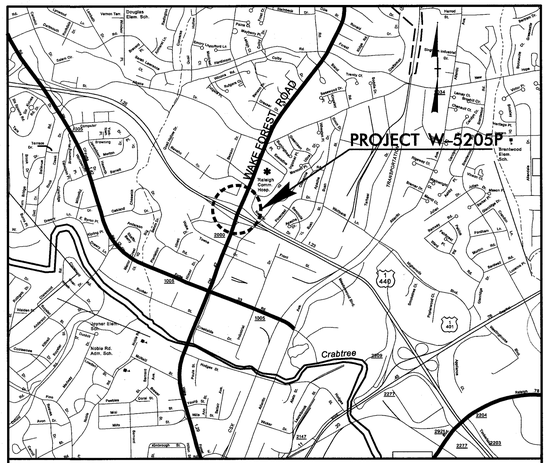
09/08/99

TIP PROJECT: W-5205P

CONTRACT: DE00097

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

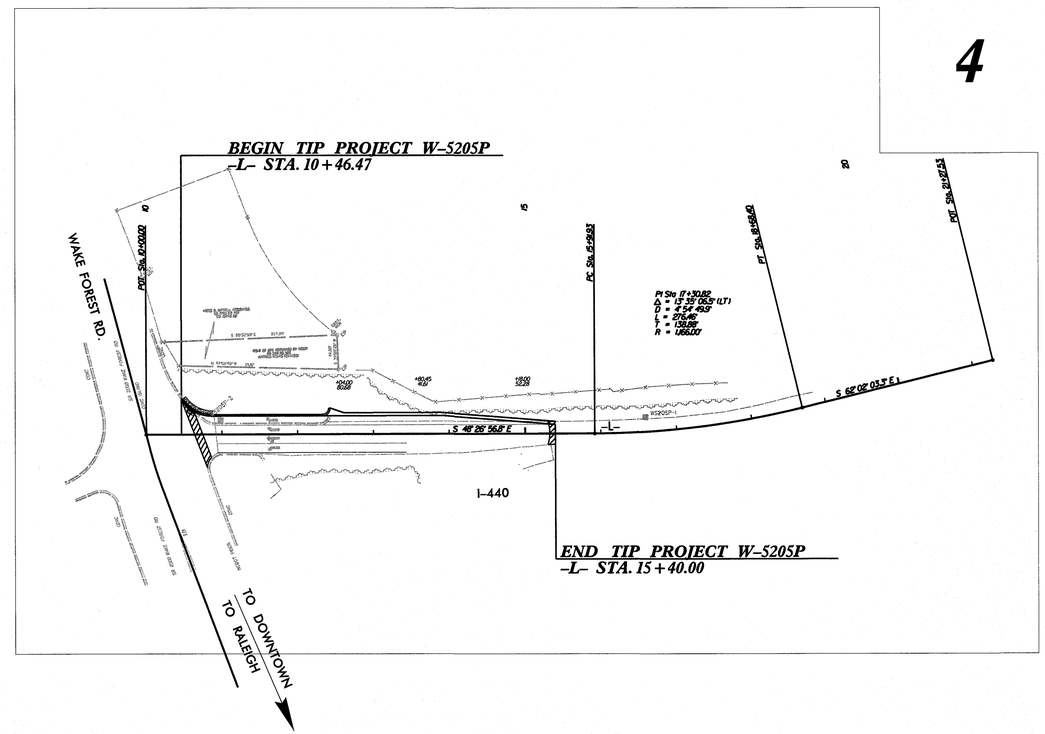
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5205P	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
WBS 45335.1.16	HSIP-2000(7)	PE
WBS 45335.2.FD16	HSIP-2000(7)	R/W & UTIL.
WBS 45335.3.FD16	HSIP-2000(7)	CONST.

LOCATION: SR-2000 (WAKE FOREST RD.) AT WB I-440 RAMP

TYPE OF WORK: GRADING, PAVING, CURB & GUTTER, DRAINAGE, PAVEMENT MARKING SIGNING, SIGNAL AND TRAFFIC CONTROL

4



RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com
NC License No. C-0910

GRAPHIC SCALES

40 20 0 40 80
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

5 2.5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT =
ADT =
DHV = %
D = %
T = % *
V = MPH
* TTST =
FUNC CLASS =

TIER

PROJECT LENGTH

Wake Forest Rd. Off Ramp = .094 Miles

Prepared In the Office of:
RAMEY KEMP & ASSOCIATES, INC.
5808 Faringdon Place, Suite 100, Raleigh NC, 27609

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

Merrick A. Dugal, III, P.E.
PROJECT ENGINEER

Lucas Helms, E.I.; Bret Palis
PROJECT DESIGNERS

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 38683 ENGINEER MARIANNE Q. C. NGUYEN
SIGNATURE: 6/18/14 P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A. DUGAL, III
SIGNATURE: 6/18/14 P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

6/17/2014
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User:localuser

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A. DUGAL, III

6/18/14

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INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS
2A	CONVERT CB TO JB W/ MH
3	SUMMARY OF DRAINAGE QUANTITIES EARTHWORK SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-2	TRANSPORTATION MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
X-0 THRU X-3	CROSS-SECTIONS
Sig.-1 THRU Sig.-6	SIGNAL PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 07-30-2012

GRADING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED OR FUTURE SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01 AND/OR STD. NO. 560.02

SUBSURFACE PLANS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Duke Energy, Time Warner,

PSNC Energy, AT&T, Earthlink, Network Protection Managment, City of Raleigh

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS.
CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

2012 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 10-30-12

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.04	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.05	Brick Open Throat Catch Basin - 12" thru 48" Pipe
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.05	Curb Ramp - Proposed Curb & Gutter
866.01	Chain Link Fence - 4', 5' and 6' High Fence

8/17/99
6/17/2014
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:serlocal:user

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	1B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

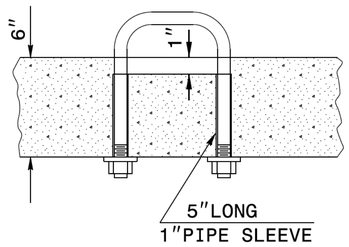
SANITARY SEWER:

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

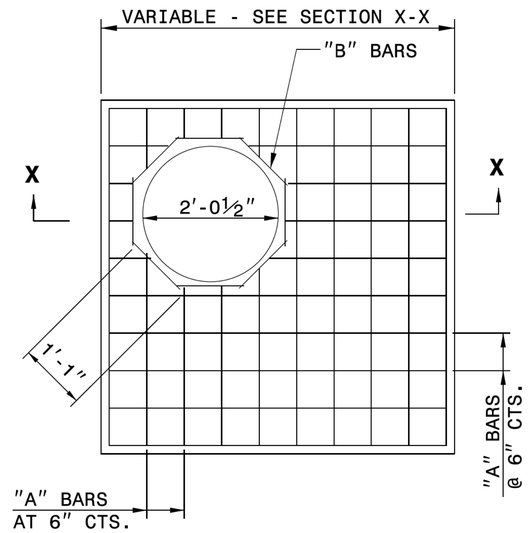
MISCELLANEOUS:

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

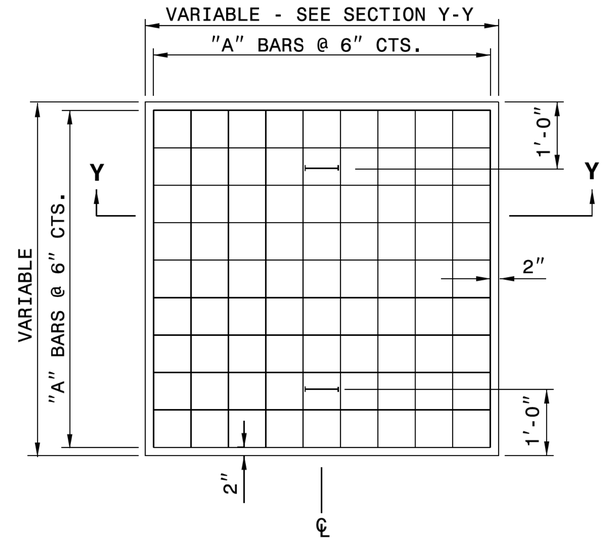
PROJECT REFERENCE NO.	SHEET NO.
W-5205P	2A



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

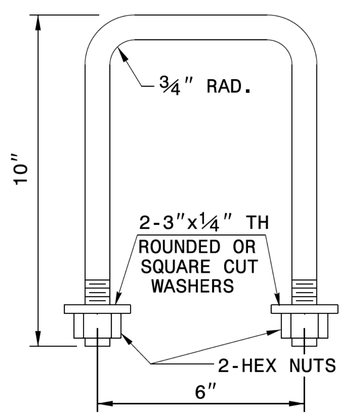
CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES

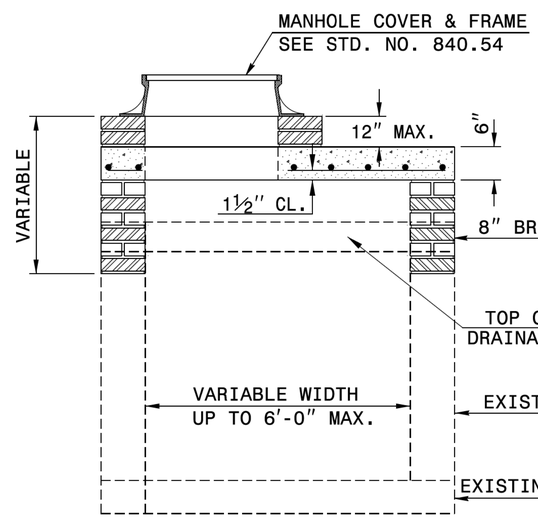
DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

BILL OF MATERIALS				
REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *
MASONRY				CU YDS
TOP SLAB CONCRETE CLASS "B"				.433 *
BRICK MASONRY PER FT HT (MIN)				.4111

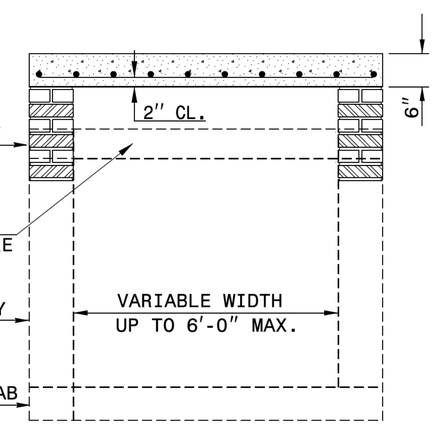
* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



DETAIL OF HANDLE



SECTION X-X



SECTION Y-Y

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: NOV.1997
MODIFIED BY: E.E.W DATE: 8-28-02
CHECKED BY: DATE:
FILE SPEC.: /usr/details/stand/boxtojbe.dgn

$$$$SYSTIME$$$$
$$$$USERNAME$$$$ $$$$DGN$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA SEAL 022609 ENGINEER MERRICK A DUGAL, III
6/18/14

RAMEY KEMP & ASSOCIATES, INC.
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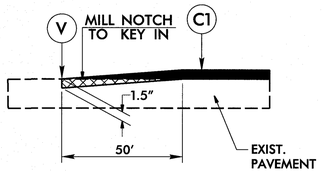
PAVEMENT SCHEDULE

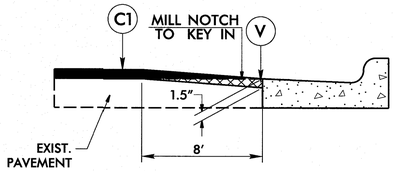
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
E2	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
R	2'-6" CURB AND GUTTER
S	PROP. 4" CONCRETE SIDEWALK
T	COMPACTED EARTH MATERIAL
U	EXISTING PAVEMENT
V	0" - 1.5" MILLING (SEE MILLING DETAILS).

NOTES: 1. ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE SPECIFIED.

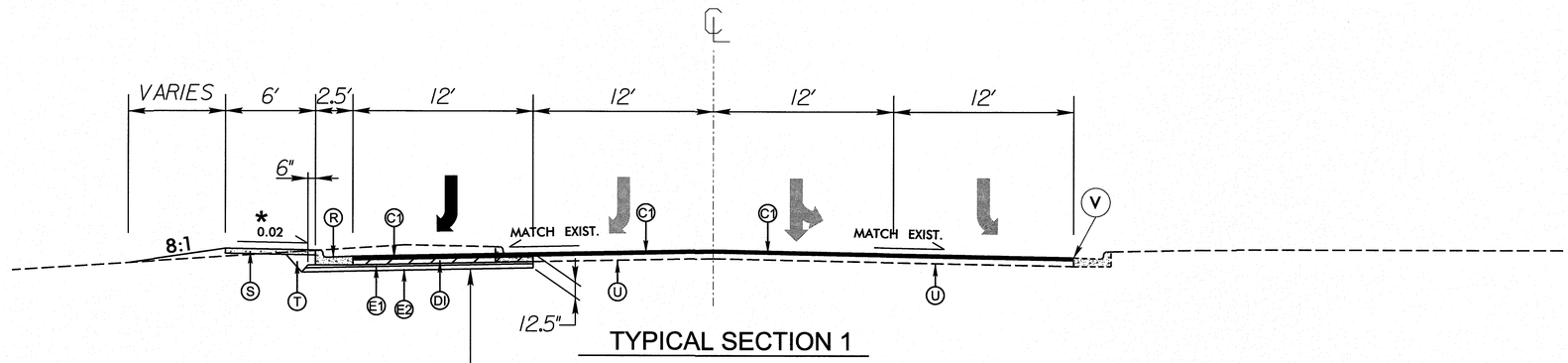
2. CROSS SLOPES VARY. SEE CROSS-SECTIONS FOR PROPOSED GUTTER ELEVATIONS.



