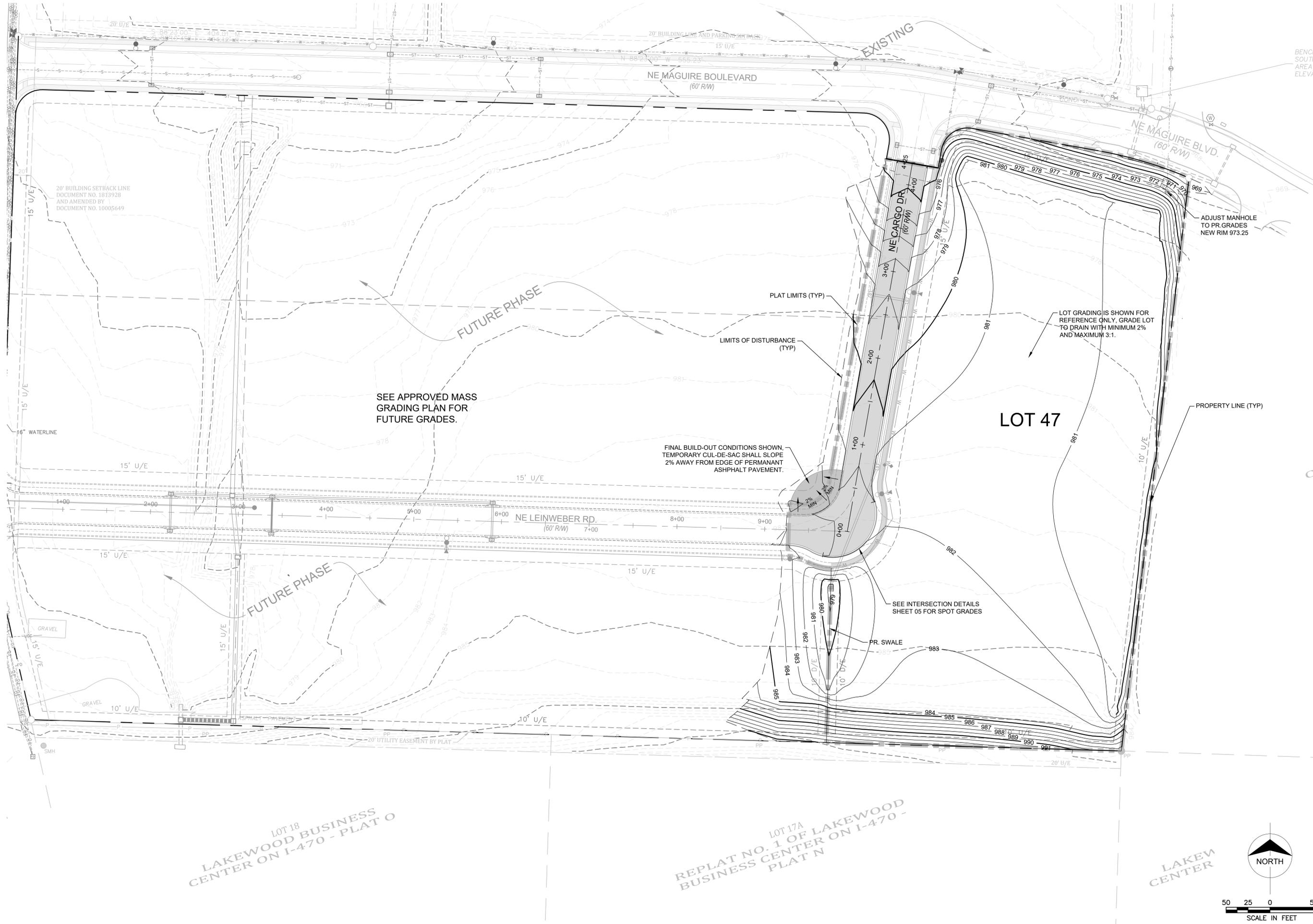


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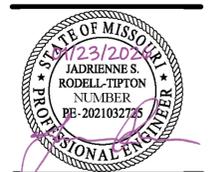


POWELL C W M
ARCHITECTURE/ENGINEERING/SURVEYING
3200 S. State Route 291, Bldg. 1, Independence, MO 64057
(816) 373-4800 | powellcwm.com

Certificates of Authority
Architecture: MO 310 / KS 73
Engineering: MO 4 / KS 241
Land Surveying: MO 123 / KS 36

DEVELOPER/OWNER
NORTH OAK SAFETY STORAGE, LLC
1120 NW EAGLE RIDGE BLVD.
GRAIN VALLEY, MO 64029
(816) 229-8115

Street and Storm Public Improvements for
LAKWOOD BUSINESS CENTER
ON I-470 'PLAT T'
NE Maguire Boulevard
Lee's Summit, Jackson County, MO



