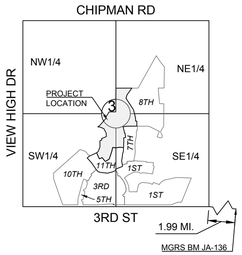
STREET AND STORM SEWER PLANS
FOR
WINTERSET VALLEY, 12TH PLAT

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

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 — CABLE TV - EXISTING
FOC — FIBER OPTIC CABLE - EXISTING
T — TELEPHONE LINE - EXIST.
E — ELECTRIC LINE - EXISTING
OHP — OVERHEAD POWER LINE - EXIST.
UGE — UNDERGROUND ELECTRIC - EX.
G — GAS LINE - EXISTING
W — WATERLINE - EXISTING
LIGHT - EXISTING
EXISTING MANHOLE
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 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 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

PUBLIC WATER SUPPLY DISTRICT
Mark Schaufler
220 SE Green Street
Lee's Summit, MO 64063
(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.
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 PUBLIC WORKS INSPECTIONS AT: 816-969-1800 TO OBTAIN A PUBLIC WORKS CONSTRUCTION PERMIT. A MINIMUM 48 HOUR NOTICE SHALL BE GIVEN PRIOR TO PERMIT ISSUANCE.
15. THE CONTRACTOR SHALL CONTACT THE CITY'S EROSION CONTROL SPECIALIST AT: 816-969-1800 PRIOR TO ANY LAND DISTURBANCE.
16. 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.
17. 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 DEPARTMENT.
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.

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 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.
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 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.
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.

PREPARED AND SUBMITTED BY:

SCHLAGEL & ASSOCIATES, P.A.

APPROVED BY:

CITY ENGINEER — DATE
APPROVED FOR ONE YEAR FROM THIS 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 ONE CALL SYSTEM, INC. 1-800-344-7483 STOP-CALL BEFORE YOU DIG!

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 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Kansas State Certificates of Authority
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WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

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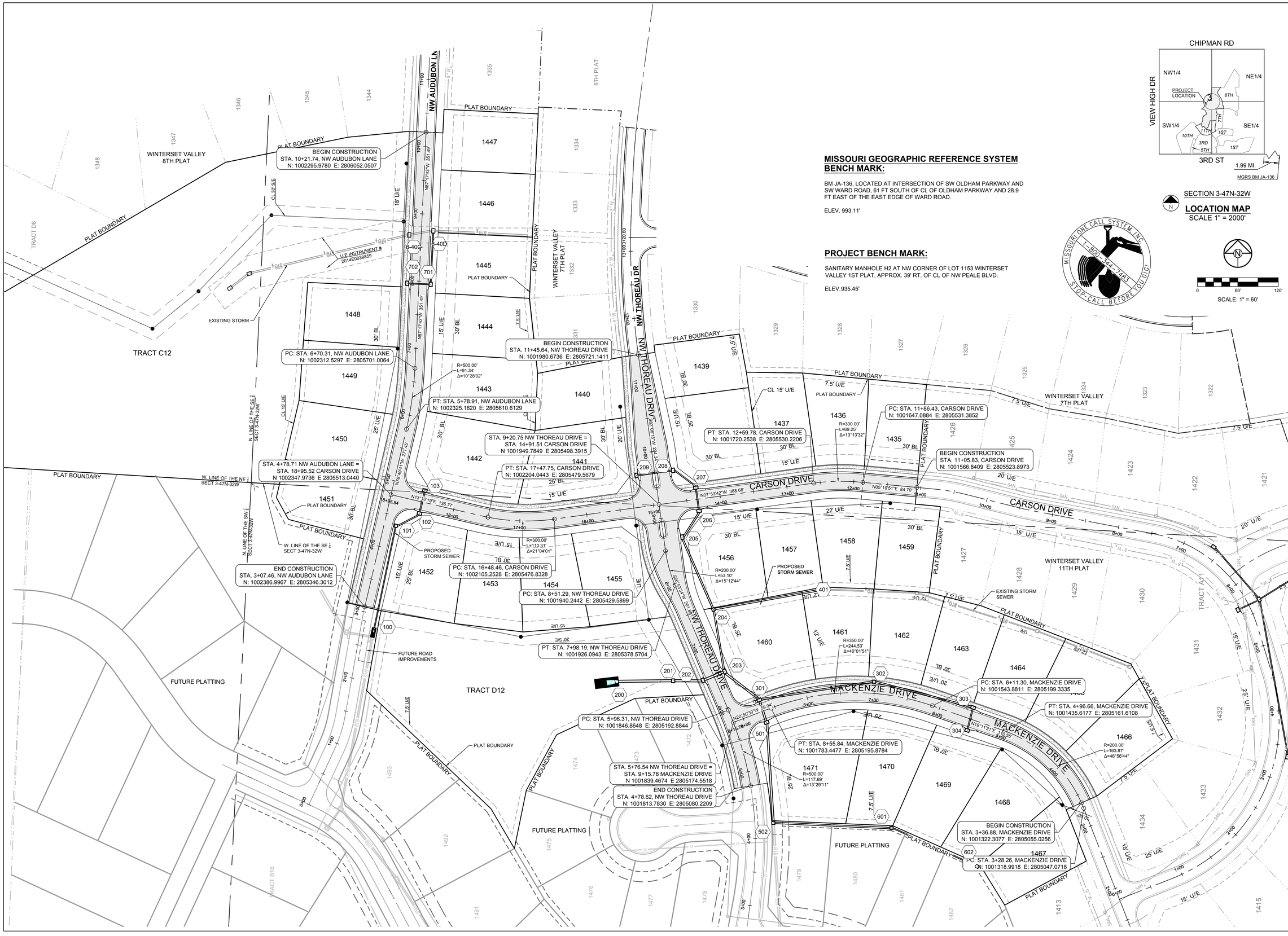
DRAWN BY: KSC
CHECKED BY: MAB
DATE PREPARED: 4-20-18
PROJ. NUMBER: 17-134

COVER SHEET



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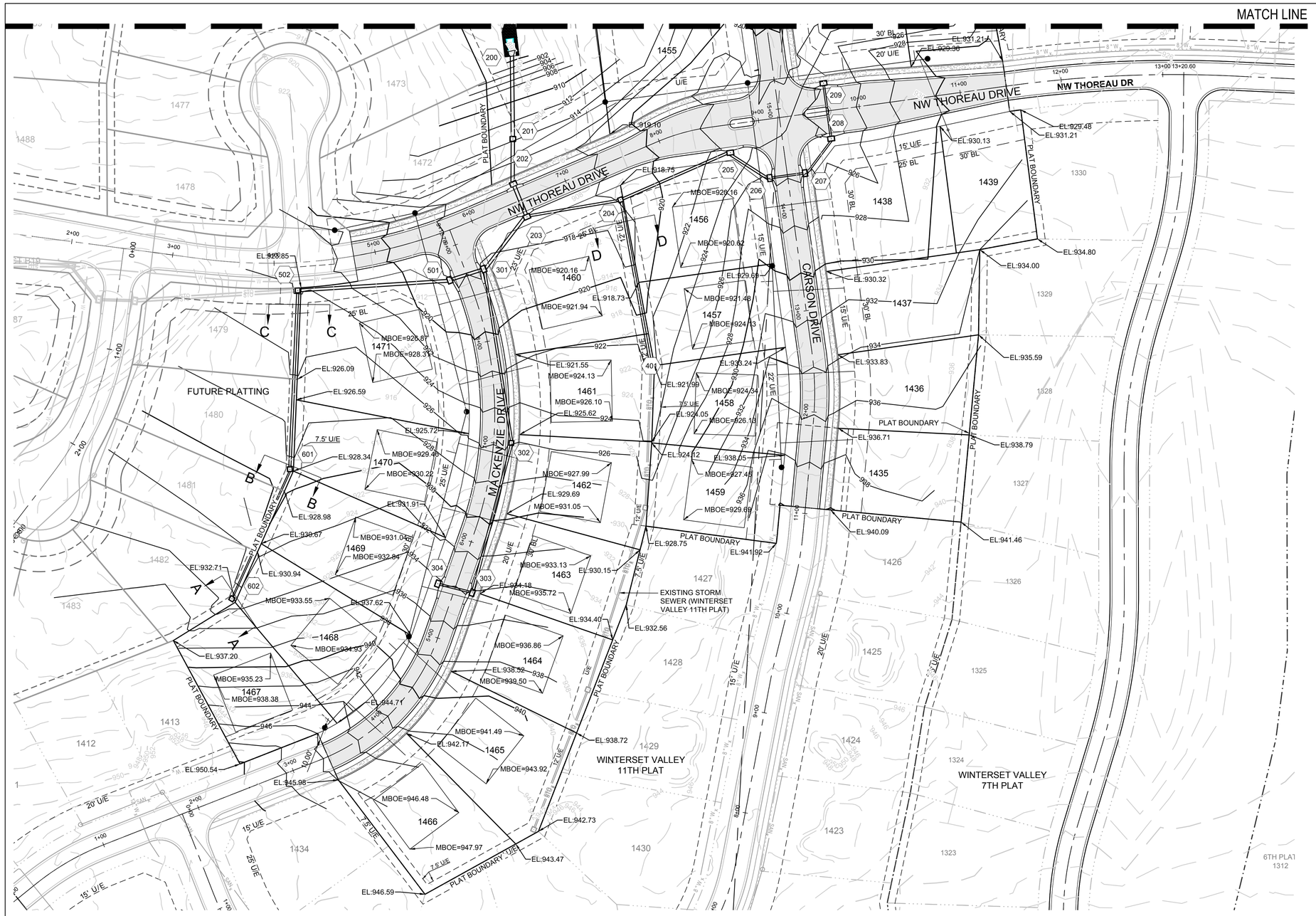
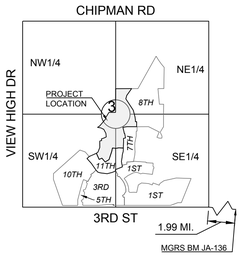
GENERAL LAYOUT

SHEET 2 OF 24





SECTION 3-47N-32W

LOCATION MAP

SCALE 1" = 2000'

NOTE:

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

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.

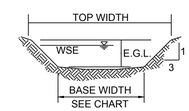
ELEV.935.45'

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. APPROVED INDIVIDUAL LOT PLOT PLANS MAY ALTER THE CONSTRUCTED SWALES IN ELEVATION (CONTOUR) FROM THE GRADING PLAN AS LONG AS THE MBOE IS ADJUSTED ACCORDING TO THE ABOVE CRITERIA.
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). 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 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	1.61	10.59	7.00	3.59	2.60	8	3:1	9.06	0.18	2.39	0.09	0.27
B-B	0.91	5.99	3.96	2.03	2.50	8	3:1	8.76	0.13	1.91	0.06	0.19
C-C	1.17	7.70	5.09	2.61	2.50	8	3:1	8.88	0.15	2.11	0.07	0.22
D-D	0.70	4.61	3.05	1.56	2.70	8	3:1	8.63	0.11	1.79	0.05	0.16

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



100 YR OVERFLOW SWALE SECTIONS
SECTION A-A, B-B, C-C, D-D
(SEE ADJACENT CHART)

SCALE: 1" = 50'

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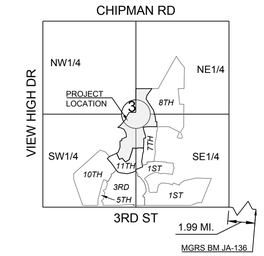
GRADING PLAN

SHEET 3 OF 24



SECTION 3-47N-32W

LOCATION MAP

SCALE 1" = 2000'

NOTE:

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

* LOT 1451 IS LOCATED ON SUBSTANTIAL FILL. FILL PLACED SHALL BE OBSERVED BY GEOTECHNICAL ENGINEER AND SHALL FOLLOW THIER RECOMENDATIONS. FOUNDATION MAY REQUIRE ENGINEER INVESTIGATION/DESIGN.

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'

0 50' 100'

SCALE: 1" = 50'

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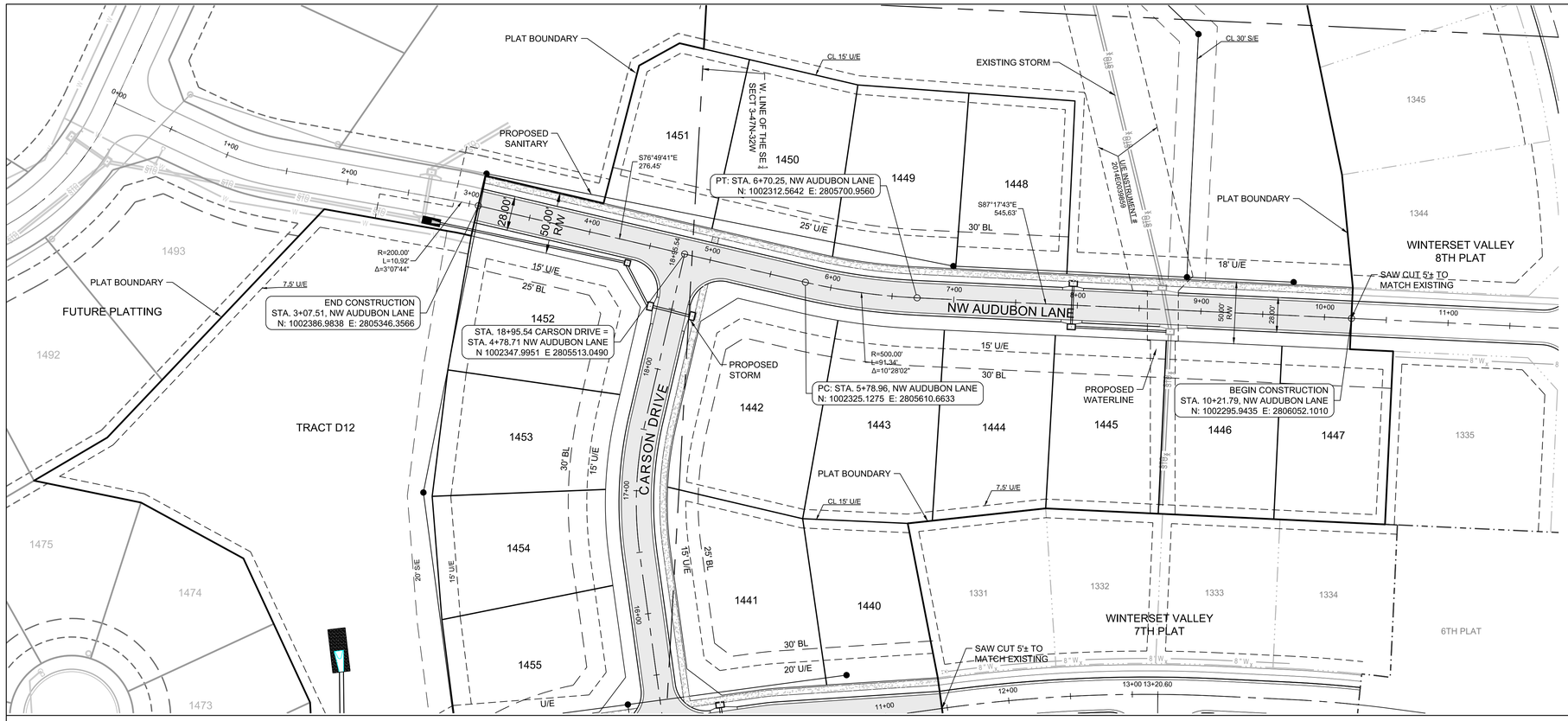
GRADING PLAN

SHEET 4 OF 24



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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'

MISSOURI ONE CALL SYSTEM, INC.
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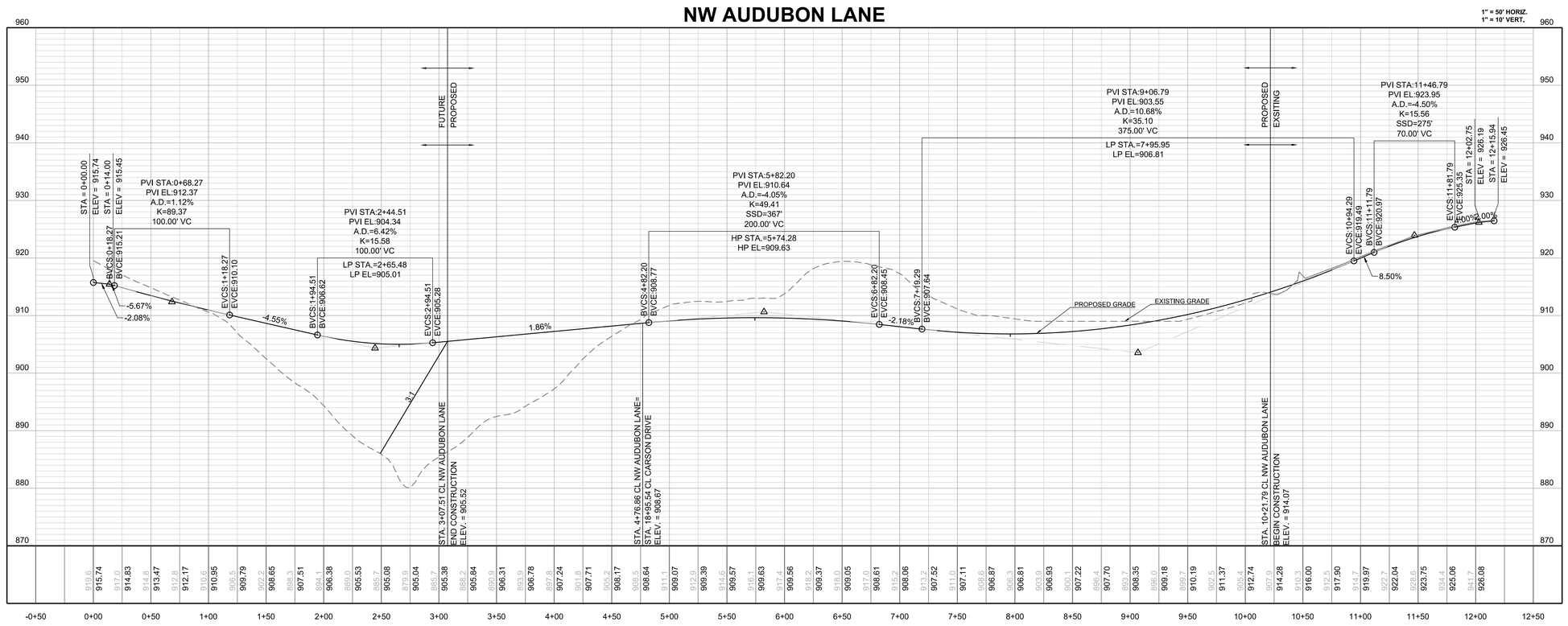
SCALE: 1" = 1'



