STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI
SECRETARY

January 6, 2012

U.S. Army Corps of Engineers
Regulatory Field Office
PO Box 1000
Washington, NC 27889-1000

Attention: Thomas Steffens
NCDOT Coordinator

Dear Sir:

Subject: **Request for Modification to Individual Section 404 and 401 permits and Neuse Riparian Buffer Authorization** for the construction of the US 70 Bypass from west of NC 581 to SR 1300 (Salem Church Rd) in Wayne County. State Project No. 6.339003T. TIP No. R-2554A. Debit $570 from WBS 34461.2.4.

References: Section 404 Individual Permit issued July 21, 2008 (SAW 2008- 00252) for R-2554
Section 401 Water Quality Certification and Neuse Buffer Authorization issued May 16, 2008 (20080570) for R-2554

The purpose of this document is to submit the final design and revised impact calculations for modification of the Clean Water Act (CWA) Section 404 Individual Permit (IP) and Section 401 Water Quality Certification, Neuse Riparian Buffer Authorization for R-2554A. Included in this application package are the following: revised permit drawings, revised buffer drawings, revised roadway plans, Claridge State Nursery On-site Mitigation Plan, Jeffrey's Warehouse Debit Ledger, Bear Creek Mitigation Site supplemental information, and a revised EEP Acceptance Letter.

Permit History

In addition to R-2554A, there are three other sections associated with this project. The R-2554BA section is currently under construction through a conventional letting, and R-2554BB and R-2554C are in the design phase as Design Build projects. A phased permit was issued in 2008 for sections A, BA, BB, and C. At that time, construction was authorized for Section BA only. This modification request only updates the final impacts to the R-2554A Section of this project.

The revised design does not compromise NCDOT's compliance with the existing permit conditions. The revision has been evaluated for compliance with the avoidance/minimization criteria and is in compliance with all previous issues, including the following:

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6100
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

LOCATION:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610-4328

- Aquatic life passage
- FEMA compliance
- Cultural Resources
- Indirect and Cumulative Effects

Impacts to Jurisdictional Resources

Permit Site VII (on the wetland/stream drawings and Site VI on the buffer drawings) was unintentionally omitted in the original IP application due to the section break between the A Section and the BA Section being moved to the east. Since the 2008 IP this site has been updated (now in the A Section), as well as some of the other sites. Due to changes in the contour and elevation file since 2008, there have been some minor increases in impacts to some of the sites. For these reasons, proposed impacts have increased by the following amounts: 1.7 acres of riparian wetland impacts, 0.02 acre of non-riparian impacts, 1,253 linear feet of stream impacts, and 99,924 square feet of buffer impacts.

Final total impacts for R-2554A consist of 3.99 acres of permanent wetland impacts (3.59 riparian & 0.4 non-riparian) and 2,202 linear feet of permanent stream impacts. The project will temporarily impact 0.31 acre of wetland. There will also be 0.31 acre of hand clearing in wetlands and 165 linear feet of temporary stream impacts. Total buffer impacts consist of 206,236 ft^2 of mitigable impacts and 26,888 ft^2 of allowable impacts.

There will be no jurisdictional impacts due to utility relocations on this project. The power lines, telephone lines and cable TV will be relocated jointly to the left side of US 70 on proposed poles and existing poles in wetlands. Most of the existing water lines will be relocated along the length of the project with installation in wetland areas being performed by trenchless method.

Avoidance and Minimization

NCDOT employs many strategies to avoid and minimize impacts to jurisdictional areas in all of its designs. Many of these strategies have been incorporated into BMP documents that have been reviewed and approved by the resource agencies and which will be followed throughout construction. All wetland areas not affected by the project will be protected from unnecessary encroachment. Individual avoidance and minimization items are as follows:

- 3:1 slopes in jurisdictional areas
- Perpendicular crossing of jurisdictional streams where practicable
- Pre-formed scour holes
- Grassed swales with maximum side slopes of 3:1
- Burying cross drainage structures below the streambed in order to minimize impacts to aquatic life. Pipes up to 1200 mm (48 in) will be buried by approximately 20% of the structure depth and pipes greater than 1200 mm will be buried 0.3m (1 ft) deep.
- Elimination of riprap in streambeds at cross pipe outlets (riprap specified on stream banks only)
- Treating concentrated flow discharging into a buffer by use of grassed swales which meet the criteria of 75 m/ha (100 ft/ac) of drainage area
- Median ditches with 6:1 side slopes along the length of the project

- Designing all proposed grassed swales for a maximum runoff velocity of 0.60 m/sec (2 ft/sec) for the peak runoff of the 2-year storm and to nonerosively pass the peak runoff rate from the 10-year storm
- February 15 to June 15 in water work moratorium for anadromous fish
- Storm drainage will be diffuse and designed for non-erosive velocity before entering a buffer zone or wetland, unless otherwise noted.

Compensatory Mitigation

Under the previous permit, compensatory mitigation was provided for the following impacts on the entire R-2554 project: 16.32 acres of riparian wetlands, 11.3 acres of non-riparian wetlands, and 13,153 feet of stream. Mitigation needs for R-2554A have increased, as explained previously.

The increased stream, wetland, and buffer impacts will be mitigated through the use of assets in the NCDOT Debit Ledger, onsite mitigation via natural stream design (NSD), as well as EEP. Tables 1-3 cover mitigation provided by NCDOT. The balance of the buffer mitigation, 12,473 ft^2 of Zone 1 and 16,630.7 ft^2 of Zone 2, will be mitigated by the EEP.

Table 1. Wetland Mitigation (ac.)

Section	Restoration	Preservation (5:1)	Total Credits Proposed
R-2554BA Tommy's Rd. (site 8)	0.11	2.37	0.58
R-2554C Bear Creek (site 12)*	26.84		26.84
Jeffrey's Warehouse	0.21	8.61	1.9
Totals	27.16	10.98	29.36

*Bear Creek is the Mill Branch Mitigation Bank

Table 2. Stream Mitigation (l.ft.)

Section	Restoration	Preservation (5:1)	Total Credits Proposed
R-2554A Claridge Nursery	10,397		10,397
R-2554A NSD Site VII	544		544
R-2554BA NSD Site 4	1,083		1,083
R-2554BA NSD Site 5	561		561
R-2554BA Tommys Rd. (site 8)	61	691	199.2
R-2554BB NSD Site 9	1,236		1,236
R-2554C UT West Bear Creek	1,243		1,243
Totals	15,125	691	15,263.2

Table 3. Buffer Mitigation (sq. ft.)

Section	Restoration	Total Credits Proposed
R-2554A Claridge Nursery	994,657	994,657
R-2554A NSD Site VII	57,133	57,133
R-2554BA NSD Site 4	95,139	95,139
R-2554BA NSD Site 5	55,959	55,959
R-2554BA Tommys Rd. (site 8)	7,792	7,792
R-2554BB NSD Site 9	120,821	120,821
R-2554C UT West Bear Creek	121,968	121,968
Totals	1,453,469	1,453,469

Additionally, in compliance with Condition O of the 404 Individual Permit, we have included information updating the status of the Bear Creek Mitigation Site with this permit modification request.

Protected Species

Plants and animals with federal classification of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. The United States Fish and Wildlife Service (USFWS, 2007) lists one federally protected species for Wayne County as of the September 22, 2010 listing. The red-cockaded woodpecker biological conclusion is no effect due to lack of habitat. There will also be no effect on the bald eagle.

Regulatory approvals

Section 404: We are, therefore, requesting the modification of the USACE Individual 404 Permit issued July 21, 2008 (SAW 2008-00252), for the above-described activities.

Section 401: We are hereby requesting a modification to the 401 Water Quality Certification from the NCDWQ issued May 16, 2008 (DWQ No.20080570). In compliance with Section 143-215.3D(e) of the NCAC, we will provide $570.00 to act as payment for processing the Section 401 permit modification. We are providing five (5) copies of this modification request to the NCDWQ, for their approval.

Neuse Riparian Buffer Authorization: We are hereby requesting a modification to the Tar-Pamlico Riparian Buffer Authorization from the NCDWQ issued May 16, 2008 (DWQ No.20080570).

A copy of this permit modification request and its distribution list will be posted on the NCDOT website at: http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Chris Manley at cdmanley@ncdot.gov or (919) 707-6135.

Sincerely,

E. R. Fuska

fer Gregory J. Thorpe, Ph.D., Manager
Project Development & Environmental Analysis Unit

cc:

NCDOT Permit Application Standard Distribution List

STORMWATER MANAGEMENT PLAN

November 15, 2011

T.I.P. No.: R-2554A (US 70 Goldsboro Bypass)
State Project: 34461.1.3
Wayne County
NCDOT Hydraulics Project Engineer: Randy Henegar, P.E.

Project Description:

This roadway project is a portion of the US 70 Goldsboro Bypass, a 4-lane divided facility on new location. The R-2554A portion is from west of NC 581 to SR 1300 (Salem Church Rd.) and is 8.028 km (5.02 mi.) long. It involves the design of two new interchanges, one at existing US 70 and the other at NC 581. Service roads are proposed for access to SR 1408 (Earl Dr.) and SR 1329 (Riverbend Rd.), and there will be a grade separation at SR 1326 (Claridge Nursery Rd.).

The project mainline will have a typical section that predominately consists of a 14 m (46 ft) median, of which 11.6 m (38 ft) is grassed lined. In cut sections of the bypass, the typical will have a grass V-ditch. In addition to these ditches, drainage will be facilitated by one bridge, a box culvert, cross pipes, storm sewer systems, lateral ditches, and grassed lined swales.

The surrounding area is predominately agricultural with some residential neighborhoods and a shopping center.

Environmental Description:

The project is located in the Neuse River Basin. All streams draining from this project are tributaries to the Little River, which is a tributary to the Neuse River. As such, they are regulated under the Neuse River Riparian Buffer Rules. These rules require a 50-foot buffer adjacent to jurisdictional streams and water bodies. Concentrated runoff from new ditches and manmade conveyances shall have diffused flow or non-erosive velocities before entering the riparian buffer.

Little River and The Canal are the two named water resources crossed by R-2554A. All other stream crossings are unnamed tributaries to the Little River or The Canal. The Little River and its associated tributaries carry a Class WS-IV designation, which is defined as being protected as a water supply and requiring control of nonpoint source and stormwater discharge of pollution. The Canal has a Class WS-III classification, meaning it has no categorical restrictions on watershed development or discharges. All of the streams in this project are Nutrient Sensitive Waters (NSW), and therefore require limitations on nutrient inputs.

Best Management Practices:

The primary goal of the Best Management Practices (BMP's) is to prevent degradation of the state's surface waters by the location, construction and operation of the highway system. BMP's are activities, practices and procedures taken to prevent or reduce stormwater pollution. The BMP's and measures used on this project to reduce stormwater impacts include:

- Pre-formed scour holes
- Grassed swales with minimum side slopes of 3:1
- Burying cross drainage structures below the streambed in order to minimize impacts to aquatic life. Pipes up to 1200 mm (48 in) will be buried by approximately 20% of the structure depth and pipes greater than 1200 mm will be buried 0.3m (1 ft) deep.
- Elimination of riprap in streambeds at cross pipe outlets (riprap specified on stream banks only)
- Treating concentrated flow discharging into a buffer by use of grassed swales which meet the criteria of 75 m/ha (100 ft./ac) of drainage area
- Median ditches with 6:1 side slopes along the length of the project
- Designing all proposed grassed swales for a maximum runoff velocity of 0.60 m/sec (2 ft/sec) for the peak runoff of the 2-year storm and to nonerosively pass the peak runoff rate from the 10-year storm

In general, all storm drainage will be diffused and designed for non-erosive velocity before entering a buffer zone or wetland, unless otherwise noted.

Major Structures:

There is one box culvert and one bridge. The following summarizes the structures and their locations.

Culvert
Station +/- 39+85.5 -L-
The culvert conveys an unnamed tributary to the Little River, at Site 3. The required size is 2 @ 2.13 m x 2.13 m and it will be buried 0.3 m below the existing streambed. A floodplain will be created on the inlet of the culvert for the eastern barrel. This will prevent streambed erosion upstream from the culvert. At the outlet, Class I Riprap will be placed on the both banks of the stream. A 900 mm and 750 mm storm drain pipes tie into the Northwest side of the box culvert, and two 600 mm storm drain pipes tie into the Southeast side.

Bridge
Station +/- 66+35 to +/- 74+10 -L-
The bridge will span The Canal and the Little River.

Jeffrey's Warehouse Debit Ledger

The Jeffrey's Warehouse Mitigation Site is located in HUC 030210201 and was originally constructed as on-site mitigation for R-1030 US 117 from south of NC 581 in Goldsboro to the US 264 Bypass in Wilson. There are two parcels associated with this mitigation site. The west parcel (approximately 50.2 acres) is bounded on the northwest by the Little River and on the southeast by the US 117 right-of-way. The east parcel (approximately 37.5 acres) is bounded on the northwest by the US 117 right-of-way, on the northeast by a Wayne County Board of Education school bus maintenance shop, and on the east and southeast by private property. The site was constructed in 2006 and has undergone five years of hydrologic and vegetative monitoring.

To offset unavoidable wetland impacts associated with TIP R-2554A, the Jeffrey's Warehouse Mitigation site will be debited 8.61 acres of riverine wetland preservation, 0.19 acres of riverine restoration, and 0.02 acres of non-riverine restoration.

Mitigation Type	Amount Available (acres)	Debit	TIP	Amount Remaining
Riverine Preservation	12.36	3.75	R-2814 A&B	8.61
Riverine Preservation	8.61	8.61	R-2554A	0

Mitigation Type	Amount Available (acres)	Debit	TIP	Amount Remaining
Riverine Restoration	3.66	2.62	R-2814 A&B	1.04
Riverine Restoration	1.04	0.19	R-2554A	0.85

Mitigation Type	Amount Available	Debit	TIP	Amount Remaining
Non-riverine Restoration	23.02	2.76	R-2719A	20.26
Non-riverine Restoration	20.26	0.92	B-4304	19.34
Non-riverine Restoration	19.34	1.77	R-2814 A&B	17.57
Non-riverine Restoration	17.57	0.02	R-2554A	17.55

North Carolina Department of Transportation
Project Development and Environmental Analysis Branch
Natural Environment Unit
Raleigh, North Carolina

Claridge State Nursery
On-site Stream Mitigation Plan for
US Highway 70 Goldsboro Bypass Construction
Wayne County, North Carolina

T.I.P. Number R-2554
WBS No. 34461.1.3

October 21, 2011

1.0 BASELINE INFORMATION

The project is located within USGS Hydrologic Cataloging Unit 03020201, and NC Division of Water Quality (NCDWQ) sub-basin 03-04-06 of the Neuse River Basin, and is part of the of the South Atlantic-Gulf region. The project is located immediately west of Claridge Nursery Road in Wayne County near Goldsboro, on land that is entirely owned by the North Carolina Division of Forest Resources. The project boundary is within the Inner Coastal Plain physiographic province; specifically the Southeastern Floodplains and Low Terraces Ecoregion. Land use within the watershed is primarily agriculture and forestry. Existing stream lengths, drainage areas, and jurisdictional status are summarized in Table 1.

Table 1. Summary of Existing Stream Lengths and Drainage Areas.

Stream Reach	Existing Length (LF)	Drainage Area (sq mi)	Intermittent/Perennial Status
M1	6,400	1.80	NCDWQ Form Score = > 30 Stream reach already considered perennial by agencies during impact assessments. Status = Perennial
UT1	740	0.13	NCDWQ Form Score = 19.75 Stream is shown as intermittent on USGS map. Stream is not shown on County soils, but hydric soils indicate the presence of a channel. Status = Intermittent
UT2	2,530	0.25	NCDWQ Form Score = 24.75 Stream is shown as intermittent on USGS map. Stream is shown on County soils. Status = Intermittent

The project includes three jurisdictional streams; an unnamed tributary main stem (Reach M1) to the Little River, and two smaller tributaries (Reaches UT1 and UT2) that drain into M1. The lower section of the site (The Canal) flows to a portion of the Little River has been assigned

Stream Index Number 27-57-21.4 (NCDWQ 2010) and is designated a warm water stream (USACE et al. 2003) with a classification of B; NSW.

Most of the native plant communities have been removed from the site to facilitate silviculture land use. The vegetation currently found within the project area contains a mixture of pine canopy, fescue grasses, and disturbed/maintained land for crop rotation. Approximately 70% (23 acres) of the project boundary is composed of open fields and disturbed/maintained land that also contains an interior road, while the remaining 30% (9 acres) is made up of a mix of maintained vegetation harvested for nursery practices.

The North Carolina Department of Transportation (NCDOT) will perform on-site mitigation for jurisdictional stream impacts associated with Transportation Improvement Program (TIP) R-2554 and the construction of the US Highway 70 Goldsboro Bypass alignment. The project will serve as on-site mitigation through the restoration of 10,587 linear feet of streams and 31.8 acres of riparian buffer.

2.0 SITE SELECTION

TIP R-2554 will involve roadway construction for the US Highway 70 bypass and installing a bridge over the restored stream alignment. Permanent stream impacts associated with the project are 13,038 linear feet of jurisdictional stream channels.

The mitigation site includes areas which are within a Conservation Easement held by NCDOT. These areas occur both north and south of approximate roadway station 66+36 to station 67+27. Within these areas NCDOT will restore 10,587 linear feet of streams via floodplain excavation, site grading and planting.

Site Considerations

Several existing culverted road crossings will be incorporated into the restoration designs for the three stream reaches. In some locations, existing culverts will be replaced to provide increased capacity, promote connection with the restored floodplain, and set culvert inverts to appropriate elevations. An existing irrigation line crosses the proposed design for M1 at approximate stations 14+00 and station 22+00; these crossings will not be placed in an easement if future maintenance is required for the irrigation lines. The existing irrigation line that crosses M1 near station 21+00 will be abandoned prior to construction activities.

3.0 SITE PROTECTION INSTRUMENT

The mitigation areas are located within a NCDOT Conservation Easement for the project. They are outside of future US Highway 70 ROW and maintenance areas. They will be managed to prohibit all use inconsistent with its use as mitigation property, including any activity that would materially alter the biological integrity or functional and educational value of the site, consistent with the mitigation plan.

The site will be placed on the NEU mitigation geo-database. It will be monitored for five years with annual reports provided to the agencies. After closeout, the site will placed in the NCDOT Stewardship Program for long term management and protection.

4.0 OBJECTIVES

The goal of the project is to restore 10,587 linear feet of stream and 31.8 acres of riparian buffer to mitigate for all impacts associated with TIP R-2554. The functional restoration of the site will be accomplished using natural channel design approaches for single-thread (Reach M1) and riparian headwater valleys (Reaches UT1 & UT2). The proposed restoration and mitigation amounts are summarized in Table 2 below:

Table 2. Restoration Approaches and Proposed Mitigation Amounts.

Mitigation Area	Size	Potential Credits	Restoration Approach
Stream Reach M1	8,059 LF*	8,059 (1:1 ratio)	Restoration will consist of a Rosgen Priority Level II approach. A new floodplain will be excavated at a lower elevation, and a stable meandering channel restored through the new floodplain. (E streamtype)
Stream Reach UT1	754 LF*	754 (1:1 ratio)	Restoration will consist of grading a floodplain and promoting diffuse surface flows toward M1. The system will be allowed to form on its own as a braided channel headwater stream. (DA streamtype)
Stream Reach UT2	1,774 LF*	1,774 (1:1 ratio)	Restoration will consist of grading a floodplain and promoting diffuse surface flows toward M1. The system will be allowed to form on its own as a braided channel headwater stream. (DA streamtype)
Riparian Buffer Restoration	31.8 acres	31.8 (1:1 ratio)	Restoration will include the planting of 50 foot riparian buffers on both sides of the restored stream segments.
Totals	**10,587 LF 31.8 acres**	**10,587 (stream) 31.8 (buffer)**	

* Stream lengths exclude the sections of channel which will flow through culverted crossings or lie outside of the Conservation Easement held by NCDOT.

5.0 MITIGATION WORK PLAN

The mitigation areas will be constructed at the end of the construction of TIP R-2554. Construction activities involve floodplain excavation, stream channel and headwater valley grading, structure installation, and native vegetation planting. Once these have been established, the new stream channels will be stabilized and prepared for normal flow conditions.

Main Stem M1

Reference reach data and past project experience support the design of a single-thread channel for M1 due to its watershed size, slope, and sediment transport competency (stream power). The design involves a Rosgen Priority Level II approach in which a new, meandering single-thread channel (E/C streamtype) will be constructed through a floodplain excavated at a lower

elevation. In-stream structures will consist of logs and wooden structures to provide stability. The streambanks and adjacent floodplain areas will be planted with native vegetation that are moderately to highly tolerant of flooded conditions.

UT1 and UT2

UT1 and UT2 have been channelized in the past to improve drainage of the site for agriculture. A riparian headwater valley restoration approach is proposed for UT1 and UT2 due to their small drainage areas and low slope. Restoration of these reaches will seek to restore historic flow and flooding processes. This approach is described in the US Army Corps of Engineers and NC Division of Water Quality guidance document *"Information Regarding Stream Restoration with Emphasis on the Coastal Plain (April 2007)."* It is likely that in undisturbed conditions, the systems existed as headwater wetland/stream complexes, exhibiting diffuse flows and wetland plant communities within a narrow valley of hydric soils. This assessment is supported by on-site soils, topography, and reference site data.

Based on valley slopes and drainage areas, these systems most likely functioned prior to disturbance as headwater swamps, or small braided stream systems. Restoration will focus on grading a new floodplain at a lower elevation (to match the elevation of the restored M1 channel) and restoring diffuse flow patterns along the restored headwater valley. The valley bottom will be roughened to restore the natural microtopographic variability that is common within braided headwater systems. The systems will primarily be allowed to form braided channels and flow patterns on their own over time.

The Natural Environment Unit shall be contacted to provide construction assistance to ensure that the mitigation areas are constructed appropriately.

Riparian Buffer Planting

Following the successful completion of site grading and stabilization, a vegetation plan for the site will include the planting of bare-root trees in riparian buffer areas adjacent to all three restored streams. A minimum buffer width of 50 feet will be maintained on all restored streams with wider buffers in most areas. Tree species commonly found in Coastal Plain Bottomland Hardwood forests will be planted across the site that include a mixture of no less than six native species adapted to site conditions, such as River birch (*Betula nigra*), Green ash (*Fraxinus pennsylvanica*), Swamp tupelo (*Nyssa sylvatica var.biflora*), Sycamore (*Platanus occidentalis*), Overcup oak (*Quercus lyrata*), Swamp chestnut oak (*Quercus michauxii*), and Bald cypress (*Taxodium distichum*).

Native grass seeding and mulching will be applied on all disturbed areas within the stream restoration area for stabilization purposes according to guidance and standard procedures of NCDOT's Roadside Environmental Unit. An as-built report will be submitted within 60 days of completion of the project.

6.0 PERFORMANCE STANDARDS

The NCDOT shall monitor stream channel stability and buffer vegetation survival on the site. Post-restoration monitoring will be conducted for a minimum of five years or until the success criteria are met following the completion of construction to document project success. Different monitoring approaches are proposed for the restored stream reaches, based on the restoration approaches to be used. For reaches UT1 and UT2, which involve the restoration of the historic flow pattern as a multi-thread headwater stream system to be constructed as a broad or diffuse swale with shallow flow paths, monitoring will focus primarily on visual assessments and documentation. For reach M1, which involves a more traditional restoration of a single-thread channel, monitoring approaches follow those recommended by the Stream Mitigation Guidelines (USACE and NCDWQ 2003). These approaches are described below in Section 7.0.

7.0 MONITORING REQUIREMENTS

The stream mitigation site will be monitored for five years or until success criteria is satisfied. Monitoring protocols shall follow the Monitoring Level 1outlined in the Stream Mitigation Guidelines, April 2003. NCDOT will evaluate the success of the stream restoration project based on guidance provided by the Stream Mitigation Guidelines disseminated by the United States Army Corps of Engineers-Wilmington District. The survey of the channel dimension will consist of permanent cross sections placed at equal number of pools and riffles. Annual photographs showing both banks and upstream and downstream views will be taken from permanent, mapped photo points. The survey of the longitudinal profile will represent distinct areas of the stream and cover a cumulative total of 3,000 linear feet of channel. The entire restored length of stream will be investigated for channel stability and in-stream structure functionality. Any evidence of channel instability will be identified, mapped and photographed.

8.0 OTHER INFORMATION

The restoration approach for reaches UT1 and UT2 are based on data and conclusions developed through a study of functional riparian headwater stream systems in the Coastal Plain. This study evaluated the conditions that determine channel formation in small headwater systems, and developed relationships between drainage area and valley slope that correlate to channel form. The data indicate that the designs for reaches UT1 and UT2 should seek to restore moderately defined headwater stream systems (braided flow patterns), and that it is unlikely that well-defined single-thread stream segments would be supported.

9.0 DETERMINATION OF CREDITS

Per the NCDOT plans and 401/404 permit application for R-2554; NCDOT proposes to restore 10,587 linear feet of stream and 31.8 acres of riparian buffer via floodplain excavation and channel grading and subsequent native buffer reforestation to mitigate for permanent impacts associated with the TIP at a 1:1 ratio. An as-built report will be submitted within 60 days of completion of the project to verify actual linear feet constructed and buffer acreage planted. The success of the mitigation area and determination of total credits will be based upon successful completion and closeout of the monitoring period.

9.1 CREDIT RELEASE SCHEDULE

NCDOT proposes immediate, full release of the proposed 10,587 linear feet of restored streams and 31.8 acres of restored riparian buffer as on-site mitigation for the associated stream impacts of 13,038 linear feet for R-2554 at a 1:1 ratio.

10.0 GEOGRAPHIC SERVICE AREA

The proposed Geographic Service Area (GSA) for the mitigation area is composed of the 8-digit Hydrologic Cataloging Unit (HUC) 03020201. It is anticipated that the entire 10,587 linear feet will be used on-site at a 1:1 ratio to offset stream impacts associated with R-2554. Any remaining linear footage will be available for use within HUC 03020201 as well as adjacent HUC's 03020202 and 03020203 within the Neuse River Basin.

11.0 MAINTENANCE PLAN

The site will be held by NCDOT and placed on the NEU mitigation geodatabase. Once monitoring is completed and the site is closed out, it will be placed in the NCDOT Stewardship Program for long term maintenance and protection.

If an appropriate third party recipient is identified in the future, then the transfer of the property will include a conservation easement or other measure to protect the natural features and mitigation value of the site in perpetuity.

12.0 LONG TERM ADAPTIVE MANAGEMENT PLAN

The site will be managed by the NCDOT according to the mitigation plan. In the event that unforeseen issues arise that affect the management of the site, any remediation will be addressed by NCDOT in coordination with the Interagency Review Team.

13.0 FINANCIAL ASSURANCES

The site will be managed by NCDOT with its own distinct cost center number within the NCDOT budgeting and financial tracking system. Therefore, all accounting for revenues, contract encumbrances, fund transfers, and expenses will be performed and reported independent from other capital budget or operating budget accounting.

Subject: Minutes of the Interagency Hydraulic Design Review Meeting on October 20, 2004 for R-2554A, Wayne County

Participants:

Team Members:	Other Attendees
Randy Henegar, NCDOT Hydraulics (present)	Malcolm Watson, NCDOT Roadway
Eric Alsmeyer in attendance for Mike Bell, USACE	Omar Azizi, NCDOT Structures
Beth Barnes in attendance for Nikki Thomson, NCDWQ	Tim Coggins, NCDOT Structures
Missy Dickens, NCDOT PD&EA (present)	Greg Crosby, NCDOT Hydraulics
Travis Wilson, NCWRC (present)	David Scheffel, NCDOT Roadway
Gary Jordan, USFWS (absent)	Jamie Shern, NCDOT Division 4
Chris Militscher, EPA (present)	Jerry Page, NCDOT Division 4
Cathy Houser, NCDOT Project Services (absent)	Kevin Bowen, NCDOT Division 4 Const.
Michael Turchy, NCDOT ONE (present)	
Wendi Johnson, NCDOT Division 4 (absent)	

This meeting commenced at approximately 10:30 a.m., with a brief overview of the project. Randy Henegar proceeded to review jurisdictional streams and wetlands sites for each plan sheet. Comments were as follows:

R-2554A

1. Wetlands Impacts: Sites 1thru 12 on the Wetland Impact Summary.

Plan sheet 8 depicts a wetland between –L- and –Y1-. This wetland will not be impacted by construction, but drainage out of the wetland will need to be maintained. This site does not show up on the Wetland Impact Summary and will be revisited by the agencies.

Plan sheet 9, site 1 on the Wetland Impact Summary appears to be in a ditch and may not be a wetland. This site will be revisited by the agencies.

Wetland Impact Summary sites 3, 4, 5, 6, 7, 8, and 9 are referenced on the Roadway Plan Sheets and do not appear to have any discrepancies.

Site 2 is outside the limits of –Y3- and will not be disturbed by the project.

Site 10 is not referenced on Roadway Plan sheet 19 as indicated in the Wetland Impact Summary. The agencies will revisit this site.

Site 11 is referenced on Roadway Plan Sheet 20 and appears to encompass the Canal and its banks. This site will be revisited by the agencies.

Site 12 is referenced on Plan sheet 21 and encompasses Little River water surface and the wetland. This site will be revisited to confirm the wetland boundary along the river.

Plan sheet 32 references a wetland along –Y10- (NC581). This wetland is not depicted on the Wetland Impact Summary and will be revisited by the agencies.

2. Stream Impacts: Sites AT1 – AT9 on the Stream Impact Summary.

Sites AT1, AT3, AT4, AT6, and AT7 are referenced on the Roadway Plan Sheets and do not appear to have any discrepancies. Of these streams AT6 is the only one that does not showing up as a blue line stream on the Quad. Map.

Sites AT8 and AT9 are not blue line streams on the Quad. Map. There is some questions as to weather these sites are buffer streams or ditches. DWQ will investigate this in the field.

There are two potential stream sites not listed on the Stream Impact Summary at stations 49+20 –L- and 54+00 – L-. The agencies will visit these sites for verification.

General comments:

Chris questioned the use of 3:1 slopes at jurisdictional sites. Randy replied 3:1 slopes or flatter will be used at all jurisdictional sites.

That portion of wetland sites 4, 5, and 7 lying right of –L- and outside of the fill slope will be considered an impact.

Question about R/W interfering with greenhouse right of station 56+50 -L-. David Scheffel indicated the R/W could be tucked in to avoid greenhouse.

Note that originally the canal was to be a culvert but because of the extent of the flood study, the bridge over Little River had to be extended over the canal to meet FEMA requirements.

Minutes of the Permit Drawing Review (4C) Meeting on July 21, 2011 for R-2554A. US 70 (Goldsboro Bypass) from west of NC 581 to SR 1300 (Salem Church Road) in Wayne County

Participant:

Team Members:

Randy Henegar, NCDOT Hydraulics (absent)
Thomas Steffens, USACE (present)
Rob Ridings, NCDWQ (present)
Jay McInnis, NCDOT PDEA (absent)
Travis Wilson, NCWRC (present)
Gary Jordan, USFWS (present)
Chris Militscher, USEPA (present)
Ron Lucas, FHWA (present)
David Harris, NCDOT REU (absent)
Wendi O. Johnson, NCDOT Division 4 (present)
Ron McCollum, NCDOT Roadway (present)
Chris Rivenbark, NCDOT NEU (present)
Omar Azizi, NCDOT Structures (present)

Other Attendees

Marc Shown, NCDOT Hydraulics
Omar Azizi, NCDOT Structures
Rusty Lassiter, NCDOT Hydraulics
Chris Manley, NCDOT NEU
Malcolm Watson,NCDOT Roadway
Mark Staley, NCDOT Roadside
David Clodgo, NCDOT Roadway
Ashley Reid, NCDOT Utilities
Jamie Lancaster, NCDOT NEU
Marissa Rodman Cox,NCDOT NEU
Nora McCann, NCDOT TPB
Olivia Farr, NCDOT PDEA

The 4C meeting held on 7/21/11 began with introductions.

Marc Shown indicated that the permit would be gone through site by site and that the summary sheet and contours would be revised to reflect the correct levels of accuracy. He also indicated that linestyles for JS streams and Wetland Boundaries would be revised to reflect the correct labeling and enlarge the labels in order to be legible.

A site by site review of the permit drawings was then conducted.

Site I:

Two 600 mm pipes have been added on the east side of the culvert and discharge into the easternmost barrel of the culvert.

Presently both barrels are buried one foot and the culvert is on a 0.5% slope.

Hydraulics indicated that due to the slope no sills were needed but that flow would be diverted through the eastern most barrel during low flows to more accurately match the existing stream dimensions. Rip Rap will be added at the culvert outlet.

USACE asked about the JS NEU line and if the calculation of impacts were based on this line. Hydraulics indicated that the JS NEU line should be turned off and that the Location & Surveys (L&S) stream line will be used. The L&S line will be revised to reflect JS labeling. The impacts were calculated using L&S stream lines.

REU questioned the need for additional impacts to allow for culvert construction. Hydraulics will investigate and make appropriate revisions.

NCDWQ questioned whether or not the special cut ditches were acting as grassed swale for treatment for buffers. Hydraulics indicated that some of them were and that they would set up a meeting with NCDWQ to discuss buffer issues prior to sending out the permit application.

Hydraulics indicated that hatching would be shown on all appropriate cross-sections indicating fill in wetlands.

Site II:

No Comments.

Site III:

The 600 mm pipe is currently buried 0.1 ft. It will be revised so the inverts are buried 20% and the size will be increased if necessary.

Rip Rap will be added at the pipe outlet.

Site IV:

The 1050 mm pipe is currently buried 0.1 ft. It will be revised so the inverts are buried 20% and the size will be increased if necessary.

Rip Rap will be added at the pipe outlet.

The remnant of the wetland to the south will be considered a total take and the impacts in the summary table will be adjusted

Site V:

The 600 mm pipe is currently buried 0.1 ft. It will be revised so the inverts are buried 20%.

Work Bridge #1:

The approach slab hatching will be removed from the drawing.

The JS NEU line will be turned off and the L&S line will be modified to be labeled JS.

The impact hatching will be removed and the impacts will be noted on the summary sheet.

There is on-site stream mitigation at this site. The questions arose as to whether to include this mitigation in this permit application and to whether the mitigation project could be let separately and completed after the roadway project. The Division stated that DOT would get better results if the projects were let separately. NEU will coordinate with the Division and the agencies and advise Hydraulics as to how to proceed.

Site VI & Work Bridge # 2:

NEU indicated that the westernmost wetland boundary (east bank of the Little River) was located during a time of high water and that the site would be revisited and the wetland and JS boundaries revised if necessary.

The JS and wetland lines will be revised to be labeled correctly and the impacts in the summary sheet will be adjusted as necessary.

The approach slab hatching will be removed from the drawing.

The Division requested that hatching not be shown on the work bridge and to note the impacts on the summary sheet. Hydraulics will make these revisions.

The impacts will be adjusted so as not to have overlap between the work bridge and proposed structure.

NEU stated that the wetland impacts should be hand clearing.

Site VII:

The JS lines will be revised and the approach slab hatching will be removed.

A questioned was raised as to whether the steam relocation shown reflected the latest design. Hydraulics verified that it is the latest design.

There was a question about excavation in wetlands shown on sheet 25. This excavation is due to the stream relocation being cut through higher natural ground outside of the slope stake limits.

The JS stream entering the project on sheet 26 is being conveyed to the 1350 mm cross pipe on sheet 25 through a base ditch with 3:1 side slopes. The excavation in wetlands shown where this ditch meets the cross pipe is due to getting the base of the ditch down to the bed elevation of the cross pipe.

The 1350 mm cross pipe will be buried 20%.

Site VIII:

The Division requested to combine Sites VIII and IX into one drawing to help eliminate confusion due to the overlap of the two sites. Hydraulics will combine the two sites and provide a blow up view for clarity.

Site IX:

See above.

rch

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

December 22, 2011

US Army Corps of Engineers
Washington Regulatory Field Office
P O Box 1000
Washington, NC 27889-1000

ATTN: Tom Steffens
Regulatory Project Manager

Subject: Goldsboro Bypass, TIP R-2554C, potential conflict with the Bear Creek Mitigation Bank, Lenoir County

Dear Tom:

The following documents are attached to this correspondence and provided to fulfill Special Condition O associated with the permit issued for R-2554, Action ID 2008-00252:

- *Project Correspondence from August 1, 2006*
- *Associated Figures*

The Project Correspondence on the subject project discusses the avoidance and minimization and unavoidable impacts of 5.88 acres to the Bear Creek Mitigation Bank (Bank) due to proposed construction of the Goldsboro Bypass, R-2554. The corresponding wetland mitigation type and credits associated with the 5.88 acres are also provided.

- *Change Order for the Mitigation Agreement between NCDOT and Restoration Systems for the Bank*

The Change Order documents the removal of the 5.88 acres and associated credits from the available mitigation provided by the Bank.

- *Statutes*

The Statutes explain when title vests with NCDOT when condemnation occurs (136-104) and how damages are measured (136-112). These were provided by our legal department and discussed with the USACE legal representative.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
NATURAL ENVIRONMENT UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-707-6000

WEBSITE: WWW.NCDOT.ORG

LOCATION:
Century Center Building B
1000 Birch Ridge Drive
Raleigh NC 27610

- *Condemnation Filing*

Condemnation proceedings have commenced. The Declaration of Taking and Complaint are attached.

Thank you for your consideration and review of these documents. If you have any questions or comments, please contact me at 919-707-6146.

Sincerely

LeiLani Paugh
PDEA/ Natural Environment Section

CC: Chris Manley, NES

State of North Carolina
Department of Transportation
Raleigh, NC
September 12, 2011

WBS ELEMENT: 34461.2.5
TIP/PARCEL NO.: R-2554C 066
COUNTY: Lenoir
DESCRIPTION: Us 70 Goldsboro Bypass from West of SR 1714 in Wayne County to East of SR 1323 in Lenoir County

MEMO TO: Mrs. Elizabeth L. McKay - Special Deputy Attorney General

FROM: R.M. Abbott, Jr. STATE NEGOTIATOR

SUBJECT: Declaration of Taking

I am attaching hereto the necessary information for filing declaration of taking on the parcel listed above. It will be appreciated if you will arrange for filing of this claim on 10/24/2011 Upon the filing of the declaration and complaint, please indicate on the copy of letter attached the disposition and return same to me.

/bj
cc: Doug Askew
Albert E.Joyner
T. Bailey
AG's Office
J. Bennett

AMOUNT	CLAIMANT
$ 3,525.00	Restoration Systems, LLC

FRM13-K
Revised 8-12-2010

STATE OF NORTH CAROLINA
COUNTY OF LENOIR

GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
CIVIL ACTION
11-CvS-1094

FILED
2011 OCT 21 PM 3:41
LENOIR COUNTY, C.S.C.
BY

DEPARTMENT OF TRANSPORTATION,
Plaintiff,

v.

RESTORATION SYSTEMS, LLC; and NORTH CAROLINA COASTAL LAND TRUST,
Defendants.

COMPLAINT

Now comes the Department of Transportation, plaintiff herein, and for its cause of action says and alleges:

1.

That the Department of Transportation is an agency of the State of North Carolina with its principal office in Raleigh, North Carolina; and that it possesses the powers, duties and authority, including the power of eminent domain, vested in it by the General Assembly of North Carolina.

2.

That pursuant to the authority vested in the plaintiff under the provisions of Chapter 136 of the General Statutes, and pursuant to a resolution of the Board of Transportation duly passed, it is necessary to condemn and appropriate certain property described in Exhibit "B", attached hereto, and made a part hereof, for public use in the construction of that certain highway project described in Exhibit "C" attached hereto and made a part hereof.

3.

That the plaintiff and the defendants have been unable to agree as to the purchase price of the property herein appropriated.

4.

That the property which is the subject of this action, the interest or estate acquired, and the area appropriated are all described in said Exhibit "B".

5.

That the plaintiff is informed and believes, and alleges upon information and belief, that those persons whose names and addresses are set forth in Exhibit "A", attached hereto and made a part hereof, are, insofar as the same can, by reasonable diligence, be ascertained, the only persons who may have or who claim to have an interest or estate in the property described in said Exhibit "B", and that said named persons are under no legal disability except as may be stated in said Exhibit "A".

6.

That the plaintiff is informed and believes, and alleges upon information and belief that said property is subject only to such liens and encumbrances as are set forth in Exhibit "A", attached hereto.

7.

That the plaintiff be granted a trial by jury on the issue of just compensation.

WHEREFORE, plaintiff prays that just compensation for the appropriation herein set forth be determined according to the provisions and procedures contained in Article 9 of Chapter 136 of the General Statutes and for such other relief as to the Court may seem just and proper.

ROY COOPER
Attorney General

/s/ W. RICHARD MOORE
Special Deputy Attorney General

/s/ RICHARD G. SOWERBY
Assistant Attorney General
North Carolina Department of Justice
1505 Mail Service Center
Raleigh, North Carolina 27699-1505
Telephone No. (919) 733-3316

Project No.
34461.2.5

Parcel No.
066

I.D. No.
R-2554C

A.G. FILE NO. TR-11-01591

EcoScience Corporation 612 Wade Ave., Suite 200 Raleigh, North Carolina 27605 Ph: 919 828-3433 Fax: 919 828-3518	Client: *Restoration* SYSTEMS 114 White Lake Court Morrisville, NC 27560	Project: **POTENTIAL WETLAND PRESERVATION SITES** Bear Creek-Mill Branch Mitigation Site Lenoir County, North Carolina	Date: OCT 1999 Scale: AS SHOWN ESC Job #: 99-016	Figure 22

EcoScience Corporation
612 Wade Avenue, Suite 200 Ph: 919.828.3433
Raleigh, North Carolina 27605 Fax: 919 828-3518

Client
Restoration SYSTEMS
114 White Lake Court
Morrisville, NC 27560

Project
MITIGATION DESIGN UNITS
BEAR CREEK – MILL BRANCH
WETLAND RESTORATION SITE
LENOIR COUNTY, NORTH CAROLINA

Dsn By	Date
MAF	AUG 1998
Ckd By	Scale
JWN	1"= 400'

ESC Project No.: 98-016

Figure 23

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 1, 2006

US Army Corps of Engineers
Washington Regulatory Field Office
Post Office Box 1000
Washington, NC 27889-1000

ATTN: William Wescott
NCDOT Coordinator

Subject: **Goldsboro Bypass, TIP R-2554C,** potential conflict with the Bear Creek Mitigation Bank, Lenoir County

Dear Sir:

A field review meeting was held on the subject roadway project February 6th, 2006 near the intersection of the US 70 and Promiseland Road in Lenoir County. The purpose of the meeting was to discuss the potential impact of the roadway project on mitigation credits available at the Bear Creek Mitigation Bank (the Bank). The Bank encompasses a total of 445 acres, of which 145 acres is on the Bear Creek site (the Site) and 25 acres is on the adjacent preservation site. The attached table shows the total acres and the breakdown of mitigation types, acres, and credits of the Bank (Table 15 from the mitigation plan). Below is a summary of debits and associated TIP projects that NCDOT has used from the Bank.

DEBITS FROM BEAR CREEK MITIGATION BANK

TIP PROJECT	Type	Credits
R-2001A	Restoration	3.94
	Preservation	3.94
R-1030	Restoration	1.073
B-3711	Restoration	0.12
	Preservation	0.12

The following is offered as a summary of events leading up to the meeting and a proposed course of action to resolve the conflict.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
NATURAL ENVIRONMENT UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-715-1334 or
919-715-1335

FAX: 919-715-5501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
PARKER LINCOLN BUILDING
2728 CAPITAL BLVD. SUITE 240
RALEIGH NC 27604

Timeline for R-2554 and Bear Creek Mitigation Bank

- April 1994 — DEIS Approved.
- July 1994 — Corridor Public Hearing held.
- October 1994 — Preferred corridor selected.
- February 1998 — Preliminary design completed.
- February 1998 — FEIS Approved.
- August 1998 — ROD Approved.
- November 1998 to September 2000 — Restoration Systems (RS) acquired purchase options on properties in the Site's core restoration area in anticipation of NCDOT publishing an RFP for wetland mitigation.
- June 1999 — NCDOT published a notice for Letters of Interest for a Full Delivery mitigation project in the Neuse River Basin. RS was placed on the shortlist of firms.
- November 1999 — NCDOT published an RFP for wetland mitigation in the Neuse River Basin.
- February 2000 — RS submitted a proposal for the Bear Creek Mitigation Bank.
- September 2000 — Contract between NCDOT and RS was executed.
- December 2000 — Roadway Design Public Hearing held.
- Fall 2001 — Site constructed.
- Winter 2001-02 — Trees planted on Site.
- July 2002 — Mitigation Banking Instrument was signed. Monitoring of Site began during 2002 and is currently beginning the fifth year.
- 2002- 2005 — Final roadway design completed; Right-of-Way acquisition started.
- January 2006 — ROW agent notifies project engineer that the roadway corridor encroaches on approximately 5 acres of the Site.

The proposed alignment of the Goldsboro Bypass, R-2554C, and the boundary of the Site were reviewed with all agency personnel at the February 6th meeting. The roadway project has the potential to impact a total of 5.88 acres of the Bank.

Area 1, as shown on the attached figure, encompasses a total of 3.32 acres of the Site. According to the Detailed Mitigation Plan (Figure 23, attached). This area consists of 3.0 acres of riverine wetland enhancement and 0.32 acres of upland buffer restoration.

Area 2, as shown on the attached figure, encompasses a total of 2.56 acres of the adjacent preservation site. According to the Detailed Mitigation Plan (Figure 22, attached), this area consists of riverine wetland preservation.

As a resolution to the proposed impact, NCDOT proposes to reduce the number of acres, and corresponding credits, from the original number of acres and credits in the Bank to account for the areas within the proposed ROW corridor, as shown in the table below.

Bear Creek Mitigation Bank

Wetland Type	Original Acres/Credits	ROW Acres	Revised Acres/Credits
Wetland Enhancement	34.0 / 9.0	3.0	31.00 / 7.75
Upland Buffer Rest.	23.0 / no credit	0.32	22.68 / no credit
Wetland Preservation	300.0 / 30.0	2.56	297.44 / 29.74

If you have any questions or comments, please contact me at 919-715-1457. Thank you for your time and consideration of this proposal.

Sincerely,

LeiLani Paugh
ICI Onsite Mitigation Group
Natural Environment Unit

CC: Brian Wrenn, NCDWQ
Travis Wilson, NCWRC
Gary Jordan, USFWS
Chris Militscher, USEPA
Kathy Matthews, USEPA
Ron Lucas, FHWA
Jay McInnis, NCDOT
Bert Whitehurst, NCDOT
Marshall W. Clawson, NCDOT
Jamie Guerrero, NCDOT
Dave Schiller, Restoration Systems

TABLE 15
Mitigation Credit
Bear Creek-Mill Branch Mitigation Site

Mitigation Design Unit	Area (acres)	Mitigation Credit Ratio[1]	Replacement Credit (acre credits)
On-Site Riverine Wetland Restoration	88	1.8:1[2]	49
On-Site Riverine Wetland Enhancement	34	4:1	9
On-Site Upland Buffer Restoration	23	-----[2]	-----
Off-Site Riverine Wetland Preservation	300	10:1	30
TOTAL	445	5.06:1	88
Riparian Buffer Establishment	4	1770 linear feet both sides of channel (3rd order stream or less). If used, buffer credit will be allotted by reducing the wetland replacement credits by 1 credit per 885 feet of buffer (2 wetland credits total)[3].	
	4	1620 linear feet both sides of channel (fifth order river or less). If used, buffer credit will be allotted by reducing the wetland replacement credits by 1 credit per 1620 linear feet. (1 wetland credit total)[3].	
Neuse River Nitrogen Removal	-----	Projected 100,000 pounds/year (45,359 kilograms/year) (Table 3)	

1: Mitigation credit ratios denote mitigation acres : impact acres

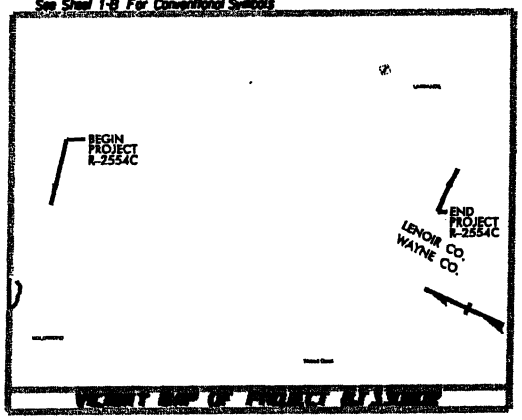
2: Restoration of upland ecotones and wetland buffers generates reduced credit ratios for wetland restoration in the complex. Because, upland discharge buffers may provide up to a 20% increase in wetland functions (NCDOT 1994), mitigation ratios in restored wetland areas are reduced to 1.8:1 to reflect derived wetland functional benefits.

3: Buffers for third order streams or less reside within wetland restoration areas. Therefore, the buffer acreage is deducted at a ratio of 2 acres of buffer : 1 wetland replacement acre-credit.
Buffers for fifth order rivers or less reside within upland buffer restoration areas. Therefore, the riparian buffer acreage is deducted at a ratio of 5 acres of buffer : 1 wetland replacement credit.

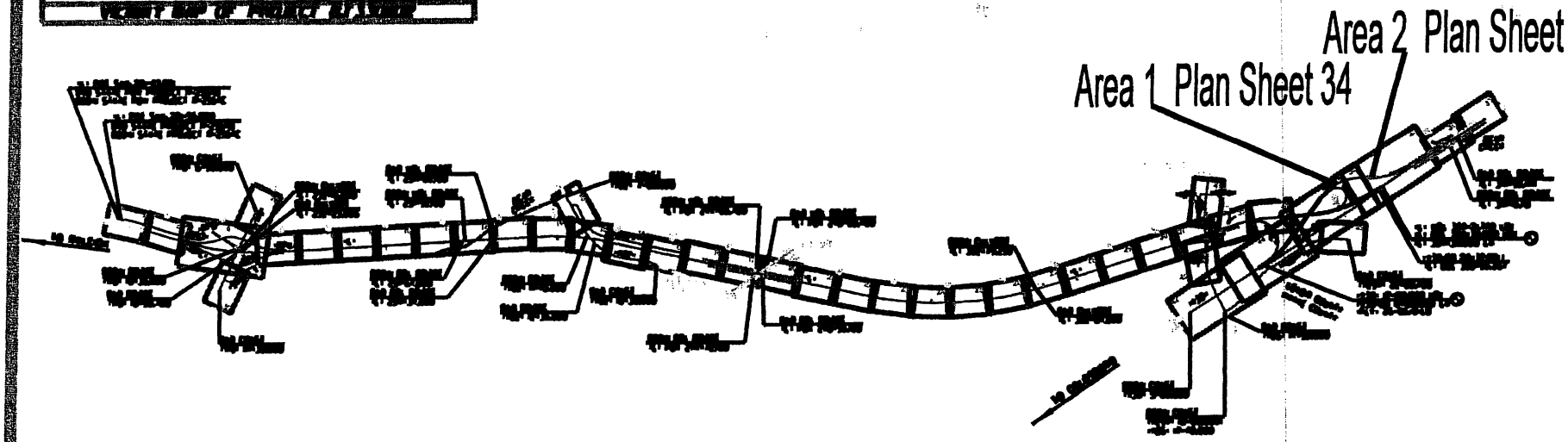
See Sheet 1-A For Table of Sheets
See Sheet 1-B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

METRIC



VICINITY MAP OF PROJECT LOCATION



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS LIMITED TO INTERCHANGES.

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

PROJECT:

GRAPHIC SCALES

DESIGN DATA

PROJECT LENGTH

PLANS PREPARED BY:
FLORENCE & HUTCHESON, INC.
CONSULTING ENGINEERS
RALEIGH, NC 27606

ALL WORK TO BE IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

PROJECT ENGINEER

PROJECT DESIGN ENGINEER

NCDOT CONTACT:
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.

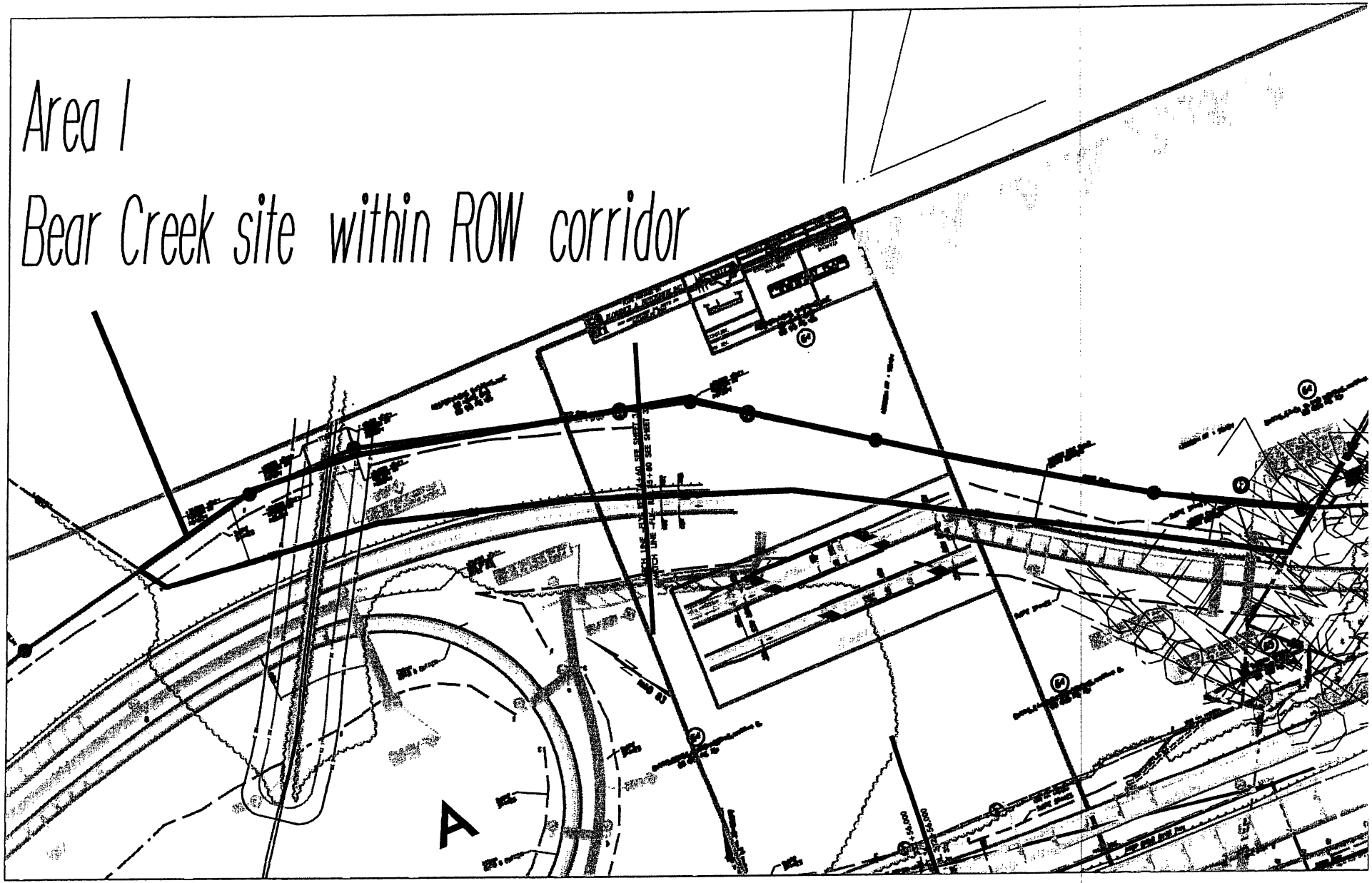
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR DATE

R2554C.TSH 08/02/2006 09:45:14 AM

Area 1

Bear Creek site within ROW corridor



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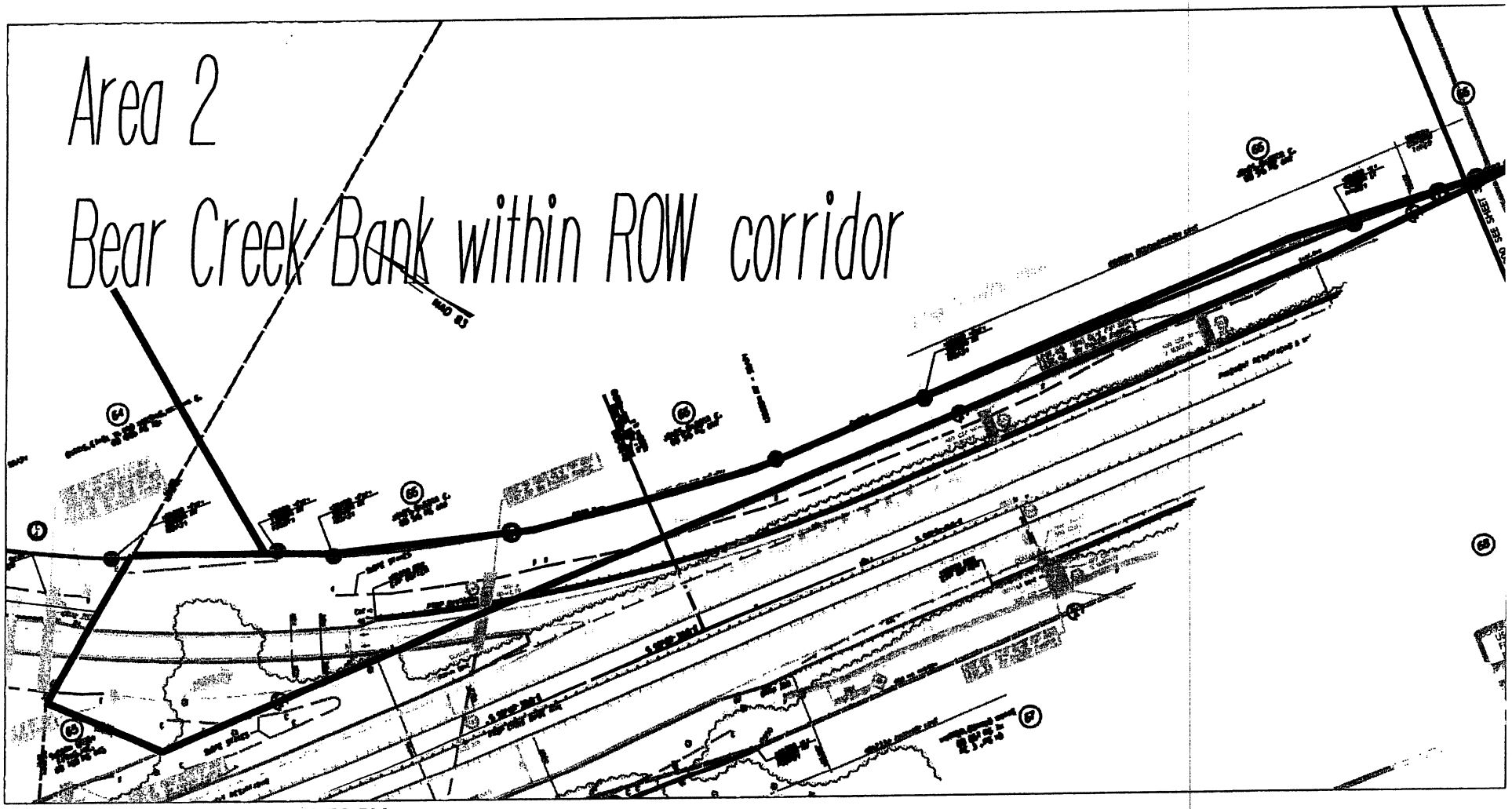

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STATE OF NORTH CAROLINA)

) MITIGATION AGREEMENT

COUNTY OF LENOIR)

Change Order #1

THIS CHANGE ORDER #1 ("Change Order"), made and entered into this 11 day of April, 2011, by and between the **NORTH CAROLINA DEPARTMENT OF TRANSPORTATION** ("NCDOT") and **RESTORATIONS SYSTEMS, LLC**, a North Carolina limited liability company ("Provider"), whose North Carolina address is 1101 Haynes Street, Suite 211, Raleigh, NC 27604 (collectively the "Parties").

GENERAL RECITALS

WITNESSETH:

WHEREAS, NCDOT and Provider entered into a MITIGATION AGREEMENT ("Mitigation Agreement") on September 1, 2000, whereby provider would provide NCDOT with eighty-eight (88) acres of wetland restoration, thirty-four (34) acres of wetland enhancement, three hundred (300) acres of wetland preservation, and twenty-three (23) acres of upland buffer preservation (the "Compensatory Mitigation") from the Bear Creek-Mill Branch Site (the "Site") located in Lenoir County, North Carolina for a total cost of $2,794,050.00 (original Mitigation Agreement, incorporated herein); and

WHEREAS, pursuant to entering said Mitigation Agreement, Provider implemented the Site to provide the agreed-to mitigation; and

WHEREAS, subsequent to implementing the Site, all success criteria for vegetation and hydrology have been met for all monitoring locations over the required five-year monitoring period; and

WHEREAS, RS has been fully compensated under the terms of the Mitigation Agreement; and

WHEREAS, the contractual obligations of both NCDOT and Provider have been fulfilled as set forth in the Mitigation Agreement; and

WHEREAS, on July 20, 2007, Provider received a written request from NCDOT's Right of Way Branch to acquire 5.88 acres ("Acreage") from the Site; and

WHEREAS, said Acreage is defined more particularly in **Exhibit B**; and

WHEREAS, Provider has agreed to grant NCDOT a temporary drainage easement over the drainage easement area ("Drainage Easement Area") through completion of construction of NCDOT TIP Project R-2554C; and

WHEREAS, the Drainage Easement Area is defined more particularly in **Exhibit C**; and

WHEREAS, removal of said acreage would reduce the amount of mitigation specified in the Mitigation Agreement, and

WHEREAS, Provider wishes to cooperate fully with NCDOT and transfer ownership of said acreage and grant a temporary drainage easement; and

NOW THEREFORE, in consideration of the promises herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

1.0 On page 3 of the Mitigation Agreement, the first sentence of paragraph 1 (Scope and Consideration) is replaced with the following:

1. **Scope and Consideration.** Provider shall complete, and make available to NCDOT as compensatory mitigation for its use, mitigation at and in the vicinity of the Site consisting of eighty-eight (88) acres of onsite wetland restoration, twenty-two and 68/100 (22.68) acres of on-site upland buffer preservation, thirty-one (31) acres of on-site wetland enhancement, and two hundred and ninety-seven and 44/100 (297.44) acres of wetland preservation ("the Compensatory Mitigation") in accordance with the terms of the Mitigation Agreement, attached as **Exhibit A**.

2.0 Provider agrees to transfer the Acreage in fee simple to NCDOT.

3.0 Provider agrees to grant NCDOT a temporary drainage easement over the Drainage Easement Area through completion of construction of NCDOT TIP Project R-2554C.

{Signatures Appear on Following Page}

In testimony whereof, the Parties have caused these presents to be executed by their proper officials thereunto properly authorized as of the dates below indicated:

EXECUTED by NCDOT this 11 day of April, 2010.

SEAL: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

By: _____

Director
Project Development & Environmental Analysis Branch

RECOMMENDED FOR APPROVAL

By: _____

Assistant Unit Manager
Natural Environment Unit

Approved as to execution: _____

Assistant Attorney General

Executed By PROVIDER this 8th day of April, 2010.

SEAL: RESTORATION SERVICES, LLC

By: _____

Title: Chief Operating Officer

Attests By: _____

Title: Project Manager

EXHIBIT B

ACREAGE DESCRIPTION

The approximately 5.88 acres of property ("Acreage") to be transferred from the Provider to NCDOT is described more particularly as follows:

Right of Way Right

Point of beginning being N 14^51'37" E, 38.28 meters from of a Point in the Center Line of -L- Sta. 339+00; thence to a point on a bearing of N 57^32'35" W, a distance of 365.76 meters (1200.0 feet); thence to a point on a bearing of N 58^03'22" W, a distance of 66.12 meters (216.9 feet); thence to a point on a bearing of N 13^04'11" W, a distance of 43.31 meters (142.1 feet); thence to a point on a bearing of N 83^49'31" E, a distance of 35.68 meters (117.1 feet); thence to a point on a bearing of N 27^14'58" W, a distance of 212.61 meters (697.5 feet); thence to a point on a bearing of N 37^20'17" W, a distance of 95.03 meters (311.8 feet); thence to a point on a bearing of N 41^19'45" W, a distance of 82.55 meters (270.8 feet); thence to a point on a bearing of N 52^04'51" W, a distance of 93.95 meters (308.2 feet); thence to a point on a bearing of N 00^10'55" W, a distance of 13.35 meters (43.8 feet); thence to a point on a bearing of S 70^18'07" E, a distance of 56.20 meters (184.4 feet); thence to a point on a bearing of S 58^29'02" E, a distance of 48.25 meters (158.3 feet); thence to a point on a bearing of S 42^22'09" E, a distance of 144.68 meters (474.7 feet); thence to a point on a bearing of S 23^08'15" E, a distance of 81.04 meters (265.9 feet); thence to a point on a bearing of S 23^47'47" E, a distance of 120.76 meters (396.2 feet); thence along a circular curve 62.53 meters (205.1 feet) and having a radius of 570.00 meters (1870.1 feet). The chord of said curve being on a bearing of S 28^26'29" E, a distance of 62.50 meters (205.0 feet); thence to a point on a bearing of S 37^28'01" E, a distance of 56.91 meters (186.7 feet); thence to a point on a bearing of S 29^16'25" E, a distance of 19.19 meters (62.9 feet); thence along a circular curve 155.80 meters (511.2 feet) and having a radius of 570.00 meters (1870.1 feet). The chord of said curve being on a bearing of S 47^03'14" E, a distance of 155.32 meters (509.6 feet); thence to a point on a bearing of S 56^40'42" E, a distance of 54.59 meters (179.1 feet); thence to a point on a bearing of S 56^23'26" E, a distance of 157.03 meters (515.2 feet); thence to a point on a bearing of S 54^49'21" E, a distance of 60.07 meters (197.1 feet); thence to a point on a bearing of N 60^28'19" W, a distance of 71.66 meters (235.1 feet); returning to the point and place of beginning. Having an area of 23815.23 Sqr Meters (256344.0 Sqr Feet) being 2.38 Hectares (approximately 5.88 Acres)

EXHIBIT C

DRAINAGE EASEMENT AREA DESCRIPTION

The Drainage Easement Area is described more particularly as follows:

Temporary Drainage Easement Left

Point of beginning being N 37^50'47" W, 845.66 meters from of a Point in the Center Line of -L- Sta. 339+00; thence to a point on a bearing of N 58^29'02" W, a distance of 20.01 meters (65.6 feet); thence to a point on a bearing of N 34^04'50" E, a distance of 9.55 meters (31.3 feet); thence to a point on a bearing of S 57^33'36" E, a distance of 20.38 meters (66.8 feet); thence to a point on a bearing of S 36^25'28" W, a distance of 9.25 meters (30.3 feet); returning to the point and place of beginning. Having an area of 189.50 Sqr Meters (2039.7 Sqr Feet) being 0.02 Hectares (LESS THAN 1 Acres)

Parcel Closure Is Forced

C

West's North Carolina General Statutes Annotated Currentness
Chapter 136. Transportation
Article 9. Condemnation (Refs & Annos)

→ § 136-104. Vesting of title and right of possession; recording memorandum or supplemental memorandum of action

Upon the filing of the complaint and the declaration of taking and deposit in court, to the use of the person entitled thereto, of the amount of the estimated compensation stated in the declaration, title to said land or such other interest therein specified in the complaint and the declaration of taking, together with the right to immediate possession hereof shall vest in the Department of Transportation and the judge shall enter such orders in the cause as may be required to place the Department of Transportation in possession, and said land shall be deemed to be condemned and taken for the use of the Department of Transportation and the right to just compensation therefor shall vest in the person owning said property or any compensable interest therein at the time of the filing of the complaint and the declaration of taking and deposit of the money in court, and compensation shall be determined and awarded in said action and established by judgment therein.

Where there is a life estate and a remainder either vested or contingent, in lieu of the investment of the proceeds of the amount determined and awarded as just compensation to which the life tenant would be entitled to the use during the life estate, the court may in its discretion order the value of said life tenant's share during the probable life of such life tenant be ascertained as now provided by law and paid directly to the life tenant out of the final award as just compensation established by the judgment in the cause and the life tenant may have the relief provided for in G.S. 136-105.

On and after July 1, 1961, the Department of Transportation, at the time of the filing of the complaint and declaration of taking and deposit of estimated compensation, shall record a memorandum of action with the register of deeds in all counties in which the land involved therein is located and said memorandum shall be recorded among the land records of said county. Upon the amending of any complaint and declaration of taking affecting the property taken, the Department of Transportation shall record a supplemental memorandum of action. The memorandum of action shall contain

(1) The names of those persons who the Department of Transportation is informed and believes may have or claim to have an interest in said lands and who are parties to said action;

(2) A description of the entire tract or tracts affected by said taking sufficient for the identification thereof;

(3) A statement of the estate or interest in said land taken for public use;

(4) The date of institution of said action, the county in which said action is pending, and such other reference thereto as may be necessary for the identification of said action.

As to those actions instituted by the Department of Transportation under the provisions of this Article prior to July 1, 1961, the Department of Transportation shall, on or before October 1, 1961, record a memorandum of action with the register of deeds in all counties in which said land is located as hereinabove set forth; however, the failure of the Department of Transportation to record said memorandum shall not invalidate those actions instituted prior to July 1, 1961.

CREDIT(S)

Added by Laws 1959, c. 1025, § 2. Amended by Laws 1961, c. 1084, § 2; Laws 1963, c. 1156, § 2; Laws 1973, c. 507, § 5; Laws 1975, c. 522, § 1; Laws 1977, c. 464, § 7.1.

CROSS REFERENCES

Vesting of title and right of possession in condemned property subject to conservation easement, see § 40A-83.

LIBRARY REFERENCES

Eminent Domain ⚿152(1), 153, 166, 187, 194, 319, 320.
Westlaw Key Number Searches: 148k152(1); 148k153; 148k166; 148k187; 148k194; 148k319; 148k320.
C.J.S. Eminent Domain §§ 188, 192, 194, 201, 209 to 212, 265, 419 to 420.

RESEARCH REFERENCES

Encyclopedias

Strong's N.C. Index 4th, Eminent Domain § 16, Authority to Condemn Multiple Tracts in One Proceeding.

Strong's N.C. Index 4th, Eminent Domain § 173, Life Estate.

Strong's N.C. Index 4th, Eminent Domain § 224, Filing of Memorandum and Supplemental Memorandum of Action.

Strong's N.C. Index 4th, Eminent Domain § 283, Right to Possession and Title--Public Condemnors.

Treatises and Practice Aids

North Carolina Law of Damages § 26:1, Acquisition of Property for Public Road Purposes.

NOTES OF DECISIONS

1. In general

Highway department did not have right to submit to nonsuit and avoiding payment of compensation, on grounds it had not in fact taken any property from condemnee but had merely, in exercise of police power, prescribed manner in which condemnees might have access to controlled access highway, where complaint and declaration of taking expressly asserted a taking even though description of what was purportedly taken demonstrated nothing was in fact taken. North Carolina State Highway Commission v. York Indus. Center, Inc., 1964, 139 S.E.2d 253, 263 N.C. 230. Eminent Domain ⚿246(2)

2. Rights after filing and deposit--In general

Under statutes authorizing Department of Administration to acquire land by condemnation, title to condemned land and right to immediate possession vests in DOA as soon as DOA has filed complaint and declaration of taking and deposited with court the estimated compensation. State v. Forehand, 1984, 312 S.E.2d 247, 67 N.C.App. 148, review denied 317 S.E.2d 904, 311 N.C. 307. Eminent Domain ⚿320

State grant for wharf purposes which conveyed submerged lands under navigable waters merely conveyed appurtenant easement to erect wharves to riparian owner and corporation which claimed pursuant to that grant did not have fee title interest in land built up by natural processes above high tide line. State v. Forehand, 1984, 312 S.E.2d 247, 67 N.C.App. 148, review denied 317 S.E.2d 904, 311 N.C. 307. Water Law ⚿2680

Having taken and paid for permanent easement for flooding in defined portion of property, the

state had a right to permanent use of easement taken without incurring further liability to the landowner or its successors in title; thus, refusal of trial court to apply doctrine of moving to the nuisance or priority of occupation would not subject state to liability for unlimited future damages. Lea Co. v. North Carolina Bd. of Transp., 1983, 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚷318

Filing of complaint and declaration of taking, together with payment of any deposit into court, vests title and right of possession in condemning authority as of the date of filing. Department of Transp. v. Bragg, 1982, 296 S.E.2d 657, 59 N.C.App. 344, review allowed 299 S.E.2d 646, 307 N.C. 576, reversed 302 S.E.2d 227, 308 N.C. 367. Eminent Domain ⚷187

Under statutes governing exercise by the Department of Transportation of its powers of eminent domain, title to land or other interest in question, as well as right to immediate possession, vests in the Department upon filing of the complaint, declaration of taking, and deposit of estimated compensation. Pelham Realty Corp. v. Board of Transp., 1981, 279 S.E.2d 826, 303 N.C. 424. Eminent Domain ⚷187; Eminent Domain ⚷320

Under statutes governing exercise by the Department of Transportation of its powers of eminent domain, title to land or other interest in question, as well as right to immediate possession, vests in the Department upon filing of the complaint, declaration of taking, and deposit of estimated compensation. Pelham Realty Corp. v. Board of Transp., 1981, 279 S.E.2d 826, 303 N.C. 424. Eminent Domain ⚷187; Eminent Domain ⚷320

Title and immediate right to possession is vested in State Highway Commission upon filing of condemnation complaint, declaration of taking and deposit in court of amount of estimated compensation stated in declaration. City of Kings Mountain v. Goforth, 1973, 196 S.E.2d 231, 283 N.C. 316. Eminent Domain ⚷187; Eminent Domain ⚷320

Upon filing of condemnation complaint and declaration of taking and the deposit in court, title and right to immediate possession of property within right-of-way of project vested in highway commission. North Carolina State Highway Commission v. Myers, 1967, 154 S.E.2d 87, 270 N.C. 258. Eminent Domain ⚷187

When power and light company in condemnation proceeding paid into office of clerk of superior court amount of damages assessed by commissioners, company acquired right to enter, take possession of, and hold property until final judgment was rendered on pending appeal. Carolina Power & Light Co. v. Briggs, 1966, 150 S.E.2d 16, 268 N.C. 158. Eminent Domain ⚷187

3. ---- Former owners, rights after filing and deposit

When Department of Administration files complaint and declaration of taking and deposits with court the estimated compensation, right to just compensation vests in person who owned land or any compensable interest therein immediately before filing of complaint, declaration of taking and

deposit of money in court; that person has nothing he can sell pending ascertainment of just compensation. State v. Forehand, 1984, 312 S.E.2d 247, 67 N.C.App. 148, review denied 317 S.E.2d 904, 311 N.C. 307. Eminent Domain ⚿319

Where Department of Administration filed complaint and declaration of taking and deposited with court estimated compensation before grantor conveyed property which was subject of condemnation action to corporation, grantor had nothing to convey and corporation received no right to compensation and no right to intervene in condemnation proceeding. State v. Forehand, 1984, 312 S.E.2d 247, 67 N.C.App. 148, review denied 317 S.E.2d 904, 311 N.C. 307. Eminent Domain ⚿153; Eminent Domain ⚿178; Eminent Domain ⚿319

Trial on the merits, rather than hearing on motion to disburse condemnation funds, was proper proceeding in which to assert that simultaneous acquisition by condemnor of the fee determinable and possibility of reverter created a fee simple in condemnor and rendered possibility of reverter valueless as well as issue whether building was a real fixture subject to reversion clause. Board of Transp. v. Greene, 1978, 241 S.E.2d 152, 35 N.C.App. 187. Eminent Domain ⚿319

When Highway Commission exercises its right of eminent domain in accordance with statute, right to compensation rests in person who owned land immediately prior to filing of complaint and declaration of taking and that person has nothing he can sell pending ascertainment of fair compensation. City of Kings Mountain v. Goforth, 1973, 196 S.E.2d 231, 283 N.C. 316. Eminent Domain ⚿152(1)

"Compensable interest" referred to in statute providing that right to just compensation for property condemned shall vest in person owning said property or any compensable interest therein at time of filing of complaint and declaration of taking and deposit of money in court refers to an interest in the property condemned. North Carolina State Highway Commission v. Hettiger, 1967, 155 S.E.2d 469, 271 N.C. 152. Eminent Domain ⚿152(1)

The right retained by condemnees under their contract of sale of part of their land before condemnation of the remainder, to all damages occasioned by construction of highway through their premises was not "compensable interest" within statute providing that right to just compensation for property condemned shall vest in person owning any compensable interest therein at time of filing of complaint, etc., and condemnees were not entitled to recover the amount of decrease caused by public knowledge of the prospective taking, in value of the property condemnees sold. North Carolina State Highway Commission v. Hettiger, 1967, 155 S.E.2d 469, 271 N.C. 152. Eminent Domain ⚿153

Involuntary transfer of title to real property incident to filing of condemnation petition and declaration of taking, accompanied with deposit in court of estimated just compensation, did not destroy an estate by the entirety, and the compensation paid had status of real property owned by husband and wife as tenants by the entirety. North Carolina State Highway Commission v. Myers, 1967, 154 S.E.2d 87, 270 N.C. 258. Eminent Domain ⚿245; Husband And Wife ⚿14.2(5)

Right to compensation rests in person who owned land immediately prior to filing of complaint and declaration of taking and he has nothing he can sell pending ascertainment of fair compensation. North Carolina State Highway Commission v. York Indus. Center, Inc., 1964, 139 S.E.2d 253, 263 N.C. 230. Eminent Domain ⚿153

4. Compensation generally

Eminent domain case involving land for park was not moot where, under the applicable statute, title to property in question vested in city on day on which city filed complaint and declaration of taking, and deposited in court the estimated amount of compensation due, after which date the city owned the land, so that property owners were entitled to a determination of just compensation for taking of their property. City of Durham v. Manson, 1974, 208 S.E.2d 662, 285 N.C. 741. Action ⚿6

Condemnees were not entitled to recover any damages, other than interest, for loss of use of their property between time they vacated it and time defendant condemning state highway commission deposited its estimate of just compensation for the property appropriated, even if condemnor had falsely represented to them that it would demolish their residence on certain date with intent to force condemnees from their homes before it was actually necessary for them to leave and if, acting in reliance upon that representation condemnees vacated their property and acquired another residence. Davis v. North Carolina State Highway Commission, 1967, 156 S.E.2d 685, 271 N.C. 405. Eminent Domain ⚿302

Condemnees could not change statutory provisions, relating to time of and basis for compensation to be paid when property was condemned, by agreement made with purchasers of part of condemnees' property in anticipation of condemnation of remainder. North Carolina State Highway Commission v. Hettiger, 1967, 155 S.E.2d 469, 271 N.C. 152. Eminent Domain ⚿124

5. Recording of memorandum

Purpose of eminent domain statute requiring filing of memorandum of action with register of deeds is to assure public record of change in ownership. State v. Johnson, 1971, 179 S.E.2d 371, 278 N.C. 126. Lis Pendens ⚿2

6. Multiple tracts of land

Condemnation statutes do not require that multiple tracts be contiguous in a condemnation proceeding. Board of Transp. v. Royster, 1979, 251 S.E.2d 921, 40 N.C.App. 1. Eminent Domain ⚿166

A single condemnation proceeding may include more than one tract of land and may be amended to include additional land provided that such is described in the complaint and declaration of

taking and in the land records of the county through a memorandum of action and, further, that the deposit is increased if the sum estimated for just compensation is increased. Board of Transp. v. Royster, 1979, 251 S.E.2d 921, 40 N.C.App. 1. Eminent Domain ⚿74; Eminent Domain ⚿166; Eminent Domain ⚿194; Lis Pendens ⚿13

7. Pleadings

Owners' failure to answer condemnation proceeding filed by the Department of Transportation was not a fatal defect in light of stipulation between the parties and since rights of neither party had been violated or prejudiced by owners' failure to file an answer. Pelham Realty Corp. v. Board of Transp., 1981, 279 S.E.2d 826, 303 N.C. 424. Eminent Domain ⚿192

If there is an amendment affecting the property at issue in an eminent domain proceeding a supplemental memorandum of action is required; purpose of such memorandum is that any amendment affecting the property taken will be entered in the land records of the county. Board of Transp. v. Royster, 1979, 251 S.E.2d 921, 40 N.C.App. 1. Lis Pendens ⚿21

Although tracts owned by defendants in eminent domain were not contiguous but were separated by a public road, the Board of Transportation could have included both tracts in a single condemnation and, hence had right to amend the proceeding, which actually was brought only against one tract, to include the other, provided that the amendment was made in compliance with the condemnation statute and Rules of Civil Procedure; since no answer had been filed, amendment was properly made without leave of court. Board of Transp. v. Royster, 1979, 251 S.E.2d 921, 40 N.C.App. 1. Eminent Domain ⚿194

Purpose of eminent domain statute requiring, on amendment of complaint and declaration of taking, recordation of supplemental memorandum of action is to assure that any change in complaint or declaration of taking which affects property will be entered into land records of county. State v. Johnson, 1971, 179 S.E.2d 371, 278 N.C. 126. Lis Pendens ⚿21

Under eminent domain statute requiring recordation of supplemental memorandum of action, on amendment of any complaint and declaration of taking affecting property taken, supplemental memorandum is required only where amendment to complaint and declaration of taking affects property taken. State v. Johnson, 1971, 179 S.E.2d 371, 278 N.C. 126. Lis Pendens ⚿21

8. Waiver of objections

Where property owners petitioned to withdraw $8,500 from sum of $8,650 deposited by city with clerk of superior court as estimated compensation due for taking of property and payment was ordered to be made in amount requested in petition, property owners could not, having accepted benefits under statute under which city proceeded, attack constitutionality of statute, jurisdiction of court to enter order putting city in possession or failure of city to comply strictly with provisions of statute. City of Durham v. Bates, 1968, 160 S.E.2d 60, 273 N.C. 336. Constitutional Law

951; Courts 37(3); Estoppel 92(4)

N.C.G.S.A. § **136-104**, NC ST § **136-104**

Current through Chapter 18.

END OF DOCUMENT

C

West's North Carolina General Statutes Annotated Currentness
Chapter 136. Transportation
Article 9. Condemnation (Refs & Annos)
→ **§ 136-112. Measure of damages**

The following shall be the measure of damages to be followed by the commissioners, jury or judge who determines the issue of damages:

(1) Where only a part of a tract is taken, the measure of damages for said taking shall be the difference between the fair market value of the entire tract immediately prior to said taking and the fair market value of the remainder immediately after said taking, with consideration being given to any special or general benefits resulting from the utilization of the part taken for highway purposes.

(2) Where the entire tract is taken the measure of damages for said taking shall be the fair market value of the property at the time of taking.

CREDIT(S)

Added by Laws 1959, c. 1025, § 2.

LIBRARY REFERENCES

Eminent Domain ⚿124, 135, 222(4)-222(6).
Evidence ⚿555.6.
Westlaw Key Number Searches: 148k124; 148k135; 148k222(4) to 148k222(6); 157k555.6.
C.J.S. Eminent Domain §§ 123, 126, 172 to 177, 309 to 311.
C.J.S. Evidence §§ 662 to 663.

RESEARCH REFERENCES

ALR Library

13 ALR 3rd 1149, Eminent Domain: Deduction of Benefits in Determining Compensation or Damages in Proceedings Involving Opening, Widening, or Otherwise Altering Highway.

95 ALR 2nd 887, Unity of Ownership Necessary to Allowance of Severance Damages in Eminent Domain.

85 ALR 2nd 110, Admissibility on Issue of Value of Real Property of Evidence of Sale Price of Other Real Property.

Encyclopedias

Strong's N.C. Index 4th, Constitutional Law § 92, Rationality of Classification and Statutory Purpose; Federal Aspects.

Strong's N.C. Index 4th, Constitutional Law § 93, Rationality of Classification and Statutory Purpose; Federal Aspects--Judicial Review; Strict Scrutiny Test.

Strong's N.C. Index 4th, Eminent Domain § 120, General and Special Benefits.

Strong's N.C. Index 4th, Eminent Domain § 156, Capabilities and Uses of Property.

Strong's N.C. Index 4th, Eminent Domain § 226, Pleading Compliance With Statutory Procedural Requirements.

Strong's N.C. Index 4th, Eminent Domain § 247, Burden to Prove Existence of General and Special Benefits.

Strong's N.C. Index 4th, Eminent Domain § 251, Just Compensation.

Strong's N.C. Index 4th, Evidence and Witnesses § 576, Eminent Domain; Condemnation and Inverse Condemnation Actions.

Strong's N.C. Index 4th, Evidence and Witnesses § 577, Eminent Domain; Condemnation and Inverse Condemnation Actions--Value of Property.

Strong's N.C. Index 4th, Evidence and Witnesses § 2394, Realty, Buildings and Structures; Generally--Comparability of Property Used for Comparison.

Strong's N.C. Index 4th, Evidence and Witnesses § 2405, Appraisal.

Treatises and Practice Aids

North Carolina Law of Damages § 16:9, Taking of Entire, Portions Of, and Unified Tracts.

North Carolina Law of Damages § 26:1, Acquisition of Property for Public Road Purposes.

North Carolina Law of Damages § 16:10, Consequential Damages.

North Carolina Law of Damages § 16:11, General and Special Benefits.

NOTES OF DECISIONS

1/2. Validity

Statute allowing jury to consider general benefits when it calculates just compensation for a partial taking for construction of highway does not trigger strict scrutiny under equal protection clause, in that statute neither classifies on basis of a suspect classification nor infringes upon a fundamental right. Department of Transp. v. Rowe, 2001, 353 N.C. 671, 549 S.E.2d 203, certiorari denied 122 S.Ct. 1070, 534 U.S. 1130, 151 L.Ed.2d 972. Constitutional Law ⚿3502

Statute allowing jury to consider general benefits when it calculates just compensation for a partial taking for construction of highway does not violate equal protection clauses of Federal or State Constitutions; although another statute governing compensation for a taking by local or private entities allows a property owner to choose the greater of fair market value before and after property is taken or fair market value of property taken, General Assembly could have determined that public and private condemnors could offset some of their costs through user fees for service installed through condemnation, and it was reasonable for General Assembly to have determined that, having given power of eminent domain across to local and private entities, the best way to ensure that a citizen whose property was taken by eminent domain would receive just compensation was by giving him a choice. Department of Transp. v. Rowe, 2001, 353 N.C. 671, 549 S.E.2d 203, certiorari denied 122 S.Ct. 1070, 534 U.S. 1130, 151 L.Ed.2d 972. Constitutional Law ⚿3502; Eminent Domain ⚿123

Statutory rule allowing special benefits to affect the value of the remaining tract of land does not violate the constitutional requirement of providing just compensation in condemnation proceedings. Department of Transp. v. Rowe, 2000, 138 N.C.App. 329, 531 S.E.2d 836, review denied 352 N.C. 588, 544 S.E.2d 772, reversed 353 N.C. 671, 549 S.E.2d 203, certiorari denied 122 S.Ct. 1070, 534 U.S. 1130, 151 L.Ed.2d 972. Eminent Domain ⚿123

Statutory provision allowing general benefits to affect value of remaining tract of land violates constitutional requirement of providing just compensation in condemnation proceedings. Department of Transp. v. Rowe, 2000, 138 N.C.App. 329, 531 S.E.2d 836, review denied 352 N.C. 588, 544 S.E.2d 772, reversed 353 N.C. 671, 549 S.E.2d 203, certiorari denied 122 S.Ct. 1070, 534 U.S. 1130, 151 L.Ed.2d 972. Eminent Domain ⚿123

Claim that equal protection clause was violated by method of determining just compensation in condemnation cases brought by Department of Transportation was subject to strict scrutiny. Department of Transp. v. Rowe, 2000, 138 N.C.App. 329, 531 S.E.2d 836, review denied 352 N.C.

588, 544 S.E.2d 772, reversed 353 N.C. 671, 549 S.E.2d 203, certiorari denied 122 S.Ct. 1070, 534 U.S. 1130, 151 L.Ed.2d 972. Constitutional Law 3502

Method of determining just compensation when Department of Transportation condemns a portion of land violates equal protection clause; there is no compelling governmental interest to treat condemnations by Department of Transportation and other entities differently, and there is no compelling interest in denying just compensation to property owners who had only a part of the land condemned. Department of Transp. v. Rowe, 2000, 138 N.C.App. 329, 531 S.E.2d 836, review denied 352 N.C. 588, 544 S.E.2d 772, reversed 353 N.C. 671, 549 S.E.2d 203, certiorari denied 122 S.Ct. 1070, 534 U.S. 1130, 151 L.Ed.2d 972. Constitutional Law 3502; Eminent Domain 123

Statute governing measure of damages in Department of Transportation (DOT) condemnation action provides "just compensation," and thus, it does not violate due process clause of federal constitution or "law of the land" clause of state constitution. Department of Transp. v. Mahaffey, 2000, 137 N.C.App. 511, 528 S.E.2d 381. Constitutional Law 4076; Eminent Domain 71

1. In general

Reasonable use doctrine, which governs disposal of surface waters among private parties, has no application in condemnation proceedings. Board of Transp. v. Terminal Warehouse Corp., 1980, 268 S.E.2d 180, 300 N.C. 700. Eminent Domain 98

Damages are to be awarded in condemnation proceedings to compensate for loss sustained by the landowner, which compensation must be full and complete, and include everything which affects the value of the property and its relation to entire property affected. State Highway Commission v. Phillips, 1966, 148 S.E.2d 282, 267 N.C. 369. Eminent Domain 122

2. Interest taken

Because land at issue in condemnation proceedings arising from Department of Transportation's (DOT) plan to widen highway that traversed condemnees' property would be taken only from southern tract, expert real estate appraiser was not required to include northern tract in his calculation of value. Department of Transp. v. Tilley, 2000, 136 N.C.App. 370, 524 S.E.2d 83, review denied 351 N.C. 640, 543 S.E.2d 868, certiorari denied 121 S.Ct. 186, 531 U.S. 878, 148 L.Ed.2d 129. Eminent Domain 136

Two tracts of land, portions of which were being taken for highway right-of-way purposes, although physically unified and unified in ownership, were separate and distinct tracts for purpose of determining damages where they were purchased as separate tracts at different times, considered by owners to be separate tracts, and put to different usages with usage of neither tract necessary to usage or enjoyment of the other. North Carolina Dept. of Transp. v. Kaplan, 1986, 343 S.E.2d 182, 80 N.C.App. 401, review denied 347 S.E.2d 437, 317 N.C. 705. Eminent Domain 137

To recover under section providing that, where only part of tract is taken, measure of damages for taking shall be difference between fair market value of entire tract immediately prior to taking and fair market value of remainder immediately after taking, area affected and area taken must constitute a single tract. State v. Forehand, 1984, 312 S.E.2d 247, 67 N.C.App. 148, review denied 317 S.E.2d 904, 311 N.C. 307. Eminent Domain ⚿136

Where condemned parcel was separate tract, amount of damages was fair market value of property at time of taking. City of Winston-Salem v. Davis, 1982, 296 S.E.2d 21, 59 N.C.App. 172, review denied 299 S.E.2d 214, 307 N.C. 269. Eminent Domain ⚿137

Where certain parcel of land was subjected to use unrelated to operation of family's cattle farm, and was separated physically from tract taken, it could not reasonably be regarded as part of unified farm for purposes of assessing damages for partial taking. City of Winston-Salem v. Tickle, 1981, 281 S.E.2d 667, 53 N.C.App. 516, review denied 288 S.E.2d 808, 304 N.C. 724. Eminent Domain ⚿137

In absence of exceptional circumstances, if both fee simple determinable estate and possibility of reverter are condemned and if, at time of taking, event which would otherwise terminate fee simple determinable is not probability for near future, award is made on basis of full market value of land without restrictions as to its use. City of Charlotte v. Charlotte Park and Recreation Commission, 1971, 178 S.E.2d 601, 278 N.C. 26. Eminent Domain ⚿147

2.5. Special benefits

"Special benefits," which jury may consider when it calculates just compensation for a partial taking for construction of highway, are increases in value of land which arise from the peculiar relation of land in question to the public improvement. Department of Transp. v. Rowe, 2001, 353 N.C. 671, 549 S.E.2d 203, certiorari denied 122 S.Ct. 1070, 534 U.S. 1130, 151 L.Ed.2d 972. Eminent Domain ⚿146

"Special benefits," which jury may consider when it calculates just compensation for a partial taking for construction of highway, include rise in property value due to newly acquired frontage on a public street. Department of Transp. v. Rowe, 2001, 353 N.C. 671, 549 S.E.2d 203, certiorari denied 122 S.Ct. 1070, 534 U.S. 1130, 151 L.Ed.2d 972. Eminent Domain ⚿146

Statutory term "special benefits," as used in statute setting forth method used to determine just compensation when only a part of a tract of land is taken for construction of highways, refers to those benefits which arise from the peculiar relation of the land in question to the public improvement, while the term "general benefits" refers to those benefits which accrue to the public at large by reason of increased community property resulting from the project. Department of Transp. v. Rowe, 2000, 138 N.C.App. 329, 531 S.E.2d 836, review denied 352 N.C. 588, 544 S.E.2d 772, reversed 353 N.C. 671, 549 S.E.2d 203, certiorari denied 122 S.Ct. 1070, 534 U.S.

