LEGEND:

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

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

UTILITY CONTACTS:

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

SPIRE
Brent Jones
3025 SE Clover Drive
Lee's Summit, MO 64082
(816) 399-0663
brent.jones@spireenergy.com

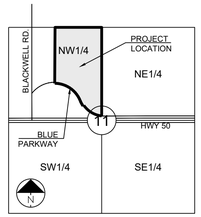
EVERGY
Philip Ingram
1300 SE Hamblin Road
Lee's Summit, MO 64081
Office: (816) 347-347-4339
philip.ingham@evergy.com

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

AT&T
Mark Manion or Marty Loper
500 E. 8th Street, Room 370
Kansas City, MO 64106
(816) 275-2341 or (816) 275-1550

COMCAST CABLE
John Meadows
4700 Little Blue Parkway
Independence, MO 64057
(816) 795-2257

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



SECTION 11-47-31

LOCATION MAP
SCALE 1" = 2000'

SUMMARY OF QUANTITIES

	ITEM	QUANTITY	UNITS
1	COMMON EXCAVATION	87,591	CY
2	EMBANKMENT	26,953	CY
3	INSTALL 6" AGGREGATE BASE	22,556	SY
4	INSTALL 4" AGGREGATE BASE	3,350	SY
5	INSTALL 9" SUBGRADE STABILIZATION	22,556	SY
6	INSTALL ACC SURFACE	2,271	TONS
7	INSTALL ACC BASE	3,918	TONS
8	INSTALL CURB & GUTTER	7,235	LF
9	INSTALL 7" PCC TRASH PAD	230	SY
10	INSTALL 6' x 5' CURB INLET	1	EA
11	INSTALL 6' x 4' CURB INLET	13	EA
12	INSTALL 4' x 4' AREA INLET	2	EA
13	INSTALL 5' x 5' JUNCTION BOX	2	EA
14	INSTALL 4' DIA. JUNCTION BOX	2	EA
15	INSTALL 3' x 3' GRATE INLET	1	EA
16	INSTALL 5' x 5' EWDB OUTLET STRUCTURE	1	EA
17	INSTALL 36" HDPE	370	LF
18	INSTALL 30" RCP	73	LF
19	INSTALL 30" HDPE	130	LF
20	INSTALL 24" HDPE	903	LF
21	INSTALL 18" HDPE	167	LF
22	INSTALL 15" HDPE	940	LF
23	INSTALL 36" HDPE FLARED END SECTION W/ TOEWALL	1	EA
24	INSTALL 30" RCP FLARED END SECTION W/ TOEWALL	1	EA
25	INSTALL 24" HDPE FLARED END SECTION W/ TOEWALL	1	EA
26	INSTALL STONE RIP-RAP	35	CY
27	INSTALL 8" PVC C900 DR18	60	LF
28	INSTALL 4" PVC C900 DR18	35	LF
29	INSTALL 8" GATE VALVE	6	EA
30	INSTALL BACKFLOW PREVENTER VAULT	2	EA
31	INSTALL FIRE HYDRANT ASSEMBLY	6	EA
32	INSTALL 4' DIA. MANHOLE	9	EA
33	EXTRA DEPTH IN MANHOLE	26	VF
34	INSTALL 8" PVC SDR-26	1546	LF
35	INSTALL 6" PVC SDR-26	219	LF
36	INSTALL HYDROSEED	2.20	AC
37	SILT FENCE	5,450	LF
38	INLET PROTECTION (SILT FENCE)	18	EA
39	INLET PROTECTION (GRAVEL FILTER BAGS)	15	EA
40	CONSTRUCTION ENTRANCE & STAGING AREA	1	EA
41	CONCRETE WASHOUT	1	EA

MISSOURI ONE CALL SYSTEM
811 or
1-800-344-7483
mo1call.com

FEMA NOTE:

NO PART OF THE PROJECT LIES WITHIN THE 100 YEAR FLOOD PLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBERS 29095C0441G, 29095C0445G, 29095C0437G AND 29095C0439G DATED JANUARY 20TH, 2017.

OIL/GAS NOTE:

THERE ARE NOT OIL/GAS WELLS PRESENT ON THE PROJECT PER MISSOURI DEPARTMENT OF NATURAL RESOURCES - MISSOURI GEOLOGICAL SURVEY GeoSTRAT MAPPING.

GENERAL NOTES:

1. ALL CONSTRUCTION TO FOLLOW THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL AS ADOPTED BY ORDINANCE 5813.
2. ALL WORKMANSHIP AND MATERIALS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEERING DEPARTMENT OF THE CITY OF LEE'S SUMMIT, MISSOURI.
3. LINEAL FOOT MEASUREMENTS SHOWN ON THE PLANS ARE HORIZONTAL MEASUREMENTS, NOT SLOPE MEASUREMENTS. ALL PAYMENTS SHALL BE MADE ON HORIZONTAL MEASUREMENTS.
4. NO GEOLOGICAL INVESTIGATION HAS BEEN PERFORMED ON THE SITE.
5. THE UTILITY LOCATIONS SHOWN ON THESE PLANS ARE TAKEN FROM UTILITY COMPANY RECORDS AND APPARENT FIELD LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
6. THE CONTRACTOR SHALL ADHERE TO THE PROVISIONS OF THE SENATE BILL NUMBER 583, 78TH GENERAL ASSEMBLY OF THE STATE OF MISSOURI. THE BILL REQUIRES THAT ANY PERSON OR FIRM DOING EXCAVATION ON PUBLIC RIGHT OF WAY DO SO ONLY AFTER GIVING NOTICE TO, AND OBTAINING INFORMATION FROM, UTILITY COMPANIES. STATE LAW REQUIRES 48 HOURS ADVANCE NOTICE. THE CONTRACTOR MAY ALSO UTILIZE THE FOLLOWING TOLL FREE PHONE NUMBER PROVIDED BY "MISSOURI ONE CALL SYSTEM, INC.": 1-800-DIG-RITE. THIS PHONE NUMBER IS APPLICABLE ANYWHERE WITHIN THE STATE OF MISSOURI. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL NOTIFY ALL THOSE COMPANIES WHICH HAVE FACILITIES IN THE NEAR VICINITY OF THE CONSTRUCTION TO BE PERFORMED.
7. PRIOR TO ORDERING PRECAST STRUCTURES, SHOP DRAWING SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL.
8. THE CONTRACTOR SHALL PROTECT ALL MAJOR TREES FROM DAMAGE. NO TREE SHALL BE REMOVED WITHOUT PERMISSION OF THE OWNER, UNLESS SHOWN OTHERWISE.
9. CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND ORDINANCES.
10. ALL WASTE MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR, OR AS DIRECTED BY THE OWNER AT NO ADDITIONAL COST.
11. ALL EXCAVATIONS SHALL BE UNCLASSIFIED. NO SEPARATE PAYMENT WILL BE MADE FOR ROCK EXCAVATION.
12. THE CONTRACTOR SHALL CONTROL THE EROSION AND SILTATION DURING ALL PHASED OF CONSTRUCTION AND SHALL KEEP THE STREETS CLEAN OF MUD AND DEBRIS.
13. 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.
14. 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.
15. 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).
16. ALL SANITARY SEWER LATERALS SHALL HAVE A TRENCH CHECK, CONSISTING OF FLOWABLE BACKFILL, INSTALLED DURING CONSTRUCTION. TRENCH CHECK SHALL EXTEND TO BOTTOM OF TRENCH, TO WIDTH OF TRENCH, TO 12 INCHES ABOVE PIPE, FOR A MINIMUM LENGTH OF 12 INCHES. TRENCH CHECK SHALL BE LOCATED AT LEAST 5 FEET FROM SANITARY MAIN.

EARTHWORK:

1. 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.
2. ALL BACKFILL MATERIAL 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).
3. BACKFILL MATERIALS SHALL NOT INCLUDE ORGANIC MATTER, DEBRIS OR TOPSOIL.
4. 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.
5. ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE. UNLESS NOTED OTHERWISE THE FOLLOWING GRADES SHALL APPLY:
   A. TURF AREAS – 2.5% MINIMUM, 4H:1V MAXIMUM
6. ALL DISTURBED AREAS SHALL BE FERTILIZED, SEEDED AND MULCHED IMMEDIATELY AFTER EXCAVATION 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 PIPE INSTALLATION.
7. CONTRACTOR SHALL ADHERE TO THE REPORTING REQUIREMENTS OUTLINED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THIS PROJECT. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PROPERLY MAINTAINED AND KEPT CLEAN OF SILT AND DEBRIS AND IN GOOD WORKING ORDER. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS REQUIRED.

UTILITIES:

1. EXISTING UTILITIES HAVE BEEN SHOWN TO THE GREATEST EXTENT POSSIBLE BASED UPON INFORMATION PROVIDED TO THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE RESPECTIVE UTILITY COMPANIES AND FIELD LOCATING UTILITIES PRIOR TO CONSTRUCTION AND IDENTIFYING ANY POTENTIAL CONFLICTS. ALL CONFLICTS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ANY REQUIRED UTILITY RELOCATIONS. UTILITIES DAMAGED THROUGH THE NEGLIGENCE OF THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
3. CONTRACTOR SHALL VERIFY FLOW-LINES AND STRUCTURE TOPS PRIOR TO CONSTRUCTION, AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES. PROVIDE SHOP DRAWINGS FOR ALL PRECAST AND MANUFACTURED UTILITY STRUCTURES FOR REVIEW BY THE ENGINEER PRIOR TO CONSTRUCTION OF THE STRUCTURES.
4. UTILITY SEPARATION: WATERLINES SHALL HAVE A MINIMUM OF 10 FEET HORIZONTAL AND 2 FEET (MINIMUM OF 1.5 FEET) VERTICAL SEPARATION FROM ALL SANITARY AND STORM SEWER LINES. IF MINIMUM SEPARATIONS CAN NOT BE OBTAINED, DUCTILE IRON PIPE, DIP, SHALL BE REQUIRED 10 FEET IN EACH DIRECTION OF THE CONFLICT ON THE WATER LINE.
5. PAYMENT FOR TRENCHING, BACKFILLING, PIPE EMBEDMENT, FLOWABLE FILL, BACKFILL MATERIALS, CLEAN UP, SEEDING, SODDING AND ANY OTHER ITEMS NECESSARY FOR THE CONSTRUCTION OF THE UTILITY LINE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE UTILITY INSTALLATION.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING RESPECTIVE UTILITY COMPANIES 48-HOURS IN ADVANCE FOR THE INSPECTION OF ANY PROPOSED UTILITY MAIN EXTENSION OR SERVICE LINE OR SERVICE CONNECTION TO ANY EXISTING MAIN.
7. TRENCH SPOILS SHALL BE NEATLY PLACED ONSITE ADJACENT TO THE TRENCH, AND COMPACTED TO PREVENT SATURATION AND EXCESS SEDIMENT RUNOFF. UNSUITABLE MATERIALS, 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.

DESCRIPTION:

A tract of land lying in the Northwest One-Quarter of Section 11, Township 47 North, Range 31 West in the City of Lee's Summit, Jackson County, Missouri being more particularly described as follows:

Commencing at the Northeast Corner of said Northwest One-Quarter; thence along the East line of said Northwest One-Quarter, South 02 degrees 19 minutes 49 seconds West, a distance of 958.03 feet to the Point of Beginning; thence continuing along the East line of said Northwest One-Quarter South 02 degrees 19 minutes 49 seconds West, a distance of 1556.23 to a point of curvature on the Northerly right-of-way line of North Outer Road of existing East Bound Route 50 as described in General Warranty Deed, Instrument Number 2014E0064945 recorded in the Jackson County Recorder of Deeds; thence on said Northerly right-of-way line the following four courses, Northwesterly on a curve to the right having an initial tangent bearing of North 80 degrees 17 minutes 46 seconds West, a radius of 708.50 feet, a central angle of 47 degrees 20 minutes 45 seconds and an arc length of 585.46 feet; thence South 57 degrees 03 minutes 00 seconds West, a distance of 31.00 feet to a point of curvature; thence Northwesterly on a curve to the right having an initial tangent bearing of North 32 degrees 57 minutes 00 seconds West, a radius of 739.50 feet, a central angle of 13 degrees 17 minutes 24 seconds and an arc length of 171.53 feet to a point of reverse curvature; thence Northwesterly on a curve to the left having an initial tangent bearing of North 19 degrees 39 minutes 36 seconds West, a radius of 784.50 feet, a central angle of 35 degrees 14 minutes 40 seconds and an arc distance of 542.47 feet; thence North 30 degrees 43 minutes 14 seconds East, a distance of 11.28 feet to a point of curvature; thence Northeasterly on a curve to the left having an initial tangent bearing of South 59 degrees 16 minutes 46 seconds East, a radius of 236 feet, a central angle of 33 degrees 54 minutes 06 seconds and an arc length of 139.64 feet to a point of reverse curvature; thence Northeasterly on a curve to the right having an initial tangent bearing of North 86 degrees 48 minutes 50 seconds East, a radius of 102.00 feet, a central angel of 03 degrees 03 minutes 31 seconds and an arc length of 5.45 feet to a point of reverse curvature; thence Northeasterly on a curve to the left having an initial tangent bearing of North 89 degrees 52 minutes 21 seconds East, a radius of 68.00 feet, a central angle of 54 degrees 52 minutes 35 seconds and an arc length of 65.12 feet; thence North 34 degrees 59 minutes 51 seconds East, a distance of 246.04 feet; thence North 09 degrees 59 minutes 26 seconds West, a distance of 7.22 feet; thence North 54 degrees 59 minutes 26 seconds West, a distance of 12.90 feet; thence North 35 degrees 00 minutes 34 seconds East, a distance of 50.00 feet; thence South 54 degrees 59 minutes 26 seconds East, a distance of 12.91 feet; thence North 79 degrees 59 minutes 47 seconds East, a distance of 7.20 feet; thence North 34 degrees 59 minutes 47 seconds East, a distance of 349.20 feet to a point of curvature; thence Northeasterly on a curve to the right being tangent to the previous course having a radius of 365.00 feet, a central angle of 45 degrees 16 minutes 22 seconds and an arc length of 288.41 feet; thence North 41 degrees 25 minutes 38 seconds East, a distance of 7.75 feet; thence North 02 degrees 11 minutes 34 seconds East, a distance of 28.69 feet; thence South 87 degrees 48 minutes 26 seconds East, a distance of 50.00 feet; thence South 02 degrees 11 minutes 34 seconds West, a distance of 18.39 feet; thence South 44 degrees 03 minutes 48 seconds East, a distance of 12.45 feet to a point of curvature; thence Southeasterly on a curve to the left having an initial tangent bearing of South 89 degrees 37 minutes 04 seconds East, a radius of 365.00 feet, a central angle of 01 degree 52 minutes 36 seconds and an arc length of 11.95 feet; thence South 87 degrees 44 minutes 22 seconds East, a distance of 88.60 feet to the Point of Beginning and containing 19.21 acres more or less.

Sheet List Table	
Sheet Number	Sheet Title
C100	GENERAL NOTES
C101	GENERAL LAYOUT - OVERALL
C102	GENERAL LAYOUT - NORTH
C103	GENERAL LAYOUT - SOUTH
C200	GRADING PLAN - NORTH
C201	GRADING PLAN - SOUTH
C202	SPOT ELEVATION & WALL PLAN - NORTH
C203	SPOT ELEVATION & WALL PLAN - SOUTH
C204	LIMESTONE WALL & PEDESTRIAN BRIDGE DETAILS
C300	UTILITY PLAN - NORTH
C301	UTILITY PLAN - SOUTH
C302	FIRE PROTECTION PLAN
C400	DRAINAGE MAP
C401	STORM CALCS
C402	STORM SEWER LINE 100
C403	STORM SEWER LINE 300
C404	STORM SEWER LINE 400
C405	STORM SEWER LINES 500 & 600
C406	STORM SEWER LINES 700 & 900
C407	STORM DETAILS
C408	STORM DETAILS
C409	STORM DETAILS
C500	PRE-CONSTRUCTION EROSION CONTROL PLAN
C501	EROSION CONTROL PLAN
C502	POST-CONSTRUCTION EROSION CONTROL PLAN
C503	EROSION CONTROL DETAILS
C504	EROSION CONTROL DETAILS
C505	OUTLET STRUCTURE 801
C600	SANITARY SEWER LINE A (PRIVATE)
C601	SANITARY SEWER LINE A (PRIVATE)
C602	SANITARY SEWER DETAILS
C700	WATER LINE A
C701	WATER LINE A
C702	WATER DETAILS
C703	WATER DETAILS
C800	GENERAL DETAILS
C801	GENERAL DETAILS
L100	LANDSCAPE COVER
L101	OVERALL LANDSCAPE PLAN
L102	BUILDING A LANDSCAPE PLAN
L103	BUILDING B LANDSCAPE PLAN
L104	BUILDING C LANDSCAPE PLAN
L105	BUILDING D LANDSCAPE PLAN
L106	CLUBHOUSE LANDSCAPE PLAN
L107	LAKE LANDSCAPE PLAN
L108	MONUMENT SIGN LANDSCAPE PLAN
L109	LANDSCAPE DETAILS
L110	LANDSCAPE DETAILS

OWNER/DEVELOPER:

GRIFFIN RILEY PROPERTY GROUP
JAKE LOVELESS, VICE PRESIDENT
21 SE 29TH TERRACE
LEE'S SUMMIT
p 816-366-7900
JAKE@GRIFFINRILEY.COM

MO GRS BENCHMARK:

STATION NAME - JA-90

KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

ELEV. 997.045

PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719

SCHLAGEL
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Missouri State Certificate of Authority
#E2000200380-F #LA2000105237 #LS2002008859-F

PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03-28-2023
SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

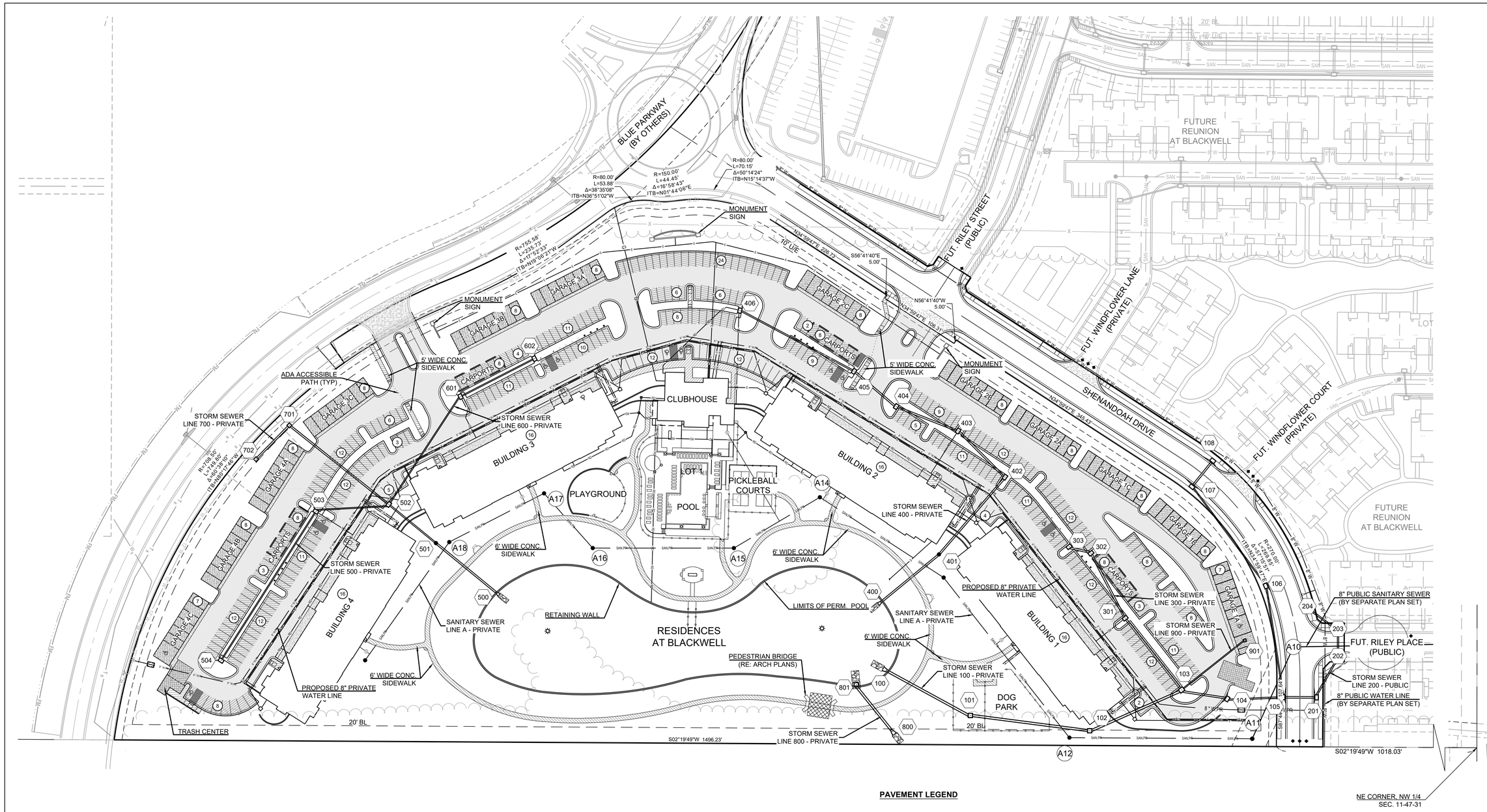
HERITAGE STREET LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 01/20/23	PER CITY COMMENTS
2 03/24/2023	PER CITY COMMENTS
3	
4	
5	
6	
7	
8	
9	
10	

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 2/6/2023
PROJ. NUMBER: 22-102

GENERAL NOTES

SHEET
C100



PAVEMENT LEGEND

HEAVY DUTY ASPHALT
2" ACC SURFACE COURSE
6" ACC BASE COURSE
9" CHEMICALLY STABILIZED SUBGRADE
OR
2" ACC SURFACE COURSE
4" ACC BASE COURSE
6" AGGREGATE BASE (MODOT TYPE 5 OR SIMILAR)
9" CHEMICALLY STABILIZED SUBGRADE

LIGHT DUTY ASPHALT
2" ACC SURFACE COURSE
4" ACC BASE COURSE
9" CHEMICALLY STABILIZED SUBGRADE
OR
2" ACC SURFACE COURSE
2" ACC BASE COURSE
6" AGGREGATE BASE (MODOT TYPE 5 OR SIMILAR)
9" CHEMICALLY STABILIZED SUBGRADE

HEAVY DUTY CONCRETE
6" PCC
4" OPEN GRADED ROCK
(ASTM C33 SIZE NO. 57 AGGREGATE OR SIMILAR)

LIGHT DUTY CONCRETE
5" PCC
4" OPEN GRADED ROCK
(ASTM C33 SIZE NO. 57 AGGREGATE OR SIMILAR)

TRASH CONTAINER PAD
7" PCC
4" OPEN GRADED ROCK
(ASTM C33 SIZE NO. 57 AGGREGATE OR SIMILAR)

SIDEWALK/TRASH PAD/BENCH PAD
4" PCC
4" COMPACTED AGGREGATE BASE ON
COMPACTED STABLE EARTH SUBGRADE

LEGEND

- TYPE CG-1 CURB AND GUTTER
- TYPE CG-1 DRY CURB AND GUTTER
- TYPE E RIBBON CURB
- ADA ACCESSIBLE PATH
- (100) STORM STRUCTURE ID
- (A1) SANITARY STRUCTURE ID

RP-4 PARKING DATA

PARKING REQUIRED	
CODE REQUIREMENT(Sec. 8.530. - Vehicle parking Table 8-1)	1 PER STUDIO, 1.5 PER 1 BED OR 2 BED, 2 PER 3 BED PLUS .5 PER UNIT FOR VISITOR
TYPE I BLDG PARKING REQUIRED	
36(STD)X1P + 120(1BD)X1.5P + 88(2 BD)X1.5P + 24(3BD)X2P = 378 + 0.5PX 268	530 SPACES(132.5 SPACES PER BLDG)
CLUBHOUSE PARKING REQUIRED (MINIMUM OF 6)	6 SPACES
TOTAL APARTMENT PARKING REQUIRED	536 SPACES
ACCESSIBLE PARKING SPACES REQUIRED (2% OF TOTAL OPEN SPACES 317X.02)	7 SPACES
PARKING PROVIDED	
TYPE I BLDG DETACHED GARAGE PARKING PROVIDED (10 BLDGS X8, 2 BLDGS X7)	94 SPACES
TYPE I BLDG CARPORT PARKING PROVIDED (4 CARPORTS X8)	32 SPACES
TYPE I BLDG OPEN PARKING PROVIDED	317 SPACES
TYPE I BLDG ATTACHED GARAGE PARKING PROVIDED (4 BLDGS X16)	64 SPACES
TOTAL APARTMENT PARKING PROVIDED	507 SPACES
OPEN ACCESSIBLE SPACES PROVIDED	10 SPACES
DETACHED GARAGE ACCESSIBLE SPACES PROVIDED	2 SPACE
ATTACHED GARAGE ACCESSIBLE SPACES PROVIDED	1 SPACE
CARPORT ACCESSIBLE SPACES PROVIDED	1 SPACE
TOTAL ACCESSIBLE PARKING PROVIDED	14 SPACES

SITE DATA

TOTAL LAND AREA:	16.9 AC
IMPERVIOUS AREA:	14.7 AC (87%)
APARTMENT DATA	
DWELLING UNITS:	268
STORIES:	4
FLOOR AREA:	
CLUBHOUSE DATA	
STORIES:	1
FLOOR AREA:	

NOTE:
PAVEMENT SECTIONS BASED ON GEOTECHNICAL REPORT PROVIDED BY TERRACON CONSULTANTS, INC. (RE: MIXED USE DEVELOPMENT LEE'S SUMMIT, MISSOURI GEOTECHNICAL REPORT DATED JULY 26, 2022.

NOTES:

1. ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.

0 60' 120'
SCALE: 1" = 60'

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PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03.28.2023
SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 01/23/23	PER CITY COMMENTS
2 03/24/2023	PER CITY COMMENTS
3	
4	
5	
6	
7	

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	2/6/2023
PROJ. NUMBER:	22-102

GENERAL LAYOUT - OVERALL

SHEET
C101

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - GEN - OVERALL.dwg, C101 GENERAL LAYOUT - OVERALL, 1:1

MATCHLINE

FUT. RILEY STREET (PUBLIC)

CONCRETE DRIVE BY OTHERS (SEE SHENANDOAH DR PUBLIC STREET AND STORM PLANS)

FUTURE REUNION AT BLACKWELL

FUT. WINDFLOWER LANE (PRIVATE)

SHENANDOAH DRIVE

FUT. WINDFLOWER COURT (PRIVATE)

5' WIDE CONC. SIDEWALK

CARPORT - 8 SPACES (RE: ARCH & STRUCTURAL PLANS)

ELECTRIC VEHICLE CHARGING STATIONS ON CONCRETE PADS (COORDINATE WITH MEP & PROVIDER)

FUTURE ELECTRIC VEHICLE CHARGING STATIONS

CLUBHOUSE

PROPOSED ROOF DRAIN

PICKLEBALL COURTS

POOL

BUILDING 2

TYPE "A" SIDEWALK RAMP (TYP.)

5' X 5' CONCRETE PAD (RE: STRUCTURAL PLANS)

TRASH RECEPTACLE ON 3' DIA. CONCRETE PAD (TYP)

6' WIDE CONC. SIDEWALK

SANITARY SEWER LINE A - PRIVATE

RETAINING WALL

RESIDENCES AT BLACKWELL

BENCH (SELECTED BY OWNER) WITH 12' DIA. CONCRETE PAD (TYP)

AERATOR (SELECTED BY OWNER)

ADA PARKING SIGN AND POST (TYP) (RE: DETAIL SHEET C800)

STORM SEWER LINE 300 - PRIVATE

BUILDING 1

PROPOSED 8" PRIVATE WATER LINE

STORM SEWER LINE 900 - PRIVATE

TRASH CENTER

8" PUBLIC WATER LINE (BY SEPARATE PLAN SET)

8" PUBLIC SANITARY SEWER (BY SEPARATE PLAN SET)

DOG PARK

STORM SEWER LINE 100 - PRIVATE

STORM SEWER LINE 800 - PRIVATE

RETAINING WALL (RE: SHEETS C202 & C203)

*NOTE
ALL TRASH RECEPTACLES AND PAD LOCATIONS TO BE FIELD COORDINATED WITH OWNER.

SCALE: 1" = 30'

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PREPARED BY:

PERMIT SET

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

03-28-2023

SCHLAGEL & ASSOCIATES, P.A.

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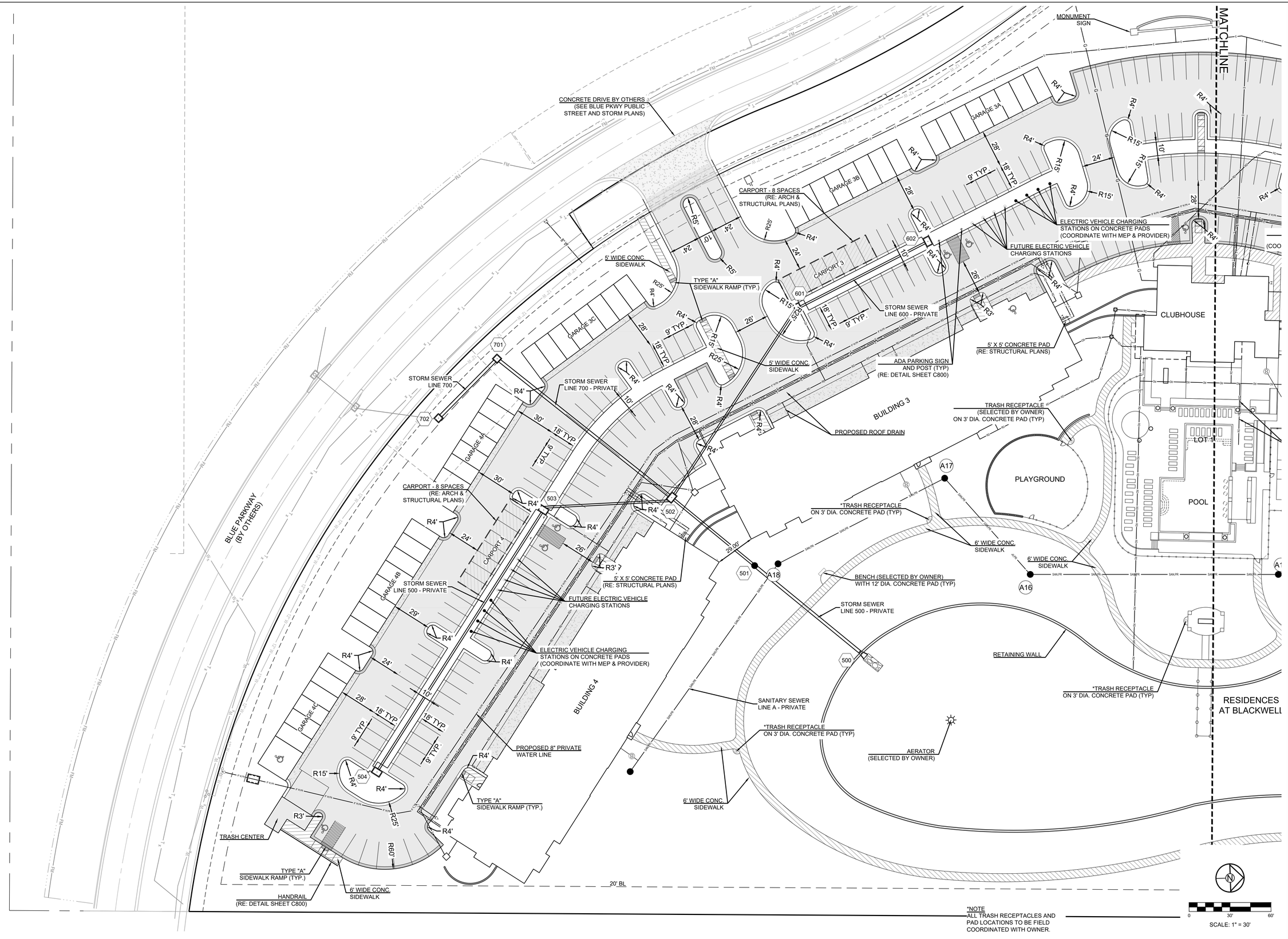
GENERAL LAYOUT - NORTH

SHEET C102

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - GEN.dwg, C102 GENERAL LAYOUT - NORTH, 1:1



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RESIDENCES AT BLACKWELL SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

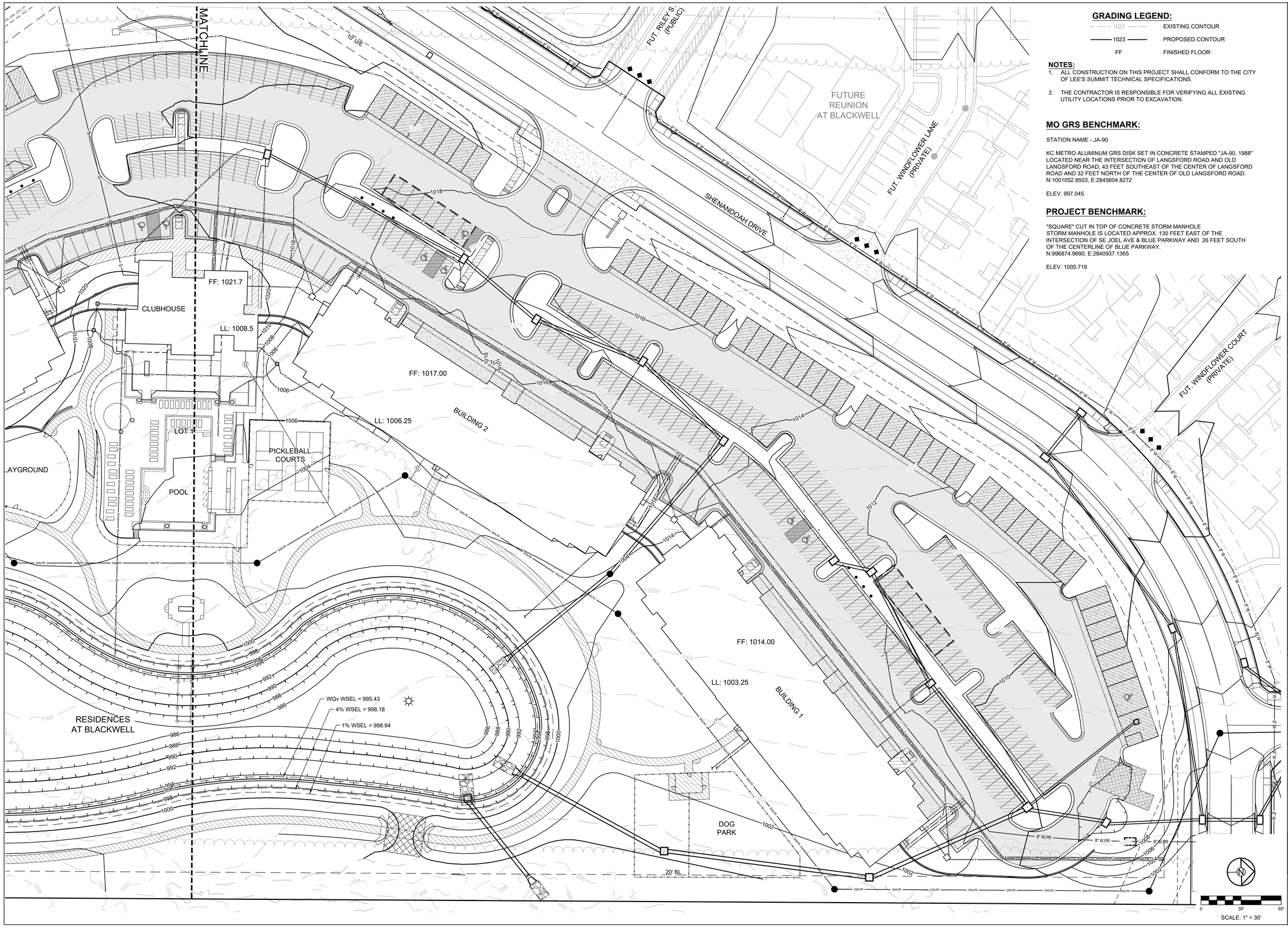
REVISION DATE	DESCRIPTION
01/23/23	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

DRAWN BY: ####	CHECKED BY: ####
DATE PREPARED: 2/6/2023	PROJ. NUMBER: 22-102

GENERAL LAYOUT - SOUTH

SHEET C103

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - GEN.dwg, C103 GENERAL LAYOUT - SOUTH, 1:1



GRADING LEGEND:

— — — 1023 — — —	EXISTING CONTOUR
——— 1023 ———	PROPOSED CONTOUR
FF	FINISHED FLOOR

NOTES:

1. ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.

