SERVICE LINE

- TOP ELEVATION

CURB & GUTTER

TREELINE

---- CATV_x ---- CABLE TV - EXISTING

Tyle="text-align: center;">——Tyle== TELEPHONE LINE - EXIST.

GAS LINE - EXISTING

- UTILITY EASEMENT

- WATER SURFACE ELEVATION

ASPHALT PAVEMENT - EXISTING

ASPHALT PAVEMENT - PROPOSED

CONCRETE PAVEMENT - EXISTING

ASPHALT PAVEMENT - EXISTING

CONCRETE SIDEWALK - EXISTING

CONCRETE SIDEWALK - PROPOSED

CURB & GUTTER - EXISTING

EXISTING PLAT LINES

SANITARY SEWER MAIN

STORM SEWER - EXISTING

—— SANITARY SEWER MAIN - EXIST

FIBER OPTIC CABLE - EXISTING

---- OHP_y ---- OVERHEAD POWER LINE - EXIST

—— UGE_Y —— UNDERGROUND ELECTRIC - EX.

LIGHT - EXISTING

CLEANOUT

EXISTING MANHOLE

EXISTING AREA INLET

EXISTING CURB INLET

EXISTING GRATE INLET

EXISTING JUNCTION BOX

EXISTING STORM MANHOLE

WATERLINE - EXISTING

EXISTING SANITARY MANHOLE

PROPOSED SANITARY MANHOLE

WATERLINE EASEMENT

- SIDEWALK

UTILITY CONTACTS:

MISSOURI DEPARTMENT OF TRANSPORTATION (MODOT) Steve Holloway 600 NE Colbern Road

Lee's Summit, MO 64086 (816) 607-2186

SPIRE Brent Jones 3025 SE Clover Drive Lee's Summit, MO 64082 (816) 399-0663brent.jones@spireenergy.com

EVERGY Philip Ingram 1300 SE Hamblin Road Lee's Summit, MO 64081 Office: (816) 347-347-4339 philip.inghram@evergy.com

CITY OF LEES SUMMIT PUBLIC WORKS Dena Mezger

220 SE Green Street Lee's Summit, MO 64063 (816) 969-1800

Mark Manion or Marty Loper 500 E. 8th Street, Room 370 Kansas City, MO 64106 (816) 275-2341 or (816) 275-1550

COMCAST CABLE John Meadows 4700 Little Blue Parkway (816) 795-2257

CITY OF LEE'S SUMMIT WATER UTILITIES Mark Schaufler 1200 SE Hamblen Road Lee's Summit, MO 64081



811 or 1-800-344-7483 mo1call.com

QUANTITY UNITS 2" TYPE 5 OR 6 ASPHALT PAVEMENT 5.5" TYPE 5 ASPHALT PAVEMENT 6" TYPE 5 BASE 4,661 9" SUBGRADE STABILIZATION 4.661 SY CONCRETE COMMERCIAL DRIVE 1.828 TYPE CG-1 CURB AND GUTTER LF 5' CONCRETE SIDEWALK LF 1692 EA TYPE A SIDEWALK RAMPS TYPE B SIDEWALK RAMPS EA "END OF ROAD" MARKERS (5 LOCATIONS EA 6 X 4 CURB INLET EA 18" RCP STORM SEWER PIPE 15" HDPE STORM SEWER PIPE LF TRENCHING UNDER FUTURE STREE LF CLEARING GRUBBING & DISPOSAL LS EARTHWORK LS SILT FENCE 2490 LF INLET PROTECTION (SILT FENCE) EA INLET PROTECTION (GRAVEL FILTER BAGS) EA SEEDING & MULCHING LS STRIPING & SIGNAGE BONDS

SUMMARY OF QUANTITIES

STREET, STORMWATER AND EROSION & SEDIMENT CONTROL

RESIDENCES AT BLACKWELL

IN THE CITY OF LEE'S SUMMIT JACKSON COUNTY, MO

GENERAL NOTES

- ALL CONSTRUCTION TO FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.
- ALL WORKMANSHIP AND MATERIALS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEERING DEPARTMENT OF THE CITY OF LEE'S SUMMIT, MISSOURI.
- LINEAL FOOT MEASUREMENTS SHOWN ON THE PLANS ARE HORIZONTAL MEASUREMENTS, NOT SLOPE MEASUREMENTS. ALL PAYMENTS SHALL BE MADE ON HORIZONTAL MEASUREMENTS.
- NO GEOLOGICAL INVESTIGATION HAS BEEN PERFORMED ON THE SITE THE UTILITY LOCATIONS SHOWN ON THESE PLANS ARE TAKEN FROM UTILITY COMPANY RECORDS AND
- WHICH HAVE FACILITIES IN THE NEAR VICINITY OF THE CONSTRUCTION TO BE PERFORMED
- PRIOR TO ORDERING PRECAST STRUCTURES. SHOP DRAWING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL. AFTER APPROVAL OF THE SHOP DRAWINGS, A COPY OF THE APPROVED AND SIGNED SHOP DRAWINGS SHALL BE PROVIDED TO THE CITY INSPECTOR UPON REQUEST
- THE CONTRACTOR SHALL PROTECT ALL MAJOR TREES FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE
- CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND ORDINANCES.
- ALL WASTE MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR, OR AS DIRECTED BY THE OWNER. ALL EXCAVATIONS SHALL BE UNCLASSIFIED. NO SEPARATE PAYMENT WILL BE MADE FOR ROCK
- THE CONTRACTOR SHALL CONTROL THE EROSION AND SILTATION DURING ALL PHASED OF CONSTRUCTION,
- AND SHALL KEEP THE STREETS CLEAN OF MUD AND DEBRIS. ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS TO BE ADJUSTED OR REBUILT TO GRADE
- THE CONTRACTOR SHALL CONTACT DEVELOPMENT SERVICES INSPECTIONS AT: 816-969-1200 TO OBTAIN A
- THE CONTRACTOR SHALL CONTACT THE RIGHT OF WAY INSPECTOR AT 816-969-1800 PRIOR TO ANY LAND
- DISTURBANCE ACTIVITIES WITHIN THE RIGHT OF WAY. THESE ACTIVITIES MAY REQUIRE A PERMIT. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL TRAFFIC HANDLING MEASURES NECESSARY TO ENSURE THAT THE GENERAL PUBLIC IS PROTECTED AT ALL TIMES. TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD-LATEST EDITION).

STREET NOTES:

- 1. ALL STREET CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL. ALL APPLICABLE AASHTO STANDARDS HAVE BEEN MET.
- 2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION. 3. ALL INSPECTION OF STREET CONSTRUCTION TO BE PERFORMED BY THE CITY OF LEE'S SUMMIT
- DEVELOPMENT ENGINEERING.
- 4. CURB RETURN RADII SHALL BE 30' AT BACK OF CURB UNLESS OTHERWISE NOTED.
- SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY. ASSUMED DESIGN SPEED = 30 MPH (RESIDENTIAL COLLECTOR).
- MINIMUM STOPPING SIGHT DISTANCE = 200 FEET.
- . MINIMUM K, SAG CURVE = 37 (20 WITH LIGHTING), CREST CURVE = 19.
- 9. GRADE INTERSECTIONS TO DRAIN AS SHOWN.
- 10. SSD = STOPPING SIGHT DISTANCE.
- 11. ALL ADA SIDEWALK RAMPS SHALL BE CONSTRUCTED BY THE DEVELOPER WITH THE PUBLIC INFRASTRUCTURE.

DESIGN SPEED = 30 MPH

POSTED SPEED = 25 MPH

EARTHWORK:

- IT IS RECOMMENDED THAT A GEOTECHNICAL ENGINEER OBSERVE AND DOCUMENT ALL EARTHWORK
- CONTOURS HAVE BEEN SHOWN AT 1-FOOT OR 2-FOOT INTERVALS, AS INDICATED. GRADING SHALL CONSIST OF COMPLETING THE EARTHWORK REQUIRED TO BRING THE PHYSICAL GROUND ELEVATIONS OF THE EXISTING SITE TO THE FINISHED GRADE (OR SUB-GRADE) ELEVATIONS PROVIDED ON THE PLANS AS SPOT GRADES, CONTOURS OR OTHERS MEANS AS INDICATED ON THE PLANS.
- THE EXISTING SITE TOPOGRAPHY DEPICTED ON THE PLANS BY CONTOURING HAS BEEN ESTABLISHED BY AERIAL PHOTOGRAPHY AND FIELD VERIFIED BY G.P.S. OBSERVATION NEAR 11/11/2021 .THE CONTOUR ELEVATIONS PROVIDED MAY NOT BE EXACT GROUND ELEVATIONS, BUT RATHER INTERPRETATIONS OF DEFINED BY THE NATIONAL MAP ACCURACY STANDARDS. ANY QUANTITIES PROVIDED FOR EARTHWORK VOLUMES ARE ESTABLISHED USING THIS TOPOGRAPHY CONTOUR ACCURACY, AND THEREFORE THE INHERENT ACCURACY OF ANY EARTHWORK QUANTITY IS ASSUMED FROM THE TOPOGRAPHY ACCURACY
- UNLESS OTHERWISE NOTED, PAYMENT FOR EARTHWORK SHALL INCLUDE BACKFILLING OF THE CURB AND GUTTER, SIDEWALK AND FURTHER MANIPULATION OF UTILITY TRENCH SPOILS. THE SITE SHALL BE LEFT IN A MOWABLE CONDITION AND POSITIVE DRAINAGE MAINTAINED THROUGHOUT
- UNLESS OTHERWISE NOTED, ALL EARTHWORK IS CONSIDERED UNCLASSIFIED. NO ADDITIONAL

- UNLESS OTHERWISE SPECIFIED IN THE GEOTECHNICAL REPORT, ALL FILLS SHALL BE PLACED IN MAXIMUM
- SUBGRADE FOR BUILDING PAD SHALL INCLUDE A MINIMUM OF 18-INCHES OF LOW VOLUME CHANGE (LVC) MATERIAL, OR AS IDENTIFIED IN THE SITE SPECIFIC GEOTECHNICAL REPORT
- FILL MATERIALS SHALL BE PER GEOTECHNICAL REPORT AND SHALL NOT INCLUDE ORGANIC MATTER, DEBRIS OR TOPSOIL. ALL FILLS PLACED ON SLOPES GREATER THAN 6:1 SHALL BE BENCHED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REDISTRIBUTING THE TOPSOIL OVER PROPOSED TURF AND
- LANDSCAPED AREAS TO A MINIMUM DEPTH OF 6-INCHES BELOW FINAL GRADE. 14. ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE. UNLESS NOTED OTHERWISE THE FOLLOWING
- **GRADES SHALL APPLY:** A. TURF AREAS – 2.5% MINIMUM, 4H:1V MAXIMUM
- B. PAVED AREAS 1.2% MINIMUM, 5% MAXIMUM
- 15. A.D.A. PARKING STALLS SHALL NOT BE SLOPED GREATER THEN 2% IN ANY DIRECTION AND CONSTRUCTED PER A.D.A. REQUIREMENTS.
- 16. ALL DISTURBED AREAS SHALL BE FERTILIZED, SEEDED AND MULCHED IMMEDIATELY AFTER EARTHWORK ACTIVITIES HAVE CEASED. SEEDING SHALL BE PER THE EROSION AND SEDIMENT CONTROL PLAN AND/OR LANDSCAPE PLAN. IF NOT SPECIFIED SEEDING SHALL BE PER APWA SECTION 2400. LATEST EDITION. UNLESS OTHERWISE NOTED, SEEDING SHALL BE SUBSIDIARY TO THE CONTRACT PRICE FOR EARTHWORK AND GRADING ACTIVITIES.
- 17. ALL DISTURBED AREAS IN THE RIGHT-OF-WAY SHALL BE SODDED.
- 18. UNDERDRAINS ARE RECOMMENDED FOR ALL PAVED AREAS ADJACENT TO IRRIGATED TURF AND LANDSCAPED BEDS.
- CONTRACTOR SHALL ADHERE TO THE REPORTING REQUIREMENTS OUTLINED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THIS PROJECT. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PROPERLY MAINTAINED AND KEPT CLEAN OF SILT AND DEBRIS AND IN GOOD WORKING ORDER. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS REQUIRED.

UTILITIES

- EXISTING UTILITIES HAVE BEEN SHOWN TO THE GREATEST EXTENT POSSIBLE BASED UPON INFORMATION PROVIDED TO THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE RESPECTIVE UTILITY COMPANIES AND FIELD LOCATING UTILITIES PRIOR TO CONSTRUCTION AND IDENTIFYING ANY POTENTIAL CONFLICTS. ALL CONFLICTS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ANY REQUIRED UTILITY RELOCATIONS. UTILITIES DAMAGED THROUGH THE NEGLIGENCE OF THE CONTRACTOR SHALL BE REPAIRED AT THE
- CONTRACTOR SHALL VERIFY FLOW-LINES AND STRUCTURE TOPS PRIOR TO CONSTRUCTION, AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES. PROVIDE SHOP DRAWINGS FOR ALL PRECAST AND MANUFACTURED UTILITY STRUCTURES FOR REVIEW BY THE ENGINEER PRIOR TO CONSTRUCTION OF THE
- 4. UTILITY SEPARATION: WATERLINES SHALL HAVE A MINIMUM OF 10 FEET HORIZONTAL AND 2 FEET VERTICAL SEPARATION FROM ALL SANITARY SEWER LINES, MANHOLES, AND SANITARY SEWER SERVICE LATERALS, AS MEASURED FROM EDGE TO EDGE. IF MINIMUM SEPARATIONS CAN NOT BE OBTAINED, CONCRETE ENCASEMENT OF THE SANITARY LINE SHALL BE REQUIRED 10 FEET IN EACH DIRECTION OF THE CONFLICT.
- PAYMENT FOR TRENCHING, BACKFILLING, PIPE EMBEDMENT, FLOWABLE FILL, BACKFILL MATERIALS, CLEAN UP, SEEDING, SODDING AND ANY OTHER ITEMS NECESSARY FOR THE CONSTRUCTION OF THE UTILITY LINE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE UTILITY INSTALLATION.
- 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING RESPECTIVE UTILITY COMPANIES 48-HOURS IN ADVANCE FOR THE INSPECTION OF ANY PROPOSED UTILITY MAIN EXTENSION OR SERVICE LINE OR SERVICE CONNECTION TO ANY EXISTING MAIN. TRENCH SPOILS SHALL BE NEATLY PLACED ONSITE ADJACENT TO THE TRENCH, AND COMPACTED TO
- PREVENT SATURATION AND EXCESS SEDIMENT RUNOFF. UNSUITABLE MATERIALS, EXCESS ROCK AND SHALE, ASPHALT, CONCRETE, TREES, BRUSH ETC. SHALL BE PROPERLY DISPOSED OF OFFSITE. MATERIALS MAY BE WASTED ONSITE AT THE DIRECTION OF THE OWNER OR HIS APPOINTED REPRESENTATIVE. 8. ALL EXCAVATION IS CONSIDERED UNCLASSIFIED, UNLESS NOTED OTHERWISE. UNCLASSIFIED EXCAVATION
- FOR UTILITY TRENCHING IS SUBSIDIARY TO THE UNIT PRICE PROVIDED FOR THE PIPE. ANY QUANTITY PROVIDED FOR ROCK EXCAVATION IS ESTIMATED BASED ON THE BEST INFORMATION PROVIDED TO THE PROJECT ENGINEER. THE ENGINEER HAS THE AUTHORITY TO IDENTIFY AND DEFINE THE PHYSICAL CHARACTERISTICS TO DETERMINE THE CLASSIFICATION. UNIT PRICE QUANTITIES FOR ROCK EXCAVATION WILL BE PAID AT A TRENCH WIDTH OF THE NOMINAL PIPE DIAMETER OF THE INSTALLED MAIN PLUS 18 INCHES. CONTRACTOR IS REQUIRED TO DISPOSE OF EXCESS ROCK FROM THEIR TRENCHES BY DISPOSING IT IN AREAS AS SPECIFIED BY THE PROJECT

	Sheet List Table
Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL LAYOUT - OVERALL
3	GENERAL LAYOUT - SHENANDOAH DRIVE
4	OVERALL GRADING PLAN
5	OVERALL DRAINAGE MAP
6	SHENANDOAH DRIVE - DRAINAGE MAP
7	PRE-CONSTRUCTION EROSION CONTROL PLAN
8	EROSION CONTROL PLAN
9	POST-CONSTRUCTION EROSION CONTROL PLAN
10	EROSION CONTROL DETAILS
11	SHENANDOAH DRIVE - PLAN & PROFILE
12	INTERSECTION DETAILS
13	INTERSECTION DETAILS
14	STORM PLAN
15	STORM CALCS
16	STORM PROFILES
17	STREET DETAILS
18	STREET DETAILS
19	STORM DETAILS
20	STORM DETAILS
21	STREET SIGN & PAVEMENT MARKING PLAN
22	STREET SIGN & PAVEMENT MARKING DETAILS

APPROVED BY

CITY ENGINEER APPROVED FOR ONE YEAR FROM THIS DATE

OWNER/DEVELOPER

GRIFFIN RILEY PROPERTY GROUP JAKE LOVELESS, VICE PRESIDENT 21 SE 29TH TERRACE LEE'S SUMMIT p 816-366-7900 JAKE@GRIFFINRILEY.COM

PREPARED BY

PE-2009007268

SCHLAGEL & ASSOCIATES, P./

MO GRS BENCHMARK

STATION NAME - JA-90

KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD. N:1001052.8503, E:2845604.8272

