

SUMMIT ORCHARD LOT 4

INFRASTRUCTURE IMPROVEMENTS

ROAD PLANS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI
SEC.31 TWP. 48N, RNG. 31W
SEC.36 TWP. 48N, RNG. 32W



SITE LOCATION MAP

FEMA INFORMATION:

This tract is located in an "Area of Minimal Flood Hazard", as shown on FEMA FIRM Panel #29095C0417G, dated 1-20-17.

SHEET INDEX:

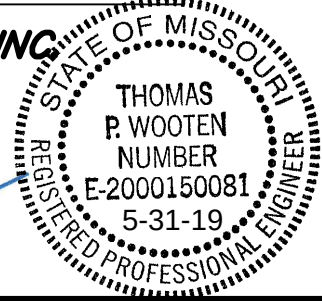
C001	COVER
C002	OVERALL PLAN/NOTES
C051	GRADING & DRAINAGE PLAN
C052	EROSION CONTROL PLAN
C053	EROSION CONTROL DETAILS
C061	DRAINAGE CALCULATIONS
C101-C103	EAST-WEST ROAD PLAN/PROFILE
C104	NORTH-SOUTH ROAD PLAN/PROFILE
C201-C202	STORM PROFILES
C501-C503	DETAILS
E100	ELEC SPECIFICATIONS & DETAILS
E101	SITE LIGHTING
E102	SITE LIGHTING POINT BY POINT
E201	ELECTRICAL RISER & DETAILS

ALL CONSTRUCTION SHALL CONFORM TO THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL, ORDINANCE NO. 5813. PORTIONS OF THE KANSAS CITY APWA SPECIFICATIONS HAVE BEEN INCORPORATED INTO THE LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL. THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL IS THE FINAL AUTHORITY.

PREPARED & SUBMITTED BY:

ANDERSON ENGINEERING, INC.
COLUMBIA, MISSOURI

Thomas P. Wooten, P.E.
Missouri: P.E. No E-2000150081



DEVELOPER

Townsend Summit, LLC
11311 McCormick Road, Suite 470
Hunt Valley, Maryland 21031
CONTACT: Steve Rich



UTILITY CONTACTS

LOCATES: MISSOURI ONE CALL SYSTEM	811/800-DIG-RITE
WATER & SEWER: CITY OF LEE'S SUMMIT	816-969-1940
ELECTRIC: KANSAS CITY POWER & LIGHT	816-471-5275
GAS: SPIRE	816-969-2298
CABLE TV: COMCAST CABLEVISION	816-795-1100
TIME WARNER	816-358-8833
TELEPHONE: SBC/AT&T	800-464-7928

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MISSOURI CERTIFICATE OF AUTHORITY #000062 EXPIRES 12/31/2019

REVISIONS		DRAWING INFO.	
NO.	DESCRIPTION	BY	DATE
1	City 2nd Review Comments	TPW	5-29-19
		CHECK BY:	
		LICENSE NO.	E-2000150081
		DATE:	5/31/2019
		FIELD BOOK:	
		JOB NUMBER:	19C010001

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SUMMIT ORCHARD LOT 4

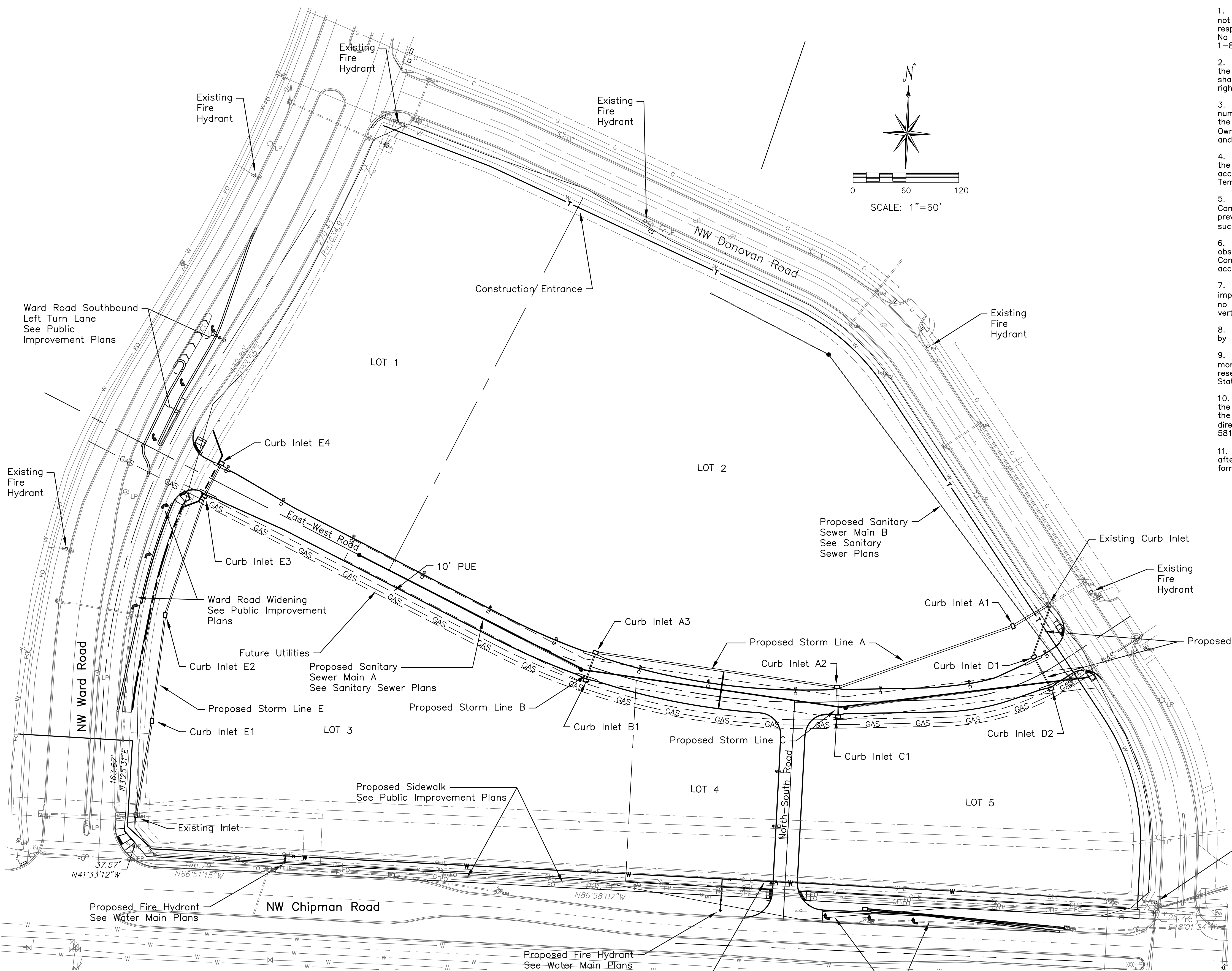
INFRASTRUCTURE IMPROVEMENTS
ROAD PLANS

COVER

LEE'S SUMMIT, MISSOURI

SHEET NUMBER
C001
1 OF 19

May 14, 2019 - 11:27am Plotted By: jhus Z:\AE-coll\1-Projects\19c010001 - Township Lot 4 CID Infrastructure\DWG\Summit Orchards Plans - C002.dwg Layout: C002 Road



GENERAL NOTES

1. UTILITIES: Locations of existing utilities are shown for information only and are not guaranteed to be either accurate or complete. It is the Contractor's responsibility to contact all utilities and obtain utility staking prior to construction. No utilities on private property are shown. Contact Missouri One Call at 1-800-DIG-RITE, 1-800-344-7483.
2. SOIL BORINGS: No soil boring information is included in the specifications. If the Contractor deems soils investigation necessary for use in preparing his bid, he shall do so at his own expense, and he shall be responsible for any and all permits, rights of entry, and restoration in accordance with the specifications.
3. DEVIATIONS FROM PLANS OR SPECIFICATIONS: Any deviations in the location or number of facilities noted for installation on these plans, or extension or rerouting the utilities constructed under these plans, requires the written authorization of the Owner's Representative before proceeding. Items installed in conflict with the plans and specifications and without such approval will not be approved for payment.
4. SITE ACCESS: The Contractor shall provide access to the work at any time for the owner, engineer, and state or local officials. The Contractor shall maintain access to existing parking lots and shall adhere to MUTCD requirements in Part 6 Temporary Traffic Control for maintaining traffic control during construction.
5. SAFETY: Safety on the job is the sole responsibility of the Contractor. The Contractor is responsible to replace and maintain proper barricades and/or fences to prevent injury to his and other personnel and the public. The Contractor shall leave such barricades and/or fences in place at any time he is absent from the job site.
6. All pavements, sidewalks, abandoned sewers, pipelines, excess earthwork, or other obstructions to construction that are removed, shall become the property of the Contractor unless specifically noted, and shall be disposed of by the Contractor in accordance with state regulations.
7. Removals of portions of pavement, curb gutters, sidewalk, and other similar improvements shall be removed to an existing joint if one is within 18". If there is no existing joint, a joint shall be sawed to minimum depth of 2" with true line and vertical face prior to removal.
8. All power poles, telephone poles, guy wires, and other utilities shall be relocated by owner of the facility unless noted otherwise.
9. The Contractor shall be responsible for the replacement of any property monuments (irons) removed or destroyed by his construction. Monuments being reset shall be placed by a Professional Land Surveyor, licensed to practice in the State of Missouri.
10. All disturbed areas shall be fertilized, seeded, and mulched in accordance with the specifications. The Contractor shall control all sediment run-off from leaving the project by using control features such as silt fences, or other means as directed by the City of Lee's Summit Design and Construction Manual, Ordinance No. 5813, Section 5100.
11. LAYOUT and DIGITAL DRAWINGS (civil) will be available to the successful contractor after award of the contract upon their request. Digital info will be in ACAD 2013 format.

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DRAWING INFO.

NO.	DESCRIPTION	BY	DATE	DRAWN BY:	JEN	CHECK BY:	TPW	LICENSE NO.	E-2000150081	DATE:	5/13/2019	FIELD BOOK:		JOB NUMBER:	19C010001
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REVISIONS

NO.	DESCRIPTION	BY	DATE

SUMMIT ORCHARD LOT 4
INFRASTRUCTURE IMPROVEMENTS
ROAD PLANS

OVERALL PLAN/NOTES

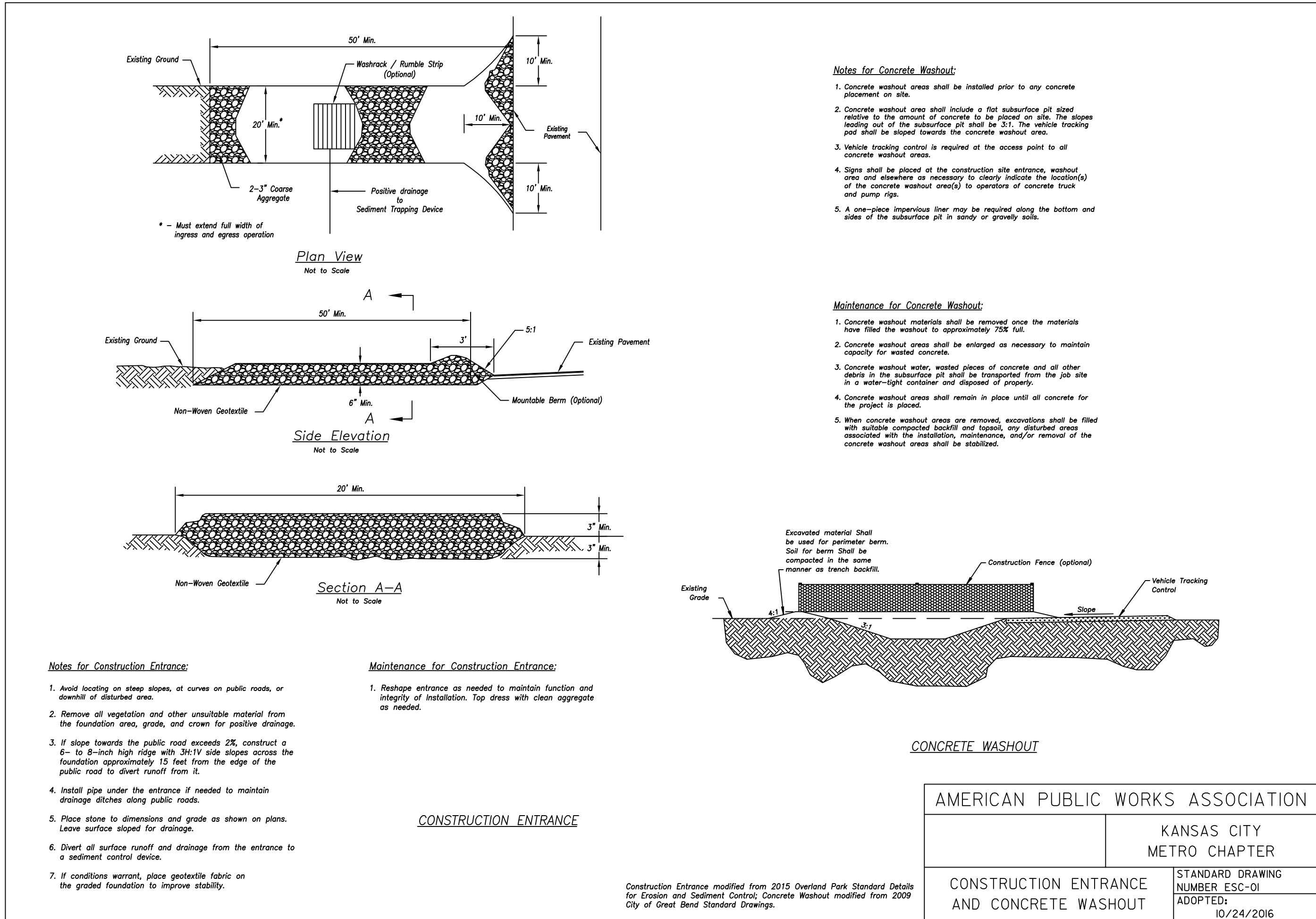
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
THOMAS P. WOOTEN
NUMBER E-2000150081
5-14-19
PROFESSIONAL ENGINEER

