



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

August 15, 2003

US Army Corps of Engineers
Raleigh Regulatory Field Office
6508 Falls of the Neuse Road, Suite 120
Raleigh, North Carolina 27615

ATTENTION: Mr. Eric Alsmeyer
NCDOT Coordinator

Dear Mr. Alsmeyer:

Subject: **Nationwide 23 and 33 applications**, for the replacement of Bridge No. 404 over South Potts Creek on SR 1147, Davidson County. Federal Aid Project No. BRSTP-1147(3), State Project No. 8.2604401, TIP Project No. B-4334.

Please find enclosed three copies of the project planning report for the above referenced project. The document states that Bridge No. 201 will be replaced with a new 210-foot [64 meter (m)] long 30 foot [9 m] wide bridge on the existing alignment. Traffic will use an offsite detour during construction. There are no permanent impacts to Waters of the U.S. associated with this project. The only surface water impacted by this project is South Potts Creek and Unnamed Tributary to South Potts Creek. All impacts will be temporary consisting of 0.012 ac of temporary fill in surface waters. South Potts Creek is located in the Yadkin River Basin and is classified by the Division of Water Quality as Class C.

Demolition: The existing bridge has an asphalt wearing surface, and the remainder of the bridge, both superstructure and substructure, is composed of reinforced concrete. Thus, there is a potential for components of the bridge to be dropped into Waters of the United States during construction. The asphalt wearing surface will be removed prior to demolition without dropping any into the water.

The resulting temporary fill associated with the reinforced concrete components of the bridge will be as much as approximately 197 cubic yards. During construction, Best Management Practices for Bridge Demolition and removal will be followed.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Temporary Causeways

There will be 0.012 acres temporary impacts from the construction a rock causeway in South Potts Creek and the UT for the construction of bridge 404 (see permit drawing Sheets 3 and 6 of 6). Temporary rock causeway will be required to remove the interior bent from the existing bridge. The causeways will consist of Class II riprap topped with a layer of Class "A" riprap .

Restoration Plan: No permanent fill will result from the subject activity. The materials used as temporary fill in the construction of the causeways will be removed. The temporary fill areas will be graded back to the original contours. Elevations and contours in the vicinity of the proposed causeways are available from the field survey notes.

Schedule for Restoration of Temporary Fill Area: It is assumed that the Contractor will begin construction of the proposed causeways shortly after the date of availability for the project. The Let date is December 2, 2003 with a date of availability of January 12, 2003.

Removal and Disposal: The causeways will be removed within 90 days of the removal of the interior bent. The temporary rock causeways will be removed by the Contractor using excavating equipment. All materials placed in the stream by the Contractor will be removed. The Class II riprap that is removed may be used on end slopes where Class II riprap is required at the discretion of the Engineer. All other materials removed by the Contractor will be disposed of at an off site upland location.

FEDERALLY-PROTECTED SPECIES

Plants and animals with federal classifications of Endangered, Threatened, Proposed Endangered, and Proposed Threatened are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 29, 2003, the Fish and Wildlife Service (FWS) lists three federally protected species for Davidson County (Table 1).

Table 1. Federally-Protected Species for Davidson County

Scientific Name	Common Name	Status	Habitat Determination	Biological Conclusion
<i>Haliaeetus leucocephalus</i>	Bald Eagle	T*	NO	No Effect
<i>Helianthus schweinitzii</i>	Schweinitz's sunflower	E	Yes	No Effect
<i>Clemmys muhlenbergii</i>	Bog Turtle	T(S/A)	N/A	Not Required

"E" - denotes Endangered (a species that is in danger of extinction throughout all or a significant portion of its range).

"T"- denotes Threatened a species which is likely to become endangered species within the foreseeable future throughout all or a significant portion of its range.

"T (S/A)- Threatened due to similarity of appearance, a species that is threatened due to similarity of appearance with other rare species and is listed for its protection. These species are not biologically threatened and are not subject to Section 7 consultation.

"*" - Proposed for delisting

A survey for bald eagle, and Schweinitz's sunflower was originally conducted by NCDOT biologist on September 26, 2001 and a biological conclusion of "No Effect" was

issued. A re-survey for the Schweinitz's sunflower was conducted on August 14, 2003 and no individuals were found.

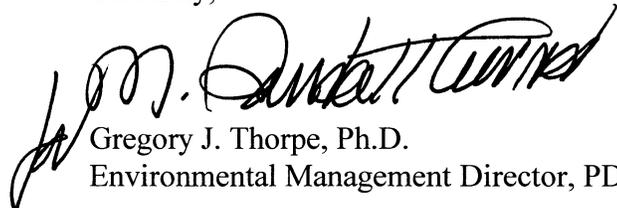
Regulatory Approvals

Section 404 Permit: It is anticipated that the construction of the causeways will be authorized under Section 404 Nationwide Permit 33 (Temporary Construction Access and Dewatering). We are, therefore, requesting the issuance of a Nationwide Permit 33 authorizing construction of the causeway. All other aspects of this project are being processed by the Federal Highway Administration as a "Categorical Exclusion" in accordance with 23 CFR 771.115(b). Therefore, we do not anticipate requesting an individual permit, but propose to proceed under a Nationwide 23 as authorized by a Nationwide Permit 23 (FR number 10, pages 2020-2095; January 15, 2002).

Section 401 Permit: We anticipate 401 General Certifications numbers 3361 and 3366 will apply to this project. In accordance with 15A NCAC 2H .0501(a) we are providing two copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their records.

If you have any questions or need additional information, please contact Brett Feulner at (919) 715-1488.

Sincerely,



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

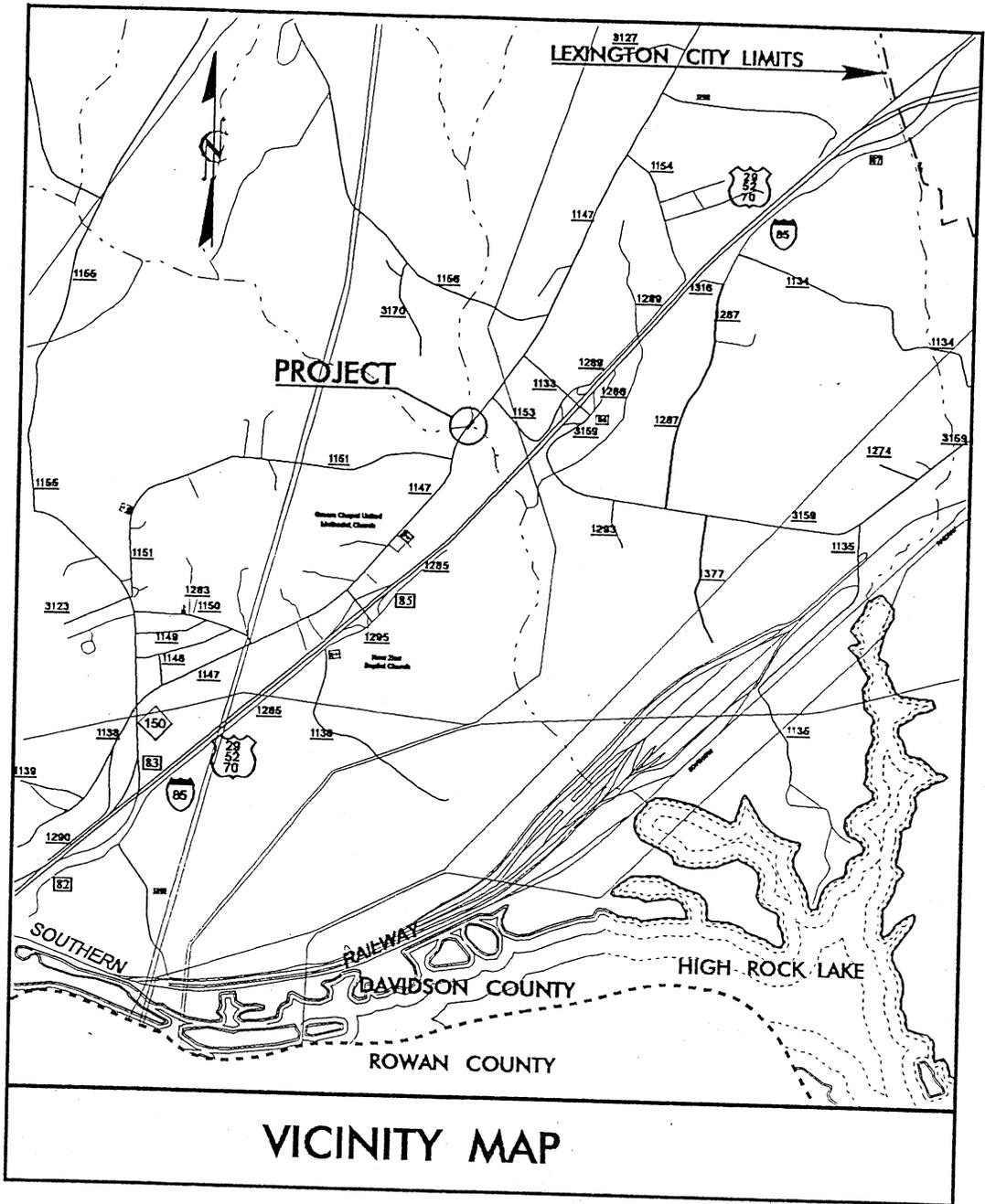
w/ attachment:

- Mr. John Dorney, NC Division of Water Quality (2 copies)
- Ms. Marla Chambers, NCWRC
- Ms. Marella Buncick, USFWS
- Mr. Greg Perfetti, P.E., Structure Design

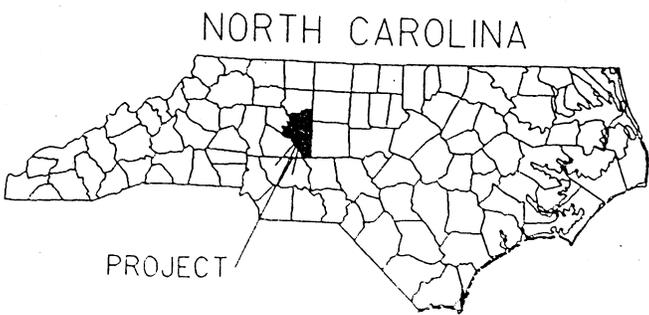
w/o attachment

- Mr. David Franklin, USACE, Wilmington
- Mr. Jay Bennett, P.E., Roadway Design
- Mr. Omar Sultan, Programming and TIP
- Ms. Deborah Barbour, PE, Highway Design
- Mr. David Chang, P.E., Hydraulics
- Ms. Mark Staley, Roadside Environmental
- Mr. S. P. Ivey, P.E., Division 9 Engineer
- Ms. Diane Hampton, P.E., DEO
- Mr. John Conforti, Project Planning Engineer

014



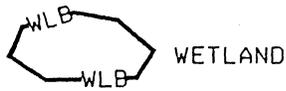
VICINITY MAP



NCDOT
 DIVISION OF HIGHWAYS
 DAVIDSON COUNTY
 PROJECT: 8.2604401 (B-4334)
 REPLACE BRIDGE NO. 404
 OVER SOUTH POTTS CREEK
 ON SR 1147

WETLAND LEGEND

— WLB — WETLAND BOUNDARY



— FLOW DIRECTION

— TB — TOP OF BANK

— WE — EDGE OF WATER

— C — PROP. LIMIT OF CUT

— F — PROP. LIMIT OF FILL

▲ PROP. RIGHT OF WAY

— NG — NATURAL GROUND

— PL — PROPERTY LINE

— TDE — TEMP. DRAINAGE EASEMENT

— PDE — PERMANENT DRAINAGE EASEMENT

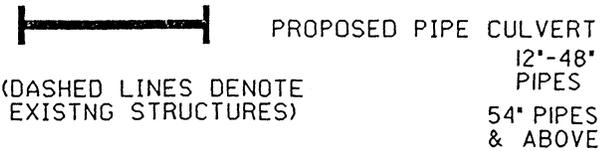
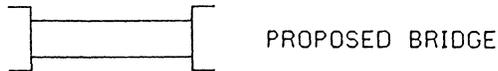
— EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

— EPB — EXIST. ENDANGERED PLANT BOUNDARY

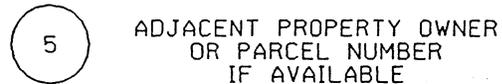
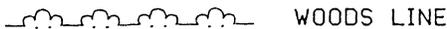
—▽— WATER SURFACE



— CORE FIBER ROLLS



(DASHED LINES DENOTE EXISTING STRUCTURES)



NCDOT

DIVISION OF HIGHWAYS

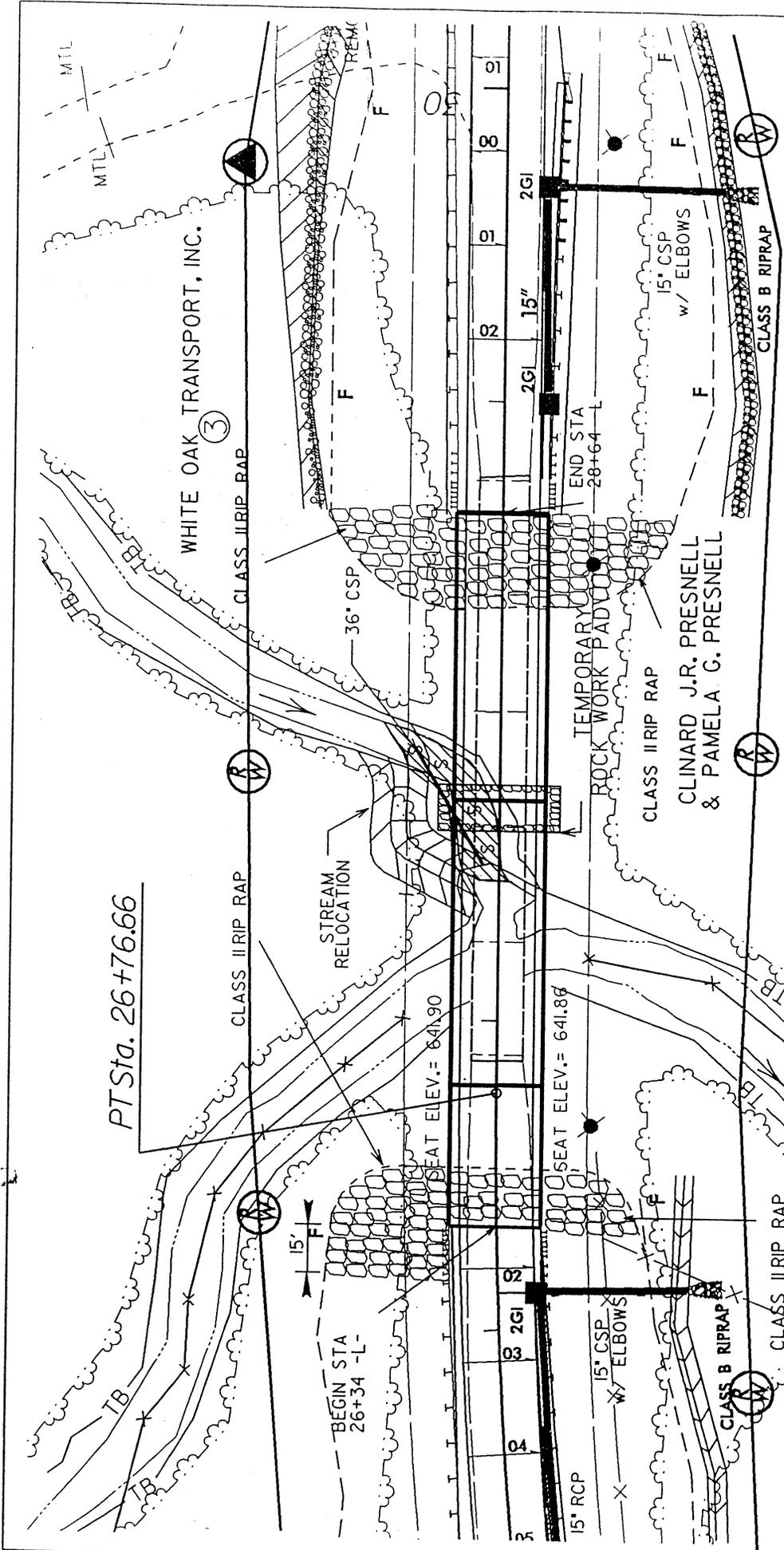
DAVIDSON COUNTY

PROJECT: 8.2604401 (B-4334)

REPLACE BRIDGE NO. 404

OVER SOUTH POTTS CREEK

ON SR 1147



PT Sta. 26+76.66

WHITE OAK TRANSPORT, INC.

