STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

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SECRETARY

February 20, 2004

U. S. Army Corps of Engineers
6508 Falls of the Neuse Road, Suite 120
Raleigh, North Carolina 27615

ATTN: Mr. Eric Alsemeyer
NCDOT Coordinator

Dear Sir:

Subject: **Application for Section 404 and 401 Permits for Improvements to I-85 from North of SR 2120 in Rowan County to North of I-85 Business in Davidson County**, Federal Aid No. NHF-85-3(164)80, State Project No. 8.1631403, TIP Nos. I-2304AA and I-2304AB, $475.00 Debit work order 8.1631403, WBS Element 34156.1.1

The North Carolina Department of Transportation (NCDOT) proposes to make improvements to I-85 from north of SR 2120 (Long Ferry Road, Exit 81) in Rowan County to north of NC 150 in Davidson County (Section AA) and from north of NC 150 to just north of US 29-52-70/I-85 Business (Exit 87) in Davidson County (Section AB). Proposed improvements involve widening of the existing highway to eight lanes with a 46-foot median. This project lies in the Piedmont Physiographic Province in Rowan and Davidson Counties in the Yadkin-PeeDee River Basin (Hydrologic Catalog Unit 03040103). Work is scheduled to commence on Sections I-2304AA and I-2304AB of I-85 in July 2004. The application consists of this cover letter, an ENG Form 4345, 8.5- x 11-inch permit drawings, 11- x 17-inch half-size plan sheets, interagency meeting minutes, and on-site riverine wetland mitigation plan.

Purpose and Need: The purpose of this project is to provide an acceptable level of service along the subject section of I-85 through the design year of 2025. It is also the intent of the project to improve traffic flow while providing adequate access and connectivity for area residents and businesses. Improvements to this section of I-85 are needed to effectively accommodate increased traffic demand along I-85 on a regional level as well as to establish congruency among the regional system. It is also the purpose of the project to address the structural deficiencies of the bridges, pipes, and culverts along the project while maintaining traffic along I-85.

The need for the project is based on a combination of factors including reducing congestion and improving traffic flow along this section of I-85 by constructing additional travel lanes within the subject project area. Safety will also be improved with the removal and reconstruction of interchanges and service roads.

Several alternatives for I-2304AA and I-2304AB were investigated by NCDOT which are discussed in detail on pages 15 through 18 of the Environmental Assessment (EA).

Summary of Impacts: Impacts to areas that are jurisdictional under the Federal Clean Water Act due to the proposed project footprint include the following for I-2304 Section AA.

- 0.02 acre of permanent impacts to riverine wetlands (excavation and mechanized clearing)
- 1.08 acres of permanent impacts to non-riverine wetlands (fill and mechanized clearing)
- 2644 linear feet of stream
- No temporary wetland impacts
- No permanent impacts to ponds (filling or draining)

Impacts to areas that are jurisdictional under the Federal Clean Water Act due to the proposed project footprint include the following for Section I-2304AB.

- 1.03 acres of permanent impacts to riverine wetlands (fill, excavation, and mechanized clearing)
- 0.16 acre of permanent impacts to non-riverine wetlands (fill and mechanized clearing)
- 1811 linear feet of stream
- No temporary wetland impacts
- 0.003 acre of permanent impacts to ponds (filling or draining)

Summary of Mitigation: The project has been designed to avoid and minimize impacts to jurisdictional areas to the maximum extent practicable throughout the NEPA and design processes. Detailed descriptions of these actions are presented elsewhere in this application. Compensatory mitigation for the remaining impacts in I-2304 Section AA consists of the following.

- 0.02 acre of on-site riverine wetland restoration within I-2304 Section AA
- 2644 linear feet of stream will be mitigated through the use of the North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP)
- 1.08 acre of impacts to non-riverine wetlands will be mitigated through the use of EEP

Compensatory mitigation for the remaining impacts in I-2304 Section AB consists of the following.

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

NEPA DOCUMENT STATUS

The EA for this project was approved on November 11, 2000 and the Finding of no Significant Impact (FONSI) September 30, 2003. Subsequently, the approved documents were circulated to federal, state, and local agencies. Additional copies will be provided upon request.

INDEPENDENT UTILITY

The project is in compliance with 23 CFR Part 771.111(f) which lists the Federal Highway Administration (FHWA) characteristics of independent utility of a project including the following.

1. The project connects logical termini and is of sufficient length to address environmental matters on a broad scope.
2. The project is usable and a reasonable expenditure even if no additional transportation improvements are made in the area.
3. The project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

The proposed project is needed to connect projects along I-85 that are recently completed or to be completed in the near future. The southwestern terminus will tie into TIP Project I-2511CB near the town of Spencer north of SR 2120 (Exit 81 of I-85), and the northeastern terminus will tie into TIP Project I-4033 to US 29-52-70/I-85 Business (Exit 87 of I-85). The locations of the proposed project's termini have been coordinated with other programmed TIP projects in the area. The locations of the termini do not preclude the development and assessment of multiple alternates for other programmed TIP projects in the area. In this regard, the proposed project demonstrates logical termini and independent utility.

This project can stand alone as a functioning project and is designed to be compatible with other TIP projects in the area. The environmental impacts of the other projects will be fully evaluated in separate environmental documents. NCDOT has determined this project meets the criteria set forth in 23 CFR 771.111(f).

RESOURCE STATUS

Delineations: Delineations of jurisdictional wetlands and streams were completed by NCDOT biologists in November and December 1999. Guidance provided in the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) was used for determining wetland boundaries. Wetland and stream delineations were verified on September 19, 2000 by Eric Alsmeyer of the U.S. Army Corps of Engineers (USACE).

SECTION AA

As previously mentioned, jurisdictional impacts for Section AA include 0.02 acre of permanent impacts to riverine wetlands, 1.08 acres of permanent impacts to non-riverine wetlands, 2644 linear feet of stream, no temporary wetland impacts, and no permanent impacts to ponds. The following table summarizes this information. This table refers to the impact summary table on Sheet 21 of the permit drawings for I-2304 Section AA.

Table 1. Jurisdictional Impacts for I-2304AA

Site	Permanent Wetland Impacts (acres)*		Stream Impacts (linear feet)	Stream Impacts Requiring Mitigation (linear feet)	Natural Channel Design (linear feet)
	Riverine	Non-Riverine			
1	0	0	262	262	0
2	0	0	0	0	0
3	0	0	485	485	0
4	0	0	190	190	0
5	0	1.079	619	619	0
6	0	0	863	863	0
7	0	0.003	0	0	0
8	0	0	97	97	0
9	0.017	0	128	128	0
10	0	0	0	0	0
11	0	0.	0	0	0
Total	**0.02**	**1.08**	**2644**	**2644**	**0**

* -- Includes fill, excavation, and mechanized clearing.

Section AA Wetlands: Impacts to jurisdictional wetlands occur at three sites within the project area in the Yadkin-Pee Dee River Basin (Hydrologic Catalog Unit 03040103, Subbasin 03-07-04). Table 2 summarizes information for each of the wetland impact sites associated with I-2304AA. A description of each site is as follows.

Table 2. Jurisdictional Wetland Information for I-2304AA

Site	Cowardin Classification*	DEM Rating	Community Name	Impact Type **	Total Impact (acres)
5	PFO	36	Bottomland Hardwood Forest	F, M	1.079
7	PFO	36	Bottomland Hardwood Forest	F, M	0.003
9	PEM	34	Emergent Wetland	E, M	0.017
Total					**1.10**

*--P = palustrine; FO = forested; EM = emergent
**--F = fill; E = excavation; M = mechanized clearing (method III)

Palustrine Forested Wetlands (Sites 5 and 7): These wetland sites are located southeast of I-85 on the Clark Road interchange. The wetlands support a predominance of woody vegetation including basswood (*Tilia americana*), tag alder (*Alnus serrulata*), sweet-gum (*Liquidambar styraciflua*), black willow (*Salix nigra*), red maple (*Acer rubrum*), tulip tree (*Liriodendron tulipifera*), American elm (*Ulmus americana*), green ash (*Fraxinus pennslyvanica*), silky dogwood (*Cornus amomum*), sycamore (*Platanus occidentalis*), elderberry (*Sambucus canadensis*), water oak (*Quercus nigra*), Chinese privet (*Ligustrum sinense*), American holly (*Ilex americana*), muscadine (*Vitis rotundifolia*), poison ivy (*Toxicodendron radicans*), and greenbrier (*Smilax rotundifolia*). Herbaceous species such as rushes (*Juncus* spp.), sedges (*Carex* spp.), microstegium (*Microstegium vimineum*), swamp rose mallow (*Hibiscus moscheutos*), field garlic (*Allium vineale*), St-John's wort (*Hypericum* sp.), trumpet creeper

(*Campsis radicans*), climbing hempweed (*Mikania scandens*), and Japanese honeysuckle (*Lonicera japonica*) are frequently present, although they are not dominant.

Palustrine Emergent Wetland (Site 9): This wetland site is located southeast of the Clark Road interchange on Clark Road. Vegetation within this wetland consists primarily of herbaceous species including rushes, sedges, wool grass (*Scirpus cyperinus*), panic grasses (*Panicum* spp.), tearthumb (*Polygonum sagittatum*), smartweeds (*Polygonum* spp.), bushy seedbox (*Ludwigia alternifolia*), goldenrods (*Solidago* spp.), broad-leaved cattail (*Typha latifolia*), microstegium, asters (*Aster* spp.), milkweeds (*Ascepia* spp.), water horehound (*Lycopos virginicus*), jewelweed (*Impatiens capensis*), yellow jessamine (*Gelsemium sempervirens*), Japanese honeysuckle, and giant cane (*Arundinaria gigantea*). Other vegetation includes woody species such as black willow, sweet-gum, sycamore, basswood, swamp rose (*Rosa palustris*), red maple, tag alder, and blackberries (*Rubus* spp.). Standing water was present within this area at the time of the site visit.

Section AA Streams: Impacts to seven jurisdictional stream sites occur on tributaries to the Yadkin River within the Yadkin-Pee Dee River Basin (Hydrologic Catalog Unit 03040103, Subbasin 03-07-04). Table 3 summarizes the information for each of the stream impact sites associated with I-2304AA.

Table 3. Jurisdictional Stream Information for I-2304AA

Site	Station No.	Structure	Stream	DWQ Index No./Classification	Impact (linear feet)	Mitigation Required (linear feet)
1	812+00 –L-	8' x 7' RCBC	UT to Yadkin River	12-(108.5) WS-V	262	262
3	900+00 –L-	36" RCP	UT to Yadkin River	12-(108.5) WS-V	485	485
4	910+00 –L-	8" PVC	UT to Yadkin River	12-(108.5) WS-V	190	190
5	9+00 –LOOP C-	48" RCP	UT to Yadkin River	12-(108.5) WS-V	619	619
6	952+60 –L-	72"	UT to Yadkin River	12-(108.5) WS-V	863	863
8	963+00 –L-	None	UT to Yadkin River	12-(108.5) WS-V	97	97
9	50+50 –Y1-	42" RCP	UT to Yadkin River	12-(108.5) WS-V	128	128
Total					**2644**	**2644**

Unnamed Tributaries the Yadkin River: The unnamed tributaries to the Yadkin River to be impacted include perennial (Sites 1, 5, 6, 8, and 9) and intermittent streams (Sites 3, 4, and 9). The perennial streams range from 2.0 to 6.0 feet in width and 0.5 to 1.0 foot in depth with sand or sand/gravel substrates and little to good flow. The banks of the perennial streams are well-developed and very steep, and the channels are well-developed and meandering. The intermittent streams average 2.0 feet in width and 0.5 foot in depth with sandy substrates and little flow. The intermittent stream channels are distinct and meandering.

Water Quality Information: The tributaries to the Yadkin River within the project have been assigned NC Division of Water Quality (DWQ) Index No. 12-(108.5) and a best usage classification of WS-V. The WS-V classification describes waters that are protected as water supplies, generally upstream and draining to Class WS-IV waters or waters used by industry to supply their employees with drinking water or as waters formerly used as water supply. These waters are also protected for Class C uses. WS-V has no categorical restrictions on watershed development or wastewater discharges unlike other WS classifications and local governments are not required to adopt watershed protection ordinances.

The Yadkin River and its tributaries are not listed in any section of the North Carolina 2002 Section 303(d) list.

SECTION AB

As previously mentioned, jurisdictional impacts for Section AB include 1.03 acres of permanent impacts to riverine wetlands, 0.16 acre of permanent impacts to non-riverine wetlands, 1811 linear feet of stream, no temporary wetland impacts, and 0.003 acre of permanent impacts to ponds. The following tables summarize this information. This table refers to the impact summary table on Sheet 19 of the permit drawings for I-2304 Section AB.

Table 4. Jurisdictional Impacts for I-2304AB

Site	Permanent Wetland Impacts (acres)*		Stream Impacts (linear feet)	Stream Impacts Requiring Mitigation (linear feet)	Natural Channel Design (linear feet)
	Riverine	Non-Riverine			
1	0	0.052	0	0	0
2	0	0	219	219	0
3	0.171	0	216	216	0
4	0	0.107	0	0	0
5	0	0	270	270	0
6	0.063	0	0	0	0
7	0	0	272	272	0
8	0.277	0	380	380	0
9	0.039	0	395	395	0
10	0	0	59	59	0
Total	**1.03**	**0.16**	**1811**	**1811**	**0**

* -- Includes fill, excavation, and mechanized clearing.

Section AB Wetlands: Impacts to jurisdictional wetlands occur at six sites within the project area in the Yadkin-Pee Dee River Basin (Hydrologic Catalog Unit 03040103, Subbasin 03-07-04). Table 5 summarizes information for each of the wetland impact sites associated with I-2304AB. A description of each site is as follows.

Table 5. Jurisdictional Wetland Information for I-2304AB

Site	Cowardin Classification*	DEM Rating	Community Name	Impact Type **	Total Impact (acres)
1	PFO	36	Bottomland Hardwood Forest	F, M	0.052
3	PFO & PEM	47/39	Bottomland Hardwood Forest/Emergent Wetland	F, E, M	0.650
4	PEM	38	Emergent Wetland	F, M	0.107
6	PEM	37	Emergent Wetland	F, M	0.063
8	PFO	36	Bottomland Hardwood Forest	F, M	0.277
9	PFO	47	Bottomland Hardwood Forest	F	0.039
Total					**1.19**

*--P = palustrine; FO = forested; EM = emergent
**--F = fill; E = excavation; M = mechanized clearing (method III)

Palustrine Forested Wetlands (Sites 1, 3, 8, and 9): These wetland sites are just southwest of the southwesternmost interchange (Site 1) and on the Belmont Road interchange (Sites 3, 8, and 9). The wetlands support a predominance of woody vegetation, including tag alder, sweet-gum, black willow, red maple, tulip tree, American elm, green ash, silky dogwood, sycamore, elderberry, water oak, Chinese privet, American holly, muscadine, poison ivy, and greenbrier. Herbaceous species such as rushes, sedges, microstegium, swamp rose mallow, field garlic, St-John's wort, trumpet creeper, climbing hempweed, and Japanese honeysuckle are frequently present, although they are not dominant.

Palustrine Emergent Wetlands (Site 3, 4, and 6): These wetland sites are located on the Belmont Road interchange (Sites 3 and 4) and on I-85 near Sharp Road (Site 6). Vegetation within this wetland consists primarily of herbaceous species including rushes, sedges, wool grass, panic grass, tearthumb, smartweed, bushy seedbox, goldenrod, broad-leaved cattail, microstegium, aster, milkweed, water horehound, jewelweed, yellow jessamine, Japanese honeysuckle, and giant cane. Other vegetation includes woody species such as black willow, sweet-gum, swamp rose, red maple, tag alder, and blackberries. Standing water was present within this area at the time of the site visit.

Section AB Streams: Impacts to seven jurisdictional stream sites occur on tributaries to the Yadkin River within the Yadkin-Pee Dee River Basin (Hydrologic Catalog Unit 03040103, Subbasin 03-07-04). Table 6 summarizes the information for each of the stream impact sites associated with I-2304AB.

Table 6. Jurisdictional Stream Information for I-2304AB

Site	Station No.	Structure	Stream	DWQ Index No./ Classification	Impact (linear feet)	Mitigation Required (linear feet)
2	-L-1006+08R/ -L-1007+00L	42" RCP	UT to South Potts Creek	12-111 C	219	219
3	-L-1036+00/ -L-1042+70R	4@11' x 11' RCBC w/ 2@72"	South Potts Creek	12-111 C	216	216
5	-L-1075+70R/ -L-1078+70R	66" RCP	UT to South Potts Creek	12-111 C	270	270
7	-L-1021+15L/ -L-1124+05R	66" RCP	UT to North Potts Creek	12-112 C	272	272
8	-Y3REV-6+80R/ -Y3REV-6+92L and -Y3REV-7+80R/ -Y3REV-9+70R	54" RCP and 42" RCP	UT to South Potts Creek	12-111 C	380	380
9	-Y3REV-28+65L/ -Y3REV-29+35R	2@7' x 7' RCBC w/ 2' conc. sill	UT to South Potts Creek	12-111 C	395	395
10	-SRD-12+26R/ -SRD12+78L	2@7' x 6' RCBC w/ 2' conc. sill	UT to South Potts Creek	12-111 C	59	59
Total					**1811**	**1811**

South Potts Creek and Unnamed Tributaries: South Potts Creek and its tributaries will be impacted at six sites including Sites 2, 3, 5, 8, 9, and 10. Each of these stream sections are considered perennial and range from 1.0 to 3.0 feet in width and average 0.5 foot in depth. The substrate of these stream reaches varies from sand to sand/gravel to clay/gravel. Flow within these reaches is low and some erosion is present. The stream banks are well-developed and very steep, and the channels are well-developed and meandering.

Unnamed Tributary to North Potts Creek: Impacts to an unnamed tributary to North Potts Creek will occur at Site 7. This portion of the stream is considered perennial and averages 3.0 feet in

width and 0.5 foot in depth. The substrate is a mixture of sand and gravel. Some flow is present within this stream reach and a section of this reach has been impounded.

Water Quality Information: The portion of South Potts Creek and its tributaries within the project have been assigned a DWQ Index No. of 12-111 and a best usage classification of C. The portions of tributaries to North Potts Creek within the project have been assigned a DWQ Index No. of 12-112 and a best usage classification of C. The designation C refers to waters protected for secondary recreation, fishing, wildlife, fish and aquatic life propagation and survival, and agriculture. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner. There are no restrictions on watershed development or types of discharges.

South Potts Creek and its tributaries, and tributaries to North Potts Creek are not listed in any section of the North Carolina 2002 Section 303(d) list.

PROTECTED SPECIES

Plants and animals with federal classification of Endangered (E) or Threatened (T) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of February 25, 2003, the U.S. Fish and Wildlife Service (FWS) lists two federally protected species for Rowan County, and as of February 11, 2003, the FWS lists three federally protected species for Davidson County (Table 7).

Table 7. Federally Protected Species for Davidson and Rowan Counties

Scientific Name	Common Name	Status	County
Haliaeetus leucocephalus	bald eagle	Threatened *	Davidson & Rowan
Clemmys muhlenbergii	bog turtle	Threatened S/A	Davidson
Helianthus schweinitzii	Schweinitz's sunflower	Endangered	Davidson & Rowan

Endangered -- a species that is in danger of extinction throughout all or a significant portion of its range.
Threatened -- a species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
* -- denotes a species proposed for delisting.
S/A – denotes a species listed due to similarity of appearance

Bald eagle: Bald eagles typically nest in tall, living trees in conspicuous locations near open water. Suitable habitat for bald eagle does occur within the project study area at the I-85 bridge over upper High Rock Lake; therefore, surveys were conducted along the Yadkin River, including High Rock Lake, by the Center for Conservation Biology (College of William and Mary) and Alcoa Power Company. The area was flown on April 23, 2002 in a high-wing Cessna 172 aircraft at approximately 328 feet of altitude to survey for nesting eagles. No bald eagles or nests were observed within 1.0 mile of the bridge. As of August 7, 2003, no known nests are documented by the N.C. Natural Heritage Program (NHP) to occur within 1.0 mile of the bridge. Based on surveys for the bald eagle, an NHP records search, and professional judgment this project may affect, but is not likely to adversely affect bald eagle. FWS concurred with this biological conclusion in a letter dated September 12, 2003.

Bog turtle: Bog turtles are typically found in grassed fields, bogs, and marshes. Potential habitat for the bog turtle occurs within the project study area in several of the wetland areas. The bog

turtle is listed as Threatened due to its similarity of appearance [T(S/A)] to another rare species listed for protection. T (S/A) species are not subject to Section 7 consultation; therefore, a biological conclusion for this species is not required.

Schweinitz's sunflower: Schweinitz's sunflower is typically found in full sunlight or light shade in clearings and along the edges of open stands of upland woods. Habitat in the form of disturbed woodland edges with sandy clay soil is present within the boundaries of the project study area. Plant-by-plant surveys were conducted in areas of suitable habitat by NCDOT biologists on October 6, 2003 and no Schweinitz's sunflower plants were found. Based on surveys for Schweinitz's sunflower, an NHP records search, and professional judgment, this project may affect, but is not likely to adversely affect Schweinitz's sunflower.

CULTURAL RESOURCES

Archaeology: The State Historic Preservation Office (SHPO) reviewed the proposed project regarding the identification of archaeological sites. The SHPO stated in a letter that "Fort York was determined to be potentially eligible for the National Register of Historic Places under Criteria A (association with events that have made a significant contribution to the broad patterns of history) and D (likely to yield information important in prehistory or history). Further work at Fort York, which will not be adversely impacted by the proposed project, should consist of the production of a detailed map of the surface features. It is recommended that as much mapping of the site as possible be done during the survey for the final roadway design."

Historic: The project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, implemented by the Advisory Council on Historic Preservation's Regulations for compliance with Section 106, codified at 36 CFR Part 800. Section 106 requires that if a federally funded, licensed, or permitted project has an effect on a property listed on or eligible for the National Register of Historic Places, the Advisory Council on Historic Preservation will be given an opportunity to comment.

To comply with Section 106, the area of potential effect of the project was surveyed by NCDOT and reviewed with SHPO. The site was surveyed in November and December of 1998 by NCDOT staff architectural historians, and determined one structure eligible for the National Register of Historic Places. The eligible structure is Bridge Number 46, the "Wil Cox Bridge", located on US 29/70, which spans the Yadkin River at the Davidson/Rowan County line.

Due to the proposed improvement, the "Wil Cox Bridge," Bridge Number 46, which accommodates two lanes in the southbound direction, will remain in place, but will be closed to vehicular traffic. The bridge will remain in place to serve pedestrian and bicycle traffic. Since this bridge will be preserved in place, it has been determined that there will be no adverse effect.

Section 4(f) Resources: Section 4(f) of the United States Department of Transportation Act of 2966 specifies that publicly owned land from a park, recreation area, or wildlife or waterfowl refuge or land from historic resources of national, state, or local significance may be used for federal-aid projects only if there is no feasible and prudent alternative to the use of such land, or such highway program or project includes all possible planning to minimize harm to 4(f) lands resulting from such use.

The "Wil Cox Bridge," Bridge Number 46, and the Fort York property are considered 4(f) properties in the vicinity of the project. Because the "Wil Cox Bridge" will remain in place to serve pedestrian and bicycle traffic, it will not be affected by the project. Since the proposed roadway will be moved farther away from the Fort York Archaeological Site, the project will have neither direct nor indirect effects on the site.

UTILITY IMPACTS

In addition to impacts from the construction of the road, impacts often result from the need to move existing utilities. These impacts to jurisdictional areas result from activities that 'but for" the construction of the road would not have occurred. The following paragraphs describe and quantify the "but for" impacts. Occasionally a utility company will decide to upgrade a line or construct a new line near the proposed highway right-of-way. The impacts from these activities would have occurred whether or not the road project was constructed. Therefore, they do not fall under the "but for" scenario. In those cases, the utility company is responsible for obtaining any permits, and the impacts are not addressed in the highway project application. However, if the information is available to us, we will attempt to identify these non-"but for" actions so that you are kept informed about the actions that may occur near our right-of-way.

According to the NCDOT, no utility relocations will result in additional impacts to wetlands and/or buffer zones.

FEMA COMPLIANCE

According to the NCDOT hydraulics engineers, no Federal Emergency Management Agency involvement is required for this project.

ICE INFORMATION

An Indirect and Cumulative Effects (ICE) study is not proposed for this project due to the low probability of indirect and cumulative effects.

WILD AND SCENIC RIVERS

The project will not impact any Designated Wild and Scenic Rivers or any rivers included in the list of study rivers (Public Law 90-542, as amended).

ESSENTIAL FISH HABITAT

The project will not impact any Essential Fish Habitat (EFH) afforded protection under the Magnuson-Stevens Act of 1996 (16 U.S.C. 1801 *et seq.*).

MITIGATION OPTIONS

The USACE has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy that embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of the waters of the United States. Mitigation of wetland and surface water impacts has been defined by the CEQ to include: avoiding impacts, minimizing impacts, rectifying impacts,

reducing impacts over time and compensating for impacts (40 CFR 1508.20). Executive Order 11990 (Protection of Wetlands) and Department of Transportation Order 5660.1A (Preservation of the Nations Wetlands), emphasize protection of the functions and values provided by wetlands. These directives require that new construction in wetlands be avoided as much as possible and that all practicable measures are taken to minimize or mitigate impacts to wetlands.

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize wetland impacts, and to provide full compensatory mitigation of all remaining wetland impacts. Avoidance measures were taken during the planning and minimization measures were incorporated as part of the project design.

AVOIDANCE: All wetland areas not affected by the project will be protected from unnecessary encroachment.

1. No staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters.
2. Aquatic Life Movement: The project was designed to avoid disturbance to aquatic life movements.
3. I-2304AA, Sites 2 and 10: The Yadkin River will be spanned by a bridge constructed from high ground to high ground; therefore, avoiding impacts to the river and wetlands associated with the river floodplain.

MINIMIZATION: Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts. Minimization techniques implemented include the following.

1. High Quality Waters BMP: NCDOT has committed that "construction related impacts associated with the proposed action will be minimized through the use of High Quality Waters erosion and sediment control measures. All practical measures have been taken to minimize environmental harm."
2. Protection of Surface Waters BMP: In order to minimize potential impacts to water resources in the project area, NCDOT BMPs for the Protection of Surface Waters will be strictly enforced during the construction phase of the project.
3. Slopes: Fill slopes in wetlands are at a 2:1 ratio.
4. Ditching: It is the policy of the NCDOT to eliminate lateral ditching in wetlands as much as possible, thus preserving the hydrology of adjacent wetlands.
5. Median Width: The project was designed using a 46-foot median width.
6. I-2304AA, Site 1: The channel relocation right of station 809+60 to 809+90, as noted on the permit drawings (Sheet 5), is to be permitted under I-2511CB. The 24-inch reinforced concrete pipe has been redesigned to eliminate a 90-degree turn in flow.
7. I-2304AB, Site 3: A preformed scour hole was eliminated at this location, and the flow will be redirected through the 72-inch overflow pipe (Sheet 5).

COMPENSATION: The primary emphasis of the compensatory mitigation is to reestablish a condition similar to what would have existed if the project was not built. As previously stated, mitigation is limited to reasonable expenditures and practicable considerations related to highway operation. Mitigation is generally accomplished through a combination of methods designed to replace wetland functions and values lost as a result of construction of the project. These methods consist of creation of new wetlands from uplands, borrow pits, and other non-wetland areas; restoration of wetlands; and enhancement of existing wetlands. Where such

options may not be available, or when existing wetlands and wetland-surface water complexes are considered to be important resources worthy of preservation, consideration is given to preservation as at least one component of a compensatory mitigation proposal.

FHWA Step-Down Compliance: All compensatory mitigation must be in compliance with 23 CFR Part 777.9, "Mitigation of Impacts," that describes the actions that should be followed to qualify for federal-aid highway funding. This process known as the FHWA "Step Down" procedures includes the following.

1. Consideration must be given to mitigation within the right-of-way and should include the enhancement of existing wetlands and the creation of new wetlands in the highway median, borrow pit areas, interchange areas, and along the roadside.
2. Where mitigation within the right-of-way does not fully offset wetland losses, compensatory mitigation may be conducted outside the right-of-way including enhancement, creation, and preservation.

Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the United States Army Corps of Engineers, Wilmington District" (MOA), it is understood that EEP will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on June 30, 2005.

Although the subject project is not listed in Exhibit 1, the necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act are anticipated to be provided by the EEP. The offsetting mitigation will derive from an inventory of assets already in existence within the same 8-digit cataloguing unit. NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The remaining, unavoidable impacts to 1.24 acres of non-riverine wetlands and 4455 linear feet of jurisdictional streams will be offset by compensatory mitigation provided by the EEP program.

Wetland Mitigation: Wetland impacts total 1.05 acres of riverine wetland impacts and 1.24 acres of non-riverine wetland impacts. The following combination of compensatory mitigation is proposed.

1. 1.05 acres of riverine wetland restoration within Site 2 of I-2304AA.
2. 1.24 acres of non-riverine wetland will be mitigated through the use of EEP.

Stream Mitigation: Stream impacts total 4455 linear feet of intermittent and perennial streams. Compensatory mitigation will be provided through the use of EEP for 4455 linear feet of stream impacts.

REGULATORY APPROVALS

Application is hereby made for a USACE Individual 404 Permit and a 401 Water Quality Certification from DWQ as required for the activities described above. In compliance with Section 143-215.3D(e) of the NCAC, we will provide $475.00 to act as payment for processing the Section 401 Water Quality Certification previously noted in this application (see Subject line). Seven copies of this application are provided to the DWQ for review.

If you have any questions or need additional information please call Matt Haney at (919) 715-1428.

Sincerely,

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

cc: Mr. David Franklin, USACE, Wilmington
Mr. John Dorney, NCDWQ (7 copies)
Ms. Marla Chambers, NCWRC
Ms. Becky Fox, USEPA
Ms. Marella Buncick, USFWS
Mr. John F. Sullivan III, FHWA
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. S.P. Ivey, P.E. (Div. 9), Division Engineer
Ms. Diane Hampton, P.E. (Div. 9), Division Environmental Officer

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT (33 CFR 325)	OMB APPROVAL NO. 071-0003 Expires December 31, 2004

The public reporting burden for this collection of information is estimated to average 10 hours per response, although the majority of applications should require 5 hours or less. This includes time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Service Directorate of Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies. Submission of requested information is voluntary, however, if information is not provided, the permit application cannot be processed nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4.DATE APPLICATION COMPLETED

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT=S NAME Gregory J. Thorpe, Ph.D., Environmental Management Director Project Development and Environmental Analysis North Carolina Department of Transportation	8. AUTHORIZED AGENT=S NAME AND TITLE (an agent is not required) Not applicable
6.APPLICANT=S ADDRESS 1548 Mail Service Center Raleigh, North Carolina 27699-1548	9. AGENT=S ADDRESS
7. APPLICANT=S PHONE NOS. WITH AREA CODE a. Residence b. Business (919) 733-3141	10. AGENTS PHONE NOS. WITH AREA CODE a. Residence b. Business

11. STATEMENT OF AUTHORIZATION

I hereby authorize, ---------- to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

APPLICANT=S SIGNATURE	DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE(*see instructions*)
Improvements to I-85 from north of SR 2120 (Long Ferry Road, Exit 81) in Rowan County to north of NC 150 in Davidson County (Section AA) and from north of NC 150 to just north of US 29-52-70/I-85 Business (Exit 87) in Davidson County (Section AB). Proposed improvements involve widening of the existing highway to eight lanes with a 46-foot median. Federal Aid No. NHF-85-3(164)80, State Project No. 8.1631403, TIP Nos. I-2403AA and I-2403AB

13. NAME OF WATERBODY, IF KNOWN (*if applicable*) South Potts Creek and it's tributaries, tributaries to North Potts Creek, and tributaries to the Yadkin River	14. PROJECT STREET ADDRESS (*if applicable*) NA
LOCATION OF PROJECT **Rowan and Davidson** (COUNTIES) **NC** (STATE)	

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (*see instructions*)
See the November 1990 Environmental Assessment (EA) and September 2003 Finding of No Significant Impact (FONSI).

17. DIRECTIONS TO THE SITE
See the attached permit drawings and half size plan sheets.

18. Nature of Activity (*Description of project, include all features*)
The North Carolina Department of Transportation proposes to improve and widen I-85 from north of SR 2120 (Long Ferry Road, Exit 81) in Rowan County to north c NC 150 in Davidson County (Section AA) and from north of NC 150 to just north of US 29-52-70/I-85 Business (Exit 87) in Davidson County (Section AB). Improvement involve the widening of the existing I-85 to an 8-lane facility, 4 lanes in each direction separated by a 46-foot median.

19. Project Purpose (*Describe the reason or purpose of the project, see instructions*)
To make improvements to I-85, a public highway facility, for public safety and transportation. The purpose and need are briefly explained in the permit application cover letter and are explained in detail in the November 1990 Environmental Assessment (EA) and the September 2003 Finding of no Significant Impact (FONSI).

USE BLOCKS 20-22 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge
Proposed improvements and widening of I-85 from north of SR 2120 (Long Ferry Road, Exit 81) in Rowan County to north of NC 150 in Davidson County (Section AA) and from north of NC 150 to just north of US 29-52-70/I-85 Business (Exit 87) in Davidson County (Section AB. Improvements involve the widening of the existing I-85 to an 8-lane facility, 4 lanes in each direction separated by a 46-foot median.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards
See the attached permit drawings.

22. Surface Area in Acres of Wetlands or Other Waters Filled (*see instructions*)
See sheet 21 of the attached permit drawings for Section AA and sheet 19 of the attached permit drawings for Section AB.

23. Is Any Portion of the Work Already Complete? YES___ NO _X_ IF YES, DESCRIBE THE COMPLETED WORK

24. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).
See sheets 20 of the attached permit drawings for Section AA and sheets 20 and 21 of the attached permit drawings for Section AB.

25. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

Agency	Type approval*	Identification number	Date applied	Date approved	Date Denied
Not Applicable					

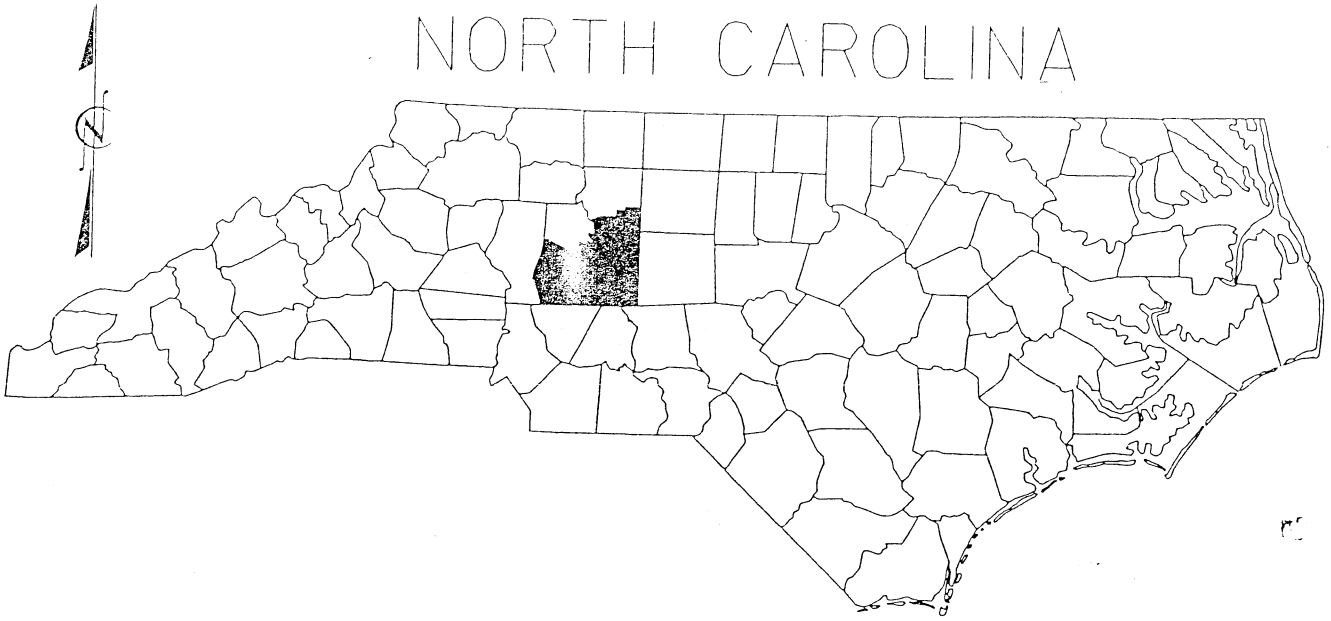
*Would include but is not restricted to zoning, building, and flood plain permits.

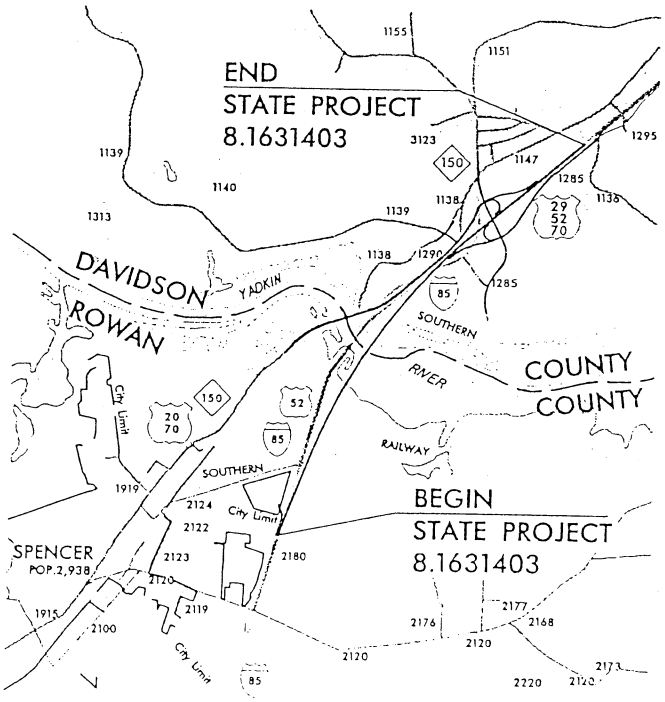
26. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information is this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT	DATE	SIGNATURE OF AGENT	DATE
	2/16/04		

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manor within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statements of entry, shall be fines not more than $10,000 or imprisoned not more than five years or both.





VICINITY MAPS

NCDOT

DIVISION OF HIGHWAYS

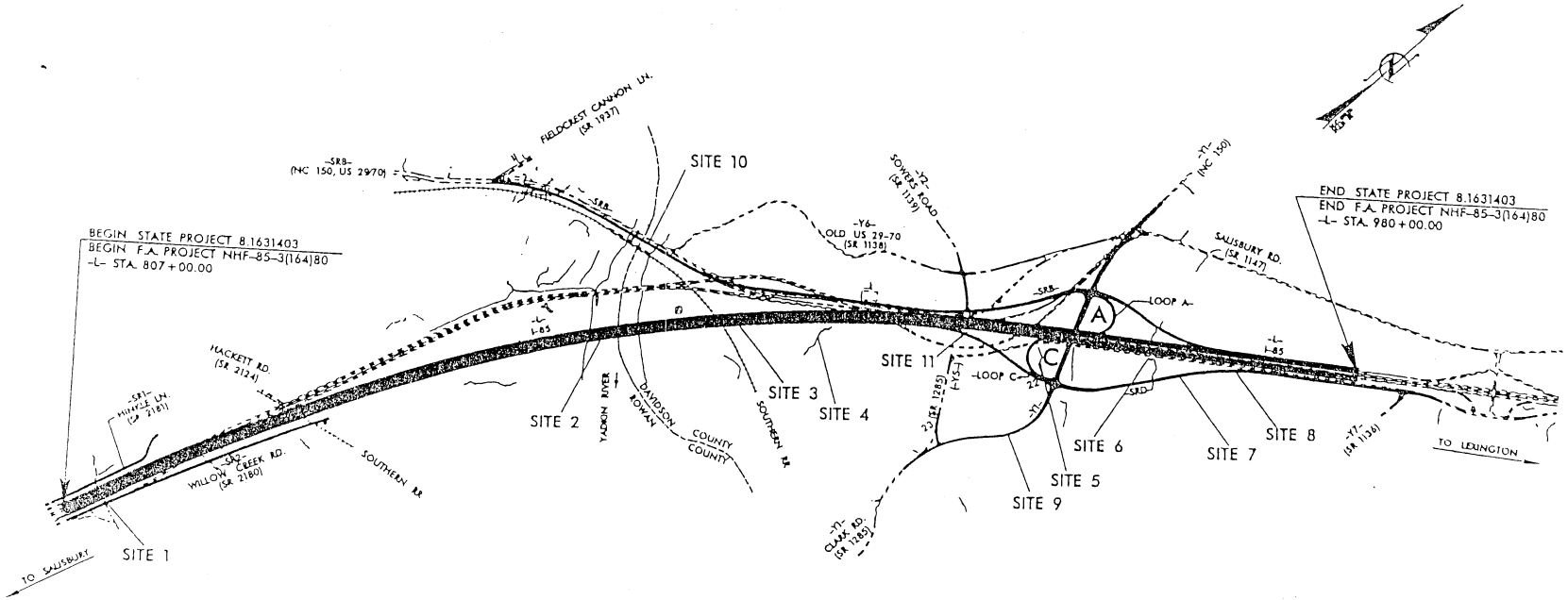
DAVIDSON / ROWAN

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET OF 21

5/7/03



SITE MAP

NCDOT

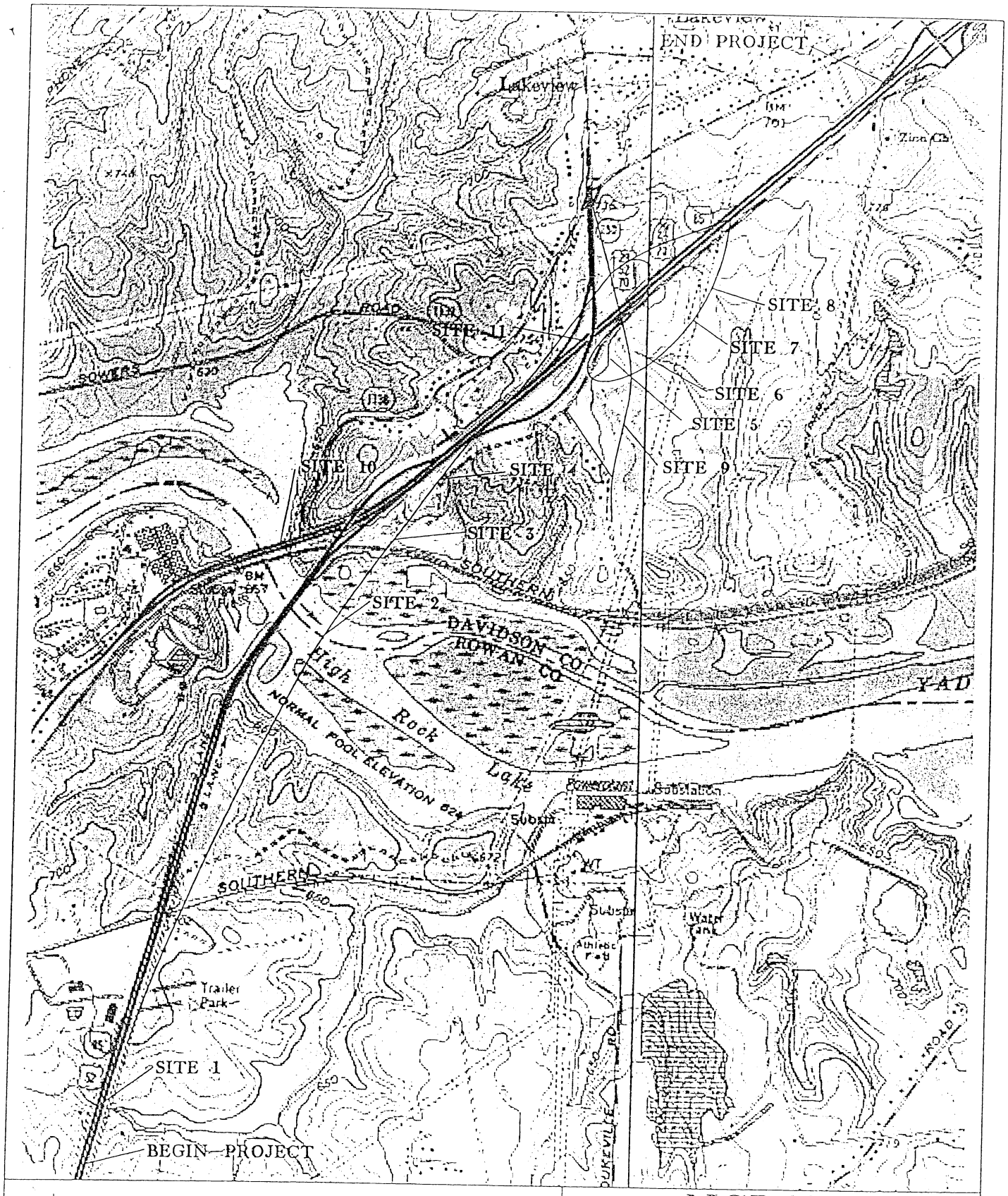
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 2 OF 21

5/8/03



TOPO MAP

SCALE 1" = 2000'

NCDOT

DIVISION OF HIGHWAYS

DAVIDSON / ROWAN COUNTY

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 3 OF 21

5/7/02

WETLAND LEGEND

WLB — WETLAND BOUNDARY

WLB WLB — WETLAND

F F — DENOTES FILL IN WETLAND

S S — DENOTES FILL IN SURFACE WATER

P P — DENOTES FILL IN SURFACE WATER (POND)

T T — DENOTES TEMPORARY FILL IN WETLAND

E E — DENOTES EXCAVATION IN WETLAND

TS TS — DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

FLOW DIRECTION

TB — TOP OF BANK

WE — EDGE OF WATER

C — PROP. LIMIT OF CUT

F — PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG — NATURAL GROUND

PL — PROPERTY LINE

TDE — TEMP. DRAINAGE EASEMENT

PDE — PERMANENT DRAINAGE EASEMENT

EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

EPB — EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

CORE FIBER ROLLS

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT

12"-48" PIPES

54" PIPES & ABOVE

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 — ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

PREFORMED SCOUR HOLE

LEVEL SPREADER (LS)

DITCH / GRASS SWALE

NCDOT

DIVISION OF HIGHWAYS

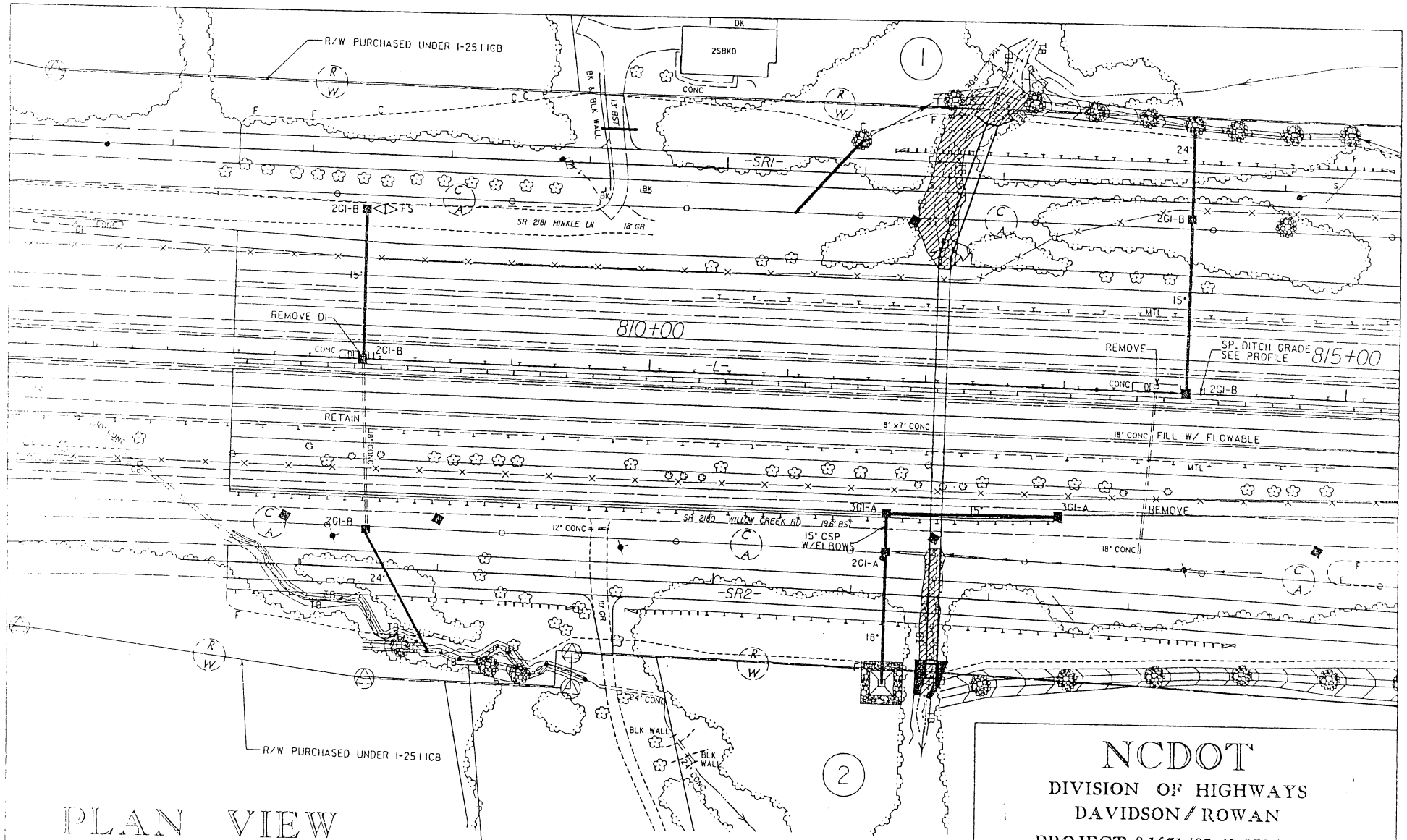
DAVIDSON / ROWAN COUNTY

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 4 OF 21

5/7/03



PLAN VIEW STREAM IMPACTS SITE 1

SCALE 1" = 100'

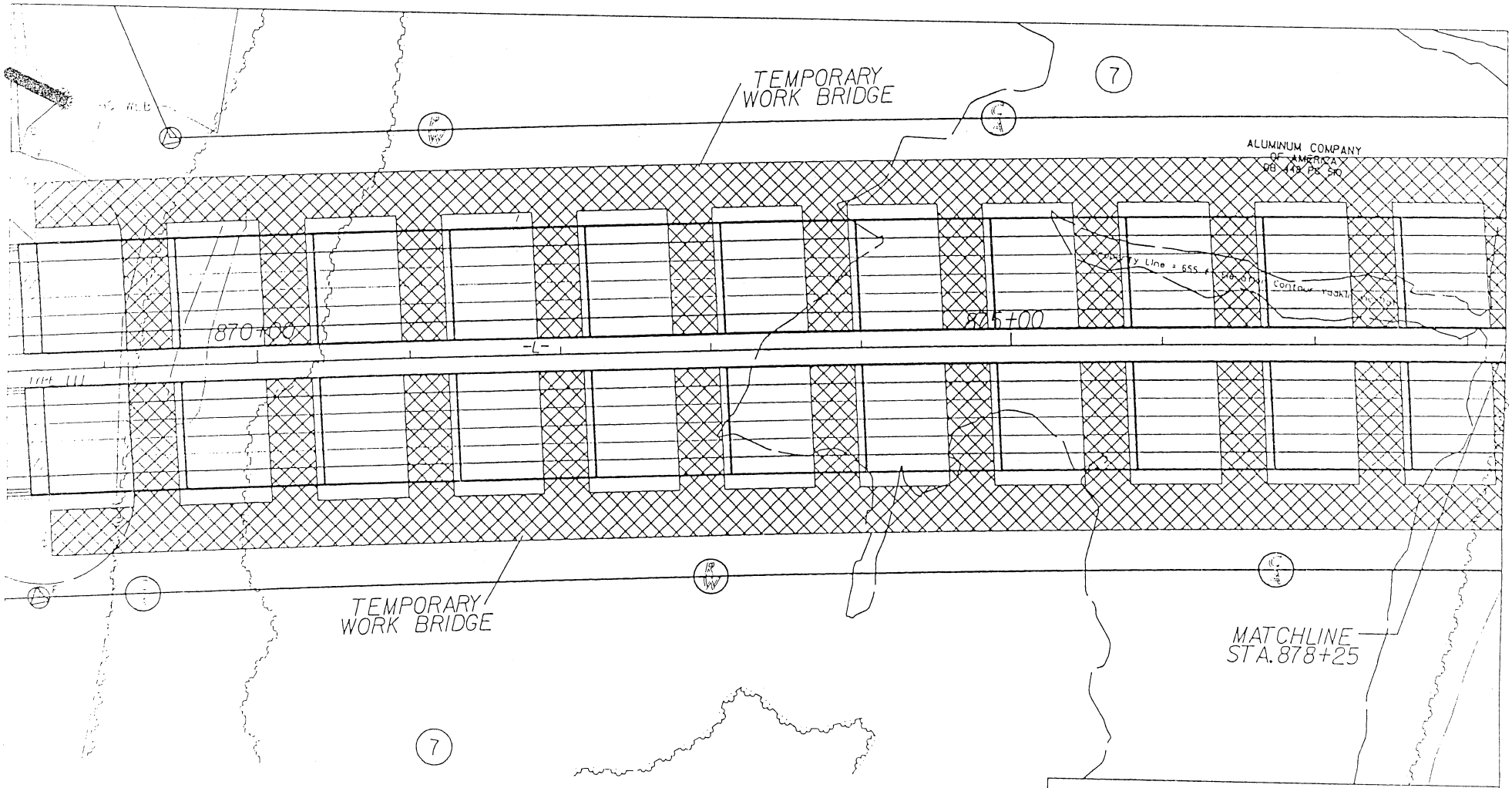
NCDOT
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 5 OF 21

6 / 25 / 03



PLAN VIEW STREAM IMPACTS SITE 2

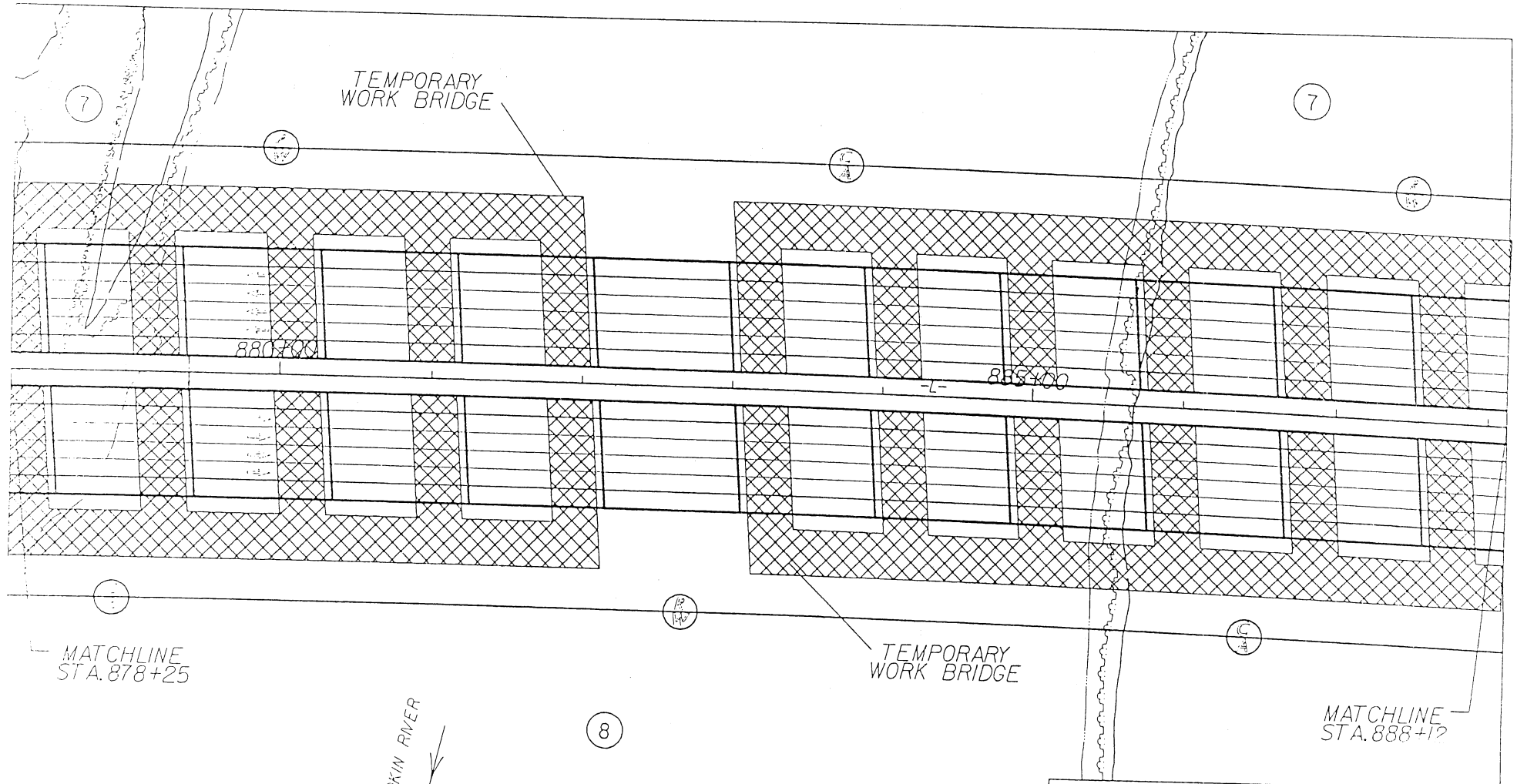
SCALE 1" = 100'

NCDOT
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN
PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 6 OF 21

8/30/02



PLAN VIEW STREAM IMPACTS SITE 2

NAD 83

SCALE 1" = 100'

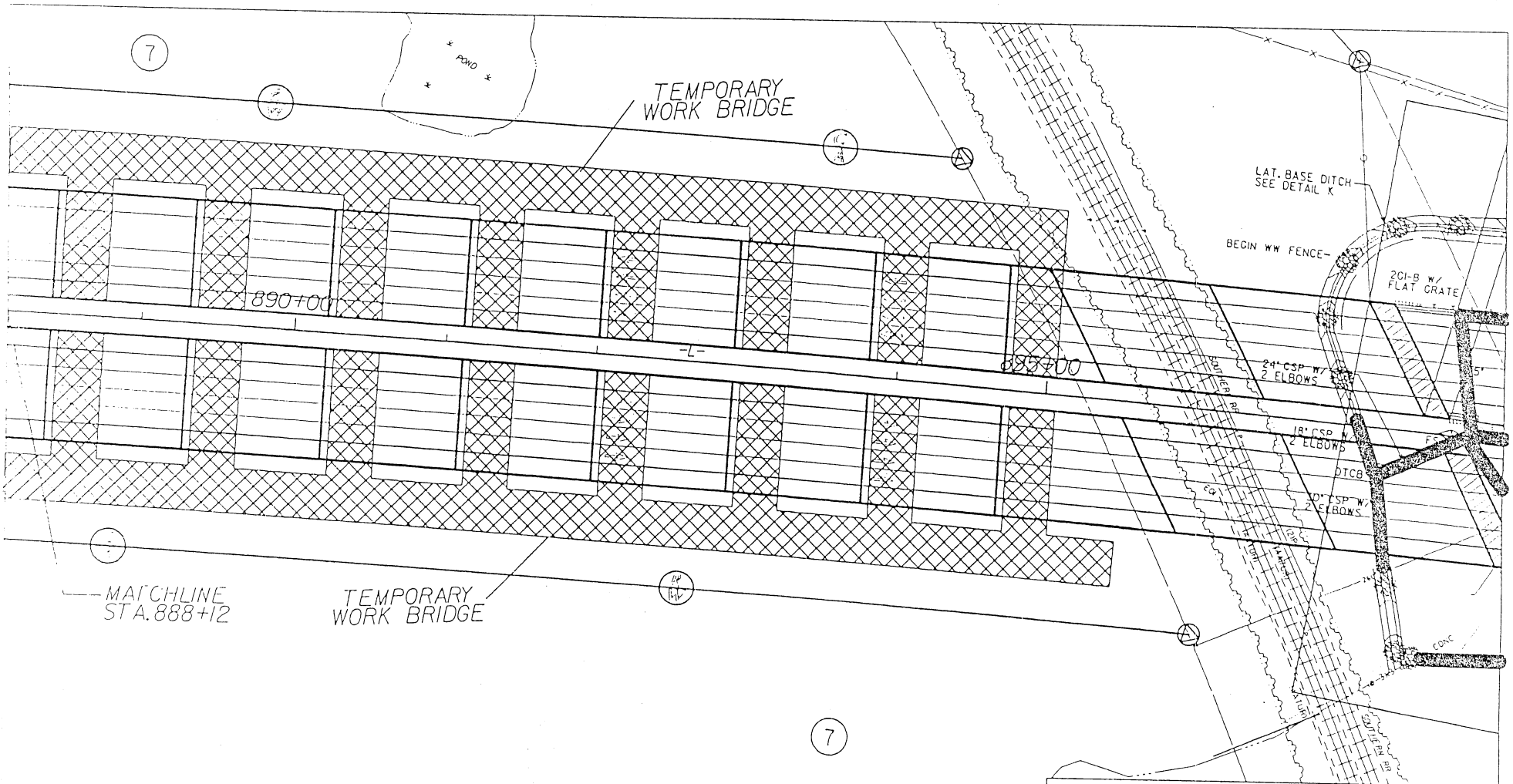
NCDOT
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 7 OF 8

8/30/02



PLAN VIEW STREAM IMPACTS SITE 2

NAD 83

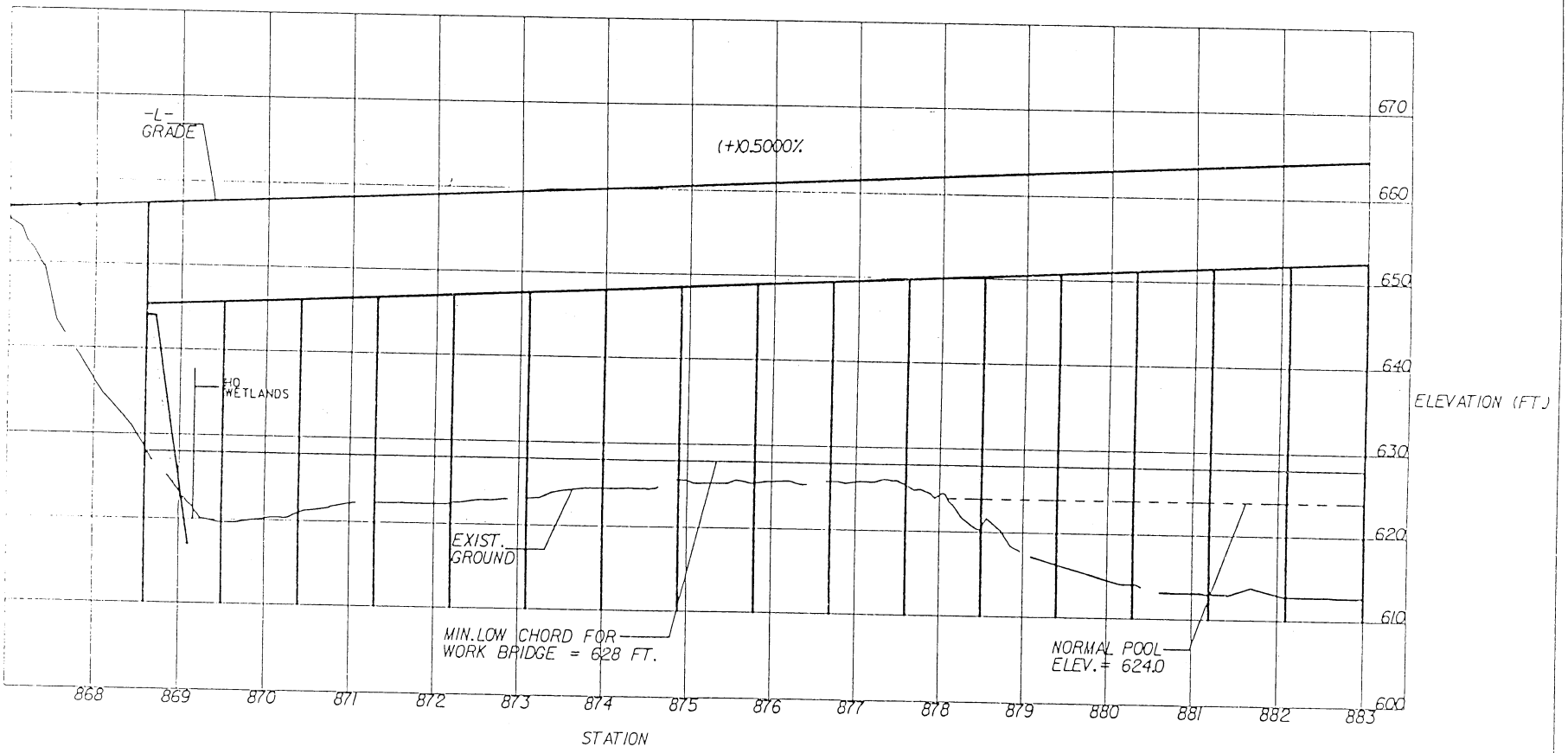
SCALE 1" = 100'