MO GRS BENCHMARK:

STATION NAME - JA-90

KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

ELEV. 997.045

PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719

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03.28.2023

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DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	2/6/2023
PROJ. NUMBER:	22-102

GRADING PLAN - NORTH

SHEET

C200

U:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - GRD.dwg, C200 GRADING PLAN - NORTH, 1:1

GRADING LEGEND:

— — — 1023 — — —	EXISTING CONTOUR
——— 1023 ———	PROPOSED CONTOUR
FF	FINISHED FLOOR

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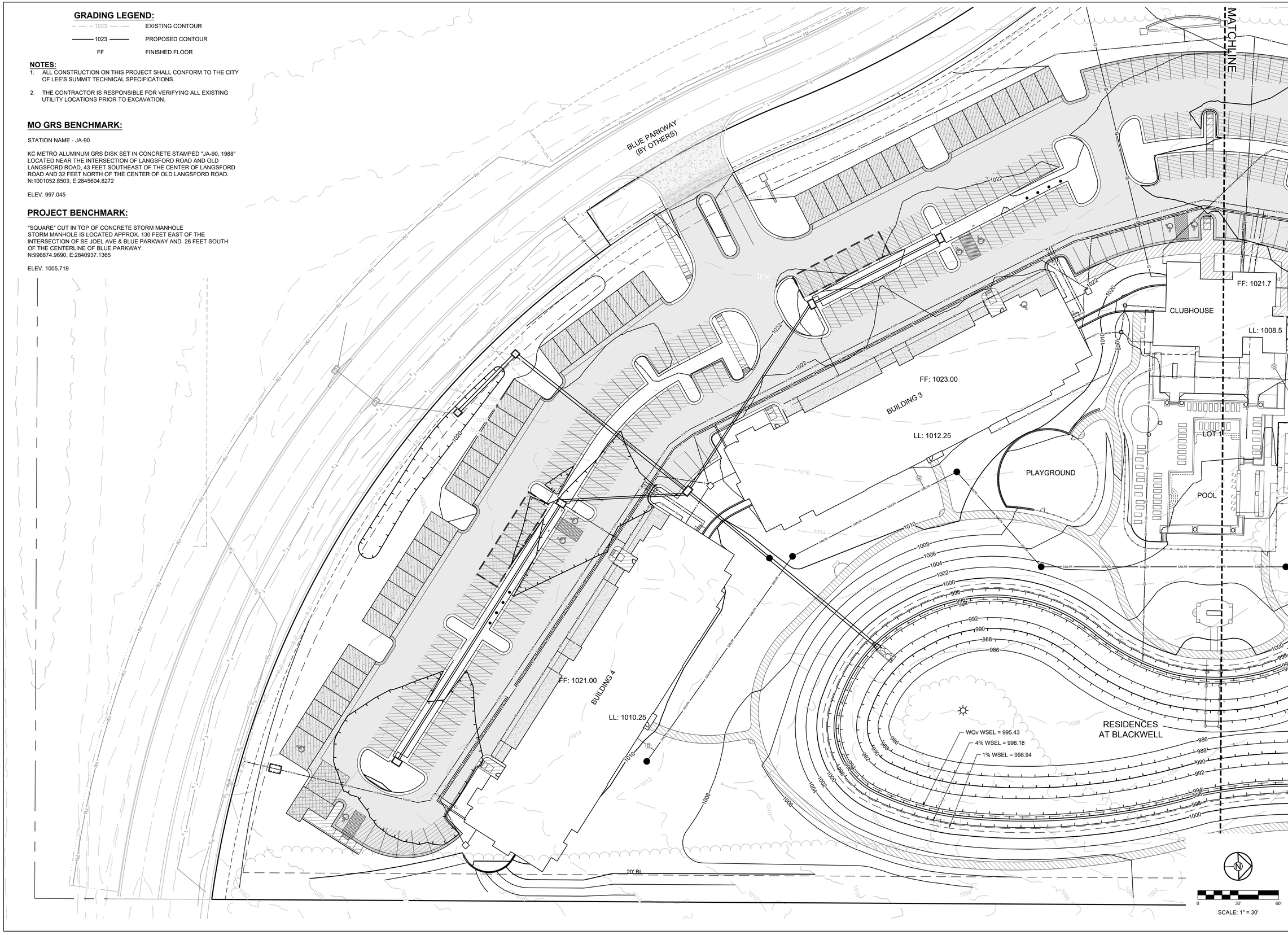
N:1001052.8503, E:2845604.8272

ELEV. 997.045

PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719



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03-28-2023

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RESIDENCES AT BLACKWELL SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

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1 01/20/23	PER CITY COMMENTS
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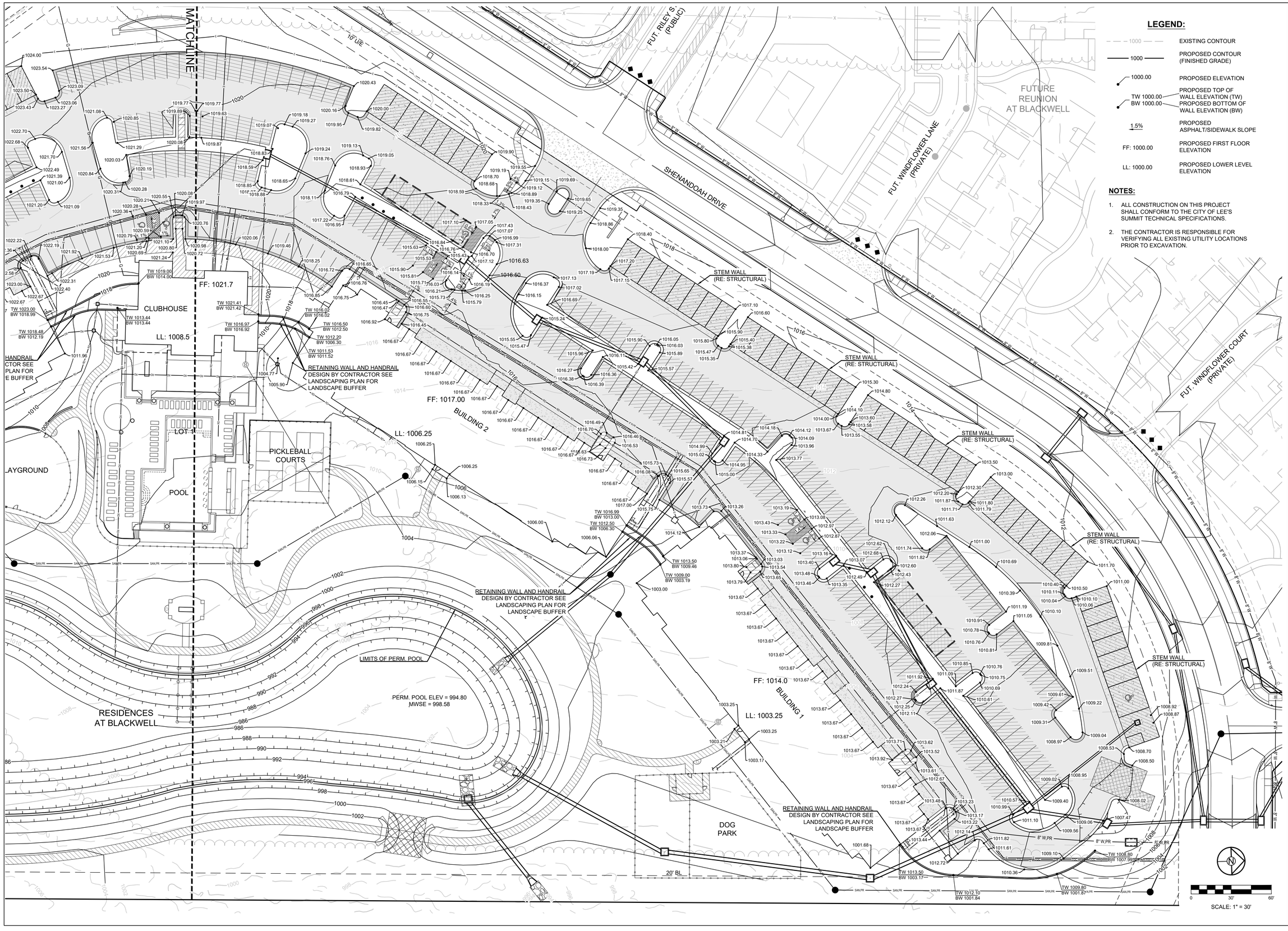
DRAWN BY:	#####
CHECKED BY:	####
DATE PREPARED:	2/8/2023
PROJ. NUMBER:	22-102

GRADING PLAN - SOUTH

SHEET
C201

U:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - GRD.dwg, C201 GRADING PLAN - SOUTH, 1:1



LEGEND:

1000	EXISTING CONTOUR
1000	PROPOSED CONTOUR (FINISHED GRADE)
1000.00	PROPOSED ELEVATION
TW 1000.00 / BW 1000.00	PROPOSED TOP OF WALL ELEVATION (TW) / PROPOSED BOTTOM OF WALL ELEVATION (BW)
1.5%	PROPOSED ASPHALT/SIDEWALK SLOPE
FF: 1000.00	PROPOSED FIRST FLOOR ELEVATION
LL: 1000.00	PROPOSED LOWER LEVEL ELEVATION

NOTES:

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DRAWN BY: TRC	CHECKED BY: MAB
DATE PREPARED: 2/6/2023	PROJ. NUMBER: 22-102

SPOT ELEVATION & WALL PLAN - NORTH

SHEET
C202

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - TC.dwg, C202 SPOT ELEVATION & WALL PLAN - NORTH, 1:1

LEGEND:

1000	EXISTING CONTOUR
1000	PROPOSED CONTOUR (FINISHED GRADE)
1000.00	PROPOSED ELEVATION
TW 1000.00 / BW 1000.00	PROPOSED TOP OF WALL ELEVATION (TW) / PROPOSED BOTTOM OF WALL ELEVATION (BW)
1.5%	PROPOSED ASPHALT/SIDEWALK SLOPE
FF: 1000.00	PROPOSED FIRST FLOOR ELEVATION
LL: 1000.00	PROPOSED LOWER LEVEL ELEVATION

NOTES:

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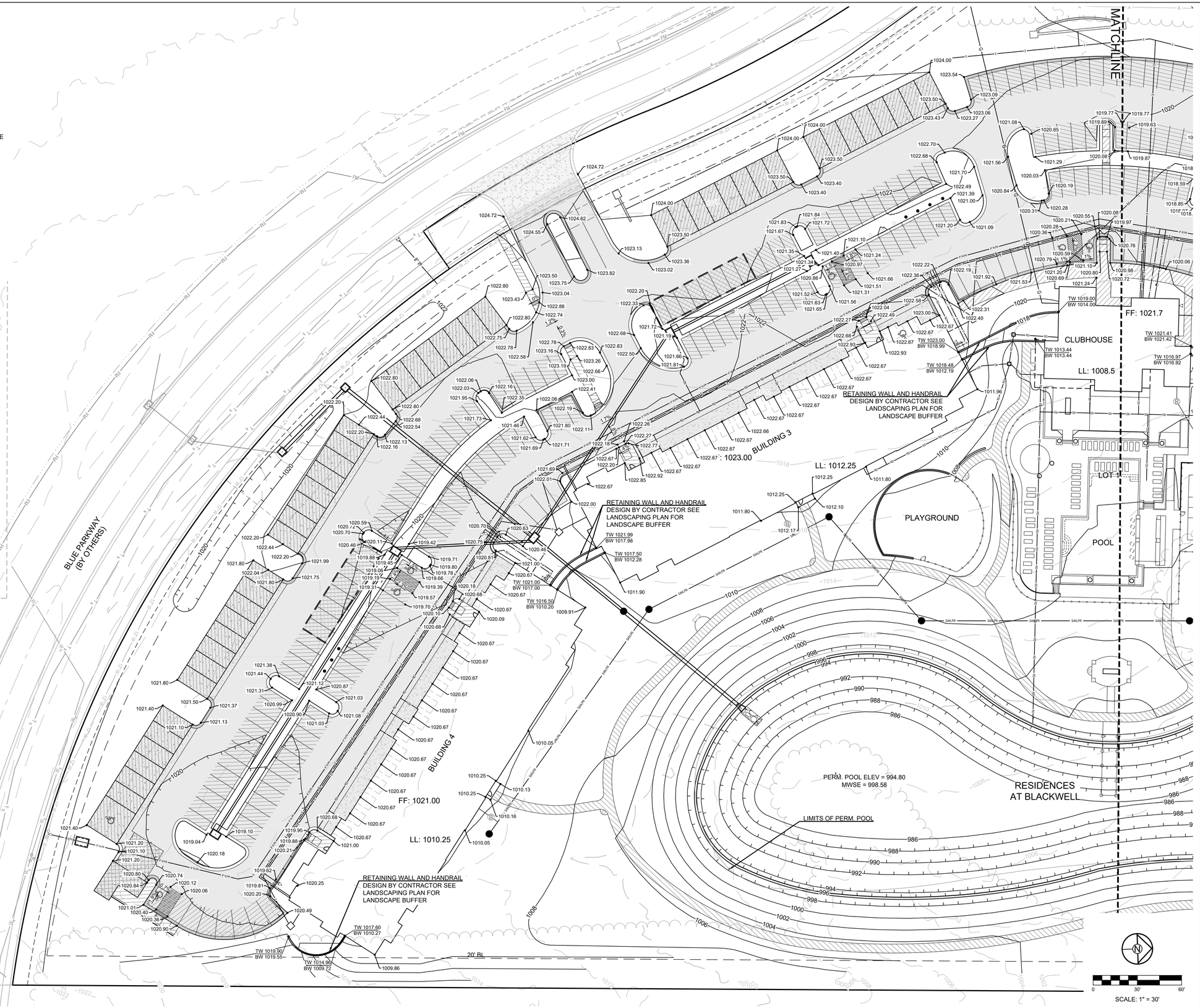

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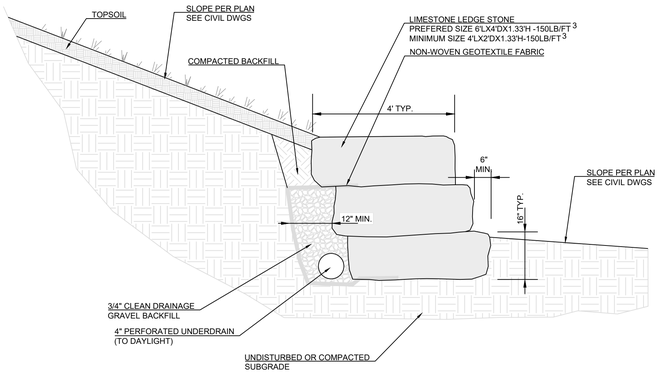
DRAWN BY: ####
CHECKED BY: ####
DATE PREPARED: 2/8/2023
PROJ. NUMBER: 22-102

SPOT ELEVATION & WALL PLAN - SOUTH

SHEET
C203

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - TC.dwg, C203 SPOT ELEVATION & WALL PLAN - SOUTH, 1:1



TYP. LESS THAN 4' HEIGHT STACKED STONE WALL

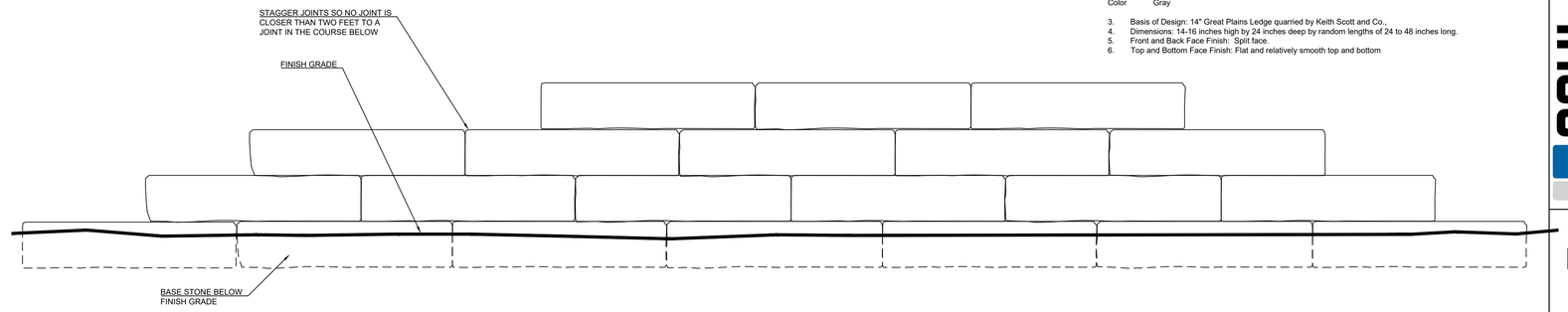
NO SCALE

STONES SHALL BE SOLID NON-WEATHERED LIMESTONE
(NOT AVAILABLE ON SITE)

A. Material Quality Standard: ASTM C 568.
1. Regional Limestone Ledgestone obtained from a regional source and quarried within Kansas or Missouri from quarries that do not use dynamite.
2. Limestone Ledgestone obtained from offsite sources shall meet the following minimum specifications:

Property	Avg. Value	Standard
Water Absorption	3% MAX	ASTM C97
Density (lbs/cft.)	150 Min.	ASTM C97
Specific Gravity	2.400 Min.	ASTM C97
Compressive Strength (PSI)	13,500 Min.	ASTM C170
Modulus of Rupture (PSI)	1,800 Min.	ASTM C99
Color Gray		

3. Basis of Design: 14" Great Plains Ledge quarried by Keith Scott and Co.,
4. Dimensions: 14-16 inches high by 24 inches deep by random lengths of 24 to 48 inches long.
5. Front and Back Face Finish: Split face.
6. Top and Bottom Face Finish: Flat and relatively smooth top and bottom

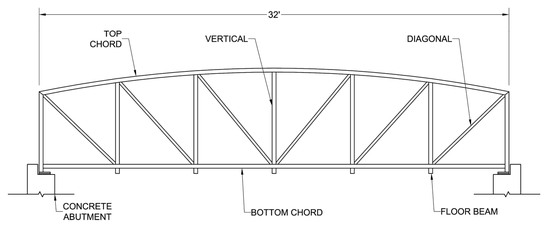


TYP. LESS THAN 4' HEIGHT STONE STACKED STONE WALL ELEVATION

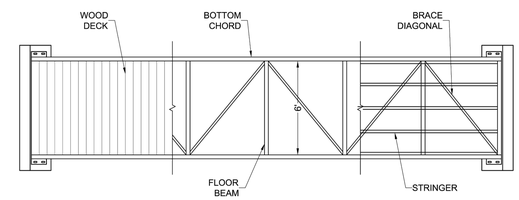
NO SCALE

STONES SHALL BE SOLID NON-WEATHERED LIMESTONE
(NOT AVAILABLE ON SITE)

BRIDGE SUMMARY
Capstone Pedestrian Bridge 32' Span x 6' Width
Deck Type: IPE (Hardwood)
Bridge Finish: Weathering Steel

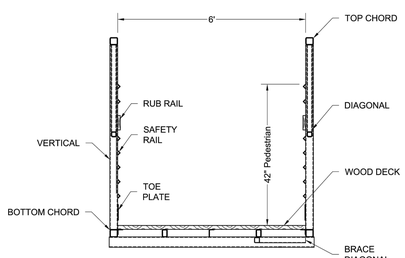


BRIDGE ELEVATION

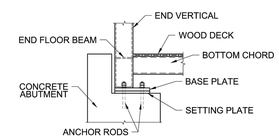


DECK BRACING FRAMING

BRIDGE PLAN

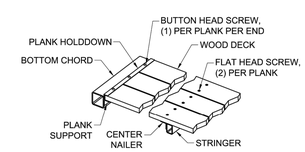


SECTION

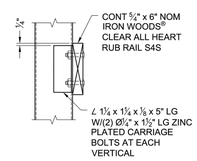


BEARING SIDE VIEW

INFORMATION PROVIDED FOR REPRESENTATION ONLY.
ACTUAL BEARING DIAGRAMS TO BE BASED ON FINAL DESIGN.



WOOD DECK DETAIL



RUB RAIL DETAIL

The graphic information and details contained in these plans is schematic in nature. The plans, elevations and sections have been developed automatically in a way that demonstrates your current input in a relative and proportional manner. The details included in these plans have been selected to represent commonly built construction assemblies. These are not Engineering drawings, and as such, the details may vary in the final design for your project depending on many variables that are selected in your final scope of work and specifications.

PRELIMINARY
NOT FOR CONSTRUCTION

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www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTINENTAL BRIDGE
CONTECH DYOB (Anywhere)

Capstone® 32' Span x 6' Width

Pedestrian Bridge
Lees Summit, Missouri

MARK	DATE	REVISION DESCRIPTION	BY

PROJECT NUMBER: 221936 | DATE: 1/6/2023
DESIGNED: DYOB | DRAWN: DYOB
CHECKED: | APPROVED:
SHEET NO.: 1 OF 4

The graphic information and details contained in these plans is schematic in nature. The plans, elevations and sections have been developed automatically in a way that demonstrates your current input in a relative and proportional manner. The details included in these plans have been selected to represent commonly built construction assemblies. These are not Engineering drawings, and as such, the details may vary in the final design for your project depending on many variables that are selected in your final scope of work and specifications.

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CONTINENTAL BRIDGE
CONTECH DYOB (Anywhere)

Capstone® 32' Span x 6' Width

Pedestrian Bridge
Lees Summit, Missouri

PROJECT NUMBER: 221936 | DATE: 1/6/2023
DESIGNED: DYOB | DRAWN: DYOB
CHECKED: | APPROVED:
SHEET NO.: 2 OF 4

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CONTINENTAL BRIDGE
CONTECH DYOB (Anywhere)

Capstone® 32' Span x 6' Width

Pedestrian Bridge
Lees Summit, Missouri

PROJECT NUMBER: 221936 | DATE: 1/6/2023
DESIGNED: DYOB | DRAWN: DYOB
CHECKED: | APPROVED:
SHEET NO.: 3 OF 4

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800-338-1122 513-645-7000 513-645-7993 FAX

CONTINENTAL BRIDGE
CONTECH DYOB (Anywhere)

Capstone® 32' Span x 6' Width

Pedestrian Bridge
Lees Summit, Missouri

PROJECT NUMBER: 221936 | DATE: 1/6/2023
DESIGNED: DYOB | DRAWN: DYOB
CHECKED: | APPROVED:
SHEET NO.: 4 OF 4

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PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03.28.2023
SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

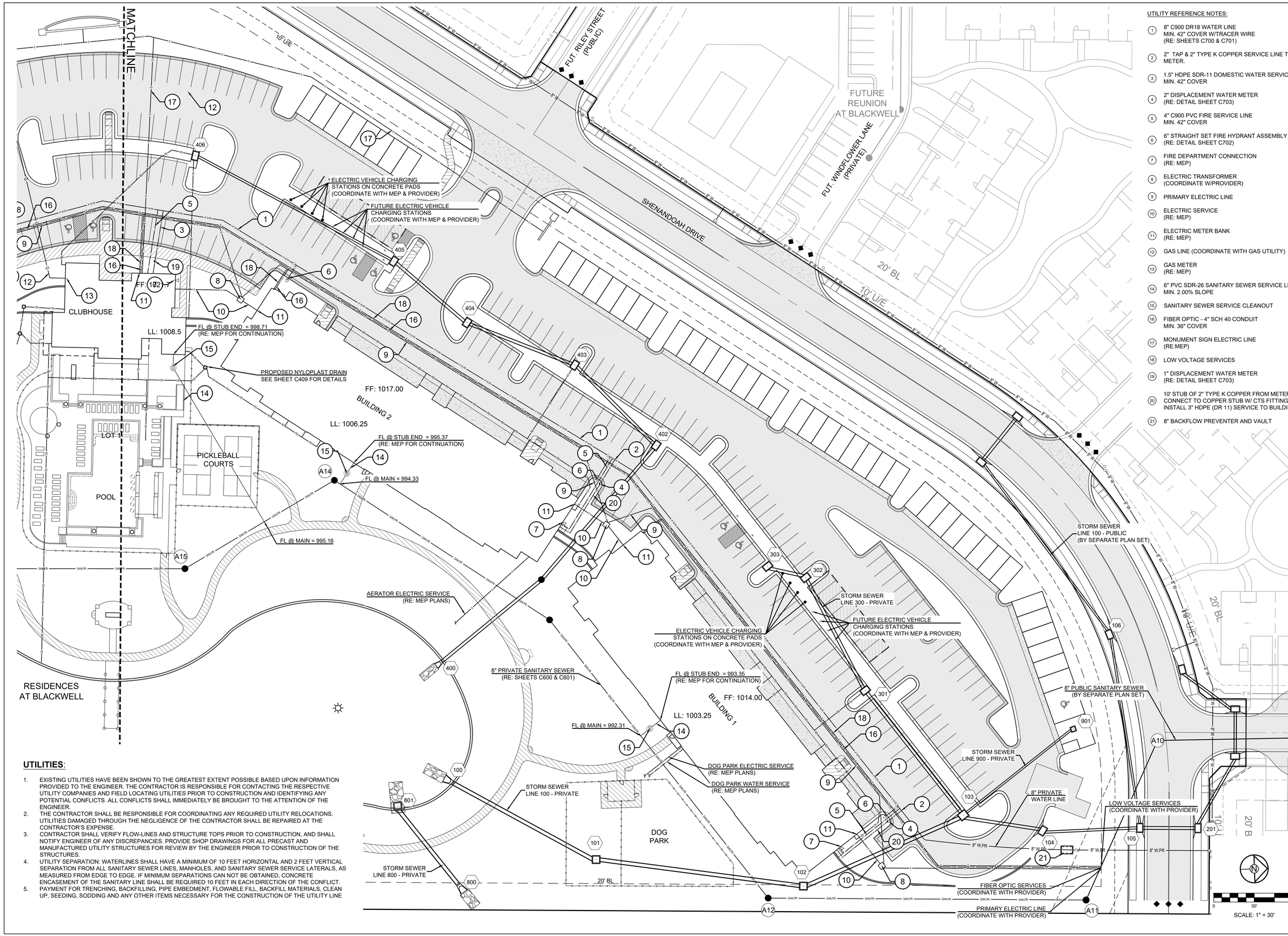
REVISION	DATE	DESCRIPTION
1	01/23/23	PER CITY COMMENTS
2	03/24/2023	PER CITY COMMENTS

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 2/6/2023
PROJ. NUMBER: 22-102

LIMESTONE WALL
& PEDESTRIAN
BRIDGE DETAILS

SHEET
C204

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\C21-102 - SDP - WALL DTLS.dwg, C204 LIMESTONE WALL DETAILS, 1:1



UTILITIES:

1. EXISTING UTILITIES HAVE BEEN SHOWN TO THE GREATEST EXTENT POSSIBLE BASED UPON INFORMATION PROVIDED TO THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE RESPECTIVE UTILITY COMPANIES AND FIELD LOCATING UTILITIES PRIOR TO CONSTRUCTION AND IDENTIFYING ANY POTENTIAL CONFLICTS. ALL CONFLICTS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ANY REQUIRED UTILITY RELOCATIONS. UTILITIES DAMAGED THROUGH THE NEGLIGENCE OF THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
3. CONTRACTOR SHALL VERIFY FLOW-LINES AND STRUCTURE TOPS PRIOR TO CONSTRUCTION, AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES. PROVIDE SHOP DRAWINGS FOR ALL PRECAST AND MANUFACTURED UTILITY STRUCTURES FOR REVIEW BY THE ENGINEER PRIOR TO CONSTRUCTION OF THE STRUCTURES.
4. UTILITY SEPARATION: WATERLINES SHALL HAVE A MINIMUM OF 10 FEET HORIZONTAL AND 2 FEET VERTICAL SEPARATION FROM ALL SANITARY SEWER LINES, MANHOLES, AND SANITARY SEWER SERVICE LATERALS, AS MEASURED FROM EDGE TO EDGE. IF MINIMUM SEPARATIONS CAN NOT BE OBTAINED, CONCRETE ENCASEMENT OF THE SANITARY LINE SHALL BE REQUIRED 10 FEET IN EACH DIRECTION OF THE CONFLICT.
5. PAYMENT FOR TRENCHING, BACKFILLING, PIPE EMBEDMENT, FLOWABLE FILL, BACKFILL MATERIALS, CLEAN UP, SEEDING, SODDING AND ANY OTHER ITEMS NECESSARY FOR THE CONSTRUCTION OF THE UTILITY LINE

UTILITY REFERENCE NOTES:

1. 8" C900 DR18 WATER LINE MIN. 42" COVER W/TRACER WIRE (RE: SHEETS C700 & C701)
2. 2" TAP & 2" TYPE K COPPER SERVICE LINE TO METER.
3. 1.5" HDPE SDR-11 DOMESTIC WATER SERVICE MIN. 42" COVER
4. 2" DISPLACEMENT WATER METER (RE: DETAIL SHEET C703)
5. 4" C900 PVC FIRE SERVICE LINE MIN. 42" COVER
6. 6" STRAIGHT SET FIRE HYDRANT ASSEMBLY (RE: DETAIL SHEET C702)
7. FIRE DEPARTMENT CONNECTION (RE: MEP)
8. ELECTRIC TRANSFORMER (COORDINATE W/PROVIDER)
9. PRIMARY ELECTRIC LINE
10. ELECTRIC SERVICE (RE: MEP)
11. ELECTRIC METER BANK (RE: MEP)
12. GAS LINE (COORDINATE WITH GAS UTILITY)
13. GAS METER (RE: MEP)
14. 6" PVC SDR-26 SANITARY SEWER SERVICE LINE MIN. 2.00% SLOPE
15. SANITARY SEWER SERVICE CLEANOUT
16. FIBER OPTIC - 4" SCH 40 CONDUIT MIN. 36" COVER
17. MONUMENT SIGN ELECTRIC LINE (RE:MEP)
18. LOW VOLTAGE SERVICES
19. 1" DISPLACEMENT WATER METER (RE: DETAIL SHEET C703)
20. 10' STUB OF 2" TYPE K COPPER FROM METER. CONNECT TO COPPER STUB W/ CTS FITTING & INSTALL 3" HDPE (DR 11) SERVICE TO BUILDING.
21. 8" BACKFLOW PREVENTER AND VAULT

