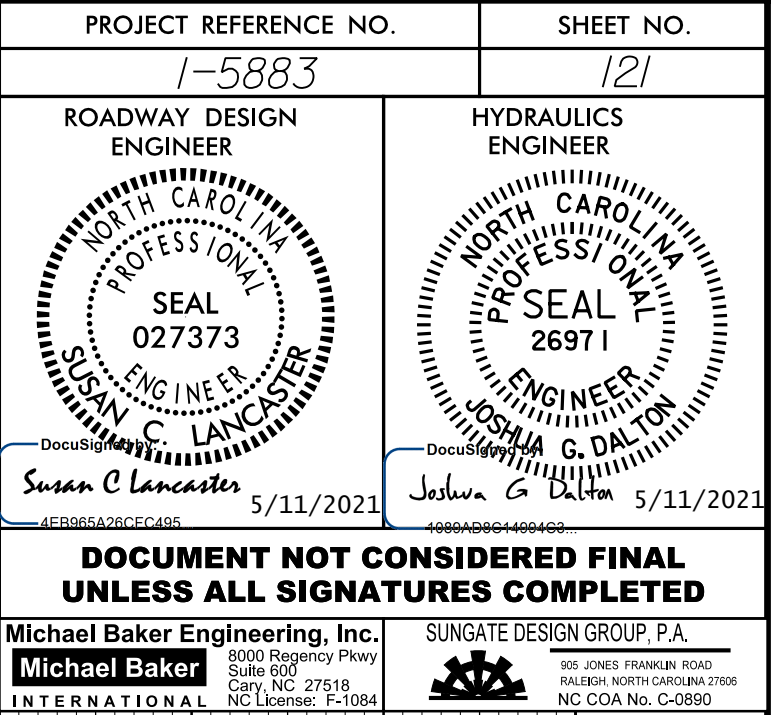
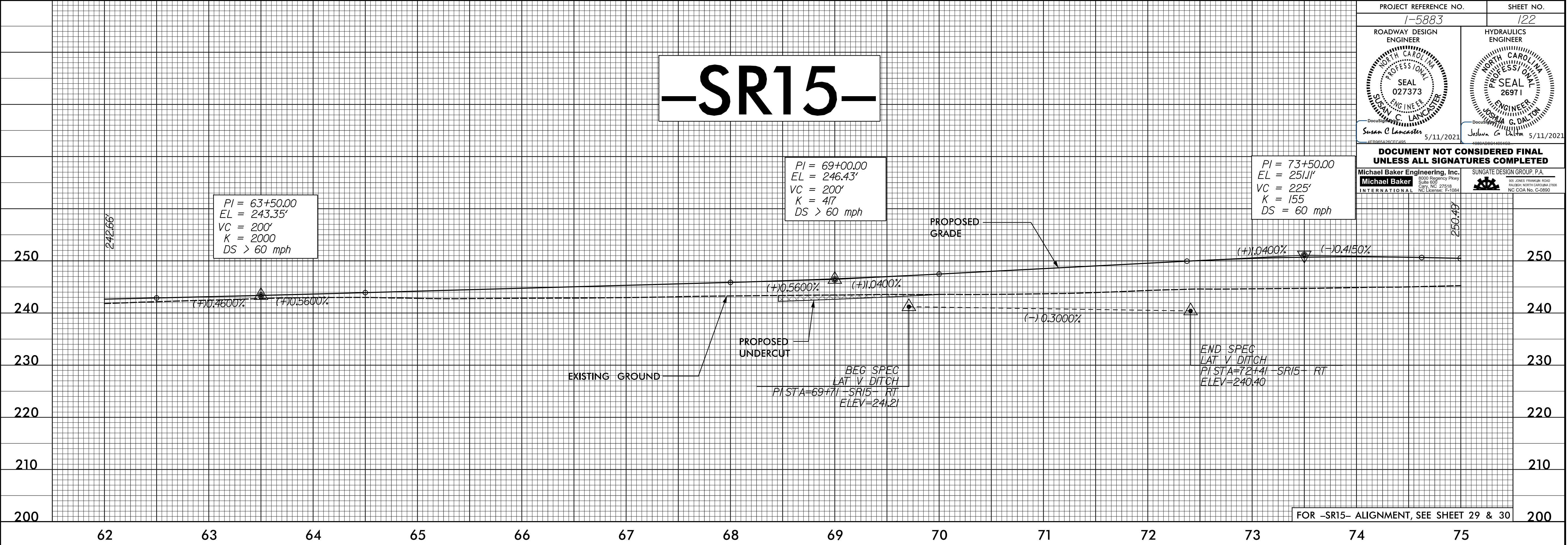
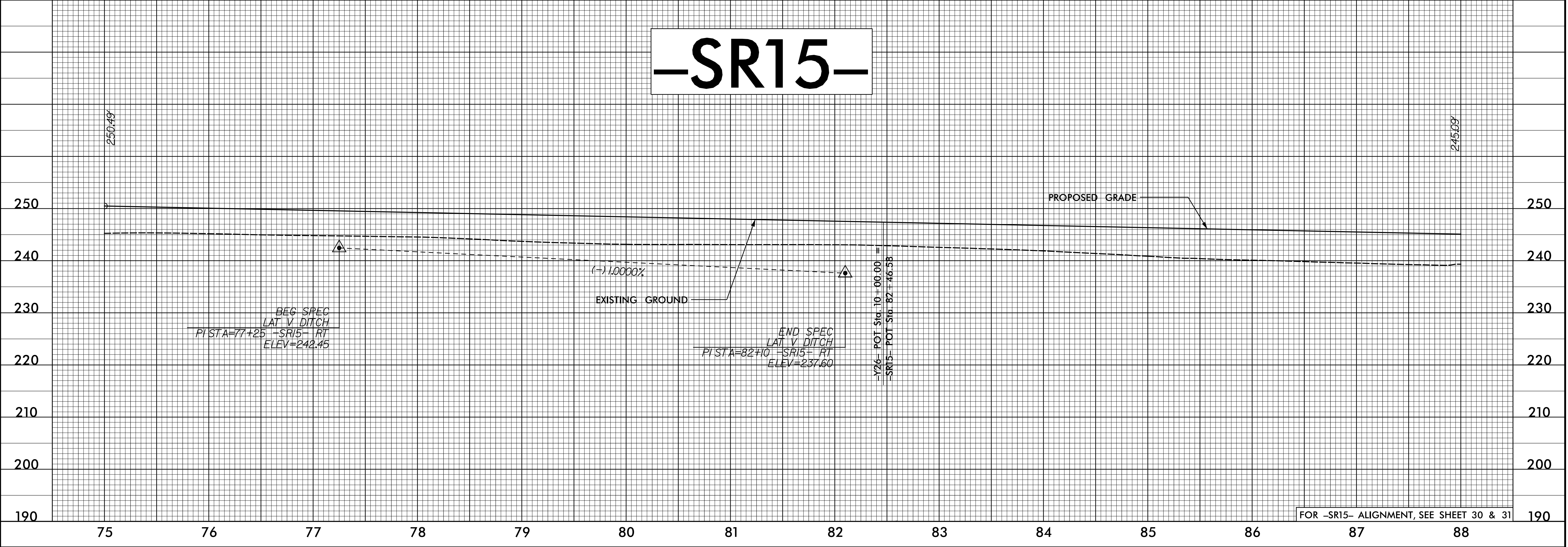


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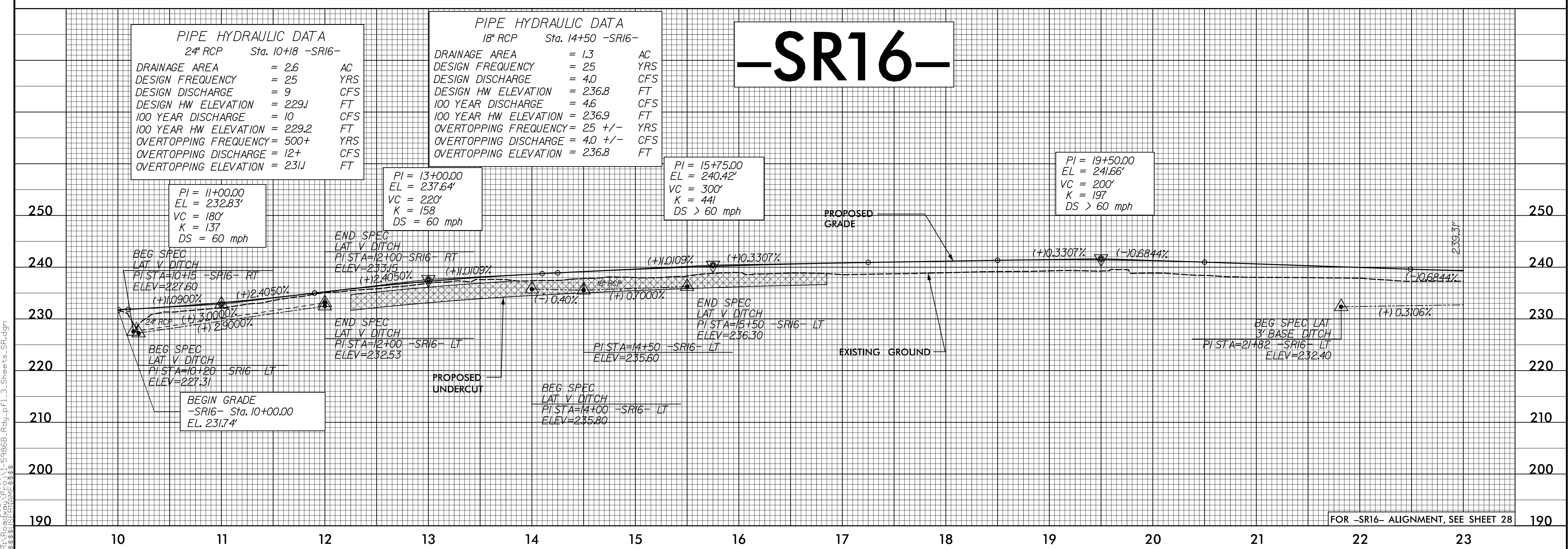
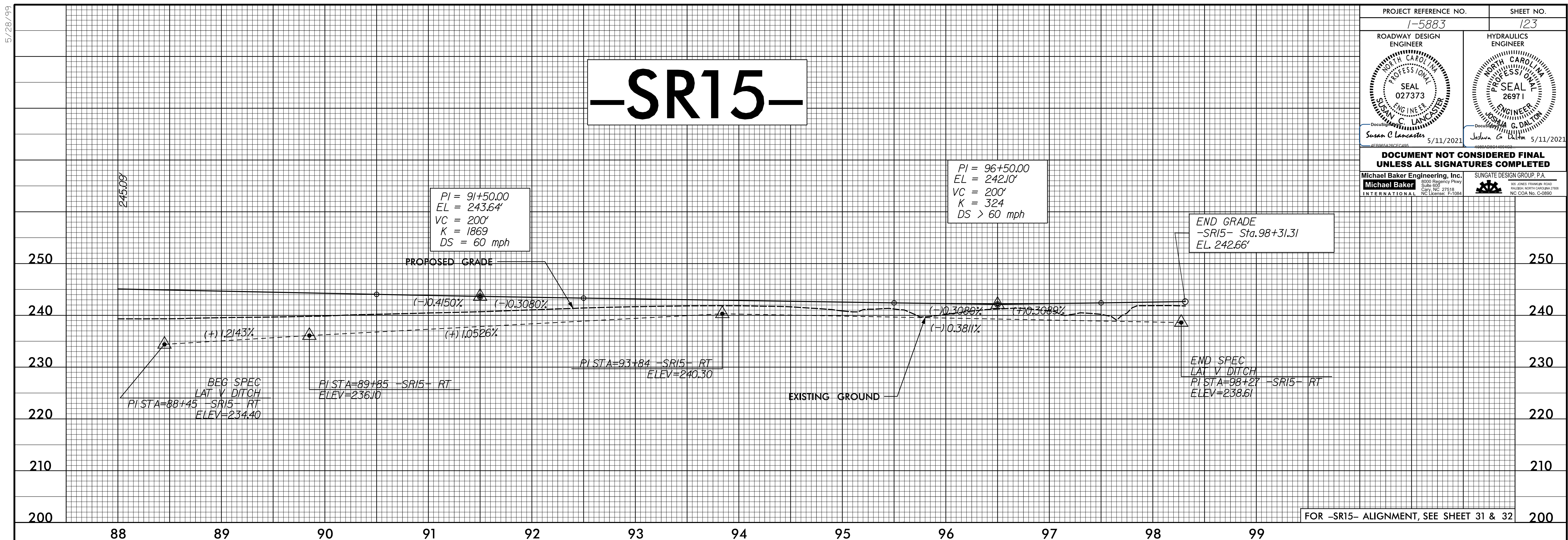