BUTT MILLING DETAIL
(PAID AS INCIDENTAL MILLING)



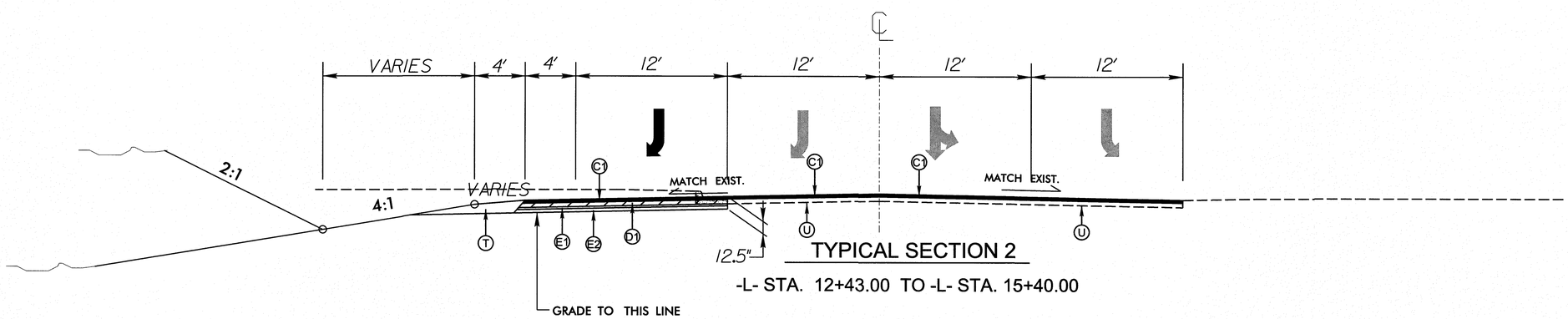
EDGE MILLING DETAIL



TYPICAL SECTION 1

-L- STA. 10+46.47 TO -L- STA. 12+43.00

* SIDEWALK -L- STA. 10+46.47 TO -L- STA. 10+87.61 (SEE PLANS)



TYPICAL SECTION 2

-L- STA. 12+43.00 TO -L- STA. 15+40.00

REVISIONS

8/17/99

6/17/2014
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	3

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

STATION	STATION	UNCL EXCAV.	EMBANK. + %	BORROW	WASTE
-L- 10+50.00	-L- 15+00.00	215	520	305	0
SUBTOTALS:		215	520	305	0
SUBTOTALS:					
SUBTOTALS:					
PROJECT TOTALS:		215	520	305	0
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT				15	
GRAND TOTALS:		215	520	320	0
SAY:		215	520	320	0

*NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, SHOULDER BORROW, FINE GRADING, CLEARING AND GRUBBING, BREAKING OF EXISTING PAVEMENT, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

| STATION / SIZE / THICKNESS OR GAUGE | LOCATION (LT,RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | CLASS IV R.C. PIPE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" SIDE DRAIN PIPE | ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P. | C.S.P. | QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0') | LIN. FT. 5.0' THRU 10.0' A | 10.0' AND ABOVE B | * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL. 'B') | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | CB STD. 840.01 OR 840.02 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME & GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. FRAME WITH GRATE STD. 840.22 | G.D.I. FRAME WITH TWO GRATES STD. 840.22 | G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24 | G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | J.B. STD. 840.31 OR 840.32 | CONC. OTCB STD. 840.04 | CONVERT CB TO TBJB W. MH STD. 840.34 | CONVERT CB TO JB W. MH SEE DETAIL SHT. 2A | PIPE REMOVAL (FT) | REMARKS |
|---|---|---|---|---|---

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A. DUGAL, III

6/18/14

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 38680 ENGINEER MELANIE G. C. NOBLETT

6/18/14

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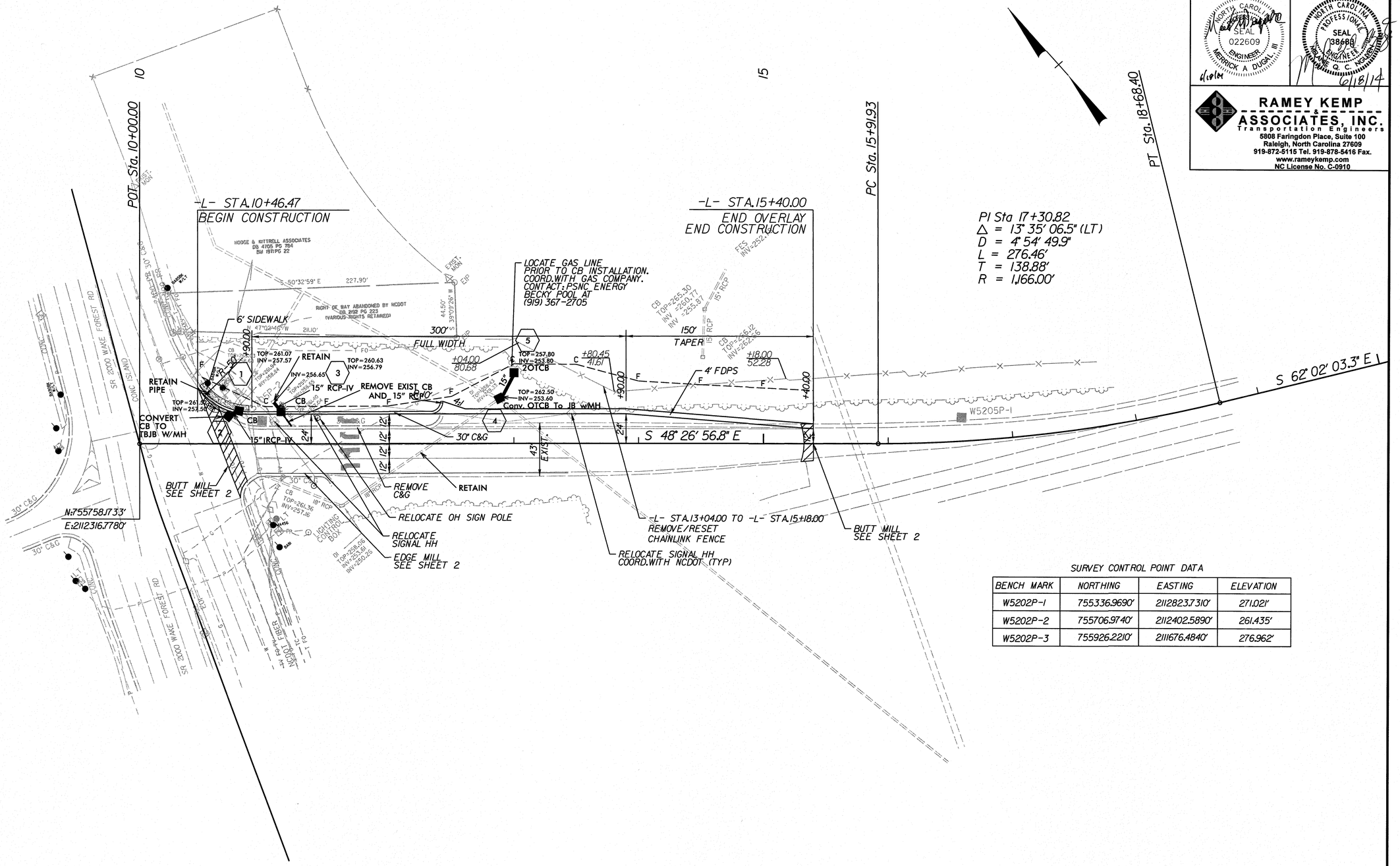

SURVEY CONTROL POINT DATA

BENCH MARK	NORTHING	EASTING	ELEVATION
W5202P-1	755336.9690'	2112823.7310'	271.021'
W5202P-2	755706.9740'	2112402.5890'	261.435'
W5202P-3	755926.2210'	2111676.4840'	276.962'

REVISIONS

8/17/99

6/17/2014
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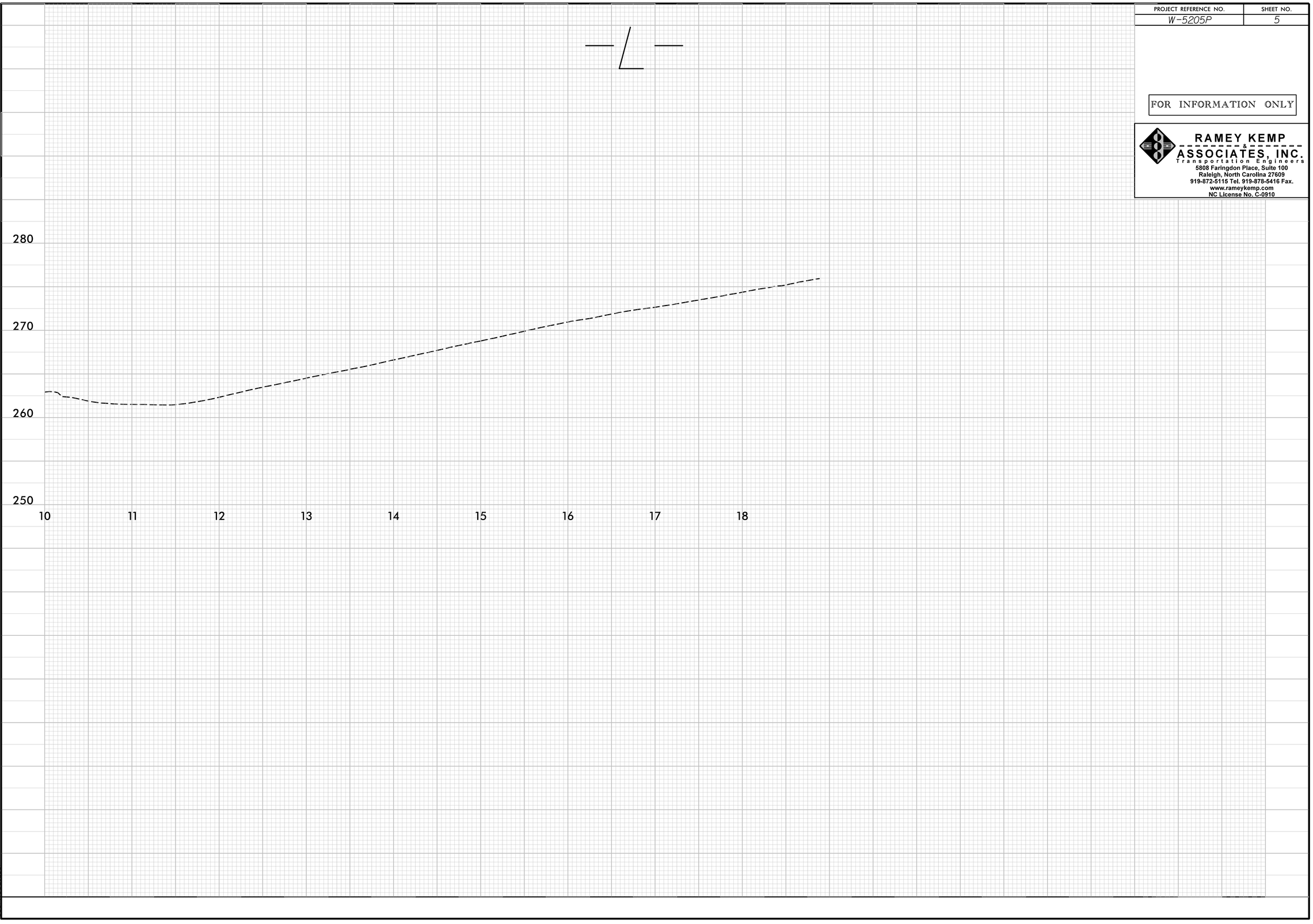
Mergel\Geoliner

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	5

FOR INFORMATION ONLY

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com
NC License No. C-0910



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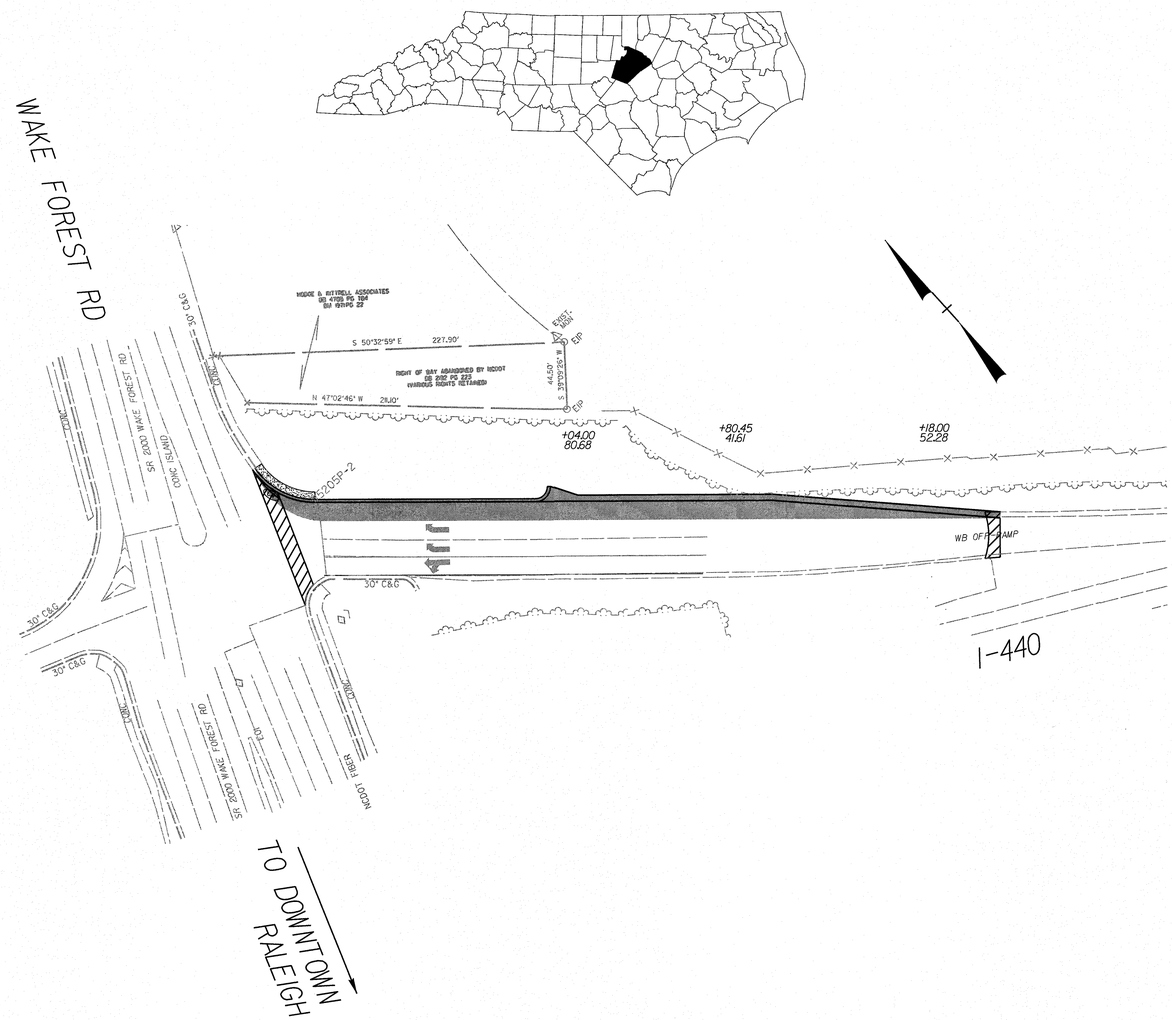
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

