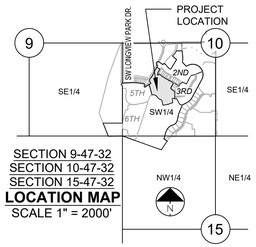
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
FOR
PERGOLA PARK 4TH PLAT
IN THE CITY OF LEE'S SUMMIT
JACKSON COUNTY, MISSOURI

LEGEND:

A/E	-	ACCESS EASEMENT
BC	-	BACK OF CURB
B/B	-	BACK TO BACK
BM	-	BENCHMARK
BL or B.L.	-	BUILDING LINE
CO	-	CLEANOUT
TJB	-	TELEPHONE JUNCTION BOX
C&G	-	CURB AND GUTTER
D/E	-	DRAINAGE EASEMENT
E/E	-	ELECTRICAL EASEMENT
EL	-	ELEVATION
FL	-	FLOW LINE
G/E	-	GAS LINE EASEMENT
HDPE	-	HIGH-DENSITY POLYETHYLENE
L/E	-	LANDSCAPE EASEMENT
MSFE	-	MINIMUM SERVICEABLE FLOOR ELEVATION
PVC	-	POLYVINYL CHLORIDE
P/L	-	PROPERTY LINE
PUB/E	-	PUBLIC EASEMENT
RCP	-	REINFORCED CONCRETE PIPE
ROW or R/W	-	RIGHT-OF-WAY
S/E	-	SANITARY SEWER EASEMENT
SL	-	SERVICE LINE
S/W	-	SIDEWALK
TE	-	TOP ELEVATION
U/E	-	UTILITY EASEMENT
WSE	-	WATER SURFACE ELEVATION
W/E	-	WATERLINE EASEMENT

ASPHALT PAVEMENT - EXISTING
ASPHALT PAVEMENT - PROPOSED
CONCRETE PAVEMENT - EXISTING
ASPHALT PAVEMENT - EXISTING
CONCRETE SIDEWALK - EXISTING
CONCRETE SIDEWALK - PROPOSED
CURB & GUTTER
CURB & GUTTER - EXISTING
TREELINE
EXISTING LOT AND R/W LINES
EXISTING PLAT LINES
P/L — PROPERTY LINES
ROW — RIGHT-OF-WAY
SANITARY SEWER MAIN
SANITARY SEWER MAIN - EXIST.
STO — STORM SEWER
STORM SEWER - EXISTING
$CATV_X$ — CABLE TV - EXISTING
FOC_X — FIBER OPTIC CABLE - EXISTING
T_X — TELEPHONE LINE - EXIST.
E_X — ELECTRIC LINE - EXISTING
OHP_X — OVERHEAD POWER LINE - EXIST.
UGE_X — UNDERGROUND ELECTRIC - EX.
G_X — GAS LINE - EXISTING
W_X — WATERLINE - EXISTING
LIGHT - EXISTING
EXISTING MANHOLE
CO — CLEANOUT
EXISTING SANITARY MANHOLE
PROPOSED SANITARY MANHOLE
AI — EXISTING AREA INLET
CI — EXISTING CURB INLET
GI — EXISTING GRATE INLET
JB — EXISTING JUNCTION BOX
D — EXISTING STORM MANHOLE



SECTION 9-47-32
SECTION 10-47-32
SECTION 15-47-32
LOCATION MAP
SCALE 1" = 2000'

UTILITY CONTACTS:

MISSOURI DEPARTMENT OF TRANSPORTATION (MODOT)
Steve Holloway
600 NE Colbern Road
Lee's Summit, MO 64086
(816) 607-2186

MISSOURI GAS ENERGY (MGE)
Brent Jones
3025 SE Clover Drive
Lee's Summit, MO 64082
(816) 399-9633
brent.jones@spireenergy.com

KANSAS CITY POWER & LIGHT COMPANY (KCP&L)
Ron Dejarnette
1300 SE Hamblin Road
Lee's Summit, MO 64081
Office: (816) 347-4316
Cell: (816) 810-5234
ron.dejarnette@kcpl.com

CITY OF LEES SUMMIT PUBLIC WORKS
Dena Mezger
220 SE Green Street
Lee's Summit, MO 64063
(816) 969-1800

AT&T
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
Independence, MO 64057
(816) 795-2257

CITY OF LEE'S SUMMIT WATER UTILITIES
Mark Schaufler
1200 SE Hamblen Road
Lee's Summit, MO 64081
(816) 969-1900

GENERAL NOTES:

1. ALL CONSTRUCTION TO FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.
2. ALL WORKMANSHIP AND MATERIALS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEERING DEPARTMENT OF THE CITY OF LEE'S SUMMIT, MISSOURI.
3. LINEAL FOOT MEASUREMENTS SHOWN ON THE PLANS ARE HORIZONTAL MEASUREMENTS, NOT SLOPE MEASUREMENTS. ALL PAYMENTS SHALL BE MADE ON HORIZONTAL MEASUREMENTS.
4. NO GEOLOGICAL INVESTIGATION HAS BEEN PERFORMED ON THE SITE.
5. THE UTILITY LOCATIONS SHOWN ON THESE PLANS ARE TAKEN FROM UTILITY COMPANY RECORDS AND APPARENT FIELD LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR SHALL ADHERE TO THE PROVISIONS OF THE SENATE BILL NUMBER 583, 78TH GENERAL ASSEMBLY OF THE STATE OF MISSOURI. THE BILL REQUIRES THAT ANY PERSON OR FIRM DOING EXCAVATION ON PUBLIC RIGHT OF WAY DO SO ONLY AFTER GIVING NOTICE TO, AND OBTAINING INFORMATION FROM, UTILITY COMPANIES. STATE LAW REQUIRES 48 HOURS ADVANCE NOTICE. THE CONTRACTOR MAY ALSO UTILIZE THE FOLLOWING TOLL FREE PHONE NUMBER PROVIDED BY "MISSOURI ONE CALL SYSTEM, INC.": 1-800-DIG-RITE. THIS PHONE NUMBER IS APPLICABLE ANYWHERE WITHIN THE STATE OF MISSOURI. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL NOTIFY ALL THOSE COMPANIES WHICH HAVE FACILITIES IN THE NEAR VICINITY OF THE CONSTRUCTION TO BE PERFORMED.
7. 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.
8. THE CONTRACTOR SHALL PROTECT ALL MAJOR TREES FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE.
9. 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.
10. ALL WASTE MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR, OR AS DIRECTED BY THE OWNER.
11. ALL EXCAVATIONS SHALL BE UNCLASSIFIED. NO SEPARATE PAYMENT WILL BE MADE FOR ROCK EXCAVATION.
12. THE CONTRACTOR SHALL CONTROL THE EROSION AND SILTATION DURING ALL PHASED OF CONSTRUCTION, AND SHALL KEEP THE STREETS CLEAN OF MUD AND DEBRIS.
13. ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED.
14. THE CONTRACTOR SHALL CONTACT DEVELOPMENT SERVICES INSPECTIONS AT: 816-969-1200 TO OBTAIN A DEVELOPMENT SERVICES CONSTRUCTION PERMIT. A MINIMUM 48 HOUR NOTICE SHALL BE GIVEN PRIOR TO PERMIT ISSUANCE.
15. 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.
16. 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. ALL INSPECTION OF STREET CONSTRUCTION TO BE PERFORMED BY THE CITY OF LEE'S SUMMIT PUBLIC WORKS DEVELOPMENT ENGINEERING.
3. CURB RETURN RADII SHALL BE 25' AT BACK OF CURB UNLESS OTHERWISE NOTED.
4. SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
5. ASSUMED DESIGN SPEED = 25 MPH (COLLECTOR).
6. MINIMUM STOPPING SIGHT DISTANCE = 155 FEET.
7. MINIMUM K, SAG CURVE = 26 (14 WITH LIGHTING), CREST CURVE = 12.
8. GRADE INTERSECTIONS TO DRAIN AS SHOWN.
9. SSD = STOPPING SIGHT DISTANCE.
10. ALL ADA SIDEWALK RAMPS SHALL BE CONSTRUCTED BY THE DEVELOPER WITH THE PUBLIC INFRASTRUCTURE.

EARTHWORK:

1. It is recommended that a Geotechnical Engineer observe and document all earthwork activities.
2. 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.
3. 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 2-20-19.The contour elevations provided may not be exact ground elevations, but rather interpretations of such. Accuracy shall be considered to be such that not more than 10 percent of spot elevation checks shall be in error by more than one-half the contour interval provided, as 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.
4. Proposed contours are to approximate finished grade.
5. 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.
6. Unless otherwise noted, all earthwork is considered Unclassified. No additional compensation will be provided for rock or shale excavation, unless specifically stated otherwise.
7. Prior to earthwork activities, pre-disturbance erosion and sediment control devices shall be in place per the Storm Water Pollution Prevention plan and/or the Erosion and Sediment Control Plan prepared for this site.
8. All topsoil shall be stripped from all areas to be graded and stockpiled adjacent to the site at an area specified by the project owner or his appointed representative. Vegetation, trash, trees, brush, tree roots and limbs, rock fragments greater then 6-inches and other deleterious materials shall be removed and properly disposed of offsite or as directed by the owner or his appointed representative.
9. Unless otherwise specified in the Geotechnical Report, all fills shall be placed in maximum 6-inch lifts and compacted to 95-percent of maximum density as defined using a standard proctor test (AASHTO T99/ASTM 698).
10. 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.
11. 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.
12. 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
13. 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.
14. All disturbed areas in the right-of-way shall be sodded.
15. Underdrains are recommended for all paved areas adjacent to irrigated turf and landscaped beds.
16. 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:

1. 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 Engineer.
2. 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's expense.
3. 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 structures.
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.
5. 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.
7. 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 Engineer.

SUMMARY OF QUANTITIES

	ITEM	QUANTITY	UNITS
1	CLEANING, GRUBBING, AND DISPOSAL	1	L.S.
2	GRADING	1	L.S.
3	SUBGRADE STABILIZATION (PUBLIC STREETS)	6603	S.Y.
4	6" CLEAN GRAVEL	1134	S.Y.
5	6" ASPHALT	5374	S.Y.
6	8" CONCRETE	1036	S.Y.
7	TYPE CG-2	3892	L.F.
8	5' SIDEWALK	678	L.F.
9	SIDEWALK RAMPS	10	EA.
10	15" HDPE	362	L.F.
11	18" HDPE	551	L.F.
12	24" HDPE	270	L.F.
13	30" HDPE	36	L.F.
14	36" HDPE	73	L.F.
15	54" RCP	93	L.F.
16	66" RCP	521	L.F.
17	4' x 4' GRATE INLET	4	EA.
18	5' DIA. MANHOLE	1	EA.
19	6' x 6' CURB INLET	1	EA.
20	6' x 4' CURB INLET	12	EA.
21	8' x 8' CURB INLET	1	EA.
22	6' x 10' CURB INLET	1	EA.
23	9' x 9' AREA INLET	2	EA.
24	36" HDPE END SECTION	1	EA.
25	66" RCP END SECTION	1	EA.
26	EROSION CONTROL	1	L.S.
27	SEEDING/MULCHING	1	L.S.
28	BONDS	1	L.S.

Sheet List Table

Sheet Number	Sheet Title
1	COVER SHEET
2	GENERAL LAYOUT
3	MASTER DRAINAGE PLAN - GRADING PLAN
4	MASTER DRAINAGE PLAN - LOT INFO
5	MASTER DRAINAGE PLAN - DRAINAGE MAP
6	MASTER DRAINAGE PLAN - DRAINAGE CALCS
7	PRE CONSTRUCTION EROSION CONTROL
8	EROSION CONTROL PLAN
9	POST CONSTRUCTION EROSION CONTROL
10	EROSION CONTROL DETAILS
11	EROSION CONTROL DETAILS
12	PERGOLA PARK DR
13	ALLEY 9
14	GALE DR.
15	SE MARY ST
16	SW REDBUCK CR
17	SW.ARMIE ST
18	ALLEY 8
19	INTERSECTION DETAILS
20	INTERSECTION DETAILS
21	STORM PLAN
22	STORM PROFILES
23	DETAIL SHEET
24	DETAIL SHEET
25	DETAIL SHEET
26	DETAIL SHEET
27	STREET SIGN PLAN
28	STREET SIGN DETAILS

PREPARED AND SUBMITTED BY:

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER

06.27.19
SCHLAGEL & ASSOCIATES, P.A.

APPROVED BY:

CITY ENGINEER — DATE
APPROVED FOR ONE YEAR FROM THIS DATE

OWNER/DEVELOPER:

NAI HEARTLAND
RUSSELL PEARSON
4400 COLLEGE BLVD , SUITE 170
OVERLAND PARK, KS 66211
p 913-362-1000
f 913-273-0205
RUSSELL@NAI-HEARTLAND.COM

MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

BM JA-148, IS A STAMPED KC METRO DISK SET IN CONCRETE LOCATED 2 MILES WEST OF THE INTERSECTION OF HIGHWAY 50 AND 3RD ST. IT IS 44 FT NORTH OF THE CENTER OF 3RD ST. AND 102.5 FT WEST OF THE CENTER OF THE EXIT FROM THE ADJACENT PARKING LOT.

ELEV. 935.18

PROJECT BENCHMARK:

CHISELED "SQUARE" ON STORM CURB INLET AT NORTHWEST INTERSECTION OF SW. TOWER PARK DRIVE AND SW. LONGVIEW BOULEVARD.

NORTHING: 998893.4148
EASTING: 2803318.5413
ELEV. 1004.09

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2002003800-F #LA2001005237 #LS2002008859-F

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

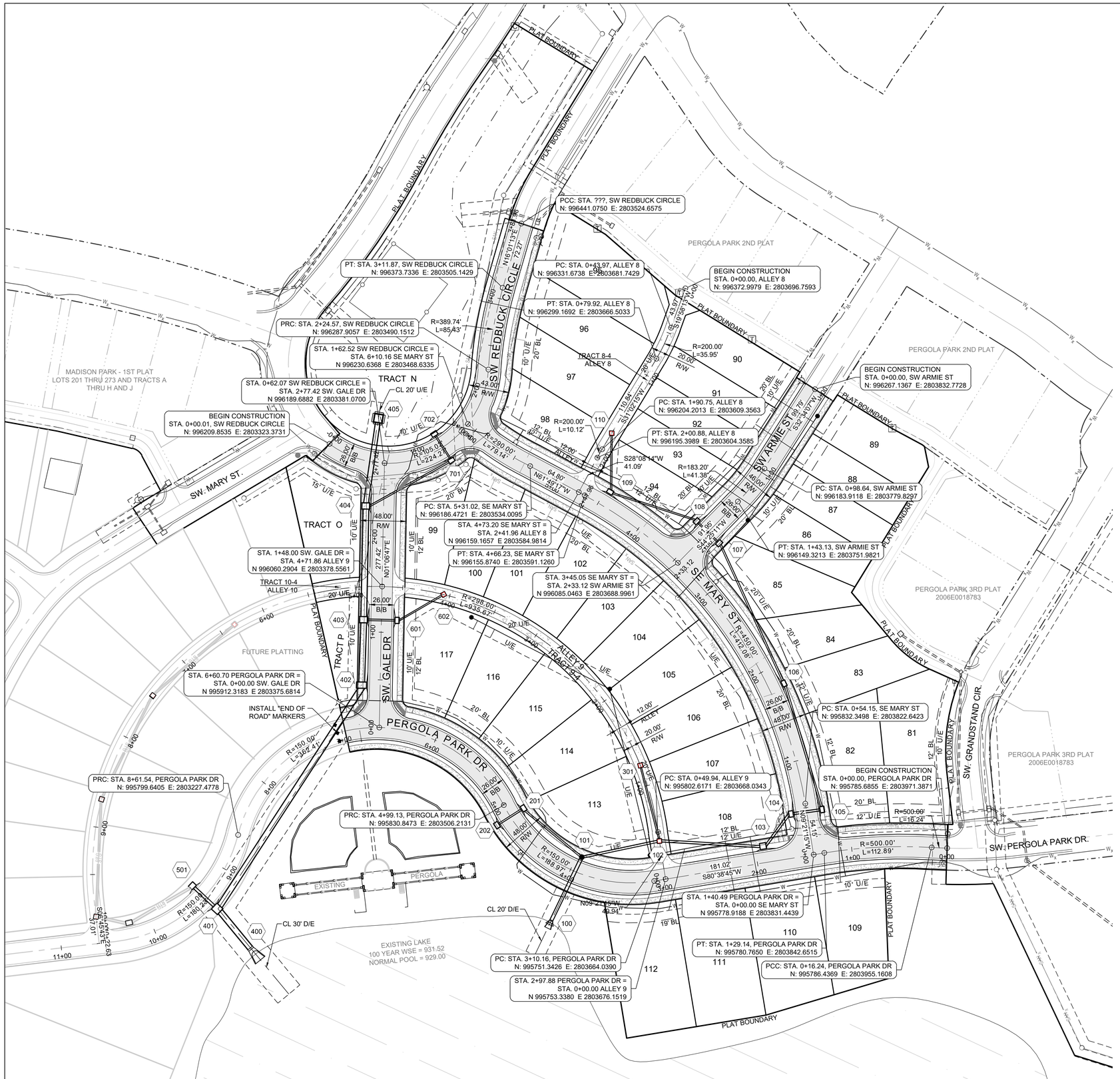
REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	
7	
8	

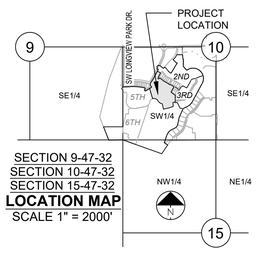
DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

COVER SHEET

SHEET 1 OF 28

I:\PROJECTS\2019\19-002\3.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-COVER.dwg, 6/28/2019 3:11:33 PM, 1:1





MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

BM JA-148, IS A STAMPED KC METRO DISK SET IN CONCRETE LOCATED 2 MILES WEST OF THE INTERSECTION OF HIGHWAY 50 AND 3RD ST. IT IS 44 FT NORTH OF THE CENTER OF 3RD ST. AND 102.5 FT WEST OF THE CENTER OF THE EXIT FROM THE ADJACENT PARKING LOT.

ELEV. 935.18

PROJECT BENCHMARK:

CHISELED "SQUARE" ON STORM CURB INLET AT NORTHWEST INTERSECTION OF SW. TOWER PARK DRIVE AND SW. LONGVIEW BOULEVARD.

NORTHING: 998893.4148
EASTING: 2803318.5413
ELEV. 1004.09

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2002003800-F #LA2001005237 #LS2002008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

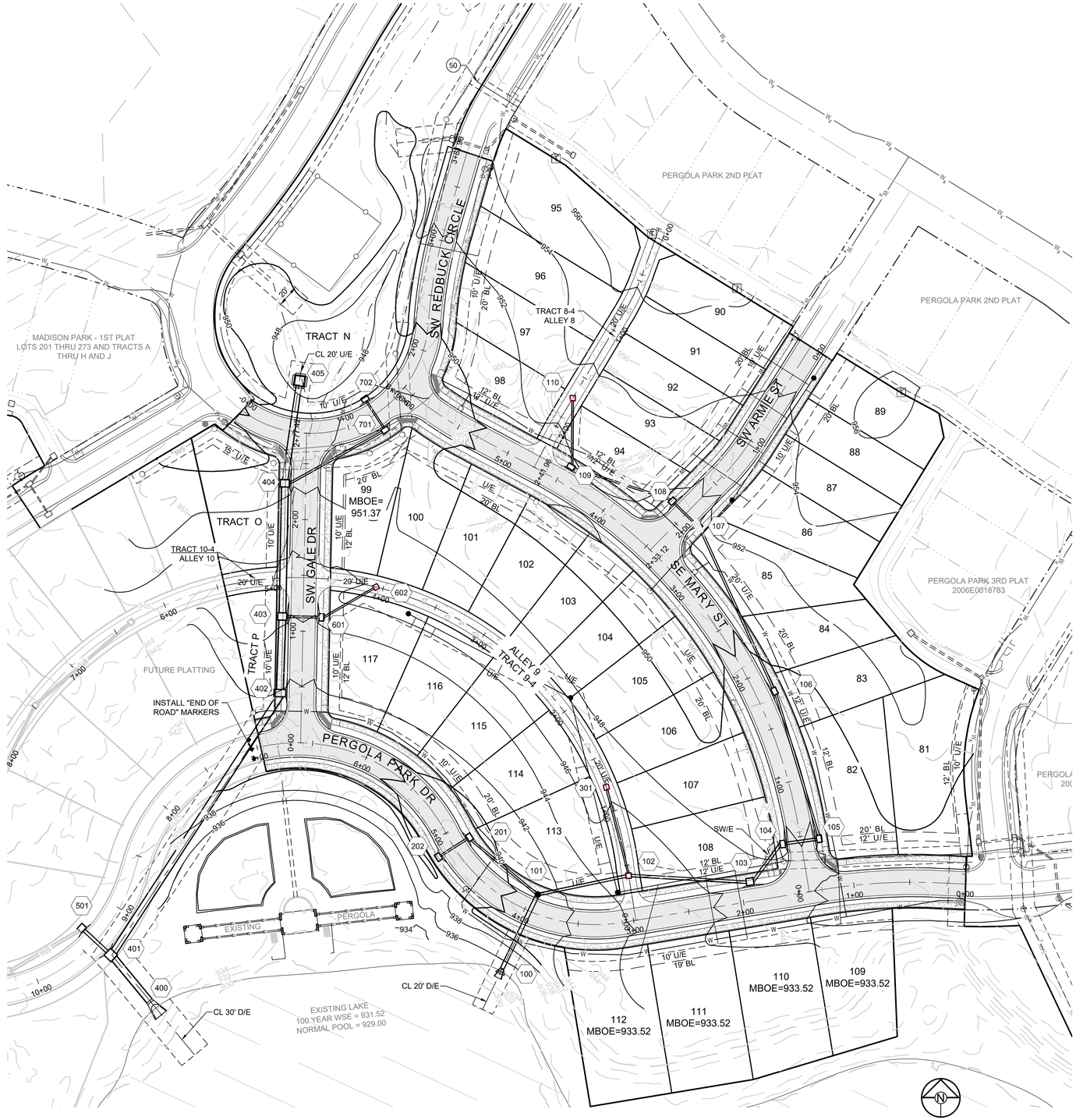
REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

GENERAL LAYOUT

SHEET 2 OF 28

I:\PROJECTS\2019\19-002\3.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-GEN.dwg, 6/26/2019 3:12:13 PM, 1:1



NOTE:

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

DENOTES LIMITS OF DISTURBANCE

DENOTES PROPOSED MAJOR CONTOUR

DENOTES PROPOSED MINOR CONTOUR

DENOTES EXISTING MAJOR CONTOUR

DENOTES EXISTING MINOR CONTOUR

MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

BM JA-148, IS A STAMPED KC METRO DISK SET IN CONCRETE LOCATED 2 MILES WEST OF THE INTERSECTION OF HIGHWAY 50 AND 3RD ST. IT IS 44 FT NORTH OF THE CENTER OF 3RD ST. AND 102.5 FT WEST OF THE CENTER OF THE EXIT FROM THE ADJACENT PARKING LOT.

ELEV. 935.18

PROJECT BENCHMARK:

CHISELED "SQUARE" ON STORM CURB INLET AT NORTHWEST INTERSECTION OF SW. TOWER PARK DRIVE AND SW. LONGVIEW BOULEVARD.