CLASS II RIP RAP

STREAM RELOCATION

36" CSP

BEGIN STA 26+34 -L-

SEAT ELEV. = 641.90

SEAT ELEV. = 641.86

END STA 28+64 -L

15" CSP w/ ELBOWS

TEMPORARY ROCK WORK PAD

CLINARD J.R. PRESNELL & PAMELA G. PRESNELL

15" CSP w/ ELBOWS

CLASS B RIPRAP

CLASS II RIP RAP

CLASS B RIPRAP

①

④

JAMES R. SWING, III

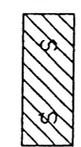
PLAN VIEW

NCDOT

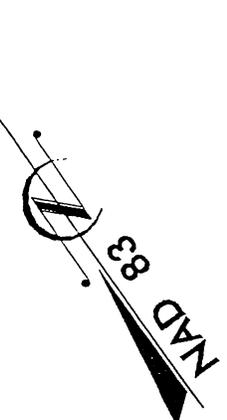
DIVISION OF HIGHWAYS
DAVIDSON COUNTY



SCALE: 1" = 50' HORIZ.



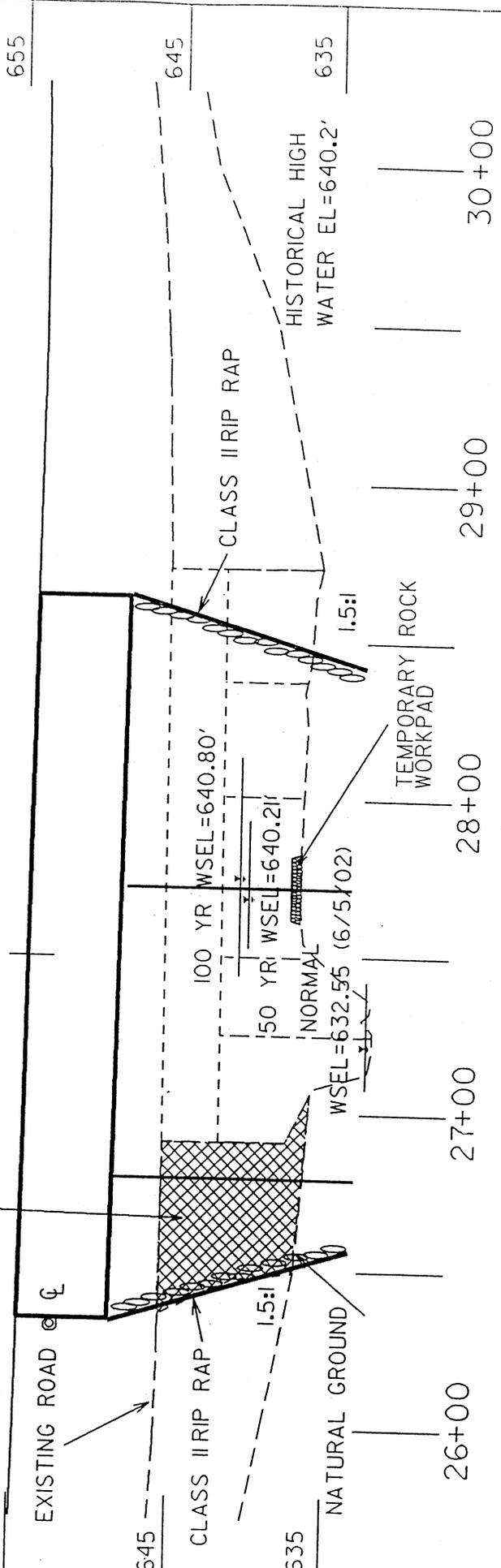
DENOTES FILL IN SURFACE WATER



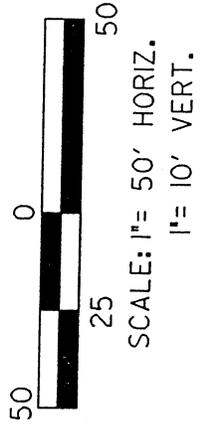
PROJECT: 8.2604401 (B-4334)
REPLACE BRIDGE NO. 404
OVER SOUTH POTTS CREEK
ON SR 1147

STA 27+49.00 -L-
 GRADE PT. ELEV. 654.82'
 1 @ 45', 2 @ 92.5', 54" PRESTRESSED
 GIRDERS
 SKEW 90°

Embankment Excavation
 Approx. 13,400 cu. ft.



PROFILE



NCDOT
 DIVISION OF HIGHWAYS
 DAVIDSON COUNTY
 PROJECT: 8.2604401 (B-4334)
 REPLACE BRIDGE NO. 404
 OVER SOUTH POTTS CREEK
 ON SR 1147

PROPERTY OWNERS
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	JAMES R. SWING III	7761 OLD SALISBURY RD. LINWOOD, NC 27299
3	WHITE OAK TRANSPORT, INC.	751 PALMER LN. WINSTON-SALEM, NC 27107
4	CLINARD J.R. PRESNELL	7555 OLD SALISBURY RD. LINWOOD, NC 27299-9762

NCDOT

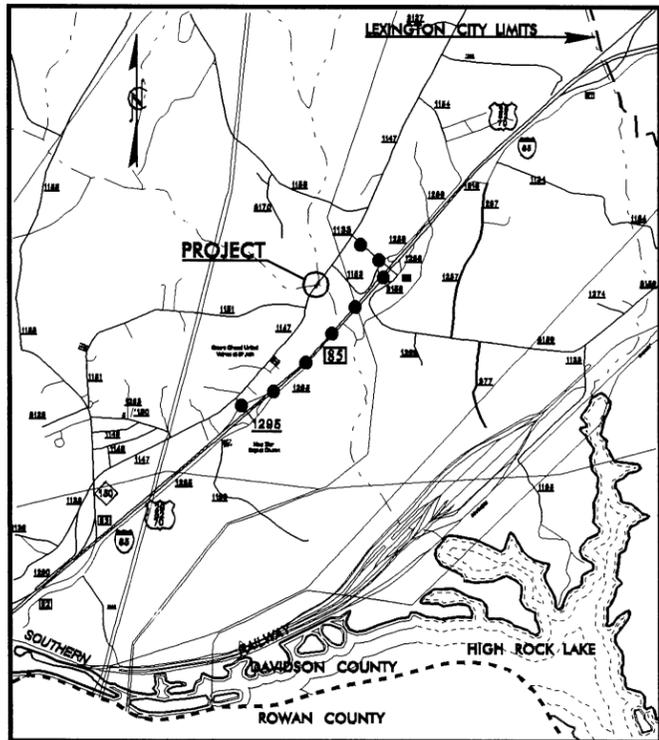
DIVISION OF HIGHWAYS
DAVIDSON COUNTY

PROJECT: 8.2604401 (B-4334)

REPLACE BRIDGE NO. 404
OVER SOUTH POTTS CREEK
ON SR 1147

9/09/99

B-4334



VICINITY MAP
--- DETOUR ROUTE

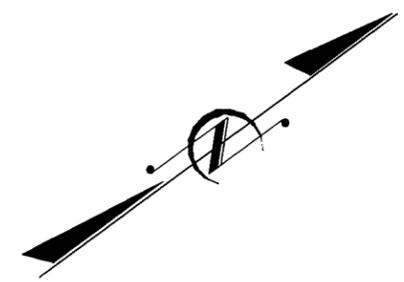
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
DAVIDSON COUNTY

LOCATION: BRIDGE NO. 404 OVER SOUTH POTTS CREEK ON SR 1147
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4334	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
8.2604401	BRSTP-1147(3)	PE	
8.2604402	BRSTP-1147(3)	R/W, UTIL	
8.2604403	BRSTP-1147(3)	CONST.	

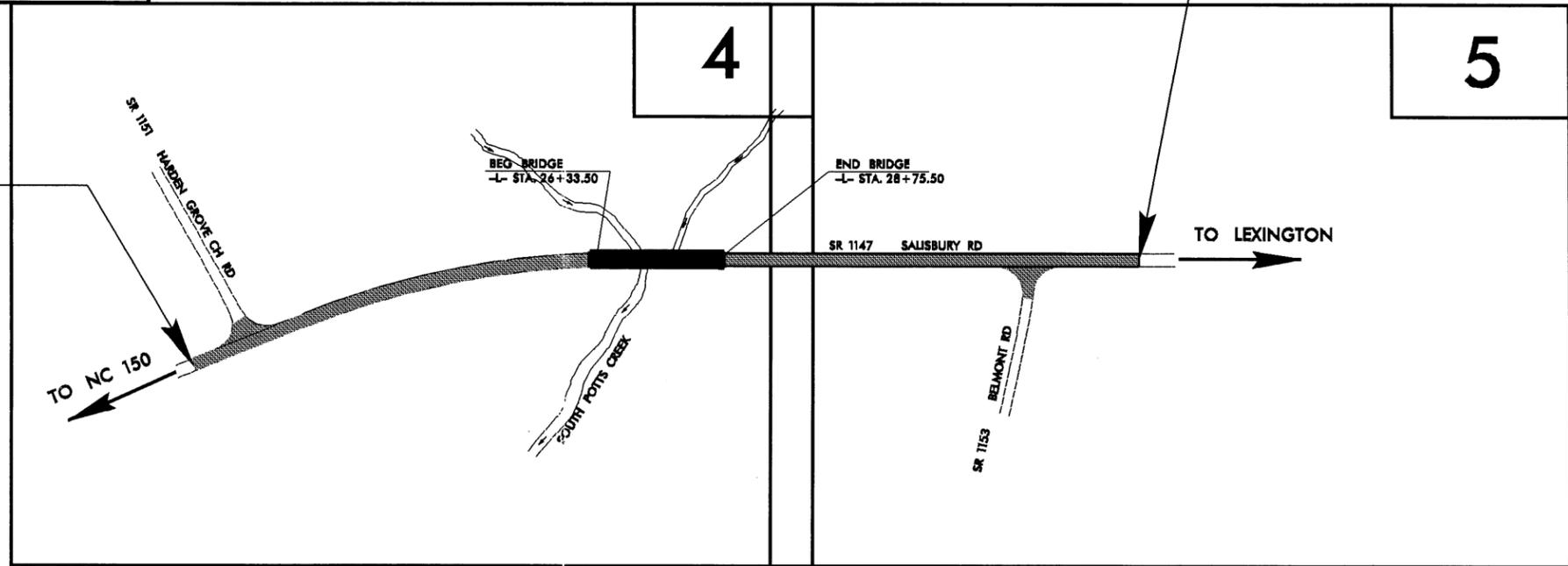


See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



PROJECT: 8.2604401

-L- STATION 18+50
BEGIN STATE PROJECT 8.2604401
BEGIN F.A. PROJECT BRSTP-1147(3)

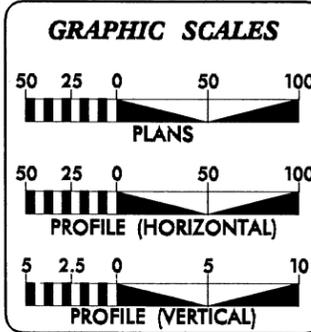


-L- STATION 36+50
END STATE PROJECT 8.2604401
END F.A. PROJECT BRSTP-1147(3)

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

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT 2002 =	1850
ADT 2025 =	3000
DHV =	10 %
D =	60 %
T =	4 % *
V =	60 MPH
* TTST 1 %	DUAL 3 %

PROJECT LENGTH

LENGTH ROADWAY F.A. PROJECT BRSTP-1147(3) =	0.297 Mi
LENGTH STRUCTURE F.A. PROJECT BRSTP-1147(3) =	0.044 Mi
TOTAL LENGTH STATE PROJECT 8.2604401 =	0.341 Mi

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh, NC 27610

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 25, 2002

LETTING DATE: DECEMBER 16, 2003

HYDRAULICS ENGINEER

P.E.

ROADWAY DESIGN ENGINEER

P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.

STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

DATE

03-JUL-2003 11:31 AM
C:\PROJECTS\8.2604401\8.2604401B

PROJECT REFERENCE NO.	SHEET NO.
B-4334	1-A
RAW SHEET NO.	

ROADWAY DESIGN
ENGINEER

03 JUL 2003 13:31
R:\PC\Road\AT\RD04501B

7/2/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL SYMBOLS

*S.U.E = SUBSURFACE UTILITY ENGINEER

ROADS & RELATED ITEMS

Edge of Pavement	-----
Curb	-----
Prop. Slope Stakes Cut	----- C -----
Prop. Slope Stakes Fill	----- F -----
Prop. Woven Wire Fence	○-----○
Prop. Chain Link Fence	□-----□
Prop. Barbed Wire Fence	◇-----◇
Prop. Wheelchair Ramp	-----
Curb Cut for Future Wheelchair Ramp	-----
Exist. Guardrail	-----
Prop. Guardrail	-----
Exist. Cable Guiderail	-----
Prop. Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	XXXXXX

RIGHT OF WAY

Baseline Control Point	◆
Existing Right of Way Marker	△
Exist. Right of Way Line w/Marker	-----△-----
Prop. Right of Way Line with Proposed	-----▲-----
RW Marker (Iron Pin & Cap)	▲
Prop. Right of Way Line with Proposed	-----▲-----
(Concrete or Granite) RW Marker	⊙
Exist. Control of Access Line	⊙
Prop. Control of Access Line	⊙
Exist. Easement Line	-----E-----
Prop. Temp. Construction Easement Line	-----E-----
Prop. Temp. Drainage Easement Line	-----TDE-----
Prop. Perm. Drainage Easement Line	-----PDE-----

HYDROLOGY

Stream or Body of Water	-----
River Basin Buffer	-----RZ-----
Flow Arrow	----->-----
Disappearing Stream	----->-----
Spring	-----
Swamp Marsh	-----
Shoreline	-----
Falls, Rapids	-----
Prop Lateral, Tail, Head Ditches	-----

STRUCTURES

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

MINOR

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

UTILITIES

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

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

BOUNDARIES & PROPERTIES

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Property Line Symbol	PL
Exist. Iron Pin	⊕
Property Corner	⊕
Property Monument	⊕
Property Number	123
Parcel Number	6
Fence Line	-----X-----
Existing Wetland Boundaries	-----WLB-----
Proposed Wetland Boundaries	-----WLB-----
Existing Endangered Animal Boundaries	-----EAB-----
Existing Endangered Plant Boundaries	-----EPB-----