WAKE COUNTY

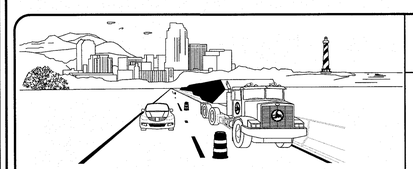


INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	*TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS*
TMP-1A	*LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND*
TMP-1B	*TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES AND PHASING NOTES)*
TMP-2	*TEMPORARY TRAFFIC CONTROL PHASE I DETAIL*

SHEET NO.
TMP-1

TIP PROJECT: W-5205P



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

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M. A. DUGAL III, P.E. *STATE TRAFFIC MANAGEMENT ENGINEER*

_____ *TRAFFIC CONTROL PROJECT ENGINEER*

B. PALIS _____ *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*

K. WISE _____ *TRAFFIC CONTROL DESIGN ENGINEER*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

APPROVED: _____
DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL, III

6/18/14

6/18/2014
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PROJ. REFERENCE NO.	SHEET NO.
W-5205P	TMP-1A

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ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.03	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMPS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

SIGNALS

EXISTING PROPOSED TEMPORARY

PAVEMENT MARKINGS

EXISTING LINES
TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

LEGEND

PAVEMENT MARKING LINES

---------- PAINT (4")
PA - WHITE EDGE LINE
PB - YELLOW EDGE LINE

---------- PAINT (4")
PC - 10 ft. WHITE SKIP
PD - 3 ft.-9ft./SP WHITE MINI SKIP
PE - WHITE SOLID LANE LINE
PF - 10 ft. YELLOW SKIP
PH - YELLOW SINGLE CENTER LINE
PI - YELLOW DOUBLE CENTER LINE
P8 - 2 ft.-6ft./SP WHITE MINI SKIP
P9 - 2 ft.-6ft./SP YELLOW MINI SKIP

---------- PAINT(8")
PP - YELLOW DIAGONAL
PQ - WHITE CROSSWALK LINE
PU - WHITE DIAGONAL
PV - YELLOW DIAGONAL

----------PAINT(24")
P2 - WHITE STOP BAR
P3 - WHITE CROSSWALK LINE

----------PAINT (4")
PA - WHITE EDGELINE
PB - YELLOW EDGELINE

PAVEMENT MARKING SYMBOLS

---------- PAINT
QA - LEFT TURN ARROW
QB - RIGHT TURN ARROW
QC - STRAIGHT ARROW
QD - COMBINATION STRAIGHT & LEFT TURN ARROW
QE - COMBINATION STRAIGHT & RIGHT TURN ARROW
QF - COMBINATION LEFT & RIGHT TURN ARROW
QG - COMBINATION LEFT/STRAIGHT/RIGHT TURN ARROW
QP - MERGE ARROW

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE TO NCDOT STANDARDS.

2. REMOVE ALL CONFLICTING EXISTING PAVEMENT MARKINGS AND SIGNS WITHIN THE CONSTRUCTION AREA.

3. SEE APPROVED TRAFFIC SIGNAL PLAN FOR LOCATIONS OF PROPOSED STOP BARS AT ALL SIGNALIZED INTERSECTIONS.

USE NCDOT 2012 STANDARDS

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA SEAL 022609 ENGINEER MERRICK A DUGAL, III

6/18/14

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS & LEGEND

6/18/2014
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PROJ. REFERENCE NO.	SHEET NO.
W-5205P	TMP-1B

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GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
WB I-440 OFF RAMP	SUNDAY THRU SATURDAY 6:00AM TO 8:00PM
SR-2000 (WAKE FOREST RD.)	SUNDAY THRU SATURDAY 6:00AM TO 8:00PM

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:
ROAD NAME

WB I-440 OFF RAMP

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.

2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00AM DECEMBER 31st TO 8:00PM JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 8:00PM THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 6:00AM THURSDAY AND 8:00PM MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00AM FRIDAY TO 8:00PM TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00AM THE DAY BEFORE INDEPENDENCE DAY AND 8:00PM THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00AM THE THURSDAY BEFORE INDEPENDENCE DAY AND 8:00PM THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00AM FRIDAY AND 8:00PM TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00AM TUESDAY TO 8:00PM MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00AM THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:00PM THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

   WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

G) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

H) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

   BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

   BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

   BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

I) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

L) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

PAVEMENT MARKINGS AND MARKERS

M) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
WB I-440 OFF RAMP	PAINT	NONE

N) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

O) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.

PHASING NOTES

PHASE I

STEP 1) INSTALL ADVANCE WORK ZONE WARNING SIGNS ACCORDING TO ROADWAY STANDARD DRAWING NO. 1101.01, SHEETS 2 AND 3 OF 3.

STEP 2) USING NCDOT ROADWAY STANDARD DRAWING 1101.02, SHEETS 3 OF 15, AS NECESSARY. BEGIN PROPOSED CONSTRUCTION, INCLUDING DRAINAGE, UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE AT THE FOLLOWING LOCATION -L- STA. 10+00.00+/- TO STA. 15+40.00 +/- LT.

STEP 3) USING NCDOT ROADWAY STANDARD DRAWING 1101.02, SHEETS 2, & 3 OF 15 AS NEEDED TO MILL AND OVERLAY, CONSTRUCT FINAL LAYER OF SURFACE COURSE FROM -L- STA. 10+00.00+/- TO STA. 15+40.00+/-. PLACE PERMANENT PAVEMENT MARKINGS AS SHOWN IN PAVEMENT MARKING PLANS, REMOVE ALL TRAFFIC CONTROL DEVICES AND PLACE TRAFFIC INTO FINAL TRAFFIC PATTERN.

NOTE: MAINTAIN PEDESTRIAN ACCESS ALONG SR-2000 (WAKE FOREST RD.) FOR THE DURATION OF THE PROJECT. PROVIDE DESIGNATED PEDESTRIAN ROUTES FENCED OFF FROM CONSTRUCTION ACTIVITIES.

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA SEAL 022609 ENGINEER MERRICK A. DUGAL, III

6/23/14

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

GENERAL NOTES & PHASING NOTES

6/23/2014
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PROJ. REFERENCE NO.	SHEET NO.
W-5205P	TMP-2

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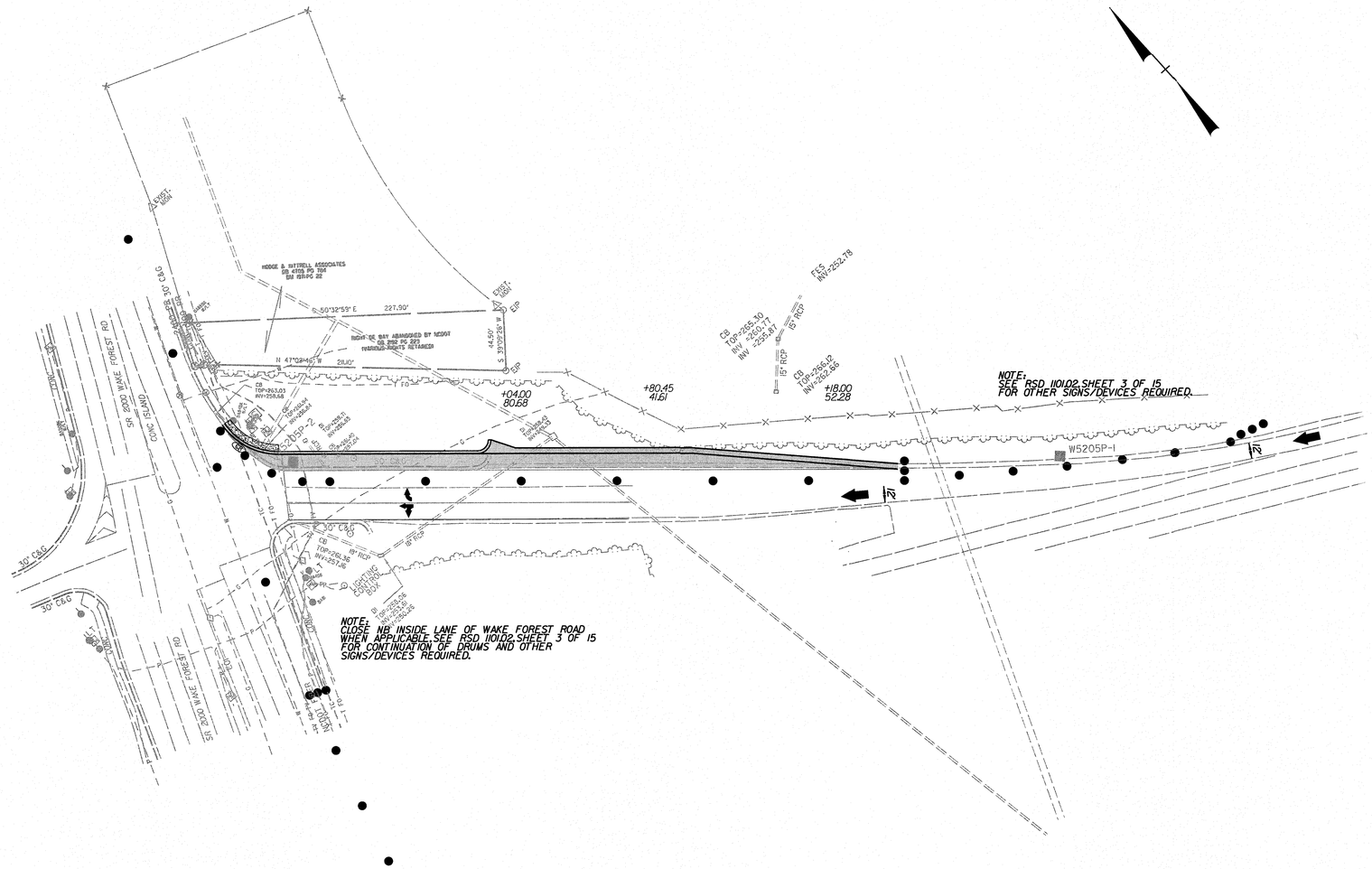

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APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL, III

6/18/14

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

PHASING DETAIL

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	PMP-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL III

6/10/14

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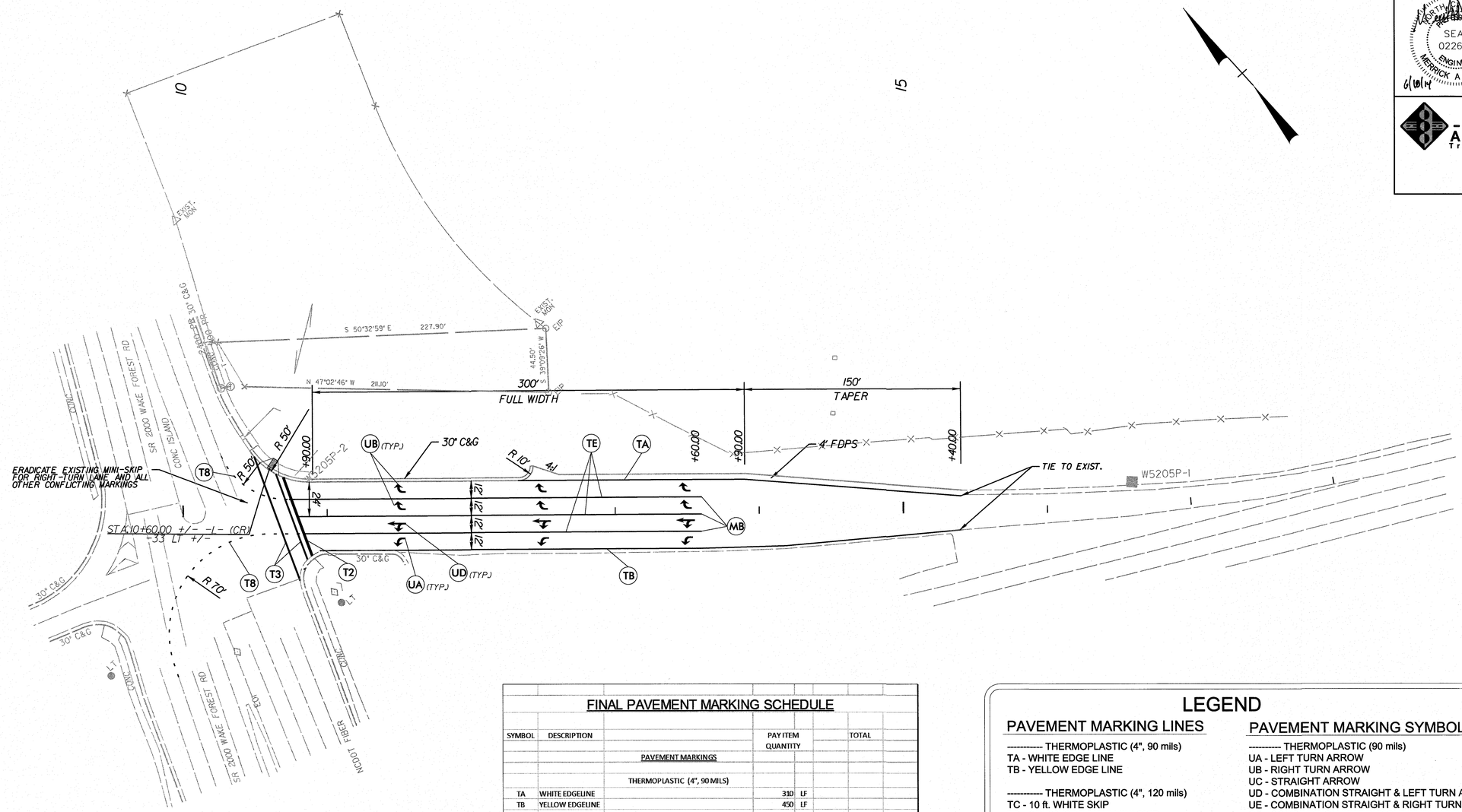

