

POWELL

CWM

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

LAKWOOD BUSINESS CENTER ON I-470 - PLAT S

2710 NE HAGEN ROAD

LEE'S SUMMIT, MO 64064

JACKSON COUNTY

STATE OF MISSOURI
JADRIENNE S. RODELL-TIPTON
NUMBER
PE-2021032725
8/24/2025
PROFESSIONAL ENGINEER

JADRIENNE S. RODELL-TIPTON, PE
PE-2021032725 (MISSOURI) #

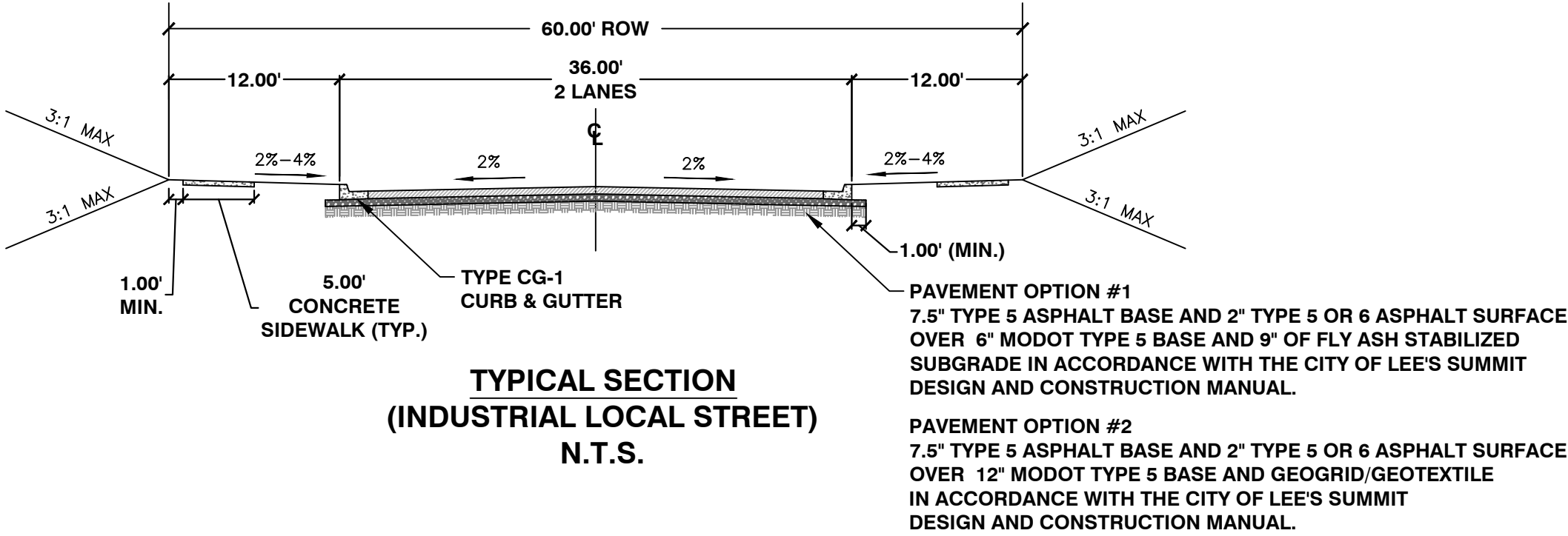
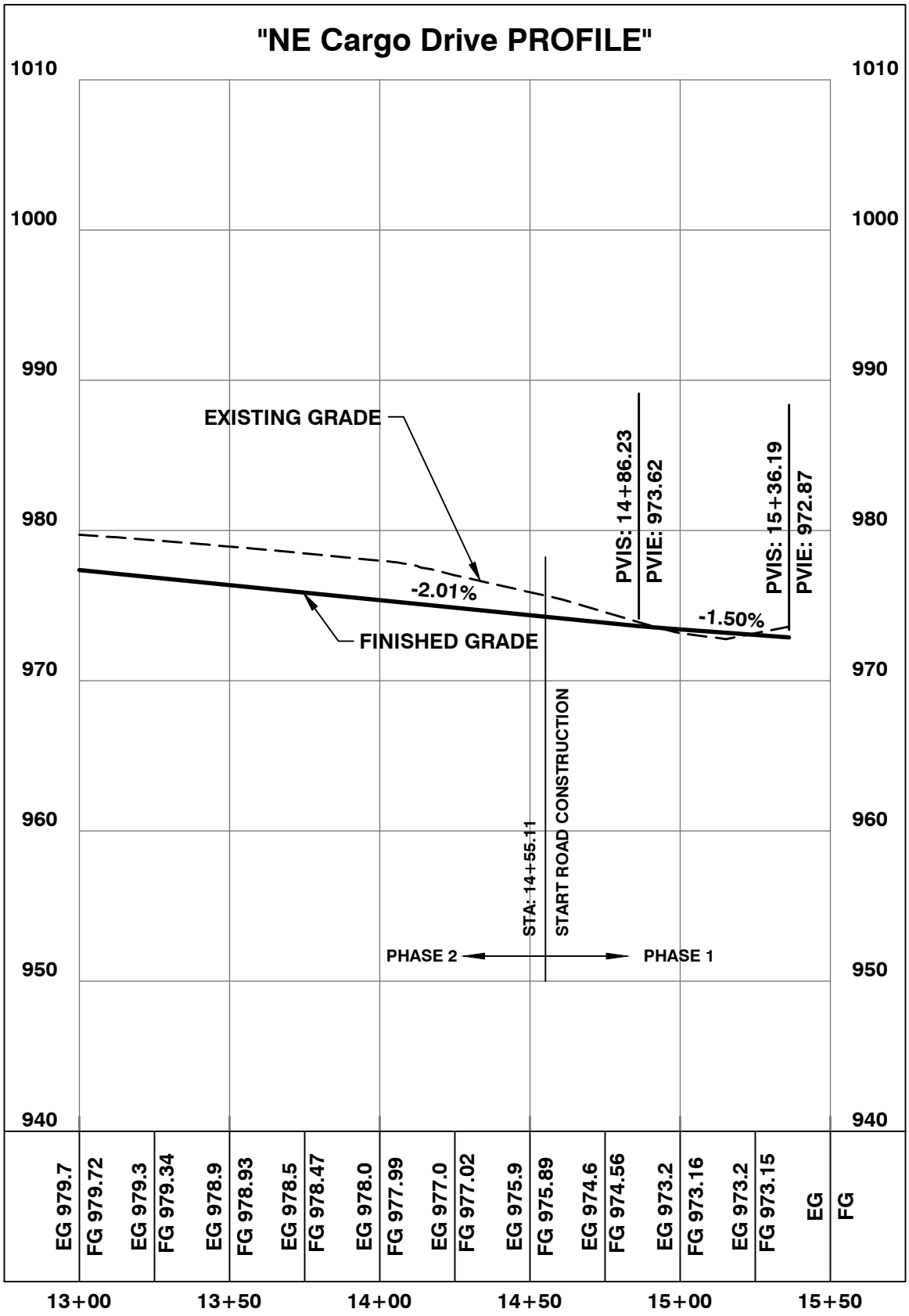
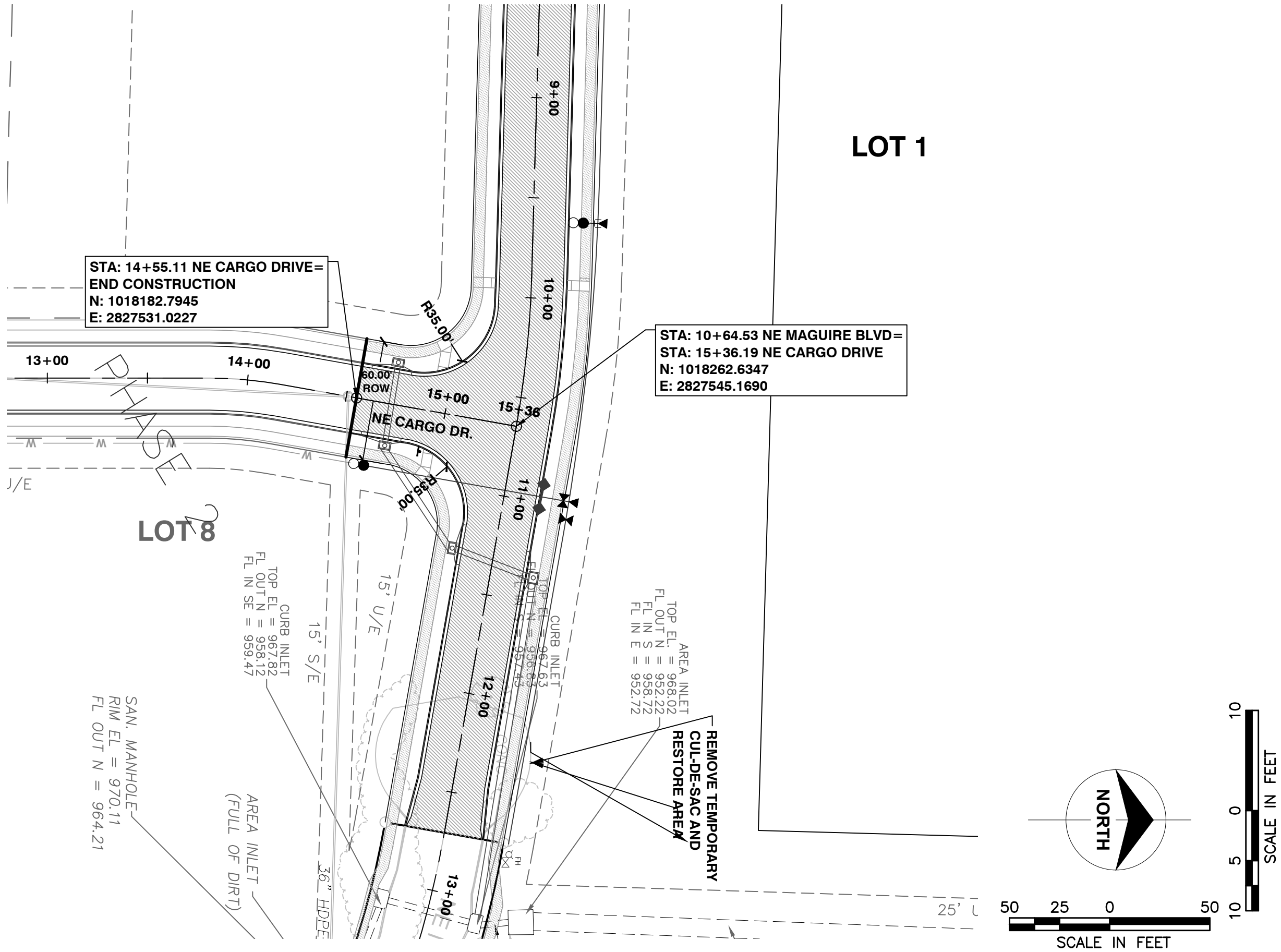
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REVISIONS
NO. DATE / DESCRIPTION

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CHECKED BY: JRT
PROJECT #: 21-1883
ISSUE DATE: 03/31/2022
ISSUED FOR: PERMIT

OVERALL SITE PLAN

C-100



DEVELOPER/OWNER
DAVID WARD
NORTH OAK SAFETY STORAGE, LLC
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**LAKWOOD BUSINESS
CENTER ON I-470 - PLAT S
2710 NE HAGEN ROAD
LEE'S SUMMIT, MO 64064
JACKSON COUNTY**



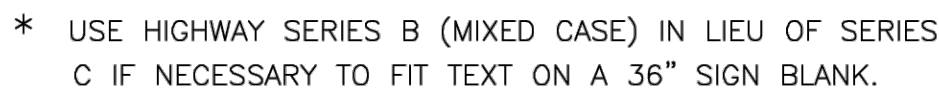
JADRIENNE S. RODELL-TIPTON, PE
PE-2021032725 (MISSOURI #)

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REVISIONS	NO.	DATE	DESCRIPTION

DRAWN BY: JV
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PERMIT
STREET PLAN
& PROFILE - 2
112



NOTES:

1. For all street name signs, the legend shall be white and the background shall be green.
2. Arrows shall be added to street name signs where the name of a street changes at an intersection. Street name signs with arrows are to be installed on each side of the intersection to indicate the change in names. Arrows shall be white.
3. The "PRIVATE STREET" tag should be added to the end of street name signs to indicate where a street that is outside the right-of-way intersects a public street. The background for the "PRIVATE STREET" tag shall be yellow.



* The height to the bottom of a sign when it is located in a pedestrian walkway or extends into a walkway shall be a minimum of 80 inches above the walkway.