NORTHING: 998893.4148
EASTING: 2803318.5413
ELEV. 1004.09

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000003800-F #LA2001005237 #LS2002008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	
7	
8	

DRAWN BY:	BAL
CHECKED BY:	MAB
DATE PREPARED:	4-15-19
PROJ. NUMBER:	19-002

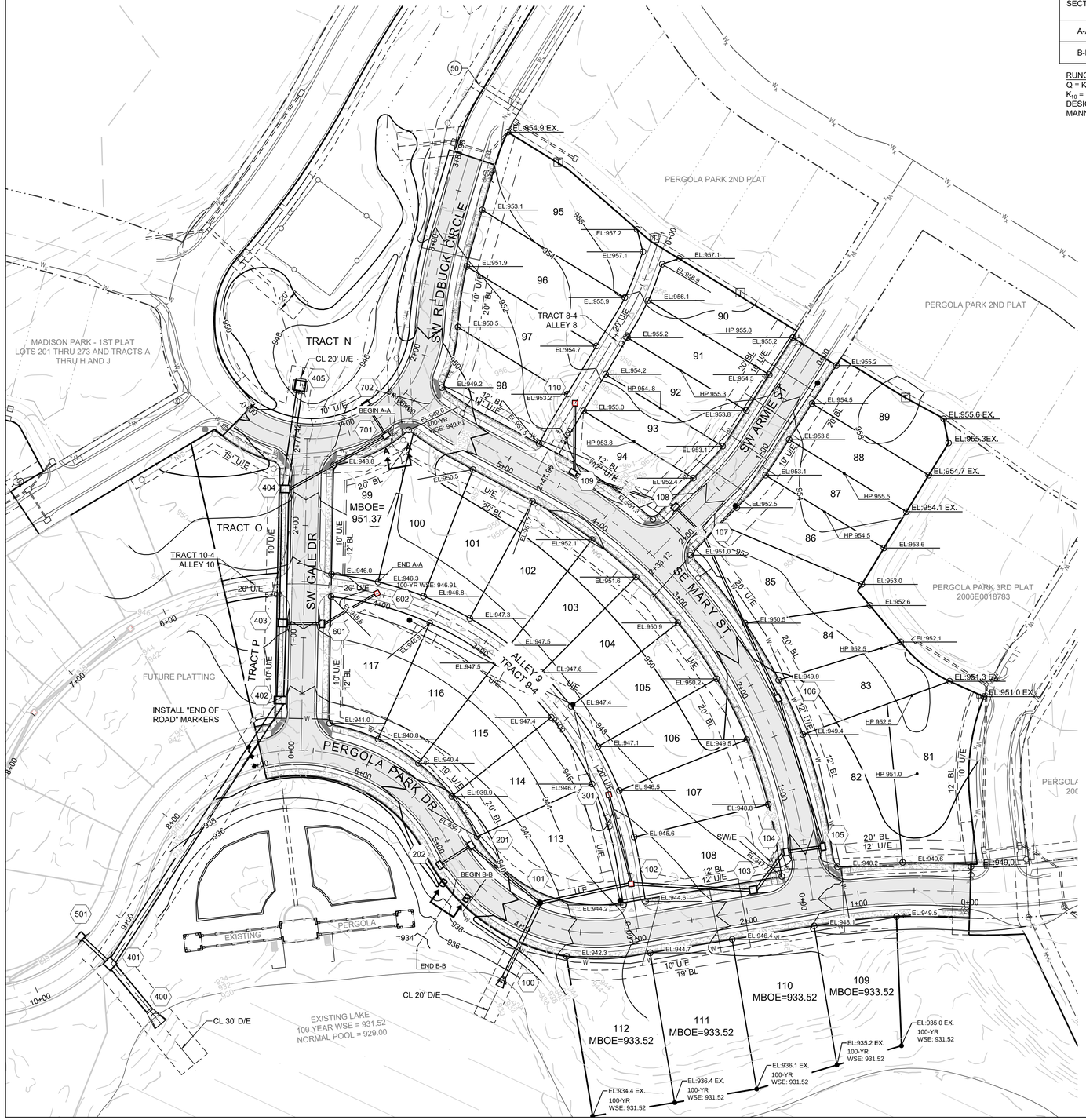
MASTER DRAINAGE PLAN - GRADING PLAN

SHEET

3

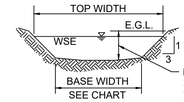
OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-GRAD.dwg, 6/26/2019 3:12:26 PM, 1:1



NOTES:

1. MBOE = MINIMUM BUILDING OPENING ELEVATION FOR HOUSES ADJACENT TO ENGINEERED OVERFLOW SWALES SHALL BE MINIMUM 2 FEET ABOVE THE 100 YR WATER SURFACE ELEVATION.
2. EGL = ENERGY GRADE LINE (100 YR)
3. WSE = WATER SURFACE ELEVATION (100 YR)
4. ENGINEERED SWALES TO BE GRADED TO NORMAL DEPTH OF FLOW (WATER SURFACE ELEVATION) OR 1.0 FT, WHICHEVER IS GREATER. MINIMUM SLOPE OF ENGINEERED SWALES SHALL BE AS NOTED.
5. MBOE'S ADJACENT TO SUMPED INLETS SHALL BE A MINIMUM OF 1' ABOVE TOP OF ADJACENT BERM



100 YR OVERFLOW SWALE SECTIONS

SECTION 1-2

100 YEAR OVERFLOW SWALES												
SECTION	DRAINAGE AREA (AC.)	Q100 (CFS)	Q10 (CFS)	DESIGN OVERFLOW (CFS)	BED SLOPE (%)	BASE WIDTH (FT.)	SIDE SLOPE	TOP WIDTH (FT.)	NORMAL DEPTH (FT.)	VELOCITY (FPS)	VELOCITY HEAD (FT.)	EGL (FT.)
A-A	2.16	18.39	-	18.3900	2.13	5	3:1	8.68	0.61	4.39	0.30	0.91
B-B	6.93	59.00	-	59.0000	7.25	10	3:1	13.55	0.59	8.48	1.12	1.71

RUNOFF CALCULATIONS:
Q = K * C * I * A
K_{10} = 1.0 K_{100} = 1.25 C = 0.51 I = INTENSITY
DESIGN OVERFLOW=$Q_{OVERFLOW}$ = Q_{100} - Q_{10}
MANNINGS "n" = .030 FOR SWALES

LOT TYPE TABLE		
LOT #	BASEMENT TYPE	MBOE
81	STANDARD	953.00
82	STANDARD	952.50
83	STANDARD	953.00
84	STANDARD	953.00
85	STANDARD	954.00
86	STANDARD	955.00
87	STANDARD	956.00
88	STANDARD	957.00
89	STANDARD	957.00
90	STANDARD	958.00
91	STANDARD	957.50
92	STANDARD	957.00
93	STANDARD	956.50
94	STANDARD	955.50
95	STANDARD	957.50
96	STANDARD	957.00
97	STANDARD	955.00
98	STANDARD	953.50
99	STANDARD	951.37
100	STANDARD	951.50
101	STANDARD	952.00
102	STANDARD	952.00
103	STANDARD	952.00
104	STANDARD	952.00
105	STANDARD	952.00
106	STANDARD	951.50
107	STANDARD	950.50
108	STANDARD	949.50
109	WALKOUT	933.52
110	WALKOUT	933.52
111	WALKOUT	933.52
112	DAYLIGHT	933.52
113	STANDARD	947.50
114	STANDARD	948.50
115	STANDARD	949.00
116	STANDARD	948.50
117	STANDARD	948.00

A A — DENOTES OVERFLOW SWALE

EL:000.00 — DENOTES FINISHED GRADE ELEVATION

EL:000.00 (EX.) — DENOTES EXISTING GRADE ELEVATION

HP 000.00 — DENOTES LOT HIGH POINT ELEVATION

DENOTES RETAINING WALL

MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

BM JA-148, IS A STAMPED KC METRO DISK SET IN CONCRETE LOCATED 2 MILES WEST OF THE INTERSECTION OF HIGHWAY 50 AND 3RD ST. IT IS 44 FT NORTH OF THE CENTER OF 3RD ST. AND 102.5 FT WEST OF THE CENTER OF THE EXIT FROM THE ADJACENT PARKING LOT.

ELEV. 935.18

PROJECT BENCHMARK:

CHISELED "SQUARE" ON STORM CURB INLET AT NORTHWEST INTERSECTION OF SW. TOWER PARK DRIVE AND SW. LONGVIEW BOULEVARD.

NORTHING: 998893.4148
EASTING: 2803318.5413
ELEV. 1004.09

SCALE: 1" = 50'

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2002003800-F #LA2001005237 #LS2002008859-F

MARK ALLEN BREUER — NUMBER PE-2009007266 — STATE OF MISSOURI — PROFESSIONAL ENGINEER

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

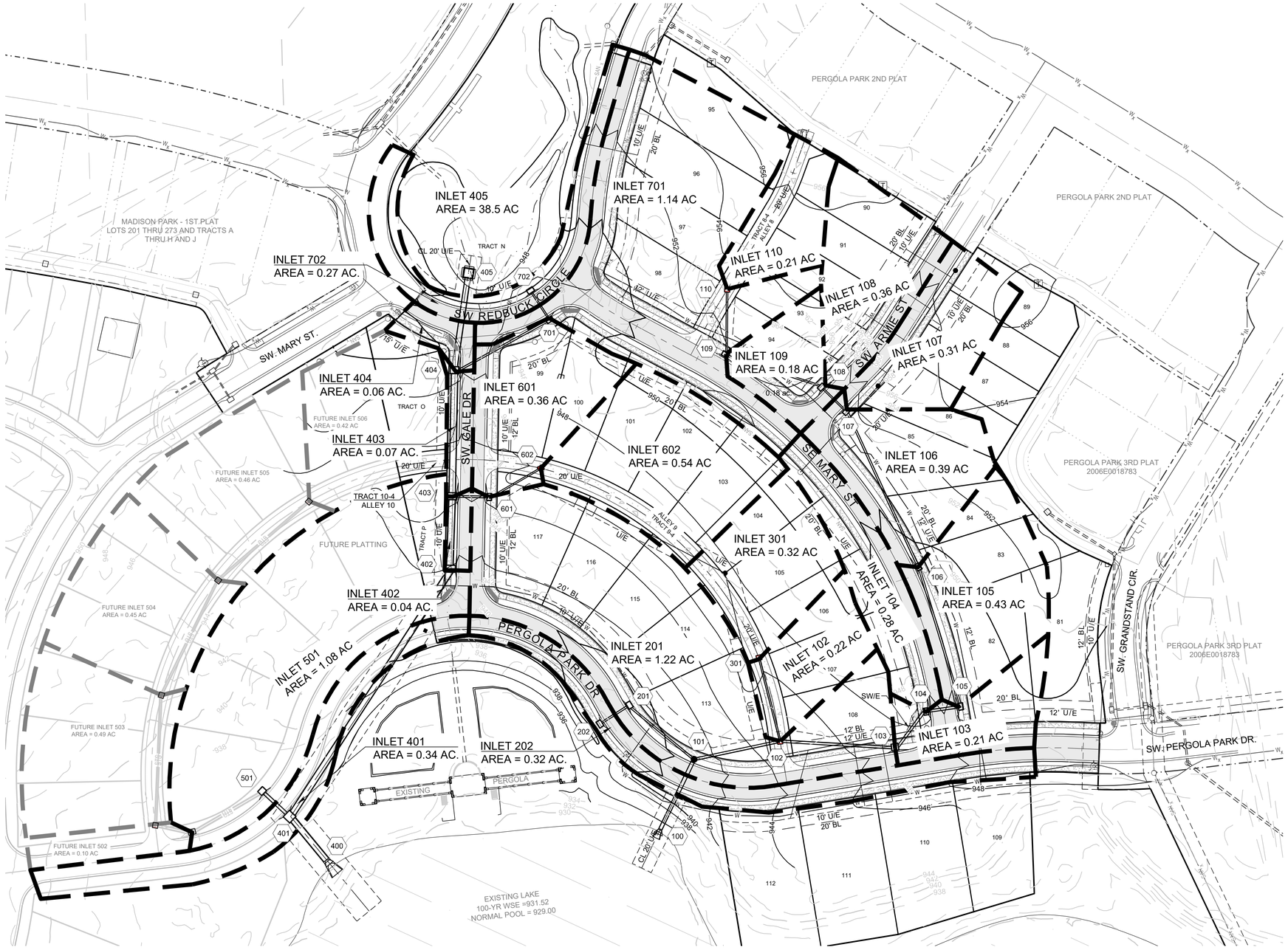
REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

MASTER DRAINAGE PLAN - LOT INFO

SHEET 4 OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-GRAD.dwg, 6/26/2019 3:12:35 PM, 1:1



0 50' 100'

SCALE: 1" = 50'

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2002008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	

DRAWN BY:	BAL
CHECKED BY:	MAB
DATE PREPARED:	4-15-19
PROJ. NUMBER:	19-002

MASTER
DRAINAGE PLAN
- DRAINAGE MAP

SHEET
5
OF 28

I:\PROJECTS\2019\19-002\3.0 Design\3.0 DWG Plans\4.0 SS\19-002-SS-DRAINAGE-AREA.dwg, 6/26/2019 3:13:04 PM, 1:1

GUTTER SPREAD AND INLET CAPACITY CALCULATIONS - PERGOLA PARK 4TH PLAT

DESIGN STORM 10 — CURB TYPE "A" = LAZY BACK
"K" FACTOR 1.00 — CURB TYPE "B" = HIGH BACK

RUNOFF CALCULATIONS													INLET DESIGN							GUTTER DESIGN			
INLET #	COMPOSITE "C"	AREA	INLET Tc	INTENSITY	RUNOFF	UPSTREAM INLET	UPSTREAM INLET	UPSTREAM INLET	UPSTREAM INLET	BYPASS FROM UPSTREAM INLET	TOTAL RUNOFF	STREET GRADE	STREET CROSS SLOPE	CURB TYPE	INLET LENGTH	EFFECTIVE LENGTH 80% CAP	INLET INTERCEPTION	BYPASS TO DOWNSTREAM INLET	STREET GRADE	STREET CROSS SLOPE	DEPTH AT CURB	SPREAD OF FLOW
LINE 1																							
102	0.66	0.22	5	7.35	1.07	301				0.22	1.29	1.56	2.08	A	4	3.2	1.11	0.18	1.56	2.08	0.14	**7.27**
103	0.66	0.21	5	7.35	1.02	104				0.09	1.10	2.18	2.08	A	6	4.8	0.98	0.12	2.18	2.08	0.12	**6.50**
104	0.66	0.28	5	7.35	1.36					0.00	1.36	1.10	2.08	A	6	4.8	1.27	0.09	1.10	2.08	0.15	**7.87**
105	0.66	0.43	5	7.35	2.09	106				0.22	2.30	1.10	2.08	A	6	4.8	1.98	0.33	1.10	2.08	0.19	**9.49**
106	0.66	0.39	5	7.35	1.89	107				0.19	2.08	1.10	2.08	A	6	4.8	1.86	0.22	1.10	2.08	0.18	**9.15**
107	0.66	0.31	5	7.35	1.50					0.00	1.50	1.71	2.08	A	6	4.8	1.31	0.19	1.71	2.08	0.15	**7.55**
108	0.66	0.36	5	7.35	1.75					0.00	1.75	1.71	2.08	A	6	4.8	1.49	0.26	1.71	2.08	0.16	**7.96**
109	0.66	0.18	5	7.35	0.87	108				0.26	1.13	4.00	2.08	A	6	4.8	0.97	0.16	4.00	2.08	0.11	**5.90**
110	0.66	0.21	5	7.35	1.02					0.00	1.02	4.00	2.08	A	4	3.2	0.81	0.20	4.00	2.08	0.11	**5.69**
LINE 2																							
201	0.66	1.22	5	7.35	5.92	102	103	601		0.84	6.76	SUMP	2.08	A	6	4.8	16.80	0.00	SUMP	2.08	< 0.21	**< 10.50**
202	0.66	0.32	5	7.35	1.55					0.00	1.55	SUMP	2.08	A	6	4.8	16.80	0.00	SUMP	2.08	< 0.21	**< 10.50**
LINE 3																							
301	0.66	0.32	5	7.35	1.55					0.00	1.55	1.56	2.08	A	4	3.2	1.33	0.22	1.56	2.08	0.15	**7.76**
LINE 4																							
401	0.66	0.34	5	7.35	1.65					0.00	1.65	SUMP	2.08	A	8	6.4	17.92	0.00	SUMP	2.08	< 0.21	**< 10.50**
402	0.66	0.04	5	7.35	0.19	403				0.02	0.21	3.24	2.08	A	6	4.8	0.20	0.00	3.24	2.08	0.06	**3.48**
403	0.66	0.07	5	7.35	0.34	404				0.01	0.35	3.24	2.08	A	6	4.8	0.33	0.02	3.24	2.08	0.08	**4.12**
404	0.66	0.06	5	7.35	0.29					0.00	0.29	3.24	2.08	A	6	4.8	0.28	0.01	3.24	2.08	0.07	**3.88**
LINE 5																							
501	0.66	1.08	5	7.35	5.24	402	FUT 502			0.19	5.42	SUMP	2.08	A	6	4.8	13.44	0.00	SUMP	2.08	< 0.21	**< 10.50**
FUT 502	0.66	0.10	5	7.35	0.49	FUT 503				0.87	1.36	2.12	2.08	A	6	4.8	1.18	0.18	2.12	2.08	0.14	**7.01**
FUT 503	0.66	0.49	5	7.35	2.38	FUT 504				0.73	3.11	1.49	2.08	A	4	3.2	2.24	0.87	1.49	2.08	0.20	**10.00**
FUT 504	0.66	0.45	5	7.35	2.18	FUT 505				0.63	2.81	1.49	2.08	A	4	3.2	2.08	0.73	1.49	2.08	0.19	**9.65**
FUT 505	0.66	0.46	5	7.35	2.23	FUT 506				0.35	2.58	1.49	2.08	A	4	3.2	1.95	0.63	1.49	2.08	0.18	**9.36**
FUT 506	0.66	0.42	5	7.35	2.04					0.00	2.04	1.12	2.08	A	4	3.2	1.69	0.35	1.12	2.08	0.18	**9.05**
LINE 6																							
601	0.66	0.36	5	7.35	1.75	602				0.48	2.23	3.24	2.08	A	6	4.8	1.70	0.53	3.24	2.08	0.15	**7.75**
602	0.66	0.54	5	7.35	2.62					0.00	2.62	1.12	2.08	A	4	3.2	2.14	0.48	1.12	2.08	0.20	**9.90**
LINE 7																							
701	0.66	1.14	5	7.35	5.53					0.00	5.53	SUMP	2.08	A	6	4.8	16.80	0.00	SUMP	2.08	< 0.21	**< 10.50**
702	0.66	0.27	5	7.35	1.31					0.00	1.31	SUMP	2.08	A	6	4.8	16.80	0.00	SUMP	2.08	< 0.21	**< 10.50**

FUTURE LINE

NOTES:
1. CAPACITY OF INLETS ON GRADE DETERMINED USING ROUTINE OUTLINED ON PGS 56-95 TO 56-97, SECTION 5600 APWA
2. CAPACITY OF SUMP INLETS CALCULATED USING FIGURE 5604-21, SECTION 5600 APWA
3. MANNINGS "n" VALUE FOR COMBINED ASPHALT PAVEMENT AND CONCRETE CURB - 0.014

10 YEAR RUNOFF CALCULATIONS

Design Storm: 10
"K" Value: 1.00
"F" Factor: 1.00

Runoff Calculations														Pipe Properties										
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. CxA	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap.	Pipe Vel.	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up CxA	Up Inlet	Down Inlet	Pipe Type	"n" Value	Pipe Size	Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top	HGL Elev.
LINE 100																									DS TAILWATER @ STR #100	929.00
101	0.00	0.66	4.45	2.94	7.1	6.76	0.00	19.87	69.95	9.90	201		1.54	1.02	101	100	RCP	0.013	36	73.29	1.10	4.00	929.31	928.50	940.87	931.01
102	0.22	0.66	2.91	1.92	7.0	6.79	0.99	13.04	47.77	15.21	301		0.32	0.21	102	101	HDPE	0.012	24	83.24	3.80	0.50	936.47	933.31	944.65	938.05
103	0.21	0.66	2.37	1.56	6.7	6.86	0.95	10.73	20.50	6.53			0.00	0.00	103	102	HDPE	0.012	24	108.82	0.70	0.50	937.73	936.97	946.89	939.15
104	0.28	0.66	2.16	1.43	6.6	6.89	1.27	9.82	23.25	7.40			0.00	0.00	104	103	HDPE	0.012	24	44.75	0.90	0.50	938.63	938.23	948.15	939.98
105	0.43	0.66	1.88	1.24	6.5	6.92	1.96	8.58	18.18	5.79			0.00	0.00	105	104	HDPE	0.012	24	33.01	0.55	0.50	939.32	939.13	948.14	940.57
106	0.39	0.66	1.45	0.96	6.2	7.00	1.80	6.70	12.97	7.34			0.00	0.00	106	105	HDPE	0.012	18	138.15	1.30	0.50	941.61	939.82	949.61	942.83
107	0.31	0.66	1.06	0.70	5.7	7.14	1.46	5.00	9.86	5.58			0.00	0.00	107	106	HDPE	0.012	18	162.07	0.75	0.50	943.33	942.11	951.73	944.36
108	0.36	0.66	0.75	0.50	5.6	7.17	1.70	3.55	7.00	5.70			0.00	0.00	108	107	HDPE	0.012	15	33.00	1.00	0.50	944.16	943.83	951.73	945.07
109	0.18	0.66	0.39	0.26	5.2	7.28	0.87	1.87	5.19	4.23			0.00	0.00	109	108	HDPE	0.012	15	95.94	0.55	2.50	945.18	944.66	951.19	945.83
110	0.21	0.66	0.21	0.14	5.0	7.35	1.02	1.02	5.42	4.42			0.00	0.00	110	109	HDPE	0.012	15	61.51	0.60	N/A	948.05	947.68	952.82	948.52
LINE 200																						Drop in Inlet 101	1.50			
201	1.22	0.66	1.54	1.02	5.1	7.32	5.90	7.44	14.39	8.15			0.00	0.00	201	101	HDPE	0.012	18	79.83	1.60	0.50	932.08	930.81	939.46	933.38
202	0.32	0.66	0.32	0.21	5.0	7.35	1.55	1.55	9.86	5.58			0.00	0.00	202	201	HDPE	0.012	18	33.00	0.75	N/A	932.83	932.58	939.46	933.40
LINE 300																						Drop in Inlet 102	0.75			
301	0.32	0.66	0.32	0.21	5.0	7.35	1.55	1.55	13.64	11.12			0.00	0.00	301	102	HDPE	0.012	15	81.86	3.80	N/A	940.33	937.22	946.29	940.92
LINE 400																									DS TAILWATER @ STR #400	929.00
401	0.34	0.66	44.32	29.25	15.1	5.16	1.16	150.90	270.74	11.40	501		3.00	1.98	401	400	RCP	0.013	66	53.87	0.65	0.50	928.13	927.78	936.95	932.29
402	0.04	0.66	40.98	27.05	14.7	5.22	0.14	141.30	260.12	10.95			0.00	0.00	402	401	RCP	0.013	66	279.37	0.60	0.50	930.31	928.63	942.17	934.31
403	0.07	0.66	40.94	27.02	14.6	5.24	0.24	141.61	260.12	10.95	601		0.90	0.59	403	402	RCP	0.013	66	68.66	0.60	0.50	931.22	930.81	944.40	935.23
404	0.06	0.66	39.97	26.38	14.4	5.27	0.21	139.04	249.04	10.48	701		1.41	0.93	404	403	RCP	0.013	66	119.40	0.55	1.00	932.38	931.72	948.28	936.34
405	38.50	0.66	38.50	25.41	14.3	5.29	134.34	134.34	240.84	15.14			0.00	0.00	405	404	RCP	0.013	54	92.89	1.50	N/A	934.77	933.38	946.50	939.02
LINE 500																						Drop in Inlet 401	3.00			
501	1.08	0.66	3.00	1.98	6.3	6.96	4.96	13.78	34.42	7.01			0.00	0.00	501	401	HDPE	0.012	30	35.50	0.60	0.50	931.34	931.13	936.92	932.84
FUT 502	0.10	0.66	1.92	1.27	6.2	7.00	0.46	8.88	25.70	8.18			0.00	0.00	FUT 502	501	HDPE	0.012	24	76.93	1.10	0.50	932.69	931.84	938.01	933.97
FUT 503	0.49	0.66	1.82	1.20	6.1	7.02	2.27	8.44	25.70	8.18			0.00	0.00	FUT 503	FUT 502	HDPE	0.012	24	35.15	1.10	0.50	933.58	933.19	938.71	934.82
FUT 504	0.45	0.66	1.33	0.88	5.8	7.11	2.11	6.24	12.47	7.05			0.00	0.00	FUT 504	FUT 503	HDPE	0.012	18	123.35	1.20	0.50	935.56	934.08	940.55	936.73
FUT 505	0.46	0.66	0.88	0.58	5.4	7.23	2.20	4.20	8.44	4.78			0.00	0.00	FUT 505	FUT 504	HDPE	0.012	18	121.26	0.55	0.50	936.72	936.06	942.25	937.67
FUT 506	0.42	0.66	0.42	0.28	5.0	7.35	2.04	2.04	8.44	4.78			0.00	0.00	FUT 506	FUT 505	HDPE	0.012	18	113.83	0.55	N/A	937.85	937.22	943.60	938.49
LINE 600																						Drop in Inlet 403	4.00			
601	0.36	0.66	0.90	0.59	5.1	7.32	1.74	4.35	19.71	11.15			0.00	0.00	601	403	HDPE	0.012	18	36.00	3.00	0.50	936.30	935.22	944.34	937.32
602	0.54	0.66	0.54	0.36	5.0	7.35	2.62	2.62	12.12	9.88			0.00	0.00	602	601	HDPE	0.012	15	55.86	3.00	N/A	938.47	936.80	946.14	939.25
LINE 700																						Drop in Inlet 404	8.00			
701	1.14	0.66	1.41	0.93	5.1	7.31	5.50	6.81	12.97	7.34			0.00	0.00	701	404	HDPE	0.012	18	102.48	1.30	0.50	941.71	940.38	949.08	942.94
702	0.27	0.66	0.27	0.18	5.0	7.35	1.31	1.31	5.19	4.23			0.00	0.00	702	701	HDPE	0.012	15	33.00	0.55	N/A	942.39	942.21	949.08	942.99