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WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
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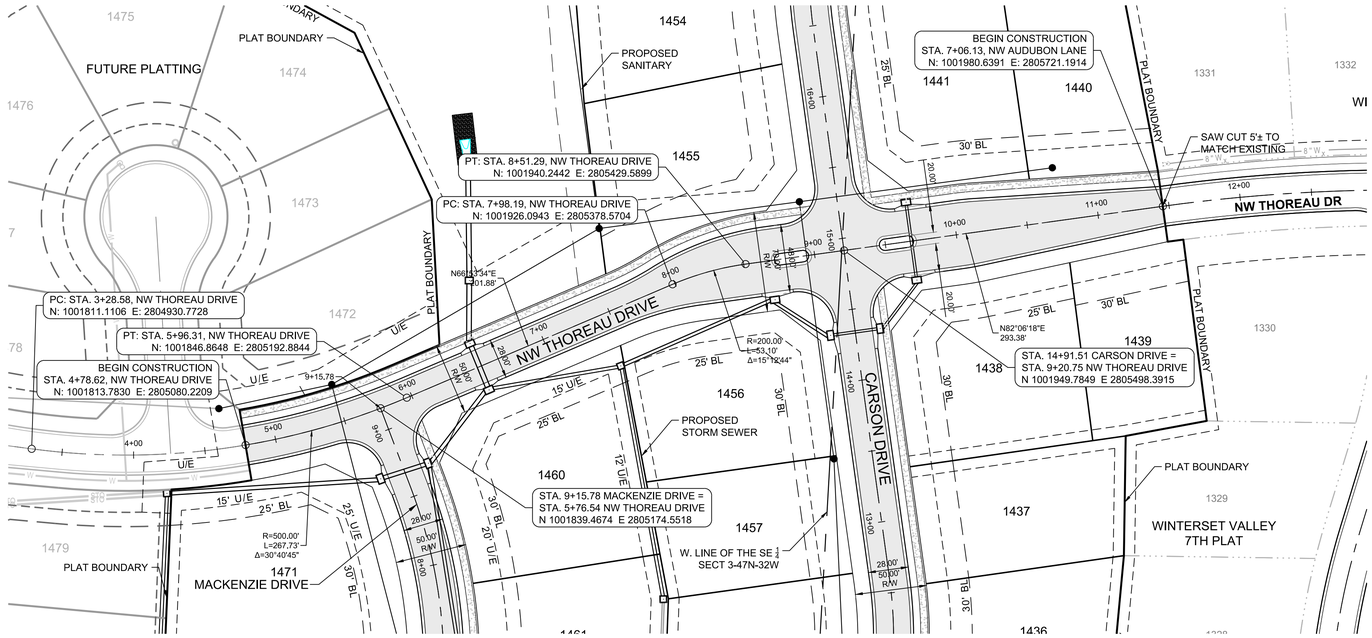
DRAWN BY: KSC
CHECKED BY: MAB
DATE PREPARED: 4.20.18
PROJ. NUMBER: 17-134

NW AUDUBON LANE PLAN AND PROFILE

SHEET 5 OF 24



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'

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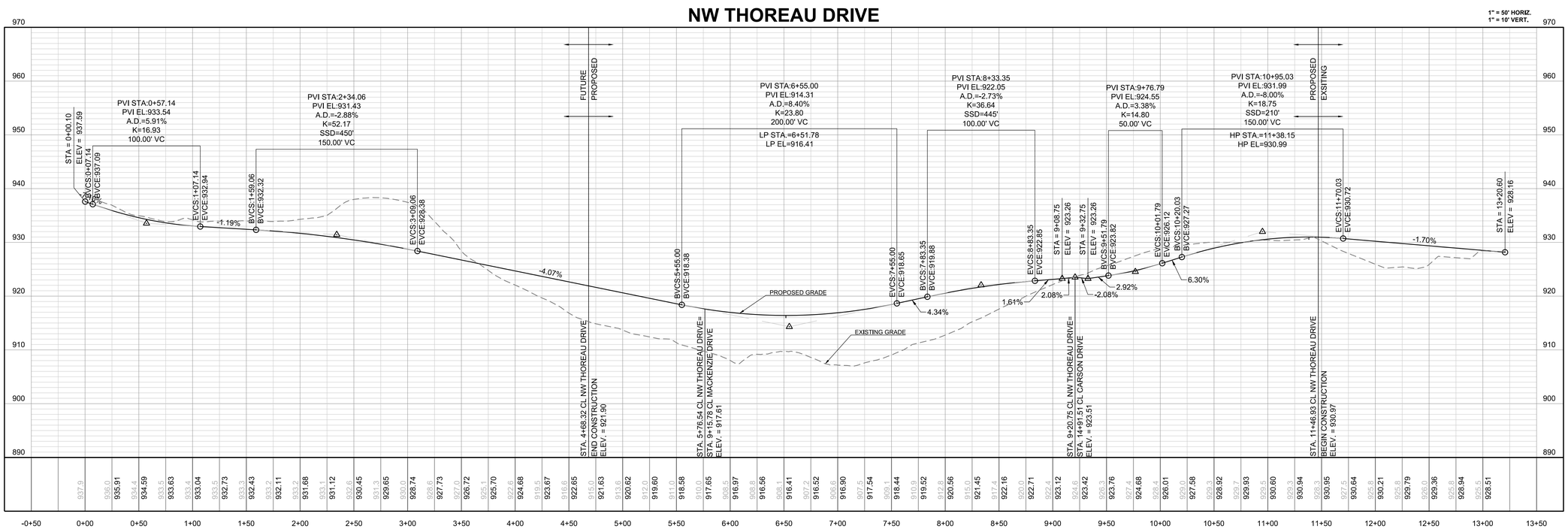

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WINTERSET VALLEY, 12TH PLAT
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AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

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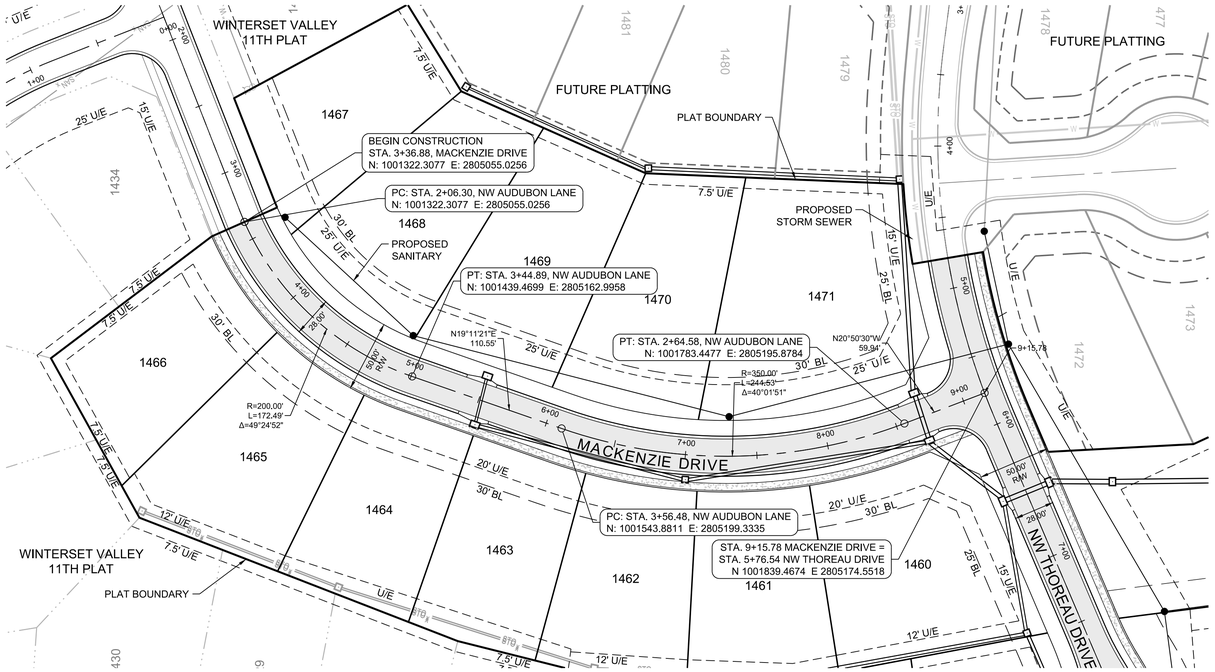
NW THOREAU DRIVE PLAN AND PROFILE

SHEET 6 OF 24



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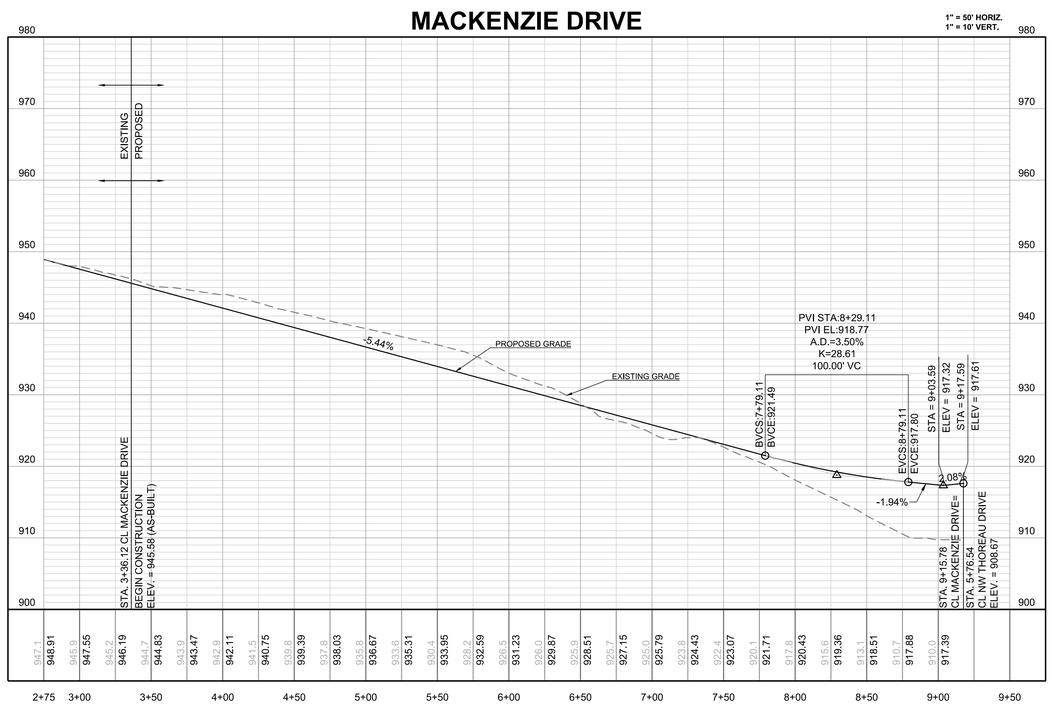

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WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

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MACKENZIE DRIVE PLAN AND PROFILE

SHEET

7

OF 24

MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:

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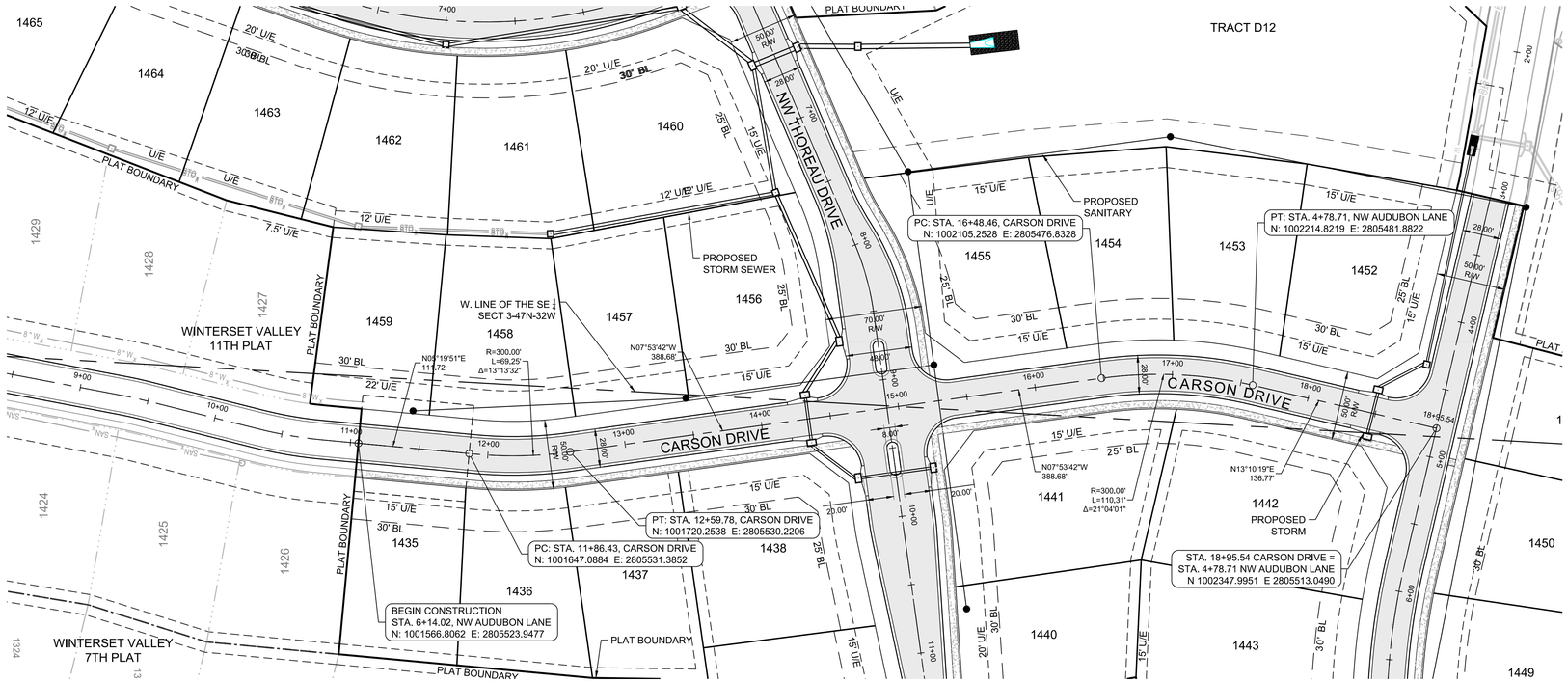

