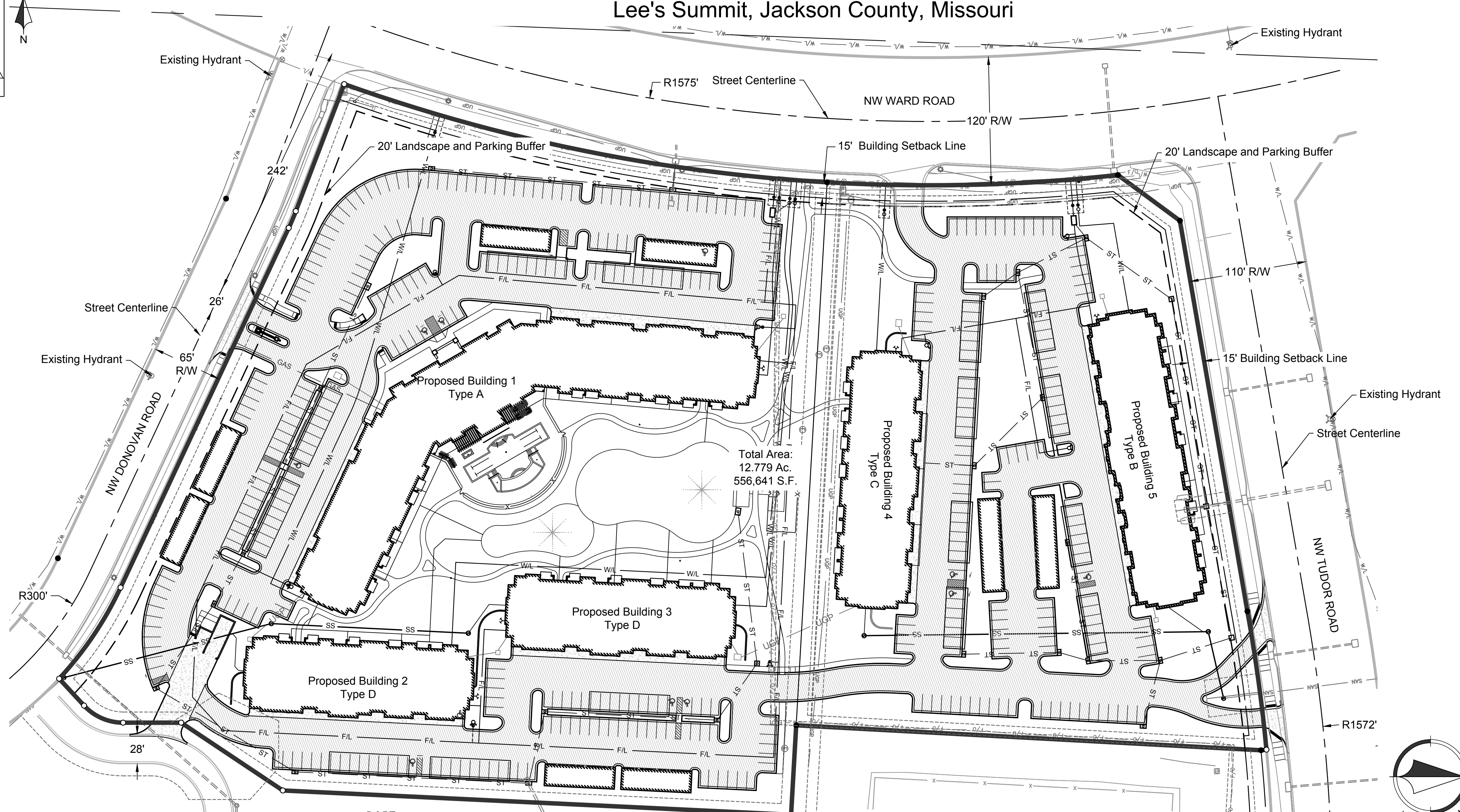
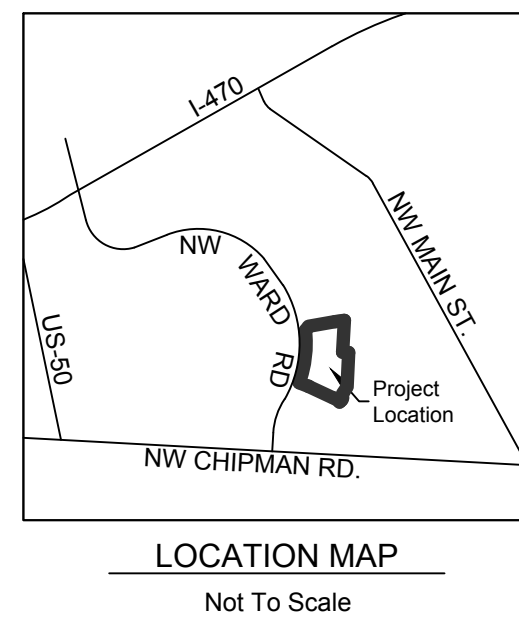


# Final Development Plans For Summit Square II

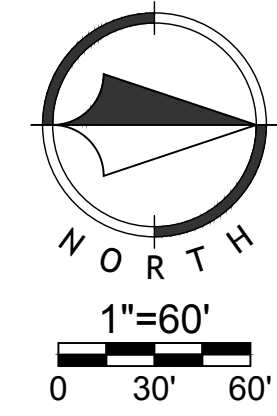
Lee's Summit, Jackson County, Missouri

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C04	Site Dimension Plan 2
C05	Site Dimension Plan 3
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C34	Standard Details
C35	Standard Details
C36	Standard Details



Total Area:  
12.779 Ac.  
556,641 S.F.



### GENERAL NOTES

- All construction shall follow the City of Lee's Summit Design and Construction Manual as adopted by Ordinance 5813. Where discrepancies exist between the Final Development Plan and the Design and Construction Manual, the Design and Construction Manual shall govern.
- The contractor will be responsible for securing all bonds, and insurance required by the contract documents, City of Lee's Summit, Mo., and all other governing agencies (including local, county, state, and federal authorities) having jurisdiction over the work proposed by these construction documents. The cost for all bonds, and insurance shall be the contractor's responsibility and shall be included in the bid for the work.
- All existing utilities indicated on the drawings are according to the best information available to the engineer; however, all utilities actually existing may not be shown. The contractor shall be responsible for contacting all utility companies for an exact field location of each utility prior to any construction. All utilities, shown and un-shown, damaged through the negligence of the contractor shall be repaired or replaced by the contractor at his expense.
- The contractor will be responsible for all damages to existing utilities, pavement, fences, structures, and other features not designated for removal. The contractor shall repair all damages at his expense.
- The demolition of existing pavement, curbs, structures, and all other features necessary to construct the proposed improvements, shall be performed by the contractor. All waste material removed during construction shall be disposed off the project site. The contractor shall be responsible for all permits for hauling and disposing of waste material. The disposal of waste material shall be in accordance with all local, state, and federal regulations.
- By use of these construction documents the contractor hereby agrees that he shall be solely responsible for the safety of the construction workers and the public. The contractor agrees to hold the engineer and owner harmless for any and all injuries, claims, losses, or damages related to the project.
- The contractor will be responsible for providing all signage, barricades, lighting, etc., as required for temporary traffic control during the construction of this project. Maintenance of the temporary traffic control devices will be the contractor's responsibility. All traffic control in conduction with construction in the right-of-way shall be in conformance with the City Traffic Control Requirements.
- Contractor shall furnish evidence that his/her insurance meets the requirements of the City of Lee's Summit, Missouri Municipal Code.
- Prior to installing, constructing, or performing any work on the public storm sewer line (including connecting private drainage systems to the storm sewer), contact Inspections.
- Connections to the public storm sewers between structures will not be permitted.
- Contractor shall verify and accept existing topography shown herein. Contractor shall notify Engineer if any discrepancies are found prior to any earthwork activities.
- Planning and Codes Administration will require a retaining wall design by a registered engineer in the State of Missouri.
- Geogrid, footings, or other elements of the retaining wall(s) cannot encroach into the right of way or public easements.
- A Knox Box shall be provided for Each Building.
- All building and life safety issues shall comply with the 2012 International Fire Code and local amendments as adopted by the City of Lee's Summit.

### UTILITIES

**WATER & SANITARY SEWER**  
City of Lee's Summit Water Utilities  
220 SE Green St  
Lee's Summit, MO  
(816) 969-1900

**ELECTRICITY**  
Kansas City Power and Light  
Phone: 816.471.5275

**GAS**  
Missouri Gas Energy  
PO Box 219255  
Kansas City, Missouri 64141  
Phone: 816.756.5252

**TELEPHONE**  
AT&T  
Phone: 800.288.2020

Time Warner Cable  
Phone: 816.222.5952

**CABLE TV**  
Comcast  
Phone: 816.795.1100

Time Warner Cable  
Phone: 816.358.8833

### LEGAL DESCRIPTION

Lots 1 and 2, SUMMIT ORCHARD - FIRST PLAT, LOTS 1-4 & TRACT A, a subdivision in Lee's Summit, Jackson County, Missouri, according to the recorded plat thereof recorded August 26, 2016 as Document No. 2016E0079184 in Plat Book 163, Page 87.

### BENCHMARK:

- BM-A:  cut on the top centerline of a concrete curb inlet at back of curb near the NE quadrant of the intersection of NW Ward Rd. and NW Donovan Rd. Elev: 1006.76
- BM-B:  cut on the top centerline of a concrete curb inlet at back of curb near the SE quadrant of the intersection of NW Ward Rd. and NW Tudor Rd. Elev: 984.97

### Oil / Gas Well Note:

There is no visible evidence, this date, of abandoned oil or gas wells located within the property boundary, as identified in "Environmental Impact Study of Abandoned Oil and Gas Wells in Lee's Summit, Missouri.

### Flood Plain Note

We have reviewed the F.E.M.A. Flood Insurance Rate Map Number 29095C0417G, revised January 20, 2017, this tract graphically lies in OTHER AREAS, ZONE X, defined as areas determined to be outside the 0.2% annual chance floodplain.



Know what's below.  
Call before you dig.

Final Development Plans

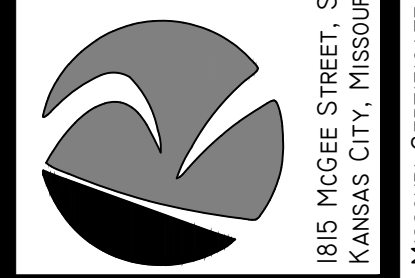
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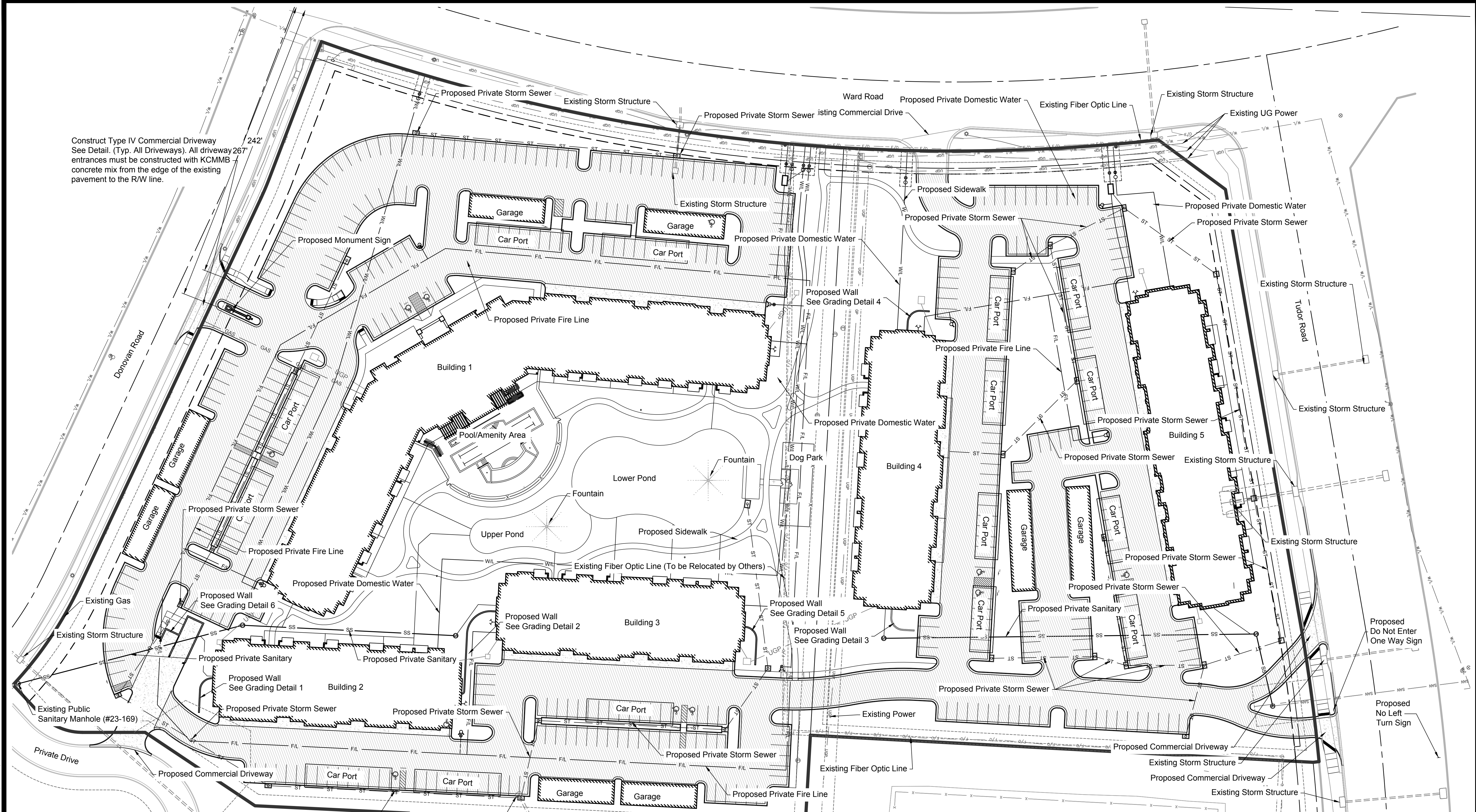
Summit Square II  
Lee's Summit, Jackson County, Missouri

Cover Sheet

NO.	BY	DATE	REVISION
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3	APT MES	06/15/18	50% S&I
2	APT MES	05/14/13	PER CITY COMMENTS
1	APT MES	04/15/18	ORIGINAL SUBMITTAL

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Construct Type IV Commercial Driveway  
See Detail. (Typ. All Driveways). All driveway 26'7"  
entrances must be constructed with KCMMB  
concrete mix from the edge of the existing  
pavement to the R/W line.

**SITE DATA TABLE**

- FOR NON-PUBLIC WORK**
- Screened items indicate a pre-construction topographic survey
  - Contraction joints shall conform to APWA Section 2200.
  - All concrete to be 4000 psi with 5% (+/- 1%) air entrainment. Cement mixtures with water/cement ratios at 0.5 or below are recommended
  - Construction of reinforced concrete pavements shall be in accordance with ACI 330 standard specifications.
  - Curing compound to be applied to all concrete surfaces immediately after broom finish.
  - Contractor shall reject concrete if it cannot be placed within 90 minutes of batch time expiration time shall be reduced to 60 minutes on high summer temperatures.

- PAVEMENT MARKING AND SIGNAGE NOTES**
- Parking stall marking stripes shall be four inch (4") wide white stripes. Handicap stall marking shall be furnished at locations shown on plans.
  - Traffic control devices and pavement markings shall conform to the requirements of the "Manual of Uniform Traffic Control Devices," and to the City of Lee's Summit.
  - Traffic control and pavement markings shall be painted with a white Sherwin Williams S-W traffic marking series b-29y2 or approved equal. The pavement marking shall be applied in accordance with manufacturers recommendations. Apply on a clean, dry surface and at a surface temperature of not less than 70°F and the ambient air temperature shall not be less than 60°F and rising. Two coats shall be applied.
  - All pavement markings for handicap stalls and aisles shall be blue.

- LAYOUT & PAVING NOTES**
- All construction shall conform to the City of Lee's Summit's minimum design standards.
  - The contractor shall check existing grades, dimensions, and inverts in the field and report any discrepancies to the architect/engineer prior to beginning work.
  - The contractor shall verify the exact location of all existing utilities, take care to protect utilities that are to remain, and repair contractor caused damage according to current local standards and at the contractor's expense. coordinate all construction with the appropriate utility company.
  - The contractor shall comply with all local codes, obtain all permits, and pay all fees prior to beginning work.
  - Prior to installing, constructing, or performing any work in the public right of way or on the public storm sewer line (including concrete pavement or connecting private drainage systems to the storm sewer), contact City of Lee's Summit public works at 816.969.1800 for inspection of the work. Contact must be made at least 24 hours prior to start of the work.
  - Provide a smooth transition between existing pavement and new pavement. Field adjustment of final grades may be necessary. Adjust all utilities prior to installation of pavement.
  - The contractor shall protect all trees to remain, in accordance with the specifications. Do not operate or store heavy equipment, nor handle, nor store materials within the driplines of trees or outside the limit of grading.
  - Concrete walks and pads shall have a broom finish. All concrete shall be 4,000 p.s.i. unless otherwise noted. Curb ramps, sidewalk slopes, and driveway ramps shall be constructed in accordance with all current local requirements. If applicable, the contractor shall request inspection of sidewalk and ramp forms prior to placement of concrete.
  - All damage to existing asphalt pavement to remain which results from new construction shall be replaced with like materials at contractor's expense.
  - Dimensions are to the back of curb, or edge of concrete, unless otherwise noted.
  - Excess material shall be disposed of by the contractor off the owner's property at no additional cost in a legal manner.
  - Maintain one set of as-built drawings on the job site for distribution to the engineer upon completion.
  - Concrete curb at all concrete paving and both side of drive-in ramps shall be integral.
  - Contractor shall be responsible for mud and debris on public ROW which shall be removed in a timely manner daily.
  - Pavement sections shown within plans are from the geotechnical report prepared by Terracon, dated June 13, 2018.

**PROPERTY INFO:**  
Existing Zoning: PMIX  
Total Land Area: 12.779 Acres, 556,641 sqft  
Proposed Street Right-of-Way: 0.00 Acres  
Net Land Area: 12.779 Acres, 556,641 sqft  
Proposed Use: Multifamily Residential

**BUILDING INFO:**  
Building 1: Type A - N (4/4 - 105 Units)  
Buildings 2 & 3: Type D (4/5 - (2) 51 Units)  
Building 4: Type C (4/5 - 59 Units)  
Building 5: Type B (4/4 - 60 Units)

**PARKING INFO:**

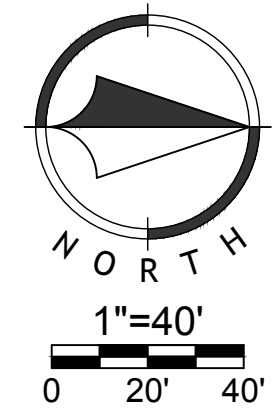
Studio Apartment	= 19	Units
1 Bedroom Apartment	= 200	Units
2 Bedroom Apartment	= 107	Units
Total Studio, 1 & 2 Bdrm Apartments	= 326	Units
1.5 Stalls / 1-2 BR Unit	= 489	Spaces
0.5 Stalls / Unit (Visitor)	= 163	Spaces
Total Parking Required	= 652	Spaces
Surface Stalls Provided	= 312	Spaces
Carport Stalls Provided	= 103	Spaces
Detached Garage Stalls Provided	= 52	Spaces
Attached Garage Stalls Provided	= 94	Spaces
<b>Total Parking Provided</b>	<b>= 561</b>	<b>Spaces</b>
ADA Parking Required	= 11	Spaces
ADA Parking Provided	= 11	Spaces

See NSPJ Letter dated 04/13/18 to Mike Weisenborn.

Total Floor Area	= 99,114 SF
Total Impervious Area	= 7,726 Ac.
<b>Floor Area Ratio (FAR)</b>	<b>= 0.178</b>
<b>Dwellings (Units) Per Acre</b>	<b>= 25.51</b>

**PAVING LEGEND**

	Asphalt Paving
	Concrete Paving



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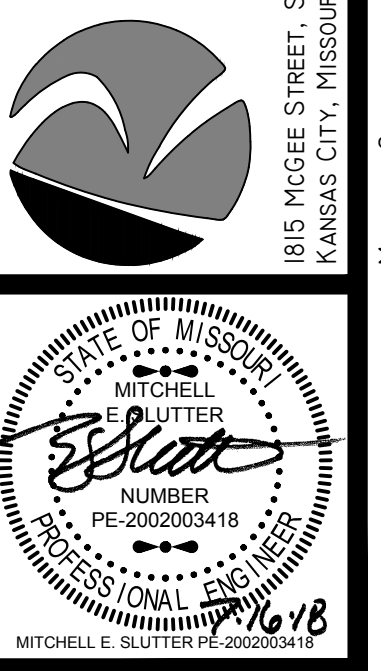
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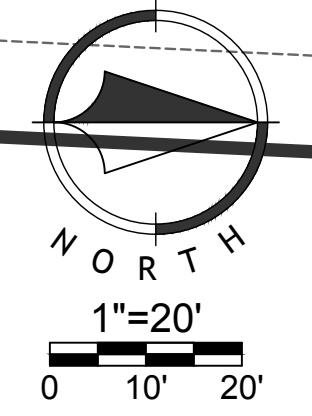
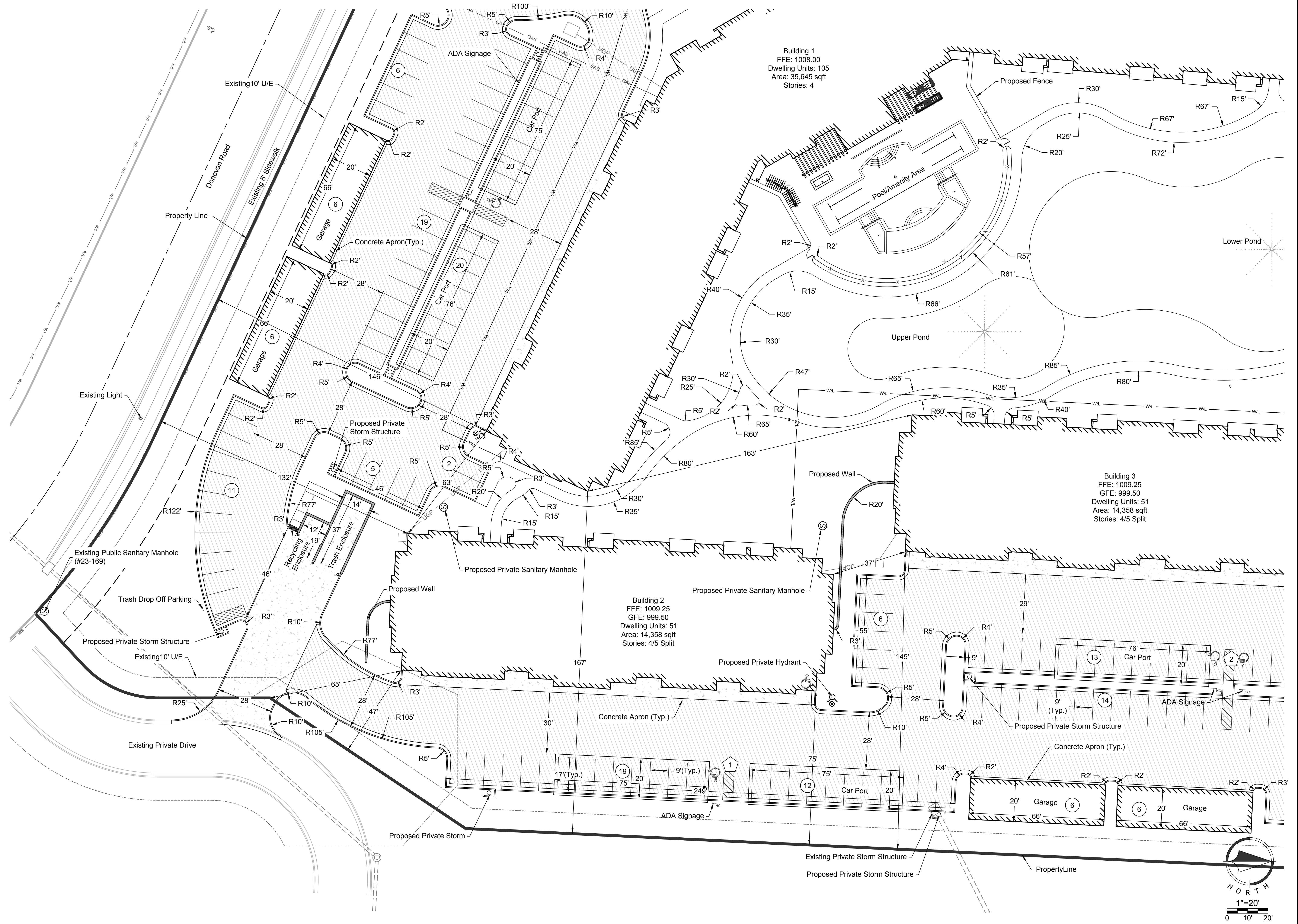
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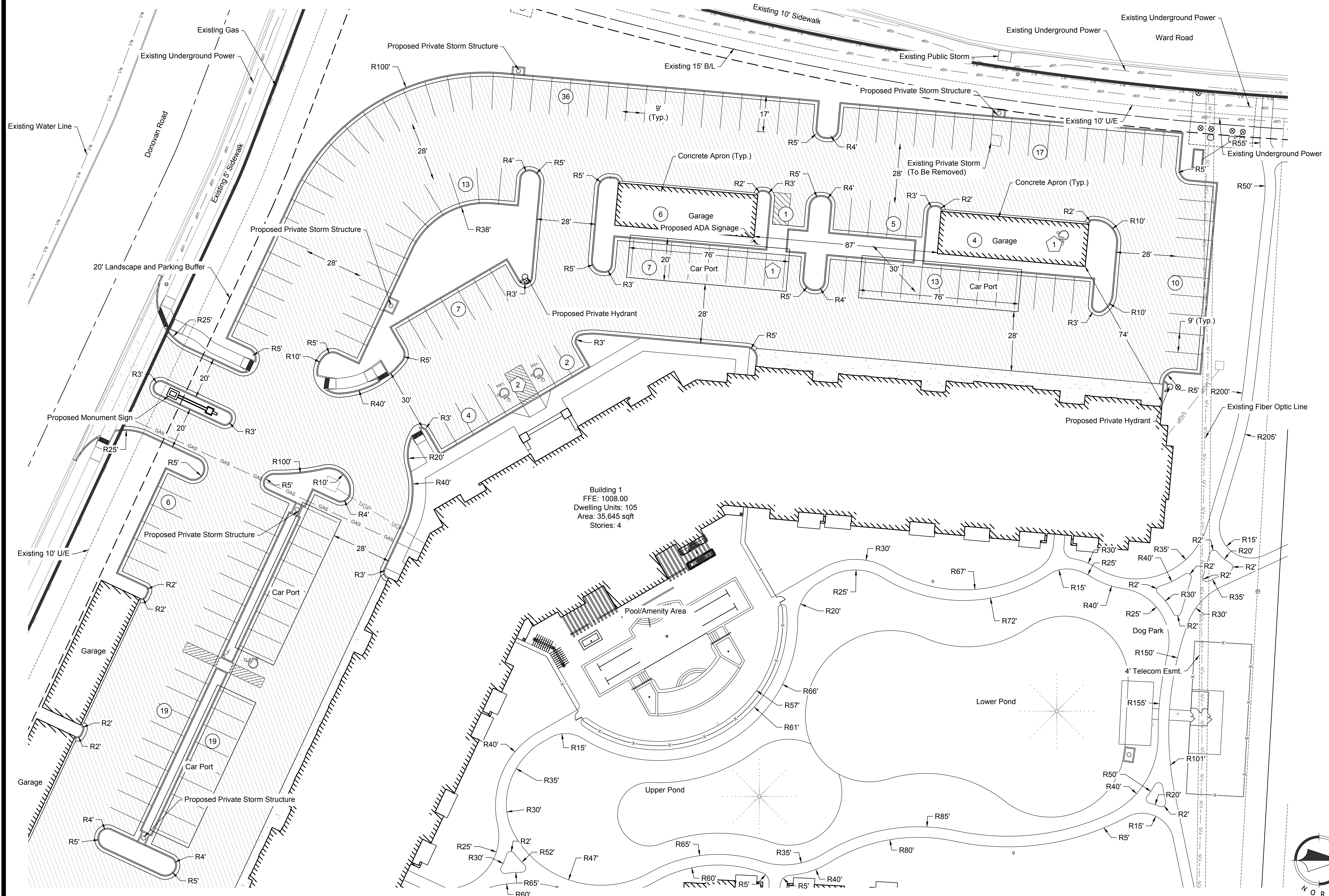
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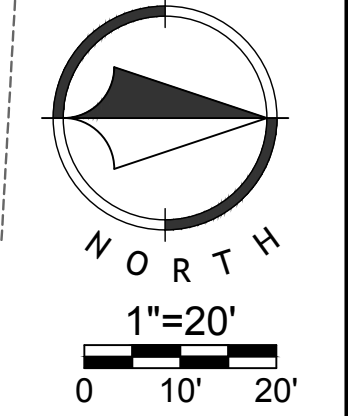
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PLASTER  
NUMBER PE-200203418  
PROFESSIONAL ENGINEER  
EXPIRES 12/31/18

MITCHELL E. BLITTER PE-200203418





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STATE OF MISSOURI  
MITCHELL E. BLUTTER  
LICENSE NO. PE-200203418  
PROFESSIONAL ENGINEER  
CIVIL

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Building 4  
FFE: 1006.00  
GFE: 988.50  
Dwelling Units: 59  
Area: 16,100 sqft  
Stories: 4/5 Split

Building 5  
FFE: 995.25  
GFE: 988.50  
Dwelling Units: 60  
Area: 18,653 sqft  
Stories: 4

Building 3  
FFE: 1009.25  
GFE: 999.50  
Dwelling Units: 51  
Area: 14,358 sqft  
Stories: 4

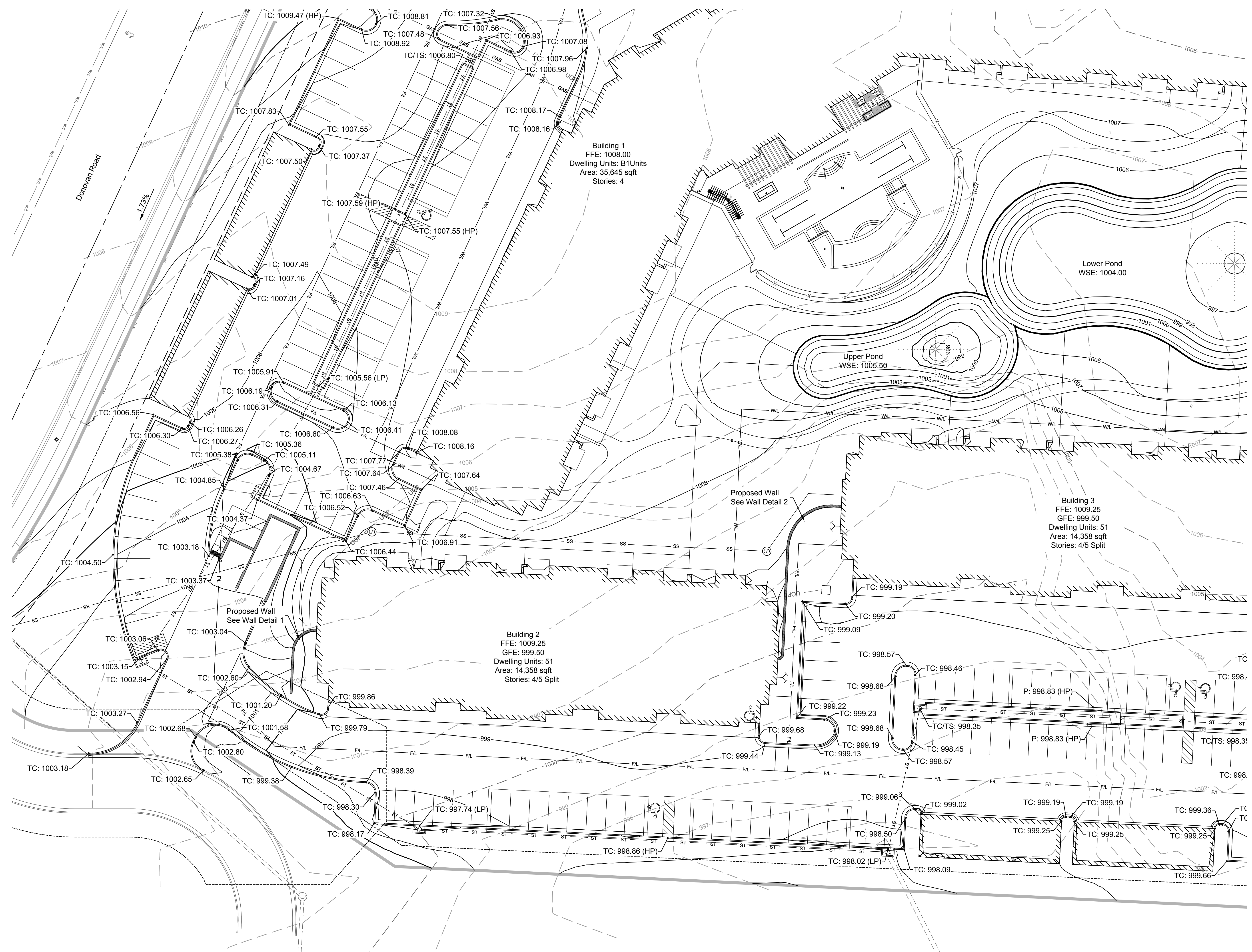
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6th DISTRICT  
MITCHELL  
E. BLITTER  
PE-200203418  
NUMBER  
PROFESSIONAL ENGINEER



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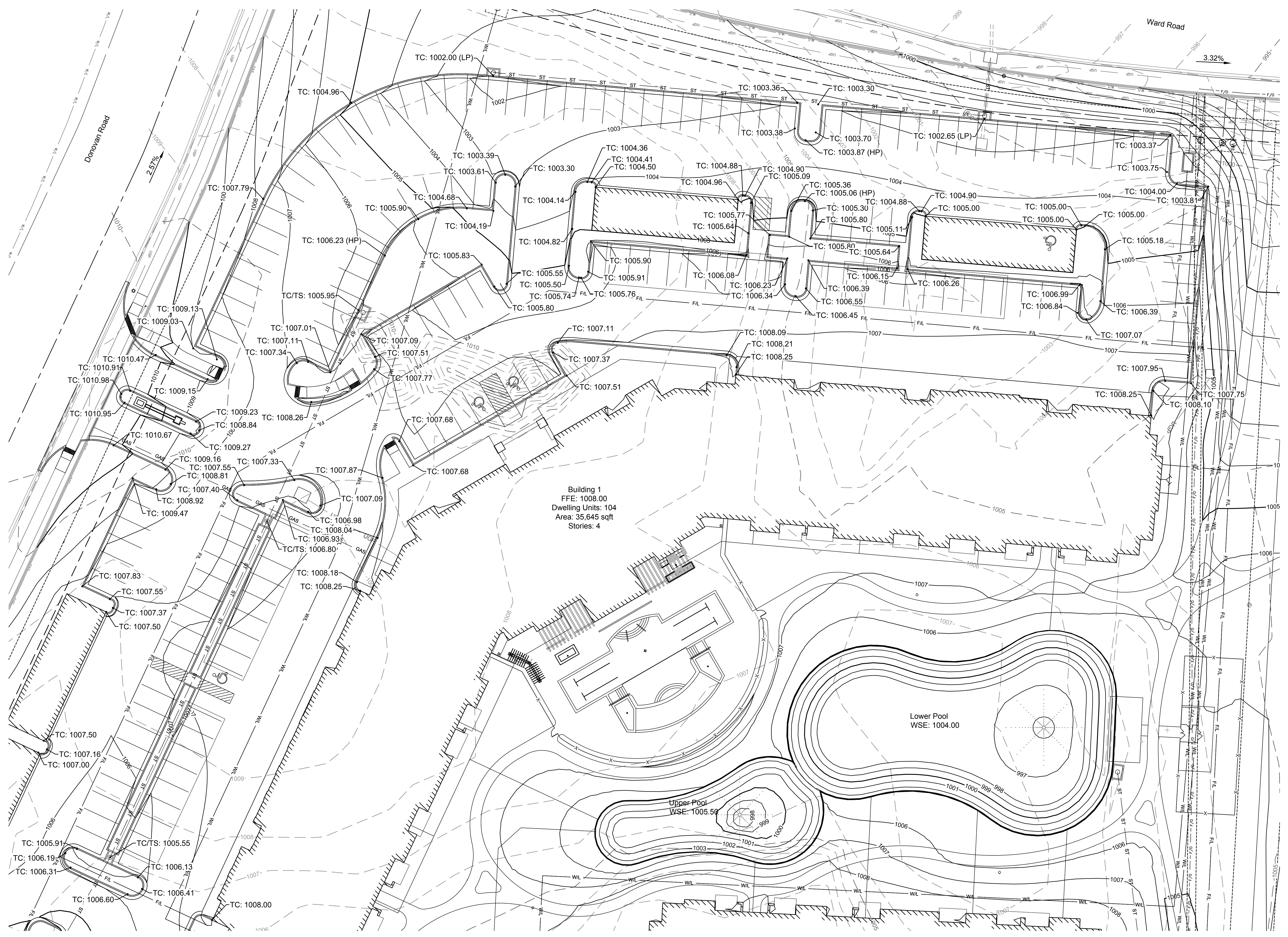
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STATE OF MISSOURI  
MICHAELE MITCHELL  
REGISTERED PROFESSIONAL ENGINEER  
NUMBER PE-200003418  
EXPIRES 12/31/2024

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REGISTERED PROFESSIONAL ENGINEER  
NUMBER PE-200203418  
EXPIRES 12/31/2018

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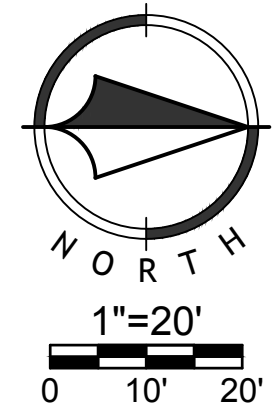
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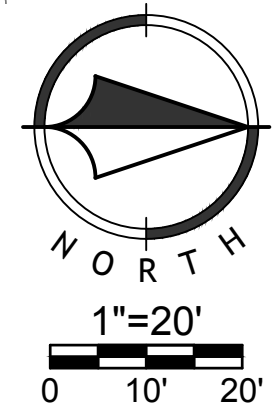




