	Ls = 144.00'
LT = 96.01'	L = 300.15'	LT = 96.01'
ST = 48.01'	T = 150.37'	ST = 48.01'
	R = 1,964.43'	
	SE = .06	
	RUNOFF = 144'	
	DS = 50 mph	

CURVE DATA FOR LINE -RPAY17B-		
PIs Sta 17+93.75	PI Sta 20+43.28	
Θs = 1° 19' 48.0"	Δ = 13° 57' 38.0" (LT)	
Ls = 84.00'	D = 3° 10' 00.0"	
LT = 56.00'	L = 440.86'	
ST = 28.00'	T = 221.53'	
	R = 1,809.34'	
	SE = .04	
	RUNOFF = 84' & 68'	
	DS = 40 & 20 mph	

CURVE DATA FOR LINE -RPDY17B-		
PIs Sta 11+00.01	PI Sta 13+38.50	PIs Sta 15+65.99
Θs = 2° 03' 45.0"	Δ = 10° 20' 22.4" (LT)	Θs = 1° 39' 00.0"
Ls = 150.00'	D = 2° 45' 00.0"	Ls = 120.00'
LT = 100.01'	L = 375.98'	LT = 80.00'
ST = 50.01'	T = 188.50'	ST = 40.00'
	R = 2,083.48'	
	SE = .05	
	RUNOFF = 150' & 120'	
	DS = 70 & 50 mph	

SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 78 & 79 FOR -SERVA- PROFILE
SEE SHEET 51 FOR -RPAY17B- PROFILE
SEE SHEET 53 FOR -RPDY17B- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

MATCH TO SHEET 14 –SERVA– POT 19+00.00

MATCH TO SHEET 14 – –L– POT 1411+00.00

MATCH TO SHEET 16 –SERVA– POT 31+95.00

MATCH TO SHEET 16 – –L– POT 1424+00.00

NC GRID NAD 83

CRAVEN R. & SUE B. OEHLER DB 5552 PG 0412 (122)

MYRTLE P. THOMPSON DB 2627 PG 0065 (35)

HARVEY W. JOHNSTON REVOCABLE TRUST DB 18666 PG 379 (34)

T5-432 ELEV=739.22 IP&C

POND W.E.738

8' LATERAL BASE DITCH (SEE DETAIL LB31)

–SERVA– PC Sta. 21+31.63

–SERVA– PT Sta. 25+84.56

–L– TS Sta. 1423+03.06

S 86° 41' 12.6" E

S 84° 02' 40.9" E

BM #9 ELEV.=750.33

CL I RIP RAP BANKS ONLY SEE DETAIL M35

CL B RIP RAP EST 1 TON EST 5 SY FF

CL B RIP RAP EST 2 TON EST 7 SY FF

CL I RIP RAP EST 7 TON EST 15 SY FF

DETENTION STORAGE SEE PROFILE AND CROSS SECTIONS

DRY DETENTION BASIN OUTLET CONRTROL STRUCTURE SEE SPECIAL DETAIL

PROPOSED GUARDRAIL

PROPOSED SLOPE STAKE

PAVED SHLDR.

SHOULDER BERM GUTTER TO STA 1423+00 –L– LT

END TAPER RT +50.00 –L–

STD. BERM DITCH STA. 1411+35 TO STA. 1415+00 –L– RT

LATERAL V DITCH SEE DETAIL LV3

SPEC. LAT V DITCH SEE DETAIL SV8

3' BASE DITCH W/CL I RIP RAP SEE DETAIL S7

FS TO EL 759.1

BL-28 BL-29 BL-30

24" RCP-III 15" RCP-III 18" RCP-III 42" RCP-IV 15" CSP W/ELBOWS 18" CSP W/ELBOW 15" RCP-IV GRAU 350

CURVE DATA FOR LINE –L–

PIs Sta 1427+32.73	PI Sta 1431+52.56	PIs Sta 1435+72.21
Θs = 6° 58' 36.0"	Δ = 8° 53' 14.0" (RT)	Θs = 6° 58' 36.0"
Ls = 644.00'	D = 2° 10' 00.0"	Ls = 644.00'
LT = 429.67'	L = 410.18'	LT = 429.67'
ST = 214.97'	T = 205.50'	ST = 214.97'
	R = 2,644.42'	
	SE = .07	
	RUNOFF = 644'	
	DS = 70 mph	

CURVE DATA FOR LINE –SERVA–

PI Sta 23+58.13
Δ = 2° 38' 31.7" (RT)
D = 0° 35' 00.0"
L = 452.94'
T = 226.51'
R = 9,822.13'
SE = NC
DS = 40 mph

PI Sta 24+29.21
Δ = 40° 09' 11.3" (LT)
D = 14° 55' 34.6"
L = 269.01'
T = 140.29'
R = 383.86'

SEE SHEET 43 FOR –L– PROFILE
SEE SHEET 78 FOR –SERVA– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 184, RALEIGH, NORTH CAROLINA 27606

REVISIONS

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CURVE DATA FOR LINE -SERVA-
PI Sta 43+02.73
Δ = 23° 19' 05.2" (RT)
D = 2° 11' 00.0"
L = 1,068.01'
T = 541.50'
R = 2,624.23'
SE = .03
RUNOFF = 57.00'
DS = 40 mph

BEGIN CONSTRUCTION -Y5- POT Sta.18+01.06

MATCH TO SHEET 15 -SERVA- POT 31+95.00

MATCH TO SHEET 15 -L- POT 1424+00.00

MATCH TO SHEET 17 -SERVA- POT 45+68.00

MATCH TO SHEET 17 -L- POT 1437+00.00

-SERVA- PC Sta. 37+61.24

-L- SC Sta. 1429+47.06

-Y5- POT Sta. 20+06.93= -SERVA- POT Sta.38+37.76

-L- CS Sta. 1433+57.24

MYRTLE P. THOMPSON DB 2627 PG 0065 (35)

NC DEPT OF TRANSPORTATION DB 11864 PG 675 DB 034 PG 130 (37)

NC DOT DB 11864 PG 672 (941)

TED C. THOMPSON DB 5110 PG 0226 (40)

O THOMPSON JR DB 4441 PG 0757 (39)

BANCO POPULAR, NORTH AMERICA DB 25564 PG 385 PB 043 PG 039 (36B)

DARRELL AND REBECCA SCHAUF DB 2193 PG 538 PB 043 PG 039 (36A)

GOHEEN PROPERTIES, INC DB24460 PG 976 DB 043 PG 039 (36C)

LESLIE S. & LARRY S. MARTIN, JR. DB 24445 PG 020 PB 034 PG 130 (38)

CONWAY R PATTERSON DB 4462 PG 700

MYRTLE P THOMPSON DB 4441 PG 769

ENVIRONMENTALLY SENSITIVE AREA DO NOT ENTER/DISTURB

SPEC LAT V DITCH SEE DETAIL SV8

PROPOSED SIDEWALK

PROPOSED GUARDRAIL

PROPOSED SLOPE STAKE

PROP. 2'-6" C&G

END TAPER RT +66.10

BEGIN TAPER RT +06.35

END C&G +72.26 -SERVA-

END C&G +30.22 -SERVA-

GRAU 350 8:1

SPECIAL CUT DITCH W/HINGE POINT SEE DETAIL SC13

PAVED SHLDR.

SPCIAL DITCH GRADE PAVED FROM STA 1433+50 TO STA 1438+00 -L- RT SEE PROFILE FOR GRADE

30" CSP W/ELBOW

3' BASE BERM DITCH W/CL B RIP RAP SEE DETAIL M30

PUE

BM #18 ELEV.=775.70

CURVE DATA FOR LINE -L-

PIs Sta 1427+32.73
Θs = 6° 58' 36.0"
Ls = 644.00'
LT = 429.67'
ST = 214.97'

PI Sta 1431+52.56
Δ = 8° 53' 14.0" (RT)
D = 2° 10' 00.0"
L = 410.18'
T = 205.50'
R = 2,644.42'
SE = .07
RUNOFF = 644'
DS = 70 mph

PIs Sta 1435+72.21
Θs = 6° 58' 36.0"
Ls = 644.00'
LT = 429.67'
ST = 214.97'

SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 78 & 79 FOR -SERVA- PROFILE
SEE SHEET 62 FOR -Y5- PROFILE
SEE SHEET 2-AA FOR INTERSECTION DETAIL
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

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MATCH TO SHEET 16 -SERVA- POT 45+68.00

MATCH TO SHEET 16 – -L- POT 1437+00.00

MATCH TO SHEET 18 – -L- POT 1450+00.00

NC GRID NAD 83

CURVE DATA FOR LINE -SERVA-

PI Sta 43+02.73
Δ = 23° 19' 05.2" (RT)
D = 2° 11' 00.0"
L = 1,068.01'
T = 541.50'
R = 2,624.23'
SE = .03
RUNOFF = 57'
DS = 40 mph

PI Sta 55+06.50
Δ = 35° 43' 57.2" (LT)
D = 21° 50' 00.0"
L = 163.66'
T = 84.59'
R = 262.42'
SE = .04
RUNOFF = 68'
DS = 30 mph

CURVE DATA FOR LINE -L-

PIs Sta 1427+32.73
θs = 6° 58' 36.0"
Ls = 644.00'
LT = 429.67'
ST = 214.97'

PI Sta 1431+52.56
Δ = 8° 53' 14.0" (RT)
D = 2° 10' 00.0"
L = 410.18'
T = 205.50'
R = 2,644.42'
SE = .07
RUNOFF = 644'
DS = 70 mph

PIs Sta 1435+72.21
θs = 6° 58' 36.0"
Ls = 644.00'
LT = 429.67'
ST = 214.97'

-Y6- POT Sta. 10+00.00
BEGIN CONSTRUCTION -Y6- POT Sta. 11+34.00
-SERVA- PT Sta. 48+29.24
-SERVA- PT Sta. 55+85.58
-SERVA- PC Sta. 54+21.91
-SERVA- POT Sta. 59+18.98
-Y6- POT Sta. 12+25.37 = -SERVA- POC Sta. 47+90.27
END CONSTRUCTION -SERVA- POT Sta. 56+00.00
-L- ST Sta. 1440+01.24

S 11° 37' 17" W
S 60° 43' 35.7" E
S 63° 50' 46.6" E
N 83° 32' 22" E

BM #22 ELEV.=770.51
BM #6 ELEV.=763.68

WALLACE RIDGE LAND TRUST DB 16140 PG 655 PB 035 PG 323
VALERIE C GRAY DB 13660 PG 781 PB 035 PG 323
GENE SMITH DB 21334 PG 928 PB 035 PG 323
GREGORY L THOMAS DB 15953 PG 962 PB 035 PG 323
SARAH BATISTA DB 25200 PG 103 PB 035 PG 323
DAVID M & JOANN L. YERTY DB 13715 PG 962 PB 035 PG 323
RHONDA B NIXON DB 14332 PG 000 PB 035 PG 323
BENJAMIN MICHAEL OEHLER DB 12851 PG 619 PB 036 PG 205
JAY MACK OEHLER CONSTANCE J OEHLER (REV TST) DB 7400 PG 0766 PB 031 PG 113 PB 028 PG 990
JAY MACK & CONSTANCE J. OEHLER DB 10522 PG 328 PB 031 PG 113 PB 028 PG 990
JASON ROBERT OEHLER DB 12851 PG 552 PB 036 PG 205
JOSHUA DANIEL OEHLER DB 17660 PG 64 PB 42 PG 37
JAY MACK OEHLER DB 07400 PG 768 PB 028 PG 990
JEFFREY F MEYER & CATHERINE R. MOWRY DB 4880 PG 114
O. THOMPSON JR DB 4441 PG 0757
COHEEN PROPERTIES, INC DB 5537 PG 213 PB 030
CLARENCE ROSS RITCHIE III & YVONNE POOLE RITCHIE DB 10562 PG 257

PROPOSED SHOULDER
SPEC LAT V DITCH W/PSRM SEE DETAIL SV20
TAPER LAST 10'
PROP. 2'-6" C&G
CL I RIP RAP BANKS ONLY SEE DETAIL M36
TOE PROTECTION SEE DETAIL M34
PROPOSED GUARDRAIL GRAU 350
PROPOSED SLOPE STAKE
CL B RIP RAP EST 2 TON EST 7 SY FF
DRY DETENTION BASIN OUTLET CONTROL STRUCTURE SEE SPECIAL DETAIL
REMOVE
4' BASE DITCH W/CL I RIP RAP SEE DETAIL S45
SPECIAL BERM SEE DETAIL M37
CL B RIP RAP EST 1 TON EST 5 SY FF
CL B RIP RAP EST 5 TONS EST 16 SY FF
SHOULDER BERM GUTTER STA 1440+00 TO 1442+00 -L- LT
PAVED SHLDR.
PROPOSED GUIDERAIL
BEG. EXPRESSWAY GUTTER STA. +50.00 -L-
END TAPER RT +25.00 -L-
BEGIN TAPER RT +25.00 -L-
BEGIN TAPER RT +44.00 -L-
END TAPER RT +44.00 -L-
SPECIAL DITCH GRADE FROM STA 1433+50 TO STA 1438+00 -L- RT SEE PROFILE FOR GRADE
SPECIAL DITCH GRADE STA. 1444+50 TO STA 1446+50 -L- RT SEE PROFILE FOR GRADE
STD. BERM DITCH STA. 1435+35 TO STA. 1438+00 -L- RT
JB w/MH
BLOWOFF VALVE
BY6-20A
BY6-19A

SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 79 FOR -SERVA- PROFILE
SEE SHEET 65 FOR -Y6- PROFILE
SEE SHEET 2-AA FOR INTERSECTION DETAIL
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

NC GRID NAD 83

WILLIAM M & ALICE T OEHLER
DB 4046 PG 0892
PB 036 PG 205

CONNIE D OEHLER KLEIN
DB 16221 PG 0537
PB 036 PG 205

LARRY W & LISA J. OEHLER
DB 11206 PG 236
PB 036 PG 205

46A
KRISTOPHER RYAN OEHLER
DB 25013 PG 621

46

47
WILLIAM L. MOWRY
DONNA E. MOWRY
HERMITAGE PARTNERS, LLC
DB 20128 PG 551

44
JAY MACK OEHLER
DB 07400 PG 766
PB 036 PG 205

45

43

1455

1460

BY6-21A
BM #23
ELEV.=756.34

+25.00 –L–
160.00' LT

+00.00 –L–
144.00' LT

PROPOSED SLOPE STAKE

MATCH TO SHEET 17 – –L– POT 1450+00.00

MATCH TO SHEET 19 – –L– POT 1463+00.00

18" RCP–III
24" RCP–III
2GI
FS
PAVED SHLDR.
BEGIN TAPER LT +45.00 –L–
BEGIN TAPER RT +44.00 –L–
GRAU 350
BEGIN SBG
STA. 1462+28 –L– RT

+39.634
17.073m

+60.639
20.921m

BL-37
BL-38

44
JAY MACK OEHLER
DB 07400 PG 768
PB 028 PG 990

47
WILLIAM L. MOWRY
DONNA E. MOWRY
HERMITAGE PARTNERS, LLC
DB 20128 PG 551

48
W SAMUEL &
JOHNSIE R. RABOR
DB 4355 PG 56

SEE SHEET 45 FOR –L– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Roadway Proj\R2248E_RDY_PSH_18.DGN
DATE: 4/5/2011 5:16:22 PM

PROJECT REFERENCE NO.	SHEET NO.
R-2248E R-2248E	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE

WilburSmith — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

KCI TECHNOLOGIES — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

FILE: R:\ncdot\R2248E\Roadway\Proj\R2248E_RDY_PSH_19.DGN
DATE: 4/5/2011 5:16:38 PM

CURVE DATA FOR LINE -RPBY22-

PIs Sta 11+12.03	PI Sta 12+21.24	PIs Sta 13+30.45
Θs = 3° 46' 48.0"	△ = 4° 47' 20.4" (LT)	Θs = 3° 46' 48.0"
Ls = 168.00'	D = 4° 30' 00.0"	Ls = 168.00'
LT = 112.03'	L = 106.42'	LT = 112.03'
ST = 56.02'	T = 53.24'	ST = 56.02'
	R = 1,273.24'	
	SE = .07	
	RUNOFF = 168'	
	DS = 50 mph	

CURVE DATA FOR LINE -RPCY22-

PIs Sta 11+12.03	PI Sta 12+30.88	PIs Sta 13+49.68
Θs = 3° 46' 48.0"	△ = 5° 39' 15.9" (RT)	Θs = 3° 46' 48.0"
Ls = 168.00'	D = 4° 30' 00.0"	Ls = 168.00'
LT = 112.03'	L = 125.65'	LT = 112.03'
ST = 56.02'	T = 62.88'	ST = 56.02'
	R = 1,273.24'	
	SE = .07	
	RUNOFF = 168'	
	DS = 50 mph	

BRIDGE SKETCH @ -L- OVER TRIBUTARY TO STONY CREEK

-RPBY22- TS Sta.10+00.00 - 83.00' LT =
-L- POT Sta.1470+27.76

-RPBY22- SC Sta. 11+68.00

-RPBY22- CS Sta. 12+74.42

-RPBY22- ST Sta. 14+42.42

-RPCY22- TS Sta.10+00.00 - 83.00' RT =
-L- POT Sta.1471+45.00

-RPCY22- SC Sta. 11+68.00

-RPCY22- CS Sta. 12+93.65

-L- S 63° 50' 46.6" E

-L- S 76° 11' 43.0" E

MATCH TO SHEET 18 -L- POT 1463+00.00

MATCH TO SHEET 20 -RPBY22- POT 15+70.00

MATCH TO SHEET 20 -L- POT 1476+00.00

MATCH TO SHEET 20 -RPCY22- POT 14+50.00

47 WILLIAM L. MOWRY, DONNA E. MOWRY, HERMITAGE PARTNERS, LLC, DB 20128 PG 551

48 W SAMUEL & JOHNSIE R. RABORN, DB 4355 PG 560

49 ESTHER F. OEHLER, LIFE TENANT; DONALD L. OEHLER; THOMAS F. OEHLER; CRAVEN R. OEHLER, DB 17757 PG 699

50 OEHLER LIVING TRUST, DB 13620 PG 212, PB 004 PG 399

52 BARBARA ALLISON, DB 4458 PG 0433

128 BEAZER HOMES CORP, ROBYNS GLEN HOMEOWNERS ASSOC, DB 8692 PG 892, DB 21213 PG 822

SEE SHEET 45 FOR -L- PROFILE
SEE SHEET 55 FOR -RPBY22- PROFILE
SEE SHEET 56 FOR -RPCY22- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

CURVE DATA FOR LINE -Y22NB-

PI Sta 58+75.49	PI Sta 59+61.67	PI Sta 61+50.89	PI Sta 62+53.74	PI Sta 66+17.13	PI Sta 67+22.45	PI Sta 69+32.83	PI Sta 70+32.84
Δ = 7°17' 36.2" (RT)	Δ = 33° 47' 36.2" (LT)	Δ = 37° 45' 42.9" (RT)	Δ = 11° 15' 42.9" (LT)	Δ = 10° 50' 32.3" (LT)	Δ = 31° 20' 32.3" (RT)	Δ = 32° 35' 44.2" (LT)	Δ = 12° 45' 25.2" (RT)
D = 14° 19' 26.2"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 14° 19' 26.2"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 14° 19' 26.2"
L = 50.92'	L = 117.96'	L = 131.81'	L = 78.62'	L = 75.69'	L = 130.35'	L = 113.78'	L = 89.06'
T = 25.49'	T = 60.27'	T = 68.40'	T = 39.44'	T = 37.90'	T = 67.56'	T = 58.48'	T = 44.72'
R = 400.00'	R = 200.00'	R = 200.00'	R = 400.00'	R = 400.00'	R = 200.00'	R = 200.00'	R = 400.00'

CURVE DATA FOR LINE -Y22SB-

PI Sta 58+75.49	PI Sta 59+61.67	PI Sta 61+50.89	PI Sta 62+53.74	PI Sta 66+48.08	PI Sta 67+19.78	PI Sta 69+20.99	PI Sta 71+08.51
Δ = 7°17' 36.2" (LT)	Δ = 33° 47' 36.2" (RT)	Δ = 37° 45' 42.9" (LT)	Δ = 11° 15' 42.9" (RT)	Δ = 10° 32' 36.8" (LT)	Δ = 31° 20' 32.3" (LT)	Δ = 38° 01' 24.1" (RT)	Δ = 5° 41' 43.1" (LT)
D = 14° 19' 26.2"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 14° 19' 26.2"	D = 14° 19' 26.2"	D = 28° 38' 52.4"	D = 28° 38' 52.4"	D = 7° 09' 43.1"
L = 50.92'	L = 131.98'	L = 131.81'	L = 78.62'	L = 73.61'	L = 129.51'	L = 133.73'	L = 51.62'
T = 25.49'	T = 60.07'	T = 68.40'	T = 39.44'	T = 36.91'	T = 67.00'	T = 68.91'	T = 25.82'
R = 400.00'	R = 200.00'	R = 200.00'	R = 400.00'	R = 400.00'	R = 200.00'	R = 200.00'	R = 800.00'

CURVE DATA FOR LINE -Y22-

PI Sta 72+00.25
Δ = 25° 10' 15.4" (RT)
D = 2° 20' 00.0"
L = 864.43'
T = 436.74'
R = 2,455.53'
SE = 0.03
RUNOFF = 207.00'
DS = 50 mph

CURVE DATA FOR LINE -SPCY22-

PI Sta 21+25.99	PI Sta 23+03.76
Ls = 172.00'	Δ = 82° 38' 53.2" (RT)
LT = 48.11'	D = 32° 44' 25.6"
ST = 24.10'	L = 252.43'
	T = 153.87'
	R = 175.00'
	SE = .04
	RUNOFF = 72'
	DS = 25 mph

CURVE DATA FOR LINE -SPDY22-

PI Sta 29+90.99	PI Sta 30+60.75	PI Sta 31+28.70
Ls = 11.47' 11.6"	Δ = 29° 22' 20.5" (LT)	Δ = 11° 47' 11.6"
LT = 72.00'	D = 32° 44' 25.6"	Ls = 72.00'
ST = 48.11'	L = 89.71'	LT = 48.11'
	R = 175.00'	ST = 24.10'
	RUNOFF = 72'	
	DS = 25 mph	

CURVE DATA FOR LINE -RPCY22-

PI Sta 11+12.03	PI Sta 12+30.88	PI Sta 13+44.68	PI Sta 27+50.77	PI Sta 30+30.01
Δ = 5° 39' 15.9" (RT)	Δ = 3° 46' 48.0"	Δ = 3° 46' 48.0"	Δ = 11° 47' 11.6"	Δ = 11° 09' 04.6" (RT)
D = 4° 30' 00.0"	Ls = 168.00'	Ls = 168.00'	Ls = 72.00'	D = 32° 44' 25.6"
L = 126.65'	T = 62.88'	T = 112.03'	LT = 48.11'	L = 339.49'
T = 63.38'	R = 1,27.32.4'	ST = 56.02'	ST = 24.10'	T = 255.35'
R = 1,27.32.4'	SE = .07'			R = 175.00'
SE = .07'	RUNOFF = 168'			SE = .04
RUNOFF = 168'	DS = 50 mph			RUNOFF = 72'
DS = 50 mph				DS = 25 mph

CURVE DATA FOR LINE -RPDY22-

PI Sta 10+27.68	PI Sta 13+26.68	PI Sta 16+44.68	PI Sta 27+50.77	PI Sta 30+30.01
Δ = 12° 26' 56.0"	Δ = 11° 09' 27.6" (LT)	Δ = 3° 46' 48.0"	Δ = 11° 47' 11.6"	Δ = 11° 09' 04.6" (RT)
D = 3° 30' 00.0"	D = 3° 30' 00.0"	Ls = 168.00'	Ls = 72.00'	D = 32° 44' 25.6"
Ls = 50.00'	L = 546.89'	LT = 96.01'	LT = 48.11'	L = 339.49'
LT = 27.62'	T = 273.62'	ST = 48.01'	ST = 24.10'	T = 255.35'
ST = 23.32'	R = 1,637.02'			R = 175.00'
	SE = .06			SE = .04
	RUNOFF = 144'			RUNOFF = 72'
	DS = 50 mph			DS = 25 mph

CURVE DATA FOR LINE -RPAY22-

PI Sta 10+90.01	PI Sta 27+19.76	PI Sta 29+98.32		
Δ = 2° 18' 44.5"	Δ = 5° 29' 51.2"	Δ = 74° 21' 46.3" (LT)		
Ls = 27.00'	Ls = 76.00'	D = 17° 06' 11.6"		
LT = 180.02'	LT = 50.70'	L = 434.98'		
ST = 90.01'	ST = 25.36'	T = 254.26'		
		R = 335.00'		
		SE = .04		
		RUNOFF = 76'		
		DS = 30 mph		

CURVE DATA FOR LINE -SPAY22-

PI Sta 27+99.81	PI Sta 29+87.48	
Δ = 15° 18' 26.2"	Δ = 93° 09' 58.3" (RT)	
Ls = 72.00'	D = 35° 57' 54.1"	
LT = 48.14'	L = 252.04'	
ST = 24.12'	T = 163.81'	
	R = 155.00'	
	SE = .04	
	RUNOFF = 68'	
	DS = 25mph	

CURVE DATA FOR LINE -RPBY22-

PI Sta 24+06.37	PI Sta 26+90.75
Δ = 11° 47' 11.6"	Δ = 112° 17' 41.6" (RT)
Ls = 72.00'	D = 32° 44' 25.6"
LT = 48.11'	L = 342.73'
ST = 24.10'	T = 260.48'
	R = 175.00'
	SE = .04
	RUNOFF = 72'
	DS = 25 mph