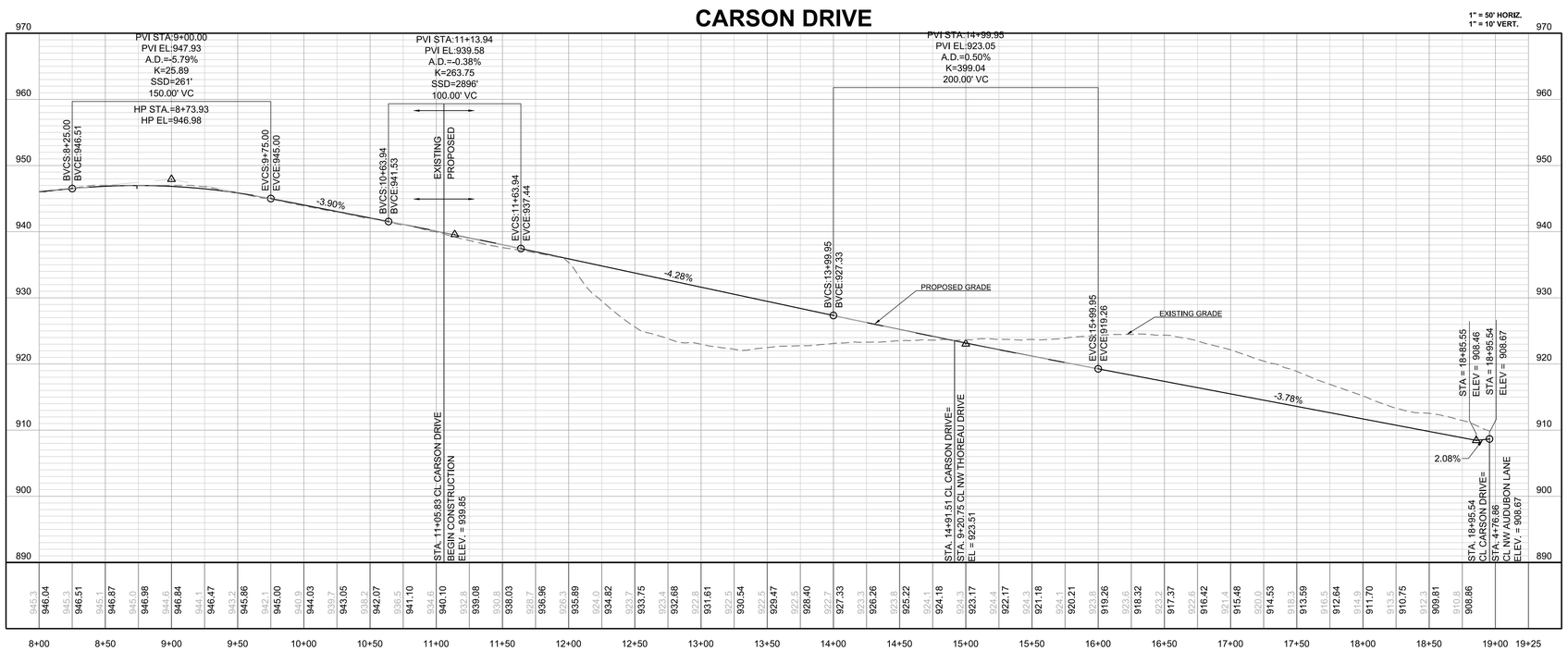

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WINTERSET VALLEY, 12TH PLAT STREET AND STORM SEWER PLANS AUDUBON LANE AND CARSON DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
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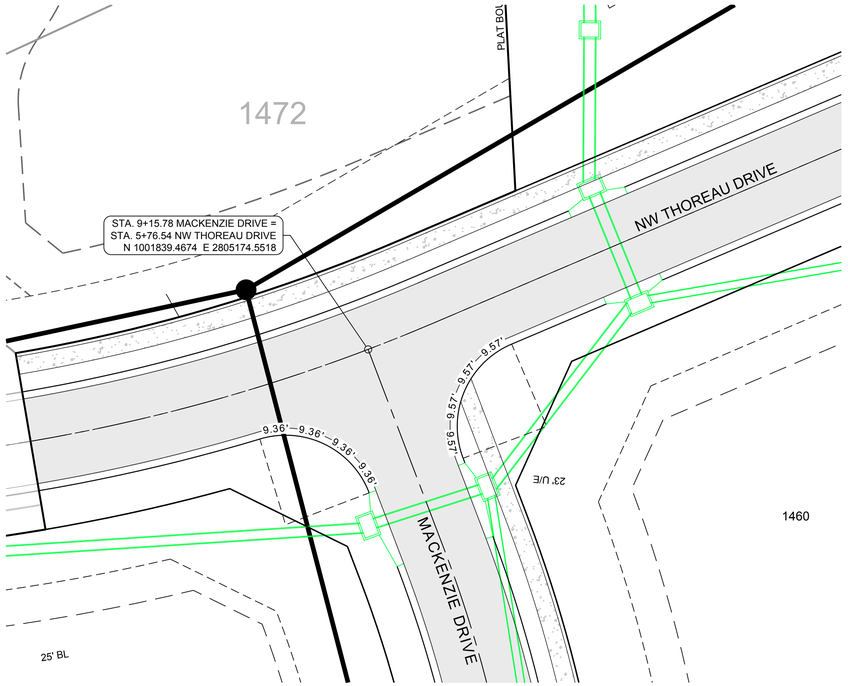
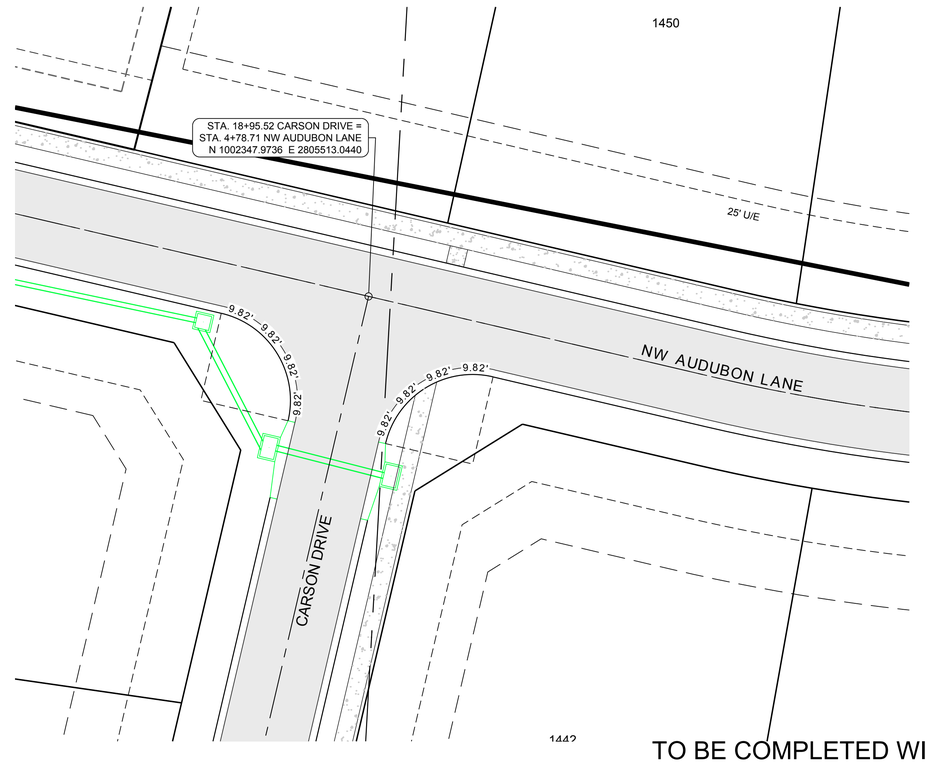
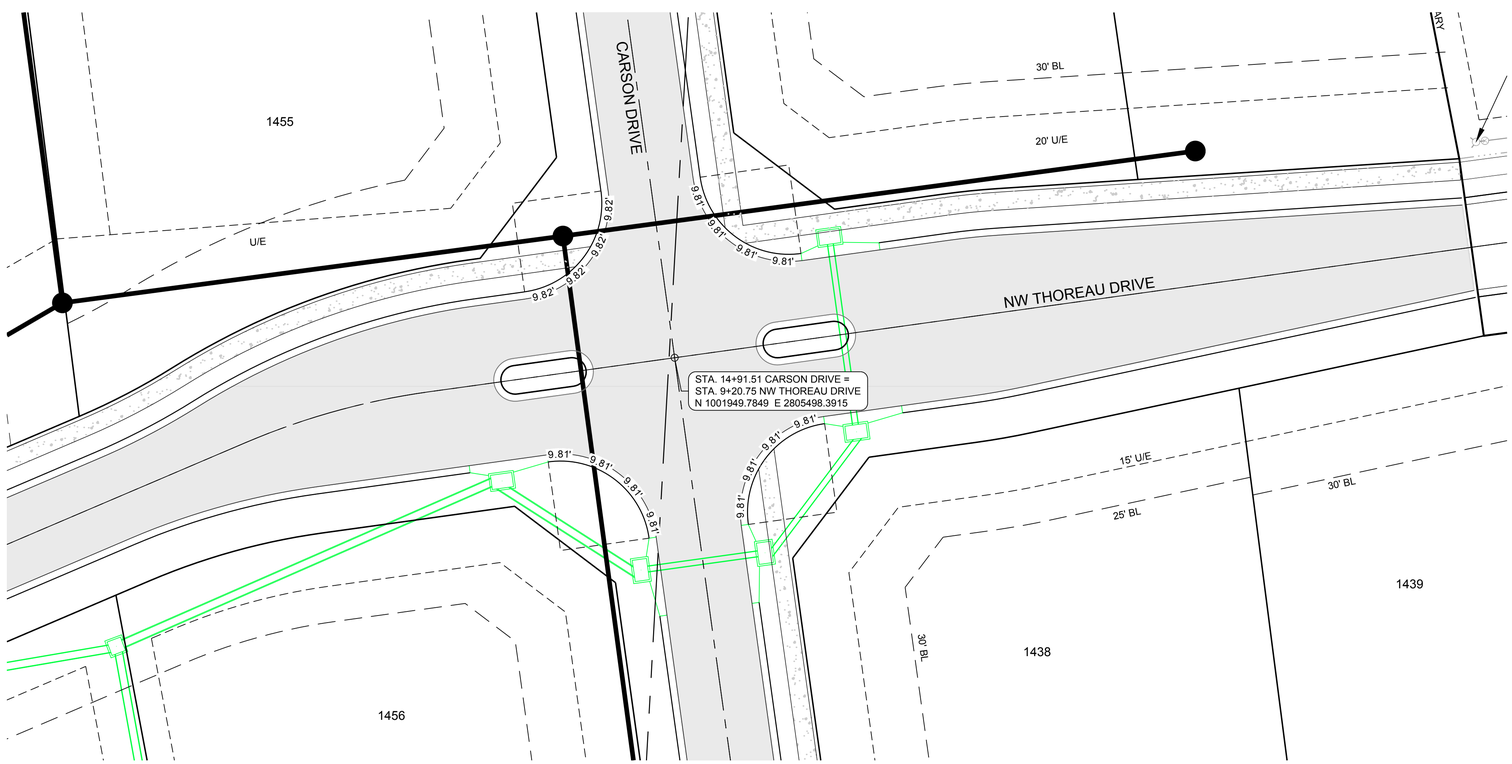
CARSON DRIVE PLAN AND PROFILE

SHEET 8 OF 24





TO BE COMPLETED WITH NEXT SUBMITTAL



0 20' 40'
SCALE: 1" = 20'

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WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

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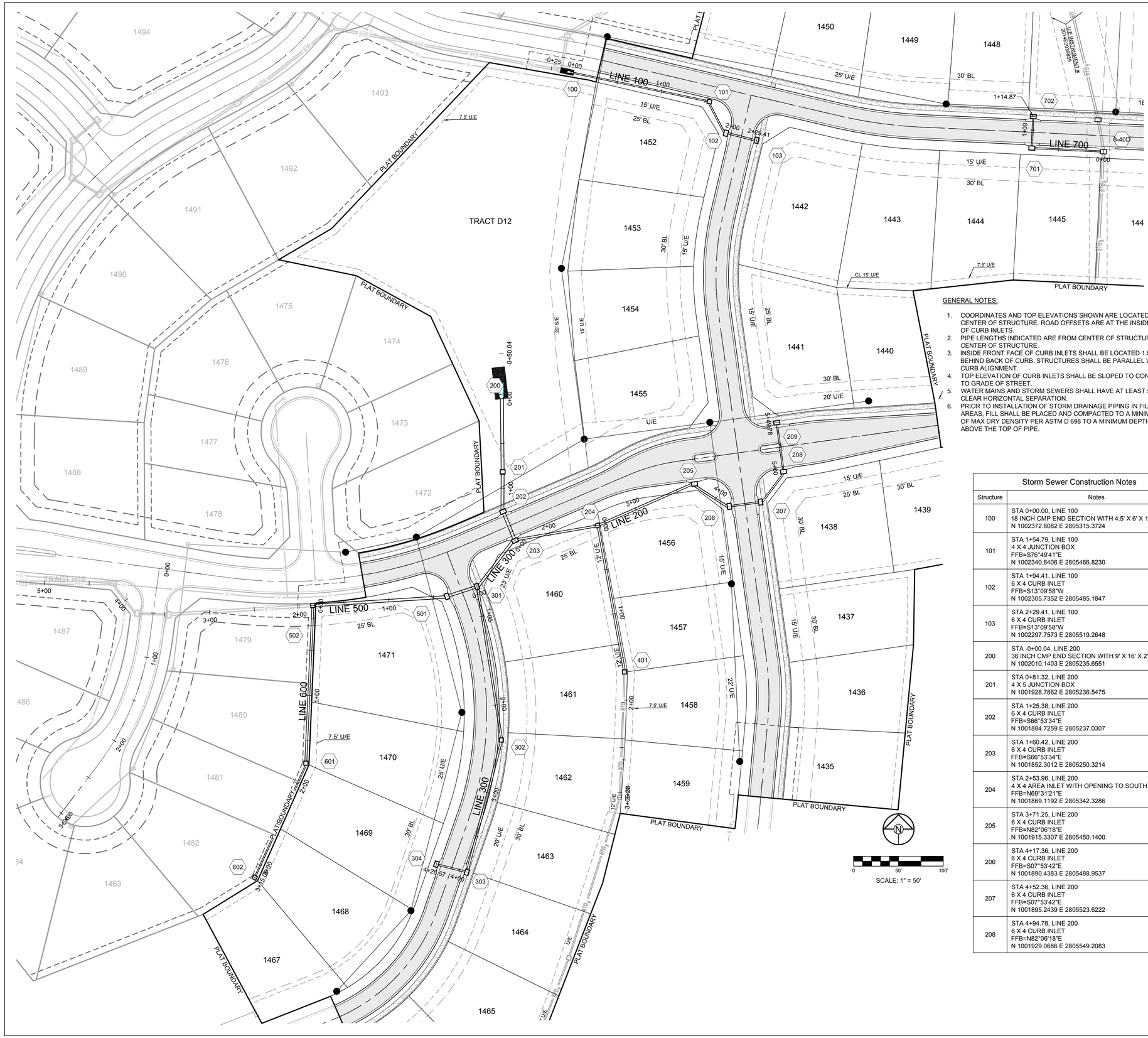
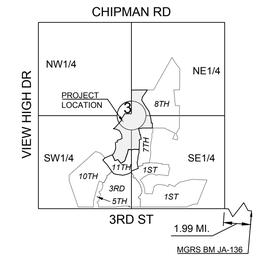
INTERSECTION DETAILS

SHEET 9 OF 24





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.

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GENERAL NOTES:

1. COORDINATES AND TOP ELEVATIONS SHOWN ARE LOCATED AT THE CENTER OF STRUCTURE. ROAD OFFSETS ARE AT THE INSIDE FACE OF CURB INLETS.
2. PIPE LENGTHS INDICATED ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
3. INSIDE FRONT FACE OF CURB INLETS SHALL BE LOCATED 1.5 FEET BEHIND BACK OF CURB. STRUCTURES SHALL BE PARALLEL WITH CURB ALIGNMENT.
4. TOP ELEVATION OF CURB INLETS SHALL BE SLOPED TO CONFORM TO GRADE OF STREET.
5. WATER MAINS AND STORM SEWERS SHALL HAVE AT LEAST 5' OF CLEAR HORIZONTAL SEPARATION.
6. PRIOR TO INSTALLATION OF STORM DRAINAGE PIPING IN FILL AREAS, FILL SHALL BE PLACED AND COMPACTED TO A MINIMUM 95% OF MAX DRY DENSITY PER ASTM D 698 TO A MINIMUM DEPTH OF 6" ABOVE THE TOP OF PIPE.

STORM PIPE AND STRUCTURE MATERIAL NOTES:

1. CONCRETE PIPE SHALL CONFORM TO ASTM C76, CLASS III, WALL TYPE B.
2. HDPE PIPE SHALL CONFORM TO AASHTO M294, TYPE S.
3. ALUMINUM CORRUGATED METAL PIPE MAY BE USED IN LIEU OF HDPE OR CONCRETE PIPE. MANNINGS N VALUE SHALL BE EQUAL TO OR LESS THAN 0.013. THE PIPE SHALL CONFORM TO AASHTO M274. PIPE GAUGE SHALL BE 14 FOR 30" DIAMETER AND SMALLER PIPES.
4. PROPOSED CURB INLETS SHALL CONFORM TO APWA TYPE 2 (CI-2), FIELD INLETS TO APWA FI-1, JUNCTION BOXES TO APWA JB-1, AND GRATE INLETS TO APWA GI-1 AS APPLICABLE.

Storm Sewer Construction Notes	
Structure	Notes
100	STA 0+00.00, LINE 100 18 INCH CMP END SECTION WITH 4.5' X 6' X 1.5' RIP RAP N 1002372.8082 E 2805315.3724
101	STA 1+54.79, LINE 100 4 X 4 JUNCTION BOX FFB=S76°49'41"E N 1002340.8406 E 2805466.8230
102	STA 1+94.41, LINE 100 6 X 4 CURB INLET FFB=S13°09'58"W N 1002305.7352 E 2805485.1847
103	STA 2+29.41, LINE 100 6 X 4 CURB INLET FFB=S13°09'58"W N 1002297.7573 E 2805519.2648
200	STA -0+00.04, LINE 200 36 INCH CMP END SECTION WITH 9' X 16' X 2' RIP RAP N 1002010.1403 E 2805235.6551
201	STA 0+81.32, LINE 200 4 X 5 JUNCTION BOX N 1001928.7862 E 2805236.5475
202	STA 1+25.38, LINE 200 6 X 4 CURB INLET FFB=S66°53'34"E N 1001884.7259 E 2805237.0307
203	STA 1+60.42, LINE 200 6 X 4 CURB INLET FFB=S66°53'34"E N 1001852.3012 E 2805250.3214
204	STA 2+53.96, LINE 200 4 X 4 AREA INLET WITH OPENING TO SOUTH FFB=N69°31'21"E N 1001869.1192 E 2805342.3286
205	STA 3+71.25, LINE 200 6 X 4 CURB INLET FFB=N82°06'18"E N 1001915.3307 E 2805450.1400
206	STA 4+17.36, LINE 200 6 X 4 CURB INLET FFB=S07°53'42"E N 1001890.4383 E 2805488.9537
207	STA 4+52.36, LINE 200 6 X 4 CURB INLET FFB=S07°53'42"E N 1001895.2439 E 2805523.6222
208	STA 4+94.78, LINE 200 6 X 4 CURB INLET FFB=N82°06'18"E N 1001929.0686 E 2805549.2083

Storm Sewer Construction Notes	
Structure	Notes
209	STA 5+49.78, LINE 200 6 X 4 CURB INLET FFB=N82°06'18"E N 1001983.5473 E 2805541.6538
301	STA 0+00.00, LINE 500 6 X 4 CURB INLET FFB=S21°22'16"E N 1001801.0916 E 2805207.8841
302	STA 0+27.17, LINE 500 4 X 4 JUNCTION BOX FFB=S04°24'59"W N 1001630.2709 E 2805235.1504
303	STA 0+35.04, LINE 500 6 X 4 CURB INLET FFB=S19°11'21"W N 1001483.2165 E 2805196.7502
304	STA 0+67.05, LINE 500 6 X 4 CURB INLET FFB=S19°11'21"W N 1001492.0827 E 2805162.7969
401	STA 1+65.76, LINE 400 4 X 4 AREA INLET WITH OPENING TO SOUTH FFB=N88°45'40"E N 1001706.0593 E 2805372.1343
501	STA 0+35.04, LINE 500 6 X 4 CURB INLET FFB=S20°17'41"E N 1001790.2032 E 2805174.5814
502	STA 1+84.79, LINE 500 4 X 4 AREA INLET WITH OPENING TO SOUTH FFB=S86°51'17"W N 1001780.0259 E 2805025.1710
601	STA 1+75.68, LINE 600 4 X 4 AREA INLET WITH OPENING TO SOUTH FFB=N88°45'40"E N 1001604.5187 E 2805017.4848
602	STA 3+15.06, LINE 600 4 X 4 AREA INLET WITH OPENING TO SOUTHWEST FFB=S58°15'04"E N 1001477.2800 E 2804960.5784
701	STA 0+79.87, LINE 700 6 X 4 CURB INLET FFB=S87°17'43"E N 1002289.1546 E 2805825.6375
702	STA 1+14.87, LINE 700 6 X 4 CURB INLET FFB=S87°17'43"E N 1002324.1156 E 2805827.2891