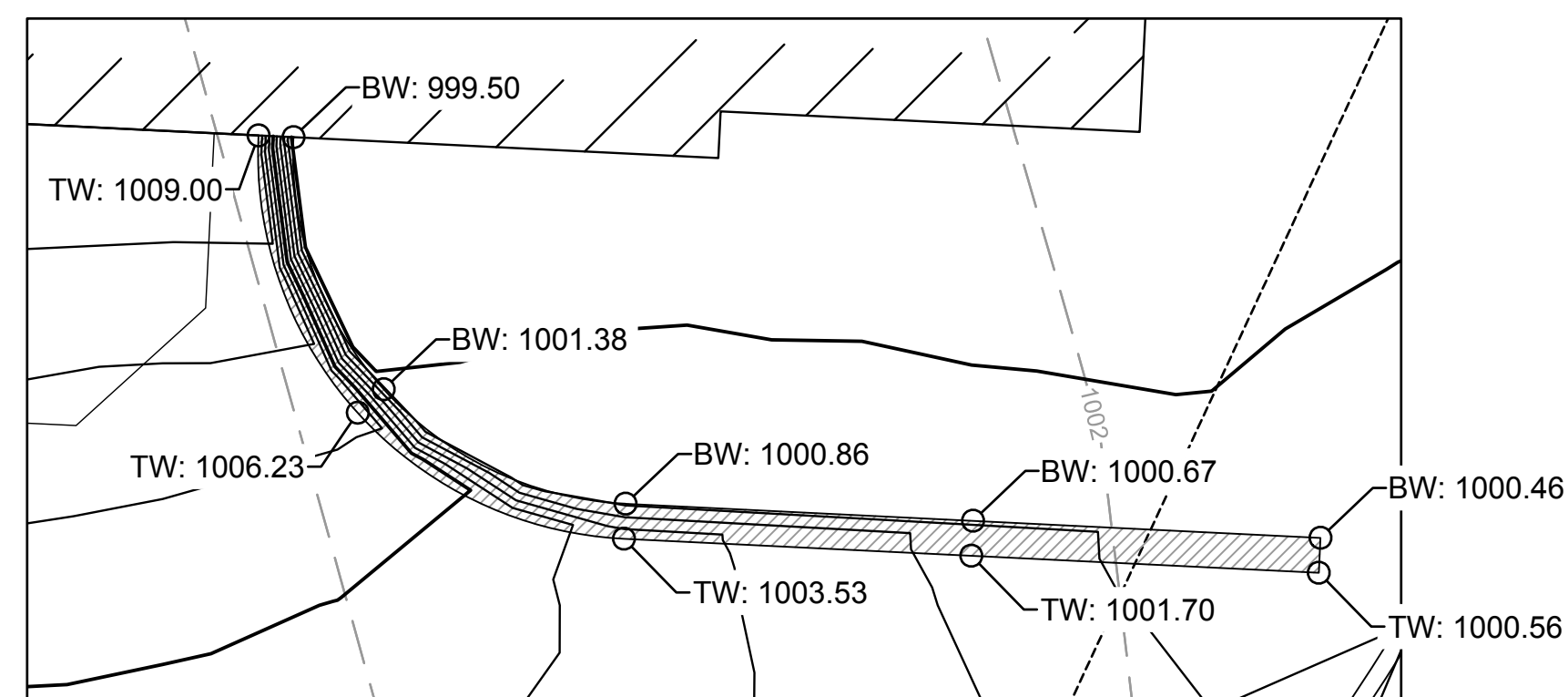
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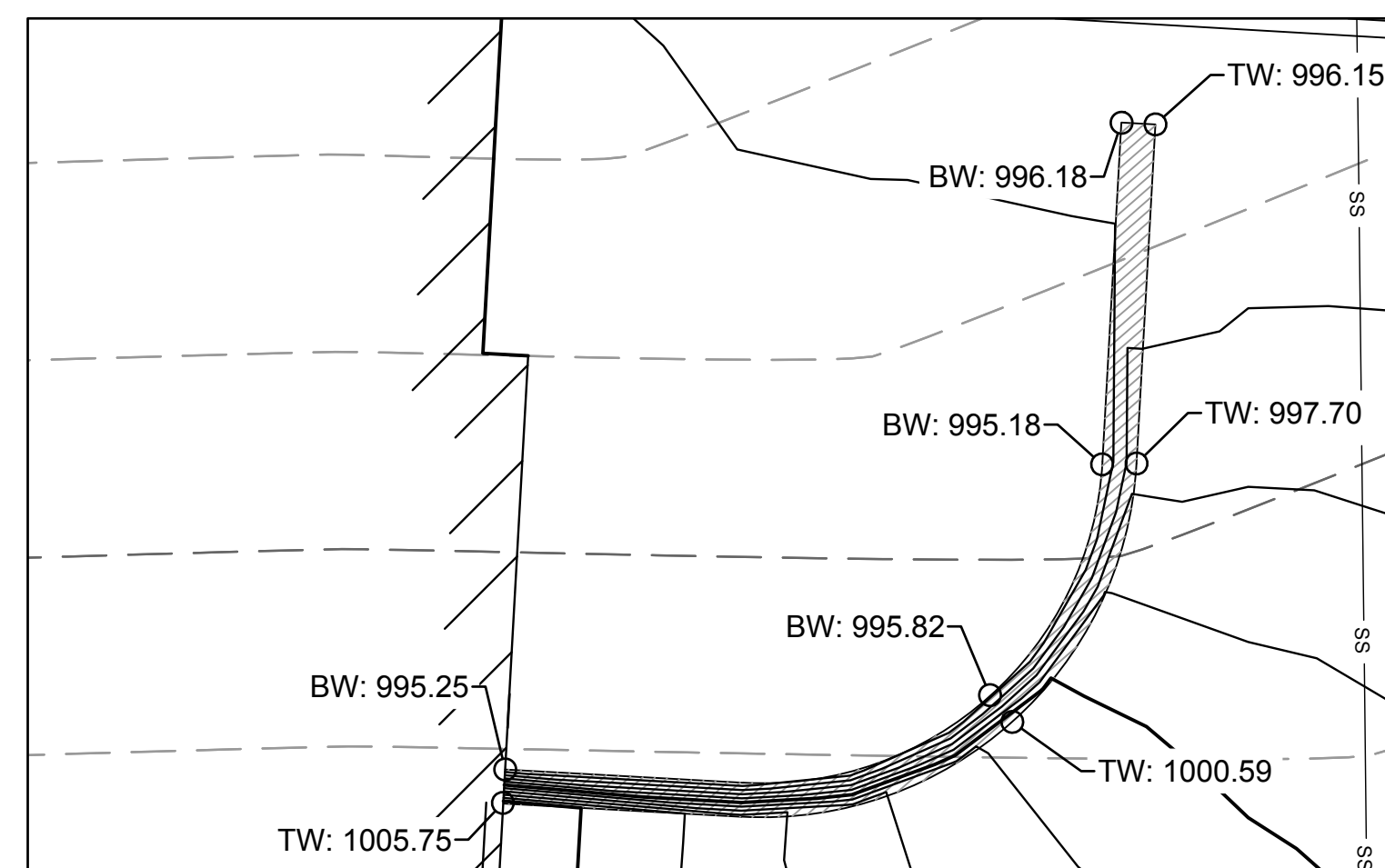
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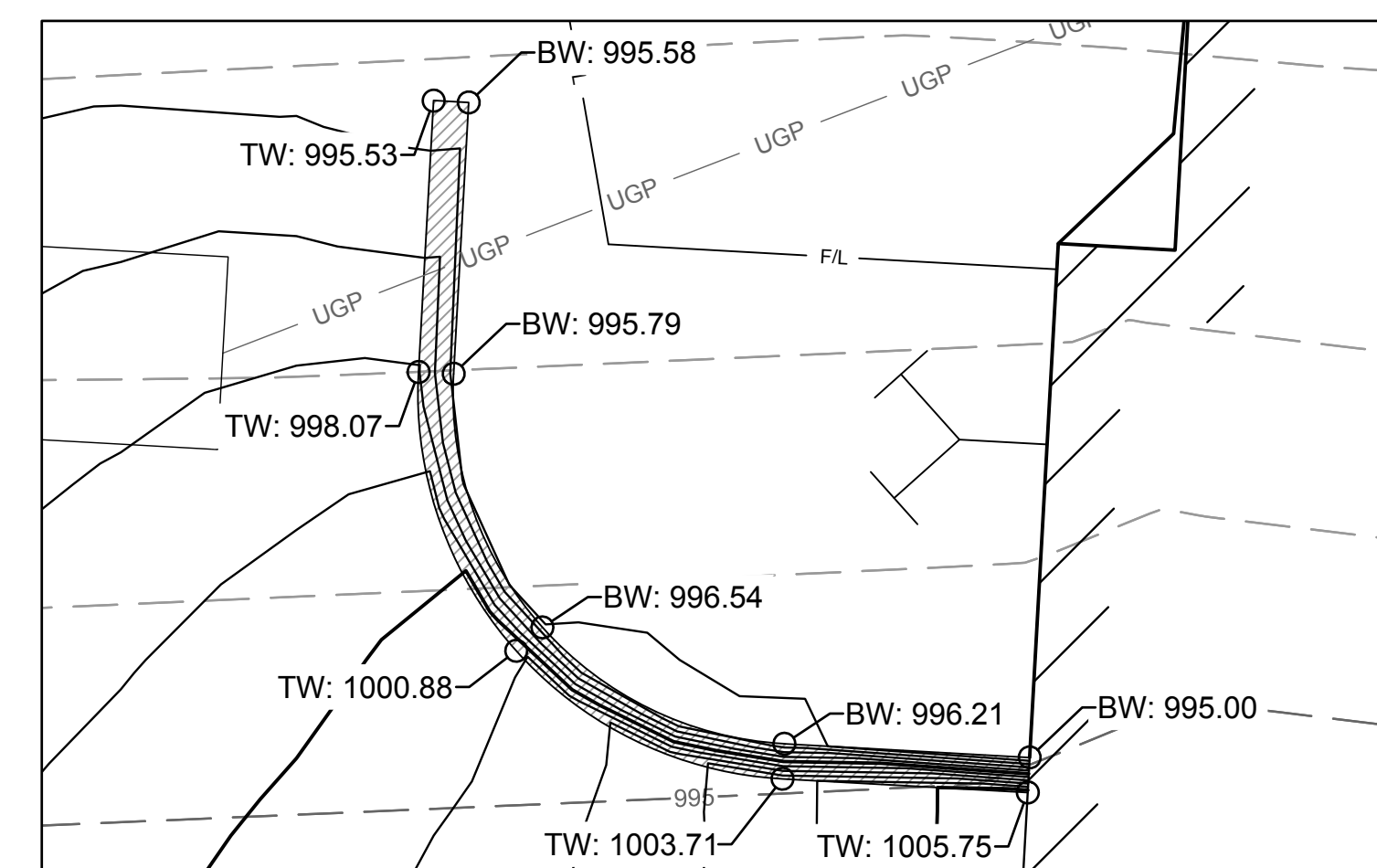
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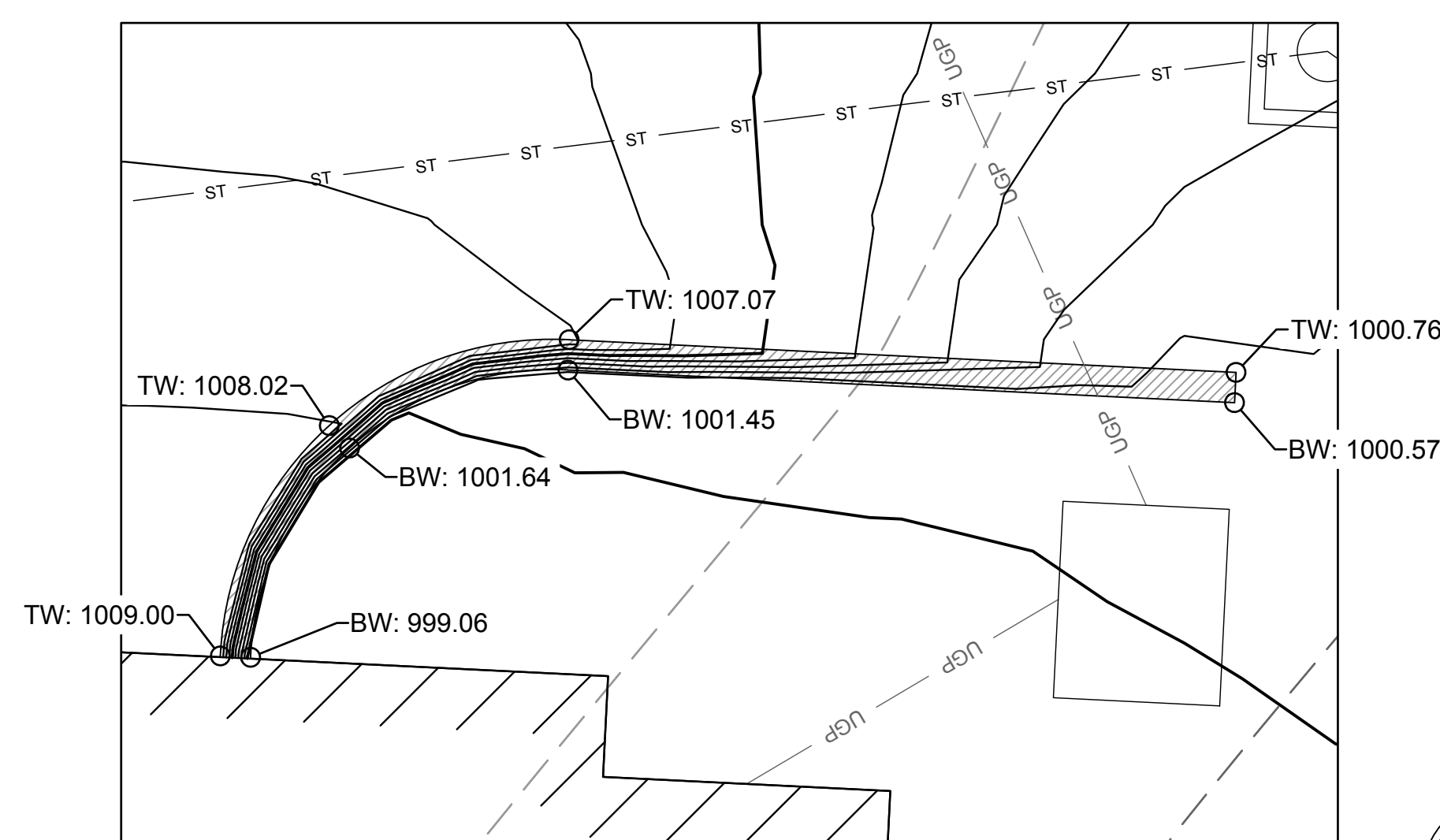
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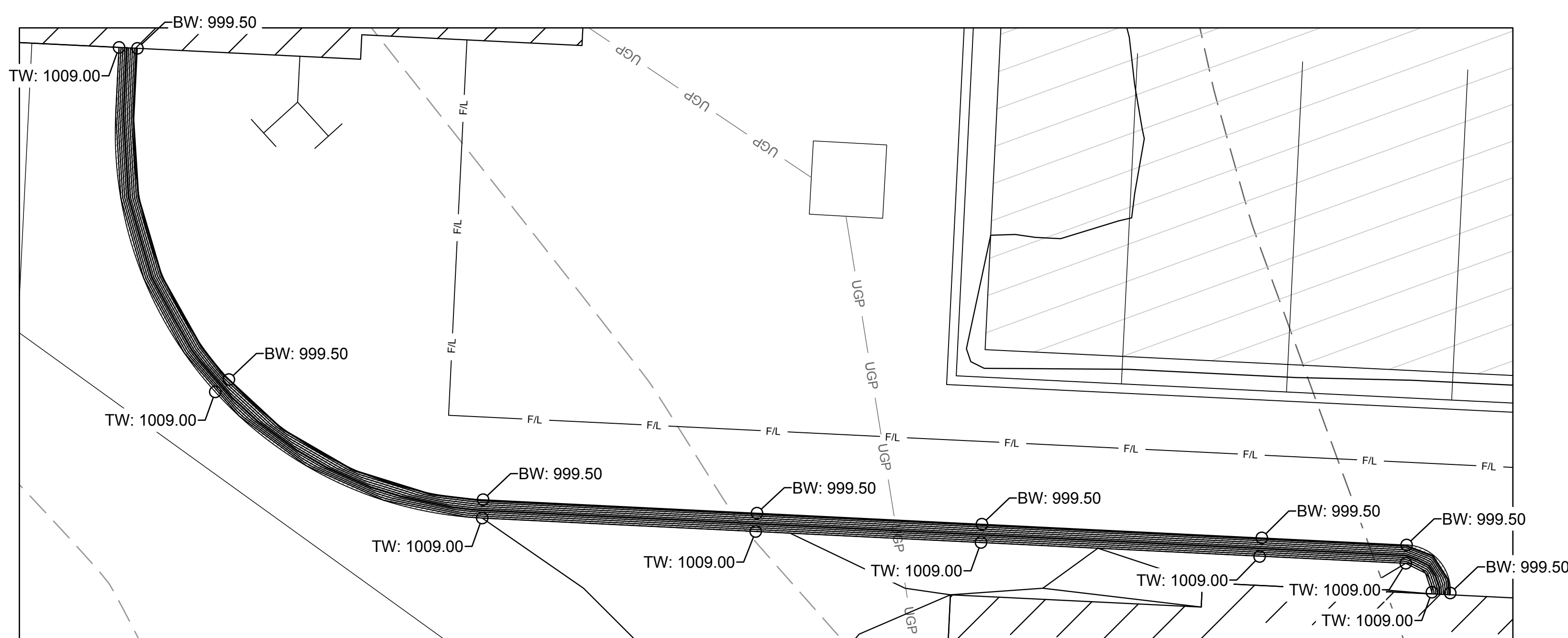
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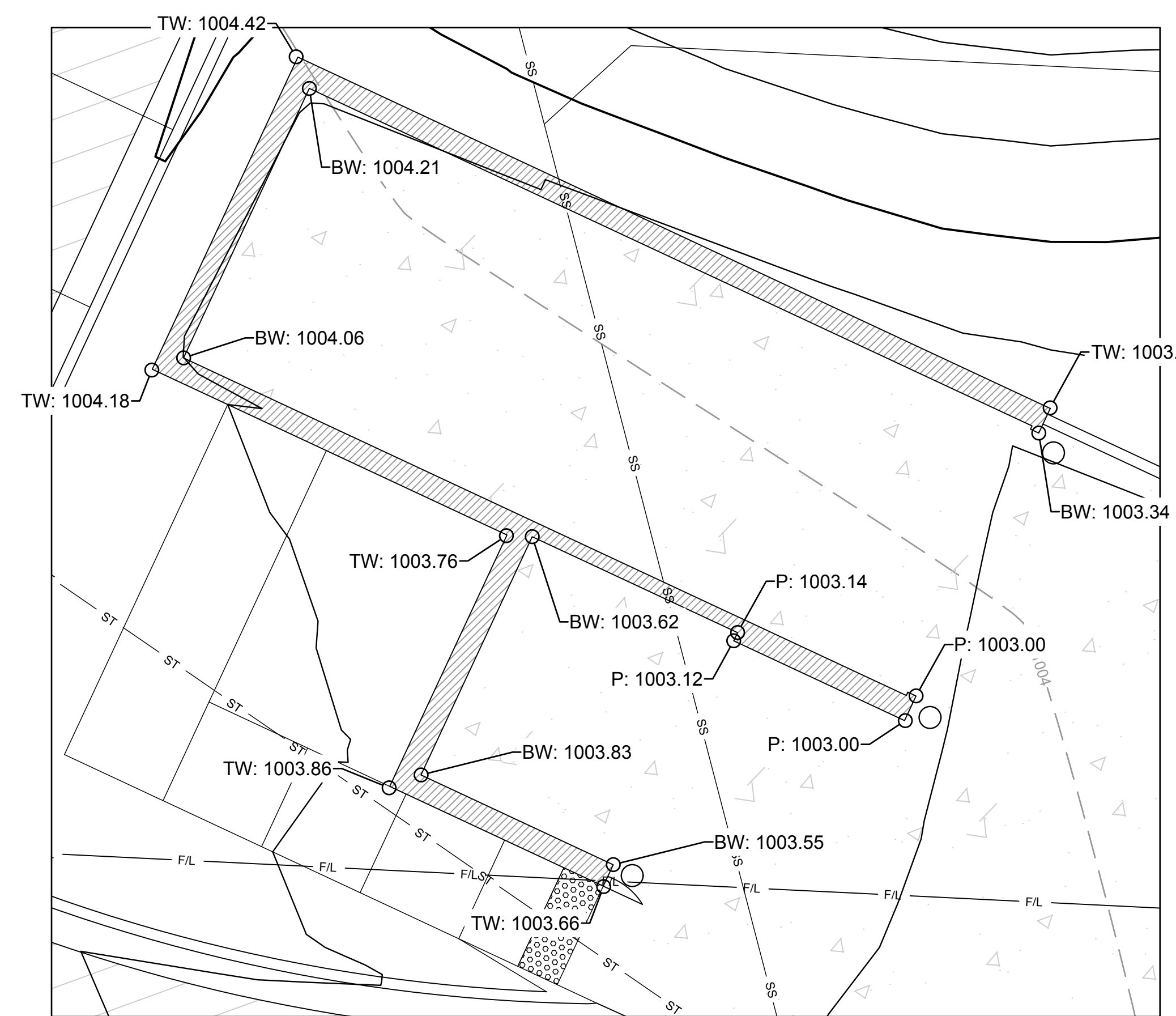
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Retaining Wall Detail 5  
Scale: 1" = 5'



Retaining Wall Detail 2  
Scale: 1" = 5'



Retaining Wall Detail 6  
Scale: 1" = 5'

Note:  
All retaining walls shown shall be 8" modular block walls, buff color.  
Modular Block Walls shall be designed by a design professional licensed  
in the State of Missouri, and approved by the City of Lee's Summit.

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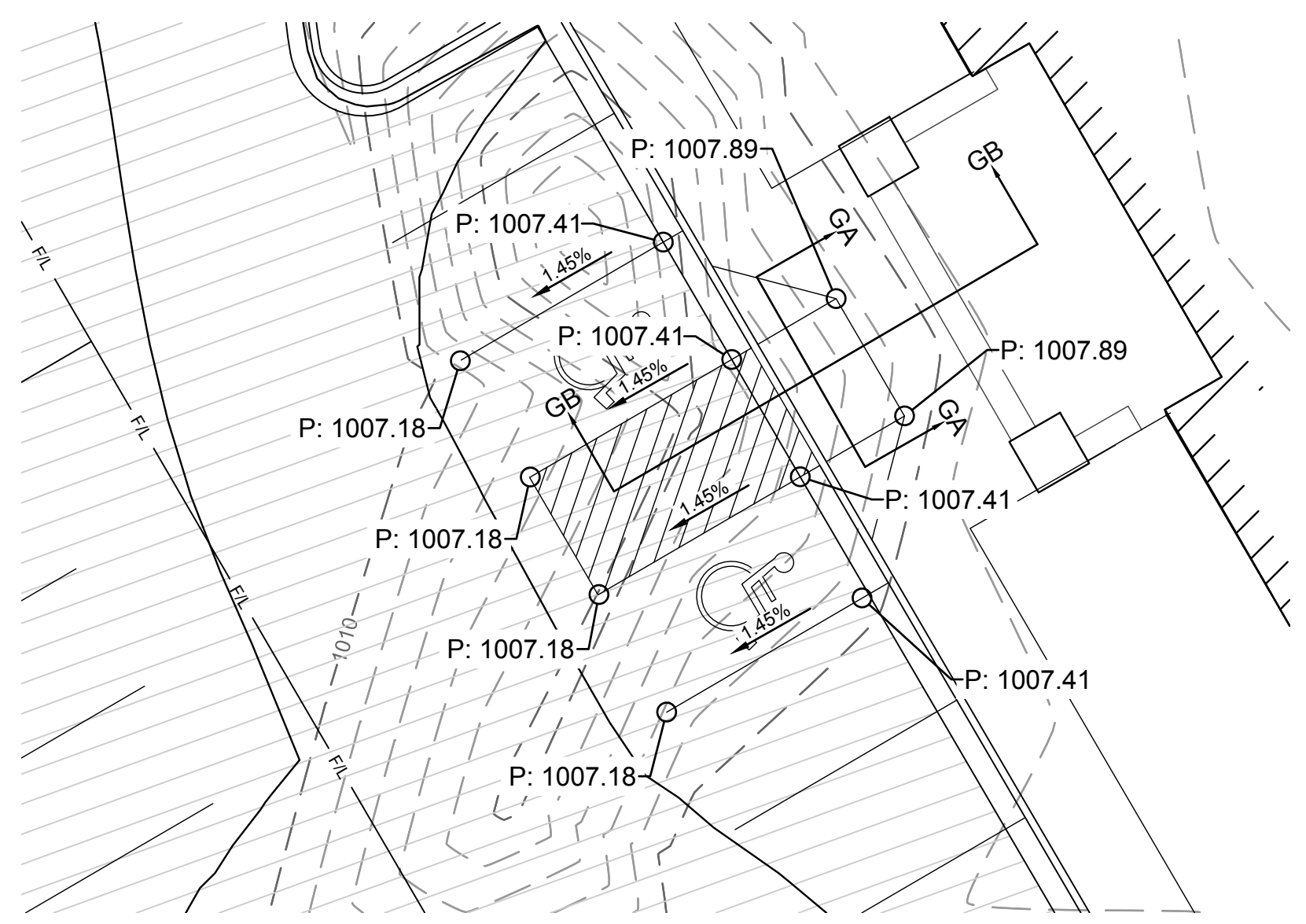
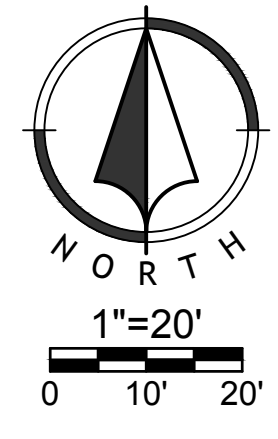
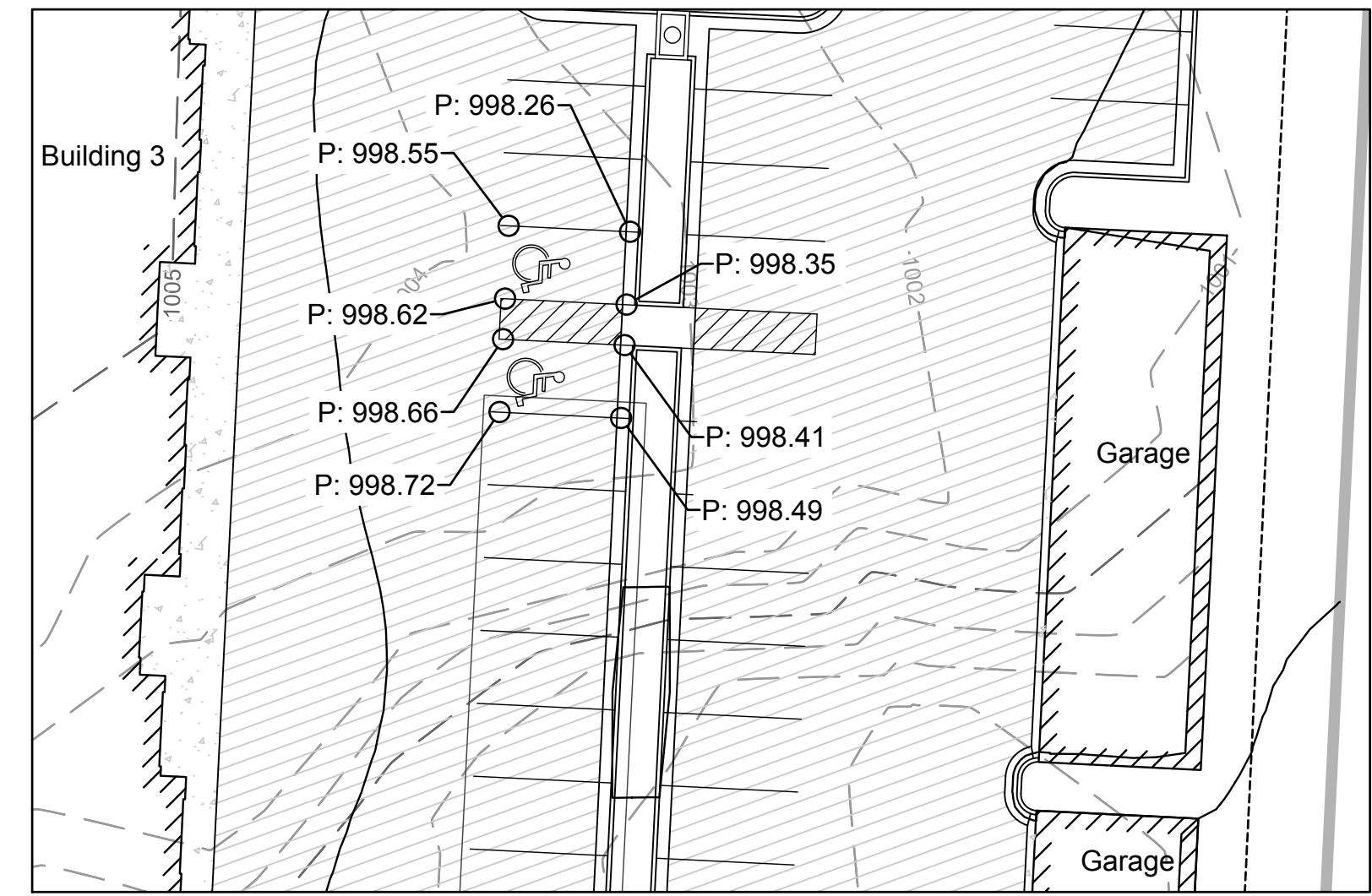
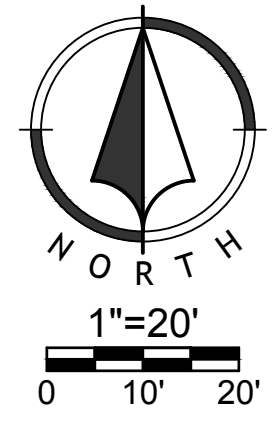
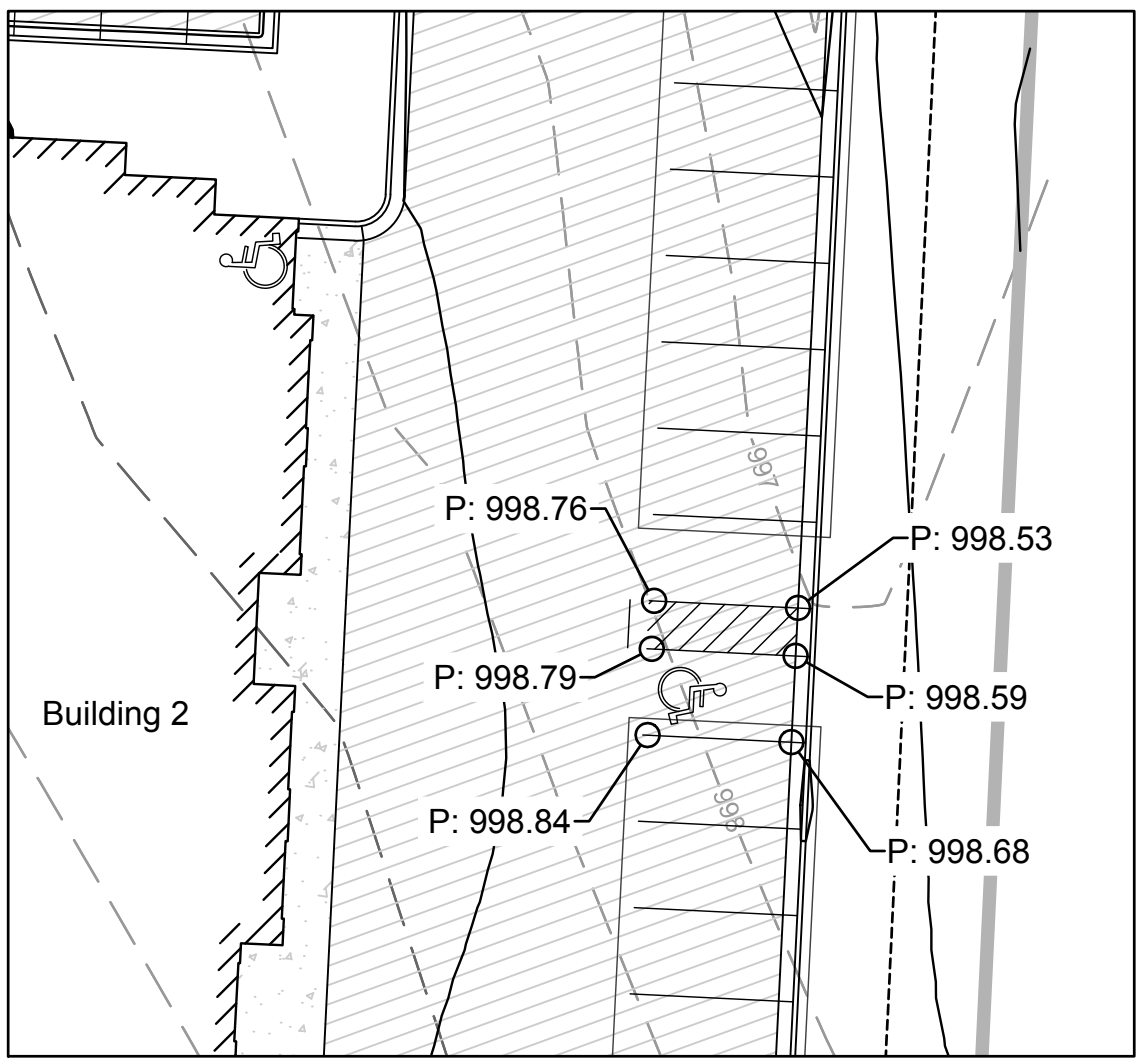
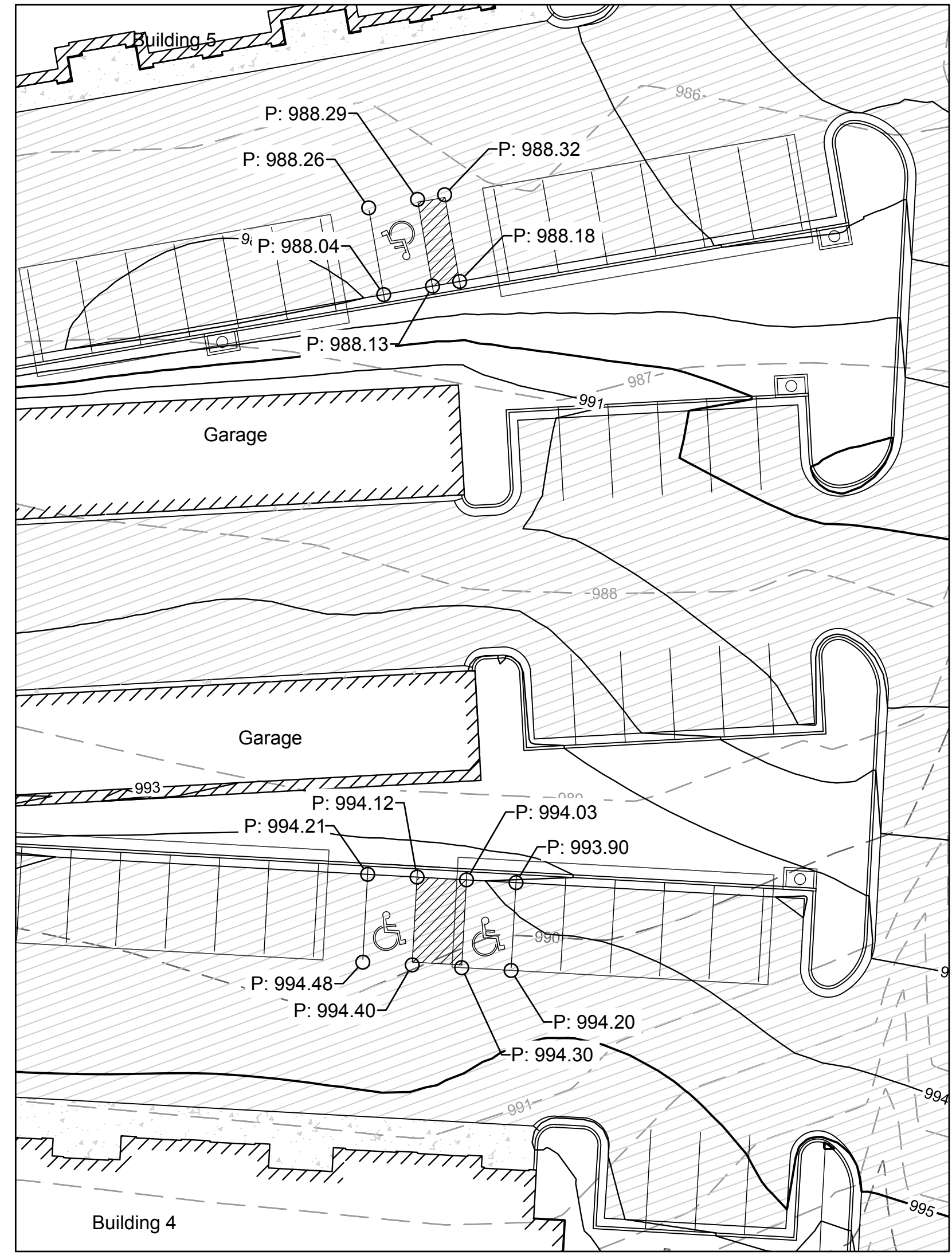
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3	APT MES	06/19/18	50% Sht
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1	APT MES	04/19/18	ORIGINAL SUBMITTAL

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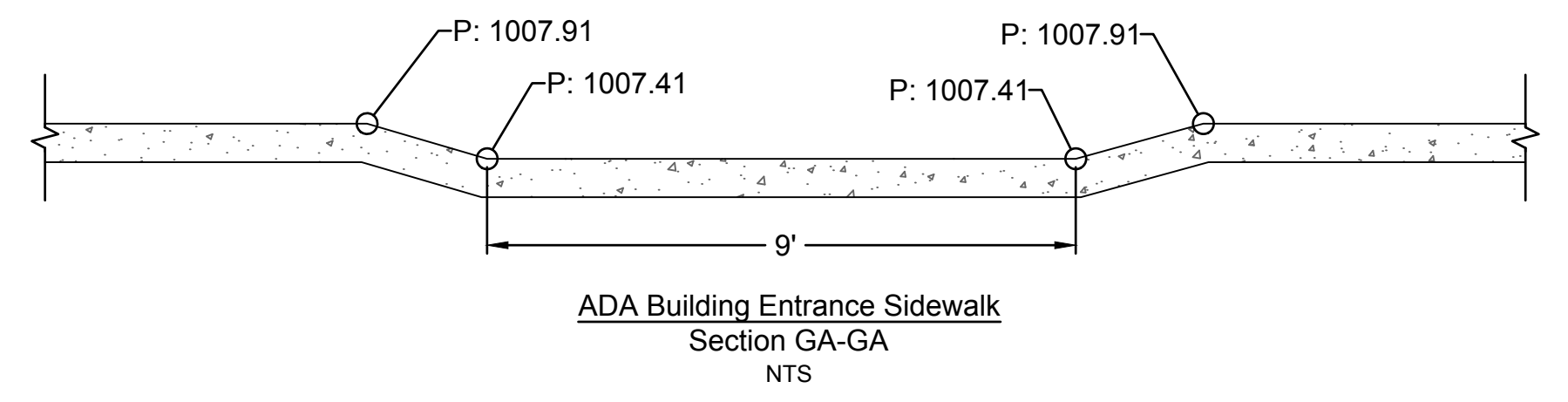
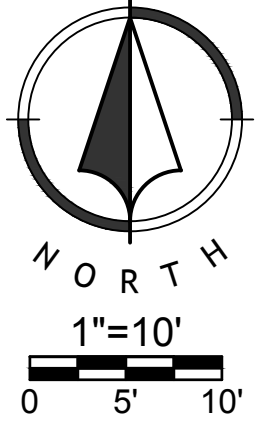
815 MCCREE STREET, SUITE 200  
KANSAS CITY, MISSOURI 64108  
816.800.0950  
WWW.RIC-CONSULT.COM