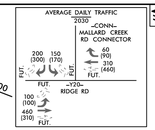
CURVE DATA FOR LINE -SPBY22-

PI Sta 25+64.52
Δ = 7° 58' 22.0"
D = 25° 13' 14.4"
L = 173.60'
T = 89.02'
R = 227.00'
SE = .04
RUNOFF = 72'
DS = 25 mph

CURVE DATA FOR LINE -L-

PI Sta 1499+49.11	PI Sta 1506+83.54	PI Sta 1514+82.19
Δ = 4° 49' 48.0"	Δ = 19° 05' 21.0" (RT)	Δ = 6° 46' 21.0"
Ls = 552.00'	D = 1° 45' 00.0"	Ls = 774.00'
LT = 568.44'	L = 1,090.81'	LT = 541.59'
ST = 184.12'	T = 550.51'	ST = 258.54'
	R = 3,271.04'	
	SE = .06	
	RUNOFF = 184' & 258'	
	DS = TO mph	

AVERAGE DAILY TRAFFIC 2030



BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

BLYTHE 4011 Stuart Andrew Blvd Charlotte, NC 28217 704.525.1560

DOCUMENT NOT CONSIDERED FINAL UNLESS SIGNED AND SEALED	

MATCH TO SHEET 31
MATCH TO SHEET 34 -Y22- POC 70+75.00
MATCH TO SHEET 34 -Y20- POT 61+00.00
MATCH TO SHEET 34 -CONN- POT 18+00.00
MATCH TO SHEET 21 -Y20- POT 62+00.00
MATCH TO SHEET 21 -L- POS 1502+00.00
MATCH TO SHEET 19 -RPBY22- POT 15+75.00
MATCH TO SHEET 19 POT 14+50.00
MATCH TO SHEET 33 -Y22- POT 57+50.00
-SPBY22- PT Sta. 28+74.29.00 LT =
-Y22- POC Sta.70+19.55
-Y22- POC Sta.70+10.00 =
-Y225B- PT Sta.70+42.45 - 27.00 LT
-Y22NB- PT Sta.70+35.04 - 27.00 RT
-Y22NB- PRC Sta.69+63.00
-Y22NB- PRC Sta.69+35.06
-Y22NB- PC Sta.68+32.70
-Y225B- PC Sta.68+12.13
-SPBY22- SC Sta.25+39.03
-SPBY22- TS Sta.24+67.03
-SPBY22- POT Sta.23+58.26=
-RPBY22- TS Sta.23+58.26
-SPAY22- POT Sta.26+34.94 24.00' RT =
-RPAY22- TS Sta.26+34.94
-CONN- POT Sta.21+29.95=
-Y20- POT Sta.55+79.62
-RPBY22- SC Sta.24+30.26
-Y225B- PT Sta.67+48.05
-Y22NB- PRC Sta.66+42.67
-Y22NB- PC Sta.65+79.17
-RPBY22- PT Sta. 27+72.99 - 27.00 LT =
-Y22- POT Sta.65+07.48
-RPAY22- SC Sta.27+10.94
-SPAY22- TS Sta.27+51.67
-Y22NB- PT Sta.67+66.92
-Y225B- PRC Sta.66+30.09
-Y225B- PC Sta.65+79.17
-RPAY22- PT Sta.32+02.40 - 27.00 RT =
-Y22- POT Sta.64+65.60
-RPAY22- PT Sta.31+44.16 - 5.00 RT =
-Y22- POT Sta.63+04.75
-RPDY22- PT Sta.24+24.05 - 27.00 LT =
-Y22- POT Sta.58+11.84
-SPCY22- PT Sta.24+02.32 - 27.00 LT =
-Y22- POT Sta.58+11.84
-SPDY22- PT Sta.29+49.09 -
-SPDY22- POT Sta.32+49.09
-SPDY22- TS Sta.31+76.60
-SPDY22- SC Sta.30+14.89
-Y225B- PT Sta.60+18.88
-SPDY22- ST Sta.21+47.89
-Y22NB- PT Sta.60+18.88
-SPCY22- SC Sta.21+49.89
-Y225B- PRC Sta.59+00.92
-Y22- POT Sta.58+50.00 -
-Y22NB- PC to.58+50.00 - 27.00 RT
-Y225B- PC to.58+50.00 - 27.00 LT
-SPDY22- POT Sta.19+95.00 - 24.00 RT =
-RPCY22- POT Sta.19+95.00
-RPCY22- ST Sta.14+61.65
-RPBY22- ST Sta.15+61.65
-RPBY22- PT Sta.3+14.16 - 5.00 RT =
-Y22- POT Sta.63+04.75
-RPCY22- PT Sta.24+58.05 - 27.00 LT =
-Y22- POT Sta.62+78.75
-RPCY22- PT Sta.62+14.30 -
-Y225B- PRC Sta.62+14.30
-Y225B- PC Sta.60+82.49
-RPCY22- SC Sta.21+36.89
-RPCY22- TS Sta.20+24.80
-SPCY22- TS Sta.20+14.89
-Y22NB- PT Sta.62+92.92 - 27.00 LT =
-Y22- POT Sta.62+78.75
-Y22NB- PC Sta.62+92.92 - 27.00 LT
-Y22- POT Sta.64+65.60
-Y22NB- PRC Sta.59+00.92
-SPDY22- ST Sta.31+76.60
-SPDY22- POT Sta.32+49.09
-SPDY22- SC Sta.30+14.89
-Y225B- PT Sta.60+18.88
-SPDY22- TS Sta.29+49.09
-SPCY22- SC Sta.21+49.89
-Y225B- PRC Sta.59+00.92
-SPCY22- ST Sta.21+47.89
-Y22NB- PT Sta.60+18.88
-SPC

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

FILE: R:\notes\R2248E Roadway Proj\R2248E_RDY_PSH_21.DGN
DATE: 4/2011 5:16:52 PM

MATCH TO SHEET 35A –Y26– POC 26+50.00

MATCH TO SHEET 20 –Y20– POT 62+00.00

MATCH TO SHEET 20 – –L– POS 1502+00.00

MATCH TO SHEET 22 – –L– POS 1515+00.00

MATCH TO SHEET 22 –Y20– POT 75+60.00

CURVE DATA FOR LINE –Y26–
PI Sta 25+25.23
△ = 11° 49' 54.0" (LT)
D = 5° 34' 46.1"
L = 212.06'
T = 106.41'
R = 1,026.90'
SE = .04
RUNOFF = 104'
DS = 40 mph

PI Sta 27+08.68
△ = 33° 01' 16.2" (RT)
D = 21° 49' 47.0"
L = 151.27'
T = 77.80'
R = 262.47'
SE = .04
RUNOFF = 92'
DS = 30 mph

CURVE DATA FOR LINE –Y20–
PI Sta 71+27.55
△ = 11° 42' 27.0" (LT)
D = 3° 51' 58.0"
L = 302.82'
T = 151.94'
R = 1,482.00'
SE = .03
RUNOFF = 120'
DS = 40 mph

CURVE DATA FOR LINE –L–
PIs Sta 1499+49.17
Θs = 4° 49' 48.0"
Ls = 552.00'
LT = 368.14'
ST = 184.12'

PI Sta 1506+83.54
△ = 19° 05' 21.0" (RT)
D = 1° 45' 00.0"
L = 1,090.81'
T = 550.51'
R = 3,274.04'
SE = .06
RUNOFF = 184' & 258'
DS = 70 mph

PIs Sta 1514+82.19
Θs = 6° 46' 21.0"
Ls = 774.00'
LT = 516.38'
ST = 258.34'

CURVE DATA FOR LINE –RPDY22–
PIs Sta 10+27.68
Θs = 0° 26' 56.0"
Θs = 0° 52' 30.0"
Ls = 50.00'
LT = 27.68'
ST = 22.32'

CURVE DATA FOR LINE –RPAY22–
PIs Sta 10+90.01
Θs = 2° 18' 44.5"
Ls = 270.00'
LT = 180.02'
ST = 90.01'

PIs Sta 26+26.61
Θs = 5° 09' 00.7"
Ls = 80.00'
LT = 53.36'
ST = 26.69'

–Y26– PT Sta. 27+82.15

–Y20– PT Sta. 72+78.44

END CONSTRUCTION –Y20– POT Sta.74+80.00

–Y20– POT Sta.62+80.44=
–Y26– POT Sta. 28+81.29

–RPAY22– ST Sta. 12+70.00

–RPAY22– ST Sta. 10+00.00 – 71.00' LT.=
–L– POC Sta.1507+06.00

–Y20– PC Sta. 69+75.61

–L– CS Sta. 1512+23.84

–RPDY22– SC Sta. 10+50.00

–RPDY22– ST Sta. 10+00.00 – 83.00' RT.=
–L– POT Sta.1505+25.39

BEGIN TAPER LT & RT +48.44 –Y20–

END TAPER LT & RT +98.44 –Y20–

BEGIN TAPER LT. & RT +20.00 –Y20–

END TAPER LT. & RT +80.00 –Y20–

BM #31 ELEV.=750.78

S 42° 49' 04.0" E

S 54° 31' 31.0" E

N 51° 18' 06.3" W

AVERAGE DAILY TRAFFIC
2030

–Y26– ODELL SCHOOL RD
10 (10) 100 (80) 60 (90)
510 (610) FUT.
100 (100) –Y20– RIDGE RD
600 (490) FUT.

NC GRID NAD 83

SEE SHEET 47 FOR –L– PROFILE
SEE SHEET 71 FOR –Y26– PROFILE
SEE SHEET 77 FOR –Y26– PROFILE
SEE SHEET 54 FOR –RPAY22– PROFILE
SEE SHEET 57 FOR –RPDY22– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE

WilburSmith — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

POT Sta. 81+66.94

HICKORY GROVE BAPTIST CHURCH
DB 8062 PG 814

BM #29
ELEV.=724.98

MATCH TO SHEET 21 – -L- POT 75+60.00

MATCH TO SHEET 21 – -L- POS 1515+00.00

+43.81 -Y20- 100.00' LT

BY9-31

+46.56 -Y20- 30.22' LT

S 64° 31' 31.0" E

+22.74 -Y20- 35.00' RT

+26.66 56.18' RT

+29.23 -Y20- 70.00' RT

+29.94 86.00' RT

+75.08 -Y20- 35.00' RT

+49.46 44.45' RT

+52.31 74.32' RT

SR 2467 MALLARD CREEK RD

WINDSTREAM COMM

PUE

NATHANIEL HICKLEN, SR
SHIRLEY H. HICKLEN
DB 3116 PG 073
PB 22 PG 442

-L- ST Sta. 1519+97.84

ARTHUR L. BEST
DB 20970 PG 785

+00.00 -L- 195.00' LT

+97.84 -L- 195.00' LT

PROPOSED SLOPE STAKE

FRED SMITH
CLARA C. SMITH
DB 6035 PG 263

PAVED SHLDR.

BL-52

BL-53

BEGIN SBG STA. 1521+00 -L- RT.

CLASS I RIP RAP
EST 10 TNS RR
EST 23 SY FF

GRAU 350

36" RCP-III

18" RCP-III

15" RCP-III

24" CSP W/ELBS

18" CSP W/ELBS

30" RCP-III

42" RCP-III

15" RCP-IV

48" RCP-IV

2GI TYPE-A

2GI TYPE-D

2GI

FS

BDO

HW

+00.00 -L- 180.00' RT

+97.73 180.00' RT

+97.84 -L- 180.00' RT

+37.79 301.38' RT

+85.13 249.20' RT

+52.20 -L- 180.00' RT

PROPOSED SLOPE STAKE

DETENTION STORAGE (SEE CROSS SECTIONS)

OUTLET CONTROL STRUCTURE

END SBG STA. 1525+52 -L- RT.

EMERGENCY SPILLWAY (EL. = 688.50)

KATRINA H. ERAZIER
DB 5179 PG 235
PB 22 PG 442

SHERMAN CELESTER HARRIS
SYLVIA L. HARRIS
DB 3939 PG 695

MAHMOUD ALQOLAQ
DB 22679 PG 873

JOHN C. & SYLVIA K. FOSTER
DB 2757 PG 031

+60.00 415.00' LT

+80.00 365.00' LT

+35.00 295.00' LT

+95.00 195.00' LT

4' BASE HEAD DITCH CLASS 'I' RIP RAP SEE DETAIL M23

BM #9
ELEV.=703.14

BREACH POND DAM & DRAIN POND SEE DETAIL M23

+00.00 270.00' LT

+52.20 -L- 195.00' LT

+90.84 195.37' LT

+29.15 -L- 197.68' LT

BOBBY EUGENE BOST
ELIZABETH W. BOST
DB 2343 PG 361

NC GRID NAD 83

TDE

PDE

END TIP PROJECT R-2248E
-L- POT Sta. 1525+52.20

5' STANDARD BASE DITCH W/CLASS II RIP RAP SEE DETAIL S29

4' LATERAL BASE DITCH W/CLASS II RIP RAP SEE DETAIL LB6

+00.00 178.38' RT

+25.00 250.00' RT

+50.00 178.71' RT

+00.00 275.00' RT

+40.00 295.00' RT

+55.00 265.00' RT

THE FAMILY TRUST UNDER THE MAIZIE GRAHAM TAYLOR REVOCABLE TRUST
DB 25432 PG 45
PB 29 PG 016

CURVE DATA FOR LINE -L-

PIs Sta 1499+49.17	PI Sta 1506+83.54	PIs Sta 1514+82.19
Θs = 4° 49' 48.0"	Δ = 19° 05' 21.0" (RT)	Θs = 6° 46' 21.0"
Ls = 552.00'	D = 1° 45' 00.0"	Ls = 774.00'
LT = 368.14'	L = 1,090.81'	LT = 516.38'
ST = 184.12'	T = 550.51'	ST = 258.34'
	R = 3,274.04'	
	SE = .06	
	RUNOFF = 184' & 258'	
	DS = 70 mph	

SEE SHEET 47 FOR -L- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

FILE: R:\rcdot\R2248E Roadway\Proj\R2248E_RDY_PSH_22.DGN
DATE: 4/2011 5:17:08 PM

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

AVERAGE DAILY TRAFFIC
2006
2030

–Y10– ALEXANDERANA RD

FUT.	FUT.	FUT.	FUT.
40(30) / 310(210)	610(370) / 2,110(1,320)	120(110) / 220(200)	110(120) / 200(220)
			250(180) / 500(360)
			60(40) / 130(90)

FUT.	FUT.	FUT.	FUT.
(40)30 / (310)210	(140)130 / (430)400	(610)370 / (2,110)1,320	(60)40 / (130)90
(250)180 / (500)360			
(130)140 / (400)430			

–Y26– OLD STATESVILLE RD

MATCH TO SHEET 24 – –Y10– POC 13+50.00

MECKLENBURG COUNTY
DB 23401 PG 417

PHILLIP D. KARRIKER AND WIFE MARY A. KARRIKER
DB 6025 PG 985

BRYTONTOWN CENTER, LP
DB 21854 PG 745

TWIN LAKES III LLC
DB 09220 PG 837

HENDRICK AUTOMOTIVE GROUP
DB 16697 PG 169
DB 16697 PG 173
DB 16697 PG 179
DB 16697 PG 189
DB 18019 PG 451

–Y10A– PC Sta. 10+00.00
–Y10A– POC Sta. 10+35.11 BEGIN CONSTRUCTION
–Y10A– PT Sta. 14+25.94
–Y9– PC Sta. 30+96.16 BEGIN CONSTRUCTION
–Y9– PT Sta. 32+05.32
–Y9– POT Sta. 32+81.00= –Y10A– POT Sta. 18+16.32 –Y10– POT Sta. 10+00.00
–Y10– PC Sta. 13+30.98
–Y9– PC Sta. 34+68.74 END CONSTRUCTION

REMOVE JB & REPLACE W/2GI
TOP = 838.4
INV = 835.4
RETAIN EXISTING ELEV.'S

NARROW SLOT FLAT GRATE

PROP. CONC. MONO. ISLAND

PROP. CONC. SIDEWALK

PROP. 2'-6" C&G

PROP. 2'-9" C&G

GRASS ISLAND CB

RETAINING WALL

PRIVATE STREET

NORTHLAKE AUTO PLAZA BOULEVARD (PRIVATE STREET)

OLD STATESVILLE ROAD 40' BST

ALEXANDERANA ROAD 19' BST

S 82° 36' 03.5" E

S 34° 46' 03.4" E

S 83° 25' 55.5" E

BY9-1

BY13-339

CURVE DATA FOR LINE –Y9–	CURVE DATA FOR LINE –Y10A–	CURVE DATA FOR LINE –Y10–
PI Sta 30+38.44	PI Sta 12+13.18	PI Sta 19+93.76
Δ = 9° 44' 16.9" (LT)	Δ = 6° 11' 55.8" (RT)	Δ = 28° 20' 54.9" (RT)
D = 2° 54' 38.3"	D = 1° 27' 19.1"	D = 2° 11' 00.0"
L = 334.57'	L = 425.94'	L = 1,298.41'
T = 167.69'	T = 213.18'	T = 662.78'
R = 1,968.50'	R = 3,937.00'	R = 2,624.23'
SE = .06	SE = .03	SE = .03
RUNOFF = 216'	RUNOFF = 162'	RUNOFF = 162'
DS = 50 mph	DS = 50 mph	DS = 50 mph

SEE SHEET 60 FOR –Y9– PROFILE
SEE SHEET 63 FOR –Y10– PROFILE
SEE SHEET 65 FOR –Y10A PROFILE
SEE SHEET 2–P FOR INTERSECTION DETAIL
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Roadway Proj\R2248E_RDY_PSH_23.DGN
DATE: 4/5/2011 5:18:16 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	24
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

CENTENNIAL ENGINEERING 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

REVISIONS

FILE: R:\rcotel\R2248E Roadway\Proj\R2248E_RDY_PSH_24.DGN
DATE: 4/5/2011 5:18:32 PM

NC GRID NAD 83

CITY OF HUNTERSVILLE

BRYTONTOWN CENTER, LP
DB 21854 PG 745

BRYTONTOWN CENTER, LP
DB 21854 PG 745

BRYTONTOWN CENTER, LP
DB 21854 PG 745

TWIN LAKES III LLC
DB 09220 PG 837

79

80

MATCH TO SHEET 23 – –Y10– POC 13+50.00

MATCH TO SHEET 25 – –Y10– POC 25+00.00

SR 2457 ALEXANDERANA RD 23' BST

GRASS ISLAND

EXISTING R/W

SPECIAL CUT DITCH SEE DETAIL M2

PROP. CONC. SIDEWALK

PROP. CONC. MONO. ISLAND

REMOVE (AATUR)

PROP 2'-9" C&G

PROP 2'-6" C&G

PDE

PUE

CLASS 'I' RIP RAP 20 TONS 39 S.Y. F.F.

3' STD. BASE DITCH SEE DETAIL S40 @ MIN. 0.3 % GRADE EST. DDE = 160 C.Y.

CURVE DATA FOR LINE –Y10–
PI Sta 19+93.76
Δ = 28° 20' 54.9" (RT)
D = 2° 11' 00.0"
L = 1,298.41'
T = 662.78'
R = 2,624.23'
SE = .03
RUNOFF = 162'
DS = 50 mph

SEE SHEET 63 FOR –Y10– PROFILE
SEE SHEET 2-Q FOR INTERSECTION DETAIL
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	25
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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KIMLEY-HORN AND ASSOCIATES — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

REVISIONS

CURVE DATA FOR LINE -Y10-
PI Sta 19+93.76
△ = 28° 20' 54.9" (RT)
D = 2° 11' 00.0"
L = 1,298.41'
T = 662.78'
R = 2,624.23'
SE = .03
RUNOFF = 162'
DS = 50 mph

CURVE DATA FOR LINE -Y14-
PI Sta 13+90.83
△ = 78° 11' 30.6" (LT)
D = 42° 26' 28.7"
L = 184.24'
T = 109.70'
R = 135.00'
SE = .04
RUNOFF = 68'
DS = 20 mph

NC GRID NAD 83

HUNTERSVILLE CORPORATE CENTER, LP
DB 19240 PG 628

-Y14- POT Sta. 10+00.00

-Y14- PC Sta. 12+81.14

-Y14- PC Sta. 12+70.00
BEGIN CONSTRUCTION

HAROLD SLOAN ARCHER
DB 02666 PG 035

EARL JENKINS
DB 03200 PG 215

ROBERT B DIXON
DB 05478 PG 929

JOHN ADAM & THERESA GRIER DIXON
DB 05589 PG 813

ROBERT B DIXON II & EVELYN C. DIXON
DB 05950 PG 572

ROBERT B DIXON II & EVELYN C. DIXON
DB 05950 PG 574

JOHN ADAM & THERESA GRIER DIXON
DB 12313 PG 942

TWIN LAKES III LLC
DB 09220 PG 837

SR 2458 EVERETTE KEITH RD 22' BST

SR 2457 ALEXANDERANA RD 23' BST

GRASS ISLAND

N 66° 53' 30.0" W

S 34° 54' 59.7" E

S 55° 05' 00.7" E

-Y10- PT Sta. 26+29.39

-Y14- PT Sta. 14+65.37

-Y10- POT Sta. 27+97.32=
-Y14- POT Sta. 15+41.94

MATCH TO SHEET 24 – -Y10- POC 25+00.00

MATCH TO SHEET 6 – -Y10- POC 33+00.00

MATCH TO SHEET 6

SEE SHEET 63 FOR –Y10– PROFILE
SEE SHEET 66 FOR –Y14– PROFILE
SEE SHEET 2–Q FOR INTERSECTION DETAIL
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	26
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

MATCH TO SHEET 6 – –Y9– POT 59+00.00

MATCH TO SHEET 6 – –RP3D– POT 21+00.00

NC GRID NAD 83

95

SELCO SERVICE CORPORATION
DB 9797 PG 525

MARY S. DAVIS &
SW DAVIS PROP INC
DB N/A

SILAS DAVIS, JR.
DB 7158 PG 604

65

25

60

AREA U/C

ASPHALT

EXIST R/W

VANCE DAVIS DR BST

VANCE DAVIS DR BST

30" C&G

18" C&G

WHITE SOLID LINE

WHITE DASH LINE

YELLOW SOLID LINE

SIGNAL POLE (TYP.)

STOP BAR

CONC.

CB

15" RCP

18" RCP

RETAIN

TOE PROTECTION CLASS 'I' RIP RAP SEE DETAIL M7

S 61° 17' 38.4" W

GRAU 350

PAVED SHLDR.

