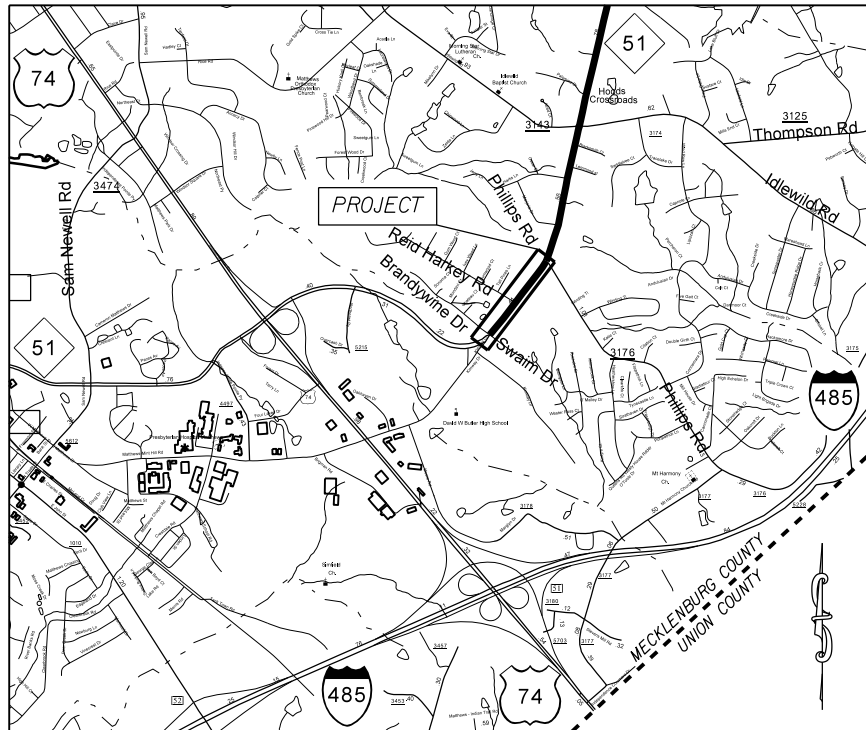


**PROJECT: 45531.3.FRI TIP:U-5511**

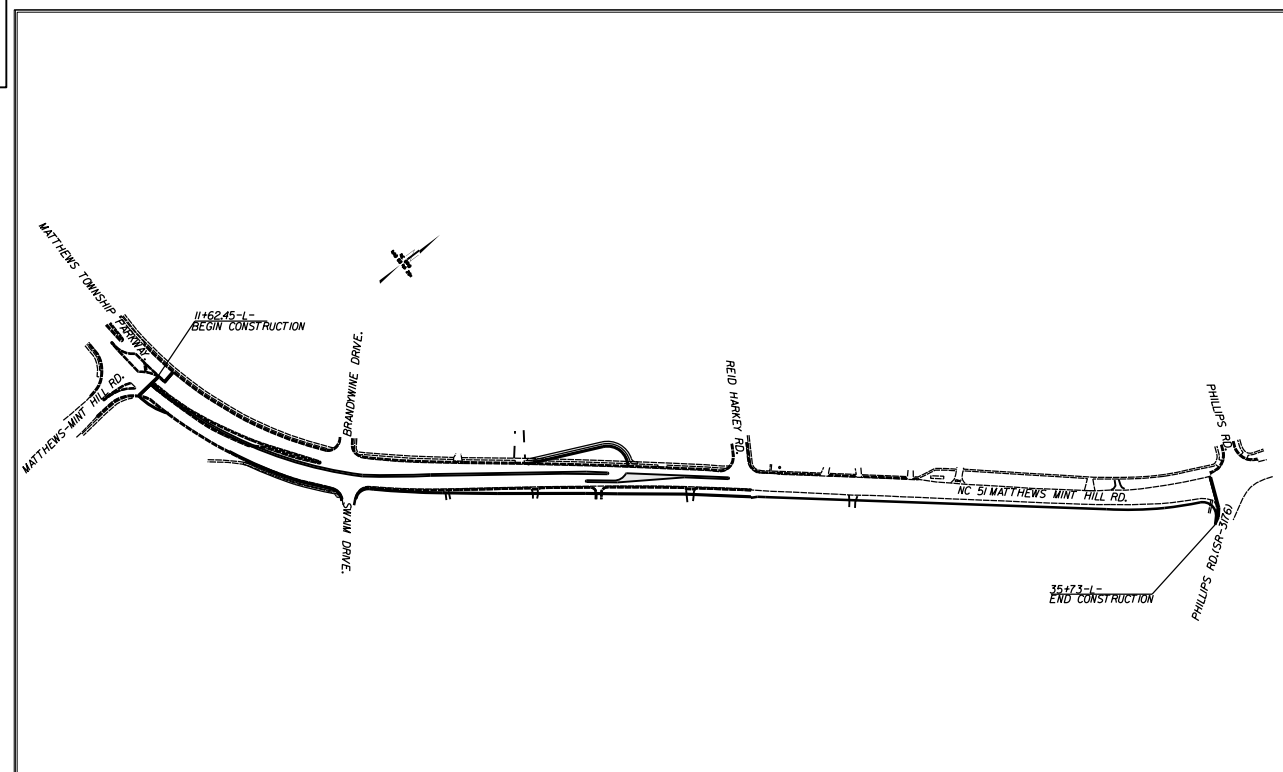


VICINITY MAP NOT TO SCALE

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**MECKLENBURG COUNTY**

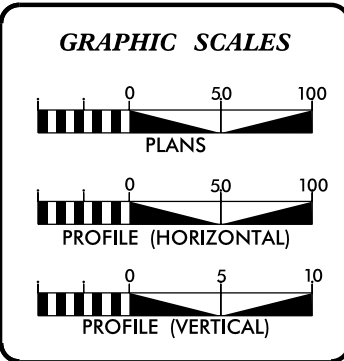
**LOCATION:** MATTHEWS TOWNSHIP PARKWAY BETWEEN  
MATTHEWS MINT HILL RD. AND PHILLIPS RD. (SR-3176)

**TYPE OF WORK:** GRADING, PAVING, MILLING, DRAINAGE, CURB & GUTTER, CONCRETE  
MONOLITHIC ISLANDS, AND THERMOPLASTIC PAVEMENT MARKINGS.



CLEARING ON THIS PROJECT SHALL BE TO  
THE LIMITS ESTABLISHED BY METHOD II AS  
DESCRIBED IN THE NCDOT STANDARD DRAWINGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	45531.3.FRI	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
45531.1.R1		P.E.	
45531.2.FRI		R/W	
45531.3.FRI	TCSP-0051(32)	CONST.	



**DESIGN DATA**

ADT 2013 =	26,000
ADT 2023 =	35,200
DHV =	10 %
D =	2 %
T =	1 %
V =	50 MPH

**PROJECT LENGTH**

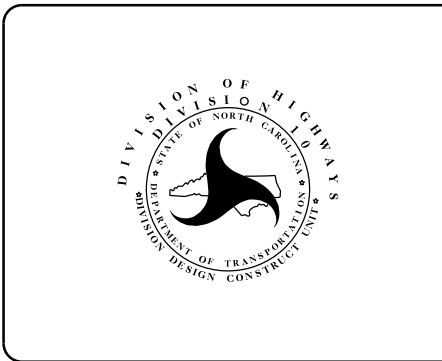
LENGTH OF ROADWAY PROJECT U-5511	= 0.46	MILES
TOTAL LENGTH OF STATE PROJECT U-5511	= 0.46	MILES

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
DIVISION TEN  
DIVISION DESIGN / CONSTRUCT UNIT

---

2012 STANDARD SPECIFICATIONS

<b>RIGHT OF WAY DATE:</b> _____	<b>RANDY BOWERS</b> PROJECT ENGINEER
<b>LETTING DATE:</b> July 1, 2015	<b>TERRY BURLESON</b> PROJECT DESIGN ENGINEER



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

DocuSigned by:  
*Randy Bowers* 6/4/2015

52A4A66079864B2...  
APPROVED BY  
DDC ENGINEER

DATE

12/05/11

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	○ EP
Property Corner	-----
Property Monument	□ EDM
Parcel/Sequence Number	①②③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- MLB
Proposed Wetland Boundary	----- MLB
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	○
Well	○
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	-----
False Sump	-----

## RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
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	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	○
Proposed Right of Way Line with Concrete or Granite R/W Marker	○
Proposed Control of Access Line with Concrete C/A Marker	○
Existing Control of Access	○
Proposed Control of Access	○
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	-----
Single Tree	☼
Single Shrub	☼
Hedge	-----
Woods Line	-----

## VEGETATION:

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	⊕
Storm Sewer	-----

## UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
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	⊕
Telephone Booth	□
Telephone Pedestal	⊕
Telephone Cell Tower	⊗
U/G Telephone Cable Hand Hole	□
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	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	----- A/G Water

## TV:

TV Satellite Dish	☼
TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	□
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

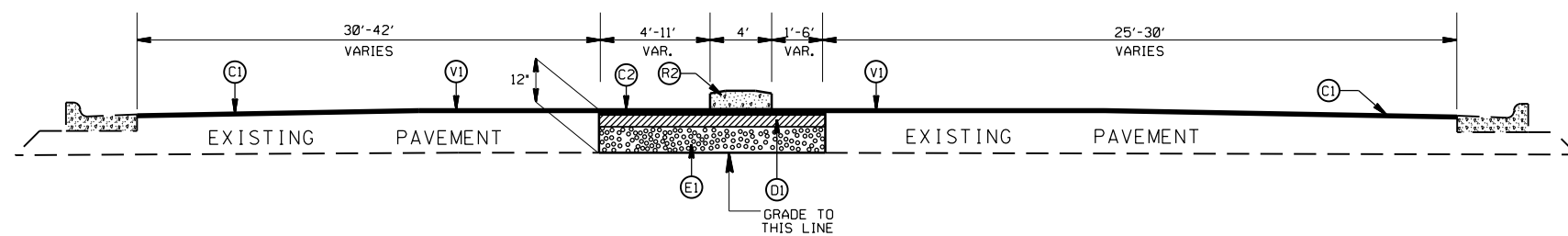
## SANITARY SEWER:

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

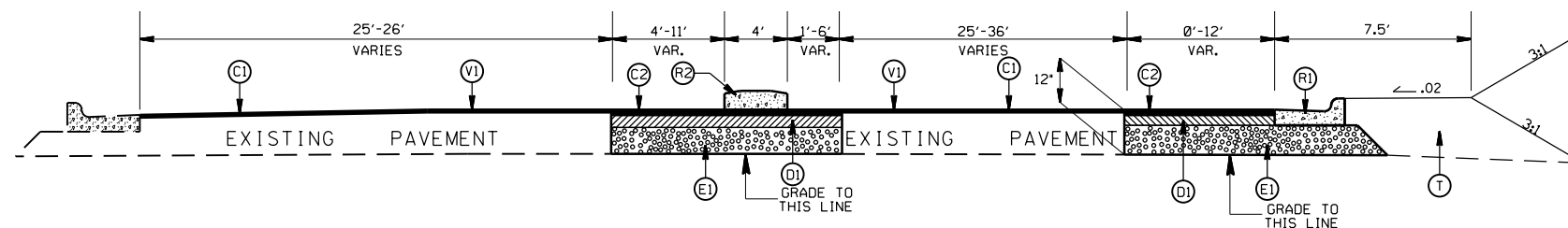
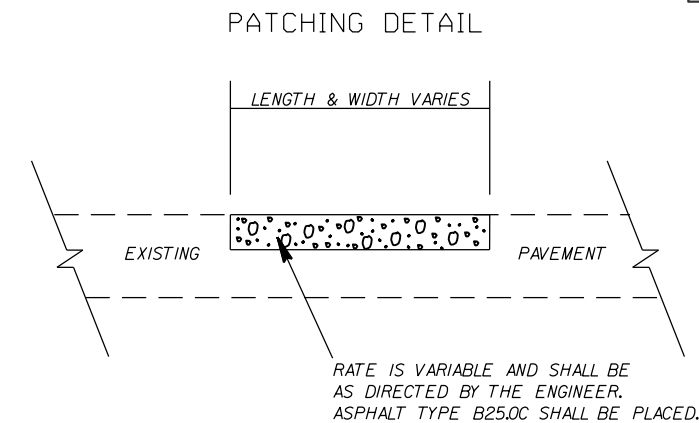
## MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	----- TUTL
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
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.

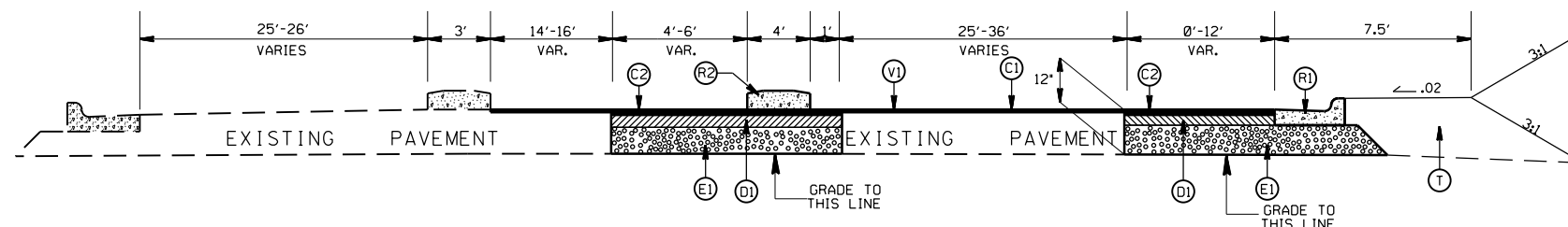
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	45531.3.FRI	2	
F.A. PROJECT NO.			



TYPICAL SECTION NO.3  
STA 12+33.43 TO 13+81 -L-



TYPICAL SECTION NO.2  
STA 11+84 TO 12+33.43 -L-  
STA 13+81 TO 14+18 -L-



TYPICAL SECTION NO.1  
STA 11+62.45 TO 11+84 -L-

PAVEMENT SCHEDULE

(C1)	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(C2)	PROP. APPROX. 3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
(D1)	PROP. APPROX. 4" ASPHALT CONC. BINDER COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(E1)	PROP. APPROX. 5.0" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
(R1)	PROP. 2'-6" CURB & GUTTER
(R2)	PROP. 5" CONC. MONOLITHIC ISLAND (KEYED IN)
(R3)	PROP. 4" CONC. SIDEWALK (5' IN WIDTH)
(T)	EARTH MATERIAL
(V1)	MILLING ASPHALT PAVEMENT, 1.5" IN DEPTH

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.  
THE CONTRACTOR SHALL MATCH THE EXISTING ROADWAY SUPERELEVATION.

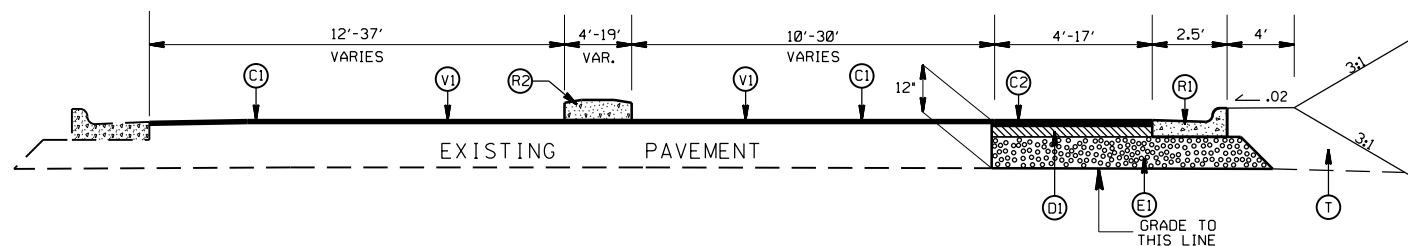
WIDENING OF NC 51 MATTHEWS MINT HILL RD.  
BETWEEN MATTHEWS TOWNSHIP PARKWAY AND  
PHILLIPS RD. (SR-3176)

SCALE	r=50'
DATE	9-13
DWG. BY	TWB
DESIGN BY	TWB
APPROVED	RWB

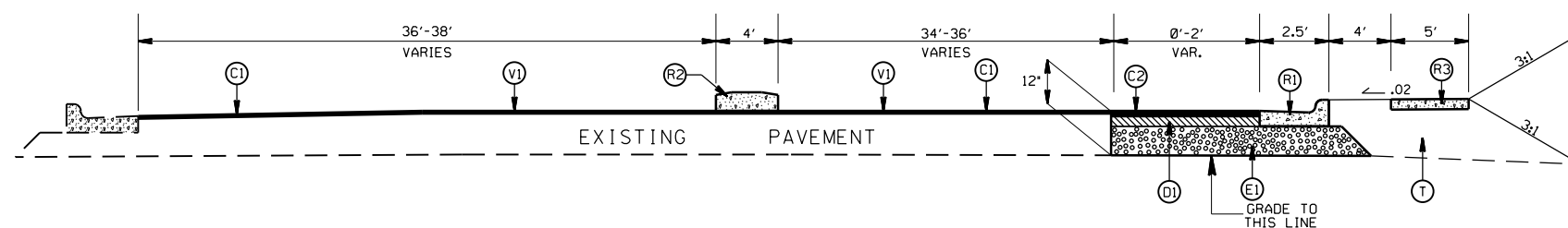
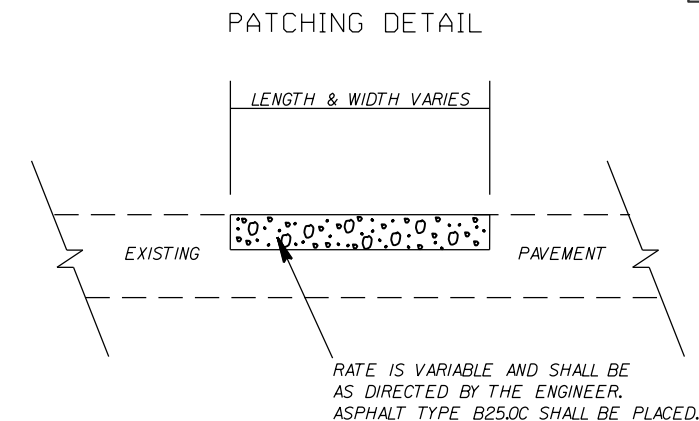


REVISIONS	

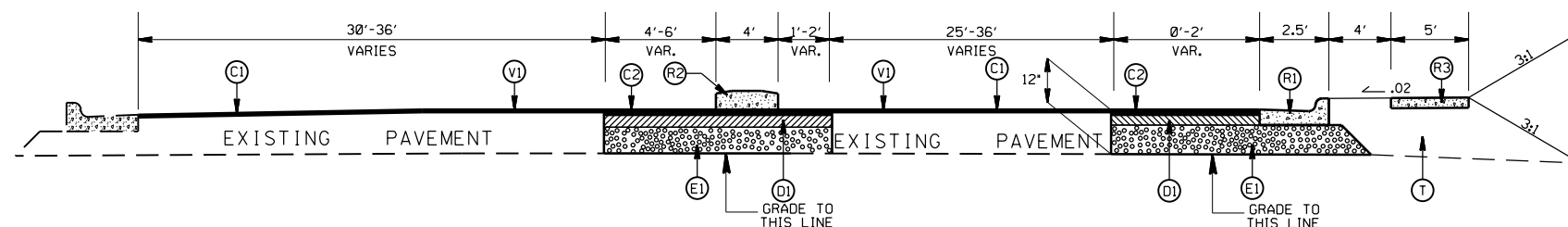
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	45531.3.FRI	2A	
F.A. PROJECT NO.			



TYPICAL SECTION NO.6  
 STA 16+56.65 TO 20+31.51 -L-  
 STA 22+56.20 TO 24+86 -L-



TYPICAL SECTION NO.5  
 STA 15+71.50 TO 16+56.65 -L-



TYPICAL SECTION NO.4  
 STA 14+18 TO 15+71.50 -L-

PAVEMENT SCHEDULE

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(D1)	PROP. APPROX. 4" ASPHALT CONC. BINDER COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(E1)	PROP. APPROX. 5.0" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
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(R3)	PROP. 4" CONC. SIDEWALK (5' IN WIDTH)
(T)	EARTH MATERIAL
(V1)	MILLING ASPHALT PAVEMENT, 1.5" IN DEPTH

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.  
 THE CONTRACTOR SHALL MATCH THE EXISTING ROADWAY SUPERELEVATION.

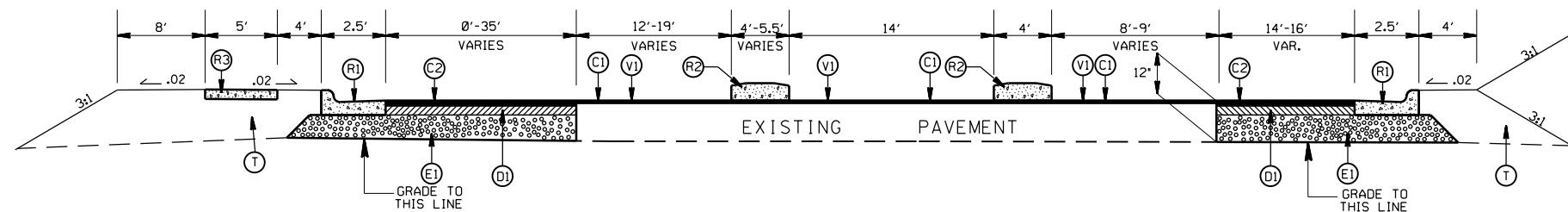
WIDENING OF NC 51 MATTHEWS MINT HILL RD.  
 BETWEEN MATTHEWS TOWNSHIP PARKWAY AND  
 PHILLIPS RD. (SR-3176)

SCALE	r=50'
DATE	9-13
DWG. BY	TWB
DESIGN BY	TWB
APPROVED	RWB

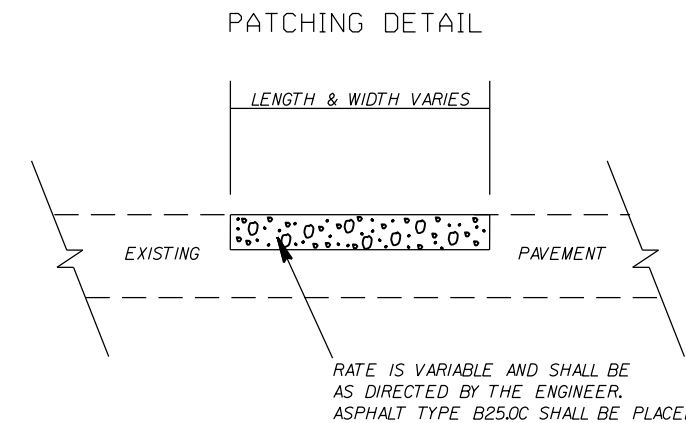


REVISIONS	

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	45531.3.FRI	2B	
F.A. PROJECT NO.			