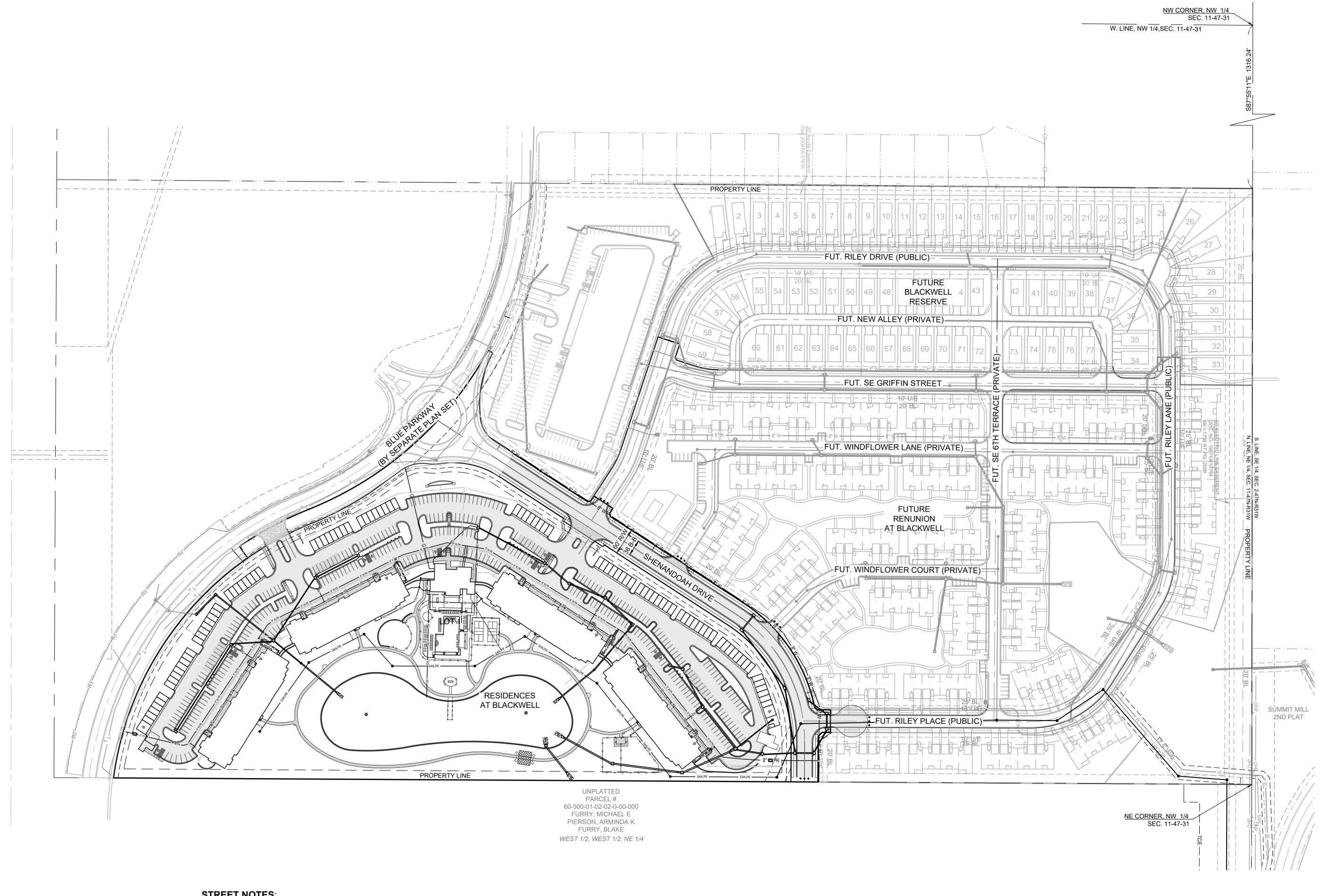
ELEV. 997.045

PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY. N:996874.9690, E:2840937.1365

ELEV. 1005.719

COVER SHEET



STREET NOTES:

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- 3. ALL INSPECTION OF STREET CONSTRUCTION TO BE PERFORMED BY THE CITY OF LEE'S SUMMIT
- 4. CURB RETURN RADII SHALL BE 30' AT BACK OF CURB UNLESS OTHERWISE NOTED. 5. SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
- 6. ASSUMED DESIGN SPEED = 30 MPH (RESIDENTIAL COLLECTOR). MINIMUM STOPPING SIGHT DISTANCE = 200 FEET.
- 8. MINIMUM K, SAG CURVE = 37 (20 WITH LIGHTING), CREST CURVE = 19.
- 9. GRADE INTERSECTIONS TO DRAIN AS SHOWN. 10. SSD = STOPPING SIGHT DISTANCE.
- 11. ALL ADA SIDEWALK RAMPS SHALL BE CONSTRUCTED BY THE DEVELOPER WITH THE PUBLIC INFRASTRUCTURE.

MO GRS BENCHMARK:

STATION NAME - JA-90

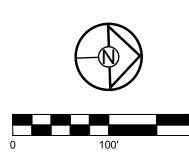
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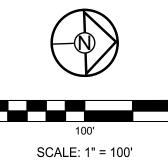
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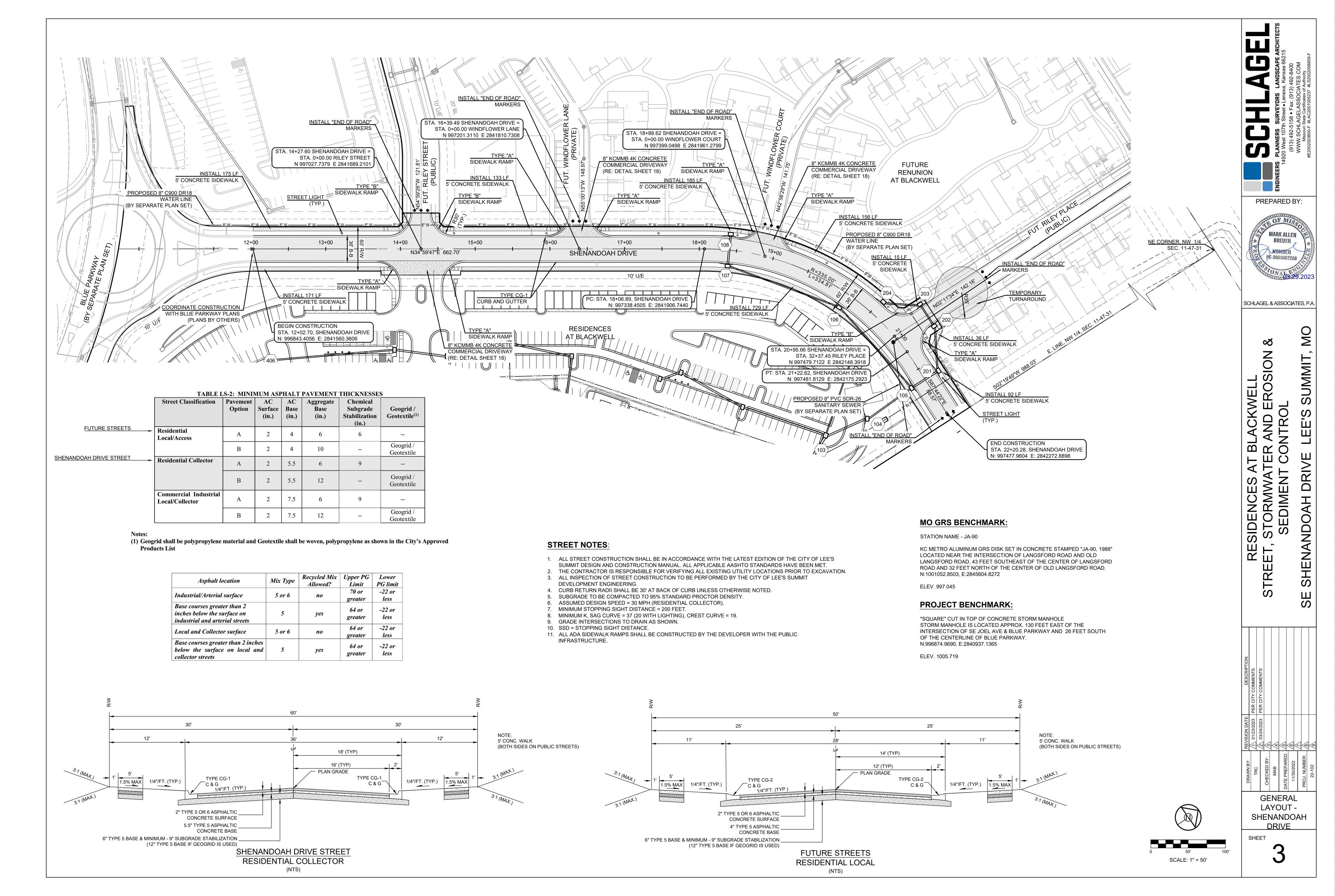


GENERAL LAYOUT -OVERALL

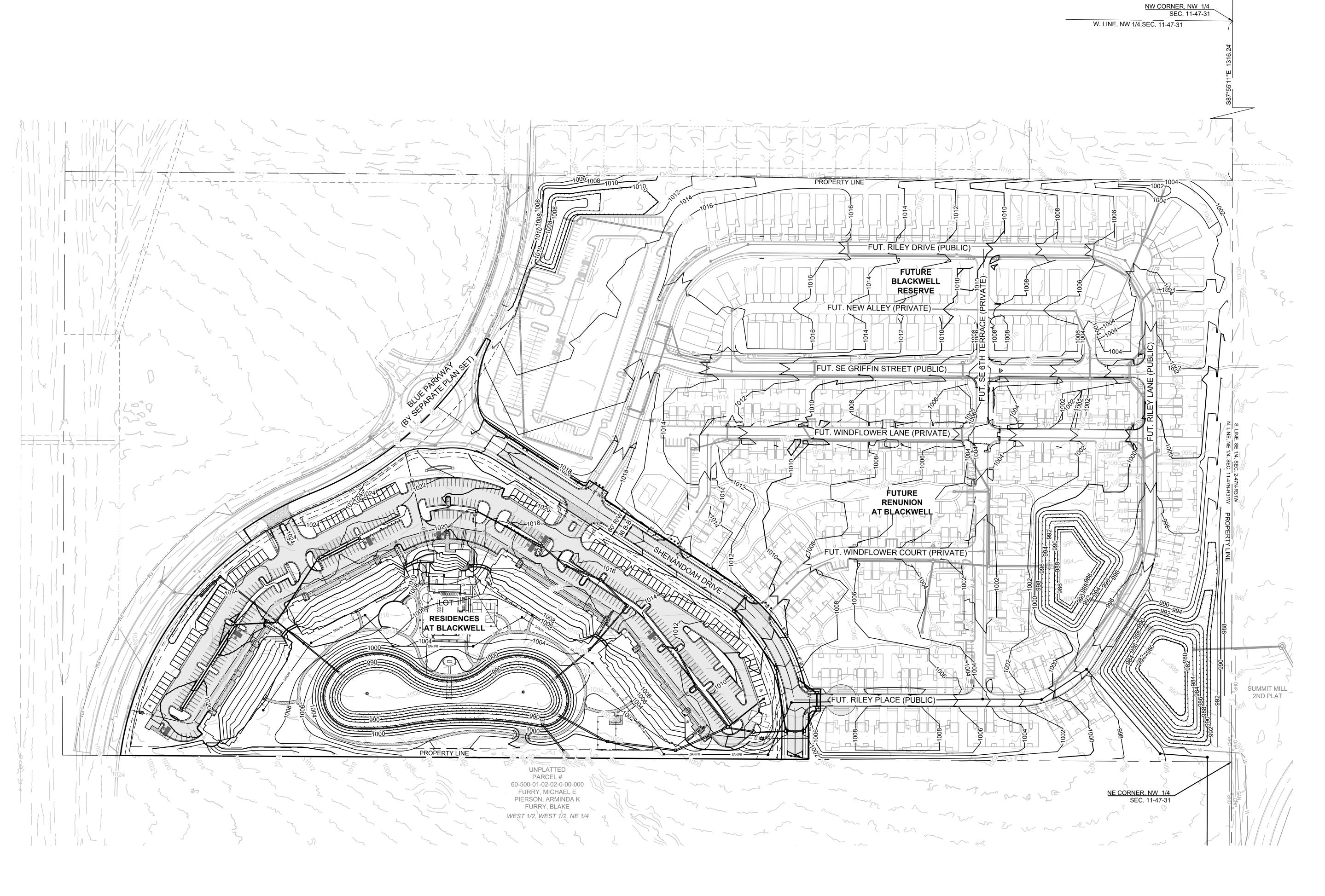
PREPARED BY:

SCHLAGEL & ASSOCIATES, P.A.

SEDIMENT



I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\6.0 SS\22-102 - SS - GEN.dwg, 3 GENERAL LAYOUT - SHENANDOAH DRIVE, 1:



GRADING LEGEND:

- - - 1000 - - -

EXISTING CONTOUR PROPOSED CONTOUR (FINISHED GRADE)

1. ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.

2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.

MO GRS BENCHMARK:

STATION NAME - JA-90

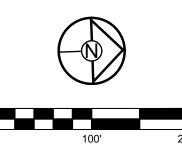
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ELEV. 1005.719



SCALE: 1" = 100'

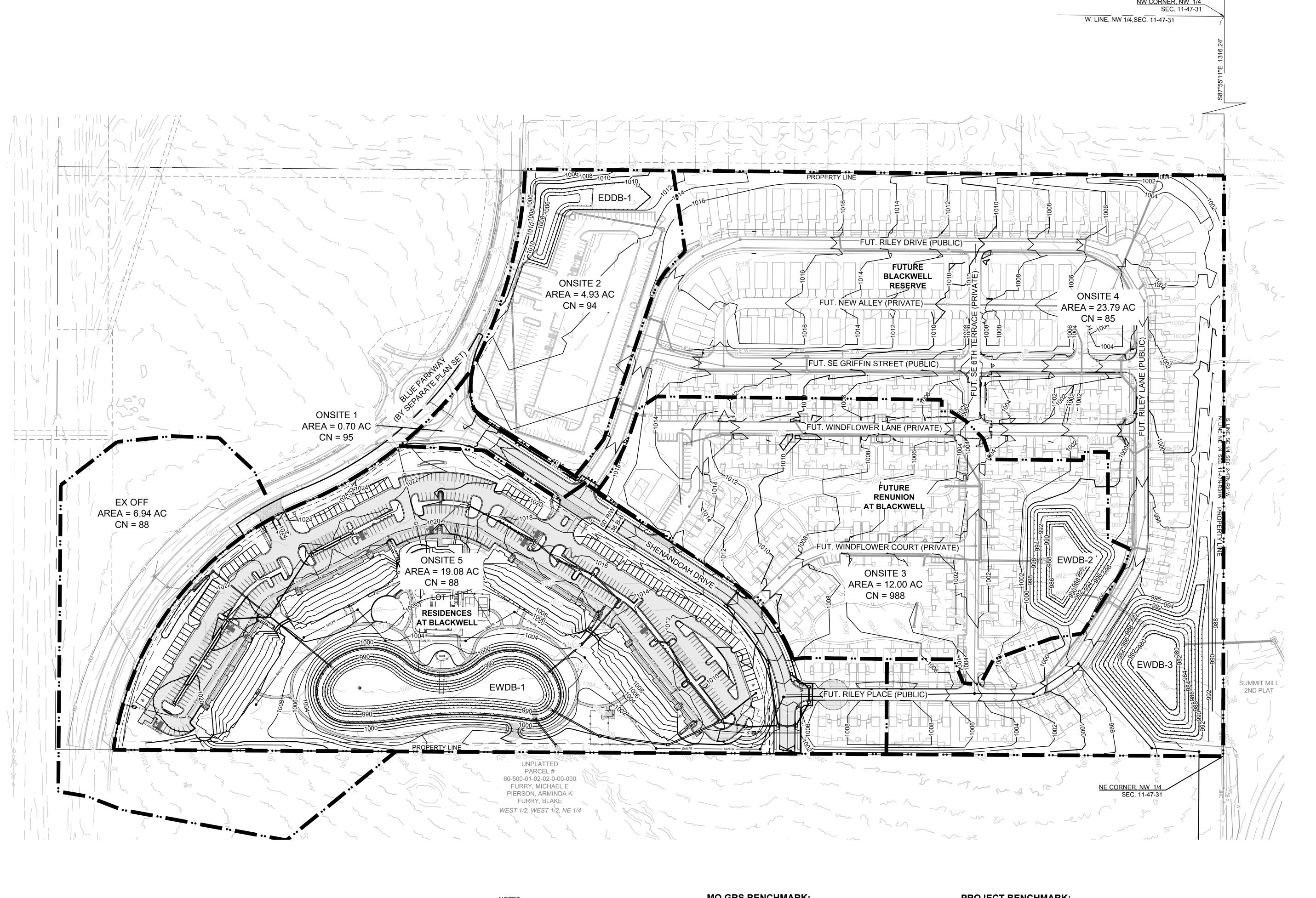
OVERALL **GRADING PLAN**

SHEET

PREPARED BY:

SCHLAGEL & ASSOCIATES, P.A.

SIDENCES A. STORMWAT SEDIMENT



GRADING LEGEND:

- — - 1000 — —

EXISTING CONTOUR PROPOSED CONTOUR (FINISHED GRADE)

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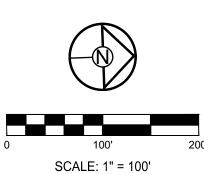
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ELEV. 1005.719



OVERALL DRAINAGE MAP

PREPARED BY:

PE-2009007268

SCHLAGEL & ASSOCIATES, P.A.

ESIDENCES A , STORMWAT SEDIMENT

GRADING LEGEND:

_ __ _ 1000 ___ __

EXISTING CONTOUR ——— 1000 ——— PROPOSED CONTOUR (FINISHED GRADE)

NOTES:

 ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.

2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.

MO GRS BENCHMARK:

STATION NAME - JA-90

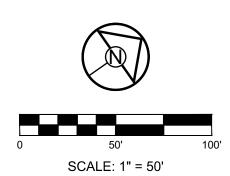
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ELEV. 1005.719



SHENANDOAH DRIVE -DRAINAGE MAP SHEET



PREPARED BY:

MUMBER PE-2009007268

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT STREET, STORMWATE SEDIMENT (

DISTURBED AREA = 2.37 A.C.

SITE SPECIFIC NOTES:

- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
- THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT
- NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBERS 29095C0441G, 29095C0445G, 29095C0437G AND 29095C0439G DATED JANUARY 20TH, 2017.
- ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
- ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY THE CITY ENGINEER AT ANY TIME EXISTING MEASURES ARE FOUND TO BE INEFFECTIVE OR PROBLEMATIC AREAS ARE NOTED IN THE FIELD.
- STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING, OR OTHER SOIL DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING BMPS. INITIAL STABILIZATION ACTIVITIES MUST BE COMPLETED WITHIN 14 DAYS AFTER SOIL DISTURBING ACTIVITIES CEASE.
- 7. ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN.
- 8. SILT FENCE AND EARTH DIKES THAT ARE PLACED BEFORE GRADING BEGINS WILL BE MAINTAINED BY THE GRADING CONTRACTOR.
- AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.

GRADING LEGEND:

EXISTING CONTOUR

PROPOSED CONTOUR (FINISHED GRADE)

NOTES:

- 1. ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
- 2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.