1130, 151 L.Ed.2d 972. Eminent Domain ⚿136

3. Fair market value--In general

For purposes of determining just compensation in a condemnation case, in arriving at the fair market value immediately prior to the taking, the determinative question is what was the value of the land, in its condition on the day of taking, for the highest and best use to which it would be put by owners possessed of prudence, wisdom and adequate means. Progress Energy Carolinas, Inc. v. Strickland, 2009, 200 N.C.App. 600, 685 S.E.2d 521. Eminent Domain ⚿134

Methods of appraisal acceptable in determining fair market value include: (1) comparable sales, (2) capitalization of income, and (3) cost. Department of Transp. v. Haywood Oil Co., 2009, 195 N.C.App. 668, 673 S.E.2d 712, appeal dismissed , review denied 363 N.C. 652, 684 S.E.2d 692. Eminent Domain ⚿131

For purposes of eminent domain, the fair market value of a property may be defined as the price which a willing buyer would pay to purchase the asset on the open market from a willing seller, with neither party being under any compulsion to complete the transaction. City of Charlotte v. Hurlahe, 2006, 178 N.C.App. 144, 631 S.E.2d 28. Eminent Domain ⚿131

In property owners' inverse-condemnation action, judge or jury would determine the amount of just compensation due owners by calculating difference between fair market value of owners' entire tract prior to city's taking of both permanent sanitary sewer easement and temporary construction easement and fair market value of remainder of owners' property immediately after both taking of these easements and completion of project itself; this calculation was required to include any potential damage caused to remainder of owners' property due to use of easements. City of Charlotte v. Long, 2006, 175 N.C.App. 750, 625 S.E.2d 161. Eminent Domain ⚿138; Eminent Domain ⚿143

In inverse condemnation proceedings involving partial taking of property, fair market value of the remainder immediately after the taking contemplates the project in its completed state and any damage to the remainder due to the use to which the part appropriated may, or probably will, be put. City of Charlotte v. Long, 2006, 175 N.C.App. 750, 625 S.E.2d 161. Eminent Domain ⚿138

The market value of the condemned property is to be determined on the basis of the conditions existing at the time of the taking. Department of Transp. v. Mahaffey, 2000, 137 N.C.App. 511, 528 S.E.2d 381. Eminent Domain ⚿124

When condemned property is unavailable for a particular use because of a zoning ordinance, the possibility the property may be re-zoned may be taken into consideration in determining its value if there is a reasonable probability of a change in the near future. Department of Transp. v. Mahaffey, 2000, 137 N.C.App. 511, 528 S.E.2d 381. Eminent Domain ⚿134

If the possibility that condemned property may be re-zoned is purely speculative, such possibility should not be considered in determining its value. Department of Transp. v. Mahaffey, 2000, 137 N.C.App. 511, 528 S.E.2d 381. Eminent Domain ⚿134

The statute setting forth the exclusive measure of damages to be used by the "commissioners, jury or judge" in a condemnation case does not restrict expert real estate appraisers to one particular method of ascertaining the fair market value of the property taken. Department of Transp. v. Tilley, 2000, 136 N.C.App. 370, 524 S.E.2d 83, review denied 351 N.C. 640, 543 S.E.2d 868, certiorari denied 121 S.Ct. 186, 531 U.S. 878, 148 L.Ed.2d 129. Evidence ⚿555.6(3)

One whose land is condemned is not entitled to its value increased by project for which it was condemned. Ferrell v. Department of Transp., 1993, 334 N.C. 650, 435 S.E.2d 309. Eminent Domain ⚿124

In determining fair market value of land condemned, essential inquiry is what property is worth in market, viewed not merely with reference to uses to which it is at the time applied but uses to which it is plainly adapted, i. e., what it is worth by reason of its availability for all valuable uses. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Eminent Domain ⚿131

In appraising undeveloped tract of land which is adaptable to subdivision, question is not what tract might be worth if subdivided and sold as improved lots but what it was worth in open market in its existing condition on day of taking. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Eminent Domain ⚿134

Any sale to prospective condemnor is highly unlikely to be fair test of market value, and preliminary determination by trial judge that sale was not tainted by compulsion or compromise cannot establish it as reliable standard. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Evidence ⚿142(1)

Alleged inconsiderate and unwarranted delay by condemnor in negotiations with condemnees and in instituting condemnation action was irrelevant to determination of what constituted just compensation for property condemned. North Carolina State Highway Commission v. Hettiger, 1967, 155 S.E.2d 469, 271 N.C. 152. Eminent Domain ⚿130

3.5. ---- Similar property, fair market value

Witness who testified as to an alleged comparable sale in partial condemnation action could testify as to the original purchase price of a nearby 41-acre parcel and how that purchase price factored into the price used to convey approximately 11 acres of that parcel in an in-house transfer, even though the sales price of that 11-acre parcel was inadmissible comparable sales evidence due to the in-house nature of the transaction; it was uncontested that the 11 acres transferred were similar in nature, location, and condition to the subject property, and it was uncontested that the purchase

price of the original 41-acre property was the result of an arms-length transaction. Department of Transp. v. Haywood Oil Co., 2009, 195 N.C.App. 668, 673 S.E.2d 712, appeal dismissed , review denied 363 N.C. 652, 684 S.E.2d 692. Evidence ⚿142(1)

Evidence concerning price for which nearby property sold in voluntary sale was properly excluded in Department of Transportation (DOT) condemnation action, involving land that was zoned residential; nearby property was too dissimilar, as, although it had been zoned for agricultural or residential use prior to its sale, it was currently zoned for commercial use. Department of Transp. v. Mahaffey, 2000, 137 N.C.App. 511, 528 S.E.2d 381. Evidence ⚿142(1)

Sales prices of voluntary sales of property similar in nature, location, and condition to property being condemned is admissible as evidence of the value of the condemned land, so long as the other sales are not too remote in time. Department of Transp. v. Mahaffey, 2000, 137 N.C.App. 511, 528 S.E.2d 381. Evidence ⚿142(1)

Whether the properties are sufficiently similar to admit evidence of the voluntary sale of one in an action for the condemnation of the other is a question to be determined by the trial judge in his sound discretion, usually upon voir dire, and such decisions will not be disturbed on appeal absent an abuse of that discretion. Department of Transp. v. Mahaffey, 2000, 137 N.C.App. 511, 528 S.E.2d 381. Eminent Domain ⚿262(1); Evidence ⚿142(1)

4. ---- Partial taking generally, fair market value

Measure of damages to be used in condemnation case in which the state does not take plaintiff's property in its entirety is the difference between the fair market value of entire tract immediately prior to taking and the fair market value of the remainder immediately after taking less any special or general benefits. Lea Co. v. North Carolina Bd. of Transp., 1983, 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿136; Eminent Domain ⚿146

In determining the fair market value of the remaining property, the owner is entitled to recover compensation for any damage caused to the remainder as a result of the condemnor's use of the appropriated portion. Department of Transp. v. Bragg, 1983, 302 S.E.2d 227, 308 N.C. 367. Eminent Domain ⚿136

The fair market value of the remainder immediately after the taking contemplates the project in its completed state and any damage to the remainder due to the use to which the part appropriated may, or probably will, be put. Department of Transp. v. Bragg, 1983, 302 S.E.2d 227, 308 N.C. 367. Eminent Domain ⚿136

When the Department of Transportation condemns only part of a tract of land, the owners of the land are entitled to receive the difference between the fair market value of the entire tract immediately before the taking and the fair market value of the remaining property after the taking, less any general and special benefits. Department of Transp. v. Bragg, 1983, 302 S.E.2d 227, 308 N.C.

367. Eminent Domain ⚿136; Eminent Domain ⚿146

In applying eminent domain statute governing the measure of damages, the fair market value of the remainder immediately after the taking contemplates the project in its completed stage and any damage to the remainder due to the user to which the part appropriated may, or probably will be put. Board of Transp. v. Bryant, 1982, 296 S.E.2d 814, 59 N.C.App. 256. Eminent Domain ⚿138

For purpose of statute measuring damages to landowner where only a part of a tract of land is taken for highway purposes as difference between fair market value of entire tract immediately prior to said taking and fair market value of remainder immediately after said taking, fair market value of remainder immediately after the taking contemplates the project in its completed state and any damage to remainder due to user to which the part appropriated may, or probably will, be put. Board of Transp. v. Terminal Warehouse Corp., 1979, 260 S.E.2d 696, 44 N.C.App. 81, reversed 268 S.E.2d 180, 300 N.C. 700. Eminent Domain ⚿138

All factors pertinent to fair market value of land remaining after taking by eminent domain are to be considered by jury in determining measure of damages due landowner. North Carolina State Highway Commission v. Gasperson, 1966, 150 S.E.2d 860, 268 N.C. 453. Eminent Domain ⚿141(1)

Where only part of tract is taken, compensation for part taken and for injury to remaining portion is to be offset by any general and special benefits resulting to landowner from utilization of property taken. Williams v. State Highway Commission of N. C., 1960, 114 S.E.2d 340, 252 N.C. 514. Eminent Domain ⚿146

5. ---- Access, fair market value

Decrease in land values attributable to diminished traffic flow or circuity of travel is not appreciably enhanced by additional fact that property has been appropriated, and fairness dictates that burden of such noncompensable injury be equally absorbed by all similarly situated landowners without regard to whether property of some has been appropriated. Board of Transp. v. Terminal Warehouse Corp., 1980, 268 S.E.2d 180, 300 N.C. 700. Eminent Domain ⚿107

Fact that there was an actual taking of a portion of landowner's property in connection with project by which his property was left on a dead-end, did not make compensable elements of damages to landowner's remaining property for the dead ending of the highway which was not compensable in absence of any taking and, because use of defendant's remaining property as a trucking terminal was in no way impaired by severance therefrom of the small strip taken, did not flow directly from use to which land taken was put. Board of Transp. v. Terminal Warehouse Corp., 1979, 260 S.E.2d 696, 44 N.C.App. 81, reversed 268 S.E.2d 180, 300 N.C. 700. Eminent Domain ⚿96

Fact that condemnees would have no direct access to controlled-access highway for which part of

their land was condemned should be considered in assessing damages. Board of Transp. v. Brown, 1977, 237 S.E.2d 854, 34 N.C.App. 266, appeal dismissed , review allowed 241 S.E.2d 515, 293 N.C. 740, affirmed 249 S.E.2d 803, 296 N.C. 250. Eminent Domain 106

Where, even after construction of islands by highway commission, defendant owners retained reasonable means of ingress and egress, construction of islands at point where property intersected with remaining property of defendant owners was legitimate exercise of police power for which no compensation was required to be paid. State Highway Commission v. Rose, 1976, 228 S.E.2d 664, 31 N.C.App. 28, review denied 230 S.E.2d 766, 291 N.C. 448. Eminent Domain 2.19(2)

While entire access may not be cut off, an owner is not entitled, as against the public, to access to his land at all points in boundary between it and the highway. State Highway Commission v. Rose, 1976, 228 S.E.2d 664, 31 N.C.App. 28, review denied 230 S.E.2d 766, 291 N.C. 448. Highways 85

State's action of completely cutting off access over a private roadway or neighborhood road to nearest public road, without providing other reasonable access to public road, would diminish value of land to same extent as if access was denied to a public highway abutting the premises, and court erred in excluding evidence of owners of condemned property on ground that the access road, if any, was not a state maintained public highway. State Highway Commission v. Phillips, 1966, 148 S.E.2d 282, 267 N.C. 369. Eminent Domain 106; Eminent Domain 203(1)

6. ---- Loss of income or use, fair market value

Because income from farm is directly attributable to land itself, income derived from farm may be considered in determining value of property subject to eminent domain action. Department of Transp. v. Fleming, 1993, 112 N.C.App. 580, 436 S.E.2d 407. Eminent Domain 202(4)

Generally, loss of profits from operation of business conducted on property is not element of recoverable damages in award pursuant to eminent domain taking. Department of Transp. v. Fleming, 1993, 112 N.C.App. 580, 436 S.E.2d 407. Eminent Domain 107

In inverse condemnation action for taking of flood easement by state agency, although evidence of landowner's repair costs and lost present and future rental income were relevant upon issue of whether there had been a taking and could perhaps be shown to influence what a willing buyer would pay a willing seller for the property, such repair costs and lost income could not be directly recovered as damages. Lea Co. v. North Carolina Bd. of Transp., 1983, 304 S.E.2d 164, 308 N.C. 603. Eminent Domain 303

Condemnees were not entitled to recover any damages, other than interest, for loss of use of their property between time they vacated it and time defendant condemning state highway commission deposited its estimate of just compensation for the property appropriated, even if condemnor had falsely represented to them that it would demolish their residence on certain date with intent to

force condemnees from their homes before it was actually necessary for them to leave and if, acting in reliance upon that representation condemnees vacated their property and acquired another residence. Davis v. North Carolina State Highway Commission, 1967, 156 S.E.2d 685, 271 N.C. 405. Eminent Domain ⚿302

Loss of profits or injury to a growing business conducted on property or connected therewith are not elements of recoverable damages in award for taking under eminent domain power; however, when taking renders remaining land unfit or less valuable for any use to which it is adapted, that fact is proper item to be considered in determining whether taking has diminished value of land itself, and if it is found to do so, the diminution is a proper item for inclusion in the award. State Highway Commission v. Phillips, 1966, 148 S.E.2d 282, 267 N.C. 369. Eminent Domain ⚿107; Eminent Domain ⚿141(1)

7. ---- Rental property, fair market value

When rental property is condemned, the owner may not recover for lost rents, but rental value of property is competent upon the question of the fair market value of the property at the time of the taking. Department of Transp. v. Haywood Co., 2004, 167 N.C.App. 55, 604 S.E.2d 338, review allowed 359 N.C. 850, 619 S.E.2d 405, reversed 360 N.C. 349, 626 S.E.2d 645. Eminent Domain ⚿134

Although one accepted method of property appraisal is "income approach," under which appraiser calculates economic rent property earns and deducts normal operating expenses to arrive at net operating income, which figure is then capitalized by rate of return to determine fair market value of property, for purposes of assessing value of property subject to eminent domain action on basis of income, care must be taken to distinguish between income from property and income from business conducted upon property. Department of Transp. v. Fleming, 1993, 112 N.C.App. 580, 436 S.E.2d 407. Eminent Domain ⚿131; Eminent Domain ⚿134

When rental property is condemned the owner may not recover for lost rents, but rental value of property is competent on question of fair market value of property at time of taking. State Highway Commission v. Phillips, 1966, 148 S.E.2d 282, 267 N.C. 369. Eminent Domain ⚿130; Eminent Domain ⚿202(7)

8. ---- Damage and repairs, fair market value

Condemnees' duty to mitigate damages included avoidance of conduct which would increase damages. Department of Transp. v. Coleman, 1997, 127 N.C.App. 342, 489 S.E.2d 187. Eminent Domain ⚿122

In eminent domain proceeding, measure of damages used by property owners' witness, i.e., valuation of fill material needed to restore the land to grade, was an appropriate one. Department of Transp. v. McDarris, 1983, 302 S.E.2d 277, 62 N.C.App. 55. Eminent Domain ⚿138

In inverse condemnation action, prima facie showing of substantial physical damage measurable in monetary terms is required. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿300

Noncompensable injuries to property values resulting from enactment of valid traffic regulations do not become compensable merely because some property was coincidentally taken in connection with project which put regulations into effect. Board of Transp. v. Terminal Warehouse Corp., 1980, 268 S.E.2d 180, 300 N.C. 700. Eminent Domain ⚿2.42

In determining fair market value of remaining land, owner is entitled to damage which is consequence of taking of portion thereof, i. e., for injuries accruing to residue from the taking, which includes damage resulting from condemnor's use of appropriated portion. Board of Transp. v. Brown, 1977, 237 S.E.2d 854, 34 N.C.App. 266, appeal dismissed , review allowed 241 S.E.2d 515, 293 N.C. 740, affirmed 249 S.E.2d 803, 296 N.C. 250. Eminent Domain ⚿138

Fair market value of remainder immediately after taking contemplates project in its completed state and any damage to remainder due to user to which part appropriated may, or probably will, be put. Board of Transp. v. Brown, 1977, 237 S.E.2d 854, 34 N.C.App. 266, appeal dismissed , review allowed 241 S.E.2d 515, 293 N.C. 740, affirmed 249 S.E.2d 803, 296 N.C. 250. Eminent Domain ⚿138

Noise or any other element of damages to remaining lands is compensable in condemnation suit if it is demonstrably resultant from use of particular lands taken. Board of Transp. v. Brown, 1977, 237 S.E.2d 854, 34 N.C.App. 266, appeal dismissed , review allowed 241 S.E.2d 515, 293 N.C. 740, affirmed 249 S.E.2d 803, 296 N.C. 250. Eminent Domain ⚿104

9. ---- Water and flooding, fair market value

If the jury found that the damage to the remaining property caused by the diversion of water was permanent in nature, the Department of Transportation would acquire a permanent drainage easement over the property, but if the jury found that the damage was not permanent, the owners would be entitled to be compensated for the taking of a temporary drainage easement. Department of Transp. v. Bragg, 1983, 302 S.E.2d 227, 308 N.C. 367. Eminent Domain ⚿98

In order for landowner to recover in inverse condemnation for flood easement resulting from highway ramp construction, landowner was required to prove that the Board of Transportation could reasonably foresee the overflow. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿266

A foreseeable flood, for which landowner may recover in inverse condemnation when caused by

highway construction, is not an extraordinary flood but rather one, the repetition of which can be anticipated although at uncertain intervals. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿266

In view of evidence of a 100-year flood is statistically foreseeable by those familiar with science of hydrology, 100-year flood was legally foreseeable by Board of Transportation which thus could be held liable in inverse condemnation for flooding resulting from highway construction project. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿266

Inverse condemnation action for flooding is grounded on a nuisance theory. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿266

Even if the "priority of occupation" or the "moving to the nuisance" doctrine is applicable in an inverse condemnation action, defendant can at most expect court to consider evidence relevant thereto as one factor in determining whether there was a taking; mere priority of occupation would not ipso facto bar recovery. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿266

Where two structures complained of were extended and a third structure was constructed between 1972 and 1974 and where landowner purchased its property in 1972, the excess flooding caused by the combination of the three structures could not have occurred prior to the time that landowner purchased the property and the landowner thus had not moved to the nuisance so as to bar recovery in inverse condemnation action. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿266

Landowner in inverse condemnation action must show an actual permanent invasion of the land or right appurtenant thereto; frequency of the flooding resulting from the construction project is not, in itself, determinative of a taking. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿2.17(5)

One hundred-year flood which would inundate landowner's property following highway construction project was, by statistical definition, an inevitably recurring event so that, if structures causing overflow were permanent, the overflow occurred with the 100-year flood would constitute a permanent invasion of the land so that landowner could recover from an inverse condemnation action. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿2.17(5)

Landowner in inverse condemnation action seeking to recover for flooding following highway construction must prove that the overflow was the direct result of the defendant's structures. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿295

Where interference with surface waters is effected by entity possessing right to exercise power of eminent domain, reasonable use doctrine, which governs disposal of surface waters among private parties, is superseded by constitutional mandate that when private property is taken for public use, just compensation must be paid, and thus it follows that such entity is required to make compensation for damages to land not taken resulting from diversion of natural flow of surface water by public improvement, although private landowner would not be liable in damages under same circumstances, upon ground that such diversion is taking or damaging of such land within meaning of constitutional mandate. Board of Transp. v. Terminal Warehouse Corp., 1980, 268 S.E.2d 180, 300 N.C. 700. Eminent Domain ⚿98

9.2. General benefits

"General benefits," which jury may consider when it calculates just compensation for a partial taking for construction of highway, are increases in value of land which arise from fulfillment of public object which justified the taking and which result from enjoyment of facilities provided by new public work and from increased general prosperity resulting from such enjoyment. Department of Transp. v. Rowe, 2001, 353 N.C. 671, 549 S.E.2d 203, certiorari denied 122 S.Ct. 1070, 534 U.S. 1130, 151 L.Ed.2d 972. Eminent Domain ⚿146

"General benefits," which jury may consider when it calculates just compensation for a partial taking for construction of highway, include rise in property value due to increased traffic flow, an aesthetic upgrading of a neighborhood, or more convenient parking. Department of Transp. v. Rowe, 2001, 353 N.C. 671, 549 S.E.2d 203, certiorari denied 122 S.Ct. 1070, 534 U.S. 1130, 151 L.Ed.2d 972. Eminent Domain ⚿146

Takings clause of Fifth Amendment and the law of the land clause of State Constitution, which requires only that a condemnee by indemnified, allow jury to consider general benefits when it calculates just compensation for a partial taking. Department of Transp. v. Rowe, 2001, 353 N.C. 671, 549 S.E.2d 203, certiorari denied 122 S.Ct. 1070, 534 U.S. 1130, 151 L.Ed.2d 972. Eminent Domain ⚿146

10. Time of valuation

Value of land taken should be ascertained as of date of taking. Board of Transp. v. Brown, 1977, 237 S.E.2d 854, 34 N.C.App. 266, appeal dismissed , review allowed 241 S.E.2d 515, 293 N.C. 740, affirmed 249 S.E.2d 803, 296 N.C. 250. Eminent Domain ⚿124

When, under its power of eminent domain, state highway commission takes private property which it is entitled to condemn, it is liable for fair market value of the property as of date of taking, unaffected by any subsequent change in condition of property. Davis v. North Carolina State Highway Commission, 1967, 156 S.E.2d 685, 271 N.C. 405. Eminent Domain ⚿124

11. Interest

Where payment of compensation is delayed in eminent domain proceeding, condemnee is entitled to interest at rate of 6% from date of taking. Davis v. North Carolina State Highway Commission, 1967, 156 S.E.2d 685, 271 N.C. 405. Eminent Domain ⚿247(2)

Condemnees were entitled to interest on amount awarded from date condemning power and light company acquired right to possession and not from date company instituted proceeding. Carolina Power & Light Co. v. Briggs, 1966, 150 S.E.2d 16, 268 N.C. 158. Eminent Domain ⚿247(2)

12. Resale of condemned land

Department of Transportation was statutorily required to sell land previously condemned for highway construction but no longer needed to original owners who offered to repurchase land for initial award plus interest and cost of any improvements, and Department could not require owners to pay fair market value; legislature did not intend state to profit from appreciation of condemned land due to public improvements accomplished by condemnation. Ferrell v. Department of Transp., 1993, 334 N.C. 650, 435 S.E.2d 309. Eminent Domain ⚿319

12.5. Ownership

Determination of ownership of the area affected but not taken by the Department of Transportation is a prerequisite to a determination of statutory just compensation for the area taken. City of Wilson Redevelopment Com'n v. Boykin, 2008, 193 N.C.App. 20, 667 S.E.2d 282, review denied 363 N.C. 372, 678 S.E.2d 235. Eminent Domain ⚿158

13. Persons entitled to compensation

To recover compensation under statute for property condemned by the Department of Transportation, the area affected and the area taken must constitute a single tract; unity of ownership is an important criterion. City of Wilson Redevelopment Com'n v. Boykin, 2008, 193 N.C.App. 20, 667 S.E.2d 282, review denied 363 N.C. 372, 678 S.E.2d 235. Eminent Domain ⚿96

Determination of ownership of area affected by taking is prerequisite to determination of just compensation for area taken and limiting trial court's fact finding to ownership of area taken alone would deprive owners of tract of which only part is taken of just compensation. State v. Forehand, 1984, 312 S.E.2d 247, 67 N.C.App. 148, review denied 317 S.E.2d 904, 311 N.C. 307. Eminent Domain ⚿136

14. Settlements and agreements

Trial court's findings that prior condemnation action was concluded by filing of consent judgment which referred solely to one particular highway project, that the map relating to the taking did not show two particular ramps, and that the ramp construction projects had different highway project numbers sustained trial court's findings that consent judgment in the prior proceeding did not bar, by res judicata, or estoppel, subsequent claim in inverse condemnation resulting from flooding caused by the ramp construction. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Judgment ⚿951(4)

Condemnees could not change statutory provisions, relating to time of and basis for compensation to be paid when property was condemned, by agreement made with purchasers of part of condemnees' property in anticipation of condemnation of remainder. North Carolina State Highway Commission v. Hettiger, 1967, 155 S.E.2d 469, 271 N.C. 152. Eminent Domain ⚿124

15. Proceedings generally

Where pretrial order in condemnation proceeding limited fact-finding question of ownership of tract taken, that order was erroneously prejudicial and trial court correctly found facts as to ownership of affected tracts of land. State v. Forehand, 1984, 312 S.E.2d 247, 67 N.C.App. 148, review denied 317 S.E.2d 904, 311 N.C. 307. Eminent Domain ⚿198(1)

16. Jury generally

Refusal to dismiss jurors who had served in condemnation case tried before present case and involving land contiguous to land in present case was not error where question of whether a special venire should have been called was a matter resting in sound discretion of trial judge and no abuse of such discretion was shown. State Highway Commission v. Fry, 1969, 170 S.E.2d 91, 6 N.C.App. 370. Jury ⚿95

Action of parties in requesting court to settle issues and offering evidence to support their respective positions amounted to waiver of jury trial. State Highway Commission v. Raleigh Farmers Market, Inc., 1965, 139 S.E.2d 904, 263 N.C. 622, adhered to 141 S.E.2d 10, 264 N.C. 139. Jury ⚿28(6)

Whether issues relating to damages if any sustained by lessees were to be determined by same jury upon same evidence in single trial as that which determined gross sum to which parties were entitled was discretionary. Barnes v. North Carolina State Highway Commission, 1962, 126 S.E.2d 732, 257 N.C. 507. Eminent Domain ⚿158

17. Pleadings

Department of Administration is required to describe in its declaration of taking the area affected as well as the area taken. State v. Forehand, 1984, 312 S.E.2d 247, 67 N.C.App. 148, review denied 317 S.E.2d 904, 311 N.C. 307. Eminent Domain ⚿191(6)

Highway Commission's motion to strike from complaint and reply allegations that it had unnecessarily and fraudulently deprived plaintiffs of their property two years before it was required for highway purposes and that plaintiffs were entitled to compensatory and punitive damages for loss of its use was equivalent to demurrer to that purported cause of action and effect of order allowing motion was to sustain the demurrer. Davis v. North Carolina State Highway Commission, 1967, 156 S.E.2d 685, 271 N.C. 405. Pleading ⚿360

18. Questions for jury

In condemnation proceedings brought by State Highway Commission to appropriate certain of defendants' lands to widen and improve highways, wherein highway commission moved for determination of court of certain issues other than issue of just compensation, trial court had authority to pass upon question of whether defendants were entitled to compensation because of construction of islands adjacent to their remaining property. State Highway Commission v. Rose, 1976, 228 S.E.2d 664, 31 N.C.App. 28, review denied 230 S.E.2d 766, 291 N.C. 448. Eminent Domain ⚿240

Whether two properties are sufficiently similar to admit evidence of purchase price of one as guide to value of other is question to be determined by trial judge in exercise of sound discretion guided by law. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Evidence ⚿142(1)

In action to recover for taking of easement over plaintiffs' land by Highway Commission, determination of amount of damage was province of jury. Williams v. State Highway Commission of N. C., 1960, 114 S.E.2d 340, 252 N.C. 514. Eminent Domain ⚿221

19. Presumptions and burden of proof

Landowner who has part of his land taken has burden of proving by competent evidence how use of land taken results in damage to remainder. Board of Transp. v. Brown, 1977, 237 S.E.2d 854, 34 N.C.App. 266, appeal dismissed , review allowed 241 S.E.2d 515, 293 N.C. 740, affirmed 249 S.E.2d 803, 296 N.C. 250. Eminent Domain ⚿200

20. Witnesses

Expert witnesses' methods of proof concerning both value of damages arising from proximity of new right of way to building on county's remaining property and rental value of temporary construction easement lacked sufficient reliability, and thus experts' opinions were not admissible in eminent domain proceeding that was brought by state Department of Transportation against

county, although experts had experience in appraising real estate; no expert articulated any method used to arrive at figures, and experts' testimony concerning their feelings and personal opinions indicated that opinions may have been based on hunches and speculation. North Carolina Dept. of Transp. v. Haywood County, 2006, 360 N.C. 349, 626 S.E.2d 645. Evidence ⚷555.6(2)

Testimony of real estate broker and developer, that based on their professional experience, Department of Transportation's temporary construction easement for project to widen highway resulted in lower rental value for condemnee's building, was admissible, in condemnation action, to establish reduction in fair market value of property because of easement. Department of Transp. v. Haywood Co., 2004, 167 N.C.App. 55, 604 S.E.2d 338, review allowed 359 N.C. 850, 619 S.E.2d 405, reversed 360 N.C. 349, 626 S.E.2d 645. Evidence ⚷524; Evidence ⚷543(3)

Opinion of condemnee's appraiser regarding proximity damages, that Department of Transportation's condemnation for widened highway, which resulted in highway being closer to condemnee's building, resulted in 35 percent depreciation of property, was not based on mere speculation, and thus, the opinion was admissible; opinion was based on appraiser's professional experience, though appraiser could not point to a comparable sale pertaining to proximity. Department of Transp. v. Haywood Co., 2004, 167 N.C.App. 55, 604 S.E.2d 338, review allowed 359 N.C. 850, 619 S.E.2d 405, reversed 360 N.C. 349, 626 S.E.2d 645. Evidence ⚷555.6(2)

A witness who has knowledge of value gained from experience, information, and observation may give his opinion of the value of specific real property. Department of Transp. v. Haywood Co., 2004, 167 N.C.App. 55, 604 S.E.2d 338, review allowed 359 N.C. 850, 619 S.E.2d 405, reversed 360 N.C. 349, 626 S.E.2d 645. Evidence ⚷474(18)

In land condemnation cases, expert real estate appraisers are not restricted to any particular method of determining the fair market value of property either before or after condemnation. Department of Transp. v. Haywood Co., 2004, 167 N.C.App. 55, 604 S.E.2d 338, review allowed 359 N.C. 850, 619 S.E.2d 405, reversed 360 N.C. 349, 626 S.E.2d 645. Evidence ⚷555.6(2)

Where witness could not state with certainty the basis of his calculations, his testimony was properly excluded. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Evidence ⚷555.2

Where, in proceeding by Board of Transportation to condemn .16-acre strip of land from 2.85-acre tract as part of project to relocate highway and to construct portion of interstate and its connectors, landowner's expert did not testify as to his knowledge of average rainfall in creek watershed and other pertinent factors prior to giving his opinion as to how often creek would leave its banks at point at which its course had been diverted, trial judge properly exercised his discretion is sustaining objection to expert's opinion, as better and safer practice dictated that expert first testify to these underlying facts and then express his opinion. Board of Transp. v. Terminal Warehouse Corp., 1980, 268 S.E.2d 180, 300 N.C. 700. Evidence ⚷555.6(3)

In condemnation proceedings in which elements of property will remain constant in value despite taking, expert appraisers need not include that value in their computations in order for their testimony to be competent. Duke Power Co. v. Mom 'n' Pops Ham House, Inc., 1979, 258 S.E.2d 815, 43 N.C.App. 308. Evidence ⚿555.6(2)

Statute governing measure of damages in condemnation applied only to exclusive measure of damages employed by commissioners, jury or judge; such statute did not attempt to restrict expert real estate appraisers to any particular method of determining fair market value of property either before or after condemnation. Board of Transp. v. Jones, 1979, 255 S.E.2d 185, 297 N.C. 436. Evidence ⚿555.6(2)

Where expert witness in condemnation proceeding gauged his appraisal of property in terms of fair market value before and after the taking, fact that appraiser used particular method, value of part taken plus damages to remainder, to arrive at estimate of fair market value of property after taking did not render his testimony incompetent. Board of Transp. v. Jones, 1979, 255 S.E.2d 185, 297 N.C. 436. Evidence ⚿555.6(3)

In proceeding for condemnation of coastal land, it was competent for landowners to question knowledge of state's expert as to value of coastal lands in area of property taken. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Evidence ⚿558(8)

Son of property owner whose land was taken in condemnation had sufficient opportunity to become familiar with the property and thus could give an opinion as to its value where, inter alia, son managed his mother's property, he visited the land approximately four times per year, and he spent about a day there upon each visit. State Highway Commission v. Fry, 1969, 170 S.E.2d 91, 6 N.C.App. 370. Evidence ⚿474(18)

In action to recover for taking of easement over plaintiffs' land for relocation of highway, pleadings and evidence established that use of land for building lots was so reasonably probable as to affect market value, and it was therefore not error for witness to predicate his opinion as to value of land on use of land bordering highway for building lots. Williams v. State Highway Commission of N. C., 1960, 114 S.E.2d 340, 252 N.C. 514. Evidence ⚿555.6(7)

21. Admissibility of evidence--In general

Landowner's testimony concerning offer he received on property prior to its condemnation was incompetent on issue of value of property when it was condemned. Department of Transp. v. Mahaffey, 2000, 137 N.C.App. 511, 528 S.E.2d 381. Evidence ⚿113(16)

A mere offer to buy or sell property is incompetent to prove its market value; the figure named is only the opinion of one who is not bound by his statement and it is too unreliable to be accepted as a correct test of value. Department of Transp. v. Mahaffey, 2000, 137 N.C.App. 511, 528 S.E.2d

381. Evidence ⚿113(16)

Testimony of landowners' experts was inadmissible to establish property value in eminent domain action, where experts calculated value of property by applying capitalization rate to net income from landowners' plumbing and heating business; experts' opinions concerning fair market value of property were based on income from business, and not from any rental value attributable to land. Department of Transp. v. Fleming, 1993, 112 N.C.App. 580, 436 S.E.2d 407. Eminent Domain ⚿202(4)

Testimony of real estate appraiser regarding fair market value of land at issue based on lost business income was inadmissible in condemnation action. Department of Transp. v. Byrum, 1986, 345 S.E.2d 416, 82 N.C.App. 96. Evidence ⚿555.6(6)

In condemnation proceeding, it was error to refuse to strike testimony of defendant's value witness who gave estimate admittedly derived by applying formula of value of part taken plus damages to remainder rather than statutorily mandated formula of difference between value of property before taking and value of remaining property after taking. Board of Transp. v. Jones, 1978, 248 S.E.2d 108, 38 N.C.App. 337, certiorari allowed 254 S.E.2d 176, 296 N.C. 735, reversed 255 S.E.2d 185, 297 N.C. 436. Eminent Domain ⚿219

It was not error, in action for appropriation of portion of defendants lands for highway purposes, to admit evidence of purchase price of property on theory that there was evidence that between time property was purchased and time of taking there had been changes in nature of other property in immediate vicinity where all changes in nature of such other property took place after date of taking, except for property located approximately a quarter mile off highway in question. North Carolina State Highway Commission v. Forest Lawn Cemetery, Inc., 1972, 190 S.E.2d 641, 15 N.C.App. 727. Evidence ⚿113(8)

In proceeding to fix compensation for land taken for highway purposes, excluding evidence of general and special benefits accruing to the petitioner's remaining property from the highway was error. Templeton v. State Highway Commission, 1961, 118 S.E.2d 918, 254 N.C. 337. Eminent Domain ⚿204

In action to recover compensation for taking of easement over plaintiffs' land by Highway Commission, burden was on plaintiffs seeking to introduce, under exception to hearsay rule, evidence as to statements made by alleged agent of Commission, to show that statements had been made within scope of authority of alleged agent. Williams v. State Highway Commission of N. C., 1960, 114 S.E.2d 340, 252 N.C. 514. Evidence ⚿258(1)

In action to recover for taking of easement over plaintiffs' land by Highway Commission, evidence that alleged agent of Commission had told plaintiffs that they had been damaged in specified amount was inadmissible as hearsay, in absence of showing that statement had been made within scope of alleged agent's authority. Williams v. State Highway Commission of N. C., 1960, 114

S.E.2d 340, 252 N.C. 514. Evidence ⚿317(2)

22. ---- Use of land, admissibility of evidence

Evidence that landowners on day of taking had rough graded the streets and that surveyor's control stakes had been placed as initial steps in laying out subdivision on portion of condemned property bore directly upon value of land on day of taking by tending to show that section was adapted to use as residential subdivision and that grading was part of overall condition of land on day of taking, but value was not augmented where condemnation proceeding prevented carrying out of plans to develop subdivision. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Eminent Domain ⚿134; Eminent Domain ⚿202(4)

It was proper for owners of land being condemned to offer evidence tending to show highest and best use to which different areas of tract taken were adapted, whatever such use might have been. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Eminent Domain ⚿202(4)

Testimony that at a future date landowners proposed to construct a marina, motel and condominiums on land condemned was incompetent and prejudicial. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Eminent Domain ⚿202(4); Eminent Domain ⚿262(5)

In absence of most positive instructions that jury cannot value undivided land on per lot basis, with reasons why it would be improper to do so, prejudice may be assumed from admission of map showing subdivision which is not accomplished fact. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Eminent Domain ⚿262(5)

Where subdivision of tract was not accomplished fact at time of taking of land and there was no reference to cost of development, admission of subdivision maps prepared by engineers hired to subdivide was prejudicial error despite contention that maps were competent to illustrate testimony. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Eminent Domain ⚿262(5); Witnesses ⚿252

In proceeding for condemnation of undeveloped land, admission of evidence that lots in developed portion of nearby land were selling for $75 per front foot or $15,000 per lot was erroneous and prejudicial. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Eminent Domain ⚿262(5); Evidence ⚿142(1)

In proceeding for condemnation of land, admission of evidence as to purchase price of adjacent small tracts which condemnor obtained from other landowners was prejudicial error. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Eminent Domain ⚿262(5); Evidence ⚿142(1)

Evidence as to actual laying out of streets is not prejudicial in condemnation proceeding if its purpose and effect is simply to show or illustrate adaptability of land for proposed use. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Eminent Domain ⚿262(5)

Absent showing of prejudice, admission in condemnation proceeding of appraiser's testimony as to reasons he considered highest and best use of property to be residential was not reversible error. North Carolina State Highway Commission v. Forest Lawn Cemetery, Inc., 1972, 190 S.E.2d 641, 15 N.C.App. 727. Eminent Domain ⚷262(5)

In fixing fair market value of land after taking of easement over same for highway relocation purposes, it was proper to consider highest and best use to which land fronting on highway could be put; and in action to recover compensation for taking of easement, it was proper to admit testimony of witness who used phrase "highest and best use" to show one of factors considered in arriving at his opinion of market value. Williams v. State Highway Commission of N. C., 1960, 114 S.E.2d 340, 252 N.C. 514. Eminent Domain ⚷134; Evidence ⚷555.6(7)

23. ---- Damages, admissibility of evidence

Evidence regarding lost profits from gasoline service station was admissible in eminent domain proceeding to calculate fair market value of remaining property after taking by state Department of Transportation (DOT); taking resulted in entrances to station being reduced from two to one, and traditional appraisal based on comparable sales data could not be performed. Department of Transp. v. M.M. Fowler, Inc., 2005, 170 N.C.App. 162, 611 S.E.2d 448, review allowed 360 N.C. 62, 621 S.E.2d 179, reversed 361 N.C. 1, 637 S.E.2d 885. Eminent Domain ⚷202(4)

Where access to property that is being taken through eminent domain is restricted or denied, evidence of lost profits is admissible to show diminution in the value of the remaining property where the taking renders the property less fit for any use to which it has been adapted, as well as to show the fair market value of the property after the taking. Department of Transp. v. M.M. Fowler, Inc., 2005, 170 N.C.App. 162, 611 S.E.2d 448, review allowed 360 N.C. 62, 621 S.E.2d 179, reversed 361 N.C. 1, 637 S.E.2d 885. Eminent Domain ⚷202(4)

The exclusion of evidence of the voluntary sales price of an adjacent property is proper where the lands are markedly dissimilar in nature, condition, and zoning classification. Department of Transp. v. Mahaffey, 2000, 137 N.C.App. 511, 528 S.E.2d 381. Evidence ⚷142(1)

Evidence that condemnees engaged in some conduct for sole purpose of increasing condemnation damages was relevant and admissible to prove motive or intent of condemnees in making improvements to property. Department of Transp. v. Coleman, 1997, 127 N.C.App. 342, 489 S.E.2d 187. Eminent Domain ⚷203(1)

Evidence that condemnees' renovations on subject property were made in bad faith and for purpose of enhancing condemnation damages was relevant and competent evidence for jury to consider in determination of value of property at time of taking. Department of Transp. v. Coleman, 1997, 127 N.C.App. 342, 489 S.E.2d 187. Eminent Domain ⚷202(1)

Where the Department of Transportation took only a part of a tract of land, the owners could introduce at the jury trial on the issue of compensation any evidence of damage to the remaining property caused by the Department before the opening of the jury trial and, hence, were entitled to show any damage to their remaining property caused by diversion of water by the Department during the construction of the highway prior to trial. Department of Transp. v. Bragg, 1983, 302 S.E.2d 227, 308 N.C. 367. Eminent Domain ⚿203(1)

In determining the amount of damages which the owners were entitled to recover from the Department of Transportation for the alleged water diversion as a part of just compensation, evidence of the cost to cure the water diversion would be competent. Department of Transp. v. Bragg, 1983, 302 S.E.2d 227, 308 N.C. 367. Eminent Domain ⚿203(1)

In inverse condemnation action arising out of flooding of landowner's property following highway construction, calculation of flood levels was properly admitted even though they were allegedly based on the false assumption that conditions had remained unchanged since the time of the flooding in question where there was no showing as to the specific ways in which conditions differed and where there was evidence of substantial similarities. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Evidence ⚿555.6(2)

Evidence regarding flooding subsequent to September 1, 1974 and flood levels other than that for the 100-year flood which formed the basis of inverse condemnation complaint was not irrelevant where landowner also alleged a taking by subsequent flooding. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿296

In action to condemn land for construction of a controlled access highway, trial court erred in excluding evidence of traffic noise from controlled-access highway as causing diminution in value of condemnees' remaining land. Board of Transp. v. Brown, 1977, 237 S.E.2d 854, 34 N.C.App. 266, appeal dismissed , review allowed 241 S.E.2d 515, 293 N.C. 740, affirmed 249 S.E.2d 803, 296 N.C. 250. Eminent Domain ⚿203(2)

In view of trial court's proper ruling that defendant owners were not entitled to receive compensation from highway commission for any diminution in value of their remaining land caused by construction of traffic islands, part of protective order which prohibited defendant owners, their witnesses and counsel, at trial from mentioning islands in oral testimony or in arguments to jury was appropriate, but court erred in prohibiting defendant owners from introducing any map, photograph or other exhibit which depicts the islands. State Highway Commission v. Rose, 1976, 228 S.E.2d 664, 31 N.C.App. 28, review denied 230 S.E.2d 766, 291 N.C. 448. Eminent Domain ⚿203(2); Eminent Domain ⚿219

In eminent domain case, evidence of water damage to property caused by diversion of natural flow of water was admissible although such element of damage had not been pleaded in the answer,

under rule that any evidence which aids jury in fixing a fair market value of the property and its diminution by burden put upon it is relevant and should be heard. State Highway Commission v. Phillips, 1966, 148 S.E.2d 282, 267 N.C. 369. Eminent Domain ⚿195

24. Sufficiency of evidence

Evidence concerning flooding following highway construction project and fact that flood was a 100-year flood sustained determination that neither the rain nor the associated flood were acts of God. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿300

Evidence sustained determination that highway structure substantially increased the level of flooding which otherwise would have been experienced had the highway project not been undertaken so that landowner could recover in inverse condemnation action. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿300

Landowner adequately demonstrated monetary loss resulting from flooding of its land following construction project through evidence of repair costs, lost present and future rental income, and an estimate of the value of property immediately before and immediately after the taking. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿300

Evidence sustained finding that landowner who brought inverse condemnation action to recover for flooding following highway construction project did not know or have reason to know of any propensity of the property to flood to any significant extent. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿300

Verdict of $73,200 for taking of landowner's property was not against the greater weight of the evidence where, inter alia, values testified to varied from $4,000 to $86,000. State Highway Commission v. Fry, 1969, 170 S.E.2d 91, 6 N.C.App. 370. Eminent Domain ⚿149(1)

25. Instructions

Taken in its entirety and in light of the trial court's repeated use of the proper calculation of damages throughout its instructions, the isolated statement in jury instruction that "consideration may be given to the value peculiar to the church" was likely not misleading, and did not warrant appellate court's invalidation of jury's damages award to church in eminent domain action; trial court instructed the jury on the correct statutory calculation for damages, and trial court also instructed jury that it was not required to accept the amount of damages presented by any of the experts or parties involved. Department of Transp. v. Marston Baptist Church, Inc., 2009, 196

N.C.App. 756, 676 S.E.2d 313. Eminent Domain ⚿222(5)

Instruction stating that condemnees were seeking "substantial" damages did not improperly influence jurors against condemnees, who sought $180,000 for 1.25 acres. Department of Transp. v. Tilley, 2000, 136 N.C.App. 370, 524 S.E.2d 83, review denied 351 N.C. 640, 543 S.E.2d 868, certiorari denied 121 S.Ct. 186, 531 U.S. 878, 148 L.Ed.2d 129. Eminent Domain ⚿222(5)

In inverse condemnation action brought by landowner to recover for flooding following highway construction project, trial court properly defined an "act of God" as an event in nature so extraordinary that the history of climate variations and other conditions in the particular locality affords no reasonable warning of it. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿307(3)

In proceeding by Board of Transportation to condemn .16-acre strip of land from 2.85-acre tract as part of project to relocate highway and to construct portion of interstate and its connectors, no error occurred in instructing jury that landowner was not entitled to compensation for decreased value of its land as result of dead-ending and reclassification of highway which abutted on its property. Board of Transp. v. Terminal Warehouse Corp., 1980, 268 S.E.2d 180, 300 N.C. 700. Eminent Domain ⚿222(1)

Appraiser's testimony, based on comparison with similar property, of benefit to property which occurred when State Board of Transportation condemned portion of their land and paved road was clearly not hypothetical and speculative, and Board was entitled to instruction on issue of benefits. North Carolina Bd. of Transp. v. Rand, 1980, 263 S.E.2d 565, 299 N.C. 476. Eminent Domain ⚿222(6); Evidence ⚿555.6(10)

In condemnation proceedings, trial judge is required to instruct jury that where only part of tract is taken, measure of damages for said taking shall be difference between fair market value of entire tract immediately prior to said taking and fair market value of remainder immediately after said taking; this is the exclusive standard to be used in computing damages. Duke Power Co. v. Mom 'n' Pops Ham House, Inc., 1979, 258 S.E.2d 815, 43 N.C.App. 308. Eminent Domain ⚿136; Eminent Domain ⚿222(4)

In condemnation proceedings, judge must instruct jury to base its verdict on difference between value of land before taking and afterwards, but expert real estate appraisers should be given latitude in determining value of property. Duke Power Co. v. Mom 'n' Pops Ham House, Inc., 1979, 258 S.E.2d 815, 43 N.C.App. 308. Eminent Domain ⚿222(4); Evidence ⚿547

If there is jury trial on issue of compensation in partial taking case, trial court is required to instruct jury only on the before and after value rule as set forth in statute governing measure of damages to be employed in case of partial taking. Board of Transp. v. Jones, 1979, 255 S.E.2d 185, 297 N.C. 436. Eminent Domain ⚿222(5)

Failure to distinguish between general and special benefits in instruction to jury concerning consideration of benefits to condemnee's remaining land resulting from highway project for which portion of defendant's property was condemned was not error in condemnation proceeding. Board of Transp. v. Jones, 1978, 248 S.E.2d 108, 38 N.C.App. 337, certiorari allowed 254 S.E.2d 176, 296 N.C. 735, reversed 255 S.E.2d 185, 297 N.C. 436. Eminent Domain ⚿222(6)

Where increase in value of condemnee's property as testified to by condemnor's witness was enjoyed in common with others affected by improvements and was benefit which arose from fulfillment of public object which justified taking of condemnee's property, such increase constituted "general benefit," and thus condemnor was entitled to have jury instructed that they should consider general as well as special benefits to condemnee's property in determining damages in condemnation proceeding. Board of Transp. v. Jones, 1978, 248 S.E.2d 108, 38 N.C.App. 337, certiorari allowed 254 S.E.2d 176, 296 N.C. 735, reversed 255 S.E.2d 185, 297 N.C. 436. Eminent Domain ⚿146; Eminent Domain ⚿222(6)

In condemnation case in which issue was amount of damages that defendants were entitled to recover, court's instruction that compensation must be full and complete and include everything affecting value of property taken and in relation to entire property affected, that measure of damages was difference between fair market value of entire tract immediately prior to taking and fair market value of remainder immediately after taking and that, when jury arrived at difference in value, it would include compensation for part taken and compensation for injury, if any, to remaining portion properly and sufficiently explained law as to all substantial features of the case. Board of Transp. v. Harvey, 1976, 220 S.E.2d 815, 28 N.C.App. 327. Eminent Domain ⚿222(4); Eminent Domain ⚿222(5)

In condemnation proceeding, trial court's instruction that landowners were fine high quality citizens, good people, and entitled to just compensation, etc., was uncalled for by evidence, and was possibly misinterpreted by jurors to prejudice of State. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Eminent Domain ⚿222(1); Eminent Domain ⚿262(5)

Appropriate instructions are required in condemnation proceeding to avoid confusion in minds of jurors with respect to evidence offered to show adaptability of condemnee's land for proposed use if such evidence also tends to show enhanced loss because owner is prohibited from carrying out proposed improvement. State v. Johnson, 1972, 191 S.E.2d 641, 282 N.C. 1. Eminent Domain ⚿222(5)

Instruction in condemnation case which defined just compensation as the value of the property left, which should, be put on top of that money until it was brought up to where it was before property was taken, was unclear, confusing, and did not follow statutory provisions for determining just compensation, and it would not be assumed that jury followed later correct instruction and that it was not confused by the erroneous portion. State Highway Commission v. Reeves, 1970, 173 S.E.2d 494, 8 N.C.App. 47, certiorari denied. Eminent Domain ⚿222(5); Eminent Domain

⚿262(3); Trial ⚿296(2)

In condemnation proceeding, court had no duty to charge, of its own motion, that the jury was not to consider the question of interest in determining damages. State Highway Commission v. Yarborough, 1969, 170 S.E.2d 159, 6 N.C.App. 294. Trial ⚿255(14)

That access to new highway from portions of landowners' property remaining after taking by eminent domain for construction of highway was denied materially affected fair market value of remaining portions of property, so that giving of instruction that no compensation should be awarded to landowners for denial of access rights to new highway was prejudicial error. North Carolina State Highway Commission v. Gasperson, 1966, 150 S.E.2d 860, 268 N.C. 453. Eminent Domain ⚿222(5); Eminent Domain ⚿262(5)

Court erred in eminent domain proceeding in instructing jury that it was stipulated and agreed that there was no road or public road on the property at time the property was taken where though there were numerous stipulations in the record it contained none in accord with court's instruction. State Highway Commission v. Phillips, 1966, 148 S.E.2d 282, 267 N.C. 369. Trial ⚿252(5)

Charging jury that measure of damages was difference between fair market value of entire tract before taking and fair market value of tract remaining after taking was not prejudicial error, even though condemnees had begun constructing building on remaining portion of tract before the taking and had completed it afterwards, where testimony fixed before and after value as of date of taking, and date of taking was stipulated. North Carolina State Highway Commission v. Pearce, 1964, 136 S.E.2d 71, 261 N.C. 760. Eminent Domain ⚿262(5)

The giving of instruction that, in considering the testimony of corporate owner's president as to value of property before and after the taking, there may have been specific values in his mind which real estate appraisers would not consider, was reversible error as indicating that judge questioned either credibility or judgment of president. State Highway Commission v. Kenan Oil Co., 1963, 131 S.E.2d 665, 260 N.C. 131. Eminent Domain ⚿262(5); Trial ⚿187(1)

26. Findings

Trial court's findings that Board of Transportation's computations were not reasonably accurate with respect to the magnitude of flood waters to be associated with a 50-year flood and that structures built by the highway department could not carry the waters associated with a 50-year flood were relevant to the question of whether a 100-year flood was reasonably foreseeable for the same methodology used to improperly calculate the 50-year flood could be used to calculate and thus foresee the 100-year flood. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿307(4)

27. Review

Landowners were not required to immediately appeal order in Department of Transportation (DOT) condemnation action dismissing landowners' inverse condemnation claims for failure to state claim, and holding that statutory measure of damages was constitutional, as such order did not relate to title or area taken. Department of Transp. v. Mahaffey, 2000, 137 N.C.App. 511, 528 S.E.2d 381. Eminent Domain ⚿253(1)

Where court at pretrial hearing in condemnation case fully considered and ruled against landowners on their claims that their remaining property should not be considered "unified tract," and that statute which allows deduction from just compensation for "special or general benefits" resulting from taking was unconstitutional, landowners should have immediately appealed such findings, and their failure to do so until after judgment was entered on jury verdict awarding landowners no damages precluded appellate review of those claims. Department of Transp. v. Rowe, 1998, 131 N.C.App. 206, 505 S.E.2d 911, review allowed 350 N.C. 93, 532 S.E.2d 525, reversed 351 N.C. 172, 521 S.E.2d 707, on remand 138 N.C.App. 329, 531 S.E.2d 836. Eminent Domain ⚿253(1)

Where parties claimed ownership of three tracts of land by adverse possession, but only one of those tracts was condemned, remand was necessary for determination of whether the three tracts constituted a "single tract" for purposes of assessing condemnation damages. State v. Forehand, 1984, 312 S.E.2d 247, 67 N.C.App. 148, review denied 317 S.E.2d 904, 311 N.C. 307. Eminent Domain ⚿263

Damage to property owners' land resulting from state's condemnation could not be offset by any special benefits attributed to the fact that property owners had obtained fill material, at no cost, from state's contractor, since the alleged fill agreement was a private pact between property owners and the contractor and was not incidental to the road project and did not arise from the peculiar relationship between the property and the improvement at issue; therefore, state was not prejudiced by the exclusion of evidence of the agreement in the eminent domain proceeding. Department of Transp. v. McDarris, 1983, 302 S.E.2d 277, 62 N.C.App. 55. Eminent Domain ⚿146; Eminent Domain ⚿262(5)

Findings which were supported by competent evidence in the record were conclusive on appeal in eminent domain proceeding. Lea Co. v. North Carolina Bd. of Transp., 1982, 291 S.E.2d 844, 57 N.C.App. 392, review allowed 294 S.E.2d 371, 306 N.C. 557, affirmed 304 S.E.2d 164, 308 N.C. 603. Eminent Domain ⚿262(4)

In proceeding by Board of Transportation to condemn .16-acre strip of land from 2.85-acre tract as part of project to relocate highway and to construct portion of interstate and its connectors, prejudicial error occurred in instructing jury to apply reasonable use doctrine, which governed disposal of surface waters among private parties, when considering damages caused to landowner's remaining land by diverted flood waters of creek. Board of Transp. v. Terminal Warehouse Corp., 1980, 268 S.E.2d 180, 300 N.C. 700. Eminent Domain ⚿262(5)

Assignment of error that trial court erred in failing to allow condemnees' motion to set aside verdict would not be reviewed on appeal, in absence of abuse of discretion. Board of Transp. v. Harvey, 1976, 220 S.E.2d 815, 28 N.C.App. 327. Eminent Domain 262(1)

A request for jury scrutiny of testimony of son of property owner whose land was being taken in condemnation, as that of an interested party, involved a subordinate feature of the case and should have been specifically requested by State Highway Commission if such was desired, and no substantial prejudice to Commission resulted from such omission in the charge. State Highway Commission v. Fry, 1969, 170 S.E.2d 91, 6 N.C.App. 370. Eminent Domain 262(5); Trial 255(15)

In absence of any prejudicial error in law a reviewing court is bound to follow system established by the legislature to compensate a landowner for property taken in eminent domain proceedings. State Highway Commission v. Fry, 1969, 170 S.E.2d 91, 6 N.C.App. 370. Eminent Domain 262(5)

N.C.G.S.A. § **136-112**, NC ST § **136-112**

Current through Chapter 18.

END OF DOCUMENT

Ecosystem Enhancement PROGRAM

January 5, 2012

Mr. Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

R-2554A, US 70 (Goldsboro Bypass) from Existing US 70 West of NC 581 to SR 1300 (Salem Church Road), Wayne County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the buffer mitigation for the subject project. Based on the information supplied by you on January 5, 2012, the buffer impacts are located in CU 03020201 of the Neuse River Basin in the Northern Inner Coastal Plain (NICP) Eco-Region and are as follows:

Buffer	River Basin	CU Location	Eco-Region	Buffer		
				Zone 1	Zone 2	TOTAL
Impacts	Neuse	03020201	NICP	12,473	16,631	29,104

All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Authorization Certification, EEP will transfer funds from MOA Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its riparian buffer mitigation responsibility for R-2554A. Subsequently, EEP will conduct a review of current MOA mitigation projects in the river basin to determine if available buffer mitigation credits exist. If there are buffer mitigation credits available, then the Riparian Restoration Buffer Fund will purchase the appropriate amount of buffer mitigation credits from MOA Fund.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

James B. Stanfill for

Michael Ellison
EEP Deputy Director

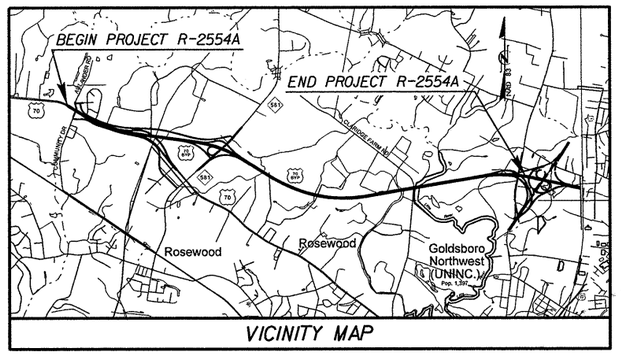
Cc: Mr. Tom Steffens, USACE – Washington Regulatory Field Office
Mr. Brian Wrenn, NC Division of Water Quality
File: R-2554A

TIP PROJECT: R-2554A

CONTRACT No.: C202837

FILE: $FILEL$
DATE: $DATE$ $TIMES$
PLOT DRIVER: $PLTDRVL$
PEN TABLE: $PENTBLL$

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

LOCATION: US 70 (GOLDSBORO BYPASS) FROM WEST OF NC 581 TO SR 1300 (SALEM CHURCH ROAD)

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

METRIC

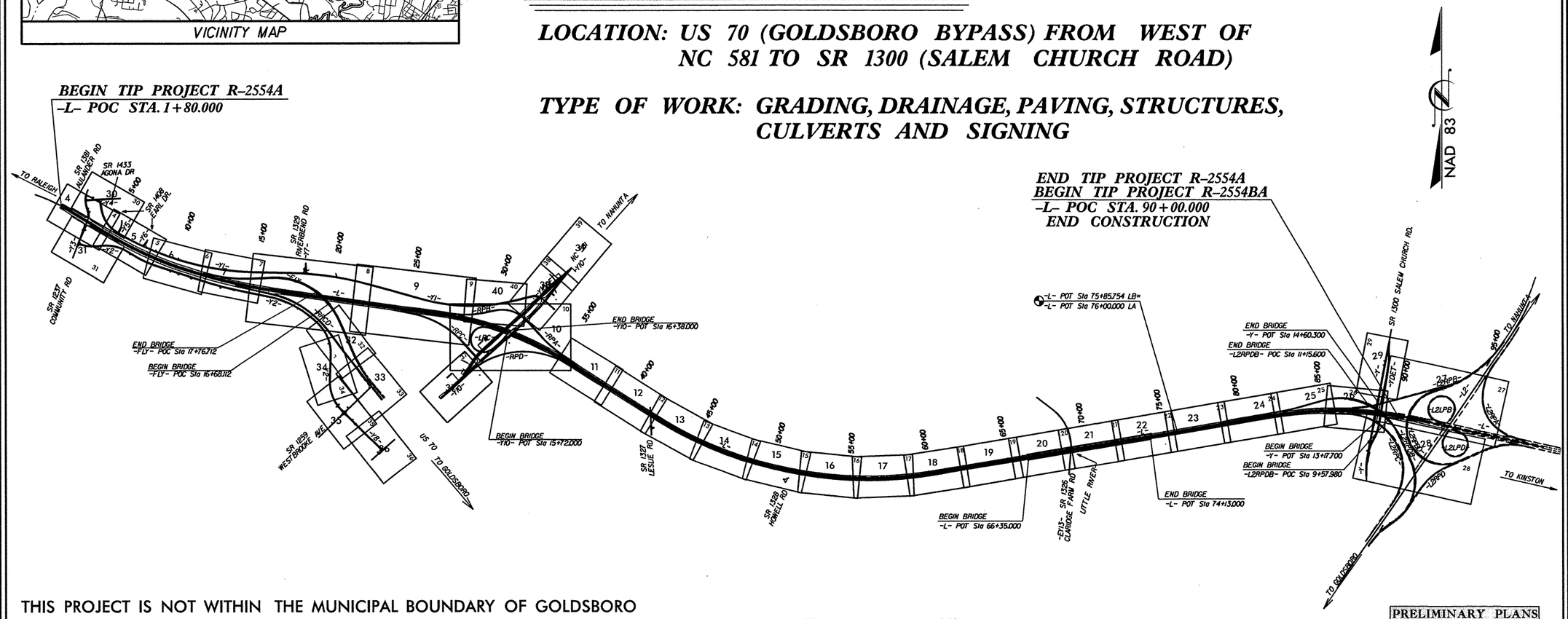
ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2554A	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34461.1.3	NHF-70(30)	P.E.
34461.3.4	NHF-70(30)	CONST.

BEGIN TIP PROJECT R-2554A
-L- POC STA. 1+80.000

END TIP PROJECT R-2554A
BEGIN TIP PROJECT R-2554BA
-L- POC STA. 90+00.000
END CONSTRUCTION



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

THIS PROJECT IS NOT WITHIN THE MUNICIPAL BOUNDARY OF GOLDSBORO
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III EXCEPT BY PERMIT
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS LIMITED TO INTERCHANGES.

GRAPHIC SCALES

PLANS 5 0 10

PROFILE (HORIZONTAL) 5 0 10

PROFILE (VERTICAL) 1 0 2

DESIGN DATA

ADT 2012 = 20,600
ADT 2037 = 40,000
DHV = 10 %
D = 55 %
T = 22 % *
V = 110 km/h

* TTST 15 % + DUAL 7 %
FUNC. CLASS.: FREEWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT R-2554A	8.028 KM.
LENGTH STRUCTURES T.I.P. PROJECT R-2554A	0.778 KM.
TOTAL LENGTH OF STATE T.I.P. PROJECT R-2554A	8.806 KM.

NOTE: EB LANE USED TO DETERMINE PROJECT LENGTH

PLANS PREPARED BY:
Florence & Hutcheson
CONSULTING ENGINEERS
5121 KINGDOM WAY, SUITE 100
RALEIGH, N.C. 27607
License No: F-0258

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 20, 2006

LETTING DATE: JUNE 19, 2012

DENNIS J. MORY, PE
PROJECT ENGINEER

HENRY BARE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: BRENDA MOORE, PE
ROADWAY DESIGN – PROJECT ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

1/5/06

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	1 - B

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

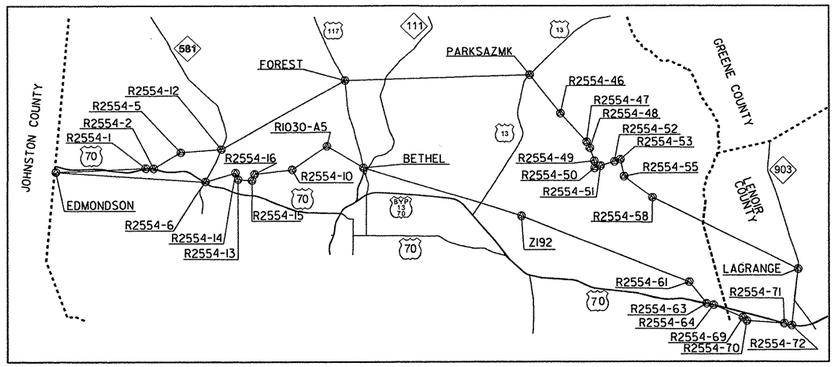
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

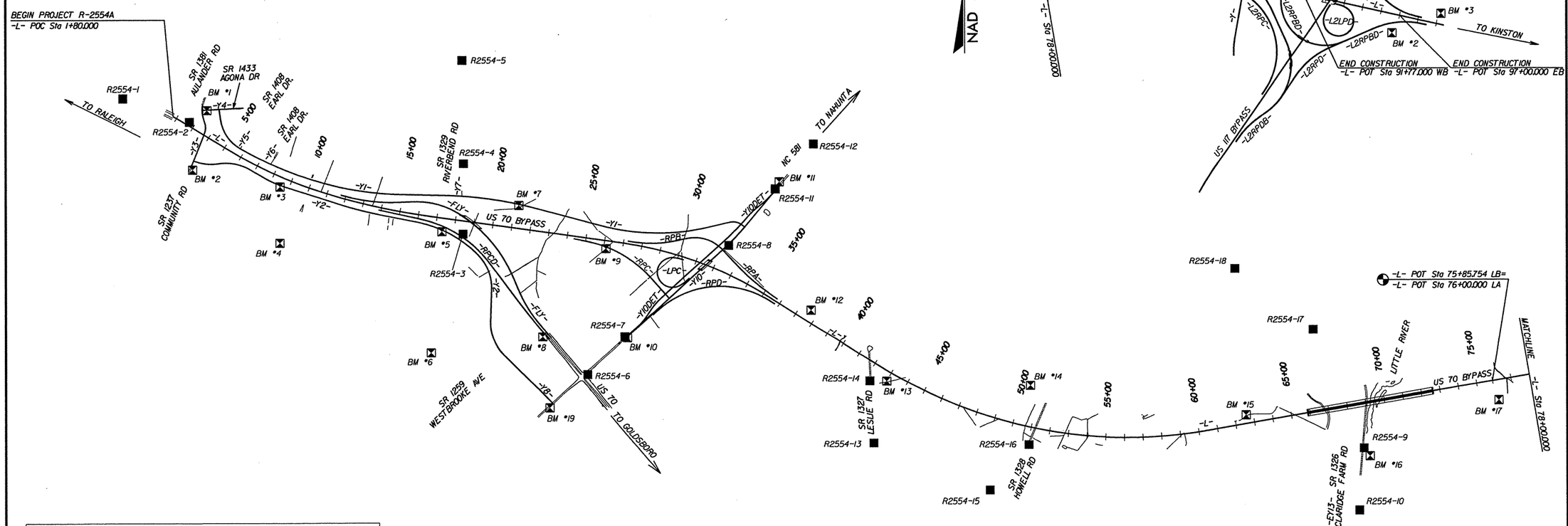
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

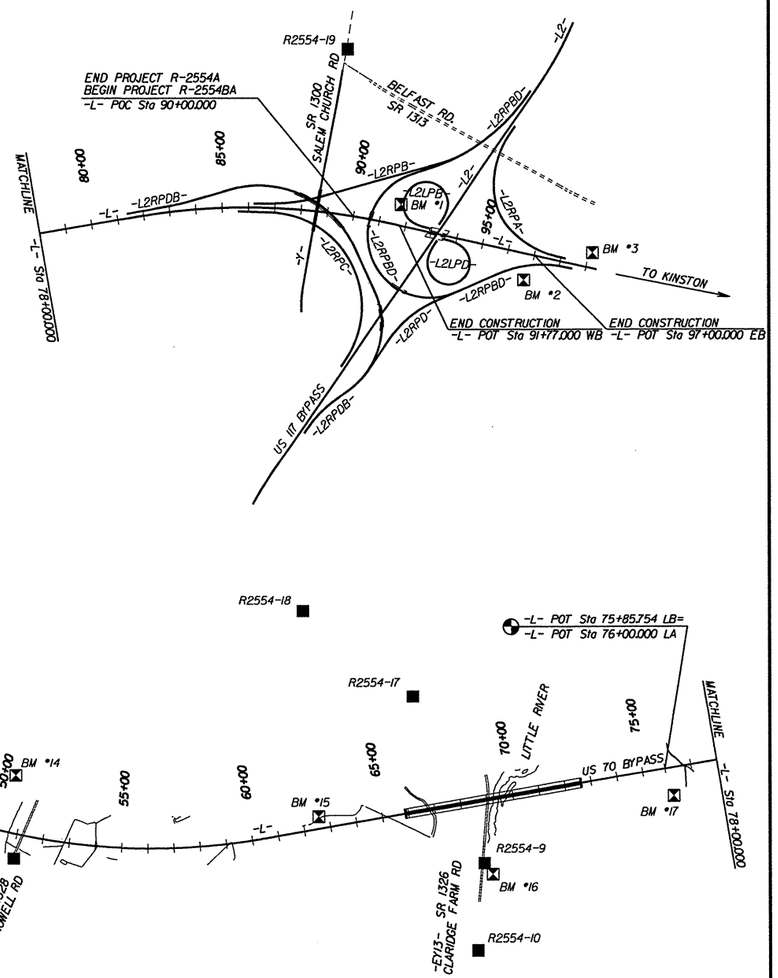
PROJECT REFERENCE NO.	SHEET NO.
R2554-A	1 C
LOCATION AND SURVEYS	

SURVEY CONTROL SHEET R-2554A



OUTER CONTROL NETWORK VICINITY MAP





DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R1030-A5" WITH NAD 1983 STATE PLANE GRID COORDINATES OF NORTHING: 186378.708(m) EASTING: 700646.586(m) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987745 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R1030A-5" TO -L- STATION 69+28.533 IS N 89° 29' 35.0" W @ 1,843.372(m) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29

NOTES:

THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
HTTP:\WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT
FILE : R2554A_LS_CONTROL_050818.TXT
FILE : R2554BA_LS_CONTROL_050616.TXT & R2554BA_LS_BASELINE_050616.TXT

■ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*

PROJECT CONTROL ESTABLISHED UTILIZING GLOBAL POSITIONING SYSTEM.
CONTROL NETWORK ESTABLISHED USING STATIC GPS FROM EXISTING NCGS MONUMENTATION.
SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT.
IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

NOTE: DRAWING NOT TO SCALE

FILE: $FILE$LS
DATE: $DATE$TIME$S
PLOT DRIVER: $PLTDRV$LS
PEN TABLE: $PENTBL$LS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	4
R /W SHEET NO. 4	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

TRAFFIC DIAGRAM
US 70 GOLDSBORO BYPASS

SR 1381 -Y3-

300/400 | 100/200 | 100/200 | US 70 GOLDSBORO BYPASS | -L- | 21,800/35,600 | 22,100/36,300 | 500/500 | 800/1,200 | 1,400/1,700

0000/0000 ADT-2012/ADT-2037

-L-

PI Sta 1+01.007
Δ = 10° 29' 34.4" (RT)
L = 201.449
T = 101.007
R = 1,100.000
SE = 0.05

PIs Sta 2+31.454
Θs = 2° 20' 38.1"
Ls = 90.000
LT = 60.005
ST = 30.005

-Y3-

PI Sta 11+68.619
Δ = 39° 35' 23.1" (RT)
L = 55.278
T = 28.794
R = 80.000
SE = 0.02

NAD 83

MATCH LINE -Y3- 11+20.000 SEE SHEET 30

S 18° 02' 56.2" E

-Y3- PC Sta 11+39.825

BEGIN PROJECT R-2554A
-L- POC Sta 1+80.000

LEHMAN SMITH, et ux
DB 906 PG. 675

BY-600A POT 5+00.000 =
BY1-POT 6+52.614 =
BY2-POT 5+00.000 =
-L- POT 3+96.524
3.466m RT

+37.999 -Y3-
9.116m RT
(29.91')

+38.447 -Y3-
EXIST. R/W
16.000m RT
(52.49')

+60.000 -Y3-
11.989m (39.33') LT

+60.286 -Y3-
12.074m (39.61') LT

+80.213 -T-
EXIST. R/W
44.218m LT
(145.07')

+12.456 -L-
EXIST. R/W
33.000m LT
(108.27')

+00.000 -T-
33.000m LT
(108.27')

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

CREWS WERE UNABLE TO ACCOUNT FOR ID OUT TV CABLE FOUND IN THIS PEDS.

+91.449 -L-
29.064m (95.35') LT

+116.744 -L-
29.087m (95.43') LT

-Y3- PT Sta 11+95.103

SPECIAL V-DITCH
SEE DETAIL 5

+51.235

GRADE TO DRAIN

+23.924 -L-
29.184m (95.75') LT

SPECIAL V-DITCH
SEE DETAIL 1

NO ASSOC. PIPING FOUND FOR THESE WM

TO RALEIGH

PAVEMENT RESURFACING US 70 WBL 7.2 BST

GRADE TO DRAIN
SEE CROSS SECTIONS

53.36m TAPER -L- GOLDSBORO BYPASS

S 58° 34' 00.0" E

SPECIAL V-DITCH
SEE DETAIL 2

TYPE 'D'
2GI

PAVEMENT RESURFACING US 70 EBL 7.5 BST

200 YD. FORK TOWNSHIP

+01.449 -L-
20.100m RT
(65.94')

+91.449 -L-
21.229m (69.65') RT

+00.000 -L-
24.000m RT
(78.74')

+40.000 -L-
21.184m (69.50') RT

+65.270 -L-
30.000m (98.42') RT

+65.000 -L-
24.000m RT
(78.74')

+60.000 -L-
EXIST. R/W
29.000m RT
(95.14')

BEGIN C/A
BEGIN FENCE
+91.693 -L-
30.000m RT
(98.43')

SPECIAL V-DITCH
SEE DETAIL 1

1.2m WW 1-S-BW

SPECIAL V-DITCH
SEE DETAIL 5

BEGIN TEMP. PAVE.
-L- STA. 3+10+/-

+45.827

+50.201

+25.000 -L-
28.000m RT
(91.86')

28.950m
RT TURN TAPER

81.680m STORAGE LENGTH

-L- POT Sta 3+69.941 =
-Y3- POT Sta 12+05.990

+80.000 -Y3-
13.000m RT
(42.65')

S 21° 32' 27.0" W

80.207m TAPER

75.845m TAPER

ISFBUS

JIMMY ADAMS
DB 1539 PG. 25

-L- Sta 2+91.449

-L- CS Sta 2+01.449

+33.360 -L-

MATCH LINE -Y3- 12+80.000 SEE SHEET 31

MATCH LINE -L- 5+00.000 SEE SHEET 5

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 76 OR -Y3- PROFILE
SEE SHEET 2K FOR INT. DETAILS
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILEL$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRVL$
PEN TABLE: $PENTBLL$

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0238

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	5
R /W SHEET NO. 5	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.

NAD 83

-Y5-
PI Sta 10+33.530
Δ = 31° 13' 20.0" (RT)
L = 65.392
T = 33.530
R = 120.000

-L-
PIs Sta 5+69.943
Θs = 1° 17' 21.0"
Ls = 90.000
LT = 60.002
ST = 30.001

PI Sta 7+81.015
Δ = 10° 20' 47.5" (LT)
L = 361.162
T = 181.073
R = 2,000.000
SE = 0.03

PIs Sta 10+02.017
Θs = 0° 44' 11.9"
Ls = 90.000
LT = 49.096
ST = 40.914

-Y1-
PI Sta 11+57.964
Δ = 50° 14' 30.0" (LT)
L = 184.145
T = 98.464
R = 210.000
SE = 0.07
Curve Widening = 0.7

PI Sta 17+09.012
Δ = 29° 47' 00.0" (LT)
L = 909.680
T = 465.366
R = 1,750.000
SE = RC

-Y5- PC Sta 10+00.000

BEGIN CONSTRUCTION
-Y5- POC Sta 10+45.000

-Y6- POT Sta 10+69.172

BEGIN CONSTRUCTION
-Y6- POT Sta 10+80.000

S 31° 30' 29.6" W

-Y1- POC Sta 12+49.849

-Y5- POT Sta 10+86.256

S 28° 14' 02.0" W

-Y1- PCC Sta 12+43.645

-Y5- PT Sta 10+65.392

-Y6- POT Sta 11+18.735

-Y1- POC Sta 14+31.257

S 58° 34' 00.0" E

-L- SC Sta 5+99.942

S 59° 18' 35.8" E

-Y2- PT Sta 13+09.655

-Y2- PC Sta 13+86.655

MATCH LINE -Y1- SEE SHEET 32

MATCH LINE -L- 5+00.000 SEE SHEET 4

MATCH LINE -L- 8+40.000 SEE SHEET 6

MATCH LINE -Y2- 11+40.000 SEE SHEET 33

THOMAS M. LUND
DB 2224 PG. 300

LINDA J. JEFFERSON
DB 1410 PG. 23
PLAT CAB. A, SLIDE 142-AA

ALICE R. SULLIVAN
DB 1092 PG. 61
PLAT CAB. A, SLIDE 142-AA

RONNIE HARRIS
DB 1525 PG. 843
PLAT CAB. A, SLIDE 142-AA

JONAS WESLEY HINNANT
DB 1213 PG. 447
PLAT CAB. A, SLIDE 142-AA

RONALD SIMON KATZ
DB 1490 PG. 144
PLAT CAB. A, SLIDE 142-AA

ANN MARIE COLEY
DB 1264 PG. 704
PLAT CAB. A, SLIDE 142-AA

EUGENE BREWINGTON
DB 1076 PG. 401
PLAT CAB. A, SLIDE 142-AA

FRANKLIN D WEEKS
DB 2615 PG. 486

DURWOOD PAUL SINGLETON
DB 1519 PG. 692
PLAT CAB. A, SLIDE 142-AA

GERALDINE SYKES
DB 1514 PG. 36
PLAT CAB. A, SLIDE 96-AA

FRANKLIN WEEKS
DB 975 PG. 438
PLAT CAB. A, SLIDE 96-AA

HERBERT L. JOHNSON
DB 1345 PG. 229
PLAT CAB. A, SLIDE 96-AA

LESLIE DELEON SASSER
DB 1220 PG. 296

JIMMY ADAMS
DB 1539 PG. 0

COASTAL TRANSPORT, INC.
DB 1156 PG. 578

JOHNNY ALAN DALY
DB 1577 PG. 243

FORK TOWNSHIP

GOLDSBORO BYPASS

EARL DR

SEAL WELL

SPECIAL V-DITCH
SEE DETAIL 1

SPECIAL V-DITCH
SEE DETAIL 2

SPECIAL V-DITCH
SEE DETAIL 3

SPECIAL V-DITCH
SEE DETAIL 4

2GI TYPE 'D'

90.000m UNIFORM TAPER

786.65m AUXILLARY LANE

CABLE GUIDE RAIL

EST. 2.7 MTN CL-B RIP RAP
EST. 8.4 SM FILTER FABRIC

-L- TS Sta 5+09.942

-Y2- PT Sta 13+09.655
(19.44m RT - 30.00')
(10.00m RT - 32.81')

-Y2- PC Sta 13+86.655
(10.00m RT - 32.81')
(19.44m RT - 30.00')

-Y2-
PI Sta 12+26.783
Δ = 39° 38' 50.0" (RT)
L = 172.994
T = 90.122
R = 250.000
SE = 0.06

PI Sta 14+47.253
Δ = 13° 02' 42.5" (LT)
L = 120.671
T = 60.597
R = 530.000
SE = 0.04

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 41 OR -L- PROFILE
SEE SHEET 67 FOR -Y1- PROFILE
SEE SHEET 72 FOR -Y2- PROFILE
SEE SHEET 77 FOR -Y5- PROFILE
SEE SHEET 77 FOR -Y6- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $PLTDRVR$
PEN TABLE: $PENTBL$

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingsform Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	6
R /W SHEET NO. 6	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

-Y1-
PI Sta 17+09.012
Δ = 29° 47' 00.0" (LT)
L = 909.680
T = 465.366
R = 1,750.000
SE = RC

-L-
PI Sta 7+81.015
Δ = 10° 20' 47.5" (LT)
L = 361.162
T = 181.073
R = 2,000.000
SE = 0.03

Pls Sta 10+02.017
Θs = 0° 44' 11.9"
Θs = 1° 17' 21.0"
Ls = 90.000
LT = 49.096
ST = 40.914

PI Sta 13+30.746
Δ = 9° 08' 10.4" (LT)
L = 558.099
T = 279.643
R = 3,500.000
SE = 0.03

-FLY-
Pls Sta 21+91.753
Θs = 2° 23' 14.4"
Ls = 75.000
LT = 50.004
ST = 25.004

PI Sta 23+20.537
Δ = 13° 09' 24.1" (RT)
L = 206.665
T = 103.789
R = 900.000
SE = 0.05

Pls Sta 24+47.521
Θs = 0° 29' 35.1"
Θs = 1° 54' 35.6"
Ls = 60.000
LT = 35.900
ST = 24.108

SER.RD.I-850 PINC 7+39.635 =
-L- POS 10+03.498
136.35lm LT

HERBERT L. JOHNSON
10

HELEN YARBOROUGH
00E-166
17

DAVID BENTON MITCHELL
DB 847 PG. 277
18

+74.305 -Y1-
13.000m LT
(42.65')

+74.305 -Y1-
14.868m LT
(48.78')

+35.000 -Y1-
12.500m LT
(41.01')

EST. 10 MTN CL-B RIP RAP
EST. 23.4 SM FILTER FABRIC

+30.000 -Y1-
10.500m LT
(34.45')

+74.305 -Y1-
9.144m LT
(30.00')

+55.000 -Y1-
13.000m LT
(42.65')

+80.000 -Y1-
9.144m LT
(30.00')

+50.000 -Y1-
10.000m LT
(32.81')

SPECIAL V-DITCH
SEE DETAIL 5

SEAL WELL

1.2m WW 1-S-BW

-L- CS Sta 9+61.104

-L- SC Sta 10+51.104

-L- POC Sta 11+71.574 (14.200m LT) =
-FLY- SC Sta 25+05.857

EST. 4.5 MTN CL-B RIP RAP
EST. 11.7 SM FILTER FABRIC

-L- GOLDSBORO BYPASS

CABLE GUIDERAIL ANCHOR, UNITS

SPECIAL V-DITCH
SEE DETAIL 4

+63.231 -L-
26.380m RT
(86.55')

-T86165m AUXILIARY LANE

S 7°27' 18.3" E -Y2-

+88.337
1.356

+47.983
7.000m
(TYP.)

BM #3
STA 9+58.4
41.306 RIGHT
ELEV. 100.267

+00.508 -Y2-
13.293m RT
(43.61')

+00.612 -Y2-
15.102m RT
(49.55')

+80.000 -Y2-
14.000m RT
(45.93')

+48.670 -Y2-
9.781m (32.09') RT

-Y2- PT Sta 15+07.326
(9.144m RT - 30.00')

MATCH LINE -L- 8+40.000 SEE SHEET 5

MATCH LINE -L- 11+80.000 SEE SHEET 7

BY-603A PINC 11+91.487 =
-L- POC 10+85.237
20.566m RT

NO ASSOCIATED PIPING FOUND FOR WMS IN THIS AREA

14
COASTAL TRANSPORT, INC.
DB 1156 PG. 578

15
COASTAL TRANSPORT, INC.
DB 1021 PG. 7

16
J. J. HAINES & CO.
DB 1118 PG. 195

19
ROBERT STORK
DB 2430 PG. 680

72

74
H. J. HILL LIVING TRUST
DB 1606 PG. 372

RONALD E. WATERS
DB 1020 PG. 839

-Y2-
PI Sta 14+47.253
Δ = 13° 02' 42.5" (LT)
L = 120.671
T = 60.597
R = 530.000
SE = 0.04

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 59 FOR -FLY- PROFILE
SEE SHEETS 67 & 68 FOR -Y1- PROFILE
SEE SHEETS 72 & 73 FOR -Y2- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$S
DATE: $DATE$
PLOT DRIVER: $PLTDRVR$
PEN TABLE: $PENTBL$
$TIME$

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0238

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	7
R /W SHEET NO. 7	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.

NAD 83

-FLY-
PIs Sta 20+50.643
Θs = 5° 51' 35.3"
Ls = 90.000
LT = 60.033
ST = 30.030

PIs Sta 22+14.196
Θs = 2° 23' 14.4"
Ls = 75.000
LT = 50.005
ST = 25.004

PI Sta 23+42.981
△ = 13° 09' 24.1" (RT)
L = 206.665
T = 103.789
R = 900.000
SE = 0.05

PIs Sta 24+69.965
Θs = 0° 29' 35.1"
Θs = 1° 54' 35.6"
Ls = 60.000
LT = 35.900
ST = 24.108

-L-
PIs Sta 10+02.017
Θs = 0° 44' 11.9"
Θs = 1° 17' 21.0"
Ls = 90.000
LT = 49.096
ST = 40.914

PI Sta 13+30.746
△ = 9° 08' 10.4" (LT)
L = 558.099
T = 279.643
R = 3,500.000
SE = 0.03

PIs Sta 16+39.204
Θs = 0° 44' 12.0"
Ls = 90.000
LT = 60.001
ST = 30.000

-Y1-
PI Sta 17+09.012
△ = 29° 47' 00.0" (LT)
L = 909.680
T = 465.366
R = 1,750.000
SE = RC

-Y1- PT Sta 21+53.325

DAVID BENTON MITCHELL
DB 847 PG. 277

SER RID I-85 PINC 9+70.325 = -L- POC 12+33.346 76.016m LT

EST. 9.1 MTN CL-B RIP RAP
EST. 23.4 SM FILTER FABRIC

1.2m LATERAL BASE DITCH SEE DETAIL 16

-FLY- TS Sta 21+64.192
-FLY- SC Sta 22+39.192
-FLY- CS Sta 24+45.857
-Y2- PC Sta 18+23.647
-Y2- PT St 20+52.289

425.244 UNIFORM TAPER / LANE DROP

-L- POC Sta 13+86.107 (14.200m RT)=
-RPCD- POT Sta 10+00.000

786.165m AUXILLARY LANE

-Y2-
PI Sta 19+38.088
△ = 6° 25' 18.1" (LT)
L = 228.642
T = 114.441
R = 2,040.000
SE = NC

S 88° 47' 27.1" E
S 77° 42' 44.1" E
S 78° 46' 36.4" E

GOLDSBORO BYPASS
CABLE GUIDE RAIL
SPECIAL V-DITCH SEE DETAIL 4
SPECIAL V-DITCH SEE DETAIL 5

18 — DAVID BENTON MITCHELL, DB 847 PG. 277
19 — RONALD E. WATERS, DB 1020 PG. 839
19A — JESSIE PAUL SASSER, ET UX, DB 2433 PG. 006
20 — JESSIE PAUL SASSER, DB 2633 PG. 52
21 — KEITH H. CRAWFORD, DB 1063 PG. 525
22 — WILLIAM STANLEY GINN, DB 2089 PG. 517
23 — R. E. GRANTHAM, HEIRS, WB 4 PG. 256
74 — H. J. HILL LIVING TRUST, DB 1606 PG. 372
75 — JESSIE PAUL SASSER, DB 2633 PG. 52
76 — CLEMENT MCCASKILL, DB 2555 PG. 169
77 — JAMES RONNIE PHILLIPS, ET UX, DB 1558 PG. 143
78 — WILLIAM PERRINE WINCHEW, DB 1733 PG. 833

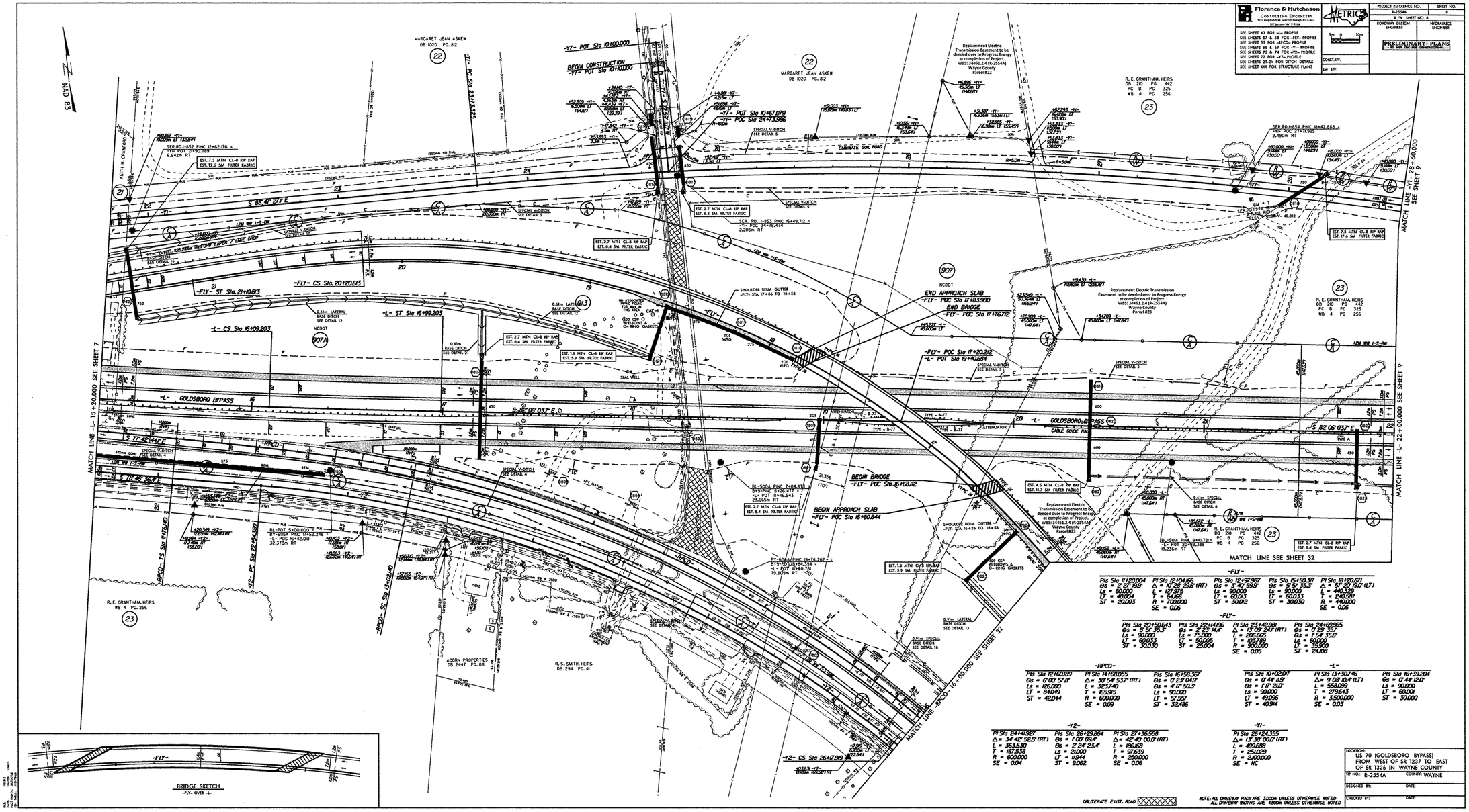
OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

MATCH LINE -L- 11+80.000 SEE SHEET 6
MATCH LINE -L- 15+20.000 SEE SHEET 8

SEE SHEET 42 FOR -L- PROFILE
SEE SHEETS 57 THRU 59 FOR -FLY- PROFILE
SEE SHEET 55 & 56 FOR -RPCD- PROFILE
SEE SHEET 70 FOR -Y1- PROFILE
SEE SHEET 73 FOR -Y2- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $PLOTDRVR$
PEN TABLE: $PENTBL$



Florence & Hutcheson
CONSULTING ENGINEERS
1415 Hampton Ridge Road Raleigh, N.C. 27603
NC Licensure No. P-0106

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	8
R/W SHEET NO. 8	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

SEE SHEET 43 FOR -L- PROFILE
SEE SHEETS 57 & 58 FOR -Y1- PROFILE
SEE SHEET 55 FOR -RPCD- PROFILE
SEE SHEETS 68 & 69 FOR -Y2- PROFILE
SEE SHEETS 73 & 74 FOR -Y2- PROFILE
SEE SHEET 77 FOR -Y1- PROFILE
SEE SHEETS 27-29 FOR DITCH DETAILS
SEE SHEET XXX FOR STRUCTURE PLANS

CONST.ESY.
R/W REV.