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PREPARED BY:

PERMIT SET

STATE OF MISSOURI
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03.28.2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
01/23/23	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	2/6/2023
PROJ. NUMBER:	22-102

UTILITY PLAN - NORTH

SHEET C300

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - UTIL.dwg, C300 UTILITY PLAN - NORTH, 1:1

UTILITY REFERENCE NOTES:

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9. PRIMARY ELECTRIC LINE
10. ELECTRIC SERVICE (RE: MEP)
11. ELECTRIC METER BANK (RE: MEP)
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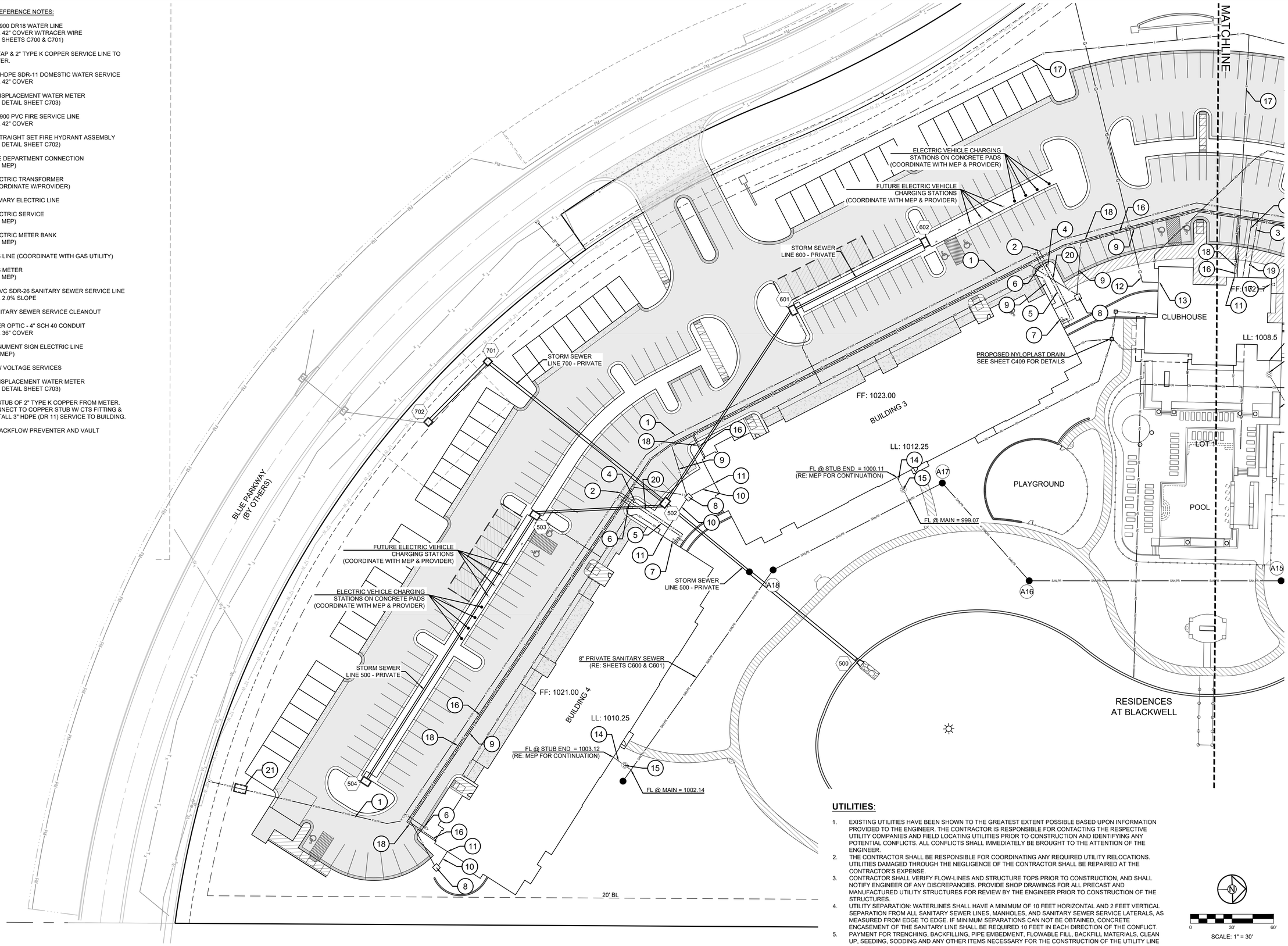

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0 30' 60'
SCALE: 1" = 30'

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03-28-2023
SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

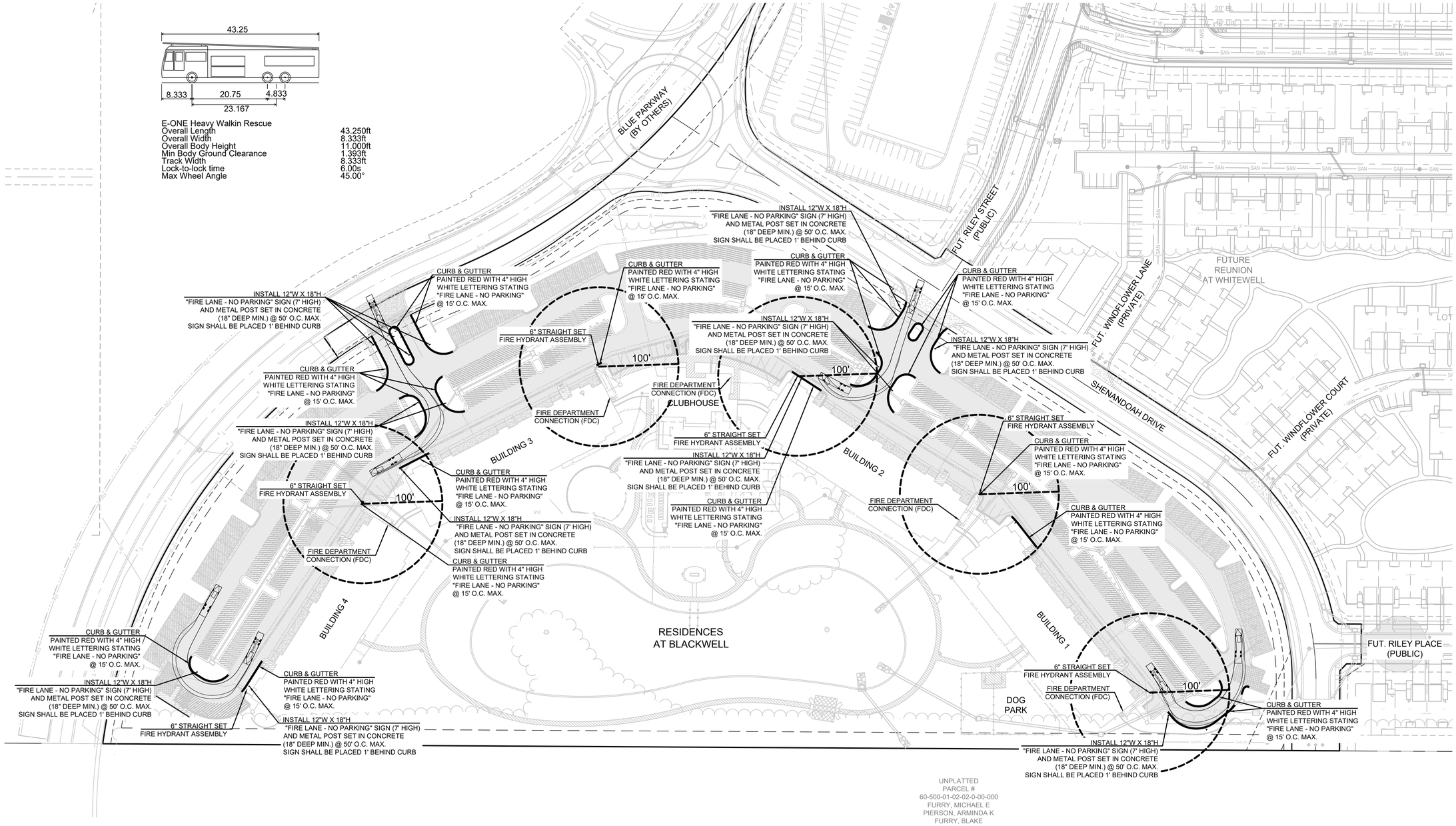
REVISION DATE	DESCRIPTION
1 01/23/23	PER CITY COMMENTS
2 03/24/2023	PER CITY COMMENTS
3	
4	
5	
6	
7	
8	

DRAWN BY:	####
CHECKED BY:	####
DATE PREPARED:	2/8/2023
PROJ. NUMBER:	22-102

UTILITY PLAN - SOUTH

SHEET
C301

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - UTIL.dwg, C301 UTILITY PLAN - SOUTH, 1:1



NOTE:
ALL "FIRE LANE - NO PARKING" SIGNS SHALL BE REFLECTIVE MATERIAL WITH WHITE COLOR BACKGROUND WITH SYMBOLS, LETTERS AND BORDER IN RED COLOR.

0 60' 120'
SCALE: 1" = 60'

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RESIDENCES AT BLACKWELL SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

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2 03/24/2023	PER CITY COMMENTS
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7	
8	
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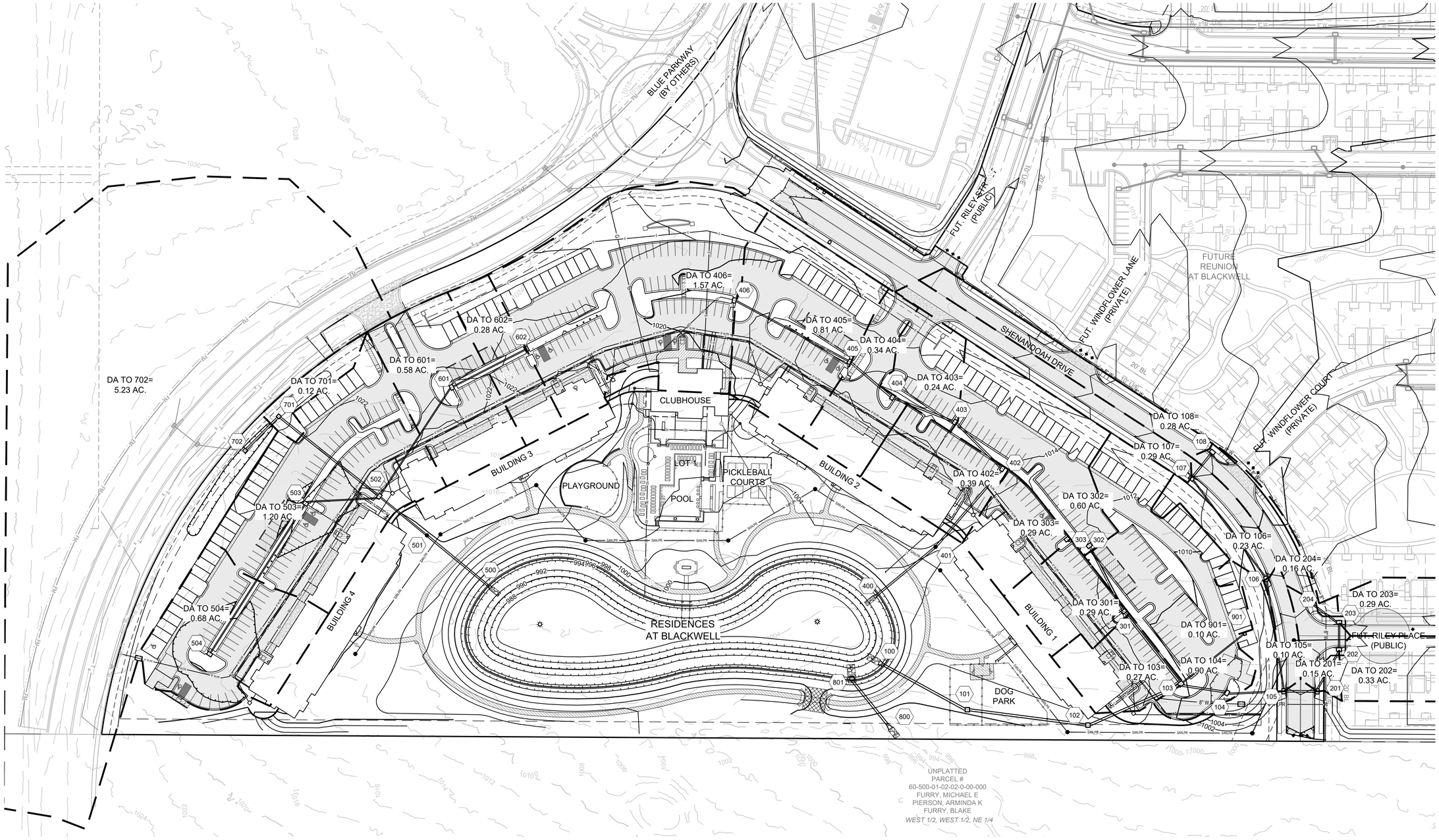
DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	2/6/2023
PROJ. NUMBER:	22-102

FIRE PROTECTION PLAN

SHEET
C302

P:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - FPP.dwg, C302 FIRE PROTECTION PLAN, 1:1



0 60' 120'

SCALE: 1" = 60'

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RESIDENCES AT BLACKWELL SITE DEVELOPMENT PLAN

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1	01/23/23	PER CITY COMMENTS
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4		
5		
6		
7		
8		

DRAWN BY: TRC

CHECKED BY: MAB

DATE PREPARED: 2/6/2023

PROJ. NUMBER: 22-102

DRAINAGE MAP

SHEET

C400

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - DRAIN.dwg, C400 DRAINAGE MAP, 1:1

Design Storm: 25
"K" Value: 1.10
"F" Factor: 1.00

	Runoff Calculations																Pipe Properties											
	Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. CxA	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap.	Pipe Vel.	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up CxA	Up Inlet	Down Inlet	Pipe Type	"n" Value	Pipe Size	Pipe Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top	HGL Elev.
PRIVATE STORM	LINE 100																							DS TAILWATER @ STR #100				998.18
	101	0.00	0.66	3.81	2.81	6.9	7.89	0.00	24.39	51.09	7.23			0.00	0.00	101	100	HDPE	0.012	36	120.00	0.50	0.50	992.60	992.00	1000.27	998.41
	102	0.00	0.66	3.81	2.81	6.6	8.00	0.00	24.72	52.10	7.37			0.00	0.00	102	101	HDPE	0.012	36	154.78	0.52	0.50	993.90	993.10	1001.00	998.69
	103	0.27	0.66	3.81	2.81	6.3	8.10	1.59	25.04	32.65	6.65	301	901	1.28	0.83	103	102	HDPE	0.012	30	129.43	0.54	0.50	995.10	994.40	1010.59	999.31
	104	0.90	0.66	2.26	1.80	6.1	8.15	5.33	16.16	20.06	6.39			0.00	0.00	104	103	HDPE	0.012	24	59.97	0.67	0.50	996.01	995.60	1007.66	999.78
PUBLIC STORM (BY SEPARATE PLAN SET	105	0.09	0.66	1.36	1.21	5.9	8.21	0.54	10.91	20.36	6.48	201		0.48	0.63	105	104	HDPE	0.012	24	72.06	0.69	0.75	997.00	996.51	1002.39	1000.02
	106	0.22	0.66	0.79	0.52	5.6	8.32	1.33	4.77	9.63	7.85			0.00	0.00	106	105	HDPE	0.012	15	145.05	1.90	0.50	1000.50	997.75	1008.39	1001.59
	107	0.29	0.66	0.57	0.38	5.3	8.41	1.77	3.48	12.31	10.03			0.00	0.00	107	106	HDPE	0.012	15	159.23	3.10	0.50	1005.93	1001.00	1012.60	1006.84
	108	0.28	0.66	0.28	0.18	5.2	8.45	1.72	1.72	8.07	6.58			0.00	0.00	108	107	HDPE	0.012	15	43.00	1.33	N/A	1007.00	1006.43	1012.60	1007.61
	LINE 200																						Drop in Inlet 105	0.50				
	201	0.15	0.66	0.48	0.63	5.1	8.48	0.92	5.85	12.43	7.03			0.00	0.00	201	105	RCP	0.013	18	43.00	1.40	0.50	998.10	997.50	1002.39	1000.24
	202	0.33	0.66	0.33	0.53	5.0	8.53	2.04	4.95	9.47	7.71			0.00	0.00	202	201	HDPE	0.012	15	59.95	1.83	0.50	999.70	998.60	1005.75	1000.82
	203	0.29	0.66	0.29	0.31	5.0	8.53	1.80	2.91	9.15	7.46			0.00	0.00	203	202	HDPE	0.012	15	35.00	1.71	0.50	1000.80	1000.20	1005.75	1001.62
	204	0.18	0.66	0.18	0.12	5.3	8.41	1.10	1.10	8.37	6.82			0.00	0.00	204	203	HDPE	0.012	15	49.01	1.43	N/A	1002.00	1001.30	1006.93	1002.48
	LINE 300																						Drop in Inlet 103	1.25				
	301	0.29	0.66	1.18	0.78	5.2	8.47	1.78	7.25	14.65	11.93			0.00	0.00	301	103	HDPE	0.012	15	117.50	4.38	0.50	1001.50	996.35	1011.97	1002.90
	302	0.60	0.66	0.89	0.59	5.0	8.51	3.71	5.50	14.39	11.73			0.00	0.00	302	301	HDPE	0.012	15	94.54	4.23	0.50	1006.00	1002.00	1012.47	1007.18
	303	0.29	0.66	0.29	0.19	5.0	8.53	1.80	1.80	14.14	11.52			0.00	0.00	303	302	HDPE	0.012	15	29.41	4.08	N/A	1007.70	1006.50	1013.19	1008.33
PRIVATE STORM	LINE 400																							DS TAILWATER @ STR #400				998.18
	401	0.00	0.66	3.35	2.21	5.9	8.22	0.00	19.98	30.81	9.81			0.00	0.00	401	400	HDPE	0.012	24	95.00	1.58	0.50	996.50	995.00	1003.35	999.13
	402	0.39	0.66	3.35	2.21	5.8	8.25	2.34	20.07	62.48	19.89			0.00	0.00	402	401	HDPE	0.012	24	130.82	6.50	0.50	1005.50	997.00	1014.83	1007.54
	403	0.24	0.66	2.96	1.95	5.7	8.30	1.45	17.84	32.61	10.38			0.00	0.00	403	402	HDPE	0.012	24	84.77	1.77	0.50	1007.50	1006.00	1015.55	1009.40
	404	0.34	0.66	2.72	1.80	5.5	8.35	2.06	16.48	32.42	10.32			0.00	0.00	404	403	HDPE	0.012	24	85.59	1.75	0.50	1009.50	1008.00	1015.36	1011.31
	405	0.81	0.66	2.38	1.57	5.4	8.39	4.93	14.50	29.10	9.26			0.00	0.00	405	404	HDPE	0.012	24	70.79	1.41	0.50	1011.00	1010.00	1016.46	1012.68
	406	1.57	0.66	1.57	1.04	5.0	8.53	9.72	9.72	12.47	7.05			0.00	0.00	406	405	HDPE	0.012	18	166.47	1.20	N/A	1013.50	1011.50	1018.71	1015.02
	LINE 500																							DS TAILWATER @ STR #500				998.18
	501	0.00	0.66	8.09	5.34	5.8	8.26	0.00	48.49	70.43	9.96			0.00	0.00	501	500	HDPE	0.012	36	95.00	0.95	2.20	995.60	994.70	1008.99	998.98
	502	0.00	0.66	8.09	5.34	5.7	8.27	0.00	48.60	76.21	24.26	601	701	6.21	4.10	502	501	HDPE	0.012	24	78.57	9.67	0.75	1005.40	997.80	1020.75	1009.26
	503	1.20	0.66	1.88	1.24	5.6	8.31	7.24	11.34	17.28	14.08			0.00	0.00	503	502	HDPE	0.012	15	94.25	6.10	0.50	1011.90	1006.15	1019.78	1013.81
	504	0.68	0.66	0.68	0.45	5.0	8.53	4.21	4.21	7.47	6.09			0.00	0.00	504	503	HDPE	0.012	15	227.50	1.14	N/A	1014.99	1012.40	1019.06	1016.01
	LINE 600																						Drop in Inlet 502	0.75				
	601	0.58	0.66	0.86	0.57	5.3	8.44	3.55	5.27	16.58	13.51			0.00	0.00	601	502	HDPE	0.012	15	166.79	5.61	0.50	1015.51	1006.15	1021.46	1016.66
	602	0.28	0.66	0.28	0.18	5.0	8.53	1.73	1.73	8.28	6.75			0.00	0.00	602	601	HDPE	0.012	15	107.00	1.40	N/A	1017.51	1016.01	1021.34	1018.13
	LINE 700																						Drop in Inlet 502	0.50				
	701	0.12	0.66	5.35	3.53	5.1	8.50	0.74	33.00	34.31	10.92			0.00	0.00	701	502	HDPE	0.012	24	163.48	1.96	0.50	1009.10	1005.90	1020.82	1013.08
	702	5.23	0.66	5.23	3.45	5.0	8.53	32.39	32.39	34.31	10.92			0.00	0.00	702	701	HDPE	0.012	24	61.13	1.96	N/A	1010.80	1009.60	1019.00	1014.97
	LINE 900																						Drop in Inlet 103	1.25				
	901	0.10	0.51	0.10	0.05	5.0	8.53	0.48	0.48	19.02	15.50			0.00	0.00	901	103	HDPE	0.012	15	103.55	7.39	N/A	1004.01	996.35	1008.68	1004.32

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

	Runoff Calculations																Pipe Properties											
	Inlet #	Area (acres)	"C" Value	Cumul. Area (acres)	Cumul. CxA	Tc	Intensity	Runoff To Inlet	Cumul. Runoff	Pipe Cap.	Pipe Vel.	Up Piped Inlet 1	Up Piped Inlet 2	Up Area (acres)	Up CxA	Up Inlet	Down Inlet	Pipe Type	"n" Value	Pipe Size	Pipe Length	Slope %	Drop In Inlet	FL Up	FL Down	Inlet Top	HGL Elev.
PRIVATE STORM	LINE 100																							DS TAILWATER @ STR #100				998.94
	101	0.00	0.66	3.81	2.81	6.9	9.58	0.00	33.64	51.09	7.23			0.00	0.00	101	100	HDPE	0.012	36	120.00	0.50	0.50	992.60	992.00	1000.27	999.38
	102	0.00	0.66	3.81	2.81	6.6	9.70	0.00	34.09	52.10	7.37			0.00	0.00	102	101	HDPE	0.012	36	154.78	0.52	0.50	993.90	993.10	1001.00	999.91
	103	0.27	0.66	3.81	2.81	6.3	9.83	2.19	34.51	32.65	6.65	301	901	1.28	0.83	103	102	HDPE	0.012	30	129.43	0.54	0.50	995.10	994.40	1010.59	1001.07
	104	0.90	0.66	2.26	1.80	6.1	9.88	7.34	22.26	20.06	6.39			0.00	0.00	104	103	HDPE	0.012	24	59.97	0.67	0.50	996.01	995.60	1007.66	1001.96
PUBLIC STORM (BY SEPARATE PLAN SET	105	0.09	0.66	1.36	1.21	5.9	9.96	0.74	15.03	20.36	6.48	201		0.48	0.63	105	104	HDPE	0.012	24	72.06	0.69	0.75	997.00	996.51	1002.39	1002.41
	106	0.22	0.66	0.79	0.52	5.6	10.08	1.83	6.57	9.63	7.85			0.00	0.00	106	105	HDPE	0.012	15	145.05	1.90	0.50	1000.50	997.75	1008.39	1003.89
	107	0.29	0.66	0.57	0.38	5.3	10.18	2.44	4.79	12.31	10.03			0.00	0.00	107	106	HDPE	0.012	15	159.23	3.10	0.50	1005.93	1001.00	1012.60	1007.02
	108	0.28	0.66	0.28	0.18	5.2	10.23	2.36	2.36	8.07	6.58			0.00	0.00	108	107	HDPE	0.012	15	43.00	1.33	N/A	1007.00	1006.43	1012.60	1007.74
	LINE 200																						Drop in Inlet 105	0.50				
	201	0.15	0.66	0.48	0.63	5.1	10.27	1.27	8.05	12.43	7.03			0.00	0.00	201	105	RCP	0.013	18	43.00	1.40	0.50	998.10	997.50	1002.39	1002.80
	202	0.33	0.66	0.33	0.53	5.0	10.32	2.81	6.81	9.47	7.71			0.00	0.00	202	201	HDPE	0.012	15	59.95	1.83	0.50	999.70	998.60	1005.75	1003.20
	203	0.29	0.66	0.29	0.31	5.0	10.32	2.47	4.00	9.15	7.46			0.00	0.00	203	202	HDPE	0.012	15	35.00	1.71	0.50	1000.80	1000.20	1005.75	1003.40
	204	0.18	0.66	0.18	0.12	5.3	10.18	1.51	1.51	8.37	6.82			0.00	0.00	204	203	HDPE	0.012	15	49.01	1.43	N/A	1002.00	1001.30	1006.93	1003.44
	LINE 300																						Drop in Inlet 103	1.25				
	301	0.29	0.66	1.18	0.78	5.2	10.25	2.45	9.98	14.65	11.93			0.00	0.00	301	103	HDPE	0.012	15	117.50	4.38	0.50	1001.50	996.35	1011.97	1003.98
	302	0.60	0.66	0.89	0.59	5.0	10.30	5.10	7.57	14.39	11.73			0.00	0.00	302	301	HDPE	0.012	15	94.54	4.23	0.50	1006.00	1002.00	1012.47	1007.44
	303	0.29	0.66	0.29	0.19	5.0	10.32	2.47	2.47	14.14	11.52			0.00	0.00	303	302	HDPE	0.012	15	29.41	4.08	N/A	1007.70	1006.50	1013.19	1008.45
PRIVATE STORM	LINE 400																							DS TAILWATER @ STR #400				998.94
	401	0.00	0.66	3.35	2.21	5.9	9.96	0.00	27.52	30.81	9.81			0.00	0.00	401	400	HDPE	0.012	24	95.00	1.58	0.50	996.50	995.00	1003.35	1000.74
	402	0.39	0.66	3.35	2.21	5.8	10.00	3.22	27.64	62.48	19.89			0.00	0.00	402	401	HDPE	0.012	24	130.82	6.50	0.50	1005.50	997.00	1014.83	1007.98
	403	0.24	0.66	2.96	1.95	5.7	10.06	1.99	24.56	32.61	10.38			0.00	0.00	403	402	HDPE	0.012	24	84.77	1.77	0.50	1007.50	1006.00	1015.55	1009.81
	404	0.34	0.66	2.72	1.80	5.5	10.11	2.84	22.69	32.42	10.32			0.00	0.00	404	403	HDPE	0.012	24	85.59	1.75	0.50	1009.50	1008.00	1015.36	1011.69
	405	0.81	0.66	2.38	1.57	5.4	10.16	6.79	19.95	29.10	9.26			0.00	0.00	405	404	HDPE	0.012	24	70.79	1.41	0.50	1011.00	1010.00	1016.46	1013.03
	406	1.57	0.66	1.57	1.04	5.0	10.32	13.37	13.37	12.47	7.05			0.00	0.00	406	405	HDPE	0.012	18	166.47	1.20	N/A	1013.50	1011.50	1018.71	1015.77
	LINE 500																							DS TAILWATER @ STR #500				998.94
	501	0.00	0.66	8.09	5.34	5.8	10.00	0.00	66.77	70.43	9.96			0.00	0.00	501	500	HDPE	0.012	36	95.00	0.95	2.20	995.60	994.70	1008.99	1000.45
	502	0.00	0.66	8.09	5.34	5.7	10.03	0.00	66.91	76.21	24.26	601	701	6.21	4.10	502	501	HDPE	0.012	24	78.57	9.67	0.75	1005.40	997.80	1020.75	1010.92
	503	1.20	0.66	1.88	1.24	5.6	10.07	9.97	15.62	17.28	14.08			0.00	0.00	503	502	HDPE	0.012	15	94.25	6.10	0.50	1011.90	1006.15	1019.78	1016.88
	504	0.68	0.66	0.68	0.45	5.0	10.32	5.79	5.79	7.47	6.09			0.00	0.00	504	503	HDPE	0.012	15	227.50	1.14	N/A	1014.99	1012.40	1019.06	1018.61
	LINE 600																						Drop in Inlet 502	0.75				
	601	0.58	0.66	0.86	0.57	5.3	10.21	4.89	7.25	16.58	13.51			0.00	0.00	601	502	HDPE	0.012	15	166.79	5.61	0.50	1015.51	1006.15	1021.46	1016.91
	602	0.28	0.66	0.28	0.18	5.0	10.32	2.38	2.38	8.28	6.75			0.00	0.00	602	601	HDPE	0.012	15	107.00	1.40	N/A	1017.51	1016.01	1021.34	1018.24
	LINE 700																						Drop in Inlet 502	0.50				
	701	0.12	0.66	5.35	3.53	5.1	10.28	1.02	45.39	34.31	10.92			0.00	0.00	701	502	HDPE	0.012	24	163.48	1.96	0.50	1009.10	1005.90	1020.82	1018.15
	702	5.23	0.66	5.23	3.45	5.0	10.32	44.54	44.54	34.31	10.92			0.00	0.00	702	701	HDPE	0.012	24	61.13	1.96	N/A	1010.80	1009.60	1019.00	1021.73
	LINE 900																						Drop in Inlet 103	1.25				
	901	0.10	0.51	0.10	0.05	5.0	10.32	0.66	0.66	19.02	15.50			0.00	0.00	901	103	HDPE	0.012	15	103.55	7.39	N/A	1004.01	996.35	1008.68	1004.38

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Missouri State Certificate of Authority
#E2002000380-F #LA2001005237 #LS2002000859-F

PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03-28-2023
SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

REVISION	DATE	DESCRIPTION
1	01/2023	PER CITY COMMENTS
2	03/24/2023	PER CITY COMMENTS
3		
4		
5		
6		
7		
8		
9		

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 2/8/2023
PROJ. NUMBER: 22-102

STORM CALCS

SHEET
C401

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - DRAIN.dwg, C401 STORM CALCS, 1:1

MO GRS BENCHMARK:

STATION NAME - JA-90

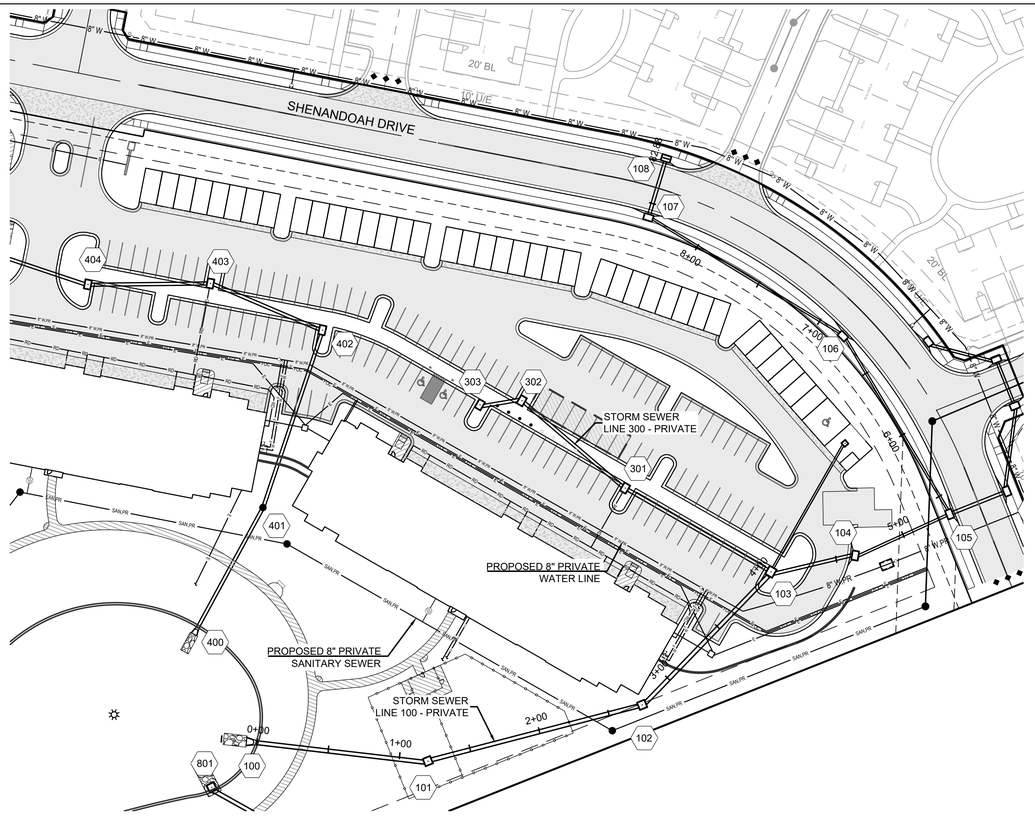
KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