100 YEAR RUNOFF CALCULATIONS

Design Storm: 100
"K" Value: 1.25
"F" Factor: 1.00

Runoff Calculations														Pipe Properties										
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. CxA	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap.	Pipe Vel.	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up CxA	Up Inlet	Down Inlet	Pipe Type	"n" Value	Pipe Size	Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top	HGL Elev.
LINE 100																									DS TAILWATER @ STR #100	931.52
101	0.00	0.66	4.45	2.94	7.1	9.53	0.00	34.98	69.95	9.90	201		1.54	1.02	101	100	RCP	0.013	36	73.29	1.10	4.00	929.31	928.50	940.87	931.77
102	0.22	0.66	2.91	1.92	7.0	9.56	1.74	22.95	47.77	15.21	301		0.32	0.21	102	101	HDPE	0.012	24	83.24	3.80	0.50	936.47	933.31	944.65	938.68
103	0.21	0.66	2.37	1.56	6.7	9.66	1.67	18.89	20.50	6.53			0.00	0.00	103	102	HDPE	0.012	24	108.82	0.70	0.50	937.73	936.97	946.89	939.69
104	0.28	0.66	2.16	1.43	6.6	9.70	2.24	17.28	23.25	7.40			0.00	0.00	104	103	HDPE	0.012	24	44.75	0.90	0.50	938.63	938.23	948.15	940.50
105	0.43	0.66	1.88	1.24	6.5	9.73	3.45	15.09	18.18	5.79			0.00	0.00	105	104	HDPE	0.012	24	33.01	0.55	0.50	939.32	939.13	948.14	941.04
106	0.39	0.66	1.45	0.96	6.2	9.85	3.17	11.78	12.97	7.34			0.00	0.00	106	105	HDPE	0.012	18	138.15	1.30	0.50	941.61	939.82	949.61	943.32
107	0.31	0.66	1.06	0.70	5.7	10.04	2.57	8.78	9.86	5.58			0.00	0.00	107	106	HDPE	0.012	18	162.07	0.75	0.50	943.33	942.11	951.73	944.76
108	0.36	0.66	0.75	0.50	5.6	10.07	2.99	6.23	7.00	5.70			0.00	0.00	108	107	HDPE	0.012	15	33.00	1.00	0.50	944.16	943.83	951.73	945.43
109	0.18	0.66	0.39	0.26	5.2	10.23	1.52	3.29	5.19	4.23			0.00	0.00	109	108	HDPE	0.012	15	95.94	0.55	2.50	945.18	944.66	951.19	946.07
110	0.21	0.66	0.21	0.14	5.0	10.32	1.79	1.79	5.42	4.42			0.00	0.00	110	109	HDPE	0.012	15	61.51	0.60	N/A	948.05	947.68	952.82	948.68
LINE 200																						Drop in Inlet 101	1.50			
201	1.22	0.66	1.54	1.02	5.1	10.28	10.35	13.06	14.39	8.15			0.00	0.00	201	101	HDPE	0.012	18	79.83	1.60	0.50	932.08	930.81	939.46	933.91
202	0.32	0.66	0.32	0.21	5.0	10.32	2.73	2.73	9.86	5.58			0.00	0.00	202	201	HDPE	0.012	18	33.00	0.75	N/A	932.83	932.58	939.46	933.94
LINE 300																						Drop in Inlet 102	0.75			
301	0.32	0.66	0.32	0.21	5.0	10.32	2.73	2.73	13.64	11.12			0.00	0.00	301	102	HDPE	0.012	15	81.86	3.80	N/A	940.33	937.22	946.29	941.12
LINE 400																									DS TAILWATER @ STR #400	931.52
401	0.34	0.66	44.32	29.25	15.1	7.33	2.06	268.04	270.74	11.40	501		3.00	1.98	401	400	RCP	0.013	66	53.87	0.65	0.50	928.13	927.78	936.95	933.94
402	0.04	0.66	40.98	27.05	14.7	7.42	0.24	250.89	260.12	10.95			0.00	0.00	402	401	RCP	0.013	66	279.37	0.60	0.50	930.31	928.63	942.17	936.04
403	0.07	0.66	40.94	27.02	14.6	7.44	0.43	251.41	260.12	10.95	601		0.90	0.59	403	402	RCP	0.013	66	68.66	0.60	0.50	931.22	930.81	944.40	937.25
404	0.06	0.66	39.97	26.38	14.4	7.48	0.37	246.82	249.04	10.48	701		1.41	0.93	404	403	RCP	0.013	66	119.40	0.55	1.00	932.38	931.72	948.28	938.73
405	38.50	0.66	38.50	25.41	14.3	7.51	238.45	238.45	240.84	15.14			0.00	0.00	405	404	RCP	0.013	54	92.89	1.50	N/A	934.77	933.38	946.50	941.85
LINE 500																						Drop in Inlet 401	3.00			
501	1.08	0.66	3.00	1.98	6.3	9.79	8.73	24.24	34.42	7.01			0.00	0.00	501	401	HDPE	0.012	30	35.50	0.60	0.50	931.34	931.13	936.92	934.24
FUT 502	0.10	0.66	1.92	1.27	6.2	9.85	0.81	15.61	25.70	8.18			0.00	0.00	FUT 502	501	HDPE	0.012	24	76.93	1.10	0.50	932.69	931.84	938.01	934.72
FUT 503	0.49	0.66	1.82	1.20	6.1	9.88	3.99	14.83	25.70	8.18			0.00	0.00	FUT 503	FUT 502	HDPE	0.012	24	35.15	1.10	0.50	933.58	933.19	938.71	935.28
FUT 504	0.45	0.66	1.33	0.88	5.8	9.99	3.71	10.96	12.47	7.05			0.00	0.00	FUT 504	FUT 503	HDPE	0.012	18	123.35	1.20	0.50	935.56	934.08	940.55	937.19
FUT 505	0.46	0.66	0.88	0.58	5.4	10.16	3.86	7.38	8.44	4.78			0.00	0.00	FUT 505	FUT 504	HDPE	0.012	18	121.26	0.55	0.50	936.72	936.06	942.25	938.03
FUT 506	0.42	0.66	0.42	0.28	5.0	10.32	3.58	3.58	8.44	4.78			0.00	0.00	FUT 506	FUT 505	HDPE	0.012	18	113.83	0.55	N/A	937.85	937.22	943.60	938.71
LINE 600																						Drop in Inlet 403	4.00			
601	0.36	0.66	0.90	0.59	5.1	10.28	3.05	7.64	19.71	11.15			0.00	0.00	601	403	HDPE	0.012	18	36.00	3.00	0.50	936.30	935.22	944.34	937.62
602	0.54	0.66	0.54	0.36	5.0	10.32	4.60	4.60	12.12	9.88			0.00	0.00	602	601	HDPE	0.012	15	55.86	3.00	N/A	938.47	936.80	946.14	939.54
LINE 700																						Drop in Inlet 404	8.00			
701	1.14	0.66	1.41	0.93	5.1	10.27	9.66	11.95	12.97	7.34			0.00	0.00	701	404	HDPE	0.012	18	102.48	1.30	0.50	941.71	940.38	949.08	943.43
702	0.27	0.66	0.27	0.18	5.0	10.32	2.30	2.30	5.19	4.23			0.00	0.00	702	701	HDPE	0.012	15	33.00	0.55	N/A	942.39	942.21	949.08	943.49

FUTURE LINE

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2002003800-F #LA2001005237 #LS2002008859-F

MARK ALLEN BREUER — NUMBER PE-2005007268 — STATE OF MISSOURI — PROFESSIONAL ENGINEER

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT
CONTROL
- LEE'S SUMMIT, MISSOURI

DESCRIPTION	REVISION DATE
CITY COMMENTS	6-26-19

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

MASTER DRAINAGE PLAN - DRAINAGE CALCS

SHEET 6 OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-DRAINAGE-AREA.dwg, 6/26/2019 3:13:08 PM, 1:1

LEGEND

- TEMP. CONSTRUCTION ENTRANCE AND STAGING AREA
- CONCRETE WASHOUT AREA
- SILT FOAM DIKE - STAKED & INSTALL PER MFR'S RECOMMENDATIONS
- BMP PLAN REF. NO.
- SILT FENCE FOR INLET PROTECTION PRIOR TO STRUCTURE TOP
- SUPER SEDIMENT SILT FENCE (PRIOR TO LAND DISTURBANCE)
- SILT FENCE (PRIOR TO LAND DISTURBANCE)
- SILT FENCE (DURING CONSTRUCTION)
- LIMITS OF DISTURBANCE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY

DISTURBED AREA = 9.01 A.C.

SITE SPECIFIC NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
2. THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
3. NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBER 29095C0414G DATED JANUARY 20TH, 2017.
4. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
5. 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.
6. 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.
9. AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.

EROSION AND SEDIMENT CONTROL STAGING CHART

	PROJECT STAGE	BMP PLAN REF. NO	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
PRE-CLEARING PHASE	A - PRIOR TO LAND DISTURBANCE	1	CONSTRUCTION ENTRANCE & STAGING AREA	D	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		2	SUPER SEDIMENT FENCE	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		3	SILT FENCE (PRIOR TO LAND DISTURBANCE)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
CONSTRUCTION PHASE	B - MASS GRADING	4	SILT FENCE (DURING CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
	C - UTILITY CONSTRUCTION	5	CONCRETE WASHOUT AREA	E	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		6	INLET PROTECTION (SILT FENCE)	D/E	PLACE SILT FENCE AROUND ALL STORM SEWER STRUCTURES / YARD AREA STORM STRUCTURES TO HAVE SILT FENCE REMOVED ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
FINAL STABILIZATION PHASE	D - AFTER PAVING OPERATIONS	7	INLET PROTECTION (GRAVEL FILTER BAGS)	E	BOARDS SHALL BE PLACED IN FRONT OF INLET OPENING FROM THE TIME SILT FENCE IS REMOVED UNTIL SUCH TIME THAT THE CURB / THROAT IS POURED. PLACE GRAVEL FILTER BAGS AT THE OPENING OF ALL CURB INLETS IMMEDIATELY AFTER THE INLET THROATS ARE POURED
		8	SILT FENCE (AFTER CURB CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		9	SEEDING AND MULCHING	E	ALL DISTURBED AREAS AFTER 14 DAYS OF CONSTRUCTION INACTIVITY
	E - UNTIL CLOSURE OF LAND DISTURBANCE PERMIT				ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY BE REQUIRED ANY TIME CURRENT MEASURES ARE FOUND TO BE INEFFECTIVE.

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000200380-F #LA2001005237 #LS2000208859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

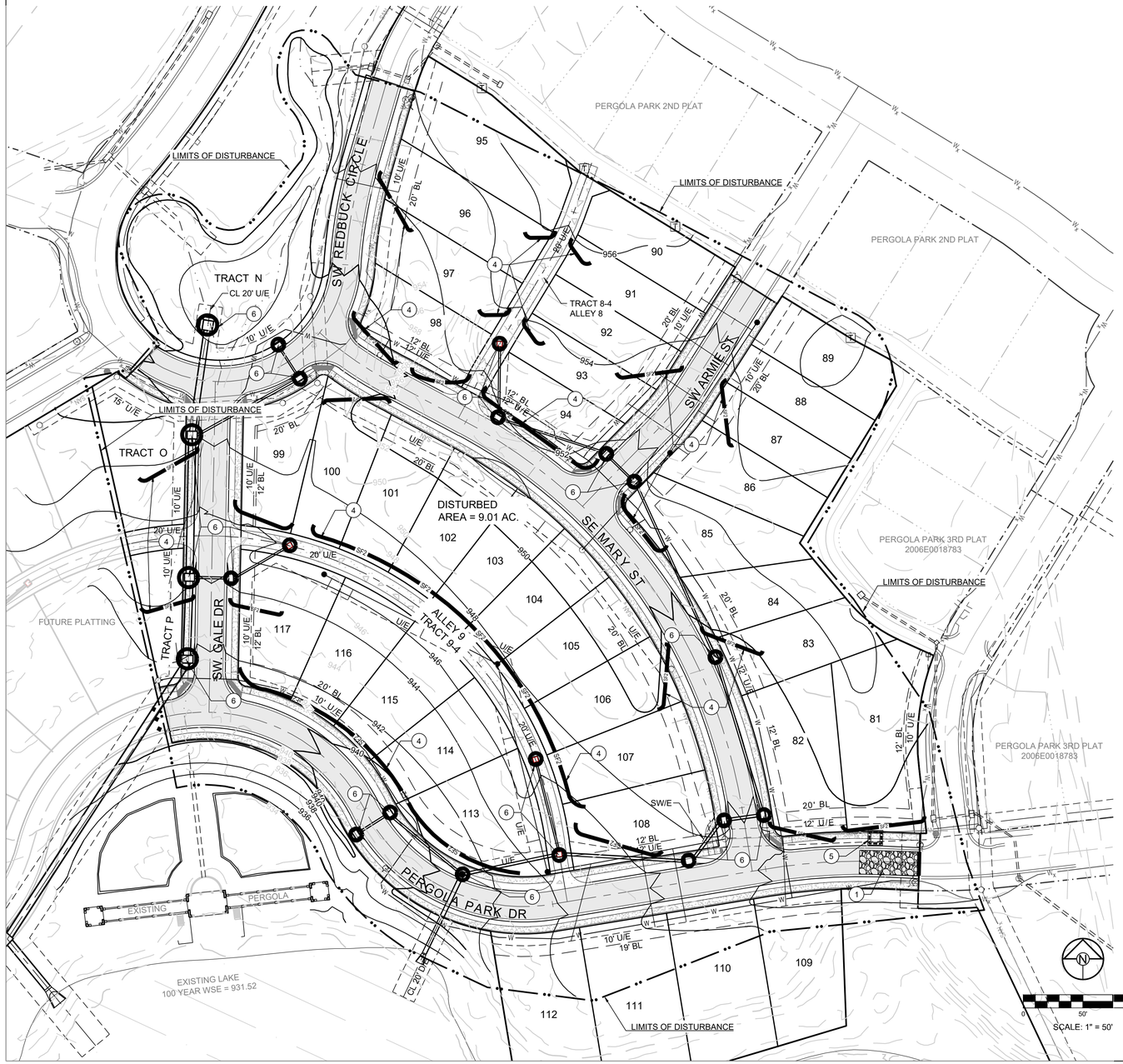
REVISION DATE	DESCRIPTION
6-26-19	CITY COMMENTS

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

PRE CONSTRUCTION EROSION CONTROL

SHEET 7 OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-ERDS.dwg, 6/26/2019 3:13:33 PM, 1:1



LEGEND

- TEMP. CONSTRUCTION ENTRANCE AND STAGING AREA
- CONCRETE WASHOUT AREA
- SILT FOAM DIKE - STAKED & INSTALL PER MFR'S RECOMMENDATIONS
- BMP PLAN REF. NO.
- SILT FENCE FOR INLET PROTECTION PRIOR TO STRUCTURE TOP
- SF — SUPER SEDIMENT SILT FENCE (PRIOR TO LAND DISTURBANCE)
- SF1 — SILT FENCE (PRIOR TO LAND DISTURBANCE)
- SF2 — SILT FENCE (DURING CONSTRUCTION)
- LIMITS OF DISTURBANCE
- 965 — EXISTING CONTOURS
- 965 — PROPOSED CONTOURS
- GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY

DISTURBED AREA = 9.01 A.C.

SITE SPECIFIC NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
2. THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
3. NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBER 29095C0414G DATED JANUARY 20TH, 2017.
4. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
5. 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.
6. 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.
9. AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.

EROSION AND SEDIMENT CONTROL STAGING CHART

	PROJECT STAGE	BMP PLAN REF. NO	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
PRE-CLEARING PHASE	A - PRIOR TO LAND DISTURBANCE	1	CONSTRUCTION ENTRANCE & STAGING AREA	D	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		2	SUPER SEDIMENT FENCE	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		3	SILT FENCE (PRIOR TO LAND DISTURBANCE)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
CONSTRUCTION PHASE	B - MASS GRADING	4	SILT FENCE (DURING CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
	C - UTILITY CONSTRUCTION	5	CONCRETE WASHOUT AREA	E	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		6	INLET PROTECTION (SILT FENCE)	D/E	PLACE SILT FENCE AROUND ALL STORM SEWER STRUCTURES / YARD AREA STORM STRUCTURES TO HAVE SILT FENCE REMOVED ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
FINAL STABILIZATION PHASE	D - AFTER PAVING OPERATIONS	7	INLET PROTECTION (GRAVEL FILTER BAGS)	E	BOARDS SHALL BE PLACED IN FRONT OF INLET OPENING FROM THE TIME SILT FENCE IS REMOVED UNTIL SUCH TIME THAT THE CURB / THROAT IS POURED. PLACE GRAVEL FILTER BAGS AT THE OPENING OF ALL CURB INLETS IMMEDIATELY AFTER THE INLET THROATS ARE POURED
		8	SILT FENCE (AFTER CURB CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		9	SEEDING AND MULCHING	E	ALL DISTURBED AREAS AFTER 14 DAYS OF CONSTRUCTION INACTIVITY
	E - UNTIL CLOSURE OF LAND DISTURBANCE PERMIT				ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY BE REQUIRED ANY TIME CURRENT MEASURES ARE FOUND TO BE INEFFECTIVE.

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000003800-F #LA2001005237 #LS2000008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2005007268
PROFESSIONAL ENGINEER

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
6-26-19	CITY COMMENTS

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

EROSION CONTROL PLAN

SHEET 8 OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-EROS.dwg, 6/26/2019 3:13:37 PM, 1:1

LEGEND

TEMP. CONSTRUCTION ENTRANCE AND STAGING AREA	SUPER SEDIMENT SILT FENCE (PRIOR TO LAND DISTURBANCE)
CONCRETE WASHOUT AREA	SILT FENCE (PRIOR TO LAND DISTURBANCE)
SILT FOAM DIKE - STAKED & INSTALL PER MFR'S RECOMMENDATIONS	SILT FENCE (DURING CONSTRUCTION)
BMP PLAN REF. NO.	LIMITS OF DISTURBANCE
SILT FENCE FOR INLET PROTECTION PRIOR TO STRUCTURE TOP	EXISTING CONTOURS
	PROPOSED CONTOURS
	GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY

DISTURBED AREA = 9.01 A.C.

SITE SPECIFIC NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
2. THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
3. NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBER 29095C0414G DATED JANUARY 20TH, 2017.
4. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
5. 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.
6. 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.
9. AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.

EROSION AND SEDIMENT CONTROL STAGING CHART

	PROJECT STAGE	BMP PLAN REF. NO	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
PRE-CLEARING PHASE	A - PRIOR TO LAND DISTURBANCE	1	CONSTRUCTION ENTRANCE & STAGING AREA	D	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		2	SUPER SEDIMENT FENCE	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		3	SILT FENCE (PRIOR TO LAND DISTURBANCE)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
CONSTRUCTION PHASE	B - MASS GRADING	4	SILT FENCE (DURING CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
	C - UTILITY CONSTRUCTION	5	CONCRETE WASHOUT AREA	E	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		6	INLET PROTECTION (SILT FENCE)	D/E	PLACE SILT FENCE AROUND ALL STORM SEWER STRUCTURES / YARD AREA STORM STRUCTURES TO HAVE SILT FENCE REMOVED ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
FINAL STABILIZATION PHASE	D - AFTER PAVING OPERATIONS	7	INLET PROTECTION (GRAVEL FILTER BAGS)	E	BOARDS SHALL BE PLACED IN FRONT OF INLET OPENING FROM THE TIME SILT FENCE IS REMOVED UNTIL SUCH TIME THAT THE CURB / THROAT IS POURED. PLACE GRAVEL FILTER BAGS AT THE OPENING OF ALL CURB INLETS IMMEDIATELY AFTER THE INLET THROATS ARE POURED
		8	SILT FENCE (AFTER CURB CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		9	SEEDING AND MULCHING	E	ALL DISTURBED AREAS AFTER 14 DAYS OF CONSTRUCTION INACTIVITY
	E - UNTIL CLOSURE OF LAND DISTURBANCE PERMIT				ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY BE REQUIRED ANY TIME CURRENT MEASURES ARE FOUND TO BE INEFFECTIVE.

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000003800-F #LA2001005237 #LS2000008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

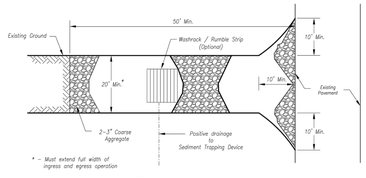
REVISION DATE	DESCRIPTION
6-26-19	CITY COMMENTS

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

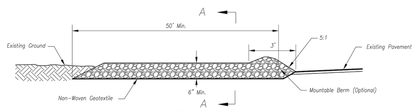
POST CONSTRUCTION EROSION CONTROL

SHEET 9 OF 28

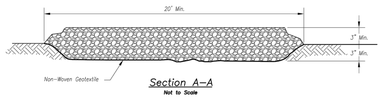
I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-ERDS.dwg, 6/26/2019 3:13:41 PM, 1:1



Plan View
Not to Scale



Side Elevation
Not to Scale



Section A-A
Not to Scale

Notes for Construction Entrance:

1. Avoid locating on steep slopes, at curves on public roads, or downhill of disturbed area.
2. Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
3. If slope towards the public road exceeds 2%, construct a 6- to 8-inch high ridge with 3H:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
4. Install pipe under the entrance if needed to maintain drainage ditches along public roads.
5. Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
6. Divert all surface runoff and drainage from the entrance to a sediment control device.
7. If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

Maintenance for Construction Entrance:

1. Reshape entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.

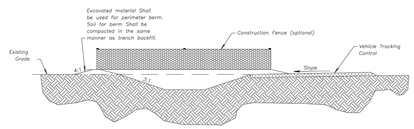
CONSTRUCTION ENTRANCE

Notes for Concrete Washout:

1. Concrete washout areas shall be installed prior to any concrete placement on site.
2. Concrete washout area shall include a flat subsurface pit sized relative to the amount of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.
3. Vehicle tracking control is required at the access point to all concrete washout areas.
4. Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
5. A one-piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

Maintenance for Concrete Washout:

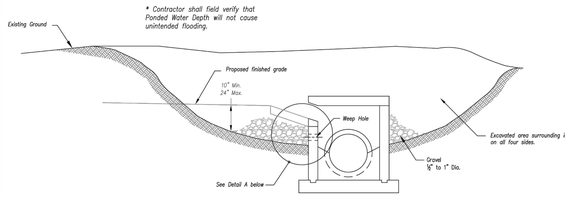
1. Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
2. Concrete washout areas shall be enlarged as necessary to maintain capacity for wasted concrete.
3. Concrete washout water, wasted pieces of concrete and all other debris in the subsurface pit shall be transported from the job site in a water-tight container and disposed of properly.
4. Concrete washout areas shall remain in place until all concrete for the project is placed.
5. When concrete washout areas are removed, excavations shall be filled with suitable compacted backfill and topsoil, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.



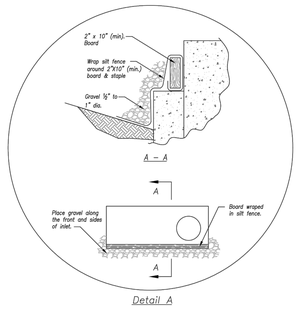
CONCRETE WASHOUT

Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control; Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

AMERICAN PUBLIC WORKS ASSOCIATION		
Kansas City Metro Chapter	KANSAS CITY METRO CHAPTER	
CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT	STANDARD DRAWING NUMBER ESC-01	
	ADOPTED: 10/24/2016	



On Grade Curb Inlet Protection



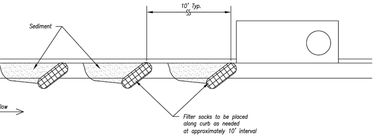
Detail A

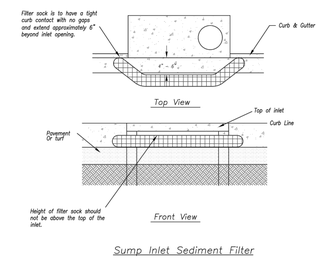
Notes:

1. Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing 2" x 10" (min.) board wrapped in silt fence. Structures shall have excavated storage area on all four sides to allow settling of sediment (Early Stage Curb Inlet).
2. When inlet is completed and curb poured, filter socks or approved equal should be used (Late Stage Curb Inlet). Straw wattles are not approved for curb inlet use.
3. Contractor to field verify ponding water shall not create a traffic hazard.

Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.





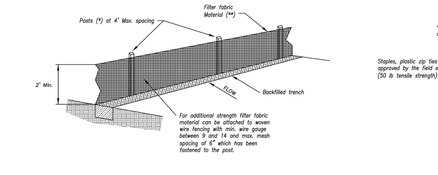
Sump Inlet Sediment Filter

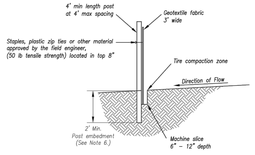
EARLY STAGE CURB INLET
(Open Box and Prior to Pouring Curb and Inlet Throat)

LATE STAGE CURB INLET
(After Pouring Curb and Inlet Throat)

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION		
Kansas City Metro Chapter	KANSAS CITY METRO CHAPTER	
CURB INLET PROTECTION	STANDARD DRAWING NUMBER ESC-06	
	ADOPTED: 10/24/2016	





(*) POSTS
- MIN. LENGTH 4'
- HARDWOOD 1 ⅜" x 1 ⅜"
- NO.2 SOUTHERN PINE 2 ⅜" x 2 ⅜"
- STEEL 1.33 LB/FT

(**) – Geotextile Fabric shall meet the requirements of AASHTO M288

SILT FENCE DETAILS
Not to Scale

Notes:

1. In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
2. Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
3. Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
4. Attach fabric to upstream side of post.
5. Install posts a minimum of 2' into the ground.
6. Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.

Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches ½ the height of silt fence.
2. Repair as necessary to maintain function and structure.

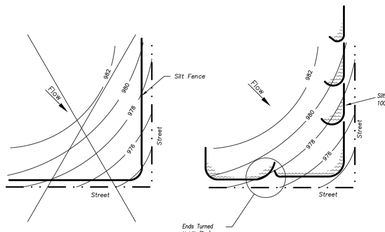
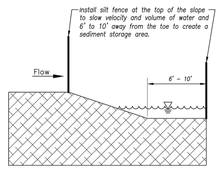
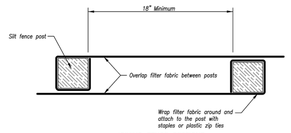


Figure A

SILT FENCE LAYOUT
Not to Scale





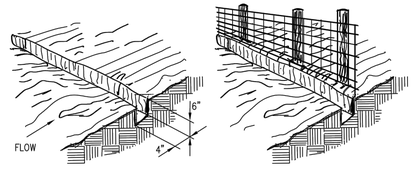
JOINING FENCE SECTIONS
Not to Scale

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

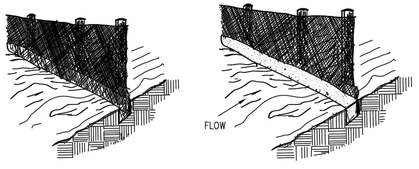
AMERICAN PUBLIC WORKS ASSOCIATION		
Kansas City Metro Chapter	KANSAS CITY METRO CHAPTER	
SILT FENCE	STANDARD DRAWING NUMBER ESC-03	
	ADOPTED: 10/24/2016	

SUPER SEDIMENT FENCE

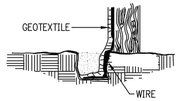
1. EXCAVATE A 6"X4" TRENCH
2. SET THE METAL T-POSTS OR FENCE POSTS ON THE DOWNSLOPE SIDE OF THE TRENCH. SECURE WIRE FENCING TO THE POSTS.