PROJECT REFERENCE NO. 1-5883		SHEET NO. 122
ROADWAY DESIGN ENGINEER Susan C. Lancaster 5/11/2021	HYDRAULICS ENGINEER Joshua G. Dalton 5/11/2021	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
Michael Baker Engineering, Inc. 8000 Regency Parkway Suite 600 Charlotte, NC 27518 NC License: E-1084	SUNGATE DESIGN GROUP, P.A. 800 JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27605 NC CDA No. C-0980	

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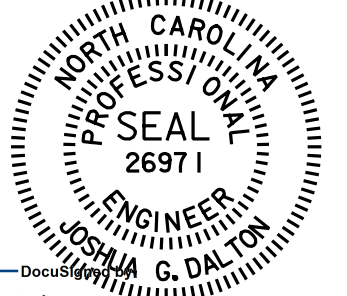
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PROJECT REFERENCE NO.
1-5883

SHEET NO.
124

ROADWAY DESIGN ENGINEER

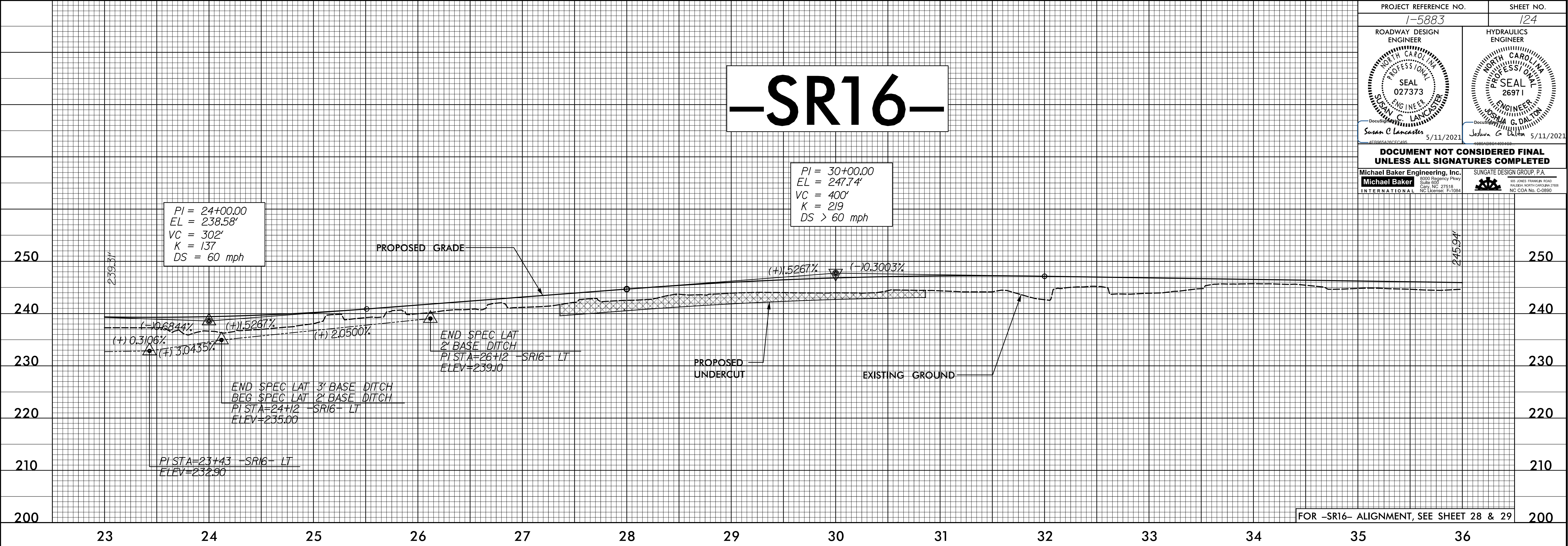
Susan C. Lancaster
5/11/2021

HYDRAULICS ENGINEER

Joshua G. Dalton
5/11/2021

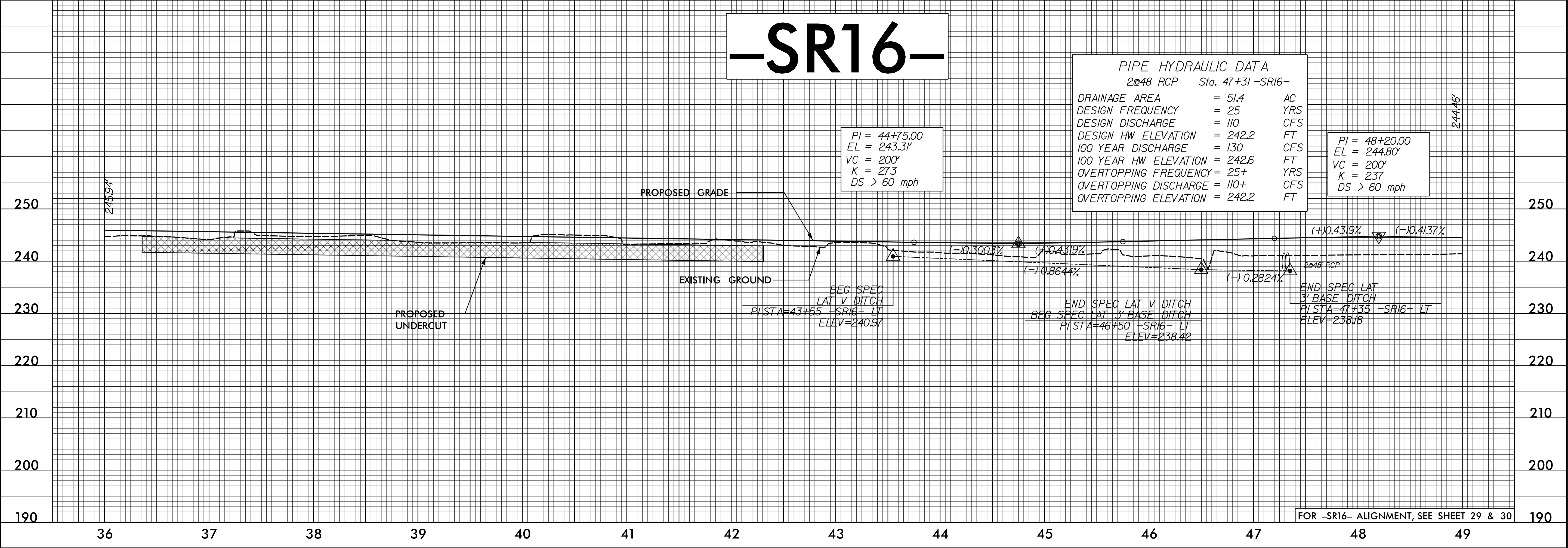
**DOCUMENT NOT CONSIDERED FINAL
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Michael Baker Engineering, Inc.
8000 Regency Parkway
Suite 600
Charlotte, NC 27518
NC License: E-1084

SUNGATE DESIGN GROUP, P.A.
800 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27605
NC CDA No. C-0580

