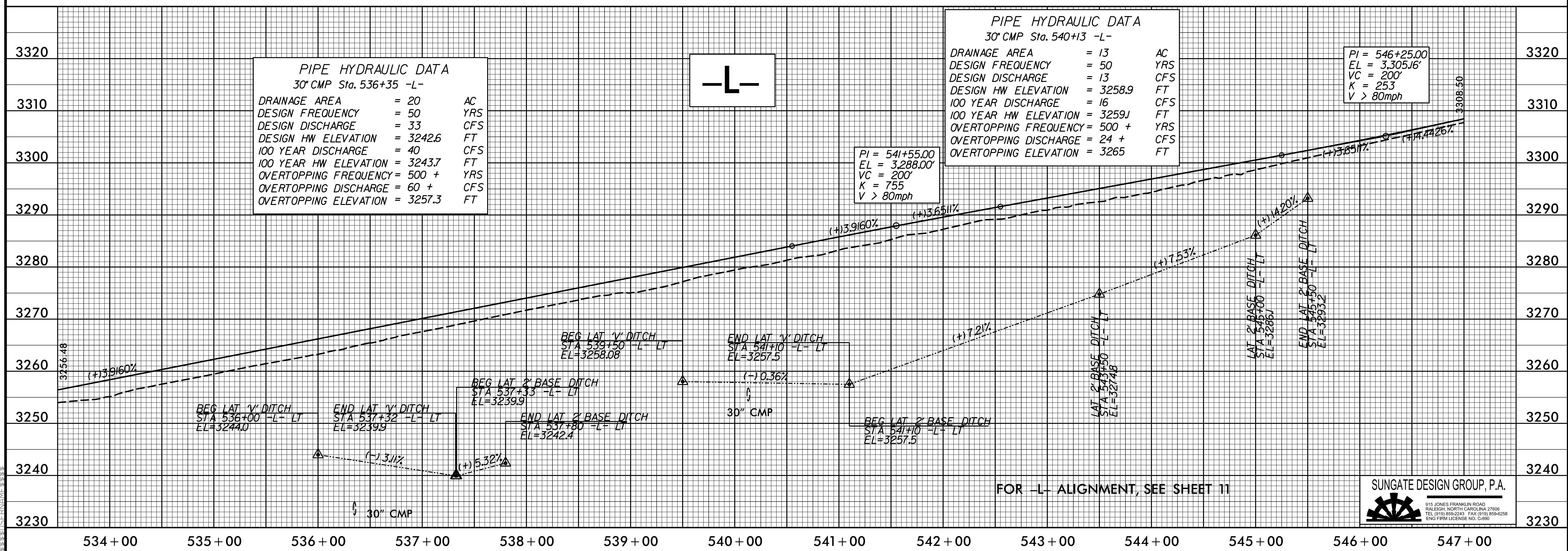
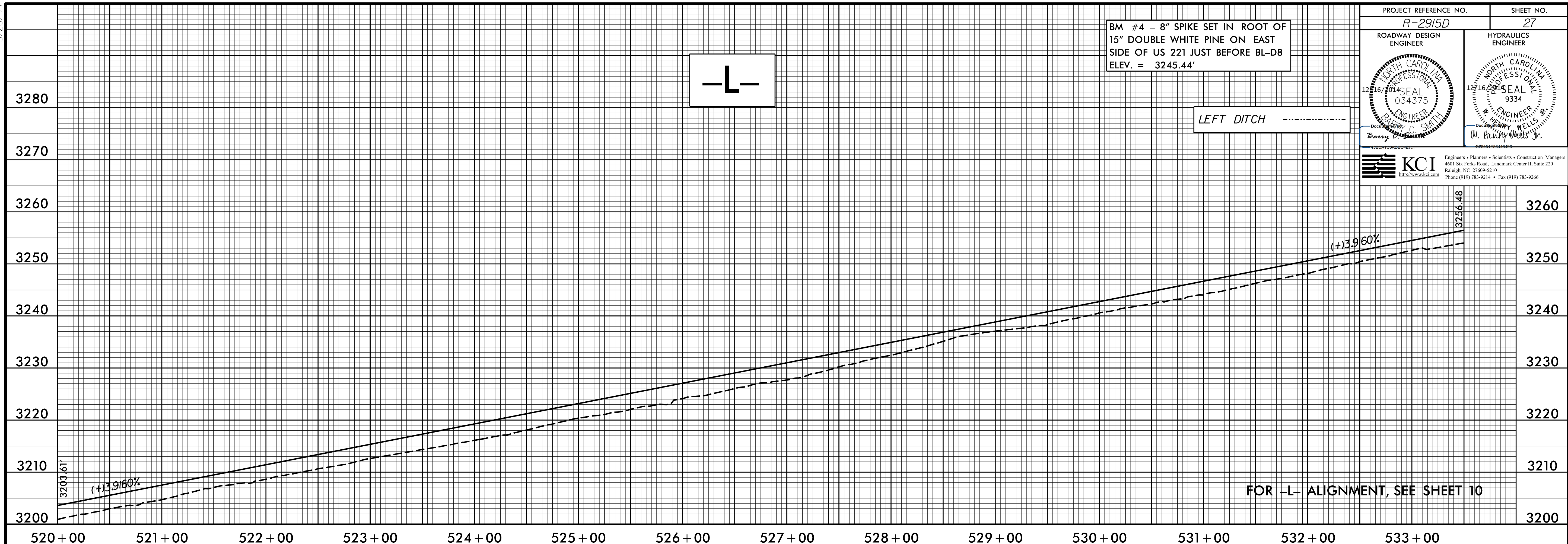


