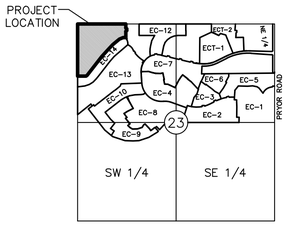
EAGLE CREEK 15TH PLAT

Lee's Summit, Jackson County, Missouri

STREET & STORM SEWER, & EROSION CONTROL PLANS

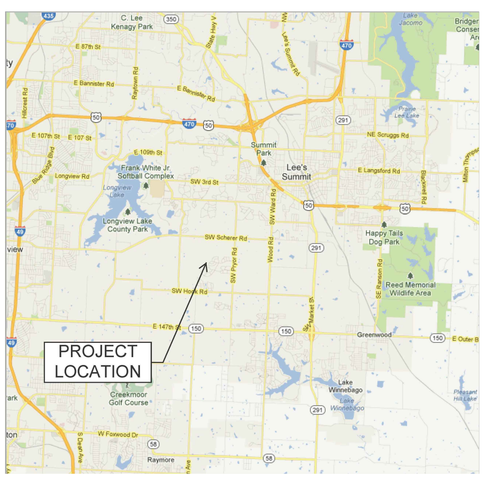
PROJECT BENCHMARK
KC Metro Monument JA-74, 1988 Monument located in the NW. ¼, NW. ¼ Sec. 35, T47N, R32W on the South R/W of Route 150. 56.5' South of the Centerline of Route 150 and 90' West of a private drive into a farmhouse on the North R/W.
Elevation: 1057.70



LOCATION MAP
Sec. 23, Twp. 47 N., Rge. 32 W.
(N.T.S.)

LEGAL DESCRIPTION:

A tract of land in the Northwest Quarter of Section 23, Township 47 North, Range 32 West of the 5th Principal Meridian in Lee's Summit, Jackson County, Missouri being bounded and described as follows: Beginning at the Northwest corner of said Northwest Quarter; thence South 87°35'47" East, along the North line of said Northwest Quarter, 1,301.52 feet; thence South 02°24'13" West, 105.00 feet; thence South 42°35'47" East, 35.36 feet; thence South 02°24'13" West, 50.00 feet; thence South 47°24'13" West, 35.36 feet; thence South 02°24'13" West, 134.41 feet; thence Southerly, along a curve to the left, being tangent with the last described course with a radius of 800.00 feet, a central angle of 01°54'39", and an arc distance of 26.68 feet to the Northeast corner of said EAGLE CREEK-FOURTEENTH PLAT; thence North 89°30'27" West, along the North line of said EAGLE CREEK-FOURTEENTH PLAT, 75.00 feet; thence South 71°15'03" West, continuing along said North line, 107.13 feet; thence South 51°50'15" West, continuing along said North line, 234.72 feet; thence South 46°51'05" West, continuing along said North line, 149.10 feet; thence South 44°22'31" West, continuing along said North line, 282.93 feet; thence South 40°22'50" West, continuing along said North line, 643.07 feet; thence South 52°02'51" West, continuing along said North line, 40.24 feet; thence North 87°23'50" West, continuing along said North line, 233.69 feet to a point on the West line of said Northwest Quarter; thence North 02°36'10" East, along said West line, 1,408.84 feet to the Point of Beginning. Containing 1,180,138 square feet or 27.09 acres, more or less.



VICINITY MAP
N.T.S.

SUMMARY OF QUANTITIES

ITEM	UNIT	PLAN	AS-BUILT
Grading			
Excavation	C.Y.	54,190	
Embankment	C.Y.	51,504	
Street			
2" Surface Course	S.Y.	6776.32	
4" Base Course	S.Y.	5226.12	
5.5" Base Course	S.Y.	1551.20	
6" MoDot Type 5 Stone Base	S.Y.	8366.97	
6" Flyash Stabilized Subgrade	S.Y.	6516.34	
9" Flyash Stabilized Subgrade	S.Y.	1850.63	
2" Mill and Overlay	S.Y.	45	
Conc. Curb & Gutter (CG-1)	L.F.	748	
Conc. Curb & Gutter (CG-2)	L.F.	3,871	
Handicapped Ramp	Ea.	6	
R1-1 Stop Signs	Ea.	3	
Street Name Signs	Ea.	5	
Sidewalk	LF.	58	
Storm			
Std. Curb Inlet (5'x3' Inside)	Ea.	~~6~~	6
Std. Curb Inlet (6'x3' Inside)	Ea.	~~2~~	2
Manholes, std. 4' Dia	Ea.	~~4~~	4
Manholes, std. 5' Dia	Ea.	~~1~~	1
Manholes, std. 7' Dia	Ea.	~~1~~	1
15" HDPE	L.F.	~~589.05~~	590.65
24" HDPE	L.F.	~~47.66~~	46.99
30" HDPE	L.F.	~~298.06~~	296.51
42" HDPE	L.F.	~~125.16~~	58.56
48" HDPE	L.F.	~~204.65~~	206.74
15" CMP End Section	Ea.	~~2~~	2
30" CMP End Section	Ea.	~~1~~	1
48" CMP End Section	Ea.	~~1~~	1
Connection to Existing Structure	Ea.	~~2~~	2
Rip-rap	S.Y.	~~83~~	83*

*As Provided By Contractor

Summary of Quantities as indicated above and any quantities as shown within the plans have been provided for permitting purposes only and are not intended for use in preparation of contract documents. Quantities intended for, but not limited to, the preparation of proposals and bid documents shall be independently evaluated by the estimating party based upon the contents of these plans.

INDEX OF SHEETS

DEVELOPER:
Hunt Midwest Real Estate Development Inc.
8300 NE Underground Drive
Kansas City, MO 64161
Phone #: 816.455.2900
Contact Person: Aaron Schmidt

REVIEWED BY:

City of Lee's Summit — Date

Olsson Associates. has been retained to provide as-built drawings for this project.

Melissa G DeGonia, P.E. — 3-5-18 Date
Civil Engineer
MO# 2011000892

The Policy of the "Plan Preparation Criteria and Procedure" and Policy Document No. 880544 "As-Built Drawings for Sewer Built by Permit" stipulate the following regarding "as-built" drawings: 1. Drawings are to be provided within thirty (30) days after the date the "Request for As-Builts" letter is issued by the City to the contractor. 2. Drawings must be accepted by the City before any service connections will be allowed. 3. Drawings are part of the permit obligations making them the responsibility of the permittee. 4. The cost of preparing "as-built" drawings shall be included in the performance bond.

AS BUILT
DATE: 11.14.2017

CALL BEFORE YOU DIG 1-800-DIG-RITE MISSOURI ONE CALL SYSTEM

UTILITY SERVICE NUMBERS	
LEE'S SUMMIT PUBLIC WORKS	816-969-1800
LEE'S SUMMIT WATER & SEWER DEPARTMENT	816-696-1940
MISSOURI GAS ENERGY	816-756-5252
TIME WARNER CABLE	816-358-5360
AT&T	800-286-8313
KCP&L	816-471-5275

OLSSON ASSOCIATES
Olsson Associates - Civil Engineering
Missouri Certificate of Authority # 2006022824
1301 Burlington, Suite 100
North Kansas City, MO 64116
TEL 816.587.4320
FAX 816.587.1393
www.olssonassociates.com

STATE OF MISSOURI — MELISSA G. DeGONIA — NUMBER PE-2011000892 — PROFESSIONAL ENGINEER — 3-5-18

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	01.17.2017	Prepared for city Submittal	
	02.23.2017	Revised per City comments on Feb. 9, 2017	JES
	11.14.2017	As-Builts Submittal	

REVISIONS

COVER SHEET

EAGLE CREEK 15TH PLAT

LEE'S SUMMIT, MISSOURI

2016

drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by: M.G.D
project no.: 016-3432
date: 2016/12/05

SHEET C101

DWG: F:\2016\3001-3500\016-3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\CSS-016-3432.dwg USER: bkoleci
DATE: Nov 14, 2017 9:17am

GENERAL NOTES:

1. THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO THE LEE'S SUMMIT, MISSOURI DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813. WHERE DISCREPANCIES EXIST BETWEEN THESE PLANS AND THE DESIGN AND CONSTRUCTION MANUAL, THE DESIGN AND CONSTRUCTION MANUAL SHALL PREVAIL.

2. ALL MANHOLES, CATCH BASINS, UTILITY VALVES, AND METER PITS TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED.

3. ALL SIGNS (I.E. STREET NAME AND STOP SIGNS) SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF LEE'S SUMMIT, DESIGN AND CONSTRUCTION MANUAL, PRIOR TO SUBSTANTIAL COMPLETION. REFER TO SHEET C120 FOR SIGNAGE DETAILS.

4. THE ASPHALTIC CONCRETE SURFACES ON ALL PERMITTED STREETS SHALL BE VIRGIN MATERIAL.

5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTROL DOWNSTREAM EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION. EROSION CONTROL PLANS AND PROCEDURES SHALL BE IN PLACE PRIOR TO ANY EXCAVATION.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING ROCK ELEVATIONS AT 25 FOOT (MAXIMUM) INTERVALS WHERE ENCOUNTERED, AND FURNISHING THIS INFORMATION TO THE DESIGN ENGINEER FOR USE ON "AS-BUILT" PLANS.

7. THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES.

8. NO SUBSURFACE EXPLORATION FOR THE DETERMINATION OF AND/OR THE LOCATION OF EXISTING ROCK HAS BEEN MADE.

9. CONTRACTOR SHALL PROVIDE EARTHWORK AND MATERIAL TESTING TO COMPLY WITH THE STANDARD SPECIFICATIONS OF THE PUBLIC WORKS DEPARTMENT OR AS REQUIRED BY THE CITY'S FIELD REPRESENTATIVE.

10. CONTRACTOR MUST CONTACT PUBLIC WORKS INSPECTIONS AT 816-969-1827 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES.

SITE DISTURBANCE NOTES:

1. THE INTENT OF THIS EROSION CONTROL PLAN IS TO ASSIST THE CONTRACTOR IN HIS RESPONSIBILITY TO PROVIDE ALL MATERIALS, TOOLS, EQUIPMENT AND LABOR NECESSARY TO CONTROL EROSION, SILTATION AND DISCHARGES OF SOIL MATERIAL (SEDIMENT) INTO DOWNSTREAM SYSTEMS OR RECEIVING CHANNELS. THIS SHALL BE REQUIRED DURING ALL PHASES OF CONSTRUCTION AND UNTIL SUITABLE GROUND COVER IS ESTABLISHED FOR ALL DISTURBED AREAS. IF ANY METHOD OF CONTROL FAILS, THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY, SO THAT THE OWNER OR HIS AGENT CAN REVIEW THE CONTRACTOR'S PROPOSED METHOD OF REPAIR.

   THIS PLAN INDICATES THE CRITICAL AREA(S) OF CONCERN AND THESE AREA(S) WILL BE CONTROLLED AS A MINIMUM. THE CONTROL MAY CONSIST OF TEMPORARY CONTROL MEASURES AS SHOWN ON THE PLANS OR ORDERED BY THE OWNER DURING THE LIFE OF THE CONTRACT TO CONTROL EROSION OR WATER POLLUTION, THROUGH THE USE OF BERMS, DIKES, DAMS, SEDIMENT BASINS, FIBER MATS, NETTING, STRAW BALES, GRAVEL, MULCHES, GRASSES, SLOPE DRAINS, DIVERSION SWALES OR OTHER EROSION CONTROL DEVICES OR METHODS. THE OWNER HAS THE AUTHORITY TO LIMIT THE SURFACE AREA OF ERODIBLE EARTH MATERIAL EXPOSED BY THE CONSTRUCTION OPERATIONS AND TO DIRECT THE CONTRACTOR TO PROVIDE IMMEDIATE PERMANENT OR TEMPORARY POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT STREAMS OR OTHER WATER COURSES, LAKES, PONDS, OR OTHER AREAS OF WATER IMPOUNDMENT OR CONVEYANCES.

   THE TEMPORARY POLLUTION CONTROL PROVISIONS CONTAINED HEREIN SHALL BE COORDINATED WITH ANY PERMANENT EROSION CONTROL FEATURES SPECIFIED ELSEWHERE IN THE CONTRACT TO THE EXTENT PRACTICAL TO ASSURE ECONOMICAL, EFFECTIVE AND CONTINUOUS EROSION CONTROL THROUGHOUT THE CONSTRUCTION AND POST CONSTRUCTION PERIOD.

2. THIS SEDIMENTATION CONTROL PLAN MAKES USE OF THE FOLLOWING APPLICATIONS:
   - ___ PRESERVATION OF EXISTING VEGETATION
   - X SEDIMENT BARRIERS
   - X SEDIMENT TRAPS
   - X INLET PROTECTION
   - ___ OUTLET PROTECTION
   - ___ SOIL RETAINING SYSTEMS
   - ___ SLOPE DRAINS
   - ___ SUBSURFACE DRAINS

   PHYSICAL DESCRIPTION OF EACH SPECIFIC SEDIMENT CONTROL DEVICE TO BE UTILIZED IS CALLED OUT ON THE PLANS WITH INSTALLATION PROCEDURES, CONSTRUCTION SPECIFICATIONS AND MAINTENANCE ARRANGEMENT AS CALLED FOR ON THE DETAIL SHEET. IN ADDITION TO THE MEASURES SPECIFIED, THE FOLLOWING GENERAL PRACTICES SHALL BE ADHERED TO WHEN APPLICABLE.

A) CLEARING AND GRUBBING WITHIN 50' OF A DEFINED DRAINAGE COURSE SHOULD BE AVOIDED WHEN POSSIBLE. WHERE CHANGES TO A DEFINED DRAINAGE COURSE OCCUR, WORK SHOULD BE DELAYED UNTIL ALL MATERIALS AND EQUIPMENT NECESSARY TO PROTECT AND COMPLETE THE DRAINAGE CHANGE ARE ON SITE. CHANGES SHALL BE COMPLETED AS QUICKLY AS POSSIBLE ONCE THE WORK HAS BEEN INITIATED. THE AREA IMPACTED BY THE CONSTRUCTION ACTIVITIES SHALL BE REVEGETATED OR PROTECTED FROM EROSION AS SOON AS POSSIBLE, AREAS WITHIN 50' OF A DEFINED DRAINAGE WAYS SHOULD BE RECONTOURED AS NEEDED OR OTHERWISE PROTECTED WITHIN FIVE (5) WORKING DAYS AFTER GRADING HAS CEASED.

B) WHERE SOIL DISTURBING ACTIVITIES CEASE IN AN AREA FOR MORE THAN 14 DAYS, THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE EROSION CONTROL MEASURES. IF THE SLOPE OF THE AREA IS GREATER THAN 3:1 OR IF THE SLOPE IS GREATER THAN 3% AND GREATER THAN 150 FEET IN LENGTH, THEN THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE EROSION CONTROL MEASURES IF ACTIVITIES CEASE FOR MORE THAN SEVEN (7) DAYS.

C) EXISTING VEGETATION SHALL BE PRESERVED TO THE EXTENT AND WHERE PRACTICAL. IN NO CASE SHALL DISTURBED AREAS REMAIN WITHOUT VEGETATIVE GROUND COVER FOR A PERIOD IN EXCESS OF 60 DAYS.

D) ADDITIONAL SITE MANAGEMENT PRACTICES WHICH SHALL BE ADHERED TO DURING THE CONSTRUCTION PROCESS SHALL INCLUDE:

   SOLID AND HAZARDOUS WASTE MANAGEMENT INCLUDING PROVIDING TRASH CONTAINERS AND REGULAR SITE CLEAN UP FOR PROPER DISPOSAL OF SOLID WASTE SUCH AS BUILDING MATERIAL, PRODUCT/MATERIAL SHIPPING WASTE, FOOD CONTAINERS AND CUPS, AND PROVIDING CONTAINERS FOR THE PROPER DISPOSAL OF WASTE PAINTS SOLVENTS, AND CLEANING COMPOUNDS.

   PROVISIONS OF PORTABLE TOILETS FOR PROPER DISPOSAL OF SANITARY SEWAGE.

   STORAGE OF CONSTRUCTION MATERIALS AWAY FROM DRAINAGE COURSES AND LOW AREAS.

   INSTALLATION OF CONTAINMENT BERMS AND USE OF DRIP PANS AT PETROLEUM PRODUCT AND LIQUID STORAGE TANKS AND CONTAINERS.

3. ALL DISTURBED AREAS SHALL BE SEEDED, FERTILIZED AND MULCHED, OR SODDED, IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS ADOPTED BY THE REVIEWING GOVERNING AGENCY AND GOOD ENGINEERING PRACTICES. THIS SHALL BE COMPLETED WITHIN FOURTEEN (14) DAYS AFTER COMPLETING THE WORK, IN ANY AREA. IF THIS IS OUTSIDE OF THE SEEDING PERIOD, SILT BARRIERS OR OTHER SIMILARLY EFFECTIVE MEASURES SHALL BE PROVIDED UNTIL SUCH TIME THAT THE AREAS CAN BE SEEDED.

4. THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO ALL CURRENT STANDARDS AND SPECIFICATIONS ADOPTED BY THE REVIEWING GOVERNING AGENCY. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING ALL ADDITIONAL STANDARDS, SPECIFICATIONS OR REQUIREMENTS WHICH ARE REQUIRED BY GOVERNING AGENCIES (INCLUDING LOCAL, STATE AND FEDERAL AUTHORITIES) HAVING JURISDICTION OVER THE WORK PROPOSED BY THESE CONSTRUCTION DRAWINGS.

5. ALL EROSION CONTROL MEASURES, TEMPORARY OR PERMANENT, REQUIRE MAINTENANCE TO PRESERVE THEIR EFFECTIVENESS. ALL EROSION CONTROL DEVICES SHALL BE INSPECTED IMMEDIATELY AFTER EACH HEAVY RAINSTORM AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHOULD BE MADE IMMEDIATELY. ALL COSTS ASSOCIATED WITH THE REPAIR WORK INCLUDING RELATED INCIDENTALS WILL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE INCLUDED IN THE CONTRACTOR'S BID FOR THE PROPOSED WORK.

PLAN LEGEND:

CABLE TV
- CTVP CABLE TV PEDESTAL
- SD SATELLITE DISH

ELECTRIC
- AC AIR CONDITIONER
- EB ELECTRIC BOX
- EMT ELECTRIC METER
- EMH ELECTRIC MANHOLE
- EP ELECTRIC PEDESTAL
- EV ELECTRIC VAULT
- GA GUY ANCHOR
- GUY GUY POLE
- LP LIGHT POLE
- PP POWER POLE
- YL YARD LIGHT\FLOOD LIGHT

GAS
- GK GAS LINE MARKER
- GM GAS METER
- GR GAS REGULATOR
- GV GAS VALVE

SANITARY
- CO SANITARY CLEANOUT
- SMH SANITARY MANHOLE

STORM
- AI AREA INLET
- CI CURB INLET
- FD FLOOR DRAIN
- FI FIELD INLET
- GI GRATE INLET
- JB JUNCTION BOX
- RD ROOF DRAIN
- STMH STORM MANHOLE

TELEPHONE
- FOM FIBER OPTIC MARKER
- TMK TELEPHONE CABLE MARKER
- TLP TELEPHONE POLE
- TP TELEPHONE PEDESTAL
- TV TELEPHONE VAULT

WATER
- FH FIRE HYDRANT
- HB HOSE BIB
- MW MONITOR WELL
- PIV POST INDICATOR VALVE
- SB SPRINKLER CONTROL BOX
- SV SPRINKLER VALVE
- WM WATER METER
- WH WATER MANHOLE
- WMV WATER METER VAULT
- WV WATER VALVE

PARKING
- & HANDICAP STALL
- WLS WHEEL STOP
- DYS DOUBLE YELLOW STRIPE
- WS WHITE STRIPE
- YS YELLOW STRIPE

TRAFFIC
- SLCB STREET LIGHT BOX
- TSP TRAFFIC SIGNAL POLE
- TSC TRAFFIC SIGNAL CONTROLS
- TSV TRAFFIC SIGNAL VAULT

SIGNS
- HS HANDICAP SIGN
- SL SPEED LIMIT SIGN
- SN SIGN
- SS STOP SIGN

EASEMENTS
- A.E. ACCESS EASEMENT
- B.M.P. BEST MANAGEMENT PRACTICE
- D.E. STORM DRAINAGE EASEMENT
- L.E. LANDSCAPE EASEMENT
- M.E. MONUMENT EASEMENT
- N.B.E. NO BUILD EASEMENT
- P.E. PEDESTRIAN EASEMENT
- S.D.E. SURFACE DRAINAGE EASEMENT
- S.E. SANITARY SEWER EASEMENT
- U.E. UTILITY EASEMENT
- W.E. WATER EASEMENT

SETBACKS
- B.S. BUILDING SETBACK
- D.S. DECK SETBACK
- dBA SOUND SETBACK
- F.Y.S FRONT YARD SETBACK
- L.B. LANDSCAPE BUFFER
- P.S. PARKING SETBACK
- R.Y.S. REAR YARD SETBACK
- S.Y.S. SIDE YARD SETBACK

SURVEY MARKERS
- FOUND SECTION CORNER (MONUMENTATION AS NOTED)
- FOUND PROPERTY CORNER (MONUMENTATION AS NOTED)
- △ FOUND RIGHT-OF-WAY MARKER
- ■ SET 5/8" IRON REBAR WITH ALUMINUM CAP
- ● SET 1/2" IRON BAR WITH PLASTIC CAP
- ◆ BENCHMARK

BOUNDARIES
- SECTION LINE
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- FUTURE PROPERTY LINE
- EXISTING LOT LINE
- PROPOSED LOT LINE
- FUTURE LOT LINE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- FUTURE RIGHT-OF-WAY

UTILITY LINES
- EXISTING CABLE TV, UNDERGROUND
- PROPOSED CABLE TV, UNDERGROUND
- FUTURE CABLE TV, UNDERGROUND
- EXISTING ELECTRIC, OVERHEAD
- EXISTING ELECTRIC, UNDERGROUND
- PROPOSED ELECTRIC, OVERHEAD
- PROPOSED ELECTRIC, UNDERGROUND
- FUTURE ELECTRIC, OVERHEAD
- FUTURE ELECTRIC, UNDERGROUND
- EXISTING FIBER OPTIC, UNDERGROUND
- PROPOSED FIBER OPTIC, UNDERGROUND
- FUTURE FIBER OPTIC, UNDERGROUND
- EXISTING GAS LINE
- PROPOSED GAS LINE
- FUTURE GAS LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER, PRIVATE
- PROPOSED SANITARY SEWER, PUBLIC
- FUTURE SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER, PRIVATE
- PROPOSED STORM SEWER, PUBLIC
- FUTURE STORM SEWER
- EXISTING TELEPHONE, UNDERGROUND
- PROPOSED TELEPHONE, UNDERGROUND
- FUTURE TELEPHONE, UNDERGROUND
- EXISTING WATER LINE
- PROPOSED WATER LINE, PRIVATE
- PROPOSED WATER LINE, PUBLIC
- FUTURE WATER LINE

CONTOURS
- 100 EXISTING INDEX CONTOURS
- 100 EXISTING INTERMEDIATE CONTOURS
- 100 PROPOSED INDEX CONTOURS
- 100 PROPOSED INTERMEDIATE CONTOURS
- 100 FUTURE INDEX CONTOURS
- 100 FUTURE INTERMEDIATE CONTOURS

MISCELLANEOUS
- BB BASKETBALL GOAL
- BH BORE HOLE
- FENCE; CHAIN LINK, STEEL OR ALUMINUM
- FENCE; STOCKADE, WOOD, VINYL OR PLASTIC
- FENCE; BARBED WIRE OR WOVEN WIRE TOPPED
- FP FLAG POLE
- GP GUARD POST
- GUARD RAIL
- HDRL HANDRAIL
- HSP HORSESHOE PIT
- LSCP LANDSCAPING
- MB MAILBOX
- MH UTILITY MANHOLE
- PB PARK BENCH
- PT PICNIC TABLE
- RAILROAD TRACKS
- TREE
- TREE, EVERGREEN
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING SIDEWALK
- PROPOSED SIDEWALK
- FUTURE SIDEWALK
- EXISTING BUILDINGS
- PROPOSED BUILDINGS
- FUTURE BUILDINGS
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- FUTURE EDGE OF PAVEMENT
- EXISTING ROADWAY CENTER LINE
- PROPOSED ROADWAY CENTER LINE
- FUTURE ROADWAY CENTER LINE
- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- FUTURE CURB & GUTTER

NOT AS BUILT

ALL NOTES REFERENCED ON THIS PLAN SHEET MAY HAVE APPLICATIONS TO EVERY FACET OF THE CONSTRUCTION PLANS. THE NOTE HEADINGS OR TITLES ARE TO BE USED AS A GENERAL GUIDE TO APPLICABLE SITUATIONS.