STATION NAME - JA-90

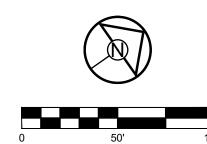
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ELEV. 997.045

PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY. N:996874.9690, E:2840937.1365

ELEV. 1005.719



SCALE: 1" = 50'

PRE-CONSTRUCTION **EROSION**

SHEET

CONTROL PLAN

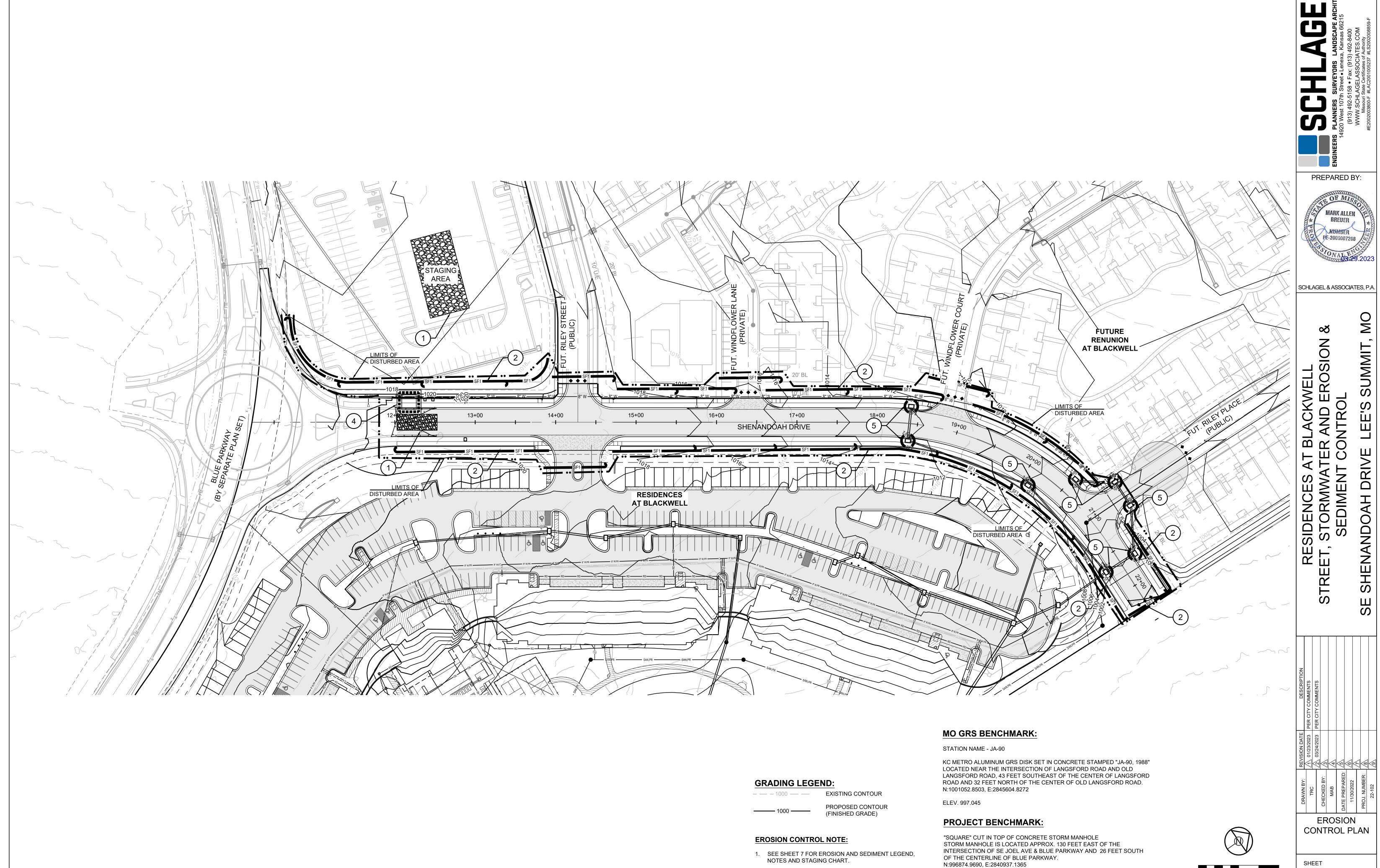
PREPARED BY:

MARK ALLEN

BREUER

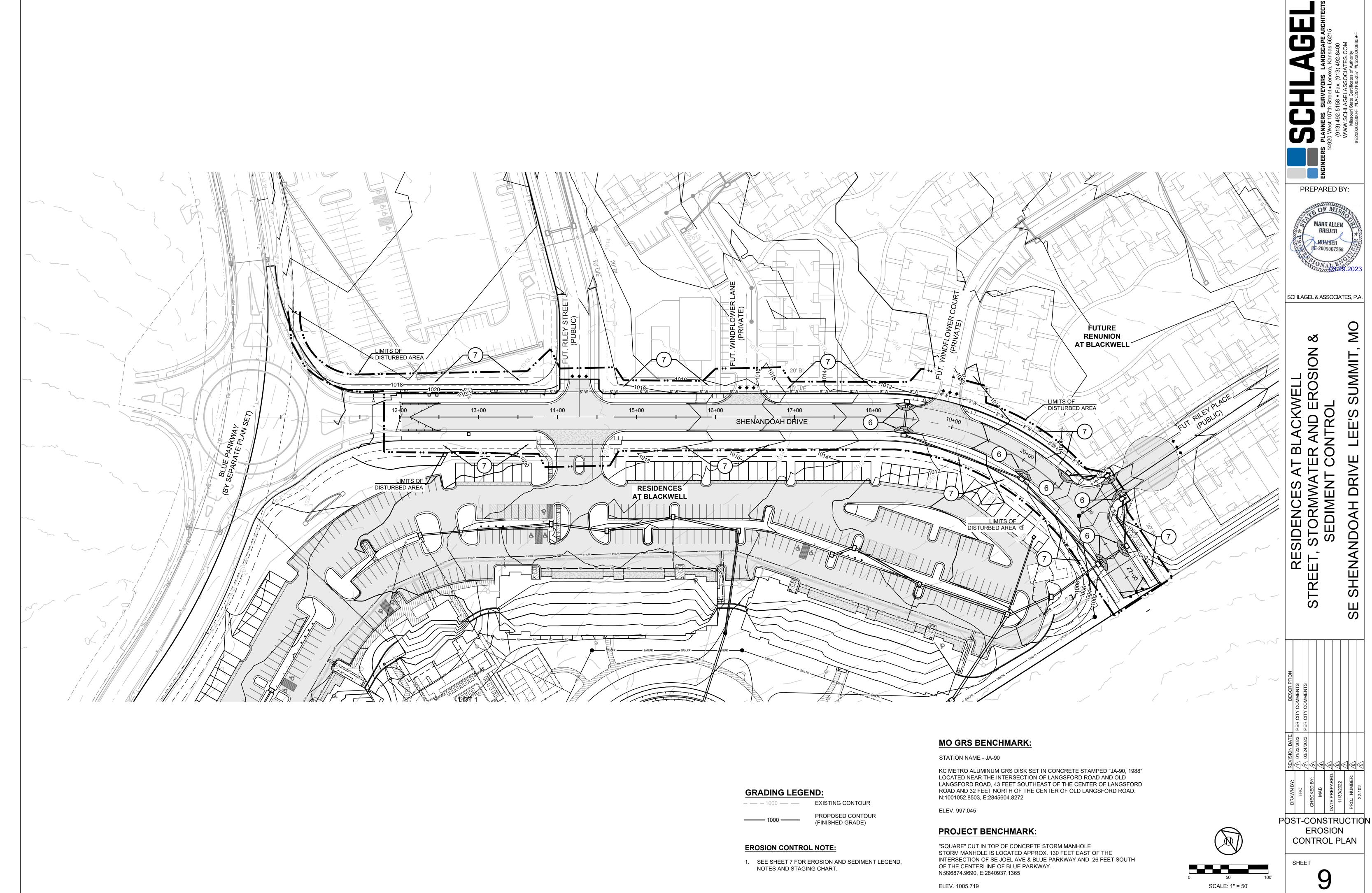
MUMBER

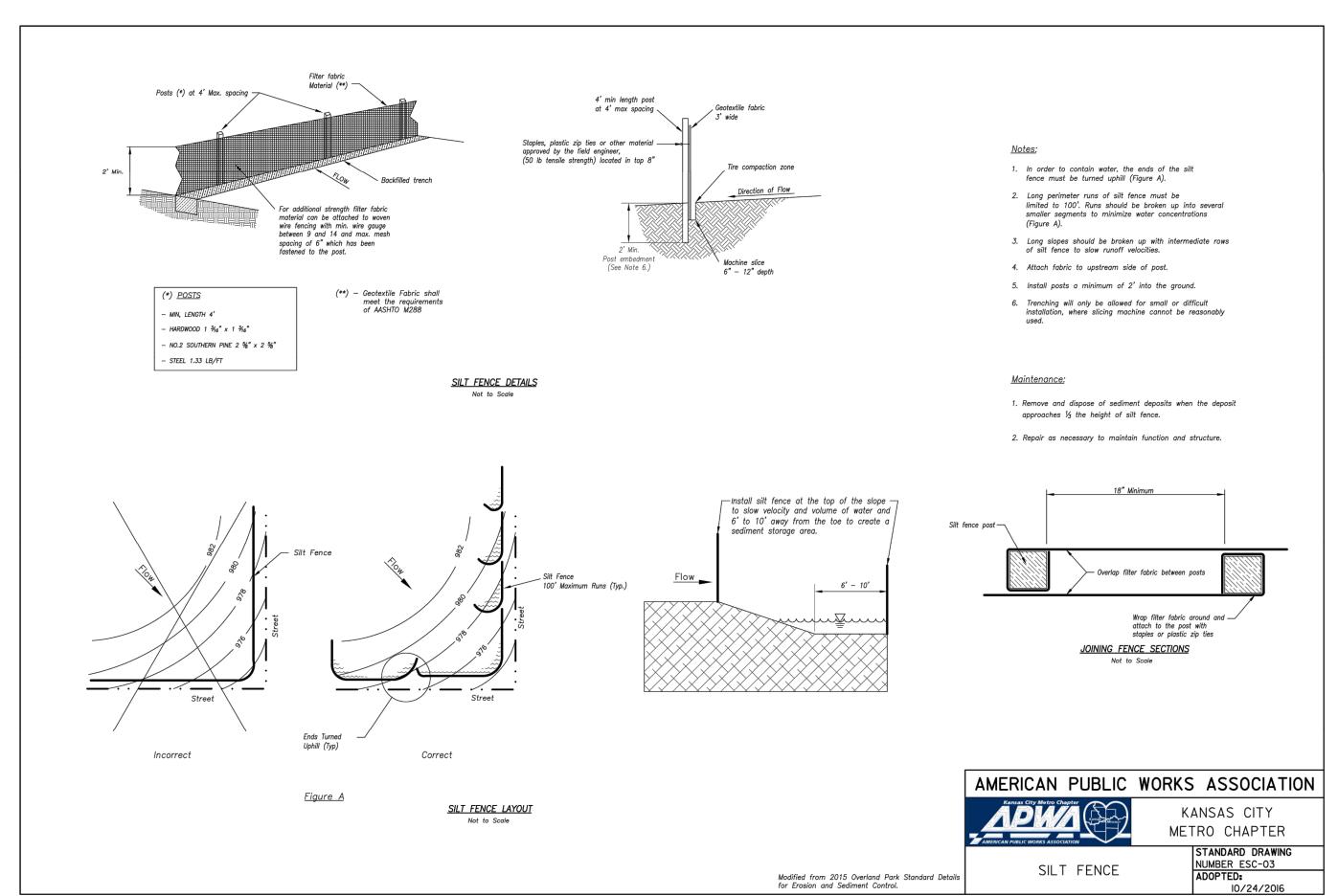
PE-2009007268

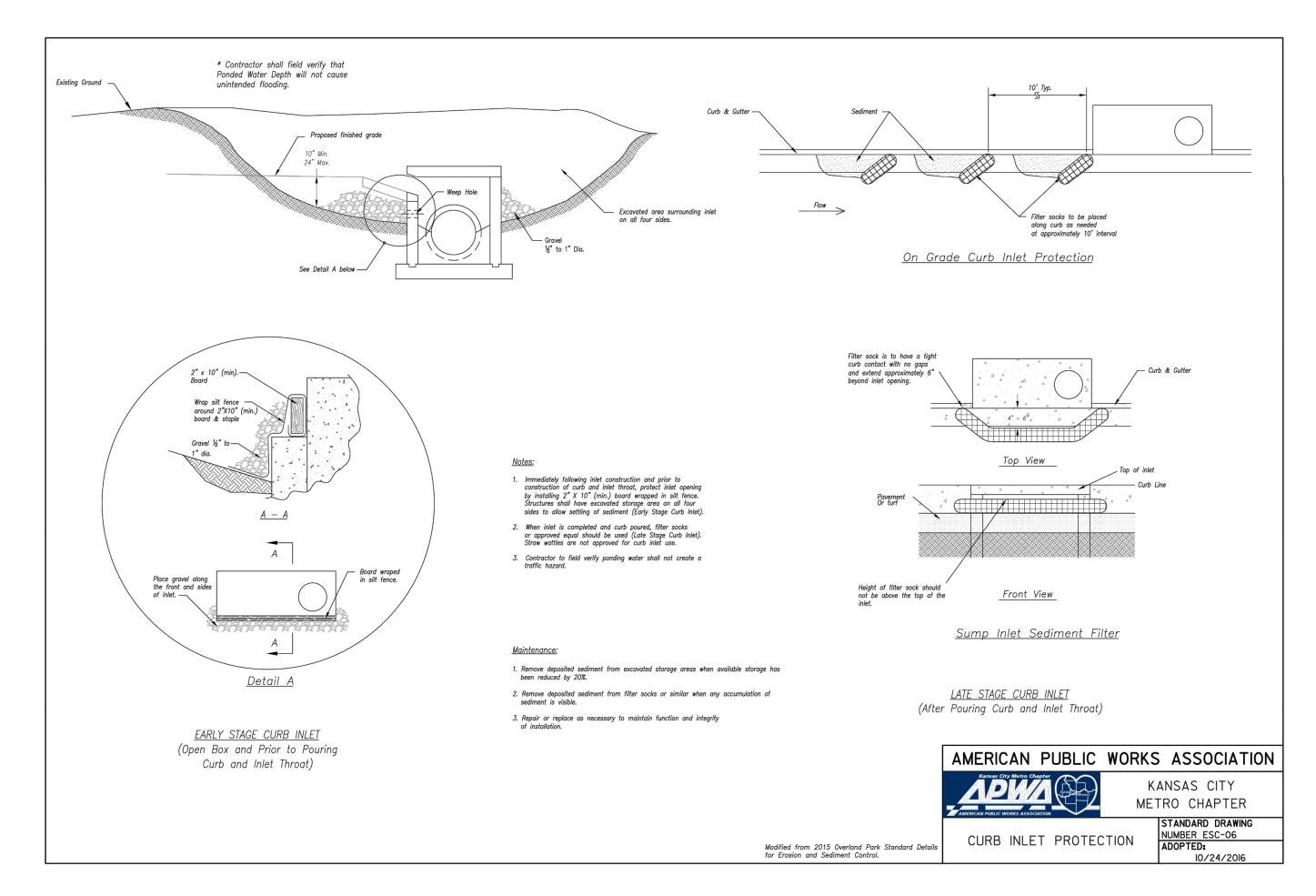


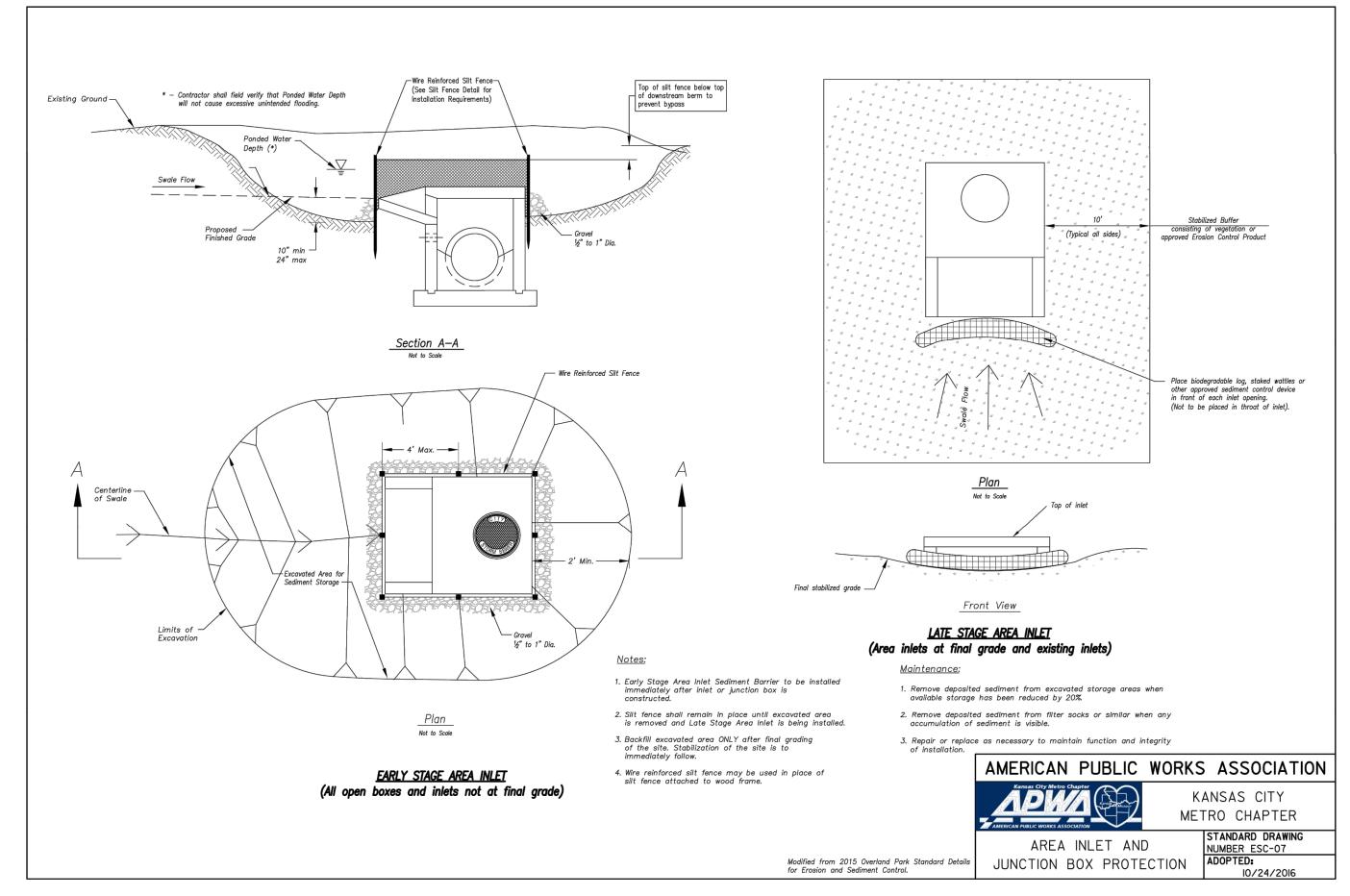
SCALE: 1" = 50'

ELEV. 1005.719



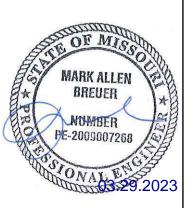








PREPARED BY:



SCHLAGEL & ASSOCIATES, P.A.