MISSOURI CERTIFICATE OF AUTHORITY NO. 2010033630

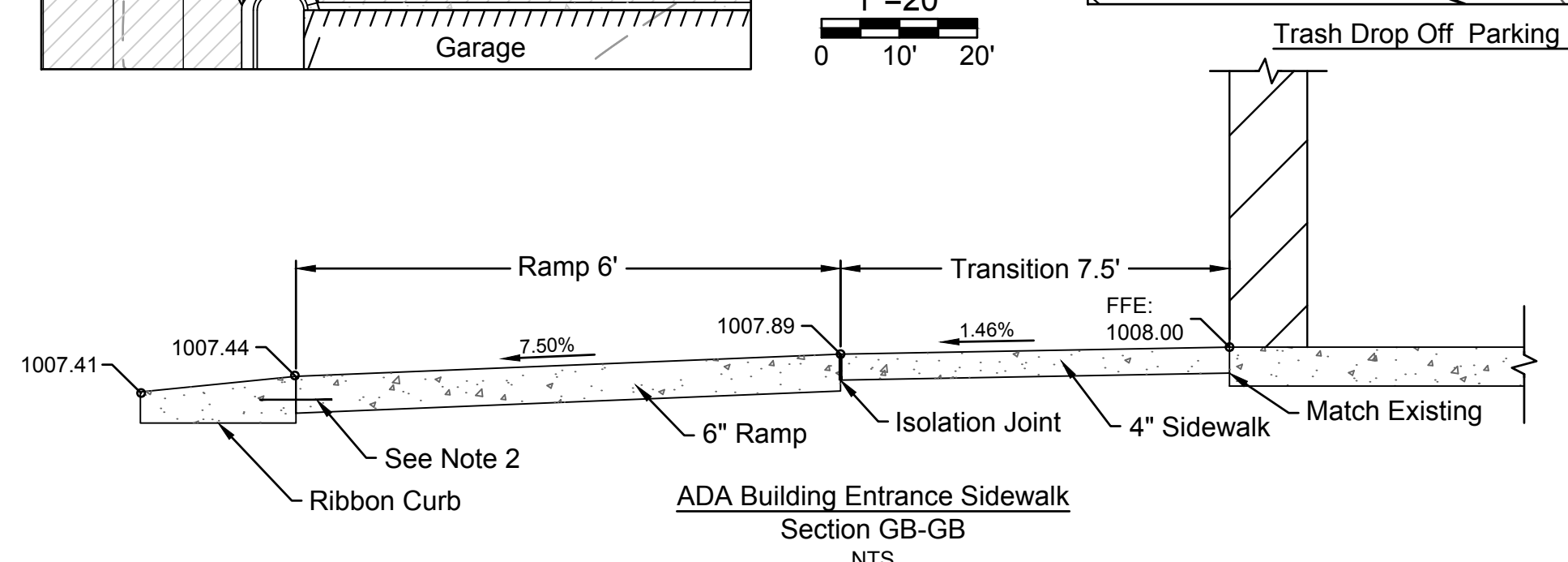
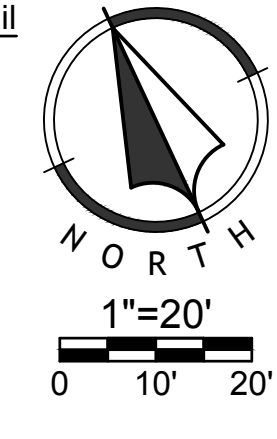
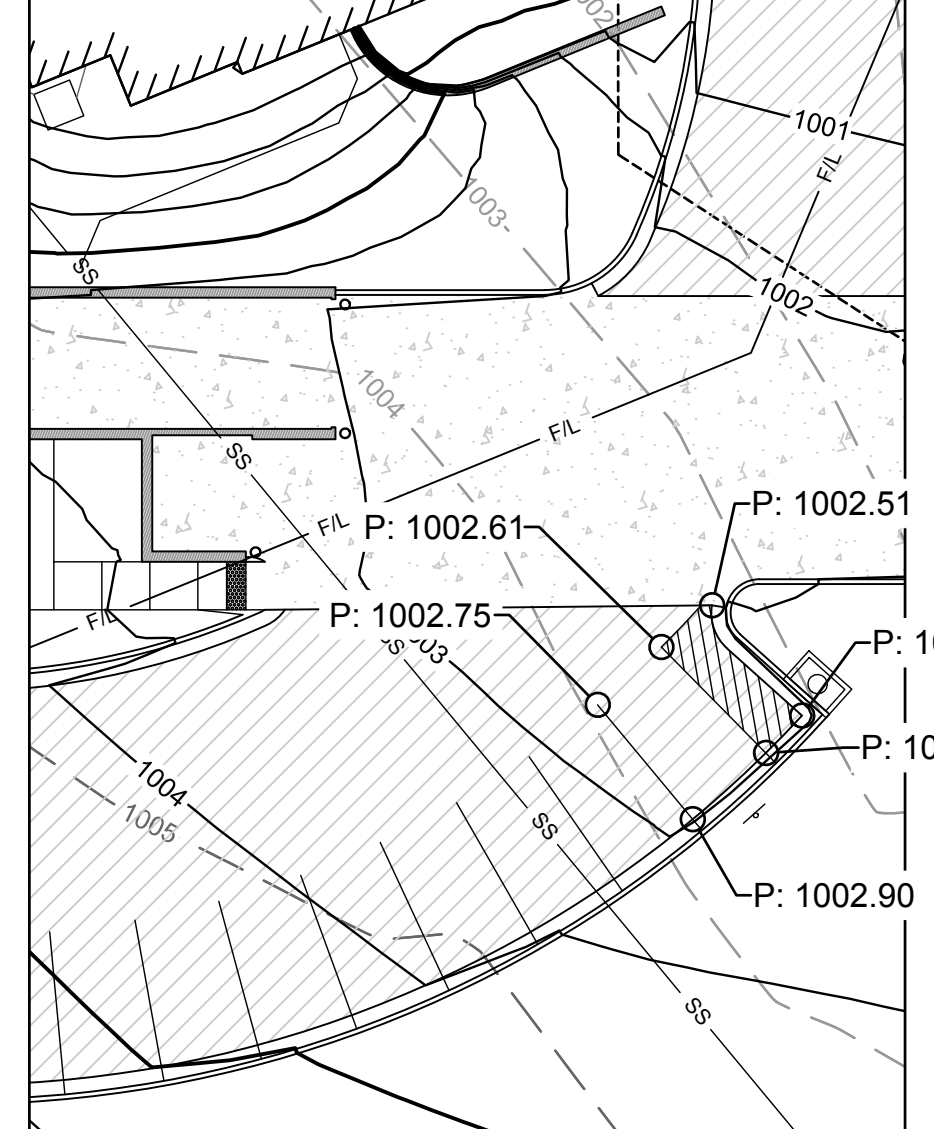
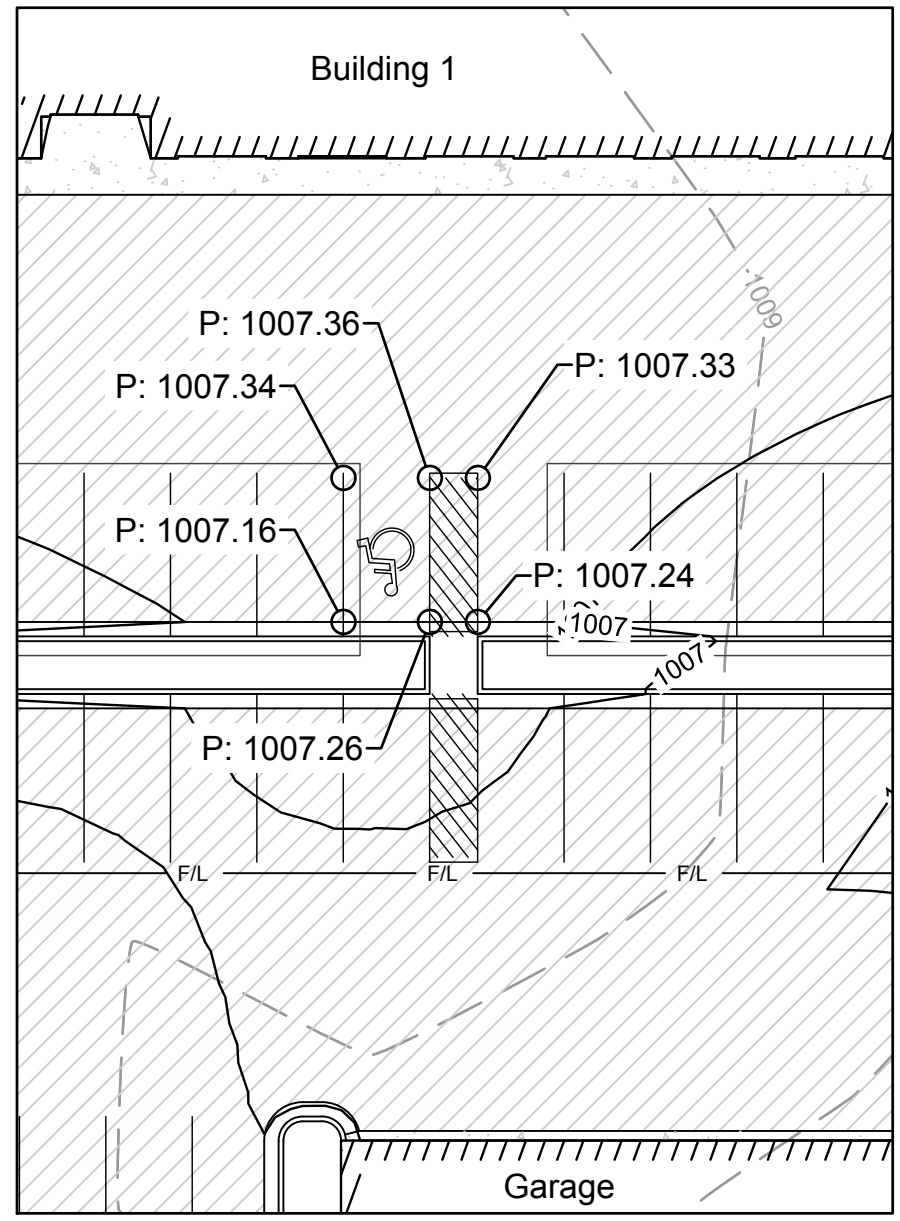
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ENGINEER  
MITCHELL E. SLUTTER  
NUMBER  
PE-00003418  
EXPIRES  
06/30/2018



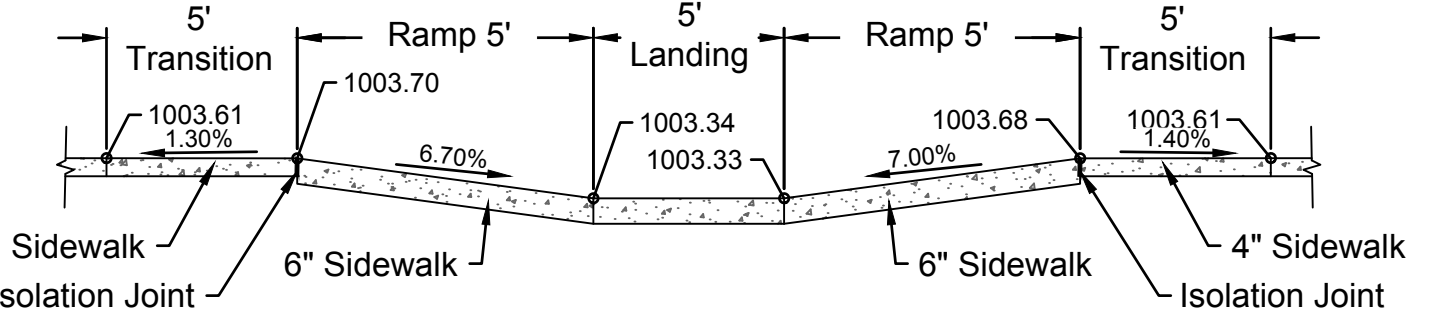
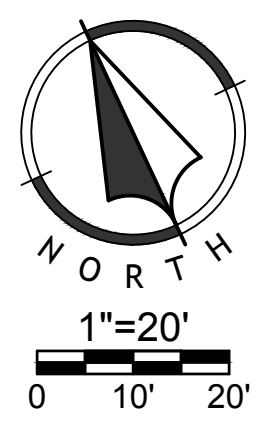
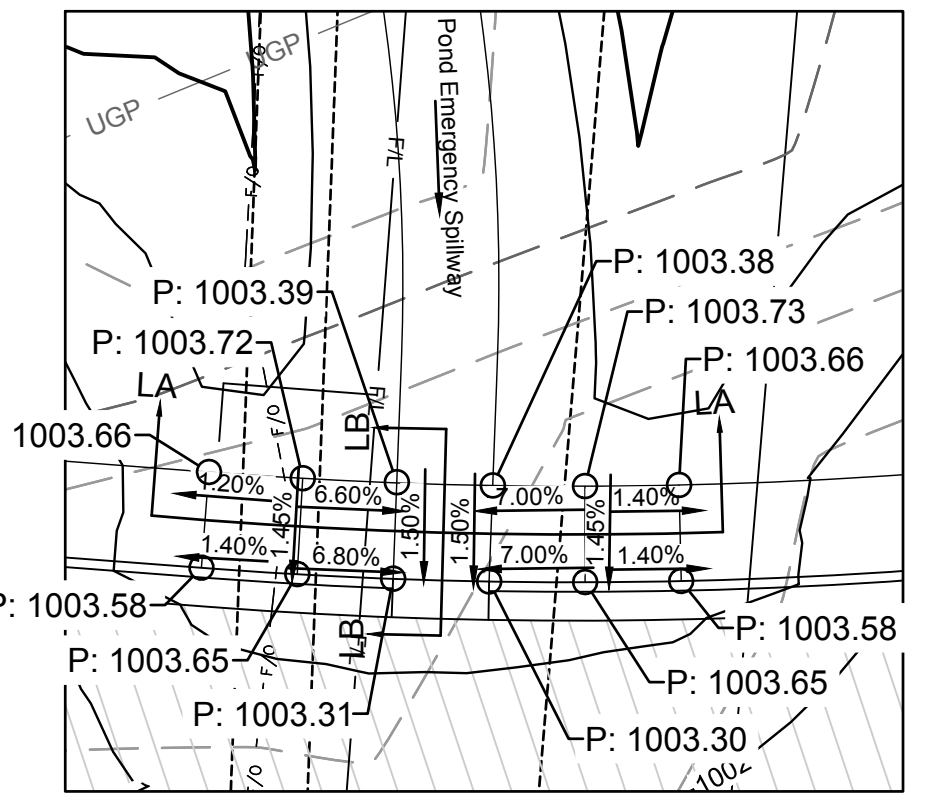
ADA Building Entrance Sidewalk  
Scale: 1"=10'



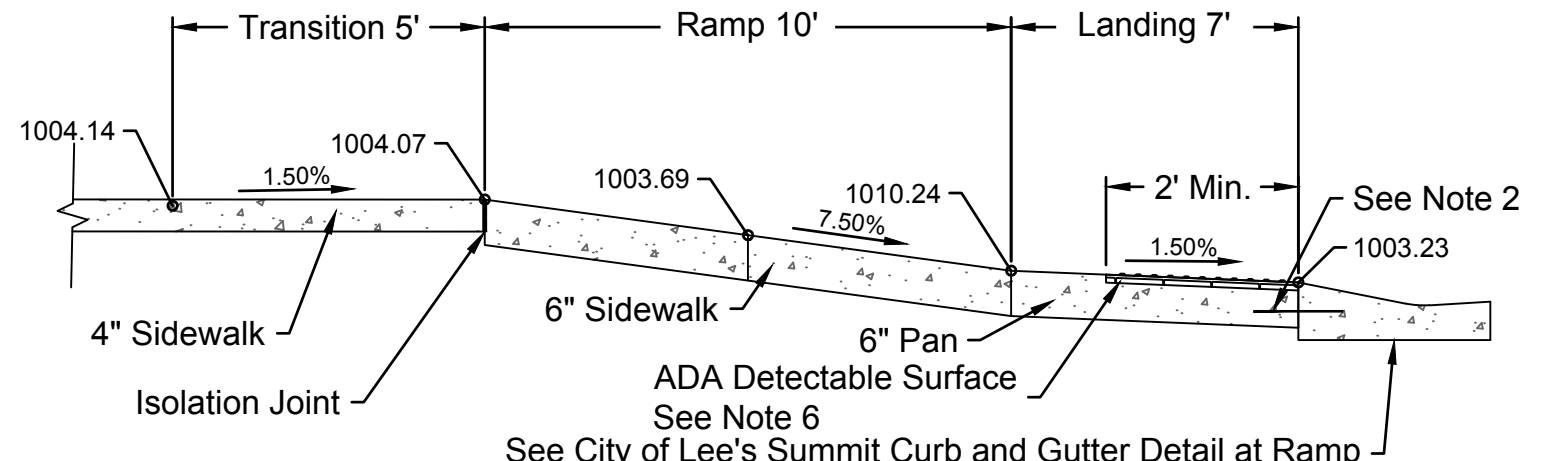
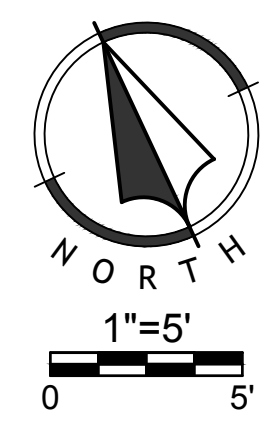
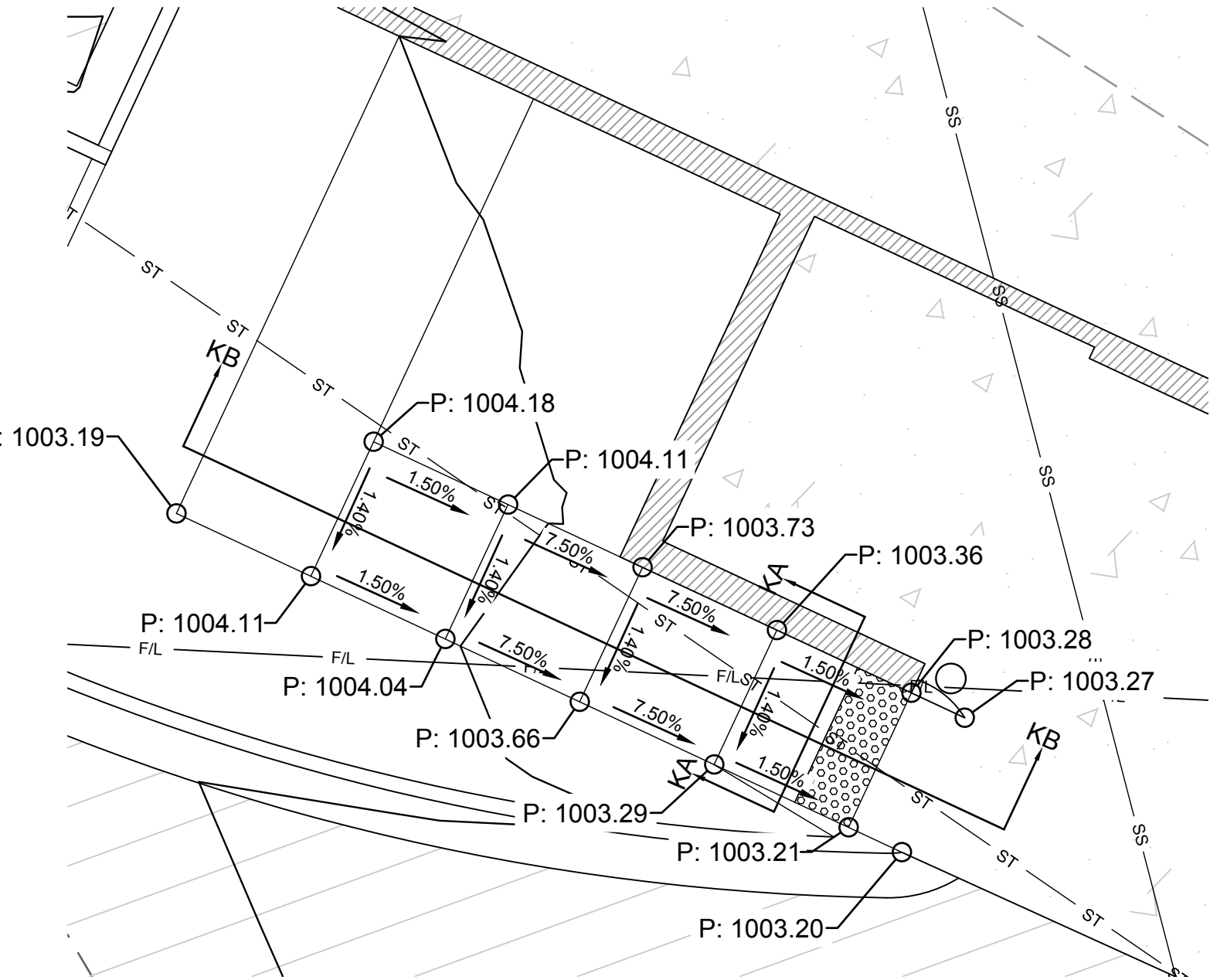
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Section GA-GA  
NTS



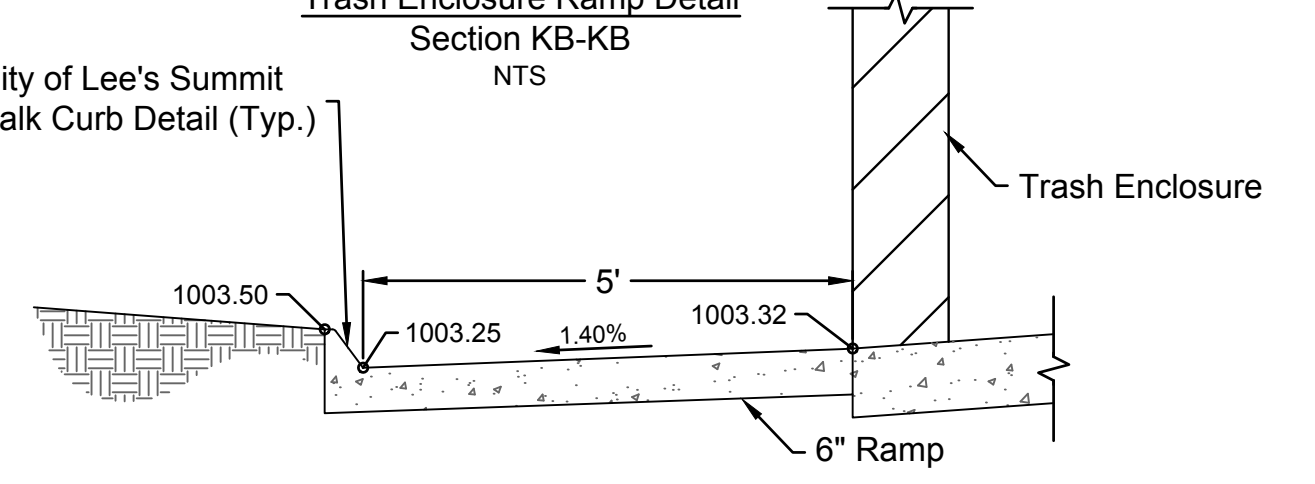
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Section GB-GB  
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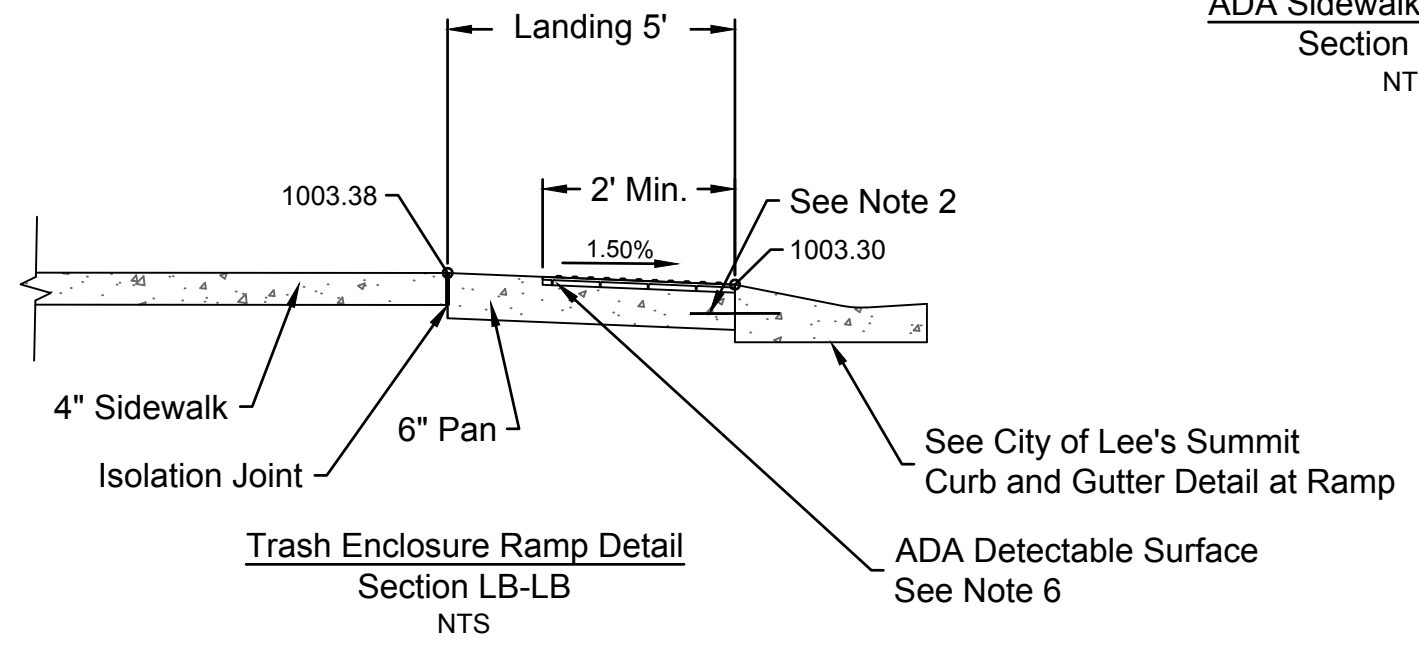
Trash Enclosure Ramp Detail  
Section LA-LA  
NTS



ADA Detectable Surface  
Section KB-KB  
NTS



Trash Enclosure Ramp Detail  
Section KB-KB  
NTS



ADA Sidewalk South Detail  
Section EA-EA  
NTS

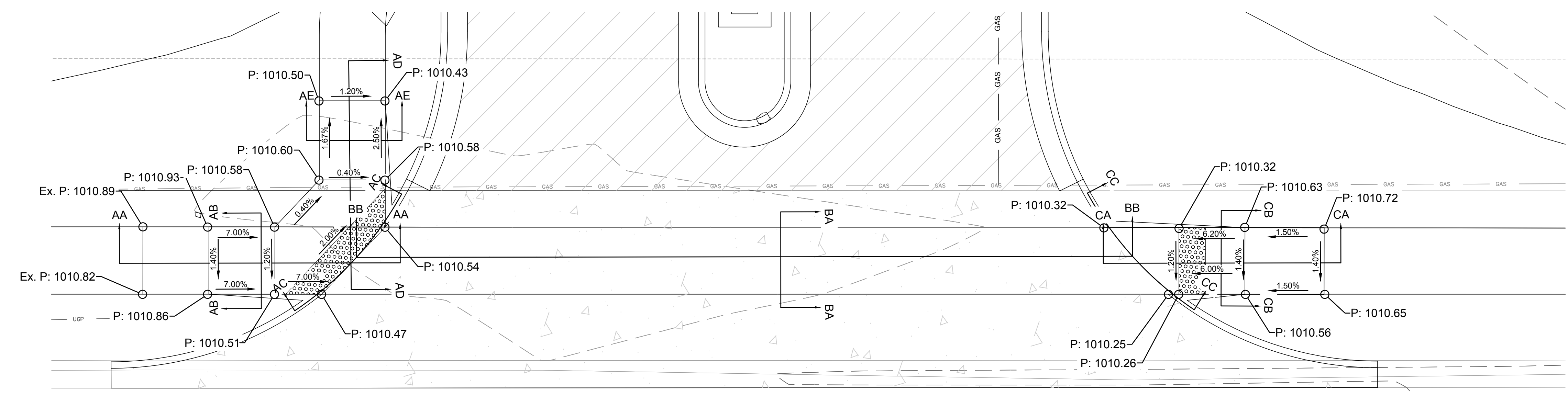
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1815 MCGEE STREET, SUITE 200  
KANSAS CITY, MISSOURI 64108  
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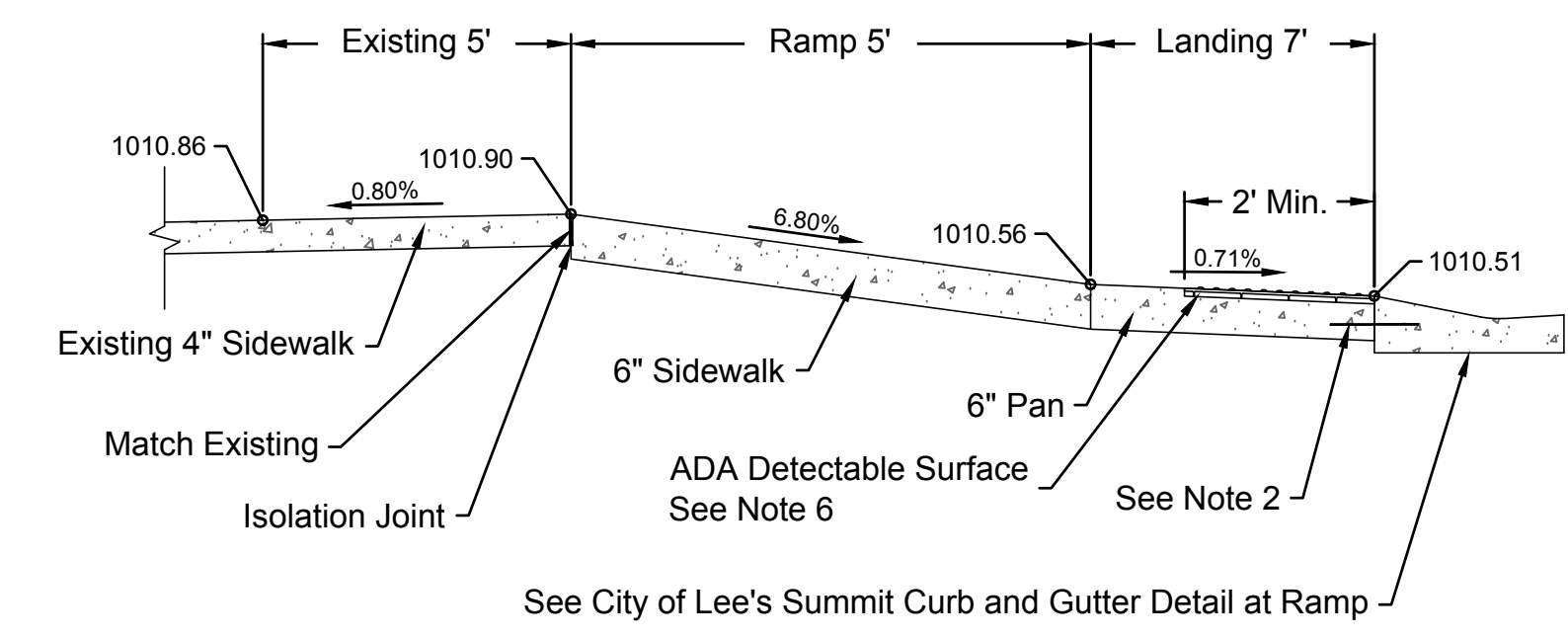
MISSOURI CERTIFICATE OF AUTHORITY NO. 200033630

STATE OF MISSOURI  
PLANNING COMMISSION  
MITCHELL E. SLUTTER  
NUMBER PE-2002003418  
EXPIRES 12/31/2020

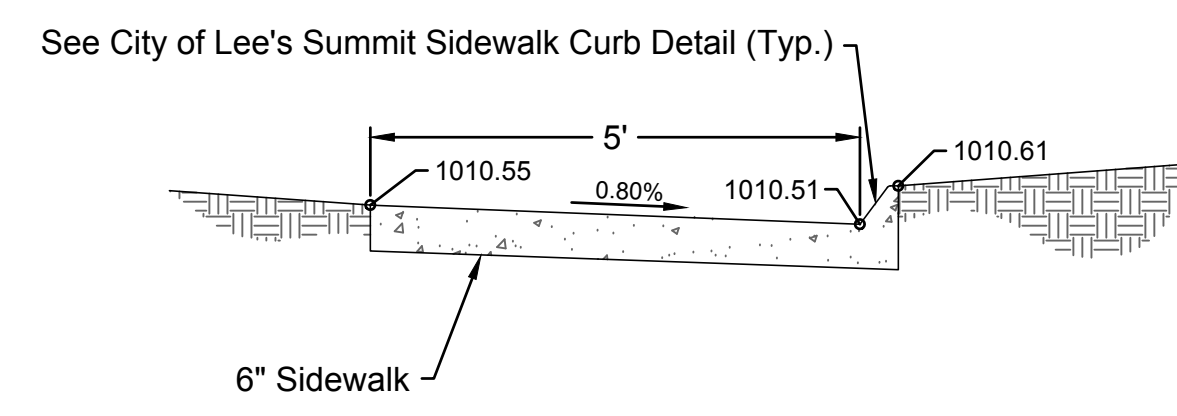
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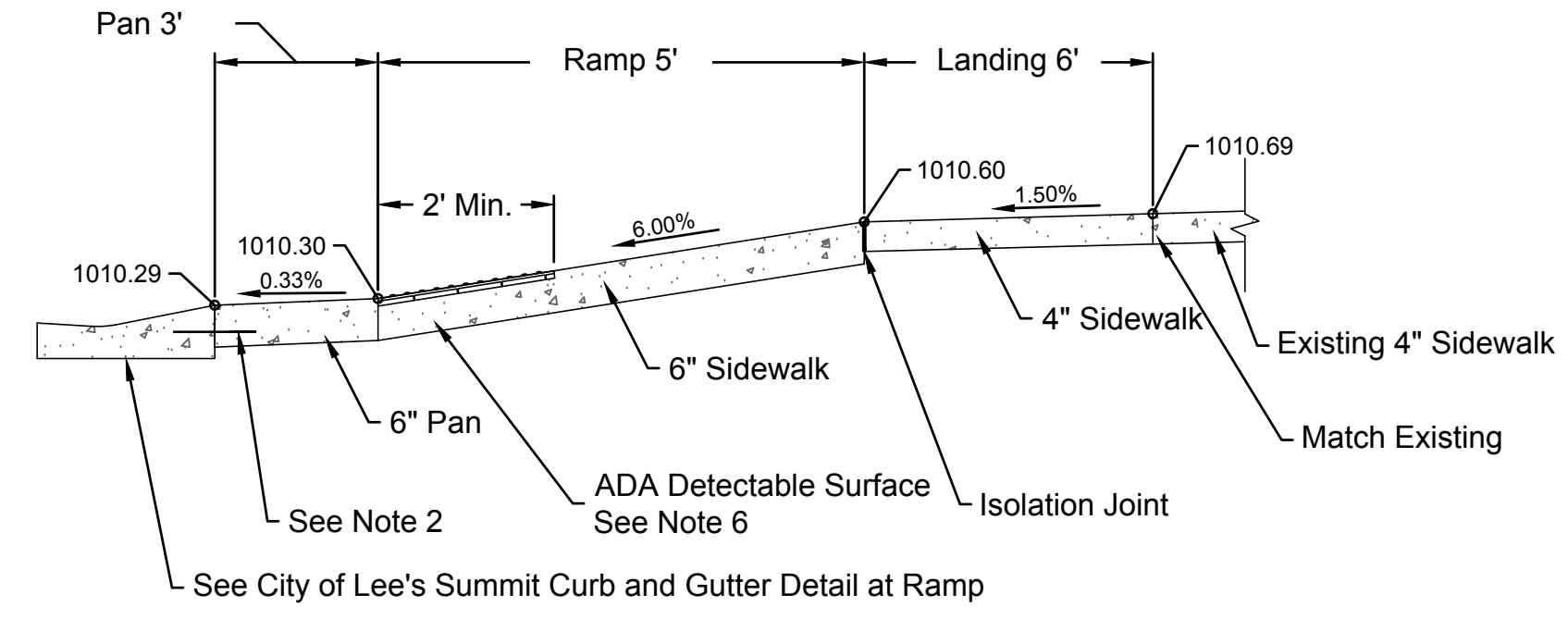
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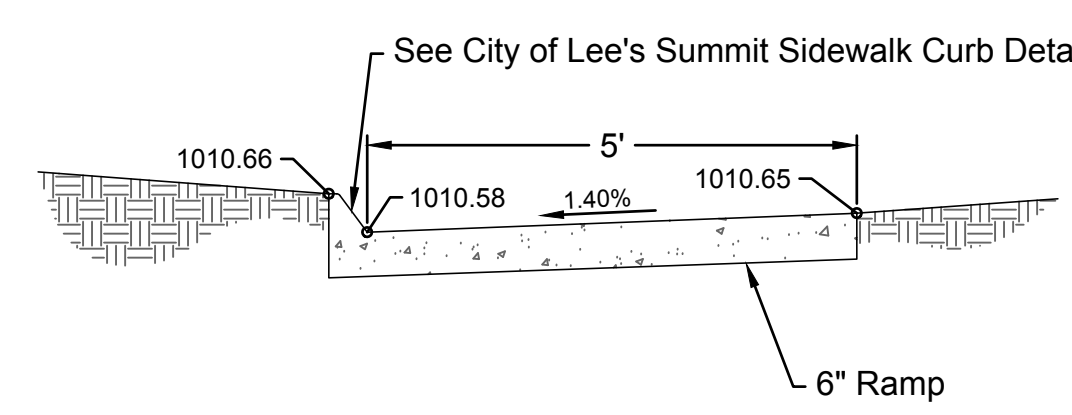
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Section AA-AA  
NTS



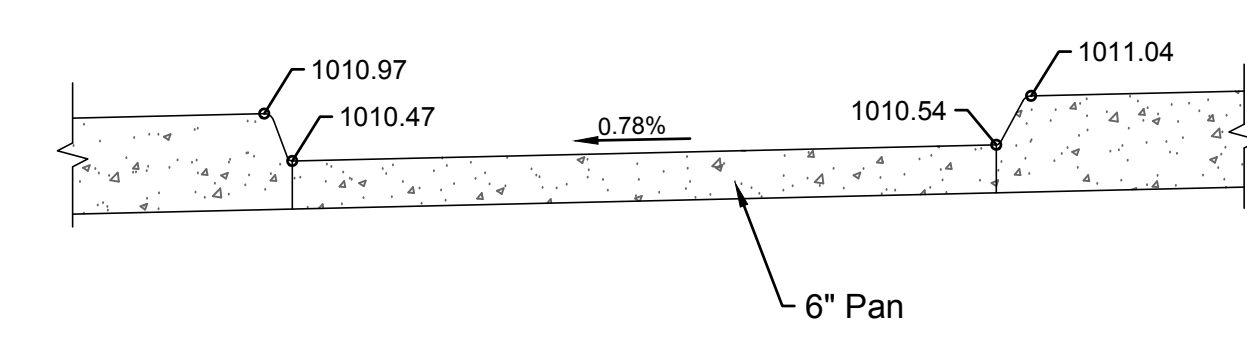
ADA Sidewalk South Detail  
Section AE-AE  
NTS



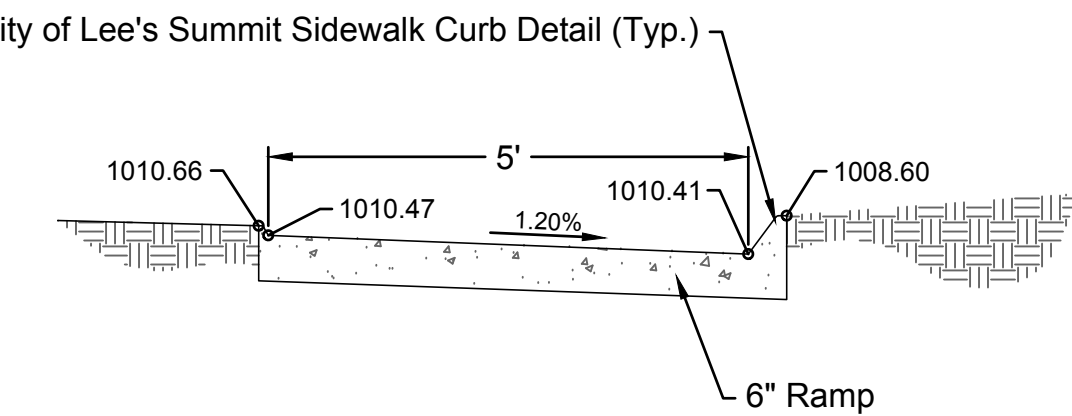
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Section CA-CA  
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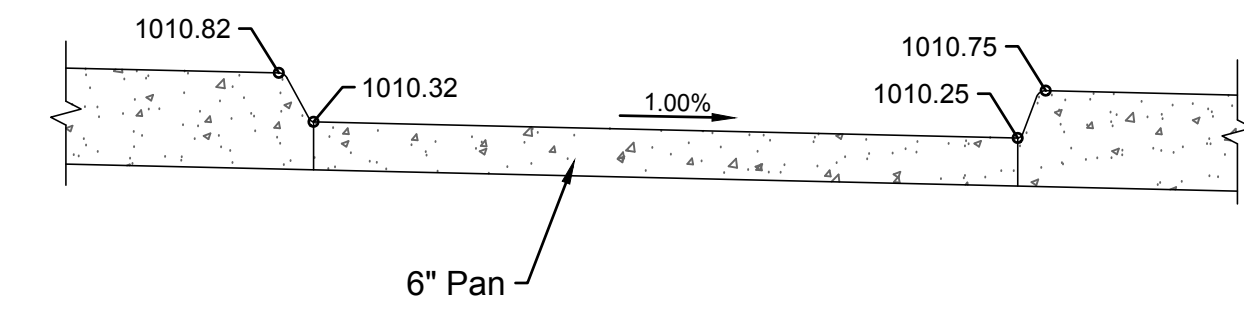
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Section AB-AB  
NTS