PRELIMINARY PLANS
NO RIGHT OF WAY OR CONSTRUCTION

-FLY-
Pt Sta 11+20.004
θs = 2° 21' 53"
Ls = 60.000
LT = 40.004
ST = 20.003

Pt Sta 12+04.166
Δ = 18° 28' 23" (RT)
L = 127.315
T = 64.166
R = 700.000
SE = 0.06

Pt Sta 12+92.987
θs = 2° 21' 53"
Ls = 60.000
LT = 60.013
ST = 30.012

Pt Sta 15+50.317
θs = 2° 21' 35.3"
Ls = 90.000
LT = 60.013
ST = 30.030

Pt Sta 18+20.871
Δ = 3° 28' 15.0" (LT)
L = 540.329
T = 270.567
R = 440.000
SE = 0.06

-FLY-
Pt Sta 20+50.643
θs = 5° 5' 35.3"
Ls = 90.000
LT = 60.013
ST = 30.030

Pt Sta 22+44.196
θs = 2° 23' 44.4"
Ls = 75.000
LT = 50.005
ST = 25.004

Pt Sta 23+42.981
Δ = 13° 09' 24.1" (RT)
L = 206.665
T = 103.789
R = 900.000
SE = 0.05

Pt Sta 24+69.965
θs = 12° 29' 35.2"
Ls = 11° 54' 35.6"
Ls = 60.000
LT = 35.900
ST = 24.108

-RPCD-
Pt Sta 12+60.189
θs = 6° 00' 51.8"
Ls = 126.000
LT = 84.049
ST = 42.044

Pt Sta 14+68.055
Δ = 30° 54' 53.7" (RT)
L = 323.740
T = 165.915
R = 600.000
SE = 0.09

Pt Sta 16+58.367
θs = 0° 23' 04.9"
θs = 6° 11' 50.3"
Ls = 90.000
LT = 57.552
ST = 32.486

-L-
Pt Sta 10+02.207
θs = 0° 44' 11.5"
θs = 1° 11' 21.0"
Ls = 90.000
LT = 49.096
ST = 40.944

Pt Sta 13+30.746
Δ = 9° 08' 10.4" (LT)
L = 556.099
T = 279.643
R = 3,500.000
SE = 0.03

Pt Sta 16+39.204
θs = 0° 44' 12.0"
Ls = 90.000
LT = 60.009
ST = 30.000

-Y2-
Pt Sta 24+41.527
Δ = 34° 42' 52.5" (RT)
L = 363.530
T = 187.538
R = 600.000
SE = 0.04

Pt Sta 26+29.864
θs = 1° 00' 09.4"
θs = 2° 24' 23.4"
Ls = 21.000
LT = 11.944
ST = 9.062

Pt Sta 27+36.558
Δ = 42° 40' 00.0" (RT)
L = 186.858
T = 97.639
R = 250.000
SE = 0.06

-Y1-
Pt Sta 26+24.355
Δ = 13° 38' 00.0" (RT)
L = 499.688
T = 250.029
R = 2,100.000
SE = NC

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

LOCATION:
US 70 (GOLDSBORO BYPASS)
FROM WEST OF SR 1237 TO EAST
OF SR 1326 IN WAYNE COUNTY

TIP NO.: R-2554A	COUNTY: WAYNE
DESIGNED BY:	DATE:
CHECKED BY:	DATE:

Florence & Hutcheson
Consulting Engineers
(GPS Land Surveying - Photogrammetry - G.I.S.Mapping)

METRIC
Scale 0 5m 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	9
R/W SHEET NO. 9	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

CONST.REV.
R/W REV.

SEE SHEET 44 FOR -1A- PROFILE
SEE SHEET 61 FOR -RPB- PROFILE
SEE SHEET 62 FOR -RPC- PROFILE
SEE SHEETS 69 & 70 FOR -YT- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

N NAD 83

MATCH LINE -1- 22+00.000 SEE SHEET 8

MATCH LINE -1- 28+60.000 SEE SHEET 8

MATCH LINE -YT- 35+40.000 SEE SHEET 42

MATCH LINE -RPC- 14+00.000 SEE SHEET 10

-YT-
PI Sta 26+24.355
Δ = 13° 38' 00.0" (RT)
L = 499.686
T = 251.029
R = 2,100.000
SE = MC

PI Sta 35+29.319
Δ = 28° 11' 23.2" (LT)
L = 590.405
T = 301.305
R = 1,200.000
SE = RC

-RPB-
PI Sta 10+40.005
Θs = 2° 51' 53.2"
Ls = 60.000
LT = 40.005
ST = 20.005

PI Sta 11+42.722
Δ = 15° 41' 59.0" (LT)
L = 164.407
T = 82.722
R = 600.000
SE = 0.05

PI Sta 12+44.412
Θs = 2° 51' 53.2"
Ls = 60.000
LT = 40.005
ST = 20.005

-1-
PI Sta 26+92.295
Θs = 1° 11' 21.0"
Ls = 90.000
LT = 60.002
ST = 30.001

PI Sta 31+04.402
Δ = 21° 37' 57.1" (RT)
L = 755.118
T = 382.109
R = 2,000.000
SE = 0.03

PI Sta 35+07.412
Θs = 1° 11' 21.0"
Ls = 90.000
LT = 60.002
ST = 30.001

-RPC-
PI Sta 10+80.005
Θs = 2° 51' 53.2"
Ls = 60.000
LT = 40.005
ST = 20.005

PI Sta 12+68.045
Δ = 31° 11' 33.0" (RT)
L = 327.694
T = 168.045
R = 600.000
SE = 0.05

PI Sta 14+47.699
Θs = 2° 51' 53.2"
Ls = 60.000
LT = 40.005
ST = 20.005

(23) R. E. GRANTHAM, HEIRS
DB 210 PG 442
PC 8 PG 325
WB 4 PG 256

(24) DAVID BENTON MITCHELL,JR
DB 847 PG 277

(25) LARRY D. BILL
DB 1404 PG. 468
PLAT CAB. K, SLIDE 13-F

(27) ANN MARIE H. NOVAK
DB 1272 PG 688

(27A) WAL-MART STORES EAST LC
STORE #1700
DB 2466 PG 291
PLAT CAB. M, SLIDE 13-C

EST. 9.1 TONS CL-B RIP RAP
EST. 23.4 SM FILTER FABRIC

EST. 6.4 TONS CL-B RIP RAP
EST. 18.4 SM FILTER FABRIC

EST. 6.4 MTN CL-B RIP RAP
EST. 18.4 SM FILTER FABRIC

HEADWALL

90.000m UNIFORM TAPER

460.800m ACCELERATION LANE

-L- SC Sta 27+22.293 (14.200m LT)=
-RPB- SRS Sta 10+00.000

-L- TS Sta 26+32.293

-RPB- SC Sta 10+60.000

-L- GOLDSBORO BYPASS

S 82° 06' 03" E

S 75° 06' 03" E

CABLE GUIDE RAIL

0.60m SPECIAL BASE DITCH SEE DETAIL 18

0.60m SPECIAL BASE DITCH SEE DETAIL 6

12m WW I-5-08

BL-5024 PNC Y=73.109 ±
-L- POT 23+14.717
18.027m RT

-L- POT Sta 24+38.268 (14.200m RT)=
-RPC- POT Sta 11+60.000
Δ = 3° 07' 00"

-RPC- TS Sta 01+40.000
(60.000 m - PLOT)

-RPC- SC Sta 14+00.000
(100.000 m - PLOT)

-YT- PC Sta 32+29.319
(200.000 m - PLOT)

-YT- PT Sta 28+21.003

SER.RD.I-856, PNC 24+47.630 ±
-YT- POC 33+81.545
3.397m RT

BL-5034 PNC Y=-104.822 ±
-L- POC 26+82.810
13.463m RT

BL-5046 PNC 17+32.761 ±
-L- POC 28+75.108
4.575m RT

-RPB- SRS Sta 12+44.412
(60.000 m - PLOT)

-RPB- SC Sta 12+44.412
(100.000 m - PLOT)

-RPB- SRS Sta 10+40.005
(60.000 m - PLOT)

-RPB- SC Sta 10+40.005
(100.000 m - PLOT)

-RPB- SRS Sta 10+00.000
(100.000 m - PLOT)

-RPB- SC Sta 10+60.000
(100.000 m - PLOT)

-RPB- SRS Sta 12+44.412
(100.000 m - PLOT)

-RPB- SC Sta 12+44.412
(60.000 m - PLOT)

-RPB- SRS Sta 11+42.722
(100.000 m - PLOT)

-RPB- SC Sta 11+42.722
(60.000 m - PLOT)

-RPB- SRS Sta 10+40.005
(100.000 m - PLOT)

-RPB- SC Sta 10+40.005
(60.000 m - PLOT)

-RPB- SRS Sta 10+00.000
(100.000 m - PLOT)

-RPB- SC Sta 10+00.000
(60.000 m - PLOT)

-RPB- SRS Sta 9+59.995
(100.000 m - PLOT)

-RPB- SC Sta 9+59.995
(60.000 m - PLOT)

-RPB- SRS Sta 9+39.995
(100.000 m - PLOT)

-RPB- SC Sta 9+39.995
(60.000 m - PLOT)

-RPB- SRS Sta 9+19.995
(100.000 m - PLOT)

-RPB- SC Sta 9+19.995
(60.000 m - PLOT)

-RPB- SRS Sta 8+99.995
(100.000 m - PLOT)

-RPB- SC Sta 8+99.995
(60.000 m - PLOT)

-RPB- SRS Sta 8+79.995
(100.000 m - PLOT)

-RPB- SC Sta 8+79.995
(60.000 m - PLOT)

-RPB- SRS Sta 8+59.995
(100.000 m - PLOT)

-RPB- SC Sta 8+59.995
(60.000 m - PLOT)

-RPB- SRS Sta 8+39.995
(100.000 m - PLOT)

-RPB- SC Sta 8+39.995
(60.000 m - PLOT)

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OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED.
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

LOCATION:
US 70 (GOLDSBORO BYPASS)
FROM WEST OF SR 1237 TO EAST
OF SR 1326 IN WAYNE COUNTY

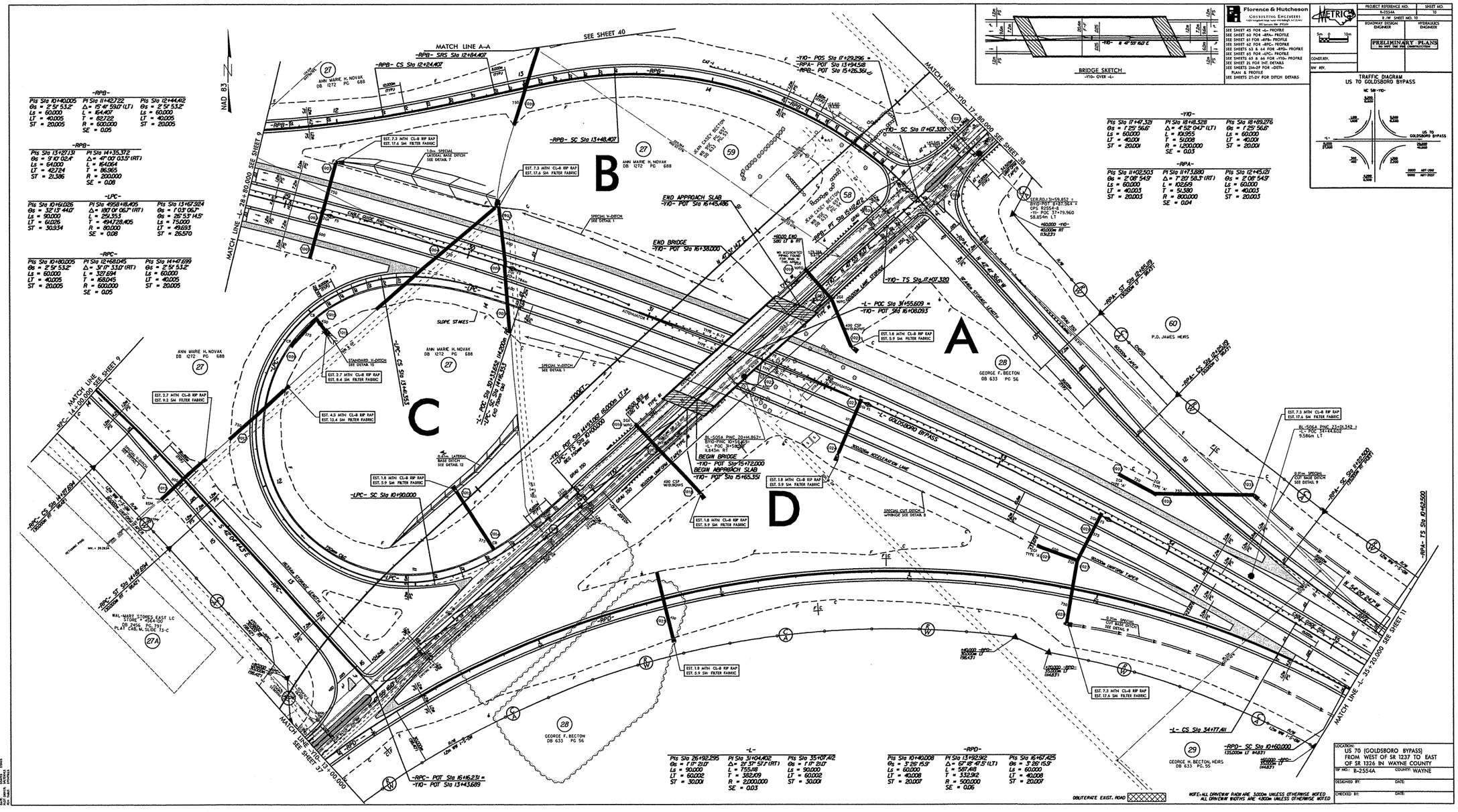
TIP NO.: R-2554A COUNTY: WAYNE

DESIGNED BY: DATE:

CHECKED BY: DATE:

FILE: R2554A_SHEETS_SERIES_9_MAIN_BYPASS

SHEET 9 OF 10 SHEETS



Florence & Hutcheson
CONSULTING ENGINEERS

SEE SHEET 45 FOR -L- PROFILE
SEE SHEET 60 FOR -RPA- PROFILE
SEE SHEET 61 FOR -RPB- PROFILE
SEE SHEET 62 FOR -RPC- PROFILE
SEE SHEETS 63 & 64 FOR -RPD- PROFILE
SEE SHEET 65 FOR -LPC- PROFILE
SEE SHEETS 65 & 66 FOR -Y10- PROFILE
SEE SHEET 2L FOR INT. DETAILS
SEE SHEETS 2M-2P FOR -DET1- PLAN & PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	10
R/W SHEET NO. 10	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CONST. REV.
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RPB-

PIs Sta 10+40.005	PI Sta 11+42.722	PIs Sta 12+44.412
θs = 2°51'53.2"	Δ = 15°41'59.0" (LT)	θs = 2°51'53.2"
Ls = 60.000	L = 164.407	Ls = 60.000
LT = 40.005	T = 82.722	LT = 40.005
ST = 20.005	R = 600.000	ST = 20.005
	SE = 0.05	

-RPB-

PIs Sta 13+27.131	PI Sta 14+35.372
θs = 9°10'02.4"	Δ = 47°00'03.5" (RT)
Ls = 64.000	L = 164.064
LT = 42.724	T = 86.965
ST = 21.386	R = 200.000
	SE = 0.08

-LPC-

PIs Sta 10+61.026	PI Sta 4958+18.405	PIs Sta 13+67.924
θs = 32°13'44.0"	Δ = 180°01'06.7" (RT)	θs = 1°03'06.7"
Ls = 90.000	L = 251.353	θs = 26°53'14.5"
LT = 61.026	T = 494728.405	Ls = 75.000
ST = 30.934	R = 80.000	LT = 49.693
	SE = 0.08	ST = 26.570

-RPC-

PIs Sta 10+80.005	PI Sta 12+68.045	PIs Sta 14+47.699
θs = 2°51'53.2"	Δ = 31°17'33.0" (RT)	θs = 2°51'53.2"
Ls = 60.000	L = 327.694	Ls = 60.000
LT = 40.005	T = 168.045	LT = 40.005
ST = 20.005	R = 600.000	ST = 20.005
	SE = 0.05	

-Y10-

PIs Sta 17+47.321	PI Sta 18+18.328	PIs Sta 18+89.276
θs = 1°25'56.6"	Δ = 4°52'04.7" (LT)	θs = 1°25'56.6"
Ls = 60.000	L = 101.955	Ls = 60.000
LT = 40.001	T = 51.008	LT = 40.001
ST = 20.001	R = 1,200.000	ST = 20.001
	SE = 0.03	

-RPA-

PIs Sta 11+02.503	PI Sta 11+73.880	PIs Sta 12+45.121
θs = 2°08'54.9"	Δ = 7°20'58.3" (RT)	θs = 2°08'54.9"
Ls = 60.000	L = 102.619	Ls = 60.000
LT = 40.003	T = 51.380	LT = 40.003
ST = 20.003	R = 800.000	ST = 20.003
	SE = 0.04	

-L-

PIs Sta 26+92.295	PI Sta 31+04.402	PIs Sta 35+07.412
θs = 1°17'21.0"	Δ = 21°37'57.1" (RT)	θs = 1°17'21.0"
Ls = 90.000	L = 755.118	Ls = 90.000
LT = 60.002	T = 382.109	LT = 60.002
ST = 30.001	R = 2,000.000	ST = 30.001
	SE = 0.03	

-RPD-

PIs Sta 10+40.008	PI Sta 13+92.912	PIs Sta 16+67.425
θs = 3°26'15.9"	Δ = 67°18'47.5" (LT)	θs = 3°26'15.9"
Ls = 60.000	L = 587.418	Ls = 60.000
LT = 40.008	T = 332.912	LT = 40.008
ST = 20.007	R = 500.000	ST = 20.007
	SE = 0.06	

OBLITERATE EXIST. ROAD ▨

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

LOCATION:
US 70 (GOLDSBORO BYPASS)
FROM WEST OF SR 1237 TO EAST
OF SR 1326 IN WAYNE COUNTY

TIP NO.: R-2554A
COUNTY: WAYNE
DESIGNED BY:
DATE:
CHECKED BY:
DATE:

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingsdown Way, Suite 100 Raleigh, NC 27607
NC License No: P-0298

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	11
R /W SHEET NO. 11	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

-L- POT Sta 35+77.716 (14.200m LT) =
-RPA- POT Sta 10+00.000
Δ = 3°-33'-00"

60
P.O. JAMES HEIRS

29
GEORGE H. BECTON, HEIRS
DB 633 PG. 55

264.938
N64°50'13"W

36 37 38

BL-507A PINC 25+81.566 =
-L- POT 37+24.064
7.246m RT

BM #12
-BL- STA 26+20.342
65.746 LEFT
ELEV.= 39.284

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

+79.938 -L-
50.000m LT
(164.04')

+60.000 -L-
50.000m LT
(164.04')

R/W
1.2m WW 1-S-BW

0.91m SPECIAL
CUT BASE DITCH
SEE DETAIL 9

30.000m
(TYP.)

50.000m
(164.05')

-RPA-

N 54°20' 24.7" W

S 57° 53' 24.7" E

-L- GOLDSBORO BYPASS

CABLE GUIDE RAIL

2GI FS

-RPD-

180.000m ACCELERATION LANE

90.000m UNIFORM TAPER

55.000m
(180.45')

+45.000

15.000m
(TYP.)

+77.716 -L-
55.000m RT
(180.45')

+60.000 -L-
55.000m RT
(180.45')

MATCH LINE -L- 35+20.000 SEE SHEET 10

MATCH LINE -L- 38+40.000 SEE SHEET 12

-L- ST Sta 35+67.411

-L- POT Sta 35+77.716 (14.200m RT)=
-RPD- TS Sta 10+00.000

-L-

PIs Sta 26+92.295	PI Sta 31+04.402	PIs Sta 35+07.412
Θs = 1° 17' 21.0"	Δ= 21° 37' 57.1" (RT)	Θs = 1° 17' 21.0"
Ls = 90.000	L = 755.118	Ls = 90.000
LT = 60.002	T = 382.109	LT = 60.002
ST = 30.001	R = 2,000.000	ST = 30.001
	SE = 0.03	

-RPD-

PIs Sta 10+40.008	PI Sta 13+92.912	PIs Sta 16+67.425
Θs = 3° 26' 15.9"	Δ= 67° 18' 47.5" (LT)	Θs = 3° 26' 15.9"
Ls = 60.000	L = 587.418	Ls = 60.000
LT = 40.008	T = 332.912	LT = 40.008
ST = 20.007	R = 500.000	ST = 20.007
	SE = 0.06	

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 46 FOR -L- PROFILE
SEE SHEET 60 FOR -RPA- PROFILE
SEE SHEET 63 FOR -RPD- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILES
DATE: $DATES $TIMES
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	12
R /W SHEET NO. 12	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

-L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.817
Θs = 1° 01' 52.8"	Δ = 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = 0.03	

NAD 83

MATCH LINE -L- 38+40.000 SEE SHEET 11

MATCH LINE -L- 41+80.000 SEE SHEET 13

GEORGE H. BECTON, HEIRS
DB 191 PG. 98
29

DANNY P. SASSER
DB 1803 PG. 284
31

CATHERINE S. SMITH
WB 81 PG. 282
DB 360 PG. 389
32

BL-508A PINC 27+55.048 =
-L- POT 38+97.399
0.109m RT

BL-509A PINC 29+25.471 =
-L- POT 40+67.771
4.070m LT

+40.000 -L- RT
50.000m LT
(164.04')

+40.000 -L- RT
45.000m LT
(147.64')

FENCE
+70.000 -L- RT
45.000m LT

BEGIN FENCE
+92.196 -L- RT
33.316m LT

END FENCE
+82.746 -L- RT
33.841m LT

FENCE
+40.000 -L- RT
45.000m LT

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

-EYII- POT Sta 10+00.000

-L- POT Sta 41+64.336 =
-EYII- POT Sta 10+43.597

-L- TS Sta 41+71.877
(45.000m LT - 147.64')

R/W
1.2m WW I-S-BW

CLASS 'I' RIP RAP
EST. 11 MTN

CLASS 'I' RIP RAP
EST. 25 MTN

0.91m SPECIAL
CUT BASE DITCH
SEE DETAIL 9

HEADWALL

0.61m SPECIAL
BASE DITCH
SEE DETAIL 6

ROCK CHECK DAMS
SEE DETAIL 20

GRAU 350

CAT-I

3.0m PS
7.2m
1.2m PS
.025

50.000m
(164.05')

55.000m
(180.45')

45.000m
(146.64')

S 57° 53' 24.7" E

3GI
TYPE 'A'

2GI
FS

-L- GOLDSBORO BYPASS

CABLE GUIDE RAIL

2@ 2.13 x 2.13 RCBC

+47.716
90.000m
UNIFORM
TAPER

0.91m SPECIAL
CUT BASE DITCH
SEE DETAIL 9

0.61m SPECIAL
BASE DITCH
SEE DETAIL 6

ROCK CHECK DAMS
SEE DETAIL 20

BEGIN FENCE
+88.872 -L- RT
33.104m RT

END FENCE
+73.688 -L- RT
32.538m RT

CLASS 'I' RIP RAP
EST. 12 MTN

+40.000 -L- RT
45.000m RT
(147.64')

+40.000 -L- RT
55.000m RT
(180.45')

FENCE
+70.000 -L- RT
45.000m RT

FENCE
+40.000 -L- RT
45.000m RT

+71.877 -L- RT
45.000m RT
(147.64')

30.000m
(TYP.)

EXISTING R/W

EST. 4.5 MTN CL-B RIP RAP
EST. 11.7 SM FILTER FABRIC

GEORGE H. BECTON, HEIRS
DB 633 PG. 55
29

GEORGE H. BECTON, HEIRS
DB 191 PG. 98
29

DANNY P. SASSER
DB 1803 PG. 284
31A

CATHERINE S. SMITH
WB 81 PG. 282
DB 360 PG. 389
32

SOIL

WLB

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 46 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$ $TIME$
DATE: $DATE$
PLOT DRIVER: $PLTDRVR$
PEN TABLE: $PENTBL$

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0238

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	13
R /W SHEET NO. 13	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.

-L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.817
Θs = 1° 01' 52.8"	Δ = 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = 0.03	

NAD 83

CATHERINE S. SMITH
WB 81 PG. 282
DB 360 PG. 389
32

42 43 44

BL-510A PINC 30+59.663 =
-L- POS 42+01.770
11.663m LT

-L- SC Sta 42+61.877
(45.000m LT - 147.641')

BL-511A PINC 32+58.781 =
-L- POC 44+01.844
13.670m LT

EST. 2.7 MTN CL-B RIP RAP
EST. 9.2 SM FILTER FABRIC

33
BILDAN, LLC
DB 2367 PG. 640

R/W 1.2m WW 1-S-BW
CHORD
R/W 1.2m WW 11-S-BW
WL-B
WL-B
94.933 N62°18'30"E
3.456 N62°18'30"E

0.61m SPECIAL BASE DITCH SEE DETAIL 6

PREFORMED SCOUR HOLE SEE DETAIL 21

45.000m (146.64')
3.0m PS
7.2m
1.2m PS
1.40m
.025
.03
.01
.02
375
600
1303
1302
2GI FS
76.999

-L- GOLDSBORO BYPASS
CABLE GUIDE RAIL

MATCH LINE -L- 41+80.000 SEE SHEET 12

MATCH LINE -L- 45+20.000 SEE SHEET 14

30.000m (TYP.)
+30.877
ROCK CHECK DAMS SEE DETAIL 20
0.61m SPECIAL BASE DITCH SEE DETAIL 6

S 2° 45' 08" E
536.132'
LESLIE RD
EXISTING R/W
EXISTING R/W
9.144m (30') RT
-EYII-
-EYII-
-EYII-

1.2m WW 1-S-BW
R/W 1.2m WW 1-S-BW

+15.388 -EYII-
3.066m LT
+27.388 -EYII-
18.066m LT
+61.877 -L-
45.000m RT
(147.64')
+33.388 -EYII-
18.066m LT
+43.515 -EYII-
9.144m LT
+43.515 -EYII-
2.938m LT
+43.515 -EYII-
2.662m RT
+43.515 -EYII-
9.144m (30') RT
+15.388 -EYII-
2.816m RT

PROP. GR. w/ TERM. SECTIONS
R=10m
6m
-TAI-
R=10m

BM #13
-BL- STA 31+57.726
64.346 RIGHT
ELEV.= 39.030

23.578 N62°18'30"E

-EYII- POT Sta 11+78.657

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 47 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: SFILE$
DATE: SDATE$
PLOT DRIVER: $PLTDRVL$
PEN TABLE: $PENTBL$
STIME$

Florence & Hutcheson
CONSULTING ENGINEERS
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NC License No: P-0258

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	14
R /W SHEET NO. 14	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

-L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.817
Θs = 1° 01' 52.8"	Δ = 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = 0.03	

NAD 83

WLB

33
BILDAN, LLC
DB 2367 PG. 640

46

47

48

BL-512A PINC 35+20.299 =
-L- POC 46+64.221
3.889m LT

+90.000 -L-
45.000m LT
(147.64')

GRAVES T. LEWIS
WB 7850 PG. 139
DB 935 PG. 303

BL-513A PINC 37+05.640 =
-L- POC 48+49.853
2.887m LT

35

R/W
1.2m WW 1-S-BW

45.000m
(146.64')

CAT-1

GUARDRAIL

GRAU 350

-L- GOLDSBORO BYPASS

CABLE GUIDE RAIL

140 2GI

450

402

0.61m SPECIAL
CUT BASE DITCH
SEE DETAIL 9

+90.000 -L-
45.000m RT
(147.64')

EST. 2.7 MTN CL-B RIP RAP
EST. 8.4 SM FILTER FABRIC

MATCH LINE -L- 45+20.000 SEE SHEET 13

MATCH LINE -L- 48+60.000 SEE SHEET 15

33
BILDAN, LLC
DB 2367 PG. 640

34
DONALD G. WATKINS
DB 2063 PG. 548

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 47 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRVR$
PEN TABLE: $PENTBL$

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	15
R /W SHEET NO. 15	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

MATCH LINE -L- 48+60.000 SEE SHEET 14

MATCH LINE -L- 52+00.000 SEE SHEET 16

-L- GOLDSBORO BYPASS

CABLE GUIDERAIL

49 50 51 52

GRAVES T. LEWIS
WB 78E PG. 139
DB 537 PG. 303
35

BL-515A, PINC Y 39+39.963
TY POC 50+84.262
29.574m LT

EST. 2.7 MTN CL-B RIP RAP
EST. 9.2 SM FILTER FABRIC

EST. 9.1 MTN CL-B RIP RAP
EST. 23.4 SM FILTER FABRIC

PREFORMED SCOUR HOLE SEE DETAIL 21

HEADWALL

RIP RAP TOE PROTECTION SEE DETAIL 11

SPECIAL LATERAL V-DITCH SEE DETAIL 1

R/W 12m WW 1-S-BW

45.000m (146.64')

3.0m PS

7.2m 1.2m PS

1.4.0m

-L- 32.057 N70°26'10"W

+41.017 -L- 45.000m LT (147.64')

+89.123 -L- 45.000m RT (147.64')

+91.104 -L- 58.284m RT

+89.767 -L- 64.128m RT

+07.791 -L- 50.013m RT

+07.722 -L- 78.528m RT

+14.625 -L- 76.000m (249.34') RT

+01.904 -L- 77.251m RT

+21.132 -L- 45.000m RT (147.64')

PROP. GR. w/ TERM. SECTIONS

3.6 DRIVE

HOWELL RD SR 1328 SR 1328 FORK TOWNSHIP 5.9 BST 150 mm

AT&T

375mm CONC

6m

TA2

R=10m

R=100

S61°33'14"E 34.802

N89°33'03"E 33.177

S60°34'46"E 36.789

GRAVES T. LEWIS
WB 78E PG. 139
DB 537 PG. 303
35

DONALD G. WATKINS
DB 2063 PG. 548
34

STEVEN HARRISON
DB 1579 PG. 465

HTR

W/LT

336.293
N89°33'03"E

-L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.817
Θs = 1° 01' 52.8"	Δ = 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = 0.03	

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 48 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRVR$
PEN TABLE: $PENTBL$

Florence & Hutcheson
CONSULTING ENGINEERS
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NC License No: P-0238

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	16
R /W SHEET NO. 16	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

-L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.817
Θs = 1° 01' 52.8"	Δ = 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = 0.03	

GRAVES T. LEWIS
WB 78E PG. 139
DB 537 PG. 303

35

BL-515A PINC 41+42.909 =
-L- POC 52+89.851
35.150m LT

ALVIN WATKINS
DB 748 PG. 529
DB 174 PG. 384

36

JAMES STEPHEN CASEY
05E-749

37

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

EST. 2.7 MTN CL-B RIP RAP
EST. 9.2 SM FILTER FABRIC

+40.000 -L-
45.000m LT
(147.64')

+40.000 -L-
45.000m RT
(147.64')

PREFORMED
SCOUR HOLE
SEE DETAIL 21

SPECIAL LATERAL V-DITCH
SEE DETAIL 1

MATCH LINE -L- 52+00.000 SEE SHEET 15

MATCH LINE -L- 55+40.000 SEE SHEET 17

GOLDSBORO BYPASS

CABLE GUIDE RAIL

GUARDRAIL

GRAU 350

CAT-1

2GI FS

POND

WLB

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 48 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILES
DATE: $DATES $TIMES
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	17
R /W SHEET NO. 17	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

37
LEE R CASEY
DB 1321PG 630

JAMES STEPHEN CASEY
05E-749
37

BORDEN FRANKLIN HOWELL, JR.
38

PLANT NURSERY
GREENHOUSE
POND
SOIL

56
57
58

223.801
N47°47'46"W

238.482
N52°56'02"E

+60.000 -L-
45.000m LT
(147.64')

+60.000 -L-
40.000m LT
(131.23')

BL-516A PINC 44+13.182 =
-L- POC 55+63.884
31.463m LT

0.61m SPECIAL
CUT BASE DITCH
SEE DETAIL 9

R/W
1.2m WW 1-S-BW

+85.000 -L-
40.000m LT
(131.23')

BL-517A PINC 46+54.829 =
-L- POC 58+07.233
14.198m LT

RIP RAP
TOE PROTECTION
SEE DETAIL 11

MATCH LINE -L- 55+40.000 SEE SHEET 16

MATCH LINE -L- 58+80.000 SEE SHEET 18

3.0m PS
1.2m PS
7.2m
.03
14.0m
40.000m (131.23')
45.000m (146.64')
CAT-1
GUARDRAIL
2GI
170
FS
375
450
702
703
704
-L- GOLDSBORO BYPASS
CABLE GUIDE RAIL
GRAU 350

C
F

+60.992 -L-
41.056m RT
(134.70')

0.61m LATERAL
BASE DITCH
SEE DETAIL 12

+10.000 -L-
45.000m RT
(147.64')

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

EST. 2.7 MTN CL-B RIP RAP
EST. 8.4 SM FILTER FABRIC

+60.000 -L-
45.000m RT
(147.64')

37
JAMES STEPHEN CASEY
05E-749

+54.106
N9.564

38
BORDEN FRANKLIN HOWELL, JR.

39
GEORGE NORWOOD HOWELL
DB 1314 PG. 710

238.283
S41°58'44"W

-L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.817
Θs = 1°01' 52.8"	Δ = 39° 42' 57.7" (LT)	Θs = 1°01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = 0.03	

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 49 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILES $TIMES
DATE: $DATES
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	18
R /W SHEET NO. 18	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

-L-

PIs Sta 42+31.878	PI Sta 51+64.793	PIs Sta 60+24.817
Θs = 1° 01' 52.8"	Δ = 39° 42' 57.7" (LT)	Θs = 1° 01' 52.8"
Ls = 90.000	L = 1,732.939	Ls = 90.000
LT = 60.001	T = 902.916	LT = 60.001
ST = 30.001	R = 2,500.000	ST = 30.001
	SE = 0.03	

PROP MON

BORDEN FRANKLIN HOWELL, JR
38
59

902
STATE OF NORTH CAROLINA

FLOYD DAVIS
DB 1511 PG. 439
40
62

-L- CS Sta 59+94.816
-L- ST Sta 60+84.816
60
61

M.S.90.98.LIN 1+00.1

+17.521-L-
EXIST. R/W
63.260m LT
(207.55')

R/W (RW) 1.2m WW 1-S-BW

(CA) L = 241.433
CHORD = N 53° 21' 13" E
R = 2846.660

1.2m WW 1-S-BW EXISTING R/W

+61.688 -L-
53.584m (175.80') LT

132.489 N64°11'30"W

506

CHORD

+83.137 -L-
53.510m LT
(175.56')

R/W (RW) 1.2m WW 1-S-BW

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

EXISTING R/W

0.6m LATERAL
BASE DITCH
SEE DETAIL 26

180-4

BL-518A PINC 48+06.159 =
-L- POC 59+59.335
11.331m LT

BL-519A PINC 49+60.428 =
-L- POT 61+13.380
0.881m RT

F

GUARDRAIL

GRAU 350

3.0m PS

1.2m PS

7.2m

.03

.025

.05

.10

4.0m

SEE SHEET 17

MATCH LINE -L- 58+80.000

MATCH LINE -L- 62+20.000 SEE SHEET 19

S0315'06"E 2.094

-L- GOLDSBORO BYPASS

2GI FS 180-1

N 80° 19' 52.0" E

CABLE GUIDE RAIL

375mm CONC REM

375

180-3

CAT-1

30.000m (TYP)

180-2

0.61m LATERAL
BASE DITCH
SEE DETAIL 12

(RW) 1.2m WW 1-S-BW

L = 237.602
CHORD = N 83° 13' 43" E
R = 2953.348

EXISTING R/W

1.2m WW 1-S-BW CHORD EXISTING R/W

+60.584 -L-
53.090m (174.18') RT

+25.319-L-
EXIST. R/W
43.886m RT
(143.98')

EST. 0.9 MTN CL-B RIP RAP
EST. 4.2 SM FILTER FABRIC

GEORGE NORWOOD HOWELL
DB 1314 PG. 710
39

372.885
S44°00'00"W

902
STATE OF NORTH CAROLINA

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 49 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$ $TIME$
DATE: $DATE$
PLOT DRIVER: $PLOTDRVR$
PEN TABLE: $PENTBLL$

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	19
R /W SHEET NO. 19	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

902
STATE OF NORTH CAROLINA

BL-521A PINC 52+92.369 =
-L- POT 64+25.722
104.247m LT

BL-520A PINC 50+99.540 =
-L- POT 62+50.158
24.495m LT

FLOYD DAVIS
DB 1511 PG 439
S00°42'08"E
217.296

+27.336 -L-
53.380m LT
(175.13')

1.2m WW 1-S-BW

BM #15
STA 51+18.163
BL 78.209 LEFT
ELEV = 26.267

EXISTING R/W

SOIL

0.6m LATERAL
BASE DITCH
SEE DETAIL 26

PROP R/W

F

3.0m PS

1.2m PS

7.2m

.025

+18.911
25.588

15% 4:1
15% 4:1
15% 4:1

14.0m

63

64

65

375mm PLASTIC

1.0m STANDARD
BASE DITCH
SEE DETAIL 14

300mm PLASTIC

RCP

902

CAT-I

450

N 80°19'52.0" E

CABLE GUIDE RAIL

3GI
TYPE 'A'

190 -L- GOLDSBORO BYPASS

M-350

GRAU 350

0.91m LATERAL
BASE DITCH
SEE DETAIL 13

ROCK CHECK DAMS
SEE DETAIL 20

W/LT

W

CONC

C
A

MATCH LINE -L- 62 + 20.000 SEE SHEET 18

MATCH LINE -L- 65 + 60.000 SEE SHEET 20

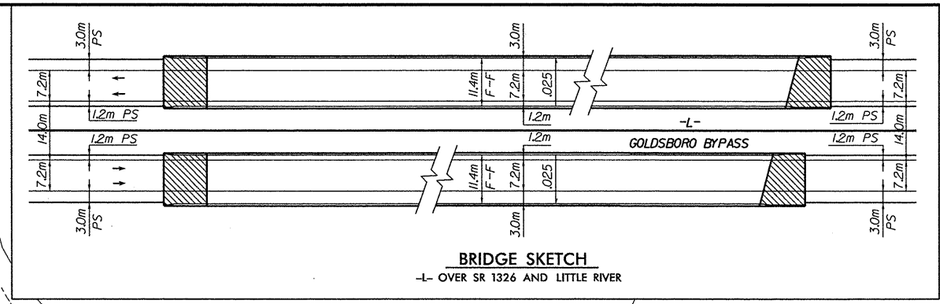
+21.136 -L-
53.300m (174.87') RT

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 50 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILES
DATE: $DATES $TIMES
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS



BRIDGE SKETCH
-L- OVER SR 1326 AND LITTLE RIVER

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	20
R /W SHEET NO. 20	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CONST.REV.
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

STATE OF NORTH CAROLINA
902

BL-522A PINC 54+80.670 =
ELEV.= 25.345
-Y- POT 66+13.793
94.957m LT

0.91m LATERAL BASE DITCH SEE DETAIL 13
ROCK CHECK DAMS SEE DETAIL 20
12m WW 1-S-BW
+00.000 -L-
53.380m (175.13') LT
+35.000 -L-
53.380m LT
END FENCE
+35.000 -L-
17.670m LT
CL. II RIP RAP TO ELEV. 26.0 (TYP.)
2GI W/FG
TYPE III
BRIDGE
-L- GOLDSBORO BYPASS
N 80°19'52.0" E
BEGIN APPROACH SLAB
-L- POT Sta 66+27.389
BEGIN BRIDGE
-L- POT Sta 66+35.000
400 CSP W/3 ELBOWS
END FENCE
+35.000 -L-
17.670m RT
EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC
+35.000 -L-
53.300m RT
0.6m LATERAL BASE DITCH SEE DETAIL 26
+00.000 -L-
53.300m (174.87') RT
CANAL
SOIL & GR
EXISTING R/W
66
67
68
902
STATE OF NORTH CAROLINA

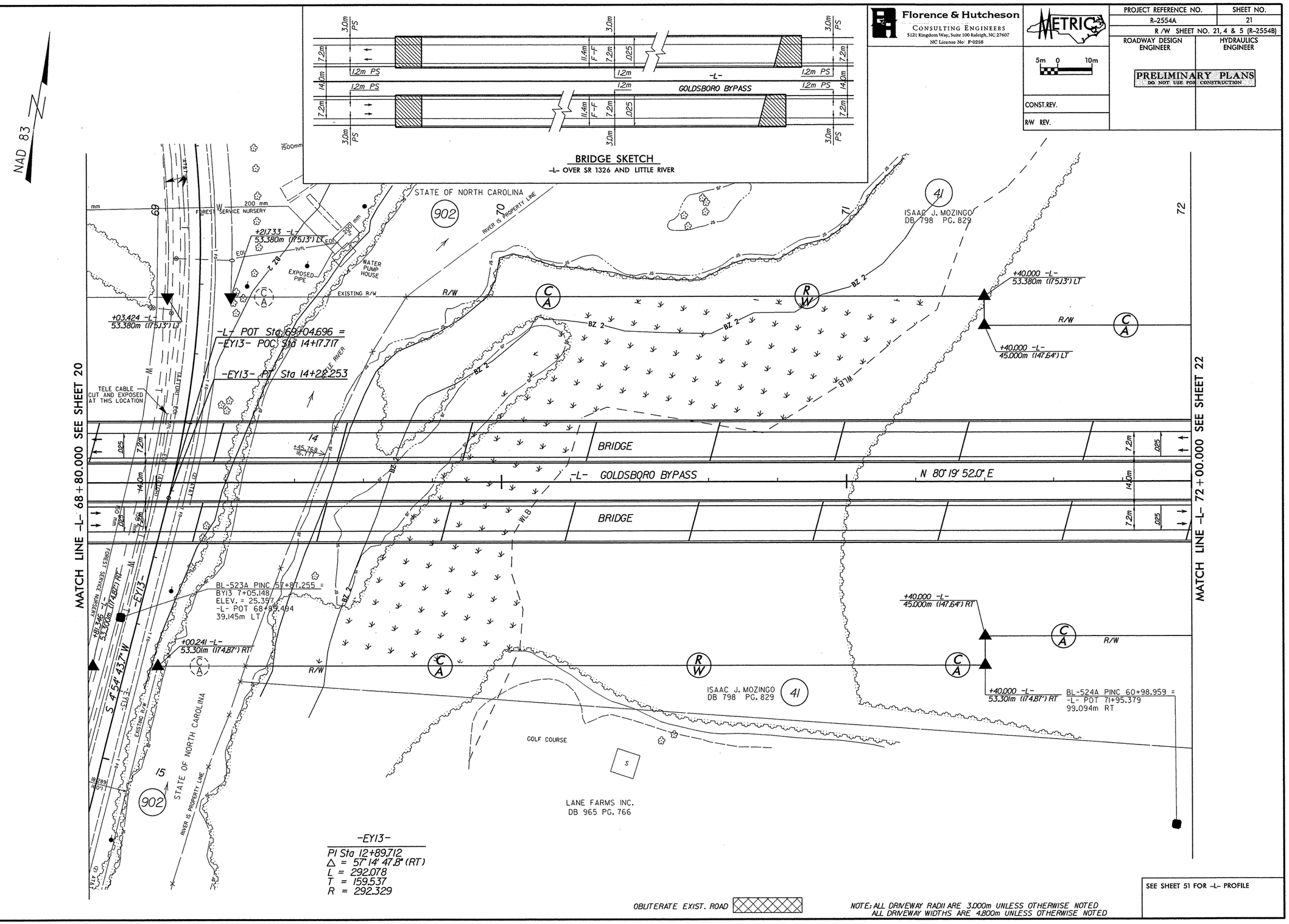
MATCH LINE -L- 65+60.000 SEE SHEET 19
MATCH LINE -L- 68+80.000 SEE SHEET 21

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 50 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $PLTDRV1$
PEN TABLE: $PENTBL1$


NAD 83
BRIDGE SKETCH
-L- OVER SR 1326 AND LITTLE RIVER
3.0m PS
7.2m
11.4m F-F
.025
1.2m PS
14.0m
1.2m
-L-
GOLDSBORO BYPASS
Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258
METRIC
5m 0 10m
CONST.REV.
R/W REV.
PROJECT REFERENCE NO.
R-2554A
SHEET NO.
21
R /W SHEET NO. 21, 4 & 5 (R-2554B)
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
MATCH LINE -L- 68+80.000 SEE SHEET 20
MATCH LINE -L- 72+00.000 SEE SHEET 22
STATE OF NORTH CAROLINA
RIVER IS PROPERTY LINE
902
ISAAC J. MOZINGO
DB 798 PG. 829
41
LANE FARMS INC.
DB 965 PG. 766
GOLF COURSE
FOREST SERVICE NURSERY
WATER PUMP HOUSE
EXPOSED PIPE
TELE CABLE CUT AND EXPOSED AT THIS LOCATION
EXISTING R/W
R/W
BRIDGE
-L- GOLDSBORO BYPASS
N 80° 19' 52.0" E
S 4° 54' 43.7" W
+03.424 -L-
53.380m (175.13') LT
+21.733 -L-
53.380m (175.13') LT
+40.000 -L-
53.380m (175.13') LT
+40.000 -L-
45.000m (147.64') LT
+81.346 -L-
53.300m (174.82') RT
+00.241 -L-
53.301m (174.87') RT
-L- POT Sta 69+04.696 =
-EY13- POC Sta 14+17.717
-EY13- PT Sta 14+28.253
BL-523A PINC 57+87.255 =
BY13 7+05.148
ELEV. = 25.39?
-L- POT 68+89.484
39.145m LT
BL-524A PINC 60+98.959 =
-L- POT 71+95.379
99.094m RT
-EY13-
PI Sta 12+89.712
Δ = 57° 14' 47.8" (RT)
L = 292.078
T = 159.537
R = 292.329
OBLITERATE EXIST. ROAD
NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED
SEE SHEET 51 FOR -L- PROFILE
FILE: SFILE$
DATE: $DATE$
PLOT DRIVER: $PLOTDRV$
PEN TABLE: $PENTBL$$
$TIME$

Florence & Hutcheson
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NC License No: P-0258

METRIC

5m 0 10m

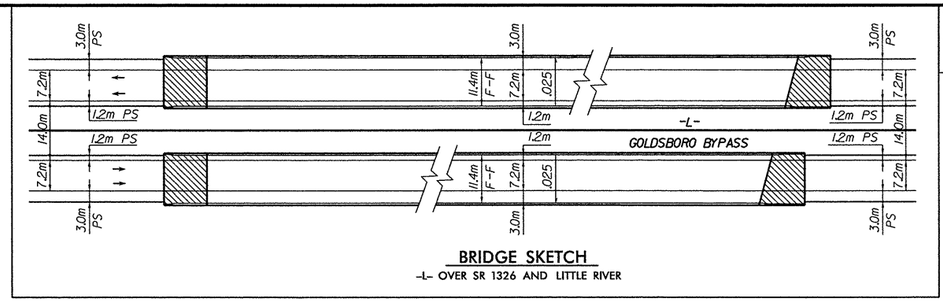
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	22
R/W SHEET NO. 5 & 6 (R-2554B)	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.



BRIDGE SKETCH
-L- OVER SR 1326 AND LITTLE RIVER

NAD 83

73 74 75

BL-525A PINC 63+67.241=
-L- POT 74+43.765
2.295m LT

ISAAC J. MOZINGO
DB 798 PG. 829
41

+17.688 -L-
45.000m LT
(147.64')

+17.688 -L-
17.670m LT
BEGIN FENCE

R/W
1.2m WW 1-S-BW

END BRIDGE
-L- POT Sta 74+13.000

END APPROACH SLAB
-L- POT Sta 74+17.674 (7.0m LT.)

END APPROACH SLAB
-L- POT Sta 74+19.059 (7.0m RT.)

220 2GI W/FG
TYPE III

400 CSP W/2 ELBOWS
2202

GUARDRAIL
TYPE M-350
CABLE GUIDE RAIL
375

N, 80° 19' 52.0" E
-L- GOLDSBORO BYPASS

+08.265 -L-
17.670m RT
BEGIN FENCE

+08.265 -L-
45.000m RT
(147.64')

CL. II RIP RAP
TO ELEV. 26.0 (TYP.)

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

45.000m
(146.64')

MATCH LINE -L- 72+00.000 SEE SHEET 21

MATCH LINE -L- 75+50.000 SEE SHEET 23

ISAAC J. MOZINGO
DB 798 PG. 829
41

S 84°25'14" W
462.971

S 84°25'14" W
85.605

S 84°25'30" W
R63.667

6.092
24.384

R = 83.82

EIP

LANE FARMS INC.
DB 965 PG. 766

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 51 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE:
DATE:
PLOT DRIVER: SPLTDRVLS
PEN TABLE: SPENTBLLS
SFILES
STIMES

Florence & Hutcheson
CONSULTING ENGINEERS
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NC License No: F-0258

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	23
R /W SHEET NO. 6 & 7 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCH LINE -L- 75+50.000 SEE SHEET 22

MATCH LINE -L- 79+00.000 SEE SHEET 24

76 77 78 79

ISAAC J. MOZINGO
DB 798 PG. 829
41

42
DOROTHY JEAN ANDREWS
DB 798 PG. 840

+85.753 -L-
45.000m LT
147.64')

+19.000 R 2 -L-
45m (147.64') LT

+00.000 -L-
55m (180.46') LT

BL-527A PINC 66+72.039 =
-L- STA. 77+62.091 (14.921m LT)
EL.= 35.133

1.2m WW 1-S-BW

0.9 MTN CL B RIPRAP
W/4.2 SM FIL FAB

10.0 MTN CL B RIPRAP
W/23.4 SM FIL FAB

RIP RAP
TOE PROTECTION
SEE DETAIL 11

BERM DITCH
SEE DETAIL 29

GRAU 350 FS

CABLE GUIDE RAIL

GOLDSBORO BYPASS -L-

N 80° 19' 52.0" E

2GI
2GI TYPE A

PROP GUARDRAIL

BL-526A PINC 65+67.083 =
-L- POT 76+57.853 R 2
2.673m LT

-L- POT Sta 75+85.754 LB =
-L- POT Sta 76+00.000 LA

HDWL

4.5 MTN CL B RIPRAP
W/13.4 SM FIL FAB

LATERAL BASE DITCH
SEE DETAIL 26

CAT-1

+85.753 -L-
45.000m RT
147.64')

+50.000 R 2 -L-
45.000m (147.64') RT

+93.102 -L-
46.337m (152.02') RT

S 19°22'35" E
46.769

S 03°19'21" E
188.826

S 84°25'41" W 206.985
S 84°25'41" W
206.968

BM # 17
-BL- STA 65+25.960
109.375 RIGHT
ELEV.= 25.545

DRAINAGE EASEMENT

GOLDSBORO CITY LIMIT

S 05°15'09" E
1.530

S 50°57'22" W
48.338

S 50°57'22" W 48.48
38.092

R = 83.820

R = 100.584

U/C

S 15°41'04" E
85.404

S 17°27'55" E
60.019

GERALD D. THOMPSON AND
SANDY L. THOMPSON
DB 1954 PG. 1
PLAT CAB. L, SLIDE 1-C

ANITA G. YOUSIF
AND HUSAM A YOUSIF
DB 2422 PG. 363
PLAT CAB. L, SLIDE 1-C

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 52 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: SFUELS
DGN: SOILES $TIME$
PLOT DRIVER: SPLTDRVLS
PEN TABLE: SPENTBLLS

Florence & Hutcheson
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METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	24
R /W SHEET NO. 7 & 8 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

-L-
PIs Sta 81+78.037
Θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

PI Sta 86+56.056
Δ = 20° 45' 49.6" (RT)
L = 905.991
T = 458.019
R = 2,500.000
SE = 0.025

PIs Sta 91+24.028
Θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

BL-528A PINC 68+68.228 =
-L- STA. 79+56.796 (39.002m LT)
EL.= 33.966

42
DOROTHY JEAN ANDREWS
DB 798 PG. 840

BL-529A PINC 70+78.743 =
-L- STA. 81+66.176 (59.304m LT)
EL.= 33.560

43
EDNA E. WELLS
DB 798 PG. 838

79 80 81 82

-L- TS Sta 81+38.037=
-L2RPDB- POT Sta 18+04.822
(14.2m LT)

+38.037 -L-
55m (180.46') LT

-L2RPDB- ST Sta 17+25.534

+91.411 -L2RPDB-
30m (98.42') RT

R/W
1.2m WW 1-S-BW

BERM DITCH
SEE DETAIL 29

BDO

600 CSP
2 ELBOWS

2GI

1.2m PS

10.8m

14.0m

7.2m

3.0m PS

TYPE A

750

375

600

CABLE GUIDERAIL

GOLDSBORO BYPASS -L- N 80° 19' 52.0" E

MATCH LINE -L- 79+00.000 SEE SHEET 23

BERM DITCH
SEE DETAIL 30

2GI TYPE D

450

14.000m (TYP.)

7.000m

+98.037

S 80° 19' 52.0" W -L2RPDB-

1.8 MTN CL B RIPRAP W/5.9 SM FIL FAB

LATERAL V DITCH
SEE DETAIL 28

2.7m

GRAU 350

4.5 MTN CL B RIPRAP W/11.7 SM FIL FAB

LATERAL BASE DITCH
SEE DETAIL 26

MATCH LINE -L- 82+60.000 SEE SHEET 25

S 80°58'37" W

EIP

TITLEST DR 67 BST

+54.089 -L-
48.068m (157.70') RT

+38.037 -L-
45m (147.64') RT

CHORD

+98.037 -L-
45m (147.64') RT

-L- SC Sta 81+98.037

BEGIN STREAM RESTORATION
-L- Sta 82+35.501 =
-ST R01- Sta 10+00.000 (52.8m RT)

WLB

1.2m WW 1-S-BW

+50.000 -L-
75m (246.06') RT

375mm CONC
RETAIN
2.1 HW
2.3 HW
1.9 HW
RETAIN CONC
EIP TO R/W
EIP

45.730
45.755
161.389
37.855
R = 176.784

KEITH A. ACREE
DB 2862 PG. 473
PLAT CAB. L, SLIDE I-C

G. YOUSIF
AM A YOUSIF
22 PG. 363
B. L, SLIDE I-C

JESSE WILLIAMS
DB 2120 PG. 350
PLAT CAB. L, SLIDE I-C

W&T RENTALS
DB 2666 PG. 83

JOSEPH WINSTON GARRIS
AND TIFFANY K. GARRIS
DB 2561 PG. 281
PLAT CAB. L, SLIDE I-C

EDNA E. WELLS
DB 798 PG. 838

WAYNE INVESTMENTS
DB 2736 PG. 776

N 69°06'59" W 37.689
N 69°06'59" W 37.686
S 12°53'37" W 66.693
R = 143.256
1.941

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEETS 52 & 53 FOR -L- PROFILE
SEE SHEET 83 FOR -L2RPDB PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS
SEE SHEET ??? FOR STREAM RESORATION PLANS

FILE: $FILE$ $TIME$
DATE: $DATE$
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	25
R /W SHEET NO. 8 & 9 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

43
EDNA E. WELLS
DB 798 PG. 838

43A
ROBERT E. HODGIN
DB 480 PG. 132

MATCH LINE -L- 82+60.000 SEE SHEET 24

MATCH LINE -L- 85+80.000 SEE SHEET 26

MATCH LINE -L2RPDB- 13+60.000 SEE SHEET 26

-L2RPDB- CS Sta 16+65.534

-L2RPDB- SC Sta 15+88.125

-L2RPDB- TS Sta 15+25.125

-L2RPDB- ST Sta 14+30.674

-L2RPDB- CS Sta 13+70.674

+31.402 -L2RPDB-
30m (98.42') RT

+54.011 -L2RPDB-
30m (98.42') RT

+30.674 -L2RPDB-
40m (131.23') RT

+67.674 -L2RPDB-
45m (147.64') RT

+94.002 -L2RPDB-
35m (114.83') RT

833.802
S84°40'39"W

824.430
S84°40'39"W

CHORD
WW 1-S-BW

R/W
1.2m WW 1-S-BW

LATERAL V DITCH
SEE DETAIL 28

LATERAL BASE DITCH
SEE DETAIL 26

LATERAL BASE
DITCH SEE
DETAIL 26

HDWL

C.F.
10.909m
(TYP)

F 250

5.0m

S 74° 16' 30.0" W

-L2RPDB-

2GI

900mm TAPER

CABLE GUARDRAIL

GOLDSBORO BYPASS -L-

2GI TYPE A

FS 250 2

FS 250 4

FS 250 3

FS 250 1

FS 250 5

FS 250 6

2GI TYPE D

SPECIAL CUT DITCH
SEE DETAIL 27

CAT-1

10.0 MTN CL B RIPRAP W/L.S
W/23.4 SM FIL FAB

10 MTN CL B RIPRAP
W/23.4 SM FIL FAB
RIPRAP ON BANKS ONLY

29.9 MTN CL I RIPRAP
W/51.8 SM FIL FAB
RIPRAP ON BANKS ONLY

BL-530A PINC 73+79.220 =
-L- STA. 84+50.531 (34.799m RT)
EL.= 33.094

+00.000 -L-
45m (147.64') RT

+80.000 -L-
75m (246.06') RT

+01.484 -L2RPC-
30m (98.42') RT

END STREAM RESTORATION
-L- Sta. 83+77.061 =
-STR01- Sta. 11+65.679 (32.3m RT.)

-L- POC Sta 85+60.000 =
-L2RPC- POT Sta 0+00.000 (14.2m Rt.)
Δ = 2° 45' 30.7"

-L-

PI Sta 81+78.037
θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

PI Sta 86+56.056
Δ = 20° 45' 49.6" (RT)
L = 905.991
T = 458.019
R = 2,500.000
SE = 0.025

PIs Sta 91+24.028
θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

-L2RPDB-

PI Sta 11+57.417
Δ = 72° 45' 04.3" (LT)
L = 507.899
T = 294.643
R = 400.000
SE = 0.065

PIs Sta 13+90.684
θs = 4° 17' 49.9"
Ls = 60.000
LT = 40.012
ST = 20.011

PIs Sta 15+68.126
θs = 1° 19' 20.0"
Ls = 60.000
LT = 40.001
ST = 20.001

PI Sta 16+26.841
Δ = 3° 24' 42.1" (RT)
L = 77.409
T = 38.716
R = 1,300.000
SE = 0.03

PIs Sta 16+85.535
θs = 1° 19' 20.0"
Ls = 60.000
LT = 40.001
ST = 20.001

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 53 FOR -L- PROFILE
SEE SHEET 81 FOR -L2RPC- PROFILE
SEE SHEETS 82 & 83 FOR -L2RPDB- PROFILE
SEE SHEETS 2-T THRU 2-V FOR DITCH DETAILS
SEE SHEET 2-AD THRU 2-AH FOR STREAM RESTORATION PLAN

FILE: $FILES
DATE: $DATES $TIMES
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

Florence & Hutcheson
CONSULTING ENGINEERS
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NC License No: P-0258

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	26
R /W SHEET NO. 9 & 10 (R-2554B)	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

ROBERT E. HODGIN
DB 480 PG. 132

EDNA E. WELLS
DB 798 PG. 838

MATCH LINE -L- 13+60.000 SEE SHEET 25

MATCH LINE -L- 85+80.000 SEE SHEET 25

MATCH LINE -Y- 15+00.000 SEE SHEET 29

MATCH LINE -L2RPB- 5+60.000 SEE SHEET 27

MATCH LINE -L- 89+00.000 SEE SHEET 27

MATCH LINE -L2RPC- 3+40.000 SEE SHEET 28

MATCH LINE -Y- 12+90.000 SEE SHEET 28

NAD 83

+00.000 -L2RPDB-
50m (164.04') RT

+20.000 -L2RPDB-
48.436m (158.91') RT

PL
50m (164.04') RT

R/W
1.2m WW 1-S-BW

LATERAL BASE DITCH
SEE DETAIL 26

-L2RPDB-

-L2RPB- ST Sta 8+27.998

-L- POC Sta 86+18.662 =
-L2RPB- POT Sta 8+52.998 (14.2m LT)

-L2RPB- CS Sta 7+67.998

END WALL
-L2RPB- POC 7+59.706 7.4 RT.

-L2RPDB- POC Sta 11+19.865

END APPROACH SLAB

-L2RPDB- POC Sta 10+54.209 =
-Y- POC Sta 14+14.152
Δ = 112°58'56.8"

-L2RPB- TS Sta 5+62.476

-L2RPB- POS Sta 6+01.993 =
-Y- POT Sta 14+40.102
Δ = 114°58'20.589"

-L2RPB- SC Sta 6+22.476

-L2RPB- POC Sta 6+36.719 =
-L2RPDB- POC Sta 10+88.135
Δ = 40°42'18.2"

END BRIDGE
-L2RPDB- POC Sta 11+15.600

SHOULDER BERM GUTTER
-L2RPDB- STA. 11+59.652
TO 12+40.034

SHOULDER BERM GUTTER
-Y- STA. 14+69.749
TO 14+80.435

END APPROACH SLAB
-Y- POT Sta 14+67.614

END BRIDGE
-Y- POT Sta 14+60.300

BEGIN WALL
-L2RPB- POC 6+37.642 7.4 RT.

GRADE TO DRAIN

0.9 MTN CL B RIPRAP
W/4.2 SM FIL FAB

400 CSP
2 ELBOWS

1.8 MTN CL B RIPRAP
W/5.9 SM FIL FAB

SPECIAL CUT DITCH
SEE DETAIL 27

SPECIAL CUT DITCH SEE DETAIL 23

PROPOSED RETAINING WALL -DBWALL2-

JB
MH

SR 1300 SHAW CHURCH RD

GOLDSBORO BYPASS -L-

CABLE GUIDE RAIL

IMPACT TYPE B-77 ATTENUATOR

-L2RPC-

-L2RPC- TS Sta 0+97.050

-L2RPC- SC Sta 1+57.050

-Y- POT Sta 13+87.934 =
-L- POC Sta 88+58.525
Δ = 85°14'09.6"

BEGIN BRIDGE
-Y- POT Sta 13+17.700

BEGIN APPROACH SLAB
-Y- POT Sta 13+10.386

-Y- POT Sta 13+36.678 =
-L2RPC- POC Sta 2+96.083
Δ = 108°26'03.3"

-Y- PT Sta 13+04.978

-YDET- PT Sta 12+11.015

SHOULDER BERM GUTTER
-Y- STA. 12+97.986
TO 13+06.702

SHOULDER BERM GUTTER -Y- STA. 12+99.967 TO 13+10.181

BL-53IA PINC 76+49.474 =
-L- STA. 87+24.116 (26.145m RT)
EL.= 38.989

+97.050 -L2RPC-
30m (98.42') RT

+57.050 -L2RPC-
35m (114.83') RT

+80.000 -L2RPC-
35m (114.83') RT

0.9 MTN CL B RIPRAP
W/4.2 SM FIL FAB

N 89°20'28.7" W

S 87°55'38.0" E

N 9°12'25.0" E

CHORD

1.2m WW 1-S-BW

OBLITERATE EXIST. ROAD

SEE SHEETS 53 & 54 FOR -L- PROFILE
SEE SHEETS 79 FOR -L2RPB- PROFILE
SEE SHEET 81 FOR -L2RPDB- PROFILE
SEE SHEET 77 FOR -Y- PROFILE
SEE SHEET 80 FOR -L2RPC- PROFILE
SEE SHEETS 2Q-2S FOR -YDET- PLAN & PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS
SEE SHEET 28A FOR CURVE DATA

BRIDGE SKETCH
-Y- OVER -L-, -L2RPB-, -L2RPC-

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

FILE: SPILES $TIMES
DGN: SDIXIES
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

Florence & Hutchison
CONSULTING ENGINEERS
NC Licence No. P0106

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	27
R/W SHEET NO. 10 & 11 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST REV.

R/W REV.

BRIDGE SKETCH
-L2RPDB- OVER -L-, -Y1-, -L2RPB-

-L2RPB- CS Sta 1+13.446

-L2RPB- ST Sta 1+13.446

-L2RPBD- POC Sta 3+20.000 =
-L2RPB- PC Sta 0+00.000

-L2RPBD- CS Sta 4+57.062

-L2RPBD- ST Sta 5+17.062

-L2RPBD- TS Sta 5+37.062

-L2RPBD- SC Sta 5+52.062

-L2RPA- PCC Sta 4+12.503

-L2RPA-

-L2RPBD- PCC Sta 3+62.090

-L2LPB- CS Sta 3+98.662

-L2RPA- PCC Sta 2+27.934

-L2RPA-

-L2LPB- PCC Sta 1+26.652

-L2LPB- SC Sta 0+90.000

-L- POT Sta 93+20.596 =
-L2RPB- ST Sta 0+00.000 (142m LT)

-L2- POT Sta 90+42.898 =
-L2RPB- ST Sta 1+98.662 (142m LT)

-L- POT Sta 93+23.591 =
-L2- POT Sta 90+29.263 =
Δ = 67°41'11.20"

-L2RPBD- POC Sta 8+03.096 =
-L- PCC Sta 90+63.554
Δ = 85°37'45.9"

-L- CS Sta 91+04.028

-L- ST Sta 91+64.028

-L- POT Sta 93+45.023 =
-L2RPD- ST Sta 0+00.000 (142m RT)

-L2- POT Sta 90+07.831 =
-L2RPD- ST Sta 1+98.146 (142m RT)

-L2LPD- SC Sta 0+90.000

-L2LPD-

GOLDSBORO BYPASS -L-
S 77° 31' 48.0" E

N40° 63' W

S 77° 31' 48.0" E

S 12° 28' 12.0" W

S 12° 28' 12.0" W

S 77° 31' 48.0" E

SLOPE STAKES

BEGIN CONSTRUCTION
-L2RPB- POT Sta 5+00.000

SPECIAL CUT DITCH SEE DETAIL 23

-L2RPBD-

NO DETENTION INSIDE RAMP AREA ROAD TOO LOW

-L- POC Sta 90+00.000 END PROJECT R-2554A =
-L- POC Sta 90+00.000 BEGIN PROJECT R-2554BA
END PROJECT R-2254A
END CONSTRUCTION

-L2RPDB- POC Sta 8+03.224 =
-L- POC Sta 89+04.995
Δ = 54°00'10.5"

MATCH LINE -L- 89+40.000 SEE SHEET 26

MATCH LINE -L2RPDB- 5+60.000 SEE SHEET 28

0.9 MTH CL B RIPRAP W=4.2 DIA FR, FAB

LATERAL V DITCH SEE DETAIL 25

SPECIAL MEDIAN CUT DITCH SEE DETAIL 24

GRAU 300

CABLE GUIDE RAIL 201

TYPE III-77 ATTENUATOR

GRAU/TYPE B-77 250

RETAINING WALL -GRAU1-

END CONSTRUCTION
-L- POC 90+43.346

END WALL
-L- POC 90+07.396 19.8 RT.

BEGIN BRIDGE
-L2RPDB- POC Sta 9+57.980

BEGIN APPROACH SLAB
-L2RPDB- POC Sta 9+53.715

MATCH LINE -L2RPDB- 9+40.000 SEE SHEET 28

MATCH LINE -L2RPBD- 8+50 SEE SHEET 28

MATCH LINE -L2- 89+80.000 SEE SHEET 28

MATCH LINE -L2LPD- 1+20.000 SEE SHEET 28

GRADE TO DRAIN

TRAFFIC DIAGRAM
US 70 GOLDSBORO BYPASS

SR 1741 -SR-

-L-

US 70 GOLDSBORO BYPASS

SEE SHEET 54 FOR -L- PROFILE
SEE SHEET 79 FOR -L2RPB- PROFILE
SEE SHEET 81 FOR -L2RPDB- PROFILE
SEE SHEETS 27-2V FOR DITCH DETAILS
SEE SHEET 28A FOR CURVE DATA

LOCATION:
US 70 (GOLDSBORO BYPASS)
FROM WEST OF SR 1237 TO EAST
OF SR 1326 IN WAYNE COUNTY

TIP NO.: R-2554A COUNTY: WAYNE

DESIGNED BY: DATE:

CHECKED BY: DATE:

R/W REV. 07/20/21
ADD PROPERTY MONUMENTS - PARCEL 68
REVISED TEMP. CONSTRUCTION EASEMENT
R/W REV. 2/22/19
CORRECTED PROPOSED R/W AND POE - PARCEL 68
R/W REV. 7/27/15
CORRECTED PARCELS 67, 68 & 69 TO FORM PARCEL 068
R/W REV. 6/26/15
CORRECTED PROPERTY OWNER INFORMATION

NAD 83

BEGIN BRIDGE
-L2RPDB- POC Sta 9+57.980

BEGIN APPROACH SLAB
-L2RPDB- POC Sta 9+53.715

MATCH LINE -L2RPDB- 9+40.000 SEE SHEET 27

MATCH SHOULDER BRAM GUTTER -L2RPDA- STA. 9+16.332 TO 9+30.623

MATCH LINE -L2RPDB- 8+50.000 SEE SHEET 27

MATCH LINE -L2RPC- 3+40.000 SEE SHEET 26

MATCH LINE -Y- 12+90.000 SEE SHEET 26

MATCH LINE -L2- 89+80.000 SEE SHEET 27

MATCH LINE -L2PD- 1+20.000 SEE SHEET 27

-L2RPDB- SC Sta 8+62.775

-L2RPDB- POS Sta 8+60.000
BEGIN CONSTRUCTION

-L2RPDB- TS Sta 8+02.775

-L2RPC- POC Sta 4+40.000
END CONSTRUCTION

-L2PD- CS Sta 4+08.146

-L2RPDB- CS Sta 12+93.328

-L2RPD- POT Sta 5+10.361
-L2RPDB- ST Sta 13+68.528

-L2RPD- ST Sta 4+32.300

-L2- POT Sta 87+73.739 =
-L2RPDB- POC Sta 11+09.326
Δ = 85°12' 03.1"

-L2RPD- CS Sta 3+72.300

-L2RPDB- CS Sta 6+21.797

-L2RPDB- ST Sta 6+87.78

-L2- POT Sta 86+57.806 =
-L2RPDB- POC Sta 5+63.595
Δ = 42°19' 02.5"

-L2RPD- SC Sta 1+99.163

-Y- PC Sta 12+03.167

-Y- PRC Sta 11+03.205

-Y- POT Sta 11+20.000 (LBI) =
-Y DET- PC Sta 10+00.000 (LA)

-Y- PT Sta 11+03.985

PAVE TO BE TRANSFERRED TO ATD AS REPLACEMENT FOR PAVE REMOVED FROM EXISTING NY SITE

-Y-
PI Sta 10+56.505
Δ = 10°54'33.5" (RT)
L = 95.250
T = 47.770
R = 500.000
SE = 0.06

-Y-
PI Sta 12+54.073
Δ = 0°50'00.0" (RT)
L = 101.811
T = 50.906
R = 7,000.000
SE = NC

-Y- PC Sta 10+87.735

-Y- POT Sta 10+00.000

-Y- POT Sta 9+80.000
BEGIN CONSTRUCTION

CONCRETE LINED DITCH SEE DETAIL 32

SPECIAL CUT DITCH SEE DETAIL 23

EDNA EARLE WELLS
DB 798 PG 832

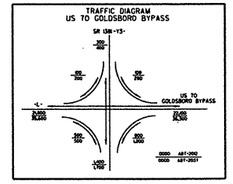
LANE FARMS, INC.
DB 965 PG 766
DB 874 PG 277
DB 965 PG 777

GOLDSBORO POOL
DB 1305 PG 97

AT&T BELL SOUTH
DB 1307 PG 393

LANE FARMS, INC.
DB 2453 PG. 93

TRAFFIC DIAGRAM
US 70 TO GOLDSBORO BYPASS



OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.00m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.80m UNLESS OTHERWISE NOTED

Florence & Hutcheson
CONSULTING ENGINEERS

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	7B
R/W SHEET NO. 10, 11 & 49 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

CONST.ER.V.
R/W REV.

SEE SHEET 7B FOR -Y- PROFILE
SEE SHEETS 8I FOR -L2RPC- PROFILE
SEE SHEET 8J FOR -L2RPDB- PROFILE
SEE SHEETS 20-23 FOR -Y DET-
-L- & -Y- PROFILES
SEE SHEET 33A FOR DITCH DETAILS
SEE SHEET 36A FOR CURVE DATA

LOCATION:
US 70 (GOLDSBORO BYPASS)
FROM WEST OF SR 1237 TO EAST
OF SR 1326 IN WAYNE COUNTY

TIP NO.: R-2554A COUNTY: WAYNE

DESIGNED BY: DATE:

CHECKED BY: DATE:

US 117 BYPASS INTERCHANGE
CURVE DATA

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	28A
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

FILE: $FILES
DATE: $DATES $TIMES
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

-L-

PIs Sta 81+78.037
Θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

PI Sta 86+56.056
△ = 20° 45' 49.6" (RT)
L = 905.991
T = 458.019
R = 2,500.000
SE = 0.025

PIs Sta 91+24.028
Θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

-L2RPBD- (EXIST)

PIs Sta 0+40.004
Θs = 2° 27' 19.9"
Ls = 60.000
LT = 40.004
ST = 20.003

PI Sta 2+64.031
△ = 32° 30' 00.0" (RT)
L = 397.062
T = 204.031
R = 700.000
SE = 0.045

PIs Sta 4+77.066
Θs = 2° 27' 19.9"
Ls = 60.000
LT = 40.004
ST = 20.003

PIs Sta 5+77.097
Θs = 7° 18' 51.7"
Ls = 60.000
LT = 40.034
ST = 20.031

PI Sta 36+58.378
△ = 171° 13' 14.4" (LT)
L = 702.266
T = 3,061.315
R = 235.000
SE = 0.08

PIs Sta 13+19.359
Θs = 7° 18' 51.7"
Ls = 60.000
LT = 40.034
ST = 20.031

PIs Sta 15+22.279
Θs = 4° 17' 49.9"
Ls = 60.000
LT = 40.012
ST = 20.011

PI Sta 16+40.260
△ = 27° 31' 50.2" (RT)
L = 192.200
T = 97.993
R = 400.000
SE = 0.065

PIs Sta 17+54.478
Θs = 4° 17' 49.9"
Ls = 60.000
LT = 40.012
ST = 20.011

-L2RPDB-

PIs Sta 0+40.012
Θs = 4° 17' 49.9"
Ls = 60.000
LT = 40.012
ST = 20.011

PI Sta 0+97.185
△ = 10° 37' 20.3" (RT)
L = 74.158
T = 37.185
R = 400.000
SE = 0.07

PIs Sta 1+54.168
Θs = 4° 17' 49.9"
Ls = 60.000
LT = 40.012
ST = 20.011

PIs Sta 2+51.424
Θs = 5° 43' 46.5"
Ls = 60.000
LT = 40.021
ST = 20.019

PI Sta 4+69.669
△ = 66° 55' 13.0" (LT)
L = 350.394
T = 198.266
R = 300.000
SE = 0.08

PIs Sta 6+41.816
Θs = 5° 43' 46.5"
Ls = 60.000
LT = 40.021
ST = 20.019

PIs Sta 8+42.786
Θs = 4° 17' 49.9"
Ls = 60.000
LT = 40.012
ST = 20.011

PI Sta 11+57.417
△ = 72° 45' 04.3" (LT)
L = 507.899
T = 294.643
R = 400.000
SE = 0.065

PIs Sta 13+90.684
Θs = 4° 17' 49.9"
Ls = 60.000
LT = 40.012
ST = 20.011

PIs Sta 15+34.004
Θs = 1° 19' 20.0"
Ls = 60.000
LT = 40.001
ST = 20.001

PI Sta 15+92.718
△ = 3° 24' 42.1" (RT)
L = 77.409
T = 38.716
R = 1,300.000
SE = 0.03

PIs Sta 16+51.412
Θs = 1° 19' 20.0"
Ls = 60.000
LT = 40.001
ST = 20.001

-L2RPA- (EXIST)

PIs Sta 0+40.015
Θs = 4° 54' 39.8"
Ls = 60.000
LT = 40.015
ST = 20.014

PI Sta 1+45.616
△ = 27° 29' 28.3" (RT)
L = 167.934
T = 85.616
R = 350.000
SE = 0.07

PI Sta 3+25.274
△ = 45° 00' 00.0" (RT)
L = 184.569
T = 97.340
R = 235.000
SE = 0.08

PI Sta 5+06.285
△ = 30° 00' 00.0" (RT)
L = 183.260
T = 93.782
R = 350.000
SE = 0.07

PIs Sta 6+15.776
Θs = 4° 54' 39.8"
Ls = 60.000
LT = 40.015
ST = 20.014

-L2RPC-

PIs Sta 1+37.065
Θs = 4° 50' 30.8"
Ls = 60.000
LT = 40.015
ST = 20.014

PI Sta 6+93.669
△ = 113° 01' 36.3" (RT)
L = 700.305
T = 536.619
R = 355.000
SE = 0.07

PIs Sta 8+77.368
Θs = 4° 50' 30.8"
Ls = 60.000
LT = 40.015
ST = 20.014

-L2LPB- (EXIST)

PIs Sta 0+61.352
Θs = 36° 49' 58.8"
Ls = 90.000
LT = 61.352
ST = 31.233

PI Sta 1+08.756
△ = 30° 00' 00.0" (RT)
L = 36.652
T = 18.756
R = 70.000
SE = 0.08

PI Sta 5+77.522
△ = 158° 38' 50.4" (RT)
L = 235.358
T = 450.870
R = 85.000
SE = 0.08

PI Sta 3+80.766
△ = 30° 00' 00.0" (RT)
L = 36.652
T = 18.756
R = 70.000
SE = 0.08

PIs Sta 4+29.895
Θs = 36° 49' 58.8"
Ls = 90.000
LT = 61.352
ST = 31.233

-L2LPD-

PIs Sta 0+61.026
Θs = 32° 13' 44.0"
Ls = 90.000
LT = 61.026
ST = 30.934

PI Sta 2+70.294
△ = 227° 51' 20.1" (RT)
L = 318.146
T = 180.294
R = 80.000
SE = 0.08

PIs Sta 4+39.081
Θs = 32° 13' 44.0"
Ls = 90.000
LT = 61.026
ST = 30.934

-Y-

PI Sta 10+56.505
△ = 10° 54' 53.5" (RT)
L = 95.250
T = 47.770
R = 500.000
SE = 0.06

PI Sta 12+54.073
△ = 0° 50' 00.0" (RT)
L = 101.811
T = 50.906
R = 7,000.000
SE = NC

PI Sta 18+12.731
△ = 0° 51' 45.5" (LT)
L = 135.503
T = 67.753
R = 9,000.000
SE = NC

-L2RPB-

PI Sta 0+56.968
△ = 13° 00' 00.0" (RT)
L = 113.446
T = 56.968
R = 500.000
SE = 0.06

PIs Sta 1+33.453
Θs = 3° 26' 15.9"
Ls = 60.000
LT = 40.008
ST = 20.007

PIs Sta 6+02.479
Θs = 2° 17' 30.6"
Ls = 60.000
LT = 40.003
ST = 20.003

PI Sta 6+95.466
△ = 11° 07' 01.6" (RT)
L = 145.523
T = 72.990
R = 750.000
SE = 0.06

PIs Sta 7+88.001
Θs = 2° 17' 30.6"
Ls = 60.000
LT = 40.003
ST = 20.003

-L2RPD- (EXIST)

PIs Sta 0+20.019
Θs = 5° 43' 46.5"
Ls = 60.000
LT = 40.021
ST = 20.019

PIs Sta 1+79.174
Θs = 4° 05' 33.2"
Ls = 60.000
LT = 40.011
ST = 20.010

PI Sta 2+86.979
△ = 23° 37' 08.6" (RT)
L = 173.137
T = 87.815
R = 420.000
SE = 0.065

PIs Sta 3+92.310
Θs = 4° 05' 33.2"
Ls = 60.000
LT = 40.011
ST = 20.010

-YDET-

PI Sta 10+52.117
△ = 19° 42' 38.3" (RT)
L = 103.205
T = 52.117
R = 300.000
SE = 0.04 (to match exist)

PI Sta 11+57.698
△ = 20° 35' 25.1" (LT)
L = 107.811
T = 54.493
R = 300.000
SE = 0.055

PI Sta 16+17.435
△ = 15° 08' 42.3" (LT)
L = 66.083
T = 33.235
R = 250.000
SE = 0.06

PI Sta 16+92.432
△ = 15° 59' 43.6" (RT)
L = 83.752
T = 42.150
R = 300.000
SE = 0.025 (to match exist)

SEE SHEETS	24-27, & 29 FOR -L- DESIGN
SEE SHEETS	27 & 29 FOR -L2RPA- DESIGN
SEE SHEETS	26 & 27 FOR -L2RPB- DESIGN
SEE SHEETS	27-29 FOR -L2RPBD- DESIGN
SEE SHEETS	25, 26, 28, & 30 FOR -L2RPC- DESIGN
SEE SHEETS	28 & 30 FOR -L2RPD- DESIGN
SEE SHEETS	24-28, & 30 FOR -L2RPDB- DESIGN
SEE SHEETS	26, 28 & 31 FOR -Y- DESIGN
SEE SHEET	27 FOR -L2LPB- DESIGN
SEE SHEETS	27 & 28 FOR -L2LPD- DESIGN
SEE SHEETS	2Q-2S FOR -YDET- DESIGN

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	29
R /W SHEET NO. 10 & 61 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

MATCH LINE -Y- 15+00.000 SEE SHEET 26

43A
ROBERT E. HODGIN
DB 480 PG. 132

70
GENEVIEVE H. GAY
DB 511 PG 80

71
GEORGE E. HODGIN
DB 416 PG 37
DB 480 PG 196

68
LANE FARMS, INC.
DB 965 PG 766
DB 874 PG 277
DB 965 PG 777

-Y- PC Sta 17+44.978

-Y- POC Sta 18+20.000

-Y- POC Sta 18+48.000
END CONSTRUCTION

+65.000 -Y-
27m LT
END FENCE
END C/A

PL
27m (88.58') LT

+80.000 -Y-
27m (88.58') LT

+91.743 -Y-
20m (65.62') LT

+40.000 -Y-
27m (88.58') LT

+12.071 -Y-
17.02m LT
(56.11')

+10.000 -Y-
9.117m (29.91') LT

+12.400 -Y-
9.118m LT
(29.91')

+00.000 -Y-
14m (45.93') LT

+40.000 -Y-
17m (55.77') LT

+99.906 -Y-
18m (59.05') LT

+20.000 -Y-
9.117m (29.91') LT

+11.984 -Y-
ON EXIST.R/W

+06.123 -Y-
BEGIN FENCE
TIE PROP. WW FENCE
TO EXIST.

+65.000 -Y-
ON EXIST.R/W
END FENCE
END C/A

+80.000 -Y-
42m (137.79') RT

+15.000 -Y-
ON EXIST.R/W

+21.000 -Y-
36m (118.11') RT

+50.000 -Y-
30m (98.42') RT

GPS R-1030A-6 PINC 78+78.274=
-Y- STA. 15+39.225 (5.493m LT)
EL.= 40.904

BY- 554B PINC 7+50.606=
-Y- STA. 18+02.270 (3.556m LT)
EL. 40.963

-YDET- PC Sta 15+84.199

-YDET- PRC Sta 16+50.282

END CONSTRUCTION
-YDET- PT Sta 17+34.034 (LB) =
-Y- POT Sta 18+48.000 (LA)

-Y-
PI Sta 18+12.731
Δ = 0° 51' 45.5" (LT)
L = 135.503
T = 67.753
R = 9,000.000
SE = NC

N 10°55' 11.8" E

N 9°12' 25.0" E

SR 1300 SALEM CHURCH RD 6.2 BST

GRAU 350

REMOVE 375 DIA. CONT.

SPECIAL CUT DITCH
SEE DETAIL 23

GRADE DITCH
TO DRAIN TO
EXISTING DITCH

RETAIN

2SFD

HTR

RUINS

CONC

BST

SOIL

TV (AATFI)

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEETS 78 & 79 FOR -Y- PROFILE
SEE SHEETS 2Q-2S FOR -YDET- PLAN & PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILES $TIMES
DATE: $DATES
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingsdown Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	30
R /W SHEET NO. 24	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.

-DWY2-
PI Sta 10+11.432
Δ = 19° 26' 37.4" (RT)
L = 10.181
T = 5.140
R = 30.000

PI Sta 10+30.571
Δ = 31° 29' 35.5" (LT)
L = 27.483
T = 14.098
R = 50.000

NAD 83

-Y4- POT Sta 12+20.763

BY5-750 POT 6+00.000 =
-Y4- POT 12+09.993
4.286m LT

+05.815 -Y4-
9.144m (30') LT

JAMES B. PAYNE, JR.

CATHERINE R. ZEHMER
DB 2615 PG. 2081
PLAT CAB. A, SLIDE 142-AA

SR 1433 AGONA PL

BEVERLY ROSE SKINNER
DB 1310 PG. 296
PLAT CAB. A, SLIDE 142-AA

WILLIAM COX
DB 1357 PG. 701
PLAT CAB. A, SLIDE 142-AA

JAMES A. ASHWORTH
DB 1326 PG. 167
PLAT CAB. A, SLIDE 142-AA

LENZY RAY FREDERICK
DB 1047 PG. 699
PLAT CAB. A, SLIDE 142-AA

BY5-751 PINC 6+17.953 =
-L- POS 5+47.329
145.026m LT

LEHMAN SMITH, et ux
DB 906 PG. 675

TRUSTEES OF TRINITY BAPTIST CHURCH
DB 980 PG. 65

-Y1- POT Sta 10+00.000 =
-Y4- POT Sta 10+90.406

+03.898 -Y3-
9.233m (30.29') LT

+04.005 -Y3-
9.065m (29.74') RT

-Y3- PC Sta 10+00.000

BEGIN CONSTRUCTION
-Y3- POC Sta 10+35.000
PC Sta 10+06.292

+35.000 -Y3-
EXIST. R/W
9.357m LT
(30.70')

+40.000 -Y4-
20.000m RT
(65.62')

PRC Sta 10+16.473

-DWY2- POT Sta 10+40.000

-Y3- POC Sta 10+70.428

-Y4- POT Sta 10+00.000 =
-Y3- POC Sta 10+70.428

+50.961 -Y4-
8.960m (29.40') LT

+05.876 -Y4-
9.144m (30') RT

END CONSTRUCTION
-Y4- POT Sta 11+80.000

+51.015 -Y4-
10.915m RT
(35.81')

WILLIAM B. PEARSALL
DB 1377 PG. 261
PLAT CAB. A, SLIDE 142-AA

DAVID ALLEN HAYES
DB 1518 PG 599

DAVID ALLEN HAYES, SR.
DB 1629 PG. 313
PLAT CAB. A, SLIDE 142-AA

THOMAS M. LUND

END CONSTRUCTION
-DWY2- PT Sta 10+43.956
POT Sta 10+52.930

N 87° 06' 35.8" E

+11.892 -Y4-
3.3m RT

+51.008 -Y4-
8.771m RT
(28.78')

+20.000 -Y4-
13.000m RT
(42.65')

+20.404 -Y1-
4.5m LT

+30.000 -Y1-
13.000m LT
(42.65')

+33.583 -Y1-
9.144m LT
(30.00')

+35.404 -Y1-
4.0m LT

+16.390 -Y1-
4.5m RT

+72.686 -Y4-
3.3m RT

+72.315 -Y4-
15.000m RT
(49.21')

+18.939 -Y1-
14.000m RT (45.93')

SPECIAL V-DITCH
SEE DETAIL 5

+23.183 -Y1-
10.000m RT
(32.81')

-Y1- PC Sta 10+59.500

+59.500 -Y1-
9.144m LT
(30.00')

+59.500 -Y1-
10.000m RT
(32.81')

+80.000 -Y1-
13.500m LT
(44.29')

+80.000 -Y1-
15.000m RT
(49.21')

+40.000 -Y1-
13.000m LT
(42.65')

+35.000 -Y1-
15.000m RT
(49.21')

+70.000 -Y1-
10.000m RT
(32.81')

S 79° 07' 35.0" E

S 18° 02' 56.2" E

-Y3- PT Sta 11+13.733

MATCH LINE -Y3- 11+20.000 SEE SHEET 4

MATCH LINE -Y1- SEE SHEET 5

+40.000 -Y3-
EXIST. R/W
8.920m RT
(29.26')

+57.048 -Y3-
12.000m RT
(39.37')

EST. 6.4 MTN CL-B RIP RAP
EST. 18.4 SM FILTER FABRIC

BY1-710 POT 5+00.000 =
-Y4- POT 10+14.216
2.55lm LT

SPECIAL V-DITCH
SEE DETAIL 5

-Y4- POT Sta 10+00.000 =
-Y3- POC Sta 10+70.428

+87.272 -Y3-
11.000m RT
(36.09')

+13.733 -Y3-
9.261m (30.38') LT

+13.733 -Y3-
9.027m (29.62') RT

LEHMAN SMITH, et ux
DB 906 PG. 675

+91.449 -L-
29.064m (95.35') LT

+94.123 -Y3-
3.64m LT
(45.96')

+00.000 -Y3-
EXIST. R/W
19.323m LT
(30.59')

LEHMAN SMITH, et ux
DB 906 PG. 675

+06.078 -DWY2-
2.405m LT

+35.046 -Y3-
3.055m LT

+14.569 -DWY2-
1.610m LT

+17.773 -DWY2-
1.497m RT

+05.934 -DWY2-
2.417m RT

+46.308 -Y3-
3.241m LT

+54.939 -Y3-
3.3m LT

+13.698 -Y4-
4.5m LT

+28.698 -Y4-
3.3m LT & RT

+12.365 -Y4-
4.5m RT

+84.631 -Y3-
3.3m LT

-DWY2- POT Sta.10+00.000 =
-Y3- POC Sta.10+40.714

-Y4- POT Sta.10+00.000 =
-Y3- POC Sta.10+70.428

INTERSECTION DETAIL FOR -Y3-, -DWY2- & -Y4-

-Y3-
PI Sta 10+60.215
Δ = 46° 32' 44.6" (LT)
L = 113.733
T = 60.215
R = 140.000
SE = EXIST

-Y1-
PI Sta 11+57.964
Δ = 50° 14' 30.0" (LT)
L = 184.145
T = 98.464
R = 210.000
SE = 0.07
Curve Widening = 0.7

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 66 FOR -Y1- PROFILE
SEE SHEET 75 FOR -Y3- PROFILE
SEE SHEET 70 FOR -Y4- PROFILE
SEE SHEET 75 FOR -DWY2- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILES $TIME$
DATE: $DATE$
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	31
R /W SHEET NO. 25	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

MATCH LINE -Y3- 12+80.000 SEE SHEET 4

MATCH LINE -Y2- 11+40.000 SEE SHEET 5

-Y2- PRC Sta 11+36.662

-Y2-

PI Sta 10+74.385	PI Sta 12+26.783
Δ = 29° 11' 39.0" (LT)	Δ = 39° 38' 50.0" (RT)
L = 127.384	L = 172.994
T = 65.107	T = 90.122
R = 250.000	R = 250.000
SE = 0.06	SE = 0.06

LEHMAN SMITH, et ux
DB 906 PG. 675
(2)

JIMMY ADAMS
DB 1539 PG. 25
(11)

SPECIAL V-DITCH
SEE DETAIL 5

0.3m SPECIAL BASE DITCH
SEE DETAIL 10

S 21° 32' 27.0" W -Y3-

80.21m TAPER

75.843m TAPER

EXISTING R/W

+20.000 -Y3-
EXIST. R/W
9.502m RT
(31.18')

+26.044

+05.000 -Y2-
11.500m LT
(37.73')

+35.000 -Y2-
11.500m LT
(37.73')

+17.666 -Y2-
13.000m RT
(42.65')

+20.173 -Y2-
9.144m LT
(30.00')

+60.000 -Y2-
13.000m RT
(42.65')

+00.000 -Y2-
13.500m RT
(44.29')

+00.000 -Y2-
9.144m LT
(30.00')

+36.662 -Y2-
11.000m LT
(36.09')

+36.662 -Y2-
9.144m LT
(30.00')

+10.000 -Y2-
13.000m RT
(42.65')

7.000m (TYP)

-Y2-

R/W

-Y2- POT Sta 10+00.000 =
-Y3- POT Sta 13+56.166

S 69° 45' 46.9" E

-Y2- PC Sta 10+09.278

+80.000 -Y3-
8.963m LT
(29.41')

END CONSTRUCTION
-Y3- POT Sta 13+80.000

+60.000 -Y2-
14.000m RT
(45.93')

+18.717 -Y2-
9.144m RT
(30.00')

+17.000 -Y2-
11.500m RT
(37.73')

JIMMY ADAMS
DB 1539 PG. 25
(11)

NEIL ANTHONY
DB 2433 PG. 475

WILLIAM PARKER BURNETTE
DB 1031 PG. 18

ARNOLD L. HOWE
DB 2100 PG. 596

LISA F. JONES
DB 2125 PG. 475

THOMAS & CAROLYN EVENS
DB 2133 PG. 495

ROSA W. THOMPSON
DB 1275 PG. 374

SUSAN D. SPENCER & JEAN P. WAITS
DB 1268 PG. 659

JEAN P. WAITS
DB 2493 PG. 889

NEIL ANTHONY
DB 2430 PG. 211

JOHNNIE W. BURNETTE
DB 826 PG. 614

BM #2
-Y2- STA 6+91.285
11.39' LEFT
ELEV.= 41.981

-Y3- POT Sta 14+55.990

SR 1289 NEAL ST SW 48 BST

FORK TOWNSHIP

COMMUNITY RD

EXIST SR 1237

EXISTING R/W

ISBKD

ISFD

POOL

SOIL & GR

TWC

AT&T

T (AATUR)

12.1V

375mm CONC

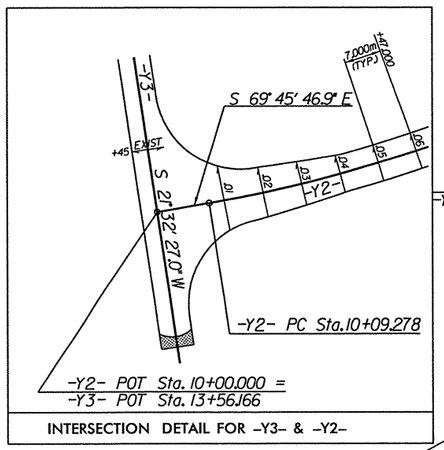
150 mm

50 mm

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

INTERSECTION DETAIL FOR -Y3- & -Y2-



SEE SHEET 72 FOR -Y2- PROFILE
SEE SHEET 76 FOR -Y3- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $PLOTDRVR$
PEN TABLE: $PENTBLFL$

R/W REV. - 10/7/11
ADDED PUE TO PARCEL NO. 23

R/W REV. - 4/15/09
ADDED PUE TO PARCEL NOS. 46 & 48

R/W REV. - 11/28/06
CORRECTED PROPERTY OWNER INFORMATION
REVISED R/W AND MONUMENTS ON PARCEL 47
ADDED R/W MONUMENTS ALONG EXIST. R/W

Florence & Hutcheson
CONSULTING ENGINEERS
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NC License No: P-0258

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	32
R /W SHEET NO. 26	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

Replacement Electric Transmission Easement to be deeded over to Progress Energy at completion of Project.
WBS: 34461.2.4 (R-2554A)
Wayne County
Parcel #23

MATCH LINE SEE SHEET 8

MATCH LINE -RPCD- 16+00.000 SEE SHEET 8

MATCH LINE SEE SHEET 33

MATCH LINE -RPCD- 19+40.000 SEE SHEET 33

MATCH LINE -Y2- 27+80.000 SEE SHEET 34

MATCH LINE SEE SHEET 36

PROP GUARDRAIL

N 23°05' 20.7" W

1.2m WW I-S-BW

15.000m (TYP.)