3. ATTACH THE GEOTEXTILE FABRIC TO THE WIRE FENCE AND EXTEND IT INTO AND AROUND THE BOTTOM OF THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



EXTENSION OF FABRIC AND WIRE INTO THE TRENCH
NOT TO SCALE



SECTIONAL FENCE ANCHOR DETAIL

SOURCE: MODIFIED FROM VA. DCR, 1992

SUPER SEDIMENT FENCE NOTES:

A) CONSTRUCTION SPECIFICATIONS:

1. FENCING SHALL BE 42-INCHES IN HEIGHT.
2. WIRE FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES AND STAPLES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS, AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
3. SEDIMENT FENCE SHALL BE FASTENED SECURELY TO THE WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID-SECTION.
4. SEDIMENT FENCE AND WIRE SHALL BE EMBEDDED A MINIMUM OF 8-INCHES INTO THE GROUND.
5. WHEN TWO SECTIONS OF GEOTEXTILE FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6-INCHES AND FOLDED.
6. WIRE FENCE WILL BE BETWEEN 9 AND 14 GAUGE AND SHALL HAVE A MAXIMUM MESH SPACING OF 6-INCHES.
7. SEDIMENT FENCE SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F: ADDITIONAL SPECIFICATIONS ARE FOUND IN ASTM 6461.

SEDIMENT FENCE REQUIREMENTS

TENSION STRENGTH	50 LB/IN OR MORE	ASTM 4632
TENSION MODULUS	20 LB/IN OR MORE	ASTM 4632
FLOW RATE	0.3 GAL/FT²/MINUTE OR LESS	ASTM 5141
FILTERING EFFICIENCY	75 % OR MORE	ASTM 5141

B) INSTALLATION:

1. THE HEIGHT OF A SEDIMENT FENCE SHALL BE A MINIMUM OF 16 INCHES ABOVE THE ORIGINAL GROUND SURFACE AND SHALL NOT EXCEED 34-INCHES ABOVE GROUND SURFACE.
2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE UNAVOIDABLE, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED.
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 6 INCHES DEEP ON THE UPSLOPE SIDE OF THE PROPOSED LOCATION OF THE FENCE.
4. WHEN WIRE SUPPORT IS USED, STANDARD-STRENGTH FILTER CLOTH MAY BE USED. POSTS FOR THIS TYPE OF INSTALLATION SHALL BE PLACED A MAXIMUM OF 10 FEET APART. THE WIRE MESH FENCE MUST BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES, OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES AND SHALL NOT EXTEND MORE THAN 34 INCHES ABOVE THE ORIGINAL GROUND SURFACE. THE STANDARD-STRENGTH FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES. IF A SEDIMENT FENCE IS TO BE CONSTRUCTED ACROSS A DITCH LINE OR SWALE, IT MUST BE OF SUFFICIENT LENGTH TO ELIMINATE ENDFLOW, AND THE PLAN CONFIGURATION SHALL RESEMBLE AN ARC OR HORSESHOE WITH THE ENDS ORIENTED UPSLOPE. EXTRA-STRENGTH FILTER FABRIC SHALL BE USED FOR
5. THIS APPLICATION WITH A MAXIMUM 3-FOOT SPACING OF POSTS. THE 4 INCH BY 6 INCH TRENCH SHALL BE BACKFIELD AND THE SOIL COMPACTED OVER THE FILTER
6. FABRIC. SEDIMENT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED. SEDIMENT ACCUMULATION SHOULD NOT EXCEED 1/2 THE HEIGHT OF THE FENCE.

C) INSPECTION AND MAINTENANCE:

1. INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. MAINTENACE SHALL BE PERFORMED AS NEEDED AND SEDIMENT BUILD-UPS REMOVED WHEN BULGES DEVELOP IN THE SEDIMENT FENCE OR WHEN SEDIMENT REACHES 50% OF THE FENCE HEIGHT. AVOID DAMAGING OR UNDERMINING THE FENCE DURING CLEANOUT.
4. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

AMERICAN PUBLIC WORKS ASSOCIATION		
Kansas City Metro Chapter	KANSAS CITY METROPOLITAN CHAPTER	
SUPER SEDIMENT FENCE	STANDARD DRAWING NUMBER ESC-13	
	ADOPTED:	

SCHLAGEL & ASSOCIATES, P.A.
Engineers • Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2000008859-F

MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
STATE OF MISSOURI
06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

DESCRIPTION	REVISION DATE
CITY COMMENTS	6-26-19

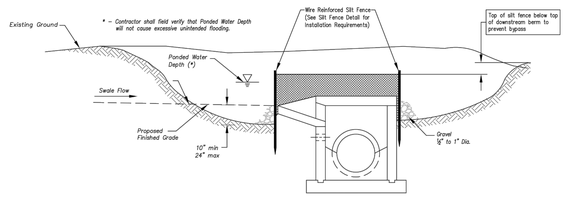
DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

EROSION CONTROL DETAILS

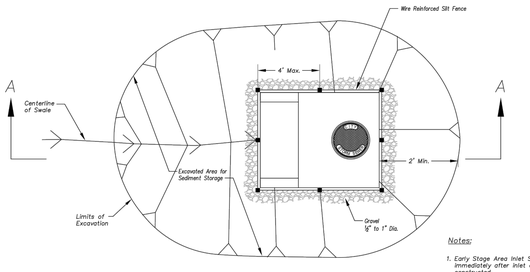
SHEET 10 OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-EROS.dwg, 6/26/2019 3:13:45 PM, 1:1

J:\SCHLAGEL\2019\19-0023.0\Design\3.0 DWG Plans\6.0 SS\19-002-SS-EROS.dwg, 6/26/2019 3:13:45 PM, 1:1

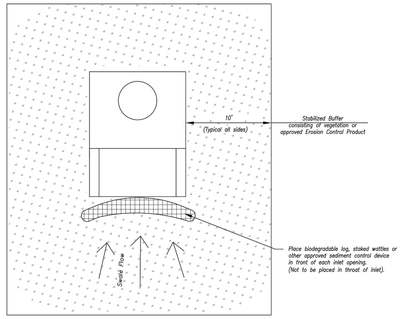


Section A–A
Not to Scale

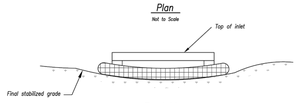


Plan
Not to Scale

EARLY STAGE AREA INLET
(All open boxes and inlets not at final grade)



Plan
Not to Scale



Front View

LATE STAGE AREA INLET
(Area inlets at final grade and existing inlets)

Notes:

1. Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.
2. Silt fence shall remain in place until excavated area is removed and Late Stage Area Inlet is being installed.
3. Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.
4. Wire reinforced silt fence may be used in place of silt fence attached to wood frame.

Maintenance:

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.
2. Remove deposited sediment from filter socks or similar when any accumulation of sediment is visible.
3. Repair or replace as necessary to maintain function and integrity of installation.

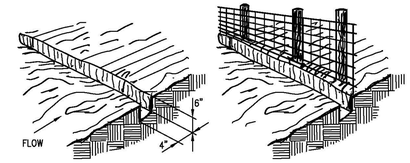
Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION	
Kansas City Metro Chapter APWA	KANSAS CITY METRO CHAPTER
AREA INLET AND JUNCTION BOX PROTECTION	STANDARD DRAWING NUMBER ESC-07 ADOPTED: 10/24/2016

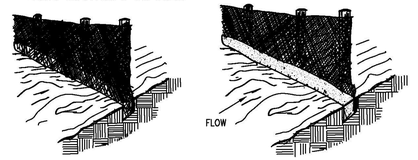
J:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-EROS.dwg, 6/26/2019 3:13:48 PM, AIA

SUPER SEDIMENT FENCE

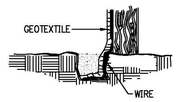
1. EXCAVATE A 6"X4" TRENCH
2. SET THE METAL T–POSTS OR FENCE POSTS ON THE DOWNSLOPE SIDE OF THE TRENCH. SECURE WIRE FENCING TO THE POSTS.



3. ATTACH THE GEOTEXTILE FABRIC TO THE WIRE FENCE AND EXTEND IT INTO AND AROUND THE BOTTOM OF THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



EXTENSION OF FABRIC AND WIRE INTO THE TRENCH
NOT TO SCALE



SECTIONAL FENCE ANCHOR DETAIL

SOURCE: MODIFIED FROM VA. DCR, 1992

SUPER SEDIMENT FENCE NOTES:

A) CONSTRUCTION SPECIFICATIONS:

1. FENCING SHALL BE 42–INCHES IN HEIGHT.
2. WIRE FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES AND STAPLES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS, AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
3. SEDIMENT FENCE SHALL BE FASTENED SECURELY TO THE WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID–SECTION.
4. SEDIMENT FENCE AND WIRE SHALL BE EMBEDDED A MINIMUM OF 8–INCHES INTO THE GROUND.
5. WHEN TWO SECTIONS OF GEOTEXTILE FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6–INCHES AND FOLDED.
6. WIRE FENCE WILL BE BETWEEN 9 AND 14 GAUGE AND SHALL HAVE A MAXIMUM MESH SPACING OF 6–INCHES.
7. SEDIMENT FENCE SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F: ADDITIONAL SPECIFICATIONS ARE FOUND IN ASTM 6461.

SEDIMENT FENCE REQUIREMENTS

TENSION STRENGTH	50 LB/IN OR MORE	ASTM 4632
TENSION MODULUS	20 LB/IN OR MORE	ASTM 4632
FLOW RATE	0.3 GAL/FT^2/MINUTE OR LESS	ASTM 5141
FILTERING EFFICIENCY	75 % OR MORE	ASTM 5141

B) INSTALLATION:

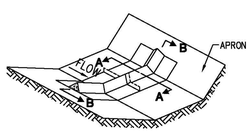
1. THE HEIGHT OF A SEDIMENT FENCE SHALL BE A MINIMUM OF 16 INCHES ABOVE THE ORIGINAL GROUND SURFACE AND SHALL NOT EXCEED 34–INCHES ABOVE GROUND SURFACE.
2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE UNAVOIDABLE, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6–INCH OVERLAP, AND SECURELY SEALED.
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 6 INCHES DEEP ON THE UPSLOPE SIDE OF THE PROPOSED LOCATION OF THE FENCE. WHEN WIRE SUPPORT IS USED, STANDARD–STRENGTH FILTER CLOTH MAY BE USED. POSTS FOR THIS TYPE OF INSTALLATION SHALL BE PLACED A MAXIMUM OF 10 FEET APART. THE WIRE MESH FENCE MUST BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES, OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES AND SHALL NOT EXTEND MORE THAN 34 INCHES ABOVE THE ORIGINAL GROUND SURFACE. THE STANDARD–STRENGTH FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES OF THE FABRIC
4. SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES. IF A SEDIMENT FENCE IS TO BE CONSTRUCTED ACROSS A DITCH LINE OR SWALE, IT MUST BE OF SUFFICIENT LENGTH TO ELIMINATE ENDFLOW, AND THE PLAN CONFIGURATION SHALL RESEMBLE AN ARC OR HORSESHOE WITH THE ENDS ORIENTED UPSLOPE. EXTRA–STRENGTH FILTER FABRIC SHALL BE USED FOR
5. THIS APPLICATION WITH A MAXIMUM 3–FOOT SPACING OF POSTS. THE 4 INCH BY 6 INCH TRENCH SHALL BE BACKFIELD AND THE SOIL COMPACTED OVER THE FILTER
6. FABRIC. SEDIMENT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED. SEDIMENT ACCUMULATION SHOULD NOT EXCEED 1/2 THE HEIGHT OF THE FENCE.

C) INSPECTION AND MAINTENANCE:

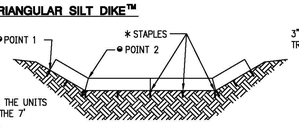
1. INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. MAINTENACE SHALL BE PERFORMED AS NEEDED AND SEDIMENT BUILD–UPS REMOVED WHEN BULGES DEVELOP IN THE SEDIMENT FENCE OR WHEN SEDIMENT REACHES 50% OF THE FENCE HEIGHT. AVOID DAMAGING OR UNDERMINING THE FENCE DURING CLEANOUT.
4. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA Kansas City Metro Chapter	KANSAS CITY METROPOLITAN CHAPTER
SUPER SEDIMENT FENCE	STANDARD DRAWING NUMBER ESC–12 ADOPTED:

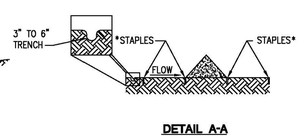
TRIANGULAR SILT DIKE™



SILT DIKE UNIT CUT SECTION



DIKE SECTION DETAIL B-B



DETAIL A-A

NOTES:
* STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE 7' UNIT AS SHOWN ON THE DIAGRAM.
● POINT 1 MUST BE HIGHER THAN POINT 2 TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

TRIANGULAR SILT DIKE™ NOTES:

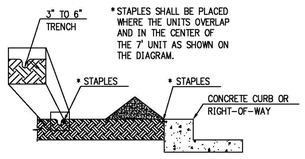
A) GENERAL NOTES:

1. TRIANGULAR SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST EIGHT TO TEN INCHES IN THE CENTER WITH EQUAL SIDES AND A SIXTEEN– TO TWENTY– INCH BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL AND ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE TWO TO THREE FEET.
2. LENGTH SHALL BE THREE TO SEVEN FEET. STANDARD LENGTH WILL BE SEVEN UNLESS OTHERWISE INDICATED ON THE PLANS.
3. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST SIX TO EIGHT INCHES LONG. STAPLES SHALL BE PLACED AS SHOWN ON THE INSTALLATION DETAIL.

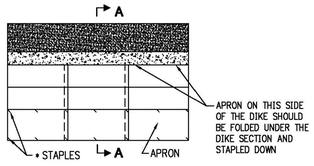
B) INSPECTION AND MAINTENANCE:

1. THE CONTRACTOR SHALL INSPECT ALL DIKES AFTER EACH RAINFALL EVENT OF 1/2 INCH OR GREATER. ANY DEFICIENCIES OR DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR.
2. ACCUMULATED SEDIMENT OR DEBRIS SHALL BE REMOVED AND RELOCATED AS DIRECTED BY THE ENGINEER. IF THE DIKES ARE DAMAGED OR INADVERTENTLY MOVED DURING THE SEDIMENT REMOVAL PROCESS, THE CONTRACTOR SHALL RE–ESTABLISH CONTINUITY.

DITCH CHECK

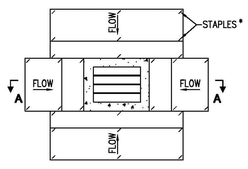


DETAIL A-A

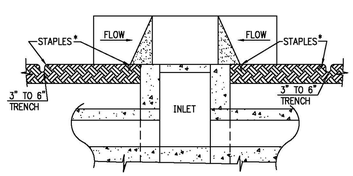


DIKE PLAN VIEW

CONTINUOUS BARRIER



PLAN VIEW



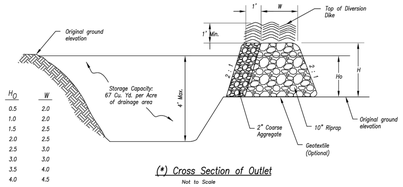
DETAIL A-A

DROP INLET

SOURCE: TRIANGULAR SILT DIKE COM., INC.

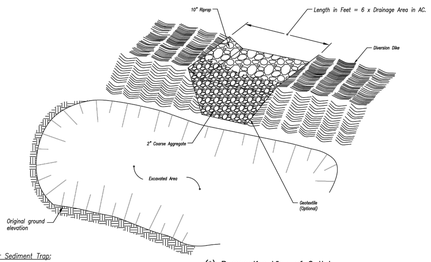
J:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-EROS.dwg, 6/26/2019 3:13:48 PM, AIA

AMERICAN PUBLIC WORKS ASSOCIATION	
APWA	KANSAS CITY METROPOLITAN CHAPTER
TRIANGULAR SILT DIKE™	STANDARD DRAWING NUMBER ESC–16 ADOPTED:



H	H_O	W
1.5	0.5	2.0
2.0	1.0	2.0
2.5	1.5	2.5
3.0	2.0	2.5
3.5	2.5	3.0
4.0	3.0	3.0
4.5	3.5	4.0
5.0	4.0	4.5

(*) Cross Section of Outlet
Not to Scale



(*) Perspective View of Outlet
Not to Scale

(*) – The perspective view and cross section are schematic in nature. Construction plans must provide specific site construction arrangements.

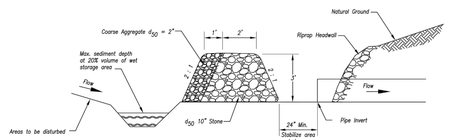
Notes for Sediment Trap:

1. The area under the embankment shall be cleared, grubbed, and stripped of any vegetation and root mat.
2. Fill material for the embankment shall be free of roots or other woody vegetation, organic material, large stones, and other objectionable material. The embankment should be compacted in 6–inch layers by traversing with construction equipment.
3. The earthen embankment shall be stabilized immediately after installation.
4. Construction operations shall be carried out to minimize erosion and water pollution.
5. The structure shall be removed and the area stabilized when the upslope drainage area has been stabilized.
6. All cut and fill slopes shall be 2H : 1V or flatter, except for excavated, wet storage areas which may be at a maximum 1H : 1V grade.

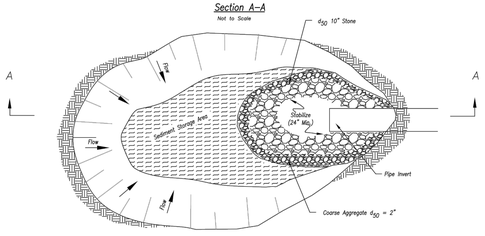
Maintenance for Sediment Trap:

1. Check sediment traps after periods of significant runoff.
2. Remove sediment and restore the trap to its original dimensions when sediment accumulates to 20% of the storage capacity.
3. Immediately repair any erosion damage to the embankment and outlet.
4. Keep outlet and pool area free of all trash and other debris.

SEDIMENT TRAP



Section A–A
Not to Scale



Plan View
Not to Scale

Notes for Sediment Trap at Culvert Opening:

1. The inlet protection device shall be constructed in a manner that will facilitate clean–out and disposal of trapped sediment and minimize interference with construction activities.
2. The inlet protection devices shall be constructed in such manner that any resultant ponding stormwater will not cause excessive inconvenience or damage to adjacent areas or structures.
3. Geometry of the design will be a horseshoe shape around the culvert inlet.
4. The toe of the riprap shall be no closer than 24" from the culvert opening to provide an acceptable emergency outlet for flows from larger storm events.
5. Storage requirements equivalent to that of temporary sediment trap.
6. 67 C.Y./Acre wet storage below base of stone.
7. 67 C.Y./Acre dry storage from base of stone to top of stone berm.

Maintenance for Sediment Trap at Culvert Opening:

1. Check sediment traps after periods of significant runoff.
2. Remove sediment and restore the trap to its original dimensions when sediment accumulates to 20% of the storage capacity.
3. Immediately repair any erosion damage to the embankment and outlet.
4. Keep outlet and pool area free of all trash and other debris.

SEDIMENT TRAP AT CULVERT OPENING

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION	
Kansas City Metro Chapter APWA	KANSAS CITY METROPOLITAN CHAPTER
SEDIMENT TRAPS	STANDARD DRAWING NUMBER ESC–08 ADOPTED: 10/24/2016

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000038001-F #LA2001005237 #LS2000008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

NO.	DESCRIPTION	REVISION DATE
1	CITY COMMENTS	6-26-19
2		
3		
4		
5		
6		
7		
8		

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

EROSION CONTROL DETAILS

SHEET
11
OF 28

NOTE:

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

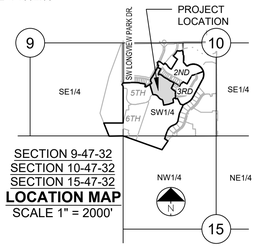
MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

BM JA-148, IS A STAMPED KC METRO DISK SET IN CONCRETE LOCATED 2 MILES WEST OF THE INTERSECTION OF HIGHWAY 50 AND 3RD ST. IT IS 44 FT NORTH OF THE CENTER OF 3RD ST. AND 102.5 FT WEST OF THE CENTER OF THE EXIT FROM THE ADJACENT PARKING LOT.

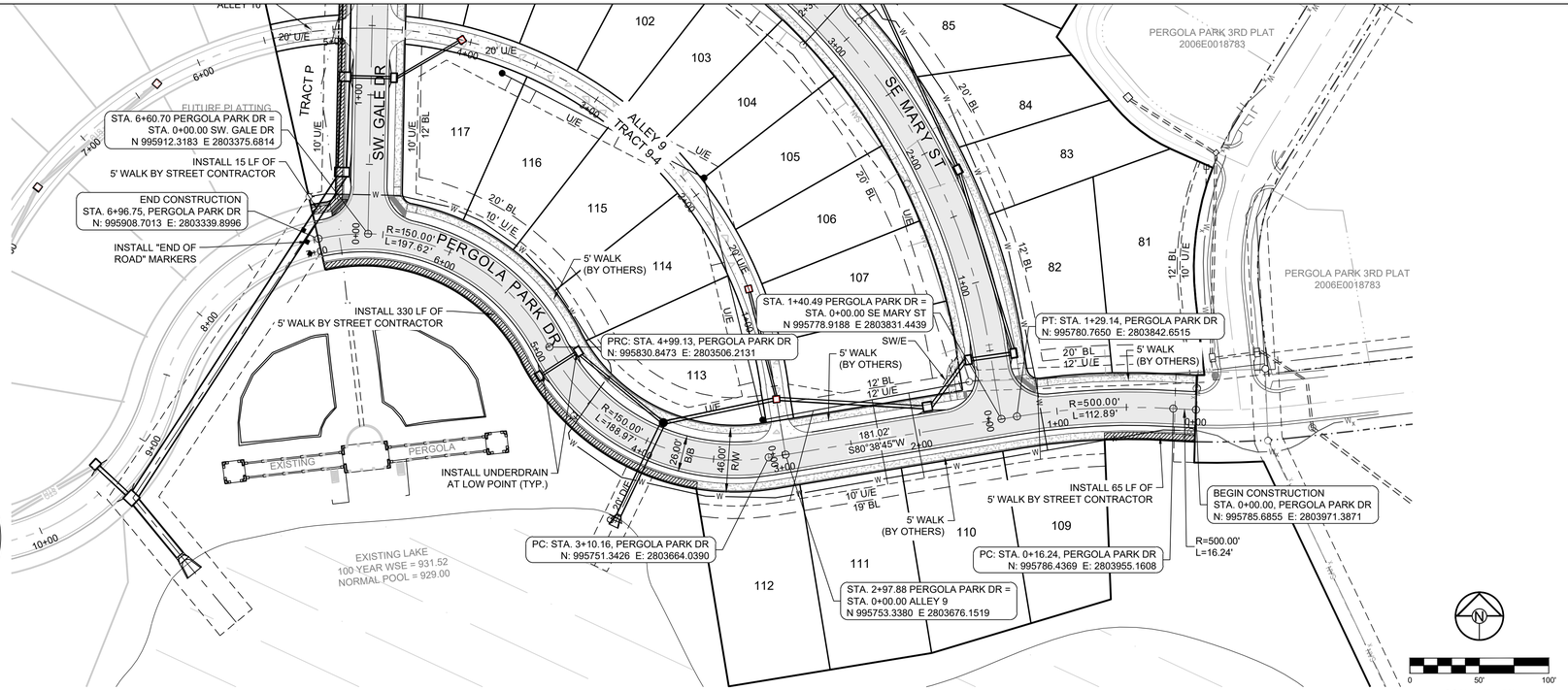
PROJECT BENCHMARK:

CHISELED "SQUARE" ON STORM CURB INLET AT NORTHWEST INTERSECTION OF SW. TOWER PARK DRIVE AND SW. LONGVIEW BOULEVARD.