CAT-1

PROPOSED GUARDRAIL

-Y9- POT Sta.62+07.78=
-RP3D- POT Sta.29+07.19

R2248D-10

S 34° 46' 03.1" E

END CONSTRUCTION -RP3D-
PT Sta. 27+43.87

-RP3D- PT Sta. 25+17.40

BEGIN PAVEMENT
-RP3D- POC Sta. 23+54.03

S54°07'38"W
248.632

EXISTING R/W

CURVE DATA FOR
LINE -RP3D-
PI Sta 22+90.93
△ = 8° 48' 22.4" (RT)
D = 1° 56' 25.5"
L = 453.83'
T = 227.36'
R = 2,952.75'
SE = .04
RUNOFF = 168'
DS = 50 mph

SEE SHEET 49 FOR –RP3D– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\roda\R2248E\Roadway\Proj\R2248E_RDY_PSH_26.DGN
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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	27
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

NC GRID NAD 83

CURVE DATA FOR LINE -Y1-
PI Sta 37+21.47
Δ = 51° 56' 58.0" (LT)
D = 10° 25' 02.7"
L = 498.68'
T = 267.95'
R = 550'
SE = .04
RUNOFF = 120'
DS = 40 mph

CURVE DATA FOR LINE -Y1A-
PI Sta 11+79.02
Δ = 50° 11' 12.96" (RT)
D = 34° 43' 28.97"
L = 144.53'
T = 77.27'
R = 165'
SE = .03
RUNOFF =
DS = mph

-Y1- POT Sta. 33+00.00
BEGIN CONSTRUCTION -Y1-
POT Sta. 33+50.00
-Y1- PC Sta. 34+53.51
-Y1- POT Sta. 35+08.46=
-Y1A- POT Sta. 10+00.00
BEGIN CONSTRUCTION
-Y1A- POT Sta. 10+00.00
-Y1A- PC Sta. 11+01.75
END CONSTRUCTION -Y1A-
POT Sta. 13+30.00
-Y1A- POT Sta. 14+77.36
-Y1A- PT Sta. 12+46.28
BY1-1A

HUNTERS DOWNS HOMEOWNERS ASSOC
DB 11621 PG 144

HUNTERS DOWNS HOMEOWNERS ASSOC
DB 11712 PG 028
PB 038 PG 505

DB 16678 PG 792
HUNTER DOWNS HOMEOWNERS ASSOCIATION

MARGARET DARDEN MCLEOD
DB 4555 PG 0746
HISTORIC PROPERTY

VICTORIA TEMPLETON GRIFFITH
DB 05015 PG 032
PB 004 PG 581

CHARLOTTE CITY LIMITS

MATCH TO SHEET 9 – -Y1- POT 37+50.00

(1) 02761305-PAMELA J. BIJEAU DB 20041 PG 416 PB 040 PG 503
(2) 02761306-NAKISHA R HIRES DB 17271 PG 075 PB 040 PG 503
(3) 02761307-DANIELLE GAMBUTI DB 24047 PG 548 PB 040 PG 503
(4) 02761308-SECRETARY OF H.U.D. DB 24802 PG 324 PB 040 PG 503
(5) 02761316-SIMON A. BRIEGER DB 17796 PG 305 PB 034 PG 208
(6) 02761317-DEBORAH MULLINS DB 18087 PG 831 PB 034 PG 208
(7) 02761318-ABEBA KIROS DB 18273 PG 263 PB 034 PG 208
(8) 02761319-PETER D. ALVAREZ & GERMAINE ALVAREZ DB 18067 PG 712 PB 034 PG 208
(9) 02761320-BRADLEY A. JOHNSON & NICOLLE E. JOHNSON DB 23424 PG 910 PB 034 PG 208

(71) 02761315= JAMES A. RAINEY & CHRISTINA N. RAINEY DB 17553 PG 497 PB 40 PG 721
(72) 02761314= JUSTIN ABRAHAM DB 16719 PG 690 PB 40 PG 721
(73) 02761313= AUBRIE MCVAY DB 17545 PG 501 PB 40 PG 721
(74) 02761312= VICTORIA J. LOTT & ERNEST C. LOTT & BARBARA LOTT DB 17945 PG 167 PB 40 PG 721
(75) 02761311= PAM T. STEVENS DB 17945 PG 234 PB 40 PG 721
(76) 02761310= CHESTER C. OWENS, JR. & LILLIE A. OWENS DB 17094 PG 205 PB 40 PG 721
(77) 02761309= MEGHAN PRIVETTE DB 24764 PG 226 PB 40 PG 721

(41) 02761484= RICHARD FORD JR DB 15955 PG 299 PB 035 PG 453
(42) 02761485= LINDSEY M. HARGETT DB 22875 PG 982 PB 035 PG 453
(43) 02761486= THERESA J PSQUALE DB 13035 PG 567 PB 035 PG 453
(44) 02761487= MISTY D MARTIN DB 15597 PG 018 PB 035 PG 453
(45) 02761488= SARA L CHRISTIANSEN DB 12478 PG 274 PB 035 PG 453
(46) 02761489= VENECIA D. ROCK DB 20237 PG 375 PB 034 PG 212
(47) 02761490= KATHRYN W MOODY DB 12664 PG 033 PB 034 PG 212
(48) 02761491= MICHAEL D WARFEL DB 11712 PG 033 PB 034 PG 212
(49) 02761492= SUSAN A TUCKER DB 11745 PG 923 PB 034 PG 212
(50) 02761494= ELIZABETH D DIMAIO DB 12368 PG 112 PB 034 PG 677
(51) 02761495= DONNA J HADLEY DB 12059 PG 101 PB 034 PG 677
(52) 02761496= PATTERSON LAURORE DB 19749 PG 329 PB 034 PG 677
(53) 02761497= SECRETARY OF H.U.D. DB 25139 PG 261 PB 034 PG 677
(54) 02761498= GABRIEL MEDINA DB 12294 PG 061 PB 034 PG 677

SEE SHEET 61 FOR -Y1- PROFILE
SEE SHEET 61 FOR -Y1A- PROFILE
SEE SHEET 2-R FOR INTERSECTION DETAIL
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

FILE: R:\active\R2248E\Roadway\Proj\R2248E_RDY_PSH_27.DGN
DATE: 4/2011 5:19:07 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	28
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

NC GRID NAD 83

BARBARA A. H. REITZEL
DB 23654 PG 542
PB 003 PG 551

THE GULLEDGE FAMILY, LLC
DB 11049 PG 0572

MARK OIL COMPANY INC
DB 8919 PG 0555

PACOLET MILLIKEN ENTERPRISES, INC.
DB 25879 PG 615
PB 028 PG 102

FIRST CITIZENS BANK & TRUST CO.
DB 18238 PG 868

DANIEL VARTABEDIAN
DB 21749 PG 854

N. RUTH TESH
DB 7132 PG 534

JUDY R. EASON
DB 12670 PG 127
PB 039 PG 980

SUPERTEK BODY & PAINT INC
DB 15405 PG 800
PB 038 PG 081

ALDI (NC) LLC
DB 15721 PG 786
PB 039 PG 980

JUDY REITZEL EASON
DB 306 PG 561

JIMMIE R REITZEL
DB 16264 PG 882
PB 039 PG 308

HIGHLAND CREEK RETAIL, LLC
DB 8615 PG 403

111A | 111B | 108 | 109 | 110 | 111

BM #12
ELEV.=818.74

BY2-5A | BY2-6A

S 6° 44' 37.2" E

N 83° 15' 22.8" E

S 67° 38' 20.9" E

R2248E-15

BEGIN CONSTRUCTION -Y17-
POT Sta. 46+50.00

-Y17- POT Sta. 56+50.00

-Y17- POT Sta. 53+14.27=
-DRIVE Y17-
POT Sta. 10+00.00

-DRIVE Y17-
POT Sta. 12+83.08

END CONSTRUCTION -DRIVE Y17-
PT Sta. 11+32.00

-DRIVE Y17-
PT Sta. 10+94.54

-DRIVE Y17-
PT Sta. 10+10.72

-Y17- PC Sta. 53+48.65

MATCH TO SHEET 13 - -Y17-

PROP. 2'-6" C&G

PROPOSED SIDEWALK

DIRECTION ONLY

PUE

CURVE DATA FOR LINE -DRIVE Y17-
PI Sta 10+53.56
Δ = 29° 06' 16.3" (RT)
D = 341° 43' 29.0"
L = 83.82'
T = 42.83'
R = 165'

CURVE DATA FOR LINE -Y17-
PI Sta 57+00.61
Δ = 10° 03' 24.6" (RT)
D = 1° 25' 56.6"
L = 702.10'
T = 351.95'
R = 4,000.00'
SE = .03
RUNOFF = 84'
DS = 50 mph

SEE SHEET 67 FOR -Y17- PROFILE
SEE SHEET 50 FOR -DRIVE Y17- PROFILE
SEE SHEET 2-Z FOR INTERSECTION DETAIL
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	29
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

MATCH TO SHEET 13 – –Y17– POT 68+40.00

MATCH TO SHEET 30 – –Y4– POT 38+40.00

CURVE DATA FOR LINE –Y17–
PI Sta 73+56.79
△ = 28° 45' 46.9" (LT)
D = 6° 56' 41.8"
L = 414.16'
T = 211.54'
R = 825.00'
SE = .04
RUNOFF = 164'
DS = 45 mph

PI Sta 79+94.97
△ = 66° 53' 08.9" (RT)
D = 11° 27' 33.0"
L = 583.69'
T = 330.23'
R = 500.00'

CURVE DATA FOR LINE –Y4–
PI Sta 37+04.44
△ = 30° 27' 06.8" (RT)
D = 8° 07' 00.0"
L = 375.18'
T = 192.13'
R = 705.90'
SE = .04
RUNOFF = 104'
DS = 40 mph

–Y4– PC Sta. 35+12.31
–Y4– POT Sta. 33+00.00
BEGIN CONSTRUCTION –Y4–
POT Sta.33+79.00
–Y17– PC Sta. 71+45.25
END CONSTRUCTION –Y17–
POC Sta. 73+00.00
–Y17– PT Sta. 75+59.41
–Y17– PC Sta. 76+64.74

SEE SHEET 62 FOR –Y4– PROFILE
SEE SHEET 68 FOR –Y17– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Roadway\Proj\R2248E_RDY_PSH_29.DGN
DATE: 4/5/2011 5:19:39 PM

MATCH TO SHEET 13 – –Y17B– POT 86+30.00

MATCH TO SHEET 29 – –Y4– POT 38+40.00

REVISIONS

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	30
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

NC GRID NAD 83

+65.00 200.00' LT
TDE
STANDARD 5' BASE DITCH SEE DETAIL S19
+90.00 175.00' LT
+70.00 130.00' LT

ROBERT B HELMS, JR
HELEN M HELMS
DB 2154 PG 0107

STEWART S SMITH
DB 11187 PG 121

-Y4- PT Sta. 38+87.48

PROPOSED SIDEWALK
PROP. 2'-6" C&G
+11.60 50.08' LT
GRADE TO DRAIN SEE XS
END TAPER RT. +50.00
BEGIN TAPER RT. +00.00
BY4-15
S 83°05'08.9" E
+50.00 35.00' RT
+90.00 35.00' RT
CB
RCP-III
PDE
+50.00 65.00' RT
+50.00 70.00' RT
CLASS "B" RIP RAP 2 TONS 7 S.Y. F.F.
+50.00 135.00' RT
SPECIAL LATERAL 2' BASE DITCH SEE DETAIL SB1
+20.00 130.00' RT
STANDARD 'V' DITCH SEE DETAIL S22
+35.00 35.00' RT
+32.63 50.00' RT
+90.00 70.00' RT
PROPOSED SIDEWALK
BEGIN TAPER RT. +00.00
+00.00 50.00' RT
END TAPER RT. +00.00
+50.00 35.00' RT

CLARENCE R. & EDITH W. JOHNSTON
DB 02135 PG 006

-Y4- PC Sta. 47+34.20
-Y4- PT Sta. 49+51.81
BM #17 ELEV.=796.83
TOP=798.06'
TOP=796.47'
TOP=785.14'
DIRECTION ONLY
10" PVC
12" RCP
ISBKD
BY4-16
END CONSTRUCTION -Y4- POT Sta.45+00.00
SR 2477 JOHNSTON-OEHLER RD 18' BST
BLOWOFF
END 12"

HARVEY W. JOHNSTON REVOCABLE TRUST
DB 18666 PG 379

S 3°18'47.6" W
-Y17B-

LINDA P SMITH LIVING TRUST
DB 9982 PG 0492

ROBERT NEAL ELLIOTT
DB 02132 PG 079

HARVEY W JOHNSTON
DB 3236 PG 373

CHRISTINE J SYLVESTER
DB 11680 PG 0293

LINDA P SMITH LIVING TRUST
DB 09982 PG 0492

CURVE DATA FOR LINE -Y4-

PI Sta 37+04.44	PI Sta 48+43.01
Δ = 30° 27' 06.8" (RT)	Δ = 2° 00' 00.6" (RT)
D = 8° 07' 00.0"	D = 0° 55' 08.9"
L = 375.18'	L = 217.61'
T = 192.13'	T = 108.82'
R = 705.90'	R = 6,233.58'
SE = .04	
RUNOFF = 104'	
DS = 40 mph	

SEE SHEET 62 FOR –Y4– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

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DATE: 4/5/2011 5:10:58 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

CENTENNIAL CONSTRUCTORS — 551 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

REVISIONS

NC DEPT OF TRANSPORTATION
DB 9774 PG 167

NC GRID
NAD 83

CURVE DATA FOR LINE -Y20-

PI Sta 34+13.36
Δ = 1° 45' 47.4" (RT)
D = 0° 39' 55.0"
L = 265.03'
T = 132.52'
R = 8,612.19'
SE = NC
DS = 40 mph

PI Sta 40+46.70
Δ = 7° 20' 13.2" (RT)
D = 2° 15' 00.0"
L = 326.09'
T = 163.27'
R = 2,546.48'
SE = .03
RUNOFF = 78'
DS = 40 mph

-Y21- POT Sta. 10+00.00

BEGIN CONSTRUCTION -Y21-
POT Sta. 11+00.00

-Y20- PC Sta. 38+83.44

-Y20- PT Sta. 35+45.86

-Y21- POT Sta. 15+75.71=
-Y20- POT Sta. 42+56.58

-Y20- PT Sta. 42+09.53

BEGIN CONSTRUCTION -Y20-
POT Sta. 35+75.00

CONSERVANCY SITE

DANIEL S & VIVIAN B ROBBINS
DB 3482 PG 0010

DONALD P & MARY C BEARD
DB 3482 PG 0007

OEHLER LIVING TRUST
DB 13620 PG 212
PB 004 PG 399

LAWRENCE GRAY ESTATE
DB 1123 PG 066

RUTH W BEARD
DB 14021 PG 0085

S H BEARD
DB 03386 PG 405

WILLIAM M. & JUDY A. MICHA
DB 5589 PG 088

MARTIN E OEHLER JR
DB 5727 PG 978

MATCH TO SHEET 20

MATCH TO SHEET 34 – -Y20- POT 46+00.00

AVERAGE DAILY TRAFFIC
2030

-Y21- BEARD RD
60 (60) 220 (140) FUT.
140 (220)
360 (550) FUT.
-Y20- RIDGE RD
60 (60)
550 (360) FUT.

SEE SHEET 70 FOR -Y20- PROFILE
SEE SHEET 72 FOR -Y21- PROFILE
SEE SHEET 2-AG FOR INTERSECTION DETAIL
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

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DATE: 4/5/2011 5:20:50 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	32
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

CENTENNIAL CONTRACTING — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

REVISIONS

MATCH TO SHEET 33 – –Y22– POT STA. 47+50.00

MATCH TO SHEET 33 – –Y25– POT STA. 12+70.00

SEE SHEET 73 FOR –Y22– PROFILE
SEE SHEET 72 FOR –Y23– PROFILE
SEE SHEET 72 FOR –Y24– PROFILE
SEE SHEET 75 FOR –Y25– PROFILE
SEE SHEET 2–AD AND 2–AF FOR INTERSECTION DETAIL
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

CURVE DATA FOR LINE –Y22–
PI Sta 36+10.61
△ = 26° 34' 17.7" (RT)
D = 4° 49' 27.3"
L = 550.79'
T = 280.44'
R = 1,187.66'
SE = .04
RUNOFF = 164'
DS = 50 mph

CURVE DATA FOR LINE –Y22–
PI Sta 45+52.67
△ = 4° 03' 58.6" (LT)
D = 0° 47' 25.0"
L = 514.53'
T = 257.37'
R = 7,250.00'
SE = NC
DS = 50 mph

CURVE DATA FOR LINE –Y23–
PI Sta 11+36.08
△ = 35° 48' 05.1" (RT)
D = 21° 37' 15.8"
L = 165.59'
T = 85.60'
R = 265.00'
SE = .04
RUNOFF = 76'
DS = 30 mph

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	33
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
KIMLEY-HORN AND ASSOCIATES — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

MATCH TO SHEET 32 – –Y22– POT STA. 47+50.00

MATCH TO SHEET 20– –Y22– POT STA. 57+50.00

-Y22- PT Sta. 51+30.00

-Y22- PRC Sta. 48+09.82

-Y25- PC Sta. 13+33.61

-Y25- PRC Sta. 15+89.84

-Y25- PT Sta. 20+13.22

-Y25- POT Sta. 24+42.07

N 47° 48' 10.2" E

N 42° 45' 35" E

GRADE TO DRAIN

PROPOSED SLOPE STAKE

PROPOSED GUARDRAIL

TIE C/A FENCE TO BRIDGE

SPLASH PAD/CLASS 'B' RIP RAP SEE DETAIL M29

CLASS 'I' RIP RAP 3 TON 7 S.Y. F.F.

CLASS 'I' RIP RAP 4 TONS 12 S.Y. F.F.

CLASS 'B' RIP RAP 5 TONS 14 S.Y. F.F.

CLASS 'B' RIP RAP 7 TONS 15 S.Y. F.F.

TOE PROTECTION CL. I RIP RAP SEE DETAIL M6

4' BASE TAIL DITCH SEE DETAIL S36

STD. 'V' DITCH SEE DETAIL S15

SPECIAL LAT V DITCH SEE DETAIL SV12

GRASS ISLAND

REMOVE

PROTESTANT EPISCOPAL CHURCH DIOCESE OF NC DB 24936 PG 548

LAWRENCE E GRAY DB 20154 PG 004

WILSON GRIDLEY II DB 8470 PG 831 PB 026 PG 875

CHARLES BRADFORD B GRAY WINDELL DB 14322 PG 473 DB 8600 PG 870 PB 026 PG 875

CHARLOTTE CITY LIMITS

THEODORE COLEMAN & ROSA COLEMAN DB 22030 PG 483

T L COLEMAN DB 6044 PG 0325

LARRY MILLIKEN & PRINCESS MILLIKEN DB 21883 PG 216

TRS OF NAZARENE BAPTIST CHURCH DB 3232 PG 469

DEBBIE E POTTS DB 10666 PG 858

GEORGE GRAY II & GYPSY G. GRAY DB 3301 PG 525

MINNIE ELLA G. FRANKLIN DB 3301 PG 521

DENNIS O'NEAL GRAY SR DB 7691 PG 819

KELLY L. ALLEN DB 23522 PG 117

GALVIN COOLIDGE RAMSEUR SR DB 1766 PG 645

STEPHEN W MOWRY JR DB 4622 PG 444

TARLEISHA GRAY DB 19843 PG 217 PB 008 PG 083

NC DEPT OF TRANSPORTATION DB 11580 PG 298

T7-440 ELEV=690.39 IP&C SET

T7-443 ELEV=688.47 IP&C SET

T7-444 ELEV=686.15 IP&C SET

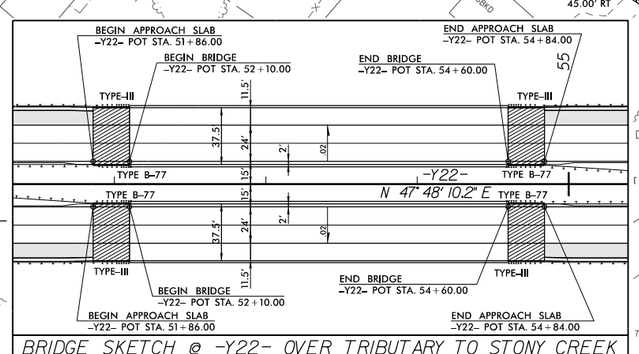
T7-445 ELEV=691.62 IP&C SET

BM #25 ELEV.=692.01

NC NAD 83

CURVE DATA FOR LINE -Y25-

PI Sta 14+70.42	PI Sta 18+47.21
Δ = 49° 43' 10.9" (LT)	Δ = 82° 09' 11.5" (RT)
D = 19° 24' 15.2"	D = 19° 24' 15.2"
L = 256.23'	L = 423.38'
T = 136.81'	T = 257.37'
R = 295.27'	R = 295.27'
SE = .04	SE = .04
RUNOFF = 68'	RUNOFF = 68'
DS = 30 mph	DS = 30 mph



BRIDGE SKETCH @ -Y22- OVER TRIBUTARY TO STONY CREEK

END CONSTRUCTION -Y25- POT Sta. 23+50.00

BY7-22

SEE SHEET 73 FOR -Y22- PROFILE
SEE SHEET 75 FOR -Y25- PROFILE
SEE SHEETS 2- THRU 2- FOR DRAINAGE DETAILS

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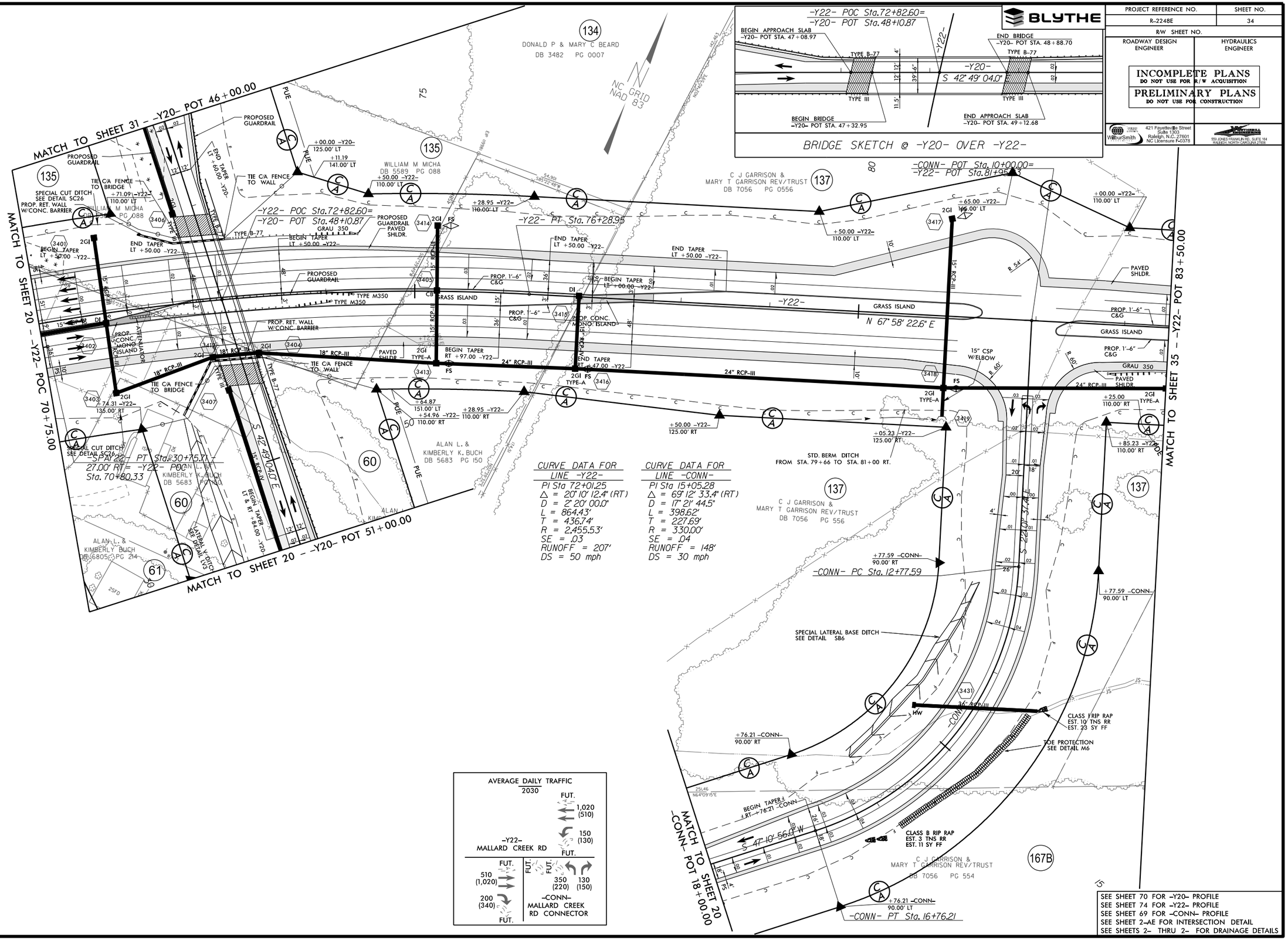
PROJECT REFERENCE NO.	SHEET NO.
R-2248E	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE
WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS



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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	35
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
HNTB — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

AVERAGE DAILY TRAFFIC
2030 FUT.
FUT. 1,150 (630)
10 (10)
–Y22– MALLARD CREEK RD
FUT. 630 (1,150) FUT.
10 (20)
10 10 (10) (10)
–Y26– ODELL SCHOOL RD

NC GRID NAD 83

MATCH TO SHEET 34 – –Y22– POT 83+50.00

MATCH TO SHEET 35A – –Y26– POC 15+00.00

137 C J GARRISON & MARY T GARRISON REV/TRUST DB 7056 PG 556

163 JANET ELAINE & CHARLES MICHAEL BLANCHARD DB 19999 PG 942 DB 14230 PG 445

164 RICHARD MICHAEL & DIXIE ANN MCCOY DB 4049 PG 934

165 RICHARD MICHAEL & DIXIE ANN MCCOY DB 10913 PG 227 PB 023 PG 140

166 HICKORY GROVE BAPTIST CHURCH DB 8023 PG 218

TOE PROTECTION CL. B RIP RAP SEE DETAIL M6

LATERAL BASE DITCH W/PSRM SEE DETAIL LB7

–Y26– POT Sta. 10+00.00= –Y22– POT Sta.88+93.53

END C/A FENCE +01.17 –Y22– 110.00' LT

CLASS B RIP RAP EST. 3 TNS RR EST. 10 SY FF

CLASS B RIP RAP EST. 4 TNS RR EST. 14 SY FF

15" CSP W/ELBS

PROPOSED GUARDRAIL

2GI FS

CAT–1

HW

GRAU 350

15" RCP–IV

BEGIN TAPER LT +75.00 –Y22– 0.28 LT

END TAPER LT +75.00 –Y22–

GRASS ISLAND

BEGIN SBG STA. 1462+28 –L– RT

CLASS B RIP RAP EST. 3 TNS RR EST. 11 SY FF

CLASS B RIP RAP EST. 1 TNS RR EST. 5 SY FF

OUTLET CONTROL STRUCTURE

EMERGENCY SPILLWAY (EL. = 700.58)

–Y26– Sta. 10+85.65

FILL EX. CHANNEL

GRADE TO DRAIN

DETENTION STORAGE GRADE TO ELEV. 698.00 (SEE CROSS SECTIONS)

6' BASE LATERAL DITCH W/CL. II RIP RAP SEE DETAIL LB34

4' BASE LATERAL DITCH W/CL. I RIP RAP SEE DETAIL LB4

END C/A FENCE +54.05 –Y26– 75.00' RT

15" CSP W/2 ELB, ROD & LUG W/ SLEEVE GASKETS

CLASS B RIP RAP EST. 2 TNS RR EST. 7 SY FF

LATERAL 'V' DITCH SEE DETAIL LV14

LATERAL 'V' DITCH W/PSRM SEE DETAIL LV13

SPECIAL LATERAL 'V' DITCH W/PSRM SEE DETAIL SV1

24" RCP–IV

48" RCP–IV

BYIO–34A

SPECIAL CUT DITCH W/HINGE SEE DETAIL SC21

+00.00 –Y22– 85.00' LT

PAVED SHLDR.

BEGIN TAPER LT & RT +20.00 –Y22–

CLASS B RIP RAP EST. 2 TNS RR EST. 7 SY FF

RETAIN EX. DITCH

OBLITERATE EX. DITCH

BYIO–33A

+87.18 –Y26– 75.00' LT

+25.00 110.00' LT

+25.00 75.00' LT

CLASS B RIP RAP FOR BANKS ONLY SEE DETAIL M33

+85.00 115.00' LT

+05.00 75.00' LT

PROPOSED GUARDRAIL

REM.

TOE

N 67° 58' 22.6" E

22° 01' 37.4" E

SPECIAL CUT DITCH SEE DETAIL SC3

BYIO–35

+50.00 –Y22– 29.97' LT

+50.00 –Y22– 85.00' LT

REMOVE

WINDSTREAM COMM.