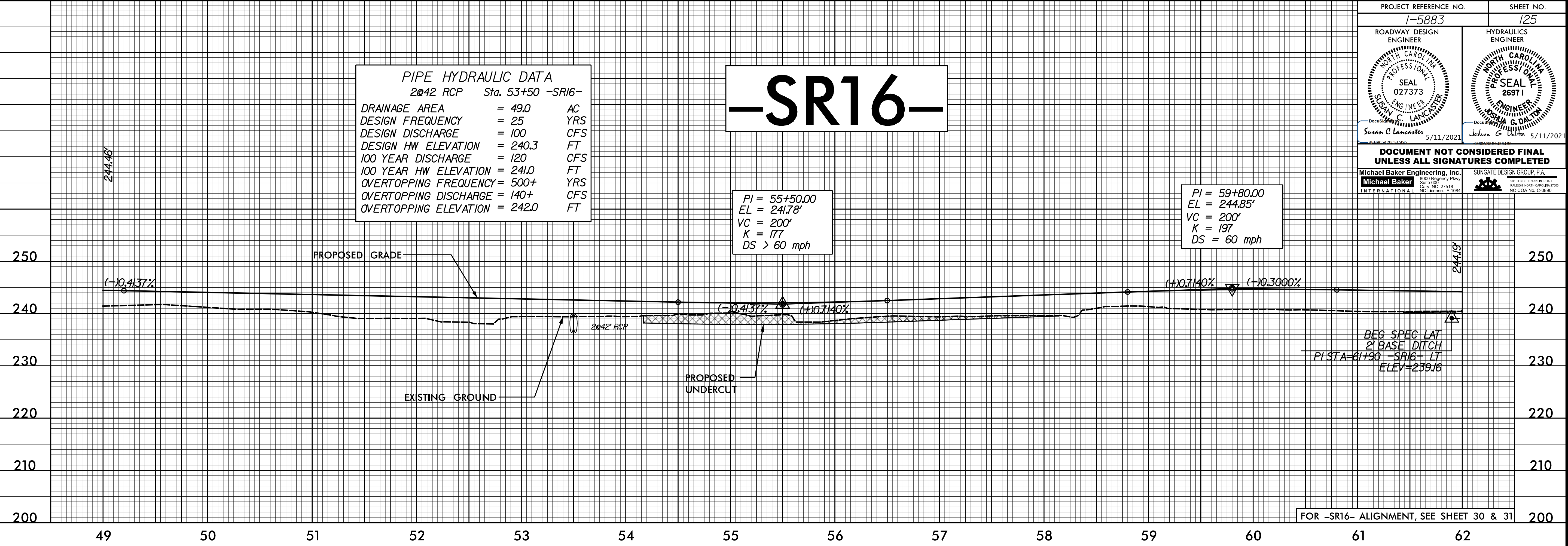


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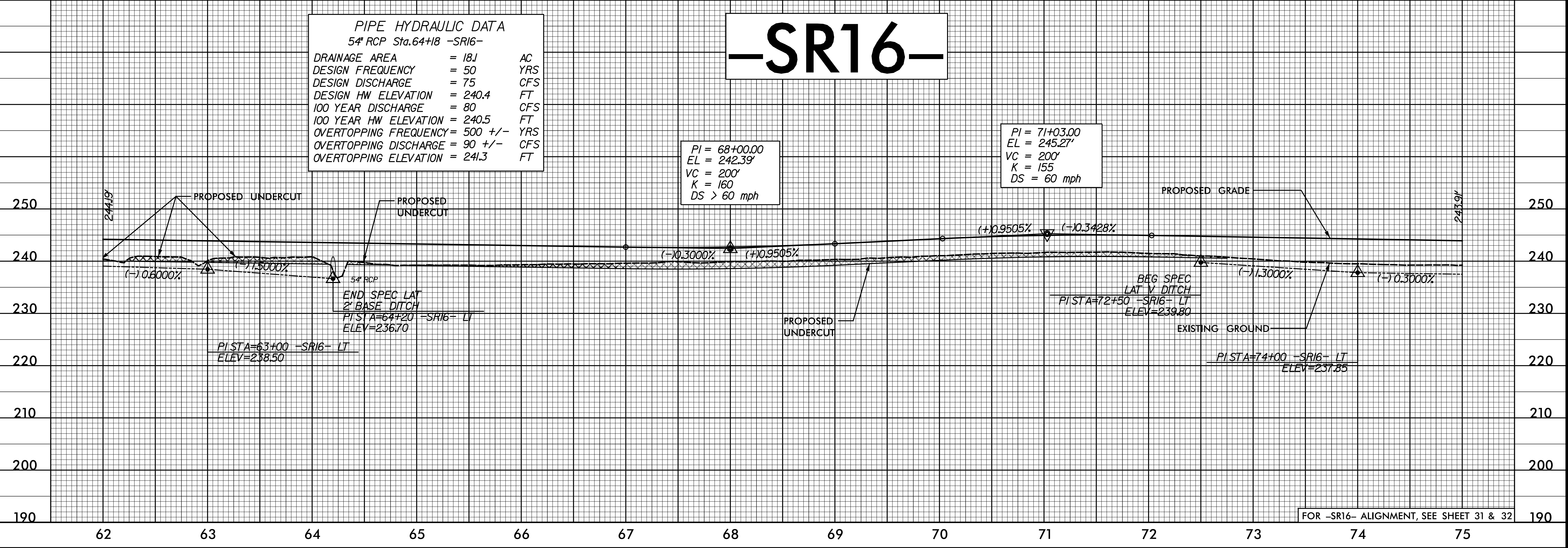


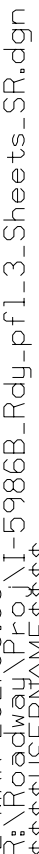
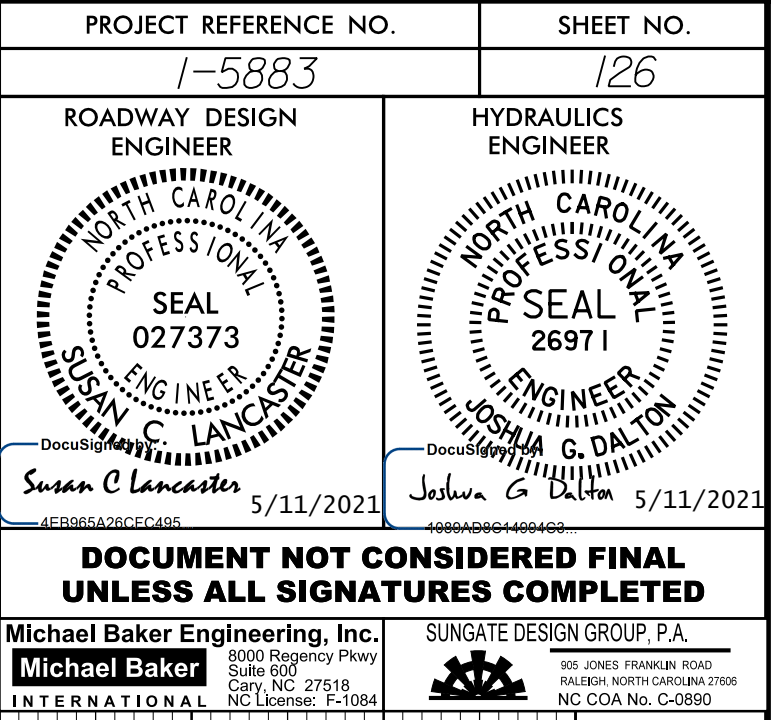
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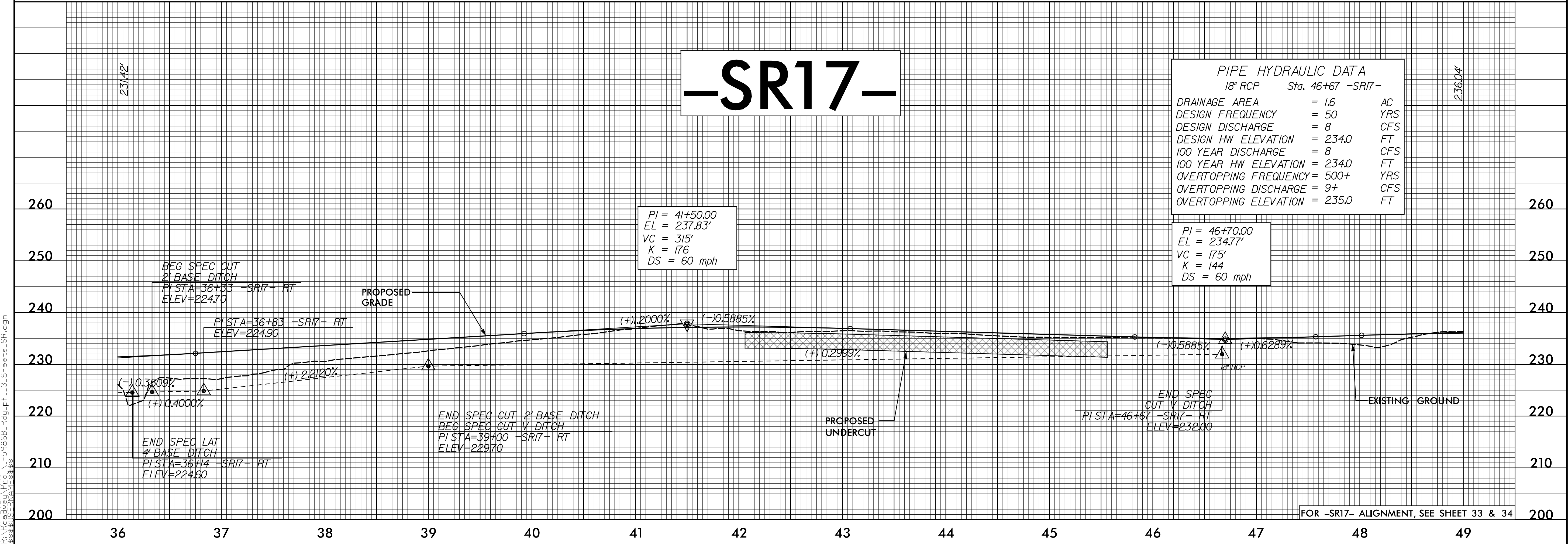
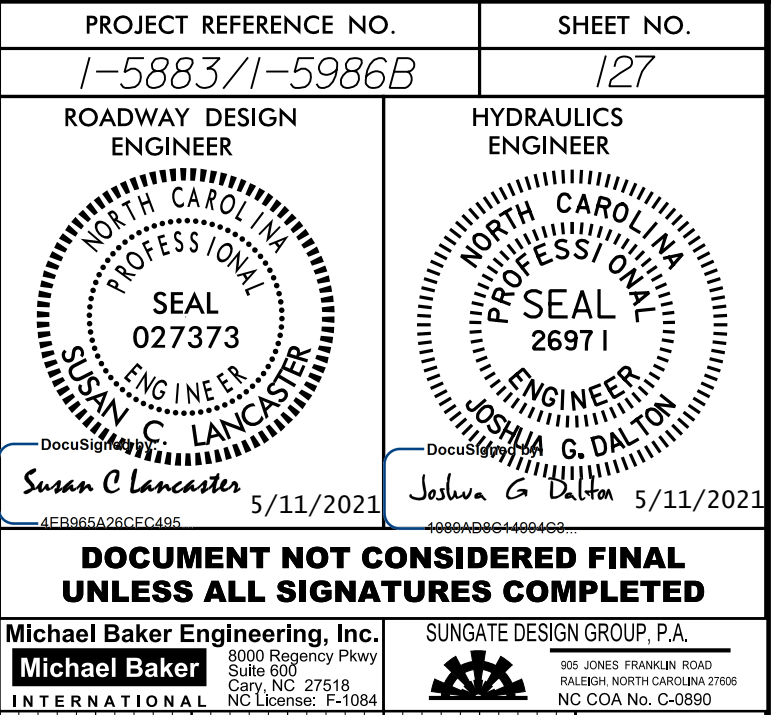
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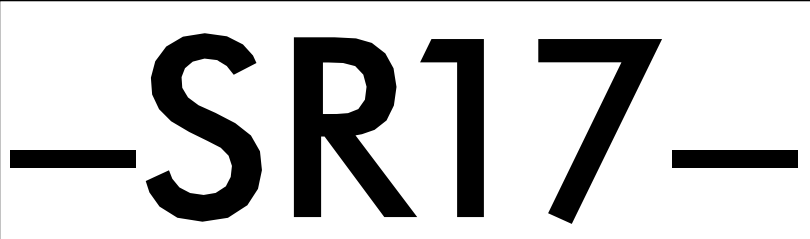


PROJECT REFERENCE NO. 1-5883		SHEET NO. 125
ROADWAY DESIGN ENGINEER SUSAN C. LANCASTER Professional Engineer Seal 027373 5/11/2021	HYDRAULICS ENGINEER JOSHUA G. DIXON Professional Engineer Seal 26971 5/11/2021	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
Michael Baker Engineering, Inc. 8000 Regency Park Suite 600 Cary, NC 27518 NC License E-1084	SUNGATE DESIGN GROUP, P.A. 300 JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27605 NC CDA No. C-0980	