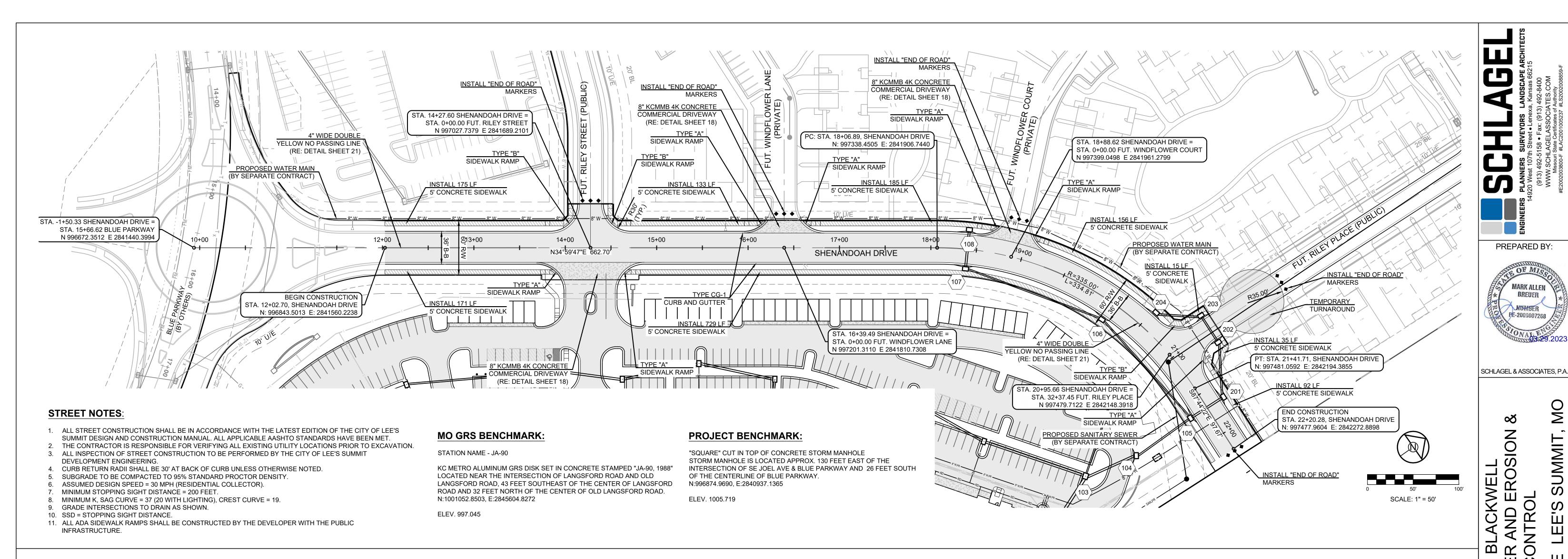
BLACKWELL

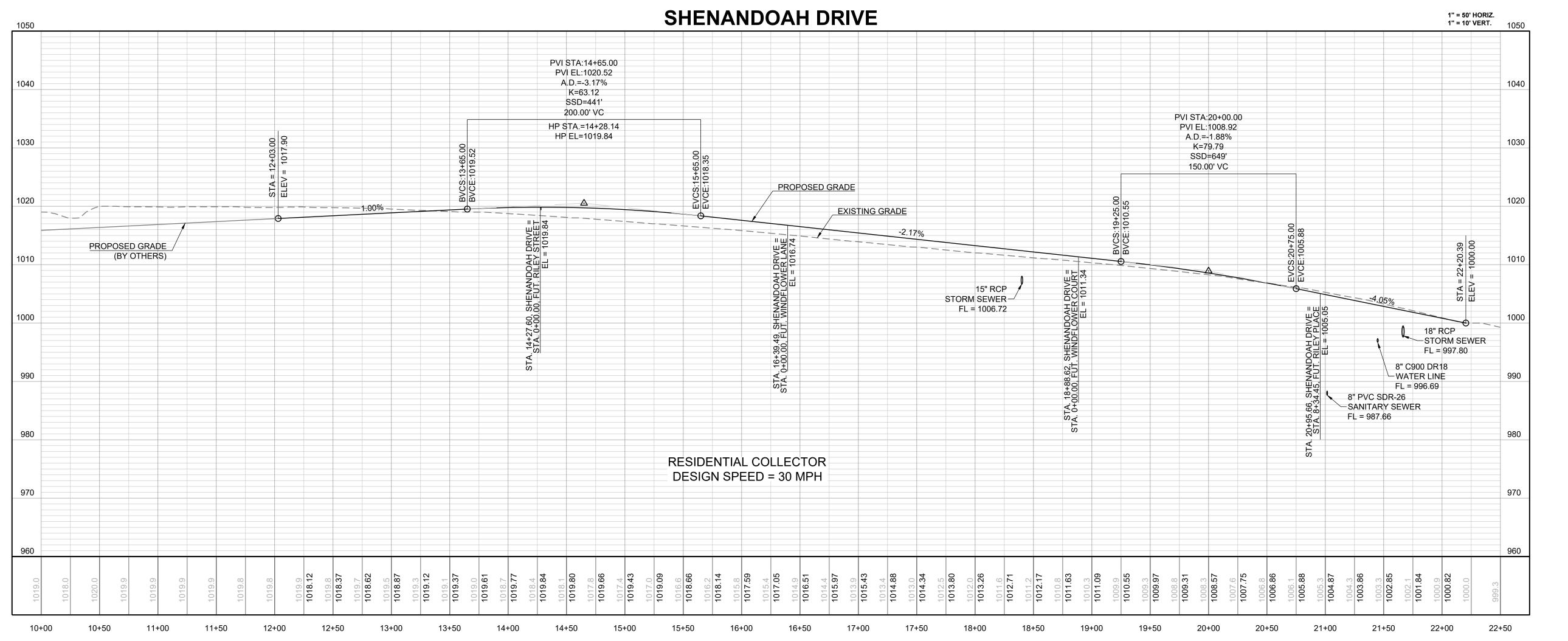
R AND EROSION TRO

SIDENCES A STORMWAT SEDIMENT DRIV ANDOAH SHEN S

PER CITY COMMENTS
PER CITY COMMENTS

EROSION CONTROL **DETAILS**



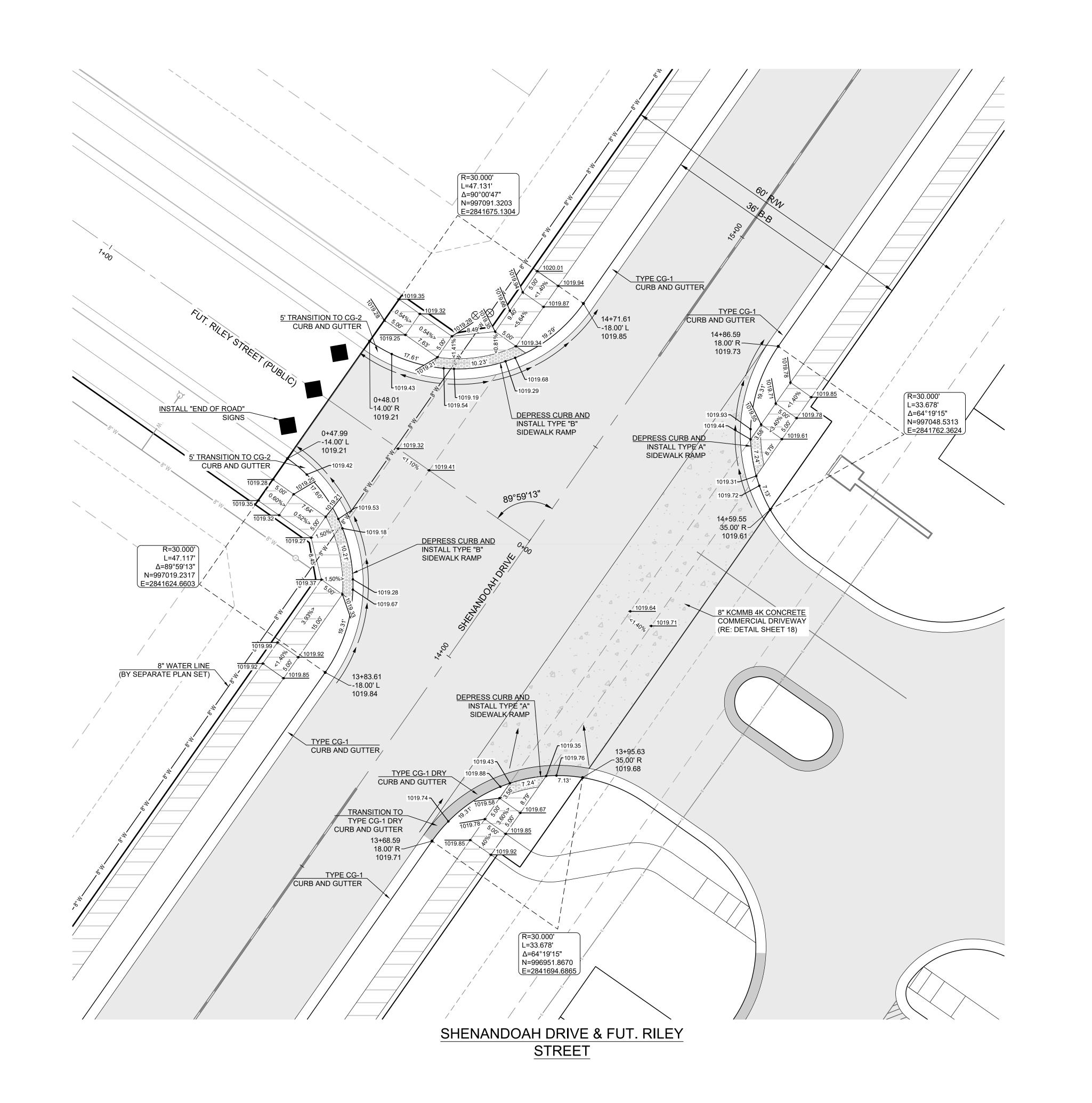


SHENANDOAH DRIVE - PLAN & PROFILE SHEET

RESIDENCES AT STREET, STORMWATI SEDIMENT (

DRIV

SHENANDOAH





PREPARED BY:

MARK ALLEN BREUER

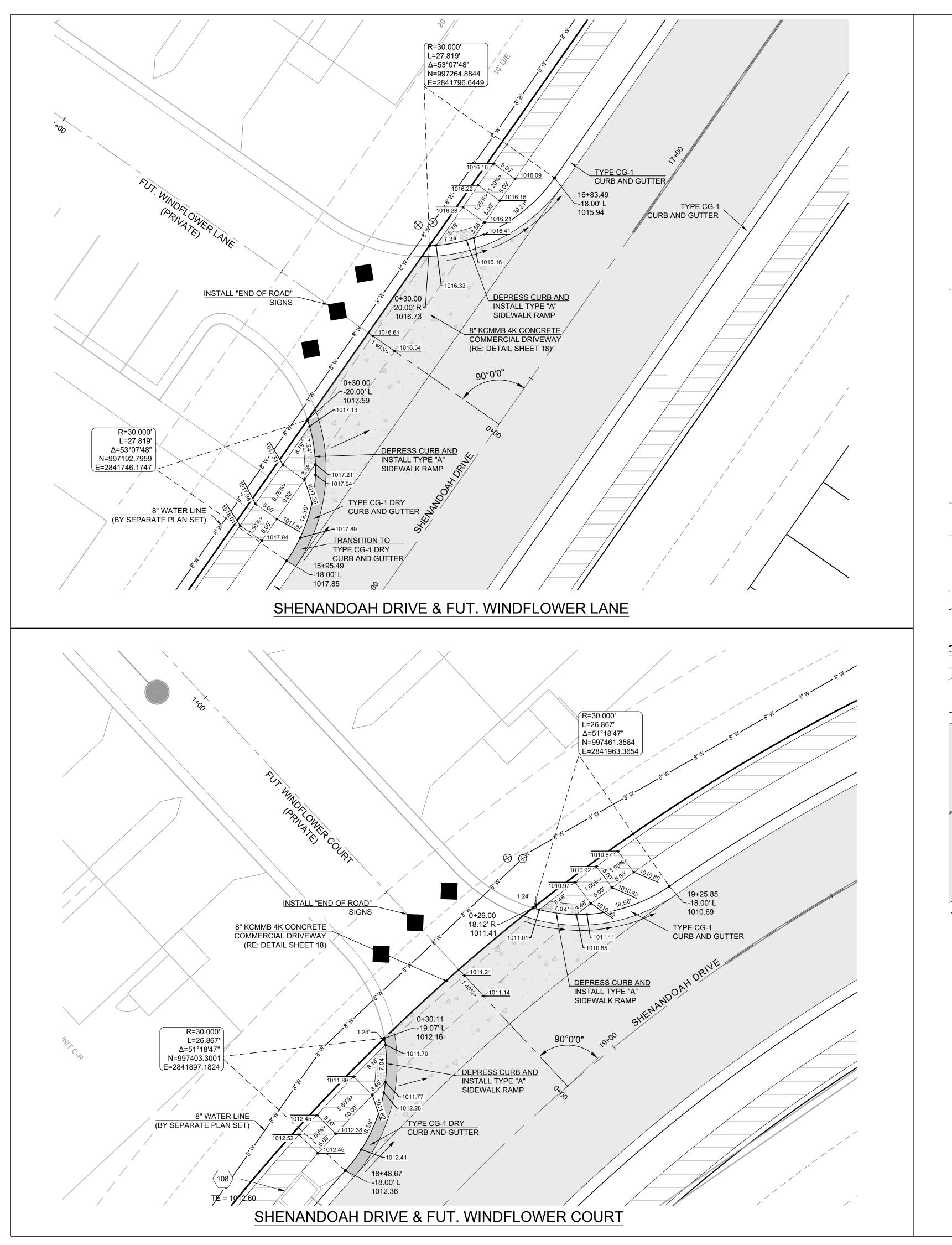
MOMBER

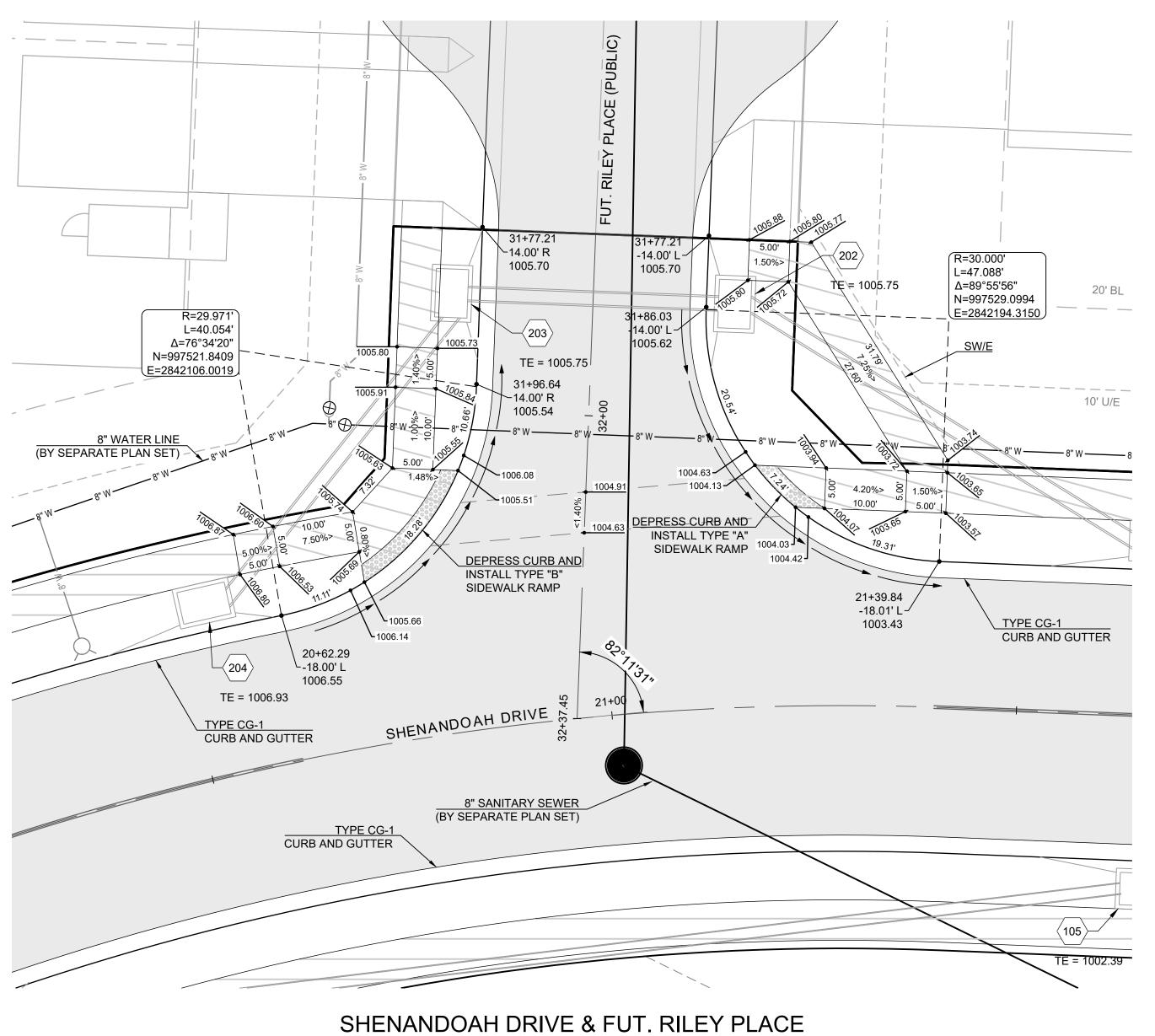
PE-2009007268

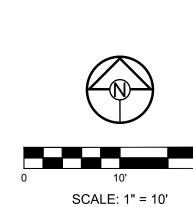
SCALE: 1" = 10'