+41.186 9.867m

+23.61 83.00' RT

+09.00 80.00' RT

+09.00 83.00' RT

+23.92 96.00' RT

+96.58 96.00' RT

+97.34 102.98' RT

+98.57 95.78' RT

+99.33 102.76' RT

+69.51 80.00' RT

END TAPER LT & RT +20.00 –Y22–

BEGIN TAPER LT & RT +80.00 –Y22–

END TAPER LT & RT +50.00 –Y22–

+50.00 –Y22– 30.03' RT 80.00' RT

END CONSTRUCTION –Y22– POT Sta.97+50.00

15" HDPE

24" RCP

GR

158KD

CURVE DATA FOR LINE –Y26–
PI Sta 13+62.21
Δ = 31° 08' 03.7" (RT)
D = 5° 43' 46.5"
L = 543.40'
T = 278.59'
R = 1,000.00'
SE = 0.04
RUNOFF = 84' & 128'
DS = 40 mph

SEE SHEET 74 & 75 FOR –Y22 PROFILE
SEE SHEET 76 FOR –Y26– PROFILE
SEE SHEET 2–AF FOR INTERSECTION DETAIL
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

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DATE: 4/5/2011 5:22:00 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	35A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

CENTENNIAL CONSTRUCTORS — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

REVISIONS

MATCH TO SHEET 21 –Y26– POC 26+50.00

MATCH TO SHEET 35 – –Y26– POC 15+00.00

167B — CJ GARRISON & MARY T GARRISON (REV/TST) DB 7056 PG 554

167A — C J GARRISON & MARY T GARRISON REV/TRUST DB 7056 PG 558

138 — 139 — 140

NC GRID NAD 83

BEGIN TAPER LT & RT +40.00 –Y26– +40.00 –Y20– 20.01' RT 50.00' RT

EXISTING R/W

S 25° 59' 33.8" W

–Y26–

S 34° 47' 31.8" W

WINDSTREAM COMM.

DUCT

12" RCP

ODELL SCHOOL RD

+75.00 19.98' LT

+00.00 55.00' LT

+25.00 70.00' LT

+90.00 –Y20– 50.00' LT

19.99' LT

–Y26– PRC Sta. 26+30.88

5' X 10' HP PAD

PC Sta. 24+18.82

PT Sta. 23+82.04

ROGER LEE & .CKEY LOMINAC BENFIELD DB 3816 PG 338

CJ GARRISON & MARY T GARRISON (REV/TST) DB 7056 PG 554

HICKORY GROVE BAPTIST CHURCH DB 8023 PG 0218

–Y26– PC Sta. 16+90.31

–Y26– PT Sta. 16+27.02

END TAPER LT & RT +80.00 –Y26–

+90.31 –Y26– 50.00' RT

+90.31 –Y26– 20.01' RT

+00.00 –Y26– 50.00' RT

BEGIN TAPER LT & RT +27.02 –Y26–

CLASS B RIP RAP EST.: 2 TONS 37 SY

+52607 160.23m

+26.19 80.2m

S 06° 26' 31" W

S 15° RCP

PROP. 2'-6" C&G

PROP. CONC. SIDEWALK

+00.00 –Y26– 75.00' LT

+90.31 –Y26– 50.00' LT

+90.31 –Y26– 19.99' LT

REMOVE

BACKFLOW PREVENTOR

BY10-32A

AREA U/C

UNDER CONSTRUCTION

97.634 S04°56'21"E

CONC. MON. (998)

SIP (998)

N13°25'42"E

SEE SHEET 76 FOR –Y26– PROFILE
SEE SHEETS 2– THRU 2– FOR DRAINAGE DETAILS

FILE: R:\ncdot\R2248E\Roadway\Proj\R2248E_RDY_PSH_35A.DGN
DATE: 4/2011 5:24:04 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	36
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

-L-

BEGIN PAVING
STA 1223+75.33 -L-
EL. 804.44

804.44

PROPOSED GRADE

(-)0.50/2%

801.81

EXISTING GROUND

SEE SHEET 4 FOR -L-

-L- STA. 1223+75.33 TO 1229+00.00

1220 1221 1222 1223 1224 1225 1226 1227 1228 1229

-L-

801.81

(-)0.50/2%

PROPOSED GRADE

EXISTING GROUND

PP2PO - ST - Sta.105+36.64 = 153.92' RT =
L - POT - Sta.57+67.21

798.52

SEE SHEET 5 FOR -L-

-L- STA. 1229+00.00 TO 1242+00.00

1229 1230 1231 1232 1233 1234 1235 1236 1237 1238 1239 1240 1241 1242

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DATE: 4/5/2011 5:24:53 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	37
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

-L-

PI = 1242+17.52
Elt = 795.2'
VC = 909'
K = 296
Vs = >70mph

798.52

L= EOT Sta 1241+22.56=
Avg. POT Sta 1243+42.40

(+)2.567%

PROPOSED GRADE

EXISTING GROUND

828.14

SEE SHEET 6 FOR -L-

-L- STA. 1242+00.00 TO 1255+00.00

828.14

BEGIN CONSTRUCTION
STA 1256+21.86 -L-
EL. 831.27

(+)2.567%

PROPOSED GRADE

861.52

EXISTING GROUND

4' BASE LATERAL DITCH

(+) 0.3%

802.2
1266+18 (RT)
END GRADE

802.5
1267+06 (RT)
BEGIN GRADE

SEE SHEET 6 FOR -L-

-L- STA. 1255+00.00 TO 1268+00.00

FILE: R:\ncdot\R2248E\Roadway Prod\R2248E_RDY_PFL_37.dgn
DATE: 4/5/2011 5:24:37 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	38
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

CENTENNIAL ENGINEERING 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

-L-

PI = 1276+00.00
EL = 882.06'
VC = 1250'
K = 252
Vs = 70mph

BEGIN BRIDGE
-L- POT 1269+69.48

END BRIDGE
-L- POT 1271+01.41

-L- POT Sta:1270+31.66=
-Y1R- EOT Sta:424+76.19

(+)2.5677%

PROPOSED GRADE

EXISTING GROUND

BEGIN BRIDGE
-L- POT 1280+95.49

-L- POT Sta:1279+26.71=
-Y2R- POT Sta:115+16.09

866.52

869.75

SEE SHEET 8 FOR -L-

-L- STA. 1268+00.00 TO 1281+00.00

1268 1269 1270 1271 1272 1273 1274 1275 1276 1277 1278 1279 1280 1281

900 890 880 870 860 850 840 830 820 810

-L-

-L- EOT Sta:128+46.36=
-Y1R- POC Sta:58+32.77

-COMB- POT Sta:299+69.84 = 59.00' LT.=
-L- POT Sta:284+21.00

969.75

END BRIDGE
-L- POT 1282+10.61

EXISTING GROUND

EXISTING GROUND

(+) 2.2%

(+) 0.3%

(+) 0.4%

843.1
1282+71 -L- (LT)
END GRADE

847.45
1284+50 -L- (LT)
VPI

847.30
1285+00 -L- (LT)
VPI

848.50
1286+00 -L- (LT)
BEGIN GRADE

LATERAL V DITCH

SPECIAL CUT DITCH

PROPOSED GRADE

836.86

SEE SHEET 8 FOR -L-

-L- STA. 1281+00.00 TO 1294+00.00

1281 1282 1283 1284 1285 1286 1287 1288 1289 1290 1291 1292 1293 1294

900 890 880 870 860 850 840 830 820 810

FILE: R:\ncdot\R2248E\Roadway\Prod\R2248E_RDY_PFL_38.dgn
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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	39
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

-L-

PROPOSED GRADE

EXISTING GROUND

838.86

807.66

(-) 12.400%

4' BASE DITCH

795.17
1296+13 (LT)
BEGIN GRADE

795.10
1296+50 (LT)
END GRADE

(-) 1.35%

794.00
1296+63 (LT)
END GRADE

794.50
1297+00 (LT)

1 @ 84" CLASS V RCP (INLET END)

2' LATERAL BASE DITCH

(+) 4.42%

803.34
1299+00 (LT)

(+) 9.12%

SPECIAL LATERAL DITCH

811.46
1300+00 (LT)
BEGIN GRADE

SPECIAL 3' LATERAL BASE DITCH

(-) 0.0%

810.76
1301+00 (LT)
BEGIN GRADE

806.32
1301+73 (LT)

(+) 1.27%

809.86
1304+50 (LT)
END GRADE

807.66

SEE SHEET 8 FOR -L-

-L- STA. 1294+00.00 TO 1307+00.00

1294 1295 1296 1297 1298 1299 1300 1301 1302 1303 1304 1305 1306 1307

BM1 ELEV 822.80
N 593366 E 1461574
-L- STA 1310+61.65 (216.51 RT)
RR SPIKE IN BASE OF 26" OAK

-L-

807.66

(-) 12.400%

PI = 1310+00.00
EL = 800.46'
VC = 250'
K = 195
Vs = 70mph

L = POT. STA. 1311+34.46
Y1 = POT. STA. 1311+38.99

(-) 11.200%

EXISTING GROUND

PROPOSED GRADE

789.29

SEE SHEET 9 FOR -L-

-L- STA. 1307+00.00 TO 1320+00.00

1307 1308 1309 1310 1311 1312 1313 1314 1315 1316 1317 1318 1319 1320

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DATE: 4/5/2011 5:25:04 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	40
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

-L-

EXISTING GROUND

PROPOSED GRADE

77426

(−)1.1200%

77470

SEE SHEET 10 FOR -L-

-L- STA. 1320+00.00 TO 1333+00.00

850 840 830 820 810 800 790 780 770 760

1320 1321 1322 1323 1324 1325 1326 1327 1328 1329 1330 1331 1332 1333

BM2 ELEV 783.06
N 593678 E 1464186
-L- STA 1336+91.38 (311.35 RT)
RR SPIKE IN BASE OF 24" OAK

-L-

EXISTING GROUND

PROPOSED GRADE

77470

(−)1.1200%

PI = 1343+75.00
EL = 762.66'
VC = 350'
K = 203
Vs = 70mph

(+)0.6000%

76401

-RCWA- ST. Sta. 0+00.00 7.00' RT.
& TOC Sta. 345+00.00

1 @ 8' X 7' RCBC (INV. BURIED 1.0')
(INLET END)

PROP. 1 @ 12' X 8' PEDESTRIAN RCBC
STA. 1344+38 -L- LT)

1 @ 9' X 7' RCBC (INV. BURIED 1.0')
(INLET END)

SEE SHEET 11 FOR -L-

-L- STA. 1333+00.00 TO 1346+00.00

810 800 790 780 770 760 750 740 730 720

1333 1334 1335 1336 1337 1338 1339 1340 1341 1342 1343 1344 1345 1346

FILE: R:\ncdot\R2248E\Roadway\Prod\R2248E_RDY_PFL_40.dgn
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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	41
R/W SHEET NO.	

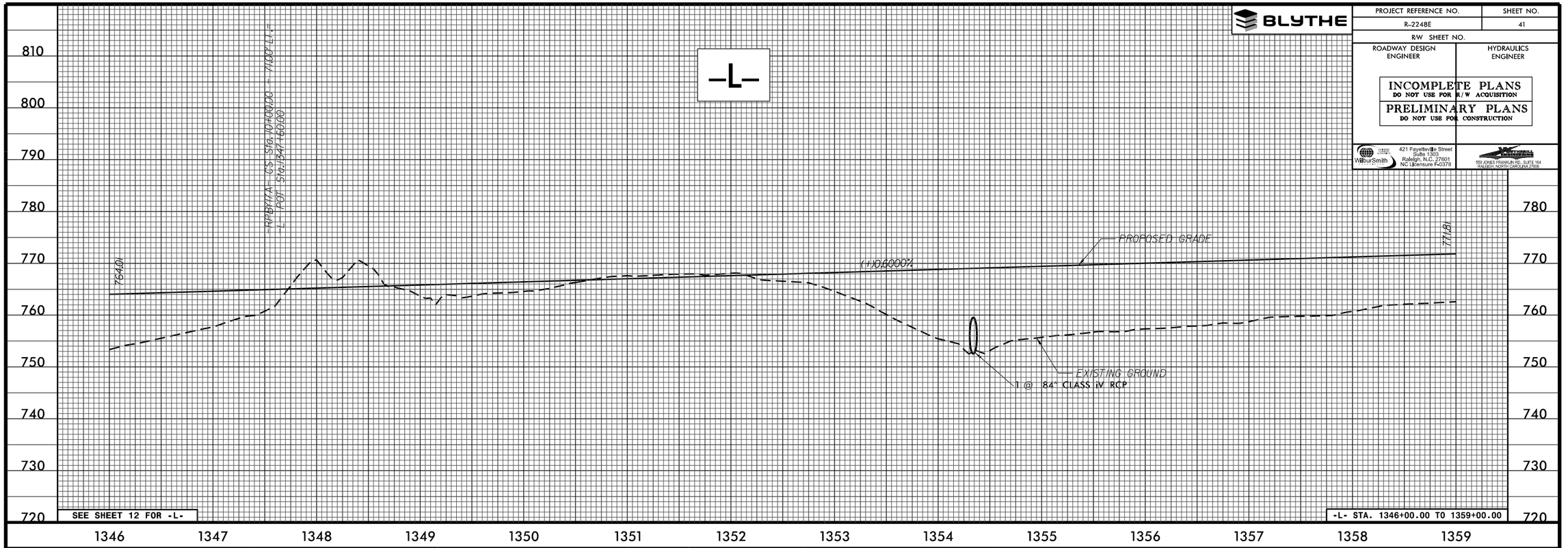
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

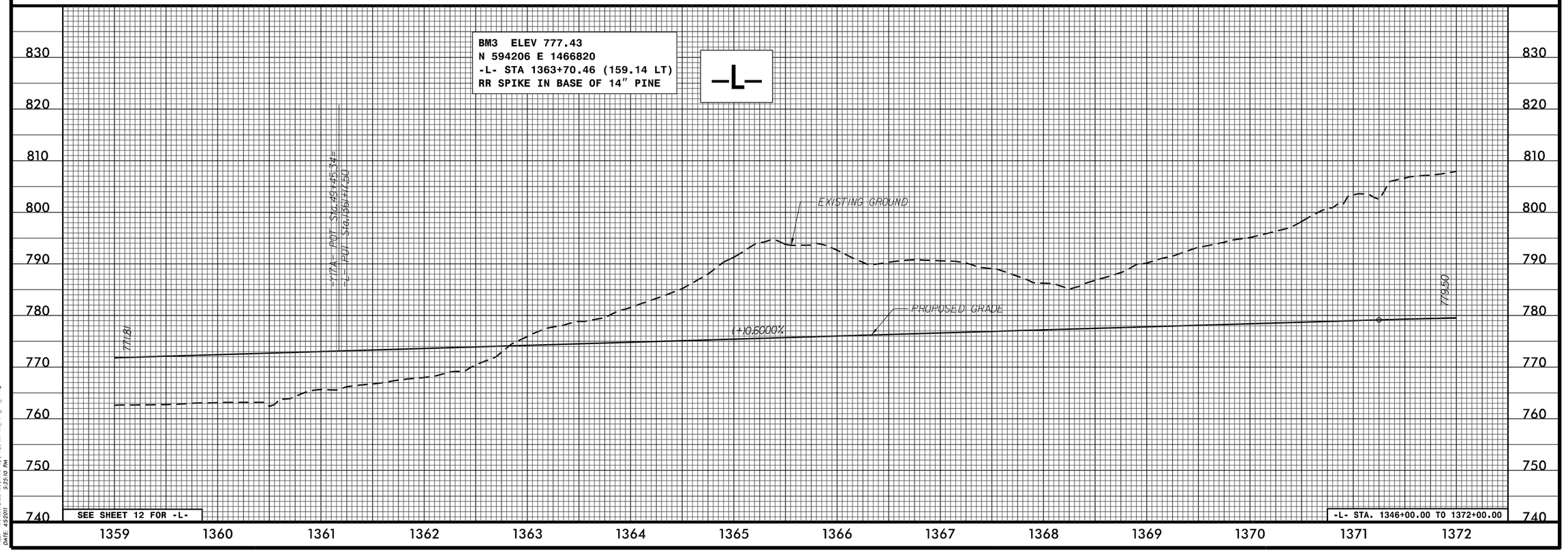
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606





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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	42
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

BM16 ELEV 801.88
N 594206 E 1467834
-L- STA 1373+82.55 (217.73 LT)
RR SPIKE IN BASE OF 11" OAK

-L-

-Y1- POT Sta.1373+82.55=
-L- POT Sta.1373+65.76

EXISTING GROUND

PROPOSED GRADE

PI = 1373+00.00
EL = 780.21'
VC = 350'
K = 250
Vs = 70mph

(+)0.60000%

(-)0.80000%

779.50

770.01

SEE SHEET 13 FOR -L-

-L- STA. 1372+00.00 TO 1385+00.00

BM4 ELEV 766.90
N 593714 E 1469599
-L- STA 1391+73.13 (171.57 RT)
RR SPIKE IN BASE OF 18" OAK

-Y1B- POT Sta.1391+61.56=
-L- POT Sta.1391+45.62

EXISTING GROUND

PROPOSED GRADE

PI = 1396+00.00
EL = 761.81'
VC = 300'
K = 214
Vs = 75mph

(-)0.83000%

(+)0.50000%

770.61

763.01

SEE SHEET 13 FOR -L-

-L- STA. 1385+00.00 TO 1398+00.00

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	43
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

-L-

PI = 1410+00.00
EL = 770.21'
VC = 310'
K = 250
Vs = 70mph

(+)0.6000%

(-)0.6400%

PROPOSED GRADE

EXISTING GROUND

763.91

769.51

769.51

RT. PDT Sta. 1401+69.41

RT. DITCH Sta. 1401+60.00 7.00' RT.

RT. PDT Sta. 1402+45.00

RT. PDT Sta. 1403+00.00 7.00' LT.

SEE SHEET 14 FOR -L-

-L- STA. 1398+00.00 TO 1411+00.00

1398 1399 1400 1401 1402 1403 1404 1405 1406 1407 1408 1409 1410 1411

BM5 ELEV 750.33
N 593944 E 1472194
-L- STA 1417+50.65 (207.69 LT)
RR SPIKE IN ROOT OF
18" DOUBLE OAK

-L-

(-)0.6400%

PROPOSED GRADE

EXISTING GROUND

FUTURE ROAD

769.51

761.25

SEE SHEET 15 FOR -L-

-L- STA. 1411+00.00 TO 1424+00.00

1411 1412 1413 1414 1415 1416 1417 1418 1419 1420 1421 1422 1423 1424

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	44
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

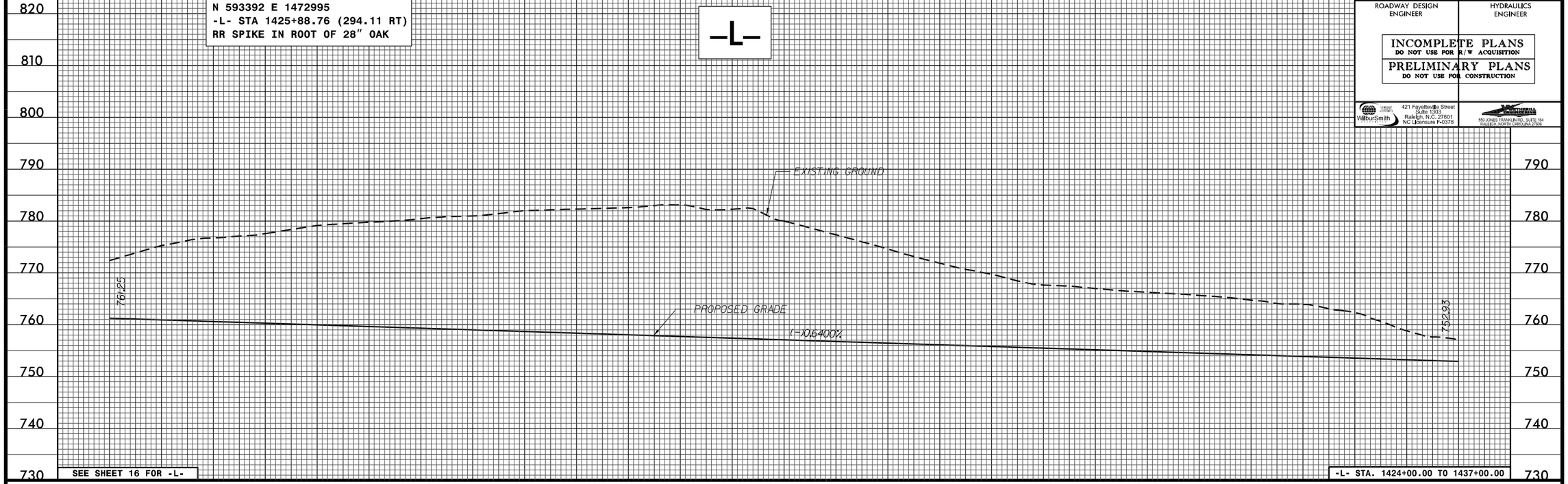
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

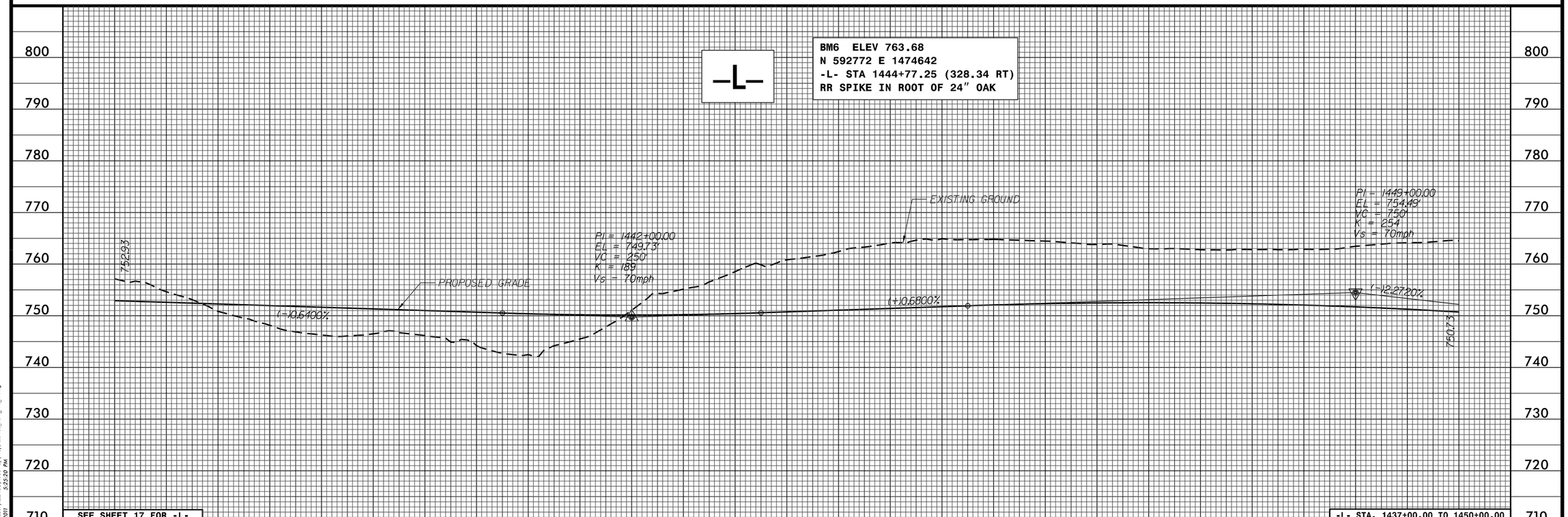
BM18 ELEV 775.70
N 593392 E 1472995
-L- STA 1425+88.76 (294.11 RT)
RR SPIKE IN ROOT OF 28" OAK



SEE SHEET 16 FOR -L-

-L- STA. 1424+00.00 TO 1437+00.00

BM6 ELEV 763.68
N 592772 E 1474642
-L- STA 1444+77.25 (328.34 RT)
RR SPIKE IN ROOT OF 24" OAK



SEE SHEET 17 FOR -L-

-L- STA. 1437+00.00 TO 1450+00.00

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	45
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

CENTENNIAL ENGINEERING
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

BM23 ELEV 756.34
N 593133 E 1475705
-L- STA 1452+72.33 (464.15 LT)
RR SPIKE IN BASE OF 18" OAK

-L-

750.73

EXISTING GROUND

(-)2.2720%

PROPOSED GRADE

722.82

SEE SHEET 18 FOR -L-

-L- STA. 1450+00.00 TO 1463+00.00

1450 1451 1452 1453 1454 1455 1456 1457 1458 1459 1460 1461 1462 1463

BM7 ELEV 699.90
N 591893 E 1477178
-L- STA 1471+41.24 (0.28 LT)
RR SPIKE IN BASE OF 12" OAK

-L-

722.82

PI = 1464+00.00
EL = 720.41'
VC = 350'
K = 209
Vs = 75mph

(-)2.2720%

(-)0.6000%

BEGIN BRIDGE
-L- POT 1465+40.00

PROPOSED GRADE

END BRIDGE
-L- POT 1470+01.25

EXISTING GROUND

693.90
1472+17 (RT)
END GRADE

(+) 0.3%

694.15
1473+00 (RT)

(-) 0.4%

694.30
1473+38 (RT)
BEGIN GRADE

PI = 1475+50.00
EL = 713.51'
VC = 250'
K = 202

713.51

(+)0.6400%

(-)0.6000%

SEE SHEET 19 FOR -L-

-L- STA. 1463+00.00 TO 1476+00.00

1463 1464 1465 1466 1467 1468 1469 1470 1471 1472 1473 1474 1475 1476

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	46
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

-L-

770 760 750 740 730 720 710 700 690 680

EXISTING GROUND

PROPOSED GRADE

(+)0.6400%

722.15

713.97

SEE SHEET 20 FOR -L-

-L- STA. 1476+00.00 TO 1489+00.00

1476 1477 1478 1479 1480 1481 1482 1483 1484 1485 1486 1487 1488 1489

BM8 ELEV 738.00
N 590807 E 1479563
-L- STA 1497+60.18 (77.38 LT)
RR SPIKE IN BASE OF 12" PINE

-L-

PI = 1495+00.00
EL = 725.99'
VC = 450'
K = 274

EXISTING GROUND

PROPOSED GRADE

(+)0.6400%

(-)0.0000%

722.15

718.99

(-) 0.3%

(-) 4.00%

716.46
1489+00 (RT)

713.50
1489+50 (RT)
END GRADE

6.92'

717.41
1490+00 (LT)

715.14
1490+50 (LT)
END GRADE

SEE SHEET 20 FOR -L-

-L- STA. 1489+00.00 TO 1502+00.00

1489 1490 1491 1492 1493 1494 1495 1496 1497 1498 1499 1500 1501 1502

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	47
R/W SHEET NO.	