14.000m (TYP.)

0.91m SPECIAL BASE DITCH SEE DETAIL 18

0.91m SPECIAL BASE DITCH SEE DETAIL 13

SPECIAL V-DITCH SEE DETAIL 4

EST. 6.4 MTN CL-B RIP RAP
EST. 18.4 SM FILTER FABRIC

EST. 4.5 MTN CL-B RIP RAP
EST. 11.7 SM FILTER FABRIC

HEADWALL

GRAU-350

BY-607A PINC 22+86.420 = -RAMPCD- POC 17+91.503 2.858m RT

+18.936 -FLY- 81.417m RT (267.12')
+19.671 -FLY- 60.095m RT (197.16')
+18.626 -FLY- 38.706m RT (126.99')
+18.469 -FLY- 36.039m RT (118.24')
+78.023 -FLY- 41.200m RT (135.17')
+77.024 -FLY- 80.218m RT (263.18')
+49.886 -FLY- 39.993m RT (131.21')
+17.434 -FLY- 37.883m RT (124.29')
+16.344 -FLY- 30.798m RT (101.04')

(35.000m RT - 114.83')

-FLY- ST Sta 13+57.975 (127.000m RT - 85.58')

-FLY- CS Sta 12+67.975 (124.000m RT - 78.74')

-FLY- SC Sta 15+80.284

-FLY- CS Sta 16+25.880

-FLY- TS Sta 14+90.284

-RPCD- SC Sta 17+15.880

-FLY- SC Sta 26+38.919

+29.172 -Y2- 6.900m LT (22.64')
+34.9905 -Y2- 9.144m LT (30.00')
+38.919 -Y2- 6.900m LT (22.64')
+12.113 -Y2- EXIST.R/W 12.000m RT (39.37')
+97.895 -Y2- 15.420m (50.59') RT
+99.086 -Y2- 20.296m RT (66.59')
+21.854 -Y2- EXIST.R/W 9.144m RT (30.00')
+30.635 -Y2- 9.179m RT (30.12')
+31.035 -Y2- 11.375m RT (30.12')
+70.000 10.000m (32.81')

+90.516 -RPCD- 19.345m (63.47') RT
+83.500 -RPCD- 29.919m RT (98.16')
+46.952 -RPCD- 21.762m RT
+46.721 -RPCD- 16.586m RT

90.257 N58°09'52"E
64.636 N58°48'13"E
54.571 S59°05'15"W

23
R. E. GRANTHAM, HEIRS
DB 210 PG 442
PC B PG 325
WB 4 PG 256

24
DAVID BENTON MITCHELL, JR
DB 847 PG 277

46
R. S. SMITH, HEIRS
DB 294 PG. 41

47
JOSEPH M. LAWRENCE
DB 648 PG 237

47
JOSEPH M. LAWRENCE
DB 648 PG 237

48
ASA MANAGEMENT COMP., LLC
DB 1913 PG 573

ISFD (ABAND)

ISFD

NO ASSOCIATED PIPING FOUND FOR THIS WM

-RPCD-

PI Sta 14+68.055	PIs Sta 16+58.367	PI Sta 19+11.630
Δ = 30° 54' 53.7" (RT)	Θs = 0° 23' 04.9"	Δ = 3° 20' 49.2" (LT)
L = 323.740	Θs = 4° 17' 50.3"	L = 391.388
T = 165.915	Ls = 90.000	T = 195.750
R = 600.000	LT = 57.557	R = 6,700.000
SE = 0.09	ST = 32.486	SE = NC

-Y2-

PI Sta 24+41.927	PIs Sta 26+29.864	PI Sta 27+36.558
Δ = 34° 42' 52.5" (RT)	Θs = 1° 00' 09.4"	Δ = 42° 40' 00.0" (RT)
L = 363.530	Θs = 2° 24' 23.4"	L = 186.168
T = 187.538	Ls = 21.000	T = 97.639
R = 600.000	LT = 11.944	R = 250.000
SE = 0.04	ST = 9.062	SE = 0.06

-FLY-

PIs Sta 11+20.004	PI Sta 12+04.166	PIs Sta 12+97.987
Θs = 2° 27' 19.9"	L = 127.975	Θs = 3° 40' 59.9"
Ls = 60.000	T = 64.166	Ls = 90.000
LT = 40.004	R = 700.000	LT = 60.013
ST = 20.003	SE = 0.06	ST = 30.012

PIs Sta 15+50.317	PI Sta 18+20.871
Θs = 5° 51' 35.3"	Δ = 57° 20' 19.0" (LT)
Ls = 90.000	L = 440.329
LT = 60.033	T = 240.587
ST = 30.030	R = 440.000
	SE = 0.06

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 57 FOR -FLY- PROFILE
SEE SHEETS 57 & 58 FOR -RPCD- PROFILE
SEE SHEET 74 FOR -Y2- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $PLOTDRVR$
PEN TABLE: $PENTBLE$

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	33
R /W SHEET NO. 27	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.

NAD 83

MATCH LINE -RPCD- 19+40.000 SEE SHEET 32

24
DAVID BENTON MITCHELL, SR
DB 847 PG 277

ETHEL E. SMITH
DB 1760 PG. 557
PLAT CAB. K, SLIDE 13-F

49

ANNA G. RADFORD
DB 2796 PG. 707
PLAT CAB. K, SLIDE 13-F

GENE A. WELLS
DB 1435 PG. 228
PLAT CAB. K, SLIDE 13-F

GOLDSBORO RETAIL INVESTMENTS, LLC
DB 2456 PG 746
PLAT CAB. M, SLIDE 73-C

BY-608A POT 26+19.440 =
-FLY- POT 10+68.523
6.622m LT

END CONSTRUCTION
-RPCD- POT Sta 22+18.051 =
BEGIN CONSTRUCTION
-FLY- POT Sta 9+75.000 (13.619m LT)

-FLY- SC Sta 11+40.000

-FLY- TS Sta 10+80.000

+00.000 -FLY-
20.000m (65.62') RT

END FENCE / C/A
+15.000 -FLY-
21.438m RT

+15.467 -FLY-
15.906m RT
(52.14')

PROGRESS ENERGY

NO ASSOCIATED PIPING FOUND FOR MW's IN THIS AREA

FORK TOWNSHIP

+18.051 -RPCD-
34.532m (106.06') LT

S 42°09'11" E
81.239

S 39° 42' 10.1" E

N 39° 42' 10.1" W

62.300m UNIFORM TAPER

END FENCE / C/A
+31.590 -RPCD-
16.033m RT

+35.143 -RPCD-
15.973m RT (52.40')

+35.389 -RPCD-
20.969m RT (68.80')

+36.933 -EY3A-
4.5m LT

+34.922 -EY3A-
4.5m RT

+39.078 -RPCD-
7.2m RT

+38.039 -RPCD-
3.582m RT

-EY3A- POT Sta 10+16.906 =
-RPCD- POS Sta 21+11.365

BY-608A POT 26+54.292
25.664 RIGHT

END CONSTRUCTION
-EY3A- POT Sta 10+55.000

-RPCD- CS Sta 21+07.268

-RPCD- ST Sta 21+67.268

ASA MANAGEMENT COMP., LLC
DB 1913 PG 573
48

INVESTMENTS OF GOLDSBORO, LLC
DB 2346 PG. 657

80
DANNIE RAY MYERS
DB 1184 PG. 818

GORDON L. BEST
DB 1117 P 134

JEREMIAH ISAAC DURFEY
DB 1495 PG. 435

PATRICK Z. CHEN
DB 2002 PG. 186

PHYLLIS COMER SMITH
DB 1720 PG. 780
PB6 PG. 151

PHYLLIS COMER SMITH
DB 1720 PG. 780
PB6 PG. 151

HAROLD R. COMER & WAYNE D. COMER
DB 1112 PG 315

ALVIN EDGERTON
DB 1227 PG 772

DAVID J. WEBBER
DB 2023 PG 394

-FLY-

PIs Sta 11+20.004	PI Sta 12+04.166	PIs Sta 12+97.987
Θs = 2° 27' 19.9"	Δ = 10° 28' 29.6" (RT)	Θs = 3° 40' 59.9"
Ls = 60.000	L = 127.975	Ls = 90.000
LT = 40.004	T = 64.166	LT = 60.013
ST = 20.003	R = 700.000	ST = 30.012
	SE = 0.06	

-RPCD-

PIs Sta 16+58.367	PI Sta 19+11.630	PIs Sta 21+27.268
Θs = 0° 23' 04.9"	Δ = 3° 20' 49.2" (LT)	Θs = 0° 15' 23.6"
Θs = 4° 17' 50.3"	L = 391.388	Ls = 60.000
Ls = 90.000	T = 195.750	LT = 40.000
LT = 57.557	R = 6,700.000	ST = 20.000
ST = 32.486	SE = NC	

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 56 FOR -FLY- PROFILE
SEE SHEET 55 FOR -RPCD- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $PLTDRVR$
PEN TABLE: $PENTBL$

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0268

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	34
R /W SHEET NO. 28	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

MATCH LINE SEE SHEET 32

MATCH LINE -Y2- 27+80.000 SEE SHEET 32

MATCH LINE -Y2- 30+60.000 SEE SHEET 35

47
ASA MANAGEMENT COMP., LLC
DB 1913 PG 573

48
ASA MANAGEMENT COMP., LLC
DB 1913 PG 573

ASA MANAGEMENT COMP., LLC
DB 1913 PG 573
48

+92.025 -Y2-
15.500m (50.85') LT

+91.589 -Y2-
9.144m (30.00') LT

+25.088 -Y2-
9.144m LT
(30.00')

+25.088 -Y2-
11.500m LT
(37.73')

+60.000 -Y2-
11.000m LT
(36.09')

+90.000 -Y2-
9.144m LT
(30.00')

+00.000 -Y2-
12.500m LT
(41.01')

+20.000 -Y2-
14.500m LT
(47.57')

SPECIAL V-DITCH
SEE DETAIL 5

+90.270 -Y2-
14.500m LT
(47.57')

+40.000 -Y2-
14.500m LT
(47.57')

+30.000 -Y2-
15.000m RT
(49.21')

-Y2- PT Sta 28+25.088
(9.144m RT - 30.00')

-Y2- PC Sta 29+90.271
(9.144m RT - 30.00')

S 2° 00' 48.9" W -Y2-

7.000m (TYP)

TRELLIS

-Y2-

PI Sta 27+36.558	PI Sta 30+96.001
△= 42° 40' 00.0" (RT)	△= 45° 50' 57.0" (LT)
L = 186.168	L = 200.055
T = 97.639	T = 105.731
R = 250.000	R = 250.000
SE = 0.06	SE = 0.06

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEETS 74 & 75 FOR -Y2- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILE$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRVR$
PEN TABLE: $PENTBL$

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0268

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	35
R/W SHEET NO. 29	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

-Y2-
PI Sta 30+96.001
Δ = 45° 50' 57.0" (LT)
L = 200.055
T = 105.731
R = 250.000
SE = 0.06

NAD 83

MATCH LINE -Y2- 30+60.000 SEE SHEET 34

MATCH LINE -Y8- 11+50.000 SEE SHEET 36

-EY3A- POT Sta 12+30.000 BEGIN CONSTRUCTION

-EY3A- POT Sta 12+80.000 END CONSTRUCTION

-Y2- PT Sta 31+90.326

-Y2- POT Sta 32+19.672 = -EY3A- POT Sta 12+53.736 = -Y8- POT Sta 10+00.000

S 46°17'41.8" W

S 45°50'08.1" E

S 45°18'43.6" E

EST. 4.5 MTN CL-B RIP RAP
EST. 11.7 SM FILTER FABRIC

SPECIAL V-DITCH SEE DETAIL 5

ASA MANAGEMENT COMP., LLC DB 1913 PG 573

HAROLD R. COMER & WAYNE D. COMER DB 1112 PG 315

SHERRILL DOUGLAS LANGSTON DB 2582 PG. 590

LAMONT INGRAM DB 1524 PG. 835 PB6 PG. 151

ARTHUR RAY TURNER DB 1945 PG. 696 PB6 PG. 151

ARTHUR RAY TURNER DB 908 PG. 159 PB6 PG. 151

DAVID J. WEBBER DB 2023 PG 394

ROSEWOOD MOBILE PARK, INC. DB 1585 PG. 750 DB 1088 PG. 403 PB 6 PG. 151

HWB OF NORTH CAROLINA, LLC DB 1691 PG 83

ROSEWOOD MOBILE PARK, INC. DB 1088 PG 403

CHRISTINA LYNN NEWTON DB 2783 PG. 689

ADDIE ARNOLD RADFORD DB 1229 PG. 310

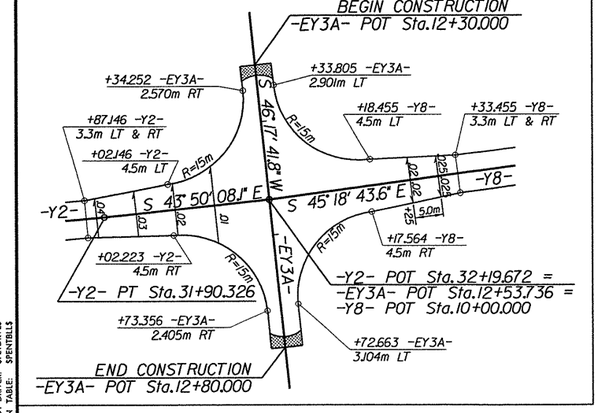
EDWARD HOLMES DB 2254 PG. 247

Phyllis Comer Smith DB 2654 PG. 199

Phyllis C Smith DB 2654 PG. 199

48 50 51 52 53 55

INTERSECTION DETAIL FOR -Y2-, -Y8- & -EY3A-



OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 75 FOR -Y2- PROFILE
SEE SHEET 75 FOR -Y8- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILES $TIMES
DATE: $DATES
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	36
R /W SHEET NO. 30	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.

NAD 83

MATCH LINE -Y8- 11+50.000 SEE SHEET 35

-EY10B- POT Sta 10+00.000

BEGIN CONSTRUCTION
-EY10B- POT Sta 10+70.000

-Y8- POT Sta 13+37.623
-EY10B- POT Sta 11+04.594

END CONSTRUCTION
-EY10B- POT Sta 11+40.000

-EY10B- POT Sta 11+97.919

S 48° 01' 37.1" W

S 45° 18' 43.6" E

HUGH E. ROBERTS
DB 1124 PG 526

CREOLA E. PARRISH
DB 400 PG 103

LILLIE MAE JOHNSON
DB 370 PG 420

LILLIE MAE JOHNSON
DB 824 PG 539

RAYMOND RADFORD
DB 821 PG 105

CULTIVATED

HWB OF NORTH CAROLINA, LLC
DB 1691 PG 83

HWB OF NORTH CAROLINA, LLC
DB 1691 PG 83

HWB OF NORTH CAROLINA, LLC
DB 1691 PG 83

JACK D. SMITH
DB 660 PG.364

JACK D. SMITH
DB 844 PG.393

MEP PROPERTIES LLC
SER.RD.SOUTH-732 DB 2840 PG 657
POT 30+33.289

WILLE GLEN PPWELL
DB 787 PG 48

SER.RD.SOUTH STA. 10+43.433
0.567 RIGHT
ELEV.= 40.957

PUMP HOUSE
MTL SHED
GARAGE
SHELTER
IS F SHELTER
IS F & BK D
IS F D
IS MTL BUS
MTL SHELTER
POOL
WD DECK
H TR
SOIL & GR
SOIL DR
WOODS
GRAVEL
4m GRAVEL DR
3m SOIL DR
EXISTING R/W
RETAIN
1800 CHL w/35BW
1800mm WW 3STBW
1.8 CHL w/ 35BW
1.8 WW
1.2 WW ELEC
1.8 WD
1.8 CHL w/ 35SBW
300MM CONC HW
375 RCP
900 RCP
900 CMP
BST
PUE
CONC
-EY10B-
-Y8-
R/W

+85.464 -EY10B- EXIST.R/W 9.54m RT (30.03')
+86.133 -EY10B- 3.726m RT
+80.000 -Y8- 10.500m LT (34.45')
+20.003 -Y8- 4.5m LT
+02.749 -Y8- LT & RT
+117.749 -Y8- 4.5m RT
+20.000 -Y8- 22.695m RT (74.46')
+80.000 -Y8- 10.500m RT (34.45')
+96.359 -Y8- 10.500m RT (34.45')
+30.000 -EY10B- EXIST.R/W 9.55m RT (30.04')
+20.000 -Y8- 33.000m RT (108.27')
+33.907 -EY10B- 9.54m RT (30.03')
+40.000 -EY10B- 9.53m RT (30.029')
+96.056 -Y8- 18.482m RT (60.64')
+25.189 -EY10B- 3.705m RT

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 75 FOR -Y8- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: SFILES STIMES
DATE: SDATES
PLOT DRIVER: SPLTDRVLS
PEN TABLE: SPENTBLLS

Florence & Hutcheson
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METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	37
R /W SHEET NO. 31	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

27A
WAL-MART STORES EAST LC
STORE # 4564-00
DB 2456 PG. 797
PLAT CAB. M, SLIDE 73-C

BEGIN CONSTRUCTION -Y10- POT Sta 10+00.000

BY10-POT 16+25.681 = -Y10-POT 10+31.656 7.361m LT

RETAINING POND

1200 MM CHL

PROGRESS ENERGY

PIEDMONT NATURAL GAS

EXISTING R/W

600 MM C&G

600mm RCP

1200mm RCP

900 mm CMP

CB

200mm CHDPE

EASEMENT

CORDUN R=27.432 Δ=14°00'00" L=6.706

SIGNAL BOX

100 mm

250 mm

FORK TOWNSHIP

NC HWY 581

7.2m

(AADTUR)

AT&T

200 mm TWC DUCT

TV FO

N 47° 55' 16.0" E

375mm CHDPE

R/W 1.2m WW 1-S-BW

+00.000 -Y10- 8.895m (29.18') RT
BEGIN FENCE / C/A
+00.000 -Y10- 15.000m RT (49.21')

DOT EASEMENT

BM #10
-BY10- STA 16+20.018
14.130 LEFT
ELEV.= 41.499

+90.000 -Y10- 21.000m RT (68.90')

+90.000

90.000m UNIFORM TAPER

131.777m AUXILIARY LANE

SPECIAL V-DITCH
SEE DETAIL 5

EST. 4.5 MTN CL-B RIP RAP
EST. 11.7 SM FILTER FABRIC

GEORGE H. BECTON, HEIRS
DB 633 PG 55
57

BST

+10.000 -Y10- 19.37m LT (63.56')

BEGIN FENCE / C/A
+10.000 -Y10- 22.825m LT (74.23')

BY10-PINC 14+09.313 = -Y10- POT 12+48.018 9.016m LT

+00.000 -Y10- 18.500m LT (60.70')

BACK FLOW PREVENTER

EXISTING R/W

-Y10-

-Y10DET-

1200 mm CHL

200 mm

RAW WATER

SPECIAL V-DITCH
SEE DETAIL 5

15.000m (TYP.)

+21.777 -Y10- 27.786m RT (91.16')

-Y10- POT Sta 12+21.777 (6.000m RT.)
-RPD- ST Sta 17+07.418

28
GEORGE F. BECTON
DB 633 PG 56

-RPD- CS Sta 16+47.418 (30.000m LT - 98.42')

MATCH LINE -Y10- 13+00.000 SEE SHEET 10

-RPD-

PIs Sta 10+40.008	PI Sta 13+92.912	PIs Sta 16+67.425
θs = 3° 26' 15.9"	Δ = 67° 18' 47.5" (LT)	θs = 3° 26' 15.9"
Ls = 60.000	L = 587.418	Ls = 60.000
LT = 40.008	T = 332.912	LT = 40.008
ST = 20.007	R = 500.000	ST = 20.007
	SE = 0.06	

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 64 FOR -RPD- PROFILE
SEE SHEET 65 FOR -Y10- PROFILE
SEE SHEETS 2M-2P FOR -DET1- PLAN & PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: SFILE$
DATE: $DATE$ STIME$
PLOT DRIVER: $PLTDRVR$
PEN TABLE: $PENTBL$

Florence & Hutcheson
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METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	38
R/W SHEET NO. 32	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

CONST. REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

MATCH LINE -Y1- 38+60.000 SEE SHEET 40

MATCH LINE -Y10- 17+80.000 SEE SHEET 10

MATCH LINE -Y10- 20+80.000 SEE SHEET 39

-Y1- PC Sta 39+24.039
(9.44m LT - 30.00')

-Y1- PT Sta 39+99.283

-Y10- ST Sta 19+29.274
(26.227m LT - 86.05')

-Y1- POT Sta 40+13.167 =
-Y10- POS Sta 18+98.155 =
-DWY1- POT Sta 10+00.000

-Y10- CS Sta 18+69.275

END CONSTRUCTION
-DWY1- POT Sta 10+83.101

-Y1- Pl Sta 39+64.704
Δ = 53° 53' 24.1" (RT)
L = 75.245
T = 40.665
R = 80.000
SE = 0.05
Curve Widening = 1.3

-Y10- Pls Sta 17+47.321
Θs = 1° 25' 56.6"
Ls = 60.000
LT = 40.001
ST = 20.001

-Y10- Pl Sta 18+18.328
Δ = 4° 52' 04.7" (LT)
L = 101.955
T = 51.008
R = 1,200.000
SE = 0.03

-Y10- Pls Sta 18+89.276
Θs = 1° 25' 56.6"
Ls = 60.000
LT = 40.001
ST = 20.001

EST. 7.3 TONS CL-B RIP RAP
EST. 17.6 SM FILTER FABRIC

59 JEAN CASEY BECTON
WB 95E PG. 657
DB 633 PG. 53

64 HARRISON RAY BECTON
DB 1614 PG. 395

60 P.O. JAMES HEIRS

61 GLENN A. SASSER
DB 687 PG. 453

62 GLENDA GAIL SASSER
DB 1520 PG. 196

63 GLENN A. SASSER
DB 455 PG. 144

132.256m UNIFORM TAPER

34.569m UNIFORM TAPER

FORK TOWNSHIP 200 mm RAW WATER

FILE:
DATE:
PLOT DRIVER: SPLTDRVLS
PEN TABLE: SPENTBLLS
STYLES
STRMES

SEE SHEET 72 FOR -Y1- PROFILE
SEE SHEET 67 FOR -Y10- PROFILE
SEE SHEET 72 FOR -DWY1- PROFILE
SEE SHEETS 2M-2P FOR -DET1- PLAN & PROFILE
SEE SHEET 2-K FOR -Y1- & -Y10- INTERSECTION DETAIL
SEE SHEETS 2T-2V FOR DITCH DETAILS

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

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METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	39
R /W SHEET NO. 33	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

MATCH LINE -Y10- 20+80.000 SEE SHEET 38

64

HARRISON RAY BECTON
DB 1614 PG. 395

59

JEAN CASEY BECTON
WB 95E PG. 657
DB 633 PG. 53

END CONSTRUCTION
-Y10- POT Sta 21+60.000

SLOPE STAKES

+27.434 -Y10-
11.257m LT
(36.93')

20.000M
UNIFORM TAPER

+40.000

+59.993 -Y10-
EXIST.R/W
9.288m LT
(30.47')

BM #11
-BY10- STA 4+57.705
7.431 LEFT
ELEV.= 4.249

EXISTING R/W

TWC DUCT

TV FO 250 mm

300mm CONC

NC 581 7.4 BST

-Y10- N 40°11'18" E

FORK TOWNSHIP

(AATUR)

(AATHR)

TWC EXISTING R/W

FORK TOWNSHIP 200 mm RAW WATER

+20.000 -Y10-
14.000m RT
(45.93')

+59.993 -Y10-
EXIST.R/W
9.000m RT
(29.53')

JEAN CASEY BECTON
WB 95E PG. 657
DB 633 PG. 53

N47°25'18"E
201.168

SLOPE STAKES

BY10-POT 5+00.000 =
-Y10- POT 21+56.487
5.265m LT

END DETOUR
-Y10DET- PT Sta 21+02.207 =
-Y10- POT Sta 21+60.000

TIMOYHTY J ALLEMAN
DB 2554 PG 59

63

GLENN A. SASSER
DB 455 PG. 144

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 66 FOR -Y10- PROFILE
SEE SHEETS 2M-2P FOR -DET1- PLAN & PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILES $TIMES
DATE: $DATES
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
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METRIC

5m 0 10m

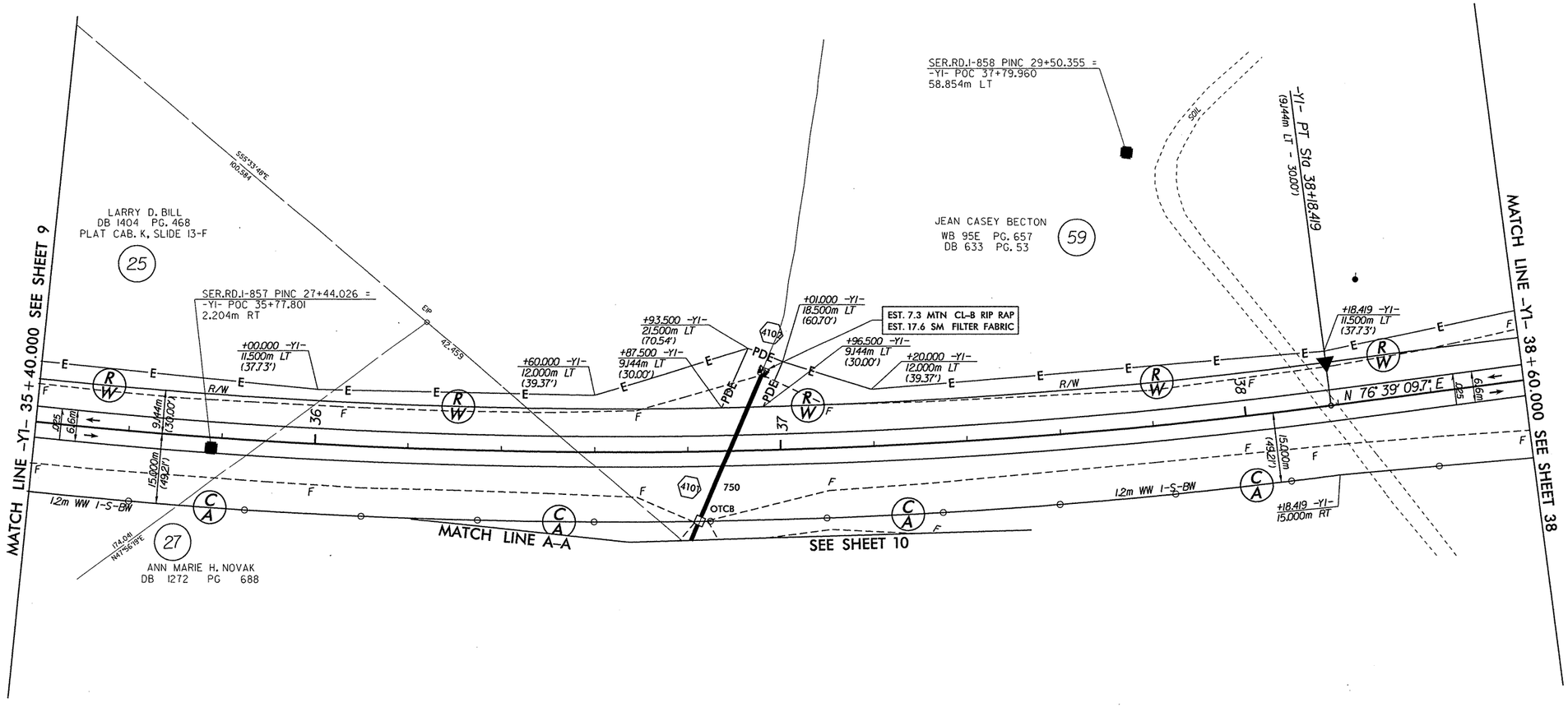
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	40
R /W SHEET NO. 34	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83



-Y1-
PI Sta 35+29.319
Δ = 28° 11' 23.2" (LT)
L = 590.405
T = 301.305
R = 1,200.000
SE = RC

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEETS 71 & 72 FOR -Y1- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: $FILES $TIMES
DATE: $DATES
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

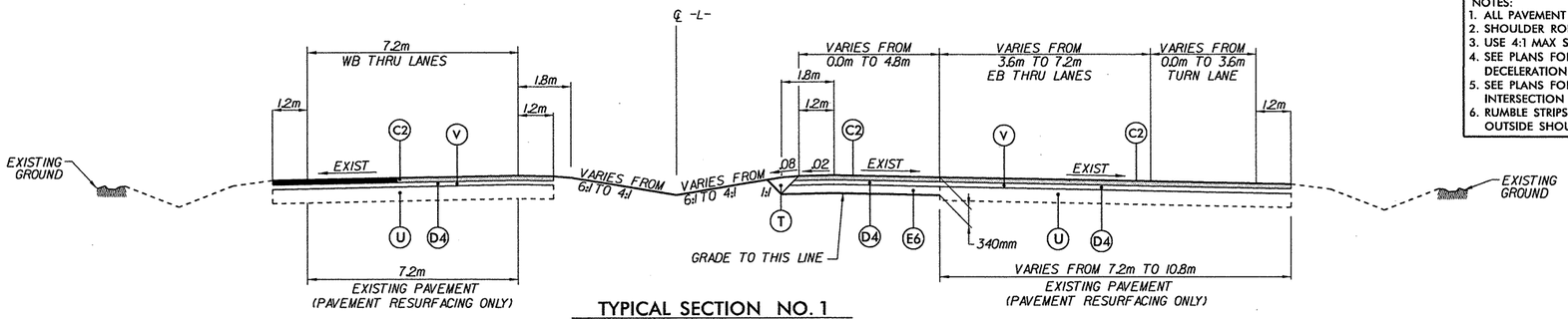
Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

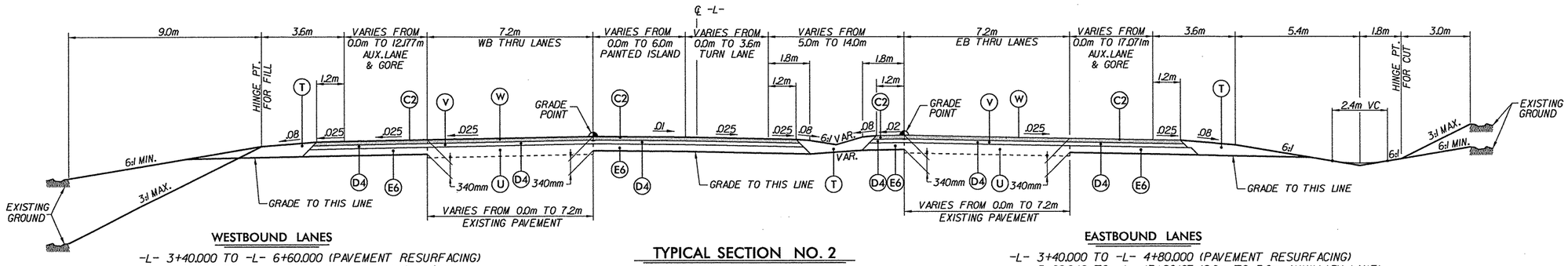
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. SHOULDER ROLLOVER NOT TO EXCEED 0.06 (TYP).
3. USE 4:1 MAX SLOPES ON INSIDE OF INTERCHANGE.
4. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
5. SEE PLANS FOR LOCATION OF TURN LANES AND INTERSECTION TURNOUTS.
6. RUMBLE STRIPS SHALL BE PLACED ON BOTH THE MEDIAN AND OUTSIDE SHOULDERS IN ACCORDANCE WITH STD 665.01.



TYPICAL SECTION NO. 1

-L- 1+80.000 TO -L- 3+40.000



WESTBOUND LANES

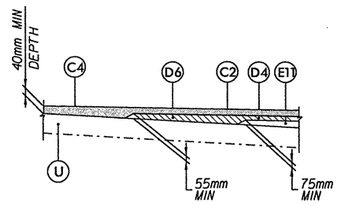
-L- 3+40.000 TO -L- 6+60.000 (PAVEMENT RESURFACING)
-L- 4+05.672 TO -L- 11+71.574 (3.6m AUXILLARY LANE)
-L- 11+71.574 TO -L- 13+38.673
(GORE AREA -FLY- 25+05.857 TO -FLY- 23+39.387)

TYPICAL SECTION NO. 2

-L- 3+40.000 TO -L- 16+83.953 (END OF -RPCD- GORE AREA)

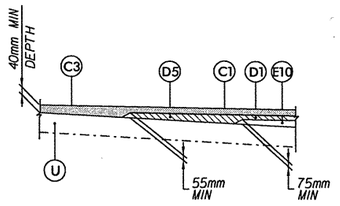
EASTBOUND LANES

-L- 3+40.000 TO -L- 4+80.000 (PAVEMENT RESURFACING)
-L- 5+09.942 TO -L- 13+86.107 (0.0m TO 3.6m AUXILLARY LANE)
-L- 13+86.107 TO -L- 16+83.953
(GORE AREA -RPCD- 10+00 TO -RPCD- 12+78.872)



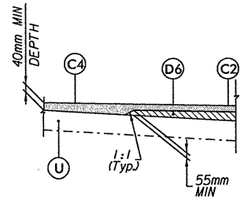
WEDGING DETAIL – W

USE IN CONJUNCTION WITH TYPICAL SECTION NO.'s 2,& 13



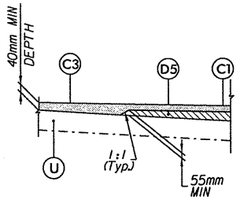
WEDGING DETAIL – W1

USE IN CONJUNCTION WITH TYPICAL SECTION NO.'s 8,& 10



WEDGING DETAIL – W2

USE IN CONJUNCTION WITH TYPICAL SECTION NO.11



WEDGING DETAIL – W3

USE IN CONJUNCTION WITH TYPICAL SECTION NO.'s 17, 20, 22, & 25

PAVEMENT SCHEDULE

ITEM	DESCRIPTION
C1	PROP. APPROX. 80mm ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 96 kg PER Sq. METER, IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 80mm ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 96 kg PER Sq. METER, IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 2.40 kg PER Sq. METER PER 1mm DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 50mm IN DEPTH.
C4	PROP. VAR. DEPTH ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 2.40 kg PER Sq. METER PER 1mm DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 50mm IN DEPTH.
D1	PROP. APPROX. 65mm ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 159.25 kg PER Sq. METER.
D2	PROP. APPROX. 80mm ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 196 kg PER Sq. METER.
D3	PROP. APPROX. 100mm ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 245 kg PER Sq. METER.
D4	PROP. APPROX. 80mm ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 196 kg PER Sq. METER.
D5	PROP. VAR. DEPTH ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 2.45 kg PER Sq. METER PER 1mm DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 65mm OR GREATER THAN 110mm IN DEPTH.
D6	PROP. VAR. DEPTH ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 2.45 kg PER Sq. METER PER 1mm DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 65mm OR GREATER THAN 110mm IN DEPTH.
E1	PROP. APPROX. 80mm ASPHALT CONC. BASE COURSE,TYPE B25.0B, AT AN AVERAGE RATE OF 196 Kg PER SQ. METER.
E2	PROP. APPROX. 100mm ASPHALT CONC. BASE COURSE,TYPE B25.0B, AT AN AVERAGE RATE OF 245 Kg PER SQ. METER.
E3	PROP. APPROX. 140mm ASPHALT CONC. BASE COURSE,TYPE B25.0B, AT AN AVERAGE RATE OF 343 Kg PER SQ. METER.
E4	PROP. APPROX. 120mm ASPHALT CONC. BASE COURSE,TYPE B25.0C, AT AN AVERAGE RATE OF 294 Kg PER SQ. METER.
E5	PROP. APPROX. 140mm ASPHALT CONC. BASE COURSE,TYPE B25.0C, AT AN AVERAGE RATE OF 343 Kg PER SQ. METER.
E6	PROP. APPROX. 180mm ASPHALT CONC. BASE COURSE,TYPE B25.0C, AT AN AVERAGE RATE OF 220.5 Kg PER SQ. METER, IN EACH OF TWO LAYERS.
E7	PROP. APPROX. 200mm ASPHALT CONC. BASE COURSE,TYPE B25.0C, AT AN AVERAGE RATE OF 245 Kg PER SQ. METER, IN EACH OF TWO LAYERS.
E8	PROP. APPROX. 100mm ASPHALT CONC. BASE COURSE,TYPE B25.0C, AT AN AVERAGE RATE OF 245 Kg PER SQ. METER.
E9	PROP. APPROX. 130mm ASPHALT CONC. BASE COURSE,TYPE B25.0C, AT AN AVERAGE RATE OF 318.5 Kg PER SQ. METER.
E10	PROP. VAR. DEPTH ASPHALT CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 2.45 Kg PER SQ. METER PER 1mm DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 100mm OR GREATER THAN 140mm IN DEPTH.
E11	PROP. VAR. DEPTH ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 2.45 Kg PER SQ. METER PER 1mm DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 100mm OR GREATER THAN 140mm IN DEPTH.
J1	PROP. 200mm AGGREGATE BASE COURSE
J2	PROP. VAR. DEPTH AGGREGATE BASE COURSE
P	PRIME COAT AT THE RATE OF 1.6 L PER SQ. METER.
R1	PROPOSED 750mm CONCRETE CURB & GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING ASPHALT PAVEMENT TO A DEPTH OF 80mm
W	VARIABLE DEPTH ASPHALT PAVEMENT
W1	VARIABLE DEPTH ASPHALT PAVEMENT
W2	VARIABLE DEPTH ASPHALT PAVEMENT
W3	VARIABLE DEPTH ASPHALT PAVEMENT

FILE: SFILE1S STIMES
DATE: SDATE1S
PLOT DRIVER: SPLTDRV1S
PEN TABLE: SPENTBL1S

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	80mm TYPE S9.5B	D3	100mm TYPE I19.0B	E3	140mm TYPE B25.0B	E9	130mm TYPE B25.0C	R1	750mm CURB & GUTTER	W	VAR. DEPTH ASPH. PAVEMENT
C2	80mm TYPE S9.5C	D4	80mm TYPE I19.0C	E4	120mm TYPE B25.0C	E10	VAR. DEPTH TYPE B25.0B			W1	VAR. DEPTH ASPH. PAVEMENT
C3	VAR. DEPTH TYPE S9.5B	D5	VAR. DEPTH TYPE I19.0B	E5	140mm TYPE B25.0C	E11	VAR. DEPTH TYPE B25.0B			W2	VAR. DEPTH ASPH. PAVEMENT
C4	VAR. DEPTH TYPE S9.5C	D6	VAR. DEPTH TYPE I19.0C	E6	180mm TYPE B25.0C	J1	200mm ABC	T	EARTH MATERIAL	W3	VAR. DEPTH ASPH. PAVEMENT
D1	65mm TYPE I19.0B	E1	80mm TYPE B25.0B	E7	200mm TYPE B25.0C	J2	VAR. DEPTH ABC	U	EXISTING PAVEMENT		
D2	80mm TYPE I19.0B	E2	100mm TYPE B25.0B	E8	100mm TYPE B25.0C	P	PRIME COAT	V	80mm ASPHALT MILLING		

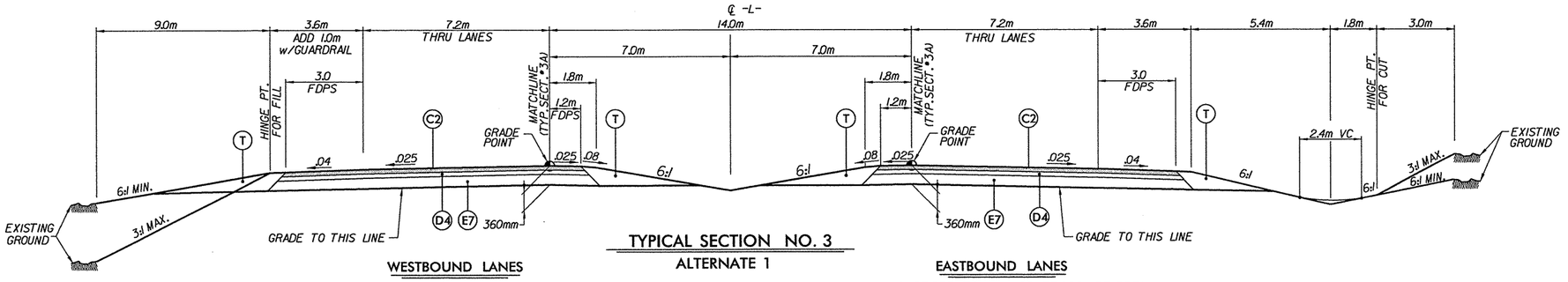
Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0288

METRIC

NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. SHOULDER ROLLOVER NOT TO EXCEED 0.06 (TYP).
3. USE 4:1 MAX SLOPES ON INSIDE OF INTERCHANGE.
4. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
5. SEE PLANS FOR LOCATION OF TURN LANES AND INTERSECTION TURNOUTS.
6. RUMBLE STRIPS SHALL BE PLACED ON BOTH THE MEDIAN AND OUTSIDE SHOULDERS IN ACCORDANCE WITH STD 665.01.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-A
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 3
ALTERNATE 1

WESTBOUND LANES

-L- 16+83.953 TO -L- 66+35.000 (BRIDGE)
-L- 74+13.000 (BRIDGE) TO -L- 75+85.754 LB
-L- 76+00.000 LA TO -L- 90+00.000

EASTBOUND LANES

-L- 16+83.953 TO -L- 66+35.000 (BRIDGE)
-L- 74+13.000 (BRIDGE) TO -L- 75+85.754 LB
-L- 76+00.000 LA TO -L- 90+00.000

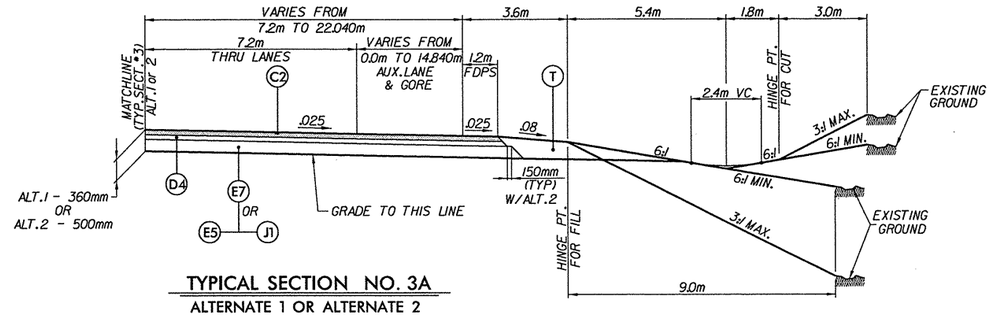
TYPICAL SECTION NO. 3
ALTERNATE 2

WESTBOUND LANES

-L- 16+83.953 TO -L- 66+35.000 (BRIDGE)
-L- 74+13.000 (BRIDGE) TO -L- 75+85.754 LB
-L- 76+00.000 LA TO -L- 90+00.000

EASTBOUND LANES

-L- 16+83.953 TO -L- 66+35.000 (BRIDGE)
-L- 74+13.000 (BRIDGE) TO -L- 75+85.754 LB
-L- 76+00.000 LA TO -L- 90+00.000



TYPICAL SECTION NO. 3A
ALTERNATE 1 OR ALTERNATE 2

-L- 24+52.293 TO -L- 27+22.293 LT (AUXILLARY LANE)
-L- 27+22.293 TO -L- 28+30.225 LT
-RPB- 10+00.000 TO -RPB- 11+08.996 (GORE AREA)
-L- 34+25.909 TO -L- 36+35.818 LT
-RPA- 11+32.726 TO -RPA- 10+00.000 (GORE AREA)
-L- 23+66.341 TO -L- 25+88.881 RT
-RPC- 10+00.000 TO -RPC- 11+32.368 (GORE AREA)

-L- 29+61.698 TO -L- 30+33.652 RT
-LPC- 13+45.094 TO -LPC- 14+16.353 (GORE AREA)
-L- 30+33.652 TO -L- 34+23.678 RT (AUXILLARY LANE)
-L- 34+49.299 TO -L- 35+77.716 RT
-RPD- 11+27.918 TO -RPD- 10+00.000 (GORE AREA)
-L- 35+77.716 TO -L- 38+47.716 RT (AUXILLARY LANE)
-L- 78+68.037 TO -L- 81+38.037 RT (AUXILLARY LANE)

-L- 81+38.037 TO -L- 83+42.759 LT
-L2RPDB- 18+04.631 TO -L2RPDB- 15+99.187 (GORE AREA)
-L- 83+48.662 TO -L- 86+18.662 LT (AUXILLARY LANE)
-L- 86+18.662 TO -L- 87+53.618 LT
-L2RPB- 8+52.998 TO -L2RPB- 7+17.014 (GORE AREA)
-L- 84+99.840 TO -L- 87+91.334 RT
-L2RPC- 0+00.000 TO -L2RPC- 2+00.507 (GORE AREA)

FILE: $FILE$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRV$
PEN TABLE: $PENTBL$

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	80mm TYPE S9.5B	D3	100mm TYPE I19.0B	E3	140mm TYPE B25.0B	E9	130mm TYPE B25.0C	R1	750mm CURB & GUTTER	W	VAR. DEPTH ASPH. PAVEMENT
C2	80mm TYPE S9.5C	D4	80mm TYPE I19.0C	E4	120mm TYPE B25.0C	E10	VAR. DEPTH TYPE B25.0B			W1	VAR. DEPTH ASPH. PAVEMENT
C3	VAR. DEPTH TYPE S9.5B	D5	VAR. DEPTH TYPE I19.0B	E5	140mm TYPE B25.0C	E11	VAR. DEPTH TYPE B25.0B			W2	VAR. DEPTH ASPH. PAVEMENT
C4	VAR. DEPTH TYPE S9.5C	D6	VAR. DEPTH TYPE I19.0C	E6	180mm TYPE B25.0C	J1	200mm ABC	T	EARTH MATERIAL	W3	VAR. DEPTH ASPH. PAVEMENT
D1	65mm TYPE I19.0B	E1	80mm TYPE B25.0B	E7	200mm TYPE B25.0C	J2	VAR. DEPTH ABC	U	EXISTING PAVEMENT		
D2	80mm TYPE I19.0B	E2	100mm TYPE B25.0B	E8	100mm TYPE B25.0C	P	PRIME COAT	V	80mm ASPHALT MILLING		

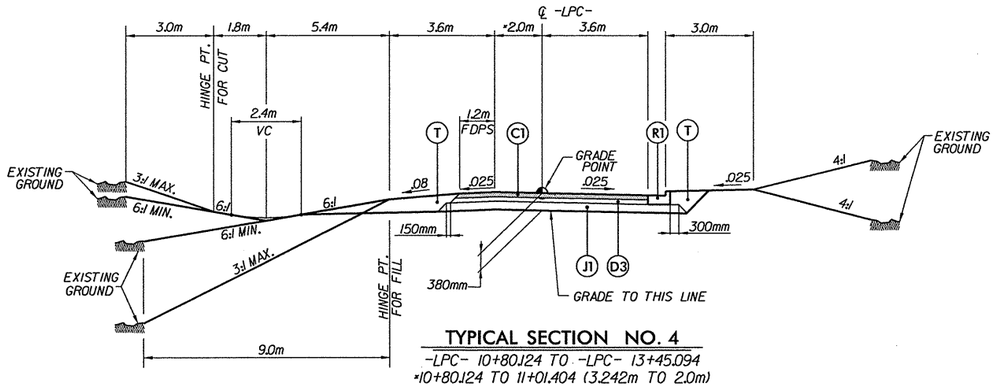
Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-B
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

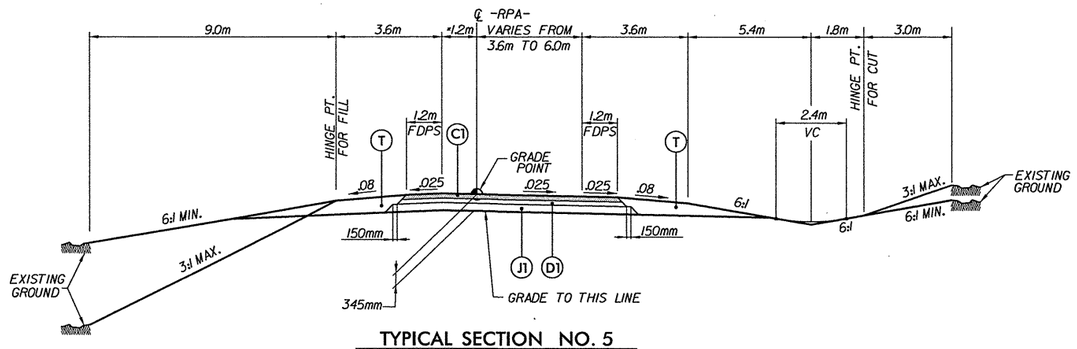
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. SHOULDER ROLLOVER NOT TO EXCEED 0.06 (TYP).
3. USE 4:1 MAX SLOPES ON INSIDE OF INTERCHANGE.
4. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
5. SEE PLANS FOR LOCATION OF TURN LANES AND INTERSECTION TURNOUTS.
6. RUMBLE STRIPS SHALL BE PLACED ON BOTH THE MEDIAN AND OUTSIDE SHOULDERS IN ACCORDANCE WITH STD 665.01.



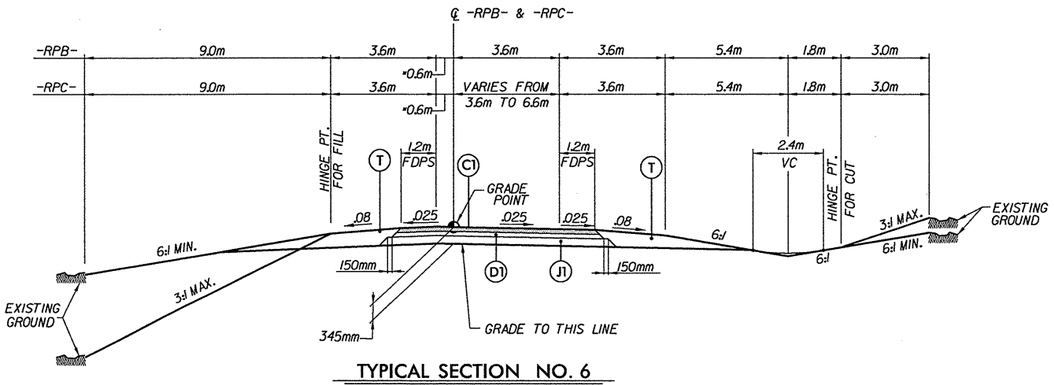
TYPICAL SECTION NO. 4

-LPC- 10+80.124 TO -LPC- 13+45.094
*10+80.124 TO 11+01.404 (3.242m TO 2.0m)



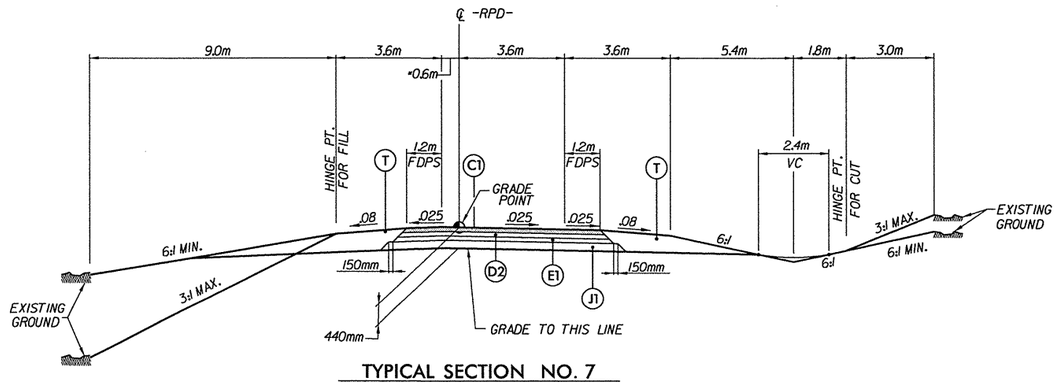
TYPICAL SECTION NO. 5

-RPA- 11+32.726 TO -RPA- 13+80.000
*11+32.726 TO 11+37.254 (1.383m TO 1.2m)



TYPICAL SECTION NO. 6

-RPB- 11+08.996 TO -RPB- 15+00.000
-RPC- 11+32.368 TO -RPC- 16+00.000
*11+32.368 TO 11+38.789 (0.848m TO 0.6m)



TYPICAL SECTION NO. 7

-RPD- 11+27.918 TO -RPD- 15+81.061
*15+81.061 TO 15+68.257 (1.292m TO 0.6m)

FILE: $FILE1$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRV1$
PEN TABLE: $PENTBL1$

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	80mm TYPE S9.5B	D3	100mm TYPE I19.0B	E3	140mm TYPE B25.0B	E9	130mm TYPE B25.0C	R1	750mm CURB & GUTTER	W	VAR. DEPTH ASPH. PAVEMENT
C2	80mm TYPE S9.5C	D4	80mm TYPE I19.0C	E4	120mm TYPE B25.0C	E10	VAR. DEPTH TYPE B25.0B			W1	VAR. DEPTH ASPH. PAVEMENT
C3	VAR. DEPTH TYPE S9.5B	D5	VAR. DEPTH TYPE I19.0B	E5	140mm TYPE B25.0C	E11	VAR. DEPTH TYPE B25.0B			W2	VAR. DEPTH ASPH. PAVEMENT
C4	VAR. DEPTH TYPE S9.5C	D6	VAR. DEPTH TYPE I19.0C	E6	180mm TYPE B25.0C	J1	200mm ABC	T	EARTH MATERIAL	W3	VAR. DEPTH ASPH. PAVEMENT
D1	65mm TYPE I19.0B	E1	80mm TYPE B25.0B	E7	200mm TYPE B25.0C	J2	VAR. DEPTH ABC	U	EXISTING PAVEMENT		
D2	80mm TYPE I19.0B	E2	100mm TYPE B25.0B	E8	100mm TYPE B25.0C	P	PRIME COAT	V	80mm ASPHALT MILLING		

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

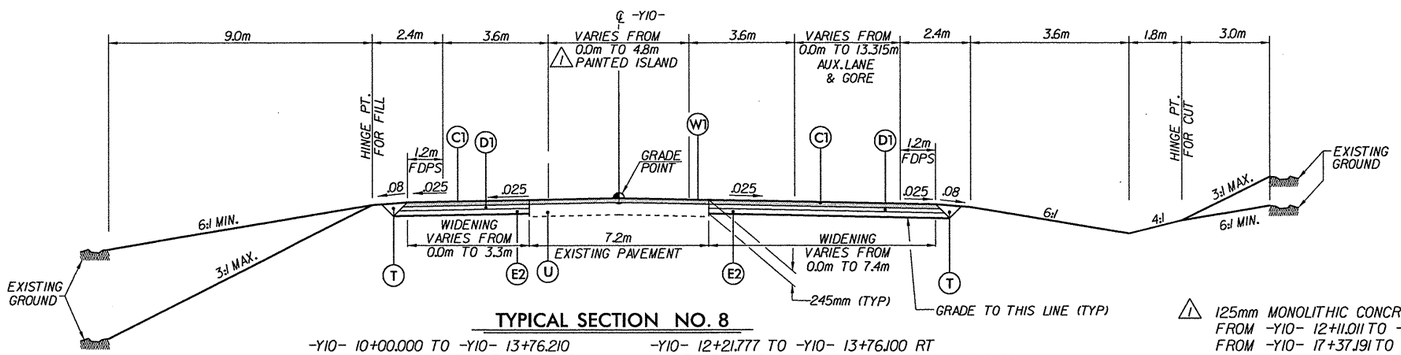
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-C
R /W SHEET NO.	

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. SHOULDER ROLLOVER NOT TO EXCEED 0.06 (TYP).
3. USE 4:1 MAX SLOPES ON INSIDE OF INTERCHANGE.
4. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
5. SEE PLANS FOR LOCATION OF TURN LANES AND INTERSECTION TURNOUTS.
6. RUMBLE STRIPS SHALL BE PLACED ON BOTH THE MEDIAN AND OUTSIDE SHOULDERS IN ACCORDANCE WITH STD 665.01.

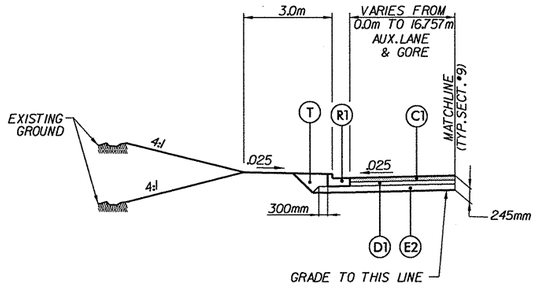


TYPICAL SECTION NO. 8

-Y10- 10+00.000 TO -Y10- 13+76.210
-Y10- 10+00 TO 12+21.777 RT (AUXILLARY)

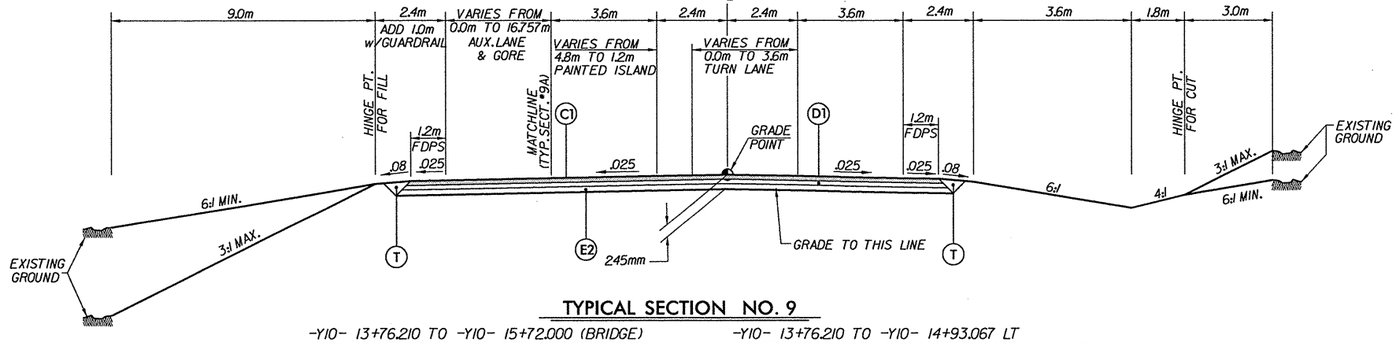
-Y10- 12+21.777 TO -Y10- 13+76.100 RT
(GORE AREA -RPD- 17+07.418 TO -RPD- 15+81.061)
-Y10- 10+00.000 TO -Y10- 12+80.000 (PAVEMENT RESURFACING)

⚠ 125mm MONOLITHIC CONCRETE ISLAND
FROM -Y10- 12+11.011 TO -Y10- 13+37.852
FROM -Y10- 17+37.191 TO -Y10- 17+59.569
(SEE DETAIL SHEET 2-L)



TYPICAL SECTION NO. 9A

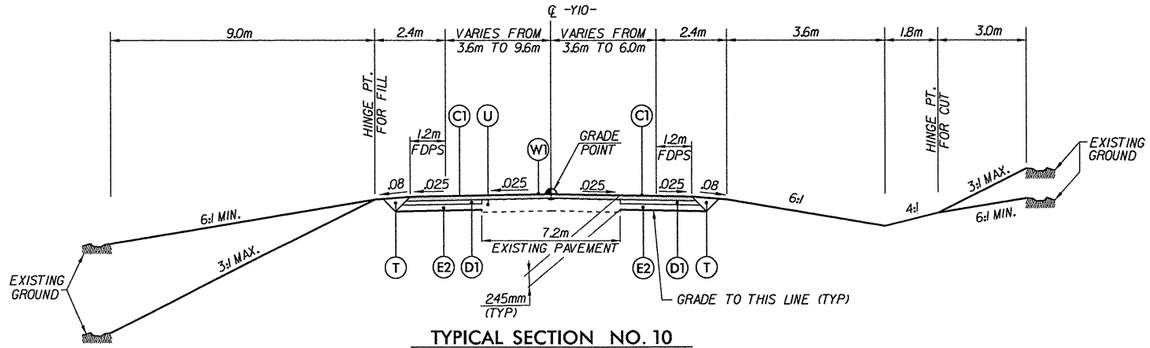
-Y10- 14+12.581 TO -Y10- 14+93.067 LT



TYPICAL SECTION NO. 9

-Y10- 13+76.210 TO -Y10- 15+72.000 (BRIDGE)
-Y10- 16+38.000 (BRIDGE) TO -Y10- 19+27.938

-Y10- 13+76.210 TO -Y10- 14+93.067 LT
(GORE AREA -LPC- 10+80.124 TO -LPC- 10+00.000)
-Y10- 14+93.067 TO -Y10- 19+27.938 LT (3.6m AUXILLARY LANE)



TYPICAL SECTION NO. 10

-Y10- 19+27.938 TO -Y10- 20+80.000
-Y10- 20+80.000 TO -Y10- 21+60.000 (PAVEMENT RESURFACING)

FILE: $FILE$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRV$
PEN TABLE: $PENTBL$

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	80mm TYPE S9.5B	D3	100mm TYPE I19.0B	E3	140mm TYPE B25.0B	E9	130mm TYPE B25.0C	R1	750mm CURB & GUTTER	W	VAR. DEPTH ASPH. PAVEMENT
C2	80mm TYPE S9.5C	D4	80mm TYPE I19.0C	E4	120mm TYPE B25.0C	E10	VAR. DEPTH TYPE B25.0B			W1	VAR. DEPTH ASPH. PAVEMENT
C3	VAR. DEPTH TYPE S9.5B	D5	VAR. DEPTH TYPE I19.0B	E5	140mm TYPE B25.0C	E11	VAR. DEPTH TYPE B25.0B			W2	VAR. DEPTH ASPH. PAVEMENT
C4	VAR. DEPTH TYPE S9.5C	D6	VAR. DEPTH TYPE I19.0C	E6	180mm TYPE B25.0C	J1	200mm ABC	T	EARTH MATERIAL	W3	VAR. DEPTH ASPH. PAVEMENT
D1	65mm TYPE I19.0B	E1	80mm TYPE B25.0B	E7	200mm TYPE B25.0C	J2	VAR. DEPTH ABC	U	EXISTING PAVEMENT		
D2	80mm TYPE I19.0B	E2	100mm TYPE B25.0B	E8	100mm TYPE B25.0C	P	PRIME COAT	V	80mm ASPHALT MILLING		

Florence & Hutcheson
CONSULTING ENGINEERS
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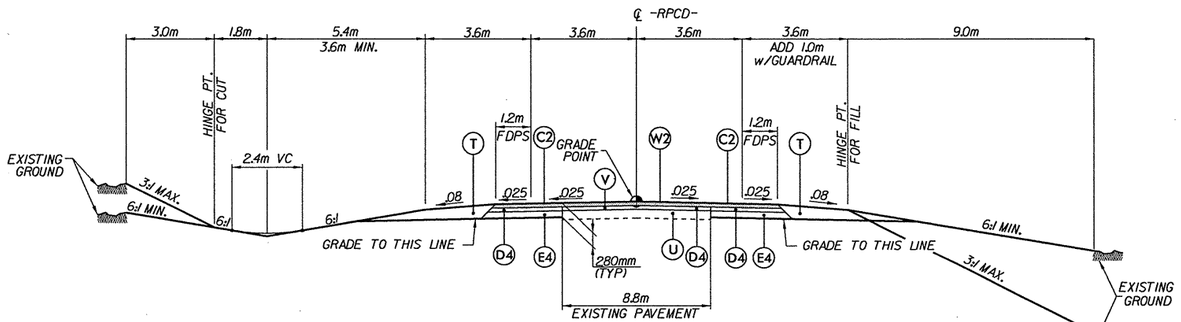
NC License No: F-0258

METRIC

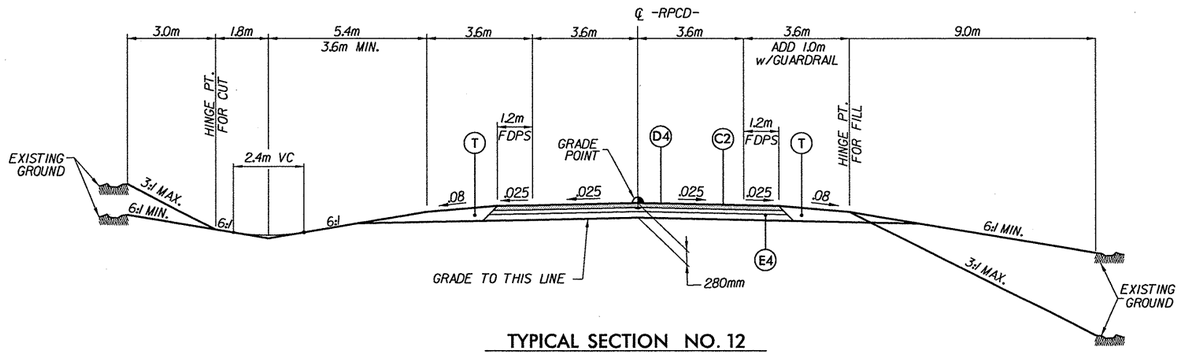
NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. SHOULDER ROLLOVER NOT TO EXCEED 0.06 (TYP).
3. USE 4:1 MAX SLOPES ON INSIDE OF INTERCHANGE.
4. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
5. SEE PLANS FOR LOCATION OF TURN LANES AND INTERSECTION TURNOUTS.
6. RUMBLE STRIPS SHALL BE PLACED ON BOTH THE MEDIAN AND OUTSIDE SHOULDERS IN ACCORDANCE WITH STD 665.01.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-D
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

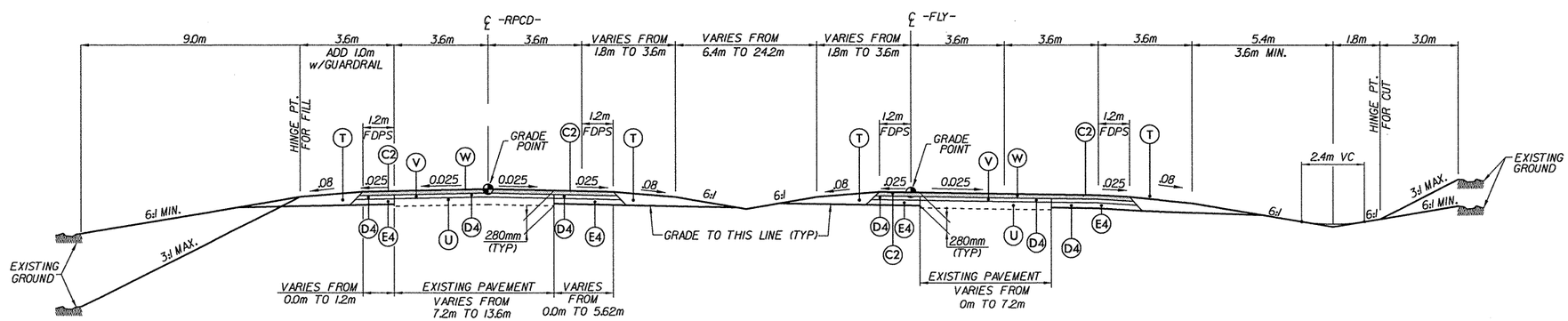
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 11
-RPCD- 12+78.872 TO -RPCD- 16+40.000



TYPICAL SECTION NO. 12
-RPCD- 16+40.000 TO -RPCD- 18+92.000



TYPICAL SECTION NO. 13 (-RPCD-)
-RPCD- 18+92.000 TO -RPCD- 22+18.051
PAVEMENT RESURFACING & WIDENING -RPCD- 18+92.00 TO -RPCD- 20+40.00
PAVEMENT RESURFACING -RPCD- 20+40 TO -RPCD- 22+18.051

TYPICAL SECTION NO. 13 (-FLY-)
-FLY- 9+75.000 TO -FLY- 13+00.000
PAVEMENT RESURFACING -FLY- 9+75.000 TO -FLY- 11+40.000
FULL DEPTH PAVEMENT -FLY- 11+40.000 TO -FLY- 13+00.000

FILE: $FILE$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRV$
PEN TABLE: $PENTBL$

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	80mm TYPE S9.5B	D3	100mm TYPE I19.0B	E3	140mm TYPE B25.0B	E9	130mm TYPE B25.0C	R1	750mm CURB & GUTTER	W	VAR. DEPTH ASPH. PAVEMENT
C2	80mm TYPE S9.5C	D4	80mm TYPE I19.0C	E4	120mm TYPE B25.0C	E10	VAR. DEPTH TYPE B25.0B			W1	VAR. DEPTH ASPH. PAVEMENT
C3	VAR. DEPTH TYPE S9.5B	D5	VAR. DEPTH TYPE I19.0B	E5	140mm TYPE B25.0C	E11	VAR. DEPTH TYPE B25.0B			W2	VAR. DEPTH ASPH. PAVEMENT
C4	VAR. DEPTH TYPE S9.5C	D6	VAR. DEPTH TYPE I19.0C	E6	180mm TYPE B25.0C	J1	200mm ABC	T	EARTH MATERIAL	W3	VAR. DEPTH ASPH. PAVEMENT
D1	65mm TYPE I19.0B	E1	80mm TYPE B25.0B	E7	200mm TYPE B25.0C	J2	VAR. DEPTH ABC	U	EXISTING PAVEMENT		
D2	80mm TYPE I19.0B	E2	100mm TYPE B25.0B	E8	100mm TYPE B25.0C	P	PRIME COAT	V	80mm ASPHALT MILLING		

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NC License No: P-0258

METRIC

NOTES:
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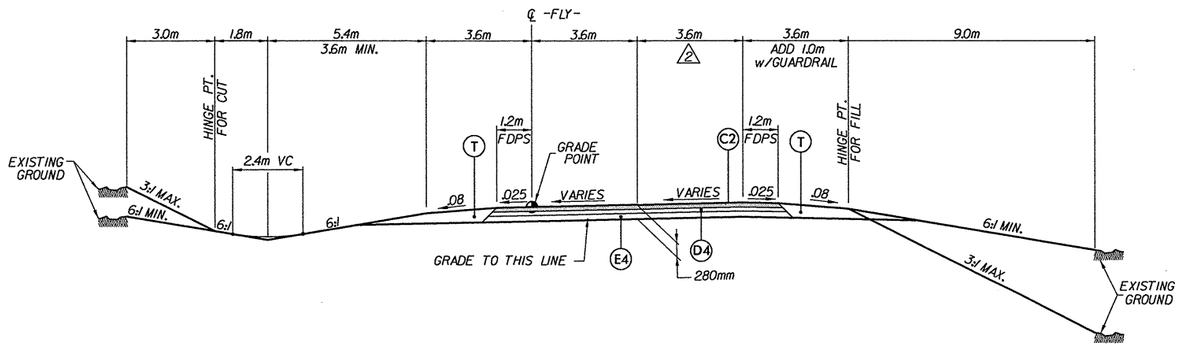
2. SHOULDER ROLLOVER NOT TO EXCEED 0.06 (TYP).
3. USE 4:1 MAX SLOPES ON INSIDE OF INTERCHANGE.
4. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
5. SEE PLANS FOR LOCATION OF TURN LANES AND INTERSECTION TURNOUTS.
6. RUMBLE STRIPS SHALL BE PLACED ON BOTH THE MEDIAN AND OUTSIDE SHOULDERS IN ACCORDANCE WITH STD 665.01.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-E
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

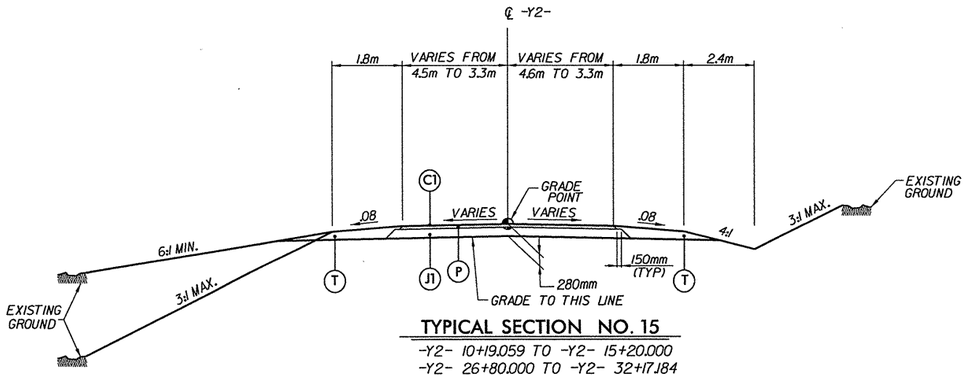
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 14

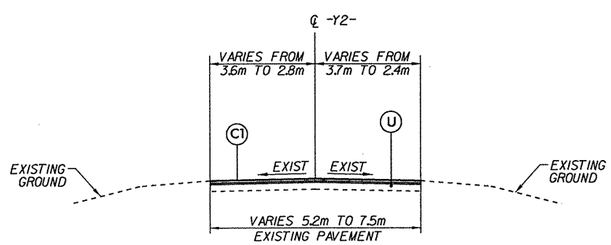
-FLY- 13+00.000 TO -FLY- 16+68.112 (BRIDGE)
-FLY- 17+76.712 (BRIDGE) TO -FLY- 23+39.387 (GORE AREA)

△2 VARIES FROM 0.0m TO 3.6m
-FLY- 20+20.613 TO -FLY- 24+45.857 (LANE DROP)



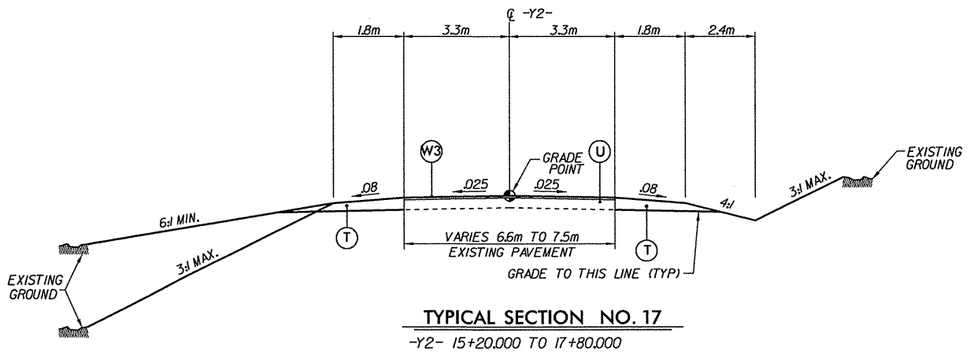
TYPICAL SECTION NO. 15

-Y2- 10+19.059 TO -Y2- 15+20.000
-Y2- 26+80.000 TO -Y2- 32+17.184



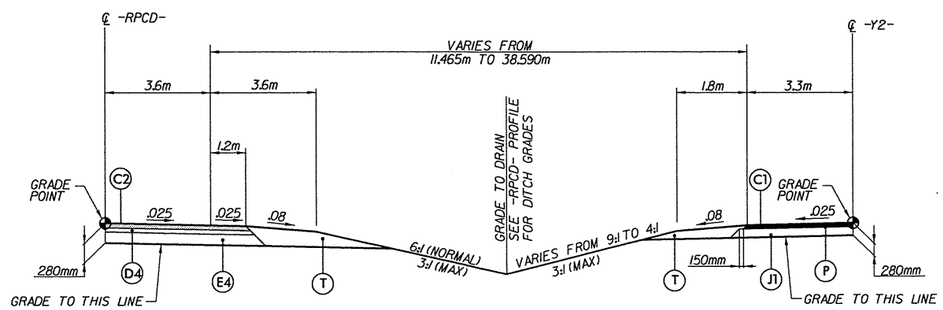
TYPICAL SECTION NO. 16

(RESURFACING ONLY)
-Y2- 17+80.000 TO -Y2- 18+80.000
-Y2- 19+80.000 TO -Y2- 26+80.000



TYPICAL SECTION NO. 17

-Y2- 15+20.000 TO -Y2- 17+80.000
-Y2- 18+80.000 TO 19+80.000



TYPICAL SECTION NO. 18

-RPCD-

-RPCD- 10+00.000 TO -RPCD- 17+15.000

-Y2-

-Y2- 20+31.875 TO -Y2- 27+30.000
(USE IN CONJUNCTION WITH TYPICAL SECTIONS 15 & 16)

FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $PLTDRV$
PEN TABLE: $PENTBL$
$TIME$

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	80mm TYPE S9.5B	D3	100mm TYPE I19.0B	E3	140mm TYPE B25.0B	E9	130mm TYPE B25.0C	R1	750mm CURB & GUTTER	W	VAR. DEPTH ASPH. PAVEMENT
C2	80mm TYPE S9.5C	D4	80mm TYPE I19.0C	E4	120mm TYPE B25.0C	E10	VAR. DEPTH TYPE B25.0B			W1	VAR. DEPTH ASPH. PAVEMENT
C3	VAR. DEPTH TYPE S9.5B	D5	VAR. DEPTH TYPE I19.0B	E5	140mm TYPE B25.0C	E11	VAR. DEPTH TYPE B25.0B			W2	VAR. DEPTH ASPH. PAVEMENT
C4	VAR. DEPTH TYPE S9.5C	D6	VAR. DEPTH TYPE I19.0C	E6	180mm TYPE B25.0C	J1	200mm ABC	T	EARTH MATERIAL	W3	VAR. DEPTH ASPH. PAVEMENT
D1	65mm TYPE I19.0B	E1	80mm TYPE B25.0B	E7	200mm TYPE B25.0C	J2	VAR. DEPTH ABC	U	EXISTING PAVEMENT		
D2	80mm TYPE I19.0B	E2	100mm TYPE B25.0B	E8	100mm TYPE B25.0C	P	PRIME COAT	V	80mm ASPHALT MILLING		

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5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0858

METRIC

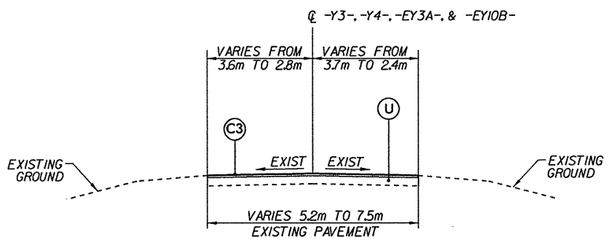
NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. SHOULDER ROLLOVER NOT TO EXCEED 0.06 (TYP).
3. USE 4:1 MAX SLOPES ON INSIDE OF INTERCHANGE.
4. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
5. SEE PLANS FOR LOCATION OF TURN LANES AND INTERSECTION TURNOUTS.
6. RUMBLE STRIPS SHALL BE PLACED ON BOTH THE MEDIAN AND OUTSIDE SHOULDERS IN ACCORDANCE WITH STD 665.01.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-F
R /W SHEET NO.	

ROADWAY DESIGN ENGINEER

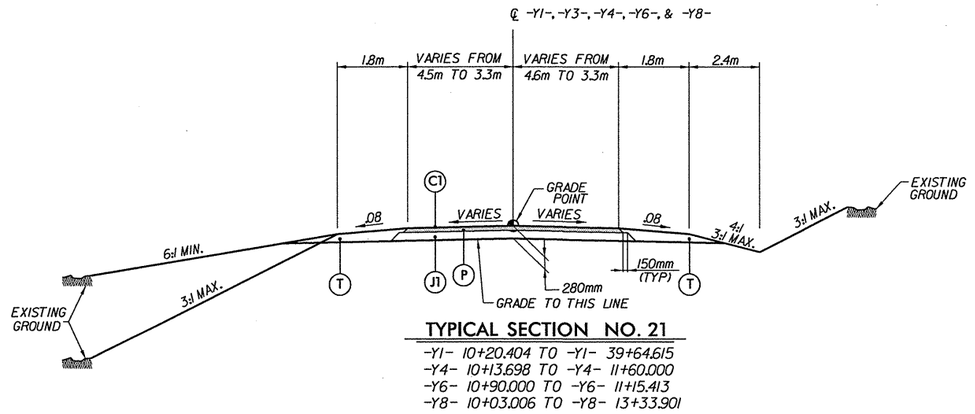
PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



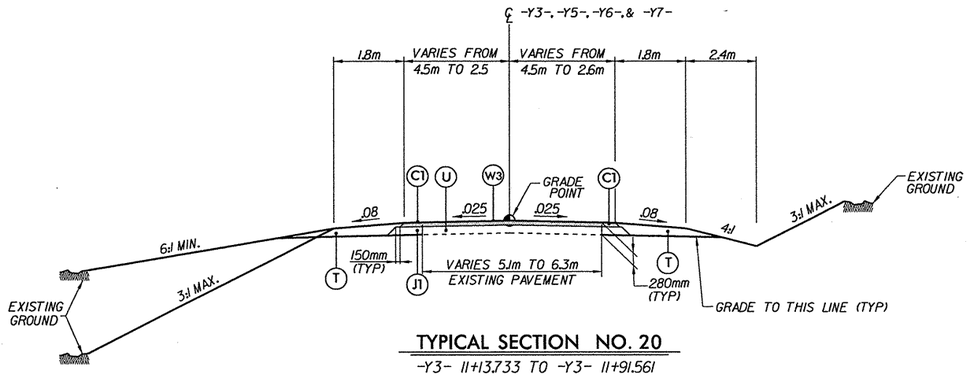
TYPICAL SECTION NO. 19

(RESURFACING ONLY)
-Y3- 10+35.000 TO -Y3- 11+13.733
-Y3- 13+20.000 TO -Y3- 13+80.000
-Y4- 11+60.000 TO -Y4- 11+80.000
-EY3A- 12+30.000 TO -EY3A- 12+80.000
-EY10B- 10+70.000 TO -EY10B- 11+40.000



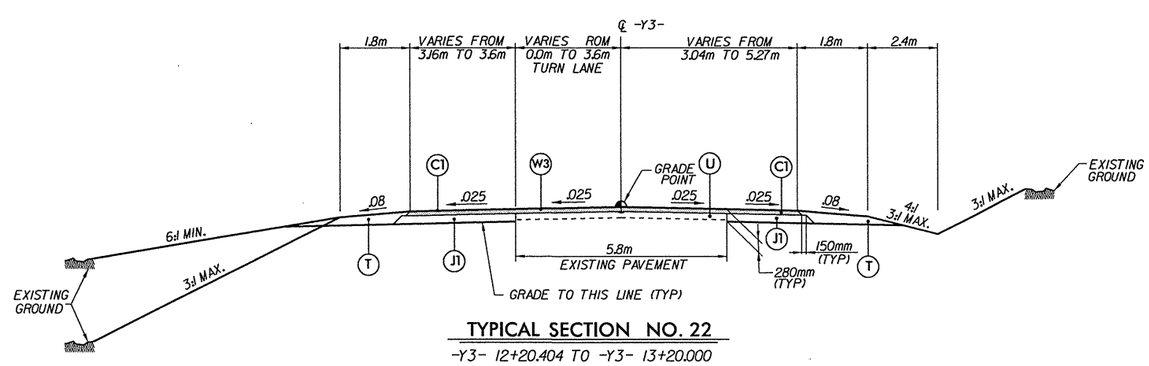
TYPICAL SECTION NO. 21

-Y1- 10+20.404 TO -Y1- 39+64.615
-Y4- 10+13.698 TO -Y4- 11+60.000
-Y6- 10+90.000 TO -Y6- 11+15.413
-Y8- 10+03.006 TO -Y8- 13+33.901



TYPICAL SECTION NO. 20

-Y3- 11+13.733 TO -Y3- 11+91.561
-Y5- 10+45.000 TO -Y5- 10+76.764
-Y6- 10+80.000 TO -Y6- 10+90.000
-Y7- 10+20.000 TO -Y7- 10+63.775



TYPICAL SECTION NO. 22

-Y3- 12+20.404 TO -Y3- 13+20.000

FILE: $FILE1$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRV1$
PEN TABLE: $PENTBL1$

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	80mm TYPE S9.5B	D3	100mm TYPE I19.0B	E3	140mm TYPE B25.0B	E9	130mm TYPE B25.0C	R1	750mm CURB & GUTTER	W	VAR. DEPTH ASPH. PAVEMENT
C2	80mm TYPE S9.5C	D4	80mm TYPE I19.0C	E4	120mm TYPE B25.0C	E10	VAR. DEPTH TYPE B25.0B			W1	VAR. DEPTH ASPH. PAVEMENT
C3	VAR. DEPTH TYPE S9.5B	D5	VAR. DEPTH TYPE I19.0B	E5	140mm TYPE B25.0C	E11	VAR. DEPTH TYPE B25.0B			W2	VAR. DEPTH ASPH. PAVEMENT
C4	VAR. DEPTH TYPE S9.5C	D6	VAR. DEPTH TYPE I19.0C	E6	180mm TYPE B25.0C	J1	200mm ABC	T	EARTH MATERIAL	W3	VAR. DEPTH ASPH. PAVEMENT
D1	65mm TYPE I19.0B	E1	80mm TYPE B25.0B	E7	200mm TYPE B25.0C	J2	VAR. DEPTH ABC	U	EXISTING PAVEMENT		
D2	80mm TYPE I19.0B	E2	100mm TYPE B25.0B	E8	100mm TYPE B25.0C	P	PRIME COAT	V	80mm ASPHALT MILLING		

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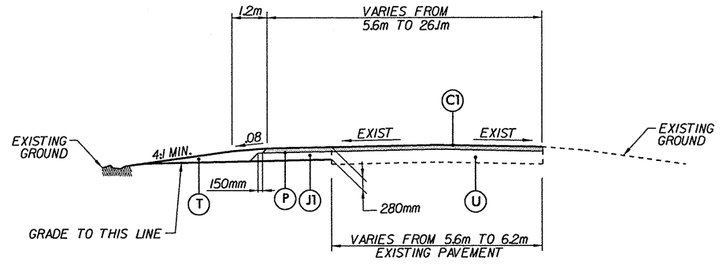
NC License No: P-0258

METRIC

NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. SHOULDER ROLLOVER NOT TO EXCEED 0.06 (TYP).
3. USE 4:1 MAX SLOPES ON INSIDE OF INTERCHANGE.
4. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
5. SEE PLANS FOR LOCATION OF TURN LANES AND INTERSECTION TURNOUTS.
6. RUMBLE STRIPS SHALL BE PLACED ON BOTH THE MEDIAN AND OUTSIDE SHOULDERS IN ACCORDANCE WITH STD 665.01.

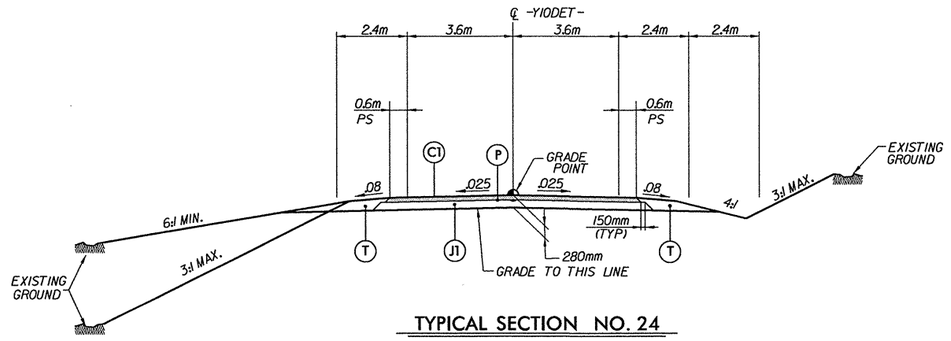
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-G
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



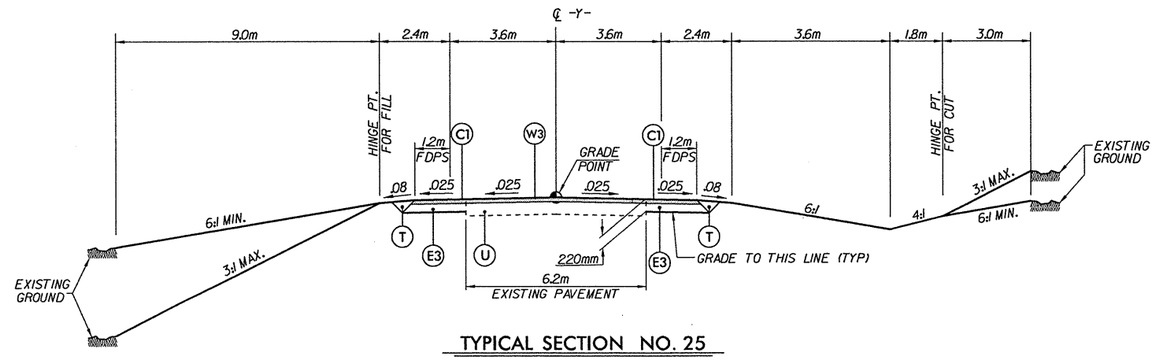
TYPICAL SECTION NO. 23

-TA1- -EY11- 11+15.388 TO -EY11- 11+43.515
-TA2- -L- 50+85.018 TO -L- 51+13.687
-TA3- -L- 51+13.372 TO -L- 51+42.887



TYPICAL SECTION NO. 24

-Y10DET- 11+77.003 TO -Y10DET- 21+02.207



TYPICAL SECTION NO. 25

-Y- 10+00.000 TO -Y- 12+10.000
-Y- 17+40.000 TO -Y- 18+48.000

FILE: $FILE$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRV1$
PEN TABLE: $PENTBL1$

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	80mm TYPE S9.5B	D3	100mm TYPE I19.0B	E3	140mm TYPE B25.0B	E9	130mm TYPE B25.0C	R1	750mm CURB & GUTTER	W	VAR. DEPTH ASPH. PAVEMENT
C2	80mm TYPE S9.5C	D4	80mm TYPE I19.0C	E4	120mm TYPE B25.0C	E10	VAR. DEPTH TYPE B25.0B			W1	VAR. DEPTH ASPH. PAVEMENT
C3	VAR. DEPTH TYPE S9.5B	D5	VAR. DEPTH TYPE I19.0B	E5	140mm TYPE B25.0C	E11	VAR. DEPTH TYPE B25.0B			W2	VAR. DEPTH ASPH. PAVEMENT
C4	VAR. DEPTH TYPE S9.5C	D6	VAR. DEPTH TYPE I19.0C	E6	180mm TYPE B25.0C	J1	200mm ABC	T	EARTH MATERIAL	W3	VAR. DEPTH ASPH. PAVEMENT
D1	65mm TYPE I19.0B	E1	80mm TYPE B25.0B	E7	200mm TYPE B25.0C	J2	VAR. DEPTH ABC	U	EXISTING PAVEMENT		
D2	80mm TYPE I19.0B	E2	100mm TYPE B25.0B	E8	100mm TYPE B25.0C	P	PRIME COAT	V	80mm ASPHALT MILLING		

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NC License No: F-0258

METRIC

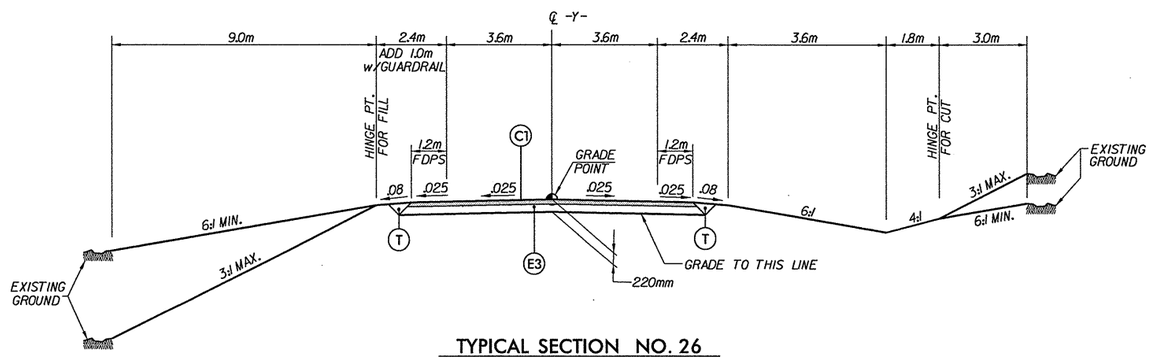
NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. SHOULDER ROLLOVER NOT TO EXCEED 0.06 (TYP).
3. USE 4:1 MAX SLOPES ON INSIDE OF INTERCHANGE.
4. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
5. SEE PLANS FOR LOCATION OF TURN LANES AND INTERSECTION TURNOUTS.
6. RUMBLE STRIPS SHALL BE PLACED ON BOTH THE MEDIAN AND OUTSIDE SHOULDERS IN ACCORDANCE WITH STD 665.01.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-H
R /W SHEET NO.	