NCDOT
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN
PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 8 OF 21

8/30/02



PROFILE VIEW
SITE 2

SCALE 1" = 200' HORIZONTAL
1" = 20' VERTICAL

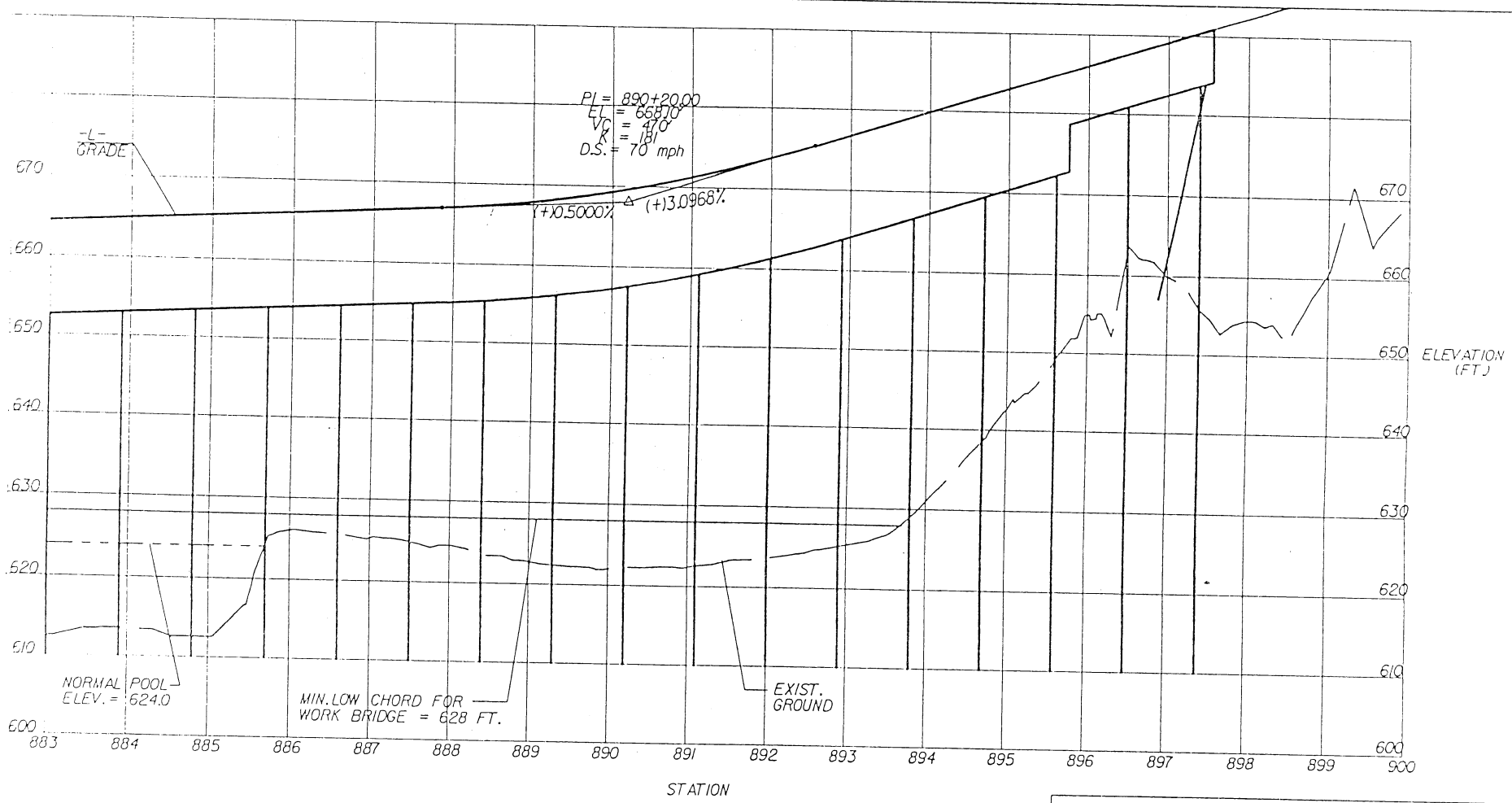
NCDOT
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 9 OF 21

5/7/03



PROFILE VIEW
SITE 2

SCALE 1" = 200' HORIZONTAL
1" = 20' VERTICAL

NCDOT

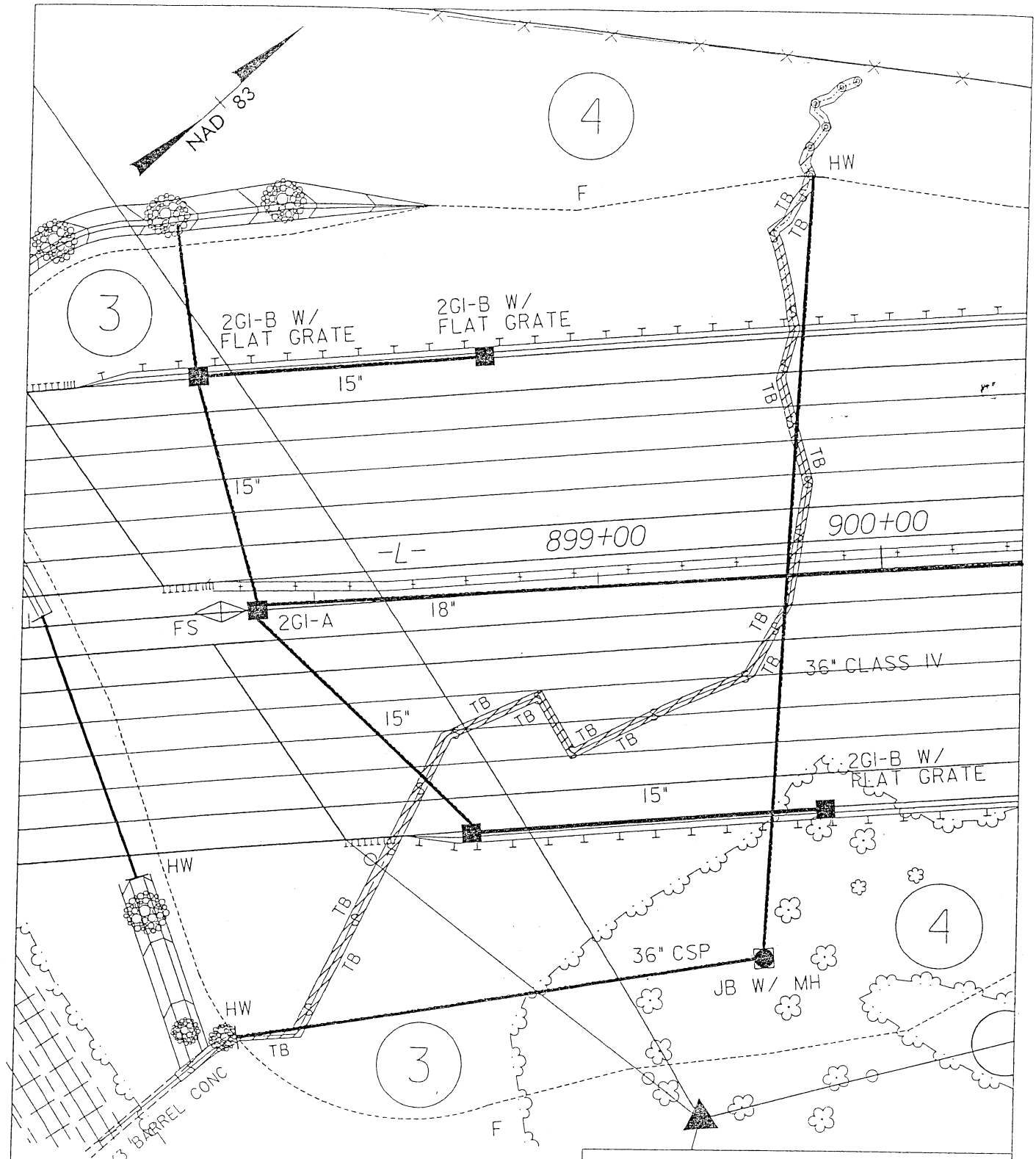
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 10 OF 21

5/7/03



PLAN VIEW
STREAM
IMPACTS
SITE 5
SCALE 1" = 50'

NCDOT

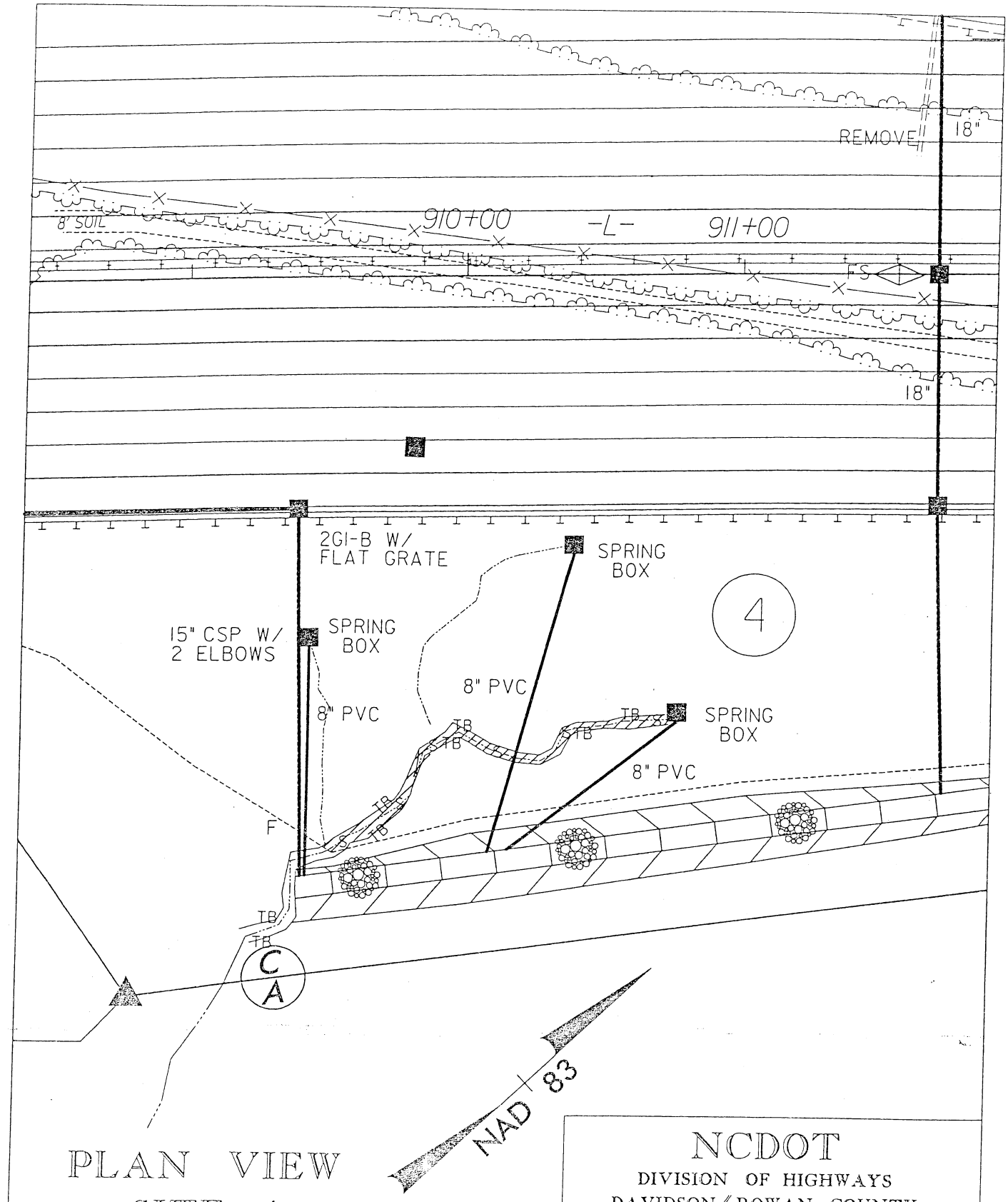
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 11 OF 21

6 / 25 / 03



PLAN VIEW
SITE 4
STREAM
IMPACTS
SCALE 1" = 50'

NCDOT

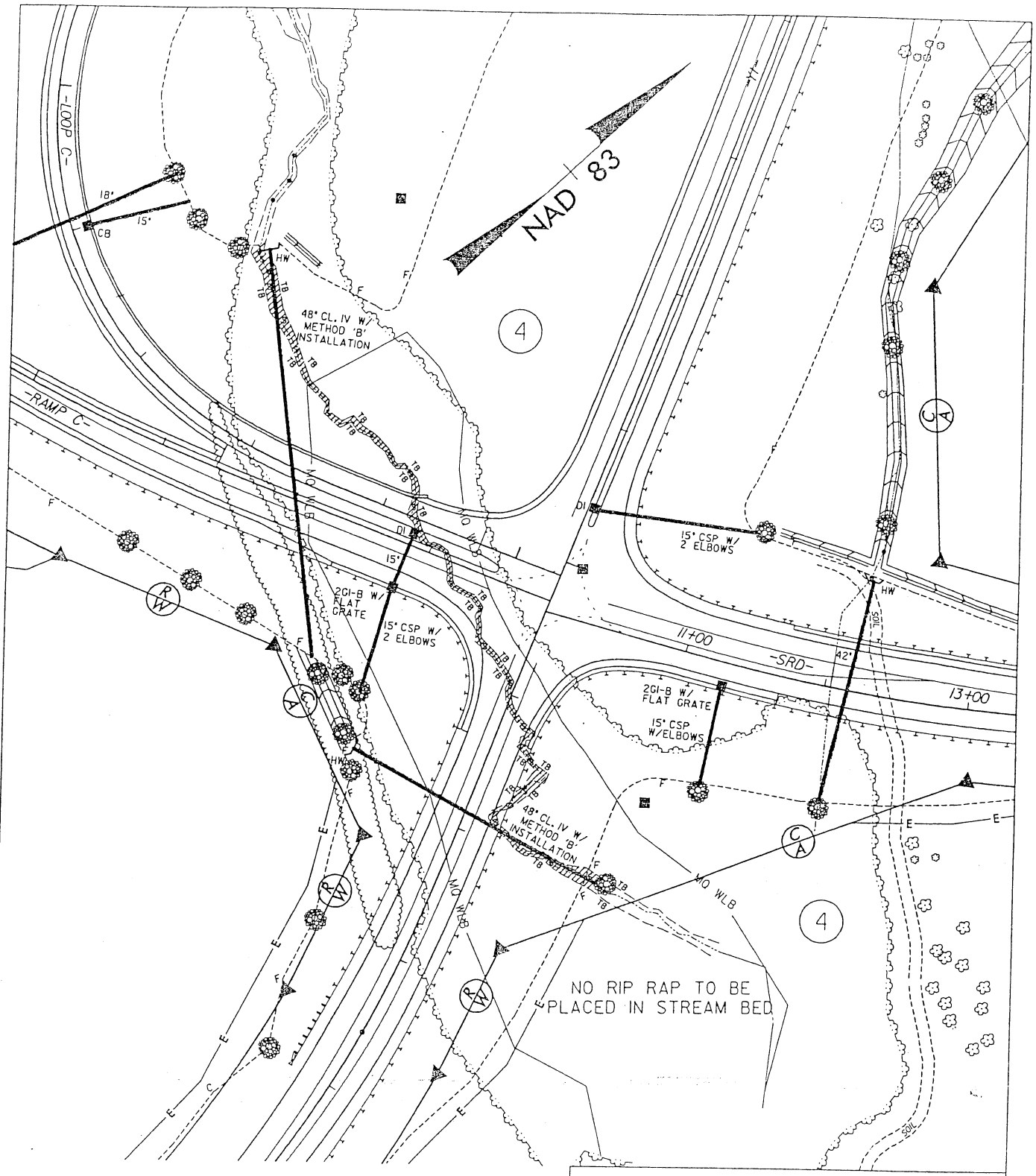
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN COUNTY

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET OF

10 / 3 / 03



PLAN VIEW STREAM IMPACTS SITE 5

SCALE 1" = 100'

NCDOT

DIVISION OF HIGHWAYS

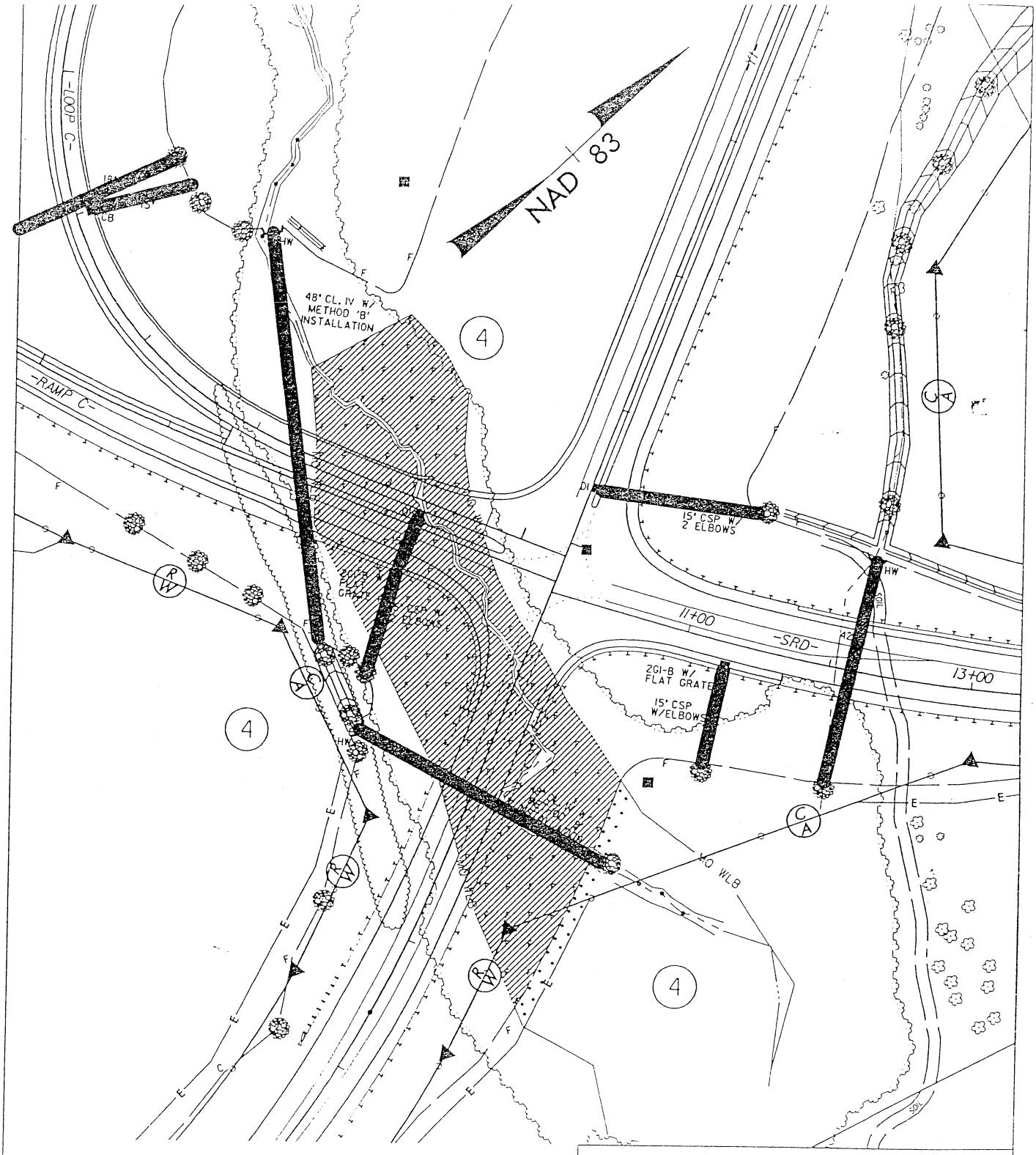
DAVIDSON / ROWAN COUNTY

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 12 OF

10 / 3 / 03



PLAN VIEW WETLAND IMPACTS SITE 5

SCALE 1" = 100'

NCDOT

DIVISION OF HIGHWAYS

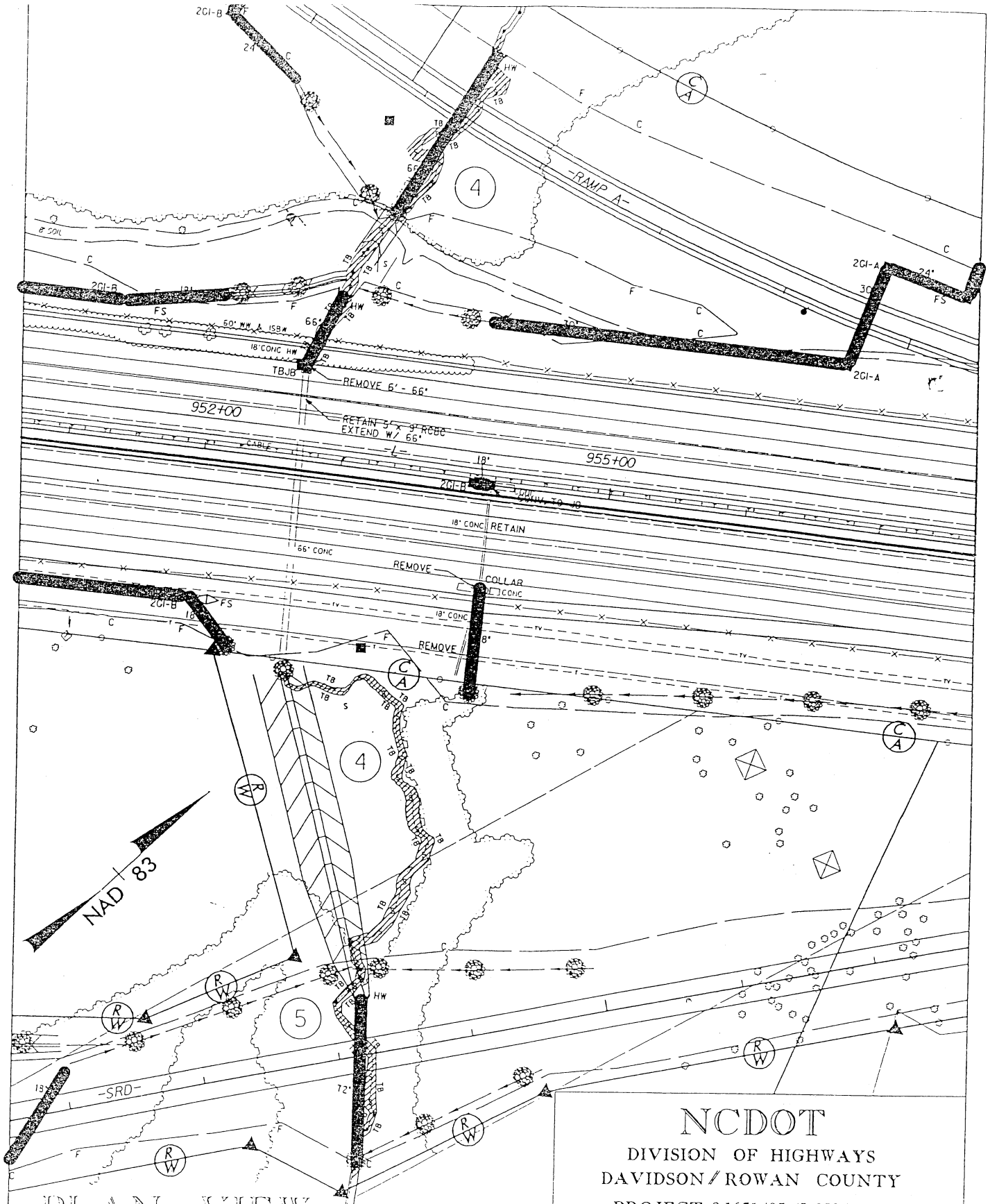
DAVIDSON / ROWAN COUNTY

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 11 OF 21

5/7/03



PLAN VIEW
STREAM IMPACTS
SITE 6

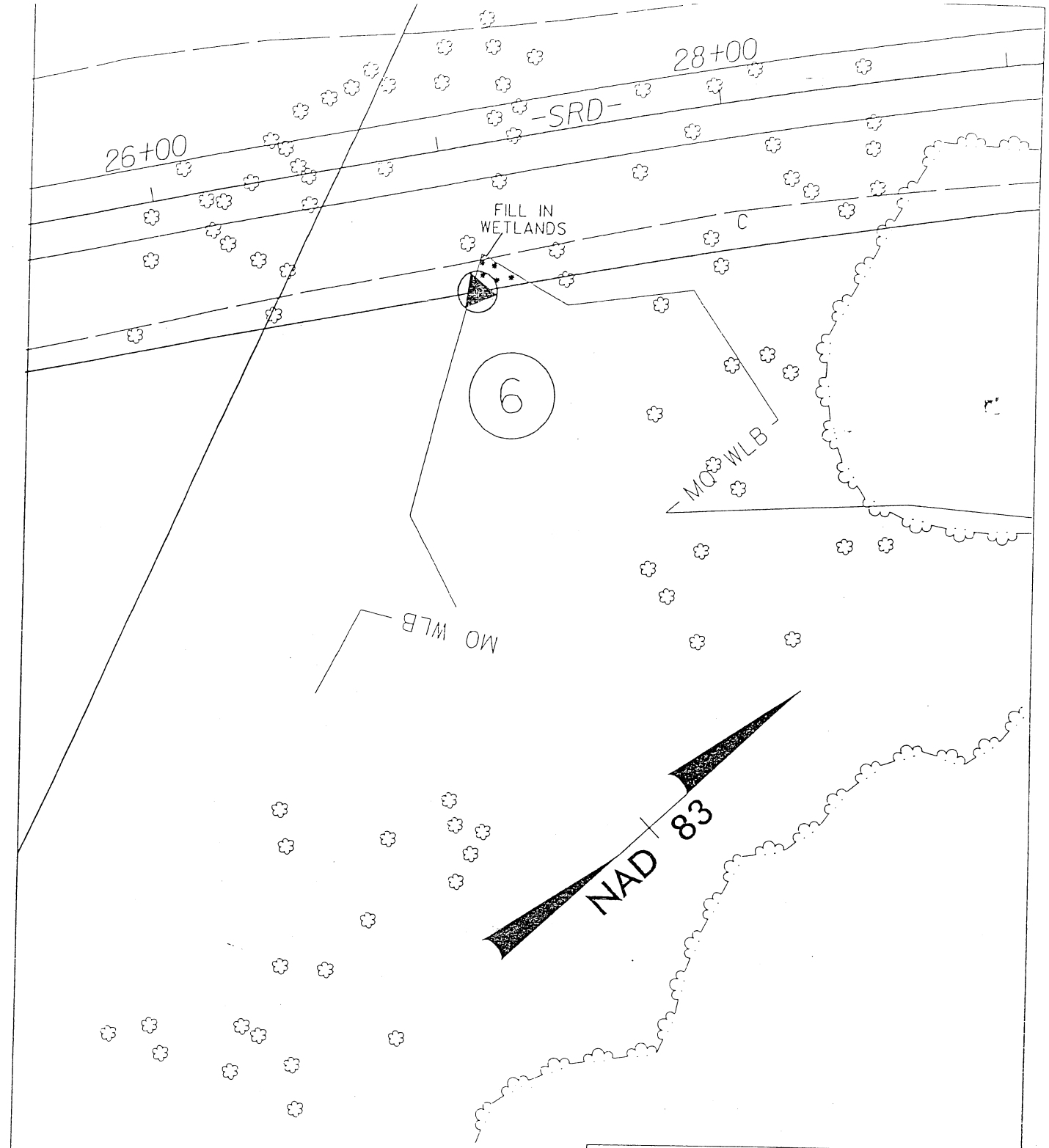
SCALE
1" = 100'

NCDOT
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN COUNTY
PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 15 OF 21

5/7/05



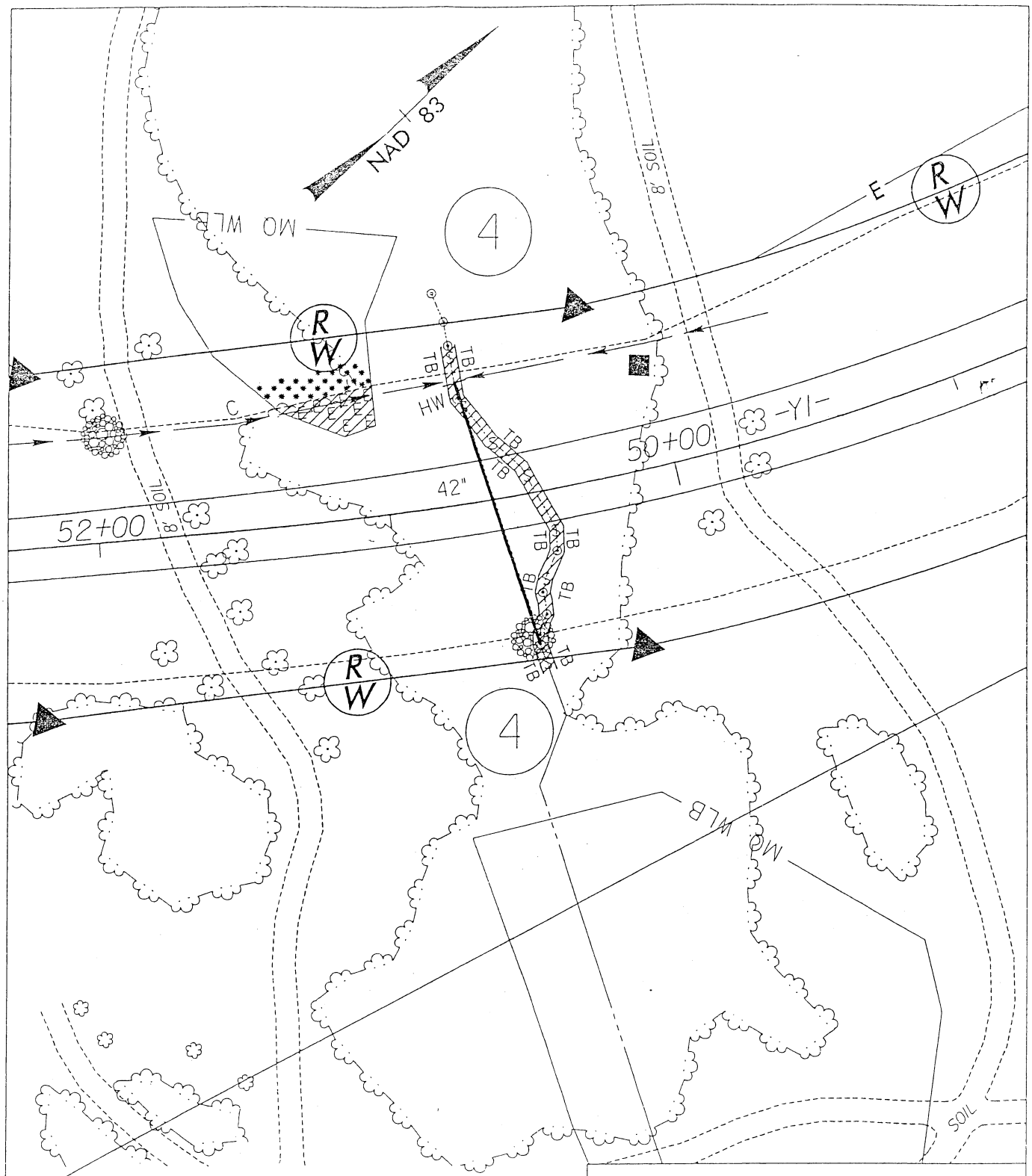
PLAN VIEW
WETLAND
IMPACTS
SITE 7
SCALE 1" = 50'

NCDOT
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN COUNTY
PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 16 OF 24

5/7/03

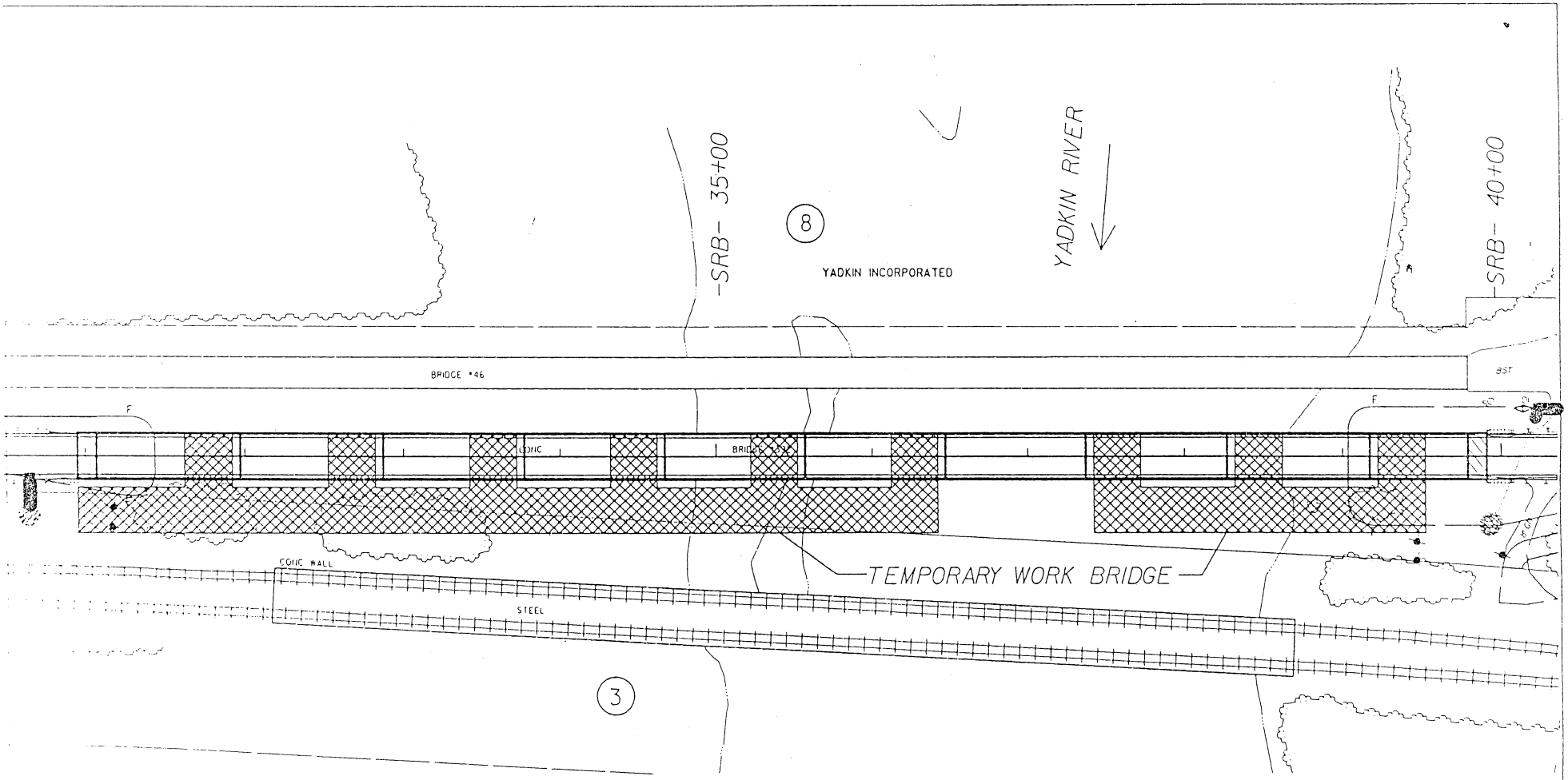


PLAN VIEW
STREAM & WETLAND IMPACTS
SITE 9
SCALE 1" = 50'

NCDOT
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN
PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 1 OF 21 6/25/03



PLAN VIEW
STREAM
IMPACTS
SITE 10

NAD 83

SCALE 1" = 100'

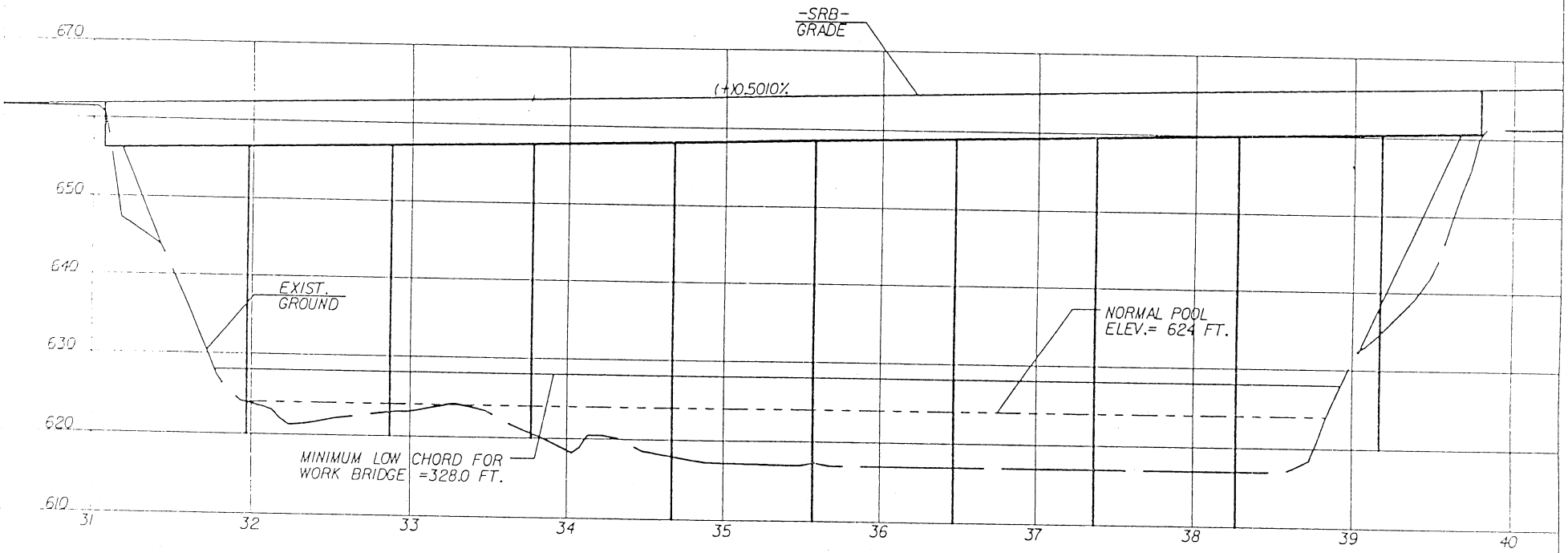
NCDOT
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 13 OF 21

5/7/03



PROFILE VIEW
SITE 10

SCALE 1" = 100' HORIZONTAL
1" = 20' VERTICAL

NCDOT
DIVISION OF HIGHWAYS
DAVIDSON / ROWAN
PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

SHEET 19 OF 21

5/7/03

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	HINKLE, PAUL P.	455 HINKLE LANE SALISBURY, NC 28144-8555
2	HINKLE, JR., HOLLIS L.	655 HACKETT ST. SALISBURY, NC 28144-7769
3	SOUTHERN RAIL CO.	8 NORTH JEFFERSON ST. ROANOKE, VA 24042
4	GRUBB, ROBERT L.	P.O. BOX 388 HIGH POINT, NC 27260
5	DUKE POWER COMPANY	P.O. BOX 1090 CHARLOTTE, NC 28201-1090
6	FALCON DEVELOPMENT GROUP INC.	1329 SOUTH MAIN ST. SALISBURY, NC 28144
7	ALUMINUM COMPANY OF AMERICA	P.O. BOX 688 BADIN, NC 28009
8	YADKIN INCORPORATED	P.O. BOX 688 BADIN, NC 28009

NCDOT

DIVISION OF HIGHWAYS

DAVIDSON / ROWAN COUNTY

PROJECT: 8.1631403 (I-2304AA)

I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

3 7 05

WETLANDS IMPACT PERMIT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	812+00 -L-	8' X 7' RCBC					0.1129			262	
2	868+60 TO 897+27 -L-	BRIDGE									
3	900+00 -L-	36" RCP					0.0378			485	
4	910+00 -L-	8" PVC					0.0138			190	
5	9+00 -LOOP C-	48" RCP					0.0705			619	
5	9+00 -LOOP C-		1.0385			0.0404					
6	952+60 -L-	72"					0.1343			863	
7	27+00 -SRD-		0.000086			0.0027					
8	963+00 -L-						0.0075			97	
9	50+50 -Y1-	42" RCP			0.0077	0.0088	0.0146			128	
10	31+07 TO 39+79 -SRB-	BRIDGE									
11	1+00 -RAMP C-										
TOTALS:			1.04	0.00	0.01	0.05	0.39	0.00	0.00	2644	0.00

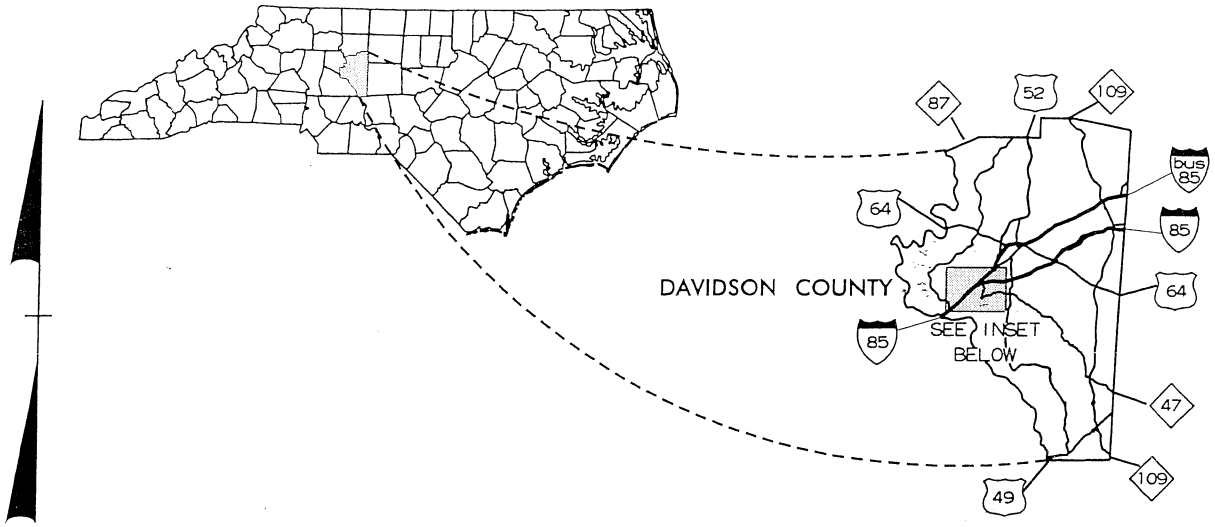
Form Revised 3/22/01

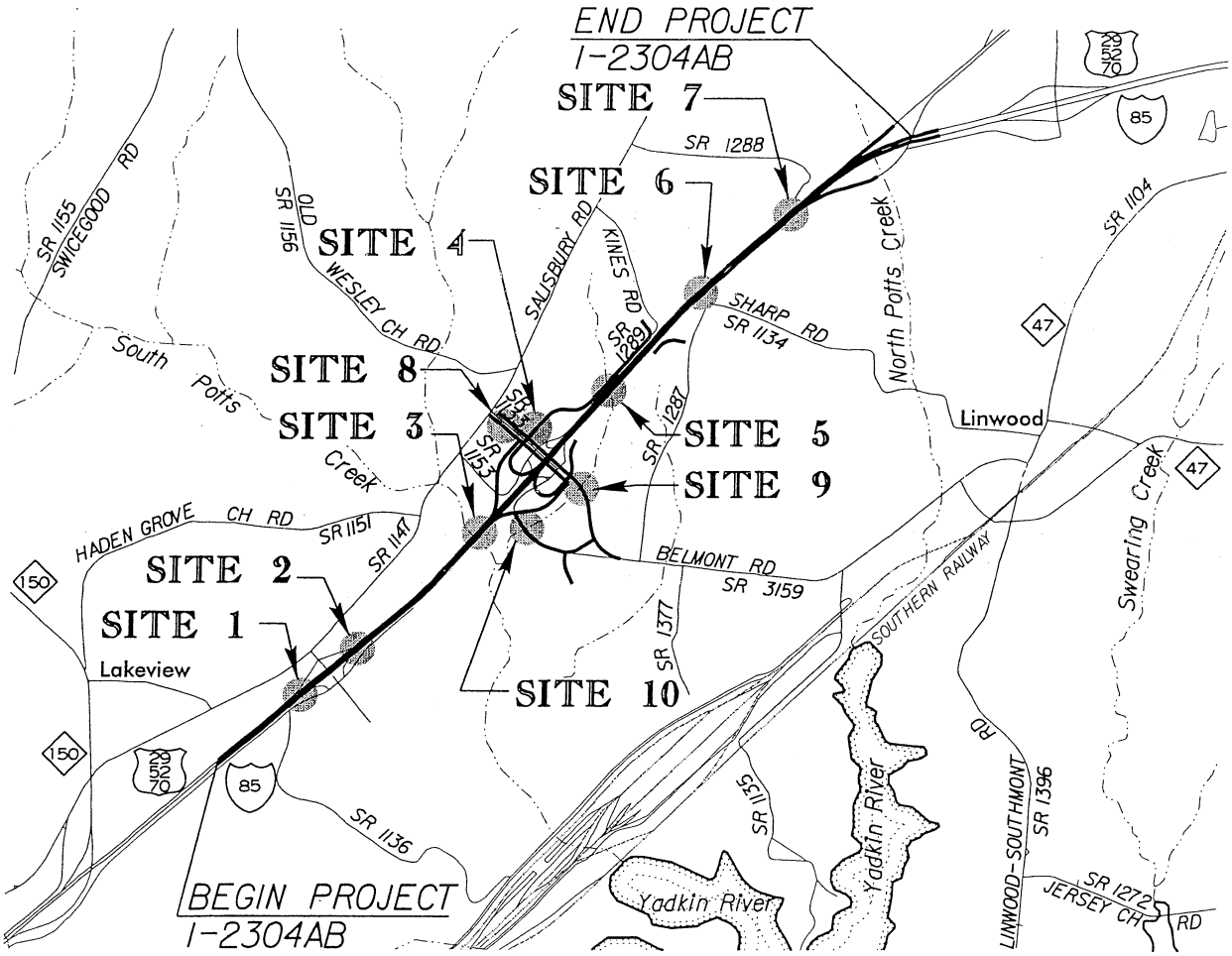
NCDOT

DIVISION OF HIGHWAYS
DAVIDSON/ ROWAN COUNTY
PROJECT 8.1631403 (I-2304AA)
I-85 FROM NORTH OF SR 2120 IN
ROWAN COUNTY TO NORTH OF
NC 150 IN DAVIDSON COUNTY

SHEET 21 OF 21

10/3/2003





SCALE

.5 0 1 Mile

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH
OF NC 150 TO JUST NORTH
OF I-85 BUSINESS

SHEET 1 OF 6 02/24/03

LEGEND

--- WLB ---- WETLAND BOUNDARY

WLB WETLAND WLB

F F DENOTES FILL IN WETLAND

S S DENOTES FILL IN SURFACE WATER

P P DENOTES FILL IN SURFACE WATER (POND)

T T DENOTES TEMPORARY FILL IN WETLAND

E E DENOTES EXCAVATION IN WETLAND

TS TS DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES MECHANIZED CLEARING

— BZ — RIPARIAN BUFFER ZONE

FLOW DIRECTION

TB TOP OF BANK

WE EDGE OF WATER

C PROP. LIMIT OF CUT

F PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

— NG — NATURAL GROUND

PL PROPERTY LINE

— TDE — TEMP. DRAINAGE EASEMENT

— PDE — PERMANENT DRAINAGE EASEMENT

— EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

— EPB — EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

X X X X LIVE STAKES

BOULDER

COIR FIBER ROLLS

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

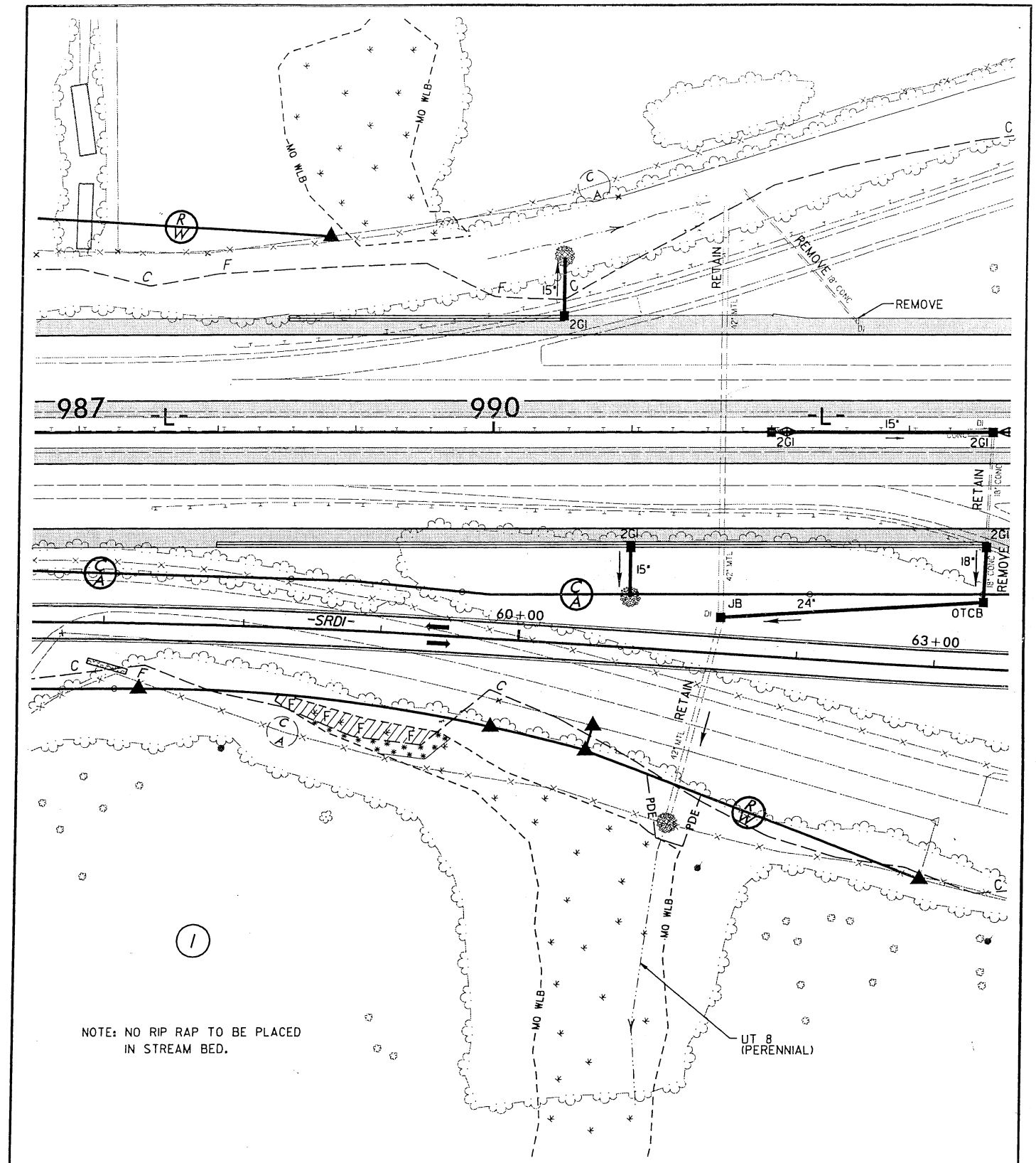
RIP RAP ENERGY DISSIPATOR BASIN

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORHT OF NC 150 TO JUST NORTH OF I-85 BUSINESS

SHEET 2 OF 2 2/24/03



NOTE: NO RIP RAP TO BE PLACED IN STREAM BED.

PLAN VIEW
SITE 1

50 0 100

DENOTES MECHANIZED CLEARING

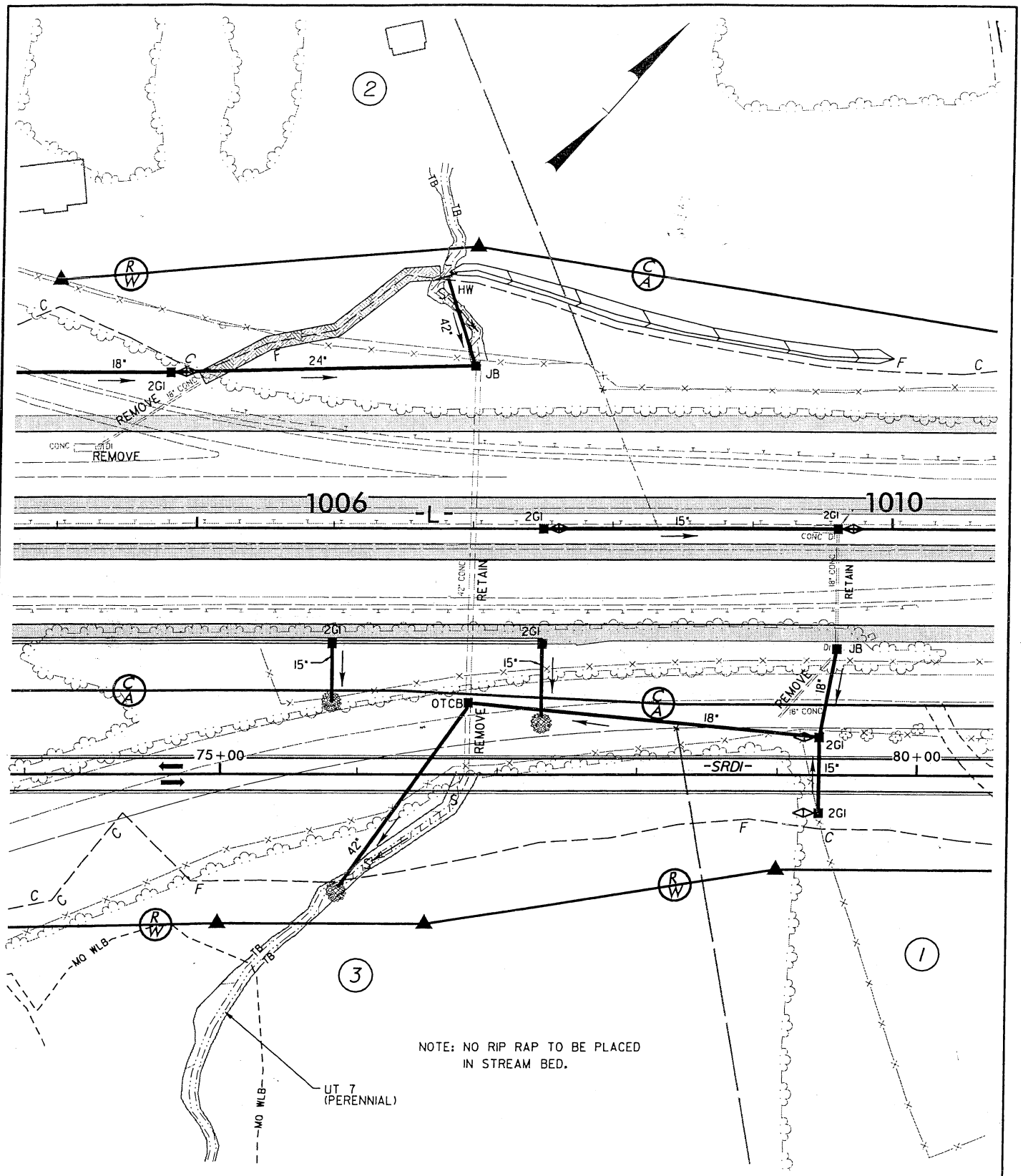
DENOTES FILL IN WETLANDS

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH OF NC 150 TO JUST NORTH OF I-85 BUSINESS

SHEET 2 OF 21 2/24/03



PLAN VIEW
SITE 2

50 0 100

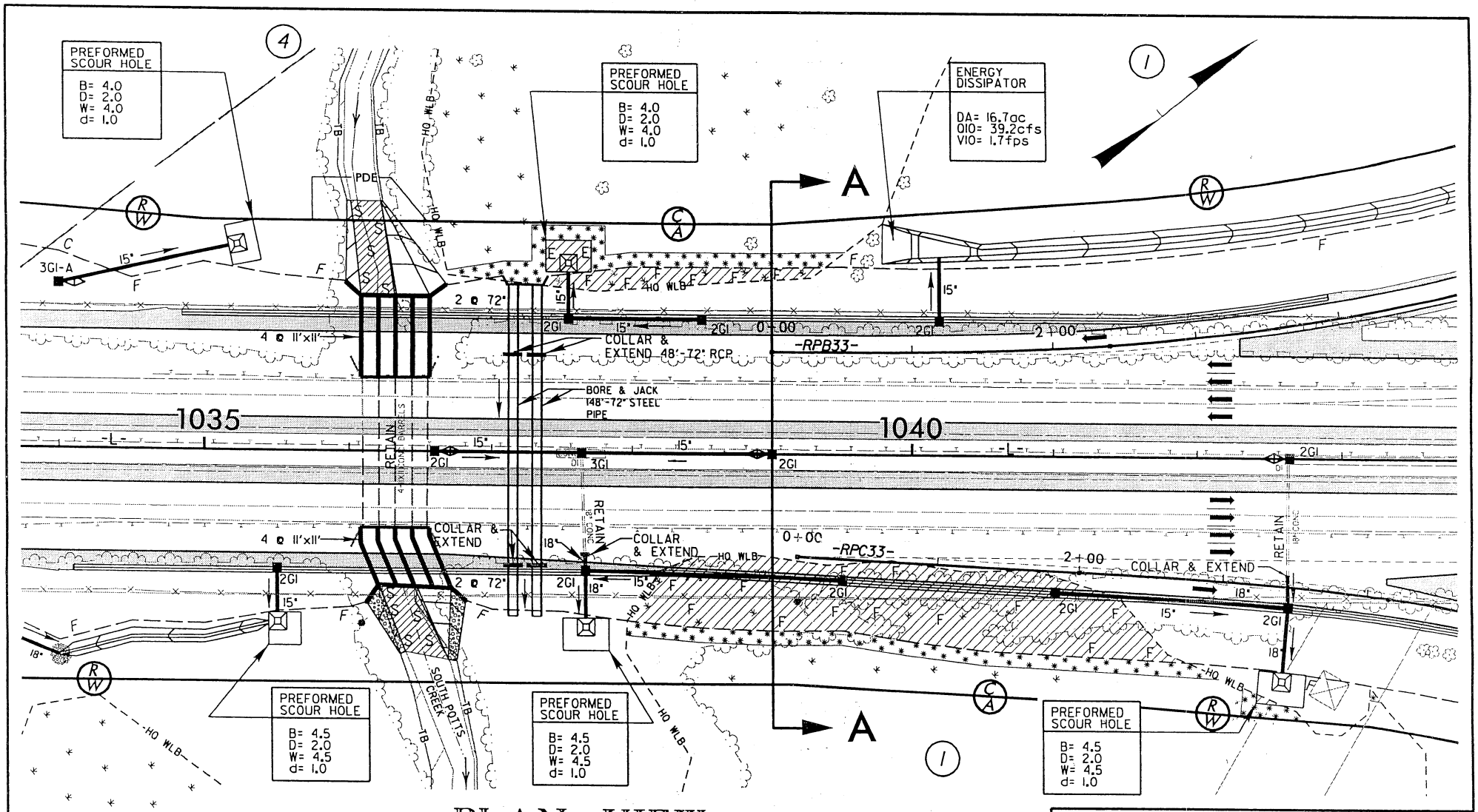
DENOTES FILL IN SURFACE WATERS

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH
OF NC 150 TO JUST NORTH
OF I-85 BUSINESS

SHEET ___ OF ___ 2/24/03



PLAN VIEW
SITE 3

NOTE: HAND CLEAR IN WETLANDS TO INSTALL CONTROLLED ACCESS FENCING.