NOTE:

1. Generally, the sign mounting height should not be more than 1' greater than the minimum mounting height.

DEVELOPER/OWNER
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JADRIENNE S RODELL-TIPTON, P
PE-2021032725 (MISSOURI #)

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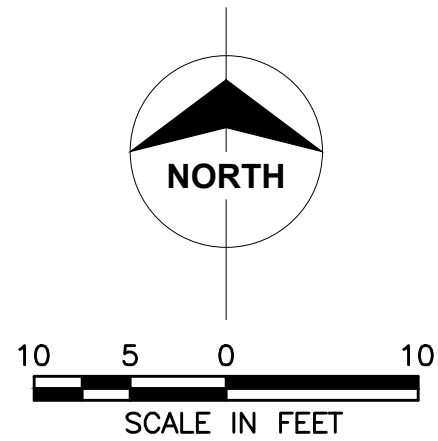
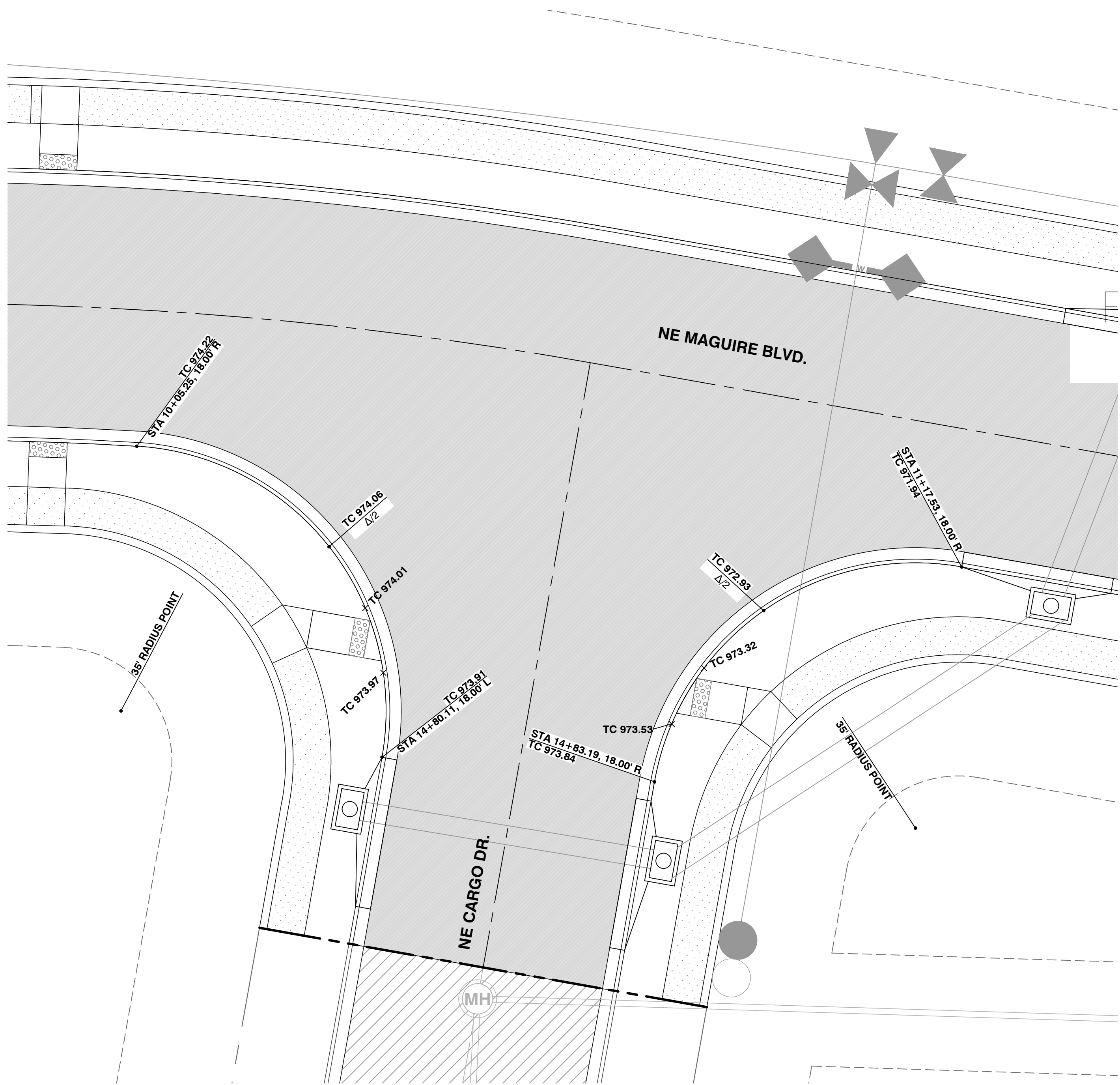
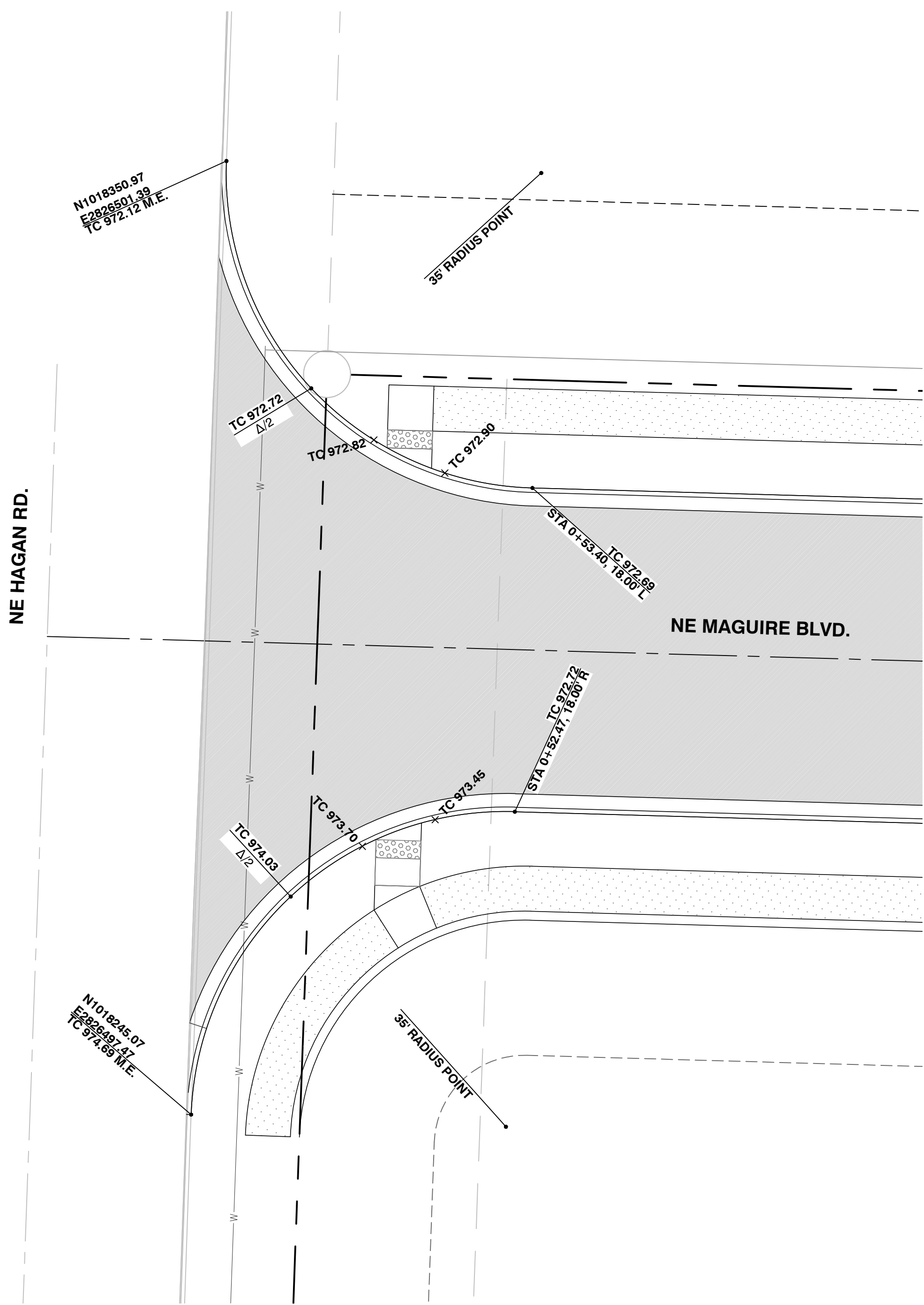
ISSUED FOR:

PERMIT

STREET SIGNAGE PLAN

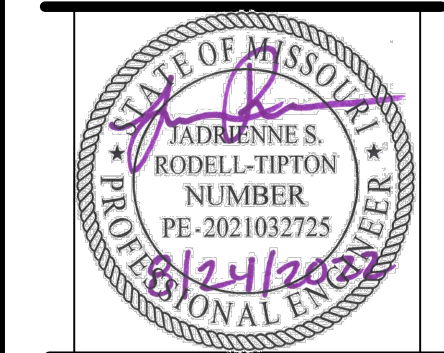
PLAN

120



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

**LAKWOOD BUSINESS
CENTER ON I-470 - PLAT S
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LEE'S SUMMIT, MO 64064
JACKSON COUNTY**



JADRIENNE S. RODELL-TIPTON, PE
PE-2021032725 (MISSOURI #)