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WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
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DRAWN BY:	KSC
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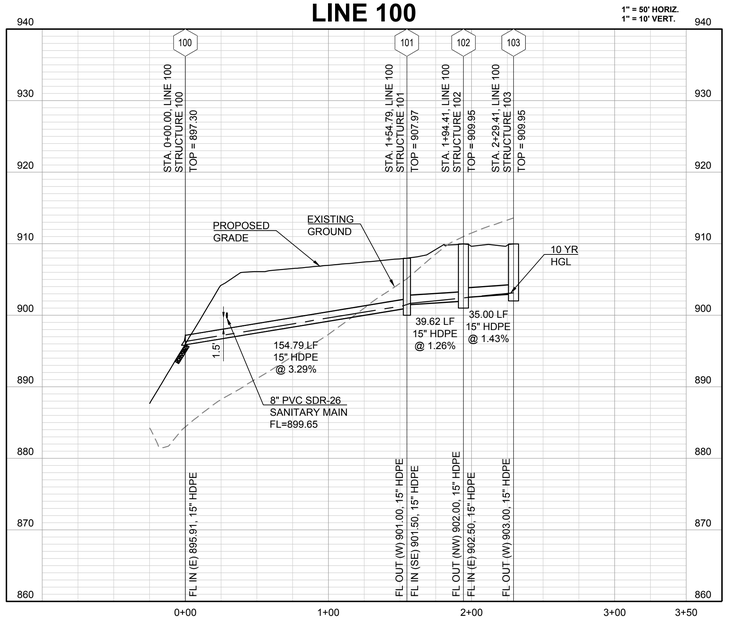
DATE PREPARED:	4.20.18
PROJ. NUMBER:	17-134

STORM PLAN

SHEET 10 OF 24

LINE 100

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



LINE 200

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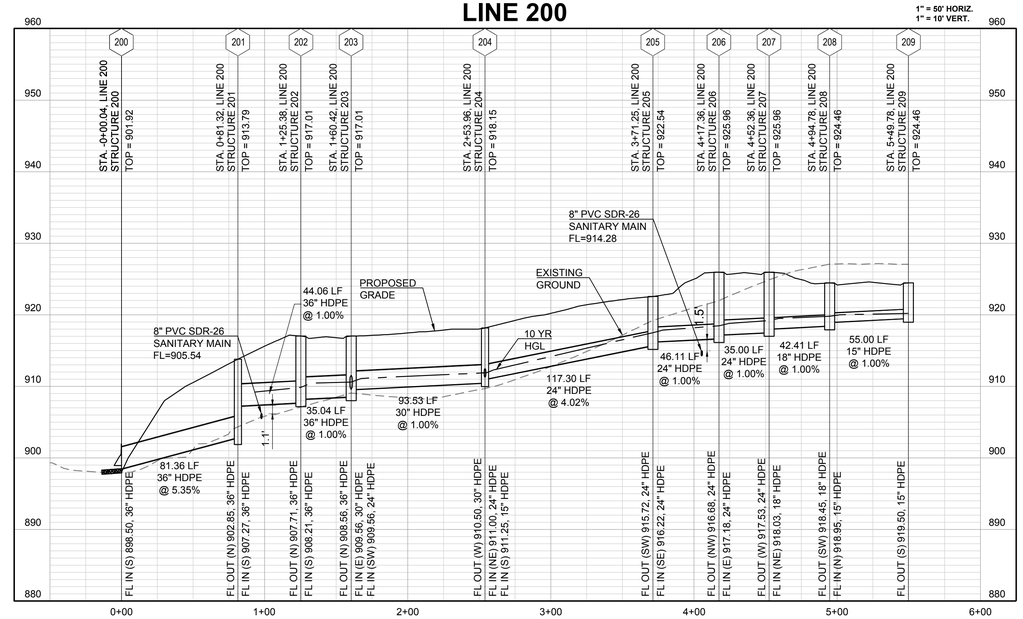
1" = 10' VERT.



LINE 300

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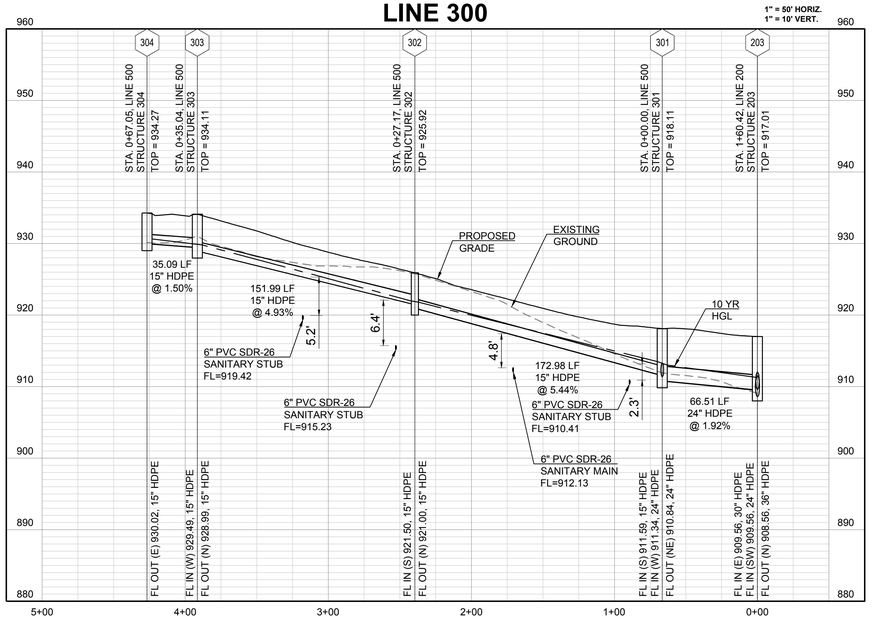
1" = 10' VERT.



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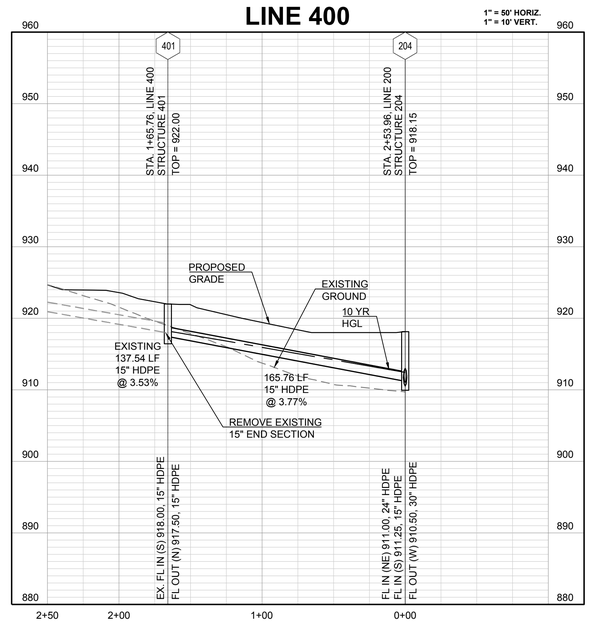
1" = 10' VERT.



LINE 500

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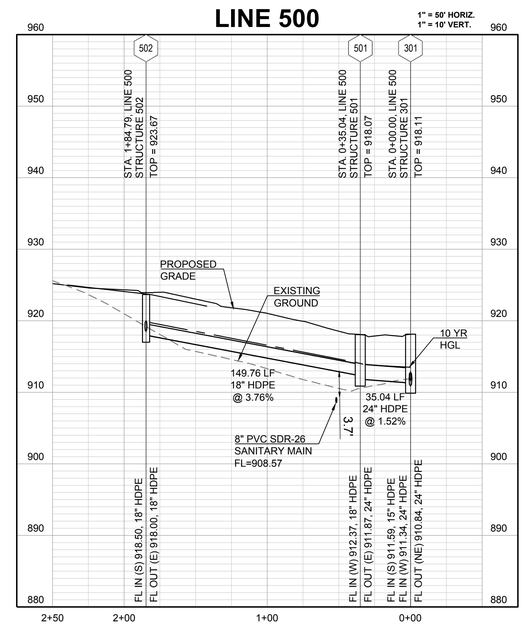
1" = 10' VERT.



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STORM PROFILE

SHEET 11 OF 24

LINE 600

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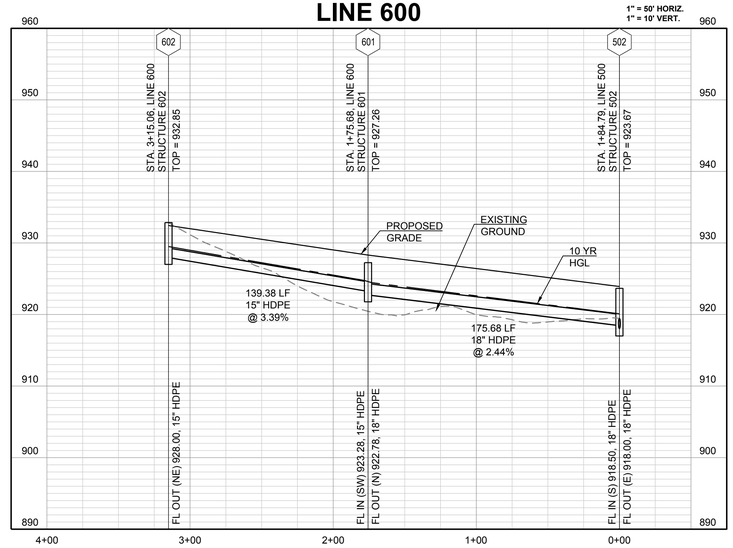

LINE 700

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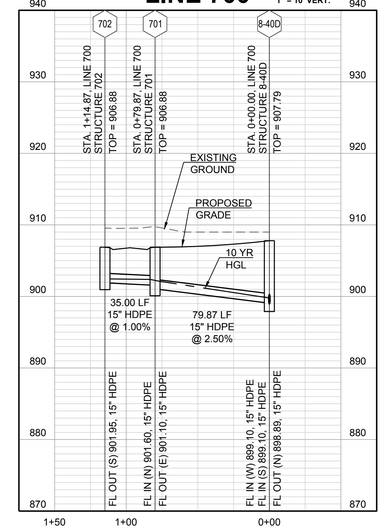
1" = 10' VERT.



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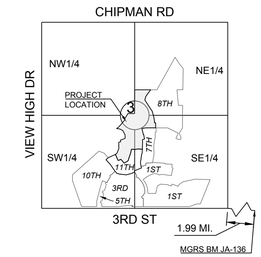
STORM PROFILE

SHEET 12 OF 24



SECTION 3-47N-32W

LOCATION MAP
SCALE 1" = 2000'

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ELEV.935.45'

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SCALE: 1" = 50'

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				FREE
101	0.00	0.51	0.87	0.44	5.2	7.30	0.00	3.24	12.69	10.34			0.00	0.00	101	100	HDPE	0.012	15	154.79	3.29	0.50	901.00	895.91	907.97	901.88
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	909.95	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	909.95	903.62
LINE 200																						DS TAILWATER @ STR #200				FREE
201	0.00	0.51	13.08	6.67	5.8	7.11	0.00	47.46	167.13	23.64			0.00	0.00	201	200	HDPE	0.012	36	81.36	5.35	0.50	902.85	898.50	913.79	905.64
202	1.63	0.51	14.71	7.50	5.8	7.11	5.91	53.37	72.26	10.22			0.00	0.00	202	201	HDPE	0.012	36	44.06	1.00	0.50	0.44	0.00	917.01	906.32
203	1.19	0.51	13.08	6.67	5.7	7.13	4.33	47.57	72.26	10.22	301		6.05	3.09	203	202	HDPE	0.012	36	35.04	1.00	0.50	903.70	903.35	917.01	906.77
204	0.70	0.51	5.84	2.98	5.6	7.18	2.56	21.39	44.44	9.05	401		0.73	0.37	204	203	HDPE	0.012	30	93.53	1.00	0.50	905.14	904.20	918.15	907.05
205	0.08	0.51	4.41	2.25	5.4	7.22	0.29	16.23	49.16	15.65			0.00	0.00	205	204	HDPE	0.012	24	117.30	4.02	0.50	910.36	905.64	922.54	912.15
206	0.70	0.51	4.33	2.21	5.3	7.25	2.59	16.01	24.51	7.80			0.00	0.00	206	205	HDPE	0.012	24	46.11	1.00	0.50	911.32	910.86	925.96	913.10
207	1.87	0.51	3.63	1.85	5.3	7.27	6.93	13.46	24.51	7.80			0.00	0.00	207	206	HDPE	0.012	24	35.00	1.00	0.50	912.17	911.82	925.96	913.78
208	1.51	0.51	1.76	0.90	5.2	7.30	5.62	6.56	11.38	6.44			0.00	0.00	208	207	HDPE	0.012	18	42.41	1.00	0.50	913.09	912.67	924.46	914.30
209	0.25	0.51	0.25	0.13	5.0	7.35	0.94	0.94	7.00	5.70			0.00	0.00	209	208	HDPE	0.012	15	55.00	1.00	N/A	914.14	913.59	924.46	914.59
LINE 300																						Drop in Inlet 202			1.00	
301	0.44	0.51	6.05	3.09	5.5	7.20	1.62	22.22	33.96	10.81	501		4.53	2.31	301	202	HDPE	0.012	24	66.51	1.92	0.75	2.72	1.44	918.11	907.26
302	0.00	0.51	1.08	0.55	5.3	7.27	0.00	4.00	16.32	13.30			0.00	0.00	302	301	HDPE	0.012	15	172.98	5.44	0.50	12.88	3.47	925.92	907.91
303	0.41	0.51	1.08	0.55	5.1	7.33	1.53	4.04	15.54	12.66			0.00	0.00	303	302	HDPE	0.012	15	151.99	4.93	0.50	20.87	13.38	934.11	908.50
304	0.67	0.51	0.67	0.34	5.0	7.35	2.51	2.51	8.57	6.98			0.00	0.00	304	303	HDPE	0.012	15	35.09	1.50	N/A	21.90	21.37	934.27	908.58
LINE 400																						Drop in Inlet 203			1.75	
401	0.73	0.51	0.73	0.37	5.0	7.35	2.74	2.74	13.59	11.08			0.00	0.00	401	203	HDPE	0.012	15	165.76	3.77	N/A	911.71	905.45	922.00	912.50
LINE 500																						Drop in Inlet 301			0.50	
501	1.67	0.51	4.53	2.31	5.4	7.23	6.15	16.69	30.21	9.62			0.00	0.00	501	301	HDPE	0.012	24	35.04	1.52	0.50	3.75	3.22	918.07	907.64
502	0.34	0.51	2.86	1.46	5.2	7.29	1.26	10.63	22.07	12.49	601		2.52	1.29	502	501	HDPE	0.012	18	149.76	3.76	N/A	9.88	4.25	924.06	909.23
LINE 600																						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	14.66	10.38	928.31	910.64
602	1.61	0.51	1.61	0.82	5.0	7.35	6.04	6.04	12.88	10.50			0.00	0.00	602	601	HDPE	0.012	15	139.38	3.39	N/A	19.88	15.16	932.44	911.87
LINE 700																						DS TAILWATER @ STR #EX 8-40C				FREE
701	1.41	0.51	1.69	0.86	5.1	7.32	5.26	6.31	11.06	9.02			0.00	0.00	701	EX 8-40(	HDPE	0.012	15	79.87	2.50	0.50	901.10	899.10	906.81	902.38
702	0.28	0.51	0.28	0.14	5.0	7.35	1.05	1.05	7.00	5.70			0.00	0.00	702	701	HDPE	0.012	15	35.00	1.00	N/A	901.95	901.60	906.81	902.49

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				FREE
101	0.00	0.51	0.87	0.44	5.2	10.24	0.00	5.68	12.69	10.34			0.00	0.00	101	100	HDPE	0.012	15	154.79	3.29	0.50	901.00	895.91	907.97	902.21
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	909.95	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	909.95	903.91
LINE 200																						DS TAILWATER @ STR #200				FREE
201	0.00	0.51	13.08	6.67	5.8	10.00	0.00	83.39	167.13	23.64			0.00	0.00	201	200	HDPE	0.012	36	81.36	5.35	0.50	902.85	898.50	913.79	906.80
202	1.63	0.51	14.71	7.50	5.8	10.00	10.39	93.78	72.26	10.22			0.00	0.00	202	201	HDPE	0.012	36	44.06	1.00	0.50	0.44	0.00	917.01	908.91
203	1.19	0.51	13.08	6.67	5.7	10.02	7.60	83.58	72.26	10.22	301		6.05	3.09	203	202	HDPE	0.012	36	35.04	1.00	0.50	903.70	903.35	917.01	910.46
204	0.70	0.51	5.84	2.98	5.6	10.09	4.50	37.57	44.44	9.05	401		0.73	0.37	204	203	HDPE	0.012	30	93.53	1.00	0.50	905.14	904.20	918.15	911.59
205	0.08	0.51	4.41	2.25	5.4	10.14	0.52	28.51	49.16	15.65			0.00	0.00	205	204	HDPE	0.012	24	117.30	4.02	0.50	910.36	905.64	922.54	913.82
206	0.70	0.51	4.33	2.21	5.3	10.18	4.54	28.10	24.51	7.80			0.00	0.00	206	205	HDPE	0.012	24	46.11	1.00	0.50	911.32	910.86	925.96	915.05
207	1.87	0.51	3.63	1.85	5.3	10.21	12.17	23.63	24.51	7.80			0.00	0.00	207	206	HDPE	0.012	24	35.00	1.00	0.50	912.17	911.82	925.96	915.82
208	1.51	0.51	1.76	0.90	5.2	10.26	9.87	11.51	11.38	6.44			0.00	0.00	208	207	HDPE	0.012	18	42.41	1.00	0.50	913.09	912.67	924.46	916.58
209	0.25	0.51	0.25	0.13	5.0	10.32	1.65	1.65	7.00	5.70			0.00	0.00	209	208	HDPE	0.012	15	55.00	1.00	N/A	914.14	913.59	924.46	916.63
LINE 300																						Drop in Inlet 202			1.00	
301	0.44	0.51	6.05	3.09	5.5	10.12	2.84	39.03	33.96	10.81	501		4.53	2.31	301	202	HDPE	0.012	24	66.51	1.92	0.75	2.72	1.44	918.11	911.79
302	0.00	0.51	1.08	0.55	5.3	10.21	0.00	7.03	16.32	13.30			0.00	0.00	302	301	HDPE	0.012	15	172.98	5.44	0.50	12.88	3.47	925.92	913.79
303	0.41	0.51	1.08	0.55	5.1	10.29	2.69	7.08	15.54	12.66			0.00	0.00	303	302	HDPE	0.012	15	151.99	4.93	0.50	20.87	13.38	934.11	915.61
304	0.67	0.51	0.67	0.34	5.0	10.32	4.41	4.41	8.57	6.98			0.00	0.00	304	303	HDPE	0.012	15	35.09	1.50	N/A	21.90	21.37	934.27	915.85
LINE 400																						Drop in Inlet 203			1.75	
401	0.73	0.51	0.73	0.37	5.0	10.32	4.80	4.80	13.59	11.08			0.00	0.00	401	203	HDPE	0.012	15	165.76	3.77	N/A	911.71	905.45	922.00	912.80
LINE 500																						Drop in Inlet 301			0.50	
501	1.67	0.51	4.53	2.31	5.4	10.15	10.81	29.31	30.21	9.62			0.00	0.00	501	301	HDPE	0.012	24	35.04	1.52	0.50	3.75	3.22	918.07	912.97
502	0.34	0.51	2.86	1.46	5.2	10.23	2.22	18.65	22.07	12.49	601		2.52	1.29	502	501	HDPE	0.012	18	149.76	3.76	N/A	9.88	4.25	924.06	917.86
LINE 600																						Drop in Inlet 502			0.50	
601	0.91	0.51	2.52	1.29	5.2	10.23	5.94	16.44	17.76	10.05			0.00	0.00	601	502	HDPE	0.012	18	175.68	2.44	0.50	14.66	10.38	928.31	922.20
602	1.61	0.51	1.61	0.82	5.0	10.32	10.59	10.59	12.88	10.50			0.00	0.00	602	601	HDPE	0.012	15	139.38	3.39	N/A	19.88	15.16	932.44	925.97
LINE 700																						DS TAILWATER @ STR #EX 8-40C				FREE
701	1.41	0.51	1.69	0.86	5.1	10.28	9.24	11.08	11.06	9.02			0.00	0.00	701	EX 8-40(	HDPE	0.012	15	79.87	2.50	0.50	901.10	899.10	906.81	902.98
702	0.28	0.51	0.28	0.14	5.0	10.32	1.84	1.84	7.00	5.70			0.00	0.00	702	701	HDPE	0.012	15	35.00	1.00	N/A	901.95	901.60	906.81	903.02