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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
3-5-18
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
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REVISIONS

GENERAL NOTES

EAGLE CREEK 15TH PLAT

LEE'S SUMMIT, MISSOURI

2016

drawn by:	D.A.H.O
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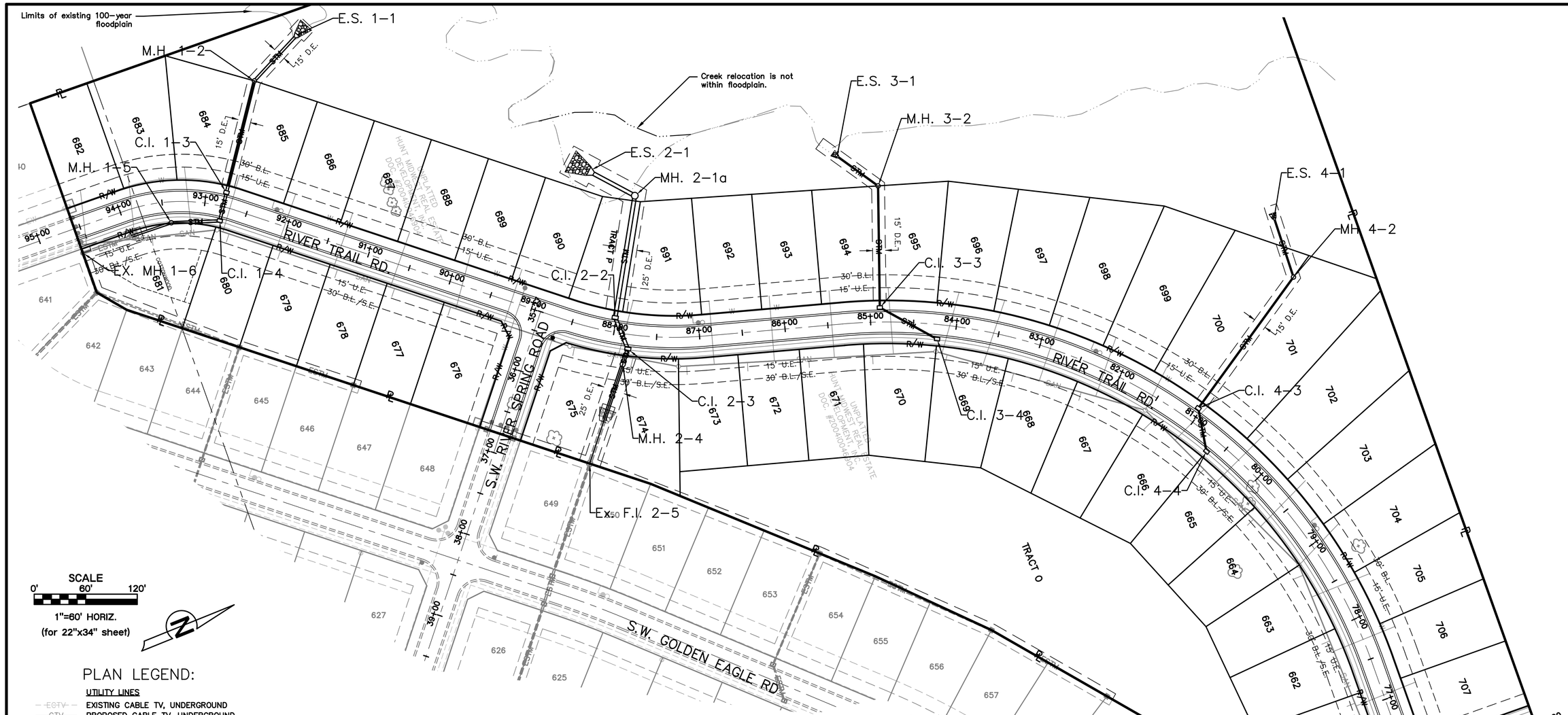
date:	2016/12/05

SHEET C102

DWG: F:\2016\3001-3500\016-3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\GEN-016-3432.dwg USER: dhernandez
DATE: Feb 23, 2017 5:04pm



SCALE
0' 60' 120'
1"=60' HORIZ.
(for 22"x34" sheet)

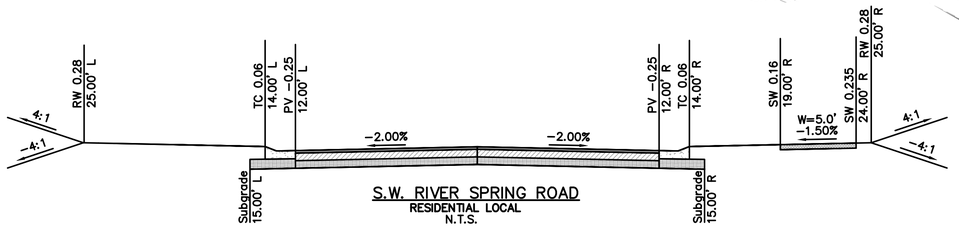
PLAN LEGEND:

UTILITY LINES

- EC TV — EXISTING CABLE TV, UNDERGROUND
- CTV — PROPOSED CABLE TV, UNDERGROUND
- FC TV — FUTURE CABLE TV, UNDERGROUND
- E E O H — EXISTING ELECTRIC, OVERHEAD
- E E — EXISTING ELECTRIC, UNDERGROUND
- E O H — PROPOSED ELECTRIC, OVERHEAD
- E — PROPOSED ELECTRIC, UNDERGROUND
- F E O H — FUTURE ELECTRIC, OVERHEAD
- F E — FUTURE ELECTRIC, UNDERGROUND
- E F O — EXISTING FIBER OPTIC, UNDERGROUND
- F O — PROPOSED FIBER OPTIC, UNDERGROUND
- F F O — FUTURE FIBER OPTIC, UNDERGROUND
- E G — EXISTING GAS LINE
- G — PROPOSED GAS LINE
- F G — FUTURE GAS LINE
- E S A N — EXISTING SANITARY SEWER
- P S A N — PROPOSED SANITARY SEWER, PRIVATE
- S A N — PROPOSED SANITARY SEWER, PUBLIC
- F S A N — FUTURE SANITARY SEWER
- E S T M — EXISTING STORM SEWER
- P S T M — PROPOSED STORM SEWER, PRIVATE
- S T M — PROPOSED STORM SEWER, PUBLIC
- F S T M — FUTURE STORM SEWER
- E T E L — EXISTING TELEPHONE, UNDERGROUND
- T E L — PROPOSED TELEPHONE, UNDERGROUND
- F T E L — FUTURE TELEPHONE, UNDERGROUND
- E W — EXISTING WATER LINE
- P W — PROPOSED WATER LINE, PRIVATE
- W — PROPOSED WATER LINE, PUBLIC
- F W — FUTURE WATER LINE

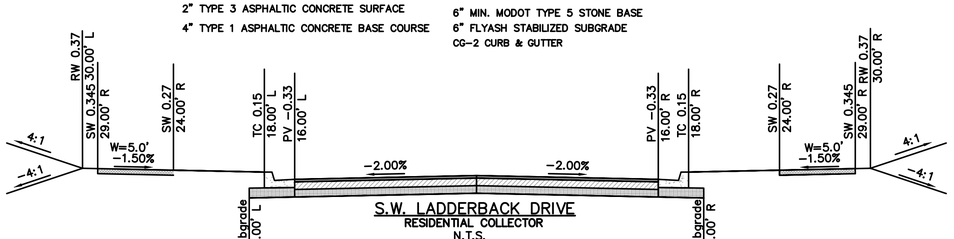
MISCELLANEOUS

- PROPOSED SIGNS



S.W. RIVER SPRING ROAD
RESIDENTIAL LOCAL
N.T.S.

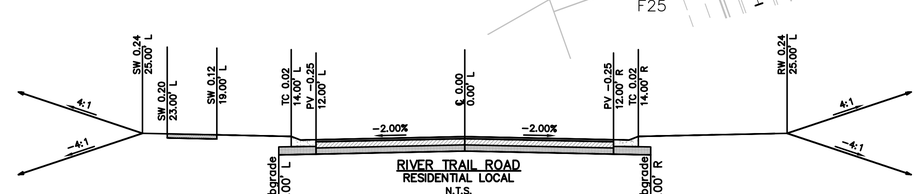
2" TYPE 3 ASPHALTIC CONCRETE SURFACE
4" TYPE 1 ASPHALTIC CONCRETE BASE COURSE
6" MIN. MODOT TYPE 5 STONE BASE
6" FLYASH STABILIZED SUBGRADE
CG-2 CURB & GUTTER



S.W. LADDERBACK DRIVE
RESIDENTIAL COLLECTOR
N.T.S.

2" TYPE 3 ASPHALTIC CONCRETE SURFACE
5.5" TYPE 1 ASPHALTIC CONCRETE BASE COURSE
6" MIN. MODOT TYPE 5 STONE BASE
9" FLYASH STABILIZED SUBGRADE
CG -1 CURB & GUTTER

Note: Flyash stabilization may be substituted with geogrid, per Lee's Summit Design and Construction manual. If geogrid is used, MoDot Type 5 base aggregate layer shall be 10" thick.



RIVER TRAIL ROAD
RESIDENTIAL LOCAL
N.T.S.

2" TYPE 3-01 ASPHALTIC CONCRETE SURFACE
4" TYPE 1-01 ASPHALTIC CONCRETE BASE COURSE
6" MIN. MODOT TYPE 5 STONE BASE
6" MIN. FLYASH STABILIZED SUBGRADE
CG-2 CURB & GUTTER

NOT AS BUILT

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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
3-5-16
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
1	02.23.2017	Typical assembly notes added, storm sewer layout	CAD
	11.14.2017	As-builts Submittal	

REVISIONS

STREET & STORM GENERAL LAYOUT

EAGLE CREEK 15TH PLAT

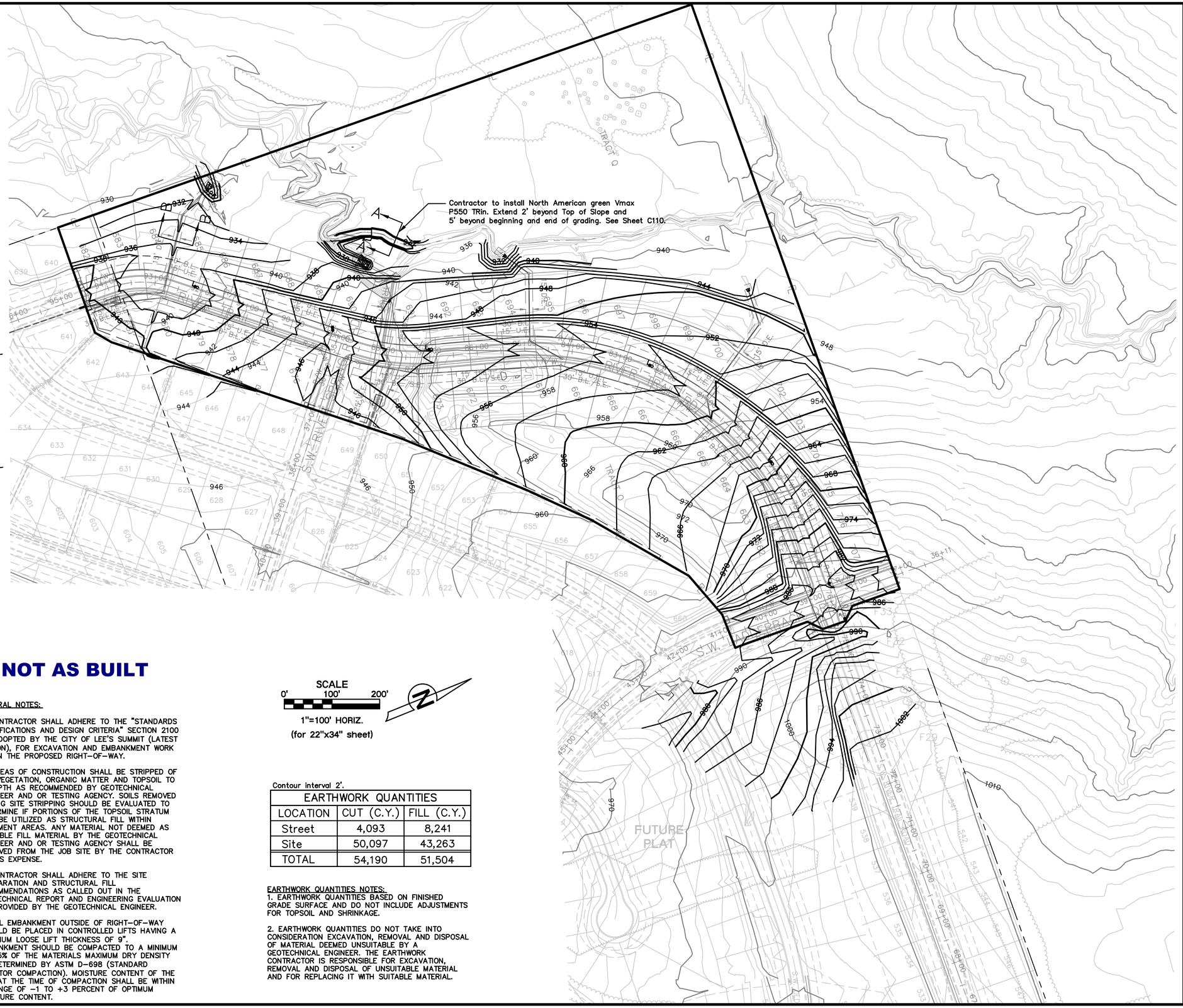
LEE'S SUMMIT, MISSOURI

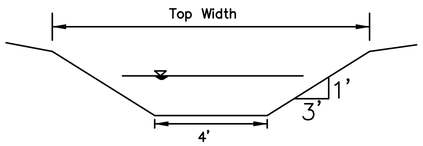
2016

drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by: M.G.D
project no.: 016-3432
date: 2016/12/05

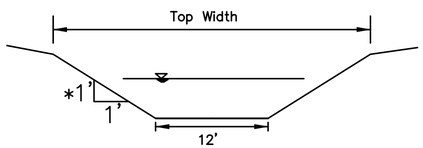
SHEET C103

DWG: F:\2016\3001-3500\016-3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\GSS-016-3432.dwg USER: dhernandez
DATE: Feb 23, 2017 5:08pm





Cross Section B–B



Cross Section A–A

* Match slope of existing channel of beginning and relocation

See sheet C114 for swale design infromation.

PLAN LEGEND:

UTILITY LINES

- EXISTING CABLE TV, UNDERGROUND
- PROPOSED CABLE TV, UNDERGROUND
- FUTURE CABLE TV, UNDERGROUND
- EXISTING ELECTRIC, OVERHEAD
- EXISTING ELECTRIC, UNDERGROUND
- PROPOSED ELECTRIC, OVERHEAD
- PROPOSED ELECTRIC, UNDERGROUND
- FUTURE ELECTRIC, OVERHEAD
- FUTURE ELECTRIC, UNDERGROUND
- EXISTING FIBER OPTIC, UNDERGROUND
- PROPOSED FIBER OPTIC, UNDERGROUND
- FUTURE FIBER OPTIC, UNDERGROUND
- EXISTING GAS LINE
- PROPOSED GAS LINE
- FUTURE GAS LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER, PRIVATE
- PROPOSED SANITARY SEWER, PUBLIC
- FUTURE SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER, PRIVATE
- PROPOSED STORM SEWER, PUBLIC
- FUTURE STORM SEWER
- EXISTING TELEPHONE, UNDERGROUND
- PROPOSED TELEPHONE, UNDERGROUND
- FUTURE TELEPHONE, UNDERGROUND
- EXISTING WATER LINE
- PROPOSED WATER LINE, PRIVATE
- PROPOSED WATER LINE, PUBLIC
- FUTURE WATER LINE

CONTOURS

- 100 EXISTING INDEX CONTOURS
- 100 EXISTING INTERMEDIATE CONTOURS
- 100 PROPOSED INDEX CONTOURS
- 100 PROPOSED INTERMEDIATE CONTOURS
- 100 FUTURE INDEX CONTOURS
- 100 FUTURE INTERMEDIATE CONTOURS

NOT AS BUILT

GENERAL NOTES:

1. CONTRACTOR SHALL ADHERE TO THE "STANDARDS SPECIFICATIONS AND DESIGN CRITERIA" SECTION 2100 AS ADOPTED BY THE CITY OF LEE'S SUMMIT (LATEST EDITION), FOR EXCAVATION AND EMBANKMENT WORK WITHIN THE PROPOSED RIGHT–OF–WAY.

2. AREAS OF CONSTRUCTION SHALL BE STRIPPED OF ALL VEGETATION, ORGANIC MATTER AND TOPSOIL TO A DEPTH AS RECOMMENDED BY GEOTECHNICAL ENGINEER AND OR TESTING AGENCY. SOILS REMOVED DURING SITE STRIPPING SHOULD BE EVALUATED TO DETERMINE IF PORTIONS OF THE TOPSOIL STRATUM MAY BE UTILIZED AS STRUCTURAL FILL WITHIN PAVEMENT AREAS. ANY MATERIAL NOT DEEMED AS SUITABLE FILL MATERIAL BY THE GEOTECHNICAL ENGINEER AND OR TESTING AGENCY SHALL BE REMOVED FROM THE JOB SITE BY THE CONTRACTOR AT HIS EXPENSE.

3. CONTRACTOR SHALL ADHERE TO THE SITE PREPARATION AND STRUCTURAL FILL RECOMMENDATIONS AS CALLED OUT IN THE GEOTECHNICAL REPORT AND ENGINEERING EVALUATION AS PROVIDED BY THE GEOTECHNICAL ENGINEER.

4. ALL EMBANKMENT OUTSIDE OF RIGHT–OF–WAY SHOULD BE PLACED IN CONTROLLED LIFTS HAVING A MAXIMUM LOOSE LIFT THICKNESS OF 9". EMBANKMENT SHOULD BE COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D–698 (STANDARD PROCTOR COMPACTION). MOISTURE CONTENT OF THE FILL AT THE TIME OF COMPACTION SHALL BE WITHIN A RANGE OF –1 TO +3 PERCENT OF OPTIMUM MOISTURE CONTENT.

SCALE
0' 100' 200'
1"=100' HORIZ.
(for 22"x34" sheet)

Contour interval 2'.

EARTHWORK QUANTITIES		
LOCATION	CUT (C.Y.)	FILL (C.Y.)
Street	4,093	8,241
Site	50,097	43,263
TOTAL	54,190	51,504

EARTHWORK QUANTITIES NOTES:
1. EARTHWORK QUANTITIES BASED ON FINISHED GRADE SURFACE AND DO NOT INCLUDE ADJUSTMENTS FOR TOPSOIL AND SHRINKAGE.

2. EARTHWORK QUANTITIES DO NOT TAKE INTO CONSIDERATION EXCAVATION, REMOVAL AND DISPOSAL OF MATERIAL DEEMED UNSUITABLE BY A GEOTECHNICAL ENGINEER. THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR EXCAVATION, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL AND FOR REPLACING IT WITH SUITABLE MATERIAL.