BUILDINGS & OTHER CULTURE

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

TOPOGRAPHY

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

VEGETATION

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

RAILROADS

Standard Gauge	-----
RR Signal Milepost	-----
Switch	-----

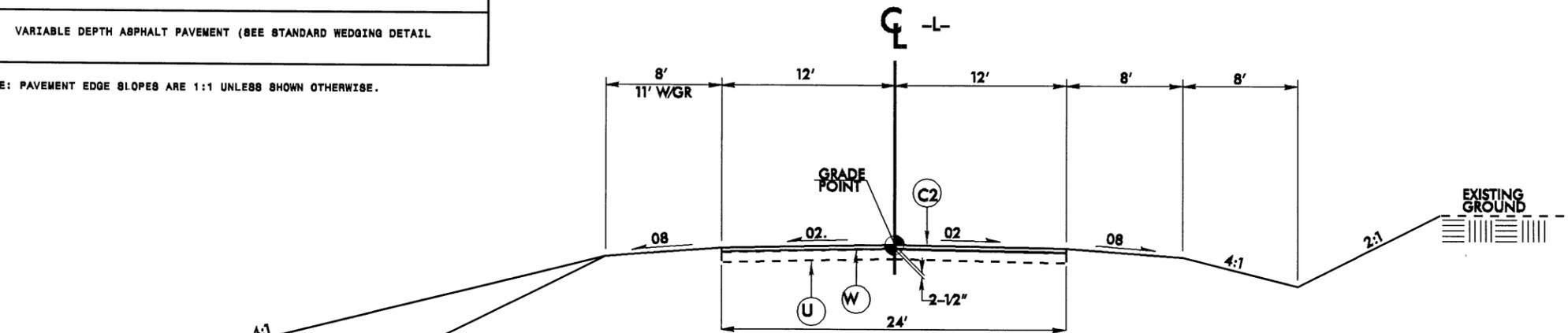
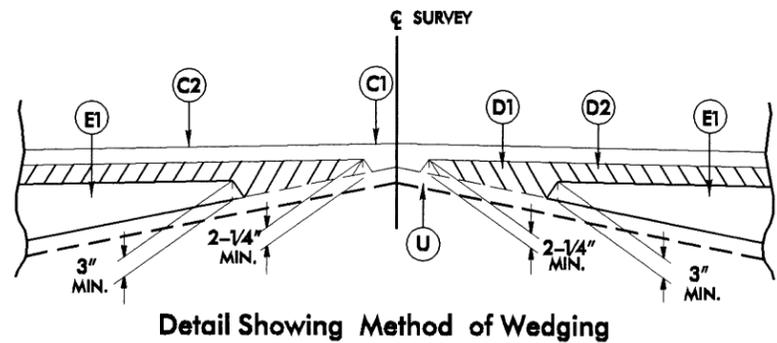
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Hussein_AT_Roads.dgn

PROJECT REFERENCE NO. B-4334	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS <small>DO NOT USE FOR CONSTRUCTION</small>	

PAVEMENT SCHEDULE	
C1	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE 80 SA AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. TO BE PLACED IN LAYERS NOT LESS THAN 1-1/4" OR GREATER THAN 1-1/2" IN DEPTH.
C2	PROP. APPROX. 2-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE 80 SA, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I10-0B AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. TO BE PLACED IN LAYERS NOT LESS THAN 2-1/4" OR GREATER THAN 4" IN DEPTH.
D2	PROP. APPROX. 2-1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I10-0B, AT AN AVERAGE RATE OF 265 LBS. PER SQ. YD.
E1	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B22-0B AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5-1/2" IN DEPTH.
E2	PROP. APPROX. 3-1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25-0B, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

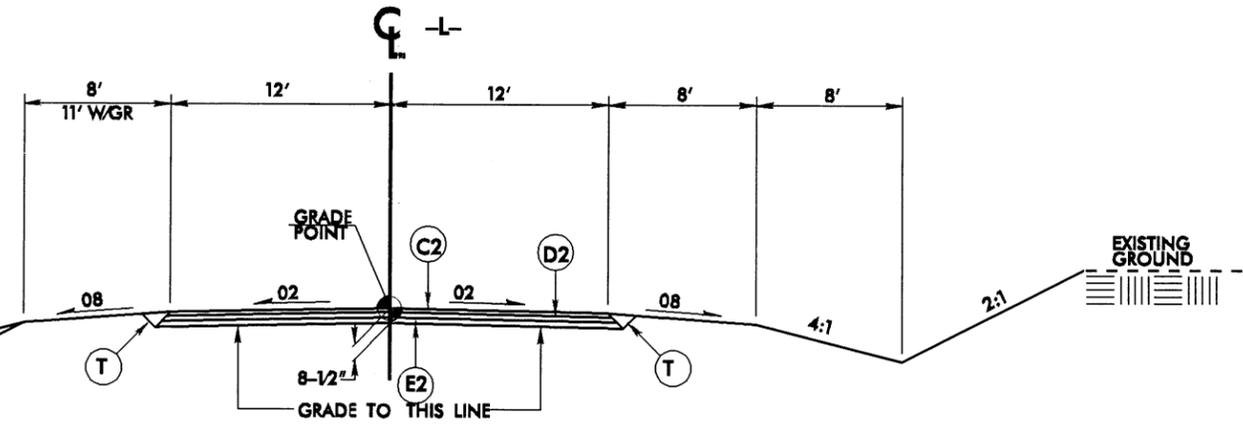
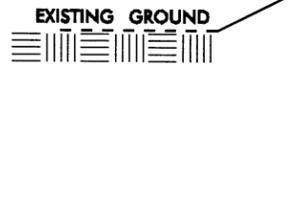
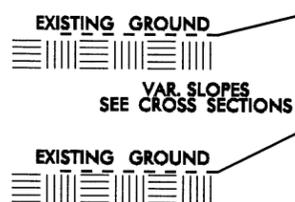
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

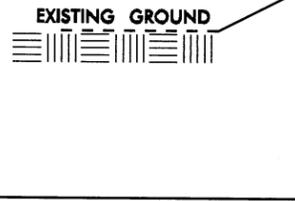
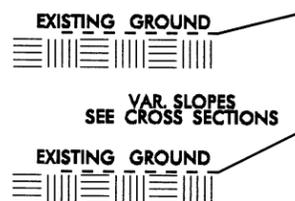
USE TYPICAL SECTION NO. 1 AS FOLLOWS:
 -L- STA. 18+50 TO 22+50 +/-
 -L- STA. 33+00 +/- TO STA. 36+50

NOTE: TRANSITION FROM EXISTING SHOULDER AND DITCH SECTION TO PROPOSED
 -L- STA. 18+50 TO 20+00 LEFT AND RIGHT
 -L- STA. 34+50 TO 36+50 RIGHT
 SEE CROSS SECTIONS



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
 -L- STA. 22+50 +/- TO STA. 26+47 (BEG. BRIDGE)
 -L- STA. 28+77 (END BRIDGE) TO STA. 33+00 +/-



REVISIONS

DATUM DESCRIPTION

PROJECT REFERENCE NO. B-4334 SHEET NO. 4

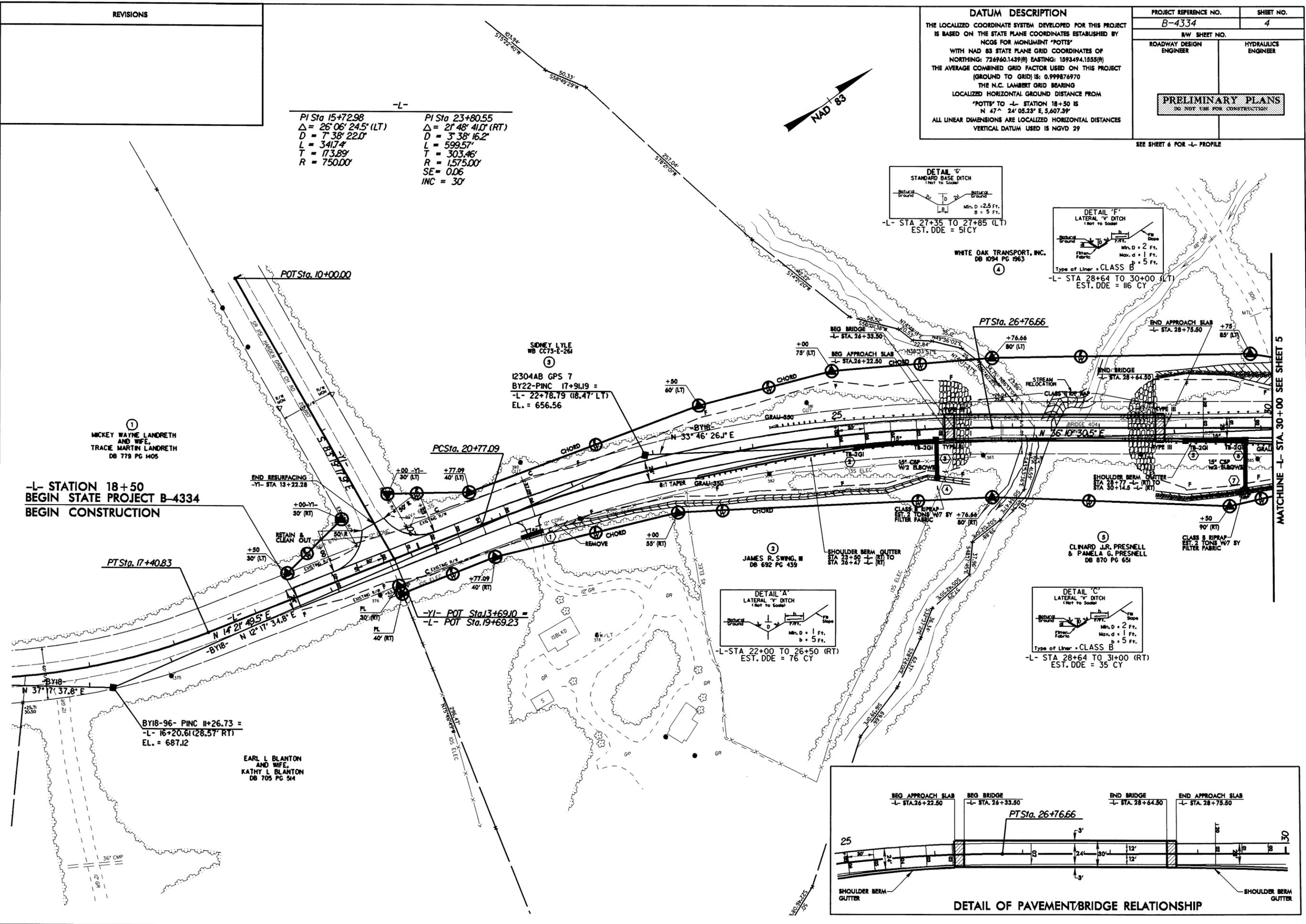
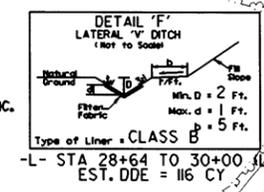
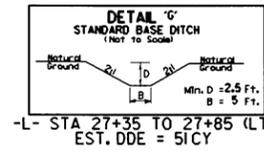
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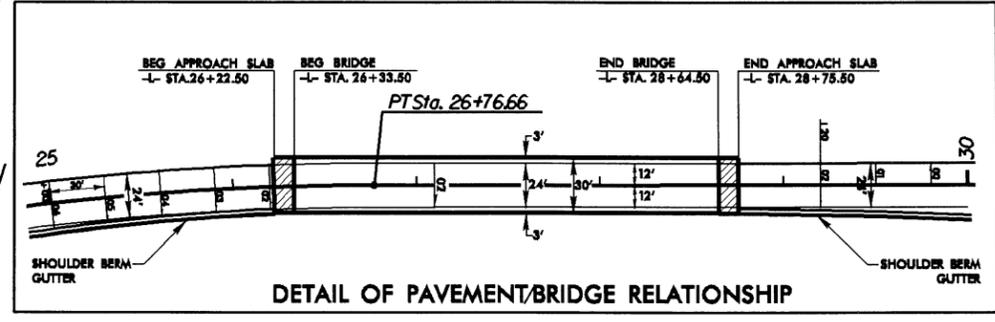
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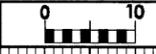
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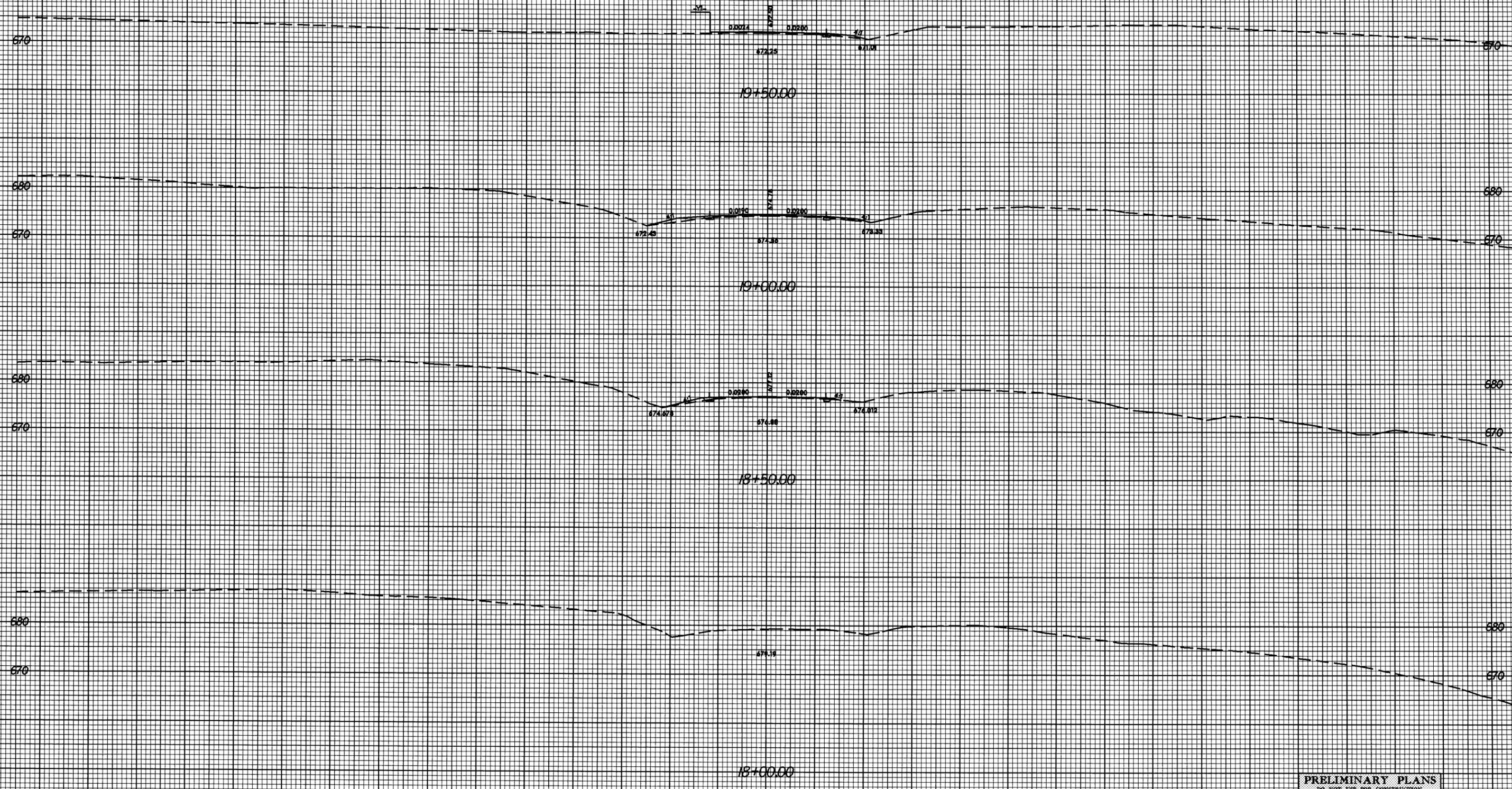
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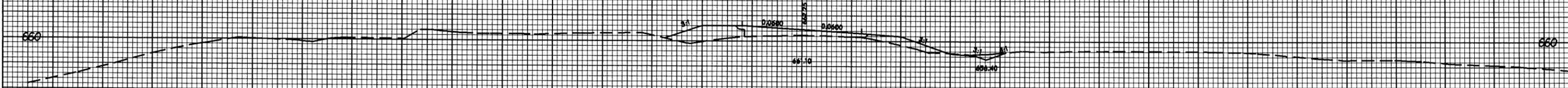
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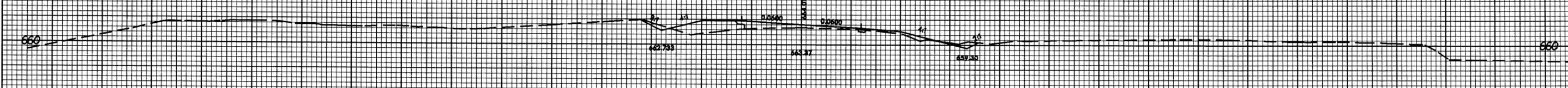
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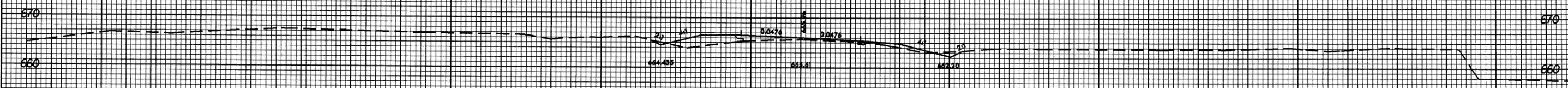
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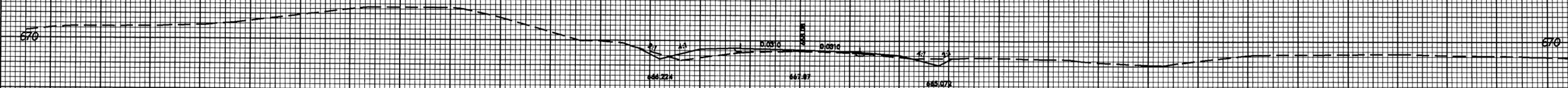
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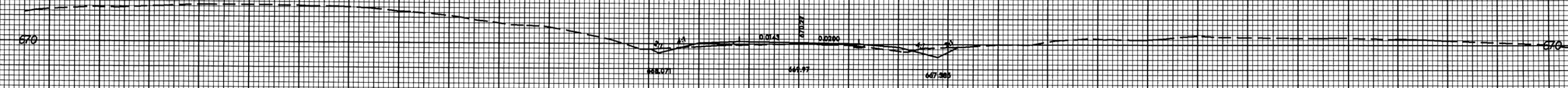
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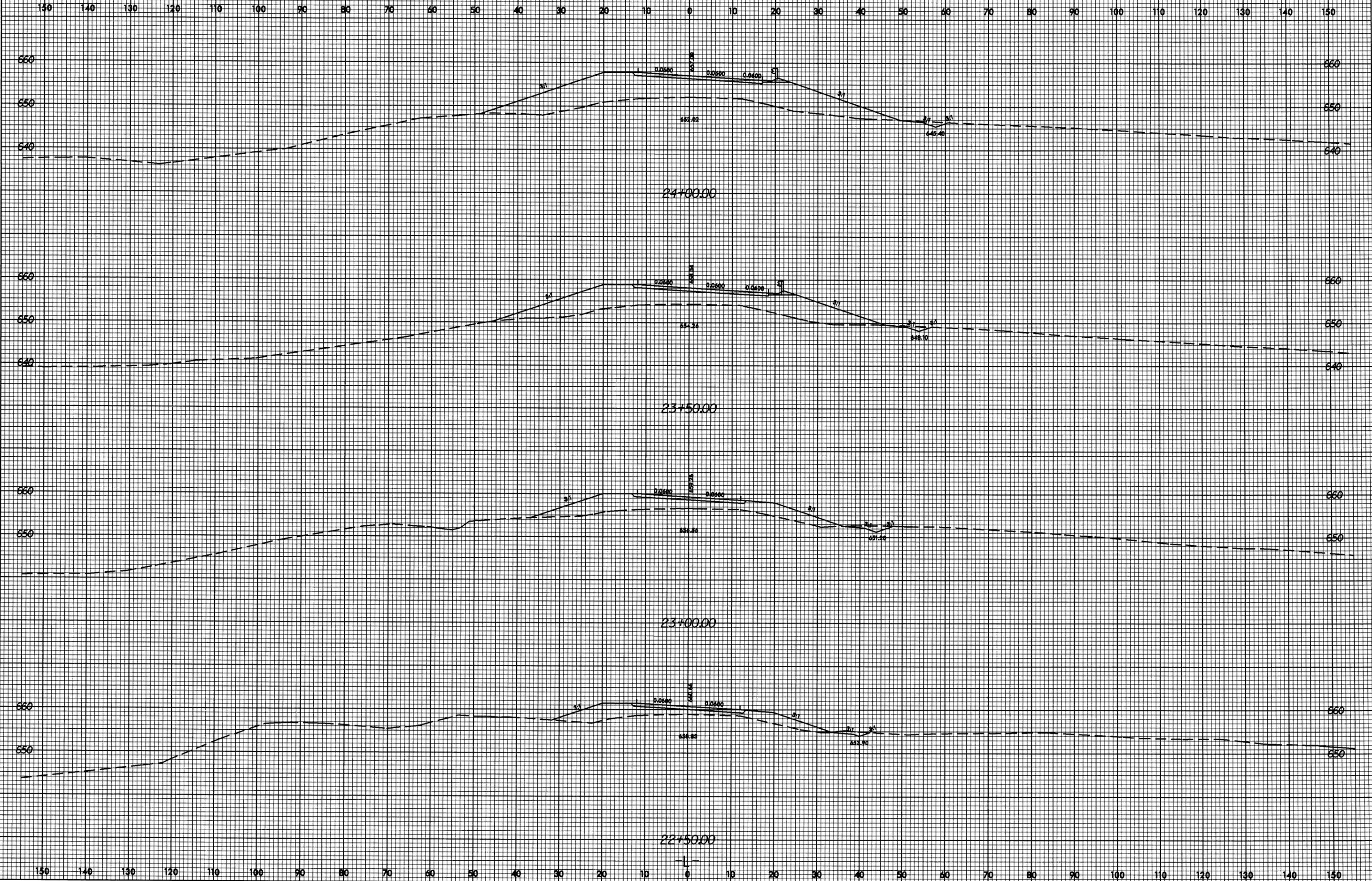