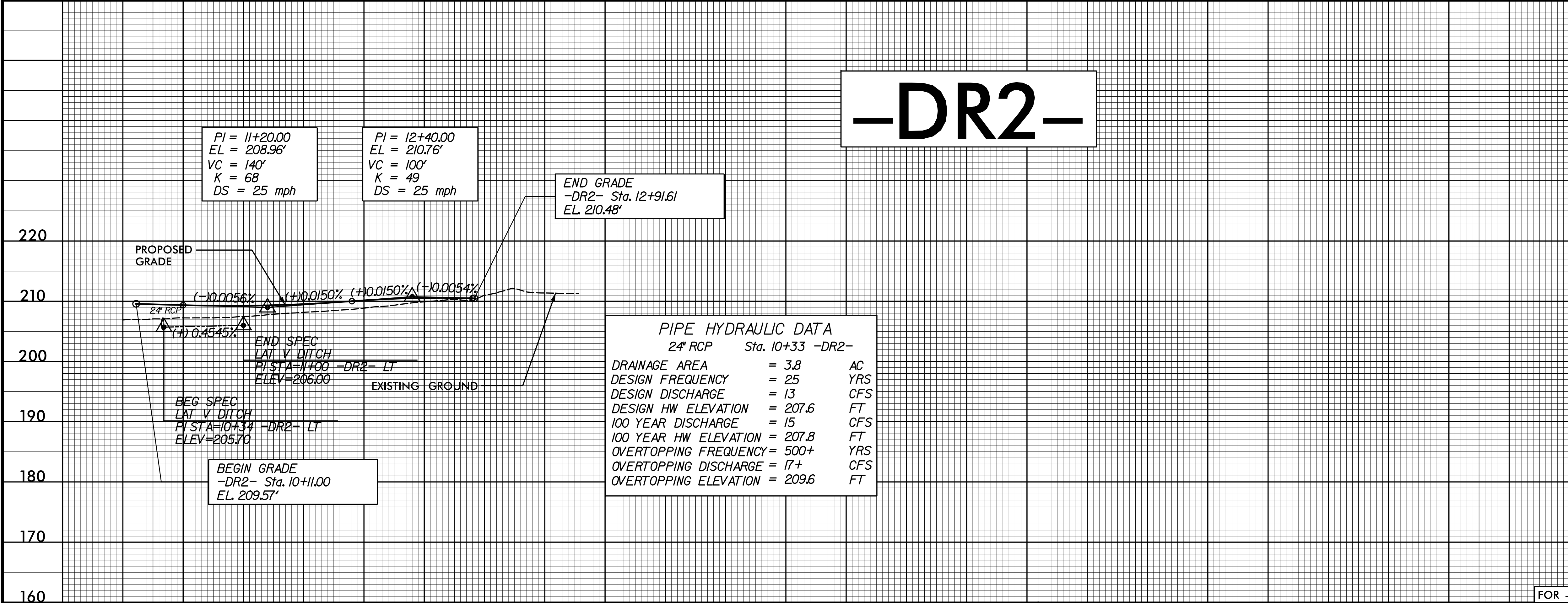






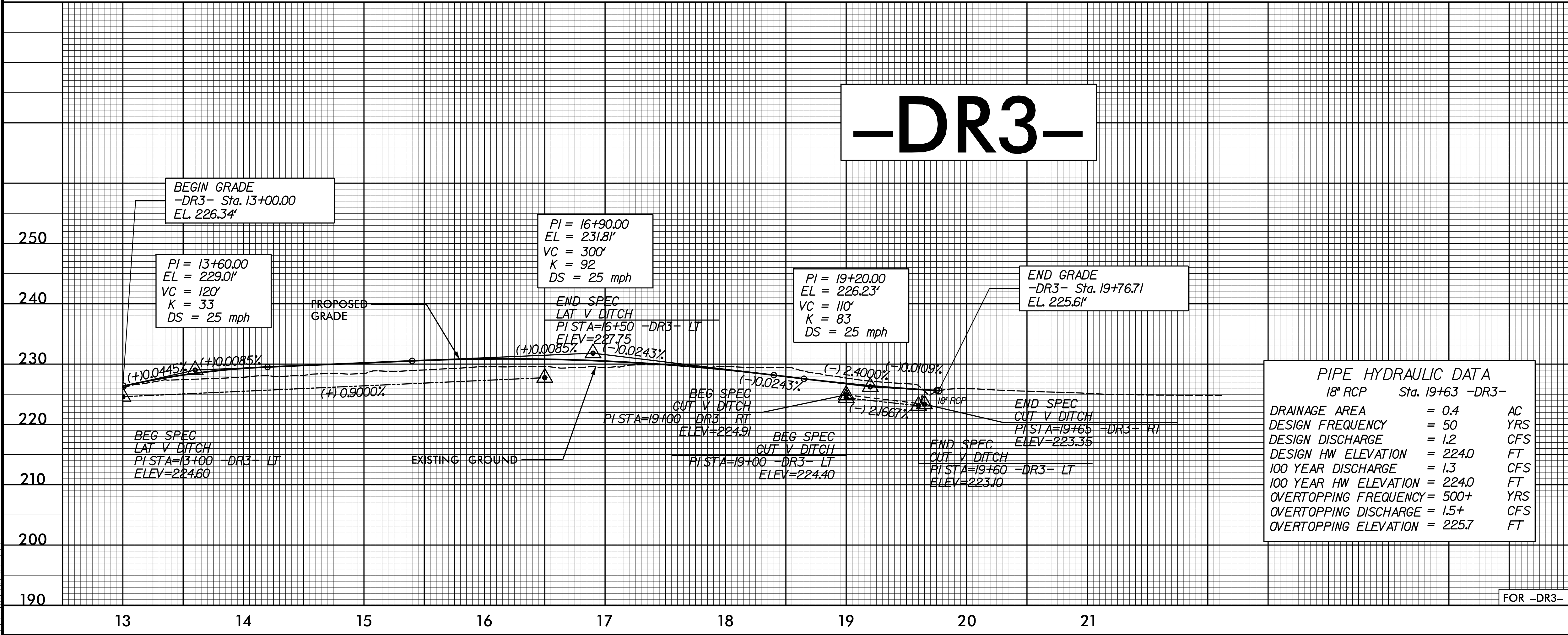


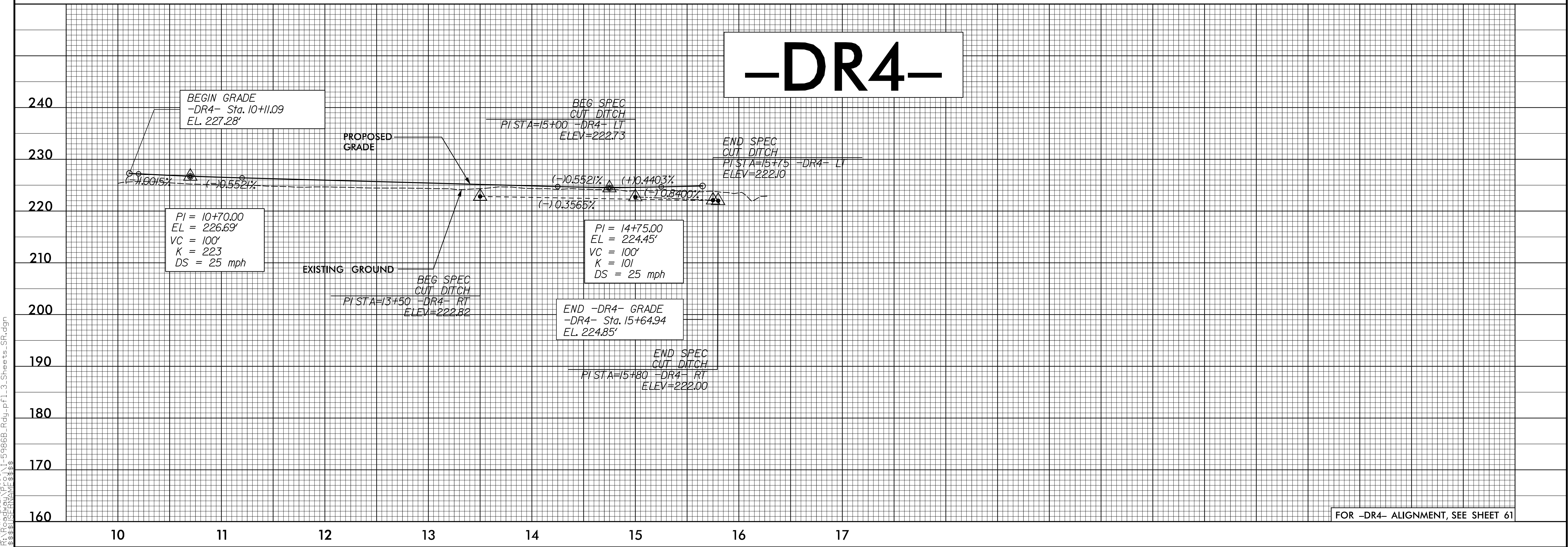
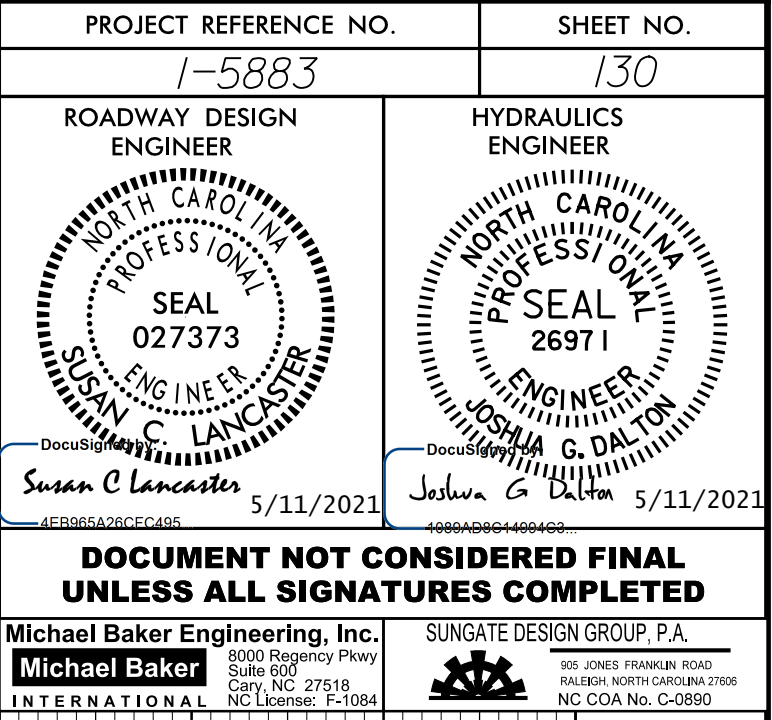
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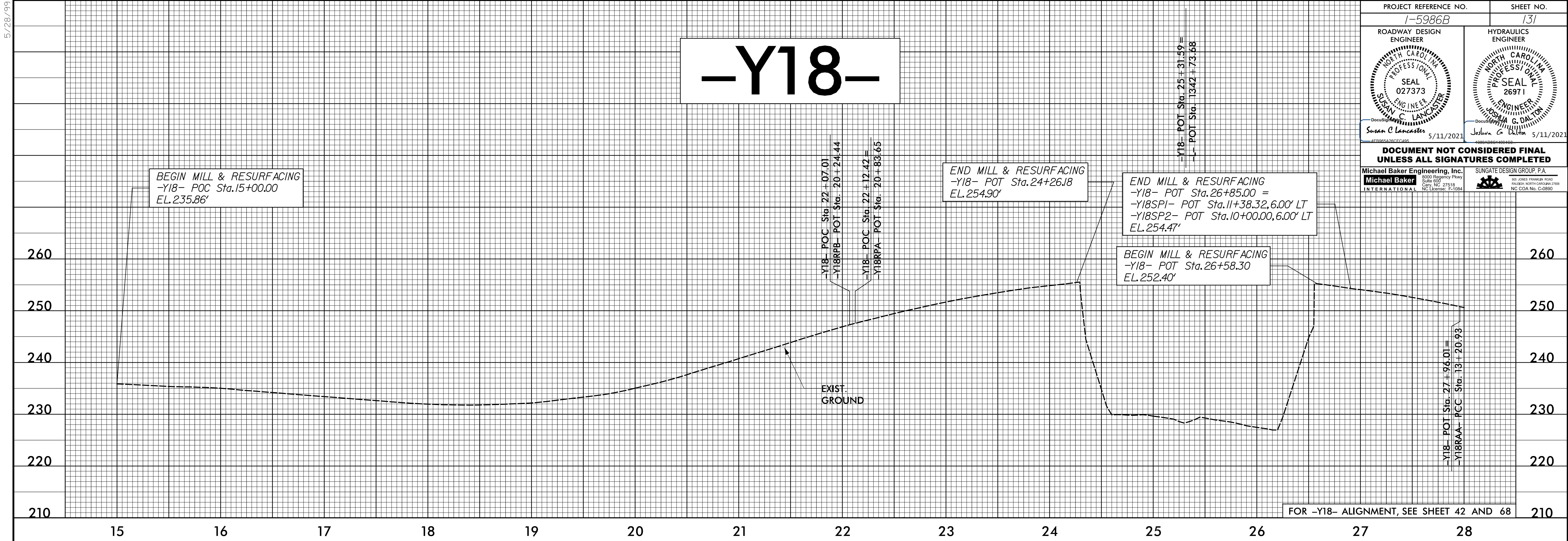
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ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Michael Baker Engineering, Inc. 8000 Regency Pkwy Suite 600 Cary, NC 27518 NC License: E-1084		SUNGATE DESIGN GROUP, P.A. 800 JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27605 NC CDR No. C-0850	