ELEV. 997.045

PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719

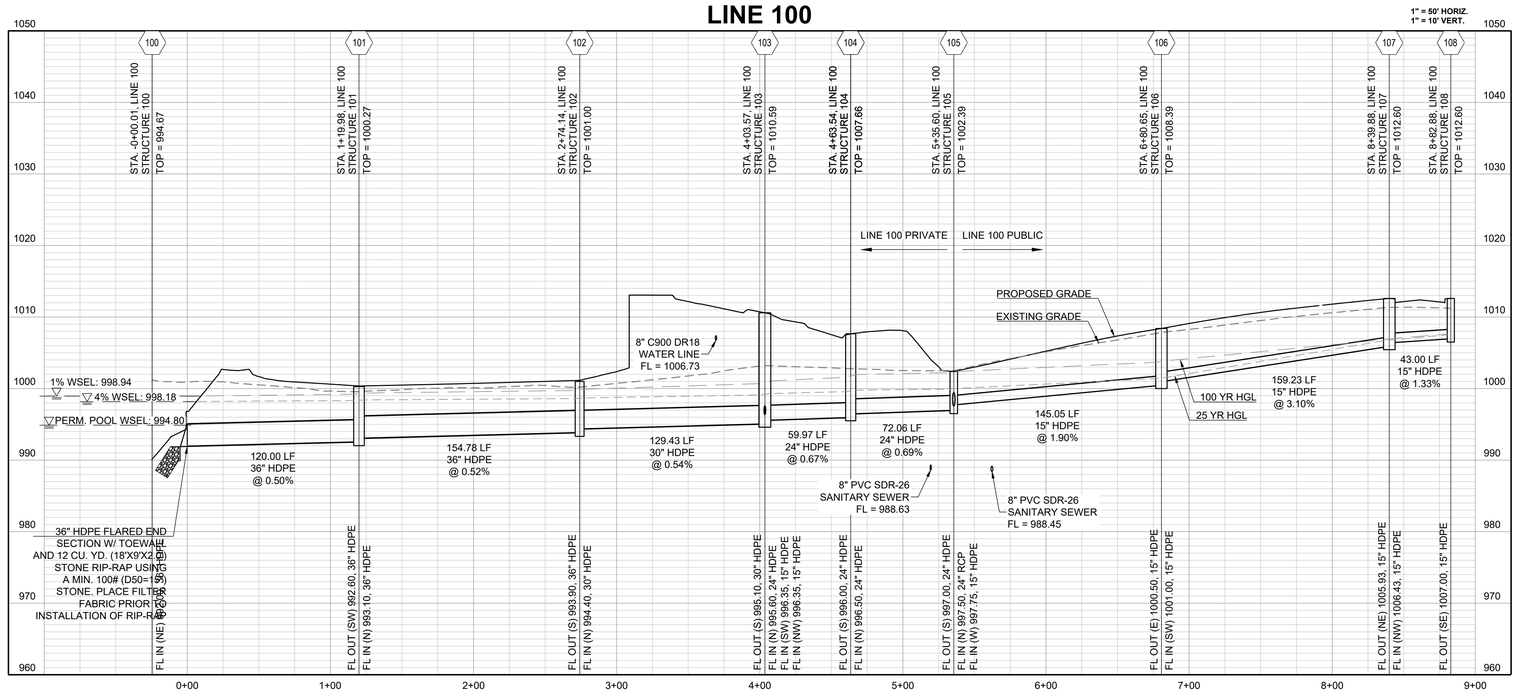


	Storm Sewer Construction Notes	
	Structure	Notes
PRIVATE STORM SEWER	100	STA 0+00.01, LINE 100 INSTALL 36" HDPE FLARED END SECTION W/ TOEWALL AND 12 CU. YD. (18'X9'X2.0') STONE RIP-RAP USING A MIN. 100# (D50=15") STONE. PLACE FILTER FABRIC PRIOR TO INSTALLATION OF RIP-RAP N 996951.5498 E 2842167.5853
	101	STA 1+19.98, LINE 100 INSTALL 5 X 5 JUNCTION BOX N 997055.3212 E 2842227.8473
	102	STA 2+74.14, LINE 100 INSTALL 5 X 5 JUNCTION BOX N 997208.0735 E 2842252.8332
	103	STA 4+03.57, LINE 100 INSTALL 6 X 5 CURB INLET N 997328.1257 E 2842204.4665
	104	STA 4+63.54, LINE 100 INSTALL 6 X 4 CURB INLET N 997386.5369 E 2842218.0616
PUBLIC STORM SEWER	105	STA 5+35.60, LINE 100 INSTALL 6 X 4 CURB INLET N 997458.5932 E 2842218.4336
	106	STA 6+80.65, LINE 100 INSTALL 6 X 4 CURB INLET N 997441.0920 E 2842074.4403
	107	STA 8+39.88, LINE 100 INSTALL 6 X 4 CURB INLET N 997350.6401 E 2841943.3993
	108	STA 8+82.88, LINE 100 INSTALL 6 X 4 CURB INLET N 997378.6818 E 2841910.8017
	201	STA 0+43.00, LINE 200 - PUBLIC INSTALL 6 X 4 CURB INLET N 997501.5598 E 2842220.1297
	202	STA 1+02.95, LINE 200 - PUBLIC INSTALL 6 X 4 CURB INLET N 997530.9285 E 2842167.8656
	203	STA 1+37.95, LINE 200 - PUBLIC INSTALL 6 X 4 CURB INLET N 997532.2676 E 2842132.8913
	204	STA 1+86.96, LINE 200 - PUBLIC INSTALL 6 X 4 CURB INLET N 997493.9804 E 2842102.2912

0 50' 100'
SCALE: 1" = 50'

LINE 100

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



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Missouri State Certificate of Authority
#E2000030800-F #LA2000105237 #LS2000208859-F

PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03-28-2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
01/20/23	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	2/6/2023
PROJ. NUMBER:	22-102

STORM SEWER
LINE 100

SHEET
C402

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - STORM - PP.dwg, C402 STORM SEWER LINE 100, 1:1

0 50' 100'

SCALE: 1" = 50'

Storm Sewer Construction Notes	
Structure	Notes
301	STA 1+17.44, LINE 300 INSTALL 6 X 4 CURB INLET N 997258.8225 E 2842109.5806
302	STA 2+11.98, LINE 300 INSTALL 6 X 4 CURB INLET N 997217.6979 E 2842024.4527
303	STA 2+41.39, LINE 300 INSTALL 6 X 4 CURB INLET N 997189.8142 E 2842015.0986

MO GRS BENCHMARK:

STATION NAME - JA-90

KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

ELEV. 997.045

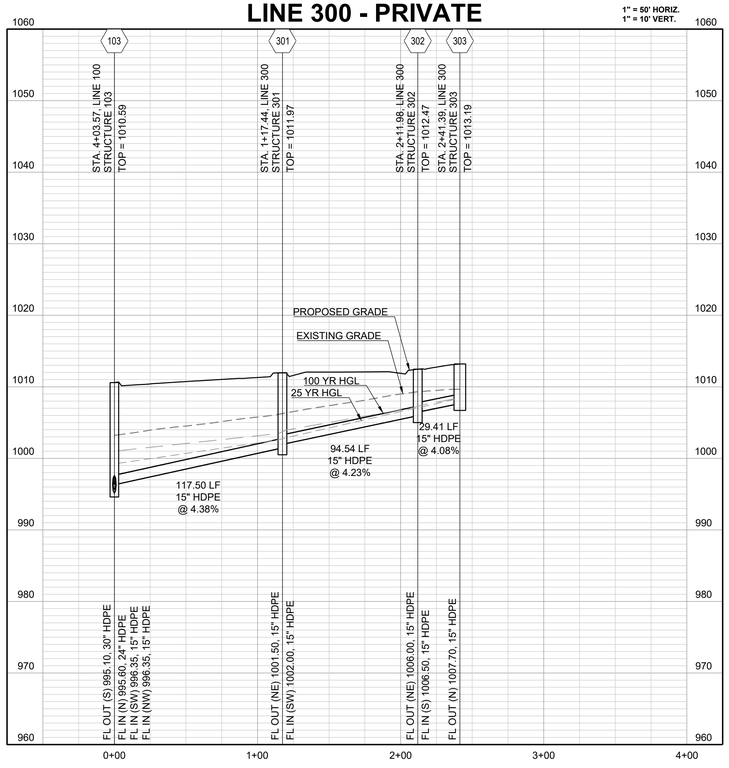
PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719

LINE 300 - PRIVATE

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



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PREPARED BY:

PERMIT SET

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

03-28-2023

SCHLAGEL & ASSOCIATES, P.A.

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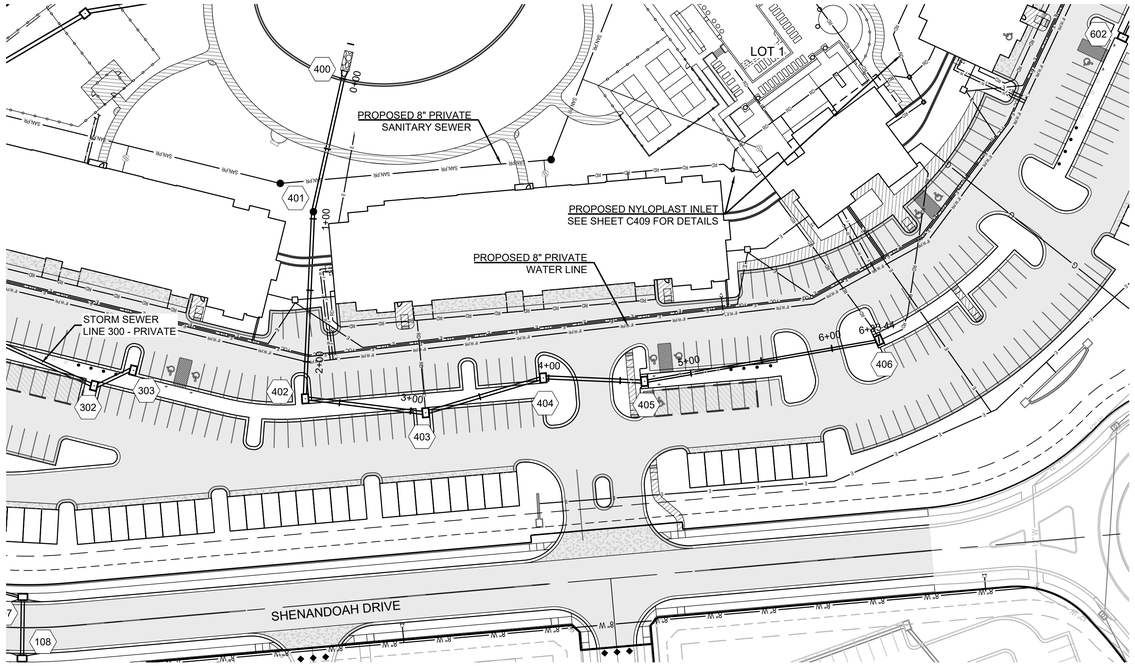
9	
10	

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	2/6/2023
PROJ. NUMBER:	22-102

STORM SEWER
LINE 300

SHEET
C403

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - STORM - PP.dwg, C403 STORM SEWER LINE 300, 1:1



Storm Sewer Construction Notes	
Structure	Notes
400	STA 0+00.00, LINE 400 INSTALL 24" HDPE FLARED END SECTION W/ TOEWALL AND 5 CU. YD. (14'X6'X1.5') STONE RIP-RAP USING A MIN. 50# (D50=12") STONE. PLACE FILTER FABRIC PRIOR TO INSTALLATION OF RIP-RAP N 996946.6755 E 2842076.9140
401	STA 0+95.00, LINE 400 INSTALL STANDARD 4' DIA ECCENTRIC MANHOLE N 997022.0637 E 2842019.1072
402	STA 2+25.82, LINE 400 INSTALL 6 X 4 CURB INLET N 997110.4795 E 2841922.6841
403	STA 3+10.59, LINE 400 INSTALL 6 X 4 CURB INLET N 997052.2404 E 2841861.0868
404	STA 3+96.18, LINE 400 INSTALL 6 X 4 CURB INLET N 996973.7770 E 2841826.9058
405	STA 4+66.97, LINE 400 INSTALL 6 X 4 CURB INLET N 996921.0799 E 2841779.6358
406	STA 6+33.44, LINE 400 INSTALL 6 X 4 CURB INLET N 996776.9387 E 2841696.3656

MO GRS BENCHMARK:

STATION NAME - JA-90

KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

ELEV. 997.045

PROJECT BENCHMARK:

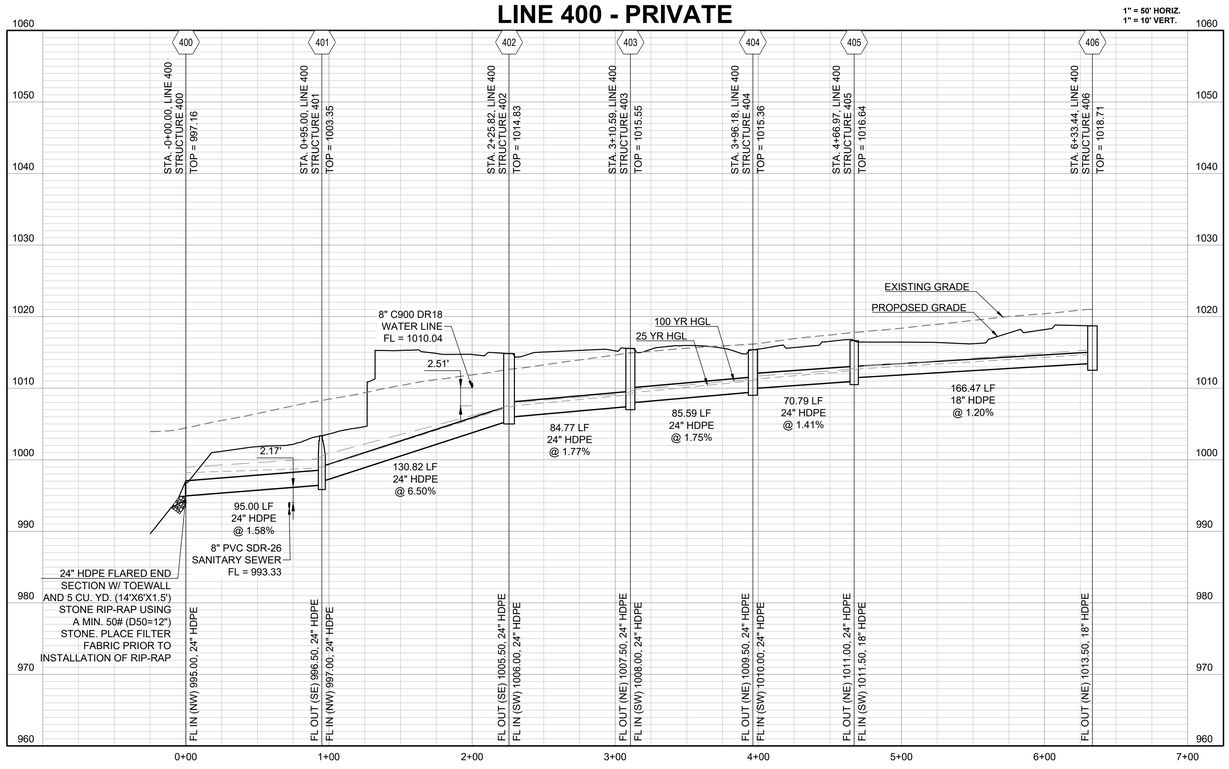
"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719

0 50' 100'
SCALE: 1" = 50'

LINE 400 - PRIVATE

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



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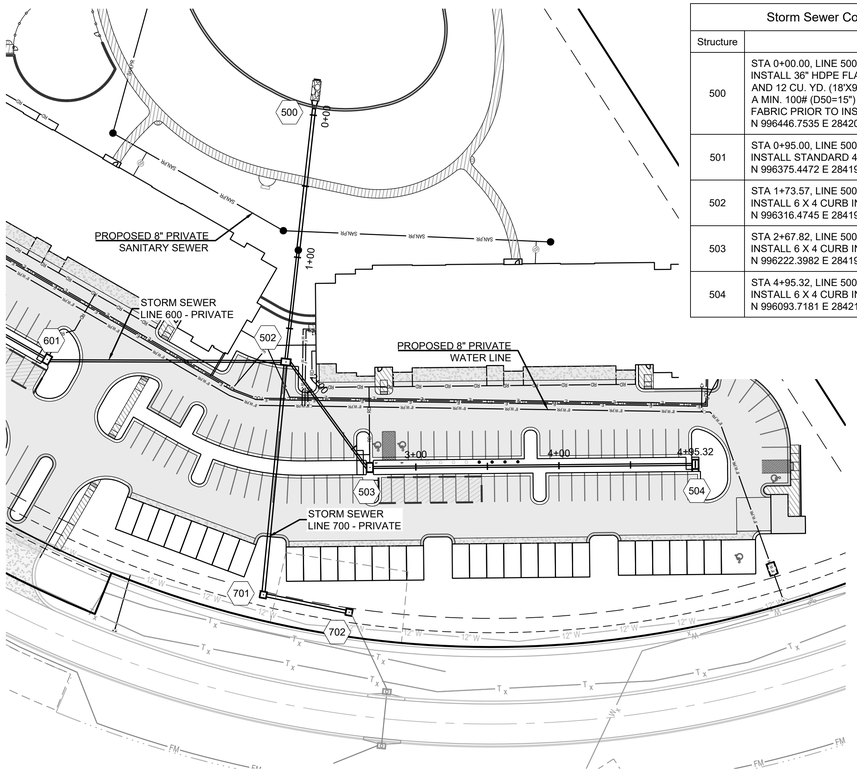
7	
8	

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	2/6/2023
PROJ. NUMBER:	22-102

STORM SEWER
LINE 400

SHEET
C404

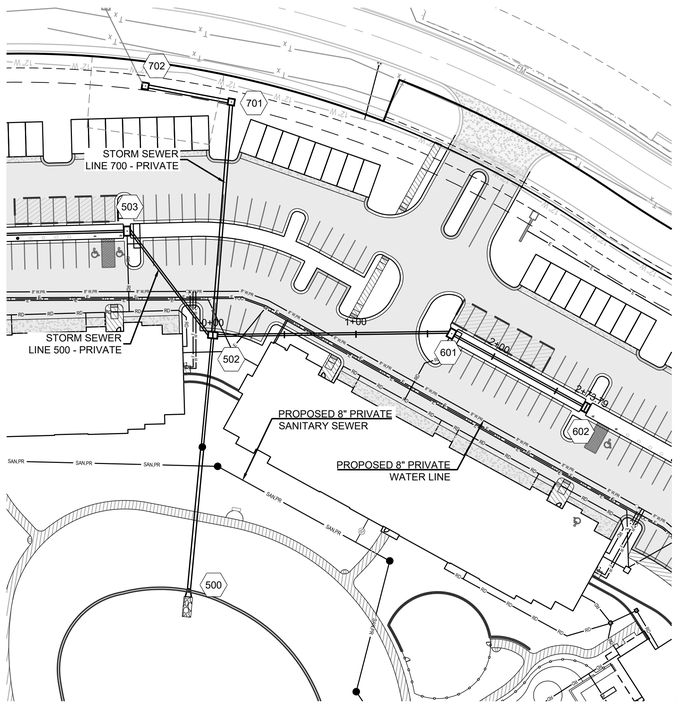
I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - STORM - PP.dwg, C404 STORM SEWER LINE 400, 1:1



Storm Sewer Construction Notes	
Structure	Notes
500	STA 0+00.00, LINE 500 INSTALL 36" HDPE FLARED END SECTION W/ TOEWALL AND 12 CU. YD. (18'X9'X2.0') STONE RIP-RAP USING A MIN. 100# (D50=15") STONE. PLACE FILTER FABRIC PRIOR TO INSTALLATION OF RIP-RAP N 996446.7535 E 2842044.7201
501	STA 0+95.00, LINE 500 INSTALL STANDARD 4' DIA ECCENTRIC MANHOLE N 996375.4472 E 2841981.9473
502	STA 1+73.57, LINE 500 INSTALL 6 X 4 CURB INLET N 996316.4745 E 2841930.0322
503	STA 2+67.82, LINE 500 INSTALL 6 X 4 CURB INLET N 996222.3982 E 2841935.8116
504	STA 4+95.32, LINE 500 INSTALL 6 X 4 CURB INLET N 996093.7181 E 2842123.4220

0 50' 100'

SCALE: 1" = 50'



Storm Sewer Construction Notes	
Structure	Notes
601	STA 1+66.79, LINE 600 INSTALL 6 X 4 CURB INLET N 996413.6646 E 2841794.4908
602	STA 2+73.79, LINE 600 INSTALL 6 X 4 CURB INLET N 996510.4804 E 2841748.9310

MO GRS BENCHMARK:

STATION NAME - JA-90

KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

ELEV. 997.045

PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

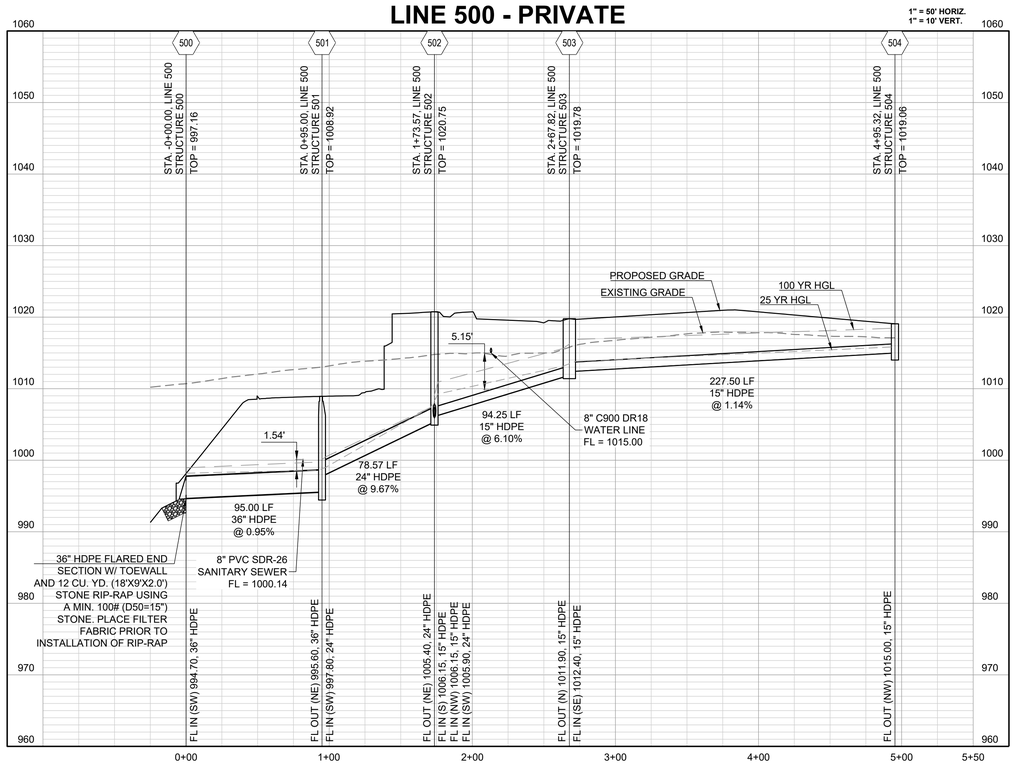
ELEV. 1005.719

0 50' 100'

SCALE: 1" = 50'

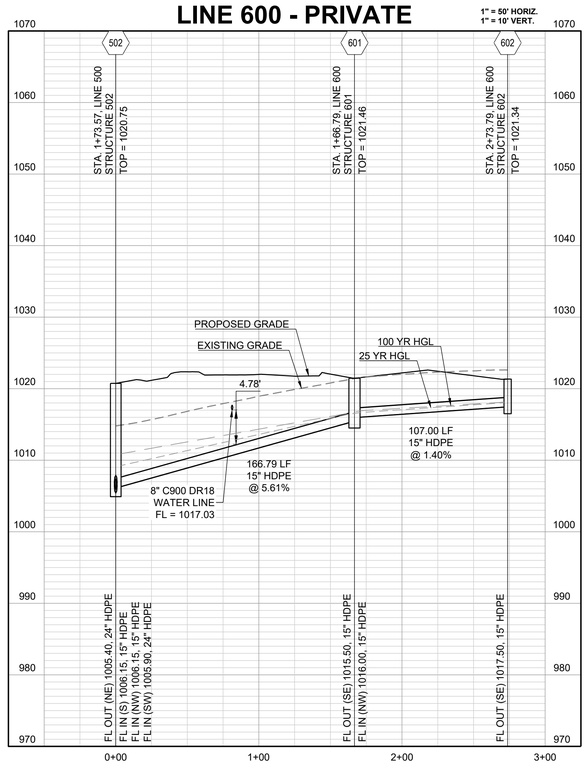
LINE 500 - PRIVATE

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



LINE 600 - PRIVATE

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



SCHLAGEL
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS
14920 West 107th Street • Lenexa, Kansas 66215
(913) 492-5158 • Fax: (913) 492-8400
WWW.SCHLAGELASSOCIATES.COM
Missouri State Certificate of Authority
#E2000200380-F #LA2000105237 #LS2000200859-F

PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03-28-2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

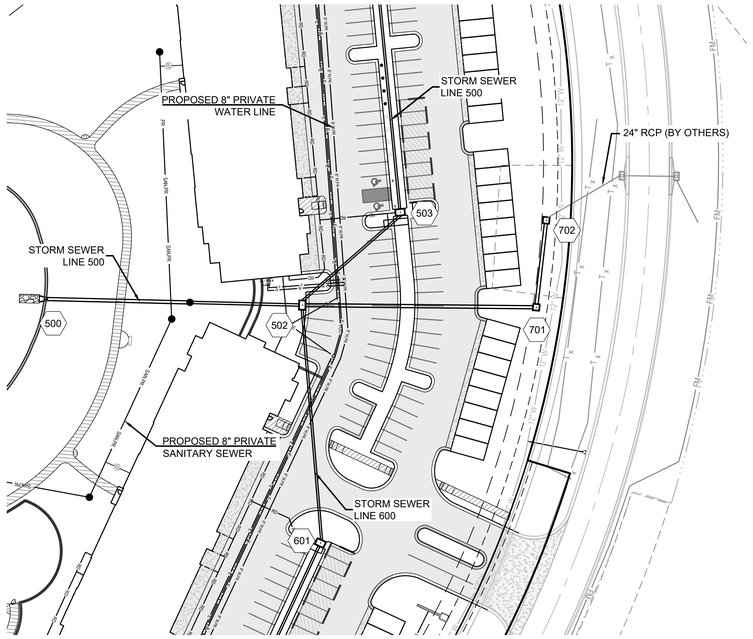
REVISION	DATE	DESCRIPTION
1	01/23/23	PER CITY COMMENTS
2	03/24/2023	PER CITY COMMENTS
3		
4		
5		
6		
7		
8		

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 2/6/2023
PROJ. NUMBER: 22-102

STORM SEWER
LINES 500 & 600

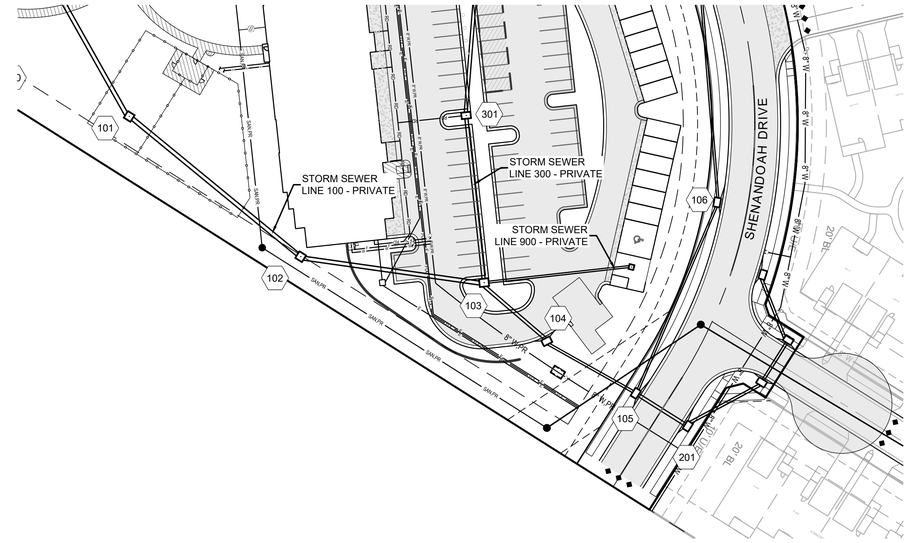
SHEET
C405

I:\PROJECTS\202222-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - STORM - PP.dwg, C405 STORM SEWER LINES 500 & 600, 1:1



Storm Sewer Construction Notes	
Structure	Notes
701	STA 1+63.48, LINE 700 INSTALL 4 X 4 AREA INLET N 996192.2134 E 2841823.8047
702	STA 2+24.60, LINE 700 INSTALL 4 X 4 AREA INLET N 996147.8564 E 2841865.8612

0 50' 100'
SCALE: 1" = 50'

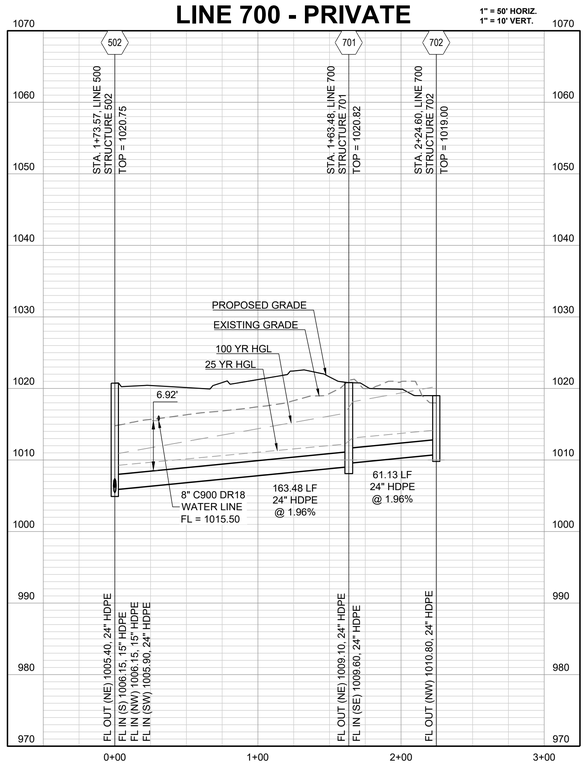


Storm Sewer Construction Notes	
Structure	Notes
901	STA 2+03.55, LINE 900 INSTALL 3 X 3 GRATE INLET N 997411.8528 E 2842143.5436

0 50' 100'
SCALE: 1" = 50'

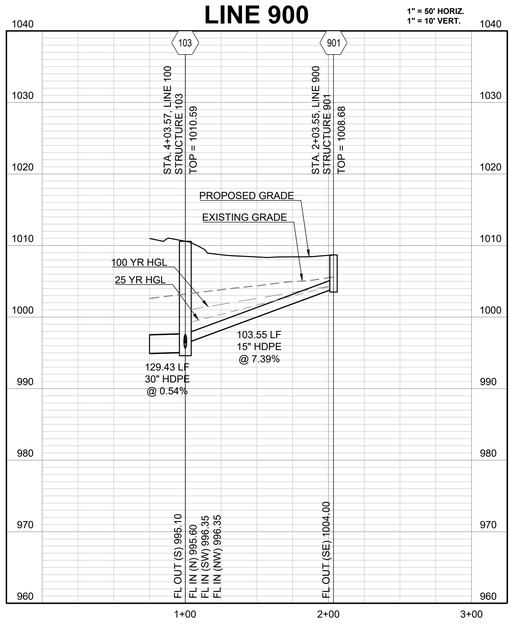
LINE 700 - PRIVATE

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



LINE 900

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



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PREPARED BY:

PERMIT SET

STATE OF MISSOURI
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NUMBER PE-2003007268
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HERITAGE STREET LEE'S SUMMIT, MO

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1 01/23/23	PER CITY COMMENTS
2 03/24/2023	PER CITY COMMENTS
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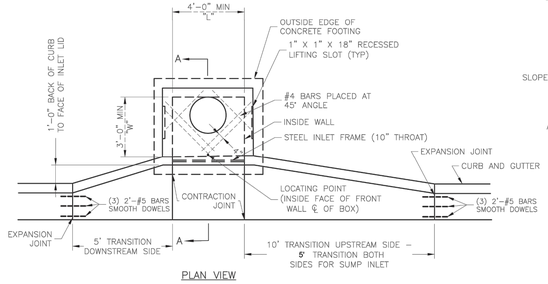
DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 2/6/2023
PROJ. NUMBER: 22-102

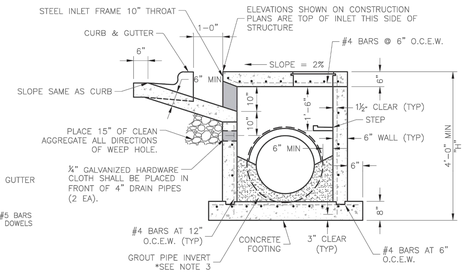
STORM SEWER
LINES 700 & 900

SHEET
C406

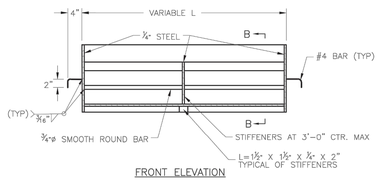
I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - STORM - PP.dwg, C406 STORM SEWER LINES 700 & 900, 1:1



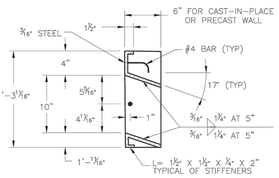
PLAN VIEW



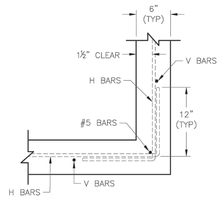
SECTION A–A



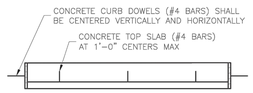
FRONT ELEVATION



SECTION B–B



WALL CORNER DETAIL



PLAN VIEW

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

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

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

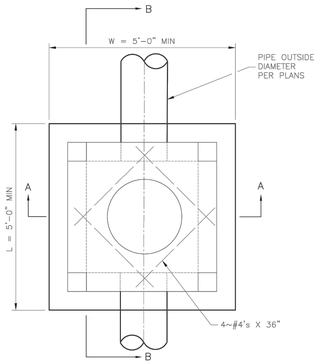
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO