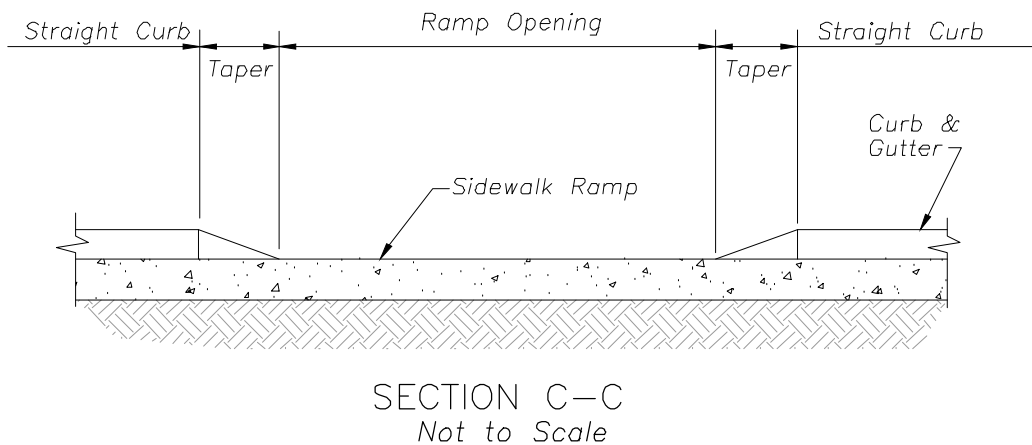
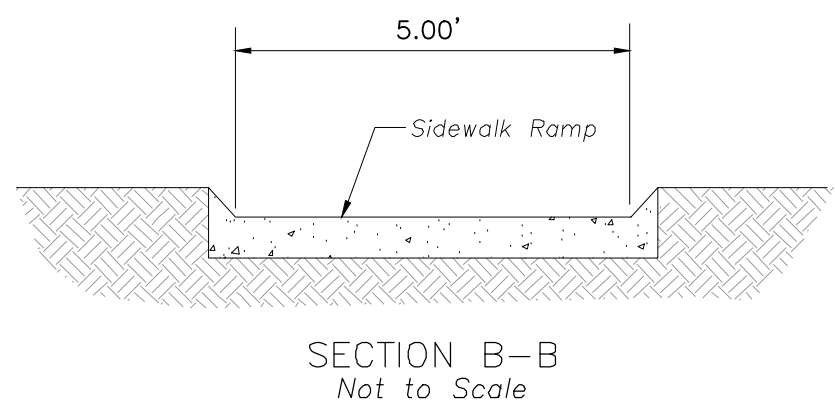
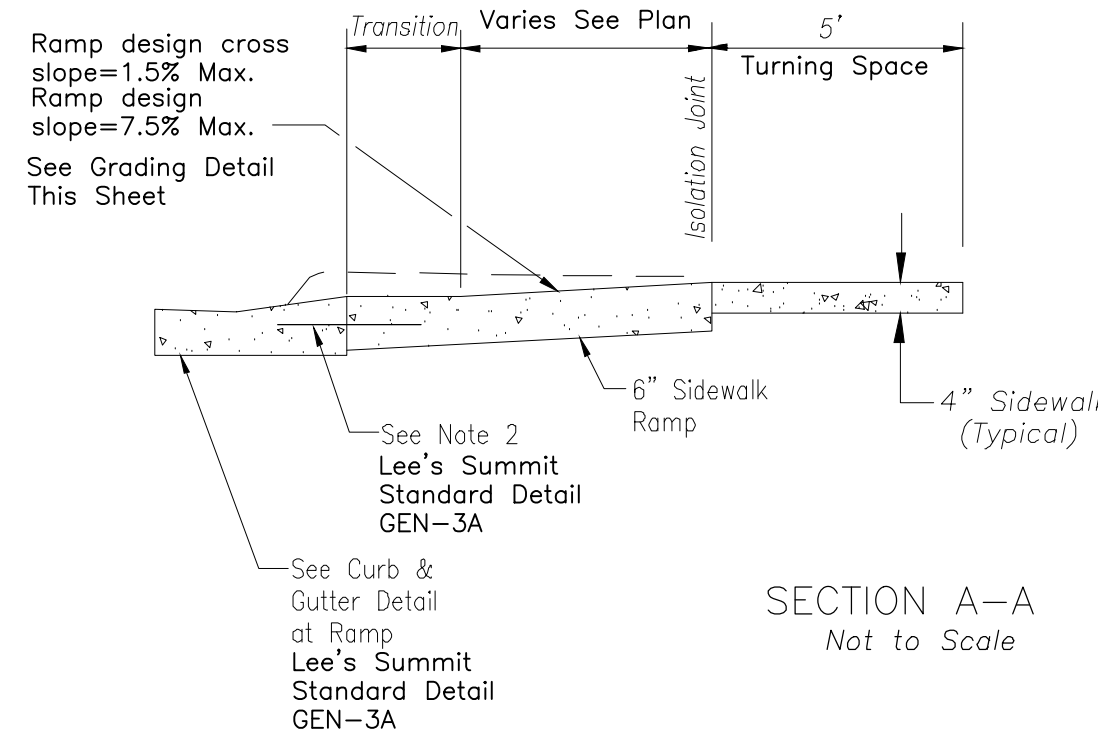
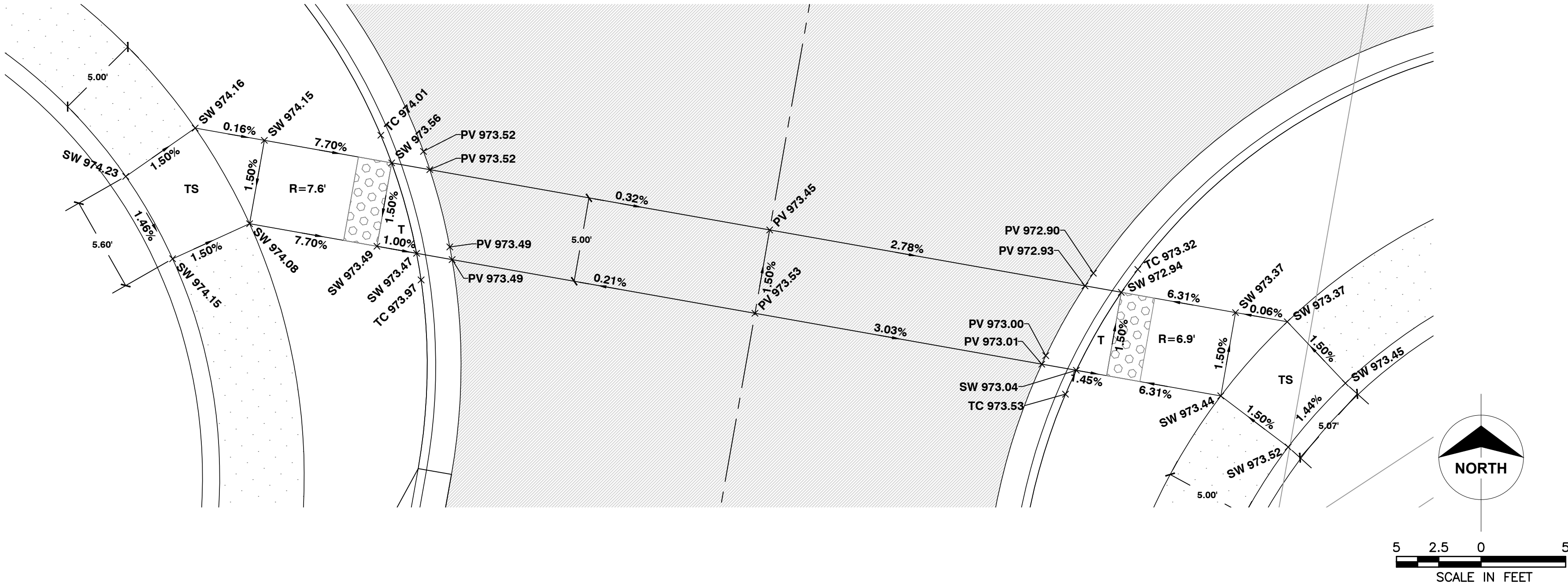
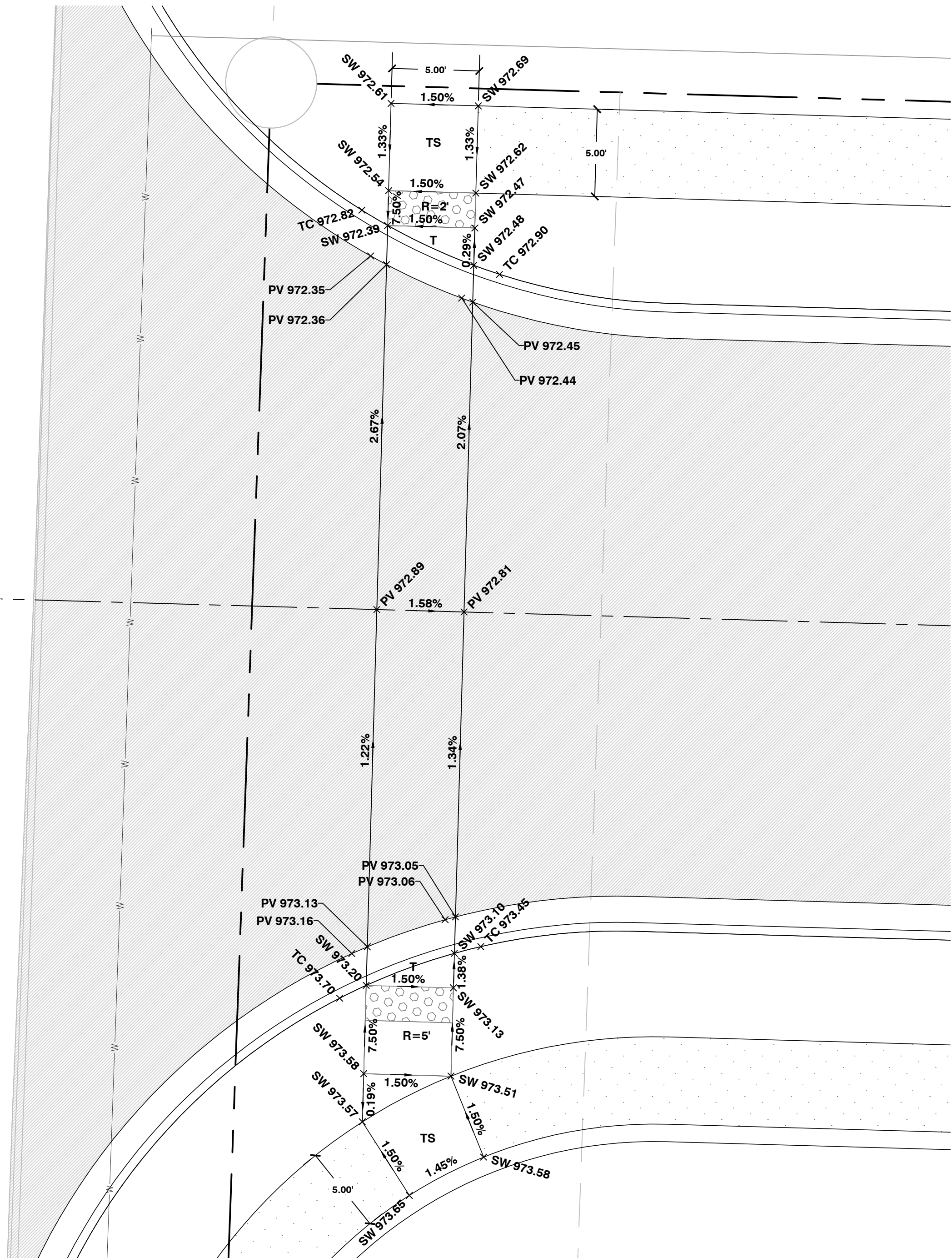
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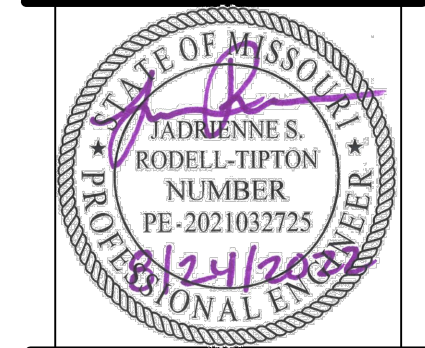
INTERSECTION DETAILS



TYPE A & B SIDEWALK RAMP

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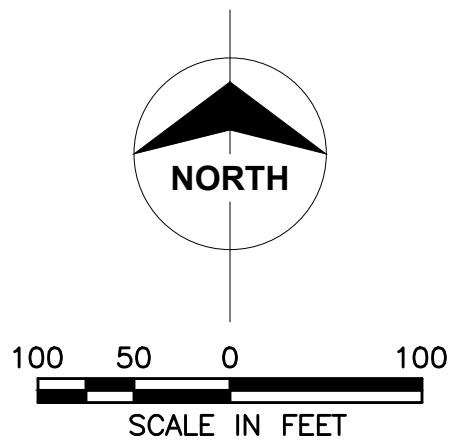
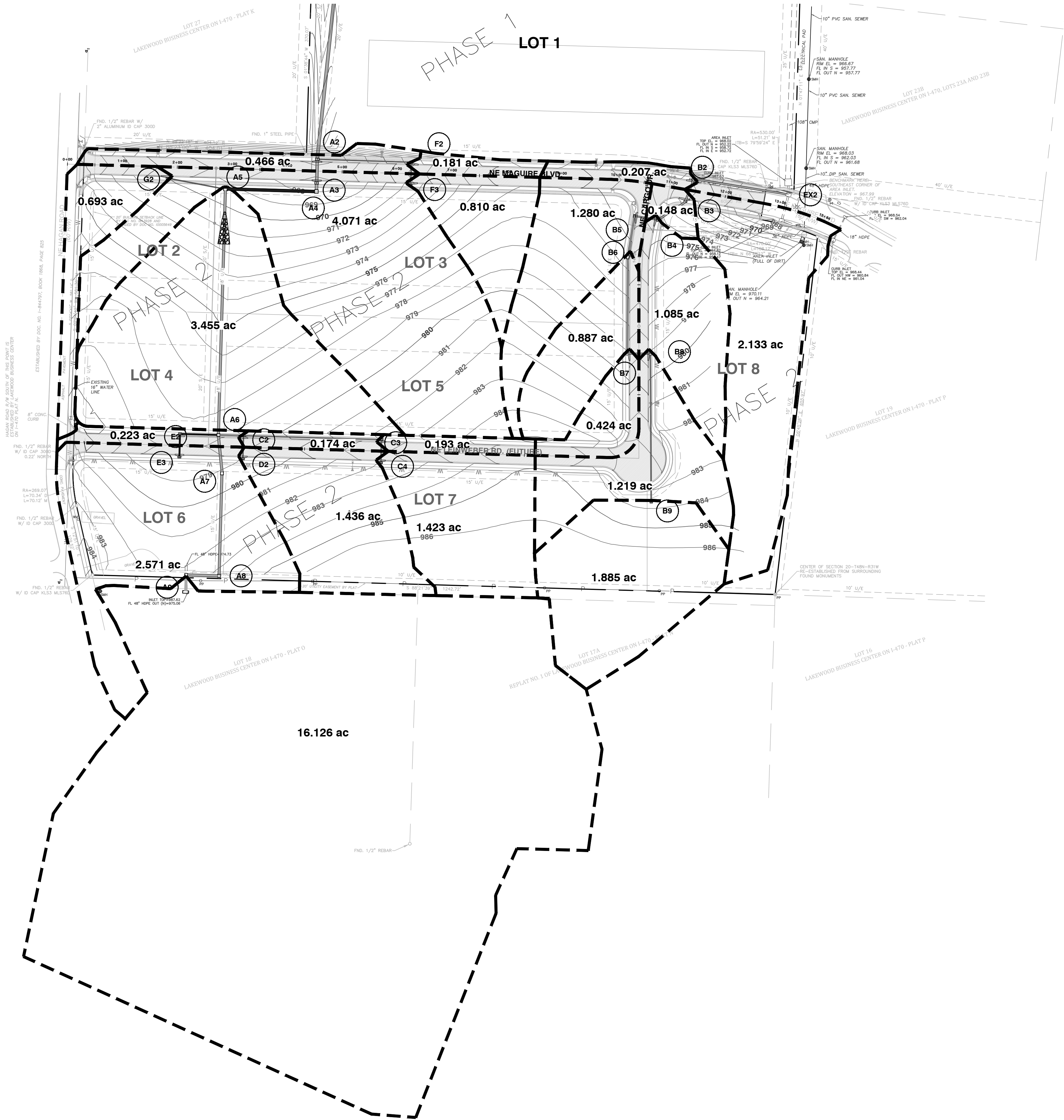
JADRIENNE S. RODELL-TIPTON, PE
PE-2021032725 (MISSOURI #)

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REVISIONS	NO.	DATE	DESCRIPTION
	1		
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CURB RAMP DETAILS



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Certificates of Authority

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

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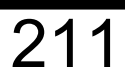
PROJECT #: 21-1883