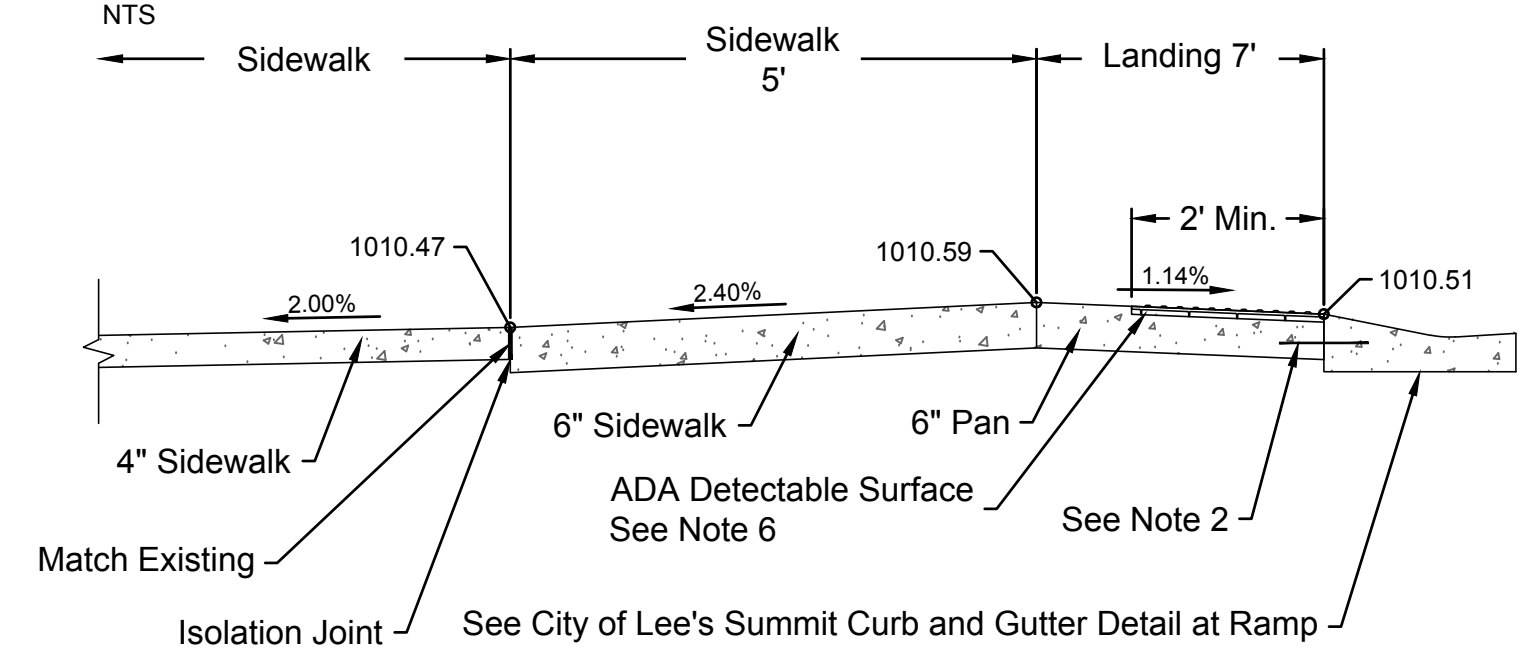
ADA Sidewalk South Detail  
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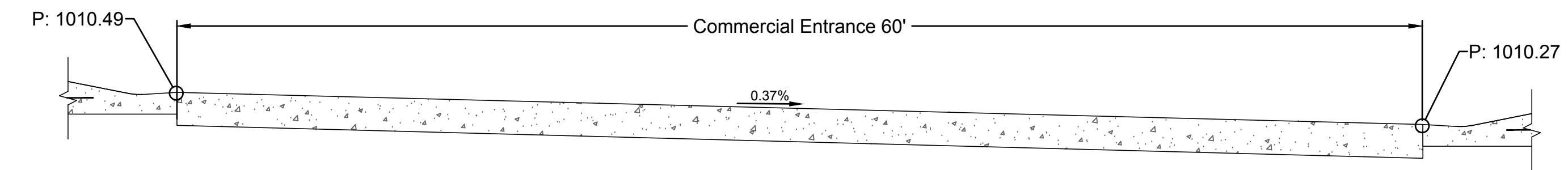
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Section CB-CB  
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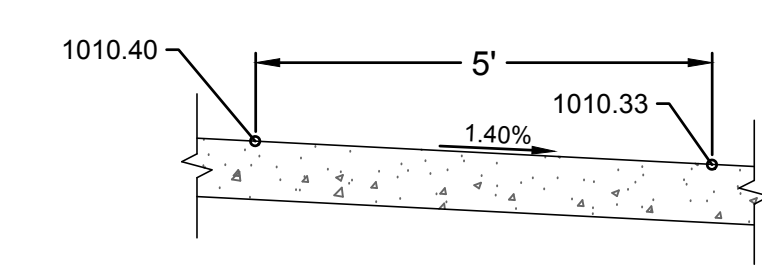
ADA Sidewalk South Detail  
Section CC-CC  
NTS



ADA Sidewalk South Detail  
Section AD-AD  
NTS



ADA Sidewalk South Detail  
Section BB-BB  
NTS



ADA Sidewalk South Detail  
Section BA-BA  
NTS

Note: Contractor to maintain 1.50% or less cross slope throughout 5' wide ADA accessible route along driveway

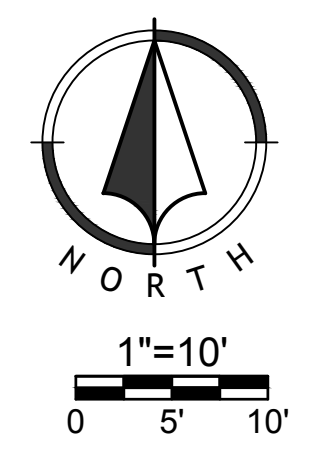
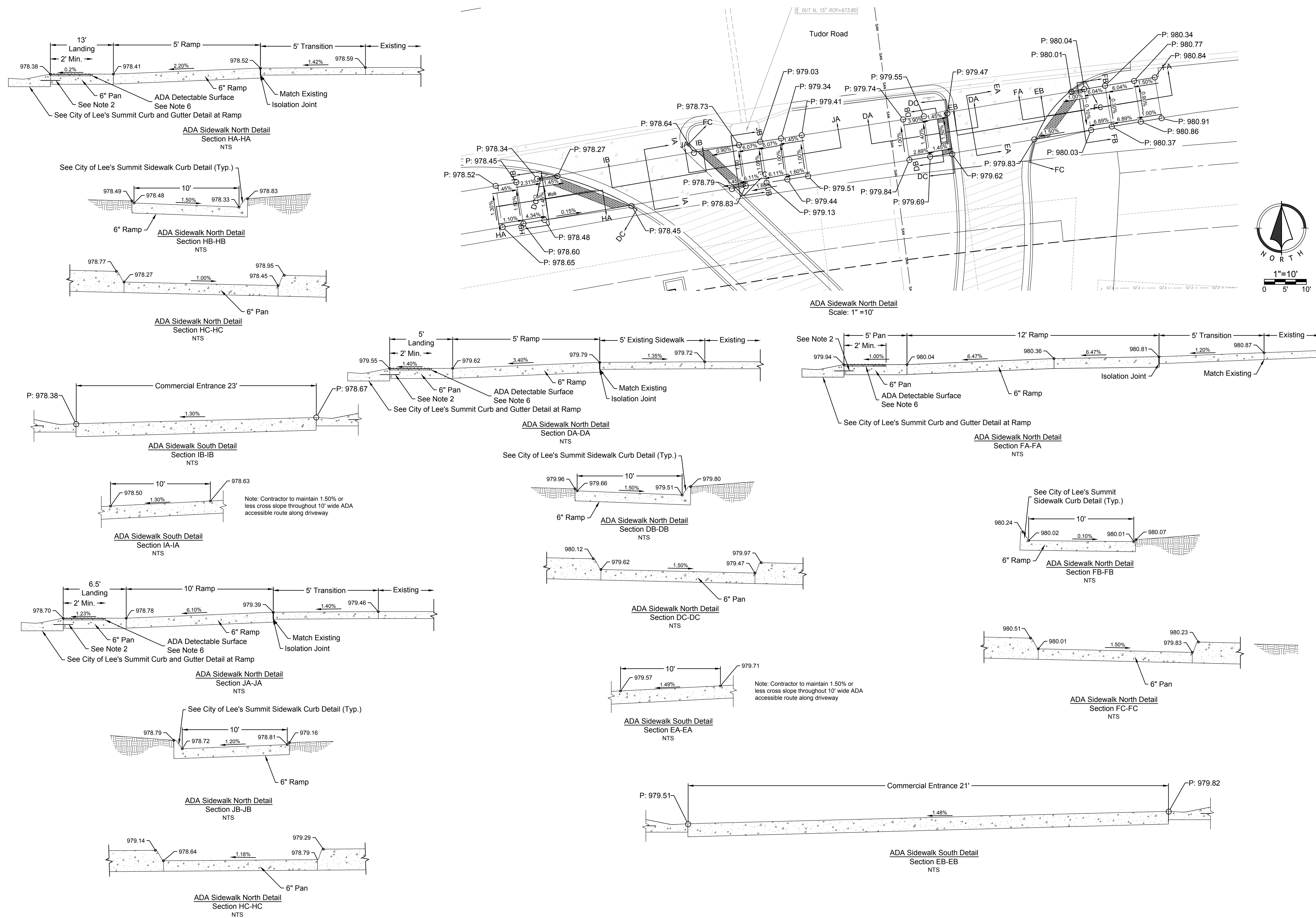
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3	APT	MES 06/15/18	50% SW
2	APT	MES 05/14/13	PER CITY COMMENTS
1	APT	MES 04/13/18	ORIGINAL SUBMITTAL

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KANSAS CITY, MISSOURI 64108  
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NO.	BY	DATE	REVISION
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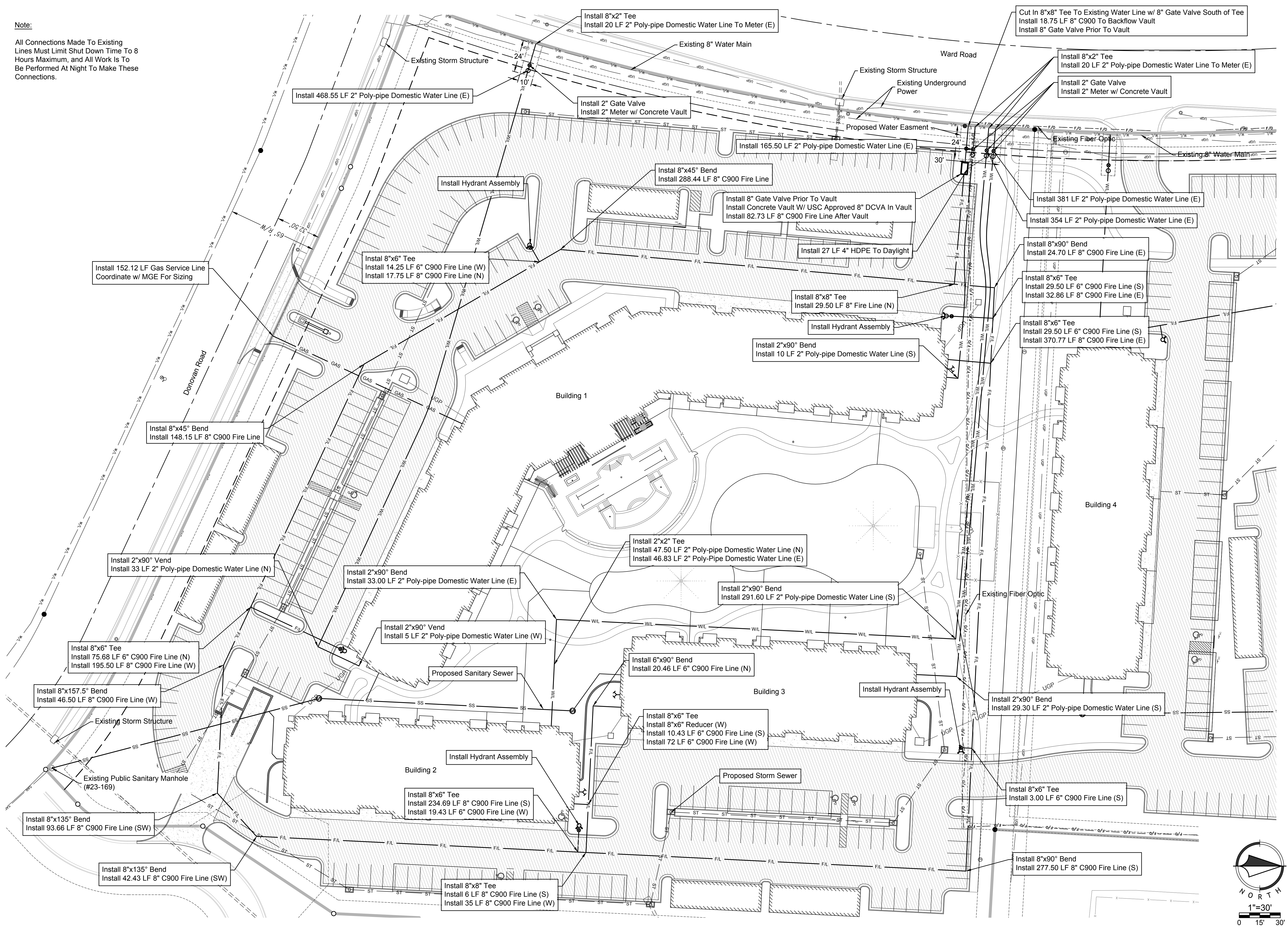
1815 MCGEE STREET, SUITE 200  
KANSAS CITY, MISSOURI 64108  
816.800.0950  
WWW.RIC-CONSULT.COM

MISSOURI CERTIFICATE OF AUTHORITY NO. 20100033650

STATE OF MISSOURI  
6th DISTRICT  
MITCHELL E. SLUTTER  
ENGINEER  
NUMBER PE-200003418  
EXPIRES 12/31/2020

**Note:**

All Connections Made To Existing Lines Must Limit Shut Down Time To 8 Hours Maximum, and All Work Is To Be Performed At Night To Make These Connections.



NO.	BY	DATE	REVISION
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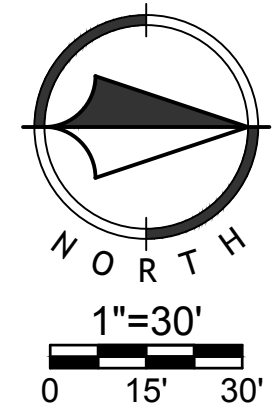
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1815 MCCREE STREET SUITE 200  
KANSAS CITY, MISSOURI 64108  
816.800.0950  
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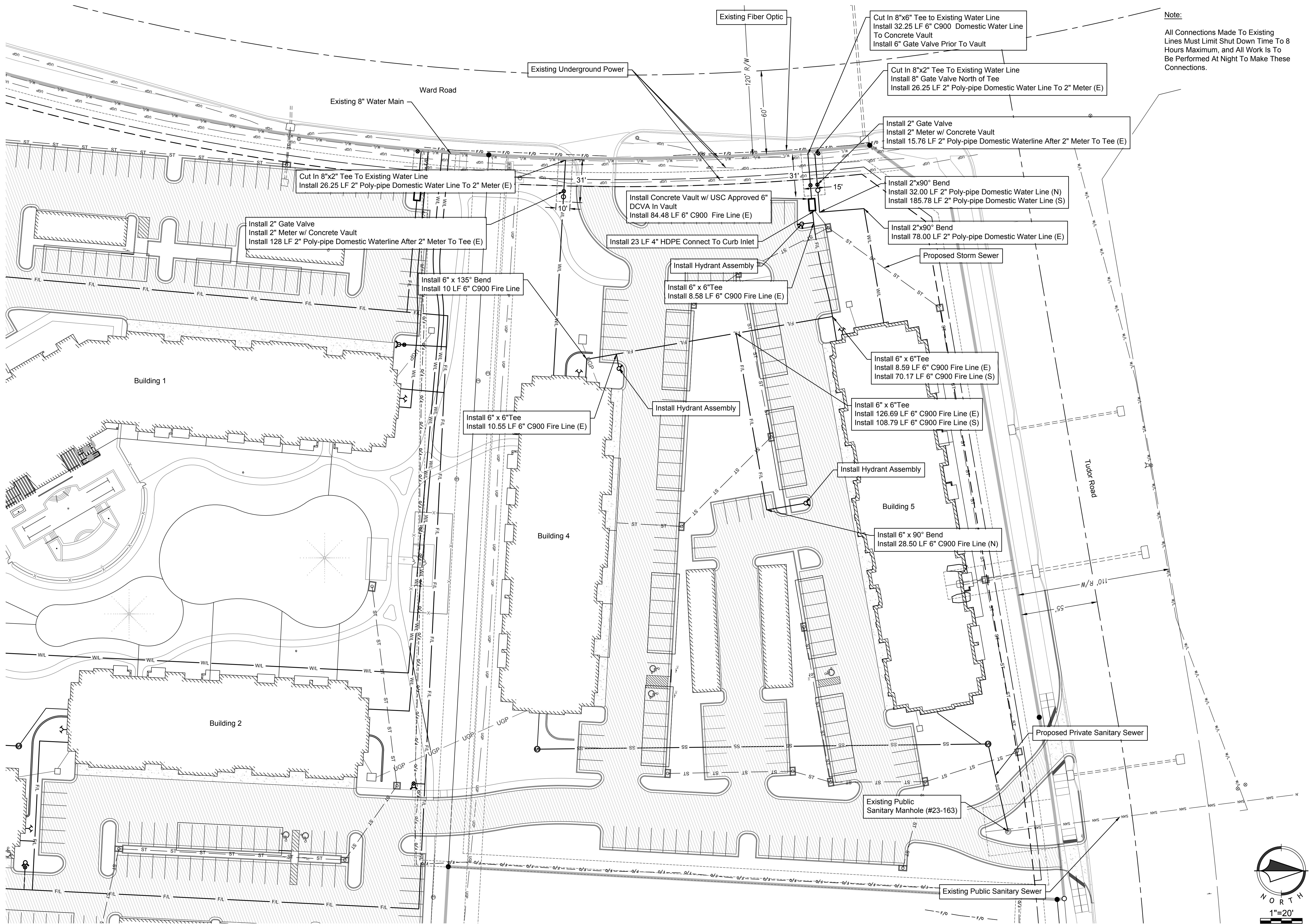
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MITCHELL E. SLUTTER PE-200220418



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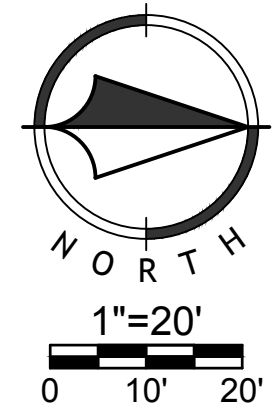
**Note:**  
All Connections Made To Existing Lines Must Limit Shut Down Time To 8 Hours Maximum, and All Work Is To Be Performed At Night To Make These Connections.

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STATE OF MISSOURI  
PLASTER  
MITCHELL E. SLUTTER  
NUMBER  
PE-000003418  
PROFESSIONAL ENGINEER



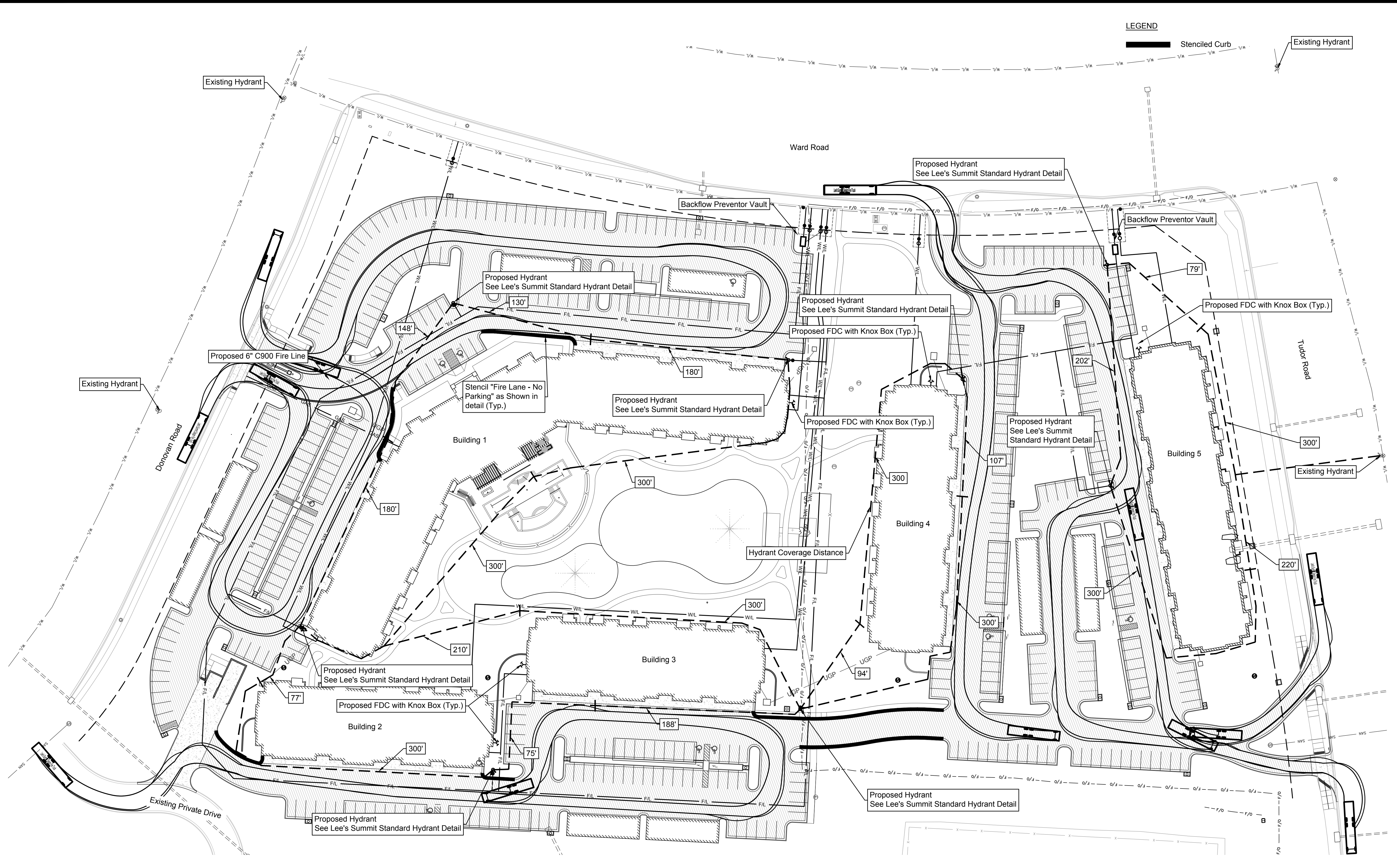


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MITCHELL E. SLUTTER PE-2010033418



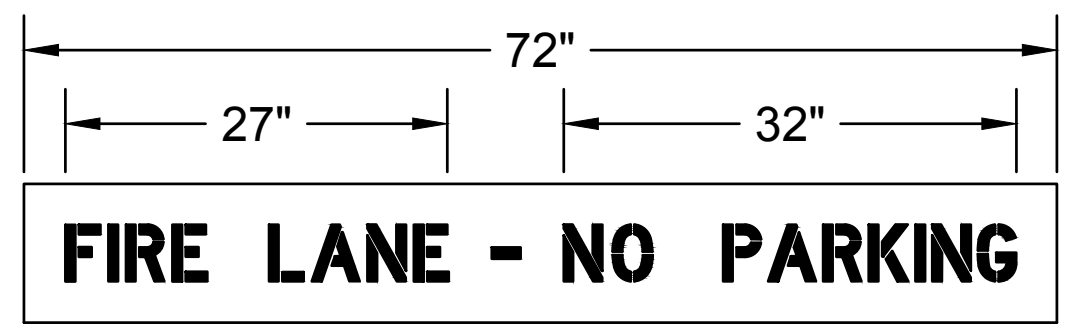
**LEGEND**

Stenciled Curb

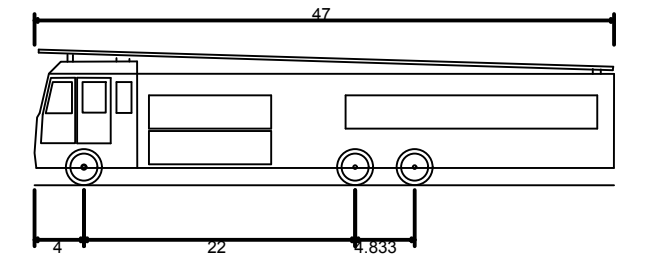
Existing Hydrant

- NOTE:**
- See the Water Impact Statement, dated April 13, 2018, included in the original submittal for fire flow calculations and test results.
  - All FDC Shall Be A 4" Storz Type Fitting.

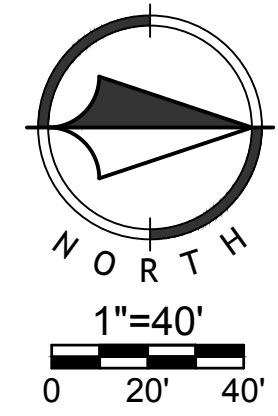
- FIRE LANE DESIGNATION**
- Paint curb "Red".
  - Provide "NO PARKING FIRE LANE" stenciled on face of curb with "White" paint every 20'.



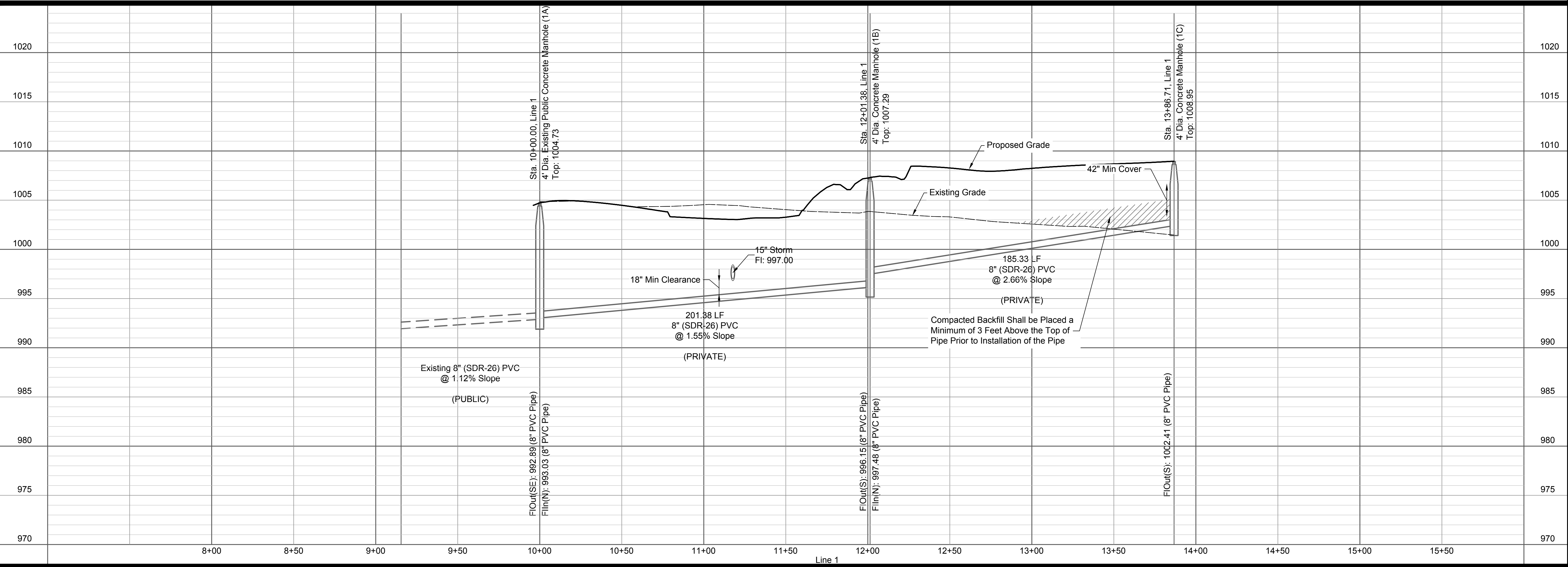
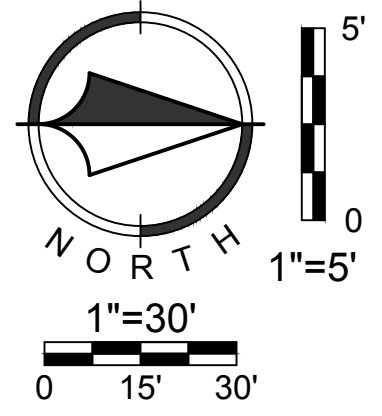
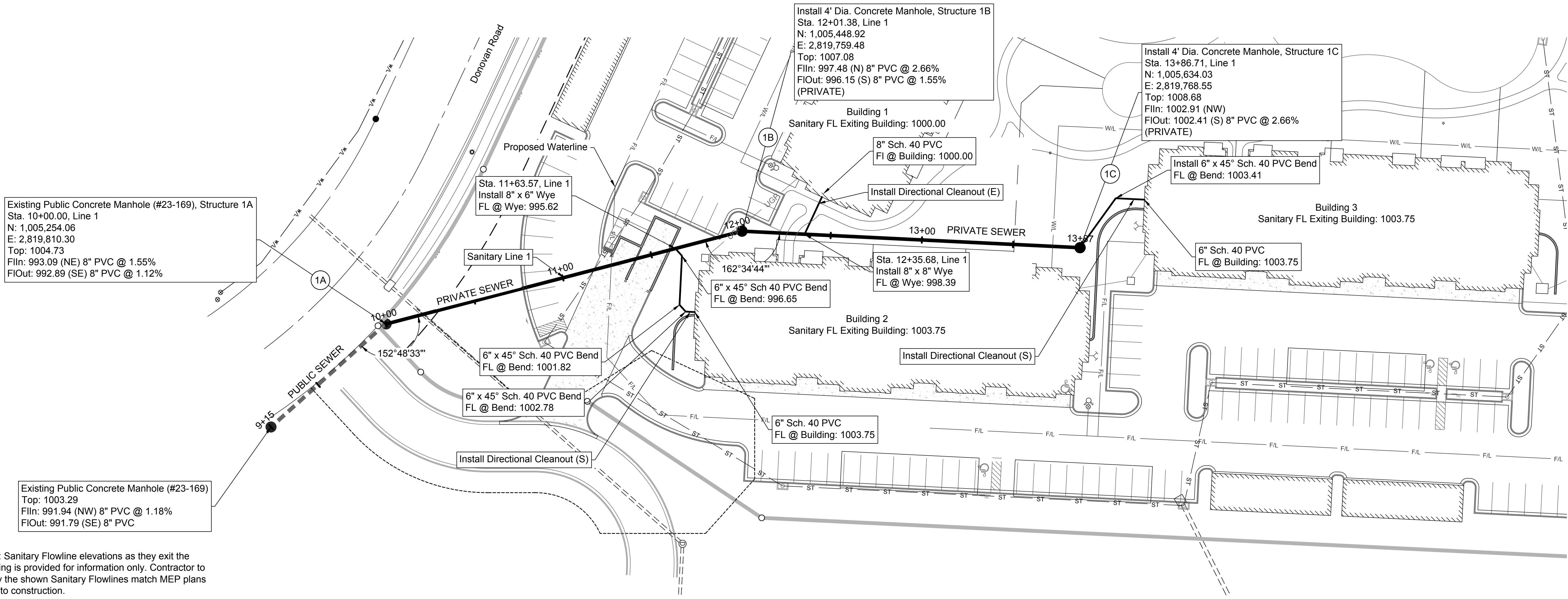
**FIRE LANE - NO PARKING STENCIL DETAIL**  
NOT TO SCALE



Lee's Summit Design Fire Truck  
Overall Length 47.000ft  
Overall Width 8.333ft  
Overall Body Height 11.000ft  
Min Body Ground Clearance 1.393ft  
Track Width 8.333ft  
Lock-to-lock time 6.00s  
Max Wheel Angle 45.00°



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NO.	BY	DATE	REVISION
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1	APT	MES 04/13/18	ORIGINAL SUBMITTAL

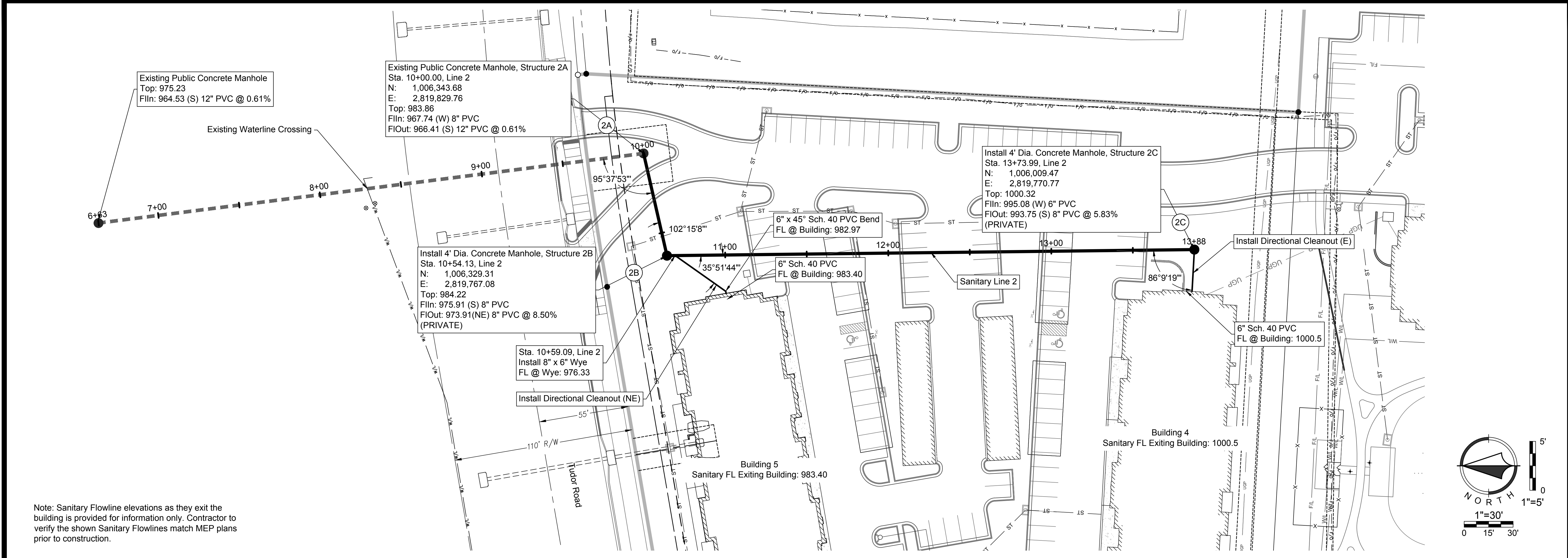
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1815 MCGEE STREET, SUITE 200  
KANSAS CITY, MISSOURI 64108  
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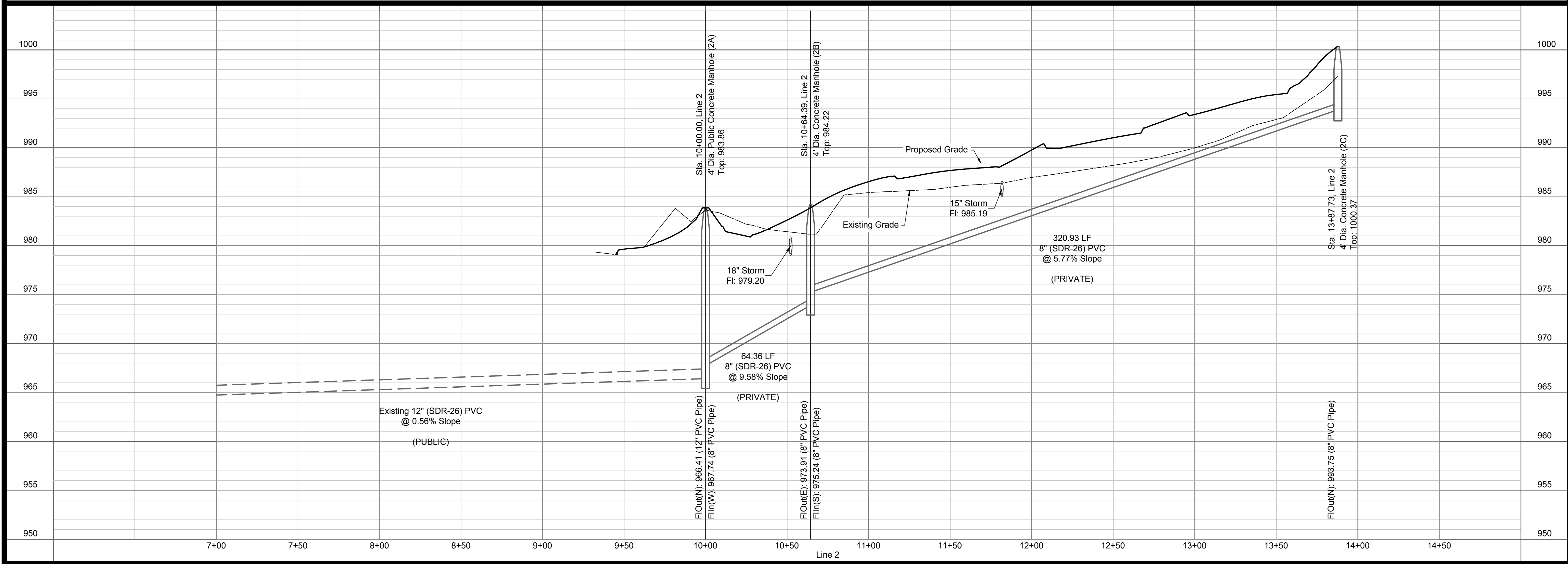
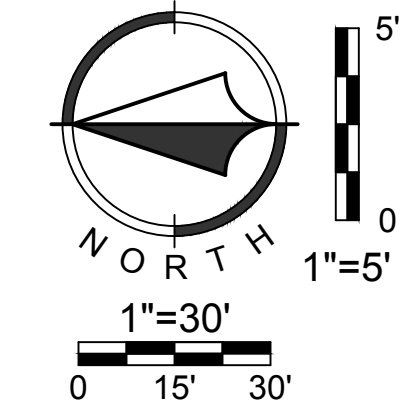
MISSOURI CERTIFICATE OF AUTHORITY NO. 2000033650

STATE OF MISSOURI  
MITCHELL E. SLUTTER  
REGISTERED PROFESSIONAL ENGINEER  
NUMBER PE-2000033418  
EXPIRES 12/31/2024

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Note: Sanitary Flowline elevations as they exit the building is provided for information only. Contractor to verify the shown Sanitary Flowlines match MEP plans prior to construction.