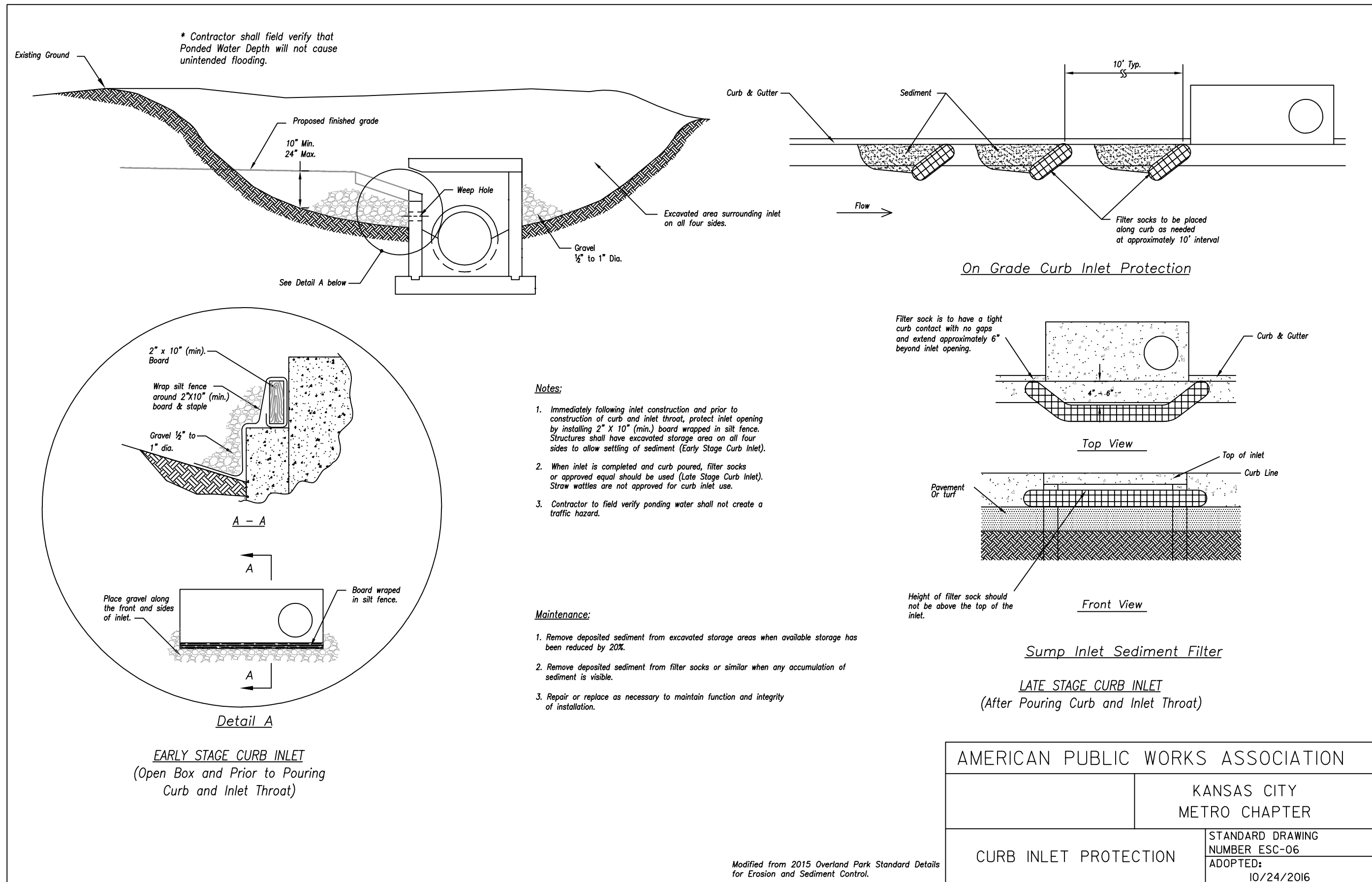
Thomas P. Wooten

SHEET NUMBER
C002
2 OF 19

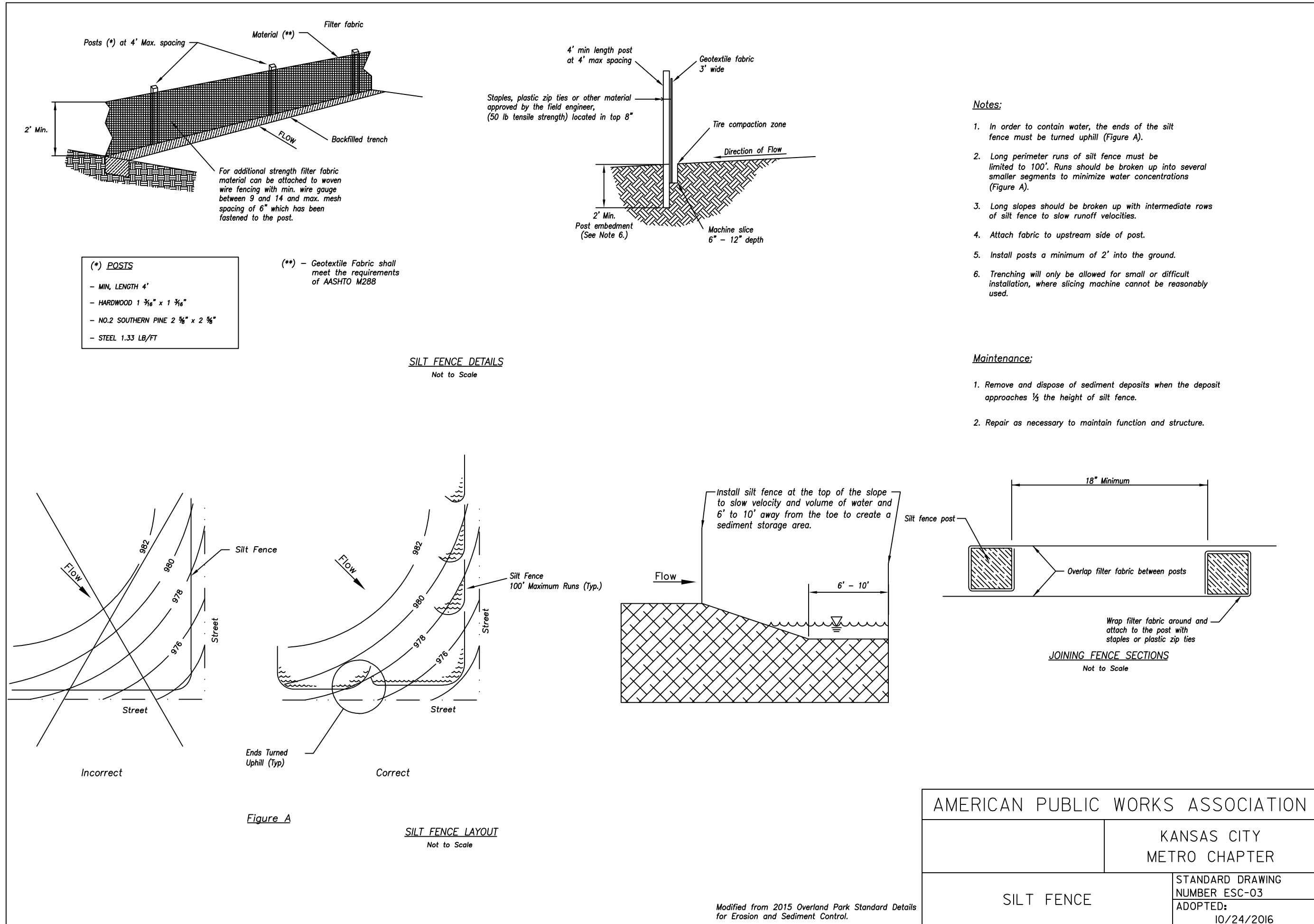
May 14, 2019 -- 11:55am. Plotted By: juss Z:\ME-COL\1-Projects\19c010001--Townsend Lot 4 CD Infrastructure\Draw\19c010001--Cov Lay Det Roads.dwg Layout: C053



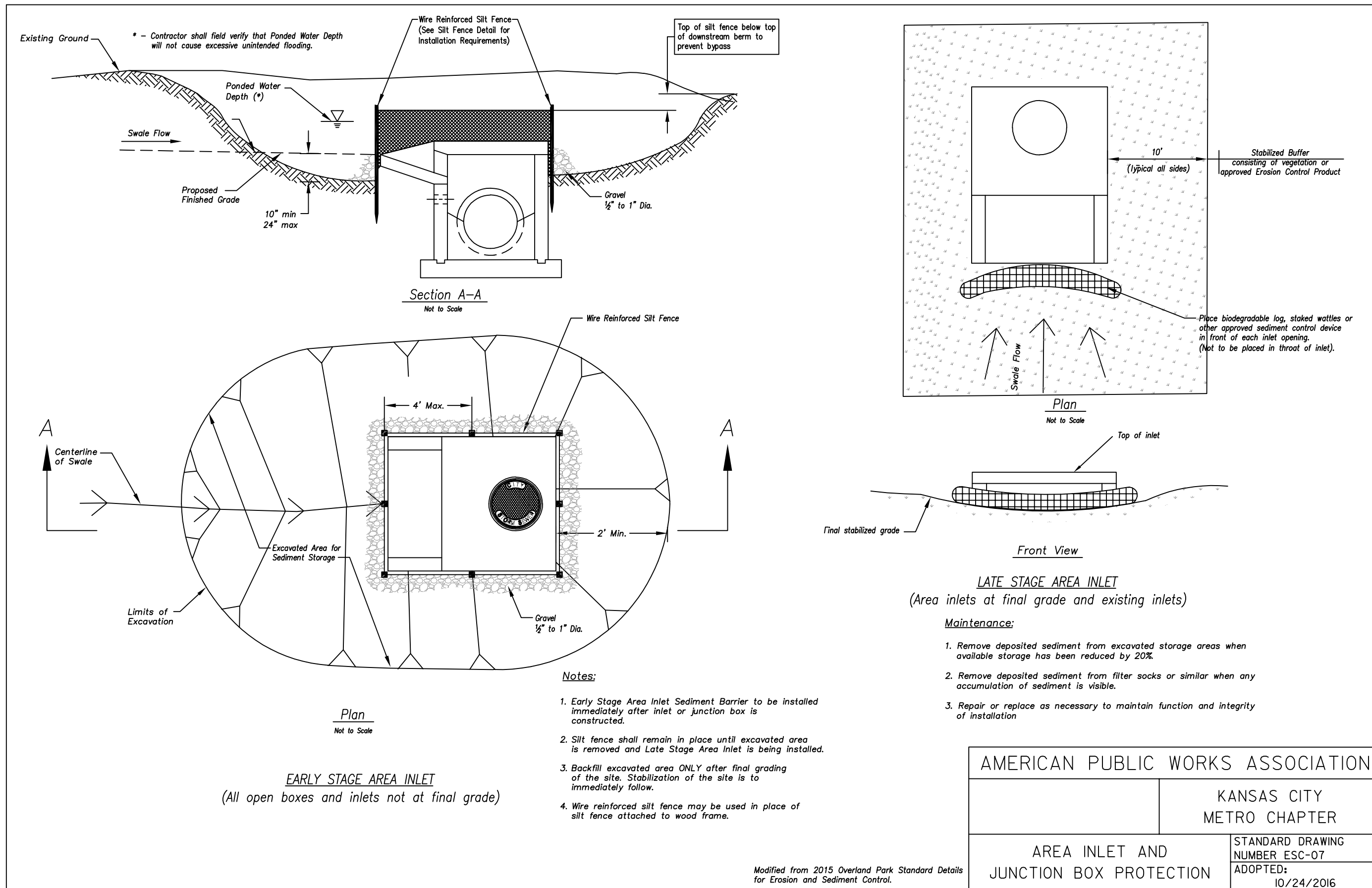
1 CONSTRUCTION ENTRANCE AND
C053 CONCRETE WASHOUT
N.T.S.



3 CURB INLET PROTECTION
C053 N.T.S.



2 SILT FENCE
C053 N.T.S.



4 AREA INLET AND
C053 JUNCTION BOX PROTECTION

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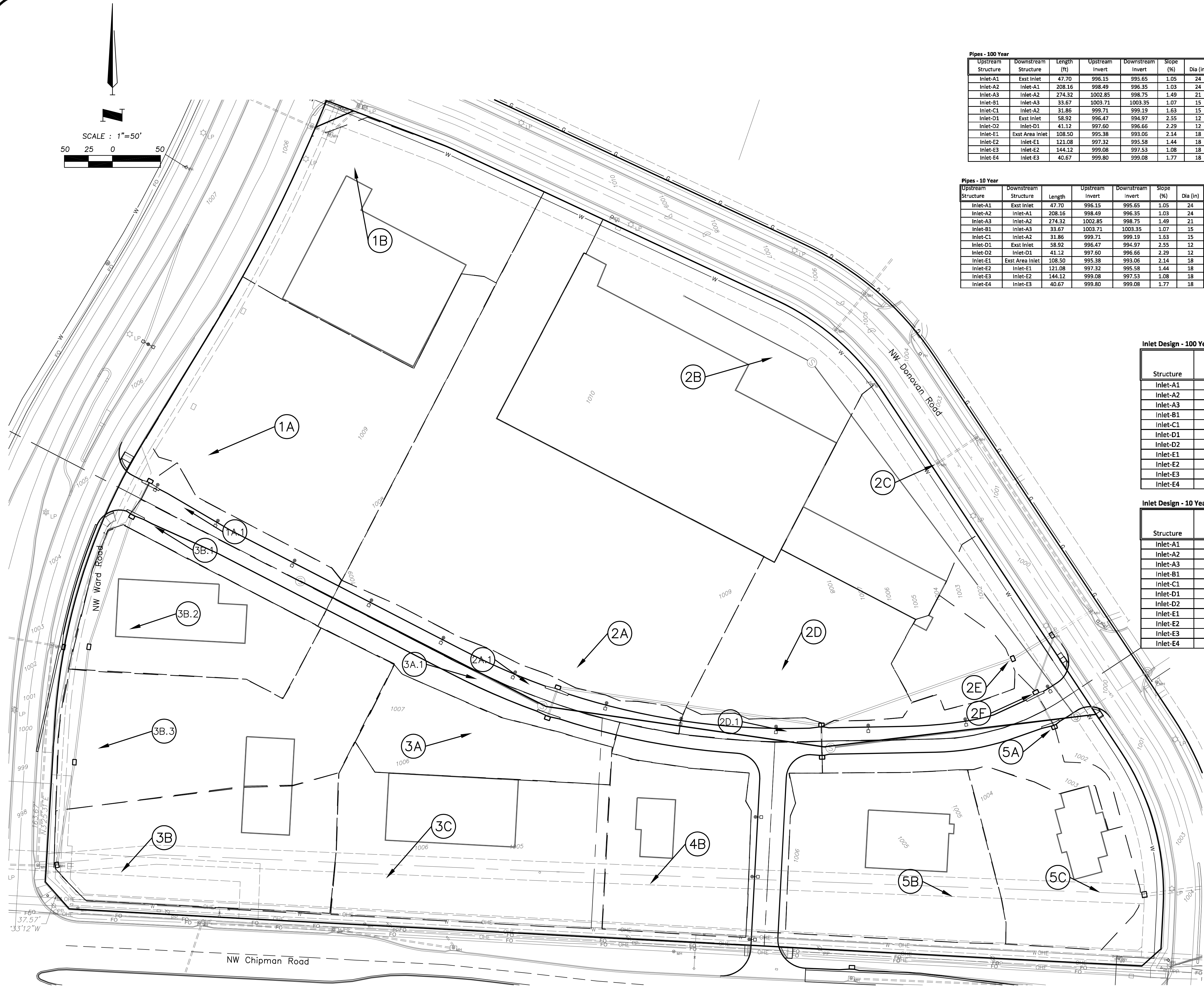
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			E-2000150081
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			JOB NUMBER:
			19C010001
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SUMMIT ORCHARD LOT 4
INFRASTRUCTURE IMPROVEMENTS
MASS GRADING PLANS
EROSION CONTROL DETAILS
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
THOMAS P. WOOTEN
NUMBER E-2000150081
5-14-19

SHEET NUMBER
C053
5 OF 19

May 14, 2019 - 1:56pm Plotted By: CO Eng2 G:\AE-CO01\1-Projects\19co10001 - Townsend Lot 4 CID Infrastructure\Draw\Summit Orchards Design.dwg Layout: DRAINAGE



Pipes - 100 Year													
Upstream Structure	Downstream Structure	Length (ft)	Upstream Invert	Downstream Invert	Slope (%)	Dia (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Structure HGL	Upstream Top Elev
Inlet-A1	Exst Inlet	47.70	996.15	995.65	1.05	24	0.0120	29.49	12.10	31.94	1.49	998.42	1000.60
Inlet-A2	Inlet-A1	208.16	998.49	996.35	1.03	24	0.0120	28.56	9.93	26.40	1.88	1001.72	1006.69
Inlet-A3	Inlet-A2	274.32	1002.85	998.75	1.49	21	0.0120	22.69	10.25	20.99	1.62	1004.76	1007.13
Inlet-B1	Inlet-A3	33.67	1003.71	1003.35	1.07	15	0.0120	5.37	6.47	7.24	0.80	1004.51	1007.13
Inlet-C1	Inlet-A2	31.86	999.71	999.19	1.63	15	0.0120	1.76	6.59	8.94	0.32	1000.03	1006.69
Inlet-D1	Exst Inlet	58.92	996.47	994.97	2.55	12	0.0120	3.05	7.83	6.16	0.50	998.65	1000.52
Inlet-D2	Inlet-D1	41.12	997.60	996.66	2.29	12	0.0120	2.27	6.96	5.84	0.43	999.30	1000.70
Inlet-E1	Exst Area Inlet	108.50	995.38	993.06	2.14	18	0.0120	22.74	13.97	21.02	1.43	996.76	1003.00
Inlet-E2	Inlet-E1	121.08	997.32	995.58	1.44	18	0.0120	17.38	10.71	16.13	1.37	998.45	1006.30
Inlet-E3	Inlet-E2	144.12	999.08	997.53	1.08	18	0.0120	11.34	7.62	11.80	1.18	1000.00	1005.32
Inlet-E4	Inlet-E3	40.67	999.80	999.08	1.77	18	0.0120	10.36	9.22	15.14	0.91	1000.56	1005.32

Pipes - 10 Year													
Upstream Structure	Downstream Structure	Length	Upstream Invert	Downstream Invert	Slope (%)	Dia (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Structure HGL	Upstream Top Elev
Inlet-A1	Exst Inlet	47.70	996.15	995.65	1.05	24	0.0120	22.22	10.98	31.94	1.23	997.82	1000.60
Inlet-A2	Inlet-A1	208.16	998.49	996.35	1.03	24	0.0120	21.31	9.38	26.40	1.36	99.89	1006.69
Inlet-A3	Inlet-A2	274.32	1002.85	998.75	1.49	21	0.0120	15.92	9.64	20.99	1.14	1004.40	1007.13
Inlet-B1	Inlet-A3	33.67	1003.71	1003.35	1.07	15	0.0120	4.11	6.09	7.24	0.67	1004.39	1007.13
Inlet-C1	Inlet-A2	31.86	999.71	999.19	1.63	15	0.0120	1.17	6.40	8.94	0.31	1000.02	1006.69
Inlet-D1	Exst Inlet	58.92	996.47	994.97	2.55	12	0.0120	2.65	7.56	6.16	0.46	998.36	1000.52
Inlet-D2	Inlet-D1	41.12	997.60	996.66	2.29	12	0.0120	1.94	6.68	5.84	0.40	999.30	1000.70
Inlet-E1	Exst Area Inlet	108.50	995.38	993.06	2.14	18	0.0120	19.13	13.52	21.02	1.12	997.13	1003.00
Inlet-E2	Inlet-E1	121.08	997.32	995.58	1.44	18	0.0120	12.54	10.12	16.13	0.99	998.82	1006.30
Inlet-E3	Inlet-E2	144.12	999.08	997.53	1.08	18	0.0120	8.18	7.22	11.80	0.92	1000.26	1005.32
Inlet-E4	Inlet-E3	40.67	999.80	999.08	1.77	18	0.0120	7.28	8.48	15.14	0.73	1000.77	1005.32

Inlet Design - 100 Year

Structure	Inlet Location	Peak Flow (cfs)	Intercepted Flow (cfs)	Bypass Flow (cfs)	Inlet Efficiency (%)
Inlet-A1	Sag	1.15	1.15	-	-
Inlet-A2	On Grade	0.66	0.55	0.11	83
Inlet-A3	Sag	1.81	1.81	-	-
Inlet-B1	Sag	1.98	1.98	-	-
Inlet-C1	On Grade	2.72	1.26	1.46	46
Inlet-D1	On Grade	1.32	0.79	0.53	60
Inlet-D2	On Grade	2.31	1.07	1.24	46
Inlet-E1	Sag	7.75	7.75	-	-
Inlet-E2	Sag	5.11	5.11	-	-
Inlet-E3	On Grade	1.40	1.00	0.40	71
Inlet-E4	On Grade	1.32	0.96	0.36	73

Inlet Design - 10 Year

Structure	Inlet Location	Peak Flow (cfs)	Intercepted Flow (cfs)	Bypass Flow (cfs)	Inlet Efficiency (%)
Inlet-A1	Sag	1.00	1.00	-	-
Inlet-A2	On Grade	0.57	0.50	0.07	88
Inlet-A3	Sag	1.58	1.58	-	-
Inlet-B1	Sag	1.72	1.72	-	-
Inlet-C1	On Grade	2.37	1.18	1.19	50
Inlet-D1	On Grade	1.15	0.73	0.42	63
Inlet-D2	On Grade	2.01	1.00	1.01	50
Inlet-E1	Sag	6.75	N/A	-	-
Inlet-E2	Sag	4.45	N/A	-	-
Inlet-E3	On Grade	1.22	0.92	0.30	75
Inlet-E4	On Grade	1.15	0.88	0.27	77

DA	Area (ac)	C	Tc (min)	I10 (in/hr)	Q10 (cfs)	I100 (in/hr)	Q100 (cfs)
1A	1.32	0.81	10	6	6.4	8.8	9.4
1B	1.07	0.81	5	7.2	6.3	10.2	8.9
2A	2.12	0.81	10	6	10.3	8.8	15.1
2B	1.77	0.81	5	7.2	10.3	10.2	14.7
2C	0.60	0.81	5	7.2	3.5	10.2	5.0
2D	0.65	0.81	5	7.2	3.8	10.2	5.4
2E	0.22	0.81	5	7.2	1.3	10.2	1.8
2F	0.16	0.81	5	7.2	0.9	10.2	1.3
3A	0.41	0.81	5	7.2	2.4	10.2	3.4
3B	0.78	0.81	5	7.2	4.6	10.2	6.4
3C	0.98	0.81	5	7.2	5.7	10.2	8.1
4A	0.33	0.81	5	7.2	1.9	10.2	2.7
4B	0.59	0.81	5	7.2	3.5	10.2	4.9
5A	0.28	0.81	5	7.2	1.6	10.2	2.3
5B	0.83	0.81	5	7.2	4.9	10.2	6.9
5C	0.54	0.81	5	7.2	3.2	10.2	4.5
2A-1	0.22	0.81	5	7.2	1.3	10.2	1.8
3A-1	0.24	0.81	5	7.2	1.4	10.2	2.0
2D-1	0.08	0.81	5	7.2	0.5	10.2	0.7
1A-1	0.16	0.81	5	7.2	0.9	10.2	1.3
3B-1	0.17	0.81	5	7.2	1.0	10.2	1.4
3B-2	0.62	0.81	5	7.2	3.6	10.2	5.1
3B-3	0.94	0.81	5	7.2	5.5	10.2	7.7