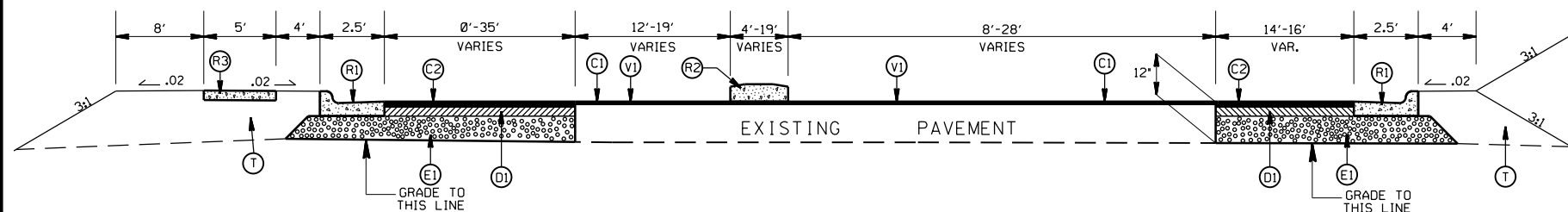


TYPICAL SECTION NO.8  
STA 21+64 TO 22+14 -L-



PAVEMENT SCHEDULE


(C1)	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
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(T)	EARTH MATERIAL
(V1)	MILLING ASPHALT PAVEMENT, 1.5" IN DEPTH



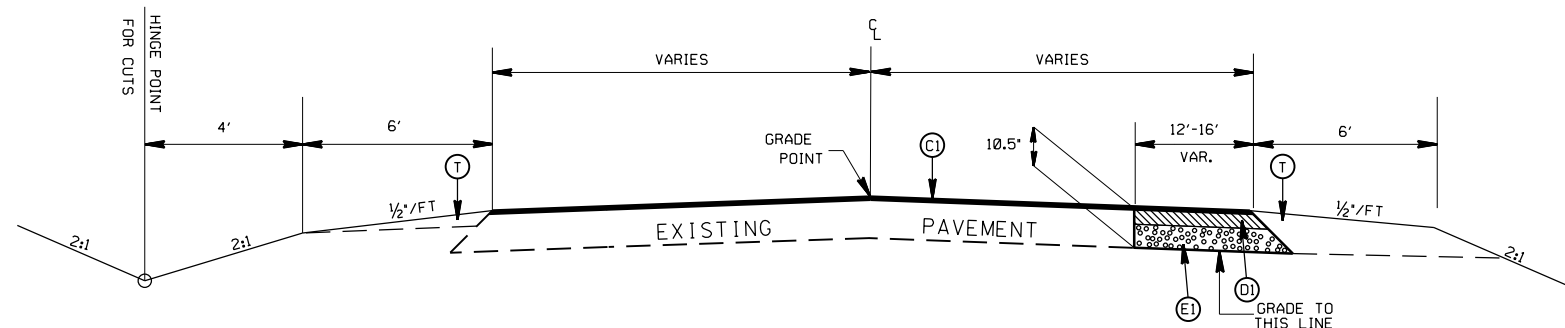
TYPICAL SECTION NO.7  
STA 20+31.51 TO 21+64 -L-  
STA 22+14 TO 22+56.52 -L-

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.  
THE CONTRACTOR SHALL MATCH THE EXISTING ROADWAY SUPERELEVATION.

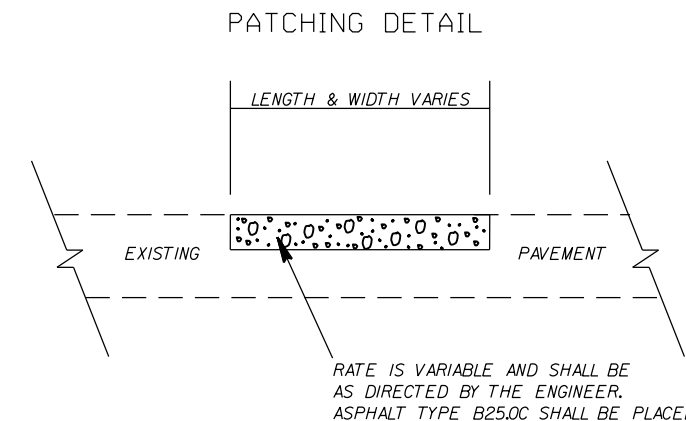
WIDENING OF NC 51 MATTHEWS MINT HILL RD.  
BETWEEN MATTHEWS TOWNSHIP PARKWAY AND  
PHILLIPS RD. (SR-3176)

SCALE	r=50'		REVISIONS
DATE	9-13		
DWG. BY	TWB		
DESIGN BY	TWB		
APPROVED	RWB		

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	45531.3.FRI	2C	
F.A. PROJECT NO.			

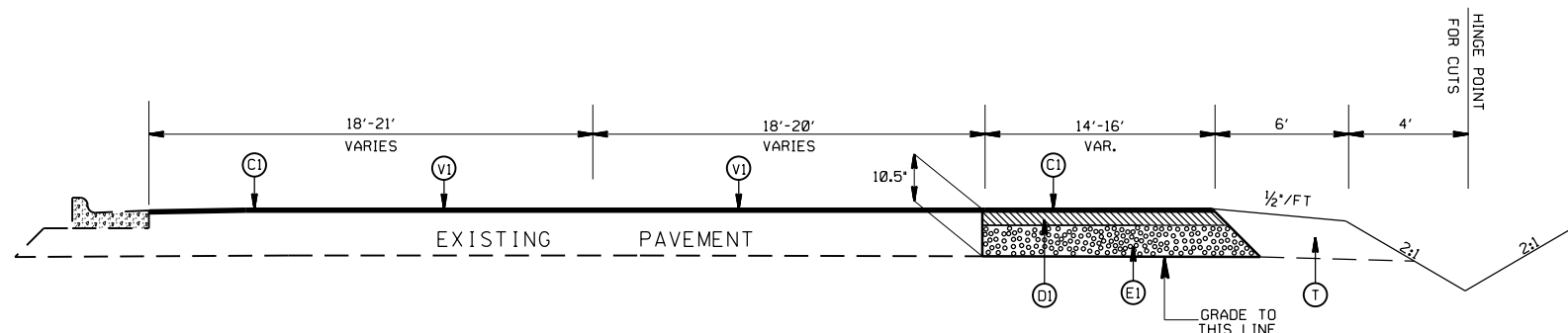


TYPICAL SECTION NO.11  
STA 29+10 TO 35+73 -L-

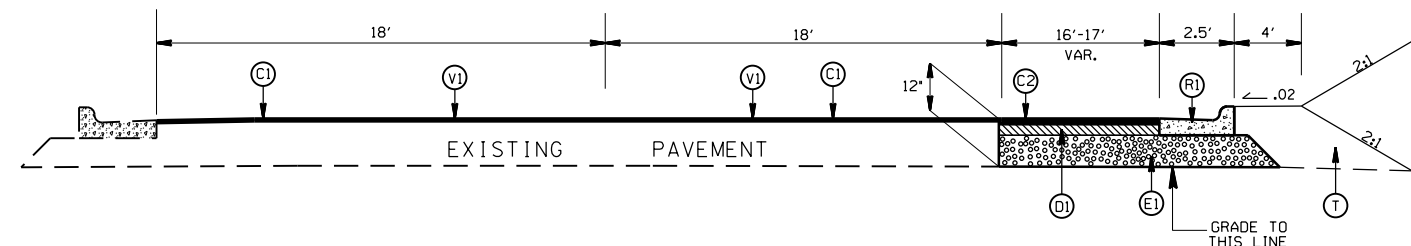


PAVEMENT SCHEDULE

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(R3)	PROP. 4" CONC. SIDEWALK (5' IN WIDTH)
(T)	EARTH MATERIAL
(V1)	MILLING ASPHALT PAVEMENT, 1.5" IN DEPTH



TYPICAL SECTION NO.10  
STA 25+36 TO 29+10 -L-



TYPICAL SECTION NO.9  
STA 24+86 TO 25+36 -L-

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.  
THE CONTRACTOR SHALL MATCH THE EXISTING ROADWAY SUPERELEVATION.

WIDENING OF NC 51 MATTHEWS MINT HILL RD.  
BETWEEN MATTHEWS TOWNSHIP PARKWAY AND  
PHILLIPS RD.(SR-3176)

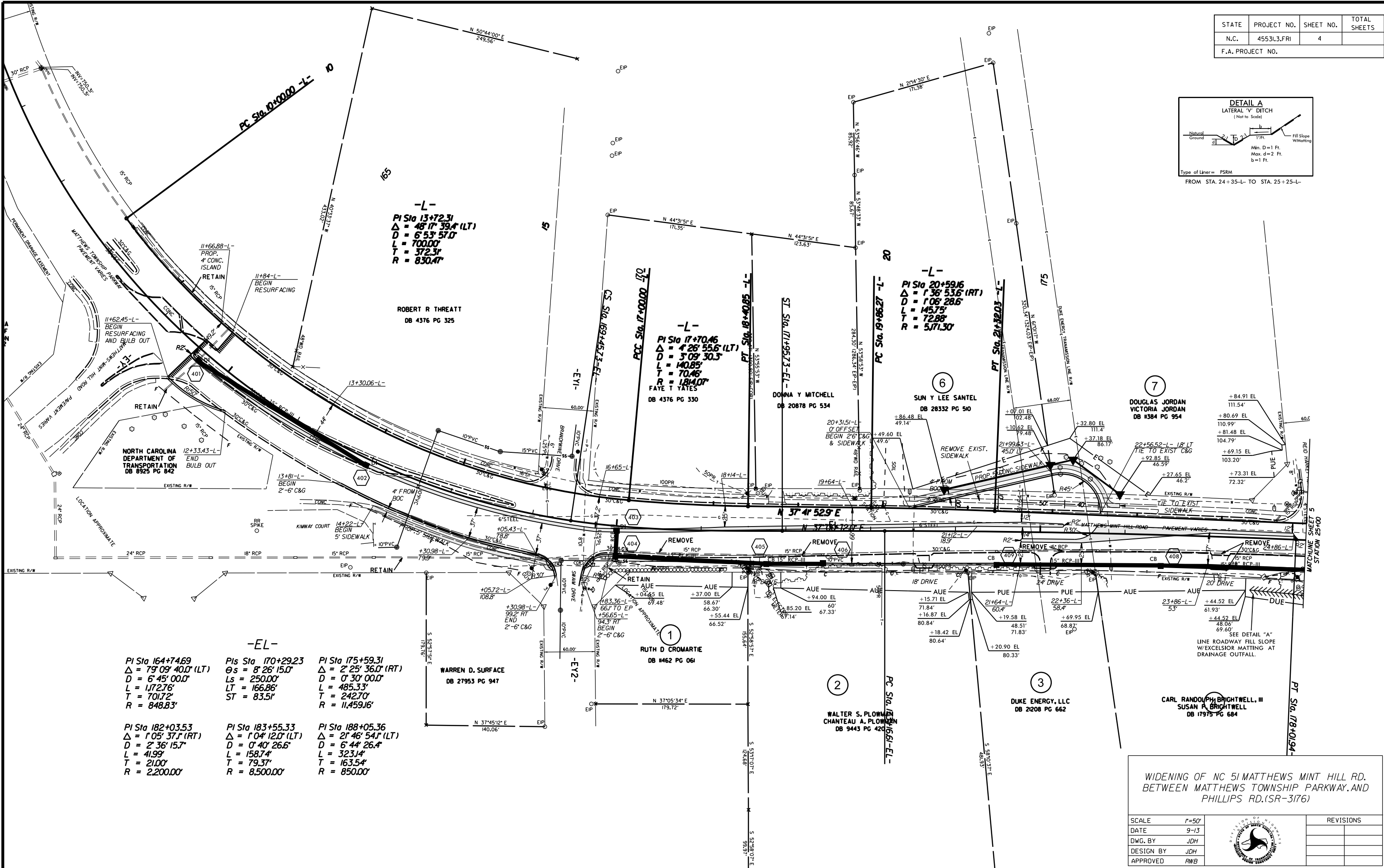
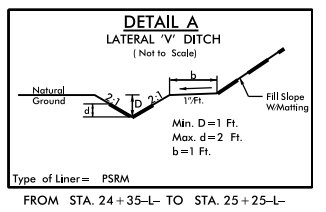
SCALE	r=50'
DATE	9-13
DWG. BY	TWB
DESIGN BY	TWB
APPROVED	RWB



REVISIONS	



STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	45531.3.FRI	4	
F.A. PROJECT NO.			



**-L-**  
**PI Sta 13+72.31**  
 $\Delta = 48^{\circ} 17' 39.4''$  (LT)  
 $D = 6^{\circ} 53' 57.0''$   
 $L = 700.00'$   
 $T = 372.31'$   
 $R = 830.47'$

**-L-**  
**PI Sta 17+70.46**  
 $\Delta = 4^{\circ} 26' 55.6''$  (LT)  
 $D = 3^{\circ} 09' 30.3''$   
 $L = 140.85'$   
 $T = 70.46'$   
 $R = 1814.07'$   
**FAYE T YATES**  
**DB 4376 PG 330**

**-L-**  
**PI Sta 20+59.16**  
 $\Delta = 1^{\circ} 36' 53.6''$  (RT)  
 $D = 1^{\circ} 08' 28.6''$   
 $L = 145.75'$   
 $T = 72.88'$   
 $R = 571.30'$

**-EL-**

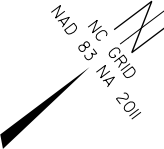
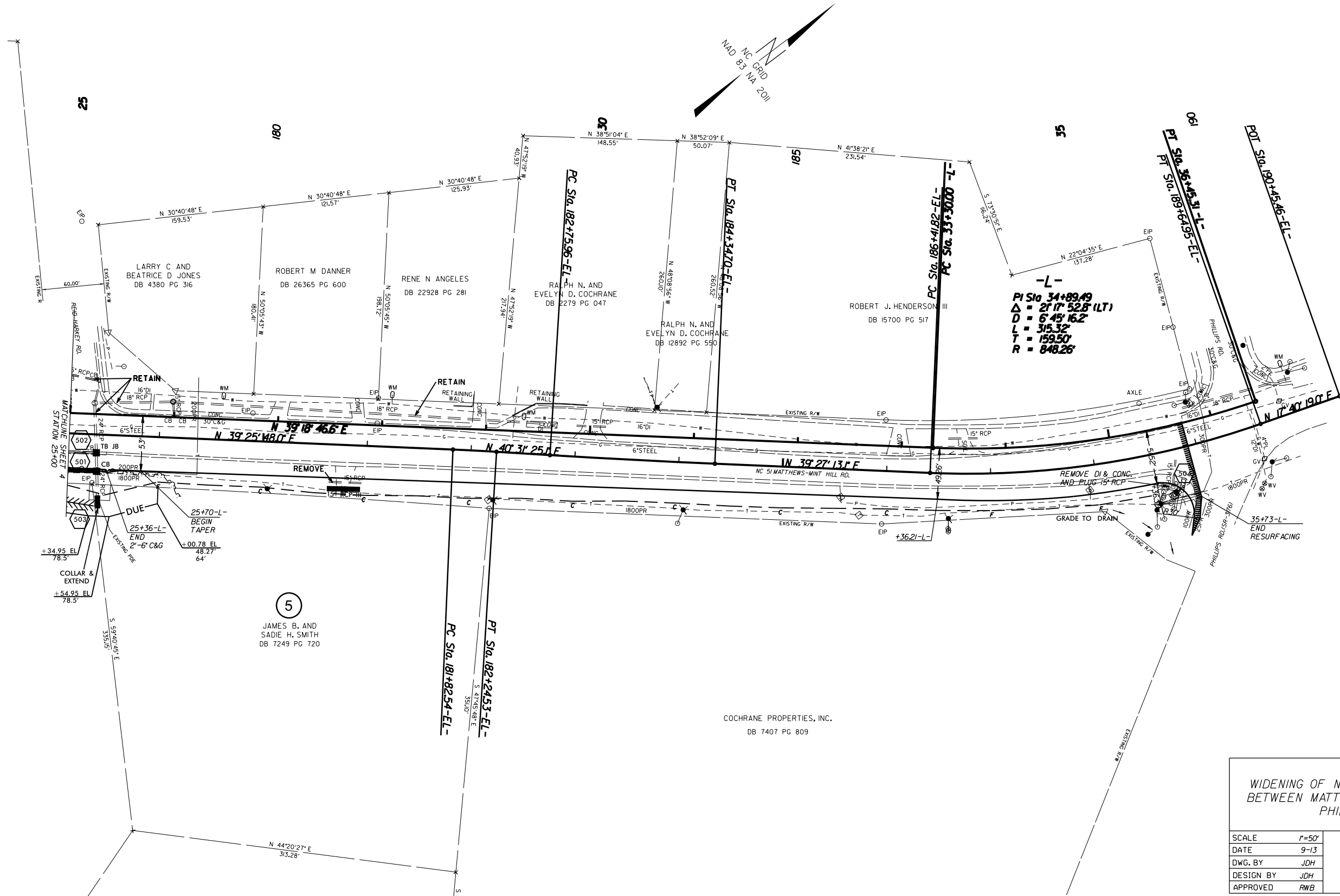
<b>PI Sta 164+74.69</b> $\Delta = 79^{\circ} 09' 40.0''$ (LT) $D = 6^{\circ} 45' 00.0''$ $L = 1172.76'$ $T = 701.72'$ $R = 848.83'$	<b>PIs Sta 170+29.23</b> $\theta_s = 8^{\circ} 26' 15.0''$ $L_s = 250.00'$ $LT = 166.86'$ $ST = 83.51'$	<b>PI Sta 175+59.31</b> $\Delta = 2^{\circ} 25' 36.0''$ (RT) $D = 0^{\circ} 30' 00.0''$ $L = 485.33'$ $T = 242.70'$ $R = 11,459.16'$
<b>PI Sta 182+03.53</b> $\Delta = 1^{\circ} 05' 37.1''$ (RT) $D = 2^{\circ} 36' 15.7''$ $L = 41.99'$ $T = 21.00'$ $R = 2,200.00'$	<b>PI Sta 183+55.33</b> $\Delta = 1^{\circ} 04' 12.0''$ (LT) $D = 0^{\circ} 40' 26.6''$ $L = 158.74'$ $T = 79.37'$ $R = 8,500.00'$	<b>PI Sta 188+05.36</b> $\Delta = 2^{\circ} 46' 54.1''$ (LT) $D = 6^{\circ} 44' 26.4''$ $L = 323.14'$ $T = 163.54'$ $R = 850.00'$

WIDENING OF NC 51 MATTHEWS MINT HILL RD.  
 BETWEEN MATTHEWS TOWNSHIP PARKWAY AND  
 PHILLIPS RD. (SR-3176)

SCALE	1"=50'		REVISIONS
DATE	9-13		
DWG. BY	JDH		
DESIGN BY	JDH		
APPROVED	RWB		



STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	45531.3.FRI	5	
F.A. PROJECT NO.			



**-L-**  
 PI Sta. 34+89.49  
 $\Delta = 21' 52.8''$  (LT)  
 $D = 6' 45.162''$   
 $L = 315.32'$   
 $T = 159.50'$   
 $R = 848.26'$

WIDENING OF NC 51 MATTHEWS MINT HILL RD.  
 BETWEEN MATTHEWS TOWNSHIP PARKWAY AND  
 PHILLIPS RD. (SR-3176)

SCALE	r=50'		REVISIONS
DATE	9-13		
DWG. BY	JDH		
DESIGN BY	JDH		
APPROVED	RWB		



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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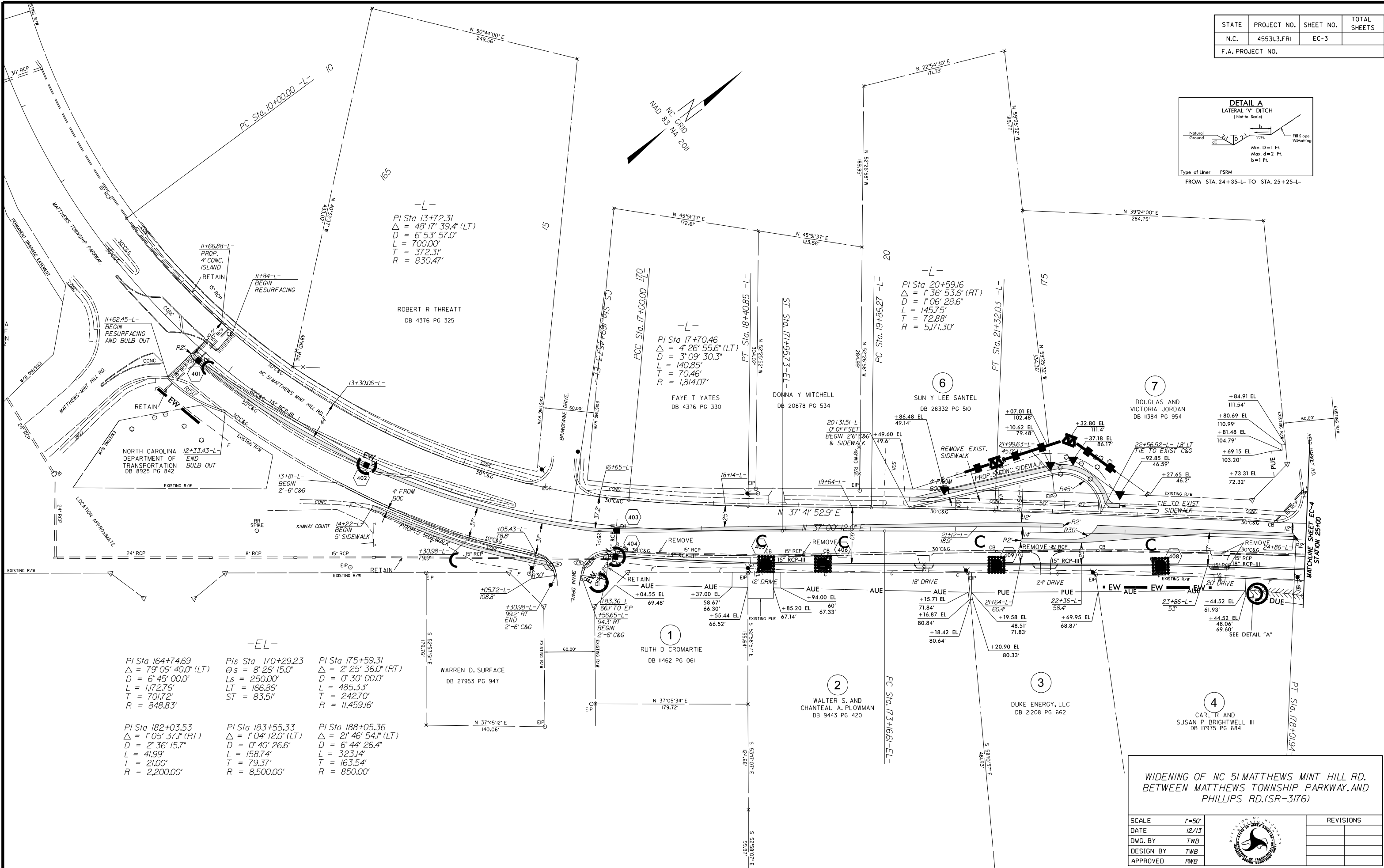
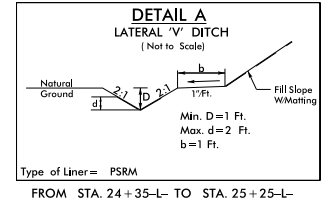


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## ***SOIL STABILIZATION TIMEFRAMES***

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) 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 HOW ZONES.

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	45531.3.FRI	EC-3	
F.A. PROJECT NO.			



