

I:\PROJECTS\2021\18-2303\3.0 DWG Plans\6.0 SS\18-230 SS-COVER.dwg, 8/25/2019 10:51:31 AM, 11

LEGEND:

- A/E

BC

B/B

BM

BL or B.L.

CO

TJB

C&G

D/E

E/E

EL

FL

G/E

HDPE

L/E

MSFE

PVC

P/L

PUB/E

RCP

ROW or R/W

S/E

SL

S/W

TE

U/E

WSE

W/E
- ACCESS EASEMENT

- BACK OF CURB

- BACK TO BACK

- BENCHMARK

- BUILDING LINE

- CLEANOUT

- TELEPHONE JUNCTION BOX

- CURB AND GUTTER

- DRAINAGE EASEMENT

- ELECTRICAL EASEMENT

- ELEVATION

- FLOW LINE

- GAS LINE EASEMENT

- HIGH-DENSITY POLYETHYLENE

- LANDSCAPE EASEMENT

- MINIMUM SERVICEABLE FLOOR ELEVATION

- POLYVINYL CHLORIDE

- PROPERTY LINE

- PUBLIC EASEMENT

- REINFORCED CONCRETE PIPE

- RIGHT-OF-WAY

- SANITARY SEWER EASEMENT

- SERVICE LINE

- SIDEWALK

- TOP ELEVATION

- UTILITY EASEMENT

- WATER SURFACE ELEVATION

- 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

RIGHT-OF-WAY

SANITARY SEWER MAIN

SANITARY SEWER MAIN - EXIST.

STORM SEWER

STORM SEWER - EXISTING

CABLE TV - EXISTING

FIBER OPTIC CABLE - EXISTING

TELEPHONE LINE - EXIST.

ELECTRIC LINE - EXISTING

OVERHEAD POWER LINE - EXIST.

UNDERGROUND ELECTRIC - EX.

GAS LINE - EXISTING

WATERLINE - EXISTING

LIGHT - EXISTING

EXISTING MANHOLE

CLEANOUT

EXISTING SANITARY MANHOLE

PROPOSED SANITARY MANHOLE

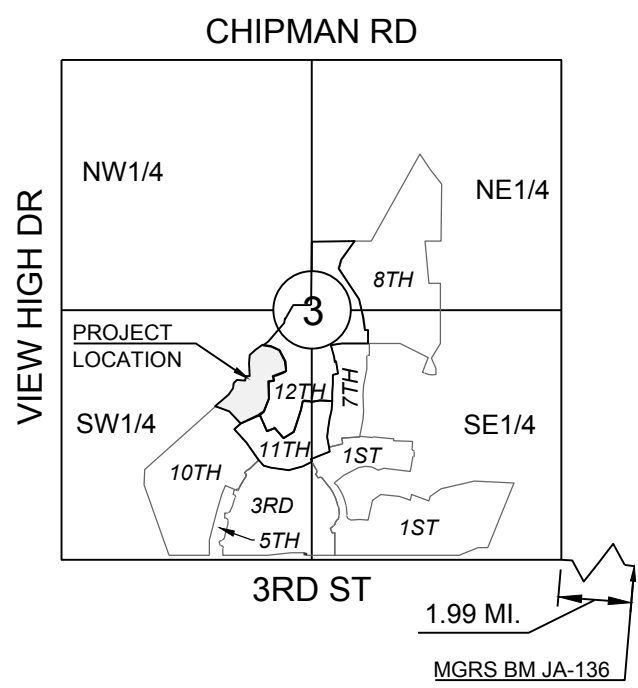
EXISTING AREA INLET

EXISTING CURB INLET

EXISTING GRATE INLET

EXISTING JUNCTION BOX

EXISTING STORM MANHOLE



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

UTILITY CONTACTS:

MISSOURI DEPARTMENT OF TRANSPORTATION (MODOT)

Steve Holloway  
600 NE Colbern Road  
Lee's Summit, MO 64086  
(816) 607-2186

MISSOURI GAS ENERGY (MGE)

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

KANSAS CITY POWER & LIGHT COMPANY (KCP&L)

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

CITY OF 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  
Cell: (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 Schaufier  
220 SE Green Street  
Lee's Summit, MO 64063  
(816) 969-1900

SUMMARY OF QUANTITIES

|    | ITEM                                                                 | QUANTITY | UNITS |
|----|----------------------------------------------------------------------|----------|-------|
| 1  | GRADING                                                              | 1        | LS    |
| 2  | SEEDING AND SODDING                                                  | 1        | LS    |
| 3  | TYPE "CG-2" CURB AND GUTTER                                          | 1,535    | LF    |
| 4  | TYPE "CG-1" CURB AND GUTTER                                          | 151      | LF    |
| 5  | SAWCUT EXISTING PAVEMENT                                             | 5        | LF    |
| 6  | 2" SURFACE COURSE - TYPE 3                                           | 2,732    | SY    |
| 7  | 4" BASE COURSE - TYPE 1                                              | 2,732    | SY    |
| 8  | 10" BASE COURSE - MODOT TYPE 5 (WITH GEOGRID) (OPTION B)             | 3,210    | SY    |
| 9  | 6" BASE COURSE - MODOT TYPE 5 (6" CHEMICAL STABILIZATION) (OPTION A) | 3,210    | SY    |
| 10 | TYPE I SIDEWALK RAMP                                                 | 2        | EA    |
| 11 | TYPE II SIDEWALK RAMP                                                | 1        | EA    |
| 12 | TYPE III SIDEWALK RAMP (MID-BLOCK RAMP)                              | 3        | EA    |
| 13 | 15" HDPE                                                             | 397      | LF    |
| 14 | 18" HDPE                                                             | 43       | LF    |
| 15 | 24" HDPE                                                             | 260      | LF    |
| 16 | 42" HDPE                                                             | 238      | LF    |
| 17 | 18" HDPE END SECTION W/ TOEWALL                                      | 1        | EA    |
| 18 | 24" HDPE END SECTION W/ TOEWALL                                      | 1        | EA    |
| 19 | 42" HDPE END SECTION W/ TOEWALL                                      | 1        | EA    |
| 20 | STD. 6"x4" CURB INLET                                                | 6        | EA    |
| 21 | STD. 6"x6" CURB INLET                                                | 1        | EA    |
| 22 | STD. 4"x4" AREA INLET                                                | 2        | EA    |
| 23 | 6"x6" DETENTION STRUCTURE                                            | 1        | EA    |
| 24 | SCOUR BASIN/PLUNGE POOL                                              | 1        | EA    |
| 25 | D <sub>90</sub> -15" STONE RIP-RAP W/ FILTER FABRIC                  | 13       | CY    |
| 26 | EROSION CONTROL DEVICES                                              | 1        | LS    |
| 27 | AB-3 FOR STREET CROSSING                                             | 62       | SY    |
| 28 | SIGNAGE & PAVEMENT MARKING                                           | 1        | LS    |
| 29 | CITY PERMIT FEE                                                      | 1        | LS    |
| 30 | LAND DISTURBANCE CITY FEE                                            | 1        | LS    |
| 31 | BONDS                                                                | 1        | LS    |

\* NOTE:  
QUANTITIES PULLED FOR STREET OPTION A & B FROM CITY OF LEE'S SUMMIT DESIGN CRITERIA, SECTION 5200, TABLE LS-2: MINIMUM ASPHALT PAVEMENT THICKNESSES. EITHER IS ALLOWED AT CONTRACTORS OPTION (SEE TABLE ON DETAIL SHEET 22.)

GENERAL NOTES:

- ALL CONSTRUCTION TO FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.
- ALL WORKMANSHIP AND MATERIALS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEERING DEPARTMENT OF THE CITY OF LEE'S SUMMIT, MISSOURI.
- LINEAL FOOT MEASUREMENTS SHOWN ON THE PLANS ARE HORIZONTAL MEASUREMENTS, NOT SLOPE MEASUREMENTS. ALL PAYMENTS SHALL BE MADE ON HORIZONTAL MEASUREMENTS.
- NO GEOLOGICAL INVESTIGATION HAS BEEN PERFORMED ON THE SITE.
- THE UTILITY LOCATIONS SHOWN ON THESE PLANS ARE TAKEN FROM UTILITY COMPANY RECORDS AND APPARENT FIELD LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL ADHERE TO THE PROVISIONS OF THE SENATE BILL NUMBER 583, 78TH GENERAL ASSEMBLY OF THE STATE OF MISSOURI. THE BILL REQUIRES THAT ANY PERSON OR FIRM DOING EXCAVATION ON PUBLIC RIGHT OF WAY DO SO ONLY AFTER GIVING NOTICE TO, AND OBTAINING INFORMATION FROM, UTILITY COMPANIES. STATE LAW REQUIRES 48 HOURS ADVANCE NOTICE. THE CONTRACTOR MAY ALSO UTILIZE THE FOLLOWING TOLL FREE PHONE NUMBER PROVIDED BY "MISSOURI ONE CALL SYSTEM, INC.": 1-800-DIG-RITE. THIS PHONE NUMBER IS APPLICABLE ANYWHERE WITHIN THE STATE OF MISSOURI. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL NOTIFY ALL THOSE COMPANIES WHICH HAVE FACILITIES IN THE NEAR VICINITY OF THE CONSTRUCTION TO BE PERFORMED.
- PRIOR TO ORDERING PRECAST STRUCTURES, SHOP DRAWING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL. AFTER APPROVAL OF THE SHOP DRAWINGS, A COPY OF THE APPROVED AND SIGNED SHOP DRAWINGS SHALL BE PROVIDED TO THE CITY INSPECTOR UPON REQUEST.
- THE CONTRACTOR SHALL PROTECT ALL MAJOR TREES FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE.
- CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND ORDINANCES.
- ALL WASTE MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR, OR AS DIRECTED BY THE OWNER.
- ALL EXCAVATIONS SHALL BE UNCLASSIFIED. NO SEPARATE PAYMENT WILL BE MADE FOR ROCK EXCAVATION.
- THE CONTRACTOR SHALL CONTROL THE EROSION AND SILTATION DURING ALL PHASED OF CONSTRUCTION, AND SHALL KEEP THE STREETS CLEAN OF MUD AND DEBRIS.
- ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED.
- THE CONTRACTOR SHALL CONTACT DEVELOPMENT SERVICES INSPECTIONS AT: 816-969-1800 TO OBTAIN A DEVELOPMENT SERVICES CONSTRUCTION PERMIT. A MINIMUM 48 HOUR NOTICE SHALL BE GIVEN PRIOR TO PERMIT ISSUANCE.
- THE CONTRACTOR SHALL CONTACT THE CITY'S EROSION CONTROL SPECIALIST AT: 816-969-1800 PRIOR TO ANY LAND DISTURBANCE.
- THE CONTRACTOR SHALL CONTACT THE RIGHT OF WAY INSPECTOR AT 816-969-1800 PRIOR TO ANY LAND DISTURBANCE ACTIVITIES WITHIN THE RIGHT OF WAY. THESE ACTIVITIES MAY REQUIRE A PERMIT.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL TRAFFIC HANDLING MEASURES NECESSARY TO ENSURE THAT THE GENERAL PUBLIC IS PROTECTED AT ALL TIMES. TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD-LATEST EDITION).

STREET NOTES:

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

EARTHWORK:

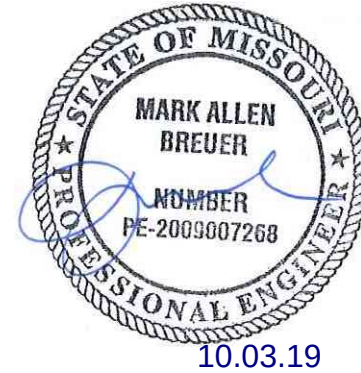
- IT IS RECOMMENDED THAT A GEOTECHNICAL ENGINEER OBSERVE AND DOCUMENT ALL EARTHWORK ACTIVITIES.
- CONTOURS HAVE BEEN SHOWN AT 1-FOOT OR 2-FOOT INTERVALS, AS INDICATED. GRADING SHALL CONSIST OF COMPLETING THE EARTHWORK REQUIRED TO BRING THE PHYSICAL GROUND ELEVATIONS OF THE EXISTING SITE TO THE FINISHED GRADE (OR SUB-GRADE) ELEVATIONS PROVIDED ON THE PLANS AS SPOT GRADES, CONTOURS OR OTHERS MEANS AS INDICATED ON THE PLANS.
- THE EXISTING SITE TOPOGRAPHY DEPICTED ON THE PLANS BY CONTOURING HAS BEEN ESTABLISHED BY AERIAL PHOTOGRAPHY AND FIELD VERIFIED BY G.P.S. OBSERVATION NEAR APRIL 2018. THE CONTOUR ELEVATIONS PROVIDED MAY NOT BE EXACT GROUND ELEVATIONS, BUT RATHER INTERPRETATIONS OF SUCH. ACCURACY SHALL BE CONSIDERED TO BE SUCH THAT NOT MORE THAN 10 PERCENT OF SPOT ELEVATION CHECKS SHALL BE IN ERROR BY MORE THAN ONE-HALF THE CONTOUR INTERVAL PROVIDED, AS DEFINED BY THE NATIONAL MAP ACCURACY STANDARDS. ANY QUANTITIES PROVIDED FOR EARTHWORK VOLUMES ARE ESTABLISHED USING THIS TOPOGRAPHY CONTOUR ACCURACY, AND THEREFORE THE INHERENT ACCURACY OF ANY EARTHWORK QUANTITY IS ASSUMED FROM THE TOPOGRAPHY ACCURACY.
- PROPOSED CONTOURS ARE TO APPROXIMATE FINISHED GRADE.
- UNLESS OTHERWISE NOTED, PAYMENT FOR EARTHWORK SHALL INCLUDE BACKFILLING OF THE CURB AND GUTTER, SIDEWALK AND FURTHER MANIPULATION OF UTILITY TRENCH SPOILS. THE SITE SHALL BE LEFT IN A MOWABLE CONDITION AND POSITIVE DRAINAGE MAINTAINED THROUGHOUT.
- UNLESS OTHERWISE NOTED, ALL EARTHWORK IS CONSIDERED UNCLASSIFIED. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR ROCK OR SHALE EXCAVATION, UNLESS SPECIFICALLY STATED OTHERWISE.
- PRIOR TO EARTHWORK ACTIVITIES, PRE-DISTURBANCE EROSION AND SEDIMENT CONTROL DEVICES SHALL BE IN PLACE PER THE STORM WATER POLLUTION PREVENTION PLAN AND/OR THE EROSION AND SEDIMENT CONTROL PLAN PREPARED FOR THIS SITE.
- ALL TOPSOIL SHALL BE STRIPPED FROM ALL AREAS TO BE GRADED AND STOCKPILED ADJACENT TO THE SITE AT AN AREA SPECIFIED BY THE PROJECT OWNER OR HIS APPOINTED REPRESENTATIVE. VEGETATION, TRASH, TREES, BRUSH, TREE ROOTS AND LIMBS, ROCK FRAGMENTS GREATER 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.
- UNLESS OTHERWISE SPECIFIED IN THE GEOTECHNICAL REPORT, ALL FILLS SHALL BE PLACED IN MAXIMUM 6-INCH LIFTS AND COMPACTED TO 95-PERCENT OF MAXIMUM DENSITY AS DEFINED USING A STANDARD PROCTOR TEST (AASHTO T99/ASTM 698).
- FILL MATERIALS SHALL BE PER GEOTECHNICAL REPORT AND SHALL NOT INCLUDE ORGANIC MATTER, DEBRIS OR TOPSOIL. ALL FILLS PLACED ON SLOPES GREATER THAN 5:1 SHALL BE BENCHED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REDISTRIBUTING THE TOPSOIL OVER PROPOSED TURF AND LANDSCAPED AREAS TO A MINIMUM DEPTH OF 6-INCHES BELOW FINAL GRADE.
- ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE. UNLESS NOTED OTHERWISE THE FOLLOWING GRADES SHALL APPLY:
  - TURF AREAS - 2.5% MINIMUM, 4H:1V MAXIMUM
  - PAVED AREAS - 1.2% MINIMUM, 5% MAXIMUM
- 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.
- ALL DISTURBED AREAS IN THE RIGHT-OF-WAY SHALL BE SODDED.
- UNDERDRAINS ARE RECOMMENDED FOR ALL PAVED AREAS ADJACENT TO IRRIGATED TURF AND LANDSCAPED BEDS.
- CONTRACTOR SHALL ADHERE TO THE REPORTING REQUIREMENTS OUTLINED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THIS PROJECT. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PROPERLY MAINTAINED AND KEPT CLEAN OF SILT AND DEBRIS AND IN GOOD WORKING ORDER. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS REQUIRED.

UTILITIES:

- EXISTING UTILITIES HAVE BEEN SHOWN TO THE GREATEST EXTENT POSSIBLE BASED UPON INFORMATION PROVIDED TO THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE RESPECTIVE UTILITY COMPANIES AND FIELD LOCATING UTILITIES PRIOR TO CONSTRUCTION AND IDENTIFYING ANY POTENTIAL CONFLICTS. ALL CONFLICTS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ANY REQUIRED UTILITY RELOCATIONS. UTILITIES DAMAGED THROUGH THE NEGLIGENCE OF THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL VERIFY FLOW-LINES AND STRUCTURE TOPS PRIOR TO CONSTRUCTION, AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES. PROVIDE SHOP DRAWINGS FOR ALL PRECAST AND MANUFACTURED UTILITY STRUCTURES FOR REVIEW BY THE ENGINEER PRIOR TO CONSTRUCTION OF THE STRUCTURES.
- UTILITY SEPARATION: WATERLINES SHALL HAVE A MINIMUM OF 10 FEET HORIZONTAL AND 2 FEET VERTICAL SEPARATION FROM ALL SANITARY AND STORM SEWER LINES. IF MINIMUM SEPARATIONS CAN NOT BE OBTAINED, A CONTINUOUS CASING PIPE MUST BE USED ON THE WATER LINE AND EXTEND NO LESS THAN 10 FEET IN EACH DIRECTION FROM THE CROSSING OF THE SANITARY OR STORM SEWER LINE IN CONFLICT.
- PAYMENT FOR TRENCHING, BACKFILLING, PIPE EMBEDMENT, FLOWABLE FILL, BACKFILL MATERIALS, CLEAN UP, SEEDING, SODDING AND ANY OTHER ITEMS NECESSARY FOR THE CONSTRUCTION OF THE UTILITY LINE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE UTILITY INSTALLATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING RESPECTIVE UTILITY COMPANIES 48-HOURS IN ADVANCE FOR THE INSPECTION OF ANY PROPOSED UTILITY MAIN EXTENSION OR SERVICE LINE OR SERVICE CONNECTION TO ANY EXISTING MAIN.
- TRENCH SPOILS SHALL BE NEATLY PLACED ONSITE ADJACENT TO THE TRENCH, AND COMPACTED TO PREVENT SATURATION AND EXCESS SEDIMENT RUNOFF. UNSUITABLE MATERIALS, EXCESS ROCK AND SHALE, ASPHALT, CONCRETE, TREES, BRUSH ETC. SHALL BE PROPERLY DISPOSED OF OFFSITE. MATERIALS MAY BE WASTED ONSITE AT THE DIRECTION OF THE OWNER OR HIS APPOINTED REPRESENTATIVE.

| Sheet List Table |                                                       |
|------------------|-------------------------------------------------------|
| Sheet Number     | Sheet Title                                           |
| 1                | COVER SHEET                                           |
| 2                | PRE-CLEARING PLAN                                     |
| 3                | ECP-CONSTRUCTION                                      |
| 4                | FINAL STABILIZATION PLAN                              |
| 5                | EROSION CONTROL DETAILS                               |
| 6                | EROSION CONTROL DETAILS                               |
| 7                | GENERAL LAYOUT                                        |
| 8                | MASTER DRAINAGE PLAN - GRADING PLAN                   |
| 9                | MASTER DRAINAGE PLAN - SPOT ELEVATIONS                |
| 10               | MASTER DRAINAGE PLAN - DRAINAGE MAP                   |
| 11               | MASTER DRAINAGE PLAN-DRAINAGE MAP CONT'D              |
| 12               | NW THOREAU DRIVE PLAN AND PROFILE                     |
| 13               | NW THOREAU PLACE AND NW THOREAU LANE PLAN AND PROFILE |
| 14               | INTERSECTION DETAILS                                  |
| 15               | INTERSECTION DETAILS                                  |
| 16               | STORM PLAN                                            |
| 17               | STORM PROFILES                                        |
| 18               | DETENTION BASIN                                       |
| 19               | STREET AND STORM DETAILS                              |
| 20               | STREET AND STORM DETAILS                              |
| 21               | STREET AND STORM DETAILS                              |
| 22               | STREET AND STORM DETAILS                              |
| 23               | SIGNING PLAN                                          |
| 24               | STREET SIGN DETAILS                                   |

PREPARED AND SUBMITTED BY:



SCHLAGEL & ASSOCIATES, P.A.

APPROVED BY:

CITY ENGINEER  
APPROVED FOR ONE YEAR FROM THIS DATE

DATE

OWNER/DEVELOPER:

GALE COMMUNITIES, INC.  
DAVID GALE  
400 SW LONGVIEW BLVD, STE 109  
LEE'S SUMMIT, MO 64081  
p 816.645.2336 (CELL) 816.761.9292 (OFFICE)  
f -  
DGALE@GALECOMMUNITIES.COM

MISSOURI GEOGRAPHIC REFERENCE SYSTEM  
BENCH MARK:

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

ELEV. 993.11'

PROJECT BENCH MARK:

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

ELEV.935.45'

SCHLAGEL & ASSOCIATES, P.A.  
Engineers-Planners-Surveyors-Landscape Architects  
14920 West 107th Street • Lenexa, Kansas 66215  
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WWW.SCHLAGELASSOCIATES.COM  
Missouri State Certificates of Authority  
#E200200860-F #AC2001005237 #LS200200859-F

WINTERSET VALLEY, 13TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
EROSION AND SEDIMENT CONTROL  
NW THOREAU DRIVE AND AUDUBON LANE  
LEE'S SUMMIT, MISSOURI

| REVISION DATE | DESCRIPTION   |
|---------------|---------------|
| 1 4-10-19     | CITY COMMENTS |
| 2 8-1-19      | CITY COMMENTS |
| 3 8-21-19     | CITY COMMENTS |
| 4 9-18-19     | CITY COMMENTS |
| 5             |               |
| 6             |               |
| 7             |               |
| 8             |               |

|                |         |
|----------------|---------|
| DRAWN BY:      | KSC     |
| CHECKED BY:    | MAB     |
| DATE PREPARED: | 2-15-19 |
| PROJ. NUMBER:  | 18-230  |

COVER SHEET

SHEET

1  
OF 24



WINNIPISET VALLEY, 13TH PLACE  
STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
EROSION AND SEDIMENT CONTROL  
NW THOREAU DRIVE AND AUDUBON LANE  
LEE'S SUMMIT, MISSOURI

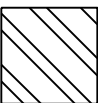
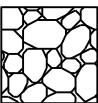
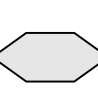
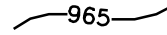
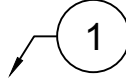
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|----|---------|--|---------------|
| 1. | 4-10-19 |  | CITY COMMENTS |
| 2. | 8-1-19  |  | CITY COMMENTS |
| 3. | 8-21-19 |  | CITY COMMENTS |
| 4. | 9-18-19 |  | CITY COMMENTS |
| 5. |         |  |               |
| 6. |         |  |               |
| 7. |         |  |               |
| 8. |         |  |               |
| 9. |         |  |               |

# PRE-CLEARING PLAN

SHEET

2



| 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                                            |
|  | SF1 SILT FENCE (PRIOR TO LAND DISTURBANCE)                  |
|  | SF2 SILT FENCE (DURING CONSTRUCTION)                        |
|  | SILT SOCK / ROCK SOCK / SOCK WATTLE                         |
|  | LIMITS OF DISTURBANCE                                       |
|  | 965 EXISTING CONTOURS                                       |
|  | 965 PROPOSED CONTOURS                                       |
|  | GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY               |
|  | 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                             | E                  | PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED                                                                                                                 |
|                           |                                              | 3a                                         |                  | FOAM SILT DIKE OR ROCK DITCH CHECK AND SEDIMENT TRAPS | E                  | PLACE WHERE INDICATED AT EXISTING SWALES AND DRAINAGE COURSES                                                                                                                                                                                    |
| 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 AND SEDIMENT TRAPS | E                  | PLACE WHERE INDICATED AS SOON AS SWALE IS ESTABLISHED, REPAIR OR REPLACE AS NECESSARY                                                                                                                                                            |
| FINAL STABILIZATION PHASE | C - UTILITY CONSTRUCTION                     | 6                                          |                  | CONCRETE WASHOUT AREA                                 | E                  | MAINTAIN, REPAIR, OR REPLACE AS NECESSARY                                                                                                                                                                                                        |
|                           |                                              | 7                                          |                  | INLET PROTECTION (SILT FENCE)                         | D/E                | PLACE SILT FENCE AROUND ALL STORM SEWER STRUCTURES / YARD AREA STORM STRUCTURES TO HAVE SILT FENCE REMOVED ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED                                                                       |
|                           | 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.                                                                                                                          |

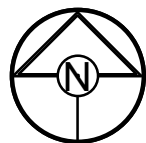
\* NOTE:  
MULCH BERMS ARE AN ACCEPTABLE  
ALTERNATIVE TO SILT FENCE REQUIRED  
PRIOR TO LAND DISTURBANCE AND ADJACENT  
TO WOODED/UNDEVELOPED AREAS.

