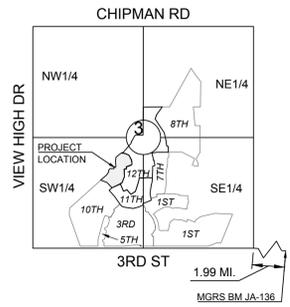


**LEGEND:**

- 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
- SW - 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
- 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<sub>x</sub> - CABLE TV - EXISTING
- FOC<sub>x</sub> - FIBER OPTIC CABLE - EXISTING
- T<sub>x</sub> - TELEPHONE LINE - EXIST.
- E<sub>x</sub> - ELECTRIC LINE - EXISTING
- OHP<sub>x</sub> - OVERHEAD POWER LINE - EXIST.
- UG<sub>x</sub> - UNDERGROUND ELECTRIC - EX.
- G<sub>x</sub> - GAS LINE - EXISTING
- W<sub>x</sub> - WATERLINE - EXISTING
- LIGHT - EXISTING
- EXISTING MANHOLE
- CLEANOUT
- EXISTING SANITARY MANHOLE
- PROPOSED SANITARY MANHOLE
- EXISTING AREA INLET
- EXISTING CURB INLET
- EXISTING GRATE INLET
- EXISTING JUNCTION BOX
- EXISTING STORM MANHOLE



SECTION 3-47N-32W  
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 Dejanette  
1300 SE Hamblin Road  
Lee's Summit, MO 64081  
Office: (816) 347-4316  
Cell: (816) 810-5234  
ron.dejanette@kcpl.com

**CITY OF LEE'S 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

**PUBLIC WATER SUPPLY DISTRICT**  
Mark Schaufler  
220 SE Green Street  
Lee's Summit, MO 64063  
(816) 969-1900

**SUMMARY OF QUANTITIES**

ITEM	QUANTITY	UNITS
1 GRADING	1	LS
2 SEEDING AND SODDING	1	LS
3 TYPE "CG-2" CURB AND GUTTER	5,165	LF
4 TYPE "CG-1 DRY" CURB AND GUTTER	127	LF
5 SAWCUT EXISTING PAVEMENT	20	LF
6 2" SURFACE COURSE - TYPE 3	7,888	SY
7 4" BASE COURSE - TYPE 1	7,888	SY
8 10" BASE COURSE - MODOT TYPE 5 (WITH GEOGRID) (OPTION B)	9,608	SY
9 6" BASE COURSE - MODOT TYPE 5 (6" CHEMICAL STABILIZATION) (OPTION A)	9,608	SY
10 15" HDPE	1,015	LF
11 18" HDPE	384	LF
12 24" HDPE	343	LF
13 30" HDPE	196	LF
14 42" HDPE	116	LF
15 15" HDPE END SECTION W/ TOEWALL	1	EA
16 42" HDPE END SECTION W/ TOEWALL	1	EA
17 STD. 6'X4' CURB INLET	13	EA
18 STD. 4'X4' AREA INLET	6	EA
19 STD. 4'X4' JUNCTION BOX	2	EA
20 STD. 5'X5' JUNCTION BOX	1	EA
21 D=15" STONE RIP-RAP W/ FILTER FABRIC	29	CY
22 EROSION CONTROL DEVICES	1	LS
23 AB-3 FOR STREET CROSSING	474	LF
24 SIGNAGE & PAVEMENT MARKING	1	LS
25 CITY PERMIT FEE	1	LS
26 LAND DISTURBANCE CITY FEE	1	LS
27 BONDS	1	LS
28 6" SIDEWALK	2,614	LF
29 TYPE "A" SIDEWALK RAMP	4	EA
30 TYPE "B" SIDEWALK RAMP	1	EA
31 TYPE "M" SIDEWALK RAMP	2	EA
32 4" STACKED STONE RETAINING WALL	297	LF

**GENERAL NOTES:**

- ALL CONSTRUCTION TO FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.
- ALL WORKMANSHIP AND MATERIALS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEERING DEPARTMENT OF THE CITY OF LEE'S SUMMIT, MISSOURI.
- LINEAL FOOT MEASUREMENTS SHOWN ON THE PLANS ARE HORIZONTAL MEASUREMENTS, NOT SLOPE MEASUREMENTS. ALL PAYMENTS SHALL BE MADE ON HORIZONTAL MEASUREMENTS.
- NO GEOLOGICAL INVESTIGATION HAS BEEN PERFORMED ON THE SITE.
- THE UTILITY LOCATIONS SHOWN ON THESE PLANS ARE TAKEN FROM UTILITY COMPANY RECORDS AND APPARENT FIELD LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
- 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.
- PRIOR TO ORDERING PRECAST STRUCTURES, SHOP DRAWING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL. AFTER APPROVAL OF THE SHOP DRAWINGS, A COPY OF THE APPROVED AND SIGNED SHOP DRAWINGS SHALL BE PROVIDED TO THE CITY INSPECTOR UPON REQUEST.
- THE CONTRACTOR SHALL PROTECT ALL MAJOR TREES FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE.
- CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND ORDINANCES.
- ALL WASTE MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR, OR AS DIRECTED BY THE OWNER.
- ALL EXCAVATIONS SHALL BE UNCLASSIFIED. NO SEPARATE PAYMENT WILL BE MADE FOR ROCK EXCAVATION.
- THE CONTRACTOR SHALL CONTROL THE EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION, AND SHALL KEEP THE STREETS CLEAN OF MUD AND DEBRIS.
- ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED.
- THE CONTRACTOR SHALL CONTACT DEVELOPMENT SERVICES INSPECTIONS AT: 816-969-1800 TO OBTAIN A DEVELOPMENT SERVICES CONSTRUCTION PERMIT. A MINIMUM 48 HOUR NOTICE SHALL BE GIVEN PRIOR TO PERMIT ISSUANCE.
- THE CONTRACTOR SHALL CONTACT THE CITY'S EROSION CONTROL SPECIALIST AT: 816-969-1800 PRIOR TO ANY LAND DISTURBANCE.
- THE CONTRACTOR SHALL CONTACT THE RIGHT OF WAY INSPECTOR AT 816-969-1800 PRIOR TO ANY LAND DISTURBANCE ACTIVITIES WITHIN THE RIGHT OF WAY. THESE ACTIVITIES MAY REQUIRE A PERMIT.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL TRAFFIC HANDLING MEASURES NECESSARY TO ENSURE THAT THE GENERAL PUBLIC IS PROTECTED AT ALL TIMES. TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD-LATEST EDITION).

**STREET NOTES:**

- 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.
- ALL INSPECTION OF STREET CONSTRUCTION TO BE PERFORMED BY THE CITY OF LEE'S SUMMIT PUBLIC WORKS DEPARTMENT.
- CURB RETURN RADII SHALL BE 25' AT BACK OF CURB UNLESS OTHERWISE NOTED.
- SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
- ASSUMED DESIGN SPEED = 25 MPH (COLLECTOR).
- MINIMUM STOPPING SIGHT DISTANCE = 155 FEET.
- MINIMUM K. SAG CURVE = 26 (14 WITH LIGHTING), CREST CURVE = 12.
- GRADE INTERSECTIONS TO DRAIN AS SHOWN.
- SSD = STOPPING SIGHT DISTANCE.

\* NOTE:  
QUANTITIES PULLED FOR STREET OPTION A & B FROM CITY OF LEE'S SUMMIT DESIGN CRITERIA, SECTION 5200, TABLE LS-2: MINIMUM ASPHALT PAVEMENT THICKNESSES. EITHER IS ALLOWED AT CONTRACTORS OPTION (SEE TABLE ON DETAIL SHEET 21.)

# STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL FOR WINTERSET VALLEY, 12TH PLAT IN THE CITY OF LEE'S SUMMIT JACKSON COUNTY, MO

CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.

KSC 7-23-19  
BY DATE

**EARTHWORK:**

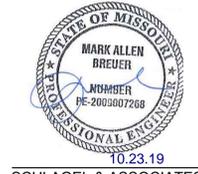
- IT IS RECOMMENDED THAT A GEOTECHNICAL ENGINEER OBSERVE AND DOCUMENT ALL EARTHWORK ACTIVITIES.
- CONTOURS HAVE BEEN SHOWN AT 1-FOOT OR 2-FOOT INTERVALS, AS INDICATED. GRADING SHALL CONSIST OF COMPLETING THE EARTHWORK REQUIRED TO BRING THE PHYSICAL GROUND ELEVATIONS OF THE EXISTING SITE TO THE FINISHED GRADE (OR SUB-GRADE) ELEVATIONS PROVIDED ON THE PLANS AS SPOT GRADES, CONTOURS OR OTHERS MEANS AS INDICATED ON THE PLANS.
- THE EXISTING SITE TOPOGRAPHY DEPICTED ON THE PLANS BY CONTOURING HAS BEEN ESTABLISHED BY AERIAL PHOTOGRAPHY AND FIELD VERIFIED BY G.P.S. OBSERVATION NEAR JULY 18TH, 2016. 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.
- PROPOSED CONTOURS ARE TO APPROXIMATE FINISHED GRADE.
- UNLESS OTHERWISE NOTED, PAYMENT FOR EARTHWORK SHALL INCLUDE BACKFILLING OF THE CURB AND GUTTER, SIDEWALK AND FURTHER MANIPULATION OF UTILITY TRENCH SPOILS. THE SITE SHALL BE LEFT IN A MOWABLE CONDITION AND POSITIVE DRAINAGE MAINTAINED THROUGHOUT.
- UNLESS OTHERWISE NOTED, ALL EARTHWORK IS CONSIDERED UNCLASSIFIED. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR ROCK OR SHALE EXCAVATION, UNLESS SPECIFICALLY STATED OTHERWISE.
- 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.
- 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 THAN 6-INCHES AND OTHER DELETERIOUS MATERIALS SHALL BE REMOVED AND PROPERLY DISPOSED OF OFFSITE OR AS DIRECTED BY THE OWNER OR HIS APPOINTED REPRESENTATIVE.
- 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).
- FILL MATERIALS SHALL BE PER GEOTECHNICAL REPORT AND SHALL NOT INCLUDE ORGANIC MATTER, DEBRIS OR TOPSOIL. ALL FILLS PLACED ON SLOPES GREATER THAN 6:1 SHALL BE BENCHED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REDISTRIBUTING THE TOPSOIL OVER PROPOSED TURF AND LANDSCAPED AREAS TO A MINIMUM DEPTH OF 6-INCHES BELOW FINAL GRADE.
- 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
- ALL DISTURBED AREAS SHALL BE FERTILIZED, SEEDING 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.
- ALL DISTURBED AREAS IN THE RIGHT-OF-WAY SHALL BE SODDED.
- UNDERDRAINS ARE RECOMMENDED FOR ALL PAVED AREAS ADJACENT TO IRRIGATED TURF AND LANDSCAPED BEDS.
- CONTRACTOR SHALL ADHERE TO THE REPORTING REQUIREMENTS OUTLINED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THIS PROJECT. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PROPERLY MAINTAINED AND KEPT CLEAN OF SILT AND DEBRIS AND IN GOOD WORKING ORDER. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS REQUIRED.

**UTILITIES:**

- EXISTING UTILITIES HAVE BEEN SHOWN TO THE GREATEST EXTENT POSSIBLE BASED UPON INFORMATION PROVIDED TO THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE RESPECTIVE UTILITY COMPANIES AND FIELD LOCATING UTILITIES PRIOR TO CONSTRUCTION AND IDENTIFYING ANY POTENTIAL CONFLICTS. ALL CONFLICTS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- 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.
- 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.
- UTILITY SEPARATION: WATERLINES SHALL HAVE A MINIMUM OF 10 FEET HORIZONTAL AND 2 FEET VERTICAL SEPARATION FROM ALL SANITARY AND STORM SEWER LINES. IF MINIMUM SEPARATIONS CAN NOT BE OBTAINED, CONCRETE ENCASEMENT OF THE SANITARY OR STORM SEWER LINE SHALL BE REQUIRED 10 FEET IN EACH DIRECTION OF THE CONFLICT.
- 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.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING RESPECTIVE UTILITY COMPANIES 48-HOURS IN ADVANCE FOR THE INSPECTION OF ANY PROPOSED UTILITY MAIN EXTENSION OR SERVICE LINE OR SERVICE CONNECTION TO ANY EXISTING MAIN.
- TRENCH SPOILS SHALL BE NEATLY PLACED ONSITE ADJACENT TO THE TRENCH, AND COMPACTED TO PREVENT SATURATION AND EXCESS SEDIMENT RUNOFF. UNSUITABLE MATERIALS, EXCESS ROCK AND SHALE, ASPHALT, CONCRETE, TREES, BRUSH ETC. SHALL BE PROPERLY DISPOSED OF OFFSITE. MATERIALS MAY BE WASTED ONSITE AT THE DIRECTION OF THE OWNER OR HIS APPOINTED REPRESENTATIVE.

Sheet Number	Sheet Title
1	COVER SHEET
2	PRE-CLEARING PLAN
3	ECP-CONSTRUCTION PLAN
4	FINAL STABILIZATION PLAN
5	EROSION CONTROL DETAILS
6	EROSION CONTROL DETAILS
7	GENERAL LAYOUT
8	MASTER DRAINAGE PLAN - GRADING PLAN
9	MASTER DRAINAGE PLAN - SPOT ELEVATIONS
10	MASTER DRAINAGE PLAN - DRAINAGE AREA MAP
11	NW AUDUBON LANE PLAN AND PROFILE
12	NW THOREAU DRIVE PLAN AND PROFILE
13	MACKENZIE DRIVE PLAN AND PROFILE
14	CARSON DRIVE PLAN AND PROFILE
15	INTERSECTION DETAILS
16	INTERSECTION DETAILS
17	STORM PLAN
18	STORM PROFILE
19	STORM PROFILE
20	DETAILS
21	DETAILS
22	DETAILS
23	DETAILS
24	SIGN PLAN
25	STREET SIGN DETAILS

**PREPARED AND SUBMITTED BY:**



10.23.19  
SCHLAGEL & ASSOCIATES, P.A.

**APPROVED BY:**

CITY ENGINEER  
APPROVED FOR ONE YEAR FROM THIS DATE

DATE

**OWNER/DEVELOPER:**

GALE COMMUNITIES, INC.  
DAVID GALE  
400 SW LONGVIEW BLVD, STE 109  
LEE'S SUMMIT, MO 64081  
p 816-645-2336  
f -  
DGALE@GALECOMMUNITIES.COM

**MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:**

BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

ELEV. 993.11'

**PROJECT BENCH MARK:**

SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.

ELEV. 935.45'

**SCHLAGEL & ASSOCIATES, P.A.**  
Engineers - Planners - Surveyors - Landscape Architects  
14920 West 10th Street • Lenexa, Kansas 66215  
(913) 492-9188 • Fax: (913) 492-9400  
WWW.SCHLAGELASSOCIATES.COM  
Missouri State Certificates of Authority  
#E200203690F #AC2001005237 #S200200899F

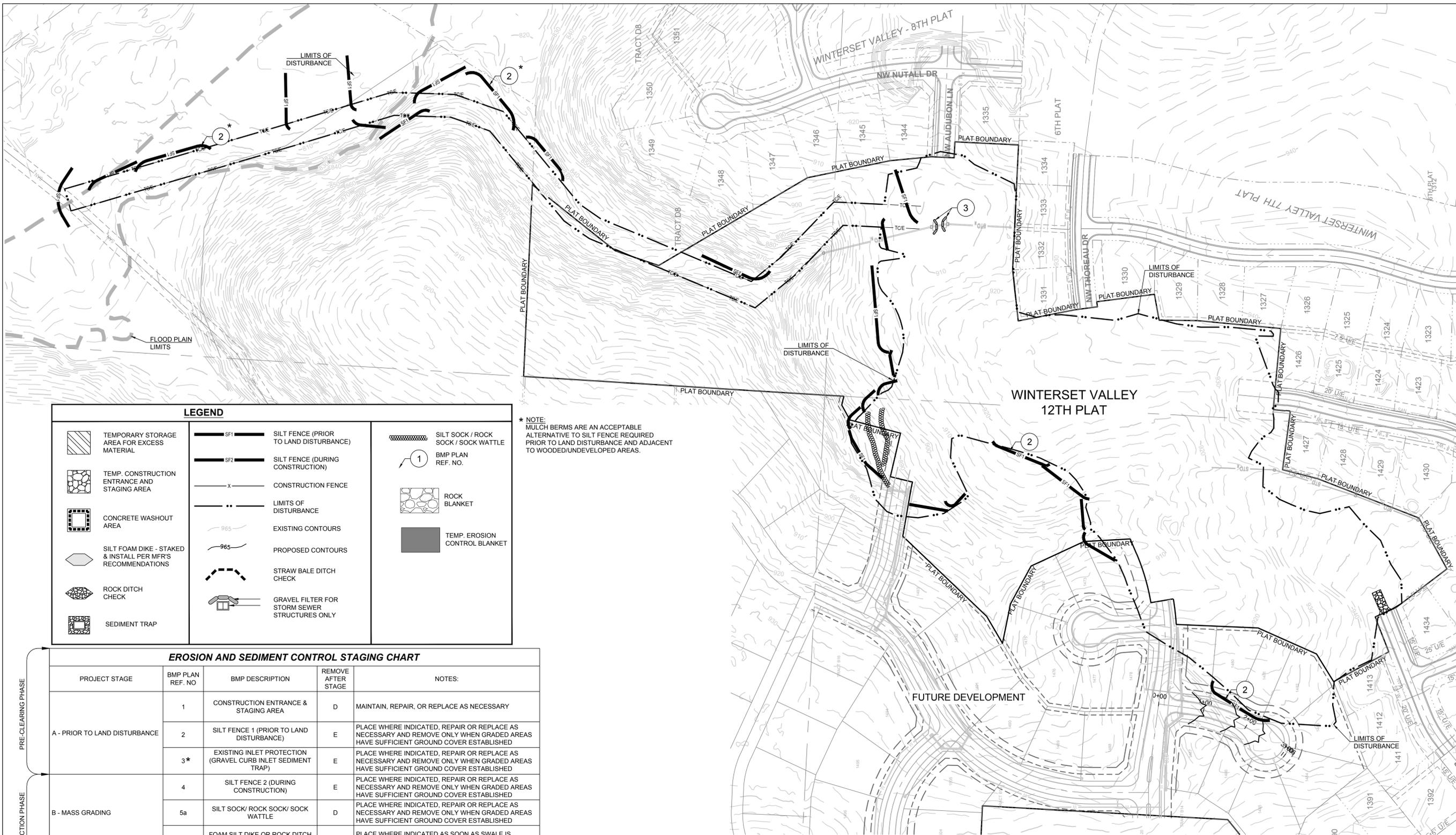
WINTERSET VALLEY, 12TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
EROSION AND SEDIMENT CONTROL  
AUDUBON LANE AND CARSON DRIVE  
LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
09/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS

**COVER SHEET**

SHEET

1  
OF 25



LEGEND			
	TEMPORARY STORAGE AREA FOR EXCESS MATERIAL		SILT FENCE (PRIOR TO LAND DISTURBANCE)
	TEMP. CONSTRUCTION ENTRANCE AND STAGING AREA		SILT FENCE (DURING CONSTRUCTION)
	CONCRETE WASHOUT AREA		CONSTRUCTION FENCE
	SILT FOAM DIKE - STAKED & INSTALL PER MFR'S RECOMMENDATIONS		LIMITS OF DISTURBANCE
	ROCK DITCH CHECK		EXISTING CONTOURS
	SEDIMENT TRAP		PROPOSED CONTOURS
			STRAW BALE DITCH CHECK
			GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY
			SILT SOCK / ROCK SOCK / SOCK WATTLE
			ROCK BLANKET
			TEMP. EROSION CONTROL BLANKET

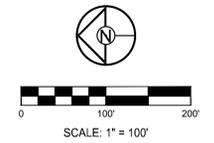
\* NOTE: MULCH BERMS ARE AN ACCEPTABLE ALTERNATIVE TO SILT FENCE REQUIRED PRIOR TO LAND DISTURBANCE AND ADJACENT TO WOODED/UNDEVELOPED AREAS.

EROSION AND SEDIMENT CONTROL STAGING CHART				
PROJECT STAGE	BMP PLAN REF. NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
A - PRIOR TO LAND DISTURBANCE	1	CONSTRUCTION ENTRANCE & STAGING AREA	D	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
	2	SILT FENCE 1 (PRIOR TO LAND DISTURBANCE)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
	3*	EXISTING INLET PROTECTION (GRAVEL CURB INLET SEDIMENT TRAP)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
B - MASS GRADING	4	SILT FENCE 2 (DURING CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
	5a	SILT SOCK/ ROCK SOCK/ SOCK WATTLE	D	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
	5	FOAM SILT DIKE OR ROCK DITCH CHECK	E	PLACE WHERE INDICATED AS SOON AS SWALE IS ESTABLISHED, REPAIR OR REPLACE AS NECESSARY
C - UTILITY CONSTRUCTION	6	CONCRETE WASHOUT AREA	E	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
	7	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
D - AFTER PAVING OPERATIONS	8	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
	9	SILT FENCE 2 (AFTER CURB CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
	10	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.

**DISTURBED AREA = 17.08 A.C.**

**SITE SPECIFIC NOTES:**

- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
- THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
- NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBER 29095C0412G DATED JANUARY 20, 2017.
- ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
- ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY THE CITY ENGINEER AT ANY TIME EXISTING MEASURES ARE FOUND TO BE INEFFECTIVE OR PROBLEMATIC AREAS ARE NOTED IN THE FIELD.
- STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING, OR OTHER SOIL DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING BMPs. INITIAL STABILIZATION ACTIVITIES MUST BE COMPLETED WITHIN 14 DAYS AFTER SOIL DISTURBING ACTIVITIES CEASE.
- ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN.
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- AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.



CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.