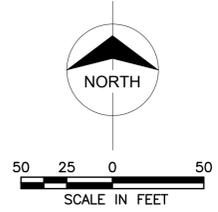
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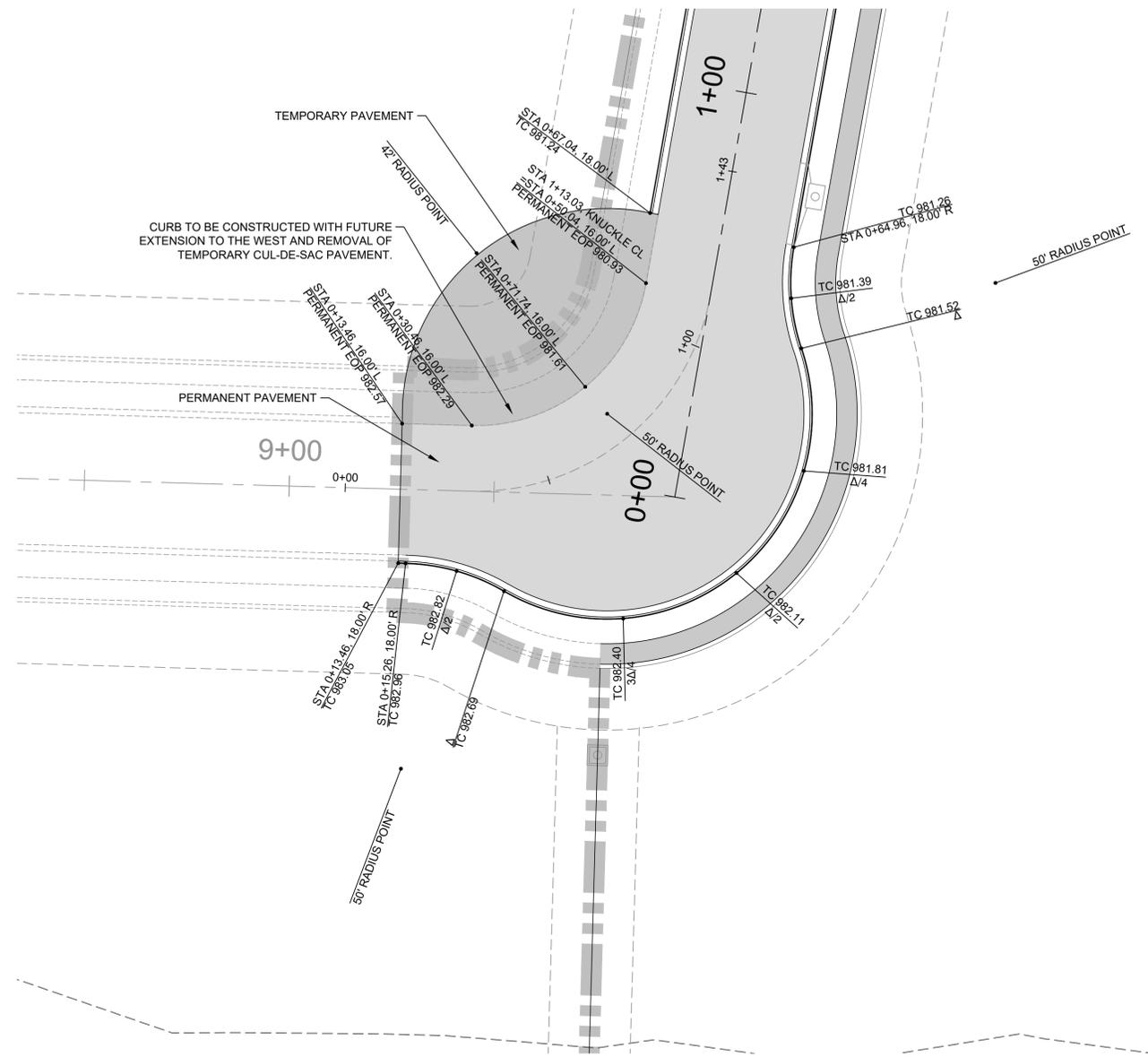
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PROJECT #: 25-2347
ISSUE DATE: 11/04/2025
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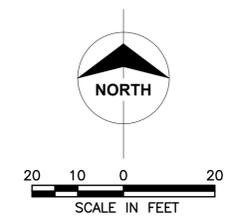
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NE CARGO DRIVE KNUCKLE DETAIL



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 NORTH OAK SAFETY STORAGE, LLC
 1120 NW EAGLE RIDGE BLVD.
 GRAIN VALLEY, MO 64029
 (816) 229-8115