50 0 100

DENOTES MECHANIZED CLEARING

DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLANDS

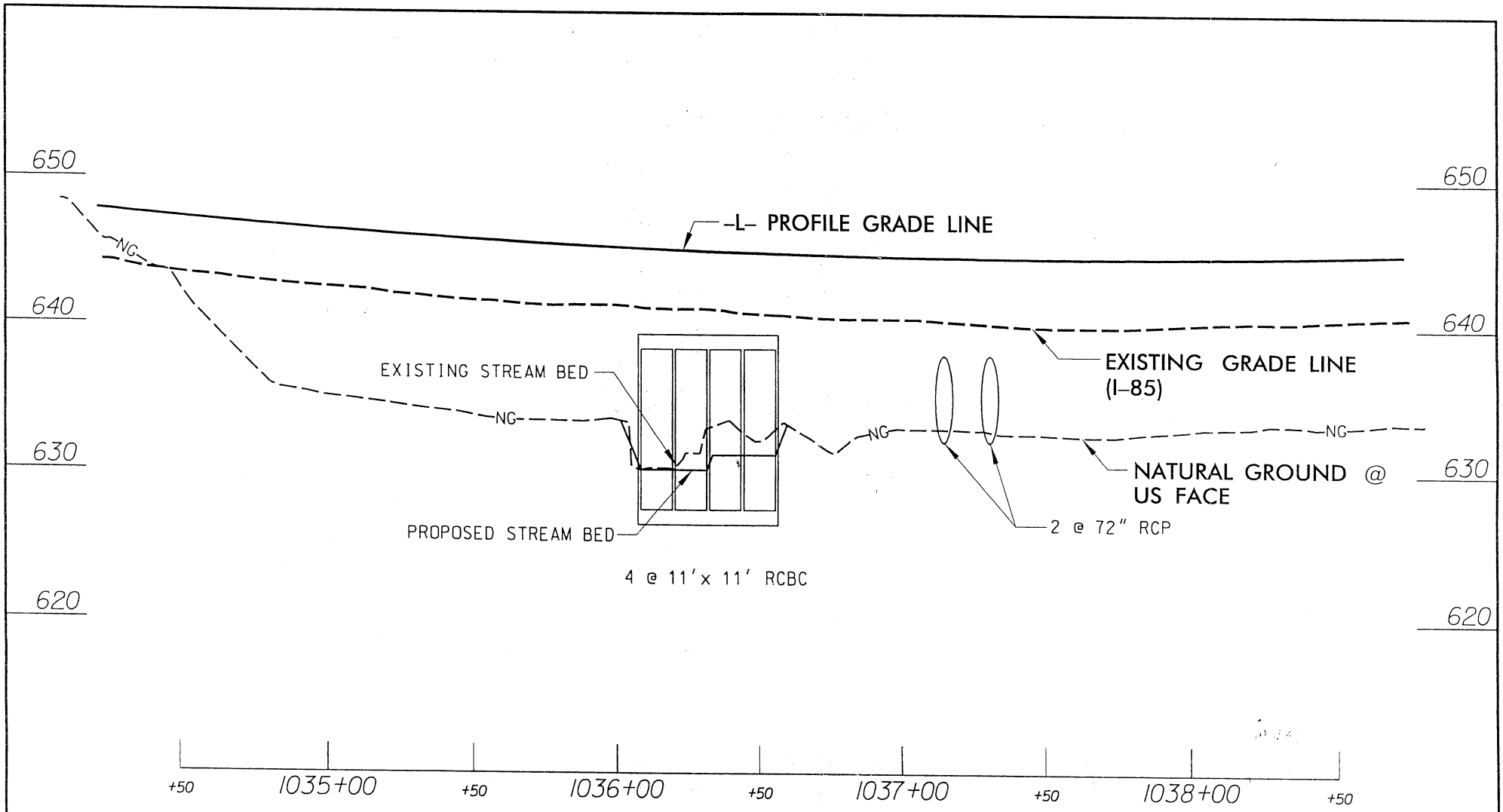
DENOTES FILL IN SURFACE WATERS

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH OF NC 150 TO JUST NORTH OF I-85 BUSINESS

SHEET 5 OF 2 **2/11/03**



PROFILE
SITE 3

25 0 50 HORIZONTAL SCALE

5 0 10 VERTICAL SCALE

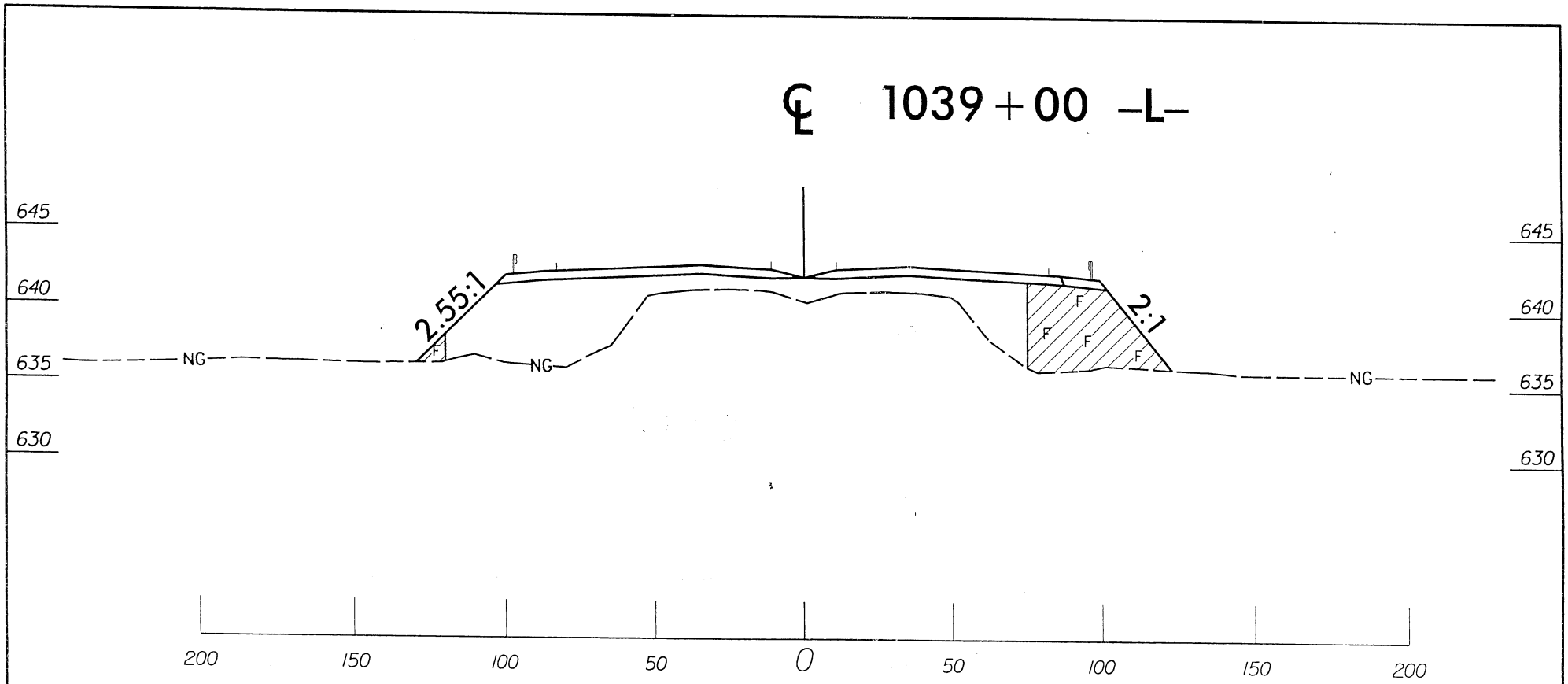
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH
OF NC 150 TO JUST NORTH
OF I-85 BUSINESS

SHEET 6 OF 6

2/24/03



SITE 3
SECTION A-A

5 0 50 HORIZONTAL SCALE

5 0 10 VERTICAL SCALE

DENOTES FILL IN WETLANDS

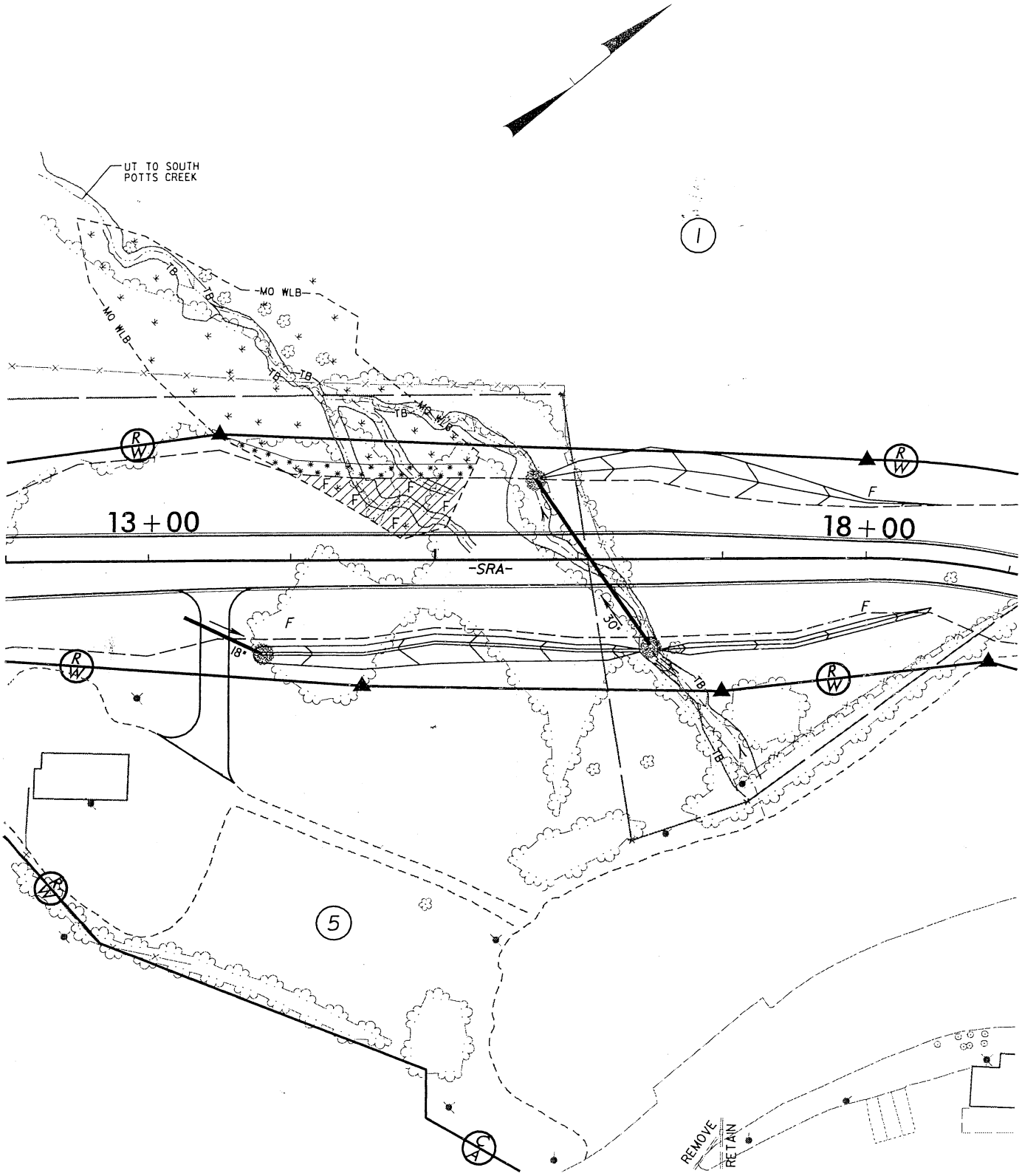
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH OF NC 150 TO JUST NORTH OF I-85 BUSINESS

SHEET 7 OF 21

2/24/03



PLAN VIEW
SITE 4

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLANDS

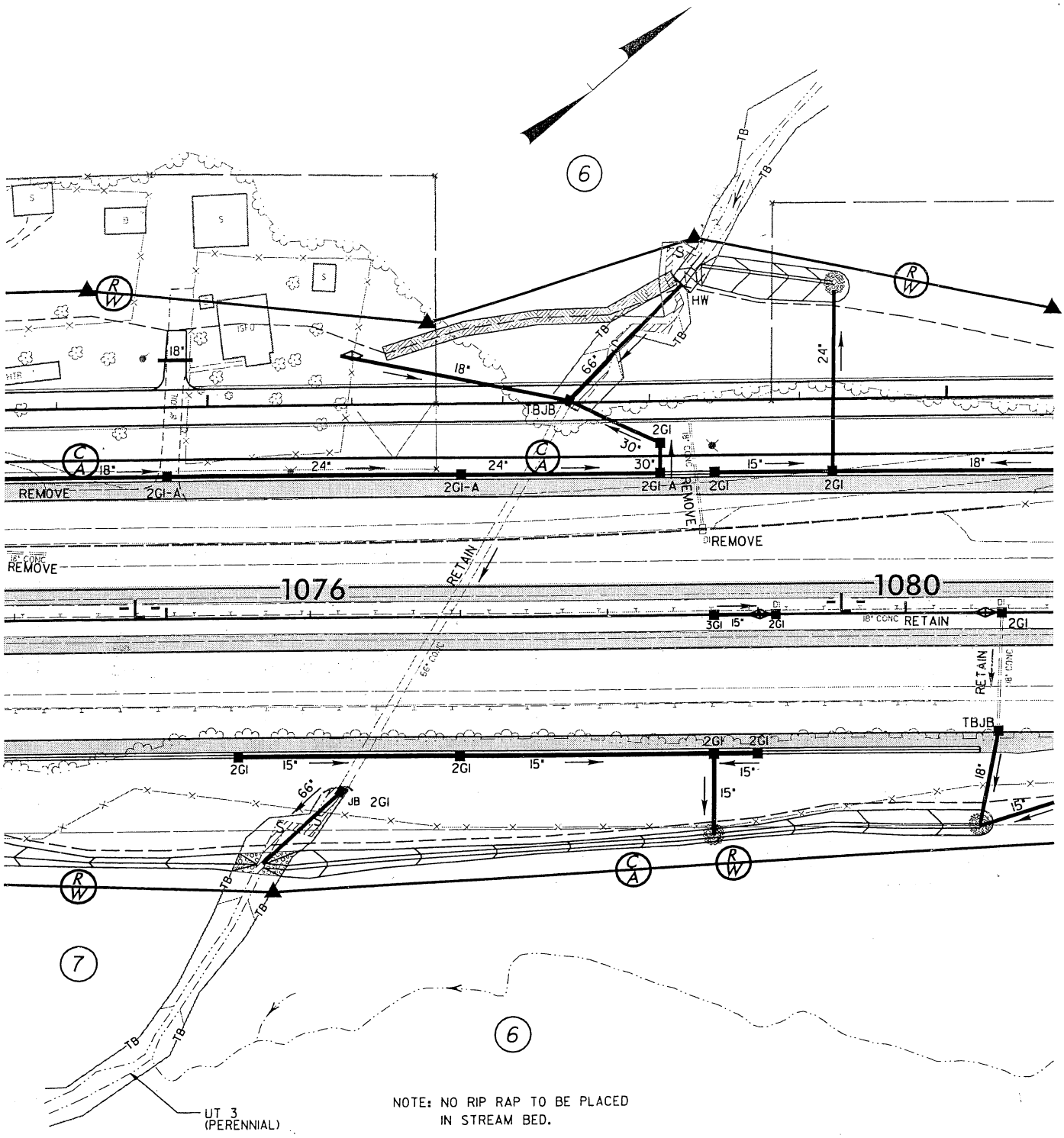
50 0 100

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH OF NC 150 TO JUST NORTH OF I-85 BUSINESS

SHEET 8 OF 32 2/24/03



NOTE: NO RIP RAP TO BE PLACED IN STREAM BED.

PLAN VIEW
SITE 5

50 0 100

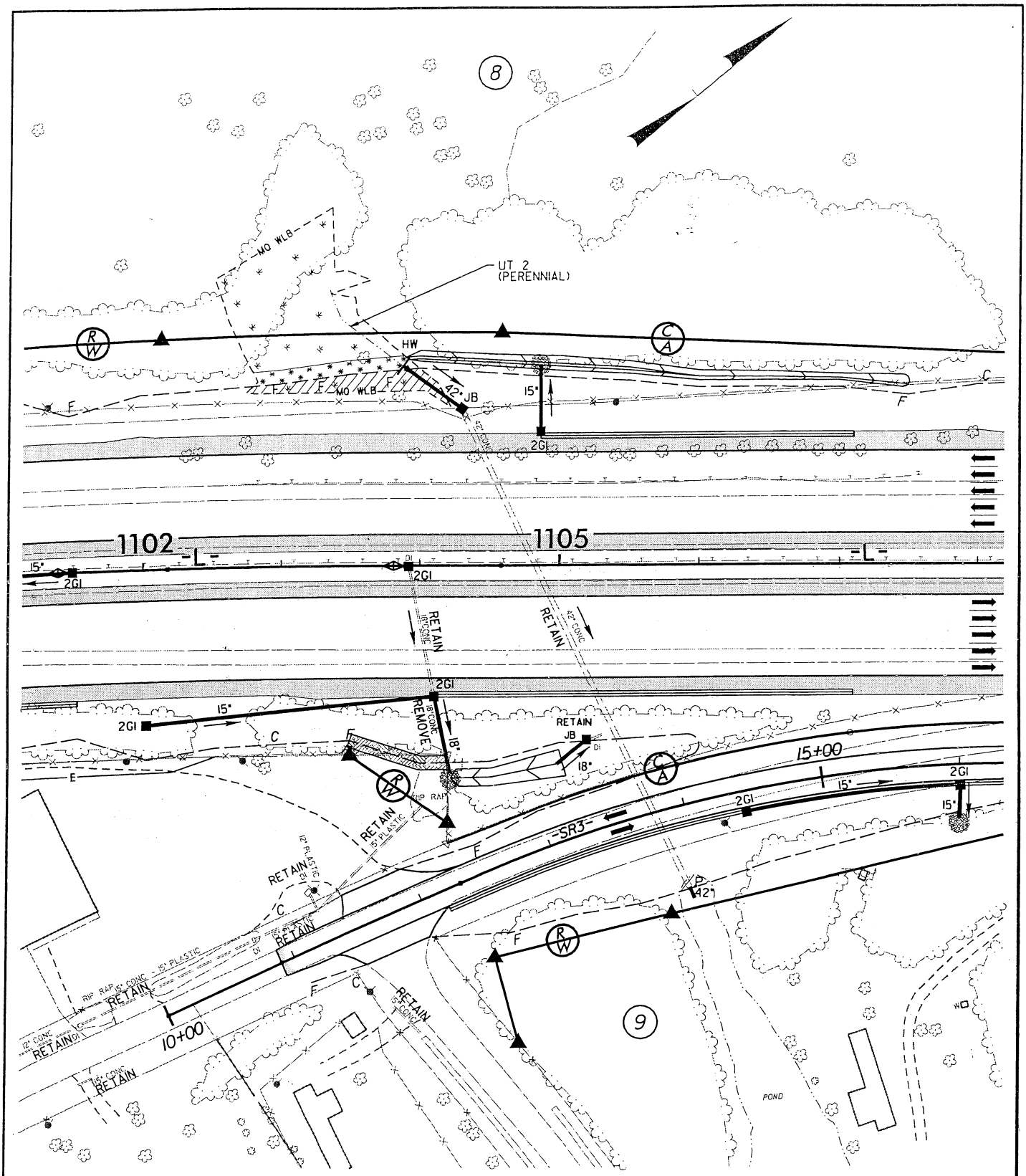
DENOTES FILL IN SURFACE WATERS

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH OF NC 150 TO JUST NORTH OF I-85 BUSINESS

SHEET 9 OF 21 2/24/03



PLAN VIEW
SITE 6

NOTE: HAND CLEAR IN WETLANDS TO INSTALL CONTROLLED ACCESS FENCING.

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLANDS

DENOTES FILL IN SURFACES WATERS (POND)

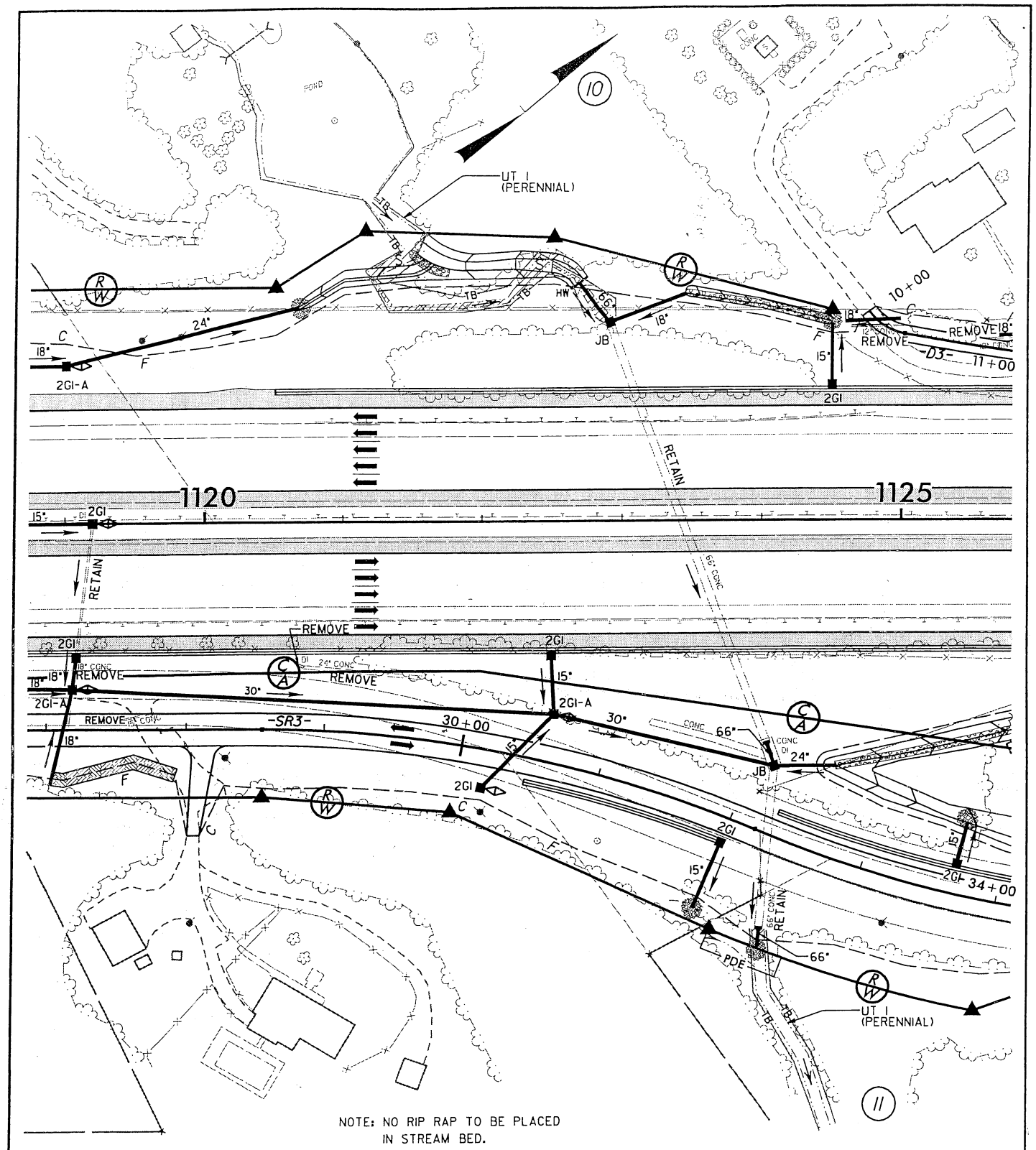
50 0 100

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH OF NC 150 TO JUST NORTH OF I-85 BUSINESS

SHEET 10 OF 21 2/24/03



PLAN VIEW
SITE 7

50 0 100

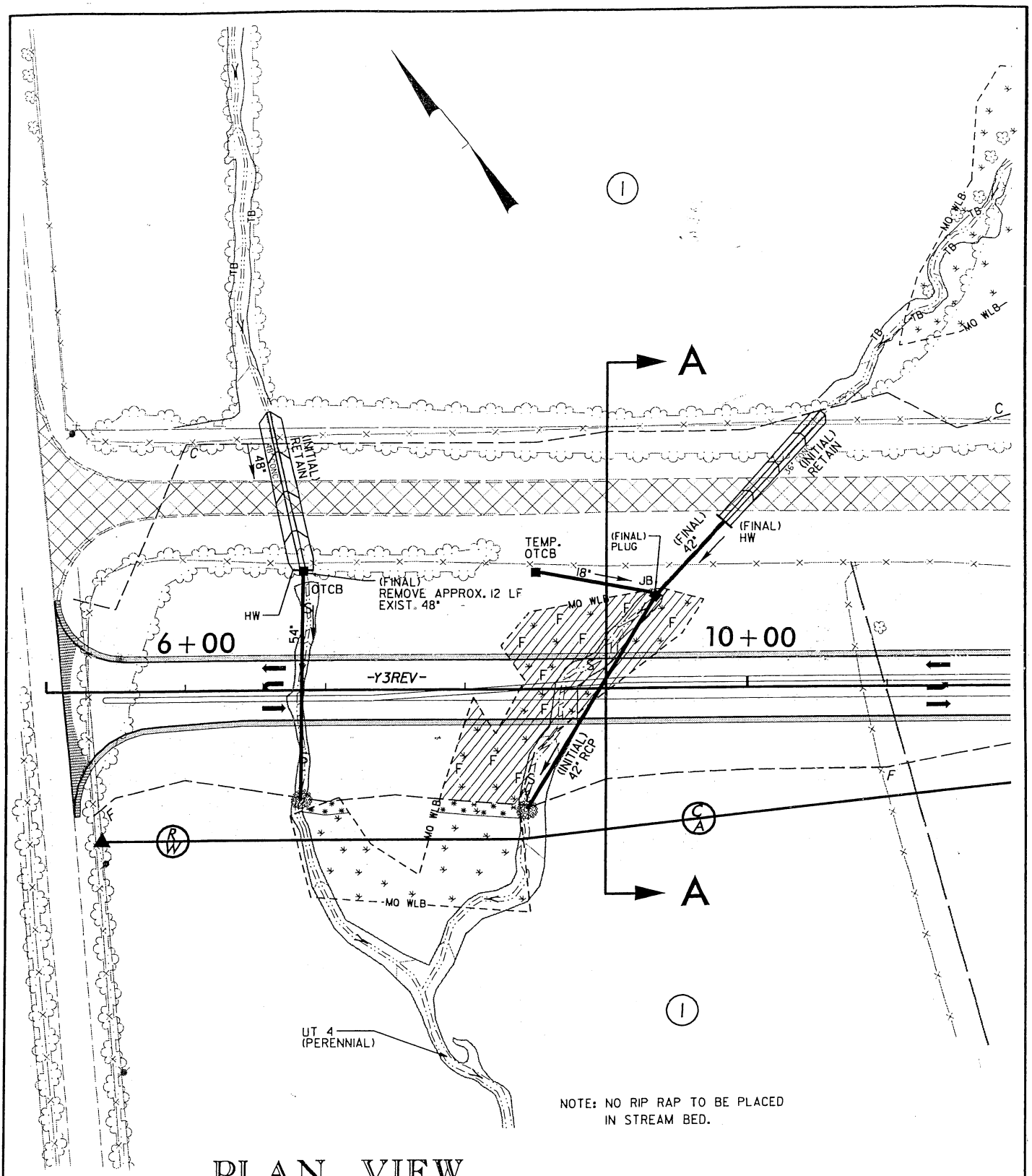
DENOTES FILL IN SURFACE WATERS

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH
OF NC 150 TO JUST NORTH
OF I-85 BUSINESS

SHEET 11 OF 21 2/24/03



PLAN VIEW
SITE 8

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLANDS

DENOTES FILL IN SURFACE WATERS

50 0 100

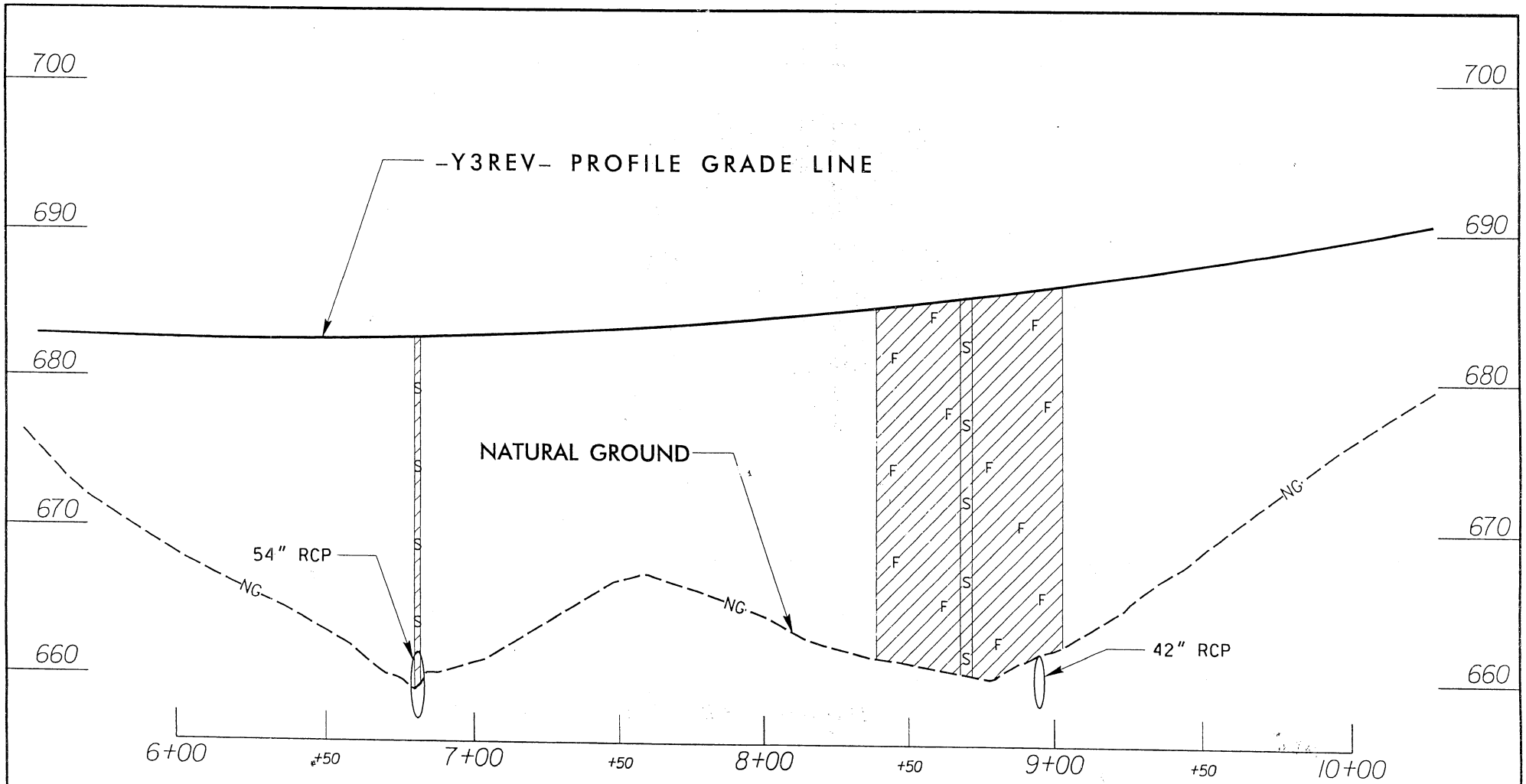
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH OF NC 150 TO JUST NORTH OF I-85 BUSINESS

SHEET 12 OF 24

2/24/03



PROFILE
SITE 8

25 0 50 HORIZONTAL SCALE

5 0 10 VERTICAL SCALE

DENOTES FILL IN SURFACE WATERS

DENOTES FILL IN WETLANDS

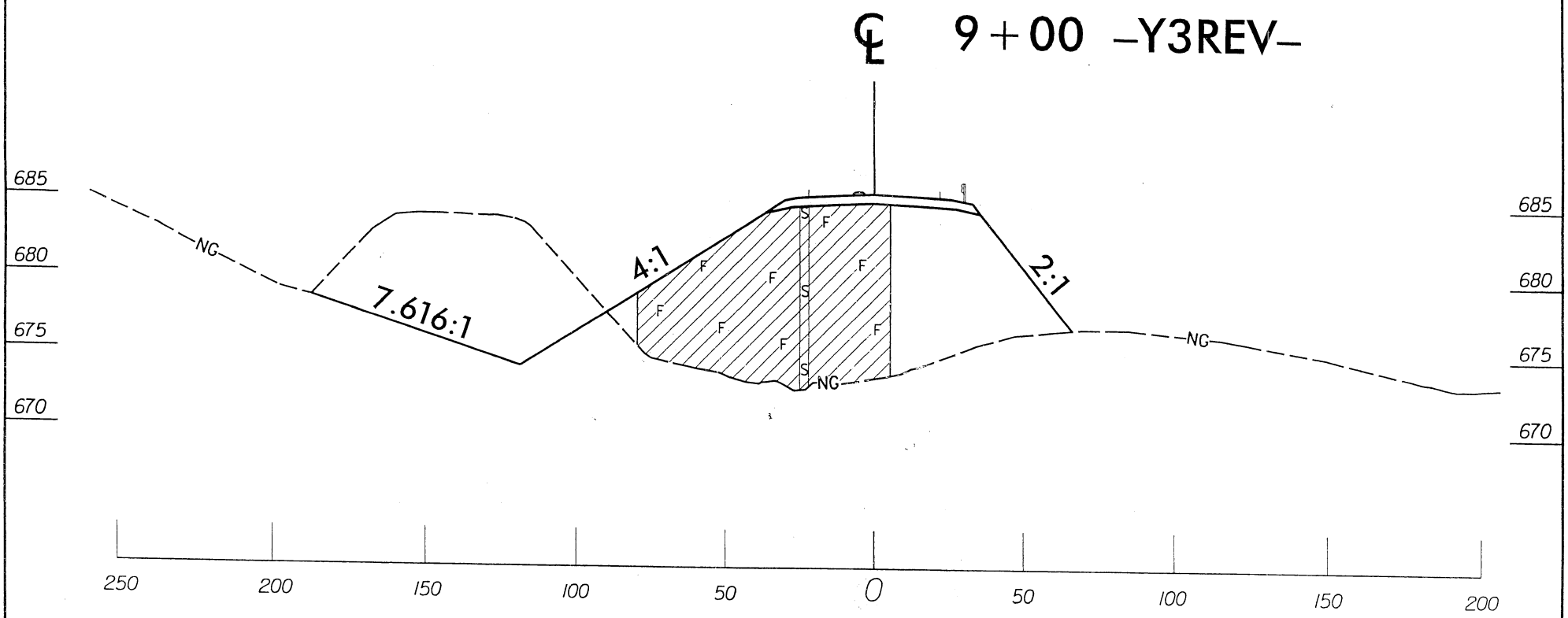
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH OF NC 150 TO JUST NORTH OF I-85 BUSINESS

SHEET 16 OF 21

2/24/03



SITE 8
SECTION A-A

25 0 50 HORIZONTAL SCALE

5 0 10 VERTICAL SCALE

DENOTES FILL IN SURFACE WATERS (S S)

DENOTES FILL IN WETLANDS (F F)

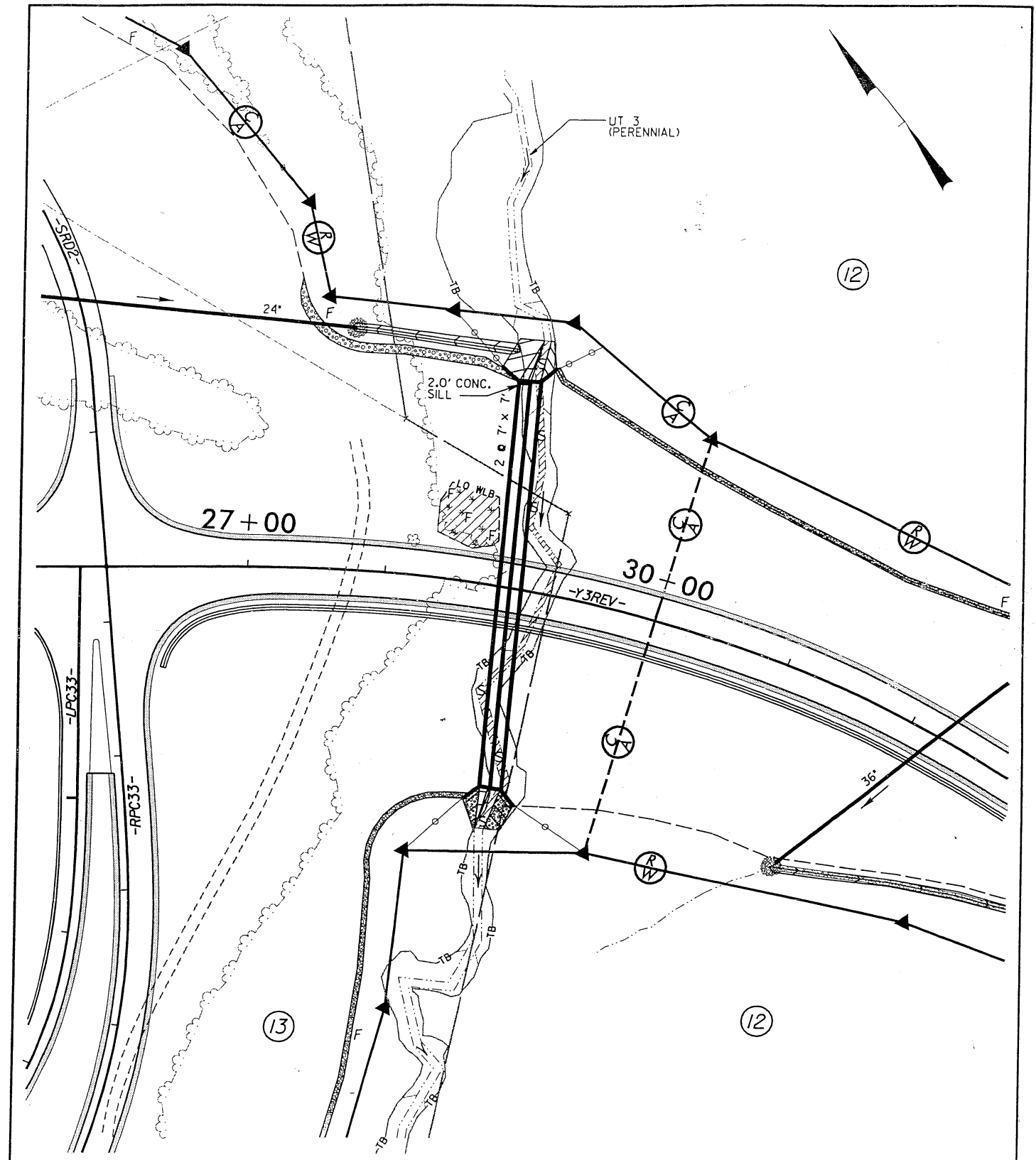
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH OF NC 150 TO JUST NORTH OF I-85 BUSINESS

SHEET 14 OF 21

2/24/03



PLAN VIEW
SITE 9

DENOTES FILL IN WETLANDS

DENOTES FILL IN SURFACE WATERS

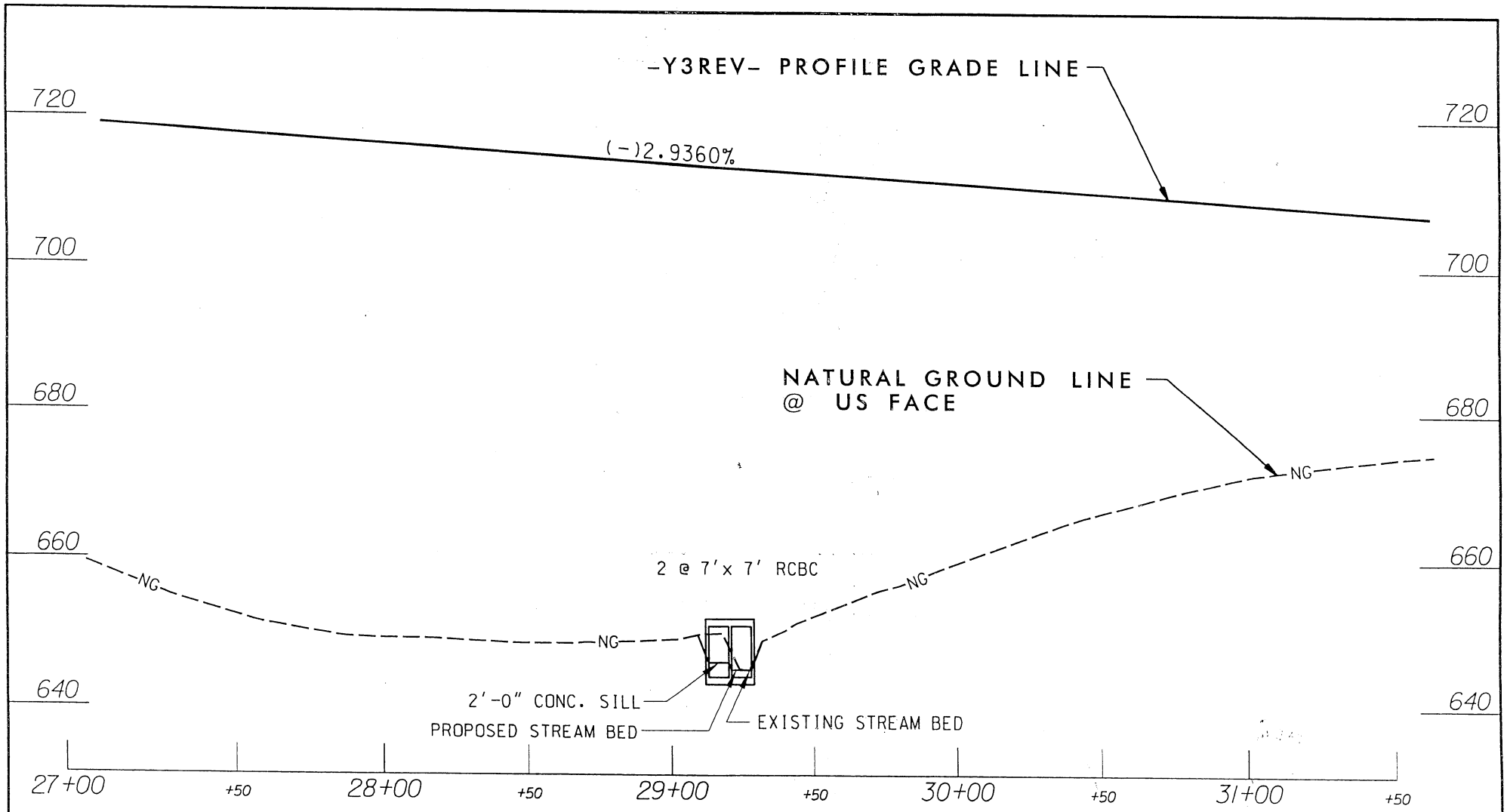
50 0 100

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH
OF NC 150 TO JUST NORTH
OF I-85 BUSINESS

SHEET 15 OF 21 2/24/03



PROFILE
SITE 9

25 0 50 HORIZONTAL SCALE

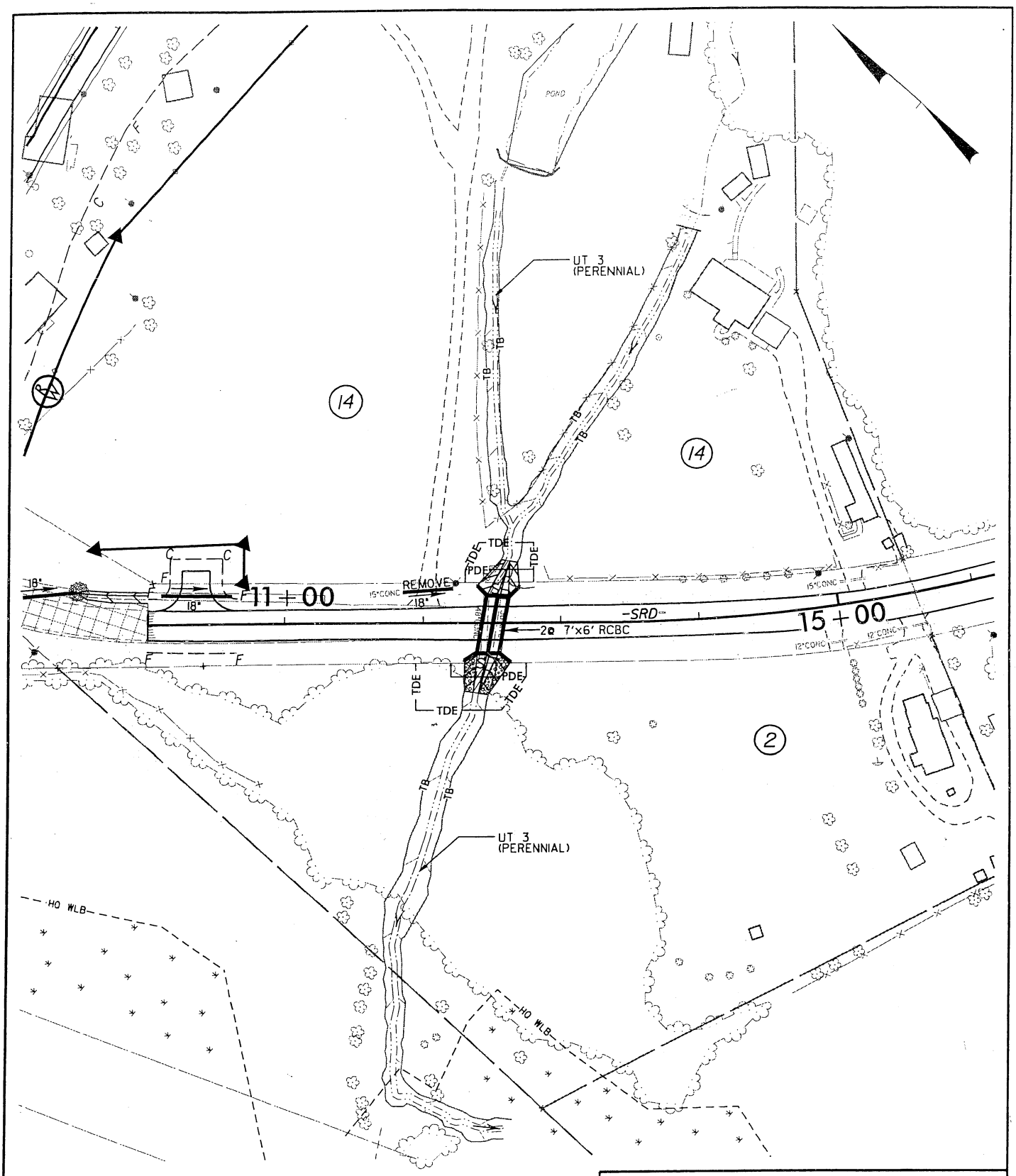
10 0 20 VERTICAL SCALE

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH
OF NC 150 TO JUST NORTH
OF I-85 BUSINESS

SHEET 10 OF 21 2/24/03



PLAN VIEW
SITE 10

50 0 100

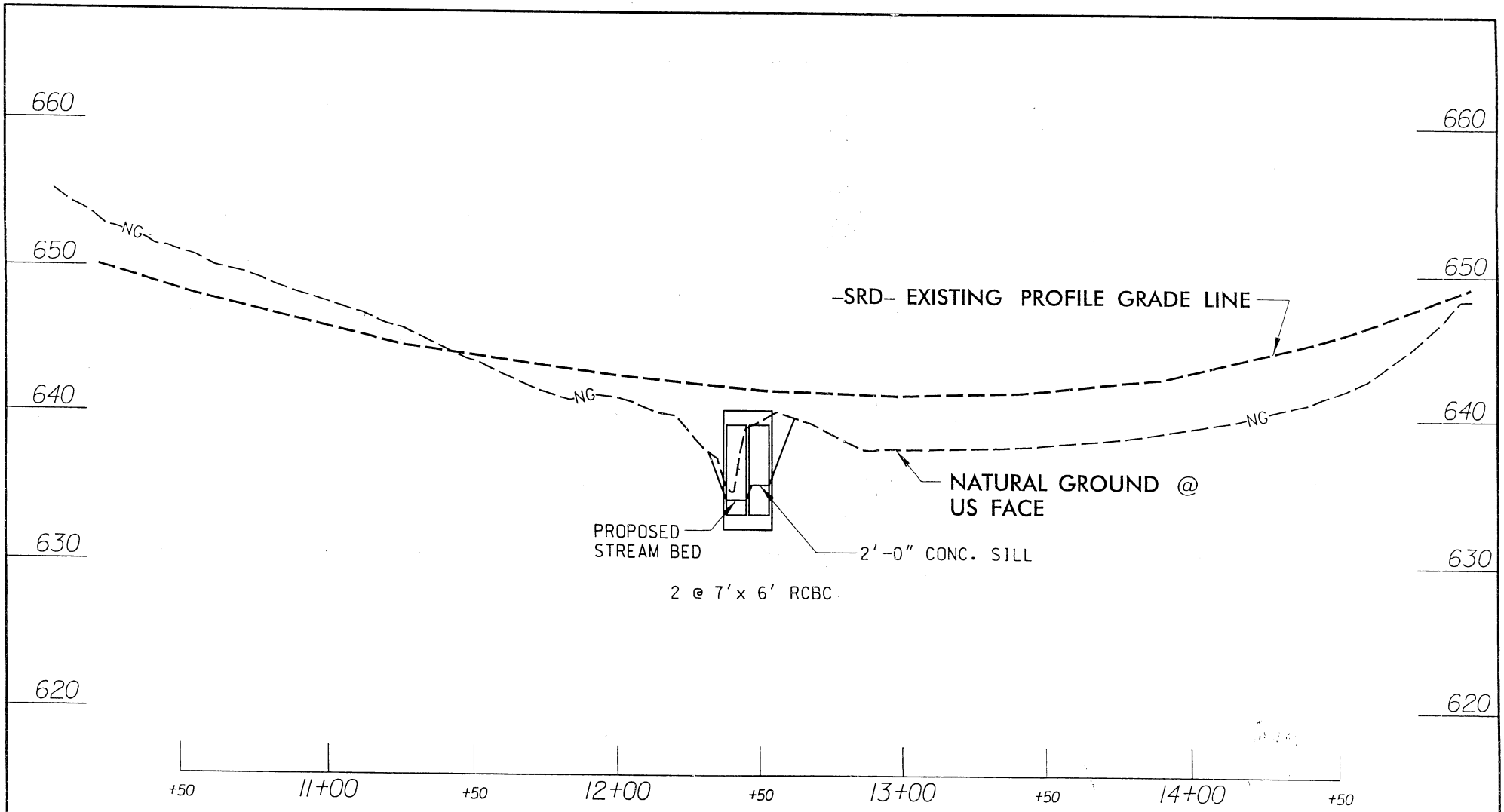
DENOTES FILL IN SURFACE WATERS

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH OF NC 150 TO JUST NORTH OF I-85 BUSINESS

SHEET 17 OF 21 2/24/03



PROFILE
SITE 10

25 0 50 HORIZONTAL SCALE

5 0 10 VERTICAL SCALE

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH
OF NC 150 TO JUST NORTH
OF I-85 BUSINESS

SHEET 18 OF 21 2/24/03

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From / To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS				
			Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	-L- 988+45R / -L- 989+70R	-	0.033	-	-	0.019	-	-	-	-	-
2	-L- 1006+08R / -L- 1007+00L	1 @ 42" RCP	-	-	-	-	0.021	-	-	219	-
3	-L- 1036+00 / -L- 1042+70R	4 @ 11' x 11' RCBC w/ 2 @ 72"	0.463	-	0.016	0.171	0.062	-	-	216	-
4	-SRA- 13+50L / -SRA- 16+70R	1 @ 30" RCP	0.071	-	-	0.036	-	-	-	-	-
5	-L- 1075+70R / -L- 1078+70R	1 @ 66" RCP	-	-	-	-	0.034	-	-	270	-
6	-L- 1102+75L / -L- 1106+10R	1 @ 42" RCP	0.037	-	-	0.026	-	0.003	-	-	-
7	-L- 1121+15L / -L- 1124+05R	1 @ 66" RCP	-	-	-	-	0.030	-	-	272	-
8	-Y3REV- 6+50R / -Y3REV- 6+92L	1 @ 54" RCP	-	-	-	0.005	0.009	-	-	179	-
	-Y3REV- 7+80R / -Y3REV- 9+70R	1 @ 42" RCP	0.263	-	-	0.009	0.014	-	-	201	-
9	-Y3REV- 28+65L / -Y3REV- 29+35R	2 @ 7' x 7' RCBC w/ 2' CONC. SILL	0.039	-	-	-	0.042	-	-	395	-
10	-SRD- 12+26R / -SRD- 12+78L	2 @ 7' x 6' RCBC w/ 2' CONC. SILL	-	-	-	-	0.006	-	-	59	-
TOTALS:			0.906	0.000	0.016	0.266	0.218	0.003	0.000	1811	0

Form Revised 3/22/01

N.C. DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORTH
OF NC 150 TO JUST NORTH OF
I-85 BUSINESS

2/24/03

Project No. 8.1631403 (I-2304AB)

Property Owner List

Site NO.	Parcel NO.	Name DB and Pg	Address
1	1	Robert L. Grubb Trustee of June C. Little DB 698 Pg 336	P.O. BOX 388 High Point, NC 27260
2	1	Robert L. Grubb Trustee of June C. Little DB 698 Pg 336	P.O. BOX 388 High Point, NC 27260
	2	Franklin Haywood Graves And Wife, Margaret L Graves DB 635 Pg 17 DB 915 Pg 965 DB 401 Pg 338	8291 Old Salisbury Road Linwood, NC 27299-9708
	3	Everhart Used Cars, Inc. DB 635 Pg 161	1517 Greensboro Road Lexington NC 27292-1919
3	1	Robert L. Grubb Trustee of June C. Little DB 699 Pg 336	P.O. BOX 388 High Point, NC 27260
	4	Earl L Blanton And Wife, Kathy L Blanton DB 705 Pg 514	7847 Old Salisbury Road Linwood, NC 27299
4	1	Robert L. Grubb Trustee of June C. Little DB 699 Pg 336	P.O. BOX 388 High Point, NC 27260
	5	Walser Enterprises DB 112 Pg 110	Snider-Kines Road Linwood, NC 27299
5	6	C. C. Fritzgerald Heirs DB 57 Pg 205	194 Redwine Road Linwood, NC 27299
	7	Randall G Lomax And Wife, Tammy P Lomax DB 875 Pg 936	310 Lake Shore Drive Lexington, NC 27292-8117

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORHT
OF NC 150 TO JUST NORTH
OF I-85 BUSINESS

SHEET 20 OF ___ 2/24/03

Project No. 8.1631403 (I-2304AB)

Property Owner List

Site NO.	Parcel NO.	Name DB and Pg	Address
6	8	Mobile Development Corp. DB 1051 Pg 1588	23 West Second Street Lexington, NC 27292
	9	Robert A. Gusman DB 634 Pg 656 DB 613 Pg 959	P.O. Box 992 Lexington, NC 27293-0992
7	10	George W Gobble And Wife, Betty E Gobble DB 596 Pg 757	984 Wayane Gobble Road Linwood, NC 27299-9706
	11	Margaret N. Clark DB 832 Pg 814	1089 Clyde Fitzgerald Road Linwood, NC 27299
8	1	Robert L. Grubb Trustee of June C. Little DB 699 Pg 336	P.O. BOX 388 High Point, NC 27260
9	12	Beallmont Farms Inc. DB 931 Pg 628	P.O. Box 835 Linwood, NC 27299
	13	Henderson Hargrave Heirs DB 102 Pg 288	561 Belmont Road Linwood, NC 27299-9201
10	2	Walter McDowell, SR DB 550 Pg 769	796 Belmont Road Linwood, NC 27299-9201
	14	Henderson Hargrave Heirs DB 102 Pg 288	561 Belmont Road Linwood, NC 27299-9201

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

PROJECT: 8.1631403 (I-2304AB)
I-85 WIDENING FROM JUST NORHT
OF NC 150 TO JUST NORTH
OF I-85 BUSINESS

SHEET 21 OF 2 2/24/03

November 22, 2002

Subject: Draft Minutes Interagency Hydraulic Design 4B Review Meeting on November 21, 2002, for I2304AA and AB, Davidson and Rowan Counties.

Team Members:
Eric Alsmeyer – USACE (Present)
Cynthia Van Der Wiele – NCDWQ (Present)
Marla Chambers – NCWRC (Present)
Marella Buncick – USFWS (Present)
Chris Militscher – EPA (Present)
Matt Haney – NCDOT PDEA (Present)

Participants:
David Chang – NCDOT Hydraulics
Jenny Fleming – Barbara H. Mulkey Engineering
Jamie Byrd – Transite Engineering
Cathy Houser – NCDOT Design Services
Robert Stroup – NCDOT Design Services
Scott Pridgen – NCDOT Design Services
Jackie Obediente – NCDOT PDEA
Marshall Clawson – NCDOT Hydraulics
Anne Gamber – NCDOT Hydraulics

This project consists of the widening of I-85 in Rowan and Davidson Counties.

1. Stream and Wetlands Locations: Eric Alsmeyer had concerns about the location of streams and wetlands. Matt Haney will provide complete wetlands delineation and jurisdiction stream identification on the plans for both projects.

2. Outfall at Wetlands "G"at Station 845+60: Wetlands "G" was not shown on the plans. Installing level spreaders and/or dry detention pond in this area will be investigated to ensure proper velocity controls.

3. Removal of existing bridge far left of Station 870+00: Marella Buncick noted that to support the machinery and to restrain debris during the removal of the existing bridge, a causeway might be advantageous. David Chang suggested that in the future 4C meeting the construction personnel be invited for more discussion.

4. Hazardous Spill Basin at Bridge Station 868+60 to Station 897+50: To span the lake and its adjoining wetlands, the existing 883 foot bridge would be replaced with dual 2,890 foot bridges. The existing and proposed bridge decks are 59 and 170 feet, respectively. The bridge is located 14 miles upstream from a water supply intake. Cynthia Van Der Wiele requested DOT engineers design a closed system that collect the stromwater runoff from the bridge deck and discharge it onto hazardous spill basins outside the wetlands areas. After more thorough review to the DOT Guidelines and the bridge crossing, David Henderson and David Chang have directed the design engineers to comply with Cynthia's request. As a Design/Build project, a preliminary bridge survey report was presented to the agencies. It depicts the layout of the proposed bridge assuming the worst case scenario: maximum superstructure depth and minimum span length.

5. Erosion Control: Eric Alsmeyer requested that the Roadside Environmental Unit be made aware of the standing water wetlands on the project at Station 1040+00.

The meeting was adjourned at 4:45.

Comments:

Cynthia Van Der Wiele: ... the distance of the intake from the bridge... is not 14 miles. (Distance along the river is 14 miles) ***DWQ's request was for a closed system for stormwater (no deck drains) and that stormwater be directed off the bridge and pre-treated by whatever means was feasible ...***

May 23, 2003

Subject: Minutes Interagency 4C Permit Review Meeting on May 22, 2003, for I2304AA and AB, Davidson and Rowan Counties.

Team Members:
Eric Alsmeyer – USACE (Present)
Cynthia Van Der Wiele – NCDWQ (Present)
Marla Chambers – NCWRC (Present)
Marella Buncick – USFWS (Present)
Chris Militscher – EPA (Present)
Matt Haney – NCDOT PDEA (Present)

Participants:
Robert Stroup – NCDOT Design Services
John Frye – NCDOT Structures
Ricky Keith – NCDOT Structures
Steve Rackley – NCDOT Structures
Jackie Obediente – NCDOT PDEA
Marshall Clawson – NCDOT Hydraulics
Anne Gamber – NCDOT Hydraulics

Marshall Clawson began the meeting at 1:30 pm with the description of the project. This project consists of the widening of I-85 in Rowan and Davidson Counties.

1. Site 1 I2304AA: The channel relocation right of station 809+60 to 809+90, as noted on the permit drawings, is to be permitted under I-2511CB. The 24" pipe right of station 809+60 is to be angled to avoid a 90° turn in flow.

   ACTION TAKEN: The 24" RCP has been skewed to eliminate the 90^0 turn in flow. The permit drawings and plan sheet have been revised.

2. Site 2 I2304AA: John Frye agreed to provide the quantity of impacts due to the piers for the proposed bridge to Matt Haney and Jackie Obediente for the permits. The environmental impact statement need to reflect the fact that the bridge was located with in the critical area of a water supply intake. The wetlands boundary near the pond needs to be clarified in the drawings.

   ACTION TAKEN: Wetlands symbols have been removed in the pond area.

3. The temporary work bridge piles at Site 2 I2304AA: Marella Buncick questioned if a platform may be used in this area instead of a work bridge to eliminate impacts due to the use and removal of the temporary piles. Eric Alsmeyer commented that as long as fill would not be required the piles would be okay. Marella Buncick suggested that this might be a good site to use for monitoring the effects of the temporary work bridge impacts.

   No Action Required.

4. Site 3 I2304AA: Clarify the inlet of the culvert under the railroad.

   ACTION TAKEN: The existing culvert under the railroad has been clearly denoted on the permit drawings.

5. Site 6 I2304AA: Determine why we are impacting existing stream.

   The existing 66" pipe under I-85 has an invert approximately 4.5' lower than the stream bed. To maintain positive drainage the entire stream between the Interstate and the Ramp needed to be regraded. To ease construction, a new channel is proposed in lieu of cleaning the existing channel. This site was recommended to PDEA as potential in-site mitigation which would create the positive drainage required for safety and eliminate the significant impacts to this site. However, no on-site mitigation is proposed.

6. Site 9 I2304AA: Check alignment of cross pipe on Plan Sheet 22.

   ACTION TAKEN: Cross pipe alignment has been revised on the permit drawings and plan sheet.

7. Site 3 I2304AB: Eliminate northwest preformed scour hole. Investigate redirecting flow through 72" pipe.

   ACTION TAKEN: The flow was redirected through the 72" overflow pipe.

8. Site 5 I2304AB: Label permanent soil reinforcement matting on permit drawing.

   ACTION TAKEN: Label added.

9. Site 8 I2304AB: Eric Alsmeyer noted that for credit to be given for the channel in the area of pipe removal the stream characteristics must be given.

   No Action Required.

10. Site 9 I2304AB: Label slope protection on permit.

    ACTION TALEN: Label added.

The meeting was adjourned at 2:45.

Email from John Frye:

As this project has progressed, an early concurrence point discussed the use of "dual bridges" to cross the Yadkin River at the Counties' line. The "dual bridges" has been carried forth to Concurrence Point #3 which we all know is the LEDPA. That concurrence point was signed in December 2001. In reviewing the Draft FONSI, I commented that a single bridge or a set of dual bridges should never be called out in the LEDPA unless there is a very compelling, very necessary argument by the Department or by the agencies. I do not know of an argument for committing to "dual bridges" for this project.

In the 4C meeting on May 22, I brought this concern to the agencies for discussion. From the discussion that took place, the agencies stated that it was DOT that requested the dual bridges, that they did not have a concern for whether it was one bridge or two, and indicated that they would have no concerns if a single bridge were constructed. For reference, Eric Alsmeyer, Cynthia Van Der Wiele, Marla Chambers, Marella Buncick, and Chris Militscher attended the 4C meeting. In further discussions and e-mails with Marshall and Jackie, and then I met with Debbie

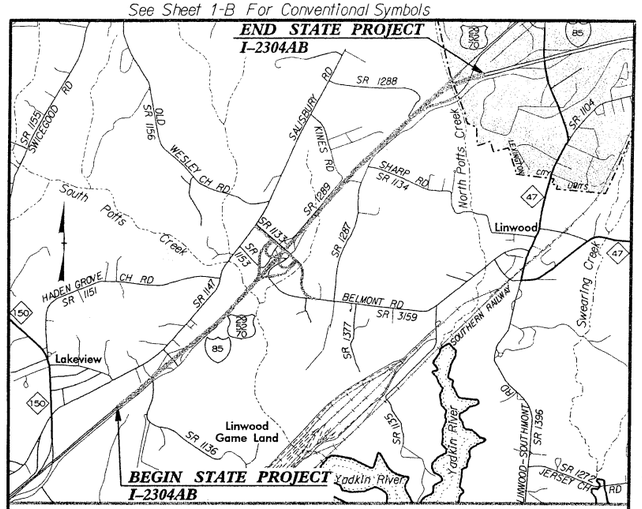
Barbour, it has been decided that it is best if we get agreement from the agencies to ignore the reference to "dual bridges."

This is where you come into this discussion. In my discussion with Debbie Barbour, she determined that the retraction of the "dual bridges" is best handled in the permit applications for this project. Hopefully, in writing the permit application, you could add a single paragraph explaining the Department's oversight, and the Department's request to design either a single wide bridge or dual bridges. As in all the design build projects, we would keep the commitment that the contractor cannot increase the environmental impacts from those called out in the approved permit.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2304AB	1	42

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
8.1631403	NHF-85-3(164)80	P.E.

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



SKETCH MAP SHOWING THE VICINITY OF STATE PROJECT I-2304AB

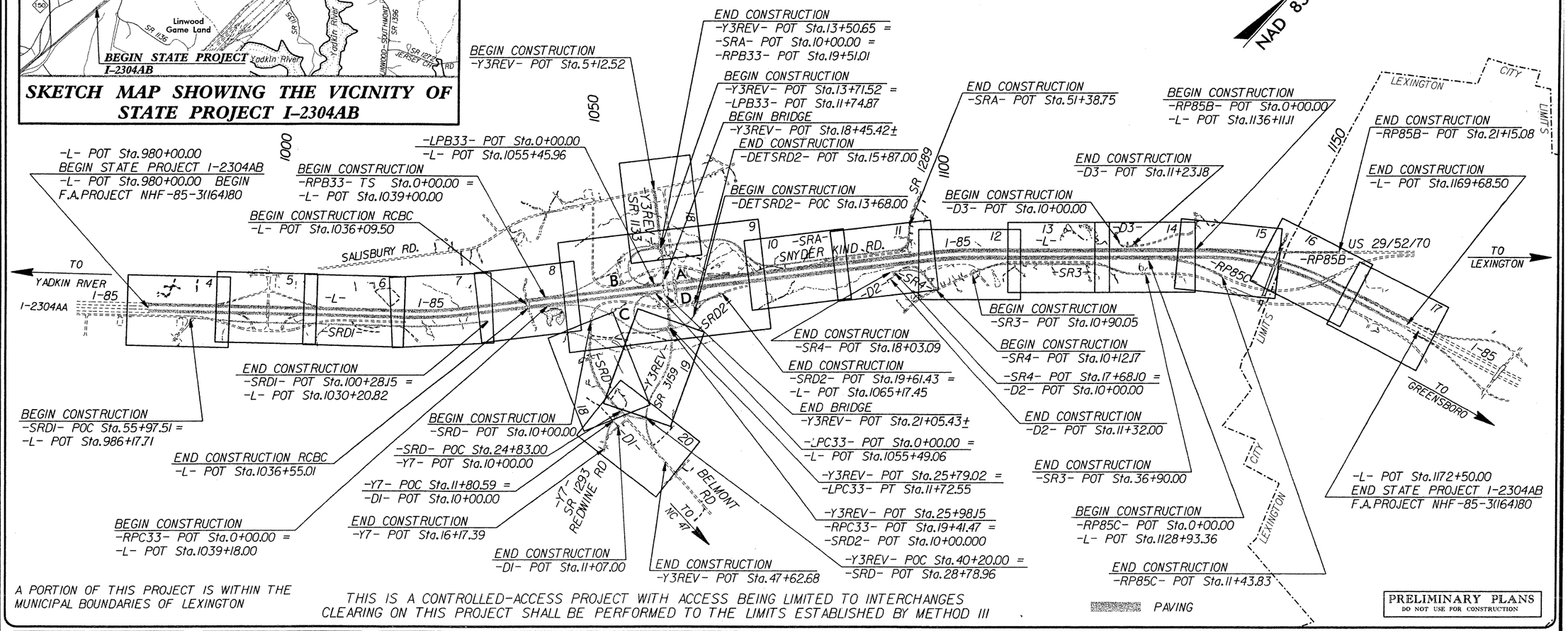
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DAVIDSON COUNTY

LOCATION: I-85 WIDENING FROM JUST NORTH OF NC 150 TO JUST NORTH OF I-85 BUSINESS

TYPE OF WORK: GRADING, DRAINAGE, PAVING, WIDENING, RESURFACING, STRUCTURES, CULVERTS, TRAFFIC SIGNALS, & SIGNING, AND ITS

NAD 83 / NC GRID



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF LEXINGTON

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

PAVING

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT: 8.1631403 I-2304AB

01.001.001/dgn/12304ab.tsh rev. date: 04-29-03

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 2005 = 69,400
ADT 2025 = 112,400
DHV = 10 %
D = 60 %
T = 24 % *
V = 70 MPH

* TTST 18% DUAL 6%

PROJECT LENGTH

LENGTH ROADWAY F.A. PROJECT NHF-85-3(164)80	=	3.584 MILES
LENGTH STRUCTURES F.A. PROJECT NHF-85-3(164)80	=	0.009 MILES
TOTAL LENGTH STATE PROJECT 8.1631403	=	3.593 MILES

Prepared In the Office of:
TRANSITE CONSULTING
ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 16, 2003 (PRODUCTION)

LETTING DATE: MARCH 16, 2004 (PRODUCTION)

NCDOT CONTACT:

DOUGLAS B. SAUNDERS, P.E. — PROJECT ENGINEER

RICHARD L. BOLLINGER, P.E. — PROJECT DESIGN ENGINEER

CATHY S. HOUSER, P.E. — DESIGN SERVICES - PROJECT ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

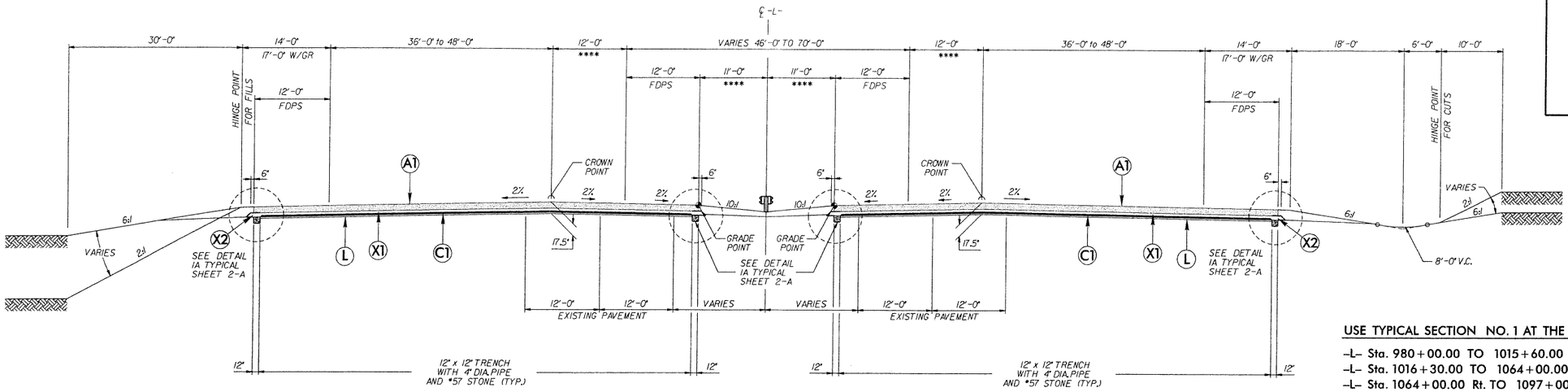
STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

TRANSITE CONSULTING ENGINEERS, INCORPORATED 1300 Paddock Drive, Suite G-110 Raleigh, N.C. 27609	PROJECT REFERENCE NO.	SHEET NO.
	I-2304AB	2
	ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



USE TYPICAL SECTION NO. 1 AT THE FOLLOWING STATIONS

-L- Sta. 980+00.00 TO 1015+60.00 Lt. & Rt.
-L- Sta. 1016+30.00 TO 1064+00.00 Lt. & Rt.
-L- Sta. 1064+00.00 Rt. TO 1097+00.00 Rt.
-L- Sta. 1011+50.00 Rt. TO 1144+00.00 Rt.
-L- Sta. 1095+00.00 Lt. TO 1125+00.00 Lt.
-L- Sta. 1130+00.00 Lt. TO 1144+00.00 Lt.