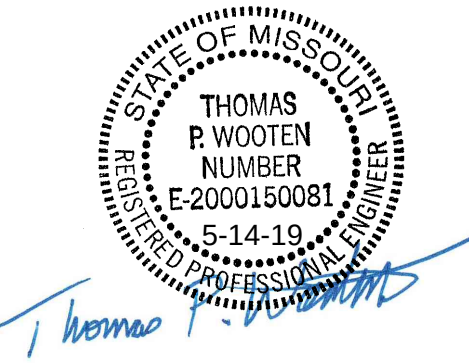
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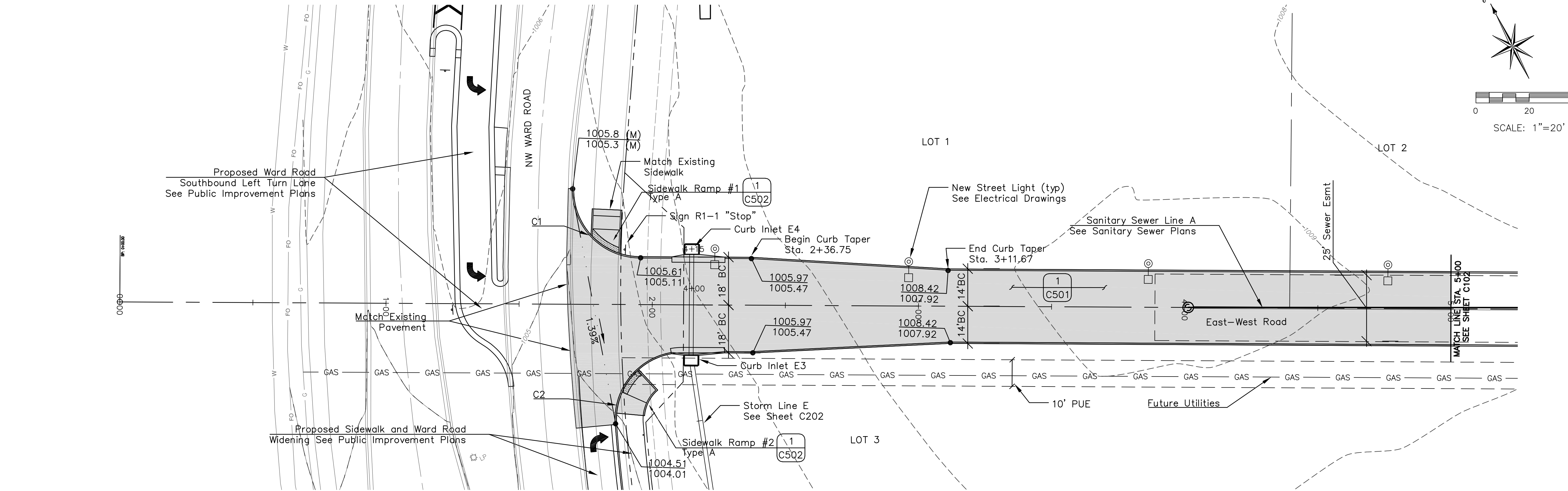
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				E-2000150081
				DATE:
				5/13/2019
				FIELD BOOK:
				JOB NUMBER:
				19CO10001
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SUMMIT ORCHARD LOT 4
INFRASTRUCTURE IMPROVEMENTS
MASS GRADING PLANS
DRAINAGE CALCULATIONS
LEE'S SUMMIT, MISSOURI

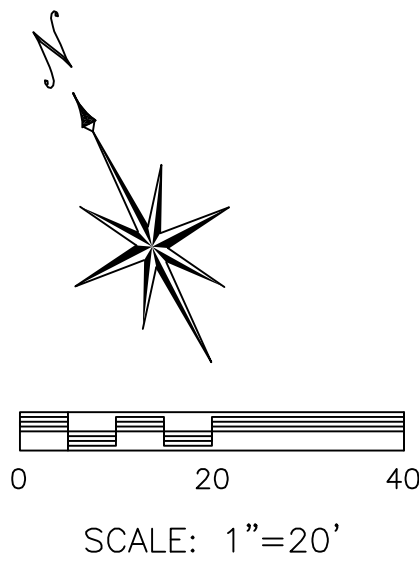
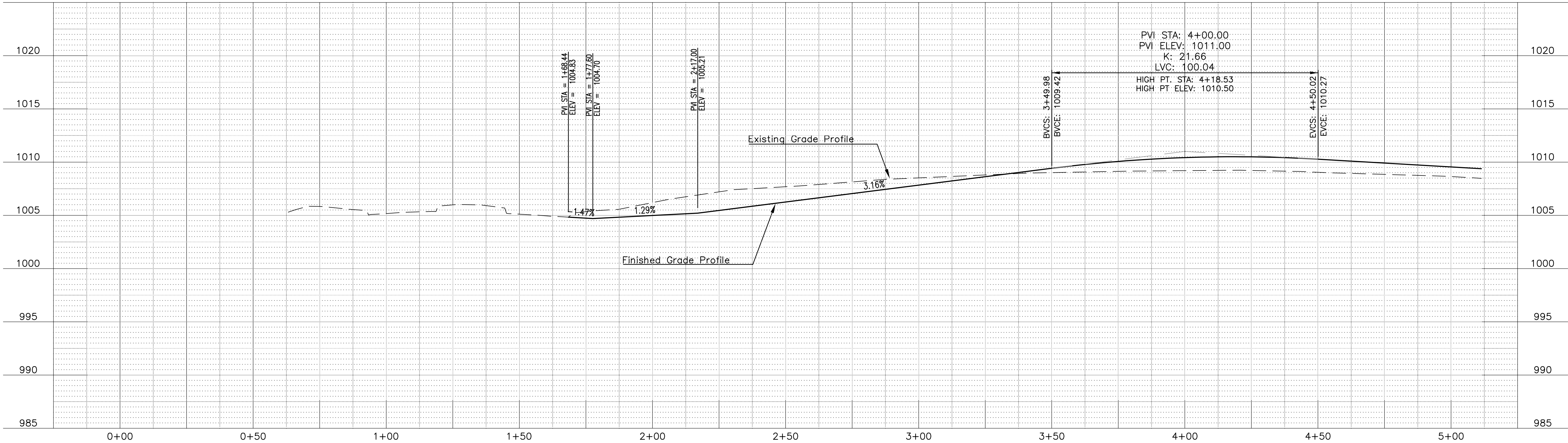


SHEET NUMBER
C061
6 OF 19

May 14, 2019 - 11:38am Plotted By: jhus Z:\AE-COL\1-Projects\180010001 - Townsend Lot 4 CID Infrastructure\Draw\Summit Orchards Plans - Roads.dwg Layout: C101



Back of Curb Curve Data				
Curve #	Radius	PC	PT	Rad. Pt.
C1	25	1+70.25' 43.45' Lt	1+95.24' 18' Lt	1+95.24' 43' Lt
C2	25	1+86.84' 45.09' Rt	2+11.75' 18' Rt	2+11.75' 43' Rt



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		JEN	
		TPW	
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		5/13/2019	
		FIELD BOOK:	
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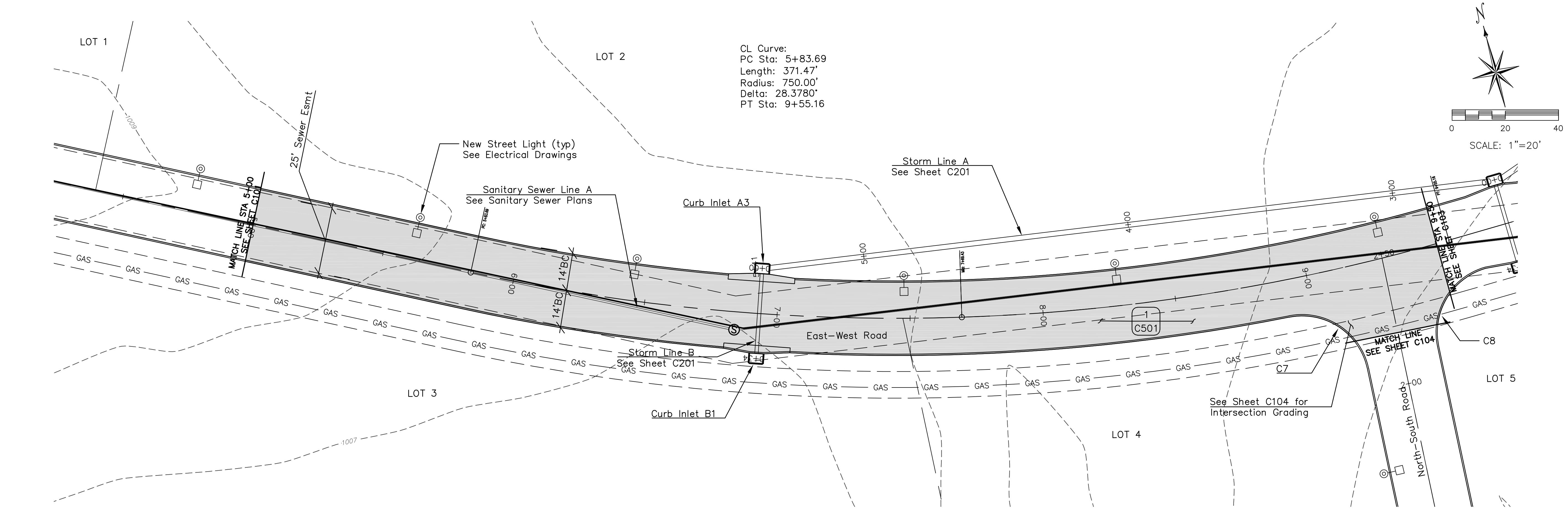
SUMMIT ORCHARD LOT 4
INFRASTRUCTURE IMPROVEMENTS
ROAD PLANS

EAST - WEST ROAD
LEE'S SUMMIT, MISSOURI

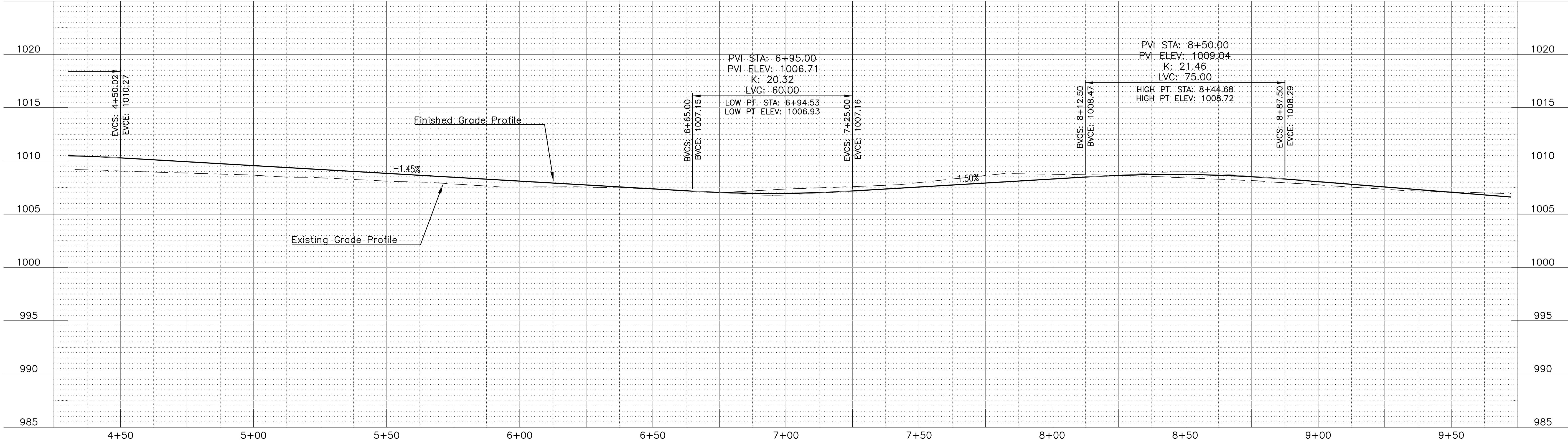
THOMAS
P. WOOTEN
NUMBER
E-2000150081
5-14-19
REGISTERED PROFESSIONAL ENGINEER

SHEET NUMBER
C101
7 OF 19

May 14, 2019 - 11:41am Plotted By: jhus Z:\AE-COL\1-Projects\190010001 - Township Lot 4 CID Infrastructure\Draw\Summit Orchards Plans - Roads.dwg Layout: C102



Back of Curb Curve Data				
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C7	25	8+90.68' 14' Rt	9+14.45' 39.03' Rt	8+90.68' 39' Rt
C8	25	9+65.40' 14' Rt	9+41.16' 37.36' Rt	9+65.40' 39' Rt



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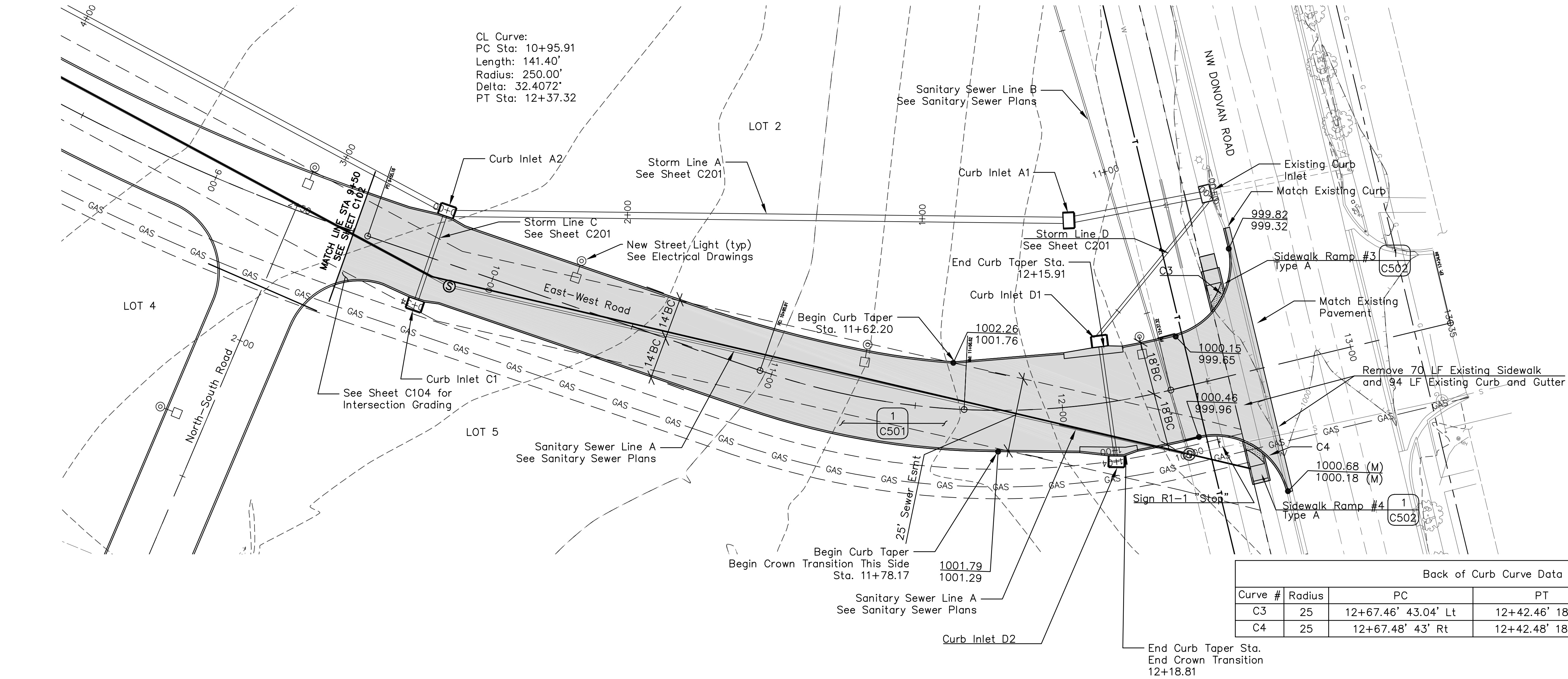
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		TPW	
		E-2000150081	
		5/13/2019	
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SUMMIT ORCHARD LOT 4
INFRASTRUCTURE IMPROVEMENTS
ROAD PLANS
EAST - WEST ROAD
LEE'S SUMMIT, MISSOURI

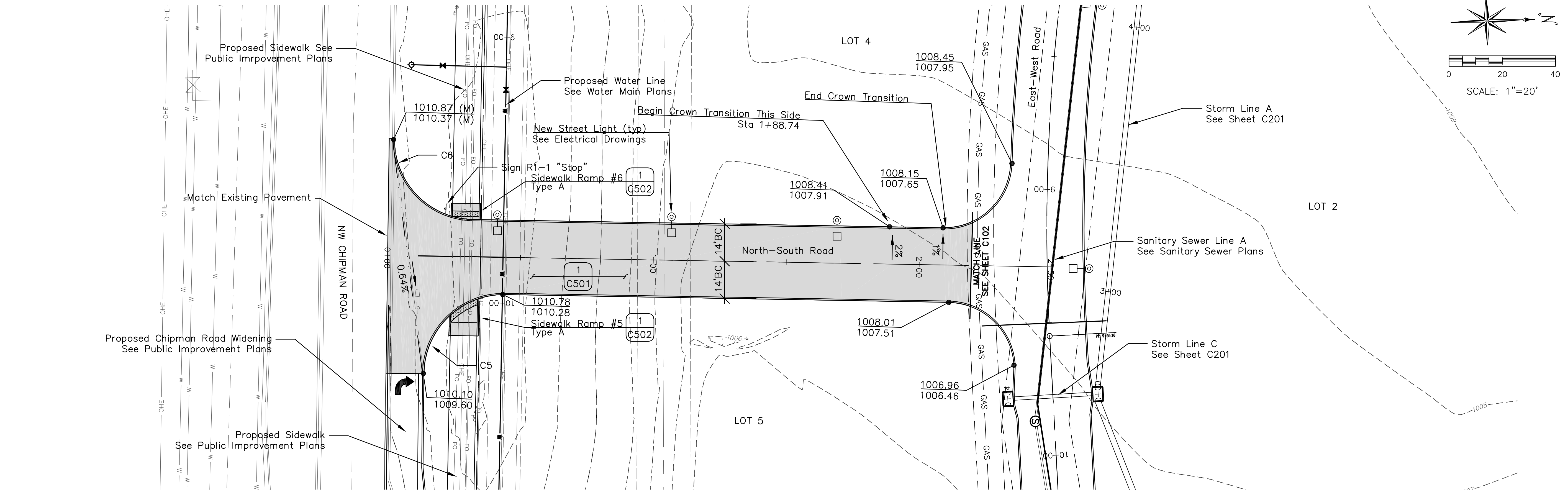
STATE OF MISSOURI
THOMAS P. WOOTEN
REGISTERED PROFESSIONAL ENGINEER
NUMBER E-2000150081
EXPIRES 12-14-19