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM QUANTITY		TOTAL		
	PAVEMENT MARKINGS					
	THERMOPLASTIC (4", 90 MILS)					
TA	WHITE EDGELINE	310	LF			
TB	YELLOW EDGELINE	450	LF			
				TOTAL	760	LF
	THERMOPLASTIC (4", 120 MILS)					
TE	WHITE SOLID LANE LINE	850	LF			
T8	2 FT.-6 FT./SP WHITE MINI SKIP	64	LF			
				TOTAL	914	LF
	THERMOPLASTIC (24", 120 MILS)					
T2	WHITE STOPBAR	50	LF			
T3	WHITE CROSSWALK LINE	160	LF			
				TOTAL	210	LF
	THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90 MILS)					
UA	LEFT TURN ARROW	3	EA			
UB	RIGHT TURN ARROW	6	EA			
UD	COMBO. STRAIGHT/LEFT	3	EA			
				TOTAL	12	EA
	MARKERS					
	PERMANENT RAISED PAVEMENT MARKERS					
MB	CRYSTAL & RED	45	EA			
				TOTAL	45	EA

LEGEND

PAVEMENT MARKING LINES

---------- THERMOPLASTIC (4", 90 mils)
TA - WHITE EDGE LINE
TB - YELLOW EDGE LINE

---------- THERMOPLASTIC (4", 120 mils)
TC - 10 ft. WHITE SKIP
TD - 3 ft.-9ft./SP WHITE MINI SKIP
TE - WHITE SOLID LANE LINE
TF - 10 ft. YELLOW SKIP
TH - YELLOW SINGLE CENTER LINE
TI - YELLOW DOUBLE CENTER LINE
T8 - 2 ft.-6ft./SP WHITE MINI SKIP
T9 - 2 ft.-6ft./SP YELLOW MINI SKIP

---------- THERMOPLASTIC (8", 90 mils)
TP - YELLOW DIAGONAL
TQ - WHITE CROSSWALK LINE
TU - WHITE DIAGONAL
TV - YELLOW DIAGONAL

----------THERMOPLASTIC (24", 120 mils)
T2 - WHITE STOP BAR
T3 - WHITE CROSSWALK LINE

----------PAINT (4")
PA - WHITE EDGELINE
PB - YELLOW EDGELINE

PAVEMENT MARKING SYMBOLS

---------- THERMOPLASTIC (90 mils)
UA - LEFT TURN ARROW
UB - RIGHT TURN ARROW
UC - STRAIGHT ARROW
UD - COMBINATION STRAIGHT & LEFT TURN ARROW
UE - COMBINATION STRAIGHT & RIGHT TURN ARROW
UF - COMBINATION LEFT & RIGHT TURN ARROW
UG - COMBINATION LEFT/STRAIGHT/RIGHT TURN ARROW

---------- RAISED PAVEMENT MARKERS
MB - PERM. RAISED MARKER (CRYSTAL & RED)

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE TO NCDOT STANDARDS.

2. REMOVE ALL CONFLICTING EXISTING PAVEMENT MARKINGS AND SIGNS WITHIN THE CONSTRUCTION AREA.

3. SEE APPROVED TRAFFIC SIGNAL PLAN FOR LOCATIONS OF PROPOSED STOP BARS & CROSSWALKS AT ALL SIGNALIZED INTERSECTIONS.

4. INSTALL RAISED PAVEMENT MARKERS PER NCDOT STANDARDS.

USE NCDOT 2012 STANDARDS

REVISIONS

8/17/99

6/17/2014
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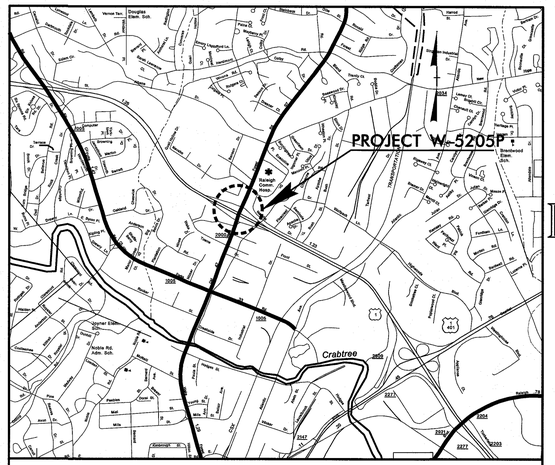
TIP PROJECT: W-5205P

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5205P	EC-1	

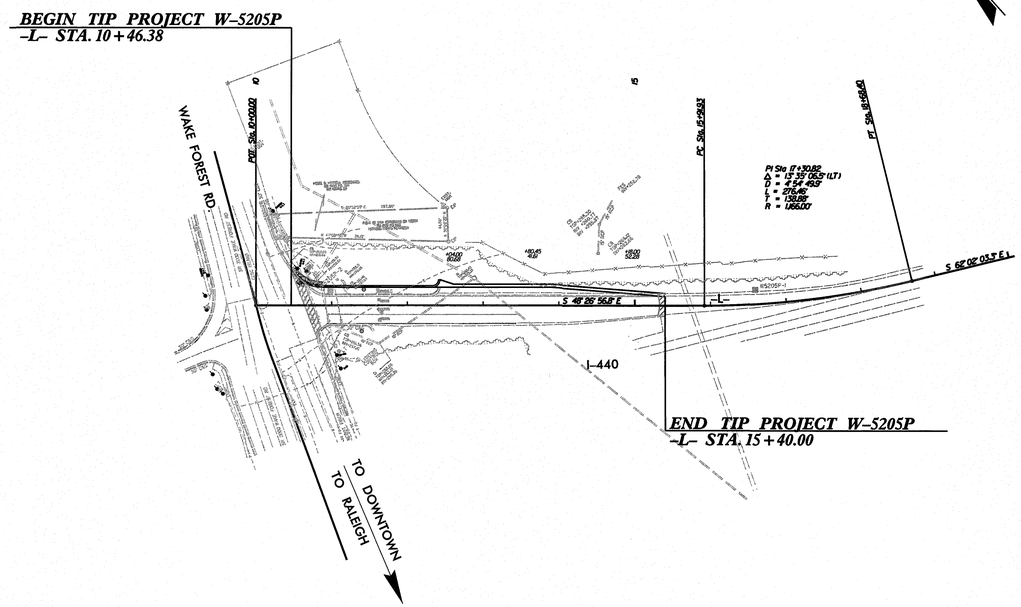
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
WBS 45335.3.FD16	HSIP-2000(7)	CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED HIGHWAY EROSION CONTROL



VICINITY MAP



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

TRE DUGAL
LEVEL IIIA NAME

350
LEVEL IIIA CERTIFICATION NO.

GRAPHIC SCALE

40 0 80
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A. DUGAL, III
6/10/14

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared In the Office of:

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NC License No. C-0910

2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

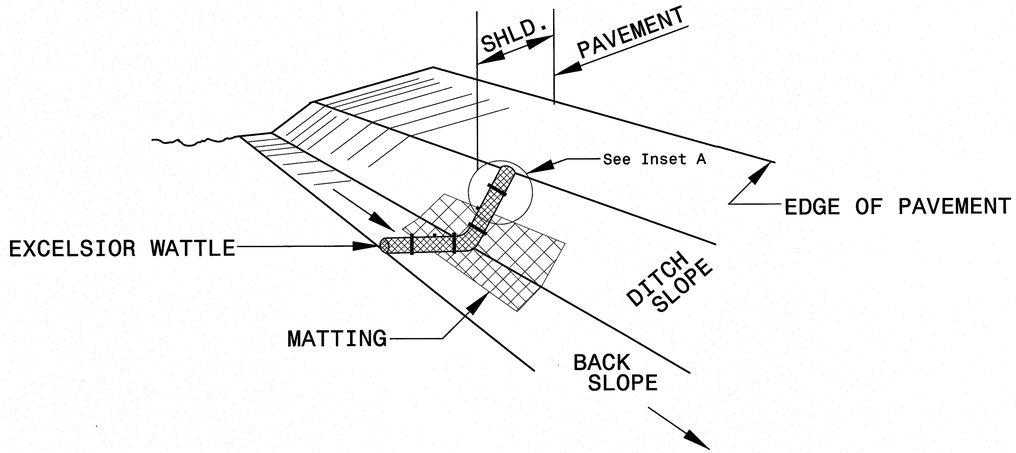
6/11/2014
Drawing: W5205P_EC1.dgn
User: RoadUser

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

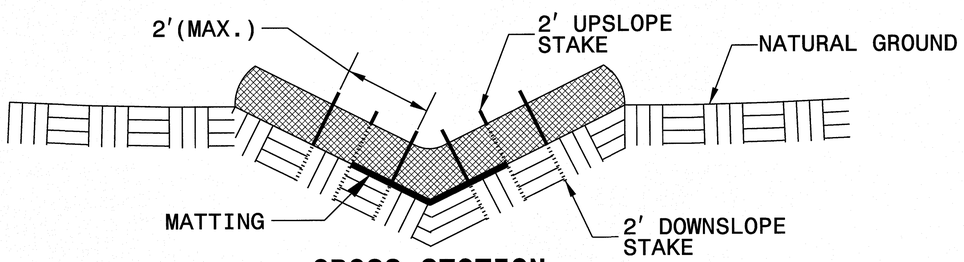
NORTH CAROLINA PROFESSIONAL SEAL 022609 ENGINEER MERRICK A DUGAL, III
6/18/14

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com
NC License No. C-0910

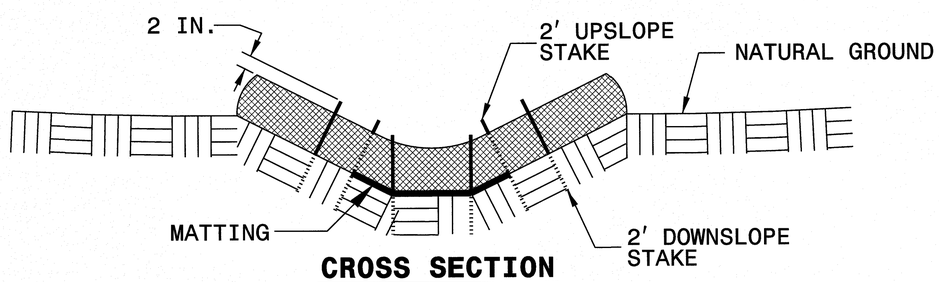
WATTLE DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

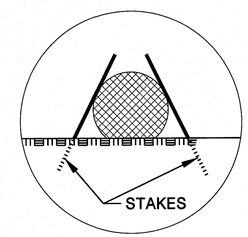
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

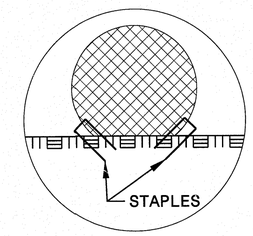
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



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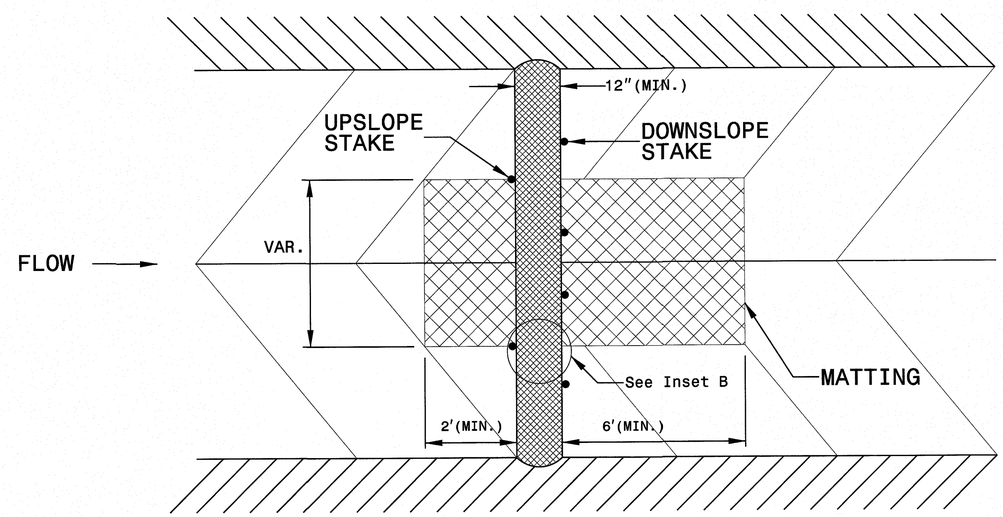

TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	EC-3

ROADWAY DESIGN ENGINEER

NORTH CAROLINA SEAL 022609 ENGINEER MERRICK A. DUGAL

6/18/14

HYDRAULICS ENGINEER

RAMEY KEMP & ASSOCIATES, INC.
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www.rameykemp.com
NC License No. C-0910

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	EC-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA SEAL 022609 ENGINEER MERRICK A. DUGAL, III
6/18/14