-L-  
PI Sta 13+72.31  
Δ = 48° 17' 39.4" (LT)  
D = 6° 53' 57.0"  
L = 700.00'  
T = 372.31'  
R = 830.47'

-L-  
PI Sta 17+70.46  
Δ = 4° 26' 55.6" (LT)  
D = 3° 09' 30.3"  
L = 140.85'  
T = 70.46'  
R = 1,814.07'

-L-  
PI Sta 20+59.16  
Δ = 1° 36' 53.6" (RT)  
D = 1° 06' 28.6"  
L = 145.75'  
T = 72.88'  
R = 5,171.30'

-EL-  
PI Sta 164+74.69  
Δ = 79° 09' 40.0" (LT)  
D = 6° 45' 00.0"  
L = 1,172.76'  
T = 701.72'  
R = 848.83'

PIs Sta 170+29.23  
θs = 8° 26' 15.0"  
Ls = 250.00'  
L = 166.86'  
ST = 83.51'

PI Sta 175+59.31  
Δ = 2° 25' 36.0" (RT)  
D = 0° 30' 00.0"  
L = 485.33'  
T = 242.70'  
R = 11,459.16'

PI Sta 182+03.53  
Δ = 1° 05' 37.1" (RT)  
D = 2° 36' 15.7"  
L = 41.99'  
T = 21.00'  
R = 2,200.00'

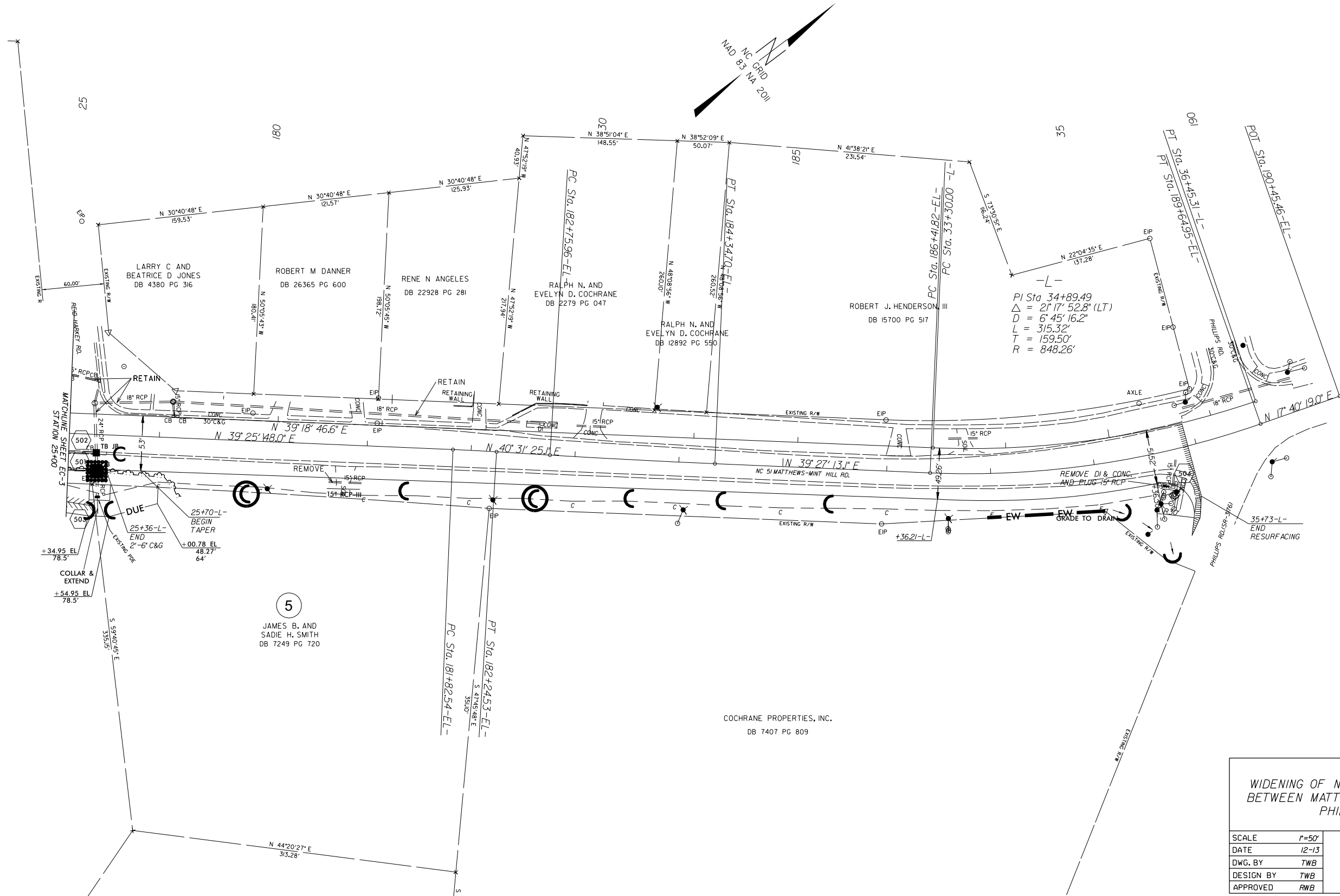
PI Sta 183+55.33  
Δ = 1° 04' 12.0" (LT)  
D = 0° 40' 26.6"  
L = 158.74'  
T = 79.37'  
R = 8,500.00'

PI Sta 188+05.36  
Δ = 2° 46' 54.1" (LT)  
D = 6° 44' 26.4"  
L = 323.14'  
T = 163.54'  
R = 850.00'


WIDENING OF NC 51 MATTHEWS MINT HILL RD.  
BETWEEN MATTHEWS TOWNSHIP PARKWAY AND  
PHILLIPS RD. (SR-3176)

SCALE	1"=50'		REVISIONS
DATE	12/13		
DWG. BY	TWB		
DESIGN BY	TWB		
APPROVED	RWB		

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	45531.3.FRI	EC-4	
F.A. PROJECT NO.			



WIDENING OF NC 51 MATTHEWS MINT HILL RD.  
 BETWEEN MATTHEWS TOWNSHIP PARKWAY AND  
 PHILLIPS RD. (SR-3176)

SCALE	r=50'		REVISIONS
DATE	12-13		
DWG. BY	TWB		
DESIGN BY	TWB		
APPROVED	RWB		

PAVEMENT MARKING SCHEDULE

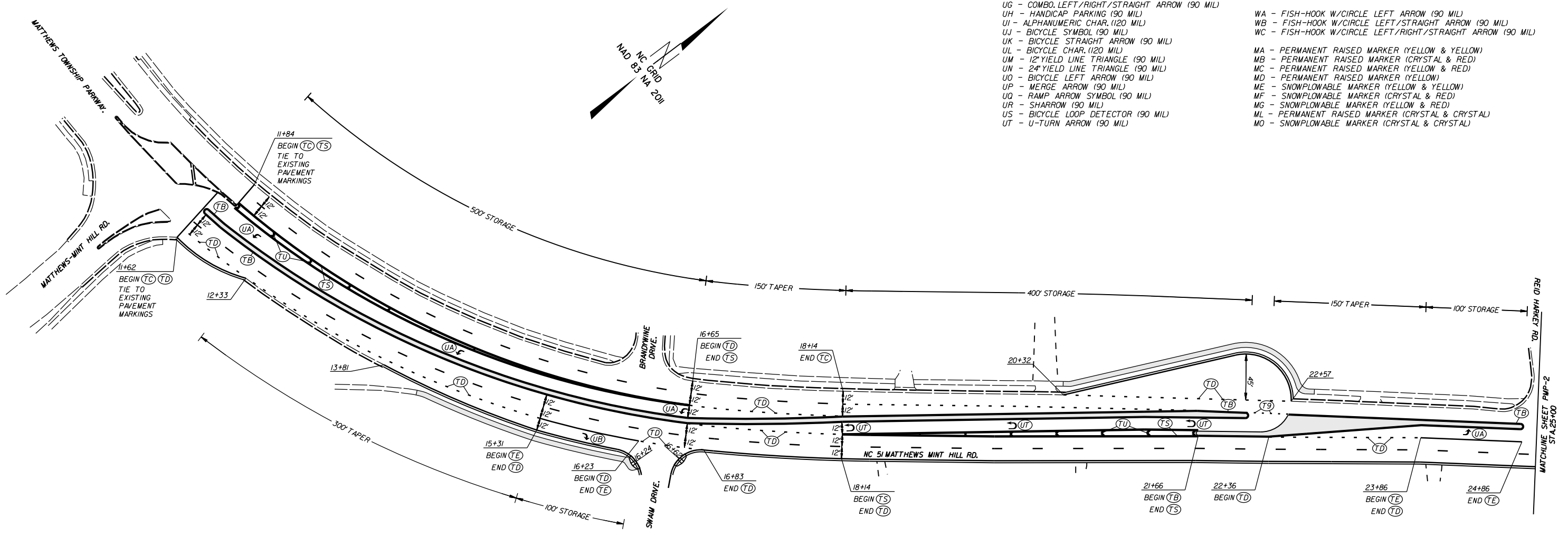
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	45531.3.FRI	PMP-1	
F.A. PROJECT NO.			

PAVEMENT MARKING LINES

- |  |   |
|--|---|
| TA - WHITE EDGELINE (4',.90 MIL)               | TU - WHITE DIAGONAL (12',.90 MIL)                             |
| TB - YELLOW EDGELINE (4',.90 MIL)              | TV - YELLOW DIAGONAL (12',.90 MIL)                            |
| TC - 10FT. WHITE SKIP (4',.120 MIL)            | T1 - WHITE LINE, RR X (16',.120 MIL)                          |
| TD - 3FT.-9FT./SP WHITE MINISKIP (4',.120 MIL) | T2 - WHITE STOPBAR (24',.120 MIL)                             |
| TE - WHITE SOLID LANE LINE (4',.120 MIL)       | T3 - WHITE CROSSWALK LINE (24',.120 MIL)                      |
| TF - 10FT. YELLOW SKIP (4',.120 MIL)           | T4 - WHITE RUMBLE STRIP (4',.240 MIL)                         |
| TH - YELLOW SINGLE CENTER (4',.120 MIL)        | T5 - YELLOW RUMBLE STRIP (4',.240 MIL)                        |
| TI - YELLOW DOUBLE CENTER (4',.120 MIL)        | T6 - WHITE EDGELINE (6',.90 MIL)                              |
| TJ - 10FT. WHITE SKIP (6',.120 MIL)            | T7 - YELLOW EDGELINE (6',.90 MIL)                             |
| TK - 3FT.-9FT./SP WHITE MINISKIP (6',.120 MIL) | T8 - 2FT.-6FT./SP WHITE MINISKIP (4',.120 MIL)                |
| TL - WHITE SOLID LANE LINE (6',.120 MIL)       | T9 - 2FT.-6FT./SP YELLOW MINISKIP (4',.120 MIL)               |
| TM - 10FT. YELLOW SKIP (6',.120 MIL)           | T10 - 3FT.-3FT./SP WHITE MINISKIP (12',.120 MIL)              |
| TN - WHITE GORELINE (8',.90 MIL)               | T11 - 2FT.-6FT./SP WHITE MINISKIP (6',.120 MIL)               |
| TO - WHITE DIAGONAL (8',.90 MIL)               | T12 - 2FT.-6FT./SP YELLOW MINISKIP (6',.120 MIL)              |
| TP - YELLOW DIAGONAL (8',.90 MIL)              | T13 - 3FT.-9FT./SP WHITE MINISKIP (8',.120 MIL)               |
| TQ - WHITE CROSSWALK LINE (8',.120 MIL)        | T14 - 3FT.-9FT./SP WHITE MINISKIP (12',.120 MIL)              |
| TR - WHITE SOLID LANE LINE (8',.120 MIL)       | T15 - YELLOW SINGLE CENTER (6',.120 MIL)                      |
| TS - WHITE GORELINE (12',.90 MIL)              | T16 - YELLOW DOUBLE CENTER (6',.120 MIL)                      |
| TT - WHITE SOLID LANE LINE (12',.120 MIL)      | T17 - 3FT.-3FT./SP WHITE MINISKIP ENTRANCE LINE (8',.120 MIL) |

PAVEMENT MARKING SYMBOLS

- |  |  |
|--|--|
| UA - LEFT TURN ARROW (90 MIL)                  | UU - FISH-HOOK STRAIGHT ARROW (90 MIL)                     |
| UB - RIGHT TURN ARROW (90 MIL)                 | UV - FISH-HOOK LEFT/STRAIGHT ARROW (90 MIL)                |
| UC - STRAIGHT ARROW (90 MIL)                   | UW - FISH-HOOK RIGHT/STRAIGHT ARROW (90 MIL)               |
| UD - COMBO. LEFT/STRAIGHT ARROW (90 MIL)       | UX - FISH-HOOK LEFT/RIGHT ARROW (90 MIL)                   |
| UE - COMBO. RIGHT/STRAIGHT ARROW (90 MIL)      | UY - FISH-HOOK LEFT/RIGHT/STRAIGHT ARROW (90 MIL)          |
| UF - COMBO. LEFT/RIGHT ARROW (90 MIL)          | UZ - FISH-HOOK W/CIRCLE STRAIGHT ARROW (90 MIL)            |
| UG - COMBO. LEFT/RIGHT/STRAIGHT ARROW (90 MIL) | WA - FISH-HOOK W/CIRCLE LEFT ARROW (90 MIL)                |
| UH - HANDICAP PARKING (90 MIL)                 | WB - FISH-HOOK W/CIRCLE LEFT/STRAIGHT ARROW (90 MIL)       |
| UI - ALPHANUMERIC CHAR. (120 MIL)              | WC - FISH-HOOK W/CIRCLE LEFT/RIGHT/STRAIGHT ARROW (90 MIL) |
| UJ - BICYCLE SYMBOL (90 MIL)                   | MA - PERMANENT RAISED MARKER (YELLOW & YELLOW)             |
| UK - BICYCLE STRAIGHT ARROW (90 MIL)           | MB - PERMANENT RAISED MARKER (CRYSTAL & RED)               |
| UL - BICYCLE CHAR. (120 MIL)                   | MC - PERMANENT RAISED MARKER (YELLOW & RED)                |
| UM - 12" YIELD LINE TRIANGLE (90 MIL)          | MD - PERMANENT RAISED MARKER (YELLOW)                      |
| UN - 24" YIELD LINE TRIANGLE (90 MIL)          | ME - SNOWPLOWABLE MARKER (YELLOW & YELLOW)                 |
| UO - BICYCLE LEFT ARROW (90 MIL)               | MF - SNOWPLOWABLE MARKER (CRYSTAL & YELLOW)                |
| UP - MERGE ARROW (90 MIL)                      | MG - SNOWPLOWABLE MARKER (YELLOW & RED)                    |
| UQ - RAMP ARROW SYMBOL (90 MIL)                | ML - PERMANENT RAISED MARKER (CRYSTAL & CRYSTAL)           |
| UR - SHARROW (90 MIL)                          | MO - SNOWPLOWABLE MARKER (CRYSTAL & CRYSTAL)               |
| US - BICYCLE LOOP DETECTOR (90 MIL)            |  |
| UT - U-TURN ARROW (90 MIL)                     |  |



WIDENING OF NC 51 MATTHEWS MINT HILL RD. BETWEEN MATTHEWS TOWNSHIP PARKWAY AND PHILLIPS RD. (SR-3176)

SCALE	r=50'		REVISIONS
DATE	9-13		
DWG. BY	JDH		
DESIGN BY	JDH		
APPROVED	RWB		

PAVEMENT MARKING SCHEDULE

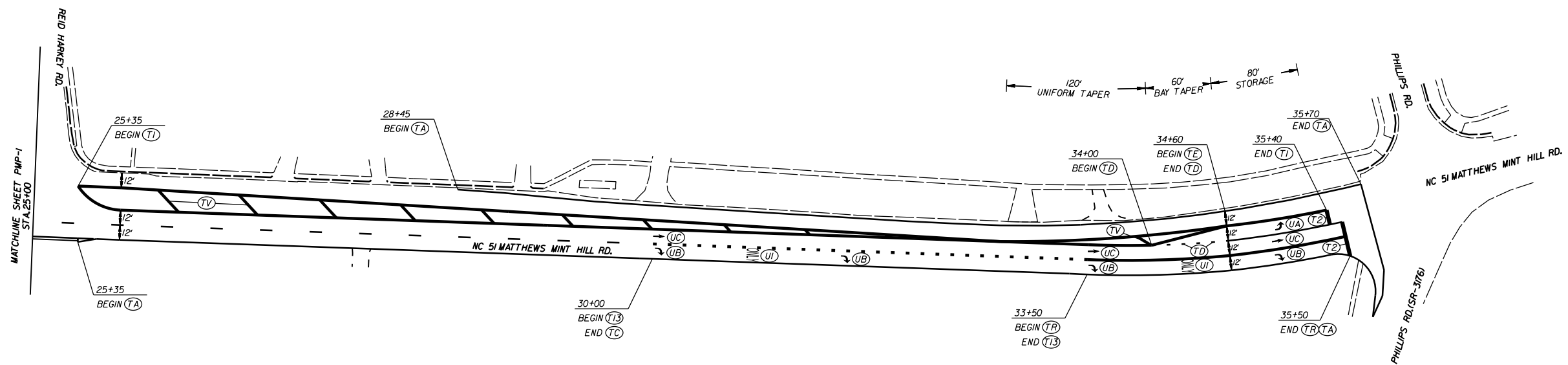
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	45531.3.FRI	PMP-2	
F.A. PROJECT NO.			

PAVEMENT MARKING LINES

- |  |   |
|--|---|
| TA - WHITE EDGELINE (4',.90 MIL)               | TU - WHITE DIAGONAL (12',.90 MIL)                             |
| TB - YELLOW EDGELINE (4',.90 MIL)              | TV - YELLOW DIAGONAL (12',.90 MIL)                            |
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| TE - WHITE SOLID LANE LINE (4',.120 MIL)       | T3 - WHITE CROSSWALK LINE (24',.120 MIL)                      |
| TF - 10FT. YELLOW SKIP (4',.120 MIL)           | T4 - WHITE RUMBLE STRIP (4',.240 MIL)                         |
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| TT - WHITE SOLID LANE LINE (12',.120 MIL)      | T17 - 3FT.-3FT./SP WHITE MINISKIP ENTRANCE LINE (8',.120 MIL) |

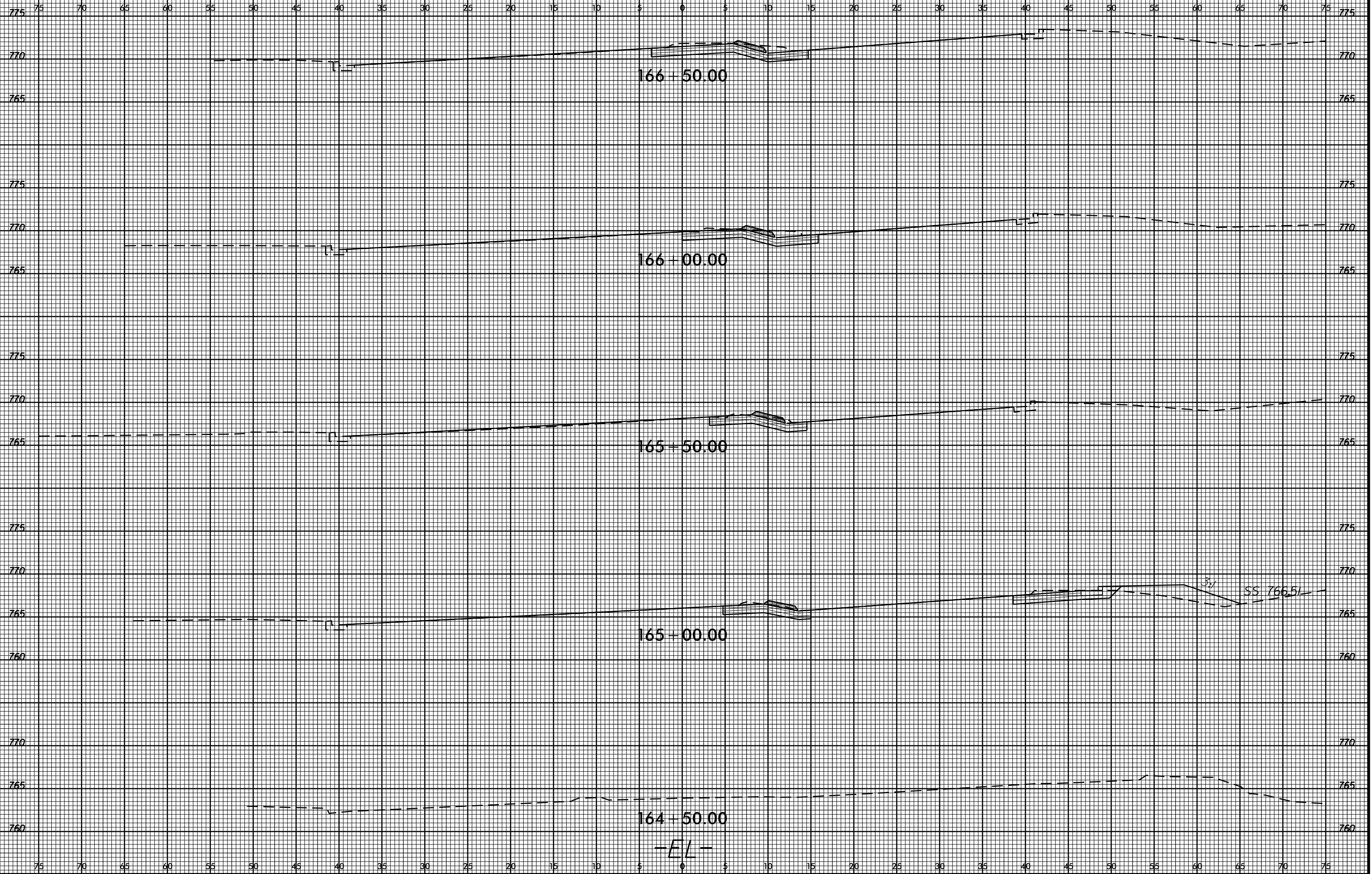
PAVEMENT MARKING SYMBOLS

- |  |  |
|--|--|
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| UB - RIGHT TURN ARROW (90 MIL)                 | UV - FISH-HOOK LEFT/STRAIGHT ARROW (90 MIL)                |
| UC - STRAIGHT ARROW (90 MIL)                   | UW - FISH-HOOK RIGHT/STRAIGHT ARROW (90 MIL)               |
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| UH - HANDICAP PARKING (90 MIL)                 | WA - FISH-HOOK W/CIRCLE LEFT ARROW (90 MIL)                |
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| UL - BICYCLE CHAR. (120 MIL)                   | MA - PERMANENT RAISED MARKER (YELLOW & YELLOW)             |
| UM - 12" YIELD LINE TRIANGLE (90 MIL)          | MB - PERMANENT RAISED MARKER (CRYSTAL & RED)               |
| UN - 24" YIELD LINE TRIANGLE (90 MIL)          | MC - PERMANENT RAISED MARKER (YELLOW & RED)                |
| UO - BICYCLE LEFT ARROW (90 MIL)               | MD - PERMANENT RAISED MARKER (YELLOW)                      |
| UP - MERGE ARROW (90 MIL)                      | ME - SNOWPLOWABLE MARKER (YELLOW & YELLOW)                 |
| UQ - RAMP ARROW SYMBOL (90 MIL)                | MF - SNOWPLOWABLE MARKER (CRYSTAL & RED)                   |
| UR - SHARROW (90 MIL)                          | MG - SNOWPLOWABLE MARKER (YELLOW & RED)                    |
| US - BICYCLE LOOP DETECTOR (90 MIL)            | ML - PERMANENT RAISED MARKER (CRYSTAL & CRYSTAL)           |
| UT - U-TURN ARROW (90 MIL)                     | MO - SNOWPLOWABLE MARKER (CRYSTAL & CRYSTAL)               |