SHEET

INTERSECTION DETAILS







DRAWN BY:
TRC
CHECKED BY:
MAB
NOITS DATE PREPARED:
11/30/2022
PROJ. NUMBER:

PREPARED BY:

BREUER

PE-2009007268

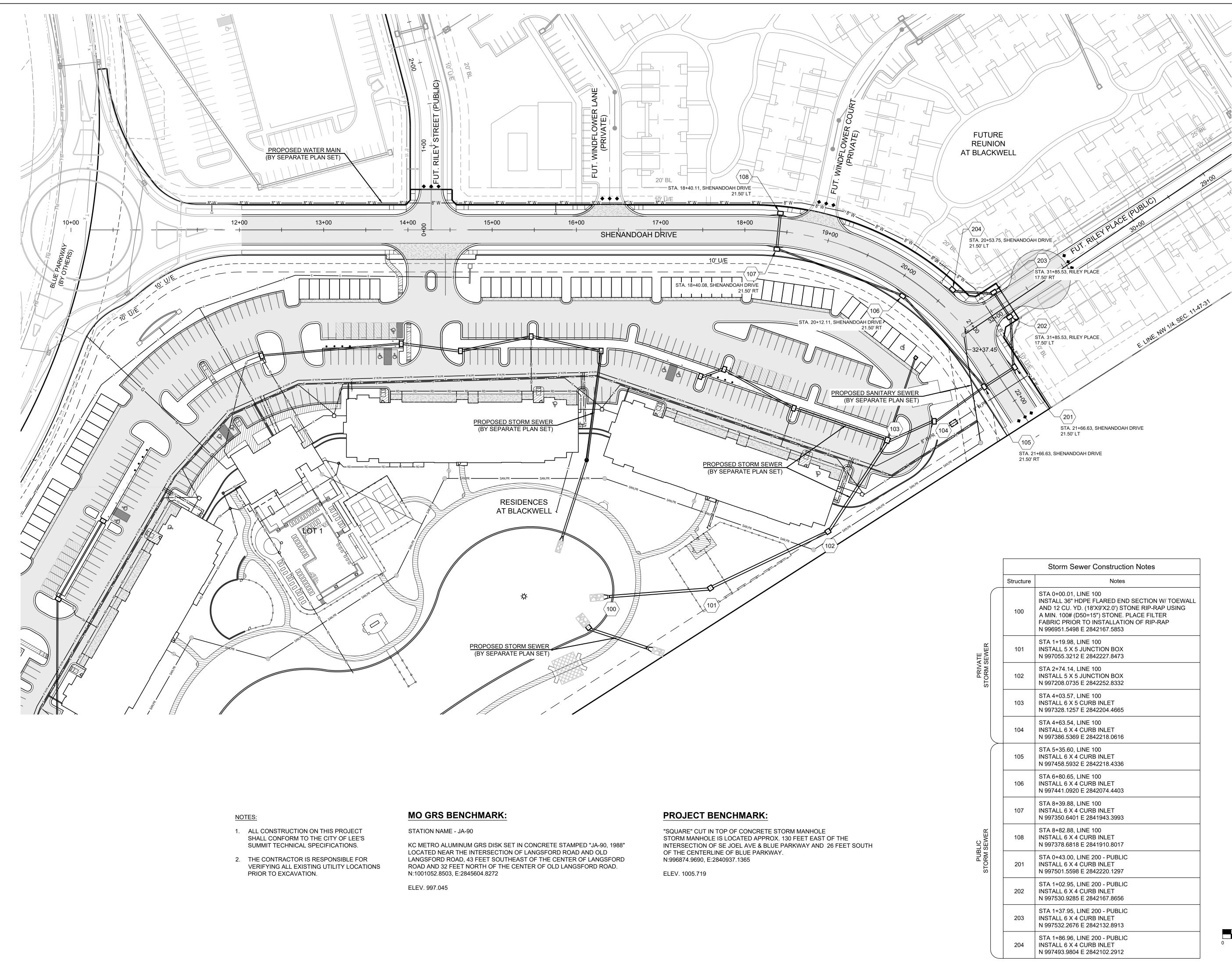
SCHLAGEL & ASSOCIATES, P.A.

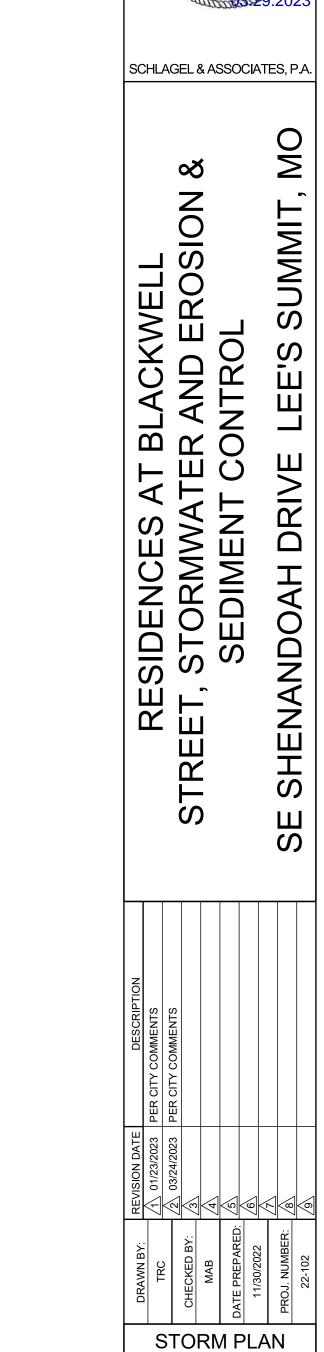
BLACKWELL R AND EROSION

STREET, STORMWATE SEDIMENT C

SHENANDOAH DRIV

13





PREPARED BY:

BREUER

MOMBER PE-2009007268

50'

SHEET

50' 100'

SCALE: 1" = 50'

	Desig	gn Storm:		25																								
	"	K" Value:		1.10																								
	"F	F" Factor:		1.00																								
	Runoff (Calculation	ne													Dina Di	operties											
	Tanon C	Jaiodiatio		Cumul.				Runoff				Up	Up	Up		i ipe i i	ореннез						Drop					
	Inlet	Area	"C"	_	Cumul.			To	Cumul.	Pipe	Pipe	Piped	Piped	Area	Up	Up	Down	Pipe	"n"	Pipe		Slope	ln .			Inlet	HGL	
	#	(acres)	Value	(acres)	СхА	Tc	Intensity	Inlet	Runoff	Сар.	Vel.	Inlet 1	Inlet 2	(acres)	CxA	Inlet	Inlet	Type	Value	Size	Length	%	Inlet	FL Up	FL Down	Тор	Elev.	
/	LINE 10	00																						DS TAILW	ATED @ S	TD #100	FREE	
ш 등 (101	0.00	0.66	3.90	2.88	7.5	7.73	0.00	24.52	31.42	6.40			0.00	0.00	101	100	HDPE	0.012	30	120.00	0.50	0.50	992.60	992.00	999.50	994.66	Ļ
[N. A.	102	0.00	0.66	3.90	2.88	7.1	7.85	0.00	24.89	32.04	6.53			0.00	0.00	102	101	HDPE	0.012	30	154.78	0.52	0.50	993.90	993.10	1001.00	995.99	,
PRIVATE STORM	103	0.27	0.66	3.90	2.88	6.7	7.95	1.56	25.21	32.65	6.65	401		1.18	0.78	103	102	HDPE	0.012	30	129.43	0.54	0.50	995.10	994.40	1010.59	997.20	T V V 11 0 0
ъ (104	0.90	0.66	2.45	1.93	6.6	8.00	5.22	16.95	19.91	6.34	2000000		0.00	0.00	104	103	HDPE	0.012	24	60.97	0.66	0.50	996.01	995.60	1007.82	997.85	_
	105	0.09	0.66	1.55	1.33	6.4	8.05	0.53	11.81	20.65	6.57	301		0.48	0.63	105	104	HDPE	0.012	24	70.54	0.71	0.75	997.01	996.51	1002.39	998.50	
	106 107	0.22	0.66	0.98 0.76	0.65 0.50	6.1 5.8	8.15 8.24	1.30 1.38	5.80 4.55	9.63 12.31	7.85 10.03	201		0.00	0.00 0.15	106 107	105 106	HDPE	0.012	15 15	145.05 159.23	1.90 3.10	0.50	1000.51 1005.93	997.76 1001.01	1008.41 1012.31	1001.73 1006.99	
	108	0.15	0.66	0.30	0.20	5.1	8.48	0.92	1.85	9.88	8.05	201		0.00	0.00	108	107	HDPE	0.012	15	338.32	1.99	0.50	1013.18	1006.43	1018.82	1013.82	
0.5	109	0.15	0.66	0.15	0.10	5.0	8.53	0.93	0.93	6.46	5.26			0.00	0.00	109	108	RCP	0.013	15	43.00	1.00	N/A	1014.11	1013.68	1018.82	1014.56	,
PUBLIC																												<u> </u>
13 5	LINE 20		0.00	0.22	0.45	F 0	0.50	4.40	4.40	C 4C	F 00			0.00	0.00	204	407	DOD	0.042		Drop in In	1	0.50	4000.00	1000 10	4040.04	1007.40	ī
	201	0.23	0.66	0.23	0.15	5.0	8.53	1.42	1.42	6.46	5.26			0.00	0.00	201	107	RCP	0.013	15	43.00	1.00	N/A	1006.86	1006.43	1012.31	1007.42	_
	LINE 30	00																			Drop in In	let 105	0.75					
	301	0.15	0.66	0.48	0.63	5.1	8.48	0.92	5.85	7.94	6.47			0.00	0.00	301	105	RCP	0.013	15	43.00	1.51	0.50	998.41	997.76	1002.39	999.63	
	302	0.33	0.66	0.33	0.53	5.0	8.53	2.04	4.95	8.57	6.98			0.00	0.00	302	301	HDPE	0.012	15	59.95	1.50	0.50	999.81	998.91	1005.55	1000.92	
	303	0.29	0.66	0.29	0.31	5.0	8.53	1.80	2.91	8.37	6.82			0.00	0.00	303	302	HDPE	0.012	15	35.00	1.43	0.50	1000.81	1000.31	1005.56	1001.63	
(304	0.18	0.66	1.36	0.12	5.3	8.41	1.10	1.10	8.37	6.82			0.00	0.00	304	303	HDPE	0.012	15	49.01	1.43	N/A	1002.01	1001.31	1006.94	1002.49	
(LINE 40	00																			Drop in In	let 103	1.25					
	401	0.29	0.66	1.18	0.78	5.2	8.47	1.78	7.25	13.61	11.09			0.00	0.00	401	103	HDPE	0.012	15	113.50	3.78	0.50	1000.64	996.35	1011.94	1002.04	
	402	0.60	0.66	0.89	0.59	5.0	8.51	3.71	5.50	15.90	12.95			0.00	0.00	402	401	HDPE	0.012	15	98.48	5.16	0.50	1006.23	1001.14	1012.47	1007.41	
	403	0.29	0.66	0.29	0.19	5.0	8.53	1.80	1.80	12.81	10.44			0.00	0.00	403	402	HDPE	0.012	15	29.41	3.35	N/A	1007.71	1006.73	1013.19	1008.34	
	LINE 50) <u> </u>																						DS TAILW	ATER @ S	TR #500	FREE	
	501	0.00	0.66	3.35	2.21	6.0	8.17	0.00	19.88	32.42	10.32			0.00	0.00	501	500	HDPE	0.012	24	95.00	1.75	0.50	996.66	995.00	1003.41	998.69	
	502	0.39	0.66	3.35	2.21	5.9	8.21	2.32	19.96	68.88	21.93			0.00	0.00	502	501	HDPE	0.012	24	130.82	7.90	0.50	1007.50	997.16	1014.83	1009.53	
F	503	0.24	0.66	2.96		5.8	8.27	1.44	17.76	25.11	7.99			0.00	0.00	503		HDPE	0.012	24	84.77	1.05	0.50	1008.89	1008.00	1015.55	1010.78	
SET)	504	0.34	0.66	2.72	1.80	5.6	8.33	2.06	16.45	24.51	7.80			0.00	0.00	504	503	HDPE	0.012	24	85.59	1.00	0.50	1010.24	1009.39	1015.36	1012.05	_
A A	505 506	0.81 1.57	0.66	2.38 1.57	1.57 1.04	5.4	8.38 8.53	4.93 9.72	14.48 9.72	24.51 11.38	7.80 6.44			0.00	0.00	505 506		HDPE HDPE		24 18	70.28 163.59	1.00	0.50 N/A	1011.45 1013.58	1010.74 1011.95	1016.56 1018.71	1013.13 1015.10	0
3TC	000	1.07	0.00	1.07	1.01	0.0	0.00	0.12	0.12	11.00	0.11			0.00	0.00	000		TIDI L	0.012	10	100.00	1.00	14// (1010.00	1011.00	1010.71	1010.10	Macto
9 H H	LINE 60	00																						DS TAILW	ATER @ S	TR #600	FREE	Ę
AR/	601	0.00	0.66	8.09	5.34	5.8	8.26	0.00	48.50	70.43	9.96		()_=(x)_=(=2)	0.00	0.00	601	600			36	95.00	0.95	2.20	995.60	994.70	1008.99	998.43	[VA]
PRIVATE STORM SEPARATE PLAN	602	0.00	0.66	8.09	5.34	5.7	8.28	0.00	48.61	76.21	24.26	701	801	6.21	4.10	602	601	HDPE	0.012	24	78.57	9.67	0.75	1005.40	997.80	1021.23	1009.26	DRIVATE
	603 604	1.20 0.68	0.66	1.88 0.68	1.24 0.45	5.6 5.0	8.31 8.53	7.24 4.21	11.35 4.21	17.23 7.54	14.04 6.14			0.00	0.00	603 604		HDPE HDPE		15 15	94.25 227.50	6.06 1.16	0.50 N/A	1011.86 1015.00	1006.15 1012.36	1019.78 1019.06	1013.78 1016.02	
(BY	004	0.00	0.00	0.00	0.43	3.0	0.55	7.21	7.21	7.54	0.14			0.00	0.00	004	003	TIDI L	0.012	10	221.50	1.10	IVA	1013.00	1012.50	1013.00	1010.02	
	LINE 70	00																			Drop in In	let 602	0.75					
	701	0.58	0.66	0.86	0.57	5.3	8.42	3.54	5.26	17.01	13.86			0.00	0.00	701	602	HDPE		15	166.79		0.50	1016.01	1006.15	1021.46	1017.16	
	702	0.28	0.66	0.28	0.18	5.0	8.53	1.73	1.73	6.89	5.62			0.00	0.00	702	701	HDPE	0.012	15	107.00	0.97	N/A	1017.55	1016.51	1021.34	1018.17	
	LINE 80)O																			Drop in In	let 602	0.50					
	801	0.12	0.66	5.35	3.53	5.1	8.50	0.74	33.00	34.22	10.89			0.00	0.00	801	602	HDPE	0.012	24	163.48		0.50	1009.09	1005.90	1020.82	1013.08	
	802	5.23	0.66	5.23		5.0		32.39	32.39	34.49	10.98			0.00	0.00	802		HDPE		24	61.13		N/A	1010.80	1009.59	1019.00	1014.98	
	LINE 10	_	0.54	0.40	0.05	F 0	0.50	0.40	0.40	10.01	45.70			0.00	0.00	4004	400	LIDDE	0.040		Drop in In		1.25	4004.04	000.05	4000.00	4004.00	
(1001	0.10	0.51	0.10	0.05	5.0	8.53	0.48	0.48	19.34	15.76			0.00	0.00	1001	103	HDPE	0.012	15	100.16	7.64	N/A	1004.01	996.35	1008.00	1004.32	