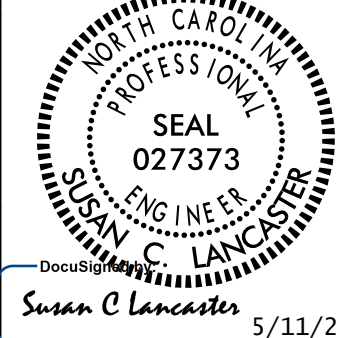
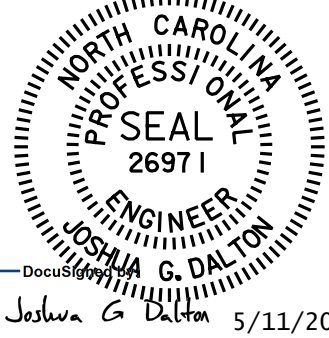
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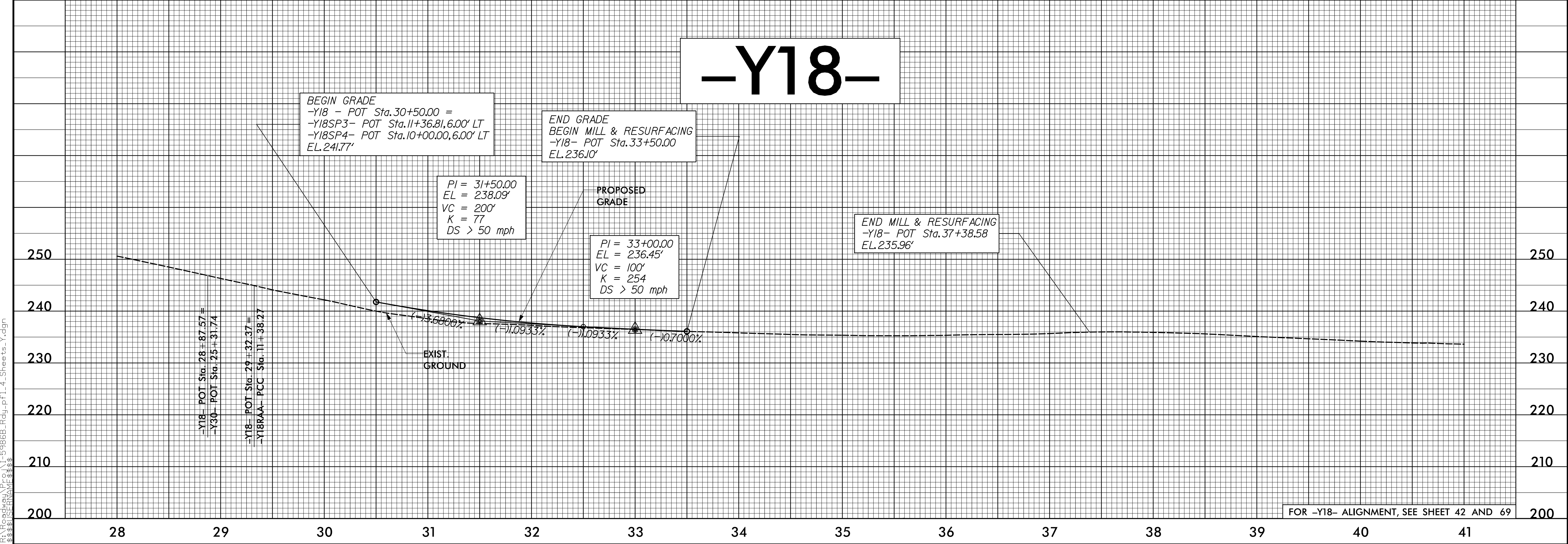


5/28/19



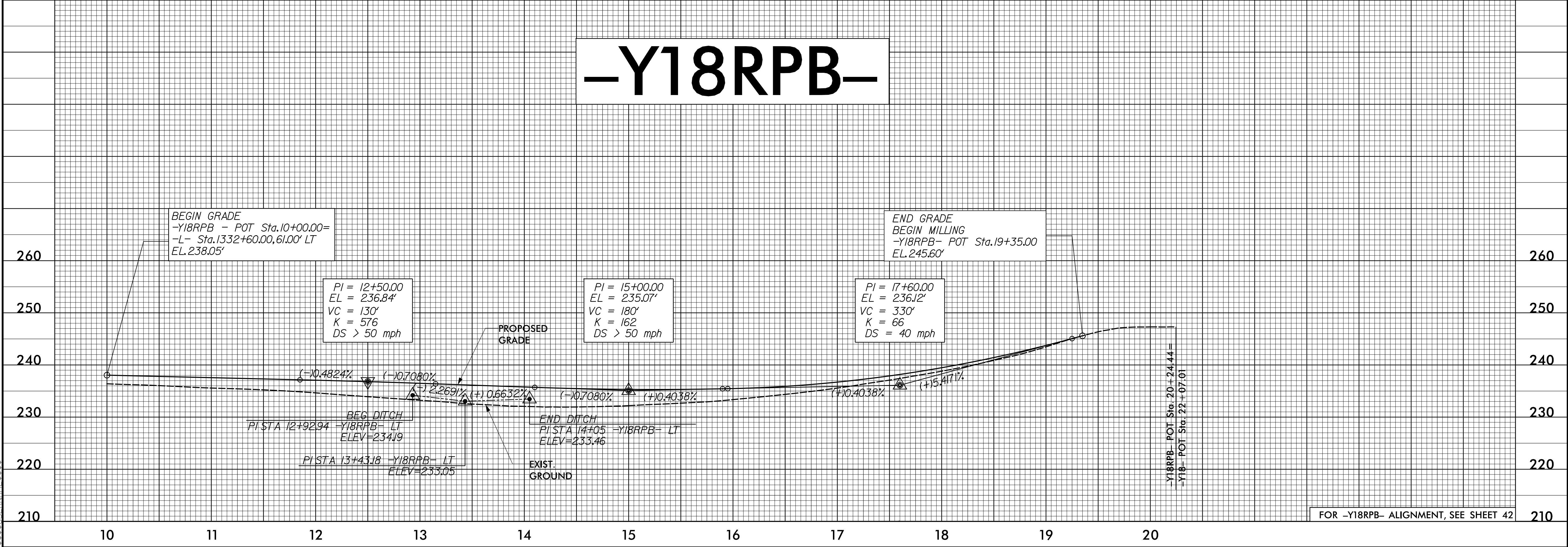
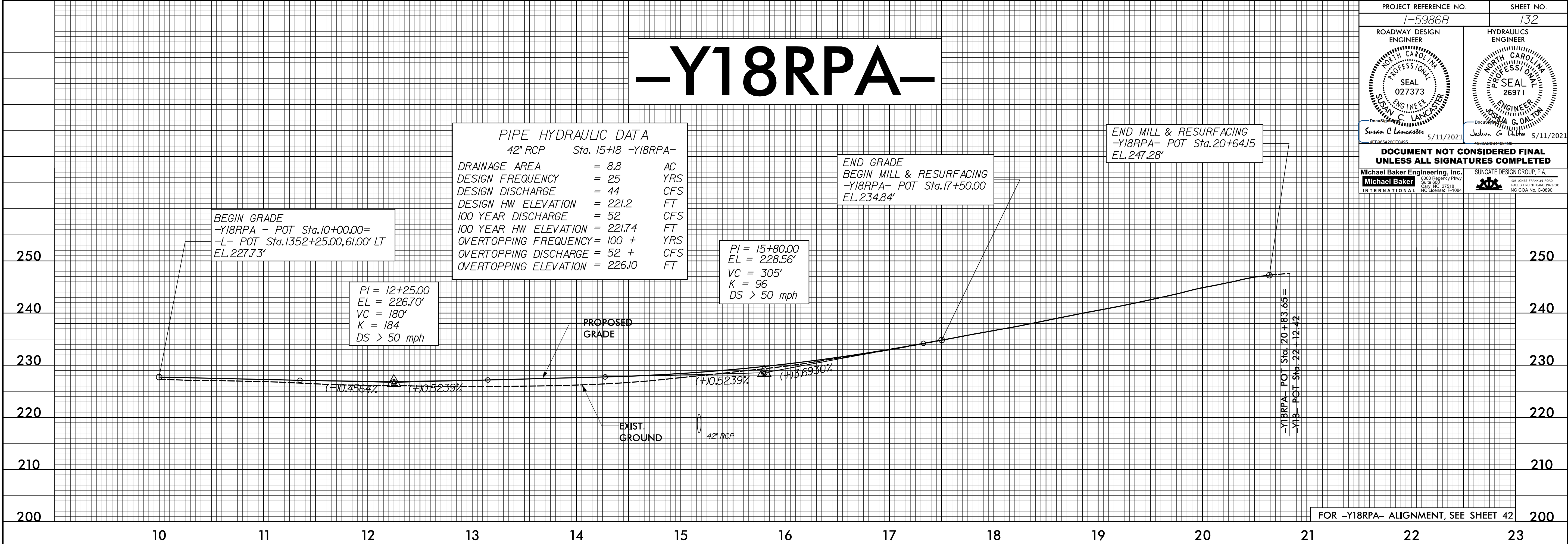
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ROADWAY DESIGN ENGINEER 		HYDRAULICS ENGINEER 
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
Michael Baker Engineering, Inc.  8000 Regency Parkway Suite 600 Cary, NC 27519 NC License: F-10984		SUNGATE DESIGN GROUP, P.A.  105 JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27605 NC License No. C-25900