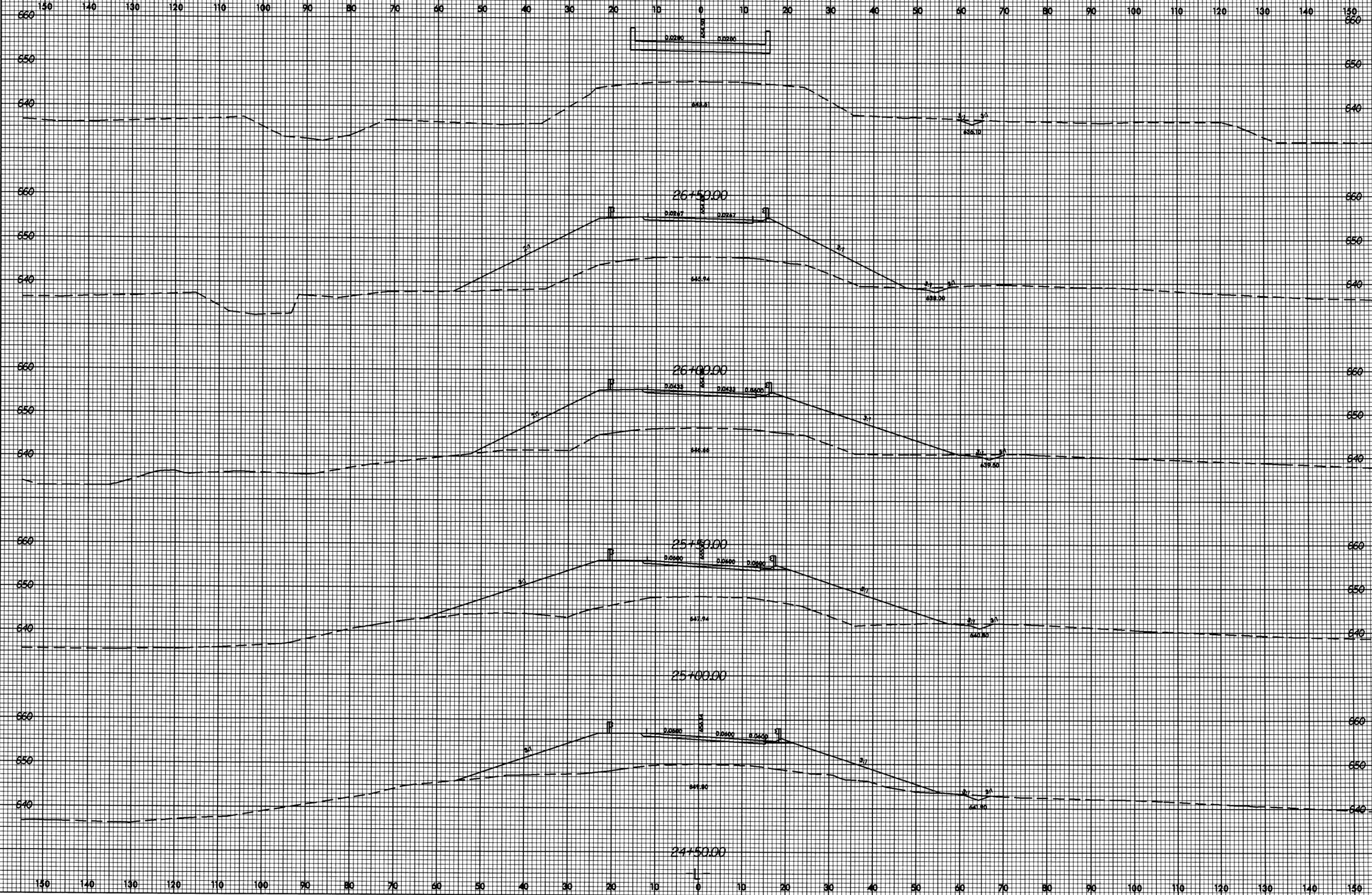
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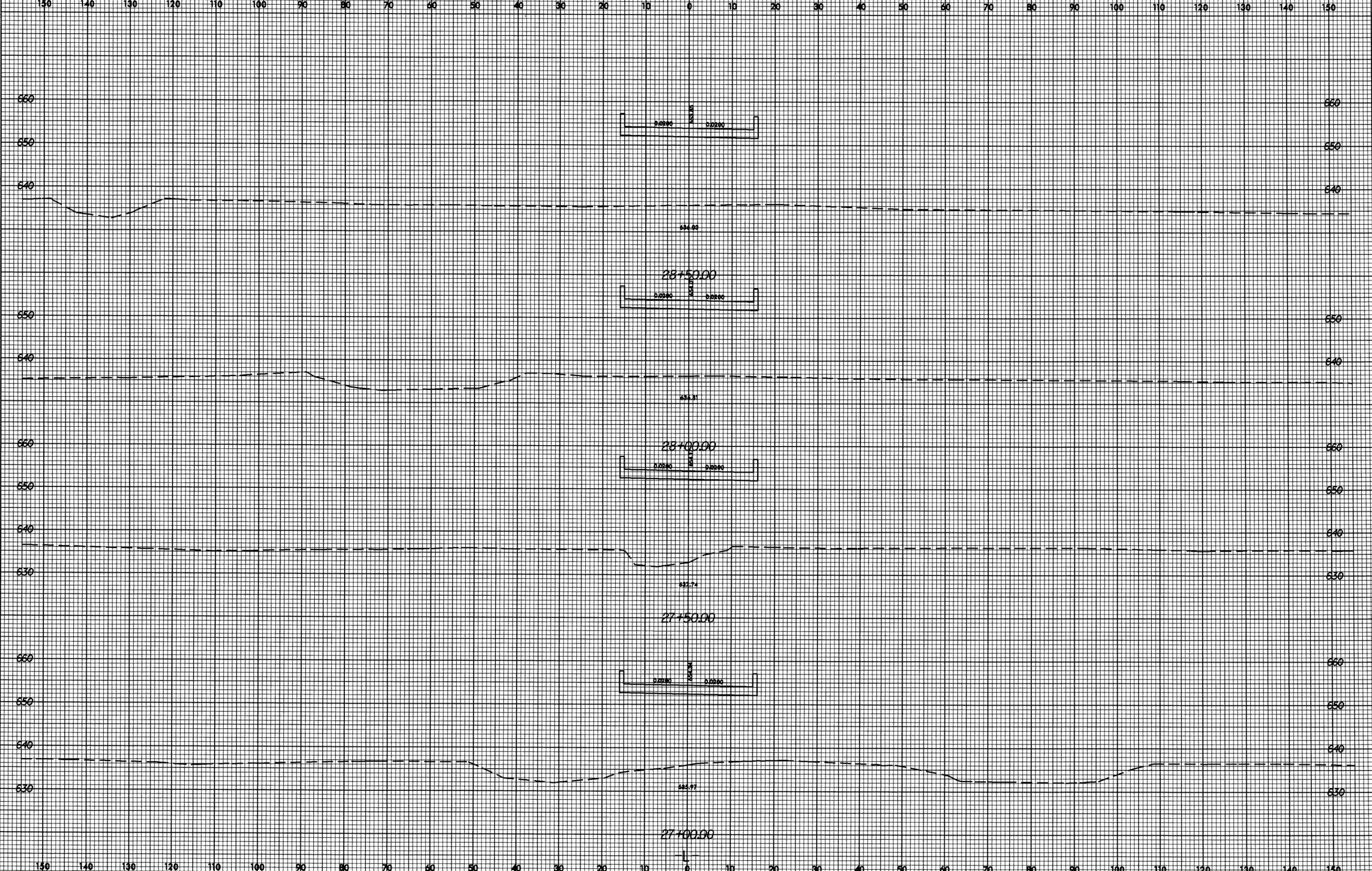


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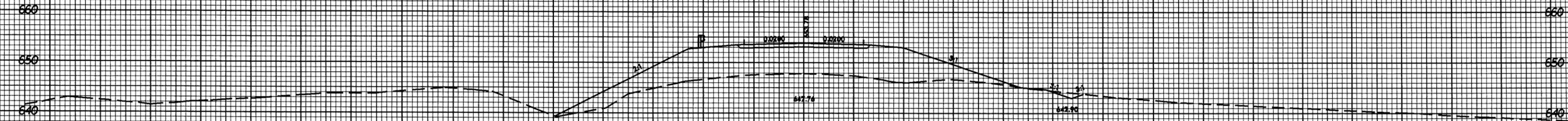