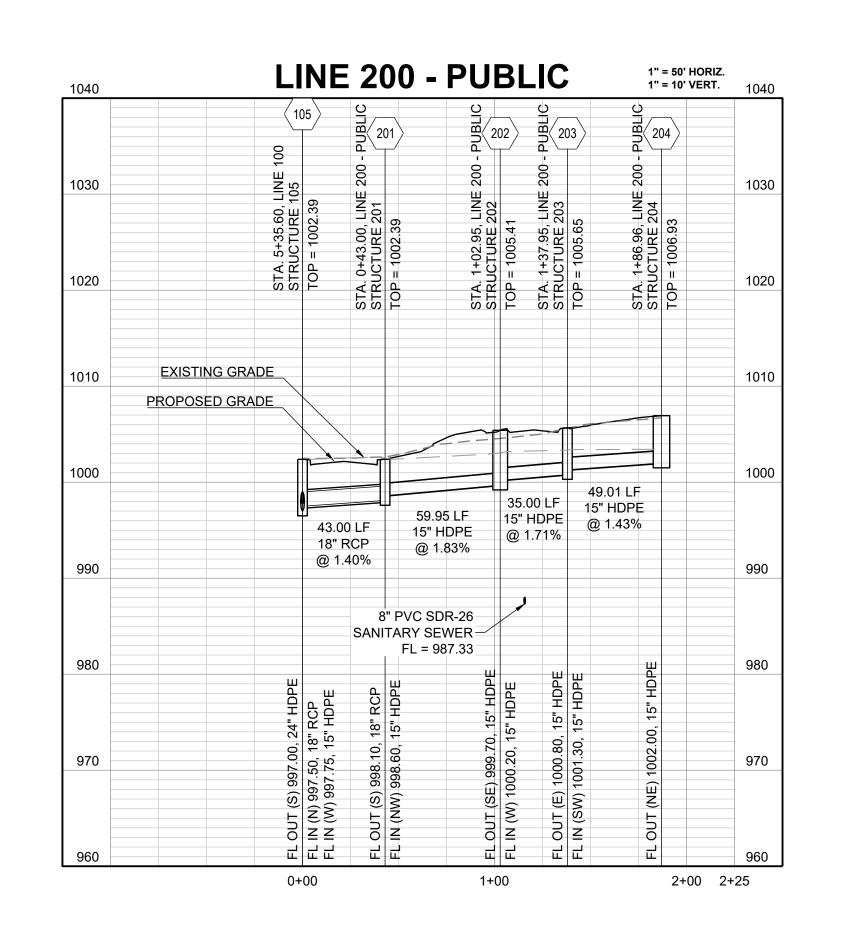
	"K	n Storm: (" Value: ' Factor:		100 1.25 1.00																								LANNERS D West 107tl (913) 492-5 WWW. SCHI Missouri 2002003800-F
	Runoff Ca															Pipe Pi	roperties											(91 WW #E2002
				Cumul.				Runoff				Up	Up	Up									Drop					85 245
	Inlet	Area	"C"	Area	Cumul			То	Cumul.	Pipe	Pipe	Piped	Piped	Area	Up	Up	Down	Pipe	"n"	Pipe	;	Slope	ln			Inlet	HGL	EERS T
	#	(acres)	Value	(acres)	Cx A	Tc	Intensity	Inlet	Runoff	Сар.	Vel.	Inlet 1	Inlet 2	(acres)	CxA	Inlet	Inlet	Type	Value	Size	Length	%	Inlet	FL Up	FL Down	Top	Elev.	
																												ENGINI
	LINE 100	1901-001-00	0.00	0.00	0.00	7.5	0.00	0.00	20.05	04.40	0.40			0.00	0.00	404	400	LIDDE	0.040	200	400.00	0.50	0.50	DS TAILW			FREE	ш
PRIVATE	101	0.00	0.66	3.90	2.88	7.5	9.39	0.00	33.85	31.42	6.40			0.00	0.00	101	100	HDPE		30		0.50	0.50	992.60 993.90	992.00	999.50	995.23	PREPARED BY:
≳ૄૄ	102	0.00	0.66	3.90 3.90	2.88 2.88	6.7	9.53 9.64	0.00 2.15	34.35 34.77	32.04 32.65	6.53 6.65	401		0.00	0.00 0.78	102 103	101 102	HDPE	0.012	30	The second second	0.52	0.50	995.90	993.10 994.40	1001.00 1010.59	996.56 997.76	
R S	103 104	0.27	0.66	2.45	1.93	6.6	9.70	7.20	23.37	19.91	6.34	401		0.00	0.70	103	102	HDPE	0.012	24		0.66	0.50	996.01	995.60	1010.39	998.74	THE MAN TO SERVICE OF THE PARTY
>	105	0.09	0.66	1.55	1.33	6.4	9.77	0.73	16.28	20.65	6.57	301		0.48	0.63	105	103	HDPE	0.012	24		0.71	0.75	997.01	996.51	1007.02	999.27	OF MISSON
	106	0.22	0.66	0.98	0.65	6.1	9.88	1.79	7.99	9.63	7.85	301		0.00	0.00	106	105	HDPE	0.012	15		1.90	0.50	1000.51	997.76	1002.33	1001.99	
	107	0.23	0.66	0.76	0.50	5.8	9.99	1.89	6.26	12.31	10.03	201		0.23	0.15	107	106	HDPE	0.012	15		3.10	0.50	1005.93	1001.01	1012.31	1007.21	MARK ALLEN
	108	0.15	0.66	0.30	0.20	5.1	10.27	1.27	2.54	9.88	8.05			0.00	0.00	108	107	HDPE	0.012	15	338.32	1.99	0.50	1013.18	1006.43	1018.82	1013.95	BREUER
	109	0.15	0.66	0.15	0.10	5.0	10.32	1.28	1.28	6.46	5.26			0.00	0.00	109	108	RCP	0.013	15	43.00	1.00	N/A	1014.11	1013.68	1018.82	1014.64	ANNAUTE SE
PUBLIC		N-0-10-10																										MUMBER PE-2009007268
필인	LINE 200)																			Drop in Inle	t 107	0.50					2003001200
J S	201	0.23	0.66	0.23	0.15	5.0	10.32	1.96	1.96	6.46	5.26			0.00	0.00	201	107	RCP	0.013	15	43.00	1.00	N/A	1006.86	1006.43	1012.31	1007.53	To so the second
																												ONALE 3.29.2023
	LINE 300																				Drop in Inle	t 105	0.75					
	301	0.15	0.66	0.48	0.63	5.1	10.26	1.27	8.04	7.94	6.47			0.00	0.00	301	105	RCP	0.013	15	43.00	1.51	0.50	998.41	997.76	1002.39	1000.27	
	302	0.33	0.66	0.33	0.53	5.0	10.32	2.81	6.81	8.57	6.98			0.00	0.00	302	301	HDPE	0.012	15	59.95	1.50	0.50	999.81	998.91	1005.55	1001.15	
	303	0.29	0.66	0.29	0.31	5.0	10.32	2.47	4.00	8.37	6.82			0.00	0.00	303	302	HDPE	0.012	15	35.00	1.43	0.50	1000.81	1000.31	1005.56	1001.79	SCHLAGEL & ASSOCIATES, P.A.
	304	0.18	0.66	1.36	0.12	5.3	10.18	1.51	1.51	8.37	6.82			0.00	0.00	304	303	HDPE	0.012	15	49.01	1.43	N/A	1002.01	1001.31	1006.94	1002.58	
	LINE 400	1																			Drop in Inle	+ 102	1.25					
	401	0.29	0.66	1.18	0.78	5.2	10.25	2.45	9.98	13.61	11.09			0.00	0.00	401	103	HDPE	0.012	15	I was a second	3.78	0.50	1000.64	996.35	1011.94	1002.36	
	402	0.60	0.66	0.89	0.59	5.0	10.30	5.10	7.57	15.90	12.95			0.00	0.00	402	401	HDPE	0.012	15		5.16	0.50	1006.23	1001.14		1007.66	
	403	0.29	0.66	0.29	0.19			2.47	2.47	12.81	10.44			0.00	0.00	403	402	HDPE		15		3.35	N/A	1007.71		1013.19	1008.46	∞ ≥
	LINE 500)																						DS TAILW	ATER @ S	TR #500	FREE	<i>7</i> '
	501	0.00	0.66	3.35	2.21	6.0	9.91	0.00	27.39	32.42	10.32			0.00	0.00	501	500	HDPE	0.012	24	95.00	1.75	0.50	996.66	995.00	1003.41	999.13	
	502	0.39	0.66	3.35	2.21	5.9	9.95	3.20	27.49	68.88	21.93			0.00	0.00	502	501	HDPE	0.012	24	130.82	7.90	0.50	1007.50	997.16	1014.83	1009.97	
	503	0.24	0.66	2.96	1.95			1.98	24.46	25.11	7.99			0.00	0.00	503		HDPE		24		1.05	0.50	1008.89		1015.55	1011.18	¬ S €
SET)	504	0.34	0.66	2.72	1.80	5.6		2.83	22.64	24.51	7.80			0.00	0.00	504	503	HDPE		24		1.00	0.50	1010.24		1015.36	1012.43	
∑ Z	505	0.81	0.66	2.38	1.57		10.15	6.78	19.93	24.51	7.80			0.00	0.00	505		HDPE		24		1.00	0.50	1011.45	1010.74		1013.47	ELL
P, Z	506	1.57	0.66	1.57	1.04	5.0	10.32	13.37	13.37	11.38	6.44			0.00	0.00	506	505	HDPE	0.012	18	163.59	1.00	N/A	1013.58	1011.95	1018.71	1016.18	M R L N
ST	LINE 600	`				-																		DC TAIL M	ATED @ S	TD #600	EDEE	KWE D ERC OL
AT			0.66	8 00	5.34	5.0	10.01	0.00	66.70	70.43	0.06			0.00	0.00	601	600	LIDDE	0.012	36	05.00	0.05	2.20	DS TAILW. 995.60	994.70	1008.99	999.03	
A A	601 602	0.00	0.66	8.09 8.09	5.34	5.7	10.01 10.03	0.00 0.00	66.79 66.93	76.21	9.96 24.26	701	801	6.21	0.00 4.10	601 602	601	HDPE		36 24		0.95 9.67	2.20 0.75	1005.40	997.80	1006.99	1010.92	X U S i
ľR' EP,	603	1.20	0.66	1.88	1.24			9.97	15.62	17.23	14.04	701	001	0.00	0.00	603	602			15		6.06	0.75	1005.40		1021.23	1010.92	N N N N N N N N N N N N N N N N N N N
PRIVATE STORM (BY SEPARATE PLAN	604	0.68	0.66	0.68			10.07	5.79	5.79	7.54	6.14			0.00	0.00	604		HDPE				1.16	N/A	1011.00	1000.13		1018.61	ACKAND ENTERORIES
(B)	004	0.00	0.00	0.00	0.40	0.0	10.02	0.10	0.10	7.04	0.14			0.00	0.00	004	000	HULL	0.012	10	221.00	1.10	1,07.	1010.00	1012.00	1010.00	1010.01	
	LINE 700)																			Drop in Inle	t 602	0.75					
	701	0.58	0.66	0.86	0.57	5.3	10.19	4.88	7.23	17.01	13.86			0.00	0.00	701	602	HDPE	0.012		166.79		0.50	1016.01	1006.15	1021.46	1017.40	
	702	0.28	0.66				10.32	2.38	2.38	6.89	5.62			0.00	0.00	702		HDPE			107.00		N/A	1017.55		1021.34	1018.28	
	LINE 800																				Drop in Inle	t 602	0.50					
	801	0.12	0.66	5.35	3.53		10.28	1.02	45.39	34.22	10.89			0.00	0.00	801	602		0.012			1.95	0.50	1009.09	1005.90	1020.82	1018.16	S N N
	802	5.23	0.66	5.23	3.45	5.0	10.32	44.54	44.54	34.49	10.98			0.00	0.00	802	801	HDPE	0.012	24	61.13	1.98	N/A	1010.80	1009.59	1019.00	1021.74	
	LINE 100		0.51	0.40	0.05	F 2	40.00	0.00	0.00	40.01	45.70			0.00	0.00	4004	400	LIBBE	0.040		Drop in Inle		1.25	4004.04	000.05	4000.00	4004.00	ENCES DRMW/ DIMEN
	1001	0.10	0.51	0.10	0.05	5.0	10.32	0.66	0.66	19.34	15.76			0.00	0.00	1001	103	HDPE	0.012	15	100.16	7.64	N/A	1004.01	996.35	1008.00	1004.38	

ESIGN S	TORM	10							CURB TYPE "/	A" = LAZY BACK												
(" FACT		1.00								B" = HIGH BACK												
UNOFF	CALCULATIONS											INLET DE	SIGN						GUTTER D	ESIGN		
										BYPASS FROM			STREET			EFFECTIVE		BYPASS TO		STREET		
INLET	COMPOSITE		INLET			UPSTREAM	UPSTREAM	UPSTREAM	UPSTREAM	UPSTREAM	TOTAL	STREET	CROSS	CURB	INLET	LENGTH	INLET	DOWNSTREAM	STREET	CROSS	DEPTH AT	SPREAD OF
#	"C"	AREA	Tc	INTENSITY	RUNOFF	INLET	INLET	INLET	INLET	INLET	RUNOFF	GRADE	SLOPE	TYPE	LENGTH	80% CAP	INTERCEPTION	INLET	GRADE	SLOPE	CURB	FLOW
LINE 1																						
101	0.66	0.00	5	7.35	0.00					0.00	0.00	N/A	N/A	В	6	4.8	N/A	N/A	N/A	N/A	N/A	N/A
102	0.66	0.00	5	7.35	0.00					0.00	0.00	N/A	N/A	В	6	4.8	N/A	N/A	N/A	N/A	N/A	N/A
103	0.66	0.27	5	7.35	1.31					0.00	1.31	SUMP	N/A	В	6	4.8	12.00	0.00	SUMP	N/A	< 0.21	< 10.50
104	0.66	0.90	5	7.35	4.37					0.00	4.37	SUMP	2.08	В	6	4.8	12.00	0.00	SUMP	2.08	< 0.21	< 10.50
105	0.66	0.09	5	7.35	0.44	106				0.01	0.45	4.05	2.08	В	8	6.4	0.45	0.00	4.05	2.08	0.08	4.32
106	0.66	0.22	5	7.35	1.07	107	108			0.07	1.14	2.17	2.08	В	6	4.8	1.12	0.01	2.17	2.08	0.13	6.57
107	0.66	0.28	5	7.35	1.36					0.00	1.36	2.17	2.08	В	6	4.8	1.33	0.03	2.17	2.08	0.13	6.99
108	0.66	0.29	5	7.35	1.41					0.00	1.41	2.17	2.08	В	6	4.8	1.37	0.04	2.17	2.08	0.14	7.08
LINE 2																						
201	0.66	0.15	5	7.35	0.73	202	203	204		0.11	0.84	4.05	2.08	В	6	4.8	0.83	0.01	4.05	2.08	0.10	5.33
202	0.66	0.33	5	7.35	1.60					0.00	1.60	2.24	2.08	В	6	4.8	1.54	0.06	2.24	2.08	0.14	7.36
203	0.66	0.29	5	7.35	1.41					0.00	1.41	2.24	2.08	В	6	4.8	1.37	0.04	2.24	2.08	0.14	7.04
204	0.66	0.18	5	7.35	0.87	108				0.04	0.91	4.05	2.08	В	6	4.8	0.89	0.02	4.05	2.08	0.10	5.47
OTES:																						
	Y OF INLETS O	N GRADE	DETERMIN	NED USING RO	JTINE OUTLINI	ED ON PGS 56-	95 TO 56-97. SI	ECTION 5600 A	PWA													

AT BLACKWELL TER AND EROSION 8 F CONTROL SUMMIT, LEE'S

STREET, STORMWATE SEDIMENT C SE SHENANDOAH DRIN

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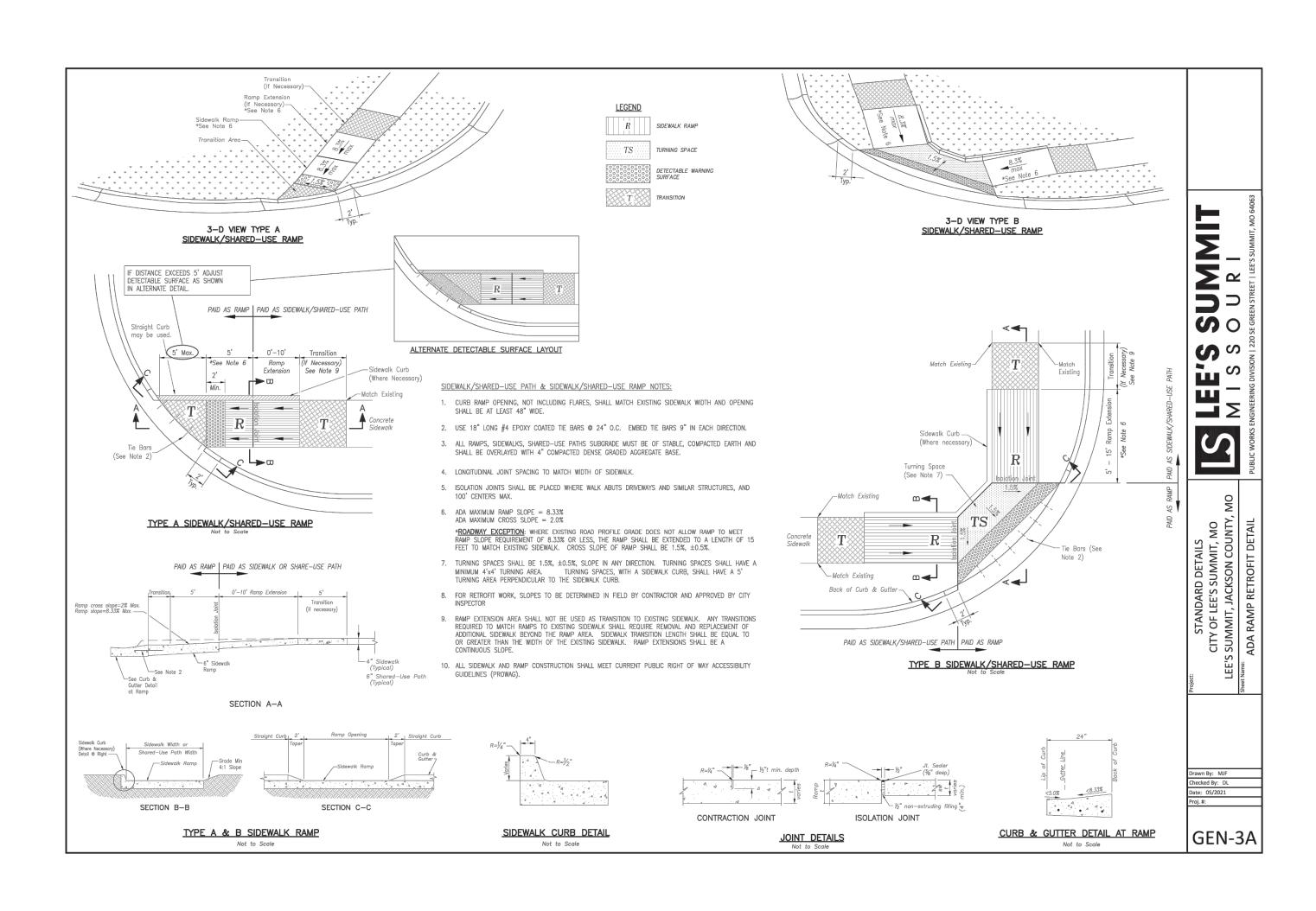