***** GRADE POINTS VARY 11'-0" TO 23'-0" AND MEDIAN LANES VARY FROM 12'-0" TO 0'-0" FROM

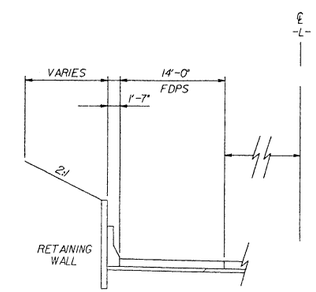
-L- Sta. 1144+00.00 TO 1169+68.50 Lt.
-L- Sta. 1144+00.00 TO 1169+68.50 Rt.

NOTE: USE TYPICAL SECTION NO. 3 CURB AND GUTTER TYPICAL AT THE FOLLOWING STATIONS

-L- Sta. 1055+45.96 TO 1056+44.12 Lt.
-L- Sta. 1055+49.06 TO 1056+44.12 Rt.
SEE SHEET 2A TYPICAL SECTION NO. 3

PAVEMENT SCHEDULE

A1	13" PORTLAND CEMENT CONCRETE PAVEMENT	E5	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YARD PER 1" DEPTH, TO BE PLACED IN LAYERS NOT GREATER THAN 5.5" IN DEPTH OR LESS THAN 3" IN DEPTH.
A2	VARIALBLE DEPTH PORTLAND CEMENT CONCRETE PAVEMENT		
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5A, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD.	J	PROP. 6" AGGREGATE BASE COURE
C2	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.	L	BASE TO BE STABILIZED WITH 200 TO 400 LBS. PER SQ. YARD OF STABILIZER AGGREGATE MIXED WITH THE TOP 3" OF SUB-GRADE SOIL AT LOCATIONS DIRECTED BY THE ENGINEER.
C3	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD.	R1	2'-6" CONCRETE CURB AND GUTTER
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS.PER SQ. YARD.	R2	4'-0" CONCRETE EXPRESSWAY GUTTER
D2	PROP. APPROX. 3.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YARD.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
D3	PROP. APPROX. 4.5" ASPHALT CONCRETE INTER-MEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 256.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YARD.	U	EXISTING PAVEMENT
E2	PROP. APPROX. 3.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YARD.	X1	PROP. APPROX. 3" PERMEABLE ASPHALT DRAINAGE COURSE TYPE PADL
E3	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YARD.	X2	PROP. VARIABLE DEPTH PERMEABLE ASPHALT DRAINAGE COURSE TYPE PADL
E4	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YARD IN EACH OF TWO LAYERS		



TYPICAL SECTION NO. 1A

-L- I-85

USE TYPICAL SECTION NO. 1A AT THE FOLLOWING STATIONS

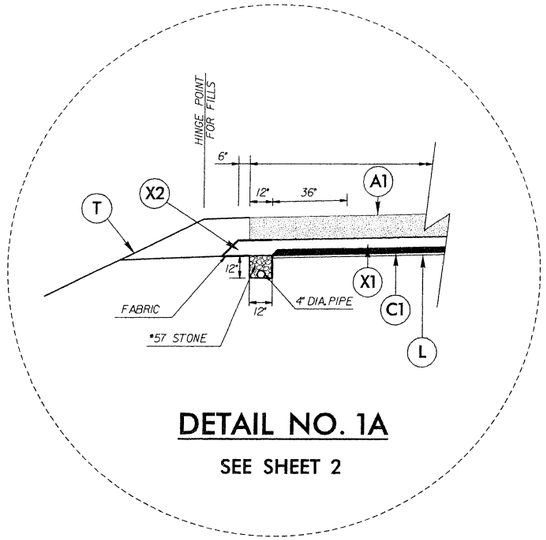
-L- Sta. 1015+60.00 TO 1016+30.00 Lt.

NOTES:
* SHOULDER WIDTH INCREASED 3' WHERE GUARDRAIL IS USED
** FILL SLOPES WITHIN THE INTERCHANGES WILL BE 4:1 OR FLATTER.
*** SEE CROSS SECTIONS FOR VARIABLE SLOPES
**** BITUMINOUS CONCRETE PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

0,001.001/dgn/I2304ab.typ rev. date:12-04-01

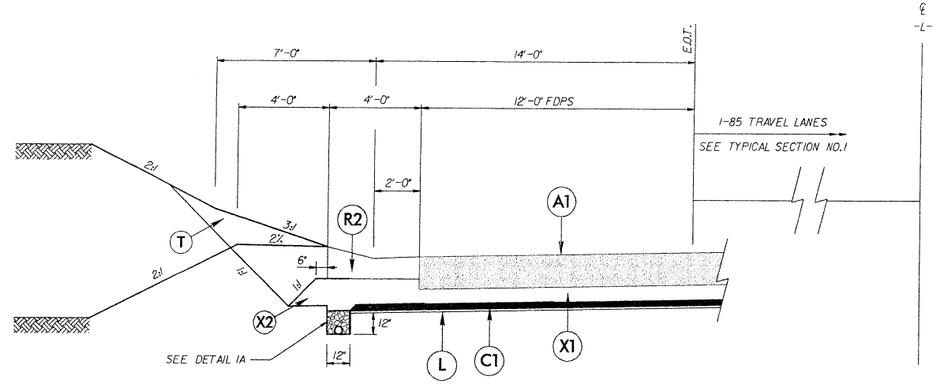
TRANSITE CONSULTING ENGINEERS, INCORPORATED 1300 Paddock Drive, Suite G-10 Raleigh, N.C. 27609	PROJECT REFERENCE NO.	SHEET NO.
	I-2304AB	2-A
	ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DETAIL NO. 1A

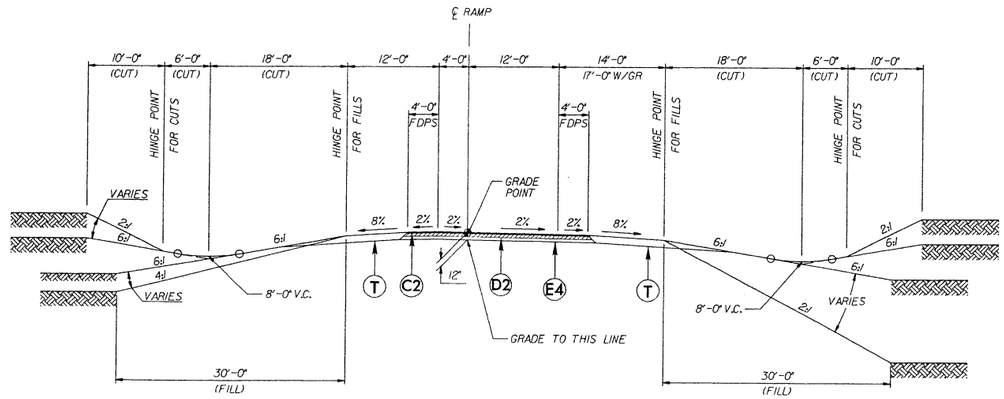
SEE SHEET 2



TYPICAL SECTION NO. 1B

USE TYPICAL SECTION NO. 1B AT THE FOLLOWING STATIONS

-L- Sta. 988+00.00 Rt. TO 993+58.00 Rt.
-L- Sta. 988+50.00 Lt. TO 990+50.00 Lt.
-L- Sta. 1003+00.00 Rt. TO 1007+50.00 Rt.
-L- Sta. 1034+10.00 Rt. TO -RPC33- 5+50.00 Rt.
-L- Sta. 1034+85.00 Lt. TO 1042+95.00 Lt.
-L- Sta. 1064+00.00 Lt. TO 1095+00.00 Lt.
-L- Sta. 1071+00.00 Rt. TO 1080+50.00 Rt.
-L- Sta. 1086+00.00 Rt. TO 1088+75.00 Rt.
-L- Sta. 1097+00.00 Rt. TO 1101+50.00 Rt.
-L- Sta. 1104+10.00 Rt. TO 1107+10.00 Rt.
-L- Sta. 1104+86.00 Lt. TO 1107+10.00 Lt.
-L- Sta. 1116+00.00 Rt. TO 1127+50.00 Rt.
-L- Sta. 1120+50.00 Lt. TO 1130+00.00 Lt.

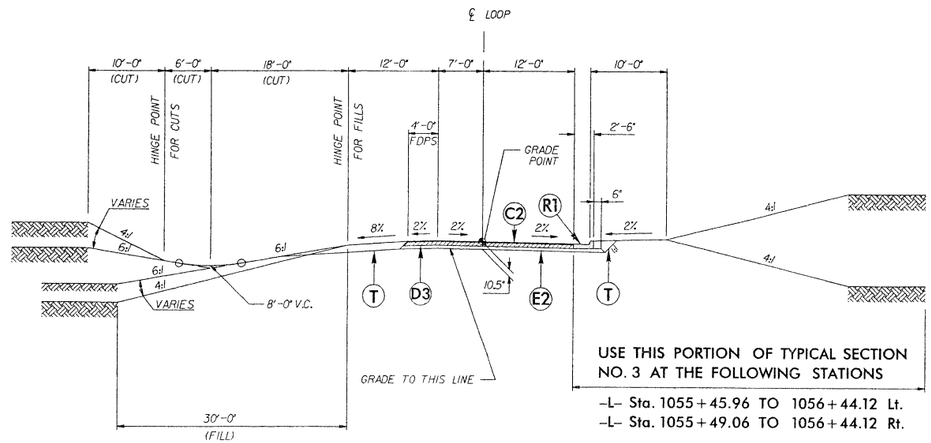


TYPICAL SECTION NO. 2

RAMPS -Y3REV- INTERCHANGE

USE TYPICAL SECTION NO. 2 AT THE FOLLOWING STATIONS

-RPB33- Sta. 0+00.00 TO 19+30.90
-RPC33- Sta. 0+00.00 TO 19+21.36



USE THIS PORTION OF TYPICAL SECTION NO. 3 AT THE FOLLOWING STATIONS

-L- Sta. 1055+45.96 TO 1056+44.12 Lt.
-L- Sta. 1055+49.06 TO 1056+44.12 Rt.

TYPICAL SECTION NO. 3

LOOPS -Y3REV- INTERCHANGE

USE TYPICAL SECTION NO. 3 AT THE FOLLOWING STATIONS

-LPB33- Sta. 0+00.00 TO 11+74.87
-LPC33- Sta. 0+00.00 TO 11+72.55

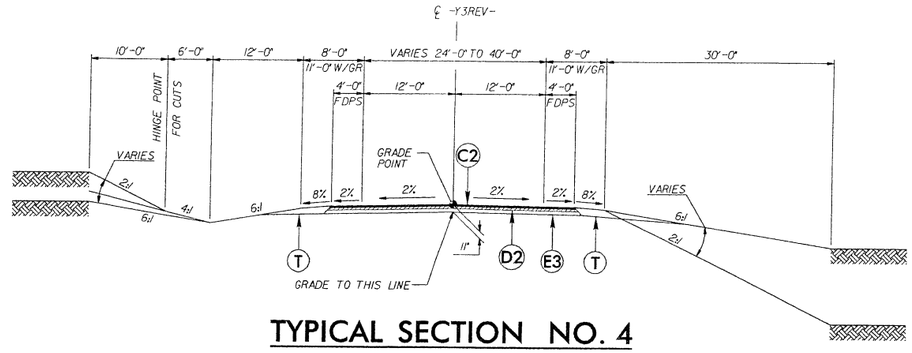
A1	13" CONCRETE
C1	1.5" ACSC TYPE S9.5A
C2	2.5" ACSC TYPE S9.5B
D2	3.5" ACIC TYPE I19.0B
D3	4.5" ACIC TYPE I19.0B
E2	3.5" ACBC TYPE B25.0B
E4	6" ACBC TYPE B25.0B
L	STABILIZER AGGREGATE
R1	2'-6" CURB & GUTTER
R2	4' EXPRESSWAY GUTTER
T	EARTH MATERIAL
X1	3" PADL
X2	VARIABLE PADL

NOTES:
* SHOULDER WIDTH INCREASED 3' WHERE GUARDRAIL IS USED
** FILL SLOPES WITHIN THE INTERCHANGES WILL BE 4:1 OR FLATTER.
*** SEE CROSS SECTIONS FOR VARIABLE SLOPES
**** PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

01.001.001/dgn/12304ab.typ rev. date: 12-04-01

TRANSITE CONSULTING ENGINEERS, INCORPORATED 1300 Paddock Drive, Suite G-10 Raleigh, N.C. 27609	PROJECT REFERENCE NO.	SHEET NO.
	1-2304AB	2-B
	ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

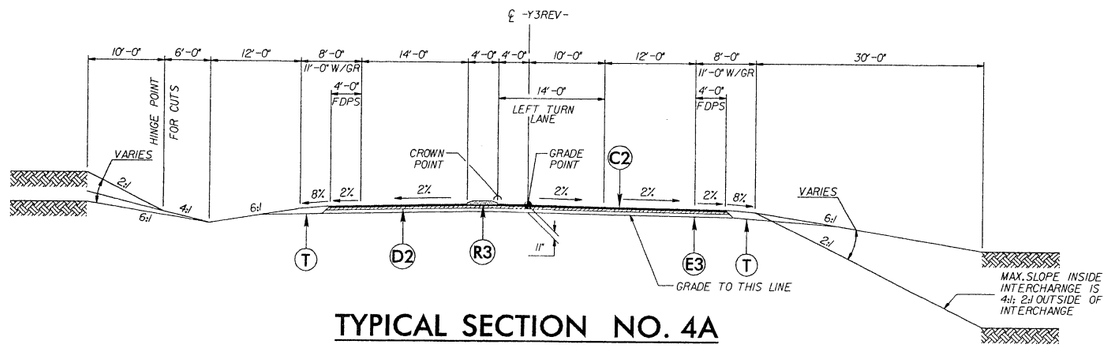


TYPICAL SECTION NO. 4

BELMONT BLVD. -Y3REV-
EAST OF INTERCHANGE

USE TYPICAL SECTION NO. 4 AT THE FOLLOWING STATIONS

-Y3REV- Sta. 26+50.00 TO 47+62.68

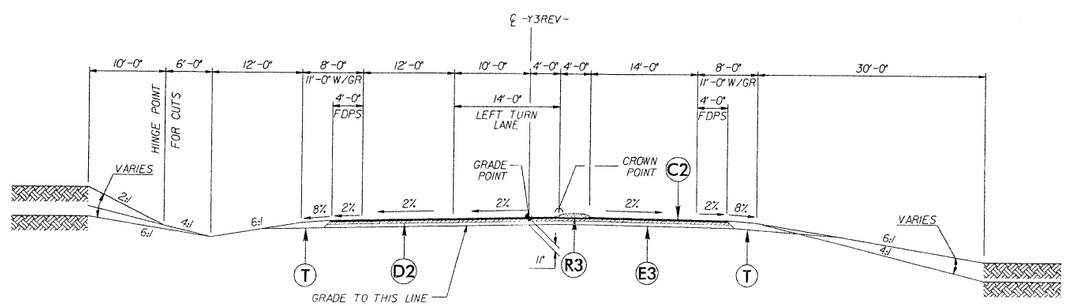


TYPICAL SECTION NO. 4A

BELMONT BLVD. -Y3REV-
INSIDE / WEST OF INTERCHANGE

USE TYPICAL SECTION NO. 4A AT THE FOLLOWING STATIONS

-Y3REV- Sta. 5+12.52 TO 20+50.00



TYPICAL SECTION NO. 4B

BELMONT BLVD. -Y3REV-
INSIDE INTERCHANGE

5" MONOLITHIC CONCRETE ISLAND TRANSITIONS FROM TYP. 4A TO 4B FROM:

-Y3REV- Sta. 20+50.00 TO 22+30.23

USE TYPICAL SECTION NO. 4B AT THE FOLLOWING STATIONS

-Y3REV- Sta. 22+30.23 TO 25+50.00

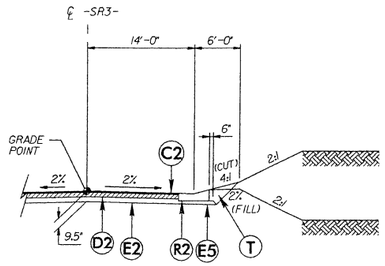
C2	2.5" BCSC S9.5B
D2	3.5" BCIC I19.0B
E3	5" BCBC B25.0B
R3	5" MONO. CONC. ISLAND (KEYED IN)
T	EARTH MATERIAL

NOTES:
* SHOULDER WIDTH INCREASED 3' WHERE GUARDRAIL IS USED
** FILL SLOPES WITHIN THE INTERCHANGES WILL BE 4:1 OR FLATTER.
*** SEE CROSS SECTIONS FOR VARIABLE SLOPES
**** PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

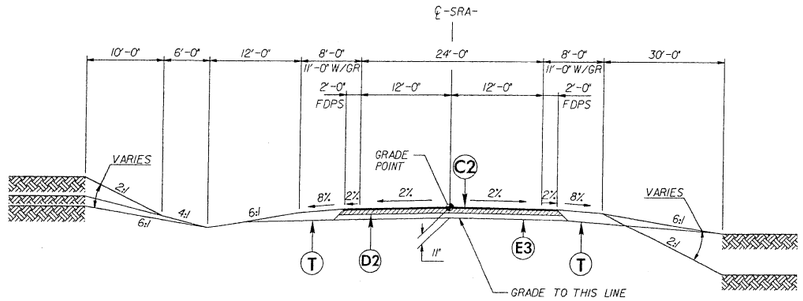
101.001.001/dgn/12304ab.typ rev. date: 12-04-01

TRANSITE CONSULTING ENGINEERS, INCORPORATED 1300 Paddock Drive, Suite G-10 Raleigh, N.C. 27609	PROJECT REFERENCE NO.	SHEET NO.
	I-2304AB	2-C
	ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

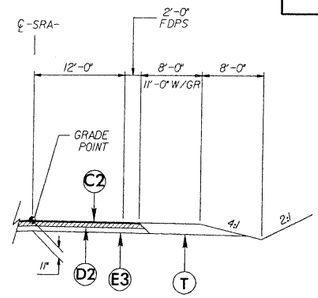
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 6A



TYPICAL SECTION NO. 5



TYPICAL SECTION NO. 5A

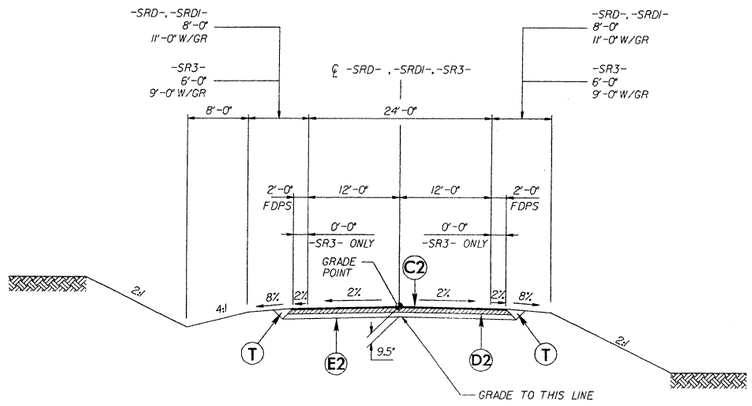
-SRA- RIGHT

USE TYPICAL SECTION NO. 5 AT THE FOLLOWING STATIONS

-SRA- Sta. 10+20.00 Rt. TO 20+50.00 Rt.
-SRA- Sta. 10+20.00 Lt. TO 51+38.75 Lt.
-SRA- Sta. 47+22.68 Rt. TO 51+38.75 Rt.

USE TYPICAL SECTION NO. 5A (IN CONJUNCTION WITH TYPICAL SECTION NO. 5) AT THE FOLLOWING STATIONS

-SRA- Sta. 20+50.00 Rt. TO 47+22.68 Rt.



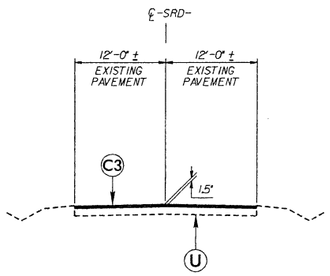
TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AT THE FOLLOWING STATIONS

-SRD- Sta. 21+45.00 TO 28+66.96
-SRD1- Sta. 55+97.51 TO 100+28.15
-SR3- Sta. 10+90.05 Lt. TO 36+90.00 Lt.
-SR3- Sta. 10+00.00 Rt. TO 12+13.82 Rt.
-SR3- Sta. 25+50.00 Rt. TO 36+90.00 Rt.

USE TYPICAL SECTION NO. 6A (IN CONJUNCTION WITH TYPICAL SECTION NO.6) AT THE FOLLOWING STATIONS

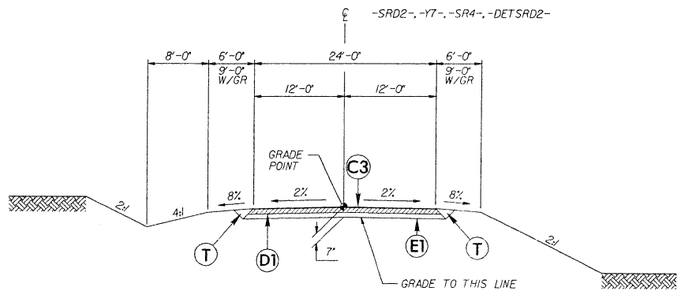
-SR3- Sta. 12+16.00 Rt. TO 25+60.00 Rt.



TYPICAL SECTION NO. 6B

USE TYPICAL SECTION NO. 6B AT THE FOLLOWING STATIONS

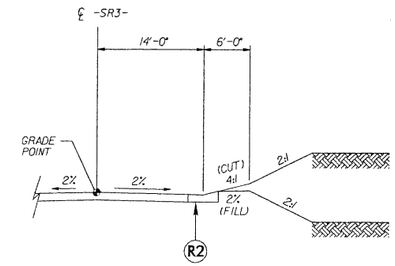
-SRD- Sta. 10+00.00 TO 21+45.00



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AT THE FOLLOWING STATIONS

-SRD2- Sta. 10+22.80 TO 19+61.43
-Y7- Sta. 10+12.00 TO 15+82.39
-SR4- Sta. 10+12.17 TO 18+03.09
-DETSRD2- Sta. 13+68.00 TO 15+87.00



TYPICAL SECTION NO. 7A

USE TYPICAL SECTION NO. 7A IN CONJUCTION WITH TYPICAL NO. 7 AT THE FOLLOWING STATIONS

-SR3- Sta. 16+00.00 Rt. TO 25+50.00 Rt.

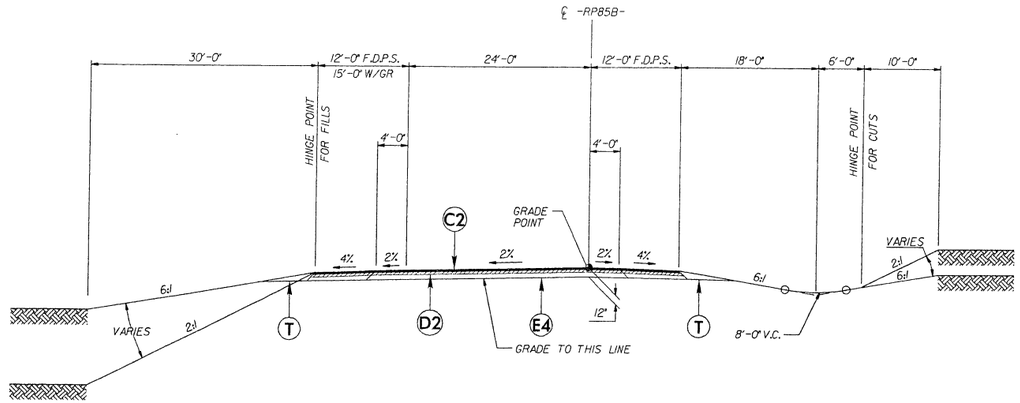
C2	2.5" ACSC TYPE S9.5B
C3	1.5" ACSC TYPE S9.5B
D1	2.5" ACIC TYPE I19.0B
D2	3.5" ACIC TYPE I19.0B
E1	3" ACBC TYPE B25.0B
E2	3.5" ACBC TYPE B25.0B
E3	5" ACBC TYPE B25.0B
E5	VAR. ACBC TYPE B25.0B
R2	4' EXPRESSWAY GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT

NOTES:
* SHOULDER WIDTH INCREASED 3' WHERE GUARDRAIL IS USED
** FILL SLOPES WITHIN THE INTERCHANGES WILL BE 4:1 OR FLATTER.
*** SEE CROSS SECTIONS FOR VARIABLE SLOPES
**** PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

10L001/dgn/12304ab.typ rev. date: 1-07-03

TRANSITE CONSULTING ENGINEERS, INCORPORATED 1300 Paddock Drive, Suite G-10 Raleigh, N.C. 27609	PROJECT REFERENCE NO.	SHEET NO.
	I-2304AB	2-D
	ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

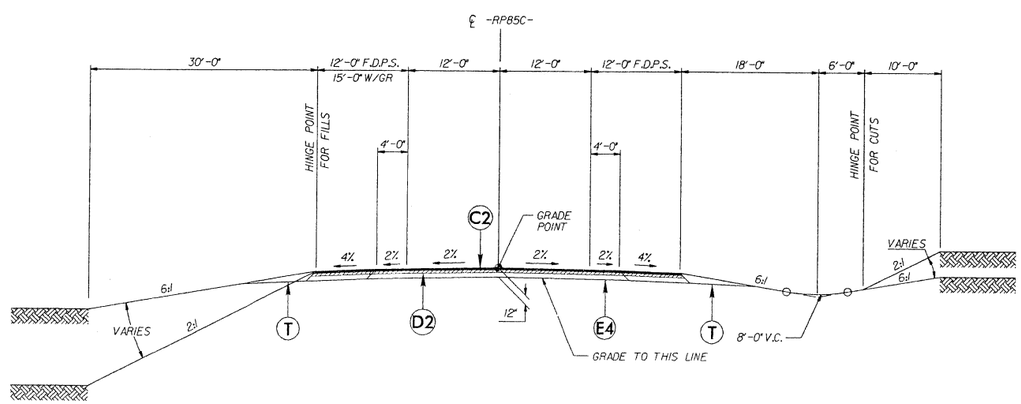
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



USE TYPICAL SECTION NO. 8 AT THE FOLLOWING STATIONS
-RP85B- Sta. 0+00.00 TO 21+15.08

TYPICAL SECTION NO. 8

I-85 BUSINESS SOUTH RAMP



USE TYPICAL SECTION NO. 9 AT THE FOLLOWING STATIONS
-RP85C- Sta. 0+00.00 TO 12+03.85

C2	2.5" BCSC S9.5B
D2	3.5" BCIC I19.0B
E4	6" BCBC B25.0B
T	EARTH MATERIAL

TYPICAL SECTION NO. 9

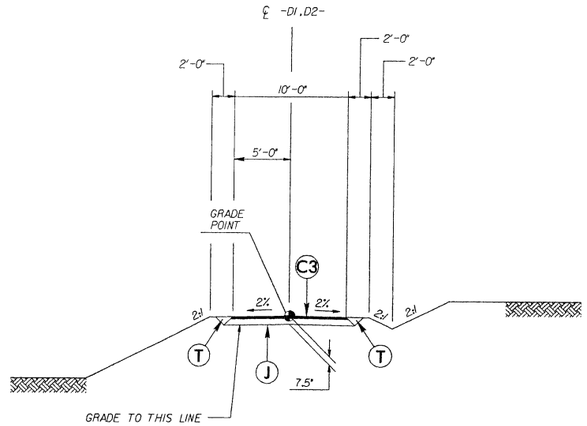
I-85 BUSINESS NORTH RAMP

NOTES:
* SHOULDER WIDTH INCREASED 3' WHERE GUARDRAIL IS USED
** FILL SLOPES WITHIN THE INTERCHANGES WILL BE 4:1 OR FLATTER.
*** SEE CROSS SECTIONS FOR VARIABLE SLOPES
**** PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

101.00.001/dgn/12304ab.typ rev. date: 12-04-01

TRANSITE CONSULTING ENGINEERS, INCORPORATED 1300 Paddock Drive, Suite G-10 Raleigh, N.C. 27609	PROJECT REFERENCE NO.	SHEET NO.
	1-2304AB	2-E
	ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

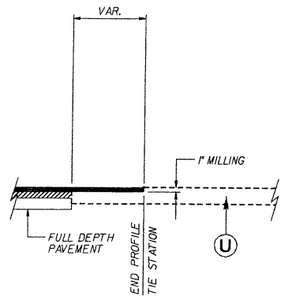


TYPICAL SECTION NO. 10

D1, D2 (DRIVEWAYS)

USE TYPICAL SECTION NO. 10 AT THE FOLLOWING STATIONS

-D1- Sta. 10+12.00 TO Sta. 11+07.00
-D2- Sta. 10+12.00 TO Sta. 11+32.00



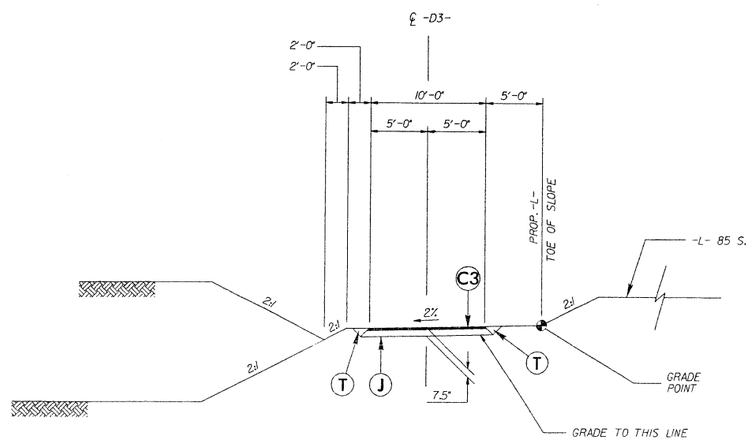
VARIABLE - AS ESTABLISHED BY ENGINEER

DETAIL E-1

EXISTING TIE IN MILLING

USE DETAIL E-1 AT THE FOLLOWING STATIONS

-Y7- Sta. 16+17.39
-Y3REV- Sta. 47+62.68
-SR3- Sta. 10+90.05
-SR3- Sta. 36+90.00
-SRA- Sta. 51+38.75
-RP85B- Sta. 21+15.08
-RP85C- Sta. 12+03.85



TYPICAL SECTION NO. 11

D3 (DRIVEWAY)

USE TYPICAL SECTION NO. 11 AT THE FOLLOWING STATIONS

-D3- Sta. 10+00.00 TO Sta. 11+23.18

C3	1.5" BCSC S9.5B
J	PROP. 6.0" ABC
T	EARTH MATERIAL
U	EXISTING PAVEMENT

NOTES:
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

10L001.001/dgn/12304ab.typ rev. date: 12-04-01

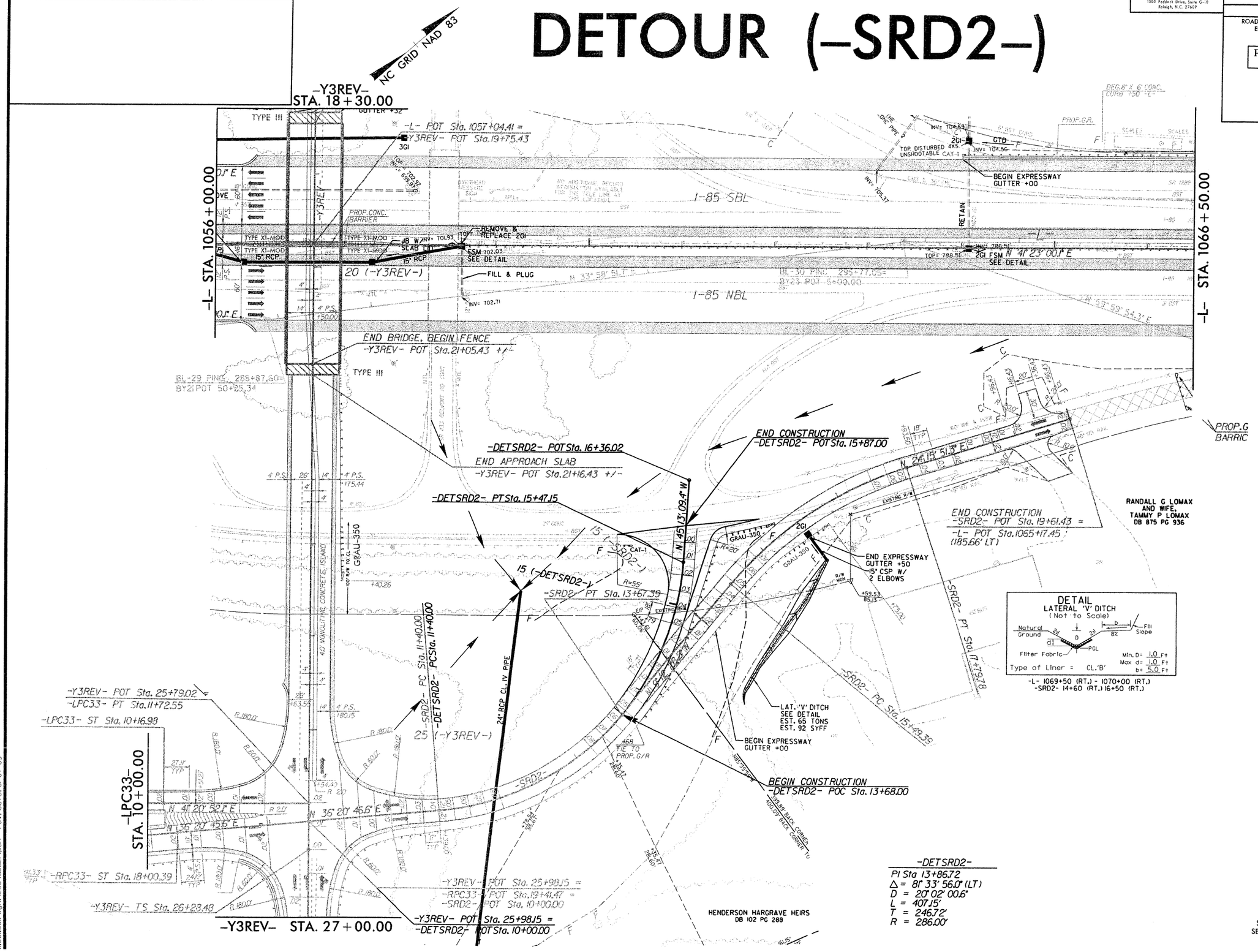
REVISIONS

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
1-2304AB	2-F
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETOUR (-SRD2-)



SEE SHEET 45 FOR -DETSRD2- PROFILE
SEE SHEET 36 & 37 FOR -SRA- PROFILE

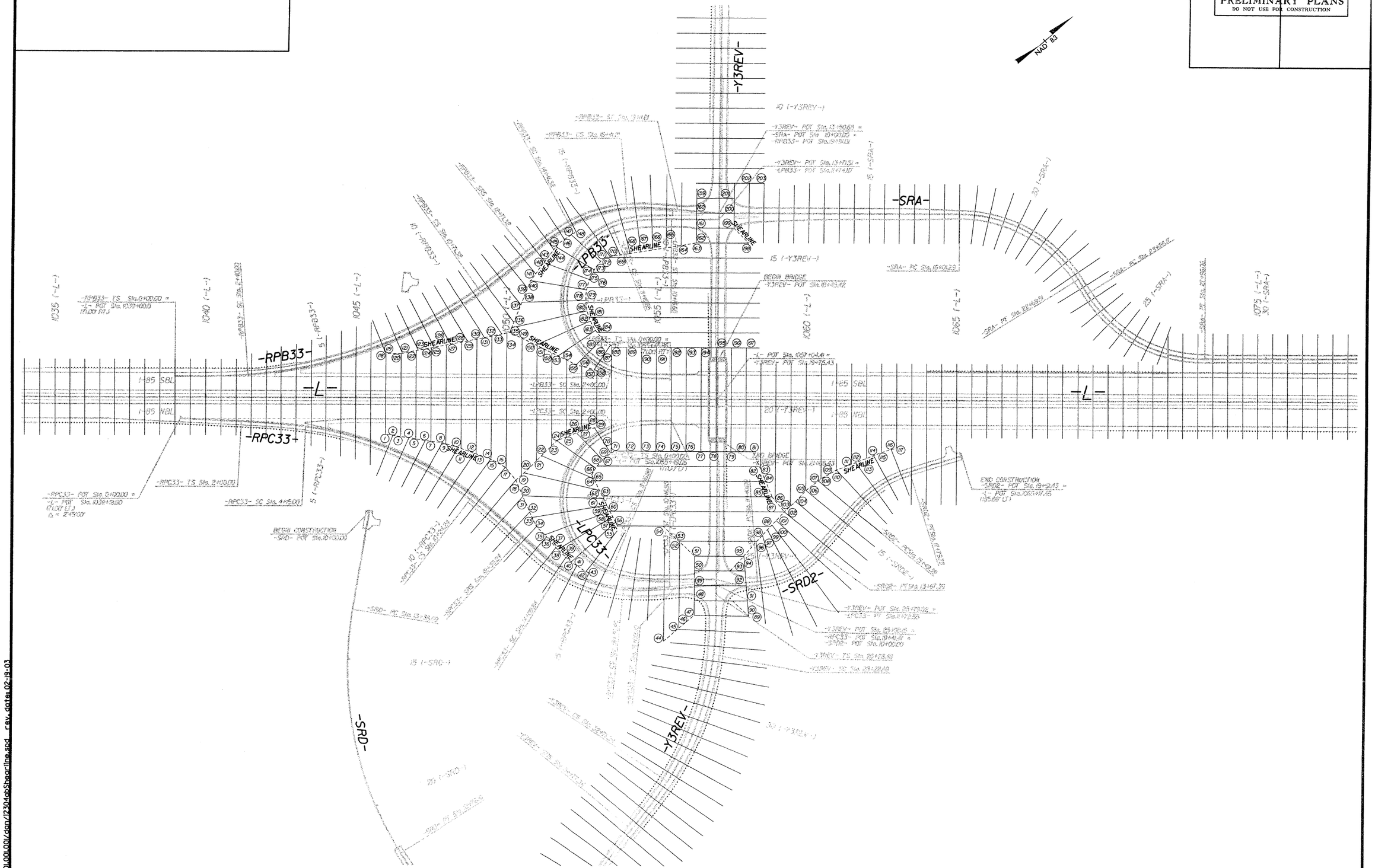
REVISIONS

-L- /-Y3REV- SHEAR POINT DIAGRAM

TRANSITE CONSULTING
ENGINEERS, INCORPORATED
3300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	2-G
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



101.001.001/dgn/I2304abShearline.spd rev. date: 02-19-03

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
SUMMARY #1					
-L- (LT) STA. 980+00.00 to 998+00.00	50,350		2,218	0	48,132
-L- (MED) STA. 980+00.00 to 998+00.00	3,491		347	0	3,144
-L- (RT) STA. 980+00.00 to 998+00.00	9,308		12,709	3,402	0
-SRD1- STA. 55+97.51 to 68+00.00	37,868		16,375	0	21,494
#1 TOTAL	101,018		31,649	3,402	72,770
SUMMARY #2					
-L- (LT) STA. 998+00.00 to 1036+00.00	69,521		18,833	0	50,688
-L- (MED) STA. 998+00.00 to 1036+00.00	8,179		2,522	0	5,656
-L- (RT) STA. 998+00.00 to 1036+00.00	16,691		32,260	15,569	0
-SRD1- STA. 68+00.00 to 100+28.15	60,829		27,308	0	33,521
#2 TOTAL	155,220		80,923	15,569	89,866
SUMMARY #3					
-L- (LT) STA. 1036+00.00 to 1058+00.00	18,297		38,648	20,351	0
-L- (MED) STA. 1036+00.00 to 1058+00.00	2,624		5,906	3,282	0
-L- (RT) STA. 1036+00.00 to 1058+00.00	15,625		38,274	22,648	0
-Y3REV- STA. 5+12.52 to 47+62.58	132,594		481,002	348,408	0
-RPB33- STA. 7+00.00 to 14+50.00	21,814		4,861	0	16,952
-LPB33- STA. 2+50.00 to 11+00.00	27,580		6,145	0	21,435
-RPC33- STA. 7+00.00 to 15+00.00	20,699		55,700	35,000	0
-LPC33- STA. 2+50.00 to 11+00.00	7,420		220,665	213,245	0
-SRD- STA. 21+45.00 to 28+50.00	573		4,364	3,791	0
-Y7- STA. 10+50.00 to 16+17.39	251		9,104	8,853	0
#3 TOTAL	247,477		864,669	655,578	38,388
SUMMARY #4					
-L- (LT) STA. 1058+00.00 to 1098+00.00	22,492		3,147	0	19,345
-L- (MED) STA. 1058+00.00 to 1098+00.00	8,139		699	0	7,441
-L- (RT) STA. 1058+00.00 to 1098+00.00	54,619		46,115	0	8,503
-SRA- STA. 11+00.00 to 51+38.75	66,003		36,691	0	29,312
-SRD2- STA. 11+00.00 to 19+61.43	14,893		119,401	104,508	0
-SR4- STA. 10+12.17 to 18+03.09	9,854		74	0	9,780
-DETSRD2- STA. 13+68.00 to 15+87.00	0		2863	3436	0
DETOUR REMOVAL					
-DETSRD2- STA. 13+68.00 to 15+87.00	3436		0	0	3436
#4 TOTAL	179,436		208,990	107,944	77,817
SUMMARY #5					
-L- (LT) STA. 1098+00.00 to 1147+50.00	31,658		32,235	419	0
-L- (MED) STA. 1098+00.00 to 1147+50.00	8,818		1,361	0	7,477
-L- (RT) STA. 1098+00.00 to 1147+50.00	17,094		28,514	11,420	0
-SR3- STA. 10+90.05 to 36+90.00	6,982		12,111	5,130	0
-RP85B- STA. 11+13.49 to 21+15.08	4,635		1,153	0	3,482
-RP85C- STA. 7+68.22 to 11+43.48	3,193		0	0	3,193
#5 TOTAL	72,380		75,374	16,968	14,152
SUMMARY #6					
-L- (LT) STA. 1147+50.00 to 1169+68.50	12,802		33	0	3,465
-L- (MED) STA. 1147+50.00 to 1169+68.50	8,469		847	0	5,699
-L- (RT) STA. 1147+50.00 to 1169+68.50	5,942		190	0	5,752
#6 TOTAL	27,213		1,070	0	14,916
SUMMARIES #1-6 TOTAL	782,744		1,262,675	799,461	304,472
EST. 5% TO REPLACE SOIL IN BORROW PIT				39,973	
WASTE IN LIEU OF BORROW				-304,472	-304,472
GRAND TOTALS	782,744		1,262,675	534,962	3436
SAY	783,000		1,263,000	535,000	3450

COMPUTED BY: FCP DATE: 09-19-02
CHECKED BY: DBS DATE: 09-19-02

PROJECT REFERENCE NO. I-2304AB
SHEET NO. 3-A

COMPUTED BY: PER	DATE: 1-06-03
CHECKED BY: CJM	DATE: 4-25-03

PROJ. REFERENCE NO.	SHEET NO.
I-2304AB	3-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RIGHT OF WAY AREA DATA SHEET

PARCEL NO.	PROPERTY OWNERS NAME	TOTAL AREA	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
1	LOUISE C. SIGMON ESTATE	45,302 SF	11,265 SF		34,037 SF				
2	MOBILE HOME CITY, INC.	3.59 Ac	13,398 SF		3.28 Ac				
3	MOBILE HOME CITY, INC.	6.53 Ac	2,041 SF		6.48 Ac				
4	ROBERT L. GRUBB	UNKNOWN	28326 SF	UNKNOWN		3,435 SF	3,774 SF		
5	EVERHART USED CARS, INC.	5.60 Ac	1.25 Ac	4.35 Ac			1,251 SF		
6	FRANKLIN HAYWOOD GRAVES & WIFE, MARAGARET L. GRAVES	4.00 Ac	18,380 SF		3.58 Ac				
7	FRANKLIN HAYWOOD GRAVES & WIFE, MARAGARET L. GRAVES	5.02 Ac	21,863 SF		4.52 Ac				
8	TRUSTEES OF GREERS CHAPEL UNITED METHODIST CHURCH	6.17 Ac	21,649 SF		5.67 Ac				
9	MICHAEL EDWARD TURNER & WIFE, MARIE OVERLA TURNER	5.84 Ac	28,842 SF		5.18 Ac				
10	FRANK J. BONDATTI & WIFE, JACUELINE D. BONDATTI	9.07 Ac	3.89 Ac	5.18 Ac					
11	RANDOLPH NATHAN MARTIN & WIFE, CATHY R. MARTIN	5.33 Ac	14,830 SF		4.99 Ac				
12	THOMAS E. MARTIN & BELINDA E. LEMONS	7.35 Ac	24,937 SF		6.78 Ac				
13	EARL L. BLANTON & WIFE, KATHY L. BLANTON	12.36 Ac	35,540 SF		11.54 Ac				
14	ROBERT L. GRUBB, TRUSTEE OF JUNE C. LITTLE	UNKNOWN	2.66 Ac	UNKNOWN					
15	ROBERT L. GRUBB, TRUSTEE OF JUNE C. LITTLE	UNKNOWN	2.39 Ac		UNKNOWN	1,125 SF	2,027 SF		
16	WALTER MCDOWELL, SR	3.00 Ac		3.00 Ac			571 SF	2,030 SF	
17	HENDERSON HARGRAVE HEIRS	34.90 Ac	14.00 Ac	20.90 Ac			479 SF	900 SF	
18	RANDALL G. LOMAX & WIFE, TAMMY P. LOMAX	7.01 Ac	17,631 SF	6.61 Ac		1,832 SF			
19	DAVID G. VARNER & WIFE, TRACEY S. VARNER	12.14 Ac	9.57 Ac		2.57 Ac				
20	ROBERT L. GRUBB, TRUSTEE OF JUNE C. LITTLE	UNKNOWN	2.53 Ac	UNKNOWN					
21	WALSER ENTERPRISES	9.80 Ac	1.95 Ac		7.85 Ac	6,261 SF			
22	ROBERT L. GRUBB, TRUSTEE OF JUNE C. LITTLE	UNKNOWN	1.16 Ac	UNKNOWN		21,723 SF			
23	WHITEHAT NIGHT CLUB, INC.	39,[illegible]6 SF	38,744 SF		852 SF				
24	BILL'S TRUCK STOP, INC.	1[illegible] Ac 479 SF	2.04 Ac						
25	C.C. FITZGERALD HEIRS	UNKNOWN	1.87 Ac	UNKNOWN					
26	C.C. FITZGERALD HEIRS	UNKNOWN	3.14 Ac		UNKNOWN				
27	DELMONT C. GRIM & WIFE, ELSIE L. GRIM	3.20 Ac	17,907 SF		2.79 Ac				
28	BRIGHT I. SINK & WIFE, ANNIE LEE FITZGERALD SINK	3.08 Ac	12,855 SF	2.79 Ac		3,582 SF			
29	JOHN H. FERGUSON & WIFE, BETTY G. FERGUSON	3.94 Ac	12,103 SF	3.66 Ac		3,492 SF			
30	ROBERT A. GUSMAN	4.33 Ac	29,132 SF	3.66 Ac					
31	LESTER C. KINES & WIFE, TROY KINES	16,553 SF	16,453 SF			8,388 SF			
32	LESTER C. KINES & WIFE, TROY KINES	1.30 Ac	24,308 SF	32,320 SF		3,233 SF			
33	WILLIAM RODGER FOSTER & WIFE, SYLVIA L. FOSTER	1.31 Ac			1.31 Ac	6,871 SF			
34	MOBILE DEVELOPMENT CORPORATION	10.06 Ac	1.36 Ac		8.70 Ac				
35	CHARLES E. SEARS & WIFE, MARY JANE SEARS	2.77 Ac	20,866 SF	2.29 Ac					
36	DEBORAH L. BUFFKIN & HUSBAND, ZACHARY A. BUFFKIN	1.39 Ac	10,588 SF	1.15 Ac					
37	FOY M. MCMAHAN & WIFE, DOROTHY D. MCMAHAN	1.39 Ac	10,686 SF	1.14 Ac					
38	ANDREW W. LEONARD & WIFE, JEAN E. LEONARD	7.01 Ac	25,978 SF	6.41 Ac		1,700 SF			
39	LARRY L. GOBBLE & WIFE, KATHY L. GOBBLE	1.30 Ac	5,437 SF		1.17 Ac				
40	GEORGE W. GOBBLE & WIFE, BETTY E. GOBBLE	16.54 Ac	17,465 SF		16.14 Ac	317 SF			

10:60L0L/10N/R/W/row-notasheet.sum rev. date: 04-25-03

COMPUTED BY: PER DATE: 1-06-03
CHECKED BY: CJM DATE: 4-25-03

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RIGHT OF WAY AREA DATA SHEET

PROJ. REFERENCE NO.	SHEET NO.
I-2304AB	3-C

PARCEL NO.	PROPERTY OWNERS NAME	TOTAL AREA	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
41	MARGARET N. CLARK	1.66 Ac	10,913 SF	1.41 Ac		1,120 SF	829 SF		
42	JERRY W. EVERHART & NANCY L. EVERHART	1.66 Ac	26,225 SF	33,069 SF					
43	E.S. STOKES & WIFE, RUTH S.	177.95 Ac		177.95 Ac		309 SF			
44	BOBBY DEAN LANKFORD & WIFE, JOANN K. LANKFORD	15.51 Ac			15.51 Ac			1,320 SF	
45	WILLIAM D. ROBERTSON, JR. ET AL	UNKNOWN				4,485 SF		323 SF	
46	BEALLMONT FARM, INC.	60.90 Ac	8.13 Ac		52.77 Ac			2,401 SF	
47	BEALLGRAY FARM, INC.	UNKNOWN	1.40 Ac	UNKNOWN		1,098 SF		1,669 SF	
48	BONNIE ELLER	1.78 Ac	7,463 SF	1.61 Ac					
49	MARY TIANO	42,025 SF				1,523 SF			

101.001.001/DGN/ROW/row-datasheet.sum rev. date: 04-25-03

PROJ. REFERENCE NO.	SHEET NO.
I-2304AB	3-D

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RIGHT OF WAY PARCEL INDEX

PARCEL NUMBER	SHEET NUMBER	PROPERTY OWNER NAME
1	4	LOUISE C. SIGMON ESTATE
2	4	MOBILE HOME CITY, INC.
3	4,5	MOBILE HOME CITY, INC.
4	4,5,6,7	ROBERT L. GRUBB
5	5,6	EVERHART USED CARS, INC.
6	5,6	FRANKLIN HAYWOOD GRAVES & WIFE, MARAGARET L. GRAVES
7	6	FRANKLIN HAYWOOD GRAVES & WIFE, MARAGARET L. GRAVES
8	6,7	TRUSTEES OF GREERS CHAPEL UNITED METHODIST CHURCH
9	7	MICHAEL EDWARD TURNER & WIFE, MARIE OVERLA TURNER
10	7	FRANK J. BONDATTI & WIFE, JACUELINE D. BONDATTI
11	7	RANDOLPH NATHAN MARTIN & WIFE, CATHY R. MARTIN
12	7	THOMAS E. MARTIN & BELINDA E. LEMONS
13	7,8	EARL L. BLANTON & WIFE, KATHY L. BLANTON
14	7,8,9	ROBERT L. GRUBB, TRUSTEE OF JUNE C. LITTLE
15	8,9	ROBERT L. GRUBB, TRUSTEE OF JUNE C. LITTLE
16	9,18	WALTER MCDOWELL, SR
17	9,18,19	HENDERSON HARGRAVE HEIRS
18	9,10	RANDALL G. LOMAX & WIFE, TAMMY P. LOMAX
19	9,18	DAVID G. VARNER & WIFE, TRACEY S. VARNER
20	18	ROBERT L. GRUBB, TRUSTEE OF JUNE C. LITTLE
21	9	WALSER ENTERPRISES
22	9,18	ROBERT L. GRUBB, TRUSTEE OF JUNE C. LITTLE
23	9,10	WHITEHAT NIGHTCLUB, INC.
24	9,10	BILL'S TRUCK STOP, INC.
25	9,10,11,12	C.C. FITZGERALD HEIRS
26	9,10,11	C.C. FITZGERALD HEIRS
27	10,11	DELMONT C. GRIM & WIFE, ELSIE L. GRIM
28	11	BRIGHT I. SINK & WIFE, ANNIE LEE FITZGERALD SINK

PARCEL NUMBER	SHEET NUMBER	PROPERTY OWNER NAME
29	11,12	JOHN H. FERGUSON & WIFE, BETTY G. FERGUSON
30	12,13	ROBERT A. GUSMAN
31	11	LESTER C. KINES & WIFE, TROY KINES
32	11,12	LESTER C. KINES & WIFE, TROY KINES
33	11	WILLIAM RODGER FOSTER & WIFE, SYLVIA L. FOSTER
34	12,13	MOBILE DEVELOPMENT CORPORATION
35	13	CHARLES E. SEARS & WIFE, MARY JANE SEARS
36	13	DEBORAH L. BUFFKIN & HUSBAND, ZACHARY A. BUFFKIN
37	13	FOY M. MCMAHAN & WIFE, DOROTHY D. MCMAHAN
38	13,14	ANDREW W. LEONARD & WIFE, JEAN E. LEONARD
39	13	LARRY L. GOBBLE & WIFE, KATHY L. GOBBLE
40	13,14	GEORGE W. GOBBLE & WIFE, BETTY E. GOBBLE
41	14	MARGARET N. CLARK
42	14	JERRY W. EVERHART & NANCY L. EVERHART
43	14	E.S. STOKES & WIFE, RUTH S.
44	15,16	BOBBY DEAN LANKFORD & WIFE, JOANN K. LANKFORD
45	16	WILLIAM D. ROBERTSON, JR. ET AL
46	18,19,20	BEALLMONT FARM, INC.
47	18,20	BEALLGRAY FARM, INC.
48	20	BONNIE ELLER
49	20	THERESA MARY TIANO

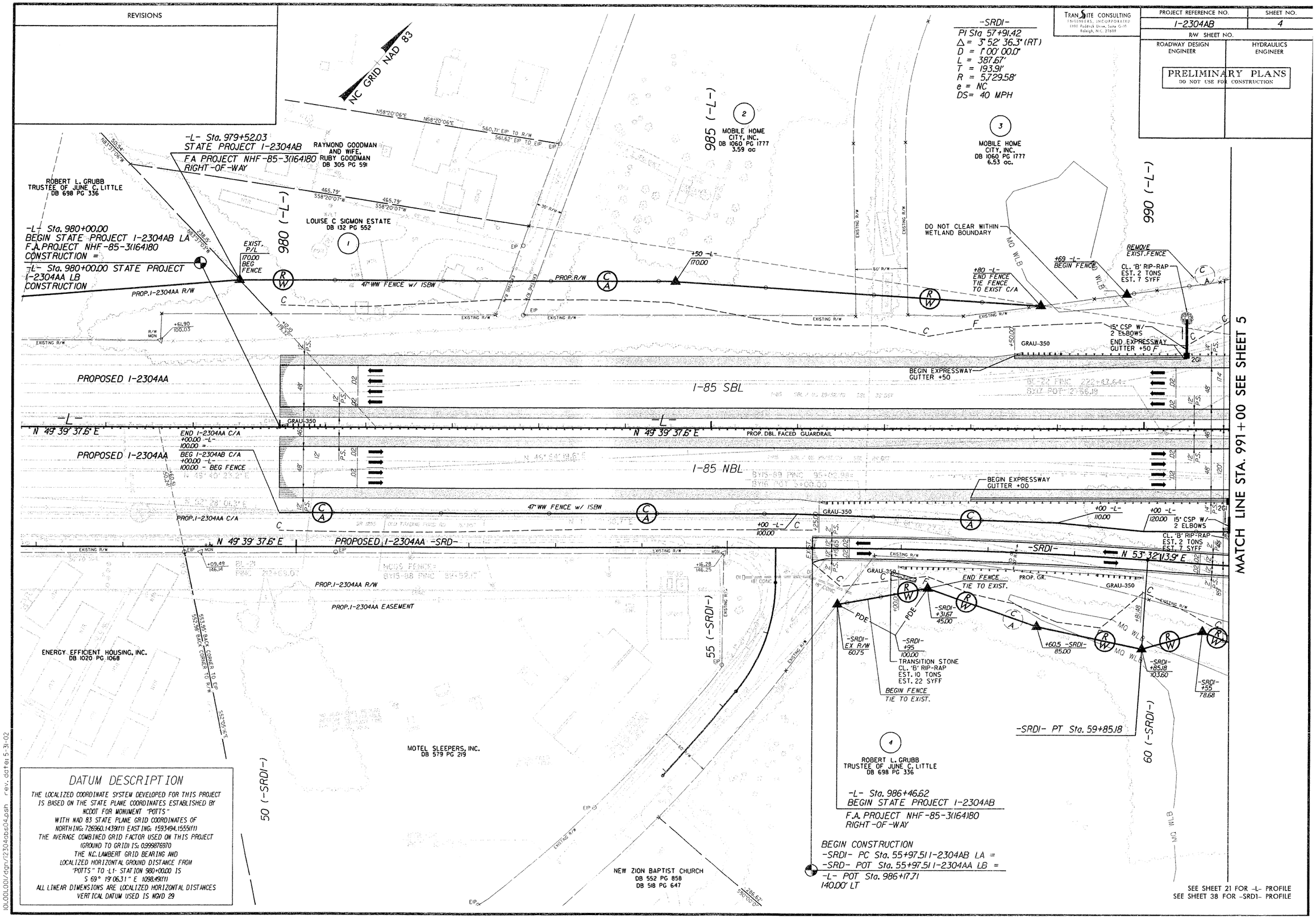
01.001.001/001/row-datasheet.sum rev. date: 04-25-03

REVISIONS

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1810 Paddock Drive, Suite G-16
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "POTTS"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 726960.1439(ft) EASTING: 1593494.1555(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999876970
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "POTTS" TO -L1- STATION 980+00.00 IS
S 69° 19' 06.31" E 1098.49(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

SEE SHEET 21 FOR -L- PROFILE
SEE SHEET 38 FOR -SRDI- PROFILE

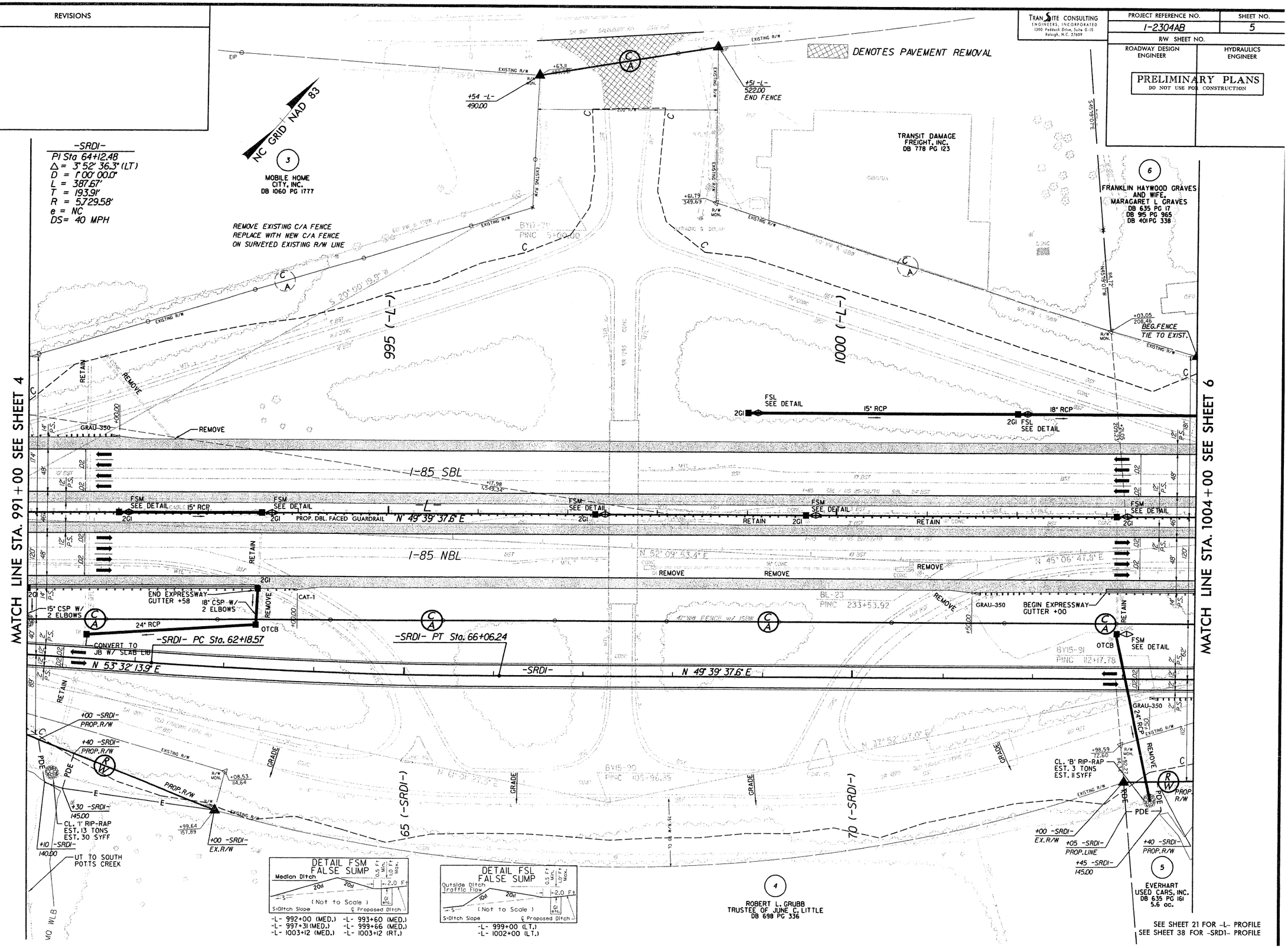
10L001.001/dgn/12304abs04.psh rev. date: 5-31-02

REVISIONS

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



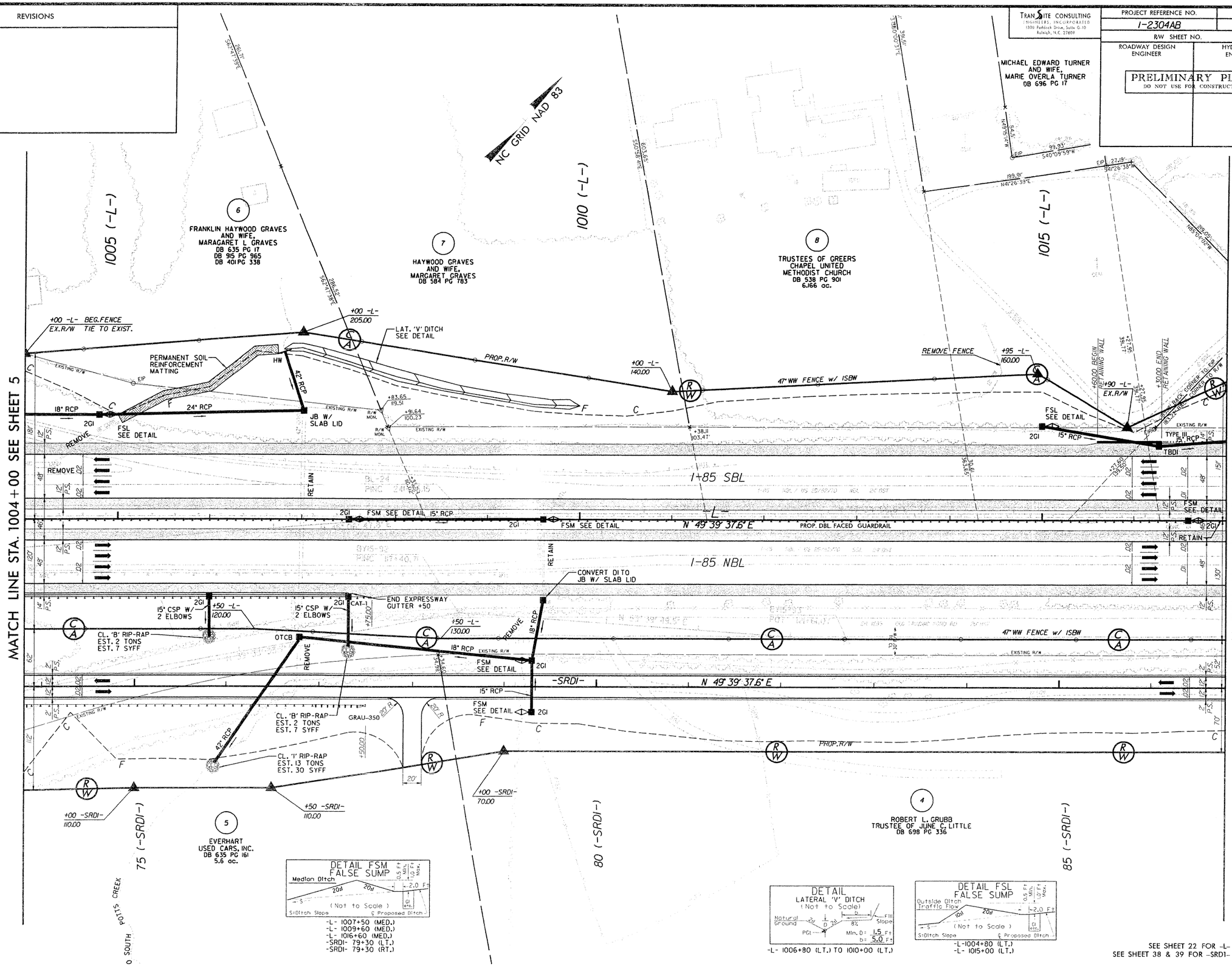
10L001.001/dgn/12304abs05.pbh rev. date: 02-19-03