ISSUE DATE: 03/31/2022

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OVERALL DRAINAGE
AREA MAP

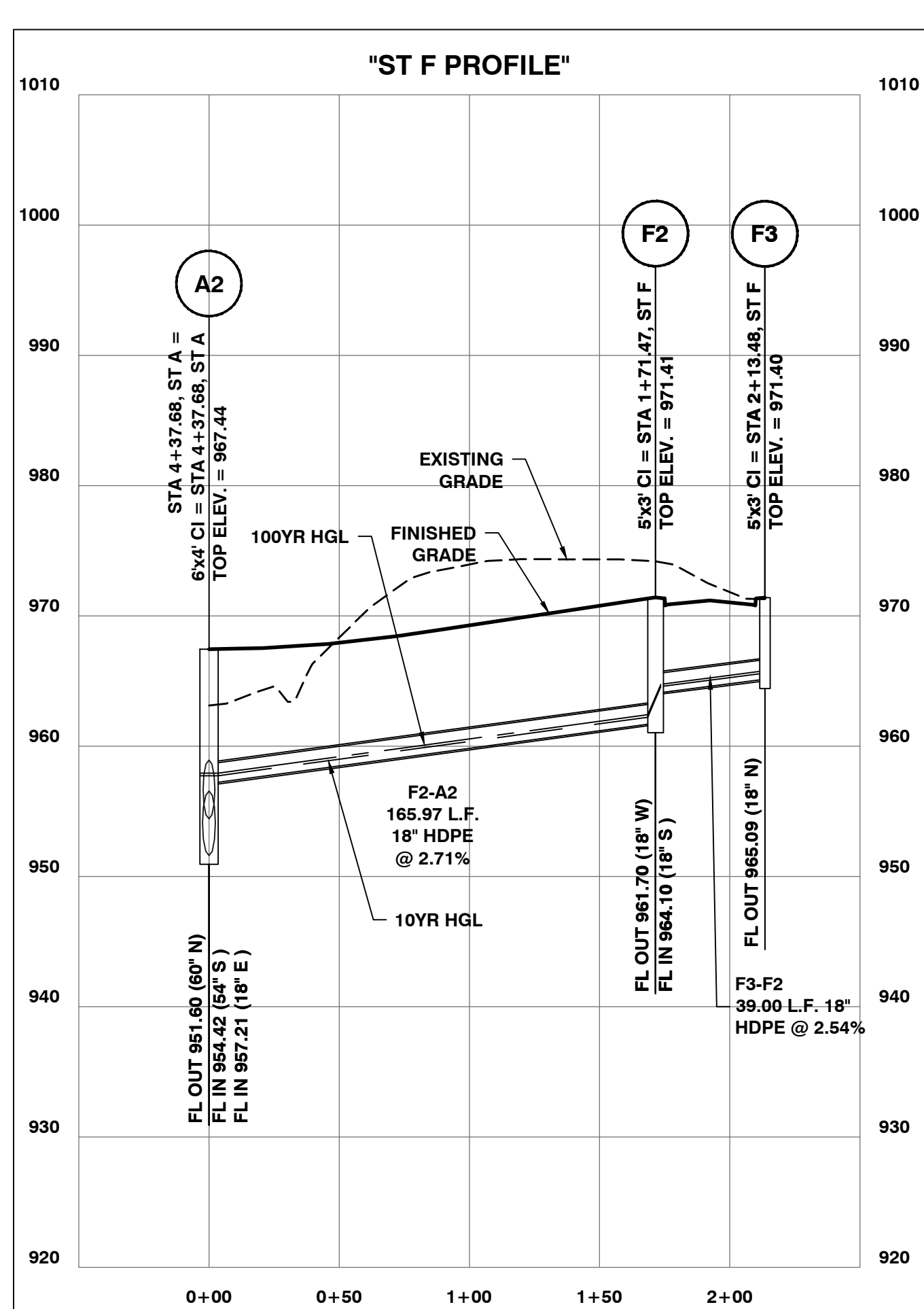
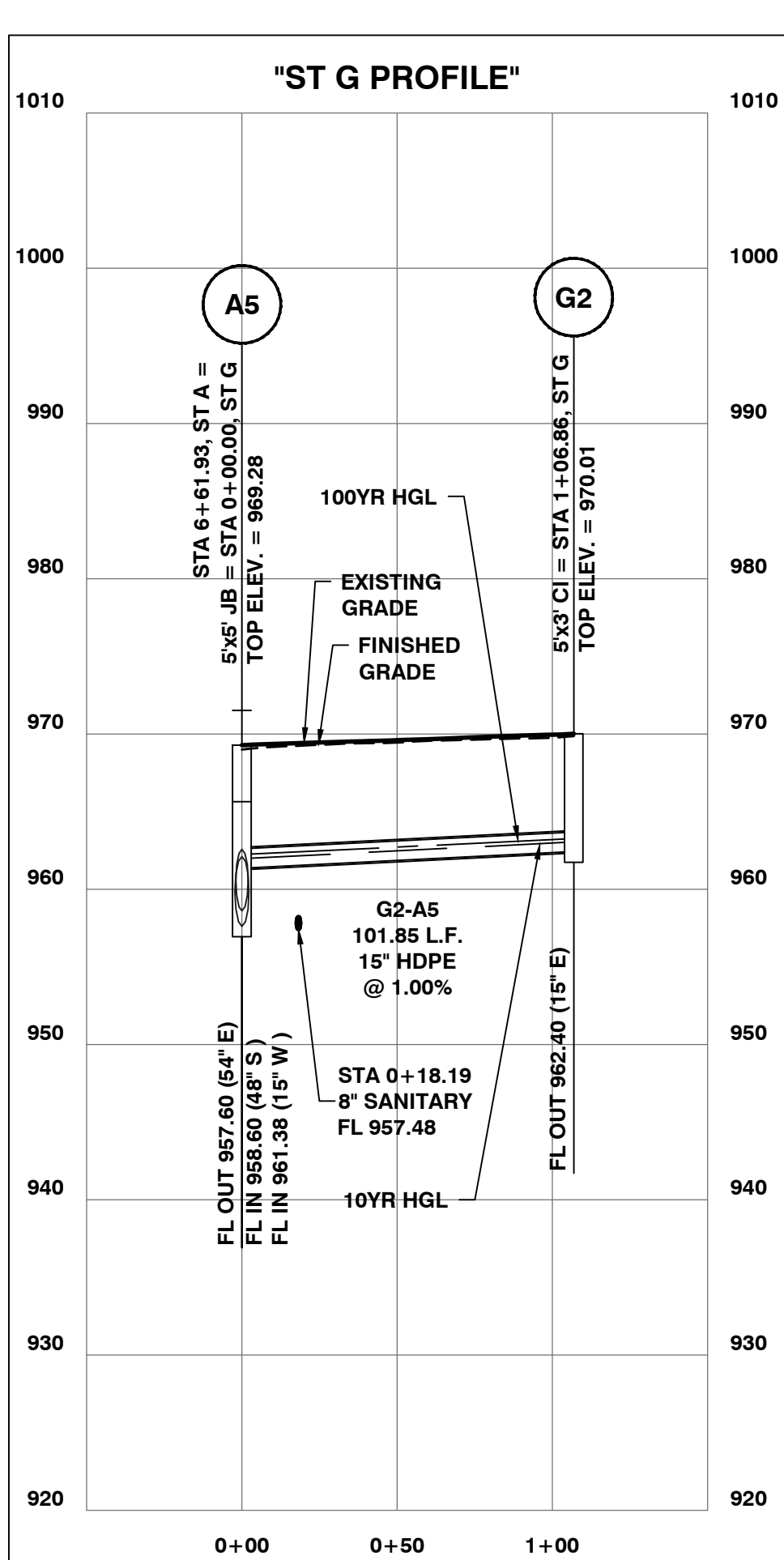
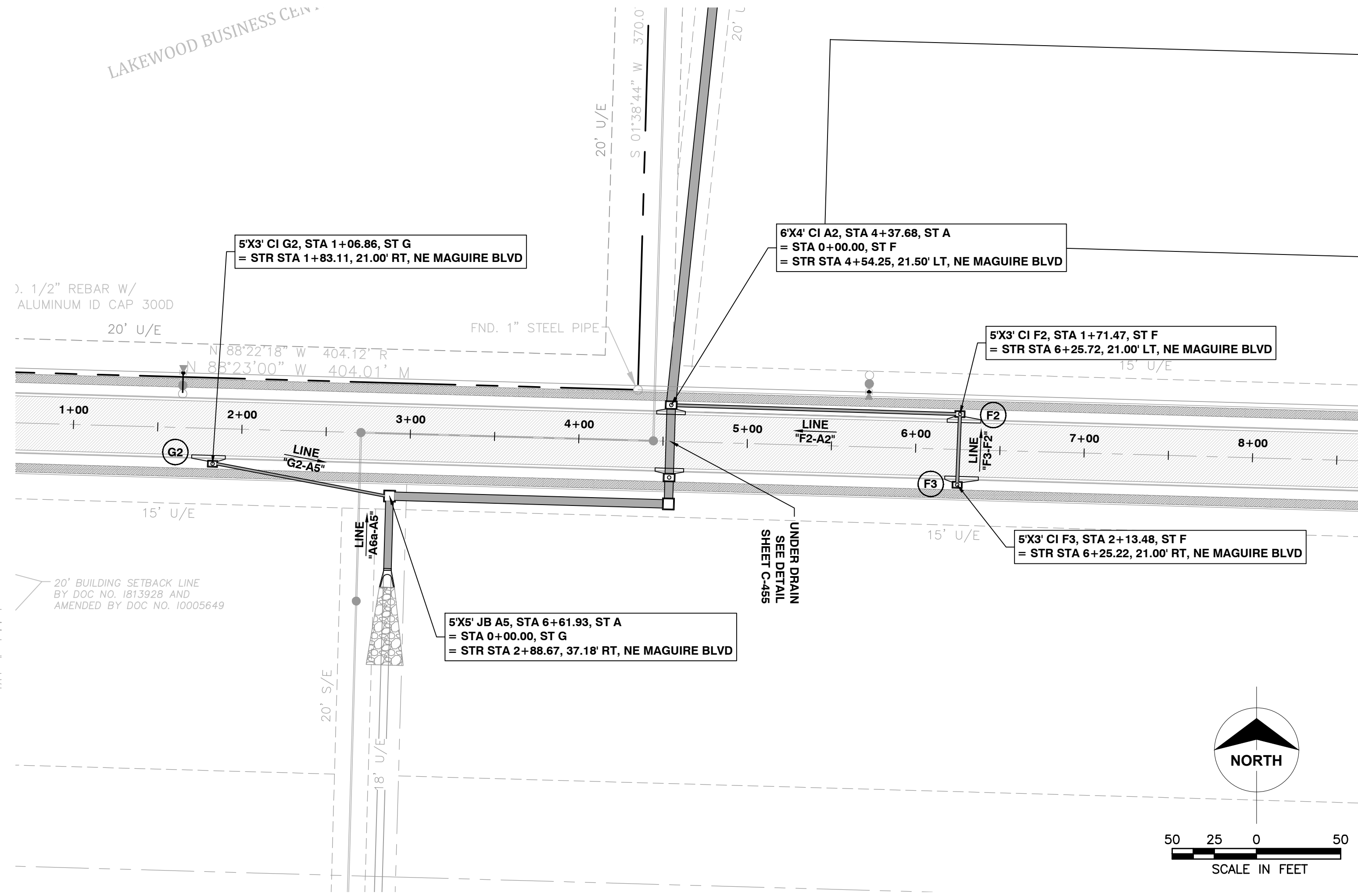
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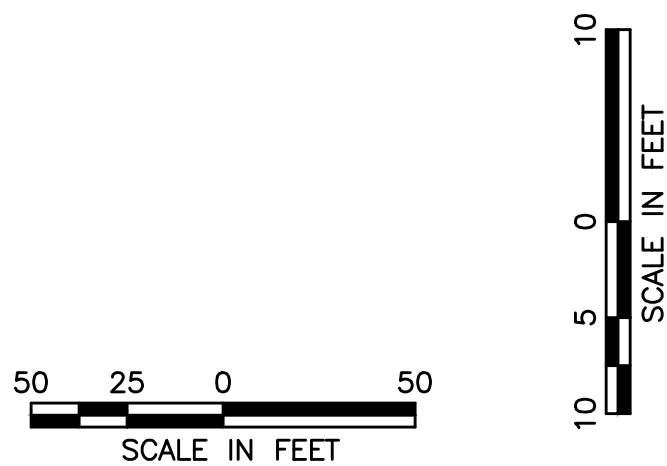
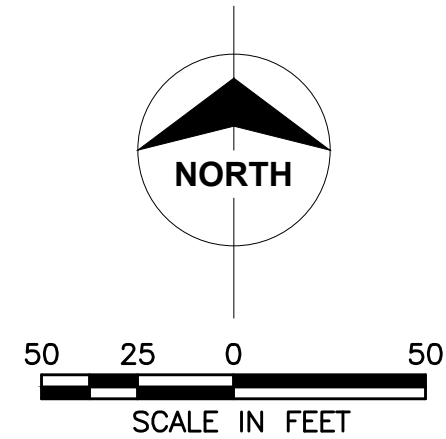


