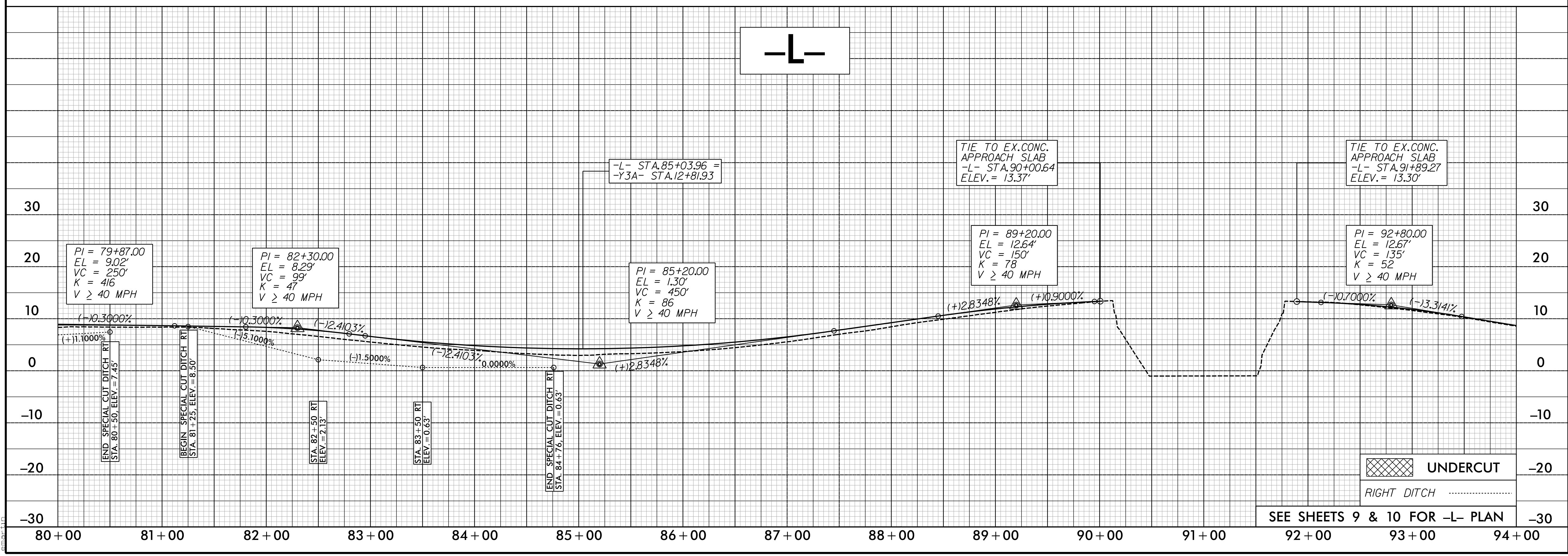
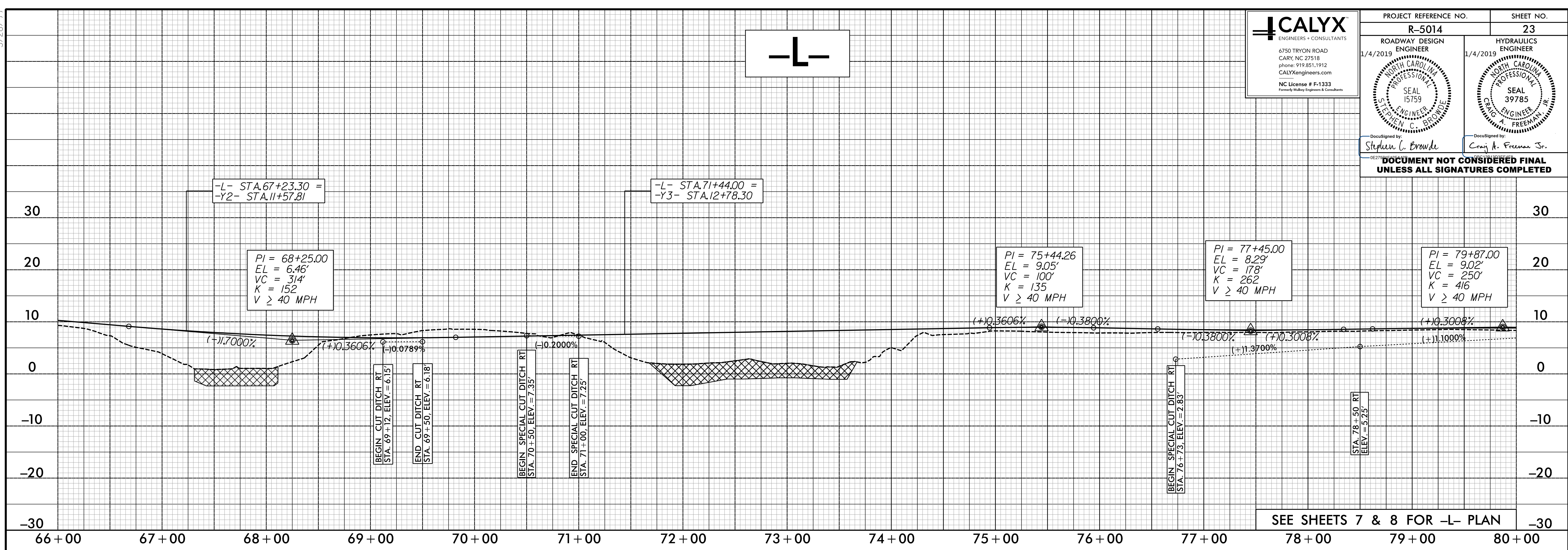


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ENGINEERS + CONSULTANTS  
6750 TRYON ROAD  
CARY, NC 27518  
phone: 919.851.1912  
CALYXEngineers.com  
NC License # F-1333  
Formerly Huber Engineers & Consultants

PROJECT REFERENCE NO. <b>R-5014</b>	SHEET NO. <b>23</b>
ROADWAY DESIGN ENGINEER 1/4/2019	HYDRAULICS ENGINEER 1/4/2019
DocuSigned by: <b>Stephen C. Browde</b> DocuSigned by: <b>Craig A. Freeman Jr.</b>	

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UNDERCUT  
 RIGHT DITCH

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5/28/2021

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 CARY, NC 27518  
 P: 919.851.1912 www.nv5.com