Project:
Grant Name:

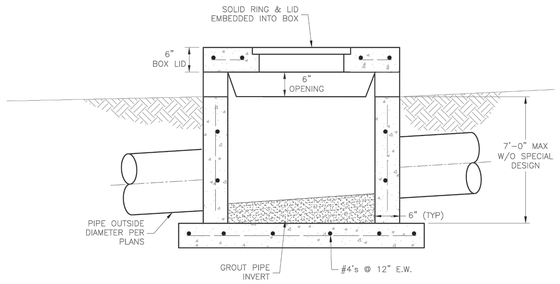
CURB INLET DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

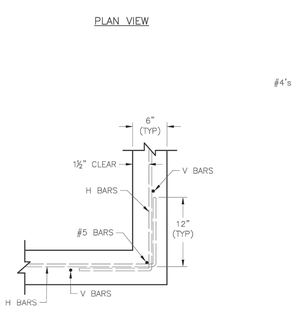
STM-1



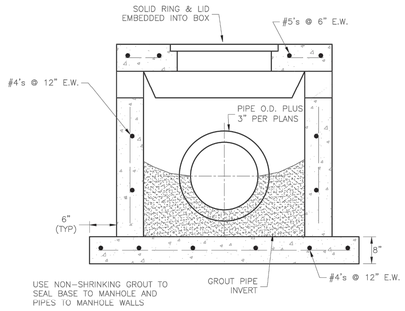
PLAN VIEW



SECTION B–B



WALL CORNER DETAIL



SECTION A–A

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

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

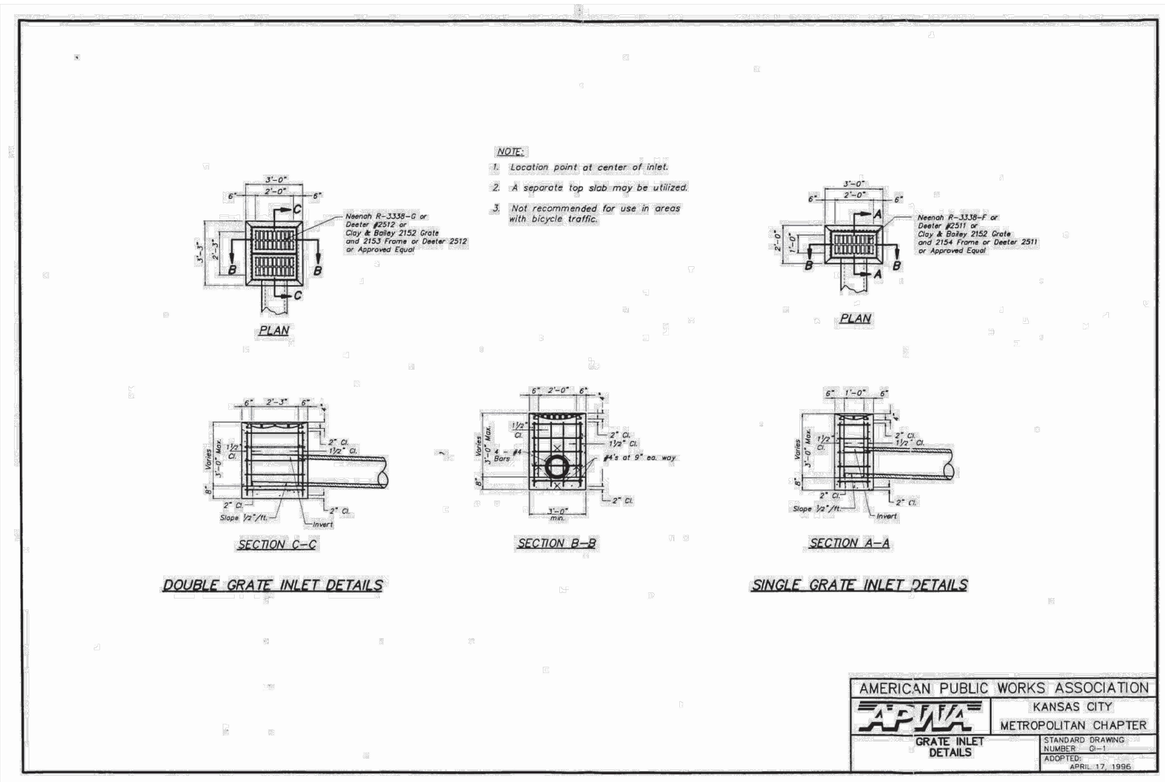
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO

Project:
Grant Name:

FIELD INLET DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

STM-2



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PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03-28-2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

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1 01/23/23	PER CITY COMMENTS
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3	
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9	
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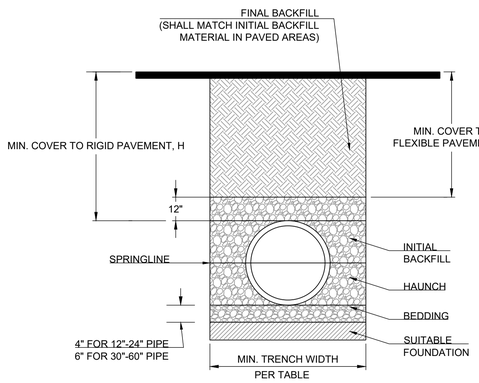
DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 2/8/2023
PROJ. NUMBER: 22-102

STORM DETAILS

SHEET
C407

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - STORM DET.dwg, C407 STORM DETAILS, 1:1



MINIMUM RECOMMENDED COVER BASED ON VECHICLE LOADING CONDITIONS

	SURFACE LIVE LOADING CONDITION	
PIPE DIAM.	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48"	12"	48"
54" - 60"	24"	60"

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION

2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.

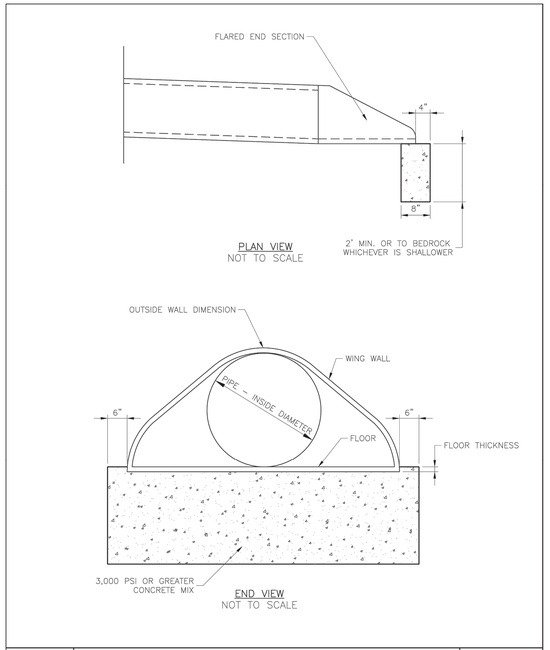
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.

4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).

5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

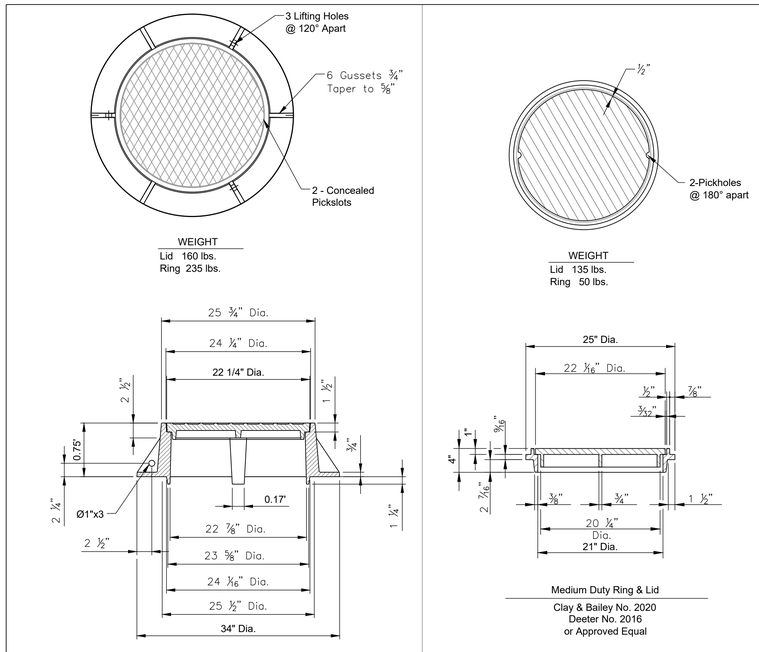
7. TESTING: CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL MATERIAL TESTING REQUIRED FOR THEIR WORK. THIS INCLUDES SCHEDULING OF TESTS, COORDINATING AND PROVIDING ACCESS TO SAMPLE LOCATIONS, AND SATISFYING ALL TEST RESULT REPORTING REQUIREMENTS.



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

FLARED END SECTION SUPPORT DETAIL

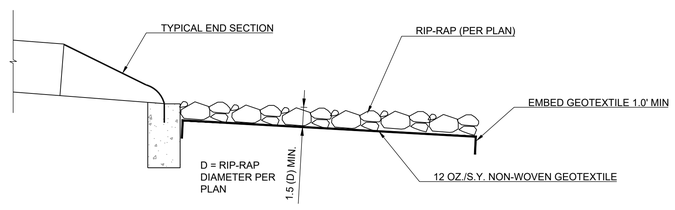
Date: 05/2021
Drawn By: MIF
Checked By: DL
STM-5



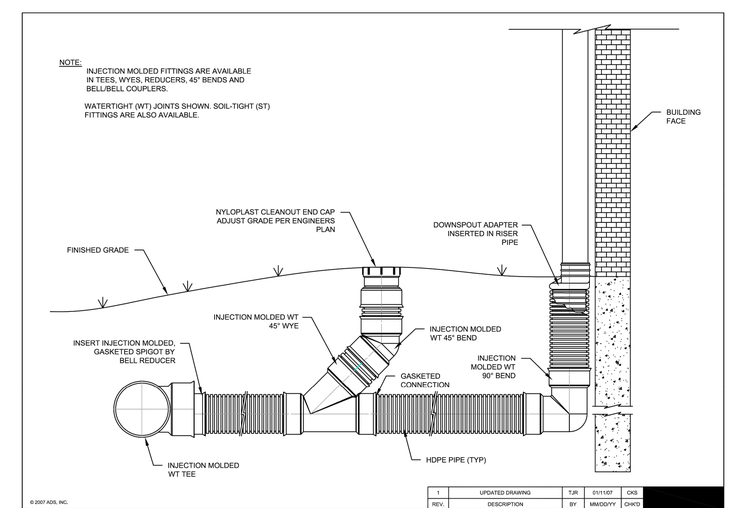
Heavy Duty Ring & Lid
Clay & Bailey NO. 2007MR
Deeter No. 1320
or Approved Equal

Medium Duty Ring & Lid
Clay & Bailey No. 2020
Deeter No. 2016
or Approved Equal

MANHOLE RING AND COVER



RIP-RAP AT OUTLET



REV.	DESCRIPTION	BY	MM/DD/YY	CHKD
1	UPDATED DRAWING	TJR	01/11/07	CKS

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN ENGINEERS RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEETS OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

ROOF DRAIN 9/45 DEG WYE CLEANOUT

DRAWING NUMBER: STD-1001

ADS
ADVANCED DRAINAGE SYSTEMS, INC.
4640 TRUEMAN BLVD
HILLIARD, OHIO 43026

KSK
04.02.03
NTS
1 OF 1

SCHLAGEL
ENGINEERS PLANNERS SURVEYORS LANDSCAPE ARCHITECTS
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PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03.28.2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
01/23/23	PER CITY COMMENTS
03/24/2023	PER CITY COMMENTS

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 2/6/2023
PROJ. NUMBER: 22-102

STORM DETAILS

SHEET
C408

Section 2722

Engineered Surface Drainage Products

GENERAL
PVC surface drainage inlets shall be of the inline drain type as indicated on the contract drawing and referenced within the contract specifications. The ductile iron grates for each of these fittings are to be considered an integral part of the surface drainage inlet and shall be furnished by the same manufacturer. The surface drainage inlets shall be as manufactured by Nyloplast a division of Advanced Drainage Systems, Inc., or prior approved equal.

MATERIALS
The inline drain required for this contract shall be manufactured from PVC pipe stock, utilizing a thermo-molding process to reform the pipe stock to the furnished configuration. The drainage pipe connection stubs shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system. This joint tightness shall conform to ASTM D3212 for joints for drain and sewer plastic pipe using flexible elastomeric seals. The flexible elastomeric seals shall conform to ASTM F477. The pipe bell spigot shall be joined to the inline drain body by use of a **swage mechanical joint**. The raw material used to manufacture the pipe stock that is used to manufacture the inline drain body and pipe stubs of the surface drainage inlets shall conform to ASTM D1784 cell class 12454.

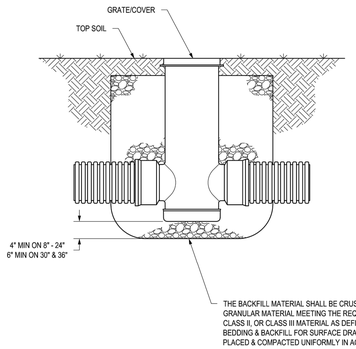
The grates furnished for all surface drainage inlets shall be ductile iron grates for sizes 8", 10", 12", 15", 18", 24" and 30" shall be made specifically for each fitting so as to provide a round bottom flange that closely matches the diameter of the surface drainage inlet. Grates for inline drains shall be capable of supporting H-20 wheel loading for traffic areas or H-10 loading for pedestrian areas. 12" and 15" square grates will be hinged to the frame using pins. Metal used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05 for ductile iron. Grates shall be provided painted black.

INSTALLATION
The specified PVC surface drainage inlet shall be installed using conventional flexible pipe backfill materials and procedures. The backfill material shall be crushed stone or other granular material meeting the requirements of class 1, class 2, or class 3 material as defined in ASTM D2321. Bedding and backfill for surface drainage inlets shall be well placed and compacted uniformly in accordance with ASTM D2321. The drain basin body will be cut at the time of the final grade. No brick, stone or concrete block will be required to set the grate to the final grade height. For H-20 load rated installations, a concrete ring will be poured under and around the grate and frame. The concrete slab must be designed taking into consideration local soil conditions, traffic loading, and other applicable design factors. For other installation considerations such as migration of fines, ground water, and soft foundations refer to ASTM D2321 guidelines.

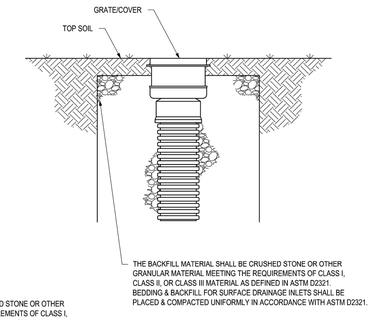
DRAWN BY CJA	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 03-10-00		TITLE 8 IN - 30 IN INLINE DRAIN SPECIFICATIONS	
REVISED BY NMH	PROJECT NO.,NAME		
DATE 03-15-16			
DWG SIZE A	SCALE 1:1 SHEET 1 OF 1	DWG NO. 7003-110-009	REV H

NON TRAFFIC INSTALLATION

DRAIN BASIN



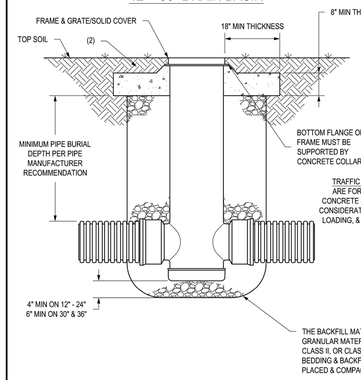
INLINE DRAIN



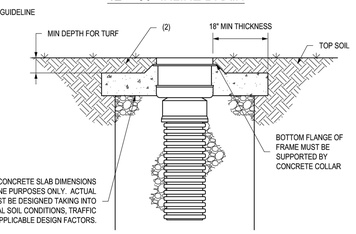
DRAWN BY CJA	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 9-30-09		TITLE DRAIN BASIN & INLINE DRAIN NON TRAFFIC INSTALLATION	
REVISED BY NMH	PROJECT NO.,NAME		
DATE 03-11-16			
DWG SIZE A	SCALE 1:25 SHEET 1 OF 1	DWG NO. 7001-110-111	REV F

NYLOPLAST TURF TRAFFIC INSTALLATION

12" - 36" DRAIN BASIN



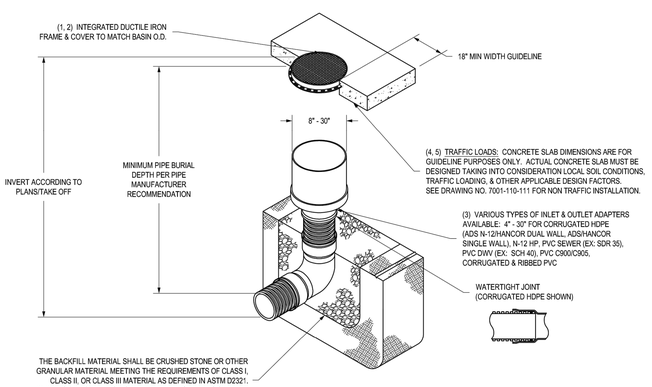
12" - 30" INLINE DRAIN



1. GRATES/SOLID COVERS SHALL MEET H-20 LOAD RATING FOR 30" PEDESTRIAN & 12" - 30" STANDARD & SOLID
2. DESIGN SHOULD ACCOUNT FOR ROOT DEPTH TO ALLOW TURF TO GROW AND PREVENT EROSION AROUND GRATE SO THAT HAZARDS DO NOT FORM.

DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 01-05-09		TITLE DRAIN BASIN & INLINE DRAIN TURF TRAFFIC INSTALLATION	
REVISED BY NMH	PROJECT NO.,NAME		
DATE 06-12-18			
DWG SIZE A	SCALE 1:25 SHEET 1 OF 1	DWG NO. 7001-110-340	REV G

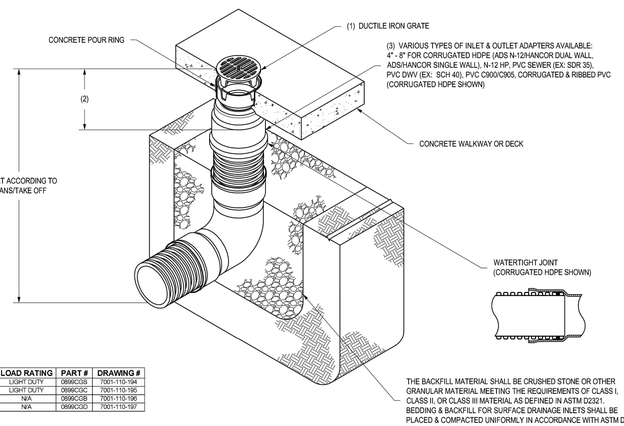
NYLOPLAST INLINE DRAIN WITH SOLID COVER



1 - 8" - 30" SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - 12" - 30" FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05. 8" & 10" SOLID COVERS FIT DIRECTLY ONTO INLINE DRAINS SEE DRAWING NO. 7003-110-000 & 7003-110-001.
3 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER (4" - 24").
4 - 12" - 30" SOLID COVERS SHALL MEET H-20 LOAD RATING.
5 - 8" & 10" SOLID COVERS ARE RATED FOR LIGHT DUTY APPLICATIONS ONLY; NO CONCRETE COLLAR NEEDED FOR LIGHT DUTY RATING.

DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 03-22-10		TITLE INLINE DRAIN WITH SOLID COVER QUICK SPEC INSTALLATION DETAIL	
REVISED BY NMH	PROJECT NO.,NAME		
DATE 03-15-16			
DWG SIZE A	SCALE 1:40 SHEET 1 OF 1	DWG NO. 7003-110-055	REV C

NYLOPLAST 8" INLINE DRAIN: 2708AG _ _ X

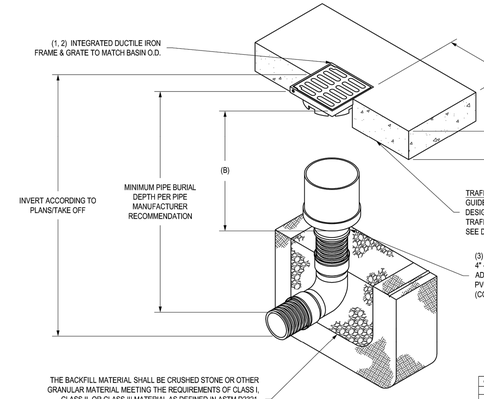


GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN/STANDARD	LIGHT DUTY	0899CGS	7001-110-194
SOLID COVER	LIGHT DUTY	0899CGC	7001-110-195
BRONZE	N/A	0899CGB	7001-110-196
DOME	N/A	0899CGD	7001-110-197

1 - GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05 WITH THE EXCEPTION OF THE BRONZE GRATE.
2 - FOR COMPLETE DESIGN DETAILS SEE DRAWING NO. 7003-110-000.
3 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), & PVC SEWER.

DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 11-15-06		TITLE 8 IN INLINE DRAIN QUICK SPEC INSTALLATION DETAIL	
REVISED BY NMH	PROJECT NO.,NAME		
DATE 03-15-16			
DWG SIZE A	SCALE 1:16 SHEET 1 OF 1	DWG NO. 7003-110-033	REV F

NYLOPLAST 12" INLINE DRAIN: 2712AG _ _ X



ADAPTER SIZE	B
4"	10.50
6"	11.50
8"	11.50
10"	11.25
12"	6.00

GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	MEETS H-10	1299CGP	7001-110-202
STANDARD	MEETS H-20	1299CGS	7001-110-203
SOLID COVER	MEETS H-20	1299CGC	7001-110-204
PEDESTRIAN BRONZE	N/A	1299CGPB	7001-110-205
DOME	N/A	1299CGD	7001-110-206
DROP IN GRATE	LIGHT DUTY	1201DI	7001-110-021

1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05, WITH THE EXCEPTION OF THE BRONZE GRATE.
2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER.
4 - DIMENSIONS ARE FOR REFERENCE ONLY. ACTUAL DIMENSIONS MAY VARY.
5 - DIMENSIONS ARE IN INCHES
6 - SEE DRAWING NO. 7001-110-275 FOR ADS N-12 & HANCOR DUAL WALL BELL INFORMATION & DRAWING NO. 7001-110-364 FOR N-12 HP BELL INFORMATION.

DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 04-03-06		TITLE 12 IN INLINE DRAIN QUICK SPEC INSTALLATION DETAIL	
REVISED BY NMH	PROJECT NO.,NAME		
DATE 03-15-16			
DWG SIZE A	SCALE 1:20 SHEET 1 OF 1	DWG NO. 7003-110-025	REV E

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PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03-28-2023

SCHLAGEL & ASSOCIATES, P.A.

REVISION DATE	DESCRIPTION
1 01/23/23	PER CITY COMMENTS
2 03/24/2023	PER CITY COMMENTS
3	
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DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 2/8/2023
PROJ. NUMBER: 22-102

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

STORM DETAILS

SHEET
C409

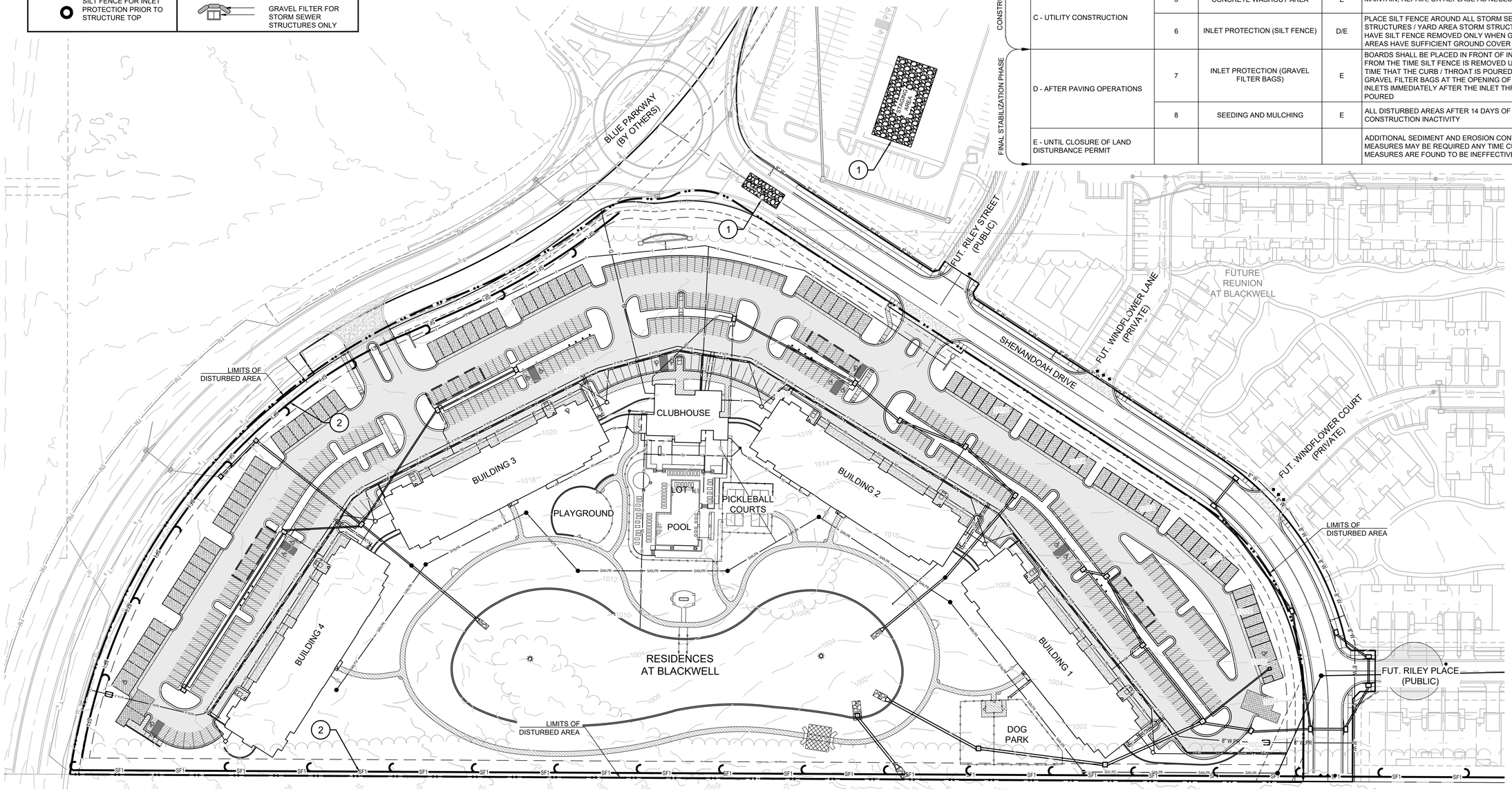
I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - STORM DET.dwg, C409 STORM DETAILS, 1:1

LEGEND

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

EROSION AND SEDIMENT CONTROL STAGING CHART

	PROJECT STAGE	BMP PLAN REF. NO	BMP DESCRIPTION	REMOVE AFTER STAGE	NOTES:
PRE-COSTRUCTION PHASE	A - PRIOR TO LAND DISTURBANCE	1	CONSTRUCTION ENTRANCE & STAGING AREA	D	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		2	SILT FENCE (PRIOR TO CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
CONSTRUCTION PHASE	B - MASS GRADING	3	SILT FENCE (DURING CONSTRUCTION)	E	PLACE WHERE INDICATED, REPAIR OR REPLACE AS NECESSARY AND REMOVE ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
		4	SEDIMENT BASIN	E	INSTALL WHEN 10 ACRES OR MORE OF DISTURBED AREA
	C - UTILITY CONSTRUCTION	5	CONCRETE WASHOUT AREA	E	MAINTAIN, REPAIR, OR REPLACE AS NECESSARY
		6	INLET PROTECTION (SILT FENCE)	D/E	PLACE SILT FENCE AROUND ALL STORM SEWER STRUCTURES / YARD AREA STORM STRUCTURES TO HAVE SILT FENCE REMOVED ONLY WHEN GRADED AREAS HAVE SUFFICIENT GROUND COVER ESTABLISHED
FINAL STABILIZATION PHASE	D - AFTER PAVING OPERATIONS	7	INLET PROTECTION (GRAVEL FILTER BAGS)	E	BOARDS SHALL BE PLACED IN FRONT OF INLET OPENING FROM THE TIME SILT FENCE IS REMOVED UNTIL SUCH TIME THAT THE CURB / THROAT IS POURED. PLACE GRAVEL FILTER BAGS AT THE OPENING OF ALL CURB INLETS IMMEDIATELY AFTER THE INLET THROATS ARE POURED
		8	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 = 16.98 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 NUMBERS 29095C0441G, 29095C0445G, 29095C0437G AND 29095C0439G DATED JANUARY 20TH, 2017.
4. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IMPLEMENTED ACCORDING TO THE BMP STAGING CHART.
5. ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY THE CITY ENGINEER AT ANY TIME EXISTING MEASURES ARE FOUND TO BE INEFFECTIVE OR PROBLEMATIC AREAS ARE NOTED IN THE FIELD.
6. STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING, OR OTHER SOIL DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. THE DISTURBED AREAS SHALL BE PROTECTED FROM EROSION BY STABILIZING THE AREA WITH MULCH OR OTHER SIMILARLY EFFECTIVE SOIL STABILIZING BMPS. INITIAL STABILIZATION ACTIVITIES MUST BE COMPLETED WITHIN 14 DAYS AFTER SOIL DISTURBING ACTIVITIES CEASE.
7. ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN.
8. SILT FENCE AND EARTH DIKES THAT ARE PLACED BEFORE GRADING BEGINS WILL BE MAINTAINED BY THE GRADING CONTRACTOR.
9. AREAS WITHIN PUBLIC RIGHT-OF-WAY SHALL BE SODDED IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE.

NOTES:

1. ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.

0 60' 120'
SCALE: 1" = 60'

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#E2002000380-F #LA2001005237 #LS2002000859-F

PREPARED BY:

PERMIT SET

STATE OF MISSOURI — MARK ALLEN BREUER — NUMBER PE-2003007268 — PROFESSIONAL ENGINEER
03.28.2023
SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 01/23/23	PER CITY COMMENTS
2 03/24/2023	PER CITY COMMENTS
3	
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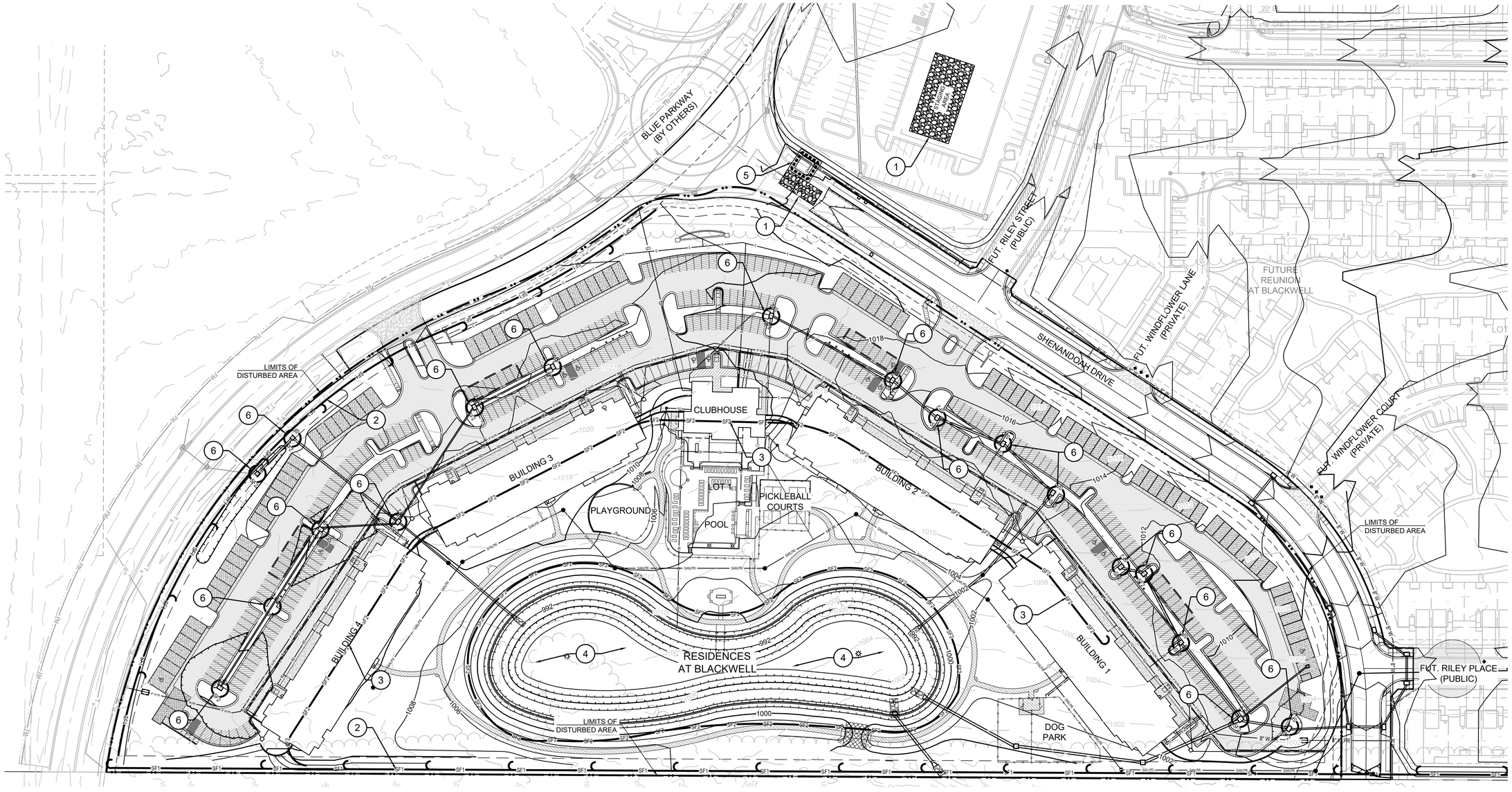
8	

DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	2/6/2023
PROJ. NUMBER:	22-102

PRE-CONSTRUCTION EROSION CONTROL PLAN

SHEET
C500

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - EROS.dwg, C500 PRE-CONSTRUCTION EROSION CONTROL PLAN, 1:1



NOTES:

1. ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
3. SEE SHEET C500 FOR EROSION CONTROL NOTES, LEGEND AND STAGING CHART.