KSC 7-23-19  
BY DATE

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 Engineers - Planners - Surveyors - Landscape Architects  
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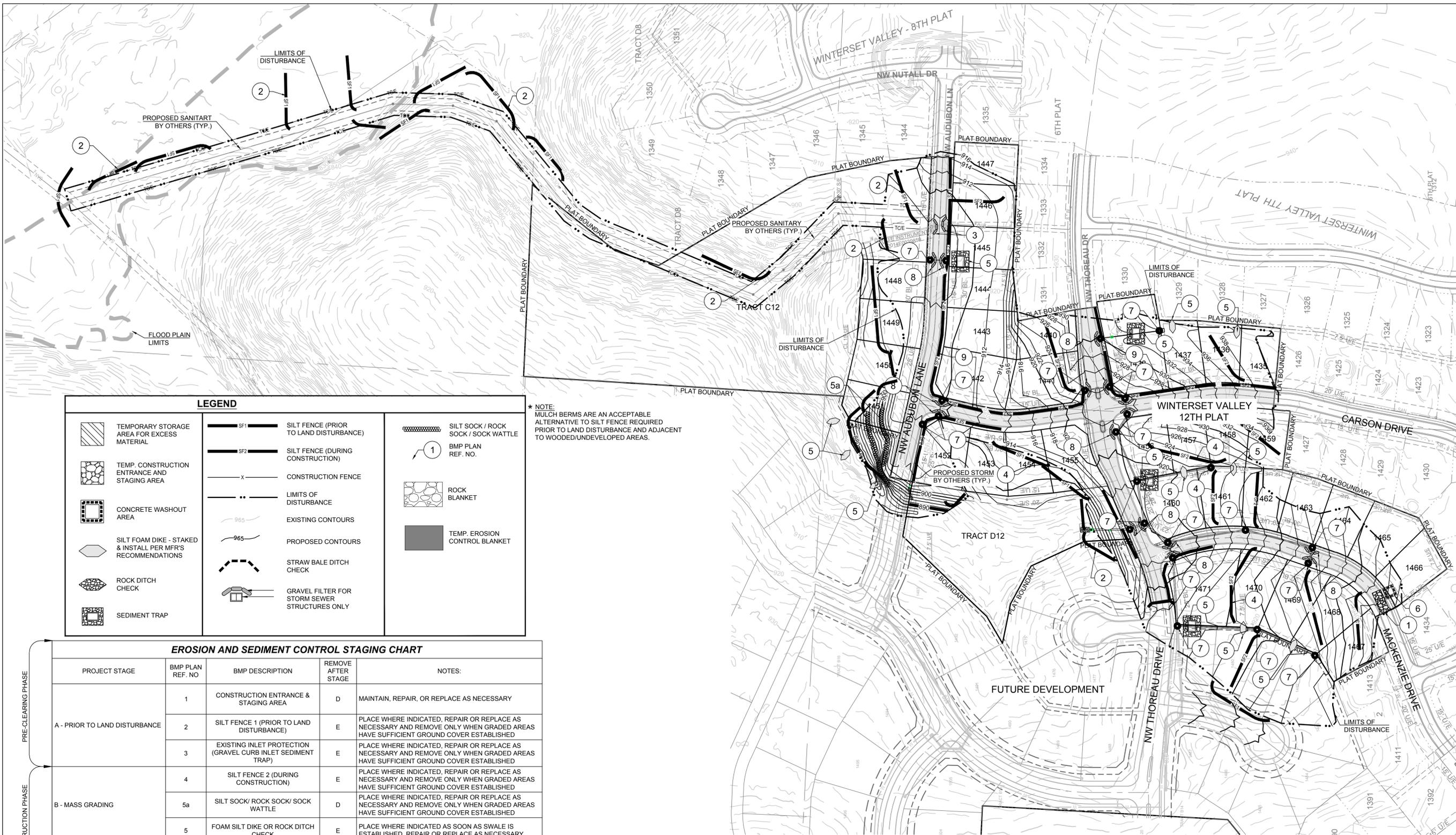


WINTERSET VALLEY, 12TH PLAT  
 STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
 EROSION AND SEDIMENT CONTROL  
 AUDUBON LANE AND CARSON DRIVE  
 LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
09/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS
4/20/19	
17-134	

PRE-CLEARING PLAN  
 SHEET  
**2**  
 OF 25

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LEGEND		
	TEMPORARY STORAGE AREA FOR EXCESS MATERIAL	
	TEMP. CONSTRUCTION ENTRANCE AND STAGING AREA	
	CONCRETE WASHOUT AREA	
	SILT FOAM DIKE - STAKED & INSTALL PER MFR'S RECOMMENDATIONS	
	ROCK DITCH CHECK	
	SEDIMENT TRAP	
	SILT FENCE (PRIOR TO LAND DISTURBANCE)	
	SILT FENCE (DURING CONSTRUCTION)	
	CONSTRUCTION FENCE	
	LIMITS OF DISTURBANCE	
	EXISTING CONTOURS	
	PROPOSED CONTOURS	
	STRAW BALE DITCH CHECK	
	GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY	

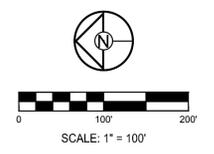
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EROSION AND SEDIMENT CONTROL STAGING CHART					
PHASE	PROJECT STAGE	BMP PLAN REF. NO.	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
PRE-CLEARING PHASE	A - PRIOR TO LAND DISTURBANCE	1	CONSTRUCTION ENTRANCE & STAGING AREA	D	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		2	SILT FENCE 1 (PRIOR TO LAND DISTURBANCE)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		3	EXISTING INLET PROTECTION (GRAVEL CURB INLET SEDIMENT TRAP)	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 2 (DURING CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
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		5	FOAM SILT DIKE OR ROCK DITCH CHECK	E	PLACE WHERE INDICATED AS SOON AS SWALE IS ESTABLISHED, REPAIR OR REPLACE AS NECESSARY
CONSTRUCTION PHASE	C - UTILITY CONSTRUCTION	6	CONCRETE WASHOUT AREA	E	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		7	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	8	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
		9	SILT FENCE 2 (AFTER CURB CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		10	SEEDING AND MULCHING	E	ALL DISTURBED AREAS AFTER 14 DAYS OF CONSTRUCTION INACTIVITY
FINAL STABILIZATION PHASE	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.

**DISTURBED AREA = 17.08 A.C.**

**SITE SPECIFIC NOTES:**

- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
- THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
- NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBER 29095C0412G DATED JANUARY 20, 2017.
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KSC 17-23-19  
BY DATE

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**WINTERSET VALLEY, 12TH PLAT  
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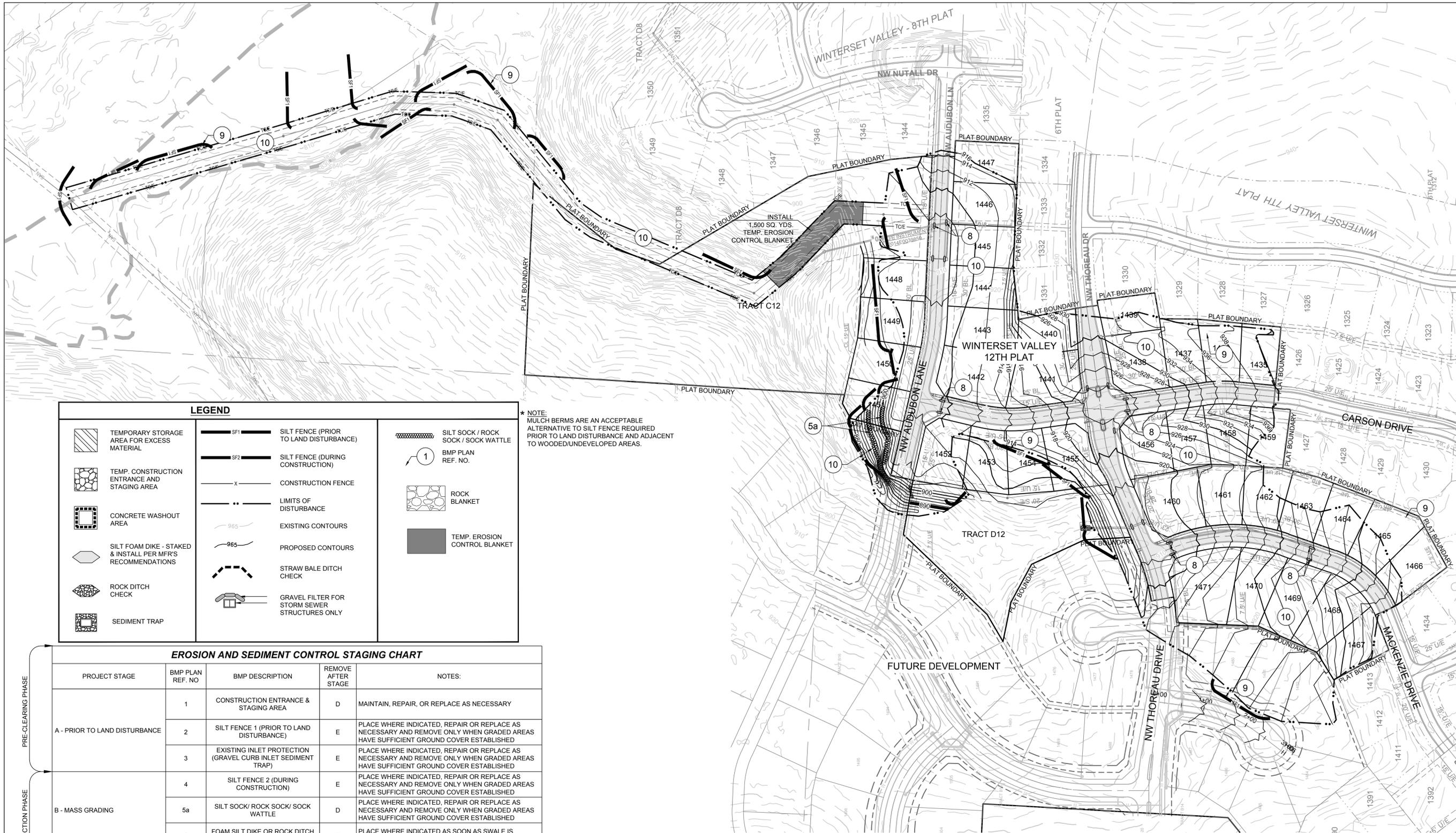
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08/29/2018	CITY COMMENTS/SHIP FINDINGS
09/27/2018	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS

DRAWN BY: KSC  
 CHECKED BY: MAB  
 DATE PREPARED: 4/26/19  
 PROJ. NUMBER: 17-134

**ECP-CONSTRUCTION PLAN**

SHEET

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LEGEND		
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**EROSION AND SEDIMENT CONTROL STAGING CHART**

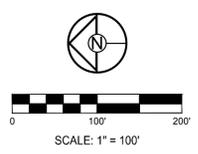
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MARK ALLEN BREWER  
MEMBER  
NO. 2009007268  
10.23.19

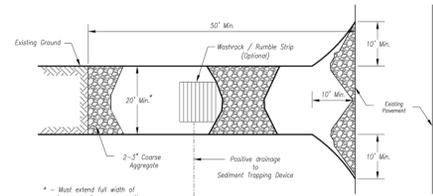
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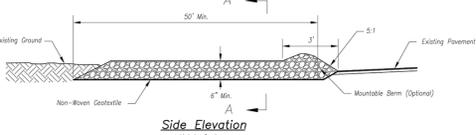
FINAL STABILIZATION PLAN

SHEET

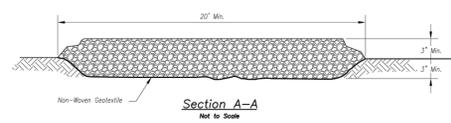
4  
OF 25



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 3:1 V 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 distance 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 debris leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be shaped towards the concrete washout area.
3. Vehicle tracking control is required of the access point to all concrete washout areas.
4. Slope shall be placed at the construction site entrance, washout area and elsewhere as necessary to convey the washout(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
5. A one-piece impervious door may be required along the bottom and sides of the subsurface pit in pump or gravity rock.

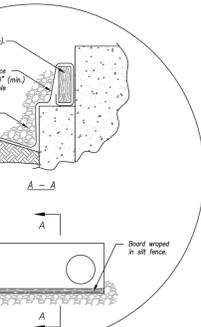
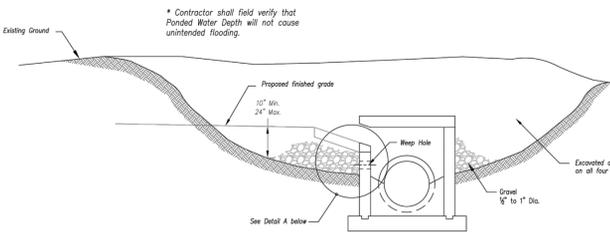
**Maintenance for Concrete Washout:**

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 washed concrete.
3. Concrete washout water, washed 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 topped, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.

**CONCRETE WASHOUT**

AMERICAN PUBLIC WORKS ASSOCIATION  
**APWA**  
 KANSAS CITY METRO CHAPTER  
 STANDARD DRAWING NUMBER ESC-01  
 ADOPTED: 10/24/2016

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.



Detail A

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

**Notes:**

1. Immediately following inlet construction and prior to construction of curb and inlet throat, protect inlet opening by installing a 2\"/>

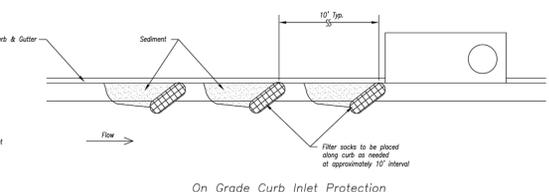
**Maintenance:**

1. Remove deposited sediment from excavated storage areas when available storage has been reduced by 25%.
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.

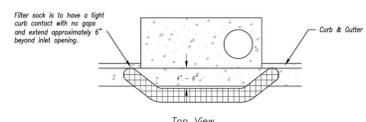
Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION  
**APWA**  
 KANSAS CITY METRO CHAPTER  
 STANDARD DRAWING NUMBER ESC-06  
 ADOPTED: 10/24/2016

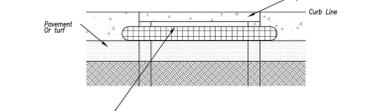
**LATE STAGE CURB INLET**  
(After Pouring Curb and Inlet Throat)



On Grade Curb Inlet Protection



Top View



Front View

**Sump Inlet Sediment Filter**

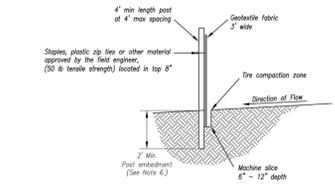
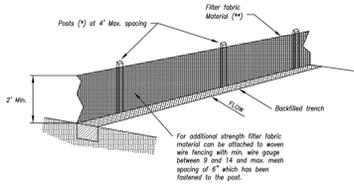
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STATE OF MISSOURI  
**MARK ALLEN BREUER**  
 PROFESSIONAL ENGINEER  
 NUMBER PE-200907268  
 10.23.19

WINTERSET VALLEY, 12TH PLAT  
 STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
 EROSION AND SEDIMENT CONTROL  
 AUDUBON LANE AND CARSON DRIVE  
 LEE'S SUMMIT, MO

CONFORMING TO CONSTRUCTION  
 RECORDS AS FURNISHED BY  
 OTHERS.

KSC 7-23-19  
 BY DATE



- (\*) POSTS**
- MIL LENGTH 4'
  - HARDWOOD 1 3/4" x 1 3/4"
  - NO.2 SOUTHERN PINE 2 1/2" x 2 1/2"
  - STEEL 1.33 LB/YT

- (\*\*) - Geotextile Fabric** shall meet the requirements of MSHTD M288

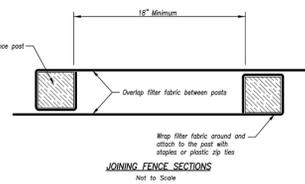
**SILT FENCE DETAILS**  
Not to Scale

**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. Tranching will only be allowed for small or difficult installation, where sloping machine cannot be reasonably used.

**Maintenance:**

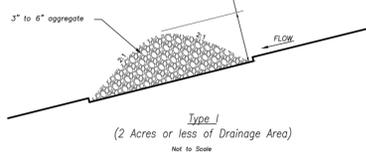
1. Remove and dispose of sediment deposits when the deposit approaches 1/2 the height of silt fence.
2. Repair as necessary to maintain function and structure.



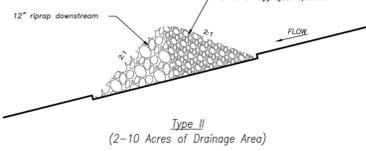
JOINING FENCE SECTIONS  
Not to Scale

AMERICAN PUBLIC WORKS ASSOCIATION  
**APWA**  
 KANSAS CITY METRO CHAPTER  
 STANDARD DRAWING NUMBER ESC-03  
 ADOPTED: 10/24/2016

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



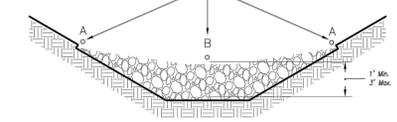
Type I  
(2 Acres or less of Drainage Area)  
Not to Scale



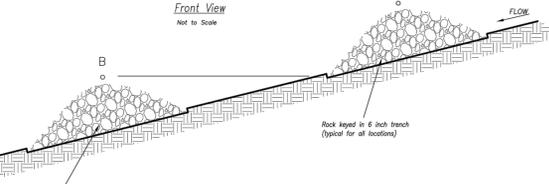
Type II  
(2-10 Acres of Drainage Area)  
Not to Scale

Temporary Rock Ditch Check Spacing	
Ditch Centerline Slope ( % )	Spacing Interval (Feet)
5.0	60
6.0	50
7.0	43
8.0	36
9.0	33
10.0	29

Note: Use this spacing only for Rock Ditch Checks.



Front View  
Not to Scale



Spacing Between Check Dams (all types)  
Not to Scale

**Notes:**

1. Rock check dams shall be used only for drainage areas less than 10 acres unless approved by the City Engineer.
2. Use rock checks only in situations where the ditch slope exceeds 6%.

**Maintenance:**

1. Remove and dispose of sediment deposits when the deposit approaches 1/2 the height of the ditch check.
2. Replace and reshape as necessary to maintain function and integrity of installation.

AMERICAN PUBLIC WORKS ASSOCIATION  
**APWA**  
 KANSAS CITY METRO CHAPTER  
 STANDARD DRAWING NUMBER ESC-10  
 ADOPTED: 10/24/2016