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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE–2011000892
3-5-18
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
1	02.23.2017	Site grading revised per plan revisions	JES
	11.14.2017	As-Builts Submittal	

REVISIONS

GRADING PLAN

EAGLE CREEK 15TH PLAT

LEE'S SUMMIT, MISSOURI

2016

drawn by:	D.A.H.O
design by:	P.M.D
approved by:	M.G.D
QA/QC by:	M.G.D
project no.:	016-3432
date:	2016/12/05

SHEET
C104

DWG: F:\2016\3001–3500\016–3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\GR1–016–3432.dwg USER: dhernandez
DATE: Feb 23, 2017 5:13pm

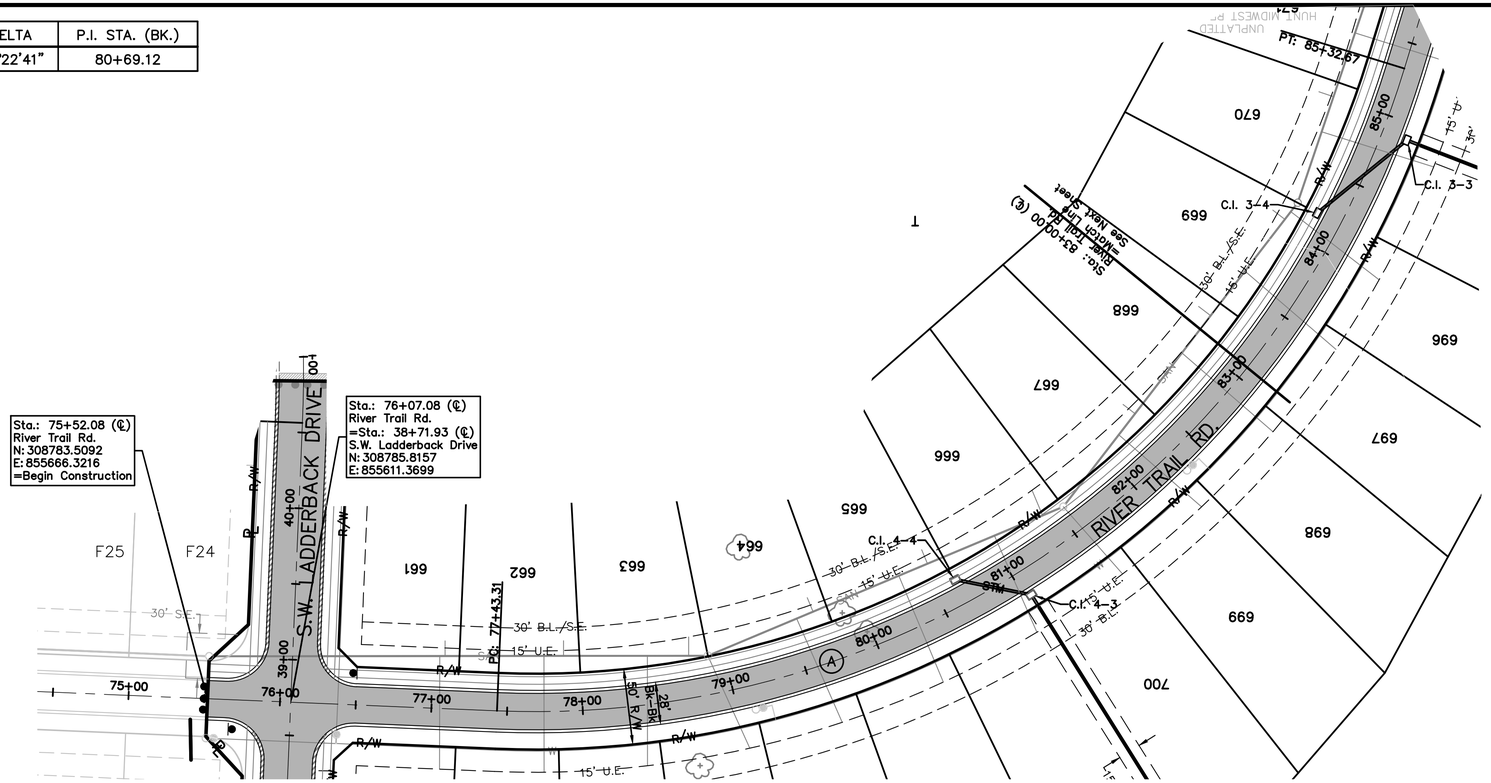
CURVE	RADIUS	LENGTH	TANGENT	DELTA	P.I. STA. (BK.)
A	600.00'	789.36'	463.55'	75°22'41"	80+69.12

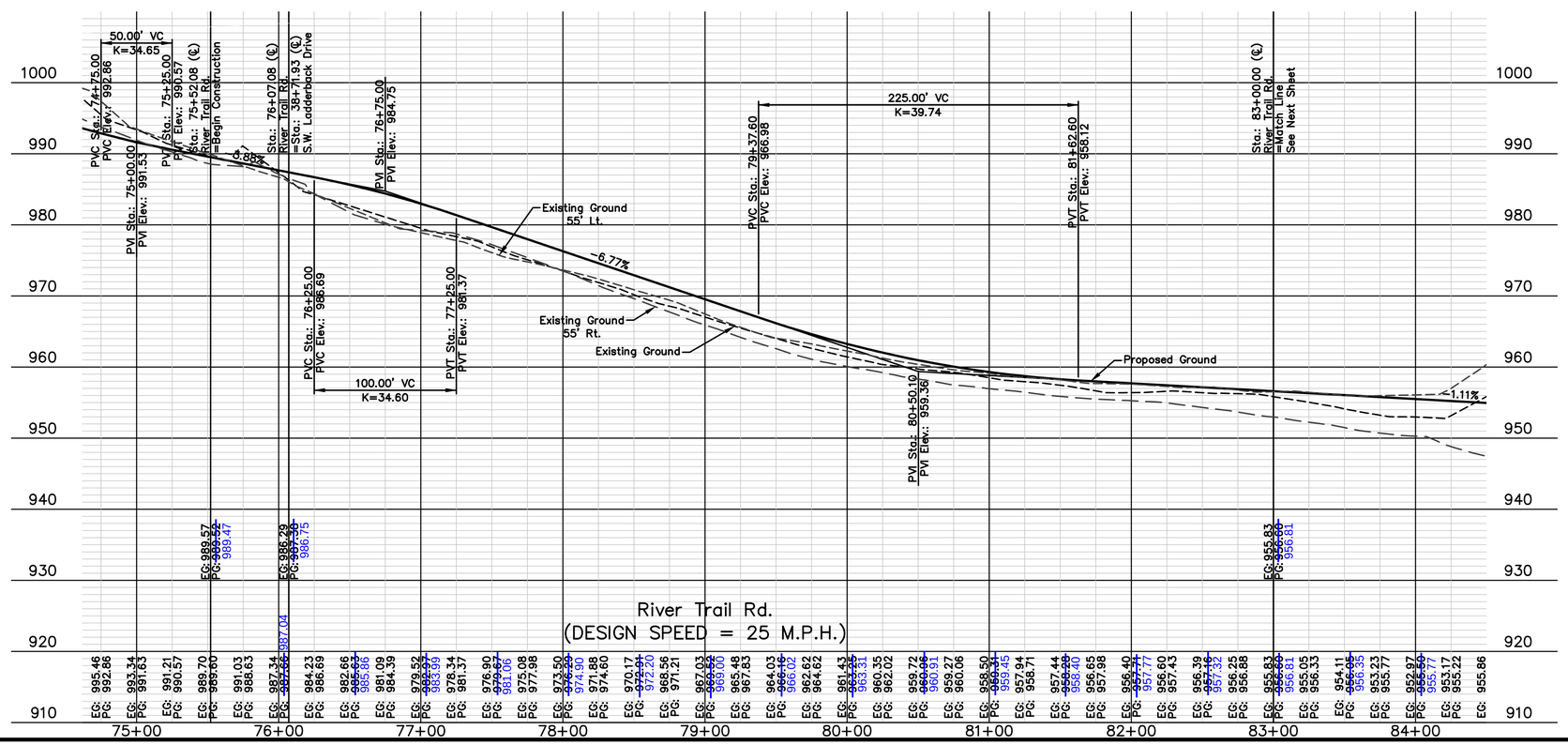
ASPHALT PAVEMENT

CG-2 CURB & GUTTER

CG-1 CURB & GUTTER

SCALE
0' 50' 100'
1"=50' HORIZ.
1"=10' VERT.
(for 22"x34" sheet)





AS BUILT
DATE: 11.14.2017

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STATE OF MISSOURI
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NUMBER PE-2011000892
3-5-18
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
1	02.23.2017	Profile revised per grading changes	JES
	11.14.2017	As-Builts Submittal	

REVISIONS

STREET PLAN & PROFILE

EAGLE CREEK 15TH PLAT

LEE'S SUMMIT, MISSOURI

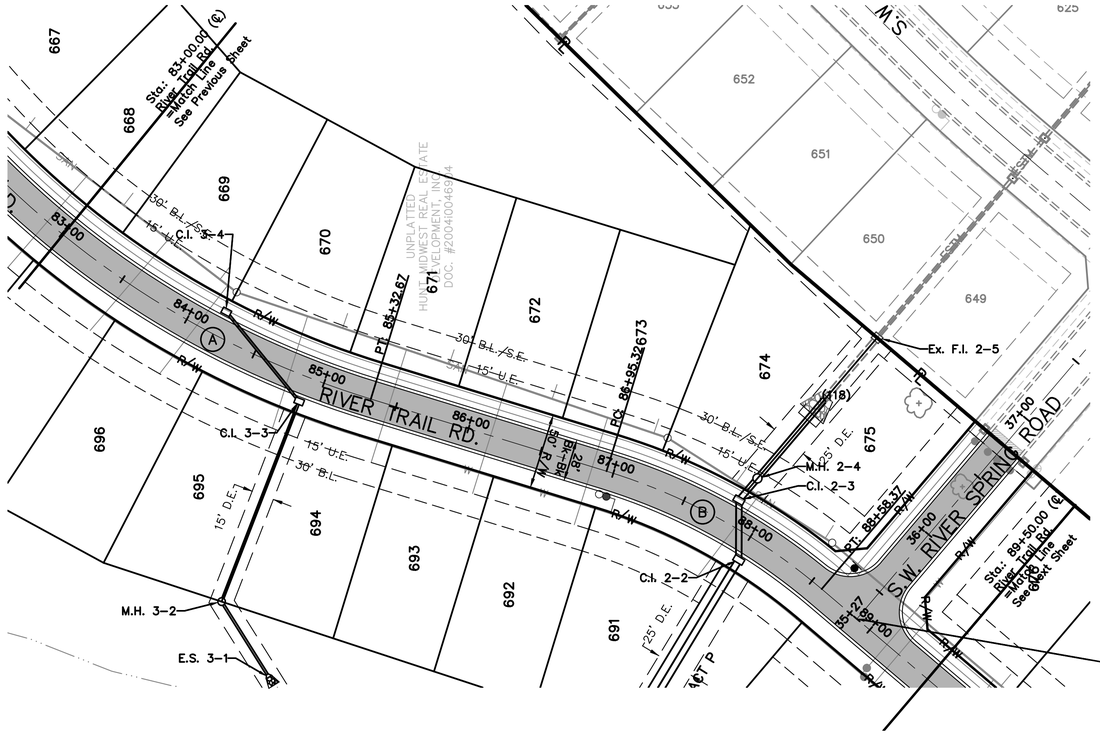
2016

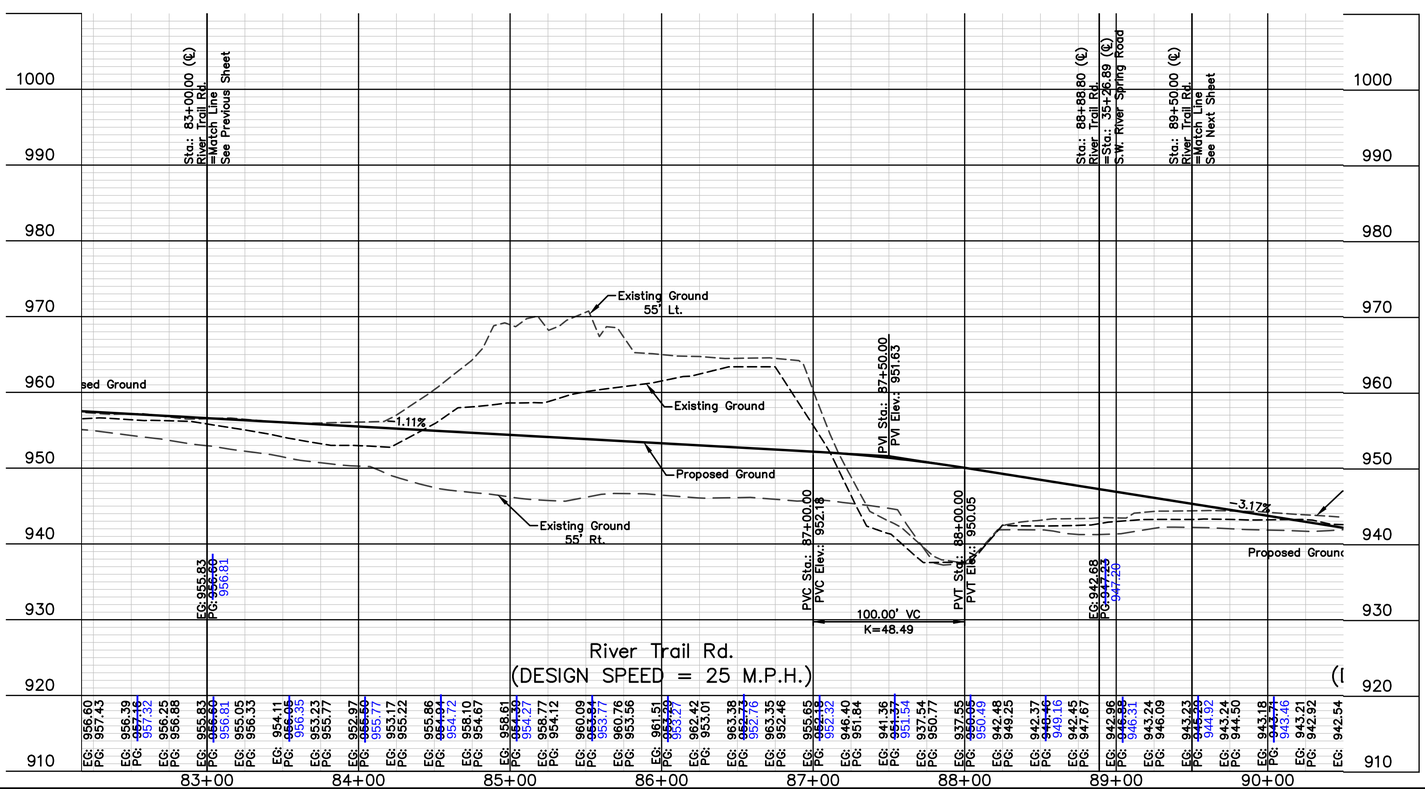
drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by: M.G.D
project no.: 016-3432
date: 2016/12/05

SHEET C105

DWG: F:\2016\3001-3500\016-3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\ST1-016-3432.dwg USER: bkoleci
DATE: Nov 07, 2017 8:39am

CURVE	RADIUS	LENGTH	TANGENT	DELTA	P.I. STA. (BK.)
A	600.00'	789.36'	463.55'	75°22'41"	80+69.12
B	400.00'	163.05'	82.67	23°21'19"	87+74.70





AS BUILT
DATE: 11.14.2017

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North Kansas City, MO 64116
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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE-2011000892
3-5-18
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
	11.14.2017	As-builts Submittal	

REVISIONS

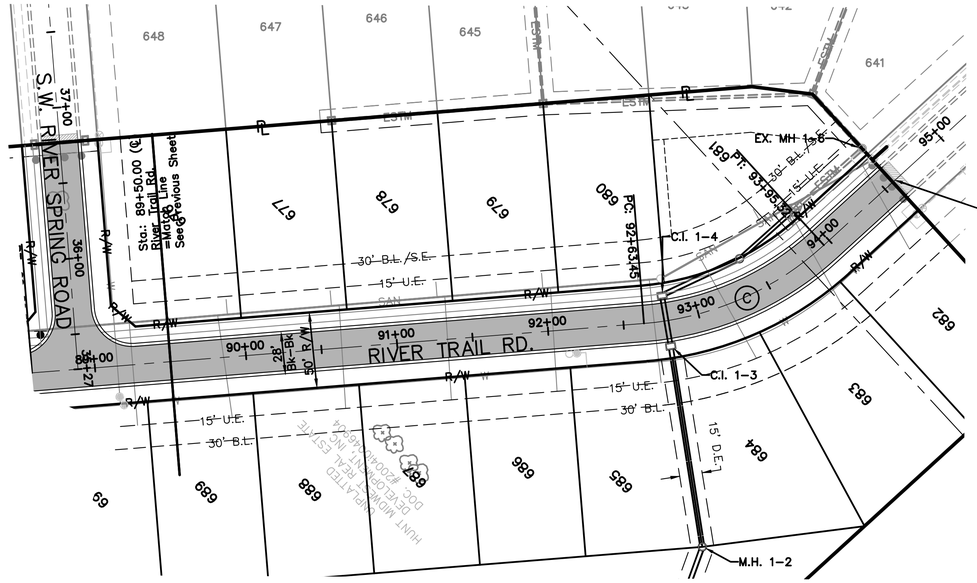
STREET PLAN & PROFILE
EAGLE CREEK 15TH PLAT
LEE'S SUMMIT, MISSOURI
2016

drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by: M.G.D
project no.: 016-3432
date: 2016/12/05

SHEET C106

DWG: F:\2016\3001-3500\016-3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\ST3-016-3432.dwg USER: dhernandez
DATE: Feb 23, 2017 5:22pm

CURVE	RADIUS	LENGTH	TANGENT	DELTA	P.I. STA. (BK.)
C	200.00'	131.87'	68.43	37°46'40"	93+26.89



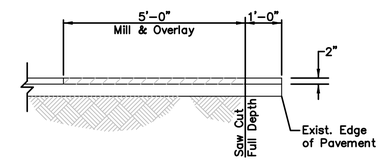
Sta.: 94+58.92 (℄)
River Trail Rd.
N: 307577.5839
E: 854438.2370
=End Construction
Removed Existing Type IV Object markers and Saw Cut 1'-0" of Existing Pavement Mill 2" of 5'-0" of existing Pavement to Facilitate a Smooth Joint. See Detail on this Sheet.

CG-2 CURB & GUTTER

CG-1 CURB & GUTTER

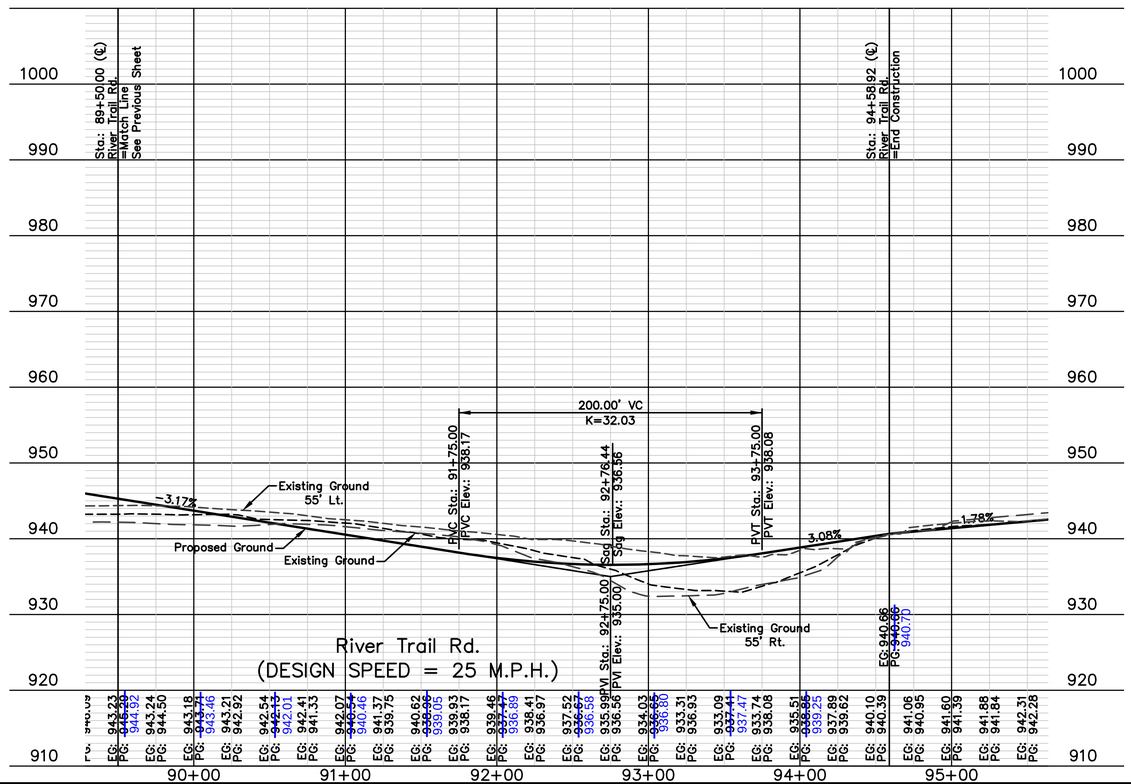
CONCRETE SIDEWALK

ASPHALT PAVEMENT



MILL AND OVERLAY DETAIL
N.T.S.