SHEET NUMBER
C102
8 OF 19

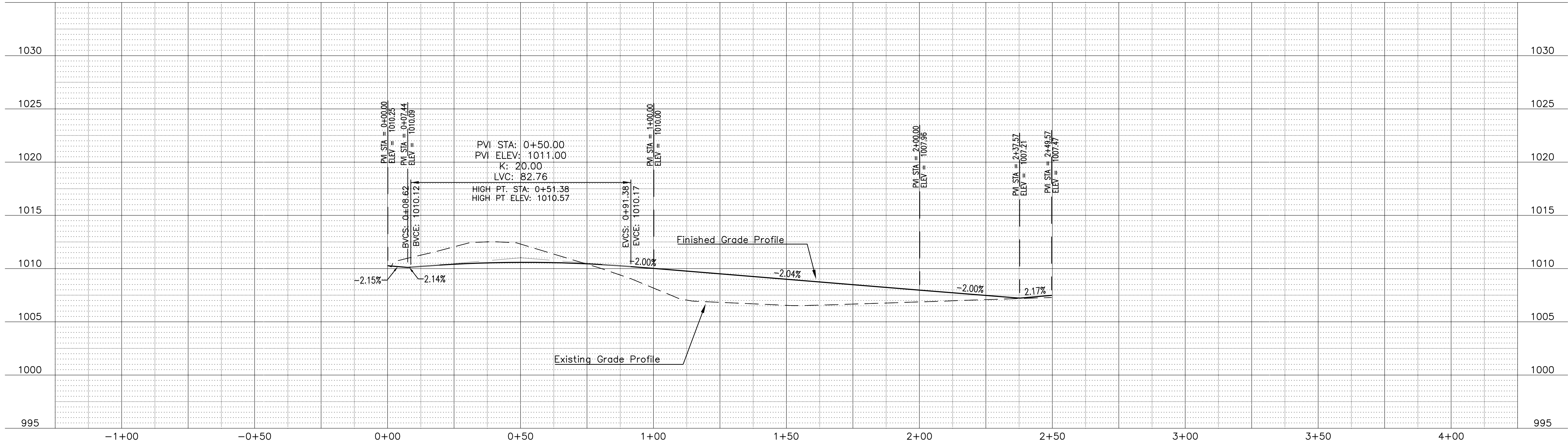
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May 14, 2019 - 11:44am Plotted By: jhus Z:\AE-COL\1-Projects\180010001 - Townsend Lot 4 CID Infrastructure\Draw\Summit Orchards Plans - Roads.dwg Layout: C104



Back of Curb Curve Data				
Curve #	Radius	PC	PT	Rad. Pt.
C5	30	0+14.48' 44.26' Rt	0+44.48' 14' Rt	0+44.48' 44' Rt
C6	30	0+01.90' 43.88' Lt	0+31.89' 14' Lt	0+31.89' 44' Lt



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MISSOURI CERTIFICATE OF AUTHORITY #000062 EXPIRES 12/31/2019

REVISIONS		DRAWING INFO.	
NO.	DESCRIPTION	BY	DATE
		JEN	TPW
		E-2000150081	5/13/2019
		FIELD BOOK:	19C010001
		JOB NUMBER:	
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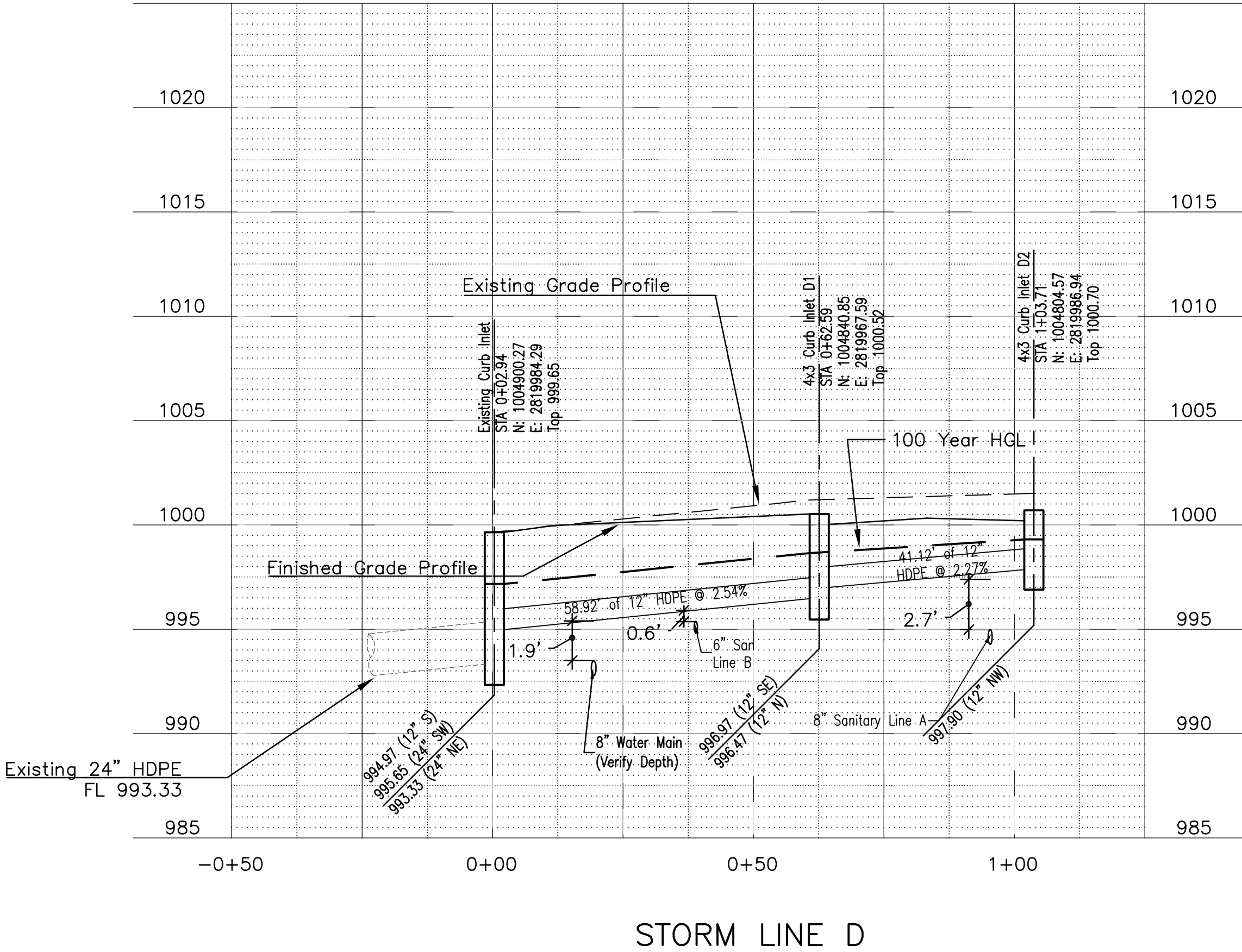
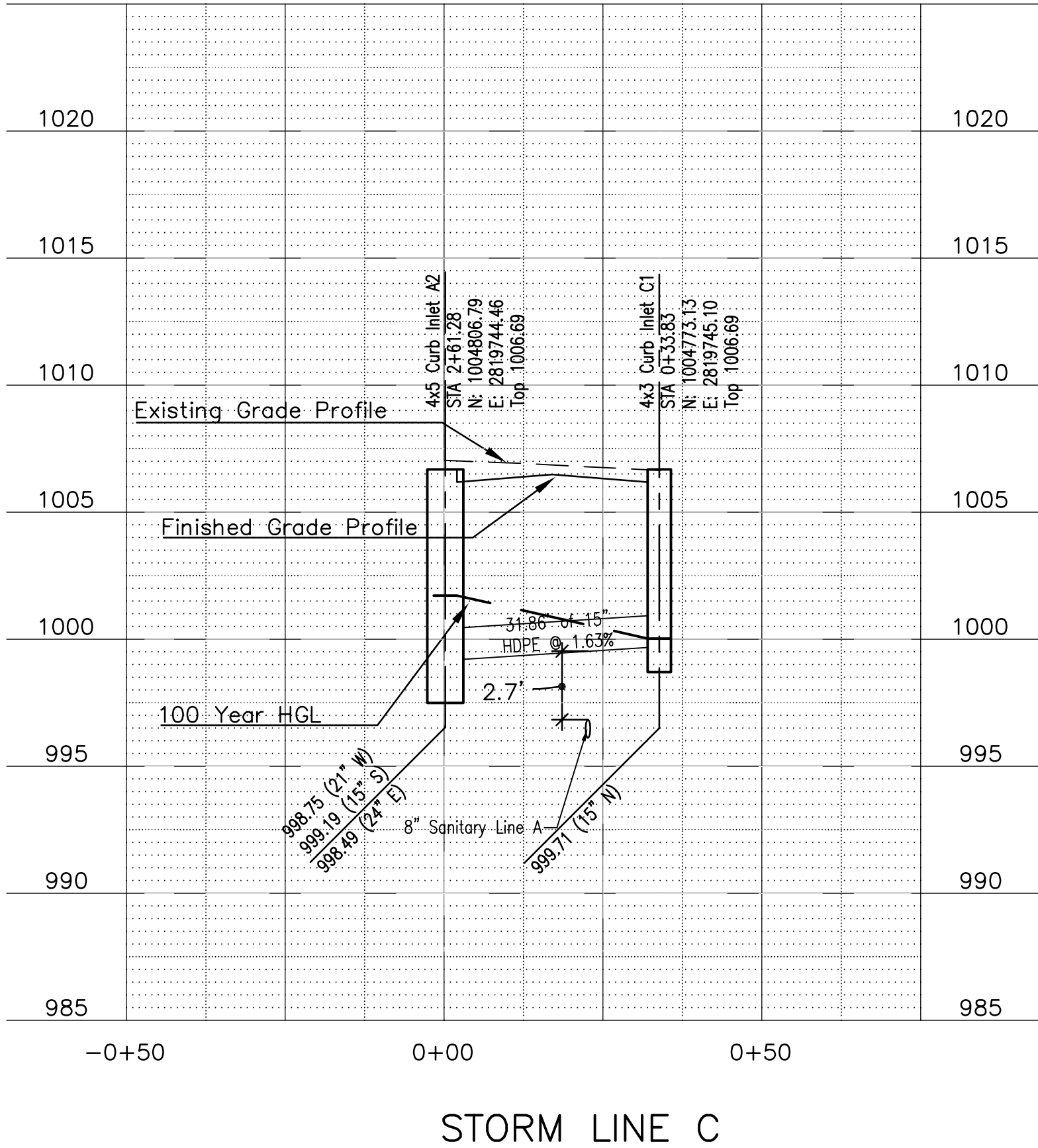
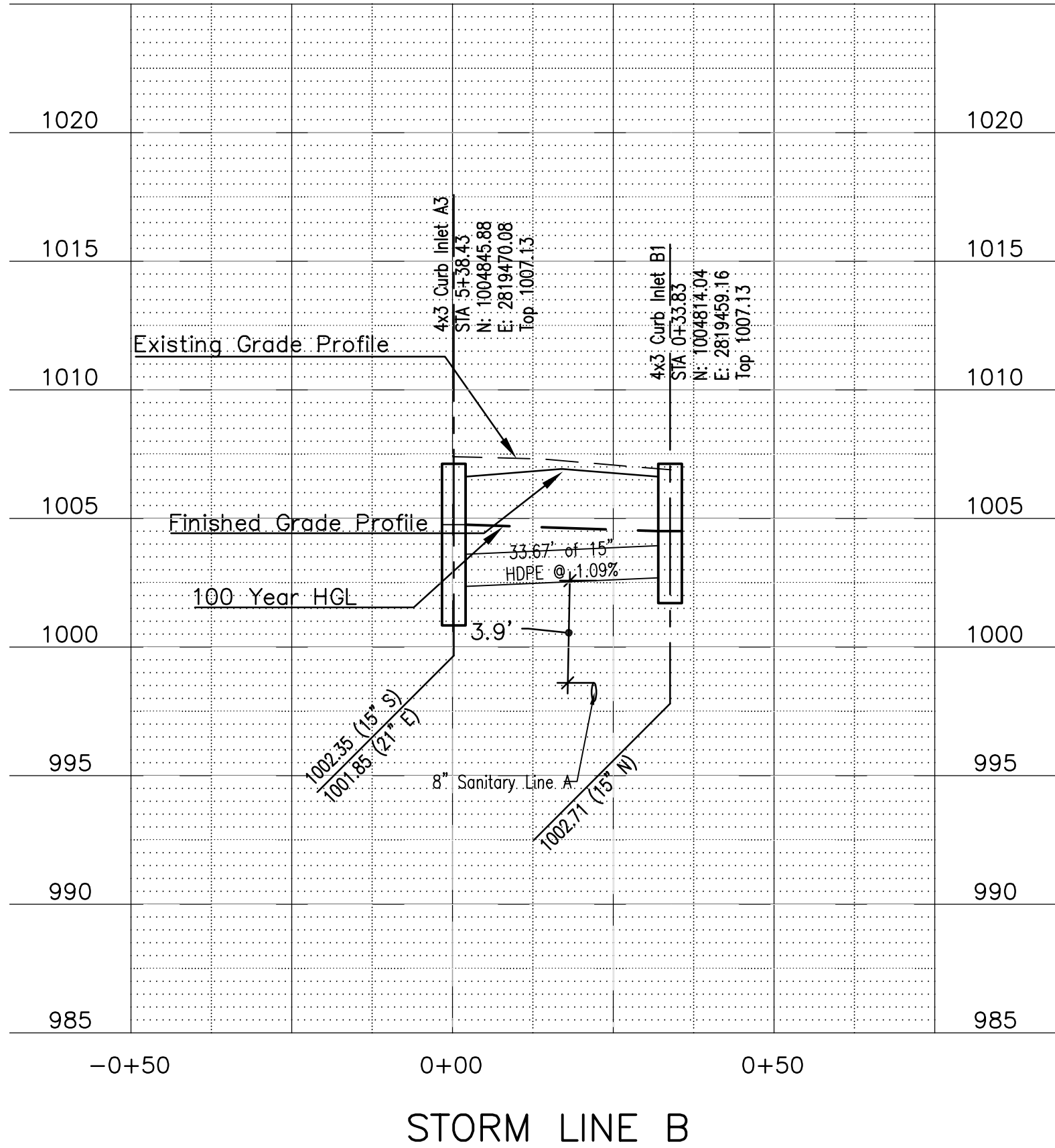
SUMMIT ORCHARD LOT 4
INFRASTRUCTURE IMPROVEMENTS
ROAD PLANS

THOMAS
P. WOOTEN
NUMBER
E-2000150081
5-14-19
PROFESSIONAL ENGINEER

SHEET NUMBER
C104
10 OF 19

NORTH - SOUTH ROAD
LEE'S SUMMIT, MISSOURI

May 31, 2019 - 10:23am Plotted By: CO Eng2 G:\VE-CO1\Projects\19c010001 - Township Lot 4 CD Infrastructure\Org\Summit Orchards Plans - Roads.dwg Layout: C201



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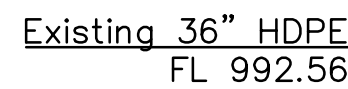
ENGINEERS SURVEYORS LABORATORIES DRILLING
4240 PHILIPS FARM RD. STE. 101 COLUMBIA, MO 65201 PHONE (573) 387-5476
A LICENSED MISSOURI ENGINEERING & SURVEYING CORPORATION
MISSOURI CERTIFICATE OF AUTHORITY #000662 EXPIRES 12/31/2019

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NO.	DESCRIPTION	BY	DATE
1	City 2nd Review Comments	TPW	5-31-19
		CHECK BY:	TPW
		LICENSE NO.	E-2000150081
		DATE:	5/31/2019
		FIELD BOOK:	19C010001
		JOB NUMBER:	
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SUMMIT ORCHARD LOT 4
INFRASTRUCTURE IMPROVEMENTS
ROAD PLANS
STORM PROFILES
LEE'S SUMMIT, MISSOURI