RAMEY KEMP & ASSOCIATES, INC.
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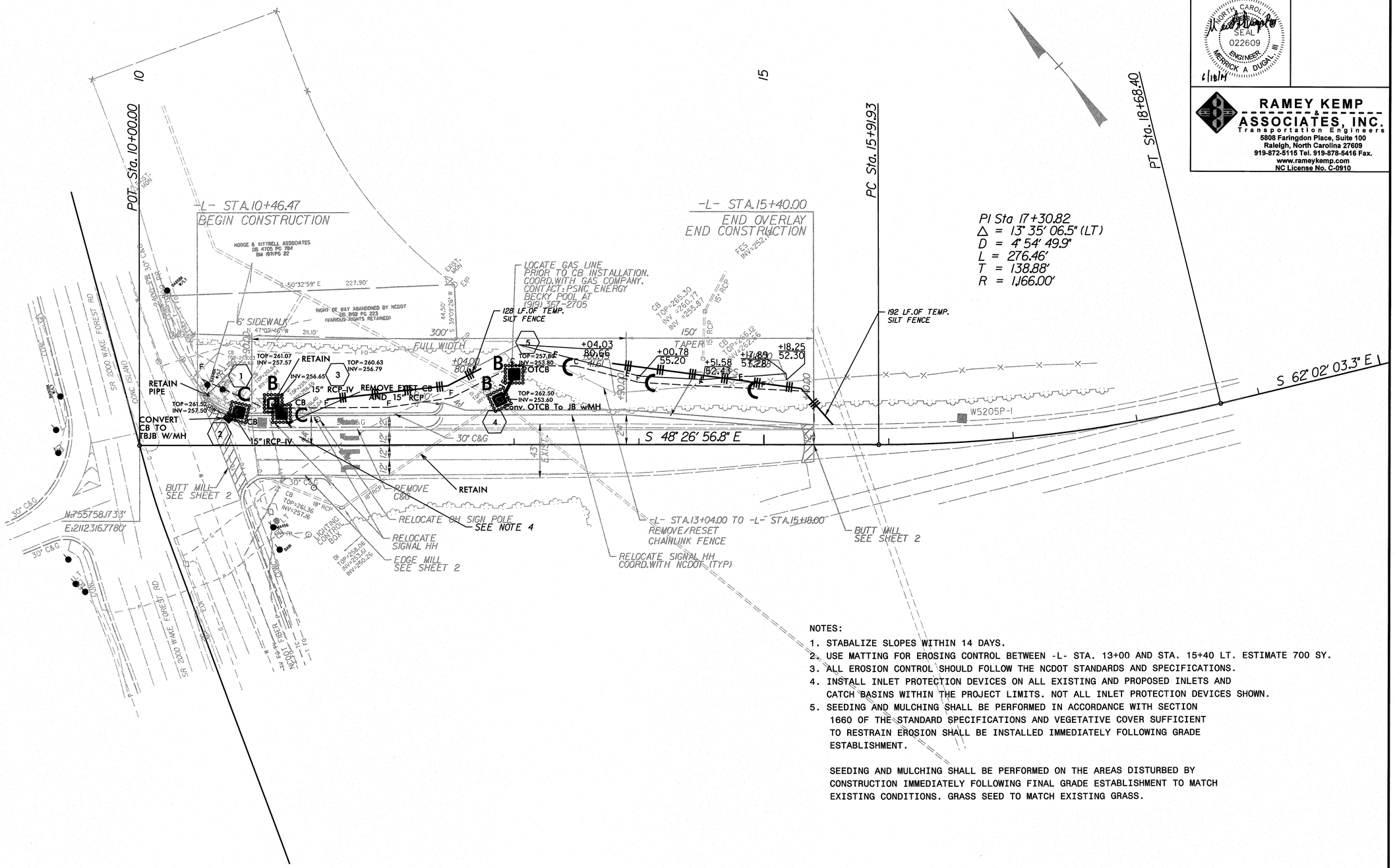


NOTES:

1. STABALIZE SLOPES WITHIN 14 DAYS.
2. USE MATTING FOR EROSING CONTROL BETWEEN -L- STA. 13+00 AND STA. 15+40 LT. ESTIMATE 700 SY.
3. ALL EROSION CONTROL SHOULD FOLLOW THE NCDOT STANDARDS AND SPECIFICATIONS.
4. INSTALL INLET PROTECTION DEVICES ON ALL EXISTING AND PROPOSED INLETS AND CATCH BASINS WITHIN THE PROJECT LIMITS. NOT ALL INLET PROTECTION DEVICES SHOWN.
5. SEEDING AND MULCHING SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 1660 OF THE STANDARD SPECIFICATIONS AND VEGETATIVE COVER SUFFICIENT TO RESTRAIN EROSION SHALL BE INSTALLED IMMEDIATELY FOLLOWING GRADE ESTABLISHMENT.

   SEEDING AND MULCHING SHALL BE PERFORMED ON THE AREAS DISTURBED BY CONSTRUCTION IMMEDIATELY FOLLOWING FINAL GRADE ESTABLISHMENT TO MATCH EXISTING CONDITIONS. GRASS SEED TO MATCH EXISTING GRASS.

REVISIONS

8/17/99

6/17/2014
:::\Drainage\W5205P_EC4.dgn
User:Fred Hasse

NOTE: Approximate quantities only. Unclassified Excavation, Borrow Excavation, FineGrading, Clearing and Grubbing and Removal of Existing Pavement will be paid for atthe contract lump sum price for "Grading". Embankment column does not include backfill for undercut.

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	X-0

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

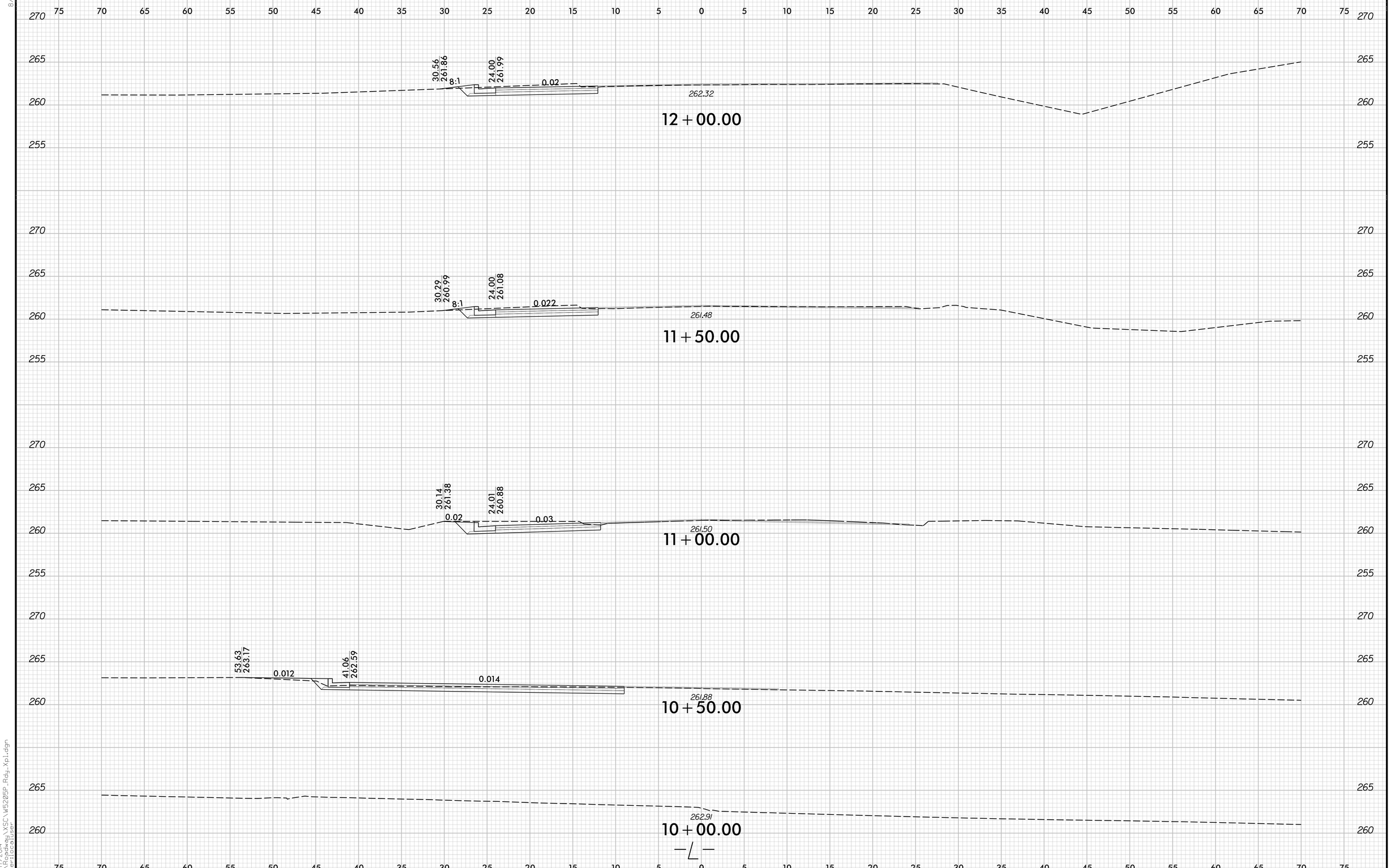
CROSS–SECTION SUMMARY

STATION	UNCLASSIFIED EXCAVATION AREAS (SQ. FT.)	EMBANKMENT AREAS (SQ. FT.)	UNCLASSIFIED EXCAVATION VOLUMES (CU. YARDS)	EMBANKMENT VOLUMES (CU. YARDS)	STATION	UNCLASSIFIED EXCAVATION AREAS (SQ. FT.)	EMBANKMENT AREAS (SQ. FT.)	UNCLASSIFIED EXCAVATION VOLUMES (CU. YARDS)	EMBANKMENT VOLUMES (CU. YARDS)	STATION	UNCLASSIFIED EXCAVATION AREAS (SQ. FT.)	EMBANKMENT AREAS (SQ. FT.)	UNCLASSIFIED EXCAVATION VOLUMES (CU. YARDS)	EMBANKMENT VOLUMES (CU. YARDS)
–L–														
10+00.00	0.00	0.00	0.00	0.00										
10+50.00	21.60	1.20	0.00	0.00										
11+00.00	19.60	0.00	38.00	1.00										
11+50.00	16.80	0.20	34.00	0.00										
12+00.00	16.20	0.20	31.00	0.00										
12+50.00	2.70	3.50	17.00	3.00										
13+00.00	23.50	74.80	24.00	73.00										
13+50.00	19.10	61.80	39.00	126.00										
14+00.00	2.30	48.30	20.00	102.00										
14+50.00	3.30	36.10	5.00	78.00										
15+00.00	3.80	17.40	7.00	50.00										
TOTAL			215	433										

5/28/99

6/17/2014
:\XSC\W5205P_Rdy_1A_XSC.dgn
[Geopak User]

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	W-5205P	X-1



8/23/99

6/17/2014
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User:locoluser

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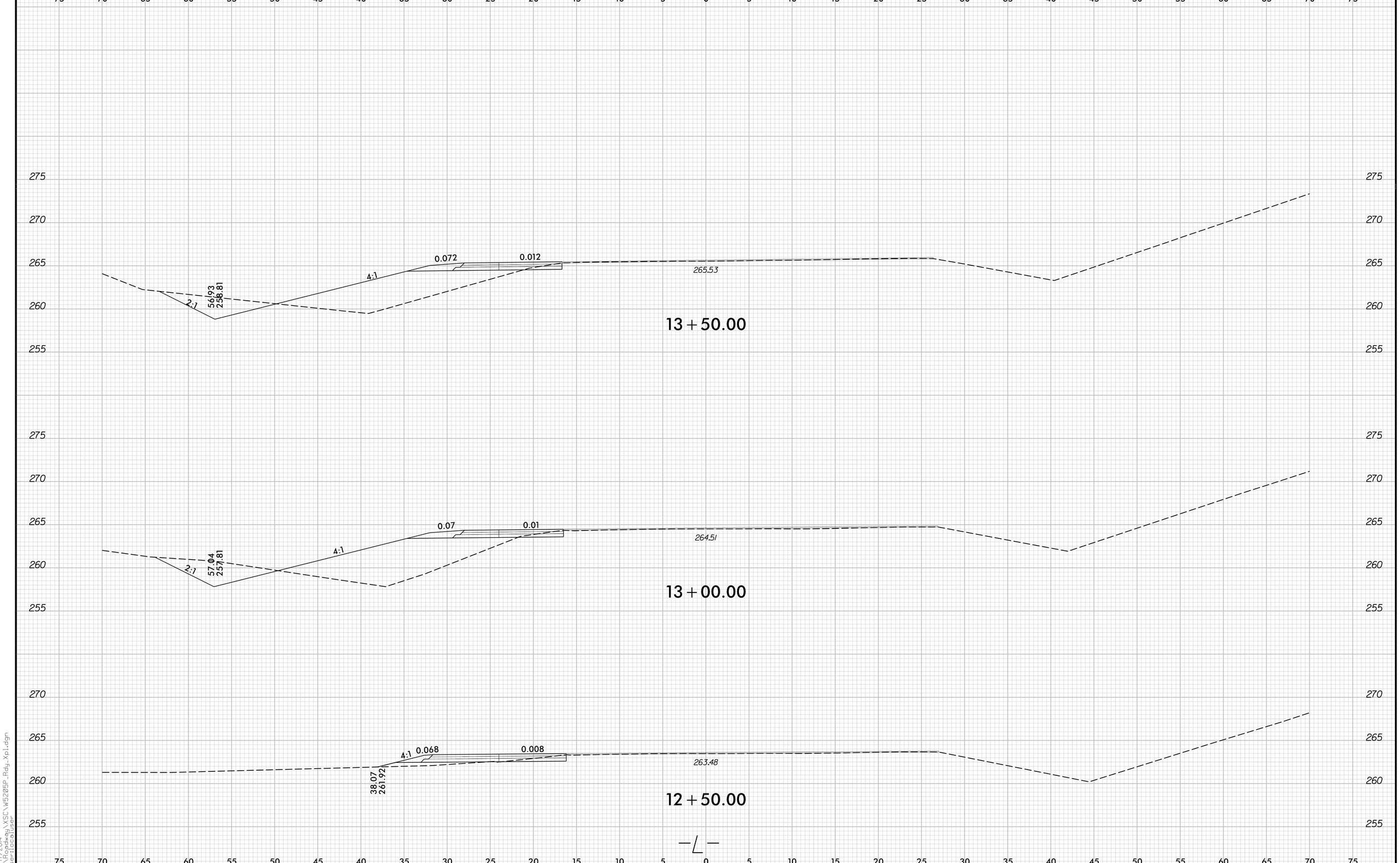
	W-5205P	X-2