LineNo.	LineID	DrainageArea (ac)	IncrCxA	Tc (min)	PipeTravel (min)	iSys (in/hr)	IncrQ (cfs)	LineLength (ft)	LineSize (in)	LineSlope (%)	CapacityFull (cfs)	VelHd Up (ft)	VelDn (ft/s)	Hw (ft)	Rim-Hw (ft)	InvertUp (ft)	InvertDn (ft)	SfAve (%)	J-LossCoeff	EnergyLoss (ft)	HGLUp (ft)	HGLDn (ft)	TotalRunoff (cfs)
1	A2-A1	0.47	0.31	0.0	0.00	0.00	0.00	378.000	60	1.22	0.00	0.00	7.90	2.34	13.50	951.60	947.00	0.000	1	0.000	953.94	951.19	0.00
2	A3-A2	4.07	2.69	0.0	0.00	0.00	0.00	39.000	54	2.13	0.00	0.00	18.77	2.05	10.14	955.25	954.42	0.000	0.25	0.000	957.30	956.47	0.00
3	A4-A3	0.00	0	0.0	0.00	0.00	0.00	10.678	54	2.90	0.00	0.00	20.25	1.74	10.13	956.10	955.79	0.000	0.4	0.000	957.84	957.53	0.00
4	A5-A4	3.46	2.28	0.0	0.00	0.00	0.00	160.079	54	0.94	0.00	0.00	13.37	2.43	9.25	957.60	956.10	0.000	0.8	0.000	960.03	958.53	0.00
5	A6A-A5	0.00	0	0.0	0.00	0.00	0.00	443.303	48	1.00	0.00	0.00	13.23	2.36	13.06	963.05	958.60	0.000	0.8	0.000	965.41	960.96	0.00
6	A6-A6A	0.00	0	0.0	0.00	0.00	0.00	65.255	48	1.00	0.00	0.00	12.29	1.98	12.88	964.30	963.65	0.000	0.3	0.000	966.28	965.63	0.00
7	A7-A6	0.00	0	0.0	0.00	0.00	0.00	180.523	48	1.58	0.00	0.00	14.67	1.75	8.66	972.86	970.00	0.000	0.4	0.000	974.61	971.75	0.00
8	A8-A7	0.00	0	0.0	0.00	0.00	0.00	53.845	48	1.00	0.00	0.00	12.40	2.00	6.51	973.90	973.36	0.000	0.4	0.000	975.90	975.36	0.00
9	A9-A8	16.13	10.65	0.0	0.00	0.00	0.00	28.014	48	0.57	0.00	0.00	9.40	2.52	10.54	974.56	974.40	0.000	1	0.000	977.08	976.92	0.00
10	C2-A6	0.17	0.11	0.0	0.00	0.00	0.00	40.644	24	5.68	0.00	0.00	15.55	0.69	4.93	973.40	971.09	0.000	1	0.000	974.09	971.78	0.00
11	C3-C2	0.19	0.13	0.0	0.00	0.00	0.00	246.228	18	1.28	0.00	0.00	7.62	0.84	4.14	977.05	973.90	0.000	0.6	0.000	977.89	974.74	0.00
12	C4-C3	1.42	0.94	0.0	0.00	0.00	0.00	39.000	18	1.26	0.00	0.00	7.35	0.79	3.18	978.06	977.57	0.000	1	0.000	978.85	978.36	0.00
13	D2-C2	1.44	0.95	0.0	0.00	0.00	0.00	39.000	18	0.95	0.00	0.00	6.63	0.86	3.14	975.02	974.65	0.000	1	0.000	975.88	975.51	0.00
14	E2-A6	0.22	0.15	0.0	0.00	0.00	0.00	64.856	24	1.46	0.00	0.00	9.20	0.95	4.08	973.02	972.07	0.000	0.4	0.000	973.97	973.02	0.00
15	E3-E2	2.57	1.7	0.0	0.00	0.00	0.00	39.000	24	1.36	0.00	0.00	8.54	0.92	3.58	973.55	973.02	0.000	1	0.000	974.47	973.97	0.00
16	F2-A3	0.18	0.12	0.0	0.00	0.00	0.00	165.974	18	2.71	0.00	0.00	8.83	0.52	9.19	961.70	957.21	0.000	0.4	0.000	962.22	957.73	0.00
17	F3-F2	0.81	0.53	0.0	0.00	0.00	0.00	39.003	18	2.54	0.00	0.00	8.19	0.47	5.84	965.09	964.10	0.000	1	0.000	965.56	964.57	0.00
18	G2-A3	0.69	0.46	0.0	0.00	0.00	0.00	101.851	15	1.00	0.00	0.00	5.64	0.61	7.00	962.40	961.38	0.000	1	0.000	963.01	961.99	0.00
19	B2-B1	0.21	0.14	0.0	0.00	0.00	0.00	168.429	30	1.76	0.00	0.00	6.94	1.31	7.22	962.97	960.00	0.000	1	0.000	964.28	962.21	0.00
20	B3-B2	0.15	0.1	0.0	0.00	0.00	0.00	39.734	30	1.89	0.00	0.00	12.48	1.26	6.21	964.22	963.47	0.000	0.4	0.000	965.48	964.73	0.00
21	B4-B3	1.09	0.72	0.0	0.00	0.00	0.00	59.132	30	1.67	0.00	0.00	11.89	1.30	7.10	965.71	964.72	0.000	0.3	0.000	967.01	966.02	0.00
22	B5-B4	1.28	0.84	0.0	0.00	0.00	0.00	38.997	24	3.33	0.00	0.00	14.74	1.09	5.38	967.65	966.35	0.000	0.6	0.000	968.74	967.44	0.00
23	B6-B5	0.89	0.59	0.0	0.00	0.00	0.00	70.796	24	2.33	0.00	0.00	12.12	1.05	4.75	969.80	968.15	0.000	0.3	0.000	970.85	969.20	0.00
24	B7-B6	0.42	0.28	0.0	0.00	0.00	0.00	170.680	24	1.76	0.00	0.00	10.37	1.01	4.78	973.30	970.30	0.000	0.4	0.000	974.31	971.31	0.00
25	B8-B7	1.22	0.81	0.0	0.00	0.00	0.00	39.012	24	1.28	0.00	0.00	8.93	1.03	3.76	974.30	973.80	0.000	0.6	0.000	975.33	974.83	0.00
26	B9-B8	1.89	1.25	0.0	0.00	0.00	0.00	265.064	18	1.77	0.00	0.00	8.97	0.84	3.30	979.50	974.80	0.000	1	0.000	980.34	975.64	0.00

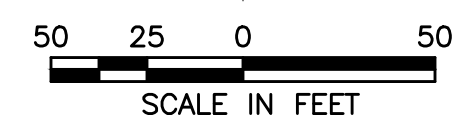
10-YR CALCS.

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	A2-A1	0.47	0.39	6.5	0.55	9.73	4.03	378.105	60	1.22	311.24	4.87	13.36	3.46	12.38	951.60	947.00	0.000	1.00 z	0.000	955.06	951.73	256.92
2	A3-A2	4.07	3.38	6.5	0.05	9.75	34.87	39.000	54	2.13	310.81	7.29	21.66	3.02	9.17	955.25	954.42	0.000	0.25 z	0.000	958.27	957.44	245.58
3	A4-A3	0.00	0	6.5	0.02	9.75	0.00	10.678	54	2.90	363.01	8.74	23.71	2.48	9.39	956.10	955.79	0.000	0.40 z	0.000	958.58	958.27	212.78
4	A5-A4	3.46	2.87	6.2	0.22	9.83	29.64	160.079	54	0.94	206.23	3.37	14.72	3.88	7.80	957.60	956.10	0.000	0.80 z	0.000	961.48	959.98	214.58
5	A6A-A5	0.00	0	5.7	0.53	10.04	0.00	443.303	48	1.00	155.92	3.35	14.68	8.46	6.96	963.05	958.60	1.405	0.80	6.228	968.83	962.60	184.43
6	A6-A6A	0.00	0	5.4	0.10	10.16	0.00	65.255	48	1.00	155.31	1.82	10.82	8.25	6.61	964.30	963.65	0.764	0.30	0.498	972.01	971.51	135.99
7	A7-A6	0.00	0	5.1	0.28	10.27	0.00	180.523	48	1.58	195.87	4.43	16.23	2.47	7.94	972.86	970.00	0.000	0.40 z	0.000	975.33	972.55	137.51
8	A8-A7	0.00	0	5.0	0.08	10.30	0.00	53.845	48	1.00	155.85	3.05	14.00	2.93	5.58	973.90	973.36	0.000	0.40 z	0.000	976.83	976.29	137.96
9	A9-A8	16.13	13.39	5.0	0.04	10.32	138.20	28.014	48	0.57	108.55	1.88	11.00	5.98	7.08	974.56	974.40	0.926	1.00	0.259	978.66	978.40	138.20
10	C2-A7	0.17	0.14	5.6	0.08	10.07	1.46	40.644	24	5.68	58.41	5.15	18.21	0.95	4.67	973.40	971.09	0.000	1.00 z	0.000	974.35	972.04	26.91
11	C3-C2	0.19	0.16	5.1	0.53	10.28	1.63	246.228	18	1.28	12.87	1.04	8.17	1.36	3.62	977.05	973.90	0.000	0.60 z	0.000	978.41	975.26	13.74
12	C4-C3	1.42	1.18	5.0	0.09	10.32	12.17	39.000	18	1.26	12.75	1.05	8.21	1.17	2.80	978.06	977.57	0.000	1.00 z	0.000	979.23	978.74	12.17
13	D2-C2	1.44	1.2	5.0	0.09	10.32	12.34	39.000	18	0.95	11.08	0.76	6.98	2.35	1.65	975.02	974.65	1.176	1.00	0.459	976.61	976.15	12.34
14	E2-A7	0.22	0.18	5.1	0.14	10.28	1.88	64.856	24	1.46	29.66	1.71	10.49	1.36	3.67	973.02	972.07	0.000	0.40 z	0.000	974.38	973.43	23.81
15	E3-E2	2.57	2.13	5.0	0.09	10.32	22.02	39.000	24	1.36	28.56	1.56	9.70	1.32	3.18	973.55	973.02	0.000	1.00 z	0.000	974.87	974.38	22.02
16	F2-A3	0.18	0.15	5.2	0.58	10.25	1.54	165.974	18	2.71	18.71	1.65	10.31	0.71	9.00	961.70	957.21	0.000	0.40 z	0.000	962.41	957.92	8.43
17	F3-F2	0.81	0.67	5.0	0.17	10.32	6.94	39.003	18	2.54	18.13	1.42	9.57	0.64	5.67	965.09	964.10	0.000	1.00 z	0.000	965.73	964.74	6.94
18	G2-A3	0.69	0.57	5.0	0.35	10.32	5.91	101.851	15	1.00	7.00	0.64	6.40	0.88	6.73	962.40	961.38	0.000	1.00 z	0.000	963.28	962.26	5.91
19	B2-B1	0.21	0.17	6.2	0.26	9.85	1.80	168.429	30	1.76	59.00	2.28	11.91	2.38	6.15	962.97	960.00	1.616	1.00 z	2.722	965.35	962.50	58.45
20	B3-B2	0.15	0.12	6.1	0.06	9.87	1.29	39.734	30	1.89	61.04	3.10	14.13	1.91	5.56	964.22	963.47	0.000	0.40 z	0.000	966.13	965.38	56.87
21	B4-B3	1.09	0.9	6.0	0.09	9.91	9.34	59.132	30	1.67	57.49	2.77	13.34	1.99	6.41	965.71	964.72	0.000	0.30 z	0.000	967.70	966.71	55.85
22	B5-B4	1.28	1.06	6.0	0.05	9.93	10.97	38.997	24	3.33	44.74	4.05	16.13	1.75	4.72	967.65	966.35	0.000	0.60 z	0.000	969.40	968.10	46.97
23	B6-B5	0.89	0.74	5.9	0.11	9.97	7.63	70.796	24	2.33	37.41	2.86	13.57	1.60	4.20	969.80	968.15	0.000	0.30 z	0.000	971.40	969.75	36.57
24	B7-B6	0.42	0.35	5.6	0.32	10.09	3.60	170.680	24	1.76	32.48	2.13	11.72	1.50	4.29	973.30	970.30	0.000	0.40 z	0.000	974.80	971.80	29.57
25	B8-B7	1.22	1.01	5.5	0.08	10.13	10.45	39.012	24	1.28	27.74	1.57	10.04	1.54	3.25	974.30	973.80	0.000	0.60 z	0.000	975.84	975.34	26.14
26	B9-B8	1.89	1.57	5.0	0.48	10.32	16.19	265.064	18	1.77	15.15	1.44	9.61	1.36	2.78	979.50	974.80	0.000	1.00 z	0.000	980.86	976.16	16.19





1. NO PART OF THE PROJECT LIES WITHIN THE LIMITS OF A 100 YEAR FLOOD PLAIN PER FEMA FIRM PANEL 0430G OF MAP NUMBER 2909SC0430G REVISED JANUARY 20, 2017.
2. SEE EROSION CONTROL PLANS FOR MEASURES TO BE IMPLEMENTED BEFORE AND DURING CONSTRUCTION.
3. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED TO MAINTAIN SEDIMENT AND EROSION CONTROL AS REQUIRED BY THE CITY ENGINEER OR PROPERTY OWNER.
4. SOIL STABILIZATION OF DISTURBED AREAS SHALL BE COMPLETED WITHIN 14 DAYS OF CONSTRUCTION INACTIVITY.
5. CONTRACTOR IS RESPONSIBLE FOR ALL DENSITY TESTING OF ROADWAY SUBGRADE AND GRANULAR BASE.