PROJECT REFERENCE NO. **R-5014** SHEET NO. **24**

ROADWAY DESIGN ENGINEER 3/31/2021 HYDRAULICS ENGINEER 4/1/2021

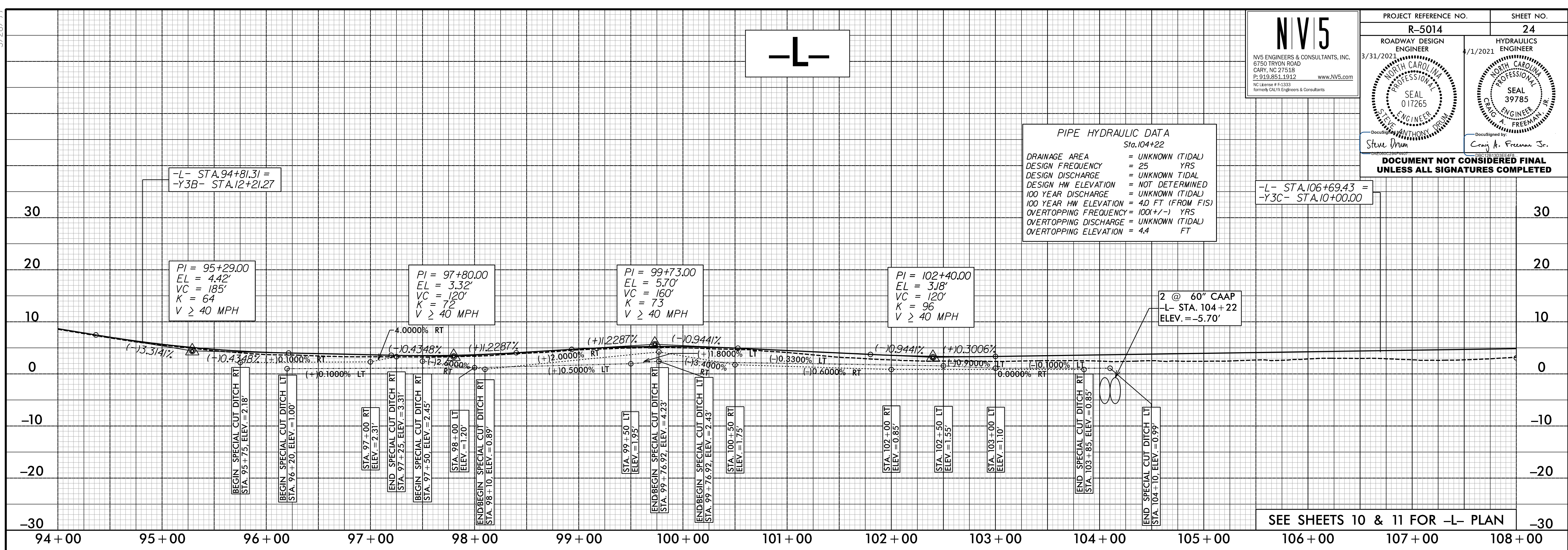
SEAL 017265 SEAL 39785

DocuSigned by: Steve Drum DocuSigned by: Craig A. Freeman Jr.

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**PIPE HYDRAULIC DATA**  
Sta. 104+22

DRAINAGE AREA	= UNKNOWN (TIDAL)
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= UNKNOWN TIDAL
DESIGN HW ELEVATION	= NOT DETERMINED
100 YEAR DISCHARGE	= UNKNOWN (TIDAL)
100 YEAR HW ELEVATION	= 40 FT (FROM FIS)
OVERTOPPING FREQUENCY	= 100(+/-) YRS
OVERTOPPING DISCHARGE	= UNKNOWN (TIDAL)
OVERTOPPING ELEVATION	= 4.4 FT

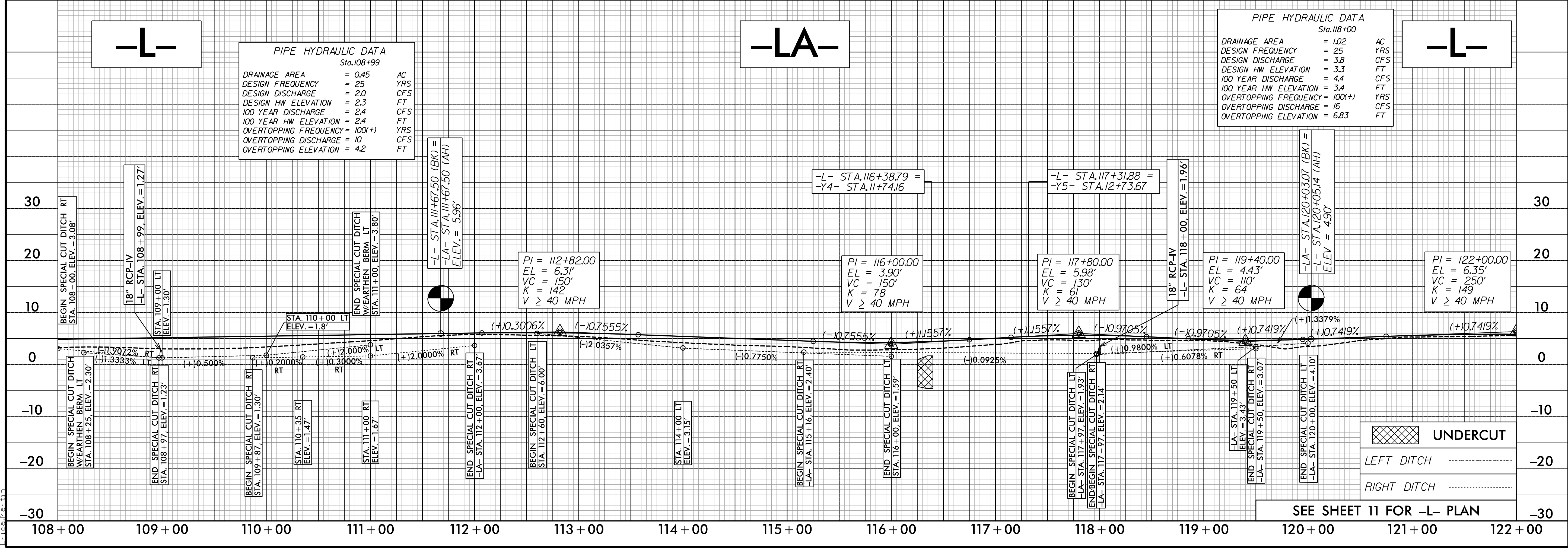


**PIPE HYDRAULIC DATA**  
Sta. 108+99

DRAINAGE AREA	= 0.45 AC
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 2.0 CFS
DESIGN HW ELEVATION	= 2.3 FT
100 YEAR DISCHARGE	= 2.4 CFS
100 YEAR HW ELEVATION	= 2.4 FT
OVERTOPPING FREQUENCY	= 100(+)
OVERTOPPING DISCHARGE	= 10 CFS
OVERTOPPING ELEVATION	= 4.2 FT

**PIPE HYDRAULIC DATA**  
Sta. 118+00

DRAINAGE AREA	= 1.02 AC
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 3.8 CFS
DESIGN HW ELEVATION	= 3.3 FT
100 YEAR DISCHARGE	= 4.4 CFS
100 YEAR HW ELEVATION	= 3.4 FT
OVERTOPPING FREQUENCY	= 100(+)
OVERTOPPING DISCHARGE	= 16 CFS
OVERTOPPING ELEVATION	= 6.83 FT