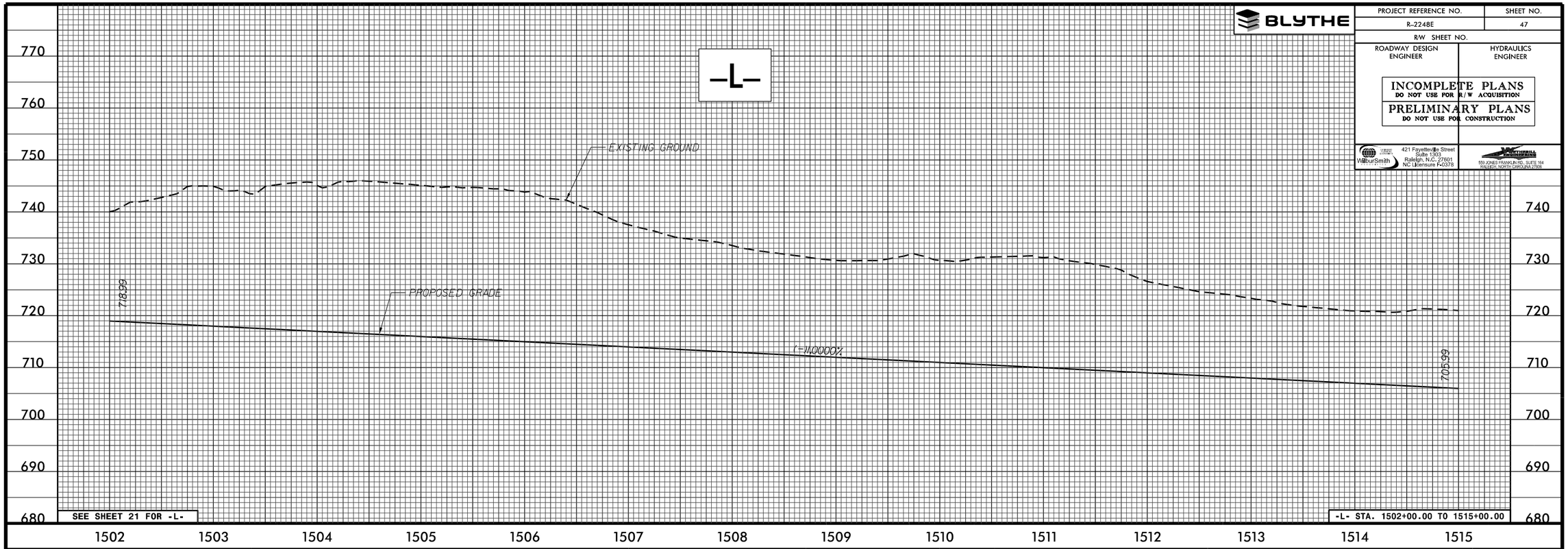
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

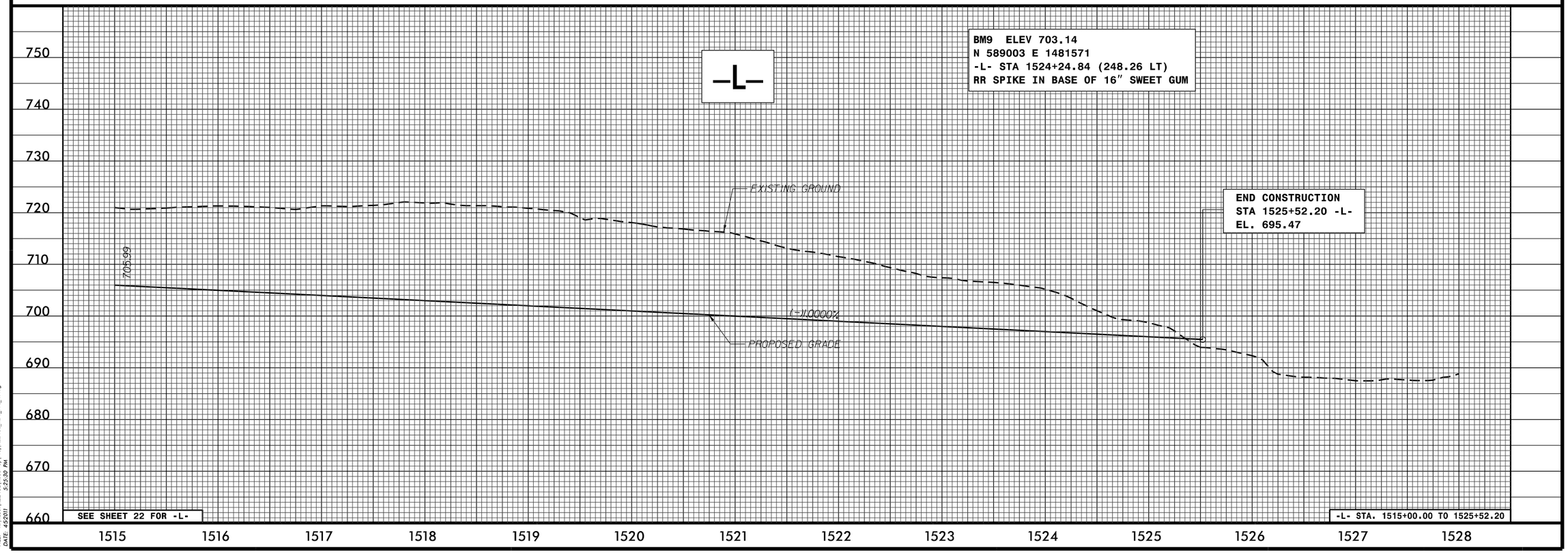
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606





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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	48
R/W SHEET NO.	

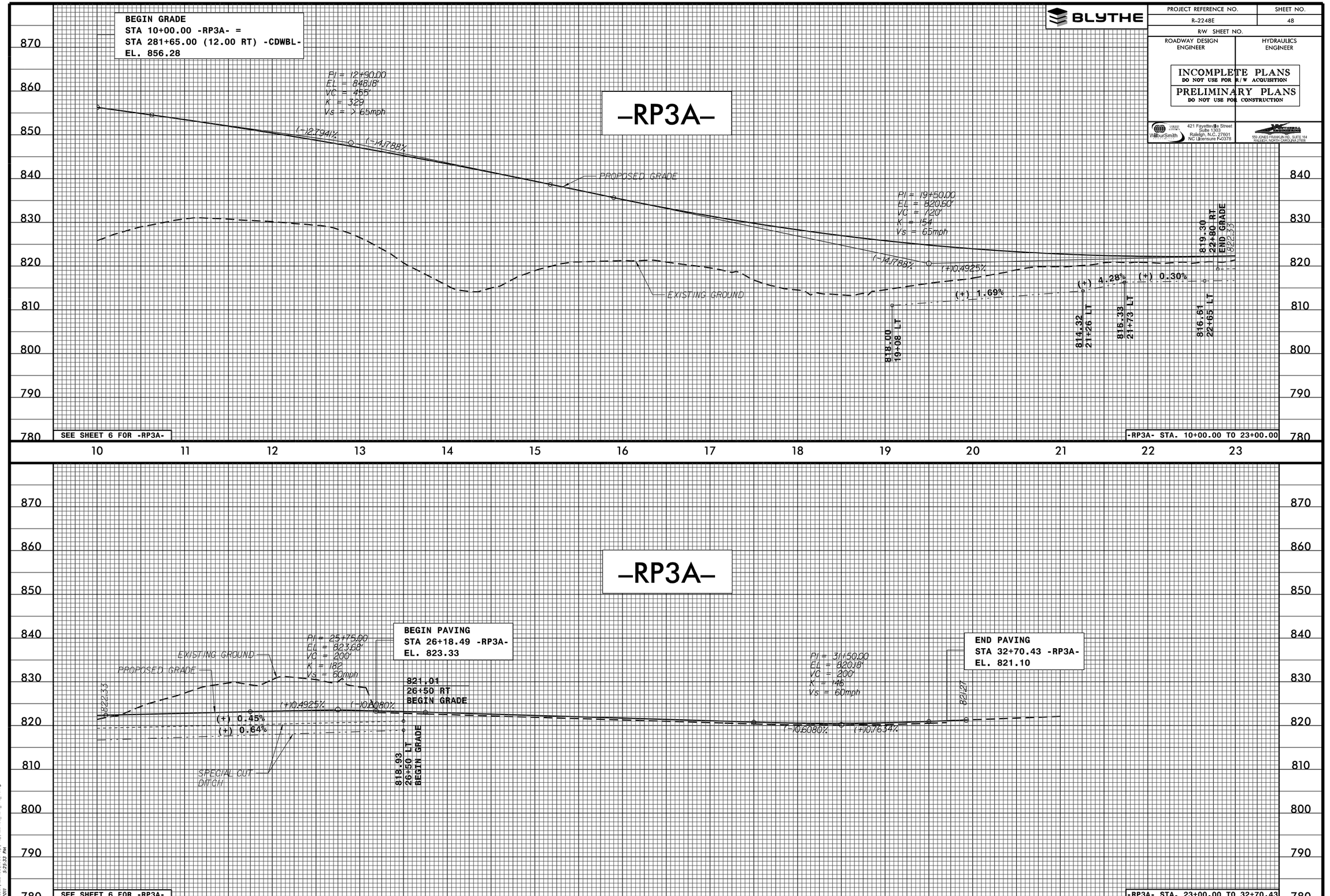
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606



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DATE: 4/5/2011 5:25:33 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	49
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

-RP3D-

BEGIN GRADE
STA 10+00.00 -RP3D- =
STA 12+61.00 (71.00 RT) -L-
EL. 864.10

PI = 13+40.00
EL = 855.33'
VC = 525'
K = 255
Vs = 70mph

(-)25800%
(-)14640%
(-)14640%
(-)10755%

PROPOSED GRADE
EXISTING GROUND

PI = 20+00.00
EL = 824.70'
VC = 405'
K = 104
Vs = 50mph

822.44

SEE SHEET 6,7,26 FOR -RP3D-

-RP3D- STA. 10+00.00 TO 23+00.00

10 11 12 13 14 15 16 17 18 19 20 21 22 23

880 870 860 850 840 830 820 810 800 790

-RP3D-

BEGIN PAVING
STA 23+54.03 -RP3D-
EL. 822.03

822.44

PROPOSED GRADE
EXISTING GROUND

END PAVING
STA 27+43.87 -RP3D-
EL. 819.09

PI = 28+10.00
EL = 818.58'
VC = 150'
K = 83
Vs = 45mph

(-)10755%
(+)10416%

SEE SHEET 26 FOR -RP3D-

-RP3D- STA. 23+00.00 TO 28+87.56

23 24 25 26 27 28 29

860 850 840 830 820 810 800 790 780 770

FILE: R:\ncdot\R2248E\Roadway\Prod\R2248E_RDY_PFL_49.dgn
DATE: 4/5/2011 5:25:37 PM

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	50
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

–RP2BD–

BEGIN PAVING
STA 93+29.46 -RP2BD-
EL. 809.64

PI = 95+14.32
EL = 799.99'
VC = 459'
K = 97
Vs = 50mph

(-)5.164%

(-)0.42964%

PROPOSED GRADE

EXISTING GROUND

PI = 102+45.94
EL = 796.85'
VC = 144'
K = 338
Vs = > 65mph

(-)0.42964%

(-)0.00194%

PI = 104+16.54
EL = 796.84'
VC = 197'
K = 304
Vs = > 65mph

(-)0.00194%

(+)0.06454%

END PAVING
STA 105+36.51 -RP2BD- =
STA 1241+22.79 (69.88 RT) -L-
EL. 797.62

SEE SHEET 5 FOR -RP2BD-

-RP2BD- STA. 93+63.50 TO 105+36.64

–DR1–

BEGIN GRADE
STA 10+75.00 -DR1-
EL. 795.83

PI = 11+00.00
EL = 796.18'
VC = 50'
K = 14

PI = 12+10.15
EL = 801.69'

PROPOSED GRADE

(+)5.0000%

(+)2.0000%

(+)1.3846%

EXISTING GROUND

END GRADE
STA 12+16.15 -DR1- =
STA 18+03..80 -WBFR-
EL. 801.81

SEE SHEET 12 FOR -DR1-

-DR1- STA. 10+75.00 TO 12+16.15

–DRIVEY17–

BEGIN GRADE
STA 10+00.00 -DRIVE Y17- =
STA 53+14.27 - Y17-
EL. 805.47

PI = 10+14.00
EL = 805.58'

PI = 10+50.00
EL = 805.22'
VC = 30'
K = 7

PI = 11+10.00
EL = 802.10'
VC = 50'
K = 14

PROPOSED GRADE

(+)0.772%

(-)5.200%

(-)1.0000%

(-)13.200%

EXISTING GROUND

END GRADE
STA 11+32.00 -DRIVE Y17-
EL. 801.41

SEE SHEET 28 FOR -DRIVE Y17-

-DRIVE Y17- STA. 10+00.00 TO 11+32.00

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DATE: 4/2011 5:25:40 PM

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	51
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

–RPAY17B–

BEGIN GRADE
STA 10+00.00 -RPAY17B-
EL. 765.48

PI = 12+00.00
EL = 764.06'
VC = 150'
K = 521
Vs = >70mph

(–)0.7080%

(–)0.9958%

PROPOSED GRADE

PI = 16+75.00
EL = 759.33'
VC = 576'
K = 96
Vs = 50mph

(–)0.9958%

(+)5.0000%

EXISTING GROUND

PI = 21+65.00
EL = 783.83'
VC = 100'
K = 1233
Vs = >70mph

(+)4.9190%

(+)5.0000%

(+) 5.02%

777.22
21+12 (LT)
END GRADE

786.44
22+16 (LT)
BEGIN GRADE

END GRADE
STA 22+26.51 -RPAY17B- =
STA 11+50 (4.00' LT.) -RAA_Y17B-
EL. 786.86

SEE SHEET 77 FOR -RAA-, -RAA_Y17B- AND -RAA_WBFR- PROFILES

SEE SHEET 13,14 FOR -RPAY17B-

-RPAY17B- STA. 10+00.00 TO 22+64.61

–RPBY17A–

BEGIN GRADE
STA 10+00.00 -RPBY17A-
EL. 766.77

PI = 12+70.00
EL = 768.38'
VC = 150'
K = 441
Vs = >70mph

(–)0.5960%

(+)0.2558%

EXISTING GROUND

PROPOSED GRADE

PI = 16+30.00
EL = 769.30'
VC = 399'
K = 102
Vs = >50mph

(+)0.2558%

(+)4.1600%

PI = 22+20.00
EL = 793.84'
VC = 150'
K = 60
Vs = 40mph

(+)6.6464%

(+)4.1600%

(+) 4.91%

(+) 5.0%

STA. 19+98 -RPBY17A- (LT)
ELEV. = 760.19

STA. 22+11 -RPBY17A- (LT)
ELEV. = 779.44

STA. 22+66.75 -RPBY17A- (LT) =
STA. 46+00 -Y17A- (RT)
ELEV. = 782.17

SEE SHEET 77 FOR -RAB-, -RAB_Y17A- AND -RAB_RPBY17A- PROFILES

SEE SHEET 12 FOR -RPBY17A-

-RPBY17A- STA. 10+00.00 TO 23+28.48

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	52
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
KIMLEY-HORN AND ASSOCIATES — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

–RPCY17A–

BEGIN GRADE
STA 10+00.00 -RPCY17A-
EL. 761.67

PI = 12+15.00
EL = 762.68'
VC = 150'
K = 168
Vs = 65mph

PI = 15+10.00
EL = 761.44'
VC = 410'
K = 95
Vs = 50mph

(+)0.4716%
(-)0.4220%
(-)0.4220%
(+)3.8800%
PROPOSED GRADE
EXISTING GROUND
(-)5.97%
(+)2.84%
(+)5.61%
(+)14.62%
(+)10.06%
792.09

STA. 16+00 -RPCY17A- (RT)
ELEV. = 756.9
STA. 16+22 -RPCY17A- (RT)
ELEV. = 751.88
STA. 16+98 -RPCY17A- (RT)
ELEV. = 749.55
STA. 17+90 -RPCY17A- (RT)
ELEV. = 751.99
STA. 18+86 -RPCY17A- (RT)
ELEV. = 757.55
STA. 20+90 -RPCY17A- (RT)
ELEV. = 766.88

SEE SHEET 11,12 FOR -RPCY17A-
-RPCY17A- STA. 10+00.00 TO 23+00.00

–RPCY17A–

PI = 24+00.00
EL = 795.97'
VC = 150'
K = 91
Vs = 50mph

(+)3.8800%
(+)2.2393%
792.09
PROPOSED GRADE
EXISTING GROUND
(+)4.88%

STA. 23+46 -RPCY17A- (RT)
ELEV. = 782.5
STA. 24+16 -RPCY17A- (RT)
ELEV. = 787.38

SEE SHEET 82 FOR -RAC-, -RAC_Y17A- AND -RAC_EBFR- PROFILES

END GRADE
STA 25+23.29 -RPCY17A- =
STA 11+50.00 (4.00' RT) -RAC_Y17A-
EL. 798.73

SEE SHEET 11,12 FOR -RPCY17A-
-RPCY17A- STA. 23+00.00 TO 25+55.76

–SPBY17A–

BEGIN GRADE
STA 10+00.00 -SPBY17A-
EL. 794.13

PI = 10+90.00
EL = 794.49'
VC = 60'
K = 19
Vs = 30mph

PI = 11+60.00
EL = 795.64'
VC = 80'
K = 23
Vs = 30mph

(+)0.4000%
(+)1.6365%
(-)1.9000%

END GRADE
STA 12+02.74 -SPBY17A-
EL. 794.83

SEE SHEET 12 FOR -SPBY17A-
-SPBY17A- STA. 10+00.00 TO 12+02.74

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–RPDY17B–

BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	53
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

BEGIN GRADE
STA 10+00.00 -RPDY17B-
EL. 765.59

PI = 11+80.00
EL = 764.50'
VC = 180'
K = 575
Vs = >70mph

(–)0.6039%
(–)0.9167%
(+)5.0000%
(–)0.9167%
PROPOSED GRADE
EXISTING GROUND

PI = 16+60.00
EL = 760.10'
VC = 570'
K = 96
Vs = 50mph

(+) 1.32%
(–) 4.32%
(–) 0.52%
(+) 3.57%
(+) 3.00%
(+) 4.75%
(+) 5.06%
(+) 3.40%
(+) 2.72%
(+) 2.00%

PI = 21+87.00
EL = 786.45'
VC = 90'
K = 98
Vs = 50mph

(+)5.0000%
(+)4.0800%

754.39
17+66(RT)
BEGIN GRADE

757.92
18+66 (LT)

753.87
18+66(RT)
END GRADE

763.60
17+66 (LT)

757.58
19+70(RT)

760.05
20+22(RT)

764.19
20+75 (LT)

762.73
20+75(RT)

767.79
21+81 (LT)

763.86
22+34 (LT)
BEGIN GRADE

767.05
22+34(RT)
BEGIN GRADE

749.30
14+38.75 (LT)
END GRADE

END GRADE
STA 22+40.94 -RPDY17B- =
STA 12+28.22 (4.00' RT) -RAD_RPDY17B-
EL. 788.65

SEE SHEET 82 FOR -RAD-, -RAD_Y17B- AND -RAD_RPDY17B- PROFILES

SEE SHEET 13,14 FOR -RPDY17B-

-RPDY17B- STA. 10+00.00 TO 22+83.08

830 820 810 800 790 780 770 760 750 740

10 11 12 13 14 15 16 17 18 19 20 21 22 23

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	54
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

CENTENNIAL ENGINEERING
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

-RPAY22-

BEGIN GRADE
STA 10+00.00 -RPAY22-
EL. 717.53

EXISTING GROUND

PROPOSED GRADE

PI = 11+80.00
EL = 719.30'
VC = 150'
K = 304
Vs = >70mph

(+)0.9833%

(+)1.0327%

PI = 16+70.00
EL = 724.36'
VC = 150'
K = 222
Vs = 65mph

(+)1.0327%

(+)0.3565%

727.29'

SEE SHEET 20,21 FOR -RPAY22-

-RPAY22- STA. 10+00.00 TO 23+00.00

10 11 12 13 14 15 16 17 18 19 20 21 22 23

-RPAY22-

END GRADE
STA 30+61.32 -RPAY22-
EL. 745.95

PI = 23+60.00
EL = 726.82'
VC = 400'
K = 143
Vs = 60mph

727.29'

+)0.3565%

(+)3.1623%

PI = 27+05.00
EL = 737.73'
VC = 150'
K = 220
Vs = 65mph

(+)3.1623%

(+)2.4812%

PROPOSED GRADE

PI = 30+50.00
EL = 746.29'
VC = 150'
K = 60
Vs = 40mph

(+)2.4812%

(+)0.0000%

EXISTING GROUND

SEE SHEET 20,21 FOR -RPAY22-

-RPAY22- STA. 23+00.00 TO 30+61.32

23 24 25 26 27 28 29 30 31 32

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	55
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

-RPBY22-

BEGIN GRADE
STA 10+00.00 -RPBY22-
EL. 716.17

PI = 11+00.00
EL = 715.47'
VC = 170'
K = 219
Vs = 70mph

(-)0.6935%
(-)1.4708%
PROPOSED GRADE
PI = 16+15.00
EL = 707.90'
VC = 700'
K = 110
Vs = 50mph
(-)1.4708%
(+)1.9000%
(-) 5.00%
(-) 1.81%
EXISTING GROUND

701.60
13+50 (LT)
END GRADE

705.79
16+22 (LT)

713.39
17+74 (LT)
BEGIN GRADE

740.07

SEE SHEET 19,20 FOR -RPBY22-

-RPBY22- STA. 10+00.00 TO 23+00.00

10 11 12 13 14 15 16 17 18 19 20 21 22 23

770 760 750 740 730 720 710 700 690 680

-RPBY22-

END GRADE
STA 27+07.81 -RPBY22-
EL. 746.62

PI = 23+75.00
EL = 745.14'
VC = 350'
K = 85
Vs = 50mph

740.82
(+)4.9000%
(+)0.7630%
PROPOSED GRADE

PI = 26+45.00
EL = 747.20'
VC = 180'
K = 110
Vs = 50mph
(+)0.7630%
(-)0.8751%
EXISTING GROUND

746.08

SEE SHEET 19,20 FOR -RPBY22-

-RPBY22- STA. 23+00.00 TO 27+07.81

23 24 25 26 27

770 760 750 740 730 720 710 700 690 680

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PROJECT REFERENCE NO.	SHEET NO.
R-2248E	56
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

–RPCY22–

BEGIN GRADE
STA 10+00.00 -RPCY22-
EL. 715.46

PI = 10+75.00
EL = 715.02'
VC = 150'
K = 176
Vs = 60mph

(–)0.5996%

(–)1.4500%

PROPOSED GRADE

PI = 14+65.00
EL = 709.07'
VC = 620'
K = 114
Vs = 50mph

(–)1.4500%

(+)3.9991%

EXISTING GROUND

PI = 20+20.00
EL = 730.47'
VC = 200'
K = 87
Vs = 50mph

(+)3.9991%

(+)1.6925%

(+)3.9764%

730.29'

PI = 22+50.00
EL = 734.36'
VC = 200'
K = 88
Vs = 45mph

SEE SHEET 19,20 FOR -RPCY22-

-RPCY22- STA. 10+00.00 TO 23+00.00

–RPCY22–

END GRADE
STA 23+77.99 -RPCY22-
EL. 739.45

739.45

736.29

PROPOSED GRADE

EXISTING GROUND

SEE SHEET 19,20 FOR -RPCY22-

-RPCY22- STA. 23+00.00 TO 24+58.05

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	57
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

–RPDY22–

BEGIN GRADE
STA 10+00.00 -RPDY22-
EL. 711.42

EXISTING GROUND

PROPOSED GRADE

PI = 12+00.00
EL = 713.42'
VC = 150'
K = 385
Vs = >70mph

(+)1.0019%

(+)0.6127%

PI = 17+50.00
EL = 716.79'
VC = 200'
K = 186
Vs = 60mph

(+)0.6127%

(–)0.4624%

PI = 22+95.00
EL = 714.2'
VC = 500'
K = 131
Vs = 55mph

7.16/12

(–)0.4624%

SEE SHEET 20,21 FOR -RPDY22-

-RPDY22- STA. 10+00.00 TO 23+00.00

10 11 12 13 14 15 16 17 18 19 20 21 22 23

770 760 750 740 730 720 710 700 690 680

–RPDY22–

END GRADE
STA 30+87.06 -RPDY22-
EL. 741.14

PI = 30+00.00
EL = 737.87'
VC = 150'
K = 369
Vs = >70mph

PROPOSED GRADE

(+)3.3473%

(+)3.7534%

7.16/12

(+)3.3473%

(+) 3.0%

(+) 2.0%

EXISTING GROUND

STA: 26+45 (RT)
ELEV = 712.50

STA: 30+00 (RT)
ELEV = 719.50

STA: 31+00 (RT)
ELEV = 722.50

SEE SHEET 20,21 FOR -RPDY22-

-RPDY22- STA. 10+00.00 TO 30+87.06

23 24 25 26 27 28 29 30 31

770 760 750 740 730 720 710 700 690 680

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	58
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