REGISTERED PROFESSIONAL ENGINEER
STATE OF MISSOURI
THOMAS P. WOOTEN
NUMBER
E-2000150081
5-31-19

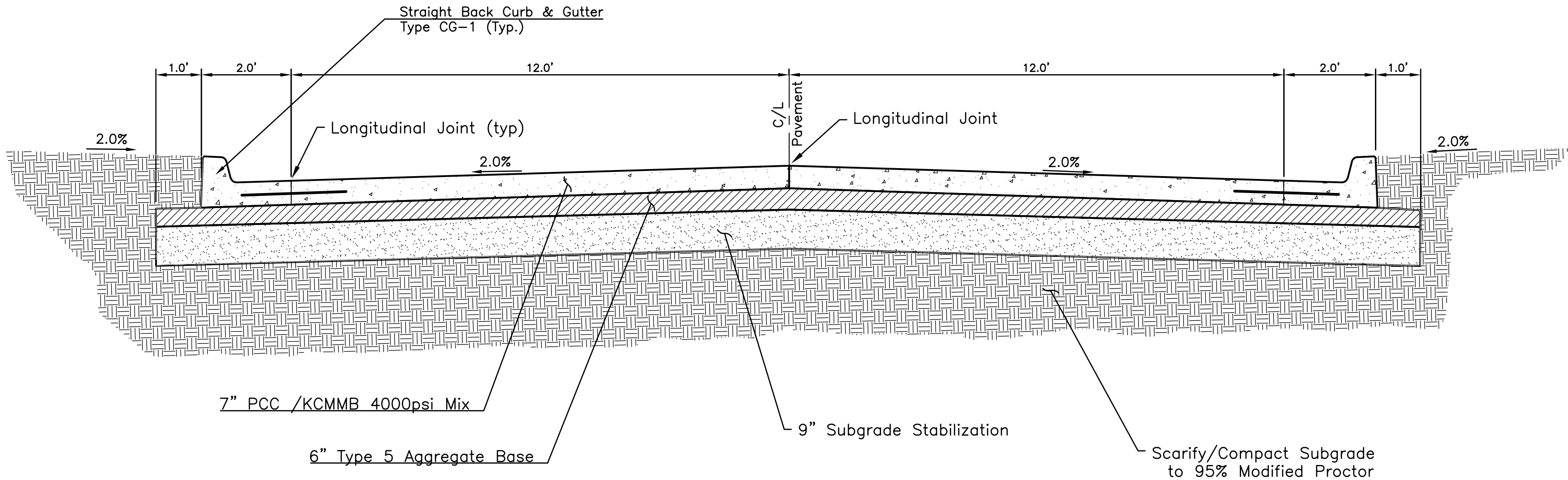
SHEET NUMBER
C201
11 OF 19



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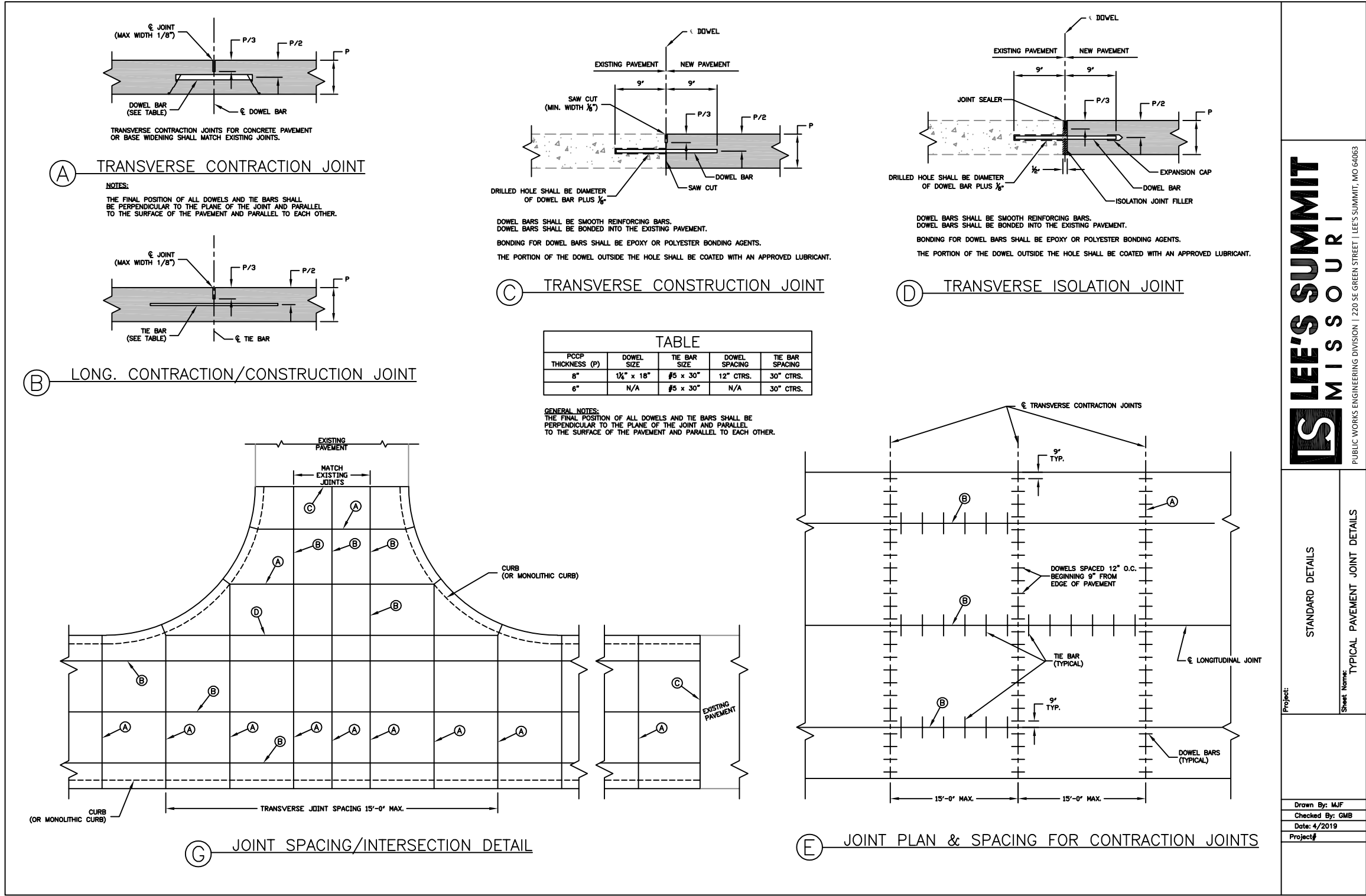
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			DRAWN BY:	JEN
			CHECK BY:	TPW
			LICENSE NO.	E-2000150081
			DATE:	5/13/2019
			FIELD BOOK:	
			JOB NUMBER:	19CO10001

May 14, 2019 - 11:48am Plotted By: jhus Z: AE-COL 1-Projects\19ae010001 - Townsend Lot 4 CD Infrastructure\dwg\19ae010001-Cov Leg Det Roads.dwg Layout: C501

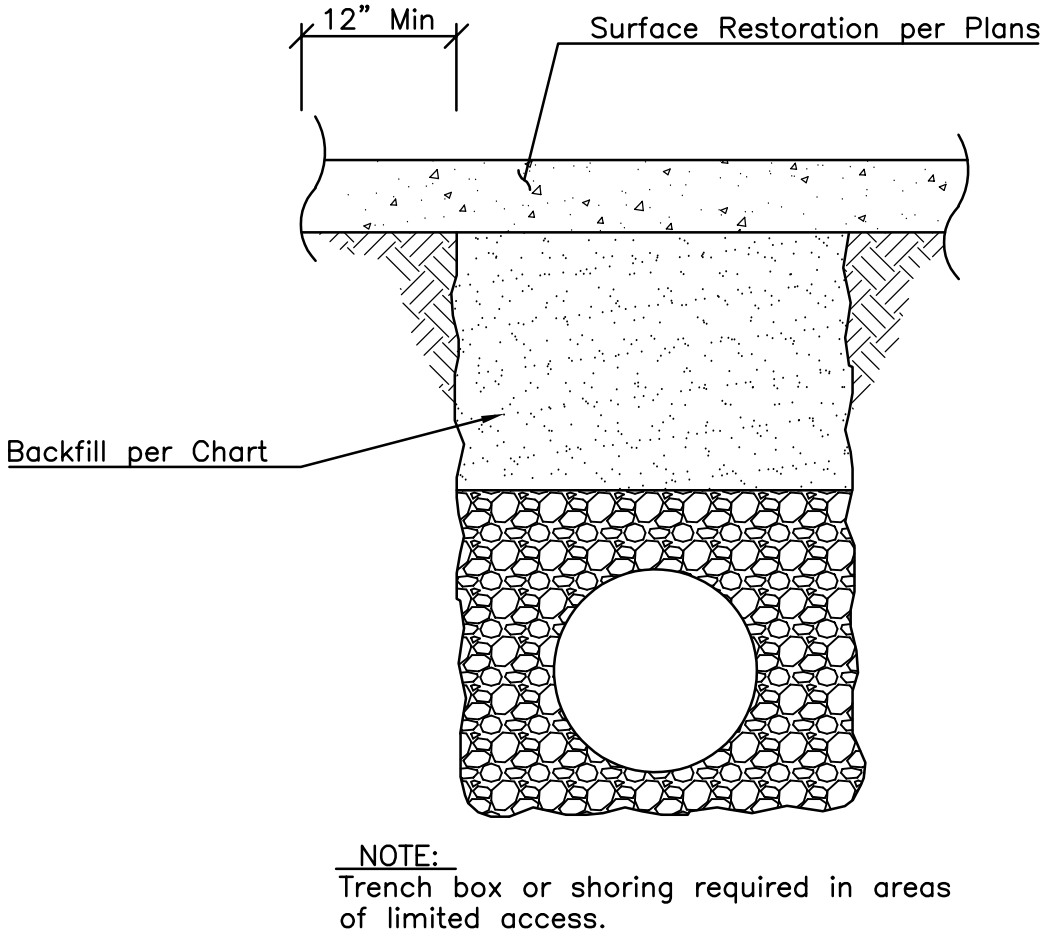


Note: Transverse Contraction Joints Shall be Spaced at a maximum of 15'.
All Tie Bars and Dowells Shall be Epoxy Coated

1 TYPICAL PAVEMENT SECTION & JOINT DETAILS C501 N.T.S.



Bedding Aggregate	
Max Particle Size: 3/4 inch	PI < 10
Passing #200 Sieve: < 35%	LL < 40



BACKFILL		
Trench Location	Requirement	Compaction
Paved areas within street or alley right of way	Trenches 24" or less in width: Type A flowable fill Trenches 24"-48" wide: Type A flowable fill or dense, well-graded aggregate base material. Aggregate base material shall meet the requirements for MoDOT Types 1 or 5, or APWA 2202.2 Trenches greater than 48" wide: Suitable material as specified for earth embankment in APWA Standard Specifications, Section 2102.2.C	95% Standard Proctor
Lawn	Suitable material as specified for earth embankment in APWA Standard Specifications, Section 2102.2.C Suitable backfill material may also be other trench backfill material (flowable fill or aggregate base) depending on site conditions, trench widths, or at the direction of the City's on-site Inspector.	90% Standard Proctor