ROADWAY DESIGN ENGINEER

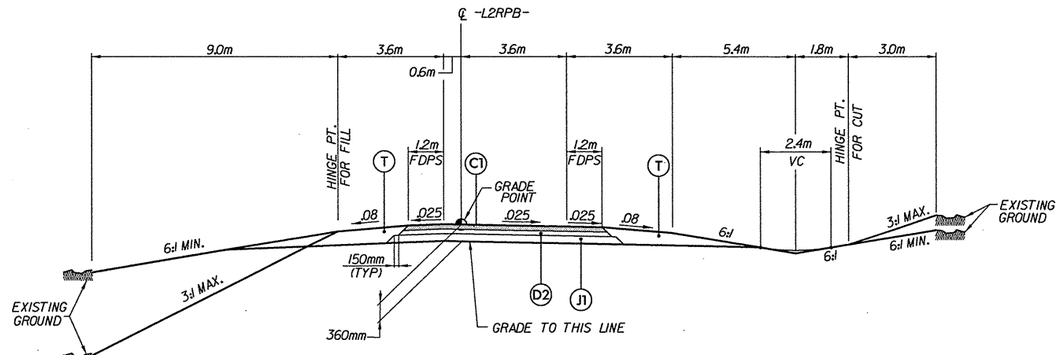
PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 26

-Y- 12+10.000 TO -Y- 13+17.700 (BRIDGE)
-Y- 14+60.300 (BRIDGE) TO -Y- 17+80.000



TYPICAL SECTION NO. 27

-L2RPB- 5+00.000 TO -L2RPB- 7+17.014

FILE: $FILE$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRV$
PEN TABLE: $PENTBL$

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	80mm TYPE S9.5B	D3	100mm TYPE I19.0B	E3	140mm TYPE B25.0B	E9	130mm TYPE B25.0C	R1	750mm CURB & GUTTER	W	VAR. DEPTH ASPH. PAVEMENT
C2	80mm TYPE S9.5C	D4	80mm TYPE I19.0C	E4	120mm TYPE B25.0C	E10	VAR. DEPTH TYPE B25.0B			W1	VAR. DEPTH ASPH. PAVEMENT
C3	VAR. DEPTH TYPE S9.5B	D5	VAR. DEPTH TYPE I19.0B	E5	140mm TYPE B25.0C	E11	VAR. DEPTH TYPE B25.0B			W2	VAR. DEPTH ASPH. PAVEMENT
C4	VAR. DEPTH TYPE S9.5C	D6	VAR. DEPTH TYPE I19.0C	E6	180mm TYPE B25.0C	J1	200mm ABC	T	EARTH MATERIAL	W3	VAR. DEPTH ASPH. PAVEMENT
D1	65mm TYPE I19.0B	E1	80mm TYPE B25.0B	E7	200mm TYPE B25.0C	J2	VAR. DEPTH ABC	U	EXISTING PAVEMENT		
D2	80mm TYPE I19.0B	E2	100mm TYPE B25.0B	E8	100mm TYPE B25.0C	P	PRIME COAT	V	80mm ASPHALT MILLING		

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NC License No: P-0258

METRIC

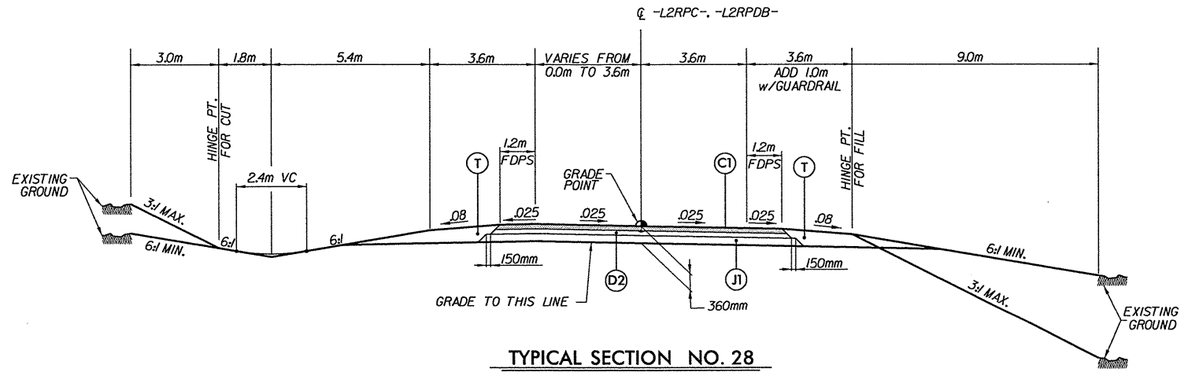
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-I
R /W SHEET NO.	

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

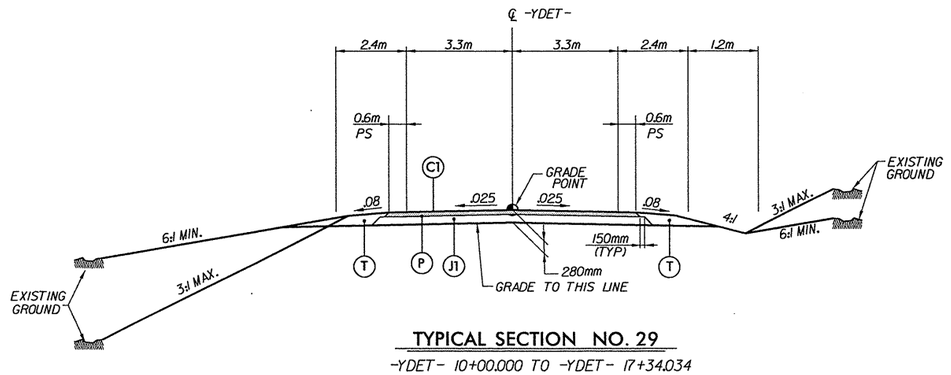
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. SHOULDER ROLLOVER NOT TO EXCEED 0.06 (TYP).
3. USE 4:1 MAX SLOPES ON INSIDE OF INTERCHANGE.
4. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
5. SEE PLANS FOR LOCATION OF TURN LANES AND INTERSECTION TURNOUTS.
6. RUMBLE STRIPS SHALL BE PLACED ON BOTH THE MEDIAN AND OUTSIDE SHOULDERS IN ACCORDANCE WITH STD 665.01.



TYPICAL SECTION NO. 28

-L2RPC- 2+00.507 TO -L2RPC- 4+40.000
-L2RPDB- 8+60.000 TO -L2RPDB- 15+99.187



TYPICAL SECTION NO. 29

-YDET- 10+00.000 TO -YDET- 17+34.034

FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $PLOTDRV$
PEN TABLE: $PENTBL$

PAVEMENT SCHEDULE

ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
C1	80mm TYPE S9.5B	D3	100mm TYPE I19.0B	E3	140mm TYPE B25.0B	E9	130mm TYPE B25.0C	R1	750mm CURB & GUTTER	W	VAR. DEPTH ASPH. PAVEMENT
C2	80mm TYPE S9.5C	D4	80mm TYPE I19.0C	E4	120mm TYPE B25.0C	E10	VAR. DEPTH TYPE B25.0B			W1	VAR. DEPTH ASPH. PAVEMENT
C3	VAR. DEPTH TYPE S9.5B	D5	VAR. DEPTH TYPE I19.0B	E5	140mm TYPE B25.0C	E11	VAR. DEPTH TYPE B25.0B			W2	VAR. DEPTH ASPH. PAVEMENT
C4	VAR. DEPTH TYPE S9.5C	D6	VAR. DEPTH TYPE I19.0C	E6	180mm TYPE B25.0C	J1	200mm ABC	T	EARTH MATERIAL	W3	VAR. DEPTH ASPH. PAVEMENT
D1	65mm TYPE I19.0B	E1	80mm TYPE B25.0B	E7	200mm TYPE B25.0C	J2	VAR. DEPTH ABC	U	EXISTING PAVEMENT		
D2	80mm TYPE I19.0B	E2	100mm TYPE B25.0B	E8	100mm TYPE B25.0C	P	PRIME COAT	V	80mm ASPHALT MILLING		

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NC License No: F-0258

METRIC

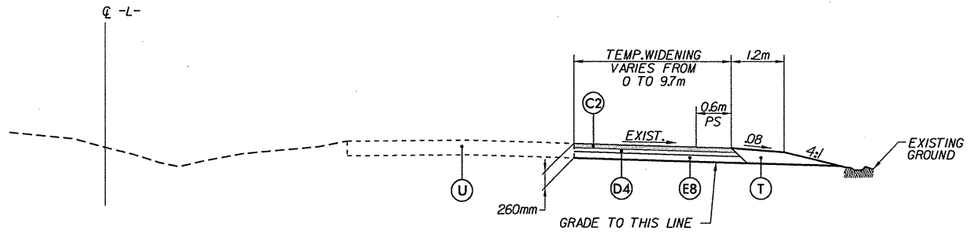
NOTES:
1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2. SHOULDER ROLLOVER NOT TO EXCEED 0.06 (TYP).
3. USE 4:1 MAX SLOPES ON INSIDE OF INTERCHANGE.
4. SEE PLANS FOR LOCATION OF ACCELERATION AND DECELERATION LANES.
5. SEE PLANS FOR LOCATION OF TURN LANES AND INTERSECTION TURNOUTS.
6. RUMBLE STRIPS SHALL BE PLACED ON BOTH THE MEDIAN AND OUTSIDE SHOULDERS IN ACCORDANCE WITH STD 665.01.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-J
R /W SHEET NO.	

ROADWAY DESIGN ENGINEER

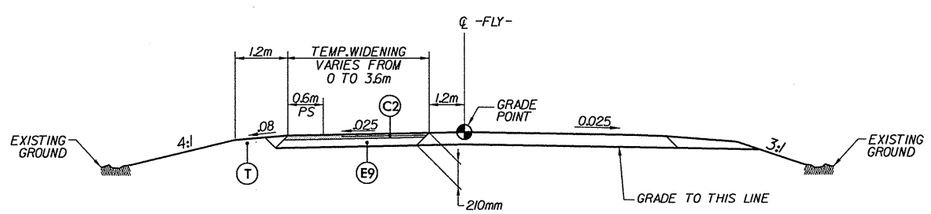
PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



TYPICAL SECTION NO. 30

-L- 3+10.000 TO -L- 7+80.000 - RIGHT



TYPICAL SECTION NO. 31

-FLY- 21+40.000 TO -FLY- 23+18.000

FILE: $FILE$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRV$
PEN TABLE: $PENTBL$

INTERSECTION DETAILS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC: 27607
NC License No: P-0268

METRIC

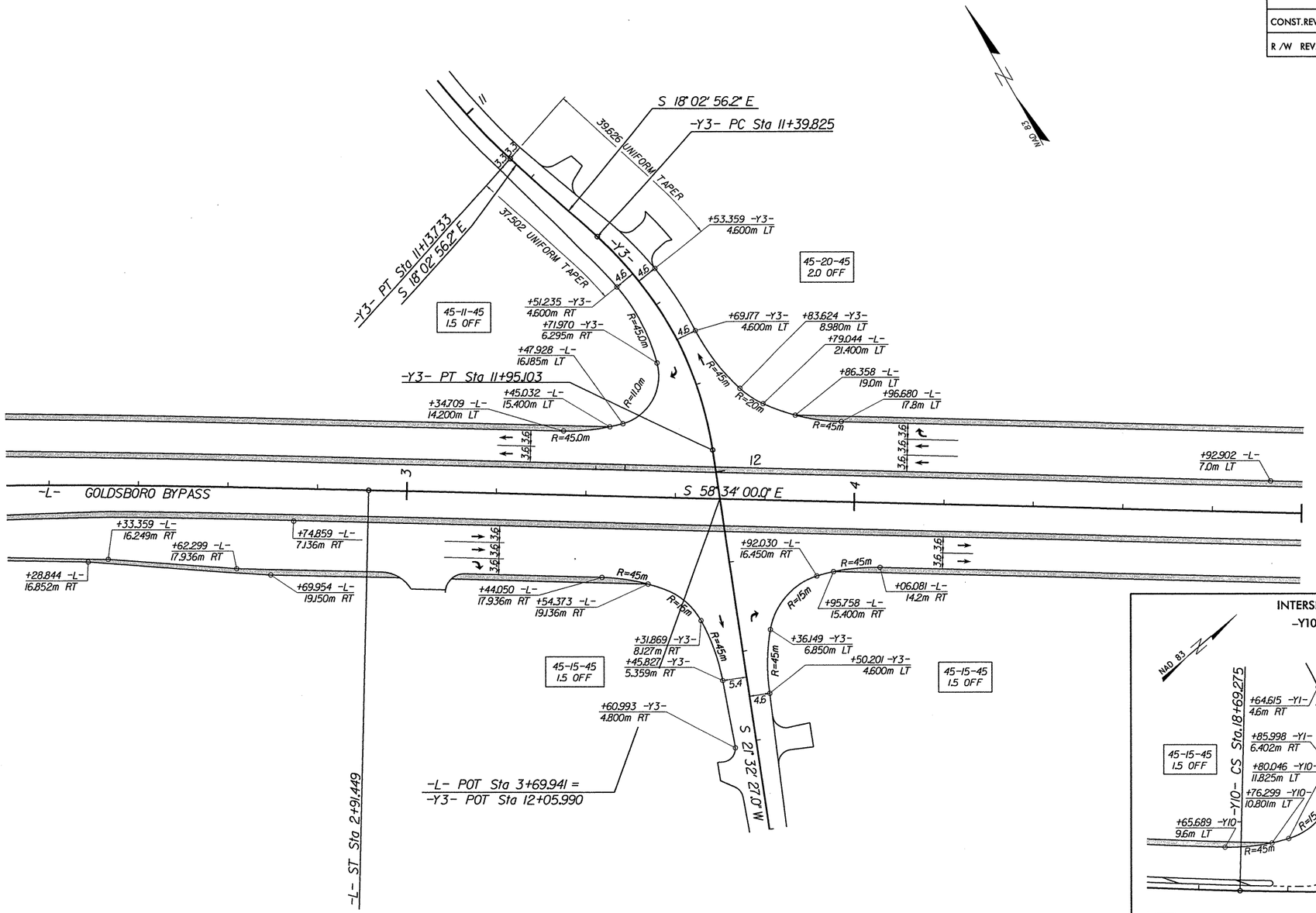
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-K
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

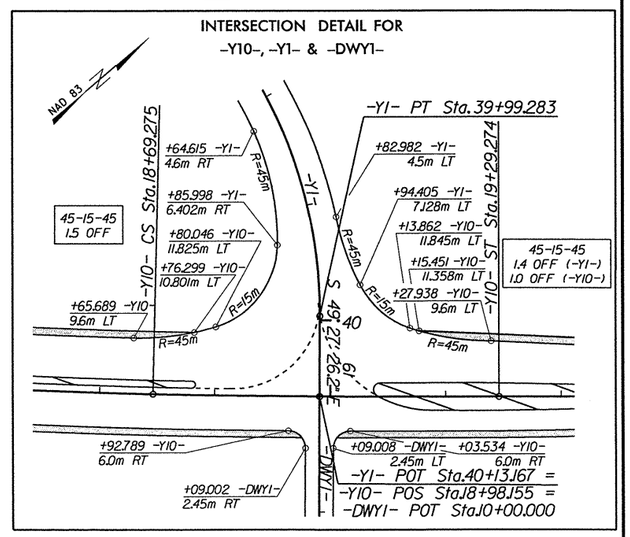
CONST.REV.

R /W REV.



INTERSECTION DETAIL

-L-LINE @ -Y3-



SEE SHEET 4 FOR -L- DESIGN
SEE SHEETS 4 & 30 FOR -Y3- DESIGN
SEE SHEET 38 FOR -Y1- & -Y10- DESIGN
SEE SHEET 41 FOR -L- PROFILE
SEE SHEET 76 FOR -Y3- PROFILE

FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $PLTDRVR$
PLOT TABLE: $PLTTBLE$
$TIMES$

INTERSECTION DETAILS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

METRIC

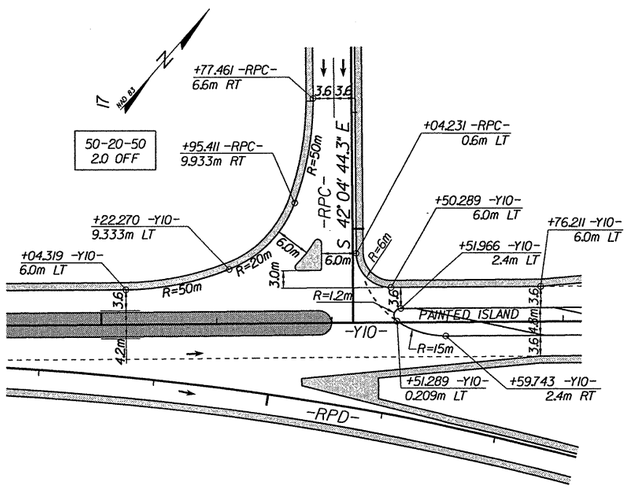
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-L
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5m 0 10m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

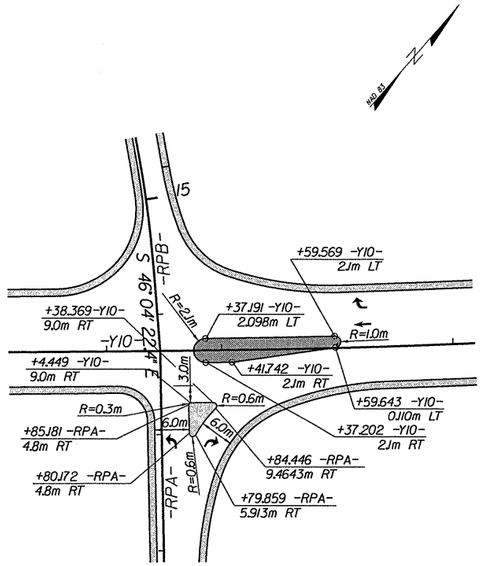
CONST.REV.

R /W REV.



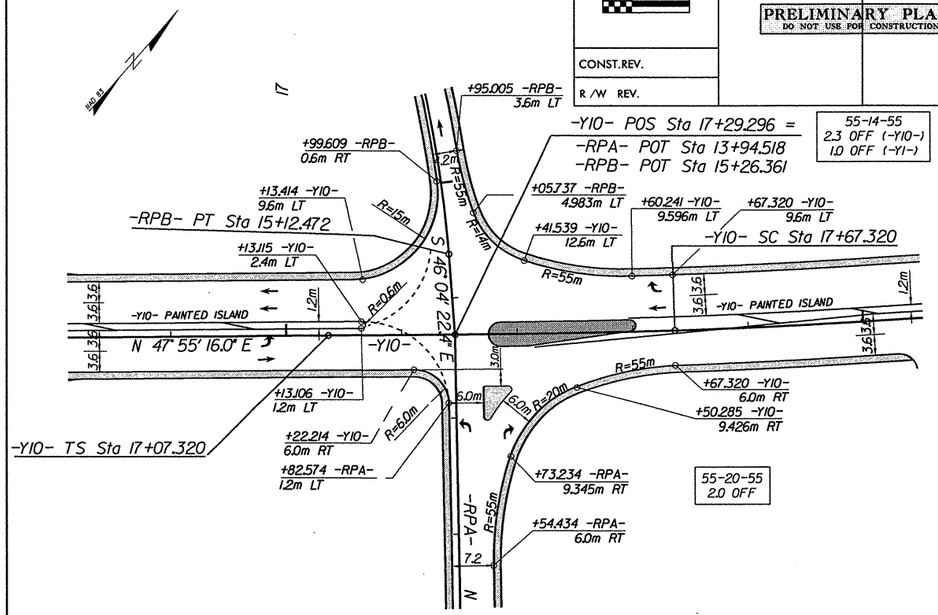
INTERSECTION DETAIL

-RPC- & -RPD- @ -Y10-



CONCRETE ISLAND DETAIL

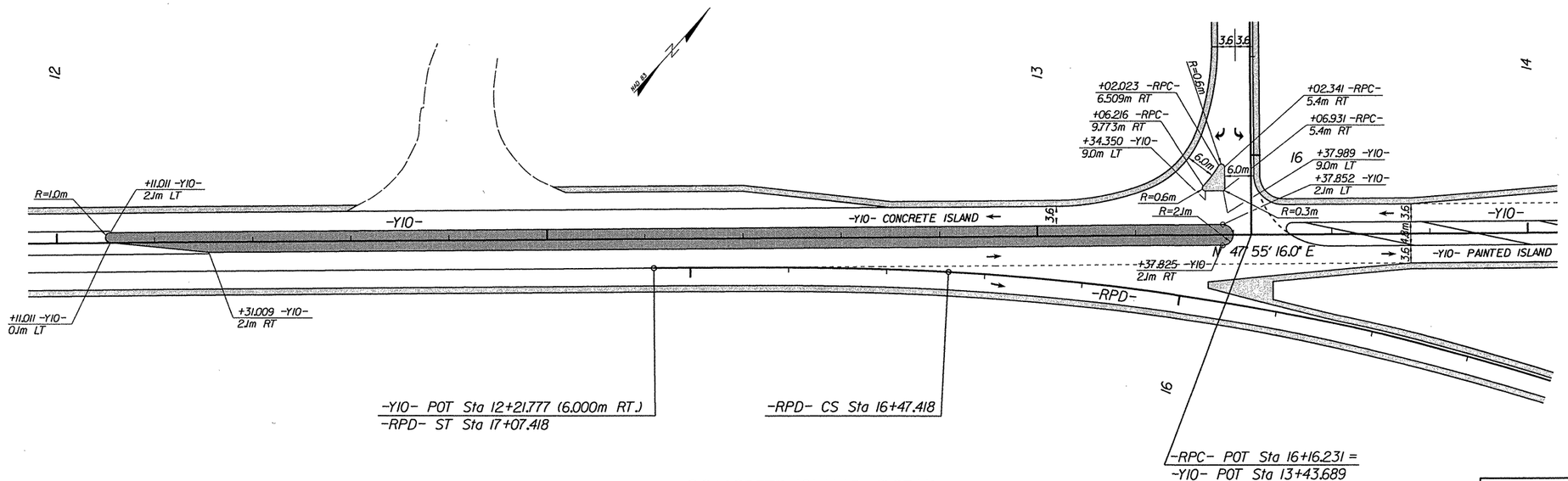
-RPA- @ -Y10-



INTERSECTION DETAIL

-RPA- & -RPB- @ -Y10-

SEE SHEETS 10 & 40 FOR -Y10- DESIGN
SEE SHEET 10 FOR -RPA- & -RPB- DESIGN
SEE SHEET 66 FOR -Y10- PROFILE
SEE SHEET 60 FOR -RPA- PROFILE
SEE SHEET 61 FOR -RPB- PROFILE



CONCRETE ISLAND DETAIL

-RPC- & -RPD- @ -Y10-

SEE SHEETS 10 & 37 FOR -Y10- & -RPD- DESIGN
SEE SHEET 10 FOR -LPC- & -RPC- DESIGN
SEE SHEET 66 FOR -Y10- PROFILE
SEE SHEET 62 FOR -RPC- PROFILE
SEE SHEETS 63 & 64 FOR -RPD- PROFILE
SEE SHEET 64 FOR -LPC- PROFILE

FILE: SFILE$ STMES
DATE ISSUED: $DATE$
PLOT DRIVER: $PLTDRV$
PEN TABLE: $PENTBL$

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0258

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-M
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R /W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y10DET-
PI Sta 11+62.491
Δ = 19° 43' 57.3" (LT)
L = 123.983
T = 62.612
R = 360.000
SE = 0.025

-Y10DET-
PI Sta 12+85.179
Δ = 19° 19' 56.0" (RT)
L = 121.468
T = 61.317
R = 360.000
SE = 0.025

27A
WAL-MART STORES EAST LC
STORE # 4564-00
DB 2456 PG. 797
PLAT CAB. M, SLIDE 73-C

-Y10DET- PC Sta 10+99.879 =
-Y10- POT Sta 11+60.000

NAD 83

-Y10DET- PRC Sta 12+23.863

+87.401 -Y10DET-
17.981 LT
(58.98')

+44.926 -Y10DET-
17.674 LT
(57.98')

BYIO-PINC 14+09.313 =
-Y10- POT 12+48.018
9.016m LT

+80.000 -Y10-
24.000m LT
(78.74')

+44.013 -Y10DET-
18.841 LT
(61.81')

+74.217 -Y10DET-

+80.000 -RPC-
30.000m RT
(98.42')

+100.000 -Y10-
18.500m LT
(60.70')

SLOPE STAKES

30.0m UNIFORM TAPER

10.000m (TYP.)

RETAINING POND

1200 MM CHL

PROGRESS ENERGY

PIEDMONT NATURAL GAS

EXISTING R/W

BACK FLOW PREVENTER

FORK TOWNSHIP

AT&T

600 MM CMP

900 MM RCP

1200mm RCP

200 mm

100 mm

250 mm

375mm CMPE

TWC DUCT

RAW WATER 200 mm

FORK TOWNSHIP 200mm RAW WATER

NC HWY 581 (AATUR)

-Y10-

-RPC-

-LPC-

-RPD-

-LL-

3.6m

0.6m PS

0.6m SHOULDER

16

ANN MARIE H. NOVAK
DB 1272 PG 688

27

57

GEORGE H. BECTON, HEIRS
DB 633 PG 55

28

GEORGE F. BECTON
DB 633 PG 56

+90.000 -Y10-
21.000m RT
(68.90')

+21.777 -Y10-
27.786m RT
(91.16')

S38°05'57"E 27.638

NOTE: REMOVE Y10DET AND GRADE TO EXISTING ONCE DETOUR IS NO LONGER NEEDED

MATCH LINE -Y10DET- STA 13+40.000
SEE SHEET 2-N

10
16+20.018
.EFT
11.499

-Y10DET-

-Y10DET- STA 10+39.879 =
-Y10- STA 11+60.000

BEGIN GRADE -Y10DET- STA 11+77.003
-Y10DET- PVI STA 11+90.498
EL = 40.295

PI = 12+00.003
EL = 40.361 m
VC = 46 m
K = 47

PI = 12+50.000
EL = 40.784 m
VC = 50 m
K = 37

PROP GRADE -Y10DET-

+0.8470%
+0.8470%
-0.5000%
-0.5000%
-0.1413%

EXIST GROUND
EXIST GROUND

49 47 45 43 41 39 37 35

10 +20 +40 +60 +80 11 +20 +40 +60 +80 12 +20 +40 +60 +80 13 +20 +40

FILE: $FILE$ $TIME$
DATE: $DATE$ $STDRWG$
PLOT DRIVER: $STDTBL$
PEN TABLE: $PENTBL$

Florence & Hutcheson
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5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

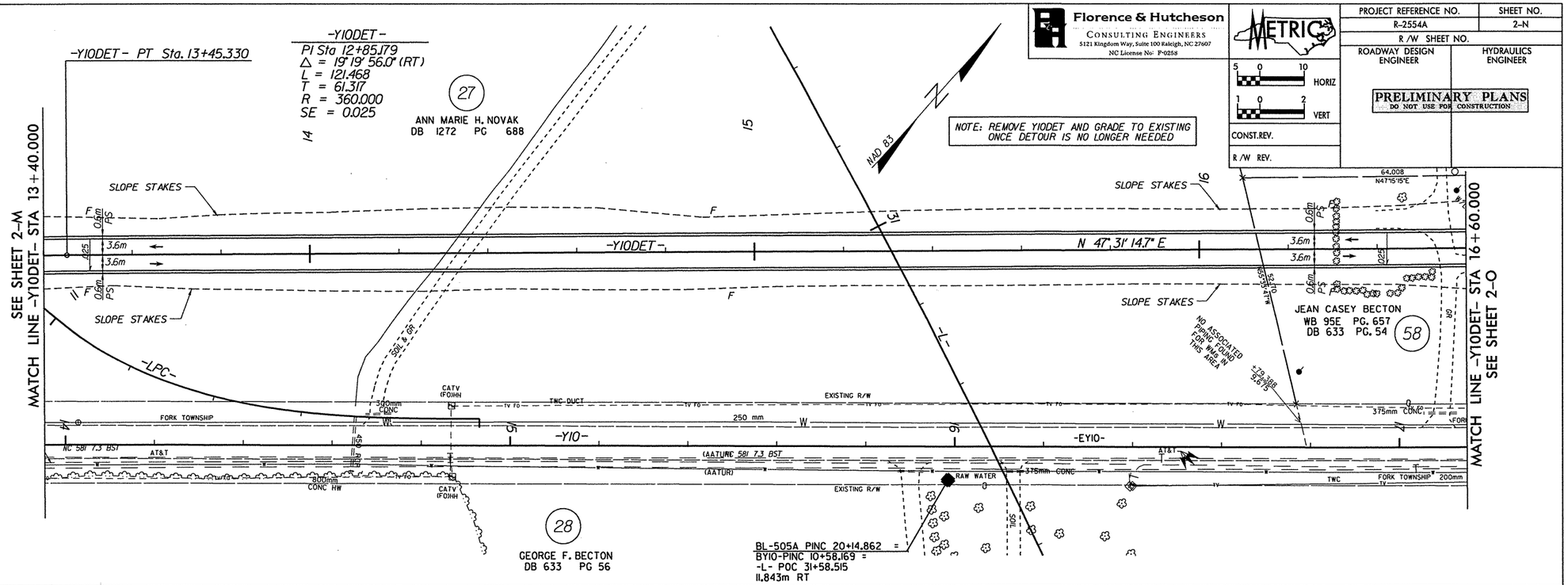
METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-N
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

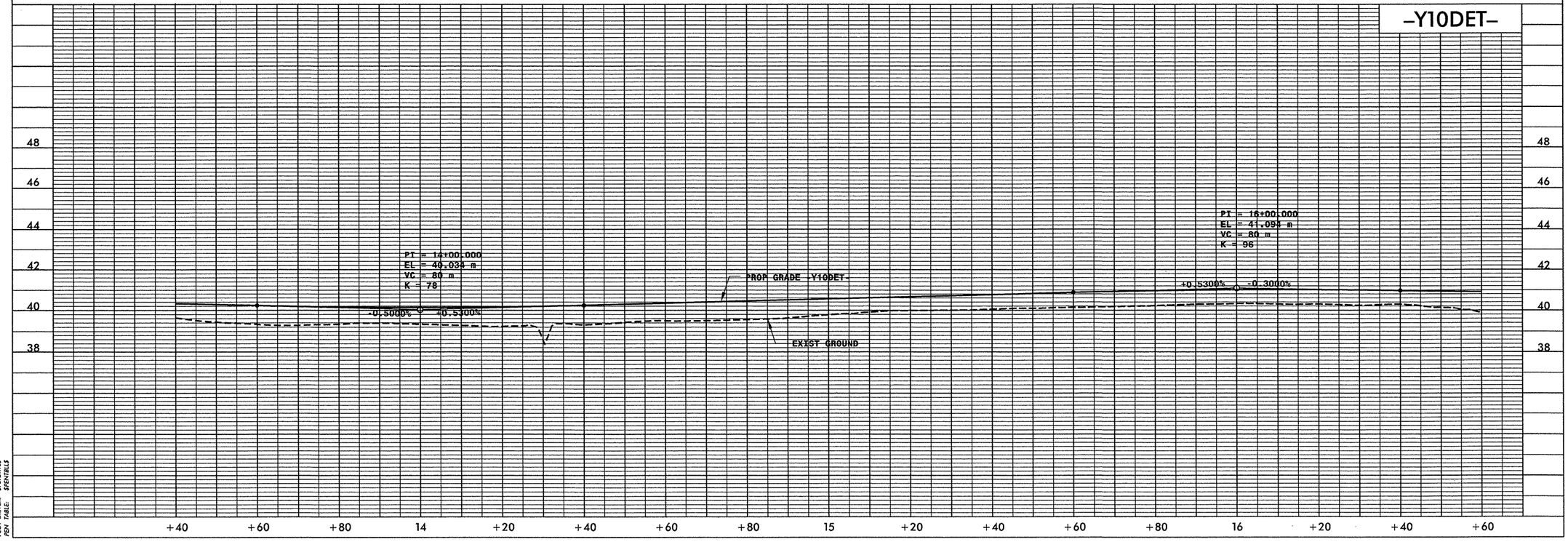
5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R /W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-Y10DET-



FILE: $FILE$ STIMES
DATE: $DATE$ $PLTDRVR$
PLOT DRIVER: $PENTBL$
PEN TABLE:

Florence & Hutcheson
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METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-O
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

SEE SHEET 2-N -Y10DET- STA 16+60.000

MATCH LINE -Y10DET- STA 19+40.000 SEE SHEET 2-P

-RPB-

-RPA-

-DW1-

-Y10-

-Y10DET-

N 47° 31' 14.7" E

59 JEAN CASEY BECTON WB 95E PG. 657 DB 633 PG. 53

58 JEAN CASEY BECTON WB 95E PG. 657 DB 633 PG. 54

28 GEORGE F. BECTON DB 633 PG 56

60 P.O. JAMES HEIRS

63 GLENN A. SASSER DB 687 PG. 453

1.2m WW 1-S-BW

SLOPE STAKES

FLAG POLE

NOTE: REMOVE Y10DET AND GRADE TO EXISTING ONCE DETOUR IS NO LONGER NEEDED

+69.071 -Y10- 21.499m LT END FENCE / C/A

+45.000 -Y1- 17.500m LT (57.42')

+56.737 -Y1- 9.917m LT (32.54')

+71.606 -Y1- 17.000m LT (55.77')

+84.543 -Y1- 17.000m LT (55.77')

+49.543 -Y1- 16.342m RT

+29.274 -Y10- 26.227m LT (56.05')

SER.RD.I 31+59.852 = BY10-POT 8+87.964 = GPS R2554-8 -Y1- POC 37+79.960 58.854m LT

+90.000 -Y10- 30.000m RT (98.43')

+110.000 -Y10- 22.500m RT (73.82')

+175.000 -Y10- 22.485m RT (73.77')

+80.000 -Y10- 22.500m RT (73.82')

+20.000 -Y10- 23.000m RT (75.46')

+19.925 -Y10- 28.800m RT (88.58')

+15.000 -Y10- 22.900m RT (75.16')

+51.846 -Y10- 22.362m RT (73.37')

+54.034 -Y10- 30.018m RT (98.49')

+91.221 -Y10- 21.575m RT (70.78')

+85.339 -Y10- 29.871m RT (98.00')

+34.032 9.917m

ISBKD

-Y10DET-

PI = 18+00.000
EL = 40.494 m
VC = 160 m
K = 53

PROP GRADE -Y10DET-

-0.3000%

-3.2978%

EXIST GROUND

47 45 43 41 39 37 35 33 31

+60 +80 17 +20 +40 +60 +80 18 +20 +40 +60 +80 19 +20 +40

FILE: $FILE$ STIMES
DATE: $DATE$ SPLTDRVLS
PLOT DRIVER: SPLTDRVLS
PEN TABLE: STPENTBLS

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METRIC
5 0 10 HORIZ
1 0 2 VERT

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-P
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83

59 JEAN CASEY BECTON
WB 95E PG. 657
DB 633 PG. 53

64 HARRISON RAY BECTON
DB 1614 PG. 395

59 JEAN CASEY BECTON
WB 95E PG. 657
DB 633 PG. 53

62 GLENDA GAIL SASSER
DB 1520 PG. 196

63 GLENN A. SASSER
DB 455 PG. 144

MARY COBB WOODARD &
JOSEPH FIELDS WOODARD
DB 1662 PG 546

JEAN CASEY BECTON
WB 95E PG. 657
DB 633 PG. 53

SEE SHEET 2-O
MATCH LINE -Y10DET- STA 19+40.000

-Y10DET- PRC Sta 19+75.537

-Y10DET- PRC Sta 20+15.837

+01.841 -Y10-
37.803m LT
(124.03')

SLOPE STAKES

+46.945 -Y10-
31.923m LT
(104.73')

+60.000 -Y10-
15.000m LT
(49.21')

10.000m (TYP.)

+27.434 -Y10-
11.257m LT
(36.93')

SLOPE STAKES

+59.993 -Y10-
EXIST. R/W
9.288m LT
(30.47')

N 41° 31' 14.7" E

R/W

CATV (UGTH)

TWC DUCT

TV FO 250 mm

300mm CONC

TV FO

W FORK TOWNSHIP

-Y10DET-

EXISTING R/W

NC 581 7A BST (AATUR)

AT&T

TWC

FORK TOWNSHIP 200 mm RAW WATER

+91.221 -Y10-
21.575m RT (70.78')

N47°25'18"E
57.948

+20.000 -Y10-
14.000m RT
(45.93')

+59.993 -Y10-
EXIST. R/W
9.000m RT
(29.53')

N47°25'18"E
25.299

N47°25'18"E
20.168

PUE
NO ASSOCIATED PIPING FOUND FOR WM& IN THIS AREA

+20.000 -Y10-
21.000m RT
(68.90')

+20.001 -Y10-
25.001m RT
(82.02')

ISFD

BM #11
-BY10- STA 4+57.705
7.431 LEFT
ELEV.= 64.249

NOTE: REMOVE Y10DET AND GRADE TO EXISTING ONCE DETOUR IS NO LONGER NEEDED

-Y10DET-
PI Sta 19+95.708
Δ = 6° 24' 49.8" (RT)
L = 40.299
T = 20.171
R = 360.000
SE = 0.02

PI Sta 20+59.230
Δ = 13° 44' 46.4" (LT)
L = 86.370
T = 43.394
R = 360.000
SE = 0.04

BY10-POT Sta 5+00.000 = -Y10- POT Sta 21+56.487
5.265m LT

END DETOUR
-Y10DET- PT Sta 21+02.207 =
-Y10- POT Sta 21+60.000

-Y10DET-

PI = 19+60.000
EL = 35.217 m
VC = 160 m
K = 53

PROP GRADE -Y10DET-

-3.297%

-0.300%

EXIST GROUND

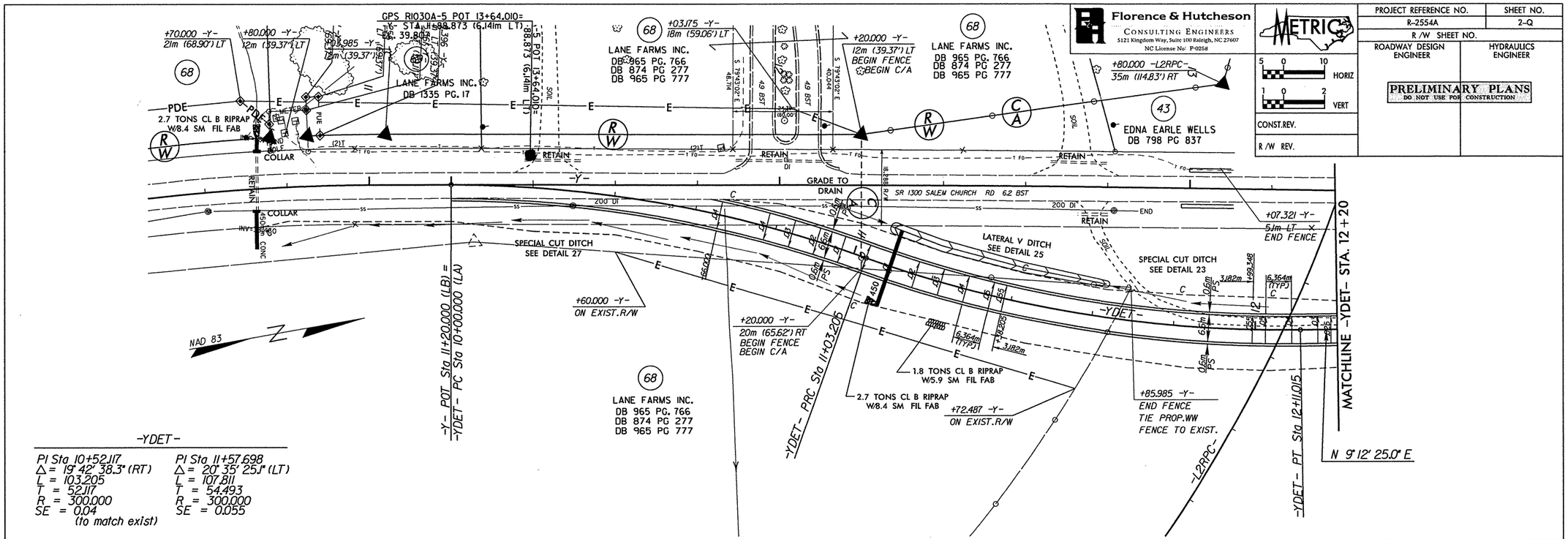
END GRADE
-Y10DET- STA 20+50.220 =
-Y10- STA 21+08.189
EL = 34.947

END CONSTRUCTION
-Y10DET- STA 21+02.207 =
-Y10- STA 21+60.000

45 43 41 39 37 35 33 31 29

+60 +80 20 +20 +40 +60 +80 21

FILE: $FILES $TIMES
DATE: $DATES $PLTDRVLS
PLOT DRIVER: $PENTABLE:
PEN TABLE:


GPS RI030A-5 POT 13+64.010=
STA 11+88.873 (6.14m LT)
-5 POT 13+64.010= STA 11+88.873 (6.14m LT)
+70.000 -Y-
21m (68.90') LT
+80.000 -Y-
12m (39.37') LT
+88.985 -Y-
18m (59.06') LT
+03.175 -Y-
18m (59.06') LT
+20.000 -Y-
12m (39.37') LT
BEGIN FENCE
BEGIN C/A
+80.000 -L2RPC-
35m (114.83') RT
LANE FARMS INC.
DB 965 PG. 766
DB 874 PG 277
DB 965 PG 777
LANE FARMS INC.
DB 1335 PG. 17
EDNA EARLE WELLS
DB 798 PG 837
PDE
2.7 TONS CL B RIPRAP
W/8.4 SM FIL FAB
COLLAR
RETAIN
GRADE TO DRAIN
SR 1300 SALEM CHURCH RD 62 BST
SPECIAL CUT DITCH
SEE DETAIL 27
+60.000 -Y-
ON EXIST.R/W
LATERAL V DITCH
SEE DETAIL 25
SPECIAL CUT DITCH
SEE DETAIL 23
+07.321 -Y-
5.1m LT
END FENCE
+20.000 -Y-
20m (65.62') RT
BEGIN FENCE
BEGIN C/A
1.8 TONS CL B RIPRAP
W/5.9 SM FIL FAB
2.7 TONS CL B RIPRAP
W/8.4 SM FIL FAB
+72.487 -Y-
ON EXIST.R/W
+85.985 -Y-
END FENCE
TIE PROP.WW
FENCE TO EXIST.
-Y- POT Sta 11+20.000 (LB) =
-YDET- PC Sta 10+00.000 (LA)
-YDET- PRC Sta 11+03.205
-YDET- PT Sta 12+11.015
MATCHLINE -YDET- STA. 12+20
N 9° 12' 25.0" E
NAD 83
-L2RPC-
-YDET-
PI Sta 10+52.117
Δ = 19° 42' 38.3" (RT)
L = 103.205
T = 52.117
R = 300.000
SE = 0.04
(to match exist)
PI Sta 11+57.698
Δ = 20° 35' 25.1" (LT)
L = 107.811
T = 54.493
R = 300.000
SE = 0.055
Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258
METRIC
HORIZ
VERT
CONST.REV.
R /W REV.
PROJECT REFERENCE NO.
R-2554A
SHEET NO.
2-Q
R /W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-YDET-
PIPE HYDRAULIC DATA
*200l: 450mm RCP
-YDET- STA 11+09.000 RT
D.A.= 0.720ha
DES.FREQ.= 25yr
DES.Q= 0.22cms
DES.HW ELEV.= 39.940m
100YR Q= 0.260cms
100YR HW ELEV= 39.99m
OT FREQ.= 50 yrs
OT Q= 0.370cms
OT ELEV.= 41.300m
SPECIAL CUT DITCH RT
10+00.000
EL 38.905
BEGIN GRADE
-YDET- STA 10+45.065
EL 39.770
PI = 10+78.000
EL = 39.671 m
VC = 60 m
K = 26
END SPECIAL CUT DITCH RT
BEGIN LATERAL V DITCH LT
11+09.235
EL 39.284 RT
EL 39.399 LT
END LATERAL V DITCH LT
BEGIN SPECIAL CUT DITCH LT
11+43.592
PI = 11+40.000
EL = 40.911 m
VC = 60 m
K = 40
PROP GRADE -YDET-
END SPECIAL CUT DITCH LT
12+00.646
EL 40.596
EXIST GROUND
-0.3000%
(+) 0.3000%
+2.0000%
(+) 1.330%
+0.5000%
(+) 1.330%
43
41
39
37
35
10
+20
+40
+60
+80
11
+20
+40
+60
+80
12
+20
FILE: $FILE$ $TIME$
DATE: $DATE$ $PATDRVS$
PLOT DRIVER: $PENTBLS$
PEN TABLE:

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NC License No: F-0258

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-R
R /W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

5 0 10 HORIZ
1 0 2 VERT

CONST.REV.
R /W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NAD 83

43
EDNA EARLE WELLS
DB 798 PG 837

-L2RPC-
-L2RPDB-
-L2RPB-
-L-
-Y-
-YDET-

RETAIN 375 mm CONC.
SR 1300 SALEM CHURCH RD 62 BST

+65.000 -Y-
27m LT
END FENCE
END C/A
PL
27m (88.58') LT
+40.000 -Y-
27m (88.58') LT

+80.000 -Y-
27m (88.58') LT

+91.743 -Y-
20m (65.62') LT
+12.071 -Y-
17.02m LT
(56.11')

43A
THOMAS E. HODGIN, HEIRS
DB 480 PG 132

+10.000 -Y-
9.11m (29.91') LT
GENEVIEVE H. GAY
DB 511 PG 80
70

+65.000 -Y-
ON EXIST.R/W
END FENCE
END C/A

N 9°12' 25.0" E

0.6m PS
6.3m
10.6m PS
6.5m

SOIL

+06.123 -Y-
TIE PROP.WW FENCE
TO EXIST.

+80.000 -Y-
42m (137.79') RT

+15.000 -Y-
ON EXIST.R/W

GPS R-1030A-6 PINC 78+78.274=
-Y- STA. 15+39.225 (5.493m LT)
EL.= 40.904

68
LANE FARMS, INC.
DB 965 PG 766
DB 874 PG 277
DB 965 PG 777

MATCHLINE -YDET- STA. 12+20
MATCHLINE -YDET- STA. 15+60

-YDET-

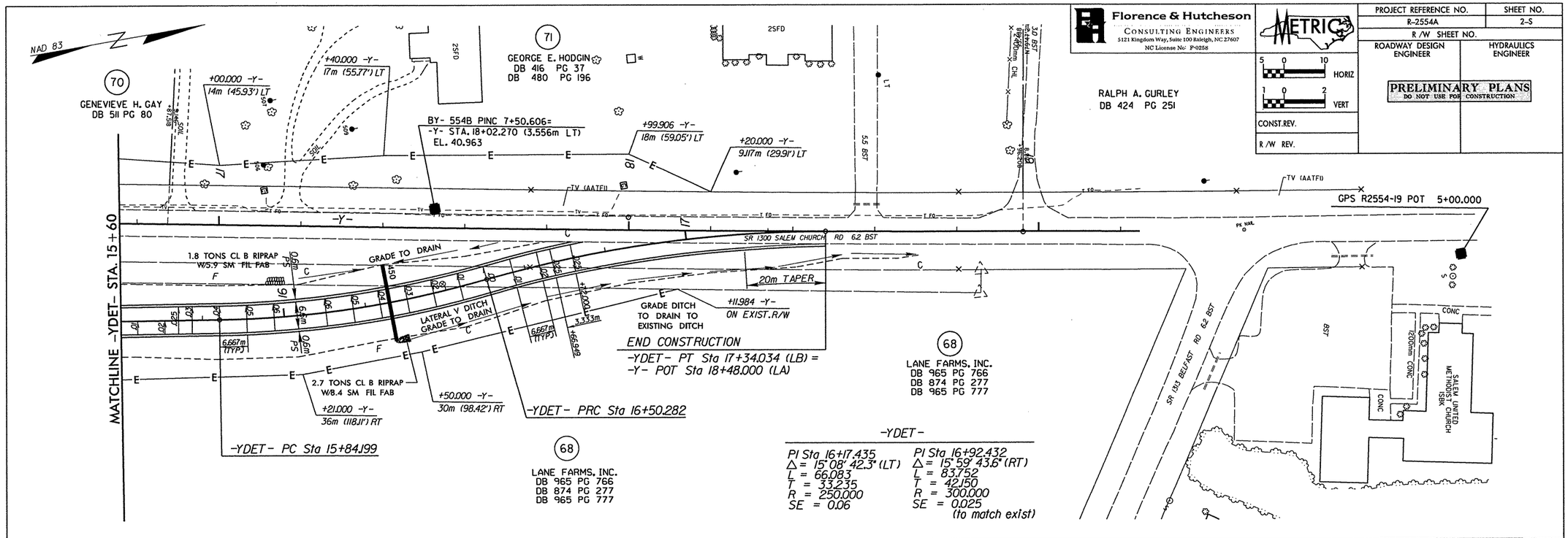
PI = 14+65.000
EL = 42.536 m
VC = 100 m
K = 77

PROP GRADE -YDET-
EXIST GROUND
+0.5000%
+0.5000%
+0.5000%
-0.8000%
-0.8000%

43
41
39
37
35

+20 +40 +60 +80 13 +20 +40 +60 +80 14 +20 +40 +60 +80 15 +20 +40 +60

FILE: $FILE$ STAMP$
DATE: $DATE$ STATION$
PLOT DRIVER: $STDRV$
PEN TABLE: $PENTBL$



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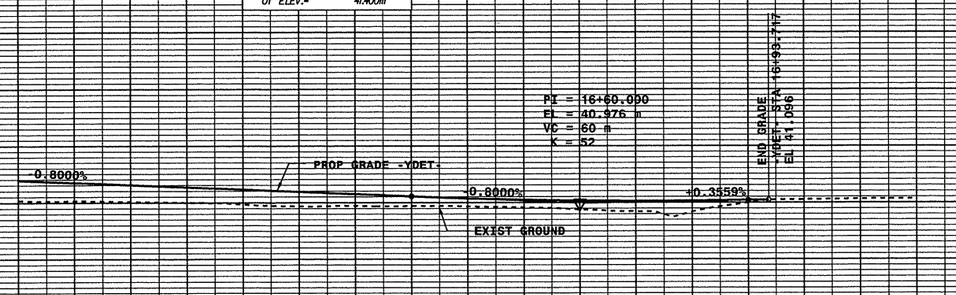
METRIC
5 0 10 HORIZ
1 0 2 VERT
CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-S
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
•2501: 450mm RCP
-YDET- STA 16+26.000 RT

DA.=	0.440ha
DES.FREQ.=	25yr
DES.Q=	0.14cms
DES.HW ELEV.=	40.760m
100YR Q=	0.170cms
100YR HW ELEV=	40.81m
OT FREQ.=	50 yrs
OT Q=	0.250cms
OT ELEV.=	41.400m



FILE: $FILE$ $TIMES$
DATE: $DATE$
PLOT DRIVER: $PLTDRVR$
PEN TABLE: $PENTBLS$

DITCH DETAILS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

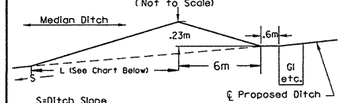
METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-T
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST.REV.	
R/W REV.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DETAIL A
FALSE SUMP
(Not to Scale)

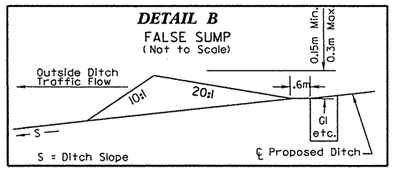


S=Ditch Slope

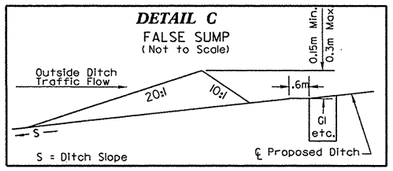
Ditch Grade		Ditch Grade	
0.0% To 2.0%	X	Over 4.0% To 6.0%	
Over 2.0% To 4.0%		Over 6.0%	

LEGEND ◇ FS

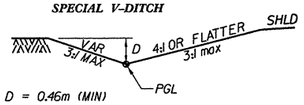
DETAIL B
FALSE SUMP
(Not to Scale)



DETAIL C
FALSE SUMP
(Not to Scale)

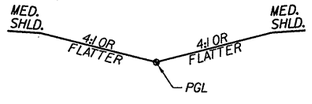


DETAIL 1
SPECIAL V-DITCH



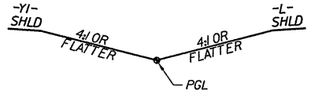
STATION TO STATION
-L- 4+00 TO -L- 5+00 RT
-L- 4+00 TO -L- 5+40 LT
-L- 30+20 TO -L- 31+40 LT
-L- 30+40 TO -L- 31+00 RT
-L- 47+20 TO -L- 47+60 RT
-L- 51+60 TO -L- 52+73 RT
-RPC- 14+40 TO -RPC- 14+60 RT
-Y1- 10+20 TO -Y1- 11+40 LT
-Y1- 10+20 TO -Y1- 12+00 RT
-Y2- 13+14 TO -Y2- 13+66 RT

DETAIL 2
SPECIAL V-DITCH



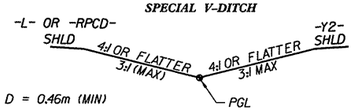
STATION TO STATION
-L- 4+00.000 TO -L- 7+80.000 MED

DETAIL 3
SPECIAL V-DITCH



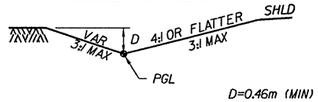
STATION TO STATION
-L- 5+60.000 TO -L- 10+60.000 LT

DETAIL 4
SPECIAL V-DITCH



STATION TO STATION
-L- 6+20 TO -L- 14+80 RT
-RPCD- 10+94.252 TO -RPCD- 17+77 RT

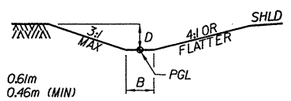
DETAIL 5
SPECIAL CUT V-DITCH



D=0.46m (MIN)

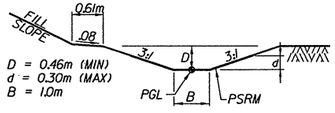
STATION TO STATION
-L- 19+20 TO -L- 21+20 LT
-Y1- 15+48.600 TO -Y1- 17+35 LT
-Y1- 17+45 TO -Y1- 18+62 LT
-Y1- 17+45 TO -Y1- 18+62 RT
-Y1- 22+89.894 TO -Y1- 24+68 RT
-Y1- 24+80 TO -Y1- 27+95 RT
-Y1- 24+81 TO -Y1- 25+37 LT
-Y2- 18+83 TO -Y2- 19+84 RT
-Y2- 29+20 TO -Y2- 30+40 LT
-Y2- 31+00 TO -Y2- 32+00 RT
-Y3- 10+80 TO -Y3- 11+00 LT
-Y3- 10+60 TO -Y3- 11+60 RT
-Y3- 12+46 TO -Y3- 12+86 RT
-Y3- 12+46 TO -Y3- 13+26 LT
-Y4- 10+13 TO -Y4- 10+80 RT
-Y4- 10+07 TO -Y4- 10+40 LT
-Y8- 10+20 TO -Y8- 10+80 RT
-Y8- 10+20 TO -Y8- 10+80 LT
-Y10- 10+00 TO -Y10- 12+00 RT
-Y10- 12+06 TO -Y10- 12+40 RT

DETAIL 6
0.61m SPECIAL BASE DITCH



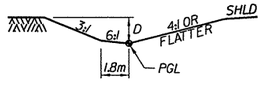
STATION TO STATION
-L- 21+40 TO -L- 21+80 RT
-L- 40+60 TO -L- 42+60 LT
-L- 40+80 TO -L- 42+20 RT
-RPC- 11+80 TO -RPC- 12+80 RT

DETAIL 7
1.0m LATERAL BASE DITCH



STATION TO STATION	EST PSRM SM	EST DDE CM
-L- 29+20 TO -L- 30+00 LT	70	492.5

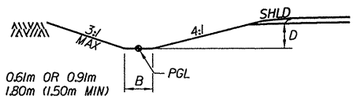
DETAIL 8
SPECIAL CUT DITCH w/HINGE



D=0.46m (MIN)

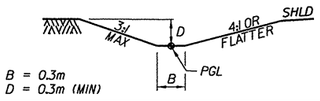
STATION TO STATION
-L- 32+20 TO -L- 33+60 RT

DETAIL 9
SPECIAL CUT BASE DITCH



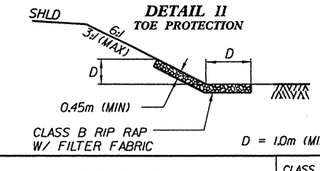
STATION TO STATION	B (m)
-L- 35+60 TO -L- 39+40 RT	0.91
-L- 35+60 TO -L- 39+40 LT	0.91
-L- 45+60 TO -L- 46+60 LT	0.61
-L- 45+60 TO -L- 46+60 RT	0.61
-L- 55+40 TO -L- 58+00 LT	0.61
-L- 55+40 TO -L- 58+00 RT	0.61
-RPA- 10+17 TO -RPA- 11+58 RT	0.91
-RPD- 10+17 TO -RPD- 12+12 LT	0.91

DETAIL 10
0.3m SPECIAL BASE DITCH



STATION TO STATION
-Y2- 10+09 TO -Y2- 12+36 LT

DETAIL 11
TOE PROTECTION



STATION TO STATION	CLASS B RIPRAP MTN	FILTER FABRIC SM
-L- 51+00 TO -L- 51+20 RT	86.4	120
-L- 58+10 TO -L- 58+30 RT	86.4	120
-L- 58+20 TO -L- 58+30 LT	43.2	60

FILE: $FILE$
DATE: $DATE$ $TIME$
PLOT DRIVER: $PLTDRV$
PEN TABLE: $PENTBL$

DITCH DETAILS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

5m 0 10m

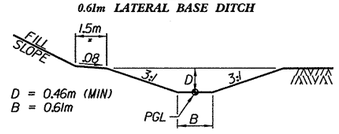
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-U
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

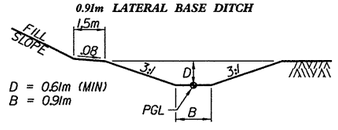
R/W REV.

DETAIL 12
0.61m LATERAL BASE DITCH



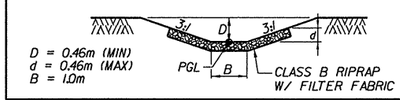
STATION TO STATION	EST DDE CM
-L- 58+80 TO -L- 59+20 RT	70
-FLY- 18+58 TO -FLY- 21+42 LT	466
* VAR -Y10- 14+20 TO -Y10- 14+80 LT	115.7

DETAIL 13
0.91m LATERAL BASE DITCH



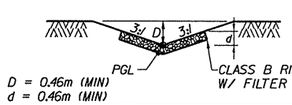
STATION TO STATION	EST DDE CM
-L- 64+65 TO -L- 66+40 LT	3151.7
-FLY- 14+00 TO -FLY- 16+37 LT	543

DETAIL 14
1.0m STANDARD BASE DITCH



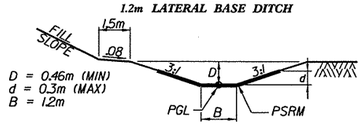
STATION TO STATION	CLASS B RIPRAP TONS	FILTER FABRIC SM	EST DDE CM
-L- 64+06 LT	11	23	7

DETAIL 15
STANDARD V-DITCH



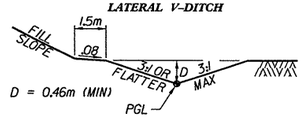
STATION TO STATION	CLASS B RIPRAP TONS	FILTER FABRIC SM	EST DDE CM
-LPC- 13+00 RT	13	28	6

DETAIL 16
1.2m LATERAL BASE DITCH



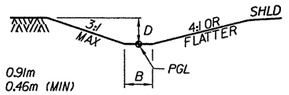
STATION TO STATION	EST PSRM SM	EST DDE CM
-FLY- 21+20 TO -FLY- 23+20 RT	192	739.4

DETAIL 17
LATERAL V-DITCH



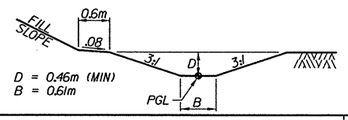
STATION TO STATION	EST DDE CM
-FLY- 20+40.5 TO -FLY- 21+20 RT	90.4

DETAIL 18
0.91m SPECIAL BASE DITCH



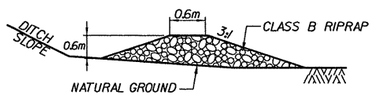
STATION TO STATION
-RPCD- 15+69 TO -RPCD- 17+72 LT
-L- 21+80 TO -L- 23+00 RT

DETAIL 19
0.61m LATERAL BASE DITCH



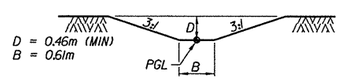
STATION TO STATION	EST DDE CM
-L- 61+80 TO -L- 62+40 LT	141.9
-L- 63+40 TO -L- 65+75 RT	1205.4

DETAIL 20
DITCH CHECK DAM



STATION TO STATION	FILTER FABRIC SM	CLASS B RIPRAP TONS
-L- 40+60 TO -L- 41+00 LT	12	9
-L- 40+80 TO -L- 42+00 RT	28	21
-L- 64+80 TO -L- 66+20 LT	32	24

DETAIL 21
0.61m OUTLET BASE DITCH

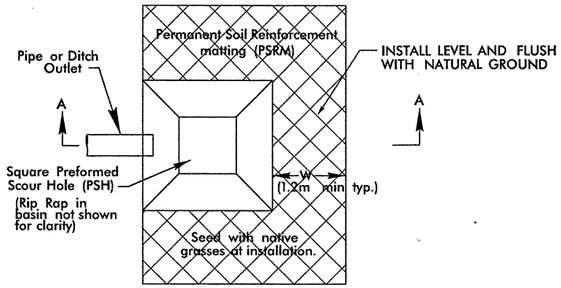


STATION TO STATION	EST DDE CM
-L- 17+20 LT	25

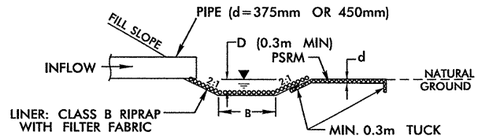
DETAIL 22
PREFORMED SCOUR HOLE

*NOT TO SCALE

PLAN VIEW



SECTION A-A



STATION	B METERS	D METERS	W METERS	d METERS	CLASS B RIP RAP MTNS	DDE CM	FILTER FABRIC SM	PSRM SM
-L- 44+85 LT	1.2	0.6	1.2	0.3	9	7	17	30
-L- 51+00 LT	1.35	0.6	1.2	0.3	10	8	17	32
-L- 53+60 LT	1.2	0.6	1.2	0.3	9	7	17	30

FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $STIME$
PEN TABLE: $PENTBL$

DITCH DETAILS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

5m 0 10m

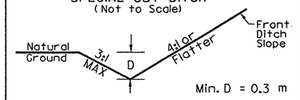
PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-V
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

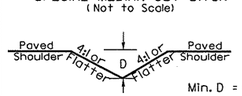
DETAIL 23
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 0.3 m

STATION TO STATION
-L- 88+00 - 88+60 LT
-L- 88+20 - 88+60 RT
-L2RPB- 5+20 - 5+70 RT
-L2RPB- 6+05 - 6+48 LT
-Y- 10+00 - 10+20 LT
-Y- 10+00 - 11+00 RT
-Y- 10+73 - 11+40 LT
-Y- 17+00 - 18+40 LT
-YDET- 11+64 - 12+04 LT

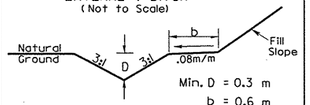
DETAIL 24
SPECIAL MEDIAN CUT DITCH
(Not to Scale)



Min. D = 0.3 m

STATION TO STATION
-L- 89+55 - 90+20 MED

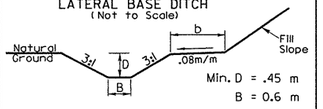
DETAIL 25
LATERAL V-DITCH
(Not to Scale)



Min. D = 0.3 m
b = 0.6 m

STATION TO STATION	EST DDE CM
-L- 89+80 - 90+00 LT	3.5
-Y- 10+20 - 10+73 LT	194.3
-YDET- 11+09 - 11+64 LT	27.3

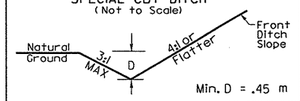
DETAIL 26
LATERAL BASE DITCH
(Not to Scale)



Min. D = .45 m
B = 0.6 m
b = 0.6 m

STATION TO STATION	EST DDE CM
-L- 76+74 - 77+17 RT	117.8
-L- 81+40 - 82+00 RT	118.6
-L2RPDB- 13+13 - 15+55 RT	1953.3

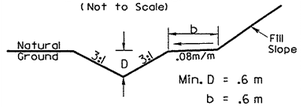
DETAIL 27
SPECIAL CUT DITCH
(Not to Scale)



Min. D = .45 m

STATION TO STATION
-L- 84+80 - 87+20 RT
-Y- 10+73 - 11+20 RT (FOR -YDET-)
-YDET- 10+00 - 11+09 RT

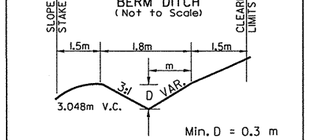
DETAIL 28
LATERAL V-DITCH
(Not to Scale)



Min. D = .6 m
b = .6 m

STATION TO STATION	EST DDE CM
-L- 82+40 - 82+75 LT	45.8

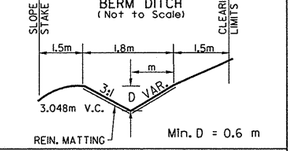
DETAIL 29
BERM DITCH
(Not to Scale)



Min. D = 0.3 m

STATION TO STATION
-L- 78+20 - 80+20 LT

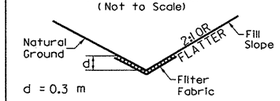
DETAIL 30
BERM DITCH
(Not to Scale)



Min. D = 0.6 m

STATION TO STATION
-L- 80+40 - 82+40 LT

DETAIL 31
TOE PROTECTION
(Not to Scale)

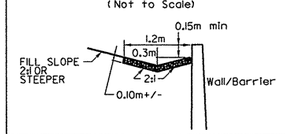


d = 0.3 m

Type of Liner = CLASS B

STATION TO STATION
-L- 76+0 - 77+15 LT

DETAIL 32
CONCRETE LINED DITCH
(Not to Scale)



STATION TO STATION
-L- 89+19.999 - 90+07.996 RT
-L2RPB- 6+37.642 - 7+59.706 RT
-L2RPC- 4+17 - 4+40 LT

FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $PDRIVER$
PEN TABLE: $PENTBLL$

SHEAR POINT DIAGRAM

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0238

METRIC

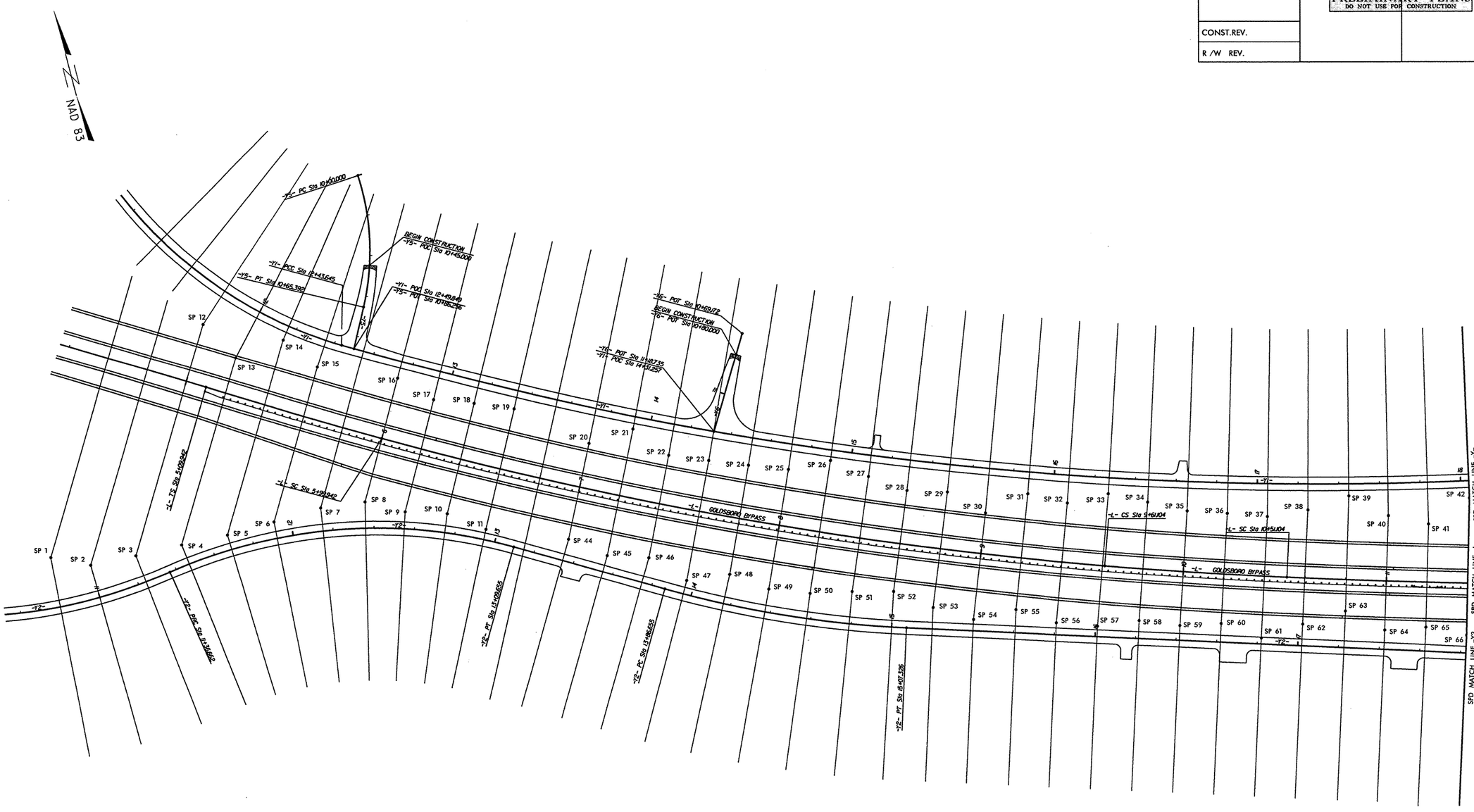
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-X
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R /W REV.



FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $PLTDRV$
PEN TABLE: $PENTBL$
$TIME$

SHEAR POINT DIAGRAM

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

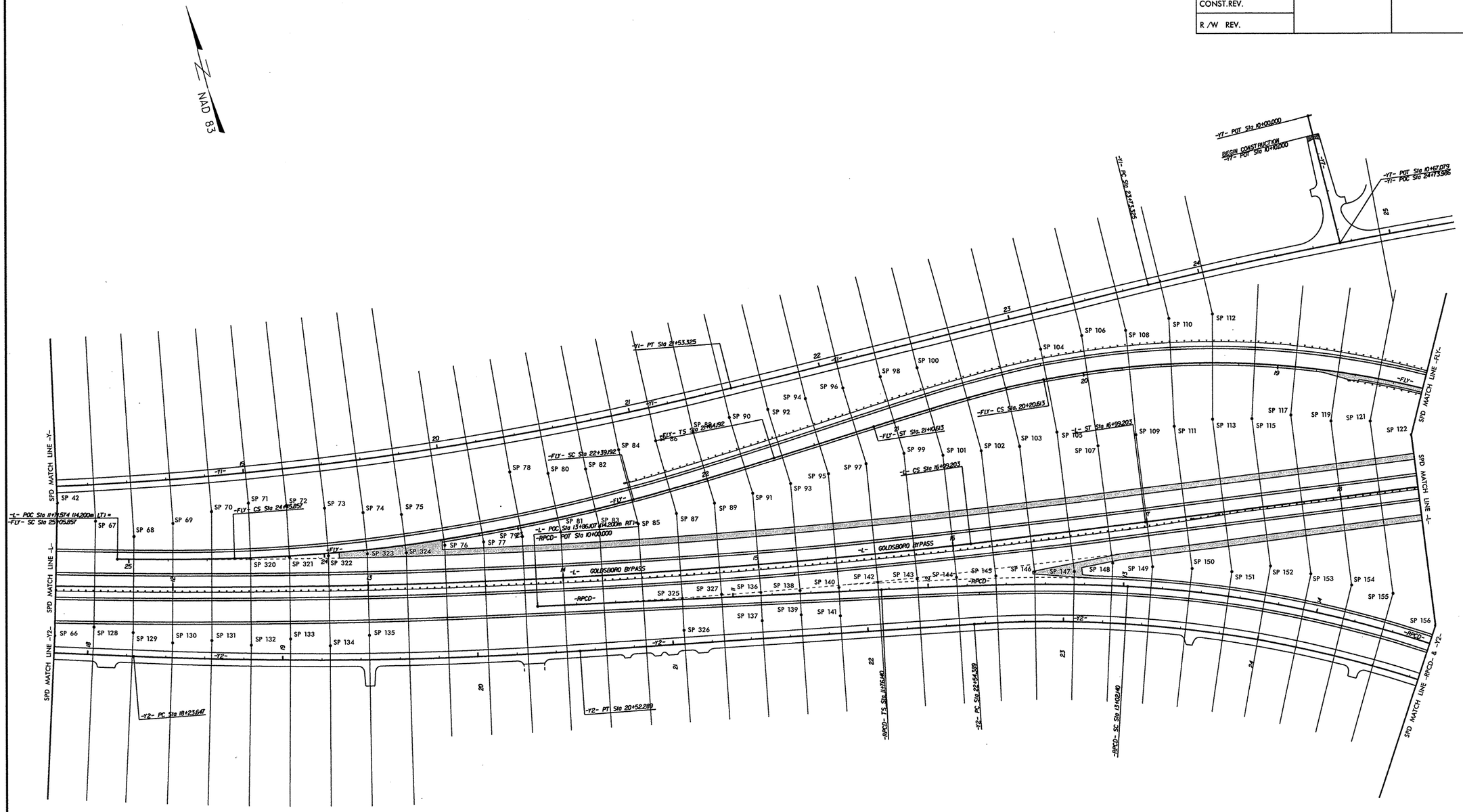
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-Y
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R /W REV.



FILE: $FILE$
DATE: $DATE$
PLOTTED: $PLOTTED$
PLOT STYLE: $PLOTSTYLE$
PEN TABLE: $PENTABLE$

SHEAR POINT DIAGRAM

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-Z
R /W SHEET NO.	

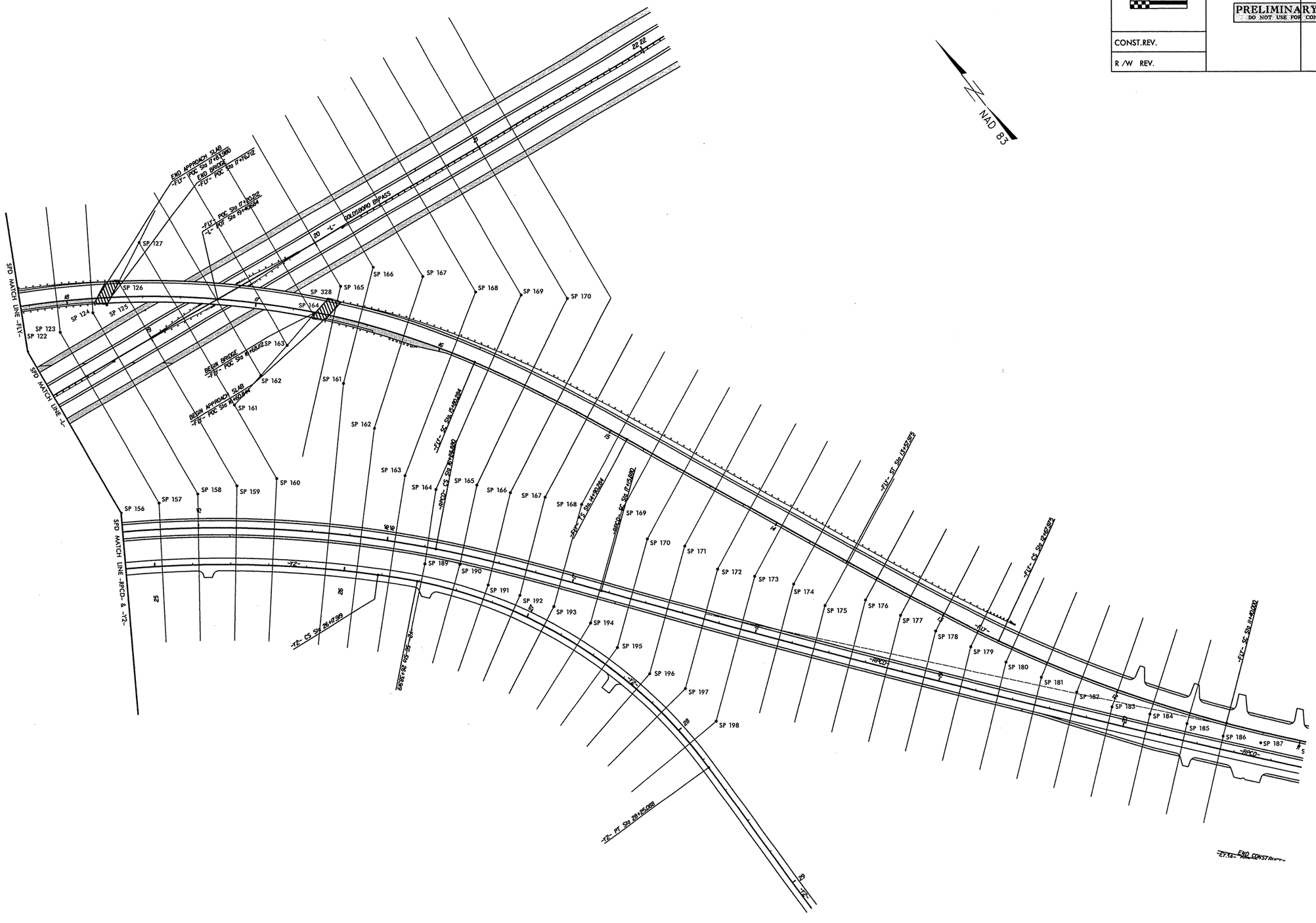
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R /W REV.



FILE: $FILE$
DATE: $DATE$
PLOT DRIVER: $PLOTDRV$
PEN TABLE: $PENTBL$
$TIME$

SHEAR POINT DIAGRAM

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

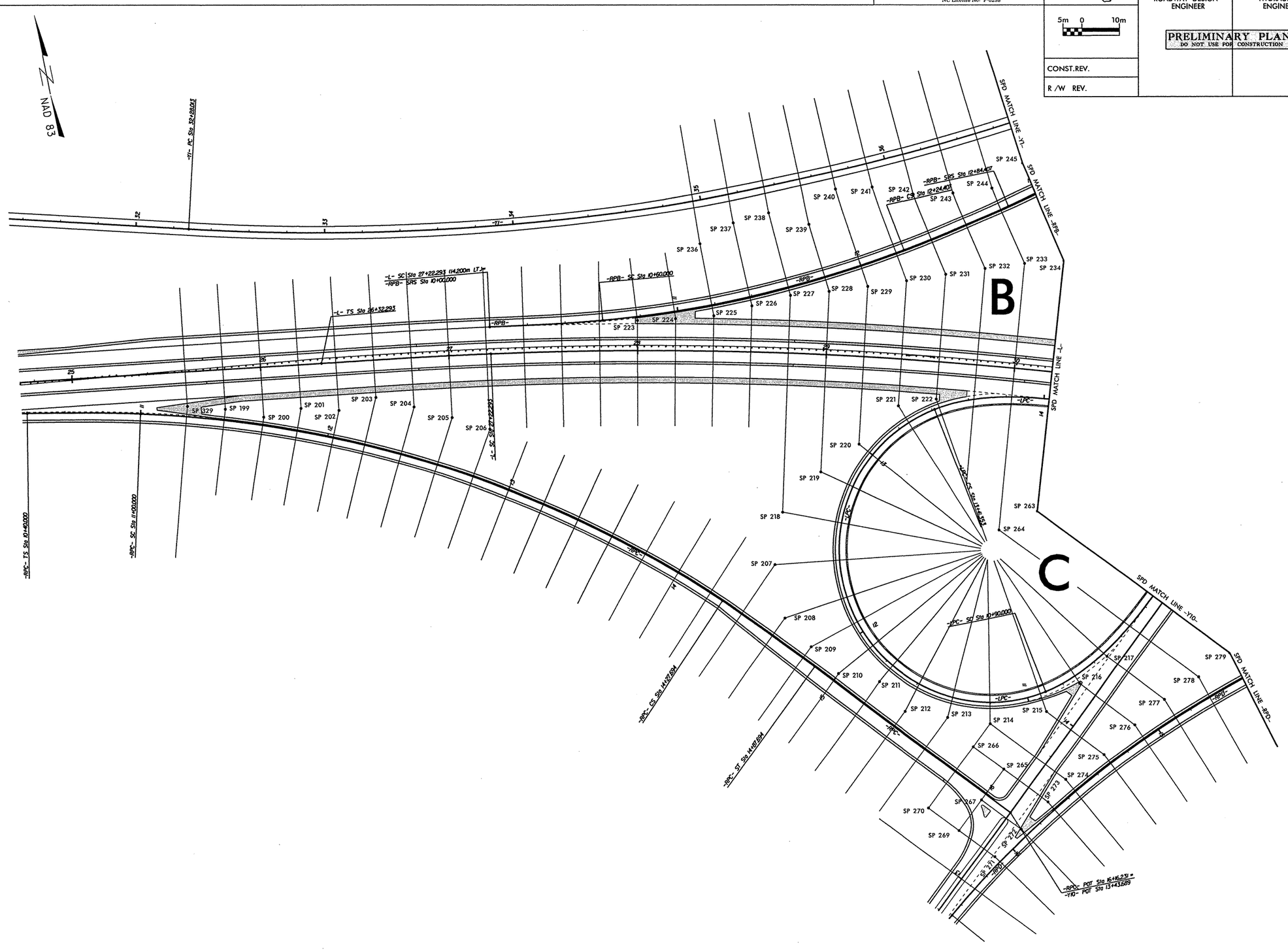
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-AA
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R /W REV.



FILE: SFILES STIMES
DATE: SDATES SPLTDWGS
PLOT DRIVER: SPLTDRVR
PEN TABLE: SPENTABLES

SHEAR POINT DIAGRAM

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC: 27607
NC License No: F-0258

METRIC

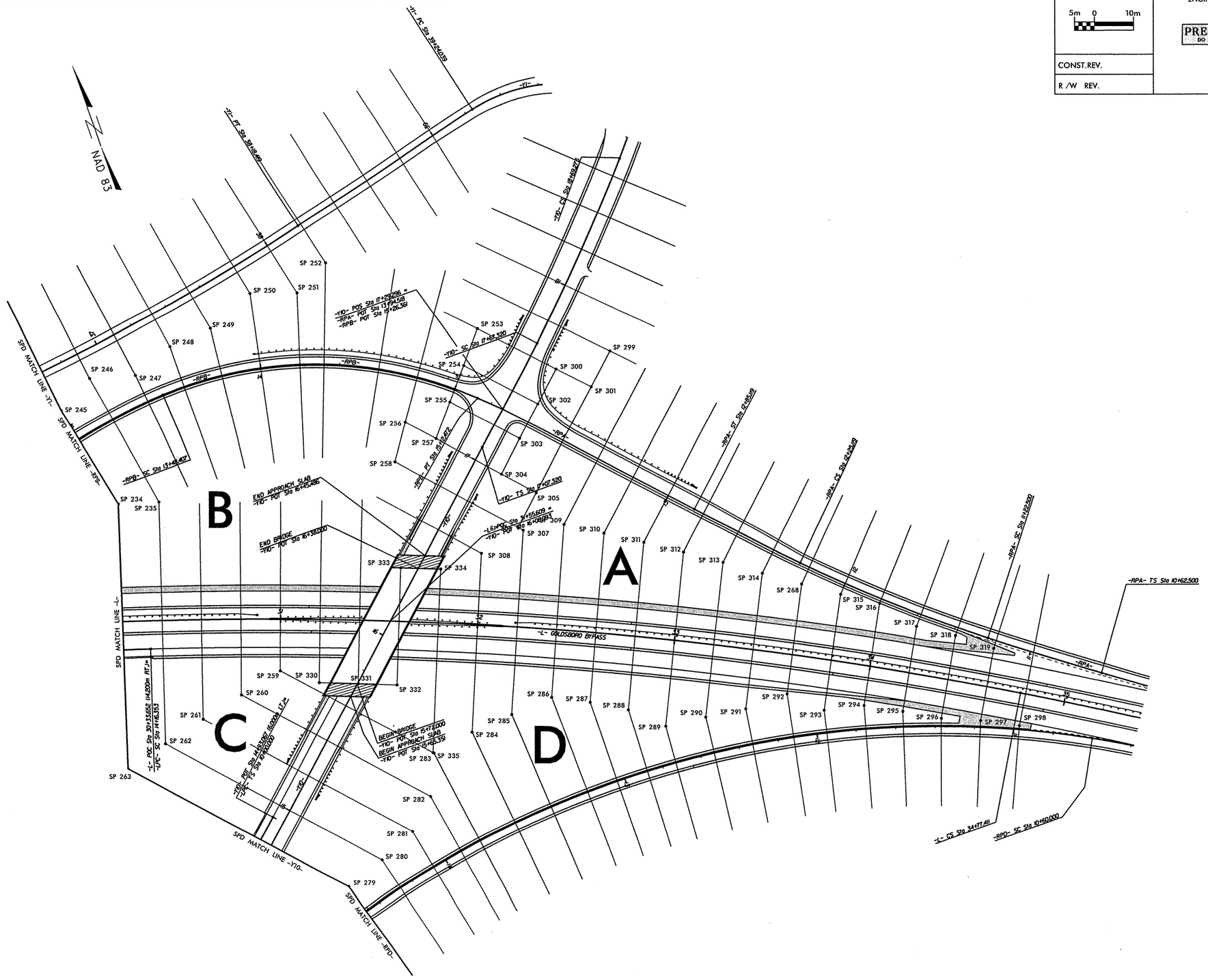
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-AB
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R /W REV.



FILE: $FILE$ $TIME$
DATE: $DATE$
PLOT DRIVER: $PLOTDRIVE$
PEN TABLE: $PENTABLE$

SHEAR POINT DIAGRAM

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0258

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	2-AC
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R /W REV.