NO.	BY	DATE	REVISION
4	TCD	MES 07/13/18	80% SW
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1	APT	MES 04/13/18	ORIGINAL SUBMITTAL

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STATE OF MISSOURI  
ENGINEER  
MITCHELL E. SLUTTER  
NUMBER  
PE 200003418  
EXPIRES  
12/31/2024

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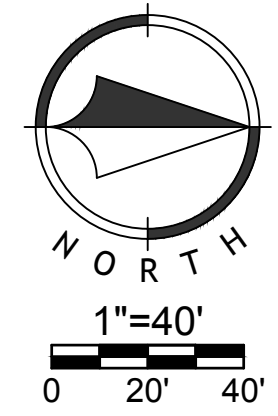


**GRADING LEGEND:**

- Existing Major Contour
- - - Existing Minor Contour
- Proposed Major Contour
- - - Proposed Minor Contour

**LEGEND:**

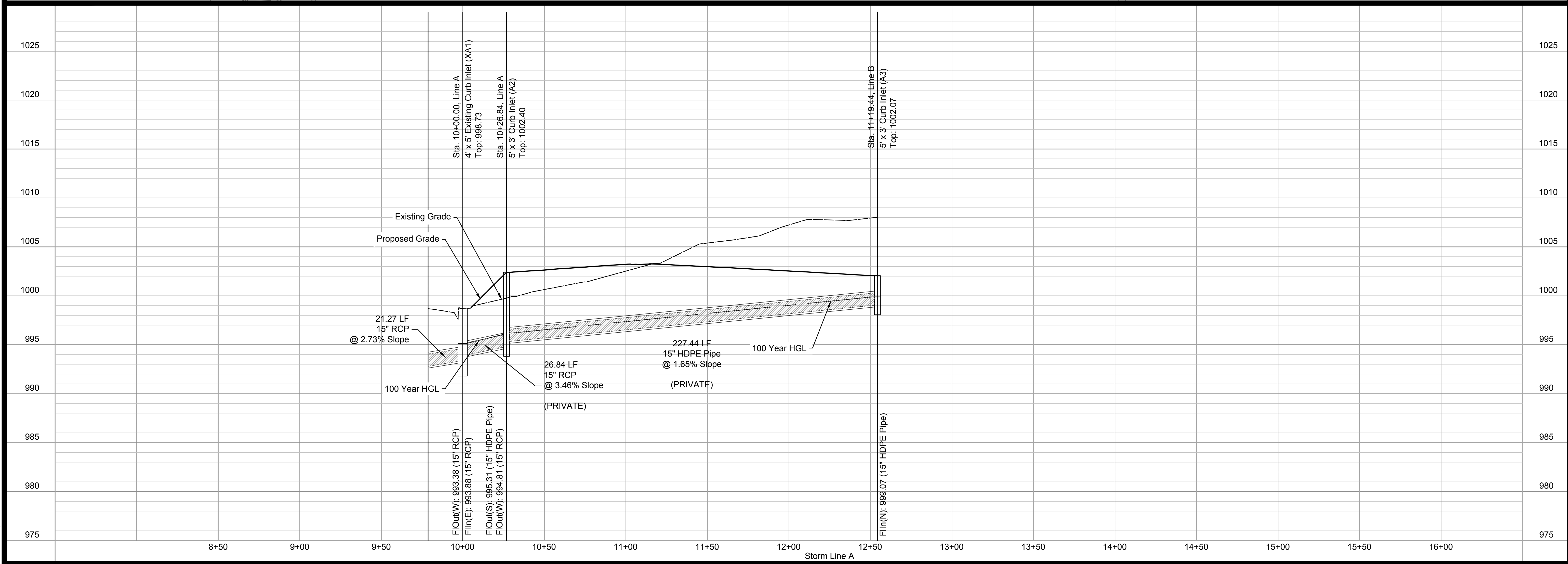
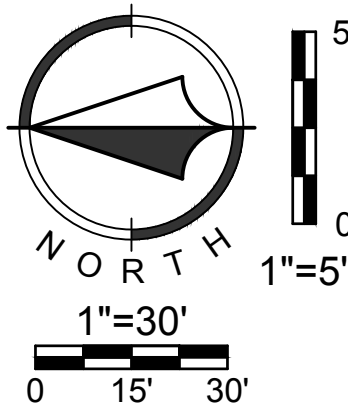
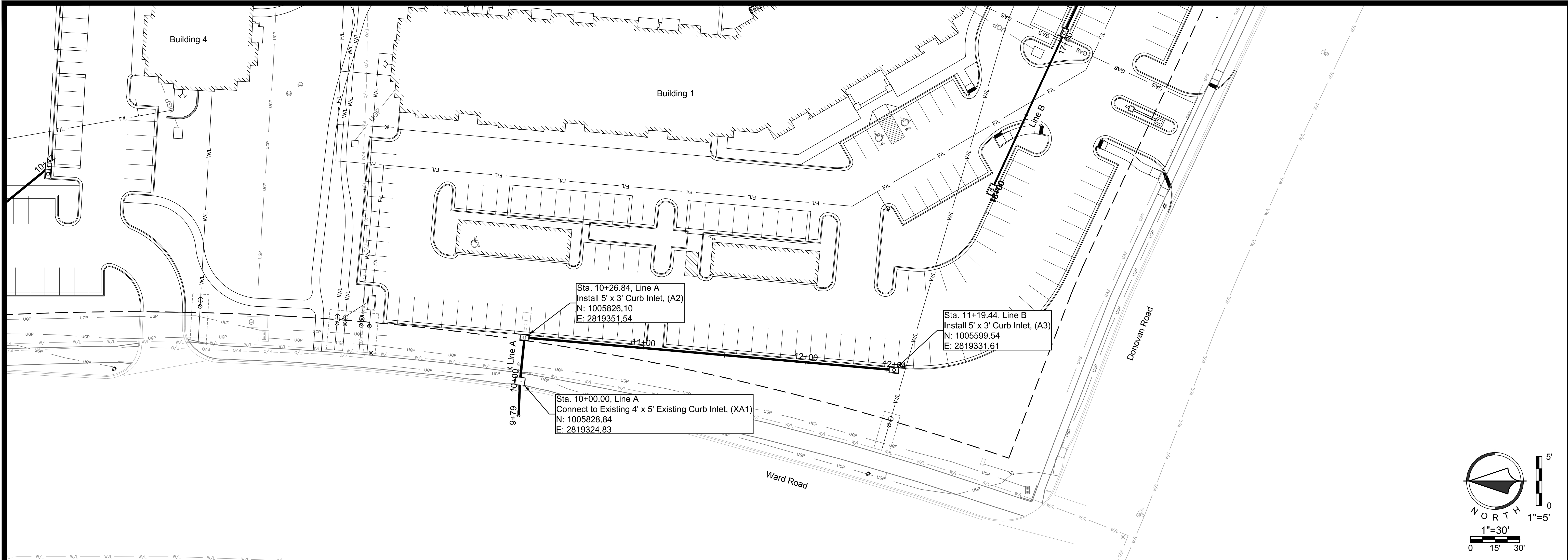
(XX) Drainage Area to Structure  
(XX) Structure Description



Sheet C20																										
Final Development Plans 18-0129 Summit Square II Lee's Summit, Jackson County, Missouri																										
Drainage Area Map																										
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Sheet C22			
Final Development Plans 18-0129 Summit Square II Lee's Summit, Jackson County, Missouri			
Storm Plan and Profile Line A			
NO.	BY	DATE	REVISION
4	TCD MES	07/13/18	80% SW
3	APT MES	06/15/18	50% SW
2	APT MES	05/14/13	PER CITY COMMENTS
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 Z:\RCC Design\2018\18-0129 Northpoint Summit Square II Apartments\DWG\FDPs\Storm Plan and Profile - Line B.dwg

Sta. 10+00.00, Line B  
 Install 5' x 3' Curb Inlet, (B2)  
 N: 1005690.80  
 E: 2819909.65

Sta. 12+19.89, Line B  
 Install 5' x 3' Curb Inlet, (B3)  
 N: 1005471.18  
 E: 2819898.89

Sta. 13+72.26, Line B  
 Install 5' x 3' Junction Box, (B4)  
 N: 1005340.65  
 E: 2819820.27

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 N: 1005395.10  
 E: 2819741.20

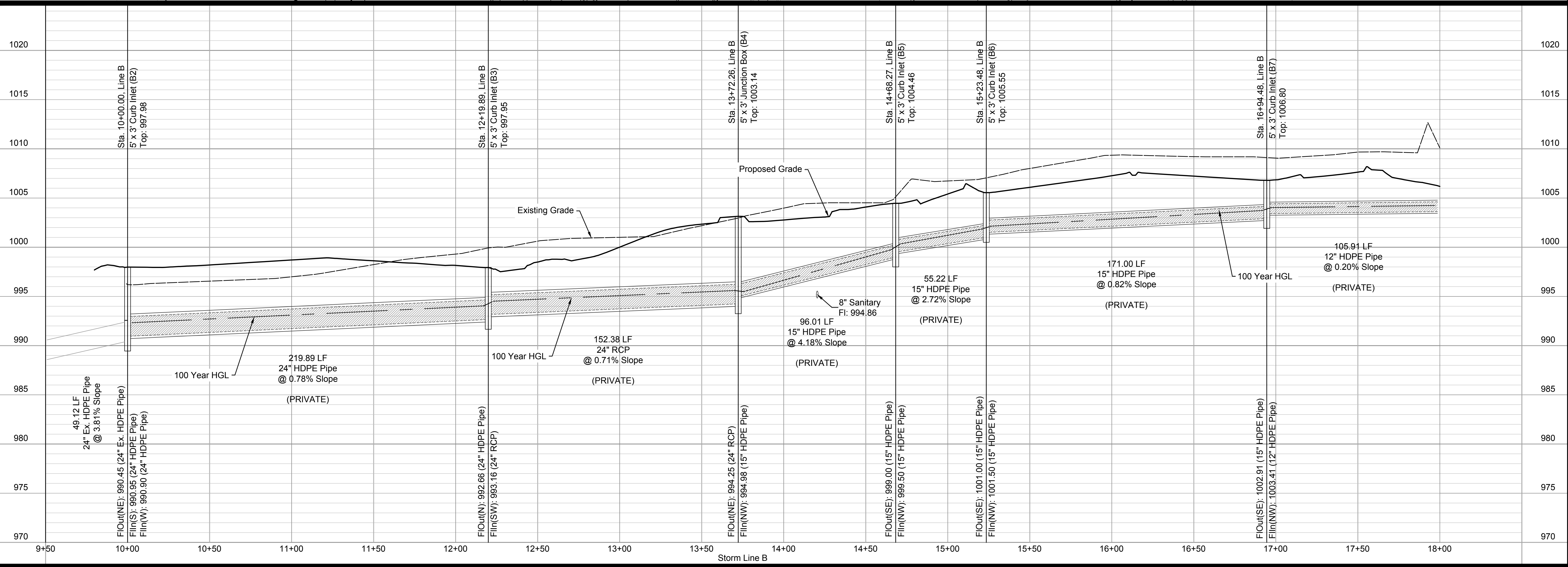
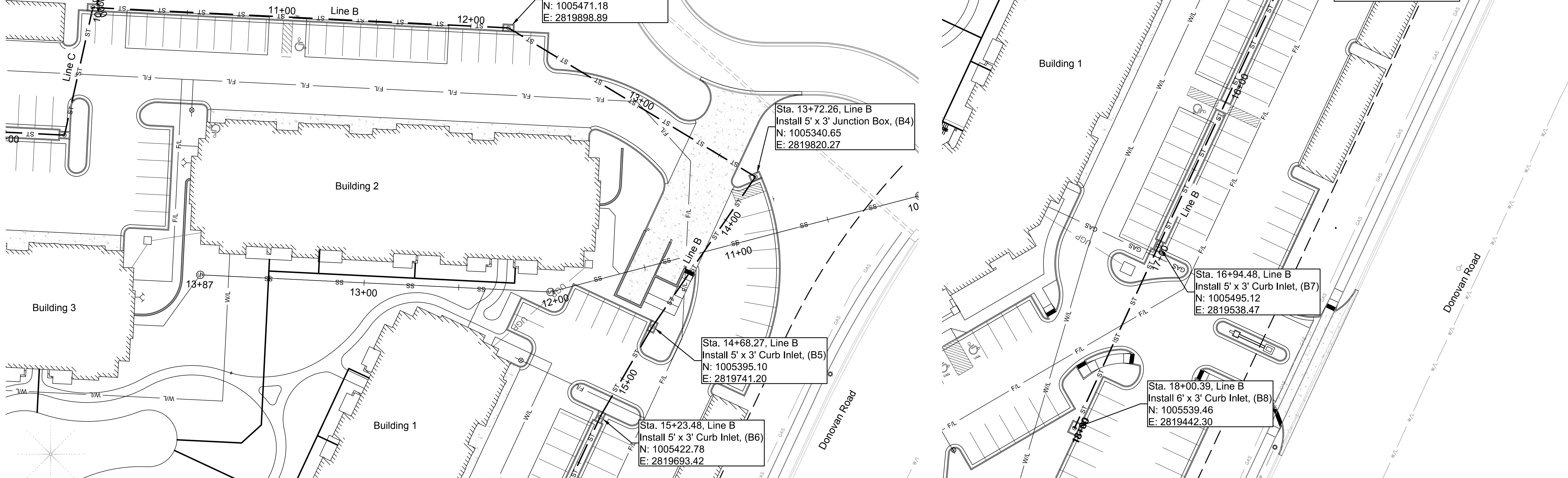
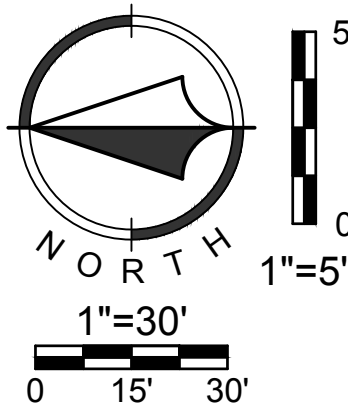
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 E: 2819741.20

Sta. 15+23.48, Line B  
 Install 5' x 3' Curb Inlet, (B6)  
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Sta. 16+94.48, Line B  
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Sta. 18+00.39, Line B  
 Install 6' x 3' Curb Inlet, (B8)  
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 C23

Final Development Plans  
 18-0129  
 Summit Square II  
 Lee's Summit, Jackson County, Missouri

Storm Plan and Profile  
 Line B

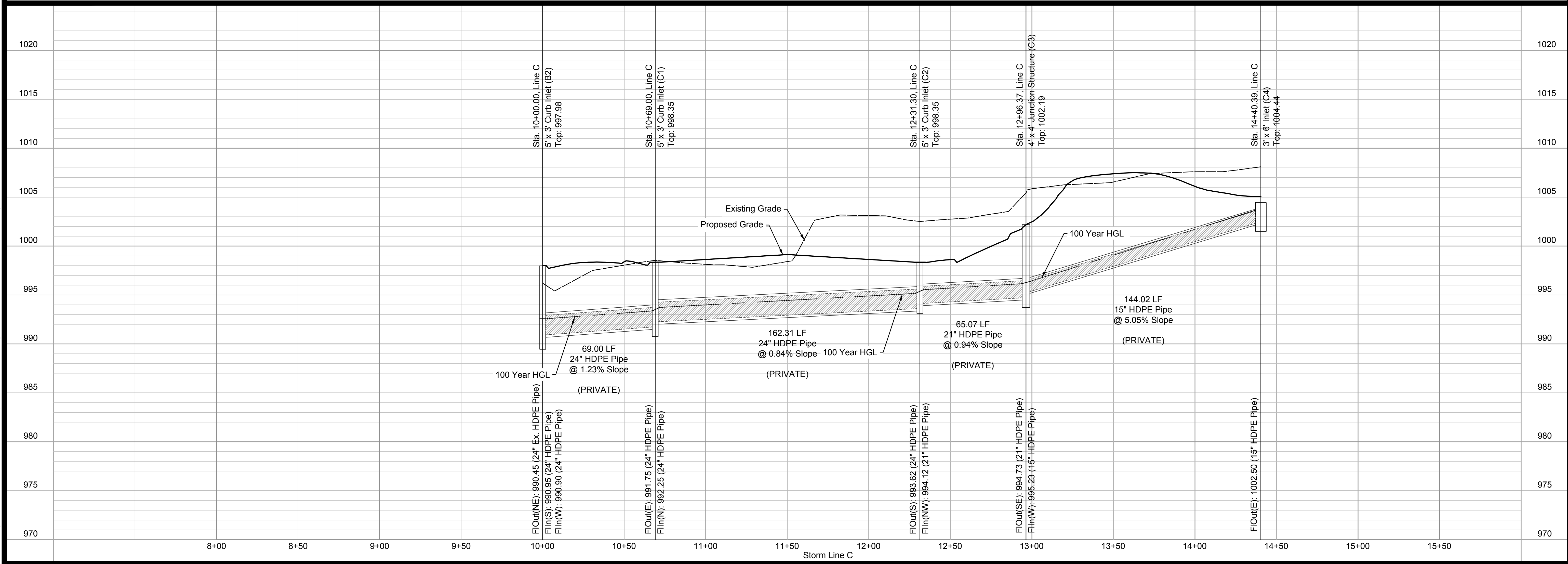
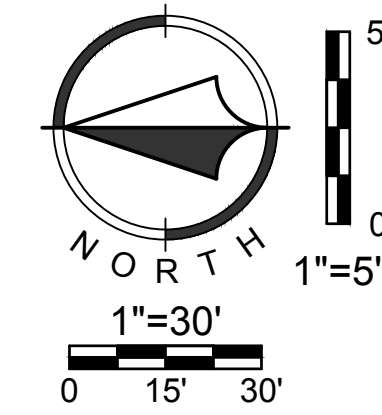
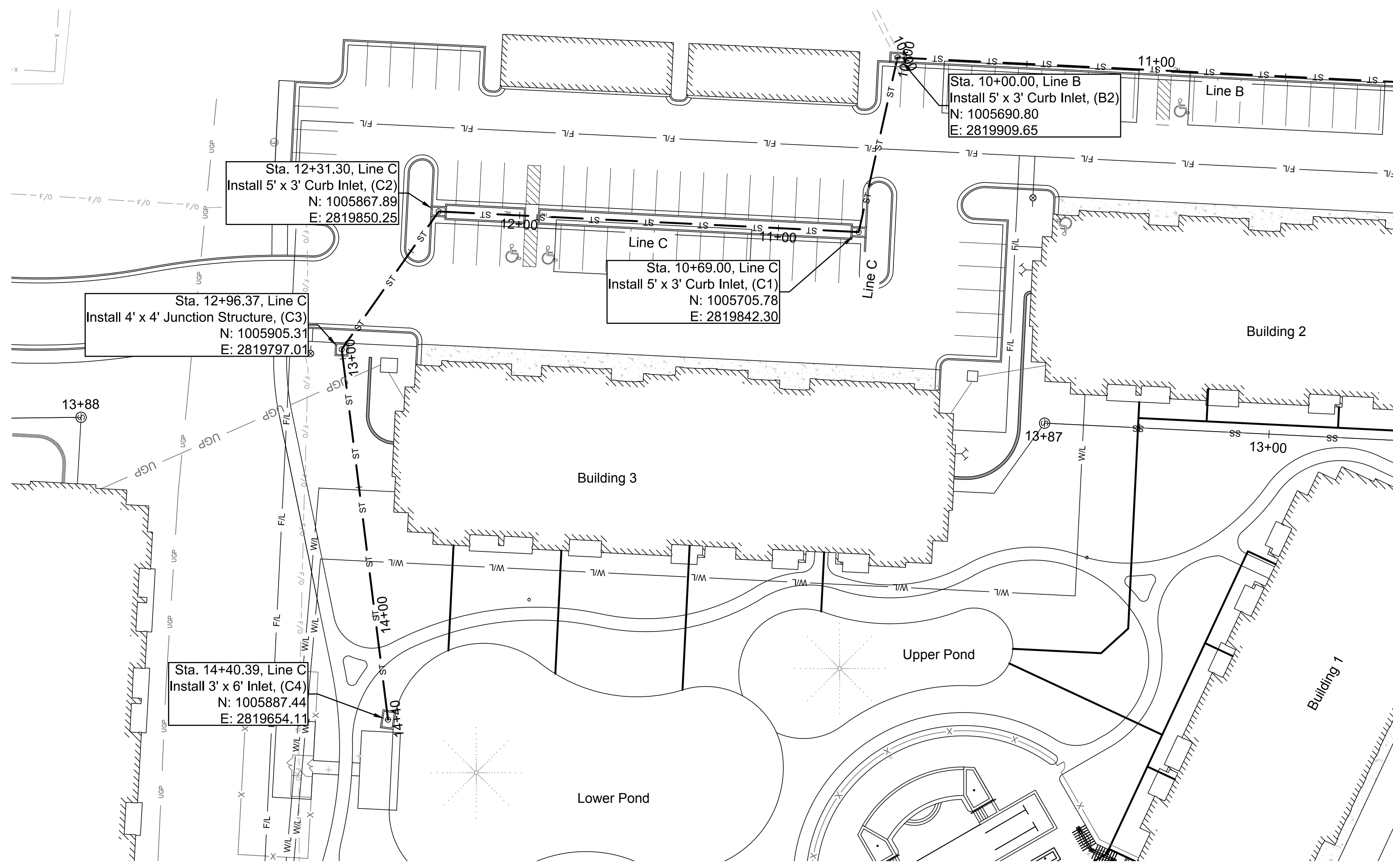
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3	APT	MES 06/15/18	50% SW
2	APT	MES 05/11/13	PER CITY COMMENTS
1	APT	MES 04/13/18	ORIGINAL SUBMITTAL

**Renaissance Infrastructure Consulting**

816.800.0950  
 1815 MCGEE STREET, SUITE 200  
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Sheet  
C24

Final Development Plans  
18-0129  
Summit Square II  
Lee's Summit, Jackson County, Missouri

Storm Plan and Profile  
Line C

NO.	BY	DATE	REVISION
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1	APT	MES 04/13/18	ORIGINAL SUBMITTAL

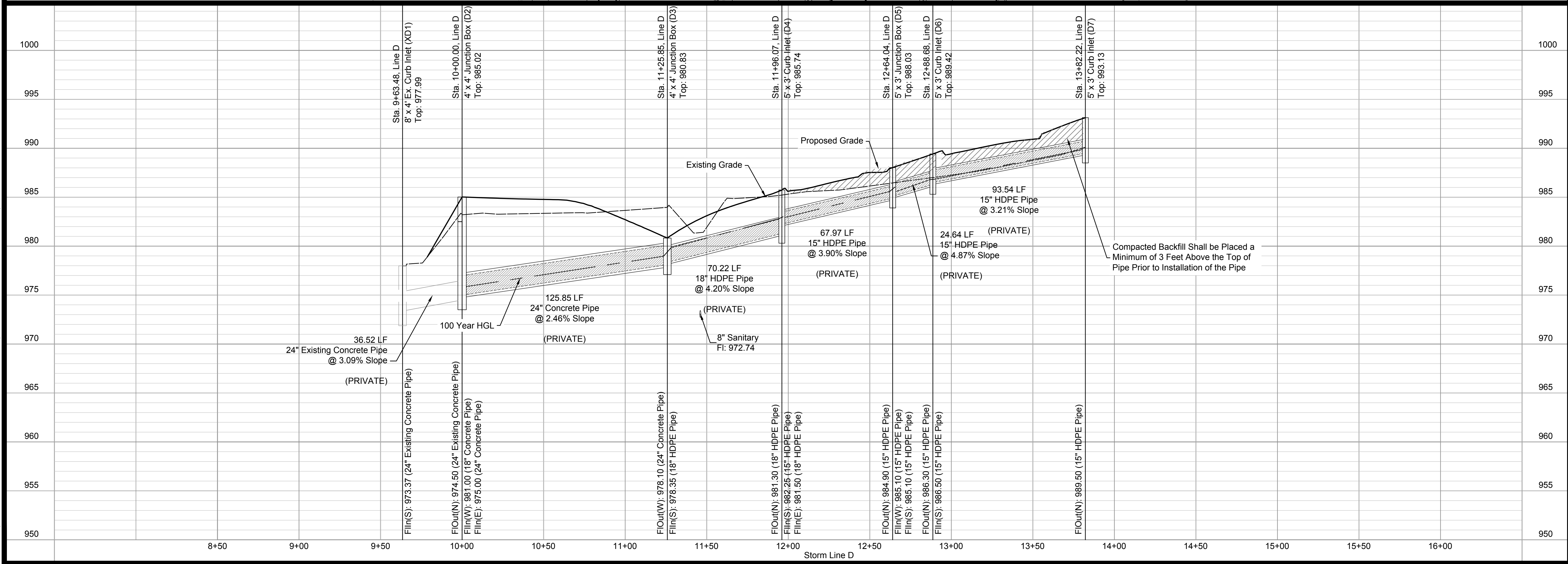
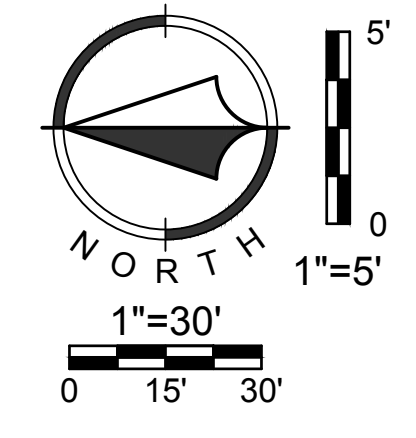
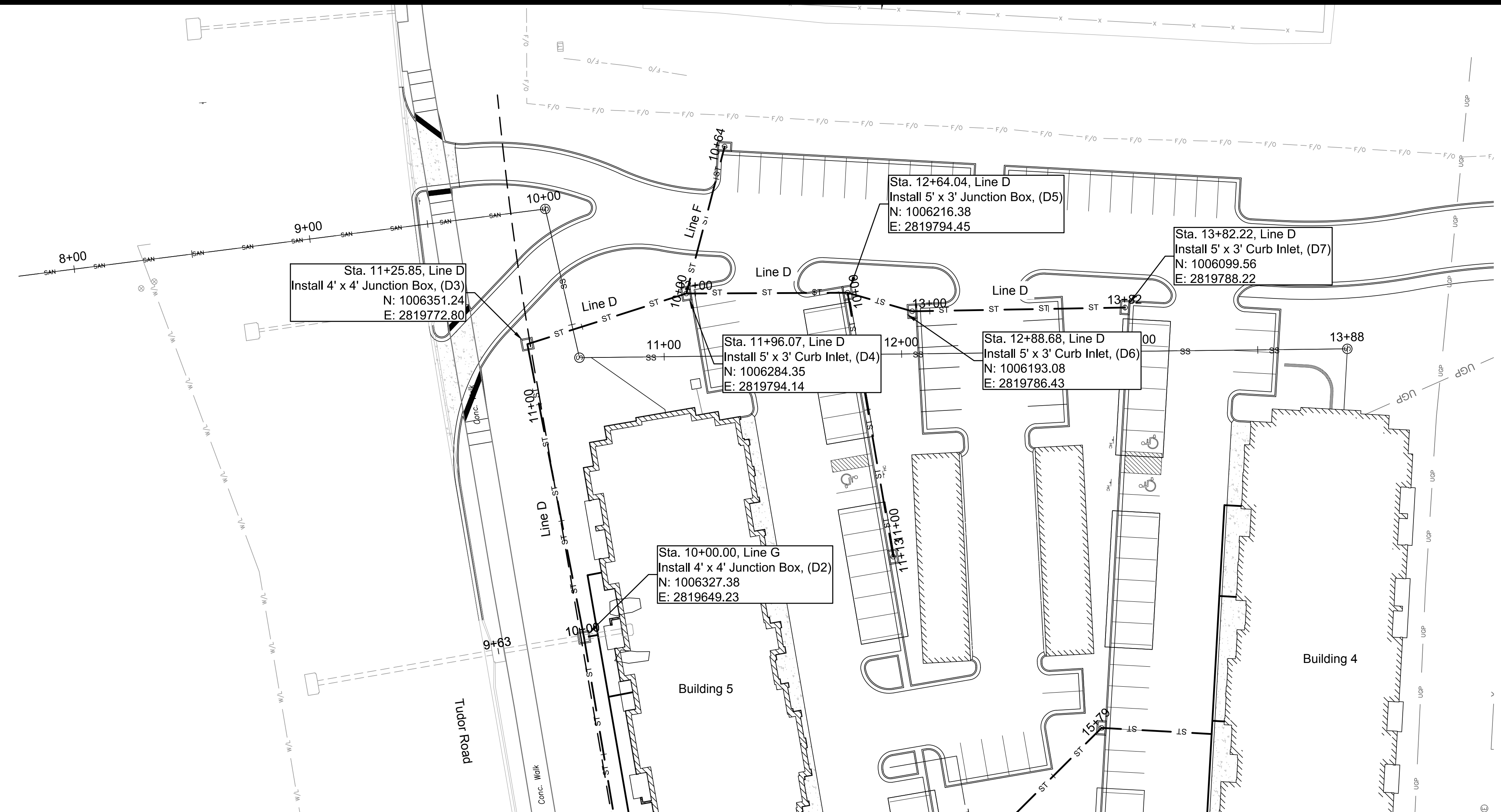
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MISSOURI CERTIFICATE OF AUTHORITY NO. 2000033630





NO.	BY	DATE	REVISION
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3	APT	MES 06/15/18	50% S&I
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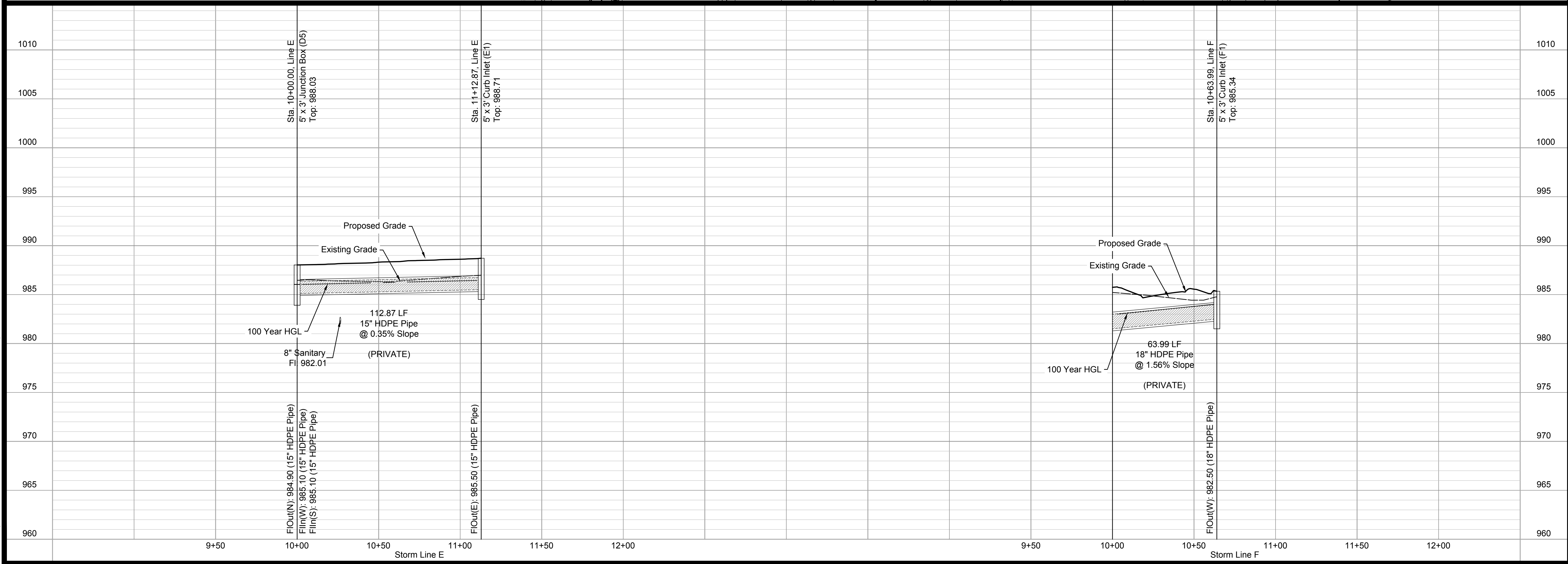
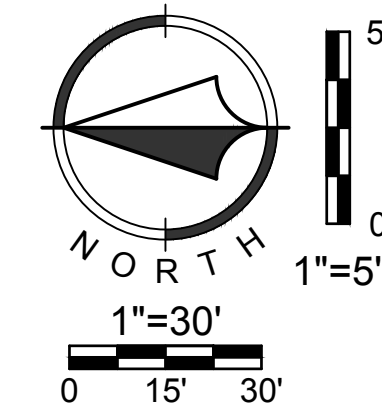
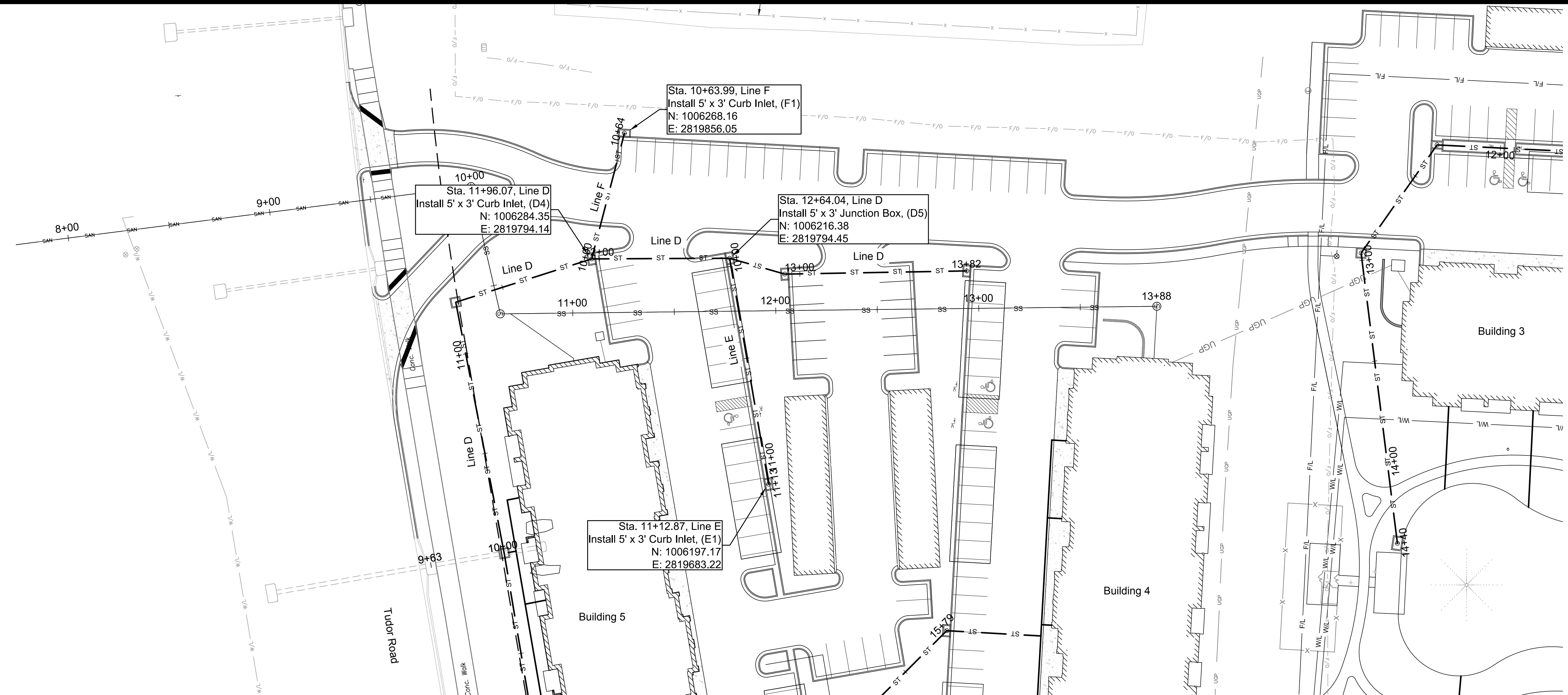
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KANSAS CITY, MISSOURI 64108

MISSOURI CERTIFICATE OF AUTHORITY NO. 2010033630

STATE OF MISSOURI  
JULIE MITCHELL  
REGISTERED PROFESSIONAL ENGINEER  
NUMBER PE-200203418  
EXPIRES 12/31/2024

Jul 16, 2018 3:30pm  
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NO.	BY	DATE	REVISION
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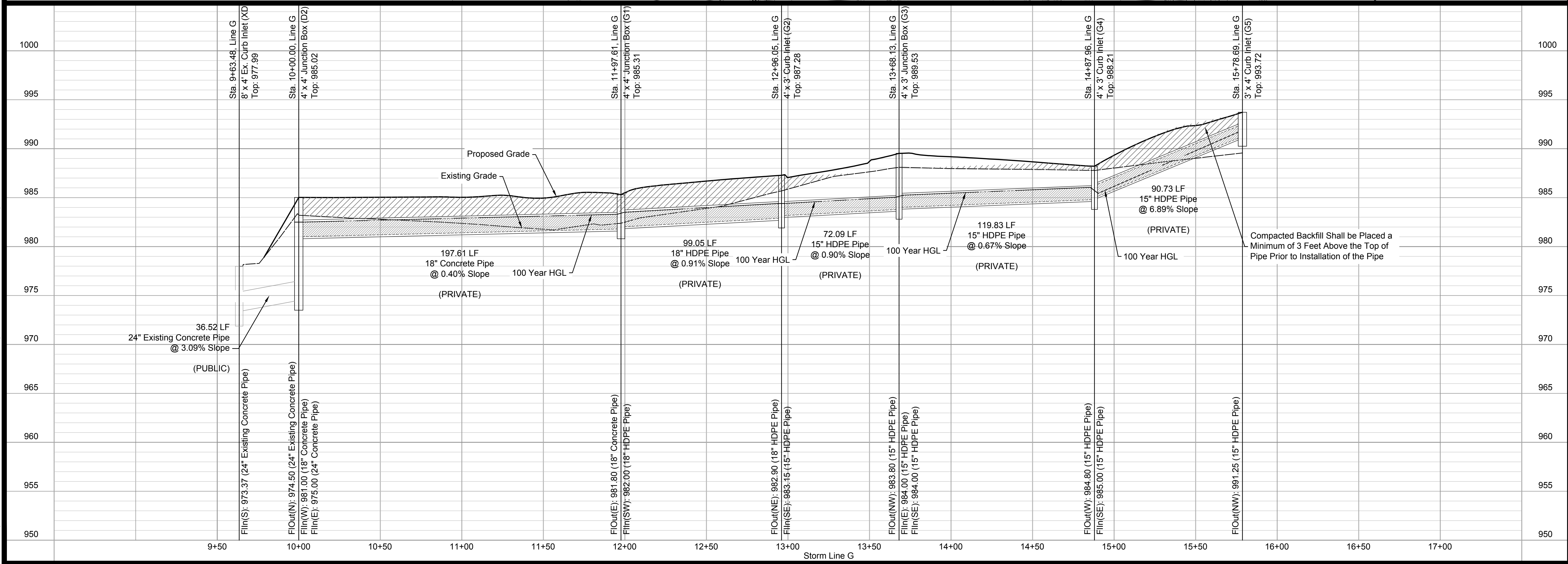
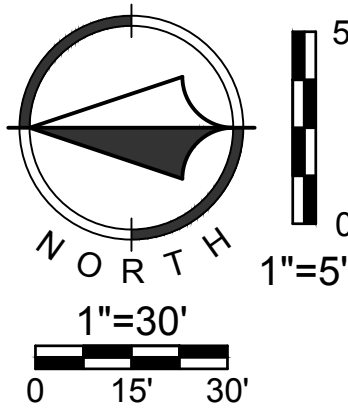
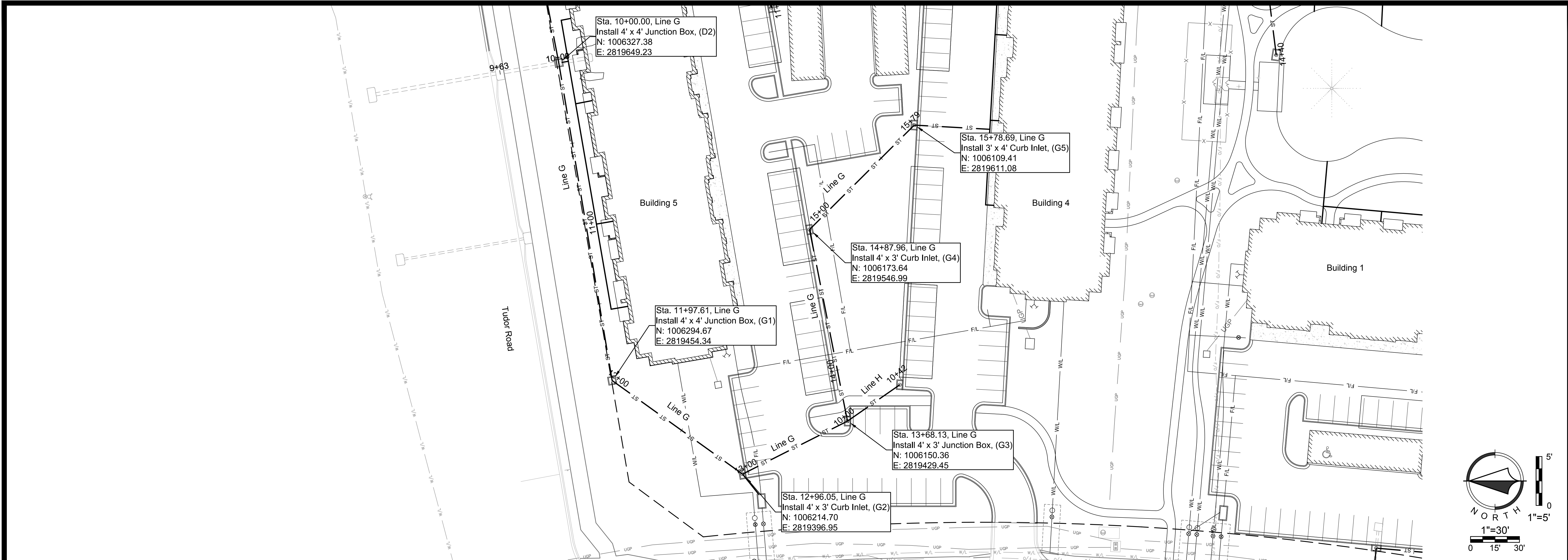
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MISSOURI CERTIFICATE OF AUTHORITY NO. 2010033630

STATE OF MISSOURI  
REGISTERED PROFESSIONAL ENGINEER  
MITCHELL E. SLUTTER  
NUMBER PE 200203418  
EXPIRES 12/31/2024

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Sheet  
C27

Final Development Plans  
18-0129  
Summit Square II  
Lee's Summit, Jackson County, Missouri