SCALE
0' 50' 100'
1"=50' HORIZ.
1"=10' VERT.
(for 22"x34" sheet)



AS BUILT
DATE: 11.14.2017

OLSSON ASSOCIATES
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Missouri Certificate of Authority # 2007022824
1301 Burlington, Suite 100 North Kansas City, MO 64116
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www.olssonassociates.com

STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
3-5-18
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	01.17.2017	Prepared for city Submittal	JES
	02.23.2017	Road profile revised per city comments	
	11.14.2017	As-builts Submittal	

REVISIONS

STREET PLAN & PROFILE

EAGLE CREEK 15TH PLAT

LEE'S SUMMIT, MISSOURI

2016

drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by: M.G.D
project no.: 016-3432
date: 2016/12/05

SHEET C107

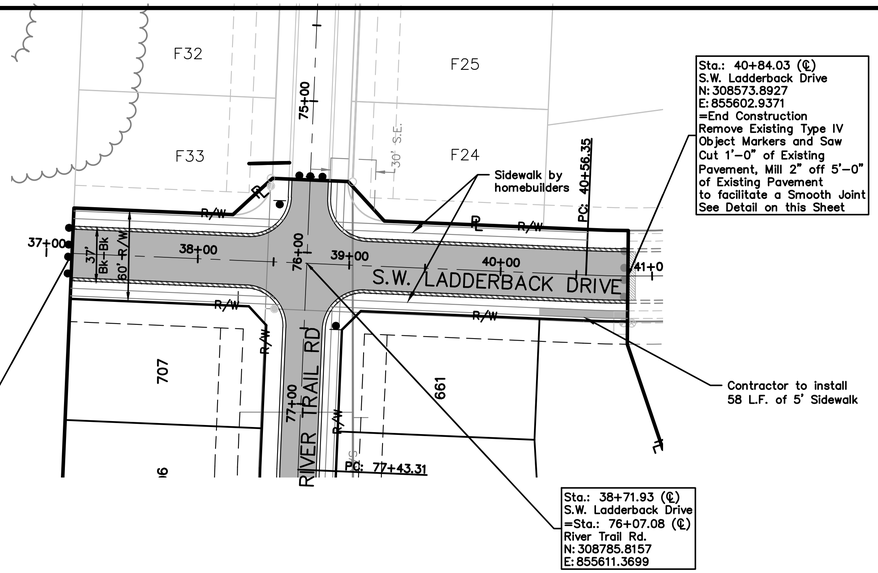
DWG: F:\2016\3001-3500\016-3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\ST4-016-3432.dwg USER: bkoleci
DATE: Nov 07, 2017 8:43am

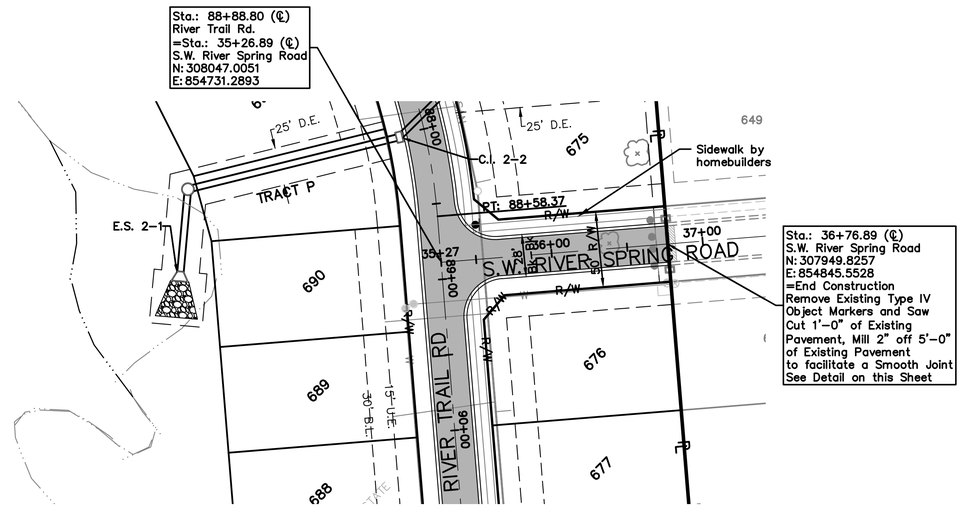
CG-2 CURB & GUTTER

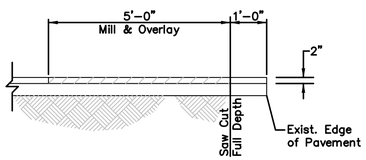
CG-1 CURB & GUTTER

CONCRETE SIDEWALK

ASPHALT PAVEMENT







MILL AND OVERLAY DETAIL

N.T.S.

SCALE

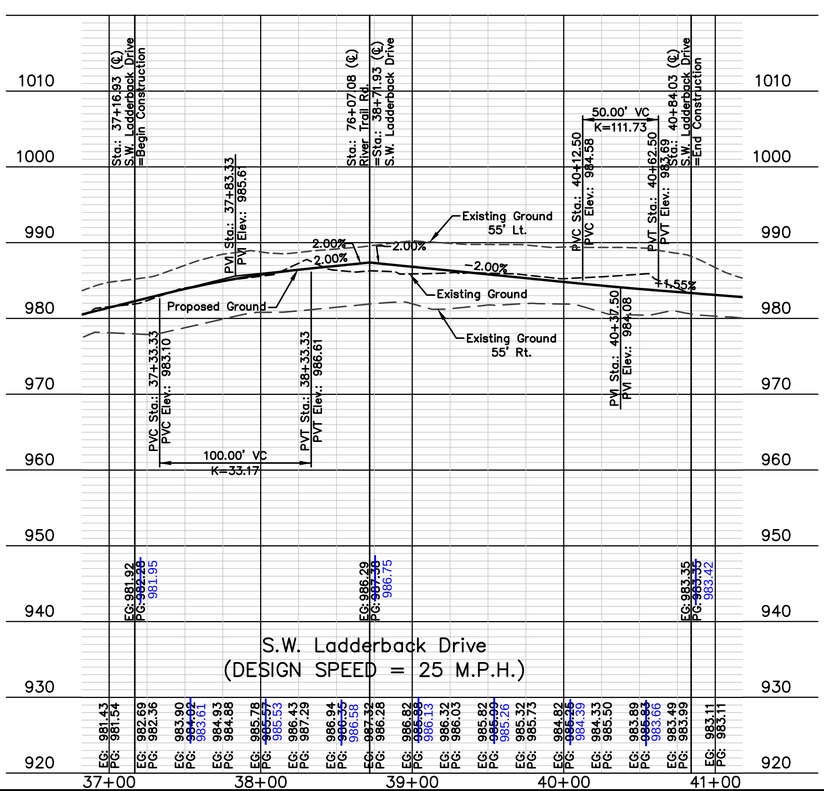
0' 50' 100'

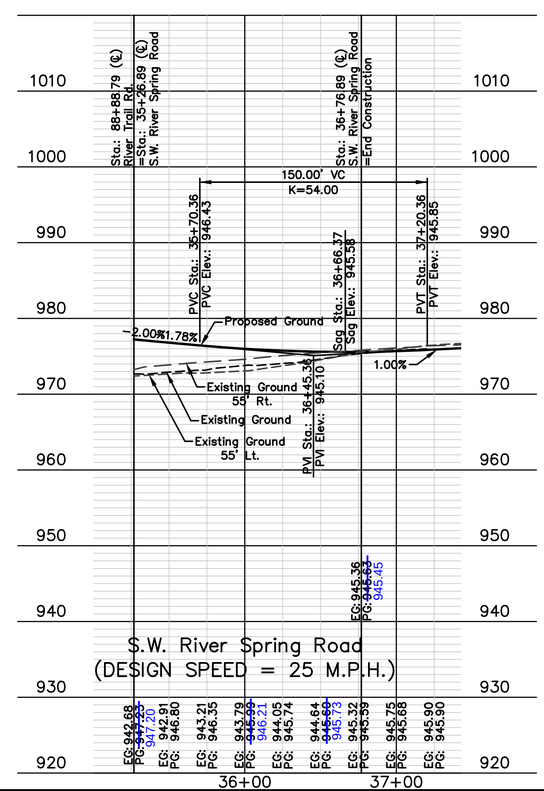
0' 5' 10'

1"=50' HORIZ.

1"=10' VERT.

(for 22"x34" sheet)





AS BUILT

DATE: 11.14.2017

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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
3-5-18
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
1	02.23.2017	Road profile revised per grading changes	JES
	11.14.2017	As-Builts Submittal	

REVISIONS

STREET PLAN & PROFILE

EAGLE CREEK 15TH PLAT

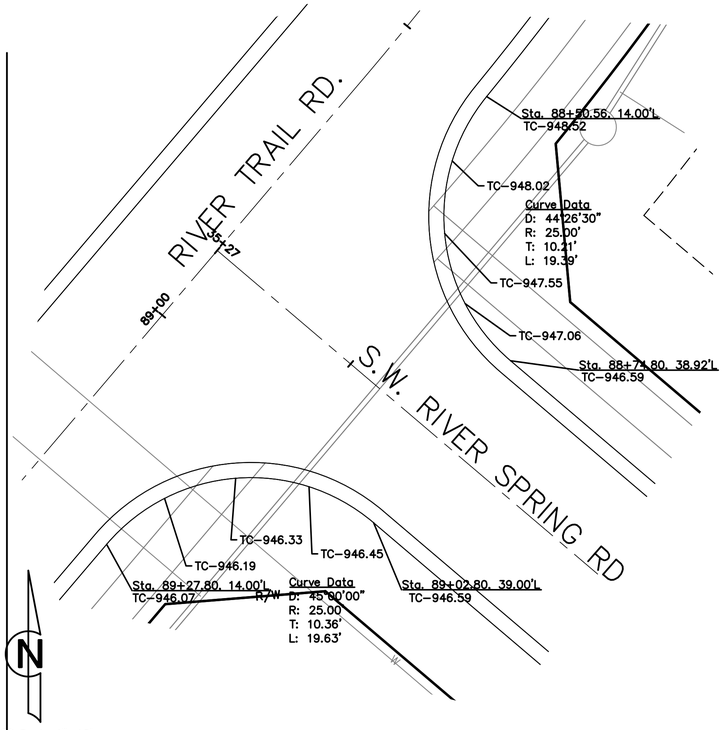
LEE'S SUMMIT, MISSOURI

2016

drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by: M.G.D
project no.: 016-3432
date: 2016/12/05

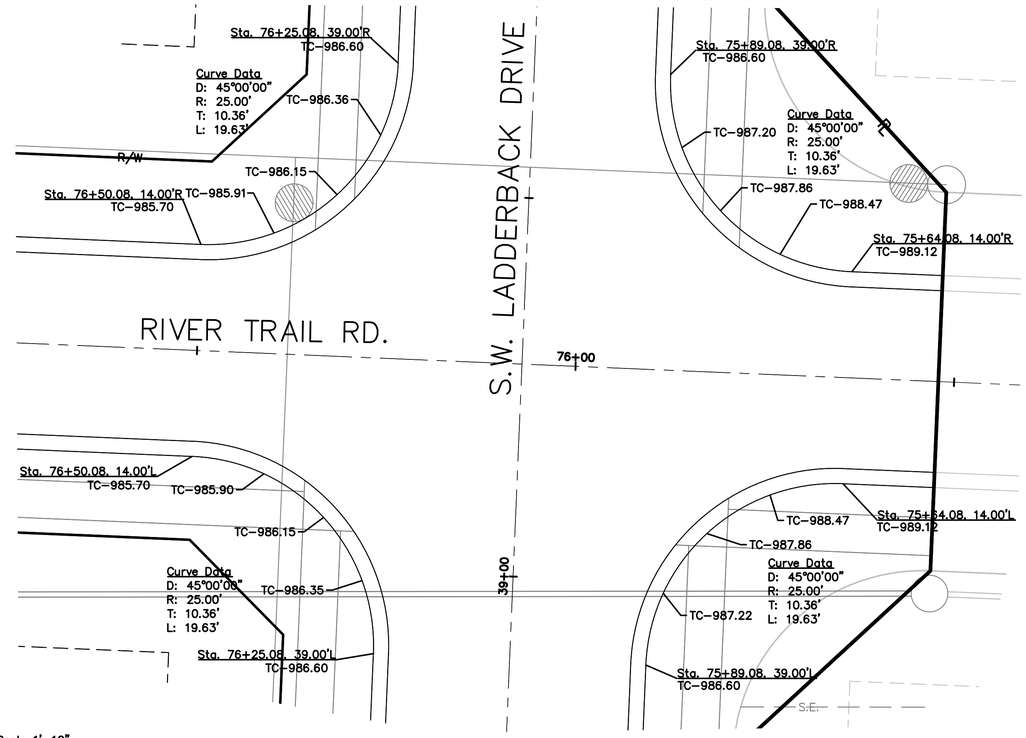
SHEET C108

DWG: F:\2016\3001-3500\016-3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\ST2-016-3432.dwg USER: bkoleci
DATE: Nov 07, 2017 10:21am



Scale 1"=10'

1 RIVER TRAIL RD. & S.W. RIVER SPRING RD.
STATION AND OFFSET DATA FROM RIVER TRAIL RD.



Scale 1"=10'

2 RIVER TRAIL RD & S.W. LADDERBACK DR.
STATION AND OFFSET DATA FROM RIVER TRAIL DR.

NOT AS BUILT

OLSSON ASSOCIATES
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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
3-5-18
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
	11.14.2017	As-builts Submittal	

INTERSECTION DETAILS

EAGLE CREEK 15TH PLAT

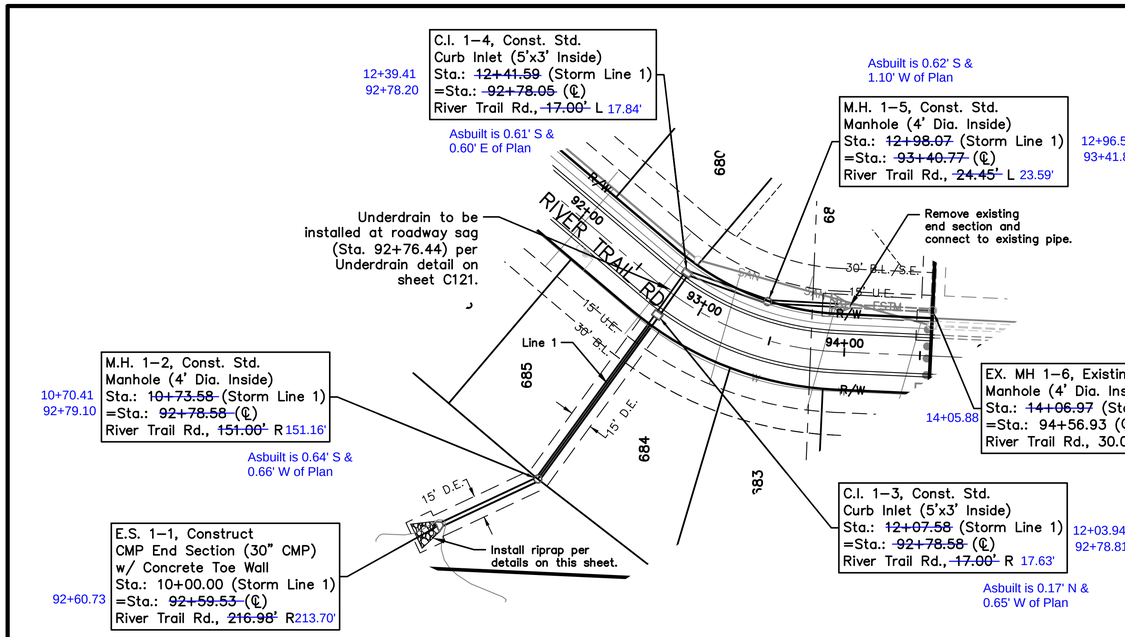
LEE'S SUMMIT, MISSOURI

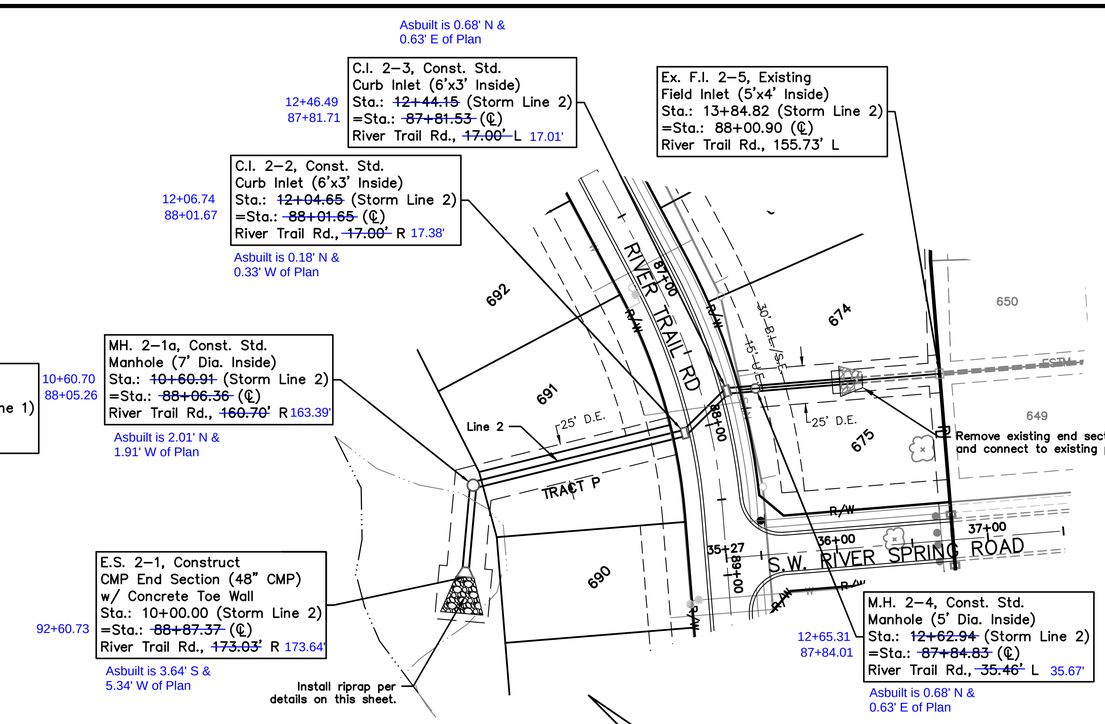
2016

drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by: M.G.D
project no.: 016-3432
date: 2016/12/05

SHEET
C109

DWG: F:\2016\3001-3500\016-3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\N1-016-3432.dwg USER: dhernandez
DATE: Feb 23, 2017 5:35pm



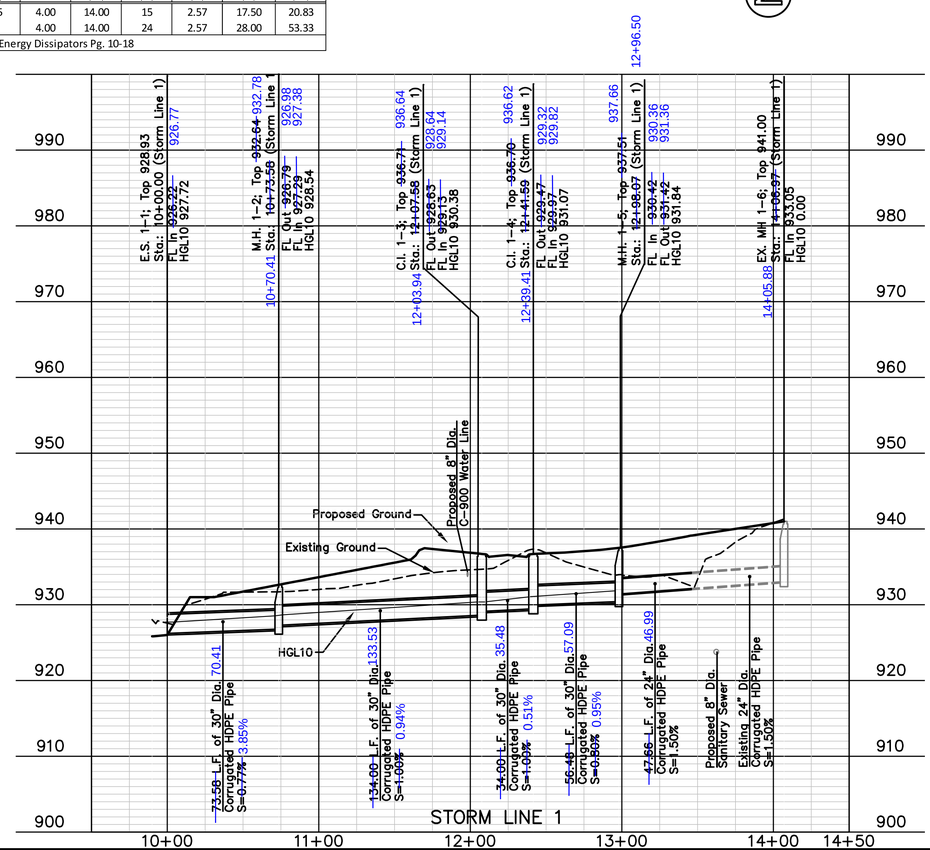


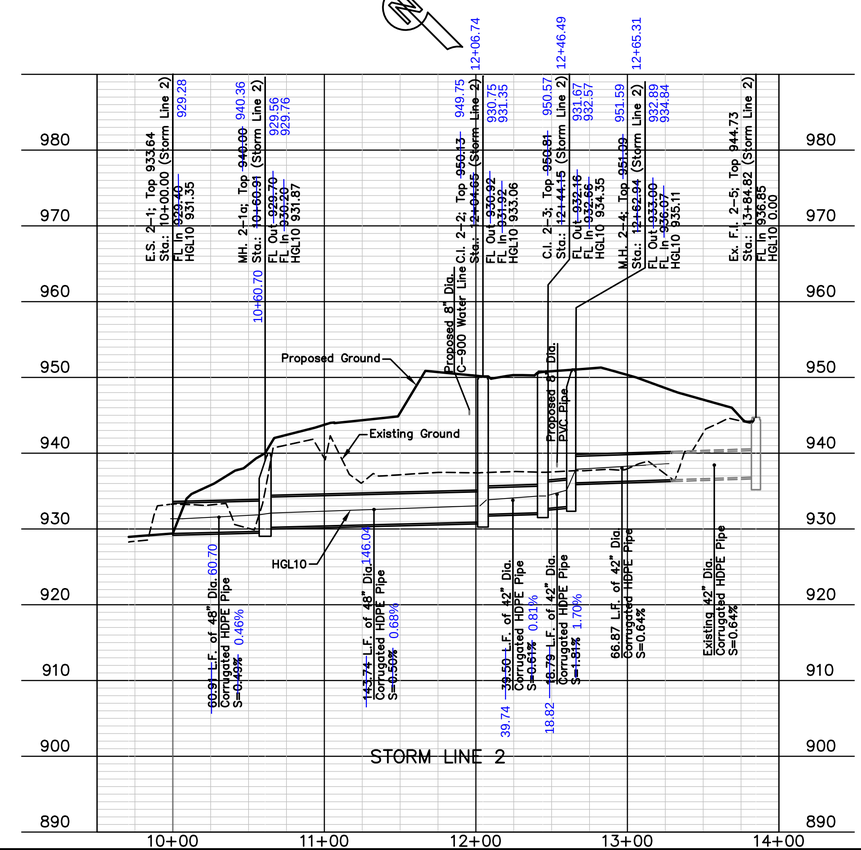
Riprap Calculations

Sturcture	Discharge Flow (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Apron Width (ft)	Area (SY)
E.S. 1-1	47.15	2.5	4.00	14.00	15	2.57	17.50	20.83
E.S. 2-1	95.39	4	4.00	14.00	24	2.57	28.00	53.33