0 60' 120'

SCALE: 1" = 60'

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#E2000200380-F #LA2001005237 #LS2002008859-F

PREPARED BY:

PERMIT SET

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

03.28.2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

REVISION	DATE	DESCRIPTION
1	01/23/23	PER CITY COMMENTS
2	02/24/2023	PER CITY COMMENTS
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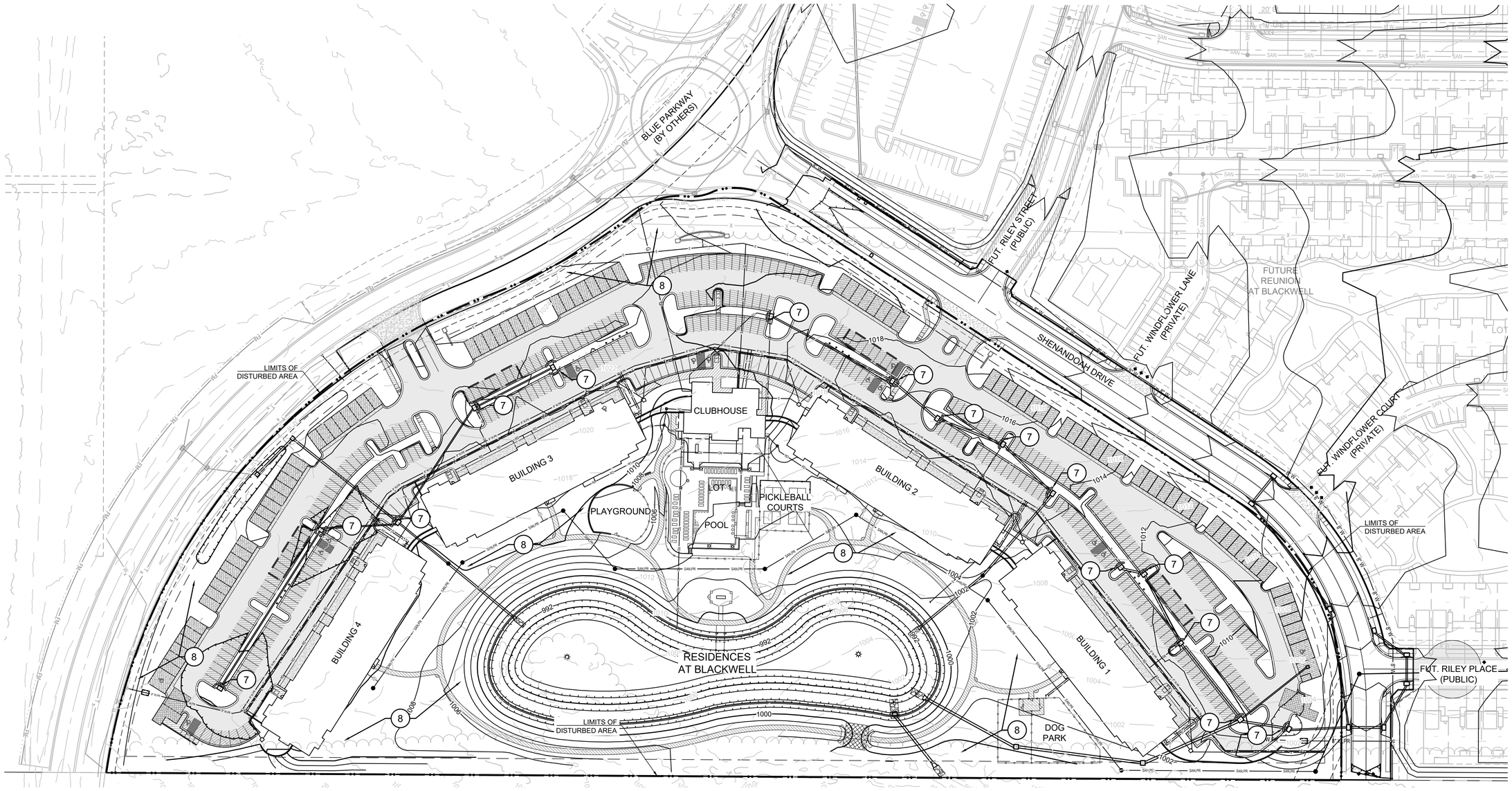
DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 2/8/2023
PROJ. NUMBER: 22-102

EROSION CONTROL PLAN

SHEET C501

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - EROS.dwg, C501 EROSION CONTROL PLAN, 1:1



NOTES:

1. ALL CONSTRUCTION ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEE'S SUMMIT TECHNICAL SPECIFICATIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS PRIOR TO EXCAVATION.
3. SEE SHEET C500 FOR EROSION CONTROL NOTES, LEGEND AND STAGING CHART.

0 60' 120'
SCALE: 1" = 60'

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PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03-28-2023
SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 01/20/23	PER CITY COMMENTS
2 03/24/2023	PER CITY COMMENTS
3	
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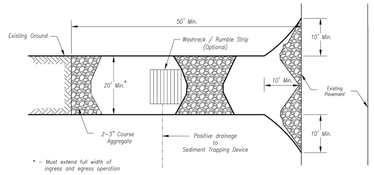
DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	2/6/2023
PROJ. NUMBER:	22-102

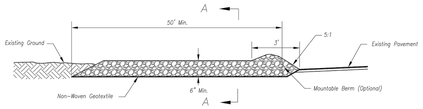
POST-CONSTRUCTION EROSION CONTROL PLAN

SHEET
C502

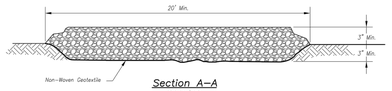
I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - EROS.dwg, C502 POST-CONSTRUCTION EROSION CONTROL PLAN, 1:1



Plan View
Not to Scale



Side Elevation
Not to Scale



Section A-A
Not to Scale

Notes for Construction Entrance:

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

Maintenance for Construction Entrance:

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

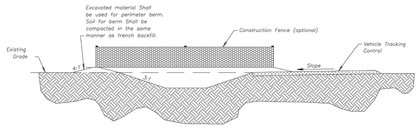
CONSTRUCTION ENTRANCE

Notes for Concrete Washout:

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

Maintenance for Concrete Washout:

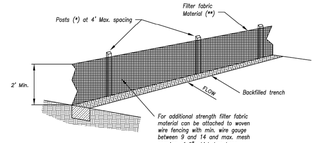
1. Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
2. Concrete washout areas shall be enlarged as necessary to maintain capacity for wasted concrete.
3. Concrete washout water, wasted pieces of concrete and all other debris in the subsurface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



CONCRETE WASHOUT

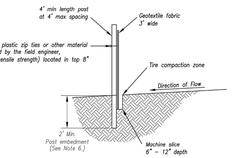
Construction Entrance modified from 2015 Overland Park Standard Details for Erosion and Sediment Control; Concrete Washout modified from 2009 City of Great Bend Standard Drawings.

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



(*) POSTS
- MIN. LENGTH 4'
- HARDWOOD 1 ¾" x 1 ¾"
- NO.2 SOUTHERN PINE 2 ⅝" x 2 ⅝"
- STEEL 1.33 LB/FT

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



SILT FENCE DETAILS
Not to Scale

Notes:

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

Maintenance:

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

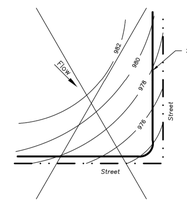
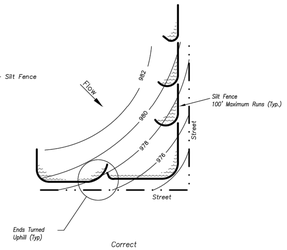
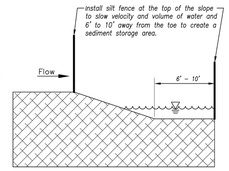
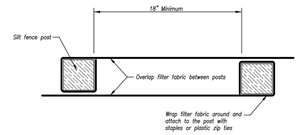


Figure A



SILT FENCE LAYOUT
Not to Scale

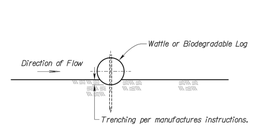




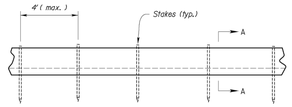
JOINING FENCE SECTIONS
Not to Scale

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

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



Section A-A



Typical Elevation

WATTLES AND BIODEGRADABLE LOG

Notes for Wattles and Biodegradable Log Slope Protection:

1. The Slope barriers shall be placed along contour lines, with a short section turned upgrade at each end of the barrier. The maximum length of the slope barrier shall not exceed 250 feet, and the barrier ends need to be staggered.
2. Install wattles and biodegradable logs per manufacturer's instructions.
3. Spacing of stakes per manufacturer's instructions with 4' max. spacing. Length of stakes shall be a minimum of 2 times the diameter of the log with minimum of 24".

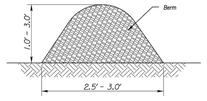


Figure 1
(Perimeter Control)

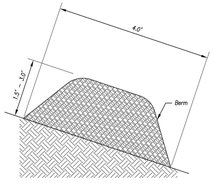


Figure 2
(Steep Slopes)

MULCH OR COMPOST FILTER BERMS

Notes for Mulch and Compost Filter Beam:

1. The sediment control berm shall be placed uncompacted in a windrow at locations shown on the plans or as directed by the engineer.
2. Parallel to the base of the slope, or around the perimeter of other affected areas, construct a 1 to 3 foot high by 2.5 to 3 foot wide berm (see Figure 1). For maximum water treatment ability or for steep slopes, construct a 1.5 to 3 foot high trapezoidal berm that is a minimum of 4 feet wide at the base (see Figure 2). In extreme conditions, or where specified by the engineer, a second berm shall be constructed at the top of the slope. Engineer will specify berm requirements.
3. If berm is to be left as permanent or part of the natural landscape, the compost berm may be seeded during application for permanent vegetation.
4. Do not use compost or wood mulch berms in any runoff channels or concentrated flow areas.
5. Wood mulch shall consist of tree and shrub debris resulting from clearing and grubbing and shall be ground by the mechanical means such as a chipper, hammermill, tub grinder or other approved method. Mulch sizing varies with a maximum width of 2" and a maximum length of 10".

Maintenance for Mulch and Compost Filter Beam:

1. Berm shall be reshaped and material added as necessary to maintain function and dimensions.
2. Breaches in the berm shall be repaired promptly.

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

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter APWA American Public Works Association
KANSAS CITY METRO CHAPTER
WATTLES/BIODEGRADABLE LOG AND MULCH/COMPOST FILTER BERM
STANDARD DRAWING NUMBER ESC-04
ADOPTED: 10/24/2016

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PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03.28.2023
SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

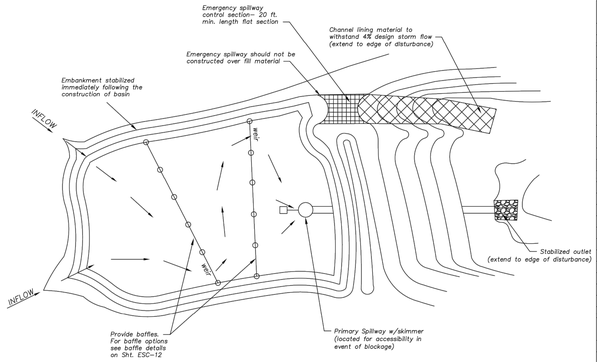
HERITAGE STREET LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 01/23/23	PER CITY COMMENTS
2 03/24/2023	PER CITY COMMENTS
3	
4	
5	
6	
7	
8	
9	
10	

DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 2/8/2023
PROJ. NUMBER: 22-102

EROSION CONTROL DETAILS

SHEET
C503



Plan View (*)
Not to Scale

Sediment Basin Design Summary (**)

Design Item	Basin #1	Basin #2	Units	Notes
Site Data:				
Tributary Drainage Area to Pond	24.30		Acres	
50% (2 yr) Design Flow	100.4		cfs	
4% (25 yr) Design Flow	200.3		cfs	
Pond Data:				
Minimum Sediment Storage Volume	200		cu yd	1.34 cy/acre required minimum
Provided Sediment Storage Volume	24,535		cu yd	
Bottom Elevation	984.0		Ft	
Sediment Cleanout Elevation	988.5		Ft	Elevation equal to 20% of original design volume
Top of Riser Elevation	997.50		Ft	Top of dry storage volume
Emergency Spillway Elevation	999.70		Ft	at or above Q–2 elevation. 1.0 ft min above principal spillway
Top of Dam Elevation	1,000		Ft	1.0 ft min above Q–25 elevation
Basin Shape Data:				
A = Area at Normal Pool	38,923		SF	
L = Length of Flow Path	435		Ft	
We = Effective Width = A/L	89.5		Ft	
Length to Width Ratio = L/We	4.86			
Principal Spillway Data:				
Riser Pipe dia	30		in	15" min. Size for 2 year flow minimum
Barrel Pipe dia	30		in	15" min. Size for 2 year flow minimum
Concrete Base size for Riser Pipe	1.3		CY	Size to prevent flotation. 1.25 safety factor required
Skimmer Size	6		in	Designer to provide specific details and calculations per application to dewater in 48 to 72 hours
Emergency Spillway Data:				
Design Depth in Spillway	1.7		ft	
Design Velocity in Spillway	5		ft/sec	
Lining Material				Designer to provide specific details and calculations per application
				KDOT EROSION CONTROL CLASS 2 TYPE E FLEXIBLE LINER

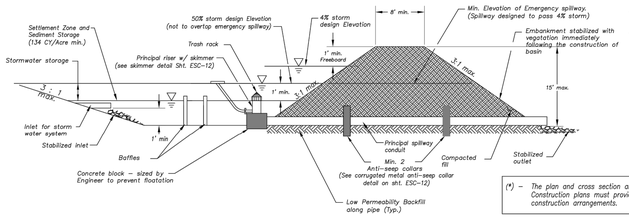
(**) – Required on all Sediment Basin Plan Sheets

Sediment Basin Notes:

1. Interior baffles shall be provided to reduce short–circuiting of the basin. See Sht. ESC–12 for approved baffle options.
2. Emergency spillways to be located in a non–fill location when feasible and shall be lined with a non–erodible material such as Riprap or Turf Reinforcement Mat.
3. When directed, sediment basins shall be fenced using construction fence or other material for safety reasons and include warning signs, reading: "Danger – KEEP OUT".

Maintenance:

1. Check temporary sediment basins after periods of significant runoff.
2. Remove sediment and restore the basin to its original dimensions when sediment accumulates to 20% of the storage capacity.
3. Immediately repair any erosion damage to the embankment and outlets.
4. Repair and/or replace baffles as necessary to maintain function and integrity of installation.
5. Keep outlet, skimmer and pool area free of all trash and other debris.

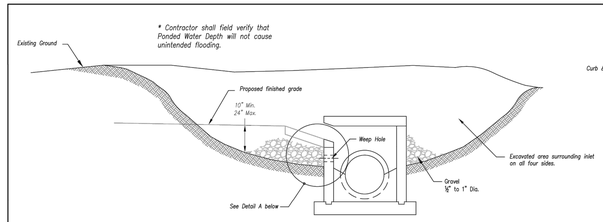


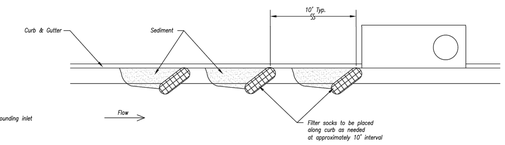
(*) – The plan and cross section are schematic in nature. Construction plans must provide specific site construction arrangements.

Cross Section (*)
Not to Scale

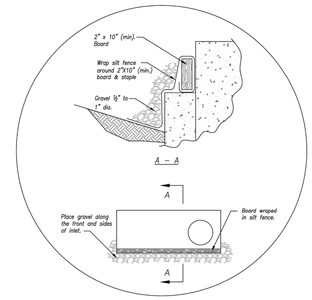
Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
SEDIMENT BASIN
STANDARD DRAWING NUMBER ESC–11
ADOPTED: 10/24/2016





On Grade Curb Inlet Protection



Detail A

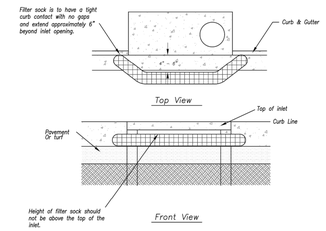
EARLY STAGE CURB INLET
(Open Box and Prior to Pouring Curb and Inlet Throat)

Notes:

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

Maintenance:

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

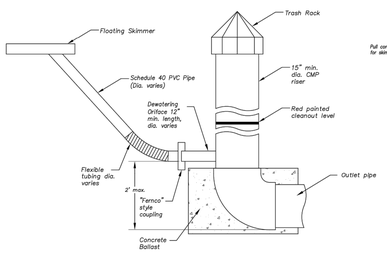


Sump Inlet Sediment Filter

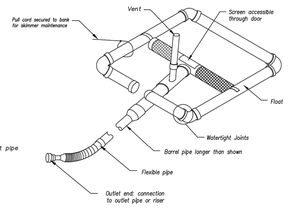
LATE STAGE CURB INLET
(After Pouring Curb and Inlet Throat)

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

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

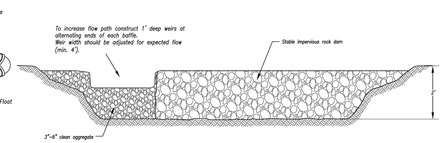


PRINCIPAL SPILLWAY DETAIL

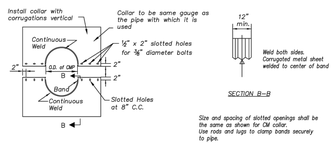


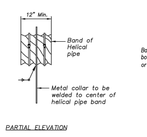
SKIMMER DETAIL (Typ.) *

* Designer to provide specific details per application (e.g. pipe sizes, screen sizes, perforation, etc.) as required.

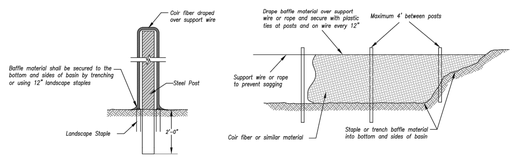


Option A – Rock with Weir

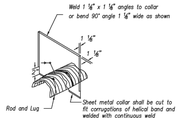




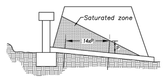
PARTIAL ELEVATION



Option B – Coir Fiber Material



ISOMETRIC VIEW



ANTI–SEEPAGE COLLAR LOCATIONS

CORRUGATED METAL ANTI–SEEPAGE COLLAR DETAIL
Not to Scale

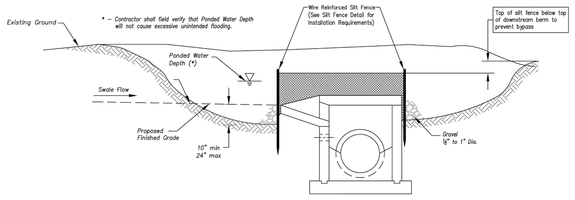
BAFFLE DETAILS
Not to Scale

Anti–Seepage Collar Notes:

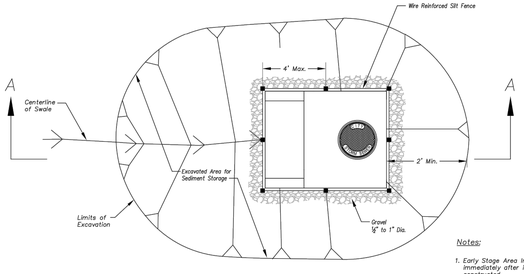
1. Connections between the anti–seepage collar and the barrel must be watertight.
2. P = projection distance. Sized as required to achieve at least a 10% increase in seepage length.
3. 14ft = Max. spacing between collars.
4. Collars shall generally be placed in the middle third of the embankment, and within the saturated zone.
5. All materials to be in accordance with construction material specifications.
6. When specified on the plans, coating of collars shall be in accordance with construction material specifications.
7. Unassembled collars shall be marked by painting or tagging to identify matching pairs.
8. The lap between the two half sections and between the pipe and connecting band shall be caulked with asphalt mastic at the time of installation.
9. Each collar shall be furnished with two (2) ⅝" diameter rods with standard tank lugs for connecting the collars to the pipe.
10. For bands and collars, modification of the details shown may be used providing equal water tightness is maintained and detailed drawings are Submitted and approved by the Engineer prior to delivery.
11. Two other types of anti–seep collars are:
    a. Corrugated metal, similar to above, except shop welded to a 4 ft. section of the pipe and connected to the pipe with connecting bands.
    b. Concrete, 6 inches thick, formed around the pipe with #3 rebar spaced 15".

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

AMERICAN PUBLIC WORKS ASSOCIATION
Kansas City Metro Chapter
KANSAS CITY METRO CHAPTER
SEDIMENT BASIN – DETAILS
STANDARD DRAWING NUMBER ESC–12
ADOPTED: 10/24/2016



Section A–A
Not to Scale

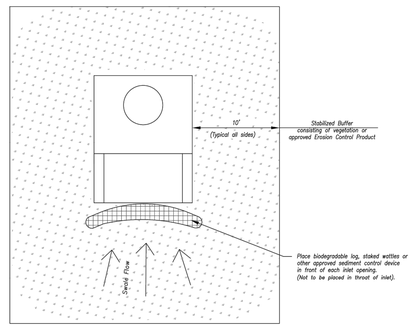


Plan
Not to Scale

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

Notes:

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



Plan
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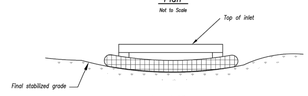

Front View

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

Maintenance:

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

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

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

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Missouri State Certificate of Authority #LC2001005237 #LS2002000858S-F
#E2002000380-F #LA2001005237 #LS2002000858S-F

PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03.28.2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 01/23/23	PER CITY COMMENTS
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3	
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7	
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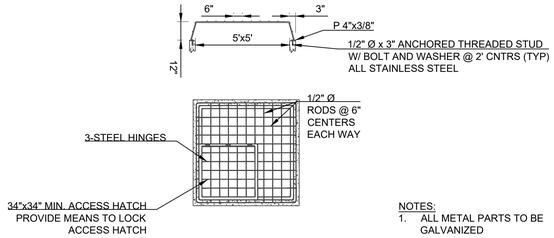
DRAWN BY: TRC	
CHECKED BY: MAB	
DATE PREPARED: 2/8/2023	
PROJ. NUMBER: 22-102	

EROSION CONTROL DETAILS

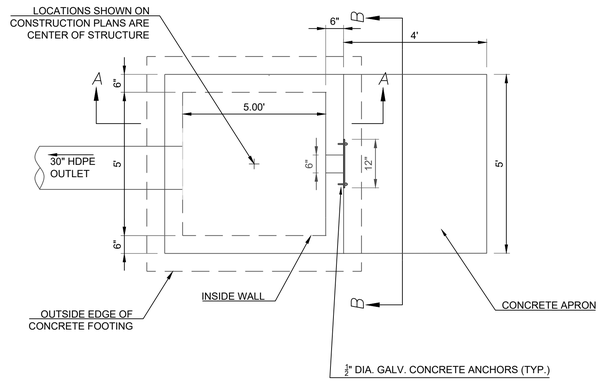
SHEET
C504

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - EROS.dwg, C504 EROSION CONTROL DETAILS, 1:1

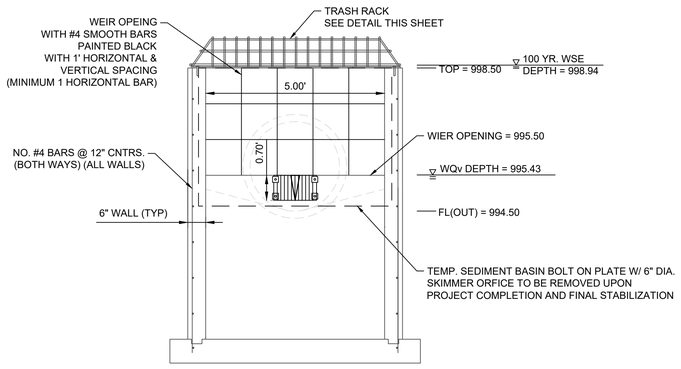


NOTES:
1. ALL METAL PARTS TO BE GALVANIZED
2. PROVIDE ACCESS GATE THRU TRASH RACK

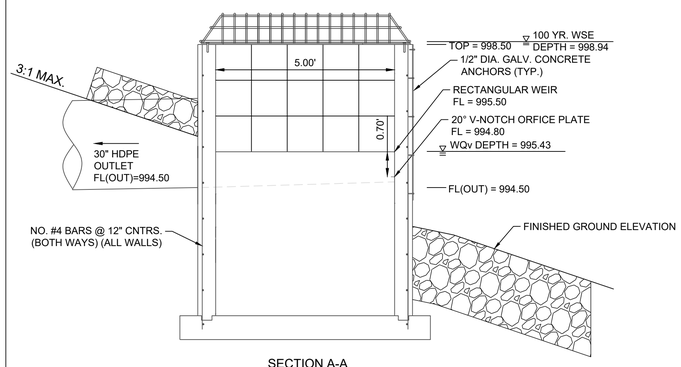
TRASH RACK DETAIL
NTS



STRUCTURE PLAN VIEW
NTS



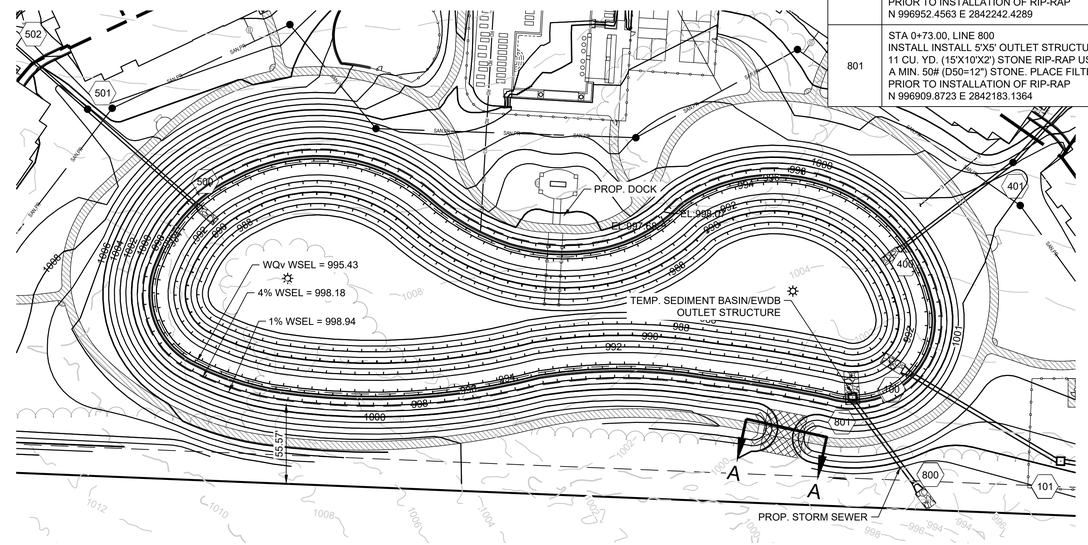
SECTION B-B
NTS



SECTION A-A
NTS

Storm Sewer Construction Notes

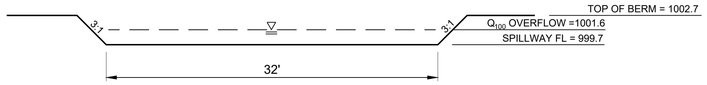
Structure	Notes
800	STA 0+00.00, LINE 800 INSTALL 30" HDPE FLARED END SECTION W/ TOEWALL AND 7 CU. YD. (16'X8'X1.5') STONE RIP-RAP USING A MIN. 50# (D50=12") STONE. PLACE FILTER FABRIC PRIOR TO INSTALLATION OF RIP-RAP N 996952.4563 E 2842242.4289
801	STA 0+73.00, LINE 800 INSTALL INSTALL 5'X5' OUTLET STRUCTURE AND 11 CU. YD. (15'X10'X2') STONE RIP-RAP USING A MIN. 50# (D50=12") STONE. PLACE FILTER FABRIC PRIOR TO INSTALLATION OF RIP-RAP N 996909.8723 E 2842183.1364



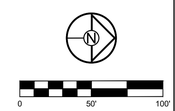
1% (100 YEAR) STORAGE = 6.16 AC-FT

AUXILIARY SPILLWAY DESIGN:
Q_{100} = 252 CFS, Q = $CLH^{(3/2)}$, C = 3.1, L = 32.0', H = 1.9'

NOTE:
TEMPORARY SEDIMENT BASIN AND OUTLET STRUCTURE W/ SKIMMER AND PLATE SHALL BE CONSTRUCTED WITH THE FIRST PHASE OF THE EROSION CONTROL PLAN. UPON FINAL STABILIZATION THE SKIMMER, PLATE, AND SEDIMENT SHALL BE REMOVED AND FINAL CONVERSION TO DETENTION BASIN COMPLETED. AN AS-BUILT RECORD DRAWING ACCEPTED BY THE CITY SHALL BE REQUIRED PRIOR TO OCCUPANCY.