REVISIONS

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

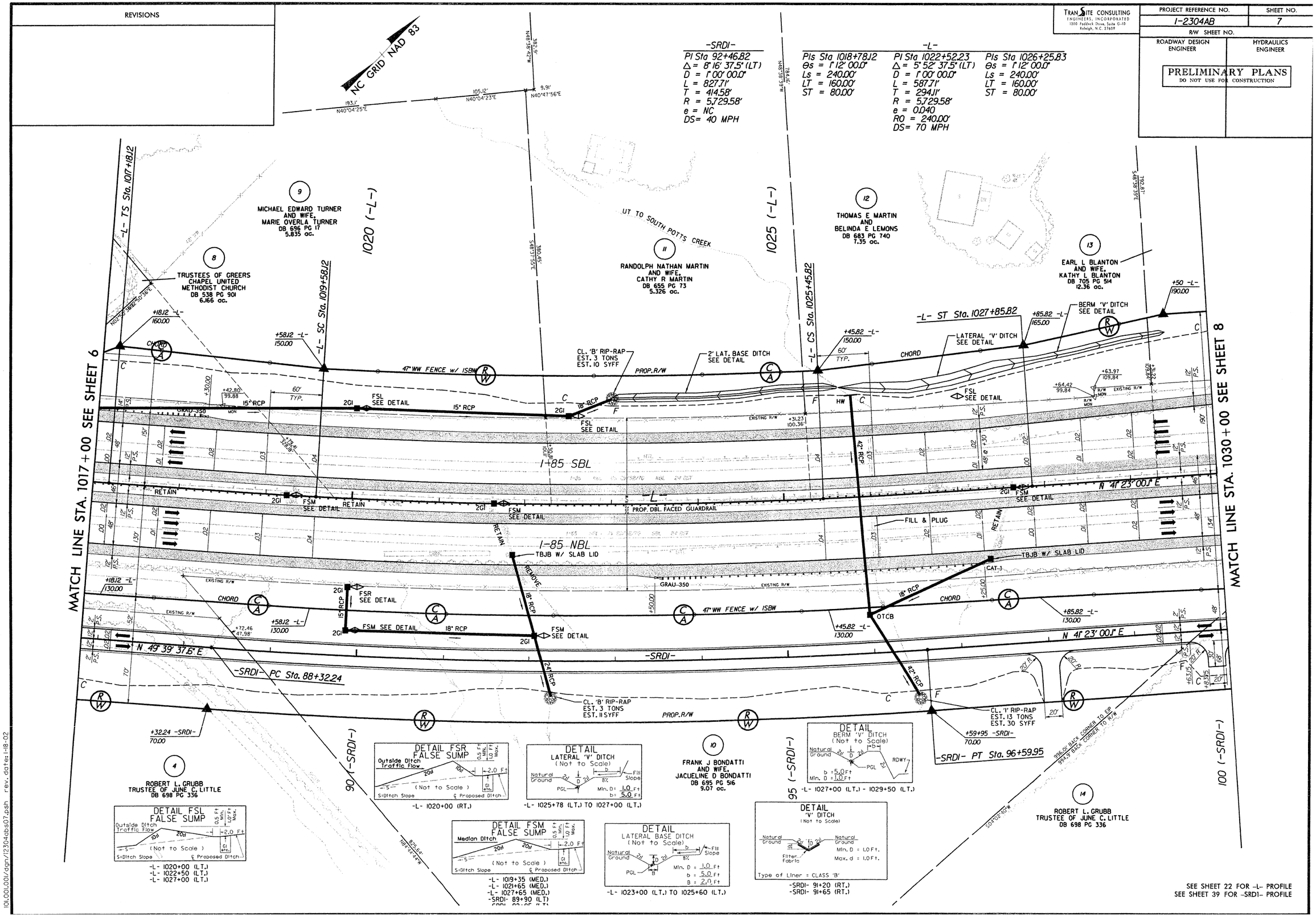
PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 22 FOR -L- PROFILE
SEE SHEET 38 & 39 FOR -SRDI- PROFILE

101.001.001/dgn/12304abs06.psh rev. date: 1-18-02


REVISIONS
TRANSITE CONSULTING ENGINEERS, INCORPORATED
PROJECT REFERENCE NO. I-2304AB
SHEET NO. 7
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-SRDI-
PI Sta 92+46.82
Δ = 8° 16' 37.5" (LT)
D = 1° 00' 00.0"
L = 827.71'
T = 414.58'
R = 5,729.58'
e = NC
DS= 40 MPH
-L-
PIs Sta 1018+78.12
Θs = 1° 12' 00.0"
Ls = 240.00'
LT = 160.00'
ST = 80.00'
PI Sta 1022+52.23
Δ = 5° 52' 37.5" (LT)
D = 1° 00' 00.0"
L = 587.71'
T = 294.11'
R = 5,729.58'
e = 0.040
RO = 240.00'
DS= 70 MPH
PIs Sta 1026+25.83
Θs = 1° 12' 00.0"
Ls = 240.00'
LT = 160.00'
ST = 80.00'
NC GRID NAD 83
MATCH LINE STA. 1017+00 SEE SHEET 6
MATCH LINE STA. 1030+00 SEE SHEET 8
MICHAEL EDWARD TURNER AND WIFE, MARIE OVERLA TURNER DB 696 PG 17 5.835 ac.
TRUSTEES OF GREERS CHAPEL UNITED METHODIST CHURCH DB 538 PG 901 6.166 ac.
RANDOLPH NATHAN MARTIN AND WIFE, CATHY R MARTIN DB 655 PG 73 5.326 ac.
THOMAS E MARTIN AND BELINDA E LEMONS DB 683 PG 740 7.35 ac.
EARL L BLANTON AND WIFE, KATHY L BLANTON DB 705 PG 514 12.36 ac.
ROBERT L. GRUBB TRUSTEE OF JUNE C. LITTLE DB 698 PG 336
FRANK J BONDATTI AND WIFE, JACUELINE D BONDATTI DB 695 PG 516 9.07 ac.
ROBERT L. GRUBB TRUSTEE OF JUNE C. LITTLE DB 698 PG 336
UT TO SOUTH POTTS CREEK
1020 (-L-)
1025 (-L-)
90 (-SRDI-)
95 (-SRDI-)
100 (-SRDI-)
-L- TS Sta. 1017+18.12
-L- SC Sta. 1019+58.12
-L- CS Sta. 1025+45.82
-L- ST Sta. 1027+85.82
-SRDI- PC Sta. 88+32.24
-SRDI- PT Sta. 96+59.95
I-85 SBL
I-85 NBL
N 41° 23' 00.1" E
N 49° 39' 37.6" E
47" WW FENCE w/ ISBW
PROP. R/W
PROP. DBL. FACED GUARDRAIL
CL. 'B' RIP-RAP EST. 3 TONS EST. 10 SYFF
2' LAT. BASE DITCH SEE DETAIL
LATERAL 'V' DITCH SEE DETAIL
BERM 'V' DITCH SEE DETAIL
FSL SEE DETAIL
FSM SEE DETAIL
FSR SEE DETAIL
TBJB W/ SLAB LID
FILL & PLUG
CL. 'B' RIP-RAP EST. 3 TONS EST. 11 SYFF
CL. 'I' RIP-RAP EST. 13 TONS EST. 30 SYFF
DETAIL FSL FALSE SUMP
-L- 1020+00 (LT.)
-L- 1022+50 (LT.)
-L- 1027+00 (LT.)
DETAIL FSR FALSE SUMP
-L- 1020+00 (RT.)
DETAIL LATERAL 'V' DITCH (Not to Scale)
-L- 1025+78 (LT.) TO 1027+00 (LT.)
DETAIL FSM FALSE SUMP
-L- 1019+35 (MED.)
-L- 1021+65 (MED.)
-L- 1027+65 (MED.)
-SRDI- 89+90 (LT)
DETAIL LATERAL BASE DITCH (Not to Scale)
-L- 1023+00 (LT.) TO 1025+60 (LT.)
DETAIL BERM 'V' DITCH (Not to Scale)
-L- 1027+00 (LT.) - 1029+50 (LT.)
DETAIL 'V' DITCH (Not to Scale)
-SRDI- 91+20 (RT.)
-SRDI- 91+65 (RT.)
SEE SHEET 22 FOR -L- PROFILE
SEE SHEET 39 FOR -SRDI- PROFILE
101.001.001/dgn/12304abs07.psh rev. date: 1-18-02

-RPB33-	-RPC33-
PIS Sta 1+60.05	PIS Sta 6+66.23	PIS Sta 3+43.39
GS = 4°30'00.0"	Δ = 37°10'28.8" (LT)	GS = 5°06'22.5"
LS = 240.00'	D = 3°45'00.0"	LS = 215.00'
LT = 160.05'	L = 831.32'	LT = 143.39'
ST = 80.05'	T = 426.23'	ST = 71.72'
	R = 1527.89'	
	e = 0.080	
	DS= 60 MPH	

CLINARD J.R. PRESNELL & PAMELA G. PRESNELL DB 870 PG 651

REVISIONS

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

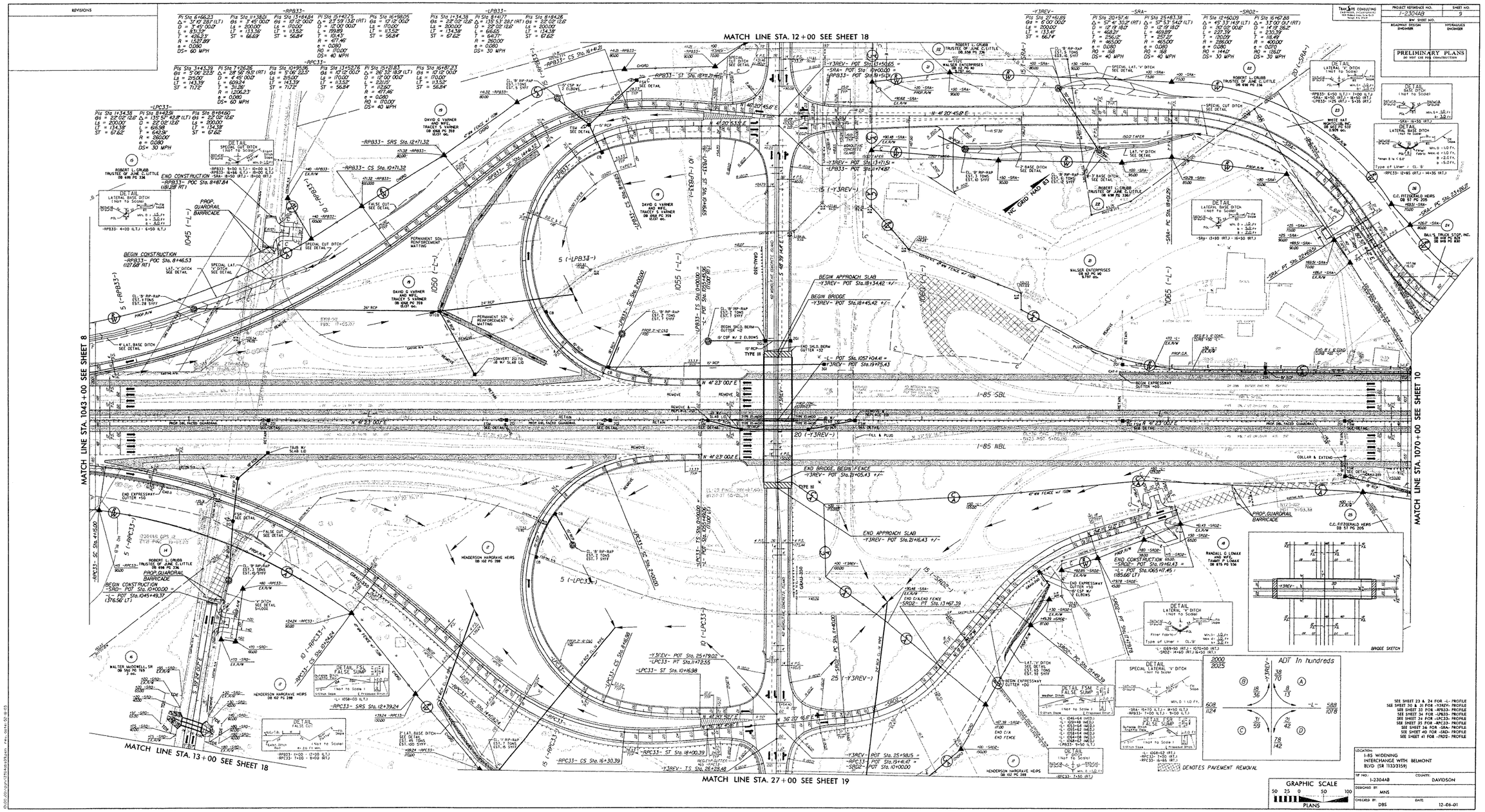
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

RW SHEET NO.

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	8

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Pavilion Drive, Suite G-10
Raleigh, N.C. 27609

10/01/01 00:00 dgn/12304abs08.dgn rev. date: 1-18-02

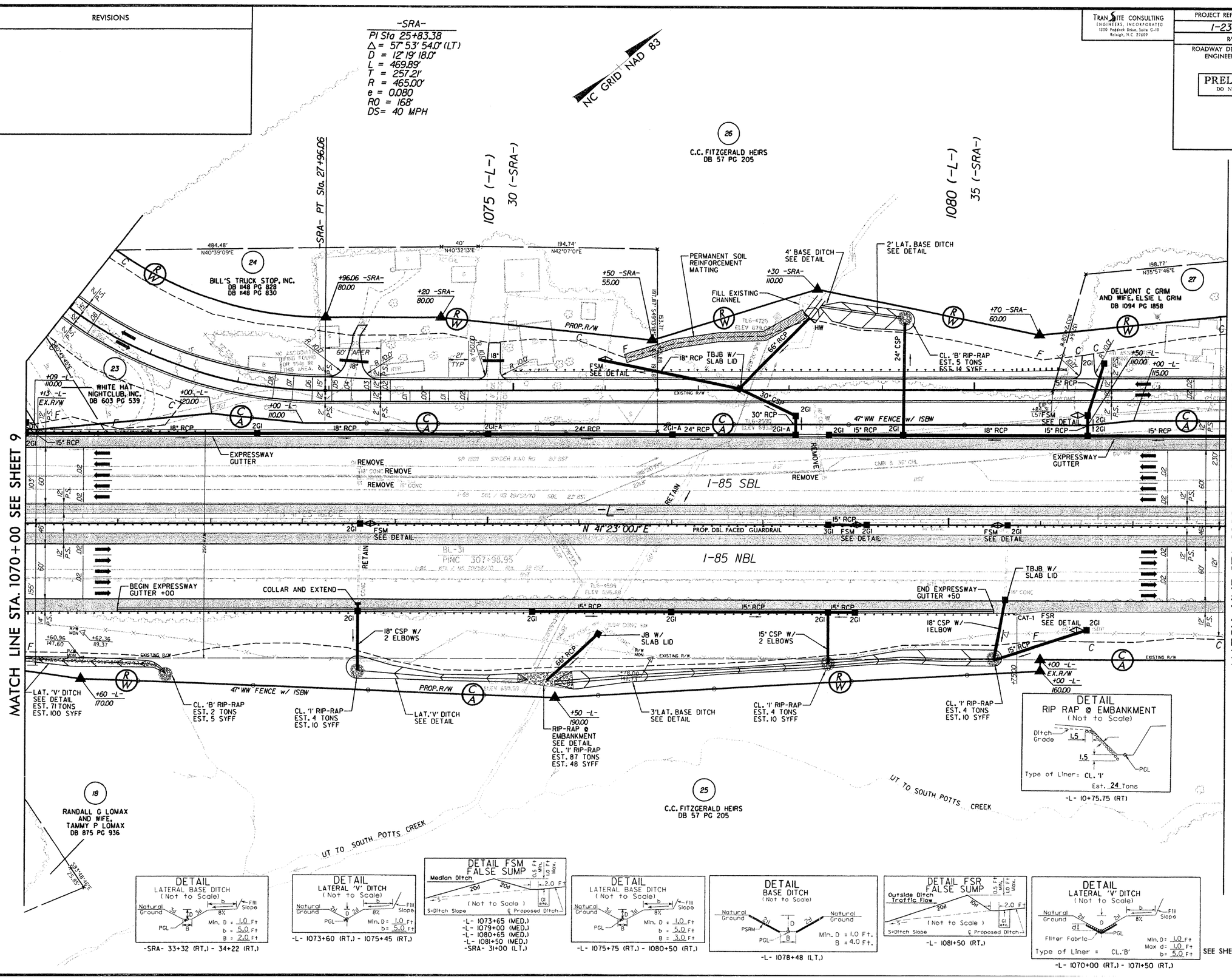

REVISIONS
MATCH LINE STA. 12+00 SEE SHEET 18
MATCH LINE STA. 1043+00 SEE SHEET 8
MATCH LINE STA. 1070+00 SEE SHEET 10
MATCH LINE STA. 13+00 SEE SHEET 18
MATCH LINE STA. 27+00 SEE SHEET 19
I-85 SBL
I-85 NBL
NC GRID NAD 83
BEGIN CONSTRUCTION
END CONSTRUCTION
BEGIN APPROACH SLAB
BEGIN BRIDGE
END APPROACH SLAB
END BRIDGE, BEGIN FENCE
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ADT In hundreds
2000
2025
DENOTES PAVEMENT REMOVAL
BRIDGE SKETCH
GRAPHIC SCALE
PLANS
LOCATION:
I-85 WIDENING
INTERCHANGE WITH BELMONT
BLVD (SR 1133/3159)
TIP NO.: I-2304AB
COUNTY: DAVIDSON
DESIGNED BY: MNS
CHECKED BY: DBS
DATE: 12-06-01
PROJECT REFERENCE NO.: I-2304AB
SHEET NO.: 9
R/W SHEET NO.:
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

REVISIONS

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1208 Paddock Drive, Suite G-16
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 24 FOR -L- PROFILE
SEE SHEET 36 & 37 FOR -SRA- PROFILE

101.01.00/dgn/12304cbsl0.psh rev. date: 03-03-03

REVISIONS

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

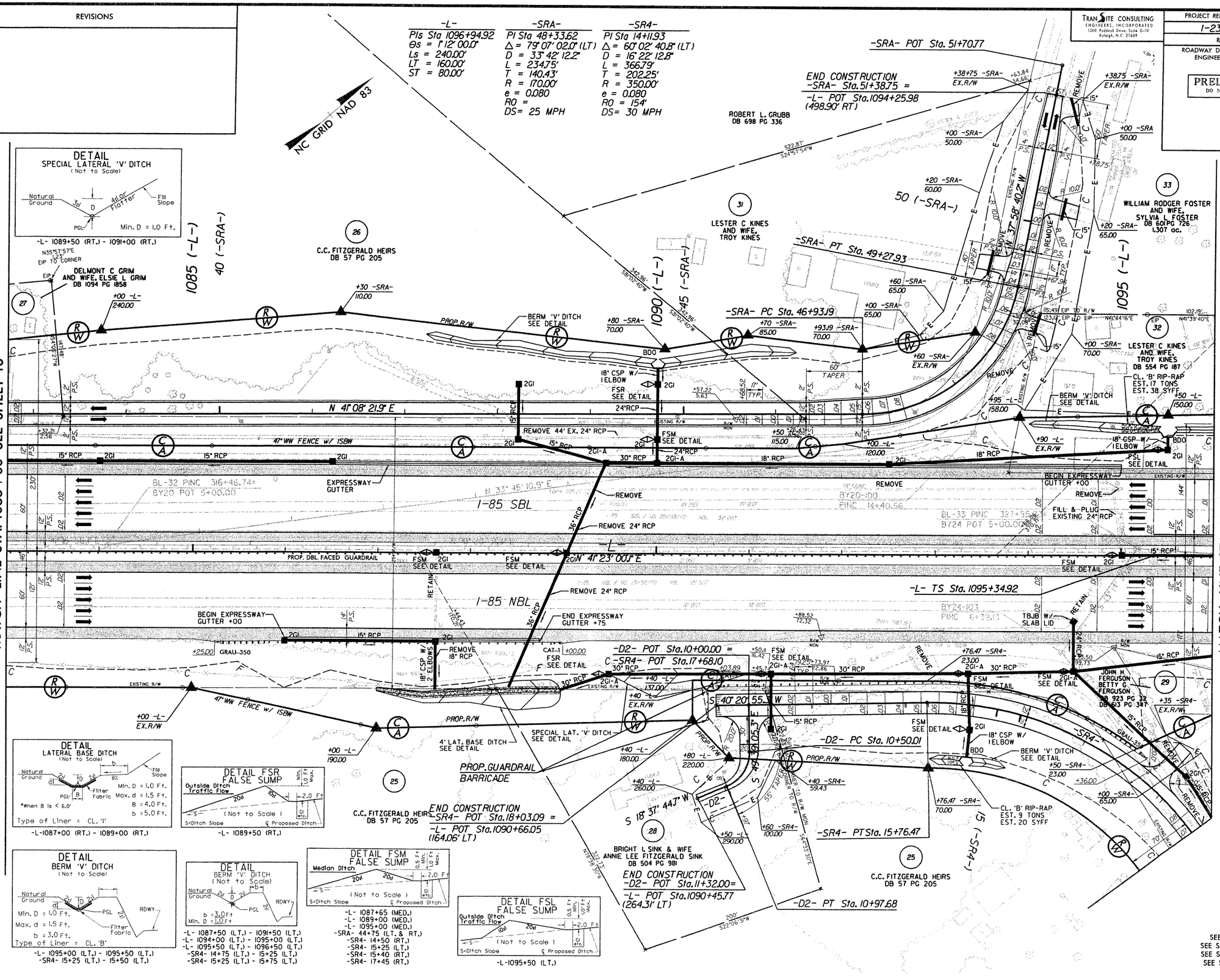
PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-
PIs Sta 1096+94.92
θs = 1°12' 00.0"
Ls = 240.00'
LT = 160.00'
ST = 80.00'

-SRA-
PI Sta 48+33.62
Δ = 79° 07' 02.0" (LT)
D = 33° 42' 12.2"
L = 234.75'
T = 140.43'
R = 170.00'
e = 0.080
R0 =
DS= 25 MPH

-SR4-
PI Sta 14+11.93
Δ = 60° 02' 40.8" (LT)
D = 16° 22' 12.8"
L = 366.79'
T = 202.25'
R = 350.00'
e = 0.080
R0 = 154'
DS= 30 MPH



SEE SHEET 25 FOR -L- PROFILE
SEE SHEET 37 FOR -SRA- PROFILE
SEE SHEET 43 FOR -SR4- PROFILE
SEE SHEET 43 FOR -D2- PROFILE

10.01.001/dgn/12304absl2.psn rev. date: 03-03-03

REVISIONS

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite Q-18
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PIs Sta 1096+94.92
Θs = 1°12' 00.0"
Ls = 240.00'
LT = 160.00'
ST = 80.00'

PI Sta 1099+96.31
Δ = 4°25' 32.2" (RT)
D = 1°00' 00.0"
L = 442.56'
T = 221.39'
R = 5,729.58'
e = 0.040
RO = 240.00'
DS= 70 MPH

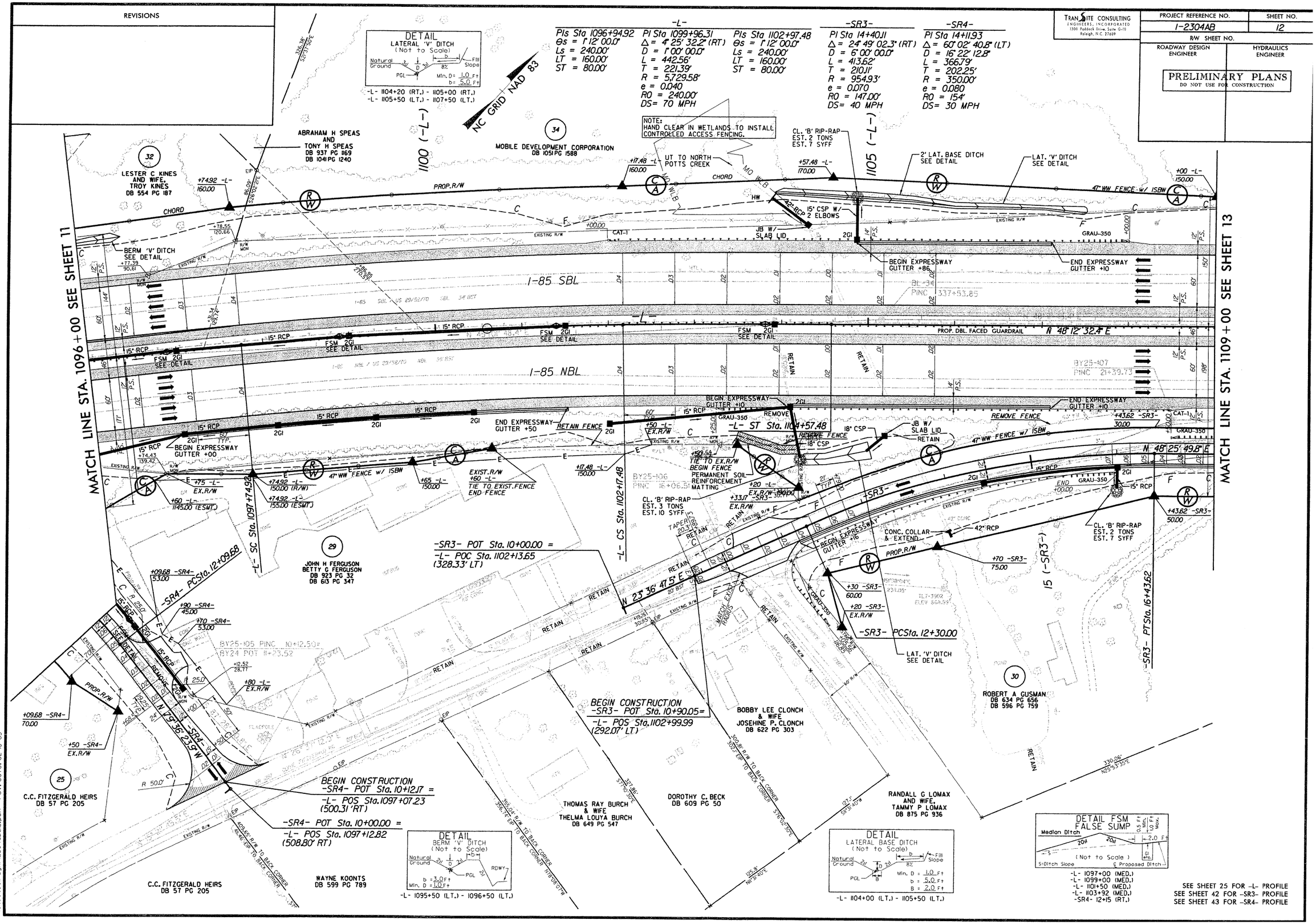
PIs Sta 1102+97.48
Θs = 1°12' 00.0"
Ls = 240.00'
LT = 160.00'
ST = 80.00'

-SR3-

PI Sta 14+40.11
Δ = 24°49' 02.3" (RT)
D = 6°00' 00.0"
L = 413.62'
T = 210.11'
R = 954.93'
e = 0.070
RO = 147.00'
DS= 40 MPH

-SR4-

PI Sta 14+11.93
Δ = 60°02' 40.8" (LT)
D = 16°22' 12.8"
L = 366.79'
T = 202.25'
R = 350.00'
e = 0.080
RO = 154'
DS= 30 MPH



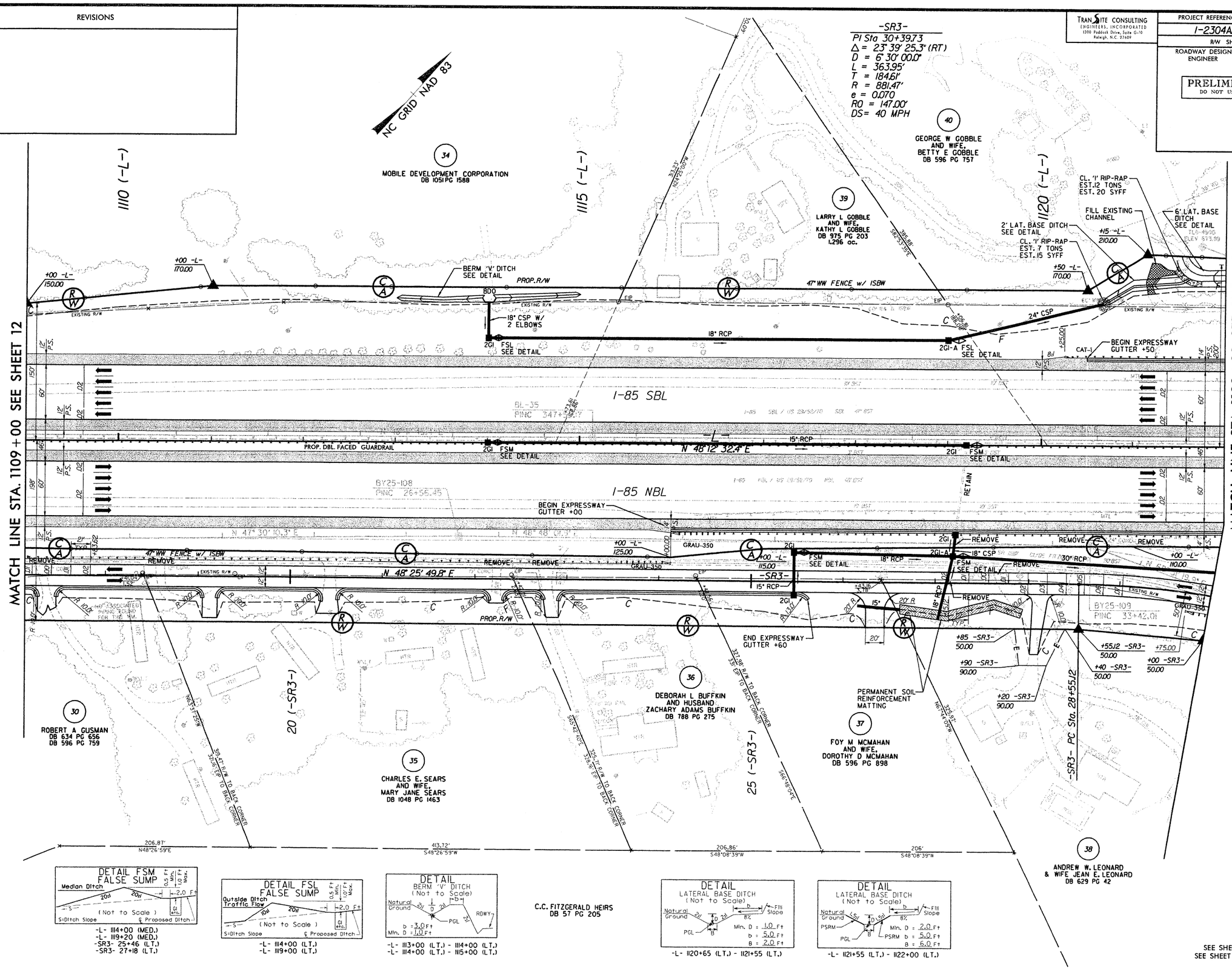
I01.00L001/dgn/12304abs12.psh rev. date: 02-18-03

REVISIONS

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 26 FOR -L- PROFILE
SEE SHEET 42 FOR -SR3- PROFILE

101.001.001/dgn/12304cbs13.psh rev. date: 1-18-02

REVISIONS

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RP85C-

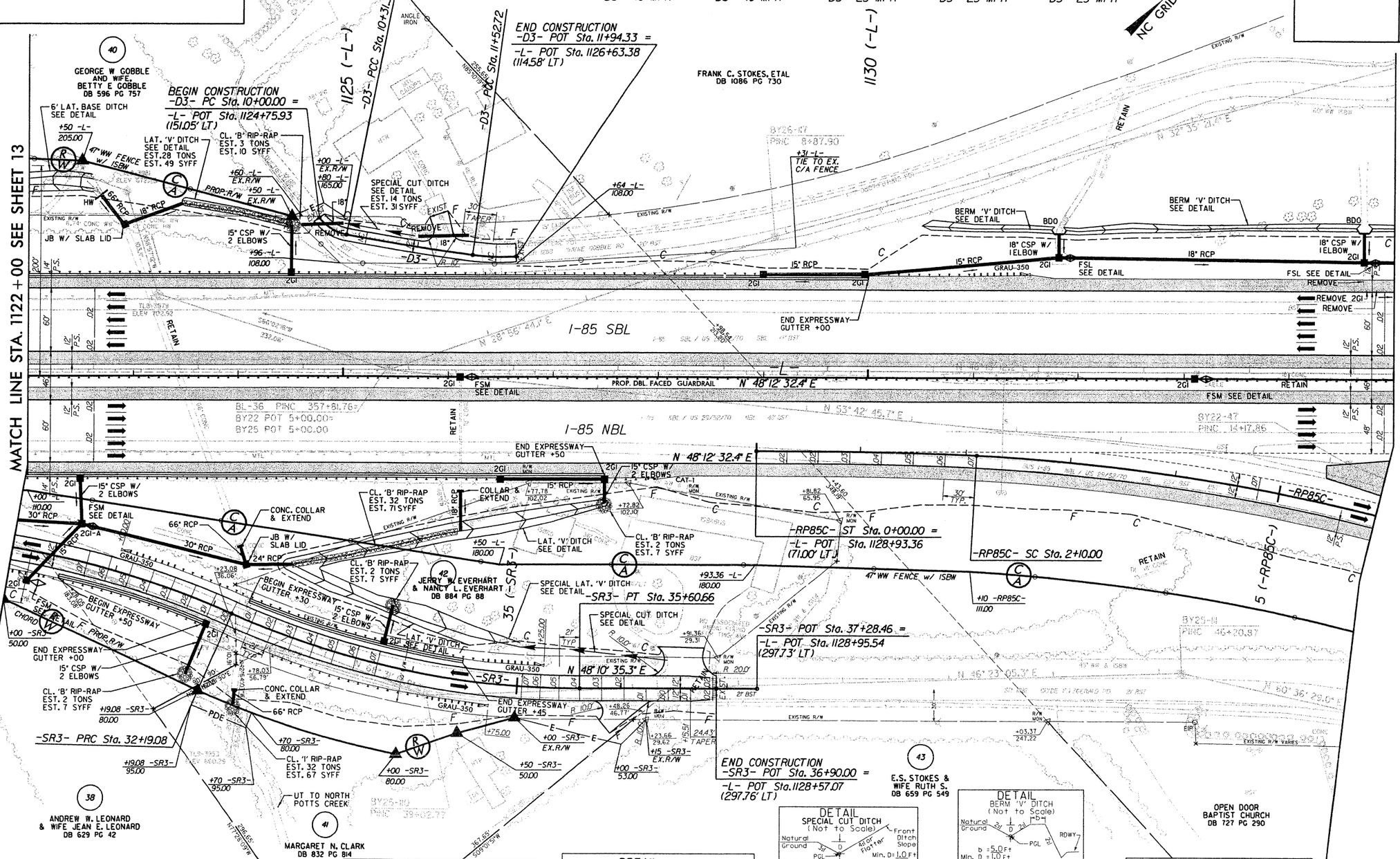
PIs Sta 1+40.02	PI Sta 5+75.78
Θs = 2° 57' 22.7"	Δ = 20° 22' 46.5" (RT)
Ls = 210.00'	D = 2° 48' 55.9"
LT = 140.02'	L = 723.83
ST = 70.02'	T = 365.78'
	R = 2,035.00'
	e = 0.070
	DS= 65 MPH

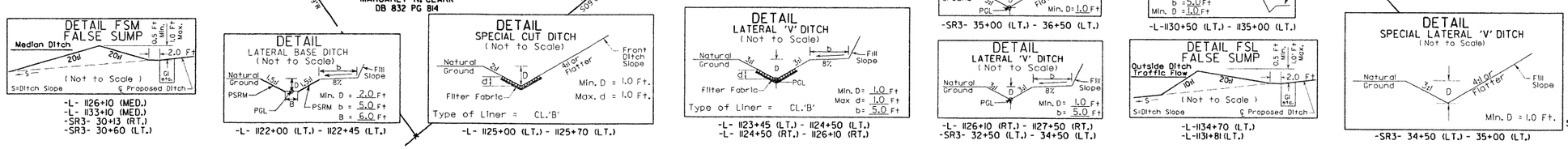
-SR3-

PI Sta 30+39.73	PI Sta 33+92.39
Δ = 23° 39' 25.3" (RT)	Δ = 23° 54' 39.7" (LT)
D = 6° 30' 00.0"	D = 7° 00' 00.0"
L = 363.95'	L = 341.59'
T = 184.61'	T = 173.32'
R = 881.47'	R = 818.51'
e = 0.070	e = 0.070
RO = 147.00'	RO = 147.00'
DS= 40 MPH	DS= 40 MPH

-D3-

PI Sta 10+16.40	PI Sta 10+92.04	PI Sta 11+73.59
Δ = 41° 48' 33.0" (LT)	Δ = 2° 59' 14.6" (LT)	Δ = 11° 18' 15.8" (LT)
D = 133° 26' 15.7"	D = 2° 27' 40.0"	D = 27° 09' 40.1"
L = 31.33'	L = 121.38'	L = 41.62'
T = 16.40'	T = 60.71'	T = 20.88'
R = 42.94'	R = 2,328.03'	R = 210.95'
e = 0.020	e = 0.020	e = 0.020
RO = 0.00'	RO = 0.00'	RO = 0.00'
DS= 25 MPH	DS= 25 MPH	DS= 25 MPH





SEE SHEET 26 FOR -L- PROFILE
SEE SHEET 42 & 43 FOR -SR3- PROFILE
SEE SHEET 45 FOR -RP85C- PROFILE

101.001.001/dgn/12304abs14.psh rev. date: 1-18-02

REVISIONS

TRANSITE CONSULTING ENGINEERS, INCORPORATED
3200 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

PIs Sta 1138+31.13
Θs = 2° 28' 30.0"
Ls = 330.00'
LT = 220.02'
ST = 110.02'

PI Sta 1146+98.34
Δ = 22° 25' 33.9" (RT)
D = 1° 30' 00.0"
L = 1,495.07
T = 757.23'
R = 3,819.72'
e = 0.055
R0 = 330.00'
DS= 70 MPH

-RP85B-

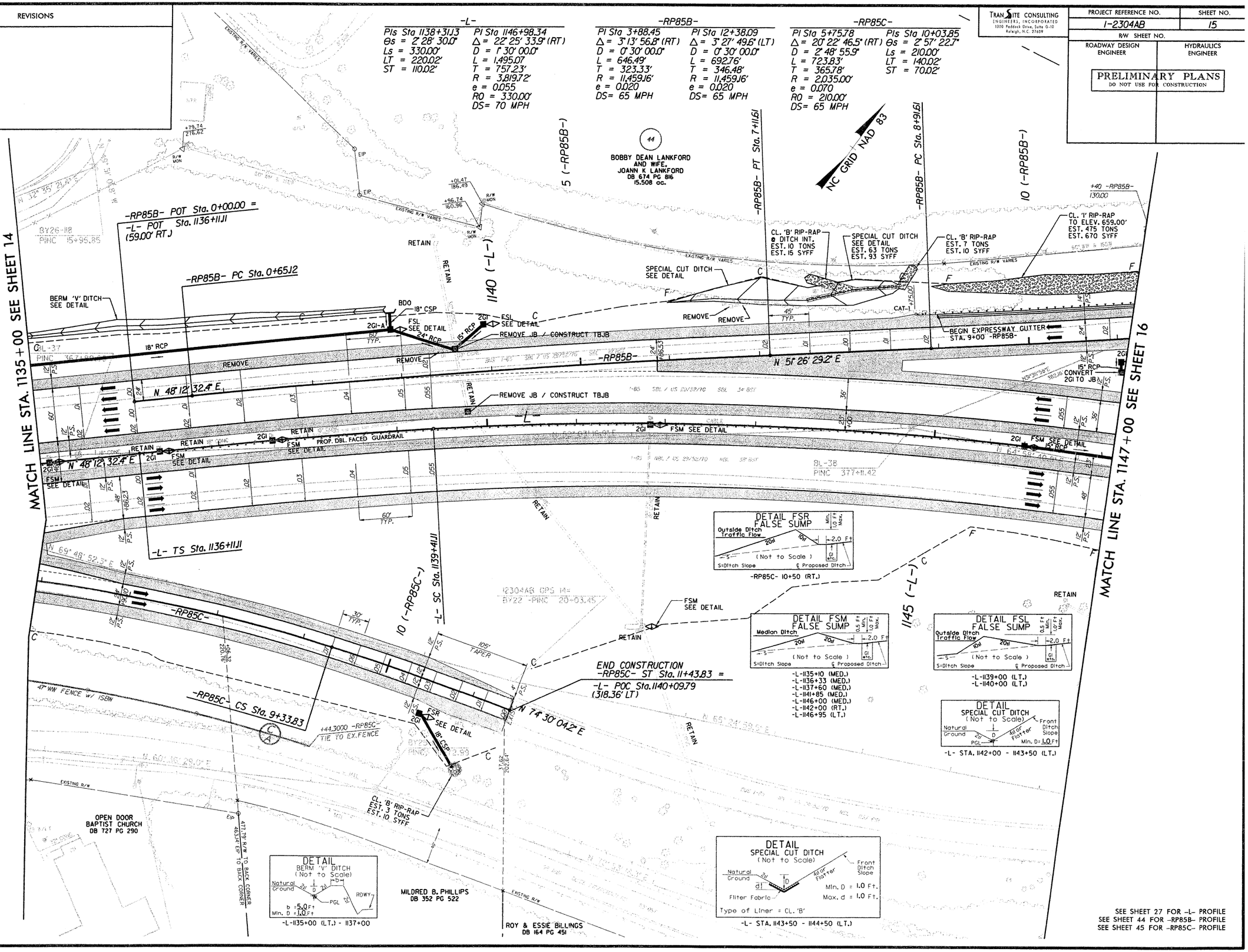
PI Sta 3+88.45
Δ = 3° 13' 56.8" (RT)
D = 0° 30' 00.0"
L = 646.49'
T = 323.33'
R = 11,459.16'
e = 0.020
DS= 65 MPH

PI Sta 12+38.09
Δ = 3° 27' 49.6" (LT)
D = 0° 30' 00.0"
L = 692.76'
T = 346.48'
R = 11,459.16'
e = 0.020
DS= 65 MPH

-RP85C-

PI Sta 5+75.78
Δ = 20° 22' 46.5" (RT)
D = 2° 48' 55.9"
L = 723.83'
T = 365.78'
R = 2,035.00'
e = 0.070
R0 = 210.00'
DS= 65 MPH

PIs Sta 10+03.85
Θs = 2° 57' 22.7"
Ls = 210.00'
LT = 140.02'
ST = 70.02'



SEE SHEET 27 FOR -L- PROFILE
SEE SHEET 44 FOR -RP85B- PROFILE
SEE SHEET 45 FOR -RP85C- PROFILE

101.00.001/dgn/12304abs15.dgn rev. date: 02-18-03

REVISIONS

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RP85B-
PI Sta 12+38.09
Δ = 3° 27' 49.6" (LT)
D = 0° 30' 00.0"
L = 692.76'
T = 346.48'
R = 11,459.16'
e = 0.020
DS = 65 MPH

-L-
PI Sta 1146+98.34
Δ = 22° 25' 33.9" (RT)
D = 1° 30' 00.0"
L = 1,495.07'
T = 757.23'
R = 3,819.72'
e = 0.055
RO = 330.00'
DS = 70 MPH

Pls Sta 1155+46.20
Θs = 2° 28' 30.0"
Ls = 330.00'
LT = 220.02'
ST = 110.02'

NOTE: AVOID IMPACTS TO FENCE WHERE POSSIBLE

END CONSTRUCTION
-RP85B- POT Sta. 21+15.08 =
-L- POS Sta. 1155+75.30
(482.30' RT)

NC GRID NAD 83

MATCH LINE STA. 1147+00 SEE SHEET 15

MATCH LINE STA. 1160+00 SEE SHEET 17

BOBBY DEAN LANKFORD AND WIFE, JOANN K. LANKFORD
DB 674 PG 816

WILLIAM D. ROBERTSON, JR. ETAL
DB 619 PG 611

SAPONA INDUSTRIAL PARK, INC.
DB 663 PG 421

KIMBERLY-CLARK CORPORATION
PG 622 PG 760

NORTH POTTS CREEK

-L- ST Sta. 1157+66.18

-L- CS Sta. 1154+36.18

DETAIL FSM
FALSE SUMP
Median Ditch
(Not to Scale)
S=Ditch Slope
℄ Proposed Ditch
-L-1146+97 (LT.)
-L-1149+55 (MED.)
-L-1150+90 (MED.)
-L-1153+00 (MED.)

DETAIL FSL
FALSE SUMP
Outside Ditch
Traffic Flow
(Not to Scale)
S=Ditch Slope
℄ Proposed Ditch
-L-1152+55 (LT.)
-RP85B- 19+50 (LT.)

DETAIL FSR
FALSE SUMP
Outside Ditch
Traffic Flow
(Not to Scale)
S=Ditch Slope
℄ Proposed Ditch
-L-1152+00 (RT.)

SEE SHEET 27 & 28 FOR -L- PROFILE
SEE SHEET 44 FOR -RP85B- PROFILE

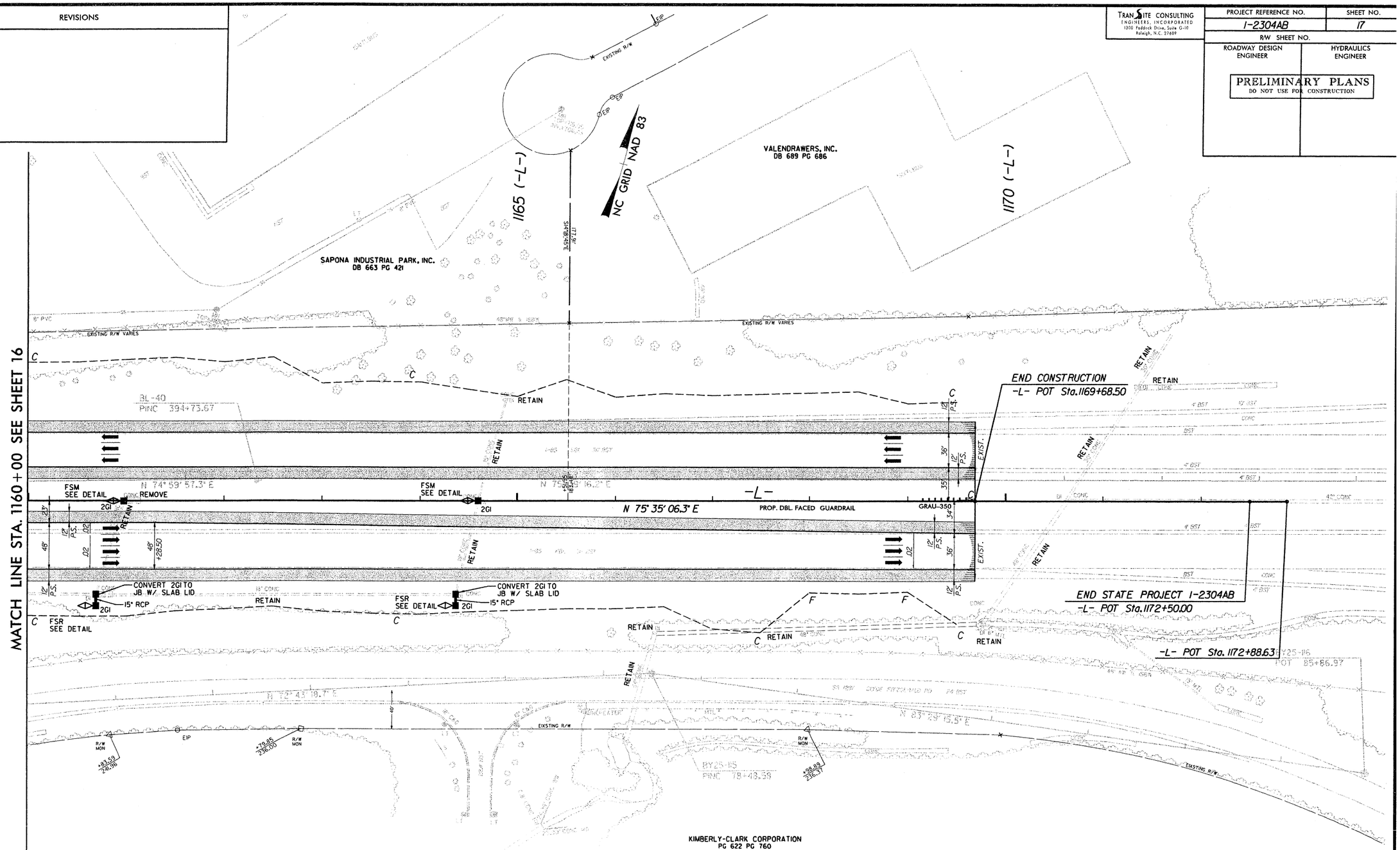
01.001.001/dgn/12304abslf6.pah rev. date: 02-18-03

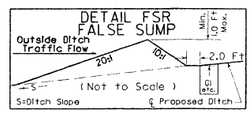
REVISIONS

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

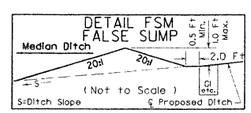
PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION





-L-1160+70 (RT.)
-L-1164+37 (RT.)



-L-1161+00 (MED.)
-L-1164+60 (MED.)

SEE SHEET 28 & 29 FOR -L- PROFILE

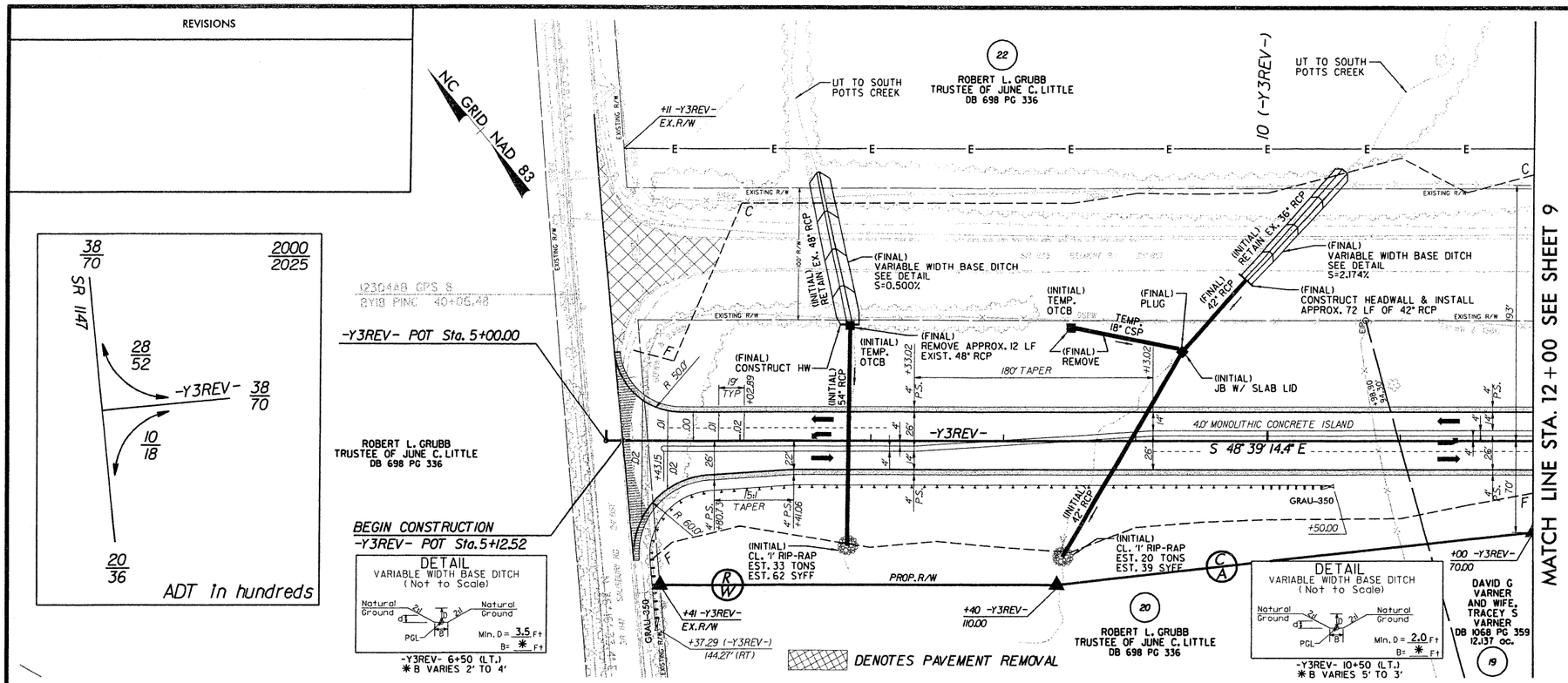
101.001.001/dgn/12304abs17.psh rev. date: 1-18-02

REVISIONS

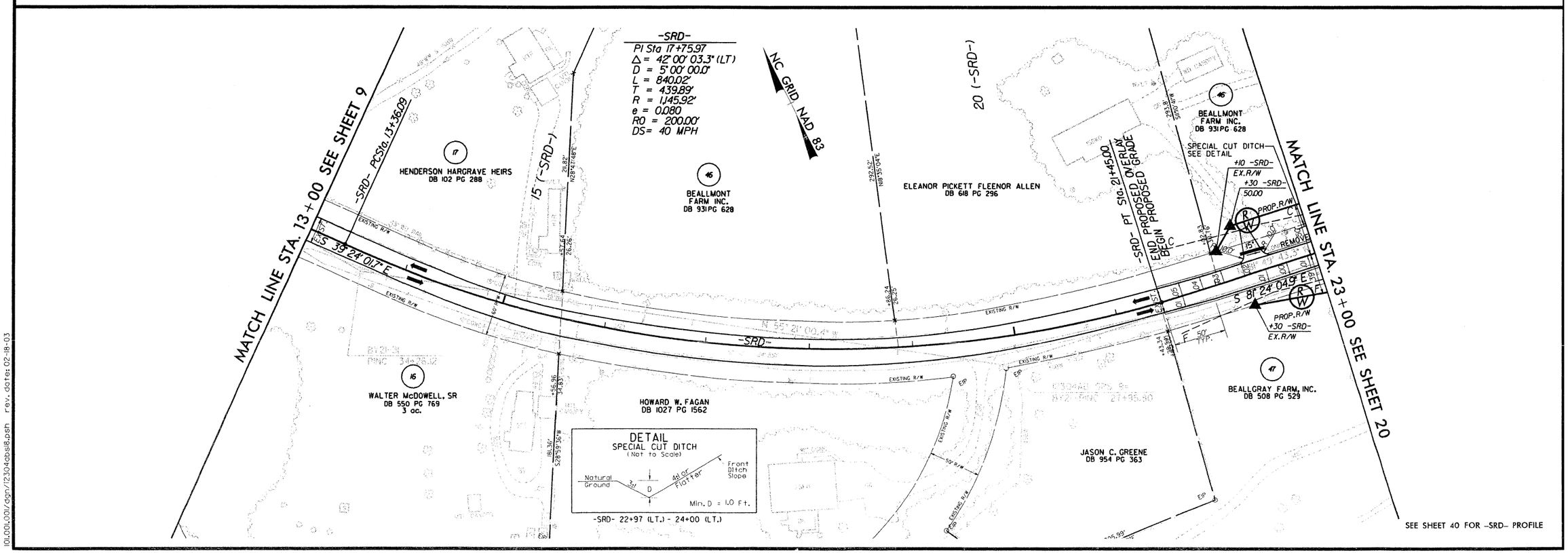
TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 30 FOR -Y3REV- PROFILE



SEE SHEET 40 FOR -SRD- PROFILE

101.001.001/dgn/12304abs8.dgn rev. date: 02-18-03

REVISIONS

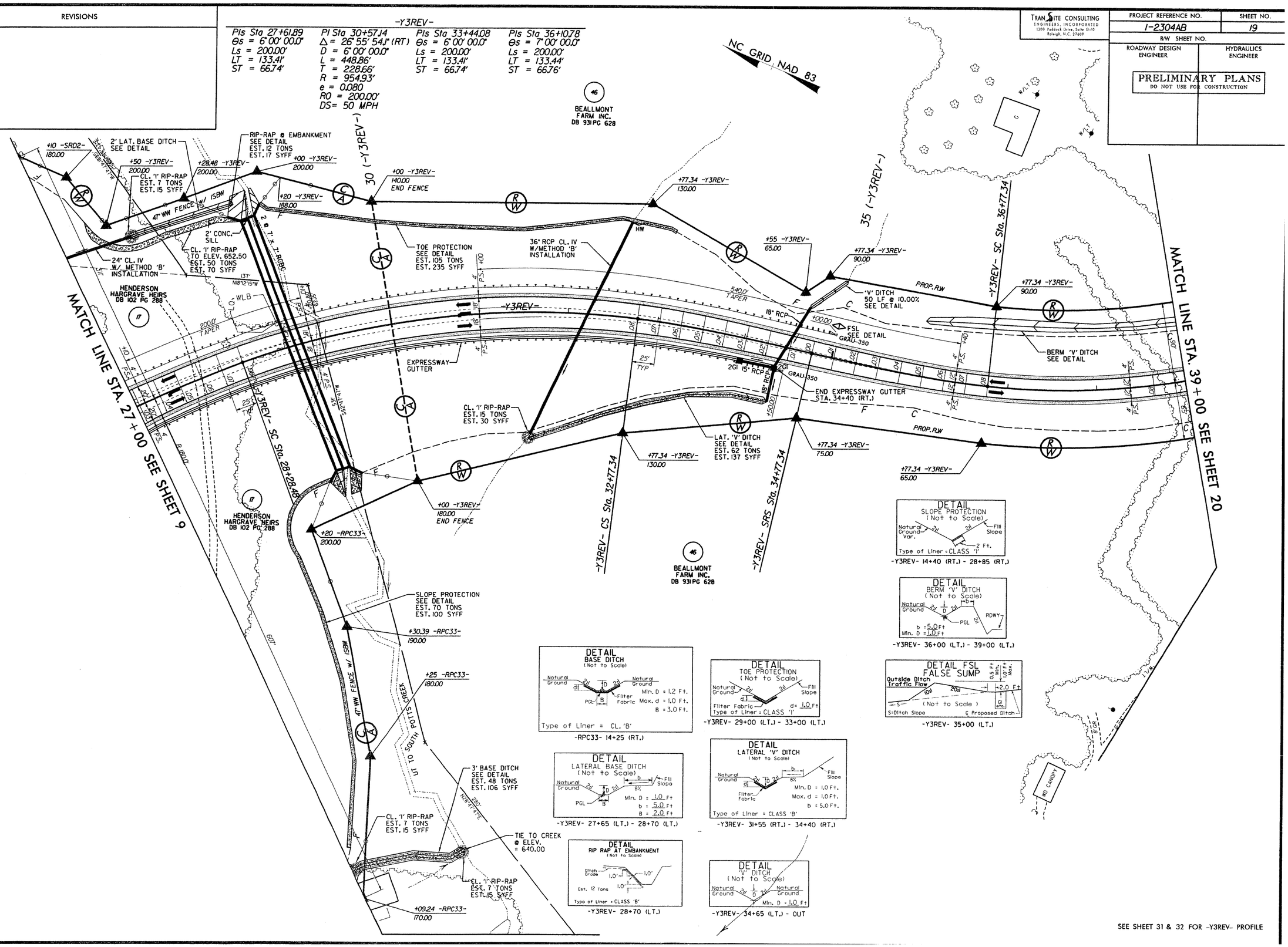
TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y3REV-

PIs Sta 27+61.89	PI Sta 30+57.14	PIs Sta 33+44.08	PIs Sta 36+10.78
Θs = 6°00'00.0"	Δ = 26°55'54.1" (RT)	Θs = 6°00'00.0"	Θs = 7°00'00.0"
Ls = 200.00'	D = 6°00'00.0"	Ls = 200.00'	Ls = 200.00'
LT = 133.41'	L = 448.86'	LT = 133.41'	LT = 133.44'
ST = 66.74'	T = 228.66'	ST = 66.74'	ST = 66.76'
	R = 954.93'		
	e = 0.080		
	RO = 200.00'		
	DS= 50 MPH		



SEE SHEET 31 & 32 FOR -Y3REV- PROFILE

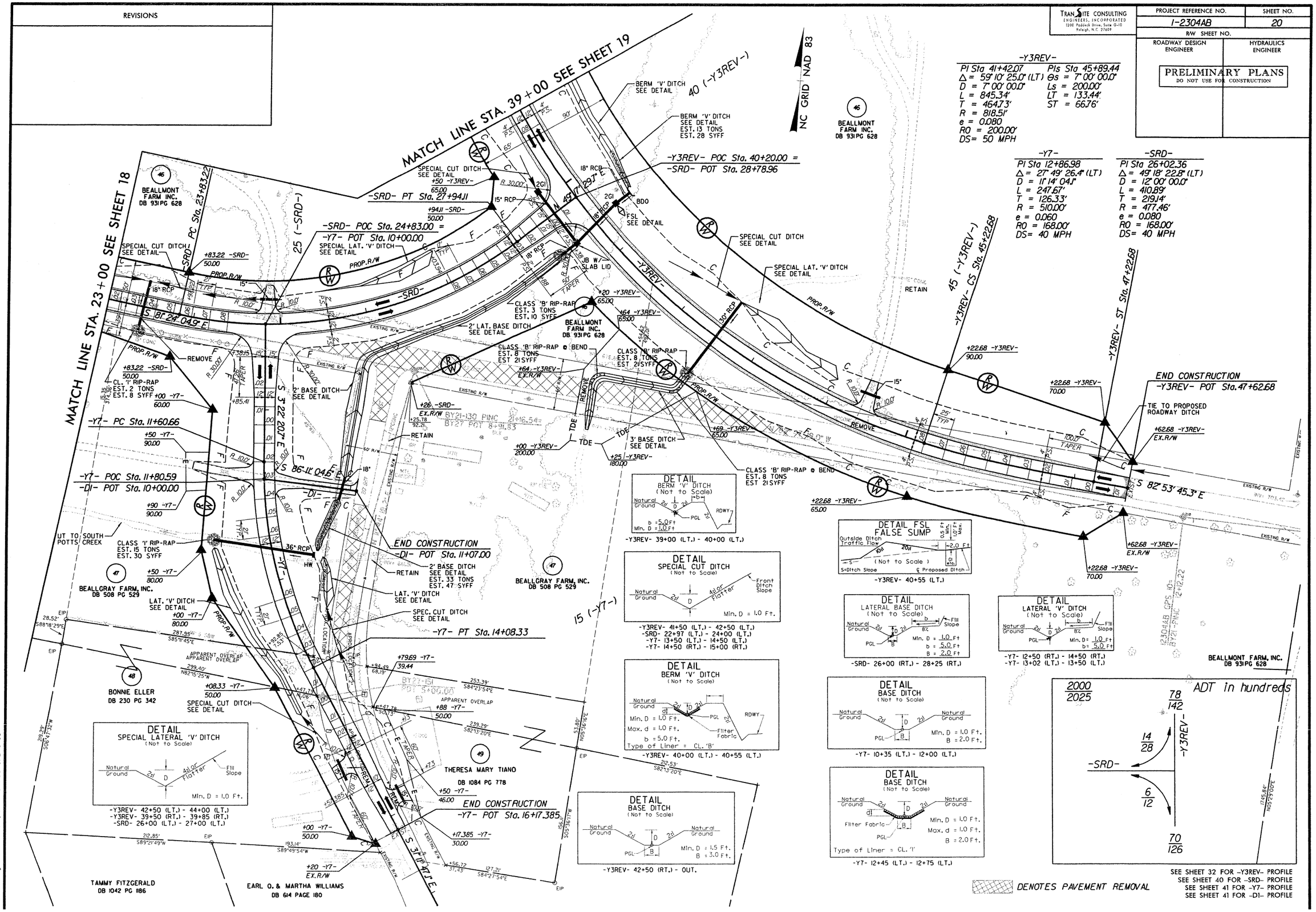
101.001.001/dgn/12304abs19.psh rev. date: 1-18-02

REVISIONS

TRANSITE CONSULTING
ENGINEERS, INCORPORATED
1200 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

PROJECT REFERENCE NO.	SHEET NO.
I-2304AB	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SEE SHEET 32 FOR -Y3REV- PROFILE
SEE SHEET 40 FOR -SRD- PROFILE
SEE SHEET 41 FOR -Y7- PROFILE
SEE SHEET 41 FOR -DI- PROFILE

01.001.001/dgn/i2304abs20.psh rev. date: 2-18-03

PROJECT: 8.1631403 I-2304AA

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2304AA	1	

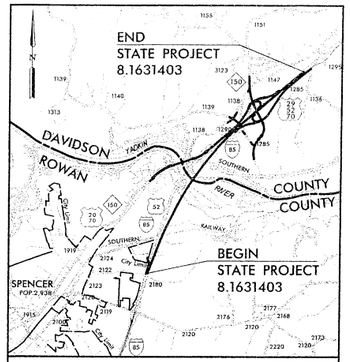
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
8.1631403	NHF-85-3(164)80	PE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

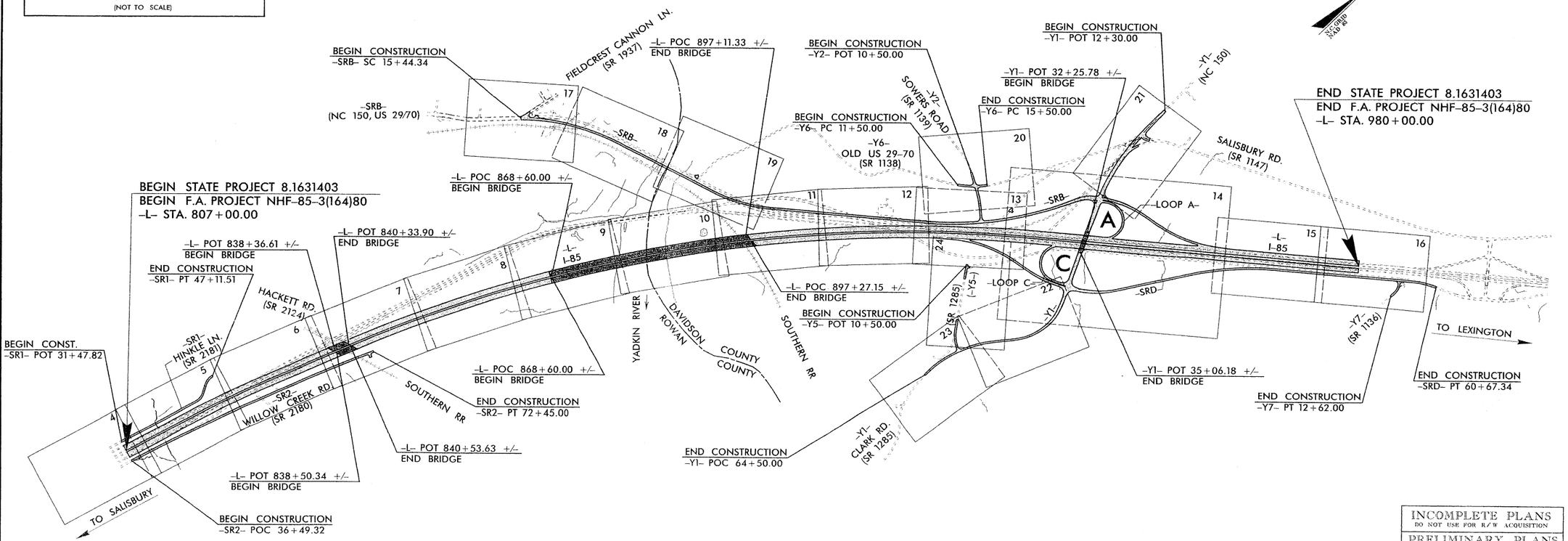
ROWAN & DAVIDSON COUNTY

LOCATION: I-85 FROM NORTH OF SR 2120 IN ROWAN COUNTY TO NORTH OF NC 150 IN DAVIDSON COUNTY

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



VICINITY MAP
(NOT TO SCALE)



THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

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

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

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

BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 3327
Raleigh, N.C. 27626-327
(919) 856-192
(919) 851-1918 (FAX)

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 2001	=	60,800
ADT 2025	=	112,400
DHV	=	10 %
D	=	60 %
T	=	24 % *
V	=	70 MPH

* TTST=18% DUAL=6%

PROJECT LENGTH

LENGTH ROADWAY F.A. PROJECT NHF-85-3(164)80	=	2.70 MI.
LENGTH STRUCTURES F.A. PROJECT NHF-85-3(164)80	=	0.58 MI.
TOTAL LENGTH STATE PROJECT 8.1631403	=	3.28 MI.