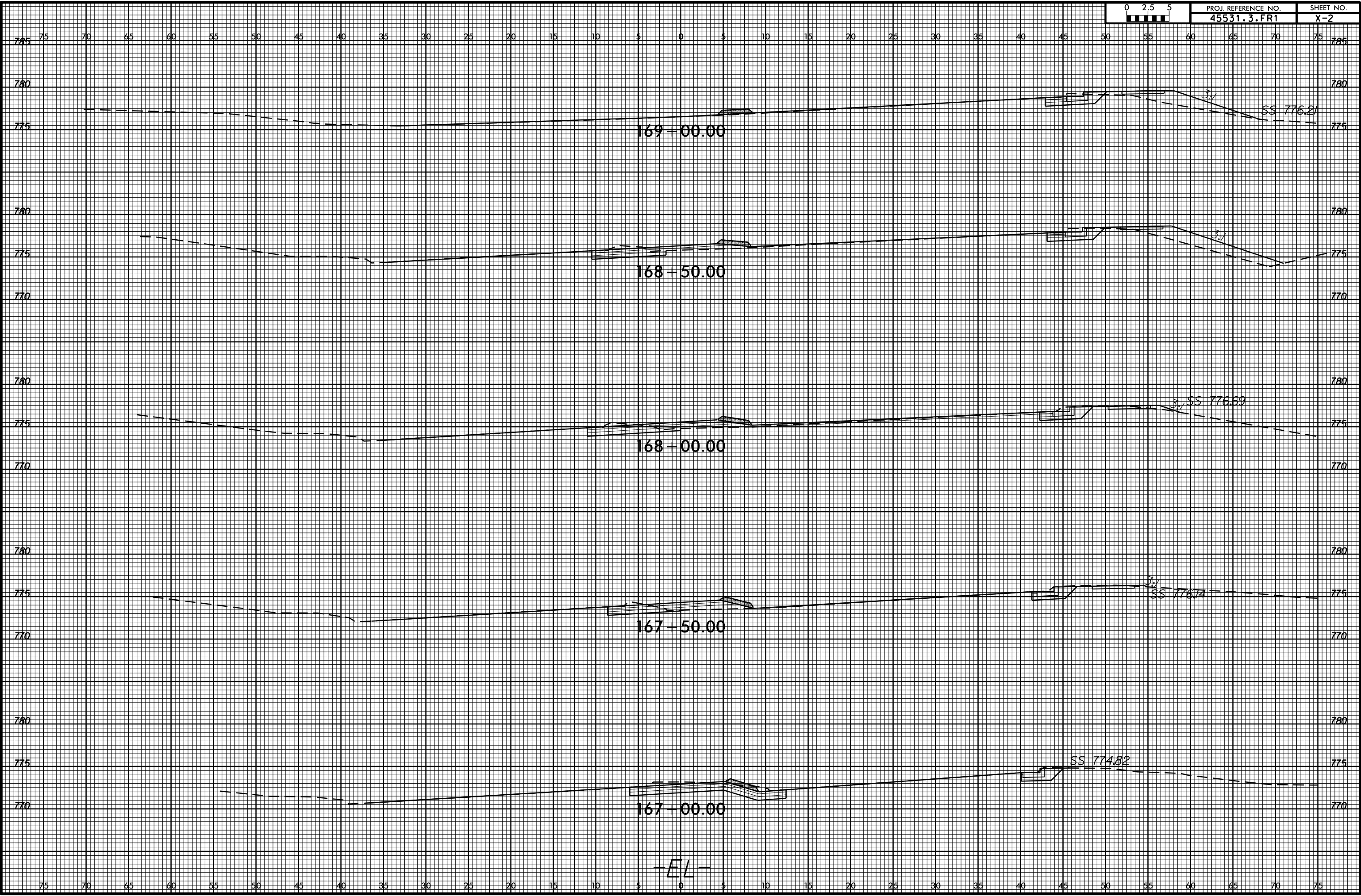


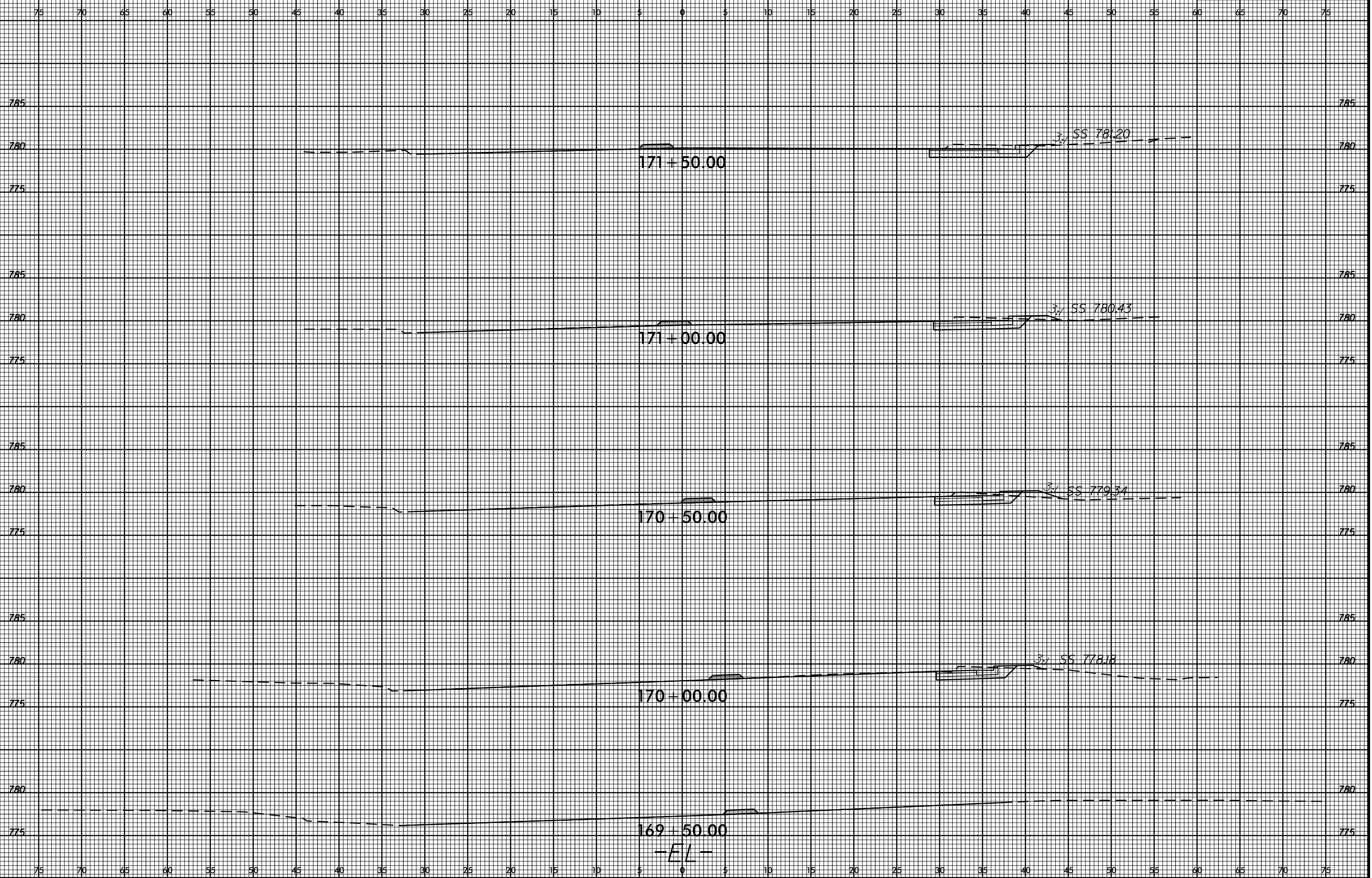
WIDENING OF NC 51 MATTHEWS MINT HILL RD.  
 BETWEEN MATTHEWS TOWNSHIP PARKWAY AND  
 PHILLIPS RD. (SR-3176)

SCALE	1"=50'		REVISIONS
DATE	9-13		
DWG. BY	JDH		
DESIGN BY	JDH		
APPROVED	RWB		

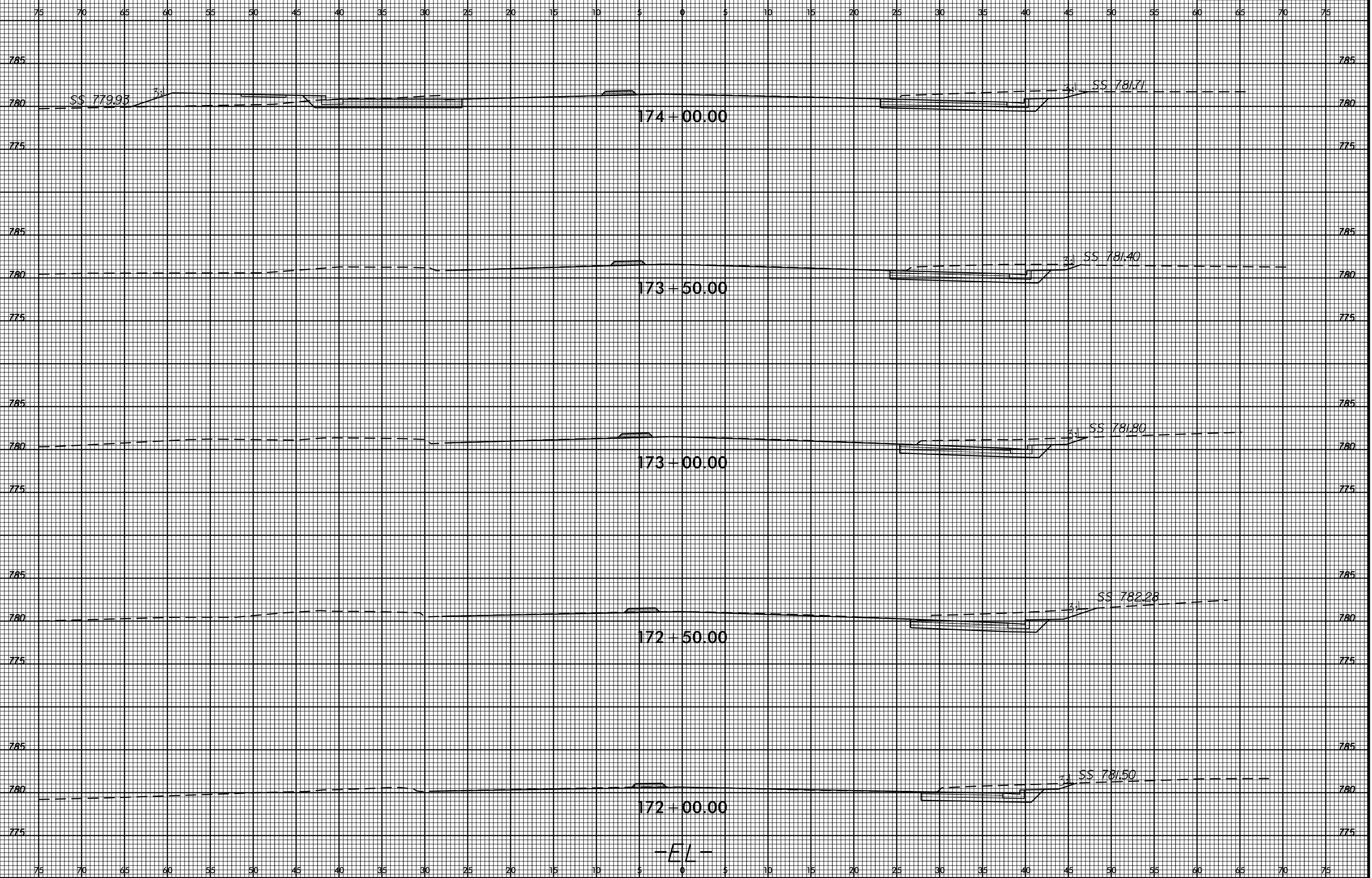






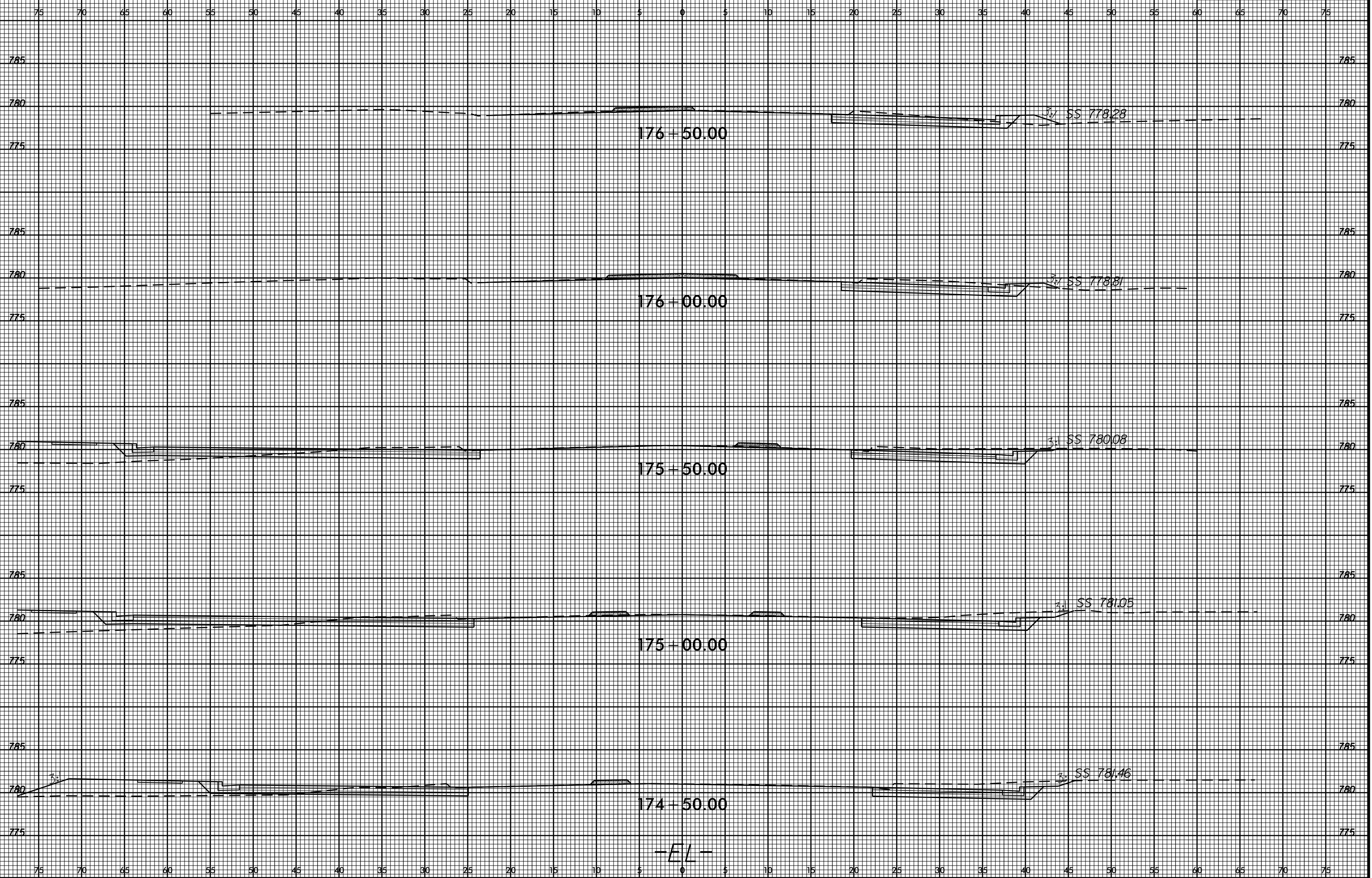


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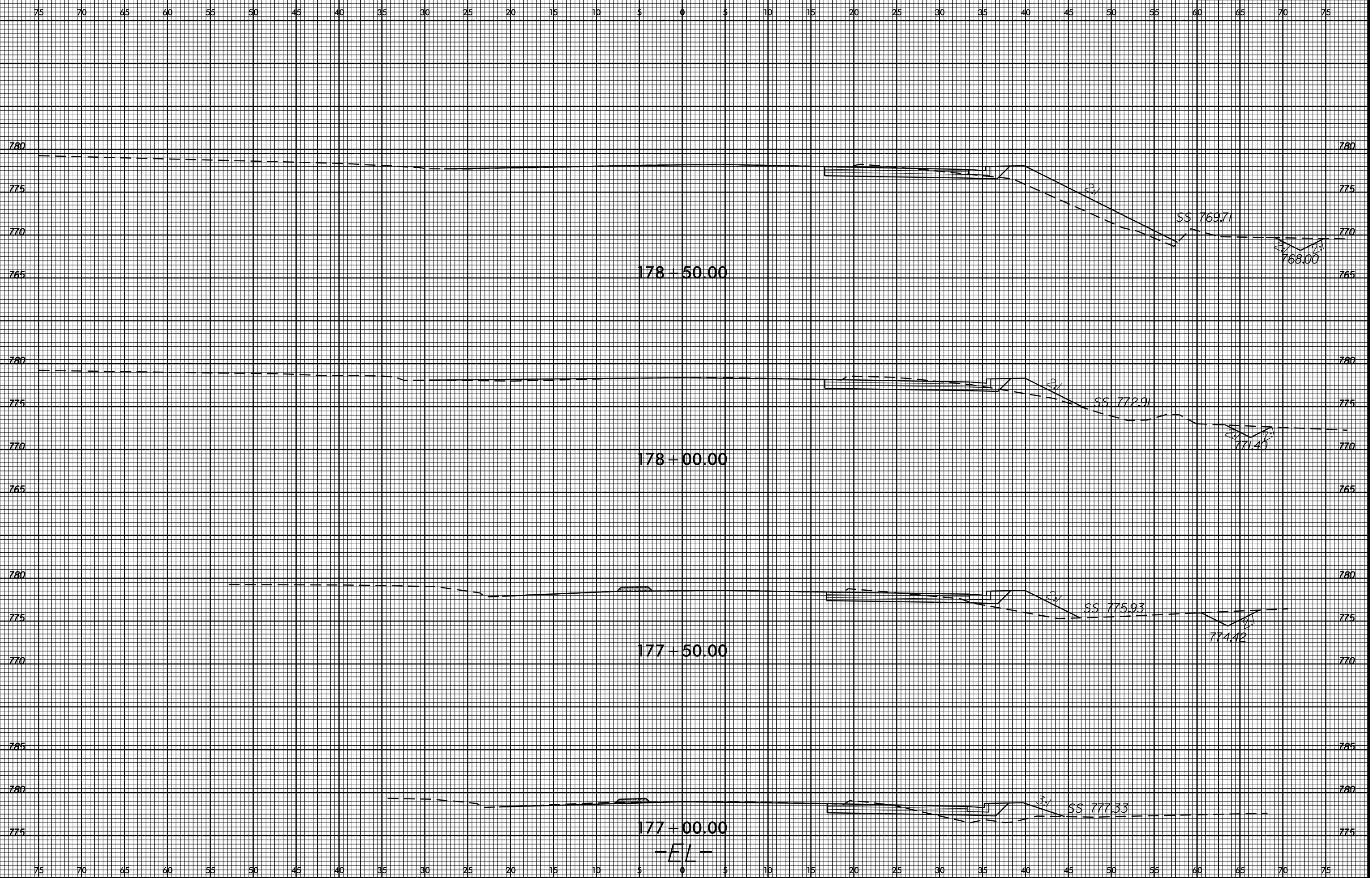