NAD 83

-L2RPDB- ST Sta 14+20.674
-L2RPDB- CS Sta 13+70.674
-L2RPDB- TS Sta 15+25.125
15+88.125
-L2RPDB-
-L2RPDB- ST Sta 8+27.998
-L- POC Sta 85+18.662 =
-L2RPDB- POT Sta 8+52.998 (14.2m LT)
-L2RPDB- CS Sta 7+62.998
END APPROACH SLAB
-L2RPDB- POC Sta 11+15.365
-L2RPDB- TS Sta 5+62.476
-L- POT Sta 14+40.702
Δ = 114°59'20.545"
-L2RPDB- POS Sta 5+49.993 =
-L2RPDB- SC Sta 6+22.476
-L2RPDB- POC Sta 6+36.219
Δ = 47°42'41.2"
END BRIDGE
-L2RPDB- POC Sta 10+18.078
-L2RPDB- POC Sta 11+15.430
END APPROACH SLAB
-L- POT Sta 14+82.154
-L- POT Sta 14+82.300
-L2RPDB- POT Sta 5+00.002
BEGIN CONSTRUCTION
-L2RPDB- POC Sta 10+54.095 =
-L- POC Sta 13+14.152
Δ = 112°58'46.8"
-L- POC Sta 90+00.000 END PROJECT R-2554A =
-L- POC Sta 90+00.000 BEGIN PROJECT R-2554BA
END CONSTRUCTION
-L2RPDB- POC Sta 89+03.224 =
-L- POC Sta 89+04.185
Δ = 34°00'03"
-L2RPDB- POC Sta 9+37.990
BEGIN APPROACH SLAB
-L2RPDB- POC Sta 9+33.375
-L2RPDB- POC
-L2RPDB- SC Sta 8+60.775
-L2RPDB- SCP Sta 8+60.002
BEGIN CONSTRUCTION
-L2RPDB- TS Sta 8+60.775
-L2RPDB- POC Sta 4+40.000
END CONSTRUCTION
-L- POC Sta 85+60.000 =
-L2RPC- POT Sta 0+00.000 (14.2m RT)
Δ = 2°45'30.7"
-L2RPC- TS Sta 0+97.050
-L2RPC- SC Sta 1+57.050
-L- POT Sta 13+87.934 =
-L- POC Sta 98+58.525
Δ = 85°41'08.4"
-L- POT Sta 13+35.678 =
-L2RPC- POC Sta 2+96.083
Δ = 106°28'03.5"
-L- POT Sta 13+77.700
BEGIN BRIDGE
BEGIN APPROACH SLAB
-L- POT Sta 13+41.306
-L- PT Sta 13+04.910
-L- PC Sta 12+03.167
GOLDSBORO BYPASS -L-
SP 336 SP 337 SP 338 SP 339 SP 340 SP 341 SP 342 SP 343 SP 344 SP 345 SP 346 SP 347 SP 348 SP 349 SP 350 SP 351 SP 352 SP 353 SP 354 SP 355 SP 356 SP 357 SP 367 SP 368 SP 365 SP 369 SP 366 SP 370 SP 371 SP 372 SP 373 SP 374 SP 375 SP 376 SP 358 SP 359 SP 360 SP 361 SP 362 SP 363 SP 364

FILE: SFILES STIMES
DATE: SDATES
PLOT DRIVER: SPLTDRVLS
PEN TABLE: SPENTBLLS

COMPUTED BY: CMKR DATE: 01-03-08
CHECKED BY: _____ DATE: _____

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	3-M
R /W SHEET NO.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PARCEL INDEX SHEET

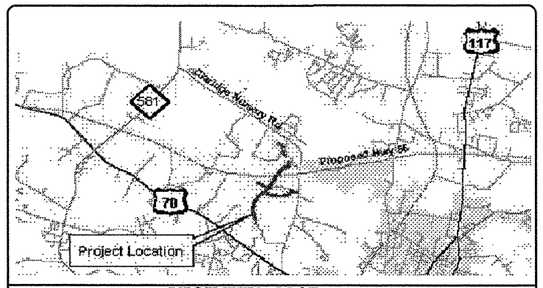
PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4,32	SMITH, LEHIMAN et ux
2	4,33	SMITH, LEHIMAN et ux
3	4,32	SMITH, LEHIMAN et ux
4	5	SULLIVAN, ALICE R.
5	5	HINNANT, WESLEY JONAS
6	5	COLEY, MARIE ANN
7	5	BREWINGTON, EUGENE
9	5	WEEKS, FRANKLIN
10	5,6	JOHNSON, HERBERT L.
11	4,5,33	ADAMS, JIMMY
12	5	SASSER, LESLIE DELEON
13	5	DALY, JOHNNY ALAN
14	5,6	COASTAL TRANSPORT, INC.
15	6	COASTAL TRANSPORT, INC.
16	6	J.J. HAINES & CO.
17	6	YARBOROUGH, HELEN
18	6,7	MITCHELL, DAVID BENTON
19	7	WATERS, RONALD E.
19A	7	SASSER, JESSE PAUL, ET UX
20	7	GINN, WILLIAM STANLEY
21	7,8	CRAWFORD, KEITH H.
22	8	ASKEW, MARGARET JEAN
23	8,9,34	GRANTHAM, R.E. HEIRS
24	9,34,35	MITCHELL, DAVID BENTON JR.
25	9,10,42	BILL, LARRY D. (COMBINED PARCEL NO. 26)
27	9,10,42	NOVAK, ANN MARIE H.
27A	9,10,39	WAL-MART STORES EAST LC
28	10,39	BECTON, GEORGE F.
29	10,11,12	BECTON, GEORGE H. HEIRS (COMBINED PARCEL NO. 30)
31	12	SASSER, DANNY P.
32	12,13	SMITH, CATHERINE S.
33	13,14	BILDAN, LLC
34	14,15	WATKINS, DONALD G.
35	14,15,16	LEWIS, GRAVES T.
36	16	WATKINS, ALVIN
37	16,17	CASEY, J. FRANK
38	17,18	BORDEN FRANKLIN HOWELL, JR.
39	17,18	HOWELL, GEORGE NORWOOD
40	18,19	DAVIS, FLOYD
41	21,22,23	MOZINGO, ISAAC J.
42	23,24	ANDREWS, DOROTHY JEAN
43	24,25,26,28,31	WELLS, EDNA E.
43A	25,26,31	ROBERT E. HODGIN
44	32	TRUSTEES OF TRINITY BAPTIST CHURCH
46	34	SMITH, R.S. HEIRS
47	34,36	LAWRENCE, JOSEPH M.
48	34,35,36,37	ASA MANAGEMENT COMP., LLC
49	35	SMITH, ETHEL E.
50	37	SHERRILL DOUGLAS LANGSTON
51	37	SMITH, BOBBY R.
52	37	ROSEWOOD MOBILE PARK, INC. (COMBINED PARCEL NO. 54)
53	37	POWELL, LEE HARRISON, JR.
55	37,38	HWB OF NORTH CAROLINA, LLC
56	38	SMITH, JACK D.
57	39	BECTON, GEORGE H. HEIRS
58	10	BECTON, JEAN CASEY
59	10,40,41,42	BECTON, JEAN CASEY

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
60	10,11,40	JAMES, P.O. HEIRS
61	40	SASSER, GLENN A.
62	40	SASSER, GLENDA GAIL
63	40,41	SASSER, GLENN A.
64	40,41	BECTON, HARRISON RAY
67	28	LANE, W.D.
68	26,27,28,31	LANE FARMS, INC.
69	28	LANE FARMS, INC.
70	31	GAY, GENEVIEVE H.
71	31	HODGIN, GEORGE E.
72	6	RROBERT STORK
74	6, 7	H. J. HILL LIVING TRUST
75	7	SASSER, JESSE PAUL
76	7	CLEMENT McCASKILL
77	7	JAMES RONNIE PHILLIPS, et al
78	7	WILLIAM BRUCE MINCHEW
19AZ	7	SASSER, JESSE PAUL, ET UX
902	18,19,20,21	STATE OF NORTH CAROLINA
907	8	NCDOT
907A	8	NCDOT
913	8	NCDOT
917	5	NCDOT

FILE: $FILES
DATE: $DATES $TIMES

9/09/99

TIP PROJECT: R-2554A



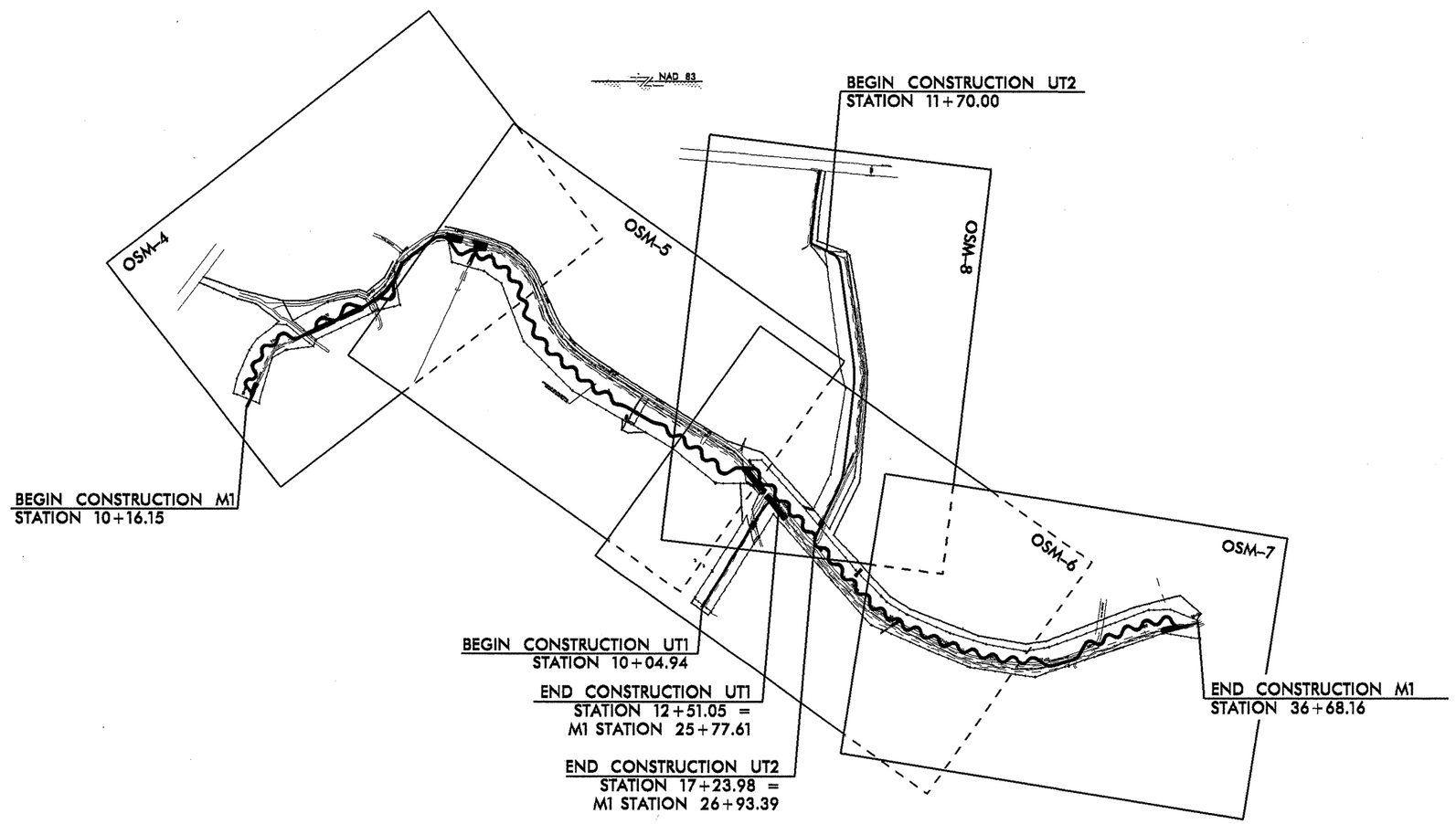
VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

LOCATION: *2 MILES SOUTHEAST OF NC HWY 581 OFF OF CLARIDGE NURSERY ROAD (SR 1326)*

TYPE OF WORK: ON-SITE MITIGATION



METRIC	STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
	N.C.	R-2554A	OSM-1	16

	STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
	34461.1.3	NHF-70(30)	P.E.
	34461.2.4		R/W, UTIL
CONST. REV.	34461.3.4		CONST.
R/W REV.			

PROGRESS DRAWING
FOR REVIEW PURPOSES ONLY
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

10 0 25
PLANS

2.5 0 5
PROFILE (HORIZONTAL)

0.5 0 1
PROFILE (VERTICAL)

PROJECT LENGTH

REACH:	M1	UT1	UT2
EXISTING STREAM LENGTH	= 2206m	236m	763m
PROPOSED DESIGN STREAM LENGTH (EXCLUDES CROSSINGS)	= 2399m	230m	540m

Prepared in the Office of:

Baker

Michael Baker Engineering Inc.
8000 Regency Parkway
Suite 200
Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

PROJECT ENGINEER

HYDRAULICS 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*

REVISIONS

GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR JOB SITE SAFETY.
2. SUBSURFACE PLANS ARE NOT AVAILABLE; THEREFORE, THE CONTRACTOR WILL BE REQUIRED TO LOCATE UTILITIES, INCLUDING EXISTING IRRIGATION LINES AND PROTECT FROM DAMAGE.
3. GRADING SHOULD INCLUDE SMOOTH TRANSITIONS.
4. CONTRACTOR WILL BE REQUIRED TO PUMP BASE STREAM FLOW AROUND AREA WHERE CONSTRUCTION WILL OCCUR IN THE ACTIVE STREAM CHANNEL.

MORPHOLOGICAL MEASUREMENTS TABLE

		M1	UT1 **	UT2 **
1.	reach name			
2.	stream type	E/C5	DA5	DA5
3.	drainage area (sq. mi)	1.80	0.13	0.25
4.	bankfull width (ft)	mean: 13.4 range: --- - ---	mean: NA range: --- - ---	mean: NA range: --- - ---
5.	bankfull mean depth (ft)	mean: 1.1 range: --- - ---	mean: NA range: --- - ---	mean: NA range: --- - ---
6.	width/depth ratio	mean: 12 range: --- - ---	mean: NA range: --- - ---	mean: NA range: --- - ---
7.	bankfull cross-sectional area (sq. ft)	mean: 15 range: --- - ---	mean: NA range: --- - ---	mean: NA range: --- - ---
8.	bankfull mean velocity (ft/sec)	mean: 0.9 range: --- - ---	mean: 1.9 range: --- - ---	mean: 0.4 range: --- - ---
9.	bankfull discharge (cfs)	mean: 11.1 range: --- - ---	mean: 8.1 range: --- - ---	mean: 2.4 range: --- - ---
10.	bankfull max depth (ft)	mean: 1.6 range: --- - ---	mean: NA range: --- - ---	mean: NA range: --- - ---
11.	width of floodprone area (ft)	mean: 62 range: --- - ---	mean: NA range: --- - ---	mean: NA range: --- - ---
12.	entrenchment ratio	mean: 4.6 range: -	mean: NA range: -	mean: NA range: --- - ---
13.	meander length (ft)	mean: 134 range: 107 - 161	mean: NA range: --- - ---	mean: NA range: --- - ---
14.	ratio of meander length to bankfull width	mean: 10 range: 8 - 12	mean: NA range: --- - ---	mean: NA range: --- - ---
15.	radius of curvature (ft)	mean: 38 range: 27 - 38	mean: NA range: --- - ---	mean: NA range: --- - ---
16.	radius of curvature to bankfull width *	mean: 2.8 range: 2.5 - 4.3	mean: NA range: --- - ---	mean: NA range: --- - ---
17.	belt width (ft)	mean: 54 range: 40 - 67	mean: NA range: --- - ---	mean: NA range: --- - ---
18.	meander width ratio	mean: 4 range: 3 - 5	mean: NA range: --- - ---	mean: NA range: --- - ---
19.	sinuosity (stream length/valley length)	mean: 1.25 range: --- - ---	mean: NA range: --- - ---	mean: NA range: --- - ---
20.	valley slope (ft/ft)	mean: 0.0008 range: --- - ---	mean: 0.003 range: --- - ---	mean: 0.003 range: --- - ---
21.	average slope (ft/ft)	mean: 0.0006 range: --- - ---	mean: 0.003 range: --- - ---	mean: 0.003 range: --- - ---
22.	Pool slope (ft/ft)	mean: 0 range: --- - ---	mean: NA range: --- - ---	mean: NA range: --- - ---
23.	Ratio of pool slope to average slope	mean: 0 range: --- - ---	mean: NA range: --- - ---	mean: NA range: --- - ---
24.	maximum pool depth (ft)	mean: 2.5 range: --- - ---	mean: NA range: --- - ---	mean: NA range: --- - ---
25.	ratio of pool depth to average bankfull depth	mean: 2.2 range: -	mean: NA range: --- - ---	mean: NA range: --- - ---
26.	pool width (ft)	mean: 17.4 range: --- - ---	mean: NA range: --- - ---	mean: NA range: --- - ---
27.	ratio of pool width to bankfull width	mean: 1.3 range: -	mean: NA range: --- - ---	mean: NA range: --- - ---
28.	pool to pool spacing (ft)	mean: 67 range: 54 - 80	mean: NA range: --- - ---	mean: NA range: --- - ---
29.	ratio of pool to pool spacing to bankfull width	mean: 5 range: 4 - 6	mean: NA range: --- - ---	mean: NA range: --- - ---
30.	ratio of lowest bank height to bankfull height (or max bankfull depth)	mean: 1.00 range: 1.00 - 1.20	mean: NA range: --- - ---	mean: NA range: --- - ---

NA = not applicable

* RADIUS OF CURVATURE RATIO BASED ON OUTSIDE RADIUS OF MEANDER BENDS.

** DESIGNS FOR UT1 AND UT2 WILL USE THE 2007 USACE AND NCDWQ GUIDANCE FOR COASTAL PLAIN HEADWATER STREAMS.

INDEX OF SHEETS

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	OSM-1A

PROJECT ENGINEER

CONST.REV.

R /W REV.

PROJECT ENGINEER

Baker

Michael Baker Engineering Inc.
8000 Regency Parkway
Suite 200
Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490

PROGRESS DRAWING
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STREAM CONVENTIONAL SYMBOLS

SUPERCEDES SHEET 1B

- LOG VANE
- LOG WEIR
- ROOT WAD
- LOG CROSS VANE
- J-HOOK
- ROCK VANE
- TEMPORARY SILT CHECK
- FOOT BRIDGE
- TEMPORARY STREAM CROSSING
- PERMANENT STREAM CROSSING
- ROCK CROSS VANE
- BOULDER CLUSTER
- SILT FENCE
- SAFETY FENCE
- TRANSPLANTED VEGETATION
- ROCK STEP POOL
- SINGLE WING DEFLECTOR
- DOUBLE WING DEFLECTOR
- SMB — STREAM MITIGATION BUFFER
- FLOODPLAIN INTERCEPTOR

NOTE: ALL ITEMS ABOVE MAY NOT BE USED ON THIS PROJECT

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	OSM-1B

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 23
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing High Quality Wetland Boundary — HQ WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- River Basin Buffer — RBB
- Flow Arrow
- Disappearing Stream
- Spring
- Swamp Marsh
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

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

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Curb Cut for Future Wheel Chair Ramp — CCFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equaility Symbol
- Pavement Removal

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — TV
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	OSM-2

PROJECT ENGINEER

PROJECT ENGINEER

Baker
Michael Baker Engineering Inc.
8000 Regency Parkway
Suite 200
Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490

PROGRESS DRAWING
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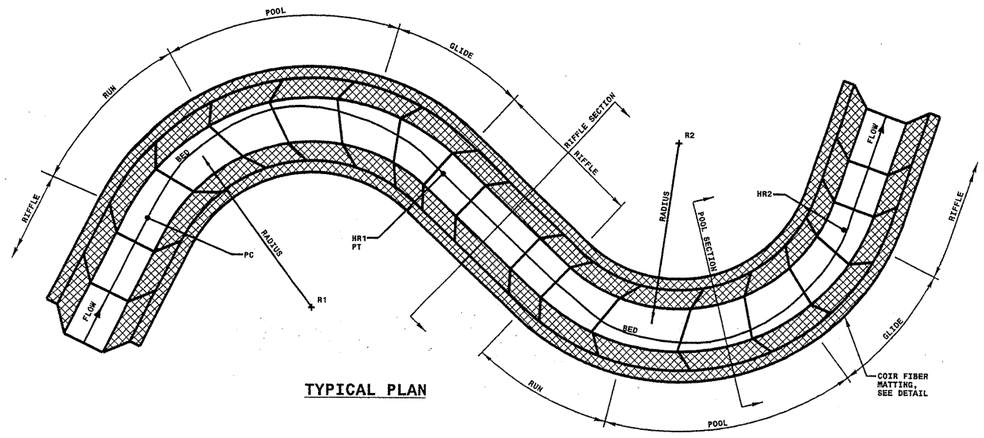
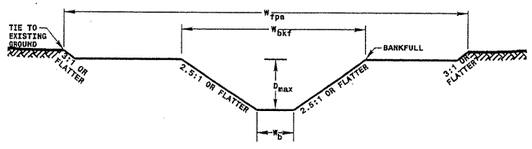
REVISIONS

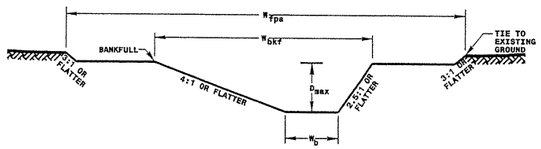
CHANNEL TYPICAL DETAIL
NOT TO SCALE



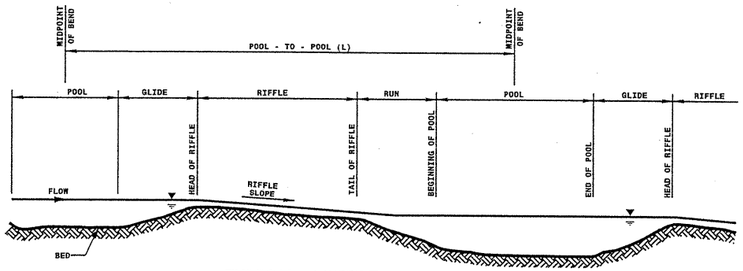
TYPICAL PLAN



TYPICAL RIFFLE WITH BANKFULL BENCH
(REACH M1)



TYPICAL POOL WITH BANKFULL BENCH



TYPICAL PROFILE

W_{bkf} = BANKFULL WIDTH
D_{max} = MAXIMUM DEPTH
W_b = BOTTOM WIDTH
W_{fpa} = FLOOD PRONE AREA WIDTH

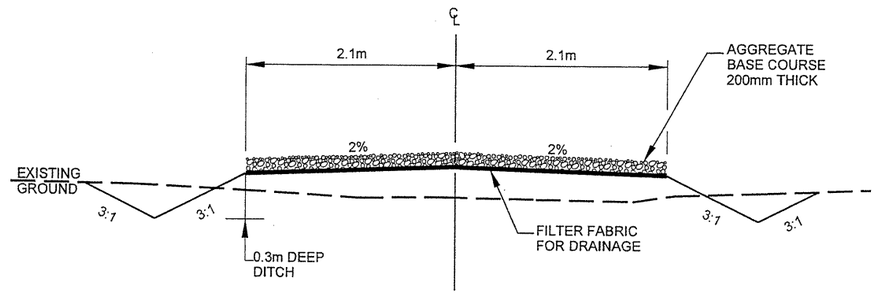
NOTES:
1. THE COORDINATES FOR EACH CENTER OF RADIUS (EX. "R1","R2") ARE INDICATED ON THE PLAN SHEETS.

CROSS-SECTION DIMENSIONS (m)

REACH	RIFFLE				POOL				Width/Depth Ratio
	W_{bkf}	D_{max}	W_b	W_{fpa}	W_{bkf}	D_{max}	W_b	W_{fpa}	
M1, Sta. 10+16-36+85.93	4.08	0.49	1.68	18.90	5.30	0.76	0.73	18.90	12
UT1, Sta. 10+00-12+47.19	*								
UT2, Sta. 10+00-17+42.64	*								

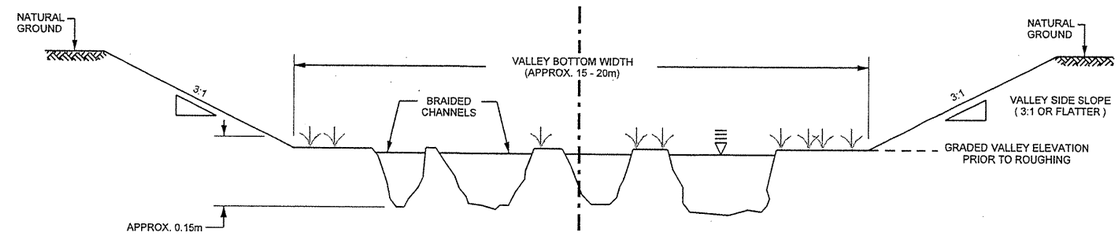
* DESIGNS FOR UT1 AND UT2 DO NOT FOLLOW A TYPICAL TRAPEZOIDAL CHANNEL DESIGN. SEE DETAIL FOR BRAIDED CHANNEL.

RELOCATED FARM PATH



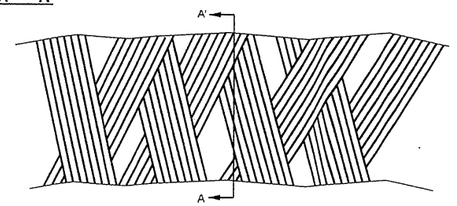
TYPICAL SECTION

BRAIDED CHANNEL DETAIL
NOT TO SCALE
(APPLIES TO UT1 & UT2)

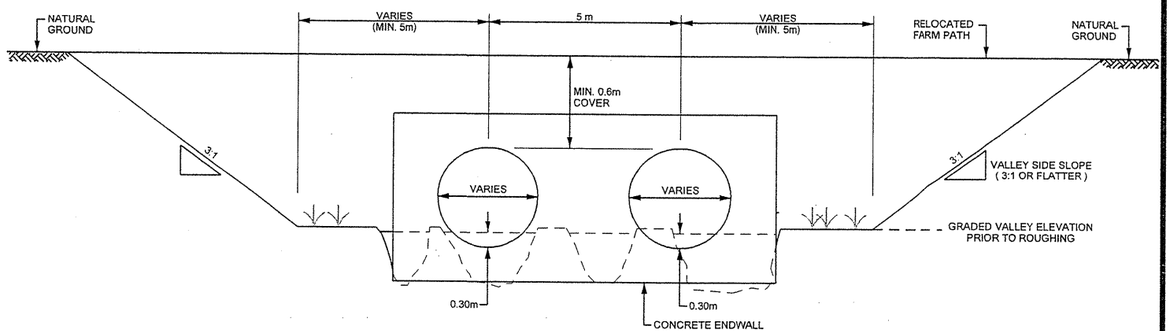


SECTION A - A'

NOTES:
1. REACHES UT1 AND UT2 WILL BE CONSTRUCTED BY FIRST RESTORING VALLEY TOPOGRAPHY AS SHOWN ON THE TYPICAL DIMENSIONS.
2. THE RESTORED VALLEY BOTTOM WILL THEN BE ROUGHENED.
3. BRAIDED CHANNELS WILL BE SHAPED TO FORM SMOOTH TRANSITIONS INTO THE SINGLE THREAD CHANNEL AT THE TIE IN OF M1.
4. UPON COMPLETION OF BRAIDED CHANNEL FEATURES, APPLY MULCH TEMPORARY SEED, AND PERMANENT SEED TO THE CONSTRUCTED VALLEY ACCORDING TO SEDIMENT AND EROSION CONTROL SPECIFICATIONS.



PLAN VIEW OF MICROTOPOGRAPHIC PATTERN



NOTES:
1. TYPICAL SECTION APPLIES TO UT1 AND UT2.
2. CULVERTS ARE TO BE EVENLY SPACED AND PLACED 0.30 METERS BELOW THE BED ELEVATION.
3. MINIMUM OF 0.6 METERS COVER FOR ALL PIPES.

10/26/2011
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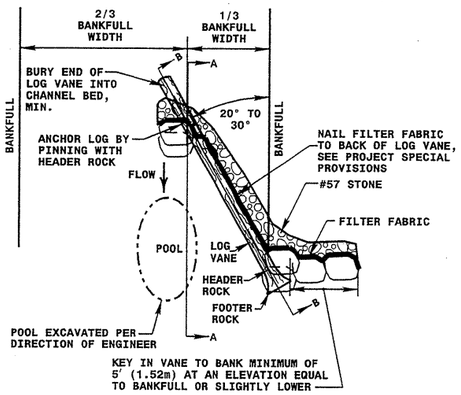
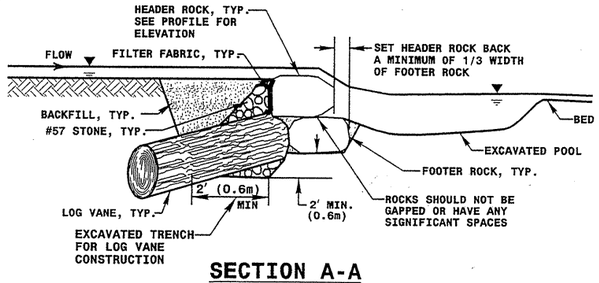
LOG VANE DETAIL

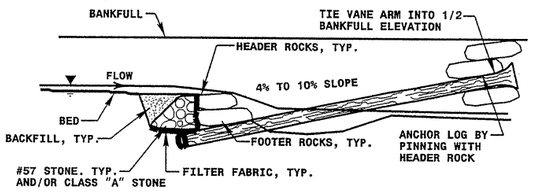
NOT TO SCALE



PLAN VIEW



SECTION A-A



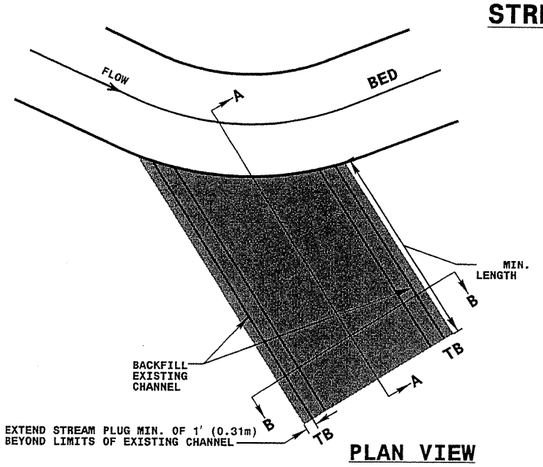
SECTION B-B

BOULDER DIMENSIONS (FT)(M)		
HEIGHT	LENGTH	WIDTH
2' (0.6m)	2' (0.6m)	2' (0.6m)

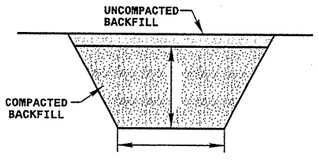
NOTES:
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4. COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5. POOL DEPTH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

STREAM PLUG

NOT TO SCALE

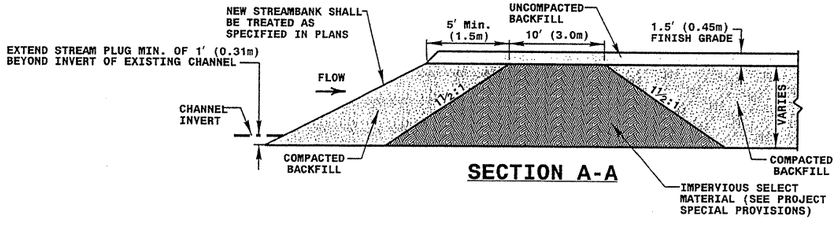


PLAN VIEW

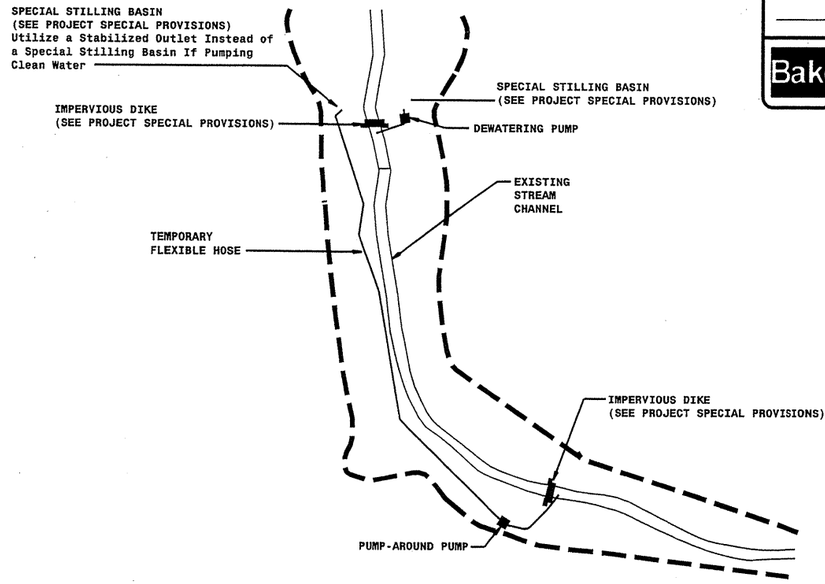


SECTION B-B

NOTES:
1. STREAM PLUG SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2. PLUG SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
3. BOTTOM OF PLUG SHOULD BE A MINIMUM OF 1' (0.31m) BELOW THE INVERT OF THE EXISTING CHANNEL.
4. PLUG SHOULD EXTEND A MINIMUM OF 1' (0.31m) BEYOND THE LIMITS OF THE EXISTING STREAM CHANNEL.
5. INSTALL EROSION CONTROL MATTING AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS IMMEDIATELY AFTER GRADING.
6. COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.



SECTION A-A



NOTES:
1) All excavation shall be performed in only dry or isolated sections of channel.
2) Impervious dikes are to be used to isolate work from stream flow when necessary.
3) All graded areas shall be stabilized within 24 hours.
4) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
5) Pumps and hoses shall be of sufficicient size to dewater the work area.

SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S)..
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. PERFORM STREAM RESTORATION WORK IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. ALL GRADING AND STABILIZATION MUST BE COMPLETED IN ONE DAY WITHIN THE PUMP AROUND AREAS BETWEEN THE IMPERVIOUS DIKES. THE IMPERVIOUS DIKE LOCATIONS AS SHOWN ON THIS SHEET ONLY SHOW THE UPPER AND LOWER EXTENT OF WORK FOR EACH STREAM SEGMENT. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF THE IMPERVIOUS DIKE(S) FOR EACH DAY'S WORK.
8. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	OSM-2A

PROJECT ENGINEER

PROJECT ENGINEER

Baker
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Phone: 919.463.5488
Fax: 919.463.5490

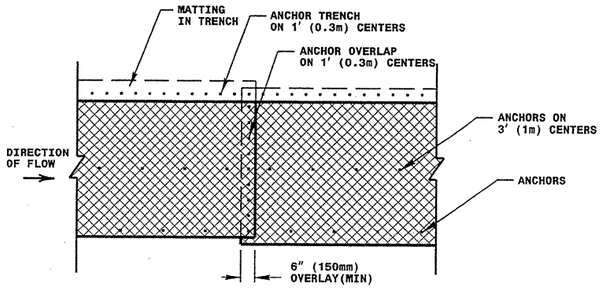
PROGRESS DRAWING
FOR REVIEW PURPOSES ONLY
DO NOT USE FOR CONSTRUCTION

REVISIONS

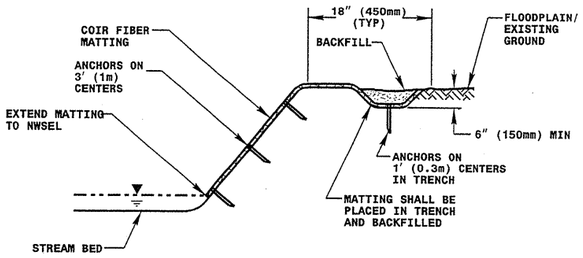
REVISIONS

COIR FIBER MATTING DETAIL

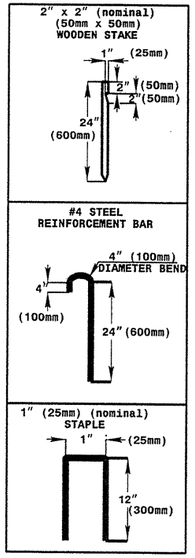
NOT TO SCALE



PLAN VIEW



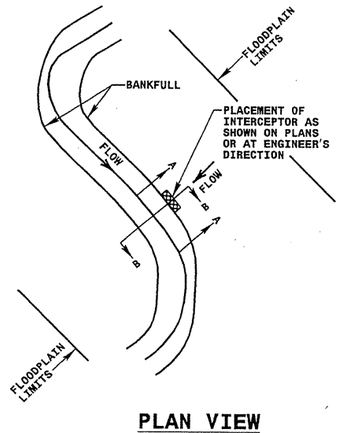
TYPICAL CROSS SECTION



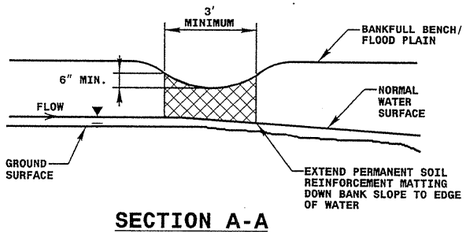
ANCHOR OPTIONS

FLOODPLAIN INTERCEPTOR DETAIL

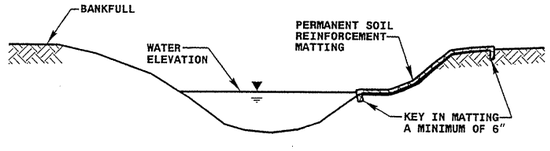
NOT TO SCALE



PLAN VIEW



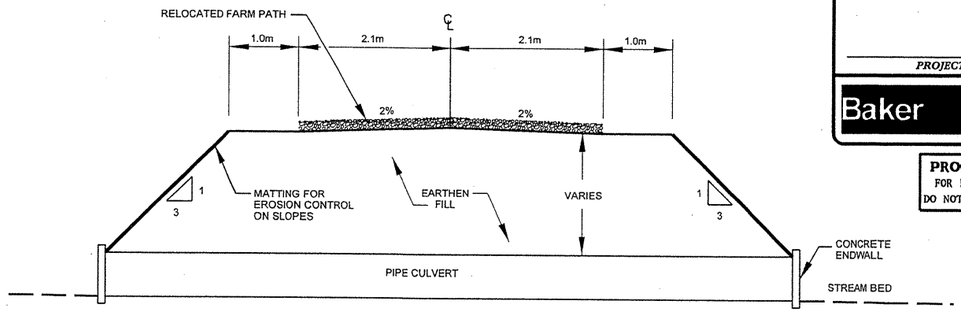
SECTION A-A



SECTION B-B

PERMANENT ROAD CULVERT CROSSING

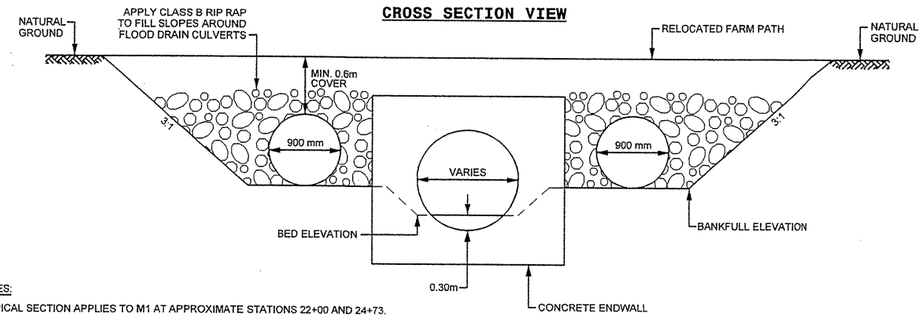
NOT TO SCALE



NOTES:

1. INSTALL PIPE CULVERT IN ACCORDANCE WITH SECTIONS 300 AND 1032.
2. INSTALL MATTING FOR EROSION CONTROL ALONG FILL SLOPES.
3. INSTALL CONCRETE ENDWALLS IN ACCORDANCE WITH SECTION 838.

CROSS SECTION VIEW



NOTES:

1. TYPICAL SECTION APPLIES TO M1 AT APPROXIMATE STATIONS 22+00 AND 24+73.
2. CULVERTS ARE TO BE EVENLY SPACED AND PLACED 0.30 METERS BELOW THE BED ELEVATION.
3. MINIMUM OF 0.6 METERS COVER FOR ALL PIPES.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	OSM-2B

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PROGRESS DRAWING
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REACH M1 CURVE DATA

M1-1
PI STA = 10+25.77 N = 186,661.9581 E = 698,291.9977
DELTA = 65° 12' 22" (LT)
DEGREE = 498° 13' 27"
TANGENT = 7.36
LENGTH = 13.09
RADIUS = 11.50
PC STA = 10+18.41 N = 186,665.2470 E = 698,285.4185
PT STA = 10+31.50 N = 186,666.5515 E = 698,297.7424

M1-2
PI STA = 10+60.69 N = 186,684.7836 E = 698,320.5443
DELTA = 129° 20' 24" (RT)
DEGREE = 698° 43' 44"
TANGENT = 17.32
LENGTH = 18.51
RADIUS = 8.20
PC STA = 10+43.37 N = 186,673.9649 E = 698,307.0140
PT STA = 10+61.88 N = 186,667.4611 E = 698,320.3343

M1-3
PI STA = 10+80.68 N = 186,648.6609 E = 698,320.1063
DELTA = 123° 27' 17" (LT)
DEGREE = 698° 43' 44"
TANGENT = 15.25
LENGTH = 17.67
RADIUS = 8.20
PC STA = 10+65.44 N = 186,663.9063 E = 698,320.2911
PT STA = 10+83.10 N = 186,656.9112 E = 698,332.9278

M1-4
PI STA = 11+01.79 N = 186,667.0204 E = 698,348.6383
DELTA = 100° 15' 24" (RT)
DEGREE = 698° 43' 44"
TANGENT = 9.82
LENGTH = 14.35
RADIUS = 8.20
PC STA = 10+91.97 N = 186,661.7083 E = 698,340.3828
PT STA = 11+06.32 N = 186,657.9510 E = 698,352.3956

M1-5
PI STA = 11+21.47 N = 186,643.9498 E = 698,358.1961
DELTA = 74° 35' 12" (LT)
DEGREE = 698° 43' 44"
TANGENT = 6.25
LENGTH = 10.67
RADIUS = 8.20
PC STA = 11+15.23 N = 186,649.7195 E = 698,355.8058
PT STA = 11+25.90 N = 186,644.7207 E = 698,364.3935

M1-6
PI STA = 11+44.35 N = 186,646.9972 E = 698,382.6962
DELTA = 99° 03' 28" (RT)
DEGREE = 698° 43' 44"
TANGENT = 9.61
LENGTH = 14.18
RADIUS = 8.20
PC STA = 11+34.73 N = 186,645.8109 E = 698,373.1590
PT STA = 11+48.91 N = 186,637.3921 E = 698,382.3662

M1-7
PI STA = 11+66.45 N = 186,619.8645 E = 698,381.7641
DELTA = 76° 59' 12" (LT)
DEGREE = 572° 57' 28"
TANGENT = 7.95
LENGTH = 13.44
RADIUS = 10.00
PC STA = 11+58.50 N = 186,627.8122 E = 698,382.0371
PT STA = 11+71.93 N = 186,617.8087 E = 698,389.4462
CC N = 186,627.4689 E = 698,392.0312

M1-8
PI STA = 11+96.02 N = 186,611.5834 E = 698,412.7102
DELTA = 113° 09' 50" (RT)
DEGREE = 520° 52' 15"
TANGENT = 16.67
LENGTH = 21.73
RADIUS = 11.00
PC STA = 11+79.35 N = 186,615.8929 E = 698,396.6059
PT STA = 12+01.07 N = 186,598.4725 E = 698,402.4133

M1-9
PI STA = 12+16.74 N = 186,586.1536 E = 698,392.7383
DELTA = 64° 04' 21" (LT)
DEGREE = 572° 57' 28"
TANGENT = 6.26
LENGTH = 11.18
RADIUS = 10.00
PC STA = 12+10.48 N = 186,591.0748 E = 698,396.6033
PT STA = 12+21.66 N = 186,580.5259 E = 698,395.4743

M1-10
PI STA = 12+60.64 N = 186,545.4693 E = 698,412.5177
DELTA = 57° 19' 21" (LT)
DEGREE = 716° 11' 50"
TANGENT = 4.37
LENGTH = 8.00
RADIUS = 8.00
PC STA = 12+56.27 N = 186,549.4020 E = 698,410.6057
PT STA = 12+64.27 N = 186,544.9553 E = 698,416.8602

M1-11
PI STA = 12+83.45 N = 186,542.7009 E = 698,435.9075
DELTA = 96° 40' 35" (RT)
DEGREE = 477° 27' 53"
TANGENT = 13.49
LENGTH = 20.25
RADIUS = 12.00
PC STA = 12+69.97 N = 186,544.2861 E = 698,422.5144
PT STA = 12+90.21 N = 186,529.5829 E = 698,432.7760

M1-12
PI STA = 13+17.08 N = 186,503.4504 E = 698,426.5377
DELTA = 84° 31' 14" (LT)
DEGREE = 477° 27' 53"
TANGENT = 10.90
LENGTH = 17.70
RADIUS = 12.00
PC STA = 13+06.18 N = 186,514.0564 E = 698,429.0695
PT STA = 13+23.88 N = 186,499.9174 E = 698,436.8534

M1-13
PI STA = 13+50.24 N = 186,491.3757 E = 698,461.7936
DELTA = 87° 47' 30" (RT)
DEGREE = 477° 27' 53"
TANGENT = 11.55
LENGTH = 18.39
RADIUS = 12.00
PC STA = 13+38.69 N = 186,495.1168 E = 698,450.8703
PT STA = 13+57.08 N = 186,480.3164 E = 698,458.4762
CC N = 186,483.7641 E = 698,446.9821

M1-14
PI STA = 13+79.16 N = 186,459.1661 E = 698,452.1319
DELTA = 50° 03' 45" (LT)
DEGREE = 716° 11' 50"
TANGENT = 3.74
LENGTH = 6.99
RADIUS = 8.00
PC STA = 13+75.43 N = 186,462.7444 E = 698,453.2053
PT STA = 13+82.42 N = 186,456.0461 E = 698,454.1865

M1-15
PI STA = 14+14.46 N = 186,429.2857 E = 698,471.8085
DELTA = 48° 06' 54" (RT)
DEGREE = 716° 11' 50"
TANGENT = 3.57
LENGTH = 6.72
RADIUS = 8.00
PC STA = 14+10.89 N = 186,432.2685 E = 698,469.8443
PT STA = 14+17.60 N = 186,425.8319 E = 698,470.8992

M1-16
PI STA = 14+44.70 N = 186,399.6255 E = 698,463.9999
DELTA = 111° 03' 29" (LT)
DEGREE = 520° 52' 15"
TANGENT = 16.02
LENGTH = 21.32
RADIUS = 11.00
PC STA = 14+28.68 N = 186,415.1201 E = 698,468.0791
PT STA = 14+50.00 N = 186,401.3861 E = 698,479.9253

M1-17
PI STA = 14+68.95 N = 186,403.4675 E = 698,498.7524
DELTA = 31° 42' 57" (RT)
DEGREE = 381° 58' 19"
TANGENT = 4.26
LENGTH = 8.30
RADIUS = 15.00
PC STA = 14+64.68 N = 186,402.9993 E = 698,494.5172
PT STA = 14+72.99 N = 186,401.6393 E = 698,502.6012

M1-18
PI STA = 15+08.01 N = 186,386.6147 E = 698,534.2326
DELTA = 27° 02' 48" (RT)
DEGREE = 520° 52' 15"
TANGENT = 2.65
LENGTH = 5.19
RADIUS = 11.00
PC STA = 15+05.36 N = 186,387.7498 E = 698,531.8428
PT STA = 15+10.55 N = 186,384.5171 E = 698,535.8448

M1-19
PI STA = 16+02.55 N = 186,311.5729 E = 698,591.9101
DELTA = 92° 46' 30" (RT)
DEGREE = 286° 28' 44"
TANGENT = 20.99
LENGTH = 32.38
RADIUS = 20.00
PC STA = 15+81.56 N = 186,328.2174 E = 698,579.1171
PT STA = 16+13.95 N = 186,299.6007 E = 698,574.6658

M1-20
PI STA = 16+47.59 N = 186,280.4121 E = 698,547.0273
DELTA = 84° 52' 47" (LT)
DEGREE = 698° 43' 44"
TANGENT = 7.50
LENGTH = 12.15
RADIUS = 8.20
PC STA = 16+40.09 N = 186,284.6883 E = 698,553.1855
PT STA = 16+52.24 N = 186,273.8958 E = 698,550.7367

M1-21
PI STA = 16+73.17 N = 186,255.7102 E = 698,561.0890
DELTA = 92° 28' 57" (RT)
DEGREE = 698° 43' 44"
TANGENT = 8.56
LENGTH = 13.24
RADIUS = 8.20
PC STA = 16+64.60 N = 186,263.1521 E = 698,556.8527
PT STA = 16+77.84 N = 186,251.8002 E = 698,553.4706

M1-22
PI STA = 16+95.84 N = 186,243.5820 E = 698,537.4581
DELTA = 96° 19' 19" (LT)
DEGREE = 698° 43' 44"
TANGENT = 9.16
LENGTH = 13.79
RADIUS = 8.20
PC STA = 16+86.68 N = 186,247.7639 E = 698,545.6062
PT STA = 17+00.46 N = 186,235.9439 E = 698,542.5118

M1-23
PI STA = 17+18.11 N = 186,221.2293 E = 698,552.2476
DELTA = 112° 36' 12" (RT)
DEGREE = 698° 43' 44"
TANGENT = 12.30
LENGTH = 16.12
RADIUS = 8.20
PC STA = 17+05.81 N = 186,231.4841 E = 698,545.4626
PT STA = 17+21.93 N = 186,218.9069 E = 698,540.1727

M1-24
PI STA = 17+38.46 N = 186,215.7844 E = 698,523.9376
DELTA = 93° 39' 50" (LT)
DEGREE = 636° 37' 11"
TANGENT = 9.59
LENGTH = 14.71
RADIUS = 9.00
PC STA = 17+28.87 N = 186,217.5965 E = 698,533.3597
PT STA = 17+43.58 N = 186,206.4974 E = 698,526.3482

M1-25
PI STA = 17+61.74 N = 186,188.9175 E = 698,530.9113
DELTA = 110° 25' 33" (RT)
DEGREE = 707° 21' 19"
TANGENT = 11.66
LENGTH = 15.61
RADIUS = 8.10
PC STA = 17+50.08 N = 186,200.2035 E = 698,527.9819
PT STA = 17+65.69 N = 186,190.1110 E = 698,519.3126

M1-26
PI STA = 17+81.82 N = 186,191.7616 E = 698,503.2721
DELTA = 87° 00' 47" (LT)
DEGREE = 707° 21' 19"
TANGENT = 7.69
LENGTH = 12.30
RADIUS = 8.10
PC STA = 17+74.13 N = 186,190.9746 E = 698,510.9201
PT STA = 17+86.43 N = 186,184.1650 E = 698,502.0877

M1-27
PI STA = 18+06.21 N = 186,164.6249 E = 698,499.0411
DELTA = 106° 00' 05" (RT)
DEGREE = 707° 21' 19"
TANGENT = 10.75
LENGTH = 14.99
RADIUS = 8.10
PC STA = 17+95.46 N = 186,175.2459 E = 698,500.6971
PT STA = 18+10.44 N = 186,169.1445 E = 698,489.2881

M1-28
PI STA = 18+27.82 N = 186,176.4491 E = 698,473.5252
DELTA = 88° 13' 47" (LT)
DEGREE = 707° 21' 19"
TANGENT = 7.85
LENGTH = 12.47
RADIUS = 8.10
PC STA = 18+19.96 N = 186,173.1470 E = 698,480.6508
PT STA = 18+32.44 N = 186,169.4289 E = 698,470.0046

M1-29
PI STA = 18+49.11 N = 186,154.5198 E = 698,462.5278
DELTA = 87° 41' 01" (RT)
DEGREE = 707° 21' 19"
TANGENT = 7.78
LENGTH = 12.40
RADIUS = 8.10
PC STA = 18+41.33 N = 186,161.4733 E = 698,466.0150
PT STA = 18+53.73 N = 186,157.7230 E = 698,455.4390

M1-30
PI STA = 18+73.26 N = 186,165.7647 E = 698,437.6429
DELTA = 86° 32' 18" (LT)
DEGREE = 698° 43' 44"
TANGENT = 7.72
LENGTH = 12.39
RADIUS = 8.20
PC STA = 18+65.54 N = 186,162.5861 E = 698,444.6771
PT STA = 18+77.93 N = 186,158.9353 E = 698,434.0454

M1-31
PI STA = 18+96.82 N = 186,142.2168 E = 698,425.2387
DELTA = 75° 39' 39" (RT)
DEGREE = 698° 43' 44"
TANGENT = 6.37
LENGTH = 10.83
RADIUS = 8.20
PC STA = 18+90.45 N = 186,147.8505 E = 698,428.2064
PT STA = 19+01.28 N = 186,143.6967 E = 698,419.0456

M1-32
PI STA = 19+22.05 N = 186,148.5224 E = 698,398.8511
DELTA = 93° 05' 13" (LT)
DEGREE = 698° 43' 44"
TANGENT = 8.65
LENGTH = 13.32
RADIUS = 8.20
PC STA = 19+13.39 N = 186,146.5110 E = 698,407.2683
PT STA = 19+26.71 N = 186,140.0092 E = 698,397.2959

M1-33
PI STA = 19+46.40 N = 186,120.6430 E = 698,393.7582
DELTA = 83° 01' 20" (RT)
DEGREE = 636° 37' 11"
TANGENT = 7.97
LENGTH = 13.04
RADIUS = 9.00
PC STA = 19+38.43 N = 186,128.4790 E = 698,395.1896
PT STA = 19+51.48 N = 186,121.1119 E = 698,385.8064

M1-34
PI STA = 19+71.03 N = 186,122.2630 E = 698,366.2845
DELTA = 97° 01' 43" (LT)
DEGREE = 636° 37' 11"
TANGENT = 10.18
LENGTH = 15.24
RADIUS = 9.00
PC STA = 19+60.85 N = 186,121.6640 E = 698,376.4446
PT STA = 19+76.10 N = 186,112.1060 E = 698,366.9331

M1-35
PI STA = 19+93.78 N = 186,094.4580 E = 698,368.0602
DELTA = 90° 25' 43" (RT)
DEGREE = 636° 37' 11"
TANGENT = 9.07
LENGTH = 14.20
RADIUS = 9.00
PC STA = 19+84.71 N = 186,103.5071 E = 698,367.4823
PT STA = 19+98.92 N = 186,093.9478 E = 698,359.0070

M1-36
PI STA = 20+16.84 N = 186,092.9393 E = 698,341.1119
DELTA = 94° 16' 16" (LT)
DEGREE = 636° 37' 11"
TANGENT = 9.70
LENGTH = 14.81
RADIUS = 9.00
PC STA = 20+07.14 N = 186,093.4849 E = 698,350.7938
PT STA = 20+21.95 N = 186,083.3249 E = 698,342.3772

M1-37
PI STA = 20+38.93 N = 186,066.4931 E = 698,344.5921
DELTA = 91° 12' 57" (RT)
DEGREE = 636° 37' 11"
TANGENT = 9.19
LENGTH = 14.33
RADIUS = 9.00
PC STA = 20+29.73 N = 186,075.6076 E = 698,343.3927
PT STA = 20+44.06 N = 186,065.4874 E = 698,335.4543

M1-38
PI STA = 20+62.29 N = 186,063.4926 E = 698,317.3313
DELTA = 87° 19' 26" (LT)
DEGREE = 636° 37' 11"
TANGENT = 8.59
LENGTH = 13.72
RADIUS = 9.00
PC STA = 20+53.71 N = 186,064.4323 E = 698,325.8689
PT STA = 20+67.42 N = 186,054.9204 E = 698,317.8713

M1-39
PI STA = 20+84.86 N = 186,037.5198 E = 698,318.9677
DELTA = 84° 00' 18" (RT)
DEGREE = 636° 37' 11"
TANGENT = 8.10
LENGTH = 13.20
RADIUS = 9.00
PC STA = 20+76.75 N = 186,045.6081 E = 698,318.4581
PT STA = 20+89.95 N = 186,036.1682 E = 698,310.9768

M1-40
PI STA = 21+09.28 N = 186,032.9449 E = 698,291.9195
DELTA = 95° 15' 11" (LT)
DEGREE = 636° 37' 11"
TANGENT = 9.87
LENGTH = 14.96
RADIUS = 9.00
PC STA = 20+99.41 N = 186,034.5901 E = 698,301.6467
PT STA = 21+14.37 N = 186,023.4091 E = 698,294.4484

M1-41
PI STA = 21+32.83 N = 186,005.5687 E = 698,299.1797
DELTA = 88° 26' 33" (RT)
DEGREE = 636° 37' 11"
TANGENT = 8.76
LENGTH = 13.89
RADIUS = 9.00
PC STA = 21+24.07 N = 186,014.0347 E = 698,296.9345
PT STA = 21+37.96 N = 186,003.0942 E = 698,290.7779

M1-42
PI STA = 21+53.70 N = 185,998.6489 E = 698,275.6844
DELTA = 66° 14' 41" (LT)
DEGREE = 636° 37' 11"
TANGENT = 5.87
LENGTH = 10.41
RADIUS = 9.00
PC STA = 21+47.83 N = 186,000.3079 E = 698,281.3172
PT STA = 21+58.23 N = 185,992.8251 E = 698,274.9337

M1-43
PI STA = 21+72.10 N = 185,979.0677 E = 698,273.1605
DELTA = 22° 57' 57" (RT)
DEGREE = 190° 59' 09"
TANGENT = 6.09
LENGTH = 12.02
RADIUS = 30.00
PC STA = 21+66.01 N = 185,985.1120 E = 698,273.9395
PT STA = 21+78.03 N = 185,973.8065 E = 698,270.0848

M1-44
PI STA = 22+35.09 N = 185,924.5548 E = 698,241.2922
DELTA = 20° 05' 06" (LT)
DEGREE = 143° 14' 22"
TANGENT = 7.08
LENGTH = 14.02
RADIUS = 40.00
PC STA = 22+28.00 N = 185,930.6702 E = 698,244.8672
PT STA = 22+42.02 N = 185,917.5837 E = 698,240.0346

M1-45
PI STA = 22+58.08 N = 185,901.7787 E = 698,237.1835
DELTA = 61° 51' 46" (RT)
DEGREE = 636° 37' 11"
TANGENT = 5.39
LENGTH = 9.72
RADIUS = 9.00
PC STA = 22+52.69 N = 185,907.0861 E = 698,238.1409
PT STA = 22+62.41 N = 185,900.1200 E = 698,232.0518

M1-46
PI STA = 22+80.60 N = 185,894.5250 E = 698,214.7410
DELTA = 86° 26' 46" (LT)
DEGREE = 636° 37' 11"
TANGENT = 8.46
LENGTH = 13.58
RADIUS = 9.00
PC STA = 22+72.14 N = 185,897.1263 E = 698,222.7894
PT STA = 22+85.72 N = 185,886.3308 E = 698,216.8384

M1-47
PI STA = 23+02.91 N = 185,869.6622 E = 698,221.0999
DELTA = 92° 53' 00" (RT)
DEGREE = 636° 37' 11"
TANGENT = 9.46
LENGTH = 14.59
RADIUS = 9.00
PC STA = 22+93.44 N = 185,878.8513 E = 698,218.7529
PT STA = 23+08.03 N = 185,867.7994 E = 698,211.8243

M1-48
PI STA = 23+27.40 N = 185,863.9474 E = 698,192.8472
DELTA = 92° 18' 42" (LT)
DEGREE = 636° 37' 11"
TANGENT = 9.37
LENGTH = 14.50
RADIUS = 9.00
PC STA = 23+18.03 N = 185,865.8115 E = 698,202.0305
PT STA = 23+32.53 N = 185,854.8468 E = 698,195.0801

M1-49
PI STA = 23+51.39 N = 185,836.5290 E = 698,199.5745
DELTA = 101° 21' 56" (RT)
DEGREE = 636° 37' 11"
TANGENT = 10.99
LENGTH = 15.92
RADIUS = 9.00
PC STA = 23+40.40 N = 185,847.2016 E = 698,196.9559
PT STA = 23+56.32 N = 185,836.0650 E = 698,188.5952

M1-50
PI STA = 23+74.84 N = 185,835.2830 E = 698,170.0926
DELTA = 97° 11' 38" (LT)
DEGREE = 636° 37' 11"
TANGENT = 10.21
LENGTH = 15.27
RADIUS = 9.00
PC STA = 23+64.63 N = 185,835.7140 E = 698,180.2909
PT STA = 23+79.90 N = 185,825.2190 E = 698,171.7973

M1-51
PI STA = 23+97.67 N = 185,807.6997 E = 698,174.7648
DELTA = 93° 36' 00" (RT)
DEGREE = 636° 37' 11"
TANGENT = 9.58
LENGTH = 14.70
RADIUS = 9.00
PC STA =-23+88.08 N = 185,817.1491 E = 698,173.1642
PT STA = 24+02.79 N = 185,806.6956 E = 698,165.2336

M1-52
PI STA = 24+29.65 N = 185,803.8815 E = 698,138.5224
DELTA = 116° 41' 47" (LT)
DEGREE = 477° 27' 53"
TANGENT = 19.47
LENGTH = 24.44
RADIUS = 12.00
PC STA = 24+10.18 N = 185,805.9210 E = 698,157.8816
PT STA = 24+34.62 N = 185,787.5024 E = 698,149.0419

M1-53
PI STA = 24+52.88 N = 185,772.1364 E = 698,158.9106
DELTA = 37° 06' 12" (RT)
DEGREE = 477° 27' 53"
TANGENT = 4.03
LENGTH = 7.77
RADIUS = 12.00
PC STA = 24+48.85 N = 185,775.5249 E = 698,156.7344
PT STA = 24+56.63 N = 185,768.1210 E = 698,158.6022

M1-54
PI STA = 24+95.44 N = 185,729.4254 E = 698,155.6295
DELTA = 85° 36' 26" (RT)
DEGREE = 572° 57' 28"
TANGENT = 9.26
LENGTH = 14.94
RADIUS = 10.00
PC STA = 24+86.17 N = 185,738.6595 E = 698,156.3389
PT STA = 25+01.12 N = 185,729.4254 E = 698,146.3683

M1-55
PI STA = 25+20.56 N = 185,729.4254 E = 698,126.9251
DELTA = 87° 17' 33" (LT)
DEGREE = 636° 37' 11"
TANGENT = 8.56
LENGTH = 13.71
RADIUS = 9.00
PC STA = 25+11.97 N = 185,729.4254 E = 698,135.5095
PT STA = 25+25.69 N = 185,720.8506 E = 698,126.5196

REVISIONS

10/26/2011
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PROJECT REFERENCE NO.	SHEET NO.
R-2554A	OSM-2C

PROJECT ENGINEER

PROJECT ENGINEER

Baker
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Suite 200
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PROGRESS DRAWING
FOR REVIEW PURPOSES ONLY
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REACH M1 CURVE DATA

M1-56
PI STA = 25+47.95 N = 185,698.6157 E = 698,125.4681
DELTA = 93° 02' 19" (RT)
DEGREE = 636° 37' 11"
TANGENT = 9.49
LENGTH = 14.61
RADIUS = 9.00
PC STA = 25+38.45 N = 185,708.0956 E = 698,125.9164
PT STA = 25+53.07 N = 185,699.5659 E = 698,116.0253

M1-57
PI STA = 25+72.48 N = 185,701.5096 E = 698,096.7102
DELTA = 93° 07' 29" (LT)
DEGREE = 636° 37' 11"
TANGENT = 9.50
LENGTH = 14.63
RADIUS = 9.00
PC STA = 25+62.98 N = 185,700.5579 E = 698,106.1672
PT STA = 25+77.61 N = 185,692.0148 E = 698,096.2755

M1-58
PI STA = 25+96.47 N = 185,673.1737 E = 698,095.4128
DELTA = 92° 38' 28" (RT)
DEGREE = 636° 37' 11"
TANGENT = 9.42
LENGTH = 14.55
RADIUS = 9.00
PC STA = 25+87.04 N = 185,682.5886 E = 698,095.8439
PT STA = 26+01.59 N = 185,674.0382 E = 698,086.0278

M1-59
PI STA = 26+20.40 N = 185,675.7632 E = 698,067.2998
DELTA = 97° 27' 06" (LT)
DEGREE = 636° 37' 11"
TANGENT = 10.25
LENGTH = 15.31
RADIUS = 9.00
PC STA = 26+10.15 N = 185,674.8227 E = 698,077.5104
PT STA = 26+25.45 N = 185,665.5169 E = 698,067.6915

M1-60
PI STA = 26+43.05 N = 185,647.9357 E = 698,068.3635
DELTA = 98° 21' 27" (RT)
DEGREE = 636° 37' 11"
TANGENT = 10.42
LENGTH = 15.45
RADIUS = 9.00
PC STA = 26+32.63 N = 185,658.3468 E = 698,067.9655
PT STA = 26+48.08 N = 185,649.0552 E = 698,058.0050

M1-61
PI STA = 26+65.58 N = 185,650.9354 E = 698,040.6084
DELTA = 89° 02' 02" (LT)
DEGREE = 636° 37' 11"
TANGENT = 8.85
LENGTH = 13.99
RADIUS = 9.00
PC STA = 26+56.73 N = 185,649.9845 E = 698,049.4067
PT STA = 26+70.71 N = 185,642.1544 E = 698,039.5093

M1-62
PI STA = 26+88.26 N = 185,624.7425 E = 698,037.3299
DELTA = 92° 41' 30" (RT)
DEGREE = 636° 37' 11"
TANGENT = 9.43
LENGTH = 14.56
RADIUS = 9.00
PC STA = 26+78.83 N = 185,634.1025 E = 698,038.5015
PT STA = 26+93.39 N = 185,626.3524 E = 698,028.0352

M1-63
PI STA = 27+10.05 N = 185,629.1954 E = 698,011.6205
DELTA = 91° 56' 24" (LT)
DEGREE = 636° 37' 11"
TANGENT = 9.31
LENGTH = 14.44
RADIUS = 9.00
PC STA = 27+00.74 N = 185,627.6086 E = 698,020.7939
PT STA = 27+15.18 N = 185,619.9735 E = 698,010.3431

M1-64
PI STA = 27+34.91 N = 185,600.4318 E = 698,007.6363
DELTA = 87° 08' 00" (RT)
DEGREE = 636° 37' 11"
TANGENT = 8.56
LENGTH = 13.69
RADIUS = 9.00
PC STA = 27+26.35 N = 185,608.9115 E = 698,008.8108
PT STA = 27+40.03 N = 185,601.1809 E = 697,999.1085

M1-65
PI STA = 27+59.74 N = 185,602.9050 E = 697,979.4788
DELTA = 91° 41' 05" (LT)
DEGREE = 636° 37' 11"
TANGENT = 9.27
LENGTH = 14.40
RADIUS = 9.00
PC STA = 27+50.47 N = 185,602.0941 E = 697,988.7118
PT STA = 27+64.87 N = 185,593.6522 E = 697,978.9396

M1-66
PI STA = 27+83.15 N = 185,575.4081 E = 697,977.8764
DELTA = 92° 39' 57" (RT)
DEGREE = 636° 37' 11"
TANGENT = 9.43
LENGTH = 14.56
RADIUS = 9.00
PC STA = 27+73.72 N = 185,584.8210 E = 697,978.4249
PT STA = 27+88.27 N = 185,576.3939 E = 697,968.4993

M1-67
PI STA = 28+06.61 N = 185,578.3108 E = 697,950.2638
DELTA = 99° 20' 47" (LT)
DEGREE = 636° 37' 11"
TANGENT = 10.60
LENGTH = 15.61
RADIUS = 9.00
PC STA = 27+96.01 N = 185,577.2024 E = 697,960.8081
PT STA = 28+11.61 N = 185,567.7265 E = 697,950.8825

M1-68
PI STA = 28+29.03 N = 185,550.3421 E = 697,951.8986
DELTA = 99° 02' 16" (RT)
DEGREE = 636° 37' 11"
TANGENT = 10.54
LENGTH = 15.56
RADIUS = 9.00
PC STA = 28+18.48 N = 185,560.8688 E = 697,951.2833
PT STA = 28+34.04 N = 185,551.3880 E = 697,941.4059

M1-69
PI STA = 28+52.03 N = 185,553.1721 E = 697,923.5082
DELTA = 98° 29' 50" (LT)
DEGREE = 636° 37' 11"
TANGENT = 10.08
LENGTH = 15.16
RADIUS = 9.00
PC STA = 28+41.94 N = 185,552.1720 E = 697,933.5416
PT STA = 28+57.10 N = 185,543.0900 E = 697,923.6498

M1-70
PI STA = 28+74.56 N = 185,525.6326 E = 697,923.8950
DELTA = 92° 38' 12" (RT)
DEGREE = 636° 37' 11"
TANGENT = 9.42
LENGTH = 14.55
RADIUS = 9.00
PC STA = 28+65.14 N = 185,535.0557 E = 697,923.7626
PT STA = 28+79.69 N = 185,525.9339 E = 697,914.4758

M1-71
PI STA = 28+99.22 N = 185,526.5582 E = 697,894.9568
DELTA = 100° 36' 27" (LT)
DEGREE = 636° 37' 11"
TANGENT = 10.84
LENGTH = 15.80
RADIUS = 9.00
PC STA = 28+88.37 N = 185,526.2116 E = 697,905.7933
PT STA = 29+04.18 N = 185,515.8431 E = 697,896.6109

M1-72
PI STA = 29+20.77 N = 185,499.4452 E = 697,899.1423
DELTA = 88° 34' 26" (RT)
DEGREE = 636° 37' 11"
TANGENT = 8.78
LENGTH = 13.91
RADIUS = 9.00
PC STA = 29+11.99 N = 185,508.1212 E = 697,897.8029
PT STA = 29+25.90 N = 185,497.8904 E = 697,890.5023

M1-73
PI STA = 29+43.20 N = 185,494.8267 E = 697,873.4776
DELTA = 95° 39' 42" (LT)
DEGREE = 636° 37' 11"
TANGENT = 9.94
LENGTH = 15.03
RADIUS = 9.00
PC STA = 29+33.27 N = 185,496.5866 E = 697,883.2569
PT STA = 29+48.29 N = 185,485.2688 E = 697,876.1936

M1-74
PI STA = 29+65.20 N = 185,469.0066 E = 697,880.8147
DELTA = 90° 54' 09" (RT)
DEGREE = 636° 37' 11"
TANGENT = 9.14
LENGTH = 14.28
RADIUS = 9.00
PC STA = 29+56.06 N = 185,477.8013 E = 697,878.3156
PT STA = 29+70.33 N = 185,466.6463 E = 697,871.9817

M1-75
PI STA = 29+90.09 N = 185,461.5473 E = 697,852.8994
DELTA = 104° 04' 29" (LT)
DEGREE = 636° 37' 11"
TANGENT = 11.53
LENGTH = 16.35
RADIUS = 9.00
PC STA = 29+78.55 N = 185,464.5251 E = 697,864.0434
PT STA = 29+94.90 N = 185,451.4620 E = 697,858.4979

M1-76
PI STA = 30+12.58 N = 185,436.0053 E = 697,867.0782
DELTA = 102° 29' 29" (RT)
DEGREE = 636° 37' 11"
TANGENT = 11.21
LENGTH = 16.10
RADIUS = 9.00
PC STA = 30+01.37 N = 185,445.8082 E = 697,861.6365
PT STA = 30+17.46 N = 185,432.8126 E = 697,856.3304

M1-77
PI STA = 30+35.03 N = 185,427.8122 E = 697,839.4968
DELTA = 97° 16' 00" (LT)
DEGREE = 636° 37' 11"
TANGENT = 10.22
LENGTH = 15.28
RADIUS = 9.00
PC STA = 30+24.81 N = 185,430.7225 E = 697,849.2941
PT STA = 30+40.08 N = 185,418.4617 E = 697,843.6229

M1-78
PI STA = 30+57.93 N = 185,402.1361 E = 697,850.8270
DELTA = 97° 24' 24" (RT)
DEGREE = 636° 37' 11"
TANGENT = 10.25
LENGTH = 15.30
RADIUS = 9.00
PC STA = 30+47.68 N = 185,411.5097 E = 697,846.6906
PT STA = 30+62.98 N = 185,399.2426 E = 697,840.9983

M1-79
PI STA = 30+81.79 N = 185,393.9305 E = 697,822.9537
DELTA = 104° 41' 16" (LT)
DEGREE = 636° 37' 11"
TANGENT = 11.66
LENGTH = 16.44
RADIUS = 9.00
PC STA = 30+70.13 N = 185,397.2242 E = 697,834.1420
PT STA = 30+86.57 N = 185,383.9429 E = 697,828.9766

M1-80
PI STA = 31+04.61 N = 185,368.4942 E = 697,838.2927
DELTA = 96° 41' 45" (RT)
DEGREE = 636° 37' 11"
TANGENT = 10.12
LENGTH = 15.19
RADIUS = 9.00
PC STA = 30+94.50 N = 185,377.1590 E = 697,833.0675
PT STA = 31+09.69 N = 185,364.3149 E = 697,829.0778

M1-81
PI STA = 31+27.77 N = 185,356.8472 E = 697,812.6121
DELTA = 96° 14' 07" (LT)
DEGREE = 636° 37' 11"
TANGENT = 10.04
LENGTH = 15.12
RADIUS = 9.00
PC STA = 31+17.73 N = 185,360.9928 E = 697,821.7528
PT STA = 31+32.85 N = 185,348.2108 E = 697,817.7260

M1-82
PI STA = 31+49.82 N = 185,333.6087 E = 697,826.3723
DELTA = 92° 25' 45" (RT)
DEGREE = 636° 37' 11"
TANGENT = 9.39
LENGTH = 14.52
RADIUS = 9.00
PC STA = 31+40.43 N = 185,341.6884 E = 697,821.5881
PT STA = 31+54.94 N = 185,329.1712 E = 697,818.0972

M1-83
PI STA = 31+74.54 N = 185,319.9124 E = 697,800.8310
DELTA = 98° 54' 16" (LT)
DEGREE = 636° 37' 11"
TANGENT = 10.52
LENGTH = 15.54
RADIUS = 9.00
PC STA = 31+64.02 N = 185,324.8839 E = 697,810.1021
PT STA = 31+79.55 N = 185,311.5226 E = 697,807.1776

M1-84
PI STA = 31+97.59 N = 185,297.1351 E = 697,818.0614
DELTA = 100° 14' 10" (RT)
DEGREE = 636° 37' 11"
TANGENT = 10.77
LENGTH = 15.75
RADIUS = 9.00
PC STA = 31+86.82 N = 185,305.7250 E = 697,811.5634
PT STA = 32+02.57 N = 185,292.2670 E = 697,808.4535

M1-85
PI STA = 32+21.83 N = 185,283.5594 E = 697,791.2676
DELTA = 109° 14' 17" (LT)
DEGREE = 636° 37' 11"
TANGENT = 12.67
LENGTH = 17.16
RADIUS = 9.00
PC STA = 32+09.16 N = 185,289.2873 E = 697,802.5725
PT STA = 32+26.32 N = 185,274.7731 E = 697,800.4005

M1-86
PI STA = 32+45.17 N = 185,261.7011 E = 697,813.9883
DELTA = 103° 31' 41" (RT)
DEGREE = 636° 37' 11"
TANGENT = 11.42
LENGTH = 16.28
RADIUS = 9.00
PC STA = 32+33.75 N = 185,269.6201 E = 697,805.7569
PT STA = 32+50.01 N = 185,255.5505 E = 697,804.3635

M1-87
PI STA = 32+67.72 N = 185,246.0160 E = 697,789.4435
DELTA = 104° 34' 20" (LT)
DEGREE = 636° 37' 11"
TANGENT = 11.64
LENGTH = 16.43
RADIUS = 9.00
PC STA = 32+56.08 N = 185,252.2833 E = 697,799.2508
PT STA = 32+72.51 N = 185,238.1010 E = 697,797.9767

M1-88
PI STA = 32+88.94 N = 185,226.9238 E = 697,810.0270
DELTA = 81° 37' 54" (RT)
DEGREE = 572° 57' 28"
TANGENT = 8.64
LENGTH = 14.25
RADIUS = 10.00
PC STA = 32+80.31 N = 185,232.7971 E = 697,803.6949
PT STA = 32+94.55 N = 185,219.8044 E = 697,805.1377

M1-89
PI STA = 33+22.38 N = 185,196.8675 E = 697,789.3859
DELTA = 52° 03' 18" (LT)
DEGREE = 381° 58' 19"
TANGENT = 7.32
LENGTH = 13.63
RADIUS = 15.00
PC STA = 33+15.05 N = 185,202.9057 E = 697,793.5326
PT STA = 33+28.68 N = 185,189.8845 E = 697,791.5978

M1-90
PI STA = 33+76.53 N = 185,144.2722 E = 697,806.0457
DELTA = 42° 58' 03" (LT)
DEGREE = 358° 05' 55"
TANGENT = 6.30
LENGTH = 12.00
RADIUS = 16.00
PC STA = 33+70.23 N = 185,150.2755 E = 697,804.1442
PT STA = 33+82.23 N = 185,141.1754 E = 697,811.5290

M1-91
PI STA = 34+17.14 N = 185,124.0089 E = 697,841.9243
DELTA = 90° 38' 12" (RT)
DEGREE = 572° 57' 28"
TANGENT = 10.11
LENGTH = 15.82
RADIUS = 10.00
PC STA = 34+07.03 N = 185,128.9815 E = 697,833.1197
PT STA = 34+22.84 N = 185,115.2601 E = 697,836.8542

M1-92
PI STA = 34+40.94 N = 185,099.6005 E = 697,827.7791
DELTA = 100° 57' 55" (LT)
DEGREE = 636° 37' 11"
TANGENT = 10.91
LENGTH = 15.86
RADIUS = 9.00
PC STA = 34+30.03 N = 185,109.0410 E = 697,833.2501
PT STA = 34+45.89 N = 185,096.0252 E = 697,838.0679

M1-93
PI STA = 34+62.43 N = 185,090.6045 E = 697,853.7173
DELTA = 96° 10' 21" (RT)
DEGREE = 636° 37' 11"
TANGENT = 10.03
LENGTH = 15.11
RADIUS = 9.00
PC STA = 34+52.41 N = 185,093.8897 E = 697,844.2450
PT STA = 34+67.52 N = 185,081.5404 E = 697,849.4327

M1-94
PI STA = 34+84.85 N = 185,065.8666 E = 697,842.0236
DELTA = 94° 57' 45" (LT)
DEGREE = 636° 37' 11"
TANGENT = 9.82
LENGTH = 14.92
RADIUS = 9.00
PC STA = 34+75.04 N = 185,074.7405 E = 697,846.2183
PT STA = 34+89.95 N = 185,062.4553 E = 697,851.2271

M1-95
PI STA = 35+09.95 N = 185,055.5066 E = 697,869.9737
DELTA = 99° 53' 56" (RT)
DEGREE = 636° 37' 11"
TANGENT = 10.71
LENGTH = 15.69
RADIUS = 9.00
PC STA = 34+99.24 N = 185,059.2277 E = 697,859.9346
PT STA = 35+14.93 N = 185,046.2566 E = 697,864.5822

M1-96
PI STA = 35+32.93 N = 185,030.7077 E = 697,855.5192
DELTA = 95° 52' 40" (LT)
DEGREE = 636° 37' 11"
TANGENT = 9.97
LENGTH = 15.06
RADIUS = 9.00
PC STA = 35+22.96 N = 185,039.3248 E = 697,860.5418
PT STA = 35+38.02 N = 185,026.5939 E = 697,864.6054

M1-97
PI STA = 35+56.64 N = 185,018.9117 E = 697,881.5731
DELTA = 103° 10' 31" (RT)
DEGREE = 636° 37' 11"
TANGENT = 11.35
LENGTH = 16.21
RADIUS = 9.00
PC STA = 35+45.29 N = 185,023.5930 E = 697,871.2334
PT STA = 35+61.50 N = 185,009.9111 E = 697,874.6583

M1-98
PI STA = 35+78.20 N = 184,996.6654 E = 697,864.4820
DELTA = 95° 31' 12" (LT)
DEGREE = 636° 37' 11"
TANGENT = 9.91
LENGTH = 15.00
RADIUS = 9.00
PC STA = 35+68.29 N = 185,004.5253 E = 697,870.5205
PT STA = 35+83.29 N = 184,991.4109 E = 697,872.8863

M1-99
PI STA = 36+06.90 N = 184,978.8964 E = 697,892.9030
DELTA = 121° 33' 25" (RT)
DEGREE = 636° 37' 11"
TANGENT = 16.09
LENGTH = 19.09
RADIUS = 9.00
PC STA = 35+90.81 N = 184,987.4258 E = 697,879.2604
PT STA = 36+09.91 N = 184,971.7351 E = 697,878.4951

M1-100
PI STA = 36+28.71 N = 184,963.3675 E = 697,861.6601
DELTA = 77° 09' 00" (LT)
DEGREE = 381° 58' 19"
TANGENT = 11.96
LENGTH = 20.20
RADIUS = 15.00
PC STA = 36+16.74 N = 184,968.6924 E = 697,872.3734
PT STA = 36+36.94 N = 184,951.7382 E = 697,864.4690

REACH UT1 CURVE DATA

UT1-1
PI STA = 12+32.24 N = 185,713.0530 E = 698,097.2388
DELTA = 60° 51' 35" (RT)
DEGREE = 286° 28' 44"
TANGENT = 11.75
LENGTH = 21.24
RADIUS = 20.00
PC STA = 12+20.49 N = 185,719.2370 E = 698,087.2502
PT STA = 12+41.73 N = 185,701.3173 E = 698,096.7014

REACH UT2 CURVE DATA

UT2-1
PI STA = 11+94.60 N = 185,582.0972 E = 698,546.4462
DELTA = 58° 03' 53" (RT)
DEGREE = 190° 59' 09"
TANGENT = 16.65
LENGTH = 30.40
RADIUS = 30.00
PC STA = 11+77.95 N = 185,597.2745 E = 698,553.2961
PT STA = 12+08.35 N = 185,579.8823 E = 698,529.9427

UT2-2
PI STA = 14+12.23 N = 185,552.7617 E = 698,327.8718
DELTA = 14° 40' 21" (RT)
DEGREE = 38° 11' 50"
TANGENT = 19.31
LENGTH = 38.41
RADIUS = 150.00
PC STA = 13+92.92 N = 185,555.3306 E = 698,347.0120
PT STA = 14+31.33 N = 185,555.1247 E = 698,308.7051

UT2-3
PI STA = 16+03.14 N = 185,576.1464 E = 698,138.1922
DELTA = 17° 11' 45" (RT)
DEGREE = 57° 17' 45"
TANGENT = 15.12
LENGTH = 30.01
RADIUS = 100.00
PC STA = 15+88.02 N = 185,574.2964 E = 698,153.1986
PT STA = 16+18.03 N = 185,582.3503 E = 698,124.4037

UT2-4
PI STA = 15+85.61 N = 185,568.5781 E = 698,155.0135
DELTA = 19° 11' 16" (RT)
DEGREE = 57° 17' 45"
TANGENT = 16.90
LENGTH = 33.49
RADIUS = 100.00
PC STA = 15+68.71 N = 185,567.0942 E = 698,171.8511
PT STA = 16+02.20 N = 185,575.5135 E = 698,139.5990

REVISIONS

10/25/2011
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PROJECT REFERENCE NO. R-2554A | SHEET NO. OSM-2D

PROJECT ENGINEER

PROJECT ENGINEER

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PROGRESS DRAWING
FOR REVIEW PURPOSES ONLY
DO NOT USE FOR CONSTRUCTION

REVISIONS

CONSTRUCTION SEQUENCE

The Contractor is responsible for following the sequence of construction in accordance with the plans and provisions, as directed by the Engineer. Construction shall proceed in the following manner unless otherwise directed by the Engineer.

The length of stream that is isolated as a daily work area is left to Contractor's discretion in accordance with the following provisions:

1. All project operations will comply with the provided Sediment and Erosion Control Plan.
2. The project consists of three stream reaches (Reaches M1, UT1, and UT2). Once work begins on a stream reach, the Contractor must complete that site before moving work crews and equipment to a different stream reach.
3. Before water is turned into the new channel, each reach of stream must be a completed work product, i.e. all bank and channel modifications, including excavation, grading, fill, seeding and mulching and matting, as directed by the engineer.

The following general provisions will apply to each stream reach:

1. Layout location of the new stream channel, construction easement limits, and set grade stakes. The Engineer must inspect and approve all layout work before construction may begin.
2. Mobilize equipment and materials to the site.
3. Set up staging areas, construction entrances, and safety fences.
4. Open construction area shall be minimized - the Contractor shall not begin more work than can be completed in a day.
5. The Contractor shall work in the dry. Pump-around operations will be required.
6. Apply mulch, temporary, and permanent seeding as work areas are completed and approved by the Engineer.
7. Repair construction entrances and demobilize equipment from the site.

The following provisions are provided for each stream site:

Reach M1

1. Contractor shall begin by excavating bench limits as indicated on the plans.
2. Install pump-around operations as required to construct new channel and in-stream structures in the dry.
3. Beginning at the upstream end of the reach, begin installing structures and stabilizing banks as indicated on the plans.
4. Contractor shall install the culvert crossings as specified on the plans at approximate stations 22+00 and 24+73.
5. Remove pump-around operations and ensure compliance with the sediment and erosion control plan prior to leaving the site.

Reach UT1

1. Contractor shall begin by excavating grading limits as indicated on the plans.
2. Reconstruct valley topography as indicated on the plans.
3. Contractor shall install the culvert crossing as specified on the plans at approximate station 11+76.
4. Remove equipment and ensure compliance with the sediment and erosion control plan prior to leaving the site.

Reach UT2

1. Contractor shall begin by excavating grading limits as indicated on the plans.
2. Reconstruct valley topography as indicated on the plans.
3. Contractor shall install the culvert crossings as specified on the plans at approximate station 16+95.
4. Remove equipment and ensure compliance with the sediment and erosion control plan prior to leaving the site.

PROJECT REFERENCE NO.	SHEET NO.
R-2554	OSM-3

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PROGRESS DRAWING
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SUMMARY OF QUANTITIES

DESC	SECT	QUANTITY	UNIT	ITEM DESCRIPTION
0420000000-M	310	20	M	1650 mm RC Pipe Culvert - Class III
0396000000-M	310	30	M	1050 mm RC Pipe Culvert - Class III
0390000000-M	310	100	M	900 mm RC Pipe Culvert - Class III
1121000000-M	520	1550	MTON	Aggregate Base Course
0000100000-N	800	1	LS	Mobillization/Demobilization
2209000000-M	838	13	M3	Endwalls -1650mm Single RCP
2209000000-M	838	5.0	M3	Endwalls - 1050mm Double RCP
2209000000-M	838	3.5	M3	Endwalls - 900mm Double RCP
3656000000-M	876	6000	M2	Filter Fabric for Drainage
3642000000-M	876	10	MTON	Plain Rip Rap, Class A
3649000000-M	876	20	MTON	Plain Rip Rap, Class B
6133000000-N	SP	1	LS	Construction Surveying for Mitigation
6133000000-N	SP	1	LS	Grading for Mitigation
1077000000-M	SP	14	MTON	No. 57 Stone
6133000000-N	SP	1	LS	Diversion Pumping for Mitigation
3651000000-M	SP	90	MTON	Boulders
6133000000-N	SP	29	EACH	Log Vane
6133000000-N	SP	11500	M2	Coir Fiber Matting
0995000000-M	340	80	M	Pipe Removal
6036000000-M	1631		M2	Matting for Erosioin Control
6038000000-M	SP		M2	Permanent Soil Reinforcement Matting
0314000000-M	SP		MTON	Impervious Select Material

EARTHWORK SUMMARY FOR MITIGATION

IN CUBIC METERS

LINE	STATION TO STATION		MITIGATION EXCAVATION		MITIGATION EMBANK + %	MITIGATION BORROW	MITIGATION TOTAL WASTE
			TOTAL UNCLASS.	UNDERCUT			
REACH M1	10+16.15	36+68.16	117,229		93,731	0	23,498
REACH UT1	10+04.94	12+51.05	4,156		10	0	4,146
REACH UT2	11+70.00	17+23.98	10,502		1,704	0	8,798
	TOTAL		131,887		95,445	0	36,442
	Waste in lieu of borrow						
	GRAND TOTAL		131,887		95,445	0	36,442
	SAY		132,000		95,450	0	36,450

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R2554-10" (PID:AI6451) WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 185822.83(m) EASTING: 698741.63(m)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99987872
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R2554-10" TO -L- STATION (supplied by roadway) IS

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

GRAPHIC SCALE
25 12.5 0 25 50
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	OSM-4

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PROGRESS DRAWING
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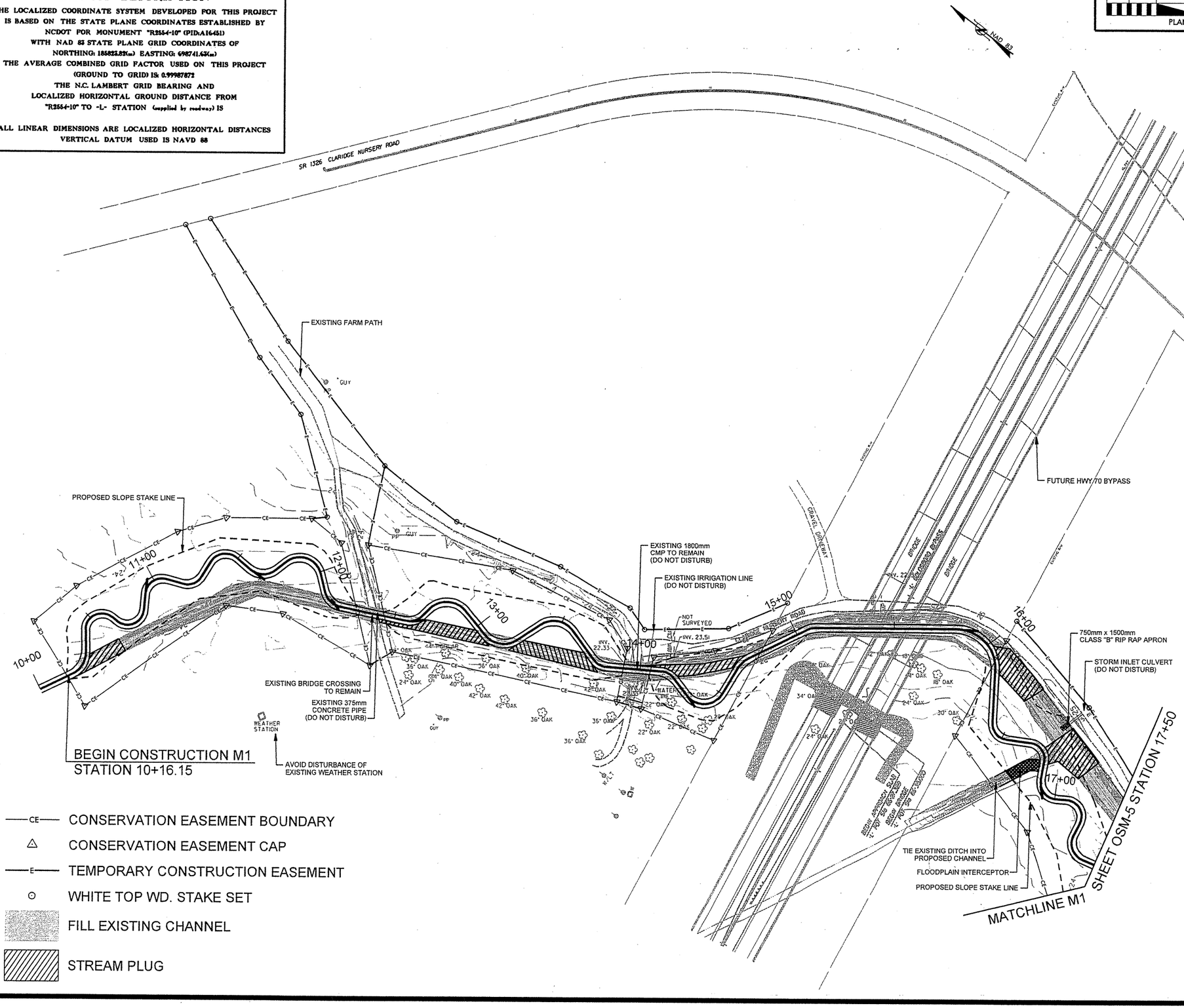
REVISIONS



CE CONSERVATION EASEMENT BOUNDARY
CONSERVATION EASEMENT CAP
E TEMPORARY CONSTRUCTION EASEMENT
WHITE TOP WD. STAKE SET
FILL EXISTING CHANNEL
STREAM PLUG

NOTES:
1. LOG VANE LOCATIONS MAY BE ALTERED BY ENGINEER
2. CHANNEL PLUG LOCATIONS ARE APPROXIMATE AND MAY BE ALTERED BY ENGINEER.