Prepared In the Office of:
Barbara H. Mulkey Engineering Inc.
FOR THE N. C. DEPT. OF TRANSPORTATION

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
12 /20 /02 (PROD.)

LETTING DATE:
11/20/07

TIM S. HAYES, P.E.
PROJECT ENGINEER

TIM JORDAN, P.E.
PROJECT DESIGN ENGINEER

NCDOT CONTACT: CATHY S. HOUSER, P.E.
PROJECT ENGINEER - DESIGN SERVICES

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER P.E.

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 3327
Raleigh, N.C. 27636-327
(919) 851-192
(919) 851-1918 (FAX)

PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	I-B
R/W SHEET NO.	

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

ROADS & RELATED ITEMS

Edge of Pavement
Curb
Prop. Slope Stakes Cut — C
Prop. Slope Stakes Fill — F
Prop. Woven Wire Fence
Prop. Chain Link Fence
Prop. Barbed Wire Fence
Prop. Wheelchair Ramp — WCR
Exist. Guardrail
Prop. Guardrail
Equality Symbol
Pavement Removal

RIGHT OF WAY

Baseline Control Point
Existing Right of Way Marker
Exist. Right of Way Line w/Marker
Prop. Right of Way Line with Proposed R/W Marker (Iron Pin & Cap)
Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
Exist. Control of Access Line — CA
Prop. Control of Access Line — CA
Exist. Easement Line — E
Prop. Temp. Construction Easement Line — E
Prop. Temp. Drainage Easement Line — TDE
Prop. Perm. Drainage Easement Line — PDE

HYDROLOGY

Stream or Body of Water
Flow Arrow
Disappearing Stream
Spring
Swamp Marsh
Shoreline
Falls, Rapids
Prop Lateral, Tail, Head Ditches — FLOW

STRUCTURES

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

MINOR
Head & End Wall — CONC HW
Pipe Culvert
Footbridge
Drainage Boxes — CB
Paved Ditch Gutter

UTILITIES

Exist. Pole
Exist. Power Pole
Prop. Power Pole
Exist. Telephone Pole
Prop. Telephone Pole
Exist. Joint Use Pole
Prop. Joint Use Pole
Telephone Pedestal — T
Cable TV Pedestal — C
Hydrant
Satellite Dish
Exist. Water Valve
Sewer Clean Out
Power Manhole
Telephone Booth
Water Manhole — W
Light Pole
H-Frame Pole
Power Line Tower
Pole with Base
Gas Valve
Gas Meter
Telephone Manhole — T
Power Transformer
Sanitary Sewer Manhole
Storm Sewer Manhole — S
Tank; Water, Gas, Oil
Water Tank With Legs
Traffic Signal Junction Box — S
Fiber Optic Splice Box — F
Television or Radio Tower
Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement — TS — TS

Recorded Water Line — W — W
Designated Water Line (S.U.E.*) — W — W
Sanitary Sewer — SS — SS
Recorded Sanitary Sewer Force Main — FSS — FSS
Designated Sanitary Sewer Force Main(S.U.E.*) — FSS — FSS
Recorded Gas Line — G — G
Designated Gas Line (S.U.E.*) — G — G
Storm Sewer — S — S
Recorded Power Line — P — P
Designated Power Line (S.U.E.*) — P — P
Recorded Telephone Cable — T — T
Designated Telephone Cable (S.U.E.*) — T — T
Recorded U/G Telephone Conduit — TC — TC
Designated U/G Telephone Conduit (S.U.E.*) — TC — TC
Unknown Utility (S.U.E.*) — ?UTL — ?UTL
Recorded Television Cable — TV — TV
Designated Television Cable (S.U.E.*) — TV — TV
Recorded Fiber Optics Cable — FO — FO
Designated Fiber Optics Cable (S.U.E.*) — FO — FO
Exist. Water Meter
U/G Test Hole (S.U.E.*)
Abandoned According to U/G Record — ATTUR
End of Information — E.O.I.

BOUNDARIES & PROPERTIES

State Line
County Line
Township Line
City Line
Reservation Line
Property Line
Property Line Symbol — PL
Exist. Iron Pin — EIP
Property Corner
Property Monument — ECM
Property Number — 123
Parcel Number — 6
Fence Line
Existing Wetland Boundaries — WW & ISBW
Proposed Wetland Boundaries — WLB
Existing Endangered Animal Boundaries — WLB
Existing Endangered Plant Boundaries — EAB — EPB

BUILDINGS & OTHER CULTURE

Buildings
Foundations
Area Outline
Gate
Gas Pump Vent or U/G Tank Cap
Church
School
Park
Cemetery
Dam
Sign — S
Well — W
Small Mine
Swimming Pool

TOPOGRAPHY

Loose Surface
Hard Surface
Change in Road Surface
Curb
Right of Way Symbol — R/W
Guard Post — GP
Paved Walk
Bridge
Box Culvert or Tunnel
Ferry
Culvert
Footbridge
Trail, Footpath
Light House

VEGETATION

Single Tree
Single Shrub
Hedge
Woods Line
Orchard
Vineyard — VINEYARD

RAILROADS

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

revised 02/25/97

BARBARA H. MULKEY ENGINEERING, INC.
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(919) 851-198 (FAX)

PROJECT REFERENCE NO.	SHEET NO.
1-2304AA	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

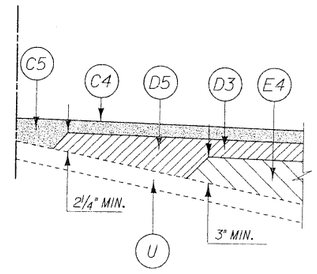
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PAVEMENT SCHEDULE

A1	13" PORTLAND CEMENT CONCRETE PAVEMENT
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S-9.5A, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S-9.5A, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S-9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C4	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S-9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S-9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" DEPTH.
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I-19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I-19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D3	PROP. APPROX. 3 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I-19.0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
D4	PROP. APPROX. 4 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I-19.0B, AT AN AVERAGE RATE OF 256.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
D5	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I-19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B-25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B-25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E3	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B-25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E4	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B-25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT GREATER THAN 5 1/2" IN DEPTH OR LESS THAN 3" IN DEPTH.
L	SUBGRADE TO BE STABILIZED WITH 200 TO 400 LBS. PER SQ. YD. OF STABILIZER AGGREGATE MIXED WITH THE TOP 3" OF SUBGRADE SOIL AT LOCATIONS DIRECTED BY THE ENGINEER.
R1	2'-6' CONCRETE CURB AND GUTTER
R2	4' CONCRETE EXPRESSWAY GUTTER
R3	SHOULDER BERM GUTTER
R4	6" MONOLITHIC CONCRETE ISLAND (KEYED IN)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)
X	PROP. APPROX. 3" PERMEABLE ASPHALT DRAINAGE LAYER, TYPE P-57.

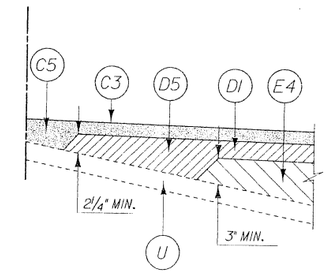
NOTES: (1) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

℄ -Y1-, -SRB-



DETAIL SHOWING METHOD OF WEDGING NO. 1

℄ -Y2-, -Y5-, -Y6-

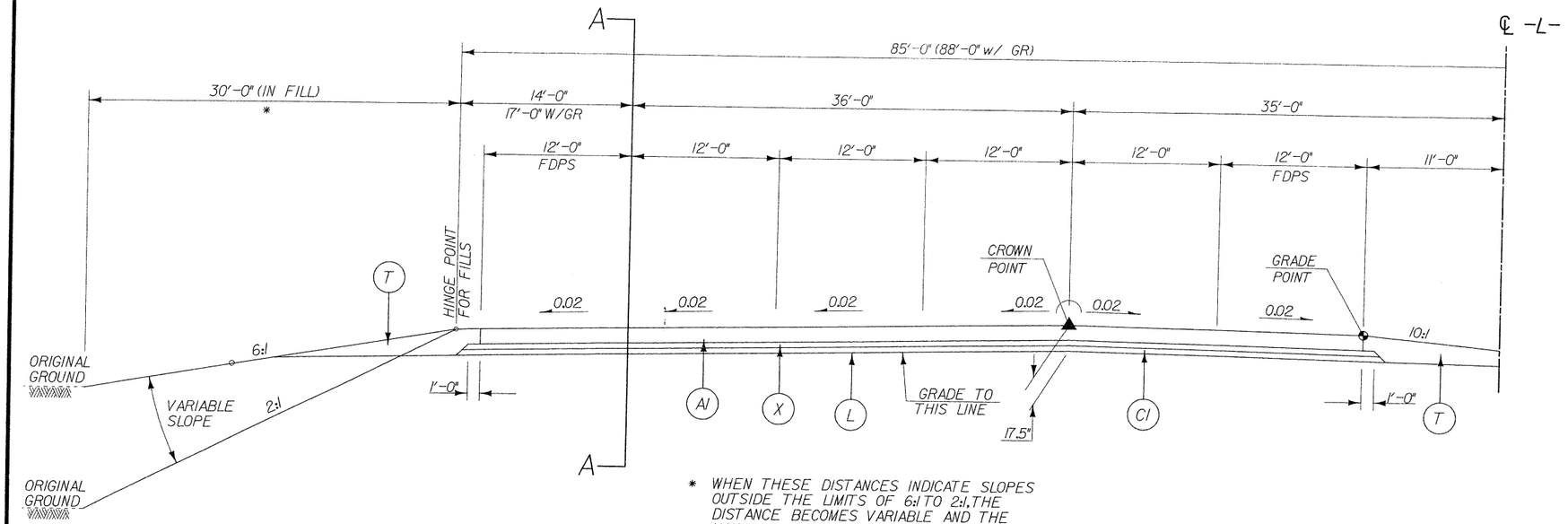


DETAIL SHOWING METHOD OF WEDGING NO. 2

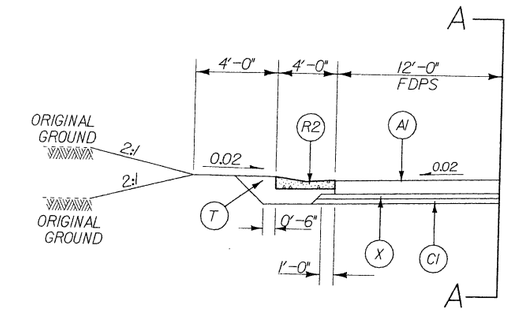
BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 3327
Raleigh, N.C. 27636-3327
(919) 850-1982
(919) 851-1918 (FAX)

PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	2-A
R/W SHEET NO.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



* WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS OF 6:1 TO 2:1, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM OR MINIMUM SLOPE MAINTAINED.

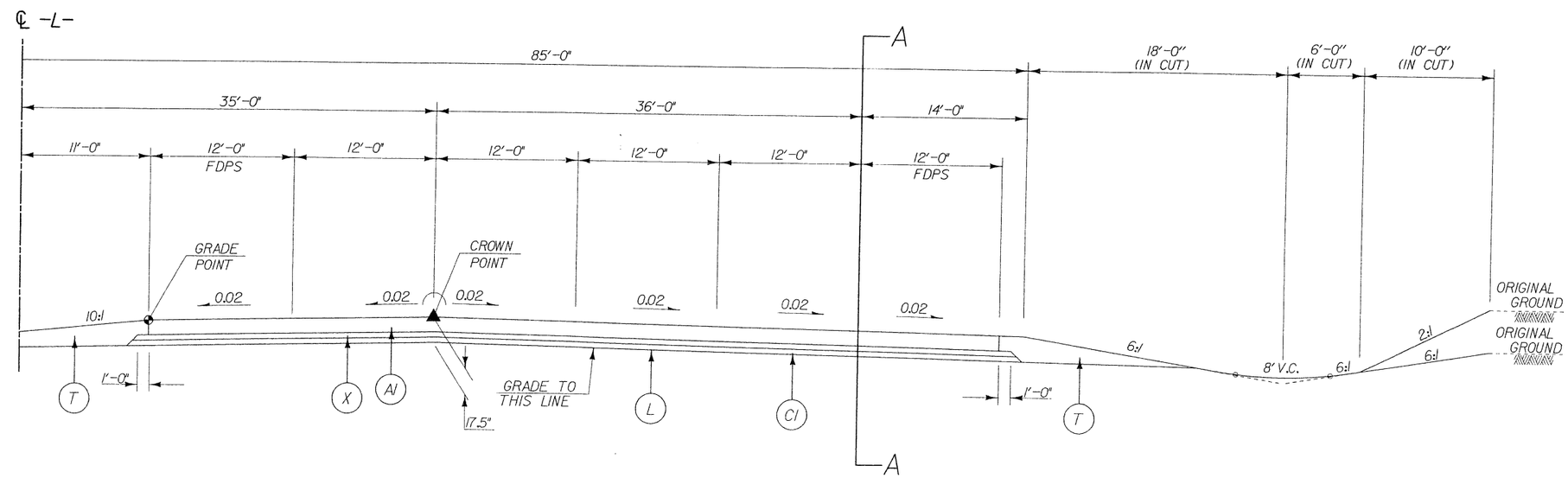


DETAIL OF EXPRESSWAY GUTTER

TO BE USED IN CONJUNCTION WITH TYPICAL SECTION NO. 1

RIGHT
-L- STA. 807+00.00 TO 813+00.00
-L- STA. 828+93.00 TO 838+90.16 (BEG. APP. SLAB)
-L- STA. 841+27.58 (END APP. SLAB) TO 849+15.00
-L- STA. 867+47 TO 868+47.95 (BEG. APP. SLAB)
-L- STA. 898+25.37 (END APP. SLAB) TO 902+00.00
-L- STA. 907+00.00 TO 926+50.00
-L- STA. 964+23.00 TO 977+00.00

LEFT
-L- STA. 837+15 TO 837+62.79 (BEG. APP. SLAB)
-L- STA. 839+94.09 (END APP. SLAB) TO 850+50.00
-L- STA. 867+97 TO 868+48.05 (BEG. APP. SLAB)
-L- STA. 897+21.64 (END APP. SLAB) TO 902+50.00
-L- STA. 920+50.00 TO 929+00.00



TYPICAL SECTION NO. 1

USE TYPICAL SECTION No. 1 AS FOLLOWS:

LEFT
-L- STA. 807+00.00 TO 838+36.61± (BEGIN BRIDGE)
-L- STA. 840+33.90 (END BRIDGE) TO 868+60.00±
-L- STA. 897+48.32 (END BRIDGE) TO 980+00.00±

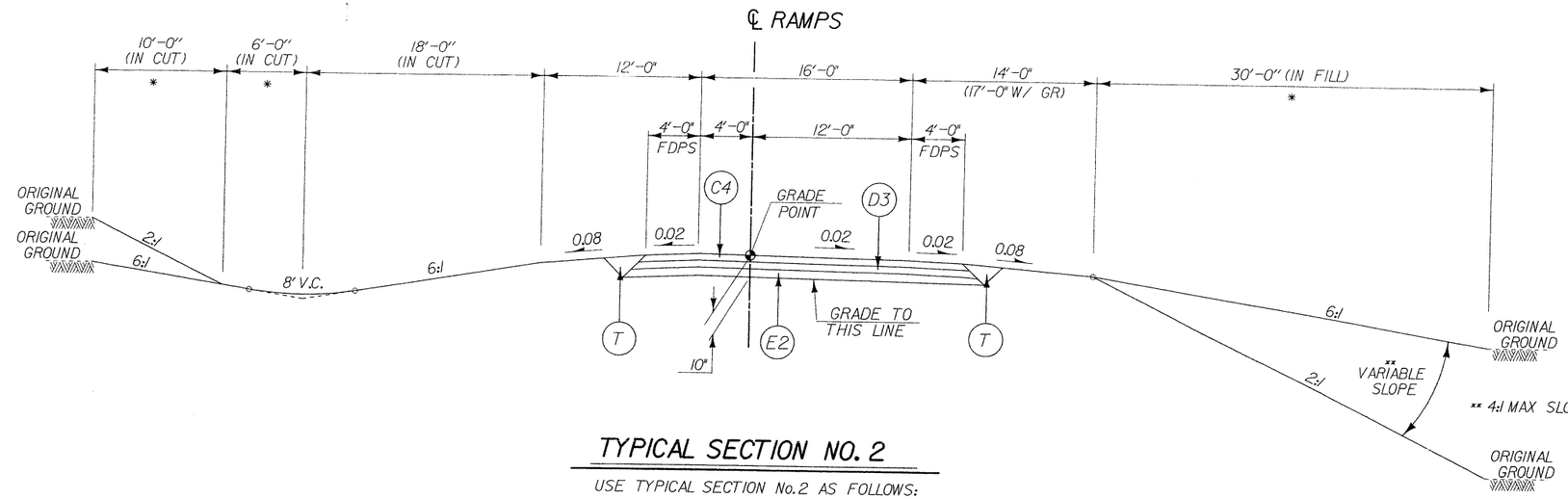
RIGHT
-L- STA. 807+00.00 TO 838+50.34± (BEGIN BRIDGE)
-L- STA. 840+53.63 (END BRIDGE) TO 868+60.00±
-L- STA. 897+64.17 (END BRIDGE) TO 980+00.00±

AI	13" CONCRETE
CI	1½" S-9.5A
L	STABILIZER
R2	EXP. GUTTER
T	EARTH
X	3" PADL

BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 33127
Raleigh, N.C. 27636-327
(919) 851-1912
(919) 851-1918 (FAX)

PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	2-B
R/W SHEET NO.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



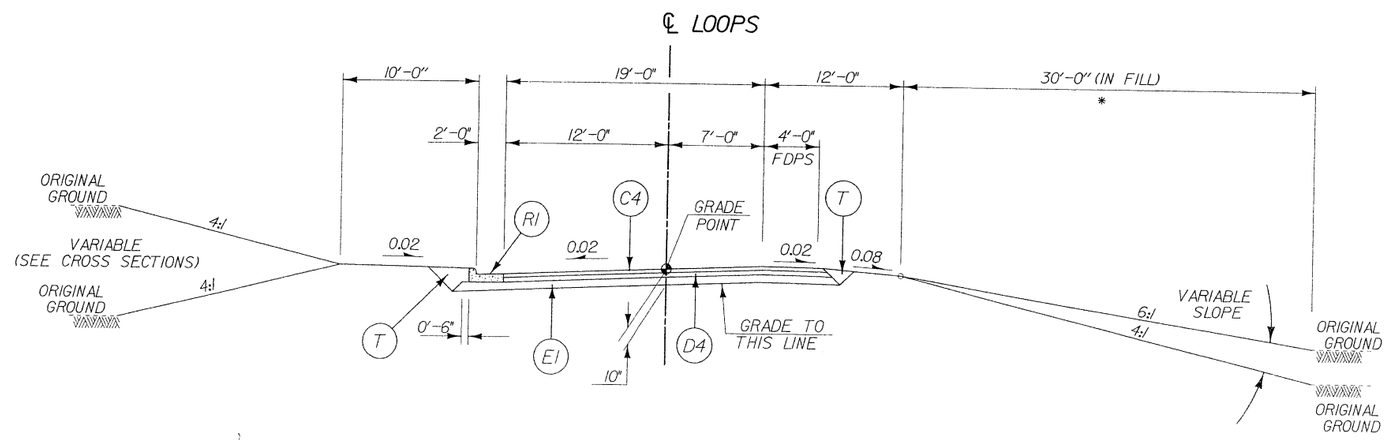
** 4:1 MAX SLOPE WITHIN INTERCHANGE AREA

TYPICAL SECTION NO. 2

USE TYPICAL SECTION No.2 AS FOLLOWS:

-RAMP A- STA.7+26.50 TO 21+68.96 ±
-RAMP C- STA.4+30.72 TO 16+40.57 ±

* WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS OF 6:1 TO 2:1, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM OR MINIMUM SLOPE MAINTAINED.



TYPICAL SECTION NO. 3

USE TYPICAL SECTION No.3 AS FOLLOWS:

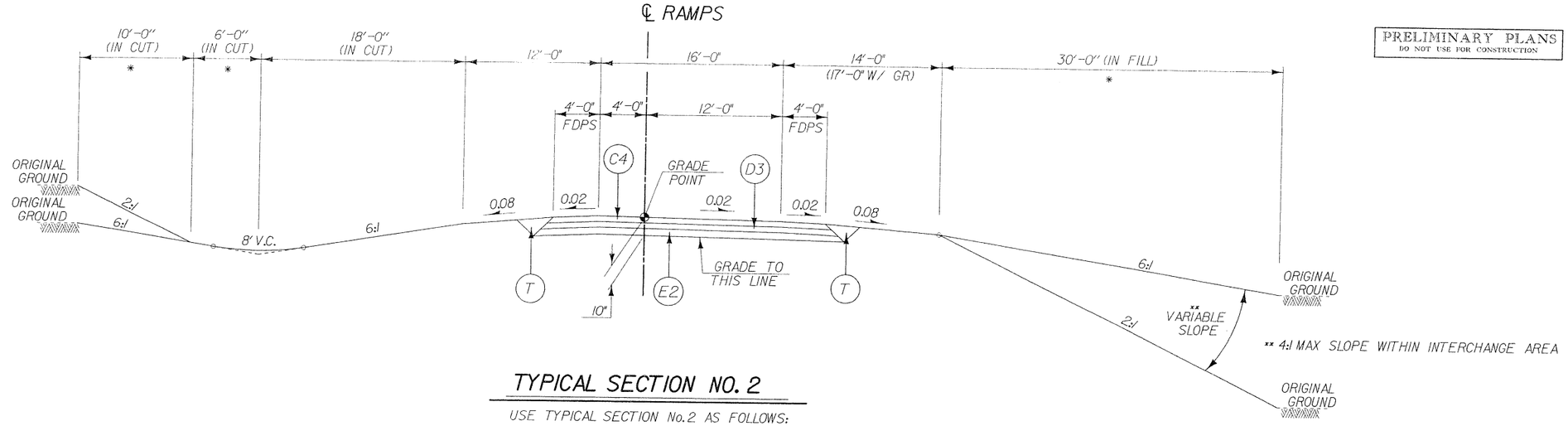
-LOOP A- STA.2+17.65 TO 7+58.48 ±
-LOOP C- STA.2+17.65 TO 7+84.89 ±

C4	2½" S-9.5B
D3	3½" I-19.0B
D4	4½" I-19.0B
E1	3" B-25.0B
E2	4" B-25.0B
R1	2'-6" C & G
T	EARTH

BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 33127
Raleigh, N.C. 27636-3127
(919) 851-1912
(919) 851-1918 (FAX)

PROJECT REFERENCE NO.	SHEET NO.
1-2304AA	2-B
R/W SHEET NO.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



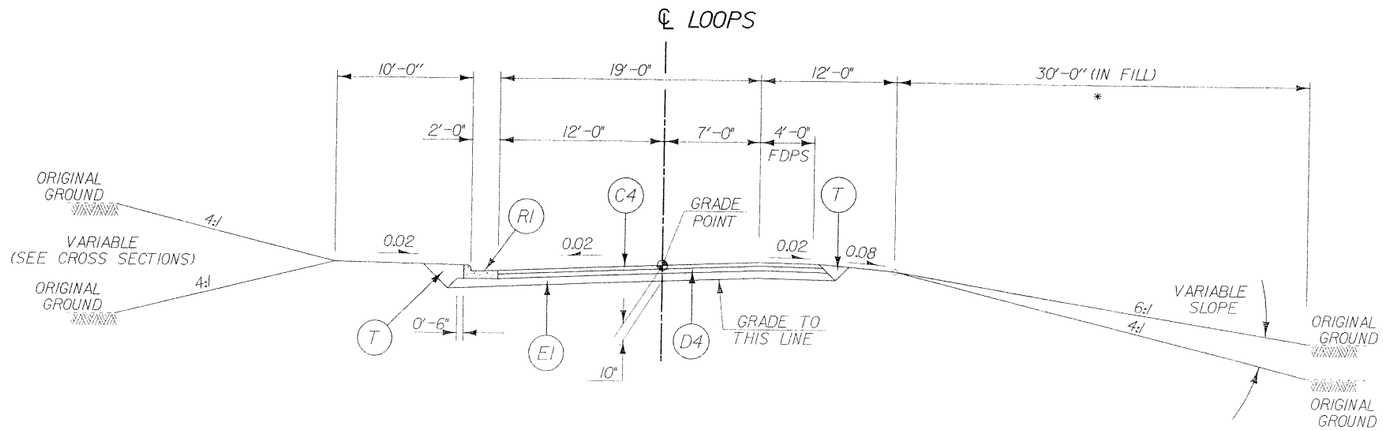
** 4:1 MAX SLOPE WITHIN INTERCHANGE AREA

TYPICAL SECTION NO. 2

USE TYPICAL SECTION No.2 AS FOLLOWS:

-RAMP A- STA.7+26.50 TO 21+68.96 ±
-RAMP C- STA.4+30.72 TO 16+40.57 ±

* WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS OF 6:1 TO 2:1, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM OR MINIMUM SLOPE MAINTAINED.



TYPICAL SECTION NO. 3

USE TYPICAL SECTION No.3 AS FOLLOWS:

-LOOP A- STA.2+17.65 TO 7+58.48 ±
-LOOP C- STA.2+17.65 TO 7+84.89 ±

C4	2½" S-9.5B
D3	3½" I-19.0B
D4	4½" I-19.0B
E1	3" B-25.0B
E2	4" B-25.0B
R1	2'-6" C & G
T	EARTH

BARBARA H. MULKEY ENGINEERING, INC.
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Raleigh, N.C. 27636-3127
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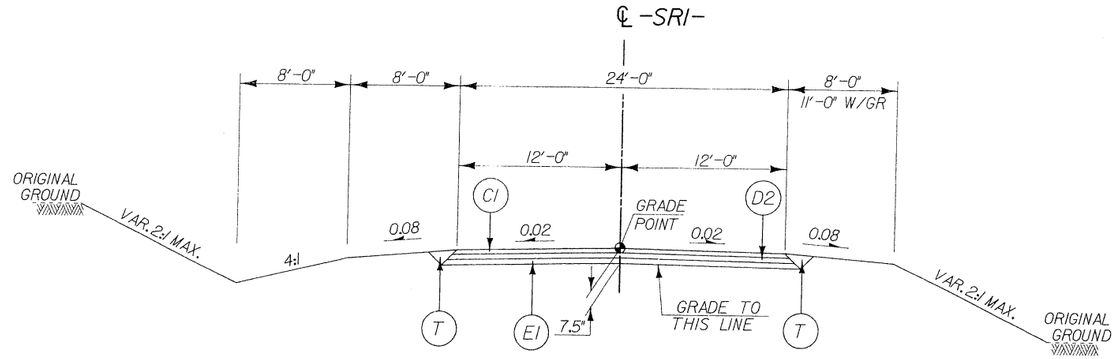
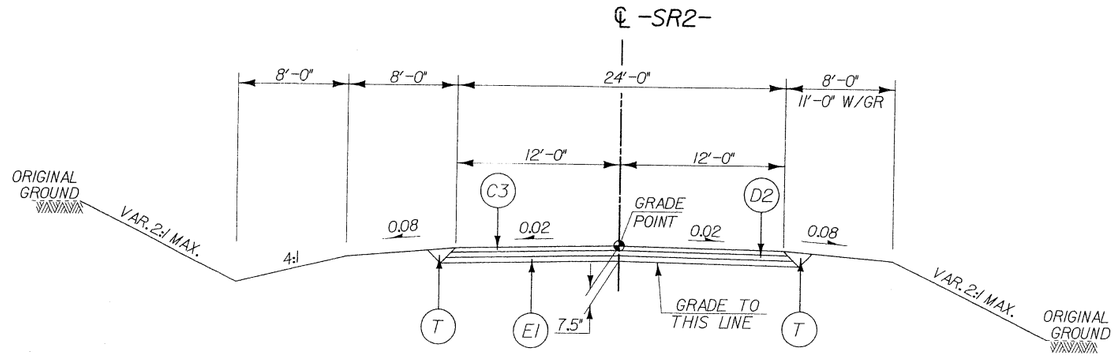
PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	2-C
R/W SHEET NO.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



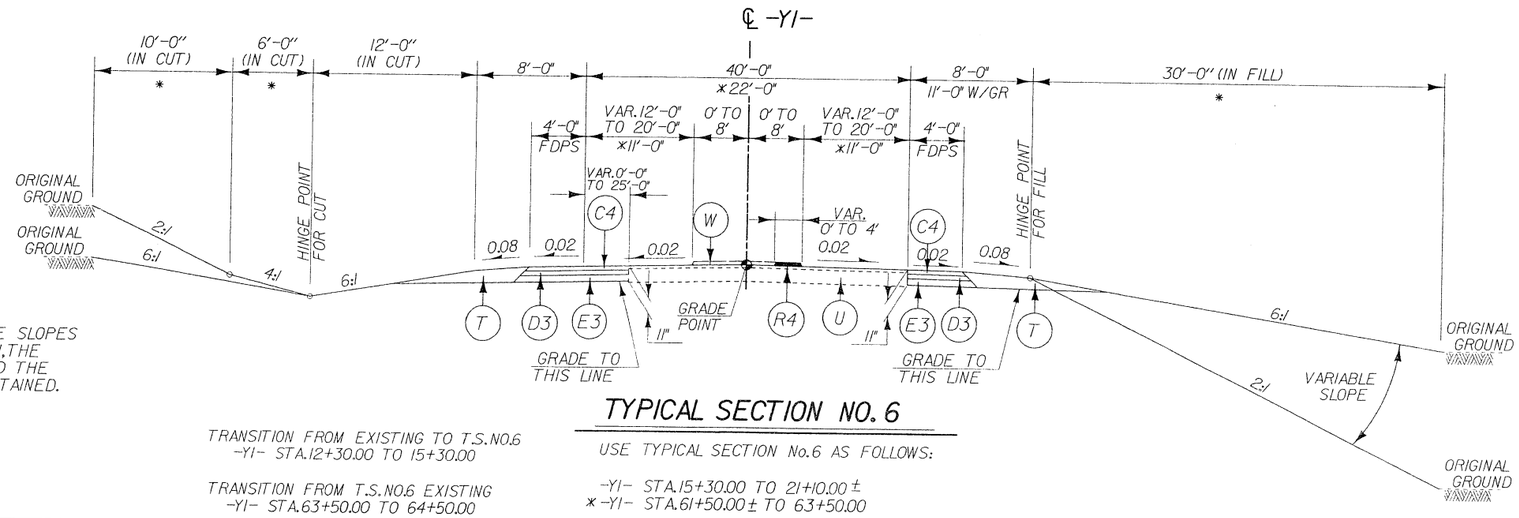
TYPICAL SECTION NO. 4

USE TYPICAL SECTION No.4 AS FOLLOWS:
-SR1- STA.31+47.82 TO 47+11.51



TYPICAL SECTION NO. 5

USE TYPICAL SECTION No.5 AS FOLLOWS:
-SR2- STA.36+49.32 TO 72+45.00



* WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS OF 6:1 TO 2:1, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM OR MINIMUM SLOPE MAINTAINED.

TYPICAL SECTION NO. 6

USE TYPICAL SECTION No.6 AS FOLLOWS:

-Y1- STA.15+30.00 TO 21+10.00 ±
* -Y1- STA.61+50.00 ± TO 63+50.00

TRANSITION FROM EXISTING TO T.S.NO.6
-Y1- STA.12+30.00 TO 15+30.00

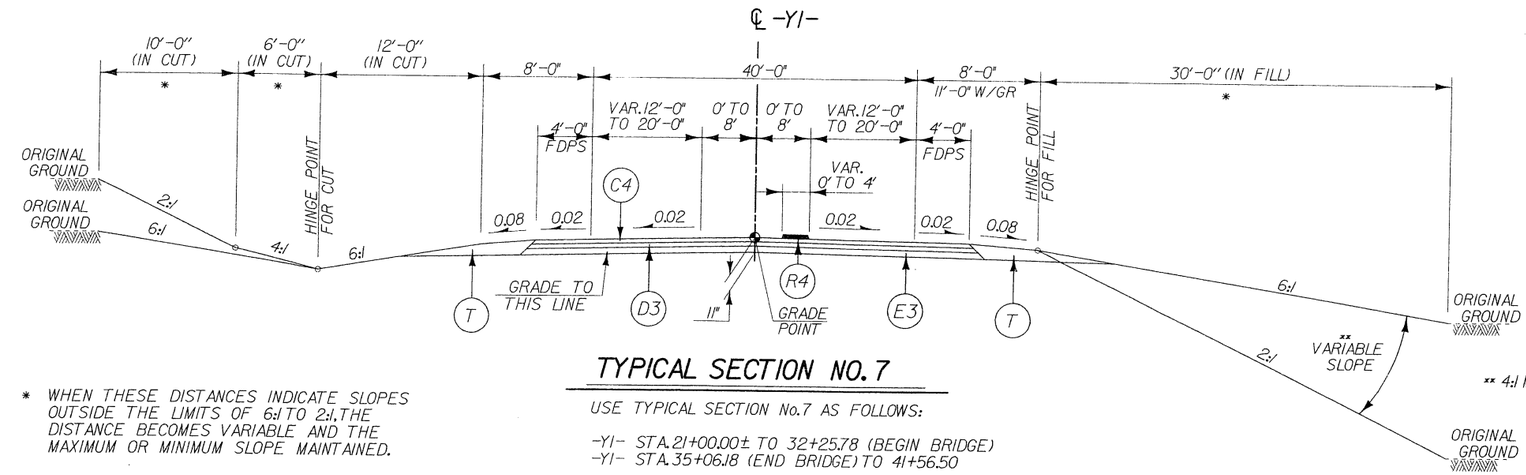
TRANSITION FROM T.S.NO.6 EXISTING
-Y1- STA.63+50.00 TO 64+50.00

C1	1½" S-9.5A
C3	1½" S-9.5B
C4	2½" S-9.5B
D2	3" I-19.0B
E1	3" B-25.0B
R4	6" CONC. ISLAND
T	EARTH
U	EXIST. PAVE
W	WEDGING

BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 3327
Raleigh, N.C. 27636-3327
(919) 851-1912
(919) 851-1918 (FAX)

PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	2-D
R/W SHEET NO.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 7

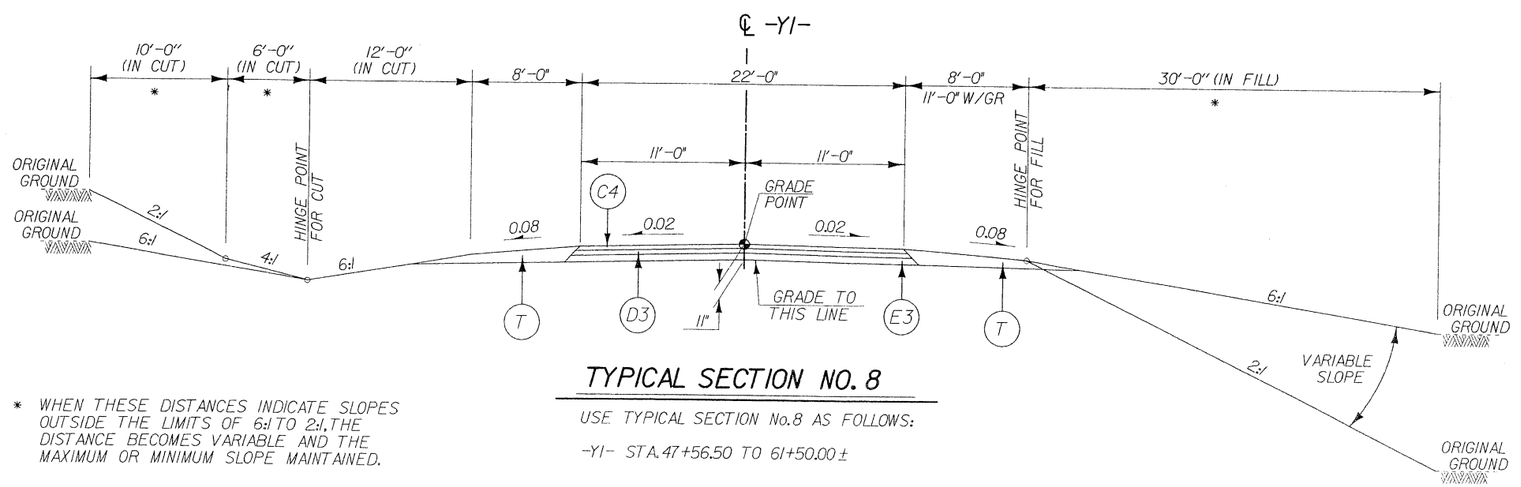
* WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS OF 6:1 TO 2:1, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM OR MINIMUM SLOPE MAINTAINED.

USE TYPICAL SECTION No.7 AS FOLLOWS:

-Y1- STA. 21+00.00± TO 32+25.78 (BEGIN BRIDGE)
-Y1- STA. 35+06.18 (END BRIDGE) TO 41+56.50

** 4:1 MAX SLOPE WITHIN INTERCHANGE AREA

TRANSITION FROM T.S.NO.7 TO T.S.NO.8
-Y1- STA. 41+56.50 TO 47+56.50



TYPICAL SECTION NO. 8

* WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS OF 6:1 TO 2:1, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM OR MINIMUM SLOPE MAINTAINED.

USE TYPICAL SECTION No.8 AS FOLLOWS:

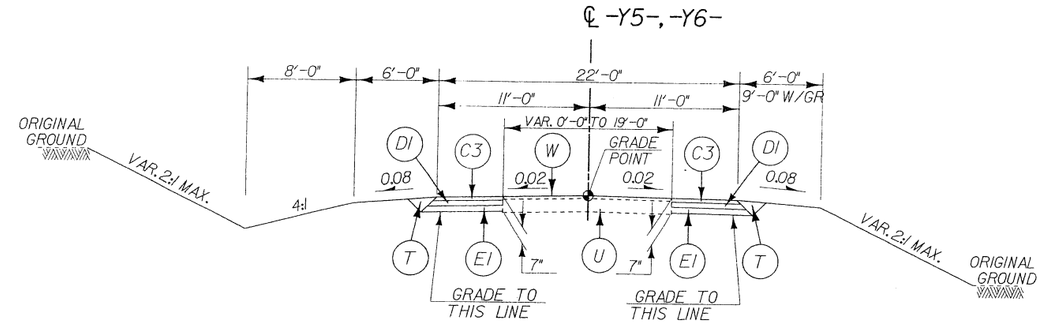
-Y1- STA. 47+56.50 TO 61+50.00±

C4	2½" S-9.5B
D3	3½" I-19.0B
E3	5" B-25.0B
R4	6" CONC. ISLAND
T	EARTH

BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 3327
Raleigh, N.C. 27636-327
(919) 851-192
(919) 851-198 (FAX)

PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	2-E
R/W SHEET NO.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



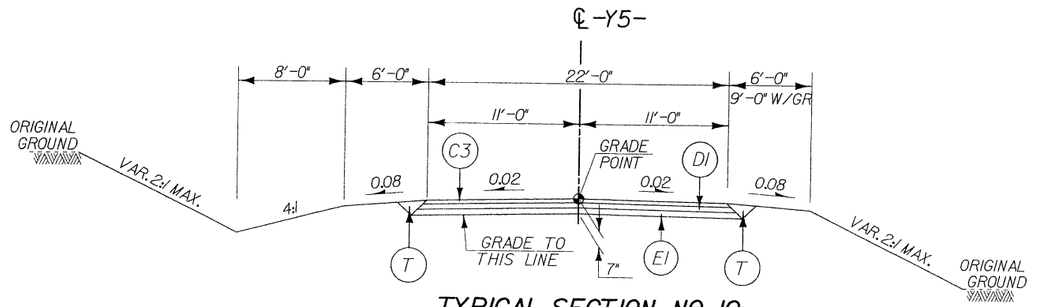
TYPICAL SECTION NO. 9

TRANSITION FROM EXISTING TO T.S.No.9
-Y5- STA.18+42.04 TO 18+92.04
-Y6- STA.11+50.00 TO 12+00.00

TRANSITION FROM T.S.No.9 TO EXISTING
-Y5- STA.12+00.00 TO 12+50.00
-Y6- STA.15+15.25 TO 15+50.00

USE TYPICAL SECTION No.9 AS FOLLOWS:

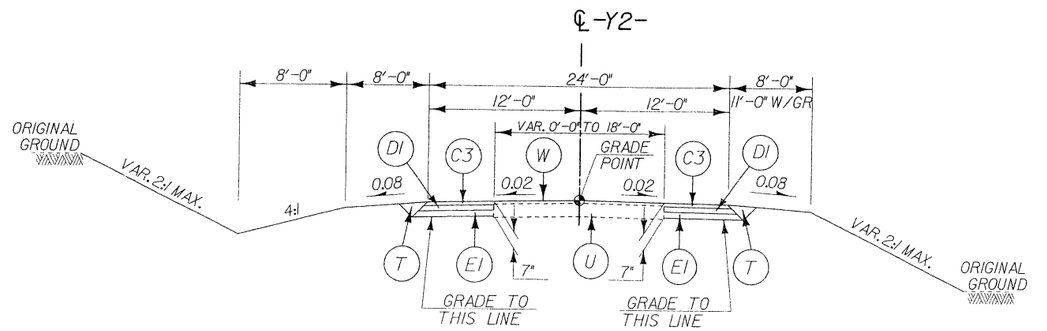
-Y5- STA.11+17.00 ± TO 12+00.00
-Y5- STA.18+92.04 TO 20+91.00 ±
-Y6- STA. 12+00.00 TO 15+15.25



TYPICAL SECTION NO. 10

USE TYPICAL SECTION No.10 AS FOLLOWS:

-Y5- STA.10+50.00 TO 11+17.00 ±
-Y5- STA.20+91.00 ± TO 22+03.00 ±



TYPICAL SECTION NO. 11

TRANSITION FROM EXISTING TO T.S.No.11
-Y2- STA.10+50.00 TO 11+00.00

USE TYPICAL SECTION No.11 AS FOLLOWS:

-Y2- STA.11+00.00 TO 12+63.00 ±

C3	1½" S-9.5B
DI	2½" I-19.0B
EI	3" B-25.0B
T	EARTH
U	EXIST. PAVE

BARBARA H. MULKEY ENGINEERING, INC.
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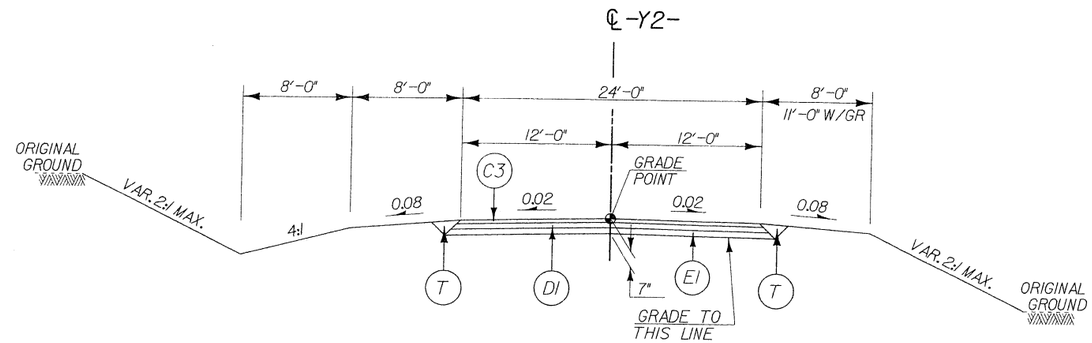
(919) 851-1918 (FAX)

PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	2-F
R/W SHEET NO.	

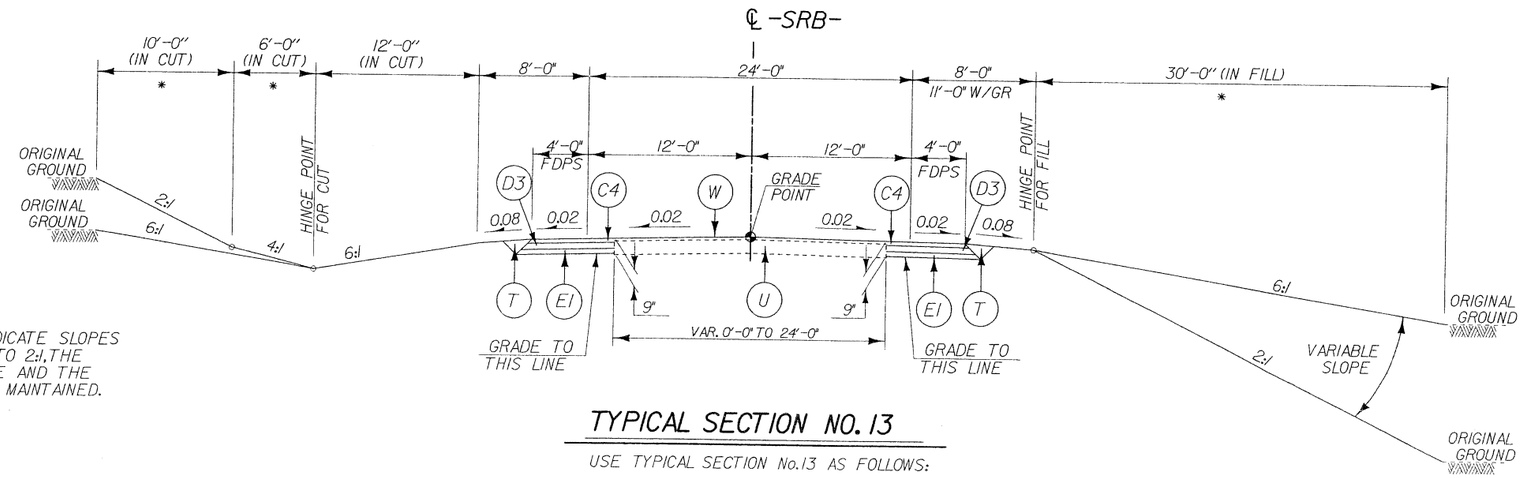
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 12

USE TYPICAL SECTION No.12 AS FOLLOWS:

-Y2- STA.12+63.00± TO 16+88.00±



WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS OF 6:1 TO 2:1, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM OR MINIMUM SLOPE MAINTAINED.

TYPICAL SECTION NO. 13

USE TYPICAL SECTION No.13 AS FOLLOWS:

-SRB- STA.39+79.09 (END BRIDGE) TO 48+72.00 ±

C3	1½" S-9.5B
C4	2½" S-9.5B
DI	2½" I-19.0B
D3	3½" I-19.0B
EI	3" B-25.0B
T	EARTH
U	EXIST. PAVE
W	WEDGING

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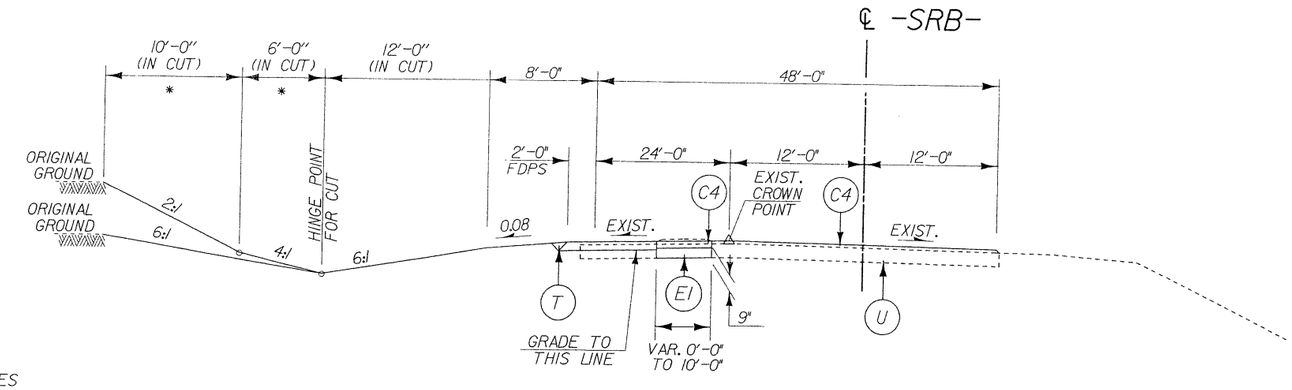
PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	2-G
R/W SHEET NO.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

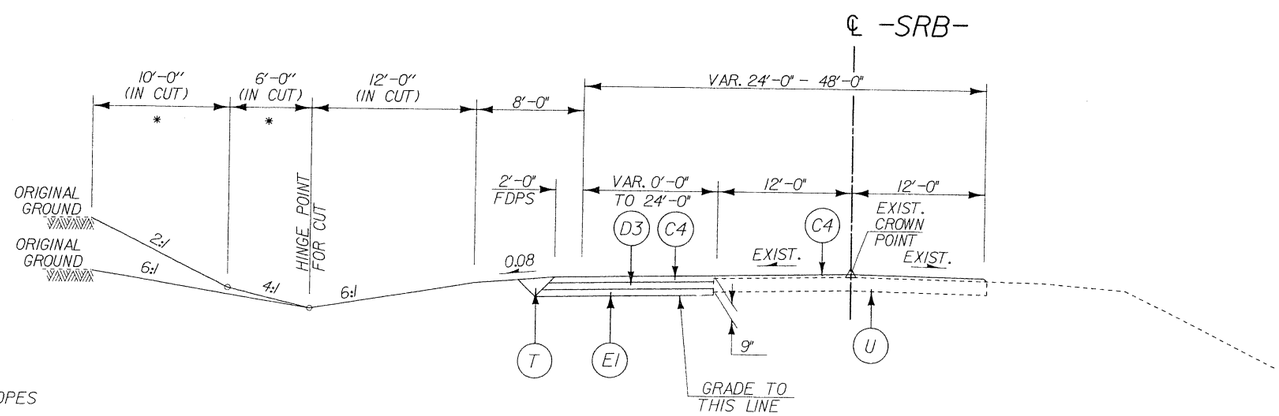


*WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS OF 6:1 TO 2:1, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM OR MINIMUM SLOPE MAINTAINED.

TYPICAL SECTION NO. 14

USE TYPICAL SECTION No.14 AS FOLLOWS:

-SRB- STA.15+44.34 TO 18+00.00



*WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS OF 6:1 TO 2:1, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM OR MINIMUM SLOPE MAINTAINED.

TYPICAL SECTION NO. 15

USE TYPICAL SECTION No.15 AS FOLLOWS:

-SRB- STA.18+00.00 TO 31+07.19 (BEGIN BRIDGE)

C4	2½" S-9.5B
D3	3½" I-19.0B
E1	3" B-25.0B
T	EARTH
U	EXIST. PAVE

09/17/2002 11:15:51 AM P:\Projects\2000\98800\98804A\N12\Sheet.tvm

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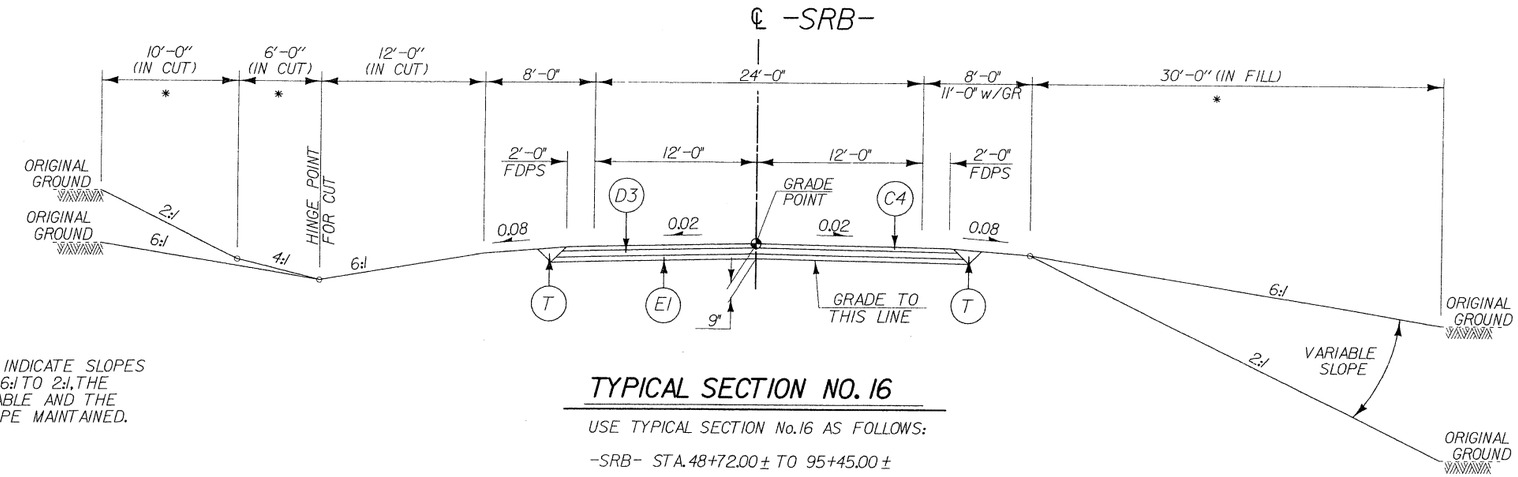
PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	2-H
R/W SHEET NO.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

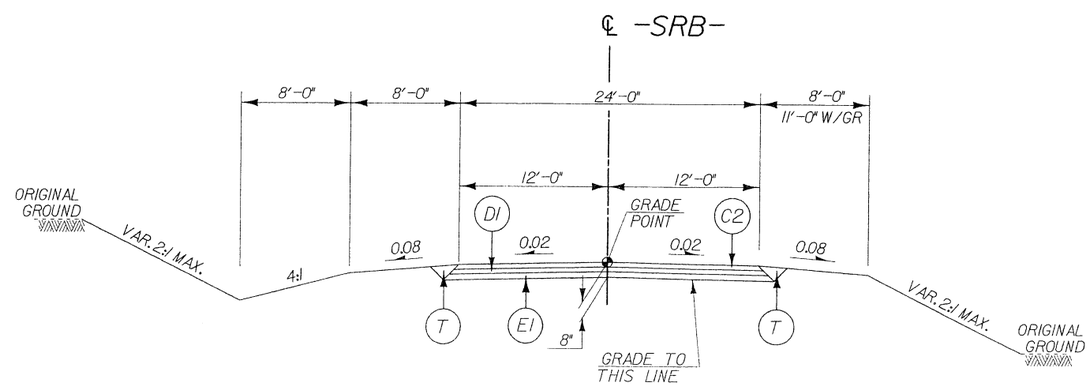


* WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS OF 6:1 TO 2:1, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM OR MINIMUM SLOPE MAINTAINED.

TYPICAL SECTION NO. 16

USE TYPICAL SECTION No.16 AS FOLLOWS:

-SRB- STA. 48+72.00 ± TO 95+45.00 ±



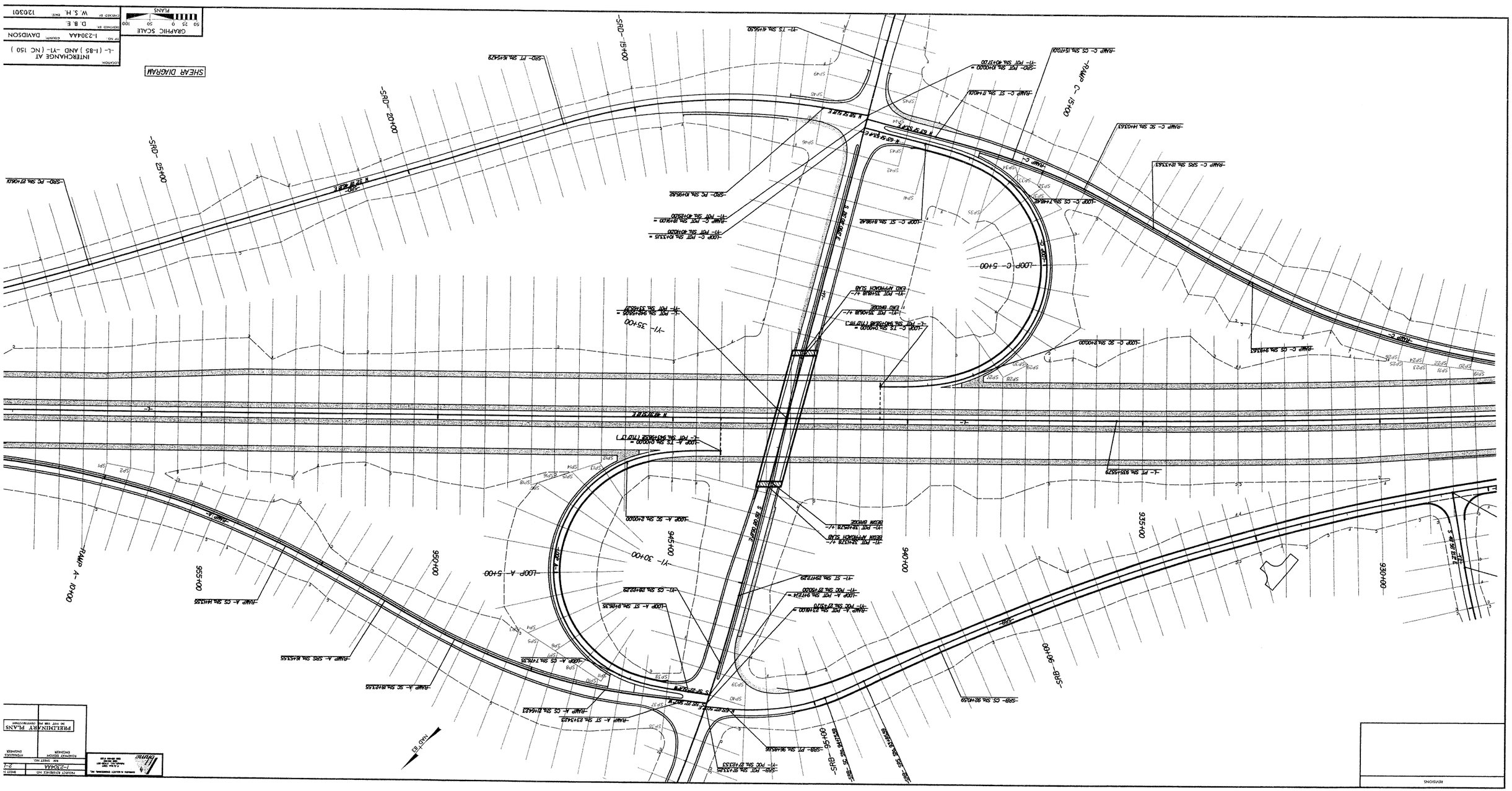
TYPICAL SECTION NO. 17

USE TYPICAL SECTION No.17 AS FOLLOWS:

-SRD- STA. 11+16.00 ± TO 60+17.34

TRANSITION FROM T.S. No.17 TO EXISTING -SRD- STA. 60+17.34 TO 60+67.34

C2	2½" S-9.5A
C4	2½" S-9.5B
D1	2½" I-19.0B
D3	3½" I-19.0B
E1	3" B-25.0B
T	EARTH


-SRD- 25+00
-SRD- 20+00
-SRD- 15+00
-SRD- 90+00
-SRB- 95+00
-SRB-
-SRB- CS Sta. 92+40.59
-SRB- SRS Sta. 93+62.29
-SRB- SC Sta. 94+62.29
-SRB- PT Sta. 96+62.56
-SRB- PRC Sta. 97+33.56
-SRB- PC Sta. 10+62.56
-SRB- FC Sta. 10+62.56
-SRD- FT Sta. 16+62.29
-SRD- FC Sta. 27+06.61
-VI- 15 Sta. 4+62.50
-VI- 35+00
-VI- 30+00
-LOOP C- 5+00
-LOOP C- SC Sta. 2+00.00
-LOOP C- TS Sta. 0+00.00 =
-T- POT Sta. 50+00.00 (TUR'N)
-VI- POT 35+00.00 +/-
END BRIDGE
-VI- POT 35+00.00 +/-
END APPROACH SLAB
-LOOP C- ST Sta. 8+90.46
-LOOP C- POT Sta. 10+33.15 =
-VI- POT Sta. 10+00.00
-RAMP C- POT Sta. 10+00.00 =
-VI- POT Sta. 10+00.00
-SRD- PC Sta. 10+62.56
-SRD- PT Sta. 16+62.29
-VI- 15 Sta. 4+62.50
-RAMP C- 15+00
-RAMP C- ST Sta. 11+00.01
-SRD- POT Sta. 10+00.00 =
-VI- POT Sta. 10+37.00
-RAMP C- CS Sta. 15+10.01
-RAMP C- SC Sta. 14+03.53
-RAMP C- SRS Sta. 12+33.67
-RAMP C- CS Sta. 9+93.65
-LOOP C- SC Sta. 6+00.00
-LOOP C- CS Sta. 1+46.46
-RAMP C-
-RAMP C-
-T- PT Sta. 93+33.29
-T- POT Sta. 93+33.29 (TUR'N)
-LOOP A- TS Sta. 0+00.00 =
-T- POT Sta. 50+00.00 (TUR'N)
-VI- POT 30+00.00 +/-
BEGIN APPROACH SLAB
-VI- POT 30+00.00 +/-
BEGIN BRIDGE
-LOOP A- SC Sta. 2+00.00
-VI- 30+00
-LOOP A- 5+00
-VI- ST Sta. 28+17.29
-VI- CS Sta. 28+17.29
-LOOP A- ST Sta. 8+96.35
-VI- POC Sta. 27+00.00
-LOOP A- POT Sta. 8+17.34 =
-VI- POC Sta. 27+00.00
-RAMP A- POT Sta. 8+14.00 =
-VI- POC Sta. 27+00.00
-RAMP A- CS Sta. 11+62.21
-RAMP A- ST Sta. 8+73.29
-LOOP A- CS Sta. 7+76.29
-RAMP A- SRS Sta. 8+75.55
-RAMP A- SC Sta. 8+75.55
-RAMP A- CS Sta. 4+13.55
-RAMP A- 10+00
-RAMP A-
-VI- POC Sta. 27+00.00
-SRB- POT Sta. 97+33.56
-SRB- PT Sta. 96+62.56
-SRB-
-SRB-
-SRB-

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIE EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
AREA 1 : PHASE I					
-SR1- 31+47.82 TO 42+00.00	4,055		9,464	5,409	
-SR1- 42+00.00 TO 47+12.00	5,590				5,590
-SR2- 36+49.32 TO 72+45.00	31,686		52,444	20,758	
SUBTOTAL	41,331		61,908	26,167	5,590
-L- 820+00.00 TO 838+97.00	5,339		112,021	106,682	
SUBTOTAL	5,339		112,021	106,682	
AREA 1 : PHASE I SUBTOTAL	46,670		173,929	132,849	5,590
AREA 1 : PHASE II					
-L- MED. 807+00.00 TO 826+00.00	1,598		2,932	1,334	
SUBTOTAL	1,598		2,932	1,334	
-L- SBL 807+00 TO 838+00.00	6,146		14,489	8,343	
SUBTOTAL	6,146		14,489	8,343	
AREA 1 : PHASE II SUBTOTAL	7,744		17,421	9,677	
AREA 2 : PHASE I					
-L- 843+00.00 TO 869+35.00	193,065		168,964		24,101
SUBTOTAL	193,065		168,964		24,101
-L- 839+89.00 TO 843+00.00			77,489	77,489	
SUBTOTAL			77,489	77,489	
AREA 2 : PHASE I SUBTOTAL	193,065		246,453	77,489	24,101
AREA 3 : PHASE I					
-SRD- 11+00.00 TO 32+50.00	11,112		35,317	24,205	
-Y1- 36+00.00 TO 60+00.00	12,438		176,600	164,162	
-L- 896+65.00 TO 980+00.00	8,770		324,061	315,291	
-RAMP A- 10+00.00 TO 23+00.00	32,839		8,483		24,356
-LOOP A- 2+50.00 TO 7+50.00	17,521				17,521
-RAMP C- 12+00.00 TO 18+00.00	198		50,249	50,051	
-LOOP C- 4+50.00 TO 7+00.00	138		8,790	8,652	
-Y1- 24+00.00 TO 32+50.00	1,511		33,223	31,712	
-SRB- 95+45.00 TO 96+50.00	113		762	649	
SUBTOTAL	84,640		637,485	594,722	41,877
-SRD- 33+00.00 TO 60+67.00	13,943		6,457		7,486
-Y7- 10+50.00 TO 12+62.00	941		7		934
SUBTOTAL	14,884		6,464		8,420
-Y5- 18+42.00 TO 22+00.00	424		605	181	
-Y1- 60+00.00 TO 64+50.00	1,649		1,114		535
SUBTOTAL	2,073		1,719	181	535
-L- NBL 916+00.00 TO 980+00.00	25,994		96,348	70,354	
-Y5- 10+50.00 TO 18+42.00	602		6		596
-RAMP C- 5+00.00 TO 12+00.00	22,914		4,080		18,834
-LOOP C- 2+50.00 TO 4+50.00	2,398		2,342		56
-Y1- 35+06.18 TO 36+00.00	1		17,878	17,877	
-SRB- 84+50.00 TO 95+45.00	7,314		3,928		3,386
SUBTOTAL	59,223		124,582	88,231	22,872
AREA 3 : PHASE I SUBTOTAL	160,820		770,250	683,134	73,704
AREA 3 : PHASE II					
-L- MED 923+00.00 TO 980+00.00	8,565		784		7,781
SUBTOTAL	8,565		784		7,781
-L- SBL 908+00.00 TO 939+00.00	37,196		570		36,626
-L- SBL 939+00.00 TO 980+00.00	7,568				7,568
-SRB- 15+46.00 TO 31+09.00	215		2,658	2,443	
-SRB- 39+80.00 TO 95+00.00	17,254		19,124	1,870	
-Y2- 13+27.00 TO 17+50.00	394		541	147	
SUBTOTAL	62,627		22,893	4,460	44,194
AREA 3 : PHASE II SUBTOTAL	71,192		23,677	4,460	51,975
AREA 3 : PHASE III					
-SRB- DITCH 15+46.00 TO 31+09.00	308		64		244
SUBTOTAL	308		64		244
-Y1- 12+30.00 TO 24+00.00	5,886		824		5,062
SUBTOTAL	5,886		824		5,062
AREA 3 : PHASE III SUBTOTAL	65,417		125,470	88,231	28,178

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

BARBARA N. MALLICK ENGINEERING, INC.
P.O. Box 13292
Raleigh, N.C. 27627
(919) 856-1921
(919) 856-1922 FAX

PROJECT REFERENCE NO. I-2304AA
RW SHEET NO.
SHEET NO. 3-A

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIE EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
AREA 3 : PHASE IV					
-Y6- 11+50.00 TO 15+50.00	290 -	-	85 -	-	205-
-Y2- 10+50.00 TO 13+27.00	250		89		161
SUBTOTAL	540		174		366
AREA 3 : PHASE IV SUBTOTAL	540		174		366
PROJECT TOTAL	545,448		1,357,374	995,840	183,914
GRAND TOTAL	545,448		1,357,374	995,840	183,914
SAY					

BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 3327
Raleigh, N.C. 27636-3327
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(919) 850-0988 (FAX)

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

PROJECT REFERENCE NO. 1-2304AA
SHEET NO. 3-B
R/W SHEET NO.