**UNDERCUT**

LEFT DITCH

RIGHT DITCH

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5/28/99

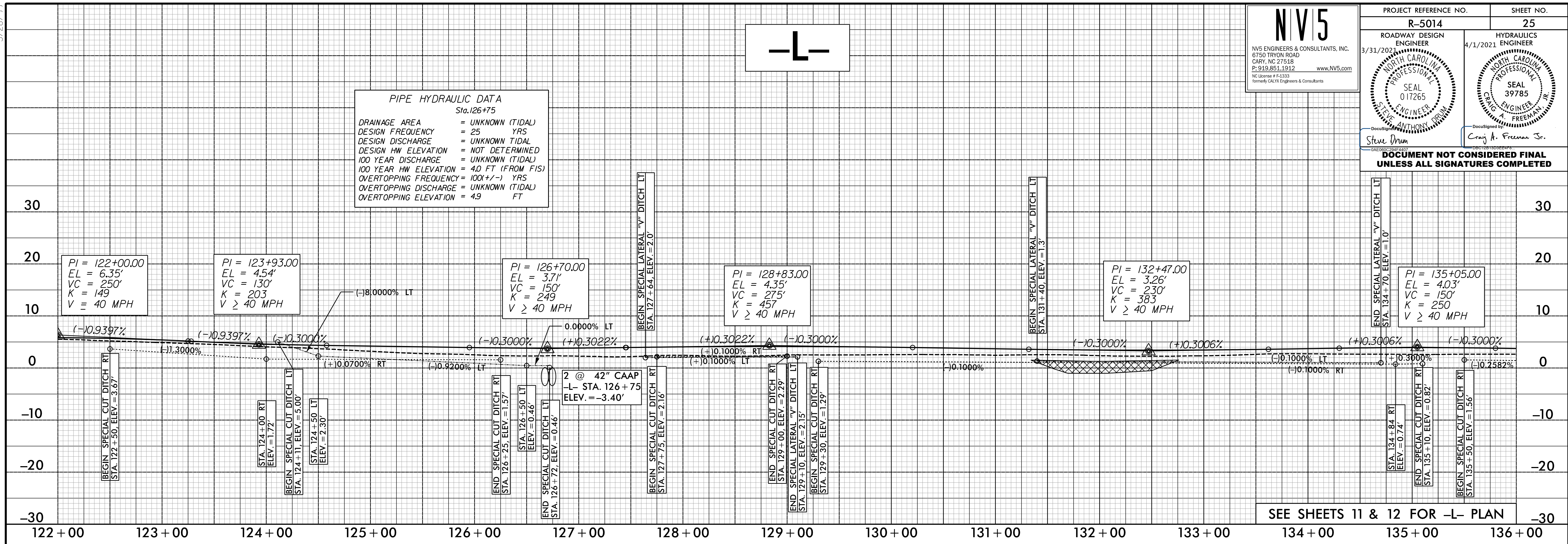
**NV5**  
 NV5 ENGINEERS & CONSULTANTS, INC.  
 6750 TRYON ROAD  
 CARY, NC 27518  
 P: 919.851.1912  
 www.nv5.com  
 formerly CALYX Engineers & Consultants

PROJECT REFERENCE NO. <b>R-5014</b>	SHEET NO. <b>25</b>
ROADWAY DESIGN ENGINEER 3/31/2021	HYDRAULICS ENGINEER 4/1/2021
SEAL 017265 NORTH CAROLINA PROFESSIONAL ENGINEER	SEAL 39785 NORTH CAROLINA PROFESSIONAL ENGINEER
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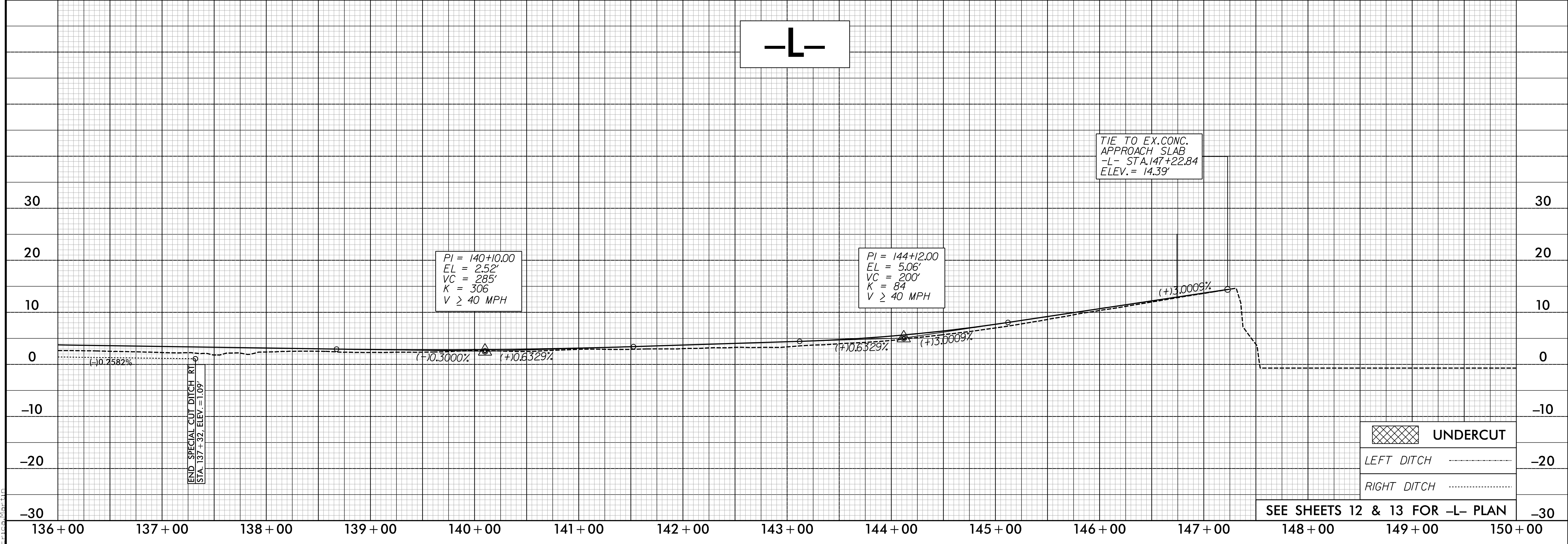
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**PIPE HYDRAULIC DATA**  
 Sta. 126+75

DRAINAGE AREA = UNKNOWN (TIDAL)  
 DESIGN FREQUENCY = 25 YRS  
 DESIGN DISCHARGE = UNKNOWN TIDAL  
 DESIGN HW ELEVATION = NOT DETERMINED  
 100 YEAR DISCHARGE = UNKNOWN (TIDAL)  
 100 YEAR HW ELEVATION = 4.0 FT (FROM FIS)  
 OVERTOPPING FREQUENCY = 100X(+/-) YRS  
 OVERTOPPING DISCHARGE = UNKNOWN (TIDAL)  
 OVERTOPPING ELEVATION = 4.9 FT