8/23/99

6/17/2014
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User:locoluser

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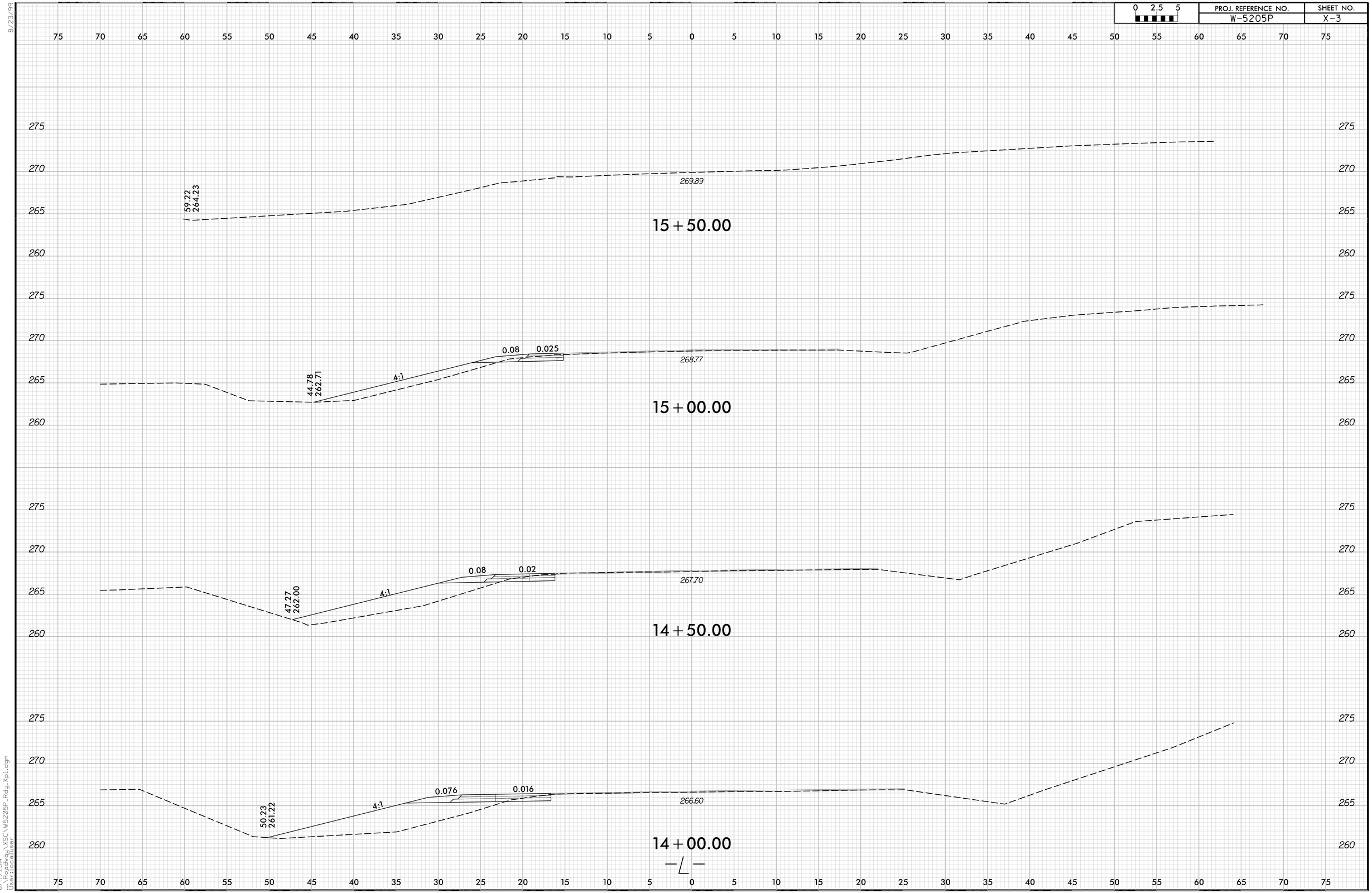
	W-5205P	X-3



8/23/99

6/17/2014
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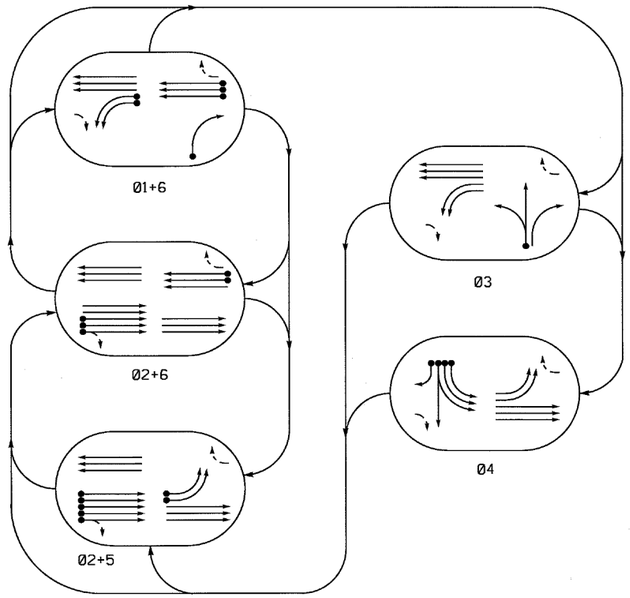
User:tocsluser

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	Sig. 1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

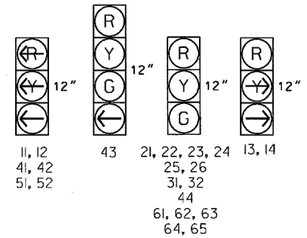
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 02+5	02+6	01+6	03	04	FLASH
11, 12	~~R~~	~~R~~	←	←	~~R~~	~~R~~
13	R	R	→	→	R	R
21, 22, 23, 24	G	G	R	R	R	Y
25, 26	G	G	R	R	G	Y
31, 32	R	R	R	G	R	R
41, 42	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~
43	R	R	R	R	G	R
44	R	R	R	R	G	R
51, 52	←	~~R~~	~~R~~	~~R~~	←	~~R~~
61, 62, 63	R	G	G	R	R	Y
64, 65	G	G	G	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



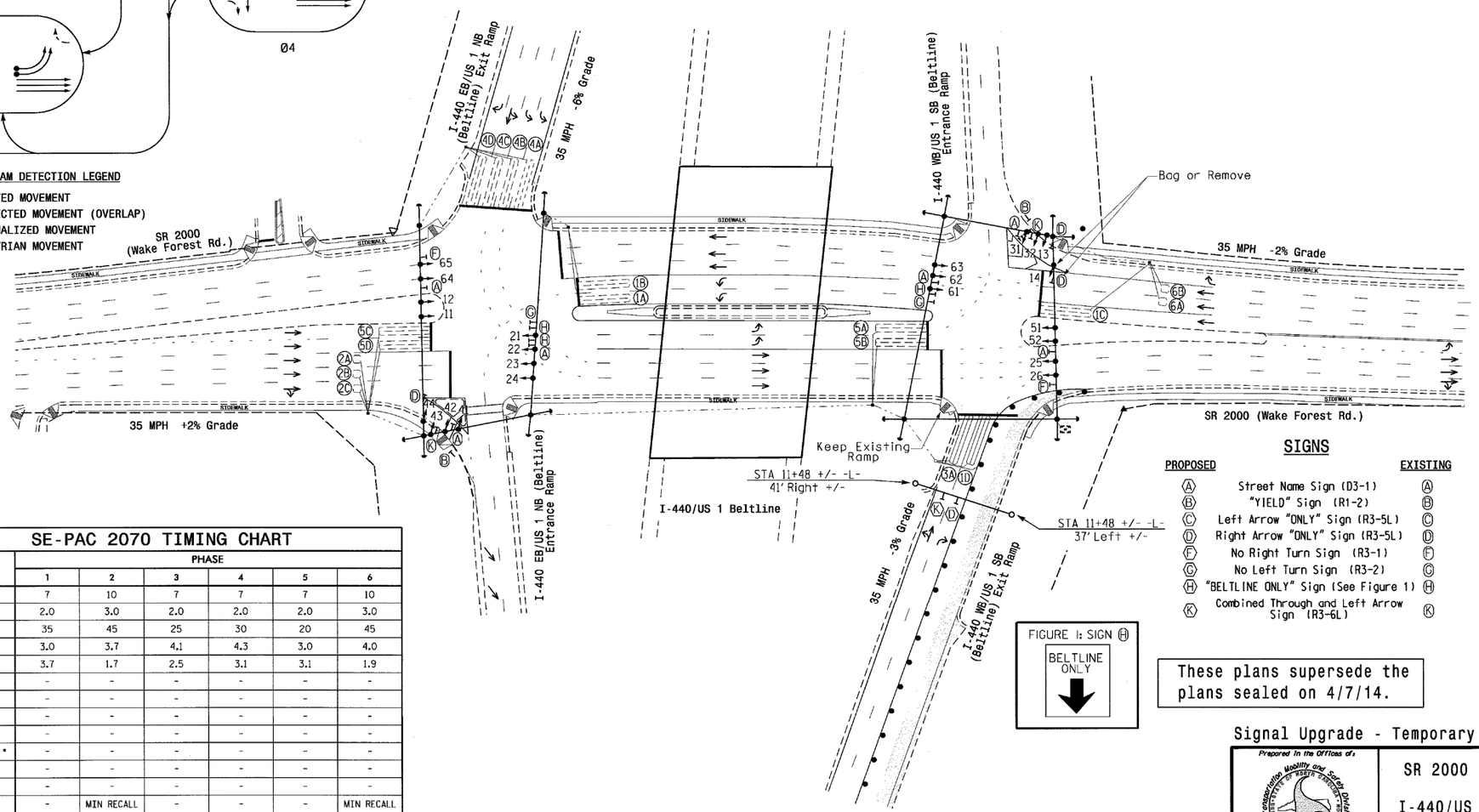
SE-PAC 2070 LOOP & DETECTOR UNIT INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING															
						TIMING		OPERATION MODE										STATUS	
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW / EXISTING	ASSIGNED PHASE	DELAY	EXTEND (STRETCH)	0 VEHICLE	1 PEDESTRIAN	2 1 CALL	3 STOP A	4 STOP B	5 PRETIMER RESTART	6 PRETIMER THROUGH	7 AND	SWITCH	SYSTEM LOOPS	NEW	EXISTING
1A	6X40	2-4-2	0	- X	1	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
1B	6X40	2-4-2	0	- X	1	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
1C	6X40	2-4-2	0	- X	1	- SEC.	3.0 SEC.	X	-	-	-	-	-	-	-	-	-	-	X
1D	6X40	2-4-2	0	X -	1	15 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
2A, 2B, 2C	6X6	EXISTING	70	- X	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
3A	6X40	2-4-2	0	X -	3	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
4A	6X40	2-4-2	0	- X	4	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
4B	6X40	2-4-2	0	- X	4	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
4C	6X40	2-4-2	0	- X	4	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
4D	6X40	2-4-2	0	- X	4	15 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
5A	6X40	2-4-2	0	- X	5	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
5B	6X40	2-4-2	0	- X	5	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X
5C	6X40	2-4-2	0	- X	5	- SEC.	3.0 SEC.	X	-	-	-	-	-	-	-	-	-	-	X
5D	6X40	2-4-2	0	- X	5	- SEC.	3.0 SEC.	X	-	-	-	-	-	-	-	-	-	-	X
6A, 6B	6X6	EXISTING	70	- X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	-	X

5 Phase
Fully Actuated
(Raleigh Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. The order of phase 1 and phase 5 may be reversed.
4. The order of phase 3 and phase 4 may be reversed.
5. Set all detector units to presence mode.
6. Pavement markings are existing.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



SIGNS

PROPOSED		EXISTING
Ⓐ	Street Name Sign (D3-1)	Ⓐ
Ⓑ	"YIELD" Sign (R1-2)	Ⓑ
Ⓒ	Left Arrow "ONLY" Sign (R3-5L)	Ⓒ
Ⓓ	Right Arrow "ONLY" Sign (R3-5L)	Ⓓ
Ⓕ	No Right Turn Sign (R3-1)	Ⓕ
Ⓖ	No Left Turn Sign (R3-2)	Ⓖ
Ⓗ	"BELTLINE ONLY" Sign (See Figure 1)	Ⓗ
Ⓚ	Combined Through and Left Arrow Sign (R3-6L)	Ⓚ

FIGURE 1: SIGN Ⓗ

These plans supersede the plans sealed on 4/7/14.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way with Marker	
	Directional Arrow	
N/A	Wheelchair Ramp	
	Construction Zone	
	Construction Zone Drums	

SE-PAC 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green *	7	10	7	7	7	10
Passage Gap *	2.0	3.0	2.0	2.0	2.0	3.0
Maximum Green *	35	45	25	30	20	45
Yellow Change	3.0	3.7	4.1	4.3	3.0	4.0
Red Clear	3.7	1.7	2.5	3.1	3.1	1.9
Walk *	-	-	-	-	-	-
Pedestrian Clear	-	-	-	-	-	-
Added Initial *	-	-	-	-	-	-
Maximum Initial *	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	NON-LOCK	LOCK	NON-LOCK	NON-LOCK	NON-LOCK	LOCK
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Signal Upgrade - Temporary Design

Prepared in the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SR 2000 (Wake Forest Road)
at
I-440/US 1 (Beltline) Ramps

Division 5 Wake County Raleigh

PLAN DATE: March 2014 REVIEWED BY:
PREPARED BY: C.E. Carter REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

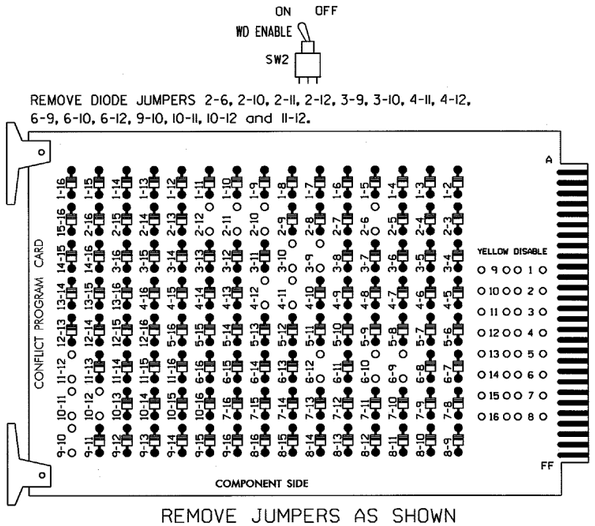
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 36833 ENGINEER RYAN W. HOUGH
Ryan W. Hough 6-17-14
SIGNATURE DATE
SIG. INVENTORY NO. 05-0256T

17-JUN-2014 08:28
S:\TSG\Traffic Signals\Signal Design Sections\Central Region\Div 5\W5-0256\050256_sig_dsn_mod0.dgn
cmcough

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	Sig.2

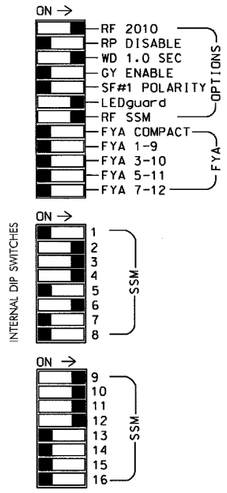
EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 2-6, 2-10, 2-11, 2-12, 3-9, 3-10, 4-11, 4-12, 6-9, 6-10, 6-12, 9-10, 10-11, 10-12 and 11-12.