Street and Storm Public Improvements for
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JADRIENNE S. RODELL-TIPTON, PE
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LineNo.	LineID	DrainageArea (ac)	IncrCxA	Tc (min)	PipeTravel (min)	iSys (in/hr)	IncrQ (cfs)	LineLength (ft)	LineSize (in)	LineSlope (%)	CapacityFull (cfs)	VelHd Up (ft)	VelDn (ft/s)	Hw (ft)	Rim-Hw (ft)	InvertUp (ft)	InvertDn (ft)	SfAve (%)	J-LossCoeff	EnergyLoss (ft)	HGLUp (ft)	HGLDn (ft)	TotalRunoff (cfs)
8	B9-B8	1.71	1.13	5	0.5	7.35	8.3	141.553	18	0.5	8.06	0.38	5.89	1.74	3.39	974.63	973.92	0.56	1	0.792	975.99	975.03	8.3
7	B8-B7	1.12	0.74	5.5	0.74	7.2	5.44	187.037	24	0.89	23.08	0.9	7.63	1.1	6.37	973.72	972.06	0	0.50 z	0	974.82	973.16	13.45
6	B7-B6	0.72	0.48	6.2	0.13	6.99	3.49	39	24	1.28	27.74	1.31	9.19	1.11	6.59	971.56	971.06	0	1.00 z	0	972.67	972.17	16.38
5	B6-B5	0.83	0.55	6.4	0.45	6.95	4.03	167.373	24	1.91	33.88	1.96	11.24	1.11	7.49	970.66	967.46	0	1.00 z	0	971.77	968.57	20.1
4	B5-B4	1.65	1.09	6.8	0.08	6.83	8.01	38.997	24	3.82	47.89	3.84	15.72	1.08	5.88	967.16	965.67	0	0.60 z	0	968.24	966.75	27.19
3	B4-B3	0.45	0.3	6.9	0.17	6.81	2.18	59.132	30	1.78	59.2	2.24	12.01	1.24	7.65	965.22	964.17	0	0.30 z	0	966.46	965.41	29.13
2	B3-B2	0.15	0.1	7.1	0.12	6.77	0.73	39.734	30	1.81	59.81	2.3	12.15	1.24	6.7	963.75	963.03	0	0.40 z	0	964.99	964.27	29.6
1	B2-B1	0.21	0.14	7.2	0.48	6.74	1.02	168.429	30	2.08	64.05	2.58	6.67	1.21	7.88	962.41	958.91	0	1.00 z	0	963.62 j	961.1	30.41

10-YR STORM

LineNo.	LineID	DrainageArea (ac)	IncrCxA	Tc (min)	PipeTravel (min)	iSys (in/hr)	IncrQ (cfs)	LineLength (ft)	LineSize (in)	LineSlope (%)	CapacityFull (cfs)	VelHd Up (ft)	VelDn (ft/s)	Hw (ft)	Rim-Hw (ft)	InvertUp (ft)	InvertDn (ft)	SfAve (%)	J-LossCoeff	EnergyLoss (ft)	HGLUp (ft)	HGLDn (ft)	TotalRunoff (cfs)
1	B2-B1	0.21	0.17	6.2	0.27	9.83	1.8	168.429	30	2.08	64.05	3.36	11.46	1.81	7.28	962.41	958.91	0	1.00 z	0	964.22	961.34	55.83
2	B3-B2	0.15	0.12	6.2	0.07	9.86	1.29	39.734	30	1.81	59.81	2.96	13.8	1.87	6.07	963.75	963.03	0	0.40 z	0	965.62	964.9	54.25
3	B4-B3	0.45	0.37	6.1	0.1	9.9	3.86	59.132	30	1.78	59.2	2.89	13.64	1.85	7.04	965.22	964.17	0	0.30 z	0	967.07	966.02	53.22
4	B5-B4	1.65	1.37	6	0.04	9.91	14.14	38.997	24	3.82	47.89	4.67	17.33	1.71	5.25	967.16	965.67	0	0.60 z	0	968.87	967.38	49.61
5	B6-B5	0.83	0.69	5.8	0.25	10.01	7.11	167.373	24	1.91	33.88	2.24	12	1.85	6.75	970.66	967.46	0	1.00 z	0	972.51	969.31	36.39
6	B7-B6	0.72	0.6	5.7	0.07	10.04	6.17	39	24	1.28	27.74	1.53	9.92	1.8	5.9	971.56	971.06	0	1.00 z	0	973.36	972.86	29.58
7	B8-B7	1.12	0.93	5.3	0.42	10.21	9.6	187.037	24	0.89	23.08	1.08	8.34	1.72	5.75	973.72	972.06	0	0.50 z	0	975.44	973.78	23.97
8	B9-B8	1.71	1.42	5	0.28	10.32	14.65	141.553	18	0.5	8.06	1.07	8.29	4.23	-0.43	974.63	973.92	1.659	1	2.348	977.79	975.44	14.65

