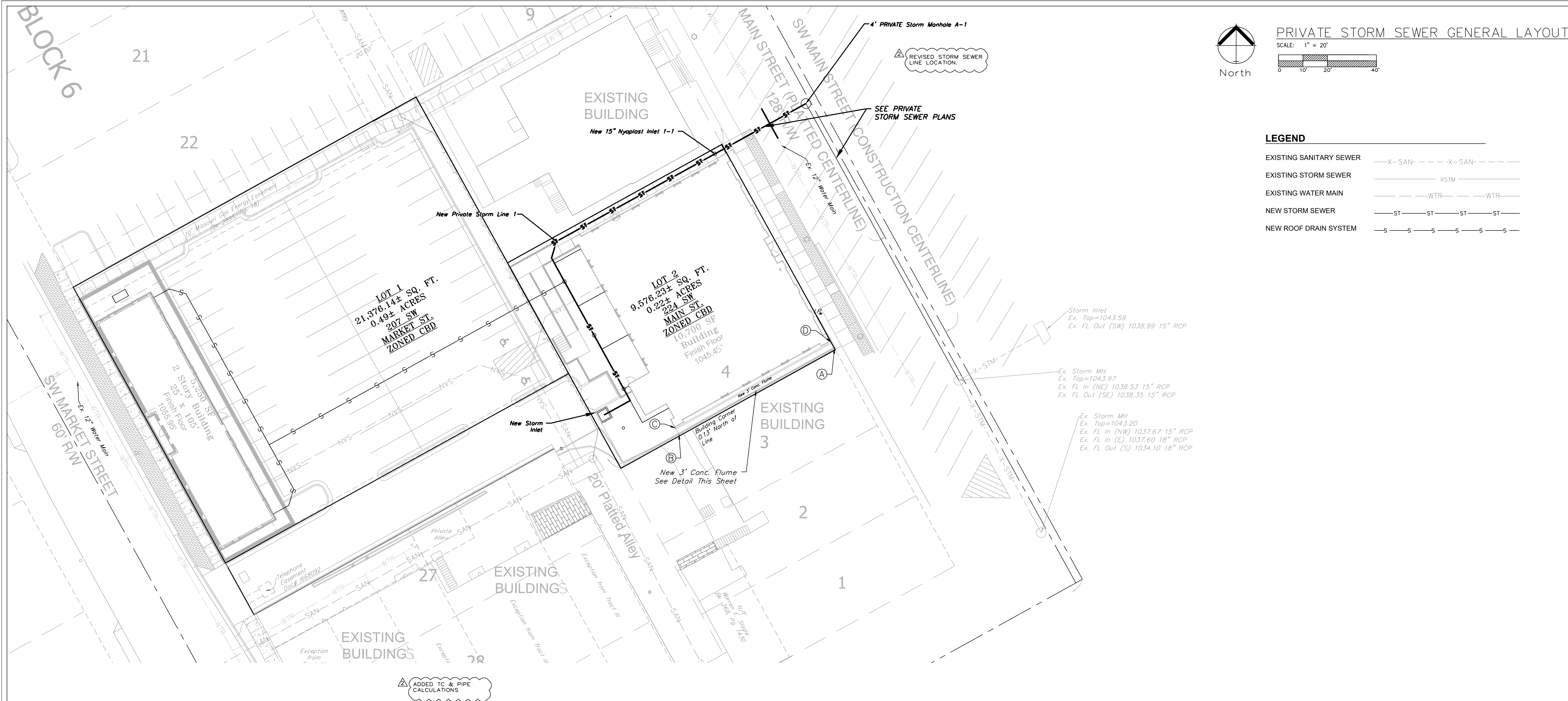
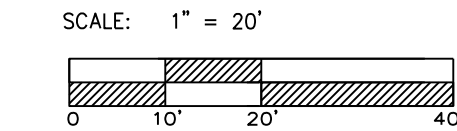




PRIVATE STORM SEWER GENERAL LAYOUT



LEGEND

EXISTING SANITARY SEWER	X-SAN- - - - X-SAN- - - -
EXISTING STORM SEWER	XSTM
EXISTING WATER MAIN	WTR- - - - WTR- - - -
NEW STORM SEWER	ST- - - - ST- - - - ST- - - - ST- - - -
NEW ROOF DRAIN SYSTEM	S- - - - S- - - - S- - - - S- - - -

APWA STORM DRAINAGE "TC" COMPUTATIONS FOR : REECE NICHOLS																				
yellow areas are self computing overwrite if necessary						Surface types: Asph/ConcBus/Com Dirt Grass/Park Lake Multifam SnglFam Undev Other														
						SURFACE CODES A B C D S U Z														
						0.90 0.87 0.60 0.30 0.90 0.66 0.51 0.3														
						TC COMPUTATION														
TOTAL WATERSHED						"C" Values Overwrite Length - DnElev or Slope if necessary														
						SURFACE CODES P=Paused Overwrite Slope or Elevations if necessary														
						U=Unpaved														
						CHANNEL FLOW - FIRST REACH														
AREA ID						OVERLAND FLOW - 100' MAX						CAL OVERLAND								AREA ID
						SURFACE CODE VALUE LENGTH ELEV ELEV SLOPE						CHANNEL UP DN SLOPE VELOCITY								
TOTAL ACRES WTRSHD LENGTH ELEV ELEV DN						CODE VALUE LENGTH ELEV ELEV SLOPE						P LENGTH ELEV ELEV F/S								
2 0.55 244.0 1055.0 1048.0						B 0.87 100.0 1055.0 1050.7 4.3						P 144.0 1050.7 1048.0 1.88 2.8								2