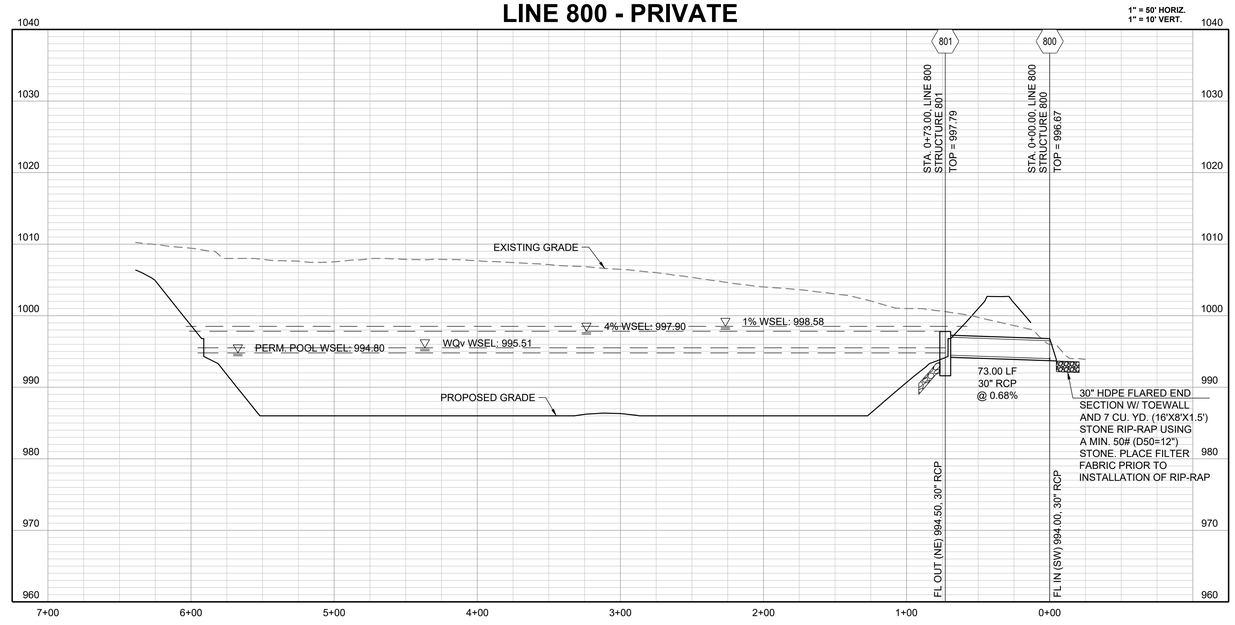


A-A



SCALE: 1" = 50'

LINE 800 - PRIVATE



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PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03.28.2023
SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 01/23/23	PER CITY COMMENTS
2 03/24/2023	PER CITY COMMENTS
3	
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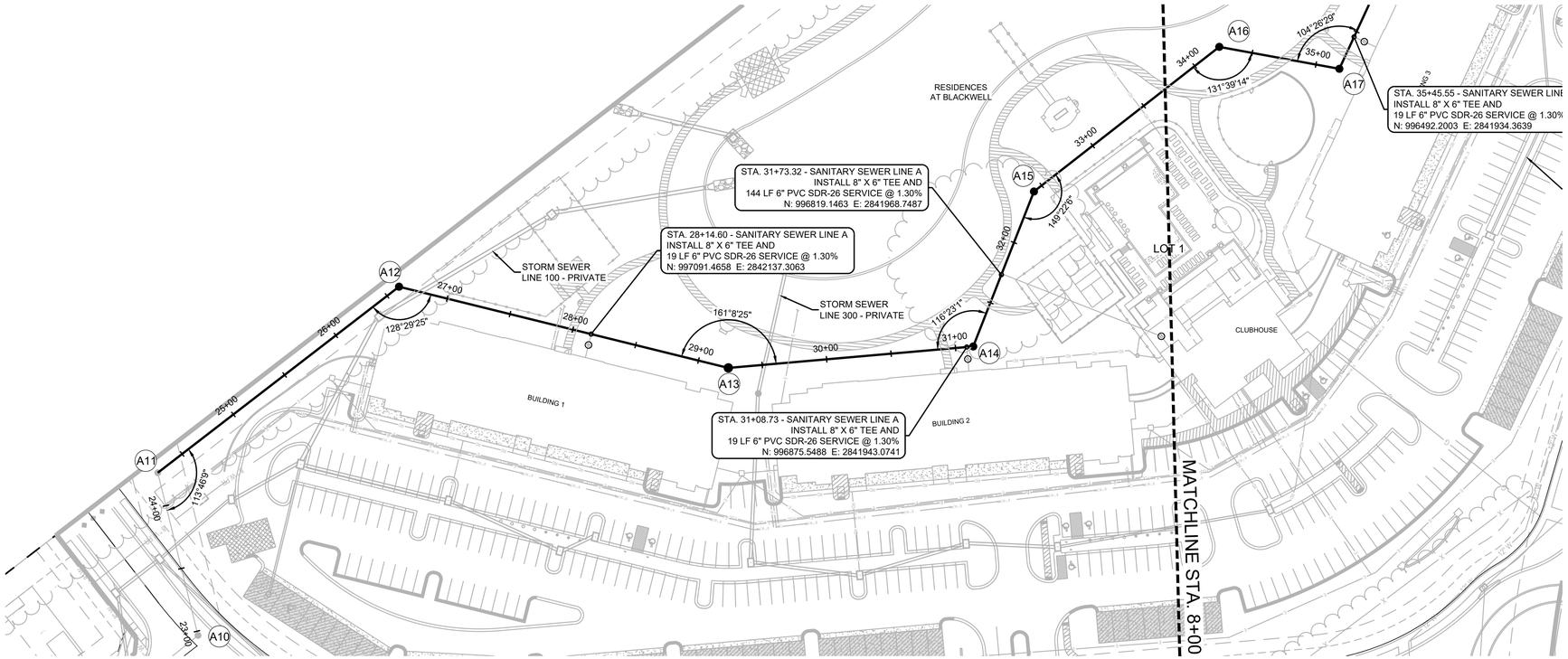
DRAWN BY: TRC
CHECKED BY: MAB
DATE PREPARED: 2/8/2023
PROJ. NUMBER: 22-102

OUTLET STRUCTURE 801

SHEET
C505



Structure Table		
Structure Name	Structure Northing	Structure Easting
A11	997416.9097	2842270.4633
A12	997181.6820	2842260.8249
A13	997027.0949	2842049.1734
A14	996871.4528	2841940.2065

MO GRS BENCHMARK:

STATION NAME - JA-90

KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

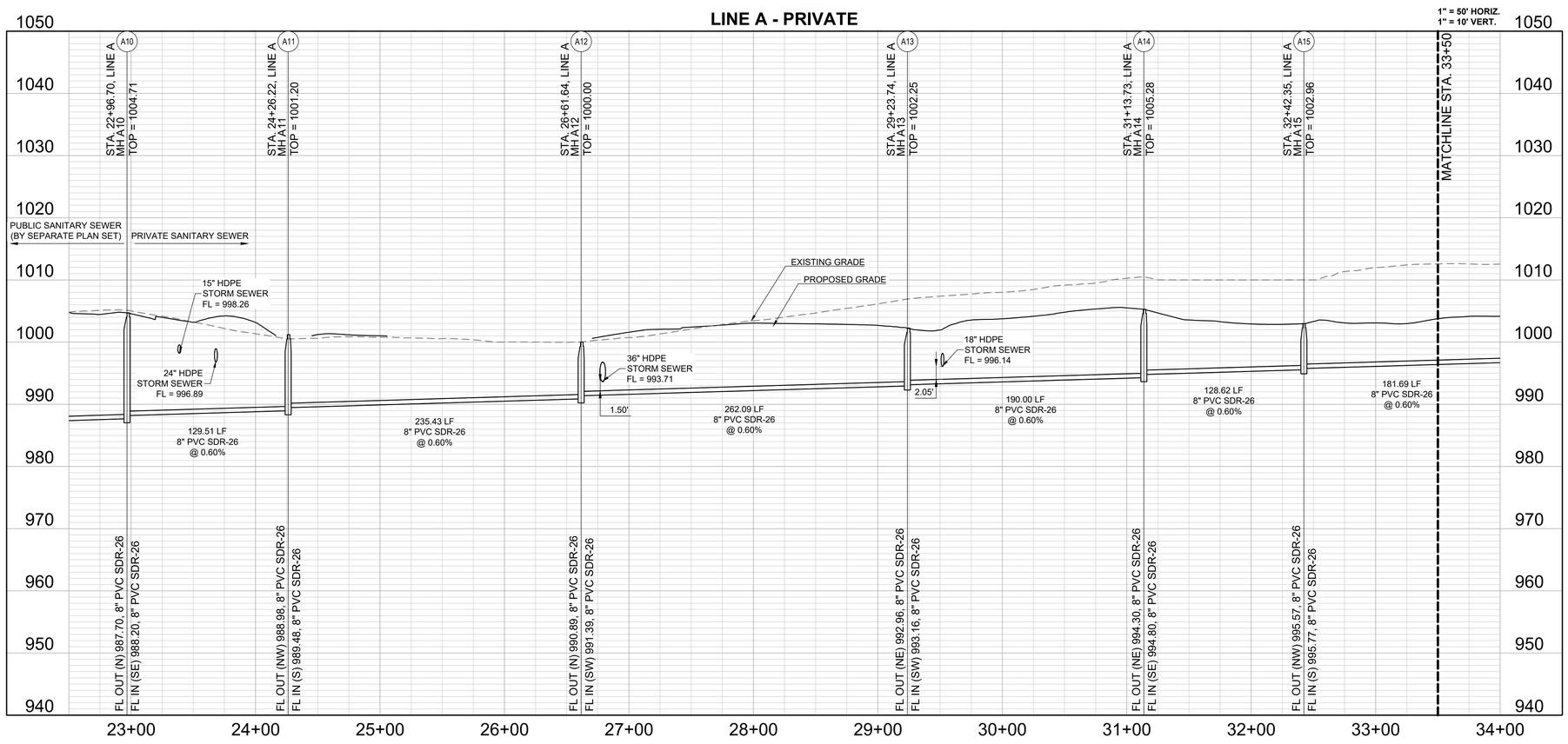
ELEV. 997.045

PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719

0 50' 100'
SCALE: 1" = 50'



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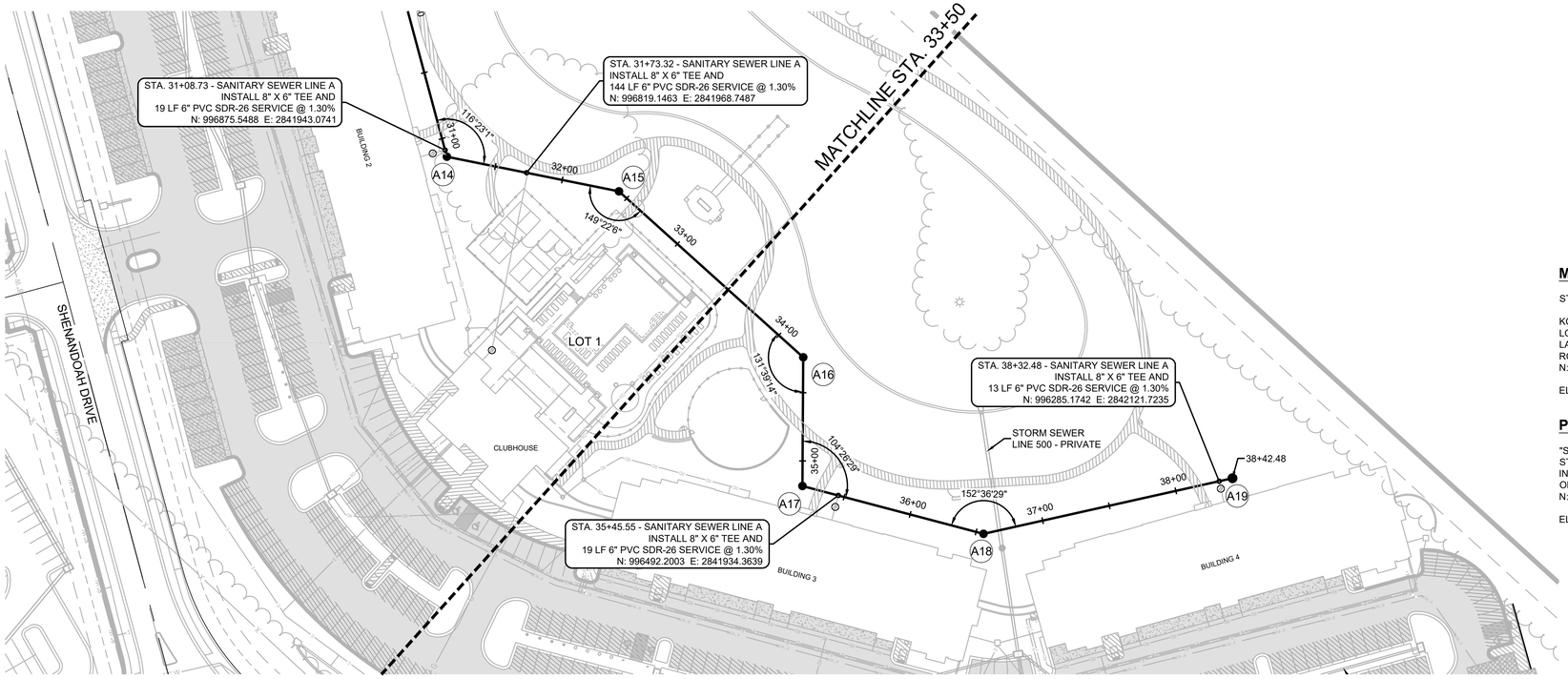
SANITARY SEWER LINE A (PRIVATE)

SHEET
C600

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\7.0 San\APARTMENTS - PRIVATE\22-102 - PRIVATE SAN - PP.dwg, C600 SANITARY SEWER LINE A (PRIVATE), 1:1



Structure Table		
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A18	996392.6234	2841981.2230

MO GRS BENCHMARK:

STATION NAME - JA-90

KC METRO ALUMINUM GRS DISK SET IN CONCRETE STAMPED "JA-90, 1988" LOCATED NEAR THE INTERSECTION OF LANGSFORD ROAD AND OLD LANGSFORD ROAD, 43 FEET SOUTHEAST OF THE CENTER OF LANGSFORD ROAD AND 32 FEET NORTH OF THE CENTER OF OLD LANGSFORD ROAD.
N:1001052.8503, E:2845604.8272

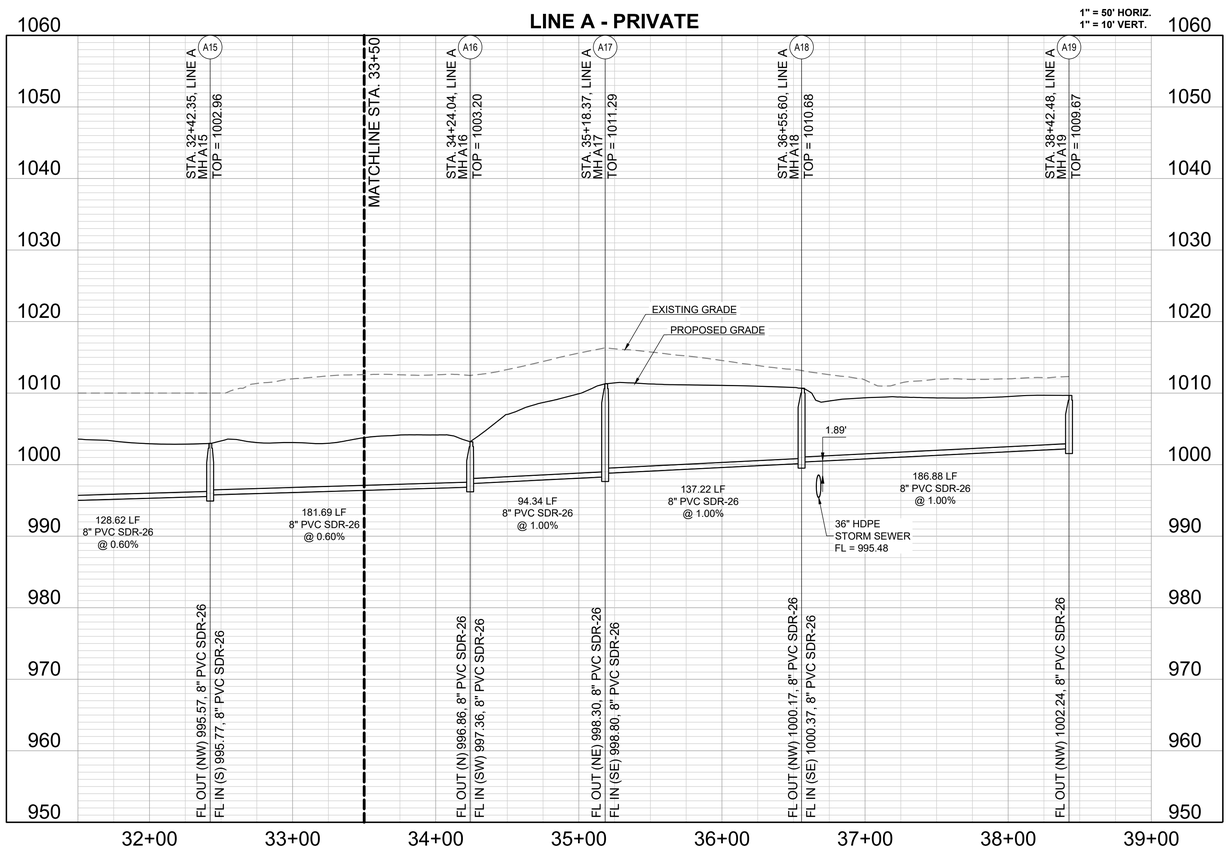
ELEV. 997.045

PROJECT BENCHMARK:

"SQUARE" CUT IN TOP OF CONCRETE STORM MANHOLE
STORM MANHOLE IS LOCATED APPROX. 130 FEET EAST OF THE INTERSECTION OF SE JOEL AVE & BLUE PARKWAY AND 26 FEET SOUTH OF THE CENTERLINE OF BLUE PARKWAY.
N:996874.9690, E:2840937.1365

ELEV. 1005.719

0 50' 100'
SCALE: 1" = 50'



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03-28-2023
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RESIDENCES AT BLACKWELL
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HERITAGE STREET LEE'S SUMMIT, MO

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CHECKED BY: MAB
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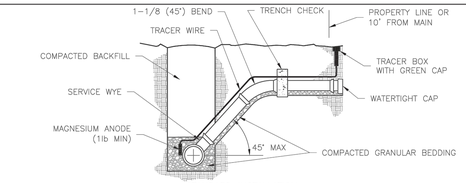
PROJ. NUMBER: 22-102

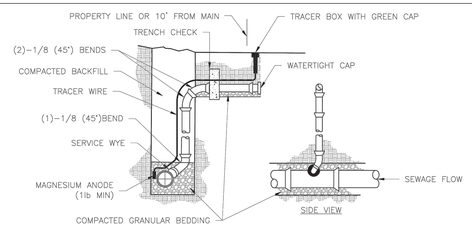
SANITARY SEWER LINE A (PRIVATE)

SHEET
C601

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\7.0 San\APARTMENTS - PRIVATE\22-102 - PRIVATE SAN - PP.dwg, C601 SANITARY SEWER LINE A (PRIVATE), 1:1



STANDARD INSTALLATION
NOT TO SCALE



VERTICAL RISER
NOT TO SCALE

NOTES:

1. ALL SEWER STUBS SHALL BE CONSTRUCTED TO PROPERTY LINE OR 10' MINIMUM FROM THE MAIN, WHICHEVER IS GREATER. WHERE SIDEWALKS ARE PRESENT, CONTRACTOR SHALL EXTEND SERVICE LINE UNDER EXISTING SIDEWALK TO TWO FEET BEYOND.
2. IMPERVIOUS TRENCH CHECKS SHALL BE PLACED ON BUILDING SEWER STUBS (AT LEAST 5' AWAY FROM THE SANITARY SEWER MAIN).
3. TRENCH CHECKS ON THE BUILDING SEWER STUBS SHALL EXTEND 6" BELOW THE BOTTOM OF THE PIPE. LENGTH SHALL BE A MINIMUM OF 12". THE HEIGHT OF THE TRENCH CHECK SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE. THE WIDTH OF THE TRENCH CHECK SHALL BE THE WIDTH OF THE TRENCH.
4. SEE SPECIFICATION SECTION 2100 FOR SEWER MAIN BEDDING AND BACKFILL.
5. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER.
6. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP. WIRE SHALL BE TAPED OR TIED TO THE PIPE AT 5' INTERVALS.
7. TRACER WIRE BOX SHALL BE INSTALLED WITHIN 1.0' OF PROPERTY LINE.
8. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

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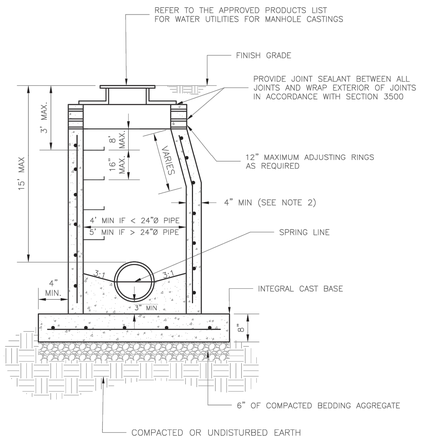
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Date: 12/2015
Drawn By: MJF
Checked By: DL

SANITARY SEWER STUB DETAIL — SAN-1



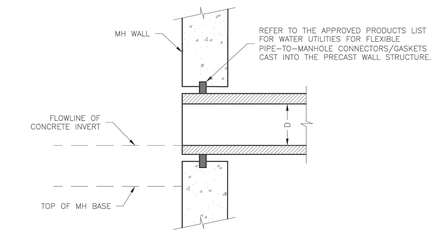
NOTES:

1. PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C478 EXCEPT AS MODIFIED BY THE SPECIFICATIONS.
2. A WALL THICKNESS NOT LESS THAN ONE-TWELFTH ($\frac{1}{12}$) OF THE INSIDE DIAMETER OR 4", WHICHEVER IS GREATER, SHALL BE USED WHEN THE MANHOLE DEPTH IS LESS THEN 15'.
3. WATERPROOFING SHALL BE REQUIRED ON THE OUTSIDE OF MANHOLES. THE WATERPROOFING SHALL CONSIST OF A TOTAL DRY FILM THICKNESS OF NOT LESS THAN 14 MILS OF BITUMINOUS COATING.
4. ONLY ECCENTRIC MANHOLE CONES WILL BE ALLOWED UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
5. THE FILL CONCRETE FLOW CHANNEL FOR SIDE BRANCHES SHALL BE PLACED TO PROVIDE A SMOOTH TRANSITION INTO THE FLOW LINE.
6. REFER TO THE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR APPROVED MANHOLE GASKET MODELS.
7. REFER TO THE APPROVED PRODUCTS LIST FOR APPROVED STEPS.

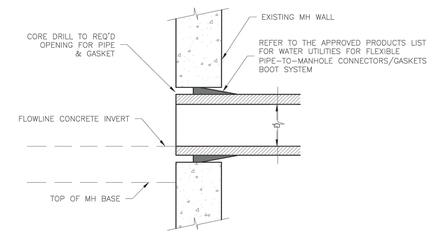
LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Date: 12/2015
Drawn By: SC
Checked By: DL

STANDARD SANITARY PRECAST MANHOLE — SAN-2



NEW MANHOLE



EXISTING MANHOLE

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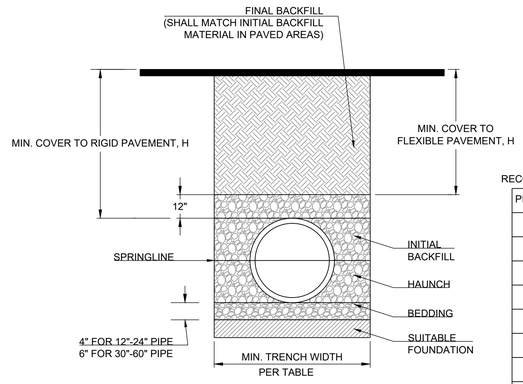
Date: 02/2013
Drawn By: MJF
Checked By: DL

MANHOLE WALL CONNECTION — SAN-5



RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

MINIMUM RECOMMENDED COVER BASED ON VECHICLE LOADING CONDITIONS

	SURFACE LIVE LOADING CONDITION	
PIPE DIAM.	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48"	12"	48"
54" - 60"	24"	60"

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION

2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.

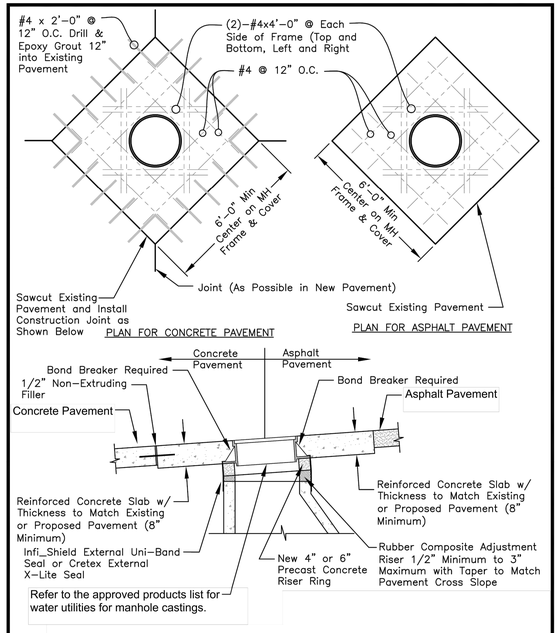
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.

4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).

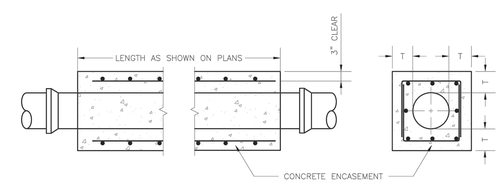
5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

7. TESTING: CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL MATERIAL TESTING REQUIRED FOR THEIR WORK. THIS INCLUDES SCHEDULING OF TESTS, COORDINATING AND PROVIDING ACCESS TO SAMPLE LOCATIONS, AND SATISFYING ALL TEST RESULT REPORTING REQUIREMENTS.



MANHOLE IN PAVED AREA
DETAIL



NOTES:

1. FOR PIPES LESS THAN 15", T = 6" MIN.
2. FOR PIPES 15" THRU 36", T = 8" MIN.
3. INTERMEDIATE BELLS SHALL BE ENCASED.
4. REINFORCING STEEL SHALL BE #4 @ 12" O.C. EACH WAY WITH A MINIMUM REBAR LAP OF 12".

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

Date: 01/2016
Drawn By: JN
Checked By: DL

PIPE ENCASEMENT DETAIL — SAN-7

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PERMIT SET

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03-28-2023

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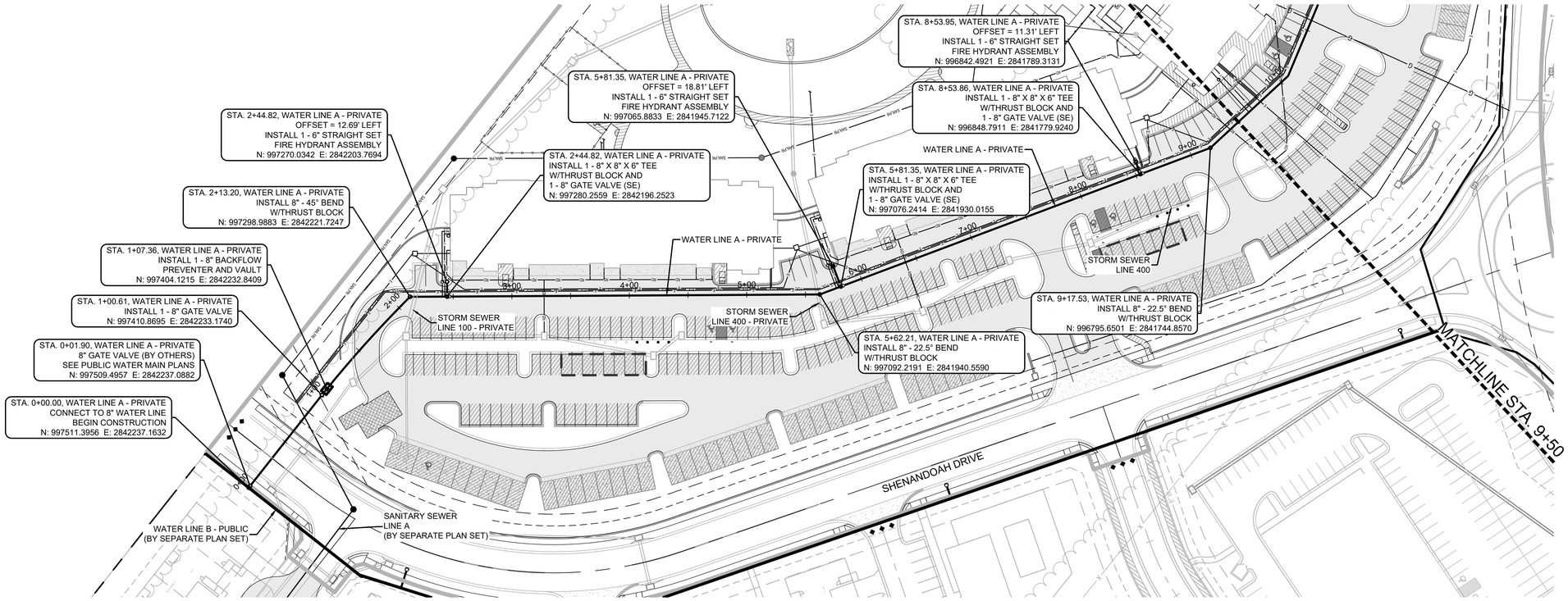
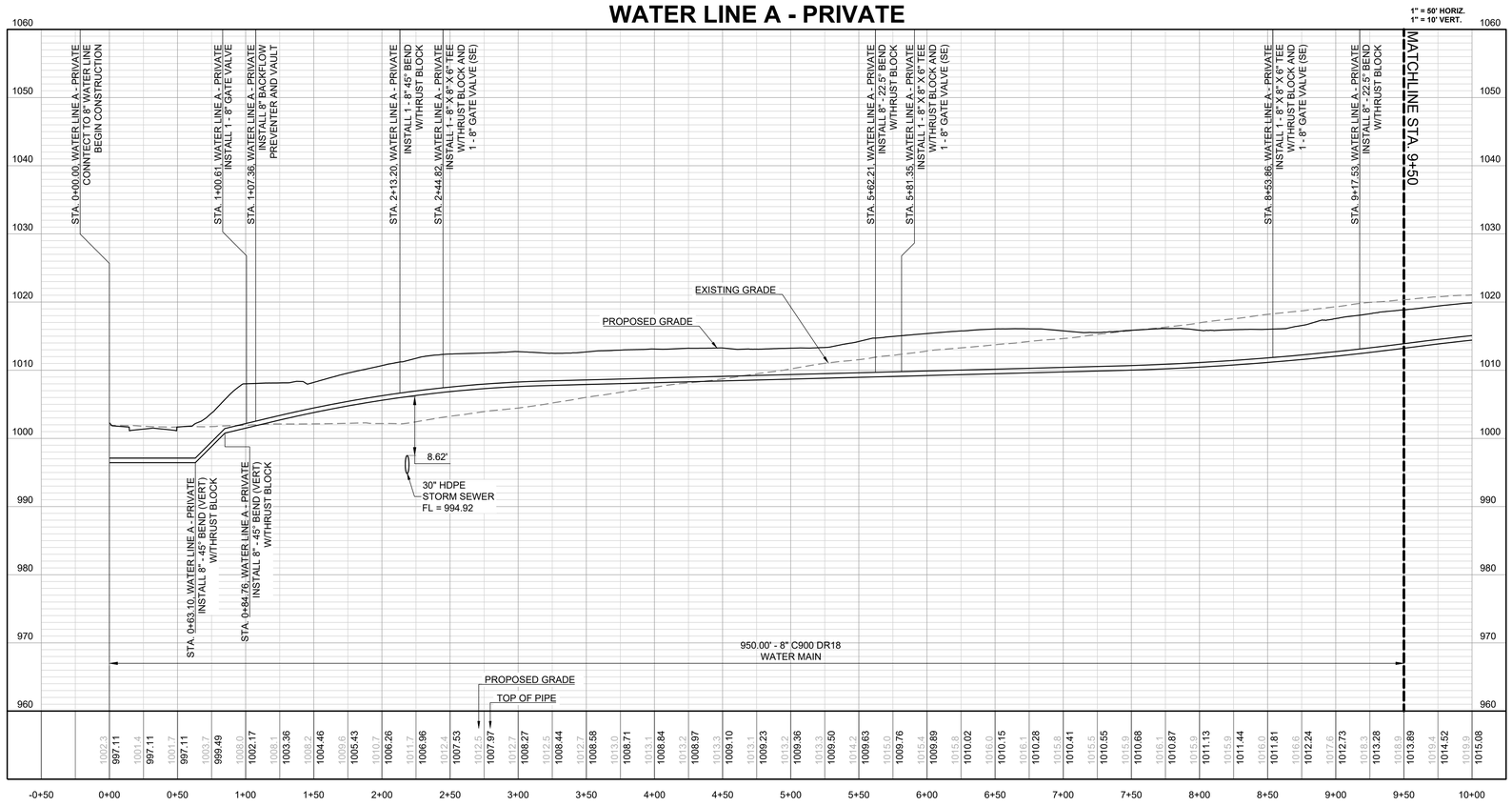
SANITARY SEWER DETAILS

SHEET
C602

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\7.0 San\APARTMENTS - PRIVATE\22-102 - PRIVATE SAN - DET.dwg, C602 SANITARY SEWER DETAILS, 1:1



WATER LINE A - PRIVATE



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WATER LINE A

SHEET
C700

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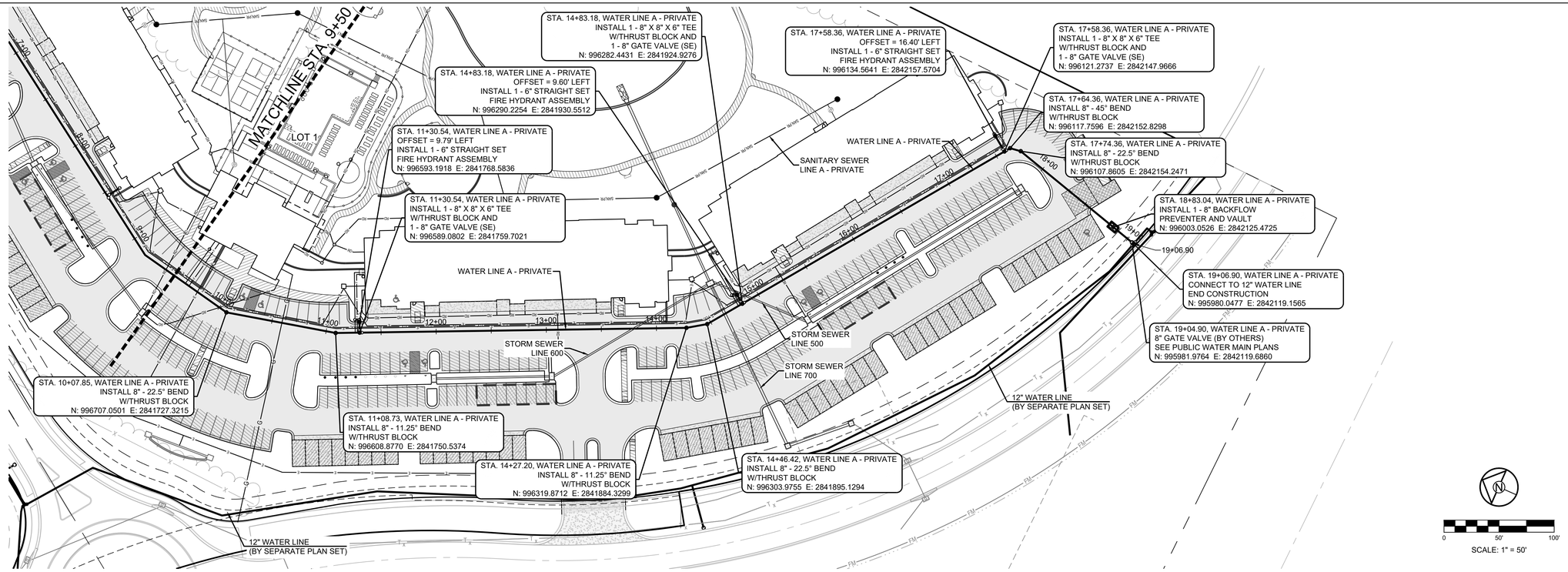
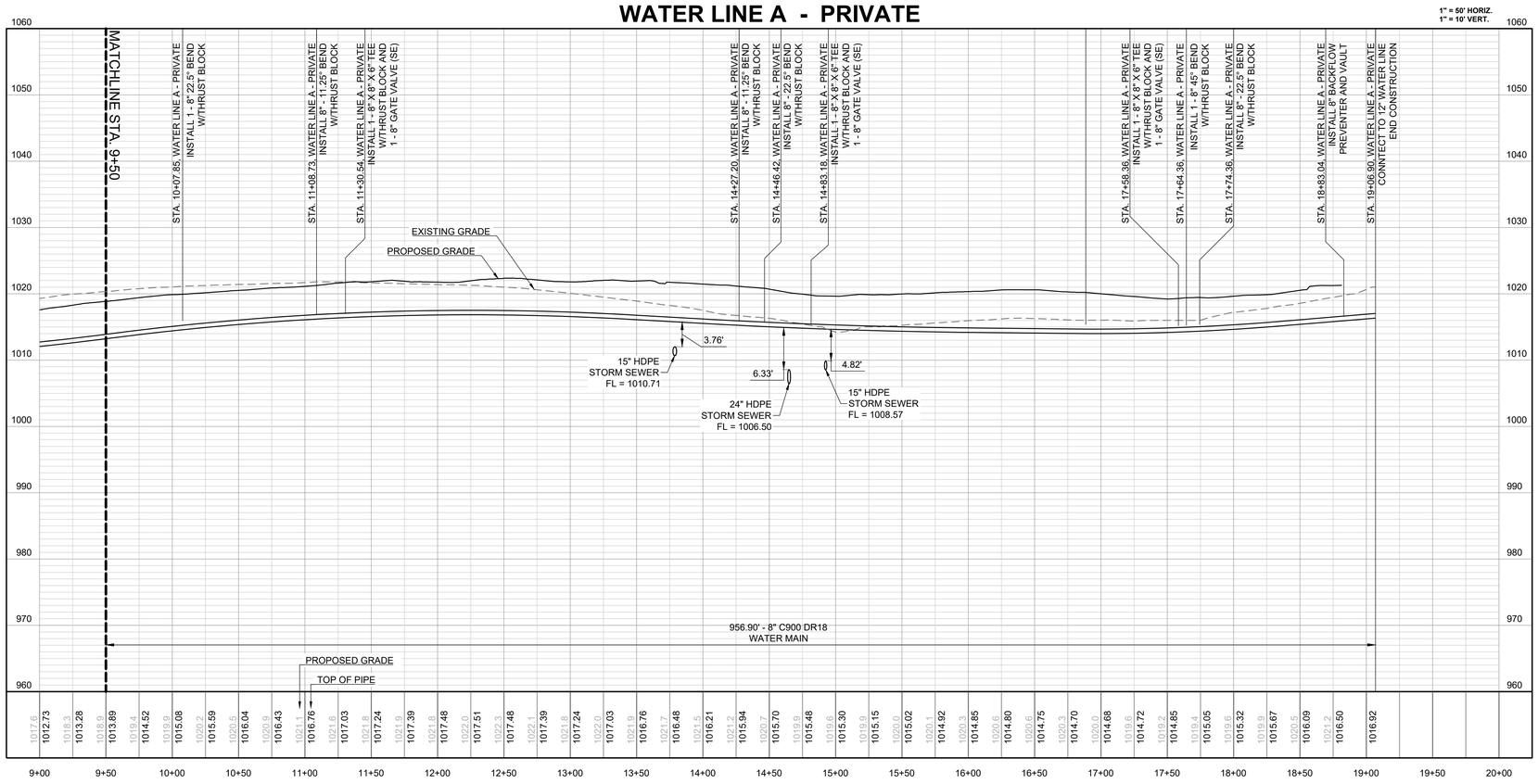


WATER LINE A - PRIVATE

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



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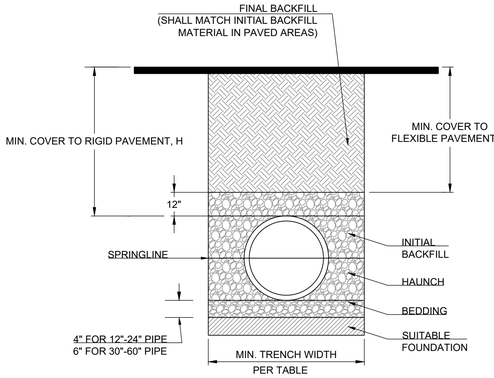
WATER LINE A

SHEET
C701

I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - WAT - PP.dwg, C701 WATER LINE A, 1:1



RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
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18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

MINIMUM RECOMMENDED COVER BASED ON VECHICLE LOADING CONDITIONS

	SURFACE LIVE LOADING CONDITION	
PIPE DIAM.	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48"	12"	48"
54" - 60"	24"	60"

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION

2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.