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

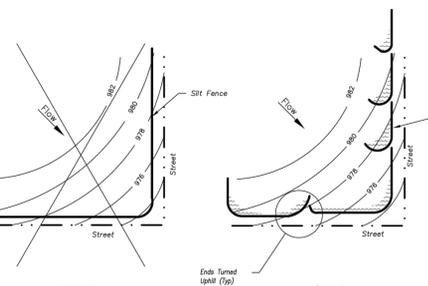
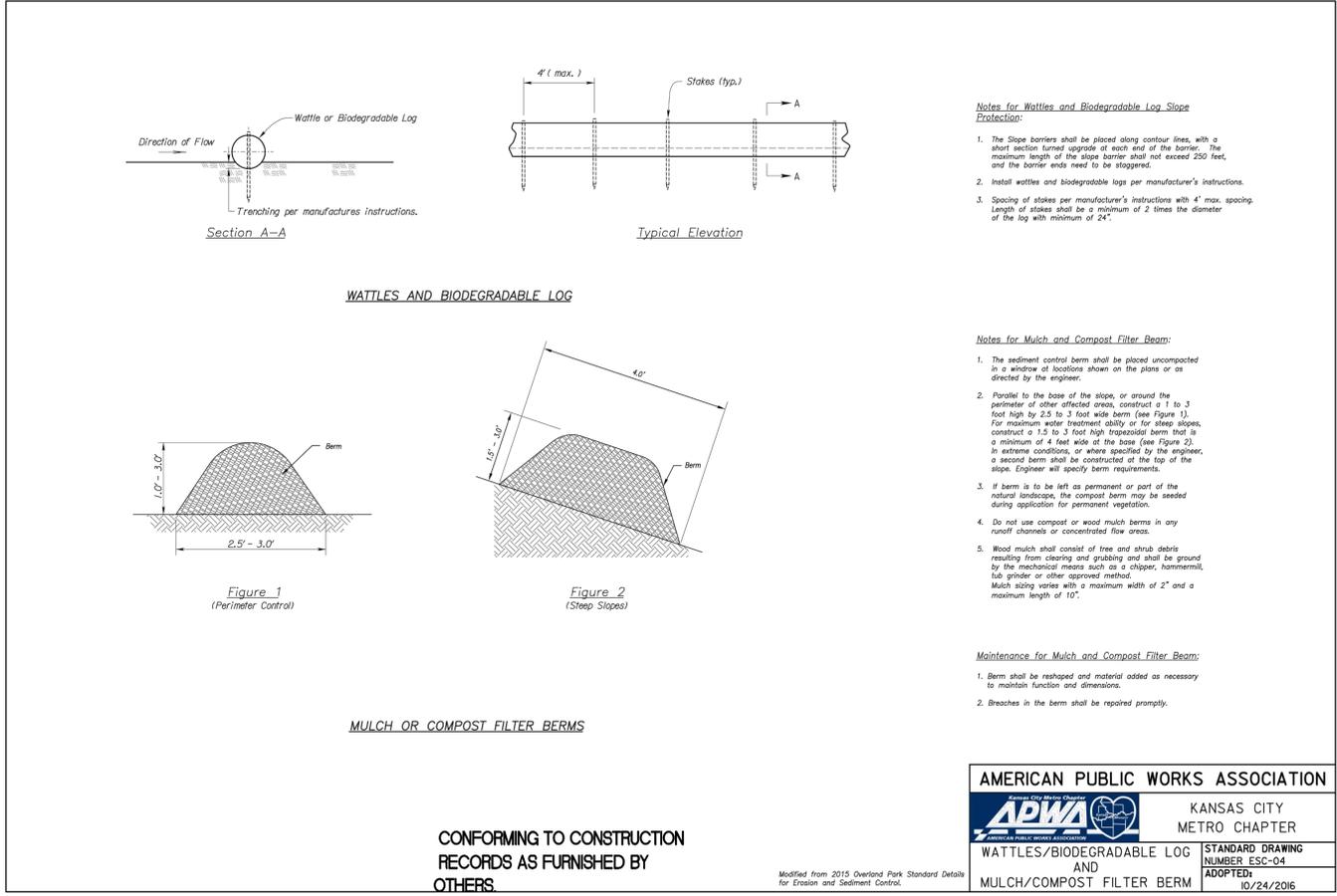
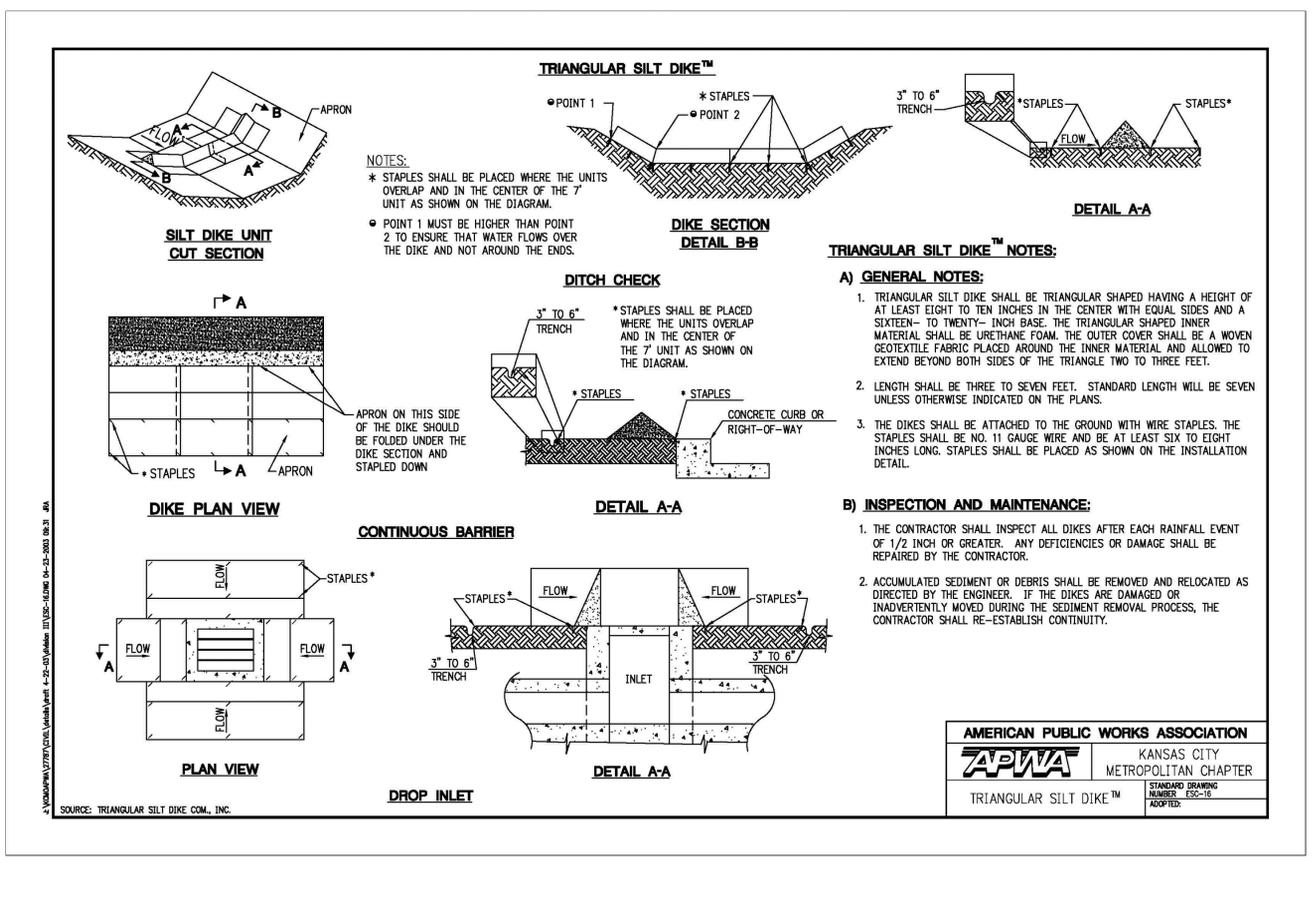
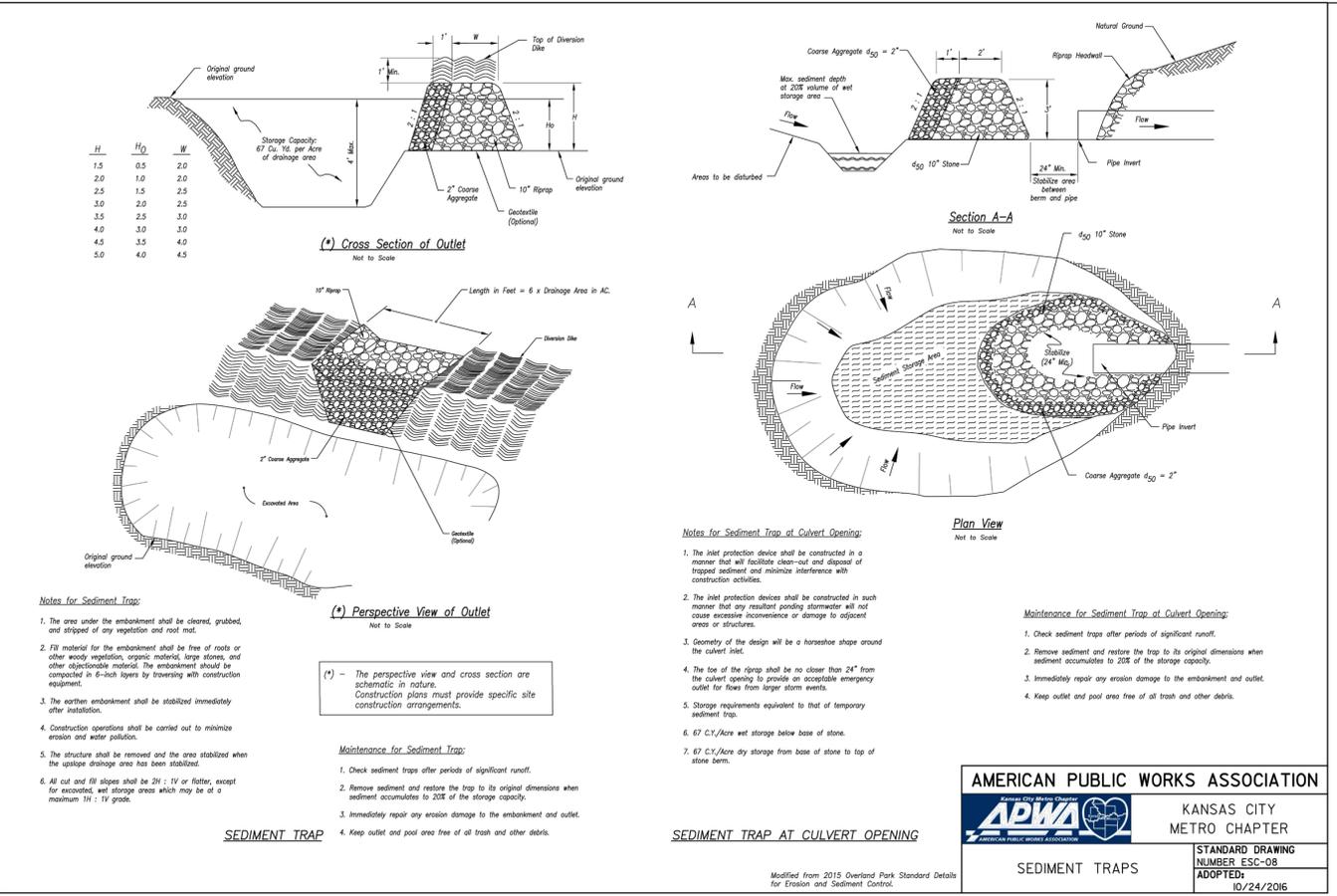
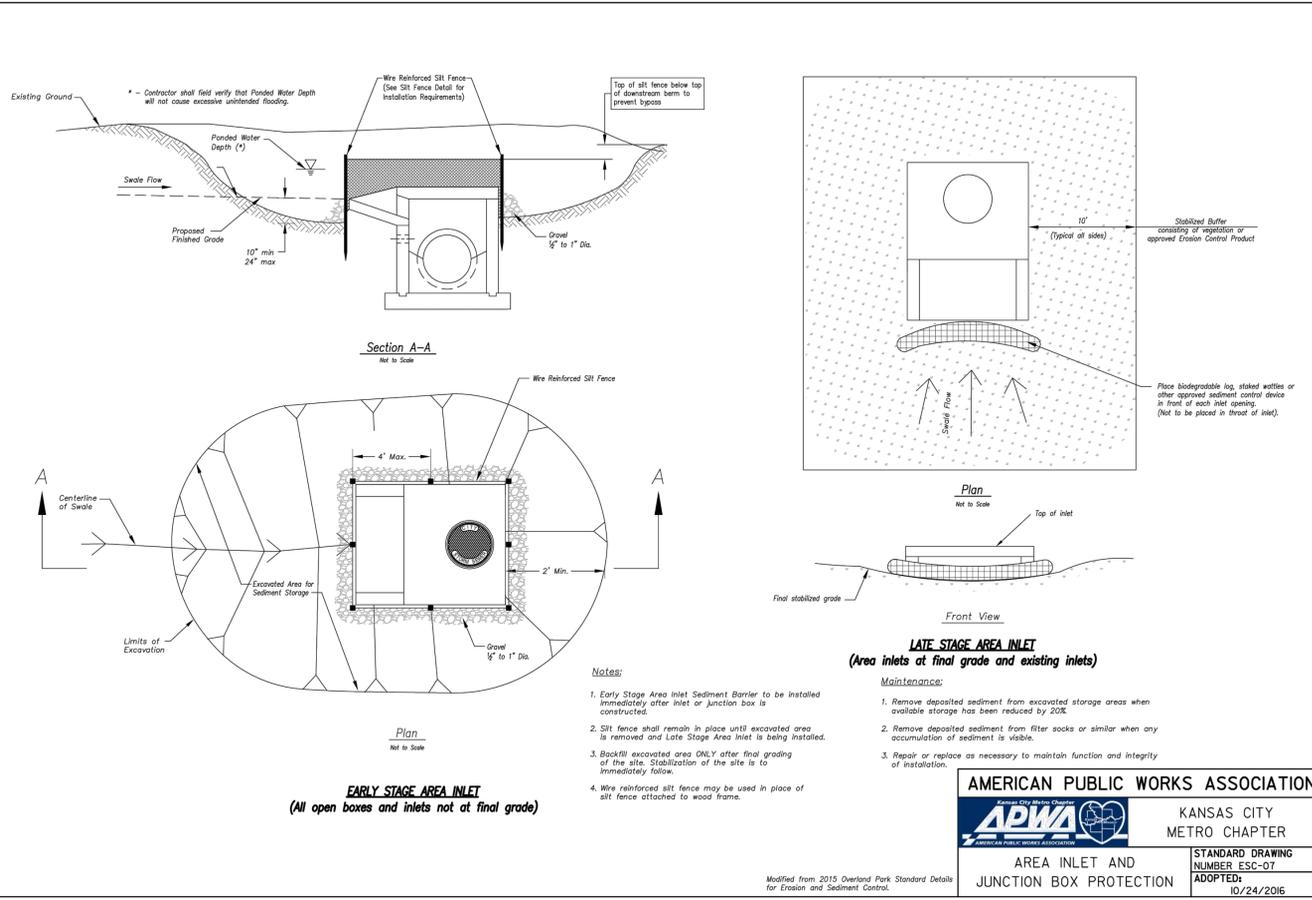


Figure A

**SILT FENCE LAYOUT**  
Not to Scale

REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
09/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS
4/20/18	PROJ. NUMBER
17-134	

**EROSION CONTROL DETAILS**



**SCHLAGEL & ASSOCIATES, P.A.**  
Engineers - Planners - Surveyors - Landscape Architects  
14920 West 10th Street • Lenexa, Kansas 66215  
(913) 492-5188 • Fax: (913) 492-8400  
WWW.SCHLAGELASSOCIATES.COM  
Missouri State Certificates of Authority #E200200360F #LAC201005237 #S200200895F

**MARK ALLEN BREUER**  
Professional Engineer  
No. 2003007268  
10.23.19

**WINTERSET VALLEY, 12TH PLAT STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL**  
AUDUBON LANE AND CARSON DRIVE  
LEE'S SUMMIT, MO

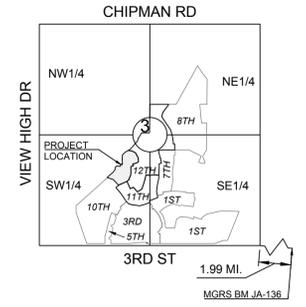
REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHP/ FINDINGS
09/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS
4/25/18	
17-134	

**CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.**

KSC BY 7-23-19 DATE

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

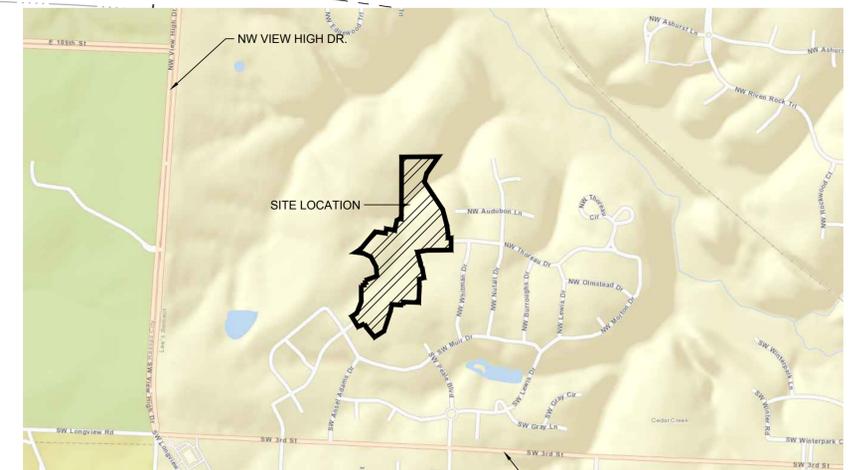
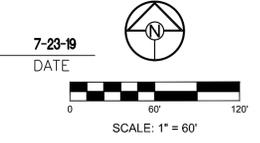
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SECTION 3-47N-32W  
 LOCATION MAP  
 SCALE 1" = 2000'

CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.

KBC BY DATE 7-23-19



SITE MAP NOT TO SCALE

— DENOTES SIDEWALK TO BE BUILT BY STREET CONTRACTOR  
 — DENOTES RETAINING WALL

**MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:**

BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

ELEV. 993.11'

**PROJECT BENCH MARK:**

SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.  
 ELEV. 935.45'

**SCHLAGEL & ASSOCIATES, P.A.**  
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 14920 West 10th Street • Lenexa, Kansas 66215  
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 Missouri State Certificates of Authority  
 #E2002003600 F #AC2001005237 #S200200899F



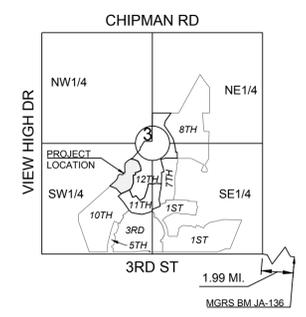
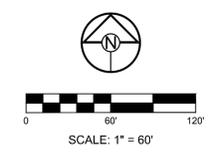
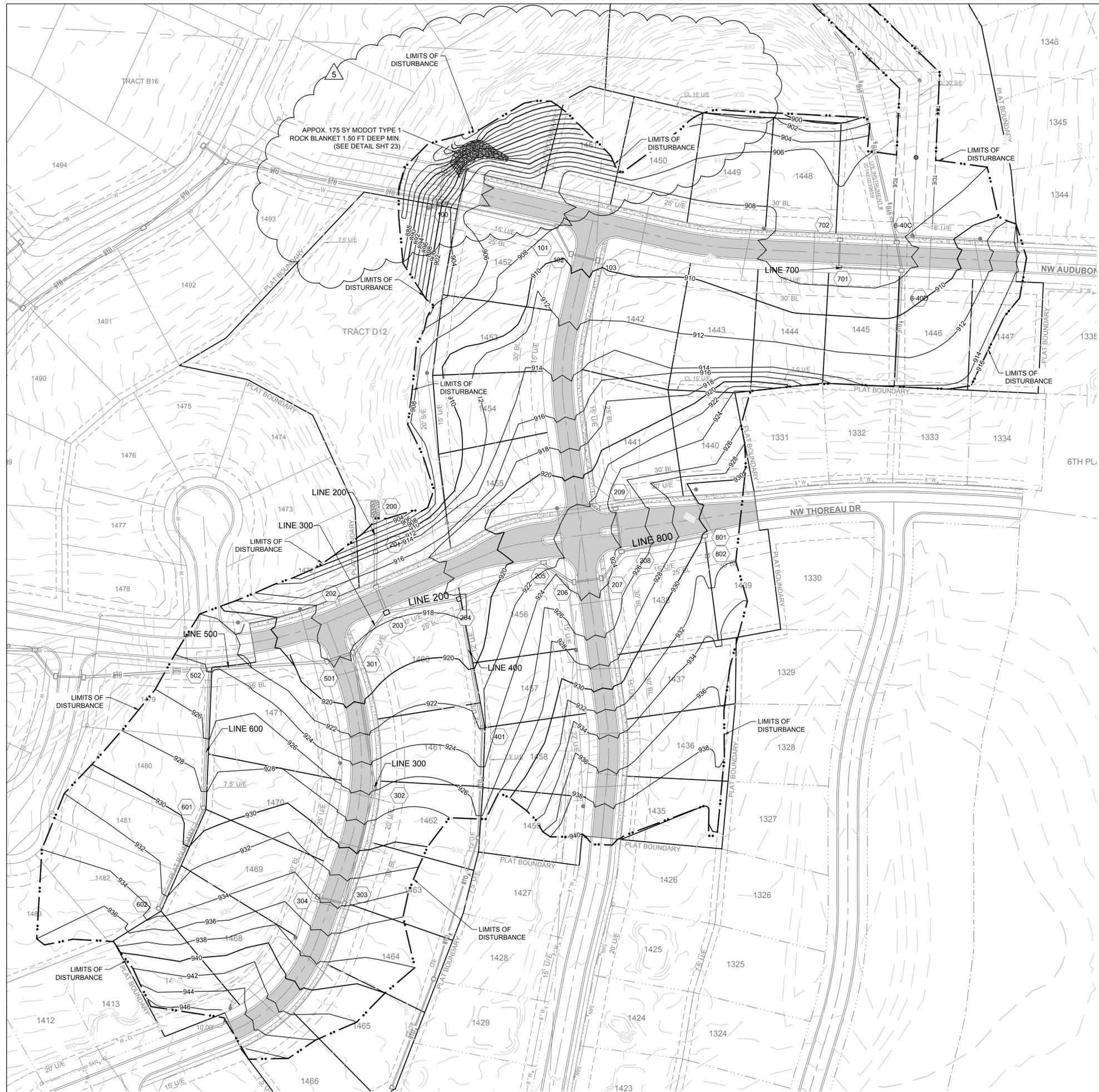
STATE OF MISSOURI  
 MARK ALLEN BREUER  
 PROFESSIONAL ENGINEER  
 NUMBER PE-2009007268  
 10.23.19

**WINTERSET VALLEY, 12TH PLAT  
 STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
 EROSION AND SEDIMENT CONTROL  
 AUDUBON LANE AND CARSON DRIVE  
 LEE'S SUMMIT, MO**

REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
09/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS

GENERAL LAYOUT

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SECTION 3-47N-32W  
**LOCATION MAP**  
 SCALE 1" = 2000'

**MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:**

BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.  
 ELEV. 993.11'

**PROJECT BENCH MARK:**

SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTerset VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.  
 ELEV. 935.45'

**NOTE:**

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

- DENOTES RETAINING WALL
- DENOTES LIMITS OF DISTURBANCE
- DENOTES PROPOSED MAJOR CONTOUR
- DENOTES PROPOSED MINOR CONTOUR
- DENOTES EXISTING MAJOR CONTOUR
- DENOTES EXISTING MINOR CONTOUR

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 WWW.SCHLAGELASSOCIATES.COM  
 Missouri State Certificates of Authority  
 #E2002003600 F #LAC201005237 #S200200899F



**WINTerset VALLEY, 12TH PLAT STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL AUDUBON LANE AND CARSON DRIVE LEE'S SUMMIT, MO**

REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
09/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS

**MASTER DRAINAGE PLAN - GRADING PLAN**

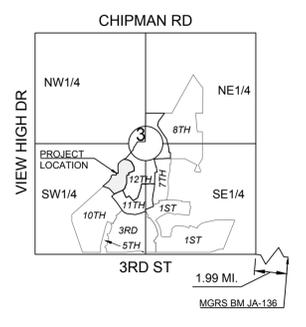
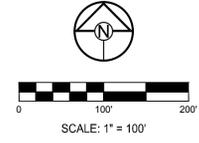
SHEET

