AIA® Document G709™ – 2018

Proposal Request

PROJECT: *(name and address)*

Lee's Summit Middle School #4
1001 SE Bailey Road
Lee's Summit, MO 64081

CONTRACT INFORMATION:

Contract For: General Construction

Date: October 8, 2020

Architect's Project Number:
13-12103-00
Proposal Request Number: 002R

Proposal Request Date:
January 14, 2021

OWNER: *(name and address)*
Lee's Summit R-7 School District
502 SE Transport Drive
Lee's Summit, MO 64063

ARCHITECT: *(name and address)*
DLR Group
7290 West 133rd Street
Overland Park, KS 66213

CONTRACTOR: *(name and address)*
McCown Gordon Construction
850 Main Street
Kansas City, MO 64105

The Owner requests an itemized proposal for changes to the Contract Sum and Contract Time for proposed modifications to the Contract Documents described herein. The Contractor shall submit this proposal within seven (7) days or notify the Architect in writing of the anticipated date of submission.
(Insert a detailed description of the proposed modifications to the Contract Documents and, if applicable, attach or reference specific exhibits.)

Provide detailed pricing for modifications to the Contract Documents per the attachments.

Attachments:
Revised Sheet C1000 - Cover Sheet
Revised Sheet C1002 - General Layout Plan
Revised Sheet C1003 - Site Dimension Plan
Revised Sheet C1004 - Site Dimension Plan
Revised Sheet C1005 - Site Dimension Plan
Revised Sheet C1006 - Site Dimension Plan
Revised Sheet C1007 - Site Dimension Plan
Revised Sheet C1008 - Site Dimension Plan
Revised Sheet C1009 - Site Dimension Plan
Revised Sheet C1010 - Site Dimension Plan
Revised Sheet C1011 - Site Dimension Plan
Revised Sheet C1012 - Grading Plan
Revised Sheet C1013 - Grading Details
Revised Sheet C1014 - Grading Details
Revised Sheet C1015 - Grading Details
Revised Sheet C1016 - Grading Details
Revised Sheet C1017 - Grading Details
Revised Sheet C1018 - Grading Details
Revised Sheet C1019 - Grading Details
Revised Sheet C1020 - Grading Details
Revised Sheet C1021 - Grading Details
Revised Sheet C1022 - Grading Details
Added Sheet C1022A - Grading Details
Revised Sheet C1023 - Grading Details
Revised Sheet C1024 - Grading Details
Revised Sheet C1025 - Grading Details
Revised Sheet C1026 - Utility Plan
Added Sheet C1026A - Utility Plan
Revised Sheet C1027 - Utility Plan

Revised Sheet C1028 - Utility Plan
Revised Sheet C1028A - Fire Protection Profiles
Revised Sheet C1028B - Fire Protection Profiles
Revised Sheet C1028C - Sanitary Sewer Service Profiles
Revised Sheet C1029 - Storm Sewer Plan & Profile - Line A
Revised Sheet C1030 - Storm Sewer Plan & Profile - Line A
Revised Sheet C1030A - Storm Sewer Plan & Profile - Line B
Revised Sheet C1031 - Storm Sewer Plan & Profile - Line C
Revised Sheet C1032 - Storm Sewer Plan & Profile - Line C
Revised Sheet C1033 - Storm Sewer Plan & Profile - Line CC
Revised Sheet C1034 - Storm Sewer Plan & Profile - Line D
Revised Sheet C1035 - Storm Sewer Plan & Profile - Line E
Revised Sheet C1036 - Storm Sewer Plan & Profile - Line E
Revised Sheet C1037 - Storm Sewer Plan & Profile - Line E
Revised Sheet C1038 - Storm Sewer Plan & Profile - Line E
Revised Sheet C1039 - Storm Sewer Plan & Profile - Line F
Revised Sheet C1040 - Storm Sewer Plan & Profile - Line F
Revised Sheet C1041 - Storm Sewer Plan & Profile - Line G
Revised Sheet C1042 - Storm Sewer Plan & Profile - Line G
Revised Sheet C1043 - Storm Sewer Plan & Profile - Line G
Revised Sheet C1044 - Storm Sewer Plan & Profile - Line H & J
Revised Sheet C1045 - Storm Sewer Plan & Profile - Line K & L
Revised Sheet C1046 - Storm Sewer Plan & Profile - Line M & N
Revised Sheet C1050 - Standard Details
Revised Sheet C1051 - Standard Details
Revised Sheet C1057 - Standard Details
Revised Sheet C1058 - Standard Details
Added Sheet C1059 - Detention Basin Detail
Added Sheet C1060 - Detention Basin Detail
Added Sheet C1061 - Detention Basin Detail

THIS IS NOT A CHANGE ORDER, A CONSTRUCTION CHANGE DIRECTIVE, OR A DIRECTION TO PROCEED WITH THE WORK DESCRIBED IN THE PROPOSED MODIFICATIONS.

REQUESTED BY THE ARCHITECT:

Dana M. Schwartz, AIA, DLR Group,
a Missouri corporation
PRINTED NAME AND TITLE

FINAL DEVELOPMENT PLANS
FOR

LEE'S SUMMIT MIDDLE SCHOOL #4

SOUTH SIDE SE BAILEY ROAD AND COUNTRY LANE
NE 1/4 OF SECTION 16, TOWNSHIP 47 NORTH, RANGE 31 WEST
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

2

Sheet List Table	
Sheet Number	Sheet Title
C1000	COVER SHEET
C1001	GENERAL NOTES
C1002	GENERAL LAYOUT PLAN
C1003	SITE DIMENSION PLAN
C1004	SITE DIMENSION PLAN
C1005	SITE DIMENSION PLAN
C1006	SITE DIMENSION PLAN
C1007	SITE DIMENSION PLAN
C1008	SITE DIMENSION PLAN
C1009	SITE DIMENSION PLAN
C1010	SITE DIMENSION PLAN
C1011	SITE DIMENSION PLAN
C1012	GRADING PLAN
C1013	GRADING DETAILS
C1014	GRADING DETAILS
C1015	GRADING DETAILS
C1016	GRADING DETAILS
C1017	GRADING DETAILS
C1018	GRADING DETAILS
C1019	GRADING DETAILS
C1020	GRADING DETAILS
C1021	GRADING DETAILS
C1022	GRADING DETAILS
C1022A	GRADING DETAILS
C1023	GRADING DETAILS
C1024	GRADING DETAILS
C1025	GRADING DETAILS
C1025A	GRADING DETAILS
C1026	UTILITY PLAN
C1026A	UTILITY PLAN
C1027	UTILITY PLAN
C1028	UTILITY PLAN
C1028A	FIRE PROTECTION PROFILES
C1028B	FIRE PROTECTION PROFILES
C1028C	SANITARY SEWER SERVICE PROFILES
C1029	STORM SEWER PLAN & PROFILE – LINE A
C1030	STORM SEWER PLAN & PROFILE – LINE A
C1030A	STORM SEWER PLAN & PROFILE – LINE B
C1031	STORM SEWER PLAN & PROFILE – LINE C
C1032	STORM SEWER PLAN & PROFILE – LINE C
C1033	STORM SEWER PLAN & PROFILE – LINE CC
C1034	STORM SEWER PLAN & PROFILE – LINE D
C1035	STORM SEWER PLAN & PROFILE – LINE E
C1036	STORM SEWER PLAN & PROFILE – LINE E
C1037	STORM SEWER PLAN & PROFILE – LINE E
C1038	STORM SEWER PLAN & PROFILE – LINE E
C1039	STORM SEWER PLAN & PROFILE – LINE F
C1040	STORM SEWER PLAN & PROFILE – LINE F
C1041	STORM SEWER PLAN & PROFILE – LINE G
C1042	STORM SEWER PLAN & PROFILE – LINE G AND GG
C1043	STORM SEWER PLAN & PROFILE – LINE G
C1044	STORM SEWER PLAN & PROFILE – LINE H AND J
C1045	STORM SEWER PLAN & PROFILE – LINE K AND L
C1046	STORM SEWER PLAN & PROFILE – LINE M AND N
C1047	DRAINAGE PLAN
C1048	DRAINAGE CALCULATIONS – 100 YEAR
C1049	DRAINAGE CALCULATIONS – 10 YEAR
C1050	STANDARD DETAILS
C1051	STANDARD DETAILS
C1052	STANDARD DETAILS
C1053	STANDARD DETAILS
C1054	STANDARD DETAILS
C1055	STANDARD DETAILS
C1056	STANDARD DETAILS
C1057	STANDARD DETAILS
C1058	STANDARD DETAILS
C1058A	STANDARD DETAILS
C1059	DETENTION BASIN DETAIL
C1060	DETENTION BASIN DETAIL
C1061	DETENTION BASIN DETAIL

NOT TO SCALE

DEVELOPMENT TEAM CONTACT INFORMATION	
OWNER/DEVELOPER	
KYLE GORRELL DIRECTOR, LEE'S SUMMIT SCHOOL DISTRICT	502 SE TRANSPORT DRIVE LEE'S SUMMIT, MO 64081 816.986–2420
CIVIL ENGINEER	
TERRY PARSONS OLSSON	7301 W. 133RD STREET SUITE 200 OVERLAND PARK, KS 66213 PH: 913.381.1170 FAX: 913.381.1174 tparsons@olsson.com

LEGAL DESCRIPTION:

All that part of Northeast Quarter of Section 16, Township 47 North, Range 31 West, in the City of Lee's Summit, Jackson County, Missouri, as described by Timothy Blair Wiswell, Missouri Professional Licensed Surveyor, PLS–2009000067, and being more particularly described as follows:

COMMENCING at the Northwest corner of the Northeast Quarter, of said Section 16–T47N–R31W; thence South 02 degrees 20 minutes 19 seconds West, along the West line of said Northeast Quarter, a distance of 20.00 feet, to a point on the South Right–of–Way line of Bailey Road as now established, said point also being the Northeast corner of Lot 164 of Newberry Second Plat, Lots 1–65, 163 and 164, a subdivision in the City of Lee's Summit, Jackson County, Missouri; thence South 88 degrees 07 minutes 48 seconds East, on the South Right–of–Way line of said Bailey Road, a distance of 1,350.00 feet, to a point; thence South 35 degrees 20 minutes 58 seconds West, departing the South Right–of–Way line of said Bailey Road, a distance of 517.08 feet, to a point; thence South 07 degrees 56 minutes 53 seconds West, a distance of 320.18 feet, to a point; thence South 12 degrees 12 minutes 42 seconds West, a distance of 1,168.07 feet, to a point; thence South 27 degrees 41 minutes 50 seconds West, a distance of 480.35 feet, to a point on a line that is 300.00 feet North of and parallel to the South line of said Northeast Quarter; thence North 88 degrees 04 minutes 43 seconds West, on said parallel line, a distance of 630.96 feet, to a point on the West line of said Northeast Quarter, said point also being on the East line of Newberry Fourth Plat, a subdivision in the City of Lee's Summit, Jackson County, Missouri; thence North 02 degrees 20 minutes 19 seconds East, on the West line of said Northeast Quarter, and on the East line of said Newberry Fourth Plat, and on the East line of Newberry Third Plat, a subdivision in the City of Lee's Summit, Jackson County, Missouri, and on the East line of said Newberry Second Plat, Lots 1–65, 163 and 164, a distance of 2,330.63 feet, to the POINT OF BEGINNING, containing 2,250,248 square feet or 51.6586 acres, more or less.

SECTION 16, T.47N., R.31W.

VICINITY MAP
SCALE: 1" = 2000'

STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010017055
01/15/2021
PROFESSIONAL ENGINEER

olsson
OLSSON, CIVIL ENGINEERING
MISSOURI CERTIFICATE OF AUTHORITY #001592
7301 West 133rd Street, Suite 200
Overland Park, KS 66213-4750
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LEE'S SUMMIT MIDDLE SCHOOL #4
LEE'S SUMMIT R-7 SCHOOL DISTRICT
1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

PACKAGE 2-
STRUCTURAL & SITE
UTILITIES
ISSUED FOR PERMIT
08/28/20

2 PR002R 01.14.21

13-20102-00

COVER SHEET

C1000

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_GEN01_0200103.dwg USER: bkimmich
DATE: Jan 14, 2021 11:47am XREFS: C_XBASE_0200103 C_PBASE_0200103 C_PTBLK_0200103 T_PBASE_0200103 T_PSAS_0200103 V_XALT_00103

GENERAL NOTES:

1. THE EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY NOT INCLUDE ALL LINES PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALL "1–800–DIG–RITE", 1(800)344–7483 OR 811 AND COORDINATE FIELD LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING GRADING ACTIVITIES. !!STOP!! CALL BEFORE YOU DIG!!
2. THE CONTRACTOR SHALL NOT CHANGE OR DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE OWNER AND ENGINEER.
3. ALL WORK AND MATERIALS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
4. ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATION PURPOSES ONLY. CONTRACTOR AND SUBCONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ALL QUANTITIES AND FOR BRINGING THE PROJECT TO THE LINES AND GRADES SHOWN HEREIN. CONTRACTOR SHALL PROVIDE ALL WORK AND MATERIALS REQUIRED TO FULFILL THE PLANS IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE EARTHWORK QUANTITIES AND TO ACCOUNT FOR HAUL IN OR HAUL OFF OF MATERIAL AS NECESSARY TO MEET THE LINES AND GRADES OF THE PLANS EVEN IF QUANTITY ESTIMATES ARE SHOWN WITHIN THESE DOCUMENTS. NO ADDITIONAL PAYMENTS WILL BE MADE FOR IMPORT OR EXPORT OF MATERIAL OR FOR ADJUSTMENTS TO QUANTITY ESTIMATES.
5. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST STANDARDS AND SPECIFICATIONS *OF THE AMERICAN PUBLIC WORKS ASSOCIATION – KANSAS CITY METROPOLITAN CHAPTER (APWA–KC) AND* THE CITY OF LEE'S SUMMIT, MO, EXCEPT WHERE SHOWN OTHERWISE. NOTIFY ENGINEER OF DISCREPANCIES.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS, PAYING ALL FEES AND FOR OTHERWISE COMPLYING WITH ALL APPLICABLE REGULATIONS GOVERNING THE WORK.
7. THE CONTRACTOR SHALL ADHERE TO THE PROVISIONS OF MISSOURI STATE LAW WHICH 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.
8. 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.
9. THE CONTRACTOR SHALL LIMIT THE REMOVAL OF TREES TO THE LIMITS OF DEMOLITION SHOWN ON THE DEMOLITION PLAN.
10. 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.
11. ALL WASTE MATERIAL RESULTING FROM THE PROJECT SHALL BE DISPOSED OF OFF–SITE BY THE CONTRACTOR.
12. ALL MANHOLES, CATCH BASINS, UTILITY VALVES AND METER PITS ARE TO BE ADJUSTED OR REBUILT TO GRADE AS REQUIRED.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROL OF SURFACE EROSION DURING CONSTRUCTION AND UNTIL THE OWNER ACCEPTS THE WORK AS COMPLETE. EROSION CONTROL MEASURES INCLUDING, BUT NOT LIMITED TO, THE SILT FENCES AND GRAVEL FILTER BAGS SHOWN ON THE EROSION CONTROL PLAN SHALL BE IN PLACE FOR THE DURATION OF THE SITE IMPROVEMENTS.
14. ALL HDPE PIPE SHALL BE ADS (N–12) OR APPROVED EQUAL, AND CONFORM TO AASHTO M294 SPECIFICATIONS. ALL PIPE LENGTHS ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
15. IF PRECAST CONCRETE STORM SEWER STRUCTURES ARE TO BE USED ON THIS PROJECT, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND HAVE THEM APPROVED BY THE ENGINEER PRIOR TO FABRICATION OF THE STRUCTURES. FAILURE TO DO SO SHALL BE CAUSE FOR REJECTION.
19. EXISTING TOPSOIL SHALL BE STRIPPED TO A POINT WHERE ALL VEGETATION IS REMOVED. REFER TO THE GEOTECHNICAL REPORT PROVIDED BY CFS ENGINEERS, PROJECT NO. 20–1074 AND DATED JUNE 8, 202 AND ALL ADDENDUMS FOR ADDITIONAL REQUIREMENTS.
20. THE CONTRACTOR SHALL, BY HIS OWN INVESTIGATION, AND PRIOR TO COMMENCING WORK, SATISFY HIMSELF AS TO THE SURFACE AND SUBSURFACE CONDITIONS TO BE ENCOUNTERED.
21. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL BOUNDARY CORNERS AND SECTION CORNERS. ANY BOUNDARY CORNER AND/OR SECTION CORNER DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE RESET BY A LAND SURVEYOR LICENSED IN THE STATE OF MISSOURI, AT THE CONTRACTOR'S EXPENSE.
22. NO FEDERALLY OWNED MAILBOX MAY BE DISTURBED. THE CONTRACTOR SHALL GIVE AT LEAST TWENTY–FOUR (24) HOURS ADVANCE NOTICE TO THE MANAGER OF DELIVERY AND COLLECTIONS. TAMPERING WITH FEDERAL MAIL FACILITIES MAY SUBJECT THE CONTRACTOR TO PROSECUTION BY THE FEDERAL GOVERNMENT.
23. THE CONTOUR LINES SHOWN ARE FOR MASS GRADING PURPOSES.
24. EXISTING CONTOURS REPRESENT MASS FINISH GRADE ELEVATIONS.
25. THE CONTRACTOR SHALL FINISH GRADE SLOPES AS SHOWN NO STEEPER THAN 1 FOOT VERTICAL IN 3 FEET HORIZONTAL UNLESS OTHERWISE SHOWN BY CONTOURS OR SPOT ELEVATIONS.
26. THE CONTRACTOR SHALL GRADE LANDSCAPED AREAS TO PROVIDE POSITIVE DRAINAGE IN THE BORROW AREA.
27. THE CONTRACTOR SHALL MAKE HIS OWN ASSUMPTIONS ON THE LOCATION AND CONSISTENCY OF ANY EXISTING ROCK LAYERS UNDERLYING THE PROJECT SITE. ALL ROCK EXCAVATION AND REMOVAL SHALL BE INCLUDED IN THE CONTRACTORS' BID.
28. CONTRACTOR TO FIELD VERIFY ELEVATIONS AND LOCATIONS OF EXISTING UTILITIES AND INFRASTRUCTURE PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN PLANS AND FIELD CONDITIONS.
29. BY ACCEPTING AND UTILIZING ANY ELECTRONIC FILE OF ANY DRAWING, REPORT OR DATA TRANSMITTED BY OLSSON (OLSSON), THE RECIPIENT AGREES FOR ITSELF, ITS SUCCESSORS, ASSIGNS, INSURERS AND ALL THOSE CLAIMING UNDER OR THROUGH IT, THAT BY USING ANY OF THE INFORMATION CONTAINED IN THE ELECTRONIC FILE, ALL USERS AGREE TO BE BOUND BY THE FOLLOWING TERMS. ALL OF THE INFORMATION CONTAINED IN THIS ELECTRONIC FILE IS THE WORK PRODUCT AND INSTRUMENT OF SERVICE OF OLSSON, WHO SHALL BE DEEMED THE AUTHOR, AND SHALL RETAIN ALL COMMON LAW, STATUTORY LAW AND OTHER RIGHTS, INCLUDING COPYRIGHTS, UNLESS THE SAME HAVE PREVIOUSLY BEEN TRANSFERRED IN WRITING TO THE RECIPIENT. THE INFORMATION CONTAINED IN THE ELECTRONIC FILE IS PROVIDED FOR THE CONVENIENCE OF THE RECIPIENT AND IS PROVIDED IN "AS IS" CONDITION. THE RECIPIENT IS AWARE THAT DIFFERENCES MAY EXIST BETWEEN THE ELECTRONIC FILES AND THE PRINTED HARD–COPY ORIGINAL SIGNED AND SEALED DRAWINGS OR REPORTS. IN THE EVENT OF A CONFLICT BETWEEN THE SIGNED AND SEALED ORIGINAL DOCUMENTS PREPARED BY OLSSON AND THE ELECTRONIC FILES TRANSFERRED HEREWITH, THE SIGNED AND SEALED ORIGINAL DOCUMENTS SHALL GOVERN. OLSSON SPECIFICALLY DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ELECTRONIC FILES. IT SHALL BE THE RECIPIENT'S RESPONSIBILITY TO CONFIRM THE ACCURACY OF THE INFORMATION CONTAINED IN THE ELECTRONIC FILE AND THAT IF ACCURATELY REFLECTS THE INFORMATION NEEDED BY THE RECIPIENT. THE RECIPIENT SHALL NOT RETRANSMIT THE ELECTRONIC FILE, OR ANY PORTION THEREOF, WITHOUT INCLUDING THIS DISCLAIMER AS PART OF ANY SUCH TRANSMISSION. IN ADDITION, THE RECIPIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS OLSSON, ITS OFFICERS, DIRECTORS, EMPLOYEES AND SUBCONSULTANTS AGAINST ANY AND ALL DAMAGES, LIABILITIES, CLAIMS OR COSTS, INCLUDING REASONABLE ATTORNEY'S AND EXPERT WITNESS FEES AND DEFENSE COSTS, ARISING FROM ANY CHANGES MADE BY ANYONE OTHER THAN OLSSON OR FROM ANY REUSE OF THE ELECTRONIC FILES WITHOUT THE PRIOR WRITTEN CONSENT OF OLSSON.
30. DESIGN PROFESSIONAL SHALL REVIEW SHOP DRAWINGS OR SAMPLES FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPTS ON THE PROJECT AND FOR COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS, AND SHALL NOT EXTEND TO MEANS OR METHODS OF CONSTRUCTION. THE DESIGN PROFESSIONAL'S REVIEW SHALL NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ANY VARIATION FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS UNLESS CONTRACTOR HAS IN WRITING CALLED DESIGN PROFESSIONAL'S ATTENTION TO EACH SUCH VARIATION AT THE TIME OF SUBMISSION, AND DESIGN PROFESSIONAL HAS GIVEN WRITTEN APPROVAL OF EACH SUCH VARIATION BY SPECIFIC WRITTEN NOTATION THEREOF INCORPORATED INTO OR ACCOMPANYING THE SHOP DRAWING OR SAMPLE; NOR WILL ANY APPROVAL BY THE DESIGN PROFESSIONAL RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS WITH CONFORMANCE TO CONTRACT DOCUMENTS.
31. GENERAL CONSTRUCTION NOTE REGARDING SEQUENCING OF EROSION CONTROL – ALL PERIMETER SILT FENCE, EARTH DIKES, SEDIMENT BASINS, AND ROCK CONSTRUCTION ENTRANCES WILL BE INSTALLED BEFORE GRADING OPERATIONS BEGIN, EXCEPT THAT SILT FENCE WHICH IS TO BE PLACED ALONG THE BACK OF CURB FOR PROTECTION OF THE STREET. SILT FENCE AND EARTH DIKES THAT ARE PLACED BEFORE GRADING BEGINS WILL BE MAINTAINED BY THE GRADING CONTRACTOR UNTIL ALL UTILITIES ARE IN PLACE. THE SILT FENCE THAT IS PLACED ALONG THE BACK OF THE CURB OR RIGHT –OF–WAY WILL BE INSTALLED IMMEDIATELY AFTER THE CURB IS CONSTRUCTED. EROSION AND SEDIMENTATION CONTROLS ARE TEMPORARY AND MUST BE REMOVED BY THE CONTRACTOR AFTER CONSTRUCTION IS COMPLETE AND THE DISTURBED AREA IS AT LEAST 70% PERMANENTLY VEGETATED.
32. HANDICAP PARKING STALLS SHALL BE SIGNED WITH CITY/ADA APPROVED SIGNAGE AND CONSTRUCTED IN STRICT ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS *OF THE APWA–KC,* CITY OF LEE'S SUMMIT ADA STANDARDS, *AND* SHALL NOT EXCEED 2.00 PERCENT IN ANY DIRECTION. ACCESSIBLE SIDEWALKS HAVE A MAXIMUM CROSS SLOPE OF 2 PERCENT AND A MAXIMUM LONGITUDINAL SLOPE OF 5 PERCENT.
33. ALL WATER LINES SHALL BE INSTALLED PER THE LATEST STANDARDS AND SPECIFICATIONS *OF THE APWA–KC AND* THE CITY OF LEE'S SUMMIT, MO. ALL WATER LINES SHALL BE A MINIMUM OF 48 INCHES BELOW THE FINISHED GRADE ELEVATIONS SHOWN HEREIN.
34. ALL WATER LINES SHALL BE INSTALLED PER CITY STANDARDS. ALL WATER LINES SHALL BE A MINIMUM OF 48 INCHES BELOW THE FINISHED GRADE ELEVATIONS SHOWN HEREIN.
35. ALL EXTERIOR CONCRETE SHALL BE KCMMB–4K AND HAVE A MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 4000 PSI, SHALL MEET KCMMB STANDARDS AND SPECIFICATIONS, AND SHALL BE AIR ENTRAINED. FLYASH IS NOT A SUITABLE REPLACEMENT FOR PORTLAND CEMENT.
36. ALL ON–SITE WIRING AND CABLES SHALL BE PLACED UNDERGROUND.
37. CONCRETE PAVEMENT JOINTS SHALL BE CONSTRUCTED AS FOLLOWS (REFER TO HARDSCAPE PLANS FOR SPECIFIC TREATMENT OF THESE AREAS):
   A. CONTROL JOINTS SPACED AT INTERVALS NOT GREATER THAN 12 FEET AND TOOLED TO 1/3 THE SLAB THICKNESS.
   B. CONSTRUCTION JOINTS AT THE END OF EACH POUR AND WHEN PAVING OPERATIONS ARE SUSPENDED FOR 30 MINUTES OR MORE.
   C. ISOLATION JOINTS PLACED WHERE THE PAVEMENT ABUTS THE BUILDING, DRAINAGE STRUCTURES AND OTHER FIXED STRUCTURES, CONSTRUCTED WITH A 1/2" NONEXTRUDING FILLER, CLOSED–CELL FOLSSONM RUBBER OR A BITUMEN–TREATED FIBER–BOLSSONRD, AND WITH A THICKENED EDGE, INCREASED BY 20 PERCENT, TAPERED TO THE REGULAR THICKNESS IN 5 FEET.
   D. ALL EXPANSION JOINTS SHALL BE FILLED AND SEALED WITH A PLASTIC JOINT SEALANT MATERIAL.
35. TELEPHONE AND COMMUNICATION SERVICE ROUTING AND CONDUITS NOT SHOWN ON PLANS. CONTRACTOR SHALL INSTALL NECESSARY CONDUIT PRIOR TO PAVEMENT INSTALLATION. CONTRACTOR SHALL COORDINATE ROUTING AND INSTALLATION SCOPE WITH SERVICE PROVIDER.
36. ANY CONTRACTOR BIDDING ANY PORTION OF THIS WORK SHALL HAVE IN HIS OR HER POSSESSION A COMPLETE SET OF CONSTRUCTION DOCUMENTS AND BE FAMILIAR WITH ALL SCOPES OF WORK AND TRADES TO UNDERSTAND THEIR INTERACTIONS.
37. EXISTING TOPSOIL SHALL BE STRIPPED TO A POINT WHERE ALL VEGETATION IS REMOVED. REFER TO THE GEOTECHNICAL REPORT PROVIDED BY OLSSON DATED 01/09/2019 AND ALL ADDENDUMS.
38. SITE PREPARATION, GRADING AND EXCAVATION PROCEDURES SHALL CONFORM TO THE RECOMMENDATIONS AS OUTLINED IN THE GEOTECHNICAL REPORT PREPARED BY OLSSON DATED 01/09/2019 AND ALL ADDENDUMS.

GENERAL UTILITY NOTES

39. THE SIZE AND LOCATION OF SERVICES SHALL BE VERIFIED WITH THE ARCHITECTURAL AND MEP PLANS PRIOR TO CONSTRUCTION. IF DISCREPANCIES EXIST, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
40. IRRIGATION CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING SLEEVING UNDER PAVING AREAS WHERE NECESSARY.
41. INSTALL ALL PIPE LENGTHS, BENDS AND FITTINGS NECESSARY FOR UTILITY CONNECTIONS.
42. CONTRACTOR SHALL VERIFY ALL CROSSING ELEVATIONS AND LOCATIONS, SIZES, AND ELEVATIONS OF EXISTING UTILITIES PRIOR TO CONSTRUCTION OF STORM LINES AND ALL UTILITY SERVICE CONNECTIONS. ANY CONFLICTS SHALL BE MADE KNOWN TO THE ENGINEER AND RESOLVED PRIOR TO CONSTRUCTION.
43. CONTRACTOR TO VERIFY FIRE SERVICE SIZE WITH SPRINKLER DESIGNER/CONTRACTOR PRIOR TO CONSTRUCTION AND INSTALLATION OF METER/BACKFLOW PREVENTER AND SERVICES. NOTIFY ENGINEER OF ALTERATIONS.
44. CONTRACTOR RESPONSIBLE FOR PAYING ALL TAP AND CONNECTION FEES AND SHALL CONTRACT AND PAY FOR ANY REQUIRED SUB CONTRACTORS BY UTILITY COMPANIES.
45. REFERENCE MEP PLANS FOR BUILDING CONNECTIONS.
46. CONTRACTOR TO REPAIR ALL AREA DAMAGED BY CONSTRUCTION TO EXISTING CONDITIONS OR BETTER.
47. BACK FLOW PREVENTION TO BE PROVIDED INSIDE BUILDING. SEE MEP AND ARCHITECTURAL PLANS FOR DETAILS.
48. LOCATION FOR POWER SHOWN IS APPROXIMATE AND SUBJECT TO CHANGE. CONTRACTOR TO VERIFY FINAL LOCATION AND DESIGN WITH UTILITY COMPANY PRIOR TO CONSTRUCTION.
49. CONTRACTOR TO COORDINATE LIGHT POLE LOCATIONS WITH OWNER, STORM SEWER INSTALLATION AND UTILITY COMPANIES PRIOR TO INSTALLATION TO AVOID CONFLICTS. NOTIFY ENGINEER AND ARCHITECT OF ANY CONFLICTS PRIOR TO INSTALLATION.
50. WATER METER CANNOT BE INSTALLED IN THE BUILDING.
51. CONTRACTOR SHALL COORDINATE CABLE/FIBER OPTIC CONDUIT AND SERVICE INSTALLATION WITH UTILITY COMPANY.
52. ALL TAPS AND CONNECTIONS FOR FIRE AND DOMESTIC WATER SERVICES ARE TO BE IN ACCORDANCE WITH THE CITY OF LEE' SUMMIT, MO, STANDARDS AND SPECIFICATIONS.
53. CONTRACTOR TO COORDINATE POWER ROUTING TO MONUMENT SIGNS NOT SHOWN ON PLANS.
54. ALL ROOF DRAIN AND DOWNSPOUT HEADER PIPES SHALL BE 12" HDPE PIPE AND INSTALLED AT 1.00% MINIMUM SLOPE UNLESS OTHERWISE NOTED WITHIN THIS PLAN. ALL BENDS AND FITTINGS NEEDED TO BUILD ROUTING AS SHOWN SHALL BE INCLUDED IN BID.
55. CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY FITTINGS TO COMPLETE ROOF DRAIN AND DOWNSPOUT CONNECTIONS TO BUILDINGS. ALL ROOF DRAIN AND DOWNSPOUT CONNECTIONS / FITTINGS, INCLUDING BUT NOT LIMITED TO BENDS AND TEES, SHALL BE MADE OF HDPE PIPE UNLESS OTHERWISE NOTED WITHIN THIS PLAN.

PAVEMENT MARKING NOTES:

1. PAVEMENT MARKING PAINT: LATEX, WATER–BASE EMULSION, READY–MIXED, COMPLYING WITH FS TT–P–1952 WITH DRYING TIME OF LESS THAN 45 MINUTES.
2. DO NOT APPLY PAVEMENT MARKING PAINT UNTIL LAYOUT, COLORS AND PLACEMENT HAVE BEEN VERIFIED WITH THE ARCHITECT.
3. ALLOW PAVING TO AGE FOR 24 HOURS BEFORE MARKING.
4. SWEEP AND CLEAN SURFACE PRIOR TO INSTALLING PAVEMENT MARKINGS.
5. APPLY PAINT WITH MECHANICAL EQUIPMENT TO PRODUCE MARKINGS WITH UNIFORM STRAIGHT EDGES. PROVIDE A MINIMUM WET FILM THICKNESS OF 15 MILS.
6. THIS WORK SHALL CONSIST OF FURNISHING AND APPLYING PAINT ON PAVEMENT SURFACES, IN TRAFFIC LANES, PARKING BAYS, AREAS RESTRICTED TO HANDICAPPED PERSONS, CROSSWALKS, AND OTHER DETAIL PAVEMENT MARKINGS, IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS.
7. DETAILS NOT SHOWN SHALL BE IN CONFORMITY WITH THE STATE STANDARDS FOR TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, AND SIMILAR REQUIREMENTS ESTABLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.
8. ALL PARKING LOT STRIPING SHALL BE SINGLE LINE 4" WIDE AS PER THE SITE PLANS.
9. PAINT FOR MARKING PAVEMENT SHALL CONFORM TO FEDERAL HIGHWAY MARKING STANDARDS. USE SHERWIN WILLIAMS PROMAR TRAFFIC MARKING PAINT, COLORS TO MATCH THE EXISTING ADJACENT INSTALLATIONS. USE FLAT BLACK, WHITE OR YELLOW, WHERE APPROPRIATE. UNLESS OTHERWISE DIRECTED, USE THE FOLLOWING:
   A. BLACKTOP OR BITUMINOUS ASPHALT PAVING: USE WHITE COLOR.
   B. PORTLAND CEMENT CONCRETE PAVING: USE YELLOW COLOR.
   C. HANDICAPPED ACCESSIBLE PARKING AND ENTRYWAYS: USE WHITE COLOR WITH WHITE STRIPES.
   D. PROVIDE PAINTED CURBS AT FIRE LANE DESIGNATIONS PER FIRE MARSHAL REQUIREMENTS.
10. APPLY ALL MARKINGS USING APPROVED MECHANICAL EQUIPMENT (WITH PROVISIONS FOR CONSTANT AGITATION OF PAINT), CAPABLE OF APPLYING THE MARKING WIDTHS AS SHOWN. USE PNEUMATIC SPRAY GUNS FOR HAND APPLICATION OF PAINT. ALL PAINTING EQUIPMENT AND OPERATIONS SHALL BE UNDER THE CONTROL OF EXPERIENCED TECHNICIANS THOROUGHLY FAMILIAR WITH EQUIPMENT AND MATERIALS AND MARKING LAYOUTS.
11. DETAIL PAVEMENT MARKINGS SHALL BE THAT MARKING, EXCLUSIVE OF ACTUAL TRAFFIC LANE MARKING, AT EXIT AND ENTRANCE ISLANDS AND TURNOUTS, ON CURBS, AT CROSSWALKS, AT PARKING BAYS AND AT SUCH OTHER LOCATIONS AS SHOWN. HANDICAPPED PARKING SPACES SHALL BE MARKED BY THE INTERNATIONAL HANDICAPPED SYMBOL AT INDICATED PARKING SPACES. USE A SUITABLE TEMPLATE THAT WILL PROVIDE A PAVEMENT MARKING WITH TRUE, SHARP EDGES AND ENDS.

CONTROL INFORMATION:

BASIS OF COORDINATES SHOWN HEREON ARE BASED ON MISSOURI STATE PLANE COORDINATE SYSTEM, WEST ZONE, AND SCALED TO GROUND COORDINATES UTILIZING A COMBINED ADJUSTMENT FACTOR OF 0.9998986, HOLDING JACKSON COUNTY GPS CONTROL POINT JA–45 AS A BASE POINT. DISTANCES SHOWN HEREON ARE GROUND DISTANCES IN US SURVEY FEET.

MO DNR JA–45:
KC METRO ALUMINUM GRS DISK SET IN CONCRETE ±3" BELOW PAVEMENT ON SHOULDER OF SE RANSON RD. STAMPED "JA–45".
N: 994990.346
E: 2834265.611
ELEV.: 1046.26'

OLSSON #100:
SET 1/2" REBAR WITH OLSSON CONTROL CAP. SET IN THE GRASS ON THE NORTH SIDE OF SE BAILEY RD.
N: 993598.83
E: 2831586.70
ELEVATION: 1032.16'
TIES:
1. SW 66.88' TO THE NE CORNER OF THE CONCRETE SIDEWALK ON THE SOUTH SIDE OF SE BAILEY RD.
2. SSW 82.19' TO THE CENTER OF A POWER POLE ON THE SOUTH SIDE OF SE BAILEY RD.
3. EAST 254.38' TO THE NW CORNER OF A CONCRETE CURB INLET ON THE NORTH SIDE OF SE BAILEY RD.
4. EAST ±298' TO THE CENTERLINE OF COUNTRY LN. ON THE NORTH SIDE OF SE BAILEY RD.

OLSSON #101:
SET 1/2" REBAR WITH OLSSON CONTROL CAP. SET IN THE GRASS ON THE NORTH SIDE OF SE BAILEY RD.
N: 993561.11
E: 2832755.84
ELEVATION: 1014.26'
TIES:
1. EAST 80.94' TO THE NW CORNER OF A CONCRETE CURB INLET ON THE NORTH SIDE OF SE BAILEY RD.
2. SE 91.53' TO THE SW CORNER OF A CONCRETE CURB INLET ON THE SOUTH SIDE OF SE BAILEY RD.
3. NE 94.82' TO THE SW CORNER OF A CONCRETE OVERFLOW STRUCTURE ON THE SOUTH SIDE OF A POND ON THE NORTH SIDE OF SE BAILEY RD.
4. WEST ±871' TO THE CENTERLINE OF COUNTRY LN. ON THE NORTH SIDE OF SE BAILEY RD.

OLSSON #102:
SET 1/2" REBAR WITH OLSSON CONTROL CAP. SET IN THE GRASS ±58' EAST OF THE EAST END OF SE 15TH ST.
N: 992084.37
E: 2831530.63
ELEVATION: 1012.56'
TIES:
1. NW 67.97' TO THE CENTER OF A WATER VALVE ON THE NORTH SIDE OF SE 15TH ST.
2. WEST 59.33' TO THE CENTER OF A SANITARY MANHOLE ON THE SOUTH SIDE OF SE 15TH ST.
3. WSW 57.28' TO THE SE CORNER OF THE EAST END OF THE CONCRETE SIDEWALK ON THE SOUTH SIDE OF SE 15TH ST.
4. NORTH ±15' TO THE EASTERLY PROLONGATION OF THE CENTERLINE OF SE 15TH ST.

OLSSON #103:
SET 1/2" REBAR WITH OLSSON CONTROL CAP. SET IN THE GRASS ±62' EAST OF THE EAST END OF SE CAPE DR.
N: 991553.72
E: 2831514.48
ELEVATION: 1000.43'
TIES:
1. NW 76.12' TO THE CENTER OF A TELEPHONE PEDESTAL ON THE NORTH SIDE OF SE CAPE DR.
2. SW 67.00' TO THE CENTER OF A WATER VALVE ON THE SOUTH SIDE OF SE CAPE DR.
3. SW 70.06' TO THE SE CORNER OF THE EAST END OF THE CONCRETE SIDEWALK ON THE SOUTH SIDE OF SE CAPE DR.
4. NORTH ±4' TO THE EASTERLY PROLONGATION OF THE CENTERLINE OF SE CAPE DR.

BASIS OF ELEVATIONS SHOWN HEREON ARE BASED UPON NAVD '88 UTILIZING MODOT'S CONTINUOUSLY MONITORED GNSS SYSTEM AND HOLDING THE ELEVATION OF JA–45 ELEVATION 1046.26'

OLSSON BENCHMARK #1:
SET CHISELED SQUARE CUT ON CENTER FRONT FACE OF A CURB INLET ON NORTH SIDE OF SE BAILEY RD. ±42' WEST OF COUNTRY LN.
ELEVATION: 1028.43'

OLSSON BENCHMARK #2:
SET CHISELED SQUARE CUT ON SE CORNER OF OVERFLOW STRUCTURE ON SOUTH SIDE OF POND ON NORTH SIDE OF SE BAILEY RD. ±962' EAST OF COUNTRY LN.
ELEVATION: 1017.13'

OLSSON BENCHMARK #3:
SET CHISELED "+" CUT ON SSE FLANGE BOLT OF FIRE HYDRANT IN THE NW QUADRANT OF THE INTERSECTION OF SE 15TH ST. AND SE DALTON DR.
ELEVATION: 1016.27'

OLSSON BENCHMARK #4:
SET CHISELED SQUARE CUT ON EDGE OF SIDEWALK AT THE WEST CENTER OF A CURB INLET IN THE NW QUADRANT OF THE INTERSECTION OF SE CAPE DR. AND SE DALTON DR.
ELEVATION: 999.24'

NOTE:
ACCORDING TO MDNR STATE OIL & GAS COUNSEL THERE ARE NO OIL AND GAS WELLS LOCATED WITHIN OR ADJACENT TO THE PROPERTY.

THE ENTIRE PROPERTY IS DESIGNATED "ZONE X – AREA OF MINIMAL FLOOD HAZARD" AS DEFINED BY FEMA PANEL 29095C0438G – EFFECTIVE DATE JANUARY 20, 2017

MISSOURI ONE CALL SYSTEM, INC. 1-800-344-7483 STOP-CALL BEFORE YOU DIG!!

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, & OBTAINING INFORMATION FROM, UTILITY COMPANIES. STATE LAW REQUIRES 48 HOURS ADVANCE NOTICE. CALL 1–800–DIG–RITE.

DLR Group

STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2018010505
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LEE'S SUMMIT R-7 SCHOOL DISTRICT
1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

PACKAGE 2- STRUCTURAL & SITE UTILITIES
ISSUED FOR PERMIT
08/28/20

13-20102-00

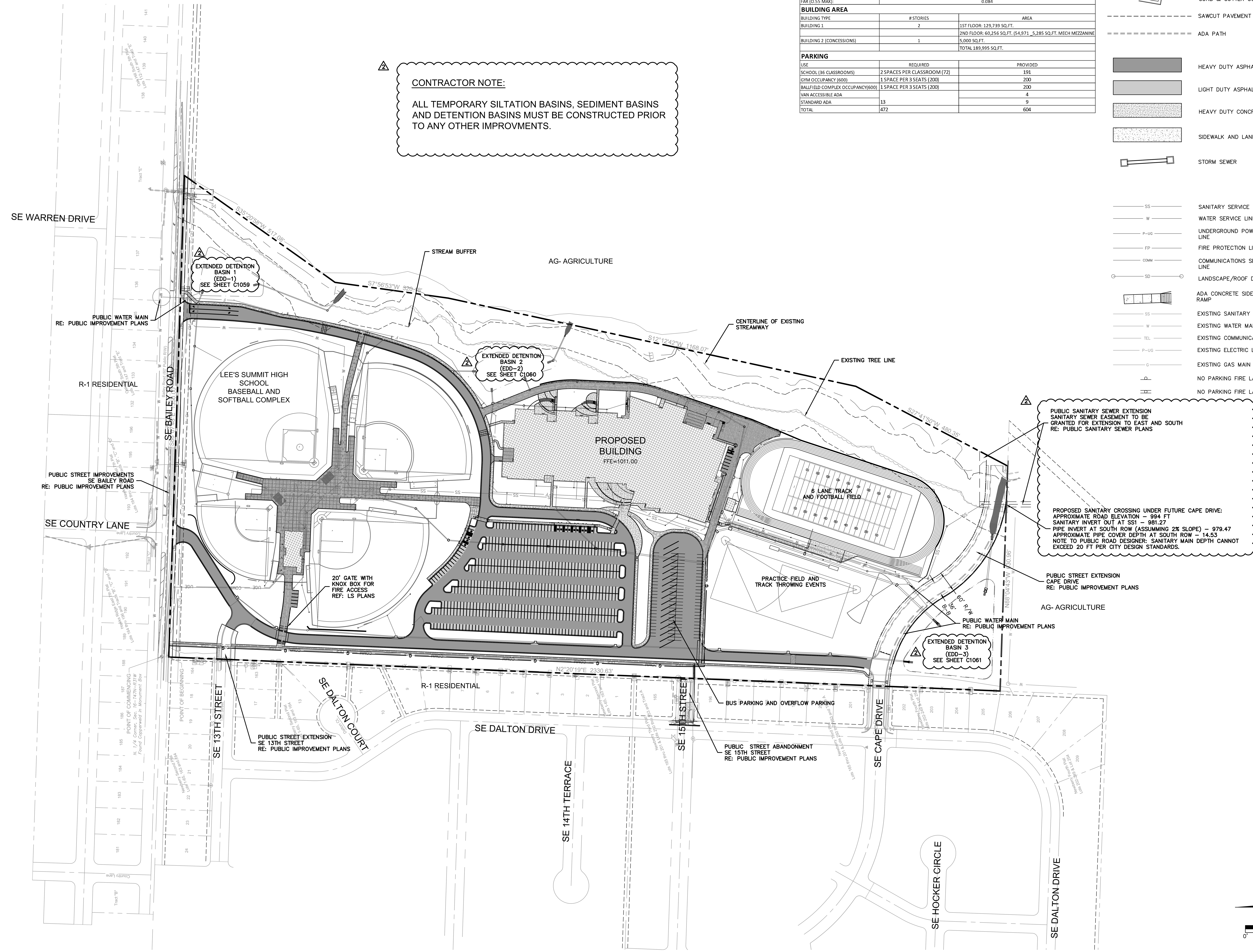
GENERAL NOTES

C1001

SITE DATA		
ZONING & SITE AREA		
PROPOSED USE: PUBLIC MIDDLE SCHOOL/ BALLFIELD COMPLEX		PROPOSED/EXISTING ZONING: AG AGRICULTURE
SITE AREA		
XX ACRES (XX SQ.FT.)	51.66 AC. (2,250,248.11 SF)	
IMPERVIOUS	14.99 AC. (652,941 SF)	
PERVIOUS	36.67 AC. (1,597,307.11 SF)	
FAR (0.55 MAX):	0.084	
BUILDING AREA		
BUILDING TYPE	# STORIES	AREA
BUILDING 1	2	1ST FLOOR: 129,739 SQ.FT.
		2ND FLOOR: 60,256 SQ.FT. (54,971 _5,285 SQ.FT. MECH MEZZANINE
BUILDING 2 (CONCESSIONS)	1	5,000 SQ.FT.
		TOTAL 189,995 SQ.FT.
PARKING		
USE	REQUIRED	PROVIDED
SCHOOL (36 CLASSROOMS)	2 SPACES PER CLASSROOM (72)	191
GYM OCCUPANCY (600)	1 SPACE PER 3 SEATS (200)	200
BALLFIELD COMPLEX OCCUPANCY(600)	1 SPACE PER 3 SEATS (200)	200
VAN ACCESSIBLE ADA		4
STANDARD ADA	13	9
TOTAL	472	604

LEGEND

- PROPERTY LINE
- LOT LINE
- UTILITY EASEMENT
- CONSTRUCT CONCRETE CURB & GUTTER CG-1
- SAWCUT PAVEMENT FULL DEPTH
- ADA PATH
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY ASPHALT PAVEMENT
- HEAVY DUTY CONCRETE PAVEMENT
- SIDEWALK AND LANDSCAPE CONCRETE PAVEMENT
- STORM SEWER
- SANITARY SERVICE LINE
- WATER SERVICE LINE
- UNDERGROUND POWER SERVICE LINE
- FIRE PROTECTION LINE
- COMMUNICATIONS SERVICE LINE
- LANDSCAPE/ROOF DRAIN
- ADA CONCRETE SIDEWALK AND RAMP
- EXISTING SANITARY SEWER MAIN
- EXISTING WATER MAIN
- EXISTING COMMUNICATIONS LINE
- EXISTING ELECTRIC LINE
- EXISTING GAS MAIN
- NO PARKING FIRE LANE SIGN
- NO PARKING FIRE LANE SIGNS (BACK TO BACK)



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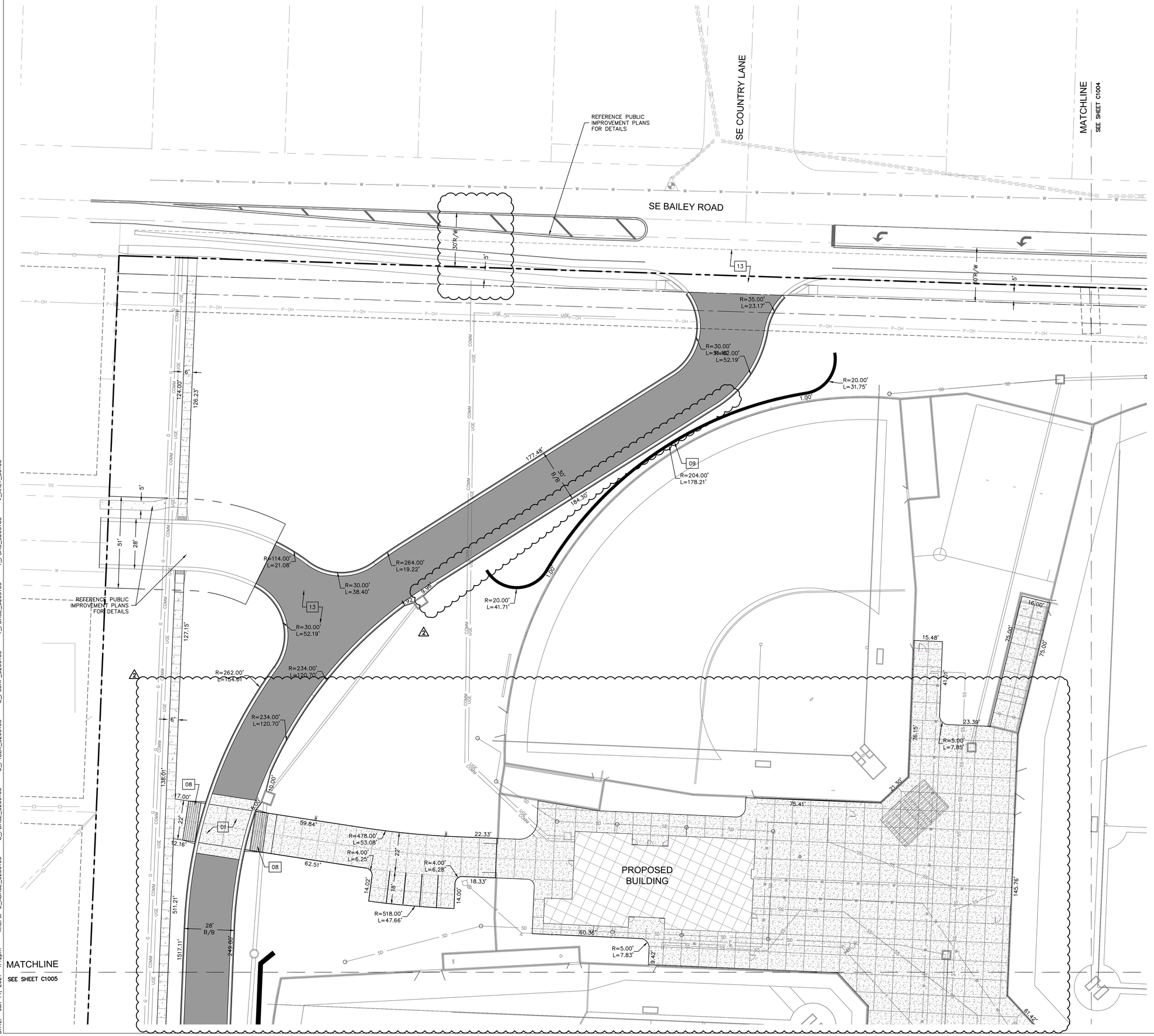
GENERAL LAYOUT PLAN

C1002



LEGEND

- PROPERTY LINE
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- SAWCUT PAVEMENT FULL DEPTH
- COMMERCIAL ENTRANCE 8" PCC CONCRETE PAVEMENT
- 6" PCC CONCRETE PAVEMENT
- CONCRETE SIDEWALK PAVEMENT
- ASPHALT PAVEMENT – HEAVY DUTY
- ASPHALT PAVEMENT – LIGHT DUTY
- ADA CONCRETE SIDEWALK AND RAMP. RE: DETAILS
- (XX) PARKING STALLS
- STORM SEWER RE: STORM SEWER PLAN & PROFILE

CONSTRUCTION KEYNOTES: (XX)

2

01 HEAVY DUTY CONCRETE PAVEMENT. RE: DETAILS

02 SPEED TABLE. RE: DETAILS

03 DETENTION BASIN. RE: DETAILS

04 REMOVABLE CONCRETE BOLLARD. RE: ARCH

05 ADA PARKING, STRIPING AND SIGNAGE. RE: DETAILS

06 CONCRETE STAIRS AND HANDRAIL – BOTH SIDES. RE: ARCH

07 ADA RAMP WITH HANDRAIL – BOTH SIDES. RE: DETAILS.

08 ADA RAMP. RE: DETAILS

09 CAST IN PLACE RETAINING WALL WITH GUARD RAIL. RE: STRUCTURAL PLANS

10 MODULAR BLOCK RETAINING WALL WITH FENCE. RE: STRUCTURAL AND ARCH

11 MODULAR BLOCK RETAINING WALL

12 TRASH DUMPSTER

13 PUBLIC IMPROVEMENTS – RE: PUBLIC IMPROVEMENT PLANS

14 PRE-FABRICATED METAL STAIRS AND HANDRAIL. RE: ARCH

15 CONCRETE STOPPING BLOCK RE: DETAILS

16 PAVEMENT STRIPING RE: DETAILS

17 HARDSCAPE JOINT PATTERN RE: ARCH

2

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SITE DIMENSION PLAN

C1003

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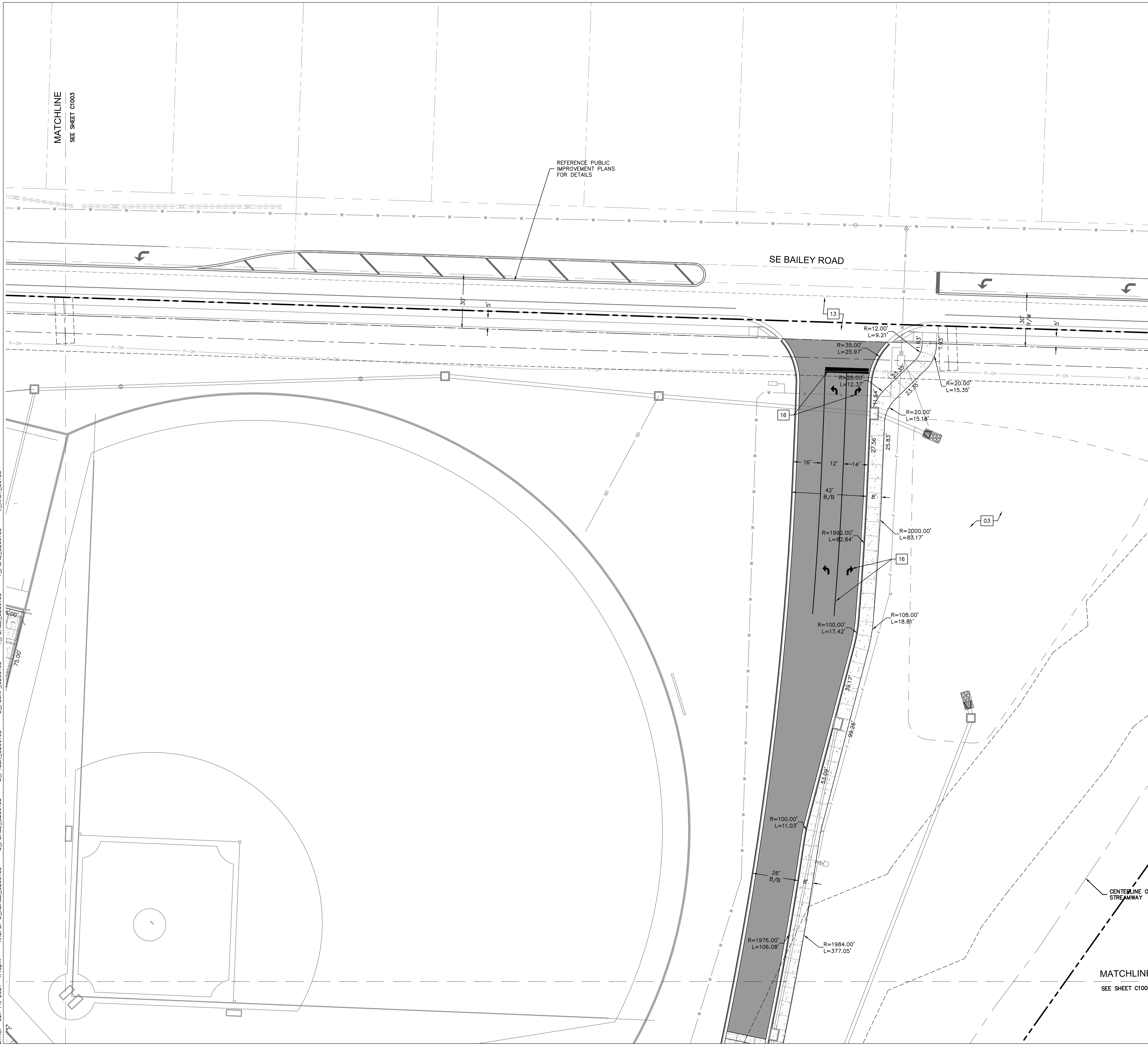

LEGEND

- PROPERTY LINE
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- SAWCUT PAVEMENT FULL DEPTH
- COMMERCIAL ENTRANCE 8" PCC CONCRETE PAVEMENT
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- CONCRETE SIDEWALK PAVEMENT
- ASPHALT PAVEMENT – HEAVY DUTY
- ASPHALT PAVEMENT – LIGHT DUTY
- ADA CONCRETE SIDEWALK AND RAMP. RE: DETAILS
- PARKING STALLS
- STORM SEWER RE: STORM SEWER PLAN & PROFILE

CONSTRUCTION KEYNOTES:

XX

01 HEAVY DUTY CONCRETE PAVEMENT. RE: DETAILS
02 SPEED TABLE. RE: DETAILS
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10 MODULAR BLOCK RETAINING WALL WITH FENCE. RE: STRUCTURAL AND ARCH
11 MODULAR BLOCK RETAINING WALL
12 TRASH DUMPSTER
13 PUBLIC IMPROVEMENTS – RE: PUBLIC IMPROVEMENT PLANS
14 PRE-FABRICATED METAL STAIRS AND HANDRAIL. RE: ARCH
15 CONCRETE STOPPING BLOCK RE: DETAILS
16 PAVEMENT STRIPING RE: DETAILS
17 HARDSCAPE JOINT PATTERN RE: ARCH

DLR Group

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SITE DIMENSION PLAN

C1004

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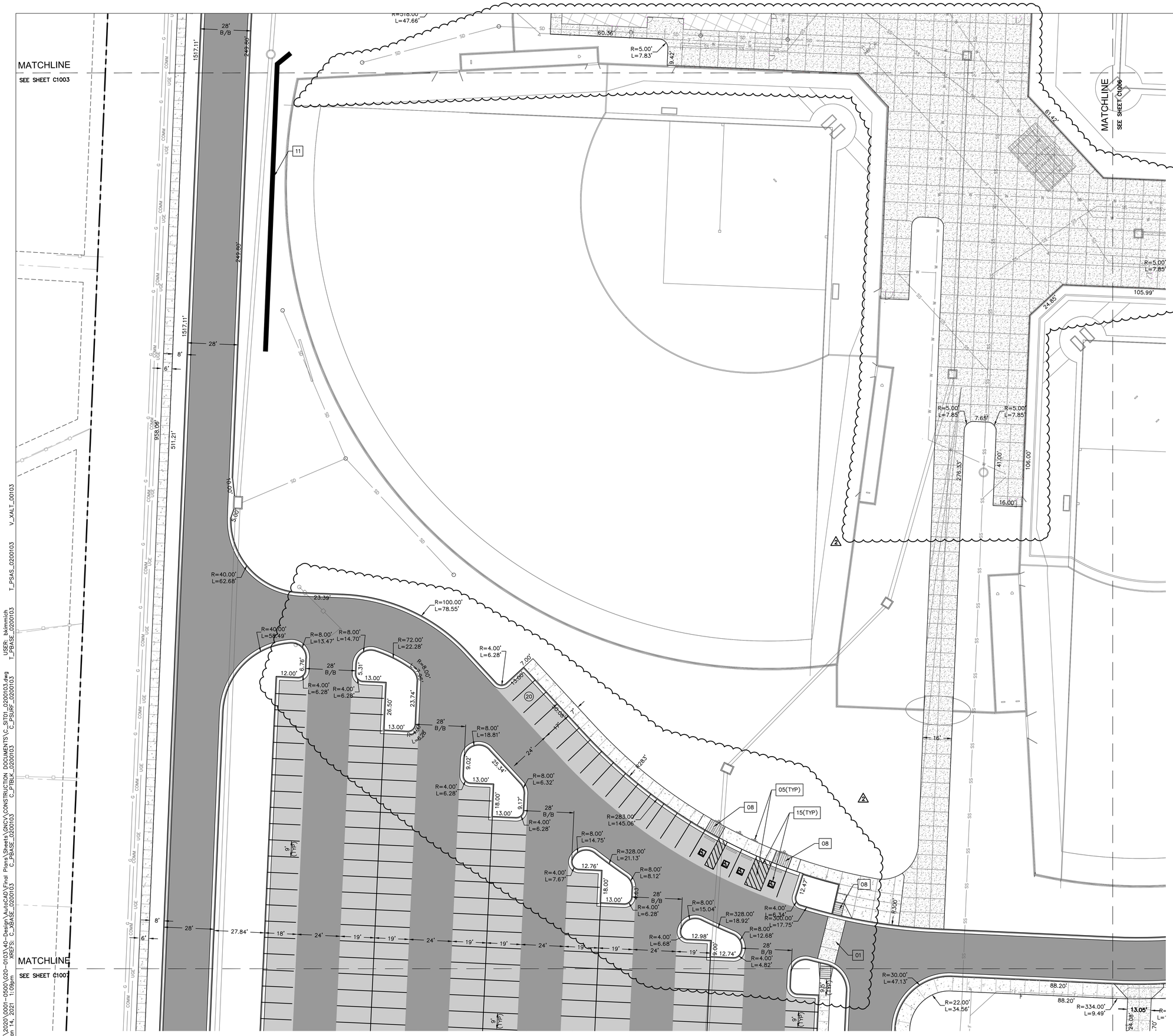

LEGEND

- PROPERTY LINE
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- SAWCUT PAVEMENT FULL DEPTH
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- ADA CONCRETE SIDEWALK AND RAMP. RE: DETAILS
- (XX) PARKING STALLS
- STORM SEWER RE: STORM SEWER PLAN & PROFILE

CONSTRUCTION KEYNOTES: (XX)

2

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15 CONCRETE STOPPING BLOCK RE: DETAILS

16 PAVEMENT STRIPING RE: DETAILS

17 HARDSCAPE JOINT PATTERN RE: ARCH

2

N

0' 10' 20' 40'
SCALE IN FEET

STATE OF MISSOURI
TERRY M. PARSONS
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01/15/2021
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SITE DIMENSION PLAN

C1005

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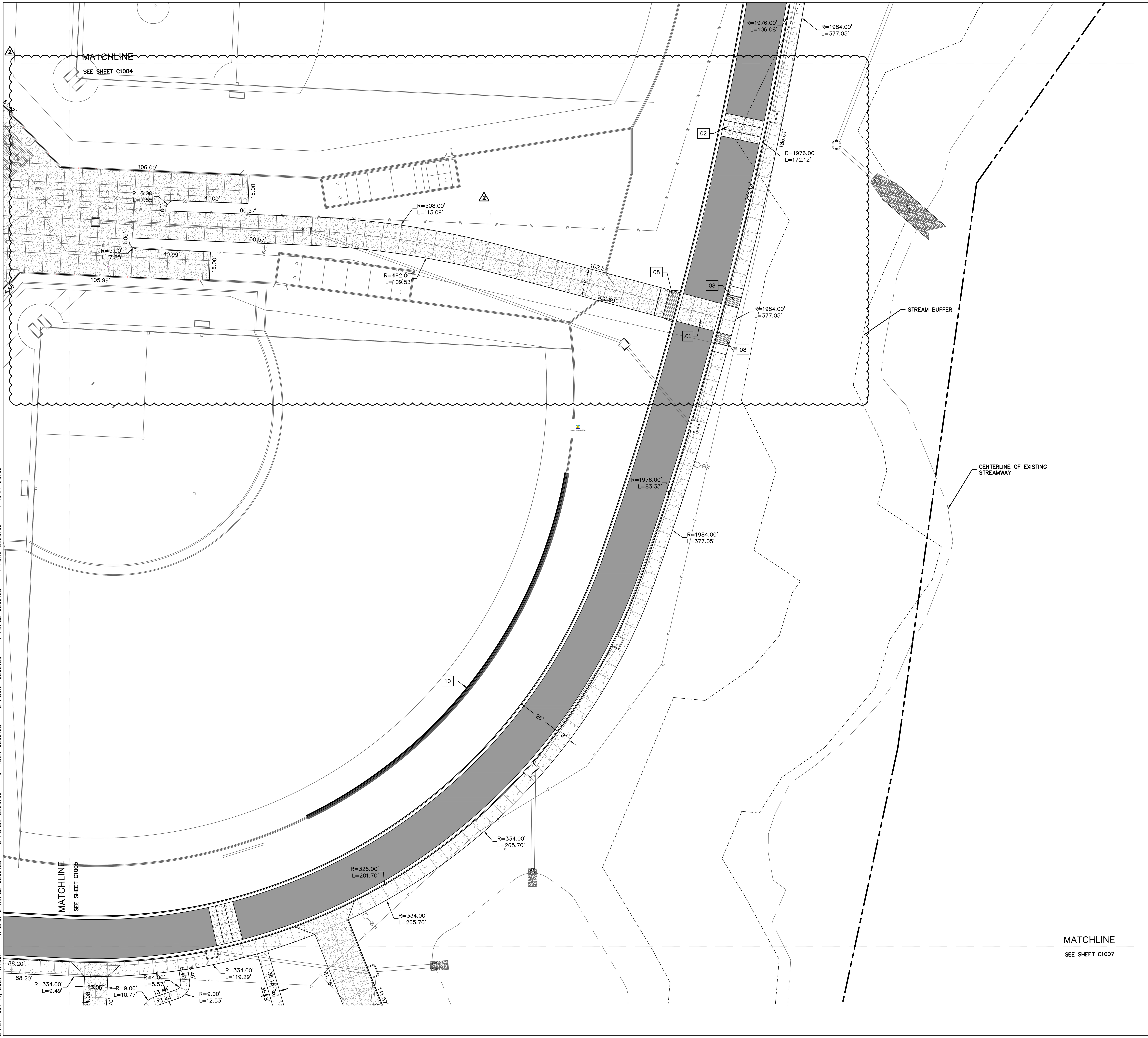

LEGEND

- PROPERTY LINE
- CONCRETE CURB & GUTTER TYPE "CG-1"
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- PARKING STALLS
- STORM SEWER RE: STORM SEWER PLAN & PROFILE

CONSTRUCTION KEYNOTES:

XX

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16 PAVEMENT STRIPING RE: DETAILS
17 HARDSCAPE JOINT PATTERN RE: ARCH

N

0' 10' 20' 40'
SCALE IN FEET

DLR Group
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01/15/2021

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SITE DIMENSION PLAN

C1006

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MATCHLINE
SEE SHEET C1008

MATCHLINE
SEE SHEET C1009

PROPOSED BUILDING

LEGEND

- PROPERTY LINE
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- SAWCUT PAVEMENT FULL DEPTH
- COMMERCIAL ENTRANCE 8" PCC CONCRETE PAVEMENT
- 6" PCC CONCRETE PAVEMENT
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- (XX) PARKING STALLS
- STORM SEWER RE: STORM SEWER PLAN & PROFILE

CONSTRUCTION KEYNOTES:

01	HEAVY DUTY CONCRETE PAVEMENT. RE: DETAILS
02	SPEED TABLE. RE: DETAILS
03	DETENTION BASIN. RE: DETAILS
04	REMOVABLE CONCRETE BOLLARD. RE: ARCH
05	ADA PARKING, STRIPING AND SIGNAGE. RE: DETAILS
06	CONCRETE STAIRS AND HANDRAIL – BOTH SIDES. RE: ARCH
07	ADA RAMP WITH HANDRAIL – BOTH SIDES. RE: DETAILS.
08	ADA RAMP. RE: DETAILS
09	CAST IN PLACE RETAINING WALL WITH GUARD RAIL. RE: STRUCTURAL PLANS
10	MODULAR BLOCK RETAINING WALL WITH FENCE. RE: STRUCTURAL AND ARCH
11	MODULAR BLOCK RETAINING WALL
12	TRASH DUMPSTER
13	PUBLIC IMPROVEMENTS – RE: PUBLIC IMPROVEMENT PLANS
14	PRE-FABRICATED METAL STAIRS AND HANDRAIL. RE: ARCH
15	CONCRETE STOPPING BLOCK RE: DETAILS
16	PAVEMENT STRIPING RE: DETAILS
17	HARDSCAPE JOINT PATTERN RE: ARCH

0' 10' 20' 40'
SCALE IN FEET

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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010010555
01/15/2021
PROFESSIONAL ENGINEER

LEE'S SUMMIT MIDDLE SCHOOL #4

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1001 SE BAILEY ROAD
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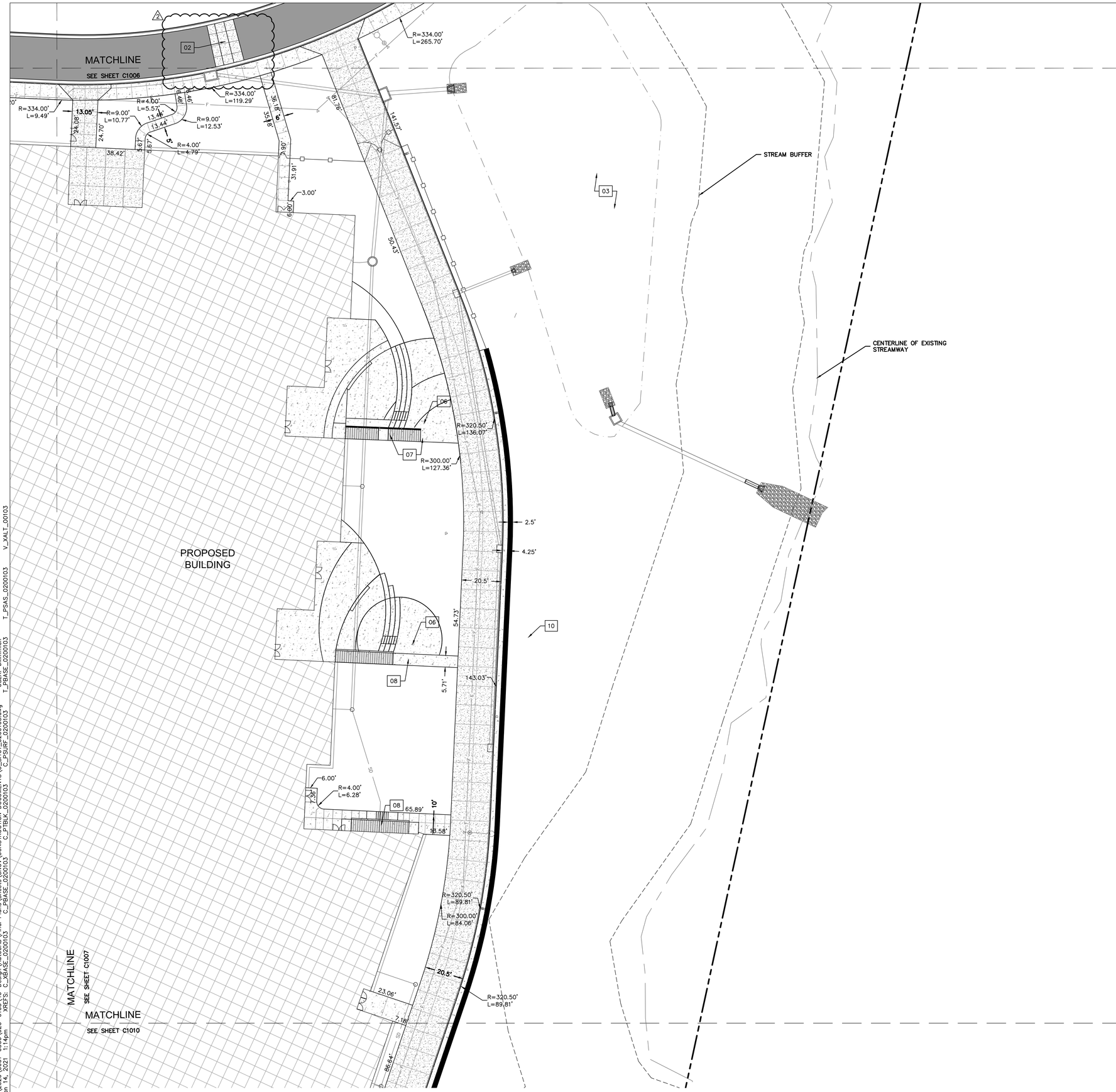
13-20102-00

SITE DIMENSION PLAN

C1007



LEGEND

- PROPERTY LINE
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- SAWCUT PAVEMENT FULL DEPTH
- COMMERCIAL ENTRANCE 8" PCC CONCRETE PAVEMENT
- 6" PCC CONCRETE PAVEMENT
- CONCRETE SIDEWALK PAVEMENT
- ASPHALT PAVEMENT – HEAVY DUTY
- ASPHALT PAVEMENT – LIGHT DUTY
- ADA CONCRETE SIDEWALK AND RAMP. RE: DETAILS
- (XX) PARKING STALLS
- STORM SEWER RE: STORM SEWER PLAN & PROFILE

CONSTRUCTION KEYNOTES: (XX)

2

01 HEAVY DUTY CONCRETE PAVEMENT. RE: DETAILS

02 SPEED TABLE. RE: DETAILS

03 DETENTION BASIN. RE: DETAILS

04 REMOVABLE CONCRETE BOLLARD. RE: ARCH

05 ADA PARKING, STRIPING AND SIGNAGE. RE: DETAILS

06 CONCRETE STAIRS AND HANDRAIL – BOTH SIDES. RE: ARCH

07 ADA RAMP WITH HANDRAIL – BOTH SIDES. RE: DETAILS.

08 ADA RAMP. RE: DETAILS

09 CAST IN PLACE RETAINING WALL WITH GUARD RAIL. RE: STRUCTURAL PLANS

10 MODULAR BLOCK RETAINING WALL WITH FENCE. RE: STRUCTURAL AND ARCH

11 MODULAR BLOCK RETAINING WALL

12 TRASH DUMPSTER

13 PUBLIC IMPROVEMENTS – RE: PUBLIC IMPROVEMENT PLANS

14 PRE-FABRICATED METAL STAIRS AND HANDRAIL. RE: ARCH

15 CONCRETE STOPPING BLOCK RE: DETAILS

16 PAVEMENT STRIPING RE: DETAILS

17 HARDSCAPE JOINT PATTERN RE: ARCH

2

N

0' 10' 20' 40'
SCALE IN FEET

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SITE DIMENSION PLAN

C1008

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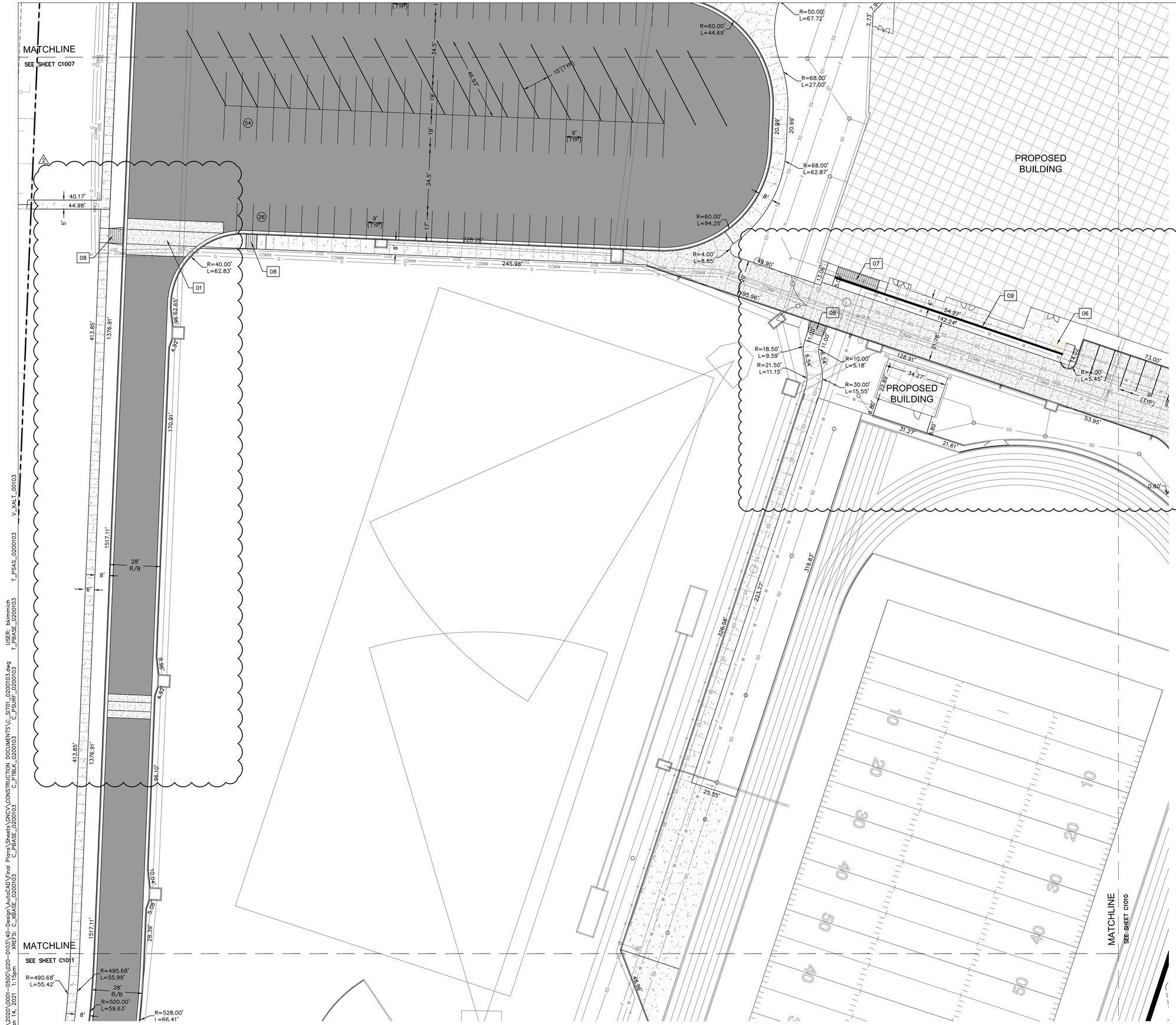

LEGEND

- PROPERTY LINE
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- SAWCUT PAVEMENT FULL DEPTH
- COMMERCIAL ENTRANCE 8" PCC CONCRETE PAVEMENT
- 6" PCC CONCRETE PAVEMENT
- CONCRETE SIDEWALK PAVEMENT
- ASPHALT PAVEMENT – HEAVY DUTY
- ASPHALT PAVEMENT – LIGHT DUTY
- ADA CONCRETE SIDEWALK AND RAMP. RE: DETAILS
- (XX) PARKING STALLS
- STORM SEWER RE: STORM SEWER PLAN & PROFILE

CONSTRUCTION KEYNOTES: (XX)

2
- 01 HEAVY DUTY CONCRETE PAVEMENT. RE: DETAILS
- 02 SPEED TABLE. RE: DETAILS

- 03 DETENTION BASIN. RE: DETAILS
- 04 REMOVABLE CONCRETE BOLLARD. RE: ARCH
- 05 ADA PARKING, STRIPING AND SIGNAGE. RE: DETAILS
- 06 CONCRETE STAIRS AND HANDRAIL – BOTH SIDES. RE: ARCH
- 07 ADA RAMP WITH HANDRAIL – BOTH SIDES. RE: DETAILS.
- 08 ADA RAMP. RE: DETAILS
- 09 CAST IN PLACE RETAINING WALL WITH GUARD RAIL. RE: STRUCTURAL PLANS
- 10 MODULAR BLOCK RETAINING WALL WITH FENCE. RE: STRUCTURAL AND ARCH
- 11 MODULAR BLOCK RETAINING WALL
- 12 TRASH DUMPSTER
- 13 PUBLIC IMPROVEMENTS – RE: PUBLIC IMPROVEMENT PLANS
- 14 PRE-FABRICATED METAL STAIRS AND HANDRAIL. RE: ARCH
- 15 CONCRETE STOPPING BLOCK RE: DETAILS
- 16 PAVEMENT STRIPING RE: DETAILS
- 17 HARDSCAPE JOINT PATTERN RE: ARCH