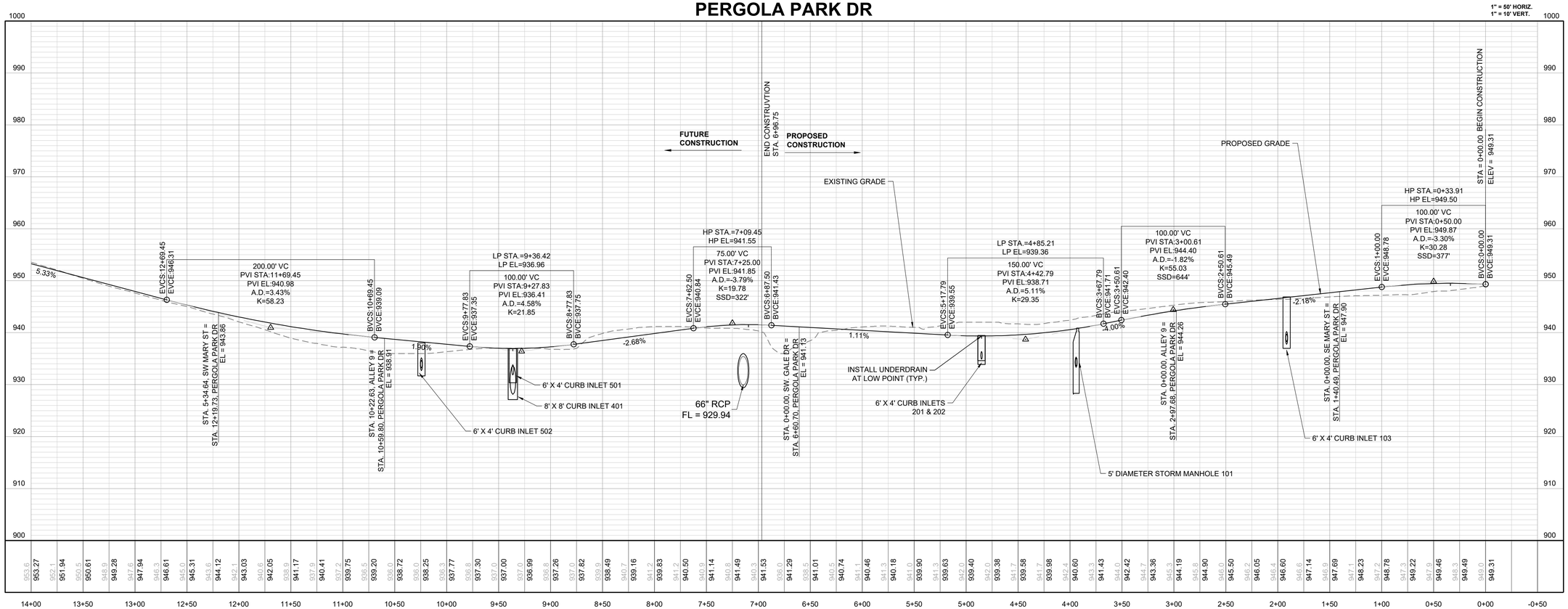
NORTHING: 998893.4148
EASTING: 2803318.5413
ELEV. 1004.09



SECTION 9-47-32
SECTION 10-47-32
SECTION 15-47-32
LOCATION MAP
SCALE 1" = 2000'



PERGOLA PARK DR



SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000003800-F #LA2001005237 #LS2000008859-F

MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
STATE OF MISSOURI
06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT
CONTROL
- LEE'S SUMMIT, MISSOURI

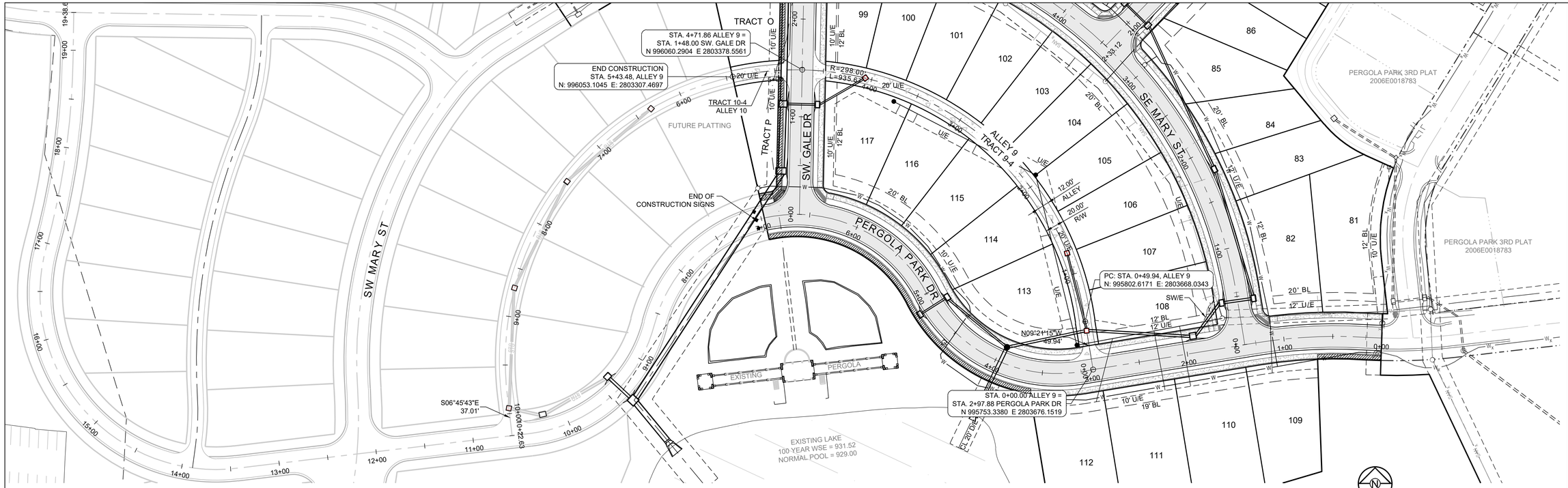
REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

PERGOLA PARK DR

SHEET
12
OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-P&P.dwg, 6/26/2019 3:14:24 PM, 1:1

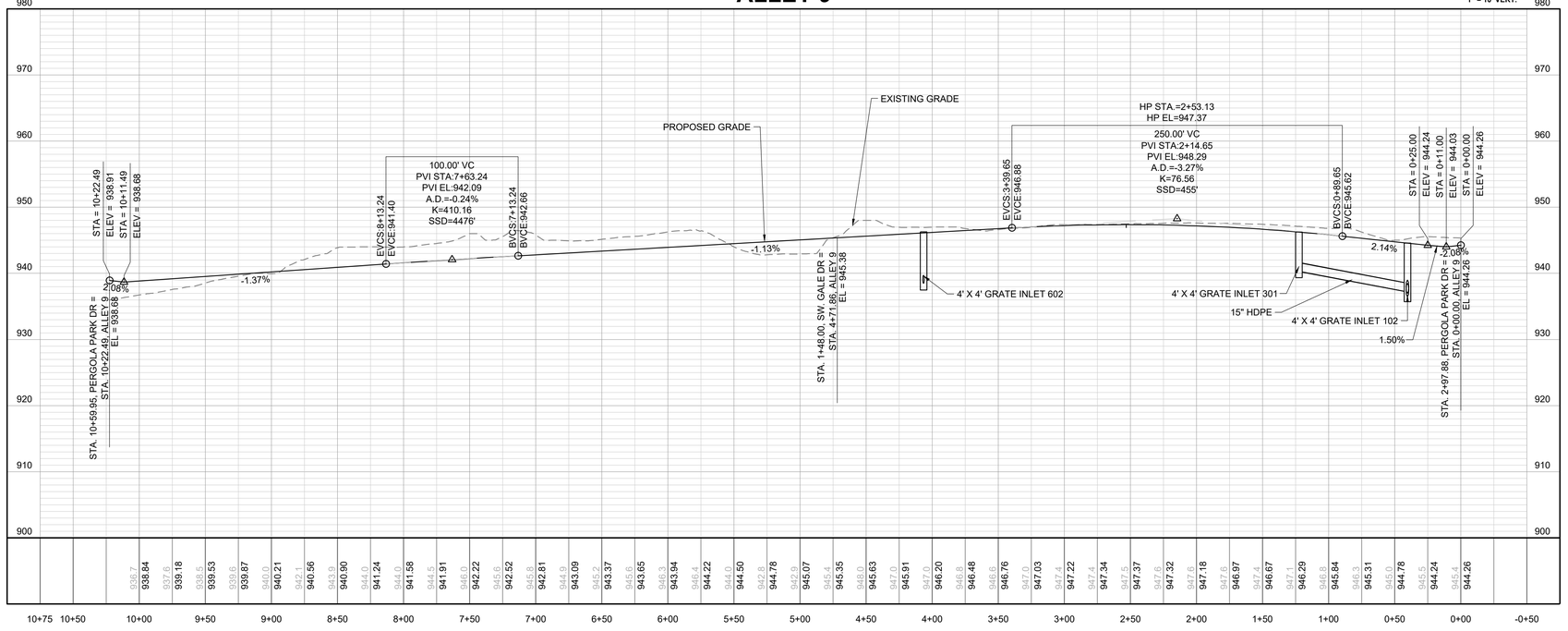


0 50' 100'

SCALE: 1" = 50'

ALLEY 9

1" = 50' HORIZ.
1" = 10' VERT.



NOTE:

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

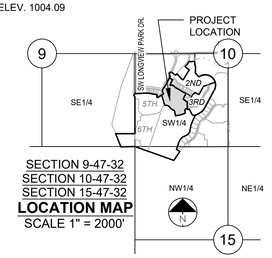
MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

BM JA-148, IS A STAMPED KC METRO DISK SET IN CONCRETE LOCATED 2 MILES WEST OF THE INTERSECTION OF HIGHWAY 50 AND 3RD ST. IT IS 44 FT NORTH OF THE CENTER OF 3RD ST. AND 102.5 FT WEST OF THE CENTER OF THE EXIT FROM THE ADJACENT PARKING LOT.

PROJECT BENCHMARK:

CHISELED "SQUARE" ON STORM CURB INLET AT NORTHWEST INTERSECTION OF SW. TOWER PARK DRIVE AND SW. LONGVIEW BOULEVARD.

NORTHING: 998893.4148
EASTING: 2803318.5413
ELEV. 1004.09



SECTION 9-47-32
SECTION 10-47-32
SECTION 15-47-32
LOCATION MAP
SCALE 1" = 2000'

MISSOURI ONE CALL SYSTEM, INC.
1-800-344-7483
STOP-CALL BEFORE YOU DIG!

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2000008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

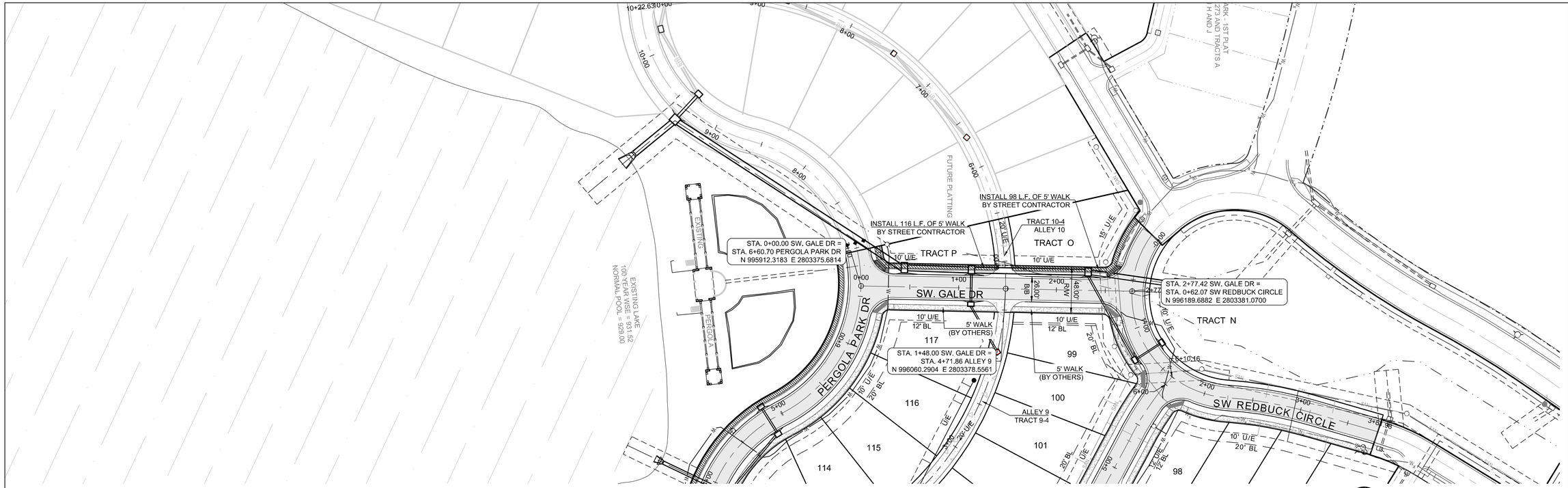
REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	
7	
8	

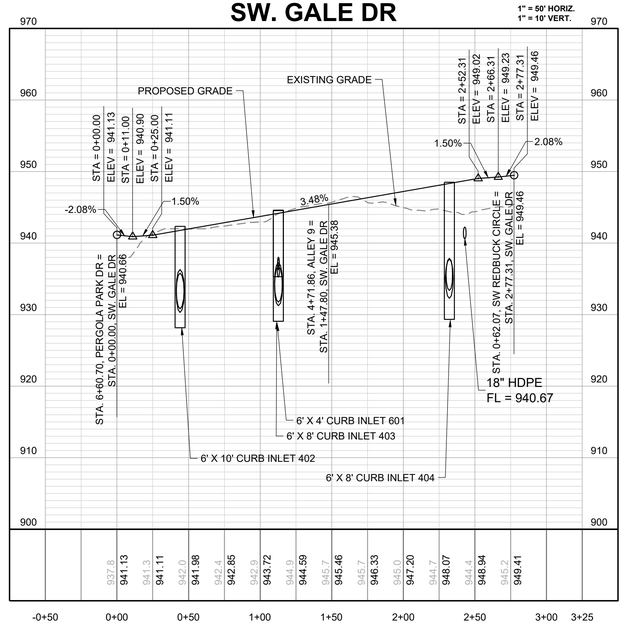
DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

ALLEY 9

SHEET
13
OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-P&P.dwg, 6/26/2019 3:14:37 PM, 1:1





NOTE:

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

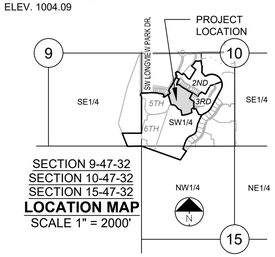
MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

BM JA-148, IS A STAMPED KC METRO DISK SET IN CONCRETE LOCATED 2 MILES WEST OF THE INTERSECTION OF HIGHWAY 50 AND 3RD ST. IT IS 44 FT NORTH OF THE CENTER OF 3RD ST. AND 102.5 FT WEST OF THE CENTER OF THE EXIT FROM THE ADJACENT PARKING LOT.

PROJECT BENCHMARK:

CHISELED "SQUARE" ON STORM CURB INLET AT NORTHWEST INTERSECTION OF SW. TOWER PARK DRIVE AND SW. LONGVIEW BOULEVARD.

NORTHING: 998893.4148
EASTING: 2803318.5413
ELEV. 1004.09



SECTION 9-47-32
SECTION 10-47-32
SECTION 15-47-32
LOCATION MAP
SCALE 1" = 2000'

MISSOURI ONE CALL SYSTEM, INC.
1-800-344-7483
STOP - CALL BEFORE YOU DIG!

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2000088S9-F

MARK ALLEN BREUER
NUMBER PE-2005007268
PROFESSIONAL ENGINEER
STATE OF MISSOURI
06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

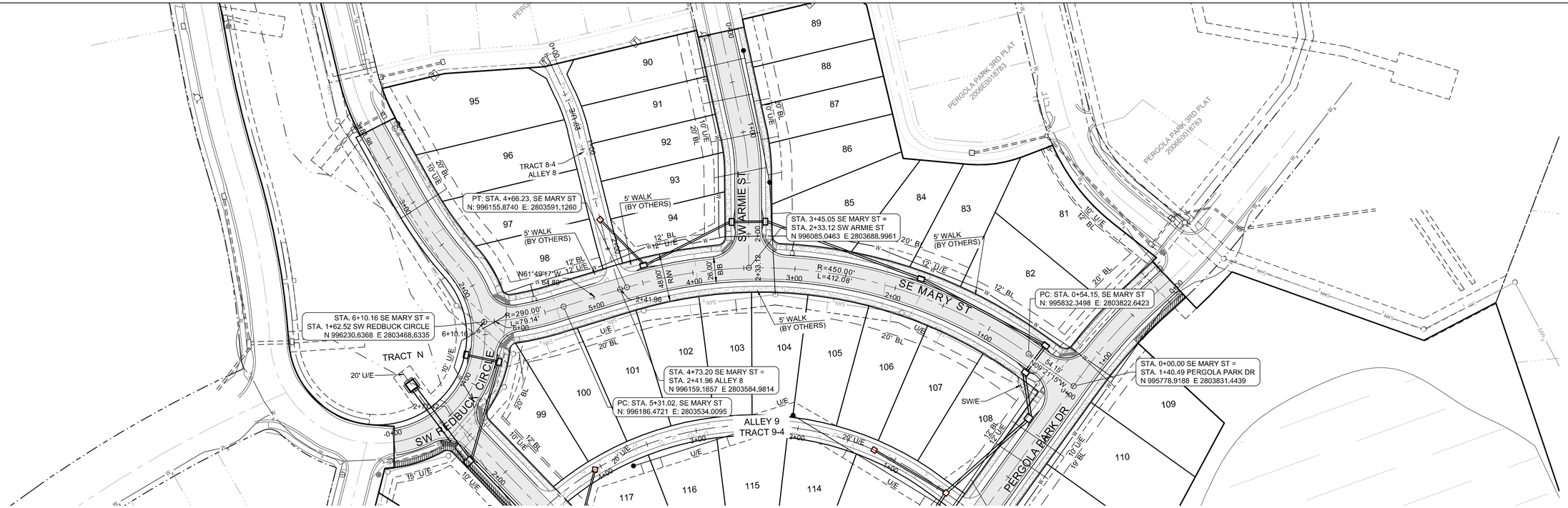
REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	

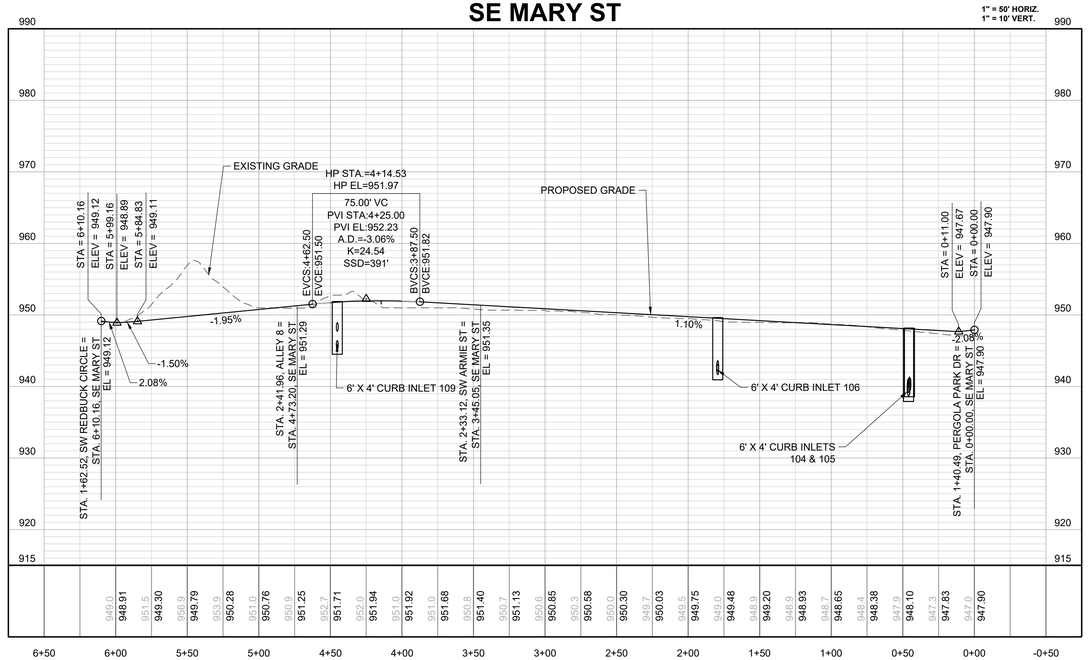
DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

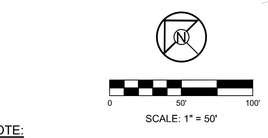
GALE DR.

SHEET
14
OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-P&P.dwg, 6/26/2019 3:14:53 PM, 1:1







NOTE:

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

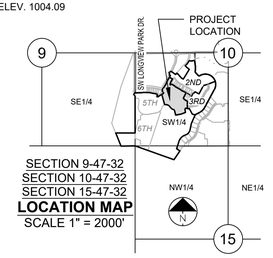
MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

BM JA-148, IS A STAMPED KC METRO DISK SET IN CONCRETE LOCATED 2 MILES WEST OF THE INTERSECTION OF HIGHWAY 50 AND 3RD ST. IT IS 44 FT NORTH OF THE CENTER OF 3RD ST. AND 102.5 FT WEST OF THE CENTER OF THE EXIT FROM THE ADJACENT PARKING LOT.

PROJECT BENCHMARK:

CHISELED "SQUARE" ON STORM CURB INLET AT NORTHWEST INTERSECTION OF SW. TOWER PARK DRIVE AND SW. LONGVIEW BOULEVARD.

NORTHING: 998893.4148
EASTING: 2803318.5413
ELEV. 1004.09



SECTION 9-47-32
SECTION 10-47-32
SECTION 15-47-32
LOCATION MAP
SCALE 1" = 2000'

MISSOURI ONE CALL SYSTEM, INC.
1-800-344-7483
STOP - CALL BEFORE YOU DIG!

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2002008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

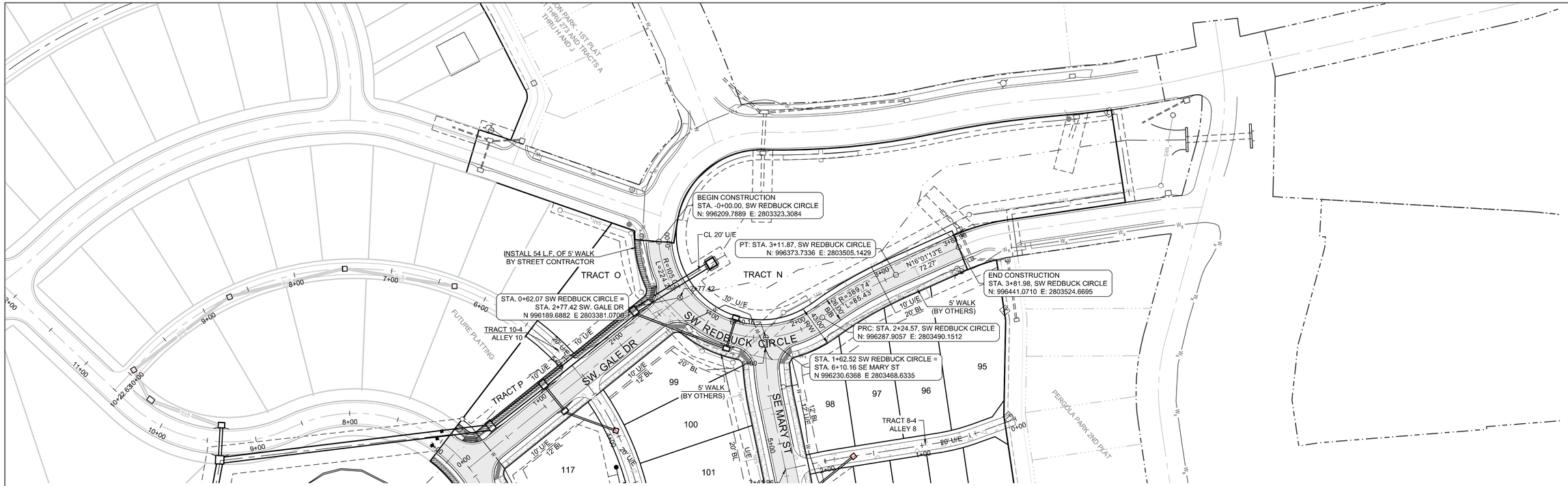
REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	
7	
8	

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

SE MARY ST

SHEET
15
OF 28

I:\PROJECTS\2019\19-002\3.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-P&P .dwg, 6/26/2019 3:15:04 PM, 1:1

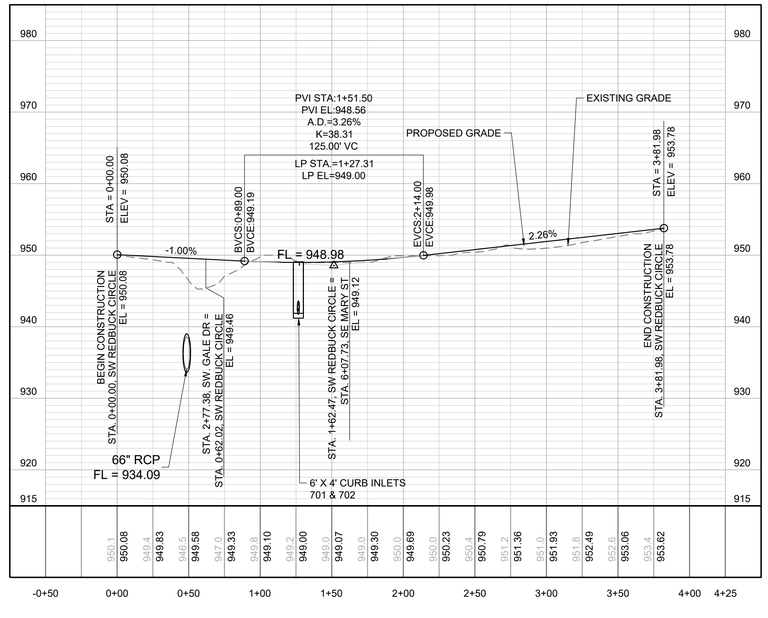


NOTE:

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

SW REDBUCK CIRCLE

1" = 50' HORIZ.
1" = 10' VERT.



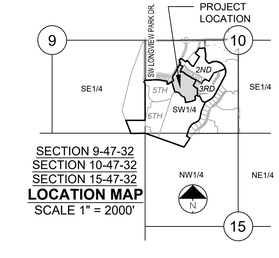
MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

BM JA-148, IS A STAMPED KC METRO DISK SET IN CONCRETE LOCATED 2 MILES WEST OF THE INTERSECTION OF HIGHWAY 50 AND 3RD ST. IT IS 44 FT NORTH OF THE CENTER OF 3RD ST. AND 102.5 FT WEST OF THE CENTER OF THE EXIT FROM THE ADJACENT PARKING LOT.

PROJECT BENCHMARK:

CHISELED "SQUARE" ON STORM CURB INLET AT NORTHWEST INTERSECTION OF SW. TOWER PARK DRIVE AND SW. LONGVIEW BOULEVARD.

NORTHING: 998893.4148
EASTING: 2803318.5413
ELEV. 1004.09



SECTION 9-47-32
SECTION 10-47-32
SECTION 15-47-32
LOCATION MAP
SCALE 1" = 2000'

MISSOURI ONE CALL SYSTEM, INC.
1-800-344-7483
STOP-CALL BEFORE YOU DIG!