SEE SHEETS 11 & 12 FOR -L- PLAN



SEE SHEETS 12 & 13 FOR -L- PLAN

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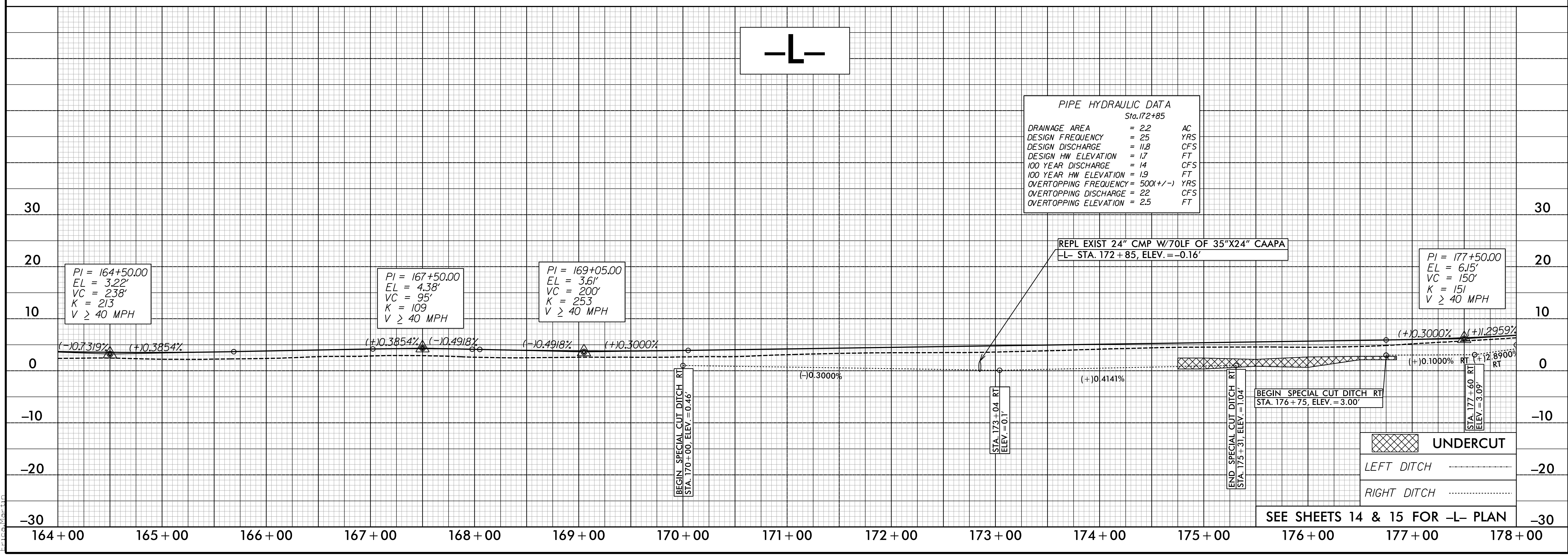
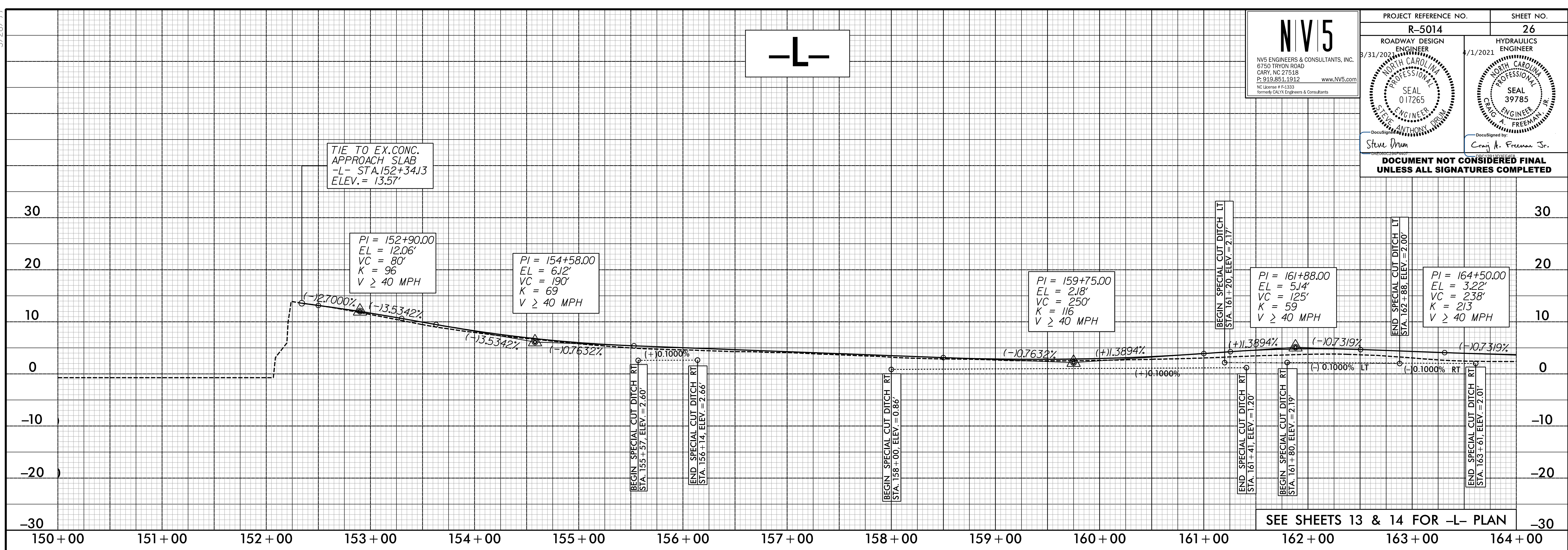
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 P: 919.851.1912 www.NV5.com  
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PROJECT REFERENCE NO. <b>R-5014</b>	SHEET NO. <b>26</b>
ROADWAY DESIGN ENGINEER 8/31/2021 NORTH CAROLINA PROFESSIONAL SEAL 017265 STEVE DRUM	HYDRAULICS ENGINEER 4/1/2021 NORTH CAROLINA PROFESSIONAL SEAL 39785 CRAIG FREEMAN JR.

Documented by: Steve Drum  
 DocuSigned by: Craig A. Freeman Jr.

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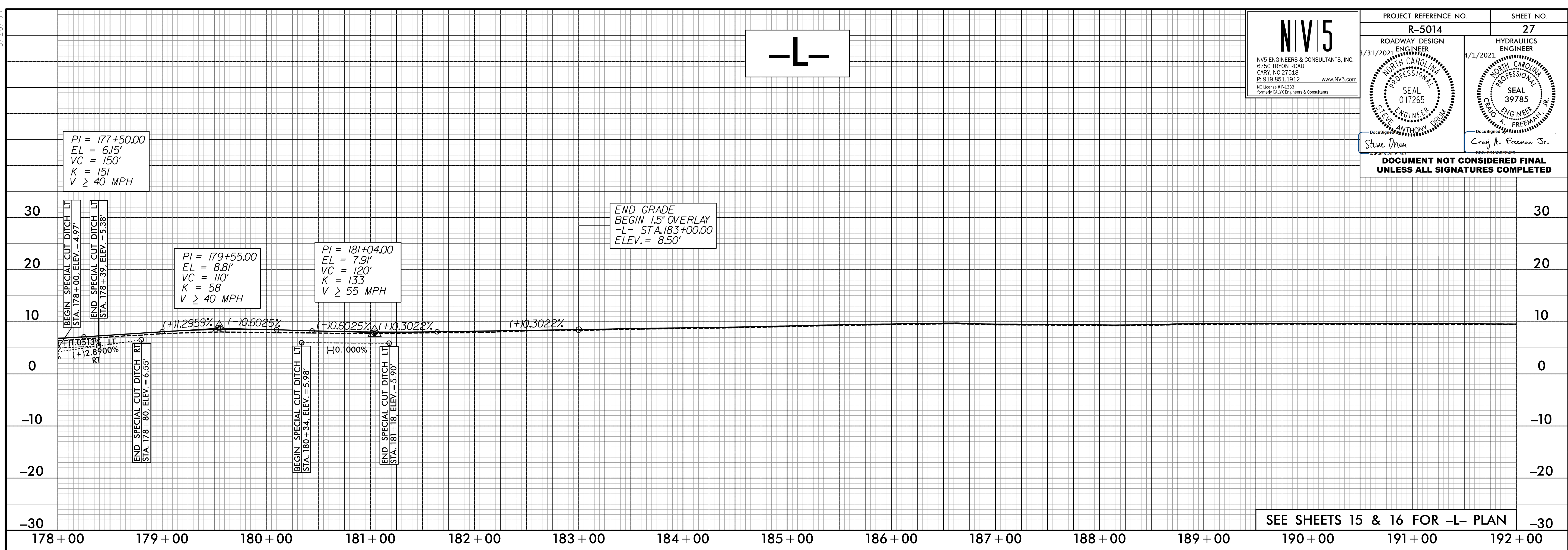
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5/28/99