2

N

0' 10' 20' 40'
SCALE IN FEET

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SITE DIMENSION PLAN

C1009

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LEGEND

- PROPERTY LINE
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- SAWCUT PAVEMENT FULL DEPTH
- COMMERCIAL ENTRANCE 8" PCC CONCRETE PAVEMENT
- 6" PCC CONCRETE PAVEMENT
- CONCRETE SIDEWALK PAVEMENT
- ASPHALT PAVEMENT – HEAVY DUTY
- ADA CONCRETE SIDEWALK AND RAMP. RE: SHEET XX AND XX
- (XX) PARKING STALLS
- STORM SEWER RE: SHEETS XX

CONSTRUCTION KEYNOTES: XX

2

01 HEAVY DUTY CONCRETE PAVEMENT. RE: DETAILS
02 SPEED TABLE. RE: DETAILS
03 DETENTION BASIN. RE: DETAILS
04 REMOVABLE CONCRETE BOLLARD. RE: ARCH
05 ADA PARKING, STRIPING AND SIGNAGE. RE: DETAILS
06 CONCRETE STAIRS AND HANDRAIL – BOTH SIDES. RE: ARCH
07 ADA RAMP WITH HANDRAIL – BOTH SIDES. RE: DETAILS.
08 ADA RAMP. RE: DETAILS
09 CAST IN PLACE RETAINING WALL WITH GUARD RAIL. RE: STRUCTURAL PLANS
10 MODULAR BLOCK RETAINING WALL WITH FENCE. RE: STRUCTURAL AND ARCH
11 MODULAR BLOCK RETAINING WALL
12 TRASH DUMPSTER
13 PUBLIC IMPROVEMENTS – RE: PUBLIC IMPROVEMENT PLANS
14 PRE-FABRICATED METAL STAIRS AND HANDRAIL. RE: ARCH
15 CONCRETE STOPPING BLOCK RE: DETAILS
16 PAVEMENT STRIPING RE: DETAILS
17 HARDSCAPE JOINT PATTERN RE: ARCH

2

N

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SCALE IN FEET

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SITE DIMENSION PLAN

C1010

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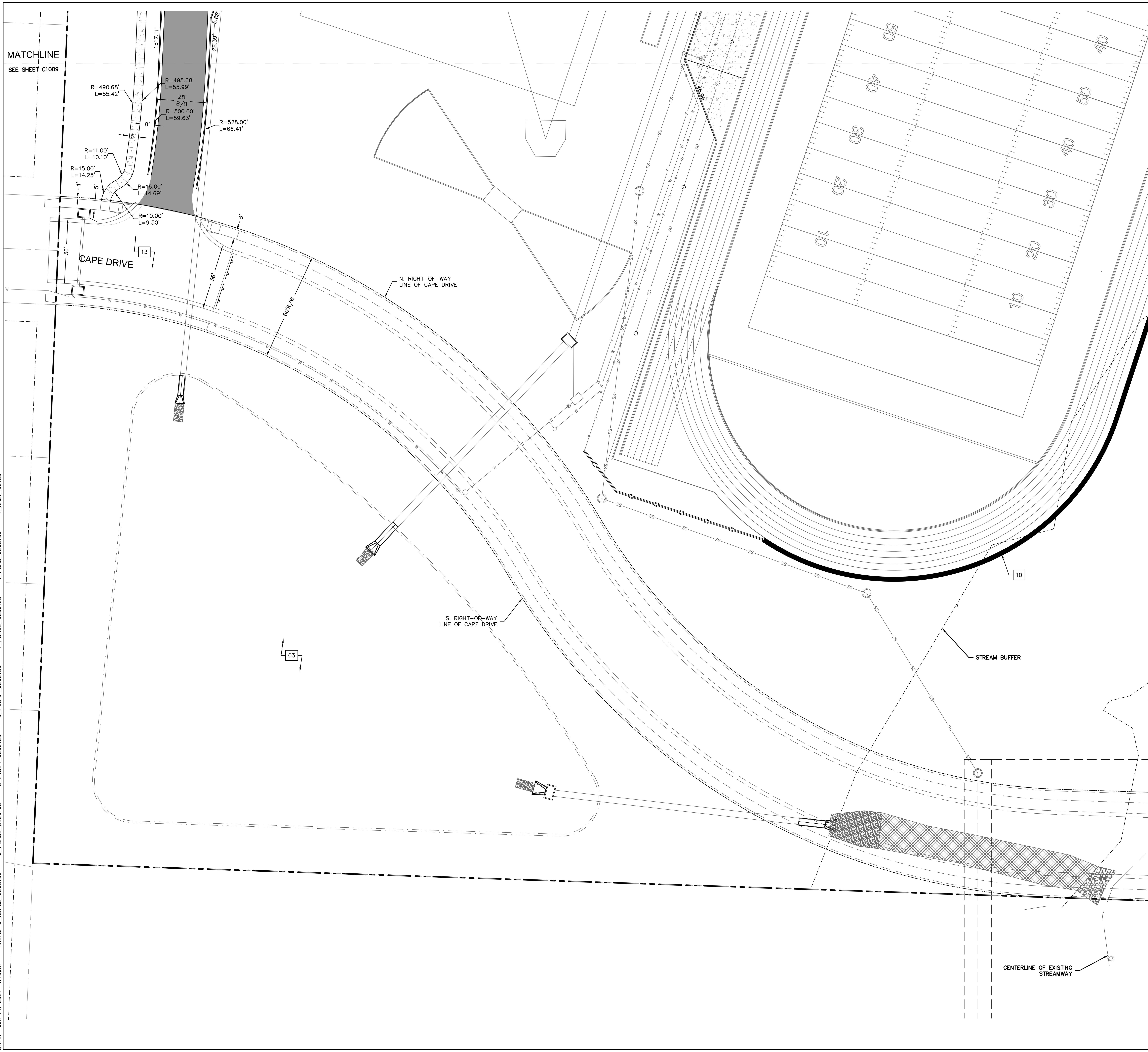

LEGEND

- PROPERTY LINE
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- SAWCUT PAVEMENT FULL DEPTH
- COMMERCIAL ENTRANCE 8" PCC CONCRETE PAVEMENT
- 6" PCC CONCRETE PAVEMENT
- CONCRETE SIDEWALK PAVEMENT
- ASPHALT PAVEMENT – HEAVY DUTY
- ASPHALT PAVEMENT – LIGHT DUTY
- ADA CONCRETE SIDEWALK AND RAMP. RE: DETAILS
- PARKING STALLS
- STORM SEWER RE: STORM SEWER PLAN & PROFILE

CONSTRUCTION KEYNOTES: XX

01 HEAVY DUTY CONCRETE PAVEMENT. RE: DETAILS
02 SPEED TABLE. RE: DETAILS
03 DETENTION BASIN. RE: DETAILS
04 REMOVABLE CONCRETE BOLLARD. RE: ARCH
05 ADA PARKING, STRIPING AND SIGNAGE. RE: DETAILS
06 CONCRETE STAIRS AND HANDRAIL – BOTH SIDES. RE: ARCH
07 ADA RAMP WITH HANDRAIL – BOTH SIDES. RE: DETAILS.
08 ADA RAMP. RE: DETAILS
09 CAST IN PLACE RETAINING WALL WITH GUARD RAIL. RE: STRUCTURAL PLANS
10 MODULAR BLOCK RETAINING WALL WITH FENCE. RE: STRUCTURAL AND ARCH
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14 PRE-FABRICATED METAL STAIRS AND HANDRAIL. RE: ARCH
15 CONCRETE STOPPING BLOCK RE: DETAILS
16 PAVEMENT STRIPING RE: DETAILS
17 HARDSCAPE JOINT PATTERN RE: ARCH

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STATE OF MISSOURI TERRY M. PARSONS NUMBER PE-2018010505 PROFESSIONAL ENGINEER 01/15/2021

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SITE DIMENSION PLAN

C1011

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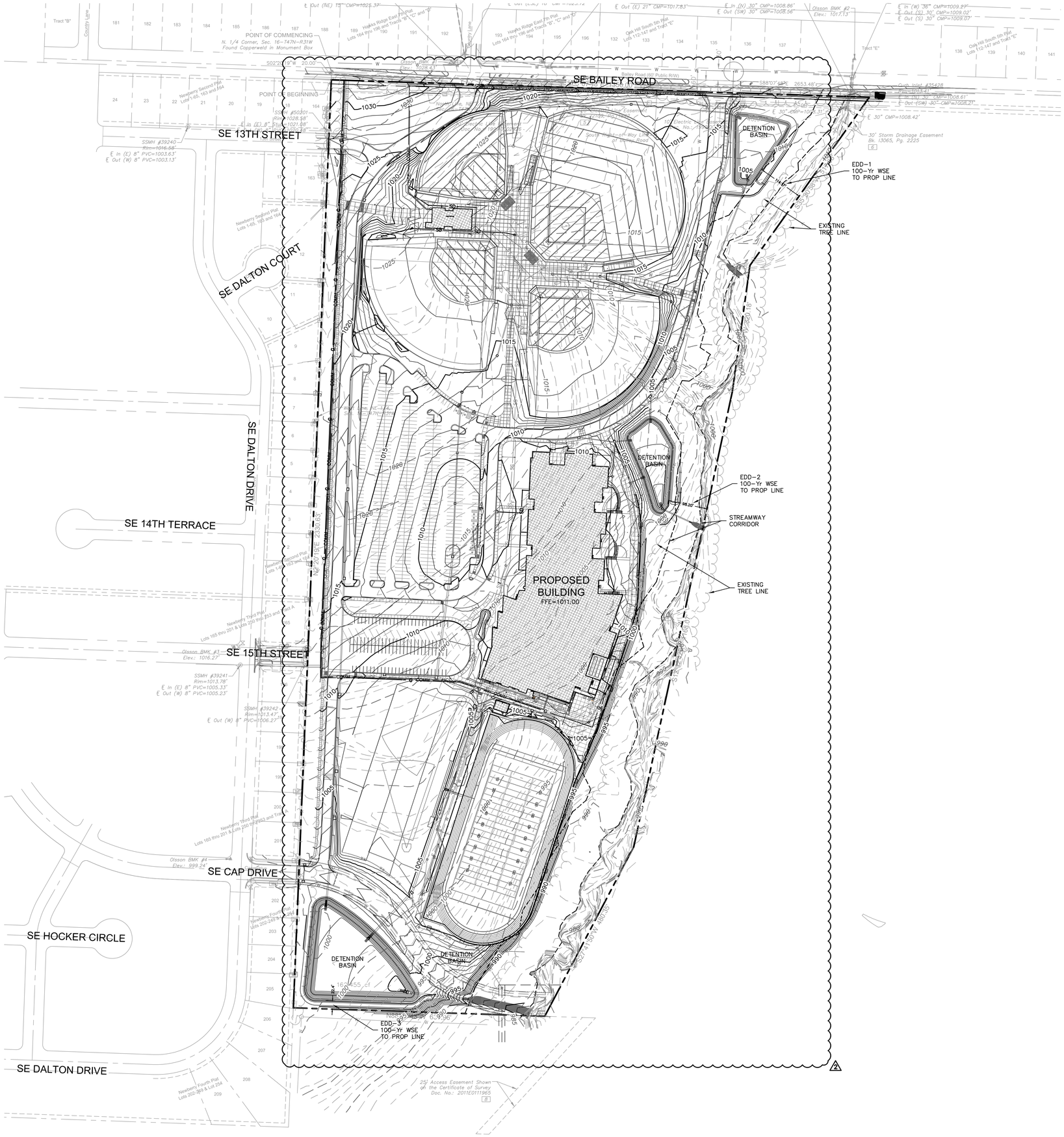

LEGEND

— — —	PROPERTY LINE
— 995 —	EXISTING MAJOR CONTOUR
— 995 —	EXISTING MINOR CONTOUR
— 998 —	PROPOSED MAJOR CONTOUR
— 998 —	PROPOSED MINOR CONTOUR
▥	RAMP
	CONCRETE CURB & GUTTER TYPE "CG-1"
	CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
	CONCRETE CURB TYPE "C-1" MODIFIED

NOTES:

1. CONTRACTOR TO REMOVE AND REPLACE ALL SIDEWALK NECESSARY FOR CONNECTION TO EXISTING.
2. ALL ADA ACCESSIBLE SIDEWALK CROSS SLOPES SHALL HAVE A MAXIMUM CROSS SLOPE OF 2.00% AND MAXIMUM LONGITUDINAL SLOPE OF 5.00%.
3. ALL ADA ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2.00% IN ANY DIRECTION.

SPOT ELEVATION LEGEND

ALL SPOT ELEVATIONS ARE TOP OF PAVEMENT ELEVATION UNLESS NOTED OTHERWISE. RE: PLAN VIEW, LEGEND AND DETAILS FOR CURB TYPE AND TO CALCULATE TOP OF CURB ELEVATION.

TC=	TOP OF CURB
FG=	FINISHED GRADE WITHIN GREENSPACE
TS=	TOP OF STRUCTURE
TP=TC=	CURB DEPRESSED TO BE FLUSH WITH ADJACENT PAVEMENT
HP=	HIGH POINT
LP=	LOW POINT
MATCH EX.=	MATCH EXISTING
FFE=	FINISH FLOOR ELEVATION AT TOP OF SLAB

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TERRY M. PARSONS
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GRADING PLAN

C1012

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LEGEND

- PROPERTY LINE
- 995 EXISTING MAJOR CONTOUR
- 995 EXISTING MINOR CONTOUR
- 998 PROPOSED MAJOR CONTOUR
- 998 PROPOSED MINOR CONTOUR
- RAMP
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- CONCRETE CURB TYPE "C-1" MODIFIED
- (X) GRADING DETAIL DESIGNATION RE: SHEET C5.1 THRU C5.5

NOTES:

1. CONTRACTOR TO REMOVE AND REPLACE ALL SIDEWALK NECESSARY FOR CONNECTION TO EXISTING.
2. ALL ADA ACCESSIBLE SIDEWALK CROSS SLOPES SHALL HAVE A MAXIMUM CROSS SLOPE OF 2.00% AND MAXIMUM LONGITUDINAL SLOPE OF 5.00%.
3. ALL ADA ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2.00% IN ANY DIRECTION.

SPOT ELEVATION LEGEND

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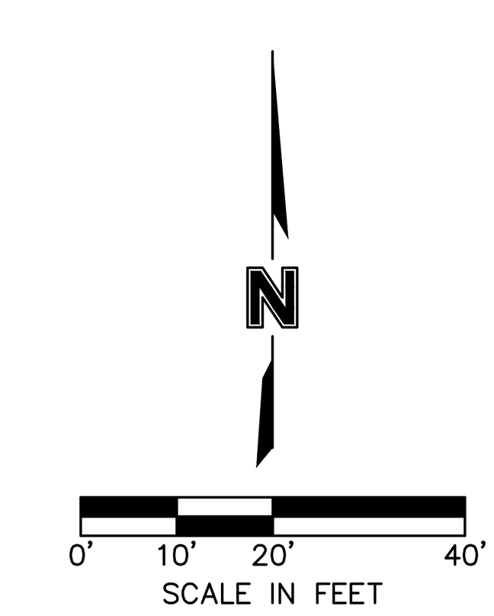
HP=	HIGH POINT
LP=	LOW POINT
MATCH EX.=	MATCH EXISTING
FFE=	FINISH FLOOR ELEVATION AT TOP OF SLAB



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TERRY M. PARSONS
NUMBER PE-2018010505
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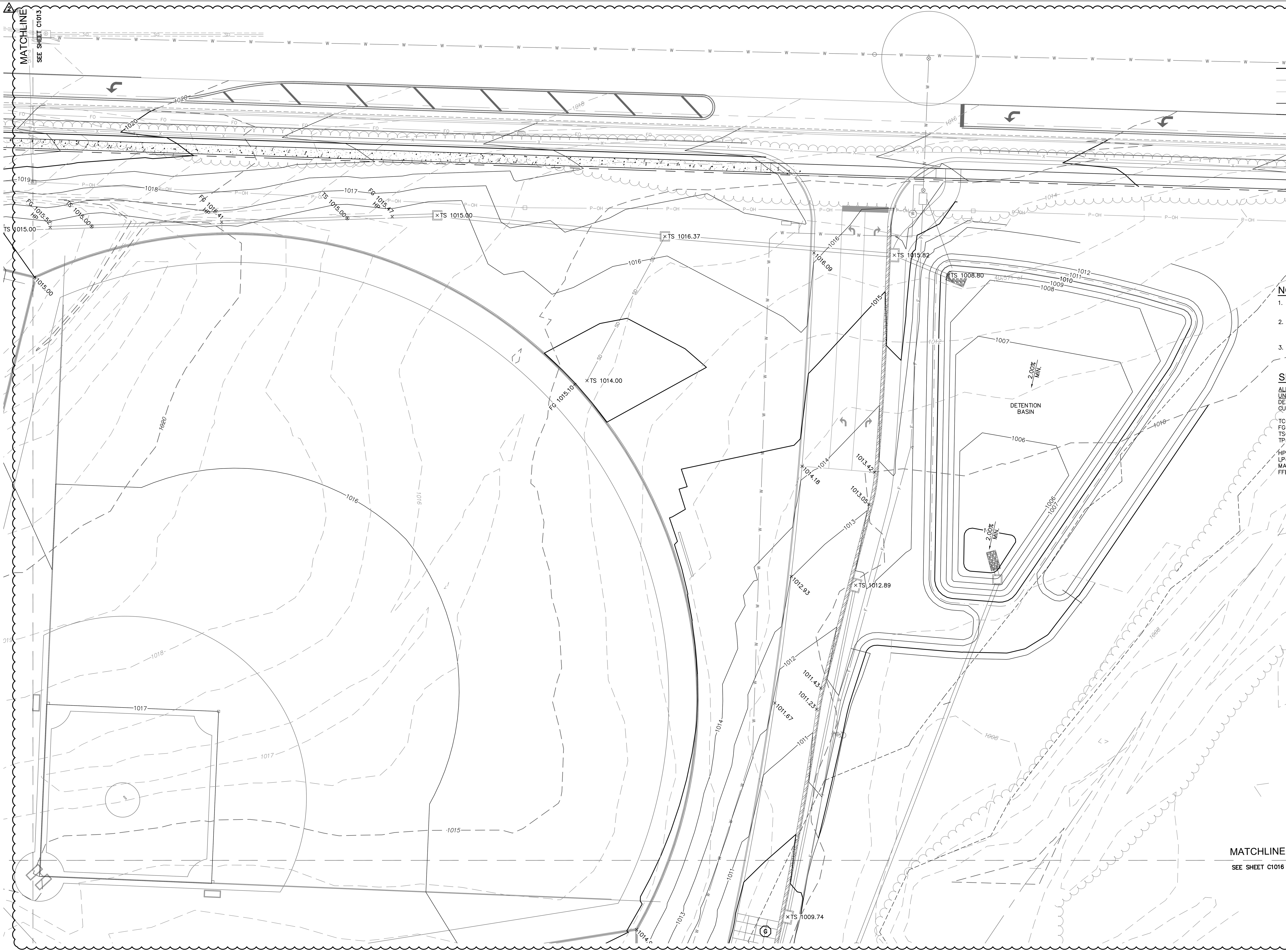
GRADING DETAILS

C1013



LEGEND

— — —	PROPERTY LINE
995	EXISTING MAJOR CONTOUR
995	EXISTING MINOR CONTOUR
998	PROPOSED MAJOR CONTOUR
998	PROPOSED MINOR CONTOUR
	RAMP
	CONCRETE CURB & GUTTER TYPE "CG-1"
	CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
	CONCRETE CURB TYPE "C-1" MODIFIED
(X)	GRADING DETAIL DESIGNATION RE: SHEET C5.1 THRU C5.5

NOTES:

1. CONTRACTOR TO REMOVE AND REPLACE ALL SIDEWALK NECESSARY FOR CONNECTION TO EXISTING.
2. ALL ADA ACCESSIBLE SIDEWALK CROSS SLOPES SHALL HAVE A MAXIMUM CROSS SLOPE OF 2.00% AND MAXIMUM LONGITUDINAL SLOPE OF 5.00%.
3. ALL ADA ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2.00% IN ANY DIRECTION.

SPOT ELEVATION LEGEND

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TC=	TOP OF CURB
FG=	FINISHED GRADE WITHIN GREENSPACE
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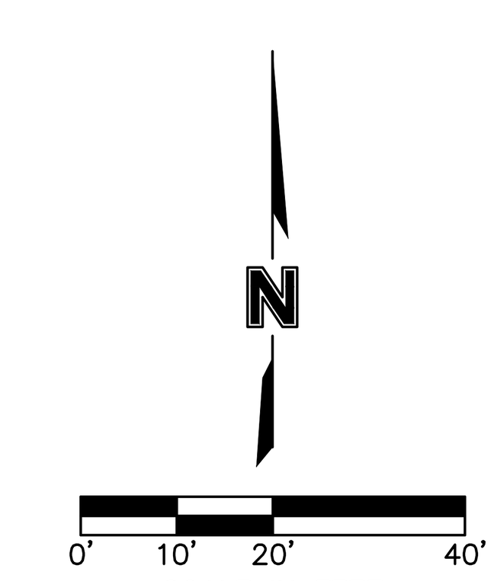
TP=TC=	CURB DEPRESSED TO BE FLUSH WITH ADJACENT PAVEMENT
HP=	HIGH POINT
LP=	LOW POINT
MATCH EX.=	MATCH EXISTING
FFE=	FINISH FLOOR ELEVATION AT TOP OF SLAB



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GRADING DETAILS

C1014

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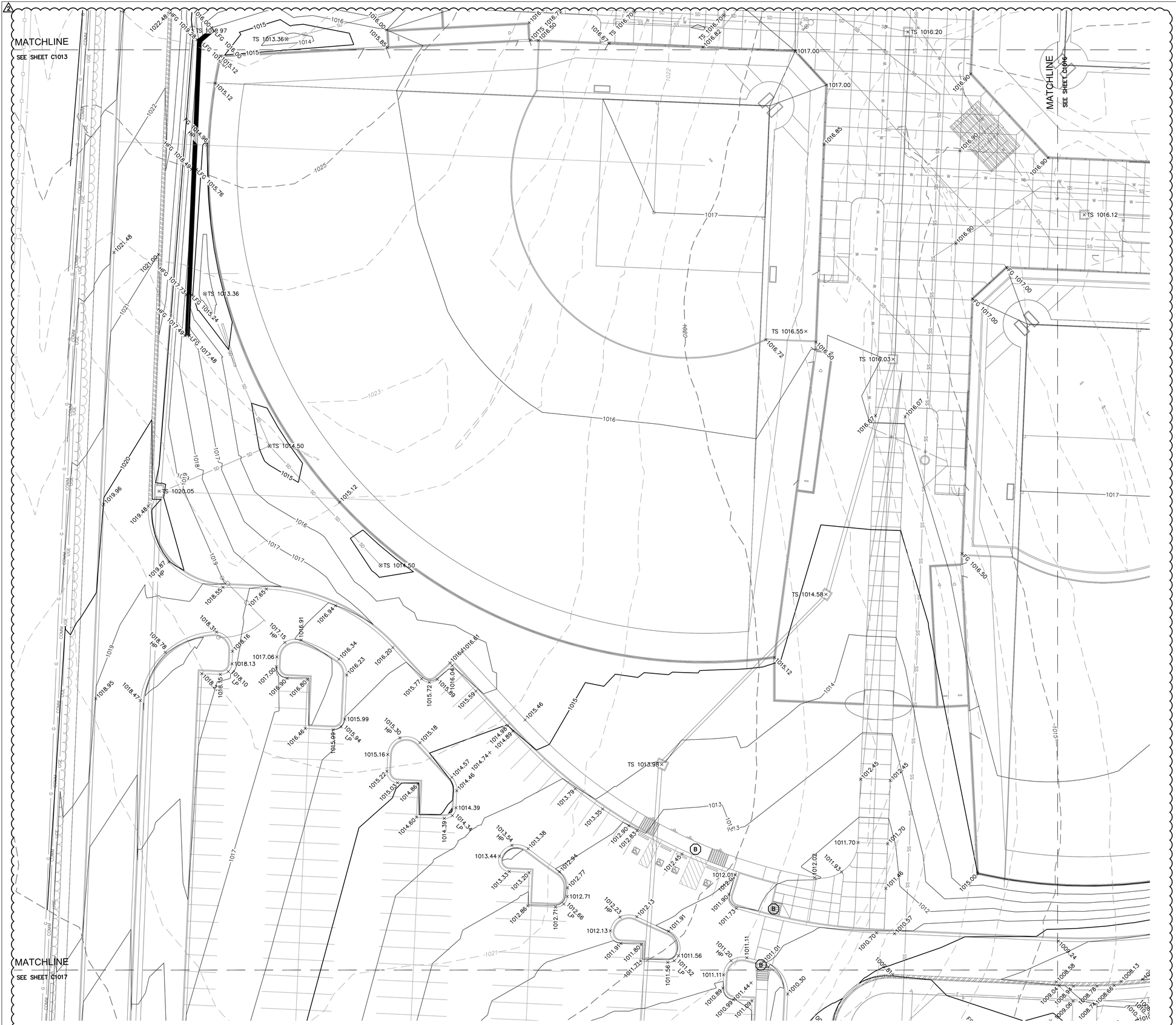

LEGEND

- PROPERTY LINE
- 995 EXISTING MAJOR CONTOUR
- 995 EXISTING MINOR CONTOUR
- 998 PROPOSED MAJOR CONTOUR
- 998 PROPOSED MINOR CONTOUR
- RAMP
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- CONCRETE CURB TYPE "C-1" MODIFIED
- (X) GRADING DETAIL DESIGNATION RE: SHEET C5.1 THRU C5.5

NOTES:

1. CONTRACTOR TO REMOVE AND REPLACE ALL SIDEWALK NECESSARY FOR CONNECTION TO EXISTING.
2. ALL ADA ACCESSIBLE SIDEWALK CROSS SLOPES SHALL HAVE A MAXIMUM CROSS SLOPE OF 2.00% AND MAXIMUM LONGITUDINAL SLOPE OF 5.00%.
3. ALL ADA ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2.00% IN ANY DIRECTION.

SPOT ELEVATION LEGEND

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TP=TC=	CURB DEPRESSED TO BE FLUSH WITH ADJACENT PAVEMENT
HP=	HIGH POINT
LP=	LOW POINT
MATCH EX.=	MATCH EXISTING
FFE=	FINISH FLOOR ELEVATION AT TOP OF SLAB

0' 10' 20' 40'
SCALE IN FEET

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TEL 913.381.1170
www.olsson.com

LEE'S SUMMIT MIDDLE SCHOOL #4

LEE'S SUMMIT R-7 SCHOOL DISTRICT

1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

PACKAGE 2-
STRUCTURAL & SITE UTILITIES
ISSUED FOR PERMIT
08/28/20

2 PR002R 01.14.21

13-20102-00

GRADING DETAILS

C1015

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_GRD20_0200103.dwg USER: bkimmich
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MATCHLINE
SEE SHEET C1015

MATCHLINE
SEE SHEET C1014

MATCHLINE
SEE SHEET C1018

DETENTION BASIN

LEGEND

- PROPERTY LINE
- 995 EXISTING MAJOR CONTOUR
- 995 EXISTING MINOR CONTOUR
- 998 PROPOSED MAJOR CONTOUR
- 998 PROPOSED MINOR CONTOUR
- RAMP
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- CONCRETE CURB TYPE "C-1" MODIFIED
- (X) GRADING DETAIL DESIGNATION RE: SHEET C5.1 THRU C5.5

NOTES:

1. CONTRACTOR TO REMOVE AND REPLACE ALL SIDEWALK NECESSARY FOR CONNECTION TO EXISTING.
2. ALL ADA ACCESSIBLE SIDEWALK CROSS SLOPES SHALL HAVE A MAXIMUM CROSS SLOPE OF 2.00% AND MAXIMUM LONGITUDINAL SLOPE OF 5.00%.
3. ALL ADA ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2.00% IN ANY DIRECTION.

SPOT ELEVATION LEGEND

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TC=	TOP OF CURB
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HP=	HIGH POINT
LP=	LOW POINT
MATCH EX.=	MATCH EXISTING
FFE=	FINISH FLOOR ELEVATION AT TOP OF SLAB

N

0' 10' 20' 40'
SCALE IN FEET

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OLSSON, CIVIL ENGINEERING
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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010017055
01/15/2021
PROFESSIONAL ENGINEER

LEE'S SUMMIT MIDDLE SCHOOL #4

LEE'S SUMMIT R-7 SCHOOL DISTRICT

1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

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STRUCTURAL & SITE UTILITIES
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GRADING DETAILS

C1016

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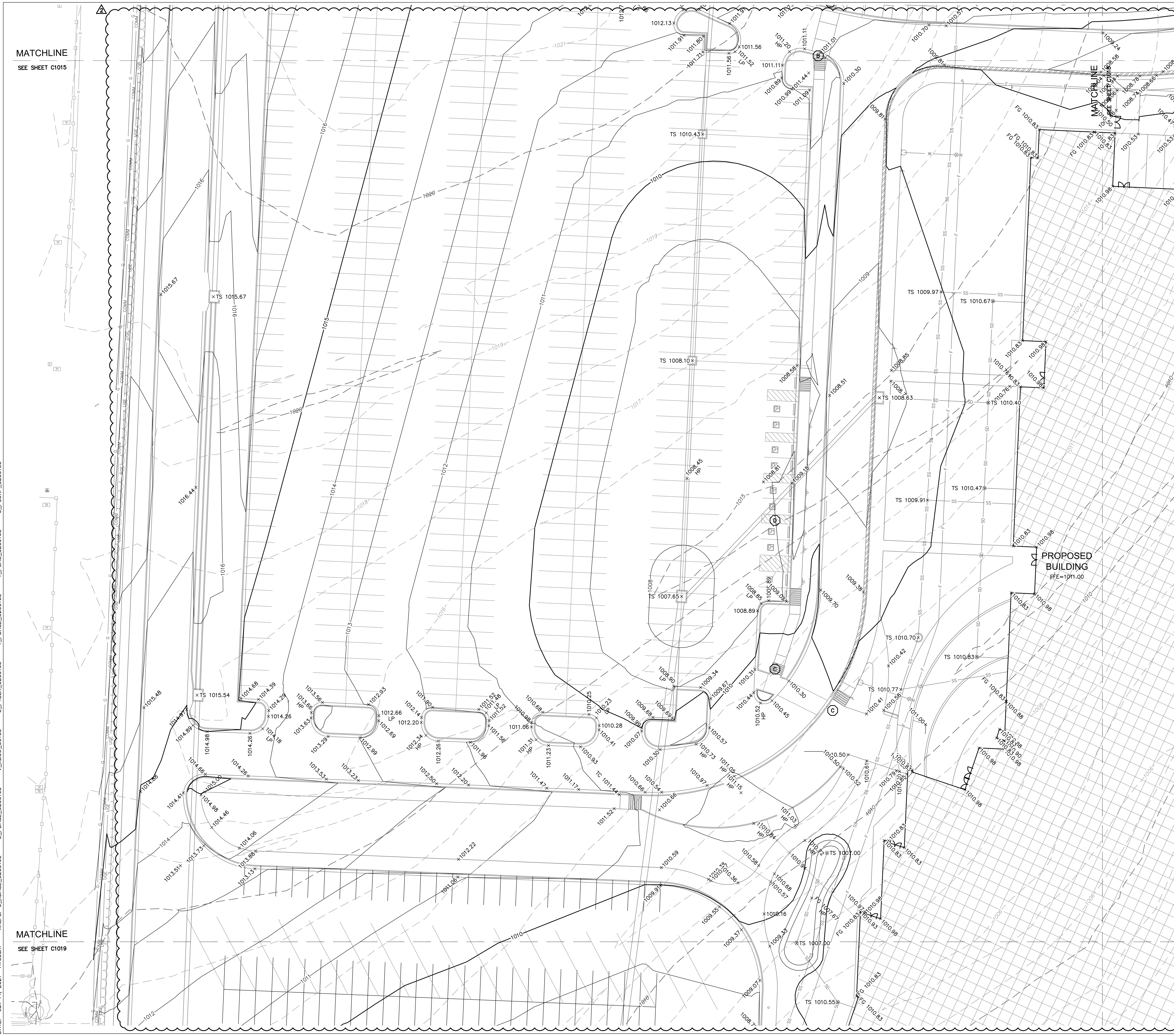

LEGEND

- PROPERTY LINE
- 995 EXISTING MAJOR CONTOUR
- 995 EXISTING MINOR CONTOUR
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- 998 PROPOSED MINOR CONTOUR
- RAMP
- CONCRETE CURB & GUTTER TYPE "CG-1"
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- CONCRETE CURB TYPE "C-1" MODIFIED
- (X) GRADING DETAIL DESIGNATION RE: SHEET C5.1 THRU C5.5

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N

0' 10' 20' 40'
SCALE IN FEET

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TERRY M. PARSONS
NUMBER PE-2018010505
PROFESSIONAL ENGINEER
01/15/2021

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1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

PACKAGE 2- STRUCTURAL & SITE UTILITIES
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08/28/20

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13-20102-00

GRADING DETAILS

C1017

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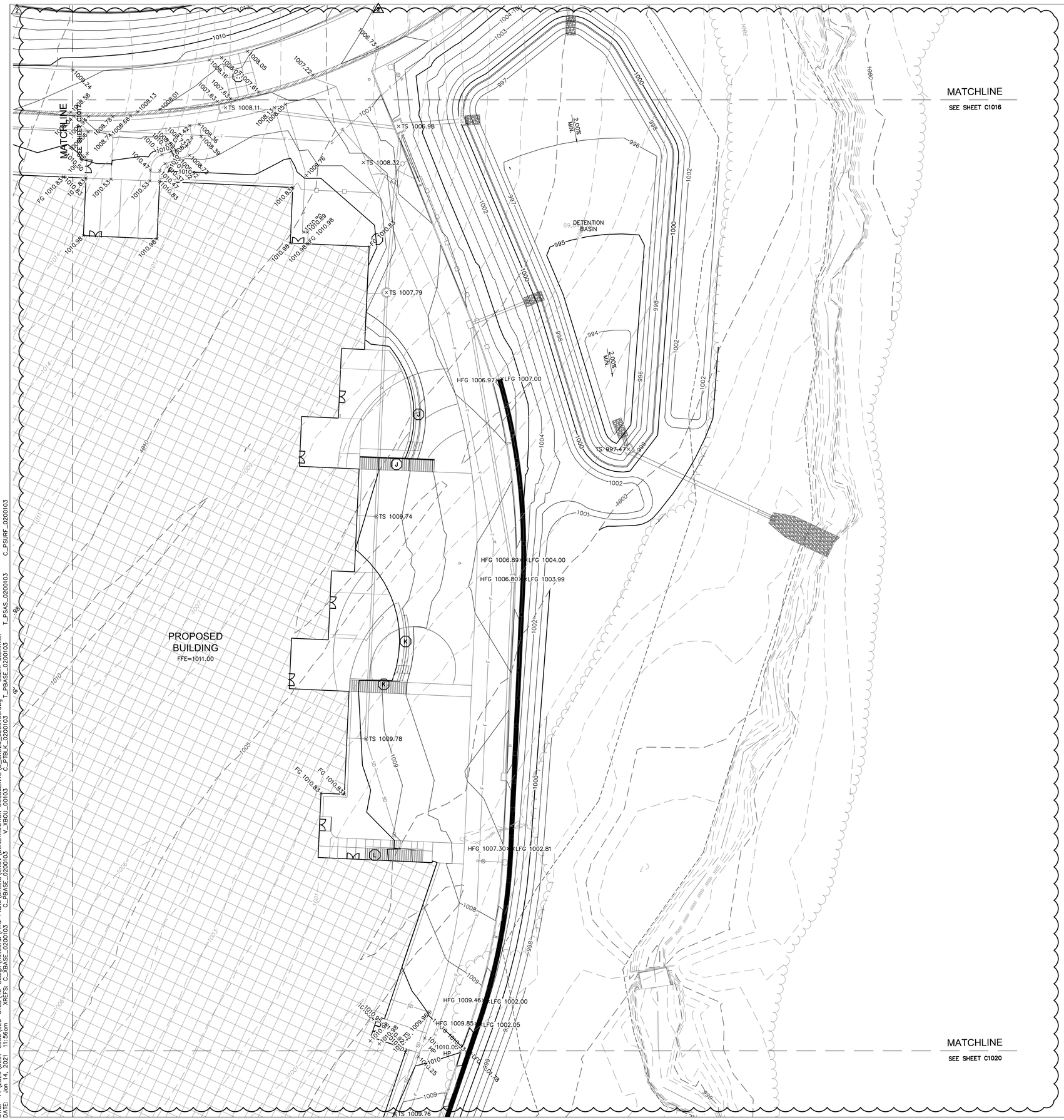

LEGEND

- PROPERTY LINE
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- 998 PROPOSED MINOR CONTOUR
- RAMP
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- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
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NOTES:

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N

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SCALE IN FEET

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LEE'S SUMMIT R-7 SCHOOL DISTRICT

1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

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GRADING DETAILS

C1018

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MATCHLINE
SEE SHEET C1017

MATCHLINE
SEE SHEET C1020

PROPOSED BUILDING
FFE=1011.00

MATCHLINE
SEE SHEET C1022

LEGEND

- PROPERTY LINE
- 995 — EXISTING MAJOR CONTOUR
- 995 — EXISTING MINOR CONTOUR
- 998 — PROPOSED MAJOR CONTOUR
- 998 — PROPOSED MINOR CONTOUR
- RAMP
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
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N

0' 10' 20' 40'
SCALE IN FEET

DWG: F:\2020\0001-0500\020-0103\4D-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_GRD20_0200103.dwg USER: bkimmich
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TERRY M. PARSONS
NUMBER PE-2010018355
01/15/2021
PROFESSIONAL ENGINEER

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LEE'S SUMMIT R-7 SCHOOL DISTRICT

1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

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08/28/20

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13-20102-00

GRADING DETAILS

C1019

LEGEND

- PROPERTY LINE
- 995 EXISTING MAJOR CONTOUR
- 995 EXISTING MINOR CONTOUR
- 998 PROPOSED MAJOR CONTOUR
- 998 PROPOSED MINOR CONTOUR
- RAMP
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
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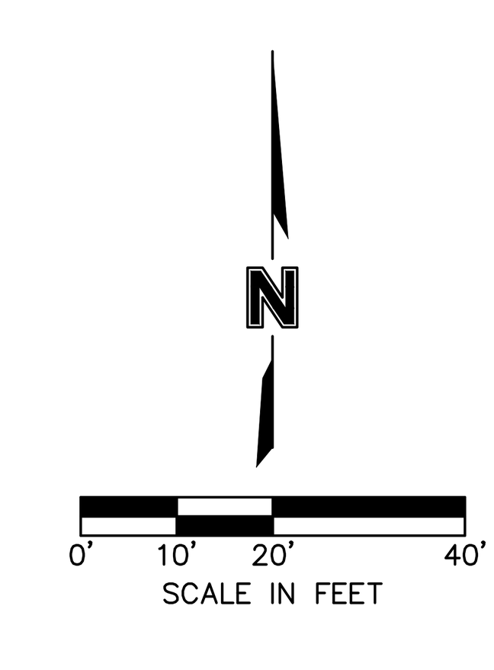

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NUMBER PE-2018010505
01/15/2021
PROFESSIONAL ENGINEER

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PACKAGE 2- STRUCTURAL & SITE UTILITIES
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GRADING DETAILS

C1020

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_GRD20_0200103.dwg USER: bkimmich
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MATCHLINE

SEE SHEET C1019

DETENTION BASIN

DETENTION BASIN

162,455 cf

2.00% MIN.

2.00% MIN.

EXISTING TREE LINE

STREAMWAY CORRIDOR

TS 1004.88

TS 1003.62

TS 991.03

FG 1004.80 HP

FG 1004.54

TS 1003.00

FG 1004.94

FG 1006.45

FG 1008.00

HFG 1004.94

LFG 1004.54

LFG 1004.00

HFG 1004.72

HFG 1004.65

LFG 991.65

LEGEND

- PROPERTY LINE
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- 995 EXISTING MINOR CONTOUR
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- 998 PROPOSED MINOR CONTOUR
- RAMP
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- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- CONCRETE CURB TYPE "C-1" MODIFIED
- (X) GRADING DETAIL DESIGNATION RE: SHEET C1022 THRU C1023

NOTES:

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N

0' 10' 20' 40'

SCALE IN FEET

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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010010555
01/15/2021
PROFESSIONAL ENGINEER

olsson

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13-20102-00

GRADING DETAILS

C1021

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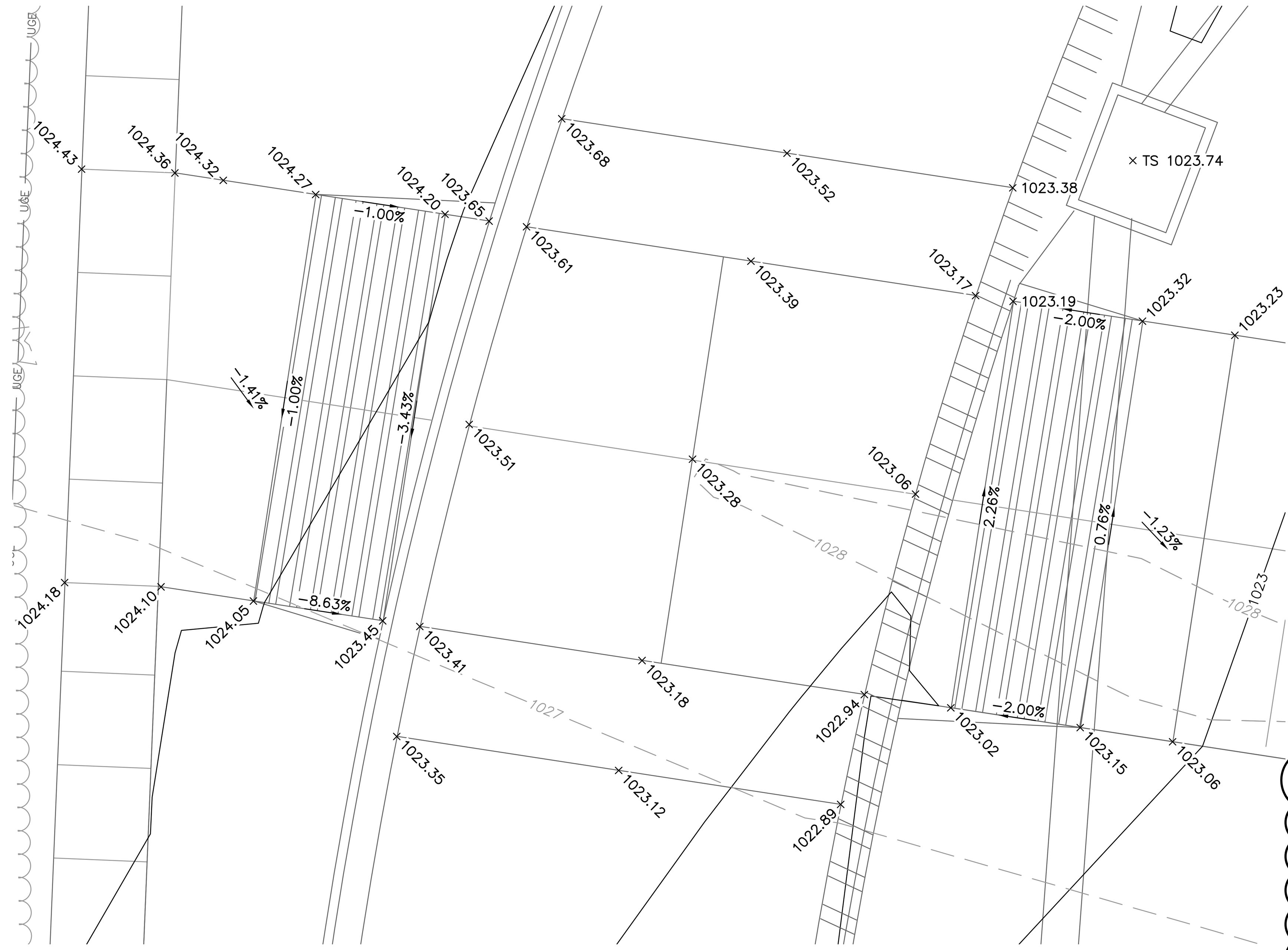

GRADING DETAIL A

SCALE: 1"=5'

GRADING DETAIL B

SCALE: 1"=5'

LEGEND

- PROPERTY LINE
- 995 EXISTING MAJOR CONTOUR
- 995 EXISTING MINOR CONTOUR
- 998 PROPOSED MAJOR CONTOUR
- 998 PROPOSED MINOR CONTOUR
- RAMP
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N

0' 2.5' 5' 10'
SCALE IN FEET

DLR Group

STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2018010505
PROFESSIONAL ENGINEER
01/15/2021

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GRADING DETAILS

C1022

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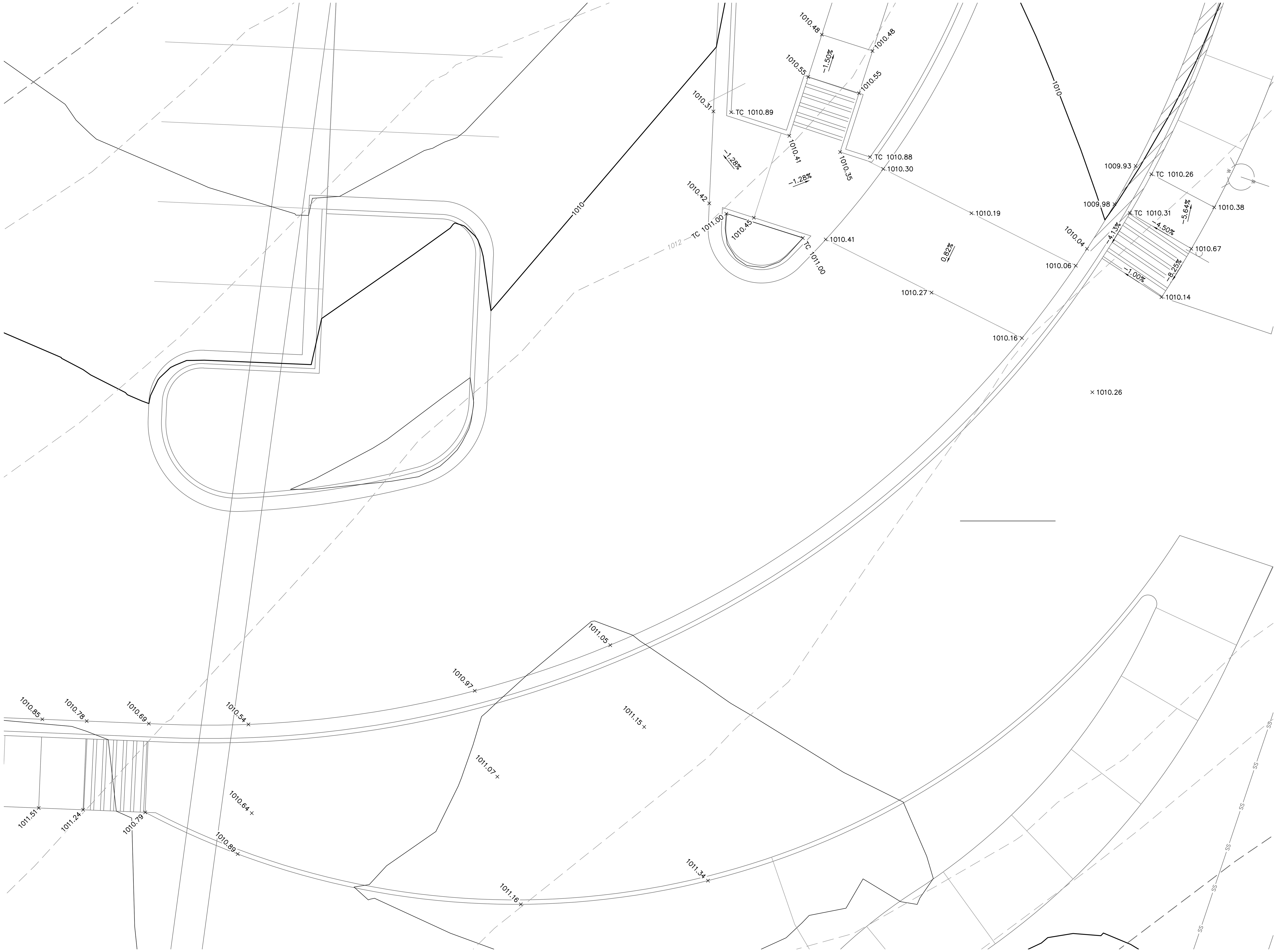

GRADING DETAIL C

SCALE: 1"=5'

LEGEND

PROPERTY LINE

EXISTING MAJOR CONTOUR (995)

EXISTING MINOR CONTOUR (995)

PROPOSED MAJOR CONTOUR (998)

PROPOSED MINOR CONTOUR (998)

RAMP

CONCRETE CURB & GUTTER TYPE "CG-1"

CONCRETE CURB & GUTTER TYPE "CG-1 DRY"

CONCRETE CURB TYPE "C-1" MODIFIED

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ADDED SHEET

2

N

0' 2.5' 5' 10'

SCALE IN FEET

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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2018010505
PROFESSIONAL ENGINEER
01/15/2021

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GRADING DETAILS

C1022A

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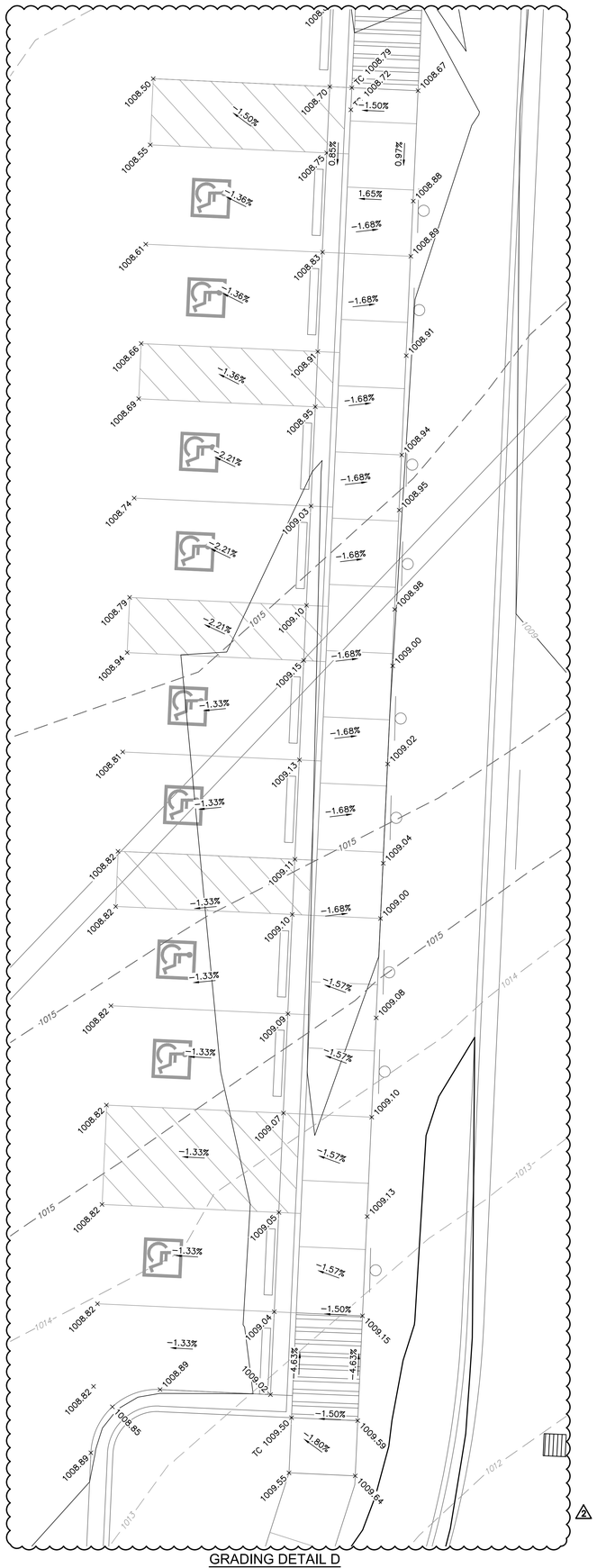
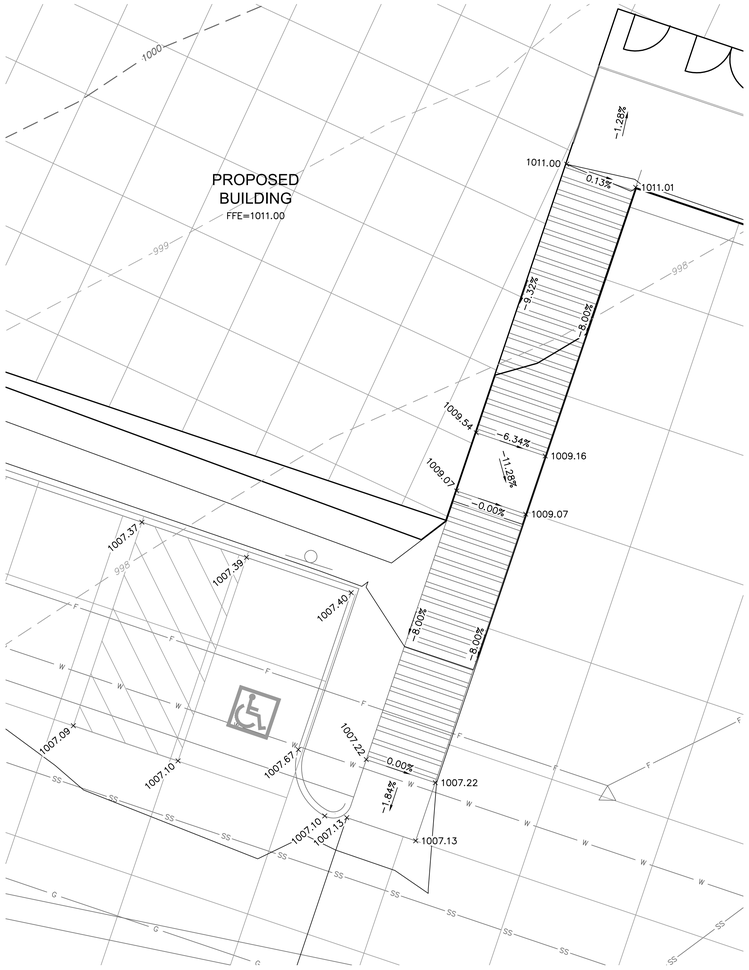


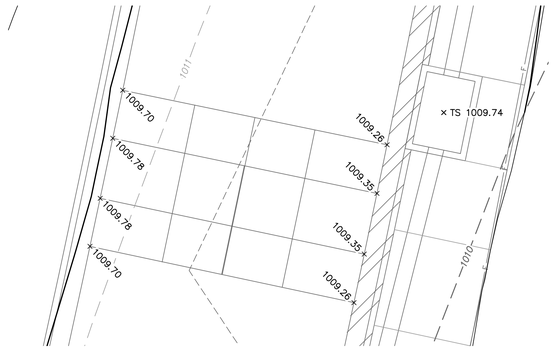
GRADING DETAIL D

SCALE: 1"=5'



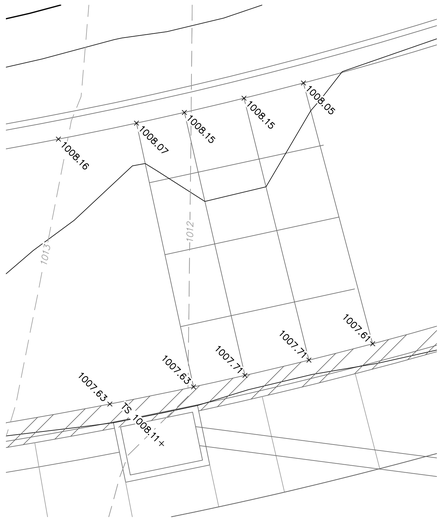
GRADING DETAIL E

SCALE: 1"=5'



GRADING DETAIL G

SCALE: 1"=5'



GRADING DETAIL H

SCALE: 1"=5'

LEGEND

- PROPERTY LINE
- 995 EXISTING MAJOR CONTOUR
- 995 EXISTING MINOR CONTOUR
- 998 PROPOSED MAJOR CONTOUR
- 998 PROPOSED MINOR CONTOUR
- RAMP
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- CONCRETE CURB TYPE "C-1" MODIFIED

NOTES:

1. CONTRACTOR TO REMOVE AND REPLACE ALL SIDEWALK NECESSARY FOR CONNECTION TO EXISTING.
2. ALL ADA ACCESSIBLE SIDEWALK CROSS SLOPES SHALL HAVE A MAXIMUM CROSS SLOPE OF 2.00% AND MAXIMUM LONGITUDINAL SLOPE OF 5.00%.
3. ALL ADA ACCESSIBLE PARKING AREAS SHALL NOT EXCEED 2.00% IN ANY DIRECTION.

SPOT ELEVATION LEGEND

ALL SPOT ELEVATIONS ARE TOP OF PAVEMENT ELEVATION UNLESS NOTED OTHERWISE. RE: PLAN VIEW, LEGEND AND DETAILS FOR CURB TYPE AND TO CALCULATE TOP OF CURB ELEVATION.

TC=	TOP OF CURB
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TS=	TOP OF STRUCTURE
TP=TC=	CURB DEPRESSED TO BE FLUSH WITH ADJACENT PAVEMENT
HP=	HIGH POINT
LP=	LOW POINT
MATCH EX.=	MATCH EXISTING
FFE=	FINISH FLOOR ELEVATION AT TOP OF SLAB

N

0' 2.5' 5' 10'

SCALE IN FEET

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_GRD05_0200103.dwg USER: bkimmich
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DLR Group

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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010010355
01/15/2021
PROFESSIONAL ENGINEER

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LEE'S SUMMIT MIDDLE SCHOOL #4

LEE'S SUMMIT R-7 SCHOOL DISTRICT

1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

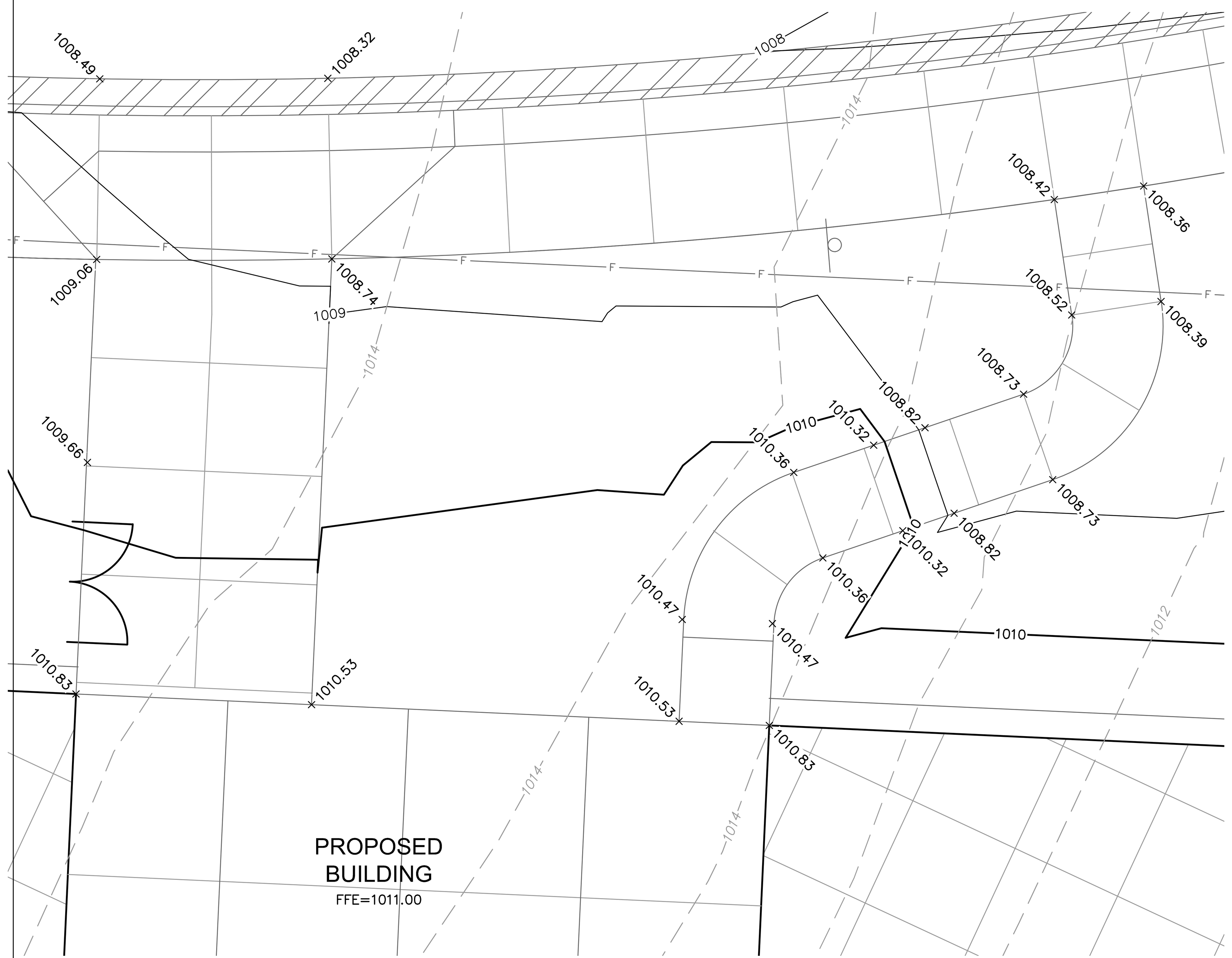
PACKAGE 2-
STRUCTURAL & SITE UTILITIES
ISSUED FOR PERMIT
08/28/20

2 PR002R 01.14.21

13-20102-00

GRADING DETAILS

C1023

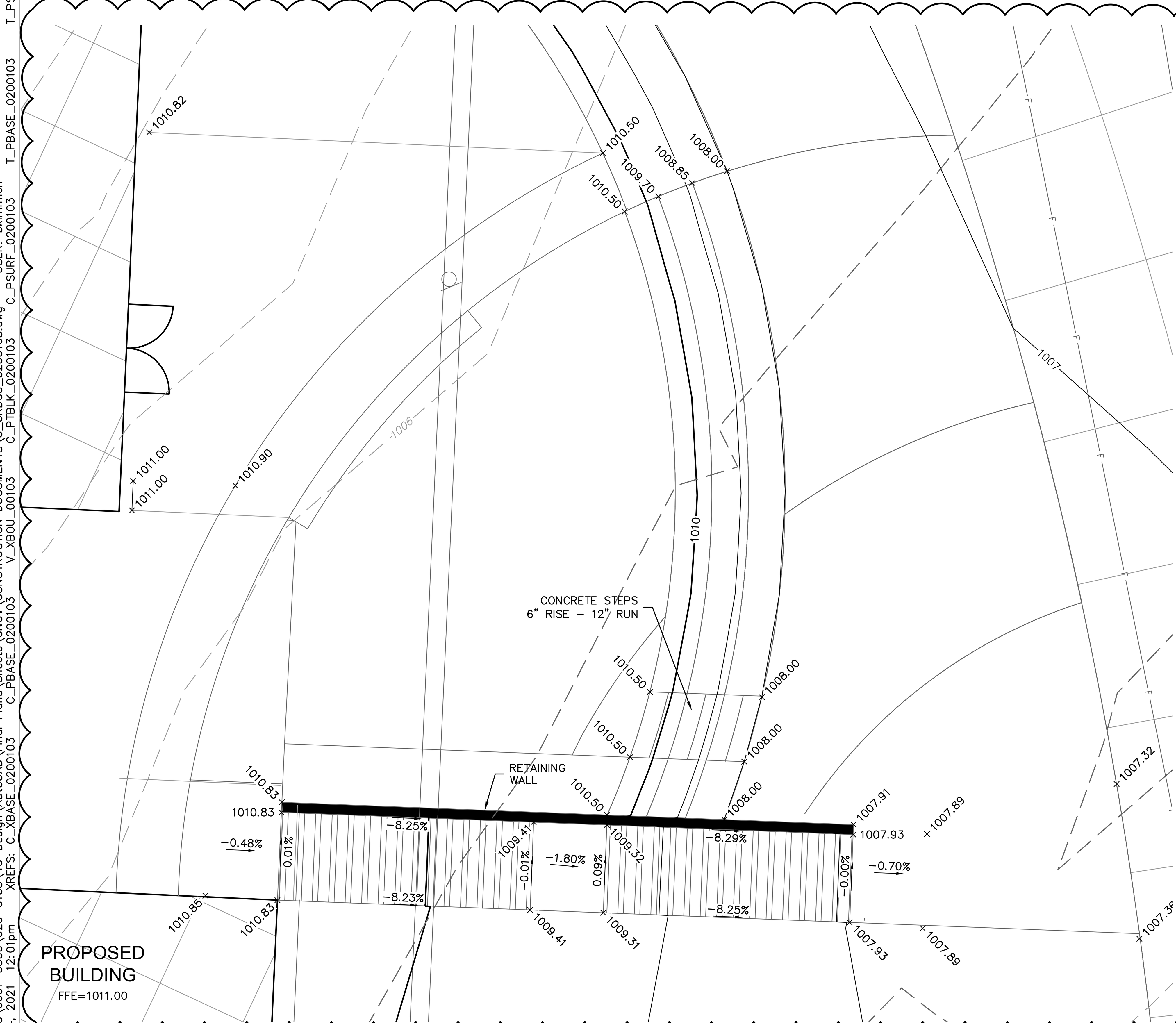


GRADING DETAIL H

SCALE: 1"=5'

GRADING DETAIL I

SCALE: 1"=5'



GRADING DETAIL J

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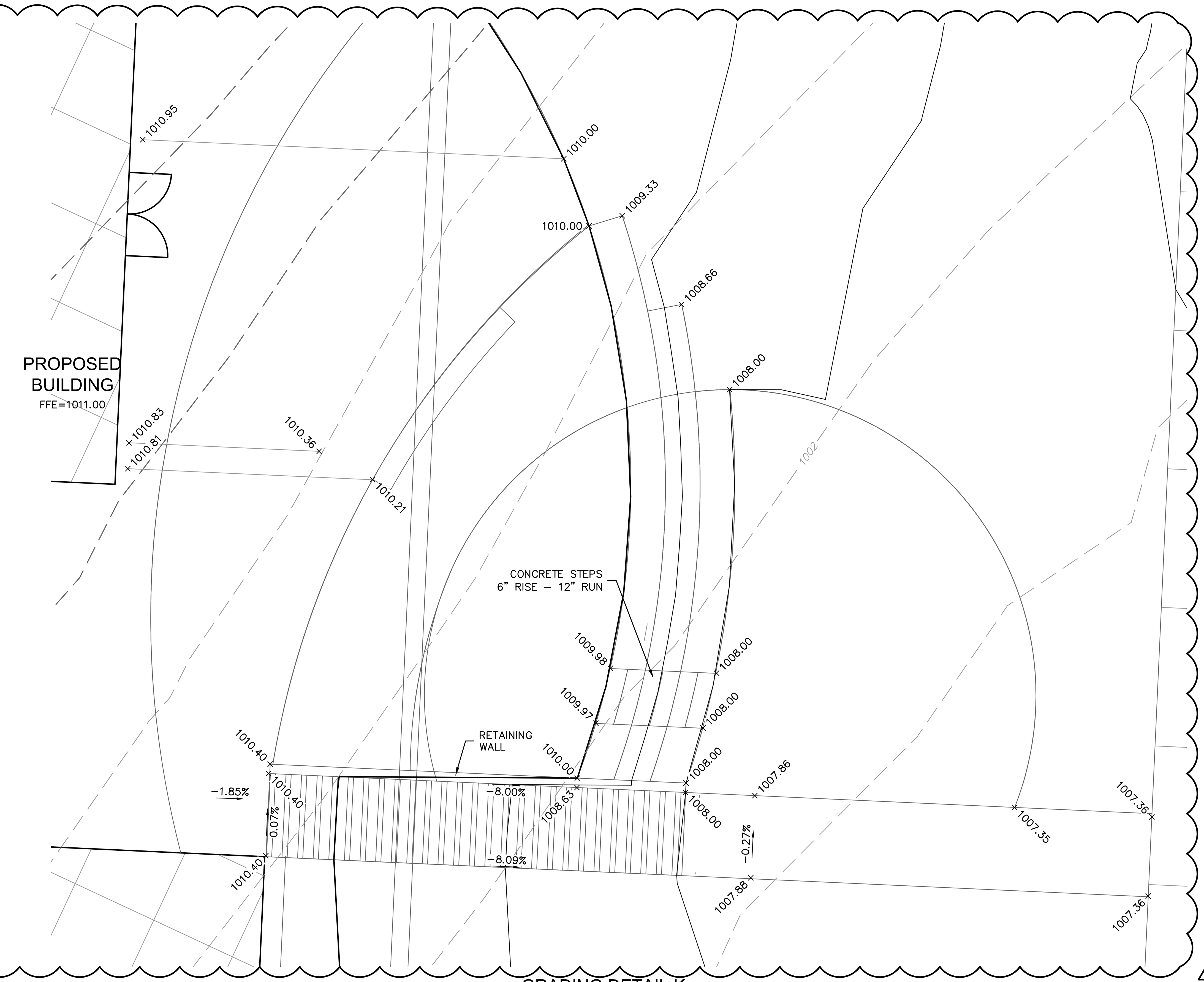

GRADING DETAIL K

SCALE: 1"=5'

LEGEND

- PROPERTY LINE
- EXISTING MAJOR CONTOUR (995)
- EXISTING MINOR CONTOUR (995)
- PROPOSED MAJOR CONTOUR (998)
- PROPOSED MINOR CONTOUR (998)
- RAMP
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
- CONCRETE CURB TYPE "C-1" MODIFIED

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MATCH EX.=	MATCH EXISTING
FFE=	FINISH FLOOR ELEVATION AT TOP OF SLAB

N

0' 2.5' 5' 10'

SCALE IN FEET

DLR Group

STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2018010505
PROFESSIONAL ENGINEER
01.15.2021

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13-20102-00

GRADING DETAILS

C1024

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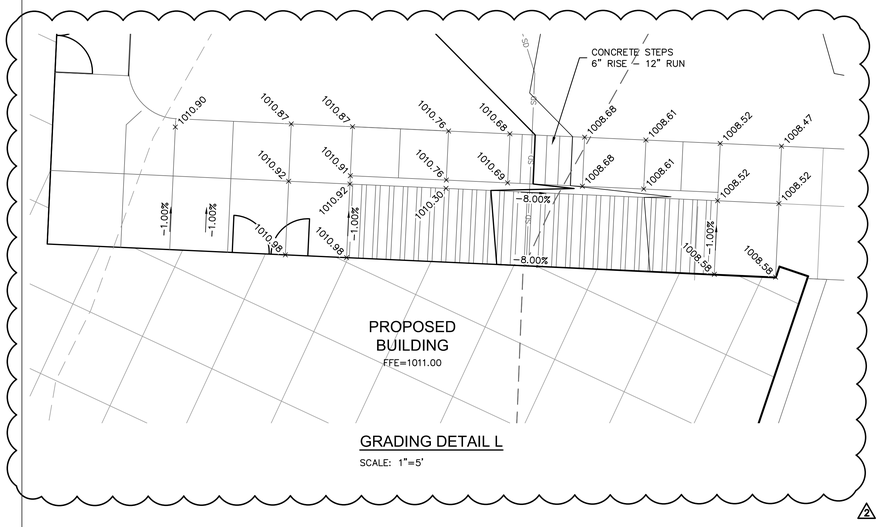
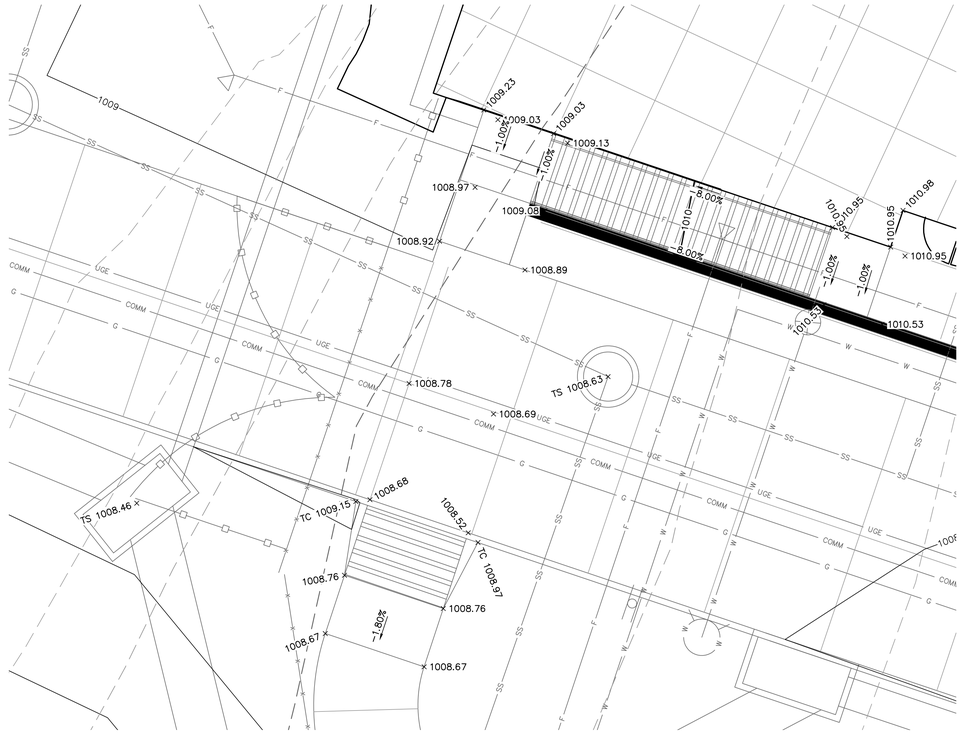


GRADING DETAIL L

SCALE: 1"=5'



GRADING DETAIL M

SCALE: 1"=5'

LEGEND

- PROPERTY LINE
- 995 EXISTING MAJOR CONTOUR
- 995 EXISTING MINOR CONTOUR
- 998 PROPOSED MAJOR CONTOUR
- 998 PROPOSED MINOR CONTOUR
- RAMP
- CONCRETE CURB & GUTTER TYPE "CG-1"
- CONCRETE CURB & GUTTER TYPE "CG-1 DRY"
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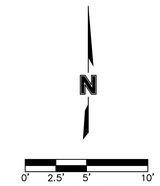

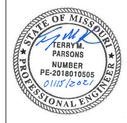

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08/28/20

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13-20102-00

GRADING DETAILS

C1025

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PROPOSED
BUILDING
FFE=1017.00

GRADING DETAIL N

SCALE: 1"=5'

LEGEND

- PROPERTY LINE
- 995 EXISTING MAJOR CONTOUR
- 995 EXISTING MINOR CONTOUR
- 998 PROPOSED MAJOR CONTOUR
- 998 PROPOSED MINOR CONTOUR
- RAMP
- CONCRETE CURB & GUTTER TYPE "CG-1"
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4. REFERENCE SHEET C1026 FOR LANDSCAPE AND ROOF DRAIN KEYNOTE ELEVATIONS.

SPOT ELEVATION LEGEND

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MATCH EX.=	MATCH EXISTING
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N

0' 2.5' 5' 10'
SCALE IN FEET

DLR Group

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Missouri Board of Architects Authority #000039

STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010010255
01/15/2021
PROFESSIONAL ENGINEER

olsson

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LEE'S SUMMIT MIDDLE SCHOOL #4

LEE'S SUMMIT R-7 SCHOOL DISTRICT

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LEE'S SUMMIT, MO 64081

PACKAGE 2-
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06/28/20

2 PR002R 12.18.20
3 **PR002R 01.14.21**

13-20102-00

GRADING DETAILS

C1025A

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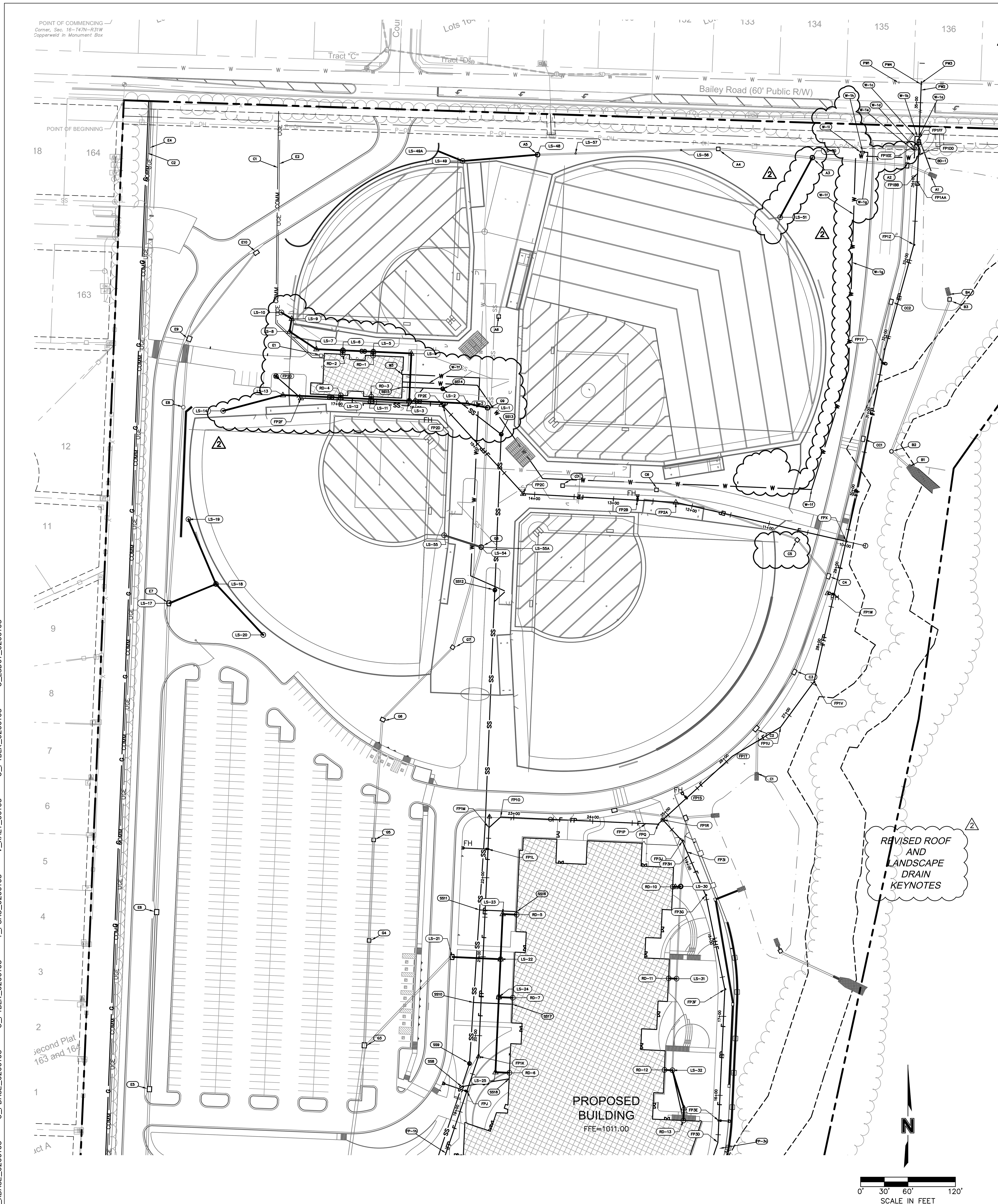

KEY NOTES:

DOMESTIC WATER
W1. WATERLINE TO CONCESSION BLDG AND IRRIGATION
a. INSTALL 6x6x3 CUT-IN TEE ON PUBLIC MAIN COMING UNDER STREET
b. INSTALL 15 LF OF 4" AWWA C900 PIPE FROM TEE TO METER
c. INSTALL 3" 90° ELBOW
d. INSTALL 2" METER AND PIT PER STANDARD CITY DETAIL
e. INSTALL A MINIMUM 10 LF 3" AWWA C900 FROM METER TOWARDS BUILDING
f. CONTINUE BUILDING SERVICE CONNECTION WITH 1018± LF OF 3" AWWA C900 PIPE RE: MEP FOR CONNECTION TO BLDG AND BACKFLOW PREVENTION.
g. INSTALL 3x3x3 TEE AND 12 LF 3" AWWA C900 PIPE
h. INSTALL 2" DEDUCT METER (FOR IRRIGATION) IN METER PIT PER CITY STANDARD DETAIL
i. CONTINUE IRRIGATION SERVICE INCLUDING BACKFLOW PREVENTION AND BOOSTER PUMP PER LANDSCAPE PLANS

PUBLIC WATER (CONSTRUCT PER PUBLIC IMPROVEMENT PLANS)
ALL WORK ON THE PUBLIC MAIN SHALL BE CONSTRUCTED AND INSTALLED PER CITY STANDARDS, INCLUDING WATER SHUT OFF, PUBLIC NOTIFICATION AND CONSTRUCTION AT NIGHT
PW1. PROPOSED 16" BUTTERFLY VALVE ON PUBLIC WATER MAIN
PW2. PUBLIC WATER MAIN WILL BE INSTALLED BY BORE UNDER BAILEY ROAD
PW3. CUT 16x16x6 TEE ON PUBLIC MAIN
PW4. INSTALL 6" GATE VALVE ON NORTH SIDE OF BAILEY ROAD

FIRE PROTECTION:
ALL FIRE PROTECTION LINE SHALL BE 6" AWWA C900 U.N.O. ALL PUBLIC FITTINGS AND FIRE PROTECTION LINE FITTINGS MUST BE ZINC COATED DUCTILE IRON PIPE REFERENCE SHEETS C1028A AND C1028B FOR PROFILES AND KEYNOTE DESCRIPTIONS.