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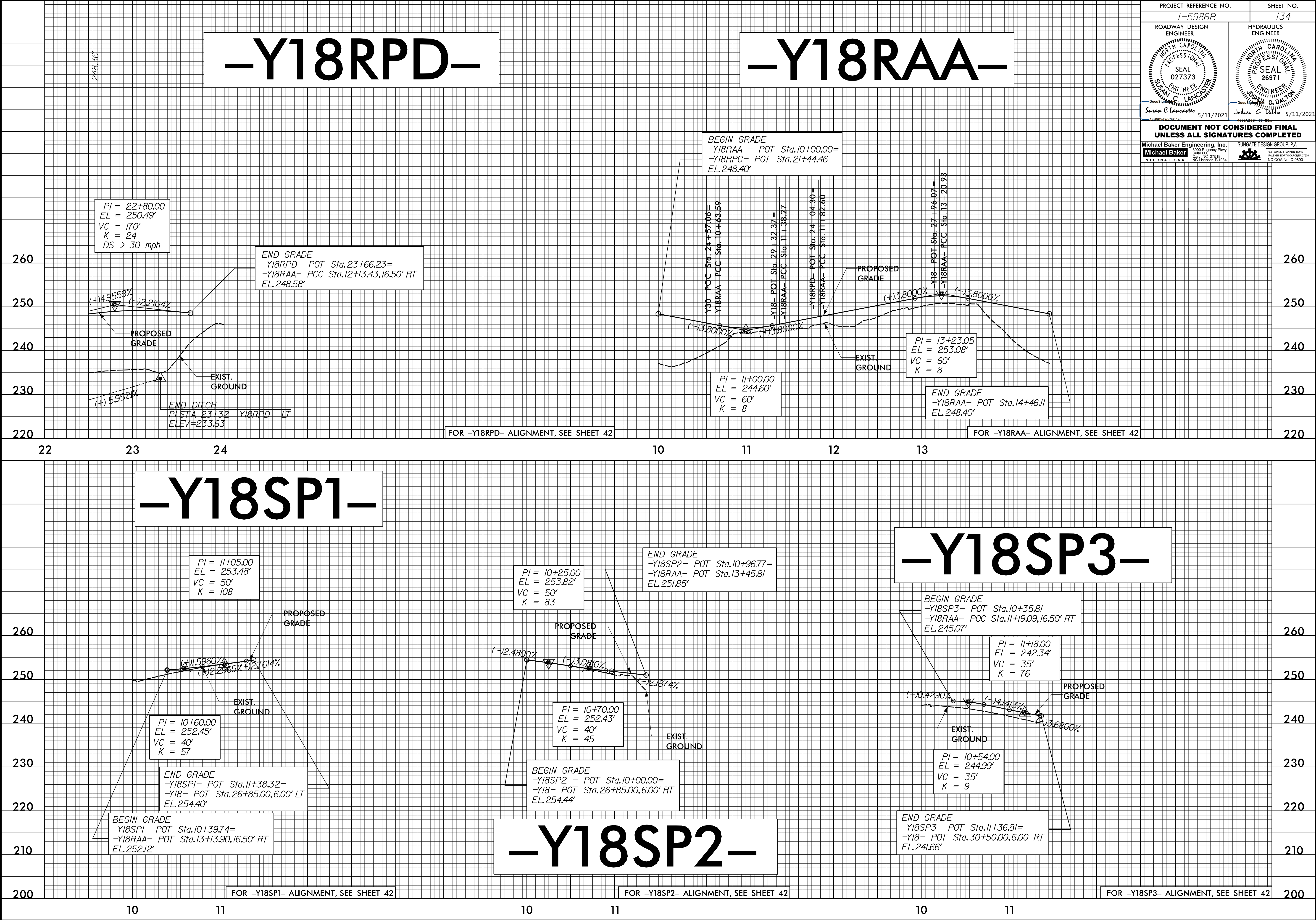


PROJECT REFERENCE NO. I-5986B		SHEET NO. 132	
ROADWAY DESIGN ENGINEER Susan C. Lancaster 5/11/2021		HYDRAULICS ENGINEER Joshua G. Dalton 5/11/2021	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
 Michael Baker INTERNATIONAL		 SUNGATE DESIGN GROUP, P.A. JES JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27605 NC License No. C-26900	



5/28/19

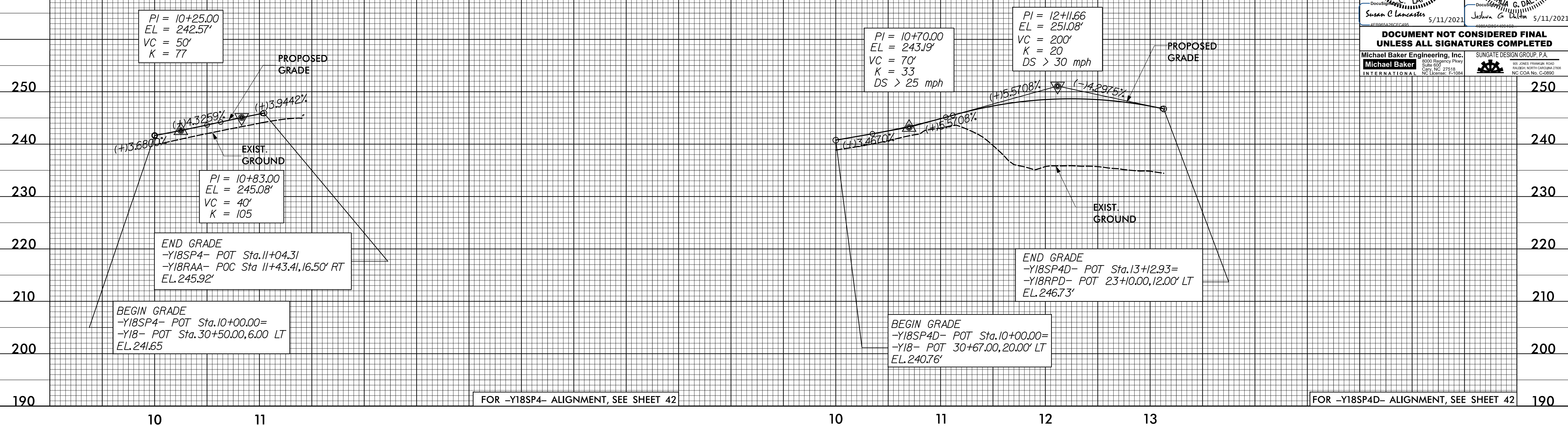
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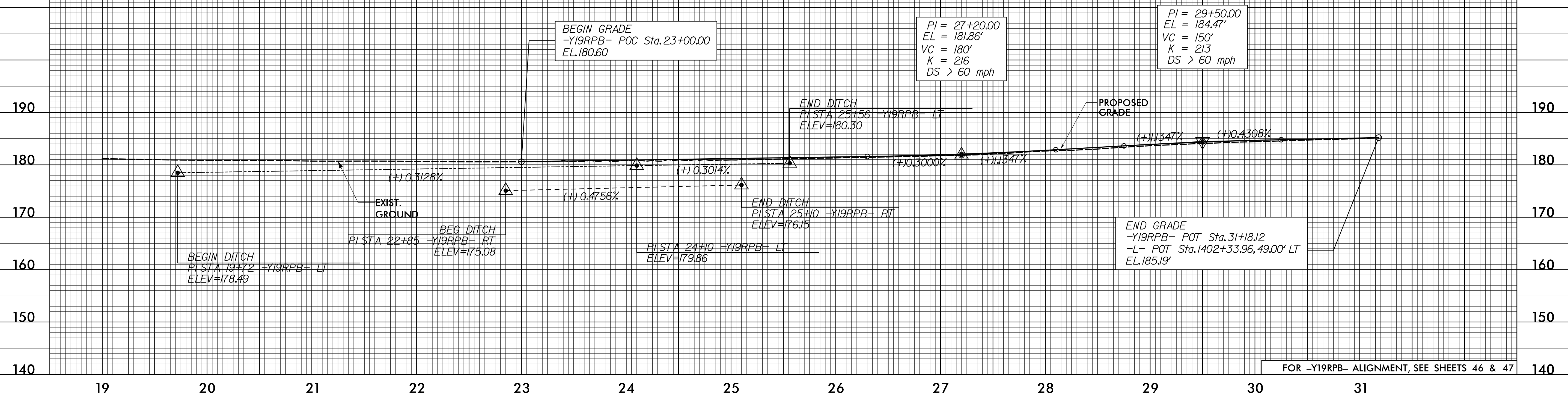
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-Y18SP4D-



-Y19RPB-



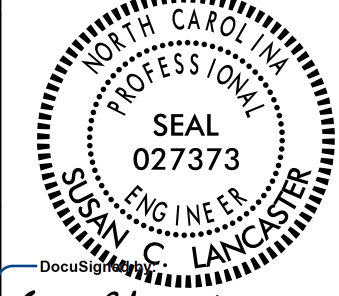
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I-5986B		135
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
Susan C. Lancaster	5/11/2021	Joshua G. Dalton
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
 Michael Baker International		 Sungate Design Group, P.A.

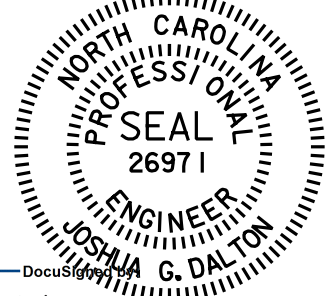
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5/28/19

PROJECT REFERENCE NO.
I-5986B

SHEET NO.
136

ROADWAY DESIGN
ENGINEER

Susan C. Lancaster
5/11/2021

HYDRAULICS
ENGINEER

Joshua G. Dalton
5/11/2021

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UNLESS ALL SIGNATURES COMPLETED

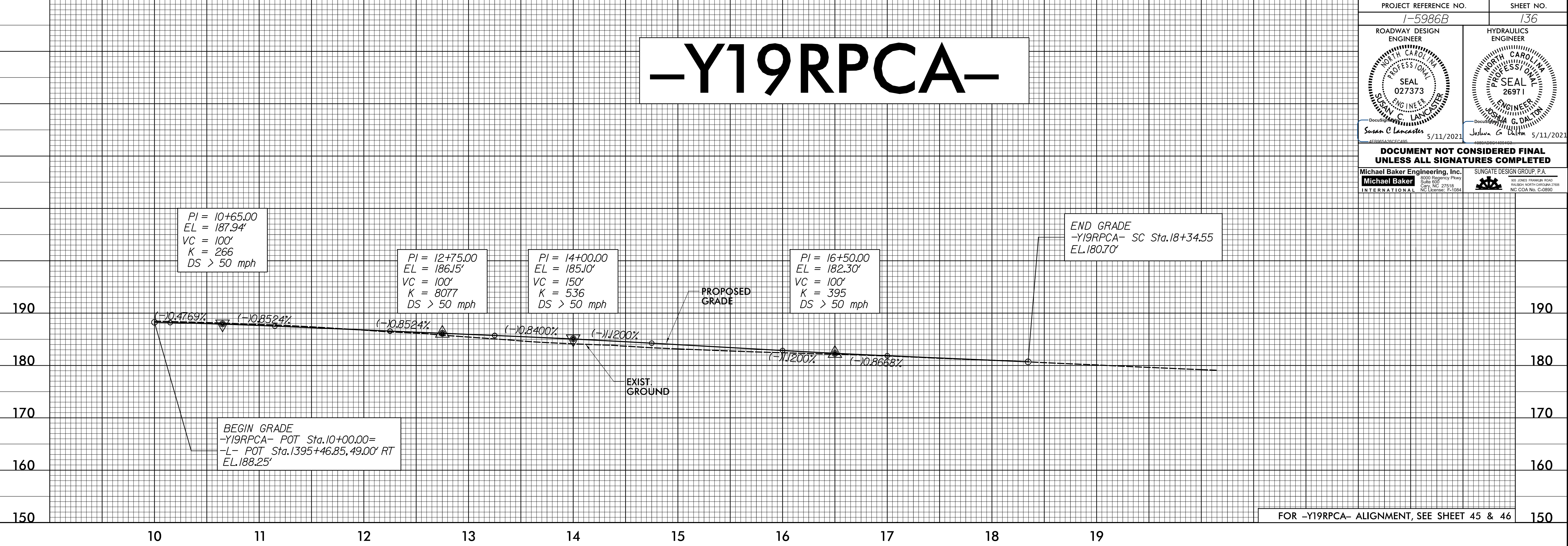
Michael Baker Engineering, Inc.