100-YR STORM

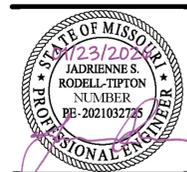


Certificates of Authority
 Architecture: MO 310 / KS 73
 Engineering: MO 4 / KS 241
 Land Surveying: MO 123 / KS 36

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 GRAIN VALLEY, MO 64029
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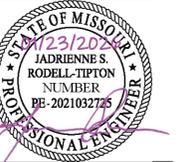
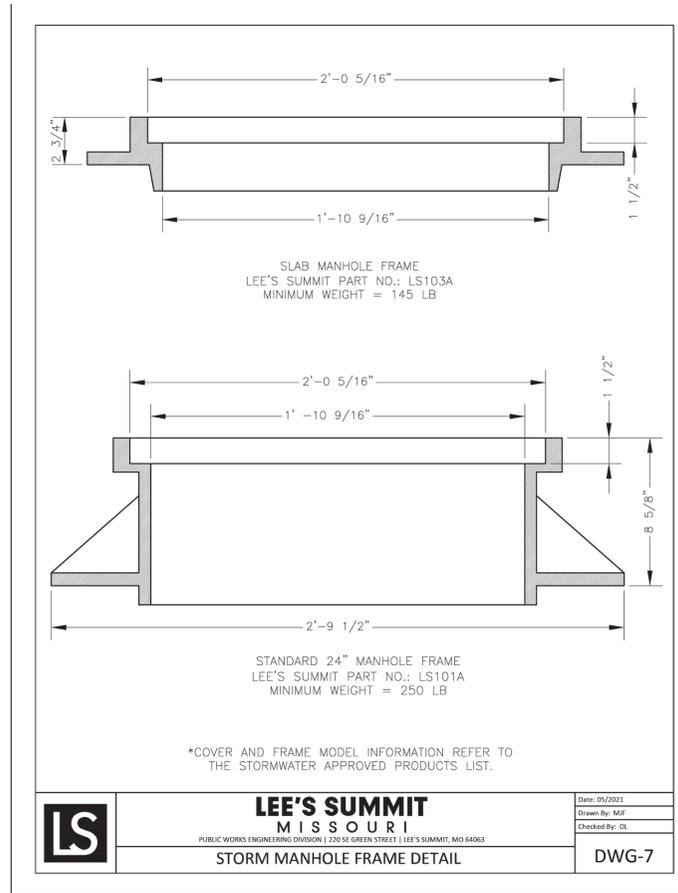
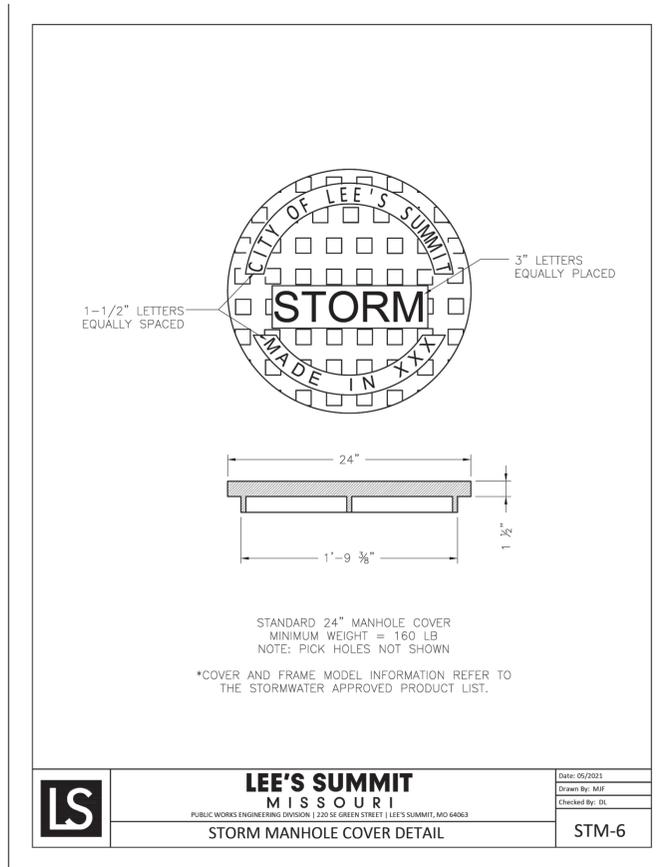
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STORM
 CALCULATIONS



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DETAILS