SANITARY SEWER:
REF: SHEET C1028C FOR PROFILES AND KEYNOTE DESCRIPTIONS

ELECTRICAL:
E1. PROPOSED TRANSFORMER LOCATION. COORDINATED INSTALLATION WITH UTILITY COMPANY AND MEP PLANS. CONTRACTOR TO INSTALL TRANSFORMER PAD PER UTILITY COMPANY STANDARDS AND SPECIFICATIONS.
E2. INSTALL 404±LF OF PVC CONDUIT FOR PRIMARY ELECTRICAL SERVICE PER UTILITY COMPANY STANDARDS AND SPECIFICATIONS. VERIFY CONDUIT SIZE AND ROUTING WITH KCP&L. ELECTRICAL DESIGN IS BY KCP&L. THE ALIGNMENT SHOWN ON THE PLANS IS APPROXIMATE. THE CONTRACTOR SHALL COORDINATE ELECTRICAL SERVICE ROUTE DIRECTLY WITH KCP&L AND PROVIDE NECESSARY CONDUIT TO TO SERVE THE PROJECT.
SEE MEP PLANS FOR LIGHTING AND LIGHTING CONDUIT.

COMMUNICATIONS:
C1 INSTALL 352±LF OF 2-4" PVC CONDUIT W/PULL STRING. COORDINATE CONNECTION AND LOCATION WITH COMMUNICATIONS COMPANY.

BACKFLOW DRAIN:
BD-1 INSTALL 42 LF OF 2" SDR26 PVC PIPE FROM BFP PIT TO DETENTION BASIN @ 1% MINIMUM SLOPE

SANITARY SERVICE:
SS-15 INSTALL 51.3 LF OF 4" PVC (SDR-26) SANITARY SERVICE FROM SS-14 TO BUILDING (INV EL=1014.25) RE: MEP
SS-16 INSTALL 47.0 LF OF 4" PVC (SDR-26) SANITARY SERVICE FROM SS-11 TO BUILDING (INV EL=1005.00) RE: MEP
SS-17 INSTALL 47.0 LF OF 4" PVC (SDR-26) SANITARY SERVICE FROM SS-10 TO BUILDING (INV EL=1003.45) RE: MEP
SS-18 INSTALL 60.8 LF OF 4" PVC (SDR-26) SANITARY SERVICE FROM SS-8 TO BUILDING (INV EL=1005.00) RE: MEP

EXISTING CONDITIONS LEGEND

- PROPERTY LINES
- RIGHT-OF-WAY LINES
- EASEMENT LINES
- P-OH — OVERHEAD ELECTRIC
- P-UG — UNDERGROUND ELECTRIC
- TEL — UNDERGROUND TELEPHONE
- FO — UNDERGROUND FIBER OPTIC
- G — GAS LINE
- W — WATER LINE
- SD — STORM SEWER LINE
- SS — SANITARY SEWER LINE

PROPOSED CONDITIONS LEGEND

- E — PROPOSED UNDERGROUND ELECTRIC
- FO — PROPOSED FIBER OPTIC
- W — PROPOSED WATER LINE
- FP — PROPOSED FIRE PROTECTION LINE
- SD — PROPOSED STORM SEWER LINE
- T — PROPOSED TURF DRAIN LINE
- SS — PROPOSED SANITARY SEWER SERVICE
- CONCRETE CURB & GUTTER
- PROPOSED BUILDING

LANDSCAPE AND ROOF DRAINS:

(LEN REFERS TO THE LENGTH OF THE DOWNSTREAM PIPE FROM THE STRUCTURE IN LINEAL FEET, ALL PIPE SHALL HDPE)

				N			NE			E			SE			S			SW			W			NW		
KEYNOTE	DS STRUC	TYPE	TS	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN
LS-1	G8	CONNECTION TO G9	1016.20																			1009,58	15				
LS-2	G9 (LS-1)	24" NYLOPLAST BASIN W GRATED LID	1016.30							1009.84	15	24.4										1009.84	15				
LS-3	LS-2	24" NYLOPLAST BASIN W GRATED LID	1016.70	1010.58	12					1010.58	15	73.5										1010.58	12				
LS-4	LS-3	24" NYLOPLAST BASIN W GRATED LID	1016.69													1011,18	12	60				1011.18	12				
LS-5	LS-4	24" NYLOPLAST BASIN W GRATED LID	1016.69							1011.66	12	45.9				1011.66	6					1011.66	12				
LS-6	LS-5	24" NYLOPLAST BASIN W GRATED LID	1016.53							1012.05	12	38.6				1012.05	6					1012.05	12				
LS-7	LS-6	24" NYLOPLAST BASIN W GRATED LID	1016.51							1012.35	12	35.8													1012.35	12	
LS-8	LS-7	24" NYLOPLAST BASIN W GRATED LID	1015.85	1012.67	10								1012.67	12	40.6												
LS-9	LS-8	FIELD DRAIN (DLR)	1016.00				1011.30	12								1012.80	10	16.9							1012.80	8	
LS-10	LS-9	24" NYLOPLAST BASIN W GRATED LID	1014.60										1012.95	8	15.3												
LS-11	LS-3	24" NYLOPLAST BASIN W GRATED LID	1016.70	1010.43	6					1010.58	12	48.2										1010.58	12				
LS-12	LS-11	24" NYLOPLAST BASIN W GRATED LID	1016.72	1010.63	6					1011.01	12	38.6										1011.01	10				
LS-13	LS-12	24" NYLOPLAST BASIN W GRATED LID	1014.81							1012.02	10	73.2							1012.02	8							
LS-14	LS-13	24" NYLOPLAST BASIN W GRATED LID	1013.86				1012.52	8	78.3																		
LS-17	E6	CONNECTION TO E7	1020.05				1009.82	8																			
LS-18	E7 (LS-17)	24" NYLOPLAST BASIN W GRATED LID	1014.50										1010.46	8					1010.46	8	64				1010.45	8	
LS-19	LS-18	24" NYLOPLAST BASIN W GRATED LID	1013.36										1011.35	8	89.2												
LS-20	LS-18	24" NYLOPLAST BASIN W GRATED LID	1014.50																						1011.34	8	87.64
LS-21	G3	CONNECTION TO GG1	1008.63							1003.73	12																
LS-22	GG1 (LS-21)	24" NYLOPLAST BASIN W GRATED LID	1010.40	1003.84	8											1003.84	10					1003.84	12	81.3			
LS-23	LS-22	24" NYLOPLAST BASIN W GRATED LID	1010.67							1008.21	8					1008.21	8	57.2									
LS-24	LS-22	INSERT-A-TEE	1010.47	1004.32	10	48.1										1004.32	6					1004.32	8				
LS-25	LS-24	24" NYLOPLAST BASIN W GRATED LID	1010.83	1005.27	6	95.1																1005.27	6				
LS-26	G1	CONNECT TO H1	1008.46				1002.60	12																			
LS-27	H1 (LS-26)	24" NYLOPLAST BASIN W GRATED LID	1010.55										1008.00	10					1002.94	12	33.8						
LS-28	LS-27	24" NYLOPLAST BASIN W GRATED LID	1007.00				1003.34	8					1003.34	8	40.4												
LS-29	LS-28	24" NYLOPLAST BASIN W GRATED LID	1007.00																1003.88	8	53.5						
LS-30	K2	CONNECTION T0 K3	1007.79																			1005.95	8				
LS-31	K3	CONNECTION T0 K4	1009.74																			1005.95	8				
LS-32	K4	CONNECTION T0 K5	1009.78													1008.48	6					1008.62	8				
LS-33	F7	CONNETION TO F8	1006.41				1003.65	12																	1003.65	6	
LS-34	F8 (LS-33)	24" NYLOPLAST BASIN W GRATED LID	1006.08																1003.74	12	24.6				1003.76	12	
LS-35	LS-34	24" NYLOPLAST BASIN W GRATED LID	1006.63				1003.96	12					1003.96	12	22.1										1003.96	12	
LS-36	LS-35	24" NYLOPLAST BASIN W GRATED LID	1009.76				1005.23	8											1005.23	12	87.6				1005.23	6	
LS-37	LS-36	24" NYLOPLAST BASIN W GRATED LID	1009.96				1005.79	8											1005.79	10	55.8				1005.79	10	
LS-38	F5	CONNECTION TO F6	1006.52													1002.26	12										
LS-39	LS-38	24" NYLOPLAST BASIN W GRATED LID	1004.95	1002.35	12	17.3				1002.35	8											1002.35	10				
LS-40	LS-39	24" NYLOPLAST BASIN W GRATED LID	1003.35										1002.61	8								1002.61	10	52.8			
LS-41	LS-40	24" NYLOPLAST BASIN W GRATED LID	1004.76										1002.94	6											1002.94	8	66.6
LS-42	LS-41	24" NYLOPLAST BASIN W GRATED LID	1003.68																						1003.22	6	57.2
LS-44	LS-39	24" NYLOPLAST BASIN W GRATED LID	1003.48							1002.55	8	40.3							1002.55	8							
LS-45	LS-44	24" NYLOPLAST BASIN W GRATED LID	1004.92				1002.68	8	27.1																1002.68	8	
LS-46	LS-45	24" NYLOPLAST BASIN W GRATED LID	1004.92										1002.84	8	41.3										1002.84	8	
LS-47	LS-46	24" NYLOPLAST BASIN W GRATED LID	1004.61										1002.91	8	14.5												
LS-48	A4	CONNECTION TO A5	1015.00							1011.98	10																
LS-49	A5 (LS-48)	FIELD DRAIN (DLR)	1015.96							1012.80	10	92.5													1012.00	8	
LS-49A	LS-49A	CONNECT TO RET WALL FOUND DRAIN	1022.86										1020.80	6	38.2												
LS-50	A2	CONNECTION TO A3	1016.37																1010.00	12							
LS-51	A3 (LS-50)	FIELD DRAIN (DLR)	1014.00				1011.30	12	85.7																		
LS-54	G7	CONNECTION TO G8	1016.03							1010.50	6											1010.50	6				
LS-55	G8 (LS-54)	FIELD DRAIN (DLR)	1016.55							1013.00	6	49.2															
LS-55A	G8 (LS-54)	FIELD DRAIN (DLR)	1016.93																			1013.00	6	48.5			
LS-56	LINE A	INSERT-A-TEE W/FIELD DRAIN	1014.92																								
LS-57	LINE A	INSERT-A-TEE W/FIELD DRAIN	1014.92																								
LS-58	F2	CONNECTION TO F3	1003.68										998.88	12													
LS-59	F3 (LS-58)	24" NYLOPLAST BASIN W GRATED LID	1004.67				999.43	8					999.43	10					999.43	8					999.43	12	27.4
LS-60	LS-59	FIELD DRAIN (DLR)	1005.00				1000.27	10	41.9																		
LS-61	LS-59	24" NYLOPLAST BASIN W GRATED LID	1003.00				999.95	8											999.95	8	51.1						
LS-62	LS-61	24" NYLOPLAST BASIN W GRATED LID	1003.00				1000.76	6											1000.76	8	81,1						
LS-63	LS-62	24" NYLOPLAST BASIN W GRATED LID	1003.00																1001.50	6	74						
LS-64	LS-59	24" NYLOPLAST BASIN W GRATED LID	1003.00				999.61	8	21.1										999.61	8							
LS-65	LS-64	24" NYLOPLAST BASIN W GRATED LID	1003.00				1000.14	8	66										1000.14	8							
LS-66	LS-65	24" NYLOPLAST BASIN W GRATED LID	1003.00				1000.82	8	84.6										1000.82	6							
LS-67	LS-66	24" NYLOPLAST BASIN W GRATED LID	1003.00				1001.50	6	85.2																		
RD-1	LS-5	ROOF DRAIN CONNECTION		1013.40	6	5																					
RD-2	LS-6	ROOF DRAIN CONNECTION		1013.40	6	5																					
RD-3	LS-11	ROOF DRAIN CONNECTION														1013.40	6	3									
RD-4	LS-12	ROOF DRAIN CONNECTION														1013.40	6	3									
RD-5	LS-23	ROOF DRAIN CONNECTION																				1008.39	8	17.7			
RD-6	LS-25	ROOF DRAIN CONNECTION																				1008.67	6	17.7			
RD-7	LS-24	ROOF DRAIN CONNECTION																				1008.39	8	17.7			
RD-8	LS-26A	ROOF DRAIN CONNECTION																							1008.25	8	10
RD-9	LS-27	ROOF DRAIN CONNECTION																							1008.26	10	10
RD-10	K3 (LS-30)	ROOF DRAIN CONNECTION								1006.00	8	10															
RD-11	K4 (LS-31)	ROOF DRAIN CONNECTION								1006.00	8	10															
RD-12	K5 (LS-32)	ROOF DRAIN CONNECTION								1008.67	8	10															
RD-13	K5 (LS-32)	ROOF DRAIN CONNECTION		1006.81	6	65																					
RD-14	LS-37	ROOF DRAIN CONNECTION											1006.00	6	20.9												
RD-15	LS-36	ROOF DRAIN CONNECTION											1006.00	8	9.5												
RD-16	LS-35	ROOF DRAIN CONNECTION								1004.38	10	44.3															

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LEE'S SUMMIT MIDDLE SCHOOL #4

LEE'S SUMMIT R-7 SCHOOL DISTRICT
1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

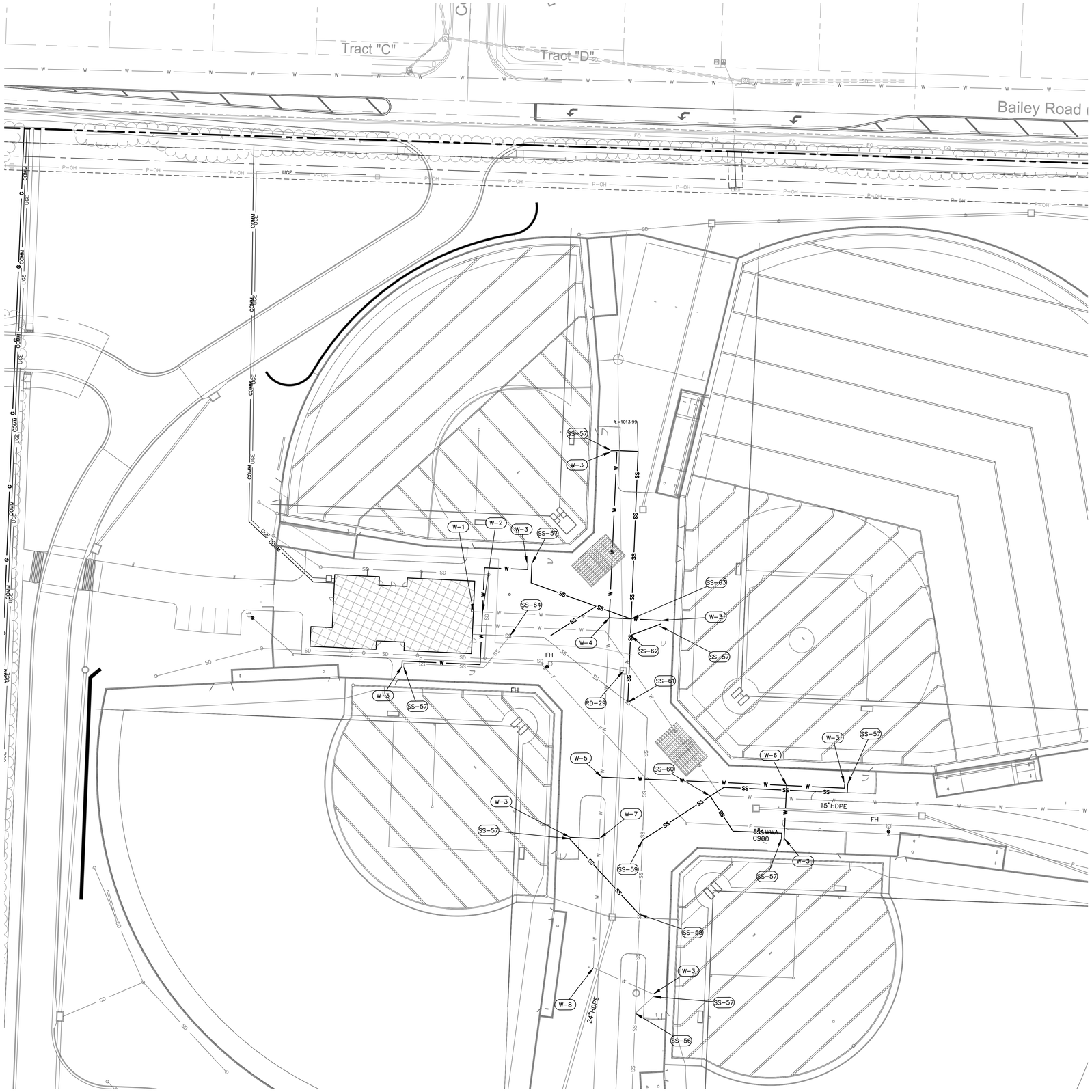
PACKAGE 2-
STRUCTURAL & SITE UTILITIES
ISSUED FOR PERMIT
08/28/20

2 PR002R 01.14.21

13-20102-00

UTILITY PLAN

C1026



EXISTING CONDITIONS LEGEND

- PROPERTY LINES
- RIGHT-OF-WAY LINES
- EASEMENT LINES
- P-OH — OVERHEAD ELECTRIC
- P-UG — UNDERGROUND ELECTRIC
- TEL — UNDERGROUND TELEPHONE
- FO — UNDERGROUND FIBER OPTIC
- G — GAS LINE
- W — WATER LINE
- SD — STORM SEWER LINE
- SS — SANITARY SEWER LINE

PROPOSED CONDITIONS LEGEND

- E — PROPOSED UNDERGROUND ELECTRIC
- FO — PROPOSED FIBER OPTIC
- W — PROPOSED WATER LINE
- FP — PROPOSED FIRE PROTECTION LINE
- SD — PROPOSED STORM SEWER LINE
- T — PROPOSED TURF DRAIN LINE
- SS — PROPOSED SANITARY SEWER SERVICE
- CONCRETE CURB & GUTTER
- PROPOSED BUILDING

WATERLINE (DUGOUT)

W-1 INSTALL LF OF 2" AWWA C901 PIPE CONNECT TO BLDG SUPPLY

W-2 INSTALL 2" CROSS TEE AND:
NORTH – 66 LF OF 1" AWWA C901 PIPE WITH REDUCER AND BENDS
EAST – 45 LF OF 2" AWWA C901 PIPE WTH BENDS
SOUTH – 66 LF OF 1" AWWA C901 PIPE WITH REDUCER AND BENDS

W-3 STUB UP SUPPLY PIPE AND CONNECT TO SUPPLY LINE ON DUGOUT DRINKING FOUNTAIN (REF: LS DRAWINGS)

W-4 INSTALL 2" CROSS TEE AND:
NORTH – 123 LF OF 1" AWWA C901 PIPE WITH REDUCER AND BENDS
EAST – 37 LF OF 1" AWWA C901 PIPE WITH REDUCER
SOUTH – 265 LF OF 2" AWWA C901 PIPE

W-5 INSTALL 2x2x2 TEE AND 177 LF OF 1" AWWA C901 PIPE WITH REDUCER AND BENDS

W-6 INSTALL 1x1x1 TEE AND 38 LF OF 1" AWWA C901 PIPE

W-7 INSTALL 2x2x2 TEE AND 22 LF OF 1" AWWA C901 PIPE WITH REDUCER AND BENDS

W-8 INSTALL BEND AND REDUCER AND 48 LF OF 1" AWWA C901 PIPE

SANITARY SEWER SERVICE (DUGOUT)

SS-56 INSTALL WYE ON SERVICE LINE AND 18 LF OF 3" PVC (SDR-26) AT 1.0% PERCENT MINIMUM SLOPE

SS-57 STUB UP PVC PIPE AND CONNECT TO DRAIN LINE ON DUGOUT DRINKING FOUNTAIN (REF: LS DRAWINGS)

SS-58 INSTALL WYE ON SERVICE LINE AND 74 LF OF 3" PVC (SDR-26) AT 1.0% PERCENT MINIMUM SLOPE

SS-59 INSTALL WYE ON SERVICE LINE AND 165 LF OF 3" PVC (SDR-26) WITH BENDS AT 1.0% PERCENT MINIMUM SLOPE

SS-60 INSTALL 2x2x2 TEE ON SERVICE LINE AND 69 LF OF 3" PVC (SDR-26) WITH BENDS AT 1.0% PERCENT MINIMUM SLOPE

SS-61 INSTALL WYE ON SERVICE LINE AND 199 LF OF 3" PVC (SDR-26) WITH BENDS AT 1.0% PERCENT MINIMUM SLOPE

SS-62 INSTALL 2x2x2 TEE ON SERVICE LINE AND 22 LF OF 3" PVC (SDR-26) AT 1.0% PERCENT MINIMUM SLOPE

SS-63 INSTALL 2x2x2 TEE ON SERVICE LINE AND 90 LF OF 3" PVC (SDR-26) WITH BENDS AT 1.0% PERCENT MINIMUM SLOPE

SS-64 INSTALL WYE ON SERVICE LINE AND 90 LF OF 3" PVC (SDR-26) WITH BENDS AT 1.0% PERCENT MINIMUM SLOPE

ADDED SHEET

0

N

0' 15' 30' 60'
SCALE IN FEET

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STRUCTURAL & SITE UTILITIES
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UTILITY PLAN

C1026A

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_UTL01_0200103.dwg USER: tparsons
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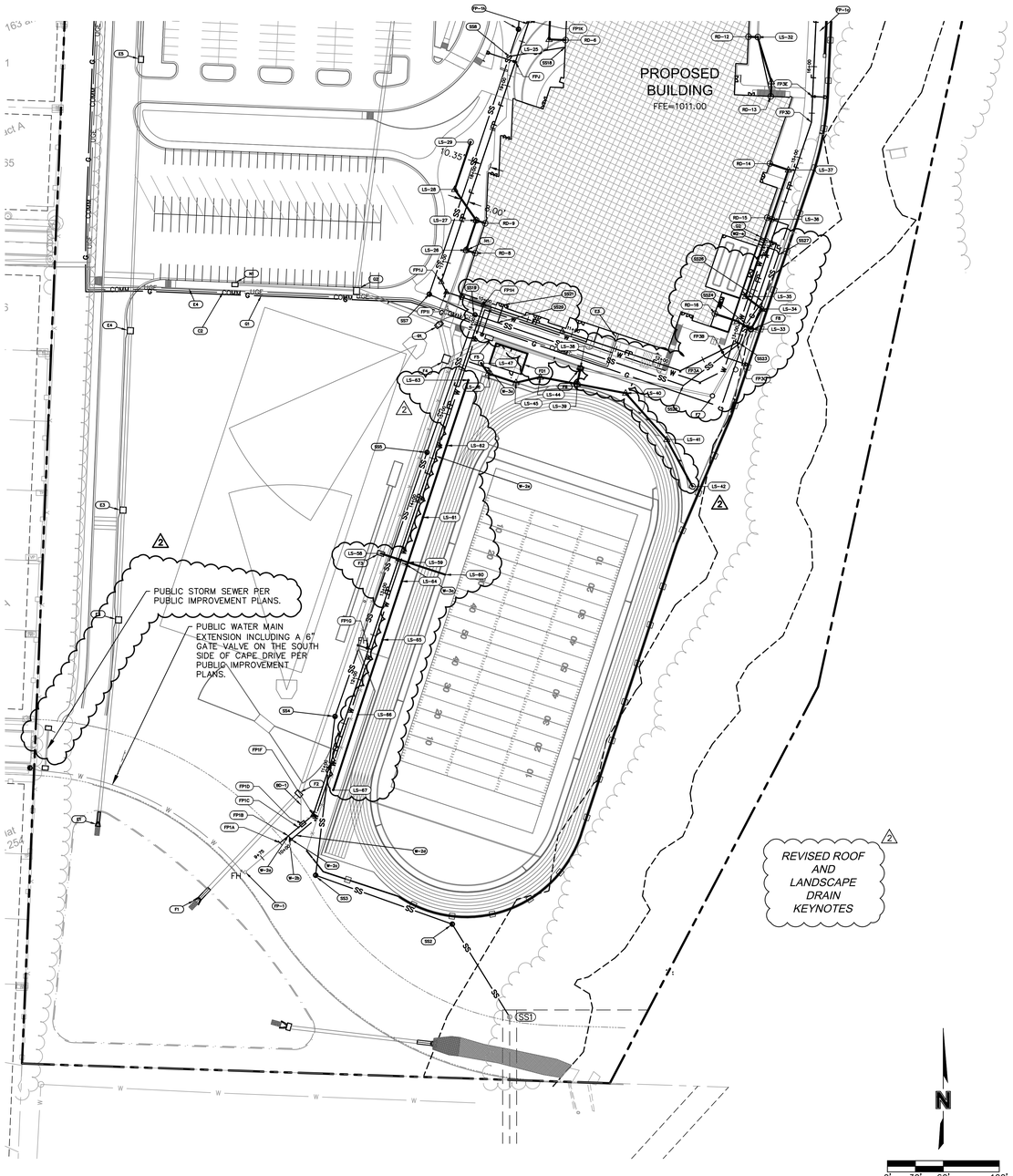

KEY NOTES:

DOMESTIC WATER
W2. WATERLINE TO MIDDLE SCHOOL
a. INSTALL 6x6x4 CUT OUT TEE ON 6" PUBLIC CITY MAIN.
b. INSTALL 10 LF OF 4" AWWA C900 FROM TEE TO METER.
c. INSTALL 3" METER AND PIT PER DETAIL ON C1050.
d. INSTALL A MINIMUM 10 LF 4" AWWA C900 FROM METER TOWARDS BUILDING
e. CONTINUE BUILDING SERVICE CONNECTION WITH 1036± LF OF 4" AWWA C900 PIPE RE: MEP FOR CONNECTION AT BLDG AND BACKFLOW PREVENTION.

W3. HOSE BIB CONNECTION
a. ¾" TAP WITH HOSE BIB

FIRE PROTECTION:
ALL FIRE PROTECTION LINE SHALL BE 6" AWWA C900 U.N.O.
ALL PUBLIC FITTINGS AND FIRE PROTECTION LINE FITTINGS MUST BE ZINC COATED DUCTILE IRON PIPE
REFERENCE SHEETS C1028A AND C1028B FOR PROFILES AND KEYNOTE DESCRIPTIONS

FP1. INSTALL TEMPORARY IN-LINE FIRE HYDRANT ASSEMBLY ON SOUTH SIDE OF PROPOSED CAPE DRIVE

SANITARY SEWER:
REF: SHEET C1028C FOR PROFILES AND KEYNOTE DESCRIPTIONS

ELECTRICAL:
E1. TRANSFORMER LOCATION TO BE PROVIDED LATER. COORDINATED INSTALLATION WITH UTILITY COMPANY AND MEP PLANS. CONTRACTOR TO INSTALL TRANSFORMER PAD PER UTILITY COMPANY STANDARDS AND SPECIFICATIONS.
E2. INSTALL 2100±LF OF PVC CONDUIT FOR PRIMARY ELECTRICAL SERVICE PER UTILITY COMPANY STANDARDS AND SPECIFICATIONS. VERIFY CONDUIT SIZE AND ROUTING WITH KCP&L. ELECTRICAL DESIGN IS BY KCP&L. THE ALIGNMENT SHOWN ON THE PLANS IS APPROXIMATE. THE CONTRACTOR SHALL COORDINATE ELECTRICAL SERVICE ROUTE DIRECTLY WITH KCP&L AND PROVIDE NECESSARY CONDUIT TO TO SERVE THE PROJECT.
SEE MEP PLANS FOR LIGHTING AND LIGHTING CONDUIT.

COMMUNICATIONS:
C2 INSTALL 2110± LF OF 3-4" PVC CONDUIT W/PULL STRING. COORDINATE CONNECTION AND LOCATION WITH COMMUNICATIONS COMPANY.

GAS SERVICE
G1 INSTALL 2340± LF OF GAS SERVICE LINE (SIZE AND MATERIAL TO BE DETERMINED). COORDINATE LOCATION WITH GAS SERVICE COMPANY.
G2 PROPOSED METER LOCATION

ROOF DRAIN SYSTEM:
RD108 INSTALL 6" INSERTA-TEE AND 56 LF 6" HDPE (S.) @ 1.00% MIN.
RD109 CONNECT TO BUILDING. RE: MAP

BACKFLOW DRAIN:
BD-1 INSTALL 24 LF OF 2" SDR26 PVC PIPE FROM BFP PIT TO STORM STRUCTURE @ 1% MINIMUM SLOPE

FOUNDATION DRAIN:
FD-1 CONNECT FOUNDATION DRAIN TO STRUCTURE F-5 WITH 4" HDPE PIPE. REF: STRUCTURAL

EXISTING CONDITIONS LEGEND

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- RIGHT-OF-WAY LINES
- EASEMENT LINES
- P-OH — OVERHEAD ELECTRIC
- P-UG — UNDERGROUND ELECTRIC
- TEL — UNDERGROUND TELEPHONE
- FO — UNDERGROUND FIBER OPTIC
- G — GAS LINE
- W — WATER LINE
- SD — STORM SEWER LINE
- SS — SANITARY SEWER LINE

PROPOSED CONDITIONS LEGEND

- E — PROPOSED UNDERGROUND ELECTRIC
- FO — PROPOSED FIBER OPTIC
- W — PROPOSED WATER LINE
- FP — PROPOSED FIRE PROTECTION LINE
- SD — PROPOSED STORM SEWER LINE
- T — PROPOSED TURF DRAIN LINE
- SS — PROPOSED SANITARY SEWER SERVICE
- PROPOSED CONCRETE CURB & GUTTER
- PROPOSED BUILDING

KEY NOTES (CONTINUED):

SANITARY SEWER SERVICE:

SS-19 CONNECT TO SS7 (INV EL=996.50)
SS-20 INSTALL 25.7 LF OF 6" PVC (SDR-26) SANITARY SERVICE (E) TO 6x6x4 WYE (INV EL=996.76)
SS-21 INSTALL 20.6 LF OF 4" PVC (SDR-26) SANITARY SERVICE FROM SS-20 TO BUILDING (INV EL=1005.00) REF:MEP
SS-22 INSTALL 210.5 LF OF 6" PVC (SDR-26) SANITARY SERVICE (E) WITH STAND CLEANOUT (INV EL=998.86, TOS=1006.48)
SS-23 INSTALL 75.3 LF OF 6" PVC (SDR-26) SANITARY SERVICE (NE) WITH STAND CLEANOUT (INV EL=999.61, TOS=1006.68)
SS-24 INSTALL 22.4 LF OF 6" PVC (SDR-26) SANITARY SERVICE (NE) WITH STAND CLEANOUT (INV EL=999.84, TOS=1006.46)
SS-25 INSTALL 29.8 LF OF 6" PVC (SDR-26) SANITARY SERVICE (NE) WITH STAND CLEANOUT (INV EL=999.61, TOS=1006.18)
SS-26 INSTALL 52.2 LF OF 6" PVC (SDR-26) SANITARY SERVICE (NE)
SS-27 CONNECT TO GREASE TRAP DRAIN (INV EL=1000.66) REF: MEP

LANDSCAPE AND ROOF DRAINS:

(LEN REFERS TO THE LENGTH OF THE DOWNSTREAM PIPE FROM THE STRUCTURE IN LINEAL FEET, ALL PIPE SHALL HDPE)

				N			NE			E			SE			S			SW			W			NW		
KEYNOTE	DS STRUC	TYPE	TS	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN
LS-1	G8	CONNECTION TO G9	1016.20																			1009.58	15				
LS-2	G9 (LS-1)	24" NYLOPLAST BASIN W GRATED LID	1016.30							1009.84	15	24.4										1009.84	15				
LS-3	LS-2	24" NYLOPLAST BASIN W GRATED LID	1016.70	1010.58	12					1010.58	15	73.5										1010.58	12				
LS-4	LS-3	24" NYLOPLAST BASIN W GRATED LID	1015.68													1011.18	12	69				1011.18	12				
LS-5	LS-4	24" NYLOPLAST BASIN W GRATED LID	1015.69							1011.66	12	45.9				1011.66	6					1011.66	12				
LS-6	LS-5	24" NYLOPLAST BASIN W GRATED LID	1016.53							1012.05	12	38.6				1012.05	6					1012.05	12				
LS-7	LS-6	24" NYLOPLAST BASIN W GRATED LID	1016.51							1012.35	12	35.8													1012.35	12	
LS-8	LS-7	24" NYLOPLAST BASIN W GRATED LID	1015.85	1012.67	10								1012.67	12	40.6												
LS-9	LS-8	FIELD DRAIN (DLR)	1016.00				1011.30	12								1012.80	10	16.9							1012.80	8	
LS-10	LS-9	24" NYLOPLAST BASIN W GRATED LID	1014.60										1012.95	8	15.3												
LS-11	LS-3	24" NYLOPLAST BASIN W GRATED LID	1016.70	1010.43	6					1010.58	12	48.2										1010.58	12				
LS-12	LS-11	24" NYLOPLAST BASIN W GRATED LID	1016.72	1010.63	6					1011.01	12	38.6										1011.01	10				
LS-13	LS-12	24" NYLOPLAST BASIN W GRATED LID	1014.83							1012.02	10	73.2							1012.02	8							
LS-14	LS-13	24" NYLOPLAST BASIN W GRATED LID	1013.86				1012.52	8	78.3																		
LS-17	E6	CONNECTION TO E7	1020.06				1009.82	8																			
LS-18	E7 (LS-17)	24" NYLOPLAST BASIN W GRATED LID	1014.50										1010.46	8					1010.46	8	64				1010.45	8	
LS-19	LS-18	24" NYLOPLAST BASIN W GRATED LID	1013.36										1011.35	8	89.2												
LS-20	LS-18	24" NYLOPLAST BASIN W GRATED LID	1014.50																						1011.34	8	87.64
LS-21	G3	CONNECTION TO GG1	1008.63							1003.73	12																
LS-22	GG1 (LS-21)	24" NYLOPLAST BASIN W GRATED LID	1010.40	1003.84	8											1003.84	10					1003.84	12	81.3			
LS-23	LS-22	24" NYLOPLAST BASIN W GRATED LID	1010.67							1008.21	8					1008.21	8	57.2									
LS-24	LS-22	INSERT-A-TEE	1010.47	1004.32	10	48.1										1004.32	6					1004.32	8				
LS-25	LS-24	24" NYLOPLAST BASIN W GRATED LID	1010.83	1005.27	6	95.1																1005.27	6				
LS-26	G1	CONNECT TO H1	1008.46				1002.60	12																			
LS-27	H1 (LS-26)	24" NYLOPLAST BASIN W GRATED LID	1010.55										1008.00	10					1002.94	12	33.8						
LS-28	LS-27	24" NYLOPLAST BASIN W GRATED LID	1007.00				1003.34	8					1003.34	8	40.4												
LS-29	LS-28	24" NYLOPLAST BASIN W GRATED LID	1007.00																1003.88	8	53.5						
LS-30	K2	CONNECTION TO K3	1007.79																			1005.95	8				
LS-31	K3	CONNECTION TO K4	1009.74																			1005.95	8				
LS-32	K4	CONNECTION TO K5	1009.78													1008.48	6					1008.62	8				
LS-33	F7	CONNETION TO F8	1006.43				1003.65	12																	1003.65	6	
LS-34	F8 (LS-33)	24" NYLOPLAST BASIN W GRATED LID	1006.08																1003.74	12	24.6				1003.76	12	
LS-35	LS-34	24" NYLOPLAST BASIN W GRATED LID	1006.63				1003.96	12					1003.96	12	22.1										1003.96	12	
LS-36	LS-35	24" NYLOPLAST BASIN W GRATED LID	1009.76				1005.23	8											1005.23	12	87.6				1005.23	6	
LS-37	LS-36	24" NYLOPLAST BASIN W GRATED LID	1009.96				1005.79	8											1005.79	10	55.8				1005.79	10	
LS-38	F5	CONNECTION TO F6	1006.52													1002.26	12										
LS-39	LS-38	24" NYLOPLAST BASIN W GRATED LID	1004.95	1002.35	12	17.3				1002.35	8											1002.35	10				
LS-40	LS-39	24" NYLOPLAST BASIN W GRATED LID	1003.35										1002.61	8								1002.61	10	52.8			
LS-41	LS-40	24" NYLOPLAST BASIN W GRATED LID	1004.76										1002.94	6											1002.94	8	66.6
LS-42	LS-41	24" NYLOPLAST BASIN W GRATED LID	1003.68																						1003.22	6	57.2
LS-44	LS-39	24" NYLOPLAST BASIN W GRATED LID	1003.68							1002.55	8	40.3							1002.55	8							
LS-45	LS-44	24" NYLOPLAST BASIN W GRATED LID	1004.92				1002.68	8	27.1																1002.68	8	
LS-46	LS-45	24" NYLOPLAST BASIN W GRATED LID	1004.92										1002.84	8	41.3										1002.84	8	
LS-47	LS-46	24" NYLOPLAST BASIN W GRATED LID	1004.63										1002.91	8	14.5												
LS-48	A4	CONNECTION TO A5	1015.00							1011.98	10																
LS-49	A5 (LS-48)	FIELD DRAIN (DLR)	1015.96							1012.80	10	92.5													1012.00	8	
LS-49A	LS-49A	CONNECT TO RET WALL FOUND DRAIN	1022.86										1020.80	6	38.2												
LS-50	A2	CONNECTION TO A3	1016.17																1010.00	12							
LS-51	A3 (LS-50)	FIELD DRAIN (DLR)	1014.00				1011.30	12	85.7																		
LS-54	G7	CONNECTION TO G8	1016.08							1010.50	6											1010.50	6				
LS-55	G8 (LS-54)	FIELD DRAIN (DLR)	1016.55							1013.00	6	49.2															
LS-55A	G8 (LS-54)	FIELD DRAIN (DLR)	1016.93																			1013.00	6	48.5			
LS-56	LINE A	INSERT-A-TEE W/FIELD DRAIN	1014.92																								
LS-57	LINE A	INSERT-A-TEE W/FIELD DRAIN	1014.92																								
LS-58	F2	CONNECTION TO F3	1003.68										998.88	12													
LS-59	F3 (LS-58)	24" NYLOPLAST BASIN W GRATED LID	1004.67				999.43	8					999.43	10					999.43	8					999.43	12	27.4
LS-60	LS-59	FIELD DRAIN (DLR)	1005.00				1003.27	10	41.9																		
LS-61	LS-59	24" NYLOPLAST BASIN W GRATED LID	1003.00				999.55	8											999.55	8	51.1						
LS-62	LS-61	24" NYLOPLAST BASIN W GRATED LID	1003.00				1000.76	6											1000.76	8	81.1						
LS-63	LS-62	24" NYLOPLAST BASIN W GRATED LID	1003.00																1001.50	6	74						
LS-64	LS-59	24" NYLOPLAST BASIN W GRATED LID	1003.00				999.61	8	21.1										999.61	8							
LS-65	LS-64	24" NYLOPLAST BASIN W GRATED LID	1003.00				1000.14	8	66										1000.14	8							
LS-66	LS-65	24" NYLOPLAST BASIN W GRATED LID	1003.00				1000.82	8	84.6										1000.82	6							
LS-67	LS-66	24" NYLOPLAST BASIN W GRATED LID	1003.00				1001.50	6	85.2																		
RD-1	LS-5	ROOF DRAIN CONNECTION		1013.40	6	5																					
RD-2	LS-6	ROOF DRAIN CONNECTION		1013.40	6	5																					
RD-3	LS-11	ROOF DRAIN CONNECTION														1013.40	6	3									
RD-4	LS-12	ROOF DRAIN CONNECTION														1013.40	6	3									
RD-5	LS-23	ROOF DRAIN CONNECTION																				1008.39	8	17.7			
RD-6	LS-25	ROOF DRAIN CONNECTION																				1008.67	6	17.7			
RD-7	LS-24	ROOF DRAIN CONNECTION																				1008.39	8	17.7			
RD-8	LS-26A	ROOF DRAIN CONNECTION																							1008.25	8	10
RD-9	LS-27	ROOF DRAIN CONNECTION																							1008.26	10	10
RD-10	K3 (LS-30)	ROOF DRAIN CONNECTION								1006.00	8	10															
RD-11	K4 (LS-31)	ROOF DRAIN CONNECTION								1006.00	8	10															
RD-12	K5 (LS-32)	ROOF DRAIN CONNECTION								1008.67	8	10															
RD-13	K5 (LS-32)	ROOF DRAIN CONNECTION		1006.81	6	65																					
RD-14	LS-37	ROOF DRAIN CONNECTION											1006.00	6	20.9												
RD-15	LS-36	ROOF DRAIN CONNECTION											1006.00	8	9.5												
RD-16	LS-35	ROOF DRAIN CONNECTION								1004.96	6	24.3															

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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010010555
01/15/2021
PROFESSIONAL ENGINEER

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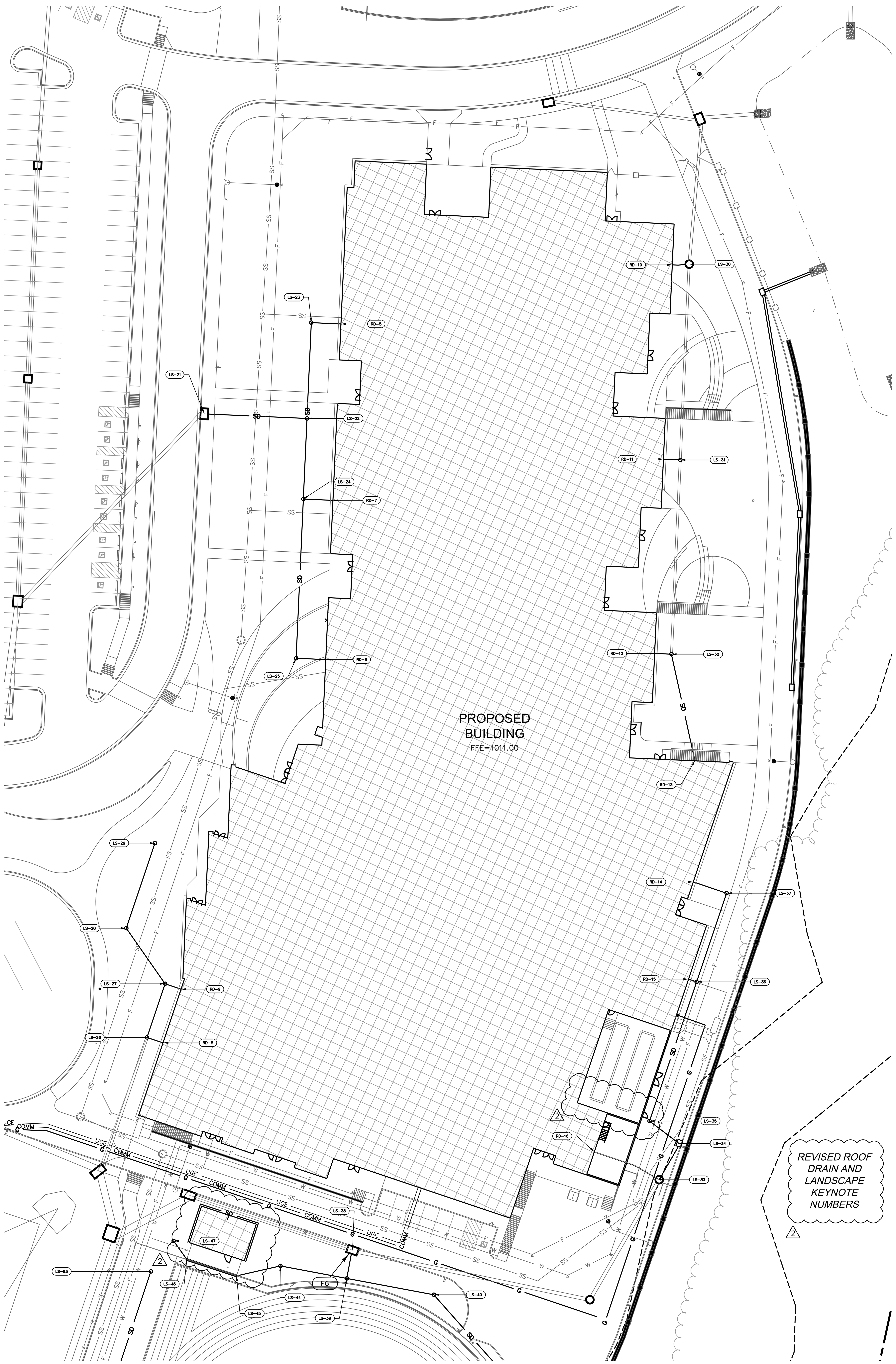
PACKAGE 2-
STRUCTURAL & SITE UTILITIES
ISSUED FOR PERMIT
08/28/20

2 PR002R 01.14.21

13-20102-00

UTILITY PLAN

C1027



EXISTING CONDITIONS LEGEND

- PROPERTY LINES
- RIGHT-OF-WAY LINES
- EASEMENT LINES
- P-OH — OVERHEAD ELECTRIC
- P-UG — UNDERGROUND ELECTRIC
- TEL — UNDERGROUND TELEPHONE
- FO — UNDERGROUND FIBER OPTIC
- G — GAS LINE
- W — WATER LINE
- SD — STORM SEWER LINE
- SS — SANITARY SEWER LINE

PROPOSED CONDITIONS LEGEND

- E — PROPOSED UNDERGROUND ELECTRIC
- FO — PROPOSED FIBER OPTIC
- W — PROPOSED WATER LINE
- FP — PROPOSED FIRE PROTECTION LINE
- SD — PROPOSED STORM SEWER LINE
- T — PROPOSED TURF DRAIN LINE
- SS — PROPOSED SANITARY SEWER SERVICE
- CONCRETE CURB & GUTTER
- PROPOSED BUILDING

LANDSCAPE AND ROOF DRAINS:

				(LEN REFERS TO THE LENGTH OF THE DOWNSTREAM PIPE FROM THE STRUCTURE IN LINEAL FEET, ALL PIPE SHALL HDPE)																							
				N			NE			E			SE			S			SW			W			NW		
KEYNOTE	DS STRUC	TYPE	TS	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN	IE	SIZE	LEN
LS-1	G8	CONNECTION TO G9	1016.20																				1009,58	15				
LS-2	G9 (LS-1)	24" NYLOPLAST BASIN W GRATED LID	1016.30							1009.84	15	24.4											1009.84	15				
LS-3	LS-2	24" NYLOPLAST BASIN W GRATED LID	1016.70	1010.58	12					1010.58	15	73.5											1010.58	12				
LS-4	LS-3	24" NYLOPLAST BASIN W GRATED LID	1016.69													1011,18	12	60				1011.18	12				
LS-5	LS-4	24" NYLOPLAST BASIN W GRATED LID	1016.69							1011.66	12	45.9				1011.66	6					1011.66	12				
LS-6	LS-5	24" NYLOPLAST BASIN W GRATED LID	1016.53							1012.05	12	38.6				1012.05	6					1012.05	12				
LS-7	LS-6	24" NYLOPLAST BASIN W GRATED LID	1016.51							1012.35	12	35.8														1012.35	12	
LS-8	LS-7	24" NYLOPLAST BASIN W GRATED LID	1015.85	1012.67	10									1012.67	12	40.6												
LS-9	LS-8	FIELD DRAIN (DLR)	1016.00				1011.30	12									1012.80	10	16.9							1012.80	8	
LS-10	LS-9	24" NYLOPLAST BASIN W GRATED LID	1014.60										1012.95	8	15.3												
LS-11	LS-3	24" NYLOPLAST BASIN W GRATED LID	1016.70	1010.43	6					1010.58	12	48.2											1010.58	12				
LS-12	LS-11	24" NYLOPLAST BASIN W GRATED LID	1016.72	1010.63	6					1011.01	12	38.6											1011.01	10				
LS-13	LS-12	24" NYLOPLAST BASIN W GRATED LID	1014.81							1012.02	10	73.2								1012.02	8							
LS-14	LS-13	24" NYLOPLAST BASIN W GRATED LID	1013.86				1012.52	8	78.3																		
LS-17	E6	CONNECTION TO E7	1020.05				1009.82	8																			
LS-18	E7 (LS-17)	24" NYLOPLAST BASIN W GRATED LID	1014.50										1010.46	8					1010.46	8	64				1010.45	8	
LS-19	LS-18	24" NYLOPLAST BASIN W GRATED LID	1013.36										1011.35	8	89.2												
LS-20	LS-18	24" NYLOPLAST BASIN W GRATED LID	1014.50																							1011.34	8	87.64
LS-21	G3	CONNECTION TO GG1	1008.63							1003.73	12																	
LS-22	GG1 (LS-21)	24" NYLOPLAST BASIN W GRATED LID	1010.40	1003.84	8											1003.84	10					1003.84	12	81.3			
LS-23	LS-22	24" NYLOPLAST BASIN W GRATED LID	1010.67							1008.21	8					1008.21	8	57.2								
LS-24	LS-22	INSERT-A-TEE	1010.47	1004.32	10	48.1										1004.32	6					1004.32	8				
LS-25	LS-24	24" NYLOPLAST BASIN W GRATED LID	1010.83	1005.27	6	95.1																	1005.27	6				
LS-26	G1	CONNECT TO H1	1008.46				1002.60	12																			
LS-27	H1 (LS-26)	24" NYLOPLAST BASIN W GRATED LID	1010.55										1008.00	10					1002.94	12	33.8						
LS-28	LS-27	24" NYLOPLAST BASIN W GRATED LID	1007.00				1003.34	8					1003.34	8	40.4												
LS-29	LS-28	24" NYLOPLAST BASIN W GRATED LID	1007.00																1003.88	8	53.5						
LS-30	K2	CONNECTION T0 K3	1007.79																			1005.95	8				
LS-31	K3	CONNECTION T0 K4	1009.74																			1005.95	8				
LS-32	K4	CONNECTION T0 K5	1009.78													1008.48	6					1008.62	8				
LS-33	F7	CONNETION TO F8	1006.41				1003.65	12																	1003.65	6	
LS-34	F8 (LS-33)	24" NYLOPLAST BASIN W GRATED LID	1006.08																1003.74	12	24.6				1003.76	12	
LS-35	LS-34	24" NYLOPLAST BASIN W GRATED LID	1006.63				1003.96	12					1003.96	12	22.1										1003.96	12	
LS-36	LS-35	24" NYLOPLAST BASIN W GRATED LID	1009.76				1005.23	8											1005.23	12	87.6				1005.23	6	
LS-37	LS-36	24" NYLOPLAST BASIN W GRATED LID	1009.96				1005.79	8											1005.79	10	55.8				1005.79	10	
LS-38	F5	CONNECTION TO F6	1006.52													1002.26	12									
LS-39	LS-38	24" NYLOPLAST BASIN W GRATED LID	1004.95	1002.35	12	17.3				1002.35	8											1002.35	10				
LS-40	LS-39	24" NYLOPLAST BASIN W GRATED LID	1003.35										1002.61	8								1002.61	10	52.8			
LS-41	LS-40	24" NYLOPLAST BASIN W GRATED LID	1004.76										1002.94	6											1002.94	8	66.6
LS-42	LS-41	24" NYLOPLAST BASIN W GRATED LID	1003.68																							1003.22	6	57.2
LS-44	LS-39	24" NYLOPLAST BASIN W GRATED LID	1003.48							1002.55	8	40.3								1002.55	8							
LS-45	LS-44	24" NYLOPLAST BASIN W GRATED LID	1004.92				1002.68	8	27.1																1002.68	8	
LS-46	LS-45	24" NYLOPLAST BASIN W GRATED LID	1004.92										1002.84	8	41.3											1002.84	8	
LS-47	LS-46	24" NYLOPLAST BASIN W GRATED LID	1004.61										1002.91	8	14.5												
LS-48	A4	CONNECTION TO A5	1015.00							1011.98	10																	
LS-49	A5 (LS-48)	FIELD DRAIN (DLR)	1015.96							1012.80	10	92.5															1012.00	8	
LS-49A	LS-49A	CONNECT TO RET WALL FOUND DRAIN	1022.86										1020.80	6	38.2												
LS-50	A2	CONNECTION TO A3	1016.37																1010.00	12							
LS-51	A3 (LS-50)	FIELD DRAIN (DLR)	1014.00				1011.30	12	85.7																		
LS-54	G7	CONNECTION TO G8	1016.03							1010.50	6												1010.50	6				
LS-55	G8 (LS-54)	FIELD DRAIN (DLR)	1016.55							1013.00	6	49.2																
LS-55A	G8 (LS-54)	FIELD DRAIN (DLR)	1016.93																			1013.00	6	48.5			
LS-56	LINE A	INSERT-A-TEE W/FIELD DRAIN	1014.92																								
LS-57	LINE A	INSERT-A-TEE W/FIELD DRAIN	1014.92																								
LS-58	F2	CONNECTION TO F3	1003.68										998.88	12													
LS-59	F3 (LS-58)	24" NYLOPLAST BASIN W GRATED LID	1004.67				999.43	8					999.43	10							999.43	8						999.43	12	27.4
LS-60	LS-59	FIELD DRAIN (DLR)	1005.00				1000.27	10	41.9																		
LS-61	LS-59	24" NYLOPLAST BASIN W GRATED LID	1003.00				999.95	8												999.95	8	51.1						
LS-62	LS-61	24" NYLOPLAST BASIN W GRATED LID	1003.00				1000.76	6												1000.76	8	81,1						
LS-63	LS-62	24" NYLOPLAST BASIN W GRATED LID	1003.00																1001.50	6	74						
LS-64	LS-59	24" NYLOPLAST BASIN W GRATED LID	1003.00				999.61	8	21.1											999.61	8							
LS-65	LS-64	24" NYLOPLAST BASIN W GRATED LID	1003.00				1000.14	8	66											1000.14	8							
LS-66	LS-65	24" NYLOPLAST BASIN W GRATED LID	1003.00				1000.82	8	84.6											1000.82	6							
LS-67	LS-66	24" NYLOPLAST BASIN W GRATED LID	1003.00				1001.50	6	85.2																		
RD-1	LS-5	ROOF DRAIN CONNECTION		1013.40	6	5																					
RD-2	LS-6	ROOF DRAIN CONNECTION		1013.40	6	5																					
RD-3	LS-11	ROOF DRAIN CONNECTION															1013.40	6	3									
RD-4	LS-12	ROOF DRAIN CONNECTION															1013.40	6	3									
RD-5	LS-23	ROOF DRAIN CONNECTION																					1008.39	8	17.7			
RD-6	LS-25	ROOF DRAIN CONNECTION																					1008.67	6	17.7			
RD-7	LS-24	ROOF DRAIN CONNECTION																					1008.39	8	17.7			
RD-8	LS-26A	ROOF DRAIN CONNECTION																								1008.25	8	10
RD-9	LS-27	ROOF DRAIN CONNECTION																								1008.26	10	10
RD-10	K3 (LS-30)	ROOF DRAIN CONNECTION									1006.00	8	10															
RD-11	K4 (LS-31)	ROOF DRAIN CONNECTION									1006.00	8	10															
RD-12	K5 (LS-32)	ROOF DRAIN CONNECTION									1008.67	8	10															
RD-13	K5 (LS-32)	ROOF DRAIN CONNECTION		1006.81	6	65																					
RD-14	LS-37	ROOF DRAIN CONNECTION												1006.00	6	20.9												
RD-15	LS-36	ROOF DRAIN CONNECTION												1006.00	8	9.5												
RD-16	LS-35	ROOF DRAIN CONNECTION									1004.38	10	44.3															

N

0' 15' 30' 60'
SCALE IN FEET

DLR Group

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PACKAGE 2- STRUCTURAL & SITE UTILITIES
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UTILITY PLAN

C1028

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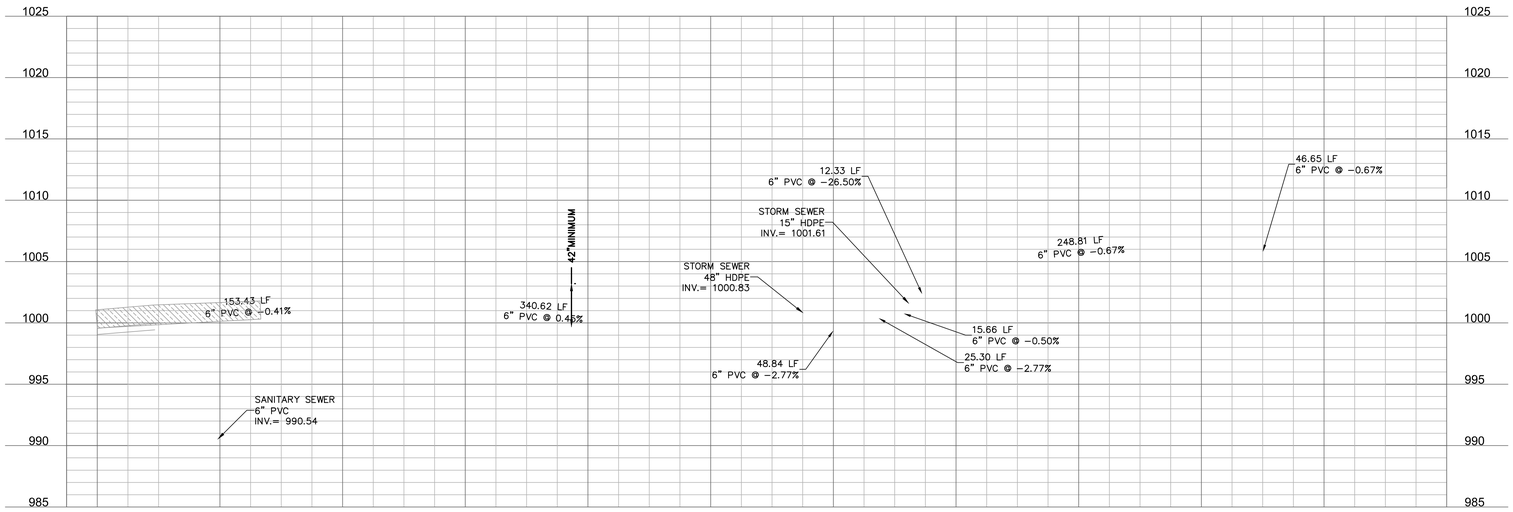
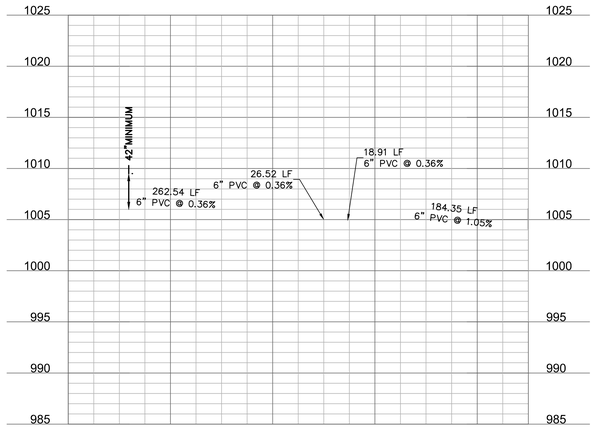
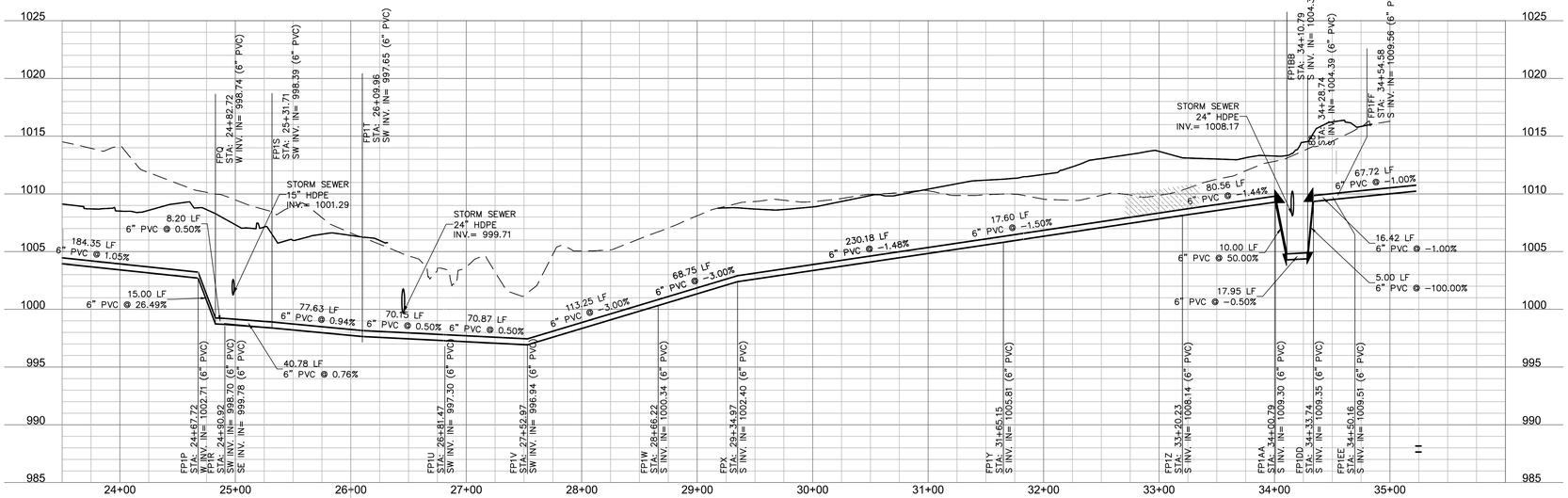
FIRE PROTECTION FP1 (9+75 - 21+00)



FIRE PROTECTION FP1 (20+00 - 24+50)



FIRE PROTECTION FP1 (23+50 - 36+00)



REMOVED INV OUTS

△2

STRUCTURES

ID	DESCRIPTION
FP1A	CONNECT TO PUBLIC MAIN BEGIN CONSTRUCTION FP1 10+00, 0.00' FIRE PROTECTION FP1 INV OUT = 999.06 (6" PVC) N: 991457.497; E: 2831717.706
FP1AA	22.5° VERTICAL BEND WITH THRUST BLOCKS 34+00.79, 0.24' RT FIRE PROTECTION FP1 INV IN = 1009.30 (6" PVC) INV OUT = 1009.30 (6" PVC) N: 993447.120; E: 2832540.009
FP1B	INSTALL 6"X6"X4" TEE FOR DOMESTIC SERVICE 10+11.69, 0.00' FIRE PROTECTION FP1 INV IN = 999.15 (6" PVC) INV OUT = 999.15 (6" PVC) N: 991465.015; E: 2831726.659
FP1BB	22.5° VERTICAL BEND WITH THRUST BLOCKS 34+10.79, 0.27' RT FIRE PROTECTION FP1 INV IN = 1004.30 (6" PVC) INV OUT = 1004.30 (6" PVC) N: 993457.107; E: 2832540.530
FP1C	INSTALL GATE VALVE PER CITY STANDARDS BEGIN CONSTRUCTION FP1 10+25.84, 0.00' FIRE PROTECTION FP1 INV IN = 999.27 (6" PVC) INV OUT = 999.27 (6" PVC) N: 991474.115; E: 2831737.497
FP1D	INSTALL BACK FLOW PREVENTER AND VAULT PER CITY STANDARDS 10+31.77, 0.00' FIRE PROTECTION FP1 INV IN = 999.32 (6" PVC) INV OUT = 999.32 (6" PVC) N: 991477.926; E: 2831742.036
FP1DD	45° VERTICAL BEND WITH THRUST BLOCKS 34+33.74, 0.14' RT FIRE PROTECTION FP1 INV IN = 1009.35 (6" PVC) INV OUT = 1009.35 (6" PVC) N: 993480.039; E: 2832541.526
FP1EE	INSTALL BACK FLOW PREVENTER AND VAULT PER CITY STANDARDS END CONSTRUCTION FP1 34+50.16, 0.00' FIRE PROTECTION FP1 INV IN = 1009.51 (6" PVC) INV OUT = 1009.51 (6" PVC) N: 993496.448; E: 2832542.196
FP1F	22.5° BEND WITH THRUST BLOCKS 10+46.57, 0.00' FIRE PROTECTION FP1 INV IN = 999.44 (6" PVC) △2 INV OUT = 999.44 (6" PVC) N: 991487.446; E: 2831753.373
FP1FF	INSTALL GATE VALVE PER CITY STANDARDS 34+54.58, 0.00' FIRE PROTECTION FP1 INV IN = 1009.56 (6" PVC) INV OUT = 1009.56 (6" PVC) N: 993500.867; E: 2832542.377
FP1G	INSTALL FIRE HYDRANT AND GATE VALVE PER CITY STANDARDS 12+34.48, 0.00' FIRE PROTECTION FP1 INV IN = 999.91 (6" PVC) INV OUT = 999.91 (6" PVC) N: 991665.699; E: 2831812.816
FP1GG	INSTALL GATE VALVE PER CITY STANDARDS 35+22.31, 0.00' LT FIRE PROTECTION FP1 INV IN = 1010.23 (6" PVC) INV OUT = 987.65 (6" PVC) N: 993568.535; E: 2832545.138
FP1H	INSTALL 6"X6"X6" TEE 16+23.93, 0.00' FIRE PROTECTION FP1 INV IN = 999.73 (6" PVC) INV OUT = 999.73 (6" HDPE) INV OUT = 999.73 (6" PVC) N: 992035.151; E: 2831936.017
FP1HH	CONSTRUCT PUBLIC TIE IN CONSTRUCT CUT-IN TEE AT THE EXISTING 16" PUBLIC MAIN 35+26.98, 0.00' FIRE PROTECTION FP1 INV IN = 987.65 (6" PVC) N: 993573.202; E: 2832545.331
FP1I	45° BEND WITH THRUST BLOCKS W/ 11.25 VERTICAL BEND WITH THRUST BLOCKS 16+65.90, 0.00' FIRE PROTECTION FP1 INV IN = 1000.53 (6" PVC) INV OUT = 1000.53 (6" PVC) N: 992048.542; E: 2831896.236
FP1J	45° BEND WITH THRUST BLOCKS W/ 11.25 VERTICAL BEND WITH THRUST BLOCKS 16+78.23, 0.00' FIRE PROTECTION FP1 INV IN = 1003.80 (6" PVC) INV OUT = 1003.80 (6" PVC) N: 992059.584; E: 2831890.756
FP1K	11.25° BEND WITH THRUST BLOCK 19+73.69, 0.00' FIRE PROTECTION FP1 INV IN = 1005.77 (6" PVC) INV OUT = 1005.77 (6" PVC) N: 992339.610; E: 2831984.995
FP1L	FIRE HYDRANT 22+36.23, 0.00' FIRE PROTECTION FP1 INV IN = 1004.83 (6" PVC) INV OUT = 1004.83 (6" PVC) N: 992601.882; E: 2831996.927
FP1M	45° BEND WITH THRUST BLOCKS 22+63.37, 0.00' FIRE PROTECTION FP1 INV IN = 1004.73 (6" PVC) INV OUT = 1004.73 (6" PVC) N: 992628.993; E: 2831998.160
FP1O	45° BEND WITH THRUST BLOCKS 22+83.37, 0.00' FIRE PROTECTION FP1 INV IN = 1004.66 (6" PVC) INV OUT = 1004.66 (6" PVC) N: 992642.478; E: 2832012.930

STRUCTURES

ID	DESCRIPTION
FP1P	11.25° VERTICAL BEND WITH THRUST BLOCKS 24+67.72, 0.00' FIRE PROTECTION FP1 INV IN = 1002.71 (6" PVC) INV OUT = 1002.71 (6" PVC) N: 992634.100; E: 2832197.090
FP1R	INSTALL 6"X6"X6" TEE END CONSTRUCTION FP3 24+90.92, 0.00' FIRE PROTECTION FP1 INV IN = 998.70 (6" PVC) INV IN = 999.78 (6" PVC) INV OUT = 998.70 (6" PVC) N: 992638.949; E: 2832218.127
FP1S	FIRE HYDRANT 25+31.71, 0.00' FIRE PROTECTION FP1 INV IN = 998.39 (6" PVC) INV OUT = 998.39 (6" PVC) N: 992666.462; E: 2832248.234
FP1T	11.25° BEND WITH THRUST BLOCK 26+09.96, 0.01' RT FIRE PROTECTION FP1 INV IN = 997.65 (6" PVC) INV OUT = 997.65 (6" PVC) N: 992719.249; E: 2832305.999
FP1U	22.5° BEND WITH THRUST BLOCK 26+81.47, 0.00' FIRE PROTECTION FP1 INV IN = 997.30 (6" PVC) INV OUT = 997.30 (6" PVC) N: 992756.273; E: 2832367.181
FP1V	22.5° BEND WITH THRUST BLOCKS 27+52.97, 0.00' FIRE PROTECTION FP1 INV IN = 996.94 (6" PVC) INV OUT = 996.94 (6" PVC) N: 992813.870; E: 2832409.543
FP1W	INSTALL FIRE HYDRANT AND GATE VALVE PER CITY STANDARDS 28+66.22, 0.00' FIRE PROTECTION FP1 INV IN = 1000.34 (6" PVC) INV OUT = 1000.34 (6" PVC) N: 992924.270; E: 2832434.809
FP1Y	FIRE HYDRANT 31+65.15, 0.00' FIRE PROTECTION FP1 INV IN = 1005.81 (6" PVC) INV OUT = 1005.81 (6" PVC) N: 993216.880; E: 2832495.862
FP1Z	22.5° BEND WITH THRUST BLOCKS 33+20.23, 0.00' FIRE PROTECTION FP1 INV IN = 1008.14 (6" PVC) INV OUT = 1008.14 (6" PVC) N: 993366.671; E: 2832535.815
FPJ	INSTALL FIRE HYDRANT AND GATE VALVE PER CITY STANDARDS 19+27.04, 0.00' FIRE PROTECTION FP1 INV IN = 1005.46 (6" PVC) INV OUT = 1005.46 (6" PVC) N: 992295.397; E: 2831970.116
FPQ	45° BEND WITH THRUST BLOCK 24+82.72, 0.00' FIRE PROTECTION FP1 INV IN = 998.74 (6" PVC) INV OUT = 998.74 (6" PVC) N: 992633.418; E: 2832212.075
FPX	INSTALL 6"X6"X6" TEE BEGIN CONSTRUCTION FP2 29+34.97, 0.00' FIRE PROTECTION FP1 INV IN = 1002.40 (6" PVC) INV OUT = 1002.40 (6" PVC) INV OUT = 1002.40 (6" PVC) N: 992991.885; E: 2832450.146

△2

LEGEND

COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED FIRE LINE PIPE PRIOR TO INSTALLATION OF THE FIRE LINE PIPE.

0' 25' 50' 100'
SCALE IN FEET

20'
10'
5'
0'

DLR Group
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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010010555
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09/28/20

△2 PR002R 01.14.21

13-20102-00

FIRE PROTECTION
PROFILES

C1028A

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_UTL02_0200103.dwg USER: bkimmich
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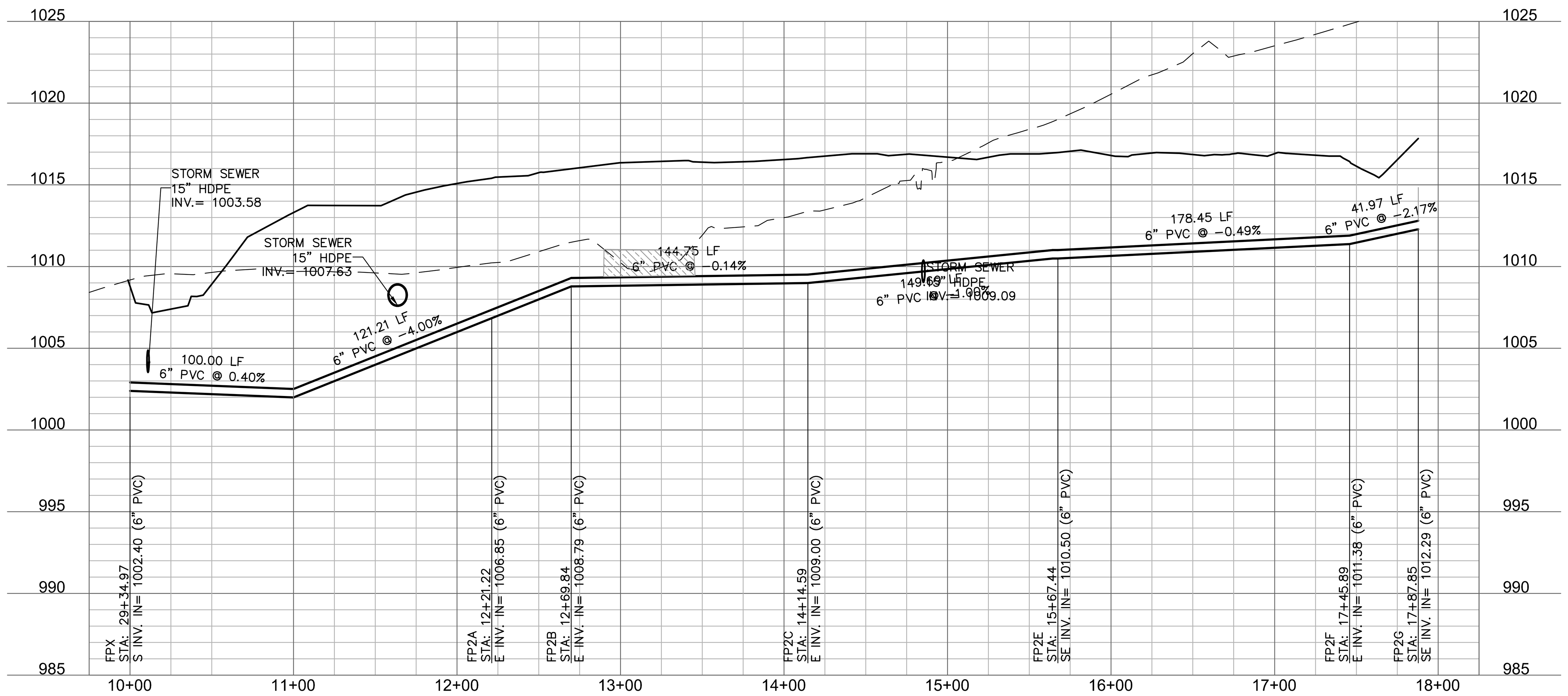
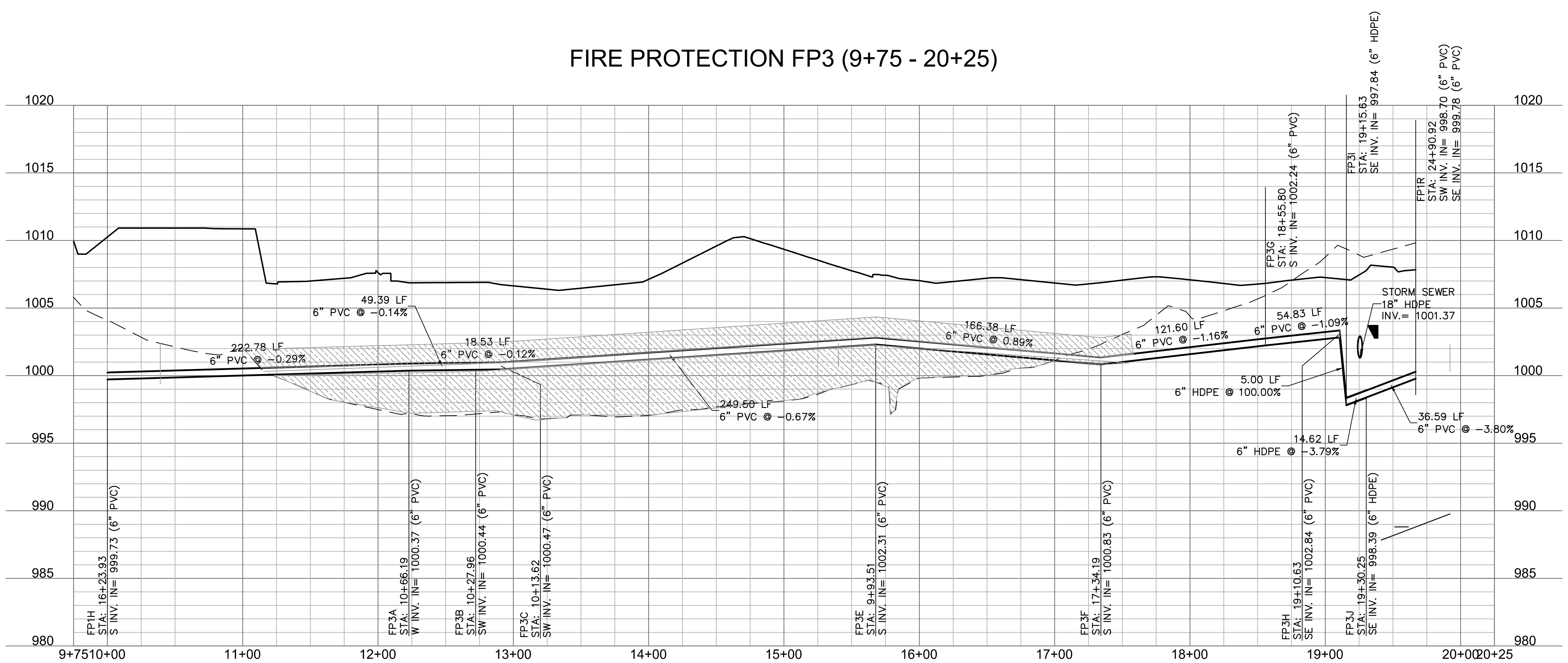
FIRE PROTECTION FP2 (9+75 - 18+25)



STRUCTURES	
ID	DESCRIPTION
FP2A	11° BEND WITH THRUST BLOCK 12+21.22, -0.01' LT FIRE PROTECTION FP2 INV IN = 1006.85 (6" PVC) INV OUT = 1006.85 (6" PVC) N: 993040.609; E: 2832234.502
FP2B	FIRE HYDRANT 12+69.84, -0.01' LT FIRE PROTECTION FP2 INV IN = 1008.79 (6" PVC) INV OUT = 1008.79 (6" PVC) N: 993043.355; E: 2832185.957
FP2C	45° ANGLE WITH THRUST BLOCK 14+14.59, 0.00' FIRE PROTECTION FP2 INV IN = 1009.00 (6" PVC) INV OUT = 1009.00 (6" PVC) N: 993051.538; E: 2832041.439
FP2D	FIRE HYDRANT 15+64.28, 0.00' FIRE PROTECTION FP2 INV IN = 1010.50 (6" PVC) INV OUT = 1010.50 (6" PVC) N: 993162.077; E: 2831940.502
FP2E	45° BEND WITH THRUST BLOCK 15+67.44, 0.00' FIRE PROTECTION FP2 INV IN = 1010.50 (6" PVC) INV OUT = 1010.50 (6" PVC) N: 993164.409; E: 2831938.373
FP2F	45° BEND WITH THRUST BLOCK 17+45.89, 0.00' FIRE PROTECTION FP2 INV IN = 1011.38 (6" PVC) INV OUT = 1011.38 (6" PVC) N: 993172.504; E: 2831760.106
FP2G	FIRE HYDRANT 17+87.85, 0.00' FIRE PROTECTION FP2 INV IN = 1012.29 (6" PVC) N: 993200.200; E: 2831728.575
FPX	INSTALL 6"X6"X6" TEE BEGIN CONSTRUCTION FP2 29+34.97, 0.00' FIRE PROTECTION FP1 INV IN = 1002.40 (6" PVC) INV OUT = 1002.40 (6" PVC) INV OUT = 1002.40 (6" PVC) N: 992991.285; E: 2832450.146

FIRE PROTECTION FP3 (9+75 - 20+25)



LEGEND

COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED FIRE LINE PIPE PRIOR TO INSTALLATION OF THE FIRE LINE PIPE.