–SPAY22–

BEGIN GRADE
STA 25+73.26 -SPAY22-
EL. 733.32

END GRADE
STA 29+79.60 -SPAY22-
EL. 742.29

PI = 26+65.00
EL = 736.75'
VC = 100'
K = 75
Vs = 45mph

PI = 29+00.00
EL = 742.38'
VC = 150'
K = 60
Vs = 40mph

(+)1.37358%
(+)2.39534%
(+)2.39534%
(-).10107%

PROPOSED GRADE
EXISTING GROUND

SEE SHEET 20 FOR -SPAY22-

-SPAY22- STA. 25+73.26 TO 29+79.60

–SPBY22–

BEGIN GRADE
STA 23+58.26 -SPBY22-
EL. 742.84

END GRADE
STA 27+50.87 -SPBY22-
EL. 745.93

PI = 24+60.00
EL = 745.87'
VC = 145'
K = 81
Vs = 45mph

PI = 25+90.00
EL = 744.40'
VC = 100'
K = 48
Vs = 40mph

PI = 27+70.00
EL = 745.77'
VC = 110'
K = 35'
Vs = >70mph

(+)2.97547%
(+)1.11795%
(+)1.11795%
(-).10028%
(-).10028%
(-)1.21077%

PROPOSED GRADE
EXISTING GROUND

SEE SHEET 20 FOR -SPBY22-

-SPBY22- STA. 23+58.26 TO 27+50.87

–SPCY22–

BEGIN GRADE
STA 19+95.00 -SPCY22-
EL. 728.89

END GRADE
STA 23+37.14 -SPCY22-
EL. 729.98

PI = 21+60.00
EL = 733.66'
VC = 90'
K = 20
Vs = 30mph

PI = 20+60.00
EL = 731.30'
VC = 90'
K = 67
Vs = 45mph

(+)3.70995%
(+)2.36382%
(+)2.36382%
(-)2.08062%

PROPOSED GRADE
EXISTING GROUND

SEE SHEET 20 FOR -SPCY22-

-SPCY22- STA. 19+95.00 TO 23+37.14

–SPDY22–

BEGIN GRADE
STA 27+02.67 -SPDY22-
EL. 727.92

END GRADE
STA 30+78.89 -SPDY22-
EL. 731.41

PI = 29+05.00
EL = 735.95'
VC = 335'
K = 51
Vs = 40mph

(+)3.97127%
(-)2.60882%

PROPOSED GRADE
EXISTING GROUND

SEE SHEET 20 FOR -SPDY22-

-SPBY22- STA. 27+02.66 TO 30+78.89

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	59
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

-CDWBL-

PI = 267+88.06
EL = 821.57'
VC = 230'
K = 579
Vs = > 65mph

BEGIN PAVING
STA 268+02.86 -CDWBL-
EL. 821.86

BEGIN GRADE
STA 272+01.87 -CDWBL-
EL. 832.08

(+)2.9357%
(+)2.5383%
PROPOSED GRADE
EXISTING GROUND
815.32
834.57

SEE SHEET 6 FOR -CDWBL-

-CDWBL- STA. 268+02.86 TO 273+00.00

261 262 263 264 265 266 267 268 269 270 271 272 273

790 800 810 820 830 840 850 860 870 880

-CDWBL-

-CDWBL- POT STA. 281+65.00 (12.00' RT.)
-PI3A- POT STA. 10+00.00

BEGIN BRIDGE
-CDWBL- POT 284+87.38

-CDWBL- POT STA. 285+45.10 = -Y1- POT STA. 41+43.49

(+)2.5383%
PROPOSED GRADE
EXISTING GROUND
834.57
867.33

SEE SHEET 6,7 FOR -CDWBL-

-CDWBL- STA. 273+00.00 TO 286+00.00

273 274 275 276 277 278 279 280 281 282 283 284 285 286

790 800 810 820 830 840 850 860 870 880

FILE: R:\ncdot\R2248E\Roadway\Prod\R2248E_RDY_PFL_59.dgn
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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	60
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

-CDWBL-

PI = 292+10.00
EL = 883.05'
VC = 1,450'
K = 281
Vs = > 65mph

(+)2.5383%
(-)2.6219%

END BRIDGE
-CDWBL- POT 286+19.31

867.33

PROPOSED GRADE

EXISTING GROUND

862.60

-CDWBL- POT STA 297+71.87 =
Y12R - POC STA 14+66.55

END GRADE
STA 299+89.84 -CDWBL- =
STA 1284+20.01 (59.00 LT) -L-
EL. 862.60

SEE SHEET 6,7 FOR -CDWBL-

-CDWBL- STA. 286+00.00 TO 299+89.84

910 900 890 880 870 860 850 840 830 820

286 287 288 289 290 291 292 293 294 295 296 297 298 299

-Y9-

BEGIN GRADE
STA 29+00.00
EL. 841.70

PROPOSED GRADE

PI = 32+00.00
EL = 836.54'

PI = 32+81.00
EL = 834.26'

PI = 33+50.00
EL = 834.03'

(-)1.7200%
(-)2.8200%
(-)0.3200%
(-)2.4400%

EXISTING GROUND

END GRADE
STA 34+68.74
EL. 831.14

SEE SHEET 23 FOR -Y9-

-Y9- STA. 29+00.00 TO 34+68.74

850 840 830 820 810 800 790 780

29 30 31 32 33 34 35 36 37 38 39 40 41 42

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	61
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

–Y1–

BM11 ELEV 838.32
N 594209 E 1461194
-Y1- STA 34+55.67 (151.79 RT)
RR SPIKE IN BASE OF POWER POLE

BEGIN GRADE
STA 33+50.00 -Y1-
EL. 835.84

PI = 35+25.00
EL = 840.74
VC = 250'
K = 47
Vs = 40mph

(+)2.8000%
(–)2.5000%

-Y1- POT Sta. 35+03.46=
-Y1A- POT Sta. 10+00.00

EXISTING GROUND
PROPOSED GRADE
BEGIN BRIDGE
-Y1- POT 40+25.89

-Y1- POT Sta. 41+38.89=
-Y1A- POT Sta. 31+45.46

END BRIDGE
-Y1- POT 42+51.89

PI = 44+50.00
EL = 817.615'
VC = 100'
K = 17
Vs = 40mph

(–)2.5000%
(–)1.2000%

815.82

SEE SHEET 9,27 FOR -Y1-

-Y1- STA. 33+50.00 TO 46+00.00

34 35 36 37 38 39 40 41 42 43 44 45 46

–Y1–

END GRADE
STA 47+50.00 -Y1-
EL. 814.015

PROPOSED GRADE
815.82
EXISTING GROUND

SEE SHEET 9,27 FOR -Y1-

-Y1- STA. 46+00.00 TO 47+50.00

–Y1A–

BEGIN GRADE
STA 10+00.00 -Y1A- =
STA 35+08.46 -Y1-
EL. 839.03

END GRADE
STA 13+30.00 -Y1A-
EL. 843.93

PI = 10+20.22
EL = 839.76'

PI = 12+20.00
EL = 842.94'
VC = 100'
K = 144
Vs = 55mph

PROPOSED GRADE
(+)1.5950%
(+)3.6000%
(+)0.9000%
EXISTING GROUND

SEE SHEET 27 FOR -Y1A-

-Y1A- STA. 10+00.00 TO 13+30.00

46 47 48 10 11 12 13 14

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	62
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

–Y4–

BM17 ELEV 796.83
N 592910 E 1469799
-Y4- STA 47+59.87 (17.78 LT)
RR SPIKE IN ROOT OF
50" OAK STUMP

BEGIN GRADE
STA 33+79.00 -Y4-
EL. 792.67

END GRADE
STA 45+00.00 -Y4-
EL. 798.66

PI = 35+90.00
EL = 790.29'
VC = 80'
K = 48
Vs = 40mph

PI = 39+00.00
EL = 781.61'
VC = 500'
K = 64
Vs = 40mph

PI = 42+80.00
EL = 800.61'
VC = 260'
K = 44
Vs = 40mph

(–)11.300%
(–)2.8000%
(+)1.160%
(–)5.720%
(–)2.8000%
(+)5.0000%
(–)0.90%
(+)5.0000%
(–)0.8857%
(–)0.10%

EXISTING GROUND
PROPOSED GRADE

786.00
35+50 LT
BEGIN GRADE

784.40
36+50 LT

783.92
36+30 RT
BEGIN GRADE

781.80
37+40 RT
END GRADE

778.82
38+00 LT
END GRADE

784.93
39+81 RT
BEGIN GRADE

795.06
42+50 LT
BEGIN GRADE

794.31
45+00 LT

SEE SHEET 29,30 FOR -Y4-

-Y4- STA. 33+79.00 TO 45+00.00

–Y2–

BEGIN GRADE
STA 10+00.00 -Y2- =
STA 18+01.20 -EBFR-
EL. 804.50

END GRADE
STA 11+75.00-Y2-
EL. 810.86

PI = 10+06.00
EL = 804.62'
K = 44

PI = 11+05.00
EL = 809.57'
VC = 140'

804.50

(+)2.0000%
(+)5.0000%
(+)1.8400%

EXISTING GROUND
PROPOSED GRADE

SEE SHEET 12 FOR -Y2-

-Y2- STA. 10+00.00 TO 12+70.92

–Y5–

BEGIN GRADE
STA 18+01.06 -Y5-
EL. 779.31

PI = 19+45.00
EL = 783.63'
VC = 90'
K = 21
Vs = 30mph

PI = 19+90.51
EL = 785.04'

(+)3.0000%
(–)1.2815%
(–)13.0025%

PROPOSED GRADE
EXISTING GROUND

BEGIN GRADE
STA 20+06.93 -Y5- =
STA 38+37.76 -SERVA-
EL. 782.54

SEE SHEET 16 FOR -Y5-

-Y5- STA. 18+01.06 TO 20+06.93

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	63
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

–Y10–

BEGIN GRADE
STA 10+00.00 -Y10- =
STA 32+81.00 -Y9-
EL. 834.25

PI = 13+00.00
EL = 828.51'
VC = 100'
K = 417
Vs = >70mph

PROPOSED GRADE

(–)1.8600%

(–)1.6400%

2.16%

SPECIAL CUT DITCH

EXISTING GROUND

823.5
16+40 (LT)
BEGIN GRADE

PI = 21+50.00
EL = 814.67'
VC = 550'
K = 98
Vs = 50mph

822.47'

1.90%

(–)1.6400%

(+)4.0000%

SEE SHEET 23,24 FOR -Y10-

-Y10- STA. 10+00.00 TO 23+00.00

10 11 12 13 14 15 16 17 18 19 20 21 22 23

–Y10–

PI = 28+00.00
EL = 840.67'
VC = 605'
K = 84
Vs = 50mph

(+)14.0000%

822.47'

1.90%

621.18
23+50 (LT)
BEGIN GRADE

–Y10– POT STA.27+97.32
–Y14– POT STA.15+41.94

PROPOSED GRADE

(–)13.2000%

EXISTING GROUND

PI = 35+00.00
EL = 818.27'
VC = 795'
K = 96
Vs = 50mph

827.96'

(–)13.2000%

(+)5.0800%

(–)3.36%

(–)0.3%

SPECIAL LATERAL BASE DITCH

820.84
34+10 (LT)
BEGIN GRADE

816.14
35+50 (LT)

815.0
36+98 (LT)
END GRADE

SEE SHEET 6,24,25 FOR -Y10-

-Y10- STA. 23+00.00 TO 36+00.00

23 24 25 26 27 28 29 30 31 32 33 34 35 36

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4/5/2011

BLYTHE

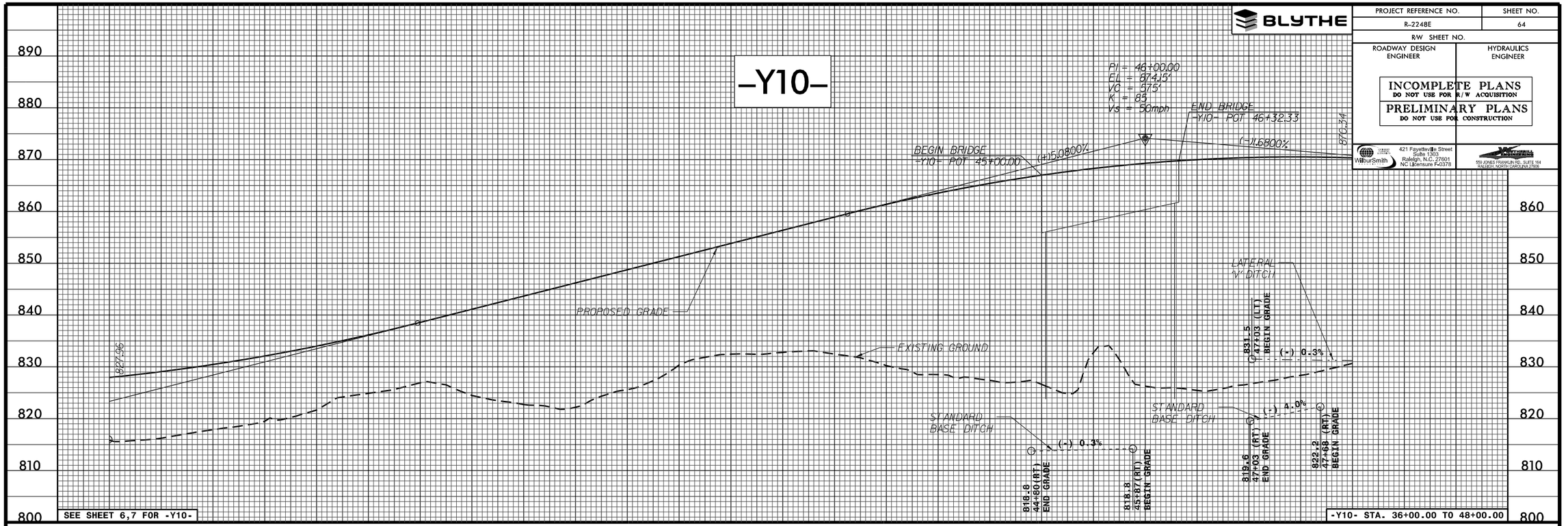
PROJECT REFERENCE NO.	SHEET NO.
R-2248E	64
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

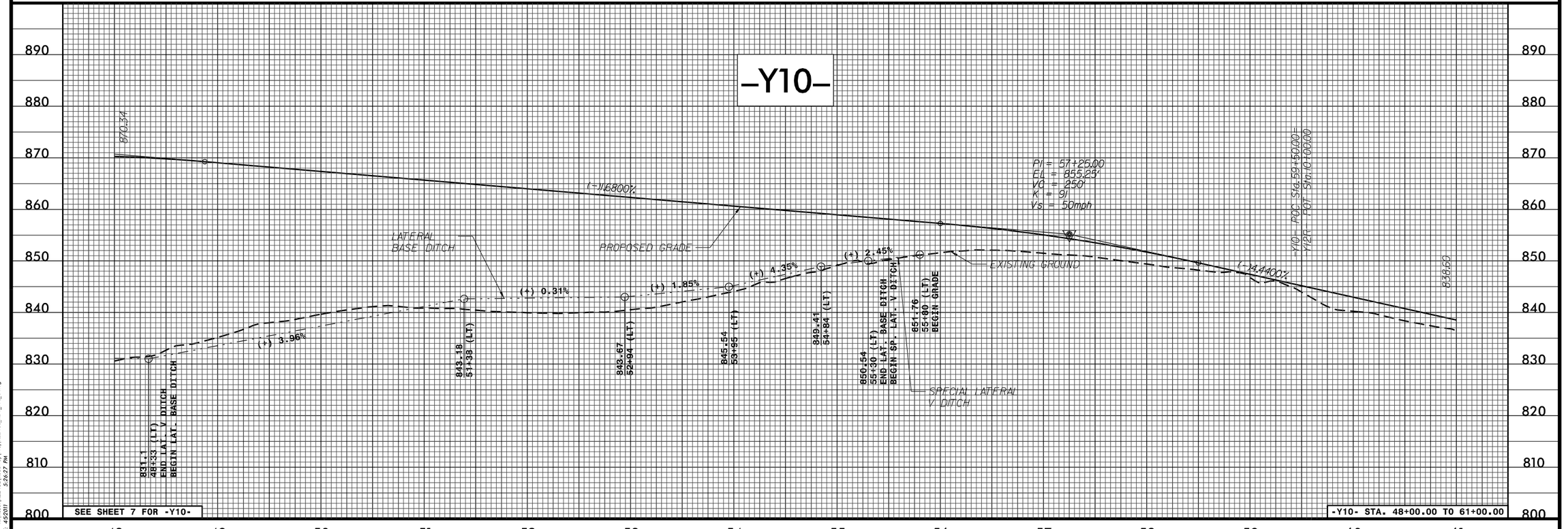
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606





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PROJECT REFERENCE NO.	SHEET NO.
R-2248E	65
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

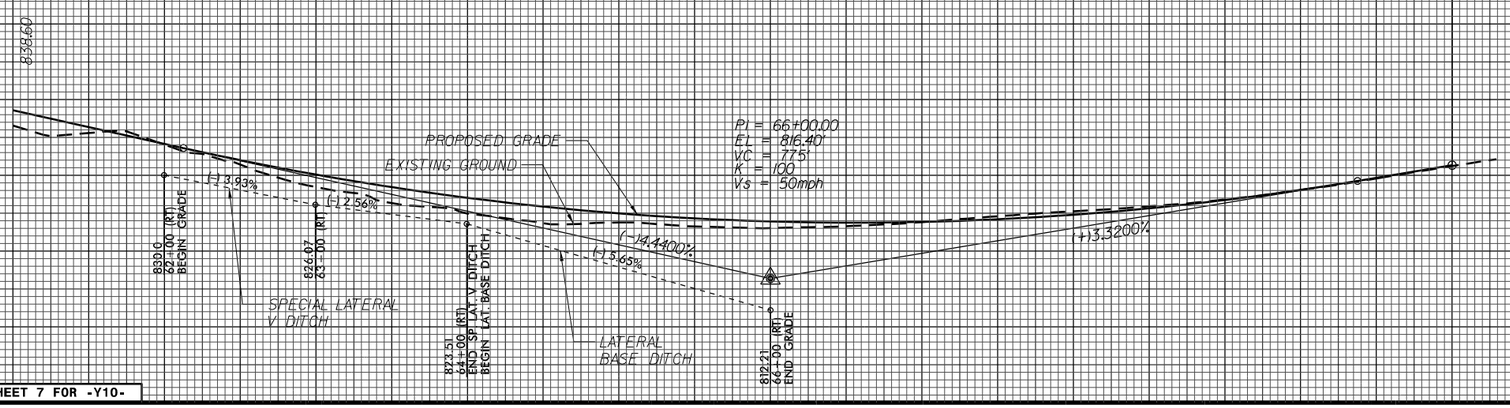
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

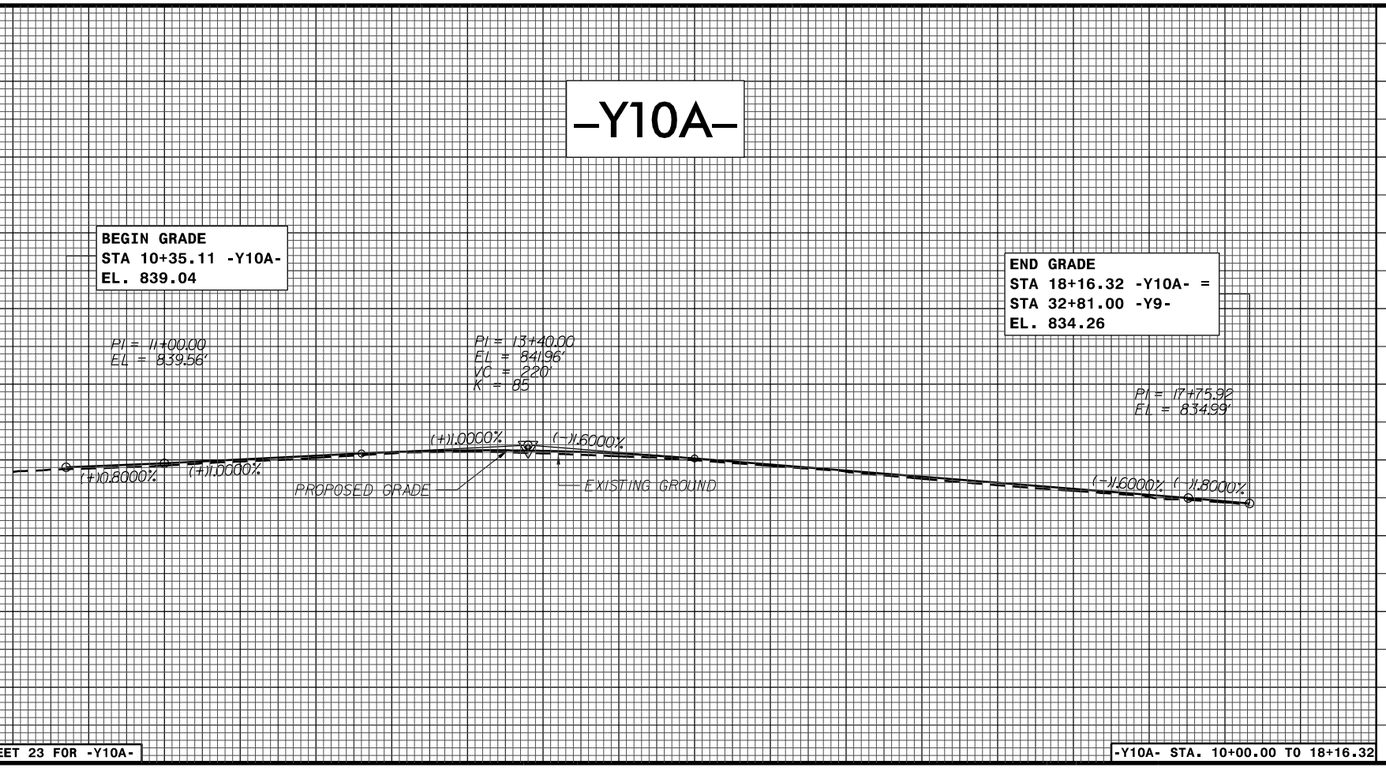
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KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

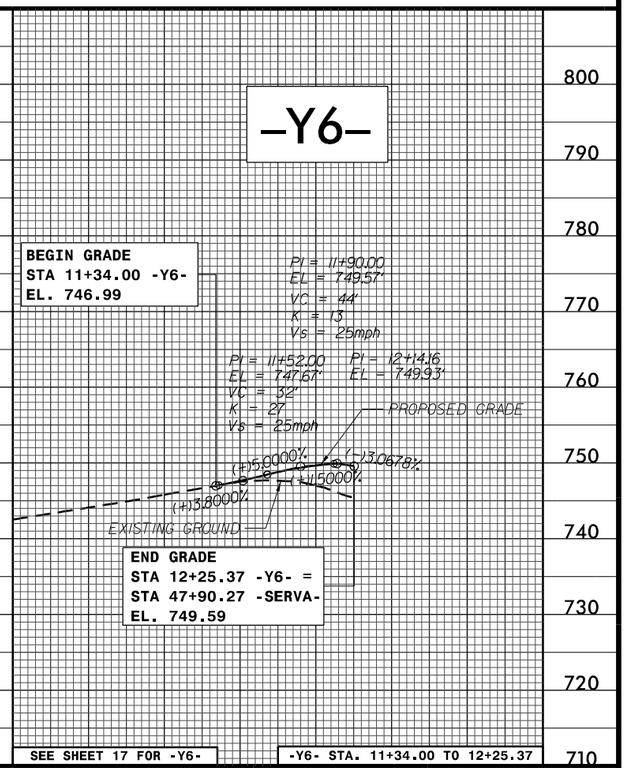
–Y10–



–Y10A–



–Y6–



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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	66
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

–Y12R–

BEGIN GRADE
STA 10+00.00 -Y12R- =
STA 59+50.00 -Y10-
EL. 845.26

PI = 10+34.00
EL = 846.54

(+)3.76%

(-)11.2500%

(+)0.54%

(+)3.63%

(+)0.5000%

Y12R - POC Sta.141+92.13 =
L - POT Sta.128+16.66

PI = 12+95.00
EL = 843.28
VC = 125'
K = 11
Vs = 40mph

EXISTING GROUND

PROPOSED GRADE

PI = 21+80.00
EL = 847.10'
VC = 150'
K = 69
Vs = 40mph

(+)0.5000%

(-)11.6800%

(-) 0.3%

SPECIAL CUT DITCH

845.69

836.3
11+70 (LT)
END GRADE

836.9
12+81 (LT)

837.59
13+00 (LT)
BEGIN GRADE

844.05
19+60 (RT)
BEGIN GRADE

845.11
19+60 (LT)
BEGIN GRADE

843.02
23+00 (RT)
END GRADE

SEE SHEET 7 FOR -Y12R-

-Y12R- STA. 10+00.00 TO 23+00.00

–Y12R–

END GRADE
STA 25+50.00 -Y12R-
EL. 841.49

845.69

(-)11.6800%

PROPOSED GRADE

SPECIAL CUT DITCH

(-) 3.64%

(-) 1.97%

839.79
24+15 (LT)
END GRADE

841.64
24+60 (LT)
BEGIN GRADE

840.28
25+18 (LT)
END GRADE

EXISTING GROUND

SEE SHEET 23,24 FOR -Y10-

-Y12R- STA. 23+00.00 TO 25+50.00

–Y14–

BEGIN GRADE
STA 12+70.00 -Y14-
EL. 836.98

PI = 14+30.00
EL = 833.78'
VC = 140'
K = 42
Vs = 30mph

PI = 15+01.94
EL = 834.77'