**8**  
 OF 25



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 KSC BY DATE 7-23-19

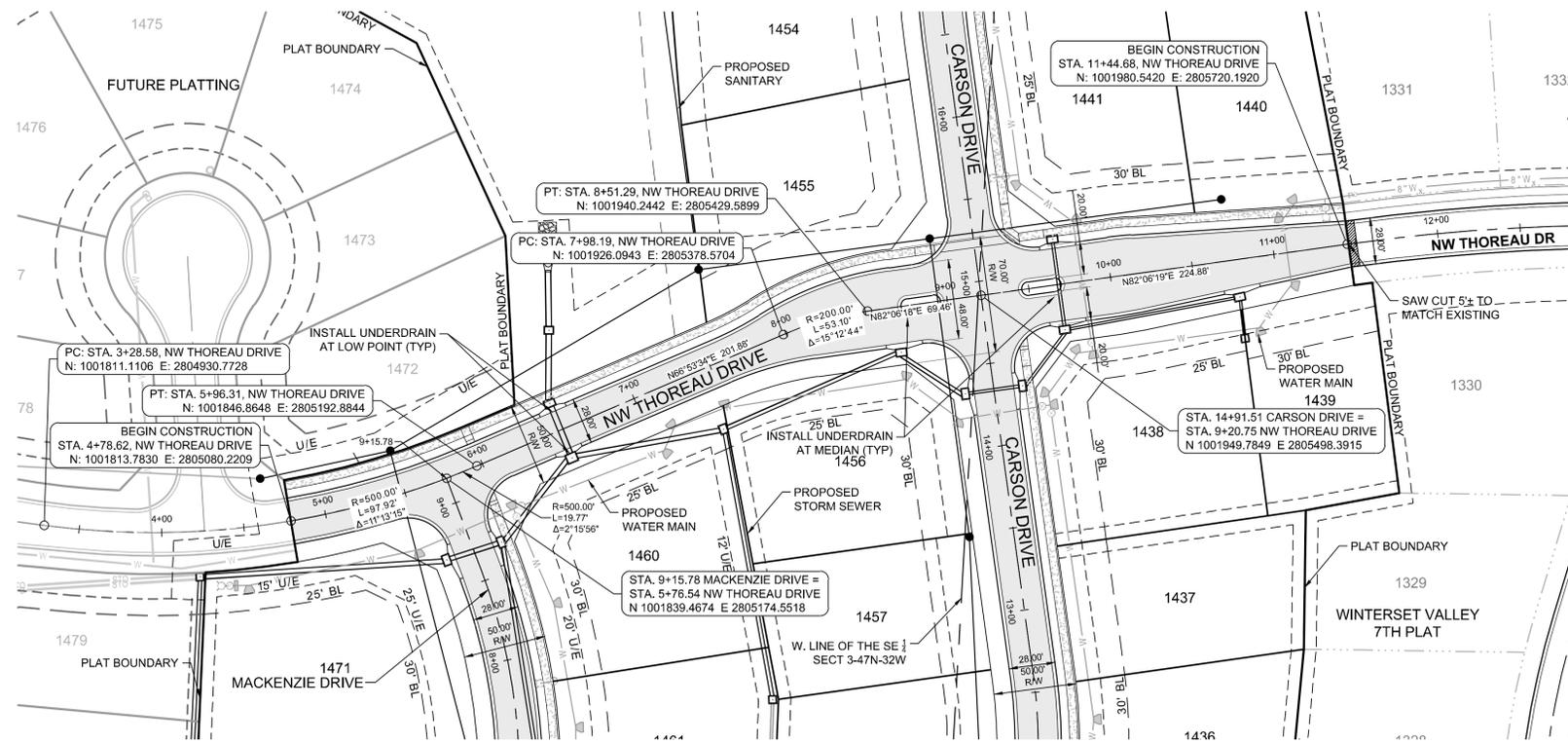
10 YR STORM SEWER DESIGN CALCULATIONS

Runoff Calculations										Pipe Properties																	
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. CxA	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Full 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.	
DS TAILWATER @ STR #100 FREE																											
101	0.00	0.51	0.87	0.44	5.2	7.30	0.00	3.24	8.71	7.10			0.00	0.00	101	100	HDPE	0.012	15	161.25	1.55	3.94	897.56	895.06	908.00	898.43	
102	0.41	0.51	0.87	0.44	5.1	7.33	1.53	3.25	7.86	6.40			0.00	0.00	102	101	HDPE	0.012	15	39.62	1.26	0.50	902.00	901.50	909.63	902.88	
103	0.46	0.51	0.46	0.23	5.0	7.35	1.73	1.73	8.37	6.82			0.00	0.00	103	102	HDPE	0.012	15	35.00	1.43	N/A	903.00	902.50	909.63	903.61	
DS TAILWATER @ STR #200 FREE																											
201	0.00	0.51	19.10	9.74	5.7	7.14	0.00	69.57	114.83	11.94			0.00	0.00	201	200	HDPE	0.012	42	36.00	1.11	2.41	902.59	902.19	913.59	905.84	
202	1.63	0.51	19.10	9.74	5.7	7.14	5.94	69.57	108.99	11.33			0.00	0.00	202	201	HDPE	0.012	42	44.06	1.00	0.50	905.44	905.00	916.98	908.69	
203	0.42	0.51	17.47	8.91	5.7	7.16	1.53	63.76	108.99	11.33			8.74	4.46	203	202	HDPE	0.012	42	35.04	1.00	1.00	906.29	905.94	916.98	909.38	
204	0.55	0.51	8.31	4.24	5.5	7.21	2.39	30.54	44.55	9.07		401	3.38	1.72	204	203	HDPE	0.012	30	93.53	1.01	0.50	908.23	907.29	917.98	910.57	
205	0.08	0.51	4.28	2.18	5.4	7.24	0.30	15.80	56.69	18.04			0.00	0.00	205	204	HDPE	0.012	24	117.30	5.35	0.50	915.01	908.73	921.40	916.77	
206	0.70	0.51	4.20	2.14	5.3	7.26	2.59	15.54	44.18	14.06			0.00	0.00	206	205	HDPE	0.012	24	46.11	3.25	0.50	917.00	915.51	923.61	918.75	
207	1.97	0.51	3.50	1.79	5.2	7.28	7.31	12.99	24.61	7.80			0.00	0.00	207	206	HDPE	0.012	24	35.00	1.00	0.50	917.85	917.50	923.61	919.43	
208	0.29	0.51	1.53	0.78	5.1	7.31	1.08	5.71	11.44	6.47		801	0.99	0.50	208	207	HDPE	0.012	18	42.41	1.01	0.50	918.78	918.35	924.03	919.90	
209	0.25	0.51	0.25	0.13	5.0	7.35	0.94	0.94	8.38	6.83			0.00	0.00	209	208	HDPE	0.012	15	55.00	1.44	0.50	920.07	919.28	924.03	920.52	
Drop in Inlet 203 1.00																											
301	0.70	0.51	8.74	4.46	5.5	7.20	2.57	32.09	93.00	18.95		501	6.96	3.55	301	203	HDPE	0.012	30	66.51	4.38	1.25	910.20	907.29	918.11	912.62	
302	0.00	0.51	1.08	0.55	5.3	7.26	0.00	4.00	16.44	13.40			0.00	0.00	302	301	HDPE	0.012	15	172.98	5.62	0.50	921.00	911.45	925.80	921.99	
303	0.41	0.51	1.08	0.55	5.1	7.32	1.53	4.03	15.53	12.66			0.00	0.00	303	302	HDPE	0.012	15	151.99	4.93	0.50	928.99	921.50	933.85	929.96	
304	0.67	0.51	0.67	0.34	5.0	7.35	2.51	2.51	7.82	6.38			0.00	0.00	304	303	HDPE	0.012	15	35.09	1.25	N/A	929.93	929.49	934.00	930.69	
Drop in Inlet 204 1.00																											
401	3.38	0.51	3.38	1.72	5.0	7.35	12.68	12.68	25.42	14.38			0.00	0.00	401	204	HDPE	0.012	18	165.76	4.99	0.50	917.50	909.23	922.00	919.29	
Drop in Inlet 301 0.50																											
501	0.38	0.51	6.96	3.55	5.4	7.24	1.40	25.68	81.21	16.54			0.00	0.00	501	301	HDPE	0.012	30	35.04	3.34	0.50	911.87	910.70	918.07	913.99	
502	4.06	0.51	6.58	3.36	5.2	7.29	15.08	24.45	47.49	15.12		601	2.52	1.29	502	501	HDPE	0.012	24	149.76	3.76	N/A	918.00	912.37	924.09	920.29	
Drop in Inlet 502 0.50																											
601	0.91	0.51	2.52	1.29	5.2	7.29	3.38	9.36	17.76	10.05			0.00	0.00	601	502	HDPE	0.012	18	175.68	2.44	0.50	922.78	918.50	928.68	924.26	
602	1.61	0.51	1.61	0.82	5.0	7.35	6.04	6.04	12.89	10.50			0.00	0.00	602	601	HDPE	0.012	15	139.38	3.39	N/A	926.00	923.28	933.23	929.26	
DS TAILWATER @ STR #EX 8-40C FREE																											
701	1.50	0.51	1.69	0.86	5.1	7.32	5.60	6.31	11.06	9.02			0.00	0.00	701	EX 8-40C	HDPE	0.012	15	79.87	2.50	0.50	901.10	899.10	906.88	902.38	
702	0.19	0.51	0.19	0.10	5.0	7.35	0.71	0.71	7.00	5.70			0.00	0.00	702	701	HDPE	0.012	15	35.00	1.00	N/A	901.95	901.60	906.88	902.39	
Drop in Inlet 208 0.50																											
801	0.09	0.51	0.99	0.50	5.0	7.34	0.34	3.71	11.11	9.05			0.00	0.00	801	208	HDPE	0.012	15	107.78	2.52	0.50	922.00	919.28	930.18	923.94	
802	0.90	0.51	0.90	0.46	5.0	7.35	3.38	3.38	12.93	10.54			0.00	0.00	802	801	HDPE	0.012	15	25.09	3.41	N/A	923.36	922.50	930.84	924.25	

100 YR STORM SEWER DESIGN CALCULATIONS

Runoff Calculations										Pipe Properties																	
Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. CxA	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Full 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.	
DS TAILWATER @ STR #100 FREE																											
101	0.00	0.51	0.87	0.44	5.2	10.24	0.00	5.68	8.71	7.10			0.00	0.00	101	100	HDPE	0.012	15	161.25	1.55	3.94	897.56	895.06	908.00	898.77	
102	0.41	0.51	0.87	0.44	5.1	10.29	2.69	5.71	7.86	6.40			0.00	0.00	102	101	HDPE	0.012	15	39.62	1.26	0.50	902.00	901.50	909.63	903.21	
103	0.46	0.51	0.46	0.23	5.0	10.32	3.03	3.03	8.37	6.82			0.00	0.00	103	102	HDPE	0.012	15	35.00	1.43	N/A	903.00	902.50	909.63	903.90	
DS TAILWATER @ STR #200 FREE																											
201	0.00	0.51	19.10	9.74	5.7	10.04	0.00	122.22	114.83	11.94			0.00	0.00	201	200	HDPE	0.012	42	36.00	1.11	2.41	902.59	902.19	913.59	907.18	
202	1.63	0.51	19.10	9.74	5.7	10.04	10.43	122.22	108.99	11.33			0.00	0.00	202	201	HDPE	0.012	42	44.06	1.00	0.50	905.44	905.00	916.98	910.15	
203	0.42	0.51	17.47	8.91	5.7	10.06	2.69	112.01	108.99	11.33			8.74	4.46	203	202	HDPE	0.012	42	35.04	1.00	1.00	906.29	905.94	916.98	911.58	
204	0.55	0.51	8.31	4.24	5.5	10.13	4.20	53.64	44.55	9.07		401	3.38	1.72	204	203	HDPE	0.012	30	93.53	1.01	0.50	908.23	907.29	917.98	913.87	
205	0.08	0.51	4.28	2.18	5.4	10.17	0.52	27.75	56.69	18.04			0.00	0.00	205	204	HDPE	0.012	24	117.30	5.35	0.50	915.01	908.73	921.40	917.49	
206	0.70	0.51	4.20	2.14	5.3	10.19	4.55	27.29	44.18	14.06			0.00	0.00	206	205	HDPE	0.012	24	46.11	3.25	0.50	917.00	915.51	923.61	919.46	
207	1.97	0.51	3.50	1.79	5.2	10.22	12.84	22.81	24.61	7.80			0.00	0.00	207	206	HDPE	0.012	24	35.00	1.00	0.50	917.85	917.50	923.61	920.09	
208	0.29	0.51	1.53	0.78	5.1	10.27	1.90	10.01	11.44	6.47		801	0.99	0.50	208	207	HDPE	0.012	18	42.41	1.01	0.50	918.78	918.35	924.03	920.67	
209	0.25	0.51	0.25	0.13	5.0	10.32	1.65	1.65	8.38	6.83			0.00	0.00	209	208	HDPE	0.012	15	55.00	1.44	0.50	920.07	919.28	924.03	920.67	
Drop in Inlet 301 1.00																											
301	0.70	0.51	8.74	4.46	5.5	10.12	4.51	66.36	93.00	18.95		501	6.96	3.55	301	203	HDPE	0.012	30	66.51	4.38	1.25	910.20	907.29	918.11	913.64	
302	0.00	0.51	1.08	0.55	5.3	10.20	0.00	7.02	16.44	13.40			0.00	0.00	302	301	HDPE	0.012	15	172.98	5.62	0.50	921.00	911.45	925.80	922.37	
303	0.41	0.51	1.08	0.55	5.1	10.28	2.69	7.08	15.53	12.66			0.00	0.00	303	302	HDPE	0.012	15	151.99	4.93	0.50	928.				





**MISSOURI GEOGRAPHIC REFERENCE SYSTEM  
BENCH MARK:**

BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

ELEV. 993.11'

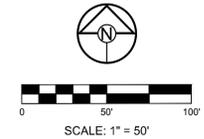
**PROJECT BENCH MARK:**

SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.

ELEV. 935.45'

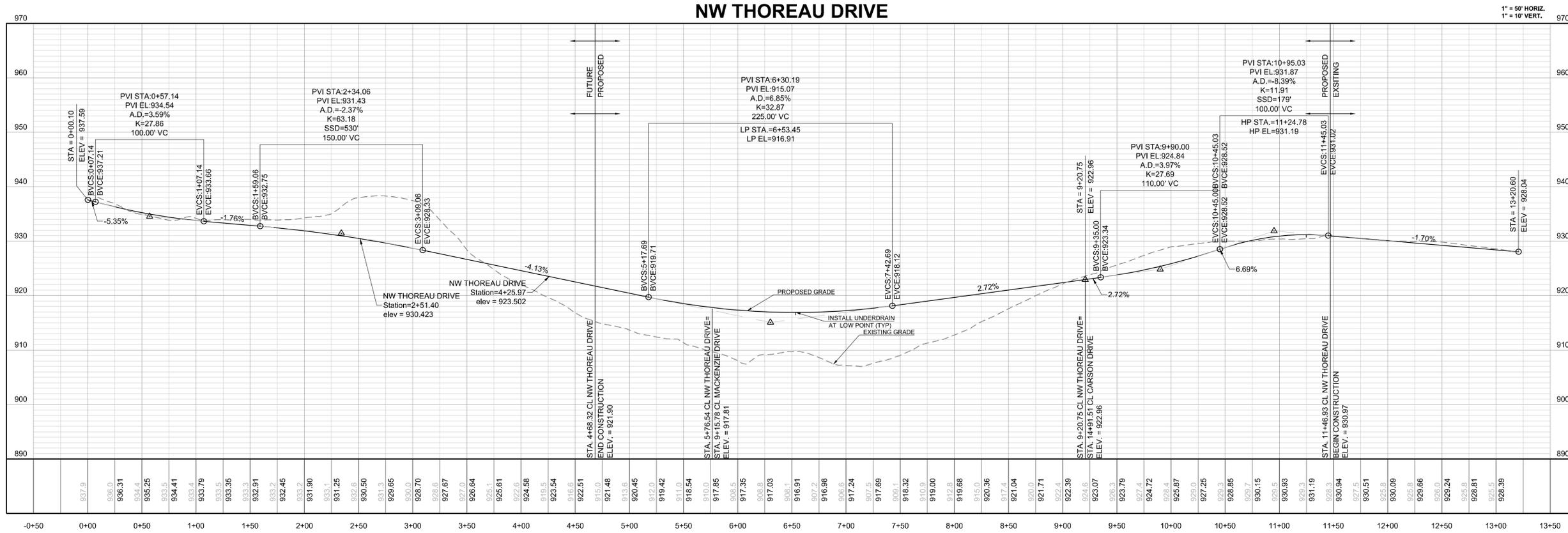
CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.

KBC 7-23-19  
BY DATE



WINTERSET VALLEY, 12TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
EROSION AND SEDIMENT CONTROL  
AUDUBON LANE AND CARSON DRIVE  
LEE'S SUMMIT, MO

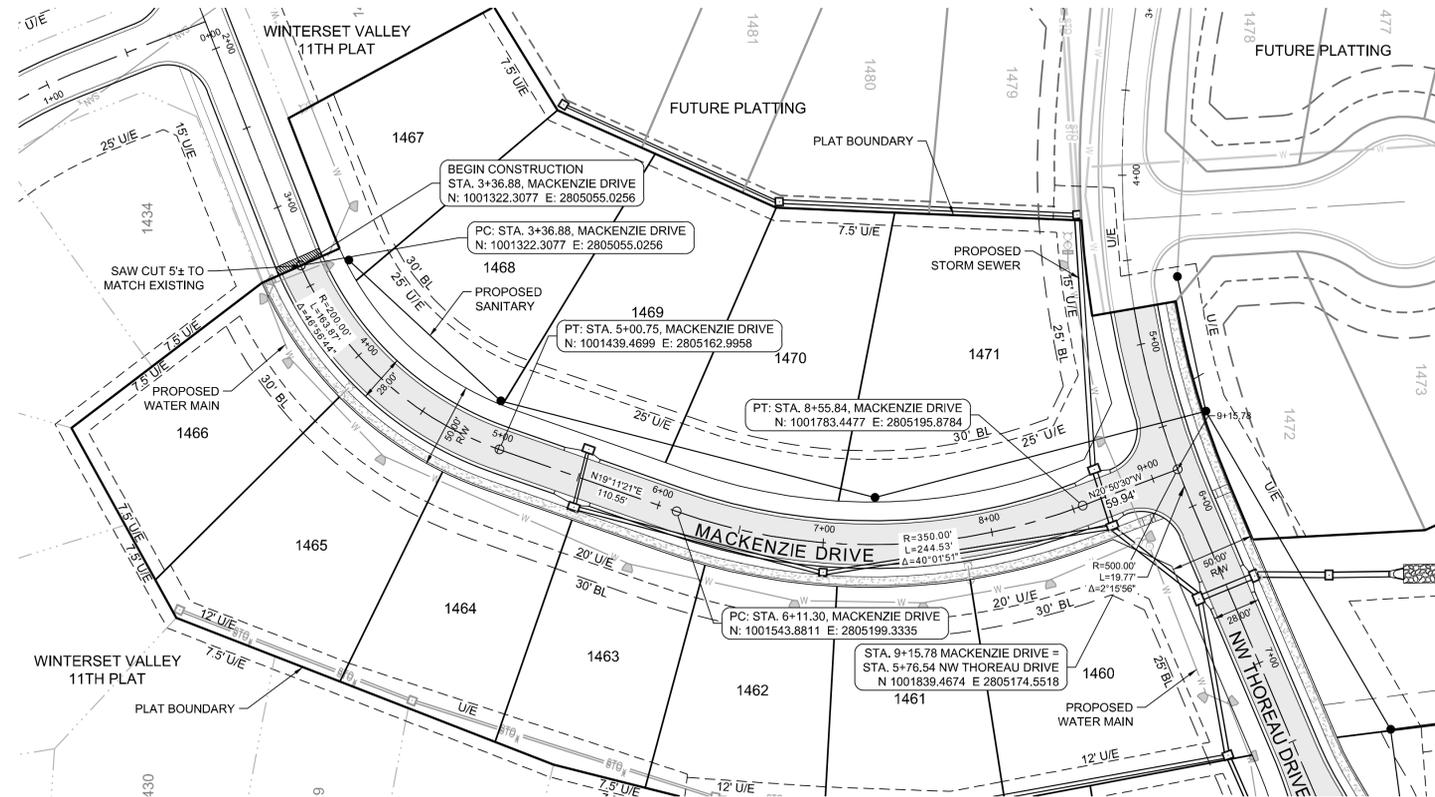
**NW THOREAU DRIVE**



REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
08/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS

NW THOREAU DRIVE PLAN AND PROFILE

I:\PROJECTS\2017\17-143\0 Design\0 DWG Plans\6 0 SS\17-134-SS-STREET PP.dwg, 10/22/2019 11:52:33 AM, 11

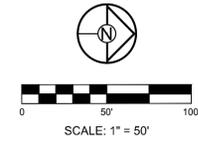


**MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:**  
 BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.  
 ELEV. 993.11'

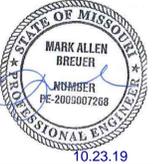
**PROJECT BENCH MARK:**  
 SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.  
 ELEV. 935.45'

CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.

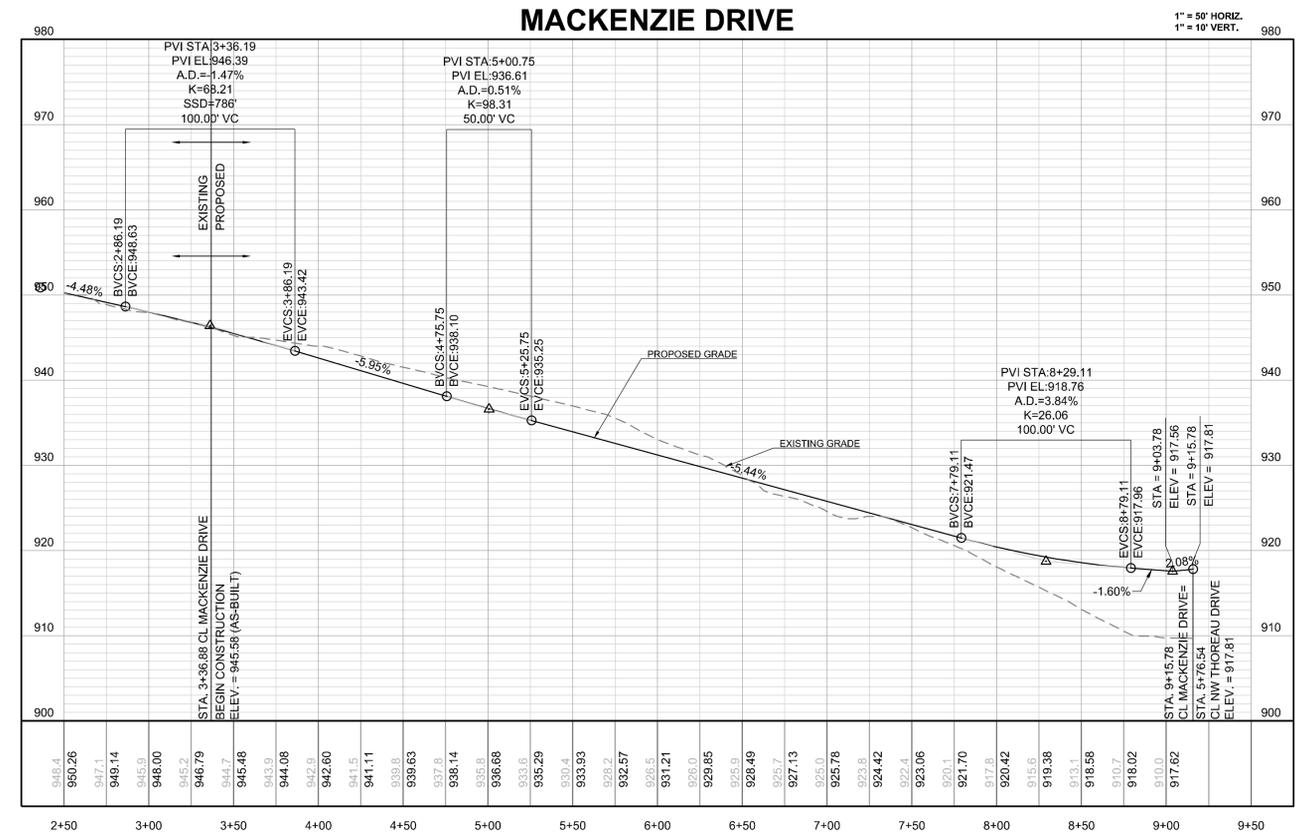
KSC BY DATE  
 7-23-19



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 Engineers • Planners • Surveyors • Landscape Architects  
 14920 West 10th Street • Lenexa, Kansas 66215  
 (913) 492-5188 • Fax: (913) 492-8400  
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 #E2002003600 F #LAC201005237 #S200200889F



WINTERSSET VALLEY, 12TH PLAT  
 STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
 EROSION AND SEDIMENT CONTROL  
 AUDUBON LANE AND CARSON DRIVE  
 LEE'S SUMMIT, MO

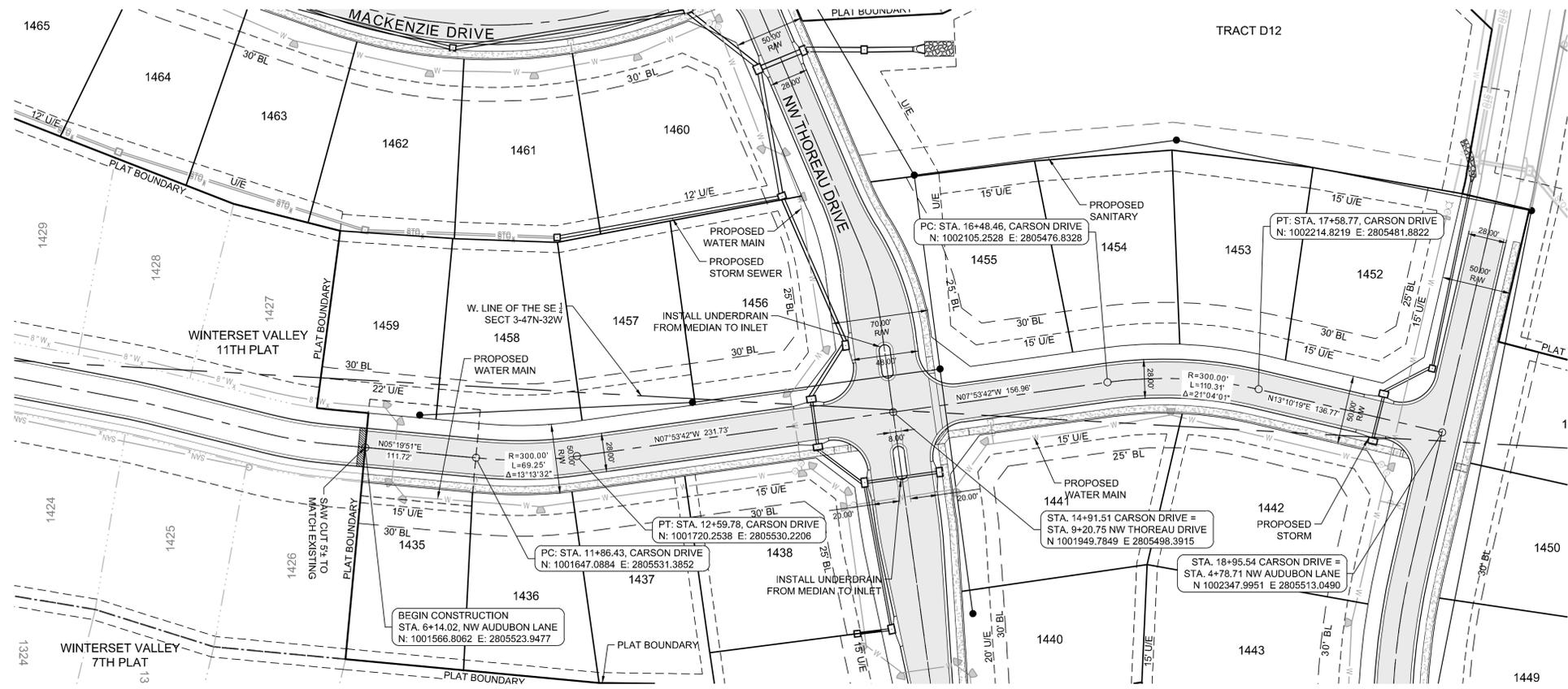


REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
08/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS

**MACKENZIE DRIVE PLAN AND PROFILE**

SHEET  
**13**  
 OF 25

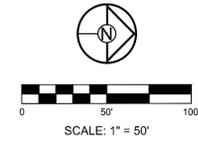
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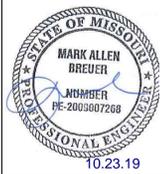
**MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:**  
 BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.  
 ELEV. 993.11'