0' 25' 50' 100'
SCALE IN FEET

20' 10' 5' 0'

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NUMBER
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01/15/2021

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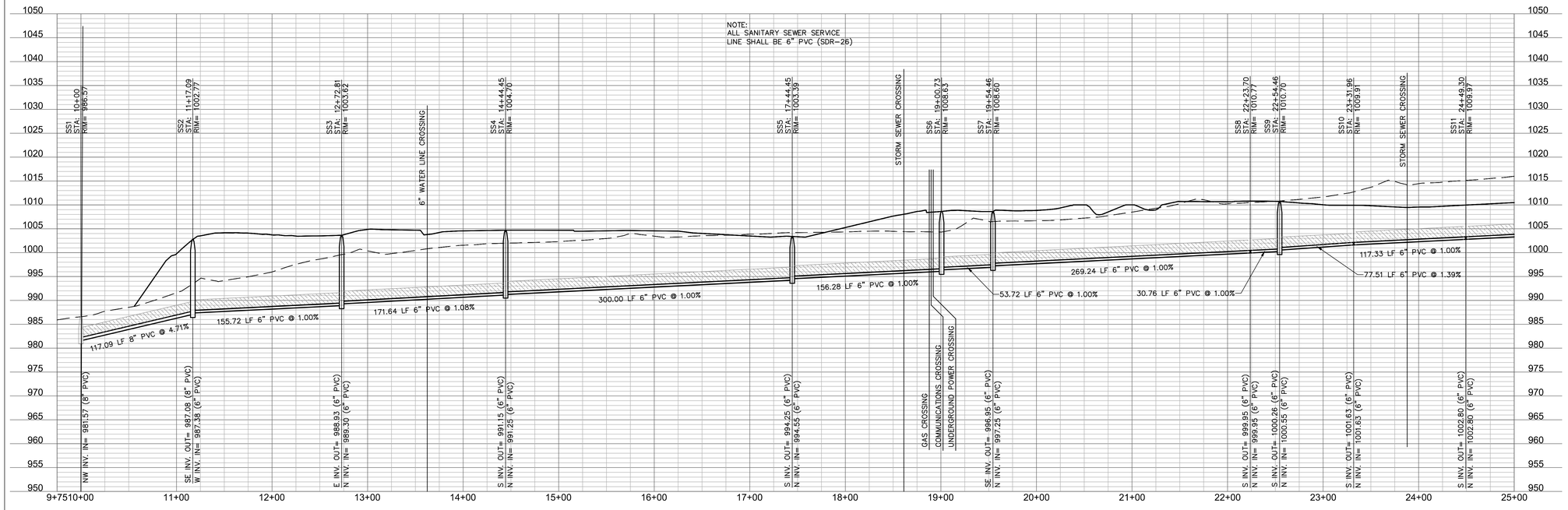
13-20102-00

FIRE PROTECTION PROFILES

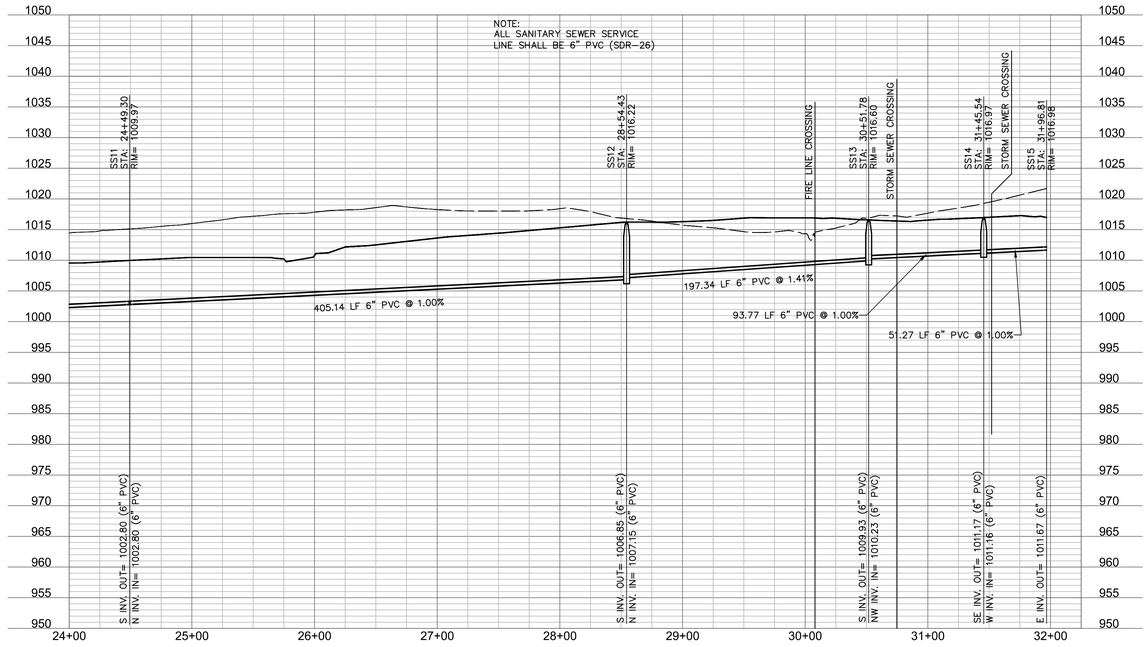
C1028B

SS1 THRU SS15 (9+75 - 25+00)



STRUCTURES	
ID	DESCRIPTION
SS1	48" MH 10+00, 0.00' SS1 THRU SS15 INV IN = 981.57 (8" PVC) N: 991270.630; E: 2831964.013
SS2	48" MH 11+17.09, 0.00' SS1 THRU SS15 INV IN = 987.38 (6" PVC) INV OUT = 987.08 (8" PVC) N: 991370.234; E: 2831902.456
SS3	INSTALL STD. 4' DIA. MH 12+72.81, 0.00' SS1 THRU SS15 INV IN = 989.30 (6" PVC) INV OUT = 988.93 (6" PVC) N: 991422.683; E: 2831755.835
SS4	INSTALL STD. 4' DIA. MH 14+44.45, 0.00' SS1 THRU SS15 INV IN = 991.25 (6" PVC) INV OUT = 991.15 (6" PVC) N: 991593.052; E: 2831776.674
SS5	INSTALL STD. 4' DIA. MH 17+44.45, 0.00' SS1 THRU SS15 INV IN = 994.55 (6" PVC) INV OUT = 994.25 (6" PVC) N: 991876.367; E: 2831875.328
SS6	INSTALL STD. 4' DIA. MH 19+00.73, 0.00' SS1 THRU SS15 INV IN = 996.41 (6" PVC) INV OUT = 996.11 (6" PVC) N: 992023.960; E: 2831926.721
SS7	INSTALL STD. 4' DIA. MH 19+54.46, 0.00' SS1 THRU SS15 INV IN = 997.25 (6" PVC) INV OUT = 996.95 (6" PVC) N: 992046.139; E: 2831877.791
SS8	INSTALL 6"X6"X4" WYE 22+23.70, 0.00' SS1 THRU SS15 INV IN = 999.95 (6" PVC) INV OUT = 999.95 (6" PVC) N: 992301.317; E: 2831963.668
SS9	INSTALL STD. 4' DIA. MH 22+54.46, 0.00' SS1 THRU SS15 INV IN = 1000.55 (6" PVC) INV OUT = 1000.26 (6" PVC) N: 992330.470; E: 2831973.479
SS10	INSTALL 6"X6"X4" WYE 23+31.96, 0.00' SS1 THRU SS15 INV IN = 1001.63 (6" PVC) INV OUT = 1001.63 (6" PVC) N: 992407.809; E: 2831978.572
SS11	INSTALL 6"X6"X4" WYE 24+49.30, 0.00' SS1 THRU SS15 INV IN = 1002.80 (6" PVC) INV OUT = 1002.80 (6" PVC) N: 992524.888; E: 2831986.282

SS1 THRU SS15 (24+00 - 32+25)



STRUCTURES	
ID	DESCRIPTION
SS11	INSTALL 6"X6"X4" WYE 24+49.30, 0.00' SS1 THRU SS15 INV IN = 1002.80 (6" PVC) INV OUT = 1002.80 (6" PVC) N: 992524.888; E: 2831986.282
SS12	INSTALL STD. 4' DIA. MH 28+54.43, 0.00' SS1 THRU SS15 INV IN = 1007.15 (6" PVC) INV OUT = 1006.85 (6" PVC) N: 992929.567; E: 2832005.539
SS13	INSTALL ONE-WAY CLEANOUT 30+51.78, 0.00' SS1 THRU SS15 INV IN = 1010.23 (6" PVC) INV OUT = 1009.93 (6" PVC) N: 993126.744; E: 2832013.612
SS14	INSTALL ONE-WAY CLEANOUT 31+45.54, 0.00' SS1 THRU SS15 INV IN = 1011.16 (6" PVC) INV OUT = 1011.17 (6" PVC) N: 993184.231; E: 2831939.531
SS15	CONNECT SERVICE LINE TO BLDG. WITH CLEANOUT APPROX 10' FROM BLDG FIELD VERIFY ELEVATION RE: MEP 31+96.81, 0.00' SS1 THRU SS15 INV OUT = 1011.67 (6" PVC) N: 993186.328; E: 2831888.304

NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.

LEGEND

COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

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SANITARY SEWER
SERVICE PROFILES

C1028C

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_UTL02_0200103.dwg USER: bkimmich
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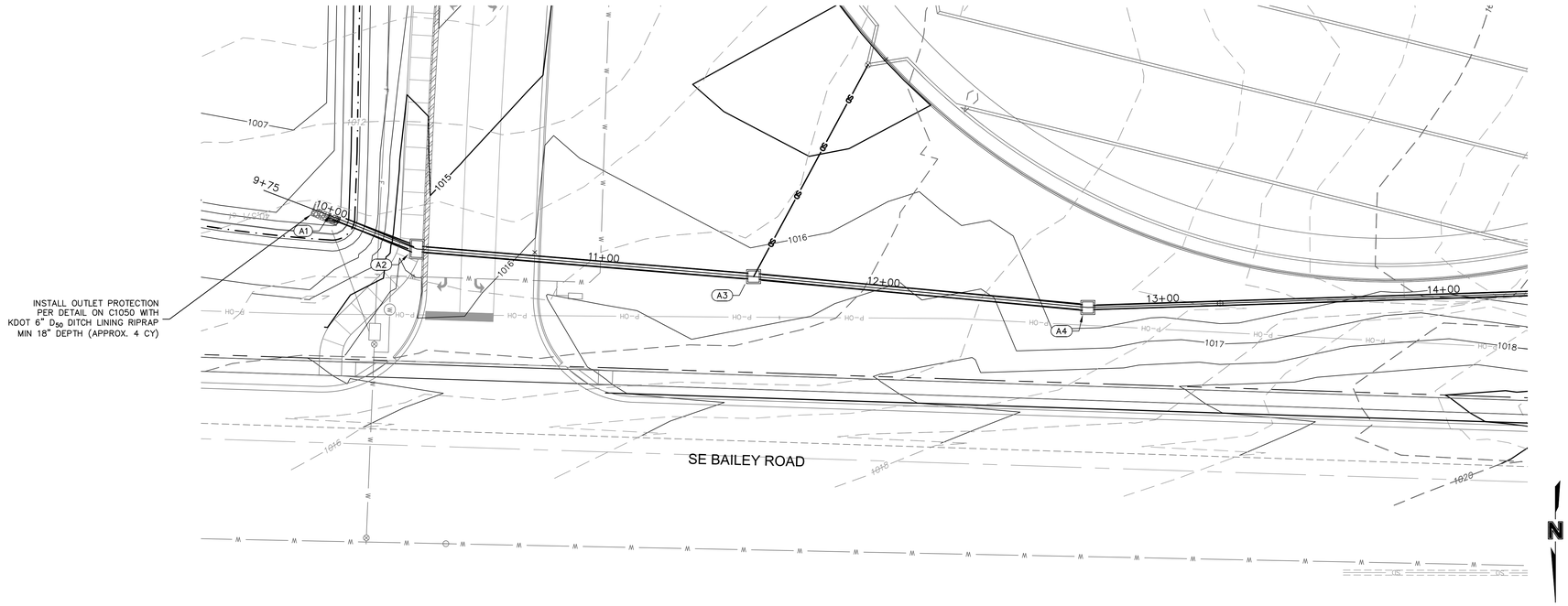


NOTES:

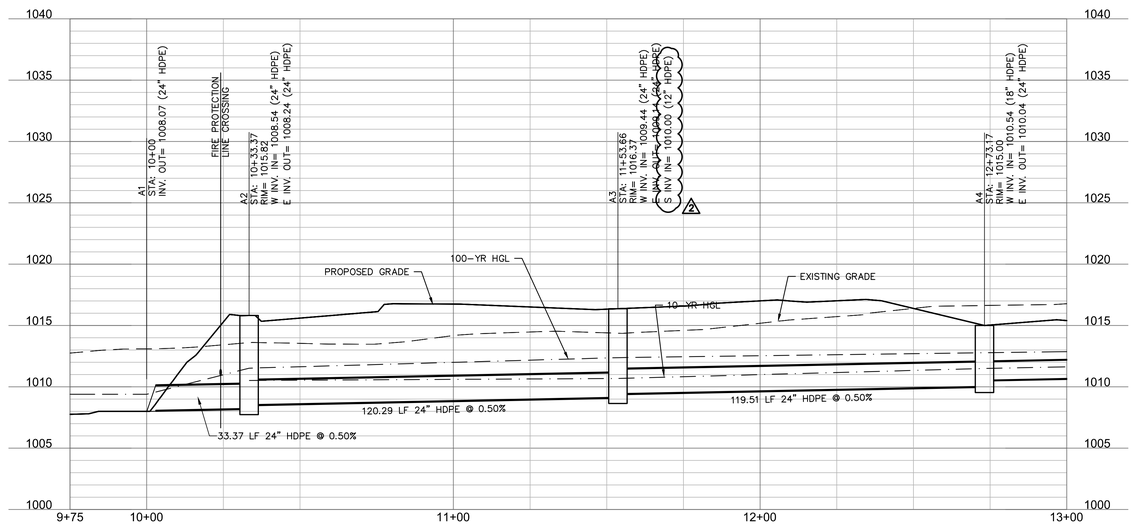
1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- 830 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

2

LINE A (3) (9+75 - 13+00)



2

STRUCTURES	
ID	DESCRIPTION
A1	INSTALL 24" DIA. END SECTION WITH CONCRETE TOEWALL 10+00, 0.00' LINE A (3) ~~RIM= 1010.04~~ INV IN = 1008.07 (24" HDPE) N: 993454.990; E: 2832558.361
A2	INSTALL 6'X4' NON-SETBACK CURB INLET 10+33.37, 0.00' LINE A (3) RIM= 1015.82 INV IN = 1008.54 (24" HDPE) INV OUT = 1008.24 (24" HDPE) N: 993466.944; E: 2832527.206
A3	INSTALL 4'X4' JUNCTION BOX 11+53.66, 0.00' LINE A (3) RIM= 1016.37 INV IN = 1009.44 (24" HDPE) INV OUT = 1009.14 (24" HDPE) N: 993476.766; E: 2832407.320
A4	INSTALL 4'X4' JUNCTION BOX 12+73.17, 0.00' LINE A (3) RIM= 1015.00 INV IN = 1010.54 (18" HDPE) INV OUT = 1010.04 (24" HDPE) N: 993487.779; E: 2832288.317

10'
5'
2.5'
0'

0' 10' 20' 40'
SCALE IN FEET

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STORM SEWER PLAN & PROFILE - LINE A

C1029

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_STM01_0200103.dwg USER: tparsons
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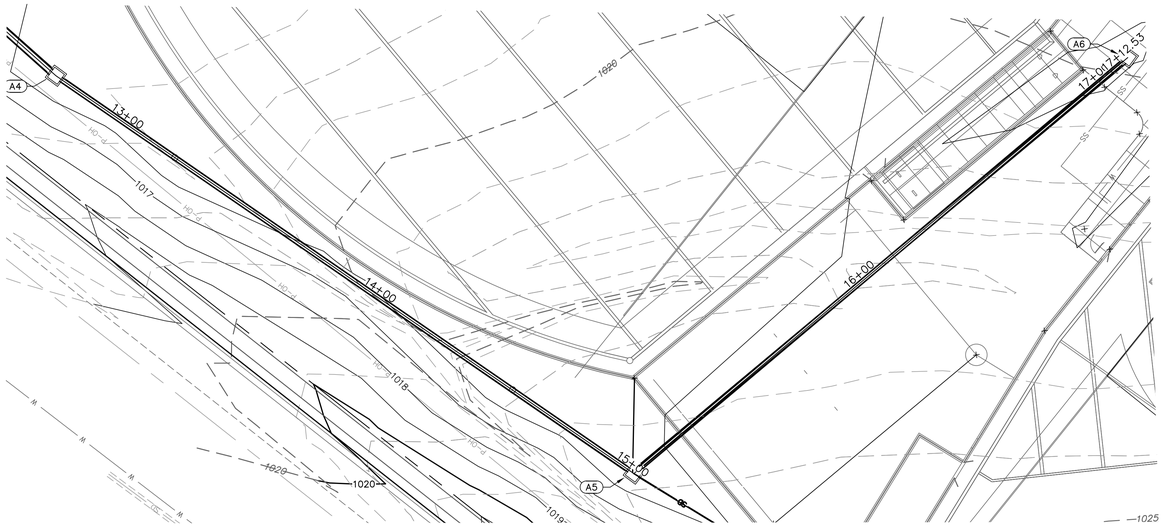


STRUCTURES	
ID	DESCRIPTION
A4	INSTALL 4'X4' JUNCTION BOX 12+73.17, 0.00' LINE A (3) RIM= 1015.00 INV IN = 1010.54 (18" HDPE) INV OUT = 1010.04 (24" HDPE) N: 993487.779; E: 2832288.317
A5	INSTALL 4'X4' JUNCTION BOX 15+01.93, 0.00' LINE A (3) RIM= 1015.02 INV IN = 1011.98 (15" HDPE) INV OUT = 1011.68 (18" HDPE) N: 993480.510; E: 2832059.675
A6	INSTALL 2' DIA. NYLOPLAST BASIN WITH PEDESTRIAN GRATE LID 17+12.53, 0.00' LINE A (3) RIM= 1015.85 INV OUT = 1013.03 (15" HDPE) N: 993275.744; E: 2832010.413

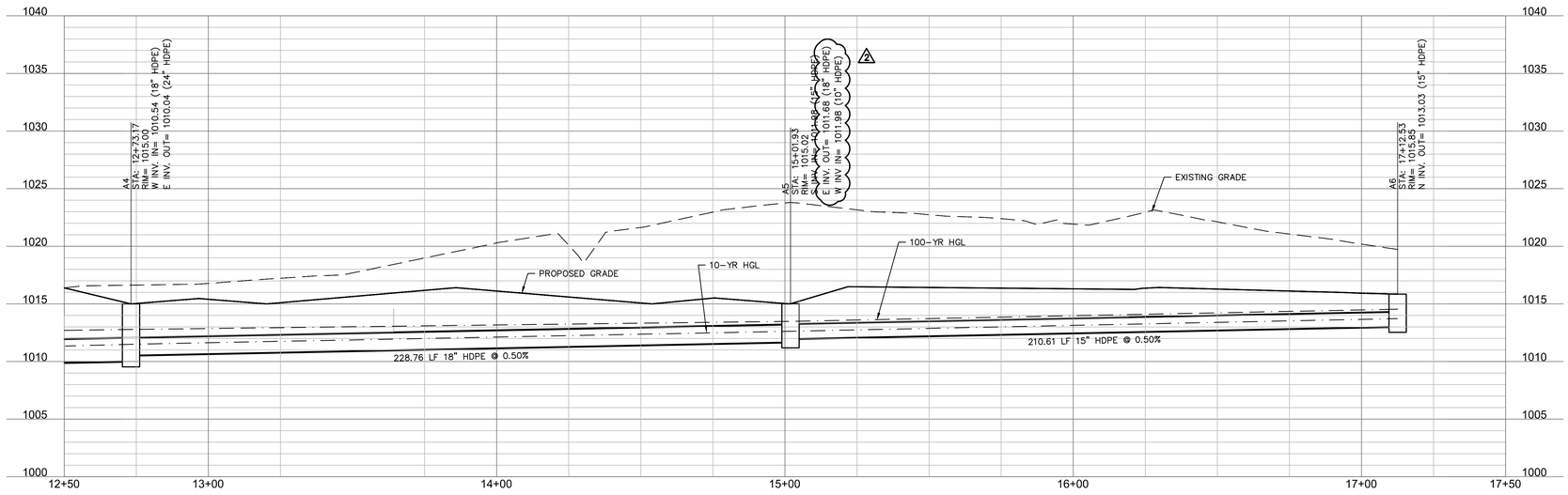
NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- 830 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

LINE A (3) (12+50 - 17+50)



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STORM SEWER PLAN & PROFILE - LINE A

C1030

10'
5'
2.5'
0'
0' 10' 20' 40'
SCALE IN FEET

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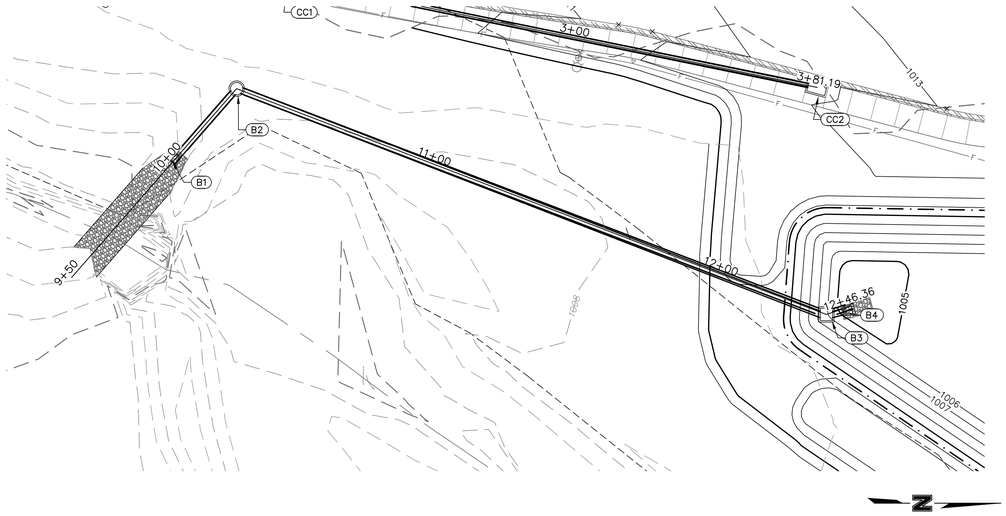

STRUCTURES	
ID	DESCRIPTION
B1	INSTALL 24" END SECTION WITH CONCRETE TOEWALL 10+00, 0.00' LINE B ~~RIM= 1005.11~~ INV IN = 1002.53 (24" HDPE) N: 993084.159; E: 2832531.362
B2	INSTALL STD. 4' DIA. MH 27+01.48, 896.81' RT LINE E RIM= 1007.00 INV IN = 1003.00 (24" HDPE) INV OUT = 1002.70 (24" HDPE) N: 993105.057; E: 2832507.447
B3	INSTALL CONTROL STRUCTURE PER C1057 12+37.67, 0.00' LINE B RIM= 1012.20 INV IN = 1004.40 (24" HDPE) INV OUT = 1004.05 (24" HDPE) N: 993297.366; E: 2832581.043
B4	INSTALL 24" END SECTION WITH CONCRETE TOEWALL 12+46.36, 0.00' LINE B ~~RIM= 1007.02~~ INV OUT = 1004.44 (24" HDPE) N: 993305.603; E: 2832578.267

NOTES:

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2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

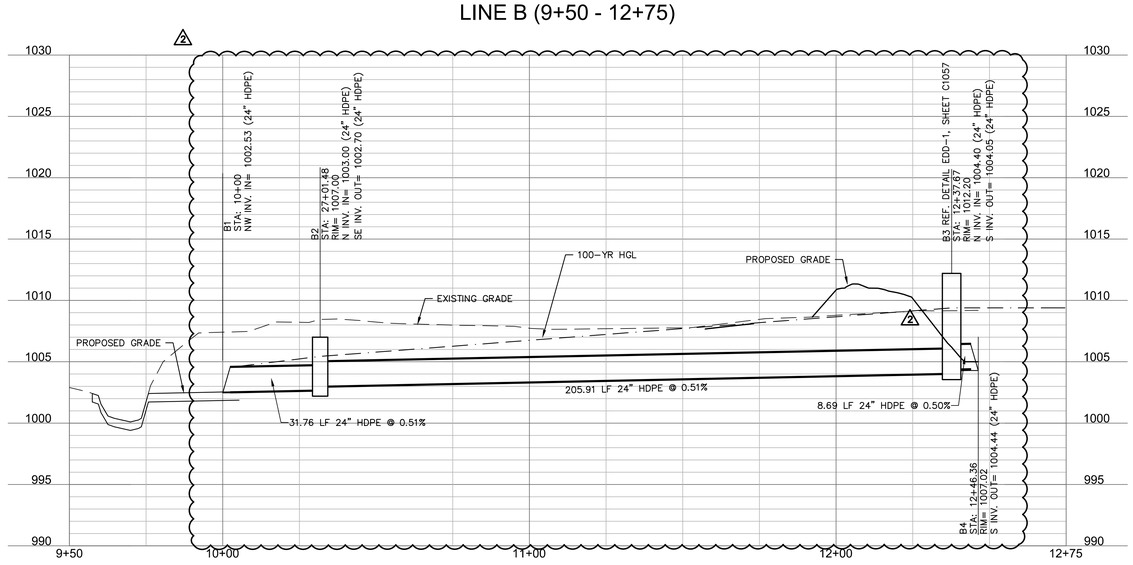
LEGEND

- PROPERTY LINE
- 830 — EXISTING CONTOUR
- 830 — PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

2

HEC-14 RIPRAP APRON SIZING FOR OUTFALL B-1

	D50	Q	D	TW	TW/D	APRON LENGTH		APRON DEPTH		Width at End of Apron (ft)
	(in)	ft3/s	ft	ft	0.4 Min 1.0 Max	Scale from Table 10.1	Scale x D (ft)	Scale from Table 10.1	Scale x D50 (in)	
Required	2.2	9.9	2	0.91	0.455	4	8	3.3	19.8	11.4
Design	6						24		24	12



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13-20102-00

STORM SEWER PLAN & PROFILE - LINE B

C1030A

10'
5'
2.5'
0'
0' 10' 20' 40'
SCALE IN FEET

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_STM01_0200103.dwg USER: tparsons
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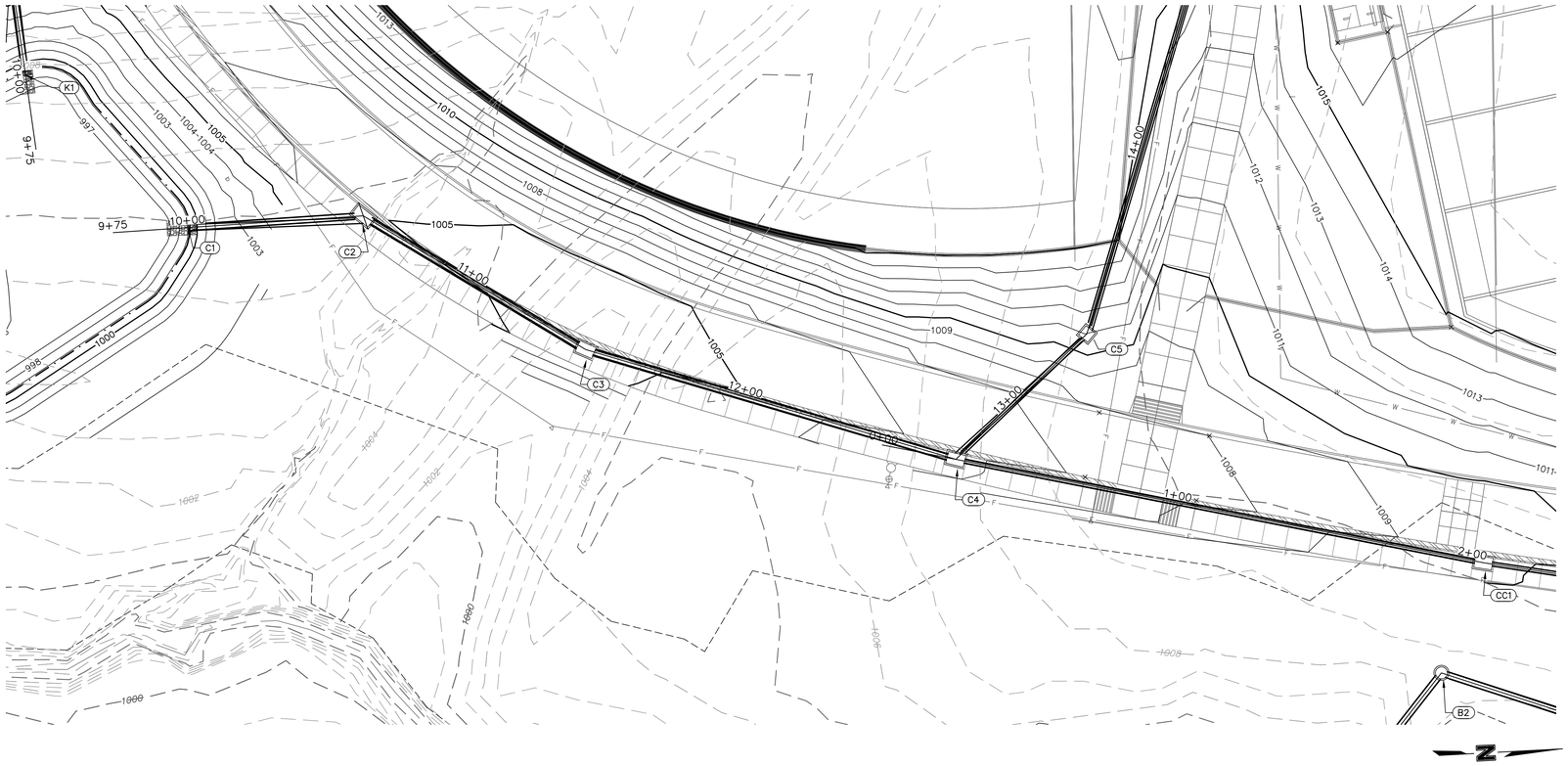


STRUCTURES	
ID	DESCRIPTION
C1	INSTALL 24" DIA. END SECTION WITH TOEWALL 10+00, 0.00' RT LINE C ~~RIM= 1002.08~~ INV IN = 999.50 (24" HDPE) N: 992695.797; E: 2832336.866
C2	INSTALL 7'X4' NON-SETBACK CURB INLET 10+58.53, 0.00' LINE C RIM= 1005.57 INV IN = 1000.09 (24" HDPE) INV OUT = 999.79 (24" HDPE) N: 992754.318; E: 2832336.087
C3	INSTALL 6'X4' NON-SETBACK CURB INLET 11+45.03, 0.00' LINE C RIM= 1004.60 INV IN = 1000.82 (24" HDPE) INV OUT = 1000.52 (24" HDPE) N: 992825.971; E: 2832384.550
C4	INSTALL 6'X4' NON-SETBACK CURB INLET 12+73.74, 0.00' LINE C RIM= 1006.82 INV IN = 1002.86 (15" HDPE) INV IN = 1002.86 (15" HDPE) INV OUT = 1002.11 (24" HDPE) N: 992947.233; E: 2832427.690

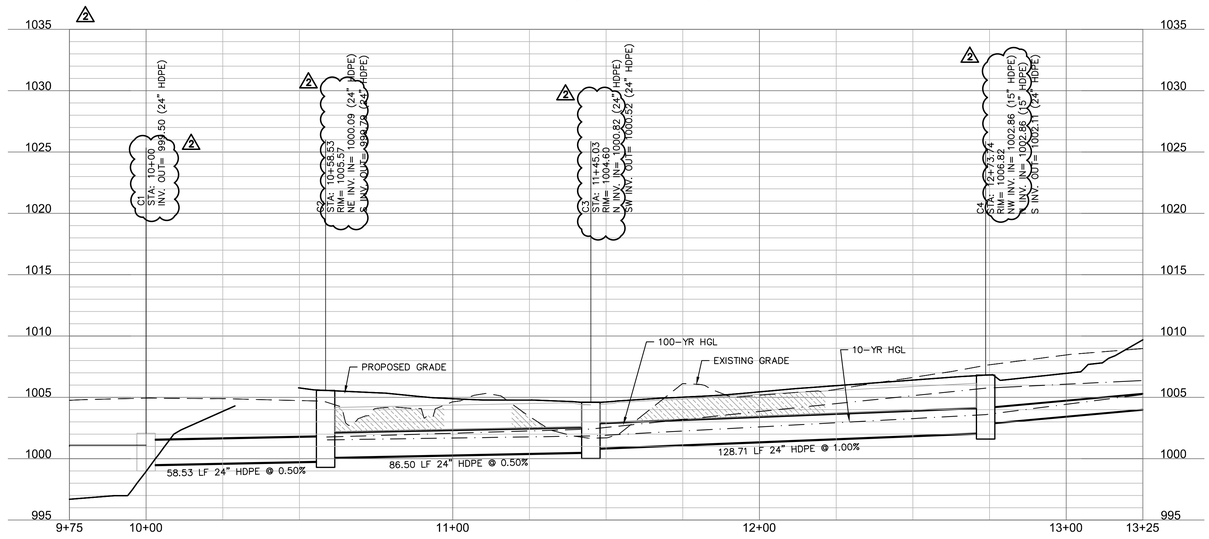
NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- **830** PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE. (2)

LINE C (9+75 - 13+25)



0' 10' 20' 40'
SCALE IN FEET

10'
5'
2.5'
0'

DLR Group

STATE OF MISSOURI
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STORM SEWER PLAN & PROFILE - LINE C

C1031

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_STM01_0200103.dwg USER: bkimmich
DATE: Jan 14, 2021 1:26pm XREFS: C_XBASE_0200103 C_PBASE_0200103 C_PTBLK_0200103 C_PSURF_0200103 T_PBASE_0200103 C_PSTRM_0200103

STRUCTURES

ID	DESCRIPTION
C4	INSTALL 6'X4' NON-SETBACK CURB INLET 12+73.74, 0.00' LINE C RIM= 1006.82 INV IN = 1002.86 (15" HDPE) INV IN = 1002.86 (15" HDPE) INV OUT = 1002.11 (24" HDPE) N: 992947.233; E: 2832427.690
C5	INSTALL 4'X4' JUNCTION BOX 13+34.19, 0.00' LINE C RIM= 1010.96 INV IN = 1004.52 (15" HDPE) INV OUT = 1004.22 (15" HDPE) N: 992993.091; E: 2832388.295
C6	INSTALL 2' DIA. NYLOPLAST BASIN WITH PEDESTRIAN GRATE LID 10+31.76, -301.30' LT LINE B RIM= 1015.44 INV IN = 1010.49 (15" HDPE) INV OUT = 1010.19 (15" HDPE) N: 993056.407; E: 2832210.098
C7	INSTALL 2' DIA. NYLOPLAST BASIN WITH PEDESTRIAN GRATE LID 16+42.22, 0.00' LINE C RIM= 1016.91 INV OUT = 1011.68 (15" HDPE) N: 993061.744; E: 2832091.305

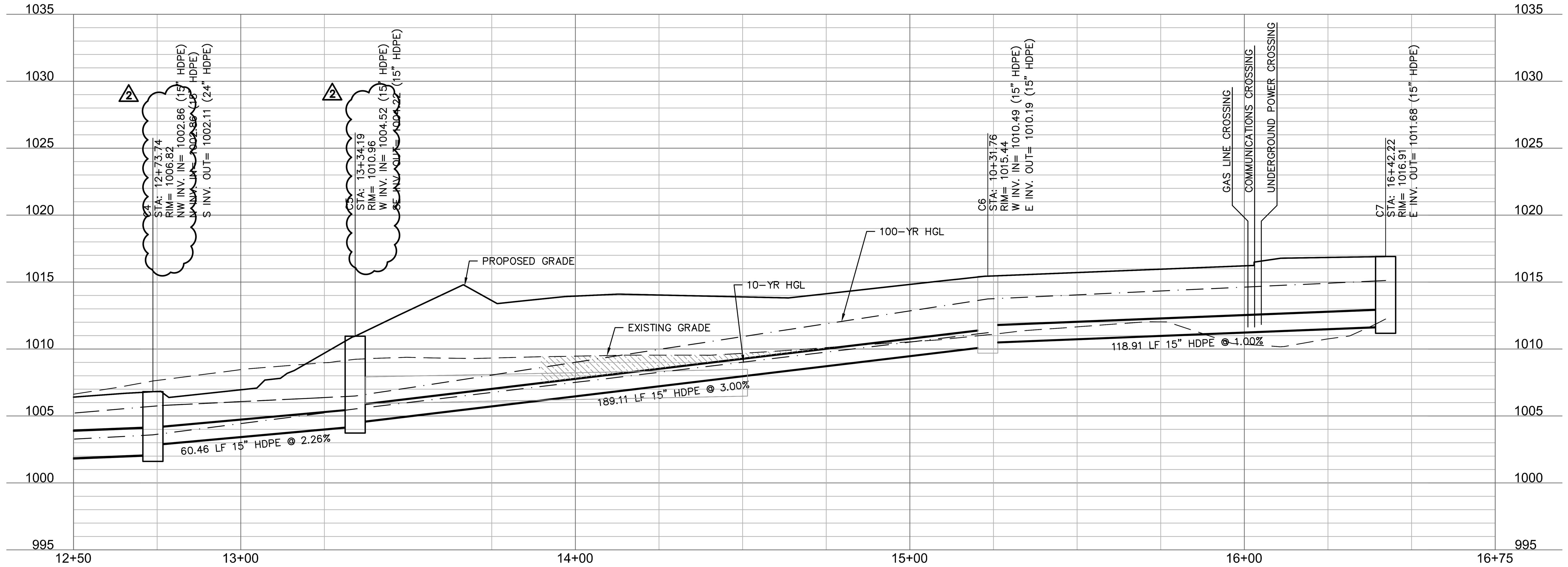
NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

PROPERTY LINE
830 EXISTING CONTOUR
830 PROPOSED CONTOUR
PROPOSED STORM SEWER
COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.
2

LINE C (12+50 - 16+75)



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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2018010505
PROFESSIONAL ENGINEER
01/15/2021

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LEE'S SUMMIT MIDDLE SCHOOL #4

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1001 SE BAILEY ROAD
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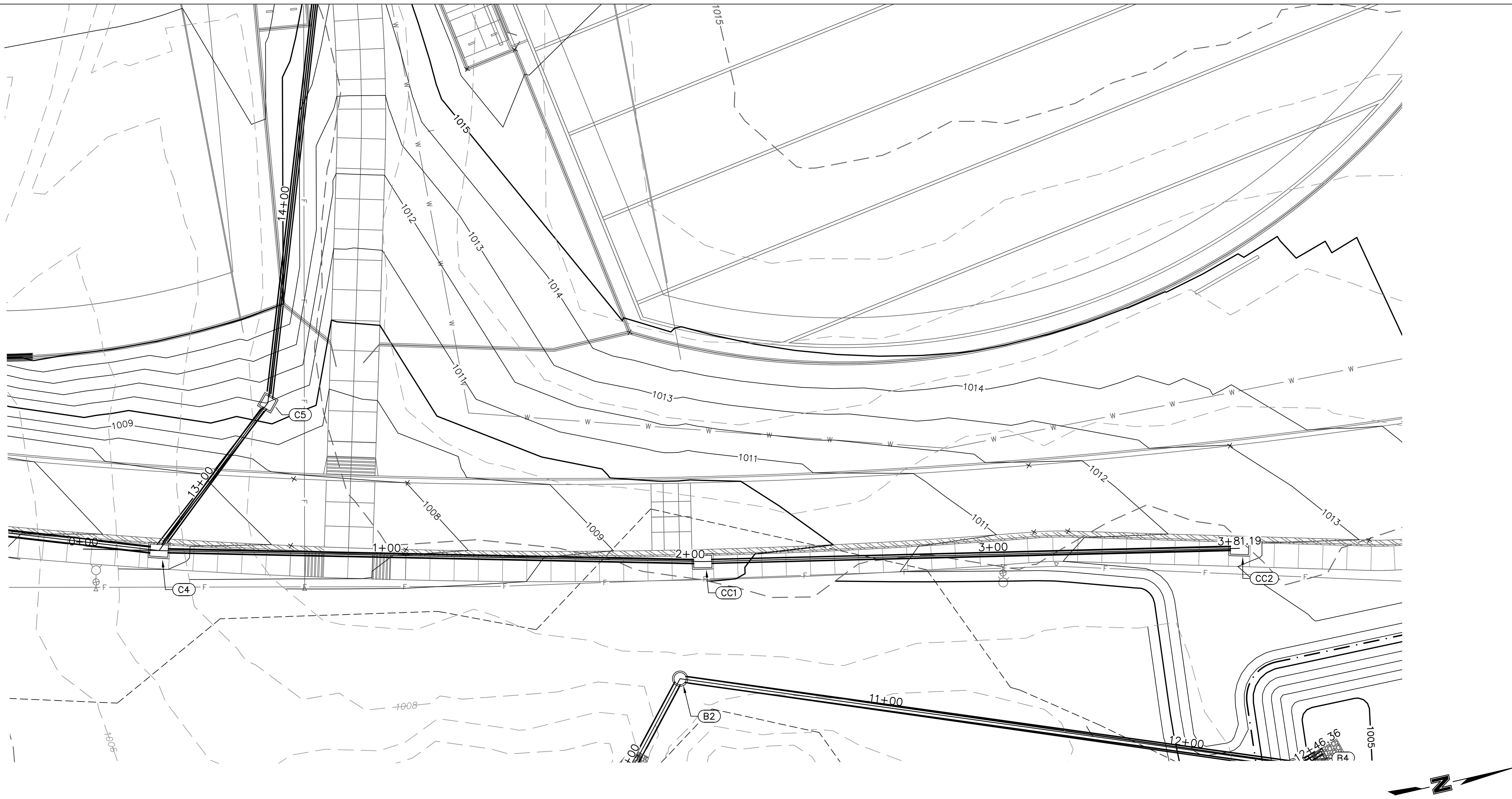
STORM SEWER PLAN & PROFILE - LINE C

C1032



STRUCTURES	
ID	DESCRIPTION
C4	INSTALL 6'X4' NON-SETBACK CURB INLET 12+73.74, 0.00' LINE C RIM= 1006.82 INV IN = 1002.86 (15" HDPE) INV IN = 1002.86 (15" HDPE) INV OUT = 1002.11 (24" HDPE) N: 992947.233; E: 2832427.690
CC1	INSTALL 6'X4' NON-SETBACK CURB INLET 2+04.24, 0.00' LINE CC RIM= 1009.74 INV IN = 1005.85 (15" HDPE) INV OUT = 1005.55 (15" HDPE) N: 993121.028; E: 2832471.516
CC2	INSTALL 6'X4' NON-SETBACK CURB INLET 3+81.19, 0.00' LINE CC RIM= 1012.89 INV OUT = 1007.62 (15" HDPE) N: 993294.379; E: 2832507.027

NOTES:

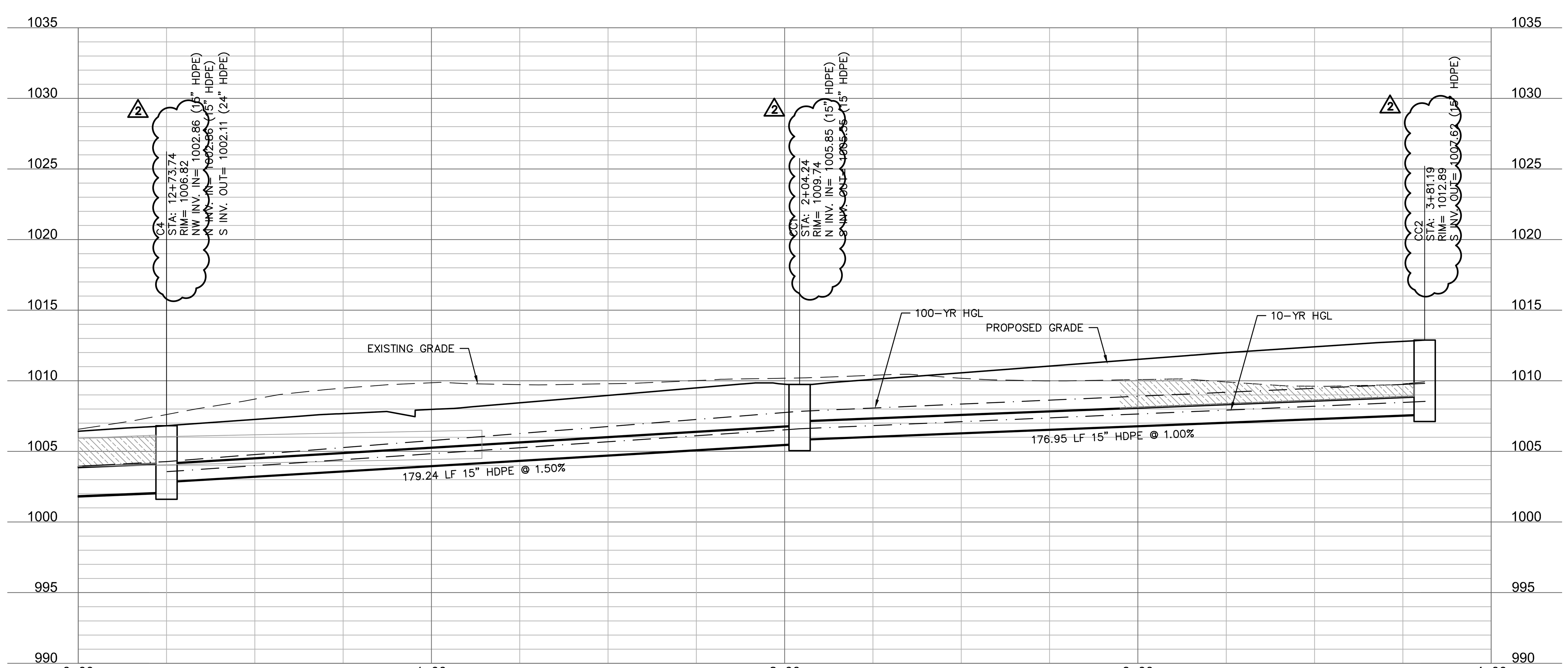
1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- 830 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

2

LINE CC (0+00 - 4+00)



10'
5'
2.5'
0'

0' 10' 20' 40'
SCALE IN FEET

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TERRY M. PARSONS
NUMBER PE-2018010505
01/15/2021
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STORM SEWER PLAN & PROFILE - LINE CC

C1033

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNC\CONSTRUCTION DOCUMENTS\C_STM01_0200103.dwg USER: bkimmich
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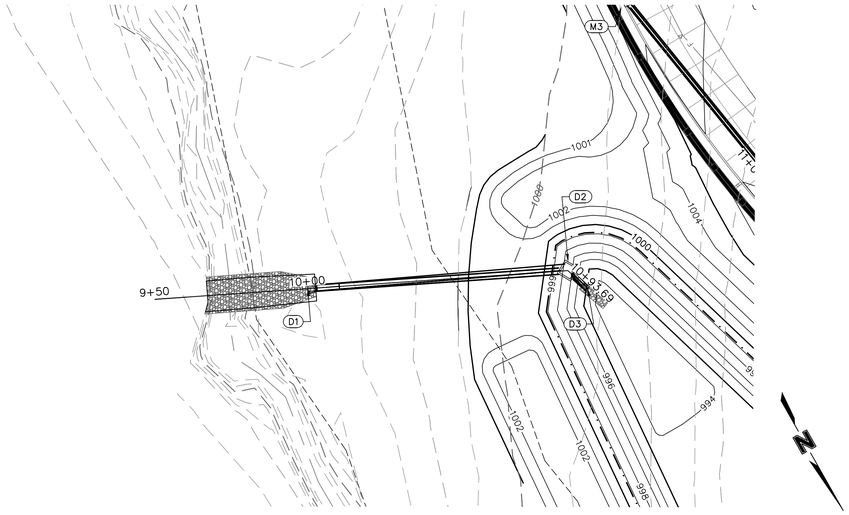

STRUCTURES	
ID	DESCRIPTION
D1	INSTALL 24" DIA. END SECTION WITH CONCRETE TOEWALL 10+00, 0.00' LINE D ~~RIM= 997.28~~ INV IN = 994.71 (24" HDPE) N: 992436.343; E: 2832443.658
D2	INSTALL CONTROL STRUCTURE PER C1057 10+85, 0.00' LINE D RIM= 1003.30 INV IN = 995.63 (24" HDPE) INV OUT = 995.13 (24" HDPE) N: 992472.969; E: 2832366.953
D3	INSTALL 24" DIA. END SECTION WITH CONCRETE TOEWALL 10+93.69, 0.00' LINE E ~~RIM= 997.83~~ INV OUT = 995.67 (24" HDPE) N: 992481.205; E: 2832364.177

NOTES:

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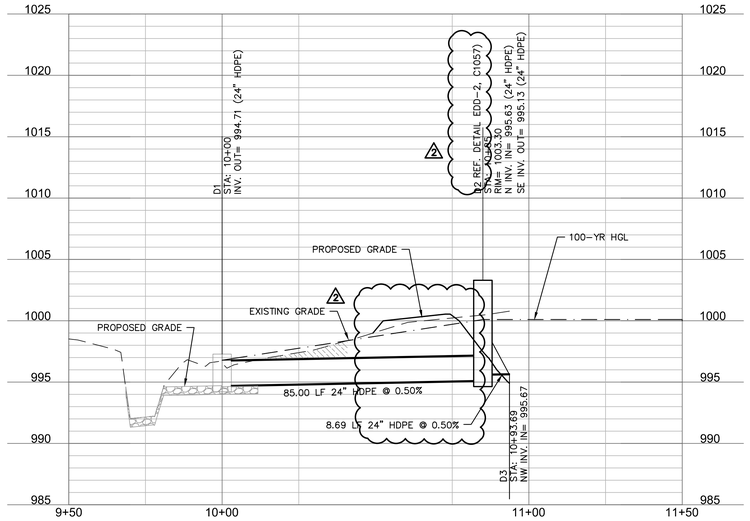
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (830)
- PROPOSED CONTOUR (830)
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

LINE D (9+50 - 11+50)



0' 10' 20' 40'
SCALE IN FEET

10'
5'
2.5'
0'

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TERRY M. PARSONS
NUMBER PE-2010010555
01/15/2021
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STORM SEWER PLAN & PROFILE - LINE D

C1034

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_STM01_0200103.dwg USER: bkimmich
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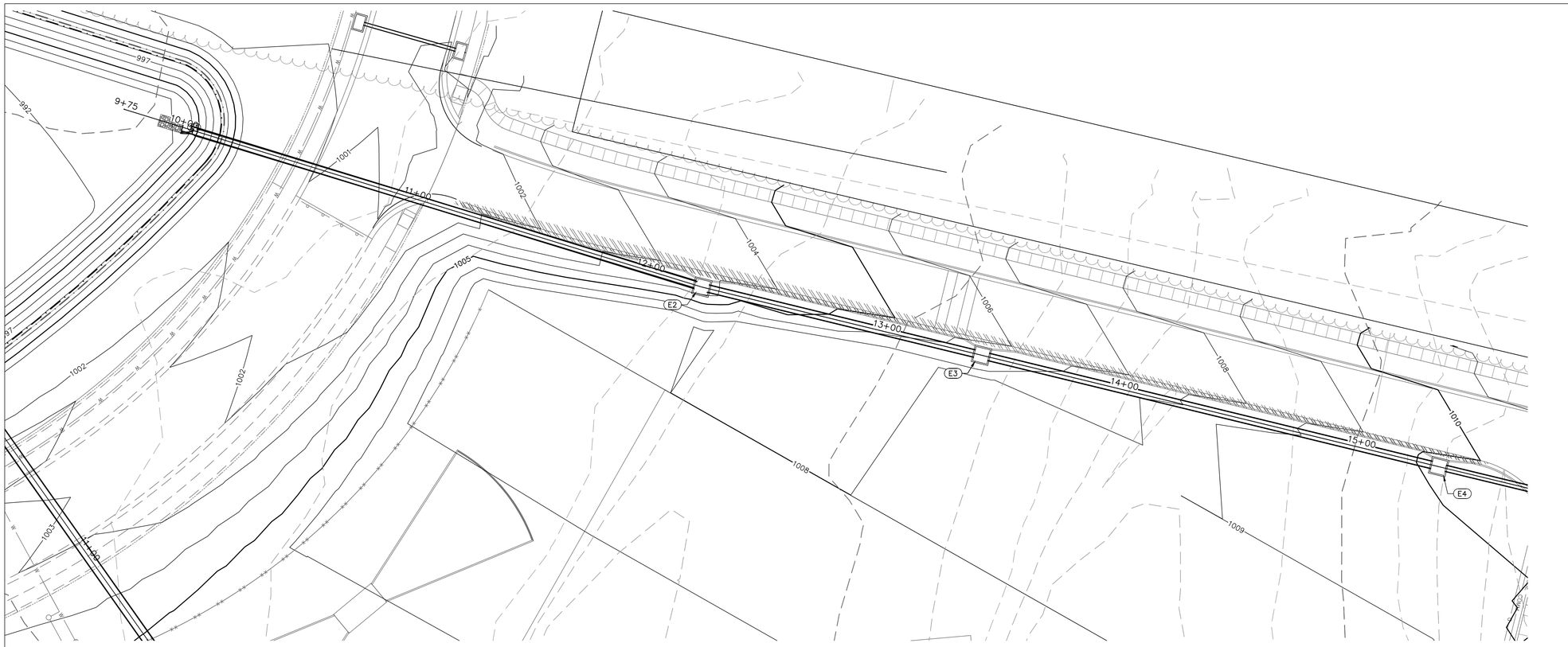


STRUCTURES	
ID	DESCRIPTION
E2	INSTALL 6'X6' CURB INLET 12+22.39, 0.00' LINE E ~~RIM= 1003.86~~ INV IN = 998.54 (36" HDPE) INV OUT = 998.04 (36" HP) N: 991696.727; E: 2831544.472
E3	INSTALL 6'X6' CURB INLET 13+40.26, 0.00' LINE E RIM= 1006.25 INV IN = 999.43 (36" HDPE) INV OUT = 999.13 (36" HDPE) N: 991814.500; E: 2831549.282
E4	INSTALL 6'X6' CURB INLET 15+32.94, 0.00' LINE E RIM= 1010.16 INV IN = 1001.53 (30" HDPE) INV OUT = 1000.39 (36" HDPE) N: 992007.018; E: 2831557.144

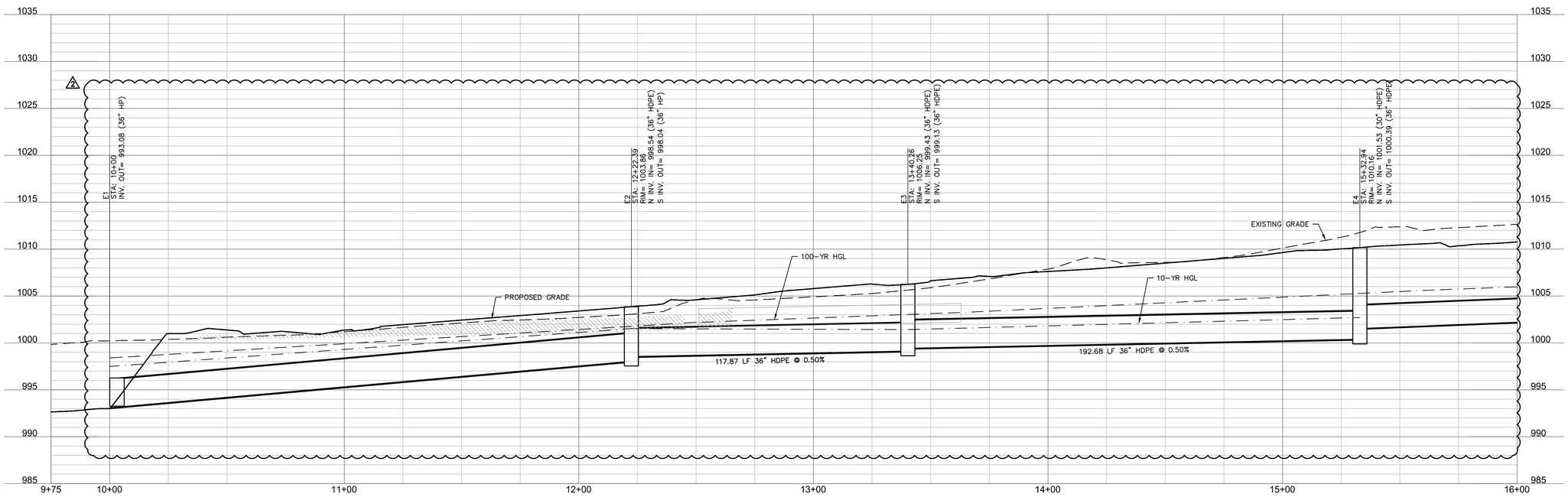
NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- 830 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

LINE E (9+75 - 16+00)



10' 5' 2.5' 0'

0' 10' 20' 40'
SCALE IN FEET

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STORM SEWER PLAN & PROFILE - LINE E

C1035

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_STM01_0200103.dwg USER: bkimmich
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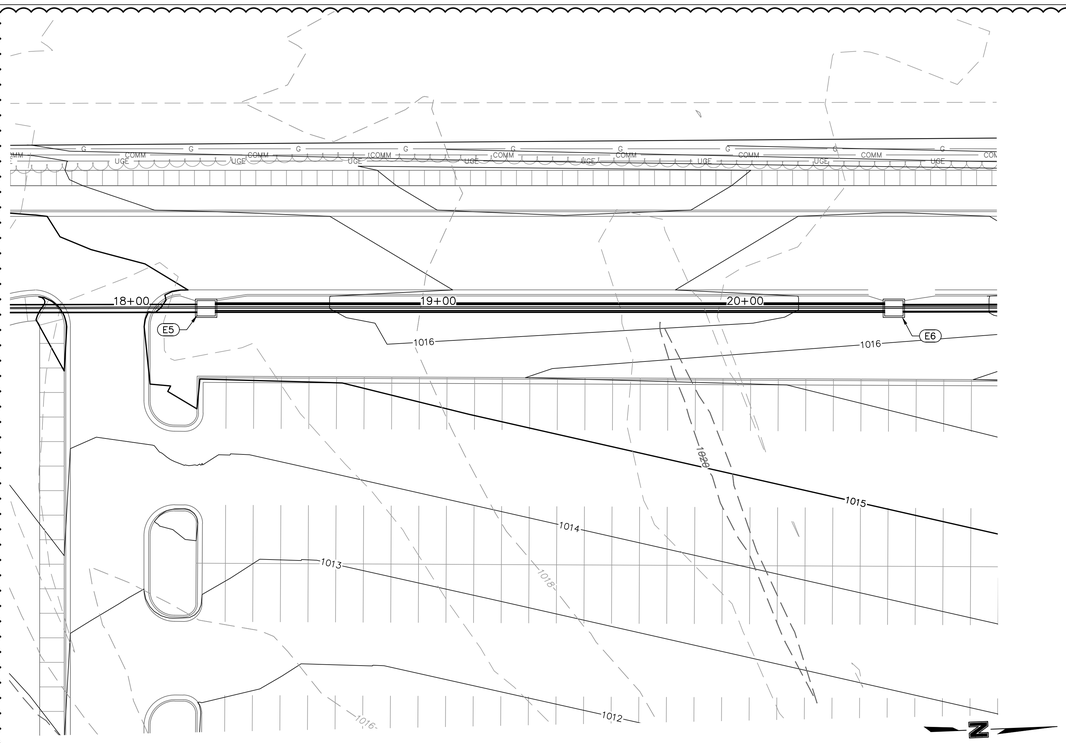
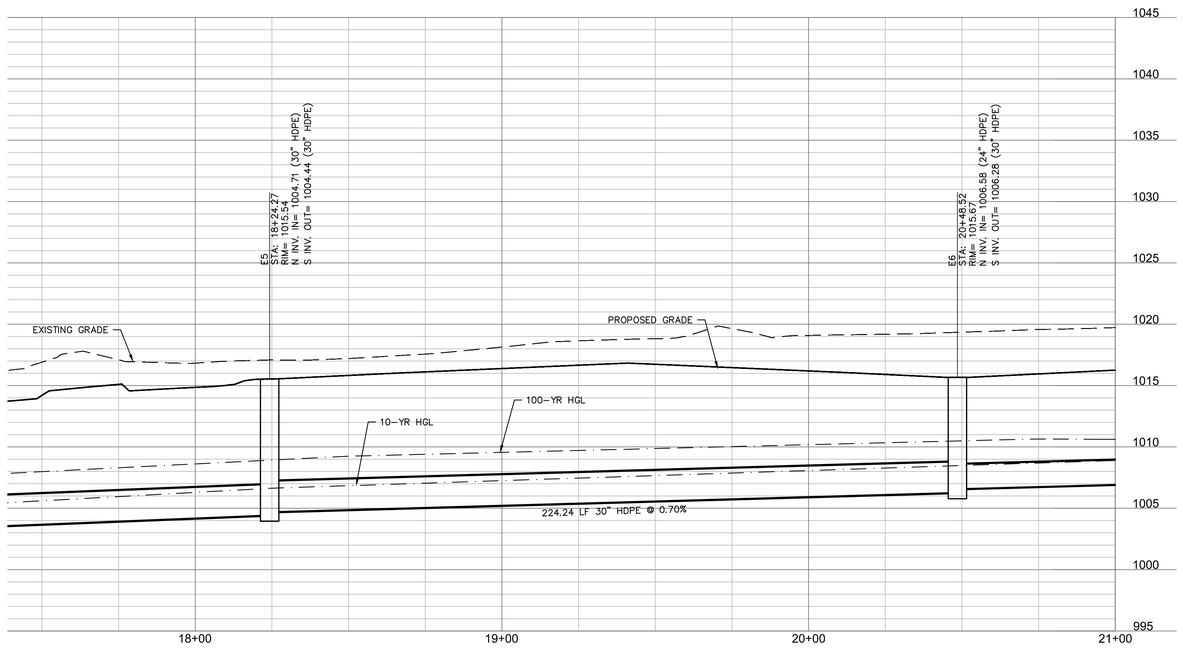


LINE E (15+25 - 21+00)



2

STRUCTURES	
ID	DESCRIPTION
E4	INSTALL 6'X6' CURB INLET 15+32.94, 0.00' LINE E RIM= 1010.16 INV IN = 1001.53 (30" HDPE) INV OUT = 1000.39 (36" HDPE) N: 992007.018; E: 2831557.144
E5	INSTALL 6'X5' CURB INLET 18+24.27, 0.00' LINE E RIM= 1015.54 INV IN = 1004.71 (30" HDPE) INV OUT = 1004.44 (30" HDPE) N: 992298.126; E: 2831568.526
E6	INSTALL 6'X5' CURB INLET 20+48.52, 0.00' LINE E RIM= 1015.67 INV IN = 1006.58 (24" HDPE) INV OUT = 1006.28 (30" HDPE) N: 992522.182; E: 2831577.678

NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- 830 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

2

0' 10' 20' 40'
SCALE IN FEET

10'
5'
2.5'
0'

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TERRY M. PARSONS
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PROFESSIONAL ENGINEER

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STORM SEWER
PLAN & PROFILE -
LINE E

C1036

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_STM01_0200103.dwg USER: bkimmich
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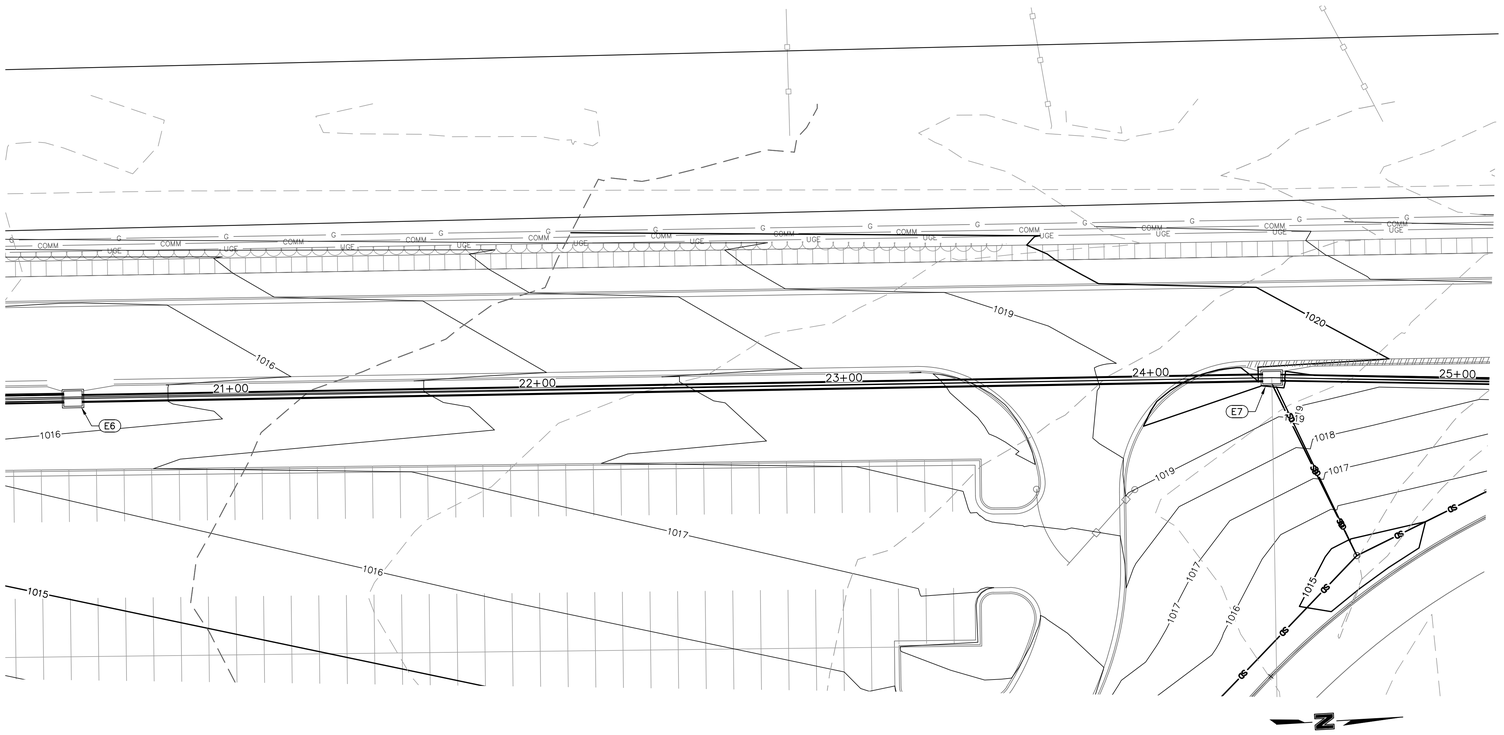


STRUCTURES	
ID	DESCRIPTION
E6	INSTALL 6'X5' CURB INLET 20+48.52, 0.00' LINE E RIM= 1015.67 INV IN = 1006.58 (24" HDPE) INV OUT = 1006.28 (30" HDPE) N: 992522.182; E: 2831577.678
E7	INSTALL 6'X4' CURB INLET 24+39.50, 0.00' LINE E RIM= 1020.05 INV IN = 1009.62 (24" HDPE) INV IN = 1009.82 (10" HDPE) INV OUT = 1009.32 (24" HDPE) N: 992912.857; E: 2831593.136
E8	INSTALL STD. 4' DIA. MH 26+88.20, –1.01' LT LINE E RIM= 1019.97 INV IN = 1012.69 (24" HDPE) INV OUT = 1012.36 (24" HDPE) N: 993160.903; E: 2831611.266

NOTES:

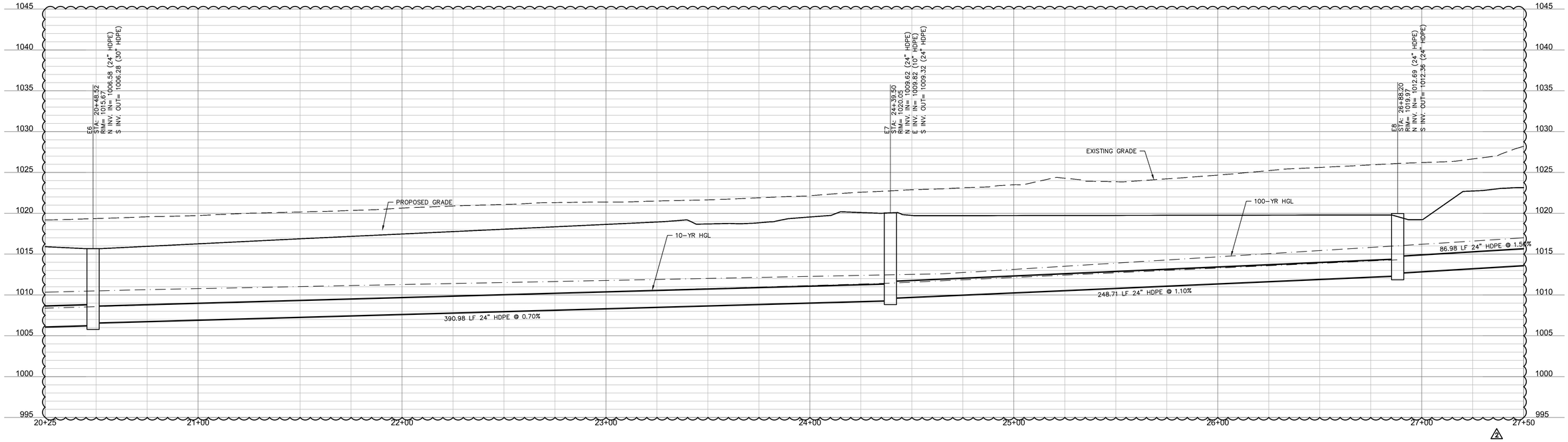
1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- 830 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'–0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

2

LINE E (20+25 - 27+50)



2

10'
5'
2.5'
0'
0' 10' 20' 40'
SCALE IN FEET

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_STM01_0200103.dwg USER: bkimmich
DATE: Jan 14, 2021 1:30pm XREFs: C_XBASE_0200103 C_PBASE_0200103 C_PTELK_0200103 C_PSURF_0200103 T_PBASE_0200103 C_PSTRM_0200103

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STORM SEWER PLAN & PROFILE - LINE E

C1037

STRUCTURES	
ID	DESCRIPTION
E8	INSTALL STD. 4' DIA. MH 26+88.20, -1.01' LT LINE E RIM= 1019.97 INV IN = 1012.69 (24" HDPE) INV OUT = 1012.36 (24" HDPE) N: 993160.903; E: 2831611.266
E9	INSTALL 6'X5' CURB INLET 27+75.17, 0.00' LINE E RIM= 1023.75 INV IN = 1014.28 (15" HDPE) INV OUT = 1014.00 (24" HDPE) N: 993247.540; E: 2831618.964
E10	INSTALL 6'X4' CURB INLET 29+13.28, 0.00' LINE E RIM= 1025.18 INV OUT = 1016.35 (15" HDPE) N: 993356.535; E: 2831703.785

NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

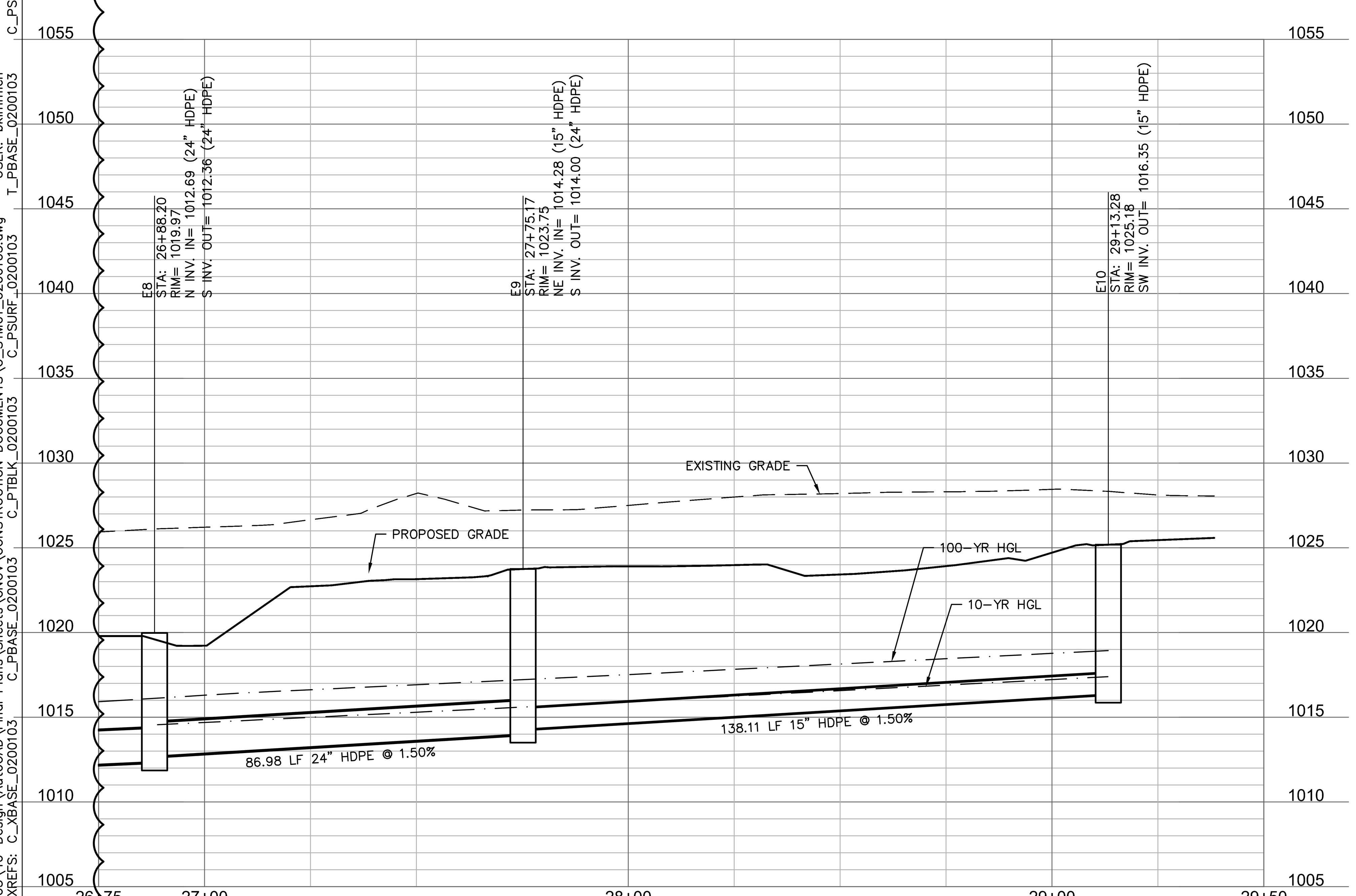
LEGEND

PROPERTY LINE
830 EXISTING CONTOUR
830 PROPOSED CONTOUR
PROPOSED STORM SEWER
COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

2

2

LINE E (26+75 - 29+50)



10' 5' 2.5' 0'

0' 10' 20' 40'
SCALE IN FEET

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DATE: Jan 14, 2021 1:30pm XREFS: C_XBASE_0200103 C_PBASE_0200103 C_PTBLK_0200103 C_PSURF_0200103 T_PBASE_0200103 C_PSTRM_0200103

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01/15/2021
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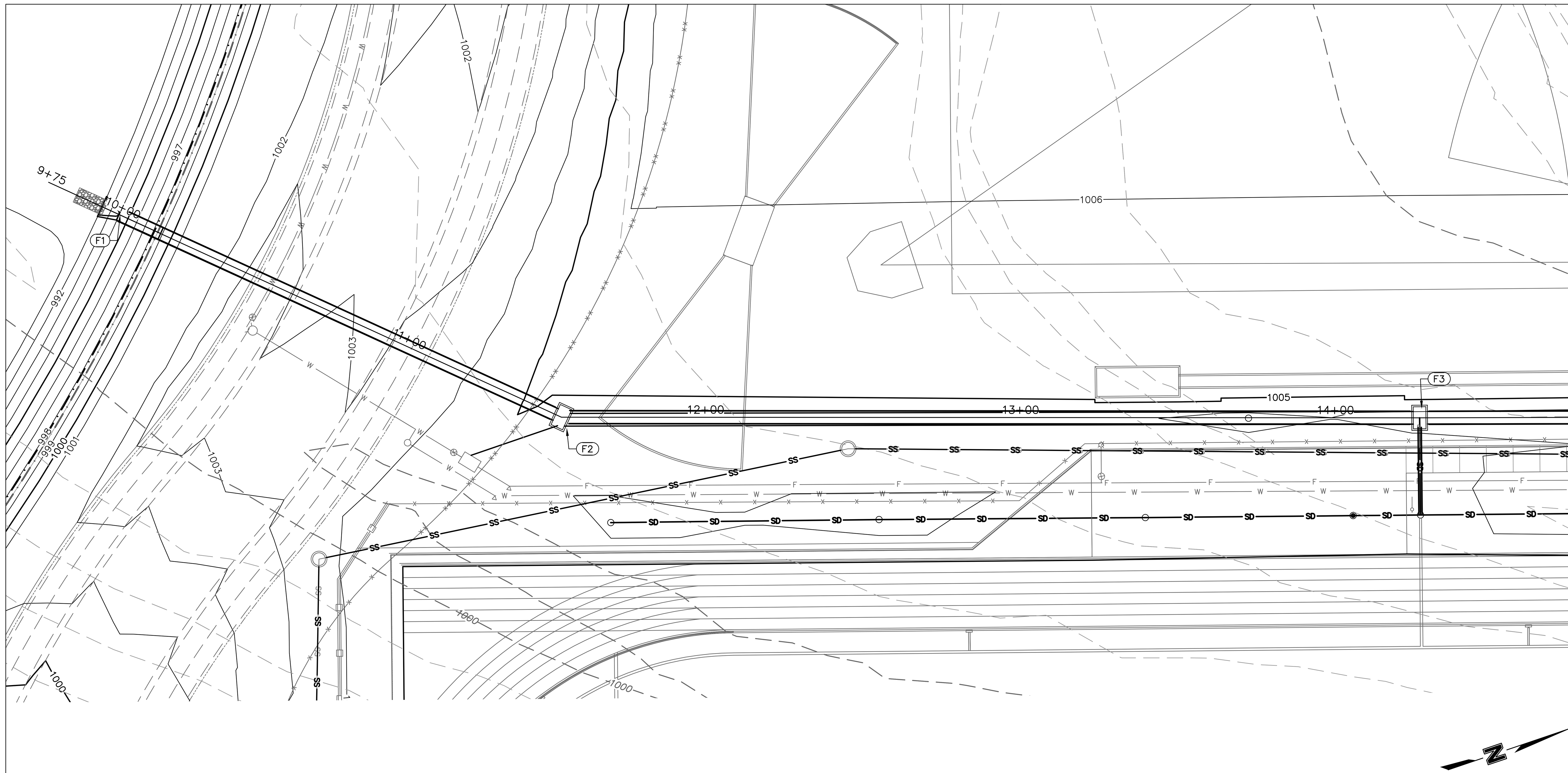
STORM SEWER PLAN & PROFILE - LINE E