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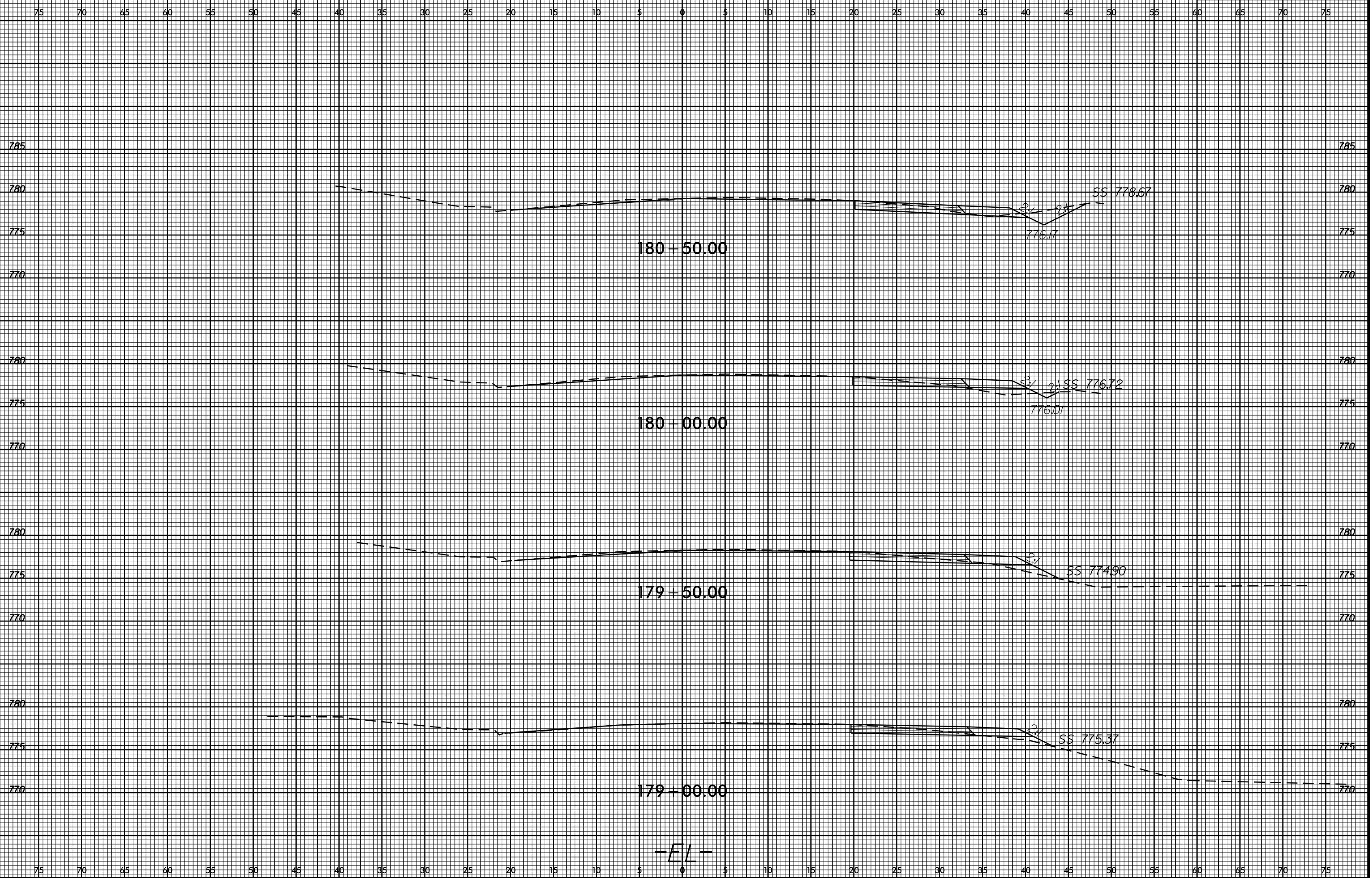
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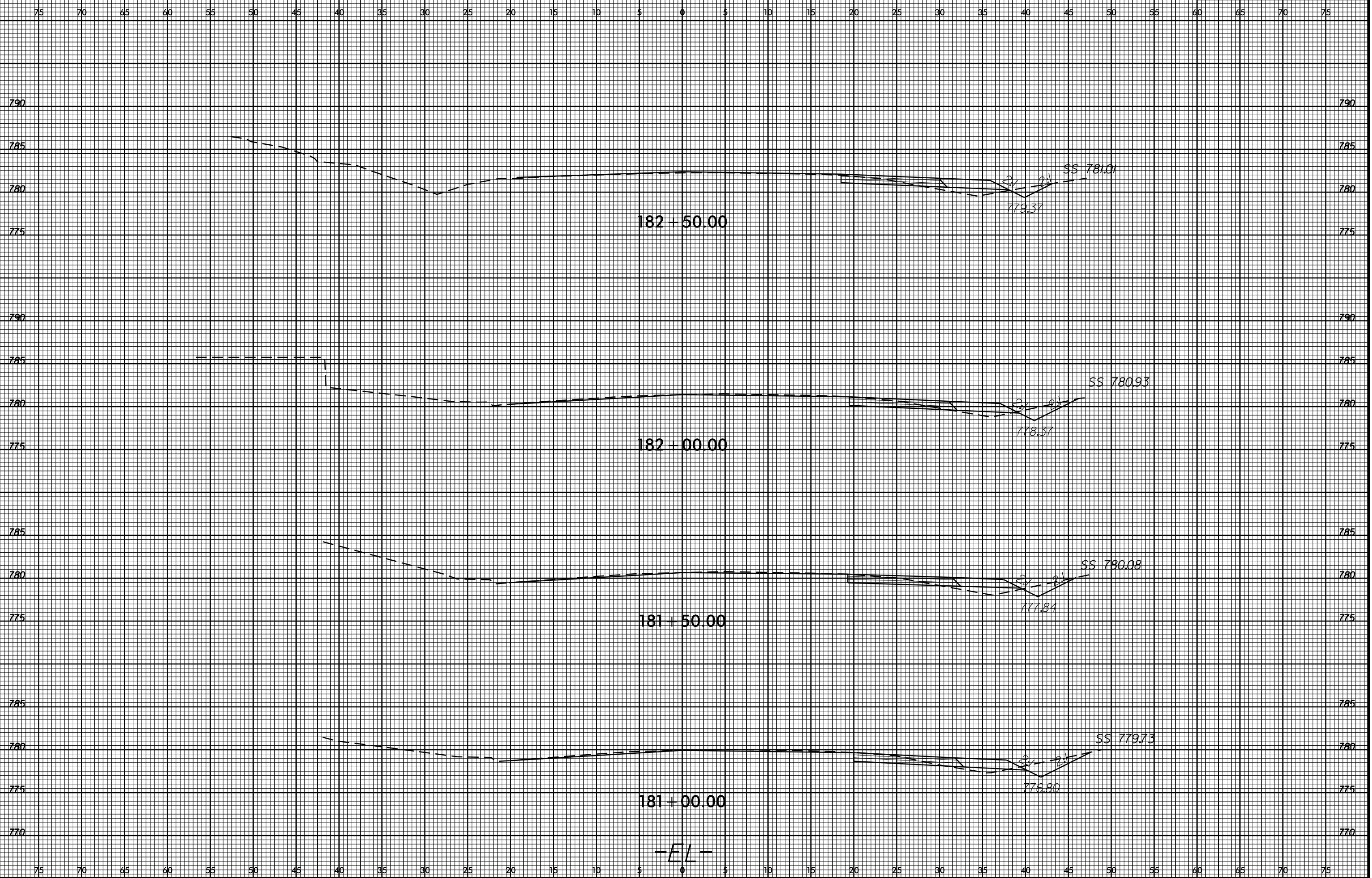
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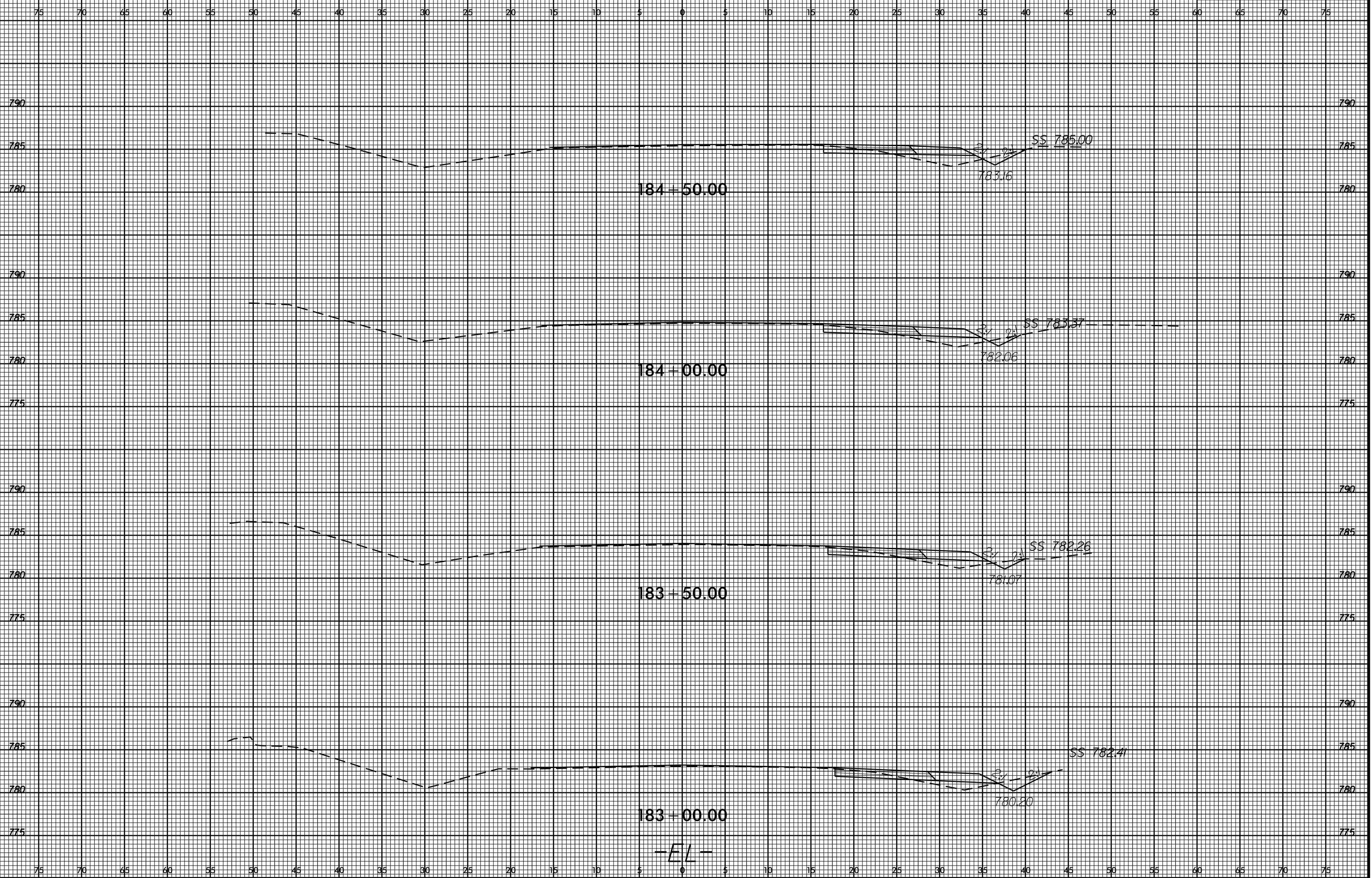
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-EL-

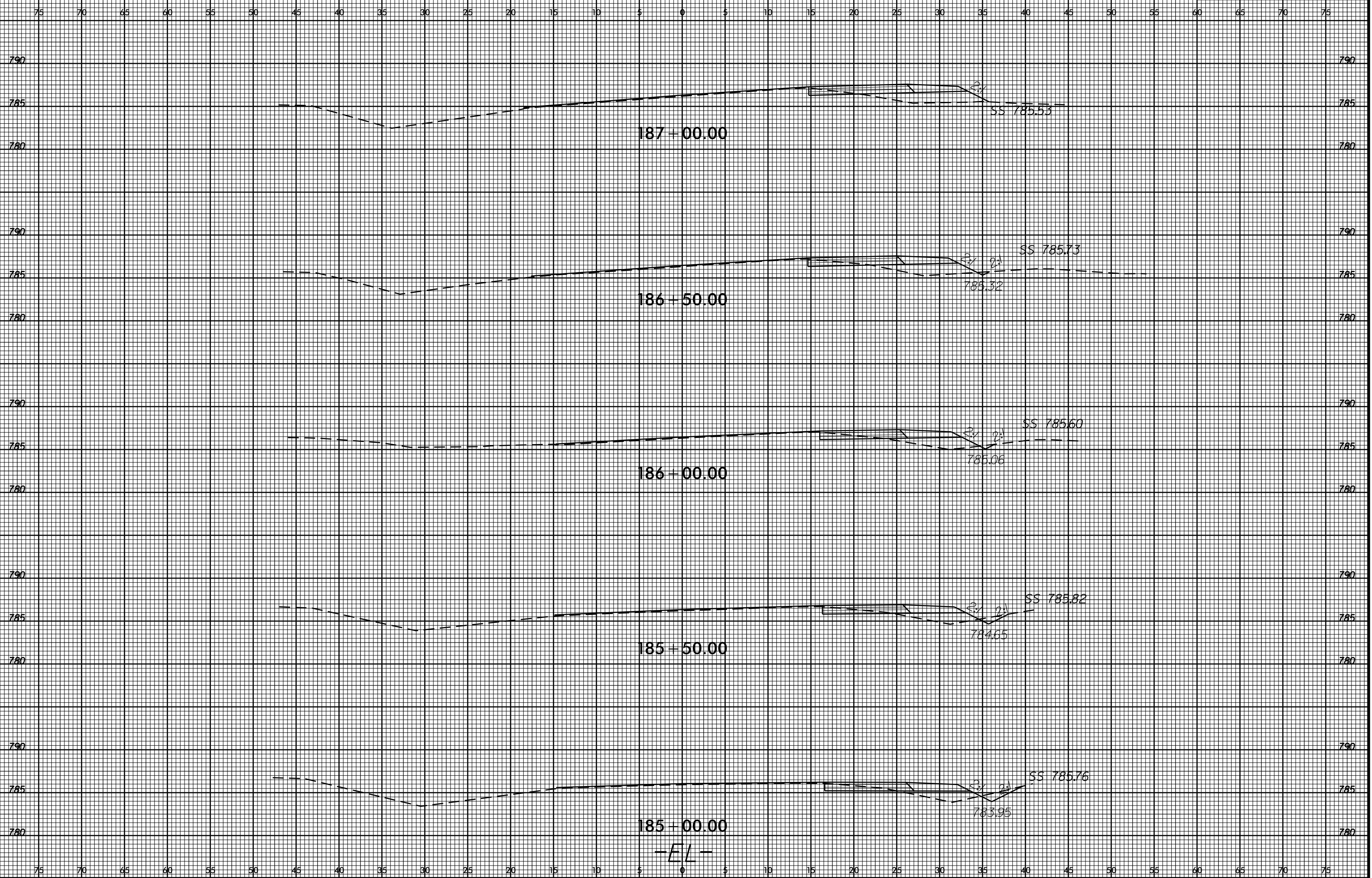


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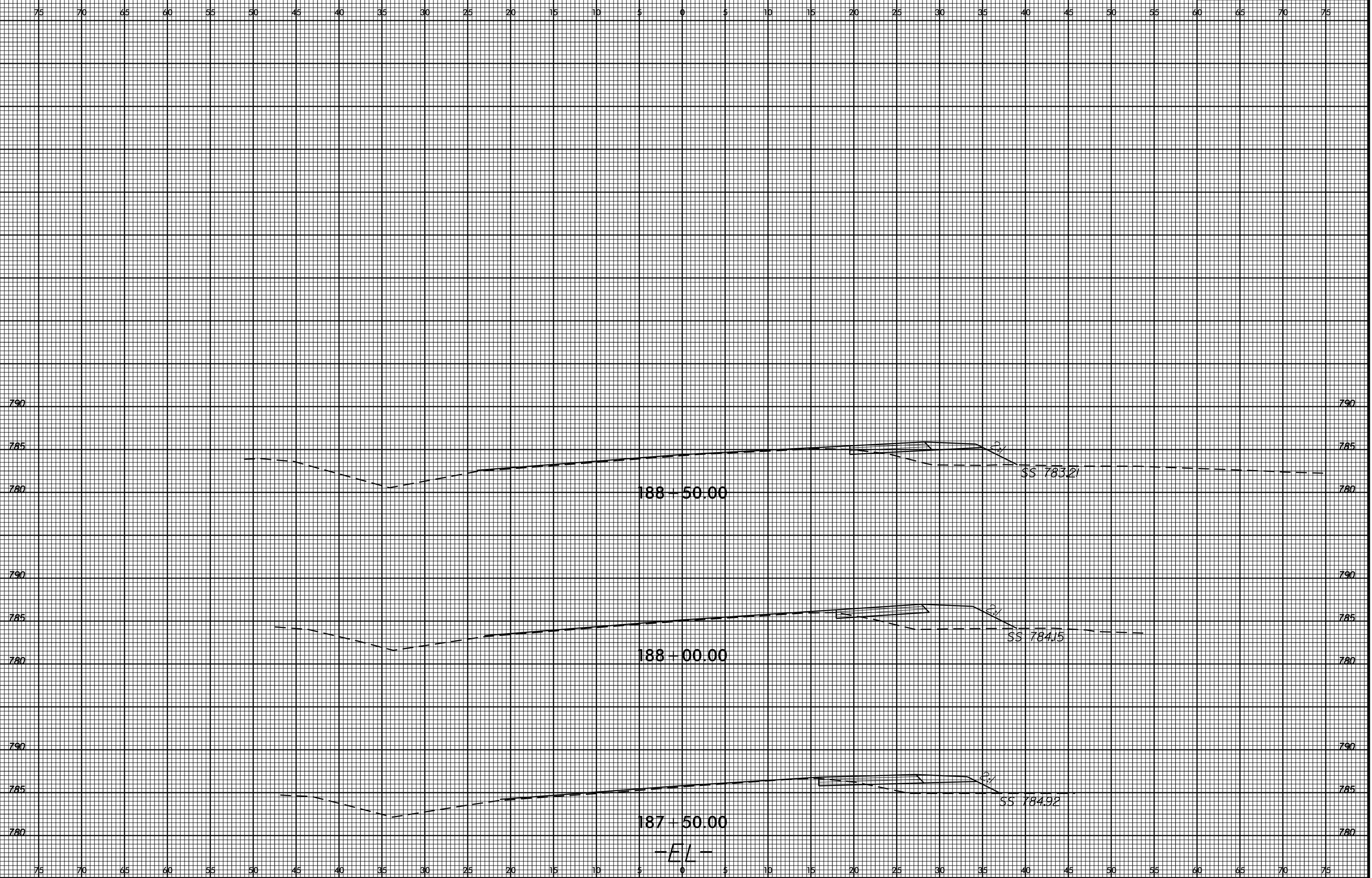
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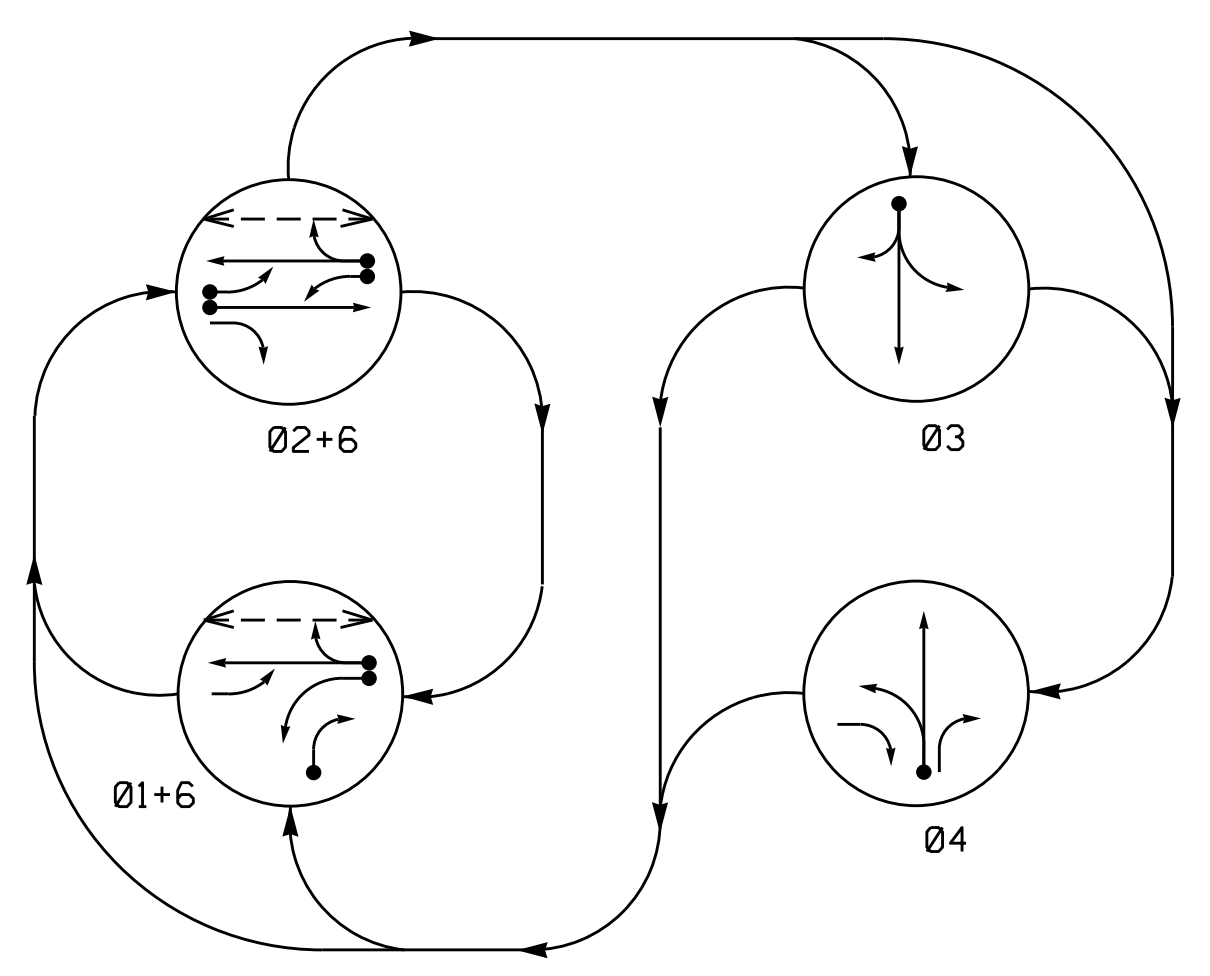


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PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

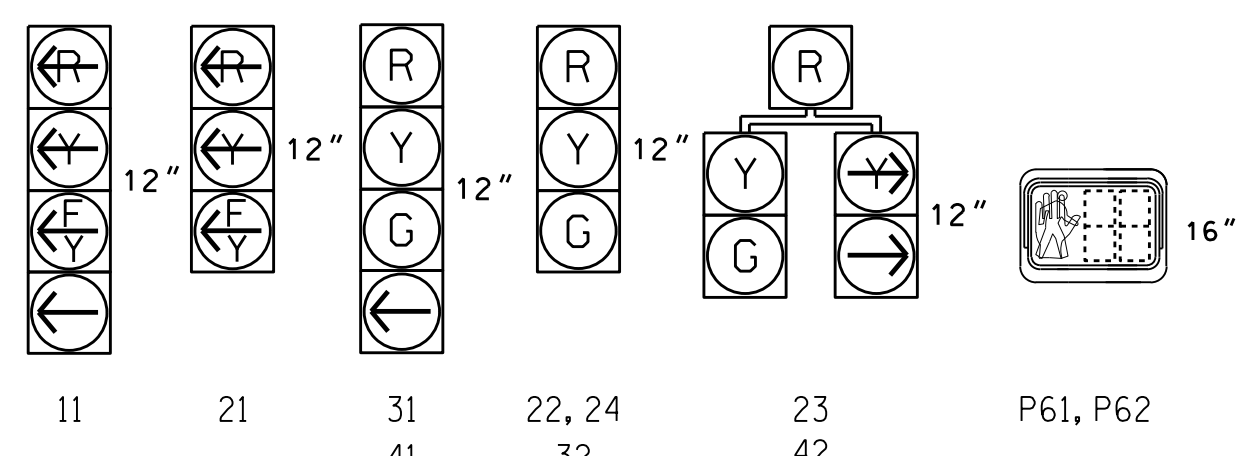
TABLE OF OPERATION

SIGNAL FACE	PHASE				
	01+6	02+6	03	04	FLASH
11	Y	Y	R	R	Y
21	Y	Y	R	R	Y
22, 24	R	G	R	R	Y
23	R	G	R	R	Y
31	R	R	G	R	R
32	R	R	G	R	R
41	R	R	R	G	R
42	R	R	R	G	R
61, 62	G	G	R	R	Y
P61, P62	W	W	DW	DW	DRK

W - Walk  
DW - Don't Walk  
DRK - Dark

SIGNAL FACE I.D.

All Heads L.E.D.



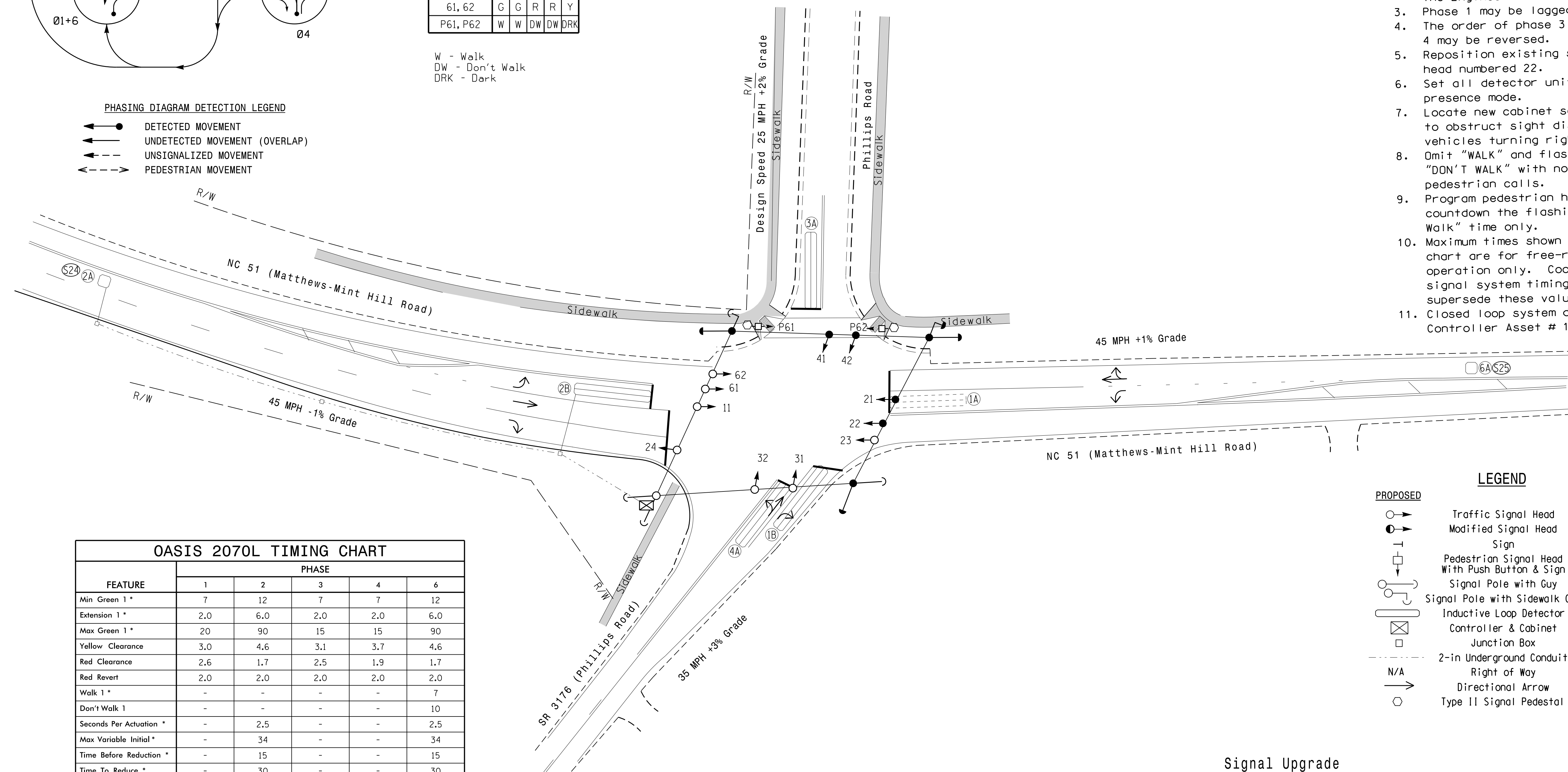
OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING							
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Y	Y	-	-	15	-	Y
1B	6X40	+5	2-4-2	Y	1	Y	Y	-	-	15	-	Y
2A/S24	6X6	300	4	Y	2	Y	Y	-	-	-	-	Y
2B	6X40	0	2-4-2	Y	2	Y	Y	-	-	3	-	Y
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	10	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	Y
6A/S25	6X6	300	5	Y	6	Y	Y	-	-	-	-	Y

4 Phase Fully Actuated NC 51 (Matthews Township Pkwy) CLS

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. Phase 1 may be lagged.
4. The order of phase 3 and phase 4 may be reversed.
5. Reposition existing signal head numbered 22.
6. Set all detector units to presence mode.
7. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
9. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
11. Closed loop system data: Controller Asset # 1098.