*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18

SCALE
0' 50' 100'
1"=50' HORIZ.
1"=10' VERT.
(for 22"x34" sheet)





AS BUILT
DATE: 11.14.2017

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STATE OF MISSOURI
MELISSA G. DeGONIA
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3-5-18
PROFESSIONAL ENGINEER

NO. REV	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
1	02.23.2017	Riprap design and storm sewer pipe sizes revised per drainage changes	JES
	11.14.2017	As-Builts Submittal	

REVISIONS

STORM SEWER PLAN & PROFILE

EAGLE CREEK 15TH PLAT

LEE'S SUMMIT, MISSOURI

2016

drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by: M.G.D
project no.: 016-3432
date: 2016/12/05

SHEET C110

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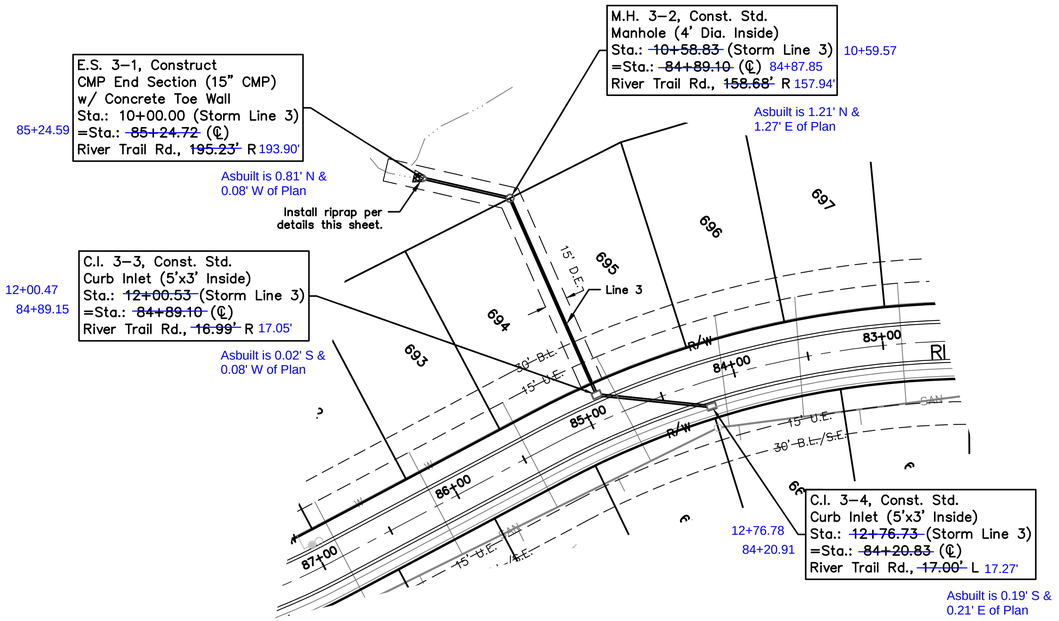
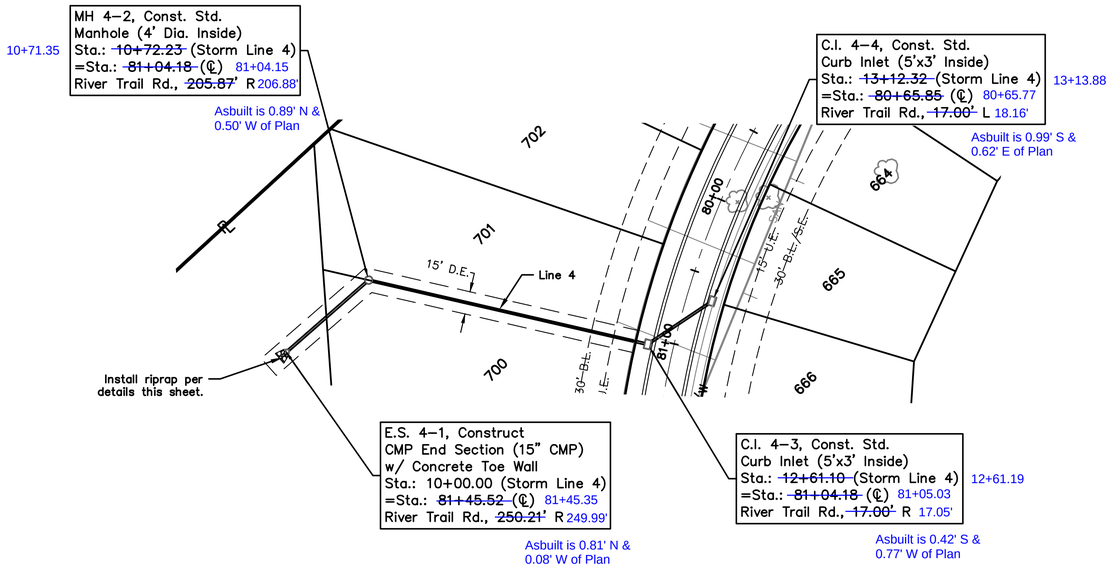


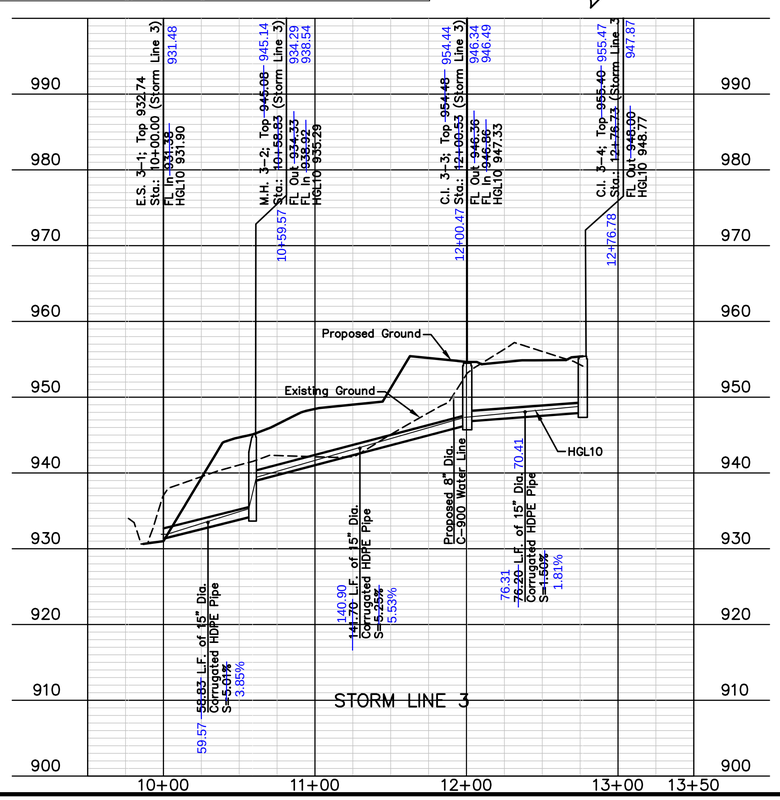


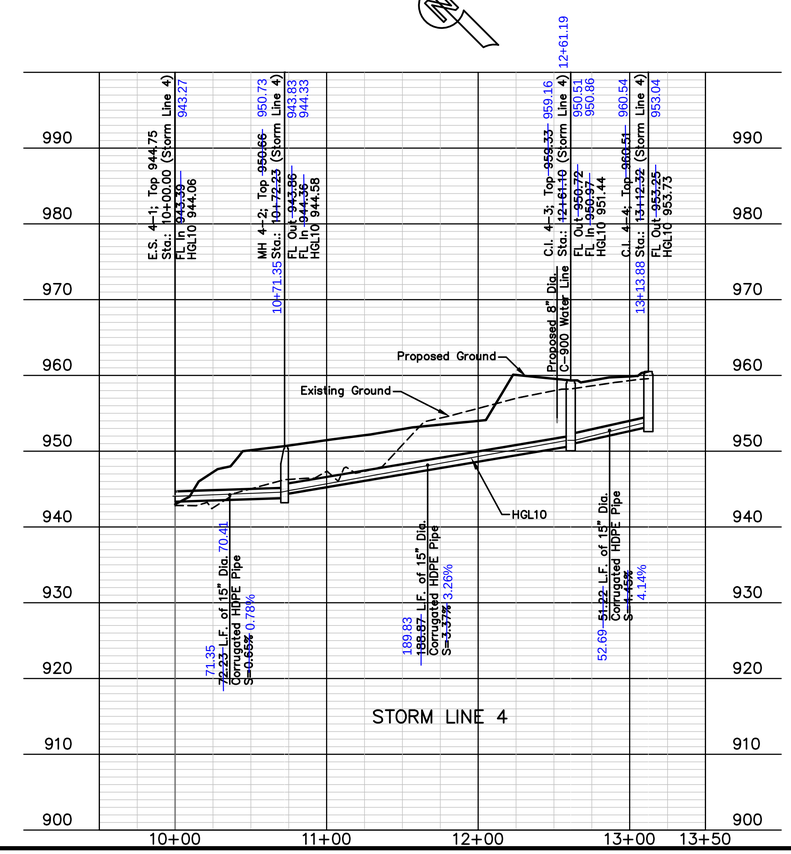
Riprap Calculations									
Sturcture	Discharge Flow (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Apron Width (ft)	Area (SY)
E.S. 3-1	9.24	1.25	3.00	10.00	6.25	2.00	7.92	4.28
E.S. 4-1	4.6	1.25	1.00	5.00	5	1.46	7.08	4.50

*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18

SCALE
0' 50' 100'
1"=50' HORIZ.
1"=10' VERT.
(for 22"x34" sheet)
0' 5' 10'

AS BUILT
DATE: 11.14.2017





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STATE OF MISSOURI
MELISSA G. DEGONIA
NUMBER PE–2011000892
3-5-18
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
1	02.23.2017	Riprap design, line 3 layout and pipe sizes revised	JES
	11.14.2017	As-builts Submittal	

REVISIONS

STORM SEWER PLAN & PROFILE

EAGLE CREEK 15TH PLAT

LEE'S SUMMIT, MISSOURI

2016

drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by: M.G.D
project no.: 016-3432
date: 2016/12/05

SHEET C111

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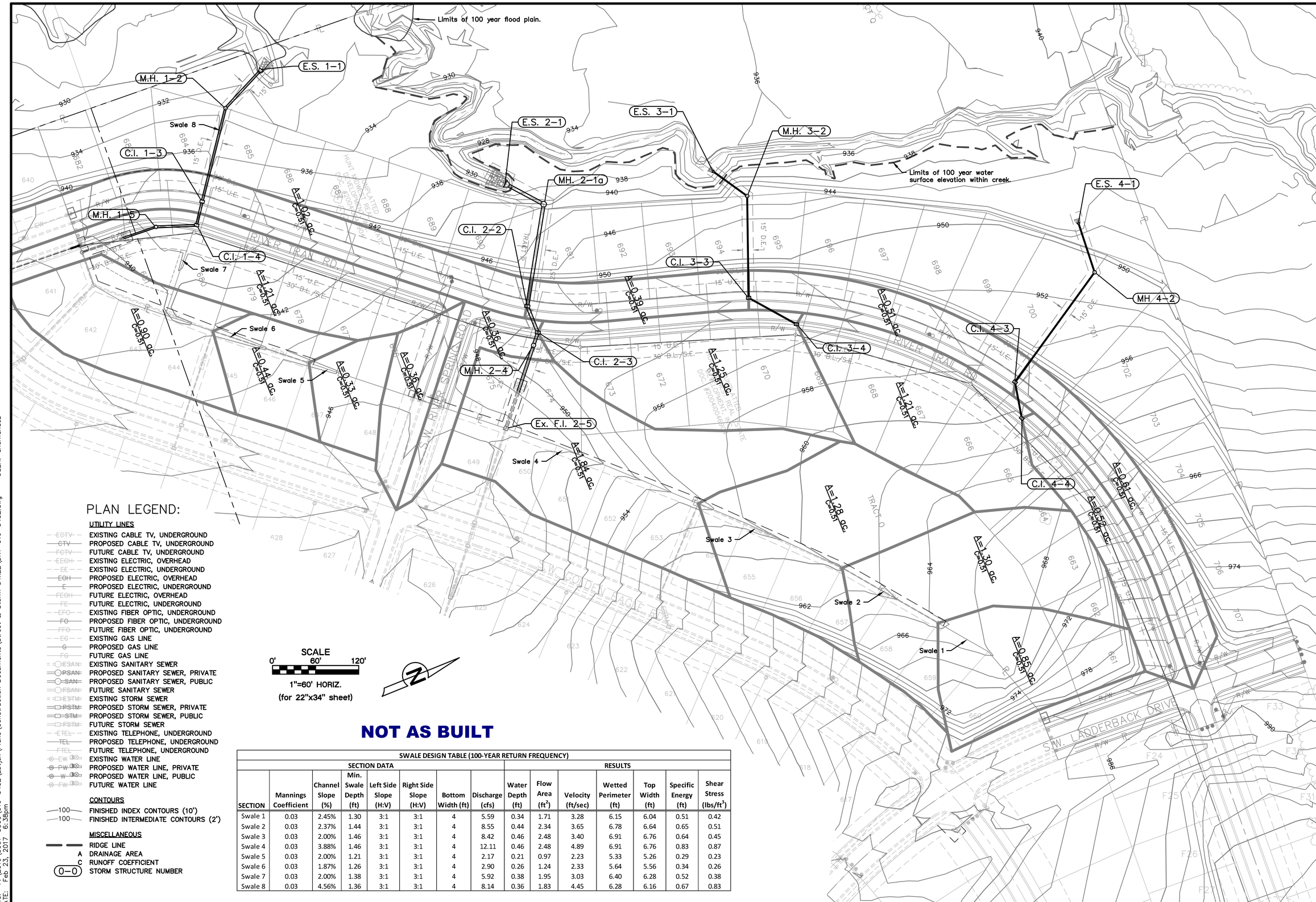
DATE: Nov 07, 2017 8:30am



PLAN LEGEND:

UTILITY LINES

- EXISTING CABLE TV, UNDERGROUND
- PROPOSED CABLE TV, UNDERGROUND
- FUTURE CABLE TV, UNDERGROUND
- EXISTING ELECTRIC, OVERHEAD
- EXISTING ELECTRIC, UNDERGROUND
- PROPOSED ELECTRIC, OVERHEAD
- PROPOSED ELECTRIC, UNDERGROUND
- FUTURE ELECTRIC, OVERHEAD
- FUTURE ELECTRIC, UNDERGROUND
- EXISTING FIBER OPTIC, UNDERGROUND
- PROPOSED FIBER OPTIC, UNDERGROUND
- FUTURE FIBER OPTIC, UNDERGROUND
- EXISTING GAS LINE
- PROPOSED GAS LINE
- FUTURE GAS LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER, PRIVATE
- PROPOSED SANITARY SEWER, PUBLIC
- FUTURE SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER, PRIVATE
- PROPOSED STORM SEWER, PUBLIC
- FUTURE STORM SEWER
- EXISTING TELEPHONE, UNDERGROUND
- PROPOSED TELEPHONE, UNDERGROUND
- FUTURE TELEPHONE, UNDERGROUND
- EXISTING WATER LINE
- PROPOSED WATER LINE, PRIVATE
- PROPOSED WATER LINE, PUBLIC
- FUTURE WATER LINE

CONTOURS

- 100 FINISHED INDEX CONTOURS (10')
- 100 FINISHED INTERMEDIATE CONTOURS (2')

MISCELLANEOUS

- RIDGE LINE
- A DRAINAGE AREA
- C RUNOFF COEFFICIENT
- 0-0 STORM STRUCTURE NUMBER

NOT AS BUILT

SWALE DESIGN TABLE (100-YEAR RETURN FREQUENCY)

SECTION DATA								RESULTS						
SECTION	Mannings Coefficient	Channel Slope (%)	Min. Swale Depth (ft)	Left Side Slope (H:V)	Right Side Slope (H:V)	Bottom Width (ft)	Discharge (cfs)	Water Depth (ft)	Flow Area (ft^2)	Velocity (ft/sec)	Wetted Perimeter (ft)	Top Width (ft)	Specific Energy (ft)	Shear Stress (lbs/ft^3)
Swale 1	0.03	2.45%	1.30	3:1	3:1	4	5.59	0.34	1.71	3.28	6.15	6.04	0.51	0.42
Swale 2	0.03	2.37%	1.44	3:1	3:1	4	8.55	0.44	2.34	3.65	6.78	6.64	0.65	0.51
Swale 3	0.03	2.00%	1.46	3:1	3:1	4	8.42	0.46	2.48	3.40	6.91	6.76	0.64	0.45
Swale 4	0.03	3.88%	1.46	3:1	3:1	4	12.11	0.46	2.48	4.89	6.91	6.76	0.83	0.87
Swale 5	0.03	2.00%	1.21	3:1	3:1	4	2.17	0.21	0.97	2.23	5.33	5.26	0.29	0.23
Swale 6	0.03	1.87%	1.26	3:1	3:1	4	2.90	0.26	1.24	2.33	5.64	5.56	0.34	0.26
Swale 7	0.03	2.00%	1.38	3:1	3:1	4	5.92	0.38	1.95	3.03	6.40	6.28	0.52	0.38
Swale 8	0.03	4.56%	1.36	3:1	3:1	4	8.14	0.36	1.83	4.45	6.28	6.16	0.67	0.83

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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
PROFESSIONAL ENGINEER
3-5-18

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
1	02.23.2017	Drainage areas revised, swale design information added	JES
	11.14.2017	As-builts Submittal	

REVISIONS

DRAINAGE PLAN

EAGLE CREEK 15TH PLAT

LEE'S SUMMIT, MISSOURI

2016

drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by:: M.G.D
project no.: 016-3432
date: 2016/12/05

SHEET C112

DWG: F:\2016\3001-3500\016-3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\DR1-016-3432.dwg USER: dhernandez
DATE: Feb 23, 2017 6:38pm

Inlet Design Table (10-year Return Frequency)

Inlet ID	Inlet Location	Peak Flow (cfs)	Upstream Bypass (cfs)	Total Flow (cfs)	Clogging Factor	Inlet Capacity (cfs)	Sag Inlet Capacity (Note 1) (cfs)	Captured Flow (cfs)	Bypass Flow (cfs)	Inlet Efficiency (Note 2) (%)	Gutter Depth (ft)	Gutter Spread (ft)	Ponding Depth (ft)
C.I. 1-3(L)	SAG	0.34	...	...	...	...	...	...	...	...	0.08	4.08	...
C.I. 1-3(R)	SAG	0.49	...	...	...	...	...	...	...	...	0.11	5.74	...
C.I. 1-3(B)	SAG	3.00	...	...	...	...	...	...	...	...	...	...	...
C.I. 1-3	SAG	3.83	0.35	4.18	0.80	19.40	15.52	4.18	0.00	100.00%	...	...	...
C.I. 1-4(L)	SAG	0.34	...	...	...	...	...	...	...	...	...	...	...
C.I. 1-4(R)	SAG	0.53	...	...	...	...	...	...	...	...	...	...	...
C.I. 1-4(B)	SAG	3.68	...	...	...	...	...	...	...	...	...	...	...
C.I. 1-4	SAG	4.54	0.00	4.54	0.80	19.40	15.52	4.54	0.00	100.00%	...	...	...
C.I. 2-2	GRADE	1.46	0.36	1.83	1.00	1.48	1.48	1.48	0.35	80.80%	0.14	6.77	...
C.I. 2-3	GRADE	4.69	1.41	6.10	1.00	3.22	3.22	3.22	2.88	52.81%	0.22	10.89	...
C.I. 3-3	GRADE	1.91	0.55	2.46	1.00	2.10	2.10	2.10	0.36	85.19%	0.18	9.16	...
C.I. 3-4	GRADE	4.54	0.49	5.02	1.00	3.61	3.61	3.61	1.41	71.91%	0.24	11.98	...
C.I. 4-3	GRADE	2.29	0.00	2.29	1.00	1.74	1.74	1.74	0.55	76.09%	0.15	7.60	...
C.I. 4-4	GRADE	1.95	0.00	1.95	1.00	1.46	1.46	1.46	0.49	75.07%	0.14	6.77	...
EX FI 1-3*	SAG	3.38	0.00	3.38	0.80	18.67	14.93	3.38	0.00	100.00%	...	...	0.16
EX FI 2-1*	SAG	1.65	0.00	1.65	0.80	18.67	14.93	1.65	0.00	100.00%	...	...	0.10
EX FI 2-2*	SAG	1.24	0.00	1.24	0.80	18.67	14.93	1.24	0.00	100.00%	...	...	0.08
EX FI 2-5*	SAG	6.90	0.00	6.90	0.80	18.67	14.93	6.90	0.00	100.00%	...	...	0.26
EX FI 5-1*	SAG	4.80	0.00	4.80	0.80	18.67	14.93	4.80	0.00	100.00%	...	...	0.20
EX FI 5-2*	SAG	4.88	0.00	4.88	0.80	18.67	14.93	4.88	0.00	100.00%	...	...	0.20
EX FI 5-3*	SAG	3.19	0.00	3.19	0.80	18.67	14.93	3.19	0.00	100.00%	...	...	0.15

Notes:
1. Inlet capacity at sag location has been reduced by a clogging factor of 0.80, reducing theoretical capacity to 80% capacity, as required per APWA Section 5600.
Both theoretical capacity and reduced capacity are shown.
2. Inlet efficiency shown in the tables is Captured Flow/Total Flow, denoting the actual percentage of flow captured after the capacity has been reduced to 80% of theoretical capacity.
*Existing Field Inlets installed with Eagle Creek 14th Plat have been re-analyzed per design changes.