C1038



STRUCTURES

ID	DESCRIPTION
F1	INSTALL 48" END SECTION WITH CONCRETE TOEWALL 10+00, 0.00' LINE F ~~RIM= 999.49~~ INV IN = 994.87 (48" HDPE) N: 991398.070; E: 2831632.042
F2	INSTALL 7'X4' JUNCTION BOX 10+56.07, 211.14' RT LINE E RIM= 1004.88 INV IN = 995.94 (48" HDPE) INV OUT = 995.64 (48" HDPE) N: 991510.093; E: 2831737.899
F3	INSTALL 7'X4' DOUBLE GRATE INLET 14+26.65, 0.00' LINE F RIM= 1003.43 INV IN = 997.60 (48" HDPE) INV IN = 997.80 (12" HDPE) INV OUT = 997.30 (48" HDPE) N: 991768.065; E: 2831825.747

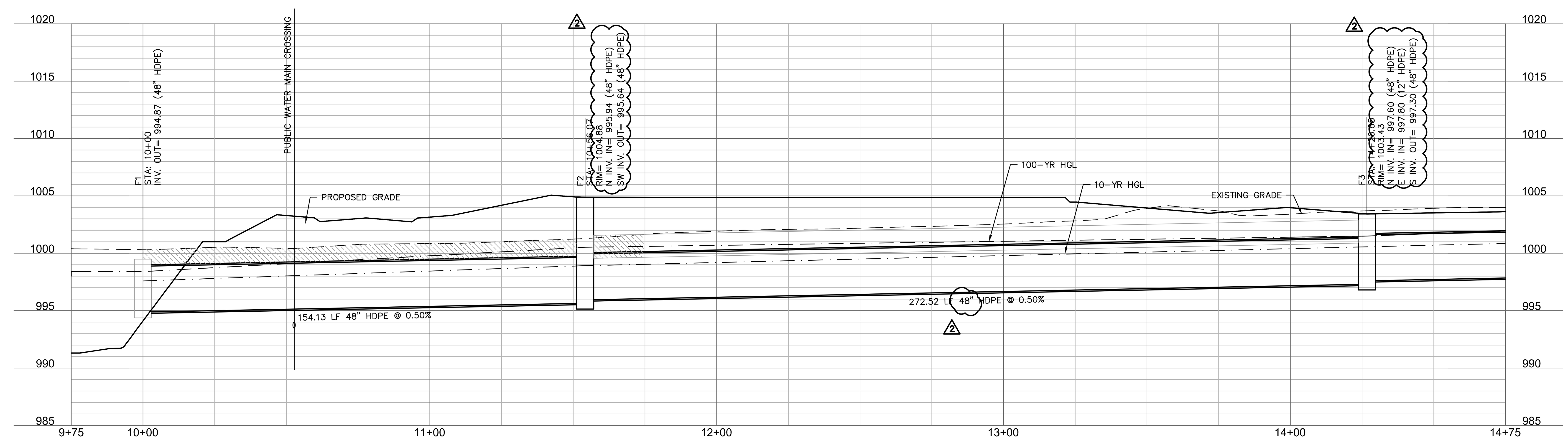
NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

PROPERTY LINE
830 EXISTING CONTOUR
830 PROPOSED CONTOUR
PROPOSED STORM SEWER
COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

LINE F (9+75 - 14+75)



10'
5'
2.5'
0'

0' 10' 20' 40'
SCALE IN FEET

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STATE OF MISSOURI TERRY M. PARSONS NUMBER PE-2018010505 PROFESSIONAL ENGINEER 01/15/2021

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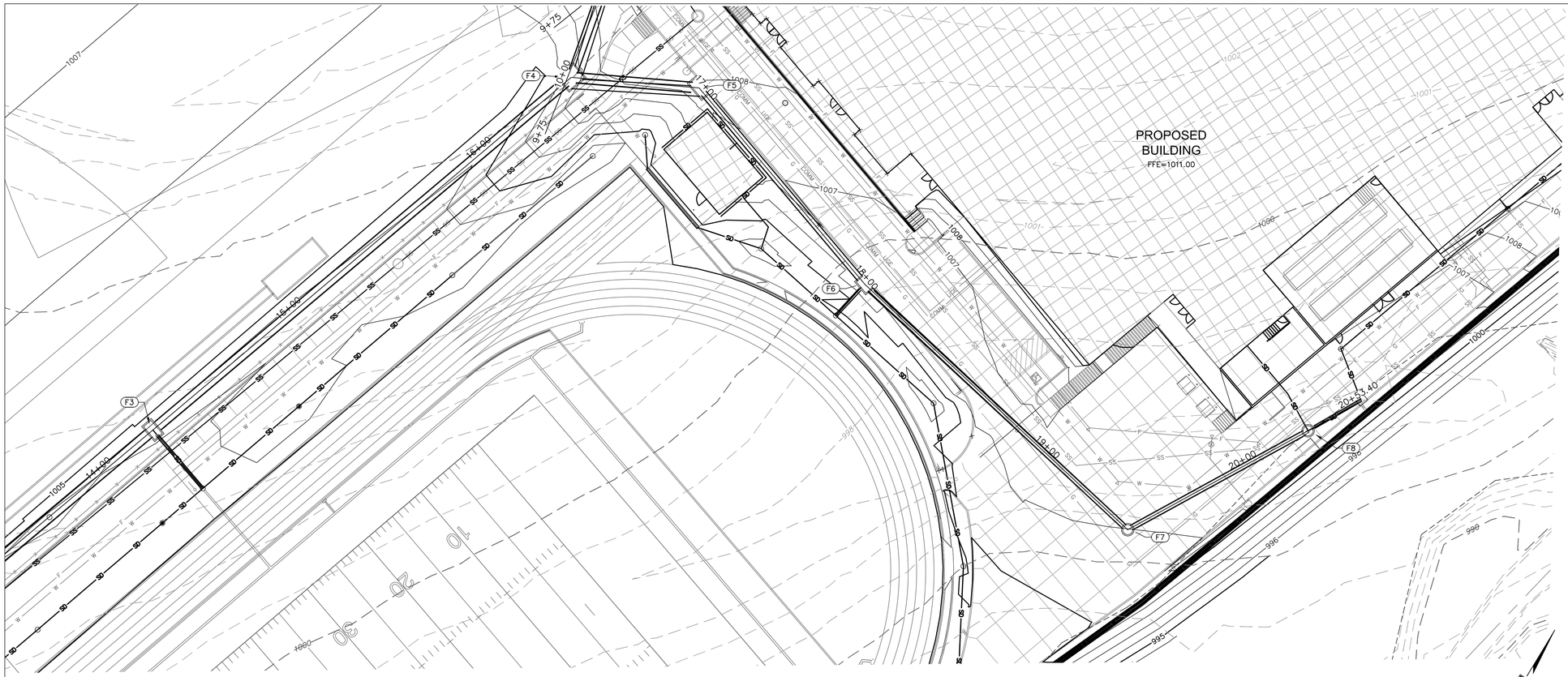
08/28/20

2 PR002R 01.14.21

13-20102-00

STORM SEWER PLAN & PROFILE - LINE F

C1039



STRUCTURES	
ID	DESCRIPTION
F3	INSTALL 7'X4' DOUBLE GRATE INLET 14+26.65, 0.00' LINE F RIM= 1003.43 INV IN = 997.60 (48" HDPE) INV IN = 997.80 (12" HDPE) INV OUT = 997.30 (48" HDPE) N: 991768.065; E: 2831825.747
F4	INSTALL 9'X7' JUNCTION BOX 15+16.30, 339.76' RT LINE E RIM= 1006.44 INV IN = 1000.70 (48" HDPE) INV IN = 999.00 (42" HDPE) INV OUT = 998.70 (48" HDPE) N: 991976.526; E: 2831895.941
F5	INSTALL 9'X5' NON SETBACK CURB INLET 16+98.20, 0.00' LINE F RIM= 1008.44 INV IN = 1001.25 (30" HDPE) INV OUT = 1000.95 (48" HDPE) N: 991999.575; E: 2831942.104
F6	INSTALL 6'X5' NON-SETBACK CURB INLET 18+01.51, 0.00' LINE F RIM= 1006.52 INV IN = 1002.06 (24" HDPE) INV IN = 1002.26 (12" HDPE) INV OUT = 1001.76 (30" HDPE) N: 991966.617; E: 2832040.014
F7	INSTALL STD. 4' DIA. MH WITH HEAVY DUTY RING AND COVER 19+46.09, 0.00' LINE F RIM= 1005.99 INV IN = 1003.08 (24" HDPE) INV OUT = 1002.78 (24" HDPE) N: 991937.029; E: 2832181.536
F8	INSTALL STD. 4' DIA. MH WITH HEAVY DUTY RING AND COVER 20+28.80, 0.00' LINE F RIM= 1006.41 INV IN = 1003.99 (12" HDPE) INV OUT = 1003.49 (24" HDPE) N: 992008.656; E: 2832222.880

2

NOTES:

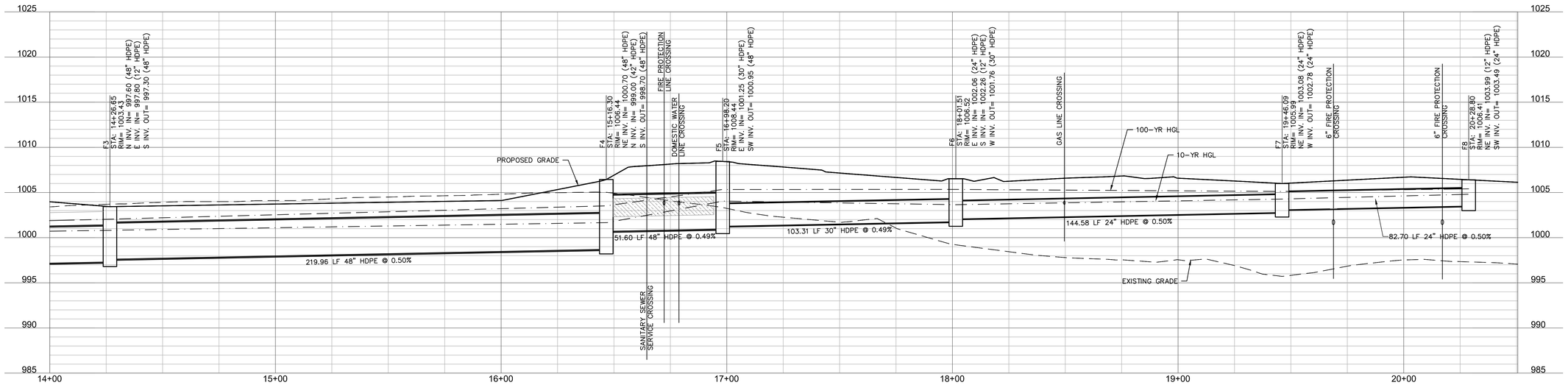
1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- 830 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

2

LINE F (14+00 - 20+50.51)



SCALE IN FEET: 0' 10' 20' 40' | 0' 2.5' 5' 10'

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TERRY M. PARSONS
NUMBER PE-2010010555
01/15/2021
PROFESSIONAL ENGINEER

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STORM SEWER PLAN & PROFILE - LINE F

C1040

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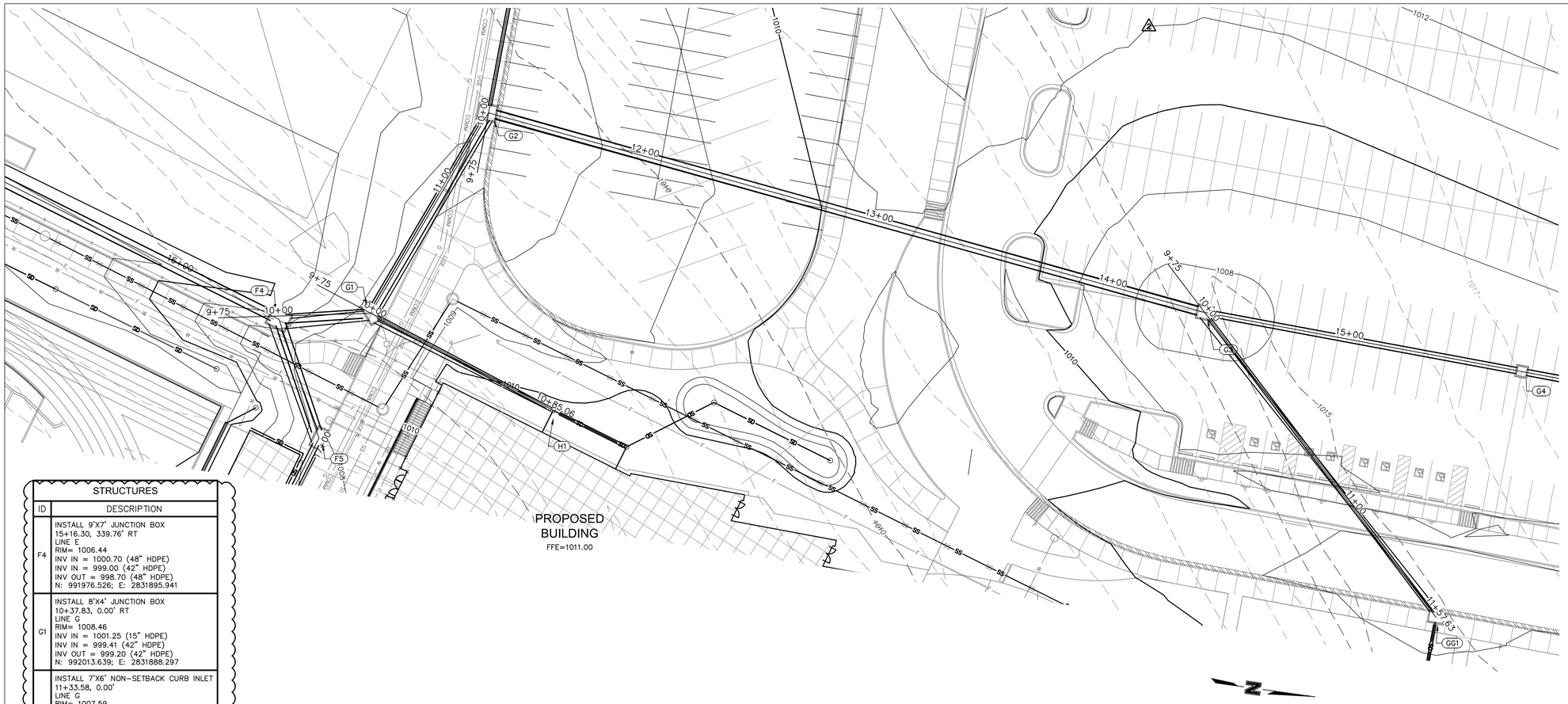


STRUCTURES	
ID	DESCRIPTION
F4	INSTALL 9'X7' JUNCTION BOX 15+16.30, 339.76' RT LINE E RIM= 1006.44 INV IN = 1000.70 (48" HDPE) INV IN = 999.00 (42" HDPE) INV OUT = 998.70 (48" HDPE) N: 991976.526; E: 2831895.941
G1	INSTALL 8'X4' JUNCTION BOX 10+37.83, 0.00' RT LINE G RIM= 1008.46 INV IN = 1001.25 (15" HDPE) INV IN = 999.41 (42" HDPE) INV OUT = 999.20 (42" HDPE) N: 992013.639; E: 2831888.297
G2	INSTALL 7'X6' NON-SETBACK CURB INLET 11+33.58, 0.00' LINE G RIM= 1007.59 INV IN = 1000.19 (42" HDPE) INV IN = 1002.44 (15" HDPE) INV OUT = 999.89 (42" HDPE) N: 992050.220; E: 2831799.815
G3	INSTALL 6'X5' DOUBLE GRATE INLET 14+39.71, 0.00' LINE G RIM= 1007.65 INV IN = 1002.92 (30" HDPE) INV IN = 1002.44 (15" HDPE) INV OUT = 1001.92 (42" HDPE) N: 992353.638; E: 2831840.461

STRUCTURES	
ID	DESCRIPTION
G3	INSTALL 6'X5' DOUBLE GRATE INLET 14+39.71, 0.00' LINE G RIM= 1007.65 INV IN = 1002.92 (30" HDPE) INV IN = 1002.44 (15" HDPE) INV OUT = 1001.92 (42" HDPE) N: 992353.638; E: 2831840.461
GG1	5' X 5' - JUNCTION BOX 11+57.63, 0.00' LINE GG RIM= 1008.63 INV IN = 1003.73 (12" HDPE) INV OUT = 1003.23 (15" HDPE) N: 992465.374; E: 2831951.641

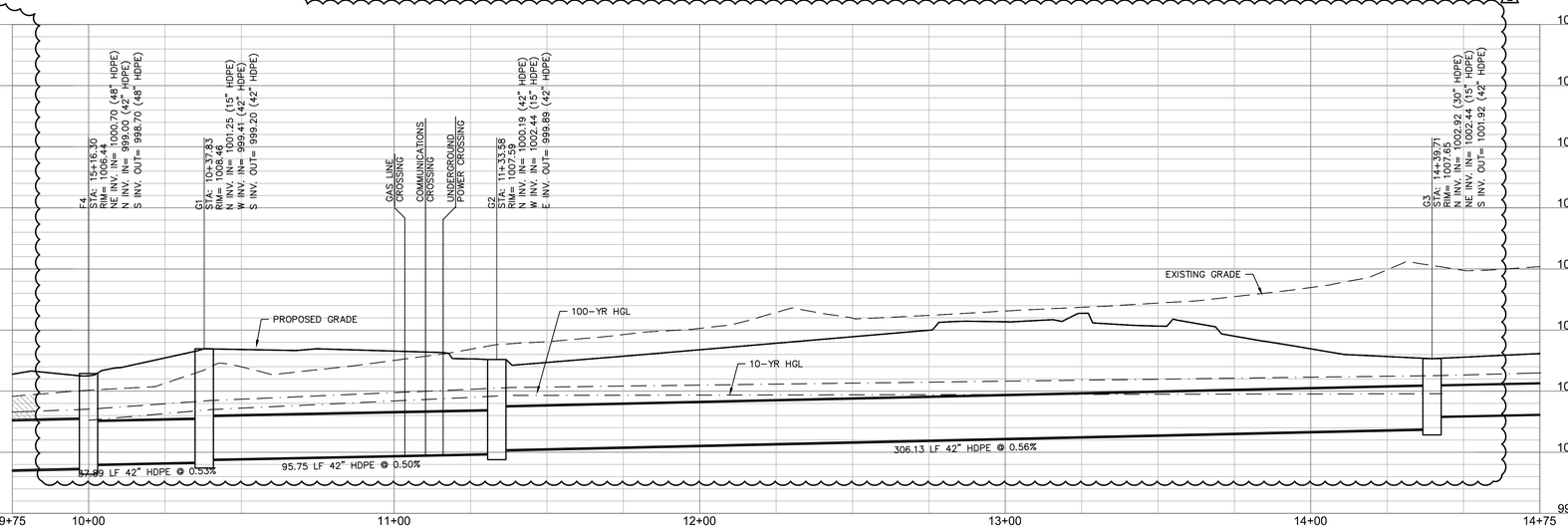
NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

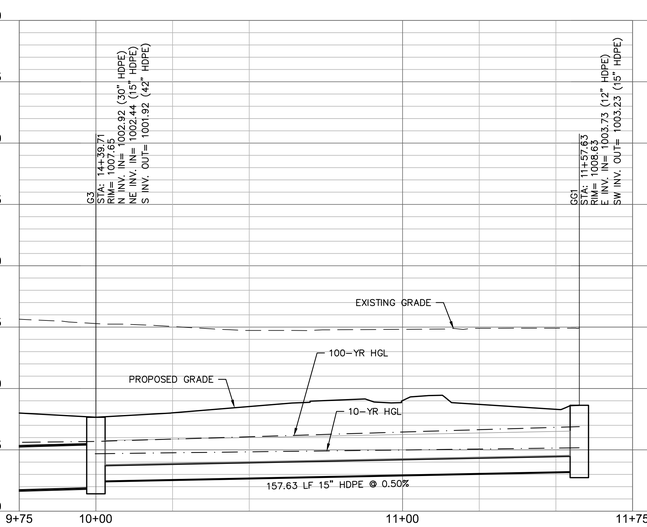
LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- 830 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

LINE G (9+75 - 14+75)



LINE GG (9+75 - 11+75)



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STORM SEWER PLAN & PROFILE - LINE G

C1041

10' 5' 2.5' 0'
0' 10' 20' 40'
SCALE IN FEET

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_STM01_0200103.dwg C_PSTRM_0200103
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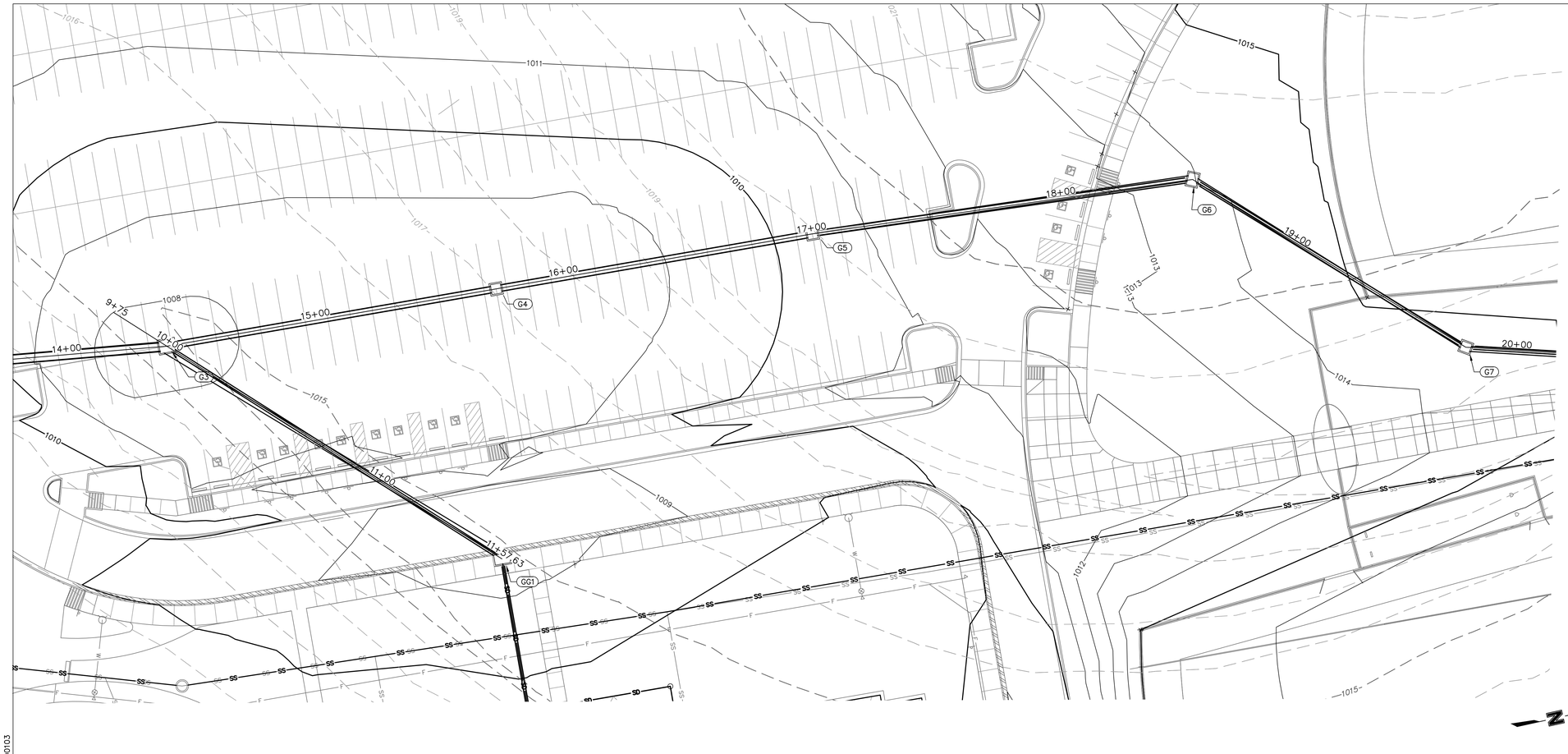


STRUCTURES	
ID	DESCRIPTION
G3	INSTALL 6'X5' DOUBLE GRATE INLET 14+39.71, 0.00' LINE G RIM= 1007.65 INV IN = 1002.92 (30" HDPE) INV IN = 1002.44 (15" HDPE) INV OUT = 1001.92 (42" HDPE) N: 992353.638; E: 2831840.461
G4	INSTALL 5'X5' DOUBLE GRATE INLET 15+72.47, 0.00' LINE G RIM= 1008.10 INV IN = 1003.88 (30" HDPE) INV OUT = 1003.58 (30" HDPE) N: 992486.265; E: 2831846.479
G5	INSTALL 5'X5' DOUBLE GRATE INLET 16+99.94, 0.00' LINE G RIM= 1010.43 INV IN = 1005.02 (24" HDPE) INV OUT = 1004.52 (30" HDPE) N: 992613.603; E: 2831852.256
G6	INSTALL 5'X4' JUNCTION BOX 18+52.50, 0.00' LINE G RIM= 1013.93 INV IN = 1006.08 (18" HDPE) INV OUT = 1005.94 (24" HDPE) N: 992765.725; E: 2831863.789

2

NOTES:

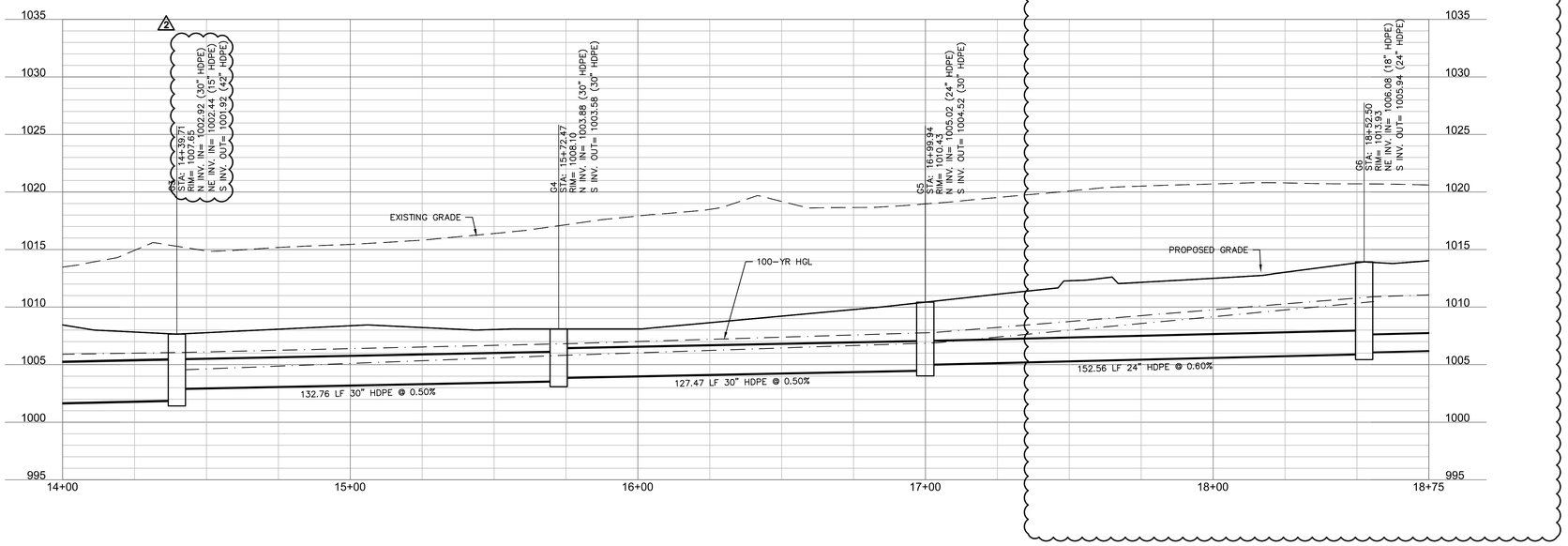
1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- 830 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

2

LINE G (14+00 - 18+75)



2

10'
5'
2.5'
0'
0' 10' 20' 40'
SCALE IN FEET

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STORM SEWER PLAN & PROFILE - LINE G AND GG

C1042

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_STM01_0200103.dwg USER: bkimmich
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C_PTBLK_0200103

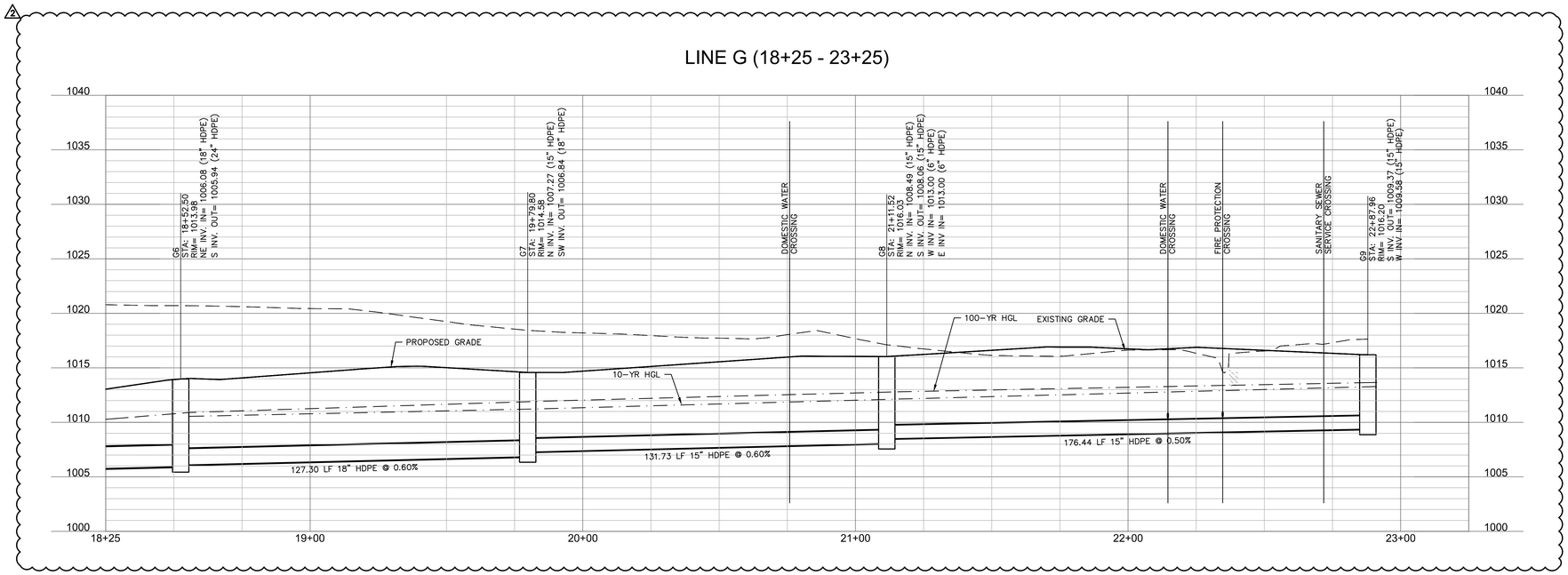
STRUCTURES	
ID	DESCRIPTION
G6	INSTALL 5'X4' JUNCTION BOX 18+52.50, 0.00' LINE G RIM= 1013.98 INV IN = 1006.08 (18" HDPE) INV OUT = 1005.94 (24" HDPE) N: 992765.725; E: 2831863.789
G7	INSTALL 4'X4' JUNCTION BOX 19+79.80, 0.00' LINE G RIM= 1014.58 INV IN = 1007.27 (15" HDPE) INV OUT = 1006.84 (18" HDPE) N: 992857.289; E: 2831952.225
G8	INSTALL 2' DIA. NYLOPLAST BASIN WITH PEDESTRIAN GRATE LID 21+11.52, 0.00' LINE G RIM= 1016.03 INV IN = 1008.49 (15" HDPE) INV OUT = 1008.06 (15" HDPE) N: 992983.957; E: 2831988.380
G9	INSTALL 2' DIA. NYLOPLAST BASIN WITH PEDESTRIAN GRATE LID 22+87.96, 0.00' LINE G RIM= 1016.20 INV OUT = 1009.37 (15" HDPE) N: 993160.211; E: 2831996.383

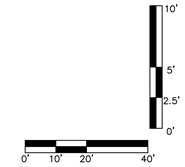
NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- 830 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.





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NUMBER PE-2010010555
01/15/2021
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STORM SEWER PLAN & PROFILE - LINE G

C1043

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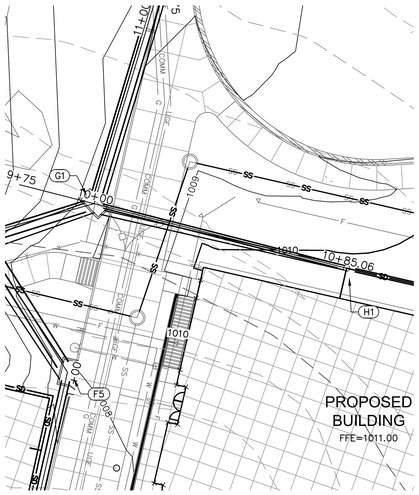
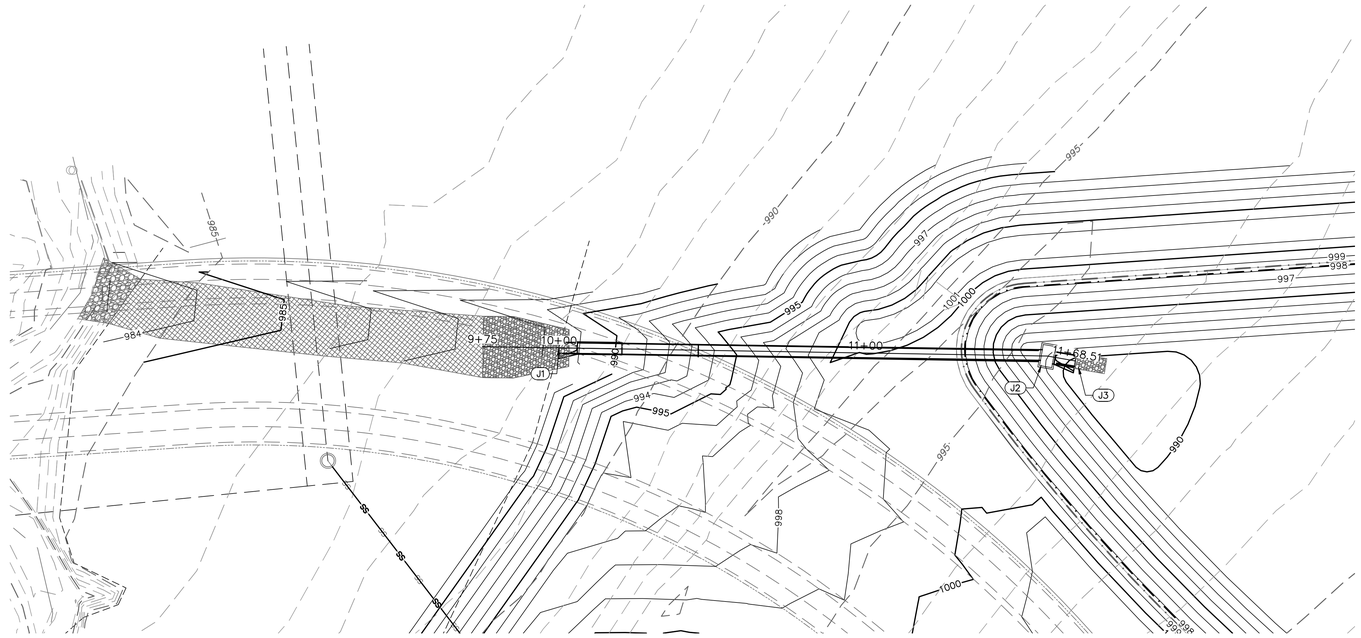


STRUCTURES	
ID	DESCRIPTION
G1	INSTALL 8'X4' JUNCTION BOX 10+37.83, 0.00' RT LINE G RIM= 1008.46 INV IN = 1001.25 (15" HDPE) INV IN = 999.41 (42" HDPE) INV OUT = 999.20 (42" HDPE) N: 992013.639; E: 2831888.297
H1	INSTALL 2' DIA. NYLOPLAST BASIN WITH SOLID LID 10+85.06, 0.00' LINE H RIM= 1010.25 INV IN = 1002.60 (12" HDPE) INV OUT = 1002.10 (15" HDPE) N: 992093.480; E: 2831917.465



STRUCTURES	
ID	DESCRIPTION
J1	INSTALL 48" DIA. END SECTION WITH CONCRETE TOEWALL 10+00, 0.00' LINE J RIM= 992.54 INV IN = 988.44 (42" HDPE) N: 991241.500; E: 2831885.333
J2	INSTALL CONTROL STRUCTURE PER C1058 11+59.29, 0.00' LINE J RIM= 993.14 INV IN = 989.54 (42" HDPE) INV OUT = 989.54 (42" HDPE) N: 991260.071; E: 2831727.130
J3	INSTALL 24" DIA. END SECTION WITH CONCRETE TOEWALL 11+68.51, 0.00' LINE J RIM= 993.69 INV OUT = 989.59 (42" HDPE) N: 991262.548; E: 2831718.253

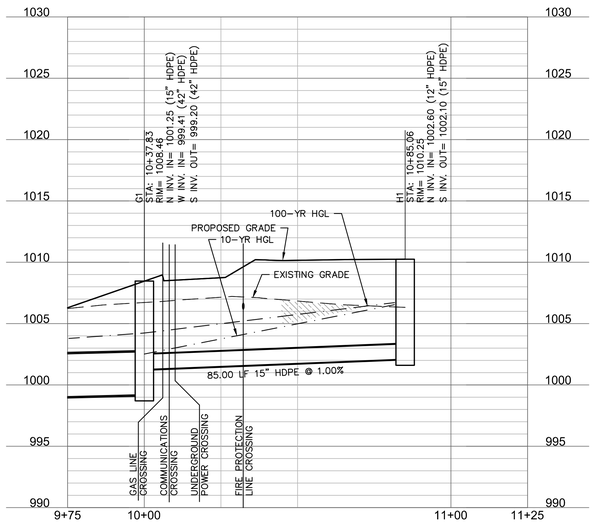
NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

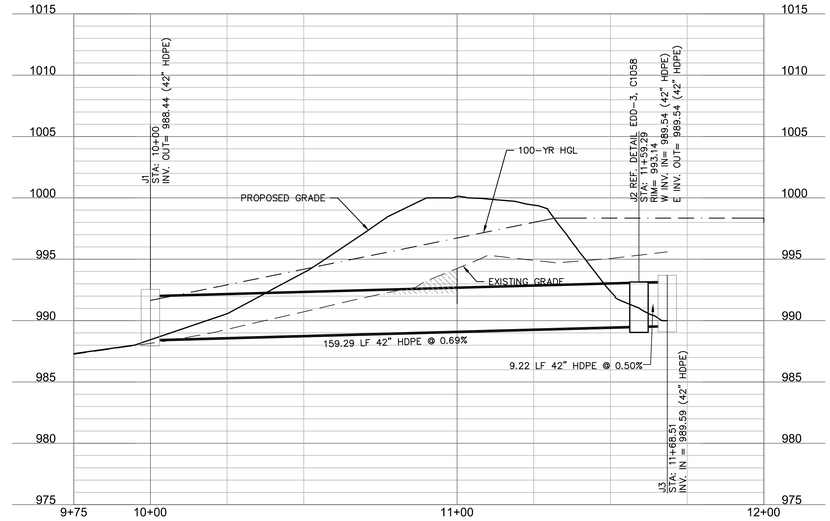
LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- 830 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

LINE H (9+75 - 11+25)



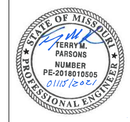
LINE J (9+75 - 12+00)



10' 5' 2.5' 0'

0' 10' 20' 40'
SCALE IN FEET

DLR Group



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STORM SEWER PLAN & PROFILE - LINE H AND J

C1044

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_STM01_0200103.dwg USER: bkimmich
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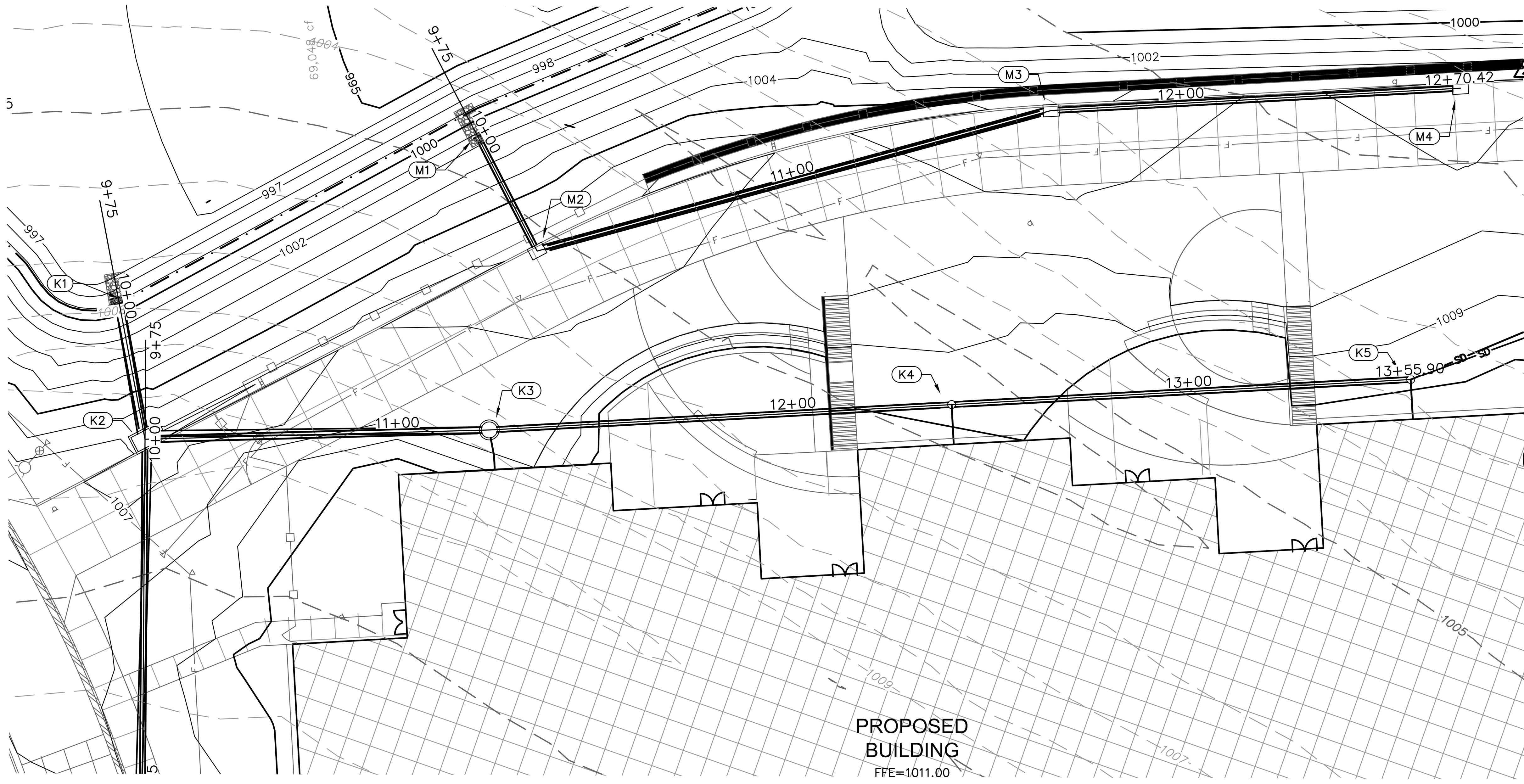
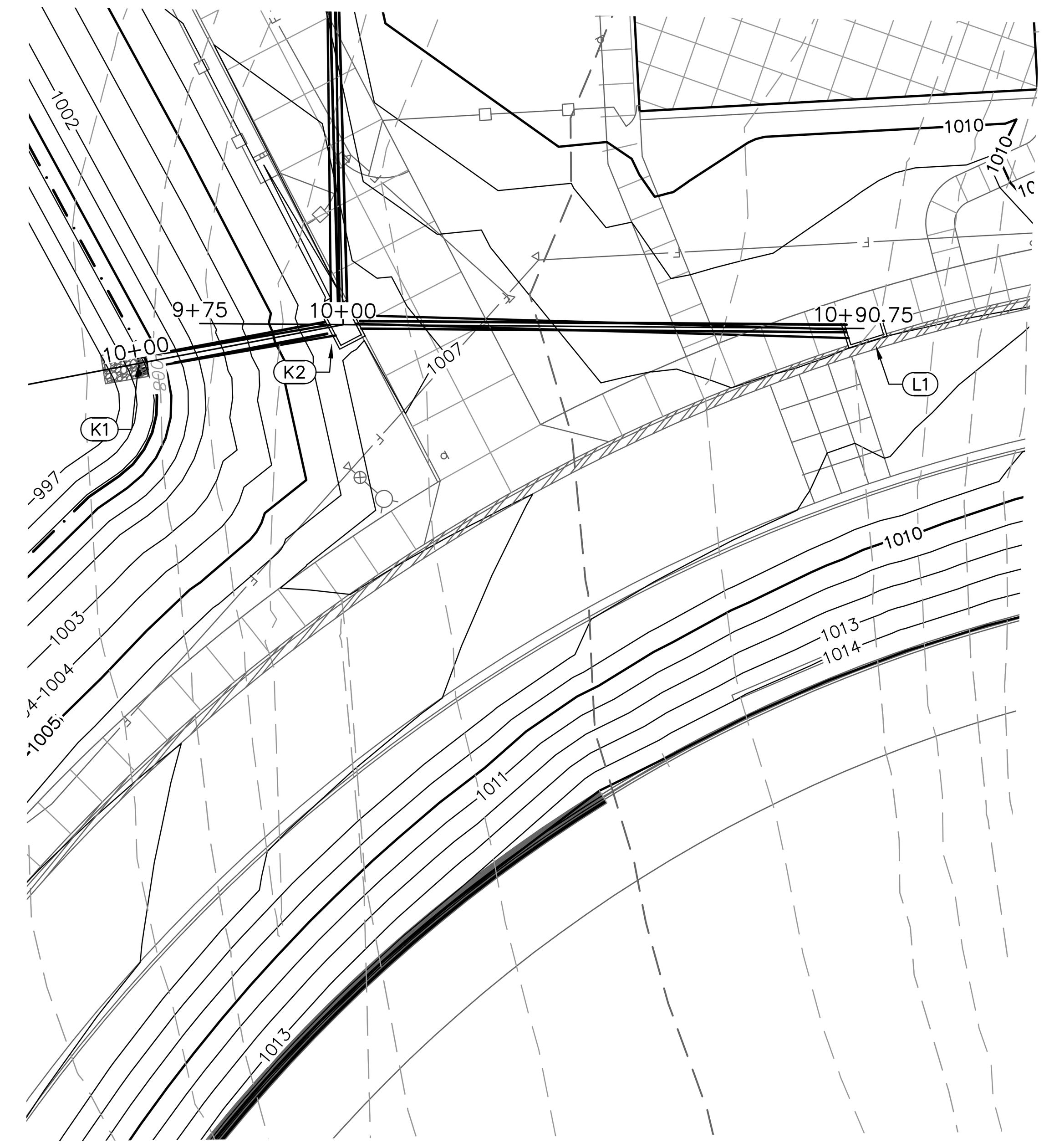


STRUCTURES

ID	DESCRIPTION
K1	INSTALL 24" DIA. END SECTION WITH CONCRETE TOEWALL 10+00, 0.00' LINE K RIM= 1002.08 INV IN = 999.50 (24" HP) N: 992644.388; E: 2832283.205
K2	INSTALL 6'X4' NON-SETBACK CURB INLET 10+36.25, 0.00' LINE K RIM= 1006.98 INV IN = 1000.36 (15" HDPE) INV IN = 1000.36 (18" HDPE) INV OUT = 999.86 (24" HP) N: 992641.229; E: 2832247.098
K3	INSTALL 5'X5' JUNCTION BOX 11+23.09, 0.00' LINE K RIM= 1007.79 INV IN = 1003.27 (15" HDPE) INV IN = 1003.47 (10" HDPE) INV OUT = 1002.97 (18" HDPE) N: 992554.618; E: 2832240.753
K4	INSTALL 5'X5' JUNCTION BOX 12+39.93, 0.00' LINE K RIM= 1009.74 INV IN = 1005.32 (15" HDPE) INV IN = 1005.52 (10" HDPE) INV OUT = 1005.02 (15" HDPE) N: 992437.898; E: 2832235.453
K5	INSTALL 2' DIA. NYLOPLAST BASIN WITH SOLID LID 13+55.90, 0.00' LINE K RIM= 1009.78 INV IN = 1006.98 (10" HDPE) INV OUT = 1006.48 (15" HDPE) N: 992322.041; E: 2832230.192



STRUCTURES

ID	DESCRIPTION
K2	INSTALL 6'X4' NON-SETBACK CURB INLET 10+36.25, 0.00' LINE K RIM= 1006.98 INV IN = 1000.36 (15" HDPE) INV IN = 1000.36 (18" HDPE) INV OUT = 999.86 (24" HP) N: 992641.229; E: 2832247.098
L1	INSTALL 6'X4' NON-SETBACK CURB INLET 10+90.75, 0.00' LINE L RIM= 1008.11 INV OUT = 1003.92 (15" HDPE) N: 992650.972; E: 2832156.877

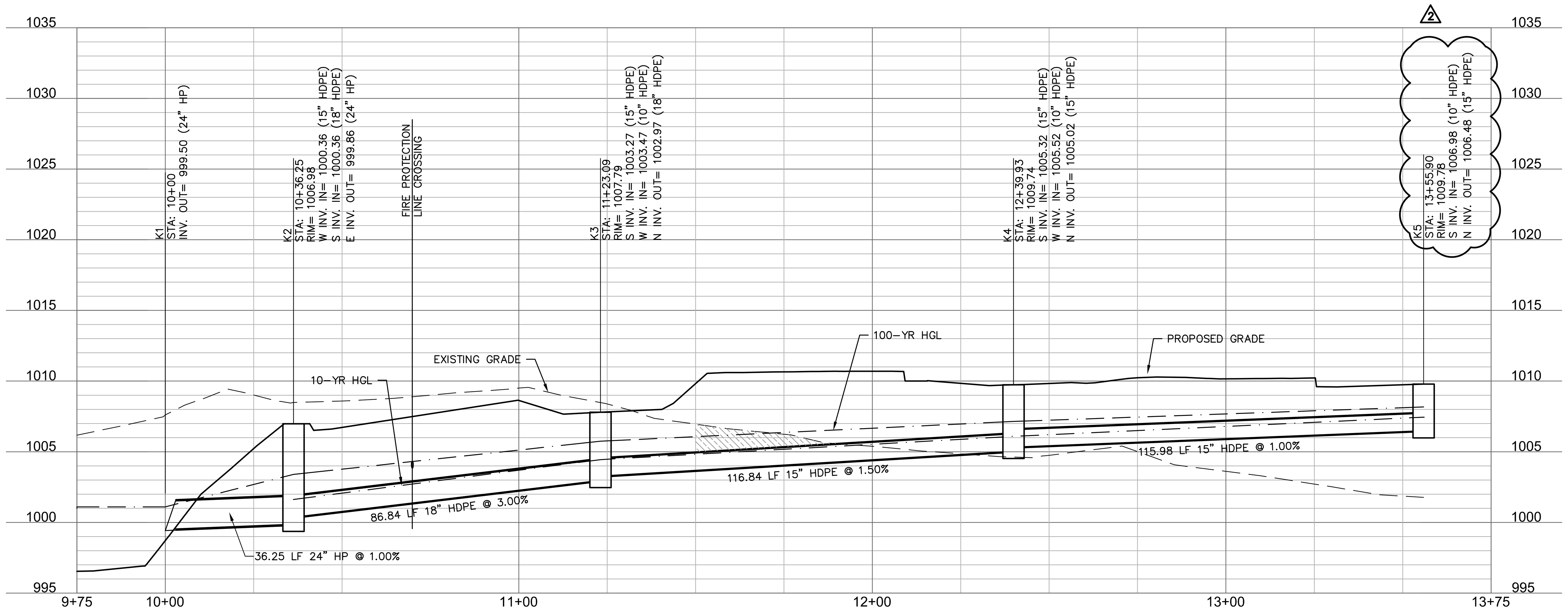
NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION OF STRUCTURES AND ORDERING OF PIPE PRODUCTS.
2. CONTRACTOR TO INSTALL CONCRETE COLLAR AROUND ALL ADS DRAIN BASINS (SEE DETAILS IN THESE PLANS.)

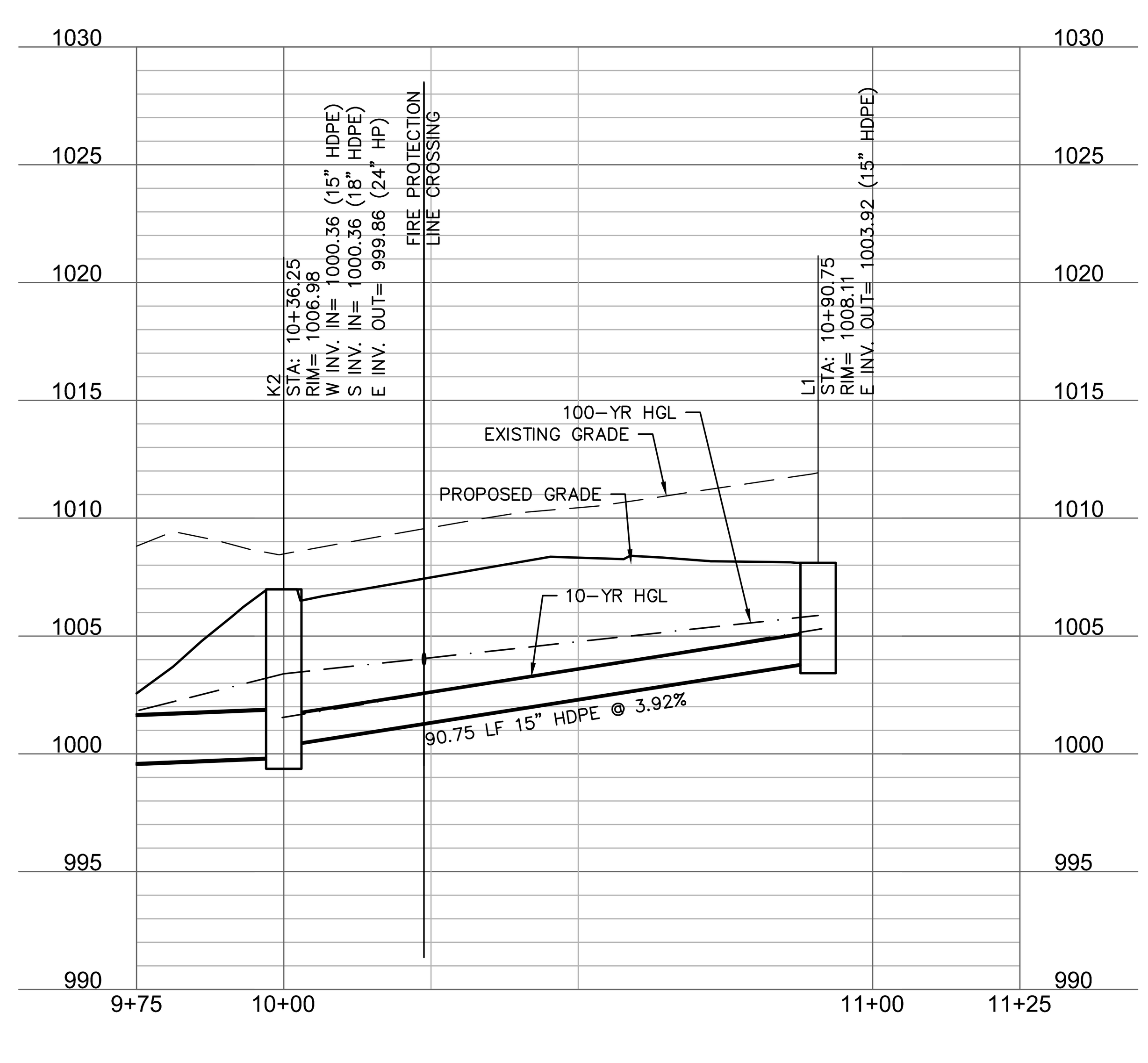
LEGEND

- PROPERTY LINE
- 830 EXISTING CONTOUR
- 830 PROPOSED CONTOUR
- PROPOSED STORM SEWER
- COMPACTED FILL MUST BE PLACED TO A MINIMUM OF 2'-0" ABOVE THE TOP OF THE PROPOSED SEWER PIPE PRIOR TO INSTALLATION OF THE SEWER PIPE.

LINE K (9+75 - 13+75)



LINE L (9+75 - 11+25)



SCALE IN FEET: 0' 10' 20' 40'

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STATE OF MISSOURI — TERRY M. PARSONS — NUMBER PE-2018010505 — PROFESSIONAL ENGINEER — 01/15/2021

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MO. CERTIFICATE OF AUTHORITY #001592
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LEE'S SUMMIT R-7 SCHOOL DISTRICT
1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

PACKAGE 2- STRUCTURAL & SITE UTILITIES
ISSUED FOR PERMIT
08/28/20

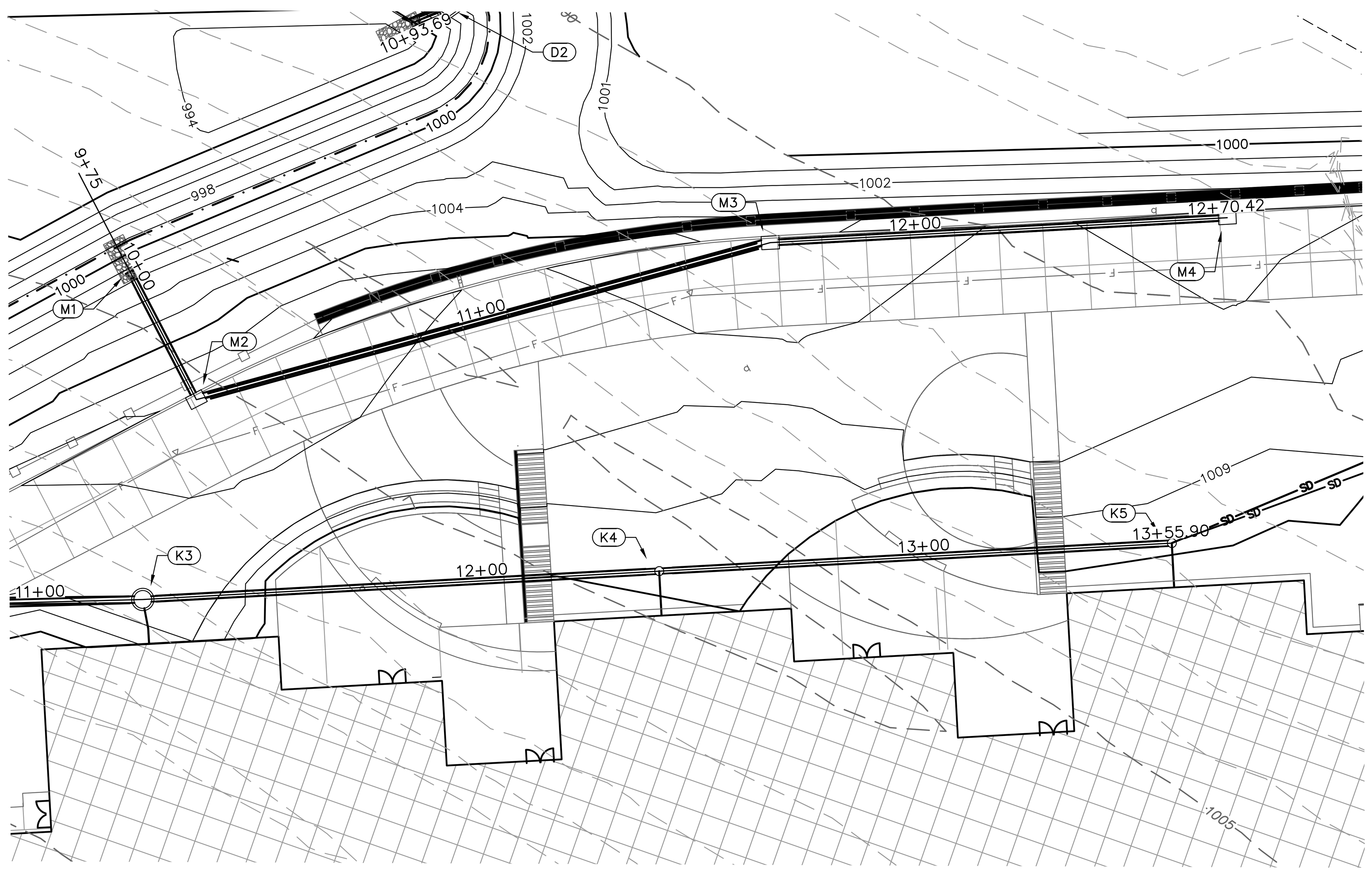
2 PR002R 01.14.21

13-20102-00

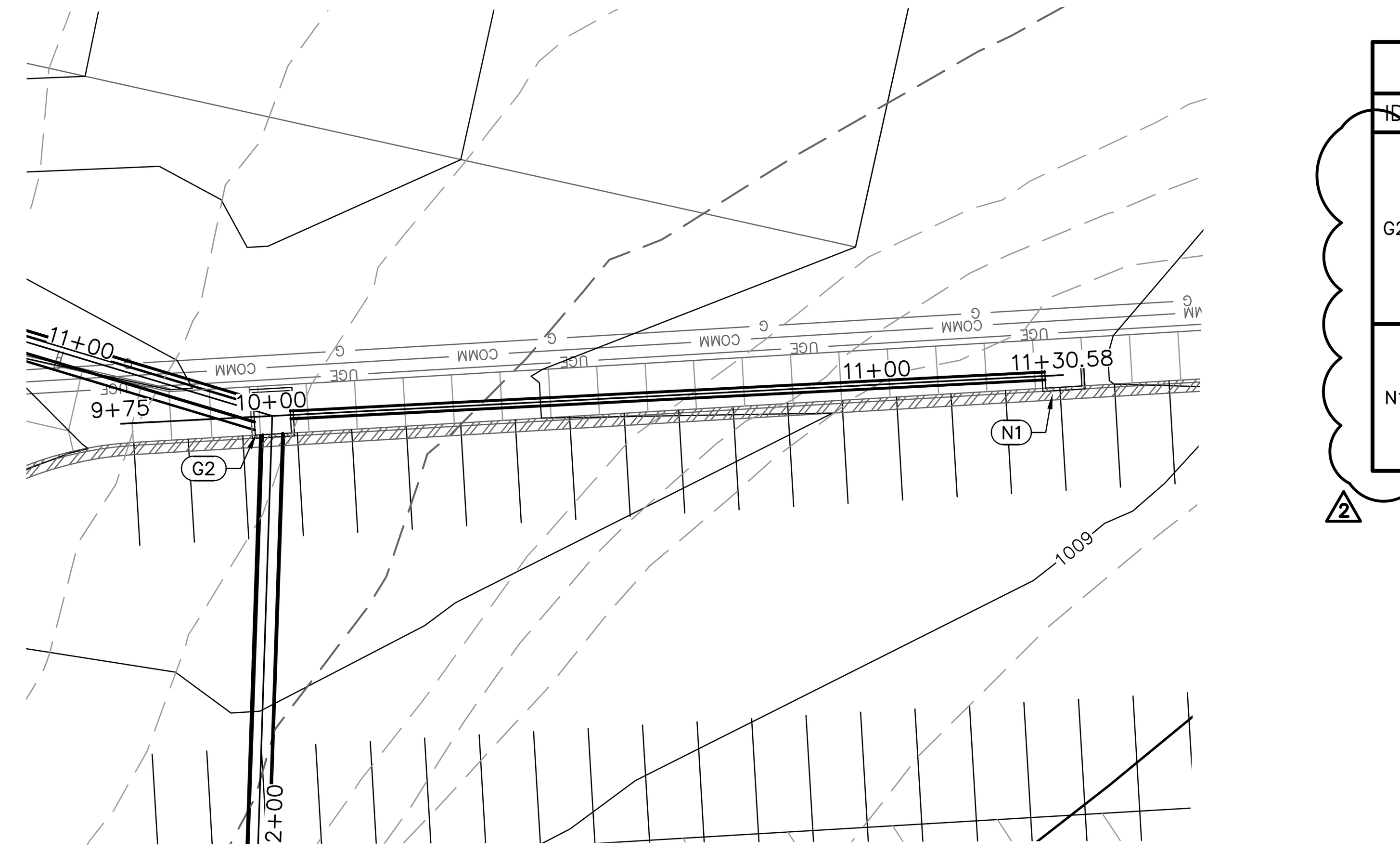
STORM SEWER PLAN & PROFILE - LINE K AND L

C1045

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_STM01_0200103.dwg USER: bkimmich
DATE: Jan 14, 2021 1:37pm XREFS: C_XBASE_0200103 C_PBASE_0200103 C_PTBLK_0200103 C_PSURF_0200103 T_PBASE_0200103 C_PSTRM_0200103

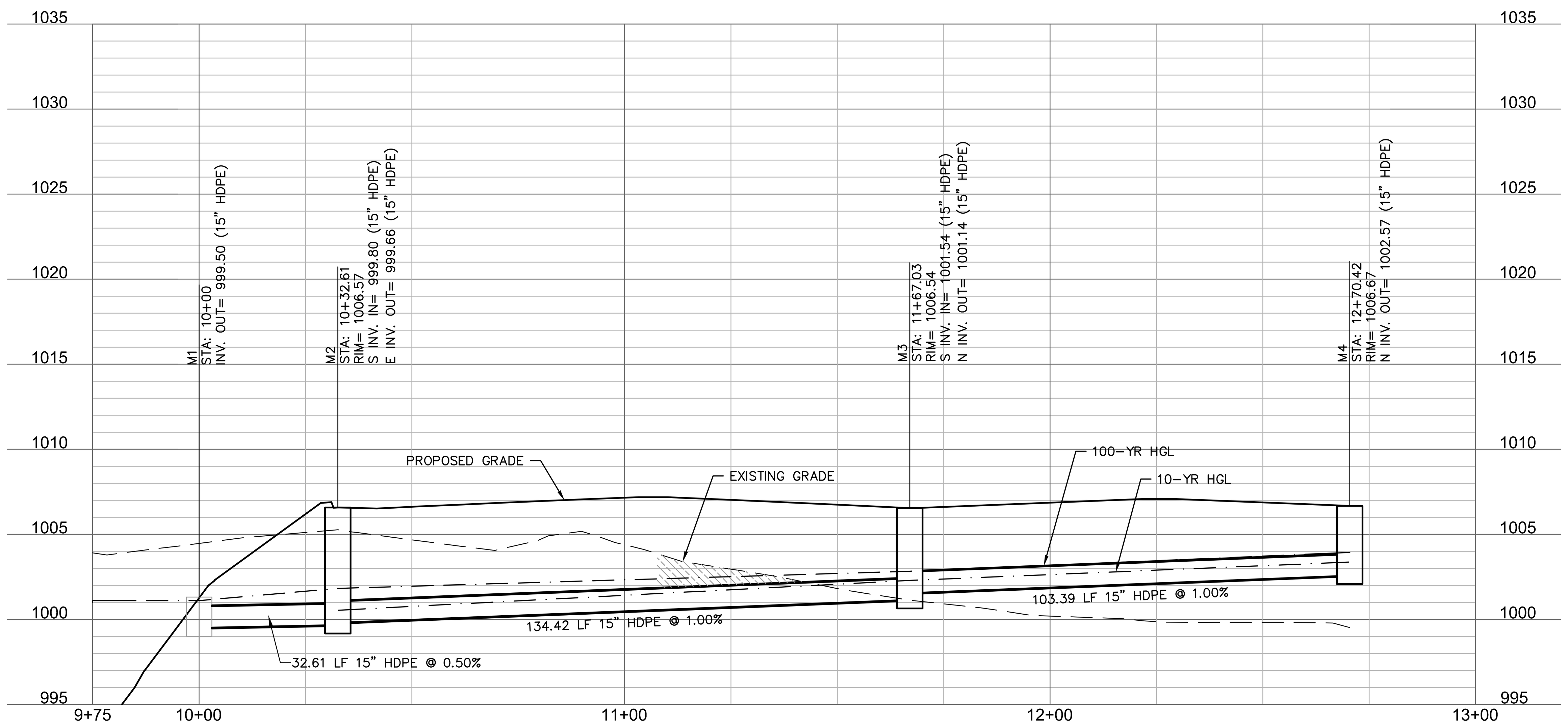


STRUCTURES	
ID	DESCRIPTION
M1	INSTALL 24" DIA. END SECTION WITH CONCRETE TOEWALL AND 2.8 CY RIPRAP 10+00, 0.00' LINE M RIM= 1001.31 INV IN = 999.50 (15" HDPE) N: 992550.121; E: 2832314.726
M2	INSTALL 4'X3' NYLOPLAST CURB INLET 10+32.61, 0.00' LINE M RIM= 1006.57 INV IN = 999.80 (15" HDPE) INV OUT = 999.66 (15" HDPE) N: 992538.053; E: 2832284.431
M3	INSTALL 4'X3' NYLOPLAST CURB INLET 11+67.03, 0.00' LINE M RIM= 1006.54 INV IN = 1001.54 (15" HDPE) INV OUT = 1001.14 (15" HDPE) N: 992405.502; E: 2832306.749
M4	INSTALL 4'X3' NYLOPLAST CURB INLET 12+70.42, 0.00' LINE M RIM= 1006.67 INV OUT = 1002.57 (15" HDPE) N: 992302.216; E: 2832302.051

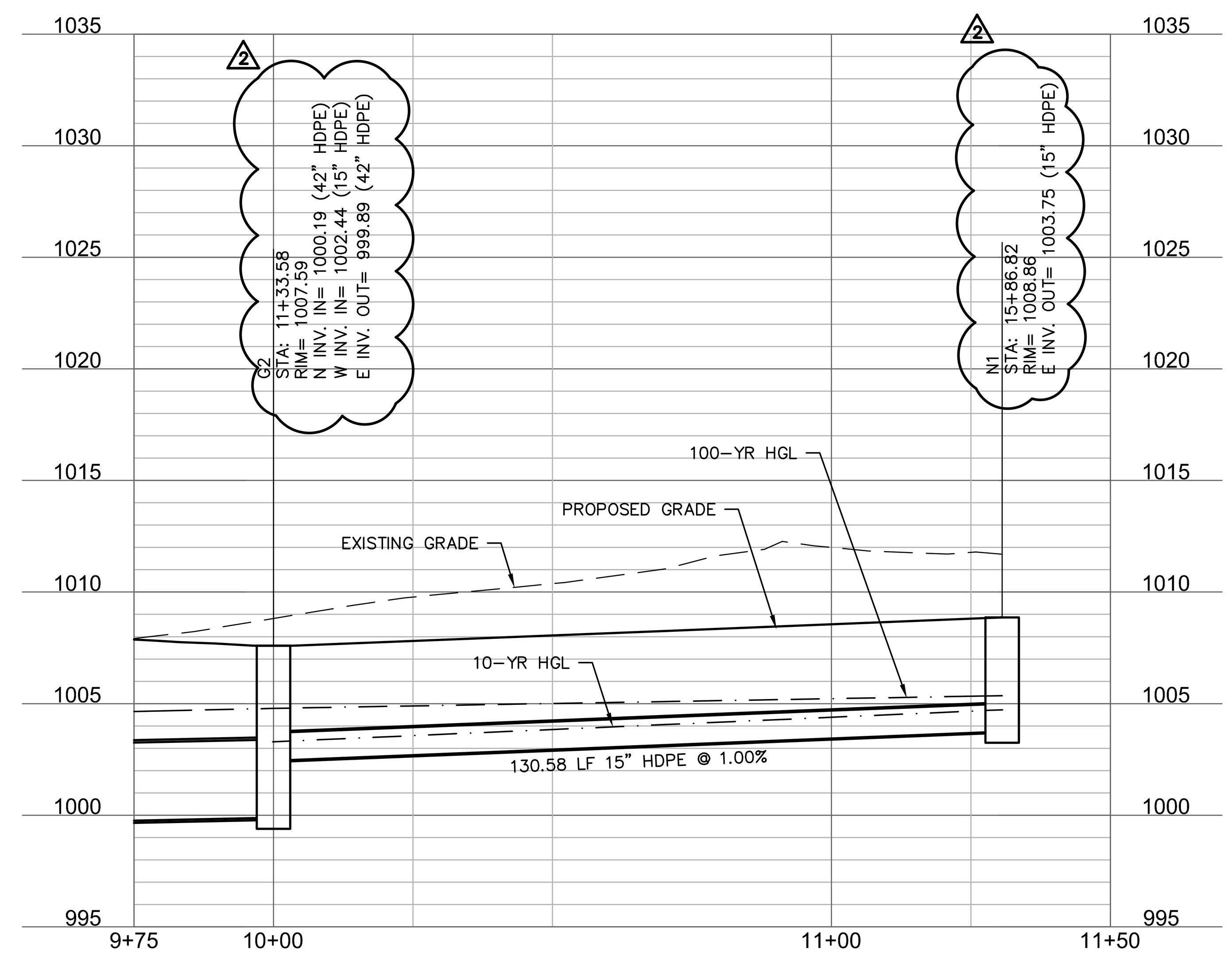


STRUCTURES	
ID	DESCRIPTION
G2	INSTALL 7'X6' NON-SETBACK CURB INLET 11+33.58, 0.00' LINE G RIM= 1007.59 INV IN = 1000.19 (42" HDPE) INV IN = 1002.44 (15" HDPE) INV OUT = 999.89 (42" HDPE) N: 992050.220; E: 2831799.815
N1	INSTALL 6'X4' NON-SETBACK CURB INLET 15+86.82, 110.22' RT LINE E RIM= 1008.86 INV OUT = 1003.75 (15" HDPE) N: 992056.549; E: 2831669.386

LINE M (9+75 - 13+00)



LINE N (9+75 - 11+50)



SCALE IN FEET

DLR Group

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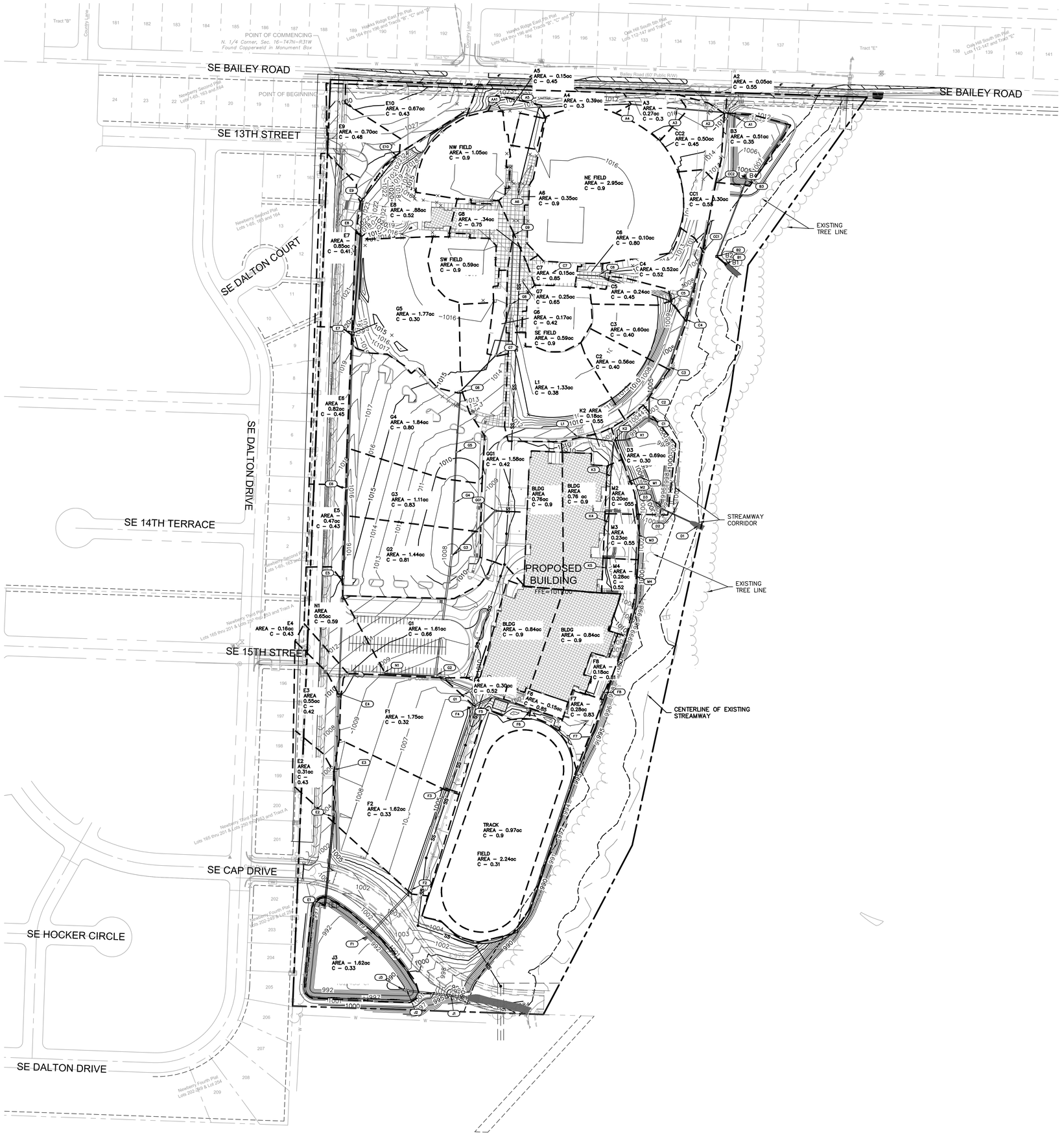
13-20102-00

STORM SEWER PLAN & PROFILE - LINE M AND N

C1046

NOTE: UNLESS NOTED ON THE STORM SEWER PLAN AND PROFILE, RIPRAP SIZING FOR THE INLET AND OUTLET IN THE DETENTION BASINS SHALL MATCH THE RIPRAP TABLE PROVIDED ON C1050.