REMOVE JUMPERS AS SHOWN



NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 1,5, 7,8,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Program controller to start up in phases 2 and 6 green.
4. Enable simultaneous gap-out feature, on controller unit, for all phases.
5. The cabinet and controller are part of the Raleigh City Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....332
SOFTWARE.....SE-PAC2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 (12-STD, 6-AUX)
LOAD SWITCHES USED.....S2,S3,S4,S6,S9,S10,S12,S13
PHASES USED.....*1,2,3,4,*5,6
OVERLAP A.....1+3
OVERLAP B.....3+5+6
OVERLAP C.....4+5
OVERLAP D.....2+4

* Phases 1 and 5 used for timing only

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4			S4P	S5	S6	S6P	S7	S8	S8P	S9		S10	S11	S12	S13	S14
PHASE	1	2	2 PED	3	4			4 PED	5	6	6 PED	7	8	8 PED	OLA		OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NC	21,22, 23,24	NU	31,32	41,42	43	44	NU	NC	61, 62,63	NU	NU	NU	NU	11,12	13	64,65	NU	51,52	25,26	NU
RED		128		116		101	101			134						A121	A124			A101	
YELLOW		129		117		102	102			135							A125			A102	
GREEN		130		118		103	103			136							A126			A103	
RED ARROW					101										A121				A114		
YELLOW ARROW					102										A122	A122			A115		
GREEN ARROW					103	103									A123	A123			A116		

NU = Not Used
NC = No connection, used for timing purposes

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø1	Ø1	NOT USED	SLOT	Ø3	Ø4	Ø4	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	FS DC ISOLATOR
		1A	1C		EMPTY	3A	4A	4C	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	
	L	Ø1	Ø1	Ø2 2A, 2B,2C		NOT USED	Ø4	Ø4							ST DC ISOLATOR
		1B	1D				4B	4D							
FILE "J"	U	Ø5	Ø5	Ø6	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT
		5A	5C	6A,6B	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY
	L	Ø5	Ø5	NOT USED											
		5B	5D												

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	DELAY TIME	EXTEND (STRETCH) TIME
1A	TB2-1,2	I1U	56	1	1		
1B	TB2-3,4	I1L	56	1	1		
1C	TB2-5,6	I2U	39	3	1		3.0
1D	TB2-7,8	I2L	43	4	1	15	
2A,2B,2C	TB2-11,12	I3L	76	6	2		
3A	TB4-5,6	I5U	58	9	3		
4A	TB4-9,10	I6U	41	11	4		
4B	TB4-11,12	I6L	45	12	4		
4C	TB6-1,2	I7U	65	13	4		
4D	TB6-3,4	I7L	78	14	4	15	
5A	TB3-1,2	J1U	55	19	5		
5B	TB3-3,4	J1L	55	19	5		
5C	TB3-5,6	J2U	40	21	5		3.0
5D	TB3-7,8	J2L	44	22	5		3.0
6A,6B	TB3-9,10	J3U	64	23	6		

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-0256T
DESIGNED: March 2014
SEALED: 6/17/14
REVISED: N/A

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 04/09/14

Electrical Detail - Temp - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:
Traffic Engineering and Safety Systems Branch
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

SR 2000 (Wake Forest Rd.)
at
I-440/US 1 (Beltline) Ramps

Division 5 Wake County Raleigh

PLAN DATE: March 2014	REVIEWED BY: T. Joyce		
PREPARED BY: C. Strickland	REVIEWED BY:		
REVISIONS		INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022013 ENGINEER GEORGE C. BROWN
SIGNATURE DATE 6/19/14
SIG. INVENTORY NO. 05-0256T

19-JUN-2014 13:36
S:\TEB\Traffic Signals\Working\Signals\Signals Master\Signal Details\05-0256T_Sample_xxx.dgn
Cassie Strickland

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	Sig.3

SE-PAC2070 CONTROLLER RING CONFIGURATION DETAIL

(program controller as shown below)

NOTE:
BEFORE PROGRAMMING CONTROLLER, BE SURE TO LOAD DEFAULT PARAMETERS.

SELECT (4) FROM MAIN MENU

```
SE-PAC UNIT DATA                PRESS # DESIRED

1- STARTUP & MISC        6- ALT SEQUENCES
2- REMOTE FLASH          7- PORT 1 DATA
3- OVERLAP STANDARD      8- I/O MISC
4- OVERLAP SPECIAL       9- SIG DRV OUT
5- RING STRUCTURE
                                F- PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 1   RING: 1   NXT PHS: 3   .....
 CONCUR PHS:  100001000 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  100000000 0000000000 00000
 PED CHN(S):  000000000 0000000100 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 2   RING: 1   NXT PHS: 1   .....
 CONCUR PHS:  010011000 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  010000000 0000000000 00000
 PED CHN(S):  000000001 0000000000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 3   RING: 1   NXT PHS: 4   .....
 CONCUR PHS:  001000110 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  001000000 0000000000 00000
 PED CHN(S):  000000000 0000000010 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 4   RING: 1   NXT PHS: 2   .....
 CONCUR PHS:  000100110 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  000100000 0000000000 00000
 PED CHN(S):  000000000 1000000000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 5   RING: 2   NXT PHS: 6   .....
 CONCUR PHS:  010010000 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  000010000 0000000000 00000
 PED CHN(S):  000000000 0000000001 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 6   RING: 2   NXT PHS: 7   .....
 CONCUR PHS:  110001000 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  000001000 0000000000 00000
 PED CHN(S):  000000000 0100000000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 7   RING: 2   NXT PHS: 8   .....
 CONCUR PHS:  001100100 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  000000100 0000000000 00000
 PED CHN(S):  000000000 0000000000 10000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 8   RING: 2   NXT PHS: 5   .....
 CONCUR PHS:  001100010 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  000000010 0000000000 00000
 PED CHN(S):  000000000 0010000000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

end of programming

RING CONFIGURATION NOTE:

PROGRAM THE CONTROLLER TO FOLLOW THE SEQUENCE SHOWN BELOW.

DUAL-QUAD WITH
PHASES 1 & 2 ROTATED

RING 1	Ø2	Ø1	Ø3	Ø4
RING 2	Ø5	Ø6	NOT USED	NOT USED

BARRIER

SE-PAC2070 CONTROLLER OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 4 (UNIT DATA)

```
SE-PAC UNIT DATA                PRESS # DESIRED

1- STARTUP & MISC        6- ALT SEQUENCES
2- REMOTE FLASH          7- PORT 1 DATA
3- OVERLAP STANDARD      8- I/O MISC
4- OVERLAP SPECIAL       9- SIG DRV OUT
5- RING STRUCTURE
                                F- PRIOR MENU
```

```
SE-PAC OVERLAP - A           (0-NO / 1-YES)

 OVL PHASES:  101000000 0000000
    PHS/CHN:  123456789 0123456789 01234
 OVL CHN(S):  000000000 0001000000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC OVERLAP - B           (0-NO / 1-YES)

 OVL PHASES:  0010110000 0000000
    PHS/CHN:  123456789 0123456789 01234
 OVL CHN(S):  000000000 0000100000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC OVERLAP - C           (0-NO / 1-YES)

 OVL PHASES:  000110000 0000000
    PHS/CHN:  123456789 0123456789 01234
 OVL CHN(S):  000000000 0000010000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC OVERLAP - D           (0-NO / 1-YES)

 OVL PHASES:  010100000 0000000
    PHS/CHN:  123456789 0123456789 01234
 OVL CHN(S):  000000000 0000001000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

PRESS "F" TO RETURN TO UNIT DATA

Electrical Detail - Temp - Sheet 2 of 2

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-0256T
DESIGNED: March 2014
SEALED: 6/17/14
REVISED: N/A

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 04/09/14

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:
Traffic Engineering and Safety Systems Branch
Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

SR 2000 (Wake Forest Rd.)
at
I-440/US 1 (Beltline) Ramps

Division 5 | Wake County | Raleigh

PLAN DATE: March 2014	REVIEWED BY: T.W.		
PREPARED BY: C. Strickland	REVIEWED BY:		
REVISIONS		INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022013 ENGINEER GEORGE C. BROWN

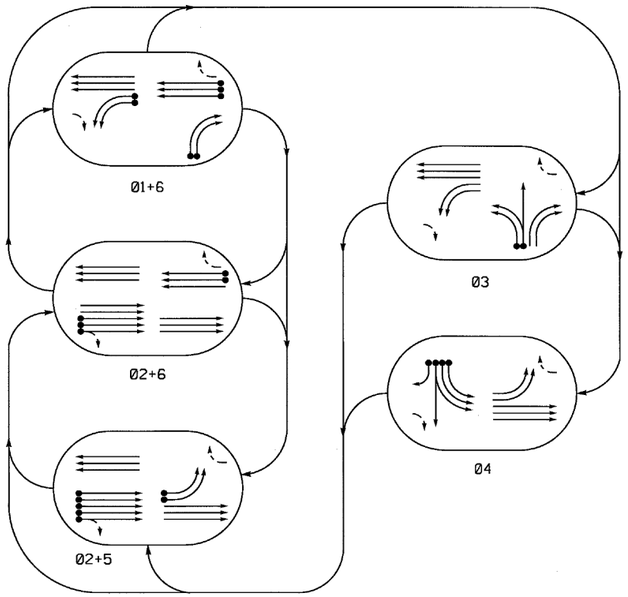
SIGNATURE | DATE 6/19/14

SIG. INVENTORY NO. 05-0256T

18-JUN-2014 13:38
S:\TMS\PLANS\Signals\Workgroups\Sig Man\Strickland\d0050256_sm_ele_xxx.dgn
cestrickland

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	Sig. 4

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

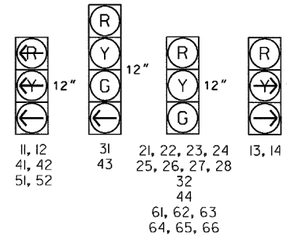
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 02+5	02+6	01+6	03	04	FLASH
11, 12	~~R~~	~~R~~	←	←	~~R~~	~~R~~
13, 14	R	R	→	→	R	R
21, 22, 23, 24, 27	G	G	R	R	R	Y
25, 26, 28	G	G	R	R	G	Y
31	R	R	R	G	R	R
32	R	R	R	G	R	R
41, 42	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~
43	R	R	R	R	G	R
44	R	R	R	R	G	R
51, 52	←	~~R~~	~~R~~	~~R~~	←	~~R~~
61, 62, 63	R	G	G	R	R	Y
64, 65, 66	G	G	G	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



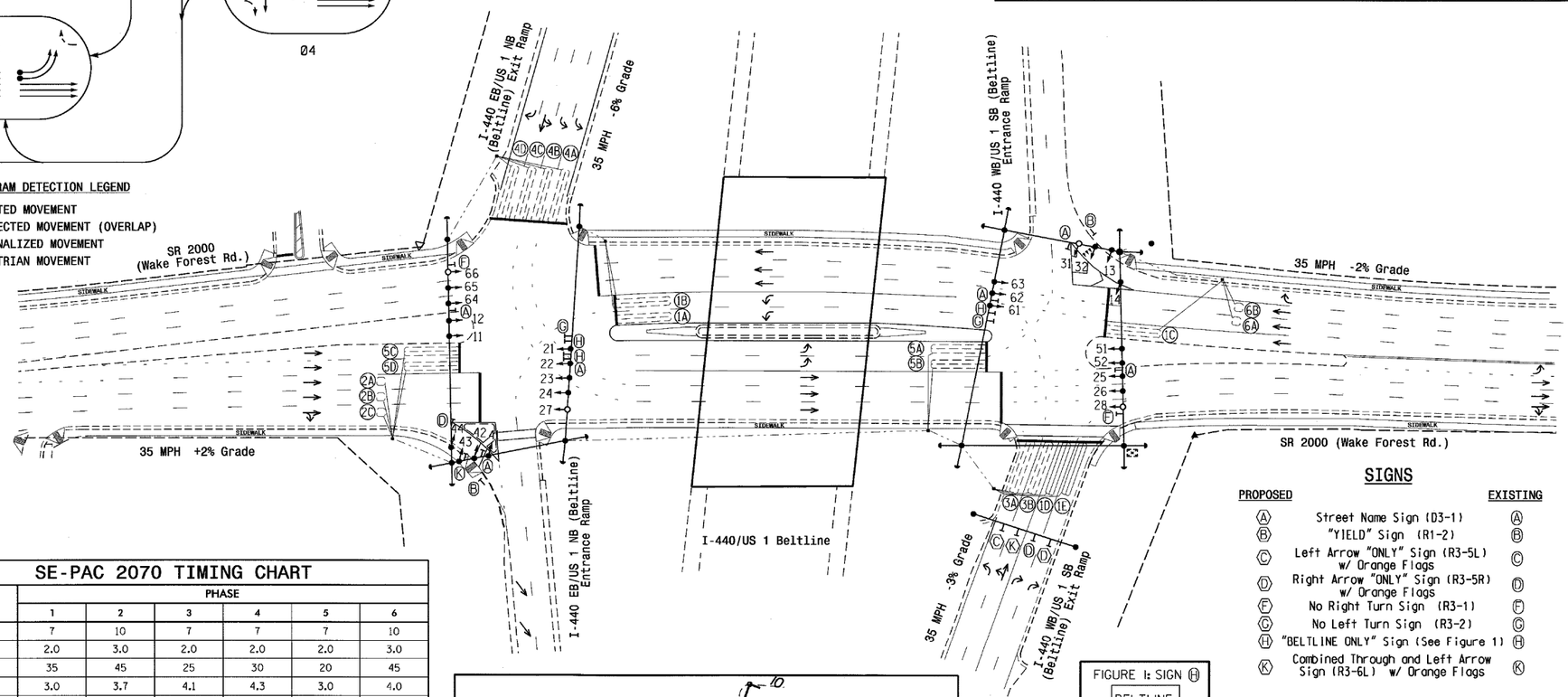
SE-PAC 2070 LOOP & DETECTOR UNIT INSTALLATION CHART