Inlet Design Table (100-year Return Frequency)

Inlet ID	Inlet Location	Peak Flow (cfs)	Upstream Bypass (cfs)	Total Flow (cfs)	Clogging Factor	Inlet Capacity (cfs)	Sag Inlet Capacity (Note 1) (cfs)	Captured Flow (cfs)	Bypass Flow (cfs)	Inlet Efficiency (Note 2) (%)	Gutter Depth (ft)	Gutter Spread (ft)	Ponding Depth (ft)
C.I. 1-3(L)	SAG	0.59	...	...	...	...	...	...	...	...	0.10	5.04	...
C.I. 1-3(R)	SAG	0.86	...	...	...	...	...	...	...	...	0.17	8.36	...
C.I. 1-3(B)	SAG	5.26	...	...	...	...	...	...	...	...	...	...	...
C.I. 1-3	SAG	6.71	1.43	8.14	0.80	19.40	15.52	8.14	0.00	100.00%	...	...	...
C.I. 1-4(L)	SAG	0.59	...	...	...	...	...	...	...	...	...	...	...
C.I. 1-4(R)	SAG	0.92	...	...	...	...	...	...	...	...	...	...	...
C.I. 1-4(B)	SAG	6.45	...	...	...	...	...	...	...	...	...	...	...
C.I. 1-4	SAG	7.96	0.00	7.96	0.80	19.40	15.52	7.96	0.00	100.00%	...	...	...
C.I. 2-2	GRADE	2.57	1.33	3.90	1.00	2.47	2.47	2.47	1.43	63.31%	0.18	9.00	...
C.I. 2-3	GRADE	8.23	4.13	12.35	1.00	3.94	3.94	3.94	8.41	31.88%	0.28	14.20	...
C.I. 3-3	GRADE	3.36	1.50	4.86	1.00	3.53	3.53	3.53	1.33	72.67%	0.24	11.83	...
C.I. 3-4	GRADE	7.96	1.33	9.29	1.00	5.17	5.17	5.17	4.13	55.60%	0.30	15.08	...
C.I. 4-3	GRADE	4.01	0.00	4.01	1.00	2.51	2.51	2.51	1.50	62.51%	0.19	9.39	...
C.I. 4-4	GRADE	3.42	0.00	3.42	1.00	2.09	2.09	2.09	1.33	61.18%	0.17	8.36	...
EX FI 1-3*	SAG	5.92	0.00	5.92	0.80	18.67	14.93	5.92	0.00	100.00%	...	...	0.23
EX FI 2-1*	SAG	2.90	0.00	2.90	0.80	18.67	14.93	2.90	0.00	100.00%	...	...	0.14
EX FI 2-2*	SAG	2.17	0.00	2.17	0.80	18.67	14.93	2.17	0.00	100.00%	...	...	0.12
EX FI 2-5*	SAG	12.11	0.00	12.11	0.80	18.67	14.93	12.11	0.00	100.00%	...	...	0.37
EX FI 5-1*	SAG	8.42	0.00	8.42	0.80	18.67	14.93	8.42	0.00	100.00%	...	...	0.29
EX FI 5-2*	SAG	8.55	0.00	8.55	0.80	18.67	14.93	8.55	0.00	100.00%	...	...	0.30
EX FI 5-3*	SAG	5.59	0.00	5.59	0.80	18.67	14.93	5.59	0.00	100.00%	...	...	0.22

Notes:
1. Inlet capacity at sag location has been reduced by a clogging factor of 0.80, reducing theoretical capacity to 80% capacity, as required per APWA Section 5600.
Both theoretical capacity and reduced capacity are shown.
2. Inlet efficiency shown in the tables is Captured Flow/Total Flow, denoting the actual percentage of flow captured after the capacity has been reduced to 80% of theoretical capacity.
*Existing Field Inlets installed with Eagle Creek 14th Plat have been re-analyzed per design changes.

Storm Sewer Design Calculation Table (10-year Return Frequency)

Upstream Structure	Downstream Structure	Length (ft)	Upstream Invert (ft)	Downstream Invert (ft)	Slope (%)	Diameter (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Struct. HGL (ft)	Upstream Top Elev. (ft)
M.H. 1-2	E.S. 1-1	73.579	926.79	926.22	0.77	30	0.012	26.26	8.54	39.11	1.75	928.54	932.64
C.I. 1-3	M.H. 1-2	134.005	928.63	927.29	1	30	0.012	26.26	9.42	44.43	1.75	930.38	936.71
C.I. 1-4	C.I. 1-3	34.004	929.47	929.13	1	30	0.012	22.08	9.03	44.42	1.6	931.07	936.7
M.H. 1-5	C.I. 1-4	56.479	930.42	929.97	0.8	30	0.012	17.54	7.83	39.66	1.42	931.84	937.51
Ex. MH 1-6	M.H. 1-5	108.899	933.05	931.42	1.5	24	0.012	17.54*	9.91	29.98	1.51	934.56	938.04
MH. 2-1a	ES. 2-1	60.913	929.7	929.4	0.49	48	0.012	52.45	8.61	109.39	2.17	931.87	940.00
C.I. 2-2	MH. 2-1a	143.738	931.42	930.7	0.5	48	0.012	50.71	8.58	110.14	2.14	933.06	950.12
C.I. 2-3	C.I. 2-2	39.496	932.16	931.92	0.61	42	0.012	49.23	9.15	84.96	2.19	934.35	950.81
M.H. 2-4	C.I. 2-3	18.793	933	932.66	1.81	42	0.012	45.86	9.96	146.82	2.11	935.11	951.09
Temp ES. Line 2	M.H. 2-4	66.875	936.5	936.07	0.64	42	0.012	45.86*	9.19	87.40	2.11	938.31	-
M.H. 3-2	E.S. 3-1	58.828	932.02	931.13	5.01	15	0.012	5.71	11.75	15.65	0.97	935.29	945.08
C.I. 3-3	M.H. 3-2	141.698	946.75	939.35	5.25	15	0.012	5.71	11.95	16.03	0.97	947.33	954.48
C.I. 3-4	C.I. 3-3	76.203	948	947.25	1.25	15	0.012	3.61	6.67	8.56	0.77	948.77	955.40
MH 4-2	E.S. 4-1	72.229	943.61	943.14	0.65	18	0.012	3.20	4.74	9.18	0.72	944.58	950.66
C.I. 4-3	MH 4-2	188.867	950.47	944.11	3.37	18	0.012	3.2	8.68	20.88	0.72	951.44	958.48
C.I. 4-4	C.I. 4-3	51.224	953.25	950.97	4.45	15	0.012	1.46	3.46	14.76	0.48	953.73	960.41

Total flows based on captured flow from inlet design tables
*Total flow previously calculated in Eagle Creek 14th Plat

Storm Sewer Design Calculation Table (100-year Return Frequency)

Upstream Structure	Downstream Structure	Length (ft)	Upstream Invert (ft)	Downstream Invert (ft)	Slope (%)	Diameter (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Struct. HGL (ft)	Upstream Top Elev. (ft)
M.H. 1-2	E.S. 1-1	73.58	926.79	926.22	0.77	30	0.012	47.15	9.61	39.11	2.50	929.55	932.64
C.I. 1-3	M.H. 1-2	134.01	928.63	927.29	1.00	30	0.012	47.15	9.61	44.43	2.50	931.83	936.71
C.I. 1-4	C.I. 1-3	34.00	929.47	929.13	1.00	30	0.012	39.01	7.95	44.42	2.50	932.81	936.70
M.H. 1-5	C.I. 1-4	56.48	930.42	929.97	0.80	30	0.012	31.05	6.33	39.66	2.50	934.52	937.51
Ex. MH 1-6	M.H. 1-5	108.90	933.05	931.42	1.50	24	0.012	31.05*	9.89	29.98	2.00	936.48	938.04
MH. 2-1a	ES. 2-1	60.91	929.70	929.40	0.49	48	0.012	95.39	9.81	109.39	2.96	932.66	940.00
C.I. 2-2	MH. 2-1a	143.74	930.92	930.20	0.50	48	0.012	93.65	9.84	110.14	2.93	933.85	950.12
C.I. 2-3	C.I. 2-2	39.50	932.16	931.92	0.61	42	0.012	91.18	9.85	84.96	3.22	935.38	950.81
M.H. 2-4	C.I. 2-3	18.79	933.00	932.66	1.81	42	0.012	87.19	9.06	146.82	3.50	937.07	951.09
Temp ES. Line 2	M.H. 2-4	66.88	936.50	936.07	0.64	42	0.012	87.19*	10.35	87.40	2.90	939.40	-
M.H. 3-2	E.S. 3-1	58.83	934.33	931.38	5.01	15	0.012	9.24	13.28	15.65	1.16	935.49	945.08
C.I. 3-3	M.H. 3-2	141.70	946.36	938.92	5.25	15	0.012	9.24	13.52	16.03	1.16	947.52	954.48
C.I. 3-4	C.I. 3-3	76.20	948.00	946.86	1.50	15	0.012	5.71	7.46	8.56	0.97	948.97	955.40
MH 4-2	E.S. 4-1	72.23	943.61	943.14	0.65	18	0.012	4.60	5.12	9.18	0.87	944.73	950.66
C.I. 4-3	MH 4-2	188.87	950.47	944.11	3.37	18	0.012	4.60	9.59	20.88	0.87	951.59	958.48
C.I. 4-4	C.I. 4-3	51.22	953.25	950.97	4.45	15	0.012	2.09	3.45	14.76	0.58	953.83	960.41

Total flows based on captured flow from inlet design tables
*Total flow previously calculated in Eagle Creek 14th Plat

Drainage Area Design Table (10-year Return Frequency)

Inlet ID	Drainage Area (ac)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
C.I. 1-3(L)	0.09	0.51	5.00	7.35	1.00	0.34
C.I. 1-3(R)	0.13	0.51	5.00	7.35	1.00	0.49
C.I. 1-3(B)	0.80	0.51	5.00	7.35	1.00	3.00
C.I. 1-3	1.02	0.51	5.00	7.35	1.00	3.83
C.I. 1-4(L)	0.09	0.51	5.00	7.35	1.00	0.34
C.I. 1-4(R)	0.14	0.51	5.00	7.35	1.00	0.53
C.I. 1-4(B)	0.98	0.51	5.00	7.35	1.00	3.68
C.I. 1-4	1.21	0.51	5.00	7.35	1.00	4.54
C.I. 2-2	0.39	0.51	5.00	7.35	1.00	1.46
C.I. 2-3	1.25	0.51	5.00	7.35	1.00	4.69
C.I. 3-3	0.51	0.51	5.00	7.35	1.00	1.91
C.I. 3-4	1.21	0.51	5.00	7.35	1.00	4.54
C.I. 4-3	0.61	0.51	5.00	7.35	1.00	2.29
C.I. 4-4	0.52	0.51	5.00	7.35	1.00	1.95
EX FI 1-3*	0.90	0.51	5.00	7.35	1.00	3.38
EX FI 2-1*	0.44	0.51	5.00	7.35	1.00	1.65
EX FI 2-2*	0.33	0.51	5.00	7.35	1.00	1.24
EX FI 2-5*	1.84	0.51	5.00	7.35	1.00	6.90
EX FI 5-1*	1.28	0.51	5.00	7.35	1.00	4.80
EX FI 5-2*	1.30	0.51	5.00	7.35	1.00	4.88
EX FI 5-3*	0.85	0.51	5.00	7.35	1.00	3.19

*Existing Field Inlets installed with Eagle Creek 14th Plat have been re-analyzed per design changes.

Drainage Area Design Table (100-year Return Frequency)

Inlet ID	Drainage Area (ac)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
C.I. 1-3(L)	0.09	0.51	5.00	10.32	1.25	0.59
C.I. 1-3(R)	0.13	0.51	5.00	10.32	1.25	0.86
C.I. 1-3(B)	0.80	0.51	5.00	10.32	1.25	5.26
C.I. 1-3	1.02	0.51	5.00	10.32	1.25	6.71
C.I. 1-4(L)	0.09	0.51	5.00	10.32	1.25	0.59
C.I. 1-4(R)	0.14	0.51	5.00	10.32	1.25	0.92
C.I. 1-4(B)	0.98	0.51	5.00	10.32	1.25	6.45
C.I. 1-4	1.21	0.51	5.00	10.32	1.25	7.96
C.I. 2-2	0.39	0.51	5.00	10.32	1.25	2.57
C.I. 2-3	1.25	0.51	5.00	10.32	1.25	8.23
C.I. 3-3	0.51	0.51	5.00	10.32	1.25	3.36
C.I. 3-4	1.21	0.51	5.00	10.32	1.25	7.96
C.I. 4-3	0.61	0.51	5.00	10.32	1.25	4.01
C.I. 4-4	0.52	0.51	5.00	10.32	1.25	3.42
EX FI 1-3*	0.90	0.51	5.00	10.32	1.25	5.92
EX FI 2-1*	0.44	0.51	5.00	10.32	1.25	2.90
EX FI 2-2*	0.33	0.51	5.00	10.32	1.25	2.17
EX FI 2-5*	1.84	0.51	5.00	10.32	1.25	12.11
EX FI 5-1*	1.28	0.51	5.00	10.32	1.25	8.42
EX FI 5-2*	1.30	0.51	5.00	10.32	1.25	8.55
EX FI 5-3*	0.85	0.51	5.00	10.32	1.25	5.59

*Existing Field Inlets installed with Eagle Creek 14th Plat have been re-analyzed per design changes.

NOT AS BUILT

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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
PROFESSIONAL ENGINEER
3-5-18

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	JES
1	02.23.2017	Tables revised per plan changes	
	11.14.2017	As-built Submittal	

REVISIONS

DRAINAGE TABLES

EAGLE CREEK 15TH PLAT

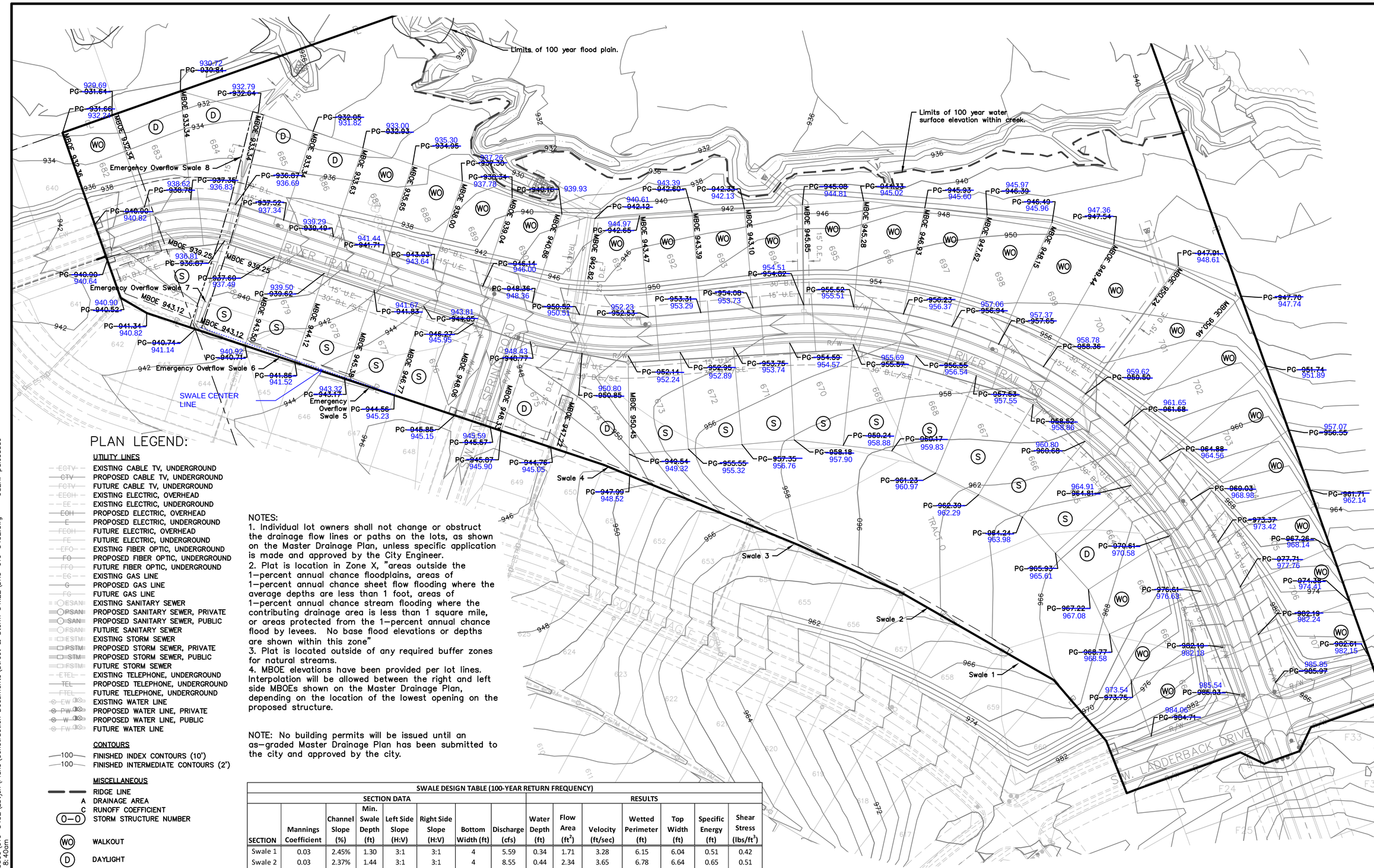
LEE'S SUMMIT, MISSOURI

2016

drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by: M.G.D
project no.: 016-3432
date: 2016/12/05

SHEET C113

DWG: F:\2016\3001-3500\016-3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\DR2-016-3432.dwg USER: bkoleci
DATE: Nov 07, 2017 10:26am



PLAN LEGEND:

UTILITY LINES

- EXISTING CABLE TV, UNDERGROUND
- PROPOSED CABLE TV, UNDERGROUND
- FUTURE CABLE TV, UNDERGROUND
- EXISTING ELECTRIC, OVERHEAD
- EXISTING ELECTRIC, UNDERGROUND
- PROPOSED ELECTRIC, OVERHEAD
- PROPOSED ELECTRIC, UNDERGROUND
- FUTURE ELECTRIC, OVERHEAD
- FUTURE ELECTRIC, UNDERGROUND
- EXISTING FIBER OPTIC, UNDERGROUND
- PROPOSED FIBER OPTIC, UNDERGROUND
- FUTURE FIBER OPTIC, UNDERGROUND
- EXISTING GAS LINE
- PROPOSED GAS LINE
- FUTURE GAS LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER, PRIVATE
- PROPOSED SANITARY SEWER, PUBLIC
- FUTURE SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER, PRIVATE
- PROPOSED STORM SEWER, PUBLIC
- FUTURE STORM SEWER
- EXISTING TELEPHONE, UNDERGROUND
- PROPOSED TELEPHONE, UNDERGROUND
- FUTURE TELEPHONE, UNDERGROUND
- EXISTING WATER LINE
- PROPOSED WATER LINE, PRIVATE
- PROPOSED WATER LINE, PUBLIC
- FUTURE WATER LINE

CONTOURS

- 100 — FINISHED INDEX CONTOURS (10')
- 100 — FINISHED INTERMEDIATE CONTOURS (2')

MISCELLANEOUS

- RIDGE LINE
- A DRAINAGE AREA
- C RUNOFF COEFFICIENT
- 0–0 STORM STRUCTURE NUMBER
- WO WALKOUT
- D DAYLIGHT
- S STANDARD
- MBOE MINIMUM BUILDING OPENING ELEVATION
- PG PROPOSED GRADE

NOTES:

1. Individual lot owners shall not change or obstruct the drainage flow lines or paths on the lots, as shown on the Master Drainage Plan, unless specific application is made and approved by the City Engineer.
2. Plat is location in Zone X, "areas outside the 1–percent annual chance floodplains, areas of 1–percent annual chance sheet flow flooding where the average depths are less than 1 foot, areas of 1–percent annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1–percent annual chance flood by levees. No base flood elevations or depths are shown within this zone"
3. Plat is located outside of any required buffer zones for natural streams.
4. MBOE elevations have been provided per lot lines. Interpolation will be allowed between the right and left side MBOEs shown on the Master Drainage Plan, depending on the location of the lowest opening on the proposed structure.

NOTE: No building permits will be issued until an as–graded Master Drainage Plan has been submitted to the city and approved by the city.

SWALE DESIGN TABLE (100-YEAR RETURN FREQUENCY)

SECTION DATA								RESULTS							
SECTION	Mannings Coefficient	Channel Slope (%)	Min. Swale Depth (ft)	Left Side Slope (H:V)	Right Side Slope (H:V)	Bottom Width (ft)	Discharge (cfs)	Water Depth (ft)	Flow Area (ft^2)	Velocity (ft/sec)	Wetted Perimeter (ft)	Top Width (ft)	Specific Energy (ft)	Shear Stress (lbs/ft^3)
Swale 1	0.03	2.45%	1.30	3:1	3:1	4	5.59	0.34	1.71	3.28	6.15	6.04	0.51	0.42
Swale 2	0.03	2.37%	1.44	3:1	3:1	4	8.55	0.44	2.34	3.65	6.78	6.64	0.65	0.51
Swale 3	0.03	2.00%	1.46	3:1	3:1	4	8.42	0.46	2.48	3.40	6.91	6.76	0.64	0.45
Swale 4	0.03	3.88%	1.46	3:1	3:1	4	12.11	0.46	2.48	4.89	6.91	6.76	0.83	0.87
Swale 5	0.03	2.00%	1.21	3:1	3:1	4	2.17	0.21	0.97	2.23	5.33	5.26	0.29	0.23
Swale 6	0.03	1.87%	1.26	3:1	3:1	4	2.90	0.26	1.24	2.33	5.64	5.56	0.34	0.26
Swale 7	0.03	2.00%	1.38	3:1	3:1	4	5.92	0.38	1.95	3.03	6.40	6.28	0.52	0.38
Swale 8	0.03	4.56%	1.36	3:1	3:1	4	8.14	0.36	1.83	4.45	6.28	6.16	0.67	0.83

SCALE
0' 60' 120'
1"=60' HORIZ.
(for 22"x34" sheet)

AS BUILT
DATE: 11.14.2017

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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE–2011000892
3-5-18
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	JES
1	02.23.2017	Lot corner spots and MBOE's revised per grading changes	PMD
2	03.14.2014	Revised PG's to match surface	
	11.14.2017	As-built Submittal	

REVISIONS

MASTER DRAINAGE PLAN
EAGLE CREEK 15TH PLAT
LEE'S SUMMIT, MISSOURI

2016

drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by: M.G.D
project no.: 016-3432
date: 2016/12/05

SHEET
C114

DWG: F:\2016\3001–3500\016–3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\DR3–016–3432.dwg USER: pdiosdado
DATE: Mar 14, 2017 8:40am

Prior to any construction activity, contractor shall install Temporary Sediment Trap #1 per APWA detail ESC-33.