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000003800-F #LA2001005237 #LS2000008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

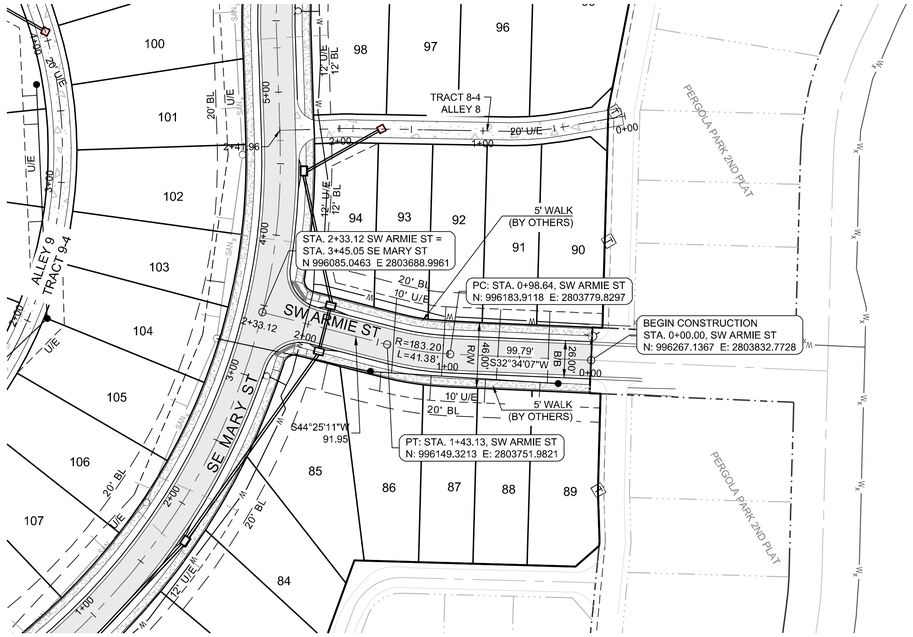
REVISION DATE	DESCRIPTION
1. 6-26-19	CITY COMMENTS
2.	
3.	
4.	
5.	
6.	
7.	
8.	

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

SW REDBUCK CR

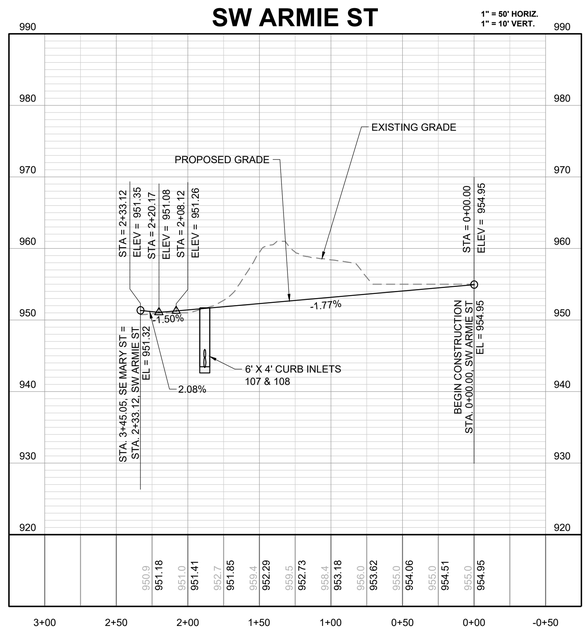
SHEET
16
OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\8.0 SS\19-002-SS-P&P.dwg, 6/26/2019 3:15:21 PM, 1:1



0 50' 100'

SCALE: 1" = 50'



NOTE:

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

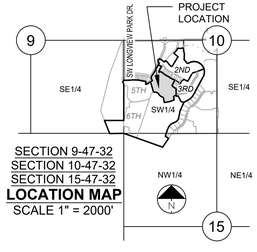
MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

BM JA-148, IS A STAMPED KC METRO DISK SET IN CONCRETE LOCATED 2 MILES WEST OF THE INTERSECTION OF HIGHWAY 50 AND 3RD ST. IT IS 44 FT NORTH OF THE CENTER OF 3RD ST. AND 102.5 FT WEST OF THE CENTER OF THE EXIT FROM THE ADJACENT PARKING LOT.

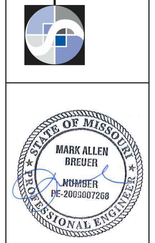
PROJECT BENCHMARK:

CHISELED "SQUARE" ON STORM CURB INLET AT NORTHWEST INTERSECTION OF SW. TOWER PARK DRIVE AND SW. LONGVIEW BOULEVARD.

NORTHING: 998893.4148
EASTING: 2803318.5413
ELEV. 1004.09



SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2002008859-F



06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT
CONTROL
- LEE'S SUMMIT, MISSOURI

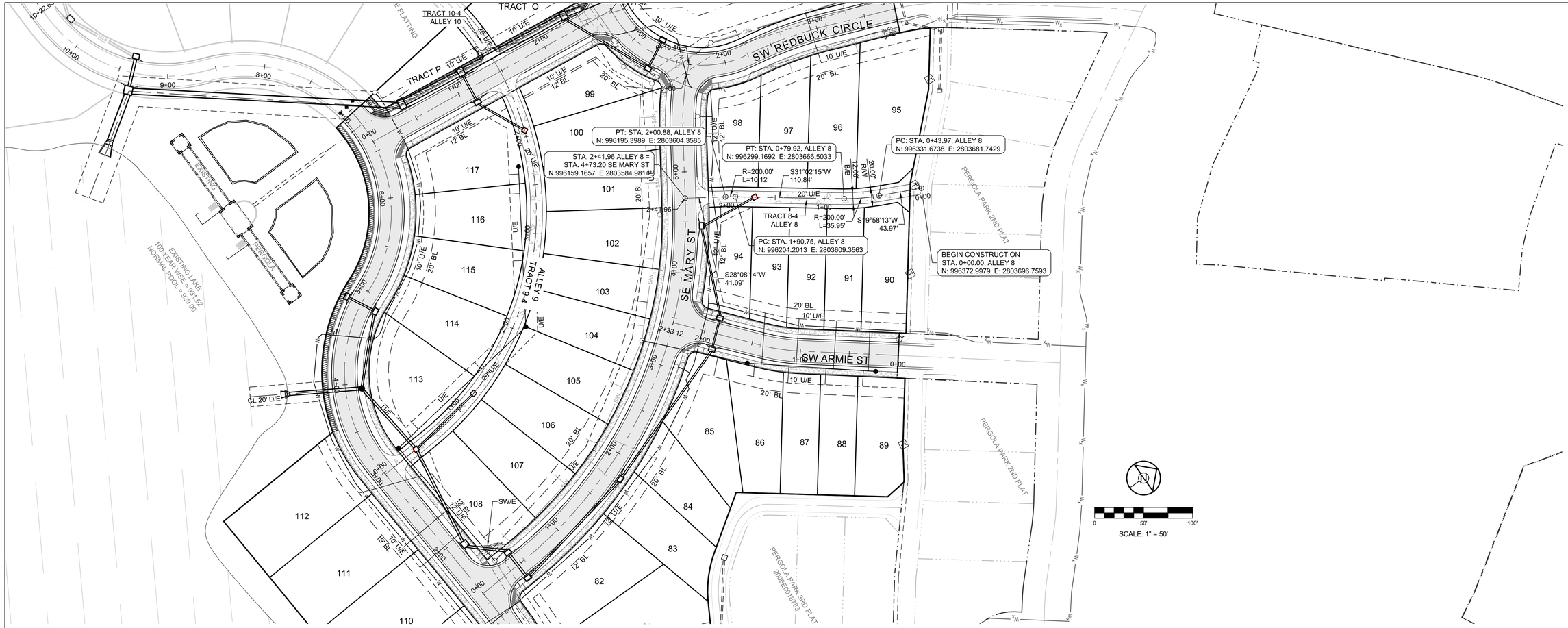
REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	
7	
8	

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

SW.ARMIE ST

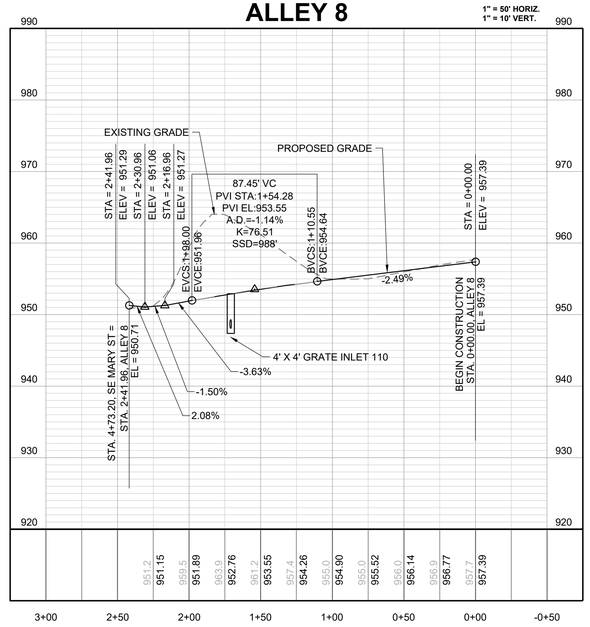
SHEET
17
OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-P&P.dwg, 8/26/2019 3:15:38 PM, 1:1



ALLEY 8

1" = 50' HORIZ.
1" = 10' VERT.



NOTE:

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

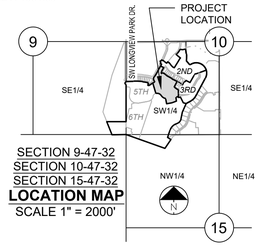
MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

BM JA-148, IS A STAMPED KC METRO DISK SET IN CONCRETE LOCATED 2 MILES WEST OF THE INTERSECTION OF HIGHWAY 50 AND 3RD ST. IT IS 44 FT NORTH OF THE CENTER OF 3RD ST. AND 102.5 FT WEST OF THE CENTER OF THE EXIT FROM THE ADJACENT PARKING LOT.

PROJECT BENCHMARK:

CHISELED "SQUARE" ON STORM CURB INLET AT NORTHWEST INTERSECTION OF SW. TOWER PARK DRIVE AND SW. LONGVIEW BOULEVARD.

NORTHING: 998893.4148
EASTING: 2803318.5413
ELEV. 1004.09



SECTION 9-47-32
SECTION 10-47-32
SECTION 15-47-32
LOCATION MAP
SCALE 1" = 2000'

MISSOURI ONE CALL SYSTEM, INC.
1-800-344-7483
STOP - CALL BEFORE YOU DIG!

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2002008859-F

MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
STATE OF MISSOURI

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, PLAN AND EROSION AND SEDIMENT - LEE'S SUMMIT, MISSOURI

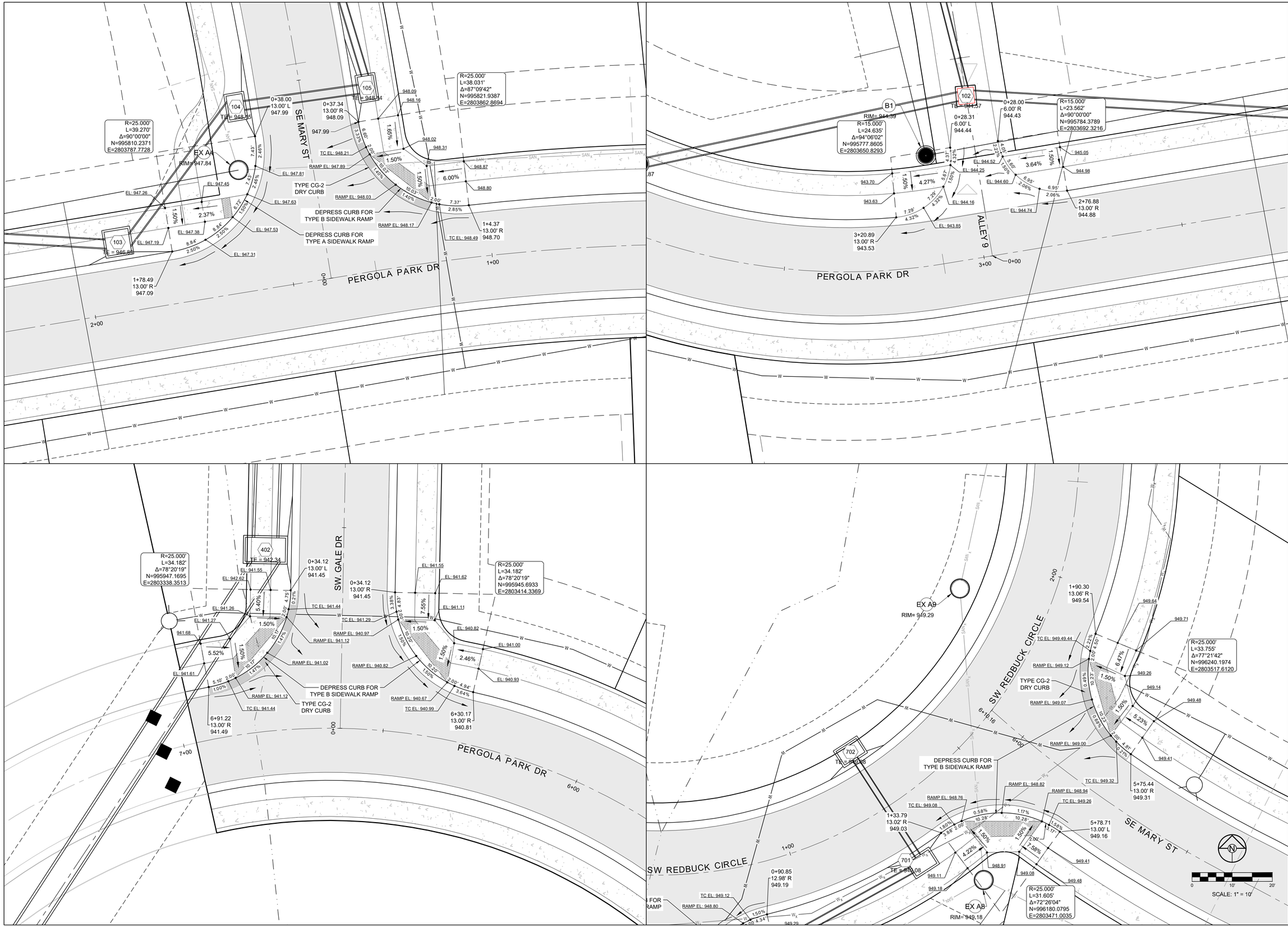
REVISION DATE	DESCRIPTION
6-26-19	CITY COMMENTS

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

ALLEY 8

SHEET
18
OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-P&P.dwg, 6/26/2019 3:15:48 PM, 1:1



SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2000008859-F

STATE OF MISSOURI
MARK ALLEN BREDER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT
CONTROL
- LEE'S SUMMIT, MISSOURI

DRAWN BY:	CHECKED BY:	DATE PREPARED:	PROJ. NUMBER:
BAL	MAB	4-15-19	19-002

REVISION DATE:	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	

INTERSECTION DETAILS

SHEET
19
OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-INTERSECTION DTLS.dwg, 6/26/2019 3:16:33 PM, 1:1

SW REDBUCK CIRCLE
SW. GALE DR
SW ARMIE ST
SE MARY ST
ALLEY 9
ALLEY 8
DEPRESS CURB FOR TYPE II SIDEWALK RAMP
TYPE CG-2 DRY CURB
R=25.000' L=32.136' Δ=73°38'58" N=996158.1914 E=2803342.4509
R=25.000' L=32.954' Δ=75°31'30" N=996155.4714 E=2803418.4124
R=25.000' L=36.993' Δ=84°46'55" N=996137.3716 E=2803687.0680
R=25.000' L=37.649' Δ=86°17'06" N=996084.8905 E=2803742.0474
R=14.999' L=25.082' Δ=95°48'50" N=996038.4213 E=2803350.1274
R=15.000' L=22.243' Δ=84°57'41" N=996080.5997 E=2803350.9450
R=15.000' L=22.338' Δ=85°19'30" N=996079.5116 E=2803406.9348
R=15.000' L=25.081' Δ=95°48'06" N=996037.3320 E=2803406.1154
R=15.000' L=23.573' Δ=90°02'29" N=996193.7733 E=2803579.6747
R=15.000' L=23.110' Δ=88°16'19" N=996173.7580 E=2803616.6017
405 TE = 948.00
404 TE = 948.51
403 TE = 944.59
702 TE = 949.08
701 TE = 949.08
602 TE = 946.28
601 TE = 944.53
108 TE = 951.76
107 TE = 951.70
110 TE = 952.89
109 TE = 951.57
C1 RIM= 952.46
EX A6 RIM= 951.23
EX A7 RIM= 951.70
RIM = 950.22
RIM = 947.80
0+29.34 12.93' R 949.80
0+34.34 12.93' R 949.75
0+58.25 18.03' R 948.64
0+90.85 12.98' R 949.19
1+33.79 13.02' R 949.03
2+45.18 13.00' L 948.72
2+43.94 13.00' R 948.75
1+67.77 13.00' L 946.09
1+67.77 13.00' R 946.10
1+25.58 13.00' L 944.63
1+25.58 13.00' R 944.63
4+98.05 6.00' R 945.22
5+2.03 6.00' L 945.17
4+45.57 6.00' R 945.84
4+41.68 6.00' L 945.85
3+79.65 13.00' R 951.75
1+97.10 13.00' R 951.44
1+96.10 13.00' L 951.50
3+9.49 13.00' R 950.98
5+75.44 13.00' R 949.31
2+13.95 6.00' R 951.51
2+14.19 6.00' L 951.77
4+94.22 13.00' R 950.90
4+53.04 13.00' R 951.67
TC EL: 949.39
RAMP EL: 949.07
TC EL: 949.12
RAMP EL: 948.80
RAMP EL: 948.92
RAMP EL: 948.65
RAMP EL: 948.77
TC EL: 949.09
RAMP EL: 948.50
TC EL: 948.82
TC EL: 949.08
RAMP EL: 948.76
TC EL: 951.69
RAMP EL: 951.37
RAMP EL: 951.30
TC EL: 951.55
RAMP EL: 951.23
TC EL: 951.38
RAMP EL: 951.06
RAMP EL: 950.92
RAMP EL: 950.78
TC EL: 951.10
2+77.42
2+33.12
2+41.86
4+00
3+00
2+00
1+00
5+00
SCALE: 1" = 10'

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2000008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007208
PROFESSIONAL ENGINEER
06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT
- LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	
7	
8	
9	

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

INTERSECTION DETAILS

SHEET 20 OF 28

I:\PROJECTS\2019\19-002\3.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-INTERSECTION DTLS.dwg, 6/26/2019 3:16:53 PM, 1:1

Storm Sewer Construction Notes	
Structure	Notes
FUT 502	STA 0+76.93, FUTURE LINE 500 INSTALL STA 0+76.93, FUTURE LINE 500 INSTALL 6 X 4 CURB INLET 193°25'14" N 995707.5662 E 2803113.0569
FUT 503	STA 1+12.08, FUTURE LINE 500 INSTALL STA 1+12.08, FUTURE LINE 500 INSTALL 4 X 4 GRATE INLET 169°43'04" N 995713.8518 E 2803078.4775
FUT 504	STA 2+35.43, FUTURE LINE 500 INSTALL STA 2+35.43, FUTURE LINE 500 INSTALL 4 X 4 GRATE INLET 72°05'54" N 995837.0622 E 2803084.2863
FUT 505	STA 3+56.69, FUTURE LINE 500 INSTALL STA 3+56.59, FUTURE LINE 500 INSTALL 4 X 4 GRATE INLET 52°37'51" N 995945.8094 E 2803137.9371
FUT 506	STA 4+70.52, FUTURE LINE 500 INSTALL STA 4+70.52, FUTURE LINE 500 INSTALL 4 X 4 GRATE INLET 50°25'10" N 996020.4745 E 2803223.8584
100	STA 0+00.00, LINE 100 INSTALL 36 INCH RCP END SECTION 245°32'19" N 995710.1628 E 2803556.3233
101	STA 0+73.29, LINE 100 INSTALL STANDARD 5' DIA ECCENTRIC MANHOLE 64°18'24" N 995776.2064 E 2803588.0987
102	STA 1+56.53, LINE 100 INSTALL 4 X 4 GRATE INLET 3°50'59" N 995793.2103 E 2803669.5838
103	STA 2+65.35, LINE 100 INSTALL 6 X 6 CURB INLET 9°57'32" N 995787.8967 E 2803778.2777
104	STA 3+10.10, LINE 100 INSTALL 6 X 4 CURB INLET 97°24'23" N 995821.6253 E 2803807.6866

Storm Sewer Construction Notes	
Structure	Notes
105	STA 3+43.11, LINE 100 INSTALL 6 X 4 CURB INLET 280°10'20" N 995826.3378 E 2803840.3550
106	STA 4+81.26, LINE 100 INSTALL 6 X 4 CURB INLET 118°45'35" N 995958.5759 E 2803800.3782
107	STA 6+43.33, LINE 100 INSTALL 6 X 4 CURB INLET 44°50'34" N 996105.6524 E 2803732.2907
108	STA 6+76.33, LINE 100 INSTALL 6 X 4 CURB INLET 44°41'26" N 996128.7494 E 2803708.7210
109	STA 7+72.27, LINE 100 INSTALL 6 X 4 CURB INLET 150°45'35" N 996159.6705 E 2803617.9003
110	STA 8+33.78, LINE 100 INSTALL 4 X 4 GRATE INLET 88°27'08" N 996221.1611 E 2803619.5619
201	STA 0+79.83, LINE 200 INSTALL 6 X 4 CURB INLET 121°29'35" N 995827.6413 E 2803527.0512
202	STA 1+12.83, LINE 200 INSTALL 6 X 4 CURB INLET 302°29'18" N 995809.9160 E 2803499.2157
301	STA 0+81.86, LINE 300 INSTALL 4 X 4 GRATE INLET 14°06'51" N 995872.6005 E 2803649.6217
400	STA 0+05.04, LINE 400 INSTALL 66 INCH RCP END SECTION. 310°08'56" N 995680.9362 E 2803240.2414

Storm Sewer Construction Notes	
Structure	Notes
401	STA 0+58.91, LINE 400 INSTALL 8 X 8 CURB INLET 137°02'37" N 995722.1112 E 2803205.5082
402	STA 3+38.28, LINE 400 INSTALL 6 X 10 CURB INLET 88°53'13" N 995956.8083 E 2803357.0420
403	STA 4+06.93, LINE 400 INSTALL 6 X 8 CURB INLET 268°53'13" N 996025.4529 E 2803358.3756
404	STA 5+26.34, LINE 400 INSTALL 6 X 8 CURB INLET 268°53'13" N 996144.8345 E 2803360.6949
405	STA 6+19.23, LINE 400 INSTALL 9 X 9 AREA INLET WITH OPENINGS ON ALL 4 SIDES AND TRASH RACK (REF. DETAIL SHEET 24) 261°18'29" N 996236.6583 E 2803374.7329
501	STA 0+35.50, LINE 500 INSTALL 6 X 4 CURB INLET 45°44'53" N 995746.3024 E 2803179.5267
601	STA 0+36.00, LINE 600 INSTALL 6 X 4 CURB INLET 268°53'13" N 996024.7536 E 2803394.3688
602	STA 0+91.86, LINE 600 INSTALL 4 X 4 GRATE INLET 40°21'37" N 996051.9081 E 2803443.1821
701	STA 1+02.48, LINE 700 INSTALL 6 X 4 CURB INLET 28°19'30" N 996192.5919 E 2803451.3689
702	STA 1+35.48, LINE 700 INSTALL 6 X 4 CURB INLET 212°54'17" N 996220.2979 E 2803433.4418

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000200380-F #LA2001005237 #LS2000208859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	

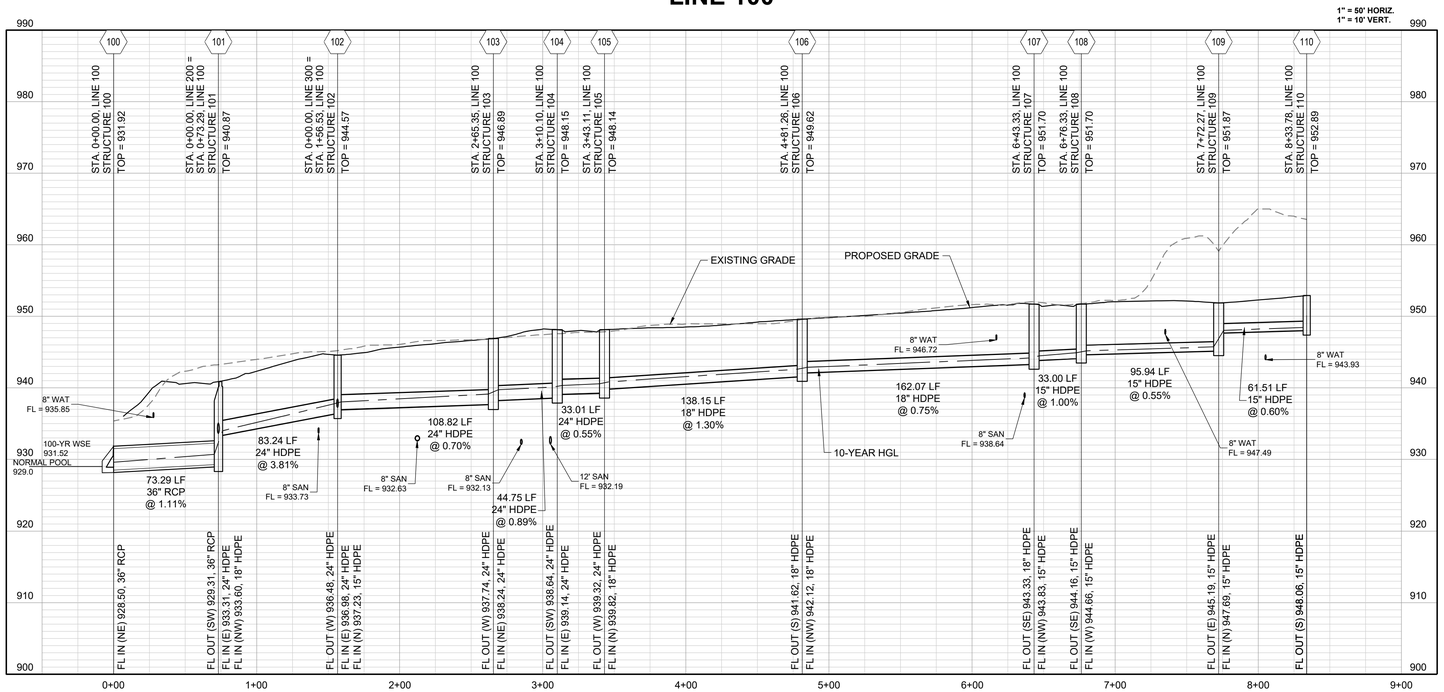
DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