FEATURE	PHASE				
	1	2	3	4	6
Min Green 1 *	7	12	7	7	12
Extension 1 *	2.0	6.0	2.0	2.0	6.0
Max Green 1 *	20	90	15	15	90
Yellow Clearance	3.0	4.6	3.1	3.7	4.6
Red Clearance	2.6	1.7	2.5	1.9	1.7
Red Revert	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	7
Don't Walk 1	-	-	-	-	10
Seconds Per Actuation *	-	2.5	-	-	2.5
Max Variable Initial *	-	34	-	-	34
Time Before Reduction *	-	15	-	-	15
Time To Reduce *	-	30	-	-	30
Minimum Gap	-	3.0	-	-	3.0
Recall Mode	-	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-	-
Simultaneous Gap	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		EXISTING	
	Traffic Signal Head		Traffic Signal Head
	Modified Signal Head		N/A
	Sign		N/A
	Pedestrian Signal Head With Push Button & Sign		Pedestrian Signal Head With Push Button & Sign
	Signal Pole with Guy		Signal Pole with Guy
	Signal Pole with Sidewalk Guy		Signal Pole with Sidewalk Guy
	Inductive Loop Detector		Inductive Loop Detector
	Controller & Cabinet		Controller & Cabinet
	Junction Box		Junction Box
	2-in Underground Conduit		2-in Underground Conduit
	Right of Way		Right of Way
	Directional Arrow		Directional Arrow
	Type II Signal Pedestal		Type II Signal Pedestal

Signal Upgrade

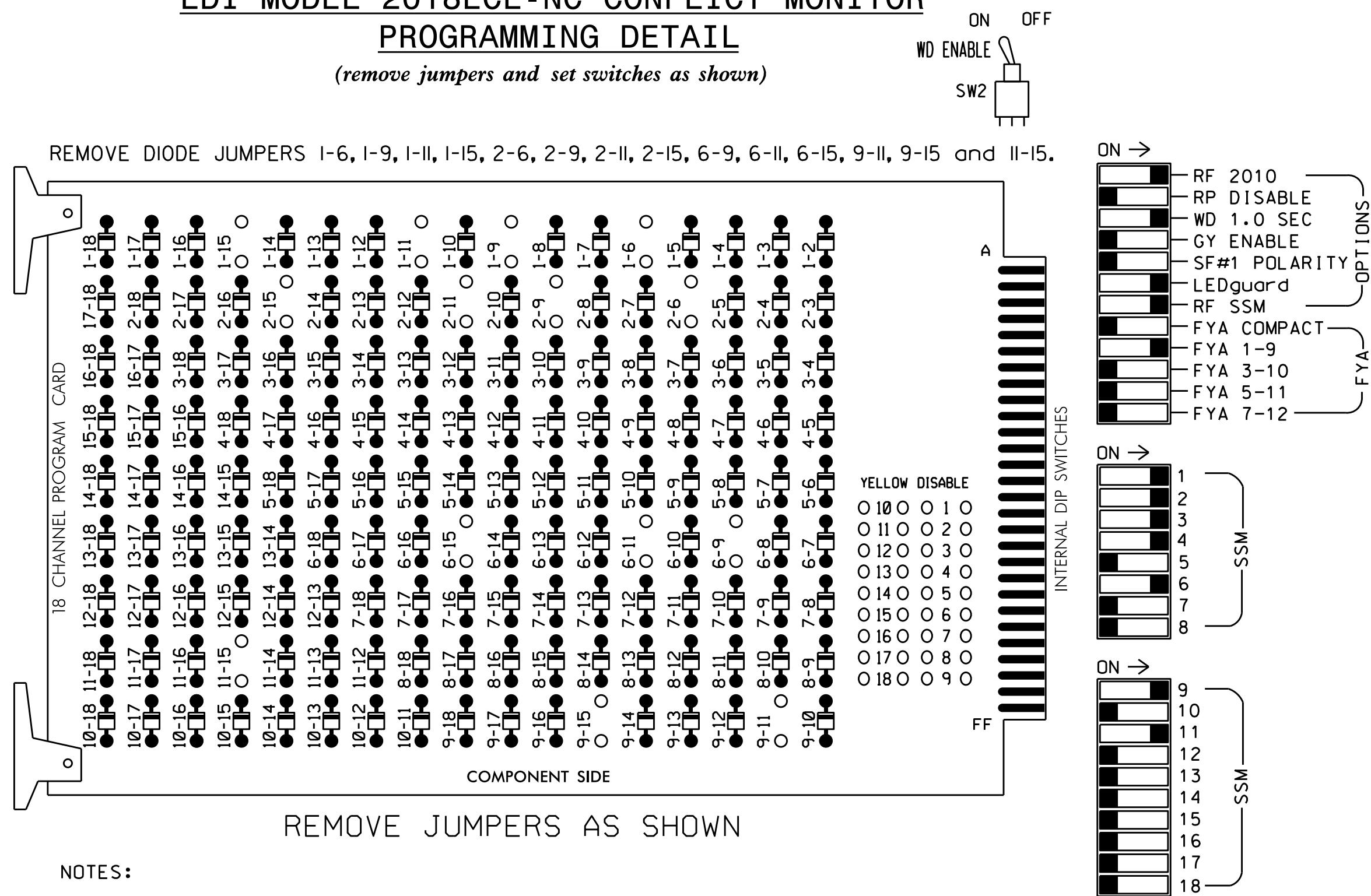
	<p>NC 51(Matthews-Mint Hill Road) at SR 3176 (Phillips Road)</p>	
	<p>Division 10 Mecklenburg County Matthews</p>	
<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>PLAN DATE: July 2014</p>	<p>REVIEWED BY: Z. Little</p>
<p>PREPARED BY: M. Mahbooba</p>	<p>REVIEWED BY:</p>	<p>DATE</p>
<p>SCALE 0 30 1"=30'</p>	<p>REVISIONS</p>	<p>INIT. DATE</p>
<p>DocuSign by Zachary M. Little 7/17/2014</p>	<p>OC21EPD4F5341F</p>	<p>DATE</p>
<p>SIG. INVENTORY NO. 10-1098</p>	<p>SEAL 30530</p>	<p>SEAL 30530</p>

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 mmh00000



**EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL**

(remove jumpers and set switches as shown)



- NOTES:**
- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
  - Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
  - Ensure that Red Enable is active at all times during normal operation.
  - Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

**NOTES**

- 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.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phase 6 for 'STARTUP PED CALL'.
- Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
- The cabinet and controller are part of the NC 51 (Matthews Township Pkwy) CLS.

**EQUIPMENT INFORMATION**

CONTROLLER.....2070L  
 CABINET.....332 W/ AUX  
 SOFTWARE.....ECONOLITE OASIS  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...18 (12-STD; 6-AUX)  
 LOAD SWITCHES USED.....S1,S2,S4,S5,S8,S9  
 AUX S1,AUX S4  
 PHASES USED.....1,2,3,4,6,6 PED  
 OVERLAP "A".....1+2  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....6  
 OVERLAP "D".....NOT USED

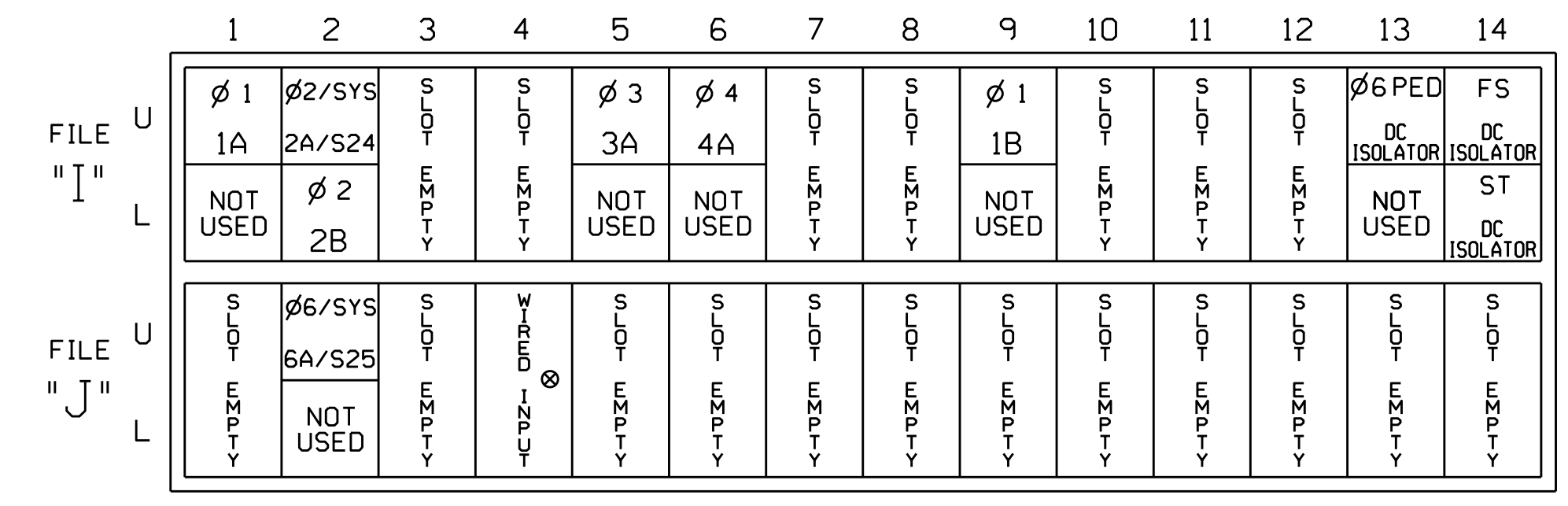
**SIGNAL HEAD HOOK-UP CHART**

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
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.	11	42	22,23,24	NU	31	32	41	42	23	NU	NU	61,62	P61, P62	NU	NU	NU	11	21
RED	*	128		116	116	101	101					134						
YELLOW		129		117	117	102	102					135						
GREEN		130		118	118	103	103					136						
RED ARROW																	A121	A114
YELLOW ARROW	126							102									A122	A115
FLASHING YELLOW ARROW																	A123	A116
GREEN ARROW	127	127		118		103	103											
Hand icon													119					
Person icon													121					

NU = Not Used  
 \* Denotes install load resistor. See load resistor installation detail this sheet.  
 \* See pictorial of head wiring in detail below.

**INPUT FILE POSITION LAYOUT**

(front view)



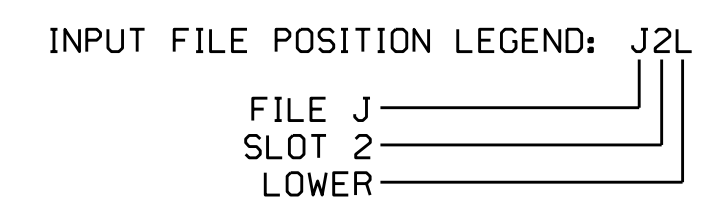
EX.: 1A, 2A, ETC. = LOOP NO.'S  
 FS = FLASH SENSE  
 ST = STOP TIME

**INPUT FILE CONNECTION & PROGRAMMING CHART**

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y	Y		3
1B	TB6-9,10	I9U	60	22	11	1	Y	Y			15
2A/S24	TB2-5,6	I2U	39	1	2	2/SYS	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y	Y		3
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			10
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
6A/S25	TB3-5,6	J2U	40	2	6	6/SYS	Y	Y			
PED PUSH BUTTONS											
P61,P62	TB8-7,9	I13U	68	30	PED 6	6 PED					

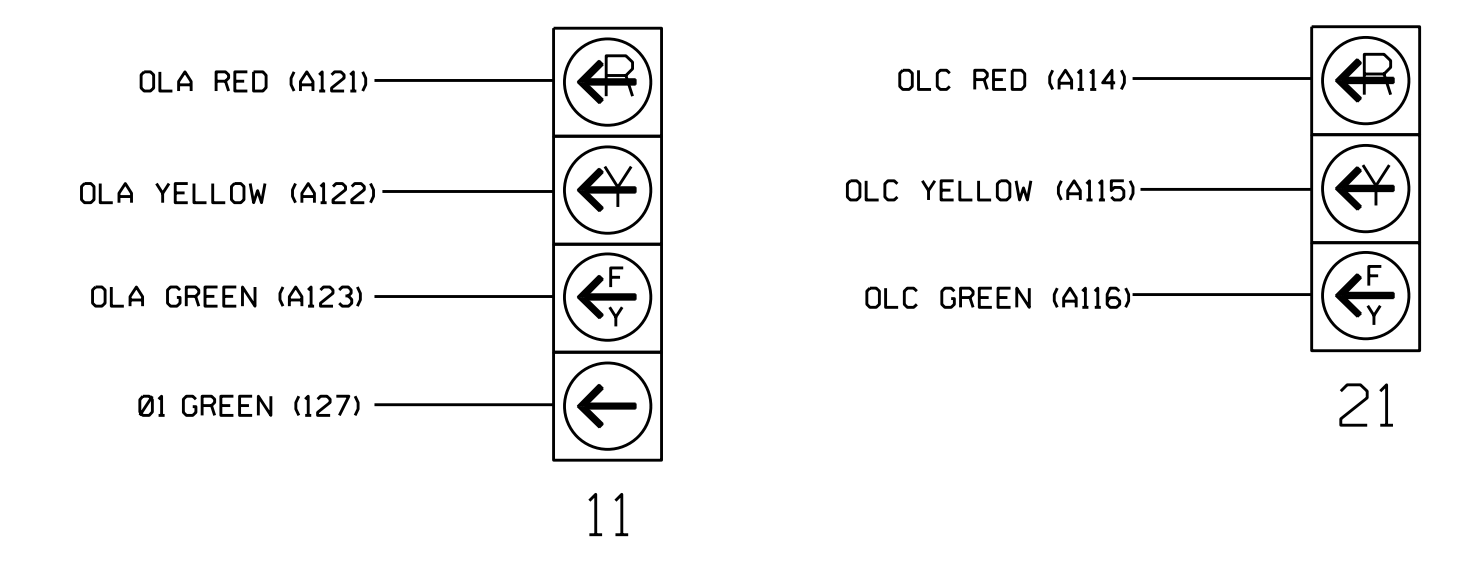
NOTE:  
 INSTALL DC ISOLATOR IN INPUT FILE SLOT 113.

\*Add jumper from I1-W to J4-W, on rear of input file.



**FYA SIGNAL WIRING DETAIL**

(wire signal heads as shown)

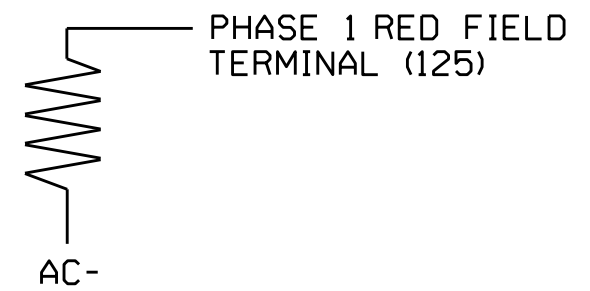


NOTE  
 1. The sequence display for signal head 11 requires special logic programming. See sheet 2 of 2 for programming instructions.

**LOAD RESISTOR INSTALLATION DETAIL**

(install resistors as shown below)

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



**COUNTDOWN PEDESTRIAN SIGNAL OPERATION**

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

Electrical Detail - Sheet 1 of 2

Electrical and Programming Details for: **NC 51 (Matthews-Mint Hill Road) at SR 3176 (Phillips Road)**

Division 10 Mecklenburg County Matthews

PLAN DATE: July 2014 REVIEWED BY: T. Joyce

PREPARED BY: B. SIMMONS REVIEWED BY:

REVISIONS INIT. DATE

750 N. Greenfield Pkwy, Garner, NC 27529

SEAL  
 GEORGE C. BROWN  
 ENGINEER  
 022013

DocuSigned by: George C. Brown 7/21/2014

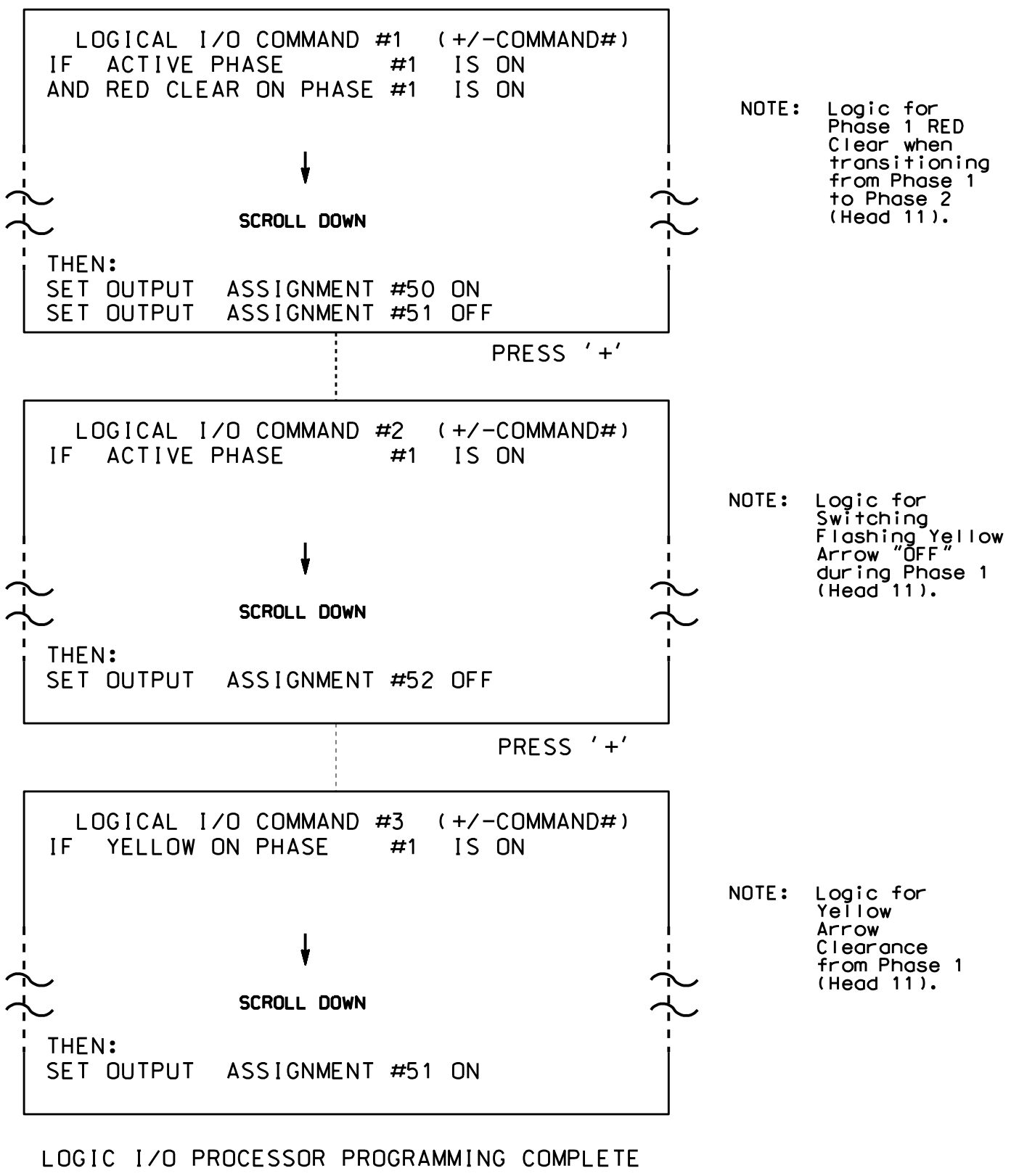
SIG. INVENTORY NO. 10-1098

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 B:\simmons

## LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

- From Main Menu press '2' (PHASE CONTROL), then '1' (PHASE CONTROL FUNCTIONS). Scroll to the bottom of the menu and Enable ACT Logic Commands 1, 2 and 3.
- From Main Menu press '6' (OUTPUTS), then '3' (LOGICAL I/O PROCESSOR).