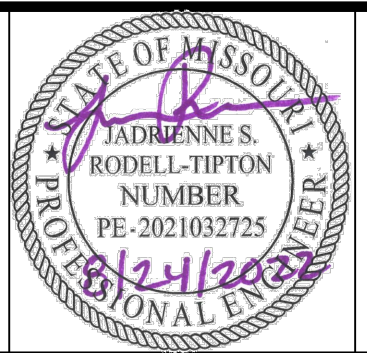


311

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

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

**LAKWOOD BUSINESS
CENTER ON I-470 - PLAT S
2710 NE HAGEN ROAD
LEE'S SUMMIT, MO 64064
JACKSON COUNTY**



JADRIENNE S. RODELL-TIPTON, PE
PE-2021032725 (MISSOURI #)

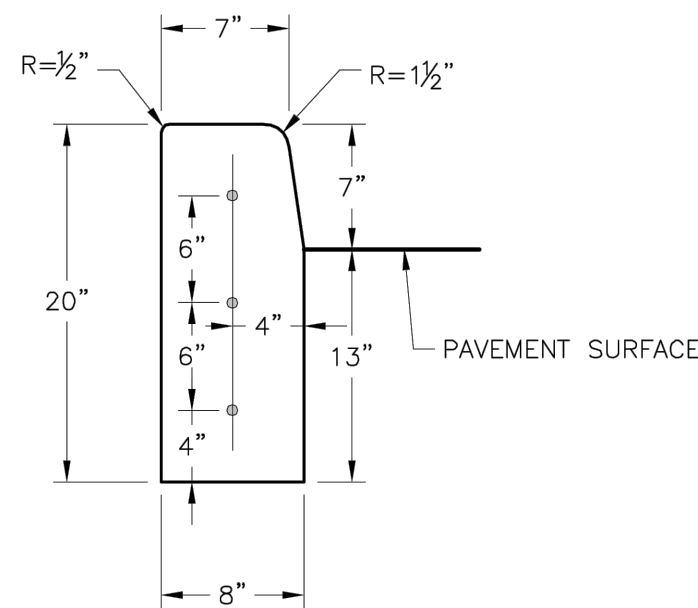
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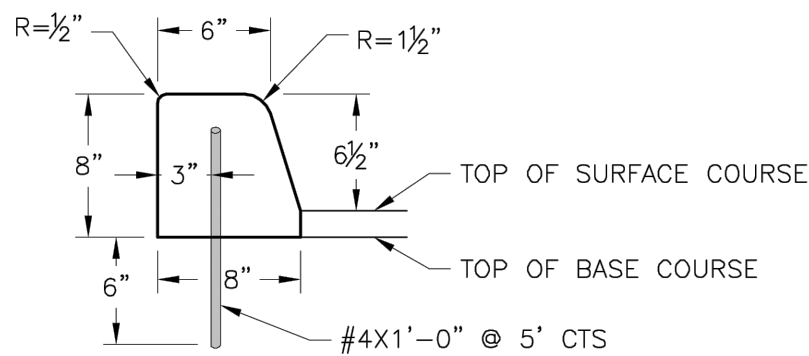
DRAWN BY: JVT
CHECKED BY: JRT
PROJECT #: 21-1883
ISSUE DATE: 03/31/2022
ISSUED FOR:

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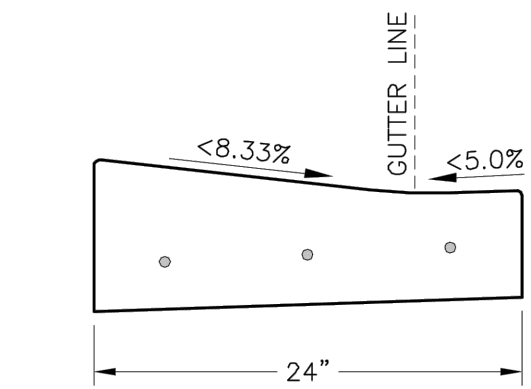
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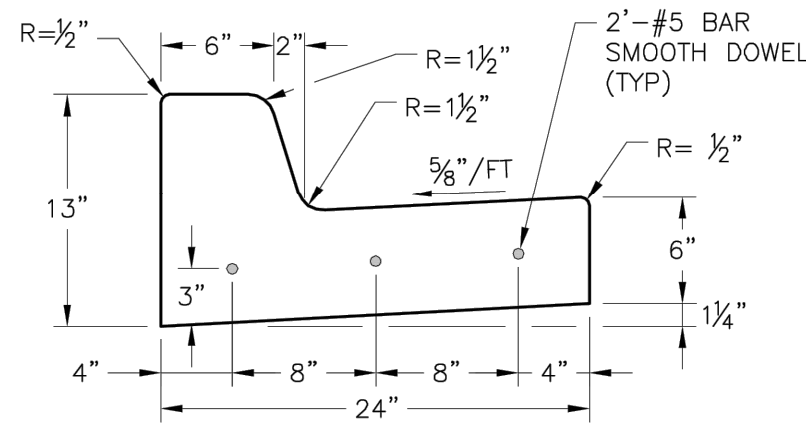
STRAIGHT CURB
(TYPE C-1)



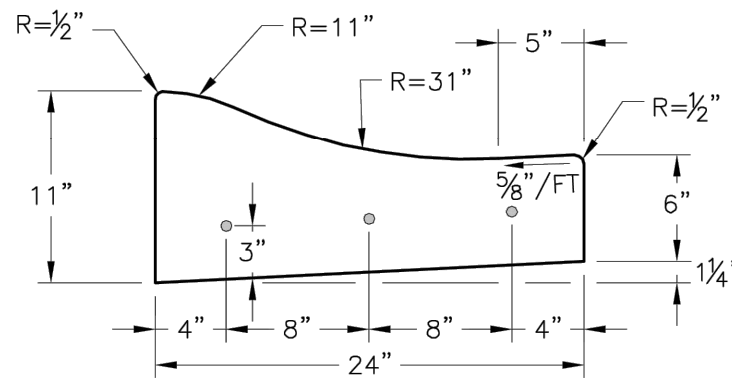
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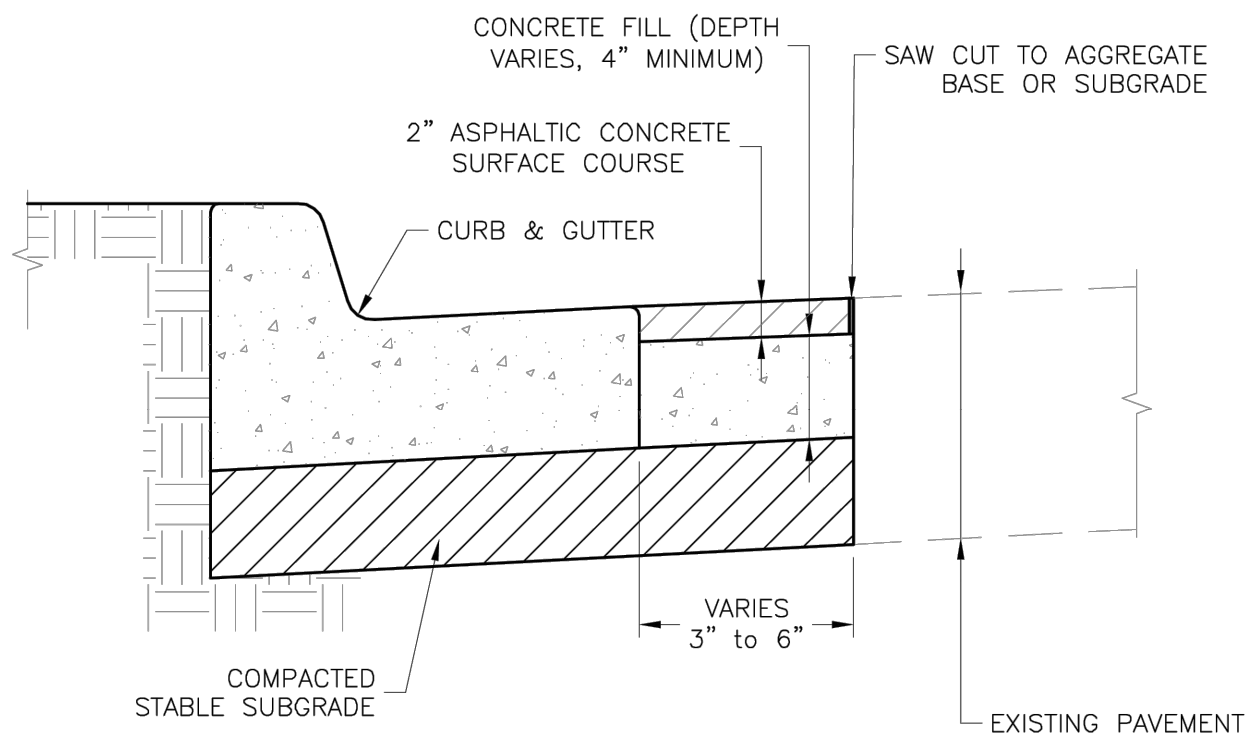
CURB & GUTTER DETAIL AT RAMP
(ADA SLOPE REQUIREMENTS)



STRAIGHT BACK CURB &
GUTTER
(TYPE CG-1)



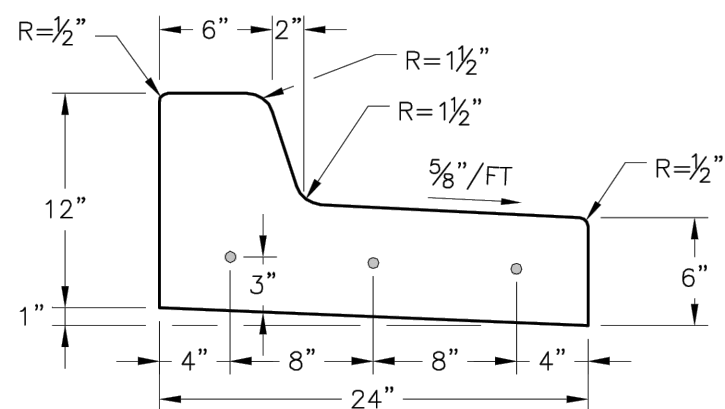
ROLL BACK CURB &
GUTTER
(TYPE CG-2)



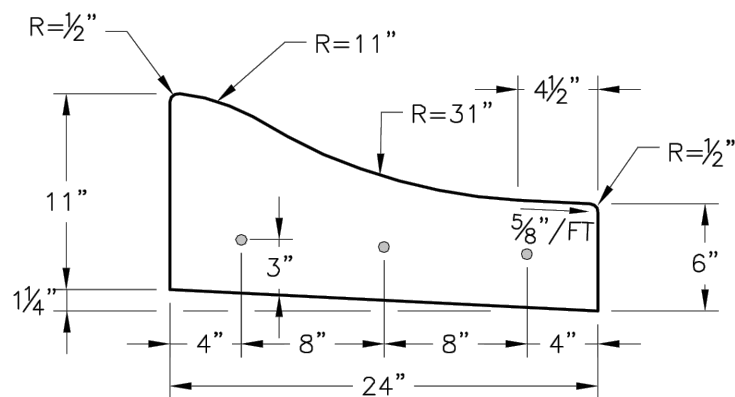
CURB REPLACEMENT DETAIL

GENERAL NOTES

- 3/4" ISOLATION JOINTS WITH 3 (2'-#5 BAR) SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
- 3" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APPROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS THE ENTIRE CURB SECTION.
- CONCRETE FILL SHALL HAVE UNIFORM AND SMOOTH FINISH
- KCMMB 4K CONCRETE SHALL BE USED FOR ALL CURB.
- ASPHALTIC CONCRETE SURFACE COURSE SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 2205.2.
- CURBS FOR NEW STREETS SHALL BE BUILT ON ASPHALT OR AGGREGATE BASE AS SHOWN IN TYPICAL SECTION DETAIL.
- WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.