INDUCTIVE LOOPS						DETECTOR PROGRAMMING															
							TIMING		OPERATION MODE									STATUS			
LOOP NO.	SIZE (ft)	TURNS	DIST. FROM STOPBAR (ft)	NEW	EXISTING	ASSIGNED PHASE	DELAY	EXTEND (STRETCH)	0 VEHICLE	1 PEDESTRIAN	2 1 CALL	3 STOP A	4 STOP B	5 PROTPER LEFT FASTPER THROUGH	6 AND	7 SWITCH	SYSTEM LOOPS	NEW	EXISTING
1A	6X40	2-4-2	0	-	X	1	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
1B	6X40	2-4-2	0	-	X	1	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
1C	6X40	2-4-2	0	-	X	1	- SEC.	3.0 SEC.	X	-	-	-	-	-	-	-	-	-	X
1D	6X40	2-4-2	0	X	-	1	10 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
1E	6X40	2-4-2	0	X	-	1	15 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
2A, 2B, 2C	6X6	EXISTING	70	-	X	2	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
3A	6X40	2-4-2	0	-	X	3	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
3B	6X40	2-4-2	0	-	X	3	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
4A	6X40	2-4-2	0	-	X	4	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
4B	6X40	2-4-2	0	-	X	4	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
4C	6X40	2-4-2	0	-	X	4	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
4D	6X40	2-4-2	0	-	X	4	15 SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
5A	6X40	2-4-2	0	-	X	5	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
5B	6X40	2-4-2	0	-	X	5	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X
5C	6X40	2-4-2	0	-	X	5	- SEC.	3.0 SEC.	X	-	-	-	-	-	-	-	-	-	X
5D	6X40	2-4-2	0	-	X	5	- SEC.	3.0 SEC.	X	-	-	-	-	-	-	-	-	-	X
6A, 6B	6X6	EXISTING	70	-	X	6	- SEC.	- SEC.	X	-	-	-	-	-	-	-	-	-	X

5 Phase
Fully Actuated
(Raleigh Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. The order of phase 1 and phase 5 may be reversed.
4. The order of phase 3 and phase 4 may be reversed.
5. Reposition existing signal heads numbered 13, 14, 21, 22, 23, 24, 25, 26, 32, 64 and 65.
6. Set all detector units to presence mode.
7. Pavement markings are existing unless otherwise shown.
8. Thirty days after implementation of the revised signal operation, orange flags may be removed at the discretion of the Regional Traffic Engineer.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



SIGNS

PROPOSED		EXISTING
(A)	Street Name Sign (D3-1)	(A)
(B)	"YIELD" Sign (R1-2)	(B)
(C)	Left Arrow "ONLY" Sign (R3-5L) w/ Orange Flags	(C)
(D)	Right Arrow "ONLY" Sign (R3-5R) w/ Orange Flags	(D)
(F)	No Right Turn Sign (R3-1)	(F)
(G)	No Left Turn Sign (R3-2)	(G)
(H)	"BELTLINE ONLY" Sign (See Figure 1)	(H)
(K)	Combined Through and Left Arrow Sign (R3-6L) w/ Orange Flags	(K)

FIGURE 1: SIGN (H)

BELTLINE ONLY

These plans supersede the plans sealed on 4/7/14.

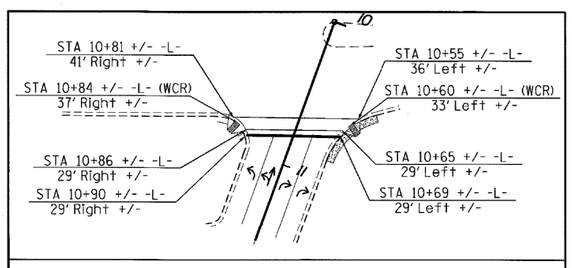
LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way with Marker	
	Directional Arrow	
N/A	Wheelchair Ramp	

SE-PAC 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green *	7	10	7	7	7	10
Passage Gap *	2.0	3.0	2.0	2.0	2.0	3.0
Maximum Green *	35	45	25	30	20	45
Yellow Change	3.0	3.7	4.1	4.3	3.0	4.0
Red Clear	3.7	1.6	2.4	3.1	2.9	1.9
Walk *	-	-	-	-	-	-
Pedestrian Clear	-	-	-	-	-	-
Added Initial *	-	-	-	-	-	-
Maximum Initial *	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	NON-LOCK	LOCK	NON-LOCK	NON-LOCK	NON-LOCK	LOCK
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.



Proposed Stopbar and Curb Ramp Locations

Signal Upgrade - Final Design

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 50 1"=50'

SR 2000 (Wake Forest Road) at I-440/US 1 (Beltline) Ramps

Division 5 Wake County Raleigh

PLAN DATE: March 2014 REVIEWED BY:
PREPARED BY: C.E. Carter REVIEWED BY:

REVISIONS	INIT.	DATE

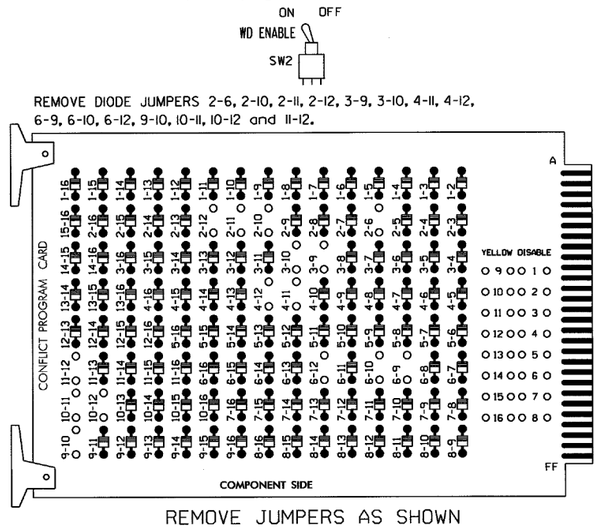
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 36833 ENGINEER RYAN W. HOUGH
SIGNATURE Ryan W. Hough DATE 6-17-14
SIG. INVENTORY NO. 05-0256

17-JUN-2014 08:20
S:\ITSAS\Traffic Signals\Signal Design Sections\Central Region\Div 5\W05-0256\W050256_sig_dsn_mndc.dgn
mwough

PROJECT REFERENCE NO.	SHEET NO.
W-5205P	Sig. 5

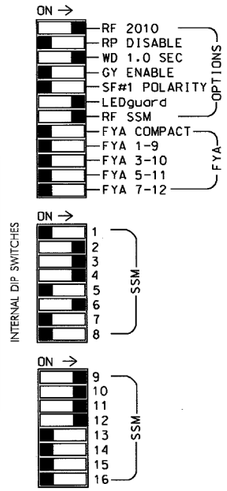
EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 2-6, 2-10, 2-11, 2-12, 3-9, 3-10, 4-11, 4-12, 6-9, 6-10, 6-12, 9-10, 10-11, 10-12 and 11-12.

REMOVE JUMPERS AS SHOWN



■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 1,5, 7,8,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Program controller to start up in phases 2 and 6 green.
4. Enable simultaneous gap-out feature, on controller unit, for all phases.
5. The cabinet and controller are part of the Raleigh City Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....332
SOFTWARE.....SE-PAC2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 (12-STD, 6-AUX)
LOAD SWITCHES USED.....S2,S3,S4,S6,S9,S10,S12,S13
PHASES USED.....*1,2,3,4,*5,6
OVERLAP A.....1+3
OVERLAP B.....3+5+6
OVERLAP C.....4+5
OVERLAP D.....2+4

* Phases 1 and 5 used for timing only

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3		S4			S4P	S5	S6	S6P	S7	S8	S8P	S9		S10	S11	S12	S13	S14
PHASE	1	2	2 PED	3		4			4 PED	5	6	6 PED	7	8	8 PED	OLA		OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NC	21, 22,23, 24,27	NU	31	32	41,42	43	44	NU	NC	61, 62,63	NU	NU	NU	NU	11,12	13,14	64, 65,66	NU	51,52	25, 26,28	NU
RED		128		116	116		101	101			134						A121	A124			A101	
YELLOW		129		117	117		102	102			135							A125			A102	
GREEN		130		118	118		103	103			136							A126			A103	
RED ARROW						101										A121				A114		
YELLOW ARROW						102										A122	A122			A115		
GREEN ARROW				118		103	103									A123	A123			A116		

NU = Not Used
NC = No connection, used for timing purposes

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø1 1A	Ø1 1C	Ø1 1E	SLOT EMPTY	Ø3 3A	Ø4 4A	Ø4 4C	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	Ø1 1B	Ø1 1D	Ø2 2A, 2B,2C		Ø3 3B	Ø4 4B	Ø4 4D							ST DC ISOLATOR
FILE "J"	U	Ø5 5A	Ø5 5C	Ø6 6A,6B	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	Ø5 5B	Ø5 5D	NOT USED											

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	DELAY TIME	EXTEND (STRETCH) TIME
1A	TB2-1,2	I1U	56	1	1		
1B	TB2-3,4	I1L	56	1	1		
1C	TB2-5,6	I2U	39	3	1		3.0
1D	TB2-7,8	I2L	43	4	1	10	
1E	TB2-9,10	I3U	63	5	1	15	
2A,2B,2C	TB2-11,12	I3L	76	6	2		
3A	TB4-5,6	I5U	58	9	3		
3B	TB4-7,8	I5L	58	9	3		
4A	TB4-9,10	I6U	41	11	4		
4B	TB4-11,12	I6L	45	12	4		
4C	TB6-1,2	I7U	65	13	4		
4D	TB6-3,4	I7L	78	14	4	15	
5A	TB3-1,2	J1U	55	19	5		
5B	TB3-3,4	J1L	55	19	5		
5C	TB3-5,6	J2U	40	21	5		3.0
5D	TB3-7,8	J2L	44	22	5		3.0
6A,6B	TB3-9,10	J3U	64	23	6		

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-0256
DESIGNED: March 2014
SEALED: 6/17/14
REVISED: N/A

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 04/09/14

Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 2000 (Wake Forest Rd.) at I-440/US 1 (Beltline) Ramps

Division 5 Wake County Raleigh

PLAN DATE: March 2014 REVIEWED BY: T. Igo
PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of: Traffic Engineering and Safety Systems Branch, Signals Management Section, Department of Transportation, State of North Carolina
750 N. Greenfield Pkwy, Garner, NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022013 ENGINEER GEORGE C. BROWN
SIGNATURE DATE 6/19/14
SIG. INVENTORY NO. 05-0256

18-JUN-2014 13:40
S:\TTSS\Ent\TS Signals\Workgroups\Sig Mans\Strickland\05256_sm_ela_xxx.dgn
$$$$USERNAME$$$$

SE-PAC2070 CONTROLLER RING CONFIGURATION DETAIL

(program controller as shown below)

NOTE:
BEFORE PROGRAMMING CONTROLLER, BE SURE TO LOAD DEFAULT PARAMETERS.

SELECT (4) FROM MAIN MENU

```
SE-PAC UNIT DATA                PRESS # DESIRED

1- STARTUP & MISC          6- ALT SEQUENCES
2- REMOTE FLASH            7- PORT 1 DATA
3- OVERLAP STANDARD        8- I/O MISC
4- OVERLAP SPECIAL         9- SIG DRV OUT
5- RING STRUCTURE
                                F- PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 1   RING: 1   NXT PHS: 3   .....
 CONCUR PHS:  100001000 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  100000000 0000000000 00000
 PED CHN(S):  000000000 0000000100 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 2   RING: 1   NXT PHS: 1   .....
 CONCUR PHS:  010011000 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  010000000 0000000000 00000
 PED CHN(S):  000000001 0000000000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 3   RING: 1   NXT PHS: 4   .....
 CONCUR PHS:  001000110 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  001000000 0000000000 00000
 PED CHN(S):  000000000 0000000010 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 4   RING: 1   NXT PHS: 2   .....
 CONCUR PHS:  000100110 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  000100000 0000000000 00000
 PED CHN(S):  000000000 1000000000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 5   RING: 2   NXT PHS: 6   .....
 CONCUR PHS:  010010000 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  000010000 0000000000 00000
 PED CHN(S):  000000000 0000000001 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 6   RING: 2   NXT PHS: 7   .....
 CONCUR PHS:  110001000 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  000001000 0000000000 00000
 PED CHN(S):  000000000 0100000000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 7   RING: 2   NXT PHS: 8   .....
 CONCUR PHS:  001100100 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  000000100 0000000000 00000
 PED CHN(S):  000000000 0000000000 10000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC RING STRUCTURE        (0-NO / 1-YES)
 PHASE: 8   RING: 2   NXT PHS: 5   .....
 CONCUR PHS:  001100010 0000000
    PHS/CHN:  123456789 0123456789 01234
 VEH CHN(S):  000000010 0000000000 00000
 PED CHN(S):  000000000 0010000000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

end of programming

RING CONFIGURATION NOTE:

PROGRAM THE CONTROLLER TO FOLLOW THE SEQUENCE SHOWN BELOW.

DUAL-QUAD WITH
PHASES 1 & 2 ROTATED

RING 1	Ø2	Ø1	Ø3	Ø4
RING 2	Ø5	Ø6	NOT USED	NOT USED

BARRIER

SE-PAC2070 CONTROLLER OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS 4 (UNIT DATA)

```
SE-PAC UNIT DATA                PRESS # DESIRED

1- STARTUP & MISC          6- ALT SEQUENCES
2- REMOTE FLASH            7- PORT 1 DATA
3- OVERLAP STANDARD        8- I/O MISC
4- OVERLAP SPECIAL         9- SIG DRV OUT
5- RING STRUCTURE
                                F- PRIOR MENU
```

```
SE-PAC OVERLAP - A           (0-NO / 1-YES)

 OVL PHASES:  101000000 0000000
    PHS/CHN:  123456789 0123456789 01234
 OVL CHN(S):  000000000 0001000000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC OVERLAP - B           (0-NO / 1-YES)

 OVL PHASES:  0010110000 0000000
    PHS/CHN:  123456789 0123456789 01234
 OVL CHN(S):  000000000 0000100000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC OVERLAP - C           (0-NO / 1-YES)

 OVL PHASES:  000110000 0000000
    PHS/CHN:  123456789 0123456789 01234
 OVL CHN(S):  000000000 0000010000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

```
SE-PAC OVERLAP - D           (0-NO / 1-YES)

 OVL PHASES:  010100000 0000000
    PHS/CHN:  123456789 0123456789 01234
 OVL CHN(S):  000000000 0000001000 00000

A-UP  B-DN  D-DspChn  E-EDIT  F-PRIOR MENU
```

PRESS "F" TO RETURN TO UNIT DATA

Electrical Detail - Sheet 2 of 2

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-0256
DESIGNED: March 2014
SEALED: 6/17/14
REVISED: N/A

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 04/09/14

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:
Public Transportation and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

SR 2000 (Wake Forest Rd.)
at
I-440/US 1 (Beltline) Ramps

Division 5 | Wake County | Raleigh

PLAN DATE: March 2014	REVIEWED BY: T. Joyce		
PREPARED BY: C. Strickland	REVIEWED BY:		
REVISIONS		INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022013 ENGINEER GEORGE C. BROWN

SIGNATURE | DATE 6/17/14

SIG. INVENTORY NO. 05-0256

18-JUN-2014 13:39 -
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2D\ITS Devices