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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010010355
01/15/2021
PROFESSIONAL ENGINEER

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13-20102-00

DRAINAGE PLAN

C1047

0' 50' 100' 200'
SCALE IN FEET

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_DRN01_0200103.dwg USER: bkimmich
DATE: Jan 14, 2021 1:40pm XREFS: C_XBASE_0200103 C_PBASE_0200103 C_PTBLK_0200103 C_PSURF_0200103 T_PBASE_0200103 T_PSAS_0200103 C_PSTRM_0200103 V_XALT_00103

STORM SEWER PIPE AND STRUCTURE TABLE

TITLE: LSMS #4
JOB #: 020–0103
DESIGN CONDITIONS: PRIVATE - 100 YEAR STORM EVENT

	STRUCTURES				RUNOFF CALCULATIONS							PIPE DESIGN																		
	FROM	TO	DIRECT AREA (ACRES)	TOTAL AREA (ACRES)	C	KC (K=1.25)	Tc (MIN)	FLOW TIME (MIN)	INTENSITY (IN/HR)	DESIGN Q (CFS)	DESCRIPTION	PIPE LENGTH (L.F.)	PIPE SLOPE (%)	PIPE DIA (IN)	Q FULL (CFS)	PIPE AREA (SQ.FT.)	V FULL (F/S)	DESIGN V (F/S)	HwD	MH TOP ELEVATION	UPSTREAM FLOWLINE	DOWNSTREAM FLOWLINE	DOWNSTREAM WATER ELEVATION	FRICTION HEAD (h f)	ENTRY LOSS COEFFICIENT (k)	ACTUAL ENTRY LOSS (k)	ENTRY LOSS (h m)	h f + h m (FT)	HW, INLENT CONTROL	HW, OUTLET CONTROL	HYDRAULIC GRADE ELEV.	HYDRAULIC GRADE (MAX)	HG (Max) - HGL	Comments
	A6		0.35		0.90	1.00	5.0		10.32		Area Inlet									1016.21														
		A5		0.35	0.90	1.00	5.0	0.85	10.32	3.61	15 in. HDPE	210.61	0.50	15	4.58	1.23	3.73	4.13	0.95		1012.83	1011.78	1013.00	0.67	1.00	1.00	0.27	0.93	1014.02	1013.93				
	A5		0.15		0.45	0.56	5.0		10.32		Area Inlet									1015.02											1012.80	1014.02	1.22	
		A4		0.50	0.86	1.00	5.8	0.85	9.98	4.99	18 in. HDPE	228.76	0.50	18	7.45	1.77	4.21	4.51	0.88		1011.48	1010.34	1011.67	0.52	0.30	0.30	0.09	0.62	1012.80	1012.28				
	A4		0.39		0.30	0.38	5.0		10.32		Area Inlet									1015.00											1011.63	1014.00	2.37	
		A3		0.89	0.74	0.93	6.7	0.39	9.66	7.95	24 in. HDPE	119.51	0.50	24	16.04	3.14	5.11	5.09	0.80		1010.04	1009.44	1010.94	0.15	0.20	0.20	0.08	0.23	1011.63	1011.17				
	A3		0.27		0.30	0.38	5.0		10.32		Area Inlet									1017.13											1010.84	1016.13	5.29	
		A2		1.16	0.69	0.86	7.1	0.38	9.52	9.53	24 in. HDPE	120.29	0.50	24	16.04	3.14	5.11	5.31	0.85		1009.14	1008.54	1010.20	0.22	0.20	0.20	0.09	0.30	1010.84	1010.50				
	A2		0.05		0.55	0.69	5.0		10.32		Area Inlet									1015.66											1010.93	1014.66	3.73	
EDO 1		A1		1.21	0.69	0.86	7.5	0.10	9.39	9.80	24 in. HDPE	33.37	0.50	24	16.04	3.14	5.11	5.35	0.86		1008.24	1008.07	1010.80	0.06	0.15	0.15	0.07	0.13	1009.96	1010.93				
	C7		0.15		0.85	1.00	5.0		10.32		Area Inlet									1016.91											1012.58	1015.91	3.33	
		C6		0.15	0.85	1.00	5.0	0.46	10.32	1.55	15 in. HDPE	118.91	1.00	15	6.48	1.23	5.28	4.33	0.72		1011.68	1010.49	1011.15	0.07	1.00	1.00	0.29	0.36	1012.58	1011.68				
	C6		0.10		0.80	1.00	5.0		10.32		Area Inlet									1015.56											1011.20	1014.56	3.36	
		C5		0.25	0.83	1.00	5.5	0.43	10.14	2.53	15 in. HDPE	189.11	3.00	15	11.22	1.23	9.14	7.39	0.81		1010.19	1004.52	1005.24	0.29	0.20	0.20	0.17	0.46	1011.20	1010.19				
	C5		0.24		0.45	0.56	5.0		10.32		Area Inlet									1010.82											1007.12	1009.82	2.70	
		C4		1.29	0.55	0.69	5.9	0.10	9.97	8.84	15 in. HDPE	60.46	3.00	15	11.22	1.23	9.14	10.11	2.32		1004.22	1002.41	1003.82	1.15	0.40	0.40	0.63	1.78	1007.12	1005.60				ADD LINE CC
	C4		0.52		0.52	0.65	5.0		10.32		Area Inlet									1006.89											1004.00	1005.89	1.89	
		C3		1.81	0.52	0.65	6.0	0.30	9.93	11.68	24 in. HDPE	128.71	1.00	24	22.68	3.14	7.22	7.26	0.95		1002.11	1000.82	1002.45	0.35	0.30	0.30	0.25	0.59	1004.00	1003.04				
	C3		0.60		0.40	0.50	5.0		10.32		Area Inlet									1004.39											1002.29	1003.39	1.10	
		C2		2.41	0.46	0.58	6.3	0.25	9.82	13.60	30 in. RCP	86.50	0.50	24	29.08	4.91	5.92	5.82	0.79		1000.09	1000.29	1002.12	0.10	0.15	0.15	0.08	0.17	1002.07	1002.29				
	C2		0.56		0.40	0.50	5.0		10.32		Area Inlet									1005.42											1001.88	1004.42	2.54	
		C1		2.97	0.44	0.55	6.5	0.16	9.72	15.88	30 in. RCP	58.52	0.50	24	29.08	4.91	5.92	6.05	0.84		999.79	999.50	1001.10	0.09	0.30	0.30	0.17	0.26	1001.88	1001.36				
	CC2		0.50		0.45	0.56	5.0		10.32		Curb Inlet									1012.74											1008.68	1011.24	2.56	
		CC1		0.50	0.45	0.56	5.0	0.57	10.32	2.90	15 in. HDPE	176.95	1.00	15	6.48	1.23	5.28	5.13	0.85		1007.62	1005.85	1006.78	0.36	1.00	1.00	0.41	0.77	1008.68	1007.62				
	CC1		0.30		0.55	0.69	5.0		10.32		Curb Inlet									1009.66											1007.03	1008.16	1.13	
EDO 2		C4		0.80	0.49	0.61	5.6	0.44	10.09	4.94	15 in. HDPE	179.24	1.50	15	7.93	1.23	6.46	6.81	1.19		1005.55	1002.86	1004.03	1.06	0.30	0.30	0.22	1.28	1007.03	1005.55				
	M4		0.28		0.52	0.65	5.0		10.32		Area Inlet									1006.67											1003.50	1005.67	2.17	
		M3		0.28	0.52	0.65	5.0	0.38	10.32	1.88	15 in. HDPE	103.39	1.00	15	6.48	1.23	5.28	4.57	0.74		1002.57	1001.54	1002.27	0.09	1.00	1.00	0.32	0.41	1003.50	1002.69				
	M3		0.23		0.55	0.69	5.0		10.32		Area Inlet									1006.54											1002.29	1005.54	3.25	
		M2		0.51	0.53	0.66	5.4	0.42	10.17	3.44	15 in. HDPE	134.42	1.00	15	6.48	1.23	5.28	5.35	0.92		1001.14	999.80	1000.82	0.38	0.30	0.30	0.13	0.52	1002.29	1001.34				
	M2		0.20		0.55	0.69	5.0		10.32		Area Inlet									1006.57											1001.49	1005.57	4.08	
		M1		0.71	0.54	0.68	5.8	0.09	10.00	4.79	15 in. HDPE	32.61	1.00	15	6.48	1.23	5.28	5.77	1.16		999.66	999.34	1001.10	0.18	0.40	0.40	0.21	0.39	1001.11	1001.49				
	K3		0.76		0.90	1.00	5.0		10.32		Area Inlet									1007.92											1005.26	1006.92	1.66	
		K2		2.09	0.57	0.71	5.0	0.12	10.32	15.37	24 in. HDPE	86.84	3.00	18	39.29	3.14	12.51	11.72	1.15		1002.97	1000.36	1001.94	0.40	1.00	1.00	2.13	2.54	1005.26	1004.47				ADD LINE L
	K2		0.18		0.78	0.98	5.0		10.32		Area Inlet									1007.02											1002.39	1006.02	3.63	
		K1		2.27	0.59	0.74	5.1	0.08	10.27	17.20	24 in. HDPE	36.25	1.00	24	22.68	3.14	7.22	7.92	1.27		999.86	999.50	1001.10	0.21	0.40	0.40	0.39	0.60	1002.39	1001.70				
	L1		1.33		0.38	0.48	5.0		10.32		Area Inlet									1007.92											1005.47	1006.92	1.45	
		K2		1.33	0.38	0.48	5.0	0.15	10.32	6.52	18 in. HDPE	90.75	3.92	18	20.85	1.77	11.80	10.42	1.03		1003.92	1000.36	1001.43	0.35	1.00	1.00	1.69	2.04	1005.47	1003.92				
	E11		0.13		0.45	0.56	5.0		10.32		Area Inlet									1027.14											1020.69	1026.14	5.45	
		E10		0.13	0.45	0.56	5.0	0.87	10.32	0.75	15 in. HDPE	212.64	1.50	15	7.93	1.23	6.46	4.08	0.68		1019.84	1016.65	1017.08	0.03	1.00	1.00	0.26	0.29	1020.69	1019.84				
	E10		0.54		0.41	0.51	5.0		10.32		Area Inlet									1025.31											1017.51	1024.31	6.80	
		E9		0.67	0.42	0.52	5.9	0.37	9.97	3.49	15 in. HDPE	138.26	1.50	15	7.93	1.23	6.46	6.25	0.93		1016.35	1014.30	1015.26	0.41	0.30	0.30	0.18	0.59	1017.51	1016.35				
	E9		0.70		0.48	0.60	5.0		10.32		Area Inlet									1023.55											1015.90	1022.55	6.65	
		E8		1.37	0.70	0.87	6.2	0.17	9.83	11.78	24 in. HDPE	87.11	1.50	24	27.78	3.14	8.84	8.47	0.95		1014.00	1012.69	1014.22	0.24	0.40	0.40	0.45	0.68	1015.90	1014.90				
	E8		1.23		0.52	0.65	5.0		10.32		Area Inlet									1019.97											1015.14	1018.97	3.83	
		E7		2.60	0.60	0.74	6.4	0.49	9.77	18.89	24 in. HDPE	248.71	1.10	24	23.79	3.14	7.57	8.39	1.39		1012.36	1009.62	1011.75	1.75	0.20	0.20	0.22	1.97	1015.14	1013.72				
	E7		0.85		0.41	0.51	5.0		10.32		Area Inlet									1019.91											1011.82	1018.91	7.09	
		E6		3.45	0.54	0.68	6.9	0.87	9.59	22.40	30 in. RCP	390.98	0.70	30	34.41	4.91	7.01	7.45	1.00		1009.32	1006.58	1008.86	1.18	0.20	0.20	0.17	1.35	1011.82	1010.20				
	E6		0.82		0.40	0.50	5.0		10.32		Area Inlet									1016.91											1009.02	1015.91	6.89	
		E5		4.27	0.51	0.64	7.8	0.49	9.28	25.33	30 in. RCP	224.24	0.70	30	34.41	4.91	7.01	7.65	1.09		1006.28	1004.71	1007.16	0.86	0.20	0.20	0.18	1.04	1009.02	1008.21				
	E5		0.47		0.43	0.54	5.0		10.32		Area Inlet									1015.36											1007.33	1014.36	7.03	
		E4		4.74	0.50	0.63	8.3	0.54	9.12	27.14	30 in. RCP	291.35	1.00	30	41.13	4.91	8.38	8.93	1.16		1004.44	1001.53	1003.90	1.29	0.20	0.20	0.25	1.53	1007.33	1005.44				
	E4		0.16		0.43	0.54	5.0		10.32		Area Inlet									1010.01											1003.00	1009.01	6.01	
		E3		4.90	0.50	0.62	8.8	0.46	8.95	27.38	36 in. RCP	192.68	0.50	36	47.29	7.07	6.69	6.92	0.87		1000.39	999.43	1001.92	0.33	0.20	0.20	0.15	0.48	1003.00	1002.39				
	E3		0.55		0.42	0.53	5.0		10.32		Area Inlet									1006.10											1001.83	1005.10	3.27	
		E2		5.45	0.49	0.61	9.3	0.28	8.81	29.44	36 in. RCP	117.67	0.50	36	47.29	7.07	6.69	7.04	0.90		999.13	998.54	1001.13	0.23	0.20	0.20	0.15	0.38	1001.83	1001.52				
	E2		0.31		0.43	0.54	5.0		10.32		Area Inlet									1004.92											1002.22	1003.92	1.70	
		E1		5.76	0.58	0.73	9.6	0.56	8.72	36.56	36 in. RCP	247.97	0.50	36	47.29	7.07	6.69	7.37	1.03		999.14	997.00	998.40	0.75	0.20	0.20	0.17	0.92	1002.22	999.32				
	H1		0.84		0.38	0.48	5.0		10.32		Area Inlet									1010.25											1006.78	1009.25	2.47	
		G2		0.84	0.38	0.48	5.0	0.13	10.32	4.12	18 in. HDPE	81.63	5.28	18	24.20	1.77	13.70	10.20	0.81		1005.56	1001.25	1004.38	0.13	1.00	1.00	1.62	1.74	1006.78	1006.12				
	F8		1.02		0.65	0.81	5.0		10.32		Area Inlet									1007.41											1005.18	1006.41	1.23	
		F7		1.02	0.65	0.81	5.0	0.27	10.32	8.55	24 in. HDPE	82.70	0.50	24	16.04	3.14	5.11	5.18	0.82		1003.49	1003.08	1004.64	0.12	1.00	1.00	0.42	0.54	1005.13	1005.18				
	F7		0.00		0.00	0.00	5.0		10.32		Area Inlet									1006.55											1004.41	1005.55	1.14	
		F6		1.02	0.65	0.81	5.3	0.47	10.21	8.46	24 in. HDPE	144.58	0.50	24	16.04	3.14	5.11	5.17	0.81		1002.78	1002.06	1003.61	0.20	0.40	0.40	0.17	0.37	1004.41	1003.98				
	F6		0.15		0.85	1.00	5.0		10.32		Area Inlet									1006.34											1004.12	1005.34	1.22	
		F5		2.50	0.65	0.81	5.7	0.26	10.03	20.37	30 in. RCP	101.37	0.50	30	29.08	4.91	5.92	6.40	0.94		1001.76	1001.25	1003.56	0.25	0.20	0.20	0.13	0.38	1004.12	1003.94				
	F5		0.00		0.00	0.00	5.0		10.32		Area Inlet									1008.20											1005.04	1007.20	2.16	
		F4		13.37	0.45	0.56	6.0	0.10	9.92	74.63	48 in. RCP	50.65	0.50	48	101.84	12.57	8.10	8.83	1.02		1000.95	999.00	1002.85	0.14	0.30	0.30	0.36	0.50	1005.04	1003.36				ADD LINE G
	F4		0.30		0.52	0.65	5.0		10.32		Area Inlet									1006.44											1003.25	1005.44	2.19	
		F3		13.67	0.51	0.64	6.1	0.40	9.89	86.16	48 in. RCP	219.96	0.50	48	101.84	12.57	8.10	9.07	1.14		998.70	997.60	1001.83	0.79	0.40	0.40	0.51	1.31	1003.25	1003.14				
	F3		1.75		0.32	0.40	5.0		10.32		Area Inlet									1003.93											1001.78	1002.93	1.15	
		F2		15.42	0.45	0.56	6.5	0.50	9.74	84.44	48 in. RCP	272.52	0.50	48	101.84	12.57	8.10	9.04	1.12		997.30	995.94	1000.12	0.95	0.20	0.20	0.25	1.20	1001.78	1001.32				
	F2		1.75		0.33	0.41	5.0		10.32		Area Inlet									1004.88											1000.19	1003.88	3.69	
		F1		17.17	0.42	0.53	7.0	0.28	9.55	86.11	48 in. RCP	154.13	0.50	48	101.84	12.57	8.10	9.07	1.14		995.64	994.87	998.40	0.56	0.20	0.20	0.26	0.81	1000.19	999.21				
	G9		0.34		0.30	0.38	5.0		10.32		Area Inlet									1017.00											1013.16	1016.00	2.84	
		G8		0.34	0.30	0.38	5.0	0.91	10.32	1.32	15 in. HDPE	176.44	0.50	15	4.58	1.23	3.73	3.22	0.71		1012.28	1011.40	1012.09	0.07	1.00	1.00	0.16	0.24	1013.16	1012.32				
	G8		0.25		0.60	0.75	5.0		10.32		Area Inlet									1016.43											1012.18	1015.43	3.25	
		G7		0.59	0.41	0.51	5.9	0.55	9.96	3.01	15 in. HDPE	131.73	0.50	15	4.58	1.23	3.73	3.98	0.86		1011.10	1010.44	1011.53	0.29	0.20	0.20	0.05	0.34	1012.18	1011.87				
	G7		0.17		0.54	0.68	5.0		10.32		Area Inlet									1014.97											1011.32	1013.97	2.65	
		G6		0.76	0.40	0.50	6.5	0.50	9.75	3.70	18 in. HDPE	127.30	0.50	18	7.45	1.77	4.21	4.21	0.79		1010.14	1009.50	1010.62	0.16	0.30	0.30	0.08	0.24	1011.32	1010.86				
	G6		1.77		0.51	0.64	5.0		10.32		Area Inlet									1013.98											1011.02	1012.98	1.96	
		G5		2.53	0.43	0.54	7.0	0.24	9.56	13.00	24 in. HDPE	152.56	2.61	24	36.65	3.14	11.66	10.66	1.01		1009.00	1005.02	1006.49	0.51	0.30	0.30	0.53	1.04	1011.02	1009.00				
	G5		1.84		0.62	0.78	5.0		10.32		Area Inlet									1010.41											1007.51	1009.41	1.90	
		G4		4.37	0.43	0.54	7.2	0.33	9.48	22.26	30 in. RCP	127.47	0.50	30	29.08	4.91	5.92	6.52	1.00		1005.02	1003.88	1006.32	0.38	0.20	0.20	0.13	0.51	1007.51	1006.83				
	G4		1.11		0.62	0.78	5.0		10.32		Area Inlet									1008.92											1006.76	1007.92	1.16	
		G3		5.48	0.42	0.53	7.5	0.33	9.37	26.95	30 in. RCP	132.76	0.50	30	29.08	4.91	5.92	6.71	1.15		1003.88	1002.92	1005.71	0.58	0.20	0.20	0.14	0.72	1006.76	1006.43				ADD LINE GG
	G3		3.78		0.42	0.53	5.0		10.32		Area Inlet									1008.15											1006.10	1007.15	1.05	
		G2		9.26	0.61	0.76	7.9	0.61	9.25	65.34	42 in. RCP	305.13	0.50	42	71.33	9.62	7.41	8.39	1.20		1001.92	1000.39	1004.30	1.29	0.40	0.40	0.44	1.73	1006.10	1006.03				ADD LINE H, N
	G2		1.61		0.43	0.54	5.0		10.32		Area Inlet									1007.45											1004.38	1006.45	2.07	
		G1		10.87	0.62	0.78	8.5	0.18	9.06	76.29	48 in. RCP	98.07	0.50	48	101.84	12.57	8.10	8.87	1.04		1000.19	999.70	1003.61	0.28	0.40	0.40	0.49	0.77	1004.34	1004.38				
	G1		1.61		0.43	0.54	5.0		10.32		Area Inlet									1007.45											1003.80	1006.45	2.65	
		F4		12.48	0.62	0.78	8.7	0.07	9.00	87.02	48 in. RCP	39.84	0.50	48	101.84	12.57	8.10	9.08	1.15		999.20	999.00	1003.26	0.15	0.30	0.30	0.38	0.53	1003.79	1003.80				
	N1		0.65		0.58	0.73	5.0		10.32		Area Inlet									1008.75											1005.80	1007.75	1.95	
		G2		0.65	0.58	0.73	5.0	0.45	10.32	4.86	15 in. HDPE	157.63	1.00	15	6.48	1.23	5.28	5.79	1.17		1003.75	1002.44	1004.38	0.90	1.00	1.00	0.52	1.43	1005.21	1005.80				
	GG1		2.34		0.58	0.73	5.0		10.32		Area Inlet									1008.65											1006.06	1007.65	1.59	
		G3		2.34	0.58	0.73	5.0	0.38	10.32	17.51	24 in. HDPE	157.63	0.70	24	18.98	3.14	6.04	6.84	1.29		1003.34	1002.24	1004.38	0.95	1.00	1.00	0.73	1.68	1005.92	1006.06				

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01/15/2021
PROFESSIONAL ENGINEER

LEE'S SUMMIT MIDDLE SCHOOL #4

LEE'S SUMMIT R-7 SCHOOL DISTRICT

1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

PACKAGE 2-
STRUCTURAL & SITE UTILITIES
ISSUED FOR PERMIT
08/28/20

13-20102-00

DRAINAGE CALCULATIONS - 100 YEAR

C1048

N

0' 50' 100' 200'
SCALE IN FEET

STORM SEWER PIPE AND STRUCTURE TABLE

TITLE: LSMS #4
JOB #: 020–0103
DESIGN CONDITIONS: PRIVATE - 10 YEAR STORM EVENT

	STRUCTURES		RUNOFF CALCULATIONS								PIPE DESIGN																				
	FROM	TO	DIRECT AREA (ACRES)	TOTAL AREA (ACRES)	C	KC (K=1.25)	Tc (MIN)	FLOW TIME (MIN)	INTENSITY (IN/HR)	DESIGN Q (CFS)	DESCRIPTION	PIPE LENGTH (L.F.)	PIPE SLOPE (%)	PIPE DIA (IN)	Q FULL (CFS)	PIPE AREA (SQ.FT.)	V FULL (F/S)	DESIGN V (F/S)	Hw/D	MH TOP ELEVATION	UPSTREAM FLOWLINE	DOWNSTREAM FLOWLINE	DOWNSTREAM WATER ELEVATION	FRICTION HEAD (h f)	ENTRY LOSS COEFFICIENT (k)	ACTUAL ENTRY LOSS (k)	ENTRY LOSS (h m)	h f + h m (FT)	HW, INLENT CONTROL	HW, OUTLET CONTROL	PIPE CROWN	PIPE CROWN - HGL	HYDRAULIC GRADE ELEV.	HYDRAULIC GRADE (MAX)	Comments
LDD 1	A6		0.35		0.90	0.90	5.0		7.35		Area Inlet									1016.21											1014.08	0.27	1013.81	1015.21	
		A5		0.35	0.90	0.90	5.0	0.94	7.35	2.32	15 in. HDPE	210.61	0.50	15	4.58	1.23	3.73	3.74	0.78		1012.83	1011.78	1012.71	0.27	1.00	1.00	0.22	0.49	1013.81	1013.20					
	A5		0.15		0.45	0.45	5.0		7.35		Area Inlet									1015.02											1012.98	0.38	1012.60	1014.02	
		A4		0.50	0.86	0.86	5.9	0.95	7.07	3.04	18 in. HDPE	228.76	0.50	18	7.45	1.77	4.21	4.00	0.75		1011.48	1010.34	1011.34	0.19	0.30	0.30	0.07	0.27	1012.60	1011.60					
	A4		0.39		0.30	0.30	5.0		7.35		Area Inlet									1015.00											1012.04	0.58	1011.46	1014.00	
		A3		0.89	0.74	0.74	6.9	0.46	6.81	4.49	24 in. HDPE	119.51	0.50	24	16.04	3.14	5.11	4.37	0.71		1010.04	1009.44	1010.53	0.05	0.20	0.20	0.06	0.11	1011.46	1010.64					
	A3		0.27		0.30	0.30	5.0		7.35		Area Inlet									1017.13											1011.14	0.54	1010.59	1016.13	
		A2		1.16	0.69	0.69	7.3	0.44	6.69	5.36	24 in. HDPE	120.29	0.50	24	16.04	3.14	5.11	4.59	0.73		1009.14	1008.54	1009.74	0.07	0.20	0.20	0.07	0.13	1010.59	1009.88					
	A2		0.05		0.55	0.55	5.0		7.35		Area Inlet									1015.66											1010.24	0.09	1010.15	1014.66	
		A1		1.21	0.69	0.69	7.8	0.12	6.58	5.50	24 in. HDPE	33.37	0.50	24	16.04	3.14	5.11	4.62	0.73		1008.24	1008.07	1010.30	0.02	0.15	0.20	0.07	0.09	1009.70	1010.15					
LDD 2	C7		0.15		0.85	0.85	5.0		7.35		Area Inlet									1016.91											1012.93	0.39	1012.54	1015.91	
		C6		0.15	0.85	0.85	5.0	0.53	7.35	0.94	15 in. HDPE	118.91	1.00	15	6.48	1.23	5.28	3.76	0.69		1011.68	1010.49	1011.00	0.03	1.00	1.00	0.22	0.24	1012.54	1011.68					
	C6		0.10		0.80	0.80	5.0		7.35		Area Inlet									1015.56											1011.44	0.35	1011.09	1014.56	
		C5		0.25	0.83	0.83	5.5	0.50	7.19	1.49	15 in. HDPE	189.11	3.00	15	11.22	1.23	9.14	6.36	0.72		1010.19	1004.52	1005.07	0.10	0.20	0.20	0.13	0.23	1011.09	1010.19					
	C5		0.24		0.45	0.45	5.0		7.35		Area Inlet									1010.82											1005.85	0.13	1005.72	1009.82	
		C4		1.29	0.55	0.55	6.0	0.11	7.05	5.00	15 in. HDPE	60.46	3.00	15	11.22	1.23	9.14	8.87	1.20		1004.22	1002.41	1003.45	0.37	0.40	0.40	0.49	0.86	1005.72	1004.30	ADD LINE CC				
	C4		0.52		0.52	0.52	5.0		7.35		Area Inlet									1006.89											1004.11	0.48	1003.63	1005.89	
		C3		1.81	0.52	0.52	6.1	0.34	7.02	6.61	24 in. HDPE	128.71	1.00	24	22.68	3.14	7.22	6.25	0.76		1002.11	1000.82	1002.02	0.11	0.30	0.30	0.18	0.29	1003.63	1002.31					
	C3		0.60		0.40	0.40	5.0		7.35		Area Inlet									1004.39											1002.09	0.15	1001.94	1003.39	
		C2		2.41	0.46	0.46	6.5	0.29	6.92	7.67	24 in. HDPE	86.50	0.50	24	16.04	3.14	5.11	5.04	0.79		1000.09	1000.29	1001.76	0.10	0.15	0.20	0.08	0.18	1001.67	1001.94					
	C2		0.56		0.40	0.40	5.0		7.35		Area Inlet									1005.42											1001.79	0.34	1001.46	1004.42	
		C1		2.97	0.44	0.44	6.8	0.19	6.85	8.95	24 in. HDPE	58.52	0.50	24	16.04	3.14	5.11	5.23	0.83		999.79	999.50	1000.30	0.09	0.30	0.30	0.13	0.22	1001.46	1000.52					
	CC2		0.50		0.45	0.45	5.0		7.35		Curb Inlet									1012.74											1008.87	0.34	1008.53	1011.24	
		CC1		0.50	0.45	0.45	5.0	0.67	7.35	1.65	15 in. HDPE	176.95	1.00	15	6.48	1.23	5.28	4.42	0.73		1007.62	1005.85	1006.54	0.12	1.00	1.00	0.30	0.42	1008.53	1007.62					
	CC1		0.30		0.55	0.55	5.0		7.35		Curb Inlet									1009.66											1006.80	0.20	1006.60	1008.16	
		C4		0.80	0.49	0.49	5.7	0.51	7.15	2.80	15 in. HDPE	179.24	1.50	15	7.93	1.23	6.46	5.91	0.84		1005.55	1002.86	1003.63	0.34	0.30	0.30	0.16	0.50	1006.60	1005.55					
	M4		0.28		0.52	0.52	5.0		7.35		Area Inlet									1006.67											1003.82	0.38	1003.44	1005.67	
		M3		0.28	0.52	0.52	5.0	0.44	7.35	1.07	15 in. HDPE	103.39	1.00	15	6.48	1.23	5.28	3.91	0.69		1002.57	1001.54	1002.09	0.03	1.00	1.00	0.24	0.27	1003.44	1002.57					
	M3		0.23		0.55	0.55	5.0		7.35		Area Inlet									1006.54											1002.39	0.31	1002.08	1005.54	
		M2		0.51	0.53	0.53	5.4	0.48	7.22	1.95	15 in. HDPE	134.42	1.00	15	6.48	1.23	5.28	4.62	0.75		1001.14	999.80	1000.55	0.12	0.30	0.30	0.10	0.22	1002.08	1001.14					
	M2		0.20		0.55	0.55	5.0		7.35		Area Inlet									1006.57											1000.91	0.22	1000.69	1005.57	
		M1		0.71	0.54	0.54	5.9	0.11	7.08	2.71	15 in. HDPE	32.61	1.00	15	6.48	1.23	5.28	5.05	0.83		999.66	999.34	1000.30	0.06	0.40	0.40	0.16	0.22	1000.69	1000.52					
	K3		0.76		0.90	0.90	5.0		7.35		Area Inlet									1007.92											1004.47	0.15	1004.32	1006.92	
		K2		2.09	0.57	0.57	5.0	0.14	7.35	8.76	18 in. HDPE	86.84	3.00	18	18.24	1.77	10.32	10.20	1.32		1002.97	1000.36	1001.67	0.61	1.00	1.00	1.62	2.23	1004.32	1003.89	ADD LINE L				
	K2		0.18		0.78	0.78	5.0		7.35		Area Inlet									1007.02											1001.86	0.27	1001.59	1006.02	
		K1		2.27	0.59	0.59	5.1	0.09	7.31	9.79	24 in. HDPE	36.25	1.00	24	22.68	3.14	7.22	6.94	0.86		999.86	999.50	1000.30	0.07	0.40	0.40	0.30	0.37	1001.59	1000.67					
	L1		1.33		0.38	0.38	5.0		7.35		Area Inlet									1007.92											1005.42	0.32	1005.10	1006.92	
		K2		1.33	0.38	0.38	5.0	0.17	7.35	3.72	18 in. HDPE	90.75	3.92	18	20.85	1.77	11.80	8.90	0.79		1003.92	1000.36	1001.59	0.11	1.00	1.00	1.23	1.35	1005.10	1003.92					
	E11		0.13		0.45	0.45	5.0		7.35		Area Inlet									1027.14											1021.09	0.41	1020.68	1026.14	
		E10		0.13	0.45	0.45	5.0	1.02	7.35	0.43	15 in. HDPE	212.64	1.50	15	7.93	1.23	6.46	3.47	0.67		1019.84	1016.65	1016.97	0.01	1.00	1.00	0.19	0.20	1020.68	1019.84					
	E10		0.54		0.41	0.41	5.0		7.35		Area Inlet									1025.31											1017.60	0.31	1017.29	1024.31	
		E9		0.67	0.42	0.42	6.0	0.43	7.05	1.97	15 in. HDPE	138.26	1.50	15	7.93	1.23	6.46	5.37	0.75		1016.35	1014.30	1015.00	0.13	0.30	0.30	0.13	0.27	1017.29	1016.35					
	E9		0.70		0.48	0.48	5.0		7.35		Area Inlet									1023.55											1016.00	0.48	1015.52	1022.55	
		E8		1.37	0.70	0.70	6.5	0.20	6.93	6.65	24 in. HDPE	87.11	1.50	24	27.78	3.14	8.84	7.25	0.76		1014.00	1012.69	1013.81	0.08	0.40	0.40	0.33	0.40	1015.52	1014.22					
	E8		1.23		0.52	0.52	5.0		7.35		Area Inlet									1019.97											1014.36	0.20	1014.16	1018.97	
		E7		2.60	0.60	0.60	5.7	0.56	6.88	10.64	24 in. HDPE	248.71	1.10	24	23.79	3.14	7.57	7.35	0.90		1012.36	1009.62	1011.14	0.55	0.20	0.20	0.17	0.72	1014.16	1012.36					
	E7		0.85		0.41	0.41	5.0		7.35		Area Inlet									1019.91											1011.82	0.56	1011.26	1018.91	
		E6		3.45	0.54	0.54	7.2	1.01	6.73	12.58	30 in. RCP	390.98	0.70	30	34.41	4.91	7.01	6.45	0.77		1009.32	1006.58	1008.22	0.37	0.20	0.20	0.13	0.50	1011.26	1009.32					
	E6		0.82		0.40	0.40	5.0		7.35		Area Inlet									1016.91											1008.78	0.49	1008.29	1015.91	
		E5		4.27	0.51	0.51	8.2	0.56	6.48	14.13	30 in. RCP	224.24	0.70	30	34.41	4.91	7.01	6.65	0.80		1006.28	1004.71	1006.46	0.27	0.20	0.20	0.14	0.41	1008.29	1006.87					
	E5		0.47		0.43	0.43	5.0		7.35		Area Inlet									1015.36											1006.94	0.45	1006.49	1014.36	
		E4		4.74	0.50	0.50	8.8	0.63	6.34	15.10	30 in. RCP	291.35	1.00	30	41.13	4.91	8.38	7.72	0.82		1004.44	1001.53	1003.23	0.40	0.20	0.20	0.19	0.58	1006.49	1004.44					
	E4		0.16		0.43	0.43	5.0		7.35		Area Inlet									1010.01											1003.39	0.81	1002.58	1009.01	
		E3		4.90	0.50	0.50	9.4	0.54	6.20	15.18	36 in. RCP	192.68	0.50	36	47.29	7.07	6.69	5.95	0.73		1000.39	999.43	1001.22	0.10	0.20	0.20	0.11	0.21	1002.58	1001.43					
	E3		0.55		0.42	0.42	5.0		7.35		Area Inlet									1006.10											1002.13	0.78	1001.35	1005.10	
		E2		5.45	0.49	0.49	10.0	0.32	6.09	16.28	36 in. RCP	117.67	0.50	36	47.29	7.07	6.69	6.06	0.74		999.13	998.54	1000.40	0.07	0.20	0.20	0.11	0.18	1001.35	1000.58					
	E2		0.31		0.43	0.43	5.0		7.35		Area Inlet									1004.92											1002.14	0.67	1001.47	1003.92	
		E1		5.76	0.58	0.58	10.3	0.64	6.02	20.18	36 in. RCP	247.97	0.50	36	47.29	7.07	6.69	6.41	0.78		999.14	997.00	997.40	0.23	0.20	0.20	0.13	0.36	1001.47	999.14					
	H1		0.84		0.38	0.38	5.0		7.35		Area Inlet									1010.25											1007.06	0.42	1006.64	1009.25	
		G2		0.84	0.38	0.38	5.0	0.16	7.35	2.35	18 in. HDPE	81.63	5.28	18	24.20	1.77	13.70	8.67	0.72		1005.56	1001.25	1001.86	0.04	1.00	1.00	1.17	1.21	1006.64	1005.56					
	F8		1.02		0.65	0.65	5.0		7.35		Area Inlet									1007.41											1005.49	0.56	1004.93	1006.41	
		F7		1.02	0.65	0.65	5.0	0.31	7.35	4.88	24 in. HDPE	82.70	0.50	24	16.04	3.14	5.11	4.47	0.72		1003.49	1003.08	1004.23	0.04	1.00	1.00	0.31	0.35	1004.93	1004.58					
	F7		0.00		0.00	0.00	5.0		7.35		Area Inlet									1006.55											1004.78	0.57	1004.21	1005.55	
		F6		1.02	0.65	0.65	5.3	0.54	7.26	4.81	24 in. HDPE	144.58	0.50	24	16.04	3.14	5.11	4.46	0.72		1002.78	1002.06	1003.20	0.07	0.40	0.40	0.12	0.19	1004.21	1003.39					
	F6		0.15		0.85	0.85	5.0		7.35		Area Inlet									1006.34											1004.26	0.60	1003.66	1005.34	
		F5		2.50	0.65	0.65	5.8	0.30	7.10	11.54	30 in. RCP	101.37	0.50	30	29.08	4.91	5.92	5.57	0.76		1001.76	1001.25	1002.92	0.08	0.20	0.20	0.10	0.18	1003.66	1003.09					
	F5		0.00		0.00	0.00	5.0		7.35		Area Inlet									1008.20											1004.95	0.87	1004.08	1007.20	
		F4		13.37	0.45	0.45	6.2	0.11	7.01	42.20	48 in. RCP	50.65	0.50	48	101.84	12.57	8.10	7.71	0.78		1000.95	999.00	1001.77	0.04	0.30	0.30	0.28	0.32	1004.08	1002.09	ADD LINE G				
	F4		0.30		0.52	0.52	5.0		7.35		Area Inlet									1006.44											1002.70	0.72	1001.98	1005.44	
		F3		13.67	0.51	0.51	6.3	0.46	6.98	48.68	48 in. RCP	219.96	0.50	48	101.84	12.57	8.10	8.00	0.82		998.70	997.60	1000.60	0.25	0.40	0.40	0.40	0.65	1001.98	1001.25					
	F3		1.75		0.32	0.32	5.0		7.35		Area Inlet									1003.93											1001.30	0.75	1000.55	1002.93	
		F2		15.42	0.45	0.45	6.7	0.57	6.86	47.58	48 in. RCP	272.52	0.50	48	101.84	12.57	8.10	7.95	0.81		997.30	995.94	998.90	0.30	0.20	0.20	0.20	0.50	1000.55	999.40					
	F2		1.75		0.33	0.33	5.0		7.35		Area Inlet									1004.88											999.64	0.73	998.91	1003.88	
		F1		17.17	0.42	0.42	7.3	0.32	6.71	48.37	48 in. RCP	154.13	0.50	48	101.84	12.57	8.10	7.98	0.82		995.64	997.12	997.40	0.18	0.20	0.20	0.20	0.37	998.91	997.77					
	G9		0.34		0.30	0.30	5.0		7.35		Area Inlet									1017.00											1013.53	0.40	1013.13	1016.00	
		G8		0.34	0.30	0.30	5.0	1.07	7.35	0.75	15 in. HDPE	176.44	0.50	15	4.58	1.23	3.73	2.76	0.68		1012.28	1011.40	1011.91	0.02	1.00	1.00	0.12	0.14	1013.13	1012.28					
	G8		0.25		0.60	0.60	5.0		7.35		Area Inlet									1016.43											1012.35	0.34	1012.01	1015.43	
		G7		0.59	0.41	0.41	6.1	0.63	7.04	1.70	15 in. HDPE	131.73	0.50	15	4.58	1.23	3.73	3.46	0.73		1011.10	1010.44	1011.23	0.09	0.20	0.20	0.04	0.13	1012.01	1011.36					
	G7		0.17		0.54	0.54	5.0		7.35		Area Inlet									1014.97											1011.64	0.44	1011.20	1013.97	
		G6		0.76	0.40	0.40	6.7	0.59	6.86	2.09	18 in. HDPE	127.30	0.50	18	7.45	1.77	4.21	3.61	0.71		1010.14	1009.50	1010.32	0.05	0.30	0.30	0.08	0.11	1011.20	1010.43					
	G6		1.77		0.51	0.51	5.0		7.35		Area Inlet									1013.98											1011.00	0.45	1010.55	1012.98	
		G5		2.53	0.43	0.43	7.3	0.28	6.71	7.30	24 in. HDPE	152.56	2.61	24	36.65	3.14	11.66	9.08	0.78		1009.00	1005.02	1006.11	0.16	0.30	0.30	0.38	0.54	1010.55	1009.00					
	G5		1.84		0.62	0.62	5.0		7.35		Area Inlet									1010.41											1007.52	0.57	1006.95	1009.41	
		G4		4.37	0.43	0.43	7.6	0.37	6.64	12.47	30 in. RCP	127.47	0.50	30	29.08	4.91	5.92	5.69	0.77		1005.02	1003.88	1005.62	0.12	0.20	0.20	0.10	0.22	1006.95	1005.84					
	G4		1.11		0.62	0.62	5.0		7.35		Area Inlet									1008.92											1006.38	0.45	1005.93	1007.92	
		G3		5.48	0.42	0.42	7.9	0.37	6.54	15.06	30 in. RCP	132.76	0.50	30	29.08	4.91	5.92	5.97	0.82		1003.88	1002.92	1004.85	0.18	0.20	0.20	0.11	0.29	1005.93	1005.14	ADD LINE GG				
	G3		3.78		0.42	0.42	5.0		7.35		Area Inlet									1008.15											1005.42	0.58	1004.84	1007.15	
		G2		9.26	0.61	0.61	8.3	0.68	6.45	36.46	42 in. RCP	305.13	0.50	42	71.33	9.62	7.41	7.44	0.83		1001.92	1000.39	1003.10	0.40	0.40	0.40	0.34	0.75	1004.84	1003.85	ADD LINE H, N				
	G2		1.61		0.43	0.43	5.0		7.35		Area Inlet									1007.45											1004.19	0.87	1003.32	1006.45	
		G1		10.87	0.62	0.62	9.0	0.21	6.30	42.43	48 in. RCP	98.07	0.50	48	101.84	12.57	8.10	7.72	0.78		1000.19	999.70	1002.48	0.09	0.40	0.40	0.37	0.46	1003.32	1002.93					
	G1		1.61		0.43	0.43	5.0		7.35		Area Inlet									1007.45											1003.20	0.73	1002.47	1006.45	
		F4		12.48	0.62	0.62	9.2	0.08	6.25	48.35	48 in. RCP	39.84	0.50	48	101.84	12.57	8.10	7.98	0.82		999.20	999.00	1001.98	0.05	0.30	0.30	0.30	0.34	1002.47	1002.32					
	N1		0.65		0.58	0.58	5.0		7.35		Area Inlet									1008.75											1005.00	0.21	1004.79	1007.75	
		G2		0.65	0.58	0.58	5.0	0.52	7.35	2.77	15 in. HDPE	157.63	1.00	15	6.48	1.23	5.28	5.07	0.83		1003.75	1002.44	1003.35	0.29	1.00	1.00	0.40	0.69	1004.79	1004.04					
	GG1		2.34		0.58	0.58	5.0		7.35		Area Inlet									1008.65											1005.34	0.26	1005.08	1007.65	
		G3		2.34	0.58	0.58	5.0	0.43	7.35	9.98	24 in. HDPE	157.63	0.70	24	18.98	3.14	6.04	6.11	0.87		1003.34	1002.24	1003.84	0.31	1.00	1.00	0.58	0.89	1005.08	1004.73					

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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010010505
01/15/2021
PROFESSIONAL ENGINEER

LEE'S SUMMIT MIDDLE SCHOOL #4

LEE'S SUMMIT R-7 SCHOOL DISTRICT

1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

PACKAGE 2-
STRUCTURAL & SITE UTILITIES
ISSUED FOR PERMIT
08/28/20

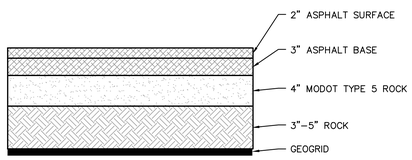
13-20102-00

DRAINAGE CALCULATIONS - 10 YEAR

C1049

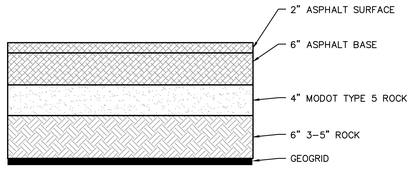
N

0' 50' 100' 200'
SCALE IN FEET



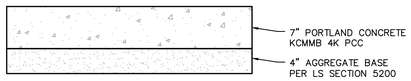
REFER TO THE GEOTECHNICAL REPORT PROVIDED BY CFS ENGINEERS, PROJECT NO. 20–1074 AND DATED JUNE 8, 2020 AND ALL ADDENDUMS FOR ADDITIONAL REQUIREMENTS.

LIGHT DUTY ASPHALT PAVEMENT SECTION
NOT TO SCALE



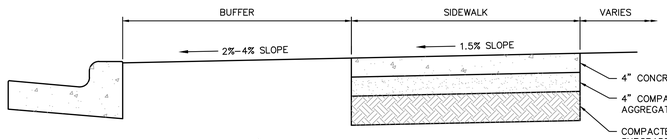
REFER TO THE GEOTECHNICAL REPORT PROVIDED BY CFS ENGINEERS, PROJECT NO. 20–1074 AND DATED JUNE 8, 2020 AND ALL ADDENDUMS FOR ADDITIONAL REQUIREMENTS.

HEAVY DUTY ASPHALT PAVEMENT SECTION
NOT TO SCALE



REFER TO THE GEOTECHNICAL REPORT PROVIDED BY CFS ENGINEERS, PROJECT NO. 20–1074 AND DATED JUNE 8, 2020 AND ALL ADDENDUMS FOR ADDITIONAL REQUIREMENTS.

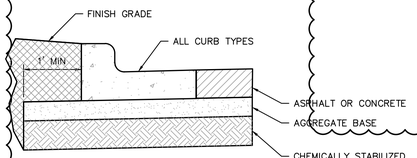
HEAVY DUTY CONCRETE PAVEMENT SECTION
NOT TO SCALE



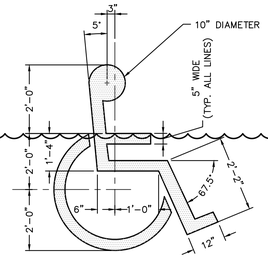
CONCRETE SIDEWALK WITH BUFFER
NOT TO SCALE

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 OR AS APPROVED BY THE CITY INSPECTOR.
4. ALL SIDEWALKS SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG)
5. AN EXPANSION JOINT SHALL BE PLACED AT A MAXIMUM OF 150 FT. CONSTRUCTION JOINTS SHALL BE PLACED THE SAME WIDTH OF SIDEWALK, BUT NO GREATER THAN 10 FT.
6. SIDEWALK FINISHING (NO PICTURE FRAMING) AS DIRECTED BY CITY INSPECTOR.
7. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.

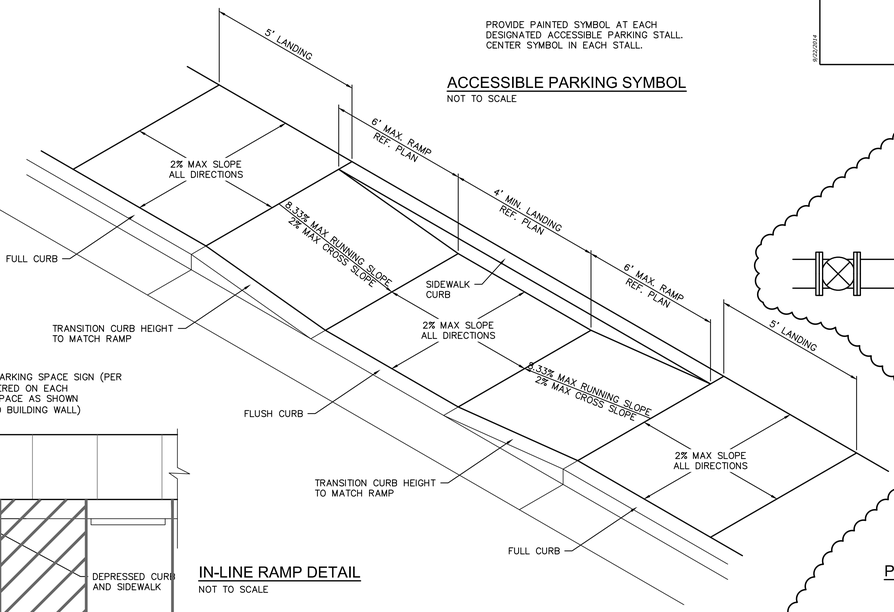


TYPICAL SUBGRADE PLACEMENT UNDER CURB
NOT TO SCALE

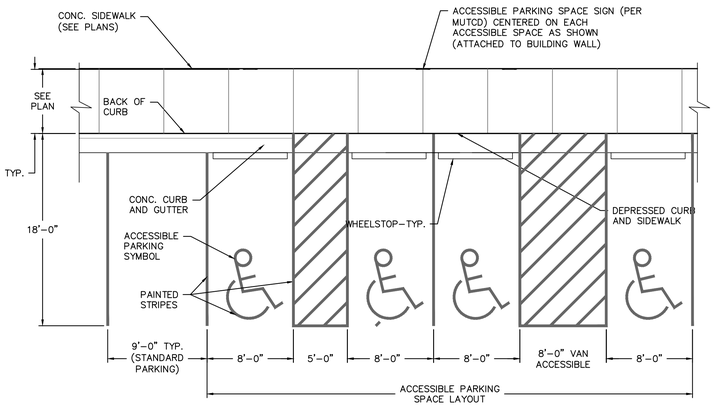


PROVIDE PAINTED SYMBOL AT EACH DESIGNATED ACCESSIBLE PARKING STALL. CENTER SYMBOL IN EACH STALL.

ACCESSIBLE PARKING SYMBOL
NOT TO SCALE



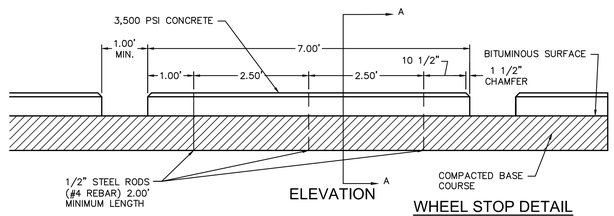
NOTE
ACCESSIBLE PARKING SYMBOL AND SIGNAGE SHALL COMPLY WITH THE APPLICABLE RECOMMENDATIONS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).



TYPICAL ADA PARKING SPACE LAYOUT DETAIL
NOT TO SCALE

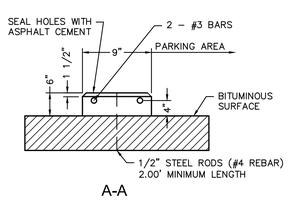
IN-LINE RAMP DETAIL
NOT TO SCALE

NOTE:
ANCHOR RODS TO BE SLEEVED OF GREASED THRU CONCRETE CURBS TO PERMIT RELOCATION OF CURBS.

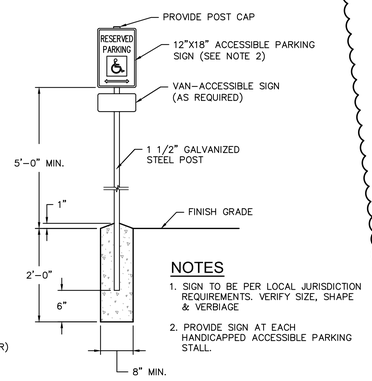


ELEVATION

WHEEL STOP DETAIL
NOT TO SCALE

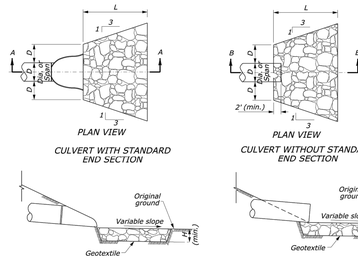


A-A



NOTES
1. SIGN TO BE PER LOCAL JURISDICTION REQUIREMENTS. VERIFY SIZE, SHAPE & VERBIAGE
2. PROVIDE SIGN AT EACH HANDICAPPED ACCESSIBLE PARKING STALL.

ACCESSIBLE PARKING SPACE SIGNAGE
NOT TO SCALE

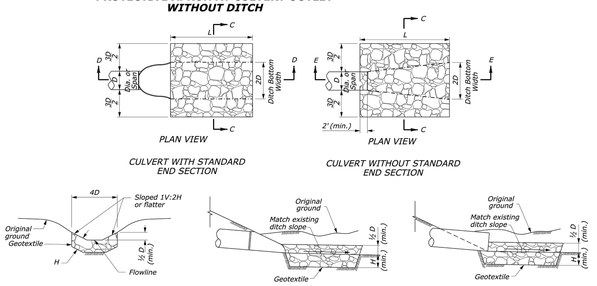


PROTECTIVE APRON AT CULVERT OUTLET WITHOUT DITCH

OUTLET WITHOUT DITCH
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES

	CULVERT SIZE D (inches)	RIPRAP CLASS	LENGTH OF APRON L (feet)	DEPTH OF APRON H (feet)	ESTIMATED RIPRAP QUANTITY (CY)	ESTIMATED GEOTEXTILE QUANTITY (SY)
WITH END SECTION	12	2	4	1.5	1	5
	18	2	6	1.5	2.2	9
	24	2	8	1.5	3.9	14
	30	3	12.5	2	10.9	28
	36	3	16	2	15.6	37
	42	4	21	2.5	34.1	63
	48	4	24	2.5	44.5	79
WITHOUT END SECTION	12	2	6	1.5	1.7	8
	18	2	8	1.5	3.2	12
	24	2	10	1.5	5.2	17
	30	3	14.5	2	13.3	33
	36	3	17	2	18.5	43
	42	4	23	2.5	38.7	70
	48	4	26	2.5	49.8	87

NOTE:
1. Use for aprons serving culverts with slopes of less than 10%.
2. Furnish geotextile conforming to Subsection 714.01(a).
3. Excavation for placement of riprap will not be measured for payment.



PROTECTIVE APRON AT CULVERT OUTLET WITH DITCH

OUTLET WITH DITCH
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES

	CULVERT SIZE D (inches)	RIPRAP CLASS	LENGTH OF APRON L (feet)	DEPTH OF APRON H (feet)	ESTIMATED RIPRAP QUANTITY (CY)	ESTIMATED GEOTEXTILE QUANTITY (SY)
WITH END SECTION	12	2	4	1.5	0.9	5
	18	2	6	1.5	2	8
	24	2	8	1.5	3.6	13
	30	3	12.5	2	9.3	24
	36	3	15	2	13.4	32
	42	4	21	2.5	27.3	53
	48	4	24	2.5	35.6	65
WITHOUT END SECTION	12	2	6	1.5	1.4	6
	18	2	8	1.5	2.7	10
	24	2	10	1.5	4.5	15
	30	3	14.5	2	10.8	27
	36	3	17	2	15.2	36
	42	4	23	2.5	29.9	57
	48	4	26	2.5	38.6	70

STATE	PROJECT	SHEET NUMBER

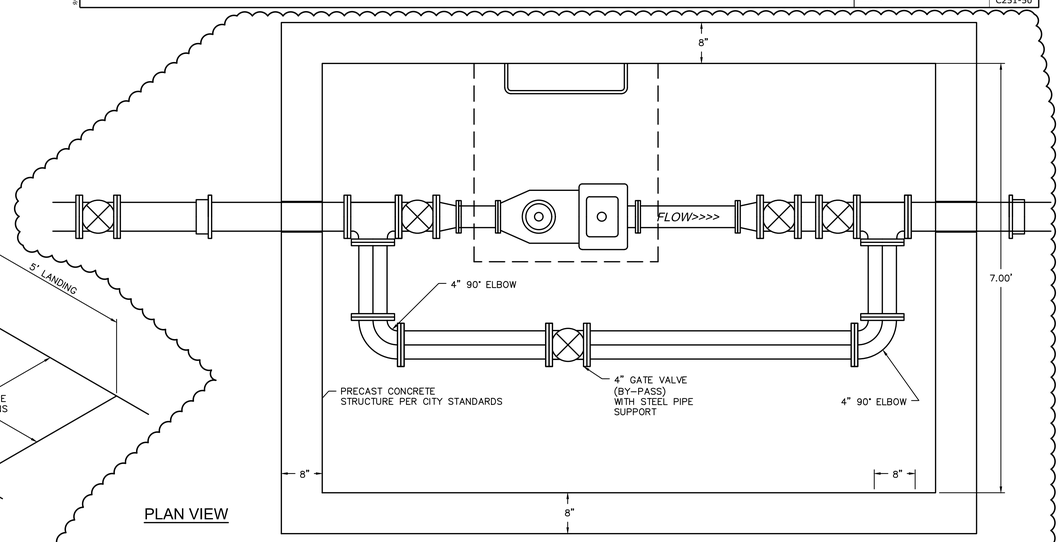
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

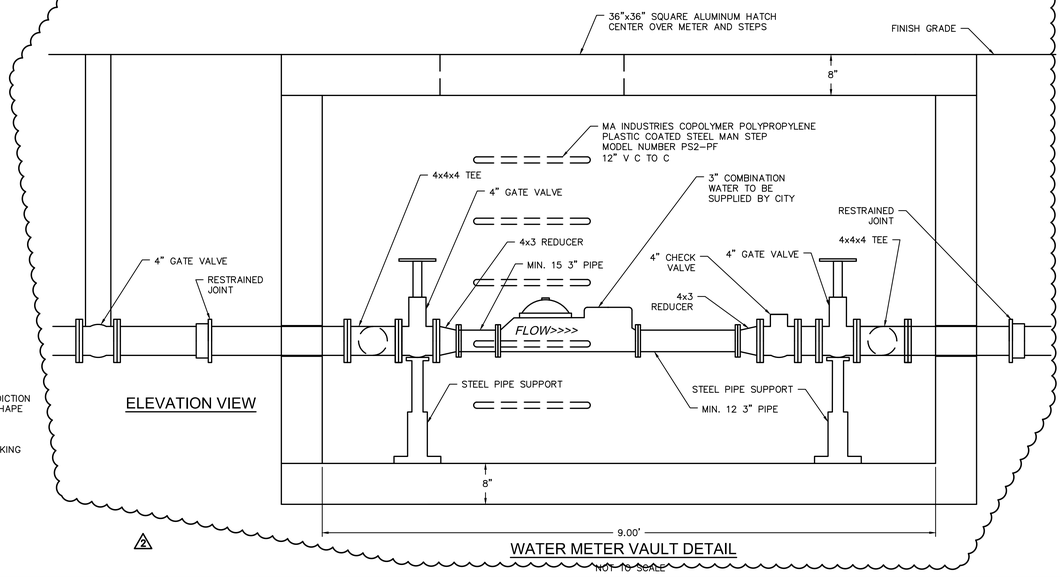
PLACED RIPRAP AT CULVERT OUTLETS

NO SCALE

DETAIL APPROVED FOR USE — REVISED: 08/2014 — DETAIL C251-50



PLAN VIEW



ELEVATION VIEW

2

WATER METER VAULT DETAIL
NOT TO SCALE

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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010010555
01/15/2021
PROFESSIONAL ENGINEER

olsson
OLSSON, CIVIL ENGINEERING, LAND SURVEYING, LANDSCAPE ARCHITECTURE AUTHORITY #001592
7301 West 133rd Street, Suite 200
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TEL 913.381.1170
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LEE'S SUMMIT MIDDLE SCHOOL #4

LEE'S SUMMIT R-7 SCHOOL DISTRICT

1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

PACKAGE 2-
STRUCTURAL & SITE UTILITIES
ISSUED FOR PERMIT
08/28/20

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13-20102-00

STANDARD DETAILS

C1050

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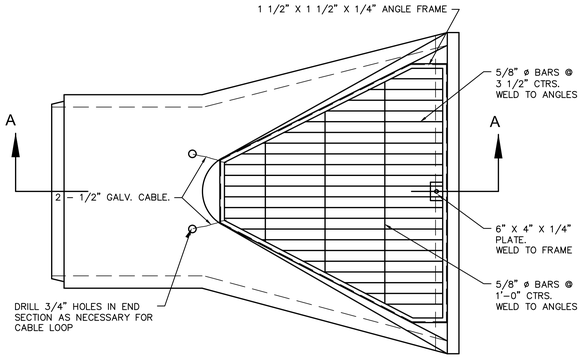

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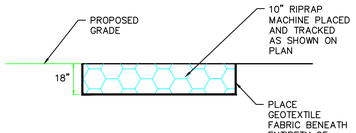
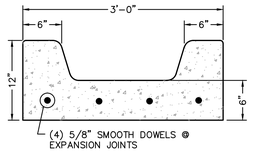


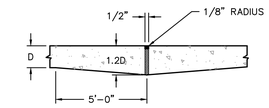
10" RIPRAP

WEIGHT OF INDIVIDUAL PIECES	MINIMUM PERCENT LARGER THAN
500 lbs.	0%
250 lbs.	50%
125 lbs.	70%
10 lbs.	90%

STONE RIPRAP DETAIL
NOT TO SCALE

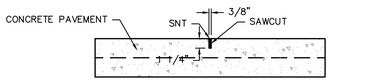


CONCRETE FLUME DETAIL
NOT TO SCALE



EXPANSION JOINT AT CONNECTION TO EXISTING PAVEMENT

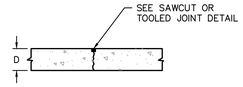
NOTE:
1. EXPANSION JOINTS TO BE USED IN ALL AREAS THAT CONCRETE PAVEMENT ABUTS BUILDING
2. 6X6X6 WELDED WIRE MESH IS TO BE USED IN ALL CONCRETE WALKS AROUND BUILDINGS.



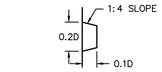
CONCRETE PAVEMENT CONTRACTION (SAWCUT) JOINT SECTION

SAWCUT JOINT

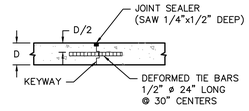
CONCRETE PAVING JOINT DETAILS
NOT TO SCALE



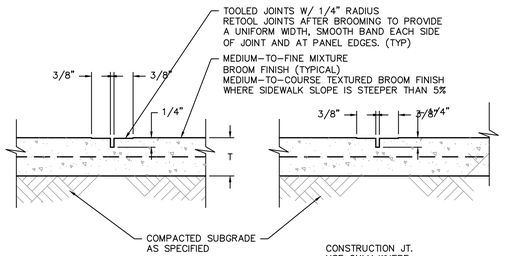
SAWED LONGITUDINAL OR TRANSVERSE



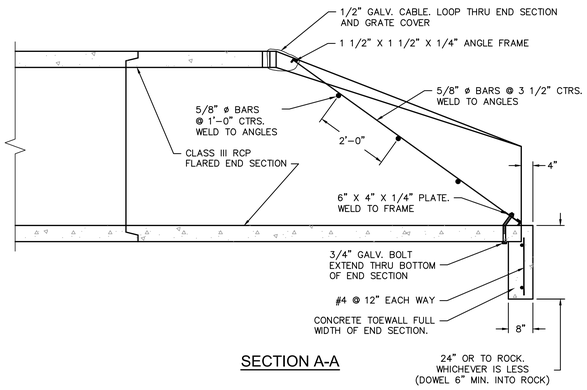
KEYWAYS FOR TYPE B AND F CONSTRUCTION JOINT



EMERGENCY TIED TRANSVERSE CONSTRUCTION JOINT
(USED AT MIDDLE THIRD NORMAL JOINT SPACING)



TOOLED JOINT

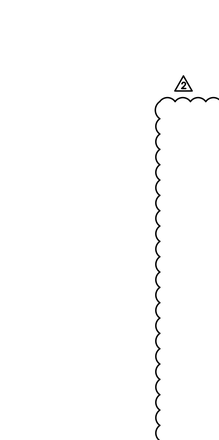


SECTION A-A

END SECTION NOTES

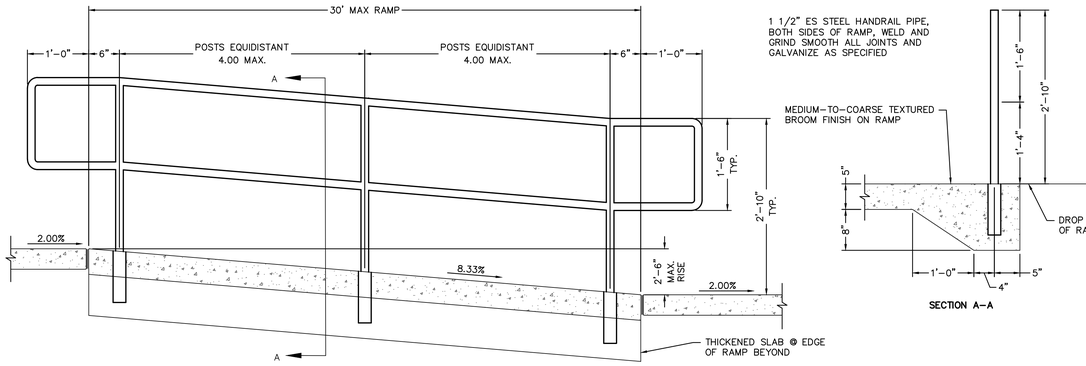
1. GRATE COVER DETAIL SHALL BE ADJUSTED AS NECESSARY TO FIT END SECTION PROVIDED.
2. MAXIMUM OPENING THRU END SECTION SHALL BE NO GREATER THAN 6". ADJUST DETAIL AS NECESSARY.
3. ALL METAL SURFACES SHALL BE HOT DIP ZINC COATED IN ACCORDANCE WITH ASTM A–123.
4. USE CITY APPROVED CONCRETE THROUGHOUT.
5. ALL CONCRETE AND MATERIALS USED IN THIS WORK SHALL MEET THE REQUIREMENTS OF THE GOVERNING BODY.
6. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
7. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF ±1/8" SHALL BE PERMITTED.
8. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
9. ALL DOWELS SHALL BE ACCURATELY PLACED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF BOTTOM SLAB CONCRETE. STICKING OF DOWELS INTO FRESH OR PARTIALLY HARDENED CONCRETE WILL NOT BE ACCEPTABLE.
10. ALL REINFORCING STEEL SHALL BE SUPPORTED ON FABRICATED STEEL BAR SUPPORTS @ 3'–0" MAXIMUM SPACING.
11. DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION.

END SECTION TOE WALL WITH GRATE
NOT TO SCALE

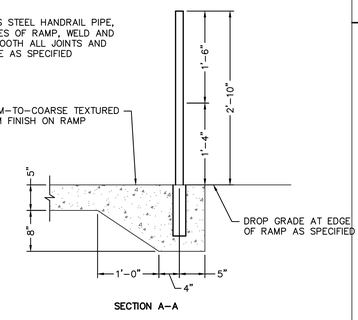


NOTE:
WHEN PLACED IN PAVEMENT, TOP OF CONCRETE FOUNDATION SHALL BE PLACED BELOW NEW PAVEMENT WITH 1/2 ISOLATION JOINT & SEAL.

BOLLARD DETAIL
NOT TO SCALE



1 1/2" ES STEEL HANDRAIL PIPE, BOTH SIDES OF RAMP, WELD AND GRIND SMOOTH ALL JOINTS AND GALVANIZE AS SPECIFIED



SECTION A–A

ACCESSIBLE RAMP WITH HANDRAIL
NOT TO SCALE

2

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STANDARD DETAILS

C1051

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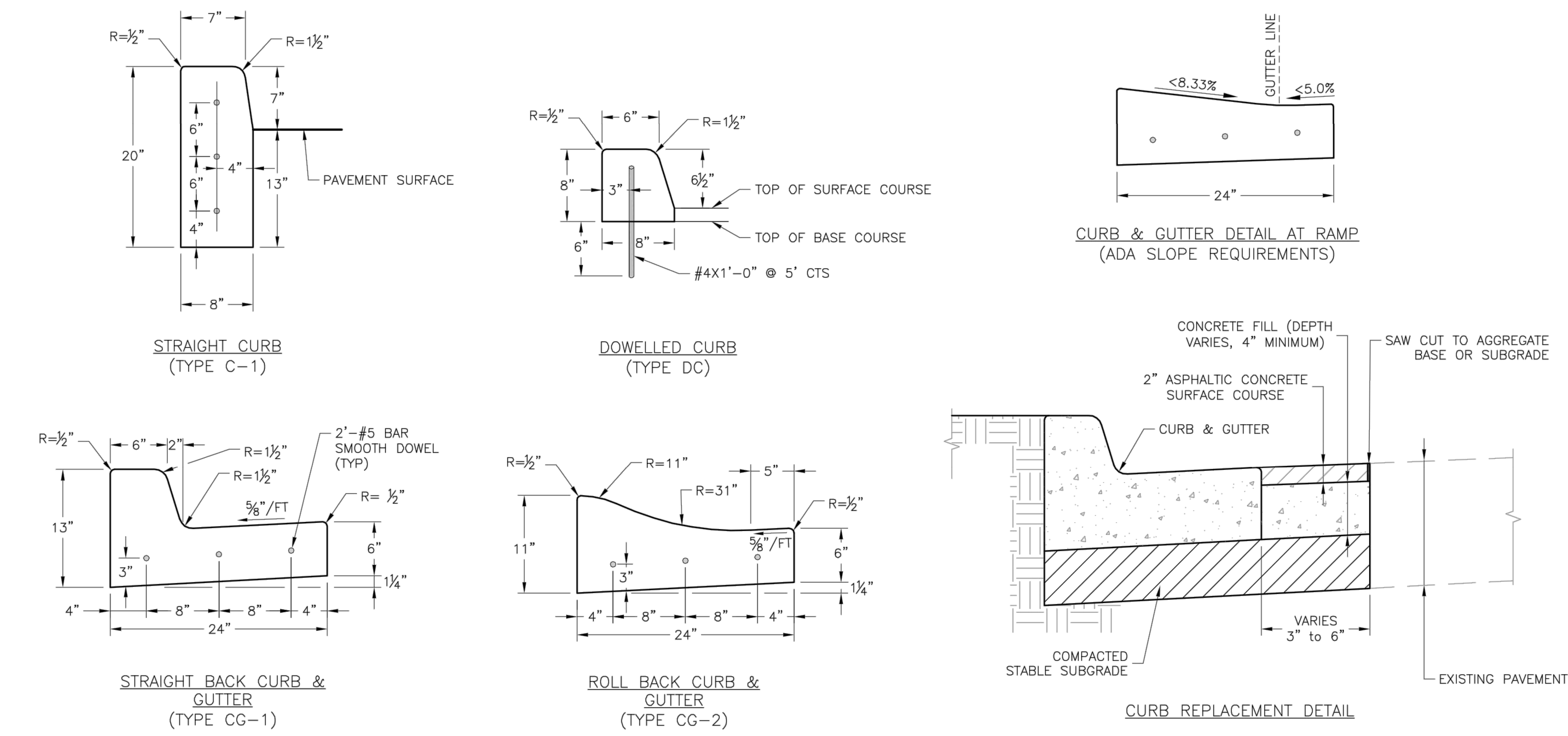
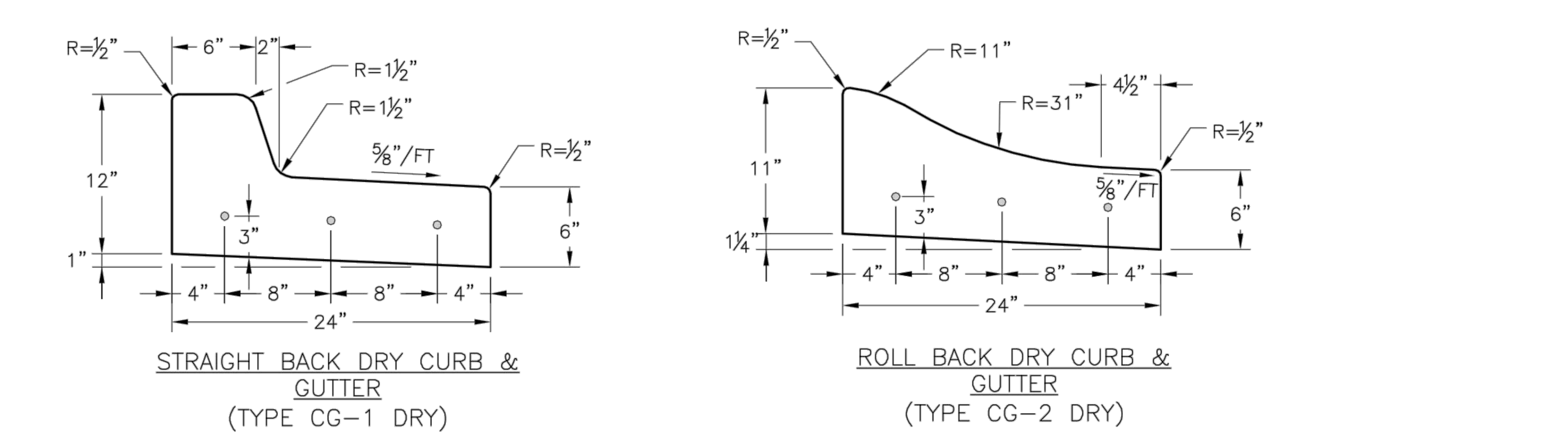




GENERAL NOTES

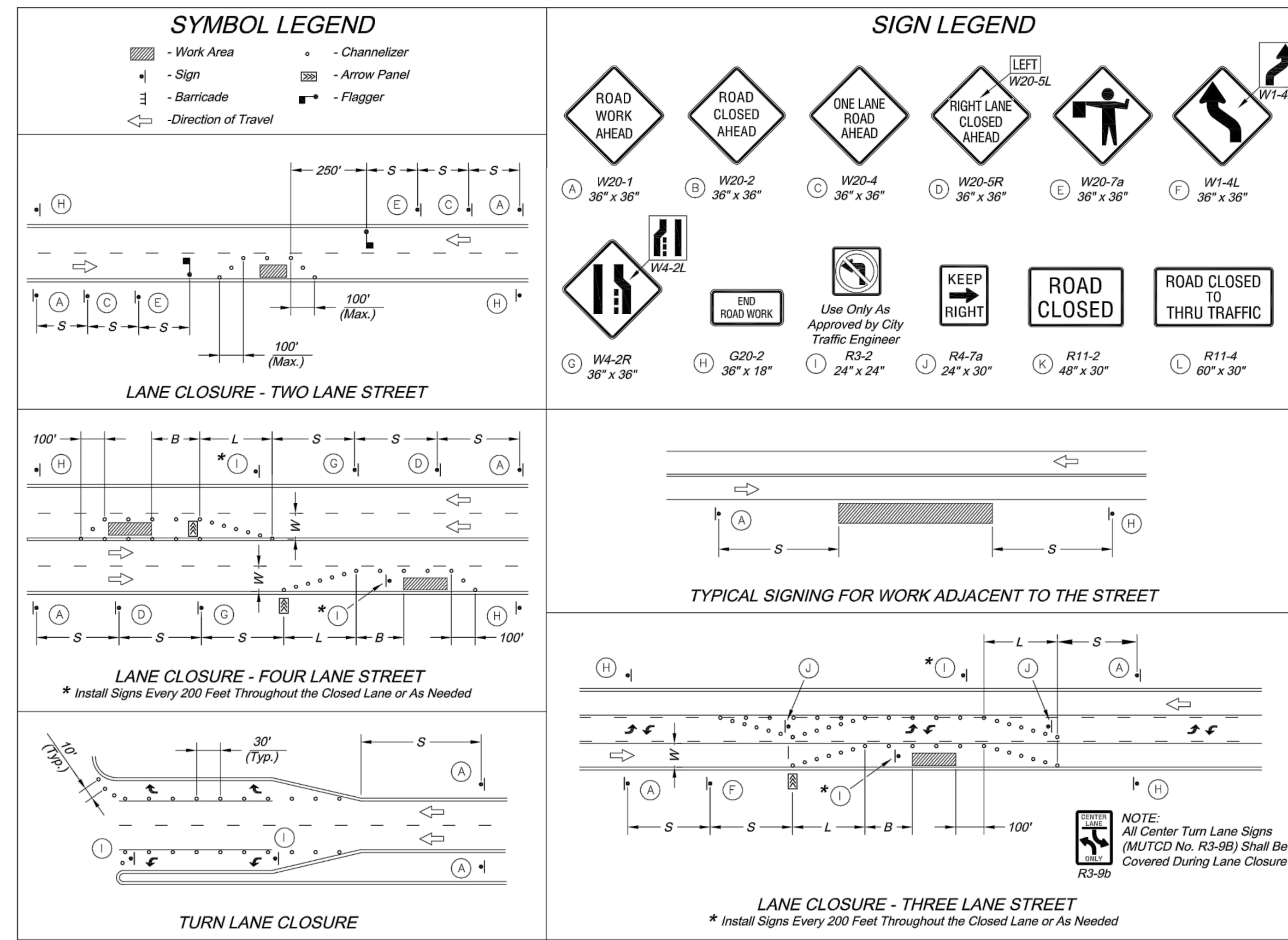
1. ¾" ISOLATION JOINTS WITH 3 (2'-#5 BAR) SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 3" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS 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.