STORM PLAN

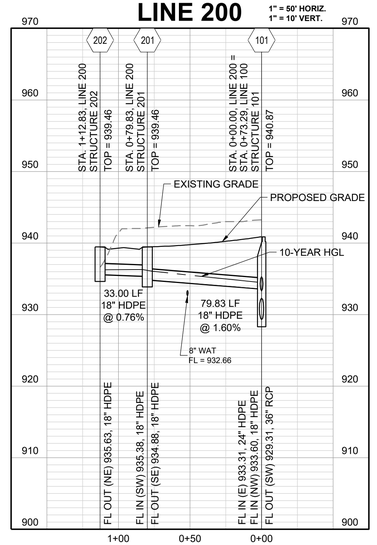
SHEET 21 OF 28

I:\PROJECTS\2019\19-002\3.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-STORM-P&P .dwg, 6/26/2019 3:17:47 PM, 1:1

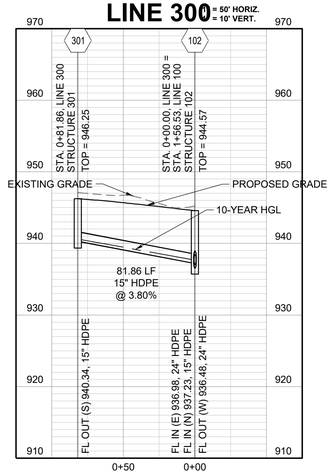
LINE 100



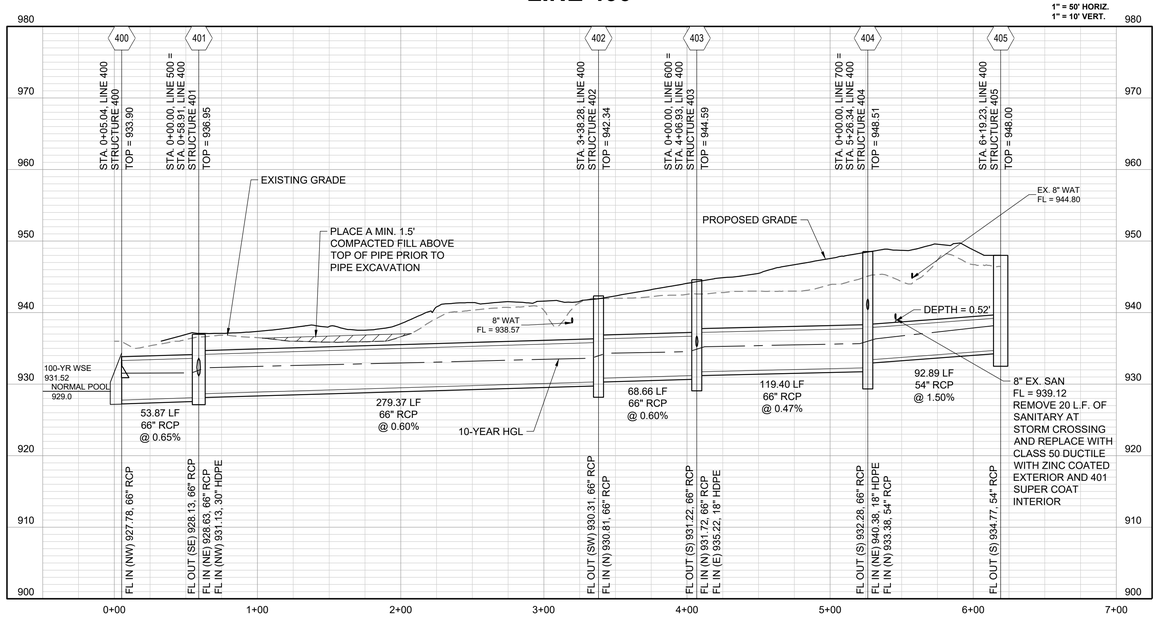
LINE 200



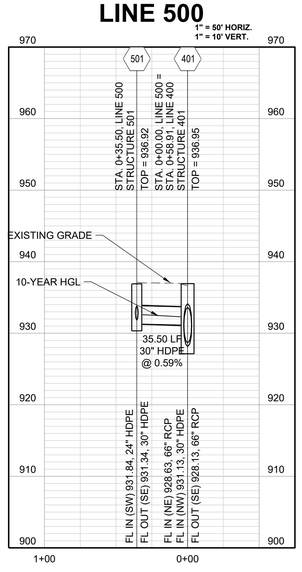
LINE 300



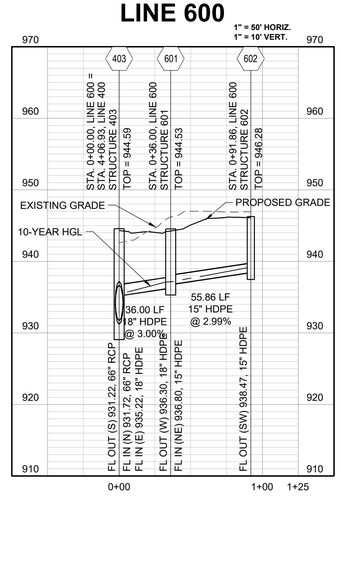
LINE 400



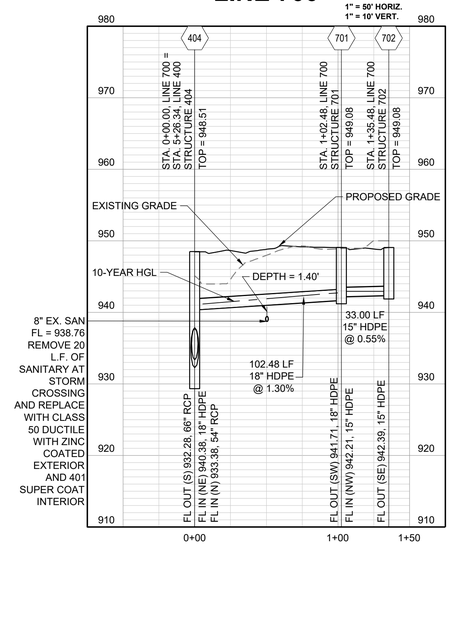
LINE 500



LINE 600



LINE 700



SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000003800-F #LA2001005237 #LS2000008859-F

MARK ALLEN BREUER
NUMBER PE-2005007268
PROFESSIONAL ENGINEER
STATE OF MISSOURI
06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

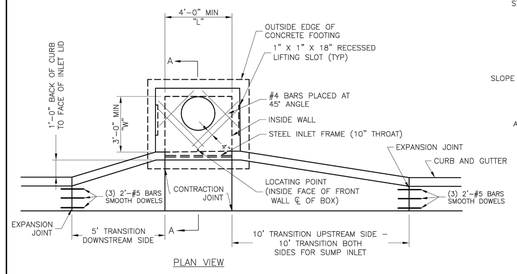
DESCRIPTION	REVISION DATE
CITY COMMENTS	6-26-19

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

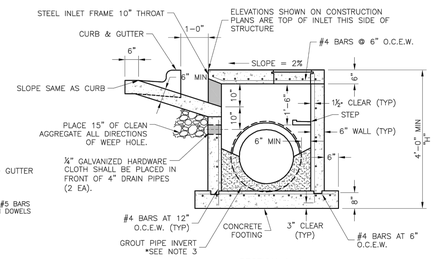
STORM PROFILES

SHEET 22 OF 28

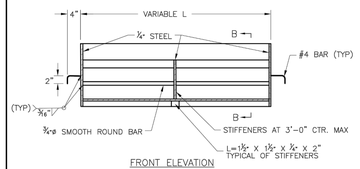
I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-STORM-P&P .dwg, 6/26/2019 3:57:01 PM, 1:1



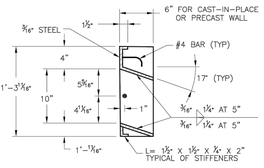
PLAN VIEW



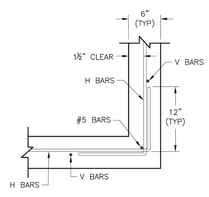
SECTION A–A



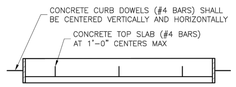
FRONT ELEVATION



SECTION B–B



WALL CORNER DETAIL



PLAN VIEW

STEEL FRAME NOTES:
1. ALL WELDS SHALL BE PERFORMED IN ACCORDANCE WITH APPROPRIATE AWS SPECIFICATIONS AND PROCEDURES.
2. ALL WELDS ON EXPOSED SURFACES SHALL BE DRESSED SO AS TO PROVIDE A PLEASING FINISHED APPEARANCE.
3. THE ENTIRE FRAME SHALL BE PAINTED A SINGLE COAT OF CHEM–PRIME #37H–78 PRIMER (GRAY) OR EQUAL.

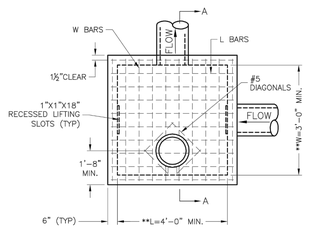
GENERAL NOTES:
1. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
2. FLOW LINES LISTED ON THE PROJECT PLANS ARE LISTED AT THE INSIDE FACE OF THE WALL.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. LOCATE MH RING AND COVER ON BLANK WALL IF POSSIBLE.
5. STEPS SHALL BE SPACED AT 1'–4" O.C. VERTICALLY ON BLANK WALL IF POSSIBLE.
6. BEVEL ALL EXPOSED EDGES WITH ¾"CHAMFER OR ½" TOOLED EDGE.
7. ON–GRADE INLETS SHALL CONFORM TO THE STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. LIFTING RINGS SHALL BE REMOVED AND SEALED WITH NON–SHRINKABLE GROUT
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

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

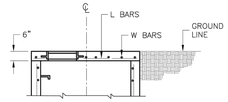
Project: STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name: CURB INLET DETAIL

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

STM-1



PLAN

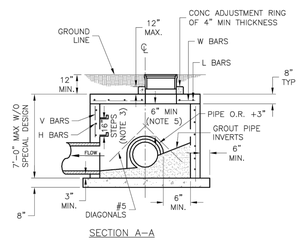


SLAB TOP ALTERNATE FOR JUNCTION BOX (SHALLOW)

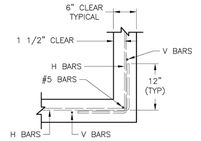
** INCREASE IN MULTIPLES OF 6" (7'–0") MAX WITHOUT SPECIAL DESIGN. (SEE PROJECT PLANS FOR DETAILS)

REINFORCING

BARS	BAR SIZE	SPACING (IN.)
H	4	12
V	4	12
L	5	6
W	5	6



SECTION A–A



WALL CORNER DETAIL

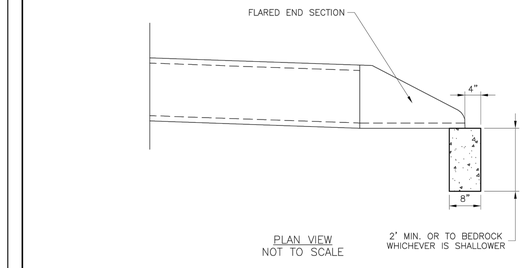
GENERAL NOTES:
1. LOCATE RING AND COVER ON BLANK WALL.
2. USE ¾" CHAMFER STRIP OR ½" R EDGER TOOL ON ALL EXPOSED CONCRETE CORNERS.
3. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 4' ON BLANK WALL IF POSSIBLE.
4. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS OF THE STRUCTURE AND THE MINIMUM DISTANCE BETWEEN BOXOUTS IS 6".
5. THE MINIMUM REINFORCING SHALL BE 1 H–BAR OVER A CAST–IN–PLACE PIPE AND 2 H–BARS OVER A PRECAST BOXOUT.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. REINFORCING OF COVERS IN STREETS REQUIRE SPECIAL DESIGN.
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

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

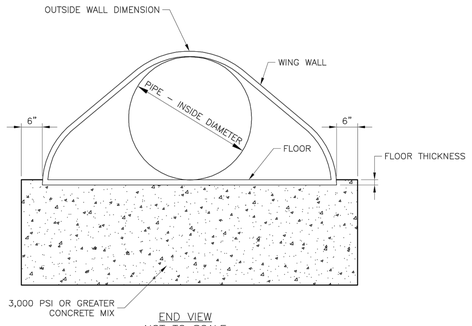
Project: STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name: JUNCTION BOX DETAIL

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

STM-3



PLAN VIEW
NOT TO SCALE



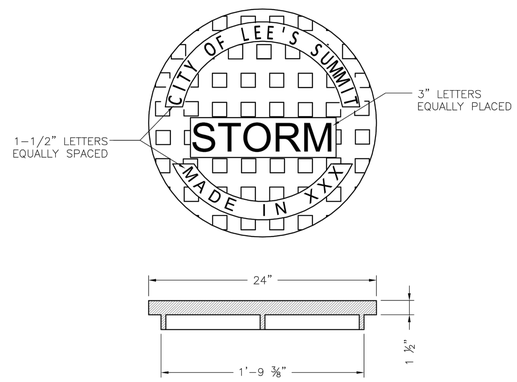
END VIEW
NOT TO SCALE

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

FLARED END SECTION SUPPORT DETAIL

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

STM-5



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

STM-6

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2000008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER
06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

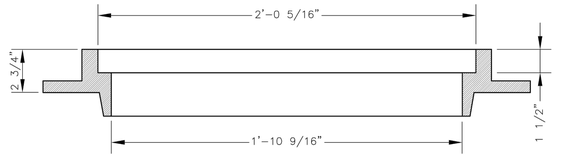
REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	
7	
8	
9	

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

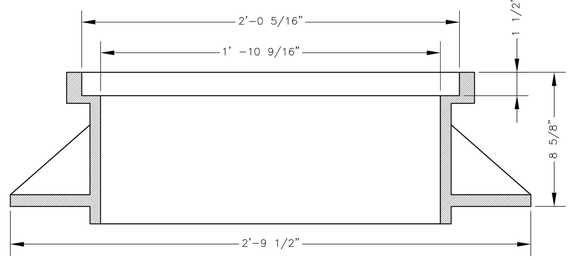
DETAIL SHEET

SHEET 23 OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-DET.dwg, 6/26/2019 3:18:11 PM, 1:1



SLAB MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS103A
MINIMUM WEIGHT = 145 LB



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

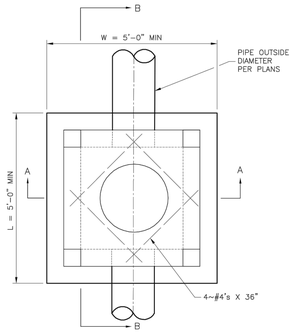
*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCTS LIST.

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

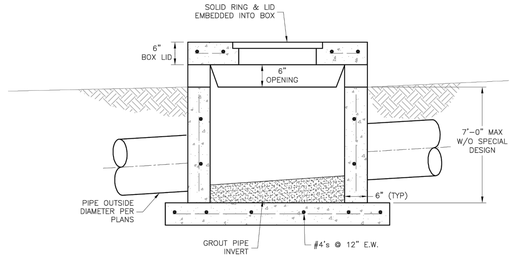
STORM MANHOLE FRAME DETAIL

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

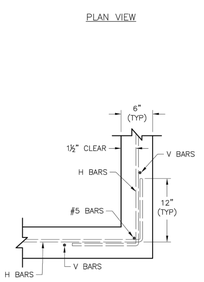
STM-7



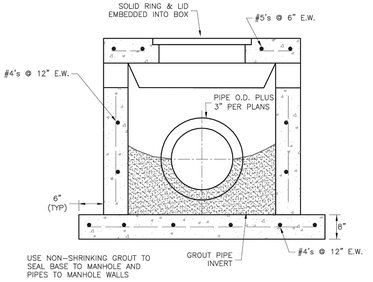
PLAN VIEW



SECTION B–B



WALL CORNER DETAIL



SECTION A–A

GENERAL NOTES:

1. LOCATE RING AND COVER OVER OUTLET ON BLANK WALL.
2. USE ¾" CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 3' ON BLANK WALL IF POSSIBLE.
5. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS OF THE STRUCTURE.
6. THE MINIMUM REINFORCING SHALL BE 1 H–BAR OVER A CAST–IN–PLACE PIPE AND 2 H–BARS OVER A PRECAST BOXOUT.
7. SHOW FIELD INLET ORIENTATION ON PLANS PLUS NUMBER AND SIDE OF OPENINGS.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

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

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO

Project:

Sheet Name: FIELD INLET DETAIL

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

STM-2

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2002008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER

06.27.19

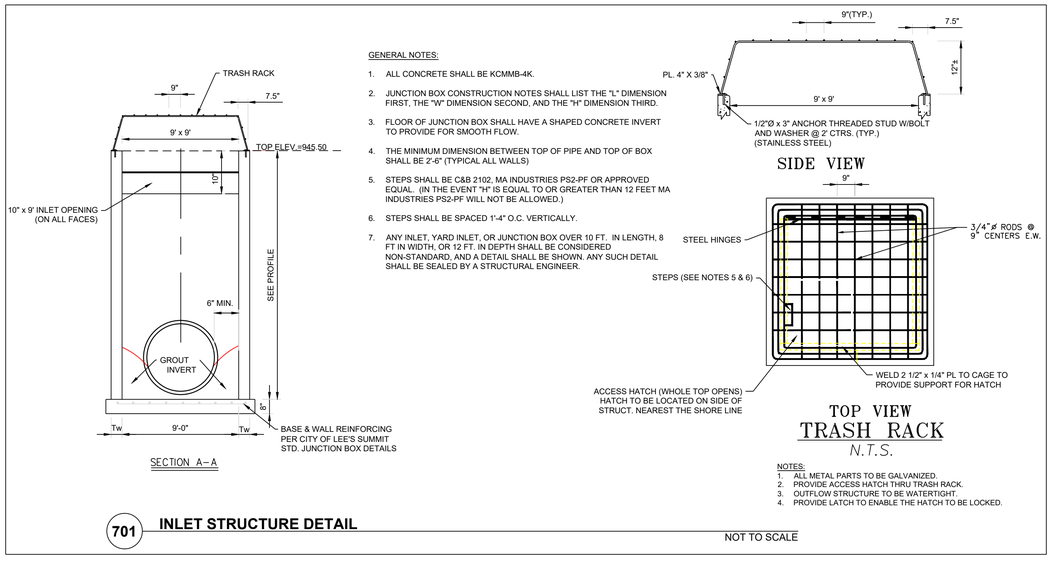
PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	
7	
8	

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

DETAIL SHEET

SHEET
24
OF 28



SECTION A–A

GENERAL NOTES:

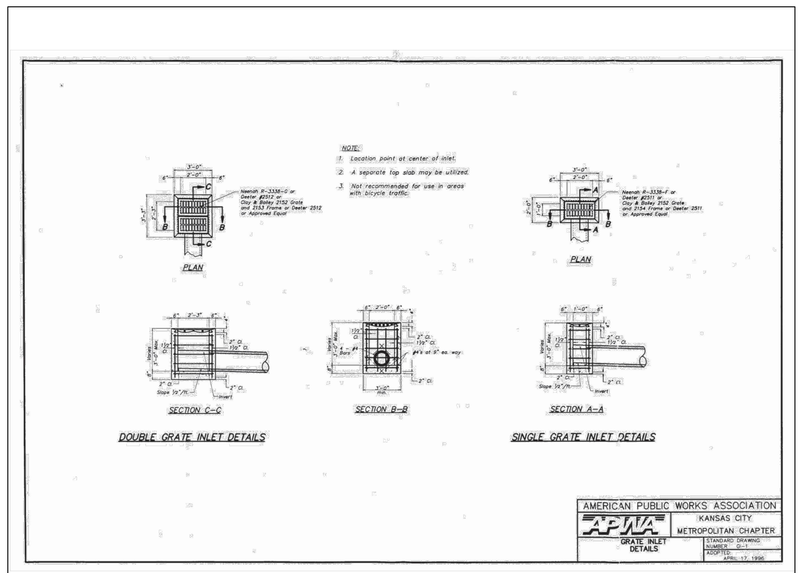
1. ALL CONCRETE SHALL BE KCMMB-4K.
2. JUNCTION BOX CONSTRUCTION NOTES SHALL LIST THE "L" DIMENSION FIRST, THE "W" DIMENSION SECOND, AND THE "H" DIMENSION THIRD.
3. FLOOR OF JUNCTION BOX SHALL HAVE A SHAPED CONCRETE INVERT TO PROVIDE FOR SMOOTH FLOW.
4. THE MINIMUM DIMENSION BETWEEN TOP OF PIPE AND TOP OF BOX SHALL BE 2'-6" (TYPICAL ALL WALLS)
5. STEPS SHALL BE C&B 2102, MA INDUSTRIES PS2-PF OR APPROVED EQUAL. (IN THE EVENT "H" IS EQUAL TO OR GREATER THAN 12 FEET MA INDUSTRIES PS2-PF WILL NOT BE ALLOWED.)
6. STEPS SHALL BE SPACED 1'-4" O.C. VERTICALLY.
7. ANY INLET, YARD INLET, OR JUNCTION BOX OVER 10 FT. IN LENGTH, 8 FT IN WIDTH, OR 12 FT. IN DEPTH SHALL BE CONSIDERED NON-STANDARD, AND A DETAIL SHALL BE SHOWN. ANY SUCH DETAIL SHALL BE SEALED BY A STRUCTURAL ENGINEER.

TOP VIEW
TRASH RACK
N.T.S.

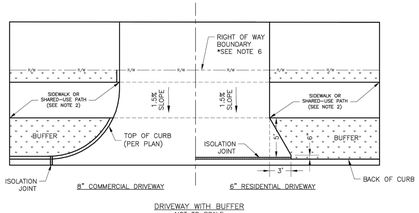
NOTES:
1. ALL METAL PARTS TO BE GALVANIZED.
2. PROVIDE ACCESS HATCH THRU TRASH RACK.
3. OUTFLOW STRUCTURE TO BE WATERTIGHT.
4. PROVIDE LATCH TO ENABLE THE HATCH TO BE LOCKED.

701 **INLET STRUCTURE DETAIL**

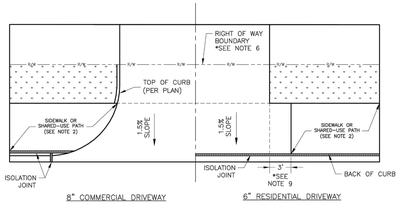
NOT TO SCALE



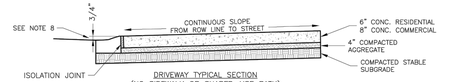
I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-DET.dwg, 6/26/2019 3:18:15 PM, 1:1



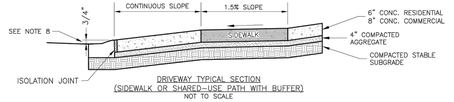
DRIVEWAY WITH BUFFER
NOT TO SCALE



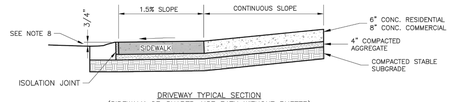
DRIVEWAY WITHOUT BUFFER
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(NO SIDEWALK OR SHARED-USE PATH)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITH BUFFER)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED-USE PATH WITHOUT BUFFER)
NOT TO SCALE

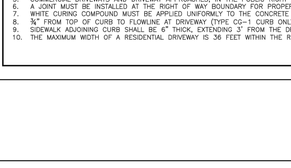
GENERAL NOTES
1. SUBGRADE SHALL BE STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. ALL DRIVE APPROACHES SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG) FOR SLOPE REQUIREMENTS WHEN SIDEWALK IS REQUIRED (SEE ADA RAMP RETROFIT DETAIL).
3. JOINT AT BACK OF CURB LINE SHALL BE AN ISOLATION JOINT FOR RESIDENTIAL DRIVEWAYS.
4. KCMMB 4K CONCRETE MIX IS REQUIRED FOR ALL CURBS.
5. COMMERCIAL DRIVEWAYS AND DRIVEWAY APPROACHES, IN THE PUBLIC RIGHT OF WAY, SHALL BE KCMMB 4K CONCRETE MIX.
6. A JOINT MUST BE INSTALLED AT THE RIGHT OF WAY BOUNDARY FOR PROPERTY DELINEATION.
7. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.
8. ¾" FROM TOP OF CURB TO FLOWLINE AT DRIVEWAY (TYPE CG-1 CURB ONLY). MUST MAINTAIN ORIGINAL FLOWLINE OF CURB.
9. SIDEWALK ADJOINING CURB SHALL BE 6" THICK, EXTENDING 3' FROM THE DRIVEWAY.
10. THE MAXIMUM WIDTH OF A RESIDENTIAL DRIVEWAY IS 36 FEET WITHIN THE RIGHT OF WAY.