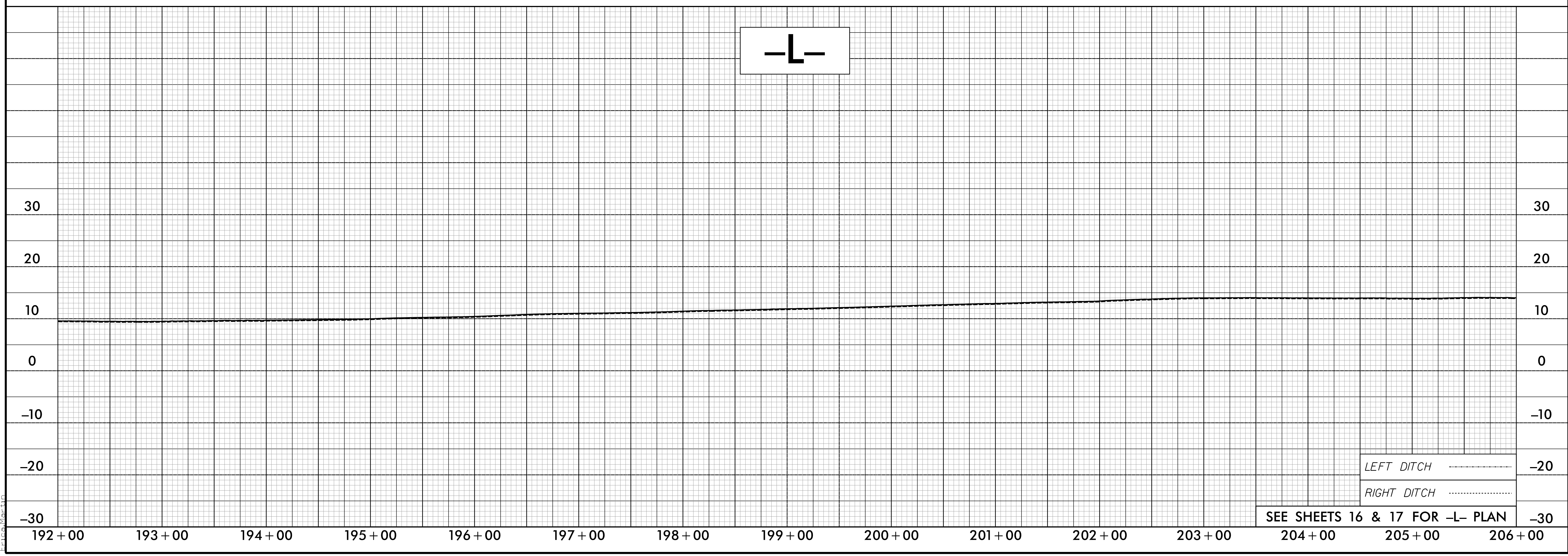


PROJECT REFERENCE NO. <b>R-5014</b>	SHEET NO. <b>27</b>
ROADWAY DESIGN ENGINEER 8/31/2021 NORTH CAROLINA PROFESSIONAL SEAL 017265 STEVE ANTHONY DROWN	HYDRAULICS ENGINEER 4/1/2021 NORTH CAROLINA PROFESSIONAL SEAL 39785 CRAIG A. FREEMAN JR.

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SEE SHEETS 15 & 16 FOR -L- PLAN



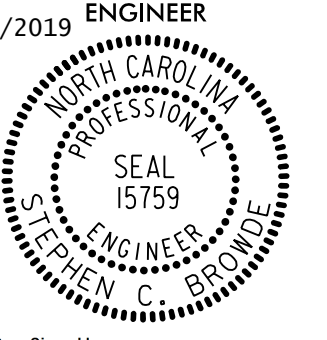
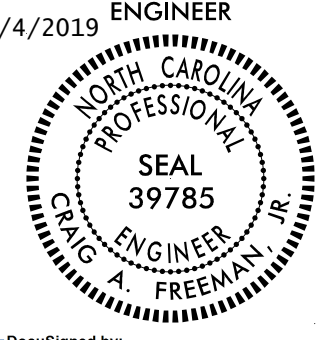
LEFT DITCH	-20
RIGHT DITCH	-20

SEE SHEETS 16 & 17 FOR -L- PLAN

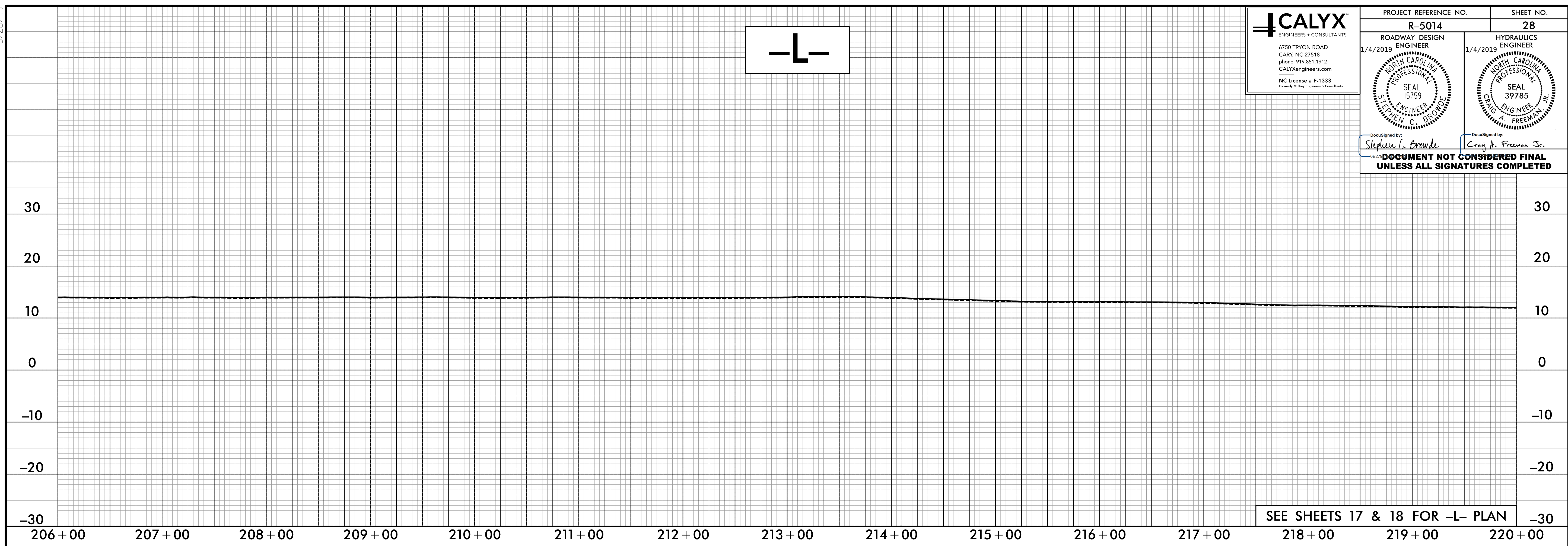
3/31/2021  
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Steve Drown