5/28/99

PROJECT REFERENCE NO. <b>R-2915D</b>	SHEET NO. <b>27</b>
ROADWAY DESIGN ENGINEER <b>BARRY C. SMITH</b>	HYDRAULICS ENGINEER <b>HENRY WELLS JR.</b>
<b>KCI</b> <small>Engineers • Planners • Scientists • Construction Managers</small> <small>4601 Six Forks Road, Landmark Center II, Suite 220</small> <small>Raleigh, NC 27609-5210</small> <small>Phone (919) 783-9214 • Fax (919) 783-9266</small>	

BM #4 - 8" SPIKE SET IN ROOT OF  
15" DOUBLE WHITE PINE ON EAST  
SIDE OF US 221 JUST BEFORE BL-D8  
ELEV. = 3245.44'



**PIPE HYDRAULIC DATA**  
30" CMP Sta. 536+35 -L-

DRAINAGE AREA	= 20	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 33	CFS
DESIGN HW ELEVATION	= 3242.6	FT
100 YEAR DISCHARGE	= 40	CFS
100 YEAR HW ELEVATION	= 3243.7	FT
OVERTOPPING FREQUENCY	= 500 +	YRS
OVERTOPPING DISCHARGE	= 60 +	CFS
OVERTOPPING ELEVATION	= 3257.3	FT

**PIPE HYDRAULIC DATA**  
30" CMP Sta. 540+13 -L-

DRAINAGE AREA	= 13	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 13	CFS
DESIGN HW ELEVATION	= 3258.9	FT
100 YEAR DISCHARGE	= 16	CFS
100 YEAR HW ELEVATION	= 3259.1	FT
OVERTOPPING FREQUENCY	= 500 +	YRS
OVERTOPPING DISCHARGE	= 24 +	CFS
OVERTOPPING ELEVATION	= 3265	FT

PI = 546+25.00  
EL = 3,305.16'  
VC = 200'  
K = 253  
V > 80mph

PI = 541+55.00  
EL = 3,288.00'  
VC = 200'  
K = 755  
V > 80mph

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**SUNGATE DESIGN GROUP, P.A.**  
  
915 JONES FRANKLIN ROAD  
RALEIGH, NORTH CAROLINA 27608  
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ENG FIRM LICENSE NO. C-890