STRAIGHT BACK DRY CURB &
GUTTER
(TYPE CG-1 DRY)



ROLL BACK DRY CURB &
GUTTER
(TYPE CG-2 DRY)

**LEE'S SUMMIT
MISSOURI**

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
CURB & GUTTER DETAIL

Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #

GEN-4



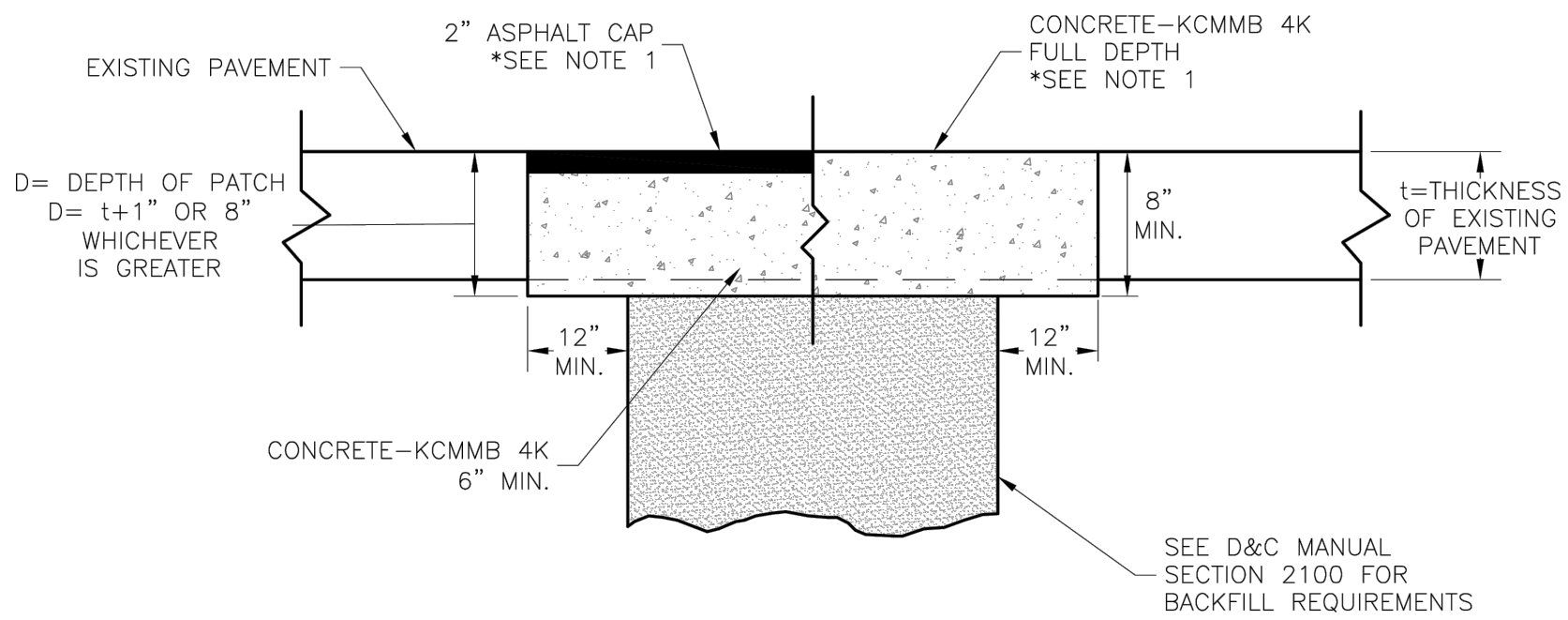
**LEE'S SUMMIT
MISSOURI**
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
TRENCHING/PATCHING ROADWAYS DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

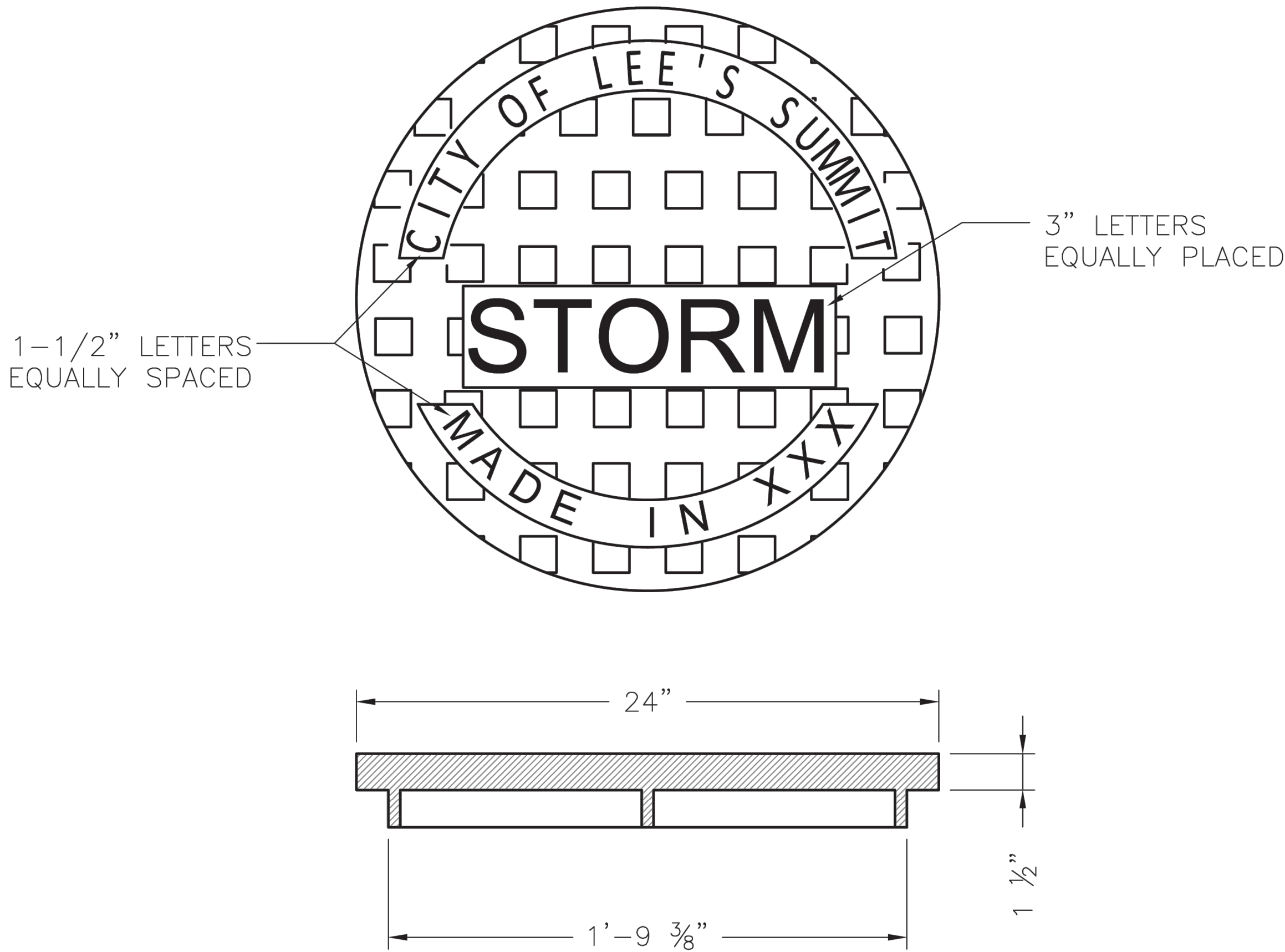
GEN-5

NOTE:

- ASPHALT CAP OR FULL DEPTH CONCRETE SHALL BE DETERMINED BY CITY INSPECTOR.



TRENCHING/PATCHING DETAIL
NOT TO SCALE



STANDARD 24" MANHOLE COVER
MINIMUM WEIGHT = 160 LB
NOTE: PICK HOLES NOT SHOWN

*COVER AND FRAME MODEL INFORMATION REFER TO
THE STORMWATER APPROVED PRODUCT LIST.



LEE'S SUMMIT
MISSOURI

PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

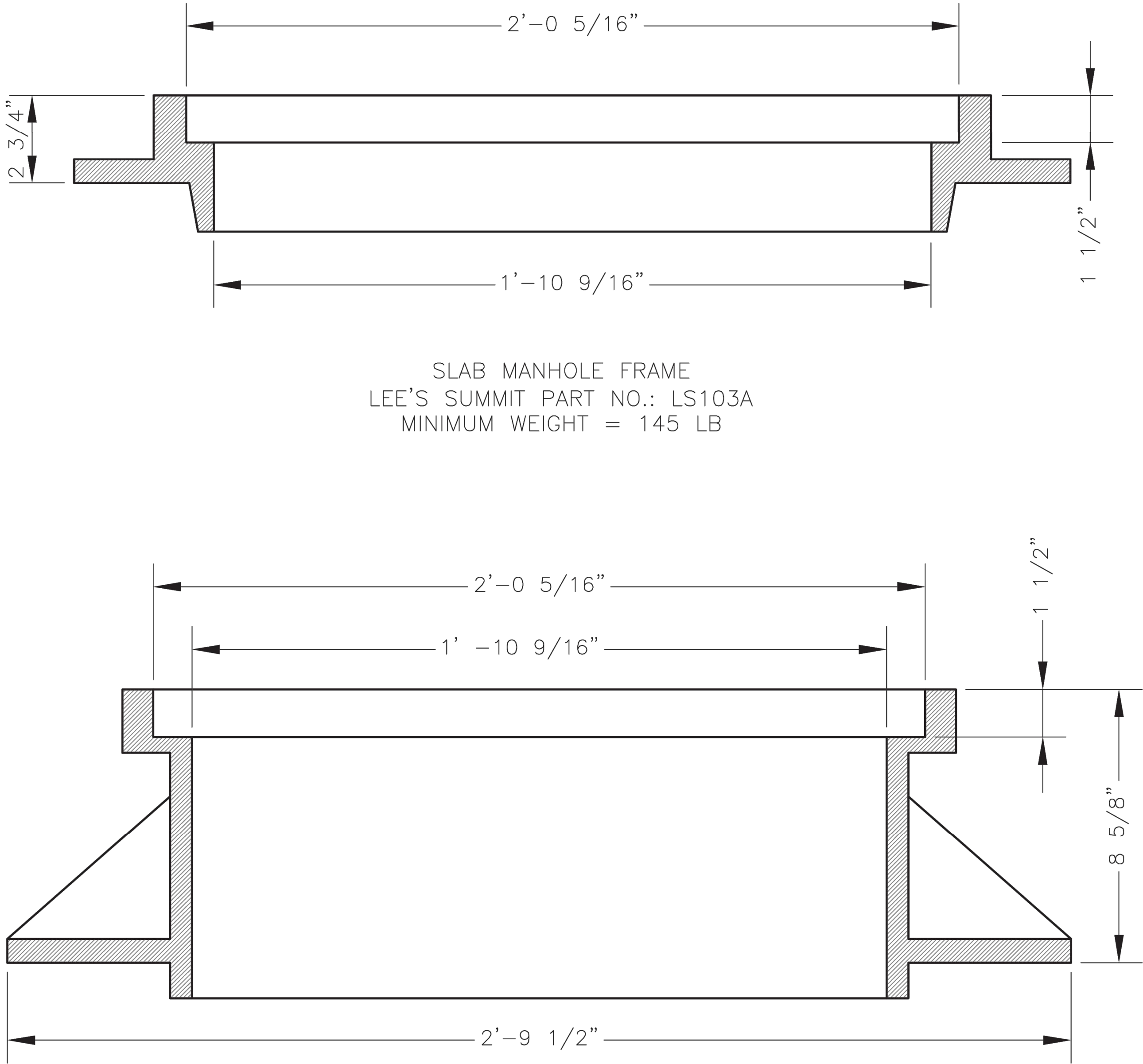
STORM MANHOLE COVER DETAIL

Date: 05/2021

Drawn By: MJF

Checked By: DL

STM-6



STANDARD 24" MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS101A
MINIMUM WEIGHT = 250 LB

*COVER AND FRAME MODEL INFORMATION REFER TO
THE STORMWATER APPROVED PRODUCTS LIST.



LEE'S SUMMIT
MISSOURI

PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STORM MANHOLE FRAME DETAIL

Date: 05/2021

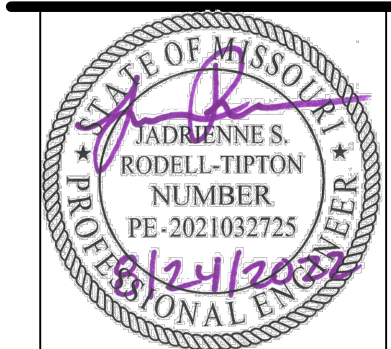
Drawn By: MJF

Checked By: DL

DWG-7

DEVELOPER/OWNER
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GRAIN VALLEY, MO 64029
(816) 229-8115

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JACKSON COUNTY



JADRIENNE S. RODELL-TIPTON, PE
PE-2021032725 (MISSOURI #)

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REVISIONS
NO. DATE / DESCRIPTION