5/28/19

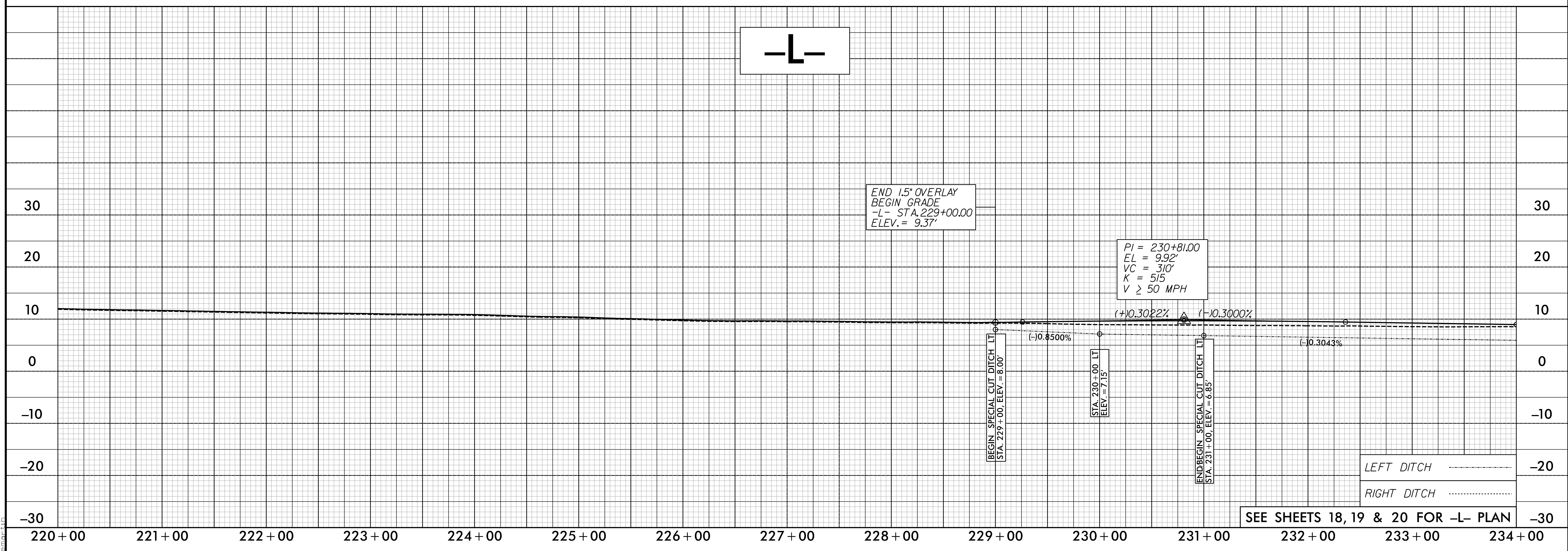
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PROJECT REFERENCE NO. <b>R-5014</b>	SHEET NO. <b>28</b>
ROADWAY DESIGN 1/4/2019 ENGINEER	HYDRAULICS 1/4/2019 ENGINEER
	
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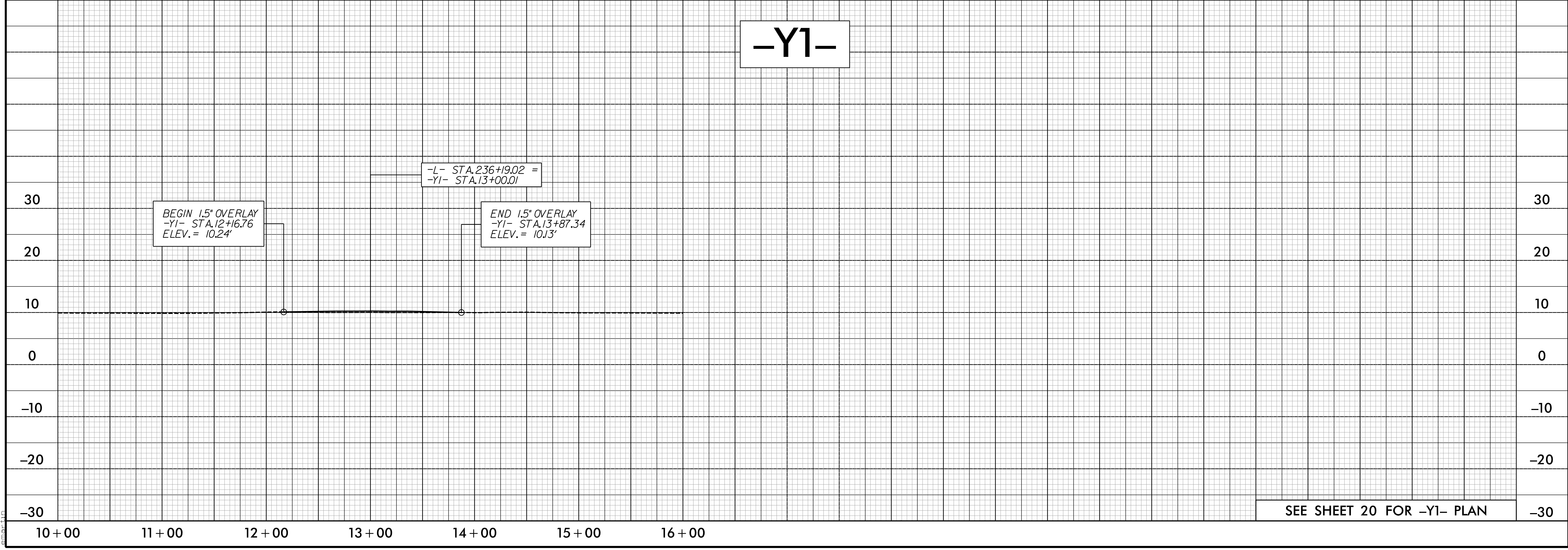
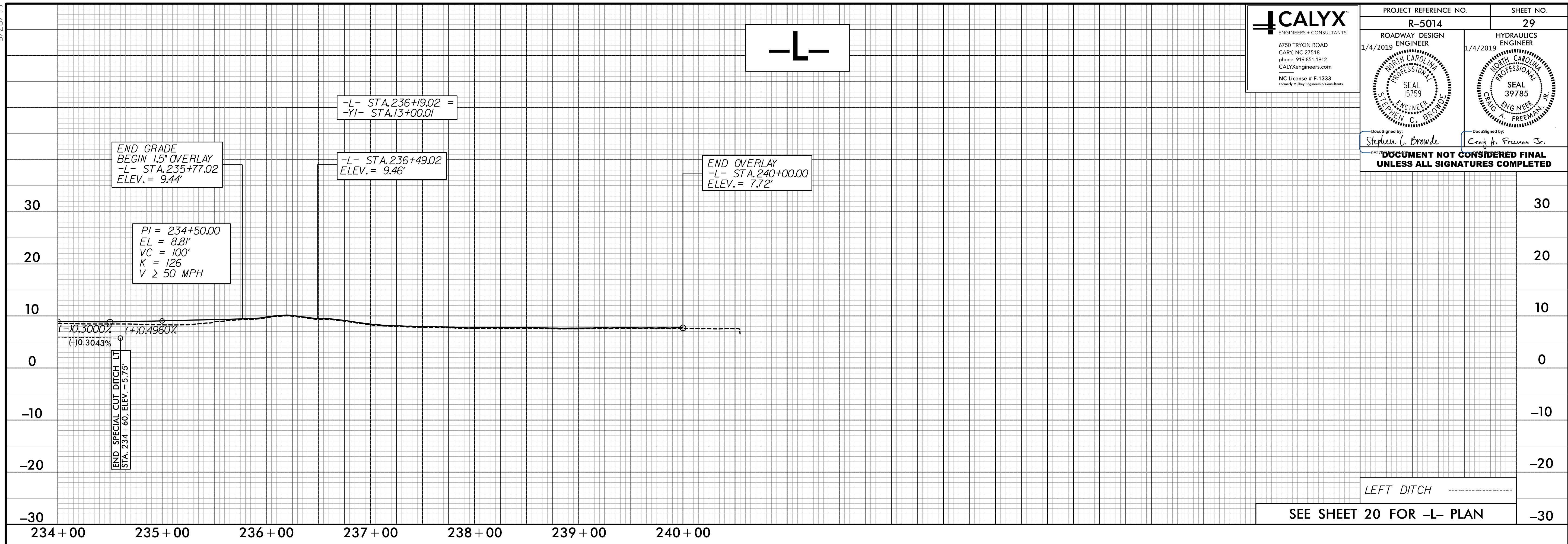
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PROJECT REFERENCE NO. <b>R-5014</b>	SHEET NO. <b>29</b>
ROADWAY DESIGN 1/4/2019 ENGINEER	HYDRAULICS 1/4/2019 ENGINEER
6750 TRYON ROAD CARY, NC 27518 phone: 919.851.1912 CALYXengineers.com NC License # F-1333 Formerly Huber Engineers & Consultants	SEAL 15759 SEAL 39785 NORTH CAROLINA PROFESSIONAL ENGINEER STEPHEN C. BROUDE CRAIG A. FREEMAN JR.