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WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1	
2	
3	
4	
5	
6	

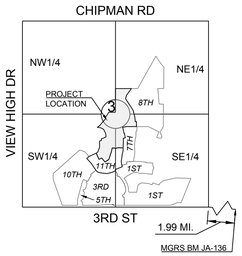
DRAWN BY: KSC
CHECKED BY: MAB
DATE PREPARED: 4.20.18
PROJ. NUMBER: 17-134

MASTER DRAINAGE PLAN

SHEET 13 OF 24

MATCH LINE

0.41 AC
0.70 AC
0.70 AC
0.73 AC
0.86 AC
1.08 AC
0.74 AC
0.43 AC
0.43 AC
6.08 AC
TRACT D12
1.63 AC
0.39 AC
0.68 AC
0.84 AC
0.59 AC
0.44 AC
1.17 AC
7.51 AC
0.91 AC
0.42 AC
1.61 AC
0.37 AC
0.26 AC
1.39 AC



SECTION 3-47N-32W

LOCATION MAP

SCALE 1" = 2000'

NOTE: SEE SHEET X FOR DRAINAGE CALCS

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'

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0 100' 200'
SCALE: 1" = 100'

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WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

REVISION	DATE	DESCRIPTION
A		
B		
C		
D		
E		
F		
G		
H		

DRAWN BY: KSC
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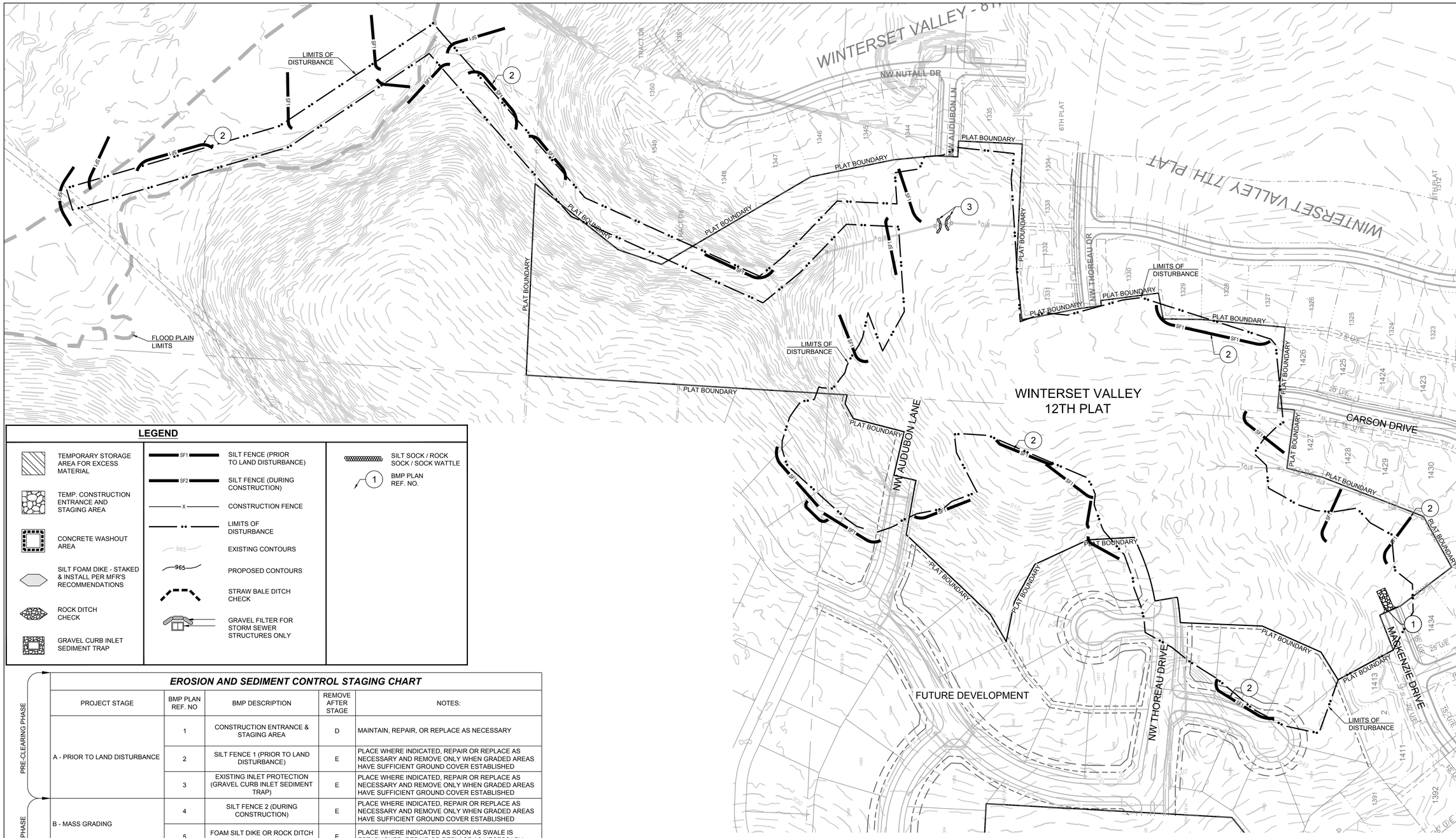
MASTER DRAINAGE PLAN

SHEET 14 OF 24



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
- GRAVEL CURB INLET SEDIMENT TRAP
- SF1 — SILT FENCE (PRIOR TO LAND DISTURBANCE)
- SF2 — SILT FENCE (DURING CONSTRUCTION)
- x — CONSTRUCTION FENCE
- LIMITS OF DISTURBANCE
- 965 — EXISTING CONTOURS
- 965 — PROPOSED CONTOURS
- STRAW BALE DITCH CHECK
- GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY
- SILT SOCK / ROCK SOCK / SOCK WATTLE
- 1 — BMP PLAN REF. NO.

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	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
		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
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
	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 = 18.73 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 29095C0412G DATED JANUARY 20, 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.

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N

0 100' 200'

SCALE: 1" = 100'

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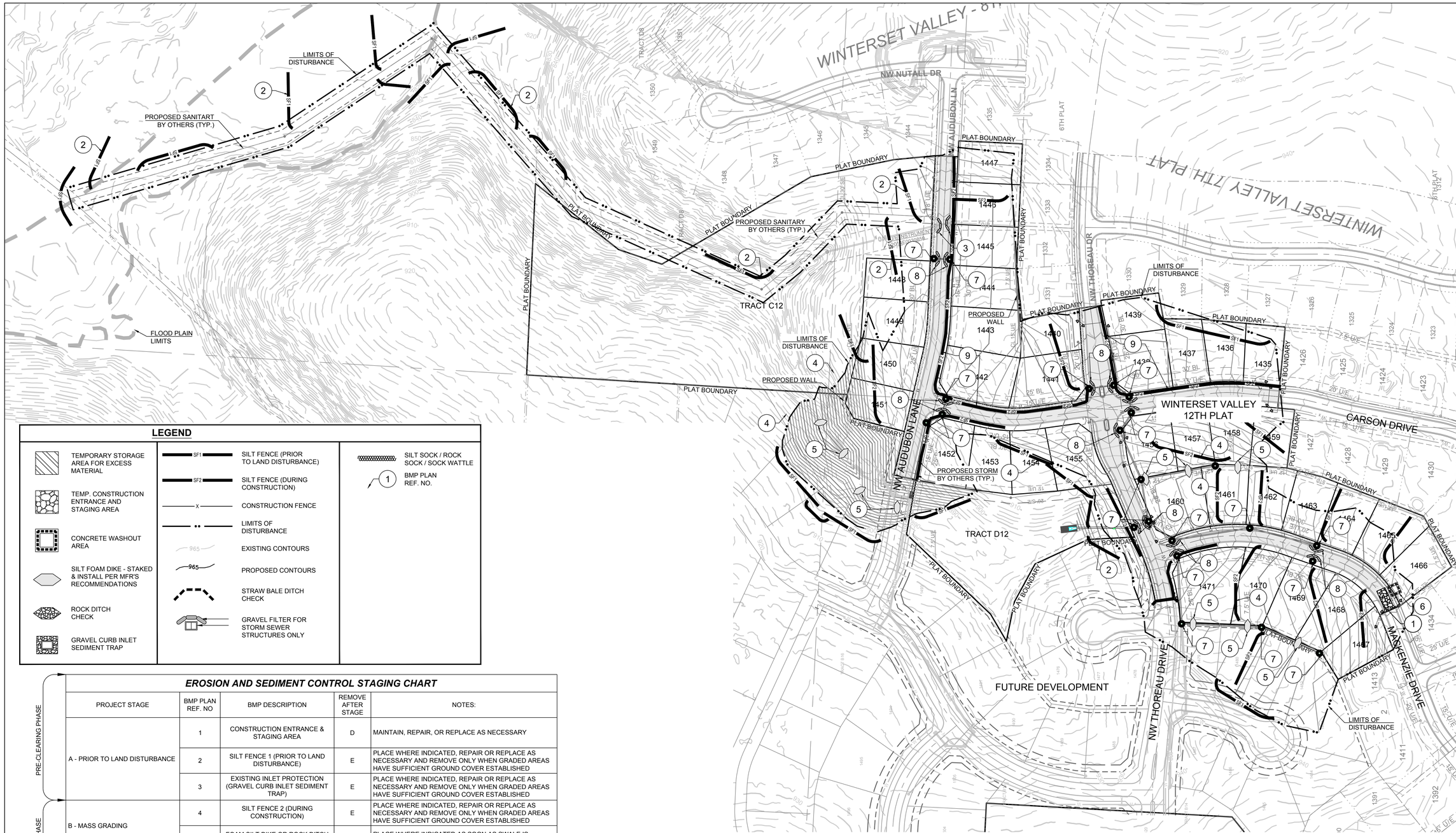
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE LEE'S SUMMIT, MO

DESCRIPTION	REVISION DATE
	1
	2
	3
	4
	5
	6

DRAWN BY:	KSC
CHECKED BY:	MAB
DATE PREPARED:	4.20.18
PROJ. NUMBER:	17-134

PRE-CLEARING PLAN

SHEET 15 OF 24



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- 965 — PROPOSED CONTOURS
- STRAW BALE DITCH CHECK
- GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY
- SILT SOCK / ROCK SOCK / SOCK WATTLE
- 1 — BMP PLAN REF. NO.

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	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
		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
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
	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 = 18.73 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 29095C0412G DATED JANUARY 20, 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.

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0 100' 200'
SCALE: 1" = 100'

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WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
A	
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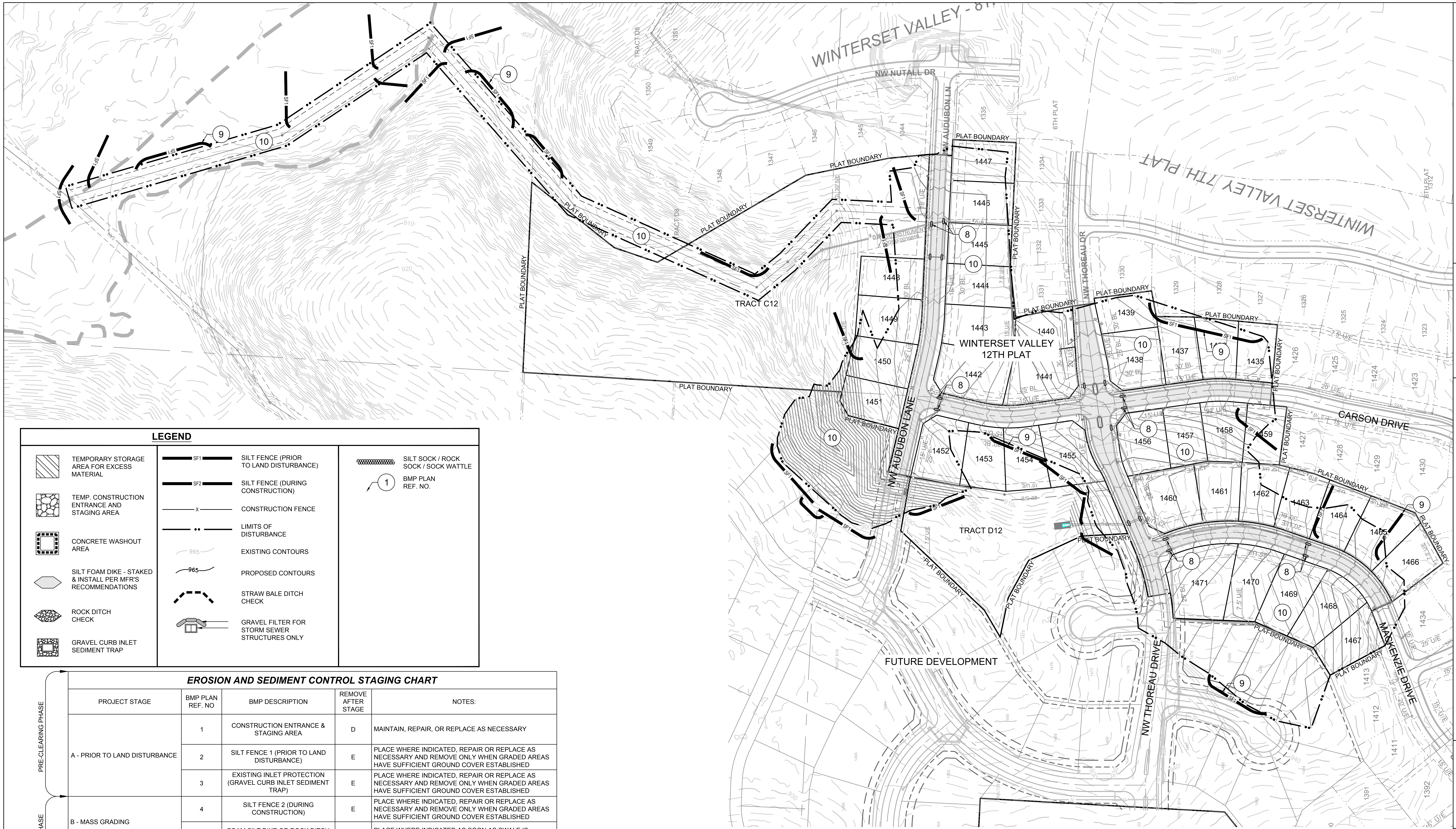
DRAWN BY:	KSC
CHECKED BY:	MAB
DATE PREPARED:	4.20.18
PROJ. NUMBER:	17-134

ECP - CONSTRUCTION PLAN

SHEET 16 OF 24



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
	GRAVEL CURB INLET SEDIMENT TRAP
SF1	SILT FENCE (PRIOR TO LAND DISTURBANCE)
SF2	SILT FENCE (DURING CONSTRUCTION)
X	CONSTRUCTION FENCE
••	LIMITS OF DISTURBANCE
965	EXISTING CONTOURS
965	PROPOSED CONTOURS
	STRAW BALE DITCH CHECK
	GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY
	SILT SOCK / ROCK SOCK / SOCK WATTLE
①	BMP PLAN REF. NO.

EROSION AND SEDIMENT CONTROL STAGING CHART

PHASE	PROJECT STAGE	BMP PLAN REF. NO	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
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		10	SEEDING AND MULCHING	E	ALL DISTURBED AREAS AFTER 14 DAYS OF CONSTRUCTION INACTIVITY
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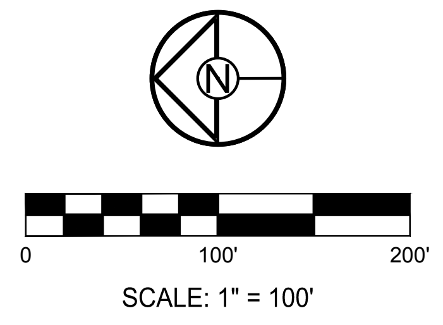

SCALE: 1" = 100'

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WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1	
2	
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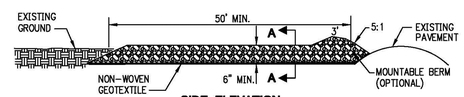
DRAWN BY:	CHECKED BY:	DATE PREPARED:	PROJ. NUMBER:
KSC	MAB	4.20.18	17-134

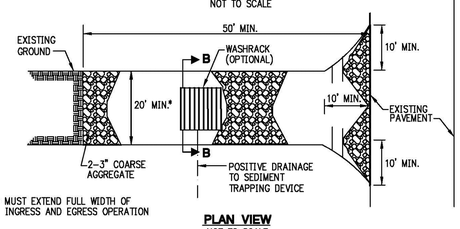
FINAL
STABILIZATION
PLAN

SHEET
17
OF 24

TEMPORARY CONSTRUCTION ENTRANCE

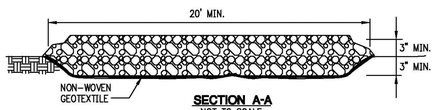


SIDE ELEVATION
NOT TO SCALE



* MUST EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION

PLAN VIEW
NOT TO SCALE



SECTION A-A
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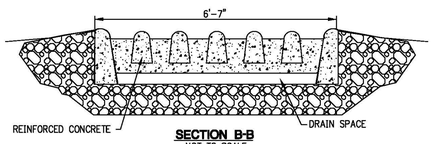

SECTION B-B
NOT TO SCALE

SOURCE: MODIFIED FROM VA. DCR, 1992

TEMPORARY CONSTRCUTION ENTRANCE PAD NOTES:

A) INSTALLATION:

1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS. IF POSSIBLE, LOCATE WHERE PERMANENT ROADS WILL EVENTUALLY BE CONSTRUCTED.
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 AWAY 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 SMOOTH AND SLOPED FOR DRAINAGE.
6. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE.
7. IF WET CONDITIONS ARE ANTICIPATED, PLACE GEOTEXTILE FABRIC ON THE GRADED FOUNDATION TO IMPROVE STABILITY.