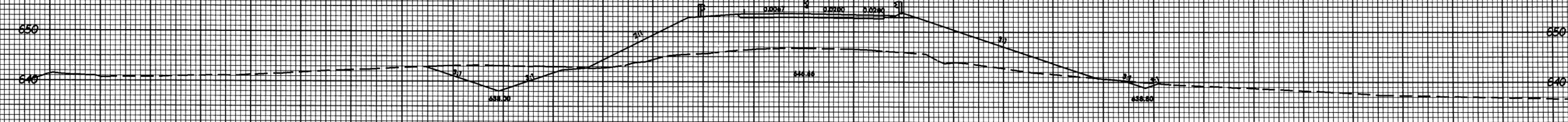




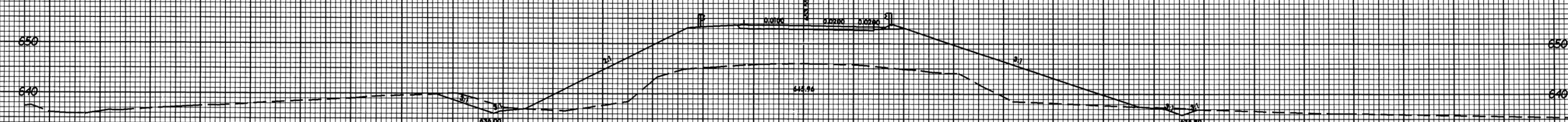
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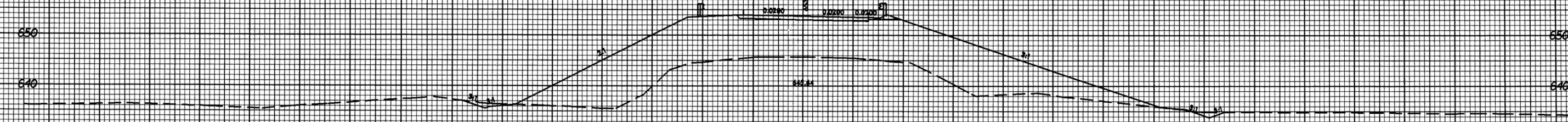
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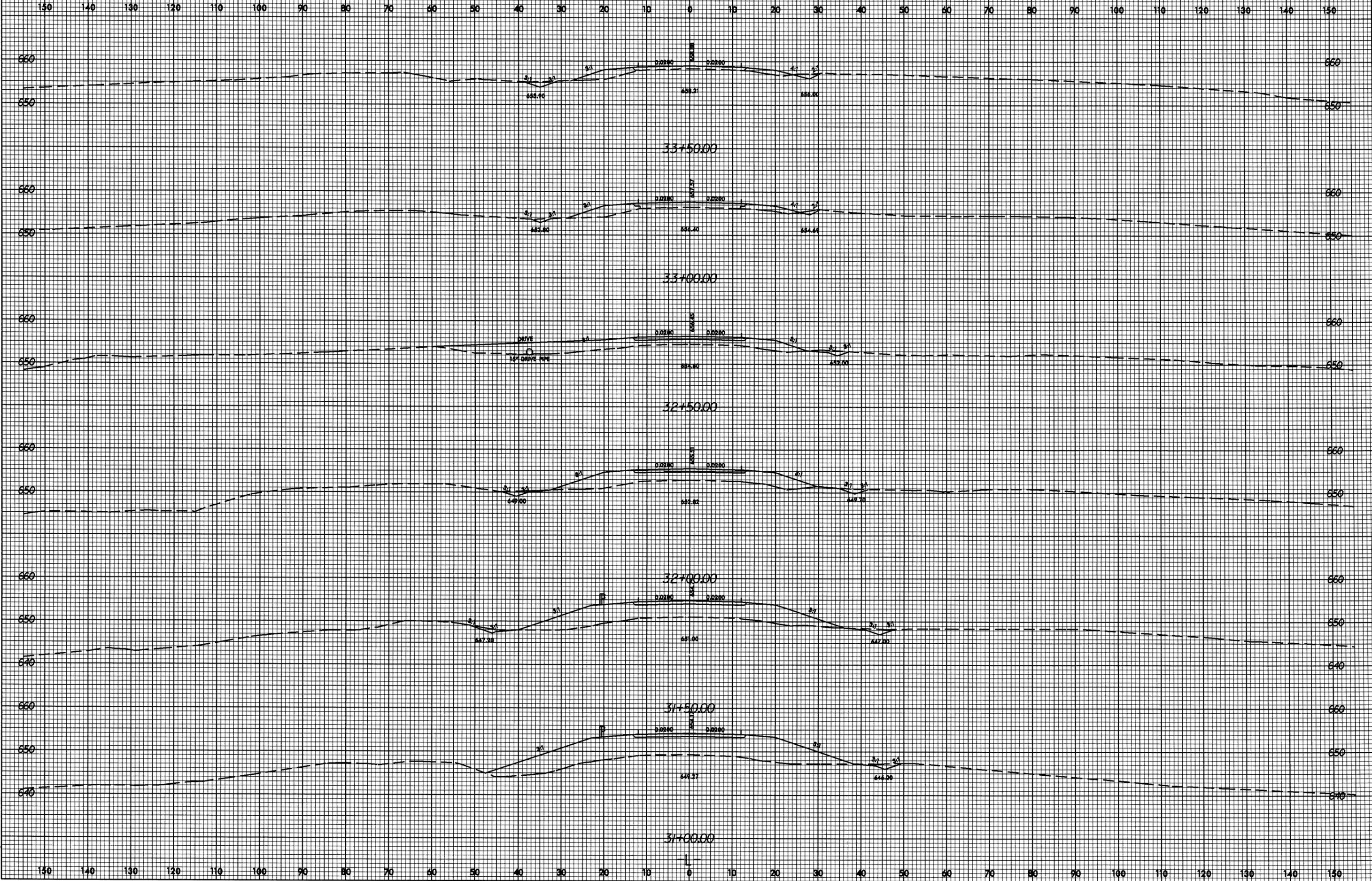


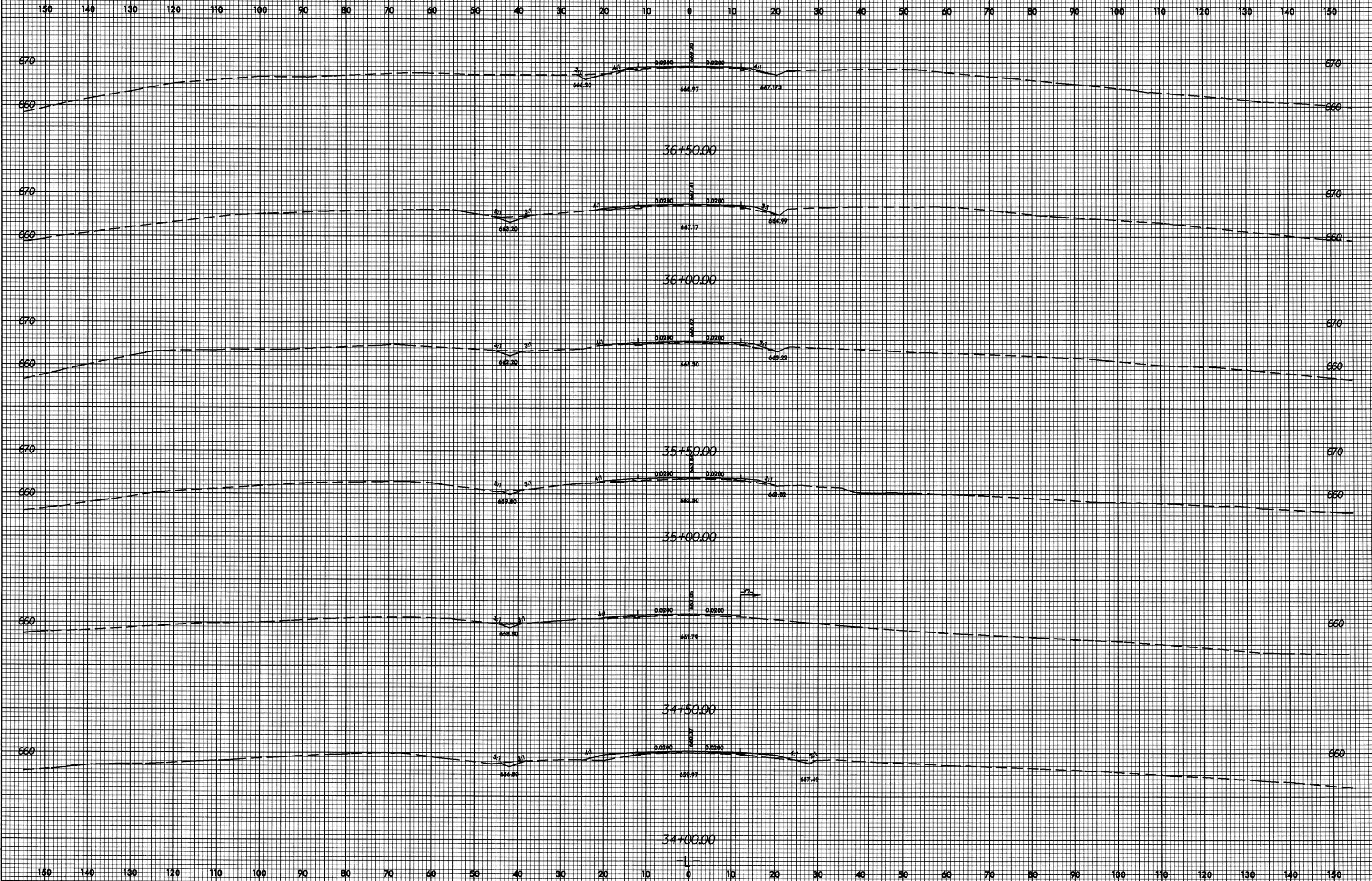
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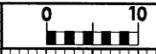
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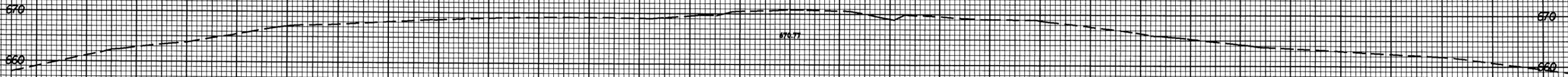
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PROJ. REFERENCE NO.
B-4334

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CATEGORICAL EXCLUSION ACTION CLASSIFICATION FORM

TIP Project No.	<u>B-4334</u>
State Project No.	<u>8.2604401</u>
Federal Project No.	<u>BRSTP-1147(3)</u>

A. Project Description:

NCDOT will replace Bridge No. 404 on SR 1147, over South Potts Creek, in Davidson County. Replacement will be at approximately the same location with a new bridge of approximately 210 feet (64 m) in length and 30 feet (9 m) in width. The bridge will have a 24 foot (7.2 m) travelway and 3 foot (0.9 m) offsets on each side.

B. Purpose and Need:

C. Proposed Improvements:

Circle one or more of the following Type II improvements which apply to the project:

1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing).
 - a. Restoring, Resurfacing, Rehabilitating, and Reconstructing pavement (3R and 4R improvements)
 - b. Widening roadway and shoulders without adding through lanes
 - c. Modernizing gore treatments
 - d. Constructing lane improvements (merge, auxiliary, and turn lanes)
 - e. Adding shoulder drains
 - f. Replacing and rehabilitating culverts, inlets, and drainage pipes, including safety treatments
 - g. Providing driveway pipes
 - h. Performing minor bridge widening (less than one through lane)

2. Highway safety or traffic operations improvement projects including the installation of ramp metering control devices and lighting.
 - a. Installing ramp metering devices
 - b. Installing lights
 - c. Adding or upgrading guardrail
 - d. Installing safety barriers including Jersey type barriers and pier protection
 - e. Installing or replacing impact attenuators

- f. Upgrading medians including adding or upgrading median barriers
- g. Improving intersections including relocation and/or realignment
- h. Making minor roadway realignment
- i. Channelizing traffic
- j. Performing clear zone safety improvements including removing hazards and flattening slopes
- k. Implementing traffic aid systems, signals, and motorist aid
- l. Installing bridge safety hardware including bridge rail retrofit

③ Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings.

- a. Rehabilitating, reconstructing, or replacing bridge approach slabs
- b. Rehabilitating or replacing bridge decks
- c. Rehabilitating bridges including painting (no red lead paint), scour repair, fender systems, and minor structural improvements
- ④ d. Replacing a bridge (structure and/or fill)

- 4. Transportation corridor fringe parking facilities.
- 5. Construction of new truck weigh stations or rest areas.
- 6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts.
- 7. Approvals for changes in access control.
- 8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic.
- 9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary facilities where only minor amounts of additional land are required and there is not a substantial increase in the number of users.
- 10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.

11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community.
12. Acquisition of land for hardship or protective purposes, advance land acquisition loans under section 3(b) of the UMT Act. Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CE only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

D. Special Project Information

Estimated Costs:

Total Construction Cost	\$1,150,000
Right-of-Way and Utilities	<u>24,000</u>
Total Project Cost	\$1,174,000

Estimated Traffic:

Current - 1700 VPD
 Year 2025 - 3000 VPD

Proposed Typical Roadway Section:

The approach roadway will be 24 feet (7.2 m) wide with at least an 8 foot (2.4 m) grassed shoulder on each side. Shoulder width will be increased to at least 11 feet (3.3 m) where guardrail is warranted.

Design Speed:

The design speed will be 60 mph.

Functional Classification:

SR 1147 is classified as a Rural Major Collector facility in the Statewide Functional Classification System.

Division Office Comments:

The Division Engineer supports road closure and replacement at the existing location.

E. Threshold Criteria

The following evaluation of threshold criteria must be completed for Type II actions.

<u>ECOLOGICAL</u>	<u>YES</u>	<u>NO</u>
(1) Will the project have a substantial impact on any unique or important natural resource?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(2) Does the project involve any habitat where federally listed endangered or threatened species may occur?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(3) Will the project affect anadromous fish?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(4) If the project involves wetlands, is the amount of permanent and/or temporary wetland taking less than one-tenth (1/10) acre and have all practicable measures to avoid and minimize wetland takings been evaluated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(5) Will the project require use of U. S. Forest Service lands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(6) Will the quality of adjacent water resources be adversely impacted by proposed construction activities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(7) Does the project involve waters classified as Outstanding Resource Waters (ORW) and/or High Quality Waters (HQW)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(8) Will the project require fill in waters of the United States in any of the designated mountain trout counties?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(9) Does the project involve any known underground storage tanks (UST's) or hazardous materials sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<u>PERMITS AND COORDINATION</u>	<u>YES</u>	<u>NO</u>
(10) If the project is located within a CAMA county, will the project significantly affect the coastal zone and/or any "Area of Environmental Concern" (AEC)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(11) Does the project involve Coastal Barrier Resources Act resources?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(12) Will a U. S. Coast Guard permit be required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(13) Will the project result in the modification of any existing regulatory floodway? X

(14) Will the project require any stream relocations or channel changes? X

SOCIAL, ECONOMIC, AND CULTURAL RESOURCES

YES NO

(15) Will the project induce substantial impacts to planned growth or land use for the area? X

(16) Will the project require the relocation of any family or business? X

(17) Will the project have a disproportionately high and adverse human health and environmental effect on any minority or low-income population? X

(18) If the project involves the acquisition of right of way, is the amount of right of way acquisition considered minor? X

(19) Will the project involve any changes in access control? X

(20) Will the project substantially alter the usefulness and/or land use of adjacent property? X

(21) Will the project have an adverse effect on permanent local traffic patterns or community cohesiveness? X

(22) Is the project included in an approved thoroughfare plan and/ or Transportation Improvement Program (and is, therefore, in conformance with the Clean Air Act of 1990)? X

(23) Is the project anticipated to cause an increase in traffic volumes? X

(24) Will traffic be maintained during construction using existing roads, staged construction, or on-site detours? X

(25) If the project is a bridge replacement project, will the bridge be replaced at its existing location (along the existing facility) and will all construction proposed in association with the bridge replacement project be contained on the existing facility? X

(26) Is there substantial controversy on social, economic and environmental grounds concerning aspects of the action? X

- (27) Is the project consistent with all Federal, State, and local laws relating to the environmental aspects of the project?
- (28) Will the project have an "effect" on structures/properties eligible for or listed on the National Register of Historic Places?
- (29) Will the project affect any archaeological remains which are important to history or pre-history?
- (30) Will the project require the use of Section 4(f) resources (public parks, recreation lands, wildlife and waterfowl refuges, historic sites or historic bridges, as defined in Section 4(f) of the U. S. Department of Transportation Act of 1966)?
- (31) Will the project result in any conversion of assisted public recreation sites or facilities to non-recreation uses, as defined by Section 6(f) of the Land and Water Conservation Act of 1965, as amended?
- (32) Will the project involve construction in, across, or adjacent to a river designated as a component of or proposed for inclusion in the natural Wild and Scenic Rivers?

F. Additional Documentation Required for Unfavorable Responses in Part E

Note that the attached SHPO letter dated March 30, 2001, states that a "high potential for archeological sites exists...when (new) alignment is selected, submit drawings so that we can determine (if) an archeological survey is needed." This request refers to the initially favored alternate at the scoping meeting. This alternate would have been on new alignment, causing new disturbance in the area, thus possibly requiring an archeological survey. When the "replace at same location" alternate was instead agreed upon, the SHPO verbally agreed that there was no need for a survey. (reference personal communication Dennis Pipkin with Tom Padgett, NCDOT Archeology supervisor.)

G. CE Approval

TIP Project No.	<u>B-4334</u>
State Project No.	<u>8.2604401</u>
Federal Project No.	<u>BRSTP-1147(3)</u>

Project Description:

NCDOT will replace Bridge No. 404 on SR 1147, over South Potts Creek, in Davidson County. Replacement will be at approximately the same location with a new bridge of approximately 210 feet (64 m) in length and 30 feet (9 m) in width. The bridge will have a 24 foot (7.2 m) travelway and 3 foot (0.9 m) offsets on each side.