Storm Plan and Profile  
Line G

NO.	BY	DATE	REVISION
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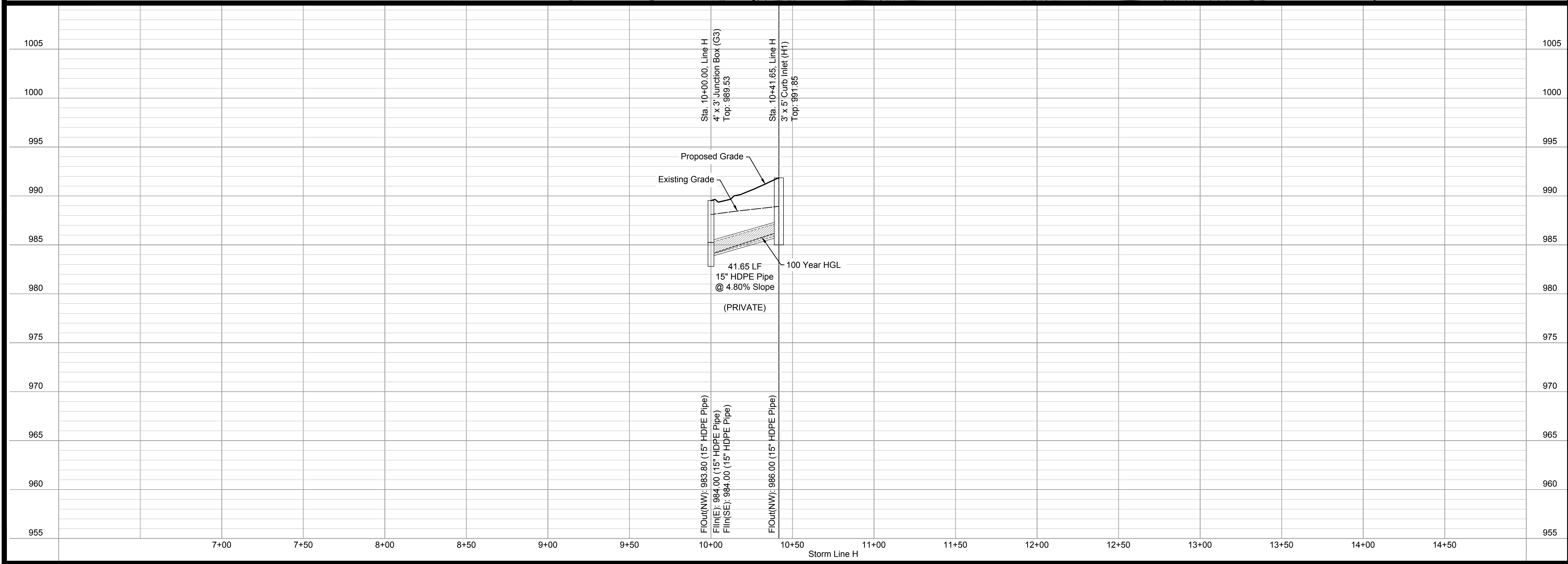
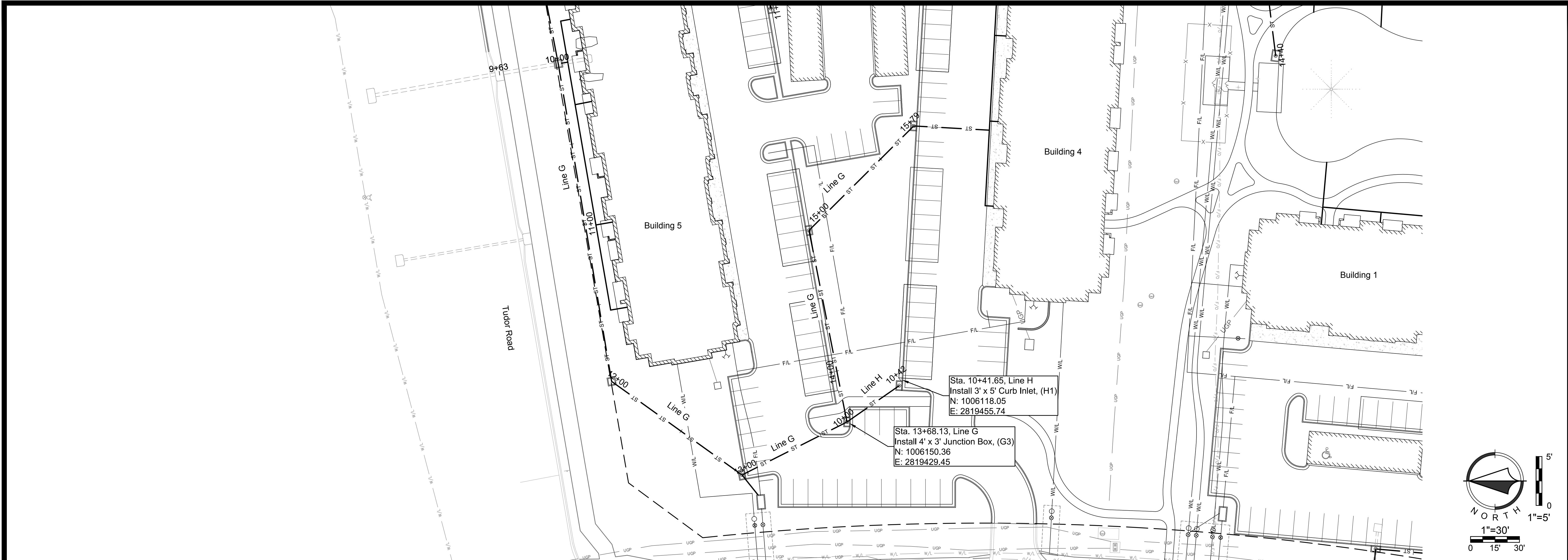
**Renaissance Infrastructure Consulting**

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1815 MCGEE STREET, SUITE 200  
KANSAS CITY, MISSOURI 64108  
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MISSOURI CERTIFICATE OF AUTHORITY NO. 200033630

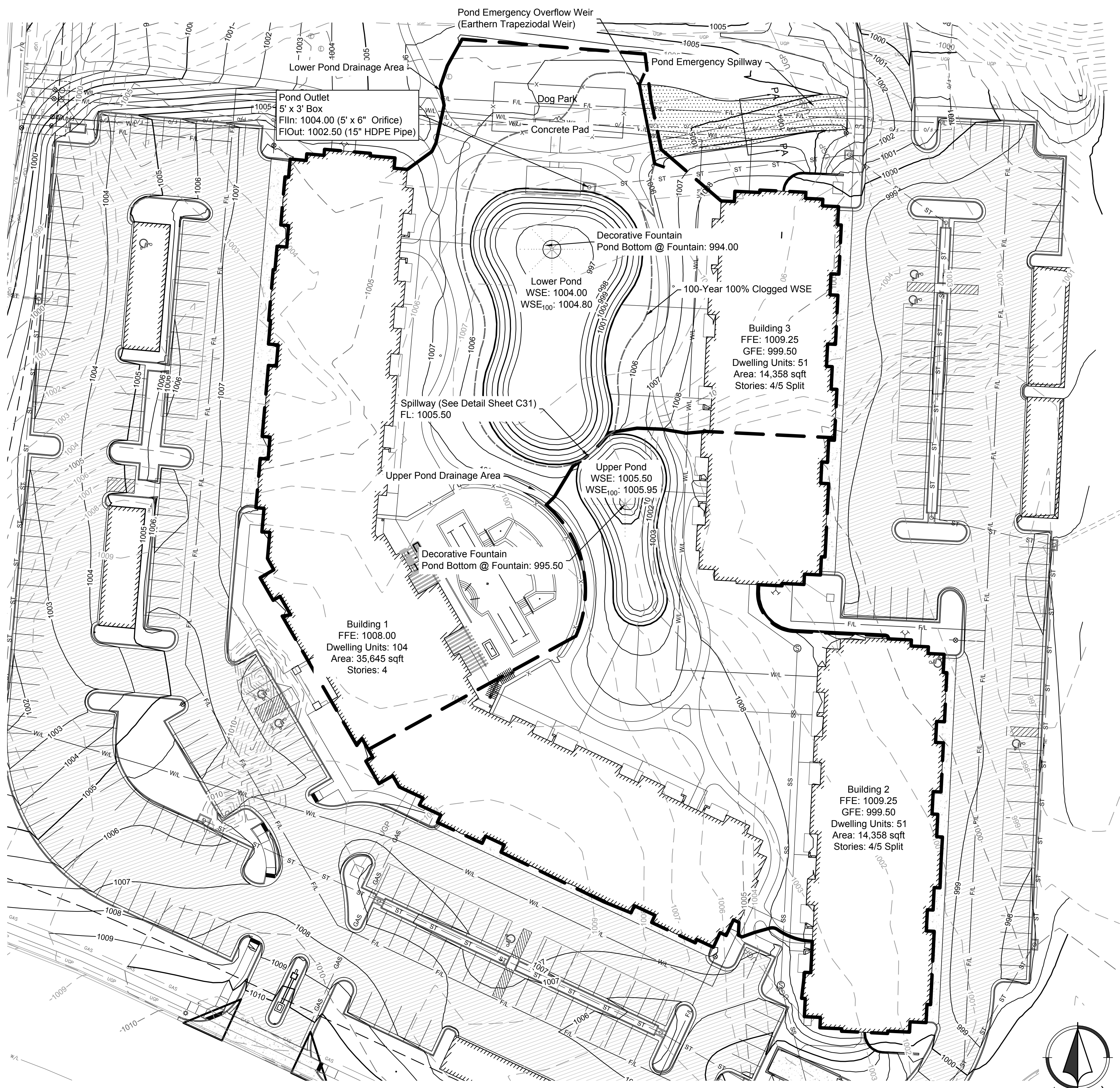
STATE OF MISSOURI  
Professional Engineer  
Mitchell E. Slutter  
PE 200033418  
10/16/18

Jul 16, 2018 3:30pm  
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Sheet C28																					
Final Development Plans	18-0129 Summit Square II Lee's Summit, Jackson County, Missouri																				
Storm Plan and Profile	Line H																				
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1	APT	MES 04/13/18	ORIGINAL SUBMITTAL																		
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Note: 5' x 3' Box Structure shall be typical APWA inlet with steel insert.



**Pond Design Calculations:**

Note: As outlined in the Storm Water Report, the following development is part of a regional detention system. The proposed ponds are not required for detention and are for aesthetics only.

**Runoff Calculations:**

Area: 1.93 Ac (98 CN) + 1.15 Ac (74 CN) = 3.08 Ac  
Tc: 10 Minutes  
CN: 89.04

Q<sub>100</sub> = 25.08 cfs  
Q<sub>10</sub> = 19.15 cfs

**Stage Storage:**

100 Year WSE: 1,004.80

**Emergency Spillway Design:**

Weir Length: 35'  
Weir Elevation: 1005.50  
Side Slopes: 4:1  
Flow Depth: 0.42'

**Spillway Erosion Protection:**

Flow Area: 20.58 sqft  
Flow WP: 44.12 ft  
R = 0.466 ft  
S = 0.005 ft/ft  
γ = 62.4 x 0.466 x 0.005 = 0.145 psf  
Spillway to be lined with well maintained turf grass. No additional erosion protection required.

**Outlet Release Rates:**

Q<sub>100</sub> = 9.35 cfs

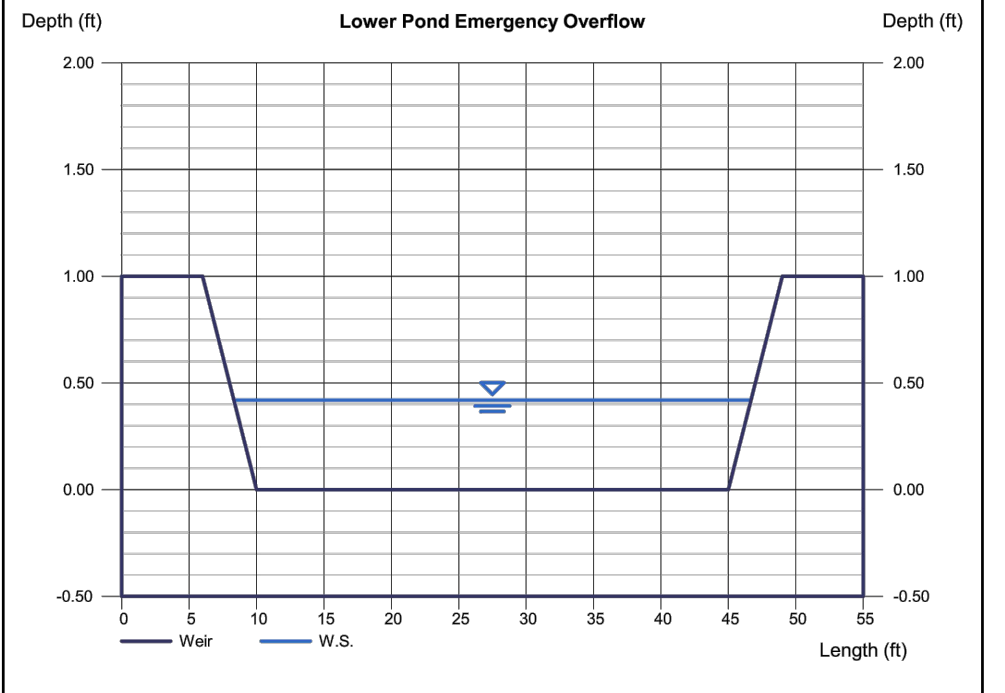
**Weir Report**  
HydroFlow Express Extension for Autodesk AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Jun 19 2018

**Lower Pond Emergency Overflow**

<b>Trapezoidal Weir</b>	Crest = Sharp	Highlighted Depth (ft) = 0.42
	Bottom Length (ft) = 35.00	Q (cfs) = 25.08
	Total Depth (ft) = 1.00	Area (sqft) = 15.41
	Side Slope (z:1) = 4.00	Velocity (ft/s) = 1.83
		Top Width (ft) = 38.36

**Calculations**

Weir Coeff. Cw = 2.63
Compute by: Known Q
Known Q (cfs) = 25.08



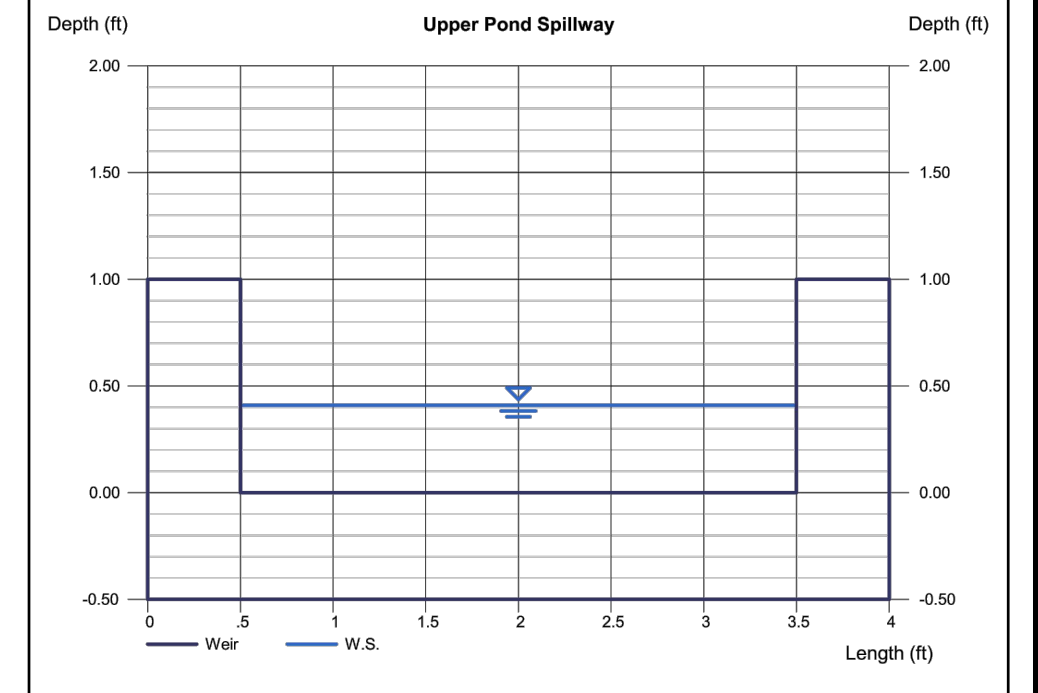
**Weir Report**  
HydroFlow Express Extension for Autodesk AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Jun 19 2018

**Upper Pond Spillway**

<b>Rectangular Weir</b>	Crest = Sharp	Highlighted Depth (ft) = 0.41
	Bottom Length (ft) = 3.00	Q (cfs) = 2.620
	Total Depth (ft) = 1.00	Area (sqft) = 1.23
		Velocity (ft/s) = 2.13
		Top Width (ft) = 3.00

**Calculations**

Weir Coeff. Cw = 3.33
Compute by: Known Q
Known Q (cfs) = 2.62



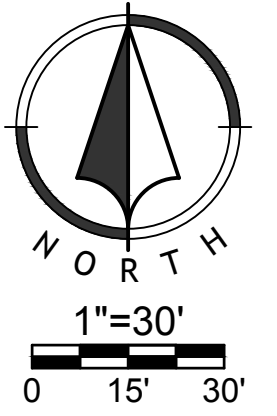
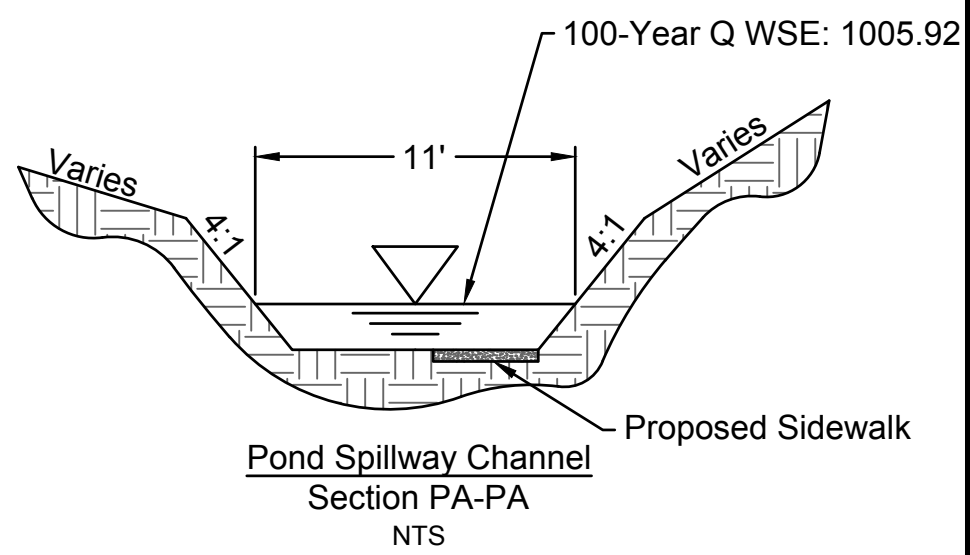
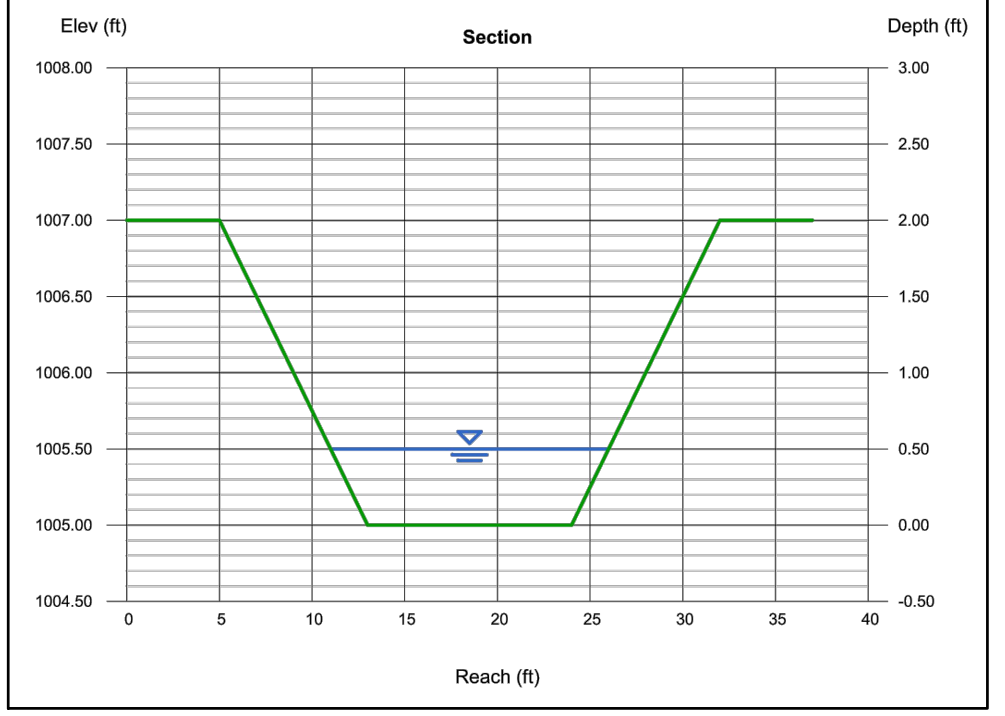
**Channel Report**  
HydroFlow Express Extension for Autodesk AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Jun 19 2018

**Overflow Channel**

<b>Trapezoidal</b>	Bottom Width (ft) = 11.00	Highlighted Depth (ft) = 0.50
	Side Slopes (z:1) = 4.00:4.00	Q (cfs) = 25.08
	Total Depth (ft) = 2.00	Area (sqft) = 6.50
	Invert Elev (ft) = 1005.00	Velocity (ft/s) = 3.86
	Slope (%) = 2.00	Wetted Perim (ft) = 15.12
	N-Value = 0.030	Cr1 Depth, Yc (ft) = 0.52
		Top Width (ft) = 15.00
		EGL (ft) = 0.73

**Calculations**

Compute by: Known Q
Known Q (cfs) = 25.08



NO.	BY	DATE	REVISION
1	APT	MES 04/13/18	ORIGINAL SUBMITTAL
2	APT	MES 05/14/18	PER CITY COMMENTS
3	APT	MES 06/15/18	50% SET
4	TCD	MES 07/19/18	80% SET

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KANSAS CITY, MISSOURI 64108  
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MISSOURI CERTIFICATE OF AUTHORITY NO. 2000033630

STATE OF MISSOURI  
5th DISTRICT  
MITCHELL E. SLUTTER  
REGISTERED PROFESSIONAL ENGINEER  
NUMBER PE-000003418  
EXPIRES 08/31/2024

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WRITTEN SEQUENCING

- Implement Pre-Clearing Plan:**  
All temporary structural BMP's shown on the pre-clearing plan must be in place before the general clearing operations. Clearing necessary to place temporary structural BMP's is the minimum required for installation. Coordinate clearing necessary to place temporary structural BMP's with local weather forecast so that clearing and placement may be completed within a forecast dry period. Stabilize all erosion control measures after installation. Temporary Barrier Fence shall be in Place, around areas not to be disturbed, prior to any construction activities. This area includes Stream Corridor.
- Clear and Stabilize Work Areas:**  
Grade contractor areas and place all-weather surface on contractor areas.
- Clearing and Grubbing:**  
After Phase I BMP's are installed, contractor may clear, grub, and demo required areas as necessary.

EROSION CONTROL NOTES

- Erosion control plan modifications shall be required if the plan fails to substantially control erosion and offsite sedimentation.
- The retention of access controls and sediment controls shall be required for areas where seed has not established 70% cover.
- The contractor shall temporarily seed and mulch all disturbed areas if there has been no construction activity on them for a period of fourteen (14) calendar days.
- Install "J" Hooks on silt fence every 100 LF

EROSION CONTROL LEGEND	
	Stabilized Construction Entrance
	Staging Area
	Stockpile Area
	Concrete Washout
	Limits of Disturbance
	Perimeter Silt Fence
	Inlet Protection

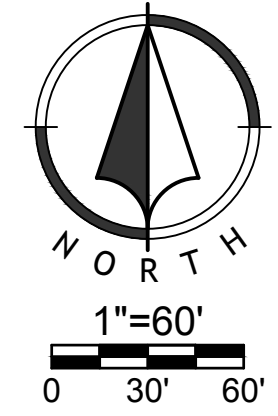
Disturbed Area for Site Improvements : 13.55 Acres

ESTIMATED EARTHWORK

Cut: 15,882 CY  
Fill: 30,674 CY

Earthwork calculations are informational only. Contractor shall be responsible for their own earthwork calculations and perform all necessary earthwork shown herein without additional cost to the owner if quantities differ than above. Earthwork numbers are unadjusted.

Project Stages	BMP Plan Ref. No.	BMP Description	Remove after Stage	Notes
Phase I A-Prior to Land Disturbance	1	Construction Entrance	C	Install Construction Entrance, as shown on Plans.
	2	Staging Area	C	Install Staging Area
	3	Perimeter Sediment Fence	C	Install Perimeter Sediment Fence, as shown on Plans.
	4	Area Inlet Protection	C	Install Filter Bags around Existing Area Inlets
	5	Concrete Washout	C	Install Concrete Washout as shown on plans prior to pouring any concrete.
	6	Curb Inlet Protection	C	Install Filter Bags around Existing Curb Inlets
Phase II B-Site Grading	7	Stockpile Topsoil	D	Install Sediment Fence a Minimum of 5' Beyond Toe of Slope
	8	Sediment Fence	D	Install Sediment Fence, as shown on Plans
Phase III C-Site Construction	9	Curb Inlet Protection	D	Install Filter Bags around Proposed Curb Inlets
	10	Establish Perennial Vegetation	N/A	Redistribute Topsoil and seed and mulch all disturbed areas. Sod Right-of-Way. Stabilization complete when 100% disturbed area is established with perennial vegetation with a density of 70%.



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- Clear and Stabilize Work Areas:**  
Grade contractor areas and place all-weather surface on contractor areas.
- Clearing and Grubbing:**  
After Phase I BMP's are installed, contractor may clear, grub, and demo required areas as necessary.

EROSION CONTROL NOTES

- Erosion control plan modifications shall be required if the plan fails to substantially control erosion and offsite sedimentation.
- The retention of access controls and sediment controls shall be required for areas where seed has not established 70% cover.
- The contractor shall temporarily seed and mulch all disturbed areas if there has been no construction activity on them for a period of fourteen (14) calendar days.
- Install "J" Hooks on silt fence every 100 LF

	Stabilized Construction Entrance
	Staging Area
	Stockpile Area
	Concrete Washout
	Limits of Disturbance
	Perimeter Silt Fence
	Inlet Protection

Disturbed Area for Site Improvements : 13.55 Acres

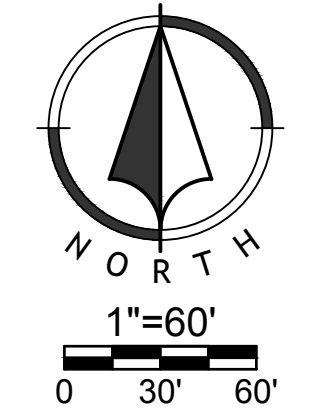
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	8	Sediment Fence	D	Install Sediment Fence, as shown on Plans
	9	Curb Inlet Protection	D	Install Filter Bags around Proposed Curb Inlets
Phase III D-Final Stabilization	10	Establish Perennial Vegetation	N/A	Redistribute Topsoil and seed and mulch all disturbed areas. Sod Right-of-Way. Stabilization complete when 100% disturbed area is established with perennial vegetation with a density of 70%



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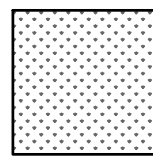

**WRITTEN SEQUENCING**

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- Clear and Stabilize Work Areas:**  
Grade contractor areas and place all-weather surface on contractor areas.
- Clearing and Grubbing:**  
After Phase I BMP's are installed, contractor may clear, grub, and demo required areas as necessary.

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- The contractor shall temporarily seed and mulch all disturbed areas if there has been no construction activity on them for a period of fourteen (14) calendar days.
- Install 'J' Hooks on silt fence every 100 LF

**LEGEND**

-  Sodded Areas
-  Seeded Areas

Disturbed Area for Site Improvements : 13.55 Acres

**ESTIMATED EARTHWORK**

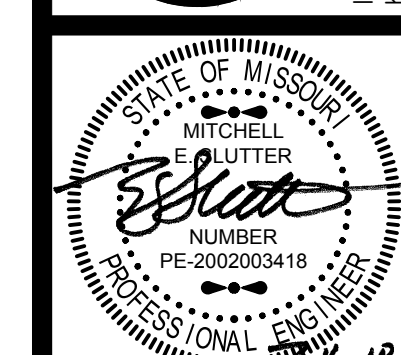
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3	APT	MES 06/15/18	50% SRI
2	APT	MES 05/14/13	PER CITY COMMENTS
1	APT	MES 04/13/18	ORIGINAL SUBMITTAL

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815 MCGEE STREET, SUITE 200  
KANSAS CITY, MISSOURI 64108  
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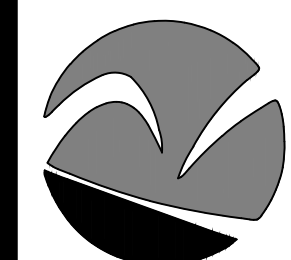


MISSOURI CERTIFICATE OF AUTHORITY NO. 2010033630

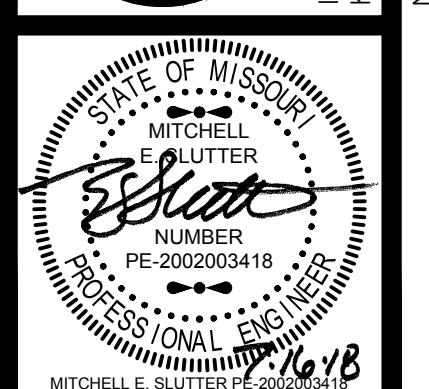


NO.	BY	DATE	REVISION
4	TCD MES	07/13/18	80% SMT
3	APT MES	06/15/18	50% SMT
2	APT MES	05/14/13	PER CITY COMMENTS
1	APT MES	04/13/18	ORIGINAL SUBMITTAL

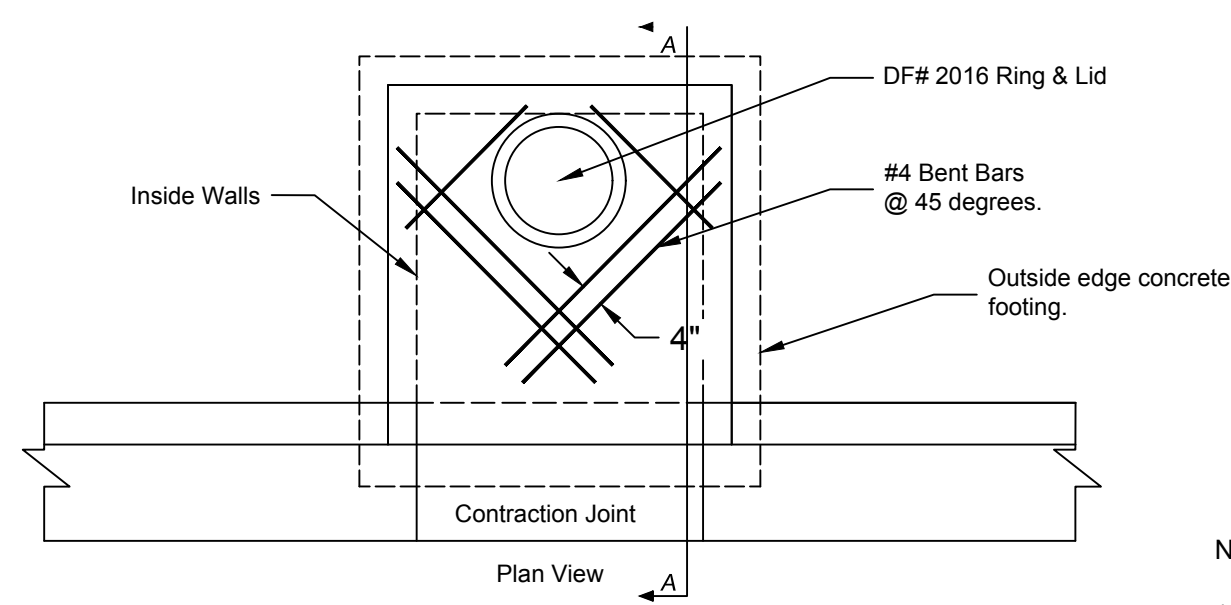
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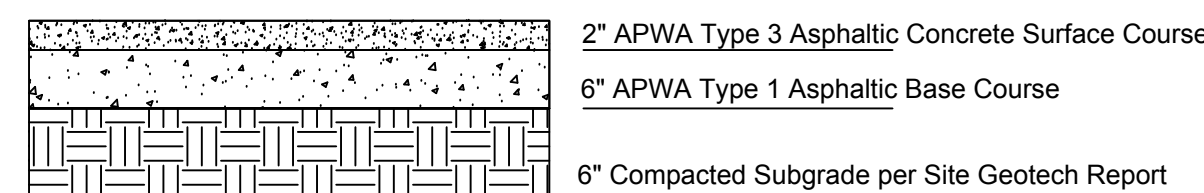
816.800.0950  
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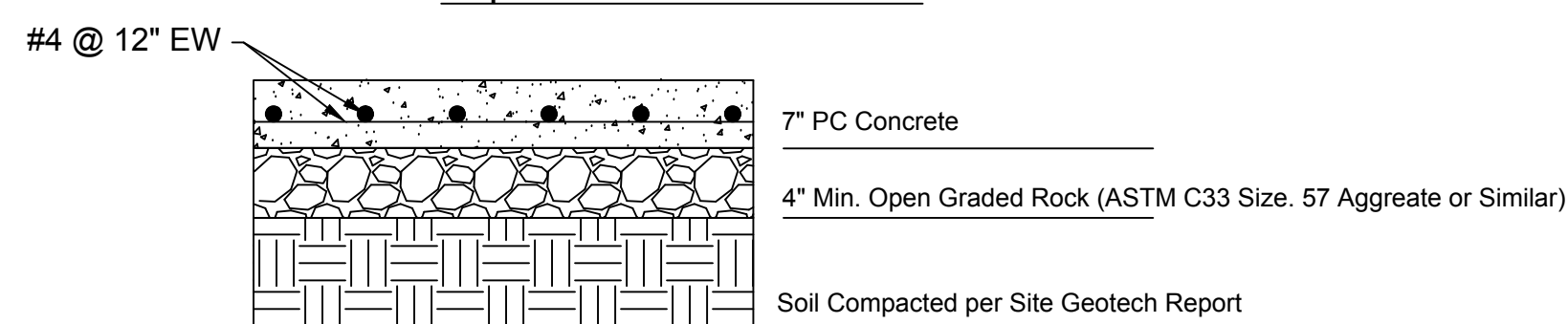
MISSOURI CERTIFICATE OF AUTHORITY NO. 2010033630



- Notes:
- All Concrete shall be KCMMB-4k.
  - Inlet Construction notes shall list the "L" Dimension first, the "W" dimension second, and the "H" dimension third.
  - Floor of inlets shall have a shaped concrete invert to provide for smooth flow.
  - The minimum dimension between top of pipe and top of box shall be 2' 6" (Typical all walls.)
  - All in-grade inlets shall conform to street grade. All inlets in sump shall be level. Bevel all exposed edges with 3/4" triangular molding.
  - Steps shall be spaced 1'-4" O.C. Vertically.
  - Any inlet, yard inlet, or junction box over 10 ft in length, 8 ft in width, or 12 ft in depth shall be considered non-standard, and a detail shall be shown. Any such detail shall be sealed by a structural engineer.
  - The throat and transition are subsidiary to the structure.
  - Lid shall be set true to line and grade along curb profile.

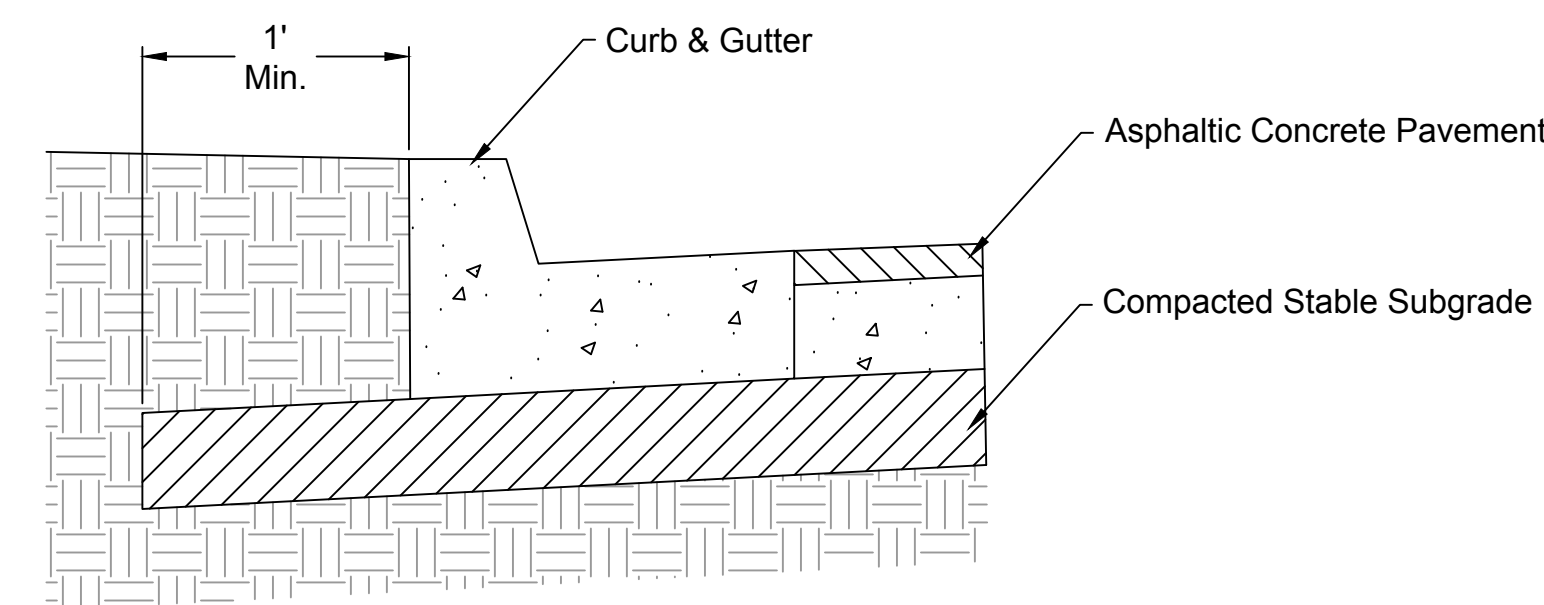


Asphalt Pavement Section

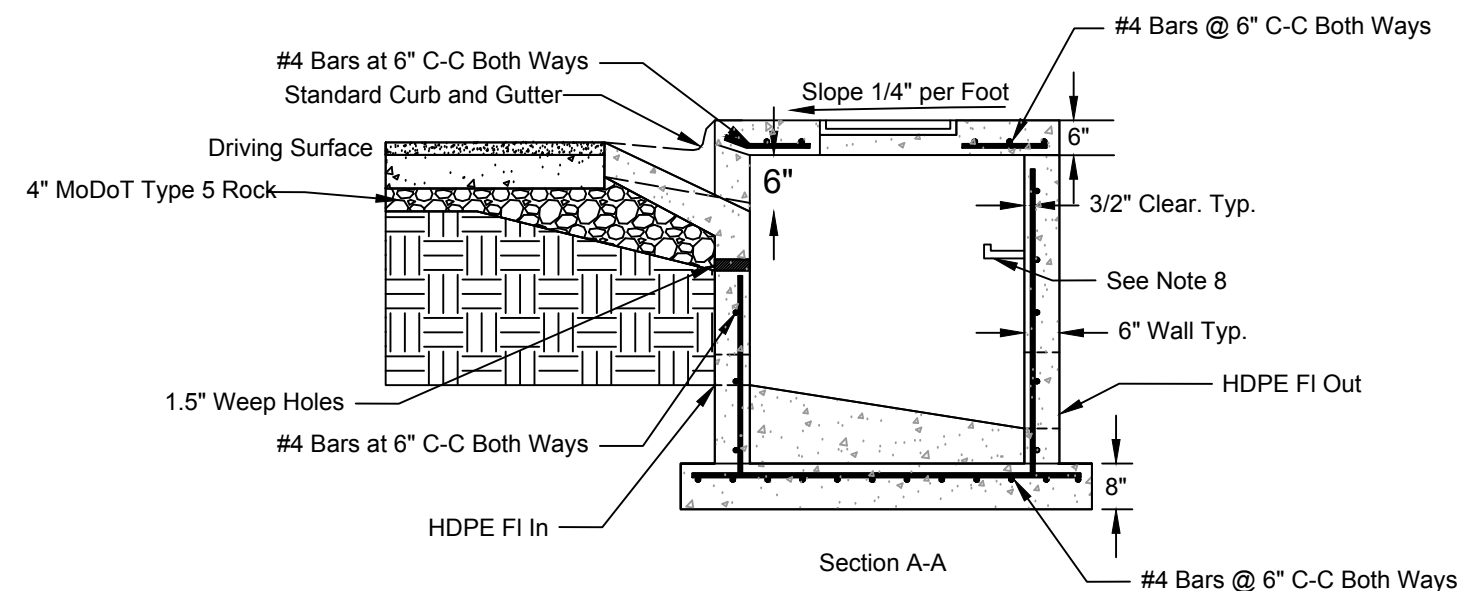


Heavy-Duty PC Pavement Section

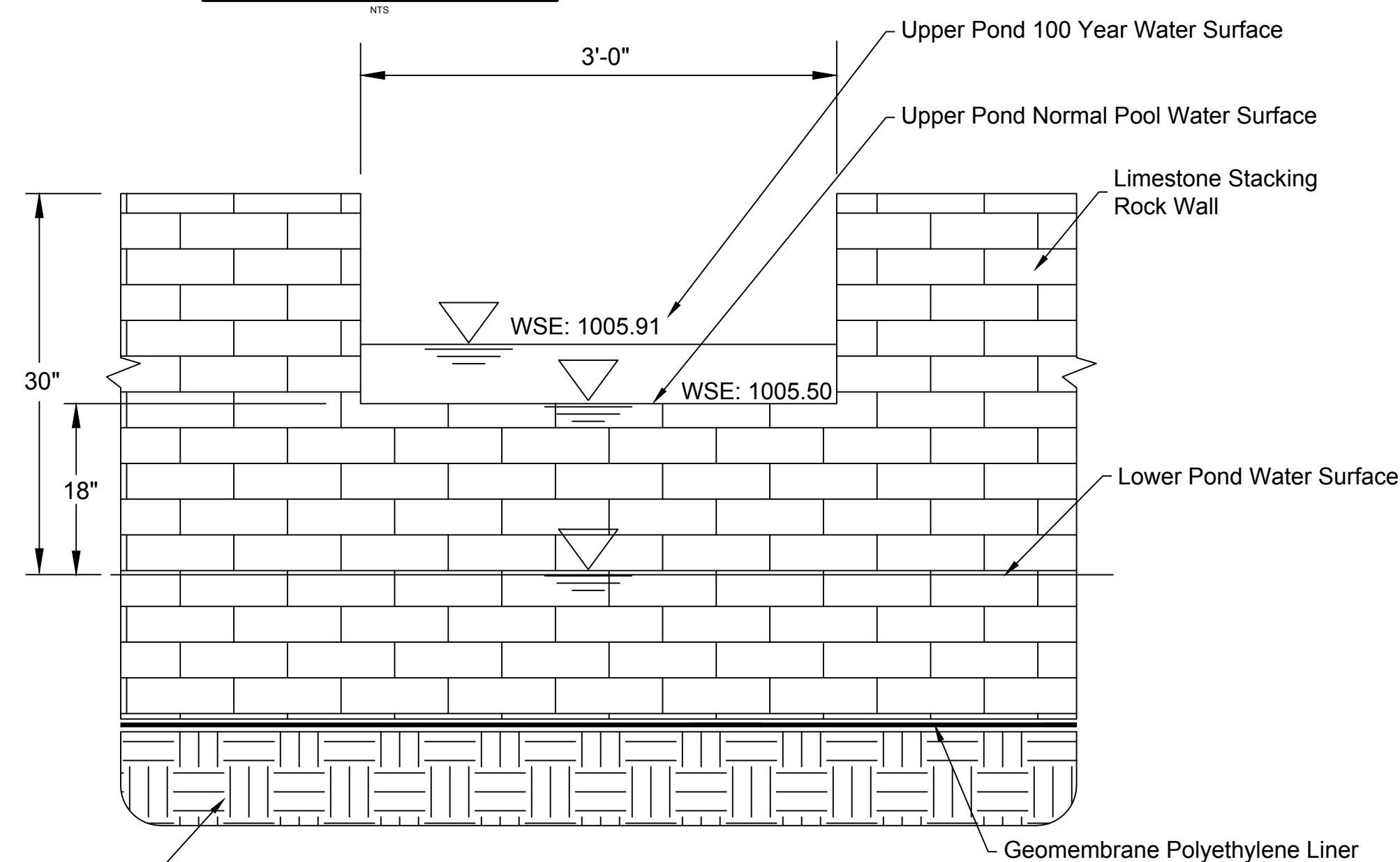
Note:  
30% Max Recycled Content In Base, 0% Recycled Content In Surface