**DISTURBED AREA = 6.77 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 290905C412G 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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| LEGEND |                                                             |  |                                               |
|--------|-------------------------------------------------------------|--|-----------------------------------------------|
|        | TEMPORARY STORAGE AREA FOR EXCESS MATERIAL                  |  | SILT FENCE (PRIOR TO LAND DISTURBANCE)        |
|        | TEMP. CONSTRUCTION ENTRANCE AND STAGING AREA                |  | SILT FENCE (DURING CONSTRUCTION)              |
|        | CONCRETE WASHOUT AREA                                       |  | SILT SOCK / ROCK SOCK / SOCK WATTLE           |
|        | SILT FOAM DIKE - STAKED & INSTALL PER MFR'S RECOMMENDATIONS |  | LIMITS OF DISTURBANCE                         |
|        | ROCK DITCH CHECK                                            |  | EXISTING CONTOURS                             |
|        |                                                             |  | PROPOSED CONTOURS                             |
|        |                                                             |  | GRAVEL FILTER FOR STORM SEWER STRUCTURES ONLY |
|        |                                                             |  | BMP PLAN REF. NO.                             |

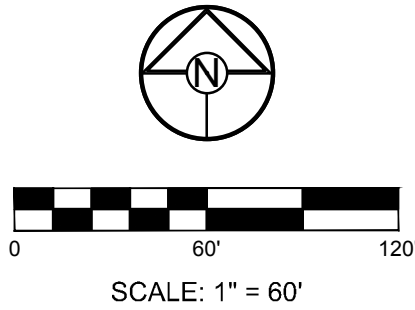
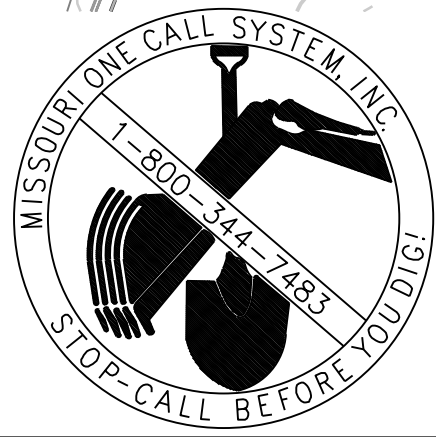
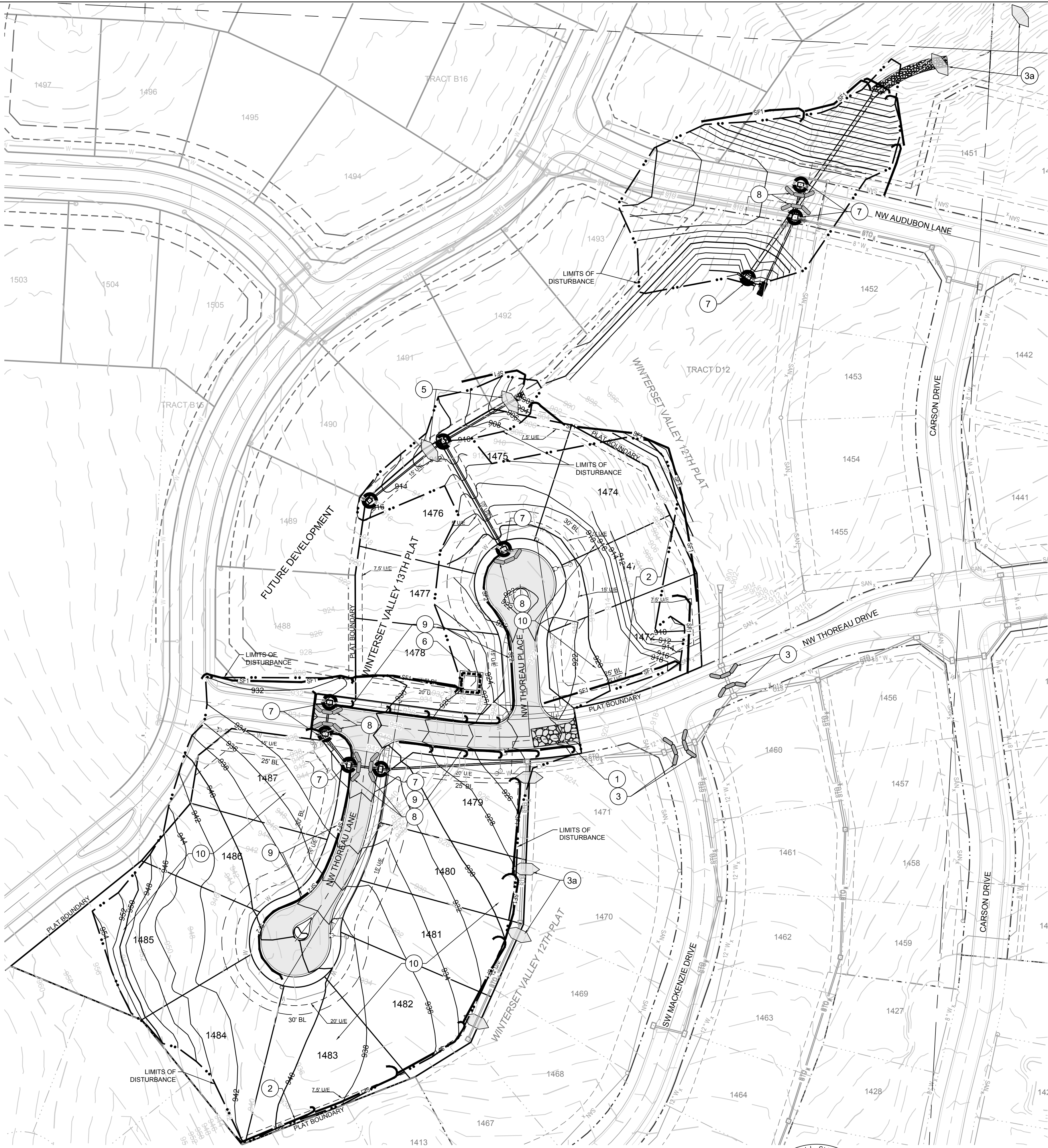
|                           |                                              | EROSION AND SEDIMENT CONTROL STAGING CHART |                                                       |                 |                                                                                                                                                                                                                                                  |
|---------------------------|----------------------------------------------|--------------------------------------------|-------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           |                                              | PROJECT STAGE                              | BMP PLAN REF. NO                                      | BMP DESCRIPTION | REMOVE AFTER STAGE                                                                                                                                                                                                                               |
| 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                             | E               | PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED                                                                                                                 |
|                           |                                              | 3a                                         | FOAM SILT DIKE OR ROCK DITCH CHECK AND SEDIMENT TRAPS | E               | PLACE WHERE INDICATED AT EXISTING SWALES AND DRAINAGE COURSES                                                                                                                                                                                    |
| 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 AND SEDIMENT TRAPS | E               | PLACE WHERE INDICATED AS SOON AS SWALE IS ESTABLISHED, REPAIR OR REPLACE AS NECESSARY                                                                                                                                                            |
| FINAL STABILIZATION PHASE | C - UTILITY CONSTRUCTION                     | 6                                          | CONCRETE WASHOUT AREA                                 | E               | MAINTAIN, REPAIR, OR REPLACE AS NECESSARY                                                                                                                                                                                                        |
|                           |                                              | 7                                          | INLET PROTECTION (SILT FENCE)                         | D/E             | PLACE SILT FENCE AROUND ALL STORM SEWER STRUCTURES / YARD AREA STORM STRUCTURES TO HAVE SILT FENCE REMOVED ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED                                                                       |
|                           | 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 = 6.77 A.C.**

**SITE SPECIFIC NOTES:**

- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
- THERE ARE NO WETLANDS, NATURAL OR ARTIFICIAL WATER STORAGE DETENTION AREAS IN THE PROJECT AREA.
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WWW.SCHLAGELASSOCIATES.COM  
Missouri State Certificates of Authority  
#E2002003600-F #LAC200100237 #LS200200859-F

WINTERSET VALLEY, 13TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
EROSION AND SEDIMENT CONTROL  
NW THOREAU DRIVE AND AUDUBON LANE  
LEE'S SUMMIT, MISSOURI

| REVISION DATE | DESCRIPTION   |
|---------------|---------------|
| 1 4-10-19     | CITY COMMENTS |
| 2 8-1-19      | CITY COMMENTS |
| 3 8-21-19     | CITY COMMENTS |
| 4 9-18-19     | CITY COMMENTS |
| 5 9-18-19     | CITY COMMENTS |
| 6 2-15-19     | CITY COMMENTS |
| 7 2-15-19     | CITY COMMENTS |
| 8 18-230      | CITY COMMENTS |

DRAWN BY: KSC

CHECKED BY: MAB

DATE PREPARED: 2-15-19

PROJ. NUMBER: 18-230

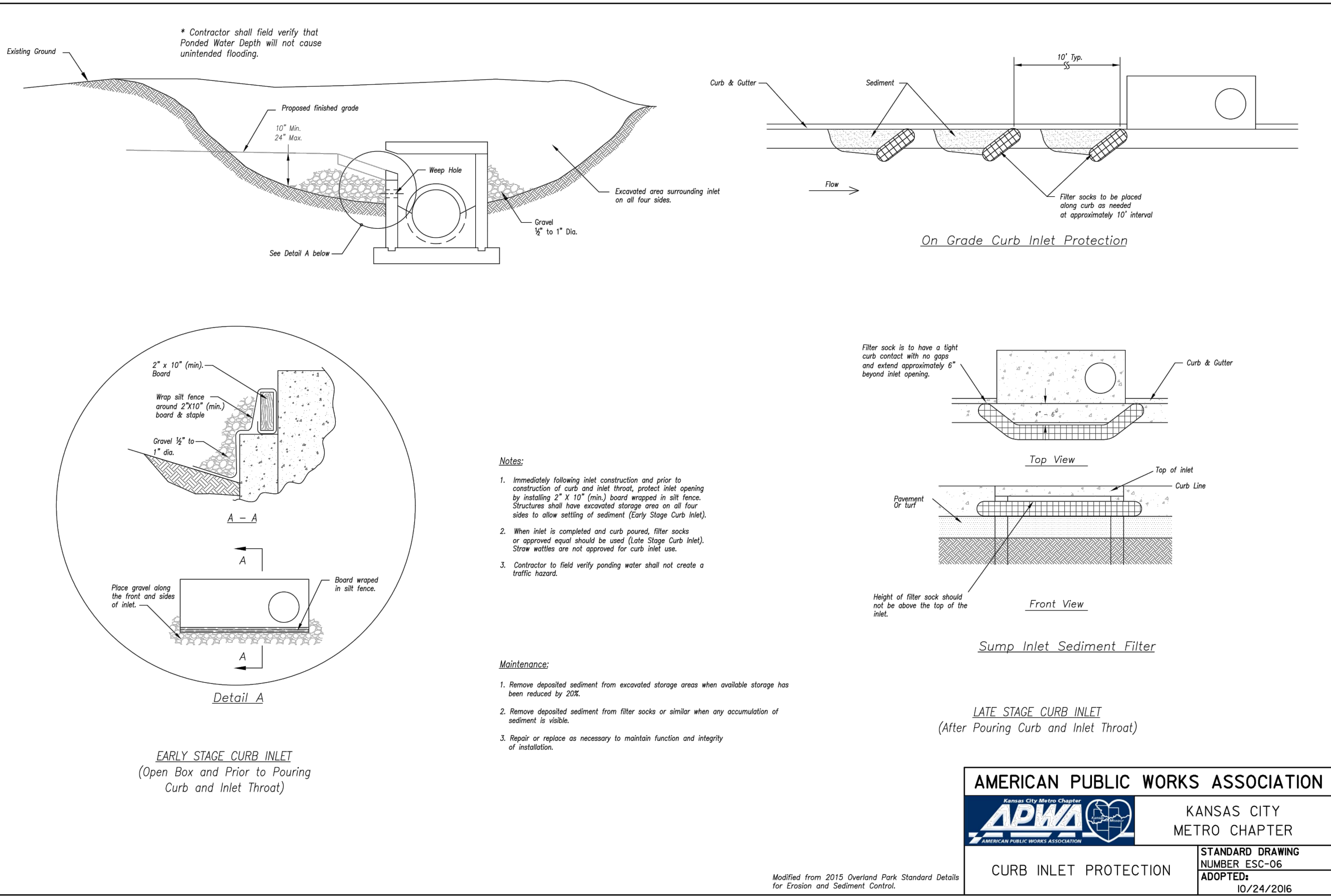
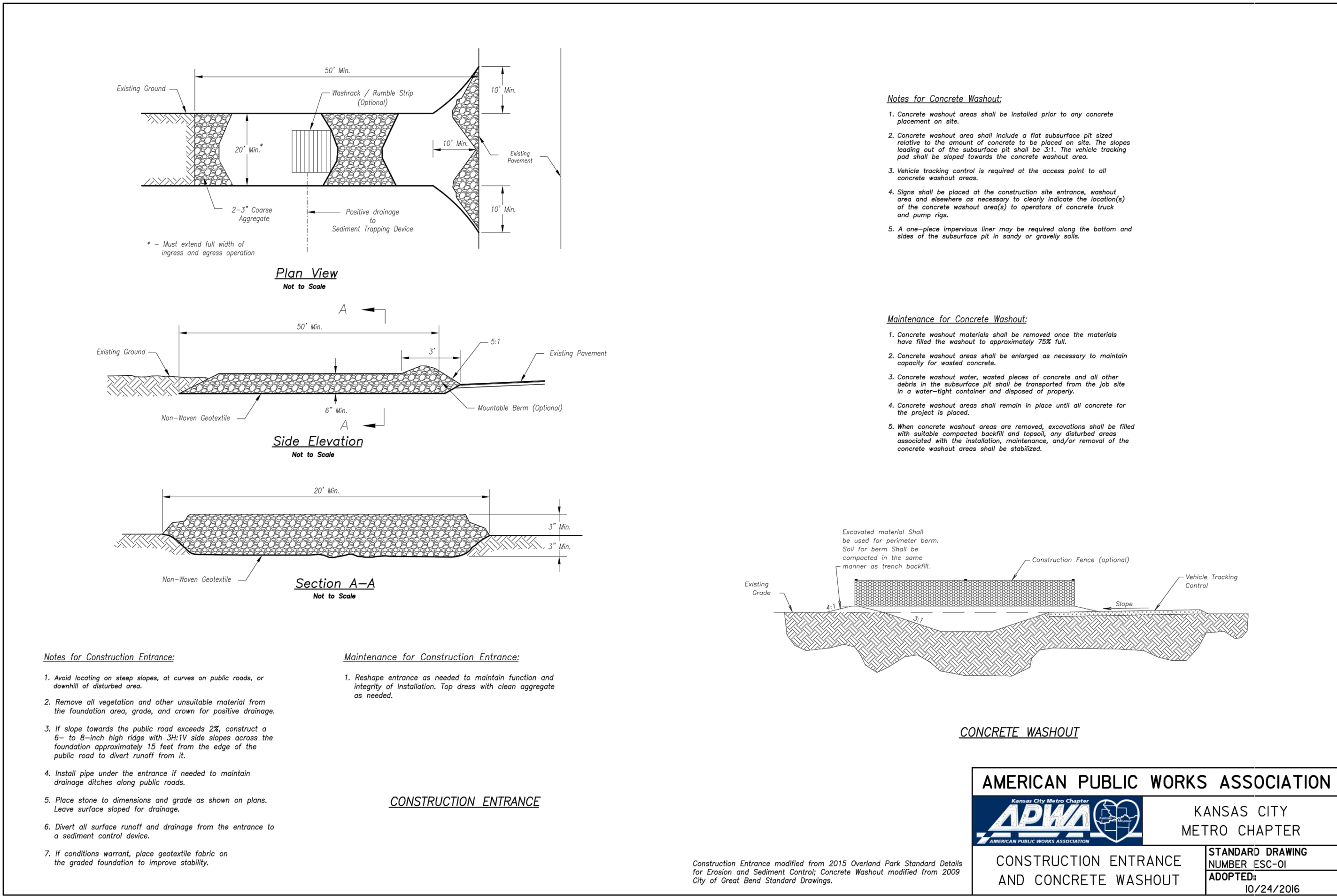
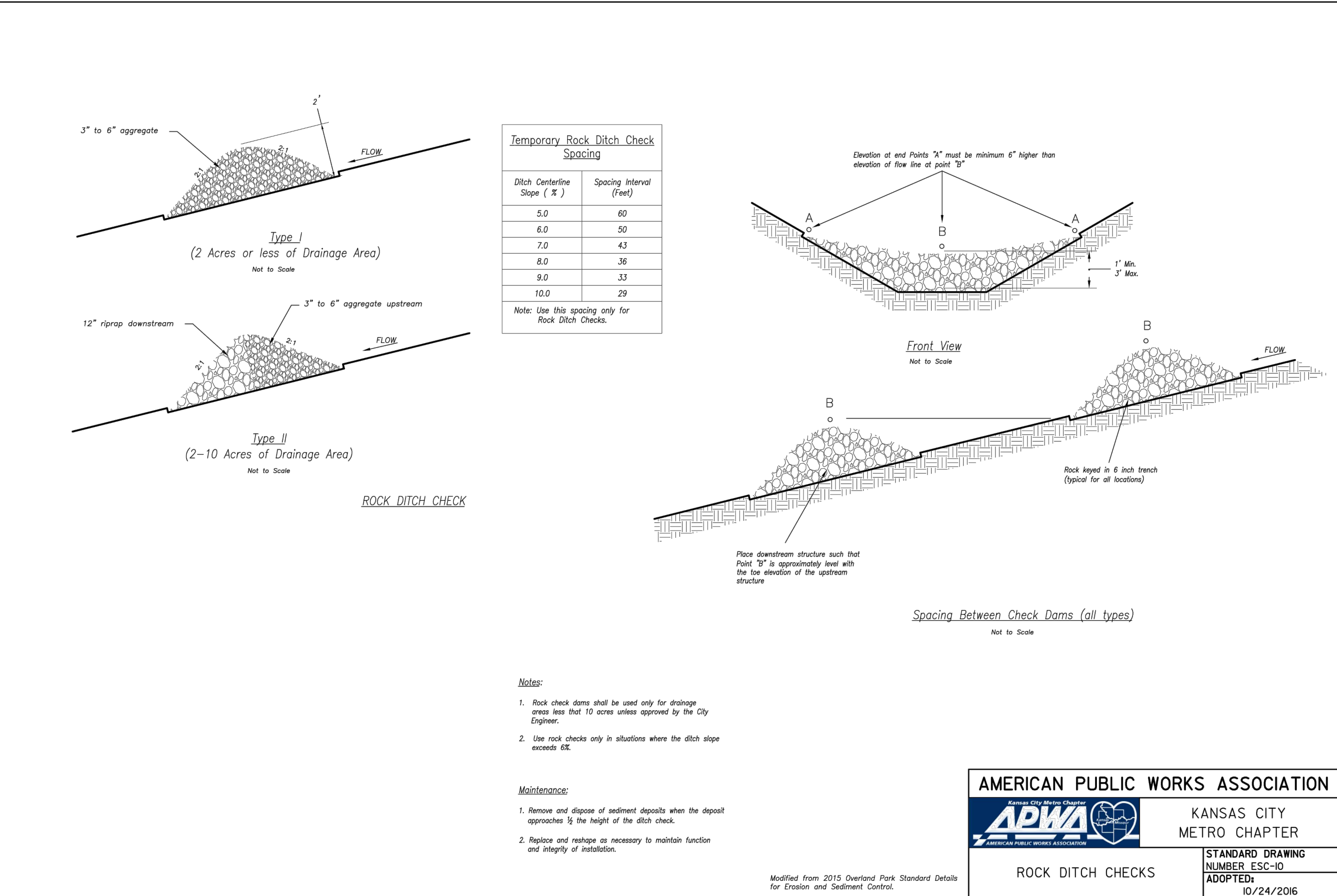
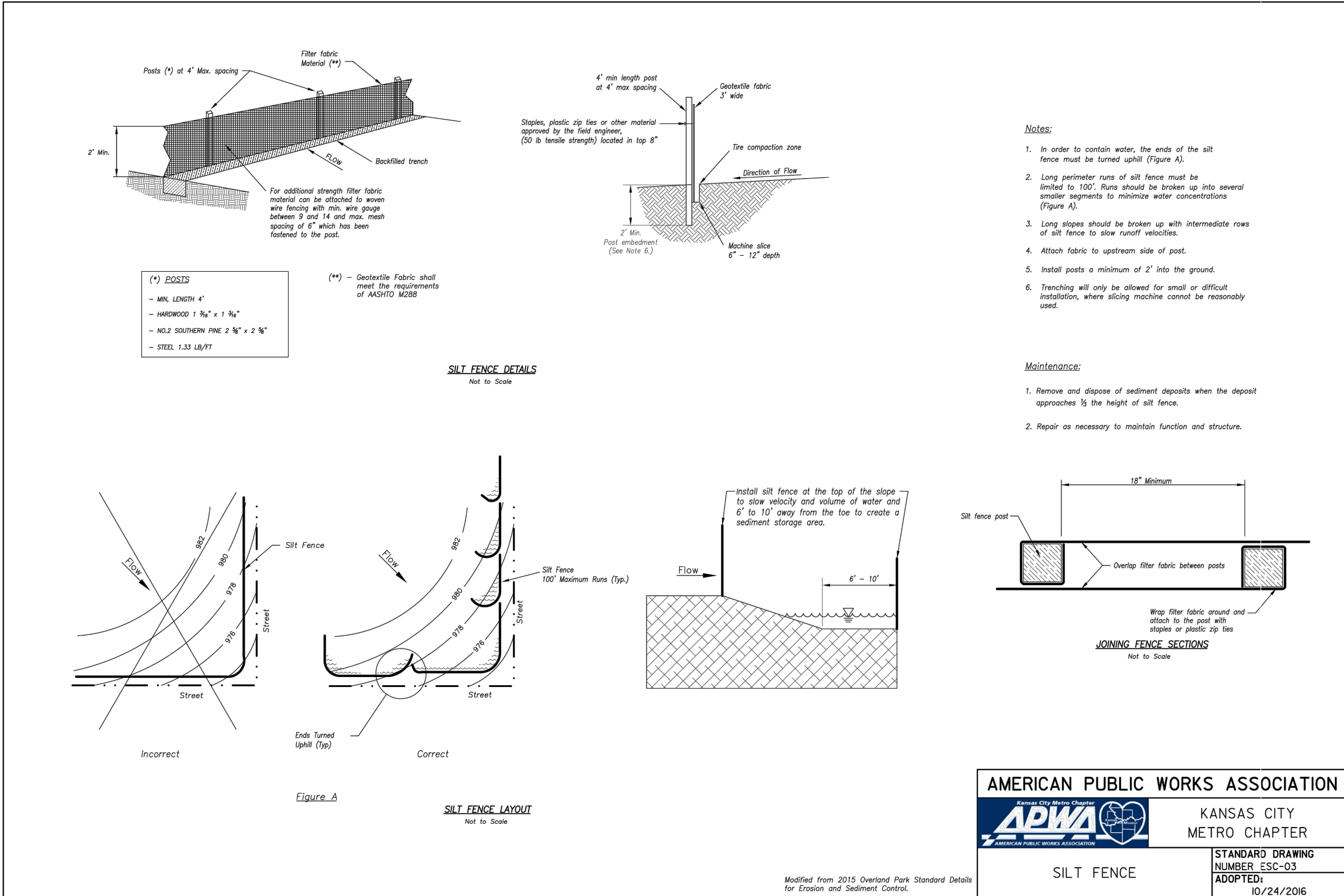
FINAL STABILIZATION PLAN

SHEET

4

OF 24



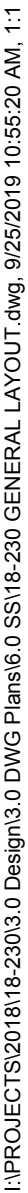


| REVISION DATE | DESCRIPTION   |
|---------------|---------------|
| 1 4-10-19     | CITY COMMENTS |
| 2 8-1-19      | CITY COMMENTS |
| 3 8-21-19     | CITY COMMENTS |
| 4 9-18-19     | CITY COMMENTS |
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| 6 6           |               |
| 7 2-15-19     |               |
| 8 7           |               |
| 9 18-230      |               |















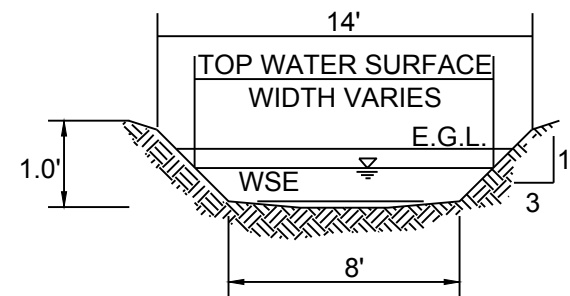
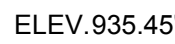


**NOTE:**

1. DAYLIGHT BASED ON ADJACENT GRADE  
4 FT BELOW TOP OF FOUNDATION WHILE  
MAINTAINING 2.5% (MIN) GRADE TO LOT  
CORNERS.
2. WALKOUT BASED ON ADJACENT GRADE  
AT BASEMENT FLOOR ELEVATION WHILE  
MAINTAINING 2.5% (MIN) GRADE TO LOT  
CORNERS.