Categorical Exclusion Action Classification: (Check one)

TYPE II(A)
 TYPE II(B)

Approved:

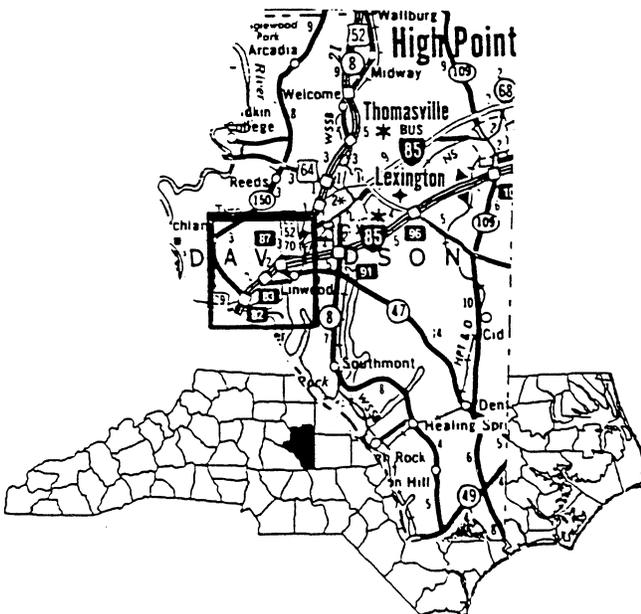
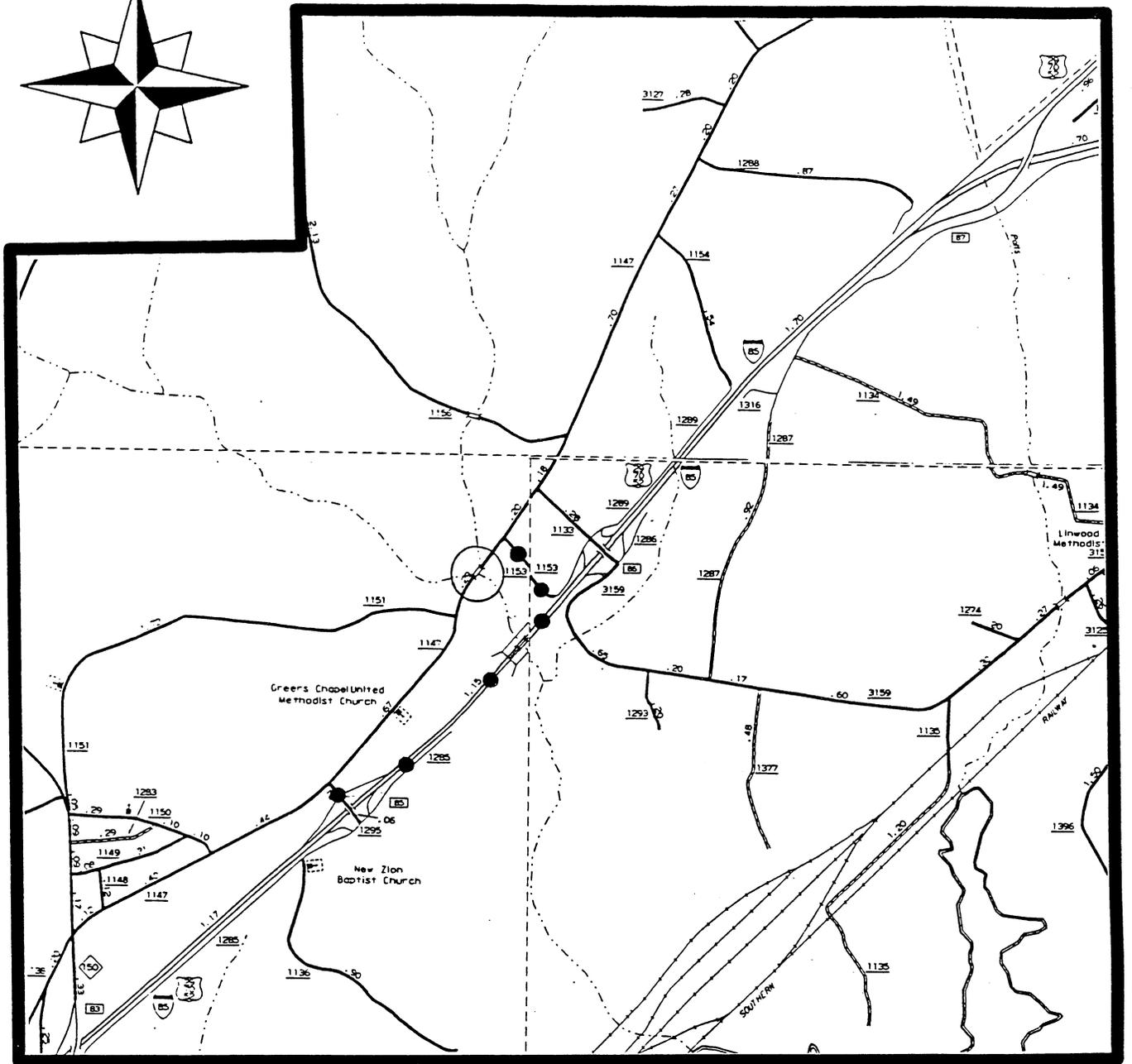
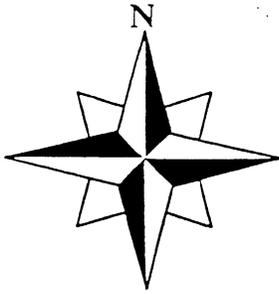
3-25-02 *Lulu V. Priddy*
Date Assistant Manager
Planning and Environmental Branch

3/22/02 *William T. Hocking Jr.*
Date Project Planning Unit Head
Planning and Environmental Branch

3/22/02 *Dennis Pipkin*
Date Project Planning Engineer
Planning and Environmental Branch

For Type II(B) projects only:

Date Division Administrator
Federal Highway Administration



Studied Detour Route —●—●—●—

	North Carolina Department of Transportation Division of Highways
	Project Development & Environmental Analysis Branch
Davidson County Replace Bridge No. 404 on SR 1147 Over South Potts Creek B-4334	
Figure 1	



North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

Michael F. Easley, Governor

Lisbeth C. Evans, Secretary

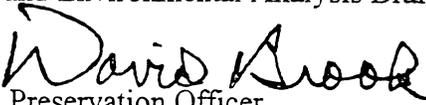
March 30, 2001

Division of Archives and History

Jeffrey J. Crow, Director

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch

From: David Brook 
Deputy State Historic Preservation Officer

Re: Replacement of Bridge No. 404 on SR 1147 over South Potts Creek,
TIP No. B-4334, Davidson County, ER 00-7546

On October 12, 1999, April Montgomery of our staff met with North Carolina Department of Transportation (NCDOT) staff for a meeting of the minds concerning the above project. We reported our available information on historic architectural and archaeological surveys and resources along with our recommendations. NCDOT provided project area photographs and aerial photographs at the meeting.

Based upon our review of the photographs and the information discussed at the meeting, we offer our preliminary comments regarding this project.

In terms of historic architectural resources we are aware of no historic structures located within the area of potential effect. We recommend that no historic architectural survey be conducted for this project.

In terms of archaeological resources there is a high potential for sites within the proposed project area. When an alignment is selected please submit detailed drawings of that alignment so that we can determine whether or not an archaeological survey is needed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have any questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919 733-4763.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Michael F. Easley
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

DAVID MCCOY
ACTING SECRETARY

January 22, 2001

MEMORANDUM TO: P. Wayne Elliot, Unit Head
Bridge Replacement Unit

FROM: Clay Willis, Natural Resources Specialist
Project Development and Environmental Analysis Unit

SUBJECT: Natural Resources Technical Report for the proposed
replacement of Bridge No. 404 on SR 1147 over South
Potts Creek in Davidson County, TIP No. B-4334,
State Project No. 8.2604401; Federal Aid No. BRSTP-
1147(3).

ATTENTION: Dennis Pipkin, P.E.
Project Planning Engineer

The attached Natural Resources Technical Report provides inventories and descriptions of the natural resources within the proposed project area, along with analyses of probable impacts likely to occur to these resources as a result of project construction. Pertinent information on wetlands and federally protected species is also provided, with respect to regulatory concerns that must be considered. Please contact me if you have any questions, or need this report copied onto disk format.

cc: Hal Bain, Natural Systems Unit Head
File: B-4334

REPLACE BRIDGE NO. 404 ON SR 1147
OVER SOUTH POTTS CREEK
DAVIDSON COUNTY

TIP NO. B-4334
STATE PROJECT NO. 8.2604401
FEDERAL AID PROJECT NO. BRSTP-1147(3)

NATURAL RESOURCES TECHNICAL REPORT
B-4334

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH
NATURAL SYSTEMS UNIT

CLAY WILLIS, NATURAL SYSTEMS SPECIALIST
January 22, 2001

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Figure 2. Aerial Photograph of Project Area

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1.0 INTRODUCTION

The following Natural Resources Technical Report is submitted to assist in the preparation of a Categorical Exclusion (CE) for the proposed project. The purpose of this report is to inventory and describe the natural resources which occur within the proposed right-of-way boundaries and which are likely to be impacted by the proposed action. Assessments of the nature and severity of probable impacts to these natural resources are provided, along with recommendations for measures that will minimize resource impacts.

This report identifies areas of particular environmental concern that may affect the selection of a preferred alignment or may necessitate changes in design criteria. Such environmental concerns should be addressed during the preliminary planning stages of the proposed project in order to maintain environmental quality in the most efficient and effective manner. The analyses contained in this document are relevant only in the context of the existing preliminary project boundaries and design. If design parameters and criteria change, additional field investigations may be necessary.

1.1 PROJECT DESCRIPTION

The proposed bridge project on SR 1147 crosses South Potts Creek in Davidson County located approximately 2 miles southwest of Davidson (Figure 1). The project calls for the replacement of Bridge No. 404 with a bridge. The project length totals approximately 500 feet. The existing right-of-way is 60 feet with a proposed right-of-way of 60 feet. The existing cross section is a two-lane shoulder section bridge. The proposed cross section is a two-lane shoulder section bridge.

There are two alternates being considered for this project:

Alternate 1: Replace the bridge on existing alignment, and detour traffic over existing local roads.

Alternate 2: Replace the bridge on existing alignment, and maintain traffic on-site with a temporary detour structure (to the east of existing).

1.1.1 Bridge Demolition and Removal

Bridge No. 404 is located on SR 1147 over South Potts Creek in Davidson County. The existing bridge has an asphalt wearing surface; and the remainder of the bridge, both superstructure and substructure, is composed of reinforced concrete. Thus, there is potential for components of the bridge to be dropped into Waters of the

United States during construction. The asphalt wearing surface will be removed prior to demolition without dropping components into the water. The resulting temporary fill associated with the reinforced concrete components of the bridge will be as much as 197 cubic yards. Bridge demolition is classified as a Case 3 (*there are no special restrictions other than those outlined in Best Management Practices for Protection of Surface Waters*).

Due to the potential sedimentation concerns resulting from demolition of the bridge, where it is possible to do so, a turbidity curtain shall be included to contain and minimize sedimentation in the stream.

For the protection of Surface Waters, Best Management Practices for Bridge Demolition and Removal will be adhered to.

1.2 METHODOLOGY

Research was conducted prior to field investigations. Published resource information pertaining to the project area was gathered and reviewed. Resources utilized in this preliminary investigation of the project area include:

- Geological Survey (USGS) quadrangle maps (Lexington West, 1970).
- NCDOT aerial photographs of the project area (1:1200).
- NC Center for Geographic Information and Analysis Environmental Sensitivity Base Maps of Davidson County (1995).
- USDA Soil Conservation Service, currently known as Natural Resource Conservation Service, Soil Survey of Davidson County, North Carolina (1994).

Water resource information was obtained from publications of the Department of the Environment and Natural Resources (DENR, 1993). Information concerning the occurrence of federal and state protected species in the study area was obtained from the US Fish and Wildlife Service (FWS) list of protected and candidate species (June 16, 2000) and from the N.C. Natural Heritage Program (NCNHP) database of rare species and unique habitats. NCNHP files were reviewed for documented occurrences of state or federally listed species and locations of significant natural areas.

General field surveys were conducted along the proposed alignment by NCDOT Natural Resources Specialists, Clay Willis and Jeff Burleson, on October 11, 2000. Water resources were identified and their physical characteristics were recorded. Plant communities and their associated wildlife were also identified and described. Terrestrial community classifications generally follow Schafale and Weakley (1990) where possible, and plant taxonomy follows Radford, *et al.* (1968). Animal taxonomy follows Martof, *et al.* (1980), Menhenick (1991), Potter, *et al.* (1980), and Webster, *et al.* (1985).

Vegetative communities were mapped utilizing aerial photography of the project site. Predictions regarding wildlife community composition involved general qualitative

habitat assessment based on existing vegetative communities. Wildlife identification involved using a variety of observation techniques: qualitative habitat assessment based on vegetative communities, active searching, identifying characteristic signs of wildlife (sounds, scat, tracks and burrows).

Jurisdictional wetlands, if present, were identified and evaluated based on criteria established in the "Corps of Engineers Wetland Delineation Manual" (Environment Laboratory, 1987) and "Guidance for Rating the Values of Wetlands in North Carolina" (Division of Environmental Management, 1995). Wetlands were classified based on the classification scheme of Cowardin, *et al.* (1979).

1.3 TERMINOLOGY AND DEFINITIONS

For the purposes of this document, the following terms are used concerning the limits of natural resources investigations. "**Project area**" denotes the area bounded by the proposed right-of-way limits along the full length of the project alignment. "**Project vicinity**" is defined as an area extending 1.0 km (0.6 mi) on all sides of the project area, and "**Project region**" denotes an area equivalent in size to the area represented by a 7.5 minute USGS quadrangle map, i.e. [163.3 sq. km (61.8 sq. mi)].

2.0 PHYSICAL RESOURCES

Soil and water resources that occur in the project area are discussed below with respect to possible environmental concerns. Soil properties and site topography significantly influence the potential for soil erosion and compaction, along with other possible construction limitations or management concerns. Water resources within the project area present important management limitations due to the need to regulate water movement and the increased potential for water quality degradation. Excessive soil disturbance resulting from construction activities can potentially alter both the flow and quality of water resources, limiting downstream uses. In addition, soil characteristics and the availability of water directly influence the composition and distribution of flora and fauna in biotic communities, thus affecting the characteristics of these resources.

2.1 REGIONAL CHARACTERISTICS

Davidson County is located in the center of the Piedmont physiographic region of North Carolina. Most of the county is characterized by gently rolling to hilly landscapes. In the southern part of the county, a number of prominent peaks in the Uwharrie mountain chain rise above the general landscapes. Eight or more of these peaks are at an elevation of more than 1,000 feet. Flat Swamp Mountain, the highest, is at an

elevation of 1,180 feet. The lowest elevation in the count is about 510 feet at Badin Lake on the southern boundary of the county. The county is drained by the Yadkin River and its tributaries, which flow south or southwestward. Major watersheds are Muddy Creek, Reedy Creek, Swearing Creek, Abbots Creek, Bushy Fork, Rich Fork, Hamby's Creek, Flat Swamp Creek, and Lick Creek. The Yadkin Pee-Dee drainage basin is the second largest basin in North Carolina. The drainage basin extends from the eastern slopes of the Blue Ridge Mountains in Caldwell and Wilkes counties, flowing southeasterly through North Carolina until it reaches Winyah Bay in South Carolina. Many of the tributaries located in this basin have been classified as outstanding resource waters. Land cover in the county is predominately in agriculture fields and forest.

The project area topography along South Potts Creek is moderately sloping. The banks of the floodplain of South Potts Creek have moderate to steep slopes. They are well vegetated and appear to be stable. The floodplain of the creek is relatively small and extends further to the west bank than to the east. A portion of the landscape to the west of the creek has been altered for agricultural purposes and is now used as pasture area. The bridge is located within a bend of the creek. Approximately 300 hundred feet upstream an unnamed tributary runs into South Potts Creek.

2.2 SOILS

Generally, soils are characterized into Soil Associations or "General Soil Mapping Units" with consistent patterns of soil, relief, and drainage. The project study area in Davidson County lies in the Cecil-Pacolet "General Soil Mapping Unit". The Cecil-Pacolet grouping is gently sloping to moderately steep, very deep, well drained soils that have a loamy surface layer and a clayey subsoil; formed in material weathered from felsic crystalline rocks on uplands. There are three soil types within the Cecil-Pacolet mapping unit, located in the project area. A brief description of these soil types is provided following Table 1.