<b>OUTPUT REFERENCE SCHEDULE</b>
OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

## OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press '8' (OVERLAPS), then '1' (VEHICLE OVERLAP SETTINGS).

```

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:      |12345678910111213141516
VEH OVL PARENTS: |XX
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR:  | _ RED _ YELLOW _ GREEN
FLASH COLORS:   | _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```

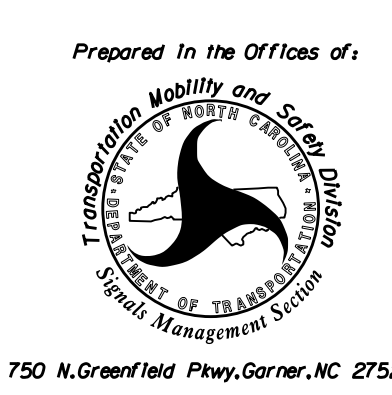
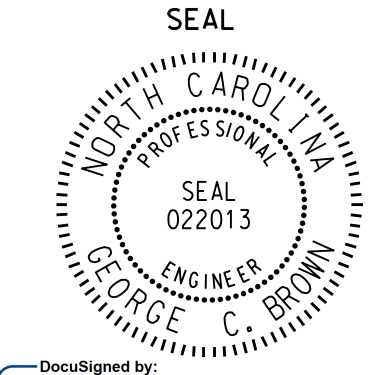
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:      |12345678910111213141516
VEH OVL PARENTS: | X
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR:  | _ RED _ YELLOW _ GREEN
FLASH COLORS:   | _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0.0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0
    
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 10-1098  
DESIGNED: July 2014  
SEALED: 7/17/14  
REVISED: N/A

Electrical Detail - Sheet 2 of 2

	<p><b>Electrical and Programming Details For:</b></p> <p><b>NC 51 (Matthews-Mint Hill Road)</b> at <b>SR 3176 (Phillips Road)</b></p>	<p>SEAL</p> 						
<p>Division 10      Mecklenburg County      Matthews</p>		<p>DocuSigned by: <i>George C. Brown</i>      7/21/2014</p>						
<p>PLAN DATE: July 2014      REVIEWED BY: T. Joyce</p> <p>PREPARED BY: B. SIMMONS      REVIEWED BY:</p>								
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REVISIONS	INIT.	DATE						

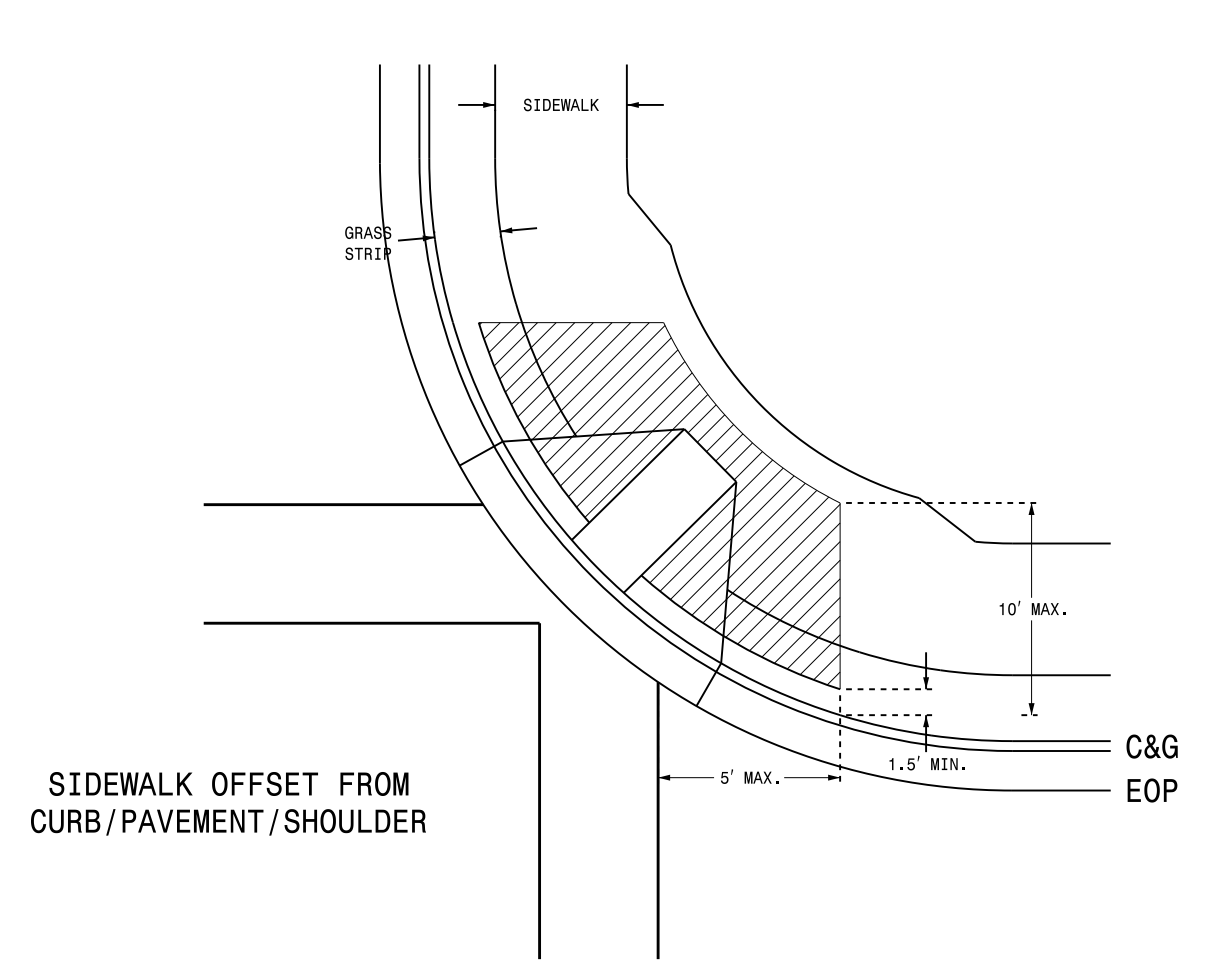
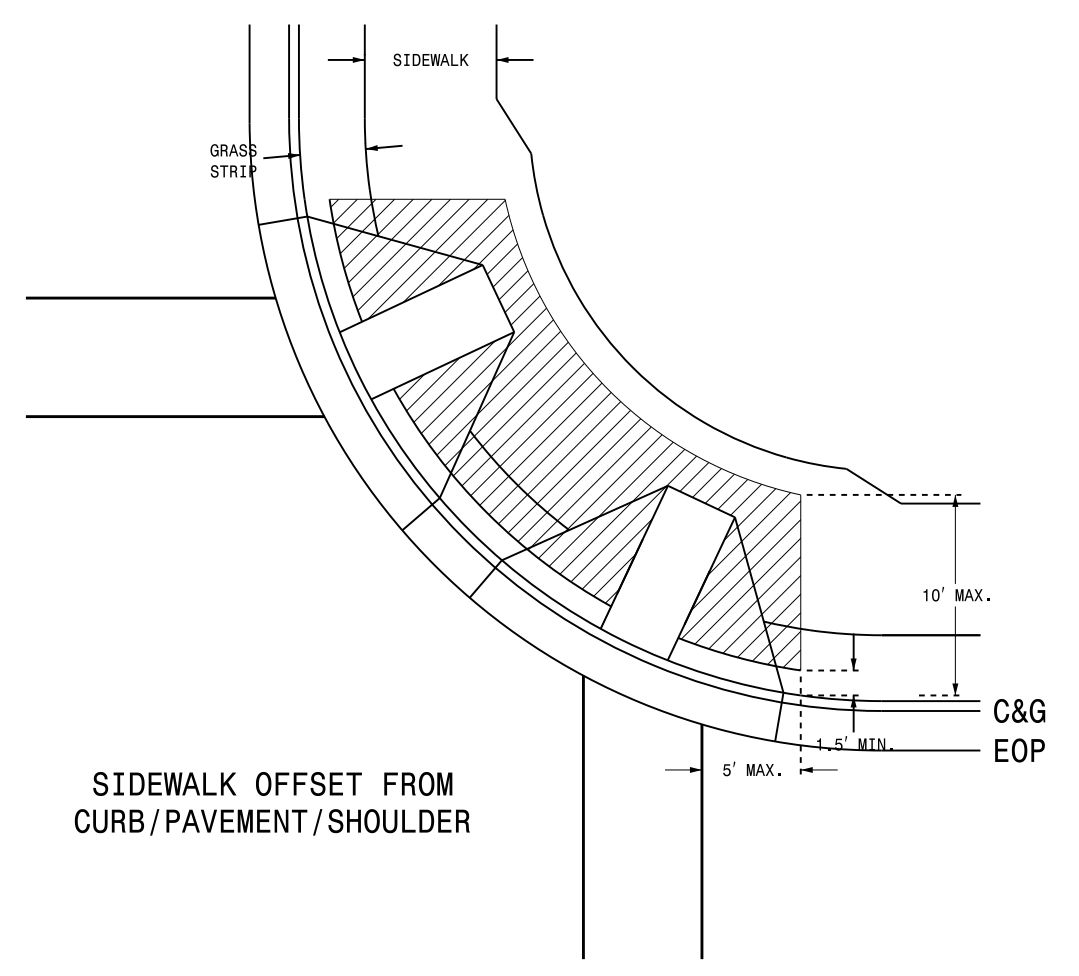
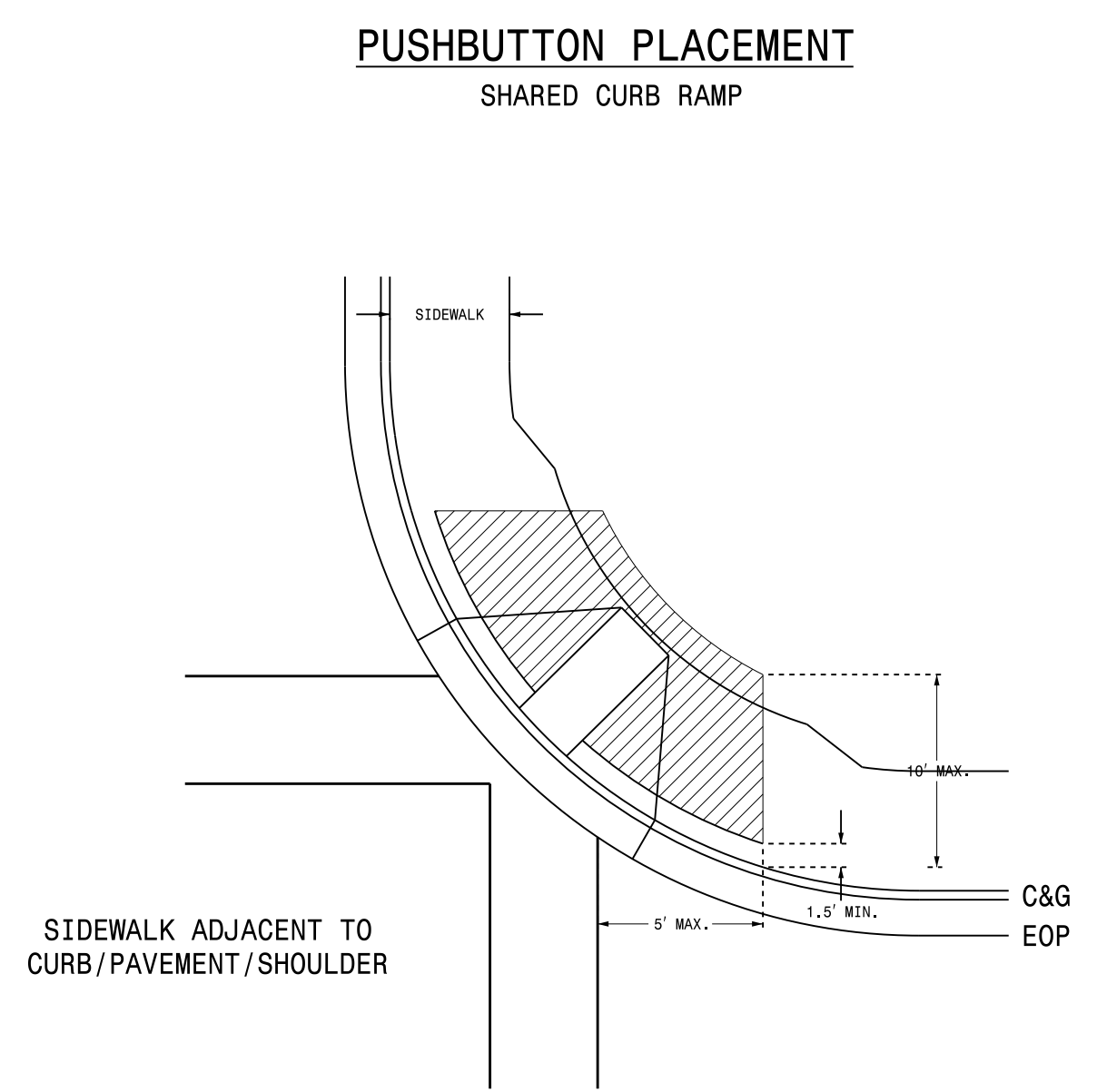
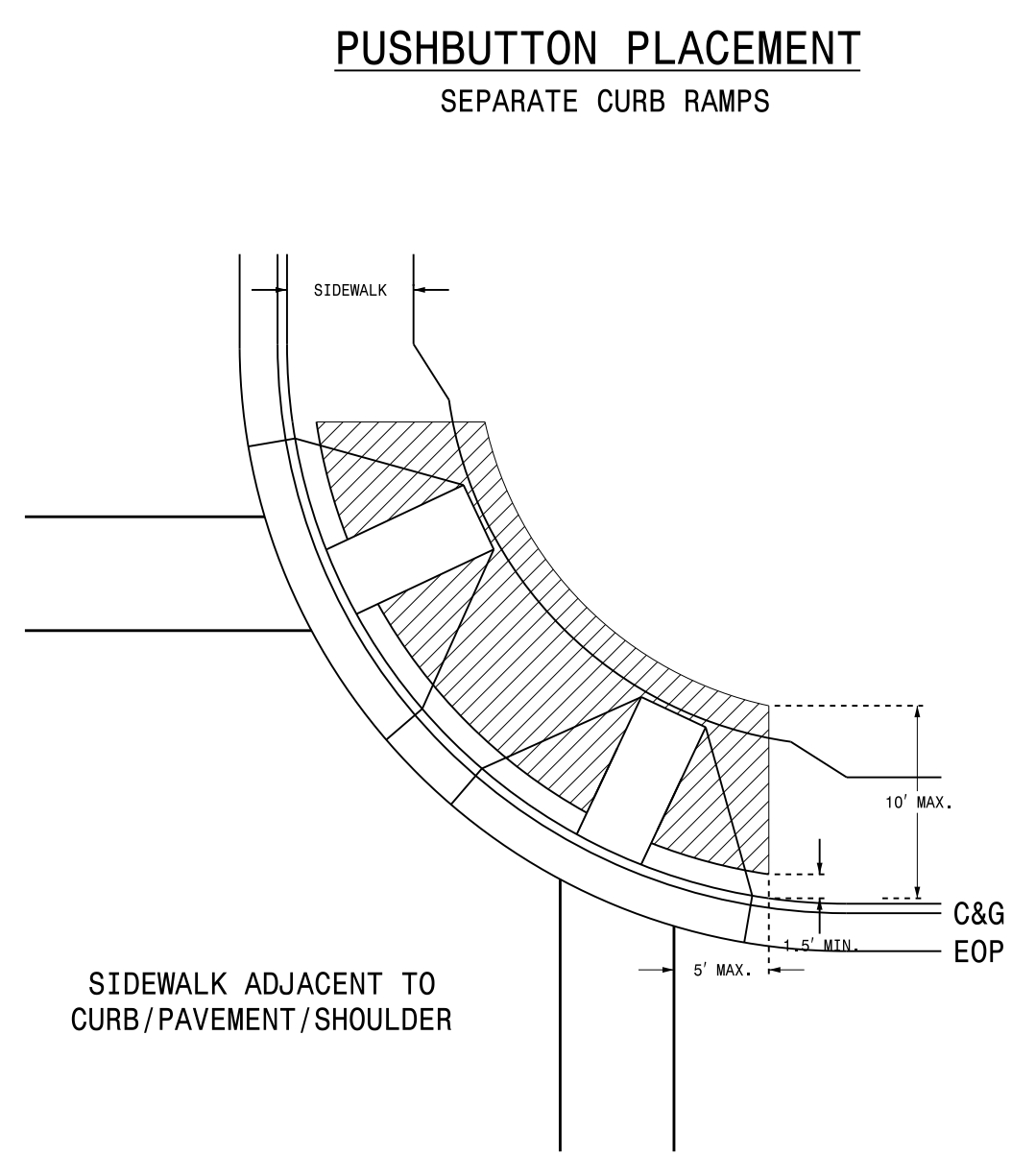
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 B.S. Simmons



STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

06-14  
ENGLISH DETAIL DRAWING FOR  
**PEDESTRIAN PUSHBUTTON LOCATIONS**  
PLACEMENT DETAIL

SHEET 1 OF 3  
**1705D01**



- NOTES**
1. Pushbutton pedestals should not be located further than 10 feet from the edge of curb, shoulder, or pavement.
  2. The face of the pushbutton should be parallel to the applicable crosswalk.
  3. Separate pushbuttons used on the same corner should be separated by a distance of at least 10 feet.
  4. Pushbuttons shall be installed adjacent to a level surface with a maximum reach distance of 10 inches.
  5. Maintain 4 feet of clearance around pedestal if located in sidewalk.
  6. Refer to section 1705 of the 2012 NCDOT Roadway Standard Drawings for Pushbutton Assembly details.
  7. Refer to section 1743 of the 2012 NCDOT Roadway Standard Drawings for Pedestal details.
  8. Contact Division Traffic Engineer for pushbutton location approval prior to installation.
  9. Curb ramps are for symbolic use only and may not reflect actual design or field conditions.

PROPOSED	LEGEND
	Signal Pole
	Type I Pushbutton Post
	Type II Signal Pedestal
	Pushbutton & Sign
	Pedestrian Signal Head
	Curb Ramp
	Pushbutton Location Area

06-14  
STATE OF NORTH CAROLINA  
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DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**PEDESTRIAN PUSHBUTTON LOCATIONS**  
PLACEMENT DETAIL

SHEET 1 OF 3  
**1705D01**

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway  
Garner, NC 27529

SEAL

DocuSigned by:  
*Robert J. Ziemba*  
10084582746404

SIGNATURE DATE

6/17/2014

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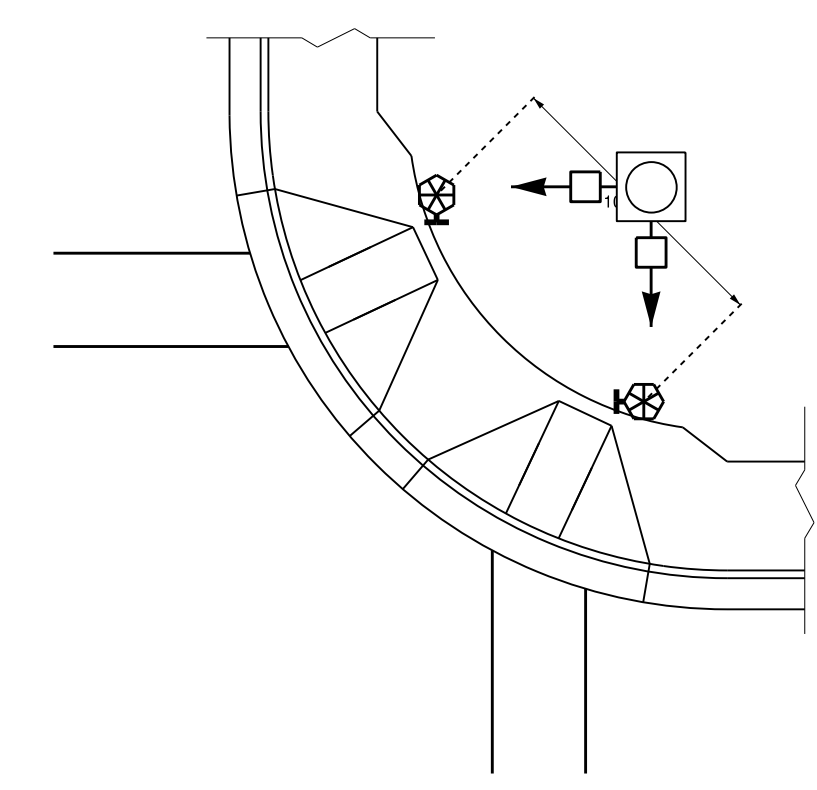