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

\* EMERGENCY OVERFLOW SWALE - ASSUME INLET CLOGGED,  $Q_{DESIGN}=100YR$



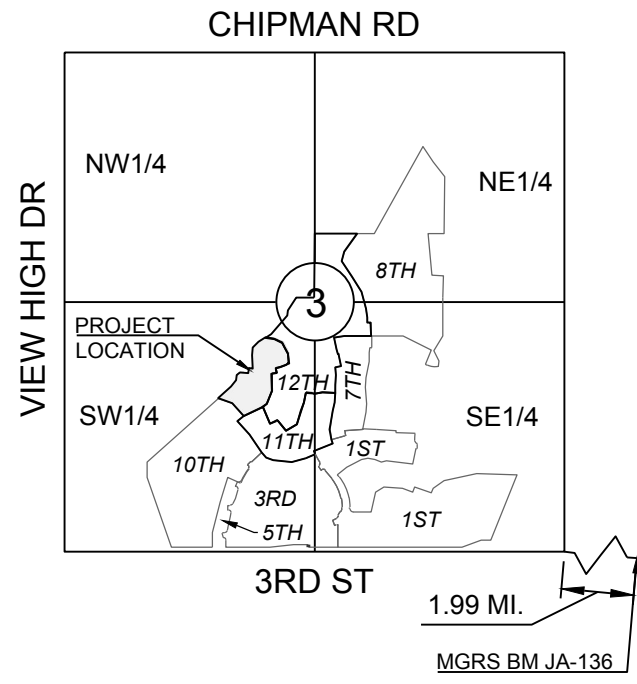
**RUNOFF CALCULATIONS:**  
 $Q = K \cdot C \cdot I \cdot A$   
 $K_{100} = 1.0 \quad K_{100} = 1.25 \quad C = 0.51 \quad I = \text{INTENSITY}$   
 $\text{DESIGN OVERFLOW} = Q_{\text{OVERFLOW}} = Q_{100} - Q_{10}$   
 MANNINGS "n" = .030 FOR SWALES

| DRAWN BY:      |         | CITY COMMENTS |
|----------------|---------|---------------|
| ASC            | 4-10-19 |               |
| CHECKED BY:    | 8-1-19  |               |
| MAB            | 8-21-19 |               |
| DATE PREPARED: | 9-18-19 |               |
| 2-15-19        |         |               |
| PROJ. NUMBER:  |         |               |
| 19-250         |         |               |









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

**MISSOURI GEOGRAPHIC REFERENCE SYSTEM  
BENCH MARK:**

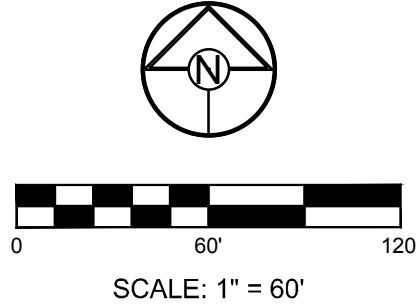
BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

ELEV. 993.11'

**PROJECT BENCH MARK:**

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

ELEV. 935.45'



MATCHLINE



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WINTERSET VALLEY, 13TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE  
PLAN AND EROSION AND SEDIMENT CONTROL  
NW THOREAU DRIVE AND AUDUBON LANE  
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| REVISION DATE | DESCRIPTION   |
|---------------|---------------|
| 1 4-10-19     | CITY COMMENTS |
| 2 8-1-19      | CITY COMMENTS |
| 3 8-21-19     | CITY COMMENTS |
| 4 9-18-19     | CITY COMMENTS |
| 5             |               |
| 6             |               |
| 7             |               |
| 8             |               |
| 9             |               |
| 10            |               |

|                  |                    |                           |                         |
|------------------|--------------------|---------------------------|-------------------------|
| DRAWN BY:<br>KSC | CHECKED BY:<br>MAB | DATE PREPARED:<br>2-15-19 | PROJ. NUMBER:<br>18-230 |
|------------------|--------------------|---------------------------|-------------------------|

MASTER  
DRAINAGE  
PLAN-DRAINAGE  
MAP CONT'D

SHEET

11

OF 24



MISSOURI GEOGRAPHIC REFERENCE SYSTEM  
BENCH MARK:

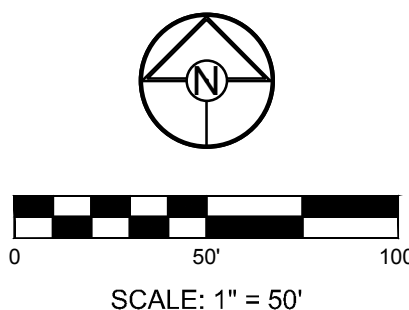
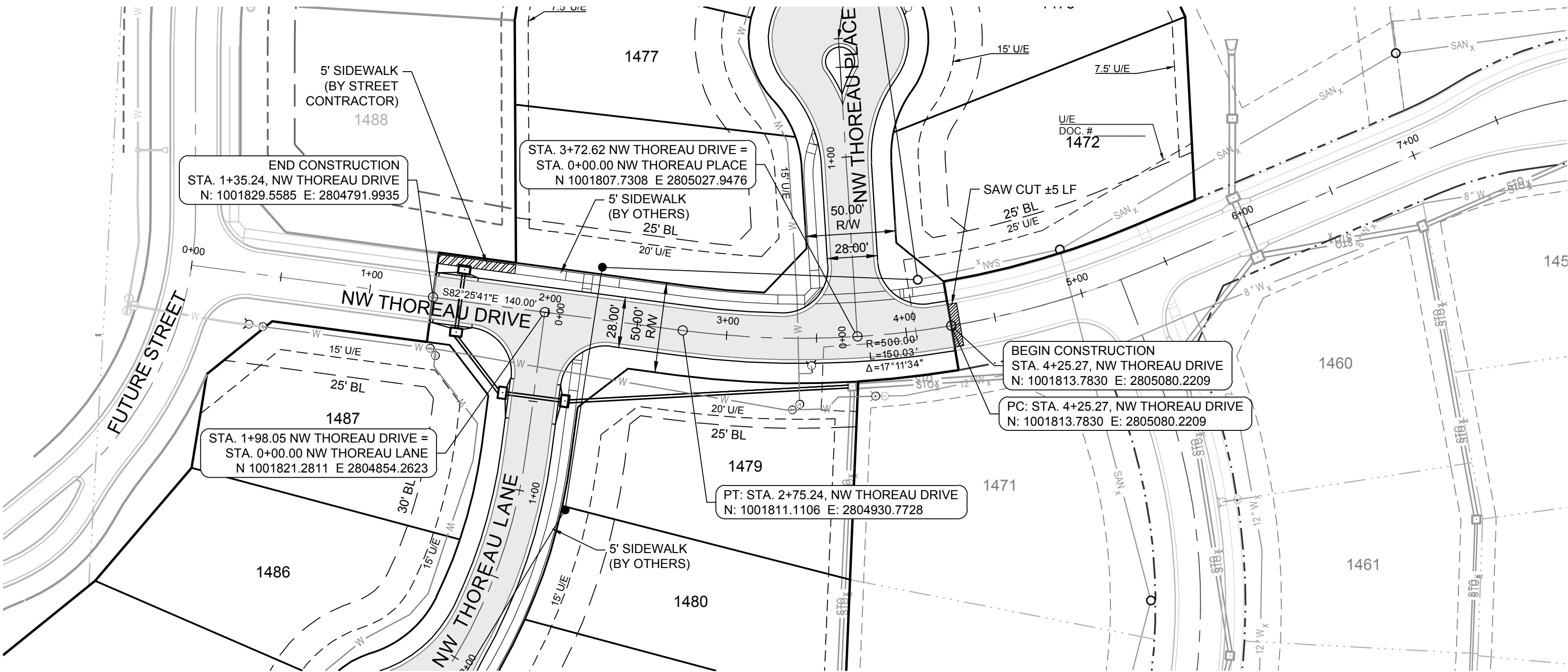
BM JA-136, LOCATED AT INTERSECTION OF SW OLDHAM PARKWAY AND SW WARD ROAD, 61 FT SOUTH OF CL OF OLDHAM PARKWAY AND 28.9 FT EAST OF THE EAST EDGE OF WARD ROAD.

ELEV. 993.11'

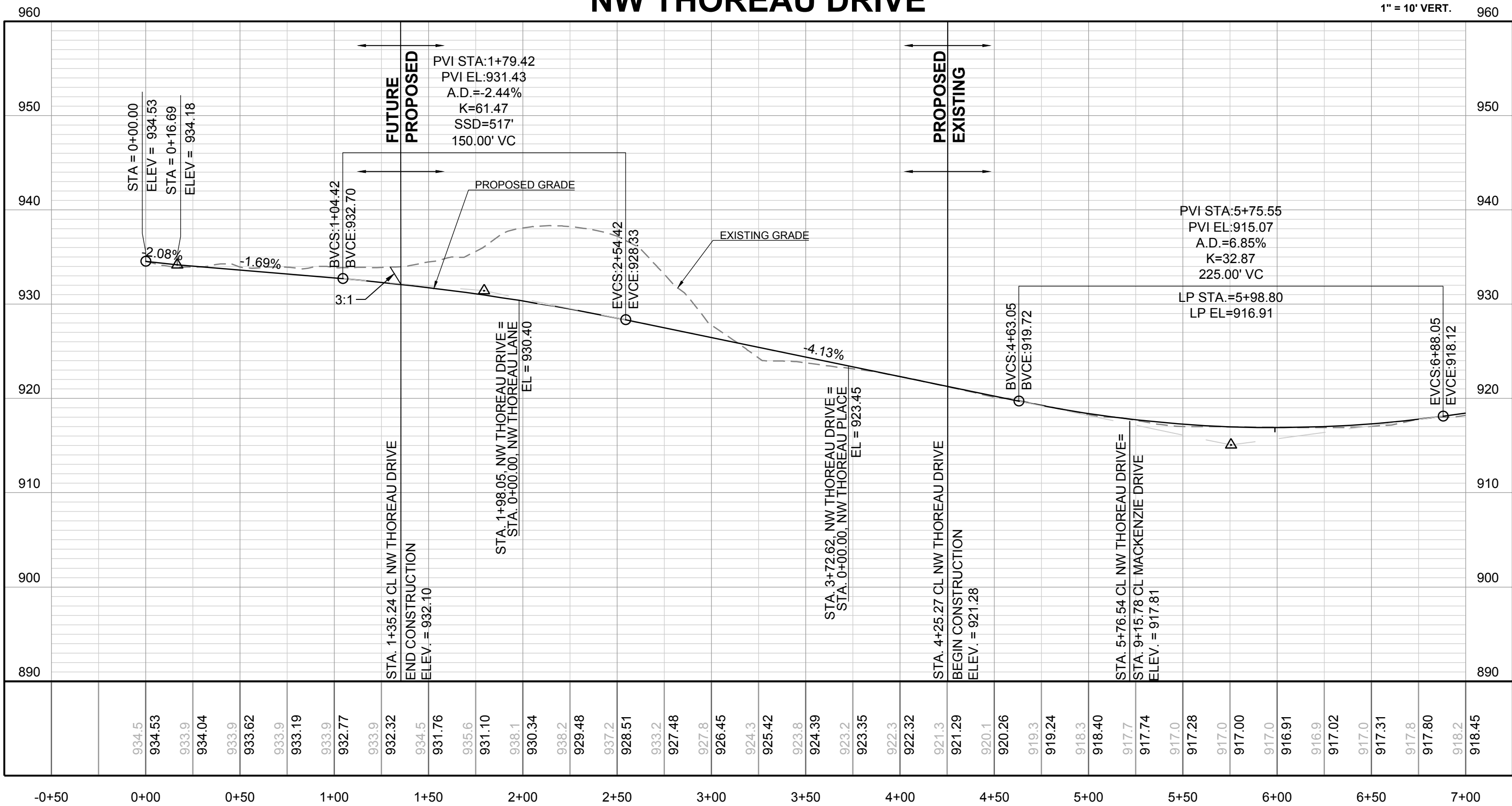
PROJECT BENCH MARK:

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'



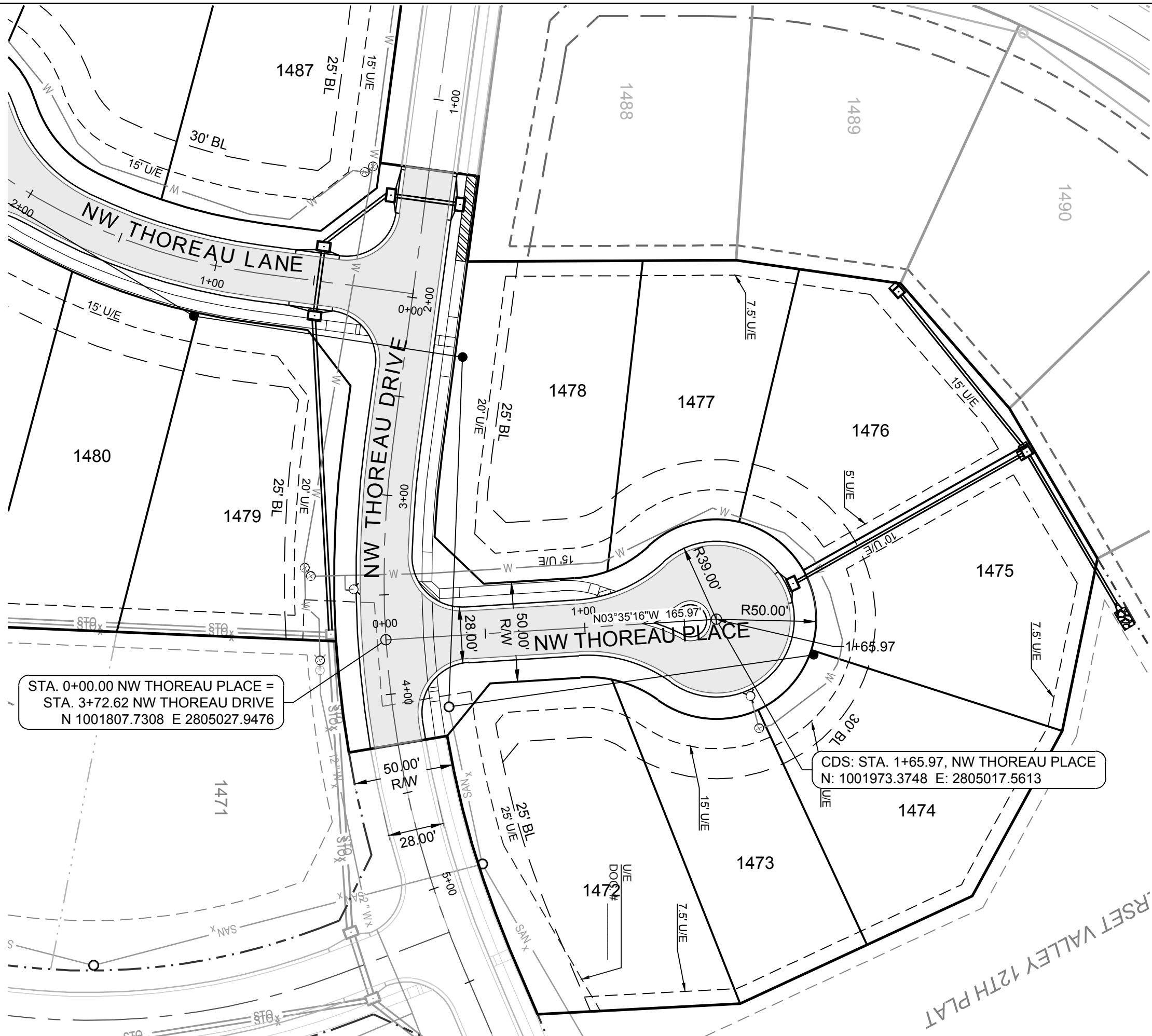
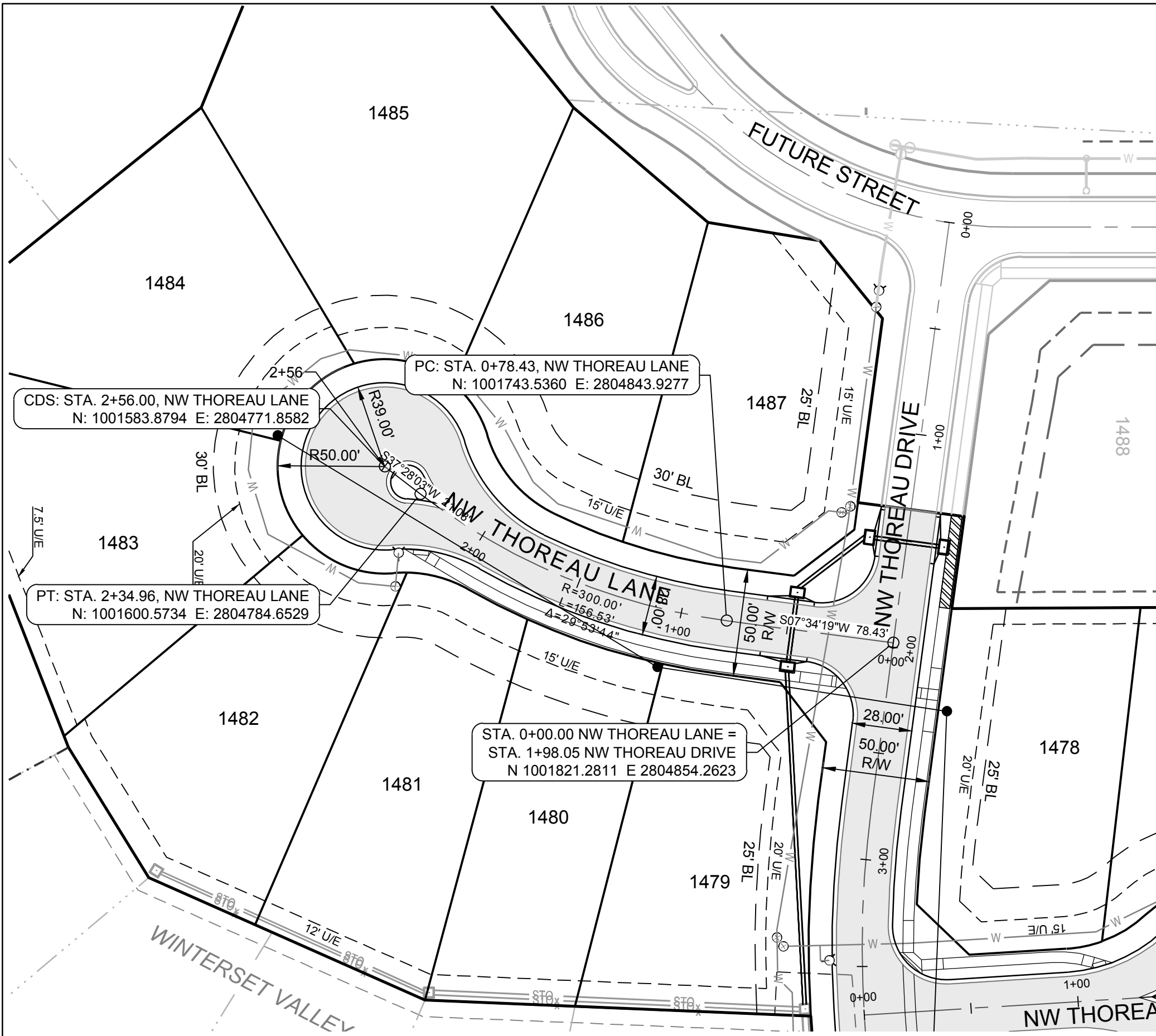
NW THOREAU DRIVE



| DRAWN BY:      | REVISION DATE | DESCRIPTION   |
|----------------|---------------|---------------|
| KSC            | 1 4-10-19     | CITY COMMENTS |
| CHECKED BY:    | 2 8-1-19      | CITY COMMENTS |
| MAB            | 3 8-21-19     | CITY COMMENTS |
| DATE PREPARED: | 4 9-18-19     | CITY COMMENTS |
| PROJ. NUMBER:  | 5             |               |
|                | 6             |               |
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|                | 8             |               |
|                | 9             |               |



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**MISSOURI GEOGRAPHIC REFERENCE SYSTEM BENCH MARK:**

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

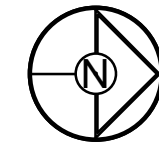
ELEV. 993.11'

**PROJECT BENCH MARK:**

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

ELEV. 935.45'

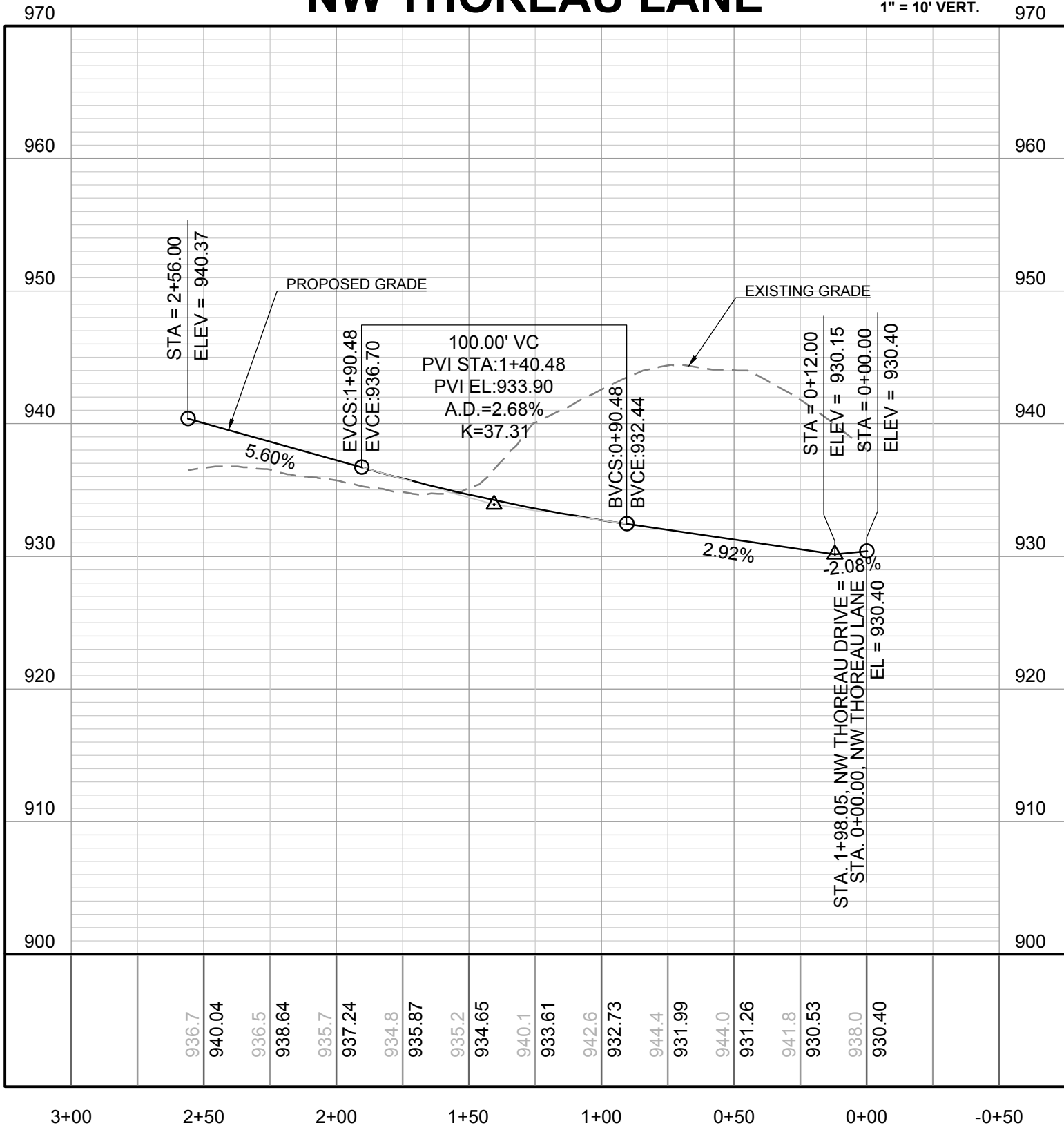
DENOTES SIDEWALK TO BE BUILT BY STREET CONTRACTOR



SCALE: 1" = 50'

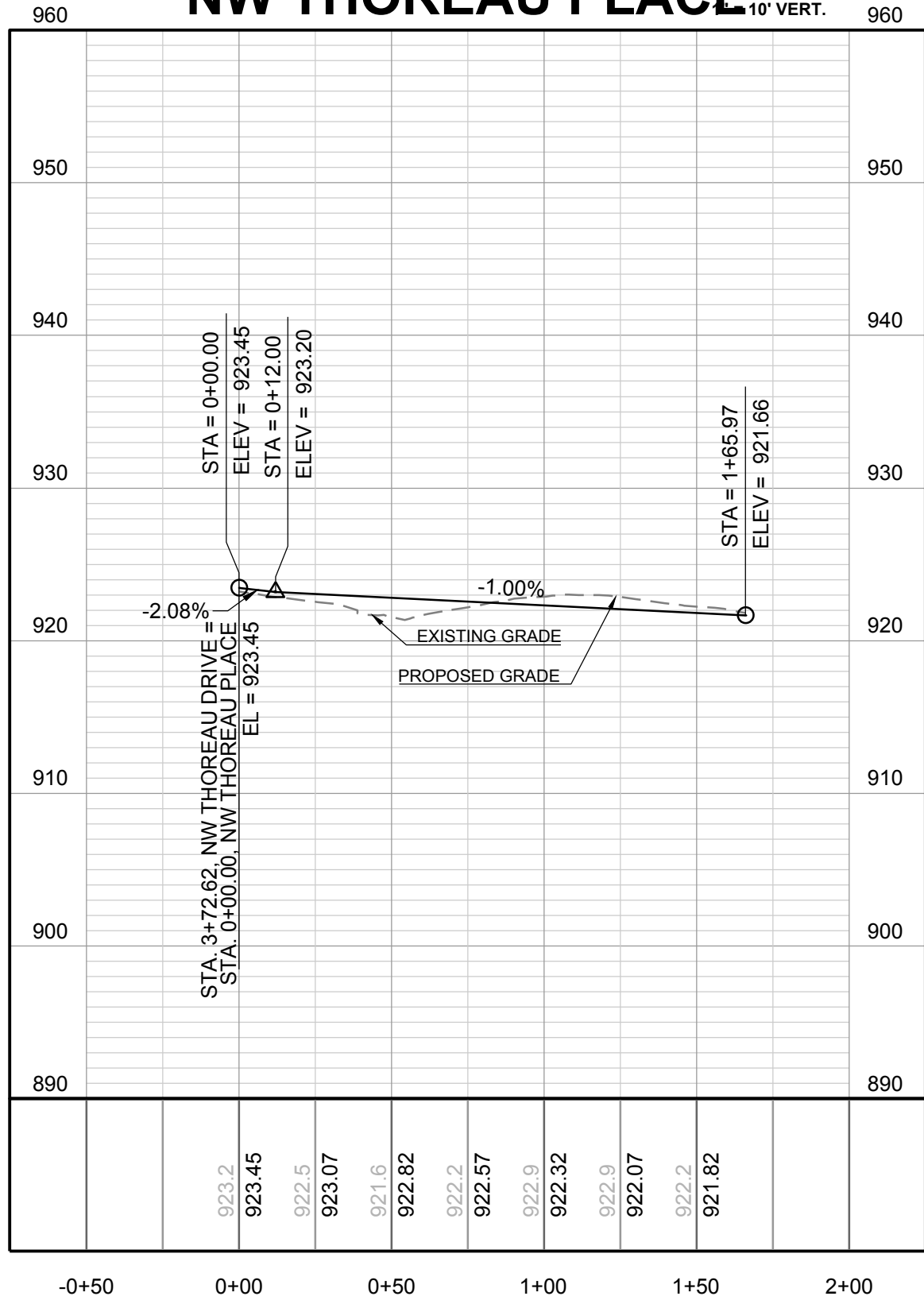
**NW THOREAU LANE**

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

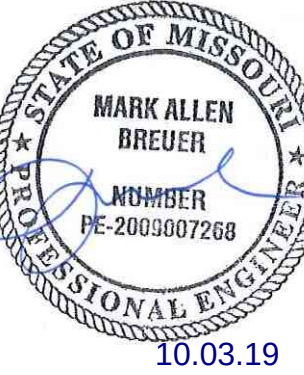


**NW THOREAU PLACE**

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



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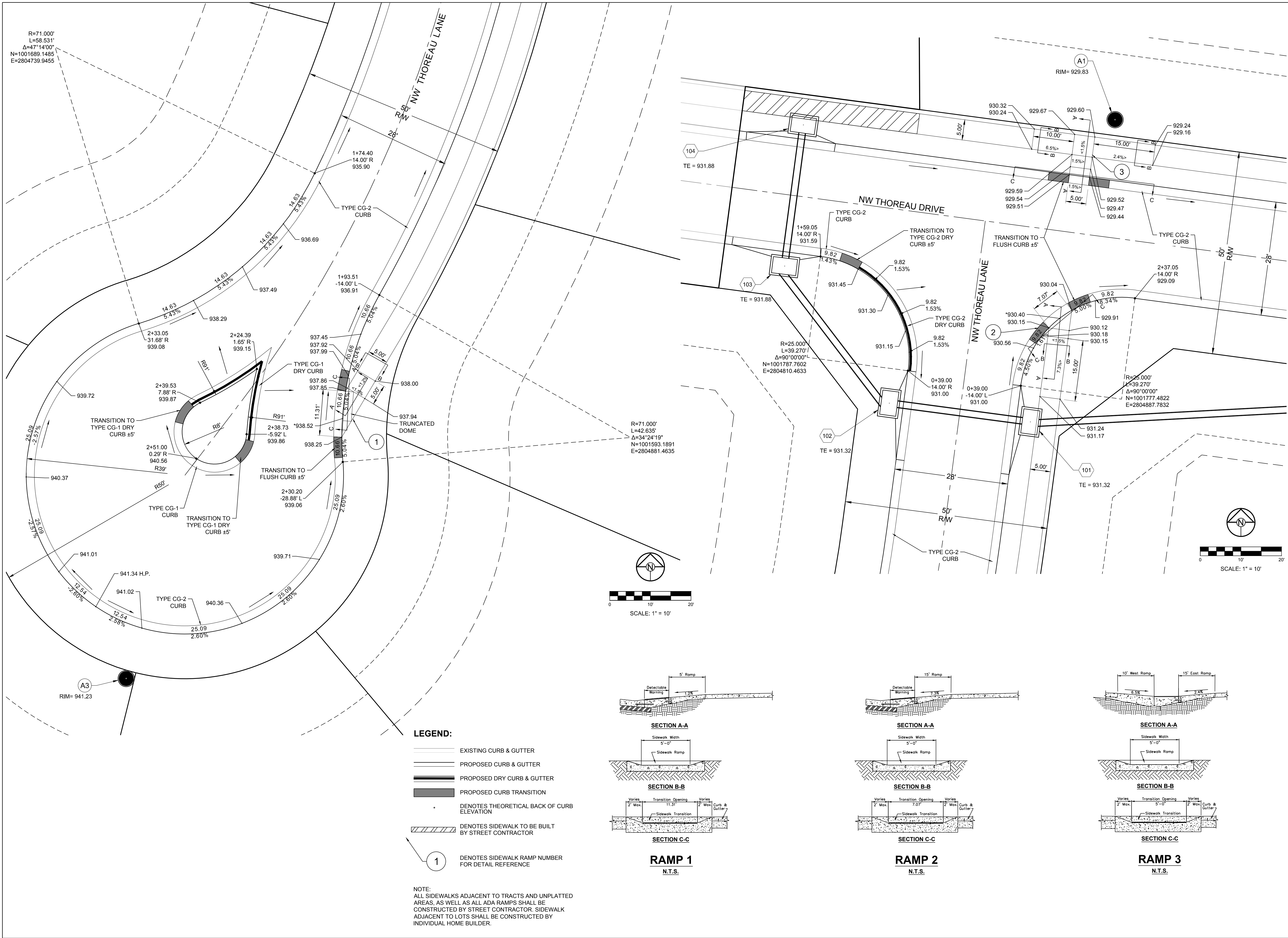
| REVISION DATE | DESCRIPTION   |
|---------------|---------------|
| 1/4/10-19     | CITY COMMENTS |
| 2/8-11-19     | CITY COMMENTS |
| 3/8-21-19     | CITY COMMENTS |
| 4/9-18-19     | CITY COMMENTS |
| 5/2-15-19     | CITY COMMENTS |
| 6/2-15-19     | CITY COMMENTS |
| 7/2-15-19     | CITY COMMENTS |
| 8/2-15-19     | CITY COMMENTS |