B) TROUBLESHOOTING:

1. CONSULT WITH A QUALIFIED DESIGN PROFESSIONAL IF ANY OF THE FOLLOWING OCCUR:
   a. INADEQUATE RUNOFF CONTROL TO THE EXTENT THAT SEDIMENT WASHES ONTO PUBLIC ROAD – INSTALL DIVERSIONS OR OTHER RUNOFF CONTROL MEASURES.
   b. SMALL STONE, THIN PAD, OR ABSENCE OF GEOTEXTILE FABRIC RESULTS IN RUTS AND MUDDY CONDITIONS AS STONE IS PRESSED INTO SOIL – INCREASE STONE SIZE OR PAD THICKNESS OR ADD GEOTEXTILE FABRIC.
   c. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC – EXTEND PAD BEYOND THE MINIMUM 50-FOOT LENGTH AS NECESSARY.

C) INSPECTION AND MAINTENANCE:

1. INSPECT STONE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER 1/2-INCH OR GREATER STORM EVENTS.
2. RESHAPE PAD AS NEEDED FOR PROPER DRAINAGE AND RUNOFF CONTROL.
3. TOPDRESS WITH CLEAN 2-AND 3-INCH STONE AS NEEDED.
4. IMMEDIATELY REMOVE MUD OR SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROAD. REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.
5. REMOVE ALL TEMPORARY ROAD MATERIALS FROM AREAS WHERE PERMANENT VEGETATION WILL BE ESTABLISHED.

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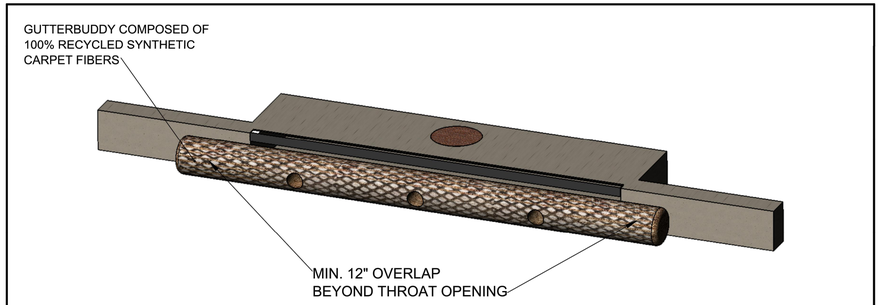
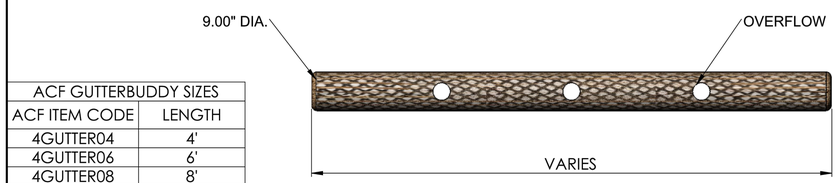
APWA	KANSAS CITY METROPOLITAN CHAPTER	
TEMPORARY CONSTRUCTION ENTRANCE	STANDARD DRAWING NUMBER: ESC-01	ADOPTED:





ACF GUTTERBUDDY SIZES	
ACF ITEM CODE	LENGTH
4GUTTER04	4'
4GUTTER06	6'
4GUTTER08	8'
4GUTTER10	10'
4GUTTER12	12'
4GUTTER14	14'
4GUTTER16	16'

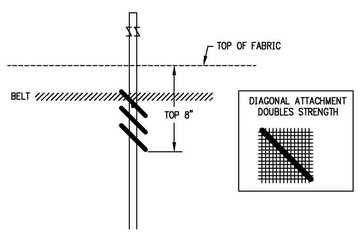
ACF ENVIRONMENTAL — LET'S GET IT DONE

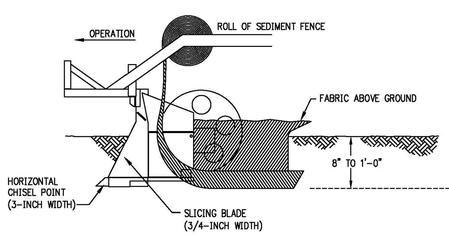
ACF GUTTERBUDDY

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 800-448-3636, WWW.ACFENVIRONMENTAL.COM

DATE 9/7/16

SEDIMENT FENCE INSTALLATION SLICING METHOD

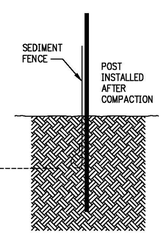


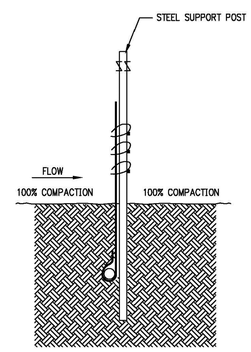


NOTE
VIBRATORY PLOW IS NOT ACCEPTABLE BECAUSE OF HORIZONTAL COMPACTION.

SEDIMENT FENCE INSTALLATION SLICING METHOD NOTES:

1. LIMIT PONDING HEIGHT TO 24"
2. ATTACH FABRIC TO UPSTREAM SIDE OF POST.
3. DRIVE OVER EACH SIDE OF SEDIMENT FENCE 2 TO 4 TIMES WITH DEVICE EXERTING 60 PSI OR GREATER AFTER MATERIAL IS SLICED INTO THE GROUND.
4. SPACE POSTS A MAX OF 7' ON OPEN RUNS AND 4' ON POOLING AREAS.
5. SINK POSTS AS FAR BELOW GROUND AS FABRIC ABOVE GROUND.





SOURCE: TOM CARPENTER, 2000

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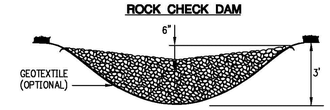
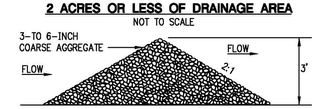
APWA	KANSAS CITY METROPOLITAN CHAPTER	
SEDIMENT FENCE INSTALLATION SLICING METHOD	STANDARD DRAWING NUMBER: ESC-11	ADOPTED:

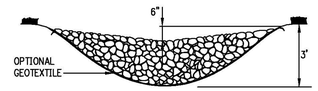
ROCK CHECK DAM



ROCK CHECK DAM
2 ACRES OR LESS OF DRAINAGE AREA
NOT TO SCALE



(SIDE VIEW)
NOT TO SCALE



2-10 ACRES OF DRAINAGE AREA
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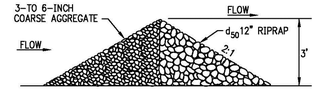

(SIDE VIEW)
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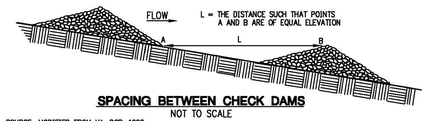

SPACING BETWEEN CHECK DAMS
NOT TO SCALE

SOURCE: MODIFIED FROM VA. DCR, 1992

ROCK CHECK DAM NOTES:

A) CONSTRUCTION SPECIFICATIONS & INSTALLATION:

1. THE DRAINAGE AREA OF THE DITCH OR SWALE BEING PROTECTED SHALL NOT EXCEED 2 ACRES WHEN A COARSE AGGREGATE IS USED ALONE AND SHALL NOT EXCEED 10 ACRES WHEN A COMBINATION OF CLASS I RIPRAP AND COARSE AGGREGATE IS USED. AN EFFORT SHOULD BE MADE TO EXTEND THE STONE TO THE TOP OF CHANNEL BANKS.
2. THE MAXIMUM HEIGHT OF THE DAM SHALL BE 3 FEET. THE CENTER OF THE CHECK DAM IS AT THE SAME ELEVATION AS THE TOP OF THE OUTER EDGES.
3. FOR ADDED STABILITY, THE BASE OF THE CHECK DAM CAN BE KEYED INTO THE SOIL APPROXIMATELY 6 INCHES.
4. THE MAXIMUM SPACING BETWEEN THE DAMS SHOULD BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM DAM.
5. STONE SHOULD BE PLACED ACCORDING TO THE CONFIGURATION TO THE LEFT. HAND OR MECHANICAL PLACEMENT WILL BE NECESSARY TO ACHIEVE COMPLETE COVERAGE OF THE DITCH OR SWALE AND TO INSURE THAT THE CENTER OF THE DAM IS LOWER THAN THE EDGES.
6. GEOTEXTILE MAY BE USED UNDER THE STONE TO PROVIDE A STABLE FOUNDATION AND TO FACILITATE REMOVAL OF THE STONE.

C) INSPECTION AND MAINTENANCE:

1. CHECK DAMS SHOULD BE CHECKED FOR SEDIMENT ACCUMULATION AFTER EACH STORM EVENT OF 1/2-INCH OR GREATER. SEDIMENT SHOULD BE REMOVED WHEN IT REACHES ONE HALF OF THE ORIGINAL HEIGHT OF THE DAM.
2. REGULAR INSPECTIONS SHOULD BE MADE TO ENSURE THAT THE CENTER OF THE DAM IS LOWER THAN THE EDGES. EROSION CAUSED BY HIGH FLOWS AROUND THE EDGES OF THE DAM SHOULD BE CORRECTED

D) REMOVAL OF PRACTICE:

UNLESS THEY ARE TO BE PERMINENT, CHECK DAMS MUST BE REMOVED WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED. IN TEMPORARY DITCHES AND SWALES, CHECK DAMS SHOULD BE REMOVED AND THE DITCH FILLED WHEN THEY ARE NO LONGER NEEDED. IN PERMANENT STRUCTURES, CHECK DAMS SHOULD BE REMOVED WHEN A PERMANENT LINING CAN BE INSTALLED. IN THE CASE OF GRASS-LINED DITCHES, CHECK DAMS SHOULD BE REMOVED WHEN THE GRASS HAS MATURED SUFFICIENTLY TO PROTECT THE DITCH OR SWALE. THE AREA BENEATH THE CHECK DAMS SHOULD BE SEEDED AND MULCHED IMMEDIATELY AFTER THEY ARE REMOVED. THE USE OF FILTER CLOTH UNDERNEATH THE STONE WILL MAKE REMOVAL OF THE STONE EASIER.

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ROCK CHECK DAM	STANDARD DRAWING NUMBER: ESC-15	ADOPTED:

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#E2002000380-F #LA2001005237 #LS2002000859-F

WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1	
2	
3	
4	
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6	
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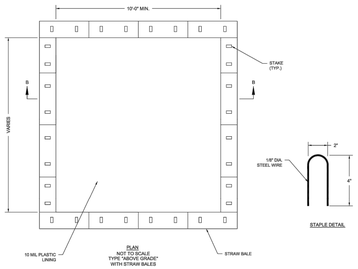
8	

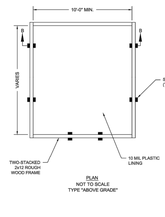
DRAWN BY:	KSC
CHECKED BY:	MAB
DATE PREPARED:	4.20.18
PROJ. NUMBER:	17-134

EROSION CONTROL DETAILS

SHEET 18 OF 24



PLAN
NOT TO SCALE
TYPE "ABOVE GRADE"
WITH STRAW BALES



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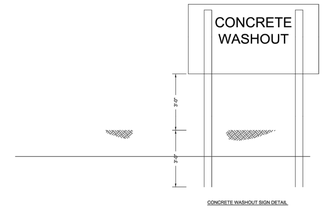
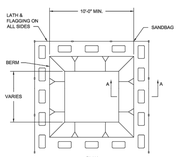
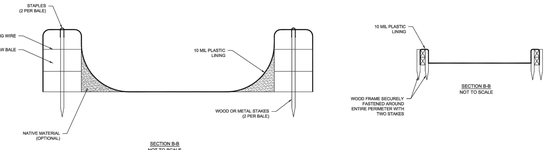


CONCRETE WASHOUT SIGN DETAIL

1. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE LOCATED A MINIMUM OF 50 FT. FROM STORM DRAIN INLETS, OPEN DRAINAGE FACILITIES, AND WATERCOURSES. EACH FACILITY SHOULD BE LOCATED AWAY FROM CONSTRUCTION TRAFFIC OR ACCESS AREAS TO PREVENT DISTURBANCE OR TRACKING.
2. A SIGN SHOULD BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES.
3. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE CONSTRUCTED ABOVE GRADE OR BELOW GRADE AT THE OPTION OF THE CONTRACTOR. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
4. TEMPORARY WASHOUT FACILITIES SHOULD HAVE A TEMPORARY PIT OR BERMED AREAS OF SUFFICIENT VOLUME TO COMPLETELY CONTAIN ALL LIQUID AND WASTE CONCRETE MATERIALS GENERATED DURING WASHOUT PROCEDURES.
5. WASHOUT OF CONCRETE TRUCKS SHOULD BE PERFORMED IN DESIGNATED AREAS ONLY.
6. ONLY CONCRETE FROM MIXER TRUCK CHUTES SHOULD B WASHED INTO CONCRETE WASH OUT.
7. CONCRETE WASHOUT FROM CONCRETE PUMPER BINS CAN BE WASHED INTO CONCRETE PUMPER TRUCKS AND DISCHARGED INTO DESIGNATED WASHOUT AREA OR PROPERLY DISPOSED OF OFFSITE.
8. ONCE CONCRETE WASTES ARE WASHED INTO THE DESIGNATED AREA AND ALLOWED TO HARDEN, THE CONCRETE SHOULD BE BROKEN UP REMOVED, AND DISPOSED OF PROPER TO A LOCATION WHERE DISPOSE OF HARDENED CONCRETE ON A REGULAR BASIS.
9. TEMPORARY CONCRETE WASHOUT FACITY (TYPE ABOVE GRADE).
   a. TEMPORARY WASHOUT FACILITY (TYPE ABOVE GRADE) SHOULD HAVE SUFFICIENT QUANTITY AND SIZE TO CONFORM TO THIS SHEET WITH A RECOMMENDED MINIMUM LENGTH AND MINIMUM WIDTH OF 10 FT., BUT WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
   b. SUPPORT STAKES AND FRAME FOR TEMPORARY FACILITIES SHOULD CONFORM TO THE PROVISIONS IN THE EROSION AND SEDIMENT CONTROL PLAN.
   c. PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 ML. POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.
10. TEMPORARY CONCRETE WASHOUT FACILITY (TYPE BELOW GRADE).
   a. TEMPORARY WASHOUT FACILITY (TYPE BELOW GRADE) SHOULD HAVE SUFFICIENT QUANTITY AND SIZE TO CONFORM TO THIS SHEET WITH A RECOMMENDED MINIMUM LENGTH AND MINIMUM WIDTH OF 10 FT., BUT WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
   b. LATH AND FLAGGING SHOULD BE COMMERCIAL TYPE.



PLAN
NOT TO SCALE
TYPE "BELOW GRADE"



SECTION B-B
NOT TO SCALE

SECTION B-B
NOT TO SCALE

CONCRETE WASHOUT DETAIL B

NOTES:
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT BASIN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

SECTION A-A
NOT TO SCALE

CONCRETE WASHOUT
DETAIL A

REMOVAL OF TEMPORARY CONCRETE WASHOUT FACILITIES

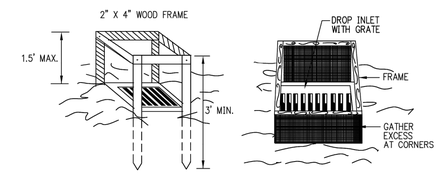
1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.
2. HOLES, DEPRESSIONS OR OTHER GROUND DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

INSPECTION AND MAINTENANCE

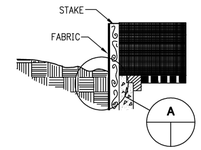
1. INSPECT AND VERIFY THAT ACTIVITY-BASED BMPS ARE IN PLACE PRIOR TO THE FORECAST PERIOD OF RAIN THAT MAY IMPACT BMP ACTIVITIES ASSOCIATED WITH THE BMP ARE UNDER WAY. INSPECT WEEKLY DURING THE RAINY SEASON AND AT TWO WEEK INTERVALS IN THE NON-RAINY SEASON TO VERIFY CONTINUED BMP IMPLEMENTATION.
2. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM FREEBOARD OF 4 IN. FOR ABOVE GRADE FACILITIES AND 12 IN. FOR BELOW GRADE FACILITIES. MAINTAINING TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD INCLUDE REMOVING AND DISPOSING OF HARDENED CONCRETE AND SPECIFICALLY MAINTAINING THE FUNCTIONAL CONDITION. HARDENED CONCRETE MATERIALS SHOULD BE REMOVED AND DISPOSED OF.
3. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.

D-505 EROSION & SEDIMENT CONTROL 5

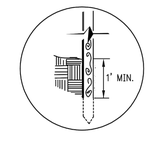
SEDIMENT FENCE DROP INLET PROTECTION



PERSPECTIVE VIEWS
NOT TO SCALE



ELEVATION OF STAKE AND FABRIC ORIENTATION



DETAIL A
NOT TO SCALE

SOURCE: MODIFIED FROM VA. DCR, 1992

SEDIMENT FENCE DROP INLET PROTECTION NOTES:

A) CONSTRUCTION SPECIFICATIONS:

1. SEDIMENT FENCE SHALL CONFORM TO THE CONSTRUCTION SPECIFICATIONS FOR EXTRA STRENGTH FOUND IN THE TABLE BELOW AND SHALL BE CUT FROM A CONTINUOUS ROLL TO AVOID JOINTS.