COMPUTED BY: PADDY JORDAN DATE: 8-7-02
CHECKED BY: TIM JORDAN DATE: 8-8-02

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

bhme
BARBARA H. MULKEY ENGINEERING, INC.
559 Jones Franklin Road
Suite 164 A
Raleigh, N.C. 27606
(919) 851-1912
(919) 851-1918 (FAX)

PROJECT REFERENCE NO. 1-2304AA
SHEET NO. 3-C

RIGHT OF WAY AREA DATA SHEET

PARCEL NO.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT
1	JOHN E. WILLIAMS	8.395 AC	2.373 AC	6.022 AC	AC	AC	AC	AC
2	BILLY G. MITCHELL	1.237 AC	0.506 AC	0.731 AC	AC	AC	AC	AC
3	MARY H. LAMBE	218.610 AC	10.573 AC	118.037 AC	90.000 AC	0.073 AC	AC	AC
4	COLOR-TEX FINISHING CO	159.530 AC	10.757 AC	29.943 AC	118.83 AC	0.043 AC	AC	AC
5	ALUMINUM COMPANY OF AM	30.400 AC	8.279 AC	22.121 AC	AC	AC	AC	AC
6	YADKIN INC.	AC	5.409 AC	AC	AC	AC	AC	AC
7	ALUMINUM COMPANY OF AM	69.640 AC	6.490 AC	63.150 AC	AC	AC	AC	AC
8	ROBERT L. GRUBB	76.153 AC	10.529 AC	65.624 AC	AC	0.077 AC	AC	AC
9	PLEMMONS ENTERPRISE IN	3.872 AC	AC	AC	3.872 AC	0.011 AC	AC	AC
10	MICHAEL D. TAYLOR	18632.540 SF	5.120 SF	SF	18627.420 SF	SF	AC	AC
11	NCDOT	3.568 AC	0.221 AC	AC	3.347 AC	0.119 AC	AC	AC
12	NCDOT	12.010 AC	4.478 AC	4.478 AC	12.01 AC	AC	AC	AC
13	DAVID M. SHELTON	1.039 AC	0.592 AC	AC	0.447 AC	0.042 AC	AC	AC
14	STEVEN E. GOODMAN	1.771 AC	0.100 AC	1.671 AC	AC	0.038 AC	AC	AC
15	KATHY C. WILLARD	24160.664 SF	18513.000 SF	SF	5647.664 SF	1785.960 SF	AC	AC
16	KENNETH BLAKE	2.231 AC	0.156 AC	AC	2.075 AC	0.027 AC	AC	AC
17	LUKE H. SHEPHERD	1.027 AC	0.080 AC	AC	0.947 AC	0.021 AC	AC	AC
18	ROBERT C. WILSON, SR.	14949.734 SF	186.660 SF	14763.074 SF	SF	442.51 SF	AC	AC
19	ROBERT C. WILSON, SR.	21854.743 SF	20037.600 SF	SF	1817.143 SF	908.490 SF	AC	AC
20	GEORGE M. KOONTZ	25759.823 SF	4410.010 SF	SF	21349.813 SF	1180.220 SF	AC	AC
21	JOHN A. CHRISLEY	1.689 AC	0.407 AC	AC	1.282 AC	0.011 AC	AC	AC
22	GARY G. BAYNARD	1.245 AC	0.070 AC	AC	1.175 AC	0.025 AC	AC	AC
23	ROBERT L. GRUBB	416.140 AC	43.518 AC	314.102 AC	58.520 AC	1.069 AC	AC	AC
24	FALCON DEVELOPMENT GRO	72.729 AC	3.510 AC	69.219 AC	AC	AC	AC	AC
25	ENERGY EFFICIENT HOUSI	7.152 AC	0.700 AC	6.452 AC	AC	AC	AC	AC
26	MOTEL SLEEPERS INC.	5.011 AC	0.752 AC	4.259 AC	AC	0.022 AC	AC	AC
27	ROBERT L. GRUBB	59.657 AC	0.267 AC	44.170 AC	15.220 AC	0.143 AC	0.066 AC	AC
28	NC HISTORICAL COMMISSI	37074.203 SF	11238.480 SF	SF	25835.723 SF	1001.880 SF	AC	AC
29	JOE RAY POOLE	3.206 AC	0.084 AC	AC	3.122 AC	0.048 AC	AC	AC
30	ABNER L. HANES	4.084 AC	0.087 AC	AC	3.997 AC	0.045 AC	AC	AC
31	SHEILA G. LOPP	3.252 AC	0.042 AC	AC	3.210 AC	0.039 AC	AC	AC
32	DONALD L. HALL	1.745 AC	0.025 AC	AC	1.720 AC	0.026 AC	AC	AC
33	GARLAND L. YOUNG	1.760 AC	0.047 AC	AC	1.713 AC	0.021 AC	AC	AC
34	EVELYN L. DAYTON	1.957 AC	0.052 AC	AC	1.905 AC	0.006 AC	AC	AC
35	RUBY Y. HANES	2.659 AC	AC	2.659 AC	AC	0.032 AC	AC	AC
36	BEN K. WHITE	34943.262 SF	SF	34943.26 SF	SF	0.003 SF	AC	AC
37	ROBERT L. GRUBB	186.138 AC	0.777 AC	185.361 AC	AC	0.023 AC	AC	AC
38	DORIS L. DAVIS	2.161 AC	0.019 AC	AC	2.142 AC	AC	AC	AC
39	WATSON E. ALLRED	1.509 AC	0.148 AC	01.361 AC	AC	0.013 AC	AC	AC
40	WILBUR LOMAX, JR.	3.445 AC	0.005 AC	AC	3.440 AC	0.013 AC	AC	AC
41	GLENDA M. KEPLEY	3.789 AC	0.032 AC	AC	3.757 AC	AC	AC	AC
42	DONALD LANNING	3.036 AC	AC	AC	3.036 AC	0.016 AC	AC	AC

COMPUTED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____

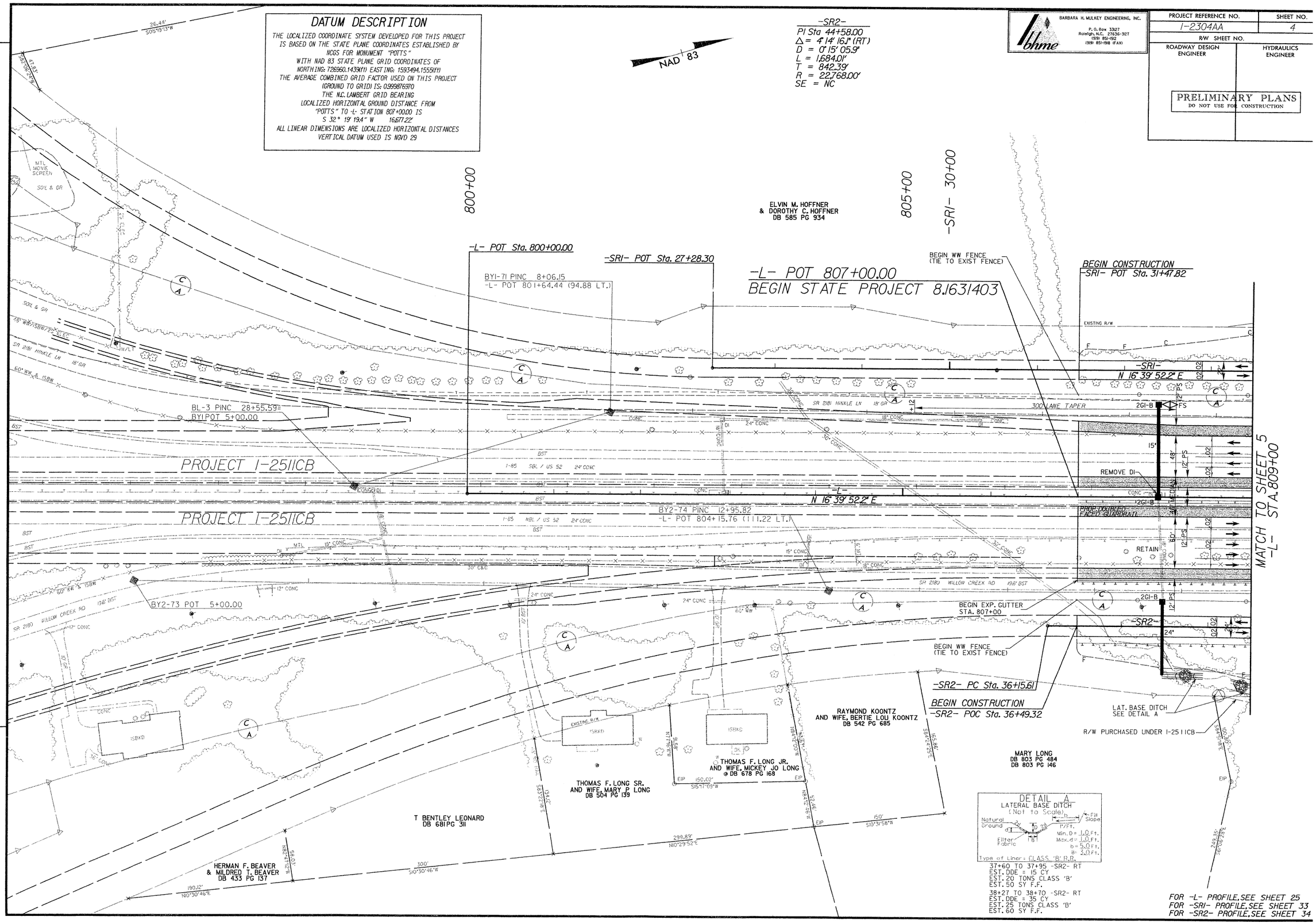
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BARBARA H. MULKEY ENGINEERING, INC.
559 Jones Franklin Road
Suite 164 A
Raleigh, N.C. 27606
(919) 851-1912
(919) 851-1918 (FAX)

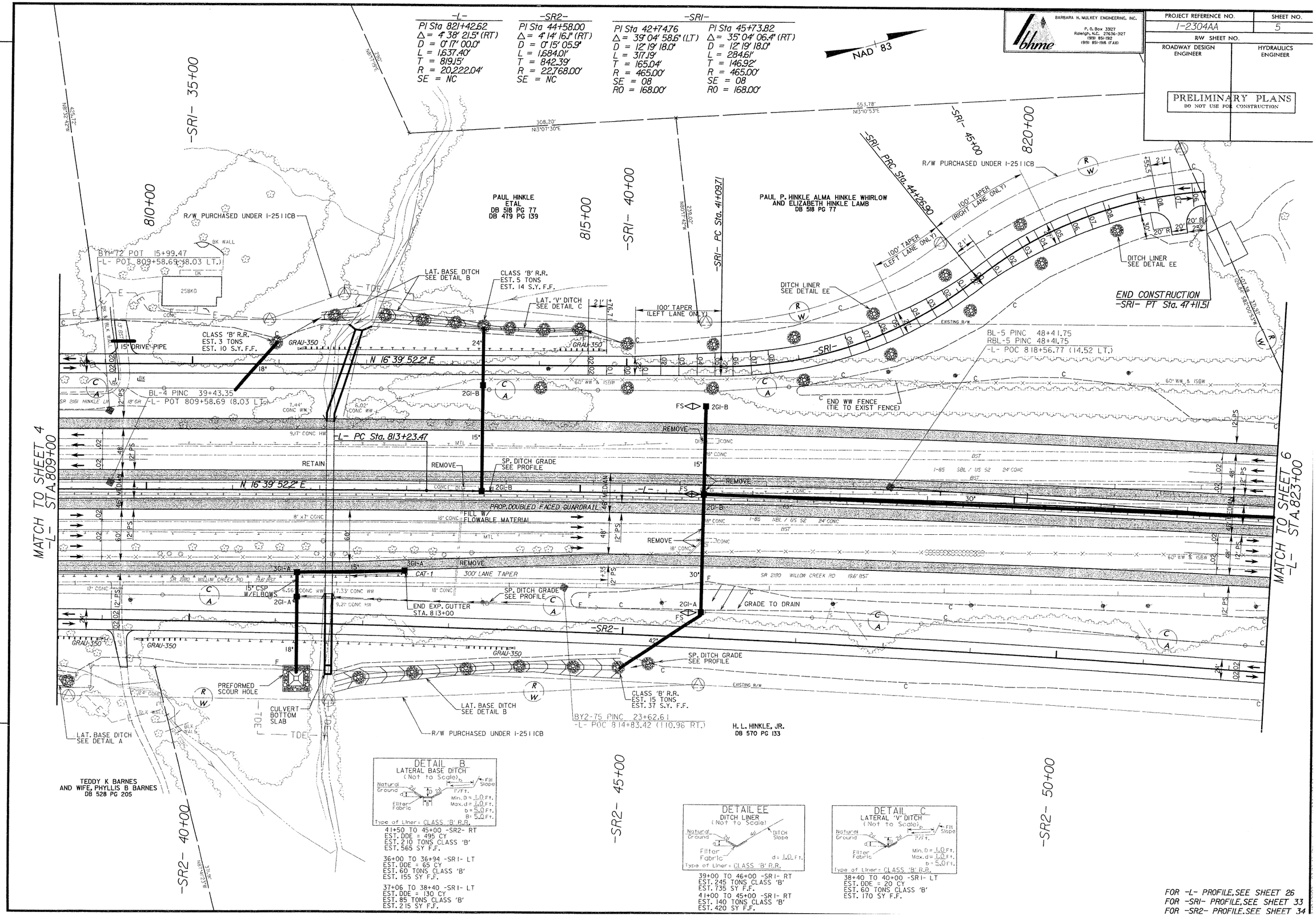
PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	3-D

PARCEL INDEX SHEET

PARCEL NO.	SHEET NO.	PROPERTY OWNERS NAME
1	6	JOHN E. WILLIAMS
2	6	BILLY G. & ELIZABETH L. MITCHELL
3	6, 7, 8	MARY HEDRICK LAMBE
4	8, 9, 17	COLOR-TEX FINISHING CORP.
5	9	ALUMINUM COMPANY OF AMERICA
6	9, 10	YADKIN INC.
7	10, 11	ALUMINUM COMPANY OF AMERICA
8	11, 12, 13, 24	ROBERT L. GRUBB
9	12	PLEMMONS ENTERPRISE INC.
10	12	MICHAEL DALE TAYLOR
11	12, 13	NCDOT
12	12, 13, 24	NCDOT
13	13, 20	DAVID MARTIN SHELTON
14	13, 20	STEVEN EARLE & JUDY LOFLIN GOODMAN
15	13, 20	KATHY C. WILLARD
16	13, 20	KENNETH & BETTY S. BLAKE
17	14	LUKE H., LEILA ANN, TORN HUGH, & ELLEN REBECCA SHEPHERD
18	14	ROBERT C. & DORIS J. WILSON, SR.
19	14	ROBERT C. & DORIS J. WILSON, SR.
20	14	GEORGE M. & RUTH B. KOONTZ
21	14	JOHN ALLEN WAYNE CHRISLEY
22	14	GARY G. & CAROLYN T. BAYNARD
23	13, 14, 15, 21, 22, 23	ROBERT L. GRUBB
24	14,15	FALCON DEVELOPMENT GROUP, INC.
25	15,16	ENERGY EFFICIENT HOUSING, INC.
26	16	MOTEL SLEEPERS INC.
27	16	ROBERT L. GRUBB
28	20	NC HISTORICAL COMMISSION
29	20	JOE RAY POOLE
30	20	ABNER L. & MARY B. HANES
31	21	SHELIA GOODMAN LOPP
32	21	DONALD L. & JO S. HALL
33	21	GARLAND L. YOUNG
34	21	EVELYN L. & SAMUEL E. DAYTON
35	21	RUBY Y. HANES
36	21	BEN K., NELSON E., & WILLIS HOPE WHITE
37	21, 24	ROBERT L. GRUBB
38	23	DORIS LA NETTE DAVIS
39	23	WATSON E. & DARRIN LEE ALLRED
40	23, 24	WILBUR & JUDY LOMAX, JR.
41	24	GLENDA MARLENE KEPLEY
42	24	DONALD LINFORD LANNING



DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "POTTS" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 726960.1439(ft) EASTING: 1593494.1555(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999876970
THE N.C. LAMBERT GRID BEARING LOCALIZED HORIZONTAL GROUND DISTANCE FROM "POTTS" TO -L- STATION 807+00.00 IS S 32° 19' 19.4" W 16,677.22'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29
NAD 83
-SR2-
PI Sta 44+58.00
Δ = 4°14' 16.1" (RT)
D = 0°15' 05.9"
L = 1,684.01'
T = 842.39'
R = 22,768.00'
SE = NC
BARBARA H. MULKEY ENGINEERING, INC.
P.O. Box 33127
Raleigh, N.C. 27636-3127
(919) 851-1912
(919) 851-1918 (FAX)
PROJECT REFERENCE NO.
I-2304AA
SHEET NO.
4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISIONS
800+00
805+00
-SR1- 30+00
ELVIN M. HOFFNER & DOROTHY C. HOFFNER DB 585 PG 934
-L- POT Sta. 800+00.00
-SR1- POT Sta. 27+28.30
BY1-71 PINC 8+06.15
-L- POT 801+64.44 (94.88 LT.)
-L- POT 807+00.00
BEGIN STATE PROJECT 8.1631403
BEGIN WW FENCE (TIE TO EXIST FENCE)
BEGIN CONSTRUCTION
-SR1- POT Sta. 31+47.82
-SR1-
N 16° 39' 52.2" E
BL-3 PINC 28+55.59=
BY1 POT 5+00.00
PROJECT I-2511CB
PROJECT I-2511CB
-L-
N 16° 39' 52.2" E
BY2-74 PINC 12+95.82
-L- POT 804+15.76 (111.22 LT.)
BY2-73 POT 5+00.00
REMOVE DI
PROP. DOUBLED FACED GUARDRAIL
RETAIN
MATCH TO SHEET 5
-L- STA. 809+00
BEGIN EXP. GUTTER STA. 807+00
BEGIN WW FENCE (TIE TO EXIST FENCE)
-SR2-
-SR2- PC Sta. 36+15.61
BEGIN CONSTRUCTION
-SR2- POC Sta. 36+49.32
LAT. BASE DITCH SEE DETAIL A
R/W PURCHASED UNDER I-2511CB
RAYMOND KOONTZ AND WIFE, BERTIE LOU KOONTZ DB 542 PG 685
MARY LONG DB 803 PG 484 DB 803 PG 146
THOMAS F. LONG JR. AND WIFE, MICKEY JO LONG DB 678 PG 168
THOMAS F. LONG SR. AND WIFE, MARY P. LONG DB 504 PG 139
T BENTLEY LEONARD DB 681PG 311
HERMAN F. BEAVER & MILDRED T. BEAVER DB 433 PG 137
DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Filter Fabric
Fill Slope
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
b = 5.0 Ft.
a = 3.0 Ft.
Type of Liner: CLASS 'B' R.R.
37+60 TO 37+95 -SR2- RT
EST. DDE = 15 CY
EST. 20 TONS CLASS 'B'
EST. 50 SY F.F.
38+27 TO 38+70 -SR2- RT
EST. DDE = 35 CY
EST. 25 TONS CLASS 'B'
EST. 60 SY F.F.
FOR -L- PROFILE, SEE SHEET 25
FOR -SR1- PROFILE, SEE SHEET 33
FOR -SR2- PROFILE, SEE SHEET 34



-L-
PI Sta 821+42.62
Δ = 4° 38' 21.5" (RT)
D = 0° 17' 00.0"
L = 1,637.40'
T = 819.15'
R = 20,222.04'
SE = NC
-SR2-
PI Sta 44+58.00
Δ = 4° 14' 16.1" (RT)
D = 0° 15' 05.9"
L = 1,684.01'
T = 842.39'
R = 22,768.00'
SE = NC
-SRI-
PI Sta 42+74.76
Δ = 39° 04' 58.6" (LT)
D = 12° 19' 18.0"
L = 317.19'
T = 165.04'
R = 465.00'
SE = 08
RO = 168.00'
PI Sta 45+73.82
Δ = 35° 04' 06.4" (RT)
D = 12° 19' 18.0"
L = 284.61'
T = 146.92'
R = 465.00'
SE = 08
RO = 168.00'
NAD 83
BARBARA N. MULKEY ENGINEERING, INC.
P. O. Box 33127
Raleigh, N.C. 27636-3127
(919) 851-1912
(919) 851-1918 (FAX)
PROJECT REFERENCE NO.
I-2304AA
SHEET NO.
5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISIONS
-SRI- 35+00
810+00
815+00
-SRI- 40+00
-SRI- PC Sta. 41+09.71
-SRI- PRC Sta. 44+26.90
-SRI- 45+00
820+00
PAUL HINKLE ETAL
DB 518 PG 77
DB 479 PG 139
PAUL P. HINKLE ALMA HINKLE WHIRLOW AND ELIZABETH HINKLE LAMB
DB 518 PG 77
R/W PURCHASED UNDER I-2511CB
BY1-72 POT 15+99.47
-L- POT 809+58.69 (8.03 LT.)
LAT. BASE DITCH SEE DETAIL B
CLASS 'B' R.R. EST. 5 TONS EST. 14 S.Y. F.F.
LAT. 'V' DITCH SEE DETAIL C
100' TAPER (LEFT LANE ONLY)
100' TAPER (RIGHT LANE ONLY)
DITCH LINER SEE DETAIL EE
END CONSTRUCTION
-SRI- PT Sta. 47+11.51
CLASS 'B' R.R. EST. 3 TONS EST. 10 S.Y. F.F.
15" DRIVE PIPE
GRAU-350
N 16° 39' 52.2" E
BL-5 PINC 48+41.75
RBL-5 PINC 48+41.75
-L- POC 818+56.77 (14.52 LT.)
BL-4 PINC 39+43.35
-L- POT 809+58.69 (8.03 LT.)
END WW FENCE (TIE TO EXIST FENCE)
-L- PC Sta. 813+23.47
RETAIN
REMOVE
SP. DITCH GRADE SEE PROFILE
PROP. DOUBLED FACED GUARDRAIL
FILL W/ FLOWABLE MATERIAL
300' LANE TAPER
15" CSP W/ELBOWS
END EXP. GUTTER STA. 813+00
GRADE TO DRAIN
MATCH TO SHEET 4 -L- STA. 809+00
MATCH TO SHEET 6 -L- STA. 823+00
-SR2-
PREFORMED SCOUR HOLE
CULVERT BOTTOM SLAB
LAT. BASE DITCH SEE DETAIL A
LAT. BASE DITCH SEE DETAIL B
R/W PURCHASED UNDER I-2511CB
BY2-75 PINC 23+62.61
-L- POC 814+83.42 (110.96 RT.)
CLASS 'B' R.R. EST. 15 TONS EST. 37 S.Y. F.F.
H. L. HINKLE, JR.
DB 570 PG 133
TEDDY K BARNES AND WIFE, PHYLLIS B BARNES
DB 528 PG 205
-SR2- 40+00
-SR2- 45+00
-SR2- 50+00
DETAIL B
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Filter Fabric
Fill Slope
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
b = 5.0 Ft.
B = 5.0 Ft.
Type of Liner = CLASS 'B' R.R.
41+50 TO 45+00 -SR2- RT
EST. DDE = 495 CY
EST. 210 TONS CLASS 'B'
EST. 565 SY F.F.
36+00 TO 36+94 -SR1- LT
EST. DDE = 65 CY
EST. 60 TONS CLASS 'B'
EST. 155 SY F.F.
37+06 TO 38+40 -SR1- LT
EST. DDE = 130 CY
EST. 85 TONS CLASS 'B'
EST. 215 SY F.F.
DETAIL EE
DITCH LINER
(Not to Scale)
Natural Ground
Filter Fabric
Ditch Slope
d = 1.0 Ft.
Type of Liner = CLASS 'B' R.R.
39+00 TO 46+00 -SR1- RT
EST. 245 TONS CLASS 'B'
EST. 735 SY F.F.
41+00 TO 45+00 -SR1- RT
EST. 140 TONS CLASS 'B'
EST. 420 SY F.F.
DETAIL C
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Filter Fabric
Fill Slope
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
b = 5.0 Ft.
Type of Liner = CLASS 'B' R.R.
38+40 TO 40+00 -SR1- LT
EST. DDE = 20 CY
EST. 60 TONS CLASS 'B'
EST. 170 SY F.F.
FOR -L- PROFILE, SEE SHEET 26
FOR -SRI- PROFILE, SEE SHEET 33
FOR -SR2- PROFILE, SEE SHEET 34

REVISIONS

-L-	-SR2-	
PI Sta 821+42.62	PI Sta 44+58.00	PI Sta 67+01.12
Δ = 4° 38' 21.5" (RT)	Δ = 4° 14' 16.1" (RT)	Δ = 2° 53' 11.7" (RT)
D = 0° 11' 00.0"	D = 0° 15' 05.9"	D = 0° 15' 05.9"
L = 1,637.40'	L = 1,684.01'	L = 1,147.06'
T = 819.15'	T = 842.39'	T = 573.65'
R = 20,222.04'	R = 22,768.00'	R = 22,768.00'
SE = NC	SE = NC	SE = NC

NAD 83

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

61+05 TO 62+85 -SR2- RT
EST. DDE = 160 CY

828+93 TO 830+65 -L- RT
EST. DDE = 40 CY

DETAIL E
SPECIAL 'V' DITCH
(Not to Scale)

58+36 TO 60+35 -SR2- LT

BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 3327
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(919) 851-1912
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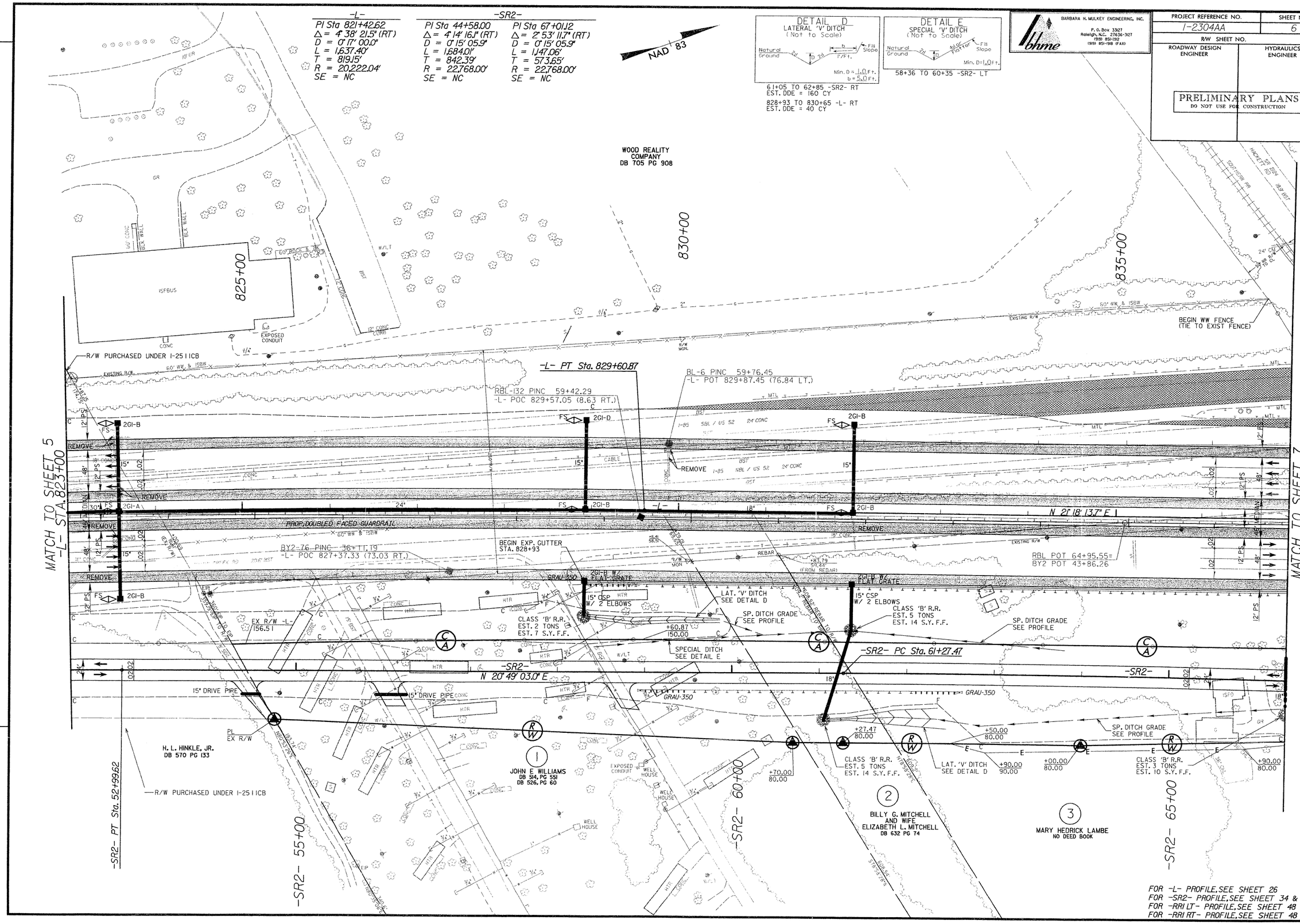
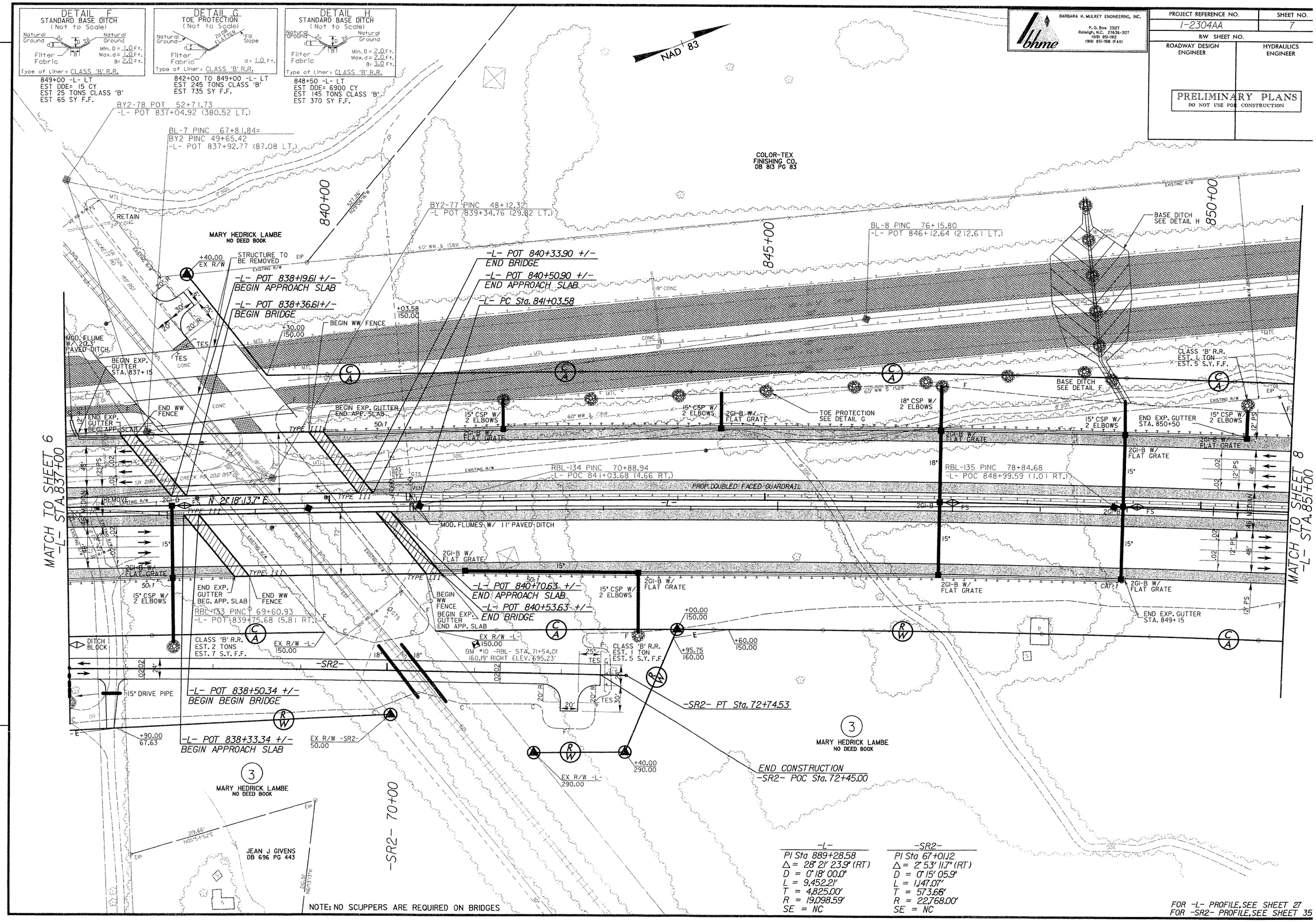
PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -L- PROFILE, SEE SHEET 26
FOR -SR2- PROFILE, SEE SHEET 34 & 35
FOR -RR1 LT- PROFILE, SEE SHEET 48
FOR -RR1 RT- PROFILE, SEE SHEET 48


DETAIL F
STANDARD BASE DITCH
(Not to Scale)
Natural Ground
Natural Ground
Filter Fabric
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
B = 2.0 Ft.
Type of Liner = CLASS 'B' R.R.
849+00 -L- LT
EST DDE= 15 CY
EST 25 TONS CLASS 'B'
EST 65 SY F.F.
DETAIL G
TOE PROTECTION
(Not to Scale)
Natural Ground
Fill Slope
Filter Fabric
d = 1.0 Ft.
Type of Liner = CLASS 'B' R.R.
842+00 TO 849+00 -L- LT
EST 245 TONS CLASS 'B'
EST 735 SY F.F.
DETAIL H
STANDARD BASE DITCH
(Not to Scale)
Natural Ground
Natural Ground
Filter Fabric
Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 3.0 Ft.
Type of Liner = CLASS 'B' R.R.
848+50 -L- LT
EST DDE= 6900 CY
EST 145 TONS CLASS 'B'
EST 370 SY F.F.
BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 33321
Raleigh, N.C. 27636-3321
(919) 851-1912
(919) 851-1918 (FAX)
PROJECT REFERENCE NO.
1-2304AA
SHEET NO.
7
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISIONS
NAD 83
BY2-78 POT 52+71.73
-L- POT 837+04.92 (380.52 LT.)
BL-7 PINC 67+81.84=
BY2 PINC 49+65.42
-L- POT 837+92.77 (87.08 LT.)
COLOR-TEX FINISHING CO. DB 813 PG 83
840+00
845+00
850+00
BY2-77 PINC 48+12.32
-L- POT 839+34.76 (29.82 LT.)
BL-8 PINC 76+15.80
-L- POT 846+12.64 (212.61 LT.)
BASE DITCH SEE DETAIL H
MARY HEDRICK LAMBE
NO DEED BOOK
RETAIN
STRUCTURE TO BE REMOVED
+40.00 EX R/W
-L- POT 838+19.61 +/-
BEGIN APPROACH SLAB
-L- POT 838+36.61+/-
BEGIN BRIDGE
-L- POT 840+33.90 +/-
END BRIDGE
-L- POT 840+50.90 +/-
END APPROACH SLAB
-L- PC Sta. 841+03.58
+03.58 150.00
+30.00 150.00
BEGIN WW FENCE
MOD. FLUME W/ 20.3' PAVED DITCH
BEGIN EXP. GUTTER STA. 837+15
END WW FENCE
END EXP. GUTTER BEG. APP. SLAB
BEGIN EXP. GUTTER END APP. SLAB
15" CSP W/ 2 ELBOWS
2GI-B W/ FLAT GRATE
TOE PROTECTION SEE DETAIL G
18" CSP W/ 2 ELBOWS
BASE DITCH SEE DETAIL F
CLASS 'B' R.R. EST. 1 TON EST. 5 S.Y. F.F.
END EXP. GUTTER STA. 850+50
RBL-134 PINC 70+88.94
-L- POC 841+03.68 (4.66 RT.)
RBL-135 PINC 78+84.68
-L- POC 848+99.59 (1.01 RT.)
PROP. DOUBLED FACED GUARDRAIL
MATCH TO SHEET 6
-L- STA. 837+00
MATCH TO SHEET 8
-L- STA. 857+00
N 2°18'13.7" E
MOD. FLUMES W/ 11' PAVED DITCH
-L- POT 840+70.63 +/-
END APPROACH SLAB
-L- POT 840+53.63 +/-
END BRIDGE
END EXP. GUTTER STA. 849+15
RBL-133 PINC 69+60.93
-L- POT 839+75.68 (5.81 RT.)
DITCH BLOCK
CLASS 'B' R.R. EST. 2 TONS EST. 7 S.Y. F.F.
EX R/W -L-
BM #10 -RBL- STA. 71+54.01
160.19' RIGHT ELEV. 695.23'
CLASS 'B' R.R. EST. 1 TON EST. 5 S.Y. F.F.
+00.00 150.00
+60.00 150.00
+95.75 160.00
-SR2-
15" DRIVE PIPE
-L- POT 838+50.34 +/-
BEGIN BEGIN BRIDGE
-SR2- PT Sta. 72+74.53
+90.00 67.63
-L- POT 838+33.34 +/-
BEGIN APPROACH SLAB
EX R/W -SR2- 50.00
EX R/W -L- 290.00
+40.00 290.00
END CONSTRUCTION
-SR2- POC Sta. 72+45.00
MARY HEDRICK LAMBE
NO DEED BOOK
JEAN J GIVENS
DB 696 PG 443
-SR2- 70+00
-L-
PI Sta 889+28.58
Δ = 28° 21' 23.9" (RT)
D = 0° 18' 00.0"
L = 9,452.21'
T = 4,825.00'
R = 19,098.59'
SE = NC
-SR2-
PI Sta 67+01.12
Δ = 2° 53' 11.7" (RT)
D = 0° 15' 05.9"
L = 1,147.07'
T = 573.66'
R = 22,768.00'
SE = NC
NOTE: NO SCUPPERS ARE REQUIRED ON BRIDGES
FOR -L- PROFILE, SEE SHEET 27
FOR -SR2- PROFILE, SEE SHEET 35

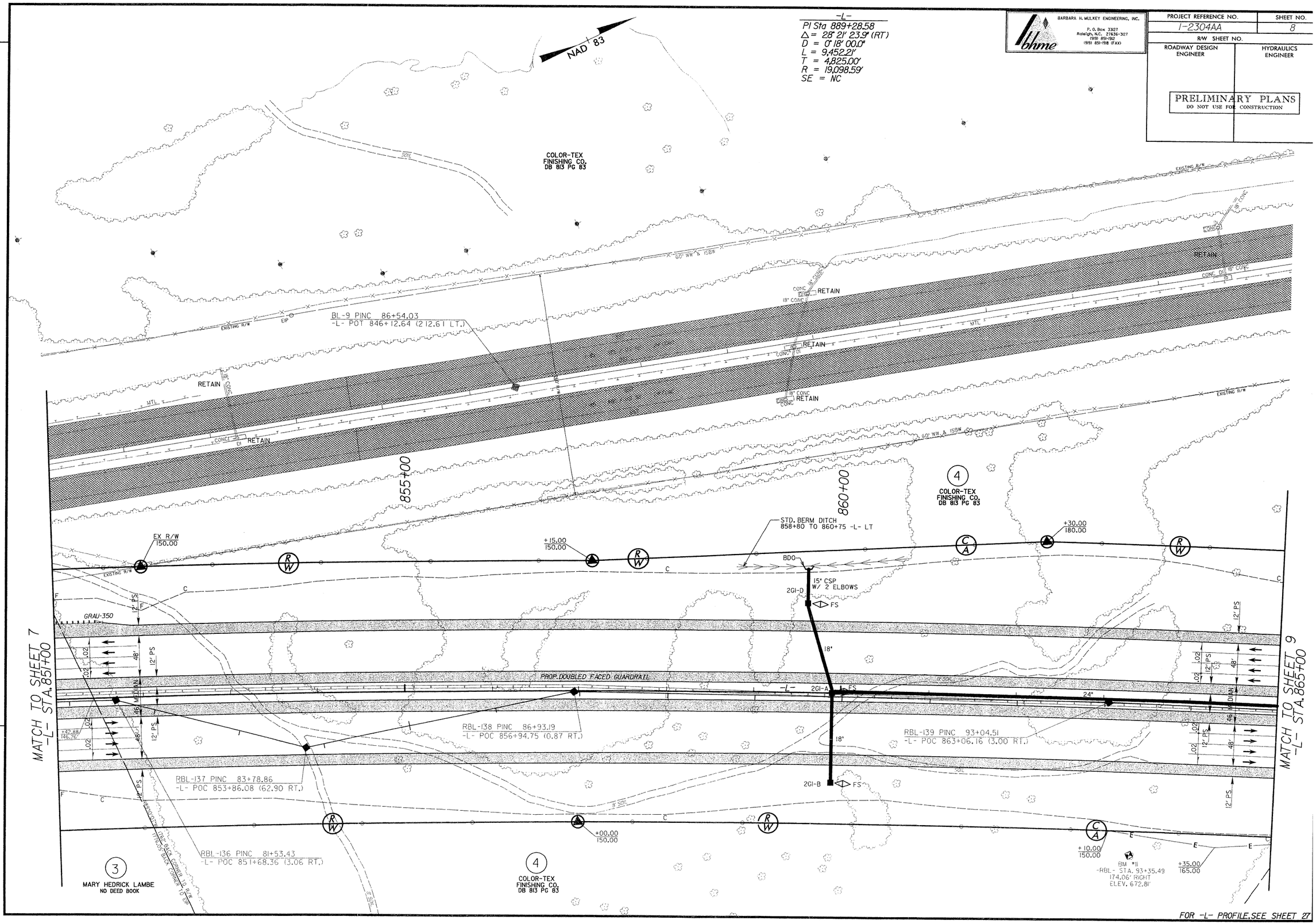
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

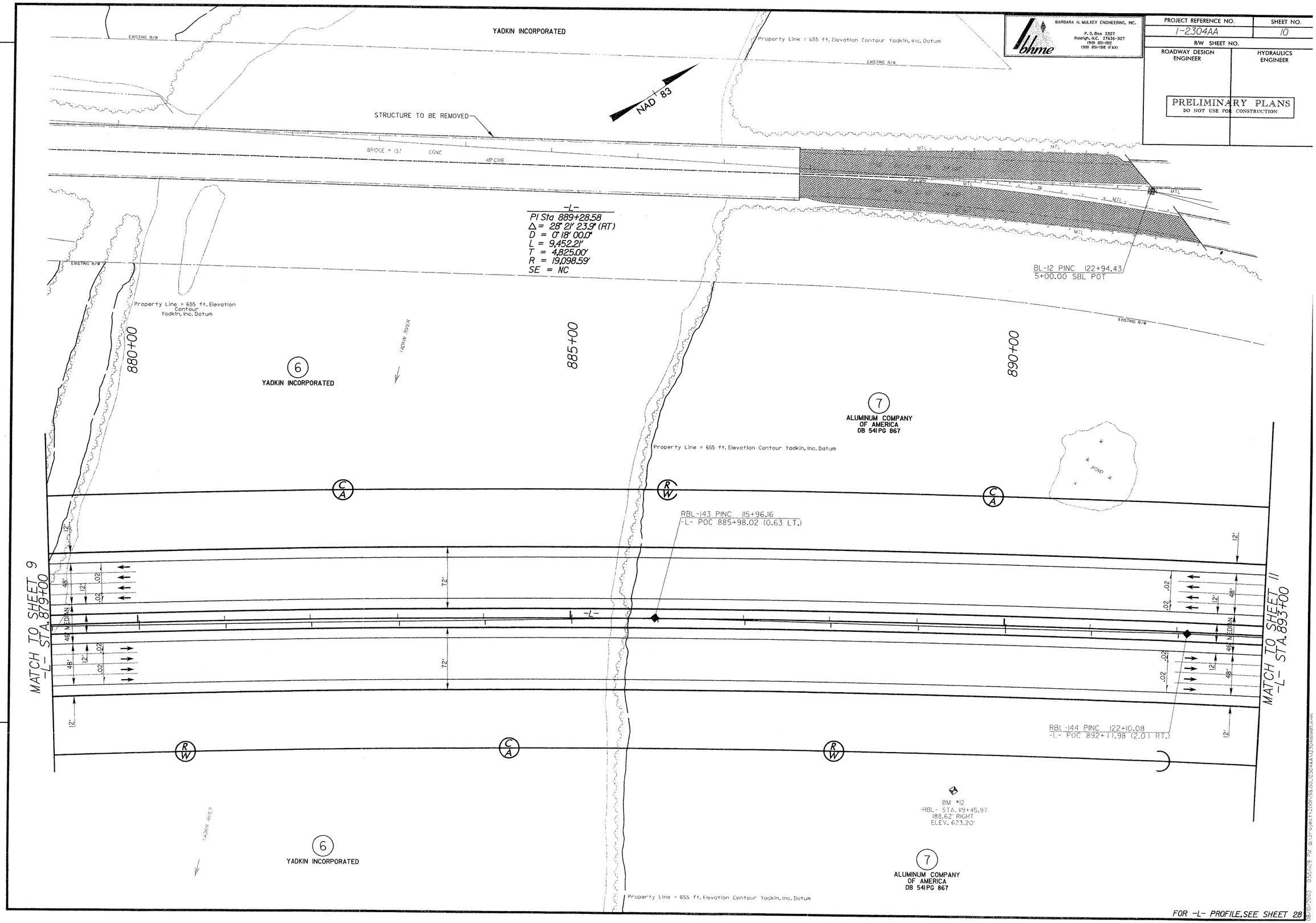
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 3327
Raleigh, N.C. 27636-327
(919) 851-1962
(919) 851-1918 (FAX)

-L-
PI Sta 889+28.58
Δ = 28° 21' 23.9" (RT)
D = 0° 18' 00.0"
L = 9,452.21'
T = 4,825.00'
R = 19,098.59'
SE = NC

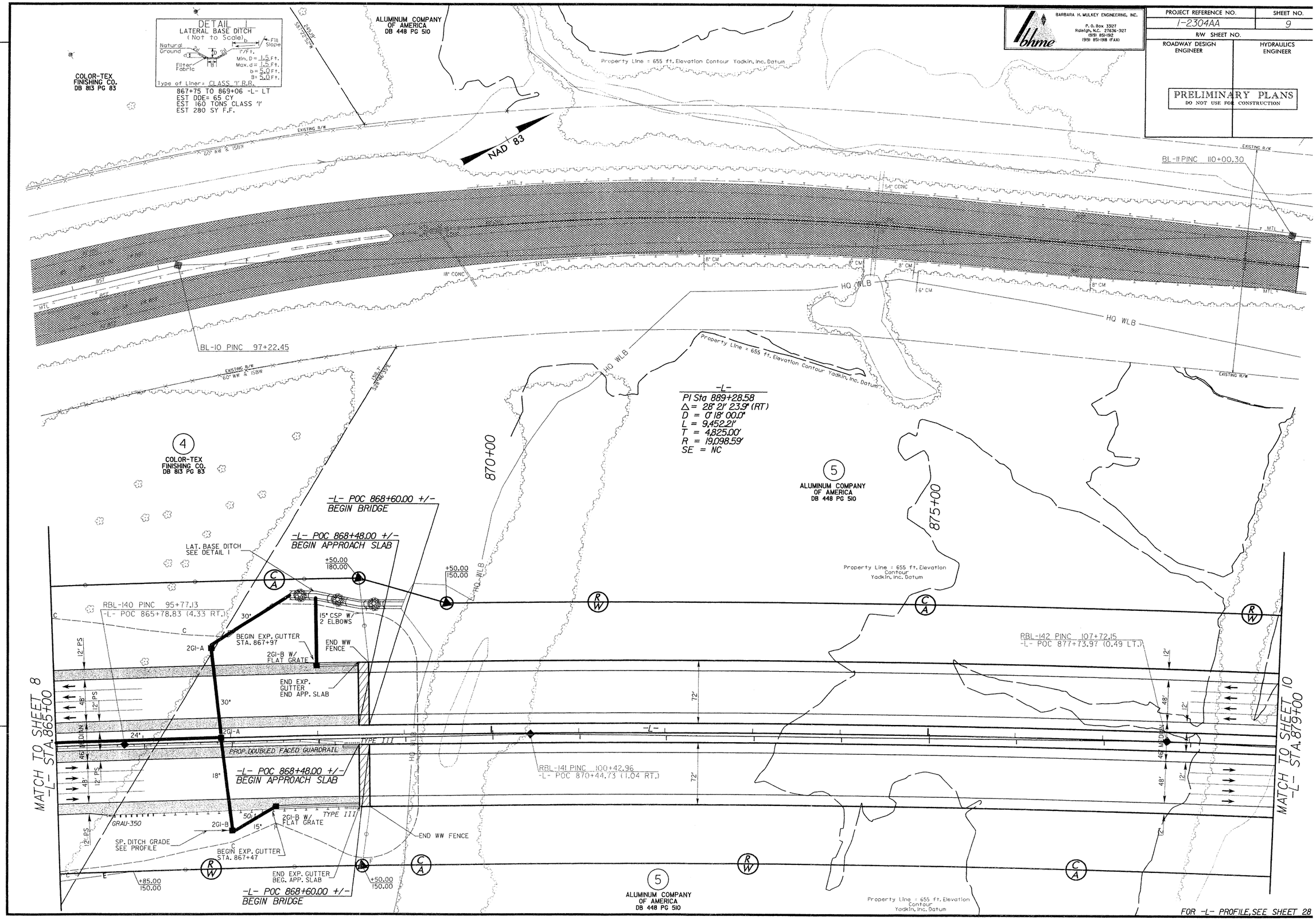


FOR -L- PROFILE, SEE SHEET 27



BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 33127
Raleigh, N.C. 27636-3127
(919) 851-1912
(919) 851-1918 (FAX)
PROJECT REFERENCE NO.
I-2304AA
SHEET NO.
10
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
YADKIN INCORPORATED
Property Line = 655 ft. Elevation Contour Yadkin, Inc. Datum
EXISTING R/W
NAD 83
STRUCTURE TO BE REMOVED
BRIDGE # 137 CONC
48" CMB
-L-
PI Sta 889+28.58
Δ = 28° 21' 23.9" (RT)
D = 0° 18' 00.0"
L = 9,452.21'
T = 4,825.00'
R = 19,098.59'
SE = NC
BL-12 PINC 122+94.43
5+00.00 SBL POT
Property Line = 655 ft. Elevation Contour Yadkin, Inc. Datum
880+00
885+00
890+00
YADKIN RIVER
6
YADKIN INCORPORATED
7
ALUMINUM COMPANY OF AMERICA
DB 541PG 867
Property Line = 655 ft. Elevation Contour Yadkin, Inc. Datum
POND
RBL-143 PINC 115+96.16
-L- POC 885+98.02 (0.63 LT.)
MATCH TO SHEET 9
-L- STA. 879+00
MATCH TO SHEET 11
-L- STA. 893+00
72'
48'
12'
.02
46' MEDIAN
RBL-144 PINC 122+10.08
-L- POC 892+11.98 (2.01 RT.)
BM #12
-RBL- STA. 119+45.97
188.62' RIGHT
ELEV. 623.20'
6
YADKIN INCORPORATED
7
ALUMINUM COMPANY OF AMERICA
DB 541PG 867
Property Line = 655 ft. Elevation Contour Yadkin, Inc. Datum
FOR -L- PROFILE, SEE SHEET 28

REVISIONS



BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 33127
Raleigh, N.C. 27636-3127
(919) 851-1912
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PROJECT REFERENCE NO.
I-2304AA
SHEET NO.
9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DETAIL 1
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Filter Fabric
Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
b = 5.0 Ft.
B = 5.0 Ft.
Type of Liner: CLASS '1' R.R.
867+75 TO 869+06 -L- LT
EST DDE= 65 CY
EST 160 TONS CLASS '1'
EST 280 SY F.F.
COLOR-TEX FINISHING CO. DB 813 PG 83
ALUMINUM COMPANY OF AMERICA DB 448 PG 510
Property Line = 655 ft. Elevation Contour Yadkin, Inc. Datum
NAD 83
BL-11 PINC 110+00.30
BL-10 PINC 97+22.45
HQ WLB
-L-
PI Sta 889+28.58
Δ = 28° 21' 23.9" (RT)
D = 0° 18' 00.0"
L = 9,452.21'
T = 4,825.00'
R = 19,098.59'
SE = NC
870+00
875+00
4
COLOR-TEX FINISHING CO. DB 813 PG 83
5
ALUMINUM COMPANY OF AMERICA DB 448 PG 510
-L- POC 868+60.00 +/-
BEGIN BRIDGE
-L- POC 868+48.00 +/-
BEGIN APPROACH SLAB
LAT. BASE DITCH SEE DETAIL 1
+50.00 180.00
+50.00 150.00
RBL-140 PINC 95+77.13
-L- POC 865+78.83 (4.33 RT.)
15" CSP W/ 2 ELBOWS
BEGIN EXP. GUTTER STA. 867+97
END WW FENCE
2GI-B W/ FLAT GRATE
END EXP. GUTTER END APP. SLAB
RBL-142 PINC 107+72.15
-L- POC 877+73.97 (0.49 LT.)
MATCH TO SHEET 8 -L- STA. 865+00
MATCH TO SHEET 10 -L- STA. 879+00
PROP. DOUBLED FACED GUARDRAIL
TYPE III
RBL-141 PINC 100+42.96
-L- POC 870+44.73 (1.04 RT.)
GRAU-350
SP. DITCH GRADE SEE PROFILE
BEGIN EXP. GUTTER STA. 867+47
END EXP. GUTTER BEG. APP. SLAB
+85.00 150.00
+50.00 150.00
FOR -L- PROFILE, SEE SHEET 28

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

BARBARA H. MULKEY ENGINEERING, INC.
P.O. Box 33127
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(919) 851-1912
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REVISIONS

DETAIL J
LATERAL BASE DITCH
(Not to Scale)

Type of Liner: CLASS "II" R.R.
897+35 -L- RT
EST. DDE = 50 CY
EST. 140 TONS CLASS II
EST. 190 SY F.F.

DETAIL K
LATERAL BASE DITCH
(Not to Scale)

Type of Liner: CLASS "II" R.R.
897+05 TO 898+50 -L- LT
EST. DDE = 275 CY
EST. 570 TONS CLASS II
EST. 755 SY F.F.

DETAIL G
TOE PROTECTION
(Not to Scale)

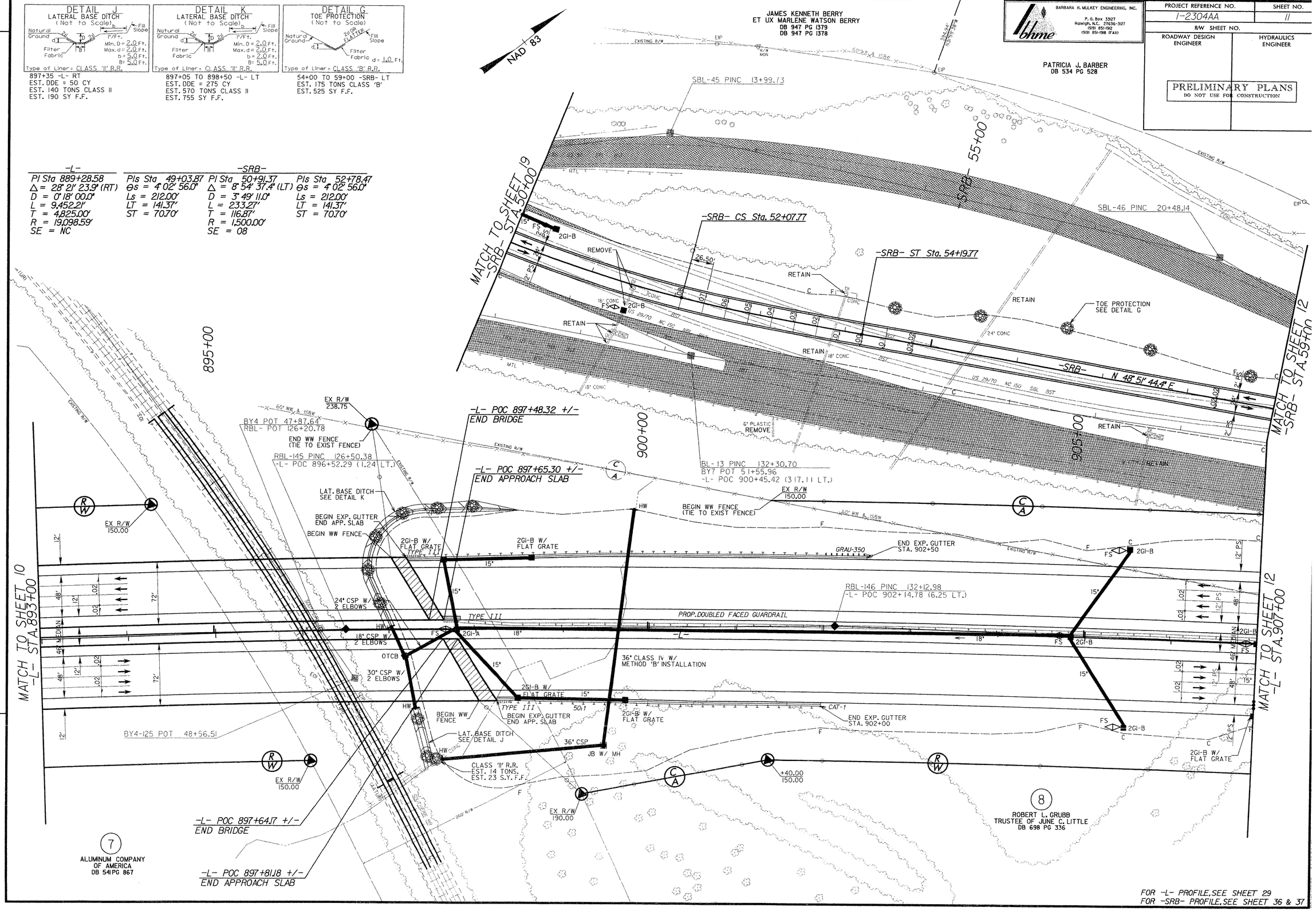
Type of Liner: CLASS "B" R.R.
54+00 TO 59+00 -SRB- LT
EST. 175 TONS CLASS 'B'
EST. 525 SY F.F.