NW THOREAU  
PLACE AND NW  
THOREAU LANE  
PLAN AND  
PROFILE

13  
OF 24



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10.03.19

WINTERSET VALLEY, 13TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE  
PLAN AND EROSION AND SEDIMENT CONTROL  
NW THOREAU DRIVE AND AUDUBON LANE  
LEE'S SUMMIT, MISSOURI

| REVISION DATE | DESCRIPTION   |
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| 2 8-1-19      | CITY COMMENTS |
| 3 8-21-19     | CITY COMMENTS |
| 4 9-18-19     | CITY COMMENTS |
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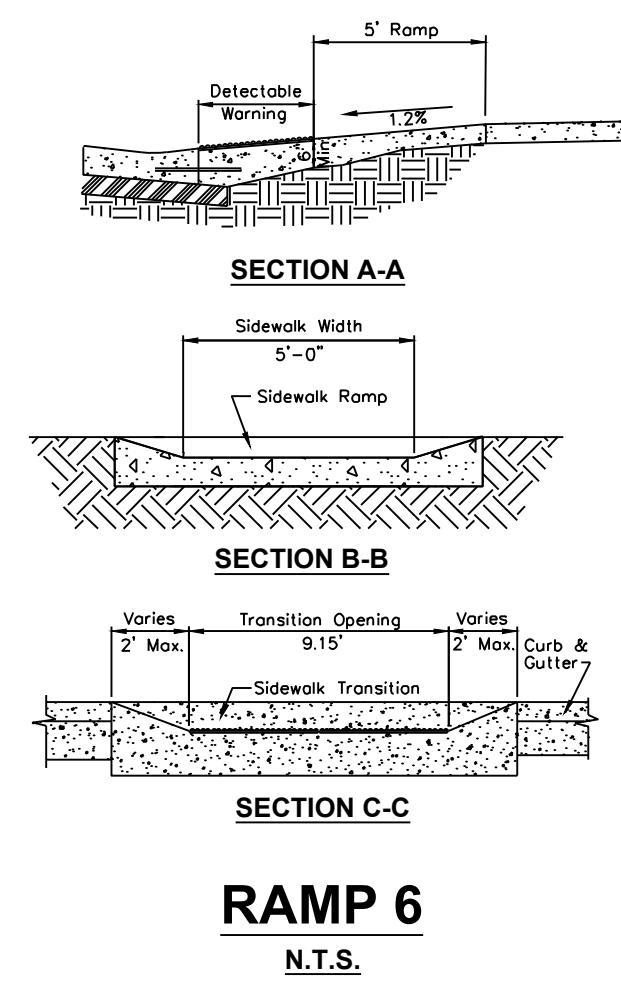
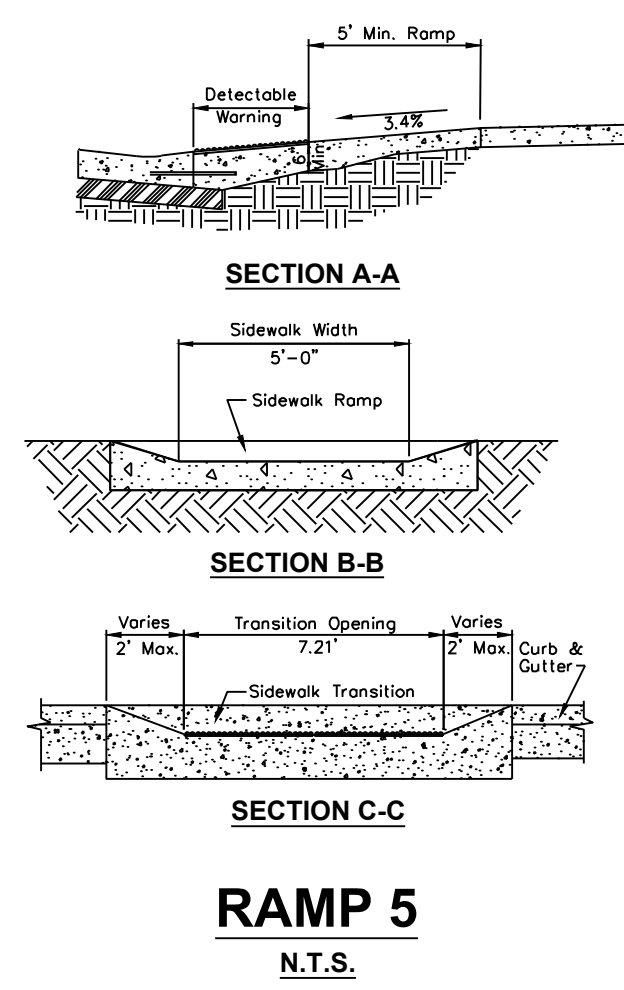
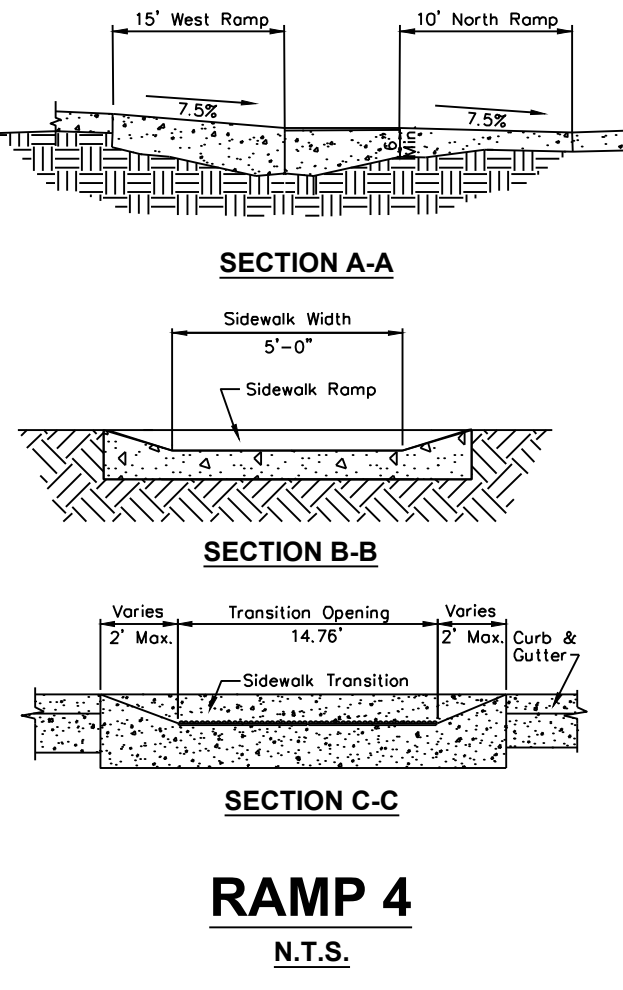
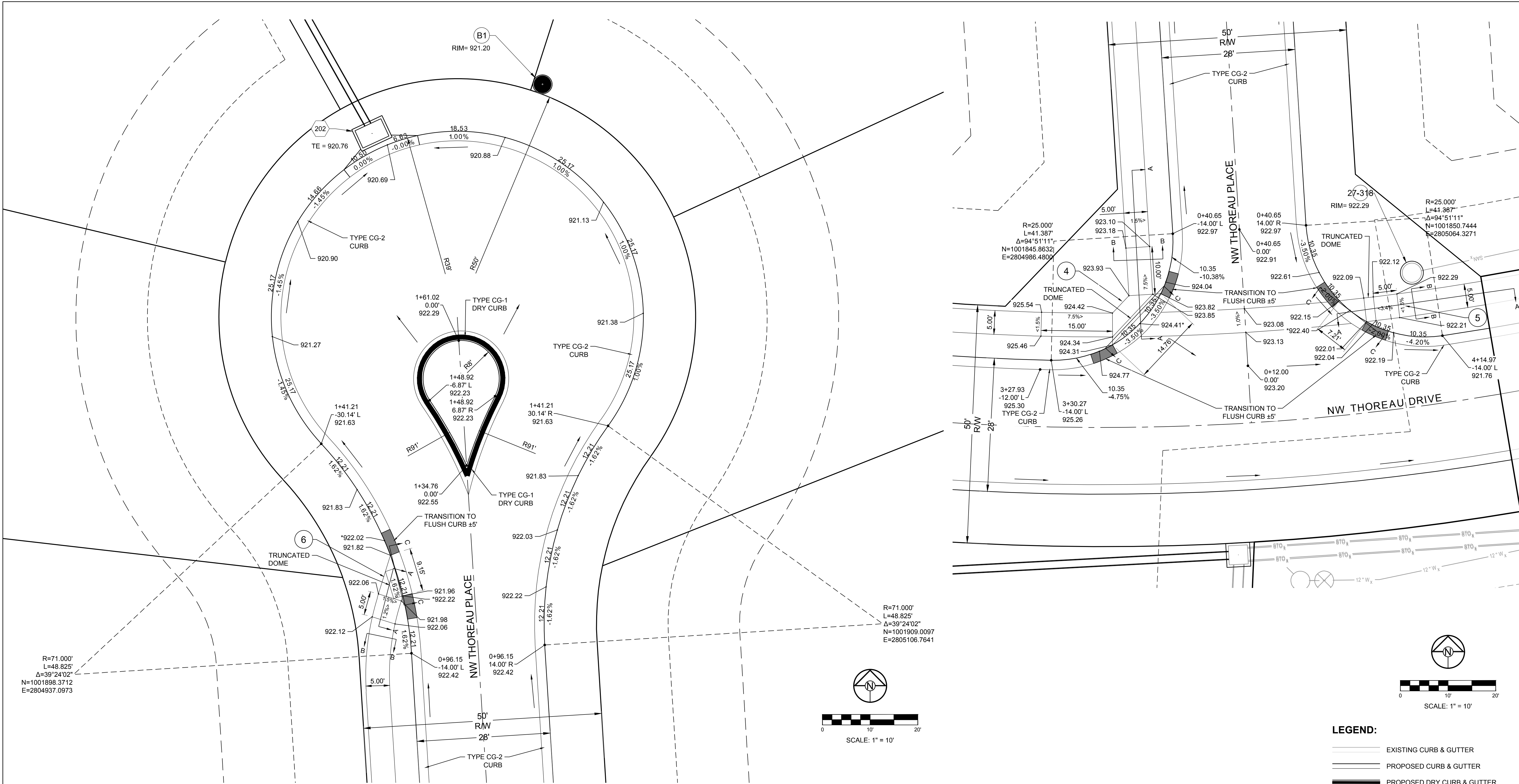
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DATE PREPARED: 2-15-19  
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INTERSECTION  
DETAILS

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**LEGEND:**

- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- PROPOSED DRY CURB & GUTTER
- PROPOSED CURB TRANSITION
- DENOTES THEORETICAL BACK OF CURB ELEVATION
- DENOTES SIDEWALK TO BE BUILT BY STREET CONTRACTOR

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

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INTERSECTION  
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MISSOURI GEOGRAPHIC REFERENCE SYSTEM  
BENCH MARK:

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

ELEV. 993.11'

PROJECT BENCH MARK:

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

ELEV. 935.45'

| Storm Sewer Construction Notes |                                                                                                                                           |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Structure                      | Notes                                                                                                                                     |
| 101                            | STA 1+60.03, LINE 100<br>INSTALL 6 X 4 CURB INLET<br>N 1001771.8893 E 2804865.3506                                                        |
| 102                            | STA 1+95.03, LINE 100<br>INSTALL 6 X 4 CURB INLET<br>N 1001776.5013 E 2804830.6558                                                        |
| 103                            | STA 2+37.43, LINE 100<br>INSTALL 6 X 4 CURB INLET<br>N 1001810.1882 E 2804804.9060                                                        |
| 104                            | STA 2+72.43, LINE 100<br>INSTALL 6 X 4 CURB INLET<br>N 1001844.8828 E 2804809.5179                                                        |
| 200                            | STA -0+00.04, LINE 200<br>INSTALL 18 INCH HDPE END SECTION W/ TOEWALL<br>AND 5 CY STONE RIP RAP<br>N 1002174.0148 E 2805009.7732          |
| 201                            | STA 0+88.27, LINE 200<br>INSTALL 4 X 4 AREA INLET<br>WITH OPENING TO SOUTHEAST<br>F.F.B. S30°27'54"E<br>N 1002129.2388 E 2804933.6522     |
| 202                            | STA 2+22.88, LINE 200<br>INSTALL 6 X 4 CURB INLET<br>N 1002011.9194 E 2804999.6569                                                        |
| 301                            | STA 1+02.91, LINE 300<br>INSTALL 4 X 4 AREA INLET<br>WITH OPENING TO SOUTHEAST<br>F.F.B. S41°03'59"E<br>N 1002064.8666 E 2804853.3638     |
| 400                            | STA 0+00.00, LINE 400<br>INSTALL 42" HDPE END SECTION W/ TOEWALL<br>AND 8 CY STONE RIP RAP<br>N 1002306.4992 E 2805286.6945               |
| 401                            | STA 0+74.07, LINE 400<br>INSTALL 6 X 6 CURB INLET<br>N 1002373.9490 E 2805317.2915                                                        |
| 402                            | STA 1+10.07, LINE 400<br>INSTALL 6 X 4 CURB INLET<br>N 1002409.3973 E 2805323.5696                                                        |
| 500                            | STA -0+00.04, LINE 500<br>INSTALL 48" HDPE END SECTION W/ TOEWALL<br>AND SCOUR BASIN<br>N 1002503.0403 E 2805400.4139                     |
| 501                            | STA 2+36.72, LINE 500<br>INSTALL 6 X 6 DETENTION STRUCTURE W/ OPENING TO SOUTHWEST<br>F.F.B. S55°25'42"E<br>N 1002308.1861 E 2805265.9260 |

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STATE OF MISSOURI  
MARK ALLEN BREUER  
Professional Engineer  
NUMBER  
PE-2003007268  
10.03.19

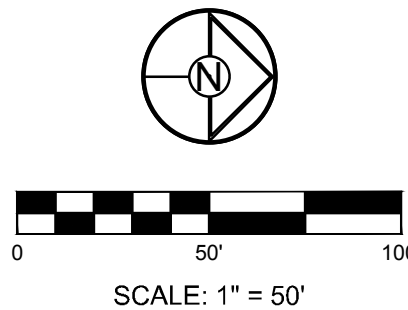
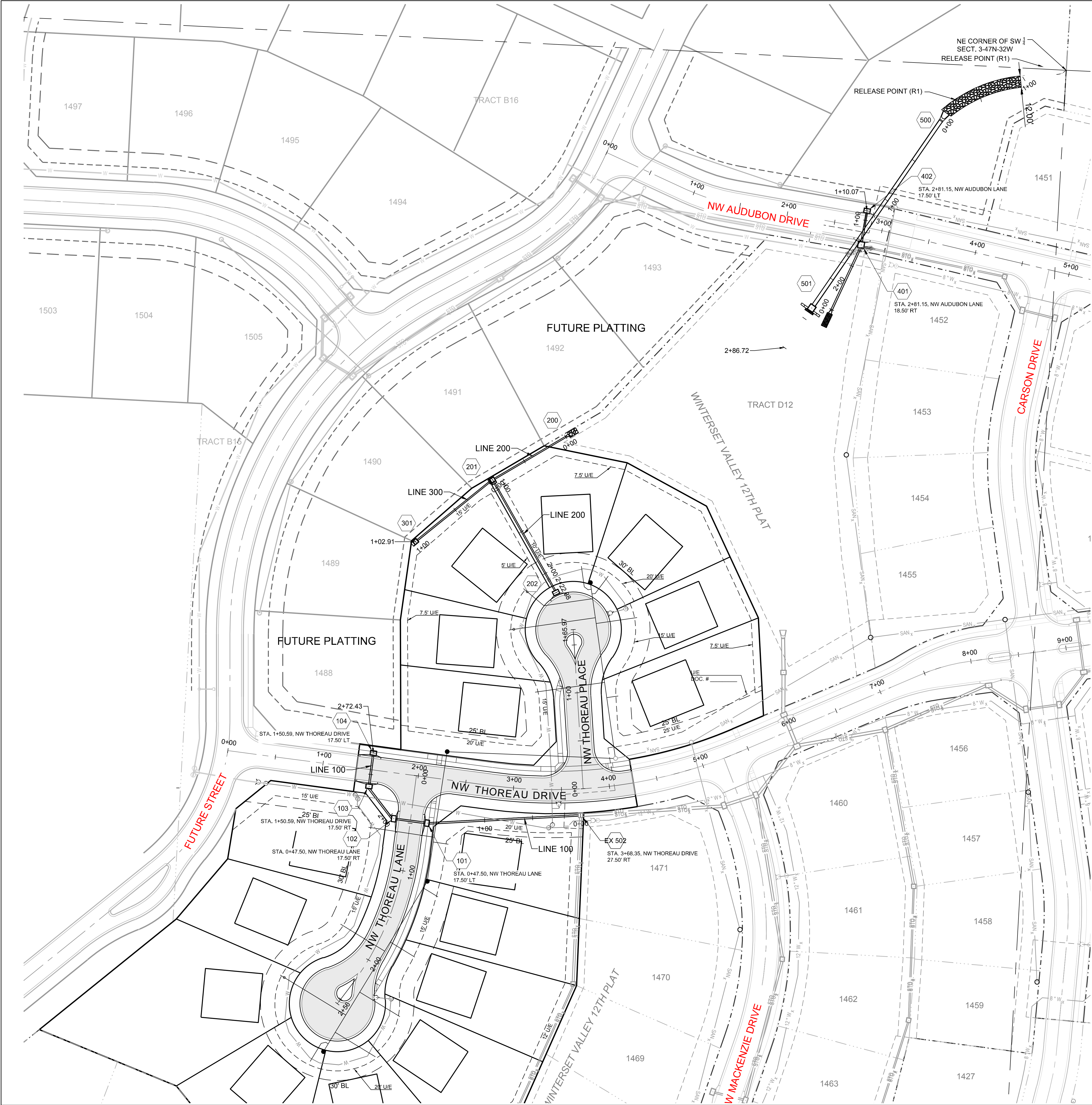
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STORM PLAN