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GRAPHIC SCALE
25 12.5 0 25 50
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	OSM-5

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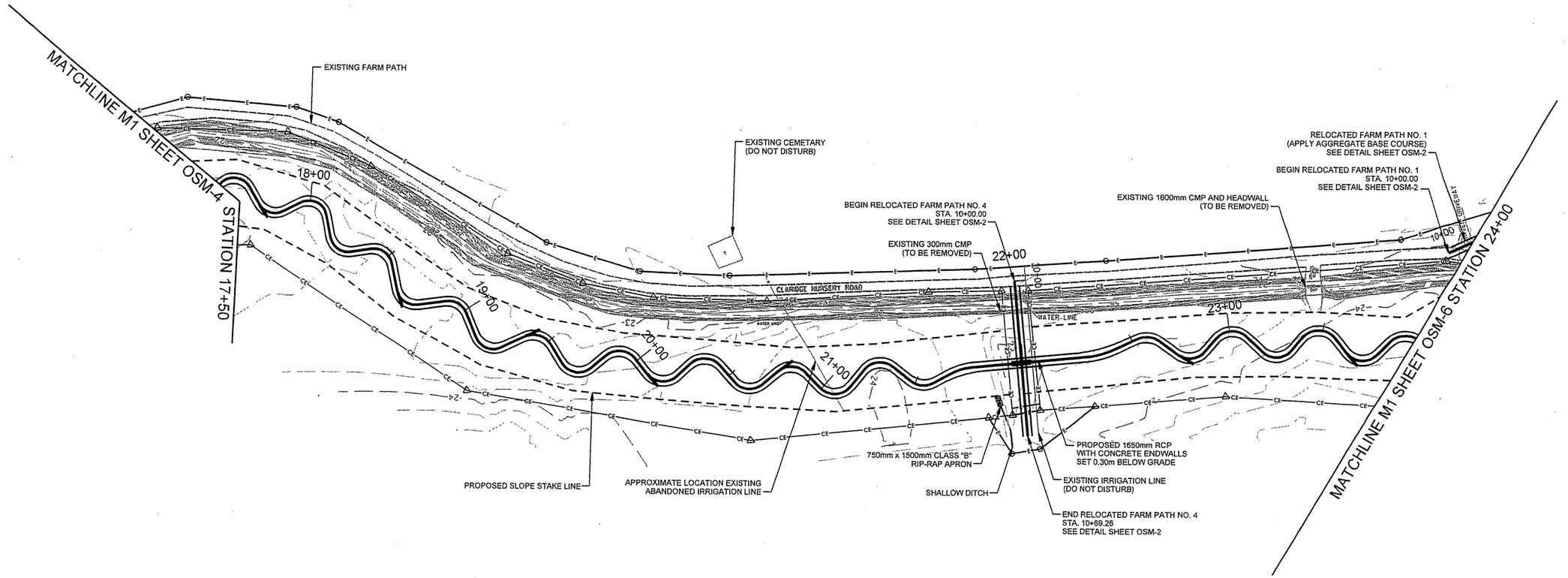
NAD 83



—CE— CONSERVATION EASEMENT BOUNDARY

△ CONSERVATION EASEMENT CAP

—E— TEMPORARY CONSTRUCTION EASEMENT

⊙ WHITE TOP WD. STAKE SET

FILL EXISTING CHANNEL

STREAM PLUG

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GRAPHIC SCALE
25 12.5 0 25 50
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	OSM-6

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PROGRESS DRAWING
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REVISIONS

NAD 83

MATCHLINE UT2 SHEET OSM-8 STATION 15+50

APPROXIMATE LOCATION EXISTING WATER LINE (DO NOT DISTURB)

REMOVE EXISTING FARM PATH

RELOCATED FARM PATH NO. 2 SEE DETAIL SHEET OSM-2

BEGIN RELOCATED FARM PATH NO. 3 STA. 10+00.00 = RELOCATED FARM PATH NO. 1 STA. 10+17.45 SEE DETAIL SHEET OSM-2

EXISTING 300mm CMP (REMOVE)

RELOCATED FARM PATH NO. 1 (APPLY AGGREGATE BASE COURSE) SEE DETAIL SHEET OSM-2

PROPOSED (2) 1050mm RCP WITH CONCRETE ENDWALLS SET 0.30m BELOW GRADE

END CONSTRUCTION UT2
STATION 17+23.98 =
M1 STATION 26+93.39

750mm BLACK PLASTIC PIPE (REMOVE)

END RELOCATED FARM PATH NO. 2 STA. 11+83.94 = RELOCATED FARM PATH NO. 1 STA. 12+54.62 SEE DETAIL SHEET OSM-2

PROPOSED 300mm RCP w/ 600mm x 1200mm CLASS "B" RIP RAP APRON

MATCHLINE M1 SHEET OSM-5 STATION 24+00

PROPOSED 1650mm RCP WITH CONCRETE ENDWALLS SET 0.30m BELOW GRADE

RELOCATED FARM PATH NO. 3 (APPLY AGGREGATE BASE COURSE) SEE DETAIL SHEET OSM-2

EXISTING 375mm CMP (REMOVE)

EXISTING 1800mm CMP (REMOVE)

END CONSTRUCTION UT1
STATION 12+51.05 =
M1 STATION 25+77.61

END RELOCATED FARM PATH NO. 3 STA. 11+64.15 SEE DETAIL SHEET OSM-2

EXISTING PILONS (REMOVE)

REMOVE EXISTING 600mm TERRACOTTA PIPE AND INSTALL (2) 900mm RCP WITH CONCRETE ENDWALLS SET 0.30m BELOW GRADE

APPROXIMATE LOCATION EXISTING IRRIGATION LINE (DO NOT DISTURB)

PROPOSED SLOPE STAKE LINE

BEGIN CONSTRUCTION UT1
STATION 10+04.94

PROPOSED SLOPE STAKE LINE

300mm CMP (REMOVE)

REMOVE EXISTING FARM PATH AND RELOCATE

FLOODPLAIN INTERCEPTOR

MATCHLINE M1 SHEET OSM-7 STATION 31+00

CE CONSERVATION EASEMENT BOUNDARY

CONSERVATION EASEMENT CAP

E TEMPORARY CONSTRUCTION EASEMENT

WHITE TOP WD. STAKE SET

FILL EXISTING CHANNEL

STREAM PLUG

10/16/2011
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GRAPHIC SCALE
25 12.5 0 25 50
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	OSM-7

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PROGRESS DRAWING
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REVISIONS

NAD 83

MATCHLINE M1 SHEET OSM-6 STATION 31+00

END RELOCATED FARM PATH NO. 1
STA. 20+27.20
SEE DETAIL SHEET OSM-2

EXISTING POWER POLES
(DO NOT DISTURB)

END CONSTRUCTION M1
STATION 36+68.16

RELOCATED FARM PATH NO. 1
SEE DETAIL SHEET OSM-2

EXISTING POWER POLES
(DO NOT DISTURB)

GRAVEL DRIVEWAY

PROPOSED SLOPE STAKE LINE

REMOVE EXISTING FARM
PATH AND RELOCATE

CE CONSERVATION EASEMENT BOUNDARY
CONSERVATION EASEMENT CAP
E TEMPORARY CONSTRUCTION EASEMENT
WHITE TOP WD. STAKE SET
FILL EXISTING CHANNEL
STREAM PLUG

10/26/2011
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GRAPHIC SCALE
25 12.5 0 25 50
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	OSM-8

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PROGRESS DRAWING
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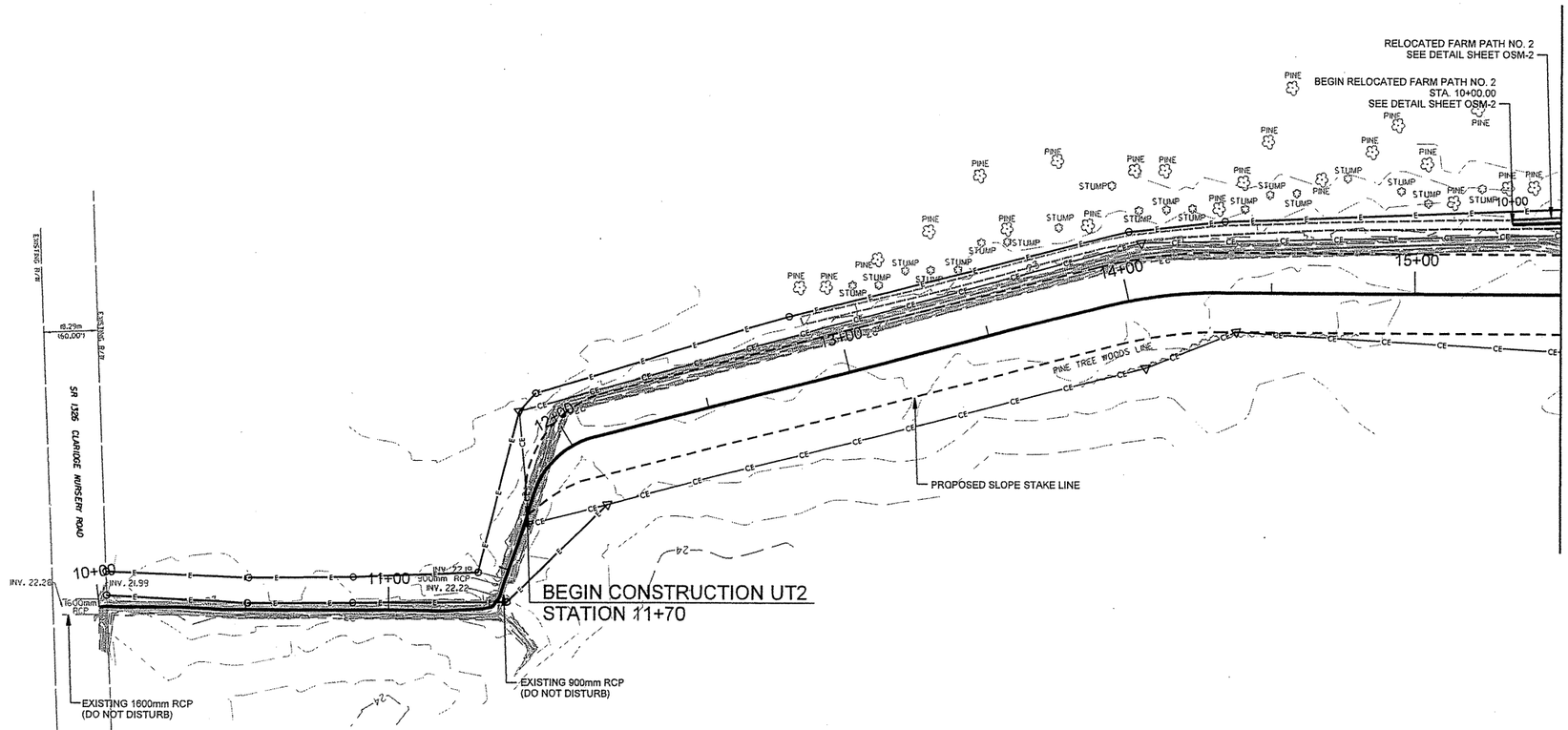
REVISIONS

NAD 83

MATCHLINE UT2 SHEET OSM-6 STATION 15+50



CE CONSERVATION EASEMENT BOUNDARY
△ CONSERVATION EASEMENT CAP
E TEMPORARY CONSTRUCTION EASEMENT
○ WHITE TOP WD. STAKE SET
FILL EXISTING CHANNEL
STREAM PLUG

10/16/2011
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-M1-

PROGRESS DRAWING
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METRIC

25 0 50

CONST.REV.

R /W REV.

PROJECT REFERENCE NO: R-2554
SHEET NO: OSM-9
PROJECT ENGINEER

PROJECT ENGINEER

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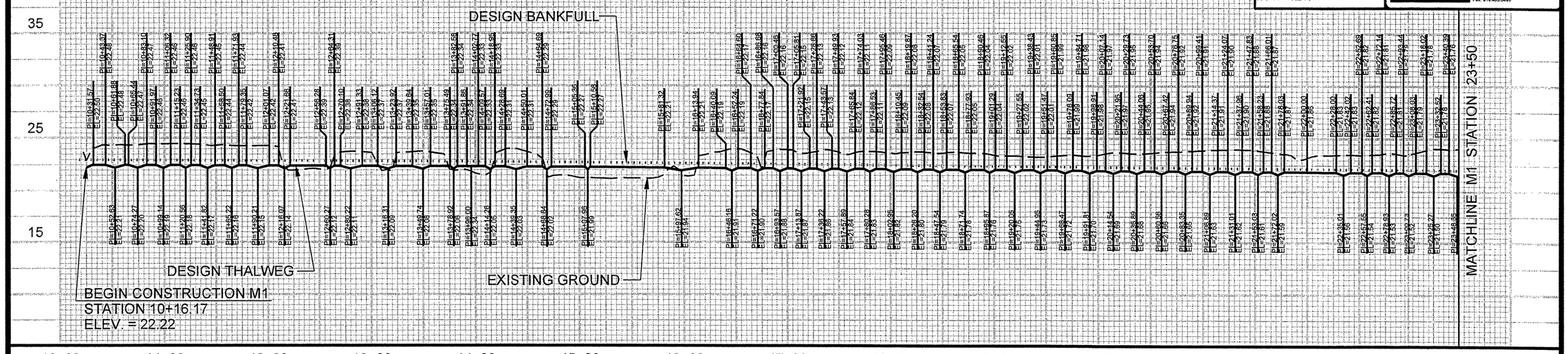
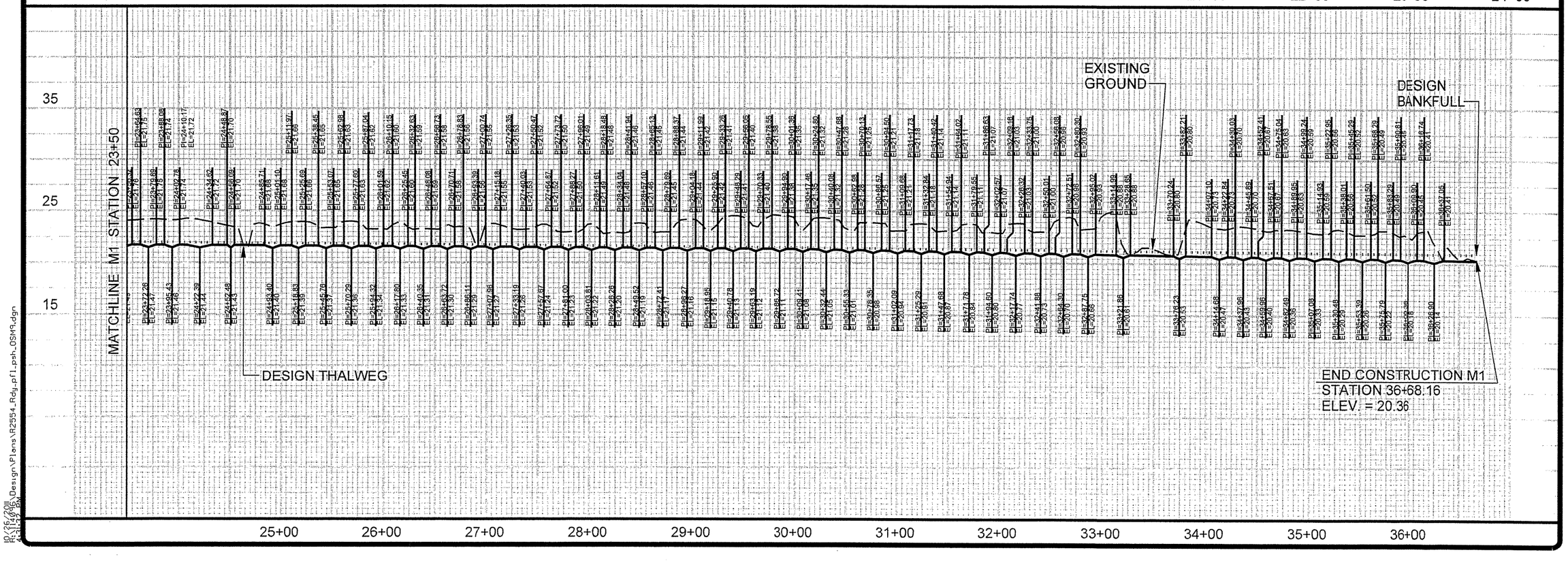
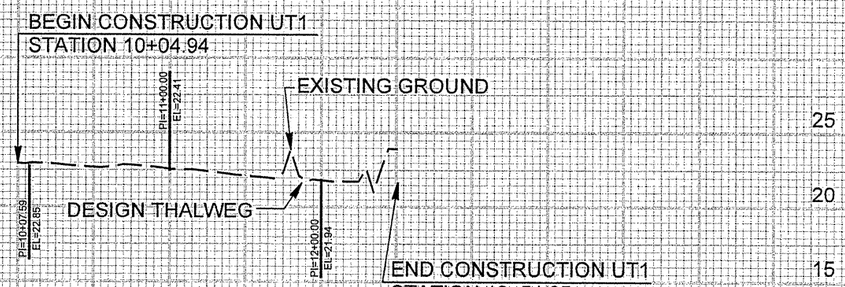
Phone: 919.463.5488
Fax: 919.463.5490





-UT1-



-UT2-

METRIC

25 0 50

CONST.REV.

R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554	OSM-10

PROJECT ENGINEER

PROJECT ENGINEER

Baker

Michael Baker Engineering Inc.
8000 Regency Parkway
Suite 200
Cary, NORTH CAROLINA 27518
Phone: 919.463.5488
Fax: 919.463.5490

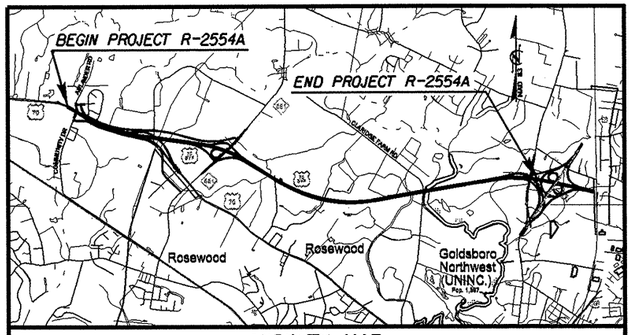
PROGRESS DRAWING
FOR REVIEW PURPOSES ONLY
DO NOT USE FOR CONSTRUCTION

R:\114096\Design\Plans\R2554_Rdy_prf_psh_OSM10.dgn

TIP PROJECT: R-2554A

CONTRACT No.:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2554A	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34461.1.3	NHF-70(30)	P.E.
34461.2.4		R/W, UTIL

METRIC

ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

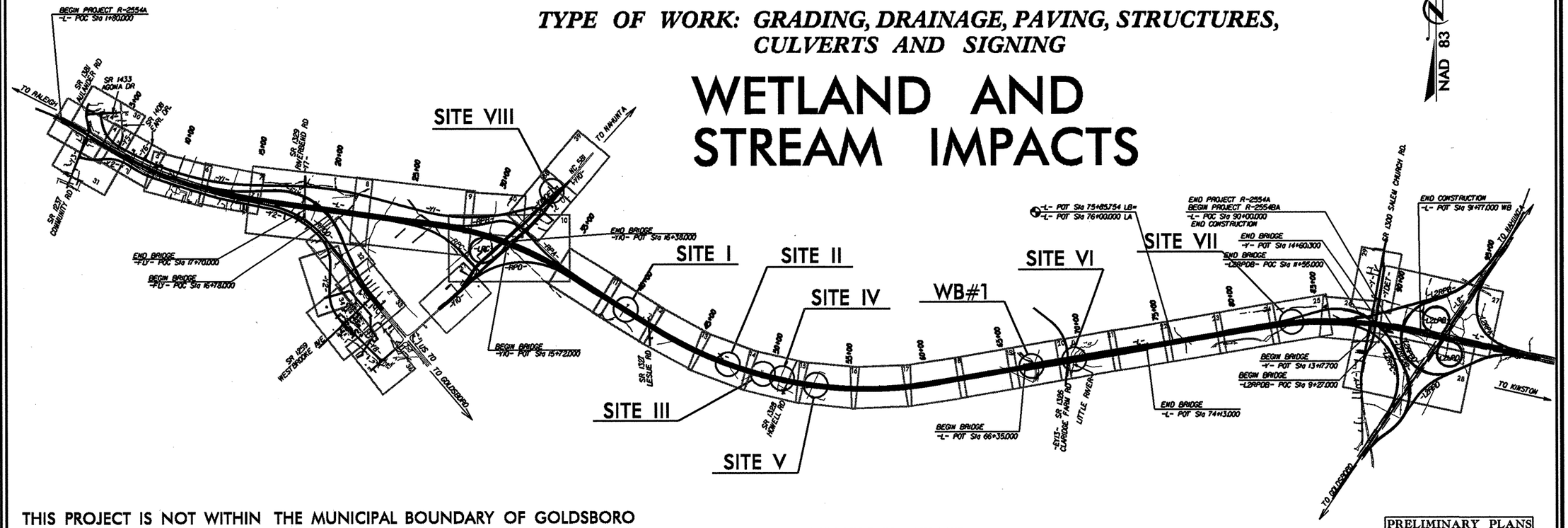
Permit Drawing
Sheet 1 of 45

WAYNE COUNTY

LOCATION: US 70 (GOLDSBORO BYPASS) FROM WEST OF NC 581 TO SR 1300 (SALEM CHURCH ROAD)

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

WETLAND AND STREAM IMPACTS



NAD 83

THIS PROJECT IS NOT WITHIN THE MUNICIPAL BOUNDARY OF GOLDSBORO
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III EXCEPT BY PERMIT
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS LIMITED TO INTERCHANGES.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS 5 0 10

PROFILE (HORIZONTAL) 5 0 10

PROFILE (VERTICAL) 1 0 2

DESIGN DATA

ADT 2010 = 19,800
ADT 2030 = 36,400
DHV = 11 %
D = 60 %
T = 26 % *
V = 110 km/h

* TTST 16 % + DUAL 10 %
FUNC. CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT R-2554A	8.028 KM.
LENGTH STRUCTURES T.I.P. PROJECT R-2554A	0.778 KM.
TOTAL LENGTH OF STATE T.I.P. PROJECT R-2554A	8.806 KM.

NOTE: EB LANE USED TO DETERMINE PROJECT LENGTH

PLANS PREPARED BY:
Florence & Hutcheson
CONSULTING ENGINEERS
5121 RINGDOM WAY, SUITE 100
RALEIGH, N.C. 27607
License No: F-0258

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 20, 2006

LETTING DATE: SEPTEMBER 18 2012

NCDOT CONTACT: CATHY S. HOUSER, PE
ROADWAY DESIGN - PROJECT ENGINEER

DENNIS J. MORY, PE
PROJECT ENGINEER

HENRY BARE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

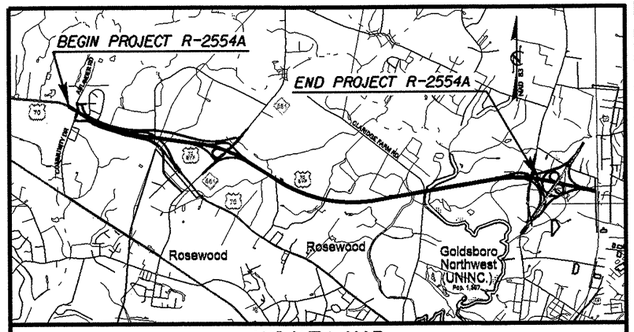
P.E.
STATE HIGHWAY DESIGN ENGINEER

FILE: R:\Hydraulics\Wetland permit\Drawings\WNM\R2554A Hyd_prm_wet_sitechnot_NSD.dgn
DATE: 10/5/2011 9:11:08 AM
PLOT DRIVER: $PLTDRV$
PEN TABLE: $PENTBL$

TIP PROJECT: R-2554A

CONTRACT No.:

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



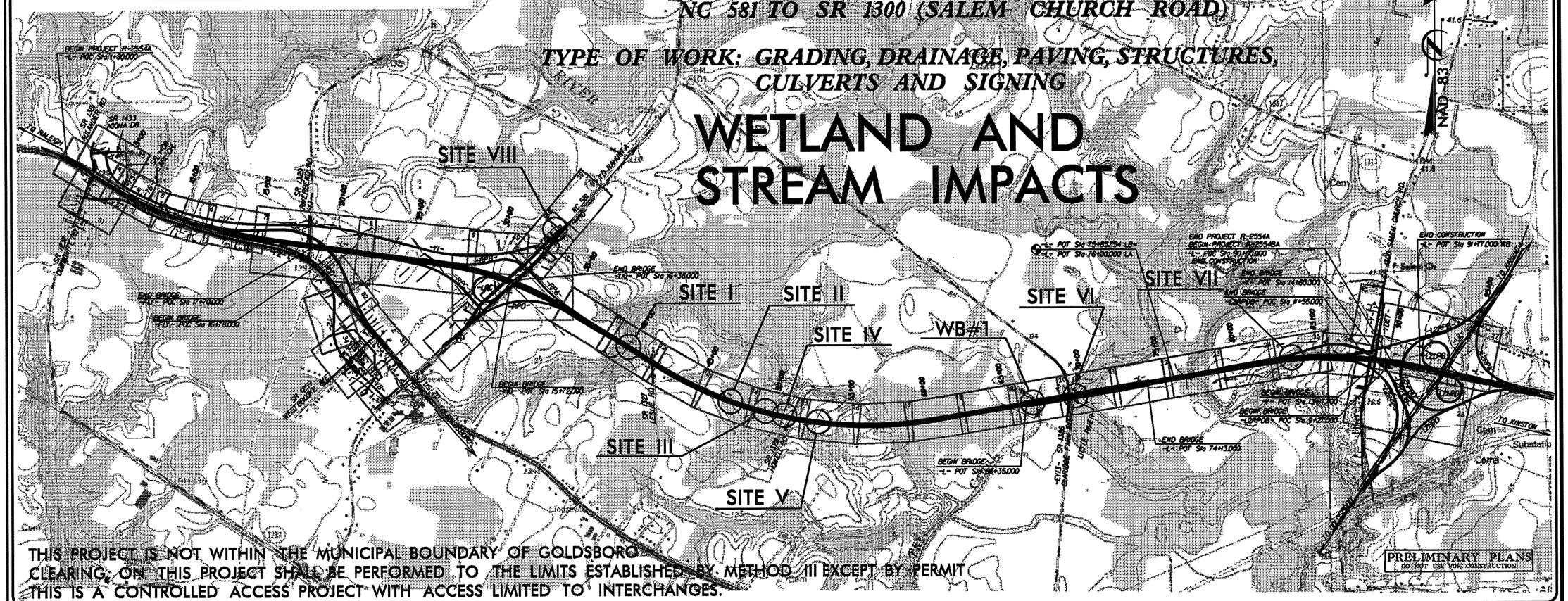
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

LOCATION: US 70 (GOLDSBORO BYPASS) FROM WEST OF NC 581 TO SR 1300 (SALEM CHURCH ROAD)

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

WETLAND AND STREAM IMPACTS



THIS PROJECT IS NOT WITHIN THE MUNICIPAL BOUNDARY OF GOLDSBORO.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III EXCEPT BY PERMIT.
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS LIMITED TO INTERCHANGES.

METRIC

ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2554A	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34461.1.3	NHF-70(30)	P.E.
34461.2.4		R/W, UTIL

Permit Drawing
Sheet 2 of 45

GRAPHIC SCALES

PLANS 5 0 10

PROFILE (HORIZONTAL) 5 0 10

PROFILE (VERTICAL) 1 0 2

DESIGN DATA

ADT 2010 = 19,800
ADT 2030 = 36,400
DHV = 11 %
D = 60 %
T = 26 % *
V = 110 km/h

* TTST 16 % + DUAL 10 %
FUNC. CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT R-2554A	8.028 KM.
LENGTH STRUCTURES T.I.P. PROJECT R-2554A	0.778 KM.
TOTAL LENGTH OF STATE T.I.P. PROJECT R-2554A	8.806 KM.

NOTE: EB LANE USED TO DETERMINE PROJECT LENGTH

PLANS PREPARED BY:
Florence & Hutcheson
CONSULTING ENGINEERS
5121 RINGDOM WAY, SUITE 100
RALEIGH, N.C. 27607
License No: F-0258

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 20, 2006

LETTING DATE: SEPTEMBER 18 2012

DENNIS J. MORY, PE
PROJECT ENGINEER

HENRY BARE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: CATHY S. HOUSER, PE
ROADWAY DESIGN - PROJECT ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

FILE: R:\Hydraulics\Wetland permit\Drawings\WNA\U2554A_Hyd_prm_wet_WetSheet_NSD.dgn
DATE: 1/15/2011
PLOT DRIVER: SPLOTDRV$
PEN TABLE: $PENTBL$

R/W REV. - 01/10/08
COMBINED PARCEL 30 WITH PARCEL 29
R/W REV. - 11/28/06
CORRECTED PROPERTY OWNER INFORMATION
REMOVED LEVEL SPREADERS

REVISIONS

NAD 83

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0288

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	12
R/W SHEET NO. 12	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.
R/W REV.

Permit Drawing
Sheet 3 of 45

GEORGE H. BECTON, HEIRS (29)
DANNY P. SASSER (31)
CATHERINE S. SMITH (32)

RIP RAP ON BANKS ONLY

CLASS 'IV' RIP RAP
EST. 11 MTN

CLASS 'I' RIP RAP
EST. 25 MTN

0.91m SPECIAL CUT BASE DITCH SEE DETAIL 9

HEADWALL

CAT-I

GRAU 350

ROCK CHECK DAMS SEE DETAIL 20

0.61m SPECIAL BASE DITCH SEE DETAIL 6

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

-L- TS Sta 41+71.877

SOIL

3GI TYPE 'A'

2GI

GOLDSBORO BYPASS

2@ 2.13 x 2.13 RCBC

CLASS 'I' RIP RAP
EST. 12 MTN

30.000m (TYP.)

EXISTING R/W

EST. 4.5 MTN CL-B RIP RAP
EST. 11.7 SM FILTER FABRIC

GEORGE H. BECTON, HEIRS (29)

GEORGE H. BECTON, HEIRS (29)

DANNY P. SASSER (31)

CATHERINE S. SMITH (32)

SITE 1

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

MATCH LINE -L- 38+40.000 SEE SHEET 11

MATCH LINE -L- 41+80.000 SEE SHEET 13

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 46 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Hydraulics\Wetland permit\Drawings\(FINAL)\2554a_hyd_perm_wet_pshl2.dgn
DATE: 11/4/2011
PLOT DRIVER: $PLTDRVLS
PEN TABLE: $PENTBLLS

R/W REV. - 01/10/08
COMBINED PARCEL 30 WITH PARCEL 29

R/W REV. - 11/28/06
CORRECTED PROPERTY OWNER INFORMATION
REMOVED LEVEL SPREADERS

REVISIONS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0256

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	12
R/W SHEET NO. 12	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.	
R/W REV.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing
Sheet 4 of 45

NAD 83

GEORGE H. BECTON, HEIRS (29)
DANNY P. SASSER (31)
CATHERINE S. SMITH (32)
DANNY P. SASSER (34)
GEORGE H. BECTON, HEIRS (29)

RIP RAP ON BANKS ONLY

CLASS 'I' RIP RAP EST. 11 MTN
CLASS 'I' RIP RAP EST. 25 MTN
CLASS 'I' RIP RAP EST. 12 MTN

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

EST. 4.5 MTN CL-B RIP RAP
EST. 11.7 SM FILTER FABRIC

0.91m SPECIAL CUT BASE DITCH SEE DETAIL 9

0.41m SPECIAL BASE DITCH SEE DETAIL 6

HEADWALL

ROCK CHECK DAMS SEE DETAIL 20

GRAU 350

CAT I

3GI TYPE 'A'

2GI

FS

GOLDSBORO BYPASS

2@ 2.13 2.13 RCBC

-L- TS Sta 41+71.877

EXISTING R/W

30.000m (TYP.)

SOIL

MATCH LINE -L- 38+40.000 SEE SHEET 11

MATCH LINE -L- 41+80.000 SEE SHEET 13

SITE 1

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

F F DENOTES FILL IN WETLAND

S S DENOTES FILL IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 46 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Hydraulics\Wetland permit\Drawings\FINAL\r2554a_hyd_prm_wet_pah12.dgn
DATE: 11/4/2011
PLOT DRIVER: STDTRWX1
PEN TABLE: SPEEDWAY1

SITE 1

METRIC	PROJECT REFERENCE NO.	SHEET NO.
	R-2554A	12
	R/W SHEET NO.	12
2.5m 0 5m	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST.REV.	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
R/W REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

Permit Drawing
Sheet 5 of 45

15.709
N22°50'01"W

23.472
N18°21'10"E

RIP RAP ON BANKS ONLY

CLASS 'A' RIP RAP
EST. 11 MTN

CLASS 'I' RIP RAP
EST. 25 MTN

116.404
N41°19'54"E

AL
TCH

HEADWALL

17.632
N33°35'23"W

900

INV- 29.500m

INV- 29.500m

600

ROCK CHECK DAMS
SEE DETAIL 20

0.6
BAS
SEE

CAT-1

23.228
N00°40'22"E

GRAU 350

BZ 2

+82.215
0.147

.025

375

3GI
TYPE 'A'

2GI

FS

GOLDSBORO BYPASS

2@ 2.13 x 2.13 RCBC

+38.874
0.809

.025

600

CAT-1

ROCK CHECK DAMS
SEE DETAIL 20

0.61m SPECIAL
BASE DITCH
SEE DETAIL 6

750

SPECIAL
ASE DITCH
ETAIL 9

N18°56'53"E
17.013

CLASS 'I' RIP RAP
EST. 12 MTN

15.368
N39°47'25"E

TB TB

TB TB

N41°19'54"E
103.671

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

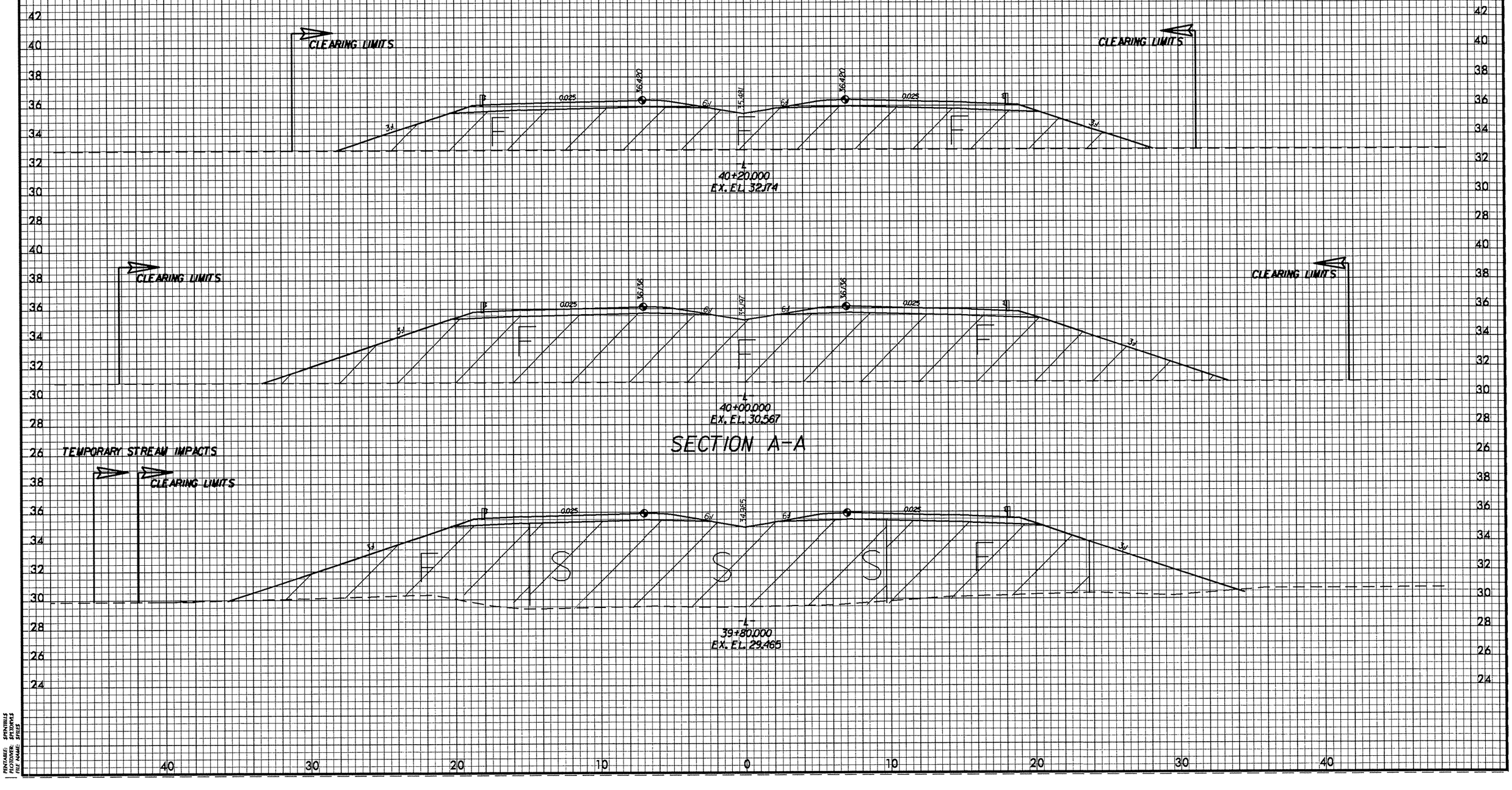
F F DENOTES FILL IN WETLAND

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES FILL IN SURFACE WATER

METRIC	PROJ. REFERENCE NO.	SHEET NO.
	R-2554A	
	GOLDSBORO BYPASS	
	2m 0 2m SCALE	

Permit Drawing
Sheet 6 of 45



R/W REV. - 11/28/06
CORRECTED PROPERTY OWNER INFORMATION

REVISIONS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0288

METRIC
5m 0 10m

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	14
R/W SHEET NO. 14	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 7 of 45

NAD 83

33
BILDAN, LLC

46

47

48

GRAVES T. LEWIS

35

MATCH LINE -L- 45+20.000 SEE SHEET 13

MATCH LINE -L- 48+60.000 SEE SHEET 15

-L- GOLDSBORO BYPASS

2GI

FS

450

0.61m SPECIAL CUT BASE DITCH SEE DETAIL 9

0.61m SPECIAL CUT BASE DITCH SEE DETAIL 9

EST. 2.7 MTN CL-B RIP RAP
EST. 8.4 SM FILTER FABRIC

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

33
BILDAN, LLC

34
DONALD G. WATKINS

SITE II

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 47 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Hydraulics\Wetland permit\Drawings\FINAL\2554a_hyd_prm_wet_pshl4.dgn
DATE: 11/4/2011
PLOT DRIVER: $PLOTDRVR
PEN TABLE: $PENTBLL

R/W REV.- 11/28/06
CORRECTED PROPERTY OWNER INFORMATION

REVISIONS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0288

METRIC
5m 0 10m

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	14
R /W SHEET NO. 14	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 8 of 45

NAD 83

MATCH LINE -L- 45+20.000 SEE SHEET 13

MATCH LINE -L- 48+60.000 SEE SHEET 15

-L- GOLDSBORO BYPASS

BILDAN, LLC

GRAVES T. LEWIS

0.61m SPECIAL CUT BASE DITCH SEE DETAIL 9

0.61m SPECIAL CUT BASE DITCH SEE DETAIL 9

EST. 2.7 MTN CL B RIP RAP
EST. 8.4 SM FILTER FABRIC

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

33 BILDAN, LLC

34 DONALD G. WATKINS

SITE II

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 47 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Hydraulics\Wetland permit\Drawings\FINAL\2554a_hyd_prm_wet_pkt14.dgn
DATE: 11/4/2011
PLOT DRIVER: $PLTDRV$
PEN TABLE: $PENTBL$

METRIC

2.5m 0 5m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

CONST.REV.

R/W REV.

Permit Drawing
Sheet 9 of 45

47

35

C/A

R/W

B

C

F

L7,814
N78°50'52"E

L1,565
N61°38'44"W

+11.146
179.916

37.941
N78°50'50"E

+81.615
4.346

+87.077
2.950

2GI

FS

450

0.61m SPECIAL
CUT BASE DITCH
SEE DETAIL 9

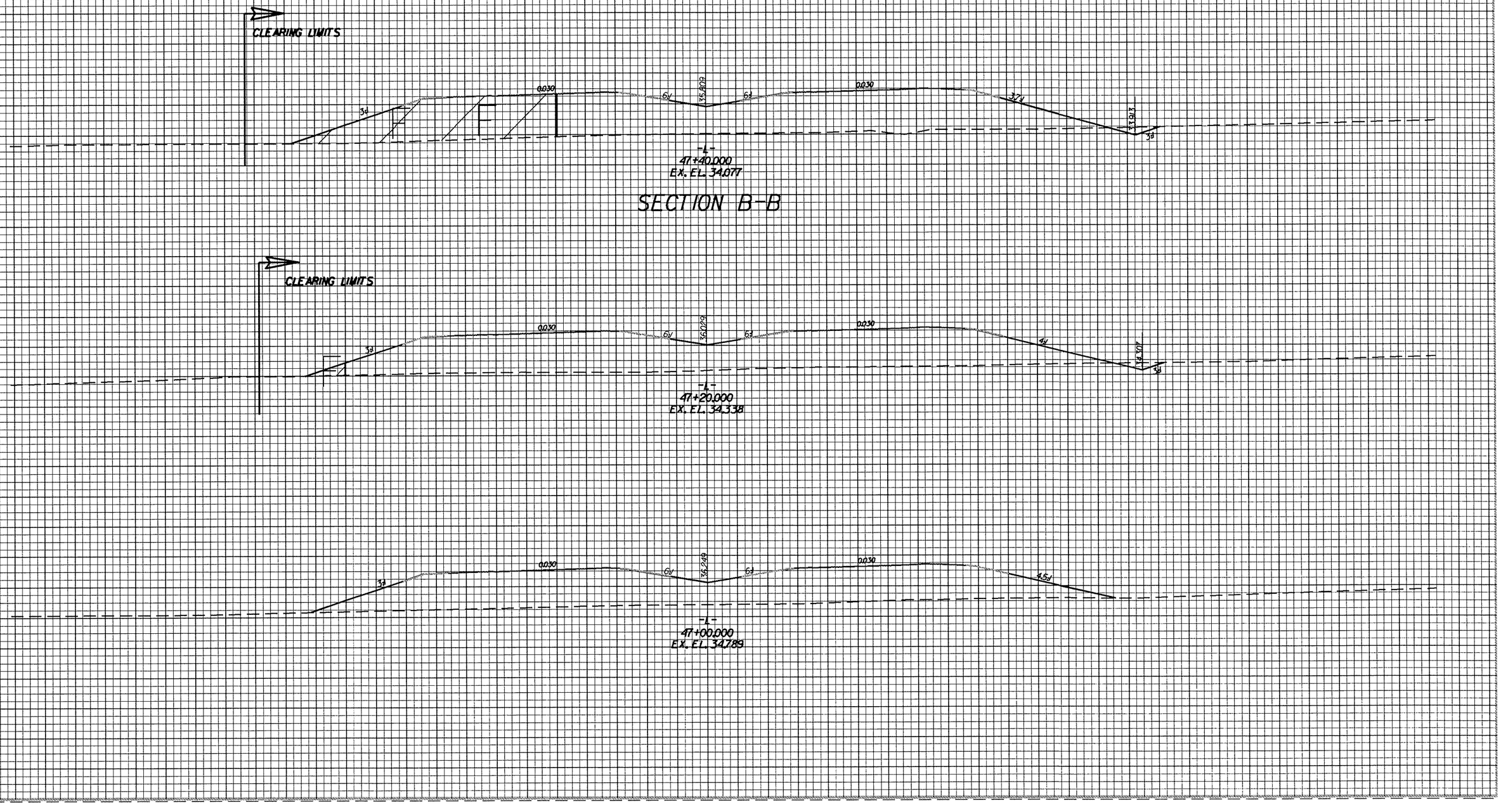
SITE II

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

PROJ. REFERENCE NO. | SHEET NO.

Permit Drawing
Sheet 10 of 45



MSTNAME: SPANBUS1
FILENAME: SB1SHEETS
FILE NAME: SFILES

R/W REV. - 11/30/10
PARCEL 35 ADDED PROPOSED 3.6 DRIVE, SHIFTED
GUARDRAIL TO 0.6 OFF ROW TO ACCOUNT FOR
POST & OFFSET BLOCKS

R/W REV. - 11/28/06
CORRECTED PROPERTY OWNER INFORMATION
REMOVED TURN AROUND ON PARCEL 35
ADDED R/W MONUMENT ALONG EXIST. R/W
REMOVED R/W MONUMENT ALONG EXIST. R/W ON PARCEL 34

REVISIONS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0288

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	15
R/W SHEET NO. 15	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.
R/W REV.

Permit Drawing
Sheet 11 of 45

NAD 83

SITE III

SITE IV

GRAVES T. LEWIS

EST. 2.7 MTN CL-B RIP RAP
EST. 9.2 SM FILTER FABRIC

EST. 9.1 MTN CL-B RIP RAP
EST. 23.4 SM FILTER FABRIC

PREFORMED SCOUR HOLE SEE DETAIL 21

PREFORMED SCOUR HOLE SEE DETAIL 21

HEADWALL

HEADWALL

RIP RAP TOE PROTECTION SEE DETAIL 11

SPECIAL LATERAL V-DITCH SEE DETAIL 1

PROP. GR. w/ TERM. SECTIONS

-L- GOLDSBORO BYPASS

SR 1328 HOWELL RD

MATCH LINE -L- 48+60.000 SEE SHEET 14

MATCH LINE -L- 52+00.000 SEE SHEET 16

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

DENOTES FILL IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DONALD G. WATKINS

STEVEN HARRISON

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 48 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Mytinsdir\Watford permit\Drawings\(FINAL)\2554a_hyd_prm_wat_pshl5.dgn
DATE: 11/30/2010
PLOT DRIVER: SPLTDRV$
PEN TABLE: SPENTBL$

R/W REV.- 11/30/10
PARCEL 35 ADDED PROPOSED 3.6 DRIVE, SHIFTED GUARDRAIL TO 0.6 OFF ROW TO ACCOUNT FOR POST & OFFSET BLOCKS

R/W REV.- 11/28/06
CORRECTED PROPERTY OWNER INFORMATION
REMOVED TURN AROUND ON PARCEL 35
ADDED R/W MONUMENT ALONG EXIST. R/W
REMOVED R/W MONUMENT ALONG EXIST. R/W ON PARCEL 34

REVISIONS

NAD 83

Florence & Hutcheson
CONSULTING ENGINEERS
3121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0288

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	15
R/W SHEET NO. 15	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.
R/W REV.

Permit Drawing
Sheet 12 of 45

SITE III

SITE IV

EST. 2.7 MTN CL-B RIP RAP
EST. 9.2 SM FILTER FABRIC

EST. 9.1 MTN CL-B RIP RAP
EST. 23.4 SM FILTER FABRIC

PREFORMED SCOUR HOLE SEE DETAIL 21

PREFORMED SCOUR HOLE SEE DETAIL 21

HEADWALL

HEADWALL

RIP RAP TOE PROTECTION SEE DETAIL 11

PROP. GR. w/ TERM. SECTIONS

SPECIAL LATERAL V-DITCH SEE DETAIL 1

GRAVES T. LEWIS

GRAVES T. LEWIS

GRAVES T. LEWIS

DONALD G. WATKINS

STEVEN HARRISON

HOWELL RD

GOLDSBORO BYPASS

MATCH LINE -L- 48+60.000 SEE SHEET 14

MATCH LINE -L- 52+00.000 SEE SHEET 16

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

DENOTES FILL IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

OBLITERATE EXIST. ROAD

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 48 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Hydraulics\Wetland permit\Drawings\FINAL\25546_hyd_prm_wet_psh15.dgn
DATE: 11/4/2011
PLOT DRIVER: SPLITDRV16
PLOT LABEL: SPLITDRV16
PEN TABLE: SPLITDRV16

METRIC	PROJECT REFERENCE NO.	SHEET NO.
2.5m 0 5m	R-2554A	15
	R /W SHEET NO.	15
CONST.REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
R /W REV.	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

Permit Drawing
Sheet 13 of 45

EST. 2.7 MTN CL-B RIP RAP
EST. 9.2 SM FILTER FABRIC

REVISIONS

SITE III

NAD 83

PREFORMED SCOUR HOLE SEE DETAIL 21

2GI

FS

TB

375

750

750

336.293
N61°33'43"W

BZ 2

F

S

TS

.03

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

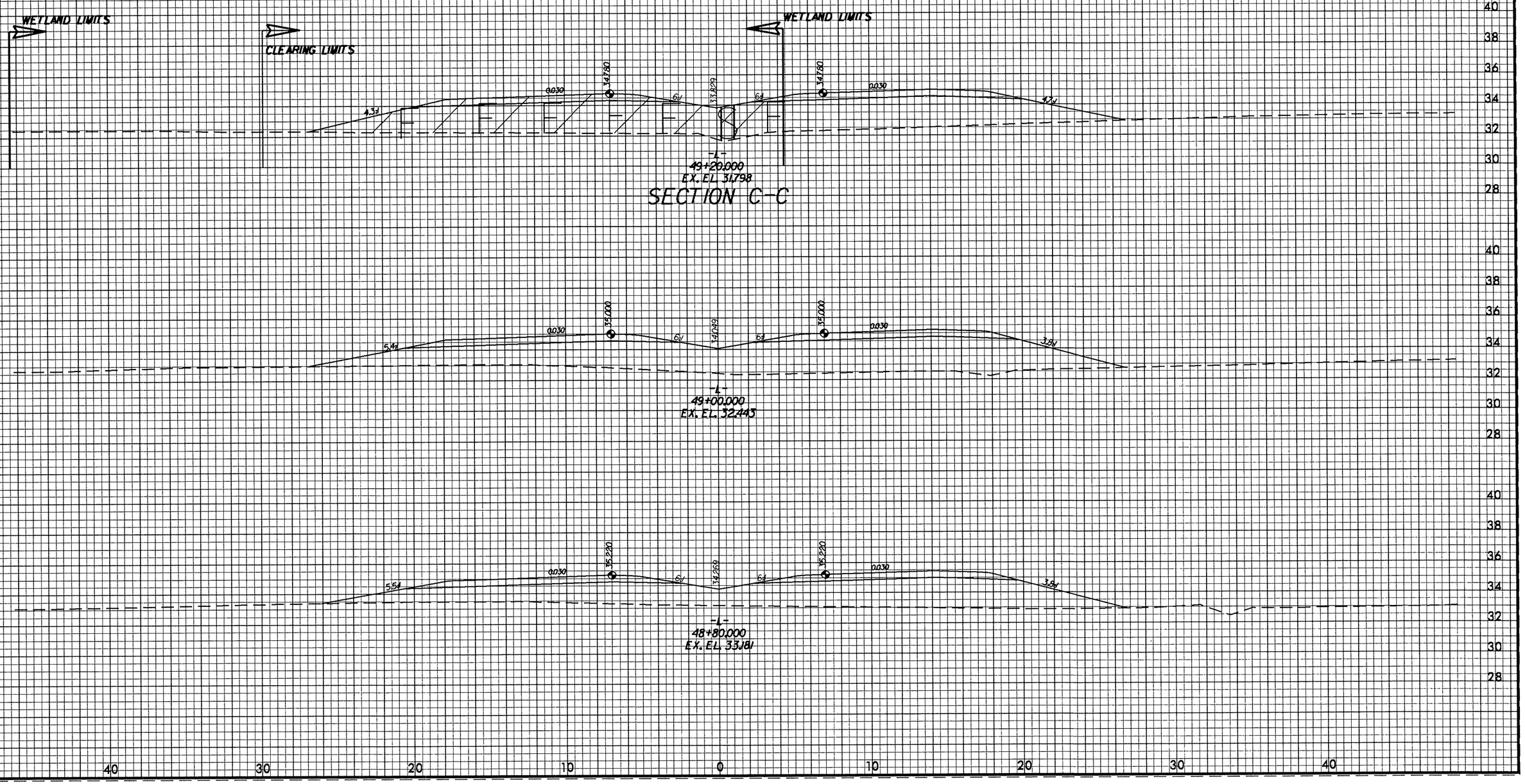
DENOTES FILL IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	X-103
GOLDSBORO BYPASS	

2m 0 2m
SCALE

Permit Drawing
Sheet 17 of 45



PENTABLE: $PENTABLE$
PLOTDATE: $PLOTDATE$
FILENAME: $FILENAME$

METRIC	PROJECT REFERENCE NO.	SHEET NO.
2.5m 0 5m	R-2554A	15
	R/W SHEET NO.	15
CONST. REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
R/W REV.	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

Permit Drawing
Sheet 15 of 45

SITE IV

EST. 9.1 MTN CL-B RIP RAP
EST. 23.4 SM FILTER FABRIC

RIP RAP ON BANKS ONLY

TB

TB

BZ 2

HEADWALL

PREFORMED
SCOUR HOLE
SEE DETAIL 21

450

3GI

1050

-L- GOLDSBORO BYPASS

RIP RAP
TOE PROTECTION
SEE DETAIL 11

HEADWALL

PROP. GR. w/
TERM. SECTIONS

375mm CONC

NAD 83

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

DENOTES FILL IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

REVISIONS

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	X-106
GOLDSBORO BYPASS	

2m 0 2m
SCALE

Permit Drawing
Sheet 16 of 45

SECTION D-D

PENTABLE: SPENTBL15
PLOTDRVR: SPLTDRV15
FILE NAME: SP1015

R/W REV. - 11/28/06
CORRECTED PROPERTY OWNER INFORMATION

REVISIONS

NAD 83

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CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0286

METRIC
5m 0 10m

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	16
R/W SHEET NO. 16	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 17 of 45

GRAVES T. LEWIS
35
ALVIN WATKINS
36
JAMES STEPHEN CASEY
37
53
55
32.754 S69°09'56"E
12.535 S62°48'30"E
11.087 S18°37'42"E
3.949 N80°01'39"E
13.969 N65°21'21"E
N57°13'15"E
N8°49'34"E
21.950 N60°49'48"E
31.624 N60°49'48"E
39.367 S02°25'55"W
EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC
EST. 2.7 MTN CL-B RIP RAP
EST. 9.2 SM FILTER FABRIC
PREFORMED SCOUR HOLE SEE DETAIL 21
INV- 30.59m
INV- 30.907m
INV- 29.85m
CAT-I
GUARDRAIL
GRAU 350
450
375
750
-L- GOLDSBORO BYPASS
2GI FS
TOP- 32.041m
INV- 31.203m
+06.048 1.989
+07.644 2.291
INV- 31.02m
INV- 30.27m
SPECIAL LATERAL V-DITCH SEE DETAIL 1
+81.580 105.822
POND
110.832 S69°09'56"E
MATCH LINE -L- 52+00.000 SEE SHEET 15
MATCH LINE -L- 55+40.000 SEE SHEET 17
23.940 S48°38'01"W
23.787 S51°35'28"W

SITE V

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 48 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Hydraulics\Wetland permit\Drawings\VFMAT\r2554a_hyd_prm_wet_pshl6.dgn
DATE: 11/4/2011
PLOT DRIVER: SPLITDRV5
PEN TABLE: SPSTD05.5

R/W REV. - 11/28/06
CORRECTED PROPERTY OWNER INFORMATION

REVISIONS

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NC License No: F-0288

METRIC
5m 0 10m

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	16
R/W SHEET NO. 16	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 18 of 45

NAD 83

GRAVES T. LEWIS
35
ALVIN WATKINS
36
JAMES STEPHEN CASEY
37

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

EST. 2.7 MTN CL-B RIP RAP
EST. 9.2 SM FILTER FABRIC

PREFORMED SCOUR HOLE SEE DETAIL 21

INV- 30.59m
INV- 30.907m
INV- 29.85m
INV- 31.02m
INV- 30.27m
TOP- 32.041m
INV- 31.203m

-L- GOLDSBORO BYPASS

GUARDRAIL
GRAU 350
CAT-I
2GI FS

SPECIAL LATERAL V-DITCH
SEE DETAIL 1

POND

MATCH LINE -L- 52+00.000 SEE SHEET 15

MATCH LINE -L- 55+40.000 SEE SHEET 17

SITE V

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

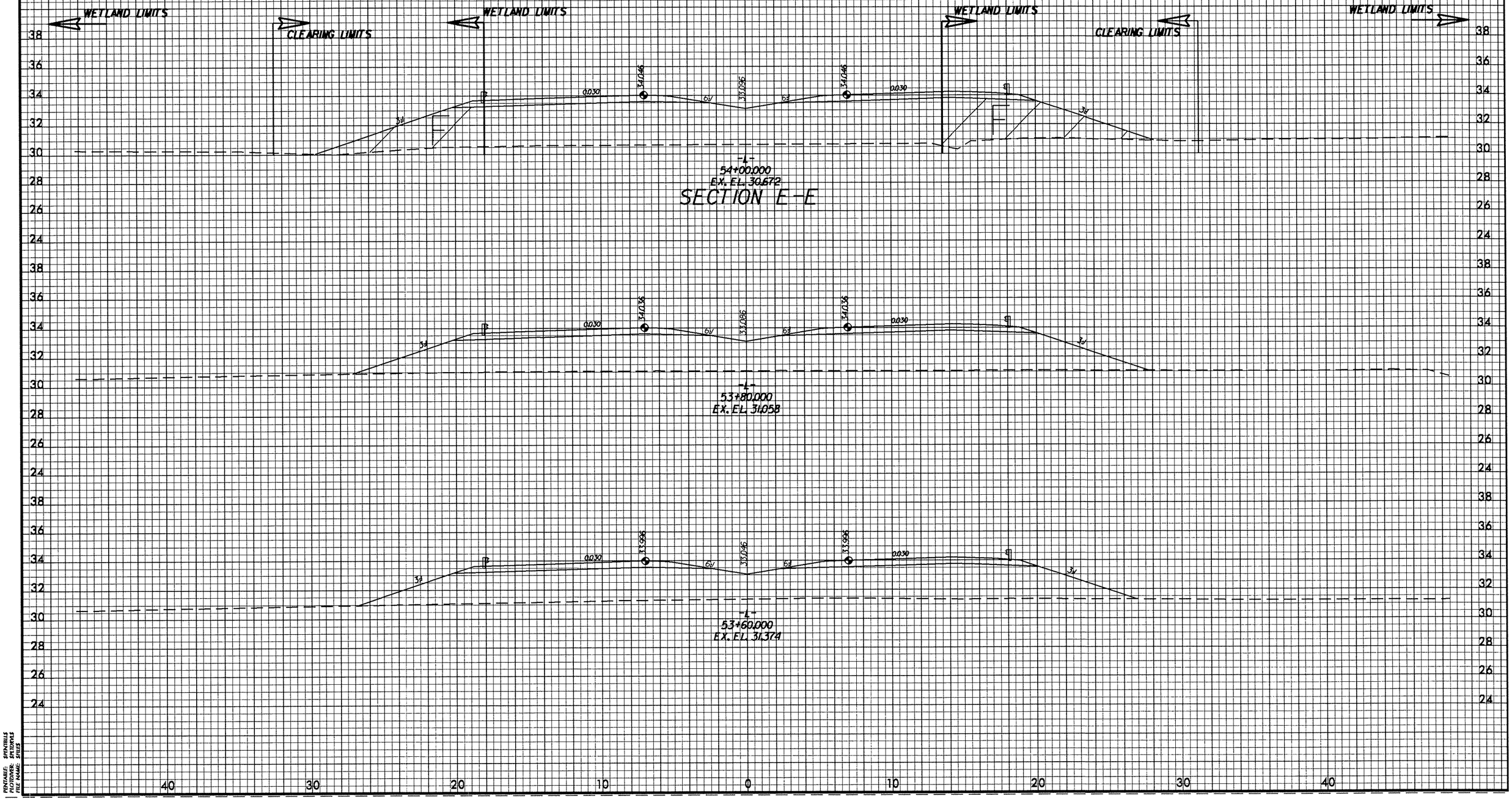
NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 48 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: N:\Hydraulics\Wetland permit\Drawings\FINAL\2554a_hyd_prm_wet_pshl6.dgn
DATE: 11/4/2011
PLOT DRIVER: STIMES
PLOT SCALE: 1.000000
PEN TABLE: SPENTABLE

METRIC	PROJ. REFERENCE NO.	SHEET NO.
	R-2554A	X-111
	GOLDSBORO BYPASS	
	2m 0 2m SCALE	

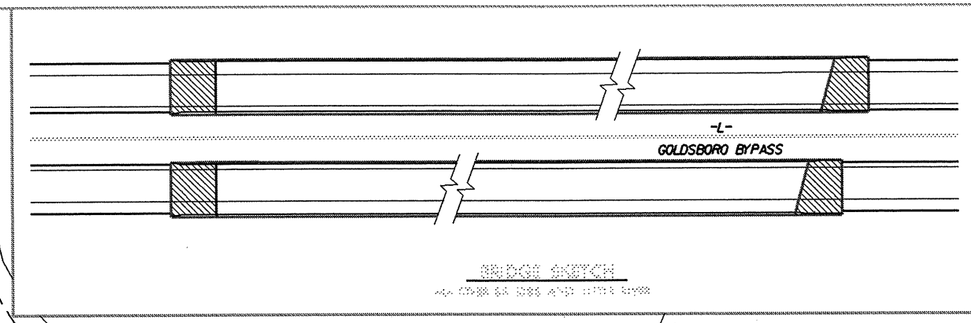
Permit Drawing
Sheet 19 of 45



PENTABLE: STENTBLLS
PLOT DATE: 8/10/15
FILE NAME: ST10X15
USER: steves

REVISIONS

NAD 83



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NC License No: P-0288

METRIC

5m 0 10m

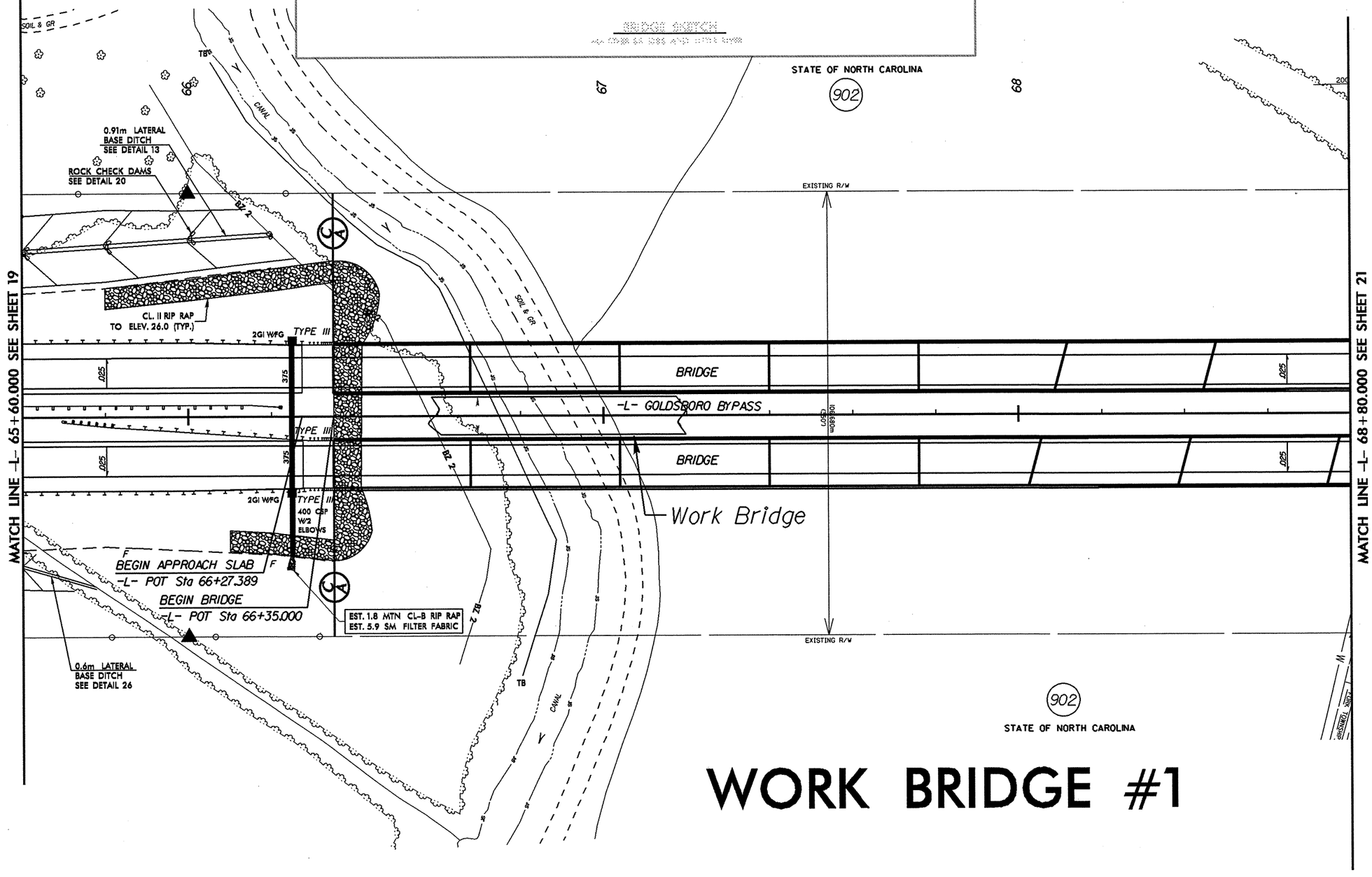
CONST. REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	20
R/W SHEET NO. 20	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 20 of 45



WORK BRIDGE #1

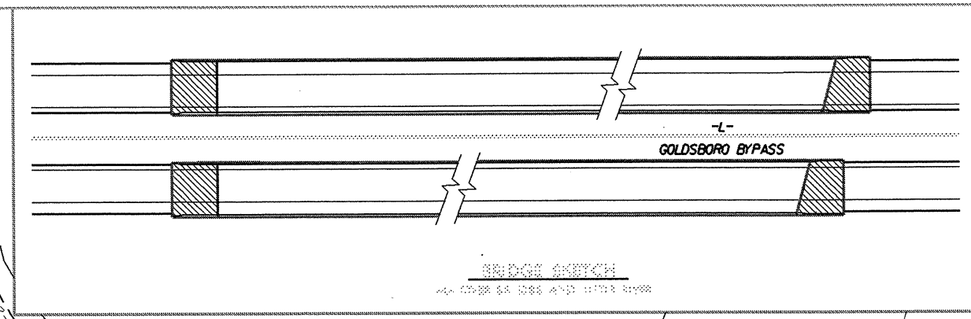
NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 50 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Hydraulics\Watford permit\Drawings\FINAL\2554a_hyd_prm_wat_pak20.dgn
DATE: 11/4/2011
PLOT DRIVER: STIMES
PLOT CELL: SPENTRILLS
PEN TABLE: SPENTRILLS

REVISIONS

NAD 83



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METRIC
5m 0 10m

CONST. REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	20
R/W SHEET NO. 20	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 21 of 45

MATCH LINE -L- 65+60.000 SEE SHEET 19

MATCH LINE -L- 68+80.000 SEE SHEET 21

STATE OF NORTH CAROLINA (902)

EXISTING R/W

0.91m LATERAL BASE DITCH SEE DETAIL 13

ROCK CHECK DAMS SEE DETAIL 20

CL. II RIP RAP TO ELEV. 26.0 (TYP.)

2GI W/FG TYPE III

BRIDGE

-L- GOLDSBORO BYPASS

Work Bridge

2GI W/FG TYPE III 400 CSP W/2 ELBOWS

BEGIN APPROACH SLAB
-L- POT Sta 66+27.389

BEGIN BRIDGE
-L- POT Sta 66+35.000

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

0.6m LATERAL BASE DITCH SEE DETAIL 26

CANAL

SOIL & SR

TB

BZ 1

BZ 2

WORK BRIDGE #1

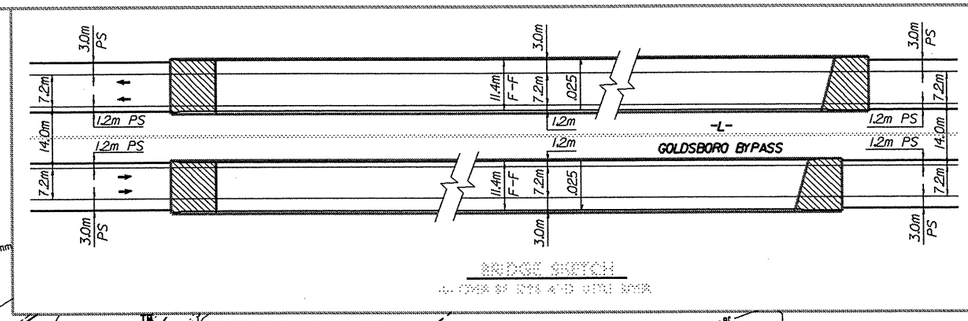
NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 50 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Hydraulics\Wexford permit\Drawings\FINAL\25554a_hyd_prm_wxd_pshl20.dgn
DATE: 11/4/2011
PLOT DRIVER: SYMBOLS
PEN TABLE: SPENTBILLS

REVISIONS

NAD 83



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NC License No: F-0288

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	21
R/W SHEET NO. 21, 4 & 5 (R-2554B)	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 22 of 45

CONST. REV.
R/W REV.

MATCH LINE -L- 68+80.000 SEE SHEET 20

MATCH LINE -L- 72+00.000 SEE SHEET 22

STATE OF NORTH CAROLINA

902

FOREST SERVICE NURSERY

NEW PUMPHOUSE

FORESTRY SERVICE COMPOUND

EXPOSED PIPE

WATER PUMP HOUSE

EXISTING R/W

RIVER IS PROPERTY LINE

LITTLE RIVER

TELE CABLE CUT AND EXPOSED AT THIS LOCATION

ISAAC J. MOZINGO 41

BZ 2

HC

BRIDGE

-L- GOLDSBORO BYPASS

Work Bridge Finger

GOLF COURSE

LANE FARMS INC.

HC HC DENOTES HAND CLEARING

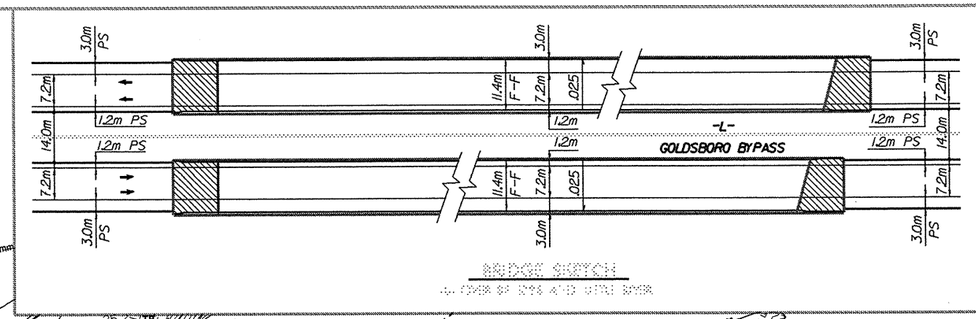
SITE VI & WORK BRIDGE #2

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 51 FOR -L- PROFILE

FILE: R:\Hydraulics\Wetland permit\Drawings\FINAL\r2554a_hyd_prm_wet_pak21.dgn
DATE: 11/4/2011
PLOT DATE: 3/9/2012
PLOT TIME: 9:55:19 AM

REVISIONS



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METRIC
9m 0 10m

CONST. REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	21

R/W SHEET NO. 21, 4 & 5 (R-2554B)

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 23 of 45

NAD 83

MATCH LINE -L- 68+80.000 SEE SHEET 20

MATCH LINE -L- 72+00.000 SEE SHEET 22

STATE OF NORTH CAROLINA

902

FORESTRY SERVICE NURSERY

NEW PUMPHOUSE

FORESTRY SERVICE COMPOUND

EXPOSED PIPE

WATER PUMP HOUSE

EXISTING R/W

RIVER IS PROPERTY LINE

LITTLE RIVER

TELE CABLE CUT AND EXPOSED AT THIS LOCATION

ISAAC J. MOZINGO

BRIDGE

-L- GOLDSBORO BYPASS

Work Bridge
Finger

GOLF COURSE

LANE FARMS INC.

HC HC DENOTES HAND CLEARING

SITE VI & WORK BRIDGE #2

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 51 FOR -L- PROFILE

FILE: R:\Hydraulics\Wedford permit\Drawings\FINAL\r2554a_hyd_prm_wed_pak21.dgn
DATE: 11/4/2011
PLOT DRIVER: SYMES
PW WORKGROUP: RALROADS
PEN TABLE: SPENTBILLS

R/W REV. - 11/28/06
CORRECTED PROPERTY OWNER INFORMATION
REVISED R/W MONUMENT ON PARCEL 42

REVISIONS

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CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0288

METRIC
5m 0 10m

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	24
R/W SHEET NO. 7 & 8 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 24 of 45

SITE VII

NAD 83

S84°40'19"W
213.36D

E E DENOTES EXCAVATION IN WETLAND
F F DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
S S DENOTES IMPACTS IN SURFACE WATER

42 DOROTHY JEAN ANDREWS

43 EDNA E. WELLS

79 80 81 82

MATCH LINE -L- 79+00.000 SEE SHEET 23

MATCH LINE -L- 82+60.000 SEE SHEET 25

BERM DITCH SEE DETAIL 29
BDO
600 CSP
2 ELBOWS
FS
2GI
TYPE A
750
375
600
.025
BERM DITCH SEE DETAIL 30
LATERAL V DITCH SEE DETAIL 28
1.8 MTN CL B RIPRAP W/5.9 SM FIL FAB
2GI W/FG CAT-1
14.000m (TYP.)
7.000m
798.037
2GI TYPE D
.025 .02 .01 .00 .01 .02 .025
3/8
17%
450
GRAU 350
4.5 MTN CL B RIPRAP W/11.7 SM FIL FAB
LATERAL BASE DITCH SEE DETAIL 26
TITLEST DR 67 BST
375mm CONC
2.1 HW
RETAIN
2.3 HW
1.9 HW
EIP
LT
KEITH A. ACREE
JESSE WILLIAMS
W&T RENTALS
JOSEPH WINSTON GARRIS AND TIFFANY K. GARRIS
WAYNE INVESTMENTS
600 mm CONC
600 mm RCP
8.52m (40.00')

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEETS 52 & 53 FOR -L- PROFILE
SEE SHEET 84 FOR -L2RPDB PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Hydraulics\Watford permit\Drawings\FINAL\R-2554A_hyd_prm_wat_pst24.dgn
DATE: 11/4/2011
DESIGN DRIVER: STIMES
PLOT DRIVER: MARKHILL
PEN TABLE: SPENTBILLS

R/W REV.- 11/28/06
CORRECTED PROPERTY OWNER INFORMATION
REVISED R/W MONUMENT ON PARCEL 42

REVISIONS

Florence & Hutcheson
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NC License No: P-0288

METRIC
5m 0 10m

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	24
R/W SHEET NO. 7 & 8 (R-2554B)	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 25 of 45

SITE VII

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

NAD 83

S87°40'39"W 93.36'

DOROTHY JEAN ANDREWS
42

EDNA E. WELLS
43

MATCH LINE -L- 79+00.000 SEE SHEET 23

MATCH LINE -L- 82+60.000 SEE SHEET 25

BERM DITCH SEE DETAIL 29

BERM DITCH SEE DETAIL 30

LATERAL V DITCH SEE DETAIL 28

600 CSP 2 ELBOWS

BDO

FS 2GI

TYPE A

TYPE D

1.8 MTN CL B RIPRAP W/5.9 SM FIL FAB

2GI W/FG CAT-I

14.000m (TYP.)

7.000m

4.5 MTN CL B RIPRAP 3W/21.7 SM FIL FAB

LATERAL BASE DITCH SEE DETAIL 26

GRAD 350

TITLEST DR 67 BST

RETAIN

375mm CONC

600 mm DIP

KEITH A. ACREE

G. YOUSIF
SAM A YOUSIF

JESSE WILLIAMS

W&T RENTALS

JOSEPH WINSTON GARRIS AND TIFFANY K. GARRIS

EDNA E. WELLS

WAYNE INVESTMENTS

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEETS 52 & 53 FOR -L- PROFILE
SEE SHEET 84 FOR -L2RPDB PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Hydraulics\Wetland permit\Drawings\FINAL\R-2554A_Hyd_prm_wet_pshs24.dgn
DATE: 11/4/2011
PLOT DRIVER: STIMES
PEN TABLE: SPENTELLS

R/W REV. - 07/23/10
PARCEL 43A NAME REVISION

R/W REV. - 11/28/06
ADDED PARCEL 43A

SITE VII

NAD 83

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0288

METRIC
5m 0 10m

CONST.REV.	
R/W REV.	

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	25
R/W SHEET NO. 8 & 9 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 26 of 45

43
EDNA E. WELLS

ROBERT E. HODGIN
43A

833,802
S84°40'39"W

824,430
S84°40'39"W

LATERAL V DITCH SEE DETAIL 28

LATERAL BASE DITCH SEE DETAIL 26

LATERAL BASE DITCH SEE DETAIL 26

SPECIAL CUT DITCH SEE DETAIL 27

SPECIAL CUT DITCH SEE DETAIL 27

10.0 MTN CL B RIPRAP W/23.4 SM FIL FAB

10 MTN CL B RIPRAP W/23.4 SM FIL FAB RIPRAP ON BANKS ONLY

29.9 MTN CL I RIPRAP W/51.8 SM FIL FAB RIPRAP ON BANKS ONLY

CAT-1

MATCH LINE -L- 82+60.000 SEE SHEET 24

MATCH LINE -L- 85+80.000 SEE SHEET 26

MATCH LINE -L2RPDB- 13+60.000 SEE SHEET 26

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 53 FOR -L- PROFILE
SEE SHEET 82 FOR -L2RPC- PROFILE
SEE SHEETS 83 & 84 FOR -L2RPDB- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Hydraulics\Wetland permit\Drawings\FRMAL\R-2554A_Hyd_prm_wet_pst25.dgn
DATE: 11/4/2011
PLOT DATE: 3/7/2013
USER NAME: SPEIGHTS
PEN TABLE: SPEIGHTS

R/W REV. - 07/23/10
PARCEL 43A NAME REVISION

R/W REV. - 11/28/06
ADDED PARCEL 43A

SITE VII

NAD 83

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

Florence & Hutcheson
CONSULTING ENGINEERS
3121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0286

METRIC
5m 0 10m

CONST.REV.	
R/W REV.	

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	25
R/W SHEET NO. 8 & 9 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 27 of 45

MATCH LINE -L- 82+60.000 SEE SHEET 24

MATCH LINE -L2RPDB- 13+60.000 SEE SHEET 26

MATCH LINE -L- 85+80.000 SEE SHEET 26

EDNA E. WELLS

ROBERT E. HODGIN

LATERAL V DITCH SEE DETAIL 28

LATERAL BASE DITCH SEE DETAIL 26

10.0 MTN CL B RIPRAP W/23.4 SM FIL FAB RIPRAP ON BANKS ONLY

29.9 MTN CL I RIPRAP W/51.8 SM FIL FAB RIPRAP ON BANKS ONLY

SPECIAL CUT DITCH SEE DETAIL 27

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 53 FOR -L- PROFILE
SEE SHEET 82 FOR -L2RPC- PROFILE
SEE SHEETS 83 & 84 FOR -L2RPDB- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

FILE: R:\Hydraulics\Wetland permit\Drawings\FINAL\R-2554A_Hyd_prm_wet_pst25.dgn
DATE: 11/4/2011
PLOT DRIVER: STIMES
PEN TABLE: SPENTABLE

METRIC	PROJECT REFERENCE NO.	SHEET NO.
2.5m 0 5m	R-2554A	25
	R/W SHEET NO.	
CONST.REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
R/W REV.	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

Permit Drawing
Sheet 28 of 45

NAD 83

MATCH LINE -L- 82+60.000 SEE SHEET 24

LATERAL V DITCH
SEE DETAIL 28

HDWL

C\F

F

900

BZ 2

2GI
TYPE A
FS

16

G

2GI

1350

900

CAT-1

10.0 MTN CL B RIPRAP
W/23.4 SM FIL FAB

10 MTN CL B RIPRAP
W/23.4 SM FIL FAB
RIPRAP ON BANKS ONLY

29.9 MTN CL I RIPRAP
W/51.8 SM FIL FAB
RIPRAP ON BANKS ONLY

SITE VII

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

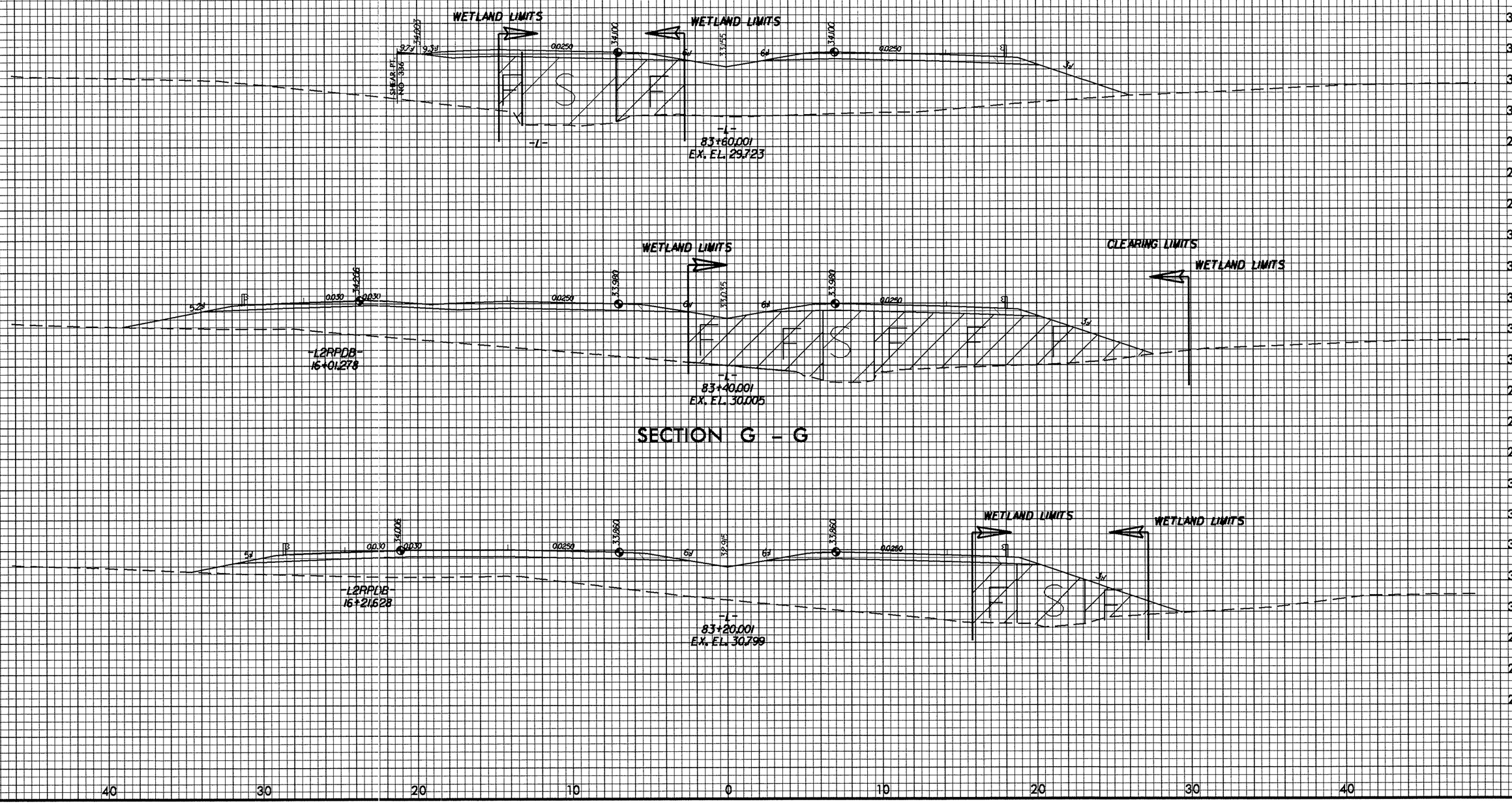
DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJ. REFERENCE NO.	SHEET NO.
R-2554A	
GOLDSBORO BYPASS	
2m 0 2m	
SCALE	

Permit Drawing
Sheet 29 of 45



SECTION G - G

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	25
R /W SHEET NO.	

METRIC

2.5m 0 5m

CONST.REV.

R /W REV.

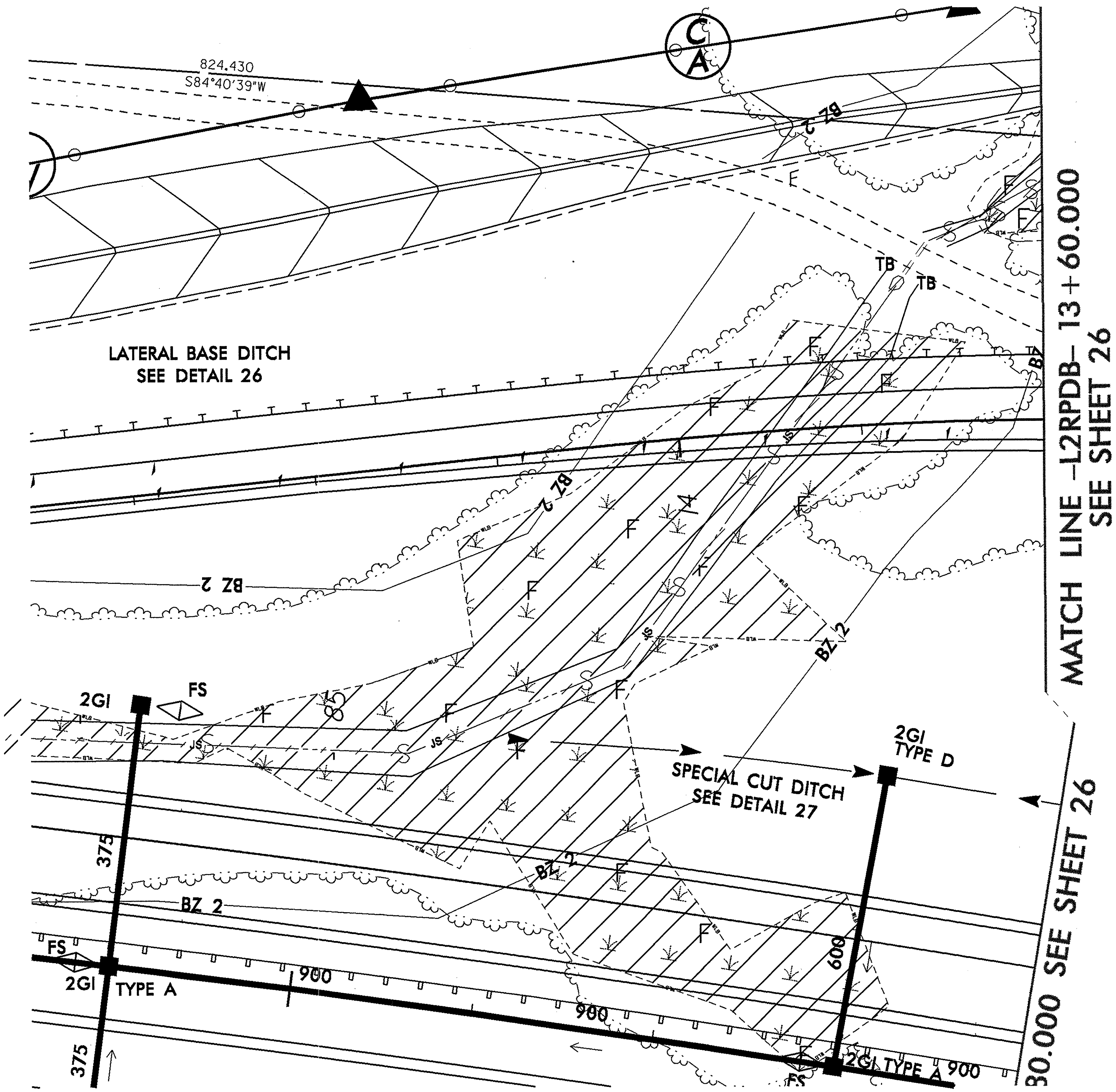
ROADWAY DESIGN ENGINEER

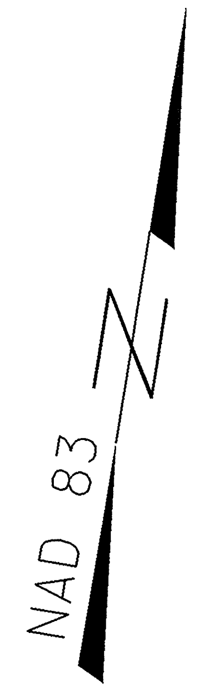
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Permit Drawing
Sheet 30 of 45





SITE VII

E E	DENOTES EXCAVATION IN WETLAND
F F	DENOTES FILL IN WETLAND
* * * * *	DENOTES MECHANIZED CLEARING
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
S S	DENOTES IMPACTS IN SURFACE WATER

R/W REV.- 07/23/10
PARCEL 43A NAME REVISION

R/W REV.- 11/28/06
ADDED PARCEL 43A
SHIFTED R/W MONUMENT ON PARCEL 43A

SITE VII

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0288

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	26
R/W SHEET NO. 9 & 10 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 31 of 45

CONST.REV.

R/W REV.

F F DENOTES EXCAVATION IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

ROBERT E. HODGIN

43A

43

EDNA E. WELLS

LATERAL BASE DITCH SEE DETAIL 26

MATCH LINE -L2RPDB- 13+60.000 SEE SHEET 25

MATCH LINE -Y- 15+00.000 SEE SHEET 29

MATCH LINE -L2RPB- 5+60.000 SEE SHEET 27

MATCH LINE -L- 89+00.000 SEE SHEET 27

MATCH LINE -L- 85+80.000 SEE SHEET 25

MATCH LINE -Y- 12+90.000 SEE SHEET 28

MATCH LINE -L2RPC- 3+40.000 SEE SHEET 28

NAD 83

SHOULDER BERM GUTTER -L2RPDB- STA. 11+59.652 TO 12+40.034

SHOULDER BERM GUTTER -Y- STA. 14+68.749 TO 14+80.435

SHOULDER BERM GUTTER -Y- STA. 14+70.948 TO 14+80.441

SHOULDER BERM GUTTER -Y- STA. 12+97.986 TO 13+05.702

SHOULDER BERM GUTTER -Y- STA. 12+99.967 TO 13+10.181

0.9 MTN CL B RIPRAP W/4.2 SM FIL FAB INV OUT=41.066

1.8 MTN CL B RIPRAP W/5.9 SM FIL FAB

0.9 MTN CL B RIPRAP W/4.2 SM FIL FAB

400 CSP 2 ELBOWS

SPECIAL CUT DITCH SEE DETAIL 27

SPECIAL CUT DITCH SEE DETAIL 23

GRADE TO DRAIN

CAT-1

TYPE-III

2GI W/FG

2GI TYPE A

2GI GRAU 350

GRAU 35

TYPE - B-77 ATTENUATOR

SR 1300 SALEM CHURCH RD

REM 375 MIN PIPE

SOD

375

450

600

680

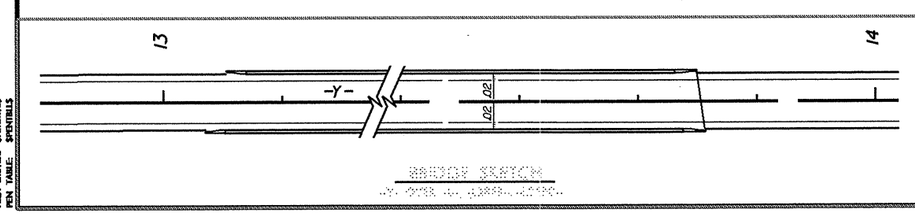
900

FS

C

F

TB



SEE SHEETS 53 & 54 FOR -L- PROFILE
SEE SHEETS 81 FOR -L2RPB- PROFILE
SEE SHEET 83 FOR -L2RPDB- PROFILE
SEE SHEET 79 FOR -Y- PROFILE
SEE SHEET 82 FOR -L2RPC- PROFILE
SEE SHEETS 2Q-2S FOR -YDET- PLAN & PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS
SEE SHEET 28A FOR CURVE DATA

FILE: R:\Hydraulics\Wetland permit\Drawings\PNA\R-2554A_Hyd_prm_wet_pshl26.dgn
DATE: 10/4/2011
DGN DRIVER: STANDARD
PEN TABLE: SPEEDTELL

R/W REV.- 07/23/10
PARCEL 43A NAME REVISION

R/W REV.- 11/28/06
ADDED PARCEL 43A
SHIFTED R/W MONUMENT ON PARCEL 43A

SITE VII

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0286

METRIC
5m 0 10m

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	26
R/W SHEET NO. 9 & 10 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

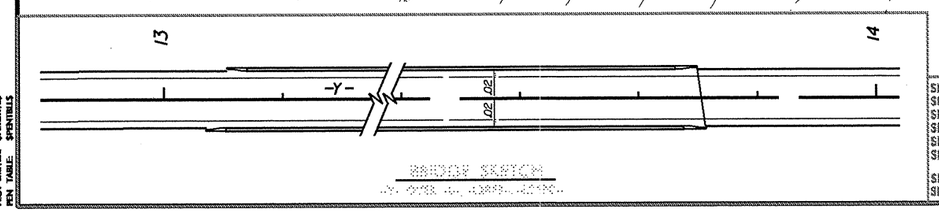
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 32 of 45

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

ROBERT E. HODGIN
EDNA E. WELLS
LATERAL BASE DITCH SEE DETAIL 26
MATCH LINE -L2RPDB- 13+60.000 SEE SHEET 25
MATCH LINE -L- 85+80.000 SEE SHEET 25
MATCH LINE -Y- 15+00.000 SEE SHEET 29
MATCH LINE -L2RPB- 5+60.000 SEE SHEET 27
MATCH LINE -L- 89+00.000 SEE SHEET 27
MATCH LINE -L2RPC- 3+40.000 SEE SHEET 28
MATCH LINE -Y- 12+90.000 SEE SHEET 28
SHOULDER BERM GUTTER -L2RPDB- STA. 11+59.652 TO 12+40.034
SHOULDER BERM GUTTER -Y- STA. 14+68.749 TO 14+80.435
SHOULDER BERM GUTTER -Y- STA. 14+70.948 TO 14+80.441
SHOULDER BERM GUTTER -Y- STA. 12+97.986 TO 13+05.702
SHOULDER BERM GUTTER -Y- STA. 12+99.967 TO 13+10.181
1.8 MTN CL B RIPRAP W/5.9 SM FIL FAB
0.9 MTN CL B RIPRAP W/4.2 SM FIL FAB
SPECIAL CUT DITCH SEE DETAIL 27
SPECIAL CUT DITCH SEE DETAIL 23
400 CSP 2 ELBOWS
GRADE TO DRAIN
TYPE-III
TYPE - B-77 ATTENUATOR
GRAU 35
GRAU 459
2GI W/FG
2GI TYPE A
CAT-1
FS
REM

NAD 83



BARDEN SKETCH

SEE SHEETS 53 & 54 FOR -L- PROFILE
SEE SHEETS 81 FOR -L2RPB- PROFILE
SEE SHEET 83 FOR -L2RPDB- PROFILE
SEE SHEET 79 FOR -Y- PROFILE
SEE SHEET 82 FOR -L2RPC- PROFILE
SEE SHEETS 2Q-2S FOR -YDET- PLAN & PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS
SEE SHEET 28A FOR CURVE DATA

FILE: R:\Hydraulics\Watford permit\Drawings\VFNM\R-2554A_hyd_prm_wat_pshl26.dgn
DATE: 11/4/2011
DGN: TIMMES
DW: SPENTBELL
PEN TABLE: SPENTBELL

METRIC	PROJECT REFERENCE NO.	SHEET NO.
2.5m 0 5m	R-2554A	26
	R /W SHEET NO.	
CONST.REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
R /W REV.	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

Permit Drawing
Sheet 33 of 45

ROBERT E. HODGIN

43A

RW

CA

LATERAL BASE DITCH
SEE DETAIL 26

SEE SHEET 25

-L2RPDB- 13+60.000 -BL-

MATCH LINE -L2RPDB- 13+60.000 -BL-

TB

TB

CAT-1

F

SITE VII

NAD 83

N

E E DENOTES EXCAVATION IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

1.8 MTN CL B RIPRAP * * * * * * * * * * DENOTES MECHANIZED CLEARING

R/W REV.- 7/08/09
REVISED PUE ON PARCEL NO. 60

R/W REV.- 6/11/09
REDUCED PAINTED ISLAND TO 19+80 -YIO-

R/W REV.- 4/15/09
ADDED PUE TO PARCEL NOS. 60, 61 & 62

R/W REV.- 11/28/06
CORRECTED PROPERTY OWNER INFORMATION

R/W REV.- 9/30/09
REVISED PRL BETWEEN PARCEL NOS. 61 & 62

FILE: R:\Hydraulics\Wetland permit\Drawings\FINAL\R-2554A_Hyd_prm_wet_pak38.dgn
DATE: 11/5/2011
PLOT DRIVER: STIMES
PEN TABLE: SPENTBILLS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0288

METRIC
5m 0 10m

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	38
R/W SHEET NO. 32	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 34 of 45

SITE VIII

NAD 83

MATCH LINE -Y1- 38+60.000 SEE SHEET 40

MATCH LINE -Y10- 17+80.000 SEE SHEET 10

MATCH LINE -Y10- 20+80.000 SEE SHEET 39

EST. 7.3 TONS CL-B RIP RAP
EST. 17.6 SM FILTER FABRIC

INV- 38.00
INV- 38.38
600
38.43

-YIODET-

-EY10-

JEAN CASEY BECTON

HARRISON RAY BECTON

FLAG POLE

EXISTING R/W

375mm CONC REM

P.O. JAMES HEIRS

GLENN A. SASSER

GLENDA GAIL SASSER

ISBKD

ISFD

DK

CONC

POND

ROCKS

PATV (FOUND)

TB

HTR

W/LT

SOIL & GR

S

F

TS

T

N47°25'18"E 57.948

N47°29'18"E 25.299

N45°24'13"E 91.849

N45°24'13"E 45.903

S45°32'47"E 18.870

S45°32'47"E 41.721

N45°24'13"E

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES TEMPORARY FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 72 FOR -Y1- PROFILE
SEE SHEET 67 FOR -Y10- PROFILE
SEE SHEET 72 FOR -DWY1- PROFILE
SEE SHEETS 2M-2P FOR -DET1- PLAN & PROFILE
SEE SHEET 2-K FOR -Y1- & -Y10- INTERSECTION DETAIL
SEE SHEETS 2T-2V FOR DITCH DETAILS

R/W REV.- 7/08/09
REVISED PUE ON PARCEL NO. 60

R/W REV.- 6/11/09
REDUCED PAINTED ISLAND TO 19+80 -Y10-

R/W REV.- 4/15/09
ADDED PUE TO PARCEL NOS. 60, 61& 62

R/W REV.- 11/28/06
CORRECTED PROPERTY OWNER INFORMATION

R/W REV.- 9/30/09
REVISED PRL BETWEEN PARCEL NOS. 61& 62

FILE: R:\Hydraulics\Wetland permit\Drawings\FINAL\R-2554A_Hyd_prm_wet_pak38.dgn
DATE: 11/5/2011
PLOT OWNER: STAMES
PLOT TIMES: 3PM
PEN TABLE: SPECTIMES

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdon Way, Suite 100 Raleigh, NC 27607
NC License No: F-0286

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	38
R/W SHEET NO. 32	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

Permit Drawing
Sheet 35 of 45

SITE VIII

NAD 83

MATCH LINE -Y1- 38+60.000 SEE SHEET 40

MATCH LINE -Y10- 17+80.000 SEE SHEET 10

MATCH LINE -Y10- 20+80.000 SEE SHEET 39

EST. 7.3 TONS CL-B RIP RAP
EST. 17.6 SM FILTER FABRIC

INV- 38.00
INV- 38.38
38.43

JEAN CASEY BECTON

HARRISON RAY BECTON

JEAN CASEY BECTON

FLAG POLE

-YIODET-

EXISTING R/W

REM CONC

375mm CONC REM

SOIL & GRAVEL

P.O. JAMES HEIRS

P.O. JAMES HEIRS

GLENN A. SASSER

GLENDA GAIL SASSER

GLENN A. SASSER

ISBKD

ISFD

POND

CONC

HTR

DK

TB

PATV POWER

NC 581 7.4 BST

-EYIO-

N47°25'18"E 67.348

N47°25'18"E 25.299

N45°24'13"E 91.721

N45°24'13"E 91.849

N45°24'13"E 45.903

TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
F F	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
T T	DENOTES TEMPORARY FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER

SEE SHEET 72 FOR -Y1- PROFILE
SEE SHEET 67 FOR -Y10- PROFILE
SEE SHEET 72 FOR -DWY1- PROFILE
SEE SHEETS 2M-2P FOR -DET1- PLAN & PROFILE
SEE SHEET 2-K FOR -Y1- & -Y10- INTERSECTION DETAIL
SEE SHEETS 2T-2V FOR DITCH DETAILS

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	38
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

2.5m 0 5m

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R /W REV.