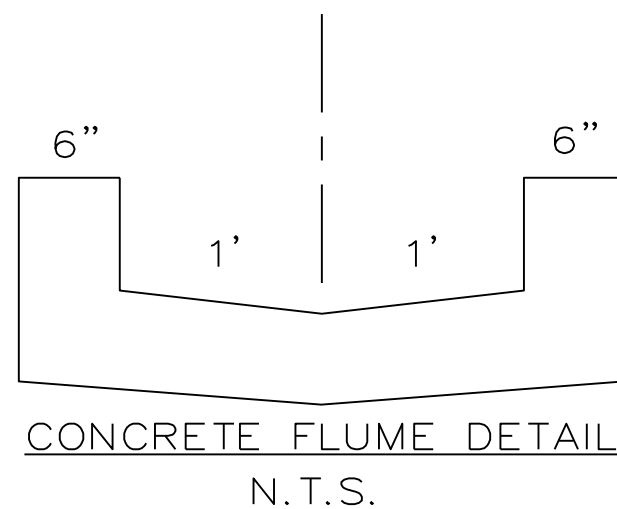
10-YR PIPE														
D.S. Str.	U.S. Str.	LineLength (ft)	Incr.Area (ac)	TotalArea (ac)	RunoffCoeff. (C)	IncrC x A	TotalC x A	InletTime (min)	TimeConc (min)	RnfallInt (in/hr)	TotalRunoff (cfs)	TotalFlow (cfs)	CapacFull (cfs)	Veloc (ft/s)
A-1	1-1	42.45	0.04	0.83	0.87	0.03	0.72	5	6.4	6.9	4.97	4.97	4.96	4.6
1-1	1-2	91.98	0.14	0.79	0.87	0.12	0.69	5	6.1	7	4.79	4.79	6.19	5.15
1-2	1-3	25	0.1	0.65	0.87	0.09	0.57	5	6	7	3.95	3.95	6.5	5.15
1-3	1-4	25	0	0.55	0	0	0.48	0	6	7	3.35	3.35	6.5	4.89
1-4	1-5	17.63	0.55	0.55	0.87	0.48	0.48	5.9	5.9	7	3.36	3.36	6.32	4.84

100-YR PIPE														
D.S. Str.	U.S. Str.	LineLength (ft)	Incr.Area (ac)	TotalArea (ac)	RunoffCoeff. (C)	IncrC x A	TotalC x A	InletTime (min)	TimeConc (min)	RnfallInt (in/hr)	TotalRunoff (cfs)	TotalFlow (cfs)	CapacFull (cfs)	Veloc (ft/s)
A-1	1-1	42.45	0.04	0.83	0.87	0.03	0.72	5	6.4	10.4	7.52	7.52	4.96	6.13
1-1	1-2	91.98	0.14	0.79	0.87	0.12	0.69	5	6.2	10.5	7.23	7.23	6.19	5.89
1-2	1-3	25	0.1	0.65	0.87	0.09	0.57	5	6.1	10.6	5.97	5.97	6.5	4.86
1-3	1-4	25	0	0.55	0	0	0.48	0	6	10.6	5.07	5.07	6.5	4.13
1-4	1-5	17.63	0.55	0.55	0.87	0.48	0.48	5.9	5.9	10.6	5.08	5.08	6.32	4.14

100 YEAR AND 10 YEAR OVERFLOW FLUME SECTIONS											
Section	Drainage Area	100 Yr. Runoff (c.f.s.)	10 Yr. Runoff (c.f.s.)	Bed Slope (%)	Base Width (ft)	Side Slope (1:V)	Normal Depth (ft)	Sectional Area	Velocity 100Yr. (f.p.s.)	Velocity 10Yr. (f.p.s.)	Hydraulic Radius (ft)
1	0.58	6.29	3.58	3.59	2	0	0.36	0.72	8.34	7.16	0.26

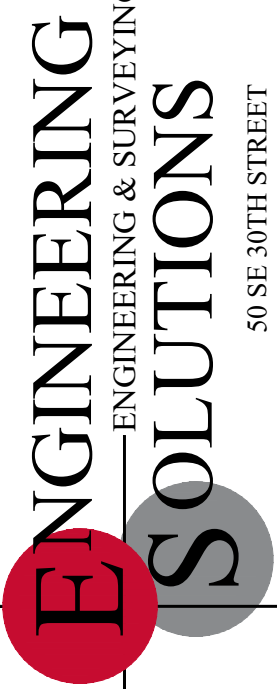
NOTE: Flume contains uniform cross section and constant longitudinal (Bed) slope.

ADDED FLUME DATA



Q100 = 6.29 CFS
ASSUMING INLET 5-1
100% PLUGGED
100 YR WSE = 1048.36
AT POINT B
SLOPE = 3.59%

Finish Grade Elevations of Channel	
Pt.	Elevation
A	1045.79
B	1048.50
C	1048.50
D	1045.79



Professional Registration
Missouri
Engineering 2005002186-D
Surveying 2005003192-D
Kansas
Engineering E-1696
Surveying LS-218
Oklahoma
Engineering 6254
Nebraska
Engineering CA2821

Construction Plans for:
Reece Nichols
Lee's Summit, Jackson County, Missouri

Project AND
NICHOLS, LSNM
Issue Date
January 29, 2019

Private Storm Sewer General Layout
Construction Plans for:
Reece Nichols
Lee's Summit, Jackson County, Missouri

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MO PE 2006019708
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OK PE 25226
REVISIONS
Revised 4/2/19
Revised 5/8/19
Revised 6/6/19