Table 1. Soils occurring in the project area, Davidson County

Map Symbol	Specific Mapping Unit	% Slope	Hydric Classification	Capability Unit
Ch	Chewacla loam	none	Hydric-inclusions	l _{vw}
EnD	Enon fine sandy loam	8-15	Non-hydric	l _{ve}
CcB	Cecil sandy loam	2-8	Non-hydric	l _{le}

- Chewacla loam, (Ch) this nearly level, somewhat poorly drained soil is on first bottoms along creeks and rivers throughout the northern, central, and western parts of the county. Typically, the surface layer is brown loam about 9 inches thick. The subsoil is about 43 inches thick. It is dark yellowish brown fine sandy loam in the

upper part; brown, yellowish brown, and light brownish gray sandy clay loam in the next part. The soil generally is unsuited to building site development and recreational uses because of the wetness and the flooding.

- Enon fine sandy loam, (EnD) this soil type is well drained soil located on narrow ridges and on side slopes on uplands. Typically, the surface layer is yellowish brown fine sandy loam about 8 inches thick. The subsoil is about 26 inches thick. The upper part is strong brown clay, the next part is yellowish brown clay, and the lower part is yellowish brown clay loam. The clayey subsoil, the slow permeability, the high shrink-swell potential, and the slope are the main limitations affecting building site development.
- Cecil sandy loam, (CcB) this well drained soil is on smooth ridges. It is on uplands in the northern and western parts of the county. Typically, the surface layer is brown sandy loam about 6 inches thick. The subsoil is about 52 inches thick. Permeability is moderate. The shrink-swell potential is low. The depth to bedrock is more than 5 feet. The map unit has no major limitations affecting building site development or recreational uses.

2.3 WATER RESOURCES

This section contains information concerning surface water resources likely to be impacted by the proposed project. Water resource assessments include the physical characteristics, best usage standards, and water quality aspects of the water resources, along with their relationship to major regional drainage systems. Probable impacts to surface water resources are also discussed, as are means to minimize impacts.

2.3.1 Best Usage Classification

Water resources within the study area are located in the Yadkin-Pee Dee Drainage Basin; Division of Water Quality sub-basin number 03-07-04; United States Department of Interior Hydrologic Unit is 03040103. There is one water resource, South Potts Creek, in the project study area crossed by SR 1147. (Figure1)

Streams have been assigned a best usage classification by the Division of Water Quality (DWQ), formerly Division of Environmental Management (DEM), which reflects water quality conditions and potential resource usage. Unnamed tributaries receive the same classification as the streams to which they flow. The classification for South Potts Creek [DEM Index No. 12-111, 9/01/74] is class **C**. Class **C** waters are protected for secondary recreation, fishing, aquatic life including propagation and survival, and wildlife. All freshwaters shall be classified to protect these uses at a minimum.

No waters classified as High Quality Waters (HQW), Water Source (WS I or WS II), or Outstanding Resource Waters (ORW) occur within 1.6 km (1.0 mi) of the project study area. South Potts Creek is not designated as a North Carolina Natural and Scenic River, nor is it designated as a National Wild and Scenic River.

2.3.2 Physical Characteristics of Surface Waters

South Potts Creek at the study area is approximately 4.5-6.1m (15.0-20.0 ft) wide at the top of the bank and ranges in depth at normal stage from 5.0-10cm (2.0-4.0 in.) with an easterly, moderate to swift flow. The substrate in the study area is composed of a sandy loam with pebble and cobble present in the streambed. This creek, with moderate flow has relatively steep banks [1.8m (6 ft) deep at bank full]. The banks are well vegetated and provide shading that keeps water temperatures in the creek at cool levels. The pebble and cobble in the streambed creates riffles and small pools of water that are important habitat areas for invertebrates and fish inhabiting the creek. The bridge is located on a straight run of riffle and pool sequences between two bends. On the day of the site visit, turbidity in the water column appeared to be low. There was no evidence of elevated levels of sedimentation occurring in South Potts Creek.

2.3.3 Water Quality

This section describes the quality of the water resources within the project area. Potential sediment loads and toxin concentrations of these waters from both point sources and nonpoint sources are evaluated. Water quality assessments are made based on published resource information and existing general watershed characteristics. These data provide insight into the value of water resources within the project area to meet human needs and to provide habitat for aquatic organisms.

2.3.3.1 BENTHIC MACROINVERTEBRATE AMBIENT NETWORK

The Benthic Macroinvertebrate Ambient Network (BMAN), managed by the DWQ, is part of an ongoing ambient water quality monitoring program which addresses long term trends in water quality. The program monitors ambient water quality by sampling at fixed sites for selected benthic macroinvertebrates organisms, which are sensitive to water quality conditions. Samples are evaluated on the number of taxa present of intolerant groups [Ephemeroptera, Plecoptera, Trichoptera (EPT)] and a taxa richness value (EPT S) is calculated. A biotic index value is also calculated for the sample that summarizes tolerance data for all species in each collection. The two rankings are given equal weight in final site classification. The biotic index and taxa richness values primarily reflect the effects of chemical pollution and are a poor

measure of the effects of such physical pollutants as sediment. **There are no BMAN monitoring station within the project vicinity.**

2.3.3.2 POINT SOURCE AND NONPOINT SOURCE DISCHARGERS

Point source dischargers located throughout North Carolina are permitted through the National Pollutant Discharge Elimination System (NPDES) Program. Any discharger is required to register for a permit. There is one permitted discharger within the project vicinity located approximately 1000 ft to the east of the bridge (Permit # NC0040045, 8/13/93).

Nonpoint source discharge refers to runoff that enters surface waters through stormwater or snowmelt. Agricultural activities may serve as a source for various forms of nonpoint source pollutants. Land clearing and plowing disturbs soils to a degree where they are susceptible to erosion, which can lead to sedimentation in streams. Sediment is the most widespread cause of nonpoint source pollution in North Carolina. Pesticides, chemical fertilizers, and land application of animal wastes can be transported via runoff to receiving streams and potentially elevate concentrations of toxic compounds and nutrients. Animal wastes can also be a source of bacterial contamination and elevate biochemical oxygen demand (BOD). Drainage ditches on poorly drained soils enhances the transportation of stormwater into surface waters (DEM, 1993). The primary nonpoint pollution source in the project area is runoff from SR 1147, which could contain petroleum product residues deposited by automobiles driving on the road.

2.4 SUMMARY OF ANTICIPATED IMPACTS

Impacts to water resources in the project area are likely to result from activities associated with project construction. Activities likely to result in impacts are clearing and grubbing on streambanks, riparian canopy removal, instream construction, fertilizers and pesticides used in revegetation, and pavement installation. The following impacts to surface water resources are likely to result from the above mentioned construction activities.

- Increased sedimentation and siltation downstream of the crossing and increased erosion in the project area.
- Changes in light incidence and water clarity due to increased sedimentation and vegetation removal.
- Alteration of water levels and flows due to interruptions and/or additions to surface and ground water flow from construction.
- Changes in and destabilization of water temperature due to vegetation removal.

- Increased potential for release of toxic compounds such as fuel and oil from construction equipment and other vehicles.
- Alteration of stream discharge due to silt loading and changes in surface and groundwater drainage patterns.

In order to minimize potential impacts to water resources in the project area, NCDOT's Best Management Practices for the Protection of Surface Waters will be strictly enforced during the construction phase of the project. Limiting instream activities and revegetating stream banks immediately following the completion of grading can further reduce impacts.

3.0 BIOTIC RESOURCES

Biotic resources include terrestrial and aquatic communities. This section describes the biotic communities encountered in the project area, as well as the relationships between fauna and flora within these communities. The composition and distribution of biotic communities throughout the project area are reflective of topography, soils, hydrology, and past and present land uses. These classifications follow Schafale and Weakley (1990) where possible. Representative animal species that are likely to occur in these habitats (based on published range distributions) are also cited.

Scientific nomenclature and common names (when applicable) are provided for each animal and plant species described. Subsequent references to the same organism refer to the common name only. Fauna observed during the site visit is denoted in the text with an asterisk (*).

3.1 TERRESTRIAL COMMUNITIES

Descriptions of the two terrestrial systems are presented in the context of plant community classifications. Terrestrial wildlife relationships are discussed after the two terrestrial community descriptions.

3.1.1 *Disturbed/maintained roadside community*

This community is located on both sides of SR 1147 and may be impacted by alternatives 1 and 2. Because of mowing and the use of herbicides this community is kept in a constant state of early succession. The ground cover of this community is composed of several species of herbaceous grasses and weeds, these include: common chickweed (*Stellaria media*), wild ginger (*Asarum canadense*), star toadflax (*Comandra umbellata*), field sorrel (*Rumex acetosella*), corn salad (*Valerianella olitoria*), viola (*Viola sp.*), wild geranium (*Geranium maculatum*), purple dead nettle (*Lamium*

purpureum), panic grass (*Panicum* sp.), milkweed (*Asclepias* sp.), ragweed (*Ambrosia artemisifolia*), wood sorrel (*Oxalis* sp.), red clover (*Trifolium pratense*), thistle (*Carduus* sp.), beggar's tick (*Bidens* sp.), plantain (*Plantago* sp.), vaseygrass (*Paspalum* sp.), wingstem (*Actinomeris alternifolia*), and bluegrass (*Poa* sp.). Vines that occupy these areas include, swamp rose (*Rosa* sp.), Virginia creeper (*Parthenocissus quinquefolia*), trumpet vine (*Campsis radicans*), Japanese honeysuckle (*Lonicera japonica*), and blackberry (*Rubus* sp.). Often, the duration between maintenance sessions of highway right-of-ways is quite long, allowing time for larger herbaceous shrubs and woody vegetation to inhabit this disturbed area. Some of these herbaceous shrubs and woody vegetation that may inhabit this disturbed community include: sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), tulip poplar (*Liriodendron tulipifera*), black cherry (*Prunus serotina*), loblolly pine (*Pinus taeda*), black walnut (*Juglans nigra*), evening primrose (*Oenothera biennis*), and smooth sumac (*Rhus glabra*).

3.1.2 Riparian Forest

This community is located on both sides of South Potts Creek on either side of SR 1147. It is adjacent to the maintained/disturbed roadside community. The portion of this community on the north side of the creek is within a narrow floodplain of South Potts Creek and is at a higher elevation than the south bank. The soil in this area is well-drained sandy loam composed of alluvial deposits from floodwaters. This area receives infrequent floodwaters from South Potts Creek resulting in temporary inundation. The soil composition and the topography of this narrow floodplain causes the floodwaters to quickly drain back into the creek. It did not appear that flooding in this area was frequent. Vegetation in this community is adapted to periodic flood conditions and soils that are exposed to runoff flowing into the adjacent creek. The canopy layer in this community is comprised of black walnut (*Juglans nigra*), sweet gum, river birch (*Betula nigra*), and tulip poplar. The sub-canopy is comprised of ironwood (*Carpinus caroliniana*), witch hazel (*Hamamelis virginiana*), dogwood (*Cornus alterniflora*), Chinese privet (*Ligustrum sinense*), and silky dogwood (*Cornus amomum*). Box elder (*Acer negunda*), and green ash (*Fraxinus pennsylvanica*) are found right along the bank of the creek. The groundcover in this community is comprised of various herbs and grasses including Japanese grass, wingstem, solidago (*Solidago* sp.), giant cane (*Arundinaria gigantea*), and Christmas fern (*Polystichium acrosticoides*). Vines found in this community were Japanese honeysuckle, and blackberry. The south side of the creek is at a lower elevation and is on the inside of the creek bend. The vegetation represented on the south side of the creek was the same as on the north side. Part of the riparian community has been converted to a pasture area for farm animals to graze in. This area was approximately 30 to 50 ft from the creek bank and was fenced in so the animals could not reach the creek.

3.1.4 Terrestrial Wildlife

The disturbed/maintained roadside and agricultural fields adjacent to forested tracts provide rich ecotones for foraging, while the forests provide forage areas and cover. Birds that are often associated with ecotones between these communities are ruby-crowned kinglet (*Regulus calendula*), Carolina chickadee (*Parus carolinensis*)*, bluebird (*Sialia sialis*), downy woodpecker (*Picoides pubescens*), yellow-throated warbler (*Dendroica dominica*), blue-gray gnatcatcher (*Polioptila caerulea*), white-breasted nuthatch (*Sitta carolinensis*), northern cardinal (*Cardinalis cardinalis*)*, ruby-throated hummingbird (*Archilochus colubris*), indigo bunting (*Passerina cyanea*), yellow-billed cuckoo (*Coccyzus americanus*), blue jay (*Cyanocitta cristata*)*, tuffed titmouse (*Parus bicolor*)*, acadian flycatcher (*Empidonax traillii*), and mourning dove (*Zenaidura macroura*)*. The red-tailed hawk (*Bufo jamaicensis*) is a major predator in this habitat, feeding on small mammals, reptiles, and amphibians.

Small mammals may inhabit these early successional habitats along forested areas, roadsides, and streams for nesting and feeding. Some of these small mammals include, woodchuck (*Marmota monax*), white-footed mouse (*Peromyscus leucopus*), least shrew (*Cryptotis parva*), southern short-tailed shrew (*Blarina carolinensis*), hispid cottonrat (*Sigmodon hispidus*), and eastern cottontail rabbit (*Sylvilagus floridanus*).

Larger mammals that may be present in these habitat areas for foraging, feeding, watering, bedding, and mating include: raccoon (*Procyon lotor*), white-tailed deer (*Odocoileus virginiana*), opossum (*Didelphis virginiana*), eastern gray squirrel (*Sciurus carolinensis*)*, red fox (*Vulpes vulpes*), and gray fox (*Urocyon cinereoargenteus*).

Reptiles and amphibians that may inhabit these community types include, queen snake (*Regina septenvittata*), black rat snake (*Elaphe obsoleta*), copperhead (*Aghistrodon contortrix*), garter snake (*Thamnophis sirtalis*), American toad (*Bufo americanus*), Fowler's toad (*Bufo woodhousii*), fence lizard (*Sceloporus undulatus*), and five-lined skink (*Eumeces laticeps*).

3.2 AQUATIC COMMUNITY

This community consists of South Potts Creek. Research has shown that a large amount of food chain energy of stream communities is derived from allochthonous (produced outside the river ecosystem) sources, in the form of terrestrial detritus. Rocks, fallen debris (logs, sticks, etc.), and low velocity areas in the river trap detritus within the river. The detritus is then decomposed by heterotrophic microorganisms, such as bacteria and consumed by macroinvertebrates, such as aquatic insects. In turn, the aquatic insects are then consumed by larger organisms. The amount of allochthonous energy input within a river varies seasonally. Autochthonous (produced

within the river ecosystem) energy sources include planktonic and benthic micro and macro algae as well as aquatic vascular vegetation. Fallen logs in the water and rock surfaces offer an attachment substrate for algae.

Aquatic insects that may be found in this community include the water strider (*Gerris* spp.), water beetle (Dytiscidae), stonefly (Plecoptera), dragonfly (Odonata), crane fly (*Tipula* spp.), caddisfly (Trichoptera), stream mayfly (Ephemeroptera) and black-winged damselfly (*Calopteryx maculata*).

Aquatic insects found in this community may be eaten by gamefish and other fishes that may occur in South Potts Creek and the tributary. Gamefish such as chain pickerel (*Esox nigr*a), and sunfishes (*Lepomis* spp.) may occupy these tributaries. Other fishes, such as shiners (*Notropis* spp.), golden shiners (*Notemigonus crysoleucas*), eastern mosquitofish (*Gambusia affinis*), darters (*Etheostoma* spp.), chubs (*Semotilus* spp.), daces (*Clinostomus* spp.), and catfishes (Ictaluridae) may occupy this tributary, as well.

Several other animals representing all vertebrate classes are integral parts of the aquatic system. The northern dusky salamander (*Desmognathus fuscus*) and the two-lined salamander (*Eurycea bislineata*) may occur under rocks and logs within the riverbed. Frogs, such as pickerel frog (*Rana palustris*), upland chorus frog (*Pseudacris triseriata*), southern leopard frog (*Rana sphenoccephala*), and bullfrog (*Rana catesbeiana*), may occur in this habitat along stream banks feeding on aquatic invertebrates. Other reptiles and amphibians occurring in this habitat feeding on small fish and mussels, may include, northern water snake (*Nerodia sipedon*) and snapping turtle (*Chelydra serpentina*).