2 METHOD OF BEDDING PIPE C501 N.T.S.

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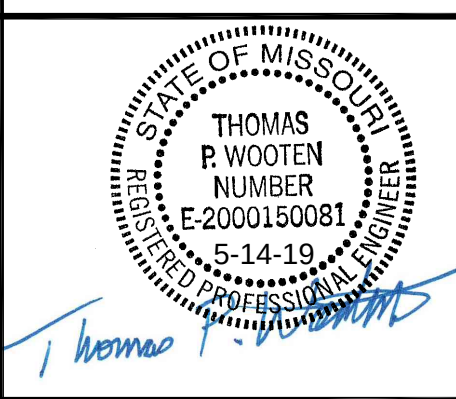
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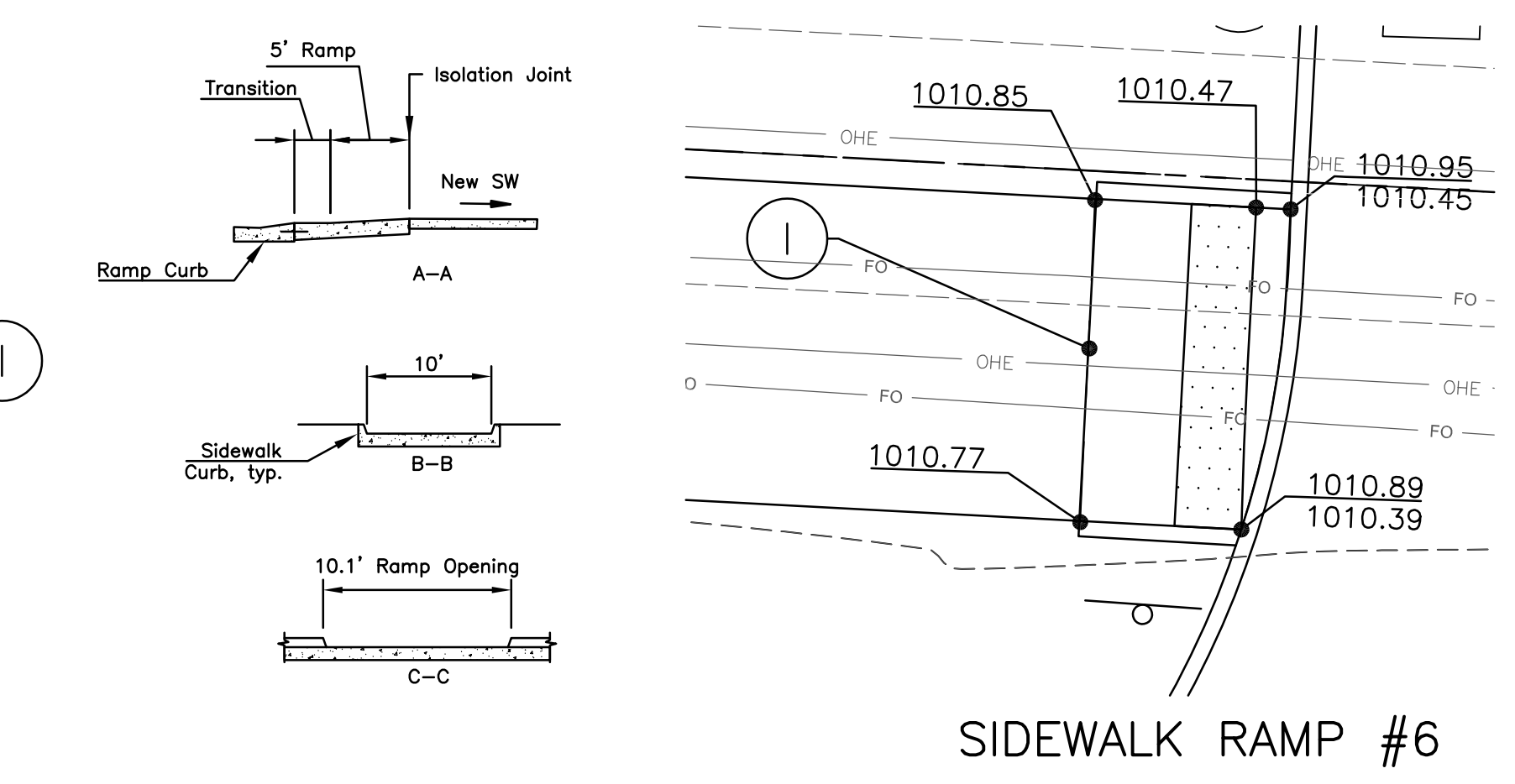
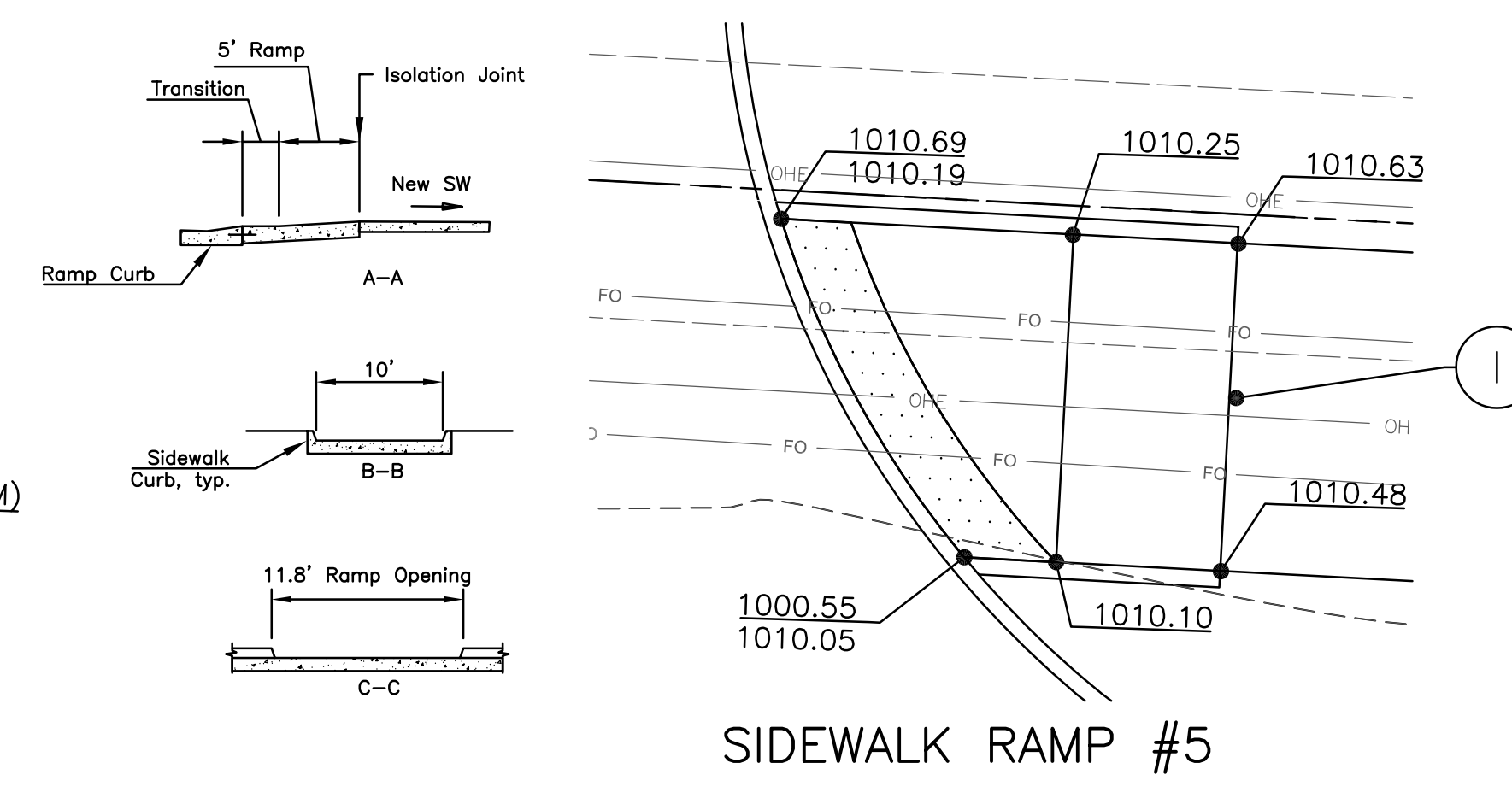
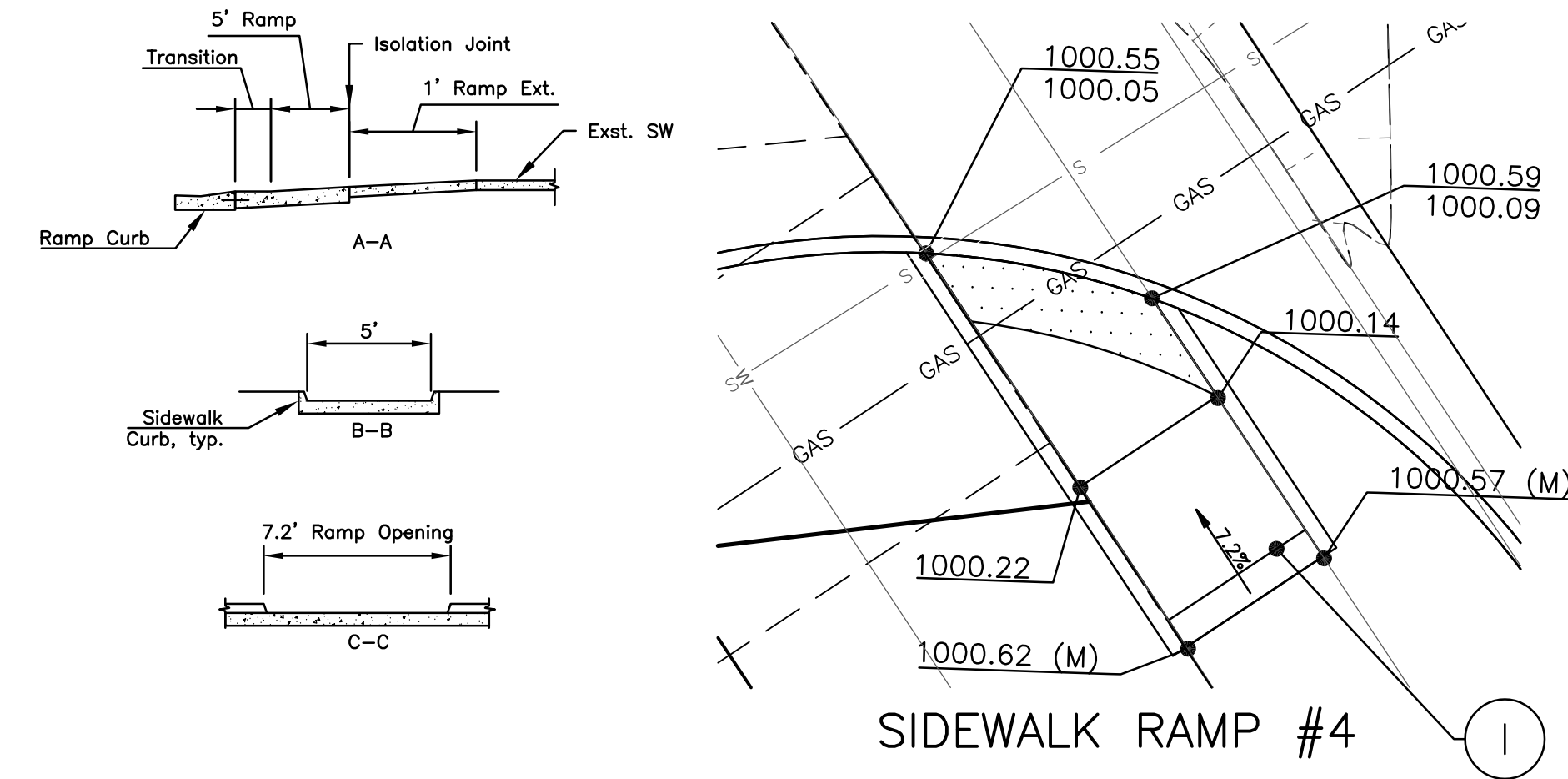
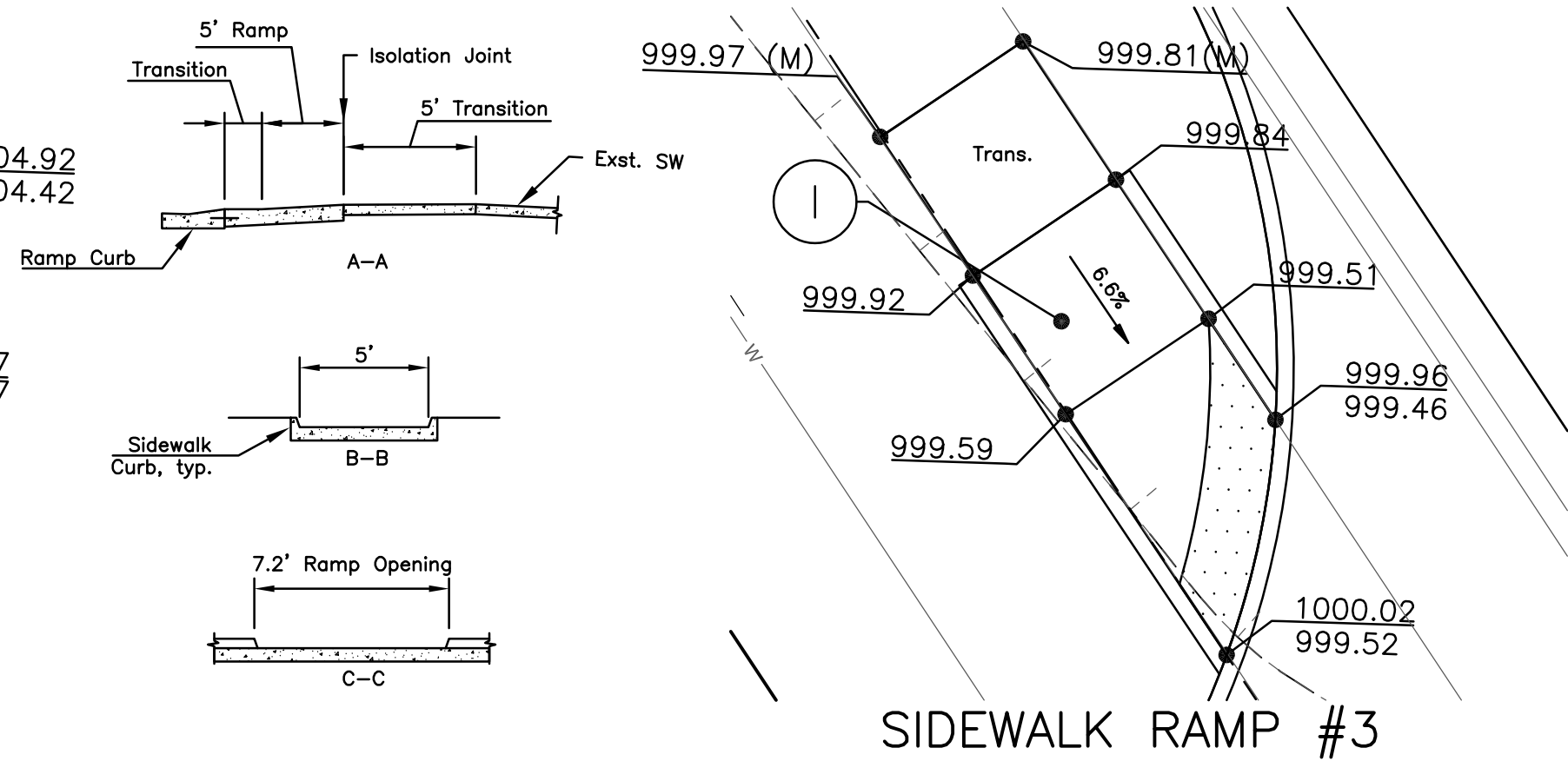
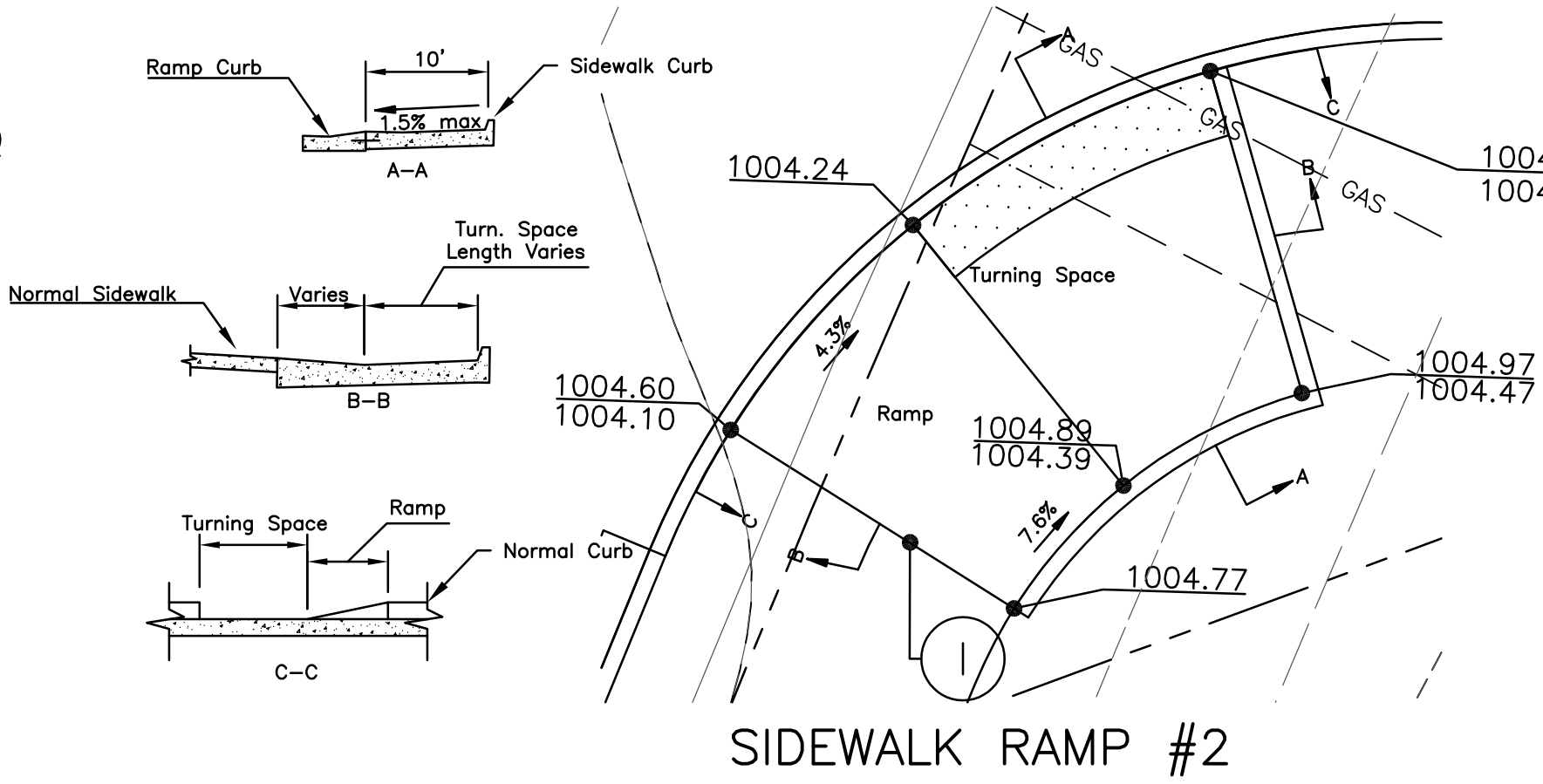
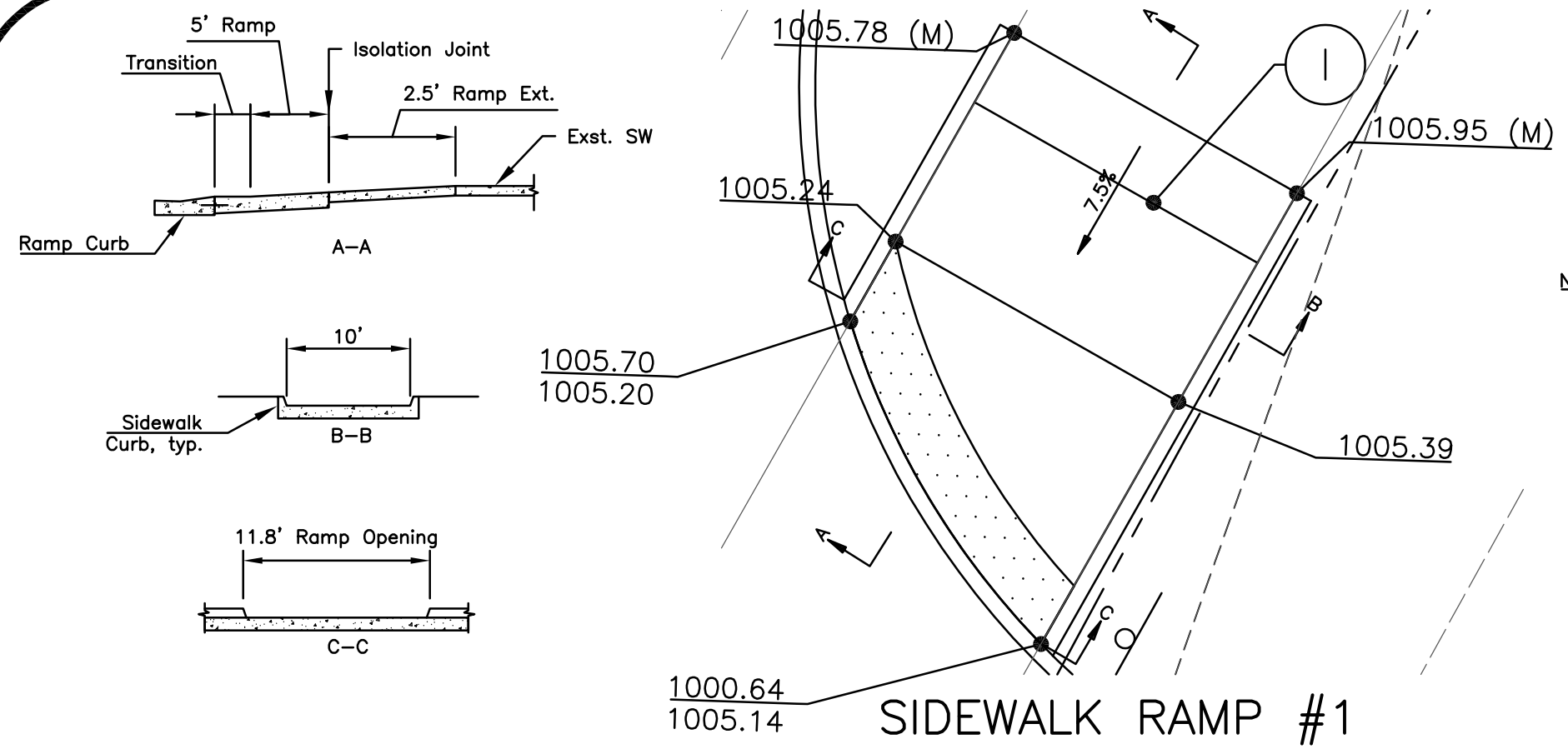
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NO.	DESCRIPTION	BY	DATE
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		E-2000150081	5/13/2019
		FIELD BOOK:	19C010001
		JOB NUMBER:	
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SUMMIT ORCHARD LOT 4 INFRASTRUCTURE IMPROVEMENTS ROAD PLANS DETAILS LEE'S SUMMIT, MISSOURI

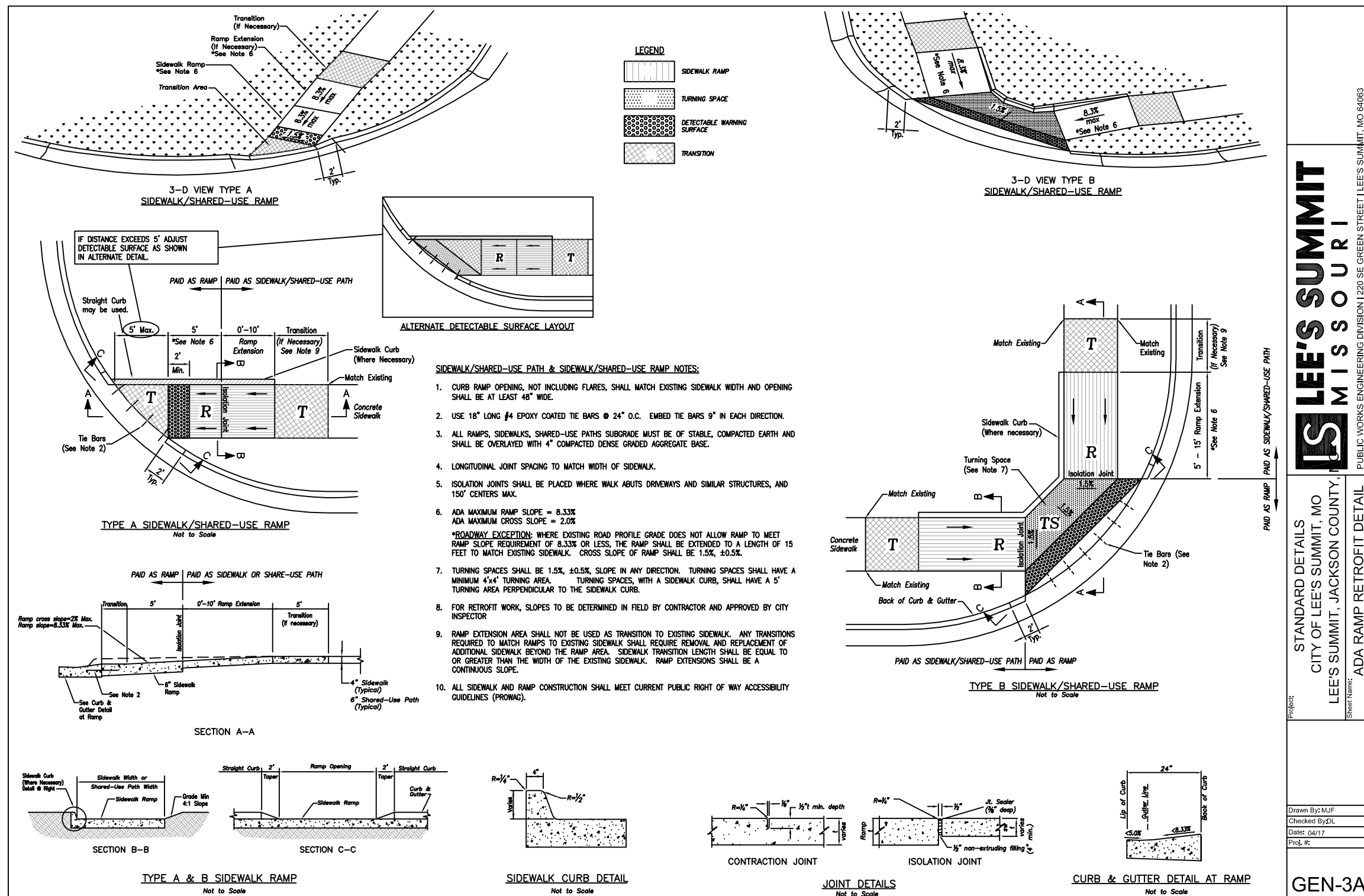


SHEET NUMBER C501 13 OF 19

May 14, 2019 11:49am Plotted By: jhus Z:\AE-COL\1-Projects\19c10001 - Township Lot 4 CID Infrastructure\DWG\Summit Orchards Plans - Roads.dwg Layout: C502



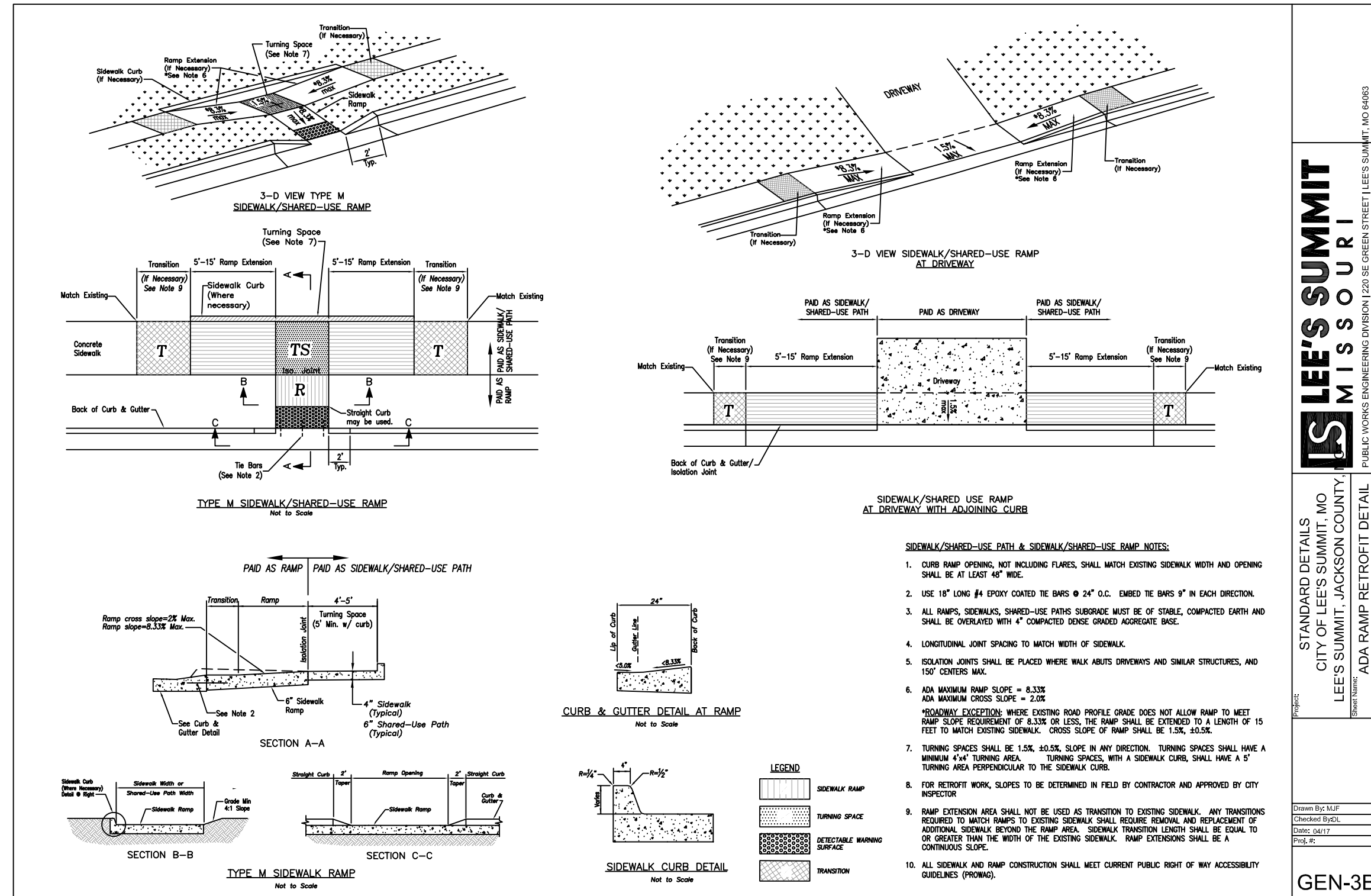
Note: "(M)" indicates match existing elevation
I indicates isolation joint location