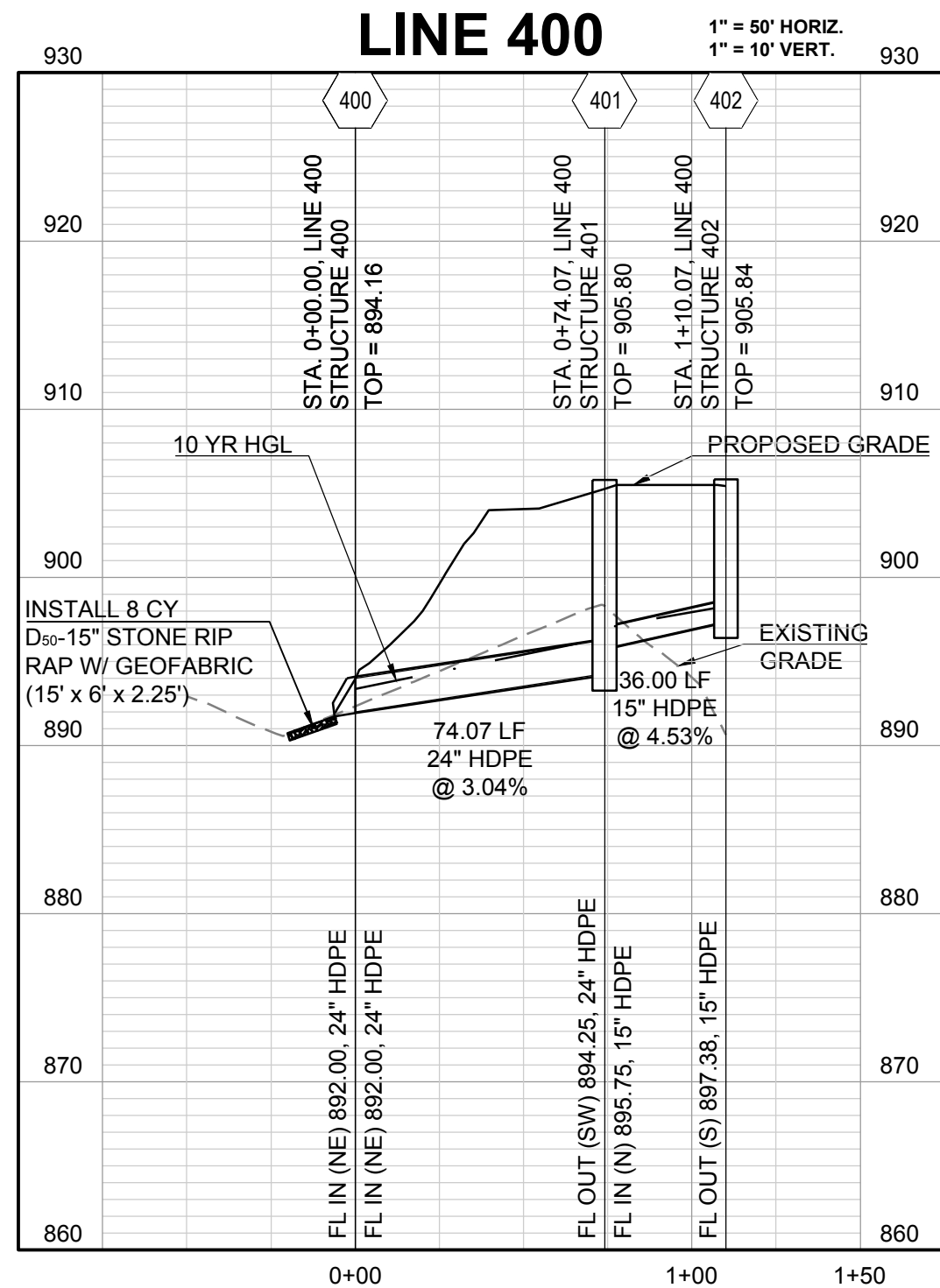
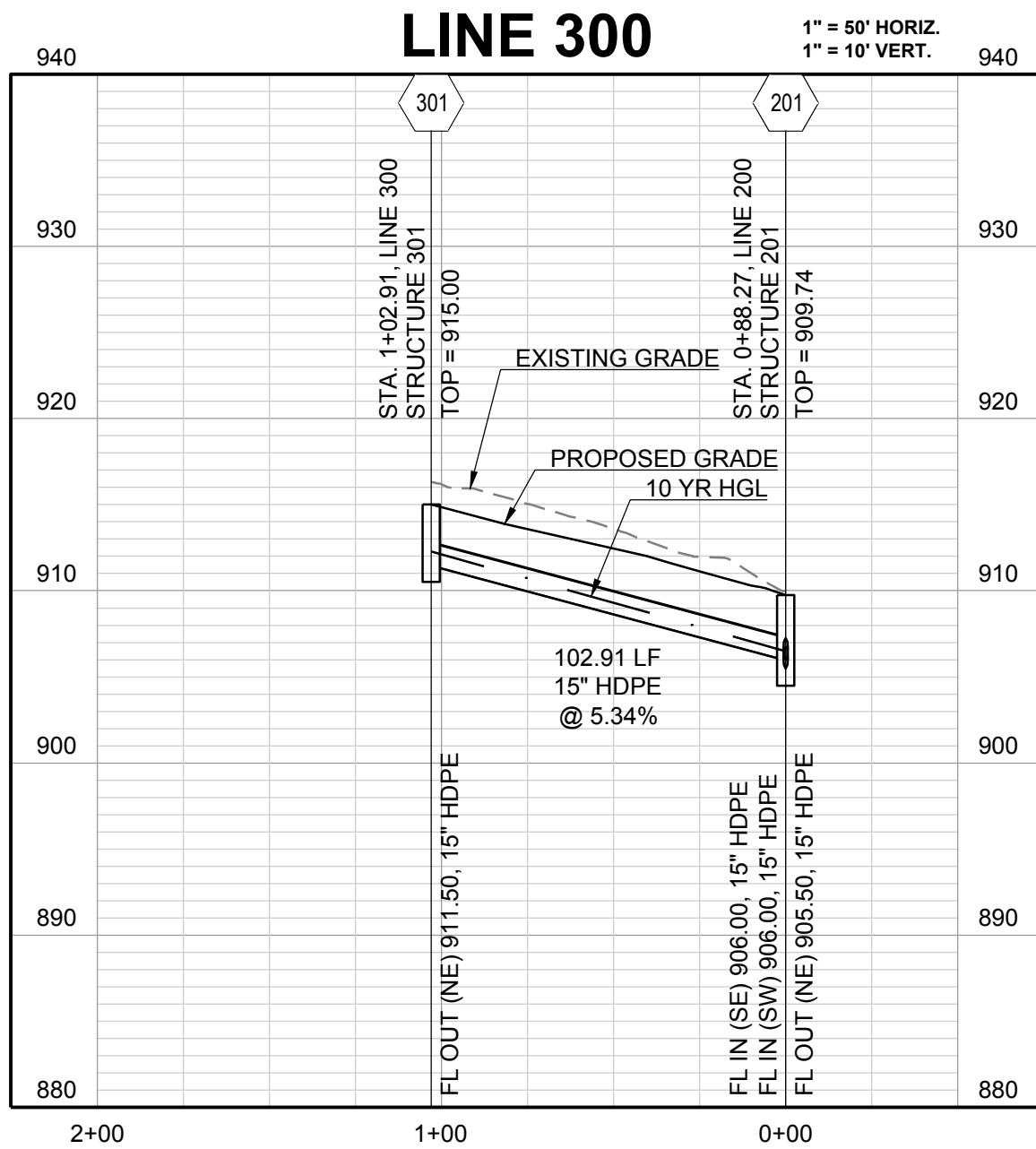
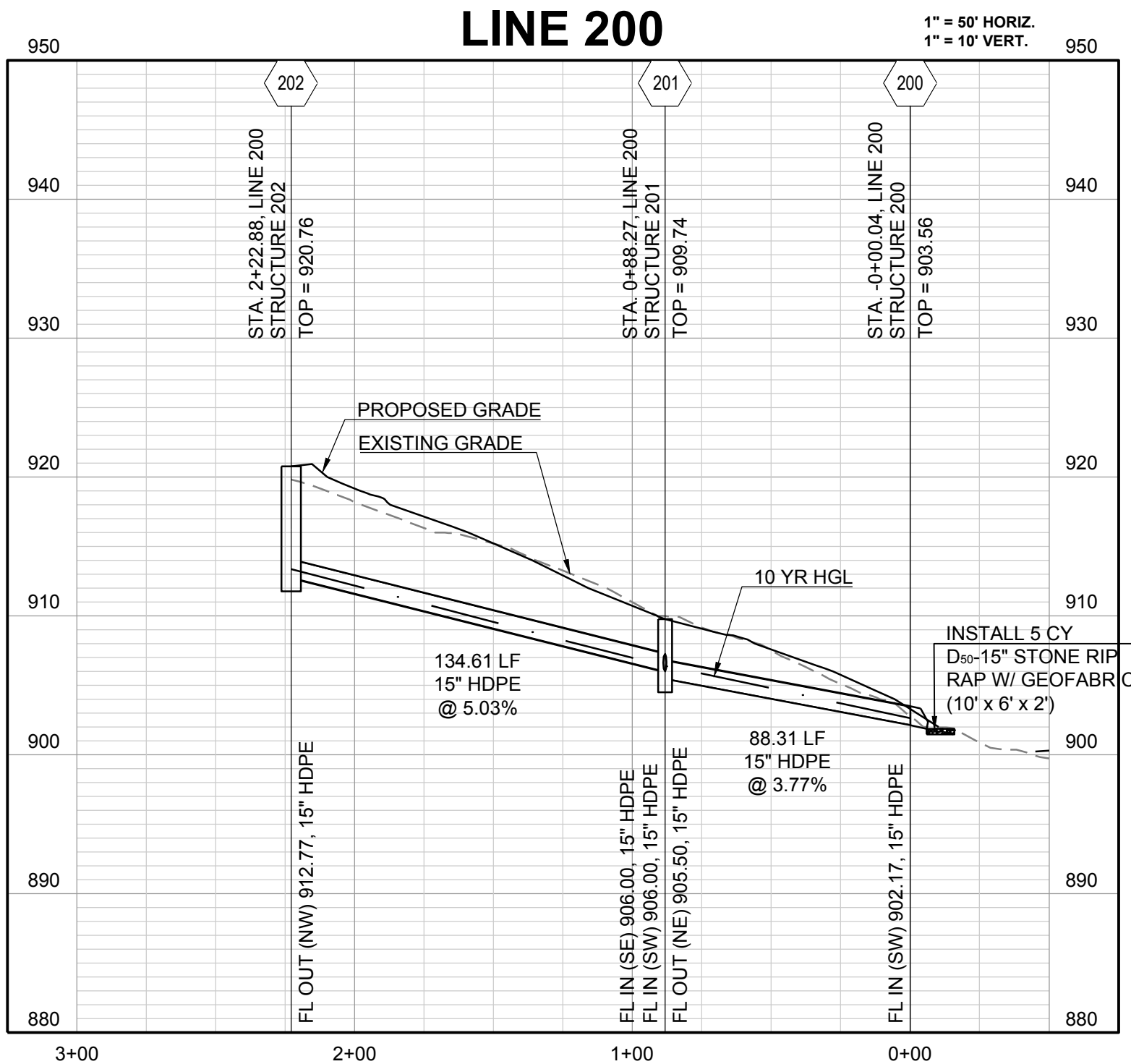
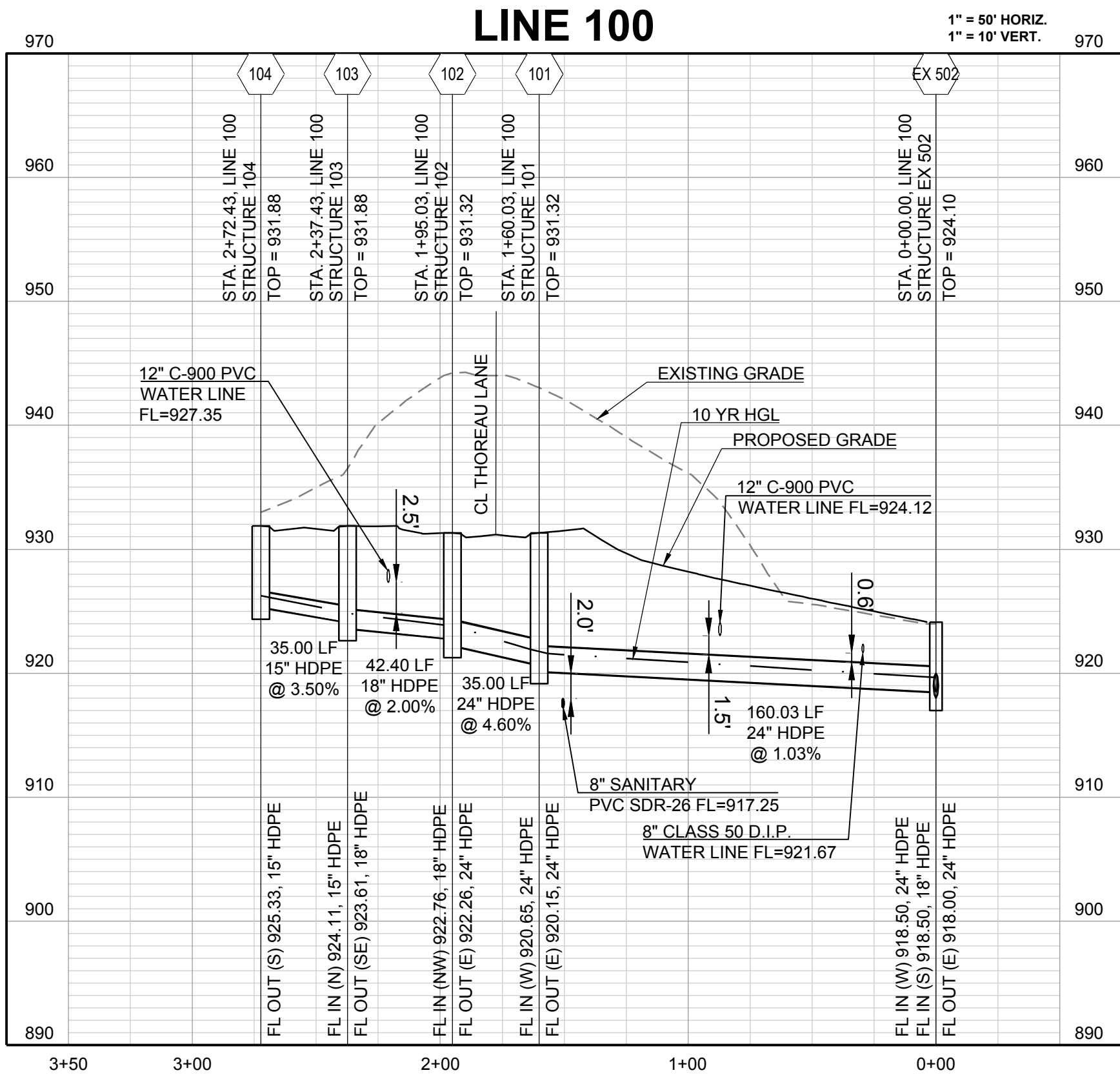
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OF 24

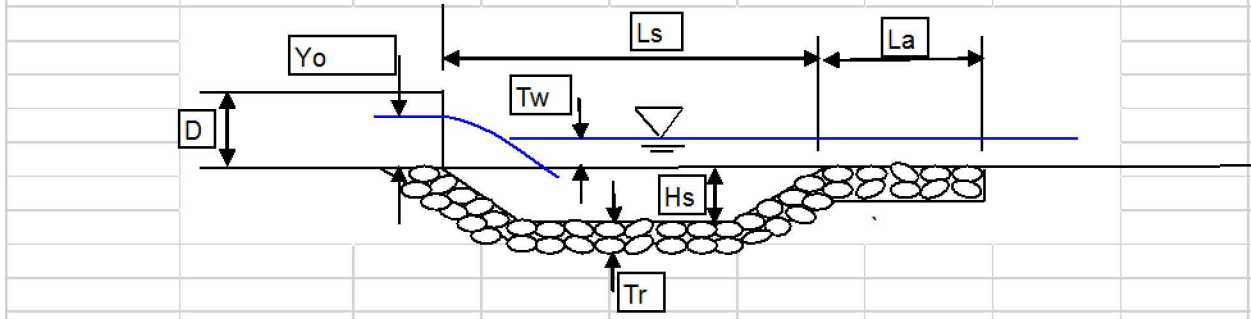




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SCOUR BASIN DESIGN SHEET v1.1



DESIGN NOTES:

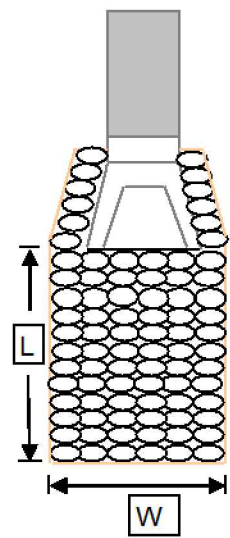
1. Tailwater is considered low if  $Y_o/T_w < 0.75$ . When this ratio is greater than 0.75, it is considered a HIGH tailwater condition and additional design considerations are necessary.
2. It is necessary to refer to Figure XI-2 in HEC-14 to obtain the value for  $H_s/Y_e$ .
3. Acceptable range of values for  $H_s/d_{50}$  is between 2 and 4.
4. Basin width shall be defined by receiving swale width, or 3'D if no swale.
5. Outlet section type must be specified as either a PIPE (circular) or BOX (rectangular).
6. This Design is only applicable to outlets with Froude #'s  $< 3$  and  $> 1$ . For Froude #'s less than 1, a scour basin is generally not needed. For Froude #'s greater than 3, Energy dissipators may be required.

| OUTLET STRUCTURE | Velocity (ft/s) | Diameter (ft) | Section Type | Tw (ft) | Tailwater Condition | Ye (ft) | d50 (ft) | Tr (ft) | d50/Ye | Froude# | Hs/Ye (figure XI-2) HEC-14 | Hs (ft) | Hs/d50 (>2, <4) | Ls (10*Hs or 3'D) | La (5*Hs or D) | Ws (3'D) | Side Slope |
|------------------|-----------------|---------------|--------------|---------|---------------------|---------|----------|---------|--------|---------|----------------------------|---------|-----------------|-------------------|----------------|----------|------------|
| 500              | 21.56           | 4.00          | PIPE         | 0.50    | LOW                 | 4.00    | 2.00     | 4.00    | 0.50   | 1.90    | 1.40                       | 5.60    | 2.80            | 56.00             | 28.00          | 12       | 3:1        |

**VARIABLES:**  
Hs=Depth of Scour Basin  
Ls=Length of Basin  
La=Length of Apron  
Ws=Width of basin  
d50=median riprap size  
Q=discharge  
Yo=Pipe flow Depth  
Tw=Tail Water  
D=box culvert height or Pipe Diameter  
Ye=Effective flow depth( $Y_e=Y_o$  for rectangular sections)  
Tr=Thickness of Rip-Rap

**Rip-Rap Sizes:**  
0.25 (ft)  
0.50 (ft)  
0.75 (ft)  
1.00 (ft)  
1.50 (ft)  
2.00 (ft)

OUTLET RIP-RAP DESIGN WORKSHEET v1.0



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

- DESIGN NOTES:
1. Rip-Rap width calculated to be either  $D+4'$ , 3'D, or top width of channel, whichever is greater
  2. Rip-Rap length calculated to be  $1/(2 \tan(e)) \cdot (A/Y_t - 3)$ , where  $e=20^\circ$ ,  $A$ =flow area, and  $Y_t$ =normal depth
  3.  $D_{50}$  calculated using  $(1/2)(1.384 \cdot V^2 / (s-1) \cdot 2g)$  (Eqn. 10, pg. 32, HEC-11), where  $V$ =Outlet Velocity,  $s$ =Specific Gravity of Stone=2.65, and  $g=32.2$
  4. Critical Shear Stresses provided by A.P.W.A. 5600
  5. Rip-Rap thickness equals  $2 \cdot D_{50}$  for 12" and smaller rip-rap, and  $1.5 \cdot D_{50}$  for larger than 12"

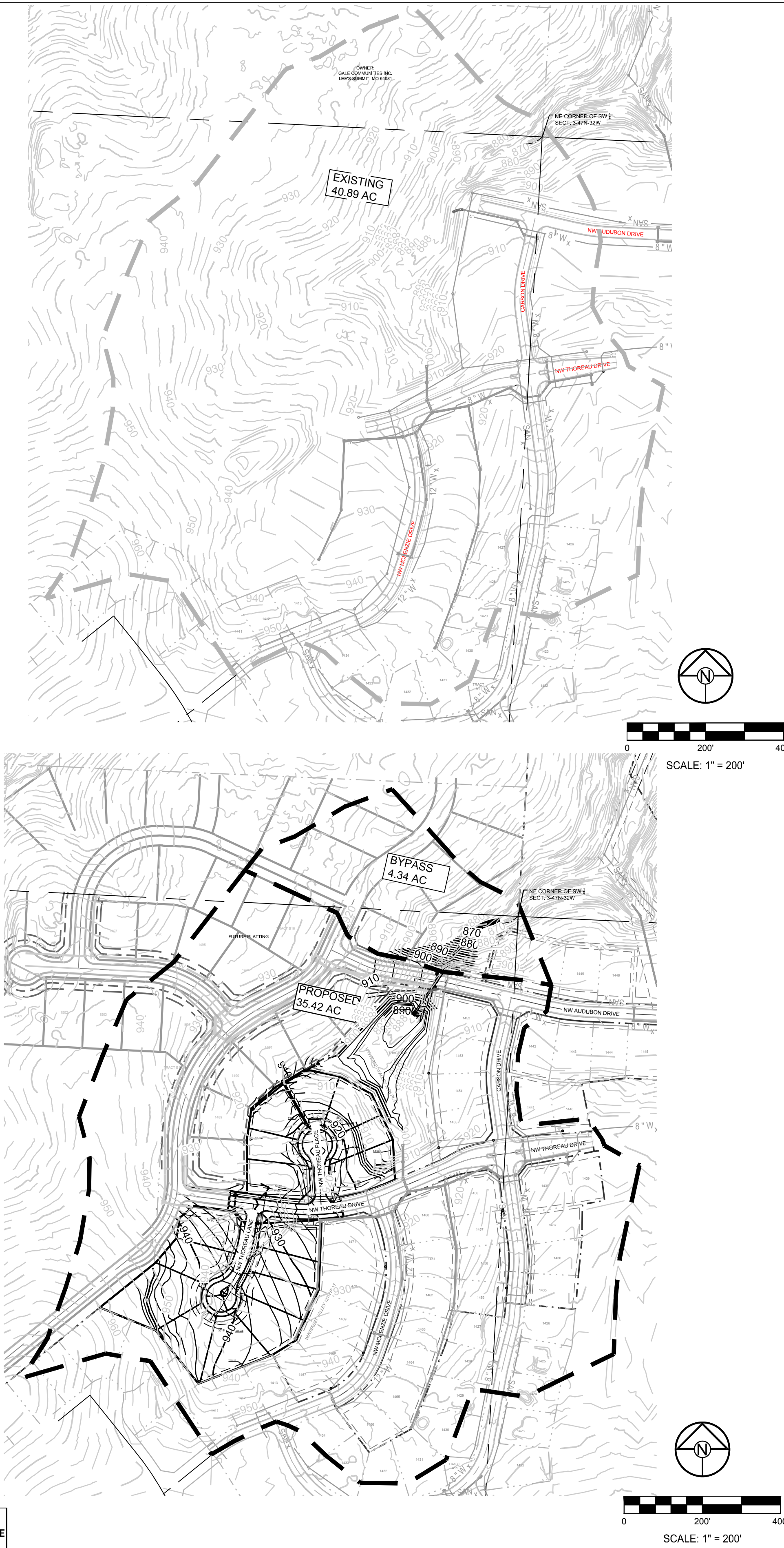
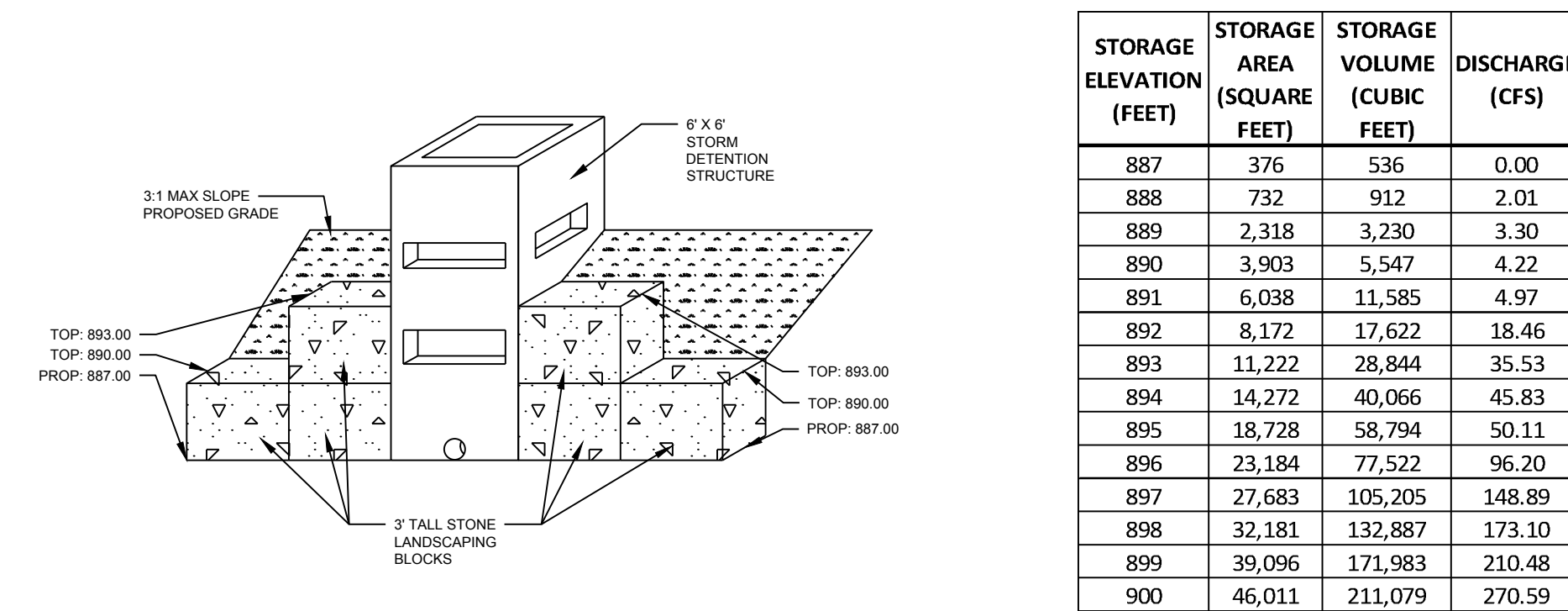
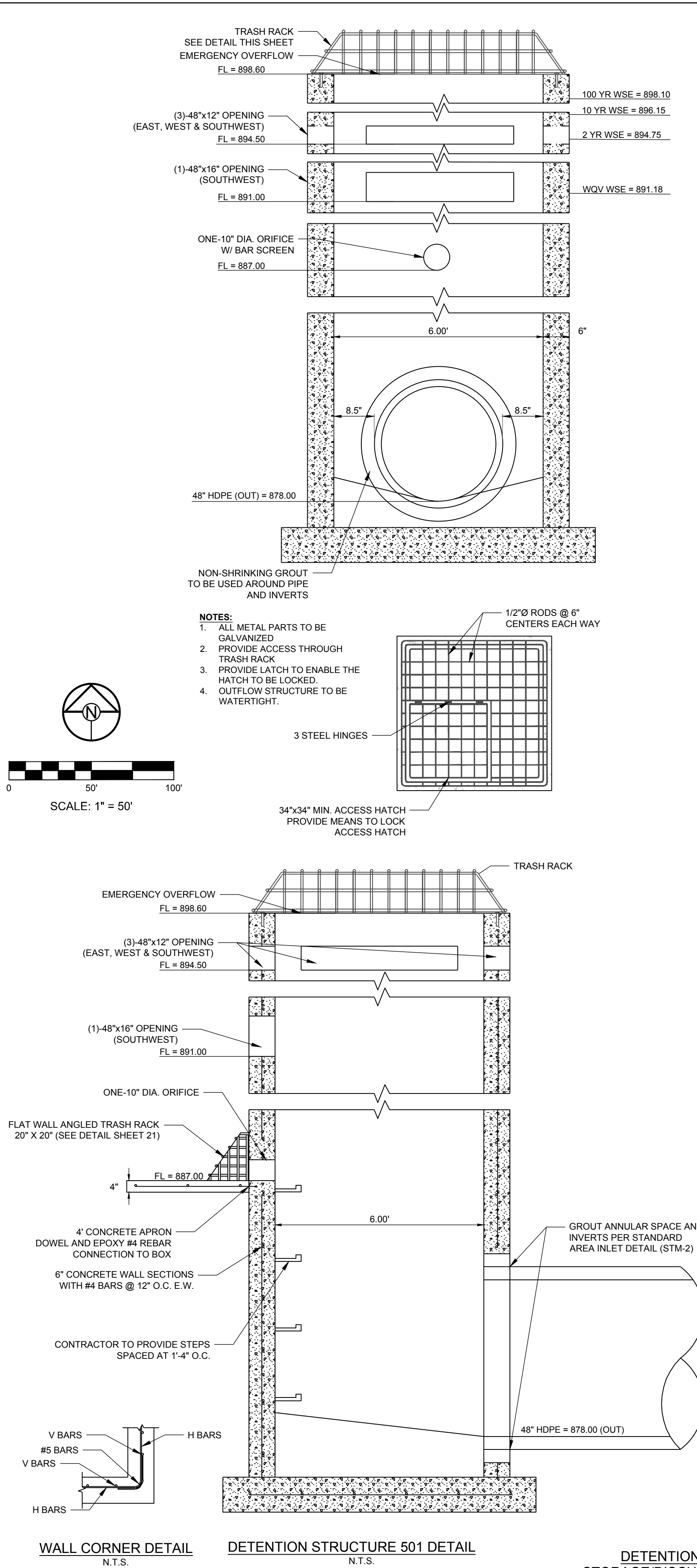
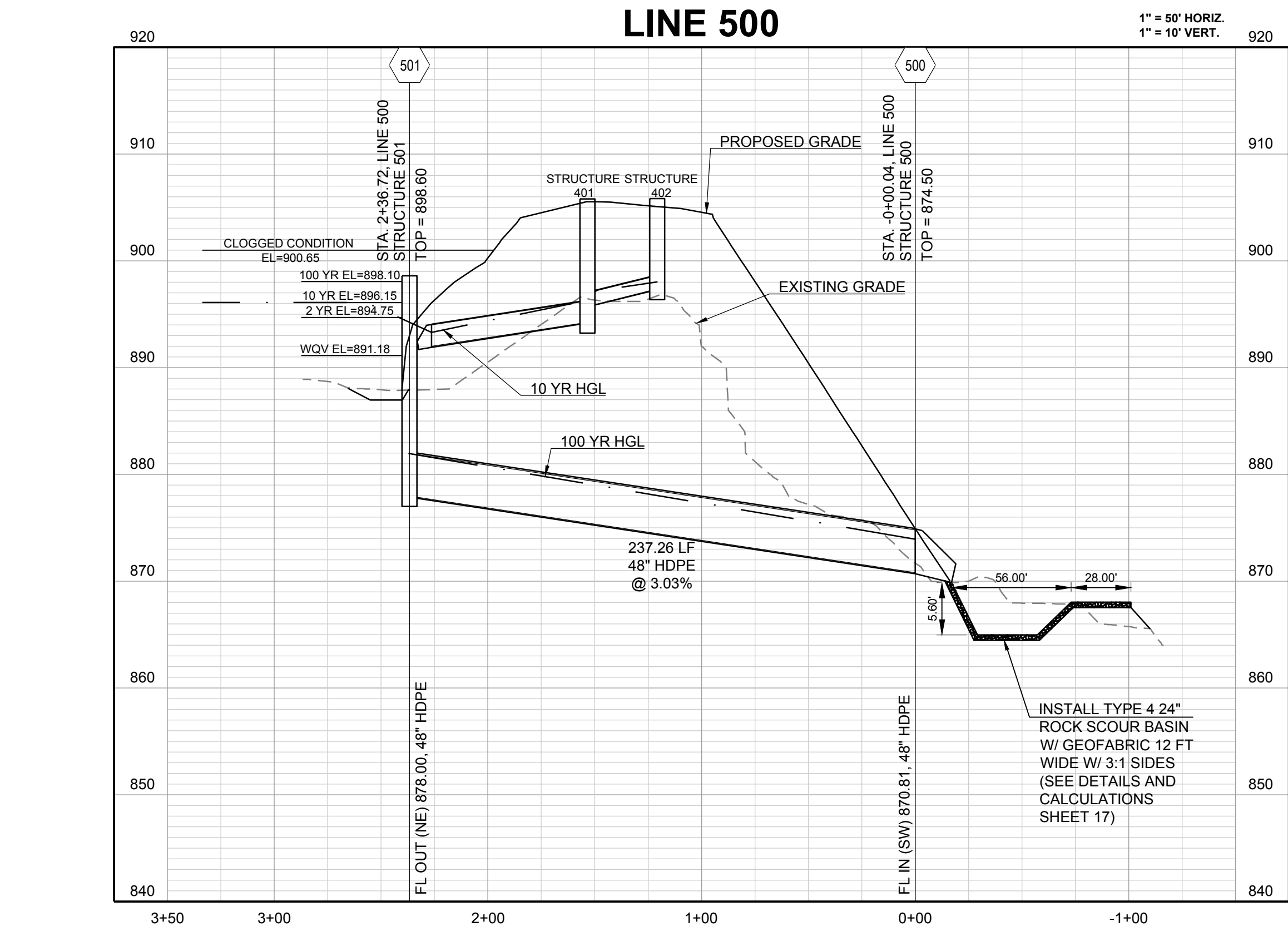
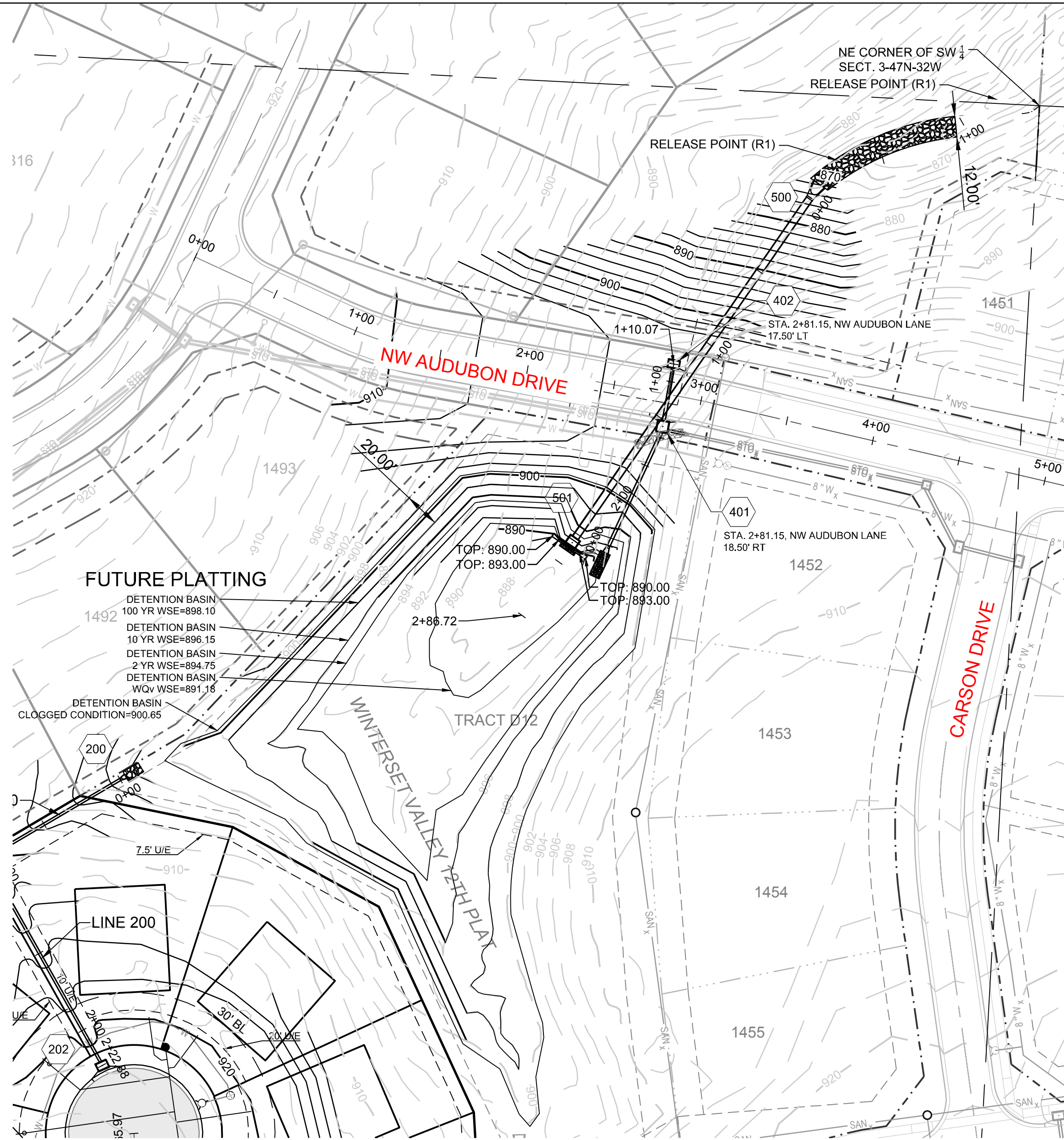
| Outlet/Channel Properties |                |                                  |               |                |                                            | Rip-Rap Dimensions |             |                   |                   |                    |             |                     |                          |                                             |        |
|---------------------------|----------------|----------------------------------|---------------|----------------|--------------------------------------------|--------------------|-------------|-------------------|-------------------|--------------------|-------------|---------------------|--------------------------|---------------------------------------------|--------|
| Outlet Structure          | Pipe Size (ft) | Downstream Channel/Swale Section | V Pipe (ft/s) | V Swale (ft/s) | Average Shear Stress (lb/ft <sup>2</sup> ) | W Calculated (ft)  | W USED (ft) | L Calculated (ft) | L (min.) 3'D (ft) | L (max.) 10'D (ft) | L USED (ft) | D50 Calculated (in) | Size (Wt.) USED (d50,in) | Critical Shear Stress (lb/ft <sup>2</sup> ) | T (ft) |
| 200                       | 1.25           | N/A                              | 11.07         | N/A            | N/A                                        | 5.25               | 6           | n/a               | 3.75              | 12.50              | 10          | 0.80                | 1.00 (50#)               | 4.00                                        | 2.00   |
| 400                       | 2.00           | N/A                              | 14.04         | N/A            | N/A                                        | 6.00               | 6           | n/a               | 6.00              | 20.00              | 15          | 1.28                | 1.50 (100#)              | 5.16                                        | 2.25   |