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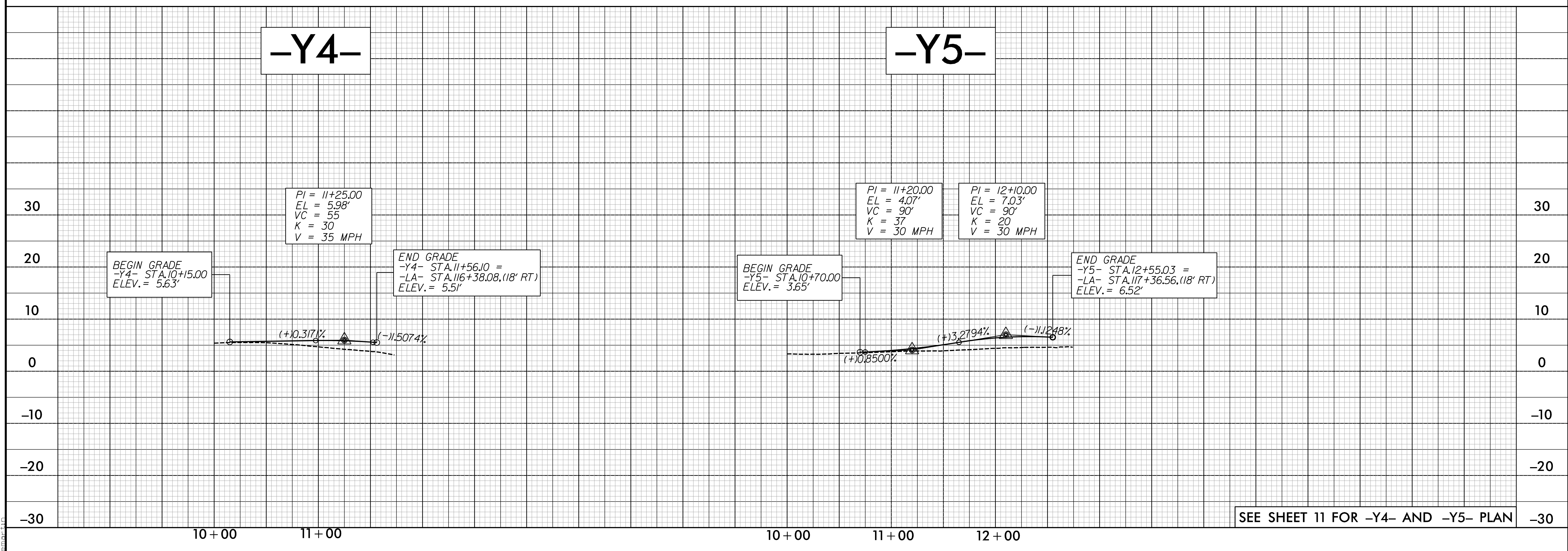
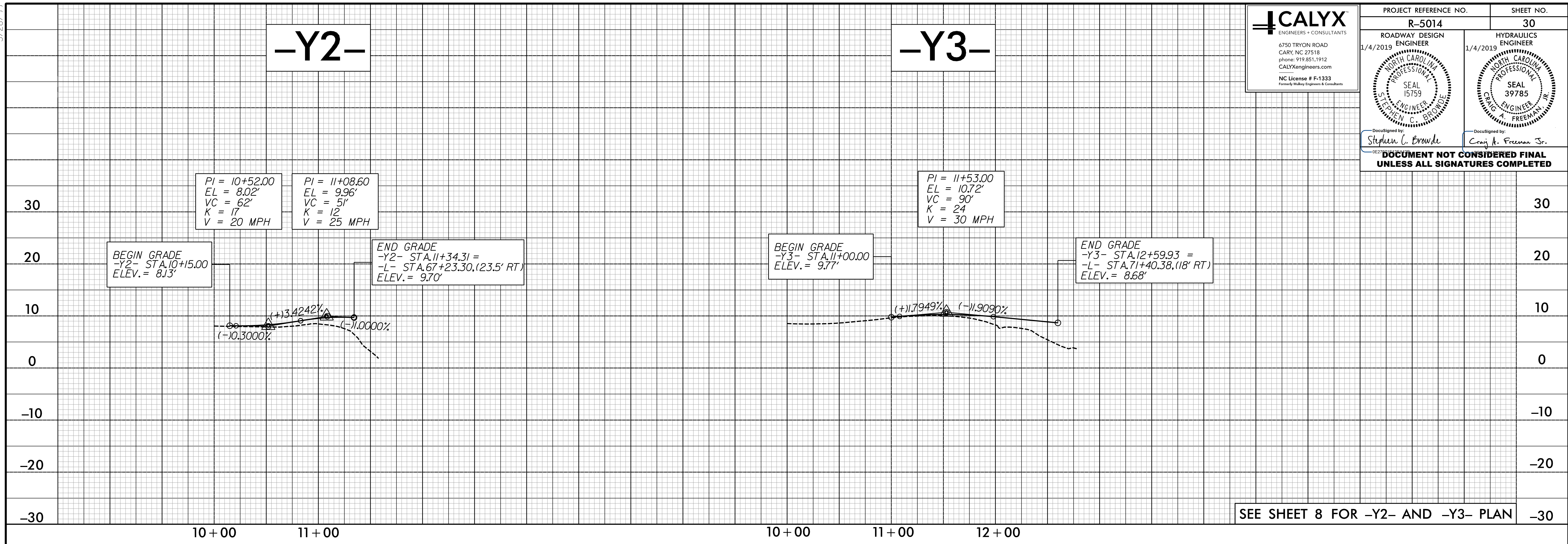