3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.

4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).

5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

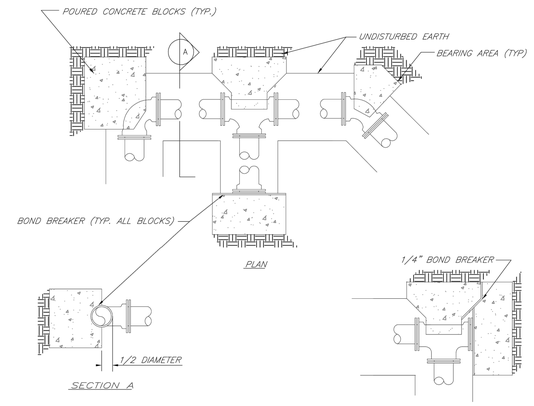
6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

7. TESTING: CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL MATERIAL TESTING REQUIRED FOR THEIR WORK. THIS INCLUDES SCHEDULING OF TESTS, COORDINATING AND PROVIDING ACCESS TO SAMPLE LOCATIONS, AND SATISFYING ALL TEST RESULT REPORTING REQUIREMENTS.

REQUIRED CONCRETE BEARING AREA (SQUARE FEET – SF)

NOM. DIA. (INCHES)	180 TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	4.7	6.7	4.0	4.0	4.0
8	8.4	11.8	6.4	4.0	4.0
10	13.1	18.5	10.0	5.1	4.0
12	18.8	26.7	14.4	7.4	4.0
14	25.7	36.3	19.6	10.0	5.0
16	33.5	47.4	25.6	13.1	6.6
18	42.4	REST. JT.	32.5	16.5	8.3
20	REST. JT.	REST. JT.	40.1	20.4	10.3
24	REST. JT.	REST. JT.	REST. JT.	29.4	14.8

NOTES:
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
3. BEARING AREA MUST BE AGAINST UNDISTURBED SOIL.
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.



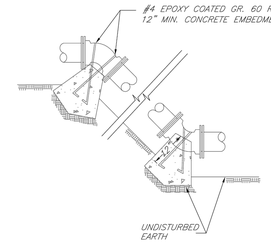
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HORIZONTAL THRUST BLOCKS

Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-1 | Rev: 1/14 | Rev:

REQUIRED CONCRETE VOLUME (CUBIC FEET – CF)

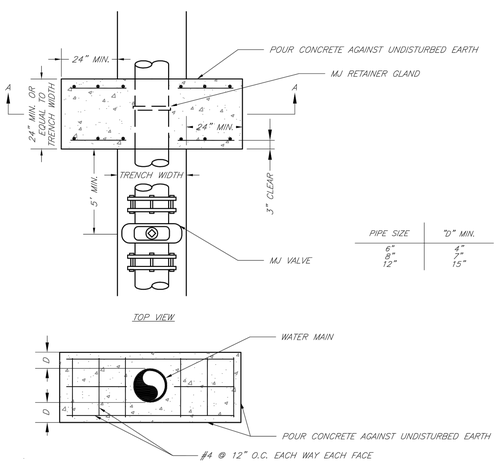
NOM. DIA. (INCHES)	180 TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	50.5	71.4	38.6	19.7	9.9
8	89.8	126.9	68.7	35.0	17.6
10	140.2	198.3	107.3	54.7	27.5
12	202.0	REST. JT.	154.6	78.8	39.6
14	REST. JT.	REST. JT.	210.4	107.3	53.9
16	REST. JT.	REST. JT.	REST. JT.	140.1	70.4
18	REST. JT.	REST. JT.	REST. JT.	177.3	89.1
20	REST. JT.	REST. JT.	REST. JT.	REST. JT.	110.0
24	REST. JT.	REST. JT.	REST. JT.	REST. JT.	158.4

NOTES:
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
3. BEARING MUST BE AGAINST UNDISTURBED SOIL.
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.



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

Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-2 | Rev: 1/14 | Rev:

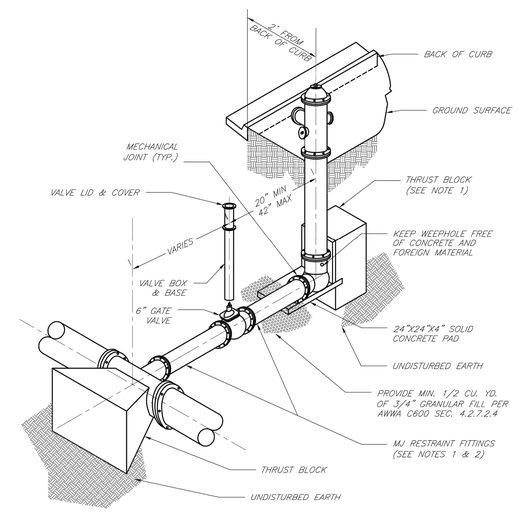


PIPE SIZE	"D" MIN.
6"	4"
8"	7"
12"	15"

NOTE:
THIS DETAIL NOT TO BE USED FOR PIPE GREATER THAN 12"

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

Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-3 | Rev: 1/14 | Rev:



NOTES:
1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (MJ) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.
2. GATE VALVE MAY BE BOLTED DIRECTLY TO MJ RESTRAINT TEE.
3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.
4. BOTTOM HYDRANT FLANGE SHALL BE 2" TO 6" ABOVE FINISHED GRADE.
5. FOR STREETS WITHOUT CURBS FIRE HYDRANTS SHALL BE PLACED WITHIN 1 FOOT OF THE R/W LINE, BUT NOT MORE THAN 10' FROM EDGE OF PAVEMENT. FIRE HYDRANT SHALL NOT BE PLACED IN BOTTOM OF DITCH.
6. HYDRANT SHALL BE ROTATED AS DIRECTED BY INSPECTOR.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HYDRANT INSTALLATION – STRAIGHT SET

Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-7 | Rev: 1/14 | Rev:

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Walkerli State Certificates of Authority
#E2000200380-F #LA2000105237 #LS2000200858S-F

PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03-28-2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

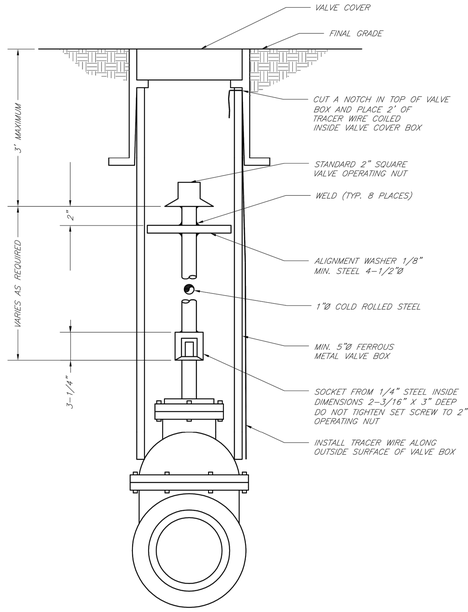
HERITAGE STREET LEE'S SUMMIT, MO

REVISION	DATE	DESCRIPTION
1	01/23/23	PER CITY COMMENTS
2	03/24/2023	PER CITY COMMENTS
3		
4		
5		
6		
7		
8		
9		

DRAWN BY: TRC | CHECKED BY: MAB | DATE PREPARED: 2/8/2023 | PROJ. NUMBER: 22-102

WATER DETAILS

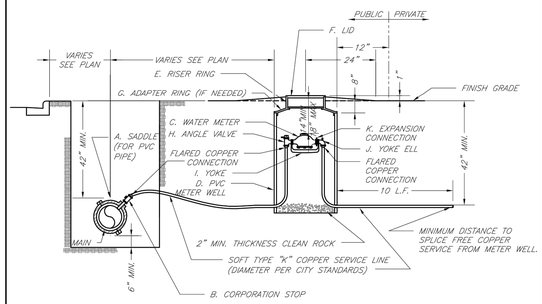
SHEET C702



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

VALVE STEM EXTENSION AND VALVE BOX

Date: 02/13	
Drawn By: JN	
Checked By: DL	
FILE: WAT-9	
Rev: 1/14	
Rev:	



TYPICAL METER INSTALLATION – 2" AND SMALLER
NOT TO SCALE

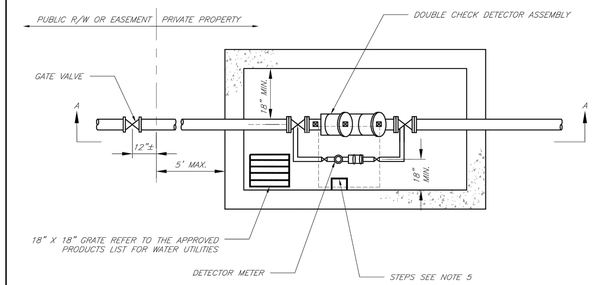
NOTES:

1. METER INSTALLATION SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC OR IN CONCRETE PAVEMENT WITHOUT CITY APPROVAL.
2. IF METER IS TO BE LOCATED OTHER THAN IN FRONT OF PROPERTY LINE, CITY APPROVAL SHALL BE OBTAINED.
3. CITY TO FURNISH ITEMS A–K.
4. NO OTHER EQUIPMENT SHALL BE INSTALLED IN THIS PIT.
5. 42" MINIMUM BURY DEPTH FOR ALL SERVICE LINES.
6. EXCAVATION FOR TAP TO EXPOSE 4 LINEAR FEET OF MAIN.
7. NO SPLICES ALLOWED BETWEEN METER AND MAIN.
8. SERVICE CONNECTION TAP AT APPROXIMATELY 45 DEGREES.
9 LID AND RISER RING SHALL BE SET SO THAT GROUND WATER WILL DRAIN AWAY FROM THE WELL.
10. CONTACT WATER UTILITIES, 816-969-1900, FOR REQUIREMENTS OF A METER LARGER THAN 2"

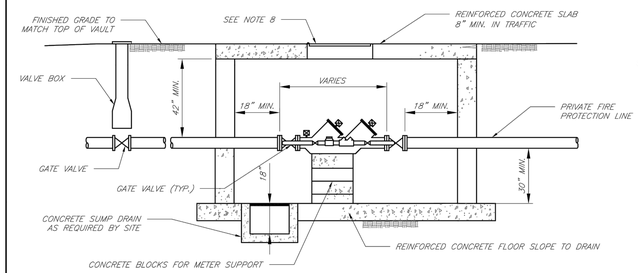
LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

SERVICE CONNECTION/METER WELL

Date: 02/13	
Drawn By: JN	
Checked By: DL	
FILE: WAT-11	
Rev: 1/14	
Rev:	



PLAN VIEW
NOT TO SCALE



SECTION A–A
NOT TO SCALE

GENERAL NOTES:

1. METER VAULT WALLS TO BE POURED OR PRECAST CONCRETE. METER VAULT ROOF TO BE REINFORCED CONCRETE WITH OPENING CENTERED OVER DETECTOR METER. REINFORCED WALLS AND SLABS ARE TO BE DESIGNED BY THE OWNER'S ENGINEER OR PRECAST ENGINEER.
2. METER VAULT TO BE LOCATED, WHEN POSSIBLE, OUTSIDE TRAFFIC AREA AND WHERE SURFACE WATER WILL NOT DRAIN INTO IT. PROVIDE CONCRETE SUMP TO DRAIN TO AN ABOVE GROUND DISCHARGE POINT.
3. ALL PIPE AND FITTINGS FROM THE CITY WATER MAIN THROUGH THE VAULT SHALL BE PROVIDED WITH RESTRAINED JOINT FITTINGS.
4. ALL FITTINGS FOR THE DETECTOR METER TO BE BRASS.
5. STEPS SHALL BE IN ACCORDANCE WITH THE APPROVED PRODUCTS LIST FOR WATER UTILITIES AND SHALL BE ON 16" CENTERS.
6. A DEPARTMENT OF NATURAL RESOURCES APPROVED DOUBLE CHECK DETECTOR ASSEMBLY BACKFLOW PREVENTER MUST BE USED. FOR A COPY OF THE MISSOURI DEPARTMENT OF NATURAL RESOURCES APPROVED BACKFLOW PREVENTION ASSEMBLIES, CONTACT WATER UTILITIES AT 816-969-1900.
7. ALL VALVES SHALL HAVE RISING STEMS.
8. MANHOLE COVER SHALL BE A BILCO K-1 MODEL UNLESS IN A VEHICLE TRAFFIC AREA. SEE THE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR TRAFFIC CONDITIONS. THE COVER SHALL HAVE A 1-3/4" ø HOLE DRILLED FOR A TOUCH/READ DEVICE.
9. A MINIMUM OF 18" CLEARANCE SHALL BE PROVIDED AROUND ALL PIPING, VALVES, APPURTENANCES, ETC.
10. CONTACT PUBLIC WORKS ENGINEERING FOR VAULTS THAT INCLUDE A FIRE DEPARTMENT CONNECTION OR A 3" OR LARGER METER.

CITY OF LEE'S SUMMIT, MO
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MO 64063

Project: STANDARD DRAWINGS

Detail Number: WAT-12
Detail Name: VAULT FOR DOUBLE CHECK DETECTOR CHECK

Drawn By: AS	
Checked By: DL	
Date: 1/14	
Rev: 1/14	
Rev:	

OF

WAT-12

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PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03-28-2023

SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

REVISION DATE	DESCRIPTION
1 01/20/23	PER CITY COMMENTS
2 03/24/2023	PER CITY COMMENTS
3	
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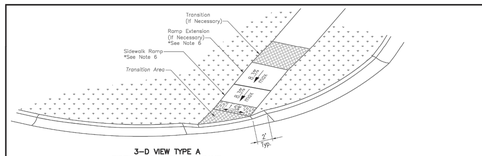
7	
8	
9	
10	

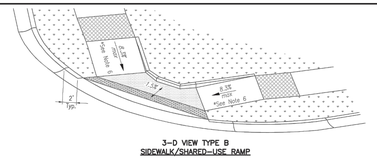
DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	2/8/2023
PROJ. NUMBER:	22-102

WATER DETAILS

SHEET
C703



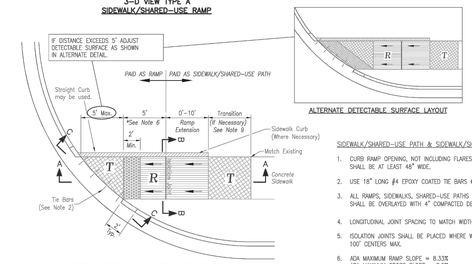
3-D VIEW TYPE A
SIDEWALK/SHARED-USE RAMP



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

LEGEND

- SIDEWALK RAMP
- TURNING SPACE
- DETECTABLE WARNING SURFACE
- TRANSITION

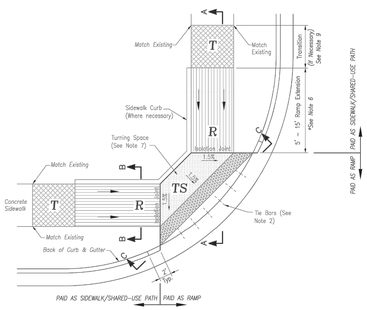


ALTERNATE DETECTABLE SURFACE LAYOUT

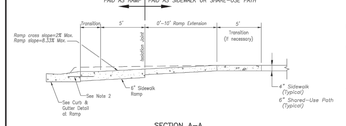
TYPE A SIDEWALK/SHARED-USE RAMP
Not to Scale

SIDEWALK/SHARED-USE PATH & SIDEWALK/SHARED-USE RAMP NOTES:

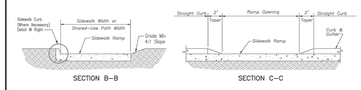
1. CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48" WIDE.
2. USE 18" LONG #4 EPOXY COATED TIE BARS @ 24" O.C. EMBED TIE BARS 9" IN EACH DIRECTION.
3. ALL RAMPS, SIDEWALKS, SHARED-USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
4. LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
5. ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 100' CENTERS MAX.
6. ADA MAXIMUM RAMP SLOPE = 8.33%
   ADA MAXIMUM CROSS SLOPE = 2.0%
   *ROADWAY EXCEPTION: WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 8.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5%, ±0.5%.
7. TURNING SPACES SHALL BE 1.5%, ±0.5%, SLOPE IN ANY DIRECTION. TURNING SPACES SHALL HAVE A MINIMUM 4'x4' TURNING AREA. TURNING SPACES, WITH A SIDEWALK CURB, SHALL HAVE A 5' TURNING AREA PERPENDICULAR TO THE SIDEWALK CURB.
8. FOR RETROFIT WORK, SLOPES TO BE DETERMINED IN FIELD BY CONTRACTOR AND APPROVED BY CITY INSPECTOR
9. RAMP EXTENSION AREA SHALL NOT BE USED AS TRANSITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMPS TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF ADDITIONAL SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A CONTINUOUS SLOPE.
10. ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).



TYPE B SIDEWALK/SHARED-USE RAMP
Not to Scale



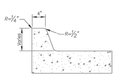
SECTION A–A



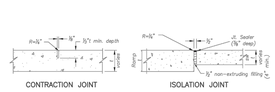
SECTION B–B

SECTION C–C

TYPE A & B SIDEWALK RAMP
Not to Scale



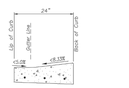
SIDEWALK CURB DETAIL
Not to Scale



CONTRACTION JOINT

ISOLATION JOINT

JOINTS DETAILS
Not to Scale



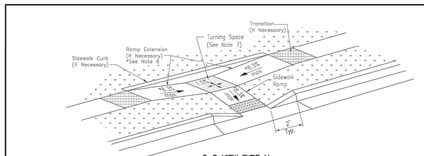
CURB & GUTTER DETAIL AT RAMP
Not to Scale

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

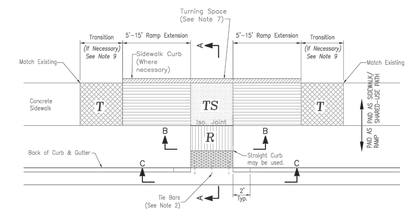
Project:
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name:
ADA RAMP RETROFIT DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

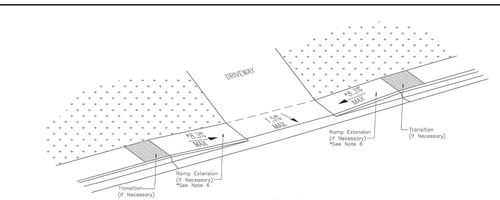
GEN-3A



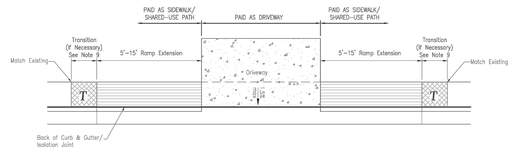
3-D VIEW TYPE M
SIDEWALK/SHARED-USE RAMP



TYPE M SIDEWALK/SHARED-USE RAMP
Not to Scale



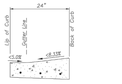
3-D VIEW SIDEWALK/SHARED-USE RAMP
AT DRIVEWAY



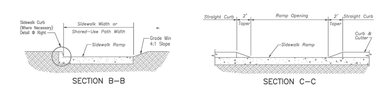
SIDEWALK/SHARED USE RAMP
AT DRIVEWAY WITH ADJOINING CURB

SIDEWALK/SHARED-USE PATH & SIDEWALK/SHARED-USE RAMP NOTES:

1. CURB RAMP OPENING, NOT INCLUDING FLARES, SHALL MATCH EXISTING SIDEWALK WIDTH AND OPENING SHALL BE AT LEAST 48" WIDE.
2. USE 18" LONG #4 EPOXY COATED TIE BARS @ 24" O.C. EMBED TIE BARS 9" IN EACH DIRECTION.
3. ALL RAMPS, SIDEWALKS, SHARED-USE PATHS SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
4. LONGITUDINAL JOINT SPACING TO MATCH WIDTH OF SIDEWALK.
5. ISOLATION JOINTS SHALL BE PLACED WHERE WALK ABUTS DRIVEWAYS AND SIMILAR STRUCTURES, AND 100' CENTERS MAX.
6. ADA MAXIMUM RAMP SLOPE = 8.33%
   ADA MAXIMUM CROSS SLOPE = 2.0%
   *ROADWAY EXCEPTION: WHERE EXISTING ROAD PROFILE GRADE DOES NOT ALLOW RAMP TO MEET RAMP SLOPE REQUIREMENT OF 8.33% OR LESS, THE RAMP SHALL BE EXTENDED TO A LENGTH OF 15 FEET TO MATCH EXISTING SIDEWALK. CROSS SLOPE OF RAMP SHALL BE 1.5%, ±0.5%.
7. TURNING SPACES SHALL BE 1.5%, ±0.5%, SLOPE IN ANY DIRECTION. TURNING SPACES SHALL HAVE A MINIMUM 4'x4' TURNING AREA. TURNING SPACES, WITH A SIDEWALK CURB, SHALL HAVE A 5' TURNING AREA PERPENDICULAR TO THE SIDEWALK CURB.
8. FOR RETROFIT WORK, SLOPES TO BE DETERMINED IN FIELD BY CONTRACTOR AND APPROVED BY CITY INSPECTOR
9. RAMP EXTENSION AREA SHALL NOT BE USED AS TRANSITION TO EXISTING SIDEWALK. ANY TRANSITIONS REQUIRED TO MATCH RAMPS TO EXISTING SIDEWALK SHALL REQUIRE REMOVAL AND REPLACEMENT OF ADDITIONAL SIDEWALK BEYOND THE RAMP AREA. SIDEWALK TRANSITION LENGTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE EXISTING SIDEWALK. RAMP EXTENSIONS SHALL BE A CONTINUOUS SLOPE.
10. ALL SIDEWALK AND RAMP CONSTRUCTION SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).



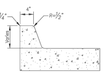
CURB & GUTTER DETAIL AT RAMP
Not to Scale



SECTION B–B

SECTION C–C

TYPE M SIDEWALK RAMP
Not to Scale



SIDEWALK CURB DETAIL
Not to Scale

LEGEND

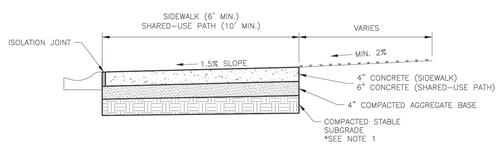
- SIDEWALK RAMP
- TURNING SPACE
- DETECTABLE WARNING SURFACE
- TRANSITION

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

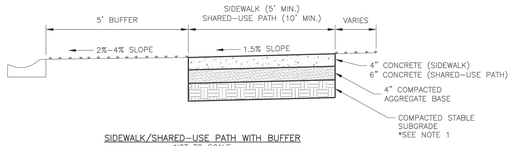
Project:
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name:
ADA RAMP RETROFIT DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

GEN-3B



SIDEWALK/SHARED-USE PATH WITHOUT BUFFER
NOT TO SCALE



SIDEWALK/SHARED-USE PATH WITH BUFFER
NOT TO SCALE

GENERAL NOTES:

1. SUBGRADE MUST BE OF STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. 1.5% CROSS SLOPE MUST BE MAINTAINED THROUGH DRIVEWAYS.
3. KCMMB 4K CONCRETE MIX SHALL BE REQUIRED FOR ALL SIDEWALKS/SHARED-USE PATHS.
4. ALL SIDEWALK/SHARED-USE PATHS SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
5. AN ISOLATION JOINT SHALL BE PLACED AT A MAXIMUM OF 100 FT. CONSTRUCTION JOINTS SHALL BE PLACED THE SAME WIDTH OF SIDEWALK/SHARED-USE PATHS, BUT NO GREATER THAN 10 FT.
6. AN ISOLATION JOINT SHALL BE PLACED WHERE THE SIDEWALK/SHARED-USE PATHS MEETS A RESIDENTIAL DRIVEWAY.
7. SHARED-USE PATHS WIDTH SHALL BE 10 FT. WIDE.
8. SIDEWALK/SHARED-USE PATHS FINISHING SHALL BE FULL BROOM FINISH OR AS DIRECTED BY CITY INSPECTOR.
9. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

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

SIDEWALK/SHARED-USE PATH DETAIL

Date: 05/2021
Drawn By: MJF
Checked By: DL

GEN-2

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#E2002000380-F #LA2001005237 #LS2002000859-F

PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
PROFESSIONAL ENGINEER
03.28.2023
SCHLAGEL & ASSOCIATES, P.A.

RESIDENCES AT BLACKWELL
SITE DEVELOPMENT PLAN

HERITAGE STREET LEE'S SUMMIT, MO

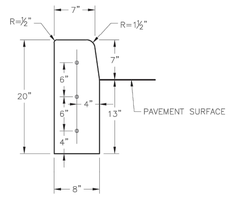
REVISION DATE	DESCRIPTION
1 01/23/23	PER CITY COMMENTS
2 03/24/2023	PER CITY COMMENTS
3	
4	
5	
6	
7	
8	
9	
10	

DRAWN BY: TRC	CHECKED BY: MAB
DATE PREPARED: 2/8/2023	PROJ. NUMBER: 22-102

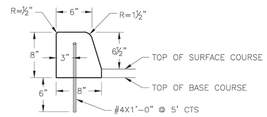
GENERAL DETAILS

SHEET
C800

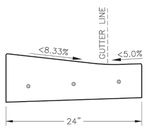
I:\PROJECTS\2022\22-102\3.0 Design\3.0 DWG Plans\4.0 SDP\22-102 - SDP - GEN DET.dwg, C800 GENERAL DETAILS, 1:1



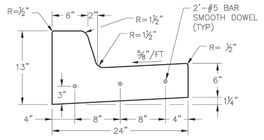
STRAIGHT CURB
(TYPE C-1)



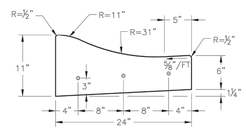
DOWELLED CURB
(TYPE DC)



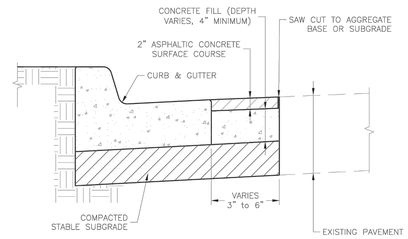
CURB & GUTTER DETAIL AT RAMP
(ADA SLOPE REQUIREMENTS)



STRAIGHT BACK CURB & GUTTER
(TYPE CG-1)



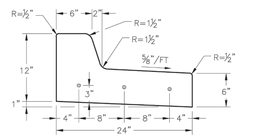
ROLL BACK CURB & GUTTER
(TYPE CG-2)



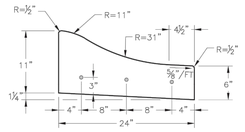
CURB REPLACEMENT DETAIL

GENERAL NOTES

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



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



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

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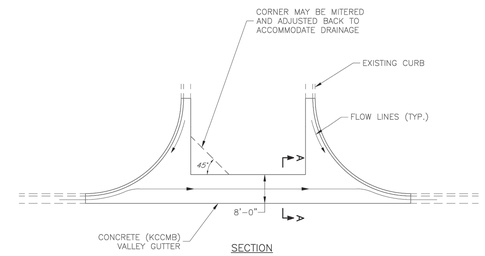
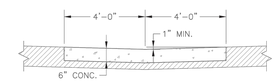
Project: STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name: CURB & GUTTER DETAIL

Drawn By: MJF
Checked By: DL
Date: 05/2021
Proj. #:

GEN-4



SECTION



SECTION
Scale: 1" = 1'-0"

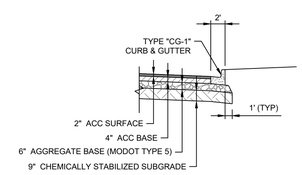
VALLEY GUTTER DETAIL
Intersection of Two Public Streets

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

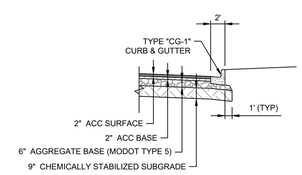
VALLEY GUTTER DETAIL

Date: 05/2021
Drawn By: MJF
Checked By: DL

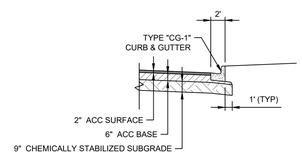
GEN-7



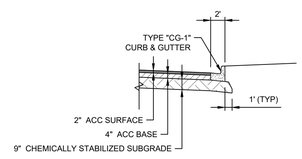
HEAVY DUTY ASPHALT
ACC OVER AGGREGATE BASE



LIGHT DUTY ASPHALT
ACC OVER AGGREGATE BASE



HEAVY DUTY ASPHALT
FULL DEPTH ACC



LIGHT DUTY ASPHALT
FULL DEPTH ACC

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PREPARED BY:

PERMIT SET

STATE OF MISSOURI
MARK ALLEN BREUER
NUMBER PE-2003007268
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DRAWN BY:	TRC
CHECKED BY:	MAB
DATE PREPARED:	2/8/2023
PROJ. NUMBER:	22-102

GENERAL DETAILS

SHEET
C801

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