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STORM PROFILES

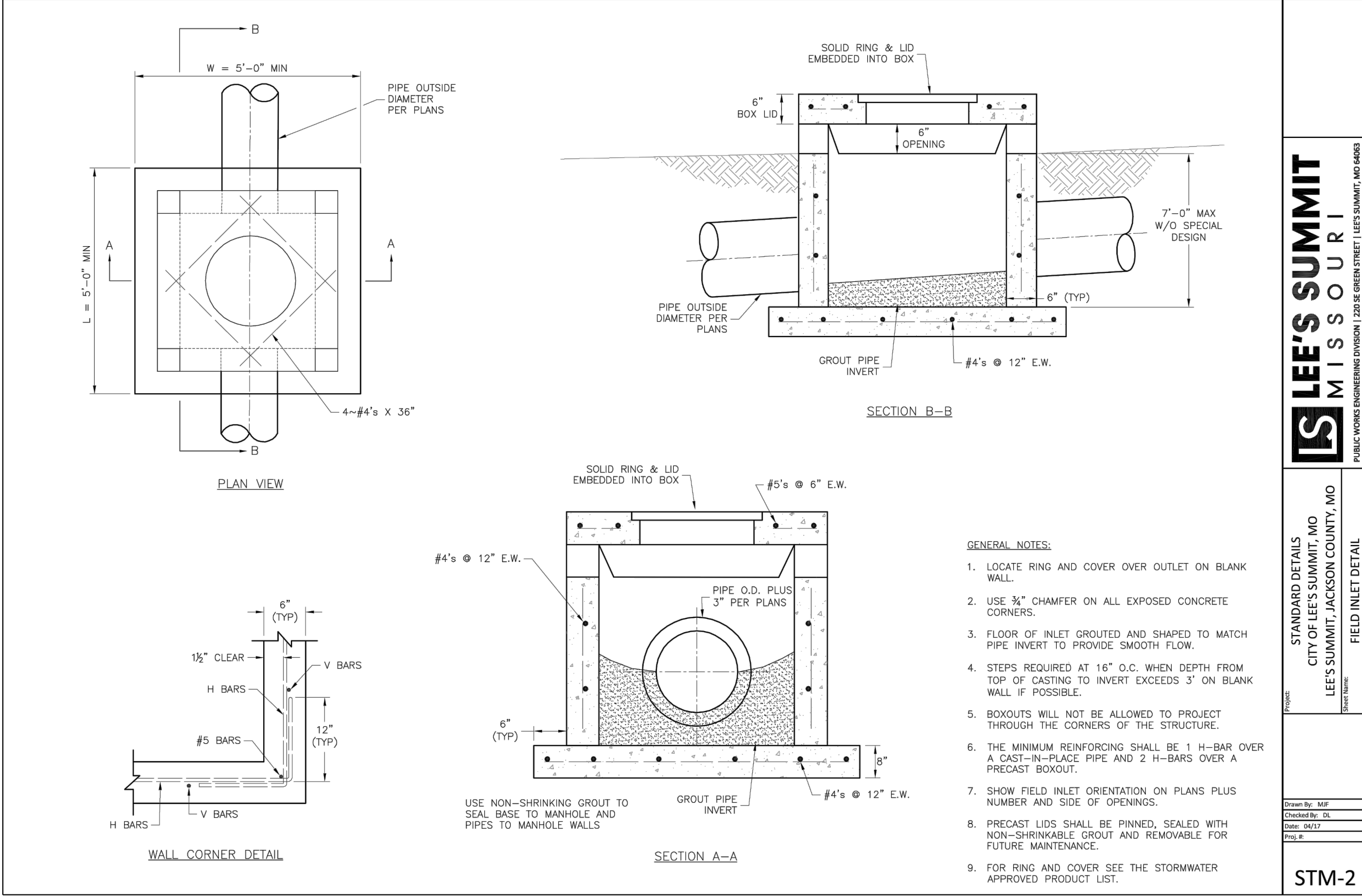
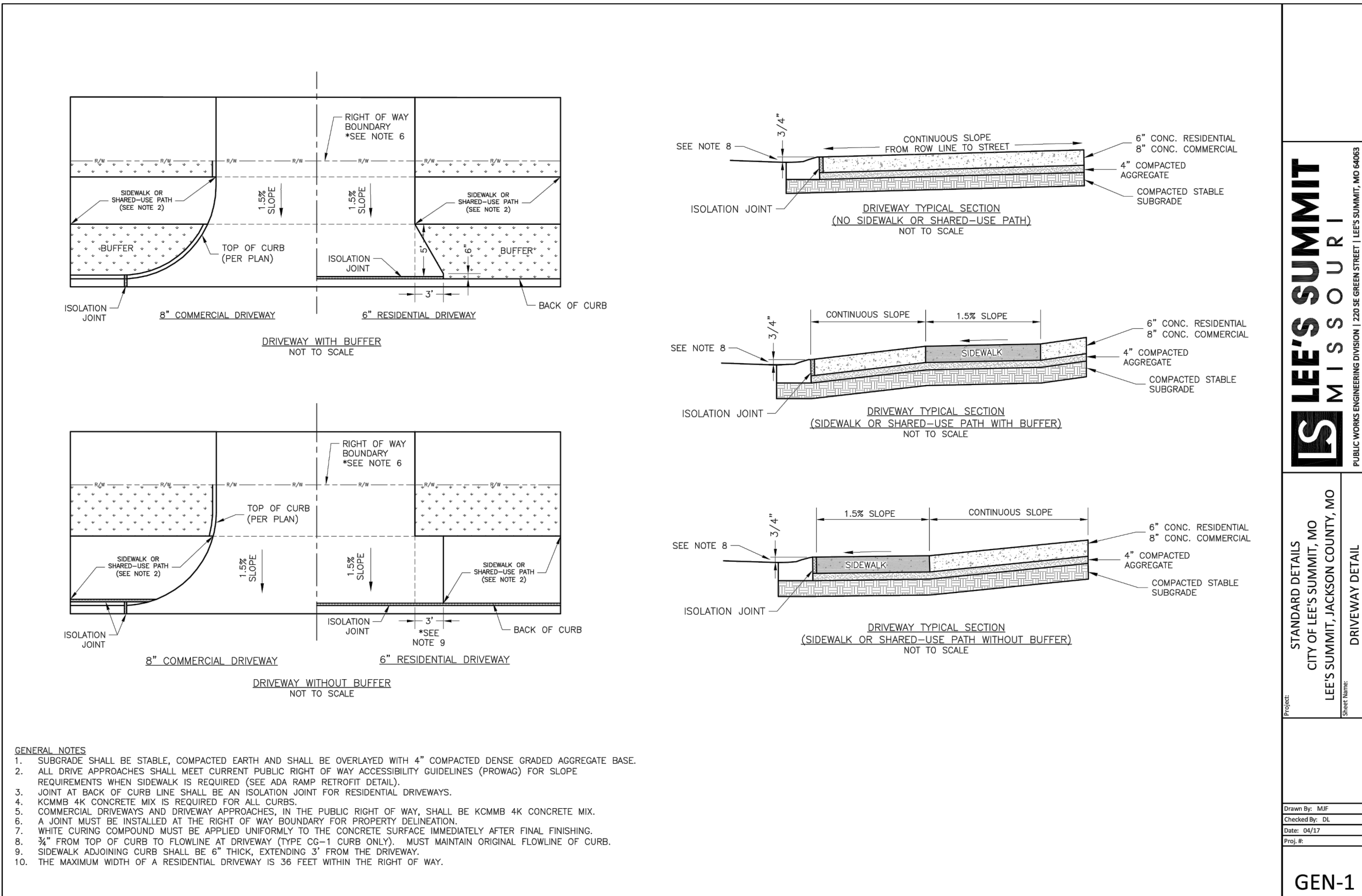
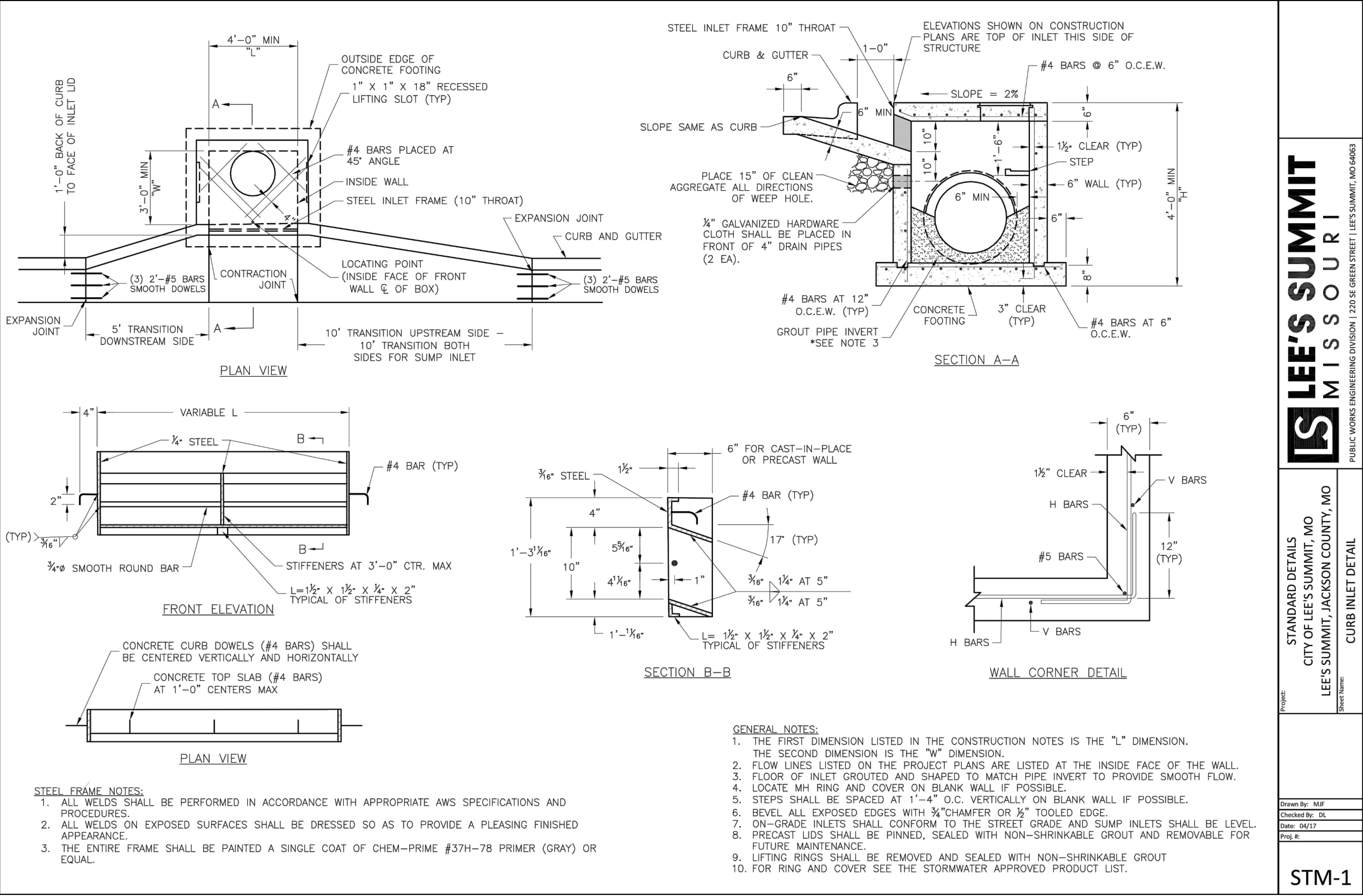
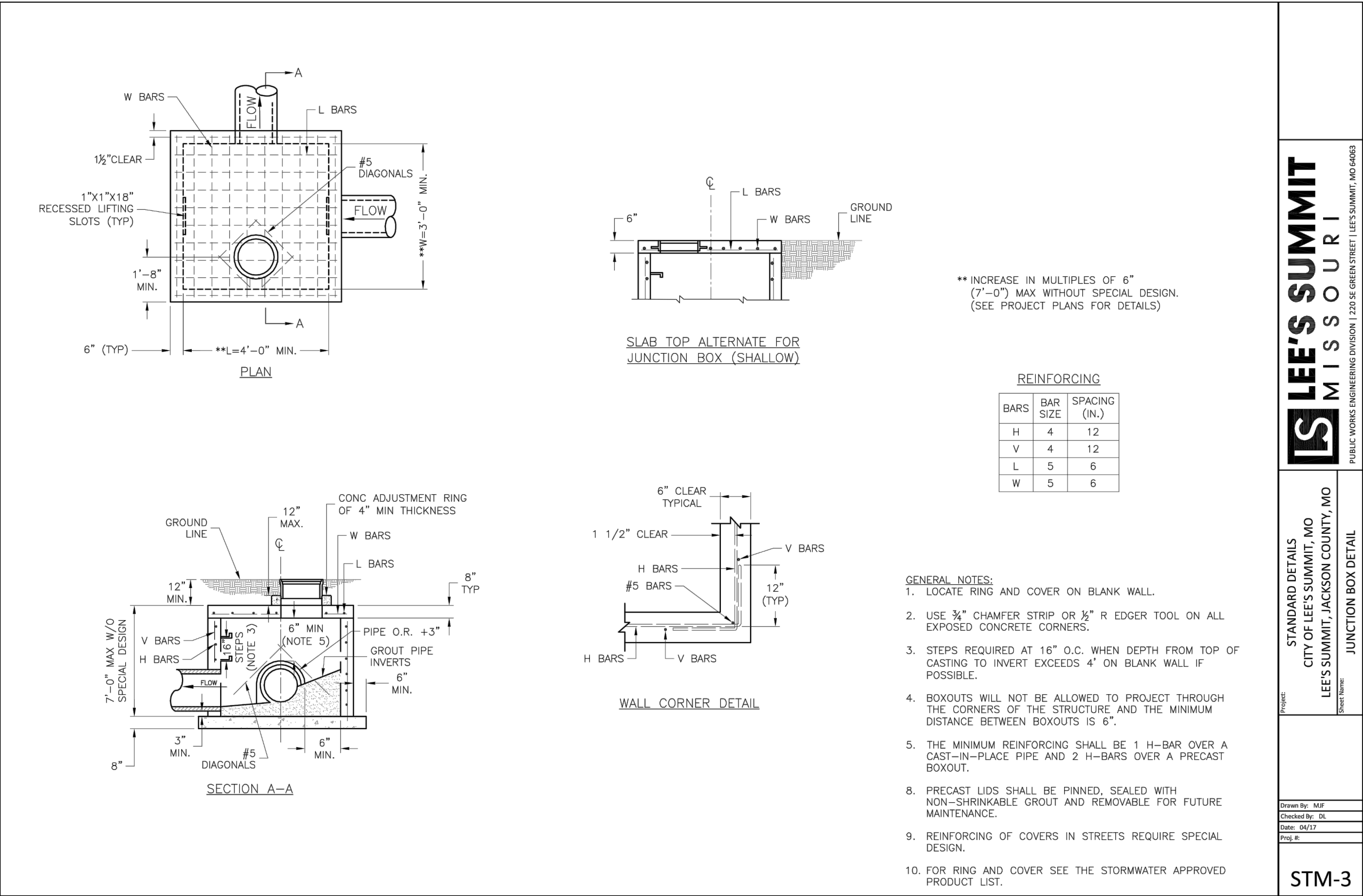
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| DETENTION BASIN DESIGN INFORMATION                                            |           |     |          |                     |
|-------------------------------------------------------------------------------|-----------|-----|----------|---------------------|
|                                                                               | AREA (AC) | CN  | Tc (MIN) | 100 YR RUNOFF (CFS) |
| EXISTING DRAINAGE AREA                                                        | 40.89     | 80  | 21.40    | 237.98              |
| PROPOSED DRAINAGE AREA                                                        | 35.42     | 86  | 16.10    | 262.19              |
| PROPOSED ONSITE DETENTION BYPASS                                              | 4.34      | 86  | 12.90    | 35.42               |
| DETENTION BASIN RELEASE RATE                                                  | ---       | --- | ---      | 175.19              |
| FLOW AT RELEASE POINT                                                         | ---       | --- | ---      | 195.40              |
| MAX. ALLOWABLE FLOW = EXISTING FLOW = 237.98 CFS                              |           |     |          |                     |
| TOTAL DEVELOPED CONDITION 100 YR RELEASE RATE TO R1 = 195.40 CFS < 237.98 CFS |           |     |          |                     |
| EXISTING WATER QUALITY = 7.09 CFS                                             |           |     |          |                     |
| PROPOSED WATER QUALITY = 6.71 CFS < 7.09 CFS                                  |           |     |          |                     |