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

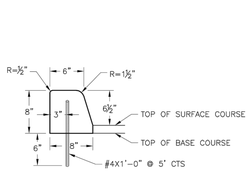
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name: DRIVEWAY DETAIL
Project:

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

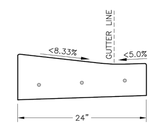
GEN-1



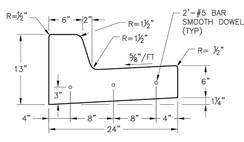
STRAIGHT CURB
(TYPE C-1)



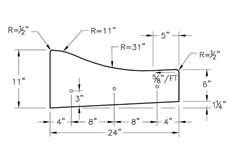
DOWELLED CURB
(TYPE DC)



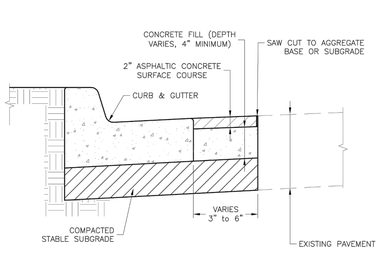
CURB & GUTTER DETAIL AT RAMP
(ADA SLOPE REQUIREMENTS)



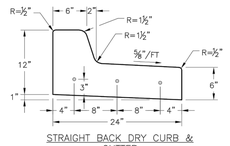
STRAIGHT BACK CURB & GUTTER
(TYPE CG-1)



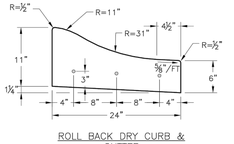
ROLL BACK CURB & GUTTER
(TYPE CG-2)



CURB REPLACEMENT DETAIL



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



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

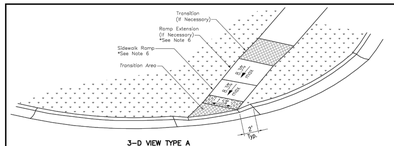
GENERAL NOTES
1. ¾" ISOLATION JOINTS WITH 3 (2'-#5 BAR) SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 3" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS THE ENTIRE CURB SECTION.
3. CONCRETE FILL SHALL HAVE UNIFORM AND SMOOTH FINISH
4. KCMMB 4K CONCRETE SHALL BE USED FOR ALL CURB.
5. ASPHALTIC CONCRETE SURFACE COURSE SHALL CONFORM TO STANDARD SPECIFICATIONS SECTION 2205.2.
6. CURBS FOR NEW STREETS SHALL BE BUILT ON ASPHALT OR AGGREGATE BASE AS SHOWN IN TYPICAL SECTION DETAIL.
7. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

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

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

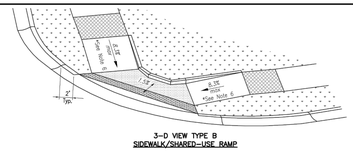
Drawn By: MJF
Checked By: DL
Date: 04/17
Proj. #

GEN-4

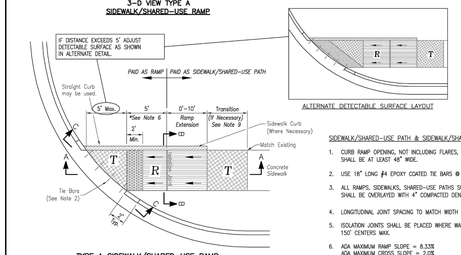


3-D VIEW TYPE A
SIDEWALK/SHARED-USE RAMP

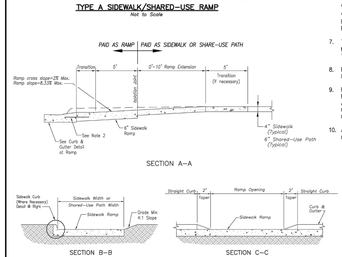
LEGEND
R SIDEWALK RAMP
TS TURNING SPACE
DETECTABLE WARNING SURFACE
T TRANSITION



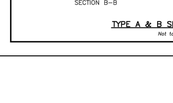
3-D VIEW TYPE B
SIDEWALK/SHARED-USE RAMP



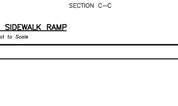
TYPE A SIDEWALK/SHARED-USE RAMP
Not to Scale



SECTION A-A

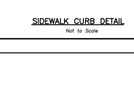


SECTION B-B

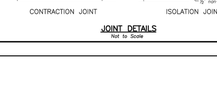


SECTION C-C

TYPE A & B SIDEWALK RAMP
Not to Scale



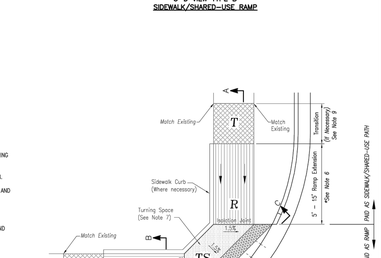
SIDEWALK CURB DETAIL
Not to Scale



JOINT DETAILS
Not to Scale

CURB & GUTTER DETAIL AT RAMP
Not to Scale

SIDEWALK/SHARED-USE PATH & SIDEWALK/SHARED-USE RAMP NOTES:
1. CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48" WIDE.
2. USE 18" LONG #4 EPOXY COATED TIE BARS @ 24" O.C. EMBED TIE BARS 9" IN EACH DIRECTION.
3. ALL RAMPS, SIDEWALKS, SHARED-USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
4. LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
5. ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 150' CENTERS MAX.
6. ADA MAXIMUM RAMP SLOPE = 8.33%
ADA MAXIMUM CROSS SLOPE = 2.0%
*ROADWAY EXCEPTION: WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 8.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5%, ±0.5%.
7. TURNING SPACES SHALL BE 1.5%, ±0.5% SLOPE IN ANY DIRECTION. TURNING SPACES SHALL HAVE A MINIMUM 4'x4' TURNING AREA. TURNING SPACES, WITH A SIDEWALK CURB, SHALL HAVE A 5' TURNING AREA PERPENDICULAR TO THE SIDEWALK CURB.
8. FOR RETROFIT WORK, SLOPES TO BE DETERMINED IN FIELD BY CONTRACTOR AND APPROVED BY CITY INSPECTOR
9. RAMP EXTENSION AREA SHALL NOT BE USED AS TRANSITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMPS TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF ADDITIONAL SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A CONTINUOUS SLOPE.
10. ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).



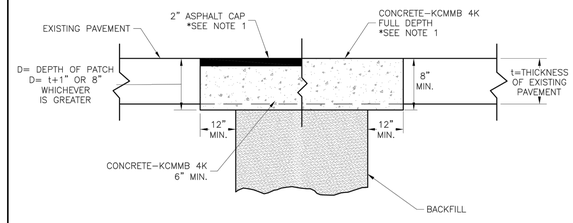
TYPE B SIDEWALK/SHARED-USE RAMP
Not to Scale

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

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name: ADA RAMP RETROFIT DETAIL
Project:

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

GEN-3A



TRENCHING/PATCHING DETAIL
NOT TO SCALE

NOTE:
1. ASPHALT CAP OR FULL DEPTH CONCRETE SHALL BE DETERMINED BY CITY INSPECTOR.

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

SCHLAGEL & ASSOCIATES, P.A.
Engineers • Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000030800-F #LA2001005237 #LS2002008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

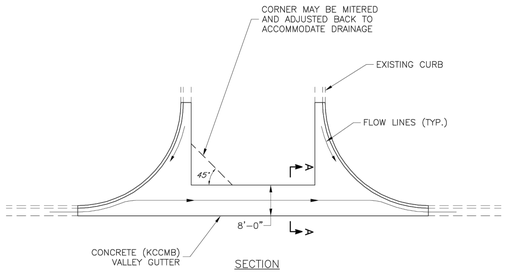
REVISION	DATE	DESCRIPTION
1	6-26-19	CITY COMMENTS
2		
3		
4		
5		
6		
7		

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

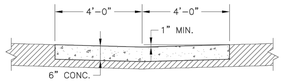
DETAIL SHEET

SHEET 25 OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-DET.dwg, 6/26/2019 3:18:17 PM, 1:1



SECTION



SECTION
Scale: 1" = 1'-0"

VALLEY GUTTER DETAIL
Intersection of Two Public Streets

LS	**LEE'S SUMMIT** MISSOURI PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063 VALLEY GUTTER DETAIL	Date: 04/17 Drawn By: MJF Checked By: DL GEN-7

TABLE LS-2: MINIMUM ASPHALT PAVEMENT THICKNESSES

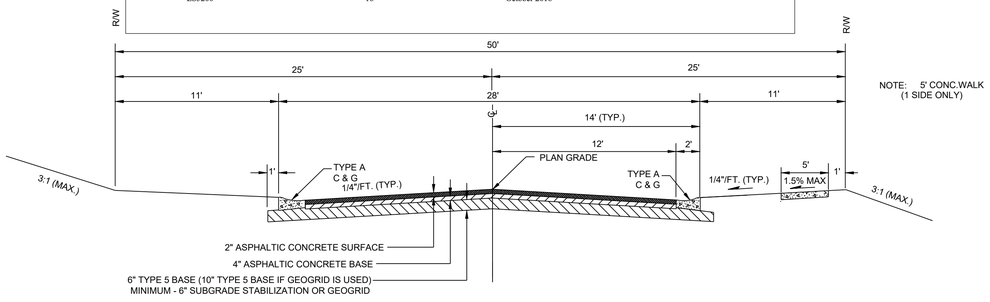
Street Classification	Pavement Option	AC Surface (in.)	AC Base (in.)	MoDOT Type 5 Base (in.)	Geogrid(1)	Chemical Subgrade Stabilization(2) (in.)
Residential Local/Access	A	2	4	6	--	6
	B	2	4	10	Geogrid	--
Residential Collector	A	2	5.5	6	--	9
	B	2	5.5	12	Geogrid	--
Commercial Industrial Local/Collector	A	2	7.5	6	--	9
	B	2	7.5	12	Geogrid	--

TABLE LS-3: MINIMUM PCC PAVEMENT THICKNESSES

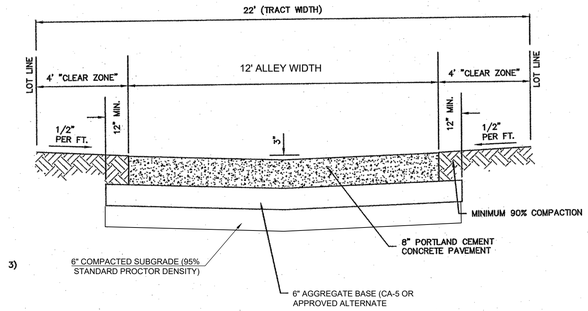
Street Classification	PCC (in.)	Aggregate Base (in.)	Subgrade Stabilization[1] (in.)
Residential Local/Access	6	4	--
Residential Collector	6	4	6
Commercial Industrial Local/Collector	8	4	9

(1) Subgrade Stabilization and 4" aggregate base may be replaced by approved geogrid and 6" of aggregate base

LS5200 16 October 2016



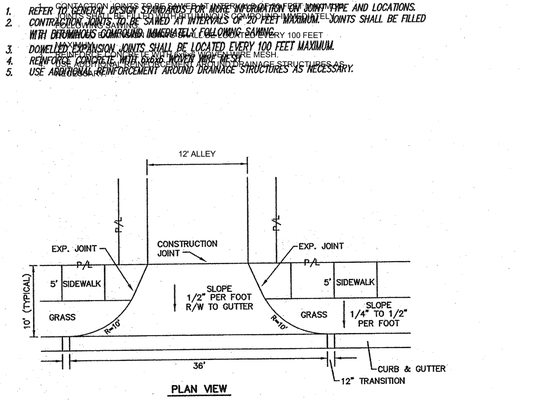
RESIDENTIAL LOCAL/ACCESS



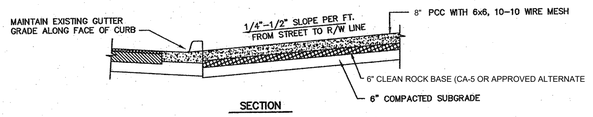
TYPICAL ALLEY SECTION

NOTES

1. REFER TO GENERAL DESIGN STANDARDS FOR MORE INFORMATION ON JOINT TYPE AND LOCATIONS.
2. CONTRACTION JOINTS TO BE SAWED AT INTERVALS OF 20 FEET MAXIMUM. JOINTS SHALL BE FILLED WITH BITUMINOUS COMPOUND IMMEDIATELY FOLLOWING SAWING.
3. DOWELED EXPANSION JOINTS SHALL BE LOCATED EVERY 100 FEET MAXIMUM.
4. REINFORCE CONCRETE WITH 6X6X6 WWF OR 6X6 W2.9XW2.9 WELDED WIRE MESH.
5. USE ADDITIONAL REINFORCEMENT AROUND DRAINAGE STRUCTURES AS NECESSARY.



PLAN VIEW



SECTION

ALLEY APRON

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2002003800-F #LA2001005237 #LS2002008859-F

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	
7	
8	
9	

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

DETAIL SHEET

SHEET 26 OF 28

I:\PROJECTS\2019\19-002\3.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-DET.dwg, 6/26/2019 3:18:20 PM, 1:1

SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Kansas State Certificates of Authority
#E-296 #LA-29 #LS-54

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2009007268
PROFESSIONAL ENGINEER

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

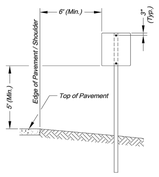
REVISION DATE	DESCRIPTION
1 6-26-19	CITY COMMENTS
2	
3	
4	
5	
6	
7	
8	

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

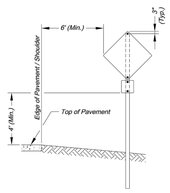
STREET SIGN PLAN

SHEET
27
OF 28

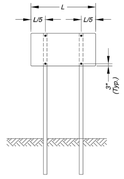
I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\6.0 SS\19-002-SS-SIGN PLAN.dwg, 6/26/2019 3:18:42 PM, 1:1



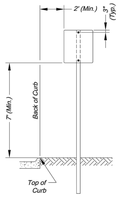
SIGN INSTALLATION FOR NON-CURBED STREET



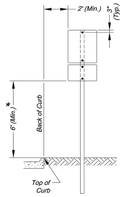
SIGN INSTALLATION WITH AUXILARY SIGN FOR NON-CURBED STREET



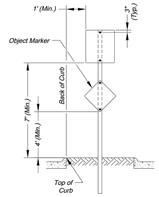
SIGN INSTALLATION WITH TWO SIGN POSTS



SIGN INSTALLATION FOR CURBED STREET



SIGN INSTALLATION WITH AUXILARY SIGN FOR CURBED STREET

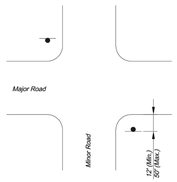


SIGN INSTALLATION FOR RAISED MEDIANS

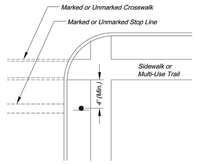
SIGN MOUNTING DETAILS

* 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.

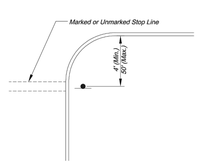
NOTE:
1. Generally, the sign mounting height should not be more than 1' greater than the minimum mounting height.



NON-CURBED INTERSECTION INSTALLATION

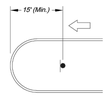


INTERSECTION WITH SIDEWALK / MULTI-USE TRAIL INSTALLATION



CURBED INTERSECTION INSTALLATION

CONTROL SIGN LOCATION



TYPICAL MEDIAN SIGN LOCATION

MEDIAN SIGN LOCATION

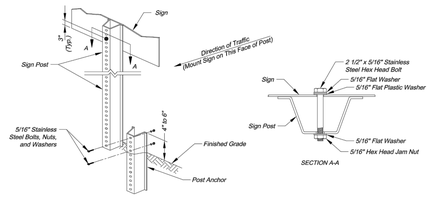
NOTES:
1. A 4" P.V.C. sleeve shall be installed in new concrete medians at each location where a sign is to be installed.
2. For existing concrete medians, a 4" hole shall be cored into the concrete.

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:
Sheet Name: SIGN MOUNTING DETAILS
STANDARD DRAWING SN-1

Drawn By: AS
Checked By: JW
Date: 08/26/2009
Project#

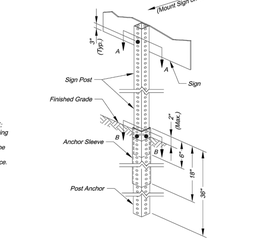
1 OF 3
1



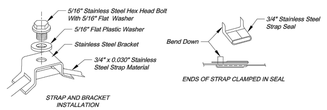
U-STEEL POST DETAILS

U-STEEL POST NOTES:
1. Splice shall be positioned entirely between finished grade line and 18" above finished grade line. Only one splice will be allowed per post.
2. U-Steel post shall be 3 lb./ft., galvanized according to ASTM A123.
3. U-Steel post can be used for installation of signs with an area of less than 2.5 square feet.
4. All posts shall be embedded a minimum of 3 feet.

PERMANENT SIGNING GENERAL NOTES:
1. All signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
2. The Contractor is responsible for avoiding any and all utilities when installing sign posts, whether the utility is indicated on the plans or not.
3. All workmanship and materials shall be subject to the inspection and approval of the Public Works Department of the City of Lee's Summit.
4. The Contractor shall stake the location of all sign posts to be installed. The City Inspector shall inspect the staking prior to installation. Minor relocation to avoid conflicts may be allowed with the approval of the City Traffic Engineer or designee.
5. Signs shown to be installed on the side of metal poles shall be mounted with stainless steel straps or wing brackets as detailed. No signs are to be installed on wood poles. See Traffic Signal Standard Drawings for the installation of signs on mast arms.
6. All post mounted signs shall be installed with breakaway anchors according to the Standard Drawings.
7. All existing signs will be used in place during construction and protected from damage unless otherwise indicated in the plans. If the Contractor damages any existing sign or posts during construction, the Contractor will be required to replace the damaged materials with new signs or posts of the same type and size at the Contractor's expense. The Contractor shall be responsible for removing and storing any signs that are to be reinstalled on the project. All equipment shall be reinstalled in good condition.
8. Existing permanent signs and posts removed by the Contractor for construction purposes which are not to be reinstalled shall be delivered to the City's Public Works Maintenance Facility (1071 SE Hamblen Road). The Contractor shall be responsible for removing and storing equipment in good condition and is fully responsible for the equipment until it is delivered.
9. All Stop, Yield, or street name signs shall be maintained in a conspicuous location for the driving public. All Stop and Yield signs removed for construction purposes can be temporarily erected in reflectorized drums (no less than 7 feet above the pavement surface) until they can be reinstalled. Any temporary Stop or Yield sign installation to be left in place overnight will require prior approval from the City Inspector.

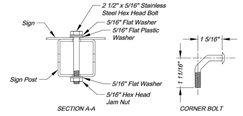


SQUARE STEEL POST INSTALLATION SEQUENCE:
1. Sign post anchor driven partially into the ground using a drive cap with a sledge or power equipment.
2. Anchor sleeve slipped over anchor and drive into the ground together with the sign post anchor.
3. Insert sign post into the post anchor and bolt in place.



STRAP TYPE SIGN SUPPORT DETAILS

METAL POLE SIGN MOUNTING NOTES:
1. Signs on metal poles shall be attached with two brackets and stainless steel bands.
2. Holes in sign for attachment to the mounting brackets shall be offset a minimum of 2 inches from the edge of the sign.
3. Holes in sign shall be located such that the sign is level.
4. All strap, bracket, and seal materials should be Type 201 stainless steel.



SQUARE STEEL POST DETAILS

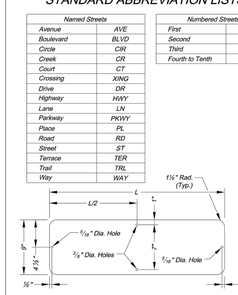
SQUARE STEEL POST NOTES:
1. Square steel sign posts and break-away anchor shall consist of the following materials:
   Sign Post - 14 Ga. 2" x 2" Square Steel Post
   Post Anchor - 12 Ga. 2 ½" x 2 ½" x 36" Square Steel Post
   Anchor Sleeve - 12 Ga. 2 ½" x 2 ½" x 18" Square Steel Post
2. 14 Gauge posts must meet a certified minimum yield strength of 80,000 psi.
3. In all installations the first hole above the finished grade line on the sign post, anchor, and anchor sleeve must be in line for the insertion of the corner bolt.
4. The maximum area for one sign post is 9.0 square feet. A sign or combination of signs with an area greater than 9.0 square feet will require two posts. Also, signs with a width greater than 36" (not including 36" x 36" diamond shaped signs) will require two posts.

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:
Sheet Name: SIGN POST DETAILS
STANDARD DRAWING SN-2

Drawn By: AS
Checked By: JW
Date: 08/26/2009
Project#

2 OF 3
2



STREET NAME SIGN BLANK DETAILS
For Mounting on Square Steel Posts

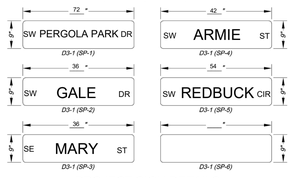
STANDARD ABBREVIATION LISTS

Named Streets	
Avenue	AVE
Boulevard	BLVD
Circle	CIR
Creek	CR
Court	CT
Crossing	XING
Drive	DR
Highway	HWY
Lane	LN
Parkway	PKWY
Place	PL
Road	RD
Street	ST
Terrace	TER
Trail	TRL
Way	WAY

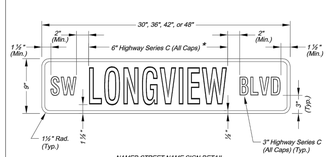
Numbered Streets	
First	ST
Second	ND
Third	RD
Fourth to Tenth	TH

STREET NAME SIGN QUANTITIES

Sign Designation	Sign Size	Sign Area (Sq. Ft.)	Number	Quantity (Sq. Ft.)
D3-1 (SP-1)	9" x 72"	4.50	2	9.00
D3-1 (SP-2)	9" x 36"	2.25	2	4.50
D3-1 (SP-3)	9" x 36"	2.25	3	6.75
D3-1 (SP-4)	9" x 42"	2.63	1	2.63
D3-1 (SP-5)	9" x 54"	3.38	2	6.76
D3-1 (SP-6)	9" x			

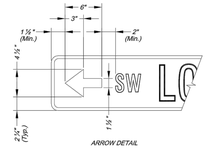


PROJECT SIGN DETAILS

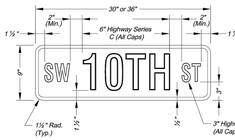


NAMED STREET NAME SIGN DETAIL

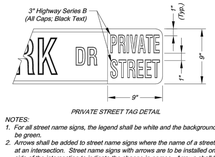
* Use Highway Series B (All Caps) in lieu of series C if necessary to fit text on a 36" sign blank.



ARROW DETAIL



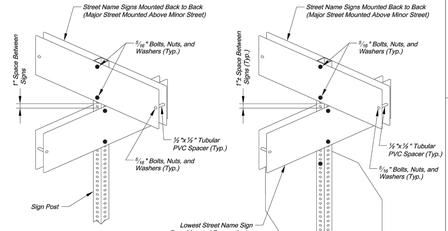
NUMBERED STREET NAME SIGN DETAIL



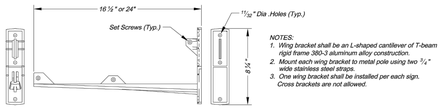
PRIVATE STREET TAG DETAIL

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.

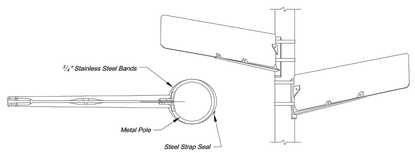
STREET NAME SIGN FACE DETAILS



SQUARE STEEL POST MOUNTING DETAILS



NOTES:
1. Wing bracket shall be an L-shaped cantilever of T-beam rigid frame 380-3 aluminum alloy construction.
2. Mount each wing bracket to metal pole using two ¾" wide stainless steel straps.
3. One wing bracket shall be installed per each sign. Cross brackets are not allowed.



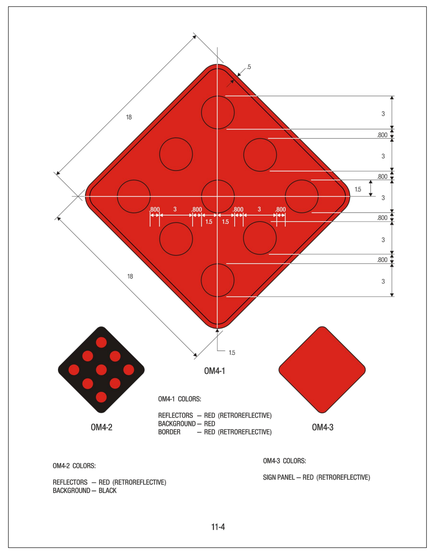
WING BRACKET MOUNTING DETAILS

CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

Project:
Sheet Name: STREET NAME SIGN DETAILS
STANDARD DRAWING SN-3

Drawn By: AS
Checked By: JW
Date: 08/26/2009
Project#

3 OF 3
3



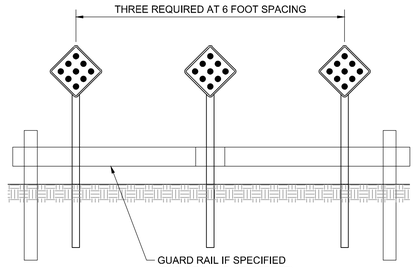
OM4-1 COLORS:
REFLECTORS – RED (RETROREFLECTIVE)
BACKGROUND – RED
BORDER – RED (RETROREFLECTIVE)

OM4-2 COLORS:
REFLECTORS – RED (RETROREFLECTIVE)
BACKGROUND – BLACK

OM4-3 COLORS:
SIGN PANEL – RED (RETROREFLECTIVE)

R1-1
STOP SIGN

NOTE:
THICKNESS OF FLAT SHEET FOR END OF ROAD MARKERS SHALL BE 0.0063". RED REFLECTORS ON RED BACKGROUND.



SCHLAGEL & ASSOCIATES, P.A.
Engineers• Planners • Surveyors • Landscape Architects
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificates of Authority
#E2000200380D-F #LA2001005237 #LS2000208859-F

06.27.19

PERGOLA PARK 4TH PLAT
STREET, STORMWATER, MASTER DRAINAGE
PLAN AND EROSION AND SEDIMENT CONTROL
- LEE'S SUMMIT, MISSOURI

REVISION DATE	DESCRIPTION
6-26-19	CITY COMMENTS

DRAWN BY: BAL
CHECKED BY: MAB
DATE PREPARED: 4-15-19
PROJ. NUMBER: 19-002

STREET SIGN DETAILS

SHEET
28
OF 28

I:\PROJECTS\2019\19-0023.0 Design\3.0 DWG Plans\4.0 SS\19-002-SS-DET .dwg, 6/26/2019 3:18:59 PM, 1:1