LEE'S SUMMIT
MISSOURI

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY,
MISSOURI
ADA RAMP RETROFIT DETAIL

GEN-3A



LEE'S SUMMIT
MISSOURI

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY,
MISSOURI
ADA RAMP RETROFIT DETAIL

GEN-3B

SUMMIT ORCHARD LOT 4

INFRASTRUCTURE IMPROVEMENTS

ROAD PLANS

DETAILS

LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
THOMAS P. WOOTEN
REGISTERED PROFESSIONAL ENGINEER
E-2000150081
5-14-19

SHEET NUMBER
C502
14 OF 19

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MISSOURI CERTIFICATE OF AUTHORITY #000062 EXPIRES 12/31/2019

DRAWING INFO.		REVISIONS	
NO.	DESCRIPTION	BY	DATE
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		TPW	
		E-2000150081	
		5/13/2019	
		FIELD BOOK:	
		JOB NUMBER:	19C010001

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May 10, 2019 - 6:14pm Plotted By: monica.santos G:\00 Projects\219-09 Summit Orchard Lot 4\dwgs\219-09 E100.dwg Layout: E100

ELECTRICAL GENERAL PROVISIONS

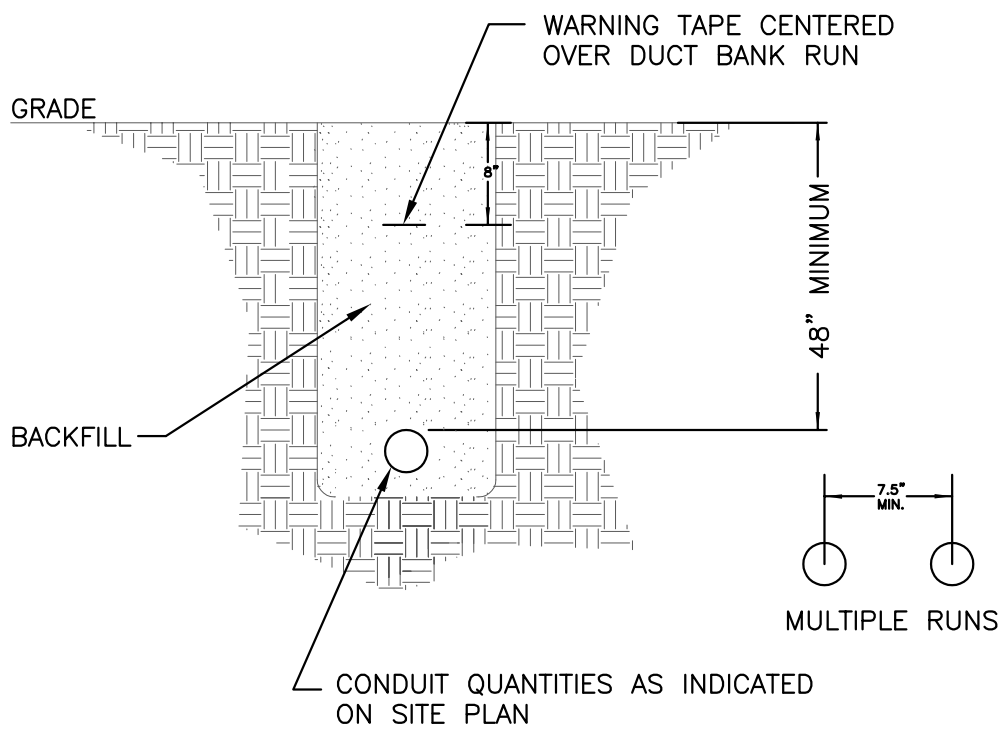
- 1.01 DESCRIPTION:
- A. DIVISION 26 SHALL BE GOVERNED BY ALL APPLICABLE PROVISIONS OF THE CONTRACT DOCUMENTS. THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND CONNECT ALL MATERIALS, EQUIPMENT, APPARATUS, ELECTRICAL SYSTEMS AND INCIDENTALS REQUIRED FOR COMPLETE AND WORKING INSTALLATION. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY LABOR, EQUIPMENT, TOOLS, INSURANCE, TAXES SERVICES; AND SHALL ASSUME FULL RESPONSIBILITY FOR ALL OBLIGATIONS ASSOCIATED WITH COMPLETION OF ELECTRICAL WORK AS PROVIDED BY THE CONTRACT DOCUMENTS.
- 1.02 STANDARDS, REGULATIONS AND CODES:
- A. THE WORK SHALL COMPLY WITH THE EDITION OF THE APPLICABLE STANDARDS, REGULATIONS AND CODES CURRENTLY IN FORCE OF ALL STATE AND LOCATION AUTHORITIES HAVING JURISDICTION. WHERE QUANTITIES, SIZES, OR OTHER REQUIREMENTS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED ARE IN EXCESS OF THE STANDARD OR CODE REQUIREMENTS, THE SPECIFICATIONS AND/OR DRAWINGS SHALL GOVERN. IN THE ABSENCE OF OTHER APPLICABLE LOCAL CODES, ACCEPTABLE TO THE ARCHITECT/ENGINEER, THE NATIONAL ELECTRICAL CODE SHALL APPLY TO THIS WORK.
- B. THE CONTRACTOR SHALL COMPLY WITH RULES AND REGULATIONS OF PUBLIC UTILITIES AND MUNICIPAL DEPARTMENTS AFFECTED BY CONNECTIONS OF SERVICES. THE CONTRACTOR SHALL PAY ALL FEES ASSOCIATED THERE WITH.
- C. THE ELECTRICAL CONTRACTOR SHALL BE LICENSED TO PERFORM ELECTRICAL WORK IN THE MUNICIPALITY IN WHICH THE PROJECT IS LOCATED.
- D. ALL PRODUCTS AND TYPES OF CONSTRUCTION SHALL MEET OR EXCEED THE LATEST EDITION OF APPLICABLE STANDARDS OF MANUFACTURER, TESTING, PERFORMANCE AND INSTALLATION.
- 1.03 LOCAL CONDITIONS:
- A. THE CONTRACTOR SHALL CAREFULLY EXAMINE THE LOCAL CONDITIONS AND EXISTING INSTALLATIONS AND SHALL BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS WHICH MAY AFFECT ASSOCIATED WORK. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES AND PROTECT THEM DURING THE EXECUTION OF THE WORK.
- B. THE CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS TO BECOME FAMILIAR WITH THE TYPE OF CONSTRUCTION, MATERIALS, AND EQUIPMENT TO BE USED FOR ALL WORK AND HOW IT WILL AFFECT THE INSTALLATION OF THIS CONTRACT.
- C. BY THE ACT OF SUBMITTING A BID, THE CONTRACTOR WILL BE DEEMED TO HAVE MADE SUCH EXAMINATION, TO HAVE ACCEPTED SUCH CONDITIONS, TO HAVE MADE ALLOWANCE THEREFOR, AND INCLUDED ALL COSTS IN PROPOSAL. FAILURE TO DETERMINE EXISTING CONDITIONS WILL NOT BE CONSIDERED A BASIS FOR THE GRANTING OF ADDITIONAL COMPENSATION.
- 1.04 WORKMANSHIP:
- A. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL PROVIDE A NEAT AND "WORKMANLIKE" APPEARANCE WHEN COMPLETED, TO THE SATISFACTION OF THE ARCHITECT/ENGINEER. THE COMPLETE INSTALLATION SHALL FUNCTION AS DESIGNED AND INTENDED WITH RESPECT TO EFFICIENCY, CAPACITY, AND NOISE LEVEL, ETC.
- 1.05 CUTTING AND PATCHING:
- A. ALL NECESSARY CUTTING, DRILLING AND PATCHING SHALL BE PROVIDED BY THIS CONTRACTOR. STRUCTURAL MEMBERS SHALL NOT BE DISTURBED WITHOUT PRIOR APPROVAL OF THE ARCHITECT/ENGINEER. ALL AREAS DISTURBED BY WORK PERFORMED UNDER THIS CONTRACT SHALL BE NEATLY REPAIRED AND REFINISHED TO THE CONDITION OF ADJOINING SURFACES IN A MANNER SUITABLE TO THE ARCHITECT/ ENGINEER.
- 1.06 OPERATION DURING CONSTRUCTION:
- A. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND OPERATION, SERVICE AND MAINTENANCE OF ALL NEW EQUIPMENT DURING CONSTRUCTION AND PRIOR TO ACCEPTANCE BY THE OWNER OF THE COMPLETED PROJECT. WARRANTY PERIODS SHALL NOT COMMENCE UNTIL FINAL ACCEPTANCE BY THE OWNER.
- 1.07 SAFETY REGULATIONS:
- A. ALL ELECTRICAL WORK SHALL BE PERFORMED IN COMPLIANCE WITH ALL APPLICABLE GOVERNING SAFETY REGULATIONS, INCLUDING OSHA REGULATIONS. PROVIDE SAFETY LIGHTS, GUARDS AND SIGNS REQUIRED.
- 1.08 HOUSEKEEPING:
- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING STOCKS OF MATERIAL AND EQUIPMENT STORED ON THE PREMISES IN A NEAT AND ORDERLY MANNER.
- B. THE CONTRACTOR SHALL CLEAN AND MAINTAIN OWN PORTION OF THE WORK AS SPECIFIED IN THE GENERAL CONDITIONS.
- C. THE CONTRACTOR SHALL REMOVE FROM THE PREMISES ALL WASTE MATERIAL PRESENT AS A RESULT OF ASSOCIATED WORK.
- 1.09 CONNECTION AND ALTERATION TO EXISTING SYSTEMS:
- A. CONNECTION TO THE EXISTING BUILDING ELECTRICAL, MUST BE ACCOMPLISHED UNDER THIS CONTRACT. SYSTEM "DOWNTIME" DUE TO CONNECTION SHALL BE KEPT TO AN ABSOLUTE MINIMUM. THE OWNER'S REPRESENTATIVE SHALL JUDGE IF AT WHAT TIME, AND FOR WHAT LENGTH OF TIME A SHUT-DOWN CAN BE TOLERATED.
- B. PROVIDE ALL TEMPORARY PIPING AND WIRING SYSTEMS REQUIRED DURING CONSTRUCTION IN ORDER TO KEEP ALL EXISTING SYSTEMS FUNCTIONING.
- C. DEMOLITION, CUTTING AND PATCHING TO RESTORE SURFACES TO ORIGINAL CONDITION AS NECESSITATED FOR ACCESS TO WORK PERFORMED BY THE CONTRACTOR OR ASSOCIATED SUBCONTRACTORS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- D. WHEN ADDING BREAKER(S) TO AN EXISTING PANELBOARD, MATCH PANELBOARD MANUFACTURER, SERIES, KAIC RATING, BREAKER TYPE, ETC.
- 1.10 GRAPHIC REPRESENTATION AND JOB CONDITIONS:
- A. THE DRAWINGS SHALL SERVE AS WORKING DRAWINGS FOR THE GENERAL LAYOUT OF THE VARIOUS ITEMS OF EQUIPMENT; ARE DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED; AND DO NOT NECESSARILY INDICATE EVERY REQUIRED ITEM.
- B. THE ARCHITECTURAL DRAWINGS TAKE PRECEDENCE OVER THE ELECTRICAL DRAWINGS IN THE REPRESENTATION OF THE GENERAL CONSTRUCTION WORK.
- C. ARRANGE WORK IN A NEAT, WELL ORGANIZED MANNER. COORDINATE WORK WITH OTHER TRADES INVOLVED.
- 1.11 GUARANTEES:
- A. THE CONTRACTOR SHALL GUARANTEE ALL WORK PERFORMED AND MATERIALS AND EQUIPMENT FURNISHED UNDER THIS CONTRACT, AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE OWNER'S FINAL ACCEPTANCE OF THE WORK, OR AS NOTED IN EACH SECTION.
- 1.12 SUBSTITUTIONS:
- A. THE MATERIALS, PRODUCTS AND EQUIPMENT DESCRIBED IN THE BIDDING DOCUMENTS ESTABLISHED A STANDARD OF QUALITY TO BE MET BY ANY PROPOSED SUBSTITUTION.
- B. CONTRACTOR'S BIDS SHALL BE BASED ON THE MATERIAL MENTIONED OR SPECIFIED, AND ANY PROPOSALS FOR A SUBSTITUTION SHALL BE MADE IN WRITING TO THE ARCHITECT/ ENGINEER ALLOWING ADEQUATE TIME FOR APPROPRIATE ACTION. THE PRODUCTS OF OTHER MANUFACTURERS MAY BE ACCEPTED, IF IN THE OPINION OF THE ARCHITECT/ENGINEER, THE SUBSTITUTE MATERIAL IS OF A QUALITY AS GOOD OR BETTER THAN THE MATERIAL SPECIFIED, AND WILL SERVE WITH EQUAL EFFICIENCY AND DEPENDABILITY. THE PURPOSE FOR WHICH THE ITEMS SPECIFIED WERE INTENDED. THE BURDEN OF PROOF OF EQUALITY IS UPON THE PROPOSER.
- C. WHEREVER SUBSTITUTIONS ALTER THE DESIGN OR SPACE REQUIREMENTS, THE CONTRACTOR SHALL INCLUDE ALL ITEMS OF COST OF THE REVISED DESIGN AND CONSTRUCTION.

- 1.13 SHOP DRAWINGS AND PRODUCT DATA:
- A. THE CHECKING OF SHOP DRAWINGS IS A GRATUITOUS ASSISTANCE AND IN NO WAY RELIEVES THE CONTRACTOR FROM RESPONSIBILITY FOR DEVIATIONS FROM THE CONTRACT DOCUMENTS.
- B. SHOP DRAWINGS AND CATALOG DATA ON ALL MAJOR ITEMS OF EQUIPMENT AND APPARATUS, AND SUCH OTHER ILLUSTRATIVE MATERIALS AS MAY BE CONSIDERED NECESSARY BY THE ARCHITECT/ENGINEER SHALL BE SUBMITTED BY THE CONTRACTOR IN ADEQUATE TIME TO PREVENT DELAY AND CHANGES DURING CONSTRUCTION.
- 1.14 OPERATING AND MAINTENANCE BROCHURE:
- A. AT THE COMPLETION OF THE PROJECT, EACH CONTRACTOR SHALL PROVIDE THREE (3) HARD BOUND VOLUMES OF MANUALS CONTAINING OPERATING SERVICE AND LUBRICATION INSTRUCTIONS, AND PARTS LISTS FOR ALL MAJOR EQUIPMENT AND MANUFACTURER'S GUARANTIES OR WARRANTIES.
- 1.15 RECORD DRAWINGS:
- A. ON COMPLETION OF THE PROJECT, SUBMIT TWO NEW SETS OF BLUELINES PRINTS WITH ALL FIELD CHANGES NEATLY NOTED. THE ORIGINAL ROUTING AND LAYOUT SHALL BE CLEARLY MARKED OUT.
- END OF SECTION

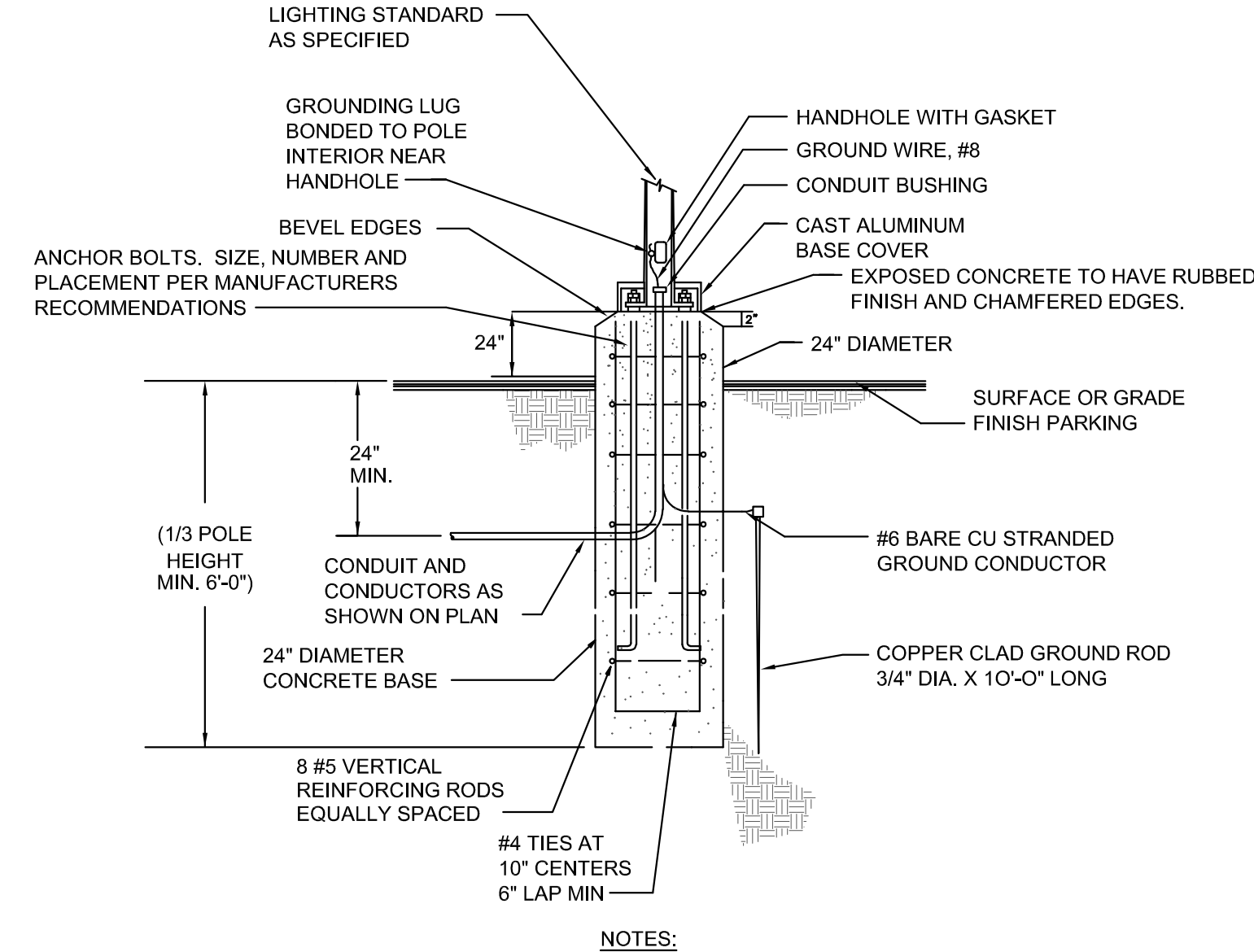
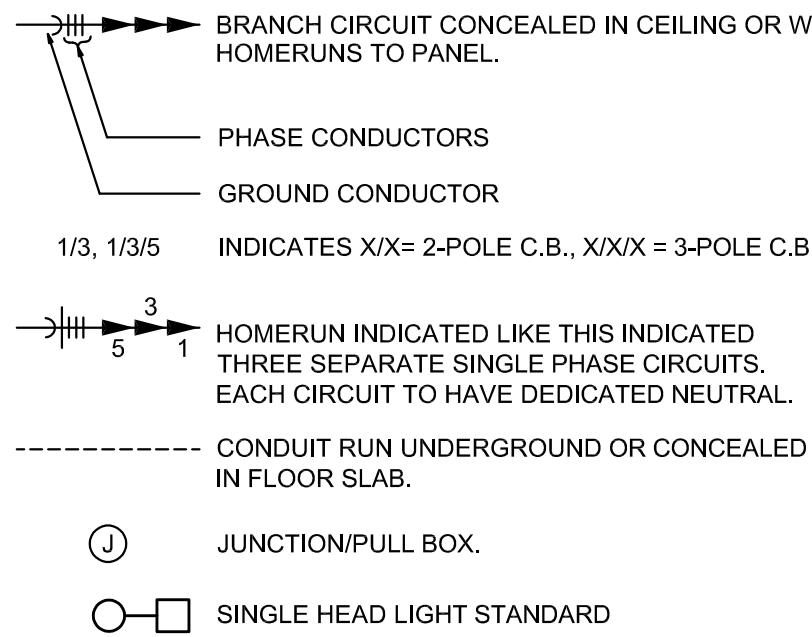
ELECTRICAL SPECIFICATIONS