INTERNATIONAL

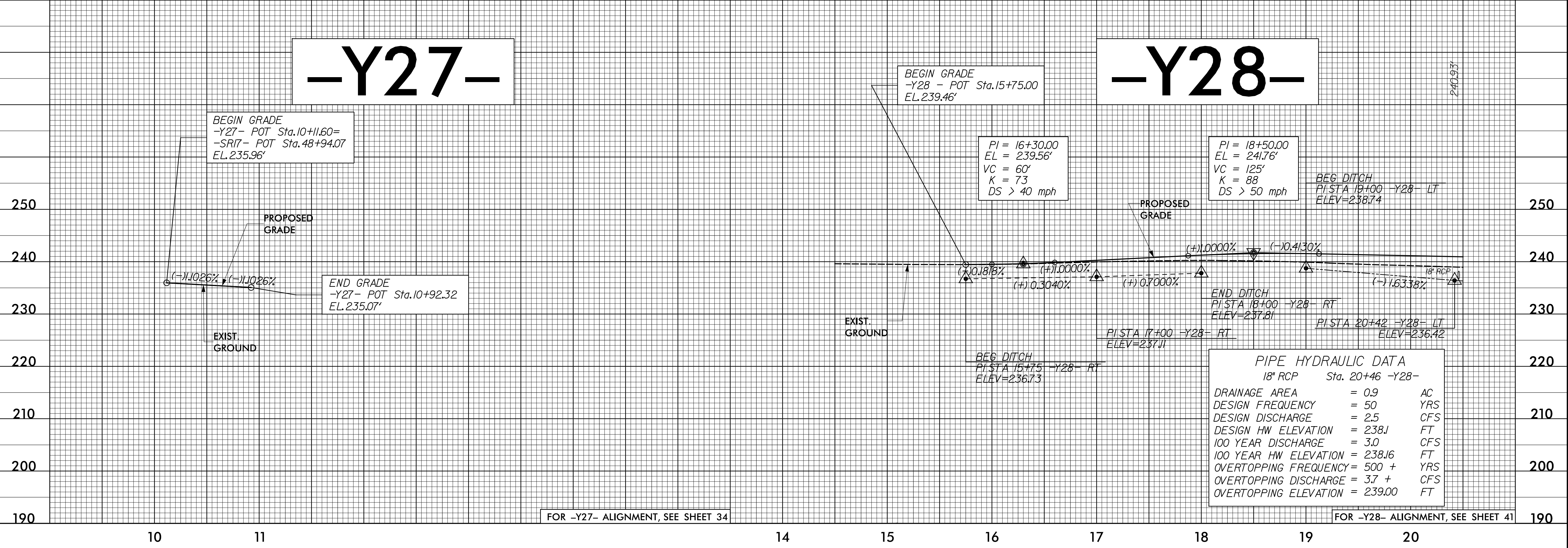
8000 Regency Parkway
Suite 600
Cary, NC 27519
NC License: F-1084

SUNGATE DESIGN GROUP, P.A.

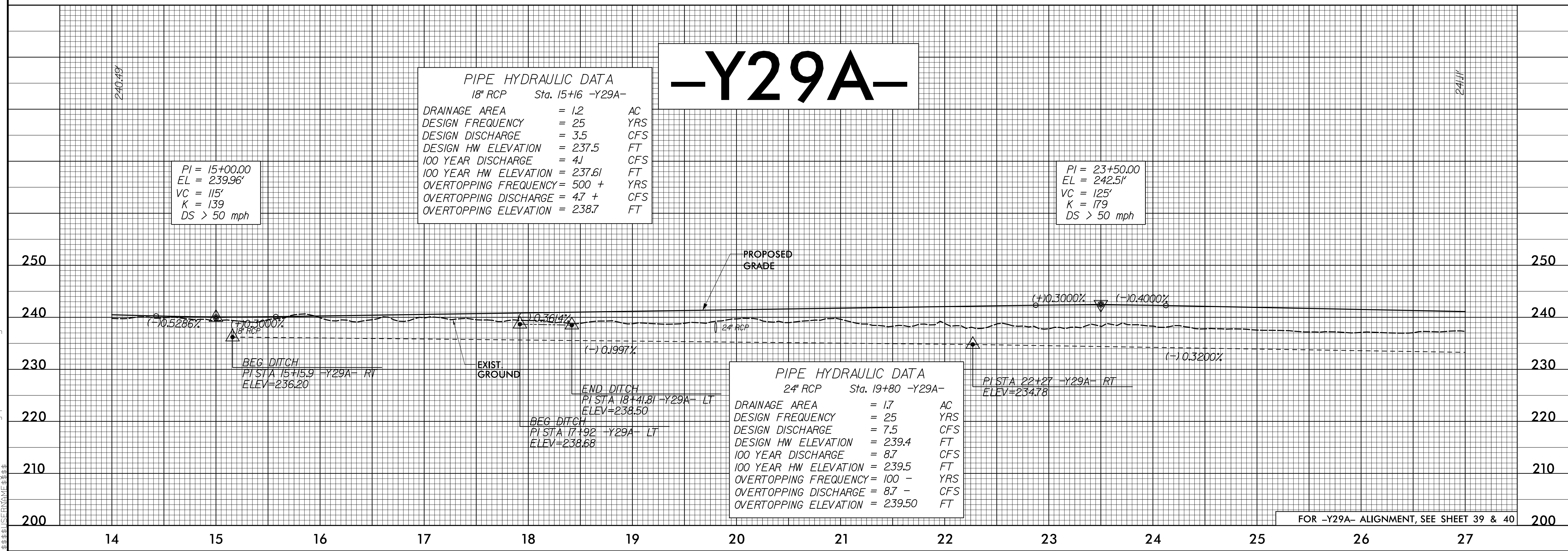
105 JONES FRANKLIN ROAD
WALTON, NORTH CAROLINA 27055
NC License: No. C-28900

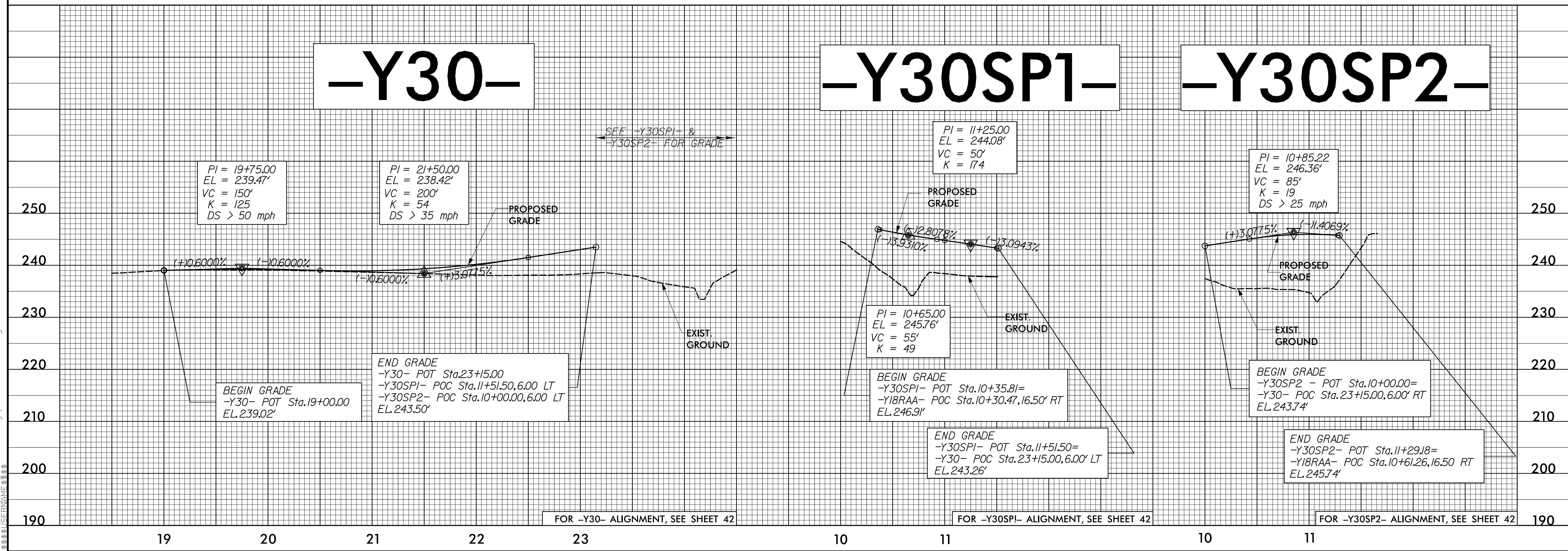


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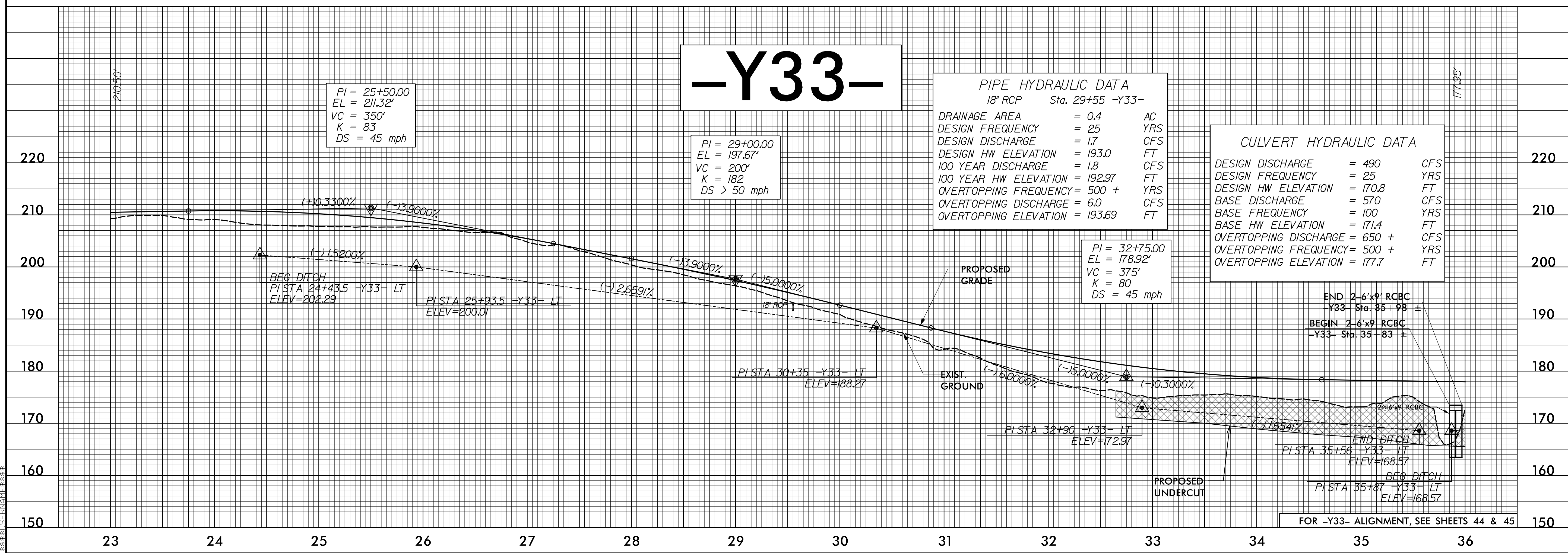