EXISTING GROUND

(+)1.1100%

(-)1.2000%

(+)1.3670%

PROPOSED GRADE

END GRADE
STA 15+41.94 -Y14- =
STA 27+97.32 -Y10-
EL. 835.21

SEE SHEET 25 FOR -Y14-

-Y14- STA. 12+70.00 TO 15+41.94

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	67
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

–Y17–

BM12 ELEV 818.74
N 595463 E 1468090
-Y17- STA 47+13.25 (107.85 LT)
RR SPIKE IN ROOT OF 30" OAK

BEGIN GRADE
STA 47+79.11-Y17-
EL. 820.29

PI = 49+00.00
EL = 822.25'
VC = 375'
K = 66
Vs = 45mph

PROPOSED GRADE
(+)1.3400%
(–)4.3600%
EXISTING GROUND
813.53

SEE SHEET 13,28,29 FOR -Y17-

-Y17- STA. 46+50.00 TO 51+00.00

39 40 41 42 43 44 45 46 47 48 49 50 51

–Y17–

STA 60+31.80 -Y17- =
STA 10+00.00 (2.18' LT) -RAE-
EL. 801.08

STA 63+57.72 -Y17- =
STA 10+00.00 (2.46' RT) -RAF-
EL. 802.64

STA 57+70.84 -Y17- =
STA 10+00.00 -RAE_WBFR-
EL. 799.81

SEE SHEET 83 FOR -RAE-, -RAE_Y17-
AND -RAE_WBFR- PROFILES

813.53
-Y17- POT STA.53+14.25 =
-DRIVE Y17- POT STA.10+00.00

PI = 54+50.00
EL = 798.27'
VC = 640'
K = 132
Vs = 55mph

PROPOSED GRADE
(–)4.3600%
(+)0.4800%
EXISTING GROUND

BEGIN BRIDGE
-Y17- POT 61+02.75
(+)0.4800%

-Y17- POT STA.61+74.75 =
-E- POT STA.376+51.63

END BRIDGE
-Y17- POT 62+86.75
(+)0.4800%

SEE SHEET 13,28,29 FOR -Y17-

-Y17- STA. 51+00.00 TO 64+00.00

51 52 53 54 55 56 57 58 59 60 61 62 63 64

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	68
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378
KIMLEY-HORN AND ASSOCIATES — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

–Y17–

STA 66+14.66 -Y17- =
STA 10+00.00 -RAF_EBFR-
EL. 803.89

SEE SHEET 83 FOR -RAF-, RAF_Y17- AND -RAF_EBFR- PROFILES

END GRADE
STA 73+00.00 -Y17-
EL. 801.88

PI = 71+25.00
EL = 806.34'
VC = 250'
K = 83
Vs = 45mph

PROPOSED GRADE
EXISTING GROUND
(+)0.4800%
(-) 1.12%
(-) 0.68%
(+)0.4800%
(-)2.5500%

800.62
67+59 (LT)
BEGIN GRADE

800.00
68+25 (RT)
BEGIN GRADE

799.50
68+96 (RT)
END GRADE

798.90
69+13 (LT)
END GRADE

800.50
69+96 (RT)

803.50
70+00 (RT)
BEGIN GRADE

SEE SHEET 13,28,29 FOR -Y17-

-Y17- STA. 63+02.75 TO 73+00.00

65 66 67 68 69 70 71 72 73

–Y17A–

BEGIN GRADE
STA 47+82.37 -Y17A- =
STA 10+00.00 (2.46' LT) -RAB-
EL. 796.31

SEE SHEET 77 FOR -RAB-, -RAB_Y17A- AND -RAB_RPBY17A- PROFILES

STA. 45+10.49 -Y17A- (LT)
ELEV. = 791.98

STA. 45+10.49 -Y17A- (RT)
ELEV. = 787.77

STA. 46+00 -Y17- (RT)
ELEV. = 782.17

STA. 46+00 -Y17A- (LT)
ELEV. = 787.18

STA. 46+31 -Y17A- (LT)
ELEV. = 786.06

PROPOSED GRADE
EXISTING GROUND
(+)0.7600%
(+)0.7600%
(-) 5.26%
(-) 6.18%
(-) 5.11%

END BRIDGE
-Y17A- POT 50+37.34

BEGIN BRIDGE
-Y17A- POT 48+53.34

END GRADE
STA 51+08.31 -Y17A- =
STA 10+00.00 (2.46' RT) -RAC-
EL. 798.79

SEE SHEET 82 FOR -RAC-, -RAC_Y17A- AND -RAC_EBFR- PROFILES

SEE SHEET 12 FOR -Y17A-

-Y17A- STA. 45+18.50 TO 52+65.00

43 44 45 46 47 48 49 50 51 52 53 54 55

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	69
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

–Y17B–

SEE SHEET 77 FOR -RAA-, -RAA_Y17B- AND -RAA_WBFR- PROFILES

BEGIN GRADE
STA 78+18.59 -Y17B- =
STA 10+00.00 (2.46' LT) -RAA-
EL. 789.76

-Y17B- POT STA 79+81.56 = -L- POT STA 1329+45.61

PI = 81+00.00
EL = 793.03'
VC = 145'
K = 46
Vs = 40mph

END BRIDGE
-Y17B- POT 80+73.56

PROPOSED GRADE

(+)11.1600%

(-)12.0000%

BEGIN BRIDGE
-Y17B- POT 78+89.56

EXISTING GROUND

END GRADE
STA 81+44.53 -Y17B- =
STA 10+00.00 (2.46' RT) -RAD-
EL. 792.05

SEE SHEET 82 FOR -RAD-, -RAD_Y17B- AND -RAD_RPDY17B- PROFILES

SEE SHEET 13 FOR -Y17B-

-Y17B- STA. 76+31.83 TO 83+33.32

–CONN–

BEGIN GRADE
STA 10+00.00 -CONN- =
STA 81+95.23 -Y22-
EL. 718.94

PI = 10+65.00
EL = 717.64'

(-)12.0000%

(-)1.4200%

PI = 13+50.00
EL = 713.59'
VC = 450'
K = 90
Vs = 50mph

6.0%

4.0%

(-) 0.6%

(-) 0.3%

(+) 2.7%

716.30
13+00(RT)
BEGIN GRADE

713.30
13+50(RT)

711.30
14+00(RT)

711.00
14+50(RT)

710.85
15+00(RT)
END GRADE

713.59
16+00(RT)
BEGIN GRADE

PROPOSED GRADE

(+)3.6000%

EXISTING GROUND

PI = 20+00.00
EL = 736.99'
VC = 100'
K = 63
Vs = 45mph

(+)2.0000%

END GRADE
STA 21+29.95 -CONN- =
STA 55+83.99 -Y20-
EL. 739.59

SEE SHEET 20,34 FOR -CONN-

-CONN- STA. 10+00.00 TO 21+29.95

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	70
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

–Y20–

BEGIN GRADE
STA 35+75.00 -Y20-
EL. 743.22

BM27 ELEV 745.56
N 592359 E 1478474
-Y20- STA 39+25.67 (100.37 RT)
RR SPIKE IN BASE OF 11" PINE

PI = 37+00.00
EL = 742.82'
VC = 150'
K = 144
Vs = 60mph

PI = 42+50.00
EL = 746.78'
VC = 375'
K = 102
Vs = 50mph

-Y20- POT Sta:42+56.56
-Y21- POT Sta:5+75.71

757.78

(-)0.3200%
(+)0.7200%
(+)1.4000%
(+)0.7800%
0.33%
0.20%
0.27%

PROPOSED GRADE
EXISTING GROUND

741.10
36+08(RT)
BEGIN GRADE

741.03
36+08 (LT)
BEGIN GRADE

740.20
38+59 (LT)
END GRADE

740.60
38+50(RT)
END GRADE

741.00
40+00(RT)
BEGIN GRADE

SEE SHEET 31 FOR -Y20-

-Y20- STA. 35+75.00 TO 45+00.00

33 34 35 36 37 38 39 40 41 42 43 44 45

–Y20–

PI = 48+25.00
EL = 772.08'
VC = 650'
K = 70
Vs = 45mph

-Y20- POT Sta:48+10.87
-Y22- POC Sta:7+82.50

BEGIN BRIDGE
-Y20- POT 47+34.95

END BRIDGE
-Y20- POT 48+86.78

(+)1.4000%
(-)1.8800%

757.78

PROPOSED GRADE
EXISTING GROUND

(-) 3.00%
(-) 0.3%

736.82
49+32 (RT)
BEGIN GRADE

733.60
51+06(RT)
END GRADE

734.21
53+10 (RT)
BEGIN GRADE

PI = 56+00.00
EL = 734.26'
VC = 600'
K = 89
Vs = 45mph

-Y20- POT Sta:55+83.99
-DANW- POT Sta:21+29.95

-4.5600%
(+)1.8800%

738.58

SEE SHEET 20,31,34 FOR -Y20-

-Y20- STA. 45+00.00 TO 58+00.00

45 46 47 48 49 50 51 52 53 54 55 56 57 58

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PROJECT REFERENCE NO.	SHEET NO.
R-2248E	71
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

–Y20–

BM31 ELEV 750.78
N 590637 E 1480275
-Y20- STA 64+25.07 (34.96 LT)
RR SPIKE IN BASE OF 20" CEDAR

-Y20 POT Sta.62+96.44=
-Y26 POT Sta.28+81.29

PI = 64+75.00
EL = 750.71'
VC = 400'
K = 67
Vs = 45mph

738.58

(+)1.8800%

(-)4.8200%

PROPOSED GRADE

EXISTING GROUND

(-)18.55%

(-)9.71%

(-)14.20%

(-)2.38%

(-)3.67%

727.09

STA. 66+27 -Y20- (LT)
ELEV. = 742.32

STA. 66+80 -Y20- (LT)
ELEV. = 737.8

STA. 67+86
-Y20- (LT)
ELEV. = 732.8

STA. 68+91
-Y20- (LT)
ELEV. = 728.4

STA. 70+46
-Y20- (LT)
ELEV. = 724.7

STA. 70+98
-Y20- (LT)
ELEV. = 722.78

SEE SHEET 20,21 FOR -Y20-

-Y20- STA. 58+00.00 TO 71+00.00

58 59 60 61 62 63 64 65 66 67 68 69 70 71

790 780 770 760 750 740 730 720 710 700

–Y20–

END GRADE
STA 74+80.00 -Y20-
EL. 724.55

BM29 ELEV 724.98
N 589679 E 1481380
-Y20- STA 79+01.38 (38.13 LT)
RR SPIKE IN ROOT OF 18" OAK

PI = 71+50.00
EL = 722.90'
VC = 550'
K = 119
Vs = 55mph

727.09

PROPOSED GRADE

EXISTING GROUND

(-)1.48%

(+)0.5000%

(-)0.37%

(+)3.77%

(-)0.67%

STA. 71+49
-Y20- (RT)
ELEV. = 724.04

STA. 72+01
-Y20- (LT)
ELEV. = 719.0

STA. 73+75
-Y20- (LT)
ELEV. = 718.35

STA. 73+84
-Y20- (RT)
ELEV. = 720.52

STA. 74+80
-Y20- (LT)
ELEV. = 722.31

SEE SHEET 21 FOR -Y20-

-Y20- STA. 71+00.00 TO 74+80.00

71 72 73 74 75 76 77 78 79 80 81

790 780 770 760 750 740 730 720 710 700

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	72
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

–Y21–

BEGIN GRADE
STA 11+00.00 -Y21-
EL. 739.62

END GRADE
STA 15+35.64 -Y21- =
STA 42+30.02 -Y20-
EL. 748.61

PI = 13+00.00
EL = 745.22'
VC = 150'
K = 110
Vs = 50mph

PROPOSED GRADE
EXISTING GROUND

(+)0.50%
(+)0.36%
(+)2.80000%
(+)1.44000%
(+)2.12%
(+)0.16000%

10+27 -Y21- (LT) ELEV. = 736.79
11+00 -Y21- (LT) ELEV. = 737.22
11+00 -Y21- (RT) ELEV. = 736.43
11+90 -Y21- (LT) ELEV. = 738.27
11+90 -Y21- (RT) ELEV. = 738.28
13+00 -Y21- (LT) ELEV. = 742.08
14+00 -Y21- (LT) ELEV. = 744.30

SEE SHEET 31 FOR -Y21-

-Y21- STA. 11+00.00 TO 15+35.64

–Y23–

BEGIN GRADE
STA 10+40.00 -Y23- =
STA 42+44.30 -Y22-
EL. 726.26

END GRADE
STA 12+38.42 -Y23-
EL. 719.14

PI = 11+20.00
EL = 720.66'
VC = 100'
K = 17
Vs = 25mph

PROPOSED GRADE
EXISTING GROUND

(–)7.00000%
(–)1.28000%

SEE SHEET 32 FOR -Y23-

-Y23- STA. 10+40.00 TO 12+38.42

–Y24–

BEGIN GRADE
STA 10+40.00 -Y24- =
STA 44+86.40 -Y22-
EL. 723.74

END GRADE
STA 16+58.86 -Y24-
EL. 732.81

-Y24- POT Sta.14+92.99=
-Y25- POT Sta.10+00.00

EXISTING GROUND

PI = 11+75.00
EL = 723.74
VC = 80'
K = 91
Vs = 50mph

PI = 13+75.00
EL = 726.94'
VC = 125'
K = 69
Vs = 40mph

PI = 16+00.00
EL = 732.34'
VC = 100'
K = 63
Vs = 45mph

PROPOSED GRADE

(–)2.00000%
(+)1.48000%
(+)0.36%
(+)0.41%
(+)0.60000%
(+)0.76%
(+)3.42%
(+)0.68%
(+)2.50%
(+)2.30%
(+)2.40000%
(+)10.80000%

10+51 -Y24- (RT) ELEV. = 720.83
11+06 -Y24- (LT) ELEV. = 722.19
11+50 -Y24- (LT) ELEV. = 722.37
12+00 -Y24- (LT) ELEV. = 722.91
13+00 -Y24- (RT) ELEV. = 731.86
14+00 -Y24- (RT) ELEV. = 725.38
14+00 -Y24- (LT) ELEV. = 734.42
14+50 -Y24- (RT) ELEV. = 725.77
15+06 -Y24- (LT) ELEV. = 726.92
16+00 -Y24- (LT) ELEV. = 729.22

SEE SHEET 32 FOR -Y24-

-Y23- STA. 10+40.00 TO 16+58.86

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	73
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

–Y22–

BEGIN GRADE
STA 38+70.00 -Y22-
EL. 727.54

PI = 40+50.00
EL = 734.58'
VC = 275'
K = 55
Vs = 35mph

(+)3.9000%

(-)2.02%

(-)1.4000%

-Y22- POT Sta.42+44.30=
-Y23- POT Sta.10+00.00

PI = 43+25.00
EL = 723.58'
VC = 275'
K = 60
Vs = 35mph

-Y22- POT Sta.44+87.00=
-Y24- POT Sta.10+00.00

PI = 46+25.00
EL = 725.24'
VC = 300'
K = 78
Vs = 40mph

(+)0.5600%

(-)0.87%

(-)3.2800%

PROPOSED GRADE

EXISTING GROUND

713.57

STA. 39+50 -Y22- (RT)
ELEV. = 727.34

STA. 42+00 -Y22- (RT)
ELEV. = 722.29

STA. 46+50 -Y22- (RT)
ELEV. = 720.03

STA. 46+50 -Y22- (RT)
ELEV. = 719.16

SEE SHEET 32,33 FOR -Y22-

-Y22- STA. 38+70.00 TO 51+00.00

38 39 40 41 42 43 44 45 46 47 48 49 50 51

770 760 750 740 730 720 710 700 690 680

–Y22–

BM25 ELEV 692.01
N 590479 E 1478487
-Y22- STA 59+00.78 (583.84 RT)
RR SPIKE IN BASE OF 54" POPLAR

-Y22- POT Sta.57+72.75=
-SPOT22- POT Sta.36+49.09

-Y22- POT Sta.58+11.84=
-SPOT22- POT Sta.24+02.32

-Y22- POT Sta.62+18.75=
-RPOT22- POT Sta.24+58.05

-Y22- POT Sta.63+04.75=
-RPOT22- POT Sta.31+14.16

745.20

PI = 51+25.00
EL = 708.84'
VC = 600'
K = 97
Vs = 40mph

713.57

BEGIN BRIDGE
-Y22- POT 52+10.00

END BRIDGE
-Y22- POT 54+60.00

PROPOSED GRADE

(+)2.9200%

BEGIN BRIDGE
-Y22- POT 63+13.47

EXISTING GROUND

SEE SHEET 20,33 FOR -Y22-

-Y22- STA. 51+00.00 TO 64+00.00

51 52 53 54 55 56 57 58 59 60 61 62 63 64

770 760 750 740 730 720 710 700 690 680

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	74
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

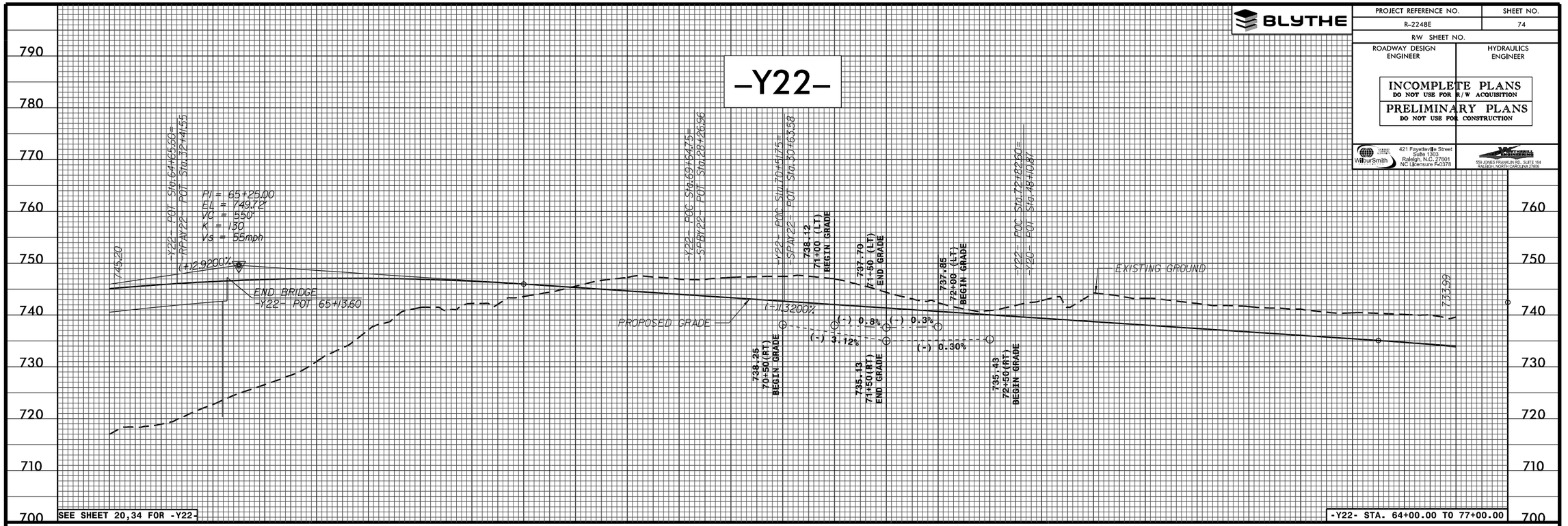
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

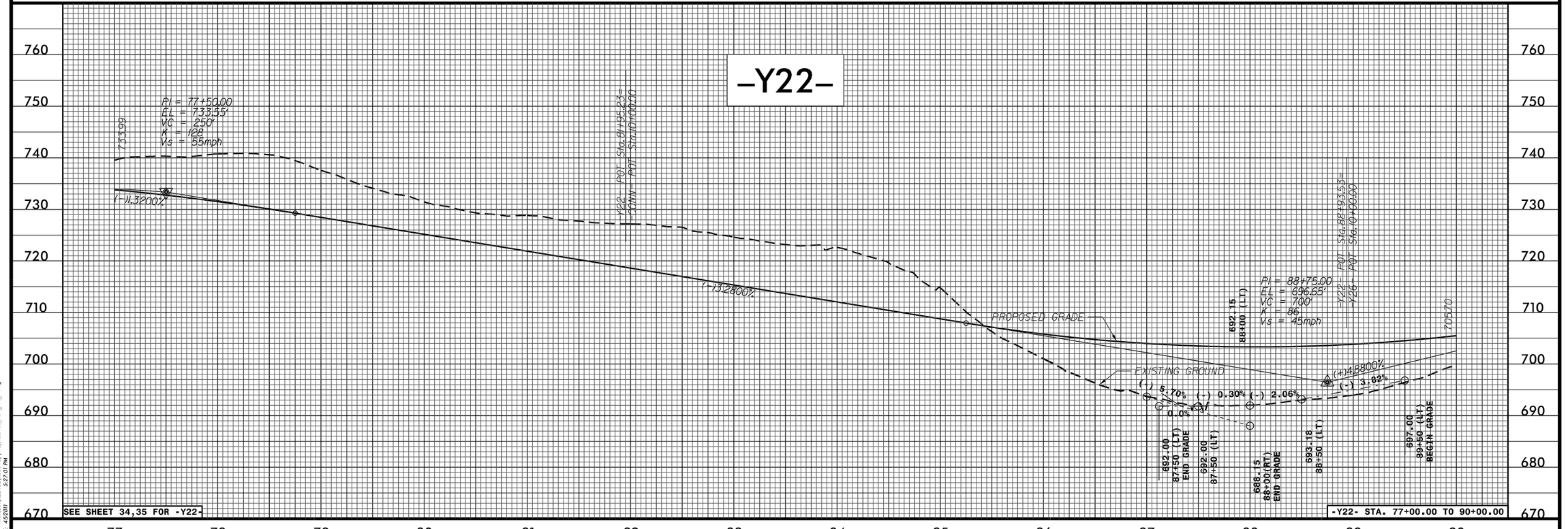
CENTENNIAL ENGINEERING — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

–Y22–



SEE SHEET 20,34 FOR -Y22-

-Y22- STA. 64+00.00 TO 77+00.00



SEE SHEET 34,35 FOR -Y22-

-Y22- STA. 77+00.00 TO 90+00.00

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	75
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street, Suite 1303, Raleigh, N.C. 27601, NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164, RALEIGH, NORTH CAROLINA 27606

–Y22–

END GRADE
STA 99+00.00 -Y22-
EL. 713.35

PI = 94+75.00
EL = 725.95'
VC = 500'
K = 64
Vs = 45mph

(+)4.8800% (–)2.9600%

(-) 2.92%

(-) 0.30%

705.70

713.10
93+00 (LT)
END GRADE

714.56
93+50 (LT)

715.37
96+20.20 (LT)
BEGIN GRADE

760 750 740 730 720 710 700 690 680 670

90 91 92 93 94 95 96 97 98 99

SEE SHEET 35 FOR -Y22-

-Y22- STA. 90+00.00 TO 97+50.00

–Y25–

BEGIN GRADE
STA 10+20.00 -Y25- =
STA 14+92.99 -Y24-
EL. 729.37

PI = 15+00.00
EL = 733.21'
VC = 400'
K = 63
Vs = 45mph

(+)0.8000%

(+)0.78%

EXISTING GROUND

PROPOSED GRADE

STA. 10+36 -Y25- (RT)
ELEV. = 726.6

STA. 11+00 -Y25- (RT)
ELEV. = 727.10

PI = 20+00.00
EL = 765.21'
VC = 100'
K = 83
Vs = 45mph

(-)1.16%

(-)4.04%

(-)4.4000%

STA. 18+00 -Y25- RT
ELEV. = 713.33

STA. 19+00 -Y25- RT
ELEV. = 706.21

STA. 20+50 -Y25- RT
ELEV. = 700.15

720 710 700 690 680

23 24

END GRADE
STA 24+40.00 -Y25-
EL. 694.36

PI = 23+25.00
EL = 690.91'
VC = 230'
K = 37
Vs = 25mph

(+)3.0000%

2.0' LOW FLOW SILL
PROPOSED 1 @ 7'X 8' RCBC
W/(BURIED) 1 2.0' LOW FLOW SILL
IN LINE AHEAD BARREL

760 750 740 730 720 710 700 690 680 670

10 11 12 13 14 15 16 17 18 19 20 21 22 23

SEE SHEET 32,33 FOR -Y25-

-Y25- STA. 10+00.00 TO 21+16.00

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	76
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

–Y26–

BEGIN GRADE
STA 10+40.00 -Y26- =
STA 88+93.53 -Y22-
EL. 703.16

PI = 13+50.00
EL = 696.96'
VC = 550'
K = 79
Vs = 40mph

PROPOSED GRADE

EXISTING GROUND

(-)12.0000%

(+)5.0000%

(-) 1.34%

(-) 5.71%

(-) 3.82%

(-) 1.74%

(-) 5.00%

688.15
10+83.50(RT)
BEGIN GRADE

685.70
11+32.50(RT)
END GRADE

690.15
12+00(RT)
BEGIN GRADE

688.58
12+90(RT)
END GRADE

692.78
14+00(RT)

704.20
16+00(RT)