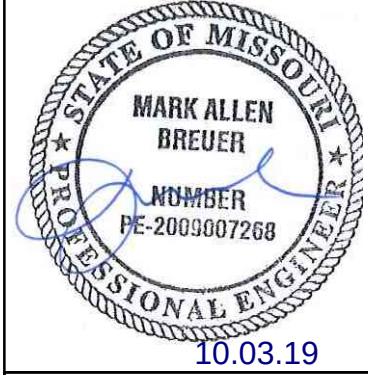


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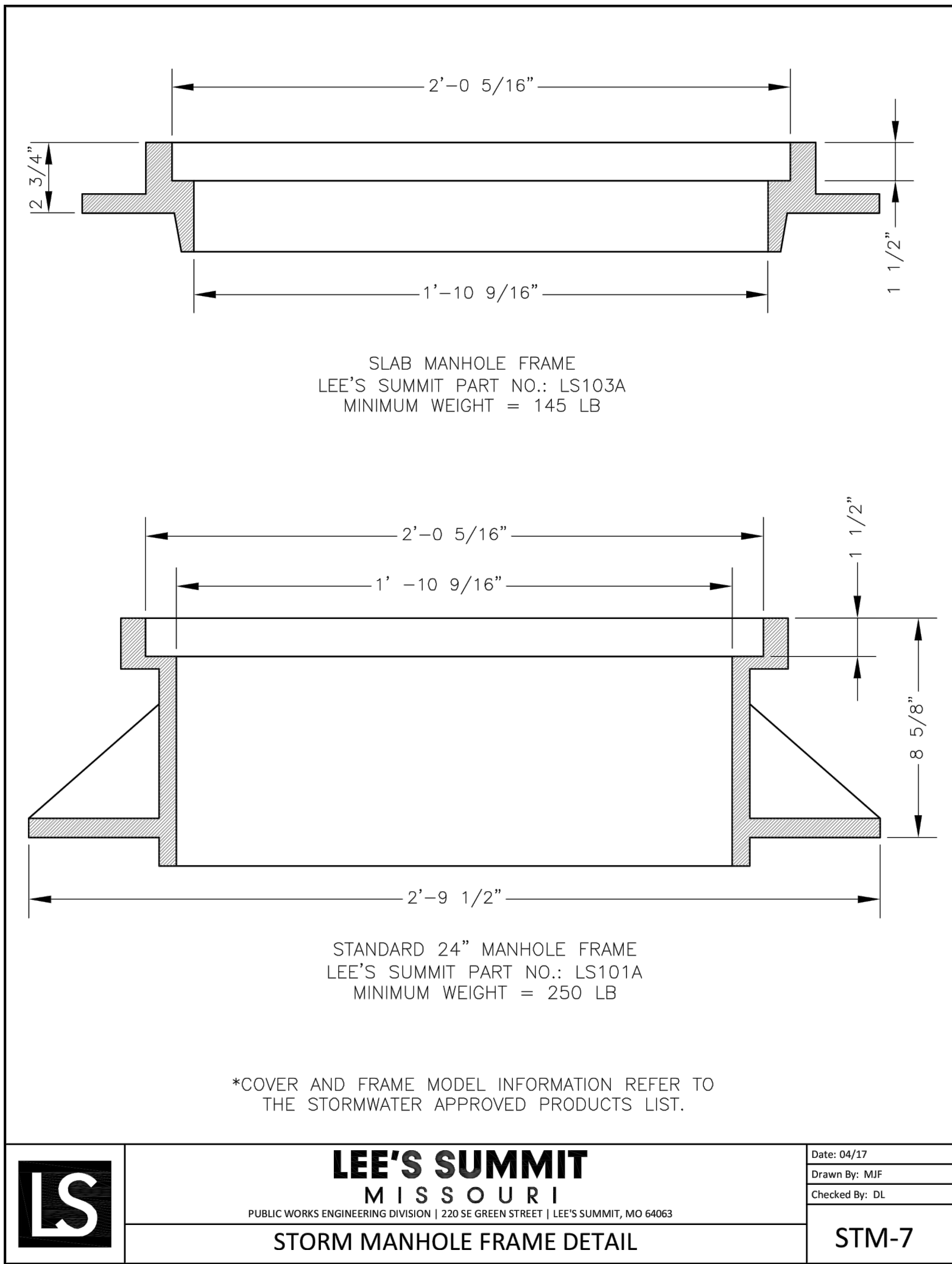
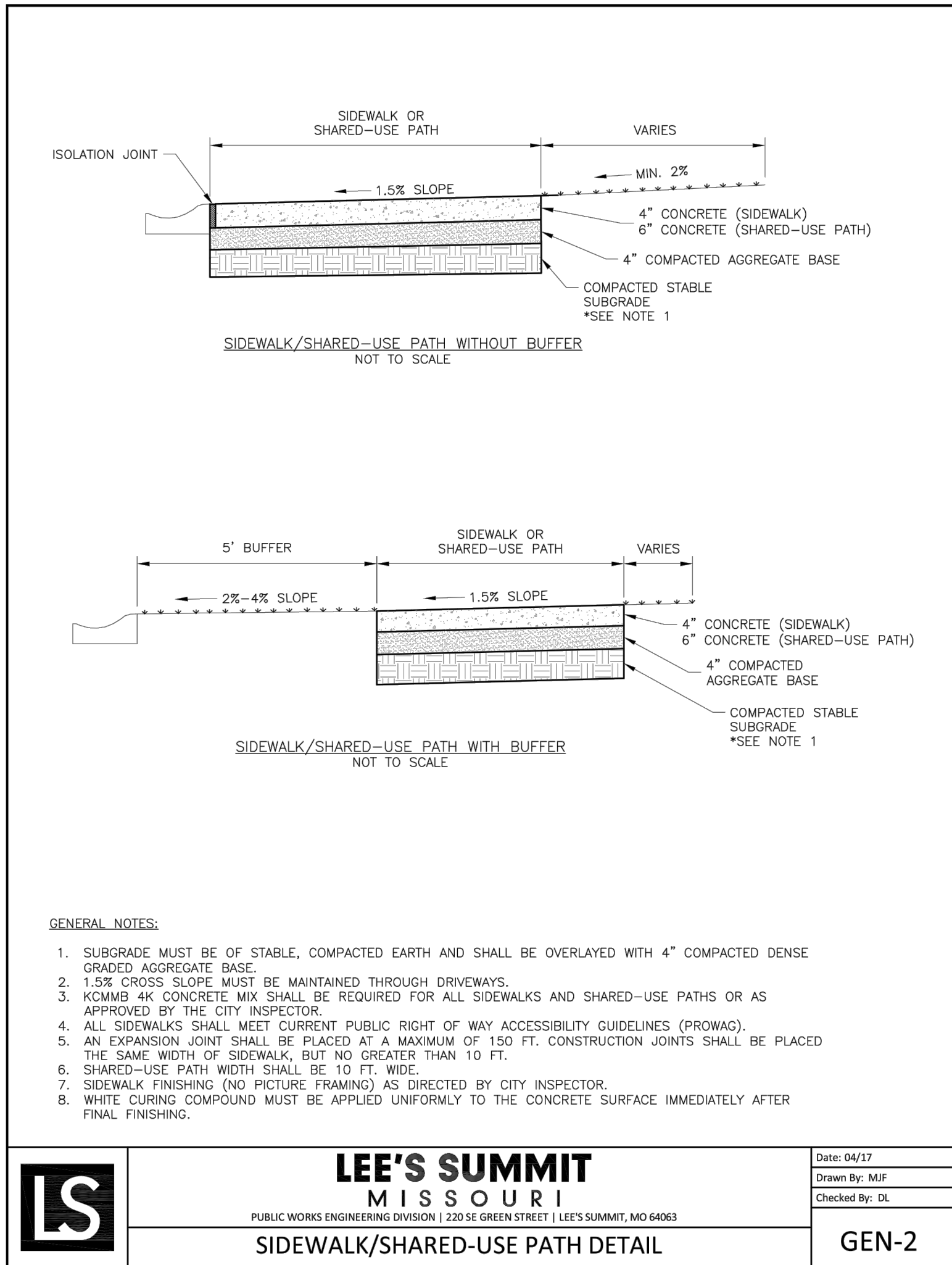
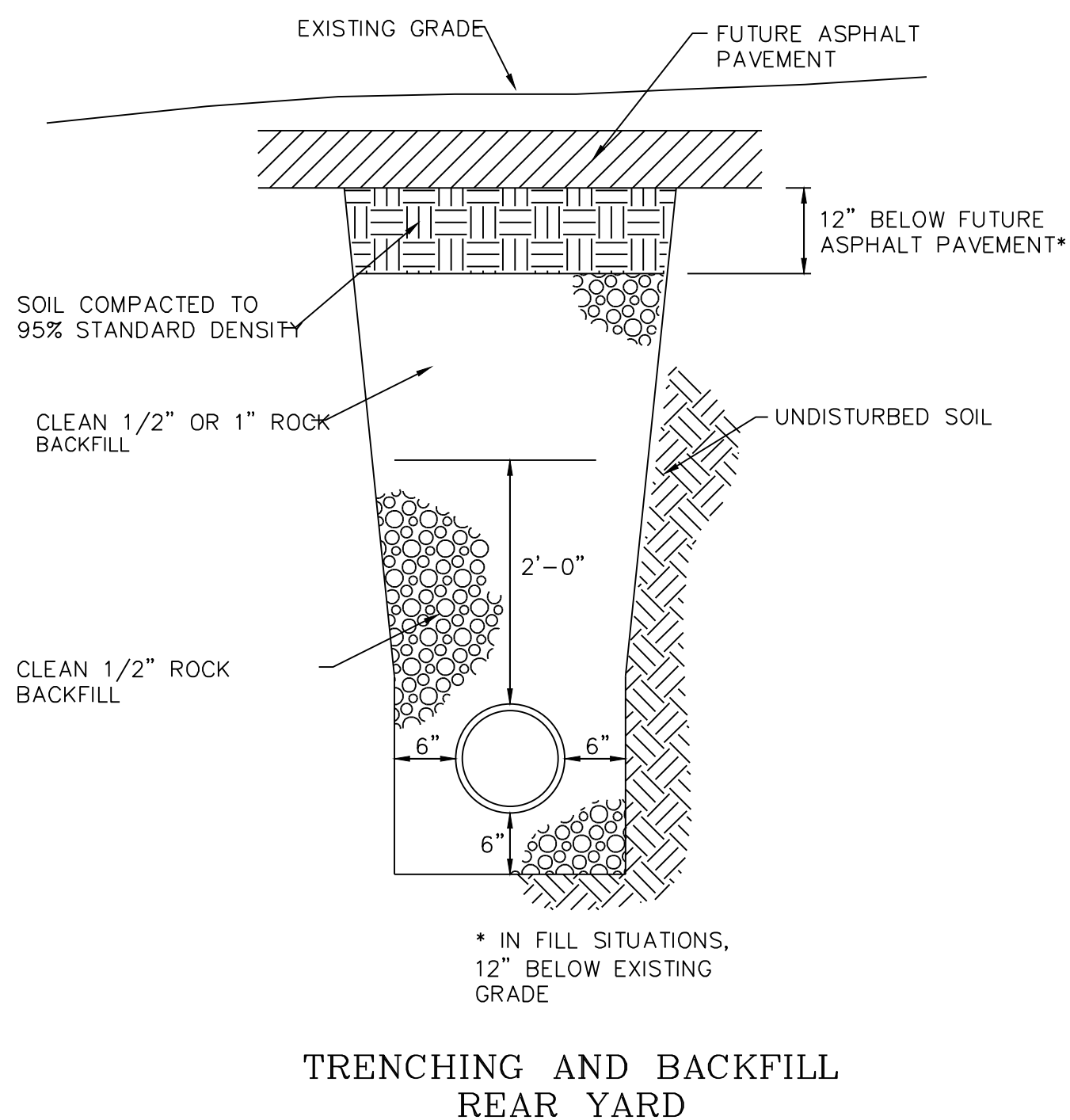
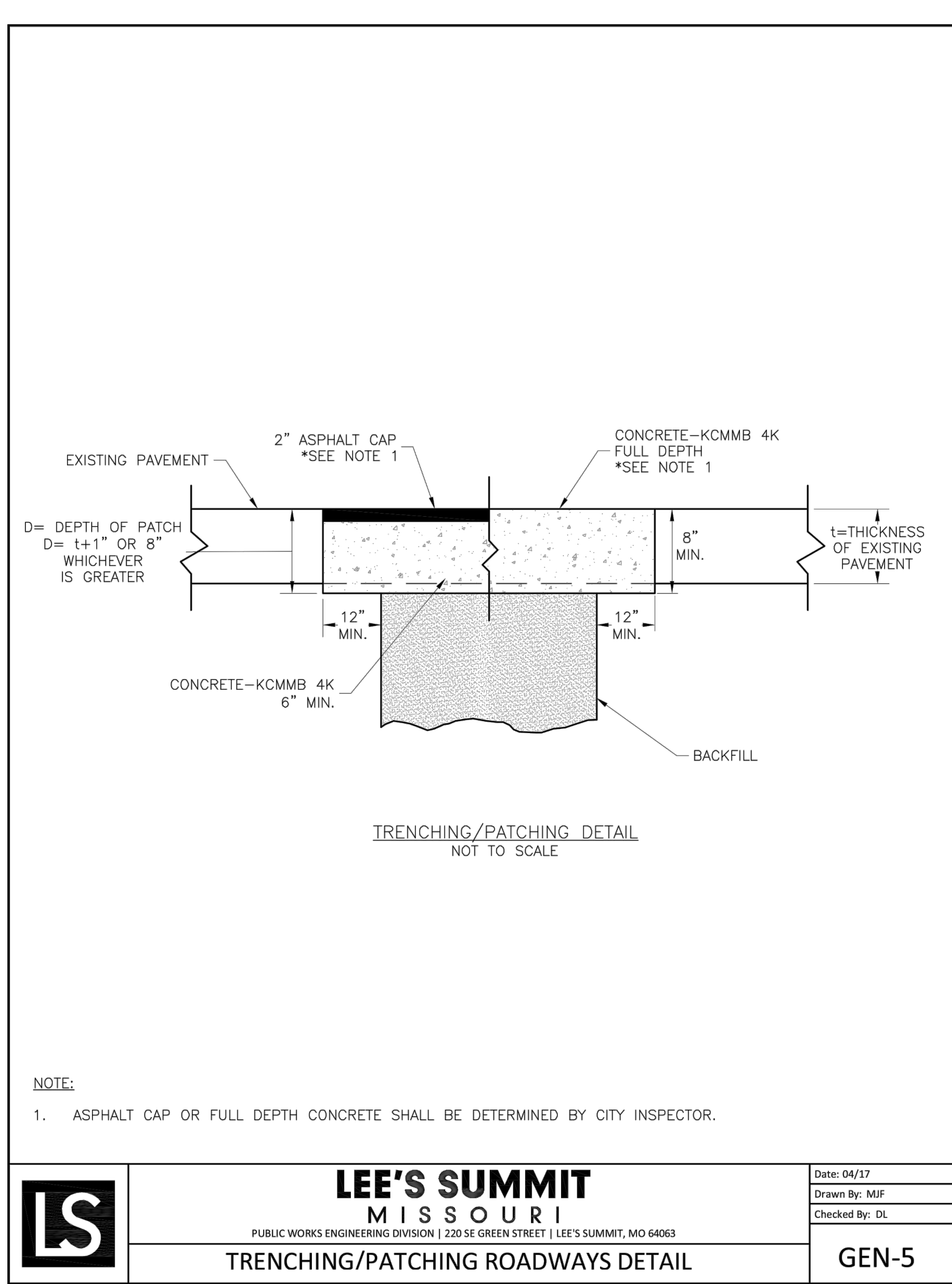
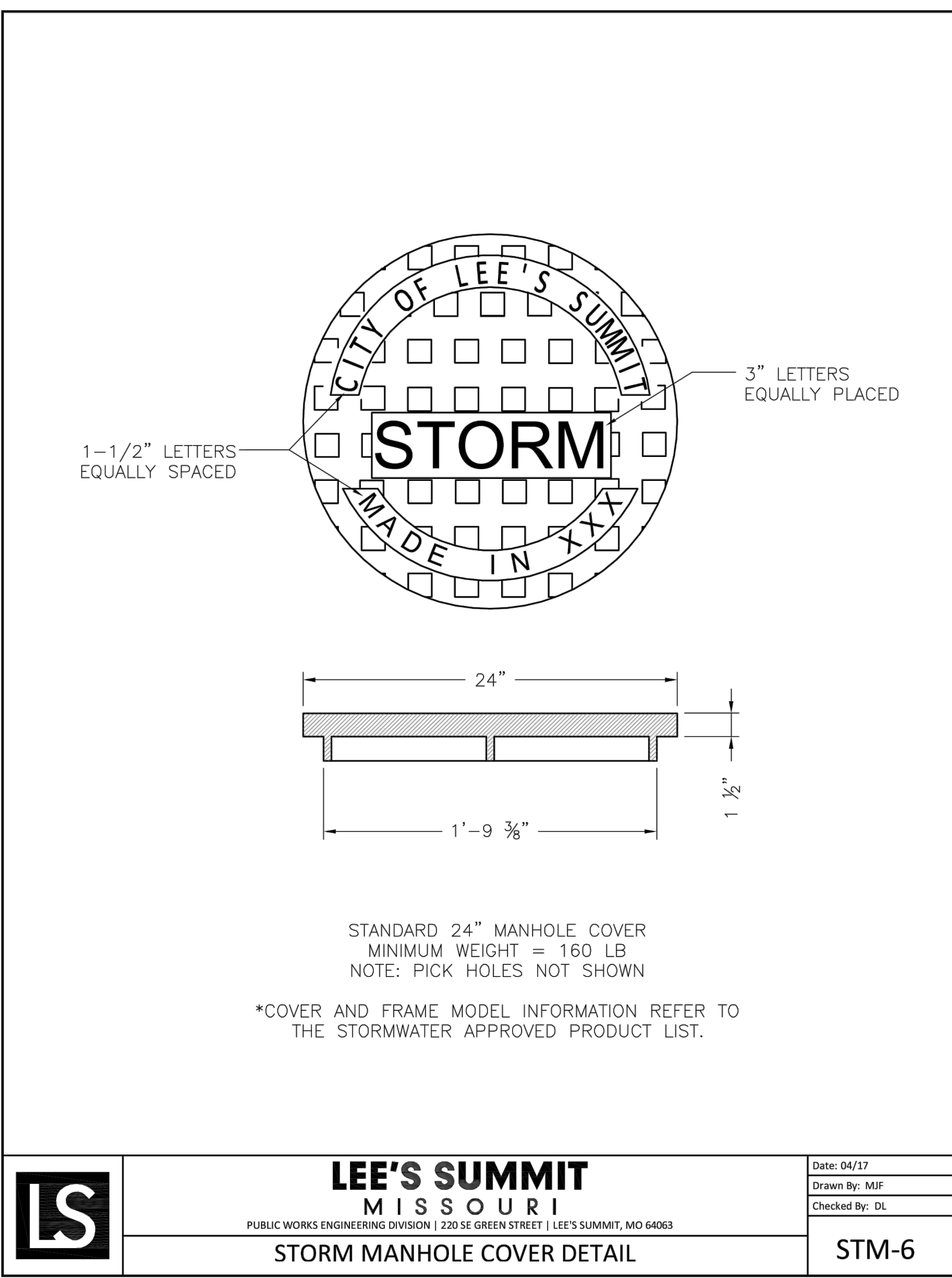
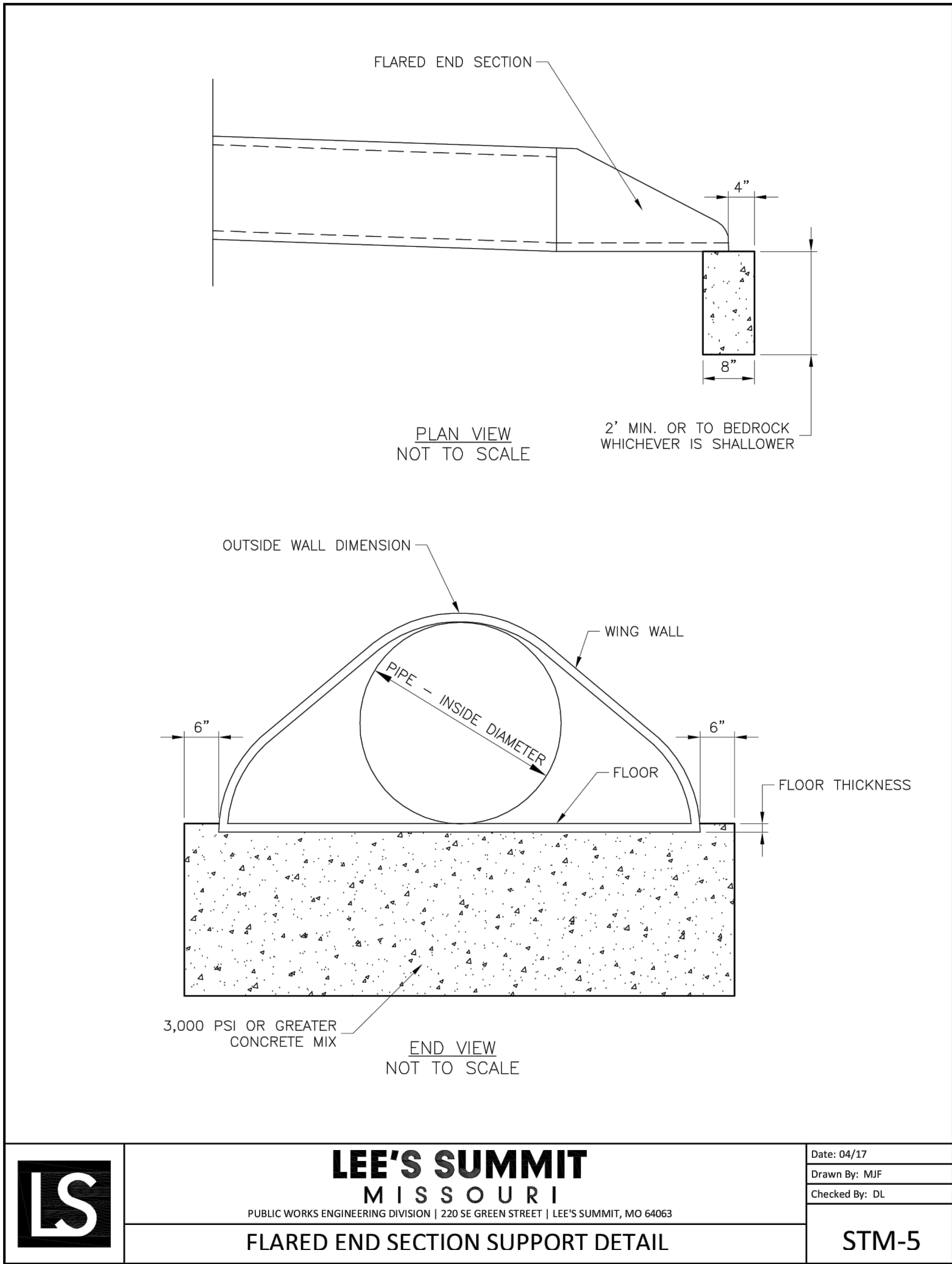
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STREET AND STORM DETAILS