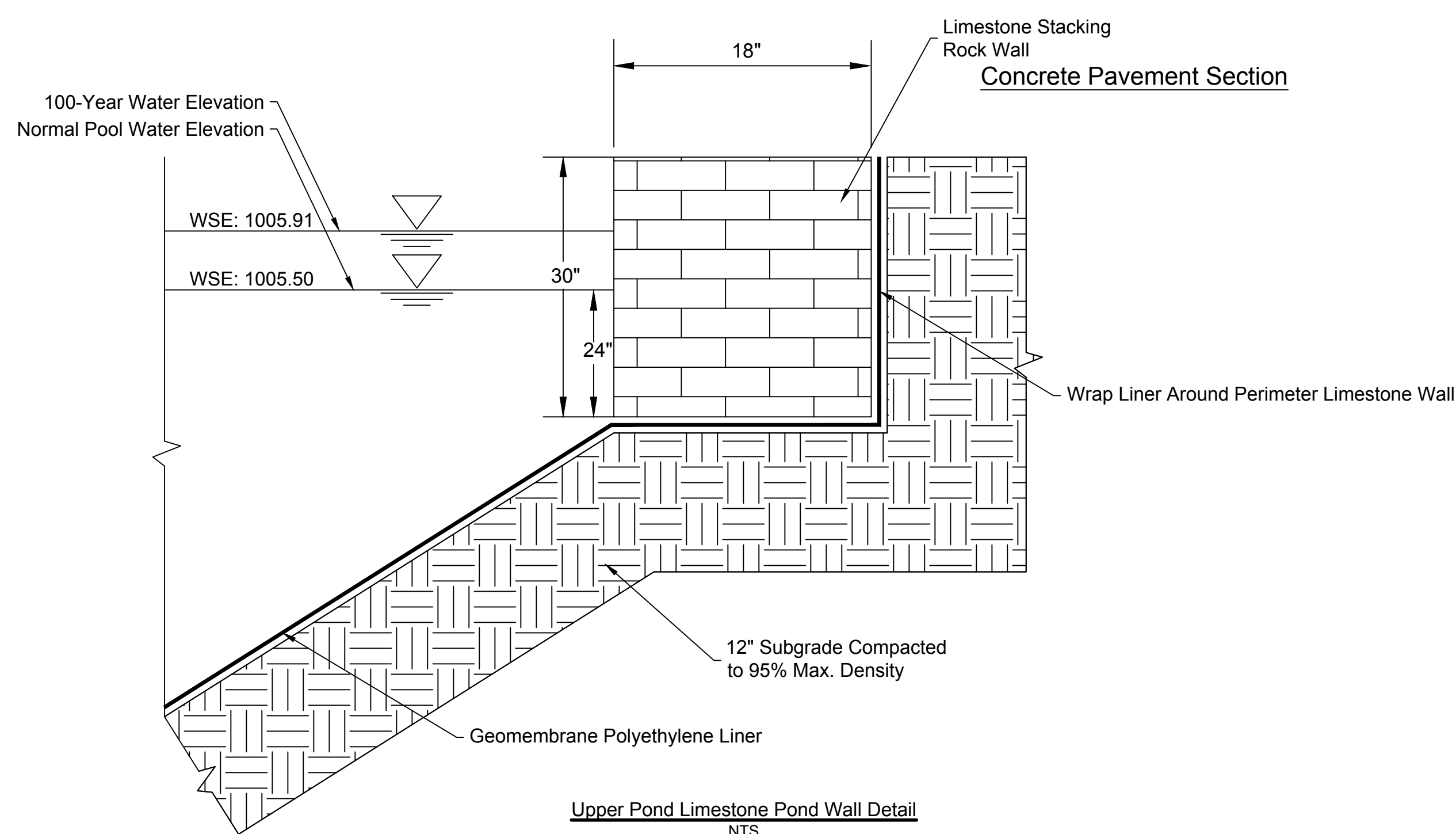
Std Curb & Curb Subgrade Detail  
n.t.s.



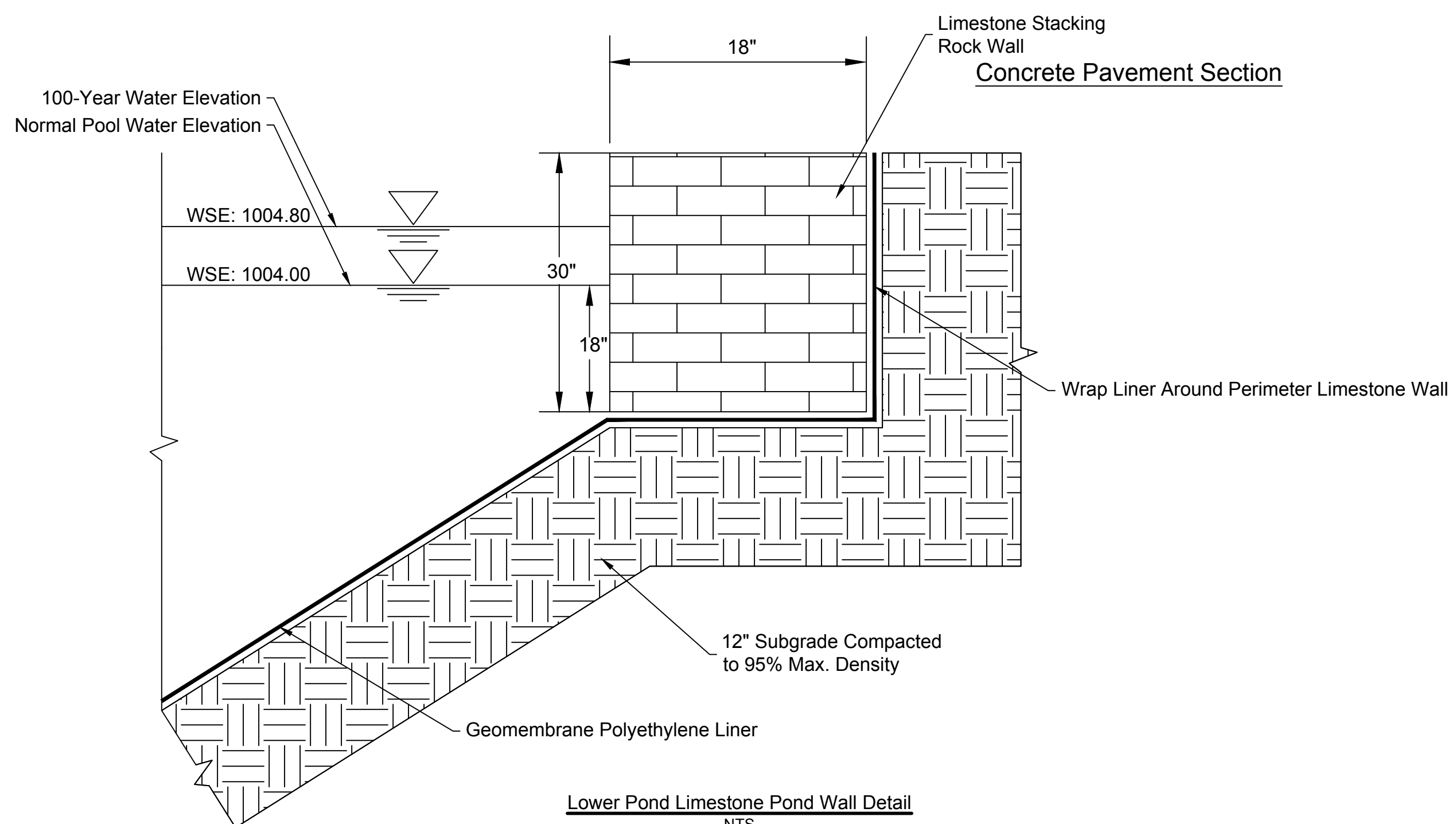
Standard Non-Setback Inlet Detail  
NTS



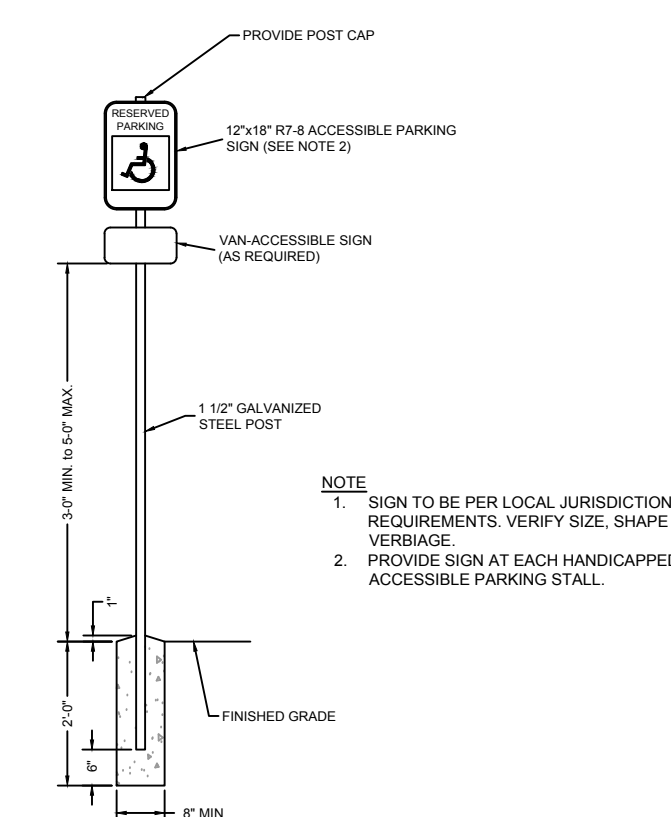
Upper Pond Spillway Section  
NTS



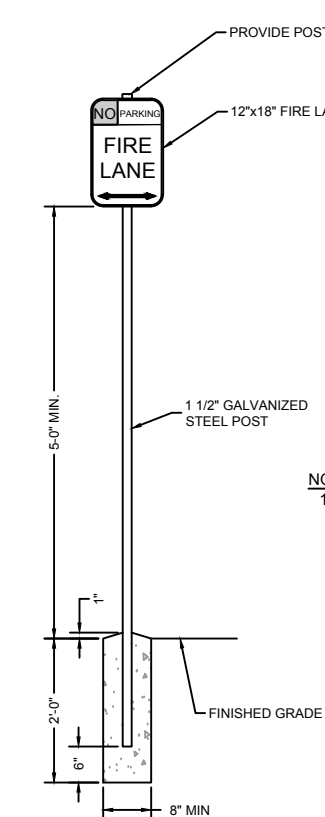
Upper Pond Limestone Pond Wall Detail  
NTS



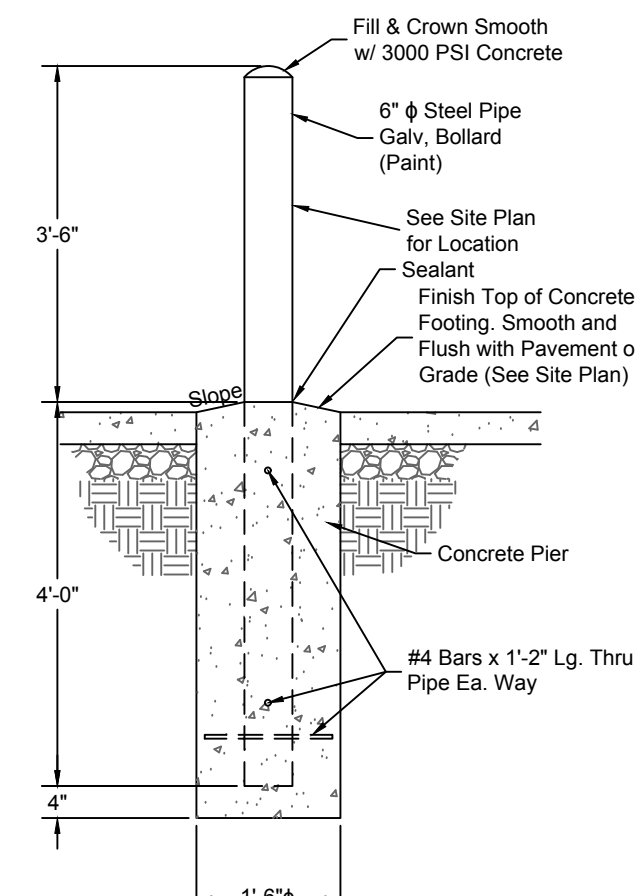
Lower Pond Limestone Pond Wall Detail  
NTS



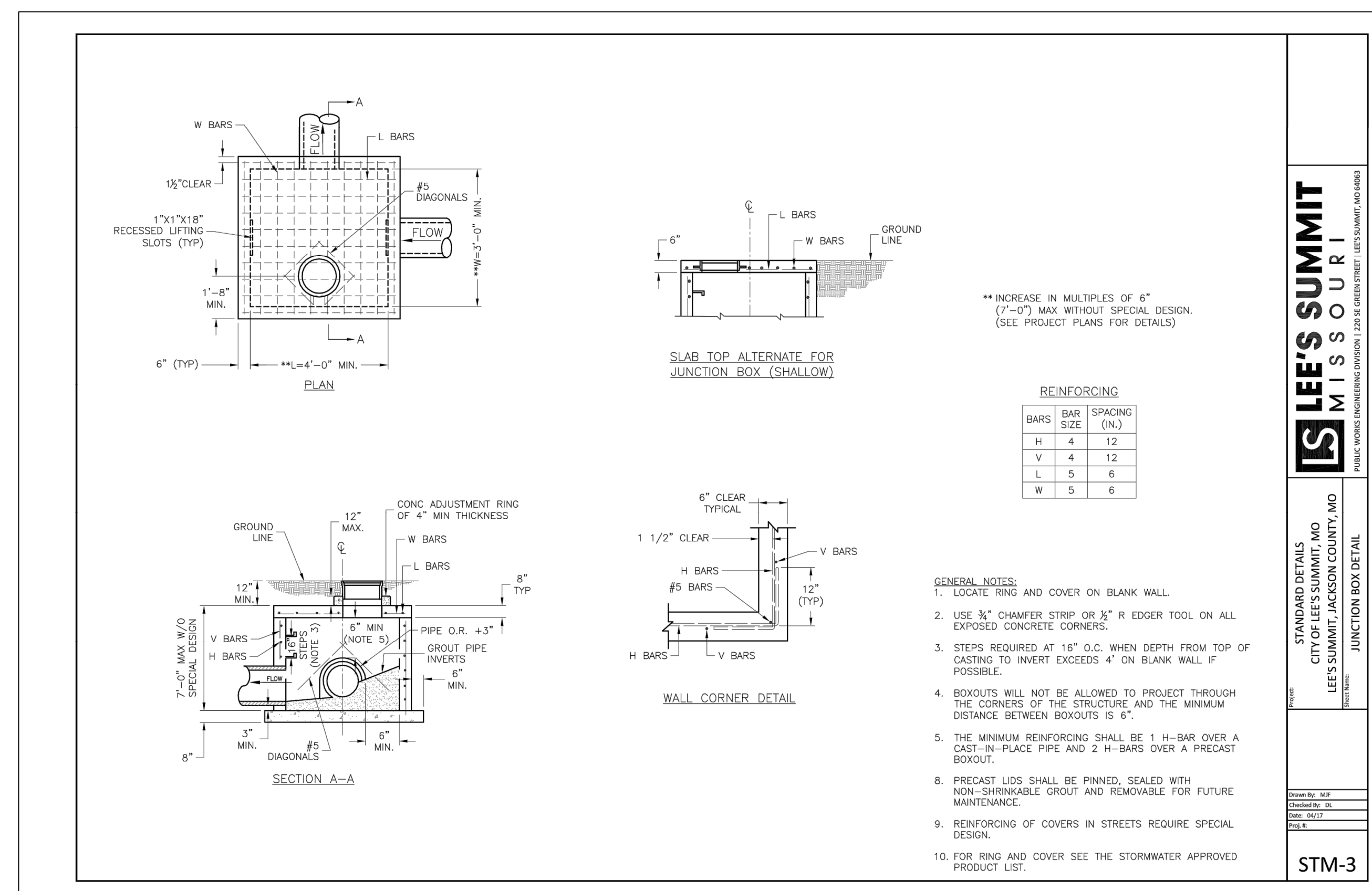
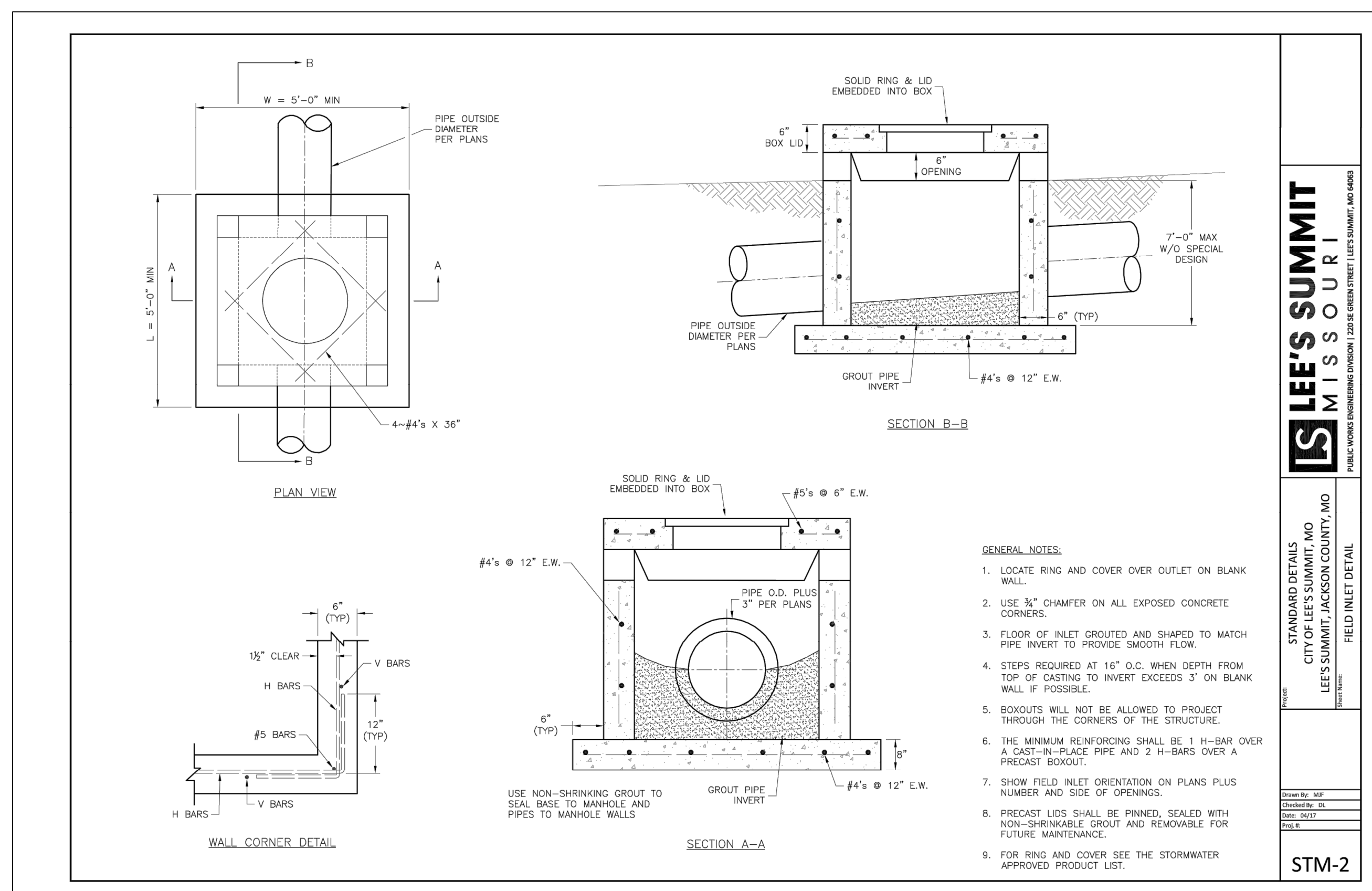
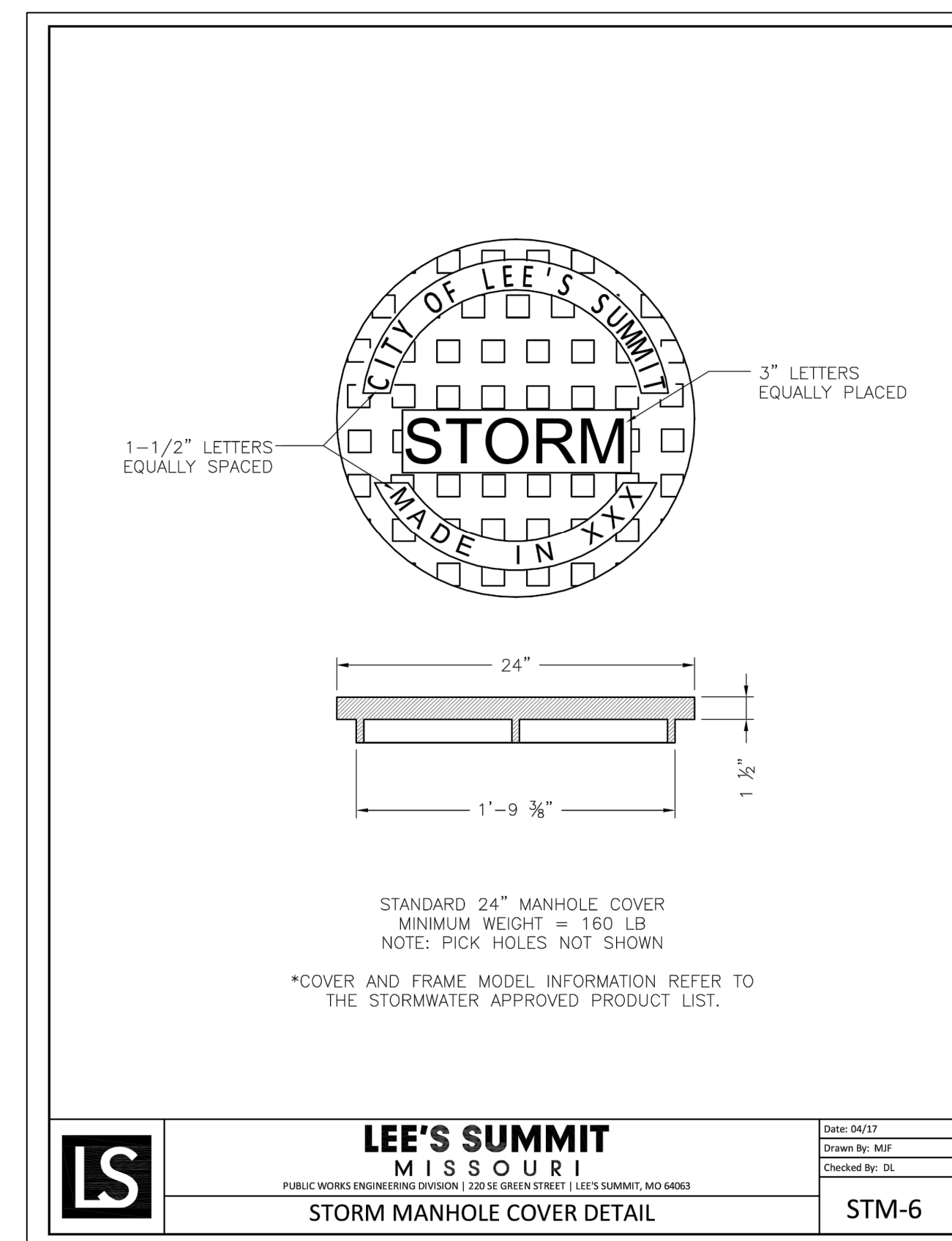
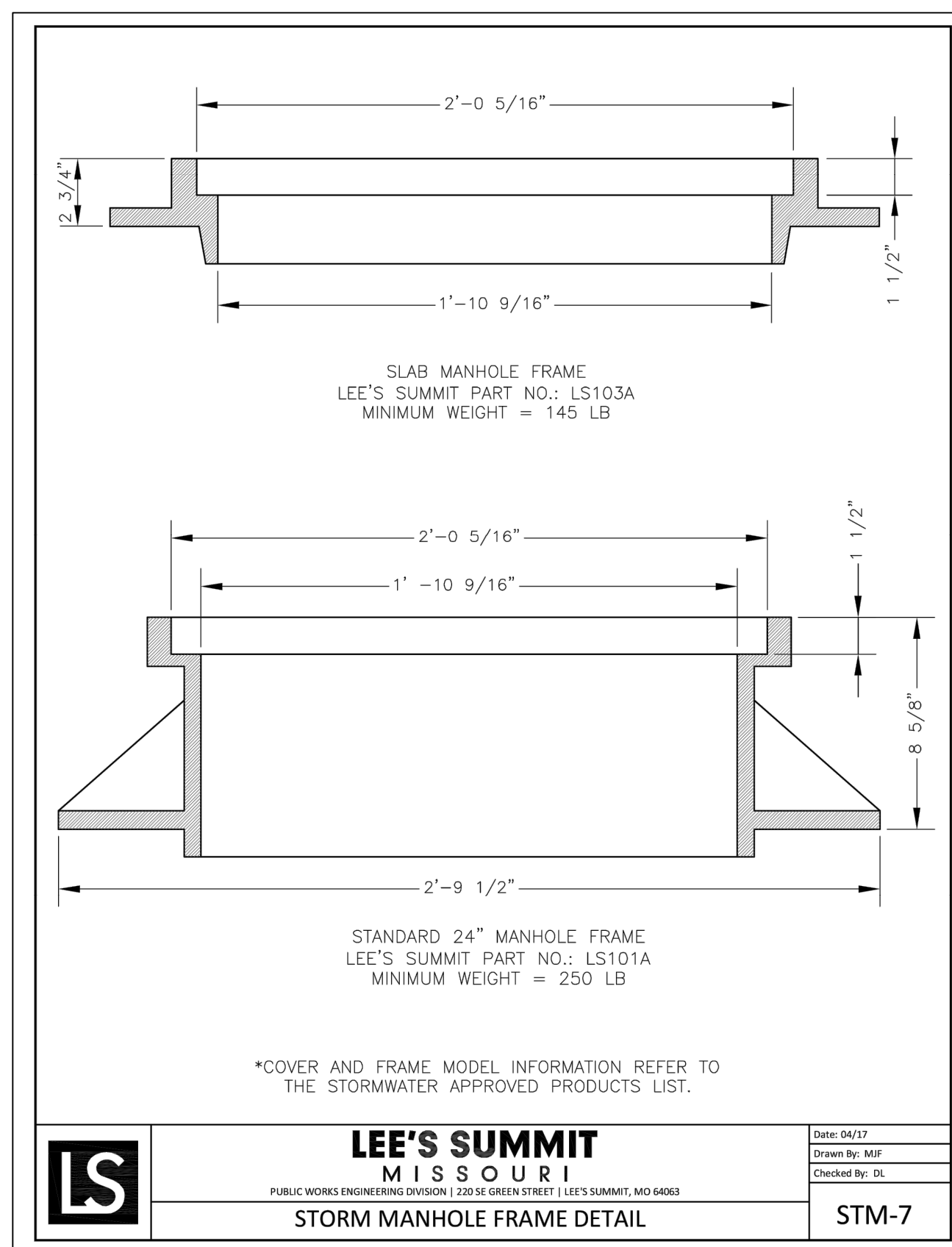
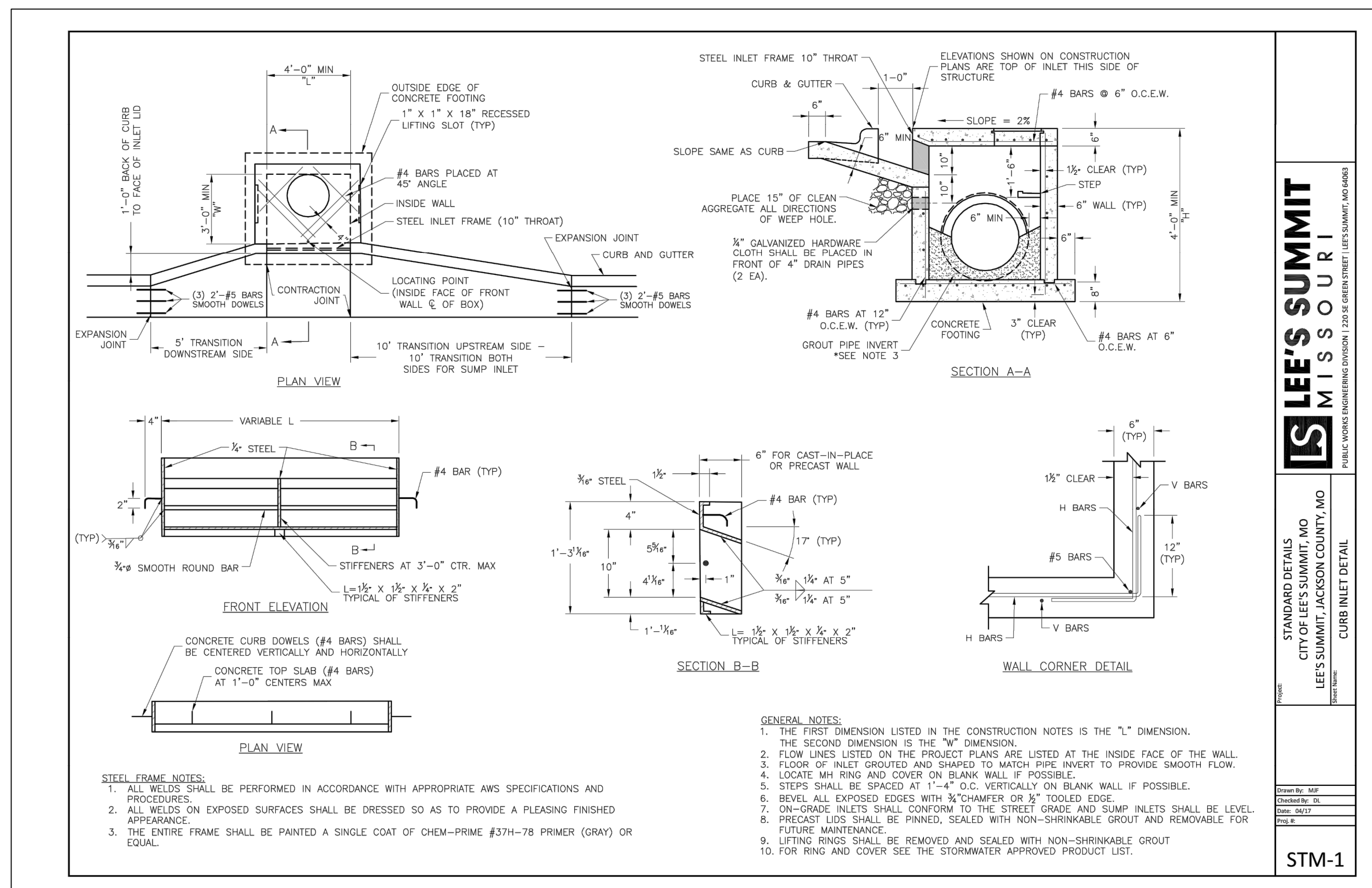
ACCESSIBLE PARKING SPACE SIGNAGE  
NOT TO SCALE