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5/28/19



PROJECT REFERENCE NO. <b>R-5014</b>	SHEET NO. <b>30</b>
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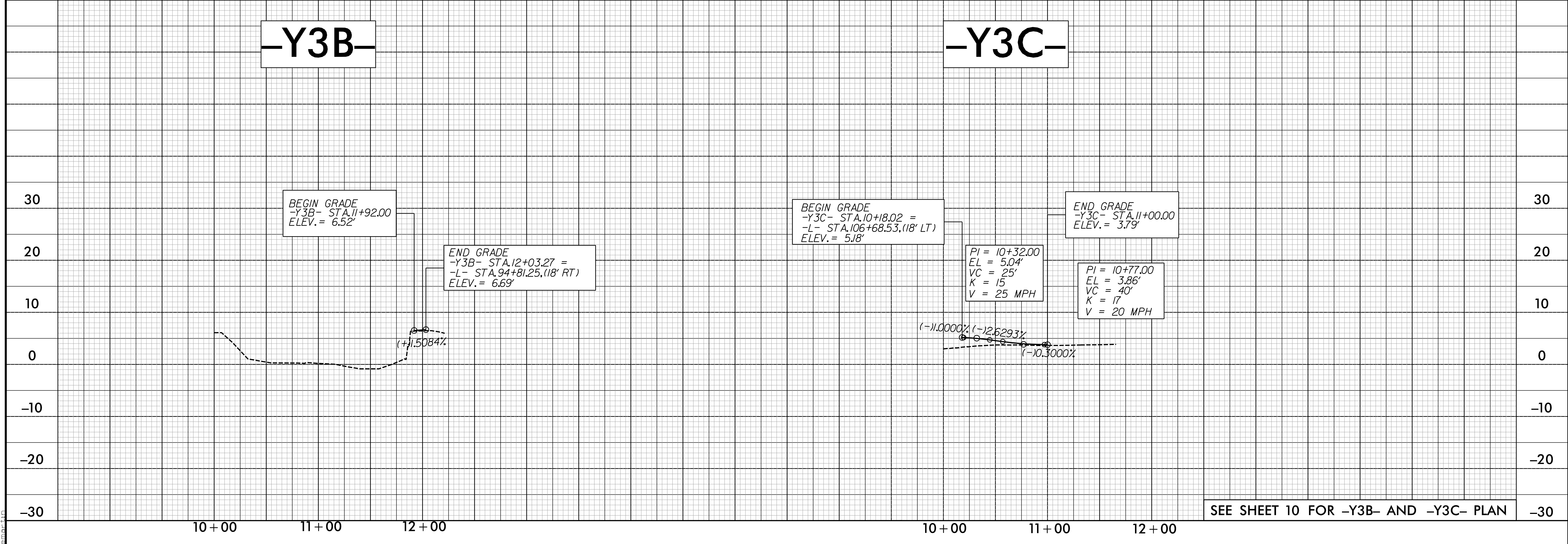
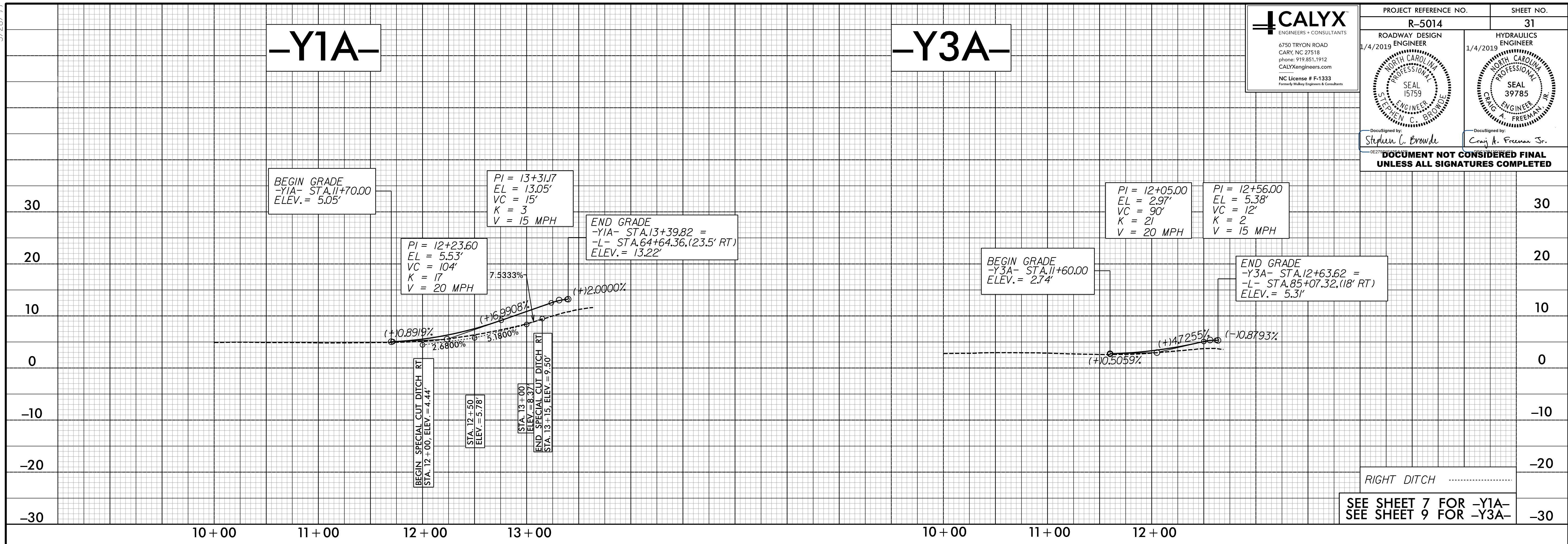
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PROJECT REFERENCE NO. <b>R-5014</b>	SHEET NO. <b>31</b>
ROADWAY DESIGN 1/4/2019 ENGINEER	HYDRAULICS 1/4/2019 ENGINEER
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