Prior to any construction activity, contractor shall install temporary construction entrance per APWA detail ESC-01.

Prior to any construction activity, contractor shall install Temporary Diversion Berms per APWA detail ESC-29 .

Prior to any construction activity, contractor shall install Temporary Sediment Trap #2 per APWA detail ESC-33.

Contractor to install inlet protection device per APWA detail ESC-19. Inlet protection to remain in place until seeding and mulching operations are completed (typ).

Prior to any construction activity, contractor shall install Silt fence. Silt fence shall be installed per APWA detail ESC-10. (Typ).

Prior to any construction activity, contractor shall install temporary construction entrance per APWA detail ESC-01.

Prior to any construction activity, contractor shall install Temporary Sediment Trap #3 per APWA detail ESC-33.

TRACT N
(COMMON AREA)

SW. RIVER TRAIL ROAD

NOT AS BUILT

LEGEND:

PHASE I DEVICES

- TEMPORARY STONE CONSTRUCTION ENTRANCE
- SF — SF — SILT FENCE
- STORM DRAIN INLET PROTECTION
- << — << TEMPORARY DIVERSION BERM
- ROCK CHECK DAMS

SCALE
0' 100' 200'
1"=100' HORIZ.
(for 22"x34" sheet)

NOTE:
THE SITE DISTURBANCE PLANS INDICATES THE FINAL PLACEMENT OF EROSION CONTROL DEVICES. THE CONTRACTOR(S) MAY PROCEED WITH THE CONSTRUCTION PRIOR TO THE FINAL PLACEMENT OF THESE DEVICES BY PROVIDING ADDITIONAL DEVICES TO CONTROL EROSION ON THEIR ITEMS OF WORK. THESE DEVICES SHALL BE MAINTAINED UNTIL THE FINAL DEVICES ARE IN PLACE.

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NUMBER PE-2011000892
3-5-18
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
1	02.23.2017	Off-Site grading area added	JES
	11.14.2017	As-builts Submittal	

PHASE I, SITE DIST. PLAN

EAGLE CREEK 15TH PLAT

LEE'S SUMMIT, MISSOURI

2016

drawn by:	D.A.H.O
design by:	P.M.D
approved by:	M.G.D
QA/QC by:	M.G.D
project no.:	016-3432
date:	2016/12/05

SHEET
C115

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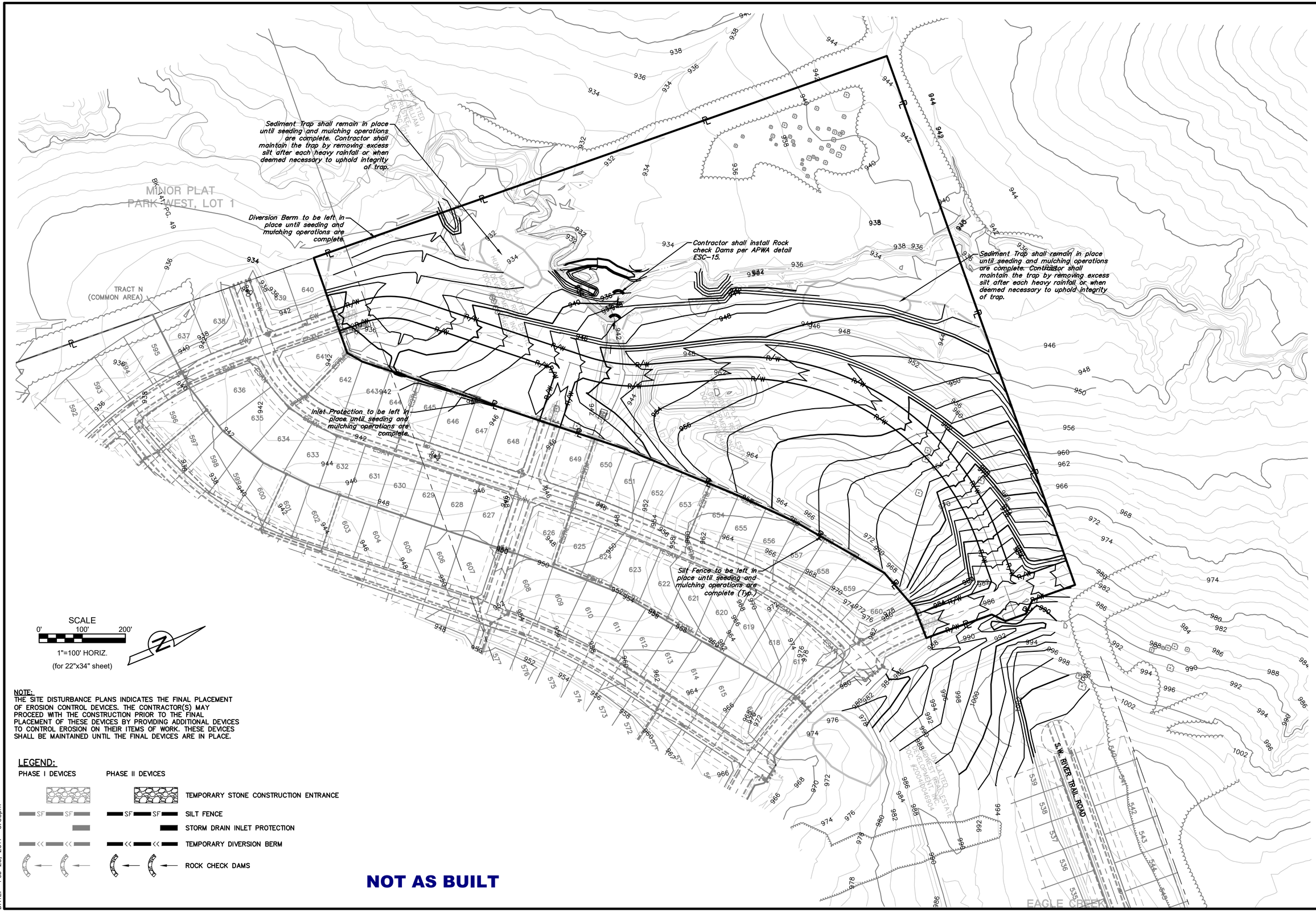

NOTE:
THE SITE DISTURBANCE PLANS INDICATES THE FINAL PLACEMENT OF EROSION CONTROL DEVICES. THE CONTRACTOR(S) MAY PROCEED WITH THE CONSTRUCTION PRIOR TO THE FINAL PLACEMENT OF THESE DEVICES BY PROVIDING ADDITIONAL DEVICES TO CONTROL EROSION ON THEIR ITEMS OF WORK. THESE DEVICES SHALL BE MAINTAINED UNTIL THE FINAL DEVICES ARE IN PLACE.

LEGEND:

PHASE I DEVICES	PHASE II DEVICES	
		TEMPORARY STONE CONSTRUCTION ENTRANCE
SF SF	SF SF	SILT FENCE
		STORM DRAIN INLET PROTECTION
<< <<	<< <<	TEMPORARY DIVERSION BERM
		ROCK CHECK DAMS

NOT AS BUILT

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3-5-18
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
	11.14.2017	As-builts Submittal	

REVISIONS

PHASE II, SITE DIST. PLAN

EAGLE CREEK 15TH PLAT

LEE'S SUMMIT, MISSOURI

2016

drawn by:	D.A.H.O
design by:	P.M.D
approved by:	M.G.D
QA/QC by:	M.G.D
project no.:	016-3432
date:	2016/12/05

SHEET
C116

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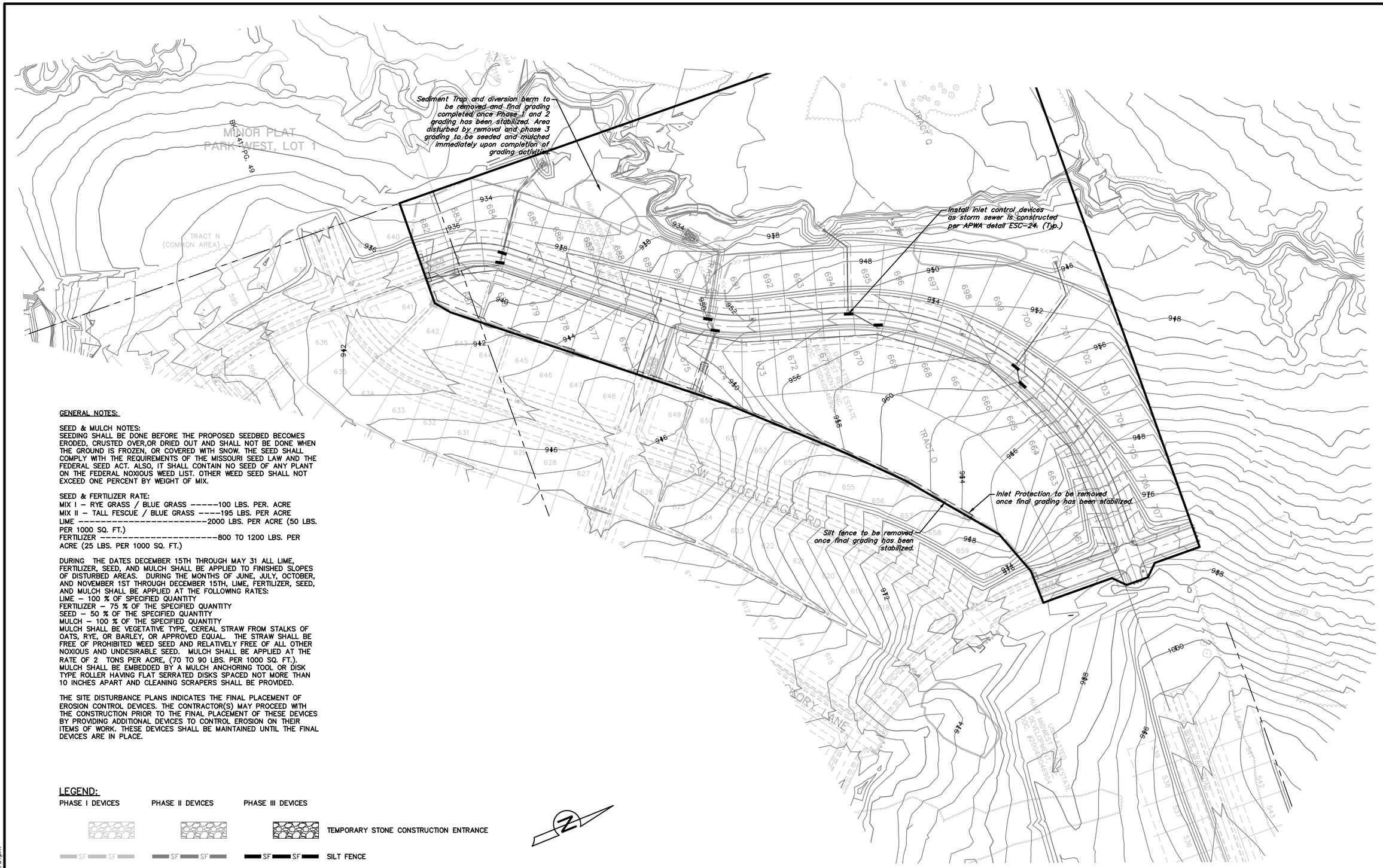

GENERAL NOTES:

SEED & MULCH NOTES:
SEEDING SHALL BE DONE BEFORE THE PROPOSED SEEDBED BECOMES ERODED, CRUSTED OVER,OR DRIED OUT AND SHALL NOT BE DONE WHEN THE GROUND IS FROZEN, OR COVERED WITH SNOW. THE SEED SHALL COMPLY WITH THE REQUIREMENTS OF THE MISSOURI SEED LAW AND THE FEDERAL SEED ACT. ALSO, IT SHALL CONTAIN NO SEED OF ANY PLANT ON THE FEDERAL NOXIOUS WEED LIST. OTHER WEED SEED SHALL NOT EXCEED ONE PERCENT BY WEIGHT OF MIX.

SEED & FERTILIZER RATE:
MIX I – RYE GRASS / BLUE GRASS -----100 LBS. PER. ACRE
MIX II – TALL FESCUE / BLUE GRASS ----195 LBS. PER ACRE
LIME ----------2000 LBS. PER ACRE (50 LBS. PER 1000 SQ. FT.)
FERTILIZER ----------800 TO 1200 LBS. PER ACRE (25 LBS. PER 1000 SQ. FT.)

DURING THE DATES DECEMBER 15TH THROUGH MAY 31 ALL LIME, FERTILIZER, SEED, AND MULCH SHALL BE APPLIED TO FINISHED SLOPES OF DISTURBED AREAS. DURING THE MONTHS OF JUNE, JULY, OCTOBER, AND NOVEMBER 1ST THROUGH DECEMBER 15TH, LIME, FERTILIZER, SEED, AND MULCH SHALL BE APPLIED AT THE FOLLOWING RATES:
LIME – 100 % OF SPECIFIED QUANTITY
FERTILIZER – 75 % OF THE SPECIFIED QUANTITY
SEED – 50 % OF THE SPECIFIED QUANTITY
MULCH – 100 % OF THE SPECIFIED QUANTITY
MULCH SHALL BE VEGETATIVE TYPE, CEREAL STRAW FROM STALKS OF OATS, RYE, OR BARLEY, OR APPROVED EQUAL. THE STRAW SHALL BE FREE OF PROHIBITED WEED SEED AND RELATIVELY FREE OF ALL OTHER NOXIOUS AND UNDESIRABLE SEED. MULCH SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE, (70 TO 90 LBS. PER 1000 SQ. FT.). MULCH SHALL BE EMBEDDED BY A MULCH ANCHORING TOOL OR DISK TYPE ROLLER HAVING FLAT SERRATED DISKS SPACED NOT MORE THAN 10 INCHES APART AND CLEANING SCRAPERS SHALL BE PROVIDED.

THE SITE DISTURBANCE PLANS INDICATES THE FINAL PLACEMENT OF EROSION CONTROL DEVICES. THE CONTRACTOR(S) MAY PROCEED WITH THE CONSTRUCTION PRIOR TO THE FINAL PLACEMENT OF THESE DEVICES BY PROVIDING ADDITIONAL DEVICES TO CONTROL EROSION ON THEIR ITEMS OF WORK. THESE DEVICES SHALL BE MAINTAINED UNTIL THE FINAL DEVICES ARE IN PLACE.

LEGEND:

PHASE I DEVICES | PHASE II DEVICES | PHASE III DEVICES

- TEMPORARY STONE CONSTRUCTION ENTRANCE
- SILT FENCE
- STORM DRAIN INLET PROTECTION
- TEMPORARY DIVERSION BERM
- ROCK CHECK DAMS

SCALE
0' 100' 200'
1"=100' HORIZ.
(for 22"x34" sheet)

NOT AS BUILT

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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
3-5-18
PROFESSIONAL ENGINEER

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.18.2017	Prepared for as-built submittal	
1	02.23.2017	Viewport scale revised per grading changes	JES
	11.14.2017	As-builts Submittal	

PHASE III, SITE DIST. PLAN

EAGLE CREEK 15TH PLAT

LEE'S SUMMIT, MISSOURI

2016

drawn by: D.A.H.O
design by: P.M.D
approved by: M.G.D
QA/QC by: M.G.D
project no.: 016-3432
date: 2016/12/05

SHEET C117

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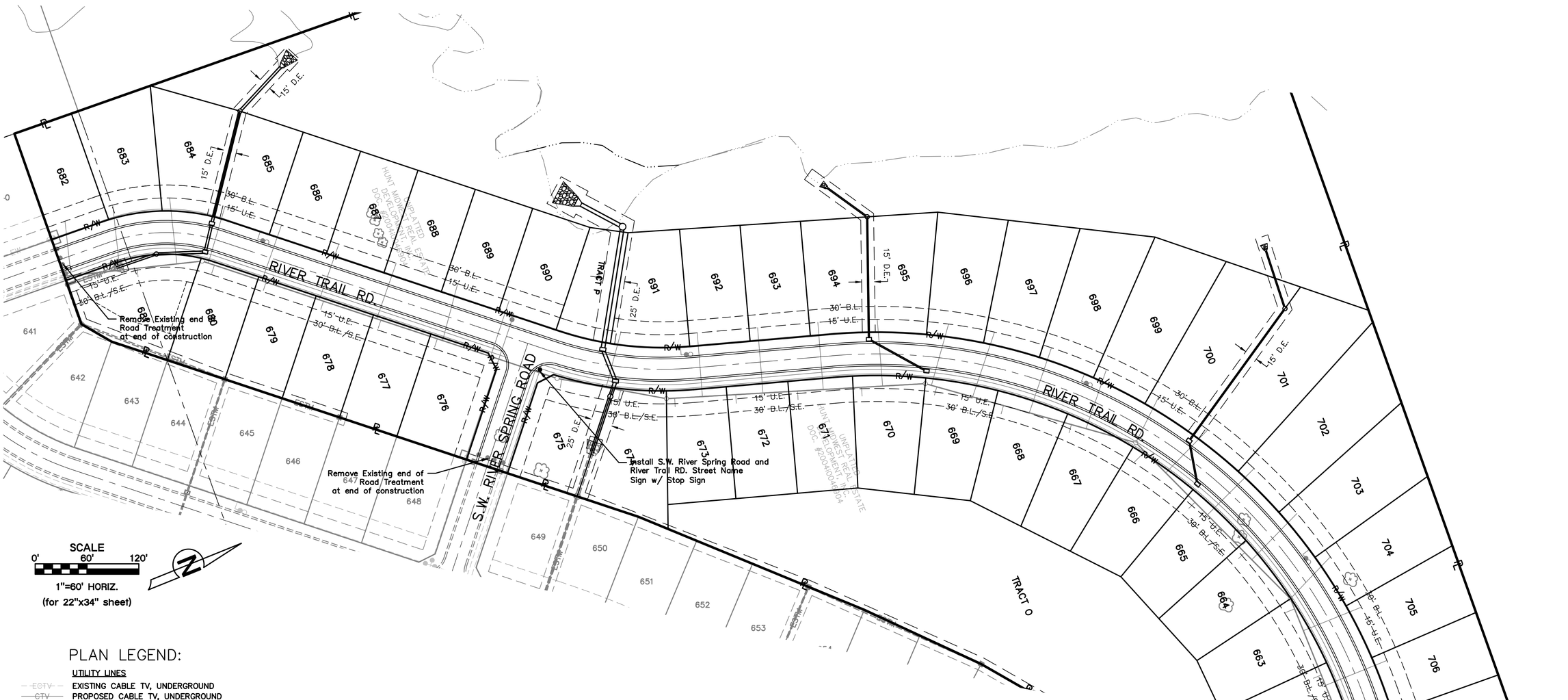


SCALE
0' 60' 120'
1"=60' HORIZ.
(for 22"x34" sheet)

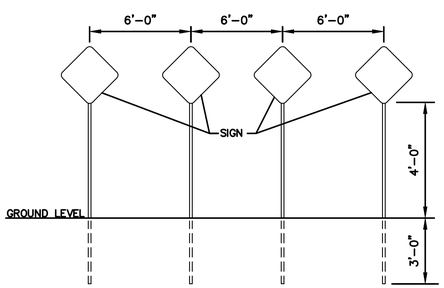
PLAN LEGEND:

UTILITY LINES

- EXISTING CABLE TV, UNDERGROUND
- PROPOSED CABLE TV, UNDERGROUND
- FUTURE CABLE TV, UNDERGROUND
- EXISTING ELECTRIC, OVERHEAD
- EXISTING ELECTRIC, UNDERGROUND
- PROPOSED ELECTRIC, OVERHEAD
- PROPOSED ELECTRIC, UNDERGROUND
- FUTURE ELECTRIC, OVERHEAD
- FUTURE ELECTRIC, UNDERGROUND
- EXISTING FIBER OPTIC, UNDERGROUND
- PROPOSED FIBER OPTIC, UNDERGROUND
- FUTURE FIBER OPTIC, UNDERGROUND
- EXISTING GAS LINE
- PROPOSED GAS LINE
- FUTURE GAS LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER, PRIVATE
- PROPOSED SANITARY SEWER, PUBLIC
- FUTURE SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER, PRIVATE
- PROPOSED STORM SEWER, PUBLIC
- FUTURE STORM SEWER
- EXISTING TELEPHONE, UNDERGROUND
- PROPOSED TELEPHONE, UNDERGROUND
- FUTURE TELEPHONE, UNDERGROUND
- EXISTING WATER LINE
- PROPOSED WATER LINE, PRIVATE
- PROPOSED WATER LINE, PUBLIC
- FUTURE WATER LINE

MISCELLANEOUS

- PROPOSED SIGNS



END OF ROAD TREATMENT
Not To Scale
Object Markers (Type OM4-3, 18"x18") are to be installed 2' from End of Proposed Pavement.

NOT AS BUILT

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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
3-5-16
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
	11.14.2017	As-builts Submittal	

REVISIONS

TRAFFIC CONTROL PLAN
EAGLE CREEK 15TH PLAT
LEE'S SUMMIT, MISSOURI
2016

drawn by:	D.A.H.O
design by:	P.M.D
approved by:	M.G.D
QA/QC by:	M.G.D
project no.:	016-3432
date:	2016/12/05

SHEET
C118

DWG: F:\2016\3001-3500\016-3432\Lutjen\Plans\Construction Documents\Street & Storm 34x22\TCP-016-3432.dwg USER: dhernandez
DATE: Feb 23, 2017 6:05pm

OUTLET STABILIZATION/RIP-RAP

CONSTRUCTION SPECIFICATIONS

1. Ensure that the subgrade for the filter and riprap follows the required lines and grades shown on the plan. Compact any fill required in the fill to the density of the surrounding undisturbed material. Low areas in the subgrade on undisturbed soil may also be filled by increasing the riprap thickness.
2. The riprap and gravel filter must conform to the specified grading limits shown on the plans.
3. Filter cloth, when used, must meet design requirement and be properly protected from punching or tearing during installation. Repair any damage by removing the riprap and placing another piece of filter cloth over the damaged area. All connecting joints should overlap a minimum of 12 inches. If the damage is extensive, replace the entire filter cloth.
4. Riprap may be placed by equipment, but take care to avoid damaging the filter.
5. The minimum thickness of the riprap should be 1.5 x the maximum stone diameter, but no less than 15 inches.
6. Riprap may be field stone or rough quarry stone. It should be hard, angular, highly weather-resistant and well graded.
7. Construct the apron on zero grade with no overfall at the end. Make the top of the riprap at the downstream end level with the receiving area or slightly below it.
8. Ensure that the apron is properly aligned with the receiving stream and preferably straight throughout its length. If a curve is needed to fit site conditions, place it in the upper section of the apron.