**PROJECT BENCH MARK:**  
 SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.  
 ELEV. 935.45'

CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.  
 KSC BY 7-23-19 DATE

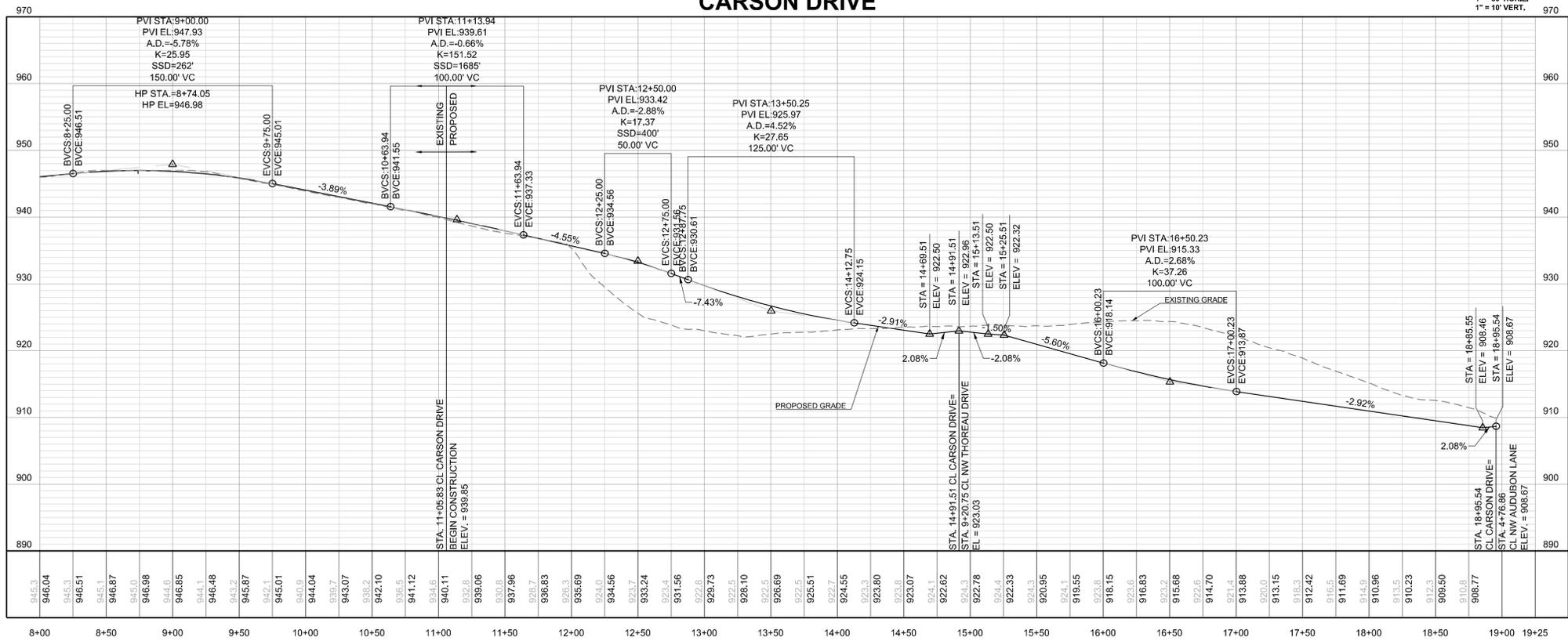


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WINTERSET VALLEY, 12TH PLAT  
 STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
 EROSION AND SEDIMENT CONTROL  
 AUDUBON LANE AND CARSON DRIVE  
 LEE'S SUMMIT, MO

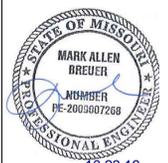
**CARSON DRIVE**



REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
09/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS

**CARSON DRIVE PLAN AND PROFILE**

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**WINTERSET VALLEY, 12TH PLAT  
 STREET, STORMWATER, MASTER DRAINAGE  
 PLAN AND EROSION AND SEDIMENT CONTROL  
 AUDUBON LANE AND CARSON DRIVE  
 LEE'S SUMMIT, MO**

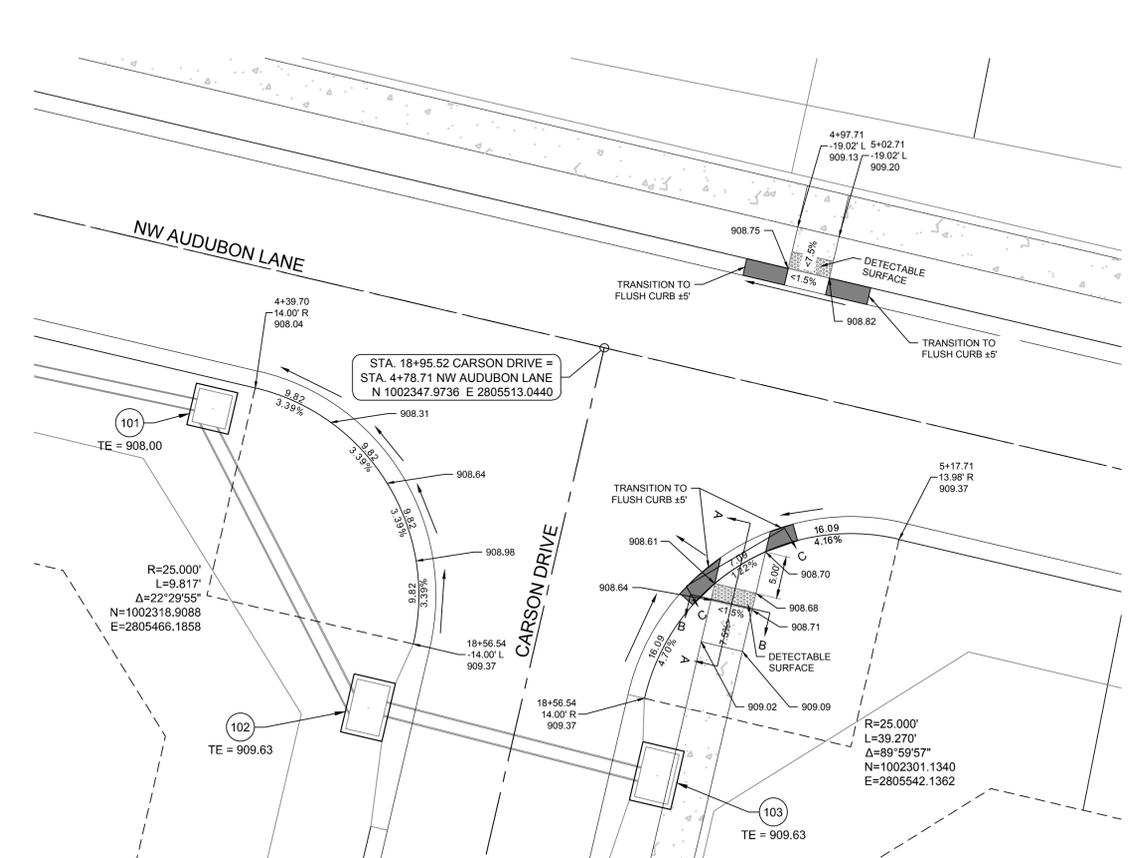
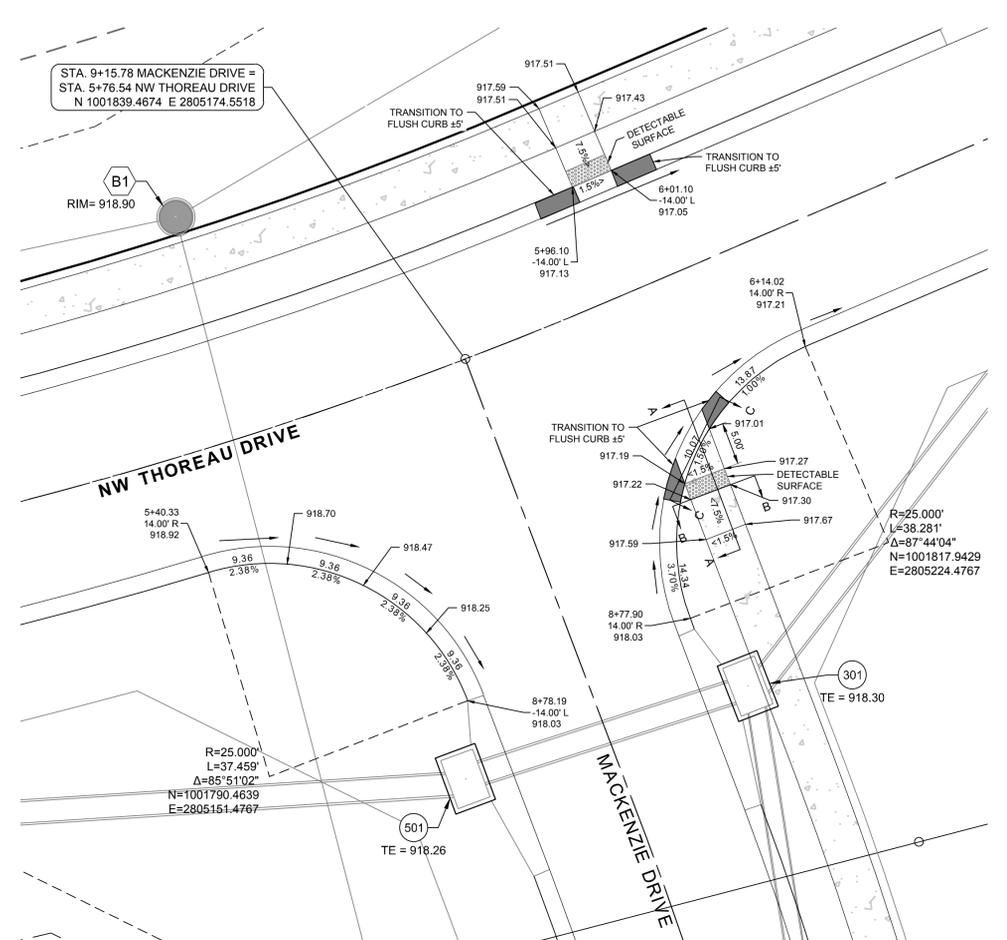
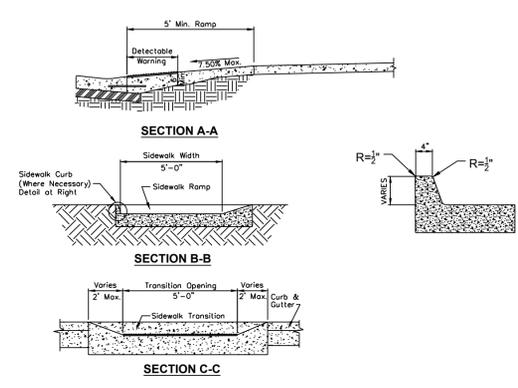
REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
09/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS

DRAWN BY:	KSC
CHECKED BY:	MAB
DATE PREPARED:	4/20/19
PROJ. NUMBER:	17-134

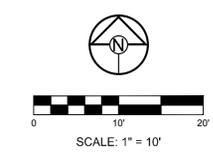
**INTERSECTION DETAILS**

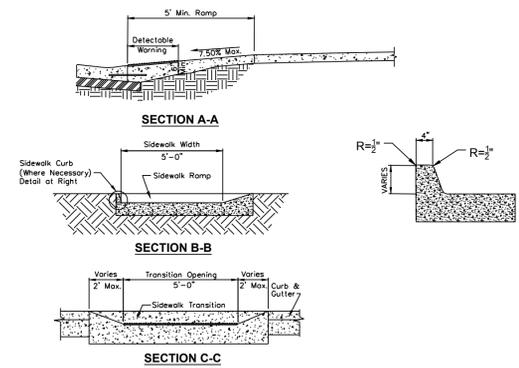
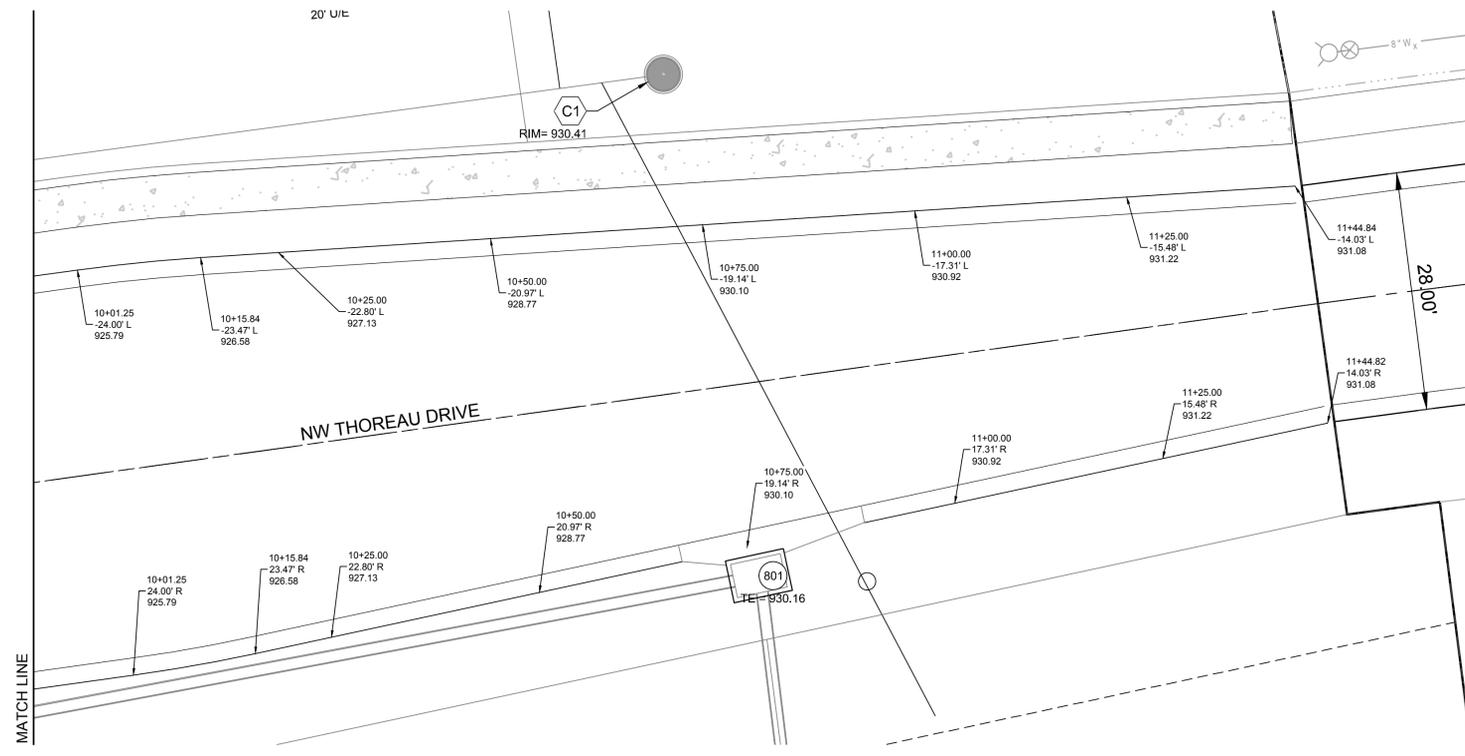
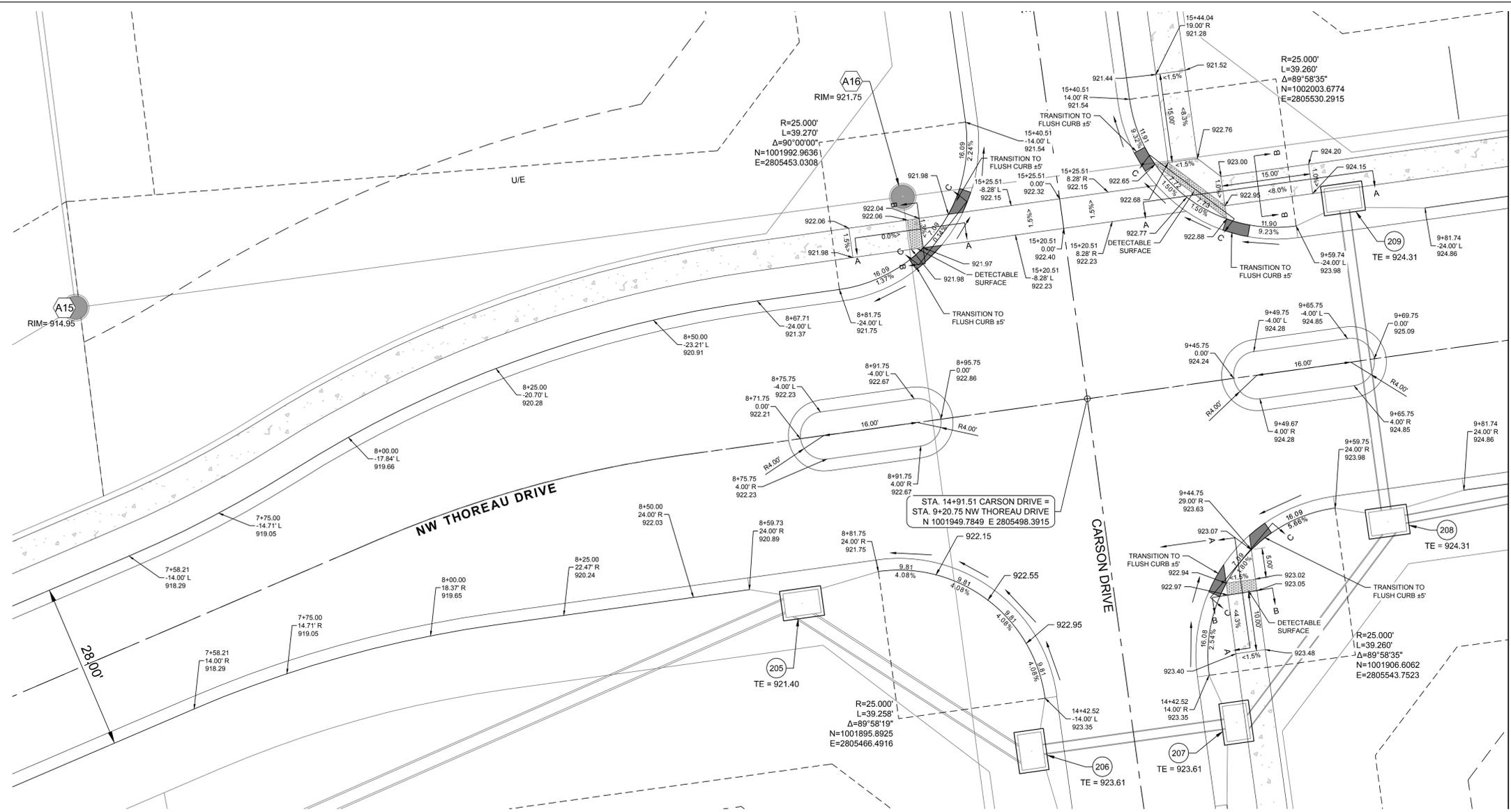
SHEET  
**15**  
 OF 25

CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.  
 KSC 7-23-19  
 BY DATE



NOTE:  
 ALL SIDEWALKS ADJACENT TO TRACTS AND UNPLATTED AREAS, AS WELL AS ALL ADA RAMPS SHALL BE CONSTRUCTED BY STREET CONTRACTOR. SIDEWALK ADJACENT TO LOTS SHALL BE CONSTRUCTED BY INDIVIDUAL HOME BUILDER.

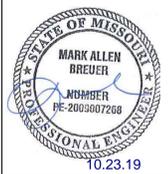
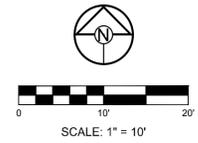




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ALL SIDEWALKS ADJACENT TO TRACTS AND UNPLATTED AREAS, AS WELL AS ALL ADA RAMPS SHALL BE CONSTRUCTED BY STREET CONTRACTOR. SIDEWALK ADJACENT TO LOTS SHALL BE CONSTRUCTED BY INDIVIDUAL HOME BUILDER.

CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.

KSC 7-23-19  
BY DATE

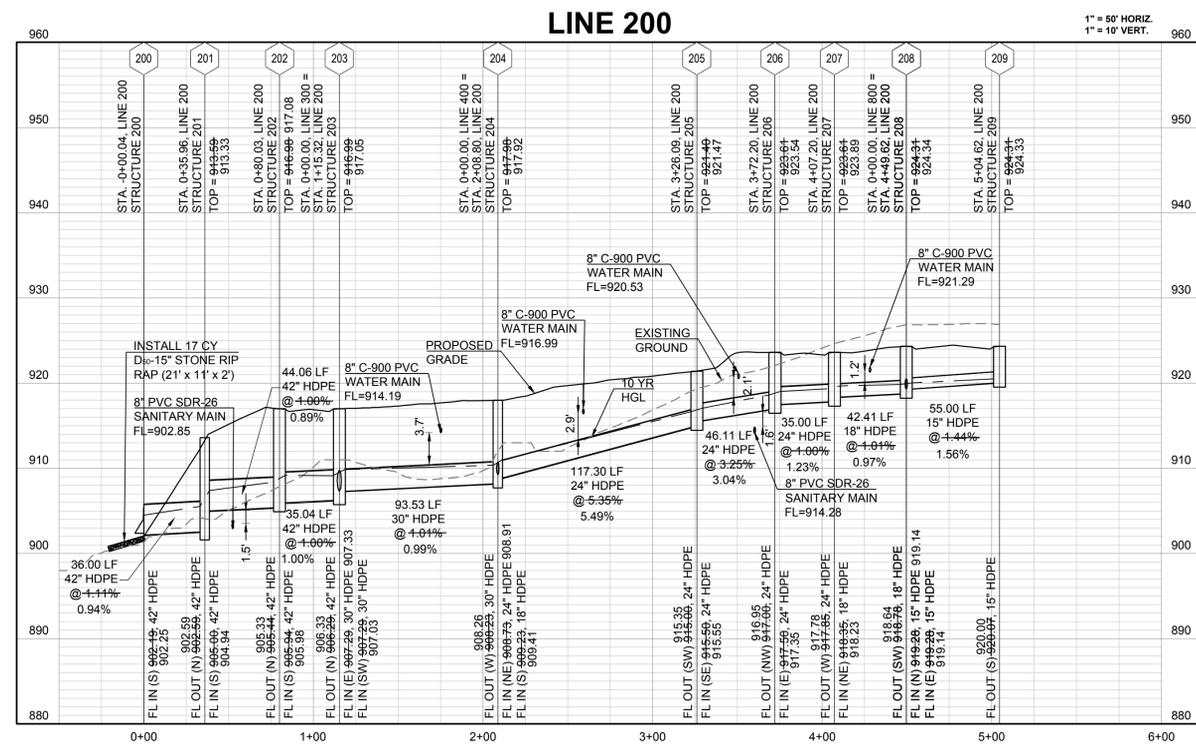
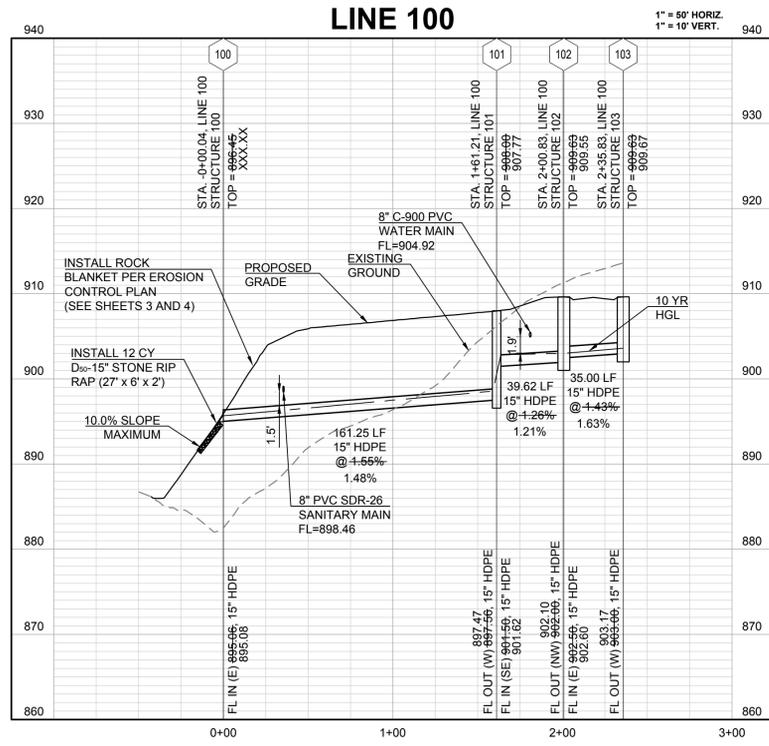