3.3 SUMMARY OF ANTICIPATED IMPACTS

Construction of the proposed project will have various impacts on the biotic resources described. Any construction related activities in or near these resources have the potential to impact biological functions. This section quantifies and qualifies potential impacts to the natural communities within the project area in terms of the area impacted and the organisms affected. Temporary and permanent impacts are considered here as well, along with recommendations to minimize or eliminate impacts.

3.3.1 Terrestrial Impacts

Impacts to terrestrial communities will result from project construction due to the clearing and paving of portions of the project area, and thus the loss of community area. Table 2 summarizes potential losses to these communities, resulting from project

construction. Calculated impacts to terrestrial communities reflect the relative abundance of each community present in the study area. Estimated impacts are derived based on the project lengths described in section 1.1, and the entire proposed right-of-way width of 18.2 m (60.0 ft) for the bridge replacement for alternate 1 and 2 and a proposed right-of-way width of 18.2 m (60 ft.) for the on-site detour. However, project construction often does not require the entire right-of-way; therefore, actual impacts may be considerably less.

Table 2. Estimated Area Impacts to Terrestrial Communities.

Community	Impacted Area ha (ac)		
	Alt. 1*	Alt. 2*	On-Site Detour **
Maintained / disturbed Roadside	0.013 ha (0.03 ac)	0.013 ha (0.03 ac)	0.06 ha (0.14 ac)
Riparian Forest	0.054 ha (0.13 ac)	0.054 ha (0.13 ac)	0.09 ha (0.24 ac)
Total Impacts	0.067 ha (0.16 ac)	0.067 ha (0.16 ac)	0.15 ha (0.38 ac)

*Permanent Impacts

**Temporary Impacts

3.3.2 Aquatic Impacts

Impacts to the aquatic communities of South Potts Creek will result from the replacement of Bridge 404. Impacts are likely to result from the physical disturbance of aquatic habitats (i.e. substrate and water quality). Disturbance of aquatic habitats has a detrimental effect on aquatic community composition by reducing species diversity and the overall quality of aquatic habitats. Physical alterations to aquatic habitats can result in the following impacts to aquatic communities:

- Inhibition of plant growth.
- Algae blooms resulting from increased nutrient concentrations.
- Loss of benthic macroinvertebrates through scouring resulting from an increased sediment load.

Impacts to aquatic communities can be minimized by strict adherence to Best Management Practices (BMP's).

3.3.3 Natural resource recommendation for alternates

Natural resource issues should be major concerns during transportation improvement project development. The proper alignment chosen will have variable impacts on natural resources. From a natural resources perspective, **alternate 1 is the recommended and preferred alternate** with the least natural resource impacts.

4.0 JURISDICTIONAL TOPICS

This section provides inventories and impact analyses pertinent to two significant regulatory issues: Waters of the United States and rare and protected species. These issues retain particular significance because of federal and state mandates that regulate their protection. This section deals specifically with the impact analyses required to satisfy regulatory authority prior to project construction.

4.1 WATERS OF THE UNITED STATES

Surface waters and wetlands fall under the broad category of "Waters of the United States," as defined in Section 33 of the Code of Federal Register (CRF) Part 328.3. Any action that proposes to dredge or place fill material into surface waters or wetlands falls under the jurisdiction of the U.S. Army Corps of Engineers (COE) under Section 404 of the Clean Water Act (33 U.S.C. 1344). Surface waters include all standing or flowing waters which have commercial or recreational value to the public. Wetlands are identified based on the presence of hydric soils, hydrophytic vegetation, and saturated or flooded conditions during all or part of the growing season.

4.1.1 *Characteristics of Wetlands and Surface Waters*

Criteria to delineate jurisdictional wetlands include evidence of hydric soils, hydrophytic vegetation and hydrology. **There are no jurisdictional wetlands located in the project area, therefore no wetland impacts will result from the construction of this project.** Impacts to jurisdictional surface waters are calculated based on the linear feet of the stream that is located within the proposed right-of-way. Physical aspects of surface waters are described in section 2.3.1. **Impacts to jurisdictional surface waters within in the project right-of-way could possibly impact, but not to exceed, 60 linear feet of creek (proposed right-of-way) for alternate 1 and alternate 2. The on-site detour possible impacts would not exceed 60 linear feet of creek (proposed right-of-way).**

4.1.2 *Permits*

Impacts to jurisdictional surface waters are anticipated from the proposed project. As a result, construction activities will require permits and certifications from various regulatory agencies in charge of protecting the water quality of public water resources.

A **Nationwide Permit** 33 CFR 330.5(a) (23) is likely to be applicable for all impacts to Waters of the United States resulting from the proposed project. This permit authorizes activities undertaken, assisted, authorized, regulated, funded or financed in whole, or part, by another Federal agency or department where that agency or department has determined that pursuant to the council on environmental quality regulation for implementing the procedural provisions of the National Environmental Policy Act:

- (1) that the activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment, and;
- (2) that the office of the Chief of Engineers has been furnished notice of the agency' or department's application for the categorical exclusion and concurs with that determination.

This project will also require a **401 Water Quality Certification** from the DWQ prior to the issuance of the Nationwide Permit. Section 401 of the Clean Water Act requires that the state issue or deny water certification for any federally permitted or licensed activity that may result in a discharge to Waters of the United States. Section 401 Certification allows surface waters to be temporarily impacted for the duration of the construction or other land manipulation. The issuance of a 401 permit from the DWQ is a prerequisite to issuance of a Section 404 permit.

4.1.3 Avoidance, Minimization, Mitigation

The COE has adopted through the Council on Environmental Quality (CEQ) a wetland mitigation policy which embraces the concept of "no net loss of wetlands" and sequencing. The purpose of this policy is to restore and maintain the chemical, biological and physical integrity of Waters of the United States, specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include: avoiding impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time and compensating for impacts (40 CFR 1508.20). Each of these three aspects (avoidance, minimization and compensatory mitigation) must be considered sequentially.

Avoidance mitigation examines all appropriate and practicable possibilities of averting impacts to Waters of the United States. According to a 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and the COE, in determining "appropriate and practicable" measures to offset unavoidable impacts, such measures should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology and logistics in light of overall project purposes.

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to Waters of the United States. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction to median widths, right-of-way widths, fill slopes and/or road shoulder widths.

Compensatory mitigation is not normally considered until anticipated impacts to Waters of the United States have been avoided and minimized to the maximum extent possible. It is recognized that "no net loss of wetlands" functions and values may not be achieved in each and every permit action. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been required. Compensatory actions often include restoration, creation and enhancement of Waters of the United States, specifically wetlands. Such actions should be undertaken in areas adjacent to or contiguous to the discharge site.

Compensatory mitigation is required for those projects authorized under Nationwide Permits that result in the fill or alteration of:

- More than 0.04 ha (0.10 ac) of wetlands will require compensatory mitigation;
- And/or more than 45.7 m (150.0 linear ft) of streams will require compensatory mitigation.

Written approval of the final mitigation plan is required from the DWQ prior to the issuance of a 401 Certification. Final permit/mitigation decisions rest with the COE.

4.2 RARE AND PROTECTED SPECIES

Some populations of fauna and flora have been in, or are in, the process of decline either due to natural forces or their inability to coexist with human development. Federal law (under the provisions of the Endangered Species Act of 1973, as amended) requires that any action, likely to adversely affect a species classified as federally-protected, be subject to review by the United States Fish and Wildlife Service (FWS). Other species may receive additional protection under separate state laws.

4.2.1 Federally-Protected Species

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under the provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. **As of June 16, 2000, the FWS lists three species as federally-protected for Davidson County.** These species are listed in the table below with a brief description of habitat and a biological conclusion following.

Table 3. Federally-protected species for Davidson County.

Scientific Name	Common Name	Status
<i>Clemmys muhlenbergii</i>	Bog turtle	T(S/A)
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Threatened
<i>Helianthus schweinitzii</i>	Schweinitz's sunflower	Endangered

- **Endangered** –a taxon “in danger of extinction throughout all or a significant portion of its range.”
- **Threatened** –a taxon “likely to become endangered within the foreseeable future throughout all or a significant portion of its range.”
- **T(S/A) Threatened due to similarity of appearance**

Name: Bog turtle (*Clemmys muhlenbergii*)

Threatened (S/A)

Family: Emydidae

Federal Status: Threatened Due to Similarity of Appearance (southern population)

Date Listed: June 4, 1987

Characteristics:

The bog turtle is a small semi-aquatic reptile, measuring 7.5-11.4 cm in length, with a weakly keeled, dark brown carapace and a blackish plastron with lighter markings along the midline. There is a conspicuous orange or yellow blotch on each side of the head. This species exhibits sexual dimorphism; the males have concave plastrons and longer, thicker tails, while females have flat plastrons and shorter tails.

Distribution and Habitat:

The bog turtle is found in the eastern United States, in two distinct regions. The northern population, in Massachusetts, Connecticut, southern New York, New Jersey, Pennsylvania, Maryland, and Delaware is listed as Threatened and protected by the Endangered Species Act. The southern population, occurring in Virginia, North Carolina, South Carolina, Tennessee, and Georgia is listed as Threatened Due to Similarity of Appearance.

Preferred bog turtle habitat consists of fens, sphagnum bogs, swamps, marshy meadows and pastures. Areas with clear, slow-flowing water, soft mud substrate, and an open canopy are ideal. Clumps of vegetation such as tussock sedge and sphagnum moss are important for nesting and basking. This species hibernates from October to April, hiding just under the frozen surface of mud. The diet consists of beetles, moth and butterfly larvae, caddisfly larvae, snails, nematodes, millipedes, seeds, and carrion (Nemuras 1967).

Mating takes place in May and June, and the female deposits the clutch of 2-6 eggs in a sedge tussock, a clump of sphagnum moss, or loose soil about a month later.

The eggs hatch in 42-56 days. A female may not nest every year, and probably only produces one clutch per reproductive year.

Threats to Species:

The primary threats to the bog turtle are loss of habitat (from increased residential and commercial development as well as draining, clearing, and filling wetlands) and illegal collecting for the pet trade. Nest predation and disease may also play a role in the population decrease.

Distinctive Characteristics:

The bog turtle is distinguished from other turtles by its small size and the bright orange or yellow blotch on each side of its head.

Haliaeetus leucocephalus (bald eagle)**Threatened**

Animal Family: Accipitridae

Date Listed: 3/11/67

Distribution in N.C.: Anson, Beaufort, Brunswick, Carteret, Chatham, Chowan, Craven, Dare, Durham, Guilford, Hyde, Montgomery, New Hanover, Northhampton, Perquimans, Richmond, Stanley, Vance, Wake, Washington.

Adult bald eagles can be identified by their large white head and short white tail. The body plumage is dark-brown to chocolate-brown in color. In flight bald eagles can be identified by their flat wing soar.

Eagle nests are found in close proximity to water (within a half mile) with a clear flight path to the water, in the largest living tree in an area, and having an open view of the surrounding land. Human disturbance can cause an eagle to abandon otherwise suitable habitat. The breeding season for the bald eagle begins in December or January. Fish are the major food source for bald eagles. Other sources include coots, herons, and wounded ducks. Food may be live or carrion.

Biological Conclusion:**No Effect**

Within the project vicinity there is no suitable nesting or foraging habitat for the bald eagle. It can be concluded that the construction of this project will not effect this species.

Helianthus schweinitzii (Schweinitz's sunflower)**Endangered**

Plant Family: Asteraceae

Federally Listed: June 6, 1991

Flowers Present: mid September-early October

Distribution in N.C.: Cabarrus, Davidson, Mecklenburg, Montgomery, Randolph, Rowan, Stanly, Stokes, Union.

Schweinitz's sunflower is a rhizomatous perennial herb that grows 1-2 m tall from a cluster of carrot-like tuberos roots. The stems are deep red, solitary and only branch above mid-stem. The leaves are rough feeling above and resin-dotted and loosely soft-white-hairy beneath. Leaves of the sunflower are opposite on the lower part of the stem and usually become alternate on the upper stem. The broad flowers are borne from September until frost. These flowers are yellow in color and arranged in an open system of upwardly arching heads. The fruit is a smooth, gray-black achene.

Schweinitz's sunflower is endemic to North and South Carolina. These sunflowers grow best in full sunlight or light shade in clearings and along the edges of open stands of oak-pine-hickory upland woods. Common soils that this species is found in are moist to dryish clays, clay-loams, or sandy clay-loams, often with a high gravel content and always moderately podzolized. Natural fires and large herbivores are considered to be historically important in maintaining open habitat for these sunflowers.

Biological Conclusion:**Unresolved**

There is suitable habitat within the project vicinity along the roadside for this species. A survey will need to be conducted for this species and concurrence from the USFWS after the survey is performed will need to be received.

4.2.2 Federal Species of Concern and State Listed Species

Federal species of concern are not afforded federal protection under the Endangered Species Act and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. However, the status of these species is subject to change, and so should be included for consideration. Federal Species of Concern (FSC) are defined as a species that is under consideration for listing for which there is insufficient information to support listing. In addition, organisms which are listed as Endangered (E), Threatened (T), or Special Concern (SC) by the North Carolina Natural Heritage Program list of Rare Plant and Animal Species are afforded state protection under the NC State Endangered Species Act and the NC Plant Protection and Conservation Act of 1979. **There are two federal species of concern listed by the FWS for Davidson County. (Table 4)**

Table 4. Federal Species of Concern for Davidson County.

Scientific Name	Common Name	NC Status	Habitat
<i>Etheostoma collis</i>	Carolina darter	SC	Present
<i>Lotus helleri</i>	Heller's trefoil	C	Present

- “SC”—Any species of wild animal native or once-native to North Carolina which is determined by the Wildlife Resources Commission to require monitoring but which may be taken under regulations adopted under the provisions of this article. (Article 25 of Chapter 113 of the General Statutes; 1987).
- “C”—A Candidate species is one which is very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction, direct exploitation or disease. The species is also either rare throughout its range or disjunct in North Carolina from a main range in a different part of the country or the world.

A review of the NCNHP database of rare species and unique habitats shows no occurrences of rare species within the project vicinity.

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

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LYNDO TIPPETT
SECRETARY

November 13, 2001

Memorandum to: Dennis Pipkin
From: Clay Willis

Subject: Federally protected plant surveys for Schweinitz's Sunflower (*Helianthus schweinitzii*). This is for the proposed bridge replacement of bridge # 404 on SR 1147 over South Potts Creek in Davidson County. TIP No. B-4334, State Project No. 8.2604401; Federal Aid No. BRSTP-1147(3).

Reference: Natural Resources Technical Report (NCDOT, January 22, 2001)

The subject project involves the replacement of Bridge No. 404 on SR 1147 in Davidson County. This memo addresses a federally-protected species issue for the above mentioned project. A biological conclusion of unresolved was issued for Schweinitz's Sunflower in the Natural Resources Technical Report for this project. Schweinitz's Sunflower is listed as an endangered species in Davidson county by the U.S. Fish and Wildlife Service. A description of these species is presented in the Natural Resources Technical Report.

Habitat for Schweinitz's Sunflower does exist in the project area in the form of maintained roadside shoulders. A plant-by-plant survey was conducted on September 26, 2001 by NCDOT biologist Lindsey Riddick and Clay Willis to determine if this species is located in the project area. The surveyed area included both shoulders of the roadway for the entire length of the project, which is about 500 feet. This survey was conducted for approximately 30 minutes. Schweinitz's Sunflower was not observed to occur within the project area.

In addition to this survey Natural Heritage Program (NHP) files were reviewed on September 20, 2001 for any recorded observations of Schweinitz's Sunflower within the project area. The NHP had no records of this species being sited in the project area or within a mile of the project area boundaries.

It can be concluded that this federally-protected species will not be effected by the construction of this project.

Biological Conclusion:

No Effect