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DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

06-14

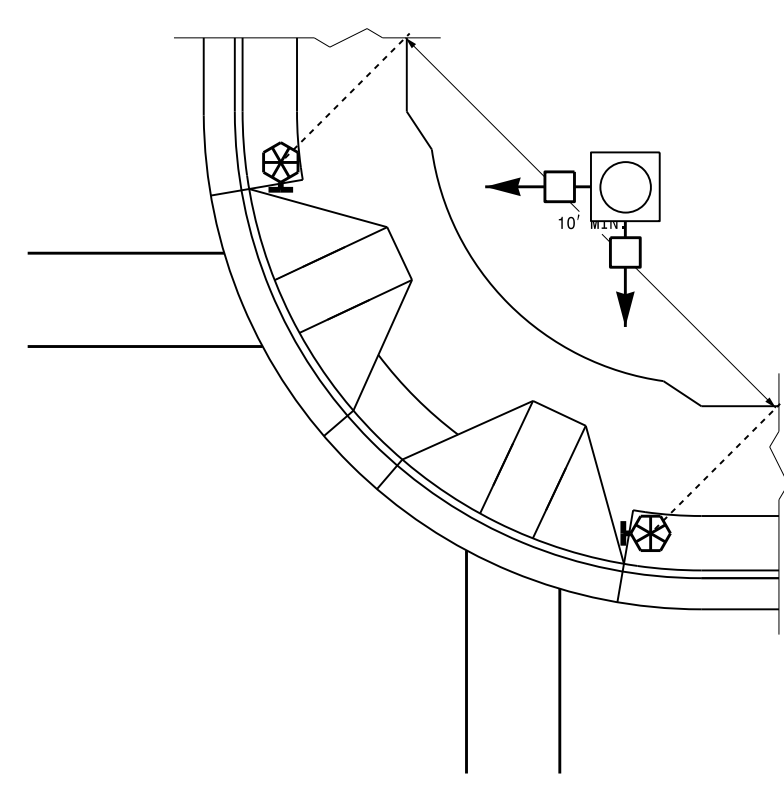
ENGLISH DETAIL DRAWING FOR  
**PEDESTRIAN PUSHBUTTON LOCATIONS**  
PLACEMENT DETAIL

SHEET 2 OF 3  
**1705D01**

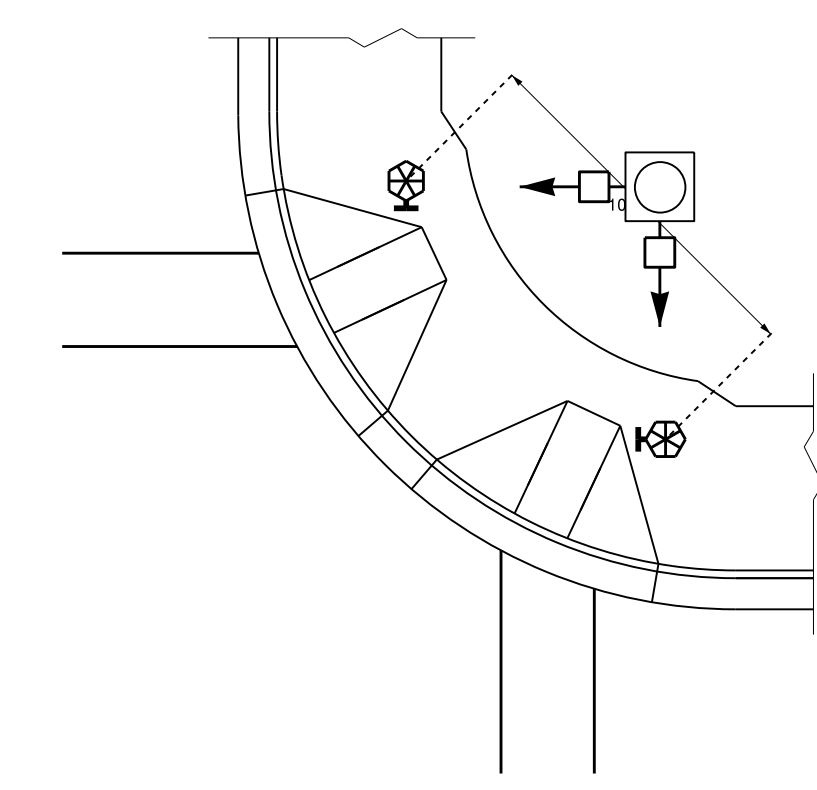
TYPICAL PUSHBUTTON LOCATIONS (CASE I)  
SEPARATE CURB RAMPS W/ TYPE I PEDESTALS



BACK OF SIDEWALK IS WITHIN 10'  
OF CURB OR PAVEMENT/SHOULDER



GRASS STRIP PLACEMENT IF BACK  
OF SIDEWALK EXCEEDS 10' FROM  
CURB OR PAVEMENT/SHOULDER



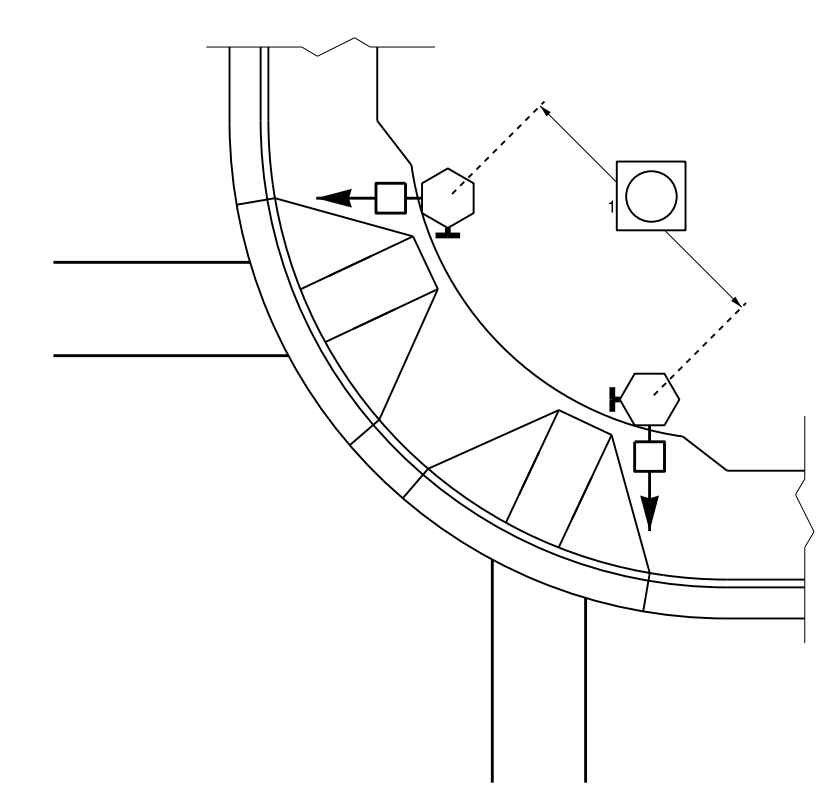
PUSHBUTTON PLACEMENT  
IN WIDE SIDEWALK

**PROPOSED**

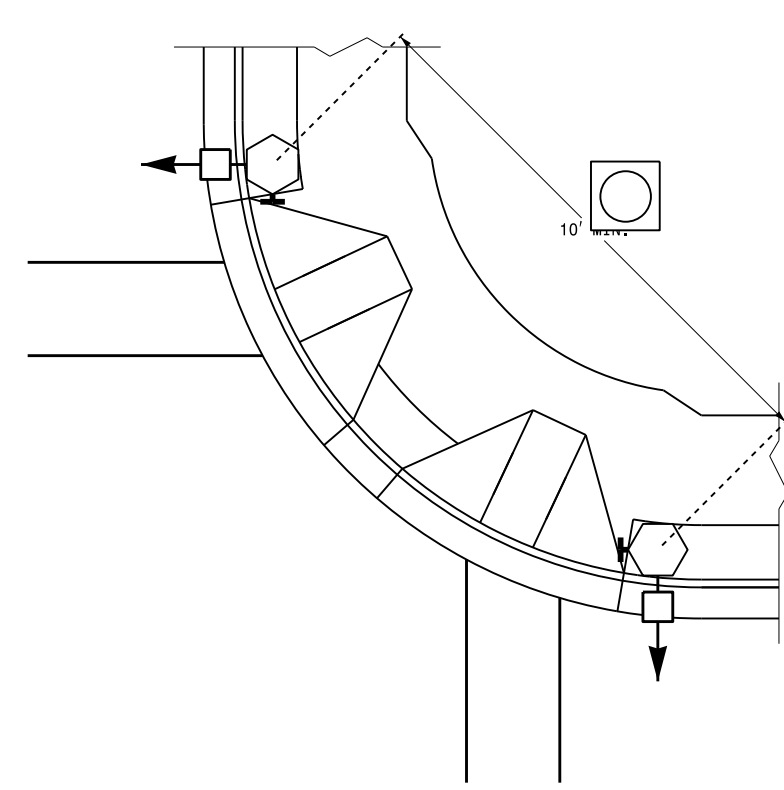
- Signal Pole
- Type I Pushbutton Post
- Type II Signal Pedestal
- Pushbutton & Sign
- Pedestrian Signal Head
- Curb Ramp
- Pushbutton Location Area

**LEGEND**

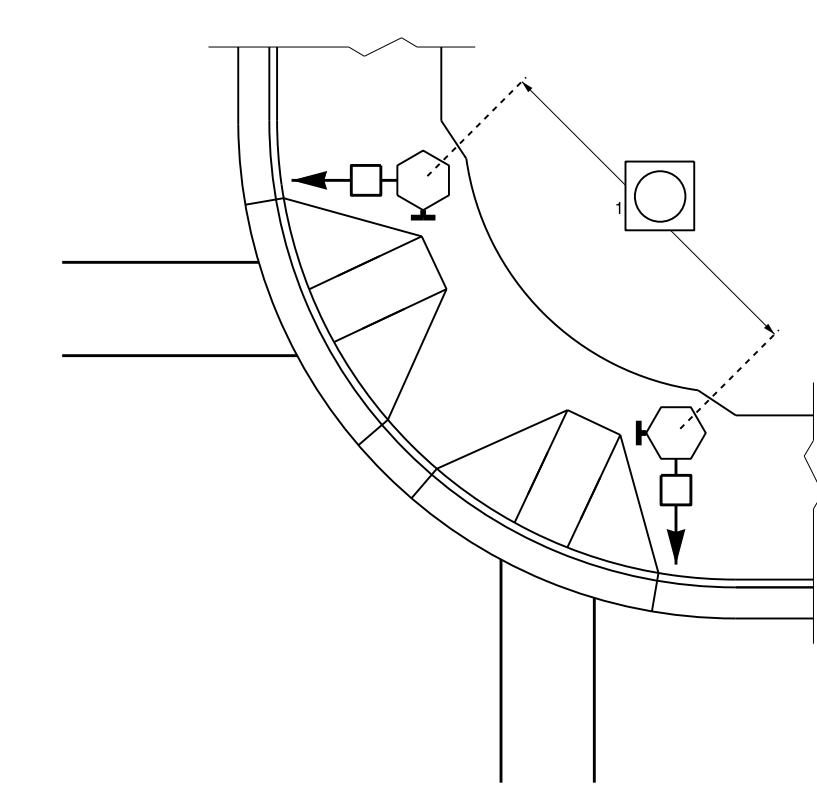
TYPICAL PUSHBUTTON LOCATIONS (CASE II)  
SEPARATE CURB RAMPS W/ TYPE II PEDESTALS



BACK OF SIDEWALK IS WITHIN 10'  
OF CURB OR PAVEMENT/SHOULDER

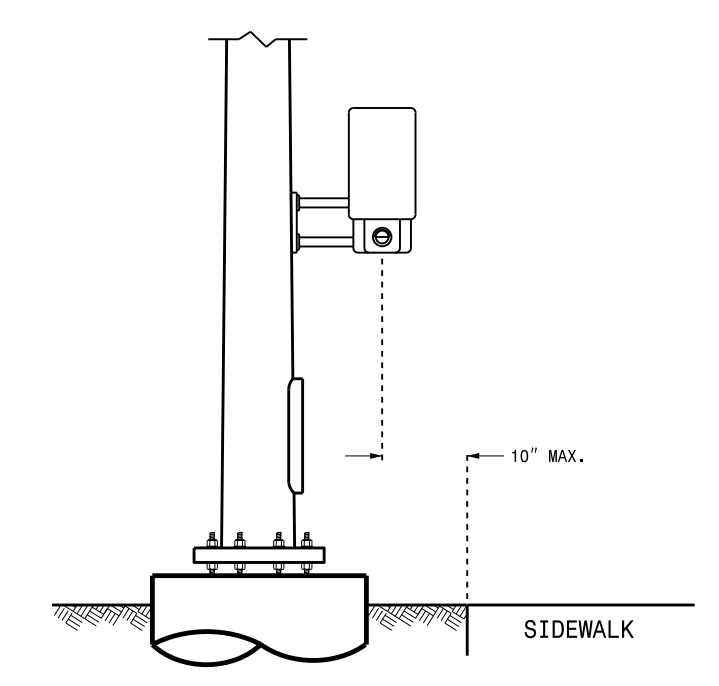


GRASS STRIP PLACEMENT IF BACK  
OF SIDEWALK EXCEEDS 10' FROM  
CURB OR PAVEMENT/SHOULDER



PUSHBUTTON PLACEMENT  
IN WIDE SIDEWALK

OPTIONAL PUSHBUTTON EXTENSION  
FACE OF PUSHBUTTON PARALLEL TO  
APPLICABLE CROSSWALK



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06-14

ENGLISH DETAIL DRAWING FOR  
**PEDESTRIAN PUSHBUTTON LOCATIONS**  
PLACEMENT DETAIL

SHEET 2 OF 3  
**1705D01**

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Garner, NC 27529

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DocuSigned by:  
*Robert J. Ziemba*  
1884828274464

SIGNATURE

6/17/2014  
DATE

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06-14

ENGLISH DETAIL DRAWING FOR  
**PEDESTRIAN PUSHBUTTON LOCATIONS**  
PLACEMENT DETAIL

SHEET 3 OF 3  
**1705D01**

STATE OF NORTH CAROLINA  
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RALEIGH, N.C.

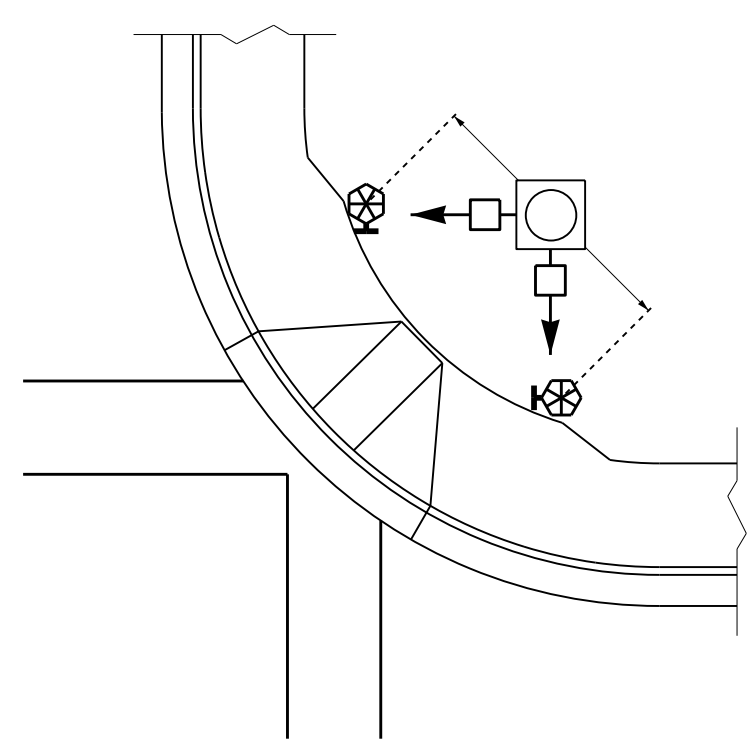
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ENGLISH DETAIL DRAWING FOR  
**PEDESTRIAN PUSHBUTTON LOCATIONS**  
PLACEMENT DETAIL

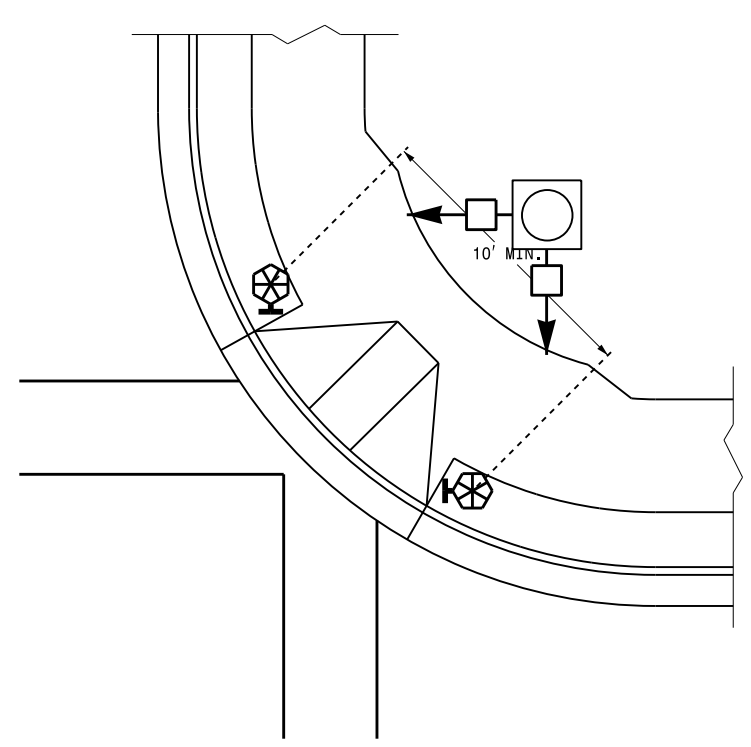
SHEET 3 OF 3  
**1705D01**

**TYPICAL PUSHBUTTON LOCATIONS (CASE III)**

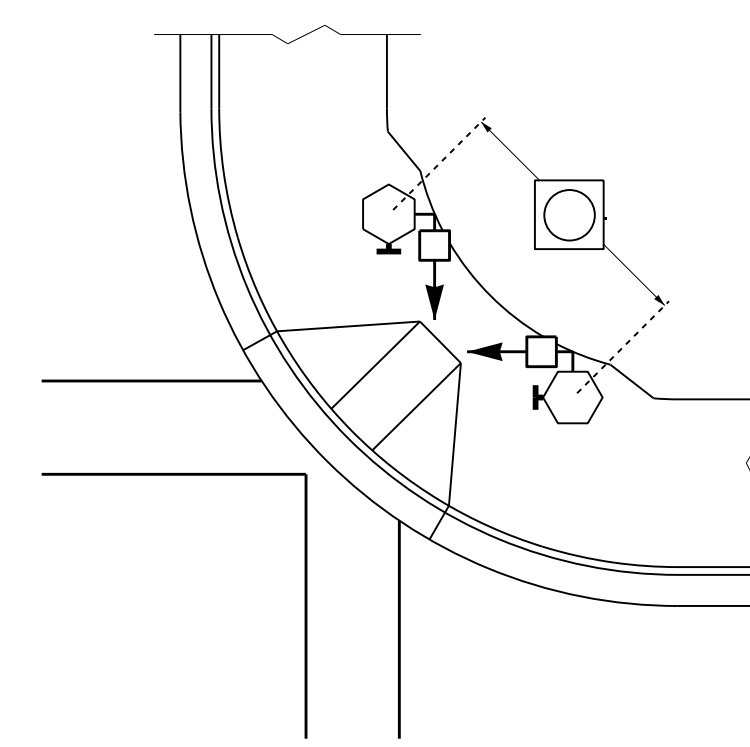
SHARED CURB RAMPS



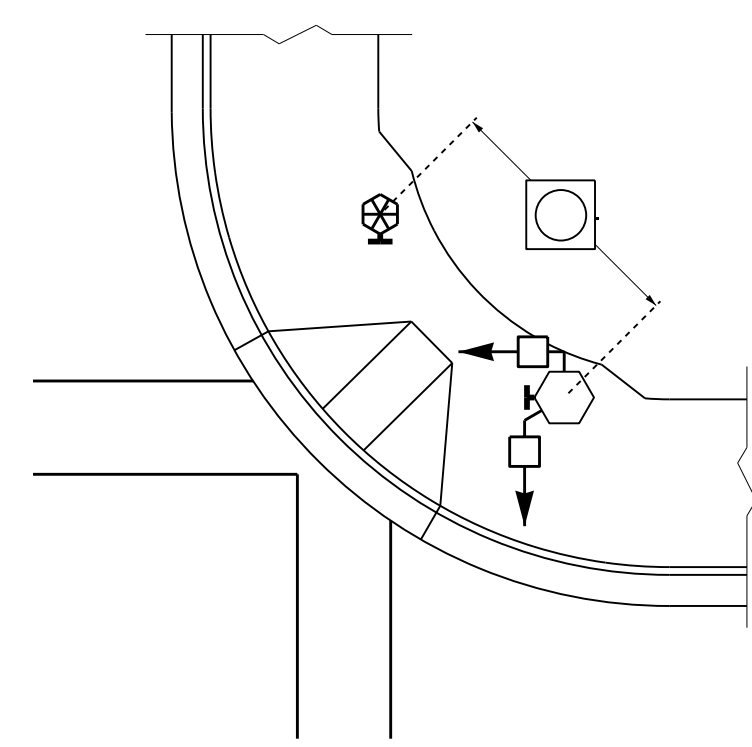
BACK OF SIDEWALK IS WITHIN 10' OF CURB OR PAVEMENT/SHOULDER



GRASS STRIP PLACEMENT IF BACK OF SIDEWALK EXCEEDS 10' FROM CURB OR PAVEMENT/SHOULDER

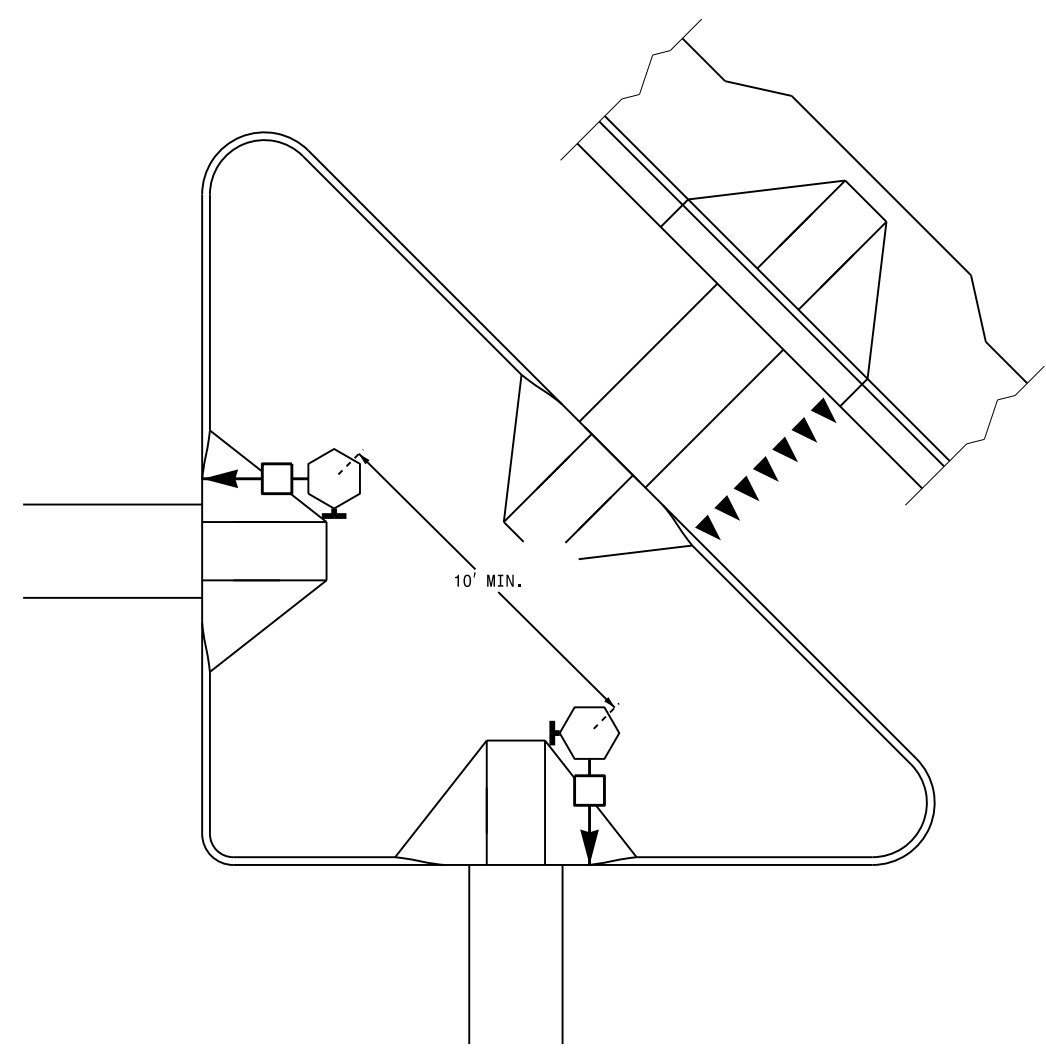


PUSHBUTTON PLACEMENT IN WIDE SIDEWALK (CORRESPONDING PUSHBUTTONS AND SIGNAL HEADS ON DIFFERENT PEDESTALS)

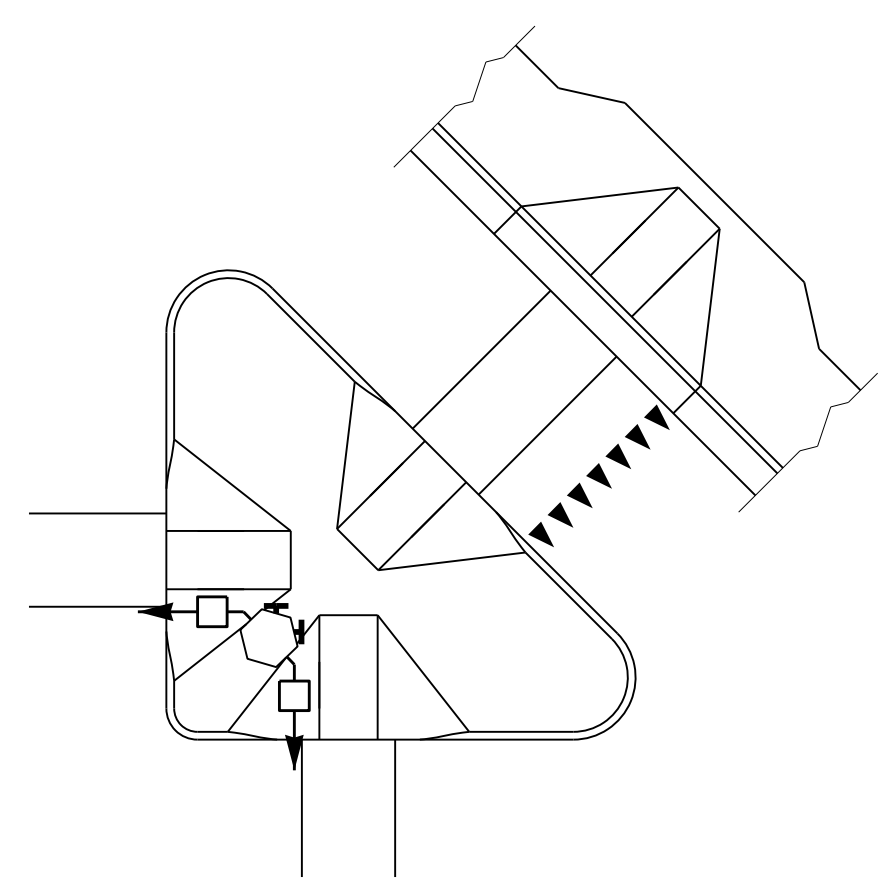


PUSHBUTTON PLACEMENT WITH SHARED TYPE II SIGNAL PEDESTAL AND TYPE I PUSHBUTTON POST

**TRAFFIC ISLAND PUSHBUTTON LOCATIONS**



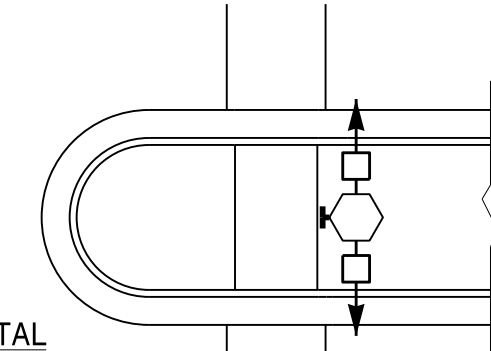
PUSHBUTTON PLACEMENT IN LARGE "PORK CHOP ISLAND" WITH SEPARATE PEDESTALS



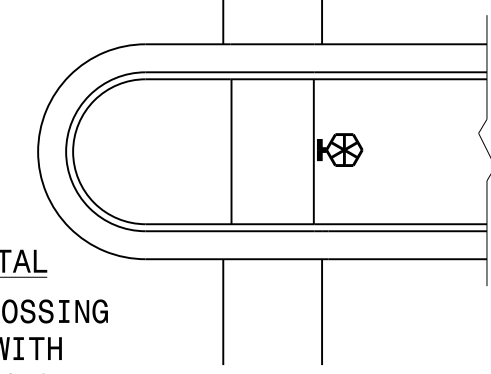
PUSHBUTTON PLACEMENT IN SMALL "PORK CHOP ISLAND" WITH SHARED PEDESTAL

**PUSHBUTTON PLACEMENT IN MEDIAN**

TYPE II PEDESTAL (FOR STAGED OR MULTI-PHASE CROSSING)



TYPE I PEDESTAL (FOR COMPLETE CROSSING CURB TO CURB WITH OPTIONAL REFUGE)



**PROPOSED**

- Signal Pole
- Type I Pushbutton Post
- Type II Signal Pedestal
- Pushbutton & Sign
- Pedestrian Signal Head
- Curb Ramp
- Pushbutton Location Area

**LEGEND**

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6/17/2014

SIGNATURE DATE