WINTERSET VALLEY, 12TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE  
PLAN AND EROSION AND SEDIMENT CONTROL  
AUDUBON LANE AND CARSON DRIVE LEE'S  
SUMMIT, MO

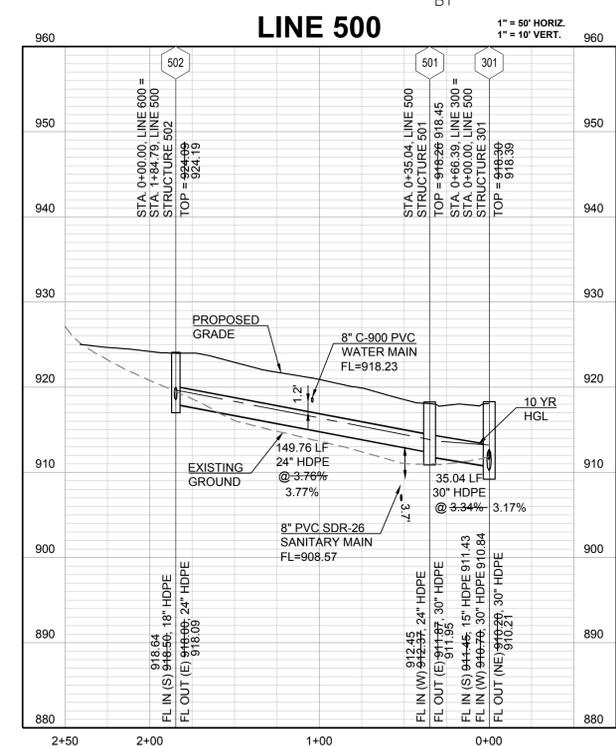
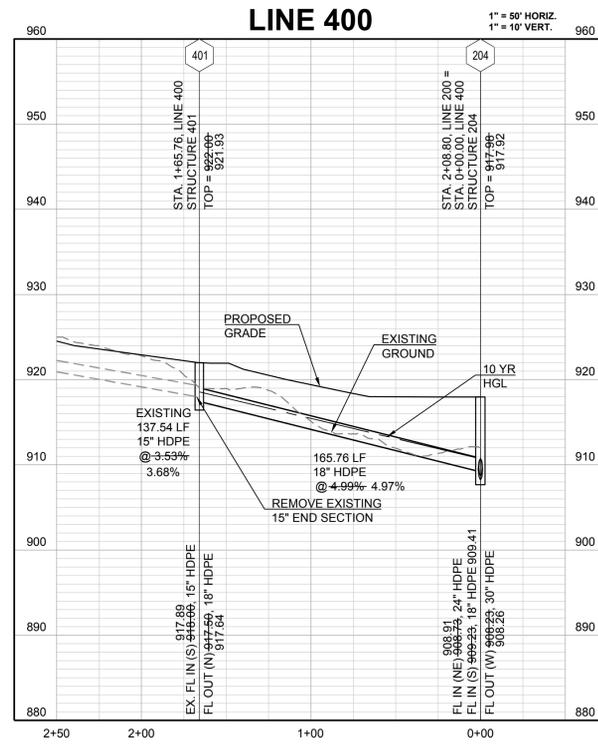
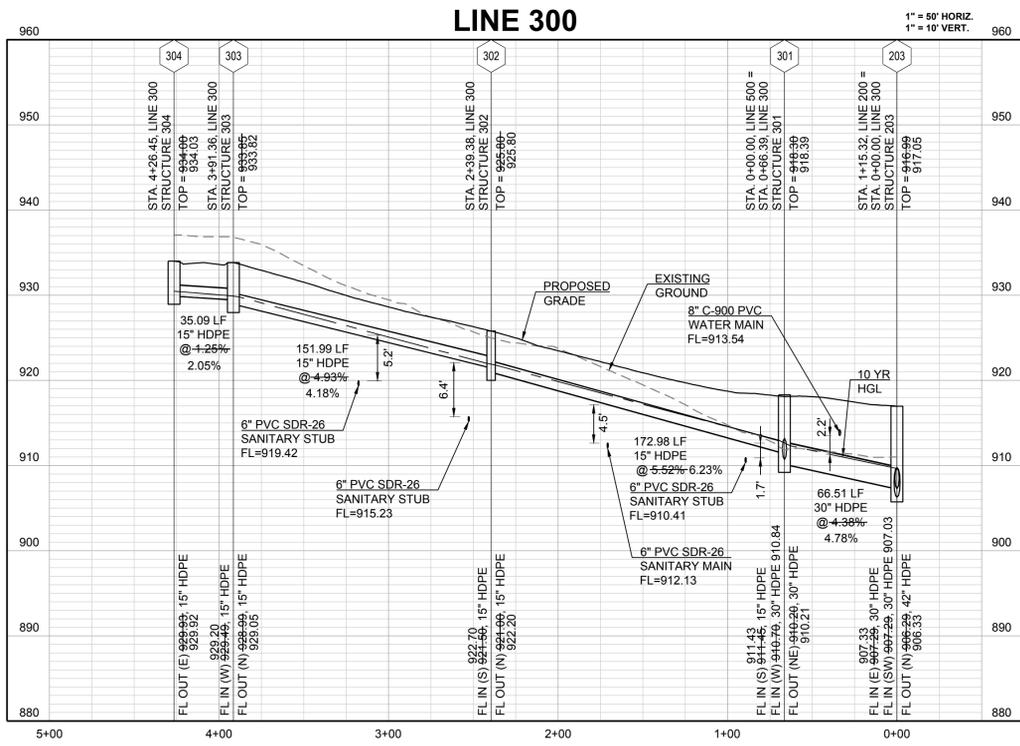
REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
09/27/2018	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS

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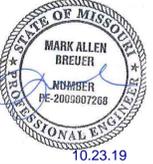




CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.  
KSC 7-23-19  
BY DATE



**PROJECT BENCH MARK:**  
SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.  
ELEV. 935.45'



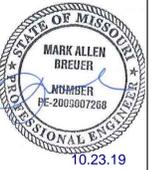
WINTERSET VALLEY, 12TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
EROSION AND SEDIMENT CONTROL  
AUDUBON LANE AND CARSON DRIVE  
LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
08/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS
4/20/18	
17-134	

STORM PROFILE

SHEET

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10.23.19

**WINTERSET VALLEY, 12TH PLAT  
 STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
 EROSION AND SEDIMENT CONTROL  
 AUDUBON LANE AND CARSON DRIVE  
 LEE'S SUMMIT, MO**

REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
09/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS

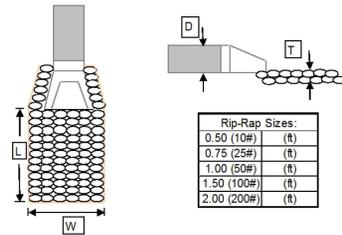
**STORM PROFILE**

DRAWN BY:	KSC
CHECKED BY:	MAB
DATE PREPARED:	4/20/18
PROJ. NUMBER:	17-134

**SHEET**

**19**  
OF 25

**OUTLET RIP-RAP DESIGN WORKSHEET v1.0**



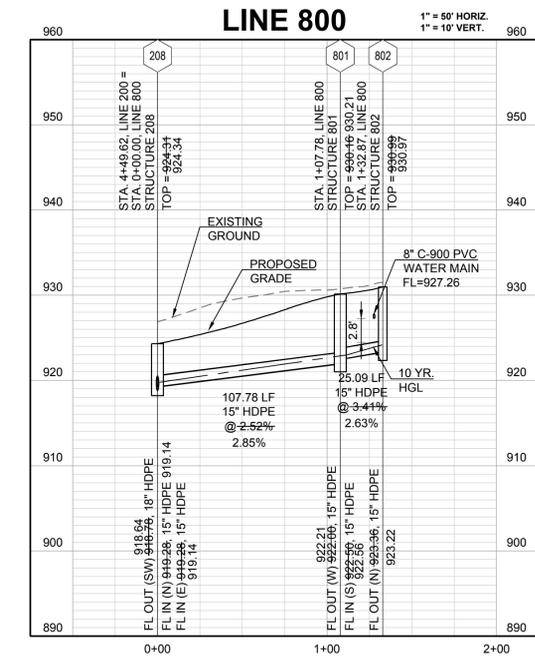
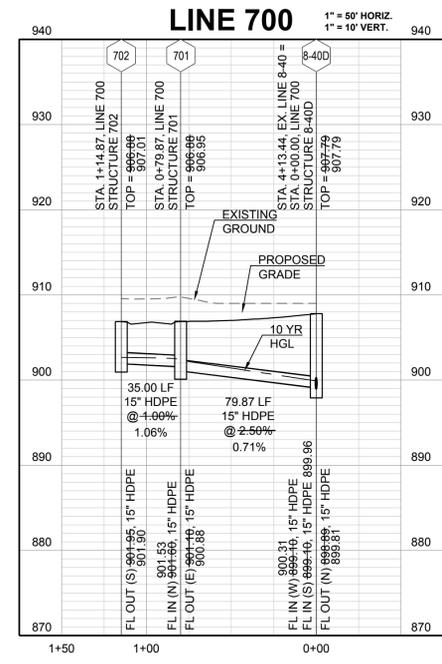
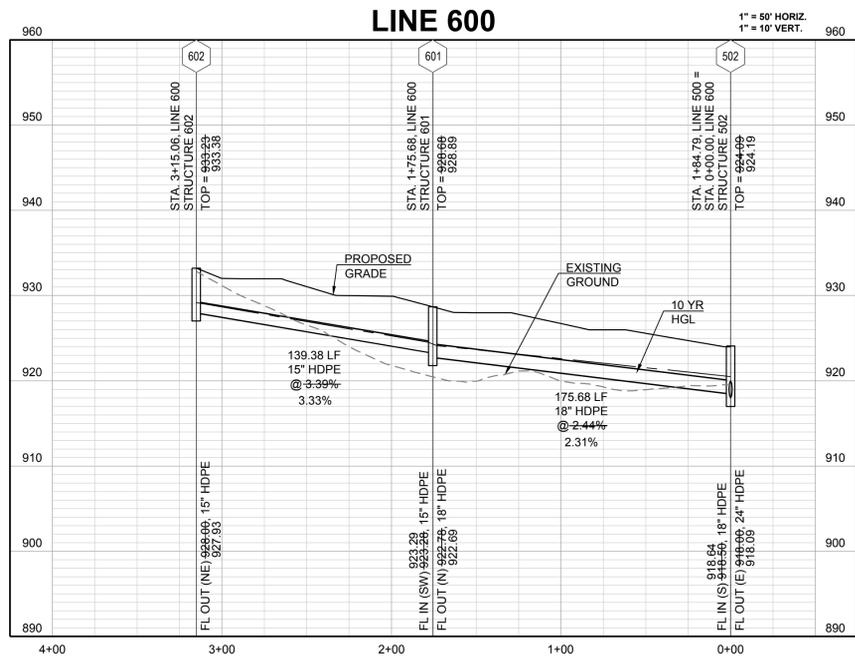
Rip-Rap Sizes:	(ft)
0.50 (10#)	(ft)
0.75 (25#)	(ft)
1.00 (50#)	(ft)
1.50 (100#)	(ft)
2.00 (200#)	(ft)

- DESIGN NOTES:**
- Rip-Rap width calculated to be either D+4' 3"D, or top width of channel, whichever is greater
  - Rip-Rap length calculated to be  $1/(2 \cdot \tan(e)) \cdot (A/Y)^3$ , where e=20°, A=flow area, and Y=normal depth
  - D50 calculated using  $(1/2)(1.384 \cdot V^2 / (s-1))^{1/2} \cdot 2g$  (Eqn. 10, pg.32, HEC-11), where V=Outlet Velocity, s=Specific Gravity of Stone=2.65, and g=32.2
  - Critical Shear Stresses provided by A.P.W.A. 5600
  - Rip-Rap thickness equals 2'D50 for 12" and smaller rip-rap, and 1.5'D50 for larger than 12"

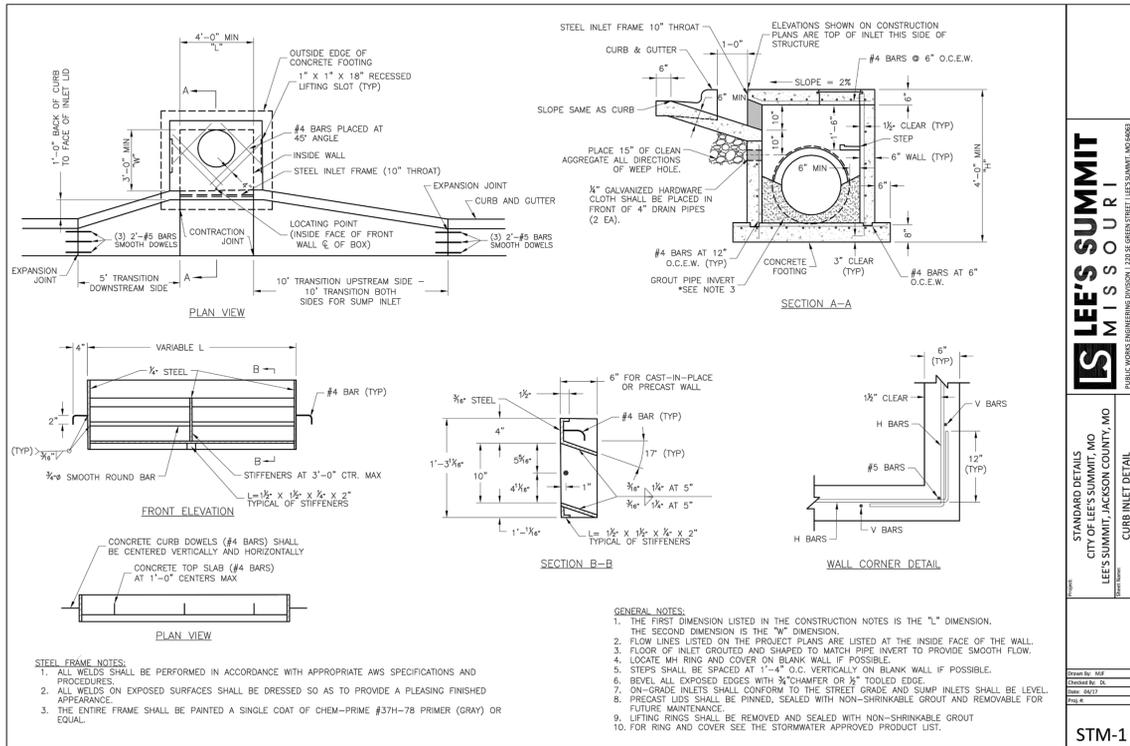
Outlet/Channel Properties					Rip-Rap Dimensions										
Outlet Structure	Pipe Size (ft)	Downstream Channel/Swale Section	V Pipe (ft/s)	V Swale (ft/s)	Average Shear Stress (lb/ft²)	W Calculated (ft)	W USED (ft)	L Calculated (ft)	L (min.) 3'D (ft)	L (max.) 10'D (ft)	L USED (ft)	D50 Calculated (in)	Size (Mt.) USED (d50,in)	Critical Shear Stress (lb/ft²)	T (ft)
100	1.25	N/A	10.85	N/A	N/A	5.25	6	n/a	3.75	12.50	10	0.77	1.00 (50#)	4.00	2.00
200	3.50	N/A	11.94	N/A	N/A	10.50	11	n/a	10.50	35.00	20	0.93	1.00 (50#)	4.00	2.00

CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.

KSC 7-23-19  
 BY DATE

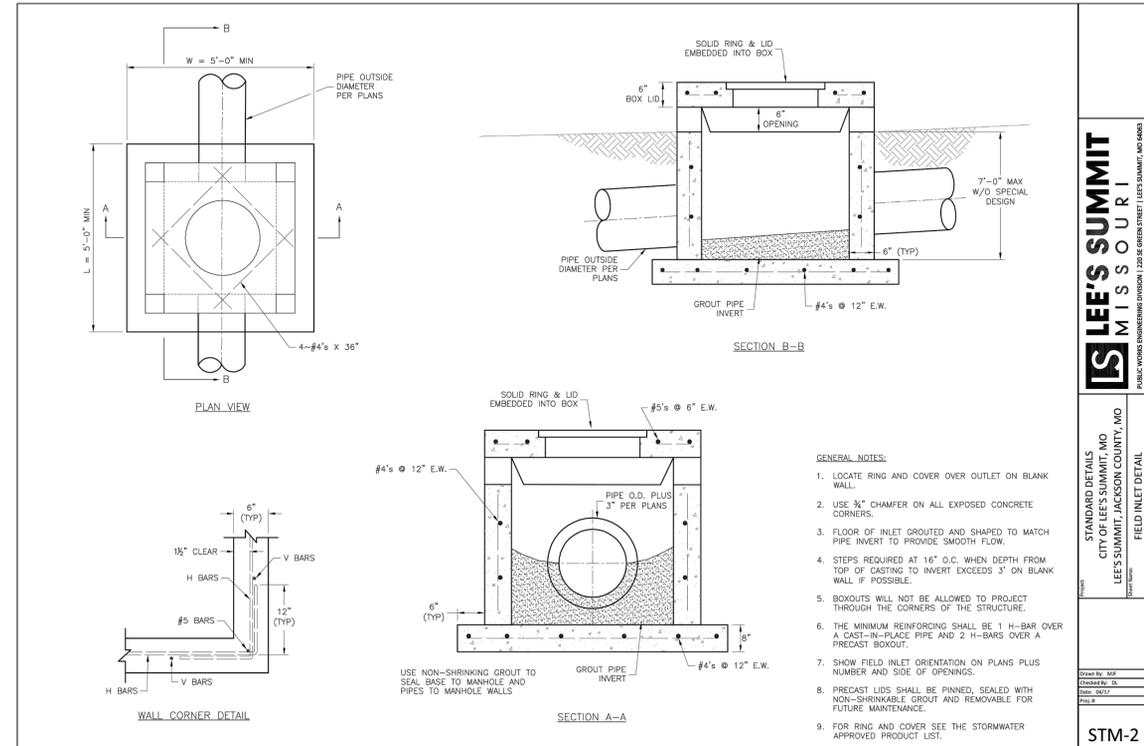


**PROJECT BENCH MARK:**  
 SANITARY MANHOLE H2 AT NW CORNER OF LOT 1153 WINTERSET VALLEY 1ST PLAT, APPROX. 39' RT. OF CL OF NW PEALE BLVD.  
 ELEV. 935.45'



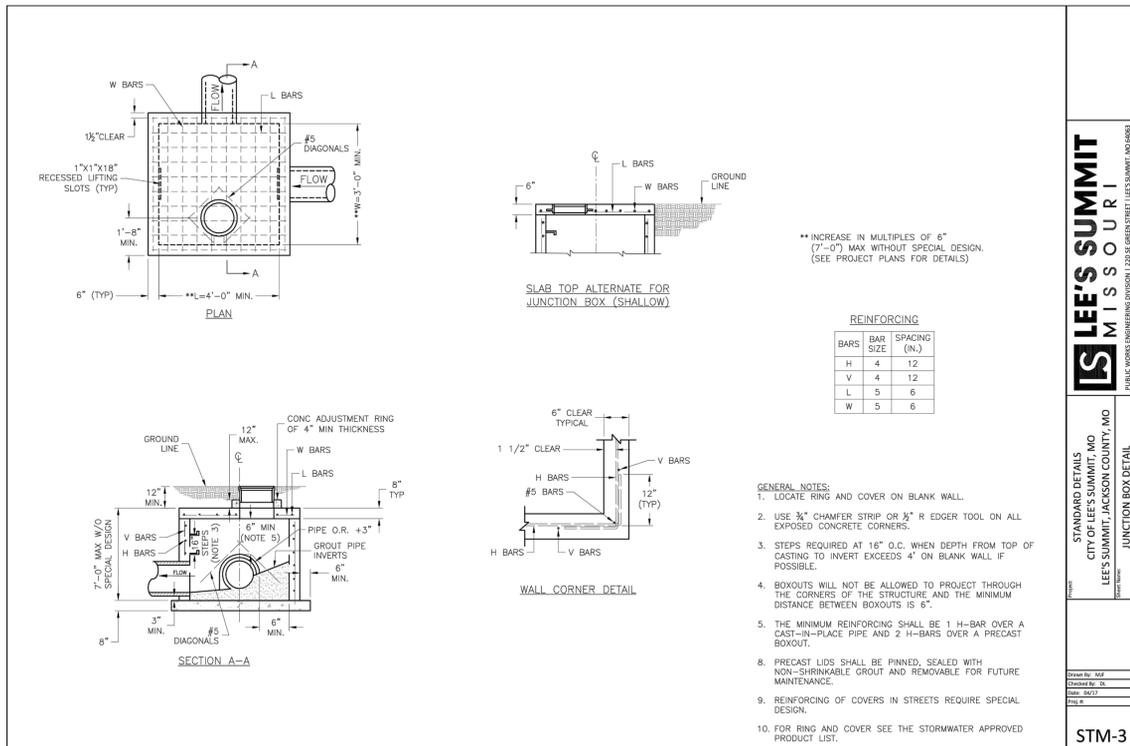
**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 1201 E. GREEN STREET | LEE'S SUMMIT, MO 64049