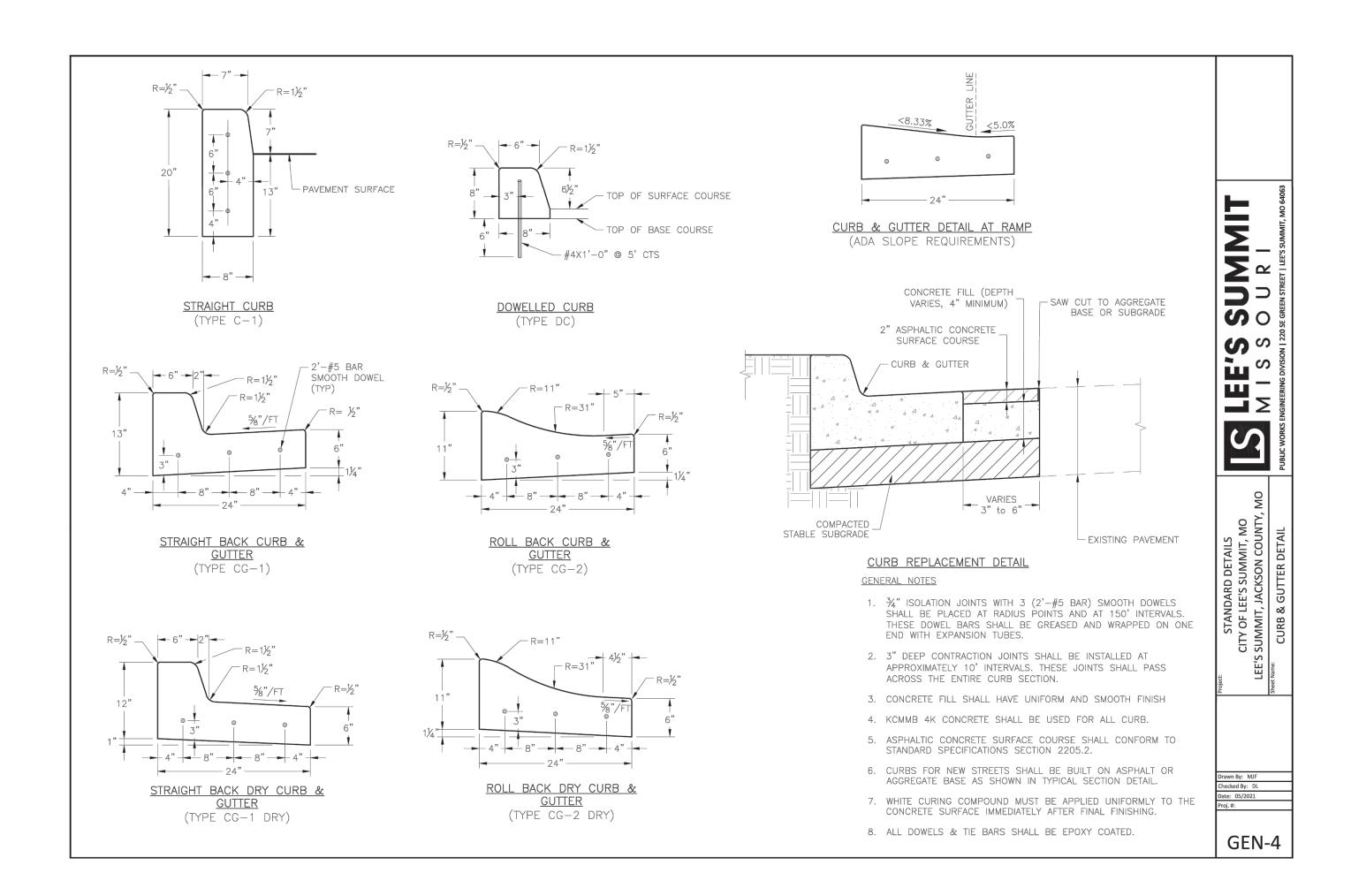
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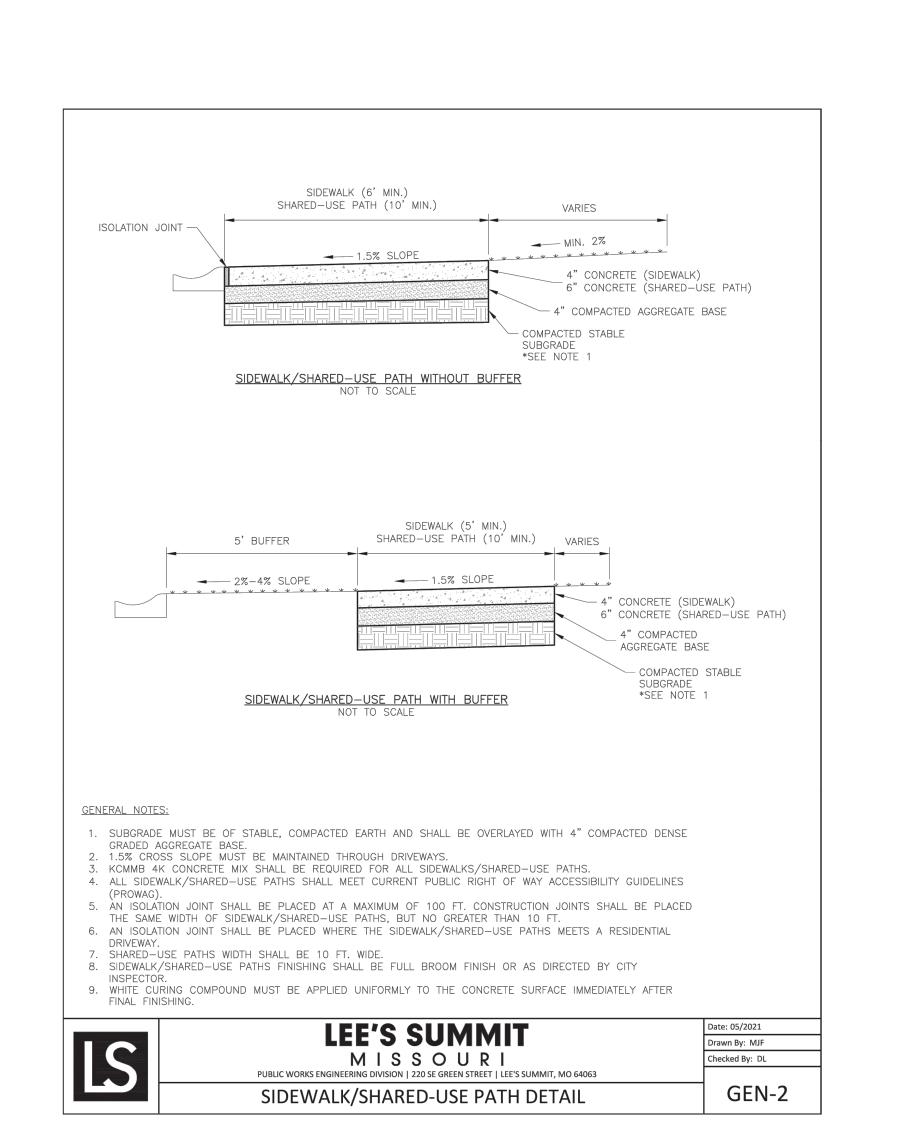
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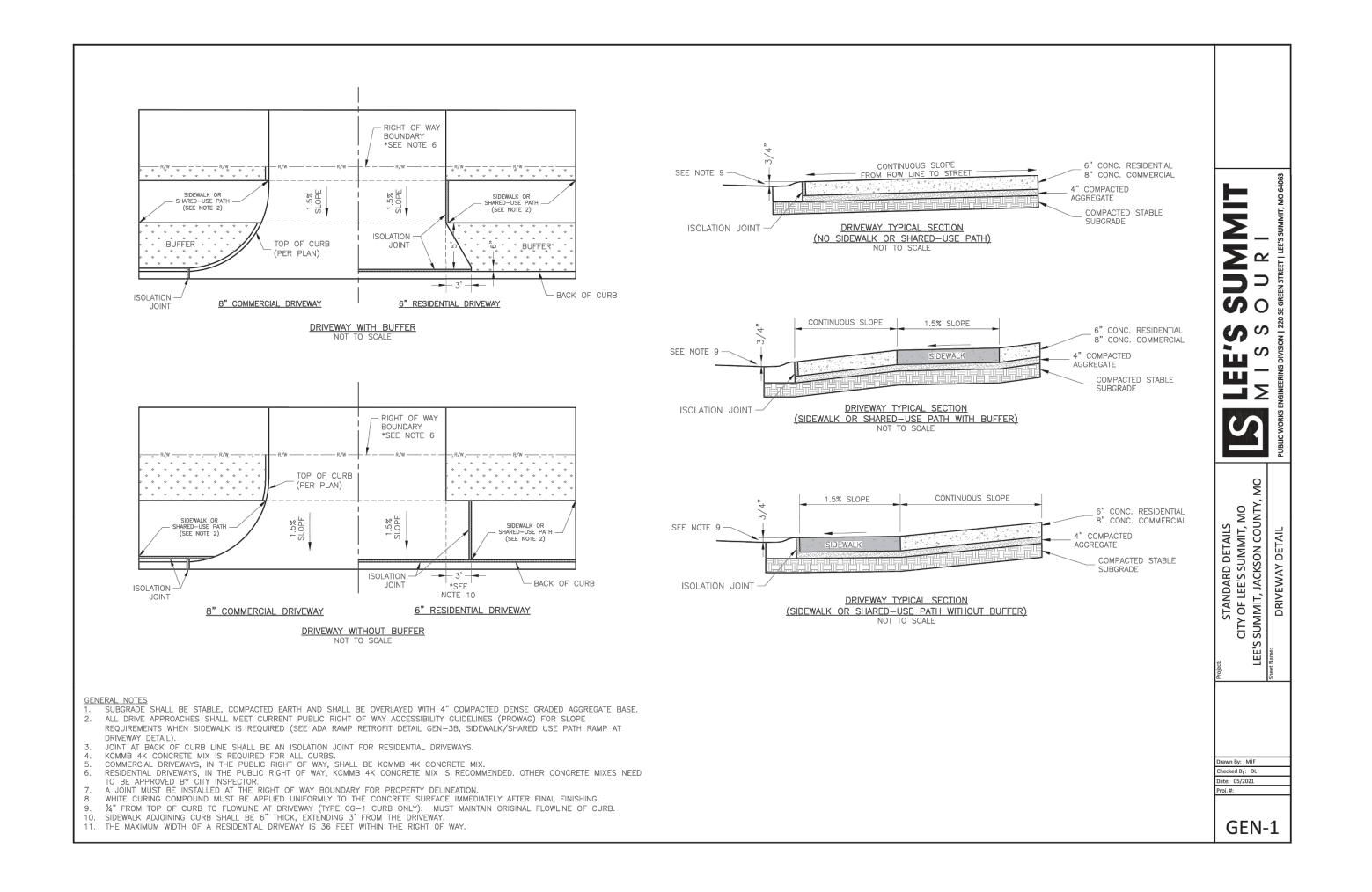
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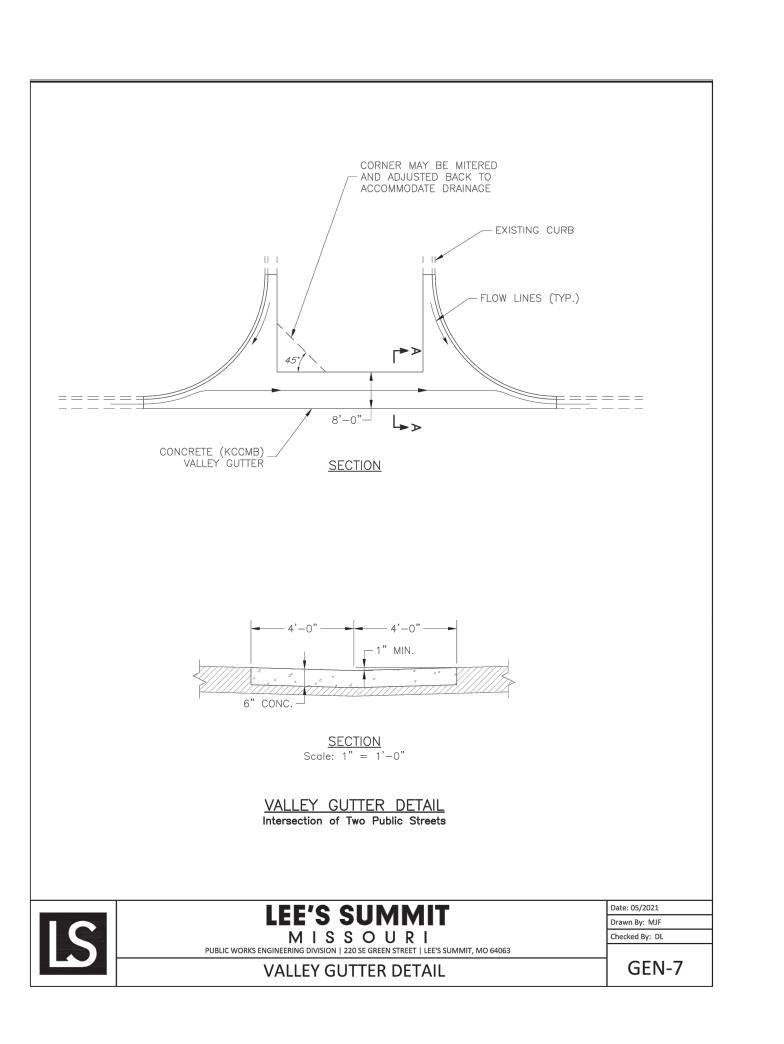
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STREET DETAILS







MARK ALLEN BREUER MUMBER PE-2009007268

SCHLAGEL & ASSOCIATES, P.A.

BLACKWELL

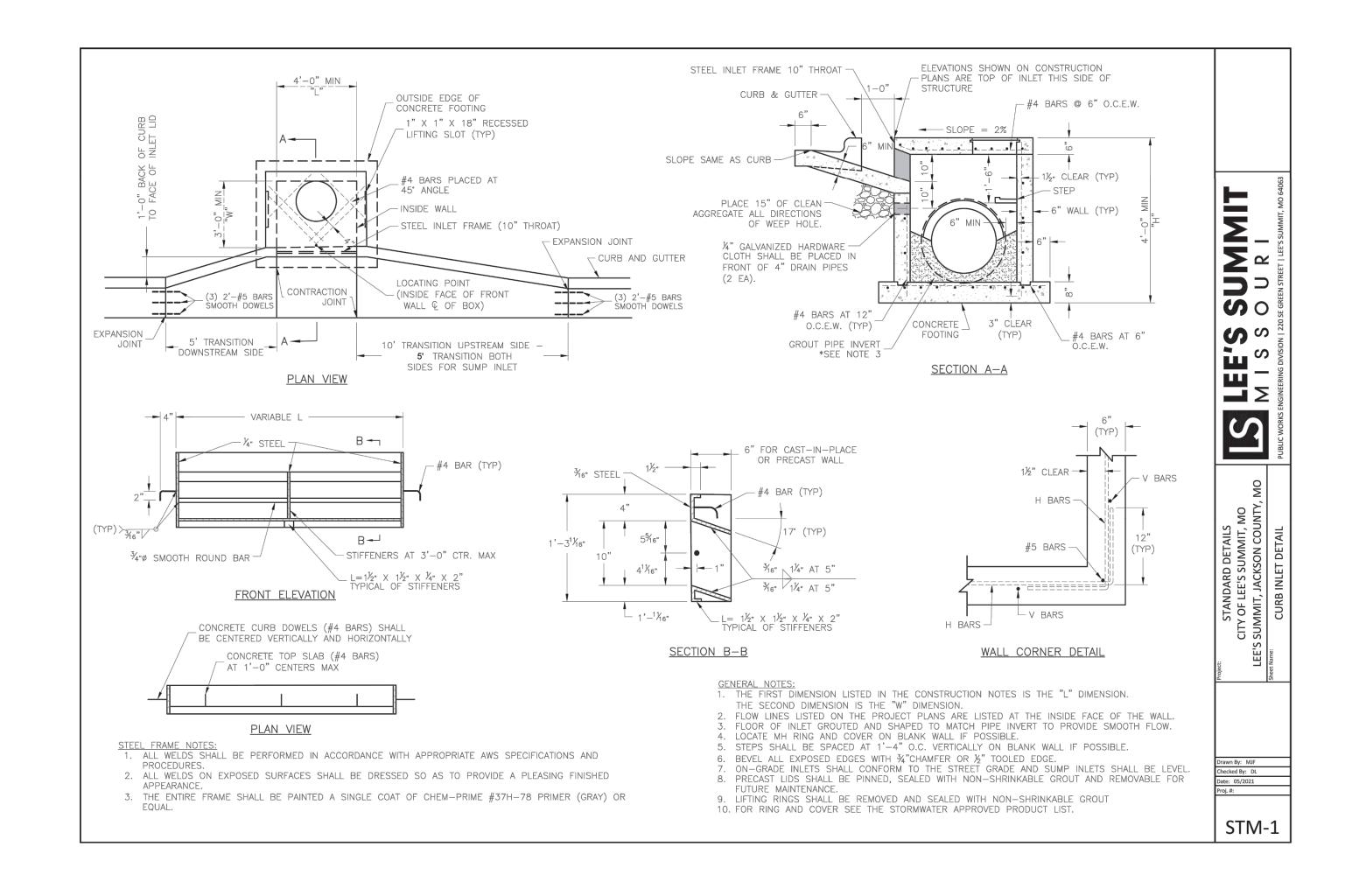
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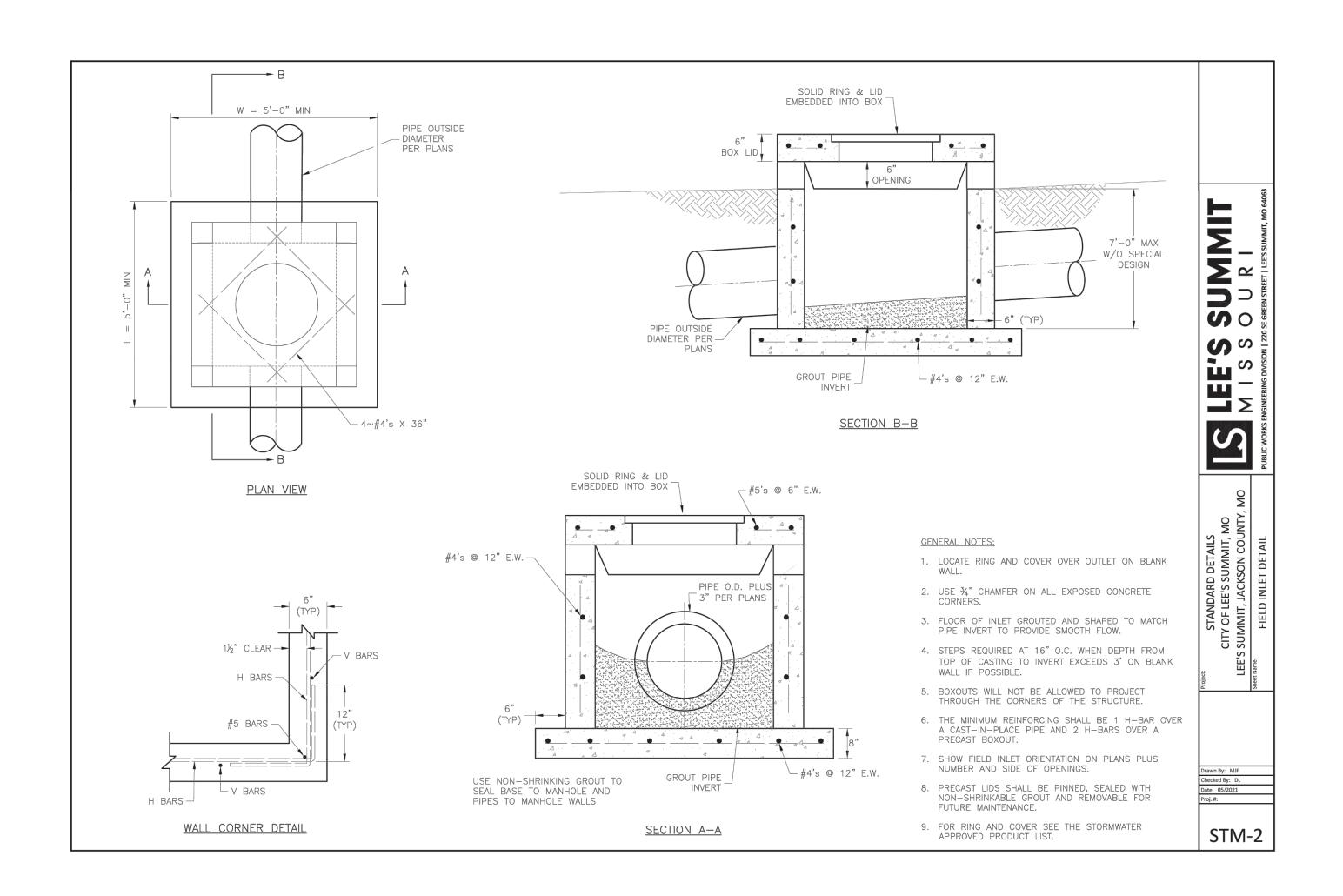
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STREET DETAILS