-L-
PI Sta 889+28.58
Δ = 28° 21' 23.9" (RT)
D = 0° 18' 00.0"
L = 9,452.21'
T = 4,825.00'
R = 19,098.59'
SE = NC

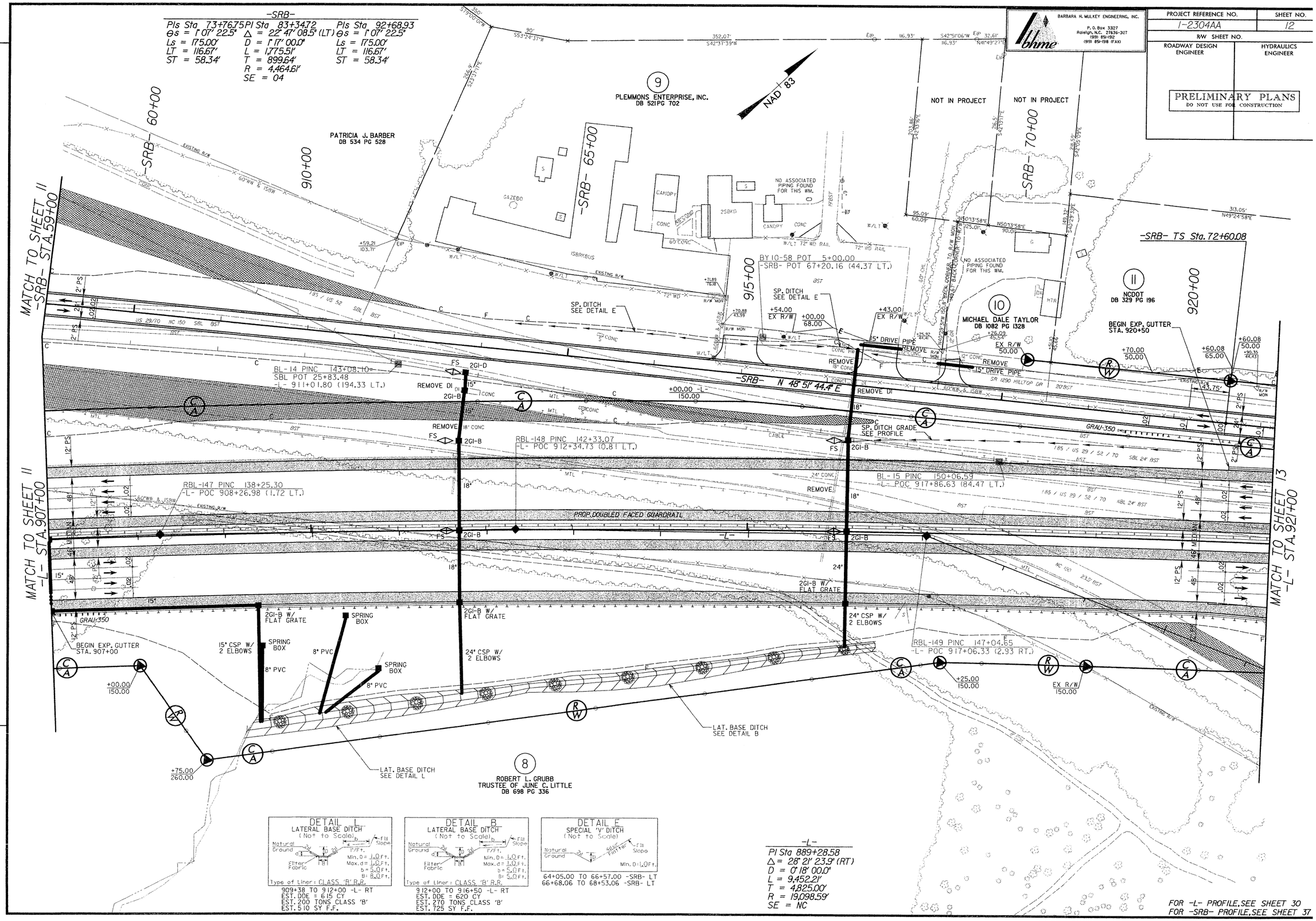
-SRB-
PIs Sta 49+03.87
Θs = 4° 02' 56.0"
Ls = 212.00'
LT = 141.37'
ST = 70.70'

PI Sta 50+91.37
Δ = 8° 54' 37.4" (LT)
D = 3° 49' 11.0"
L = 233.27'
T = 116.87'
R = 1,500.00'
SE = 08

PIs Sta 52+78.47
Θs = 4° 02' 56.0"
Ls = 212.00'
LT = 141.37'
ST = 70.70'



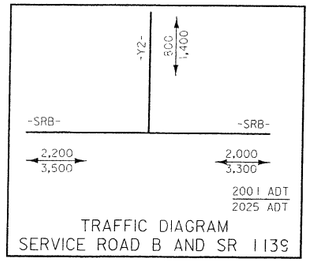
FOR -L- PROFILE, SEE SHEET 29
FOR -SRB- PROFILE, SEE SHEET 36 & 37



-SRB-
PIs Sta 73+76.75 PI Sta 83+34.72 PIs Sta 92+68.93
Θs = 1° 07' 22.5" Δ = 22° 47' 08.5" (LT) Θs = 1° 07' 22.5"
Ls = 175.00' D = 1° 17' 00.0" Ls = 175.00'
LT = 116.67' L = 1,775.51' LT = 116.67'
ST = 58.34' T = 899.64' ST = 58.34'
R = 4,464.61'
SE = 04
BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 3327
Raleigh, N.C. 27636-327
(919) 851-1912
(919) 851-1918 (FAX)
PROJECT REFERENCE NO.
1-2304AA
SHEET NO.
12
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISIONS
NAD 83
9
PLEMMONS ENTERPRISE, INC.
DB 521PG 702
PATRICIA J. BARBER
DB 534 PG 528
NOT IN PROJECT
NOT IN PROJECT
-SRB- 60+00
910+00
-SRB- 65+00
-SRB- 70+00
915+00
920+00
-SRB- TS Sta. 72+60.08
MATCH TO SHEET 11
-SRB- STA.59+00
MATCH TO SHEET 11
-L- STA.907+00
MATCH TO SHEET 13
-L- STA.921+00
BY 10-58 POT 5+00.00
-SRB- POT 67+20.16 (44.37 LT.)
NO ASSOCIATED PIPING FOUND FOR THIS WM.
SP. DITCH SEE DETAIL E
10
MICHAEL DALE TAYLOR
DB 1082 PG 1328
11
NCDOT
DB 329 PG 196
BEGIN EXP. GUTTER STA. 920+50
BL-14 PINC 143+08.10
SBL POT 25+83.48
-L- 911+01.80 (194.33 LT.)
-SRB- N 48° 51' 44.4" E
REMOVE DI
REMOVE
15" DRIVE PIPE
SP. DITCH GRADE SEE PROFILE
RBL-148 PINC 142+33.07
-L- POC 912+34.73 (0.81 LT.)
RBL-147 PINC 138+25.30
-L- POC 908+26.98 (1.72 LT.)
BL-15 PINC 150+06.59
-L- POC 917+86.63 (84.47 LT.)
PROP. DOUBLED FACED GUARDRAIL
2GI-B W/ FLAT GRATE
24" CSP W/ 2 ELBOWS
15" CSP W/ 2 ELBOWS
SPRING BOX
8" PVC
BEGIN EXP. GUTTER STA. 907+00
RBL-149 PINC 147+04.65
-L- POC 917+06.33 (2.93 RT.)
LAT. BASE DITCH SEE DETAIL B
LAT. BASE DITCH SEE DETAIL L
8
ROBERT L. GRUBB
TRUSTEE OF JUNE C. LITTLE
DB 698 PG 336
DETAIL L
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Filter Fabric
Fill Slope
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
b = 5.0 Ft.
B = 8.0 Ft.
Type of Liner: CLASS 'B' R.R.
909+38 TO 912+00 -L- RT
EST. DDE = 615 CY
EST. 200 TONS CLASS 'B'
EST. 510 SY F.F.
DETAIL B
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Filter Fabric
Fill Slope
Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
b = 5.0 Ft.
B = 5.0 Ft.
Type of Liner: CLASS 'B' R.R.
912+00 TO 916+50 -L- RT
EST. DDE = 620 CY
EST. 270 TONS CLASS 'B'
EST. 725 SY F.F.
DETAIL E
SPECIAL 'V' DITCH
(Not to Scale)
Natural Ground
Filter Fabric
Fill Slope
Min. D = 1.0 Ft.
64+05.00 TO 66+57.00 -SRB- LT
66+68.06 TO 68+53.06 -SRB- LT
-L-
PI Sta 889+28.58
Δ = 28° 21' 23.9" (RT)
D = 0° 18' 00.0"
L = 9,452.21'
T = 4,825.00'
R = 19,098.59'
SE = NC
FOR -L- PROFILE, SEE SHEET 30
FOR -SRB- PROFILE, SEE SHEET 37

-L-	-Y2-	-RAMP C-		
PI Sta 889+28.58	PI Sta 14+28.35	PIs Sta 1+53.06	PI Sta 6+22.30	PIs Sta 10+73.67
Δ = 28° 21' 23.9" (RT)	Δ = 12° 48' 32.2" (RT)	θs = 0° 21' 40.2"	Δ = 23° 43' 31.1" (RT)	θs = 3° 46' 39.9"
D = 0° 18' 00.0"	D = 4° 00' 00.0"	θs = 3° 46' 40.6"	D = 3° 08' 53.2"	Ls = 240.00'
L = 9,452.21'	L = 320.22'	Ls = 240.00'	L = 753.63'	LT = 160.04'
T = 4,825.00'	T = 160.78'	LT = 153.06'	T = 382.30'	ST = 80.03'
R = 19,098.59'	R = 1,432.39'	ST = 87.03'	R = 1,820.00'	
SE = NC	SE = 08		SE = 08	
	RO = 208			

-SRB-		
PIs Sta 73+76.75	PI Sta 83+34.72	PIs Sta 92+68.93
θs = 1° 07' 22.5"	Δ = 22° 41' 08.5" (LT)	θs = 1° 07' 22.5"
Ls = 175.00'	D = 1° 17' 00.0"	Ls = 175.00'
LT = 116.67'	L = 1,775.51'	LT = 116.67'
ST = 58.34'	T = 899.64'	ST = 58.34'
	R = 4,464.61'	
	SE = 04	



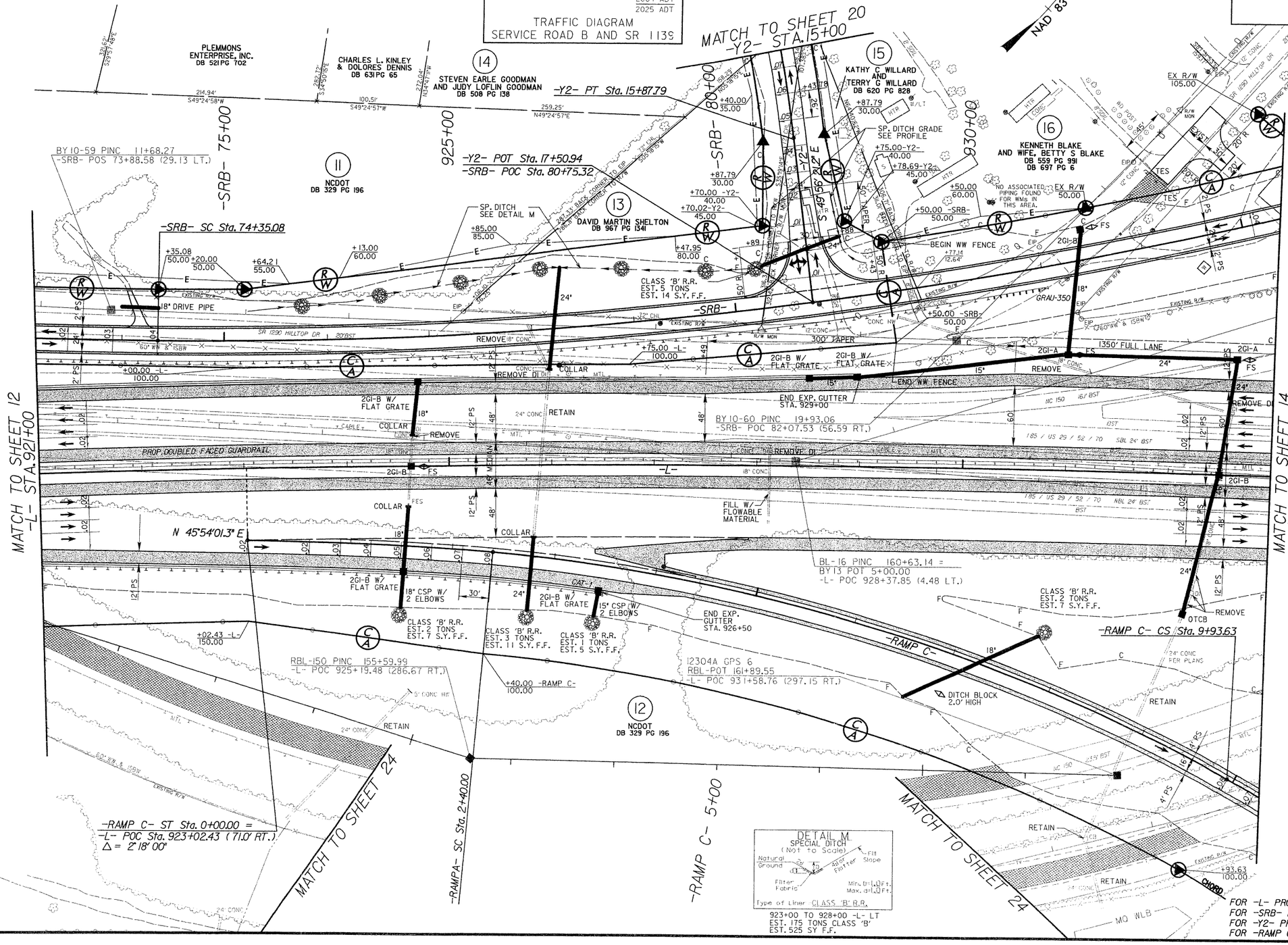
TRAFFIC DIAGRAM
SERVICE ROAD B AND SR 1139

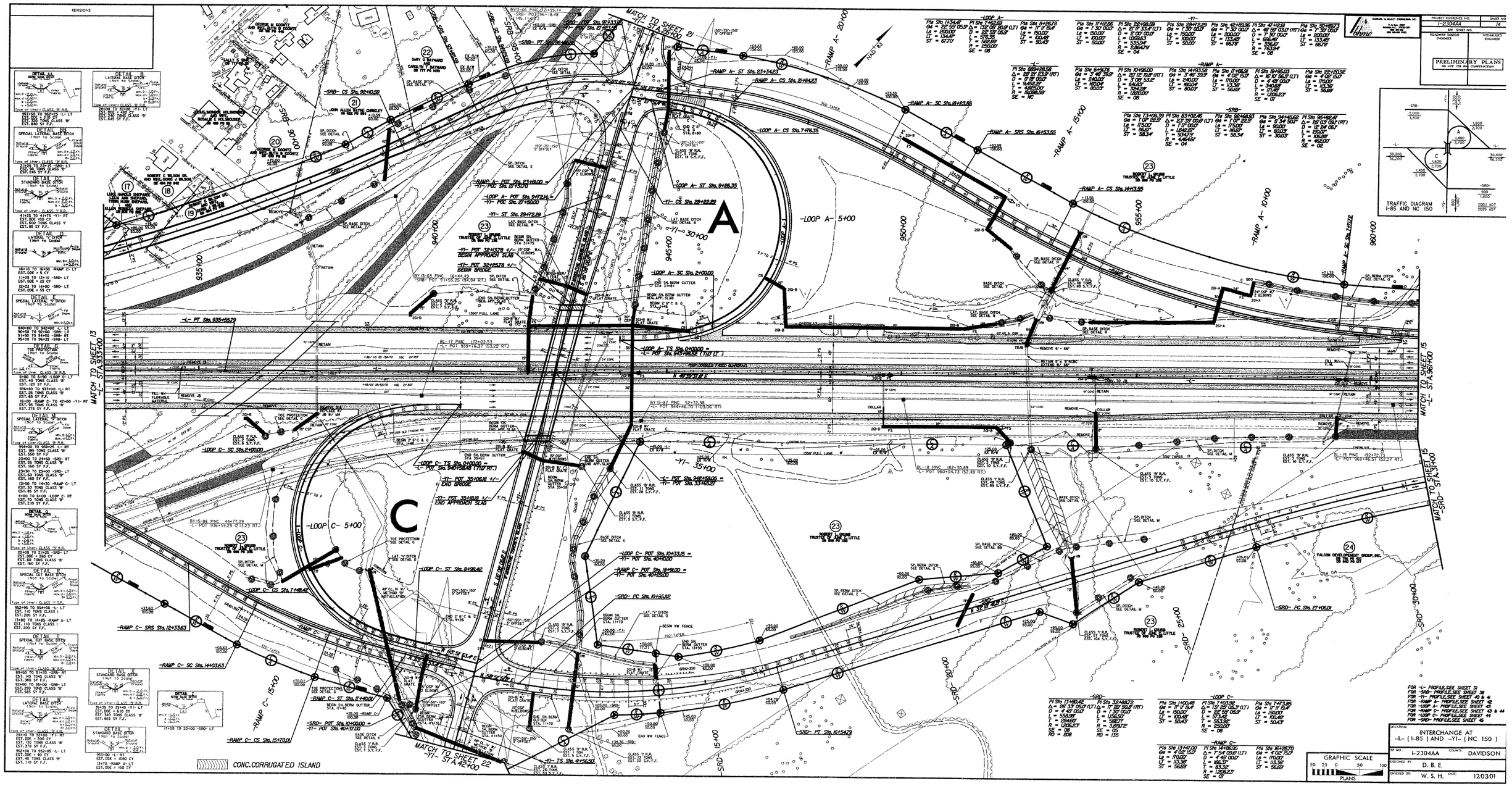
BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 3327
Raleigh, N.C. 27636-327
(919) 851-1912
(919) 851-1918 (FAX)

PROJECT REFERENCE NO.	SHEET NO.
1-2304AA	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

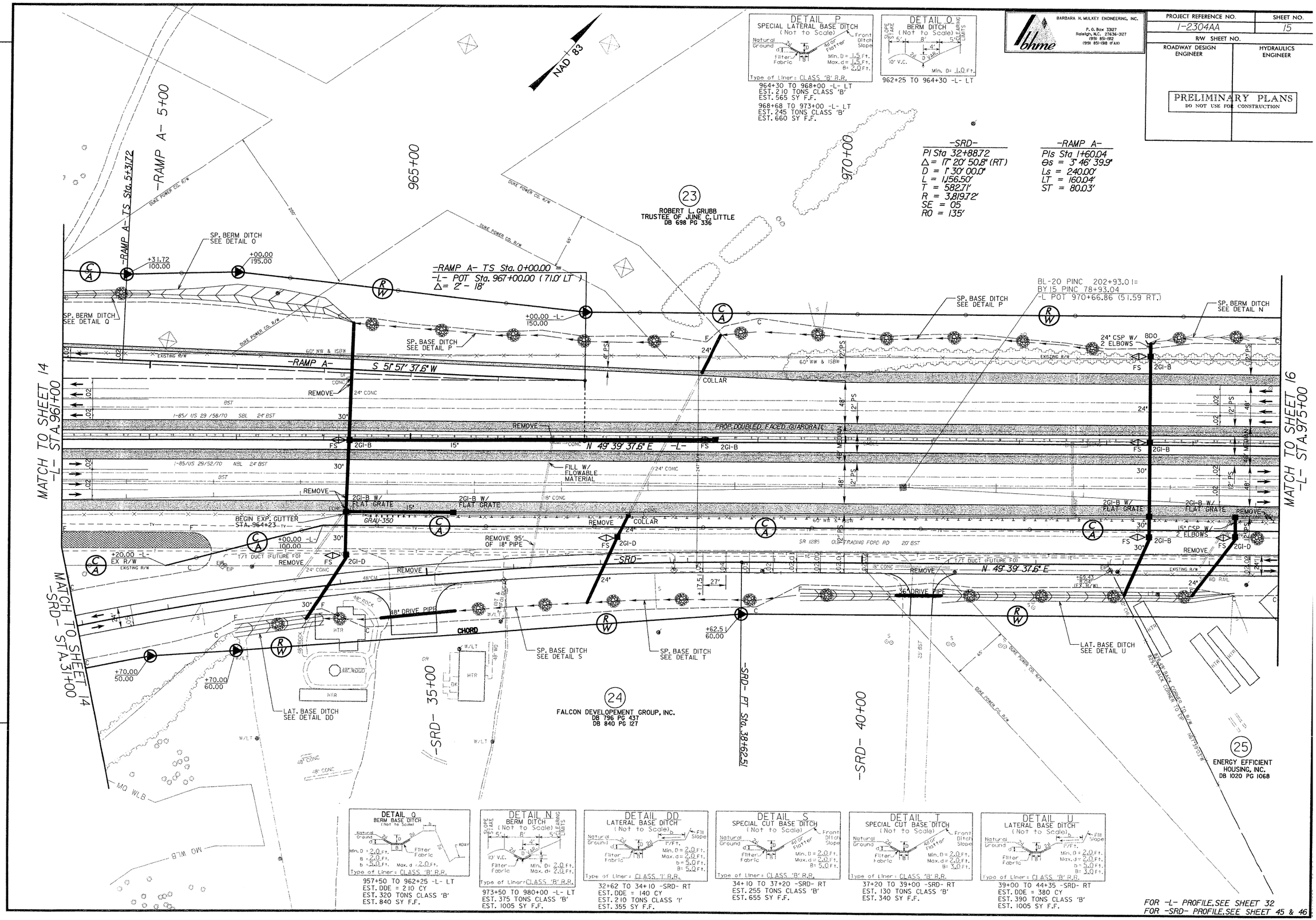
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS





REVISIONS
PRELIMINARY PLANS
TRAFFIC DIAGRAM
I-85 AND NC 150
A
C
MATCH TO SHEET 13
MATCH TO SHEET 15
MATCH TO SHEET 22
CONC. CORRUGATED ISLAND
GRAPHIC SCALE
PLANS
INTERCHANGE AT
-L- (I-85) AND -Y1- (NC 150)
I-2304AA
DAVIDSON
D. B. E.
W. S. H.
120301


DETAIL P
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Front Ditch Slope
Filter Fabric
Min. D = 1.5 Ft.
Max. d = 1.5 Ft.
B = 2.0 Ft.
Type of Liner: CLASS 'B' R.R.
964+30 TO 968+00 -L- LT
EST. 210 TONS CLASS 'B'
EST. 565 SY F.F.
968+68 TO 973+00 -L- LT
EST. 245 TONS CLASS 'B'
EST. 660 SY F.F.
DETAIL O
BERM DITCH
(Not to Scale)
SLOPE LINE
CLEARING LIMITS
10' V.C.
Min. D = 1.0 Ft.
962+25 TO 964+30 -L- LT
BARBARA H. MULKEY ENGINEERING, INC.
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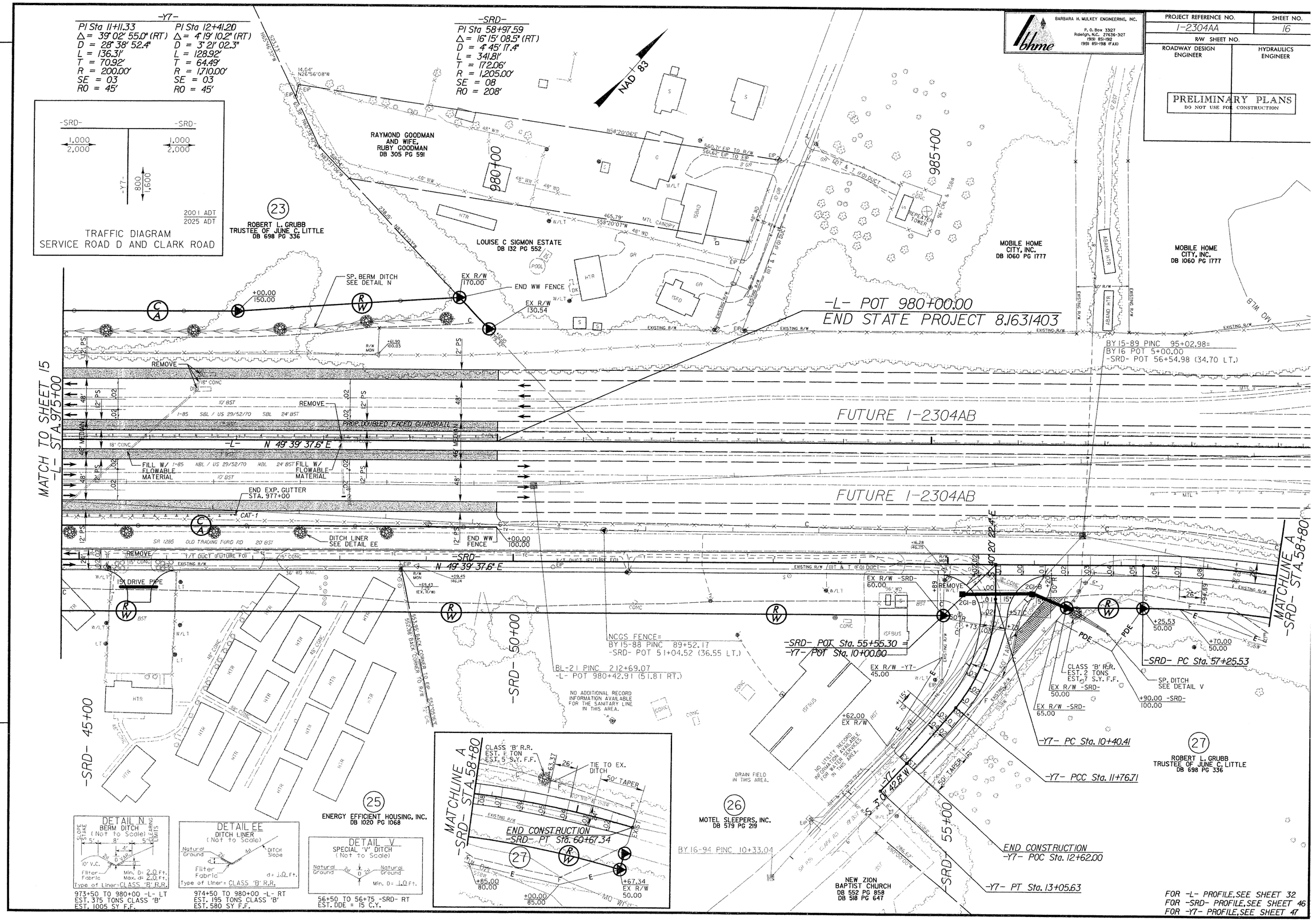
PROJECT REFERENCE NO.
1-2304AA
SHEET NO.
15
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISIONS
NAD 83
965+00
970+00
-RAMP A- 5+00
-RAMP A- TS Sta. 5+31.72
-SRD-
PI Sta 32+88.72
Δ = 17° 20' 50.8" (RT)
D = 1° 30' 00.0"
L = 1,156.50'
T = 582.71'
R = 3,819.72'
SE = 05
RO = 135'
-RAMP A-
PIs Sta 1+60.04
θs = 3° 46' 39.9"
Ls = 240.00'
LT = 160.04'
ST = 80.03'
23
ROBERT L. GRUBB
TRUSTEE OF JUNE C. LITTLE
DB 698 PG 336
SP. BERM DITCH SEE DETAIL O
+31.72 100.00
+00.00 195.00
-RAMP A- TS Sta. 0+00.00 = -L- POT Sta. 967+00.00 (71.0' LT)
Δ = 2° - 18'
SP. BERM DITCH SEE DETAIL Q
+00.00 -L- 150.00
SP. BASE DITCH SEE DETAIL P
SP. BASE DITCH SEE DETAIL P
BL-20 PINC 202+93.01 = BY15 PINC 78+93.04
-L POT 970+66.86 (51.59 RT.)
SP. BERM DITCH SEE DETAIL N
24" CSP W/ 2 ELBOWS
BDO
-RAMP A- S 51° 51' 37.6" W
REMOVE
24" CONC
COLLAR
I-85/ US 29 /58/70 SBL 24' BST
PROP. DOUBLED FACED GUARDRAIL
N 49° 39' 37.6" E -L-
FILL W/ FLOWABLE MATERIAL
2GI-B W/ FLAT GRATE
GRAD-350
BEGIN EXP. GUTTER STA. 964+23
+00.00 -L- 100.00
REMOVE 95' OF 18" PIPE
SR 1285 OLD TRADING FORD RD 20' BST
15" CSP W/ 2 ELBOWS
+20.00 -L- EX R/W
1/1 DUCT (FUTURE FO)
2GI-D
-SRD-
N 49° 39' 37.6" E
36" DRIVE PIPE
18" DRIVE PIPE
CHORD
+62.51 60.00
SP. BASE DITCH SEE DETAIL S
SP. BASE DITCH SEE DETAIL T
LAT. BASE DITCH SEE DETAIL U
+70.00 50.00
+70.00 60.00
LAT. BASE DITCH SEE DETAIL DD
MATCH TO SHEET 14 -L- STA. 961+00
MATCH TO SHEET 14 -SRD- STA. 31+00
MATCH TO SHEET 16 -L- STA. 975+00
-SRD- 35+00
-SRD- 40+00
-SRD- PT Sta. 38+62.51
24
FALCON DEVELOPEMENT GROUP, INC.
DB 796 PG 437
DB 840 PG 127
25
ENERGY EFFICIENT HOUSING, INC.
DB 1020 PG 1068
DUKE POWER CO. R/W
DETAIL Q
BERM BASE DITCH
(Not to Scale)
Min. D = 2.0 Ft.
B = 2.0 Ft.
b = 5.0 Ft.
Max. d = 2.0 Ft.
Type of Liner: CLASS 'B' R.R.
957+50 TO 962+25 -L- LT
EST. DDE = 210 CY
EST. 320 TONS CLASS 'B'
EST. 840 SY F.F.
DETAIL N
BERM DITCH
(Not to Scale)
Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
Type of Liner: CLASS 'B' R.R.
973+50 TO 980+00 -L- LT
EST. 375 TONS CLASS 'B'
EST. 1005 SY F.F.
DETAIL DD
LATERAL BASE DITCH
(Not to Scale)
Fill Slope
Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
b = 5.0 Ft.
B = 5.0 Ft.
Type of Liner: CLASS 'I' R.R.
32+62 TO 34+10 -SRD- RT
EST. DDE = 140 CY
EST. 210 TONS CLASS 'I'
EST. 355 SY F.F.
DETAIL S
SPECIAL CUT BASE DITCH
(Not to Scale)
Front Ditch Slope
Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
b = 5.0 Ft.
B = 5.0 Ft.
Type of Liner: CLASS 'B' R.R.
34+10 TO 37+20 -SRD- RT
EST. 255 TONS CLASS 'B'
EST. 655 SY F.F.
DETAIL T
SPECIAL CUT BASE DITCH
(Not to Scale)
Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
B = 3.0 Ft.
Type of Liner: CLASS 'B' R.R.
37+20 TO 39+00 -SRD- RT
EST. 130 TONS CLASS 'B'
EST. 340 SY F.F.
DETAIL U
LATERAL BASE DITCH
(Not to Scale)
Fill Slope
Min. D = 2.0 Ft.
Max. d = 2.0 Ft.
b = 5.0 Ft.
B = 3.0 Ft.
Type of Liner: CLASS 'B' R.R.
39+00 TO 44+35 -SRD- RT
EST. DDE = 380 CY
EST. 390 TONS CLASS 'B'
EST. 1005 SY F.F.
FOR -L- PROFILE, SEE SHEET 32
FOR -SRD- PROFILE, SEE SHEET 45 & 46



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(919) 851-1912
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PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

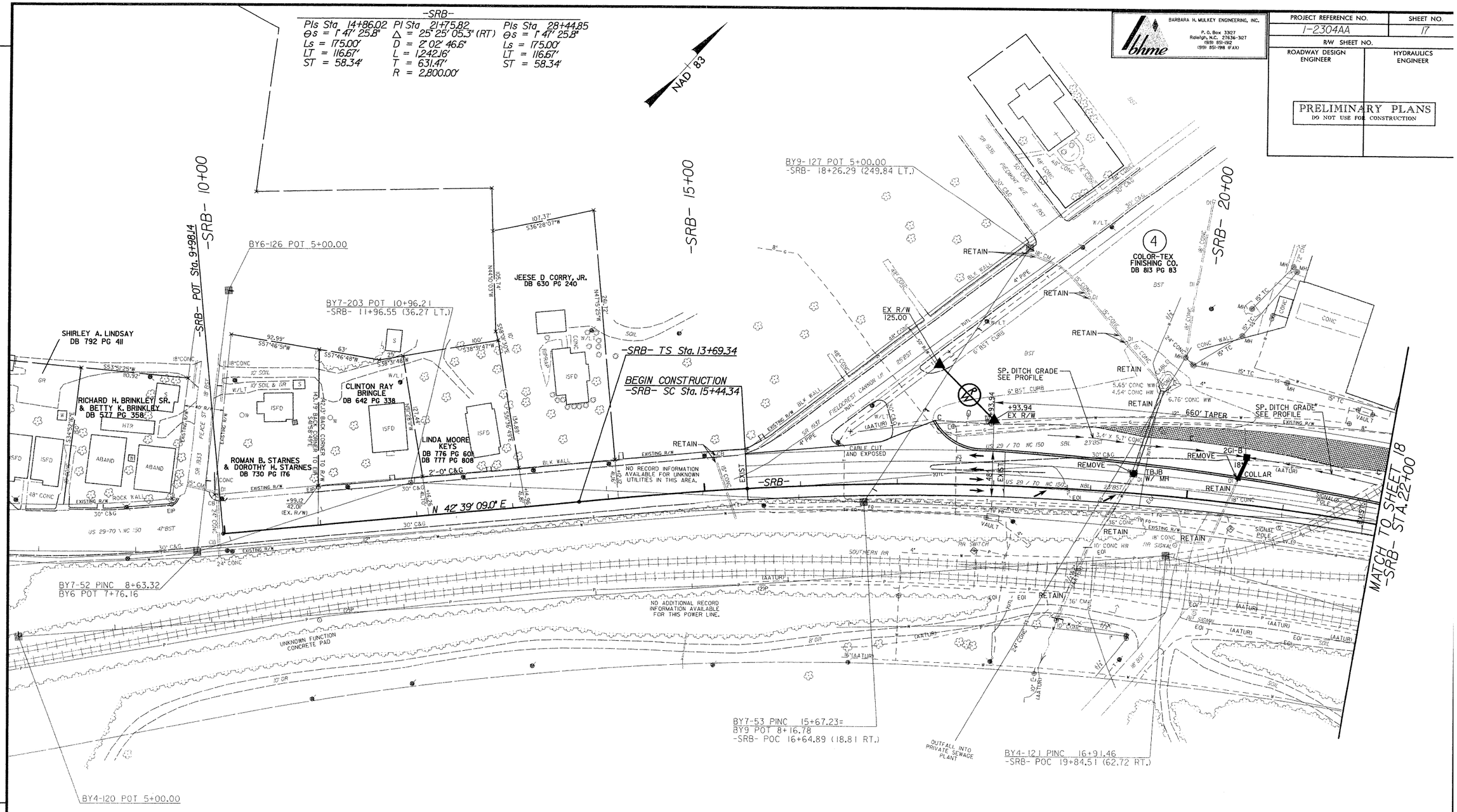
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

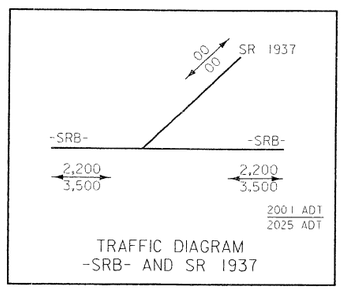
BARBARA H. MULKEY ENGINEERING, INC.
P. O. Box 33127
Raleigh, N.C. 27636-3127
(919) 851-1912
(919) 851-1918 (FAX)

REVISIONS

-SRB-

PI Sta 14+86.02	PI Sta 21+75.82	PI Sta 28+44.85
Θs = 1° 47' 25.8"	Δ = 25° 25' 05.3" (RT)	Θs = 1° 47' 25.8"
Ls = 175.00'	D = 2° 02' 46.6"	Ls = 175.00'
LT = 116.67'	L = 1,242.16'	LT = 116.67'
ST = 58.34'	T = 631.47'	ST = 58.34'
	R = 2,800.00'	





TRAFFIC DIAGRAM
-SRB- AND SR 1937

FOR -SRB- PROFILE, SEE SHEET 35

-SRB-		
PIs Sta. 14+86.02	PI Sta 21+75.82	PIs Sta 28+44.85
θs = 1° 47' 25.8"	Δ = 25° 25' 05.3" (RT)	θs = 1° 47' 25.8"
Ls = 175.00'	D = 2° 02' 46.6"	Ls = 175.00'
LT = 116.67'	L = 1,242.16'	LT = 116.67'
ST = 58.34'	T = 631.47'	ST = 58.34'
	R = 2,800.00'	

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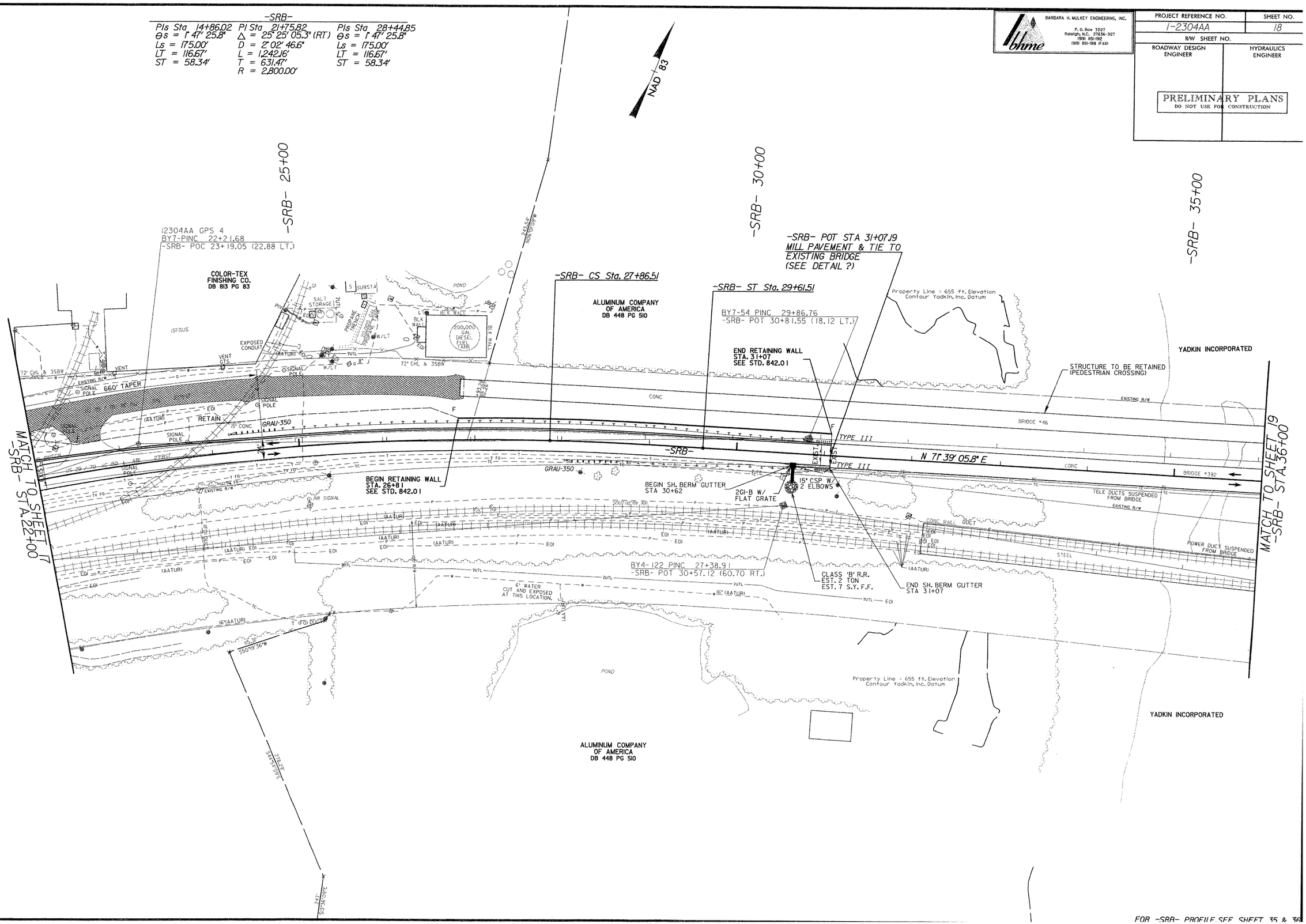
PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS



FOR -SRB- PROFILE SEE SHEET 35 & 36

-SRB-					
PIs Sta 41+28.09	PI Sta 42+57.29	PIs Sta 43+86.45	PIs Sta 49+03.87	PI Sta 50+91.37	PIs Sta 52+78.47
θs = ↱16' 12.2"	Δ = 3° 14' 27.3" (LT)	θs = ↱16' 12.2"	θs = 4° 02' 56.0"	Δ = 8° 54' 37.4" (LT)	θs = 4° 02' 56.0"
Ls = 133.00'	D = ↱54' 35.5"	Ls = 133.00'	Ls = 212.00'	D = 3° 49' 11.0"	Ls = 212.00'
LT = 88.67'	L = 169.69'	LT = 88.67'	LT = 141.37'	L = 233.27'	LT = 141.37'
ST = 44.34'	T = 84.87'	ST = 44.34'	ST = 70.70'	T = 116.87'	ST = 70.70'
	R = 3,000.00'			R = 1,500.00'	
	SE = 06			SE = 08	

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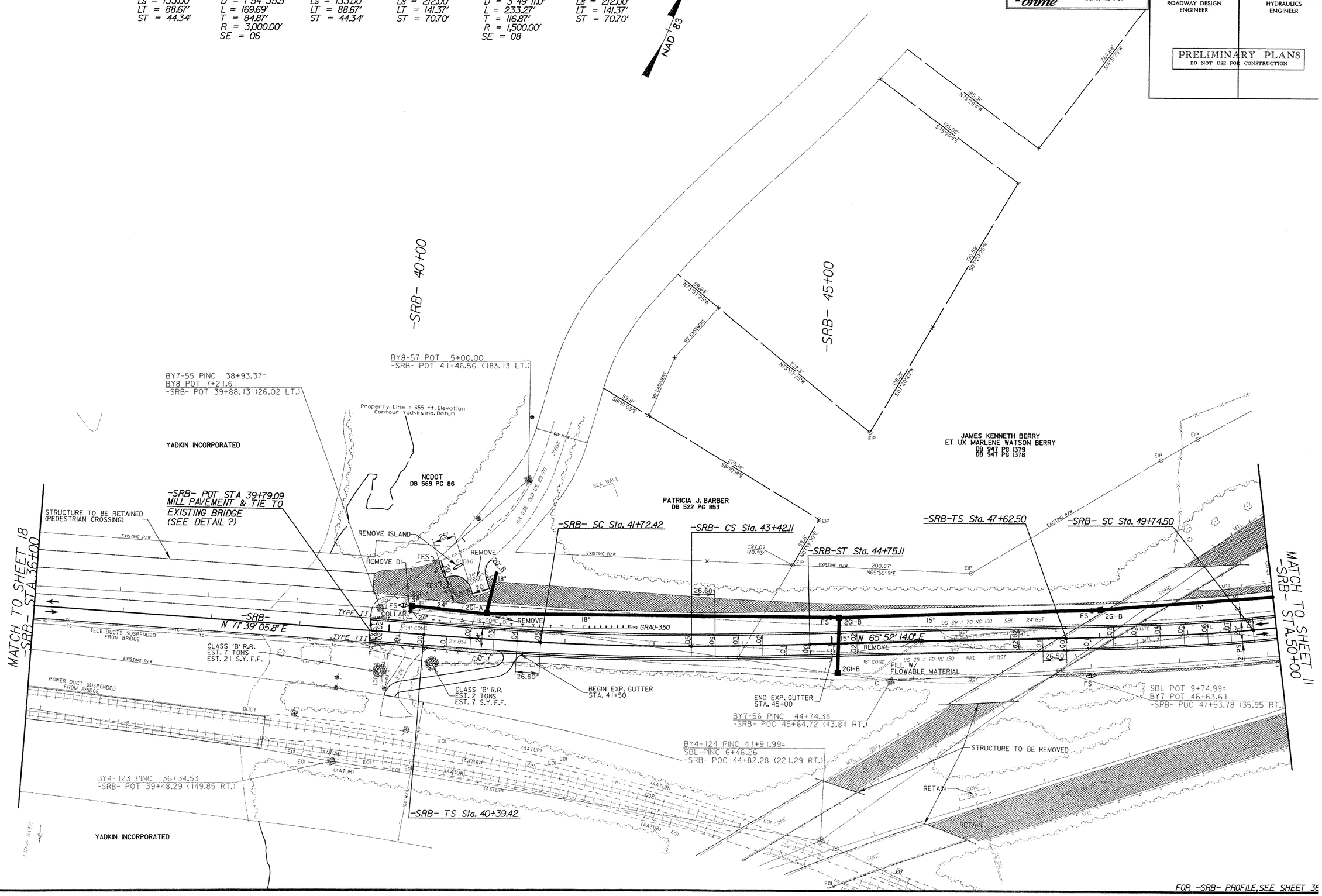
PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS



FOR -SRB- PROFILE, SEE SHEET 36

REVISIONS

-Y2-
PI Sta 14+28.35
Δ = 12° 48' 32.2" (RT)
D = 4° 00' 00.0"
L = 320.22'
T = 160.78'
R = 1,432.39'
SE = 08
RO = 208

-Y6-
PI Sta 14+28.89
Δ = 30° 39' 26.4" (LT)
D = 4° 00' 00.0"
L = 766.43'
T = 392.63'
R = 1,432.39'

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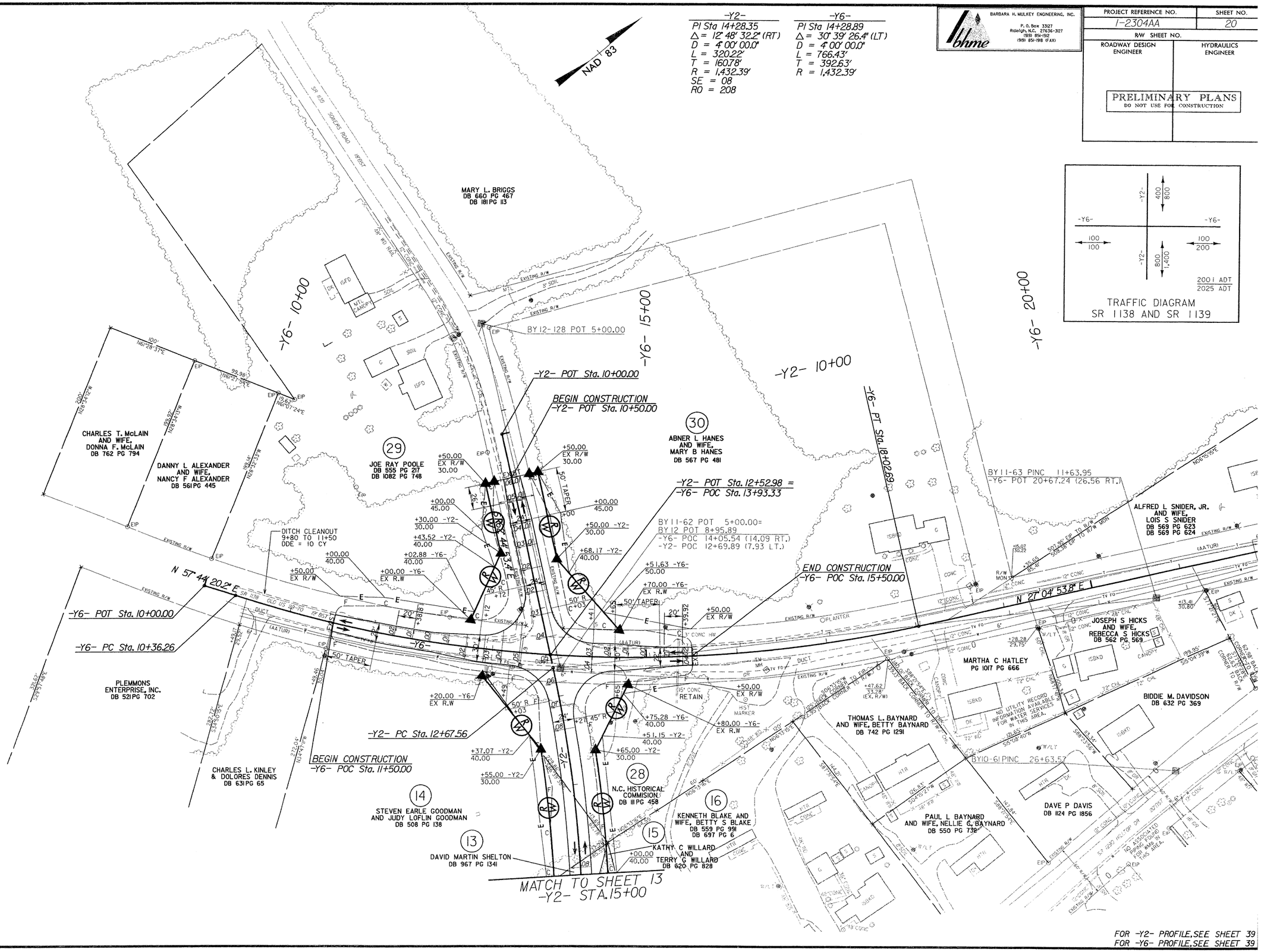
PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



FOR -Y2- PROFILE, SEE SHEET 39
FOR -Y6- PROFILE, SEE SHEET 39

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PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

NAD 83

NORA M ANDERSON
DB 723 PG 806

JAMES KYLE THOMPSON AND WIFE, DEBOREH DEANN THOMPSON
DB 736 PG 1381

BETTY L HARRIS
DB 594 PG 88

ARTHUR D. MORRIS
DB 646 PG 27

MICHEAL BRAXTON VESTAL
DB 1055 PG 1890

RANDY E ASBURY AND ANNA M ASBURY
DB 694 PG 15

POLY B. WATKINS & JESSIE WATKINS
DB 559 PG 933

NATALIO S MONDRAGON & ESCOLASTICA A. MONDRAGON
DB 859 PG 1445

(31) SHELIA GOODMAN LOPP
DB 656 PG 61

(32) DONALD L. HALL & JO S. HALL
DB 936 PG 1466

(33) GARLAND L. YOUNG
DB 570 PG 211

(34) SAMUEL E. DAYTON & EVELYN L. DAYTON
DB 620 PG 1

(23) ROBERT L. GRUBB
TRUSTEE OF JUNE C. LITTLE
DB 698 PG 336

(35) RUBY Y. HAYNES
PB 4 PG 53

(36) BEN KNOX WHITE, NELSON E WHITE, AND WILLIS HOPE WHITE
DB 633 PG 700

TRIPLE J TRUCK SERVICE, INC.
DB 604 PG 610

-Y6- 35+00

-Y6- POT Sta. 35+50.00

-Y1- SC Sta. 17+62.66

-Y1- TS Sta. 16+12.66

-Y1- 15+00

-Y1- 20+00

-Y1- 25+00

BEGIN CONSTRUCTION
-Y1- POT Sta. 12+30.00

MATCH TO SHEET 14
-Y1- STA 26+00

NO ASSOCIATED PIPING FOUND FOR WMs IN THIS AREA.

NO UTILITY RECORD INFORMATION AVAILABLE FOR WATER SERVICES IN THIS AREA.

NO UTILITY RECORD INFORMATION AVAILABLE FOR WATER SERVICES IN THIS AREA.

DITCH CLEANOUT
L = 110'
DDE = 20 CY

SP. DITCH GRADE SEE PROFILE

REMOVE ISLAND

TIE TO EXISTING DITCH

REMOVE & REPLACE ISLAND

RETAIN ISLAND

BEGIN WW FENCE

END WW FENCE

TAIL DITCH SEE DETAIL V

5' MONOLITHIC CONCRETE ISLAND

8' X 18' CONCRETE CURB

350' TAPER

200' TAPER

S 1°56'33.2" E

EX R/W -Y1- 224.10

BY 13-67 PINC 30+40.53=
BY 11 POT 27+65.82=
BY 14 POT 5+00.00
-Y1- POC 18+15.34 (37.47 LT.)

BY 14-70 PINC 10+36.14
-Y1- POT 14+46.66 (431.48 LT.)

DETAIL V
SPECIAL 'V' DITCH
(Not to Scale)
Natural Ground — Natural Ground
Min. D = 1.0 Ft.
EST. DDE = 50 C.Y.

-Y6-
300
500
-Y1- -Y1-
3,300 3,300
5,400 5,400
2001 ADT
2025 ADT
TRAFFIC DIAGRAM
NC 150 AND SR 1138

-Y1-

PIs Sta 17+12.66	PI Sta 22+98.59	PIs Sta 28+72.29
Θs = 1°30'00.0"	Δ = 21°11'33.4" (LT)	Θs = 1°30'00.0"
Ls = 150.00'	D = 2°00'00.0"	Ls = 150.00'
LT = 100.00'	L = 1,059.63	LT = 100.00'
ST = 50.00'	T = 535.94'	ST = 50.00'
	R = 2,864.79'	
	SE = 04	

FOR -Y1- PROFILE, SEE SHEET 40

PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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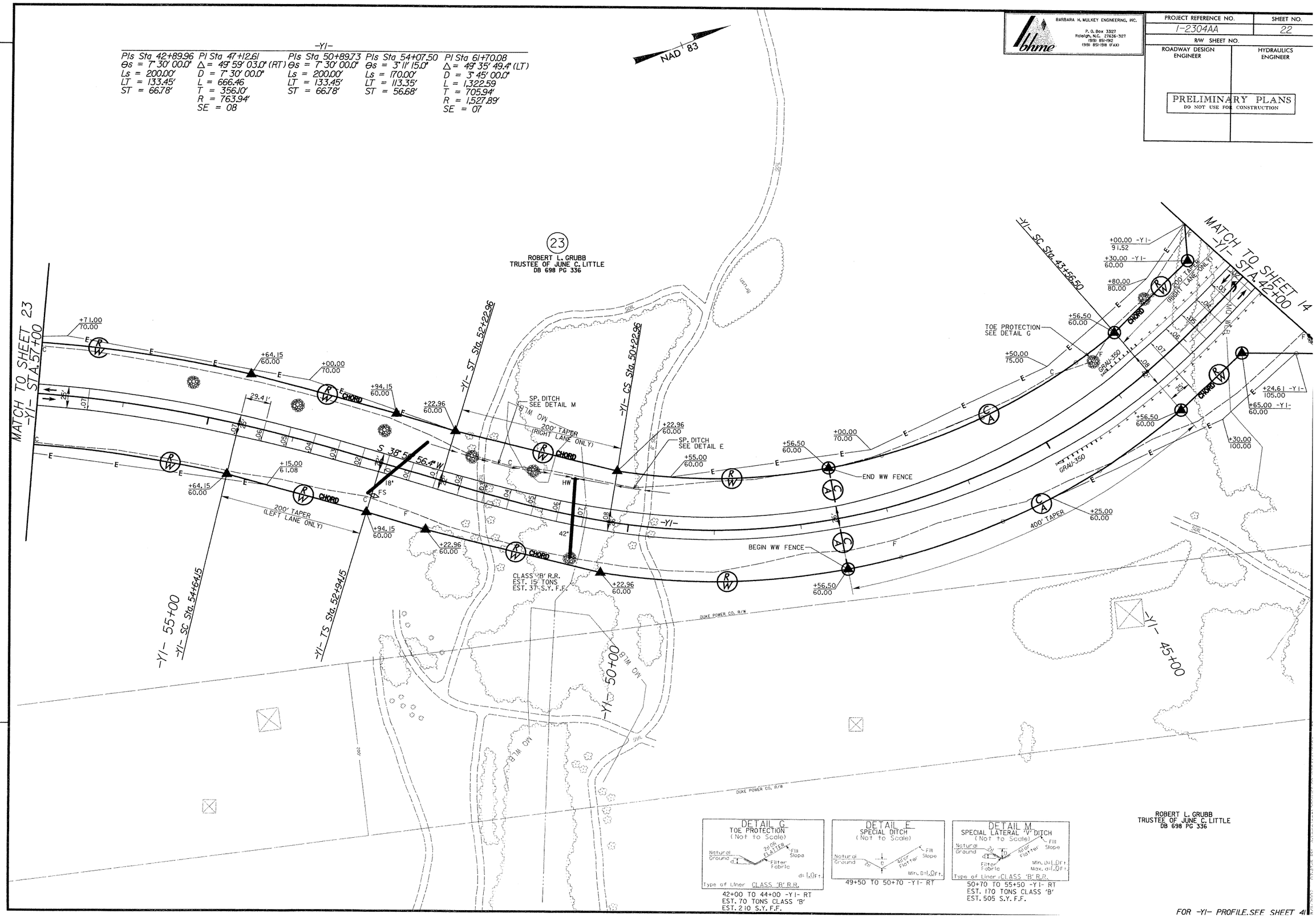
REVISIONS

-Y1-

PIs Sta 42+89.96	PI Sta 47+12.61	PIs Sta 50+89.73	PIs Sta 54+07.50	PI Sta 61+70.08
θs = 7° 30' 00.0"	Δ = 49° 59' 03.0" (RT)	θs = 7° 30' 00.0"	θs = 3° 11' 15.0"	Δ = 49° 35' 49.4" (LT)
Ls = 200.00'	D = 7° 30' 00.0"	Ls = 200.00'	Ls = 170.00'	D = 3° 45' 00.0"
LT = 133.45'	L = 666.46	LT = 133.45'	LT = 113.35'	L = 1,322.59
ST = 66.78'	T = 356.10'	ST = 66.78'	ST = 56.68'	T = 705.94'
	R = 763.94'			R = 1,527.89'
	SE = 08			SE = 07

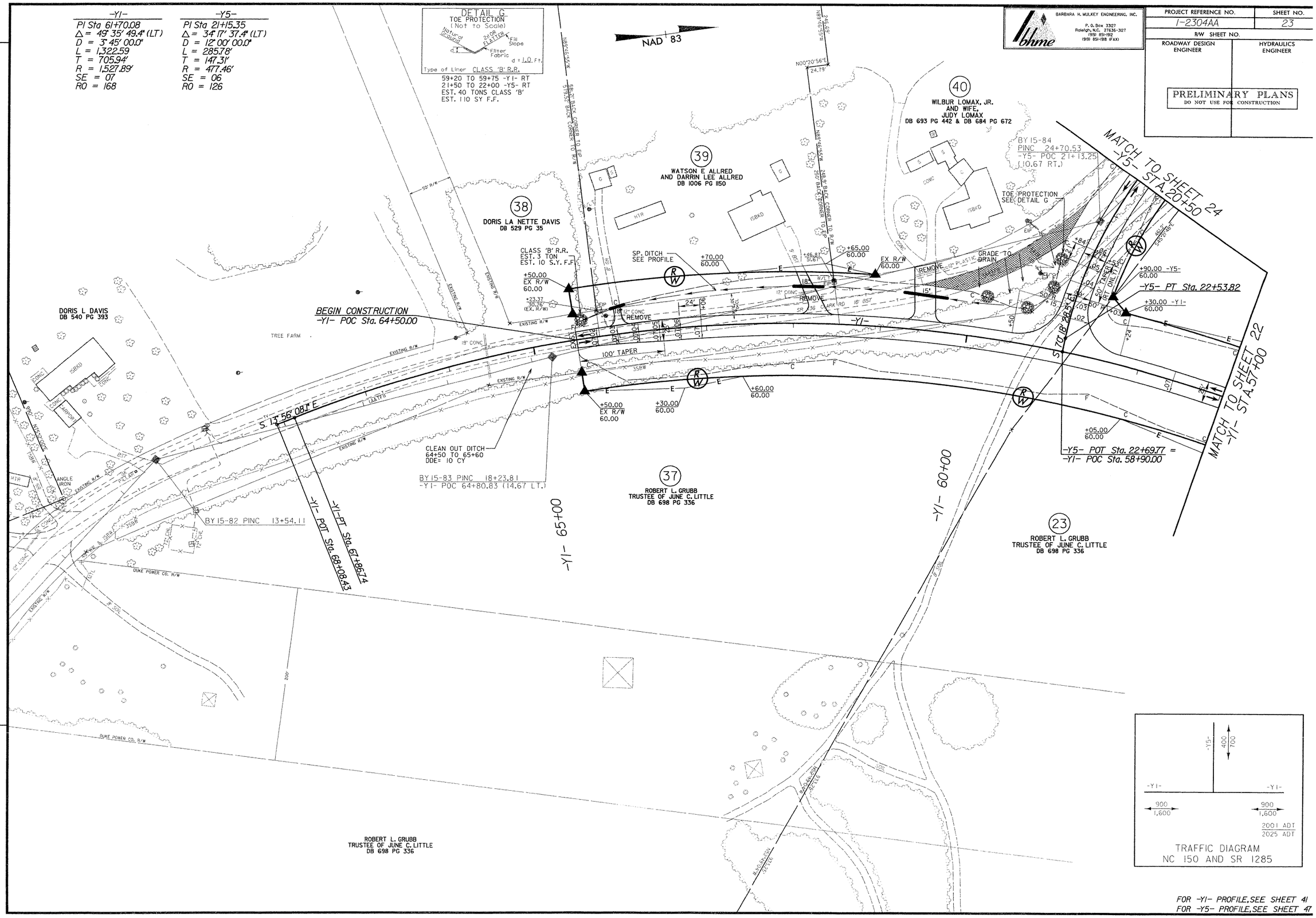


FOR -Y1- PROFILE SEE SHEET 41

-Y1-	-Y5-
PI Sta 61+70.08	PI Sta 21+15.35
Δ = 49° 35' 49.4" (LT)	Δ = 34° 17' 37.4" (LT)
D = 3° 45' 00.0"	D = 12° 00' 00.0"
L = 1,322.59	L = 285.78'
T = 705.94'	T = 147.31'
R = 1,527.89'	R = 477.46'
SE = 07	SE = 06
RO = 168	RO = 126

DETAIL G
TOE PROTECTION
(Not to Scale)

Type of Liner CLASS 'B' R.R.
59+20 TO 59+75 -Y1- RT
21+50 TO 22+00 -Y5- RT
EST. 40 TONS CLASS 'B'
EST. 110 SY F.F.



TRAFFIC DIAGRAM
NC 150 AND SR 1285

FOR -Y1- PROFILE, SEE SHEET 41
FOR -Y5- PROFILE, SEE SHEET 47

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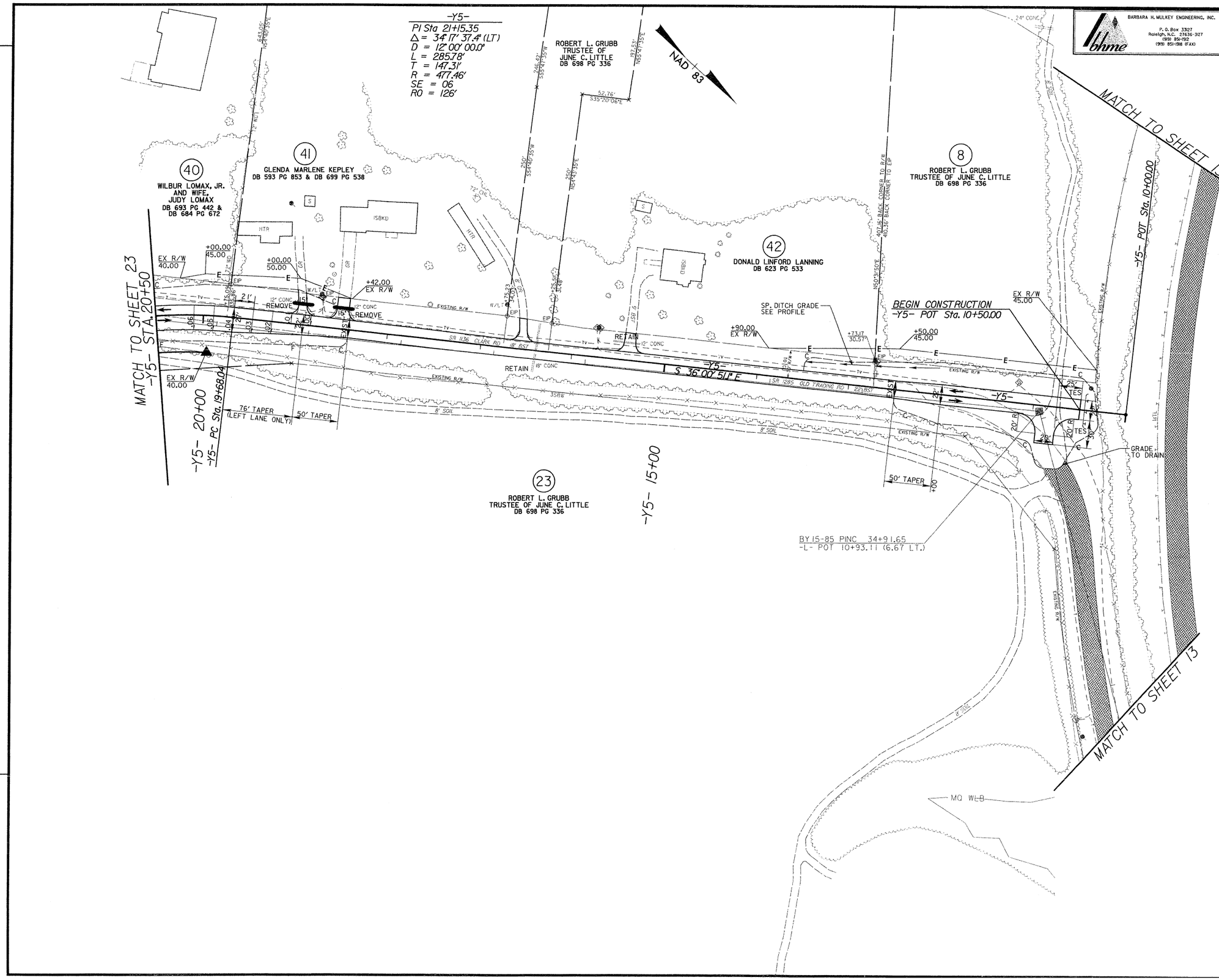
PROJECT REFERENCE NO.	SHEET NO.
I-2304AA	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

REVISIONS



FOR -Y5- PROFILE, SEE SHEET 41