STANDARD DETAILS  
CITY OF LEE'S SUMMIT, MO  
LEE'S SUMMIT, JACKSON COUNTY, MO  
CURB INLET DETAIL  
STM-1



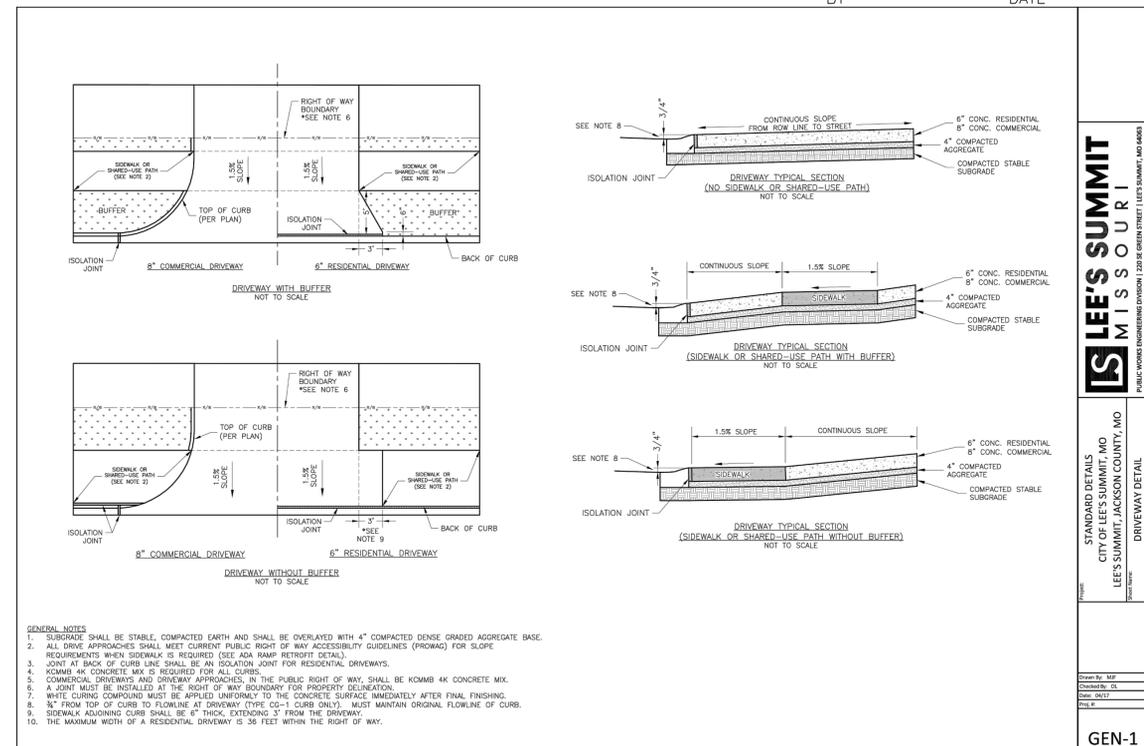
**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 1201 E. GREEN STREET | LEE'S SUMMIT, MO 64049

STANDARD DETAILS  
CITY OF LEE'S SUMMIT, MO  
LEE'S SUMMIT, JACKSON COUNTY, MO  
FIELD INLET DETAIL  
STM-2



**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 1201 E. GREEN STREET | LEE'S SUMMIT, MO 64049

STANDARD DETAILS  
CITY OF LEE'S SUMMIT, MO  
LEE'S SUMMIT, JACKSON COUNTY, MO  
JUNCTION BOX DETAIL  
STM-3

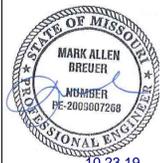


**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 1201 E. GREEN STREET | LEE'S SUMMIT, MO 64049

STANDARD DETAILS  
CITY OF LEE'S SUMMIT, MO  
LEE'S SUMMIT, JACKSON COUNTY, MO  
DRIVEWAY DETAIL  
GEN-1

CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.  
KSC BY 7-23-19  
DATE

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Engineers - Planners - Surveyors - Landscape Architects  
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Missouri State Certificates of Authority  
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WINTERSET VALLEY, 12TH PLAT STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL AUDUBON LANE AND CARSON DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHP/ FINDINGS
09/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS

DETAILS

TABLE LS-2: MINIMUM ASPHALT PAVEMENT THICKNESSES

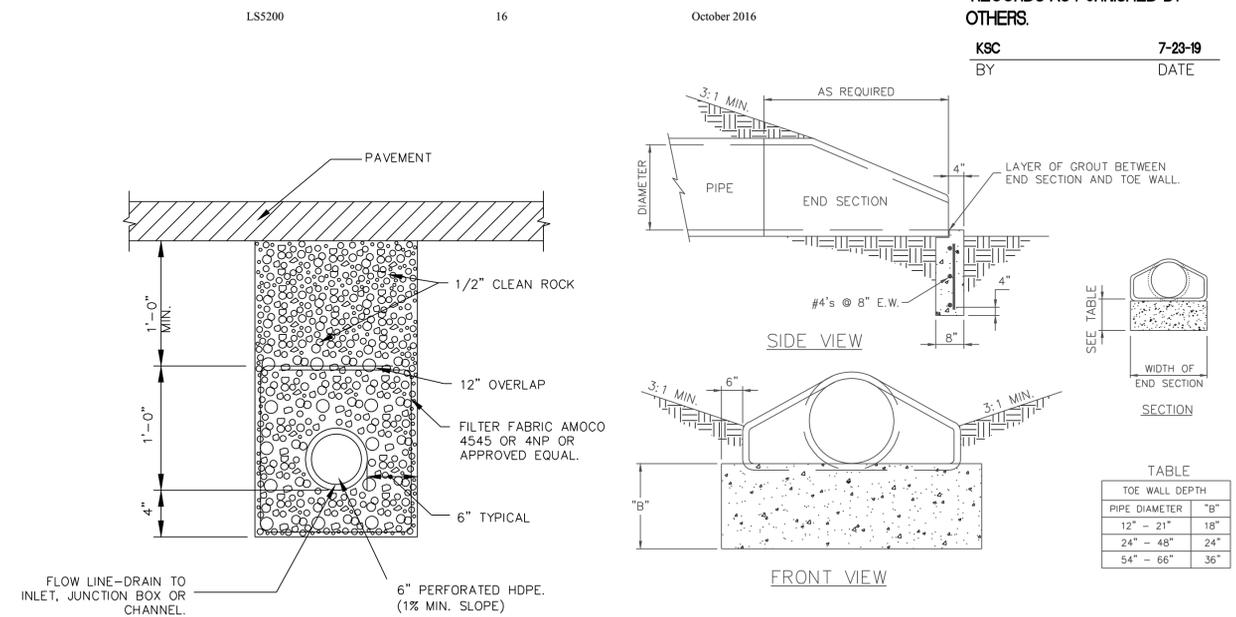
Street Classification	Pavement Option	AC Surface (in.)	AC Base (in.)	MoDOT Type 5 Base (in.)	Geogrid(1)	Chemical Subgrade Stabilization(2) (in.)
Residential Local/Access	A	2	4	6	--	6
	B	2	4	10	Geogrid	--
Residential Collector	A	2	5.5	6	--	9
	B	2	5.5	12	Geogrid	--
Commercial Industrial Local/Collector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

TABLE LS-3: MINIMUM PCC PAVEMENT THICKNESSES

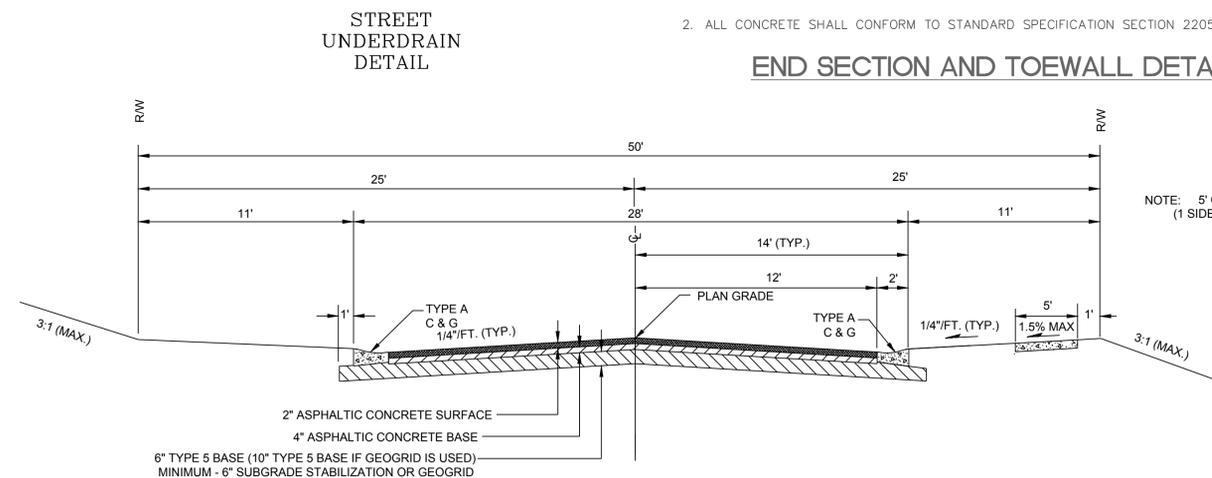
Street Classification	PCC (in.)	Aggregate Base (in.)	Subgrade Stabilization <sup>(1)</sup> (in.)
Residential Local/Access	6	4	--
Residential Collector	6	4	6
Commercial Industrial Local/Collector	8	4	9

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

CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.  
KSC BY DATE 7-23-19

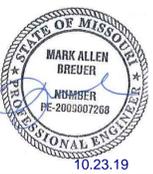


- NOTES:
- THE DEPTH OF THE TOE WALL SHALL BE PER TABLE. IF BEDROCK IS ENCOUNTERED A MINIMUM OF 12" INTO BEDROCK IS REQUIRED.
  - ALL CONCRETE SHALL CONFORM TO STANDARD SPECIFICATION SECTION 2205.2.



RESIDENTIAL LOCAL/ACCESS  
SW MACKENZIE DR STA. 3+36.12 TO STA. 9+03.59  
CARSON DR STA. 11+05.83 TO STA. 18+85.55  
NW THOREAU DR STA. 4+68.32 TO STA. 11+46.93  
NW AUDUBON LN STA. 3+07.51 TO STA. 10+21.79

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#E2002003600F #LAC2001005237 #LS200200889F

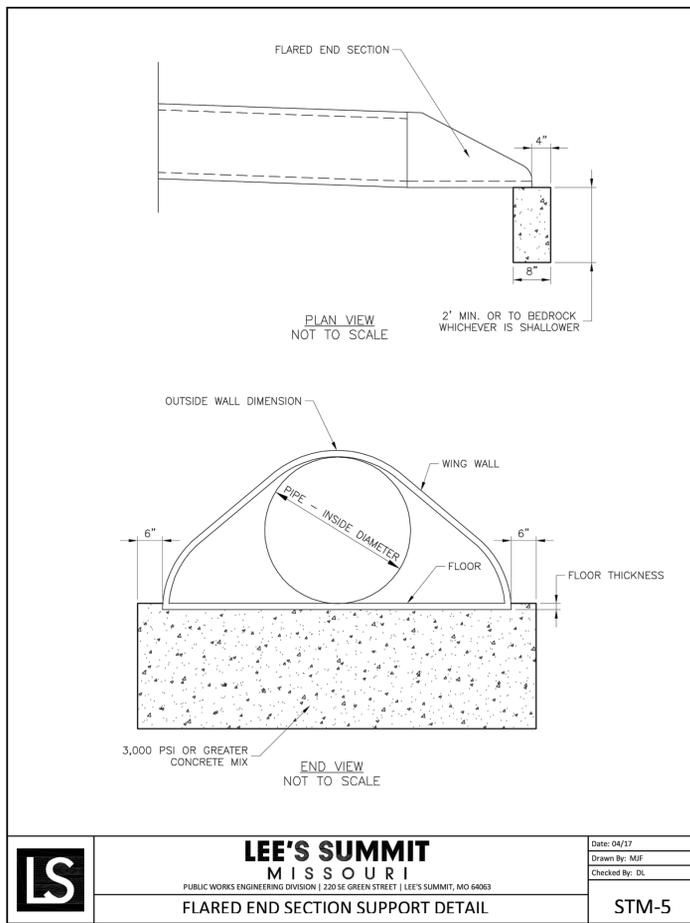


WINTERSET VALLEY, 12TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
EROSION AND SEDIMENT CONTROL  
AUDUBON LANE AND CARSON DRIVE  
LEE'S SUMMIT, MO

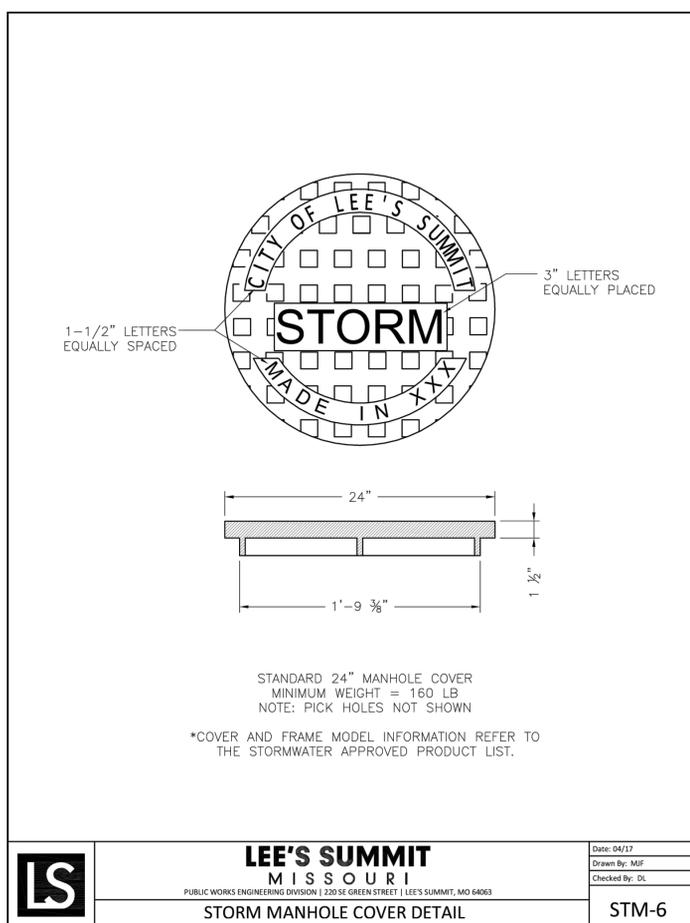
REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
07/30/2018	CITY COMMENTS
08/28/2018	CITY COMMENTS/SHPO FINDINGS
09/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS

DETAILS

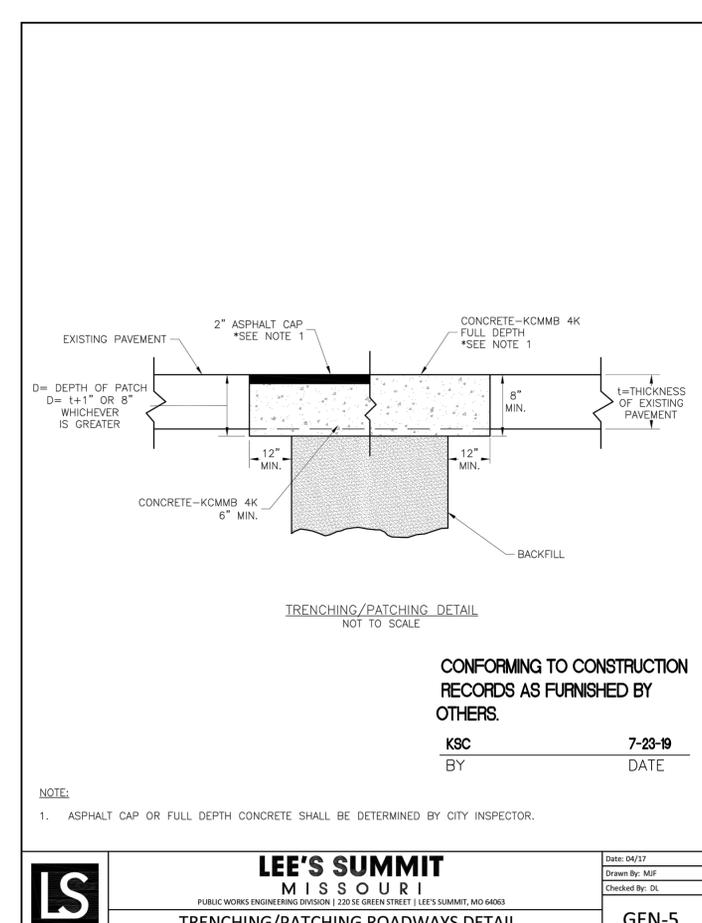
SHEET  
21  
OF 25



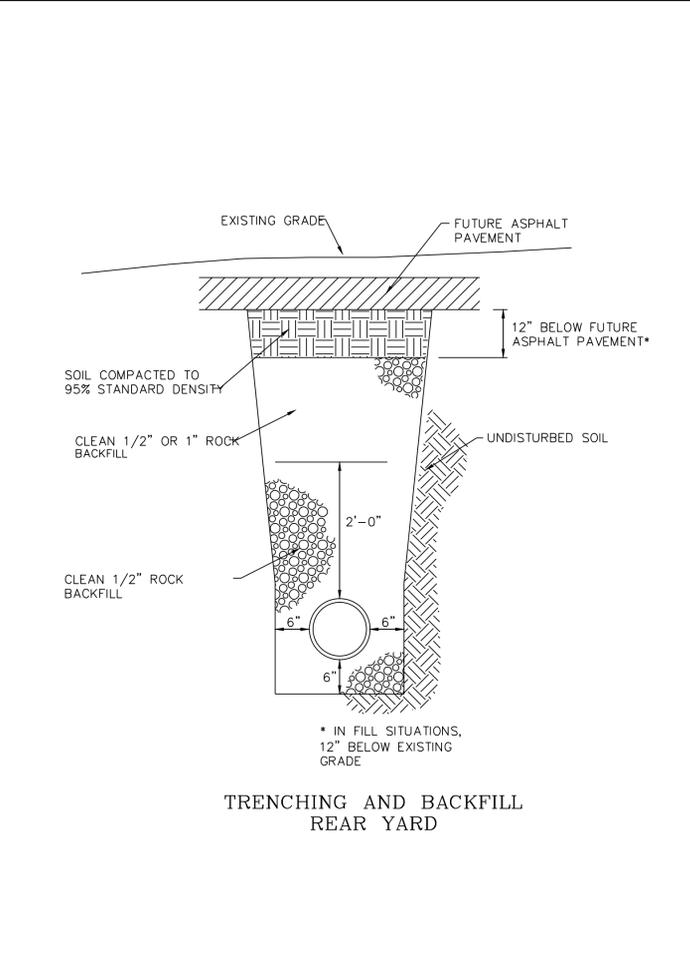
<b>LS</b>	<b>LEE'S SUMMIT</b> MISSOURI PUBLIC WORKS ENGINEERING DIVISION   220 SE GREEN STREET   LEE'S SUMMIT, MO 64063	Date: 04/17 Drawn By: MIF Checked By: DL
	FLARED END SECTION SUPPORT DETAIL	STM-5



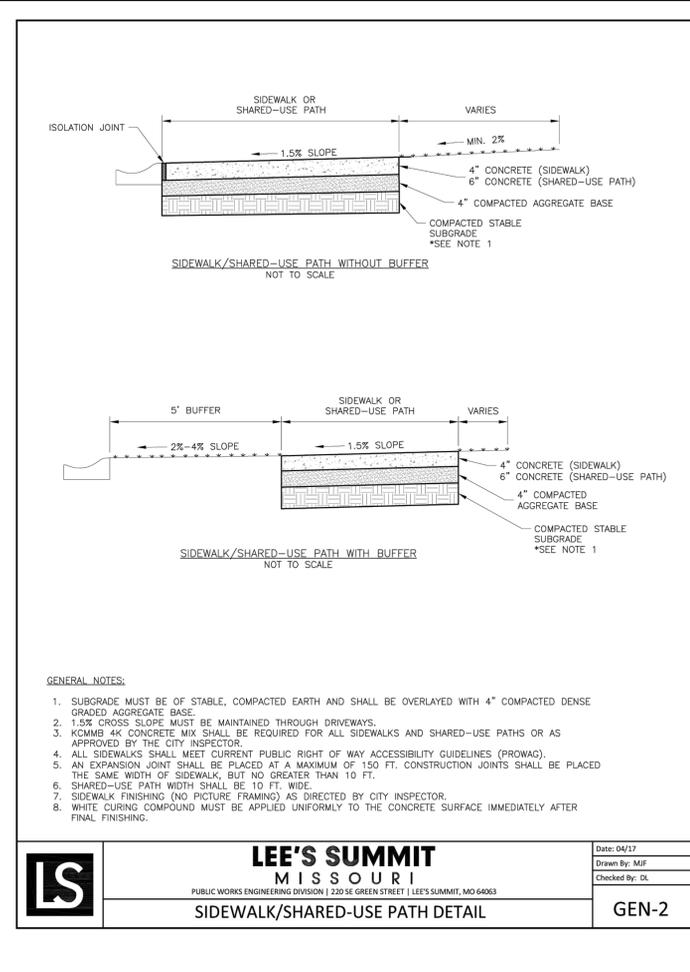
<b>LS</b>	<b>LEE'S SUMMIT</b> MISSOURI PUBLIC WORKS ENGINEERING DIVISION   220 SE GREEN STREET   LEE'S SUMMIT, MO 64063	Date: 04/17 Drawn By: MIF Checked By: DL
	STORM MANHOLE COVER DETAIL	STM-6



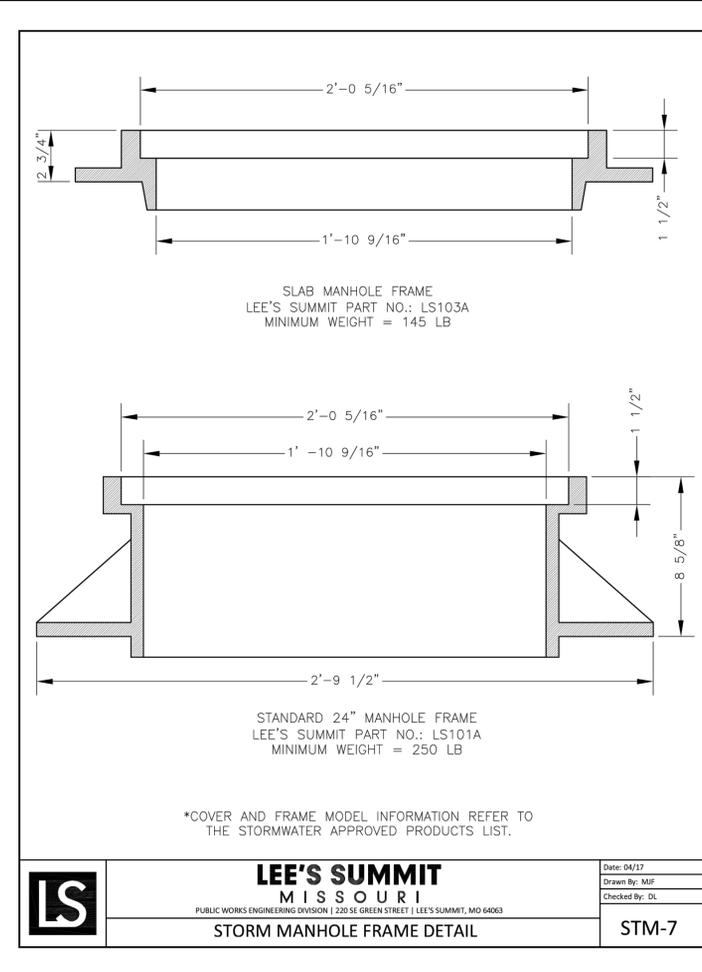
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	TRENCHING/PATCHING ROADWAYS DETAIL	GEN-5



<b>LS</b>	<b>LEE'S SUMMIT</b> MISSOURI PUBLIC WORKS ENGINEERING DIVISION   220 SE GREEN STREET   LEE'S SUMMIT, MO 64063	Date: 04/17 Drawn By: MIF Checked By: DL
	TRENCHING AND BACKFILL REAR YARD	GEN-2

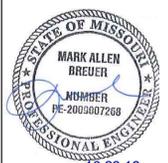


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	SIDEWALK/SHARED-USE PATH DETAIL	GEN-2



<b>LS</b>	<b>LEE'S SUMMIT</b> MISSOURI PUBLIC WORKS ENGINEERING DIVISION   220 SE GREEN STREET   LEE'S SUMMIT, MO 64063	Date: 04/17 Drawn By: MIF Checked By: DL
	STORM MANHOLE FRAME DETAIL	STM-7

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WINTERSET VALLEY, 12TH PLAT  
 STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
 EROSION AND SEDIMENT CONTROL  
 AUDUBON LANE AND CARSON DRIVE  
 LEE'S SUMMIT, MO