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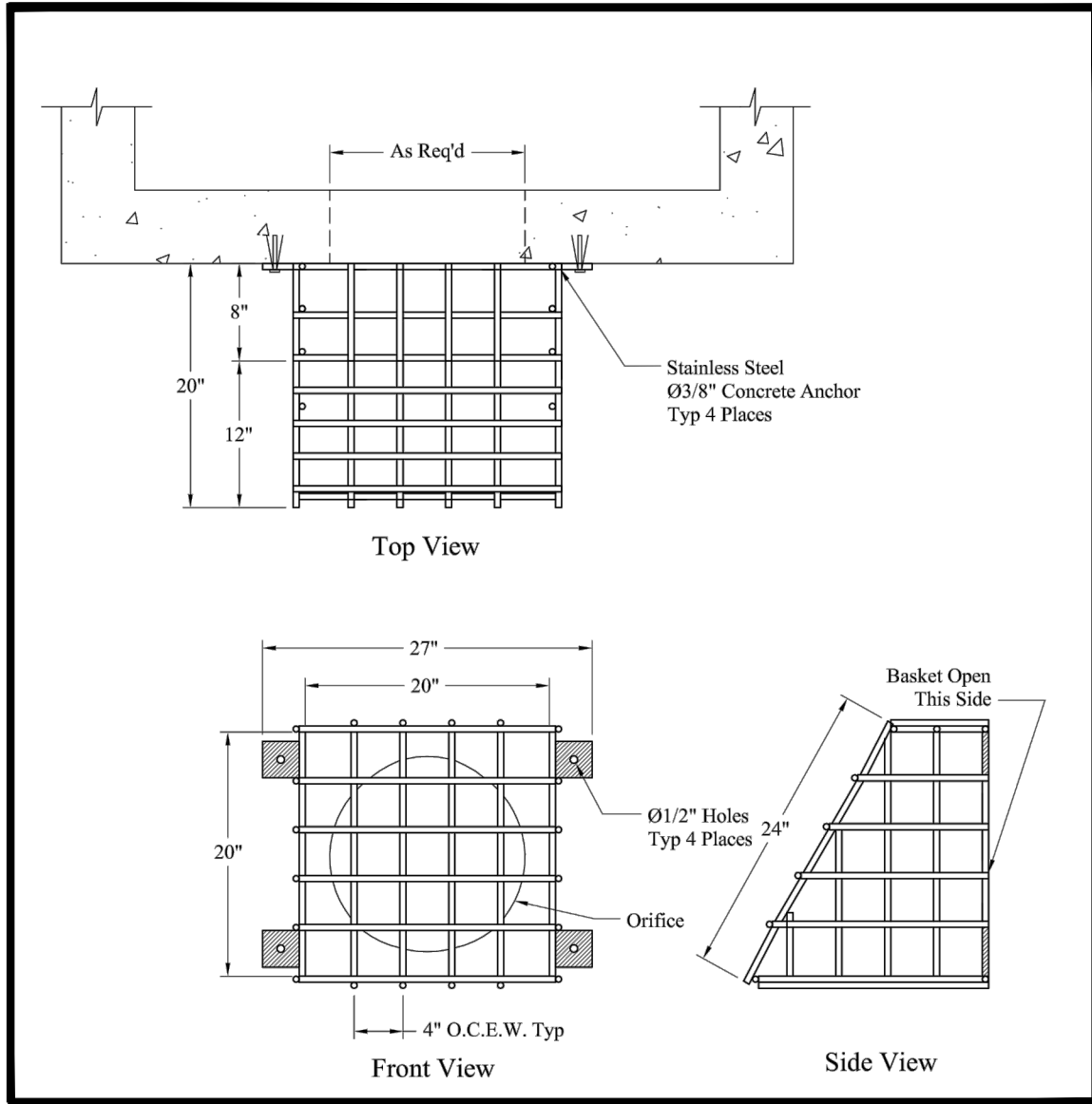
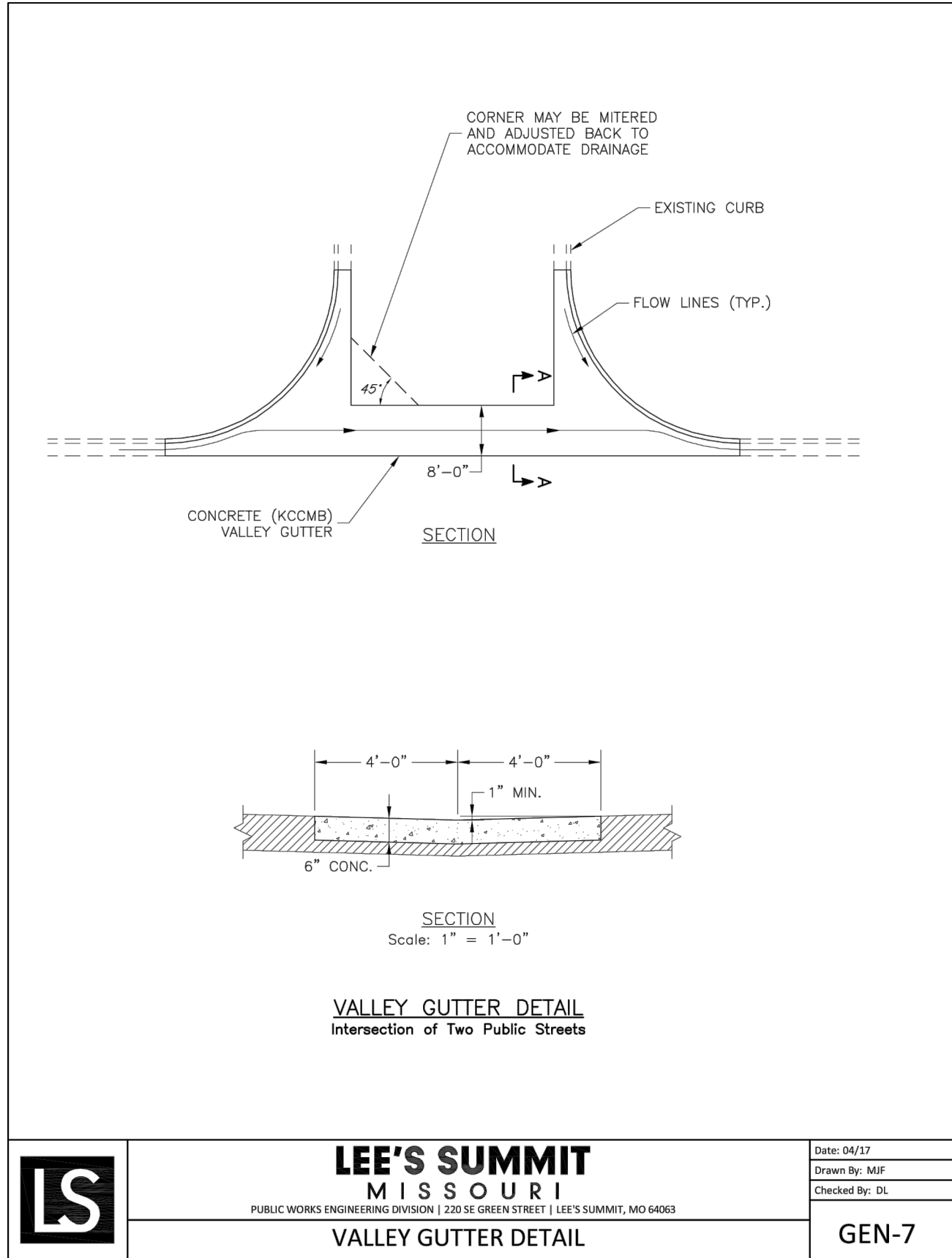
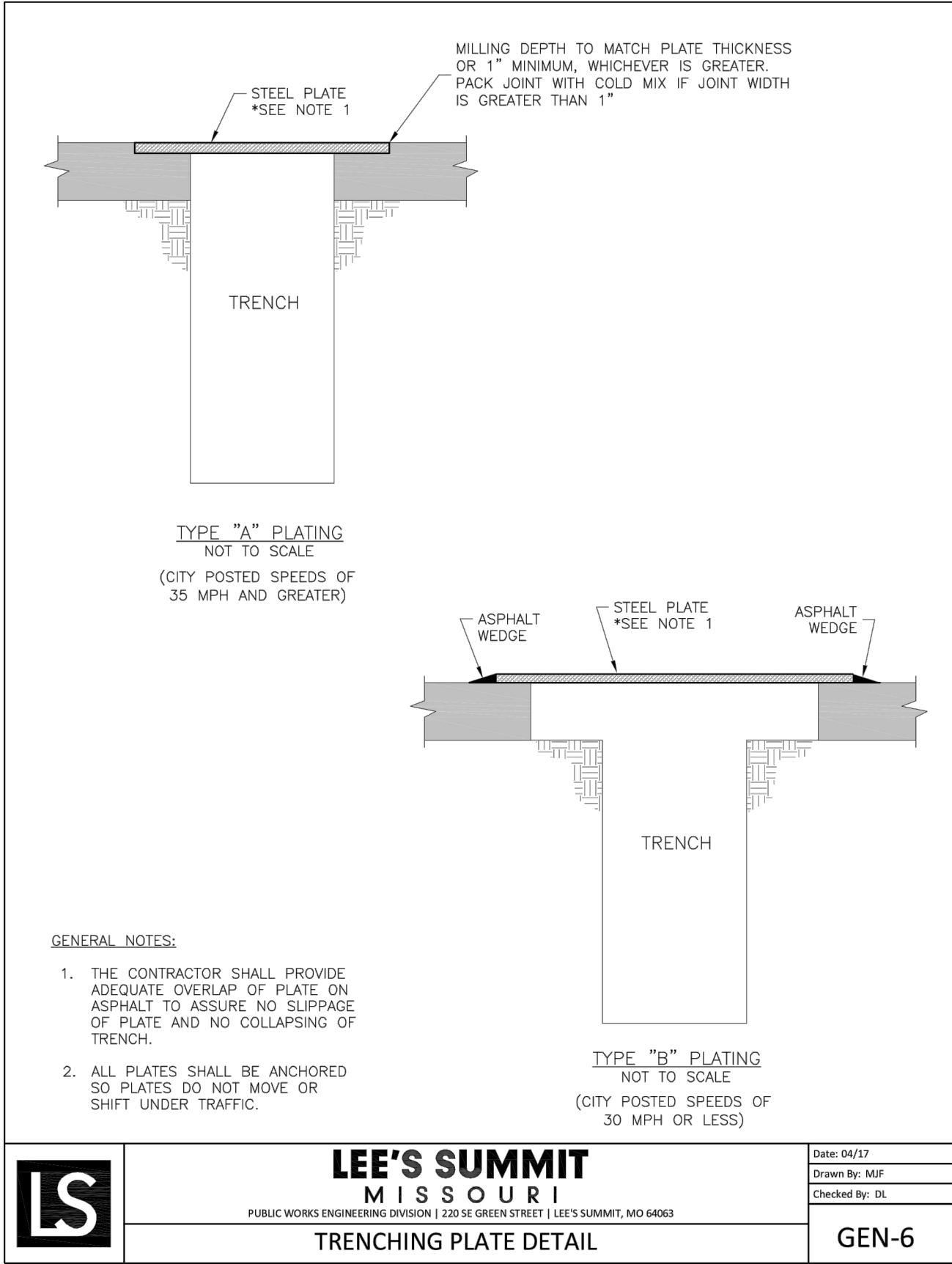
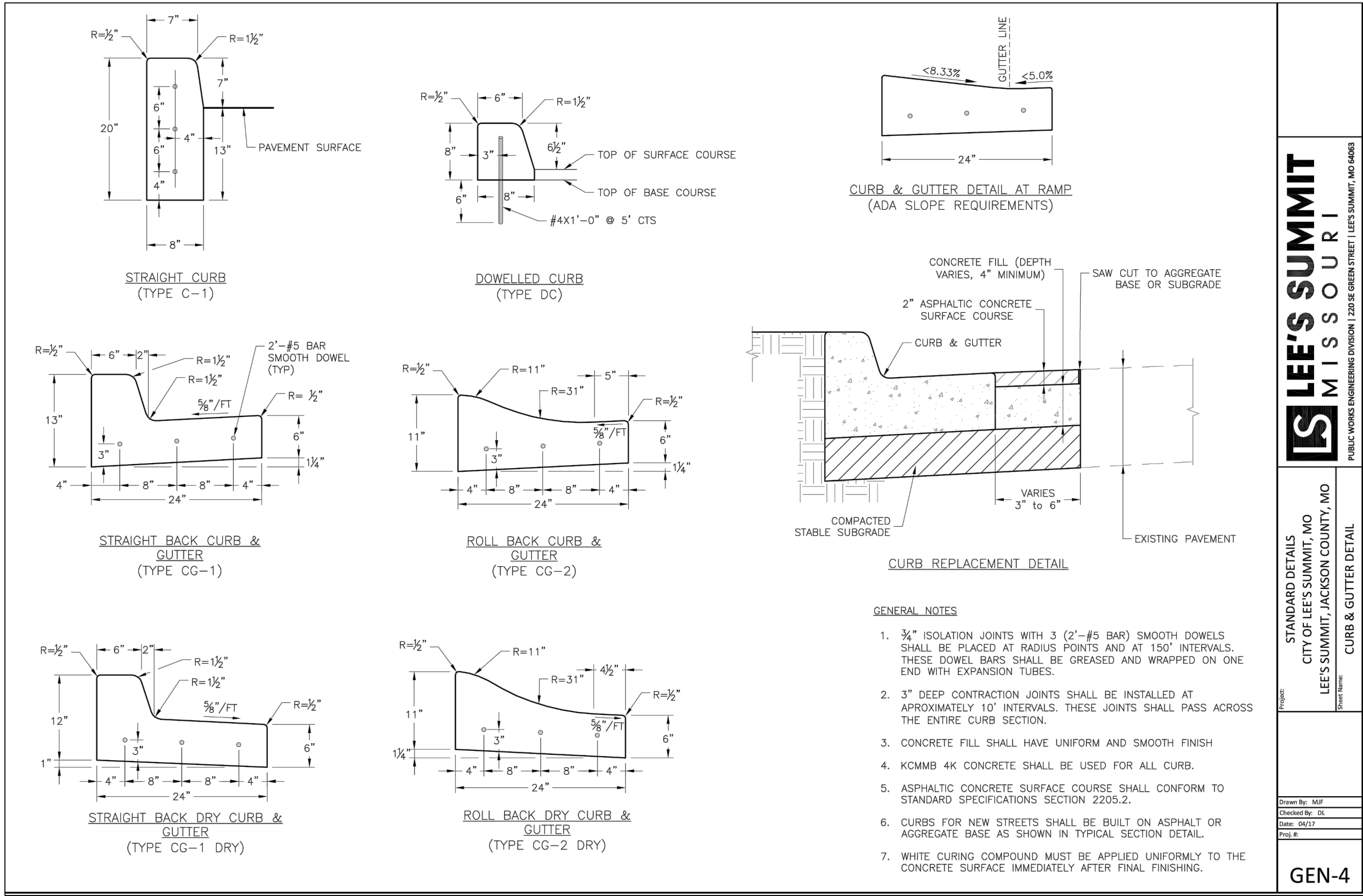


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**STREET AND STORM DETAILS**



TABLE LS-2: MINIMUM ASPHALT PAVEMENT THICKNESSES

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

TABLE LS-3: MINIMUM PCC PAVEMENT THICKNESSES

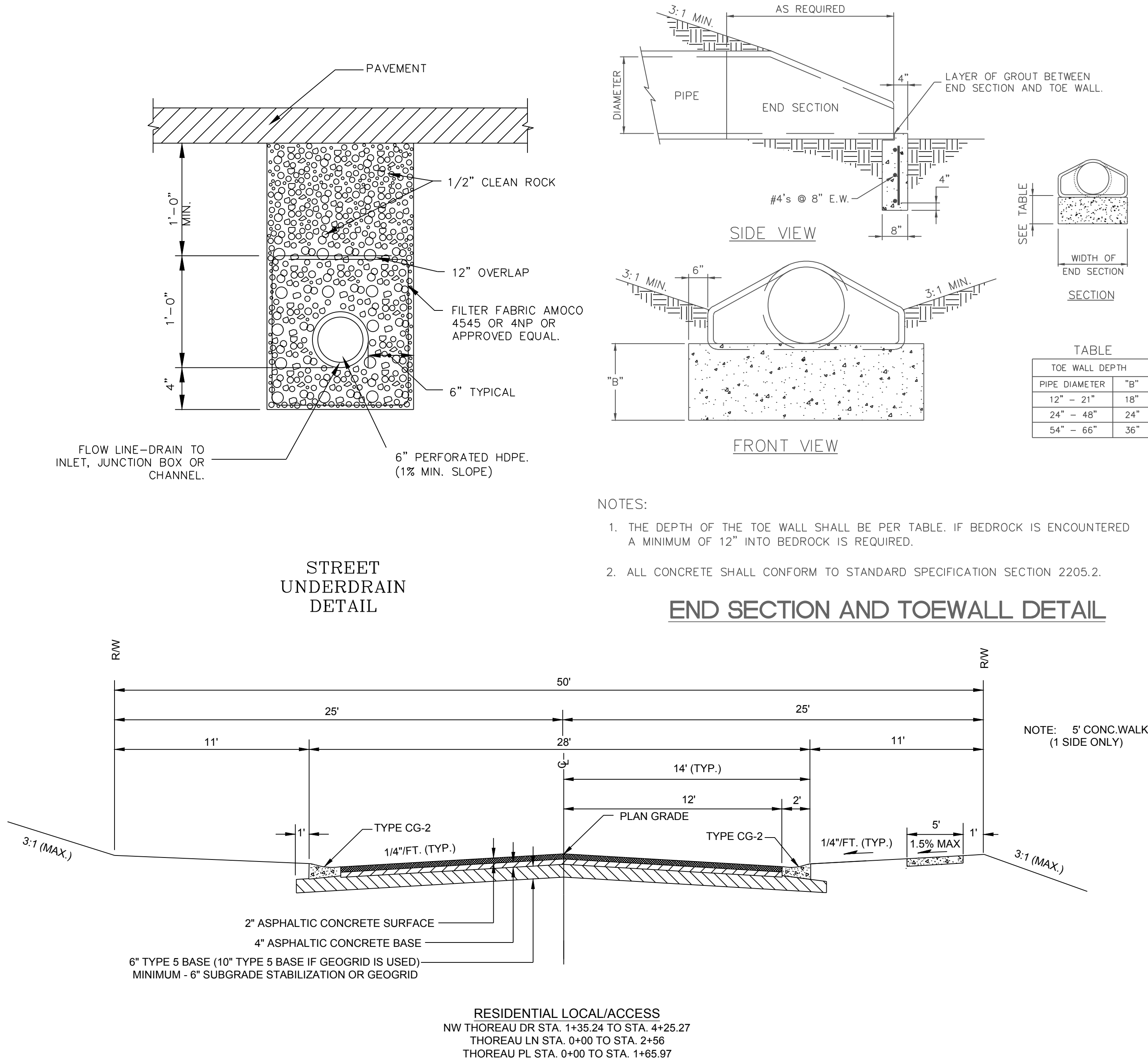
| Street Classification                 | PCC (in.) | Aggregate Base (in.) | Subgrade Stabilization <sup>(1)</sup> (in.) |
|---------------------------------------|-----------|----------------------|---------------------------------------------|
| Residential Local/Access              | 6         | 4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

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

LS5200

16

October 2016



SCHLAGEL & ASSOCIATES, P.A.

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Missouri State Certificates of Authority

#E2002003690-F #LAC200100237 #LS200200869-F



BOARD OF REGISTRATION

STATE OF MISSOURI

MARK ALLEN BREUER

NUMBER

PE-2003007268

PERSONAL ENGINEER

10.03.19

WINTERSET VALLEY, 13TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE PLAN AND  
EROSION AND SEDIMENT CONTROL  
NW THOREAU DRIVE AND AUDUBON LANE  
LEE'S SUMMIT, MISSOURI



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.

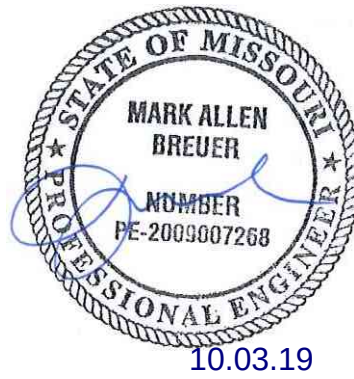
ELEV. 993.11'

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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WINTERSET VALLEY, 13TH PLAT  
STREET, STORMWATER, MASTER DRAINAGE  
PLAN AND EROSION AND SEDIMENT CONTROL  
NW THOREAU DRIVE AND AUDUBON LANE  
LEE'S SUMMIT, MISSOURI

| REVISION DATE | DESCRIPTION   |
|---------------|---------------|
| 1. 4-10-19    | CITY COMMENTS |
| 2. 8-11-19    | CITY COMMENTS |
| 3. 8-21-19    | CITY COMMENTS |
| 4. 9-18-19    | CITY COMMENTS |
| 5. 2-15-19    |               |
| 6. 7-18-20    |               |

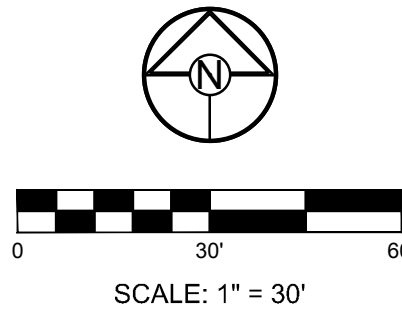
|                |         |
|----------------|---------|
| DRAWN BY:      | KSC     |
| CHECKED BY:    | MAB     |
| DATE PREPARED: | 2-15-19 |
| PROJ. NUMBER:  | 18-230  |

SIGNING PLAN

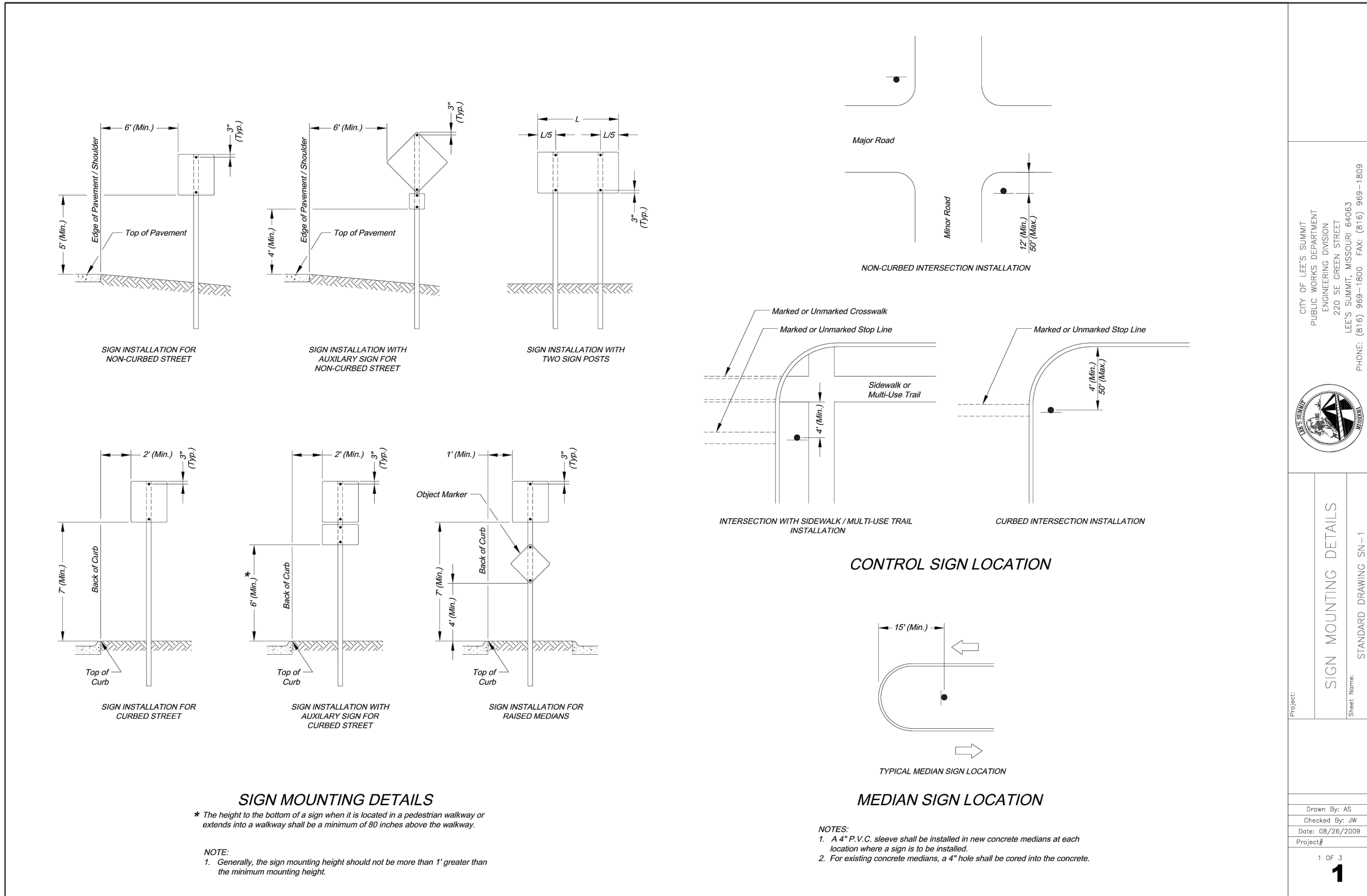
SHEET

23

OF 24







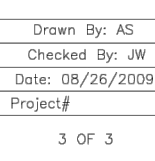
CITY OF LEE'S SUMMIT  
PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION  
220 SE GREEN STREET  
LEE'S SUMMIT, MISSOURI 64083  
PHONE: (816) 989-1800 FAX: (816) 989-1809

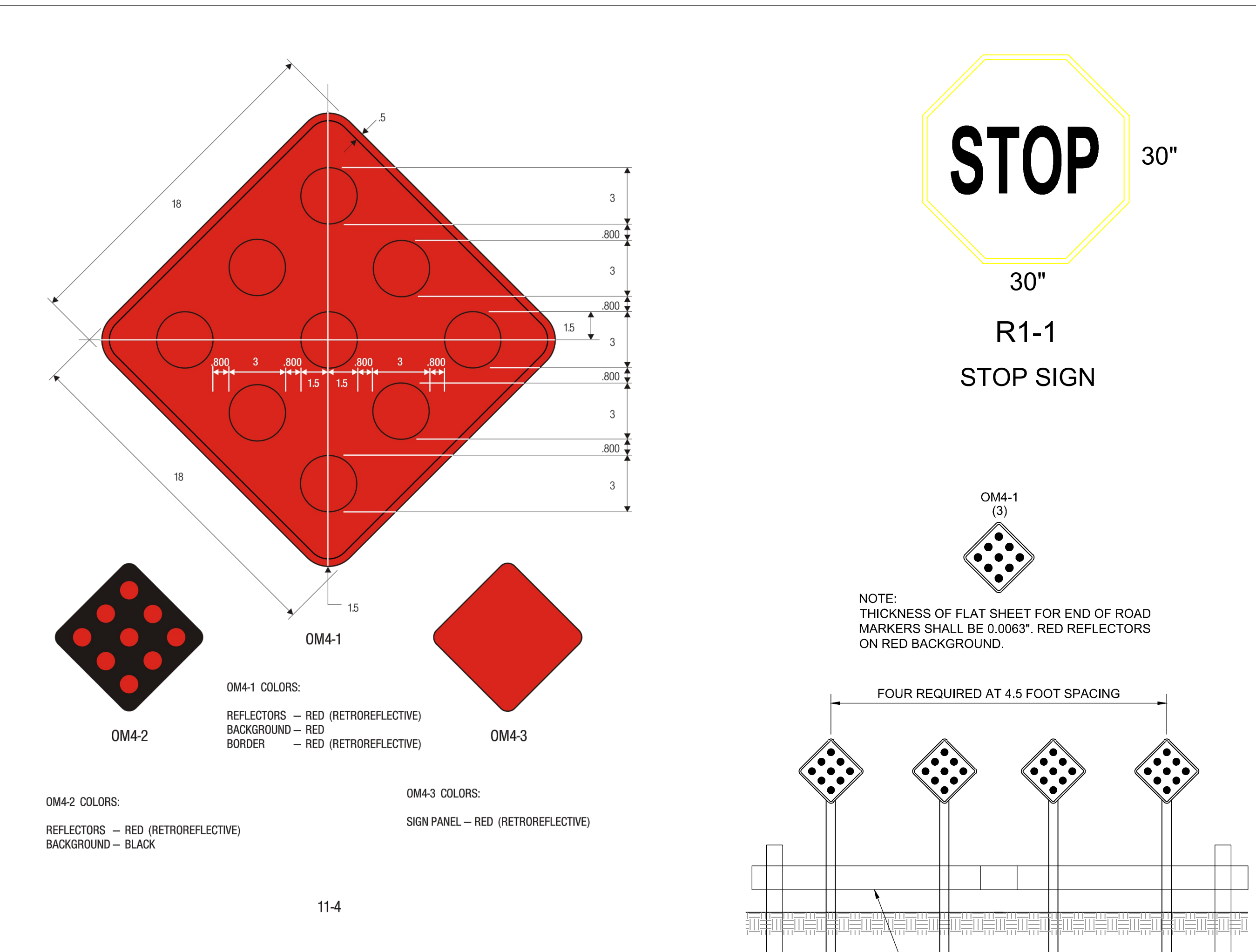
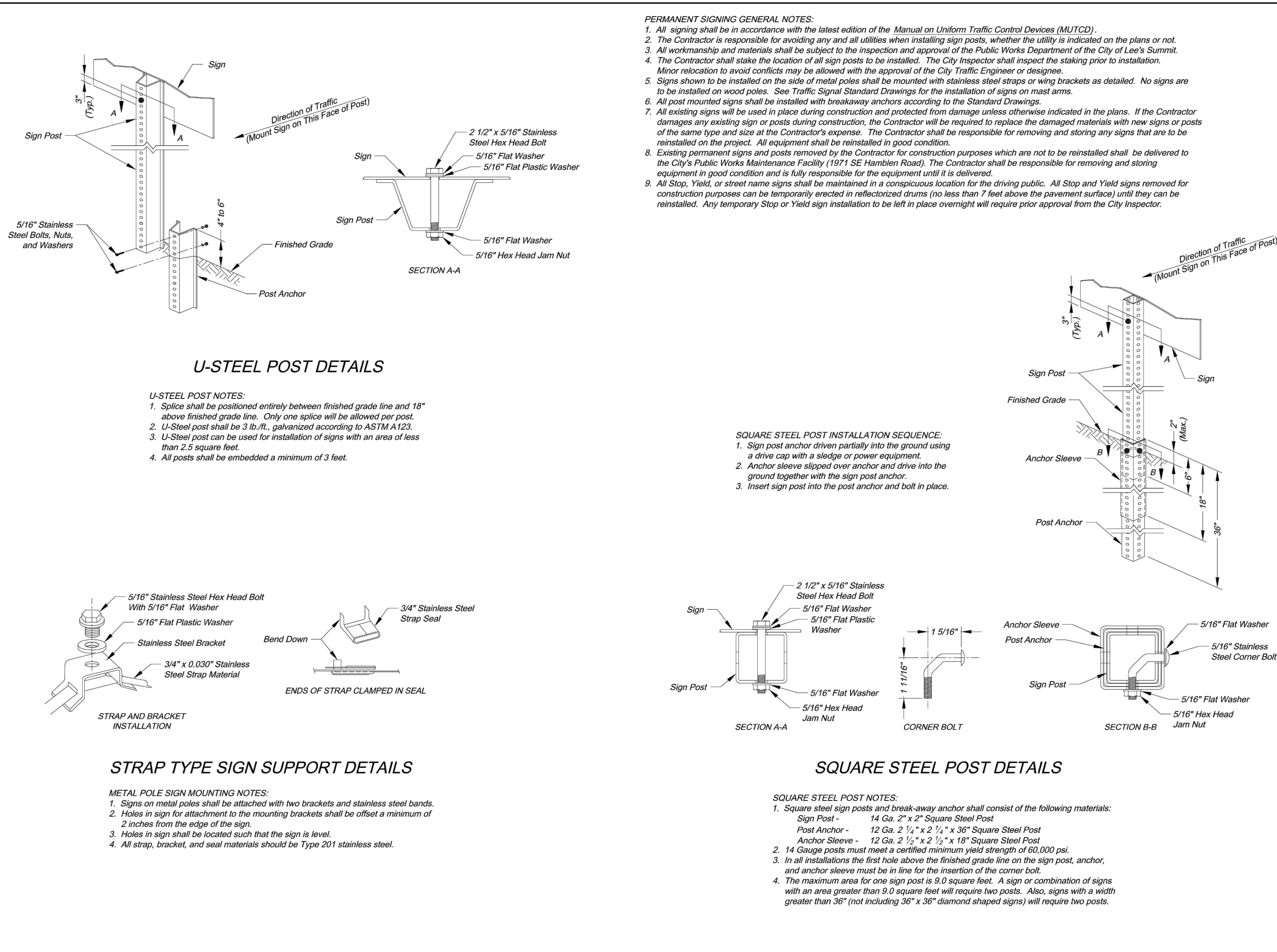
PROJECT:  **STREET NAME SIGN DETAILS**  
SHEET NAME: STANDARD DRAWING SN-3  
Drawn By: AS  
Checked By: JW  
Date: 08/26/2009  
Project: 1 OF 3

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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: 2 OF 3

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**PROFESSIONAL ENGINEER**  
MARK ALLEN BREUER  
NUMBER PE-2003007268  
10.03.19

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| 6. 10-1-19    | CITY COMMENTS |
| 7. 10-1-19    | CITY COMMENTS |
| 8. 10-1-19    | CITY COMMENTS |

**STREET SIGN DETAILS**

**SHEET**

**24**  
OF 24