   PHYSICAL PROPERTIES OF FABRIC IN SEDIMENT FENCE:

PHYSICAL PROPERTY	TEST	REQUIREMENTS
FILTERING EFFICIENCY	ASTM 5141	75%
TENSILE STRENGTH AT 20% (MAX.) ELONGATION*	ASTM 4632 AASHTO M288-96	EXTRA STRENGTH – 50 LBS./LINEAR INCH
FLOW RATE	ASTM 5141	0.2 GAL./SQ.FT/ MINUTE**
ULTRAVIOLET RADIATION STABILITY %	ASTM D 4355	90%

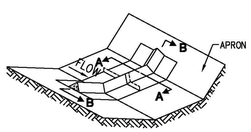
   * REQUIREMENTS REDUCED BY 50% AFTER SIX MONTHS OF INSTALLATION.
   ** HIGH POROSITY FABRIC MADE BY BETTER SUITED FOR THIS DEVICE.
2. FOR STAKES, USE 2X4 WOOD OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 3 FEET.
3. SPACE STAKES EVENLY AROUND THE PERIMETER OF THE INLET A MAXIMUM OF 3 FEET APART, AND SECURELY DRIVE THEM INTO THE GROUND, APPROXIMATELY 18 INCHES DEEP.
4. TO PROVIDE NEEDED STABILITY TO THE INSTALLATION, FRAME WITH 2X4 WOOD STRIPS AROUND THE CREST OF THE OVERFLOW AREA AT A MAXIMUM OF 1.5 FEET ABOVE THE DROP INLET CREST.
5. PLACE THE BOTTOM 12 INCHES OF THE FABRIC IN A TRENCH AND BACKFILL THE TRENCH WITH 12-INCHES OF COMPACTED SOIL.
6. FASTEN FABRIC SECURELY BY STAPLES, OR WIRE IT TO THE STAKES AND FRAME. JOINTS MUST BE OVERLAPPED TO THE NEXT STAKE.
7. IT MAY BE NECESSARY TO BUILD A TEMPORARY DIKE ON THE DOWNSLOPE SIDE OF THE STRUCTURE TO PREVENT BYPASS FLOW.

B) INSPECTION AND MAINTENANCE:

1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN EVENT OF 1/2 INCH OR GREATER AND REPAIRS MADE AS NEEDED.
2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
3. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

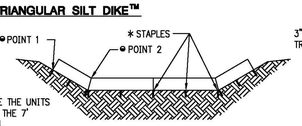
AMERICAN PUBLIC WORKS ASSOCIATION		
APWA	KANSAS CITY METROPOLITAN CHAPTER	
SEDIMENT FENCE DROP INLET PROTECTION	STANDARD DRAWING NUMBER ESC-19	ADOPTED:

TRIANGULAR SILT DIKE™

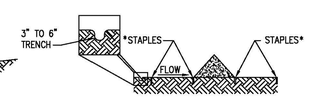


SILT DIKE UNIT CUT SECTION

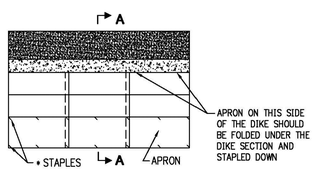
NOTES:
* STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE 7' UNIT AS SHOWN ON THE DIAGRAM.
• POINT 1 MUST BE HIGHER THAN POINT 2 TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.



DIKE SECTION DETAIL B-B

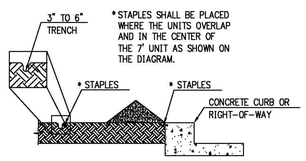


DETAIL A-A



DIKE PLAN VIEW

DITCH CHECK



*STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE 7' UNIT AS SHOWN ON THE DIAGRAM.

DETAIL A-A

TRIANGULAR SILT DIKE™ NOTES:

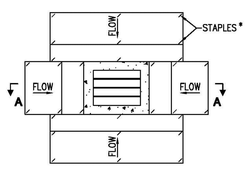
A) GENERAL NOTES:

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.

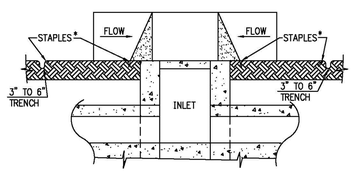
B) INSPECTION AND MAINTENANCE:

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.

CONTINUOUS BARRIER



PLAN VIEW



DETAIL A-A

DROP INLET

AMERICAN PUBLIC WORKS ASSOCIATION		
APWA	KANSAS CITY METROPOLITAN CHAPTER	
TRIANGULAR SILT DIKE™	STANDARD DRAWING NUMBER ESC-18	ADOPTED:

SOURCE: TRIANGULAR SILT DIKE COM., INC.

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 #LS2002008859-F

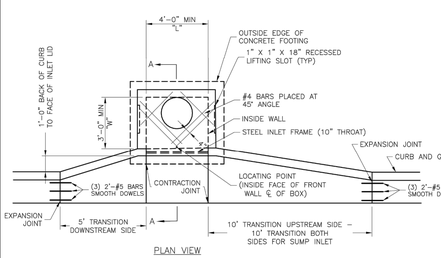
WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION

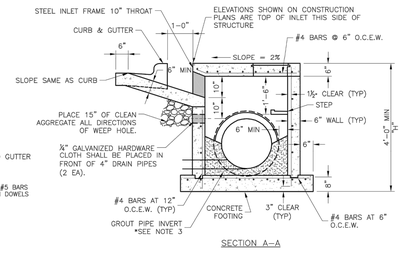
DRAWN BY:	KSC
CHECKED BY:	MAB
DATE PREPARED:	4.20.18
PROJ. NUMBER:	17-134

EROSION CONTROL DETAILS

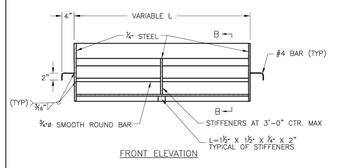
SHEET 19 OF 24



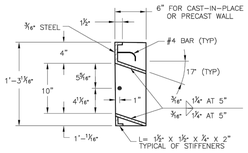
PLAN VIEW



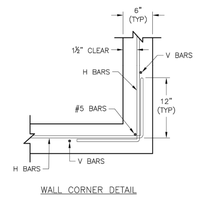
SECTION A–A



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.

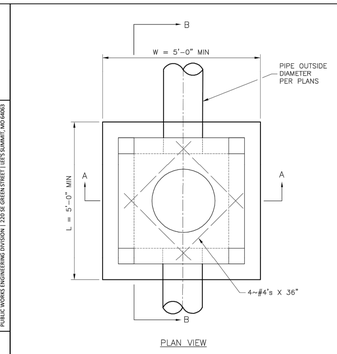
GENERAL NOTES:
1. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION.
2. FLOW LINES LISTED ON THE PROJECT PLANS ARE LISTED AT THE INSIDE FACE OF THE WALL.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
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 ¾" 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

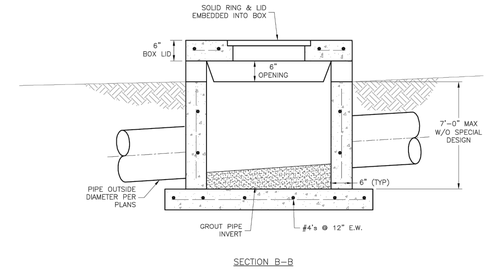
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
CURB INLET DETAIL

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

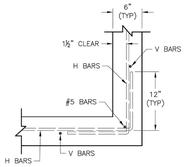
STM-1



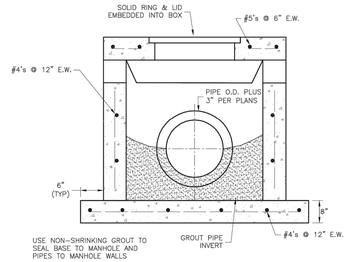
PLAN VIEW



SECTION B–B



WALL CORNER DETAIL



SECTION A–A

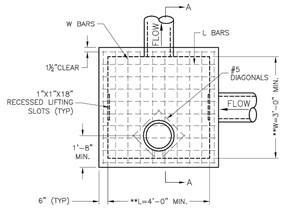
GENERAL NOTES:
1. LOCATE RING AND COVER OVER OUTLET ON BLANK WALL.
2. USE ¾" CHAMFER ON ALL EXPOSED CONCRETE CORNERS.
3. FLOOR OF INLET GROUTED AND SHAPED TO MATCH PIPE INVERT TO PROVIDE SMOOTH FLOW.
4. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 3' ON BLANK WALL IF POSSIBLE.
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

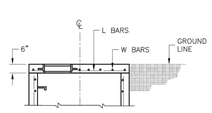
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
FIELD INLET DETAIL

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

STM-2



PLAN

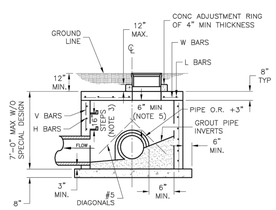


SLAB TOP ALTERNATE FOR JUNCTION BOX (SHALLOW)

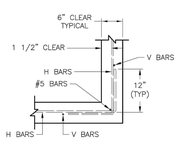
**INCREASE IN MULTIPLES OF 6" (7'–0") MAX WITHOUT SPECIAL DESIGN. (SEE PROJECT PLANS FOR DETAILS)

REINFORCING

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



SECTION A–A



WALL CORNER DETAIL

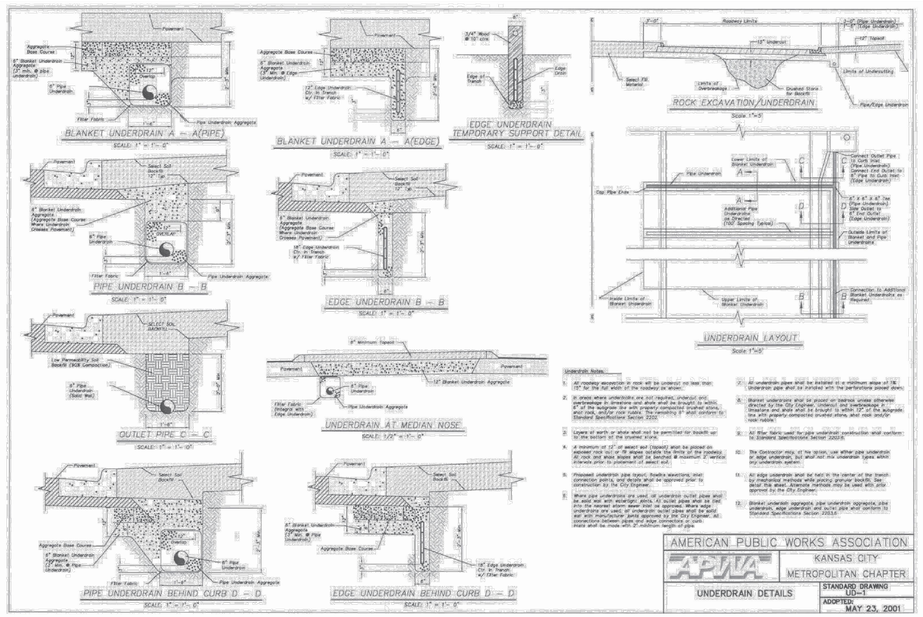
GENERAL NOTES:
1. LOCATE RING AND COVER ON BLANK WALL.
2. USE ¾" CHAMFER STRIP OR ½" R EDGER TOOL ON ALL EXPOSED CONCRETE CORNERS.
3. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 4" ON BLANK WALL IF POSSIBLE.
4. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS 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.

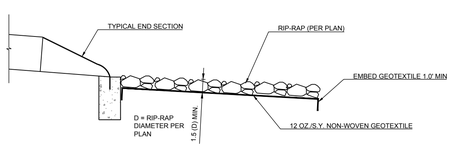
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

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

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

STM-3





RIP RAP DETAIL

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Missouri State Certificates of Authority
#E2002003800-F #LA2001005237 #LS2002008859-F

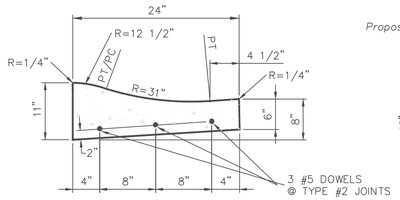
WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
A	
A	
A	
A	
A	
A	
A	
A	
A	

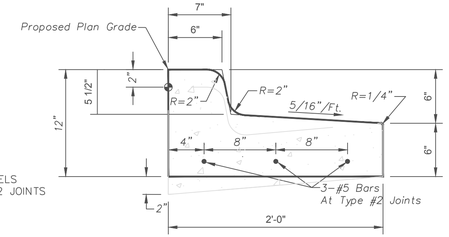
DRAWN BY: KSC
CHECKED BY: MAB
DATE PREPARED: 4.20.18
PROJ. NUMBER: 17-134

STANDARD DETAILS

SHEET 20 OF 24

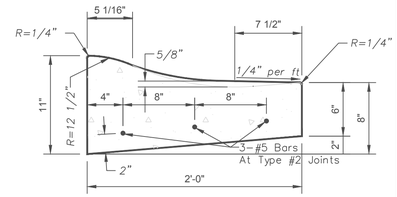


TYPE "A"



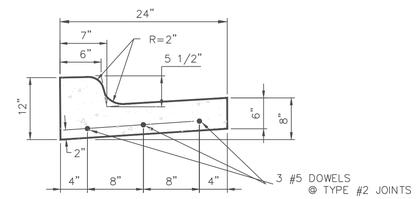
Type "B – Dry" Curb

NOTE: in transitions, water shall flow from the gutter of Type "B" curb to the lip of Type "B-Dry" curb at 0.5% min. slope.



Type "A – Dry" Curb

NOTE: in transitions, water shall flow from the gutter of Type "A" curb to the lip of Type "A-Dry" curb at 0.5% min. slope.

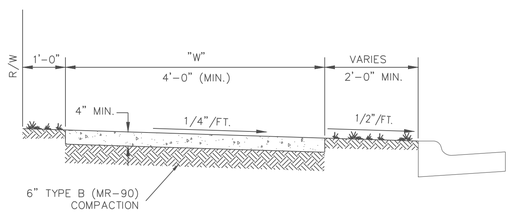


TYPE "B"

GENERAL NOTES:

1. ALL CONCRETE SHALL BE KCMMB-4K
2. ALL JOINTS WITH EXISTING CURB SHALL BE TYPE 2 JOINTS.
3. A TYPE 2 JOINT SHALL BE PLACED AT ALL CURB RETURNS.
4. A TYPE 1 JOINT SHALL BE PLACED AT 15' CENTERS.

CONCRETE CURB AND GUTTER

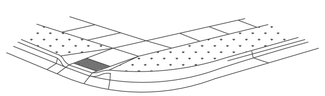


TYPICAL SIDEWALK

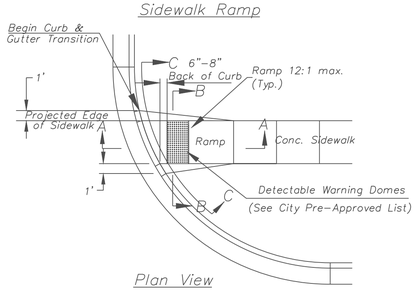
TYPICAL SIDEWALK

NOTES:

1. TYPE 1 JOINTS SHALL BE PLACED "W" CENTERS.
2. TYPE THREE JOINTS SHALL BE PLACED AT 250' CENTERS AND WHERE WALK ABUTS EXISTING CONCRETE.
3. ALL CONCRETE SHALL BE KCMMB-4K
4. WHEN UTILITY SERVICE BOXES, METER BOXES, ETC. WHICH MEASURE LESS THAN 1 FT. SQUARE MUST BE PLACED IN THE SIDEWALK. THE UTILITY SERVICE BOXES, ETC. SHALL BE NO CLOSER TO ANY EDGE OF THE SIDEWALK PANEL THAN 1 FT.
5. WHEN UTILITY BOXES, METER BOXES, ETC. GREATER THAN 1 FT. IN ANY DIMENSION MUST BE PLACED IN THE SIDEWALK, THEY SHALL BE PLACED IN THE CORNER OF THE SIDEWALK PANEL.
6. AN ISOLATION JOINT SHALL BE PLACED BETWEEN THE CONCRETE AND ANY UTILITY BOX, ETC. WHICH IS PLACED IN THE SIDEWALK.
7. NO SECTION OF SIDEWALK LESS THEN 12" IN ANY DEMENSION.



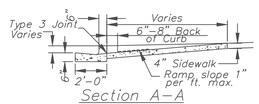
3-D View Type A Sidewalk Ramp



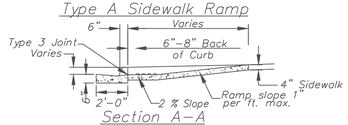
Plan View
Type A Sidewalk Ramp

NOTES

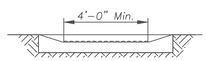
1. Surface texture shall be a coarse broom finish, transverse to the slope of the ramp.
2. Use of type "B" ramps shall be restricted to locations where it is not feasible to use type "A".
3. All concrete shall be kcmmb-4k.
4. The sidewalk shall have a coarse-textured, wood float, and broom finish.
5. When the Contractor intends to use Brick Pavers w/truncated domes for the truncated domes, installation shall be in accordance with the detail titled Truncated Dome Brick Pavers.



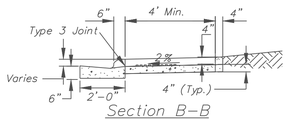
Section A-A
Type A Sidewalk Ramp



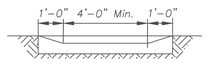
Section A-A
Type B Sidewalk Ramp



Section B-B
Type A Sidewalk Ramp

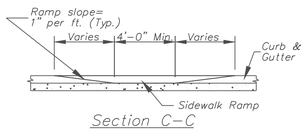


Section B-B
Type B Sidewalk Ramp

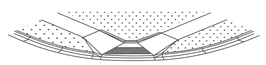


Section C-C
Type A Sidewalk Ramp

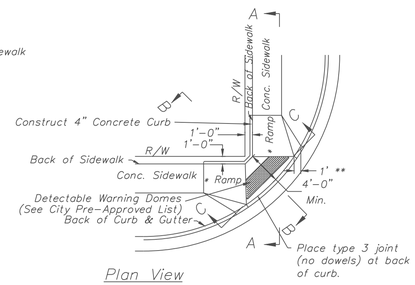
Note: Curb may vary with the type of curb required.