FIRE LANE SIGNAGE  
NOT TO SCALE



BOLLARD DETAIL  
Not to Scale



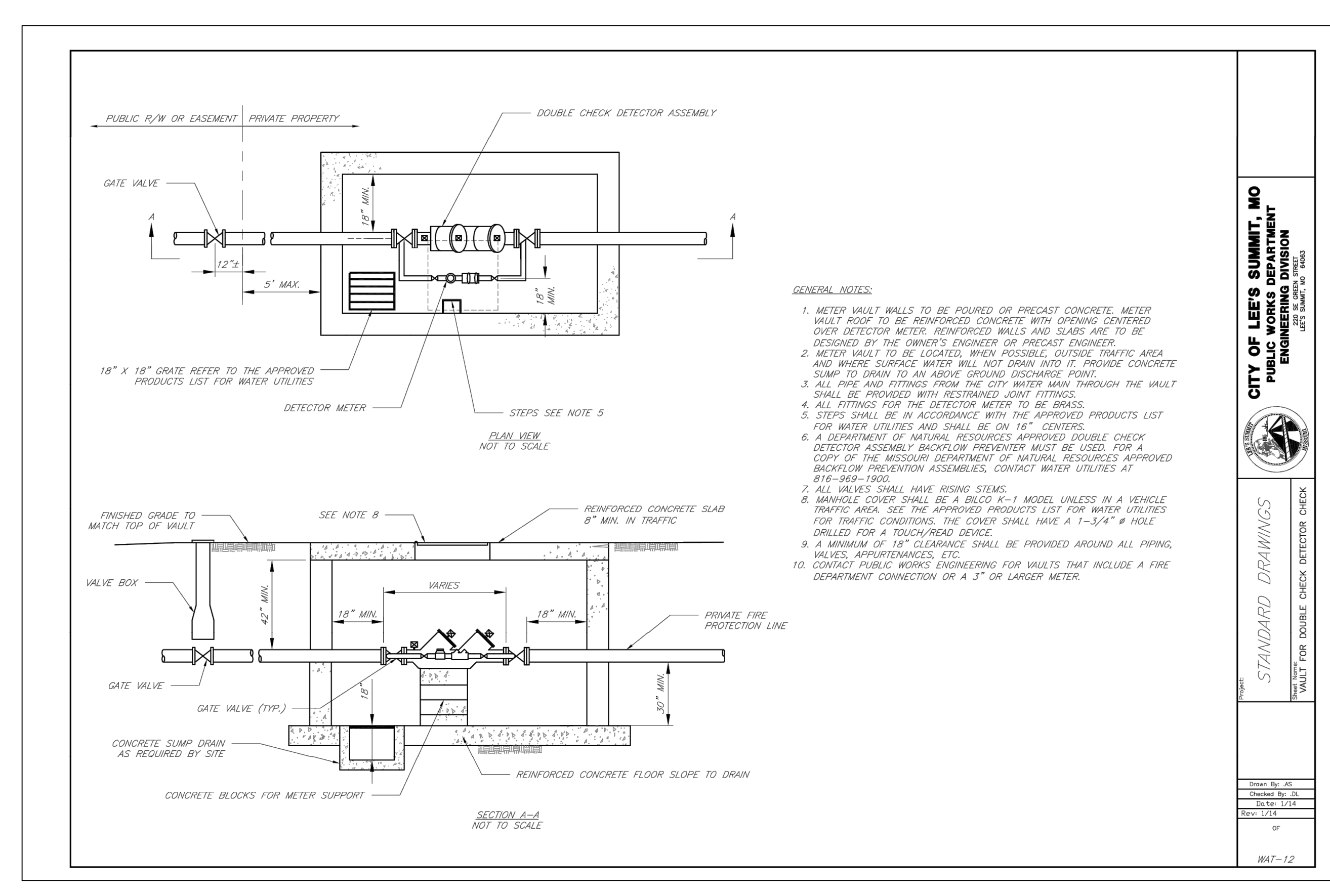
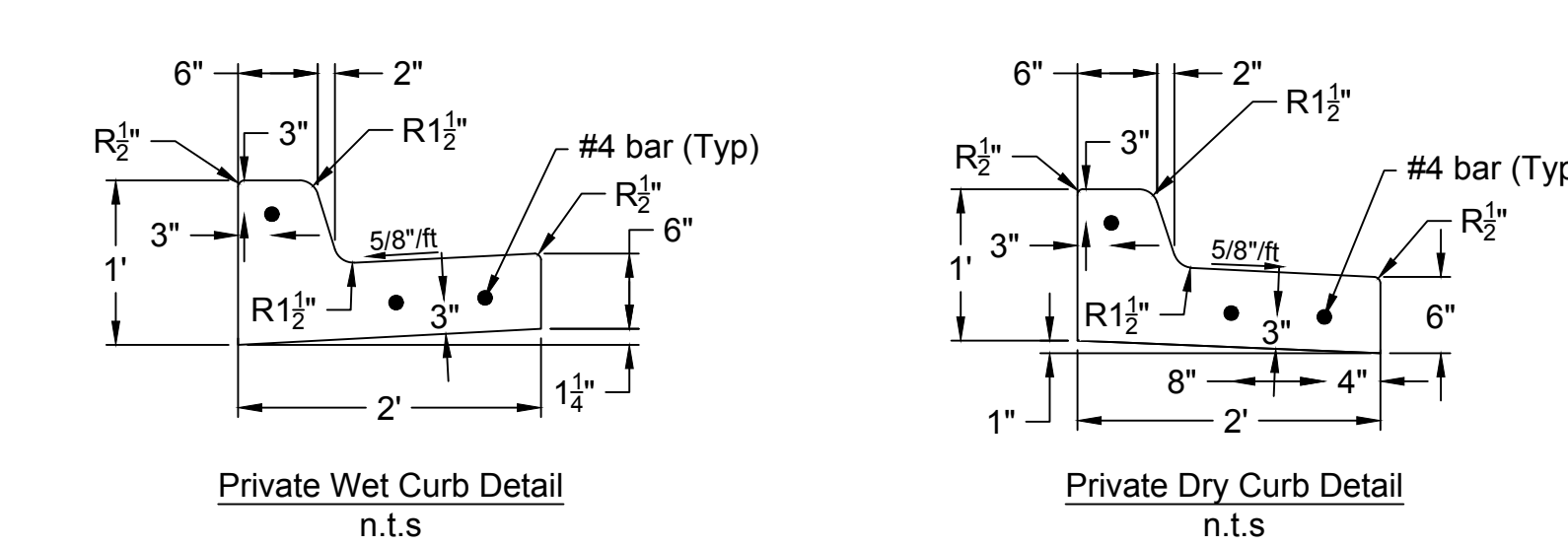
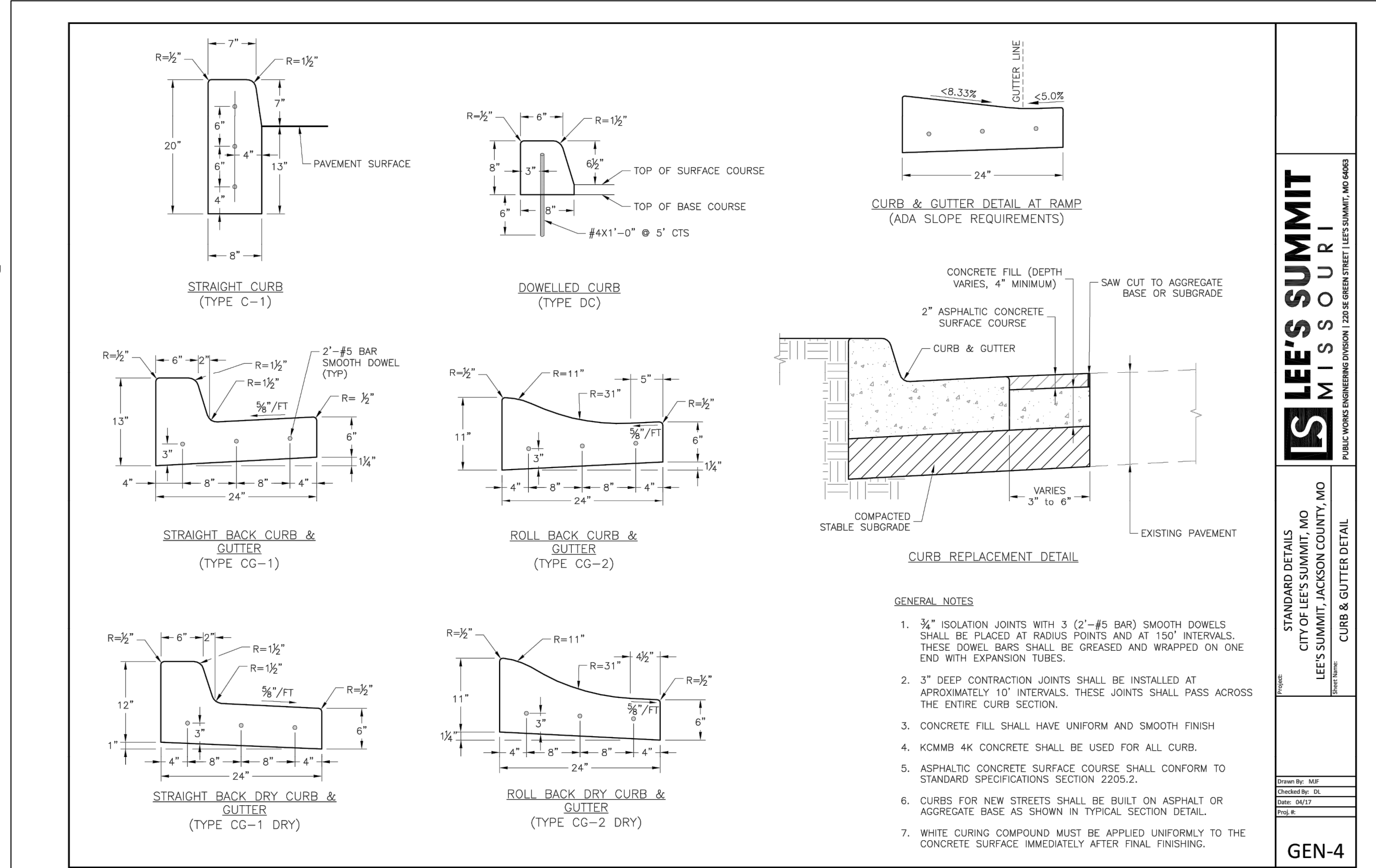
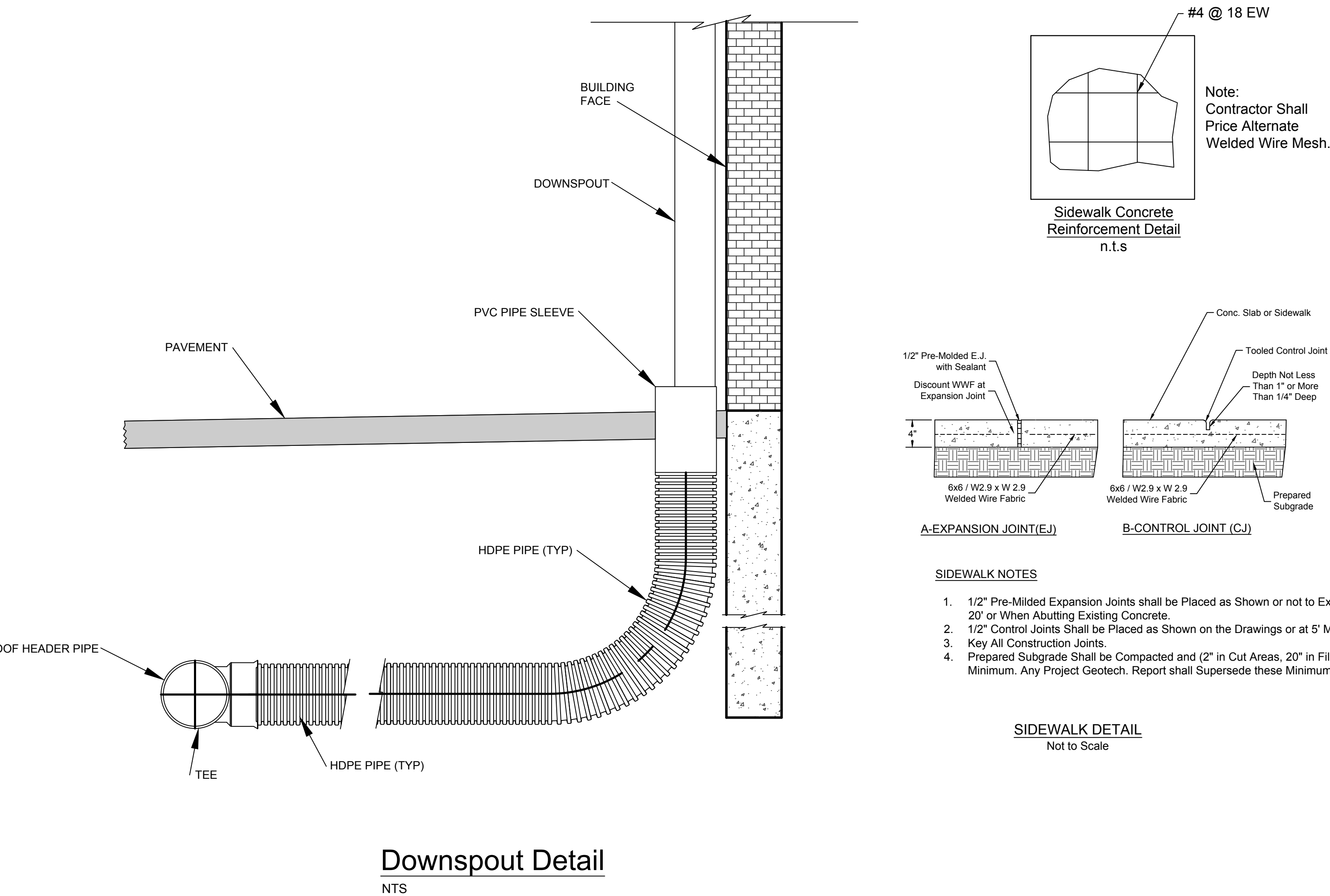
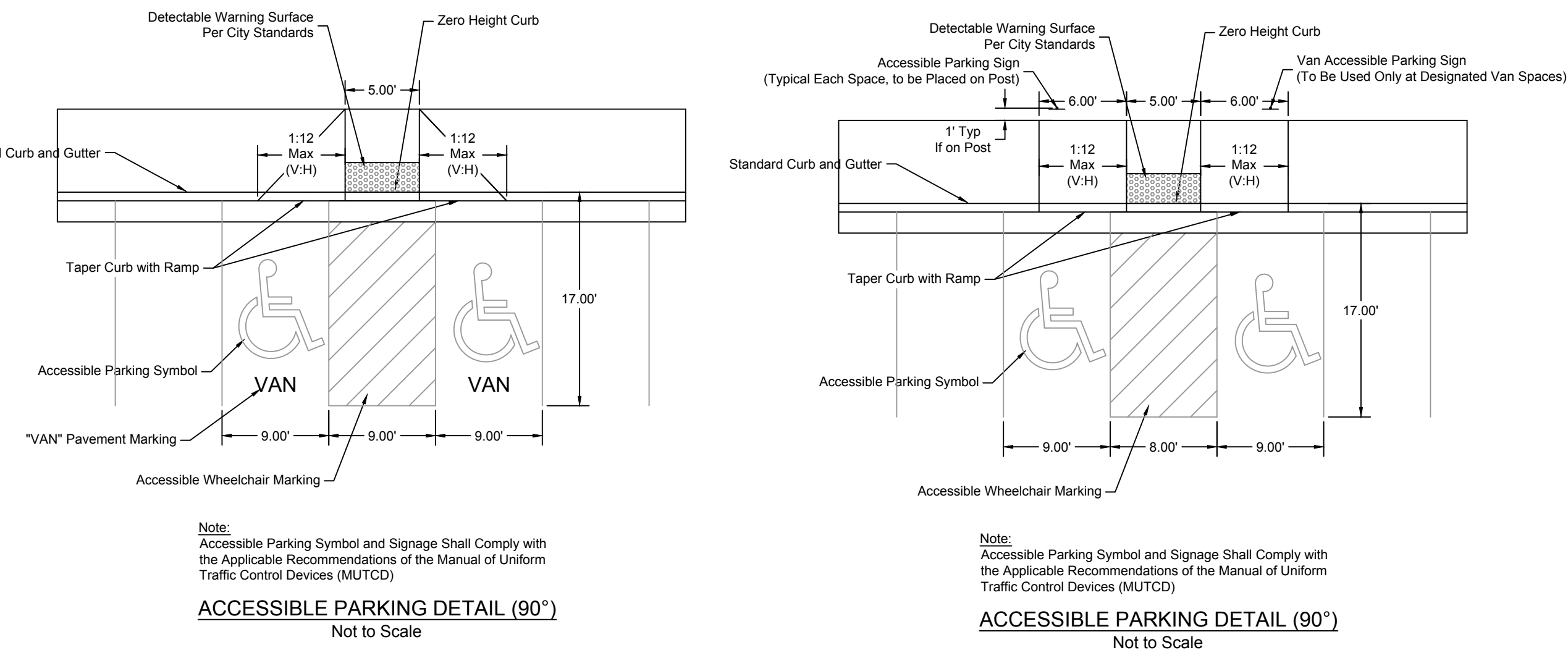
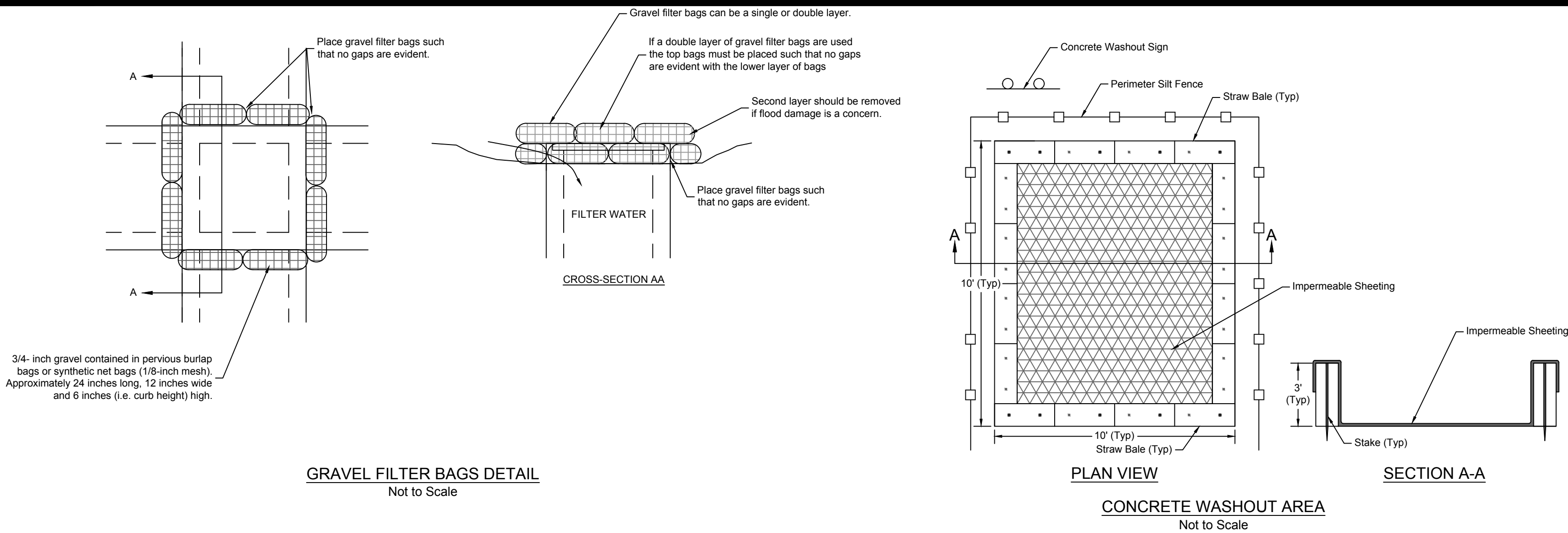
NO.	BY	DATE	REVISION
1	APR MES	04/15/18	ORIGINAL SUBMITTAL
2	APR MES	05/14/18	PER CITY COMMENTS
3	APR MES	06/15/18	50% SET
4	TCD MES	07/15/18	80% SET

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MISSOURI CERTIFICATE OF AUTHORITY NO. 2010033630

STATE OF MISSOURI  
JUL 16 2018 3:31 PM  
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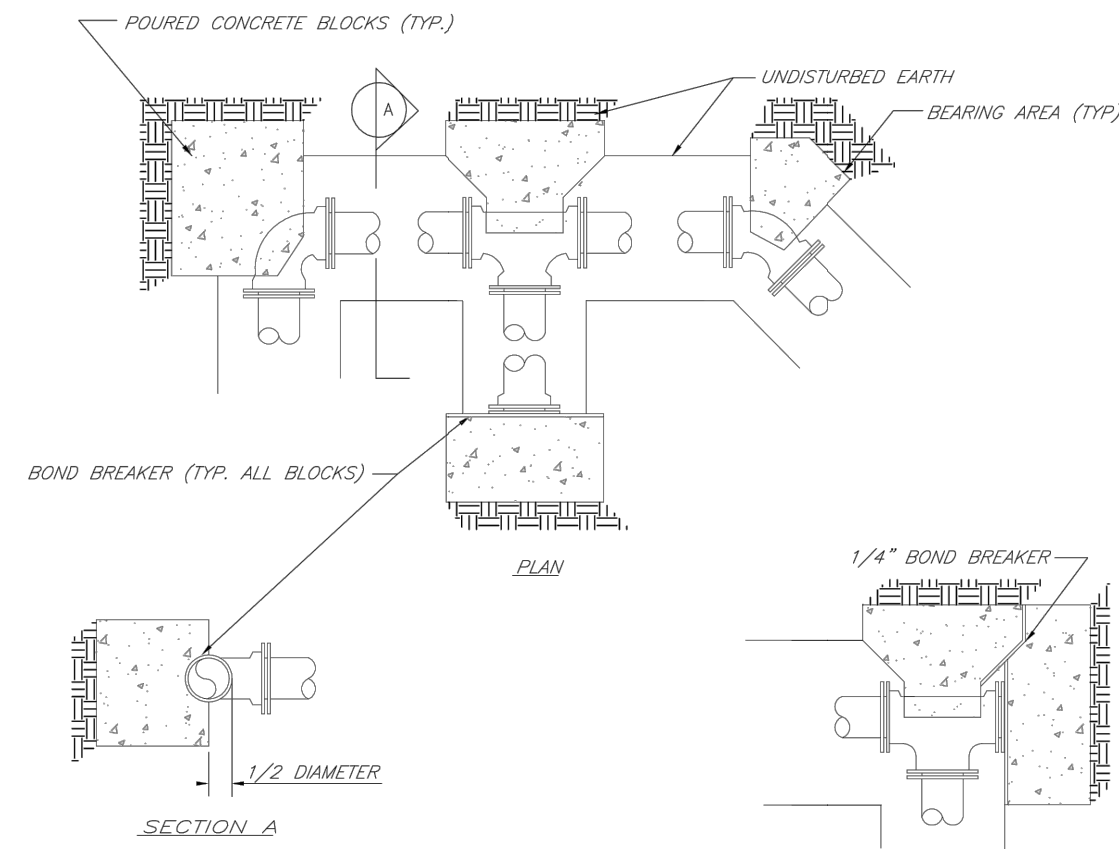
MISSOURI CERTIFICATE OF AUTHORITY NO. 2000033650

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REQUIRED CONCRETE BEARING AREA (SQUARE FEET - SF)

NOM. DIA. (INCHES)	TEE, PLUG	BEND	BEND	22.5 BEND	11.25 BEND
6	4.7	6.7	4.0	4.0	4.0
8	6.4	11.9	6.4	4.0	4.0
10	13.1	18.5	10.0	5.1	4.0
12	19.8	25.2	14.4	7.4	4.0
14	26.5	31.9	19.6	10.0	5.0
16	33.2	38.6	25.6	13.1	6.6
18	40.0	45.3	32.5	16.5	8.3
20	46.7	52.0	40.1	20.4	10.3
24	56.5	61.8	49.7	25.4	12.9

- NOTES:  
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.  
2. MECA 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.



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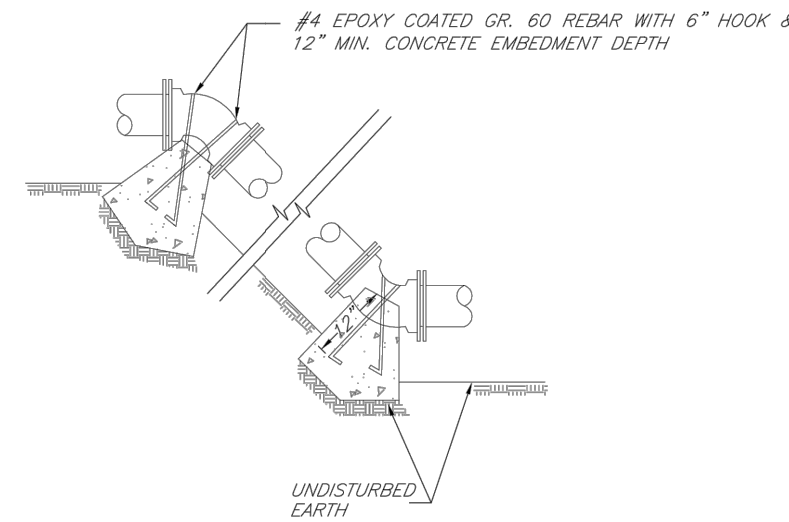
**HORIZONTAL THRUST BLOCKS**

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

REQUIRED CONCRETE VOLUME (CUBIC FEET - CF)

NOM. DIA. (INCHES)	TEE, PLUG	BEND	BEND	22.5 BEND	11.25 BEND
6	50.6	71.4	38.6	19.7	9.9
8	89.8	126.9	68.7	35.0	17.6
10	140.2	198.4	110.1	54.7	27.5
12	202.0	282.1	154.6	78.8	39.6
14	274.0	388.4	210.4	105.1	53.9
16	356.0	516.8	280.8	141.1	70.4
18	448.0	667.2	361.6	180.1	91.1
20	550.0	840.0	453.6	222.0	110.0
24	768.0	1137.6	585.6	288.0	146.4

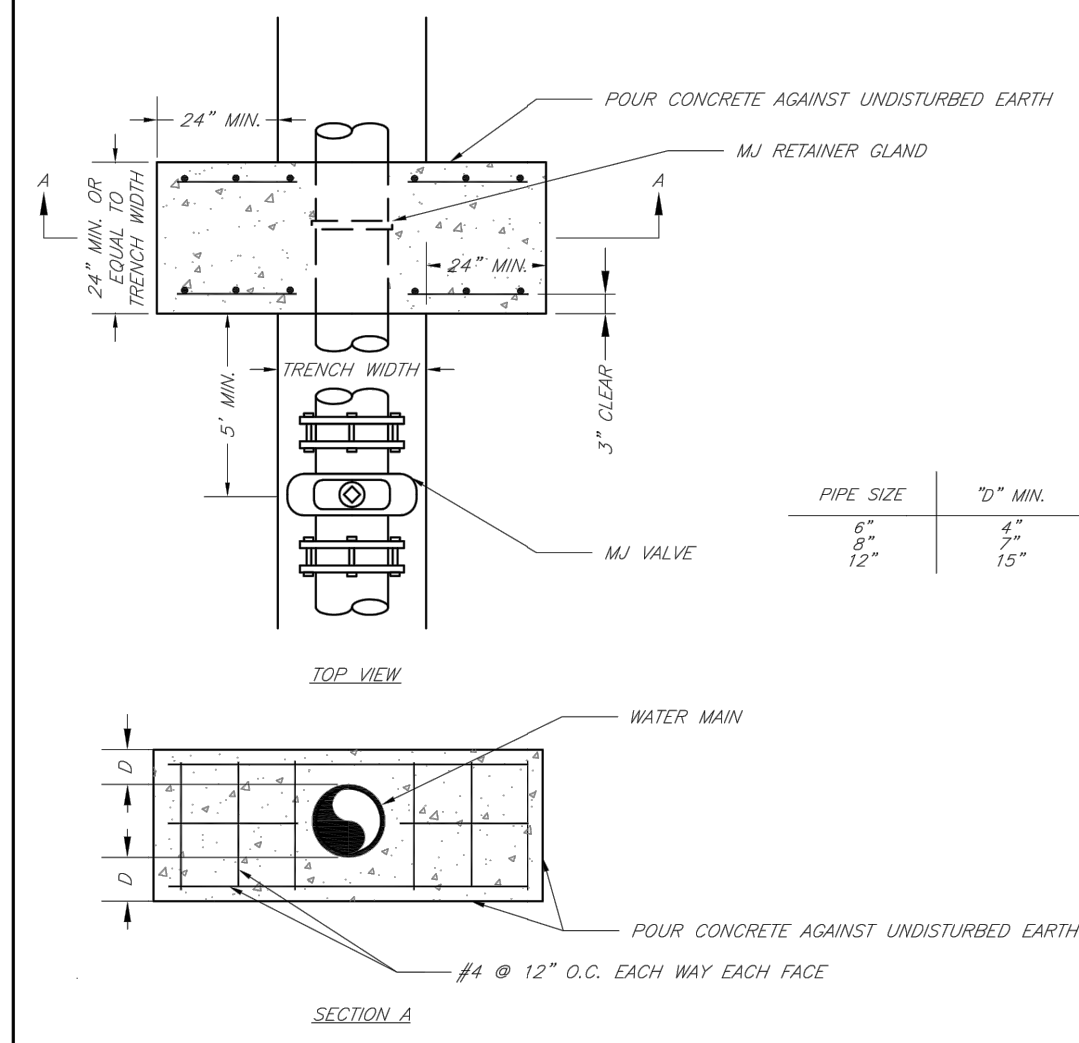
- NOTES:  
1. ALL BENDS WITHOUT RESTRAINED JOINTS SHALL HAVE CONCRETE THRUST BLOCKS INSTALLED FOR RESTRAINT.  
2. MECA LUGS MAY BE USED ONLY IN CONJUNCTION WITH CONCRETE THRUST BLOCKING.  
3. BEARING MUST BE AGAINST UNDISTURBED SOIL.  
4. DO NOT COVER JOINTS OR BOLTS (WHERE APPLICABLE) WITH CONCRETE.



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**VERTICAL THRUST BLOCKS**

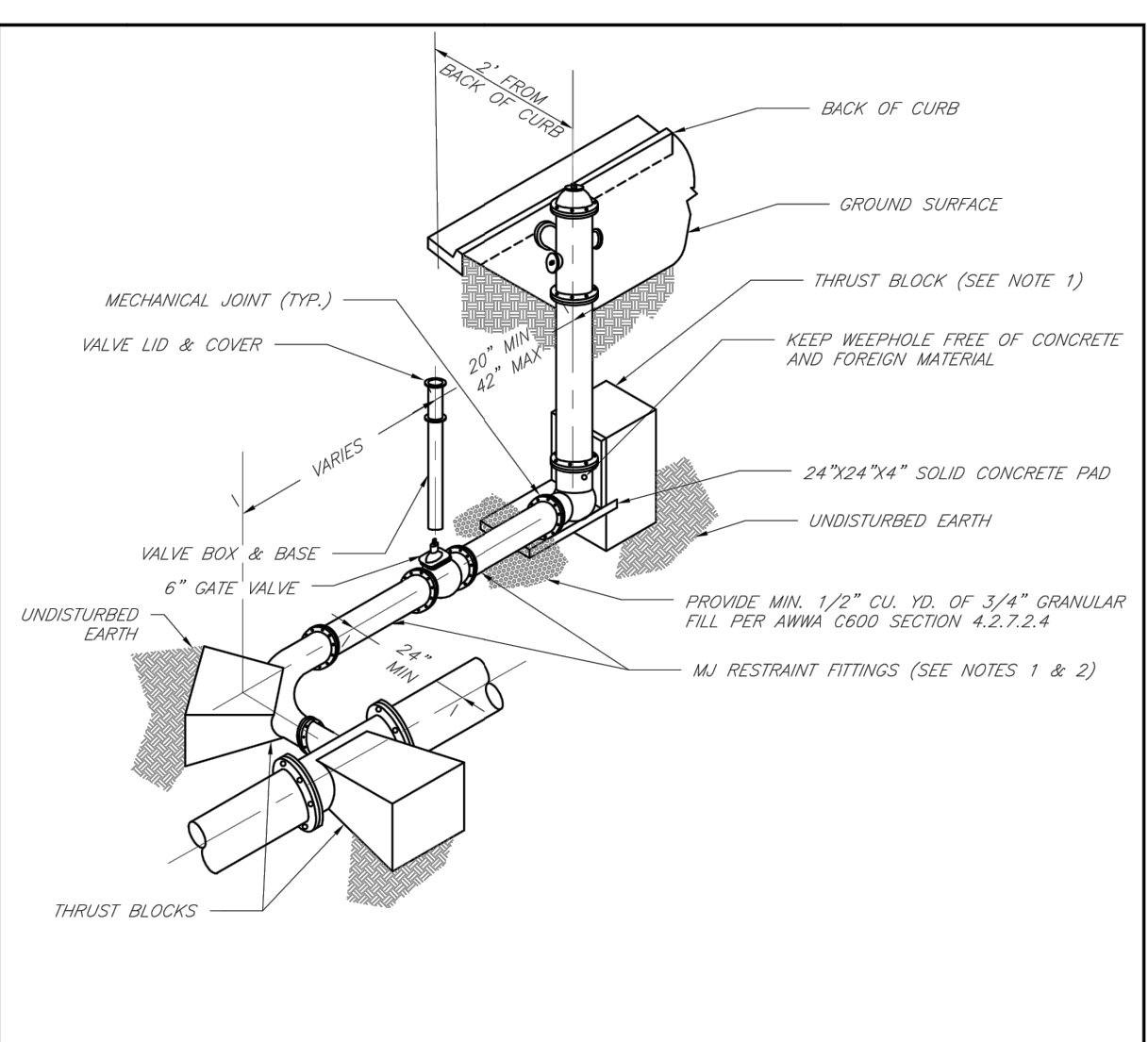
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Drawn By: JN  
Checked By: DL  
FILE: WAT-2  
Rev: 1/14



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**STRADDLE BLOCK**

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

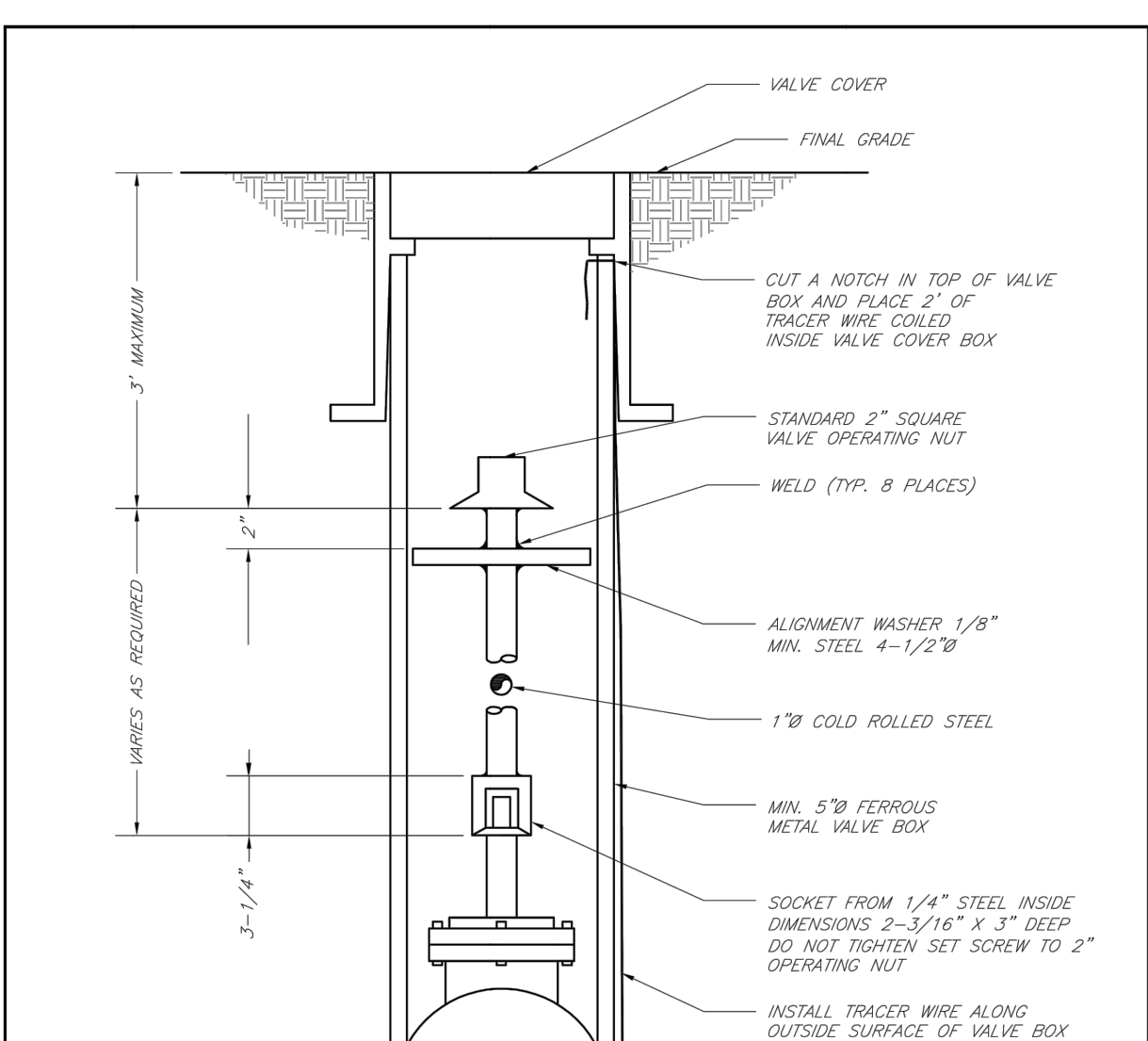


- NOTES:  
1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (M) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.  
2. GATE VALVE MAY BE BOLTED DIRECTLY TO M RESTRAINT TEE.  
3. SEE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR FIRE HYDRANT, VALVES, VALVE BOX LID, AND COVER.  
4. BOTTOM HYDRANT FLANGE SHALL BE 2\"/>

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**HYDRANT WITH 90 DEGREE BEND**

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

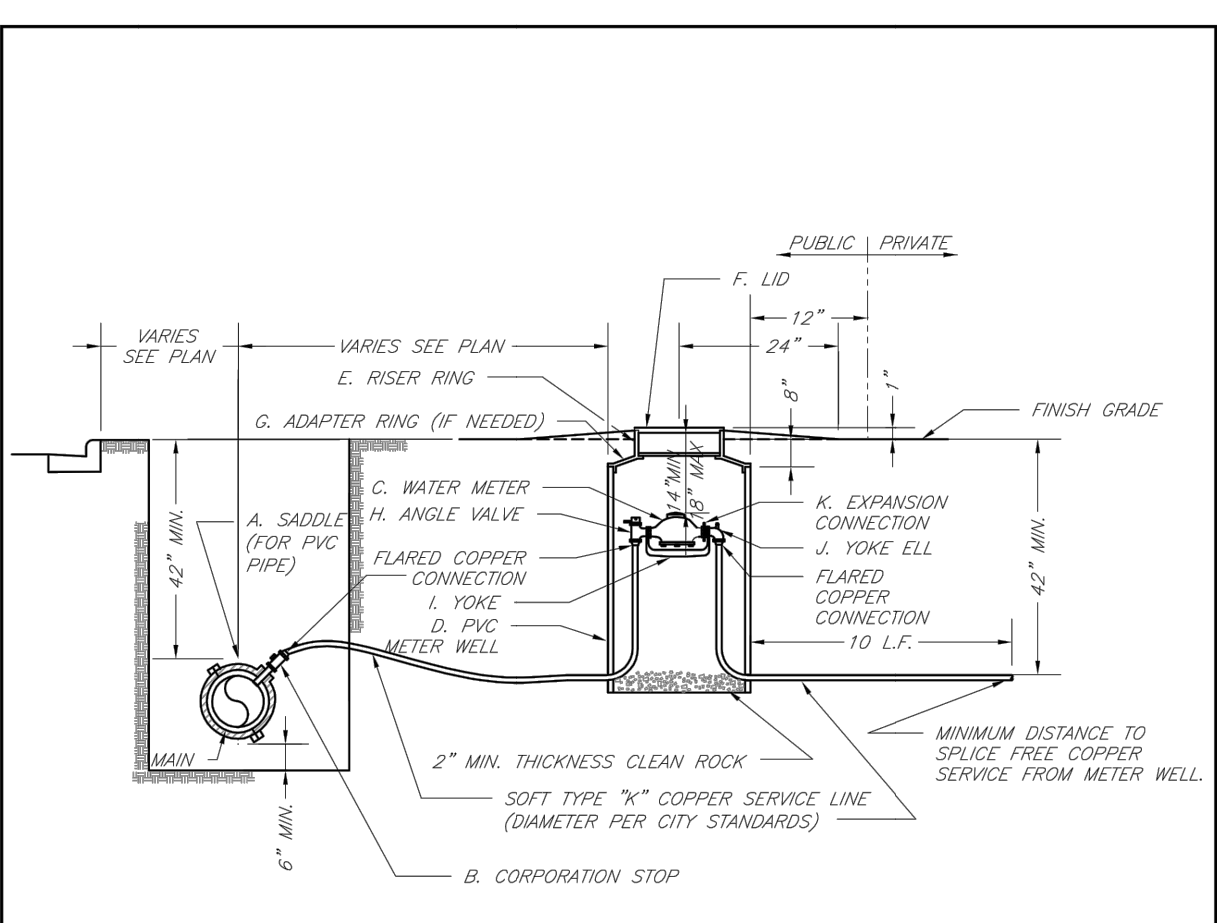


- NOTES:  
1. METER INSTALLATION SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC OR IN CONCRETE PAVEMENT WITHOUT CITY APPROVAL.  
2. IF METER IS TO BE LOCATED OTHER THAN IN FRONT OF PROPERTY LINE, CITY APPROVAL SHALL BE OBTAINED.  
3. CITY TO FURNISH ITEMS A-K.  
4. NO OTHER EQUIPMENT SHALL BE INSTALLED IN THIS PIT.  
5. 42\"/>

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**VALVE STEM EXTENSION AND VALVE BOX**

Date: 02/13  
Drawn By: JN  
Checked By: DL  
FILE: WAT-4  
Rev: 1/14

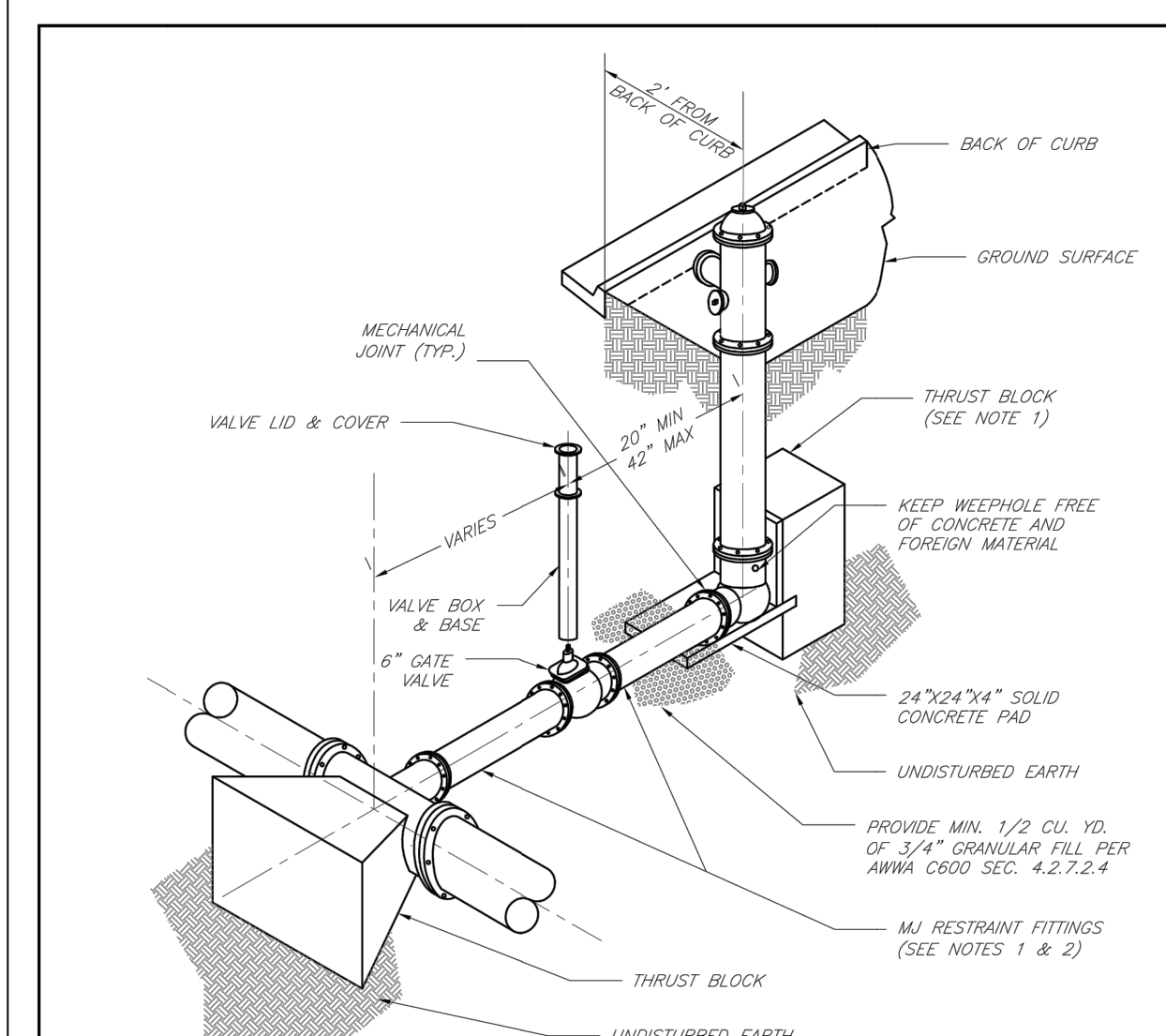


- NOTES:  
1. METER INSTALLATION SHALL NOT BE LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC OR IN CONCRETE PAVEMENT WITHOUT CITY APPROVAL.  
2. IF METER IS TO BE LOCATED OTHER THAN IN FRONT OF PROPERTY LINE, CITY APPROVAL SHALL BE OBTAINED.  
3. CITY TO FURNISH ITEMS A-K.  
4. NO OTHER EQUIPMENT SHALL BE INSTALLED IN THIS PIT.  
5. 42\"/>

**LEE'S SUMMIT MISSOURI**  
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**SERVICE CONNECTION/METER WELL**

Date: 02/13  
Drawn By: JN  
Checked By: DL  
FILE: WAT-5  
Rev: 1/14



- NOTES:  
1. WHEN RETAINER GLANDS ARE USED IN LIEU OF MECHANICAL JOINT (M) RESTRAINT FITTINGS, HORIZONTAL THRUST BLOCKS ARE REQUIRED.  
2. GATE VALVE MAY BE BOLTED DIRECTLY TO M 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\"/>

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**HYDRANT INSTALLATION - STRAIGHT SET**

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

NO.	BY	DATE	REVISION
4	TCD	MES 07/13/18	80% SH
3	APT	MES 06/15/18	50% SH
2	APT	MES 05/14/13	PER CITY COMMENTS
1	APT	MES 04/13/18	ORIGINAL SUBMITTAL

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STATE OF MISSOURI  
MITCHELL  
LUTTER  
Professional Engineer  
No. 1678