- 1.01 SCOPE:
- A. THE WORK INCLUDED UNDER THIS CONTRACT CONSISTS OF THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, TRANSPORTATION, SERVICES, ETC., NECESSARY TO COMPLETE THE INSTALLATION OF THE ELECTRICAL SYSTEMS AND OTHER ITEMS HEREIN LISTED, ALL AS DIRECTED BY THE ARCHITECT OR ENGINEER, WHICH WORK IS COMPRISED OF, BUT NOT LIMITED TO THE FOLLOWING PRINCIPAL ITEMS:
- ELECTRICAL SYSTEM FOR LIGHT AND POWER:
 - SYSTEMS OF CONDUIT, CONDUCTORS, AND BOXES.
 - LIGHTING FIXTURES AND LAMPS.
 - COMPLETE LIGHTING AND POWER SYSTEMS.
 - ALL SYSTEMS, WIRING AND CONDUIT AS REQUIRED.
 - CONTROL WIRING AND ELECTRICAL INSTALLATION AND CONNECTIONS FOR ITEMS IN OTHER CONTRACTS AS MAY BE LISTED IN THE DRAWINGS.
 - ROUGH-IN AND FINAL CONNECTION TO EQUIPMENT FURNISHED BY OTHERS.
- B. RACEWAY WIRING SYSTEMS SHALL BE CONCEALED IN ALL FINISHED PARTS OF THE BUILDING, WHERE POSSIBLE. WHERE THE RACEWAYS ARE EXPOSED, THEY SHALL BE RUN PARALLEL WITH THE BUILDING WALLS IN A NEAT AND WORKMANLIKE MANNER; SHOULD IT APPEAR NECESSARY TO EXPOSE ANY CONDUIT OR WIRING IN FINISHED SPACES, IT SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION IMMEDIATELY AND THIS CONTRACTOR SHALL REARRANGE ASSOCIATED WORK AS DIRECTED TO FACILITATE AN APPROVED INSTALLATION. CONTRACTOR TO COORDINATE WITH MECHANICAL TRADES TO AVOID DUCTWORK AND PIPING.
- C. CONTRACTOR IS RESPONSIBLE TO PROVIDE LIAISON WITH ELECTRICAL AND COMMUNICATION COMPANIES. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL REQUIRED EQUIPMENT AND CONNECT AS REQUIRED TO COMPLETE AN OPERATING SERVICE TO THE BUILDING.
- 1.02 RACEWAYS:
- A. ALL ELECTRICAL EXTERIOR CONDUCTORS ARE TO BE INSTALLED IN SCHEDULE 40 PVC RACEWAYS, UNLESS SPECIFICALLY SPECIFIED OR NOTED OTHERWISE. PROVIDE PULL WIRES IN ALL EMPTY CONDUIT SYSTEMS. IDENTIFY TERMINUS OF EACH PULL WIRE.
- 1.03 WIRES AND CABLES:
- A. INTERIOR ELECTRICAL CONDUCTORS: SOFT ANNEALED COPPER WITH CONDUCTIVITY 98% OF THAT OF PURE, STRANDED COPPER, 90 DEGREE - 600V INSULATION AND EQUAL TO GENERAL CABLE COMPANY. WIRE AND CABLE FOR ALL BRANCH CIRCUITS ENTERING BUILDINGS (FROM OUTDOORS) SHALL BE THHN-2/THWN-2. MINIMUM WIRE SIZE SHALL BE #10 GAUGE AWG. CONTROL WIRING MAY BE #14 GAUGE.
- B. EXTERIOR ELECTRICAL CONDUCTORS: SOFT ANNEALED COPPER WITH CONDUCTIVITY 98% OF THAT OF PURE, STRANDED COPPER, 90 DEGREE - 600V INSULATION AND EQUAL TO GENERAL CABLE COMPANY. WIRE AND CABLE FOR ALL EXTERIOR BRANCH CIRCUITS SHALL BE RHH-2RHH-2/USE-2. MINIMUM WIRE SIZE SHALL BE #10 GAUGE AWG. CONTROL WIRING MAY BE #14 GAUGE.
- 1.04 GROUNDING:
- A. GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH N.E.C. AND AS SPECIFIED HEREIN. PROVIDE A SEPARATE GROUNDING CONDUCTOR FOR ALL LIGHTING, RECEPTACLE AND EQUIPMENT CIRCUITS. ALL CABINETS, SWITCHBOARDS, EQUIPMENT CASES, MOTOR FRAMES, INTERIOR METAL COLD WATER PIPING SYSTEMS, AND SYSTEM NEUTRAL CONDUCTORS SHALL BE EFFECTIVELY GROUNDED. USE SOLDERLESS PRESSURE TYPE CONNECTORS. NO PERFORATED STRAP CONNECTORS WILL BE ALLOWED. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT. GROUNDING PER N.E.C. 250, AND ANY LOCAL REQUIREMENTS.
- 1.05 SPLICE AND TAPS:
- A. MAKE SPLICES AT JUNCTION BOXES, PULL BOXES, OR OUTLET BOXES ONLY.
- 1.06 CABINETS, JUNCTION AND PULL BOXES:
- A. FLUSH OR SURFACE MOUNTED AS INDICATED ON DRAWINGS. PROVIDE WHERE SHOWN ON DRAWINGS AND WHERE REQUIRED BY CODE. CONSTRUCT OF CODE GAUGE STEEL FOR FLUSH SURFACE MOUNTING.
- 1.07 LIGHTING FIXTURES:
- A. REFER TO LUMINAIRE SCHEDULE FOR FIXTURE SPECIFICATIONS.
- 1.08 IDENTIFICATION
- A. CONDUCTOR IDENTIFICATION MATERIALS: COLOR-CODING CONDUCTOR TAPE: COLORED, SELF-ADHESIVE VINYL TAPE NOT LESS THAN 3 MILS BY 1 TO 2 INCHES WIDE.
- B. EQUIPMENT IDENTIFICATION LABELS: STENCILED LEGEND: IN NONFADING WATERPROOF BLACK INK OR PAINT. MINIMUM LETTER HEIGHT SHALL BE 1 INCH.

2 SINGLE CONDUIT DIRECT BURIED
NO SCALE



ELECTRICAL SYMBOLS:



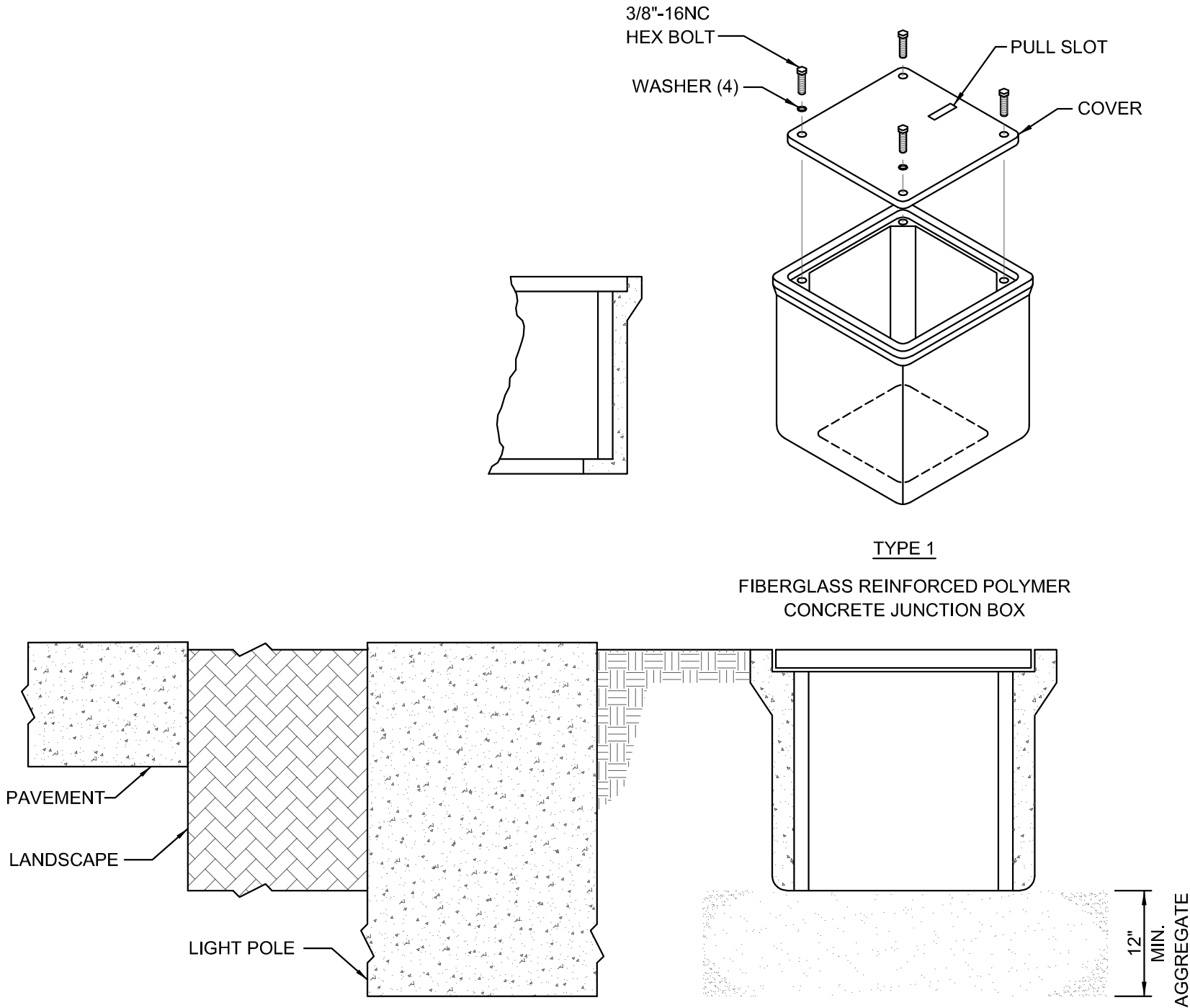
*POLE BASE SHALL BE CALCULATED USING THE FOLLOWING CRITERIA:

$$\frac{WWD \text{ LOADING}}{100MPH (1.3 \text{ GUST})}$$

$$\frac{TOTAL \text{ EPA OF LUMINAIRES} + TOTAL \text{ EPA OF BRACKETS}}{= TOTAL \text{ EPA OF LUMINAIRES/BRACKETS}}$$

- NOTES:
- SELECT POLE BASED ON MAXIMUM EPA LISTED IN MANUFACTURERS CATALOG. IN ANY CASE MIN. POLE BASE DEPTH SHALL BE 72". FINAL DEPTH OF POLE BASE SHALL BE VERIFIED WITH STRUCTURAL ENGINEER PRIOR TO PLACEMENT.
 - CONCRETE SHALL BE 3000 PSI CLASS A CONCRETE PLACED NEXT TO UNDISTURBED EARTH. CONTRACTOR TO INCLUDE CONTINGENCY FOR ENCOUNTERING ROCK AS PART OF POLE BASE INSTALLATION.

3 LIGHTING POLE BASE DETAIL (25FT POLE)
NO SCALE



1 JUNCTION BOX DETAIL
NO SCALE



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Antella

CONSULTING ENGINEERS INC.

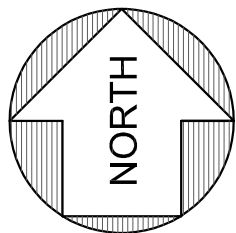
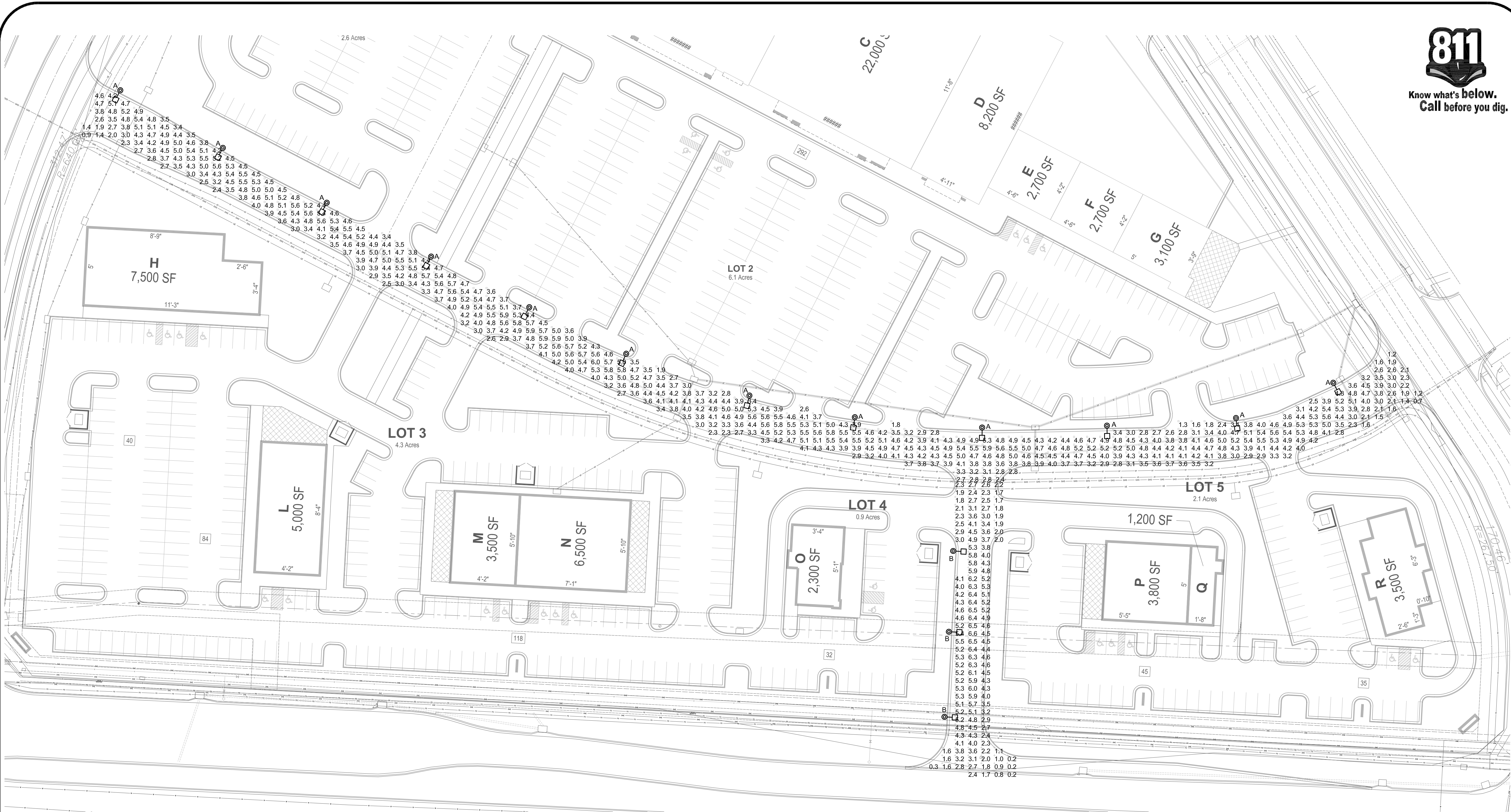
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Kansas City, Missouri 64102
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Missouri Certificate of Authority #2005013590

DRAWING INFO.		REVISIONS	
DRAWN BY:	MSS	NO.	DATE
CHECK BY:	MSS	DESCRIPTION	BY
LICENSE NO.	E-2000174546		
DATE:	2019-04-09		
FIELD BOOK:			
JOB NUMBER:	19C010001		
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SUMMIT ORCHARD
LEE'S SUMMIT, MISSOURI
ELEC SPECIFICATIONS & DETAILS



SHEET NUMBER
E100
16 OF 19



SITE LIGHTING - POINT BY POINT CALCULATIONS

1"=40 FT
0 40' 80'

STATISTICS						
DESCRIPTION	SYMBOL	Avg	Max	Min	Max/Min	Avg/Min
E/W DRIVE	□	4.2 fc	6.0 fc	0.7 fc	8.6:1	6.0:1
N/S DRIVE	+	3.9 fc	6.6 fc	0.2 fc	33.0:1	19.5:1



Know what's below.
Call before you dig.

SUMMIT ORCHARD
LEE'S SUMMIT, MISSOURI

SITE LIGHTING POINT BY POINT



SHEET NUMBER

E102
18 OF 19

REVISIONS				DRAWING INFO.	
NO.	DESCRIPTION	BY	DATE	DRAWN BY:	SM/ISS
				CHECK BY:	MSS
				LICENSE NO.	E-2000174546
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