Permit Drawing
Sheet 36 of 45

59

JEAN CASEY BECTON

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

T T DENOTES TEMPORARY FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

MATCH LINE -Y10- 20+80.000 SEE SHEET 39

SITE VIII

E F TS T TB BZ 2 RW H I 20 C

SOIL & GR

CATV (FOUTH)

375mm CONC REM

ROCKS

NC 581 7.4 BST

N47°25'18"E 57.948

N47°25'18"E 25.299

+07.669 10.355

+60.481 16.363

S21°42'22"E 40.681

375

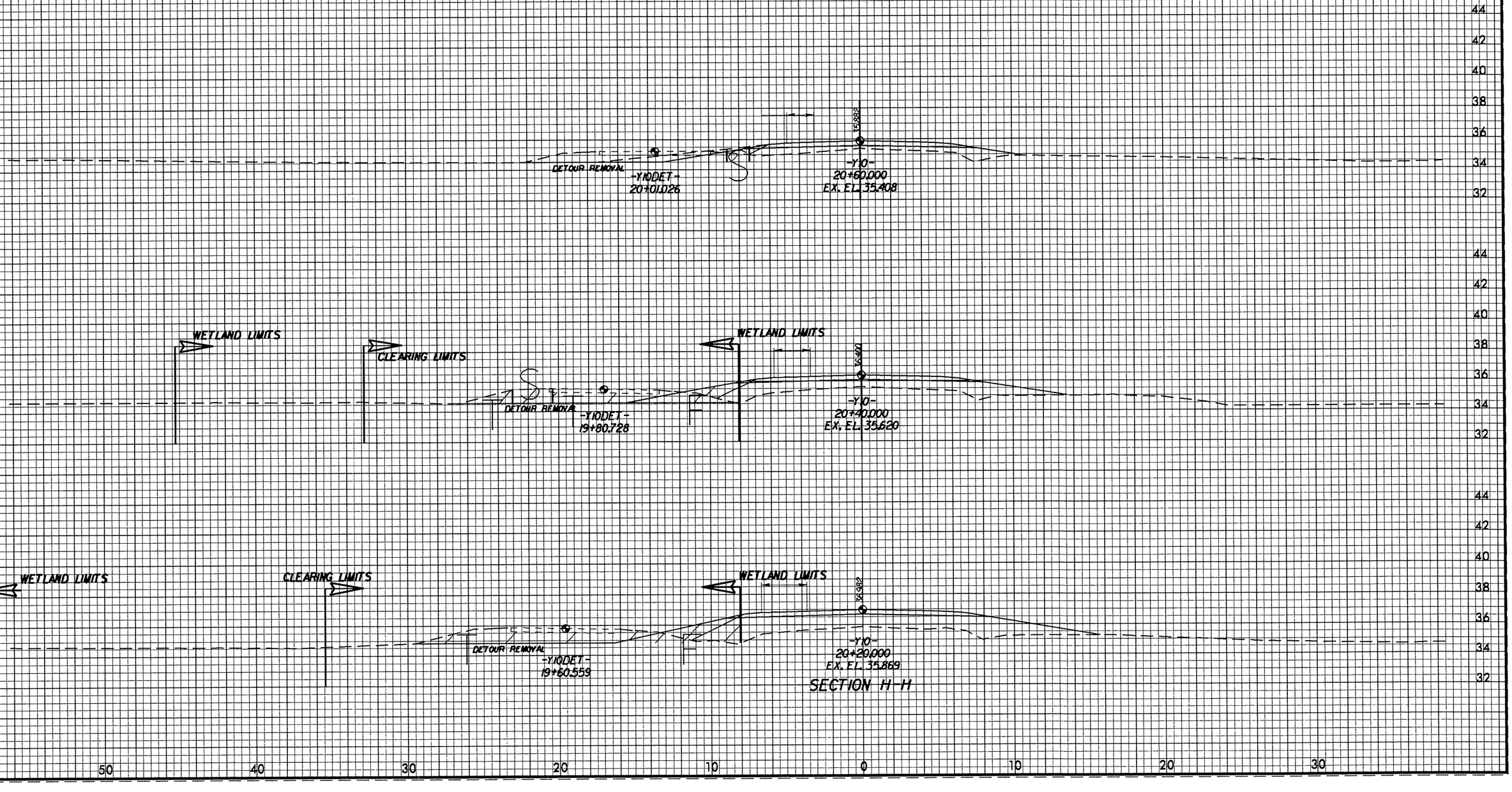
PUE

59

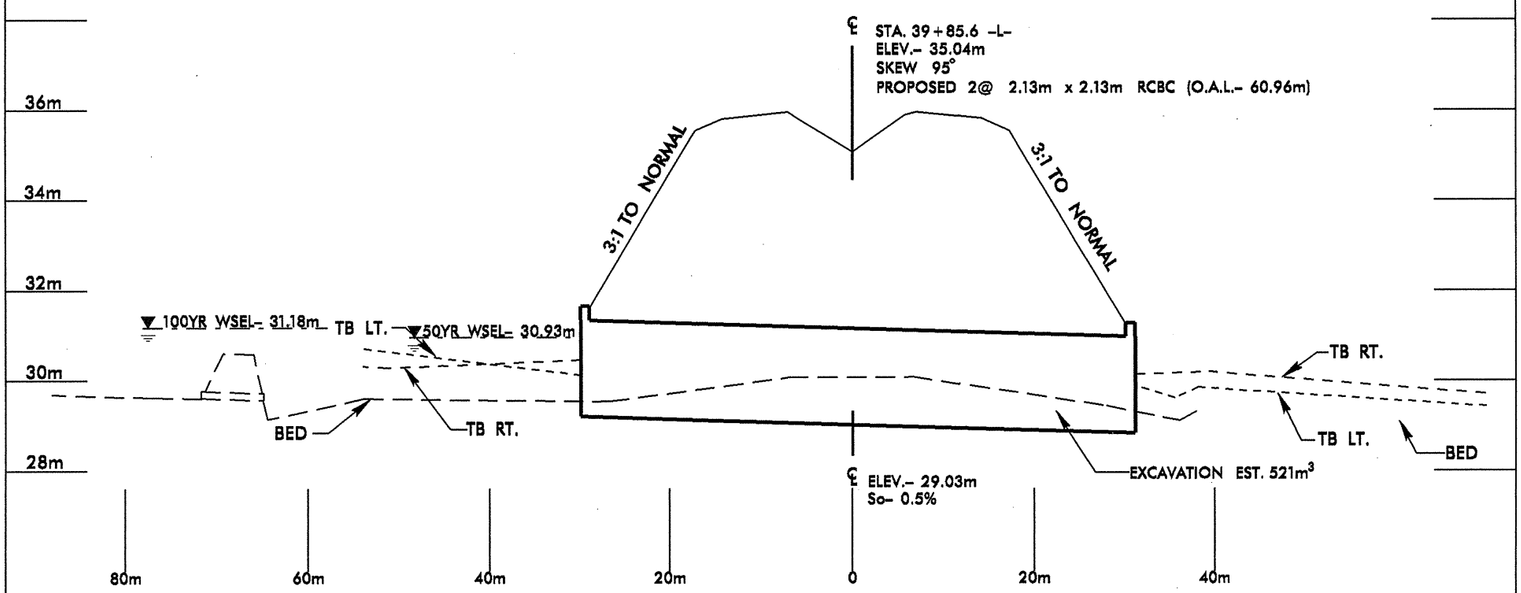
PROJ. REFERENCE NO.	SHEET NO.
R-2554A	X-284
GOLDSBORO BYPASS	

2m 0 2m
SCALE

Permit Drawing
Sheet 37 of 45



PENTABLE: SPENTBLLS
PLOTDATE: $PLTDATE$
FILE NAME: $FILE$



10m 0m 10m

VERT.

5m 0m 20m

HOR.

PROFILE

SITE 1

NCDOT

DIVISION OF HIGHWAYS

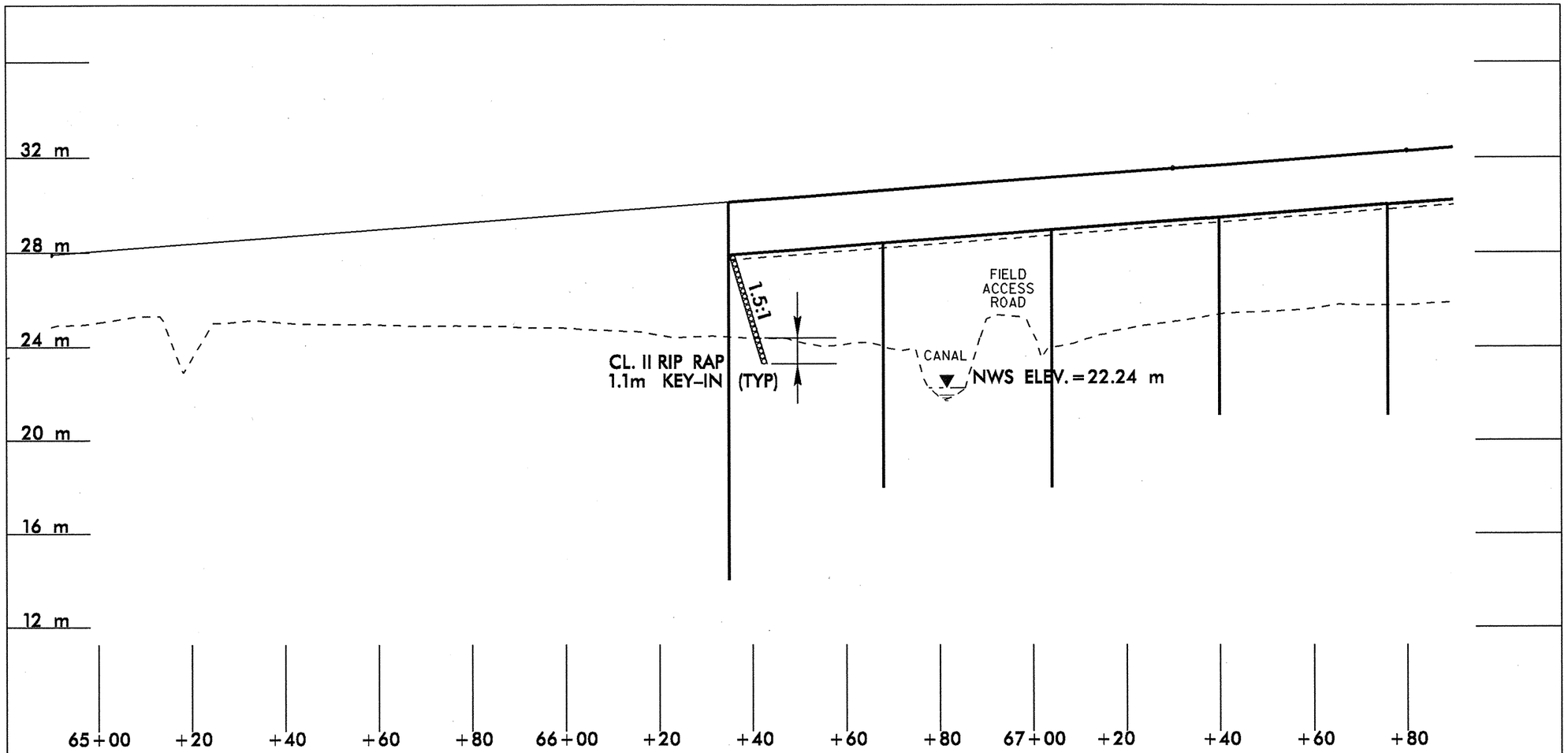
WAYNE COUNTY

PROJECT: 34461.1.3 (R-2554A)

GOLDSBORO BYPASS FROM US 70 WEST OF NC 581 TO SR 1300

SHEET OF 11/15/11

Permit Drawing
Sheet 38 of 45



4m 0m 4m
VERT.

10m 0m 40m
HOR.

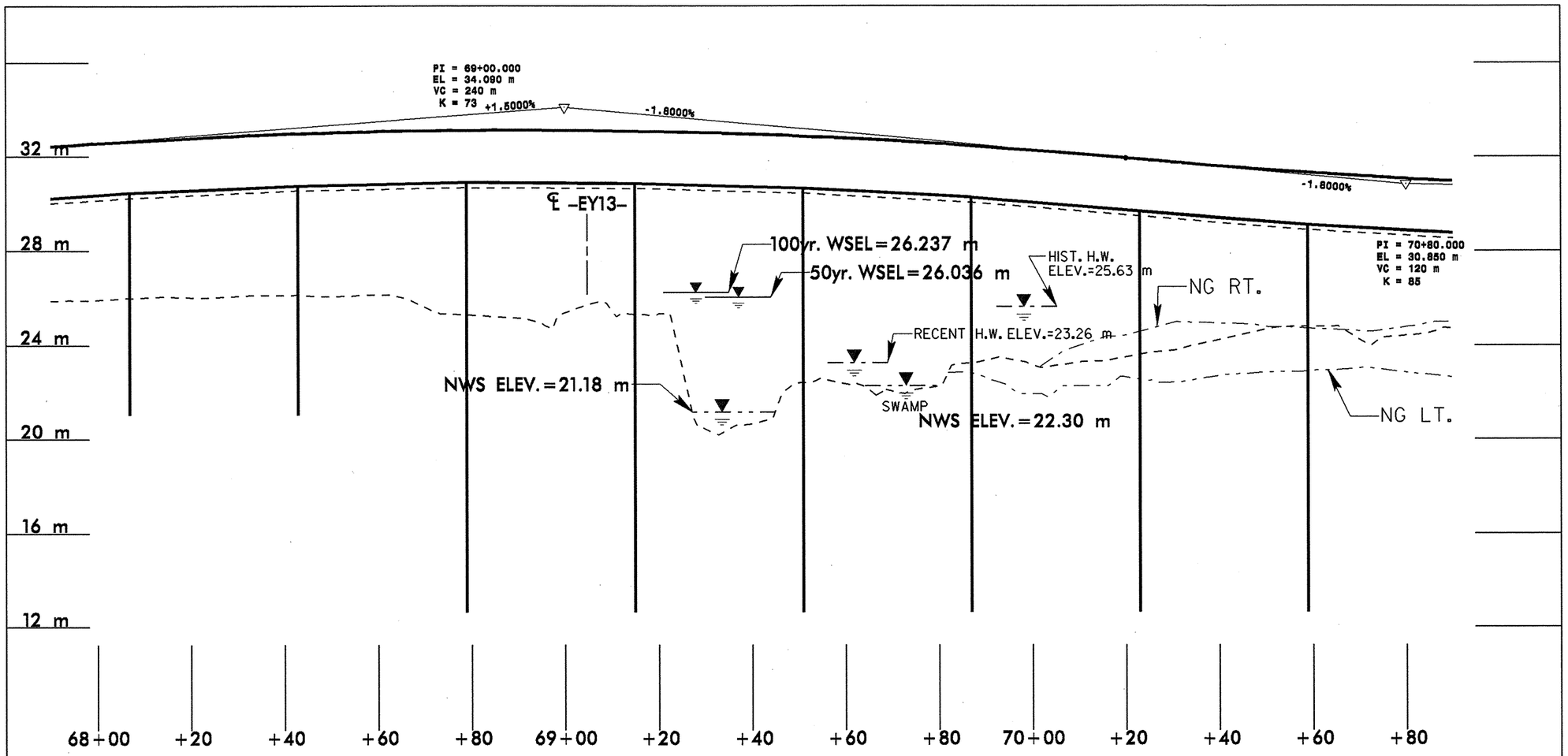
PROFILE

SITE VI

NCDOT
DIVISION OF HIGHWAYS
WAYNE COUNTY
PROJECT: 34461.1.3 (R-2554A)

GOLDSBORO BYPASS FROM US 70
WEST OF NC 581 TO SR 1300

SHEET 1 OF 4 8/22/11



4m 0m 4m
VERT.

10m 0m 40m
HOR.

PROFILE

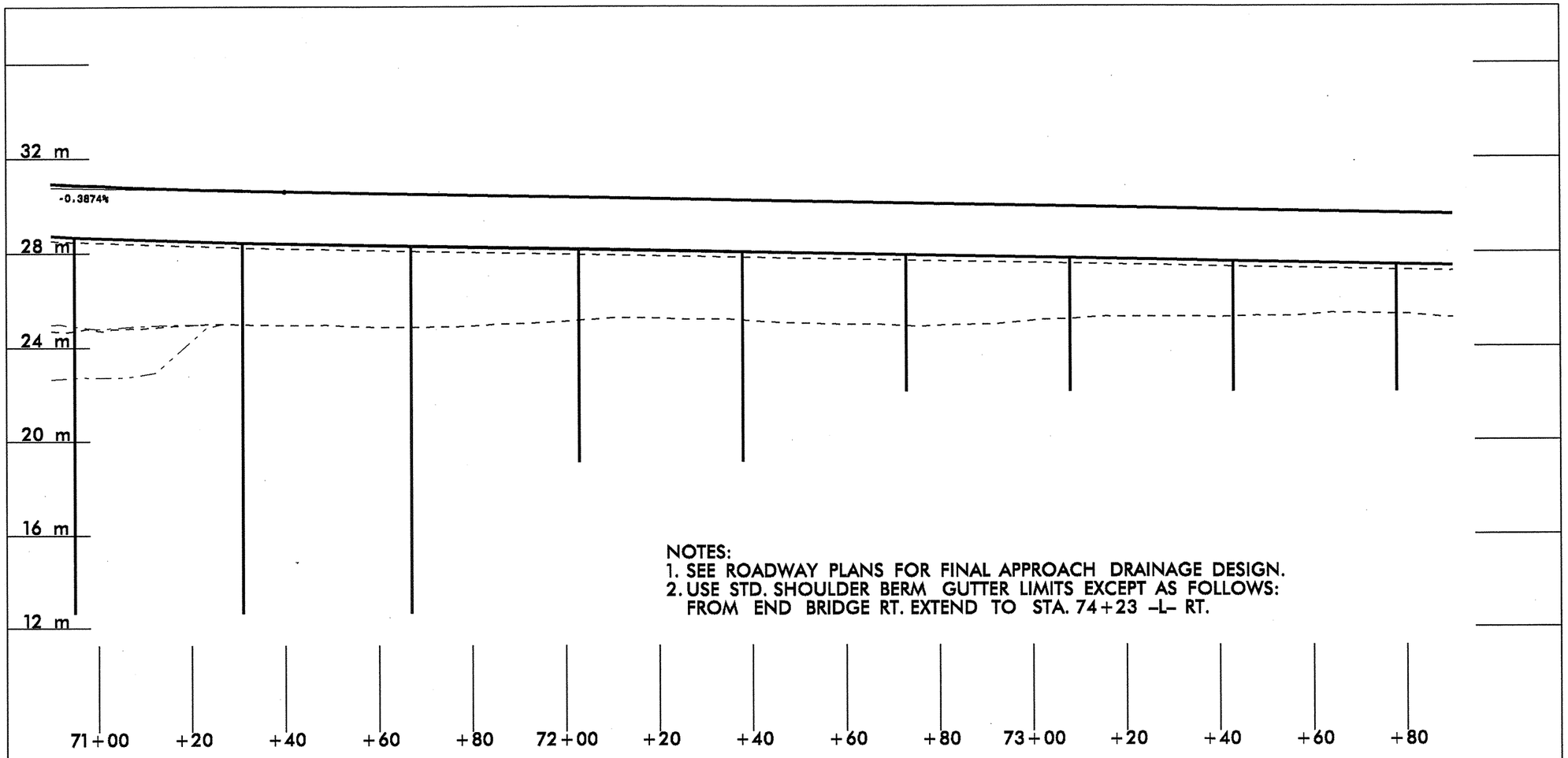
SITE VI

NCDOT

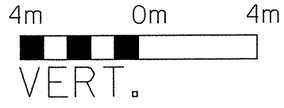
DIVISION OF HIGHWAYS
WAYNE COUNTY
PROJECT: 34461.1.3 (R-2554A)

GOLDSBORO BYPASS FROM US 70
WEST OF NC 581 TO SR 1300

SHEET 2 OF 4 8/22/11



NOTES:
1. SEE ROADWAY PLANS FOR FINAL APPROACH DRAINAGE DESIGN.
2. USE STD. SHOULDER BERM GUTTER LIMITS EXCEPT AS FOLLOWS:
   FROM END BRIDGE RT. EXTEND TO STA. 74+23 –L– RT.



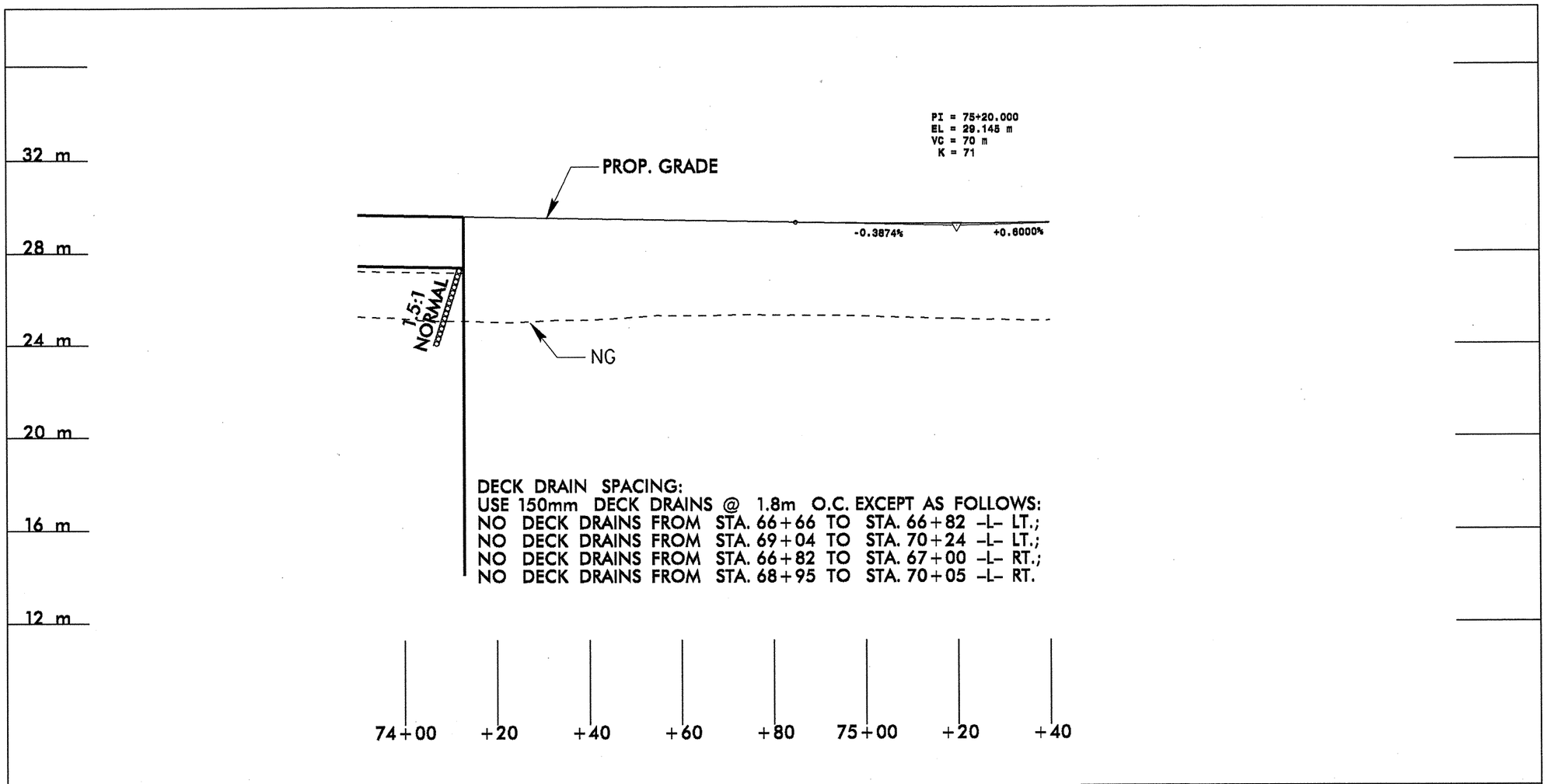
PROFILE

SITE VI

NCDOT
DIVISION OF HIGHWAYS
WAYNE COUNTY
PROJECT: 34461.1.3 (R-2554A)

GOLDSBORO BYPASS FROM US 70
WEST OF NC 581 TO SR 1300

SHEET 3 OF 4 8/22/11



DECK DRAIN SPACING:
USE 150mm DECK DRAINS @ 1.8m O.C. EXCEPT AS FOLLOWS:
NO DECK DRAINS FROM STA. 66+66 TO STA. 66+82 -L- LT.;
NO DECK DRAINS FROM STA. 69+04 TO STA. 70+24 -L- LT.;
NO DECK DRAINS FROM STA. 66+82 TO STA. 67+00 -L- RT.;
NO DECK DRAINS FROM STA. 68+95 TO STA. 70+05 -L- RT.

4m 0m 4m
VERT.

10m 0m 40m
HOR.

PROFILE

SITE VI

NCDOT
DIVISION OF HIGHWAYS
WAYNE COUNTY
PROJECT: 34461.1.3 (R-2554A)

GOLDSBORO BYPASS FROM US 70
WEST OF NC 581 TO SR 1300

SHEET 4 OF 4 8/22/11

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
29	GEORGE H. BECTON, HEIRS	N NC 581 HWY GOLDSBORO, N.C. 27530
31	DANNY P. SASSER	203 SADDLEWOOD DR. GOLDSBORO, N.C. 27534
32	CATHERINE S. SMITH	405 PARK AVE. GOLDSBORO, N.C. 27530
33	BILDAN, LLC	P.O. BOX 867 NEW BERN, N.C. 28562
34	DONALD G. WATKINS	644 NOBLES MILL RD. DEEP RUN, N.C. 28525
35	GRAVES T. LEWIS	P.O. BOX 429 LAKE WACCAMAW, N.C. 28450
36	ALVIN WATKINS	2199 US 70 WEST GOLDSBORO, N.C. 27530
37	JAMES S. CASEY	156 BLUEBERRY RD. GOLDSBORO, N.C. 27530
41	ISAAC J. MOZINGO	2716 SALEM CHURCH ROAD GOLDSBORO, N.C. 27530
43	EDNA E. WELLS	673 WELLS TOWN ROAD TEACHEY, N.C. 28464
43A	ROBERT E. HODGIN	
59	JEAN C. BECTON	343 NC HWY 581 N. GOLDSBORO, N.C. 27530
64	HARRISON R. BECTON	385 NC HWY 581 N. GOLDSBORO, N.C. 27530
902	N.C. DEPARTMENT OF TRANSPORTATION	P.O. BOX 3165 WILSON, N.C. 27895

NCDOT

DIVISION OF HIGHWAYS

WAYNE COUNTY

PROJECT: 34461.1.3 (R-2554A)

GOLDSBORO BYPASS FROM US 70 WEST OF NC 581 TO SR 1300

Permit Drawing

SHEET OF Sheet 43 of 45

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
I	40+00 -L-	2@2.13m X 2.13m RCBC	0.92		0.03	0.15		0.04	0.01	255	59	
		Bank Stabilization								24		
II	47+40 -L-		0.14			0.04						
III	49+20 -L-	750mm RCP	0.14			0.02		0.01		157		
IV	50+60 -L-	1050mm RCP	0.65			0.03		0.01	<.01	210	20	
		Bank Stabilization								28		
V	54+00 -L-	750mm RCP	0.19			0.03						
WB#1	66+80 -L-								0.02		33	
VI & WB#2	70+00 -L-			0.08			0.31					
VII	84+00 -L-	900mm &1350mm RCP	1.34		0.14	0.07		0.19	0.01	1414	33	544
		Bank Stabilization								16		
VIII	20+20 -Y10DET-		0.04	0.23		0.06		0.01	<.01	114	20	
TOTALS:			3.42	0.31	0.17	0.40	0.31	0.26	0.04	2202	165	544

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAYNE COUNTY
WBS - 34461.1.3 (R-2554A)

SHEET #########

ATN Revised 3/31/05

Permit Drawing
Sheet 44 of 45

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ha)	WETLAND IMPACTS: Temp. Fill In Wetlands (ha)	WETLAND IMPACTS: Excavation in Wetlands (ha)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ha)	WETLAND IMPACTS: Hand Clearing in Wetlands (ha)	SURFACE WATER IMPACTS: Permanent SW impacts (ha)	SURFACE WATER IMPACTS: Temp. SW impacts (ha)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (m)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (m)	Natural Stream Design (m)
I	40+00 -L-	2@2.13m X 2.13m RCBC	0.371		0.012	0.061		0.016	0.004	78	18	
		Bank Stabilization								7		
II	47+40 -L-		0.055			0.015						
III	49+20 -L-	750mm RCP	0.057			0.010		0.003		48		
IV	50+60 -L-	1050mm RCP	0.264			0.012		0.004	<.001	64	6	
		Bank Stabilization								8		
V	54+00 -L-	750mm RCP	0.079			0.011						
WB#1	66+80 -L-								0.007		10	
VI & WB#2	70+00 -L-			0.032			0.124					
VII	84+00 -L-	900mm &1350mm RCP	0.541		0.058	0.030		0.079	0.002	431	10	166
		Bank Stabilization								5		
VIII	20+20 -Y10DET-		0.017	0.095		0.024		0.004	0.001	35	6	
TOTALS:			1.385	0.127	0.071	0.163	0.124	0.106	0.014	671	50	166

NOTE: THE WETLAND SOUTH OF THE FILL SLOPE ON SITE IV IS ACCOUNTED FOR ON THE WETLAND IMPACT SUMMARY AS A TOTAL TAKE.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAYNE COUNTY
WBS - 34461.1.3 (R-2554A)

SHEET ##########

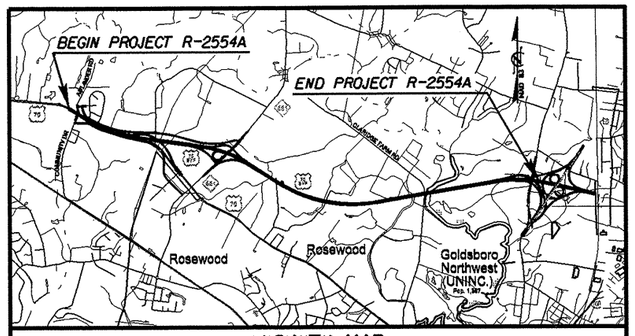
WHE Revised 5/21/2008

Permit Drawing
Sheet 45 of 45

TIP PROJECT: R-2554A

CONTRACT No.:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

LOCATION: US 70 (GOLDSBORO BYPASS) FROM WEST OF NC 581 TO SR 1300 (SALEM CHURCH ROAD)

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

METRIC

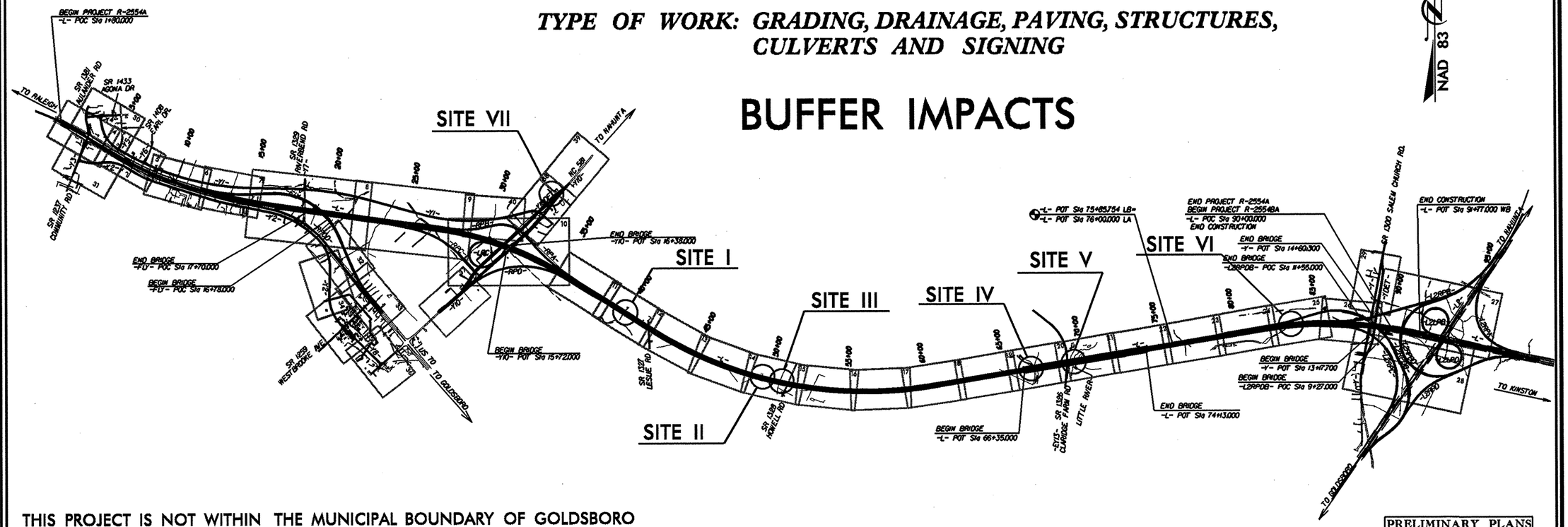
ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2554A	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34461.1.3	NHF-70(30)	P.E.
34461.2.4		R/W, UTIL

Buffer Drawing
Sheet 1 of 22

BUFFER IMPACTS



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

THIS PROJECT IS NOT WITHIN THE MUNICIPAL BOUNDARY OF GOLDSBORO
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III EXCEPT BY PERMIT
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS LIMITED TO INTERCHANGES.

GRAPHIC SCALES

PLANS 5 0 10

PROFILE (HORIZONTAL) 5 0 10

PROFILE (VERTICAL) 1 0 2

DESIGN DATA

ADT 2010 = 19,800
ADT 2030 = 36,400
DHV = 11 %
D = 60 %
T = 26 % *
V = 110 km/h

* TTST 16 % + DUAL 10 %
FUNC. CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT R-2554A	8.028 KM.
LENGTH STRUCTURES T.I.P. PROJECT R-2554A	0.778 KM.
TOTAL LENGTH OF STATE T.I.P. PROJECT R-2554A	8.806 KM.

NOTE: EB LANE USED TO DETERMINE PROJECT LENGTH

PLANS PREPARED BY:
Florence & Hutcheson
CONSULTING ENGINEERS
5121 KINGDOM WAY, SUITE 100
RALEIGH, N.C. 27607
License No: F-0258

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 20, 2006

LETTING DATE: SEPTEMBER 18 2012

DENNIS J. MORY, PE — PROJECT ENGINEER

HENRY BARE — PROJECT DESIGN ENGINEER

NCDOT CONTACT: CATHY S. HOUSER, PE — ROADWAY DESIGN - PROJECT ENGINEER

HYDRAULICS ENGINEER

P.E.

SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.

SIGNATURE:

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

P.E.

STATE HIGHWAY DESIGN ENGINEER

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DATE: 10/30/2012
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PEN TABLE: $PENTBL$

TIP PROJECT: R-2554A

CONTRACT No.:

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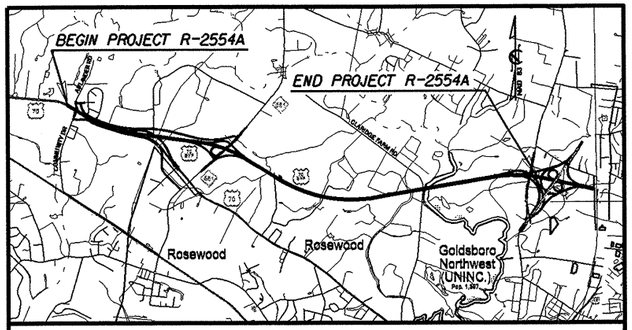
DATE: 10/2/2011
PLOT DRIVER: STIMES
PEN TABLE: SPENTABLE

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



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAYNE COUNTY

LOCATION: US 70 (GOLDSBORO BYPASS) FROM WEST OF NC 581 TO SR 1300 (SALEM CHURCH ROAD)

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

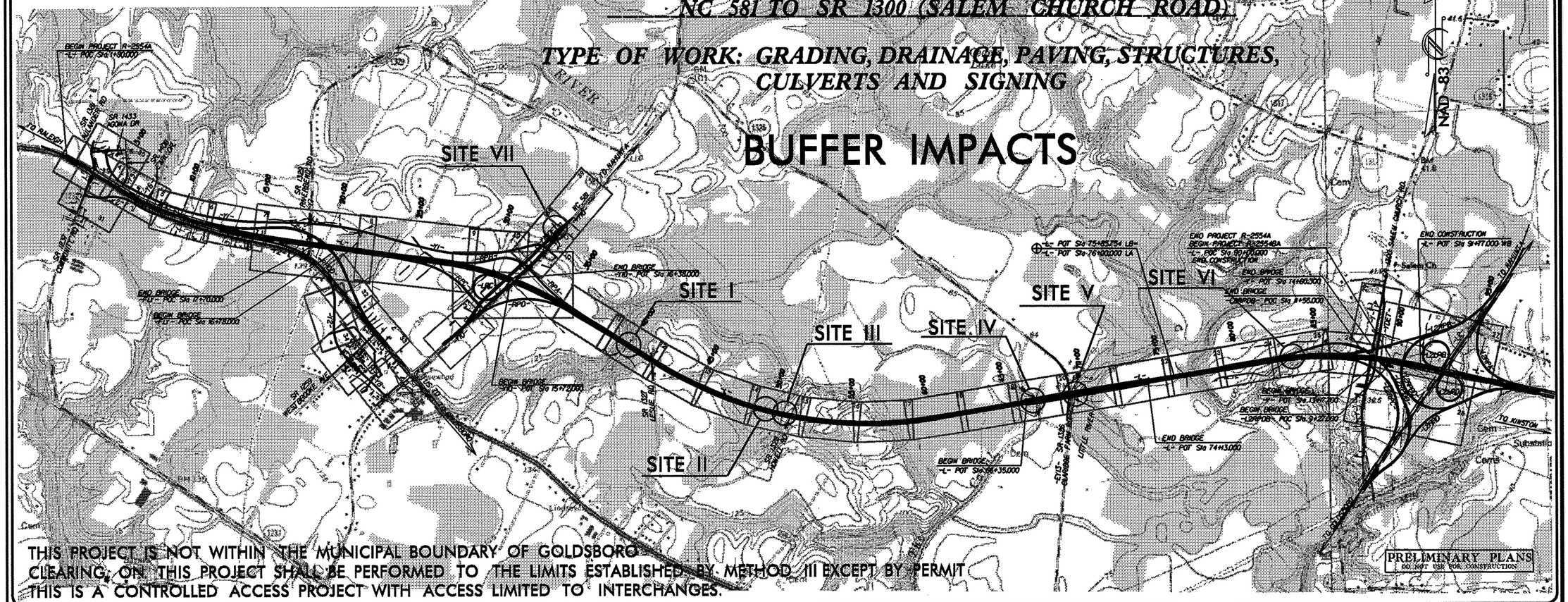
BUFFER IMPACTS

ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2554A	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34461.1.3	NHF-70(30)	P.E.
34461.2.4		R/W, UTIL

Buffer Drawing
Sheet 2 of 22



THIS PROJECT IS NOT WITHIN THE MUNICIPAL BOUNDARY OF GOLDSBORO.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III EXCEPT BY PERMIT.
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS LIMITED TO INTERCHANGES.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS 5 0 10
PROFILE (HORIZONTAL) 5 0 10
PROFILE (VERTICAL) 1 0 2

DESIGN DATA

ADT 2010 = 19,800
ADT 2030 = 36,400
DHV = 11 %
D = 60 %
T = 26 % *
V = 110 km/h

* TTST 16 % + DUAL 10 %
FUNC. CLASS.: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY T.I.P. PROJECT R-2554A	8.028 KM.
LENGTH STRUCTURES T.I.P. PROJECT R-2554A	0.778 KM.
TOTAL LENGTH OF STATE T.I.P. PROJECT R-2554A	8.806 KM.

NOTE: EB LANE USED TO DETERMINE PROJECT LENGTH

PLANS PREPARED BY:
Florence & Hutcheson
CONSULTING ENGINEERS
5121 KINGDOM WAY, SUITE 100
RALEIGH, N.C. 27607
License No: F-0258

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JANUARY 20, 2006

LETTING DATE: SEPTEMBER 18 2012

DENNIS J. MORY, PE — PROJECT ENGINEER

HENRY BARE — PROJECT DESIGN ENGINEER

NCDOT CONTACT: CATHY S. HOUSER, PE — ROADWAY DESIGN - PROJECT ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

R/W REV. - 01/10/08
COMBINED PARCEL 30 WITH PARCEL 29
R/W REV. - 11/28/06
CORRECTED PROPERTY OWNER INFORMATION
REMOVED LEVEL SPREADERS

REVISIONS

NAD 83

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0288

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	12
R/W SHEET NO. 12	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.
R/W REV.

Buffer Drawing
Sheet 3 of 22

GEORGE H. BECTON, HEIRS
29
D.A.- 3.9 ha
Q10- 1.23 m³/s
Q2- 0.9 m³/s
D10- 0.5m
D2- 0.5m
V10- 0.7 m/s
V2- 0.6m/s
So- 0.005m/m
L- 520m

DANNY P. SASSER
31

CATHERINE S. SMITH
32
D.A.- 1.01 ha
Q2= 0.17 m³/s
Q10= 0.23 m³/s
D= 0.17 m
V2= 0.62 m/s
V10= 0.95 m/s
So= 0.027 m/m
L= 200 m

RIP RAP ON BANKS ONLY

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

-L- TS Sta 41+71.877

CLASS 'I' RIP RAP
EST. 11 MTN

CLASS 'I' RIP RAP
EST. 25 MTN

0.91m SPECIAL
CUT BASE DITCH
SEE DETAIL 9

HEADWALL

0.61m SPECIAL
BASE DITCH
SEE DETAIL 6

ROCK CHECK DAMS
SEE DETAIL 20

GRAU 350

D.A.= 0.224 ha
So= 0.0055 m /m
Q2= 0.055 cms
V2= 0.35 m /s
Q10= 0.071 cms
V10= 0.37 m /s
L= 160 m

CAT-I
D.A.= 0.224 ha
So= 0.016 m /m
Q2= 0.055 cms
V2= 0.52 m /s
Q10= 0.071 cms
V10= 0.55 m /s
L= 160 m

3GI
TYPE 'A'

2GI

FS

-L- GOLDSBORO BYPASS

2 CBC 2.13 x 2.13 RCBC

D.A.= 0.378 ha
So= 0.016 m /m
Q2= 0.093 cms
V2= 0.59 m /s
Q10= 0.120 cms
V10= 0.63 m /s
L= 210 m

30.000m
(TYP.)

EXISTING R/W

MATCH LINE -L- 38+40.000 SEE SHEET 11

MATCH LINE -L- 41+80.000 SEE SHEET 13

0.91m SPECIAL
CUT BASE DITCH
SEE DETAIL 9

CLASS 'I' RIP RAP
EST. 12 MTN

EST. 4.5 MTN CL-B RIP RAP
EST. 11.7 SM FILTER FABRIC

D.A.- 1.5 ha
Q2= 0.20 m³/s
Q10= 0.26 m³/s
D= 0.20 m
V2= 0.64 m/s
V10= 0.83 m/s
So= 0.20 m/m
L= 140 m

GEORGE H. BECTON, HEIRS
29
D.A.- 2.5 ha
Q10- 0.8 m³/s
Q2- 0.6 m³/s
D10- 0.5m
D2- 0.4m
V10- 0.7 m/s
V2- 0.6m/s
So- 0.004m/m
L- 570m

GEORGE H. BECTON, HEIRS
29

DANNY P. SASSER
31

CATHERINE S. SMITH
32

SITE 1

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 46 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

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LOT / DRIVER: STIMES
EN TABLE: $PENTABLE

R/W REV. - 01/10/08
COMBINED PARCEL 30 WITH PARCEL 29
R/W REV. - 11/28/06
CORRECTED PROPERTY OWNER INFORMATION
REMOVED LEVEL SPREADERS

REVISIONS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0288

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	12
R/W SHEET NO. 12	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.
R/W REV.

Buffer Drawing
Sheet 4 of 22

MAD 83

GEORGE H. BECTON, HEIRS
29
39
DANNY P. SASSER
31
40
CATHERINE S. SMITH
32
41

D.A.= 3.9 ha
Q10= 1.23 m³/s
Q2= 0.9 m³/s
D10= 0.5m
D2= 0.5m
V10= 0.7 m/s
V2= 0.6m/s
So= 0.005m/m
L= 520m

RIP RAP ON BANKS ONLY

CLASS 'I' RIP RAP
EST 11 MTN

CLASS 'I' RIP RAP
EST 25 MTN

0.91m SPECIAL
CUT BASE DITCH
SEE DETAIL 9

HEADWALL

INV. 29.500m

INV. 29.850m

900

D.A.= 0.224 ha
So= 0.0055 m/m
Q2= 0.055 cms
V2= 0.35 m/s
Q10= 0.071 cms
V10= 0.37 m/s
L= 160 m

CAT-I

D.A.= 0.224 ha
So= 0.016 m/m
Q2= 0.055 cms
V2= 0.62 m/s
Q10= 0.071 cms
V10= 0.55 m/s
L= 160 m

3GI
TYPE 'A'

600

2.13 x 2.13 RCBC

750

GRAU 350

-L- GOLDSBORO BYPASS

CLASS 'I' RIP RAP
EST. 12 MTN

EST. 4.5 MTN CL-B RIP RAP
EST. 11.7 SM FILTER FABRIC

D.A.= 2.5 ha
Q10= 0.8 m³/s
Q2= 0.6 m³/s
D10= 0.5m
D2= 0.4m
V10= 0.7 m/s
V2= 0.6m/s
So= 0.004m/m
L= 570m

D.A.= 1.01 ha
Q2= 0.17 m³/s
Q10= 0.23 m³/s
D= 0.17 m
V2= 0.62 m/s
V10= 0.95 m/s
So= 0.027 m/m
L= 200 m

EST. 1.8 MTN CL-B RIP RAP
EST. 5.9 SM FILTER FABRIC

SOIL

-L- TS Sta 41+71.877

0.41m SPECIAL
BASE DITCH
SEE DETAIL 6

ROCK CHECK DAMS
SEE DETAIL 20

2GI

FS

D.A.= 0.378 ha
So= 0.016 m/m
Q2= 0.093 cms
V2= 0.59 m/s
Q10= 0.120 cms
V10= 0.63 m/s
L= 210 m

ROCK CHECK DAMS
SEE DETAIL 20

0.61m SPECIAL
BASE DITCH
SEE DETAIL 6

30.000m
(TYP.)

D.A.= 1.5 ha
Q2= 0.20 m³/s
Q10= 0.26 m³/s
D= 0.20 m
V2= 0.64 m/s
V10= 0.83 m/s
So= 0.20 m/m
L= 140 m

MATCH LINE -L- 38+40.000 SEE SHEET 11

MATCH LINE -L- 41+80.000 SEE SHEET 13

SITE 1

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 46 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

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LOT DRIVER: SPLTDRVR
PEN TABLE: SPENTBLL

REVISIONS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0286

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	15

R/W SHEET NO. 15

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 5 of 22

CONST. REV.
R/W REV.

SITE II

SITE III

NAD 83

MATCH LINE -L- 48+60.000 SEE SHEET 14

MATCH LINE -L- 52+00.000 SEE SHEET 16

-L- GOLDSBORO BYPASS

GRAVES T. LEWIS (35)

EST. 2.7 MTN CL-B RIP RAP
EST. 9.2 SM FILTER FABRIC

EST. 9.1 MTN CL-B RIP RAP
EST. 23.4 SM FILTER FABRIC

RIP RAP ON BANKS ONLY

PREFORMED SCOUR HOLE SEE DETAIL 21

HEADWALL

RIP RAP TOE PROTECTION SEE DETAIL 11

SPECIAL LATERAL V-DITCH SEE DETAIL 1

PROP. GR. w/ TERM. SECTIONS

HOWELL RD SR 1328 5.9 BST

AT&T

DONALD G. WATKINS (34)

STEVEN HARRISON

D.A.= 0.420 ha
So= 0.011 m /m
Q2= 0.103 cms
V2= 0.52 m /s
Q10= 0.133 cms
V10= 0.54 m /s
L= 200 m

D.A.= 0.378 ha
So= 0.011 m /m
Q2= 0.093 cms
V2= 0.51 m /s
Q10= 0.120 cms
V10= 0.54 m /s
L= 180 m

D.A.= 0.546 ha
So= 0.0035 m /m
Q2= 0.135 cms
V2= 0.36 m /s
Q10= 0.173 cms
V10= 0.39 m /s
L= 260 m

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 48 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

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PEN TABLE: $PENTABLE

REVISIONS

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0288

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	15
R/W SHEET NO. 15	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

Buffer Drawing
Sheet 6 of 22

SITE II

SITE III

NAD 83

MATCH LINE -L- 48+60.000 SEE SHEET 14

MATCH LINE -L- 52+00.000 SEE SHEET 16

-L- GOLDSBORO BYPASS

GRAVES T. LEWIS

DONALD G. WATKINS

STEVEN HARRISON

HOWELL RD SR1328

PREFORMED SCOUR HOLE SEE DETAIL 21

EST. 2.7 MTN CL-B RIP RAP
EST. 9.2 SM FILTER FABRIC

EST. 9.1 MTN CL-B RIP RAP
EST. 23.4 SM FILTER FABRIC

RIP RAP ON BANKS ONLY

D.A. = 0.420 ha
So = 0.011 m /m
Q2 = 0.103 cms
V2 = 0.52 m /s
Q10 = 0.133 cms
V10 = 0.56 m /s
L = 200 m

D.A. = 0.378 ha
So = 0.011 m/m
Q2 = 0.093 cms
V2 = 0.51 m /s
Q10 = 0.120 cms
V10 = 0.54 m /s
L = 180 m

D.A. = 0.546 ha
So = 0.0035 m /m
Q2 = 0.135 cms
V2 = 0.36 m /s
Q10 = 0.173 cms
V10 = 0.39 m /s
L = 280 m

HEADWALL

RIP RAP TOE PROTECTION SEE DETAIL 11

PROP. GR. w/ TERM. SECTIONS

SPECIAL LATERAL V-DITCH SEE DETAIL 1

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 46 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

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DATE: 11/2/2011
PLOT DRIVER: STMOS
PEN TABLE: STANDARD

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0268

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	20
R/W SHEET NO. 20	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

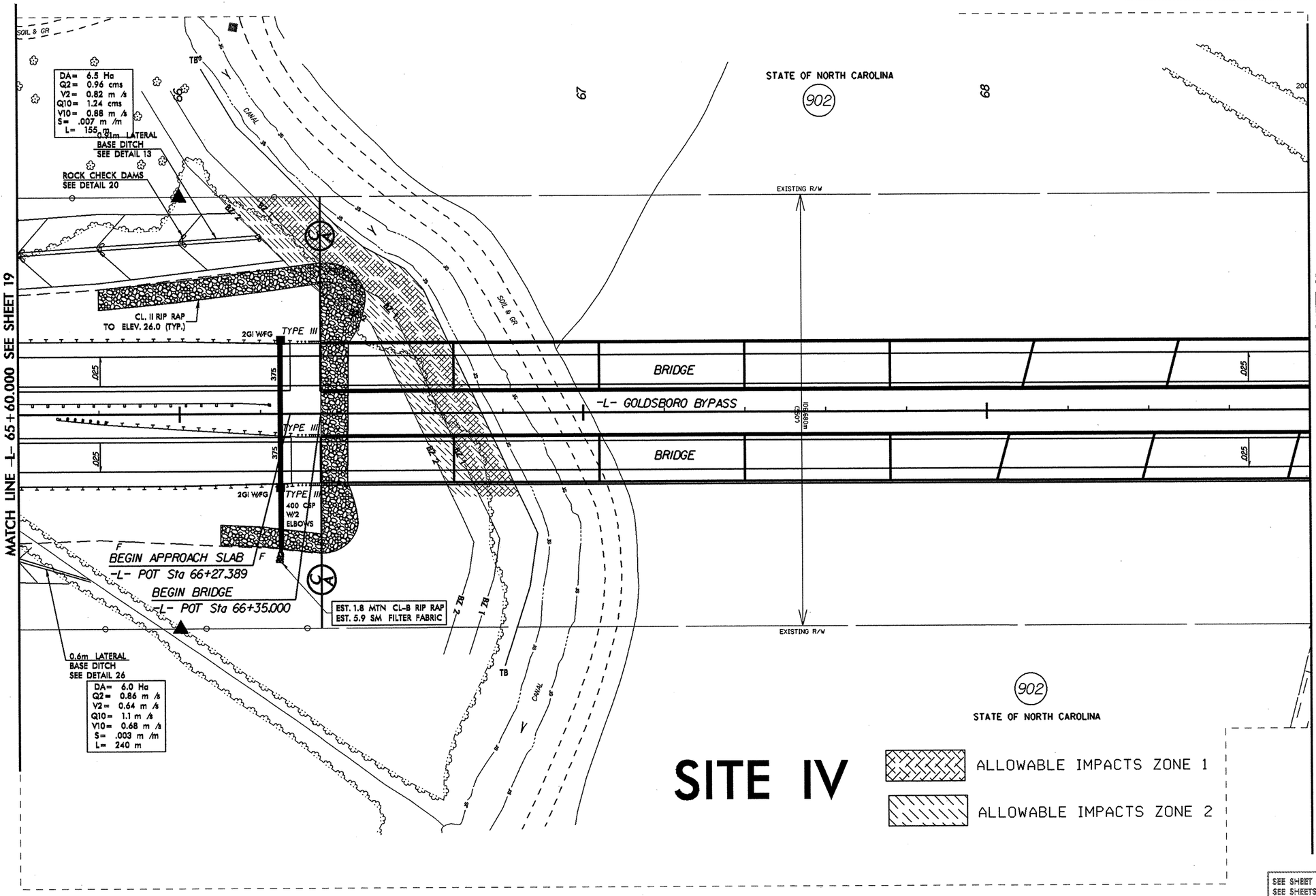
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 7 of 22

CONST.REV.

R/W REV.

NAD 83



SITE IV

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 50 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

M.E.
W.E.
LOT DRIVER: $PLTDRVLS
EN TABLE: $PENTBLLS

R:\Hydraulics\Buffer Permit\JOBS\r2554a_hyd_prm_buf_pal20.dgn
USERNAME: STAGES

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NC License No: P-0288

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	20
R/W SHEET NO. 20	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

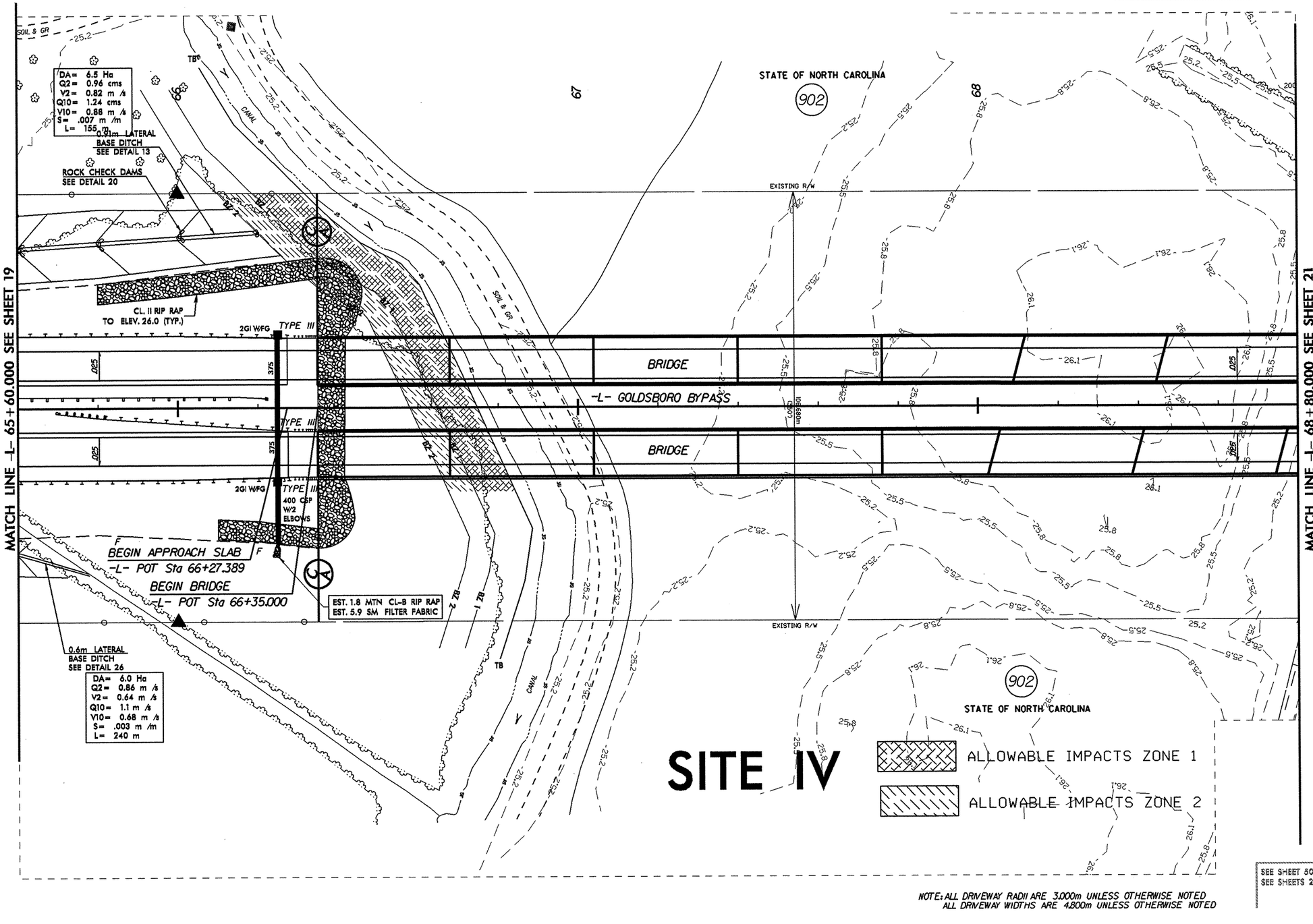
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.

R/W REV.

Buffer Drawing
Sheet 8 of 22

NAD 83



SEE SHEET 50 FOR -L- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

E.S.
DATE:
LOT DRIVER: $PLTDRVR$
PEN TABLE: $PENTBL$

R:\Hydraulics\Buffer Permit\VONS\r2554a_hyd_prm_buf_pst20.dgn
11/9/2011
STAMES

REVISIONS

NAD 83

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METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	21
R/W SHEET NO. 21, 4 & 5 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 9 of 22

CONST.REV.
R/W REV.

1500mm
STATE OF NORTH CAROLINA
902
NEW PUMPHOUSE
FORESTRY SERVICE COMPOUND
EXISTING R/W
LITTLE RIVER
RIVER IS PROPERTY LINE
ISAAC J. MOZINGO
41
BRIDGE
-L- GOLDSBORO BYPASS
GOLF COURSE
LANE FARMS INC.
BZ 1
BZ 2
TB
69
70
71
72
MATCH LINE -L- 68+80.000 SEE SHEET 20
MATCH LINE -L- 72+00.000 SEE SHEET 22

SITE V

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

SEE SHEET 51 FOR -L- PROFILE

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

FILE: R:\Hydraulics\Buffer Permit\JONES\2554a_hyd_pmt_buf_pak01.dgn
ACTIVE: TWOODS STIMES
LOT DRIVER: SPUTDRVLS
LEVEL TABLE: SPENTBLLS

REVISIONS

NAD 83

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NC License No: P-0585

METRIC

5m 0 10m

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	21
R/W SHEET NO. 21, 4 & 5 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 10 of 22

MATCH LINE -L- 68+80.000 SEE SHEET 20

MATCH LINE -L- 72+00.000 SEE SHEET 22

STATE OF NORTH CAROLINA

NEW PUMPHOUSE

FORESTRY SERVICE COMPOUND

EXISTING R/W

RIVER IS PROPERTY LINE

LITTLE RIVER

BRIDGE

-L- GOLDSBORO BYPASS

ISAAC J. MOZINGO

GOLF COURSE

LANE FARMS INC.

SITE V

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

SEE SHEET 51 FOR -L- PROFILE

FILE: R:\Hydraulics\Buffer Permit\JOBS\R2554A_hyd_pmt_buf_pak21.dgn
WORKING IN: STATE
ACTIVE LOT DRIVER: SPITDRVR
ACTIVE PEN TABLE: SPENTBLS

REVISIONS

R/W REV. - 11/28/06
CORRECTED PROPERTY OWNER INFORMATION
REVISED R/W MONUMENT ON PARCEL 42

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METRIC

5m 0 10m

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	24
R/W SHEET NO. 7 & 8 (R-2554B)	

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 11 of 22

SITE VI

-L-

PIs Sta 81+78.037
Θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

PI Sta 86+56.056
Δ = 20° 45' 49.6" (RT)
L = 905.991
T = 458.019
R = 2,500.000
SE = 0.025

PIs Sta 91+24.028
Θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

NAD 83

42
DOROTHY JEAN ANDREWS
DB 798 PG. 840

43
EDNA E. WELLS
DB 798 PG. 838

MITIGABLE IMPACTS ZONE 2

79 80 81 82

MATCH LINE -L- 79+00.000 SEE SHEET 23

MATCH LINE -L- 82+60.000 SEE SHEET 25

BERM DITCH
SEE DETAIL 29

BERM DITCH
SEE DETAIL 30

LATERAL V DITCH
SEE DETAIL 28

D.A.= 0.287 ha
So= 0.006 m /m
Q2= 0.071 cms
V2= 0.38 m /s
Q10= 0.091 cms
V10= 0.40 m /s
L= 205 m

D.A.= 0.283 ha
So= 0.006 m /m
Q2= 0.070 cms
V2= 0.38 m /s
Q10= 0.090 cms
V10= 0.40 m /s
L= 135 m

600 CSP
2 ELBOWS
BDO
FS
2GI
TYPE A
750
375
600
450
3/8
17
1.8 MTN CL B RIPRAP W/5.9 SM FIL FAB
2GI W/FG CAT-1
2GI TYPE D
GRAU 350
4.5 MTN CL B RIPRAP W/11.7 SM FIL FAB
LATERAL BASE DITCH
SEE DETAIL 26

D.A.= 1.488 ha
So= 0.005 m /m
Q2= 0.255 cms
V2= 0.53 m /s
Q10= 0.321 cms
V10= 0.62 m /s
L= 60 m

TITLEST DR 67 BST

375mm CONC
2.1 HW
2.3 HW
1.9 HW
RETAIN
EIP
LT
18.288
60

KEITH A. ACREE
DB 2862 PG. 473
PLAT CAB. L, SLIDE I-C

G. YOUSIF
AM A YOUSIF
22 PG. 363
B. L, SLIDE I-C

JESSE WILLIAMS
DB 2120 PG. 350
PLAT CAB. L, SLIDE I-C

W&T RENTALS
DB 2666 PG. 83

JOSEPH WINSTON GARRIS
AND TIFFANY K. GARRIS
DB 2561 PG. 281
PLAT CAB. L, SLIDE I-C

WAYNE INVESTMENTS
DB 2736 PG. 776

EDNA E. WELLS
DB 798 PG. 838

159

600 mm CONC
600 mm DIP

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED

SEE SHEETS 52 & 53 FOR -L- PROFILE
SEE SHEET 84 FOR -L2RPDB PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

E:\Hydraulics\Buffer Permit\JONES\2554a_hyd_prm_buf_pub314.dgn
11/2/2011
USER: SSTIMES
DESIGN: SSTIMES
TE DRIVE: SPENTILLS
4 TABLE: SPENTILLS

R/W REV. - 11/28/06
CORRECTED PROPERTY OWNER INFORMATION
REVISED R/W MONUMENT ON PARCEL 42

REVISIONS

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NC License No: F-0266

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	24
R/W SHEET NO. 7 & 8 (R-2554B)	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.

Buffer Drawing
Sheet 12 of 22

-L-
PI's Sta 81+78.037
θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

PI Sta 86+56.056
Δ = 20° 45' 49.6" (RT)
L = 905.991
T = 458.019
R = 2,500.000
SE = 0.025

PI's Sta 91+24.028
θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

NAD 83

SITE VI

42
DOROTHY JEAN ANDREWS
DB 798 PG. 840

43
EDNA E. WELLS
DB 798 PG. 838

MITIGABLE IMPACTS ZONE 2

BERM DITCH
SEE DETAIL 29

BERM DITCH
SEE DETAIL 30

LATERAL V DITCH
SEE DETAIL 28

D.A. = 0.287 ha
So = 0.006 m /m
Q2 = 0.071 cms
V2 = 0.38 m /s
Q10 = 0.091 cms
V10 = 0.40 m /s
L = 205 m

D.A. = 0.283 ha
So = 0.006 m /m
Q2 = 0.070 cms
V2 = 0.38 m /s
Q10 = 0.090 cms
V10 = 0.40 m /s
L = 135 m

D.A. = 1.488 ha
So = 0.005 m /m
Q2 = 0.255 cms
V2 = 0.53 m /s
Q10 = 0.321cms
V10 = 0.62 m /s
L = 80 m

1.8 MTN CL B RIPRAP
W/5.9 SM FIL FAB

4.5 MTN CL B RIPRAP
3W/31.7 SM FIL FAB

LATERAL BASE DITCH
SEE DETAIL 26

TITLEST DR 67 BST

KEITH A. ACREE
DB 2862 PG. 473
PLAT CAB. L, SLIDE I-C

G. YOUSIF
AM A YOUSIF
22 PG. 363
B. L, SLIDE I-C

JESSE WILLIAMS
DB 2120 PG. 350
PLAT CAB. L, SLIDE I-C

W&T RENTALS
DB 2666 PG. 83

JOSEPH WINSTON GARRIS
AND TIFFANY K. GARRIS
DB 2561 PG. 281
PLAT CAB. L, SLIDE I-C

WAYNE INVESTMENTS
DB 2736 PG. 776

MATCH LINE -L- 79+00.000 SEE SHEET 23

MATCH LINE -L- 82+60.000 SEE SHEET 25

SEE SHEETS 52 & 53 FOR -L- PROFILE
SEE SHEET 54 FOR -L2RPDB PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED

E:\Hydraulics\Buffer Permit\CONSY\2554a_hyd_prm_buf_pak24.dgn
11/9/2011
USER NAME = $USER$
LEVEL TABLE = $PSPLTBL$

R/W REV. - 07/23/10
PARCEL 43A NAME REVISION

R/W REV. - 11/28/06
ADDED PARCEL 43A

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NC License No: F-0288

METRIC

5m 0 10m

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	25
R /W SHEET NO. 8 & 9 (R-2554B)	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 13 of 22

NAD 83

ROBERT E. HODGIN (43A)

EDNA E. WELLS (43)

EDNA E. WELLS (43)

MATCH LINE -L- 82+60.000 SEE SHEET 24

MATCH LINE -L- 85+80.000 SEE SHEET 26

MATCH LINE -L2RPDB- 13+60.000 SEE SHEET 26

-STRM01-

LATERAL V DITCH SEE DETAIL 28

LATERAL BASE DITCH SEE DETAIL 26

LATERAL BASE DITCH SEE DETAIL 26

SPECIAL CUT DITCH SEE DETAIL 27

SPECIAL CUT DITCH SEE DETAIL 27

CHORD WW 1-S-BW

R/W 1.2m WW 1-S-BW

R/W 1.2m WW 1-S-BW

1.2m WW 1-S-BW

D.A.= 0.179 ha
So= 0.008 m /m
Q2= 0.044 cms
V2= 0.34 m /s
Q10= 0.057 cms
V10= 0.36 m /s
L= 85 m

D.A.= 0.252 ha
So= 0.006 m /m
Q2= 0.062 cms
V2= 0.37 m /s
Q10= 0.080 cms
V10= 0.39 m /s
L= 120 m

D.A.= 0.148 ha
So= 0.006 m /m
Q2= 0.041 cms
V2= 0.33 m /s
Q10= 0.053 cms
V10= 0.35 m /s
L= 80 m

D.A.= 0.148 ha
So= 0.006 m /m
Q2= 0.041 cms
V2= 0.33 m /s
Q10= 0.053 cms
V10= 0.35 m /s
L= 80 m

10.0 MTN CL B RIPRAP W/23.4 SM FIL FAB

10 MTN CL B RIPRAP W/23.4 SM FIL FAB RIPRAP ON BANKS ONLY

29.9 MTN CL I RIPRAP W/51.8 SM FIL FAB RIPRAP ON BANKS ONLY

CAT-1

2GI TYPE A

2GI TYPE D

2GI TYPE A

2GI TYPE A

2GI TYPE A

SITE VI

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED

SEE SHEET 53 FOR -L- PROFILE
SEE SHEET 82 FOR -L2RPC- PROFILE
SEE SHEETS 83 & 84 FOR -L2RPDB- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

R:\Hydraulics\Buffer Permit\DONS\r2554a_hyd_prm_buf_pal25.dgn
11/2/2011 STIMES
USER: SPILTORIS
FILE: SPILTORIS

R/W REV. - 07/23/10
PARCEL 43A NAME REVISION

R/W REV. - 11/28/06
ADDED PARCEL 43A

R:\Hydraulics\Buffer Permit\VONS\V2554a_hyd_prm_buf_pak25.dgn
11/9/2011 STIMES
USER: SPLITDRY13
FILE: SPLITDRY13

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NC License No: F-0288

METRIC
5m 0 10m

CONST. REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	25
R/W SHEET NO. 8 & 9 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 14 of 22

NAD 83

ROBERT E. HODGIN

EDNA E. WELLS

LATERAL BASE DITCH SEE DETAIL 26

LATERAL V DITCH SEE DETAIL 28

LATERAL BASE DITCH SEE DETAIL 26

SPECIAL CUT DITCH SEE DETAIL 27

SPECIAL CUT DITCH SEE DETAIL 27

MATCH LINE -L- 82+60.000 SEE SHEET 24

MATCH LINE -L- 85+80.000 SEE SHEET 26

-STRM01-

D.A.= 0.179 ha
So= 0.008 m /m
Q2= 0.044 cms
V2= 0.34 m /s
Q10= 0.057 cms
V10= 0.36 m /s
L= 85 m

D.A.= 0.252 ha
So= 0.006 m /m
Q2= 0.062 cms
V2= 0.37 m /s
Q10= 0.080 cms
V10= 0.39 m /s
L= 120 m

D.A.= 0.148 ha
So= 0.008 m /m
Q2= 0.041 cms
V2= 0.33 m /s
Q10= 0.056 cms
V10= 0.35 m /s
L= 80 m

D.A.= 0.148 ha
So= 0.006 m /m
Q2= 0.041 cms
V2= 0.33 m /s
Q10= 0.053 cms
V10= 0.34 m /s
L= 80 m

10.0 MTN CL B RIPRAP W/23.6SM FIL FAB

10 MTN CL B RIPRAP W/23.6SM FIL FAB RIPRAP ON BANKS ONLY

29.9 MTN CL 1 RIPRAP W/51.8 SM FIL FAB RIPRAP ON BANKS ONLY

1.2m WW 1-S-BW

SITE VI

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED

SEE SHEET 53 FOR -L- PROFILE
SEE SHEET 82 FOR -L2RPC- PROFILE
SEE SHEETS 83 & 84 FOR -L2RPDB- PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS

R/W REV.- 07/23/10
PARCEL 43A NAME REVISION
R/W REV.- 11/28/06
ADDED PARCEL 43A
SHIFTED R/W MONUMENT ON PARCEL 43A

SITE VI

Florence & Hutcheson
CONSULTING ENGINEERS
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NC License No: F-0286

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	26
R/W SHEET NO. 9 & 10 (R-2554B)	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.

Buffer Drawing
Sheet 15 of 22

MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2

ROBERT E. HODGIN
43A
EDNA E. WELLS
43

MATCH LINE -Y- 15+00.000 SEE SHEET 29
MATCH LINE -L2RPB- 5+60.000 SEE SHEET 27
MATCH LINE -L- 89+00.000 SEE SHEET 27
MATCH LINE -L- 85+80.000 SEE SHEET 25
MATCH LINE -L2RPB- 13+60.000 SEE SHEET 25
MATCH LINE -Y- 12+90.000 SEE SHEET 28
MATCH LINE -L2RPC- 3+40.000 SEE SHEET 28

LATERAL BASE DITCH SEE DETAIL 26

SHOULDER BERM GUTTER -L2RPDB- STA. 11+59.652 TO 12+40.034

SHOULDER BERM GUTTER -Y- STA. 14+68.749 TO 14+80.435

SHOULDER BERM GUTTER -Y- STA. 14+70.948 TO 14+80.441

SHOULDER BERM GUTTER -Y- STA. 12+97.986 TO 13+06.702

SHOULDER BERM GUTTER -Y- STA. 12+99.967 TO 13+10.181

0.9 MTN CL B RIPRAP W/4.2 SM FIL FAB INV OUT=41.066

1.8 MTN CL B RIPRAP W/5.9 SM FIL FAB

0.9 MTN CL B RIPRAP W/4.2 SM FIL FAB

400 CSP 2 ELBOWS

2GI W/FG

2GI TYPE A

2GI GRAU 350

SPECIAL CUT DITCH SEE DETAIL 27

SPECIAL CUT DITCH SEE DETAIL 23

TYPE-III

GRADE TO DRAIN

TYPE - B-77 ATTENUATOR

SR 1900 SALEM CHURCH RD

CAT-1

D.A.= 0.189 ha
So= 0.02 m /m
Q2= 0.047 cms
V2= 0.54 m /s
Q10= 0.060 cms
V10= 0.67 m /s
L= 90 m

D.A.= 0.278 ha
So= 0.006 m /m
Q2= 0.093 cms
V2= 0.41 m /s
Q10= 0.120 cms
V10= 0.43 m /s
L= 180 m

NAD 83

BRIDGE SKETCH

SEE SHEETS 53 & 54 FOR -L- PROFILE
SEE SHEETS 81 FOR -L2RPB- PROFILE
SEE SHEET 83 FOR -L2RPDB- PROFILE
SEE SHEET 79 FOR -Y- PROFILE
SEE SHEET 82 FOR -L2RPC- PROFILE
SEE SHEETS 2Q-2S FOR -YDET- PLAN & PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS
SEE SHEET 28A FOR CURVE DATA

FILE: R:\Mmedlock\Buffer Permit\JONS\2554a_hpd_prm_buf_pst26.dgn
DATE: 11/10/2010
USER: SPATRIK$
CTB DRIVER: SPATRIK$
PLOT TABLE: SPENTELL$

R/W REV.- 07/23/10
PARCEL 43A NAME REVISION

R/W REV.- 11/28/06
ADDED PARCEL 43A
SHIFTED R/W MONUMENT ON PARCEL 43A

SITE VI

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CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0288

METRIC

5m 0 10m

CONST.REV.	
R/W REV.	

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	26
R/W SHEET NO. 9 & 10 (R-2554B)	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 16 of 22

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2

ROBERT E. HODGIN

EDNA E. WELLS

LATERAL BASE DITCH SEE DETAIL 26

MATCH LINE -Y- 15+00.000 SEE SHEET 29

MATCH LINE -L2RPDB- 13+60.000 SEE SHEET 25

MATCH LINE -L- 85+80.000 SEE SHEET 25

MATCH LINE -L2RPDB- 5+60.000 SEE SHEET 27

MATCH LINE -L- 89+00.000 SEE SHEET 27

MATCH LINE -L2RPC- 3+40.000 SEE SHEET 28

MATCH LINE -Y- 12+90.000 SEE SHEET 28

SHOULDER BERM GUTTER -L2RPDB- STA. 11+59.652 TO 12+40.034

SHOULDER BERM GUTTER -Y- STA. 14+68.749 TO 14+80.435

SHOULDER BERM GUTTER -Y- STA. 14+70.948 TO 14+80.441

SHOULDER BERM GUTTER -Y- STA. 12+97.984 TO 13+06.702

SHOULDER BERM GUTTER -Y- STA. 12+99.967 TO 13+10.181

0.9 MTN CL B RIPRAP W/4.2 SM FIL FAB INV OUT=41.066

400 CSP 2 ELBOWS

1.8 MTN CL B RIPRAP W/5.9 SM FIL FAB

SPECIAL CUT DITCH SEE DETAIL 27

SPECIAL CUT DITCH SEE DETAIL 23

GRADE TO DRAIN

TYPE-III

2GI W/FG

2GI TYPE A

CAT-1

GRAU 350

GRAU 350

TYPE - B-77 ATTENUATOR

SR 1909 SALEM CHURCH RD

REM

D.A.= 0.189 ha
So= 0.02 m /m
Q2= 0.047 cms
V2= 0.54 m /s
Q10= 0.060 cms
V10= 0.57 m /s
L= 92 m

D.A.= 0.278 ha.
So= 0.006 m /m
Q2= 0.093 cms
V2= 0.41 m /s
Q10= 0.120 cms
V10= 0.43 m /s
L= 180 m

NAD 83

13 -Y- 14

SEE SHEETS 53 & 54 FOR -L- PROFILE
SEE SHEETS 81 FOR -L2RPB- PROFILE
SEE SHEET 83 FOR -L2RPDB- PROFILE
SEE SHEET 79 FOR -Y- PROFILE
SEE SHEET 82 FOR -L2RPC- PROFILE
SEE SHEETS 2Q-2S FOR -YDET- PLAN & PROFILE
SEE SHEETS 2T-2V FOR DITCH DETAILS
SEE SHEET 28A FOR CURVE DATA

BRIDGE BENTUP

E:
USER:
OF DRIVER: $PETDRIVE
N TABLE: $PENTABLE

I:\Hydraulics\Buffer Permit\JONES\2554a_hyd_perm_buf_pet26.dgn
TUESDAY, NOVEMBER 09, 2010 11:19:45

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: P-0288

METRIC

5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	38
R /W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

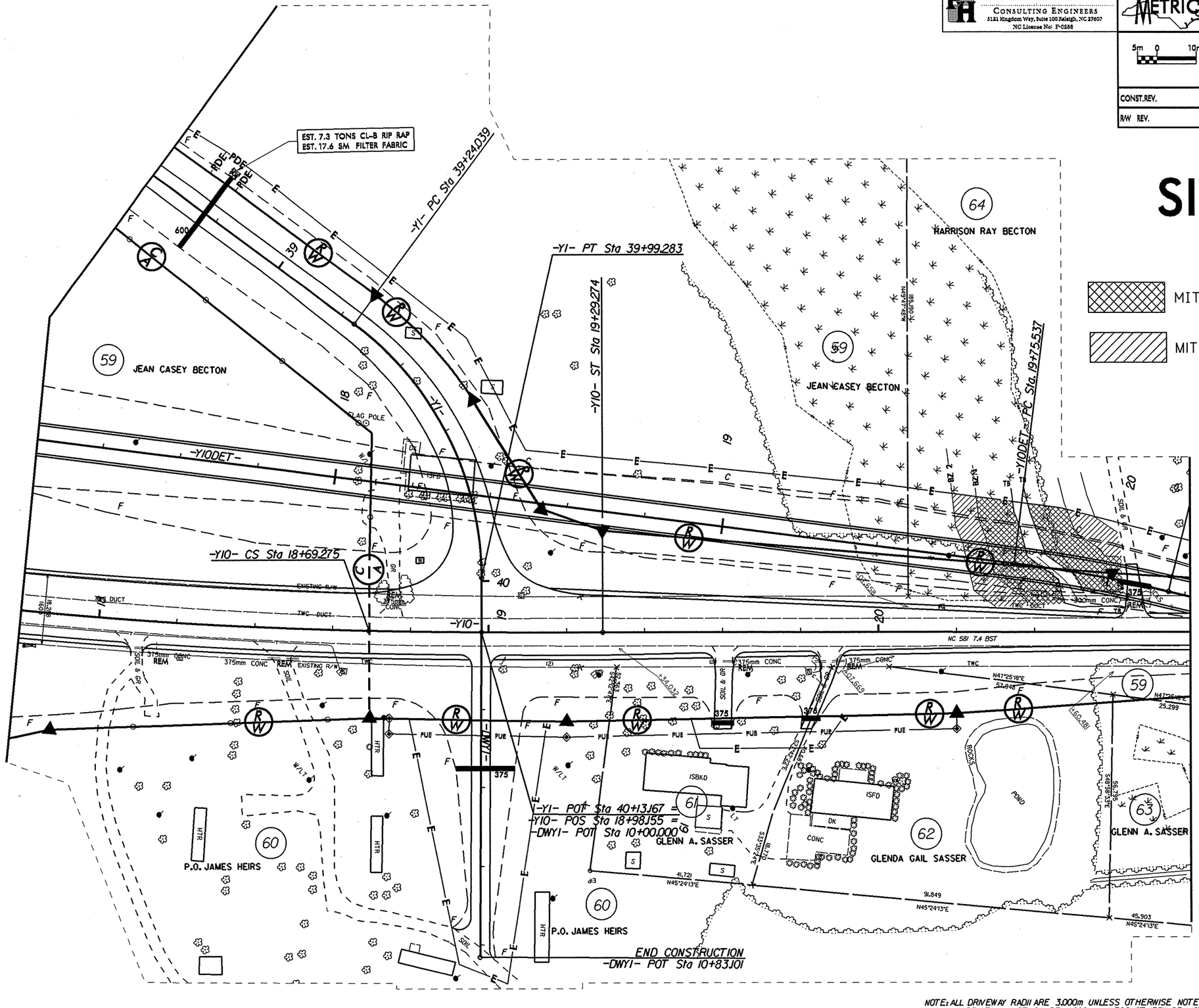
R/W REV.

Buffer Drawing Sheet 17 of 22

SITE VII

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2



NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

E: R:\Hydraulics\Buffer Permit\JONES\r2554a_byrd_prm_buf_pdt38.dgn
TE: 11/9/2011
ER NAME: kcrumbaugh
N TABLE: SITEVIII.tbl

Florence & Hutcheson
CONSULTING ENGINEERS
5121 Kingdom Way, Suite 100 Raleigh, NC 27607
NC License No: F-0288

METRIC
5m 0 10m

PROJECT REFERENCE NO.	SHEET NO.
R-2554A	38
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

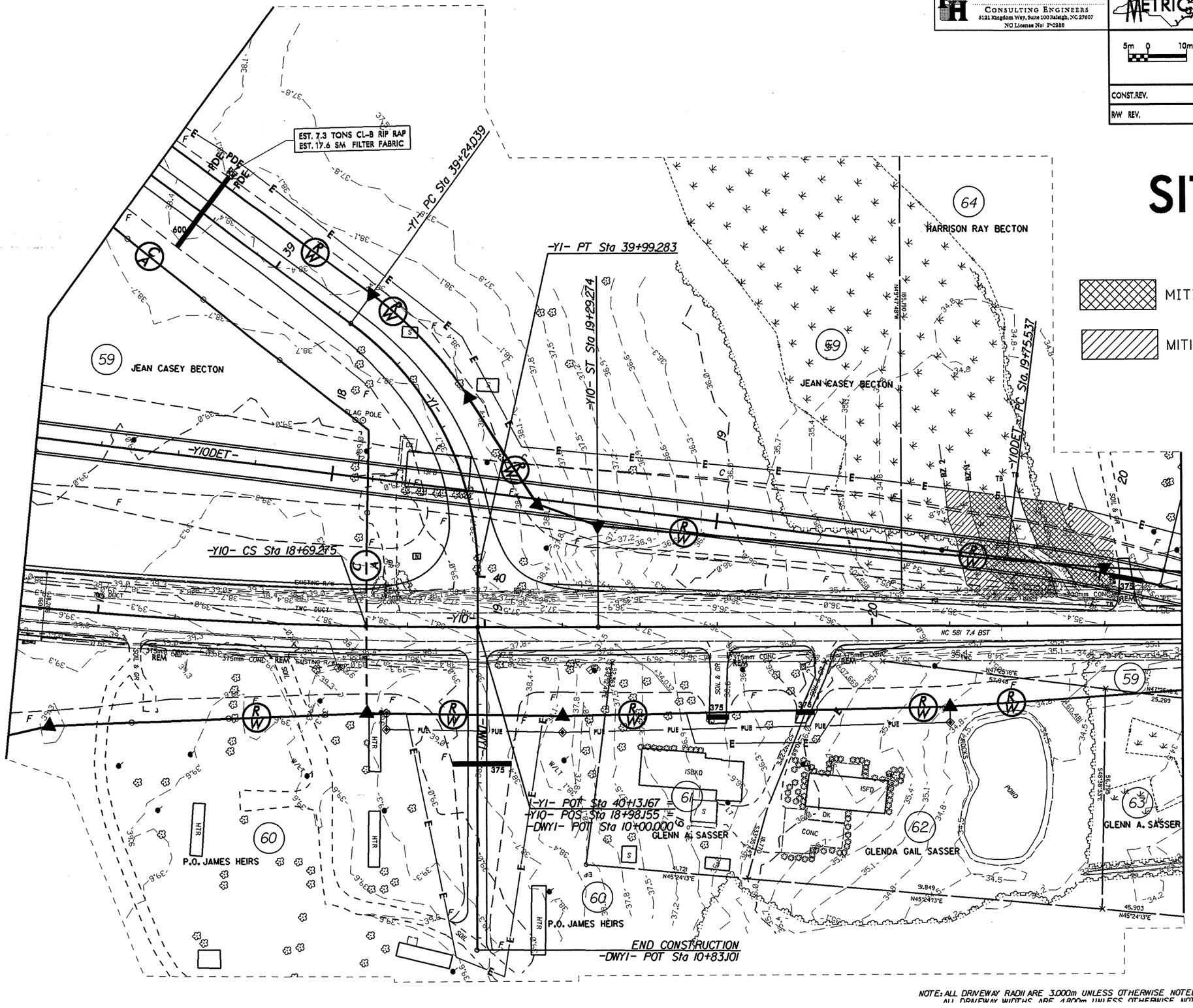
CONST.REV.
R/W REV.

Buffer Drawing
Sheet 18 of 22

SITE VII

MITIGABLE IMPACTS ZONE 1

MITIGABLE IMPACTS ZONE 2



NOTE: ALL DRIVEWAY RADII ARE 3.000m UNLESS OTHERWISE NOTED
ALL DRIVEWAY WIDTHS ARE 4.800m UNLESS OTHERWISE NOTED

FILE: R:\Hydraulics\Buffer Permit\JONES\y2554a_hyd_pmt_buf_pshb38.dgn
DATE: 11/9/2011
DT DRIVER: SINTDRIVE
DT TABLE: STSYSTBLS

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
I	2 @ 2.13 m x 2.13 m RCBC	39+60 to 40+00 -L-	X						18805	12443	31248		
II	750 mm RCP	49+00 to 49+60 -L-	X						10839	8794	19633		
III	1050 mm RCP	50+50 to 50+90 -L-	X						13455	8859	22324		
IV	BRIDGE	66+10 to 66+80 -L-				9246	6297	15532					
V	BRIDGE	69+10 to 70+70 -L-				8202	3154	11356					
VI	900 mm RCP & 1350 mm RCP	82+50 to 86+00 -L-	X						75089	48868	123968	34380	22733
VII		19+60 to 20+05 -Y10DET-	X						6006	3057	9063		
TOTAL:						17448	9451	26888	124194	82021	206236	34380	22733

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DIVISION OF HIGHWAYS

WAYNE COUNTY
PROJECT: 34461.1.3 (R-2554A)

11/9/2011

Buffer Drawing
Sheet 19 of 22

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS ZONE 1 (ft^2)	WETLANDS IN BUFFERS ZONE 2 (ft^2)
I	39+75 to 40+10 -L-		11733	6200
II	49+15 to 49+50 -L-		5608	1302
III	50+50 to 50+65 -L-		6824	4456
VI	82+50 to 85+40 -L-		28524	6017
	13+40 to 14+00 -L2RPDB-			
VII	19+60 to 19+90 -Y10DET-		3660	2013
TOTAL:			56349	19988

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAYNE
PROJECT: 34461.1.3 (R-2554A)

11/9/2011

Rev. Jan 2009

Buffer Drawing
Sheet 20 of 22

BUFFER IMPACTS SUMMARY

			IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	BRIDGE	PARALLEL IMPACT	ZONE 1 (m^2)	ZONE 2 (m^2)	TOTAL (m^2)	ZONE 1 (m^2)	ZONE 2 (m^2)	TOTAL (m^2)	ZONE 1 (m^2)	ZONE 2 (m^2)
I	2 @ 2.13 m x 2.13 m RCB	39+60 to 40+00 -L-	X						1747	1156	2903		
II	750 mm RCP	49+00 to 49+60 -L-	X						1007	817	1824		
III	1050 mm RCP	50+50 to 50+90 -L-	X						1250	823	2074		
IV	BRIDGE	66+10 to 66+80 -L-		X		859	585	1443					
V	BRIDGE	69+10 to 70+70 -L-		X		762	293	1055					
VI	900 mm RCP & 1350 mm RCP	82+50 to 86+00 -L-	X						6976	4540	11517	3194	2112
VII		19+60 to 20+05 -Y10DET-	X						558	284	842		
TOTAL:						1621	878	2498	11538	7620	19160	3194	2112

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAYNE COUNTY
PROJECT: 34461.1.3 (R-2554A)

11/9/2011

Buffer Drawing
Sheet 21 of 22

WETLANDS IN BUFFER IMPACTS SUMMARY

SITE NO.	STATION (FROM/TO)		WETLANDS IN BUFFERS ZONE 1 (m^2)	WETLANDS IN BUFFERS ZONE 2 (m^2)
I	39+75 to 40+10 -L-		1090	576
II	49+15 to 49+50 -L-		521	121
III	50+50 to 50+65 -L-		634	414
VI	82+50 to 85+40 -L-		2650	559
	13+40 to 14+00 -L2RPDB-			
VII	19+60 to 19+90 -Y10DET-		340	187
TOTAL:			5235	1857

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAYNE
PROJECT: 34461.1.3 (R-2554A)

11/9/2011

Rev. Jan 2009

Buffer Drawing
Sheet 22 of 22