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

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

CURB & GUTTER DETAIL

GEN-4

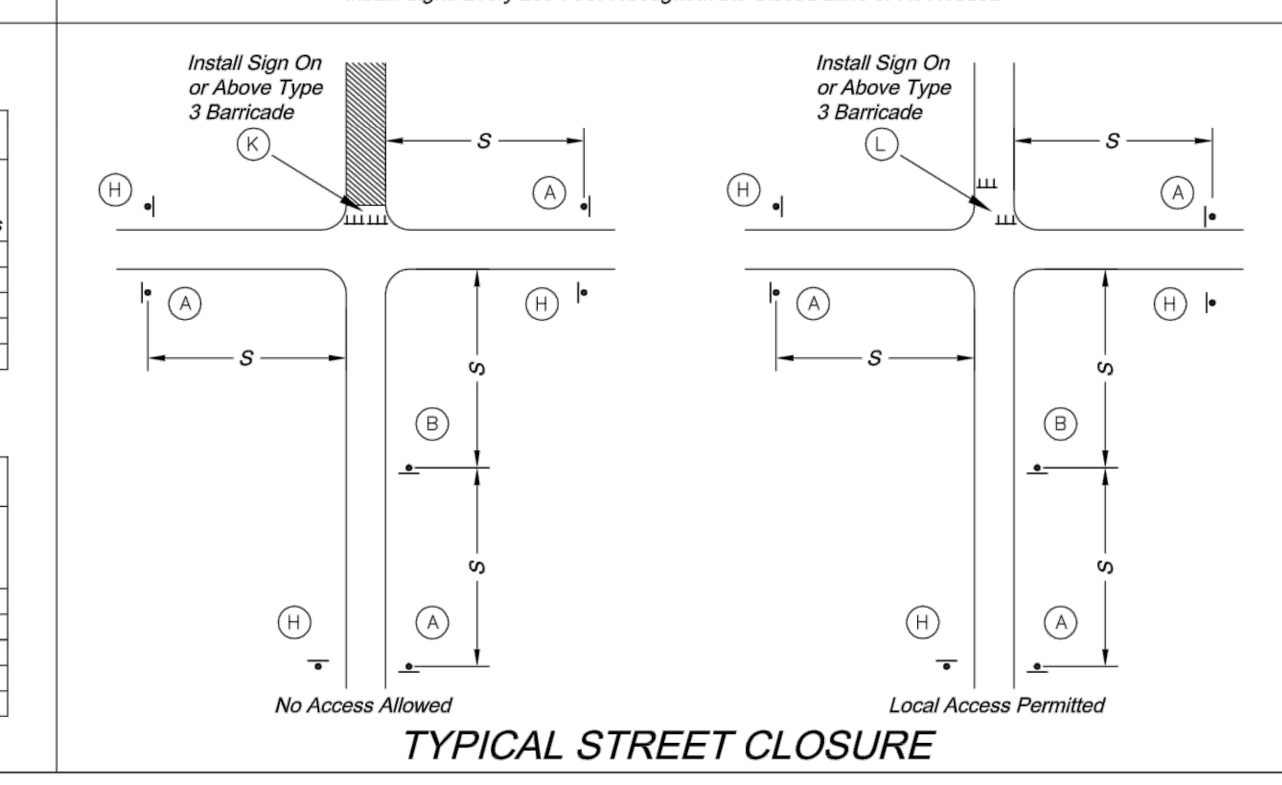


Sign Spacing "S"	
Speed Limit (mph)	Spacing (Feet)
25	100
30 - 35	250
≥ 40	350

Taper Dimensions (Feet)				
Speed Limit (mph)	Minimum Taper Length "L", per Lane Width "W"			Minimum Number of Channelizers
	10	11	12	
25	105	115	125	6
30	150	165	180	7
35	205	225	245	8
40	270	295	320	9
45	450	495	540	13

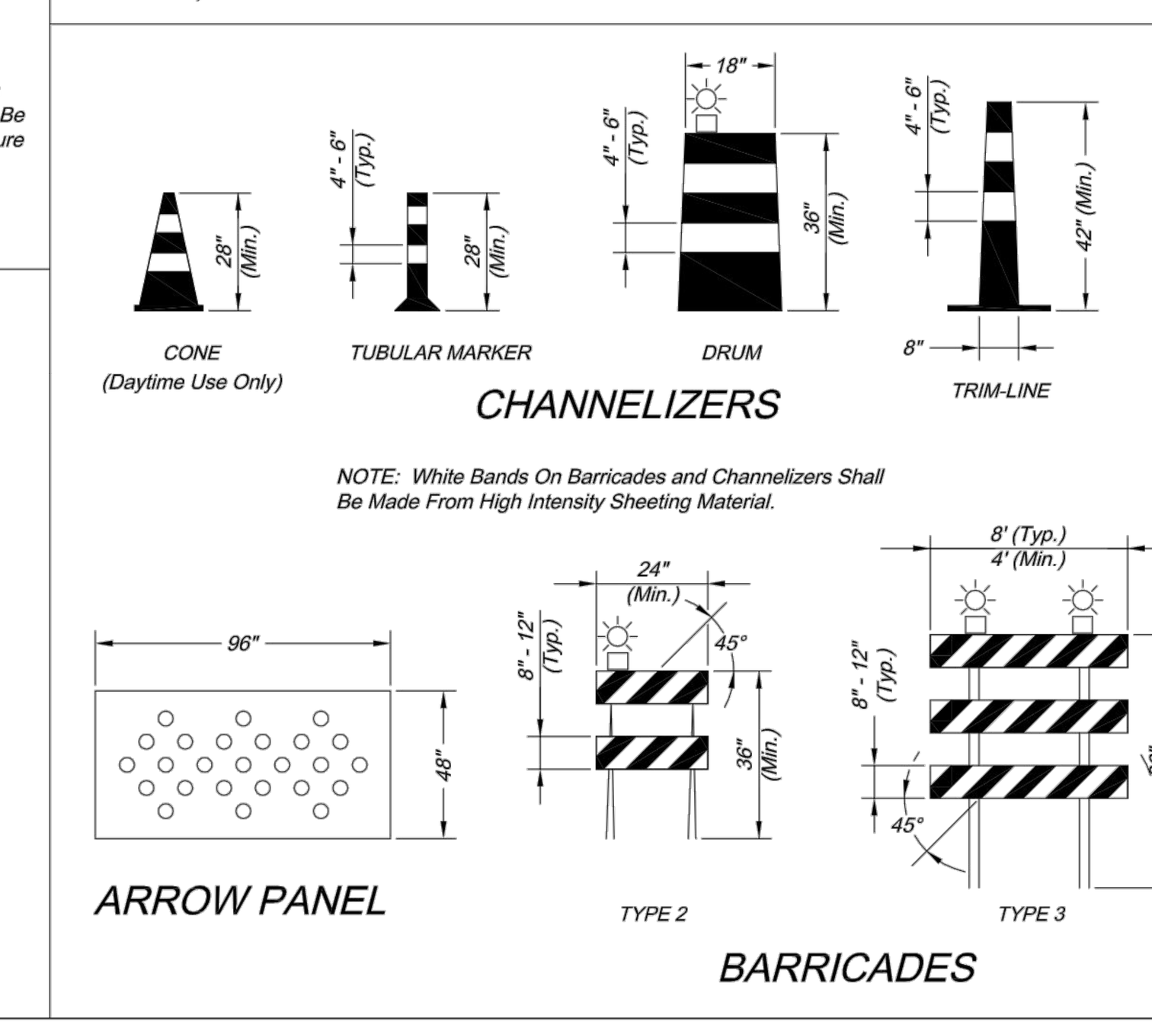
Guidelines for Length of Longitudinal Buffer Space "B"	
Speed Limit (mph)	Length (Feet)
25	35
30	55
35	85
40	120
45	170

Maximum Channelizer Spacing		
Speed Limit (mph)	Within Taper (Feet)	Outside Taper (Feet)
25	25	50
30	30	60
35	35	70
40	40	80
45	45	90



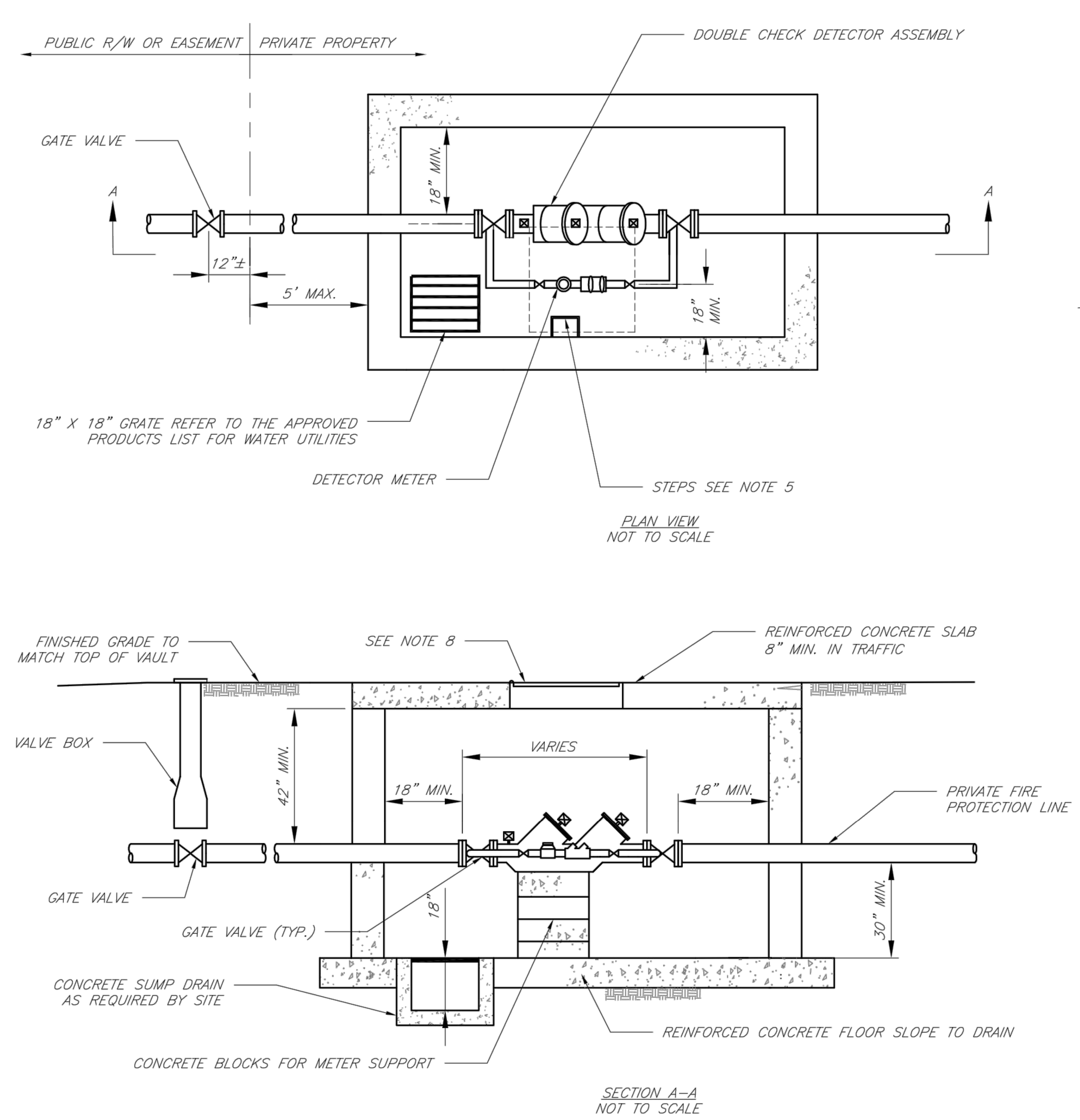
GENERAL NOTES:

1. All signs, barricades, channelizers, markings and other traffic control devices shall conform to the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
2. All traffic control devices shall be standard in size, shape, color, and message, in good condition, and retro-reflectorized. All signs shall be securely mounted with height and lateral location as described in the MUTCD.
3. Warning lights shall be used on barricades in place at night and on warning signs which alert drivers about a change in alignment, traffic control, lane closure, or road closure.
4. Flaggers shall be used where indicated on the plans, where construction vehicles interact with normal traffic, or where construction activities impose a restriction on traffic, as directed by the City Traffic Engineer. Where flaggers are used, advance signing shall be erected as shown in the details or as specified in the MUTCD. Flaggers shall meet the requirements in the MUTCD in regard to character, training, attire, and behavior.
5. Trim-lines are the City's preferred channelizing device. Cones may not be used at nighttime.
6. Traffic control devices not in use or not applicable shall be either covered or removed from the work area.
7. The Contractor shall use barricades, street plates, or fencing as needed to effectively shield pedestrian and vehicular traffic from exposed objects, excavations, and construction activities.
8. Access shall be maintained to all driveways and side streets unless noted otherwise on the plans.
9. No street shall be closed without the approval of the City Traffic Engineer. The Contractor shall notify the City Traffic Engineer at least 7 days in advance of any street closure. If a detour route around the closure is to be provided, all detour signing shall be as shown on a plan approved by the City Traffic Engineer.
10. Construction vehicles parked along streets shall be located within the work area (traffic control) or where otherwise normally permitted. Construction materials, including traffic control and vehicles shall not restrict sight distance for vehicles exiting at streets or drives.
11. Construction materials shall be kept off of sidewalks, consolidated in one location within City right-of-way, and removed daily unless otherwise approved by the Inspector. Dirt, mud, and other construction debris on streets and sidewalks shall be removed immediately.
12. The Contractor shall not perform any work that will restrict vehicular traffic in any way between the hours of 7:00 a.m. and 9:00 a.m. or 4:00 p.m. and 6:00 p.m. Monday through Friday unless otherwise indicated in the specifications.
13. All travel lanes should be at least 11 feet wide unless otherwise authorized by the City Traffic Engineer. A "Narrow Lanes" sign shall be installed in advance of a lane width reduction to less than 11 feet.
14. All edge drop-offs of more than 2 inches and less than 4 inches should be protected by a wedge or barrier and all edge drop-offs greater than 4 inches shall have edge protection (see Traffic Control Specifications for edge treatment requirements).
15. The "Workers" symbolic sign (MUTCD No. W21-1a) may be used instead of the "Road Work Ahead" sign for work with a duration of 12 hours or less. The "End Road Work" sign is not required to be installed after the "Workers" sign.
16. No traffic signal shall be altered or modified in any way without a plan approved by the City Traffic Engineer.
17. The Contractor shall be responsible for maintaining all traffic control devices on an around-the-clock basis, whether or not work is actively being pursued and any deficiencies noted shall be corrected immediately.
18. The traffic control requirements shown on these plans are minimum requirements only and do not attempt to address in depth the variety of situations that may occur once construction has started. In no way do the requirements shown on these plans relieve the Contractor of his responsibility for selecting the proper traffic control devices and implementation procedures that will assure the safety of drivers, pedestrians, and workers at all times.
19. Should the contractor fail to enforce the traffic control plan or fail to clean, replace or otherwise maintain the traffic control devices when directed to do so by the City Traffic Engineer or representative, the City may take one or more of the following actions:
   A) Employ another agency to correct deficiencies in traffic control devices and deduct the cost from the Contractor's pay estimate,
   B) Stop the work until deficiencies are corrected,
   C) Suspend all pay estimates until deficiencies are corrected, or
   D) Place the Contractor in default.



CITY OF LEE'S SUMMIT
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

TRAFFIC CONTROL DETAILS
STANDARD DRAWING TC-1



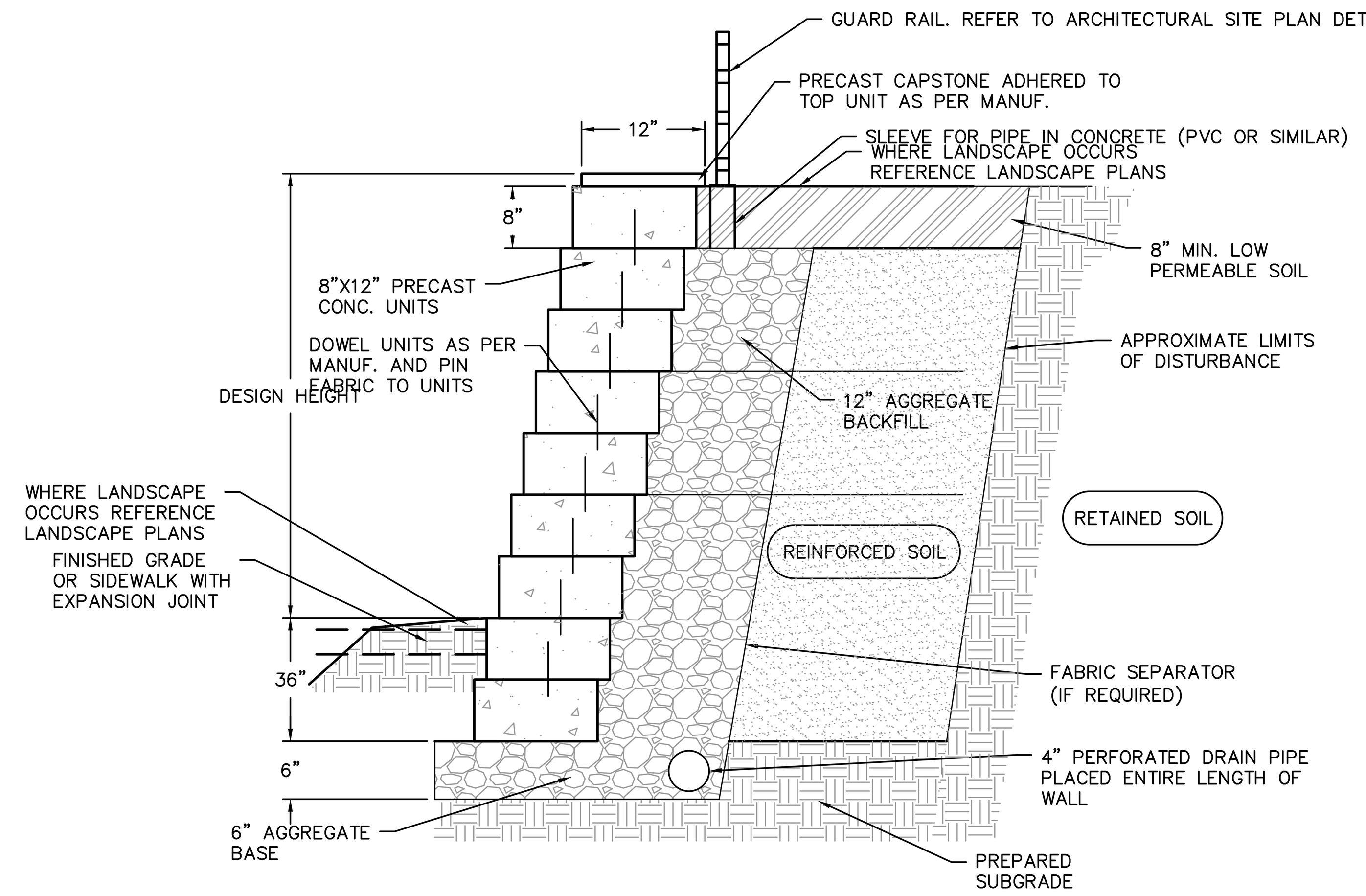
GENERAL NOTES:

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

STANDARD DRAWINGS
VAULT FOR DOUBLE CHECK DETECTOR CHECK

WAT-12



RETAINING WALL DETAIL
NOT TO SCALE

RETAINING WALL NOTES

1. RETAINING WALL SHALL BE "VERSA-LOK MOSAIC RETAINING WALL (NON-WEATHERED) AND THE COLAR SHALL BE PALOMINO GRAY". THE DETAILS PROVIDED HERE ARE FOR GENERAL GUIDANCE ONLY. THE WALL SHALL BE "DESIGN-BUILD" PROVIDED COMPLETE IN-PLACE BY THE CONTRACTOR.

2. THE WALL SHALL BE DESIGNED BY THE INSTALLER ACCORDING TO THE WALL UNIT MANUFACTURER'S DESIGN CRITERIA. THE DESIGN SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER AS A SHOP DRAWING FOR REVIEW. ALL DESIGN CALCULATIONS AND DESIGN CRITERIA, (ANGLE OF FRICTION, SOIL WEIGHT, ETC.), SHALL BE SUBMITTED WITH THE SHOP DRAWING. ALL DESIGN MUST BE SEALED BY A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF KANSAS.

3. FACTORS OF SAFETY SHALL BE AS FOLLOWS:
   1.5 AGAINST REINFORCEMENT GRID PULLOUT OR RUPTURE
   1.5 AGAINST EXTERNAL SLIDING FAILURE
   2.0 AGAINST OVERTURNING

4. THE DESIGN, DIMENSIONS, AND MATERIAL SHOWN IN THIS DETAIL ARE GENERAL IN NATURE. THE AGGREGATE MATERIALS, GEOGRID SYSTEM, AND INSTALLATION SHALL BE AS WALL UNIT MANUFACTURER'S REQUIREMENTS.

5. SEE SPECIFICATIONS FOR MATERIAL SELECTION AND OTHER REQUIREMENTS.

6. GLOBAL STABILITY ANALYSIS SHALL BE PERFORMED BY THE WALL DESIGNER TO TAKE INTO ACCOUNT EXTERNAL LOADS, SLOPES ABOVE AND BELOW THE WALL, AND HYDROSTATIC PRESSURE, WHEN APPLICABLE.

7. RETAINING WALL SHALL PROVIDE POSITIVE INTERLOCKING BETWEEN BLOCKS AND GRID.

DLR Group

olsson

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TERRY M. PARSONS
NUMBER PE-2018010505
PROFESSIONAL ENGINEER

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LEE'S SUMMIT R-7 SCHOOL DISTRICT
1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

PACKAGE 2- STRUCTURAL & SITE UTILITIES
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13-20102-00

STANDARD DETAILS

C1052

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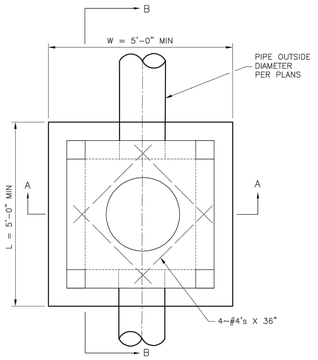
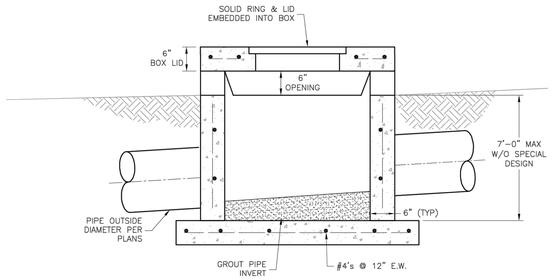
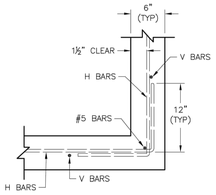


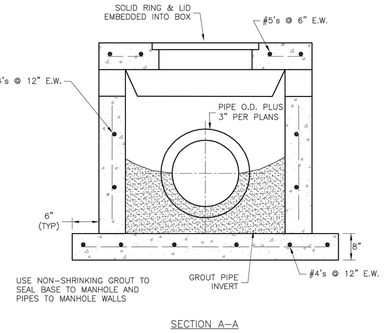
PLAN VIEW



SECTION B–B



WALL CORNER DETAIL



SECTION A–A

GENERAL NOTES:

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

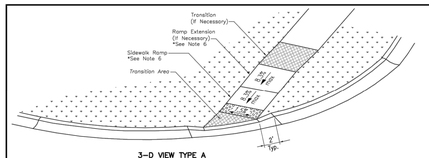
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

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

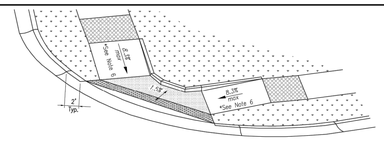
Project:
Sheet Name:

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

STM-2



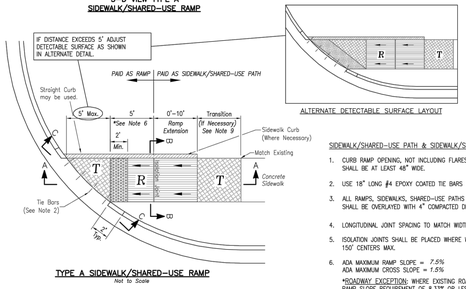
3–D VIEW TYPE A
SIDEWALK/SHARED–USE RAMP



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

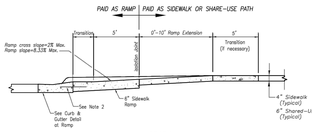
LEGEND

- R — SIDEWALK RAMP
- TS — TURNING SPACE
- DETECTABLE WARNING SURFACE
- T — TRANSITION



TYPE A SIDEWALK/SHARED–USE RAMP
Not to Scale

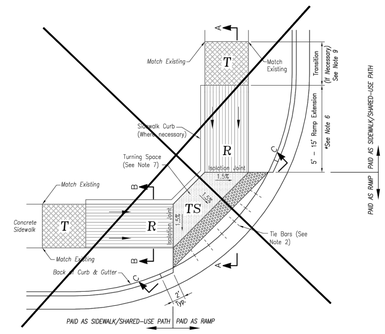
ALTERNATE DETECTABLE SURFACE LAYOUT



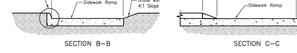
SECTION A–A

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 150' CENTERS MAX.
6. ADA MAXIMUM RAMP SLOPE = *7.6%*
   ADA MAXIMUM CROSS SLOPE = *1.5%*
   *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 *A MAXIMUM OF 1.5%.*
7. TURNING SPACES SHALL BE *7.5% MAX* 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. *ALL SPOT ELEVATION, SLOPES, AND DETECTABLE SURFACE PLACEMENT WILL MATCH THE SPECIFIC GRADING DETAIL PROVIDED FOR EACH RAMP*
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).



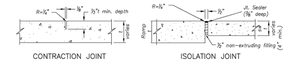
TYPE B SIDEWALK/SHARED–USE RAMP
Not to Scale



SECTION B–B SECTION C–C

TYPE A & B SIDEWALK RAMP
Not to Scale

SIDEWALK CURB DETAIL
Not to Scale



CONTRACTION JOINT ISOLATION JOINT

JOINT DETAILS
Not to Scale

CURB & GUTTER DETAIL AT RAMP
Not to Scale

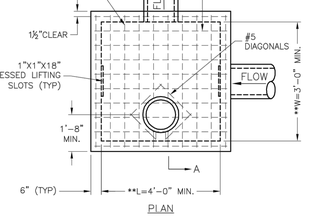
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
ADA RAMP ~~RETROFIT~~ DETAIL

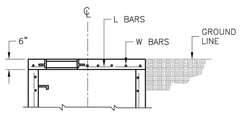
Project:
Sheet Name:

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

GEN-3A



PLAN

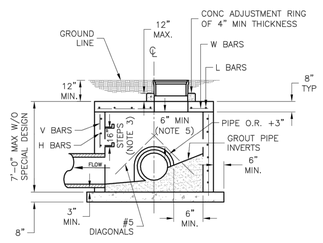


SLAB TOP ALTERNATE FOR JUNCTION BOX (SHALLOW)

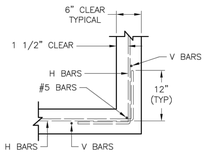
** INCREASE IN MULTIPLES OF 6" (7'–0") MAX WITHOUT SPECIAL DESIGN. (SEE PROJECT PLANS FOR DETAILS)

REINFORCING

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



SECTION A–A



WALL CORNER DETAIL

GENERAL NOTES:

1. LOCATE RING AND COVER ON BLANK WALL.
2. USE ¾" CHAMFER STRIP OR ½" R EDGER TOOL ON ALL EXPOSED CONCRETE CORNERS.
3. STEPS REQUIRED AT 16" O.C. WHEN DEPTH FROM TOP OF CASTING TO INVERT EXCEEDS 4' ON BLANK WALL IF POSSIBLE.
4. BOXOUTS WILL NOT BE ALLOWED TO PROJECT THROUGH THE CORNERS OF THE STRUCTURE AND THE MINIMUM DISTANCE BETWEEN BOXOUTS IS 6".
5. THE MINIMUM REINFORCING SHALL BE 1 H–BAR OVER A CAST–IN–PLACE PIPE AND 2 H–BARS OVER A PRECAST BOXOUT.
8. PRECAST LIDS SHALL BE PINNED, SEALED WITH NON–SHRINKABLE GROUT AND REMOVABLE FOR FUTURE MAINTENANCE.
9. REINFORCING OF COVERS IN STREETS REQUIRE SPECIAL DESIGN.
10. FOR RING AND COVER SEE THE STORMWATER APPROVED PRODUCT LIST.

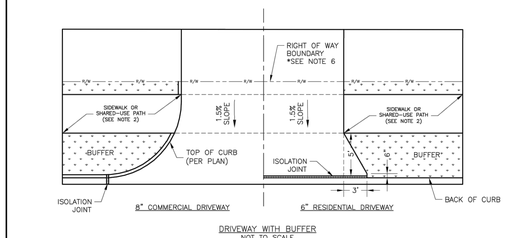
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

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

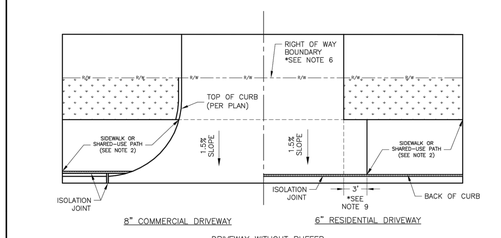
Project:
Sheet Name:

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

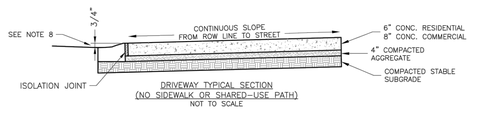
STM-3



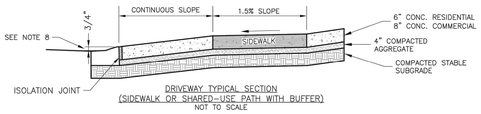
DRIVEWAY WITH BUFFER
NOT TO SCALE



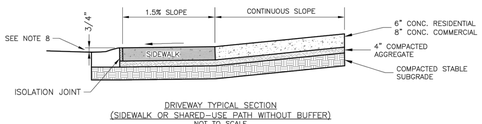
DRIVEWAY WITHOUT BUFFER
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(NO SIDEWALK OR SHARED–USE PATH)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED–USE PATH WITH BUFFER)
NOT TO SCALE



DRIVEWAY TYPICAL SECTION
(SIDEWALK OR SHARED–USE PATH WITHOUT BUFFER)
NOT TO SCALE

GENERAL NOTES

1. SUBGRADE SHALL BE STABLE, COMPACTED EARTH AND SHALL BE OVERLAYED WITH 4" COMPACTED DENSE GRADED AGGREGATE BASE.
2. ALL DRIVE APPROACHES SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG) FOR SLOPE REQUIREMENTS WHEN SIDEWALK IS REQUIRED (SEE ADA RAMP RETROFIT DETAIL).
3. JOINT AT BACK OF CURB LINE SHALL BE AN ISOLATION JOINT FOR RESIDENTIAL DRIVEWAYS.
4. KCMMB 4K CONCRETE MIX IS REQUIRED FOR ALL CURBS.
5. COMMERCIAL DRIVEWAYS AND DRIVEWAY APPROACHES, IN THE PUBLIC RIGHT OF WAY, SHALL BE KCMMB 4K CONCRETE MIX.
6. A JOINT MUST BE INSTALLED AT THE RIGHT OF WAY BOUNDARY FOR PROPERTY DELINEATION.
7. WHITE CURING COMPOUND MUST BE APPLIED UNIFORMLY TO THE CONCRETE SURFACE IMMEDIATELY AFTER FINAL FINISHING.
8. ¾" FROM TOP OF CURB TO FLOWLINE AT DRIVEWAY (TYPE CG–1 CURB ONLY). MUST MAINTAIN ORIGINAL FLOWLINE OF CURB.
9. SIDEWALK ADJOINING CURB SHALL BE 6" THICK, EXTENDING 3' FROM THE DRIVEWAY.
10. THE MAXIMUM WIDTH OF A RESIDENTIAL DRIVEWAY IS 36 FEET WITHIN THE RIGHT OF WAY.

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
DRIVEWAY DETAIL

Project:
Sheet Name:

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

GEN-1

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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010017055
01/15/2021
PROFESSIONAL ENGINEER

olsson
OLSSON, CIVIL ENGINEERING,
MO CERTIFICATE OF AUTHORITY #001592
7301 West 133rd Street, Suite 200
Overland Park, KS 66213-4750
TEL 913.381.1170 www.olsson.com

LEE'S SUMMIT MIDDLE SCHOOL #4

LEE'S SUMMIT R-7 SCHOOL DISTRICT

1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

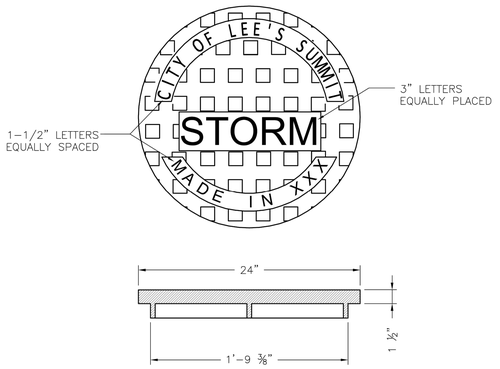
PACKAGE 2-
STRUCTURAL & SITE UTILITIES
ISSUED FOR PERMIT
08/28/20

13-20102-00

STANDARD DETAILS

C1053

DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_DTL01_0200103.dwg USER: bkimmich
DATE: Jan 14, 2021 12:27pm XREFS: C_4LS_XBASE_80330 C_4LS_PBASE_80330 C_4LS_PSURF_80330 L_PLBASE_61023 L_PBASE_61023 TE DETAIL C_PBASE_80330 C_PTBLK_0200103



STANDARD 24" MANHOLE COVER
MINIMUM WEIGHT = 160 LB
NOTE: PICK HOLES NOT SHOWN

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

LEE'S SUMMIT
MISSOURI
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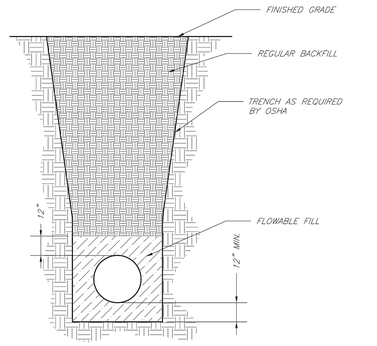
STORM MANHOLE COVER DETAIL

Date: 04/17 | Drawn By: MJF | Checked By: DL | STM-6



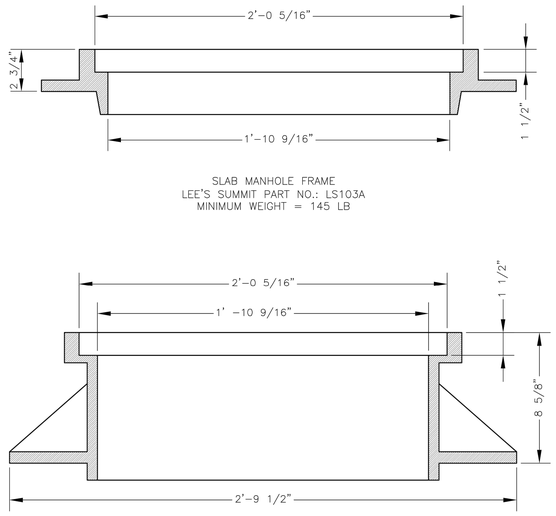
NOT TO SCALE

NOTES:
1. FLOWABLE FILL SHALL MEET THE REQUIREMENTS OF THE CITY OF LEE'S SUMMIT DESIGN AND CONSTRUCTION MANUAL.
2. REGULAR BACKFILL ABOVE THE TRENCH CHECK SHALL BE FREE OF DEBRIS, ORGANIC MATTER, AND STONES > 6" IN ANY DIMENSION.
3. TOP OF FLOWABLE BACKFILL SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE.
4. LENGTH OF TRENCH CHECK SHALL BE A MINIMUM OF 12".

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

TRENCH CHECK

Date: 02/13 | Drawn By: JN | Checked By: DL | FILE: WAT-6 | Rev: 1/14 | Rev:



SLAB MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS103A
MINIMUM WEIGHT = 145 LB

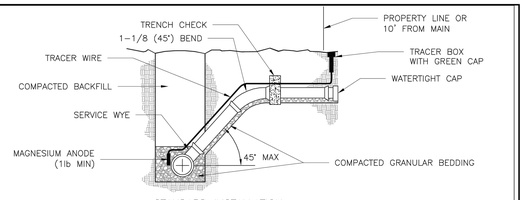
STANDARD 24" MANHOLE FRAME
LEE'S SUMMIT PART NO.: LS101A
MINIMUM WEIGHT = 250 LB

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

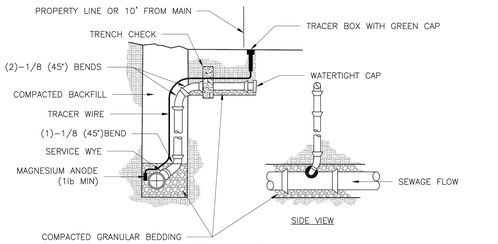
LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

STORM MANHOLE FRAME DETAIL

Date: 04/17 | Drawn By: MJF | Checked By: DL | STM-7



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. WHERE SIDEWALKS ARE PRESENT, CONTRACTOR SHALL EXTEND SERVICE LINE UNDER EXISTING SIDEWALK TO TWO FEET BEYOND.
2. ALL NEW CONSTRUCTION OFF SEWER STUBS SHALL BE TEMPORARILY MARKED WITH A MARKING STAKE, 36" ABOVE GROUND AND PAINTED GREEN.
3. IMPERVIOUS TRENCH CHECKS SHALL BE PLACED ON BUILDING SEWER STUBS (AT LEAST 5' AWAY FROM THE SANITARY SEWER MAIN).
4. 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.
5. SEE SPECIFICATION SECTION 2100 FOR SEWER MAIN BEDDING AND BACKFILL.
6. #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.
7. 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.
8. TRACER WIRE BOX SHALL BE INSTALLED WITHIN 1.0' OF PROPERTY LINE.
9. 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
MISSOURI
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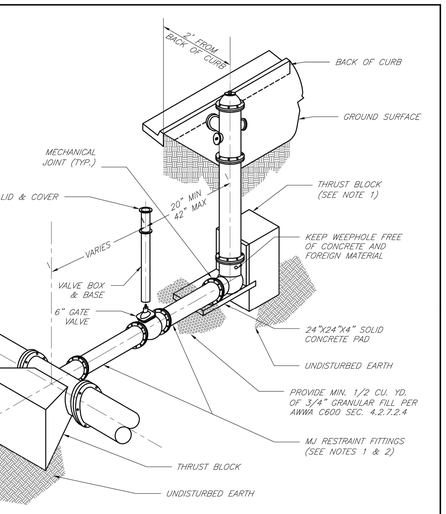
BUILDING SEWER STUB AND RISER

Date: 04/17 | Drawn By: MJF | Checked By: DL | SAN-1



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
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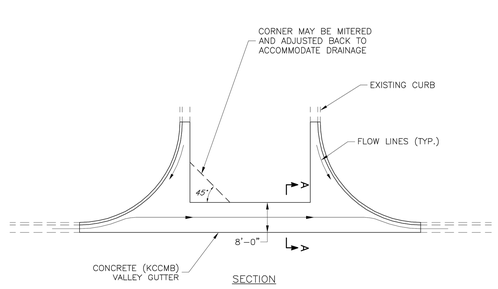
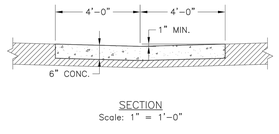
HYDRANT INSTALLATION – STRAIGHT SET

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



SECTION



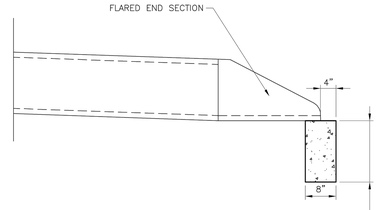
SECTION
Scale: 1" = 1'–0"

VALLEY GUTTER DETAIL
Intersection of Two Public Streets

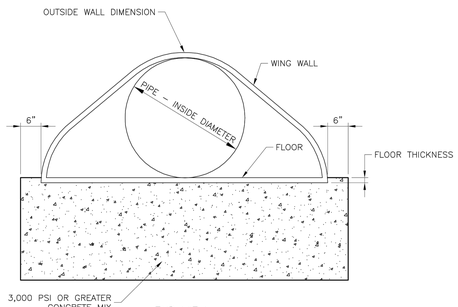
LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

VALLEY GUTTER DETAIL

Date: 04/17 | Drawn By: MJF | Checked By: DL | GEN-7



PLAN VIEW
NOT TO SCALE



END VIEW
NOT TO SCALE

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

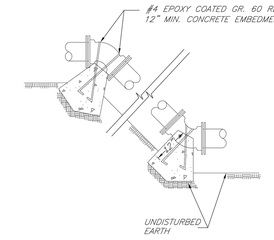
FLARED END SECTION SUPPORT DETAIL

Date: 04/17 | Drawn By: MJF | Checked By: DL | STM-5

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:

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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010010555
01/15/2021
PROFESSIONAL ENGINEER

olsson
OLSSON - CIVIL ENGINEERING
MO CERTIFICATE OF AUTHORITY #001592
7301 West 133rd Street, Suite 200
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LEE'S SUMMIT MIDDLE SCHOOL #4

LEE'S SUMMIT R-7 SCHOOL DISTRICT

1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

PACKAGE 2-
STRUCTURAL & SITE UTILITIES
ISSUED FOR PERMIT
08/28/20

13-20102-00

STANDARD DETAILS

C1054

DWG: F:\2020\0001–0500\020–0103\40–Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_DTL01_0200103.dwg USER: bkimmich
DATE: Jan 14, 2021 12:28pm XREFS: C_4LS_XBASE_80330 C_4LS_PBASE_80330 C_4LS_PSURF_80330 L_PLBASE_61023 L_PBASE_61023 TE DETAIL C_PBASE_80330
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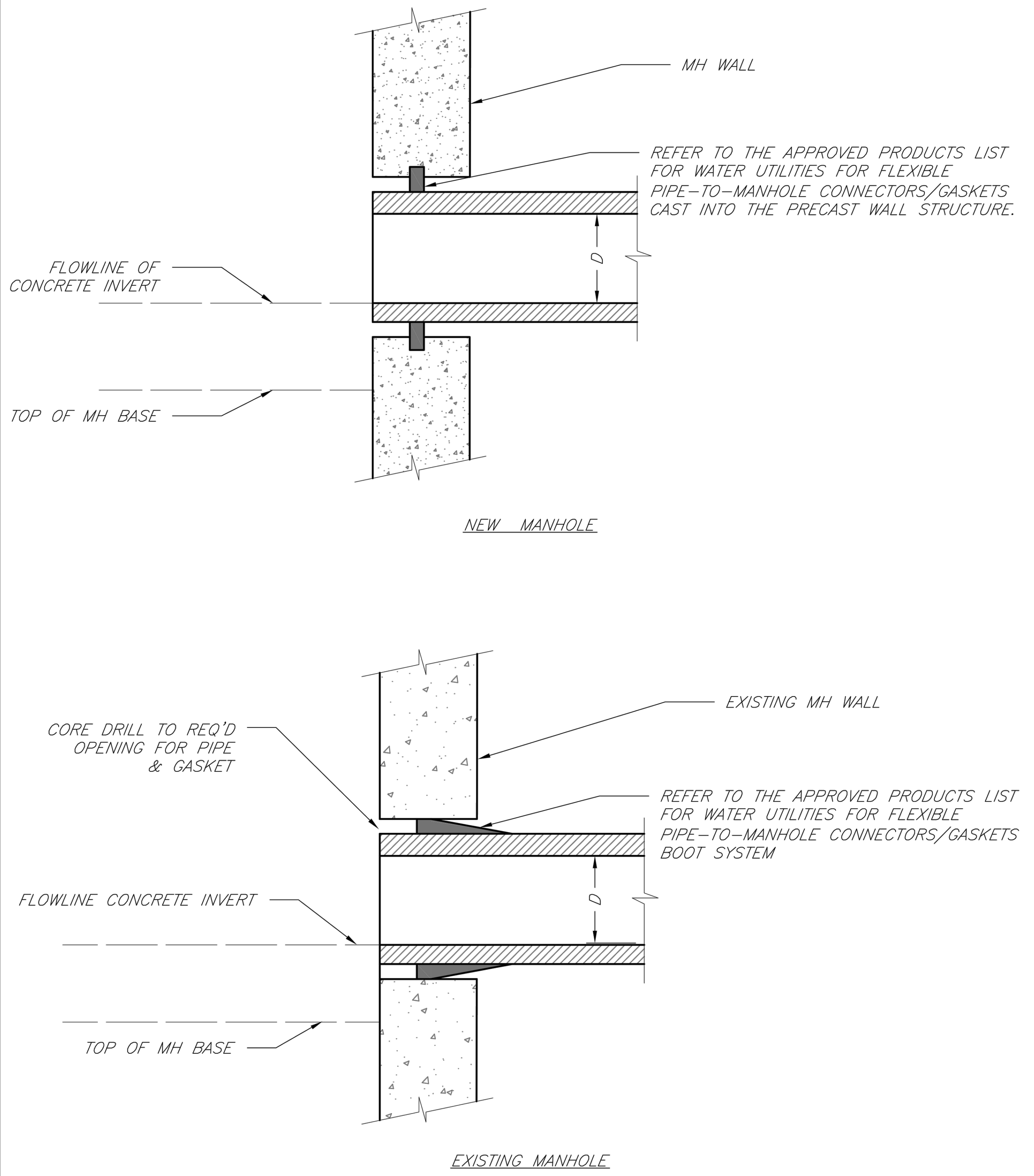
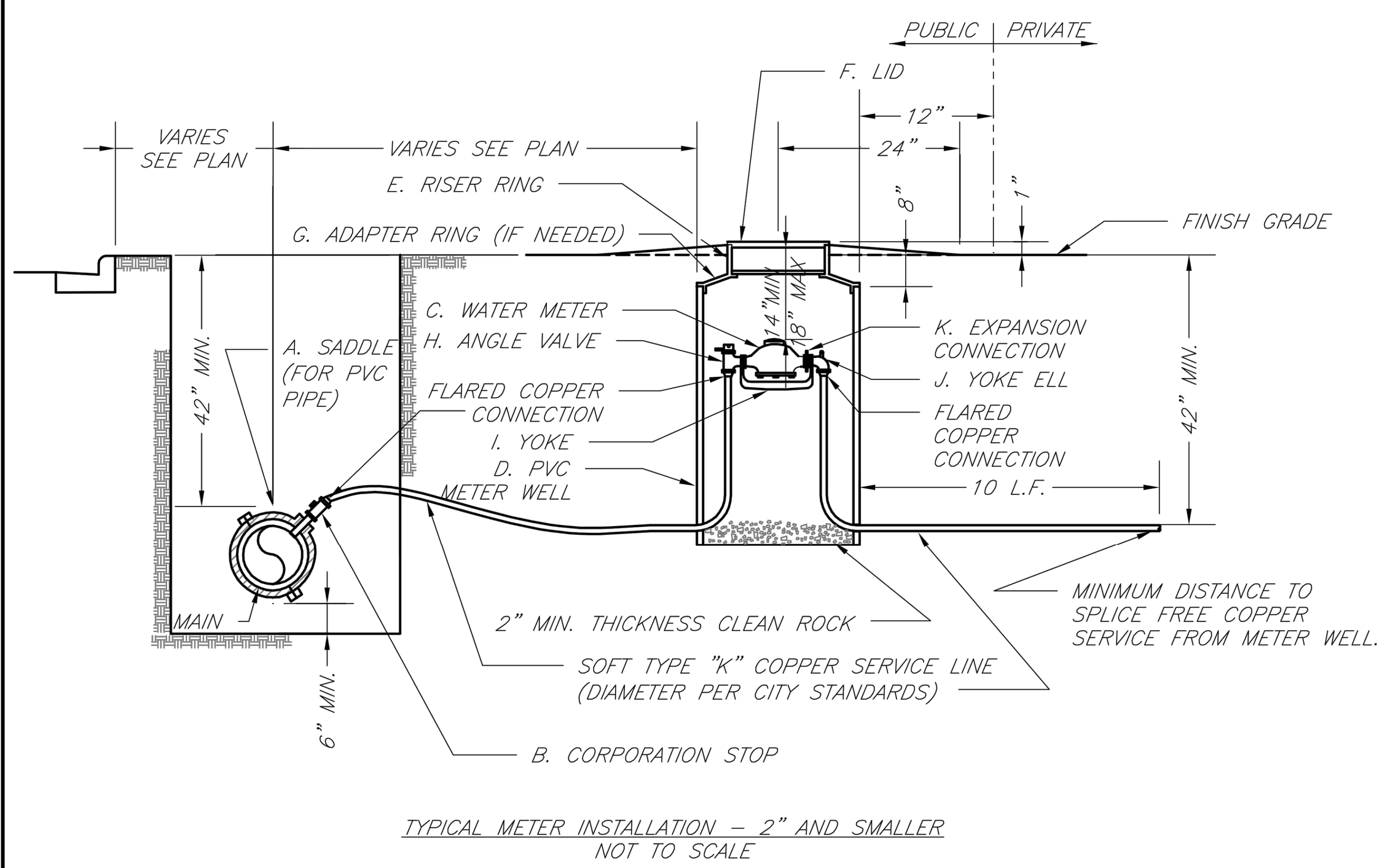


LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
MANHOLE WALL CONNECTIONS
Date: 02/13 · Drawn By: JN · Checked By: DL · FILE: SAN-5 · Rev: 1/14 · Rev:



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"

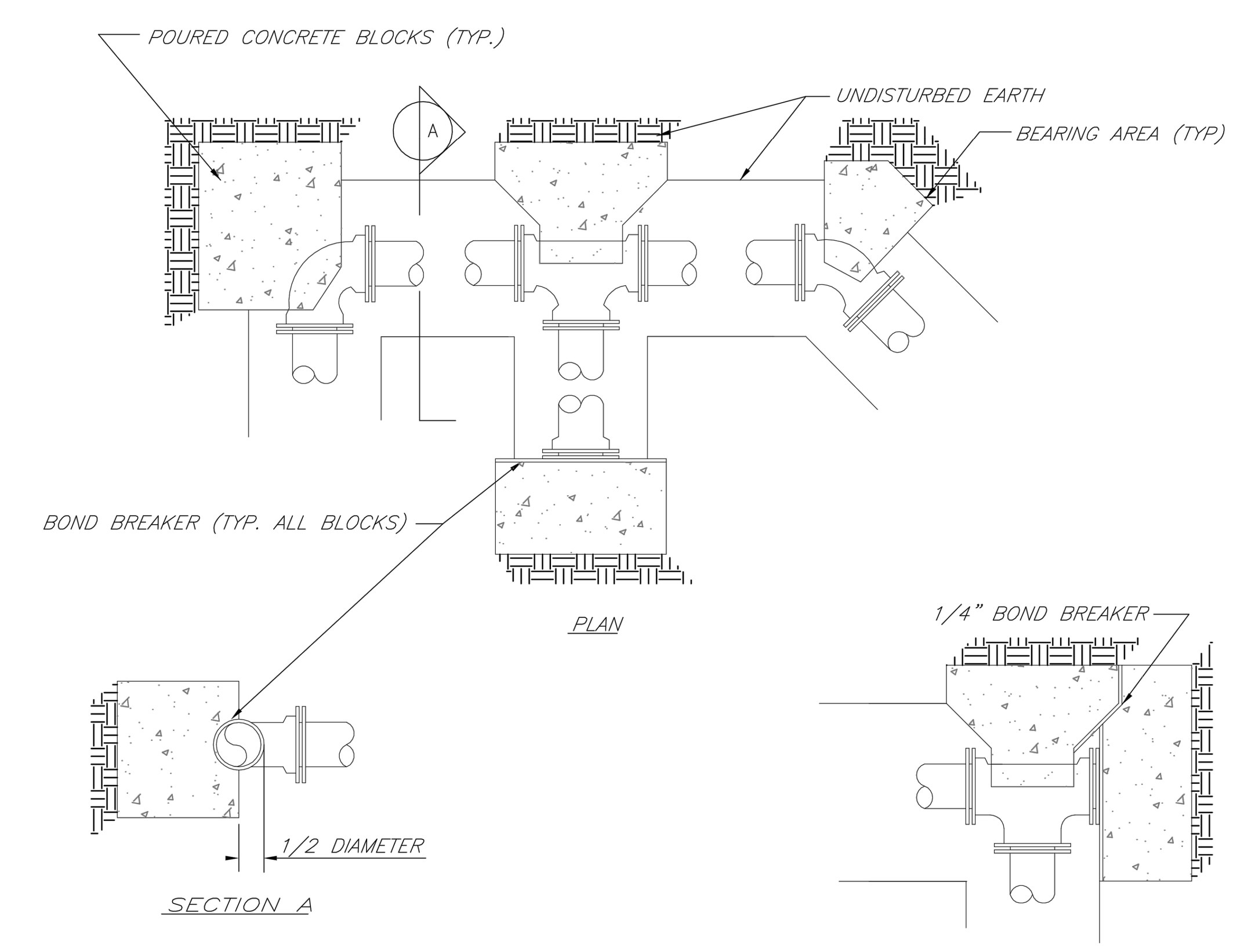
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
SERVICE CONNECTION/METER WELL
Date: 02/13 · Drawn By: JN · Checked By: DL · FILE: WAT-11 · Rev: 1/14 · Rev:

REQUIRED CONCRETE BEARING AREA (SQUARE FEET – SF)

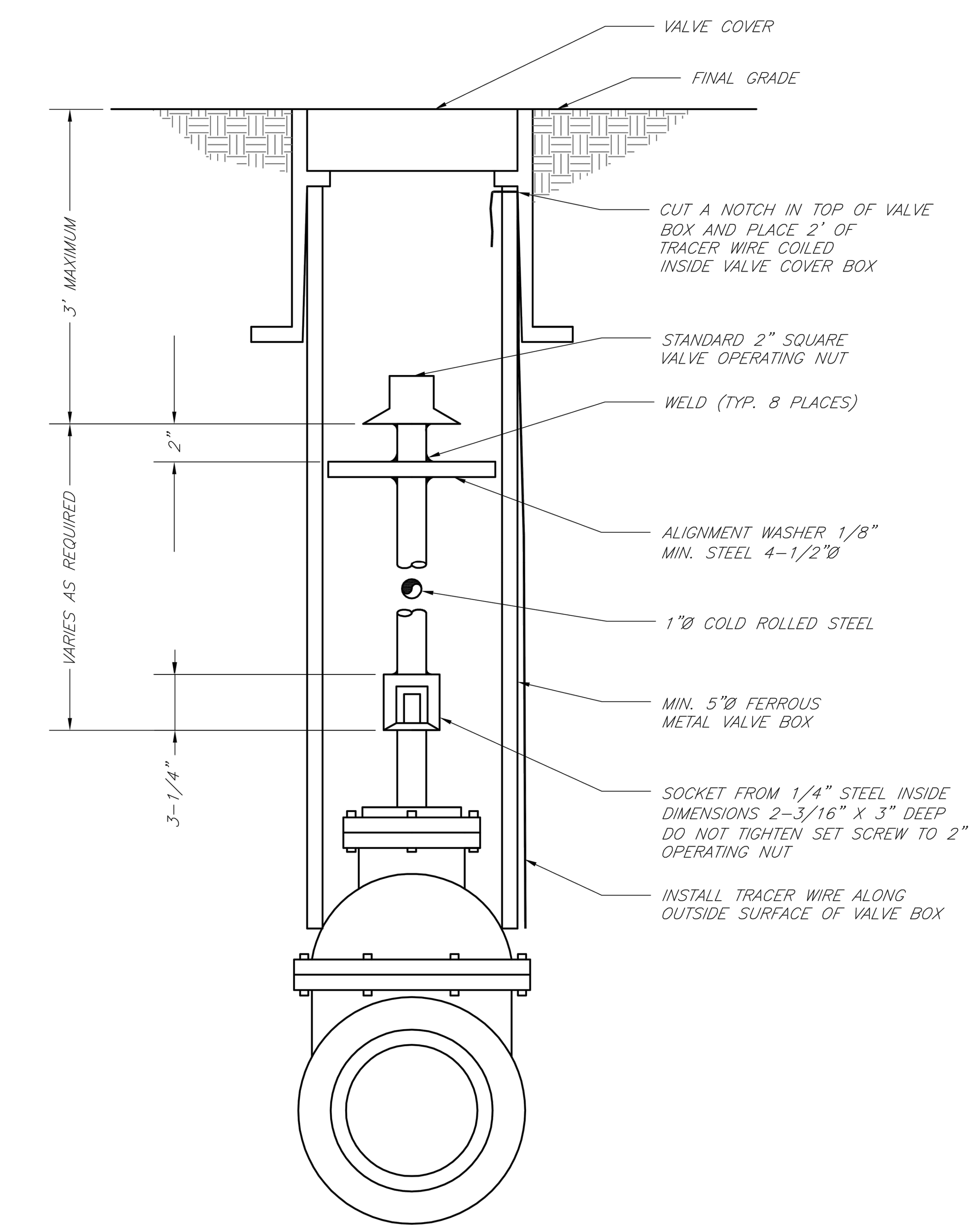
NOM. DIA. (INCHES)	180 TEE, PLUG	90 BEND	45 BEND	22.5 BEND	11.25 BEND
6	4.7	6.7	4.0	4.0	4.0
8	8.4	11.8	6.4	4.0	4.0
10	13.1	18.5	10.0	5.1	4.0
12	18.8	26.7	14.4	7.4	4.0
14	25.7	36.3	19.6	10.0	5.0
16	33.5	47.4	25.6	13.1	6.6
18	42.4	REST. JT.	32.5	16.5	8.3
20	REST. JT.	REST. JT.	40.1	20.4	10.3
24	REST. JT.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

NOTES:

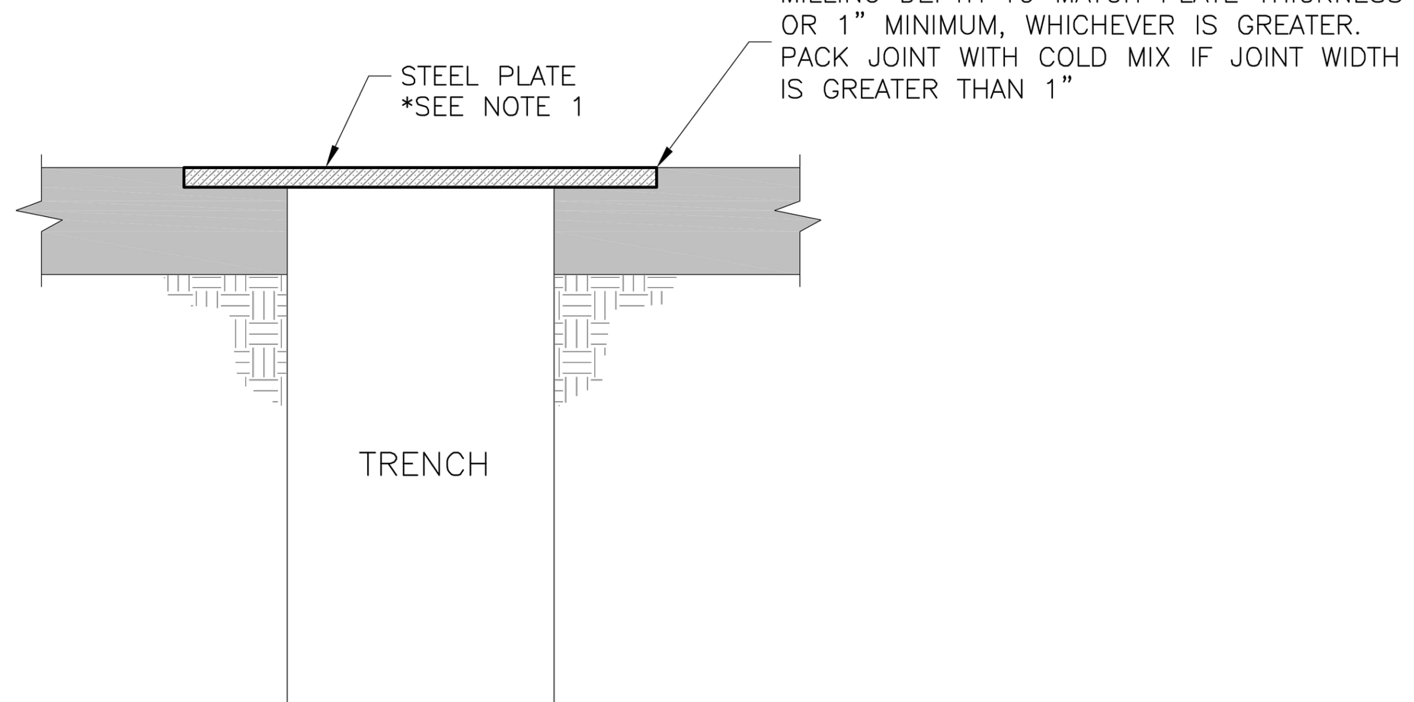
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.
2. MEGA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.
3. BEARING AREA MUST BE AGAINST UNDISTURBED SOIL.
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.



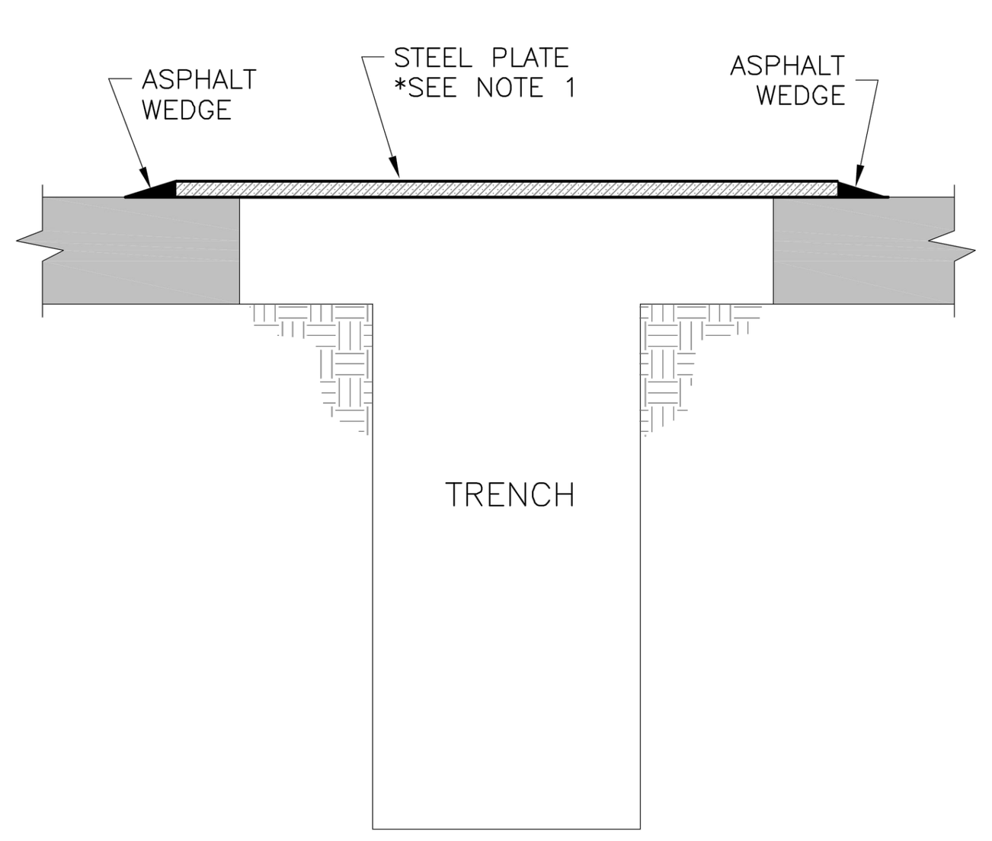
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
HORIZONTAL THRUST BLOCKS
Date: 02/13 · Drawn By: JN · Checked By: DL · FILE: WAT-1 · Rev: 1/14 · Rev:



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:



TYPE "A" PLATING
NOT TO SCALE
(CITY POSTED SPEEDS OF 35 MPH AND GREATER)

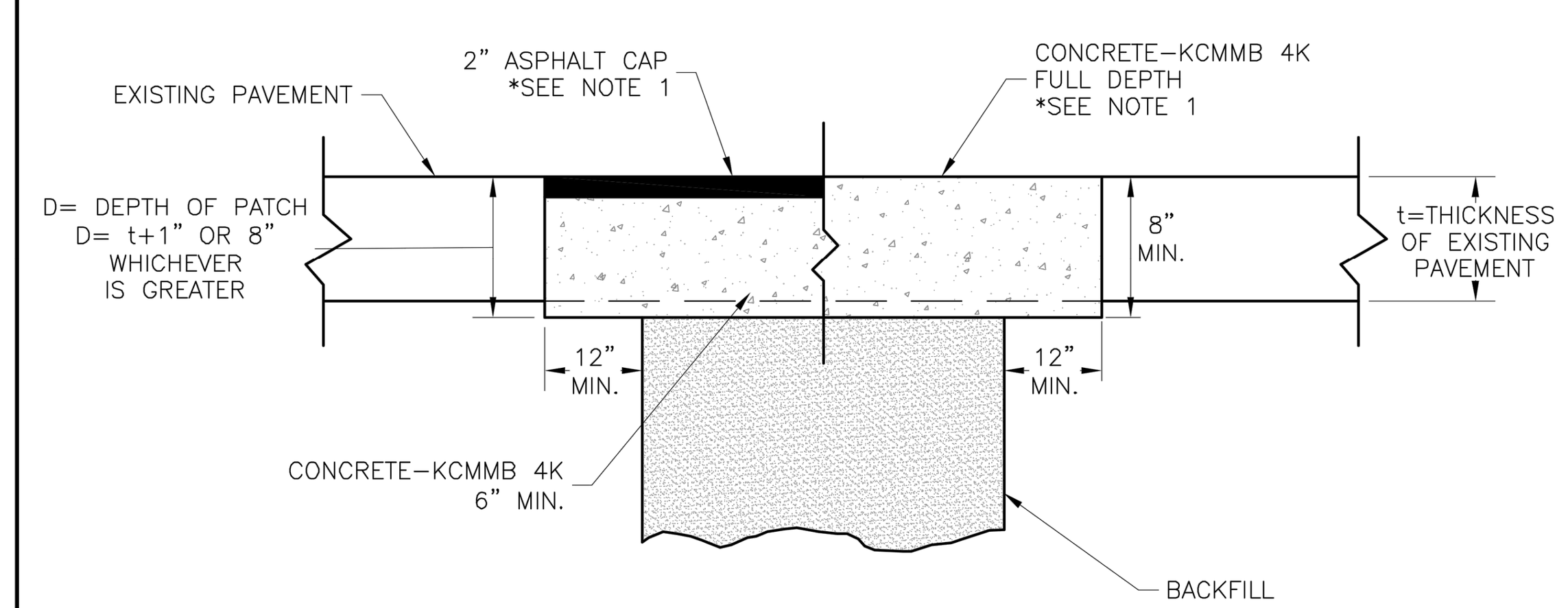


TYPE "B" PLATING
NOT TO SCALE
(CITY POSTED SPEEDS OF 30 MPH OR LESS)

GENERAL NOTES:

1. THE CONTRACTOR SHALL PROVIDE ADEQUATE OVERLAP OF PLATE ON ASPHALT TO ASSURE NO SLIPPAGE OF PLATE AND NO COLLAPSING OF TRENCH.
2. ALL PLATES SHALL BE ANCHORED SO PLATES DO NOT MOVE OR SHIFT UNDER TRAFFIC.

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
TRENCHING PLATE DETAIL
GEN-6
Date: 04/17 · Drawn By: MJF · Checked By: DL

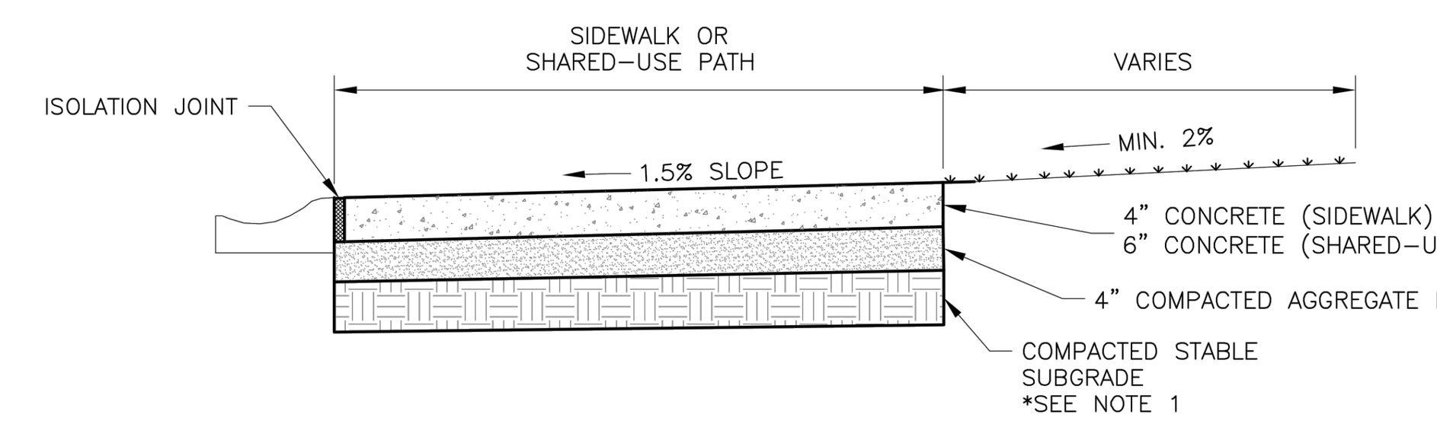


TRENCHING/PATCHING DETAIL
NOT TO SCALE

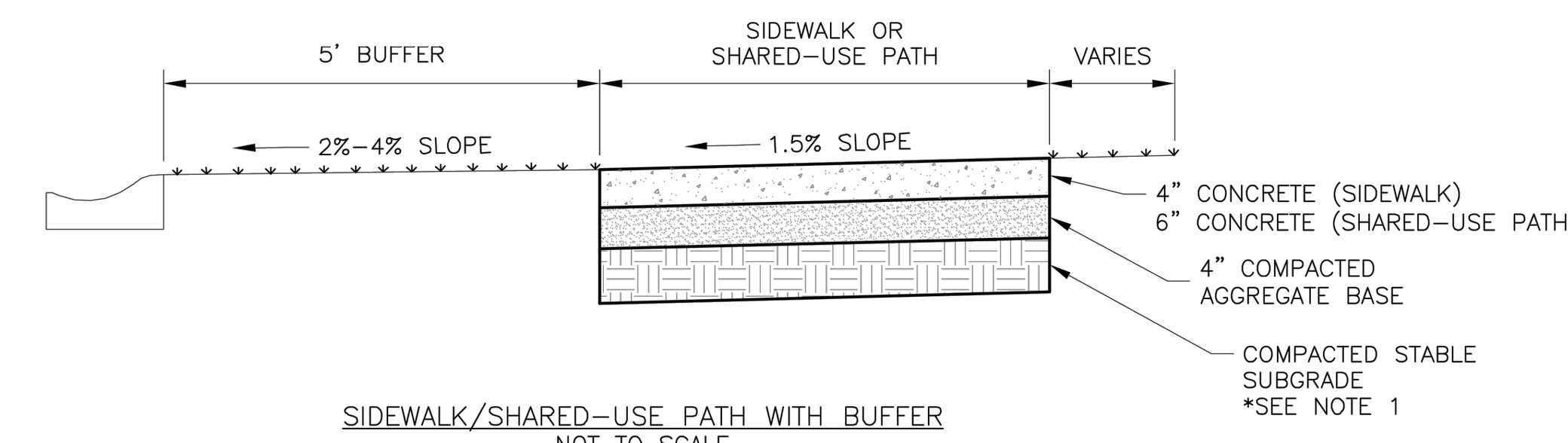
NOTE:

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

LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063
TRENCHING/PATCHING ROADWAYS DETAIL
GEN-5
Date: 04/17 · Drawn By: MJF · Checked By: DL



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 AND SHARED-USE PATHS OR AS APPROVED BY THE CITY INSPECTOR.
4. ALL SIDEWALKS SHALL MEET CURRENT PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
5. AN EXPANSION JOINT SHALL BE PLACED AT A MAXIMUM OF 150 FT. CONSTRUCTION JOINTS SHALL BE PLACED THE SAME WIDTH OF SIDEWALK, BUT NO GREATER THAN 10 FT.
6. SHARED-USE PATH WIDTH SHALL BE 10 FT. WIDE.
7. SIDEWALK FINISHING (NO PICTURE FRAMING) AS DIRECTED BY CITY INSPECTOR.
8. 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
GEN-2
Date: 04/17 · Drawn By: MJF · Checked By: DL

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STATE OF MISSOURI · TERRY M. PARSONS · NUMBER PE-2018010505 · PROFESSIONAL ENGINEER · 01/15/2020

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LEE'S SUMMIT MIDDLE SCHOOL #4
LEE'S SUMMIT R-7 SCHOOL DISTRICT
1001 SE BAILEY ROAD
LEE'S SUMMIT, MO 64081

PACKAGE 2- STRUCTURAL & SITE UTILITIES ISSUED FOR PERMIT
08/28/20

13-20102-00

STANDARD DETAILS

C1055

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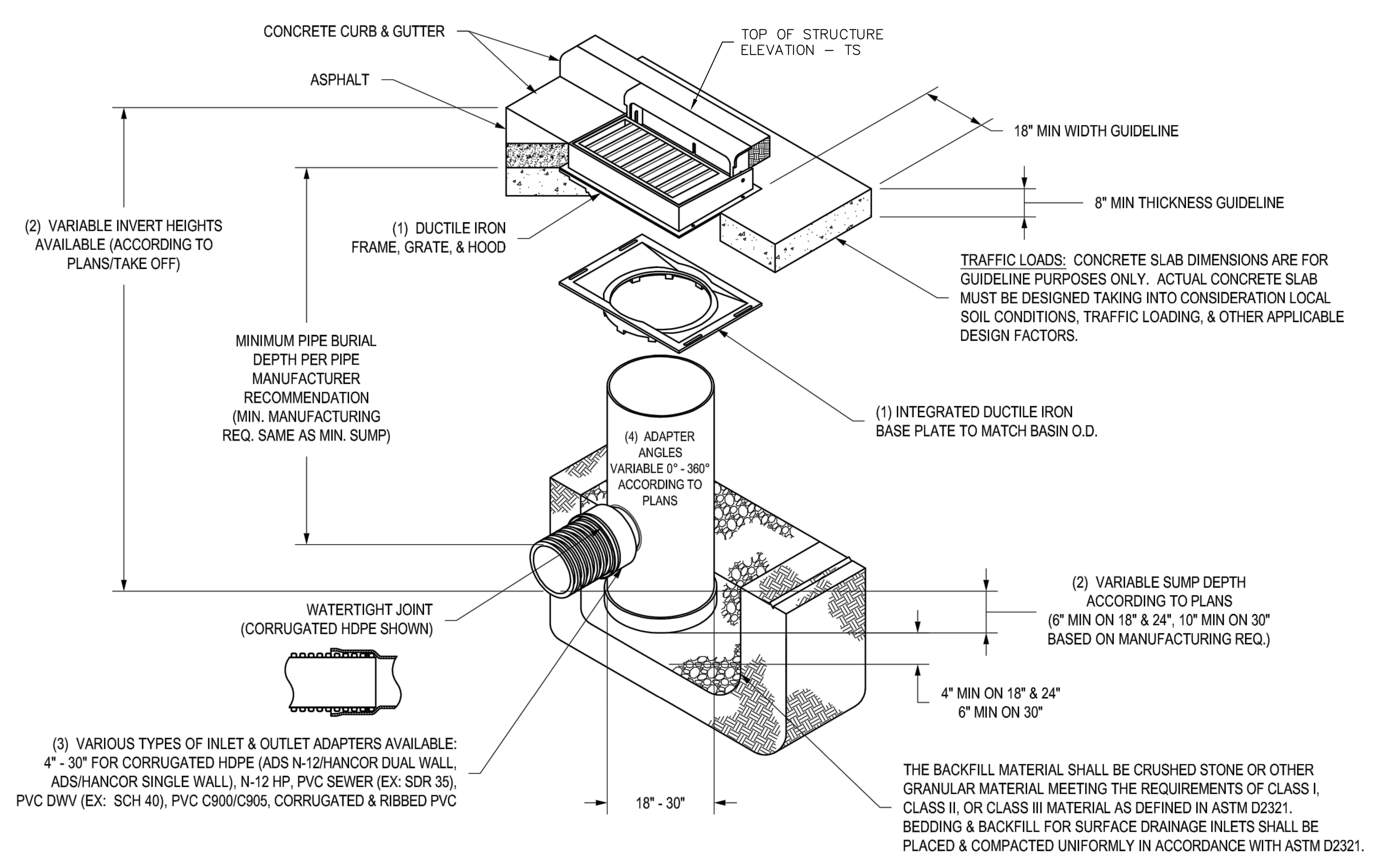
DATE: Jan 14, 2021 12:28pm XREFS: C_4LS_XBASE_80330 C_4LS_PBASE_80330 C_4LS_PSURF_80330 L_PBASE_61023 L_PBASE_61023 TE DETAIL C_PBASE_80330 C_PTBLK_0200103

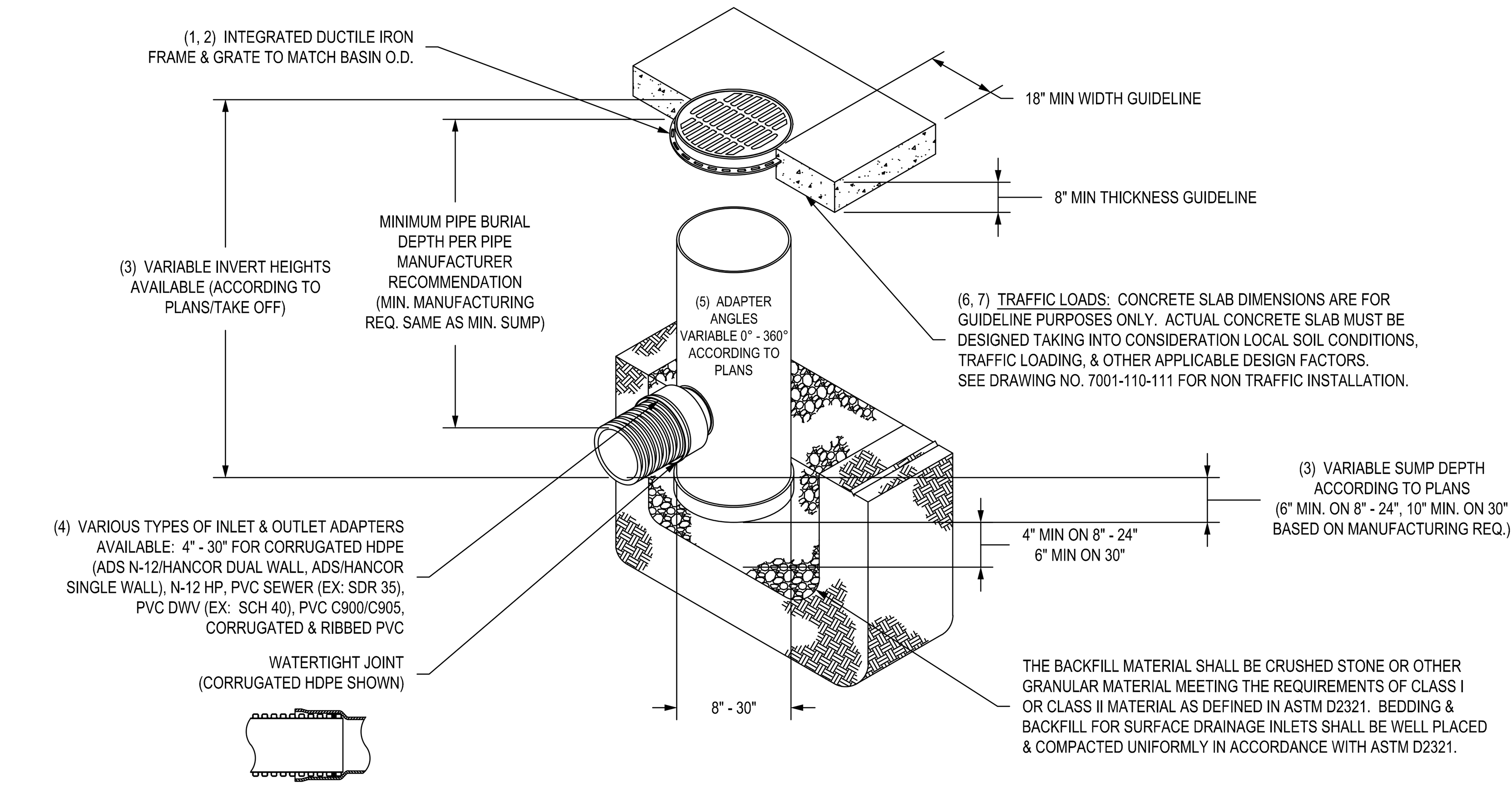
NYLOPLAST 2 FT X 3FT CURB INLET STRUCTURE: 30 _ _ AGR _ _ X



1 - 18" - 30" FRAMES, GRATES, HOODS, & BASE PLATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS.
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 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.
5 - ALL CURB INLET GRATE OPTIONS (DIAGONAL & HIGH FLOW) SHALL MEET H-20 LOAD 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			
REVISED BY NMH	PROJECT NO./NAME	TITLE	DRAIN BASIN WITH 2 FT X 3 FT CURB INLET QUICK SPEC INSTALLATION DETAIL
DATE 03-10-16			
DWG SIZE A	SCALE 1:40 SHEET 1 OF 1	DWG NO. 7002-110-087	REV C

NYLOPLAST DRAIN BASIN WITH STANDARD GRATE



1 - 8" - 30" STANDARD GRATES 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" STANDARD GRATES FIT DIRECTLY ONTO DRAIN BASINS WITH THE USE OF A PVC BODY TOP. SEE DRAWING NO. 7001-110-045.
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065.
4 - 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").
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.
6 - 12" - 30" STANDARD GRATES SHALL MEET H-20 LOAD RATING.
7 - 8" & 10" STANDARD GRATES 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 1-23-06			
REVISED BY CCA	PROJECT NO./NAME	TITLE	DRAIN BASIN WITH STANDARD GRATE QUICK SPEC INSTALLATION DETAIL
DATE 12-29-11			
DWG SIZE A	SCALE 1:40 SHEET 1 OF 1	DWG NO. 7001-110-144	REV G

Section 2721

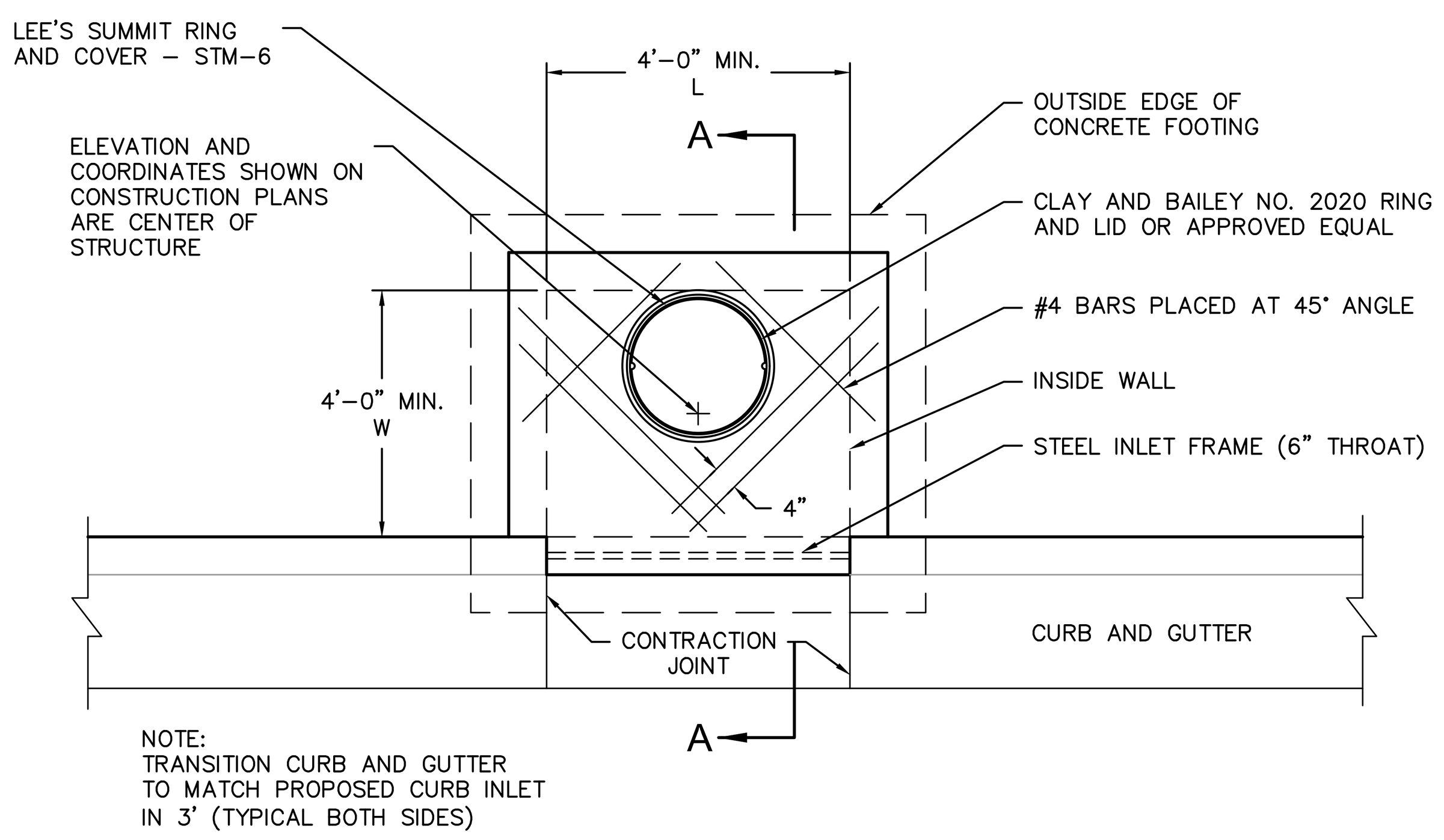
Engineered Surface Drainage Products

GENERAL
PVC surface drainage inlets shall include the drain basin 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 drain basins required for this contract shall be manufactured from PVC pipe stock, utilizing a thermoforming process to reform the pipe stock to the specified 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 main body of the drain basin or catch basin. The raw material used to manufacture the pipe stock that is used to manufacture the main body and pipe stubs of the surface drainage inlets shall conform to ASTM D1784 cell class 12454.