707.81
16+50(RT)
BEGIN GRADE

PI = 20+25.00
EL = 730.7'
VC = 200'
K = 48
Vs = 40mph

(+)0.8600%

(+)5.6000%

733.08

SEE SHEET 21,33 FOR -Y26-

-Y26- STA. 10+00.00 TO 23+00.00

–Y26–

END GRADE
STA 28+50.00 -Y26-
EL. 747.68

PI = 28+00.00
EL = 746.79'
VC = 90'
K = 20
Vs = 30mph

PI = 26+25.00
EL = 735.87'
VC = 260'
K = 48
Vs = 30mph

(+)1.7800%

(-)12.0000%

(+)6.2400%

(+)6.10%

(+)4.88%

(+)1.35%

(+)0.8600%

PROPOSED GRADE

EXISTING GROUND

733.08

STA. 25+21 -Y26- (LT)
ELEV. = 736.7

STA. 25+40 -Y26- (LT)
ELEV. = 732.89

STA. 26+00 -Y26- (LT)
ELEV. = 733.77

STA. 27+00 -Y26- (LT)
ELEV. = 738.65

STA. 27+50 -Y26- (LT)
ELEV. = 741.7

SEE SHEET 21,33 FOR -Y26-

-Y26- STA. 23+00.00 TO 28+50.00

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PROJECT REFERENCE NO.	SHEET NO.
R-2248E	77
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

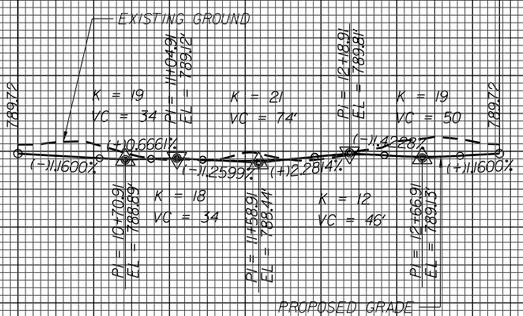
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BLYTHE
WilburSmith 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378
555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

–RAA–

BEGIN GRADE
STA 10+00.00 (2.46′ LT.) -RAA-=
STA 78+18.59 -Y17B-
EL. 789.72

END GRADE
STA 13+17.82 (2.46′ RT.) -RAA-=
STA 78+18.59 -Y17B-
EL. 789.72

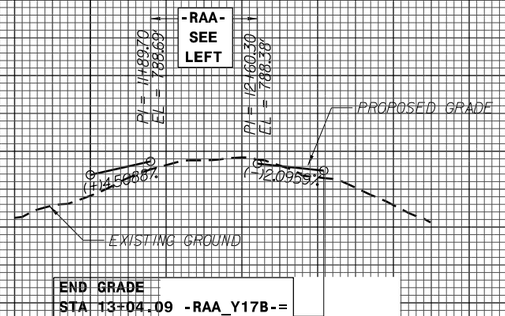


SEE SHEET 12,13 FOR PLAN

–RAA_Y17B–

BEGIN GRADE
STA 11+50.00 (4.00′ LT.) -RAA_Y17B-=
STA 22+26.51 -RPAY17B-
EL. 786.90

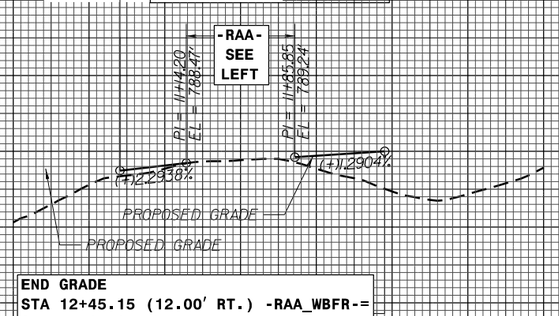
END GRADE
STA 13+04.09 -RAA_Y17B-=
STA 76+31.83 -Y17B-
EL. 787.46



–RAA_WBFR–

BEGIN GRADE
STA 10+70.40 -RAA_WBFR-=
STA 76+31.83 -Y17B-
EL. 787.46

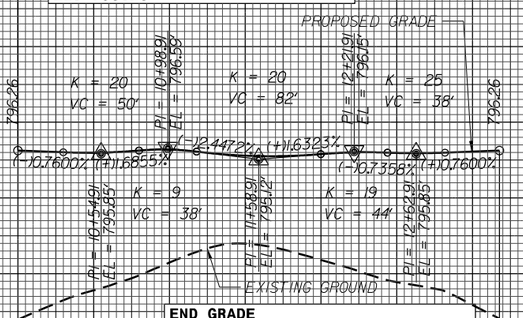
END GRADE
STA 12+45.15 (12.00′ RT.) -RAA_WBFR-=
STA 37+13.64 -WBFR-
EL. 790.00



–RAB–

BEGIN GRADE
STA 10+00.00 (2.46′ LT.) -RAB-=
STA 47+82.37 -Y17A-
EL. 796.26

END GRADE
STA 13+17.82 (2.46′ RT.) -RAB-=
STA 47+82.37 -Y17A-
EL. 796.26

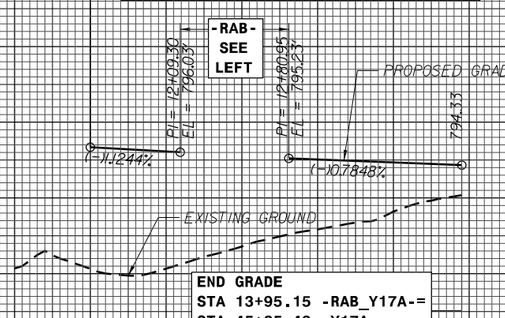


SEE SHEET 12,13 FOR PLAN

–RAB_Y17A–

BEGIN GRADE
STA 11+50.00 (12.00′ RT.) -RAB_Y17A-=
STA 11+14.47 -WBFR-
EL. 790.70

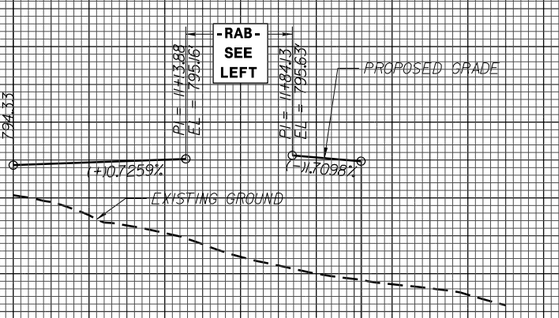
END GRADE
STA 13+95.15 -RAB_Y17A-=
STA 45+25.43 -Y17A-
EL. 794.33



–RAB_PRBY17A–

BEGIN GRADE
STA 10+00.00 -RAB_RPBY17A-=
STA 45+25.43 -Y17A-
EL. 794.33

END GRADE
STA 12+29.53 (4.00′ RT.) -RAB_RPBY17A-=
STA 22+85.00 -RPBY17B-
EL. 794.85



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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	78
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

–SERVA–

BEGIN GRADE
STA 10+35.00 -SERVA-
EL. 761.76

PROPOSED GRADE

PI = 15+00.00
EL = 753.78'
VC = 500'
K = 99
Vs = 50mph

(-)1.7200%

(+)3.3200%

EXISTING GROUND

742.97
15+91(RT)
END GRADE

741.45
17+41(RT)
BEGIN GRADE

741.90
18+91(RT)

743.40
19+41(RT)

745.70
19+91(RT)

754.80
21+41(RT)
END GRADE

760.32

(+) 0.30%

(-)0.40%

(+) 3.80%

(+) 4.60%

(+) 6.07%

(-)0.30%

STA. 17+00
-SERVA- (LT)
ELEV. = 737.75

STA. 19+41
-SERVA- (LT)
ELEV. = 736.8

STA. 21+41
-SERVA- (LT)
ELEV. = 736.2

SEE SHEET 14,15 FOR -SERVA-

-SERVA- STA. 10+35.00 TO 23+00.00

10 11 12 13 14 15 16 17 18 19 20 21 22 23

–SERVA–

PI = 26+00.00
EL = 790.28'
VC = 350'
K = 89
Vs = 50mph

(+)3.3200%

(-)1.0620%

780.32

PROPOSED GRADE

784.08

EXISTING GROUND

SEE SHEET 15,16 FOR -SERVA-

-SERVA- STA. 23+00.00 TO 36+00.00

23 24 25 26 27 28 29 30 31 32 33 34 35 36

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	79
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

–SERVA–

PI = 40+00.00
EL = 781.60'
VC = 400'
K = 102
Vs = 50mph

(-)0.6200%
(-)4.5600%
(-) 5.57%
(-) 4.68%
(-) 2.60%
(-) 3.75%
(-) 2.14%
(-) 5.00%
(-)4.5600%
(+)3.6000%

PROPOSED GRADE
EXISTING GRADE

784.08
-SERVA- POT Sta 38+37.76=
=FS- POT Sta 2+10.63

776.52
39+23(RT)
BEGIN GRADE

769.60
40+85(RT)

764.50
41+94(RT)

760.50
43+02 (LT)
BEGIN GRADE

757.20
44+10 (LT)

757.50
44+63(RT)
END GRADE

753.80
45+89 (LT)

PI = 48+00.00
EL = 745.12'
VC = 430'
K = 53
Vs = 35mph

749.97

746.00
47+25 (LT)
END GRADE

-SERVA- POC Sta 47+90.27 =
=FS- POT Sta 12+25.57

SEE SHEET 16,17 FOR -SERVA-

-SERVA- STA. 36+00.00 TO 49+00.00

36 37 38 39 40 41 42 43 44 45 46 47 48 49

710 720 730 740 750 760 770 780 790 800

BM22 ELEV 770.51
N 593228 E 1475131
-SERVA- STA 56+27.65 (39.27 LT)
RR SPIKE IN BASE OF 18" OAK

–SERVA–

PI = 56+15.00
EL = 774.46'
VC = 245'
K = 20
Vs = 30mph

+13.6000%
(-)8.9600%

PROPOSED GRADE
EXISTING GROUND

749.97

END GRADE
STA 56+00.00 -SERVA-
EL. 770.96

SEE SHEET 17 FOR -SERVA-

-SERVA- STA. 49+00.00 TO 57+50.00

49 50 51 52 53 54 55 56 57 58 59

710 720 730 740 750 760 770 780 790 800

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	80
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

-EBFR-

SEE SHEET 82 FOR -RAC-, -RAC_Y17A- AND -RAC_EBFR- PROFILES

BEGIN GRADE
STA 11+14.47 -EBFR- =
STA 12+93.92 (12.00' LT) -RAC_EBFR-
EL. 799.10

PI = 13+50.00
EL = 797.64'
VC = 250'
K = 111
Vs = 50mph

EXISTING GROUND

(-)0.6200%

(+)1.6400%

PROPOSED GRADE

PI = 18+20.00
EL = 805.35'
VC = 240'
K = 91
Vs = 50mph

(+)1.6400%

(-)1.0000%

PI = 21+85.00
EL = 801.70'
VC = 150'
K = 100
Vs = 50mph

(-)1.0000%

(+)0.5048%

STA 23+99.65 -EBFR- =
STA 11+50.00 (12.00' LT) -RAF_Y17-
EL. 802.78

SEE SHEET 12,13 FOR -EBFR-

-EBFR- STA. 10+58.00 TO 24+00.00

SEE SHEET 83 FOR -RAF-, -RAF_Y17- AND -RAF_EBFR- PROFILES

STA 26+28.60 -EBFR- =
STA 12+45.15 (12.00' LT) -RAF_EBFR-
EL. 802.80

(-)0.4800%

PI = 32+75.00
EL = 799.69'
VC = 100'
K = 71
Vs = 45mph

(-)0.4800%

(-)1.5831%

PROPOSED GRADE

END GRADE
STA 37+13.64 -EBFR- =
STA 11+50.00 (12.00' LT) -RAD_Y17B-
EL. 791.43

SEE SHEET 82 FOR -RAD-, -RAD_Y17B- AND -RAD_RPDY17B- PROFILES

791.34
28+82(RT)
BEGIN GRADE

(-) 4.72%

781.87
30+82.50(RT)

EXISTING GROUND

(-) 2.50%

779.37
31+82.50(RT)

(-) 0.30%

779.07
32+82.50(RT)

(-) 2.50%

774.07
34+82.50(RT)

(-) 1.16%

769.73
36+82.50(RT)

(-)0.76%

769.4
37+29(RT)

SEE SHEET 12,13 FOR -EBFR-

-EBFR- STA. 24+00.00 TO 37+70.11

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	81
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

–WBFR–

SEE SHEET 77 FOR -RAB-, -RAB_Y17A- AND -RAB_RPBY17A- PROFILES

BEGIN GRADE
STA 11+14.47 -WBFR- =
STA 11+50.00 (12.00' RT) -RAB_Y17A-
EL. 796.46

PROPOSED GRADE

EXISTING GROUND

PI = 19+72.39
EL = 802.98
VC = 150'
K = 129

(+)0.7600%

(-)0.4000%

(-)0.94%

(-)2.31%

(+)0.3%

(+)3.54%

(+)2.49%

(+)1.06%

(+)4.36%

(+)4.42%

(+)5.08%

(+)0.40%

STA. 10+82.5 -WBFR- (LT)
ELEV. = 785.04

STA. 11+82.5 -WBFR- (LT)
ELEV. = 784.10

STA. 12+23 -WBFR- (RT)
ELEV. = 769.06

STA. 13+36.9 -WBFR- (LT)
ELEV. = 780.53

STA. 14+82.50 -WBFR- (RT)
ELEV. = 775.60

STA. 15+82.50 -WBFR- (RT)
ELEV. = 779.24

STA. 15+82.5 -WBFR- (LT)
ELEV. = 781.27

STA. 16+82.50 -WBFR- (RT)
ELEV. = 785.20

STA. 17+10 -WBFR- (LT)
ELEV. = 782.62

STA. 18+82.50 -WBFR- (RT)
ELEV. = 793.03

STA. 19+82.50 -WBFR- (RT)
ELEV. = 798.12

STA. 23+32.50 -WBFR- (RT)
ELEV. = 798.56

STA. 23+82.50 -WBFR- (RT)
ELEV. = 798.36

STA 23+98.25 -WBFR- =
STA 12+47.62 (12.00' RT) -RAE_WBFR-
EL. 801.28

SEE SHEET 12,13 FOR -EBFR-

-WBFR- STA. 10+58.00 TO 24+00.00

–WBFR–

PI = 26+60.79
EL = 801.55'
VC = 100'
K = 60

(+)0.5600%

(-)1.1200%

(+)1.90%

STA. 24+32.50 -WBFR- (RT)
ELEV. = 799.31

END GRADE
STA 37+13.64 -WBFR- =
STA 12+45.15 (12.00' RT) -RAA_WBFR-
EL. 789.76

SEE SHEET 77 FOR -RAA-, -RAA_Y17B- AND -RAA_WBFR- PROFILES

SEE SHEET 83 FOR -RAE-, -RAE_Y17- AND -RAE_WBFR- PROFILES

STA 26+29.58 -WBFR- =
STA 11+50.00 (12.00' RT) -RAE_Y17-
EL. 801.35

SEE SHEET 12,13 FOR -WBFR-

-WBFR- STA. 24+00.00 TO 37+70.11

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	82
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

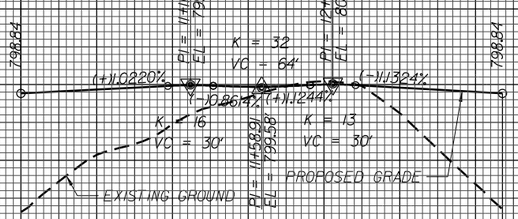
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES — 421 Fayetteville Street Suite 1303 Raleigh, N.C. 27601 NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC. — 555 JONES FRANKLIN RD., SUITE 164 RALEIGH, NORTH CAROLINA 27606

–RAC–

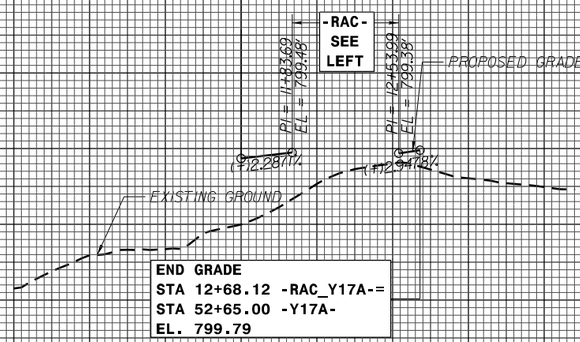
BEGIN GRADE
STA 10+00.00 (2.46′ RT.) -RAC-=
STA 51+08.31 -Y17A-
EL. 798.84



END GRADE
STA 13+17.82 (2.46′ LT.) -RAC-=
STA 51+08.31 -Y17A-
EL. 798.84

–RAC_Y17A–

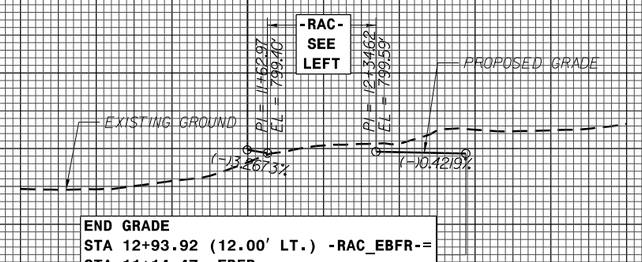
BEGIN GRADE
STA 11+50.00 (4.00′ RT.) -RAC_Y17A-=
STA 25+23.29 -RPCY17A-
EL. 798.71



END GRADE
STA 12+68.12 -RAC_Y17A-=
STA 52+65.00 -Y17A-
EL. 799.79

–RAC_EBFR–

BEGIN GRADE
STA 11+49.63 -RAC_EBFR-=
STA 52+65.00 -Y17A-
EL. 799.83

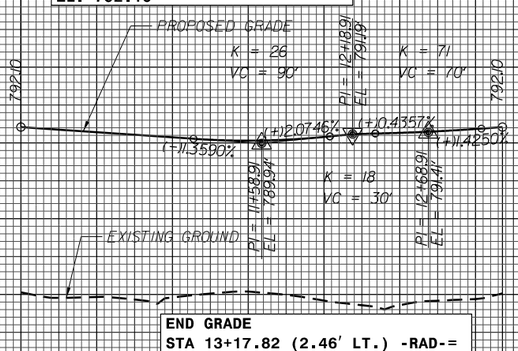


END GRADE
STA 12+93.92 (12.00′ LT.) -RAC_EBFR-=
STA 11+14.47 -EBFR-
EL. 799.34

SEE SHEET 12,13 FOR PLAN

–RAD–

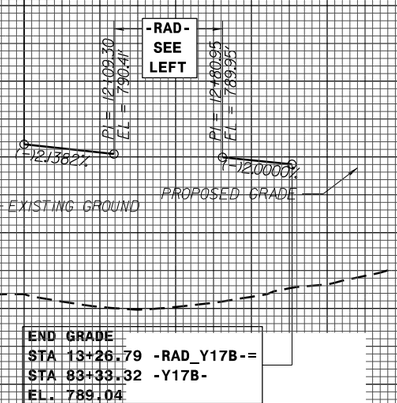
BEGIN GRADE
STA 10+00.00 (2.46′ RT.) -RAD-=
STA 81+44.53 -Y17B-
EL. 792.10



END GRADE
STA 13+17.82 (2.46′ LT.) -RAD-=
STA 81+44.53 -Y17B-
EL. 792.10

–RAD_Y17B–

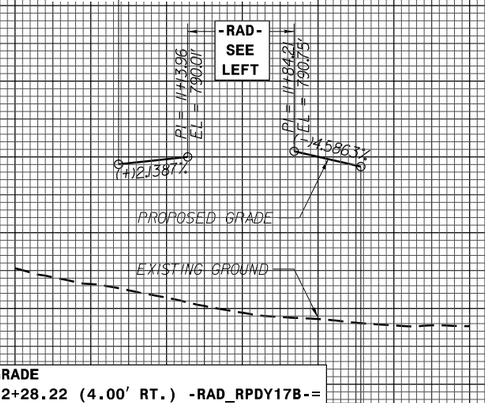
BEGIN GRADE
STA 11+50.00 (12.00′ LT.) -RAD_Y17B-=
STA 37+13.64 -EBFR-
EL. 791.67



END GRADE
STA 13+26.79 -RAD_Y17B-=
STA 83+33.32 -Y17B-
EL. 789.04

–RAD_RPDY17B–

BEGIN GRADE
STA 10+68.35 -RAD_RPDY17B-=
STA 83+33.32 -Y17B-
EL. 789.04



END GRADE
STA 12+28.22 (4.00′ RT.) -RAD_RPDY17B-=
STA 22+40.94 -RPDY17B-
EL. 788.73

SEE SHEET 12,13 FOR PLAN

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BLYTHE

PROJECT REFERENCE NO.	SHEET NO.
R-2248E	83
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

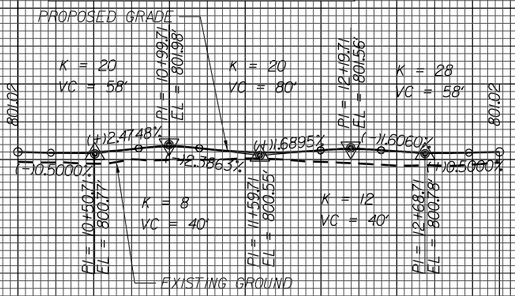
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

WilburSmith ASSOCIATES
421 Fayetteville Street
Suite 1303
Raleigh, N.C. 27601
NC Licensure F-0378

KIMLEY-HORN AND ASSOCIATES, INC.
555 JONES FRANKLIN RD., SUITE 164
RALEIGH, NORTH CAROLINA 27606

–RAE–

BEGIN GRADE
STA 10+00.00 (2.18′ LT.) -RAE-=
STA 60+31.80 -Y17-
EL. 801.02

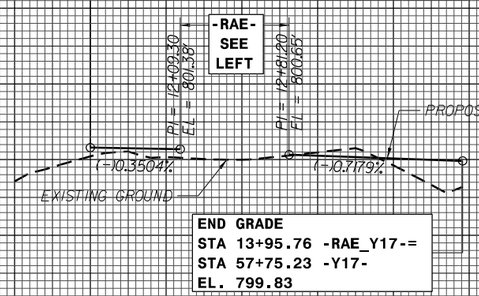


END GRADE
STA 13+17.90 (2.73′ RT.) -RAE-=
STA 60+31.83 -Y17-
EL. 801.02

SEE SHEET 12,13 FOR PLAN

–RAE_Y17–

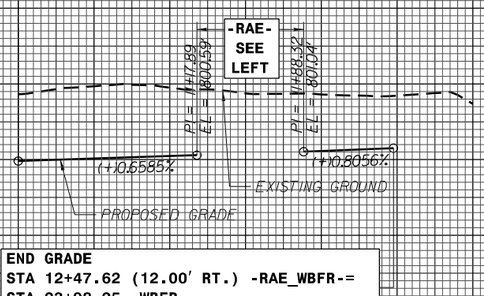
BEGIN GRADE
STA 11+50.00 (12.00′ RT.) -RAE_Y17-=
STA 26+29.58 -WBFR-
EL. 801.58



END GRADE
STA 13+95.76 -RAE_Y17-=
STA 57+75.23 -Y17-
EL. 799.83

–RAE_WBFR–

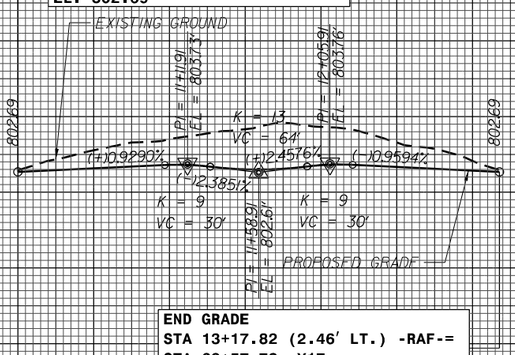
BEGIN GRADE
STA 10+00.00 -RAE_WBFR-=
STA 57+70.84 -Y17-
EL. 799.81



END GRADE
STA 12+47.62 (12.00′ RT.) -RAE_WBFR-=
STA 23+98.25 -WBFR-
EL. 801.52

–RAF–

BEGIN GRADE
STA 10+00.00 (2.46′ RT.) -RAF-=
STA 63+57.72 -Y17-
EL. 802.69

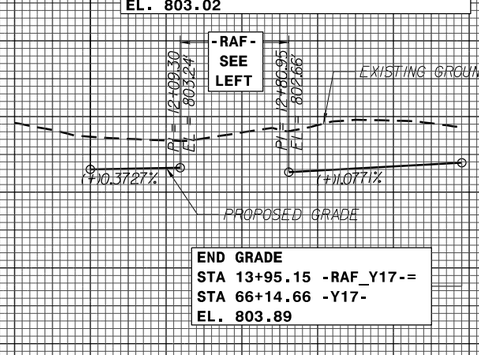


END GRADE
STA 13+17.82 (2.46′ LT.) -RAF-=
STA 63+57.72 -Y17-
EL. 802.69

SEE SHEET 12,13 FOR PLAN

–RAF_Y17–

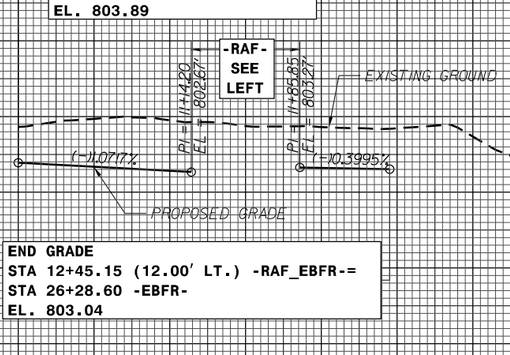
BEGIN GRADE
STA 11+50.00 (12.00′ LT.) -RAF_Y17-=
STA 23+99.65 -EBFR-
EL. 803.02



END GRADE
STA 13+95.15 -RAF_Y17-=
STA 66+14.66 -Y17-
EL. 803.89

–RAF_EBFR–

BEGIN GRADE
STA 10+00.00 -RAF_EBFR-=
STA 66+14.66 -Y17-
EL. 803.89



END GRADE
STA 12+45.15 (12.00′ LT.) -RAF_EBFR-=
STA 26+28.60 -EBFR-
EL. 803.04

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