DRAWN BY: JV

CHECKED BY: JRT

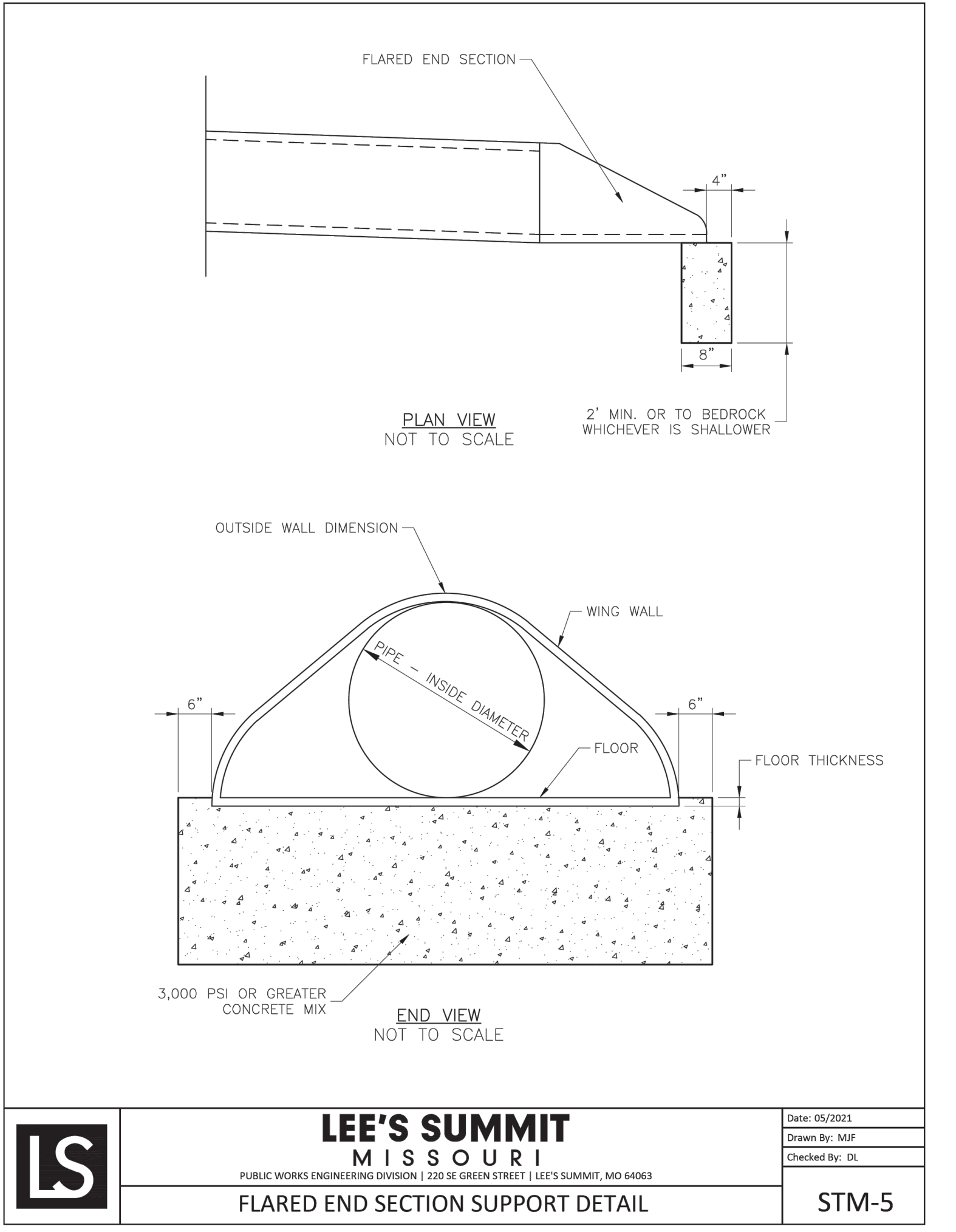
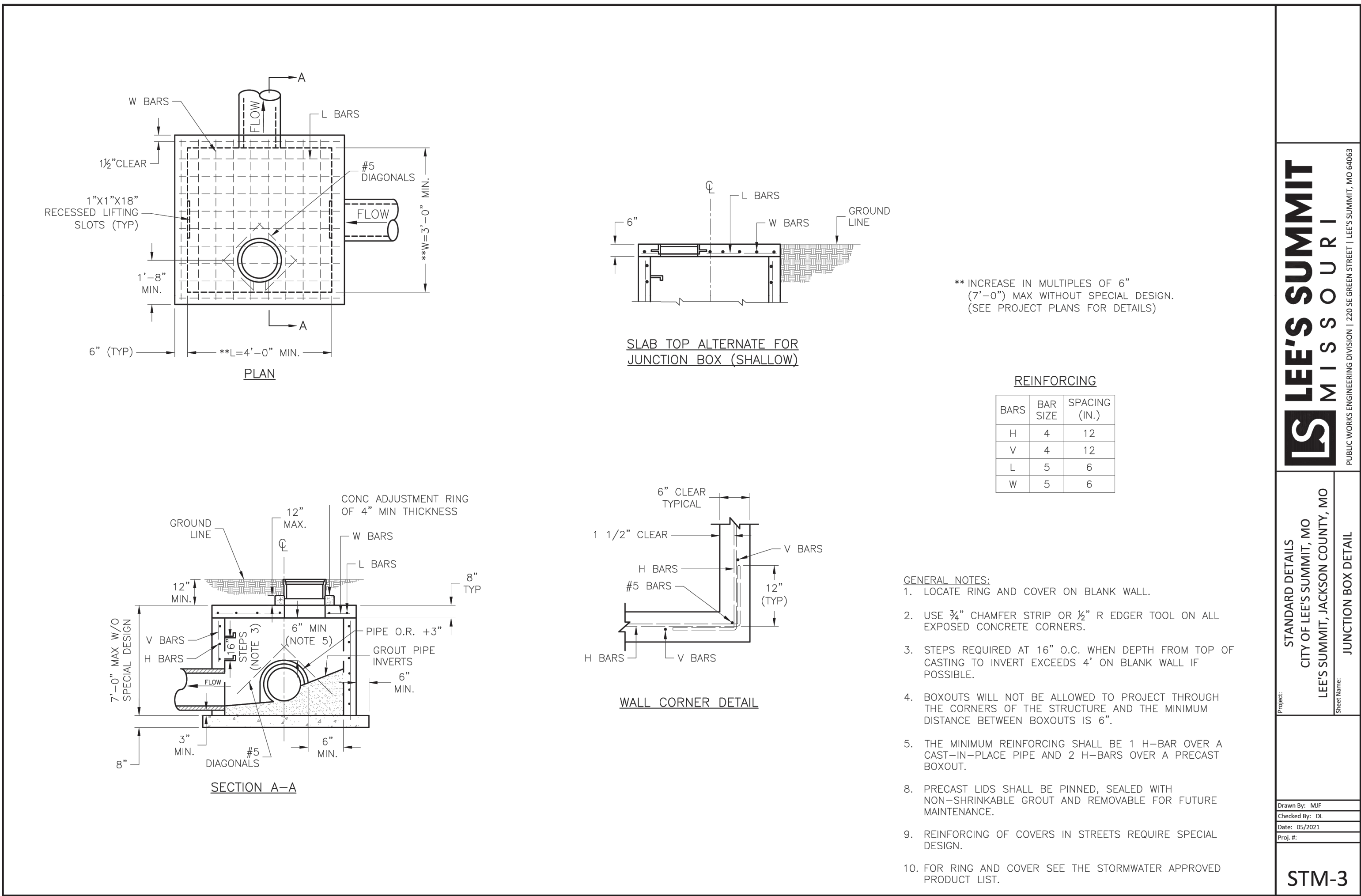
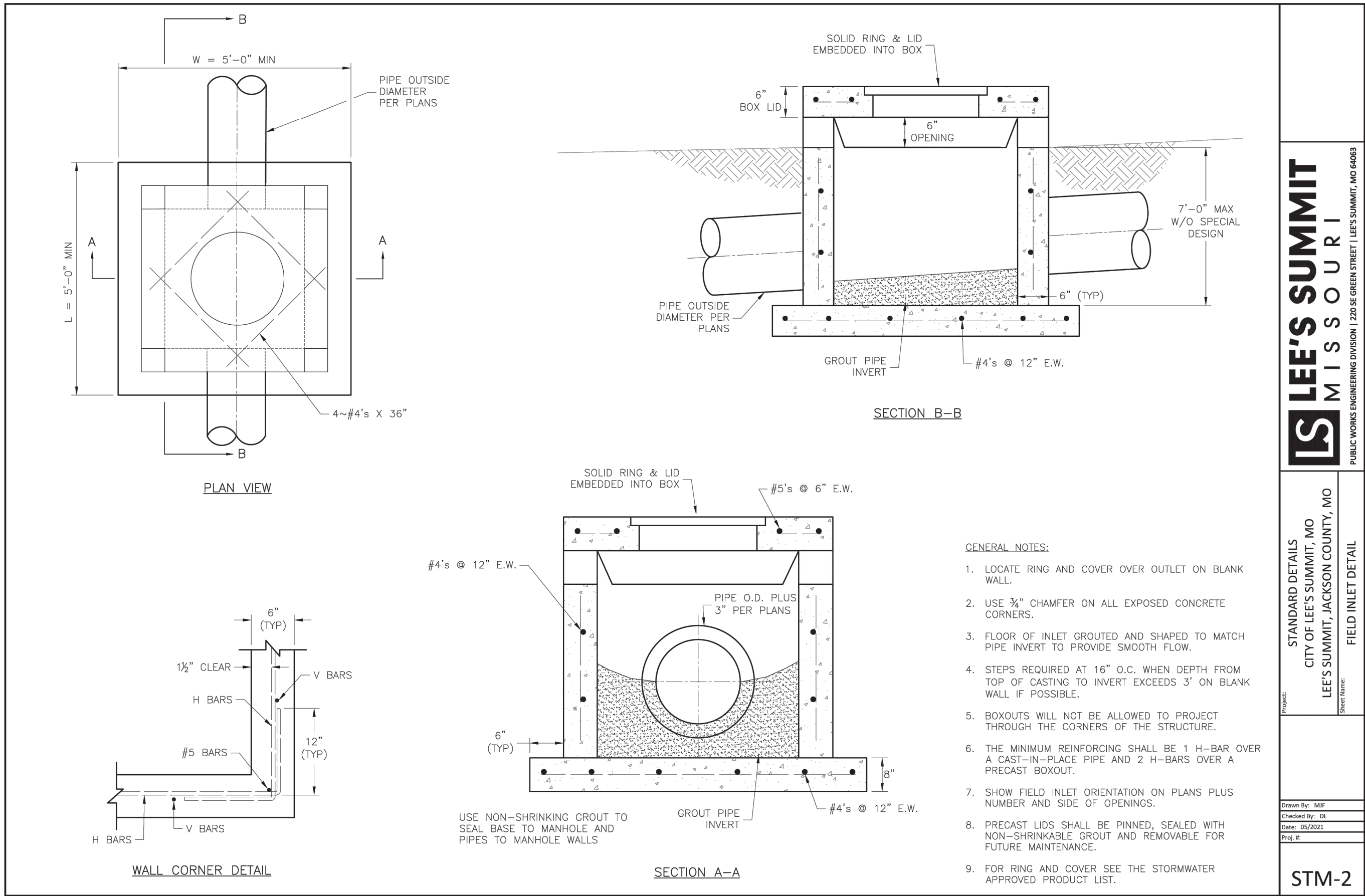
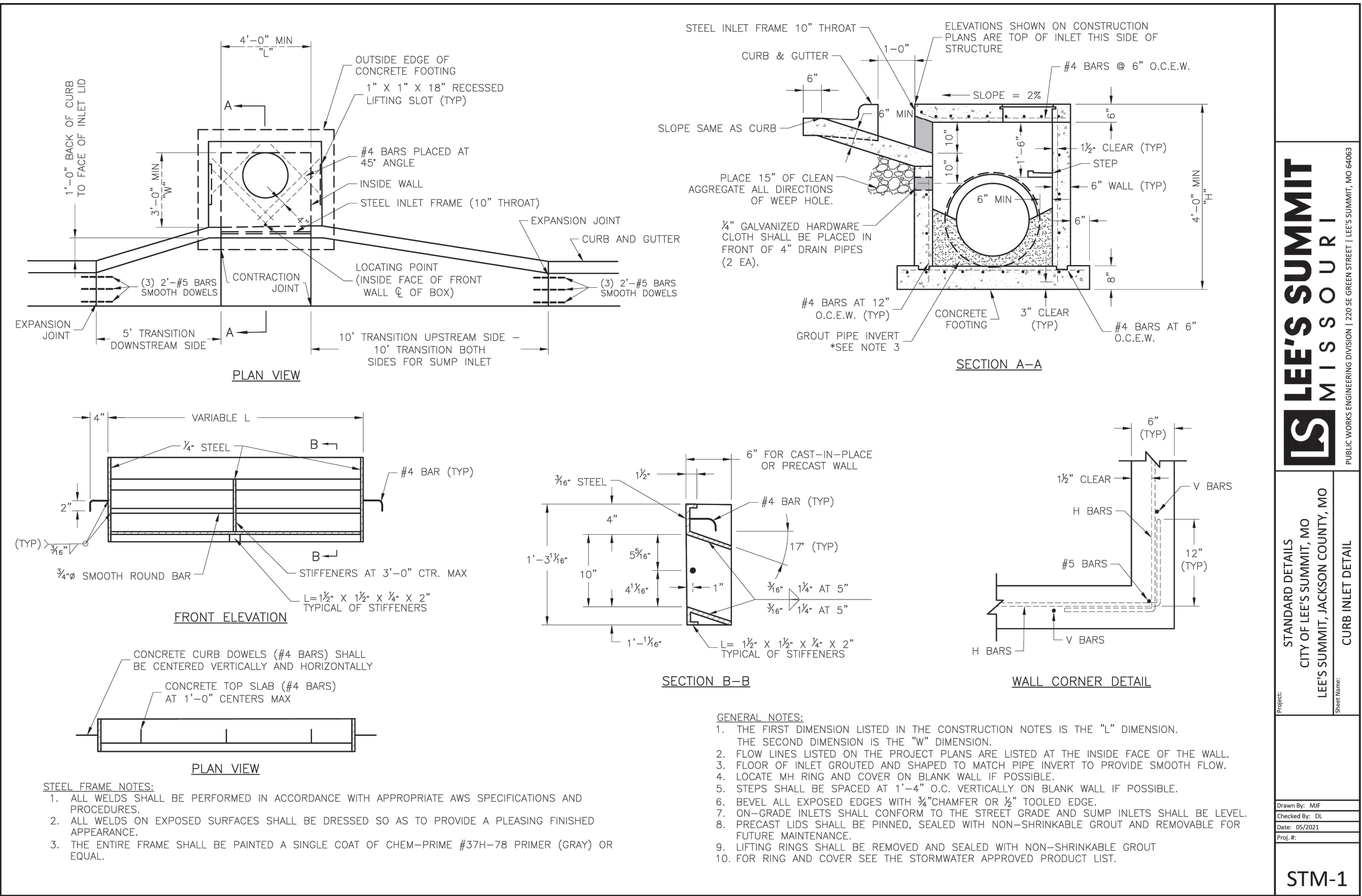
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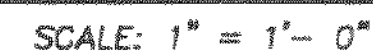
ISSUE DATE: 03/31/2022

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DETAILS





- 455