Section C-C
Type B Sidewalk Ramp

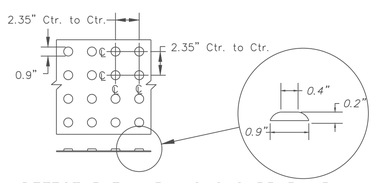


3-D VIew Type B Sidewalk Ramp



Plan View
Type B Sidewalk Ramp

* Sidewalk Ramp Location Determined from the Extension of R/W line.
** Contractor shall Transition Curb and Gutter to Match Proposed Sidewalk Using Stringline, Straight Edge, etc. Projected from the R/W line. (Typical both Sides).



DETECTABLE WARNING @ CURB RAMP

SIDEWALK AND HANDICAPPED RAMP DETAILS

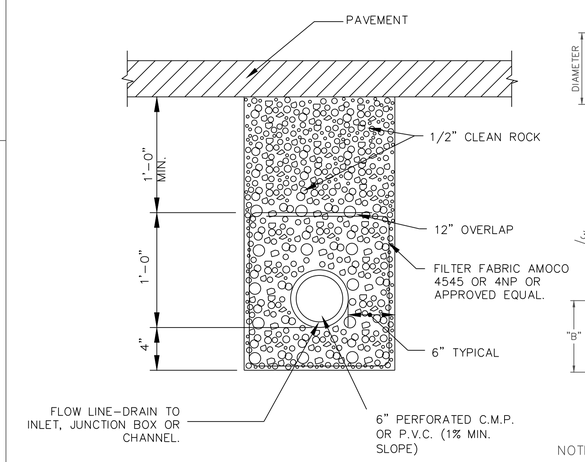
TABLE LS-2: MINIMUM ASPHALT PAVEMENT THICKNESSES

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	--

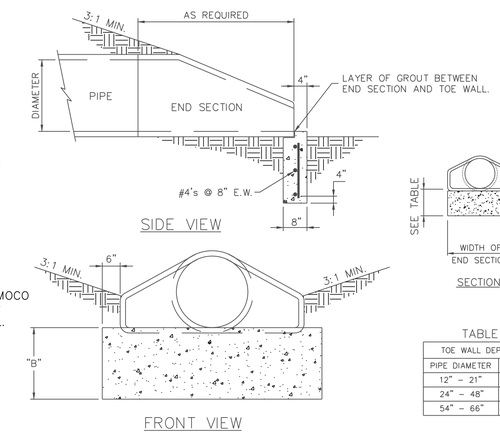
TABLE LS-3: MINIMUM PCC PAVEMENT THICKNESSES

Street Classification	PCC (in.)	Aggregate Base (in.)	Subgrade Stabilization(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



UNDERDRAIN DETAIL



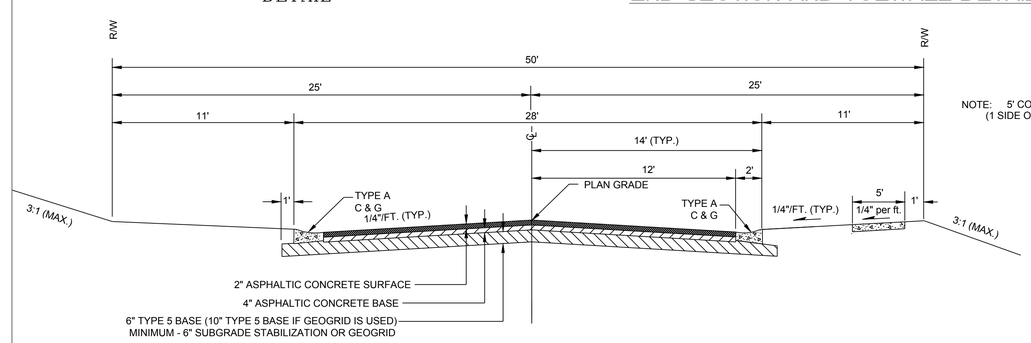
TABLE

TOE WALL DEPTH	
PIPE DIAMETER	"B"
12" – 21"	18"
24" – 48"	24"
54" – 66"	36"

NOTES:

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

END SECTION AND TOEWALL DETAIL



NOTE: 5' CONC.WALK (1 SIDE ONLY)

RESIDENTIAL LOCAL/ACCESS
SW MACKENZIE DR STA. 3+36.12 TO STA. 9+15.78
CARSON DR STA. 11+05.83 TO STA. 18+95.54
THOREAU DR STA. 4+68.32 TO STA. 11+46.93
AUDUBON RD STA. 3+07.51 TO STA. 10+21.79

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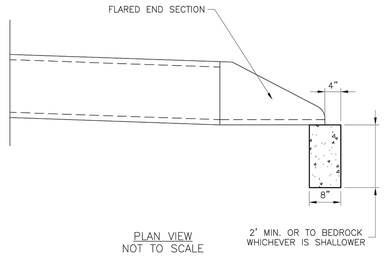
WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

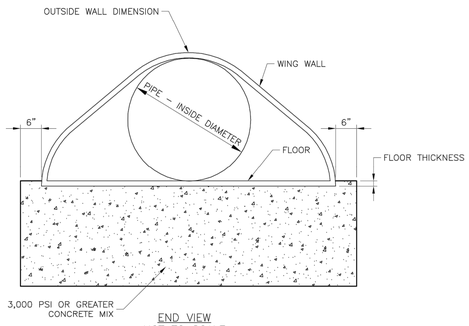
DESCRIPTION:	REVISION DATE:

DRAWN BY:	CHECKED BY:	DATE PREPARED:	PROJ. NUMBER:
KSC	MAB	4.20.18	17-134

STANDARD DETAILS



PLAN VIEW
NOT TO SCALE



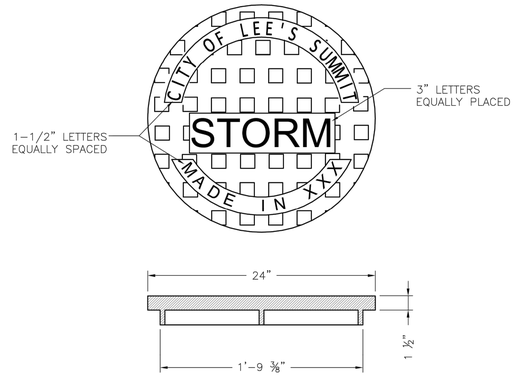
END VIEW
NOT TO SCALE

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

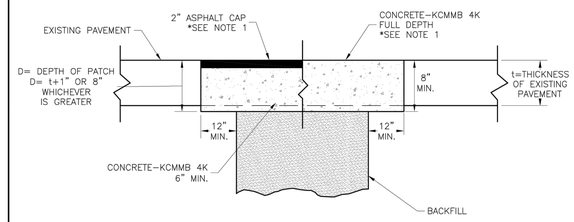
*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCT LIST.

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



TRENCHING/PATCHING DETAIL
NOT TO SCALE

NOTE:

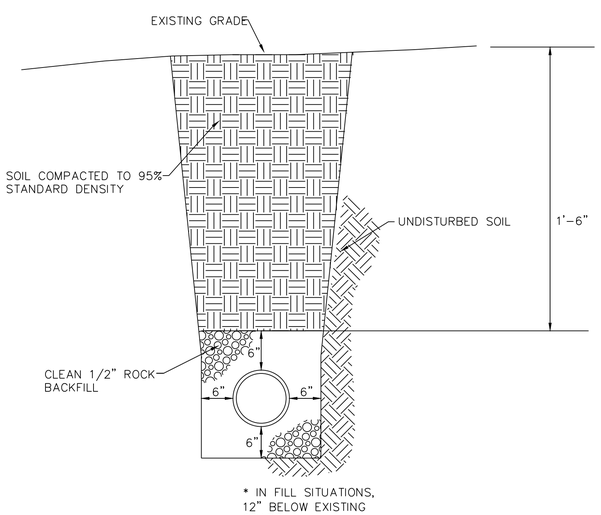
1. ASPHALT CAP OR FULL DEPTH CONCRETE SHALL BE DETERMINED BY CITY INSPECTOR.

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

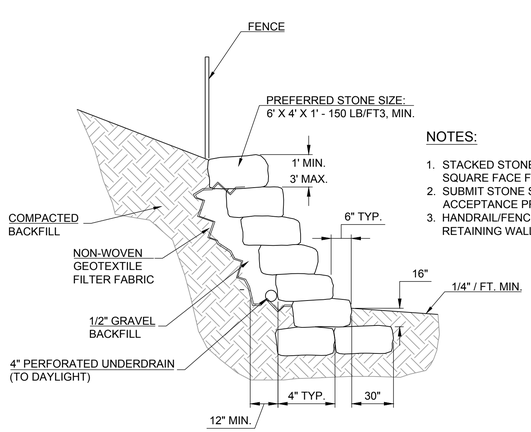
TRENCHING/PATCHING ROADWAYS DETAIL

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

GEN-5

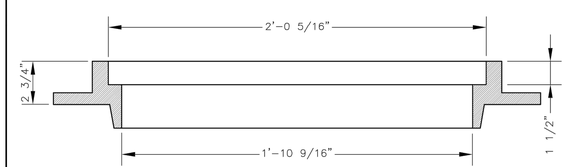


TRENCHING AND BACKFILL
REAR YARD

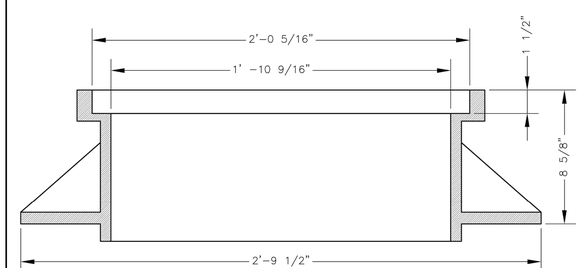


NOTES:

1. STACKED STONE WALLS SHALL BE MEASURED AND PAID BY THE SQUARE FACE FOOT OF INSTALLED AND ACCEPTED WALL.
2. SUBMIT STONE SOURCE AND MATERIAL QUALIFICATIONS FOR ACCEPTANCE PRIOR TO USE.
3. HANDRAIL/FENCE SHALL BE SUBSIDIARY TO THE COST OF RETAINING WALLS.



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

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WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
A	
B	
C	
D	
E	
F	
G	
H	
I	

DRAWN BY: KSC
CHECKED BY: MAB
DATE PREPARED: 4.20.18
PROJ. NUMBER: 17-134

STANDARD DETAILS

SHEET 22 OF 24

SCALE: 1" = 50'

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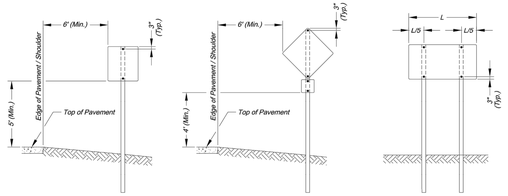
WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1	
2	
3	
4	
5	
6	
7	
8	
9	

DRAWN BY:	KSC
CHECKED BY:	MAB
DATE PREPARED:	4.20.18
PROJ. NUMBER:	17-134

SIGNING PLAN

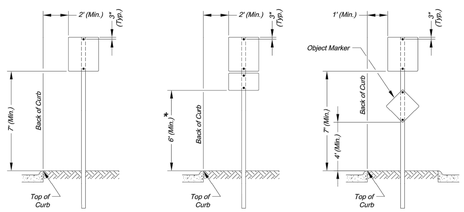
SHEET 23 OF 24



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

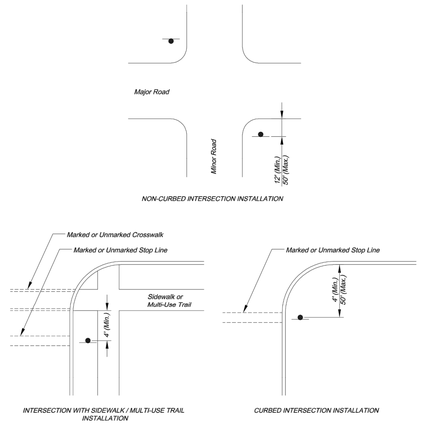
SIGN INSTALLATION WITH AUXILARY SIGN FOR CURBED STREET

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.

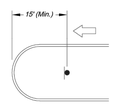


NON-CURBED INTERSECTION INSTALLATION

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.

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PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
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Project:

SIGN MOUNTING DETAILS

Sheet Name: STANDARD DRAWING SN-1

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

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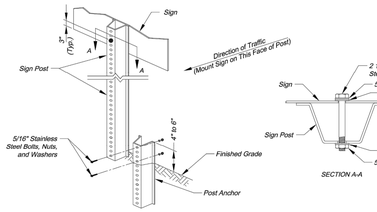
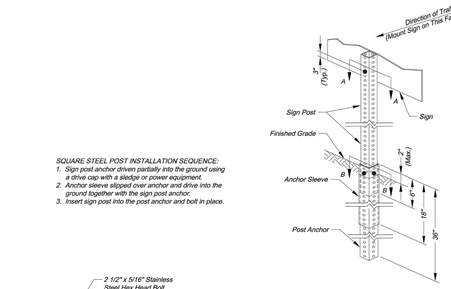


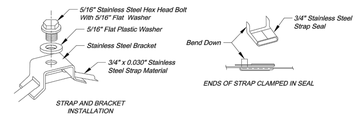
U-STEEL POST DETAILS

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 (1971 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.

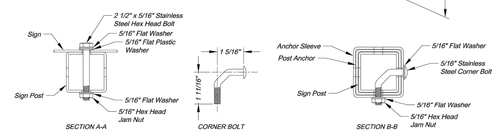
SQUARE STEEL POST INSTALLATION SEQUENCE:
1. Sign post anchor driven partially into the ground using a drive cap with a sledge or power equipment.
2. Anchor sleeve slipped over anchor and drive into the ground together with the sign post anchor.
3. Insert sign post into the post anchor and bolt in place.





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 1/2" x 2 1/2" x 36" Square Steel Post
   Anchor Sleeve - 12 Ga. 2 1/2" x 2 1/2" x 18" Square Steel Post
2. 14 Gauge posts must meet a certified minimum yield strength of 60,000 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.

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Project:

SIGN POST DETAILS

Sheet Name: STANDARD DRAWING SN-2

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

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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 #LA2000105237 #LS2002000859-F

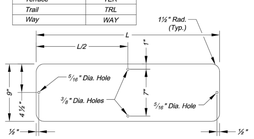
STANDARD ABBREVIATION LISTS

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

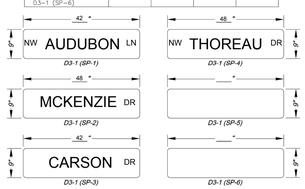
STREET NAME SIGN QUANTITIES

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

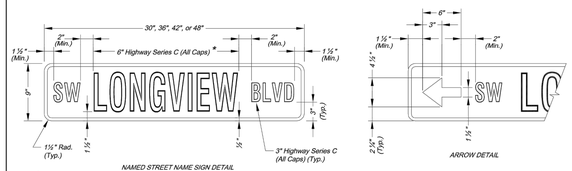


STREET NAME SIGN BLANK DETAILS

For Mounting on Square Steel Posts



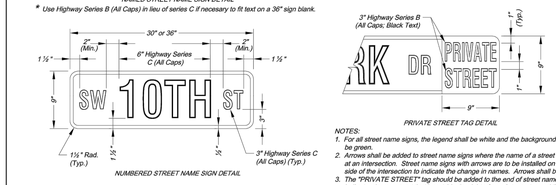
PROJECT SIGN DETAILS



NAMED STREET NAME SIGN DETAIL

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

ARROW DETAIL

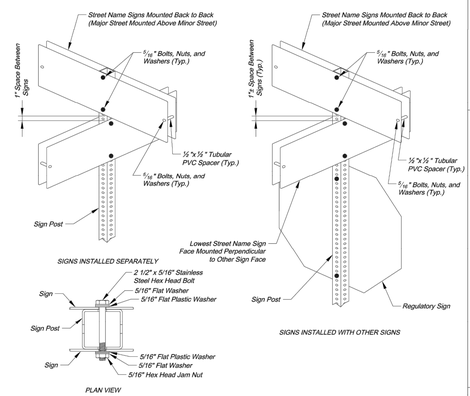


NUMBERED STREET NAME SIGN DETAIL

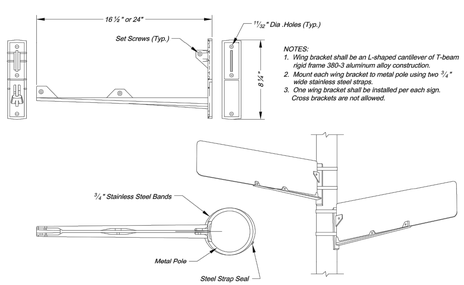
PRIVATE STREET TAG DETAIL

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

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Project:

STREET NAME SIGN DETAILS

Sheet Name: STANDARD DRAWING SN-3

Drawn By: AS
Checked By: JW
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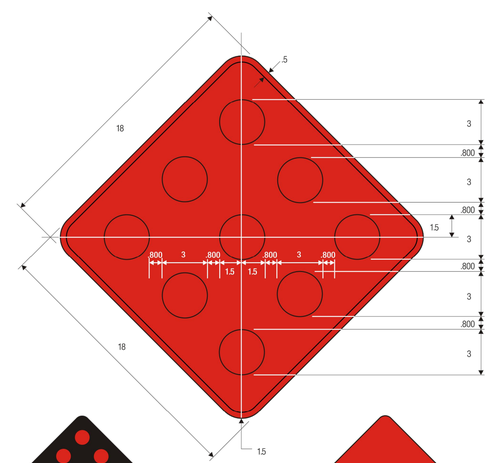

OM4-1 COLORS:

REFLECTORS – RED (RETROREFLECTIVE)
BACKGROUND – RED
BORDER – RED (RETROREFLECTIVE)

OM4-2 COLORS:

REFLECTORS – RED (RETROREFLECTIVE)
BACKGROUND – BLACK

OM4-3 COLORS:

SIGN PANEL – RED (RETROREFLECTIVE)

30"

R1-1

STOP SIGN

11-4

WINTERSET VALLEY, 12TH PLAT
STREET AND STORM SEWER PLANS
AUDUBON LANE AND CARSON DRIVE
LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION

DRAWN BY:	KSC
CHECKED BY:	MAB
DATE PREPARED:	4.20.18
PROJ. NUMBER:	17-134

STREET SIGN DETAILS

SHEET 24 OF 24