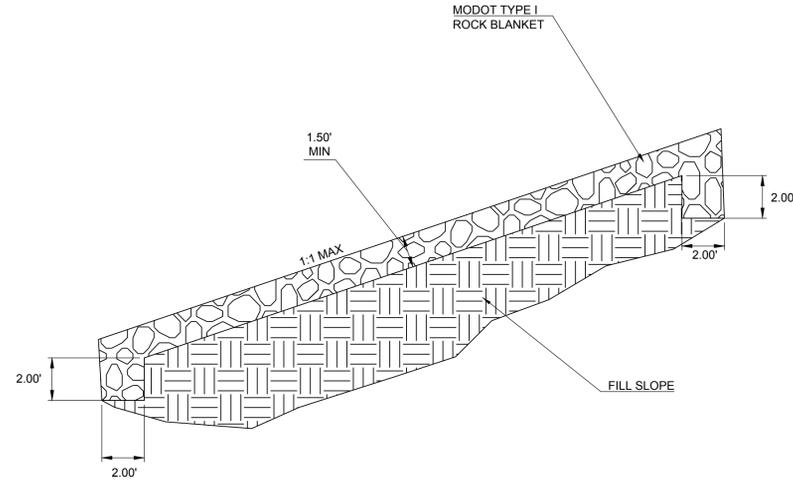
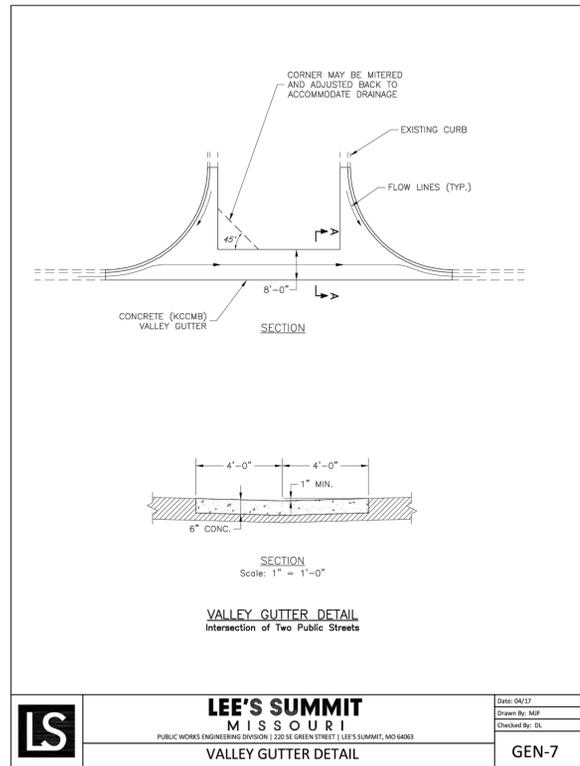
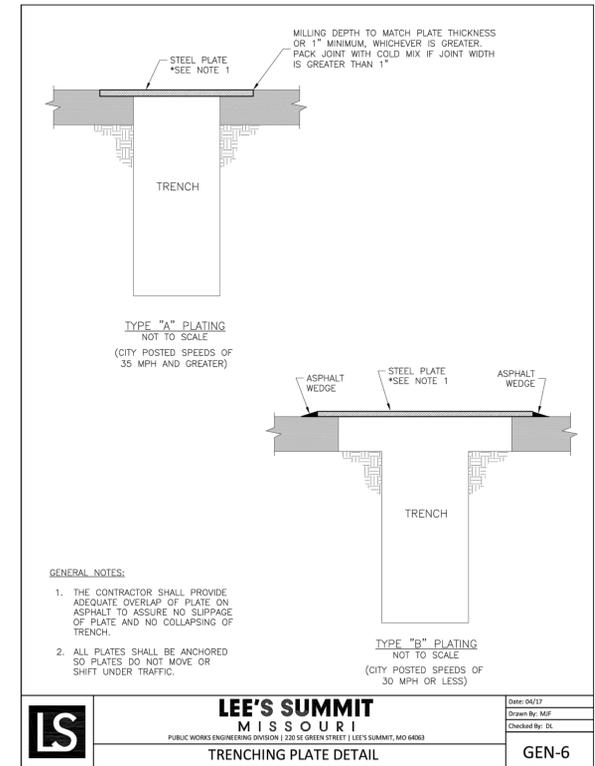
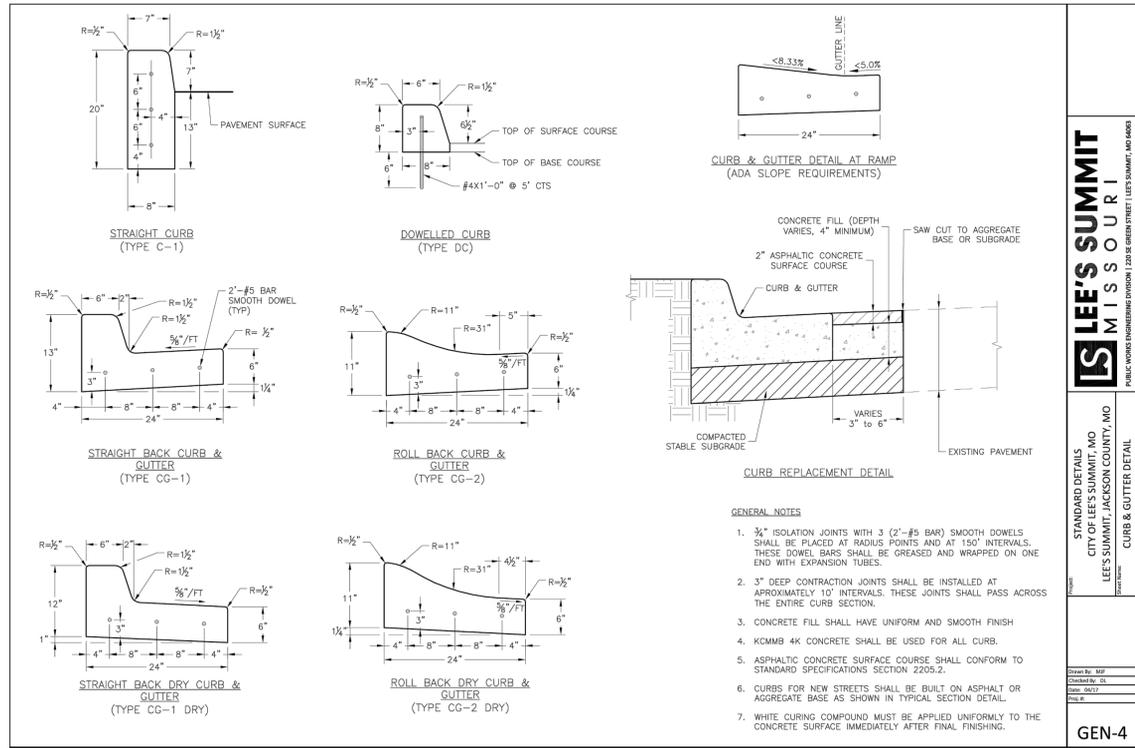
REVISION DATE	DESCRIPTION
06/04/2018	CITY COMMENTS
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08/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS
4/20/18	
17-134	

DETAILS

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OF 25



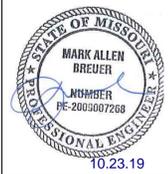
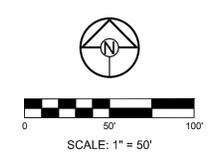
REVISION DATE	DESCRIPTION
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09/27/2019	REVISE STREET NAMES
8/29/2019	REVISE RETAINING WALLS
4/20/18	DATE PREPARED
17-134	PROJ. NUMBER

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CONFORMING TO CONSTRUCTION RECORDS AS FURNISHED BY OTHERS.

KSC 7-23-19  
 BY DATE



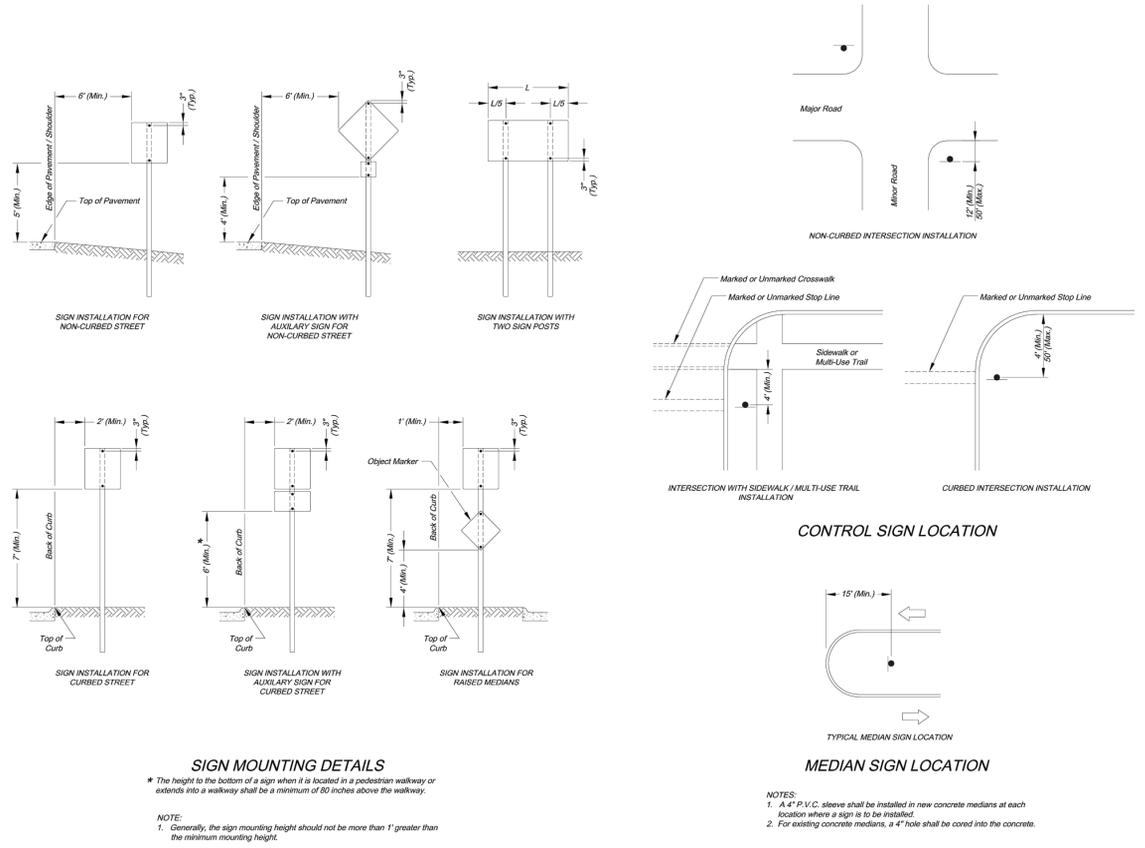
WINTERSET VALLEY, 12TH PLAT  
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**SIGN PLAN**

SHEET  
**24**  
 OF 25

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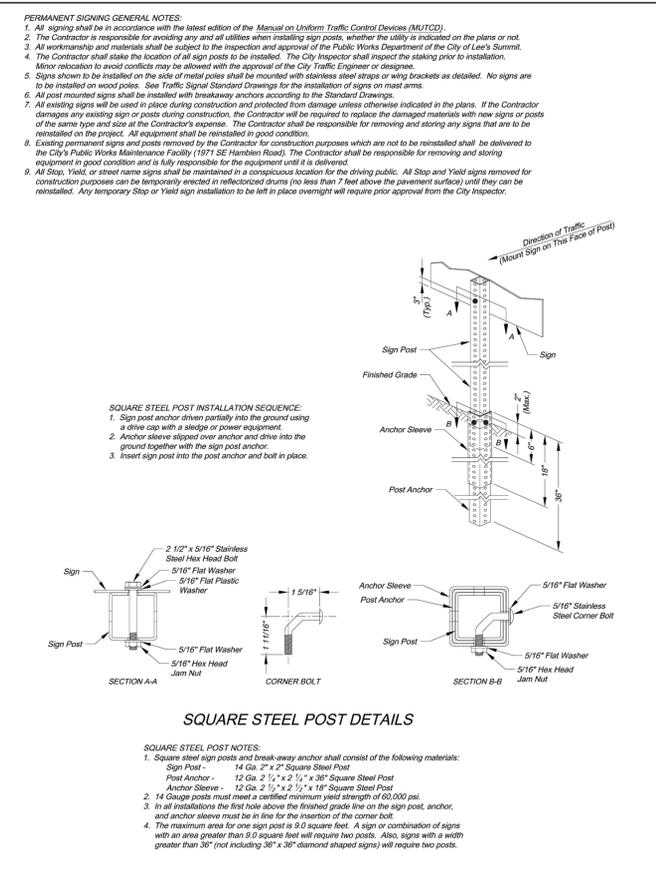
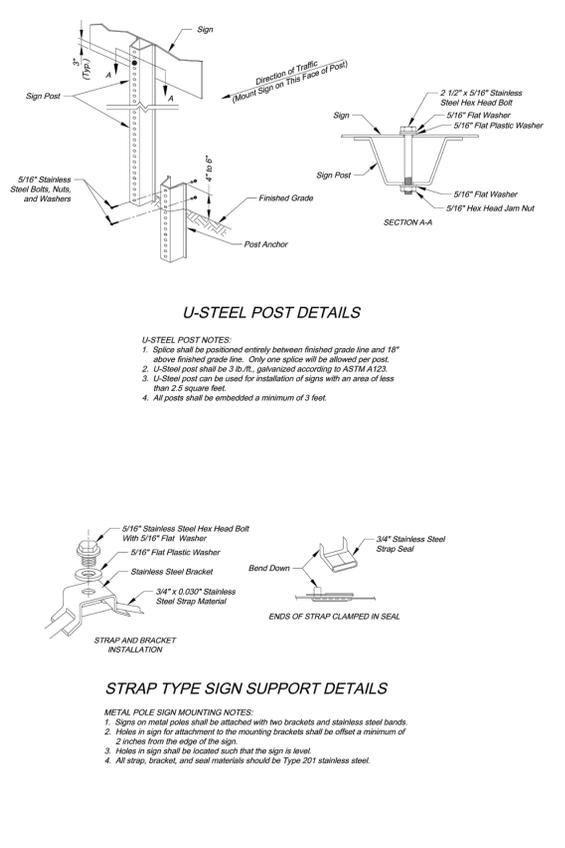


CITY OF LEE'S SUMMIT  
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ENGINEERING DIVISION  
1420 WEST 10TH STREET  
LEE'S SUMMIT, MISSOURI 64083  
PHONE: (816) 989-1800 FAX: (816) 989-1809

PROJECT: STANDARD DRAWING SN-1  
SHEET NAME: SIGN MOUNTING DETAILS  
Sheet No: \_\_\_\_\_

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

1 OF 3



CITY OF LEE'S SUMMIT  
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LEE'S SUMMIT, MISSOURI 64083  
PHONE: (816) 989-1800 FAX: (816) 989-1809

PROJECT: STANDARD DRAWING SN-2  
SHEET NAME: SIGN POST DETAILS  
Sheet No: \_\_\_\_\_

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

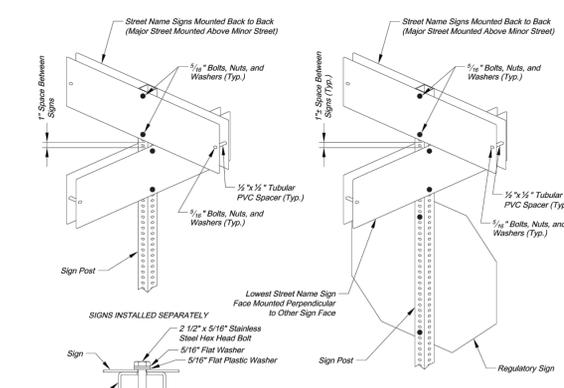
2 OF 3

**STANDARD ABBREVIATION LISTS**

Named Streets	Abbreviation	Numbered Streets	Abbreviation
Avenue	AVE	First	ST
Boulevard	BLVD	Second	RD
Circle	CIR	Third	RD
Creek	CR	Fourth to Tenth	TH
Court	CT		
Crossing	XING		
Drive	DR		
Highway	HWY		
Lane	LN		
Parkway	Parkway		
Place	PL		
Road	RD		
Street	ST		
Terrace	TER		
Trail	TRL		
Way	WAY		

**STREET NAME SIGN QUANTITIES**

Sign Designation	Sign Size	Sign Area (Sq. Ft.)	Number	Quantity (Sq. Ft.)
D3-1 (SP-1)	9' x 42"	2.63	1	2.63
D3-1 (SP-2)	9' x 48"	3.00	1	3.00
D3-1 (SP-3)	9' x 48"	2.63	3	7.89
D3-1 (SP-4)	9' x 48"	3.00	3	9.00
D3-1 (SP-5)	9' x 48"	3.00	3	9.00
D3-1 (SP-6)	9' x 48"	3.00	3	9.00

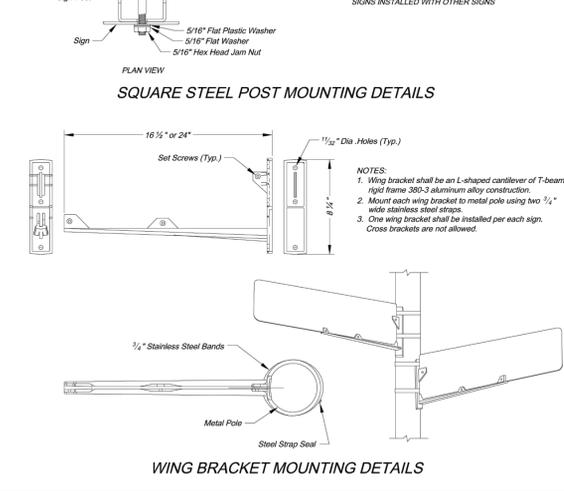
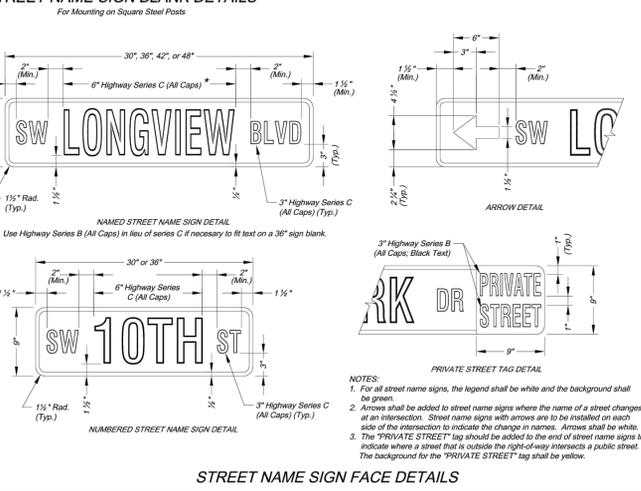


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PHONE: (816) 989-1800 FAX: (816) 989-1809

PROJECT: STANDARD DRAWING SN-3  
SHEET NAME: STREET NAME SIGN DETAILS  
Sheet No: \_\_\_\_\_

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Checked By: JW  
Date: 08/26/2009  
Project: \_\_\_\_\_

3 OF 3

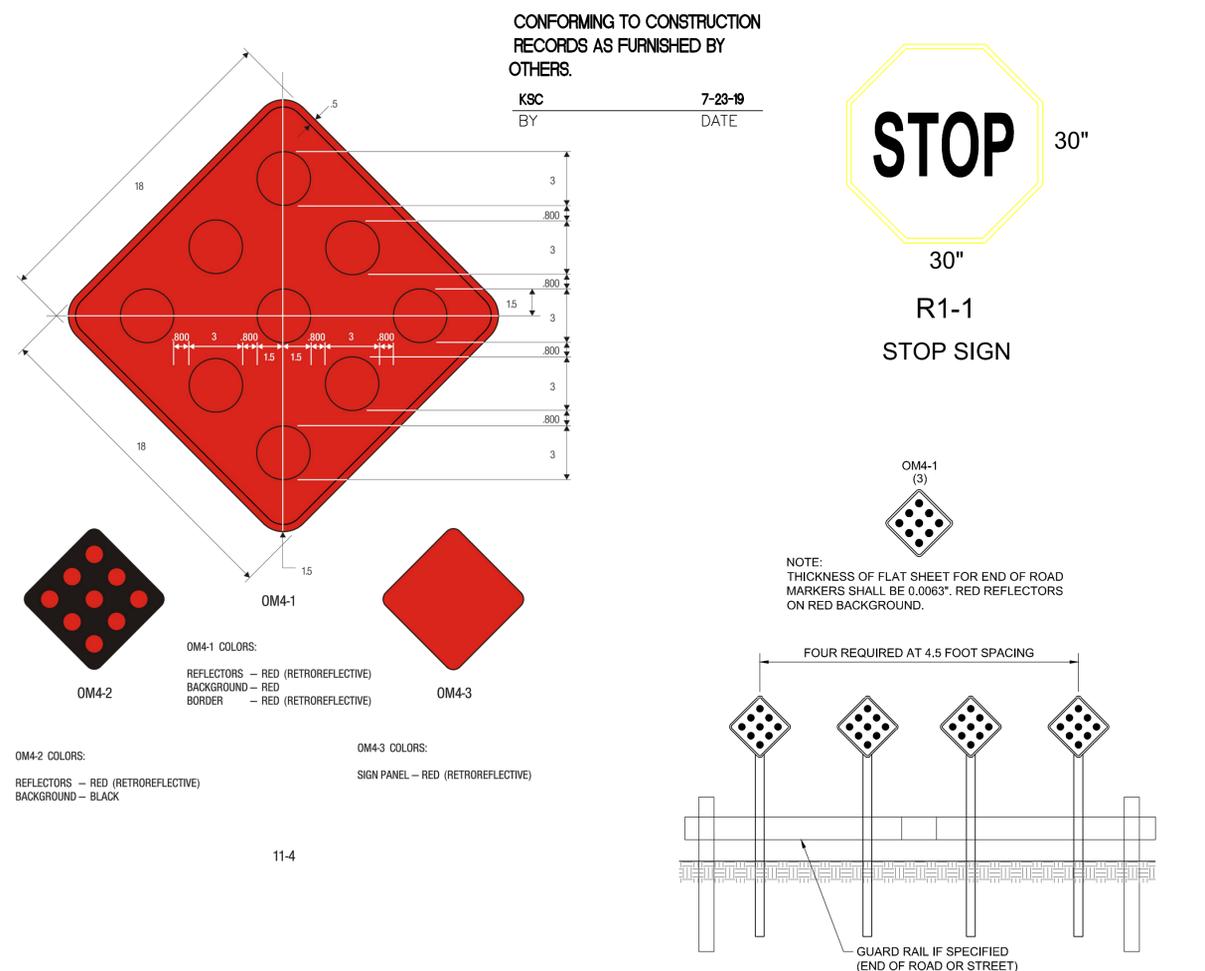


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LEE'S SUMMIT, MISSOURI 64083  
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3 OF 3

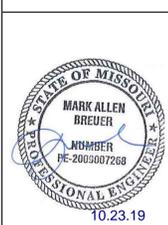


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Sheet No: \_\_\_\_\_

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2 OF 3

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**WINTERSET VALLEY, 12TH PLAT STREET, STORMWATER, MASTER DRAINAGE PLAN AND EROSION AND SEDIMENT CONTROL AUDUBON LANE AND CARSON DRIVE LEE'S SUMMIT, MO**

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4/26/18	
17-134	

**STREET SIGN DETAILS**

SHEET

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OF 25