SHEET

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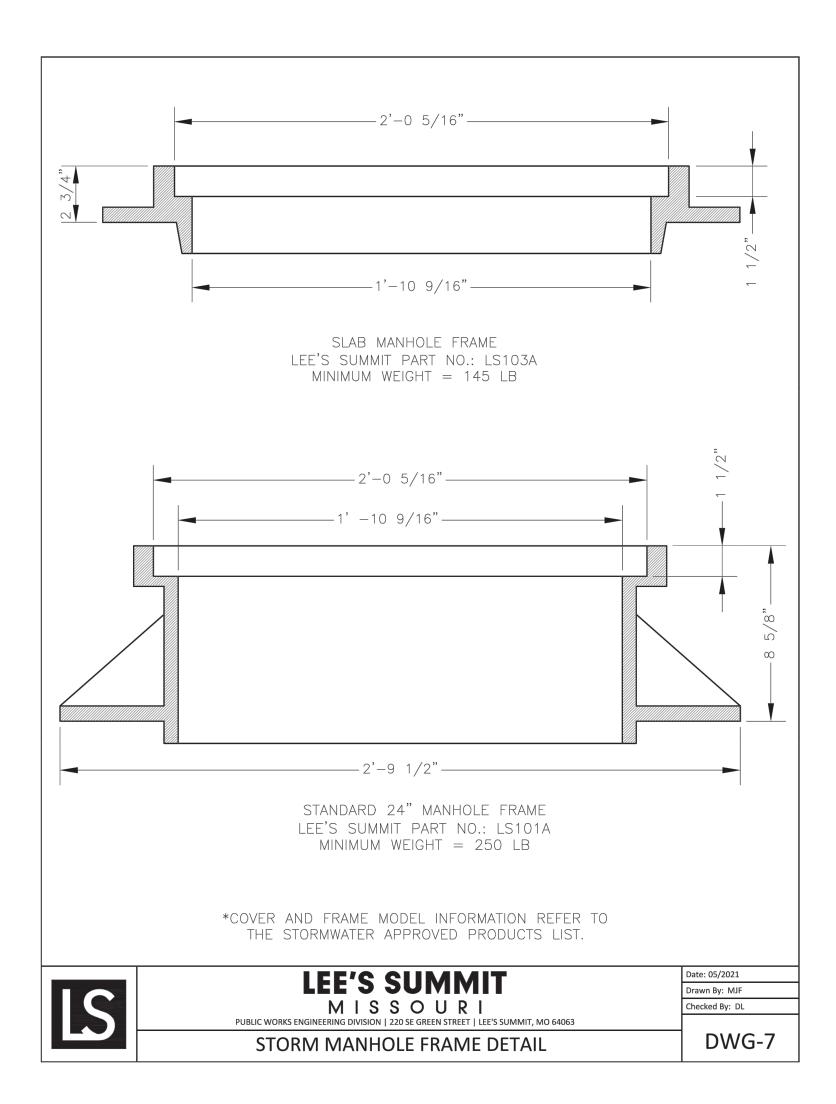
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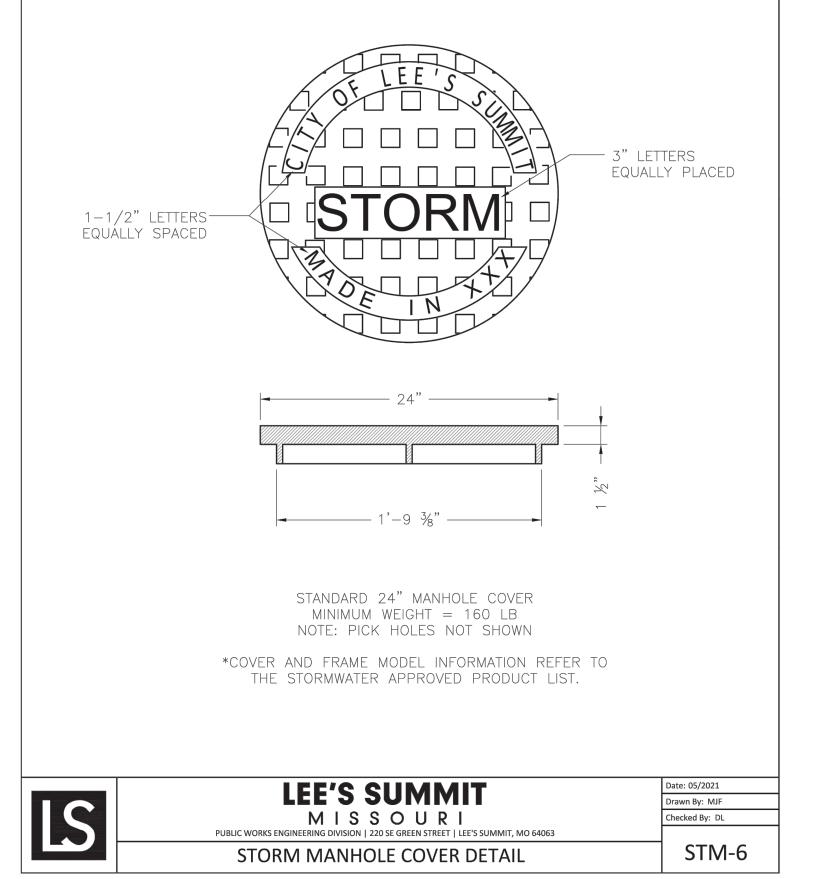
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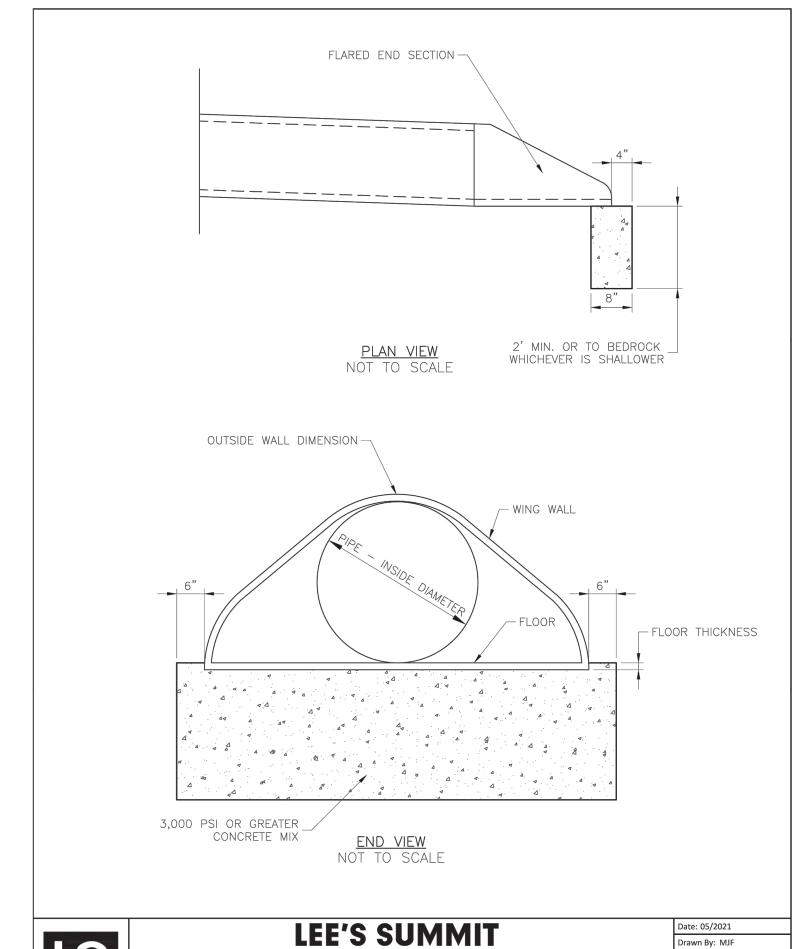
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STORM DETAILS





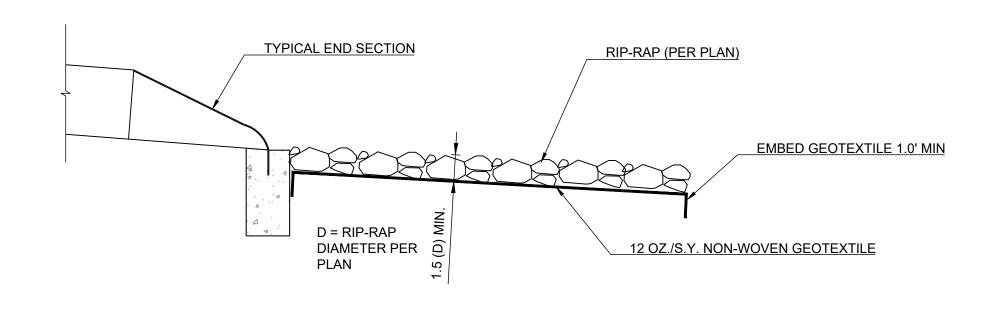


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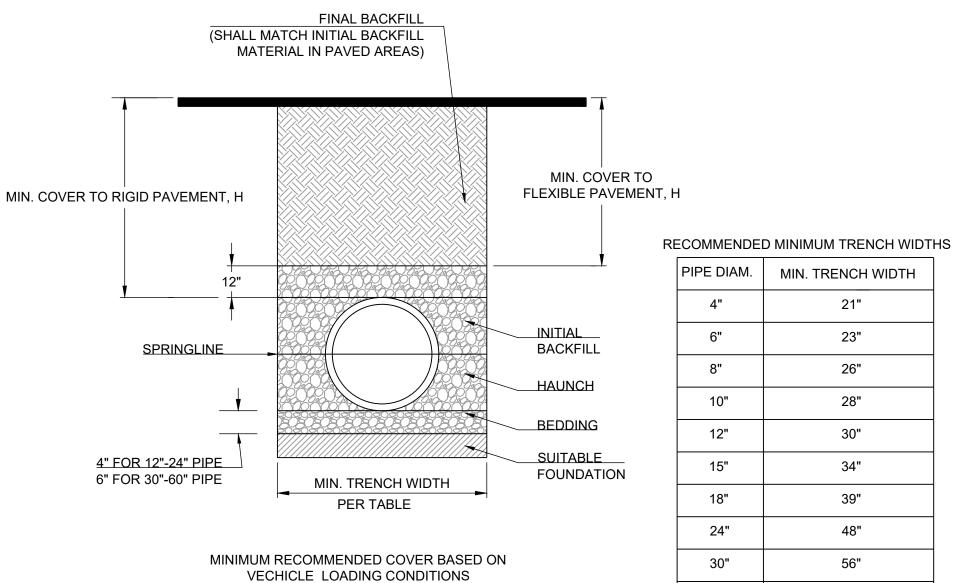
FLARED END SECTION SUPPORT DETAIL

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STM-5



RIP-RAP AT OUTLET NOT TO SCALE



SURFACE LIVE LOADING CONDITION

PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

PIPE DIAM.

12" - 48"

54" - 60"

H-25

12"

24"

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

- 1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION
- 2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.

HEAVY CONSTRUCTION

(75T AXLE LOAD) *

48"

60"

- 3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
- 4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).
- 5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
- 6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.
- 7. TESTING: CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL MATERIAL TESTING REQUIRED FOR THEIR WORK. THIS INCLUDES SCHEDULING OF TESTS, COORDINATING AND PROVIDING ACCESS TO SAMPLE LOCATIONS, AND SATISFYING ALL TEST RESULT REPORTING REQUIREMENTS.

PIPE EMBEDMENT NOT TO SCALE

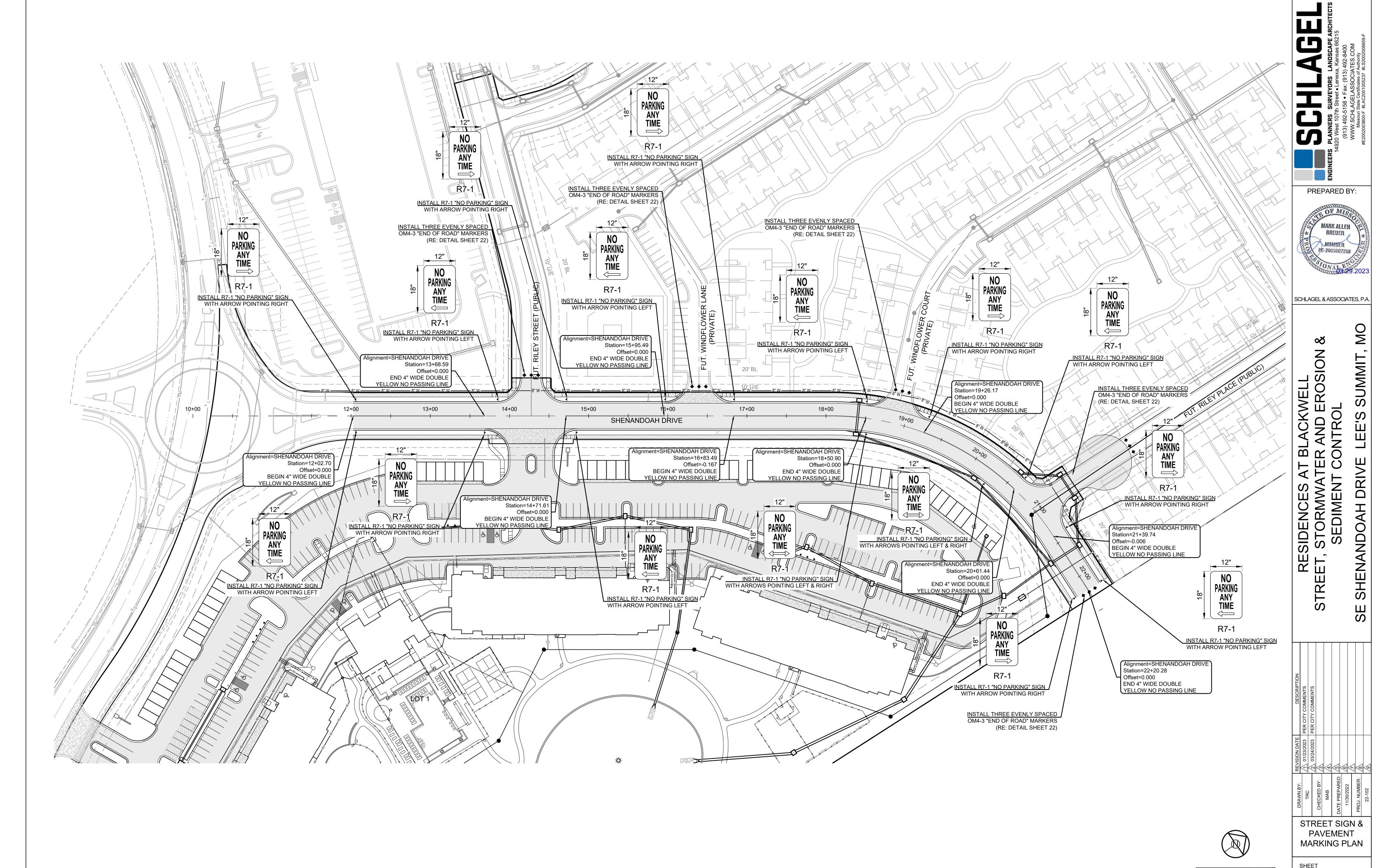
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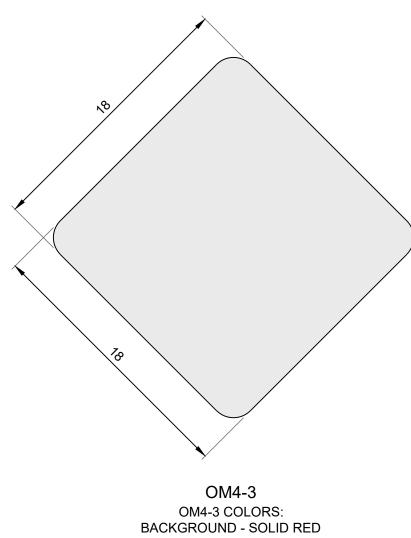
SCHLAGEL & ASSOCIATES, P.A.

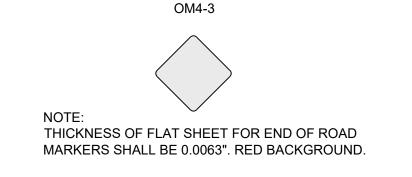
SLACKWELL
RAND EROSION STORMWAT SEDIMENT SHENANDOAH

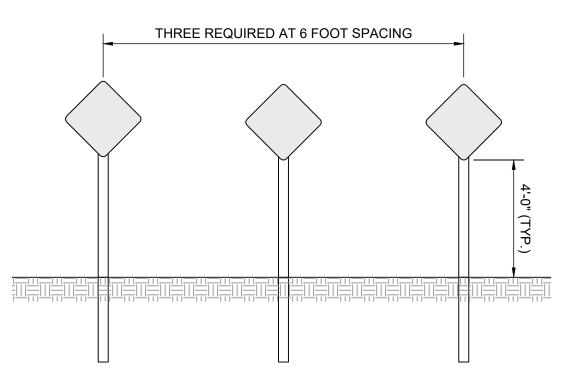
STORM DETAILS



SCALE: 1" = 50'







"END OF ROAD" MARKERS

SCHLAGEL & ASSOCIATES, P.A. BLACKWELL

RAND EROSION STREET, STORMWATE SEDIMENT (DRIV SHENANDOAH

S

PREPARED BY:

MARK ALLEN BREUER

MOMBER PE-2009007268

STREET SIGN & PAVEMENT MARKING

> **DETAILS** SHEET