PIPE HYDRAULIC DATA		
36" RCP	Sta. 16+55	-Y33-
DRAINAGE AREA	= 19.9	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 55	CFS
DESIGN HW ELEVATION	= 209.5	FT
100 YEAR DISCHARGE	= 65	CFS
100 YEAR HW ELEVATION	= 210.44	FT
OVERTOPPING FREQUENCY	= 100 +/-	YRS
OVERTOPPING DISCHARGE	= 65 +/-	CFS
OVERTOPPING ELEVATION	= 210.38	FT

PIPE HYDRAULIC DATA		
36" RCP	Sta. 19+43 -Y33-	
DRAINAGE AREA	= 14.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN FREQUENCY	= 44	CFS
DESIGN HW ELEVATION	= 205.1	FT
100 YEAR DISCHARGE	= 47	CFS
100 YEAR HW ELEVATION	= 205.36	FT
OVERTOPPING FREQUENCY	= 100 +	YRS
OVERTOPPING DISCHARGE	= 47 +	CFS
OVERTOPPING ELEVATION	= 208.35	FT

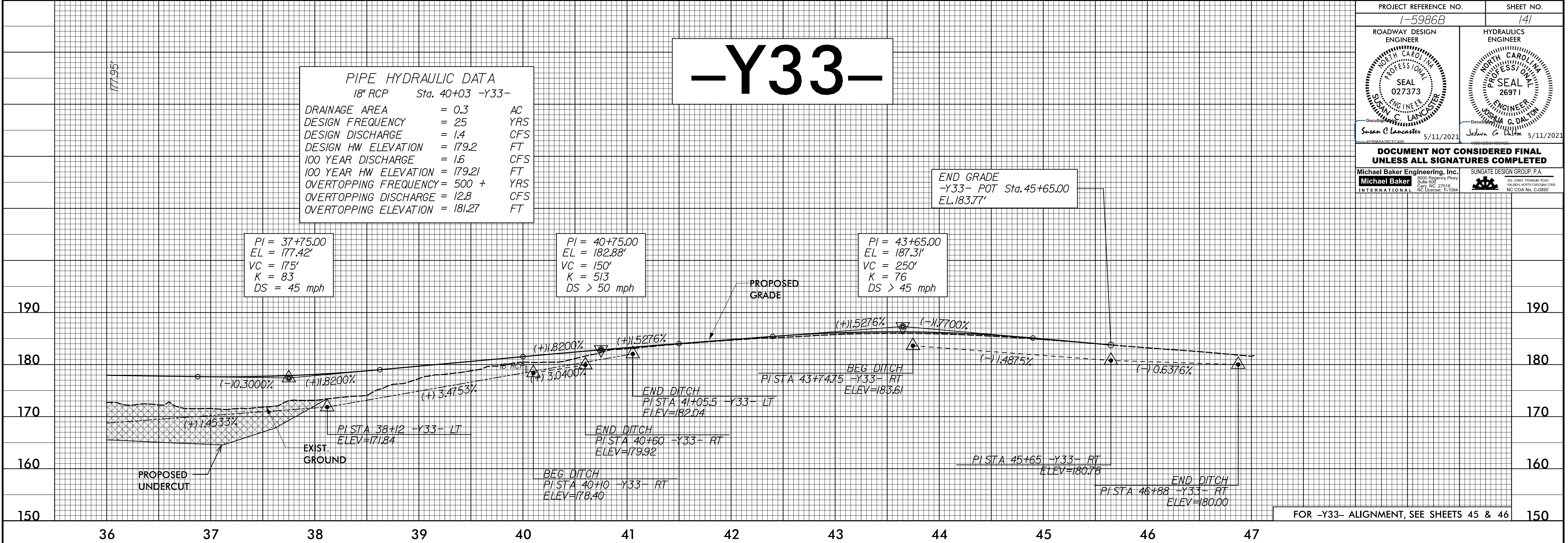


PIPE HYDRAULIC DATA		
18" RCP Sta. 29+55 -Y33-		
DRAINAGE AREA	= 0.4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 1.7	CFS
DESIGN HW ELEVATION	= 193.0	FT
100 YEAR DISCHARGE	= 1.8	CFS
100 YEAR HW ELEVATION	= 192.97	FT
OVERTOPPING FREQUENCY	= 500 +	YRS
OVERTOPPING DISCHARGE	= 6.0	CFS
OVERTOPPING ELEVATION	= 193.69	FT

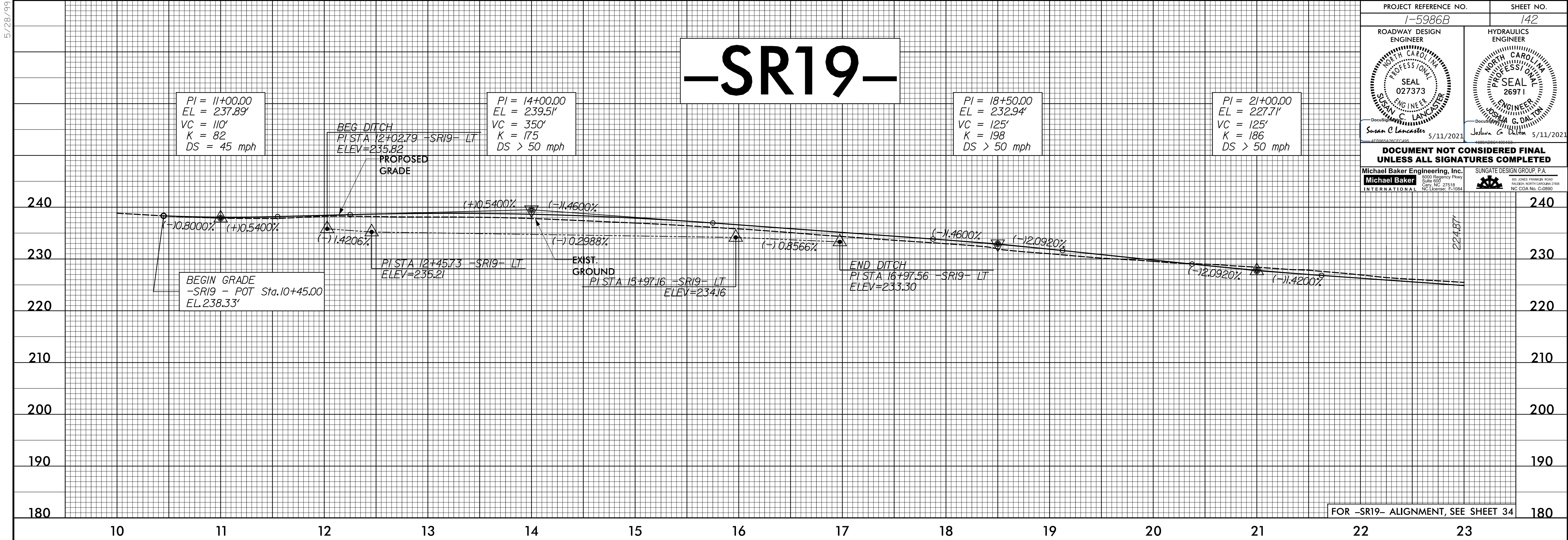
CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	= 490	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 170.8	FT
BASE DISCHARGE	= 570	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 171.4	FT
OVERTOPPING DISCHARGE	= 650 +	CFS
OVERTOPPING FREQUENCY	= 500 +	YRS
OVERTOPPING ELEVATION	= 177.7	FT

5/28/2021

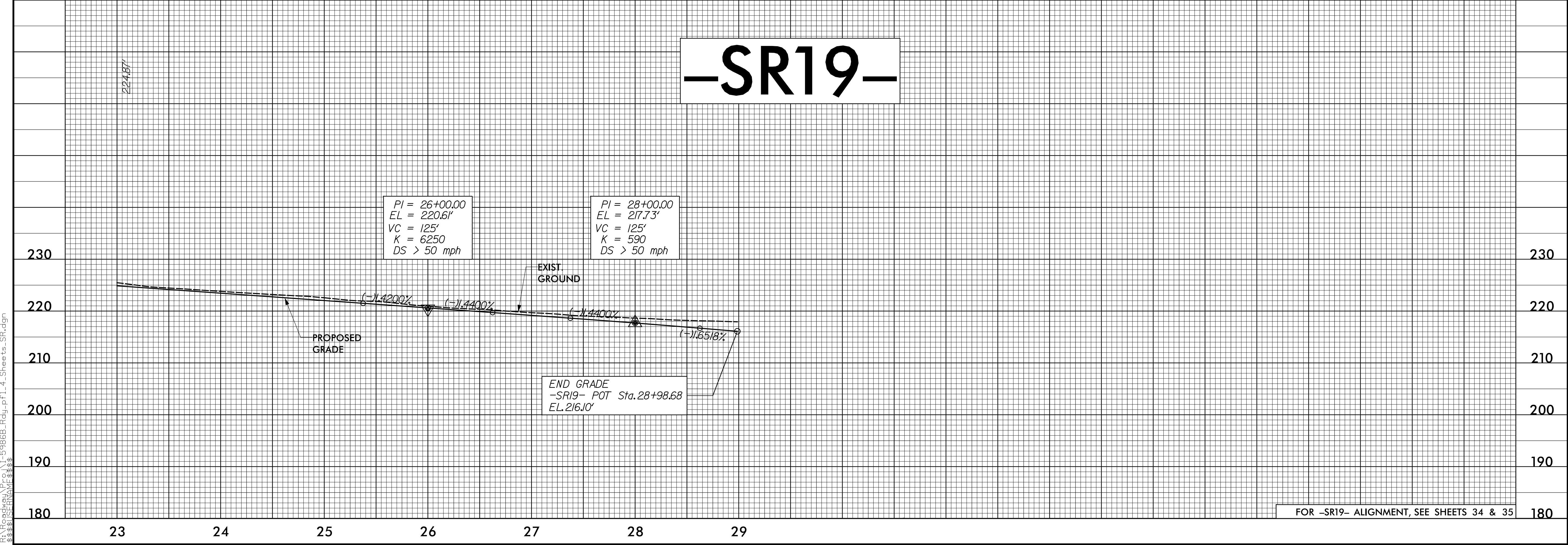
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5/28/19



PROJECT REFERENCE NO.		SHEET NO.
I-5986B		142
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



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