The grates and frames furnished for all surface drainage inlets shall be ductile iron for sizes 8”, 10”, 12”, 15”, 18”, 24” and 30” and shall be made specifically for each basin so as to provide a round bottom flange that closely matches the diameter of the surface drainage inlet. Grates for drain basins shall be capable of supporting various wheel loads as specified by Nyloplast. 12” and 15” square grates will be hinged to the frame using pins. Ductile iron used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05. Grates and covers shall be provided painted black.

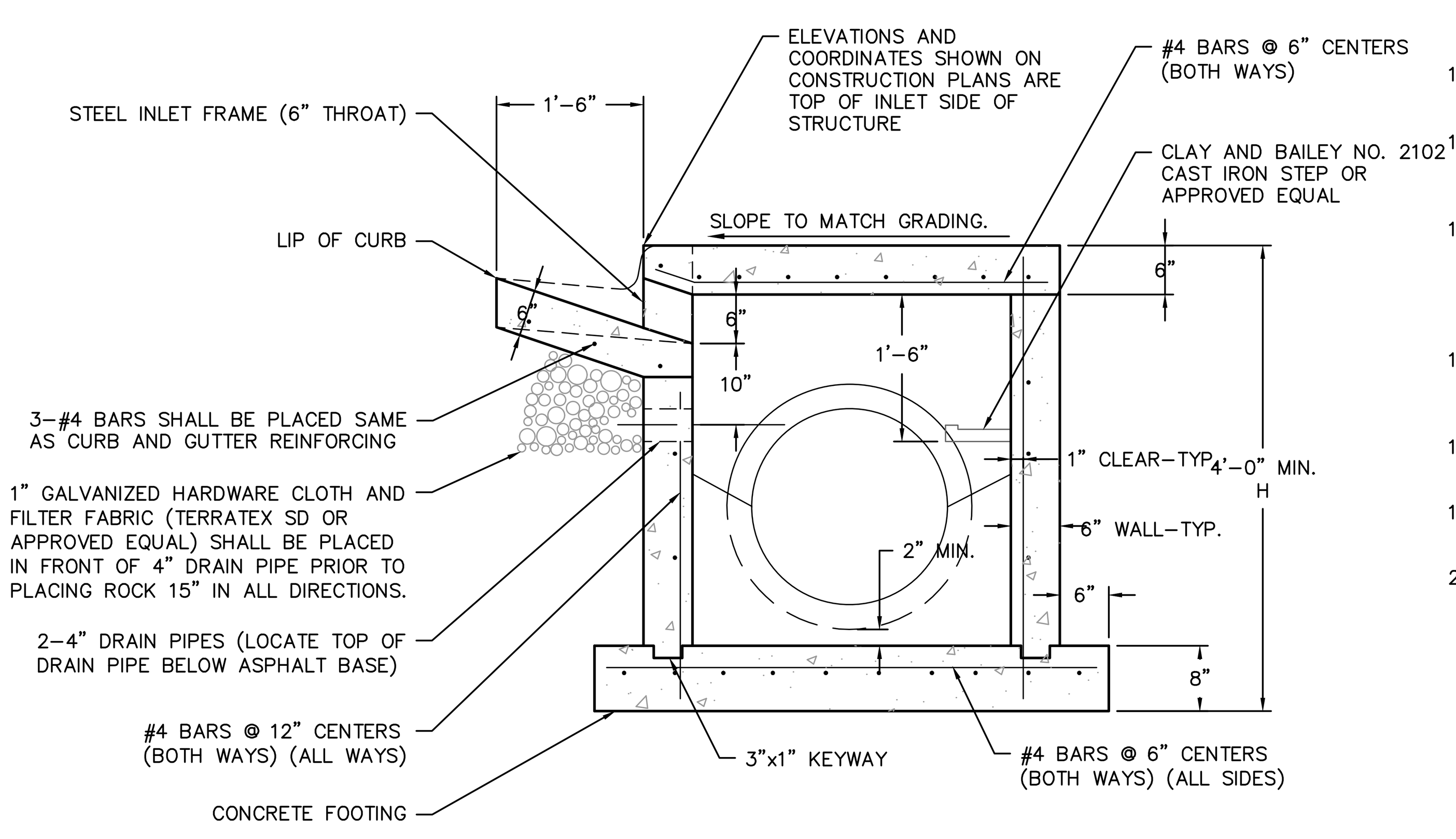
INSTALLATION
The specified PVC surface drainage inlet shall be installed using conventional flexible pipe backfill materials and procedures. The backfill material shall be crushed stone or other granular material meeting the requirements of class 1 or class 2 material as defined in ASTM D2321. Bedding 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 load rated installations, a concrete slab shall 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.



PLAN

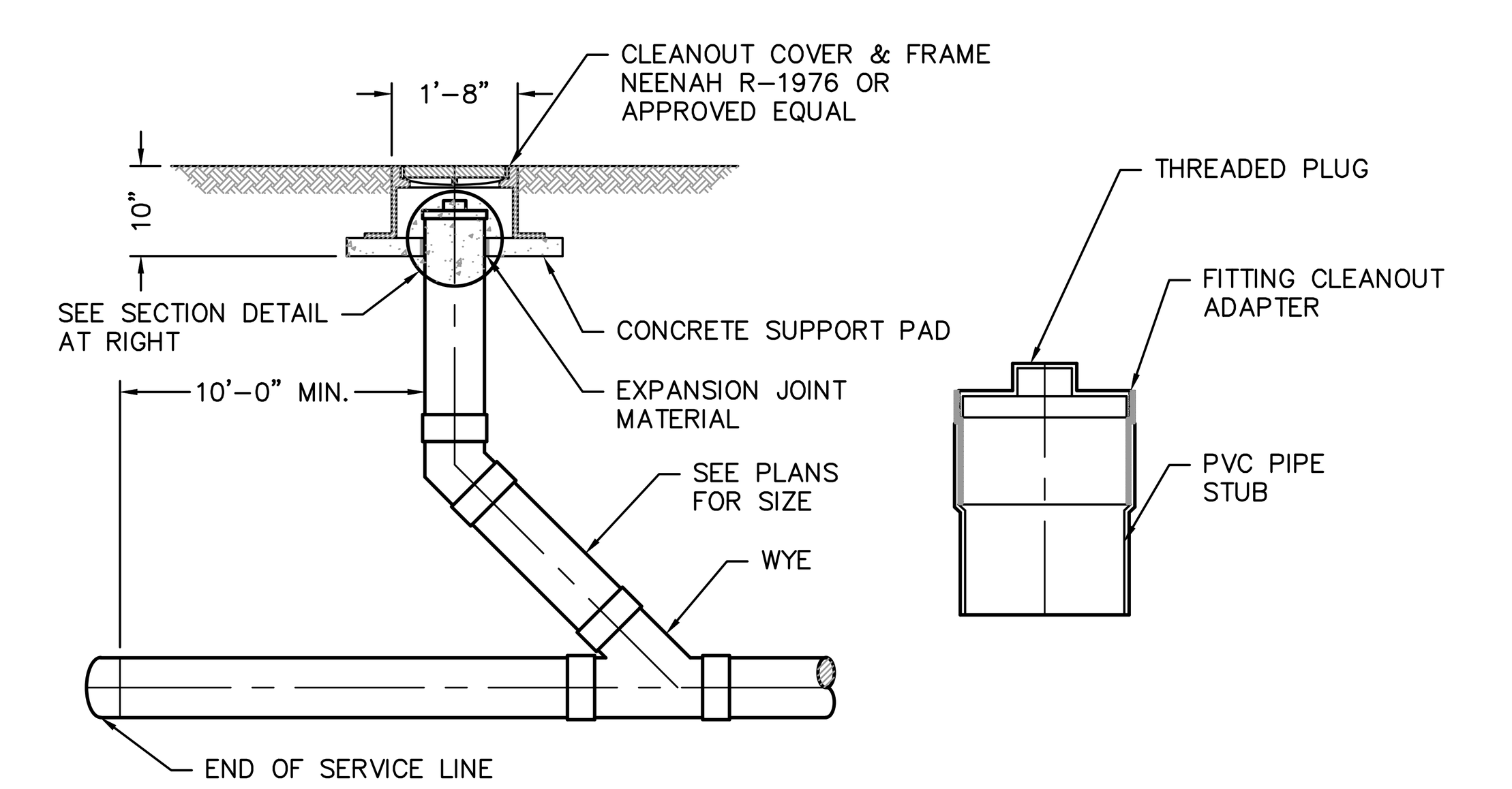
NON-SETBACK CURB INLET NOTES

1. USE CITY APPROVED CONCRETE THROUGHOUT.
2. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION.THE SECOND DIMENSION IS THE "W" DIMENSION.
3. FLOOR OF INLET SHALL BE SHAPED TO PROVIDE SMOOTH FLOW.
4. EXPANSION JOINTS SHALL BE EITHER HOT OR COLD POURED JOINT SEALING COMPOUND, OR PREMOLDED EXPANSION JOINT FILLER.
5. STEEL INLET FRAME SPACERS SHALL BE PLACED AT EQUAL SPACINGS NOT TO EXCEED 4'–0".
6. CAST IRON STEPS TO BE CLAY & BAILEY 2102 OR APPROVED EQUAL. STEEL CORE, PLASTIC COATED STEPS MAY BE USED (M.A. IND.,INC. NO. PS1–PF, PS2–PF, OR APPROVED EQUAL). CAST IRON STEPS SHALL BE SPACED AT 1'–4" O.C. VERTICALLY.
7. BEVEL ALL EXPOSED EDGES WITH TRIANGULAR MOLDING.
8. ON–GRADE INLETS SHALL CONFORM TO THE STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
9. ALL STORM SEWER STRUCTURES SHALL BE PRECAST. PRECAST SHOP DRAWINGS SHALL BE APPROVED BY THE DESIGN ENGINEER.
10. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
11. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF ±1/8" SHALL BE PERMITTED.
12. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
13. ALL DOWELS SHALL BE ACCURATELY PLACED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF BOTTOM SLAB CONCRETE. STICKING OF DOWELS INTO FRESH OR PARTIALLY HARDENED CONCRETE WILL NOT BE ACCEPTABLE.
14. ALL REINFORCING STEEL SHALL BE SUPPORTED ON FABRICATED STEEL BAR SUPPORTS @ 3'–0" MAXIMUM SPACING.
15. DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION.
16. THE BOTTOM SLAB SHALL BE AT LEAST 24 HOURS OLD BEFORE PLACING SIDEWALL CONCRETE. ALL SIDEWALL FORMS SHALL REMAIN IN PLACE A MINIMUM OF 24 HOURS AFTER SIDEWALLS ARE POURED BEFORE REMOVAL, AND AFTER REMOVAL SHALL BE IMMEDIATELY TREATED WITH MEMBRANE CURING COMPOUND.
17. ALL CURB INLET TOPS ARE TO BE CONSTRUCTED AFTER FINAL CURB STRING LINE HAS BEEN APPROVED BY THE ENGINEER AND PRIOR TO CURB CONSTRUCTION, OR AS DIRECTED BY THE CITY ENGINEER.
18. RCP CONNECTIONS TO PRECAST STRUCTURE SHALL MEET ALL CITY STANDARDS.
19. BACKFILL AROUND STRUCTURES SHALL BE COMPACTED AND SHALL BE OF THE MATERIAL SPECIFIED PER CITY STANDARDS.
20. NON–SETBACK CURB INLET TO BE USED ONLY WITH THE APPROVAL OF THE CITY ENGINEER.



SECTION A-A

NON-SETBACK CURB INLET
NOT TO SCALE



ONE-WAY WYE CLEANOUT DETAIL
NOT TO SCALE

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STATE OF MISSOURI TERRY M. PARSONS NUMBER PE-2016010505 PROFESSIONAL ENGINEER

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OLSSON - CIVIL ENGINEERING MO. CERTIFICATE OF AUTHORITY #001592 7301 West 133rd Street, Suite 200 Overland Park, KS 66213-4750 TEL 913.381.1170 www.olsson.com

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LEE'S SUMMIT R-7 SCHOOL DISTRICT
1001 SE BAILEY ROAD LEE'S SUMMIT, MO 64081

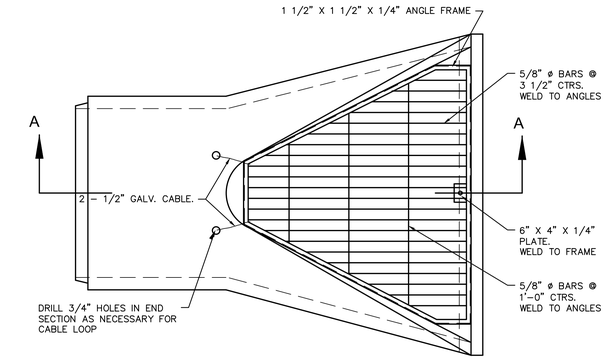
PACKAGE 2- STRUCTURAL & SITE UTILITIES ISSUED FOR PERMIT
08/28/20

13-20102-00

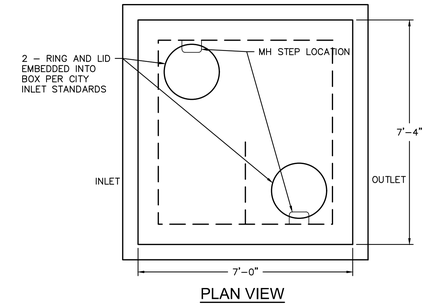
STANDARD DETAILS

C1056

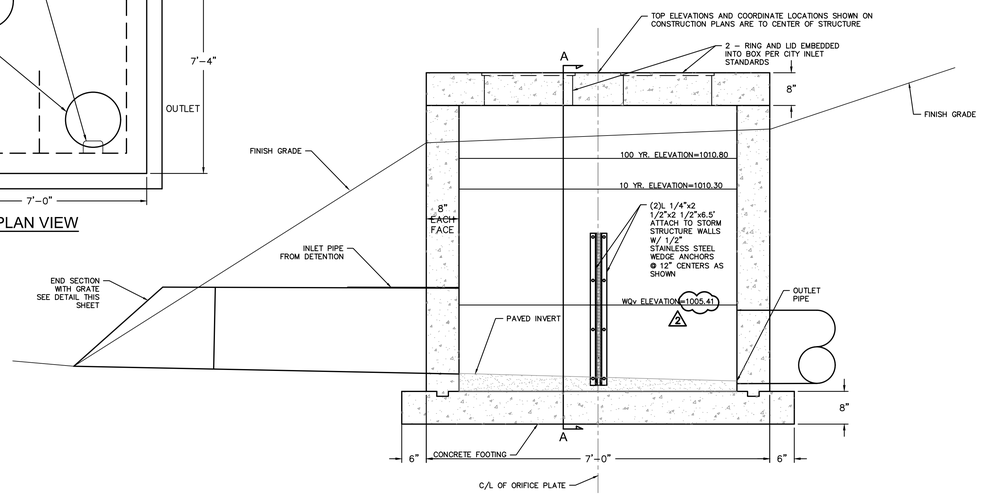
DWG: F:\2020\0001-0500\020-0103\40-Design\AutoCAD\Final Plans\Sheets\GNCV\CONSTRUCTION DOCUMENTS\C_DTL01_0200103.dwg USER: bkimmich
DATE: Jan 14, 2021 12:28pm XREFS: C_4LS_XBASE_80330 C_4LS_PBASE_80330 C_4LS_PSURF_80330 C_4LS_PBASE_61023 L_PBASE_61023 TE DETAIL C_PBASE_80330 C_PTBLK_0200103



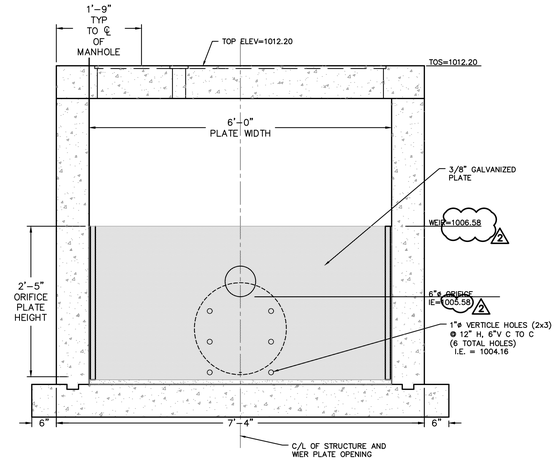
PLANVIEW



PLAN VIEW

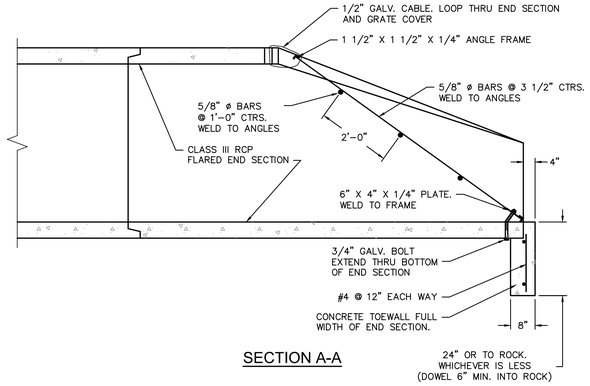


PROFILE VIEW



SECTION A-A

CONTROL STRUCTURE EDD-1
(STRUCTURE B3) 2



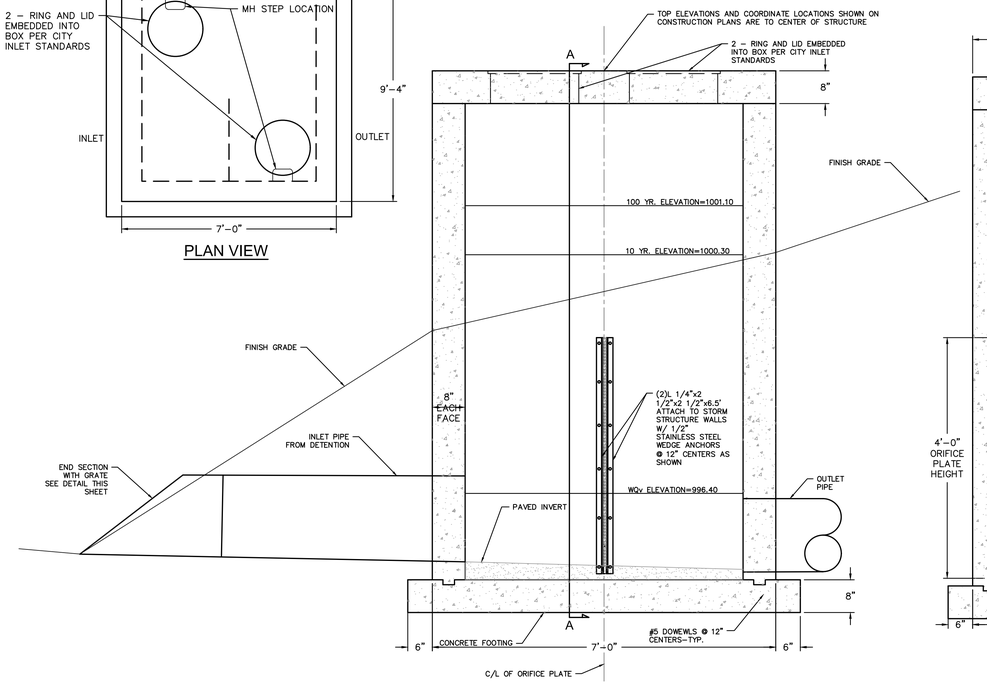
SECTION A-A

END SECTION NOTES

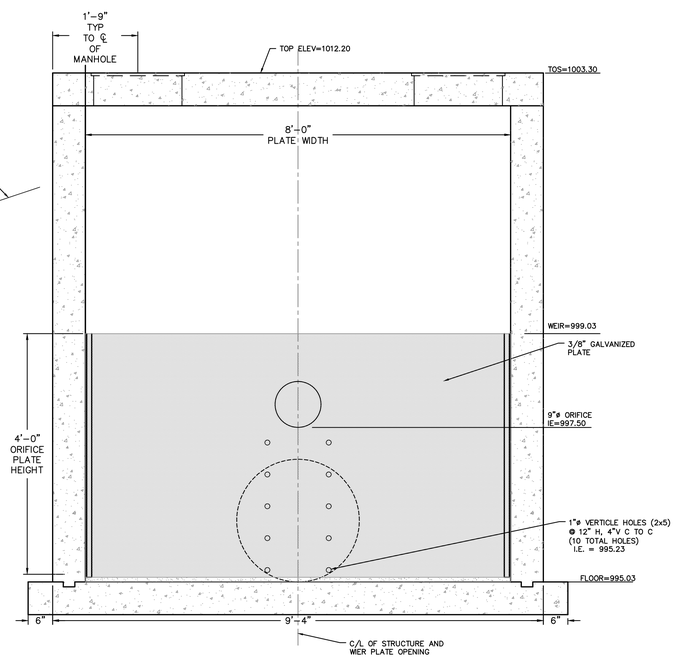
1. GRATE COVER DETAIL SHALL BE ADJUSTED AS NECESSARY TO FIT END SECTION PROVIDED.
2. MAXIMUM OPENING THRU END SECTION SHALL BE NO GREATER THAN 6". ADJUST DETAIL AS NECESSARY.
3. ALL METAL SURFACES SHALL BE HOT DIP ZINC COATED IN ACCORDANCE WITH ASTM A-123.
4. USE CITY APPROVED CONCRETE THROUGHOUT.
5. ALL CONCRETE AND MATERIALS USED IN THIS WORK SHALL MEET THE REQUIREMENTS OF THE GOVERNING BODY.
6. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 40 AS PER ASTM A615, AND SHALL BE BENT COLD.
7. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF ±1/8" SHALL BE PERMITTED.
8. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
9. ALL DOWELS SHALL BE ACCURATELY PLACED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF BOTTOM SLAB CONCRETE. STICKING OF DOWELS INTO FRESH OR PARTIALLY HARDENED CONCRETE WILL NOT BE ACCEPTABLE.
10. ALL REINFORCING STEEL SHALL BE SUPPORTED ON FABRICATED STEEL BAR SUPPORTS @ 3'-0" MAXIMUM SPACING.
11. DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION.

END SECTION TOE WALL WITH GRATE
NOT TO SCALE

PLAN VIEW



PROFILE VIEW



SECTION A-A

CONTROL STRUCTURE EDD-2
(STRUCTURE D2) 2

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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010010555
01/15/2021
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LEE'S SUMMIT MIDDLE SCHOOL #4

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LEE'S SUMMIT, MO 64081

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13-20102-00

STANDARD DETAILS

C1057

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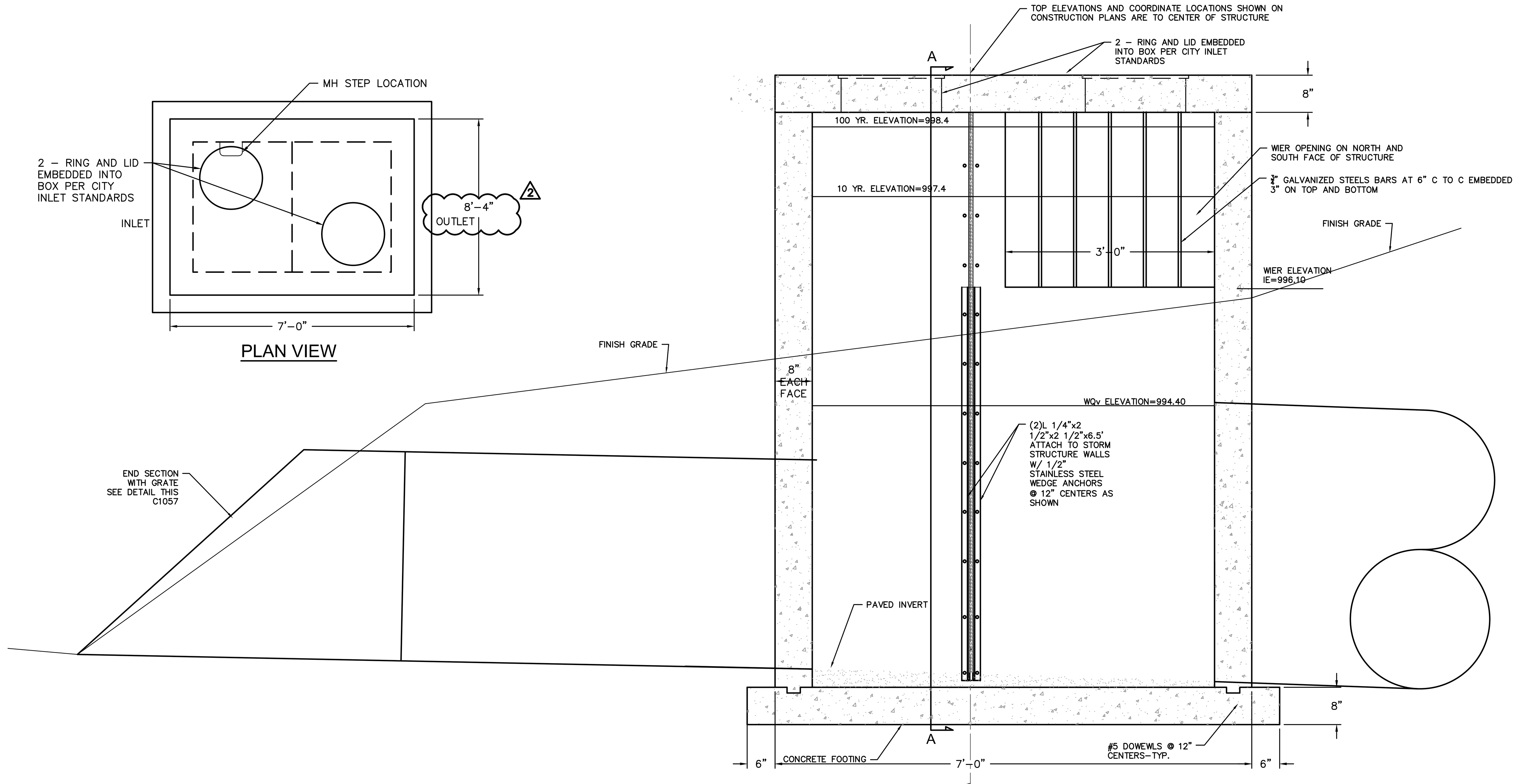
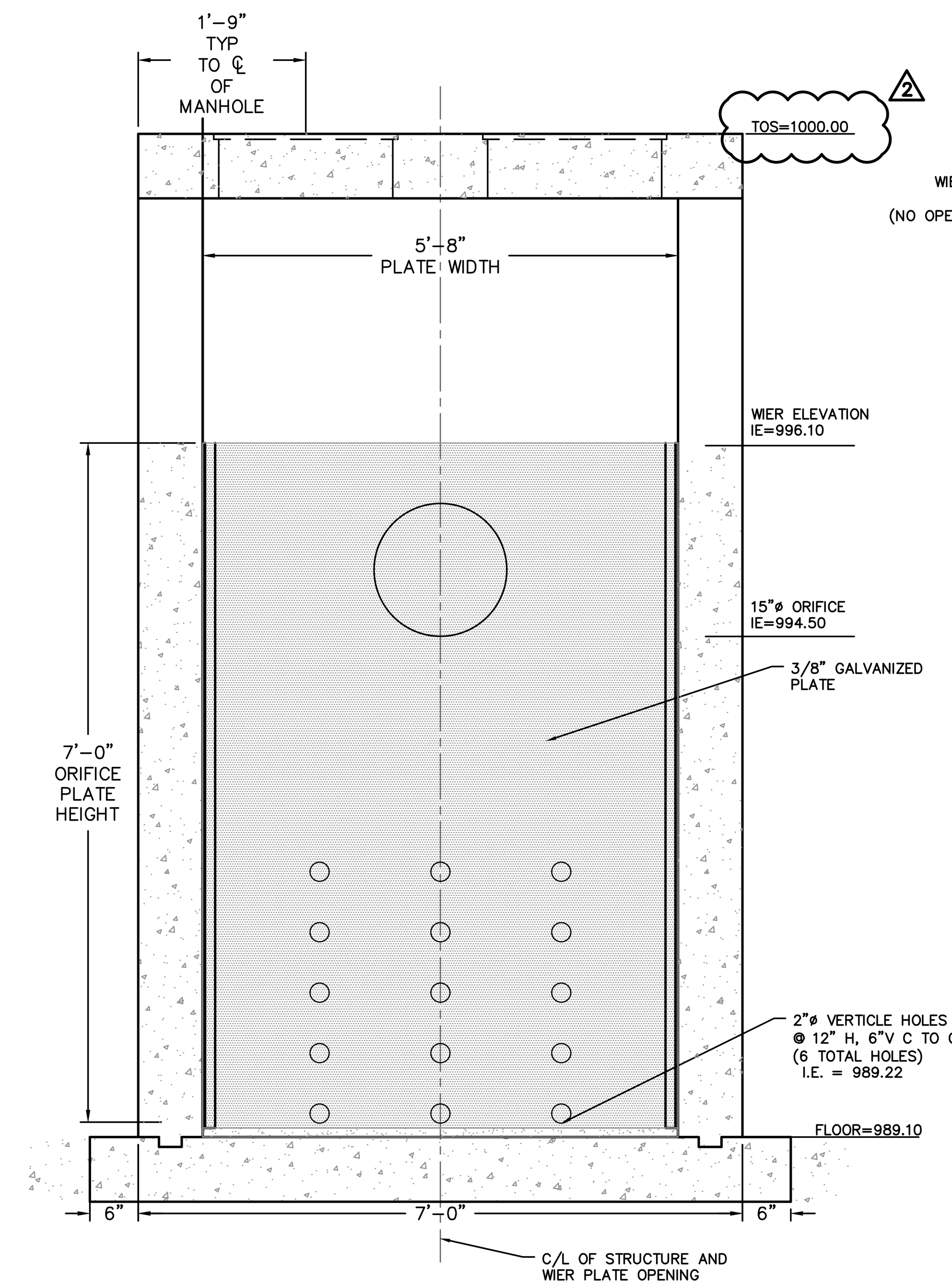
C_PTBLK_0200103 TE DETAIL

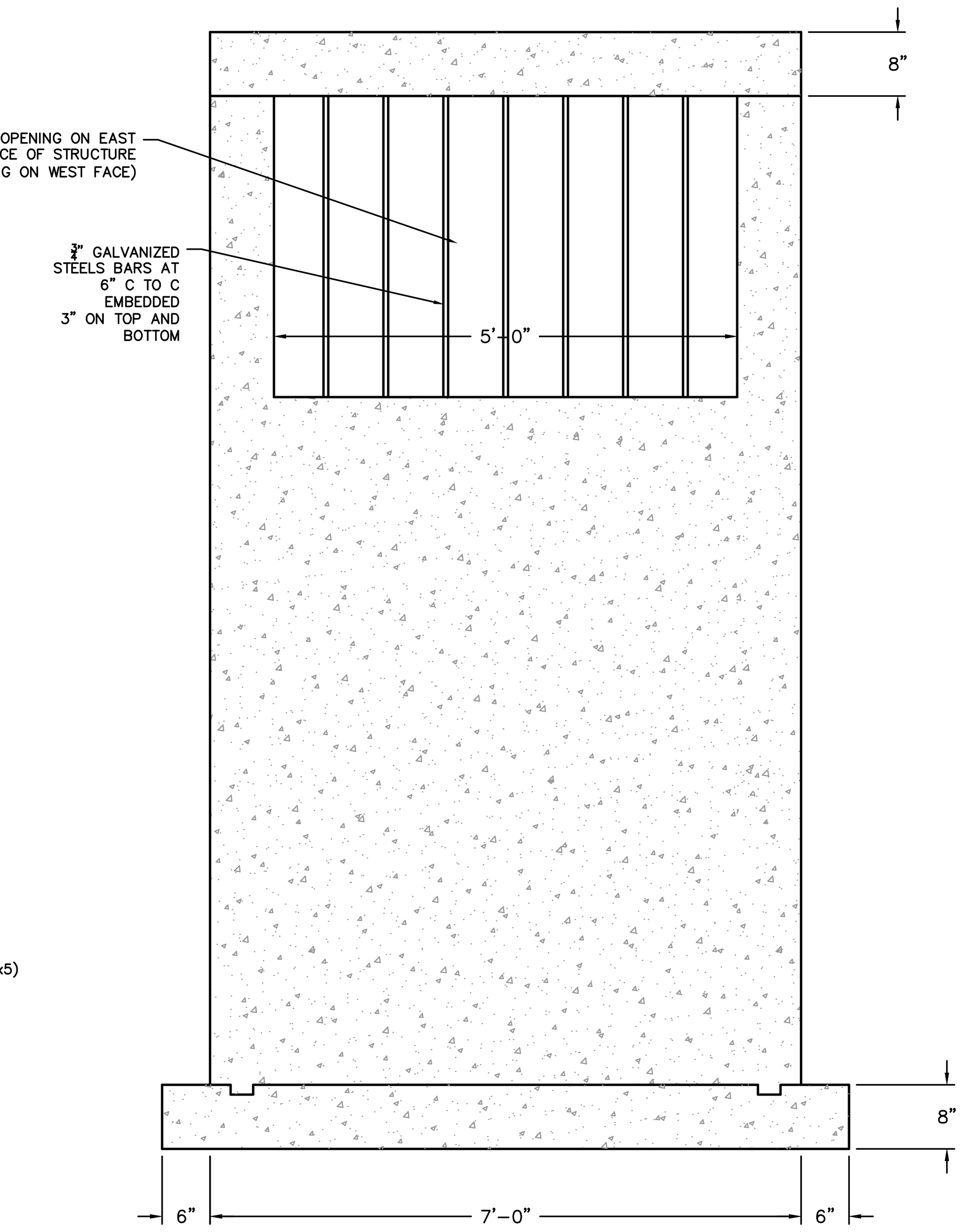


PLAN VIEW

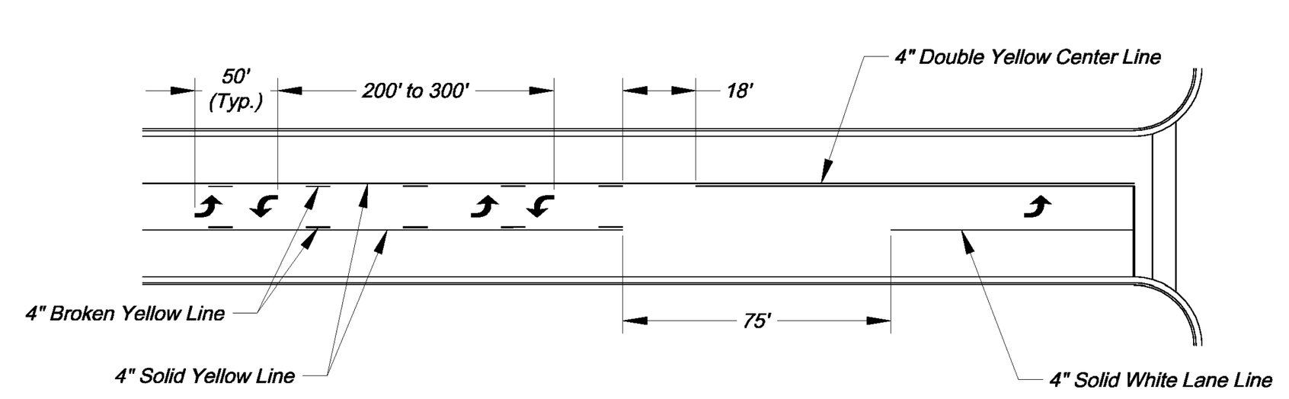
PROFILE VIEW



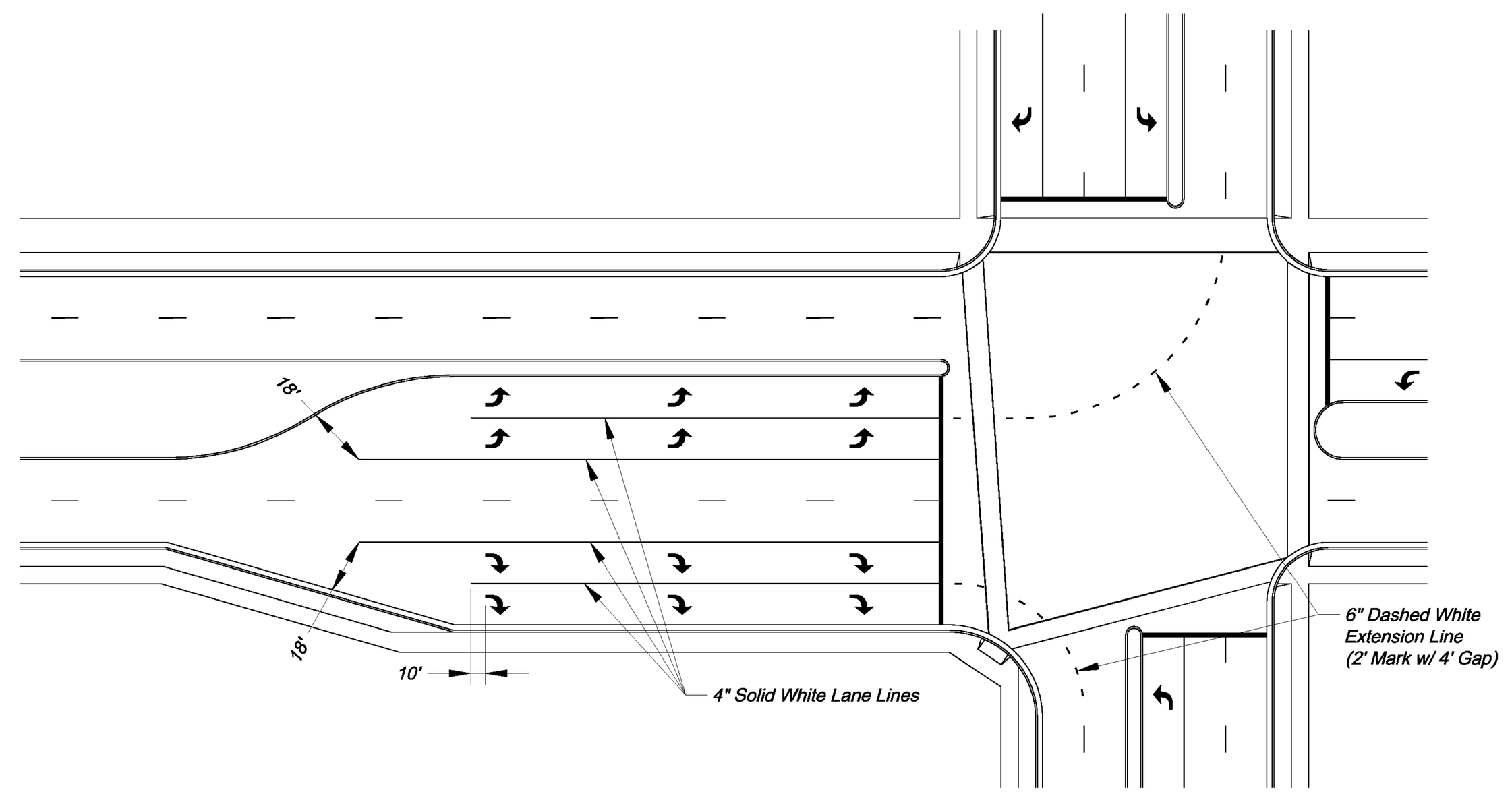
SECTION A-A



CONTROL STRUCTURE EDD-3 (STRUCTURE J2)

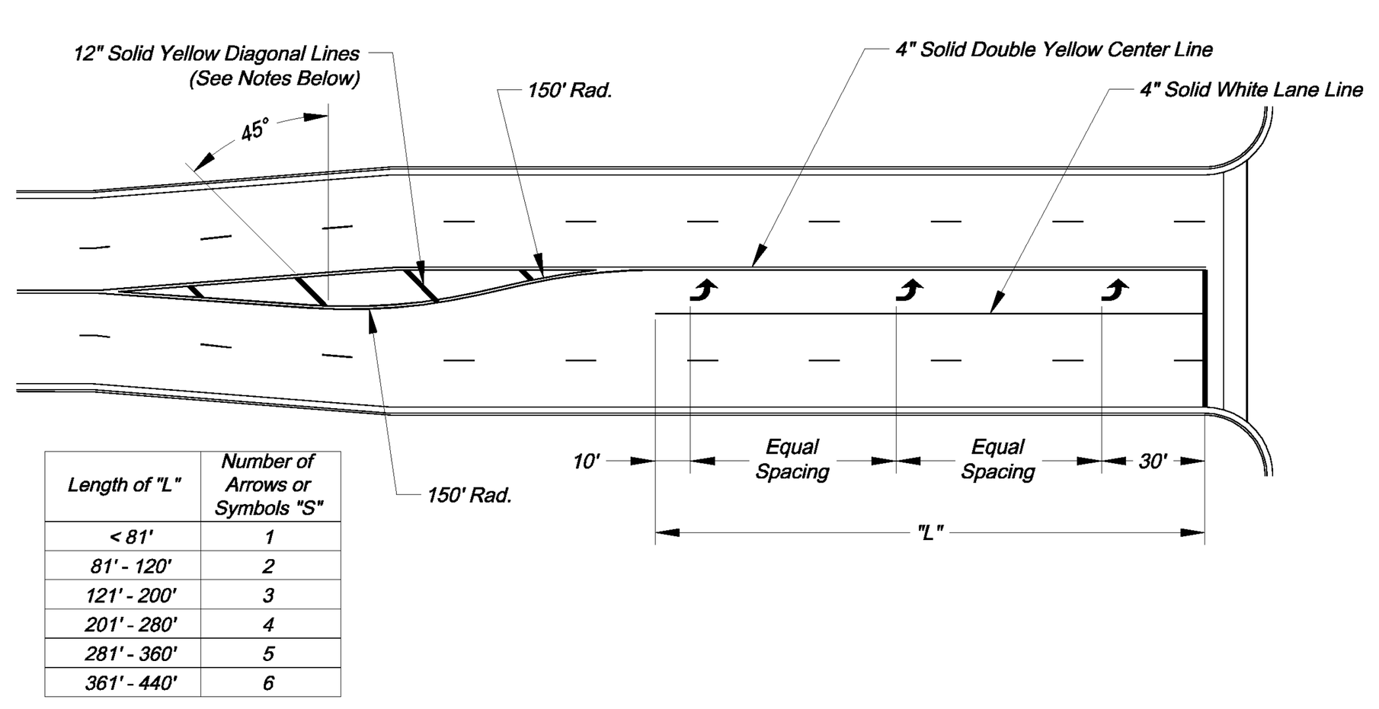


TYPICAL MARKINGS FOR TWO-WAY LEFT-TURN LANE



TYPICAL DUAL TURN LANE MARKINGS

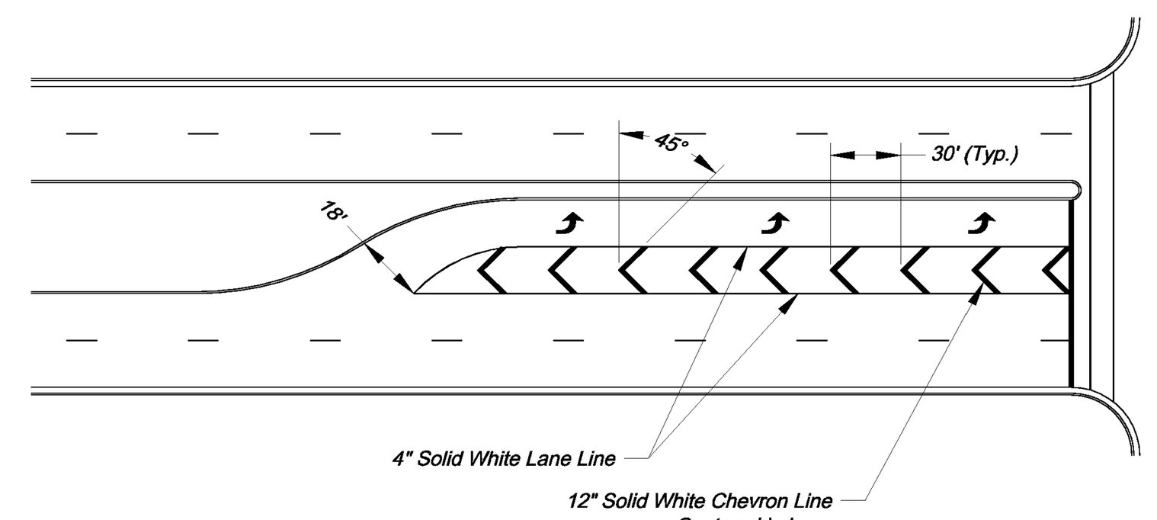
NOTE:
1. Dashed extension lines shall not extend through crosswalks.



Length of "L"	Number of Arrows or Symbols "S"
< 81'	1
81' - 120'	2
121' - 200'	3
201' - 280'	4
281' - 360'	5
361' - 440'	6

TYPICAL TURN LANE MARKINGS

NOTES:
1. Diagonal lines are required between centerlines if the width of the area between the center lines is greater than 12' and/or the length of the area between center lines is greater than 250'.
2. Diagonal lines should be spaced at 5' increments, equal to the posted speed limit.
3. Equal Spacing is calculated as (L - 40) / (S - 1).
4. When a through lane of traffic terminates as a mandatory turn lane, Arrow and "ONLY" symbols should be marked in the turn lane, in alternating order. The first and last symbols should be Arrows.



TYPICAL STRIPED OUT TURN LANE MARKINGS

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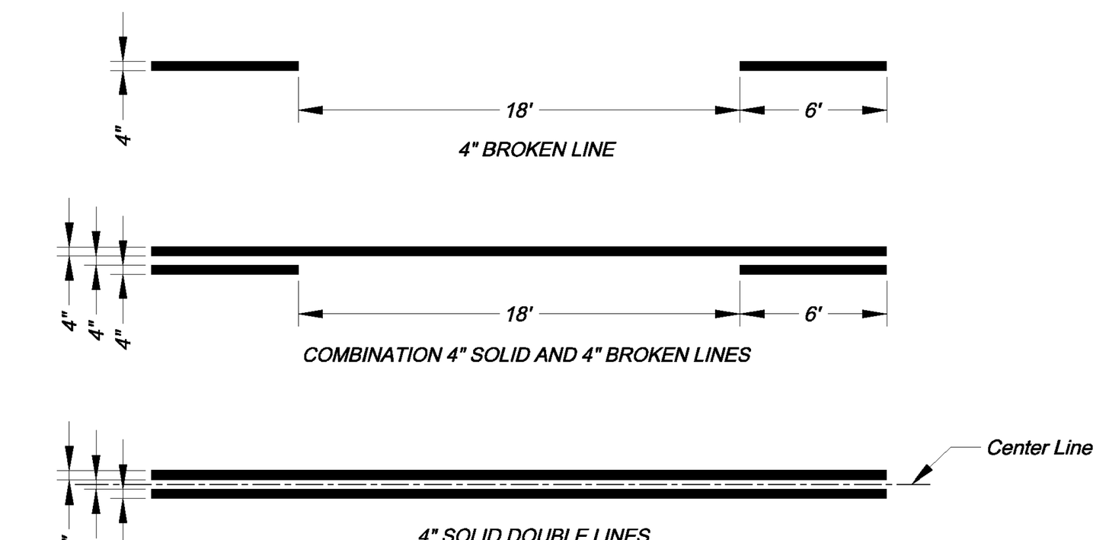
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
220 SE GREEN STREET
LEE'S SUMMIT, MISSOURI 64063
PHONE: (816) 969-1800 FAX: (816) 969-1809

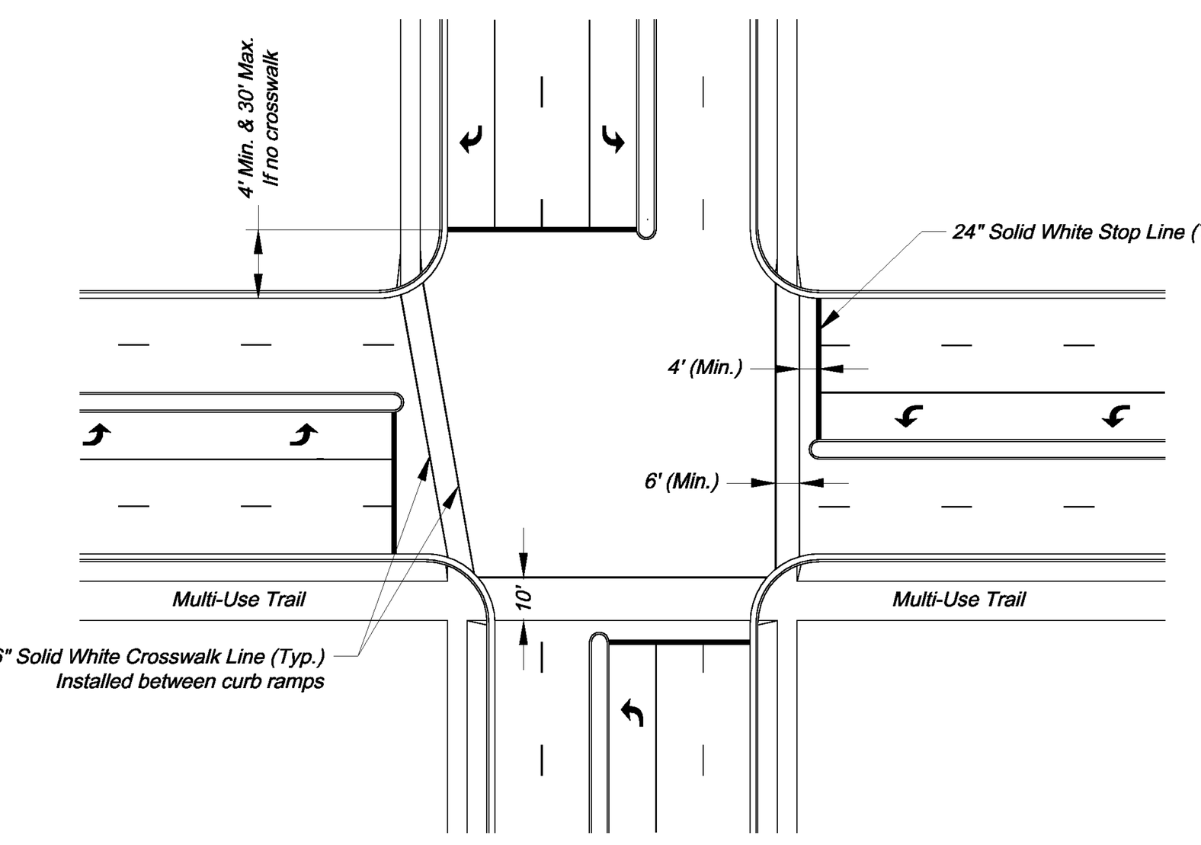
INTERSECTION MARKING DETAILS
STANDARD DRAWING PM-2

Drawn By: AS
Checked By: JW
Date: 06/09/2009
2 OF 2
2



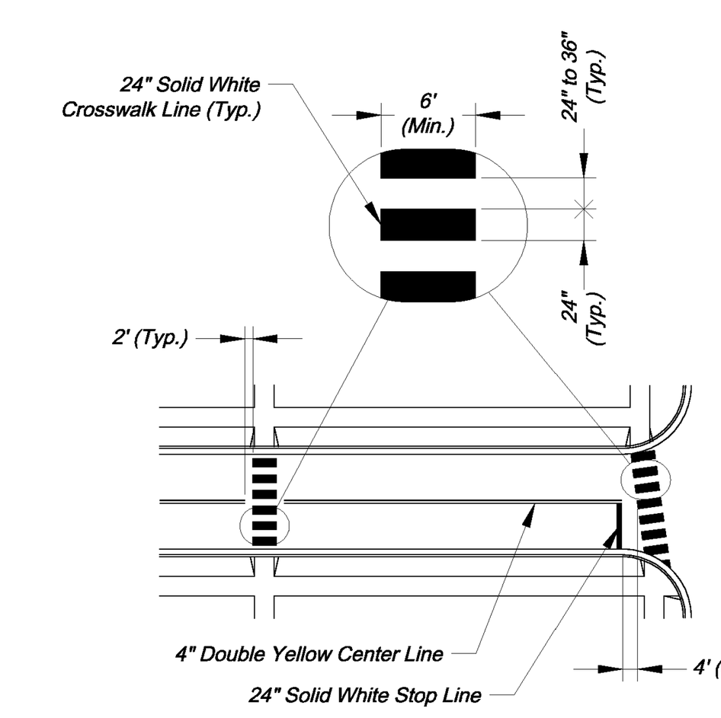
TYPICAL LINE DETAILS

NOTES:
1. All edge line, center line, and lane line pavement markings shall be 4" wide unless otherwise noted.
2. Edge lines shall be continuous solid white or yellow lines. Right side edge lines shall be solid white. Median or left side edge lines on divided roadways are to be solid yellow. Edge lines and center lines shall be continuous across driveways.

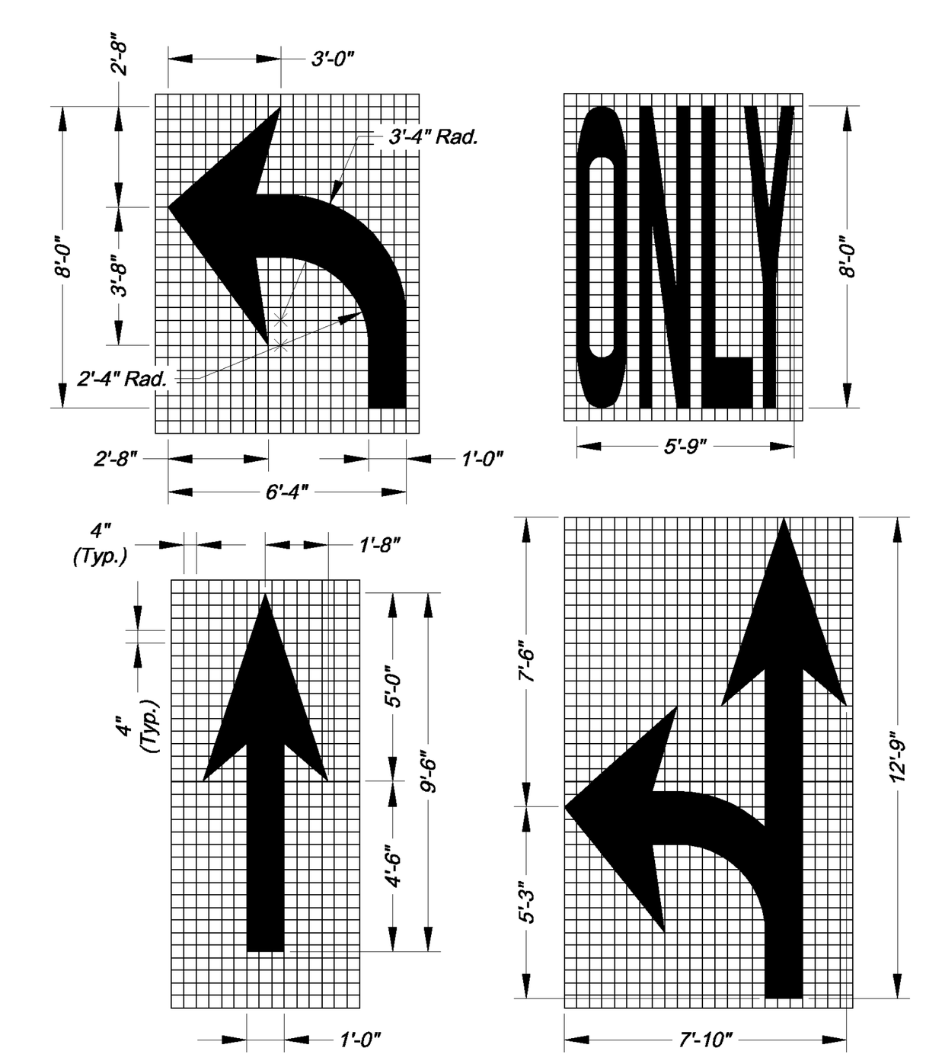


TYPICAL INTERSECTION MARKINGS

NOTES:
1. Transverse crosswalk lines shall be installed such that the distance between lines is at least 6 or 10 feet.
2. Stop lines are required at signalized intersections, on multi-lane stop controlled approaches, or in front of crosswalks at controlled intersections.

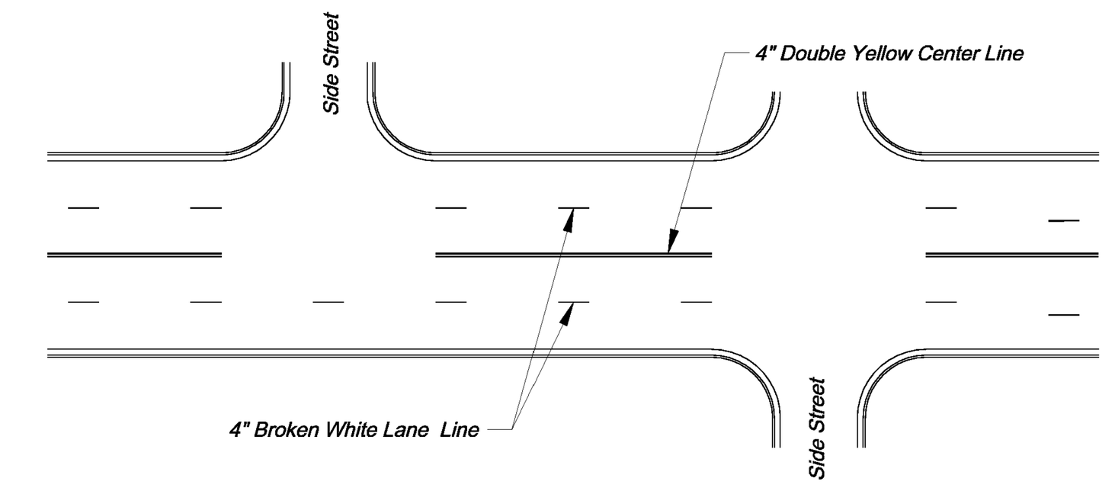


TYPICAL MIDBLOCK OR SCHOOL CROSS WALK

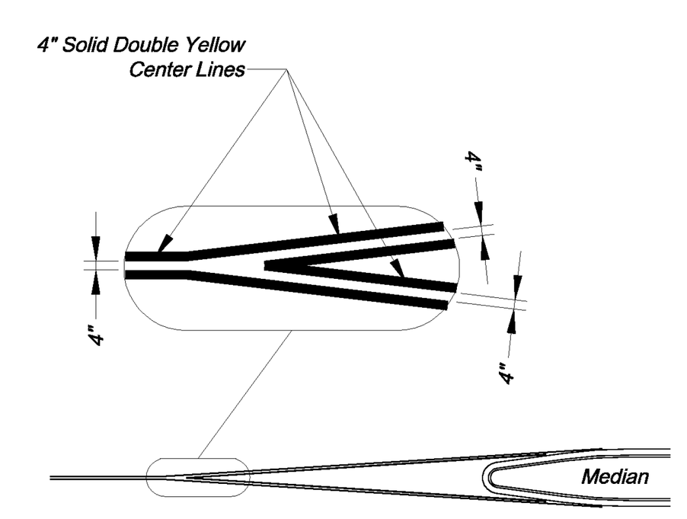


ARROW AND SYMBOL DETAILS

NOTES:
1. All arrow and symbol markings shall be white, and shall be centered in their respective traffic lanes.
2. Right-turn and combination right-turn/straight arrows are reverse of arrows shown.



TYPICAL MARKINGS FOR FOUR-LANE UNDIVIDED ROADWAY



TYPICAL MEDIAN NOSE CENTER LINE DETAIL

PAVEMENT MARKING GENERAL NOTES:
1. All pavement markings shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
2. All words and symbols shall conform to the latest edition of Standard Alphabets for Highway Signs and Pavement Markings printed by the U.S. Department of Transportation, Federal Highway Administration.
3. Pavement markings, either temporary or permanent are required at all times if the roadway is open to traffic.
4. All pavement markings that conflict with the desired markings shall be completely removed. Removals shall not leave the road surface scarred with an image that misleads traffic. Any excess damage or scarring of pavement shall be repaired at the Contractor's expense.
5. The proposed permanent markings shall be laid out by the Contractor in advance of the marking installation. Markings shall not be applied until the layout has been approved by the City Traffic Engineer.
6. Center lines shall be marked on all undivided arterial streets, and any other undivided street with more than two lanes and/or a speed limit of 30 mph or more.
7. Edge lines shall be marked on all non-curbed streets.

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ENGINEERING DIVISION
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ROADWAY MARKING DETAILS
STANDARD DRAWING PM-1

Drawn By: AS
Checked By: JW
Date: 06/09/2009
1 OF 2
1

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PROFESSIONAL ENGINEER
01/15/2021

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13-20102-00

STANDARD DETAILS

C1058

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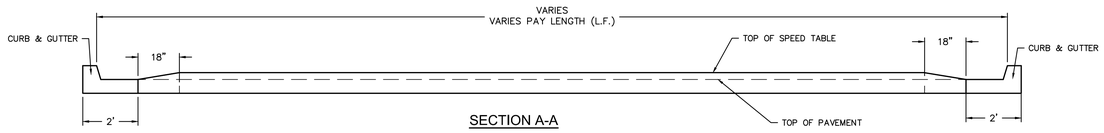
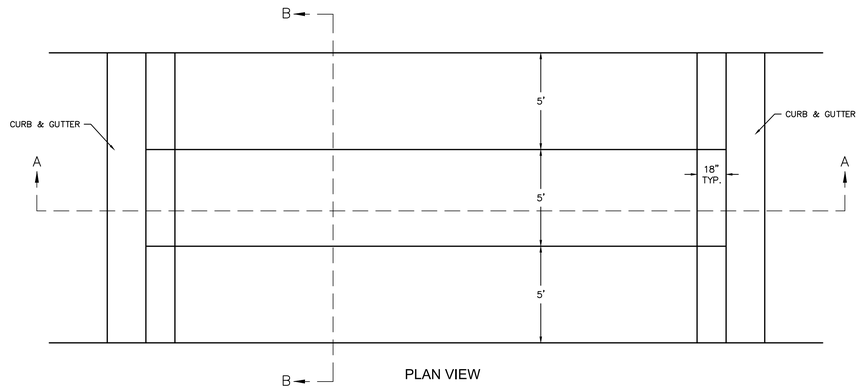
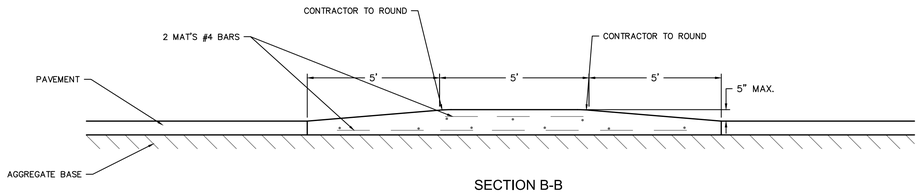


SECTION A-A



PLAN VIEW



SECTION B-B

SPEED TABLE DETAIL

NOT TO SCALE

NOTES:

1. CONCRETE SHALL BE 7" PORTLAND CONCRETE KCMMB 4K PCC WITH 4" AGGREGATE BASE PER LS SECTION 5200.
2. TOP ROW OF REBAR SHALL BE ON "P" STAKES.
3. BOTTOM ROW OF REBAR SHALL BE ON CHAIRS.
4. QUANTITY SHALL BE MEASURED PER LINEAR FOOT FROM LIP OF CURB TO LIP OF CURB.
5. CONSTRUCTION JOINTS SHALL BE PLACED AT ALL BREAKS IN SLOPE.

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13-20102-00

STANDARD DETAILS

C1058A

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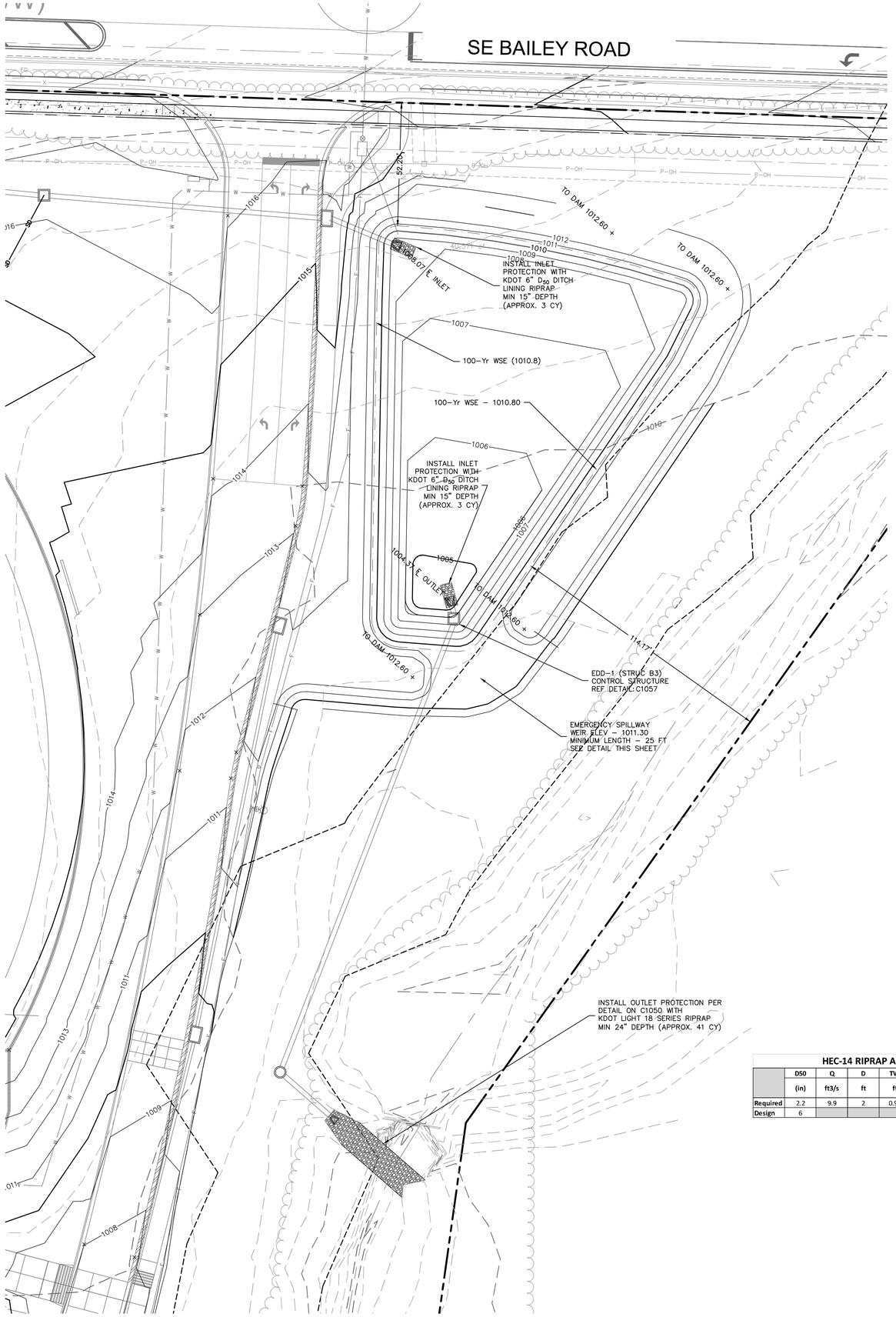

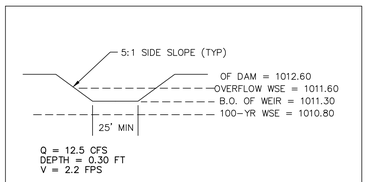

EDD-1
EMERGENCY SPILLWAY DETAIL

LEGEND

- PROPERTY LINE
- 995 EXISTING MAJOR CONTOUR
- 995 EXISTING MINOR CONTOUR
- 998 PROPOSED MAJOR CONTOUR
- 998 PROPOSED MINOR CONTOUR

CONTRACTOR NOTE:

ALL TEMPORARY SILTATION BASINS, SEDIMENT BASINS AND DETENTION BASINS MUST BE CONSTRUCTED PRIOR TO ANY OTHER IMPROVMENTS.

HEC-14 RIPRAP APRON SIZING FOR OUTFALL B-1

	D50	Q	D	TW	TW/D	APRON LENGTH		APRON DEPTH		Width at End of Apron (ft)
	(in)	ft3/s	ft	ft	0.4 Min 1.0 Max	Scale from Table 10.1	Scale x D (ft)	Scale from Table 10.1	Scale x D50 (in)	
Required	2.2	9.9	2	0.91	0.455	4	8	3.3	19.8	11.4
Design	6						24		24	12

ADDED SHEET

2

N

0' 10' 20' 40'
SCALE IN FEET

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NUMBER PE-2010010555
01/15/2021
PROFESSIONAL ENGINEER

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DETENTION BASIN DETAIL

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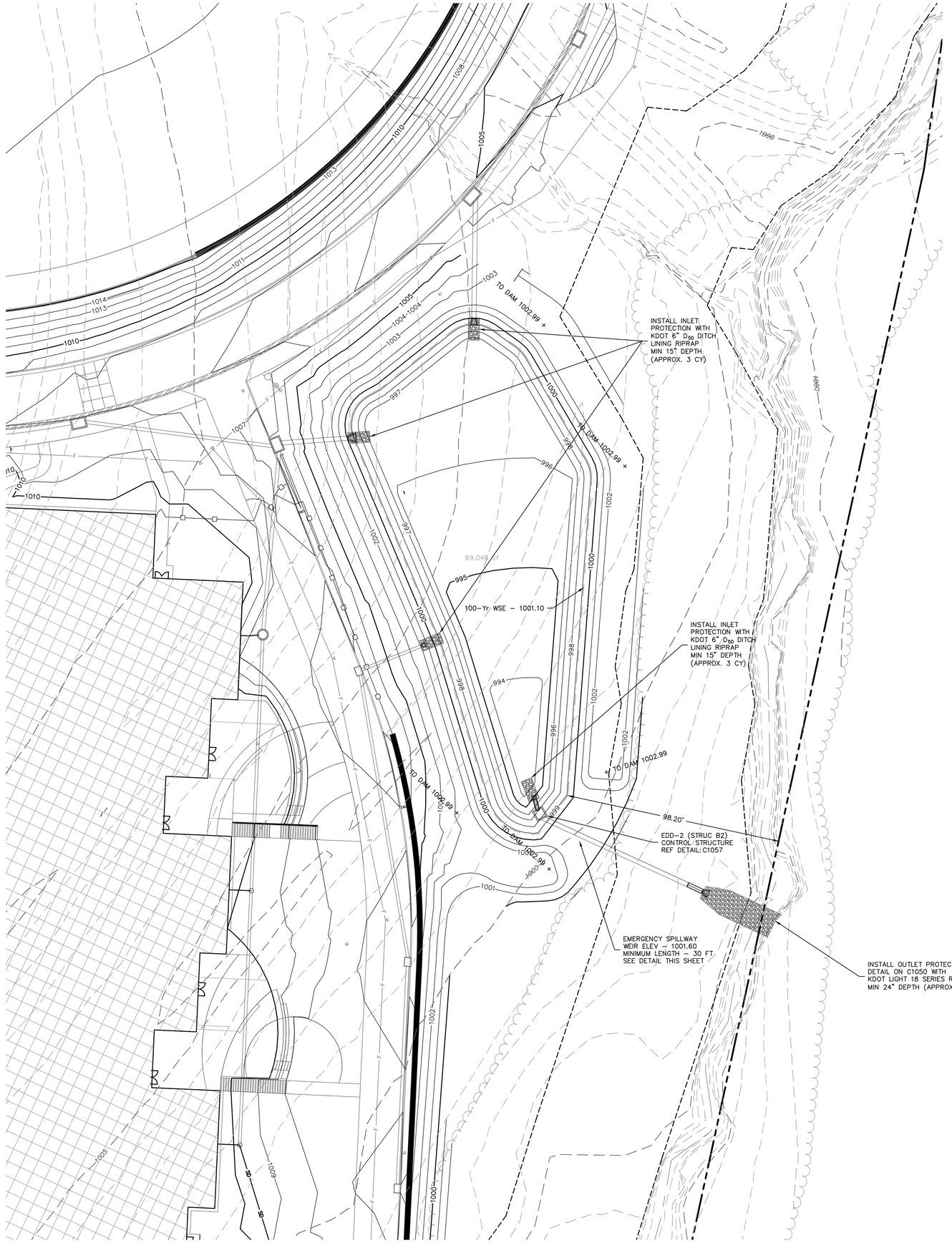
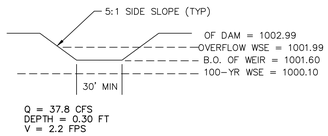


CONTRACTOR NOTE:

ALL TEMPORARY SILTATION BASINS, SEDIMENT BASINS AND DETENTION BASINS MUST BE CONSTRUCTED PRIOR TO ANY OTHER IMPROVMENTS.

LEGEND

- PROPERTY LINE
- 995 EXISTING MAJOR CONTOUR
- 995 EXISTING MINOR CONTOUR
- 998 PROPOSED MAJOR CONTOUR
- 998 PROPOSED MINOR CONTOUR



Q = 37.8 CFS
DEPTH = 0.30 FT
V = 2.2 FPS

EDD-2
EMERGENCY SPILLWAY DETAIL

HEC-14 RIPRAP APRON SIZING FOR OUTFALL D-1

	D50	Q	D	TW	TW/D	APRON LENGTH		APRON DEPTH		Width at End of Apron (ft)
	(in)	ft3/s	ft	ft	0.4 Min 1.0 Max	Scale from Table 10.1	Scale x D (ft)	Scale from Table 10.1	Scale x D50 (in)	
Required	3.4	24.1	2	1.95	0.975	4	8	3.3	19.8	11.4
Design	6						19		24	12

ADDED SHEET

2

N

0' 10' 20' 40'
SCALE IN FEET

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STATE OF MISSOURI
TERRY M. PARSONS
NUMBER PE-2010010255
01/15/2021
PROFESSIONAL ENGINEER

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2 PR002R 12.18.20

13-20102-00

DETENTION BASIN DETAIL

C1060

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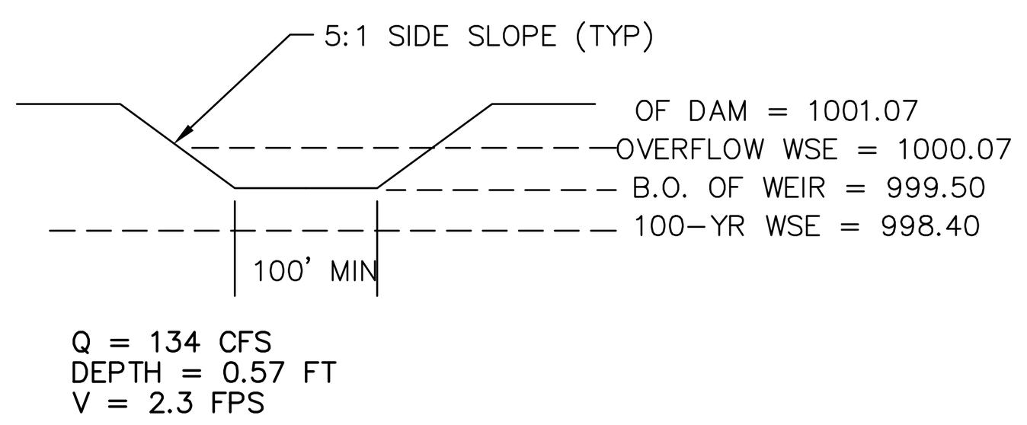
CONTRACTOR NOTE:

ALL TEMPORARY SILTATION BASINS, SEDIMENT BASINS AND DETENTION BASINS MUST BE CONSTRUCTED PRIOR TO ANY OTHER IMPROVMENTS.

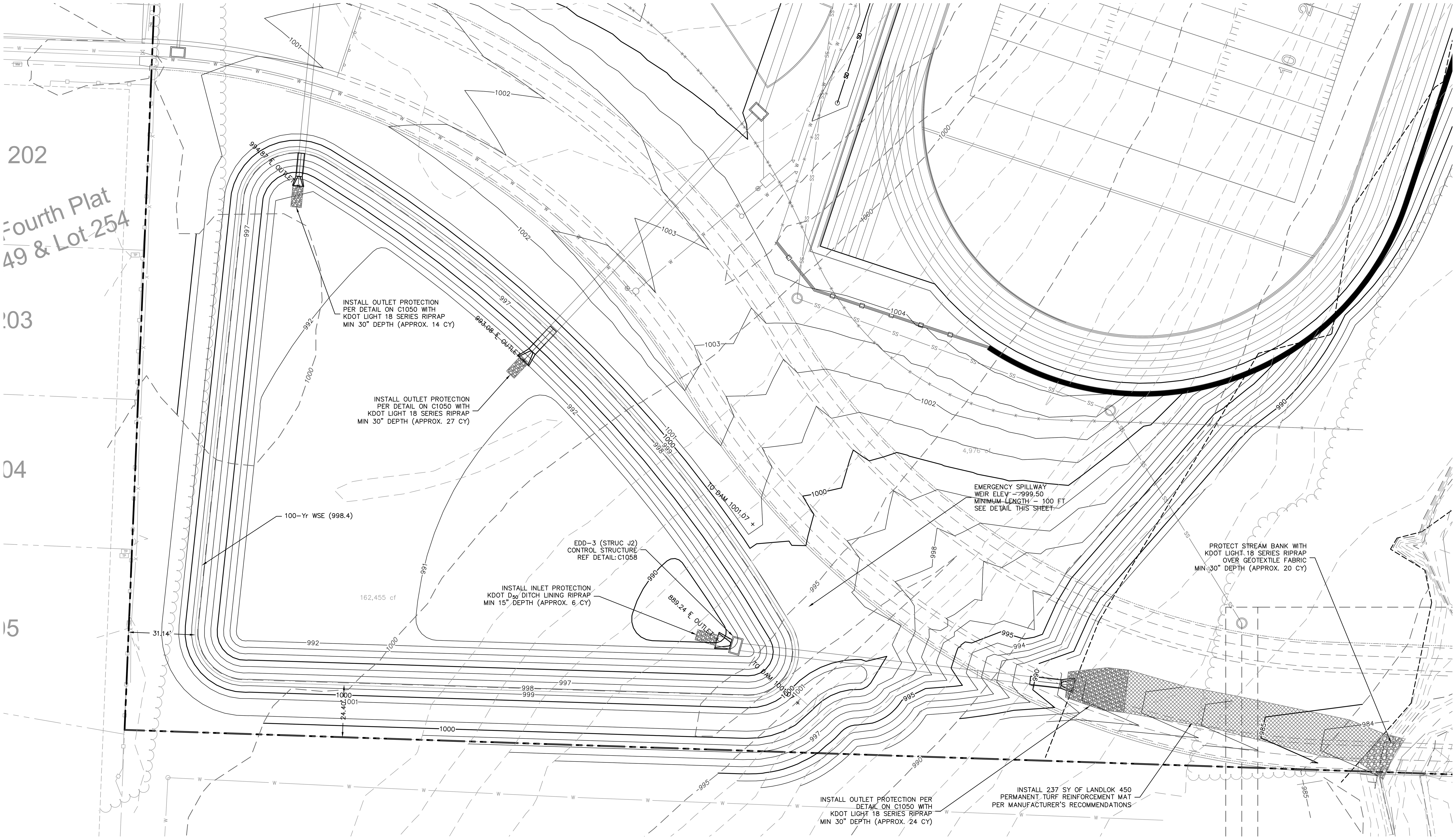


EDD-3
EMERGENCY SPILLWAY DETAIL

ADDED SHEET

LEGEND

PROPERTY LINE
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR



HEC-14 RIPRAP APRON SIZING FOR OUTFALL J-1

	D50	Q	D	TW	TW/D	APRON LENGTH		APRON DEPTH		Width at End of Apron (ft)
	(in)	ft3/s	ft	ft	0.4 Min 1.0 Max	Scale from Table 10.1	Scale x D (ft)	Scale from Table 10.1	Scale x D50 (in)	
Required	4.5	63	3.5	2.48	0.708571	4	14	3.3	29.7	19.9
Design	9						28		30	20

N

0 10' 20' 40'
SCALE IN FEET

DLR Group

STATE OF MISSOURI TERRY M. PARSONS NUMBER PE-2018010505 PROFESSIONAL ENGINEER 01/15/2021

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DETENTION BASIN DETAIL

C1061

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