Gradation – riprap materials shall be graded within the following limits.

Weight per Stone in Pounds	Percent of Total Weight Lighter Than
350	100
40	10–20

Not more than 5% shall pass through the 2 inch sieve.

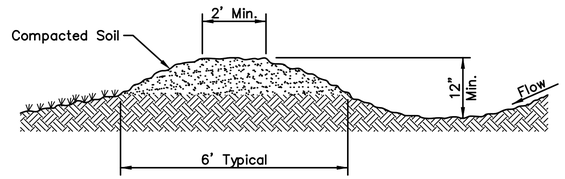
A synthetic filter fabric shall be used with or in place of gravel filters. the permeability of the filter fabric must be greater than that of the soil. the fabric may be made of woven or nonwoven monofilament yarns and should meet the following minimum requirements:

Thickness 20–60 mills

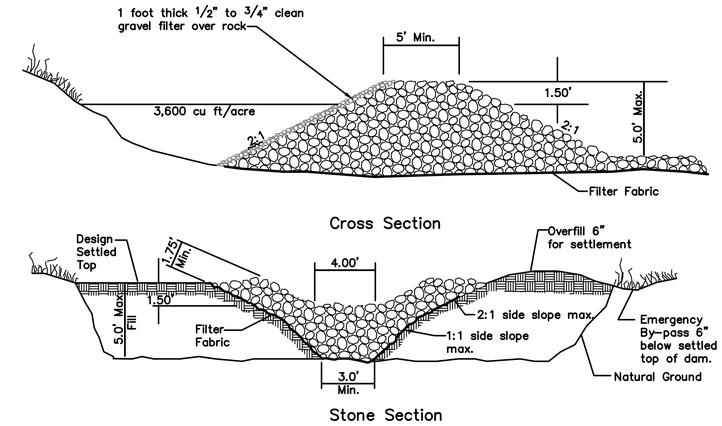
Grab strength 90–120 lbs.

Conform ASTM D–1682 or ASTM D–177

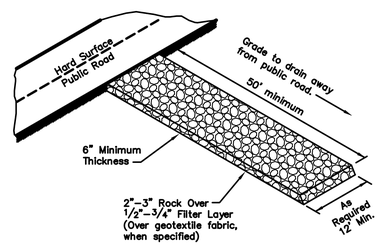
Place the cloth filter directly on the prepared foundation. Overlap the edges by at least 12 inches, and space anchor pins every 3 feet along the overlap. Bury the upper and lower ends of the cloth a minimum of 12 inches below ground. Take care not to damage the cloth when placing the riprap. If damage occurs remove the riprap and repair the sheet by adding another layer of filter material with a minimum overlap of 12 inches around the damaged area. If extensive damage is suspected, remove and replace the entire sheet.



TEMPORARY DIVERSION DIKE DETAIL

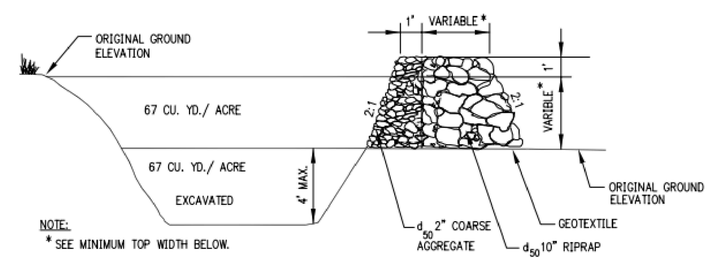


ROCK CHECK DAM DETAIL



VEHICLE TRACKING CONTROL

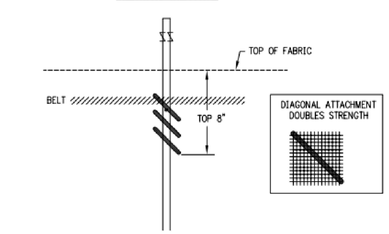
TEMPORARY SEDIMENT TRAP

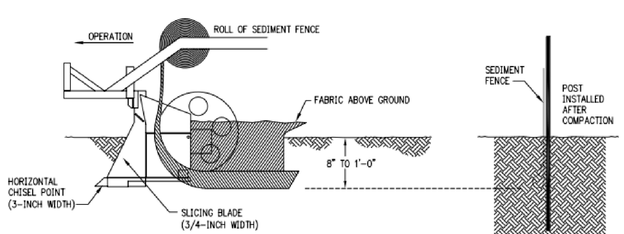


NOTE:
* SEE MINIMUM TOP WIDTH BELOW.

CROSS SECTION OF OUTLET
NOT TO SCALE

SEDIMENT FENCE INSTALLATION SLICING METHOD

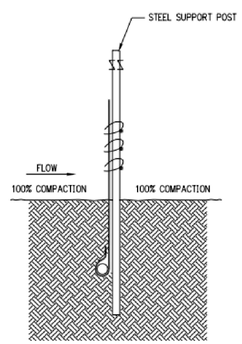


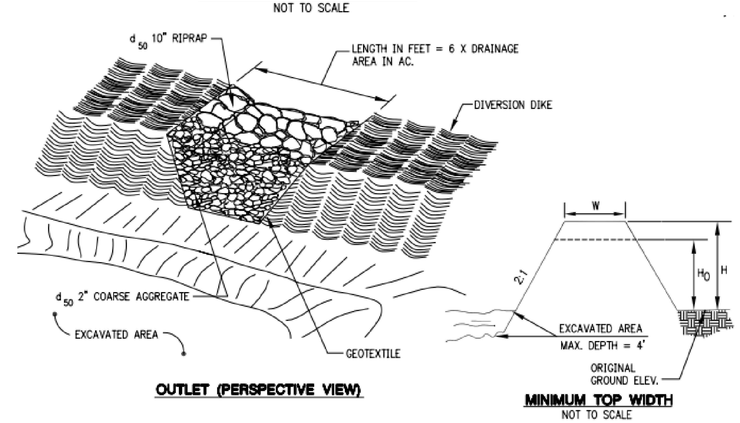


NOTE
VIBRATORY PLOW IS NOT ACCEPTABLE BECAUSE OF HORIZONTAL COMPACTION.

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.





OUTLET (PERSPECTIVE VIEW)

MINIMUM TOP WIDTH
NOT TO SCALE

NOT AS BUILT

OLSSON ASSOCIATES
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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
3-5-18
PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
	11.14.2017	As-builts Submittal	

REVISIONS

LAND DISTURBANCE DETAILS

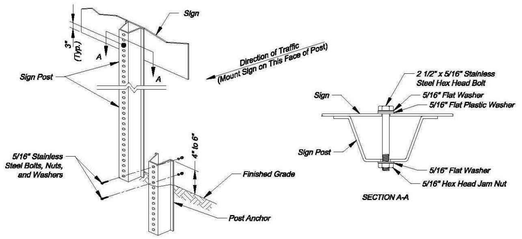
EAGLE CREEK 15TH PLAT

LEE'S SUMMIT, MISSOURI

2016

drawn by:	D.A.H.O
design by:	P.M.D
approved by:	M.G.D
QA/QC by:	M.G.D
project no.:	016-3432
date:	2016/12/05

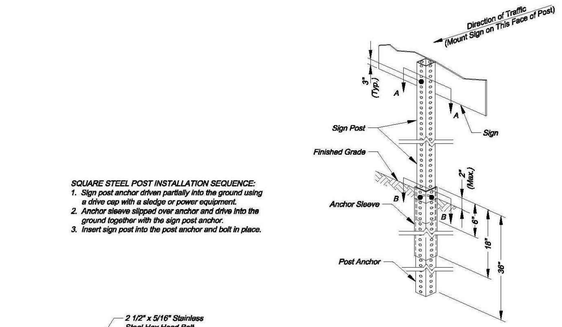
SHEET C119



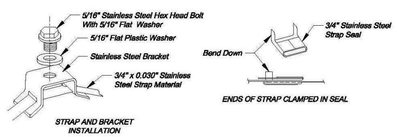
U-STEEL POST DETAILS

U-STEEL POST NOTES:
1. Splice shall be positioned entirely between finished grade line and 16" 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.

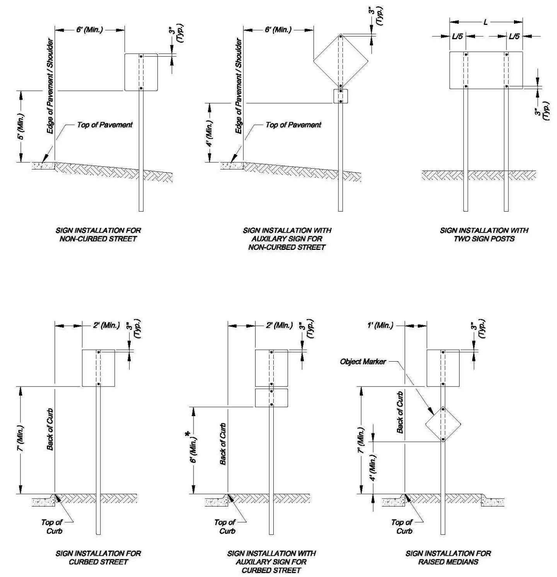


STRAP TYPE SIGN SUPPORT DETAILS

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

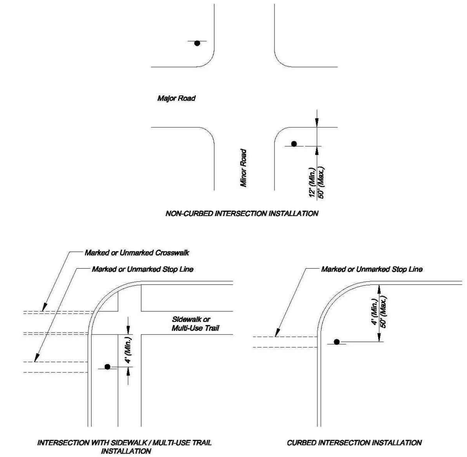
SQUARE STEEL POST NOTES:
1. Square steel sign posts and break-away anchor shall consist of the following materials:
   - Sign Post - 14 Ga. 2" x 2" Square Steel Post
   - Post Anchor - 12 Ga. 2 1/4" x 2 1/4" x 36" Square Steel Post
   - Anchor Sleeve - 12 Ga. 2 1/2" x 2 1/2" x 18" Square Steel Post
2. 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.



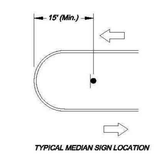
SIGN MOUNTING DETAILS

* 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.



CONTROL 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.

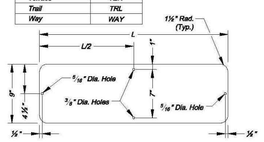
STANDARD ABBREVIATION LISTS

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

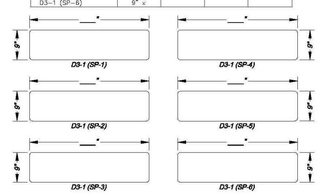
STREET NAME SIGN QUANTITIES

Sign Designation	Sign Size	Sign Area (Sq. Ft.)	Number	Quantity (Sq. Ft.)
D3-1 (SP-1)	9" x ___"	Sq. Ft.	1	1
D3-1 (SP-2)	9" x ___"			
D3-1 (SP-3)	9" x ___"			
D3-1 (SP-4)	9" x ___"			
D3-1 (SP-5)	9" x ___"			
D3-1 (SP-6)	9" x ___"			



STREET NAME SIGN BLANK DETAILS

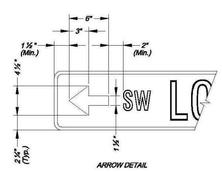
For Mounting on Square Steel Posts



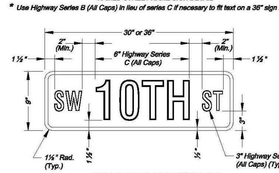
PROJECT SIGN DETAILS

NAMED STREET NAME SIGN DETAIL

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



ARROW DETAIL

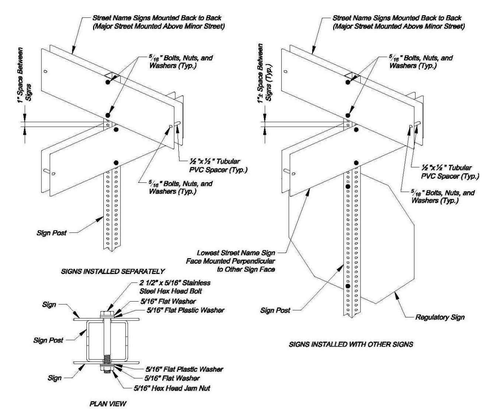


NUMBERED STREET NAME SIGN DETAIL

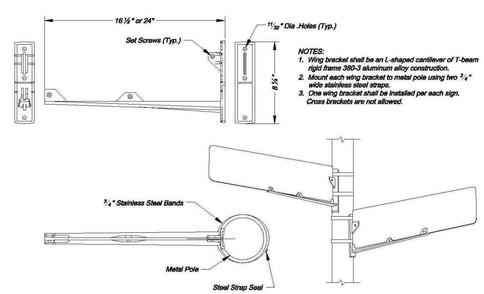
PRIVATE STREET TAG DETAIL

NOTES:
1. For all street name signs, the legend shall be white and the background shall be green.
2. Arrows shall be added to street name signs where the name of a street changes at an intersection. Street name signs with arrows are to be installed on each side of the intersection to indicate the change in names. Arrows shall be white.
3. The "PRIVATE STREET" tag should be added to the end of street name signs to indicate where a street that is outside the right-of-way intersects a public street. The background for the "PRIVATE STREET" tag shall be yellow.

STREET NAME SIGN FACE DETAILS



SQUARE STEEL POST MOUNTING DETAILS



NOTES:
1. Wing bracket shall be an L-shaped cantilever of T-beam rigid frame 380-3 aluminum alloy construction.
2. Mount each wing bracket to metal pole using two 3/4" wide stainless steel straps.
3. One wing bracket shall be installed per each sign. Cross brackets are not allowed.

WING BRACKET MOUNTING DETAILS

NOT AS BUILT

OLSSON ASSOCIATES
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Missouri Certificate of Authority # 2008022824
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North Kansas City, MO 64116
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STATE OF MISSOURI
MELISSA G. DeGONIA
NUMBER PE-2011000892
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PROFESSIONAL ENGINEER

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
	01.17.2017	Prepared for city Submittal	
	11.14.2017	As-builts Submittal	

REVISIONS

SIGN DETAILS

EAGLE CREEK 15TH PLAT

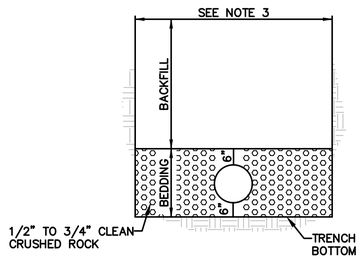
LEE'S SUMMIT, MISSOURI

2016

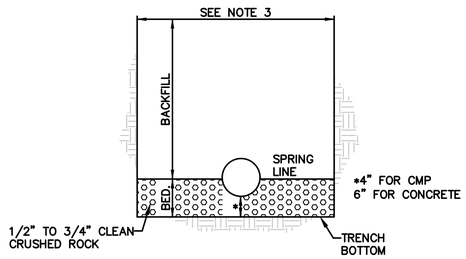
drawn by:	D.A.H.O
design by:	P.M.D
approved by:	M.G.D
QA/QC by:	M.G.D
project no.:	016-3432
date:	2016/12/05

SHEET C120

DWG: F:\2016\3001-3500\016-3432\Luitjen\Plans\Construction Documents\Street & Storm 34x22\DT2 - 016-3432.dwg USER: dhernandez
DATE: Feb 23, 2017 6:06pm



TYPICAL SECTION FOR PLASTIC PIPE
(IN ROCK OR SOIL)



TYPICAL SECTION FOR CMP
(IN ROCK OR SOIL)

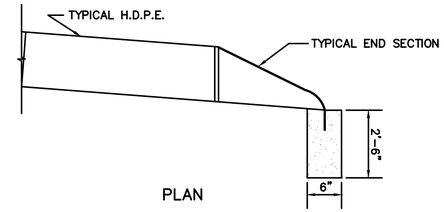
UNDERGROUND PIPE INSTALLATION FOR STORM SEWER LINES

N.T.S.

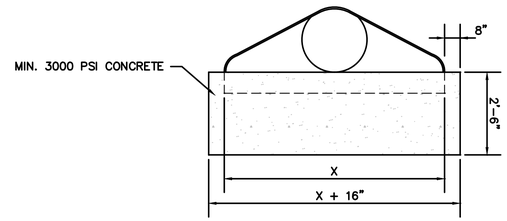
1. BACKFILL SHALL BE JOB EXECAVATED MATERIAL FREE FROM DEBRIS AND STONES COMPACTED TO 90% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698. FOR BACKFILL UNDER PAVEMENT (EXISTING OR PROPOSED), SEE SD-9 AND SD-11.

2. TRENCH BANKS MAY BE CUT BACK ON SLOPES IN ACCORDANCE WITH CURRENT OSHA REGULATIONS, BUT ONLY IN AREAS WHERE THE INCREASED TRENCH WIDTH WILL NOT INTERFERE WITH SURFACE FEATURES. SLOPES MUST NOT EXTEND BELOW TOP OF BEDDING.

3. MINIMUM AND MAXIMUM WIDTHS SHALL BE IN ACCORDANCE WITH PIPE MANUFACTURE'S RECOMMENDATION AS APPROVED ON ENGINEERING PLANS.



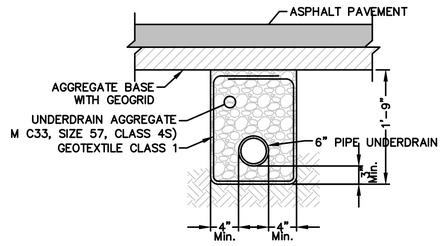
PLAN



END VIEW

TYPICAL END SECTION DETAIL

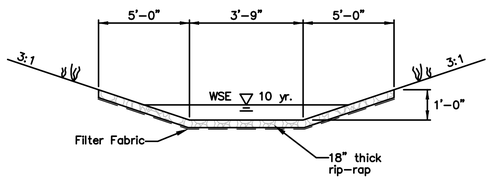
N.T.S.



PIPE UNDERDRAIN LATERAL

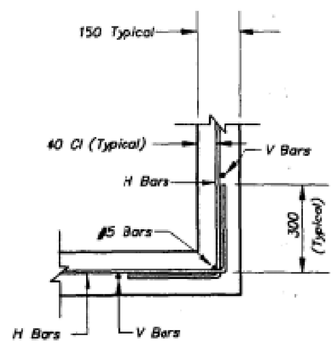
N.T.S.

NOTES:
1. Where Pipe Underdrains are used, all Underdrain Outlet Pipes shall be solid wall with watertight joints. All Outlets Pipes shall be tied into the nearest storm sewer inlets at roadway sag locations as indicated in the street profile.
2. All Underdrain Pipes shall be installed at a minimum slope of 1%.
3. Underdrain Pipe shall be installed with the perforations placed down.
4. Blanket Underdrain Aggregate, Pipe Underdrain Aggregate, Pipe Underdrain, Edge Underdrain and Outlet Pipe shall conform to City of Lee's Summit Specifications.
5. Overlap geotextile at top of trench a minimum of 12".

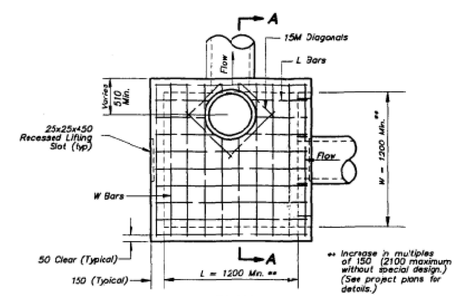


RIP-RAP DETAIL

N.T.S.



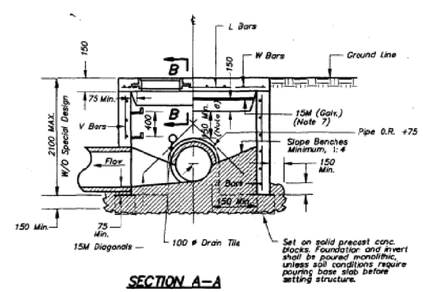
CORNER DETAIL



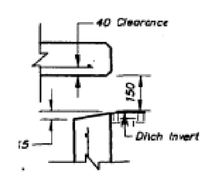
PLAN

GENERAL NOTES:

1. Locate ring and cover over outlet.
2. All work and materials shall conform to APWA Sect. 2600.
3. Use 20 chamfer strip on all exposed concrete corners.
4. Steps required at 400 O.C. when depth from top of casting to invert exceeds 1200.
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. Limit opening height to 150 with 15M galvanized bars extending to corner rebars.
8. Show field inlet orientation on plans plus number and size of openings.
9. O.R. = outside pipe radius
10. Ring & Cover to be Neenah R-1537, Clay & Bailey #2020, Deeter #2016, or approved equal. (Casting may vary by municipality, refer to plans & contract documents.)
11. 100 ø field tile or precast hole shall be located at entering pipe and in the front face sump points. These tiles or openings shall be capped with 6 galvanized wire mesh on the outside of the inlet and clear the invert and base concrete.



SECTION A-A



SECTION B-B

REINFORCING

BARS	BAR SIZE	SPACING (mm)
H	10M	300
V	10M	300
L	15M	150
W	15M	150

NOTE: All dimensions in mm.

FIELD INLET DETAIL

N.T.S.

NOT AS BUILT

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REVISIONS

STORM SEWER DETAILS

EAGLE CREEK
15TH PLAT

LEE'S SUMMIT, MISSOURI

2016

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