

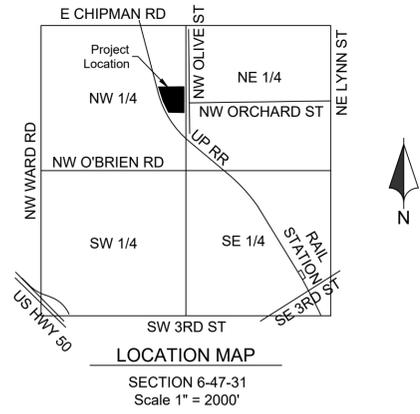
NO.	BY	DATE	REVISION
1.	JDG	MES 05/09/2020	ORIGINAL SUBMISSION

**Renaissance Infrastructure Consulting**  
815 McGEE STREET, SUITE 200  
KANSAS CITY, MISSOURI 64108  
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E:2010033630



# Public Street and Storm For Sequoia Residential

Lee's Summit, Jackson County, Missouri  
Total Project Area: 3.78 Acres (164,565.80 SF)



Sheet List Table

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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 Construction Document 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/her 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/her 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 Lee Summit 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.



**LEGAL DESCRIPTION**  
Lot 1, 2, and 3, EXCEPT the North 140 feet of the East 150 feet of Lot 3, HEARNE'S ADDITION, (aka/ HEARNES FIRST ADDITION) and the North Half of vacated Orchard Street lying South and adjacent, a subdivision in Lee's Summit, Jackson County, Missouri.

Lot 22, and 23, HEARNE'S ADDITION, a subdivision in Lee's Summit, Jackson County, Missouri, EXCEPT the South 8 feet of the West 50 feet of Lot 22 and also EXCEPT, the South 8 feet of Lot 23, and ALSO EXCEPT the South 88 feet of the East 150 feet of Lot 22, together with the South 1/2 of vacated Orchard Street lying North of and Adjacent to the said premises in question.

**BENCHMARK:**  
BM-A: 1.0 mi NW along the Missouri Pacific Railroad from the station at Lee's Summit, at the crossing of Sheer Road, 86 ft southeast of the center line of Sheer Road, 36 ft northeast of the northwest rail, 28.4 ft southeast of a telephone pole, 697 ft southwest of a fence, 1.8 ft west of a witness post, set in the top of a concrete post which projects 0.3 ft above the ground. Elev: 994.87  
BM-B: 1.3 mi N along the Missouri Pacific Railroad from the station at Lee's Summit, Jackson County, at semaphore 2611, on the top of the concrete base, and 10 ft east of the track. A chiseled square. Elev: 971.80

**Oil / Gas Well Note:**  
There is no visible evident, 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." (Figure B-4, pg. 91)

**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.

LEGEND

---	Existing Section Line	---	Proposed Right-of-Way
---	Existing Right-of-Way Line	---	Proposed Property Line
---	Existing Lot Line	---	Proposed Lot Line
---	Existing Easement Line	---	Proposed Easement
---	Existing Curb & Gutter	---	Proposed Curb & Gutter
---	Existing Sidewalk	---	Proposed Sidewalk
---	Existing Storm Sewer	---	Proposed Storm Sewer
□	Existing Storm Structure	□	Proposed Storm Structure
W/L	Existing Waterline	A	Proposed Fire Hydrant
GAS	Existing Gas Main	WATER	Proposed Waterline
---	Existing Sanitary Sewer	SS	Proposed Sanitary Sewer
⊙	Existing Sanitary Manhole	⊙	Proposed Sanitary Manhole
---	Existing Contour Major	---	Proposed Contour Major
---	Existing Contour Minor	---	Proposed Contour Minor
---	Proposed Asphaltic Pavement	-----	Future Curb & Gutter

**APPLICATION/OWNER:**  
Dick Burton  
Cherokee Flight LLC  
8 SW AA Highway  
Kingsville, MO 64061  
daburton@mail.com

**CIVIL ENGINEER:**  
Mick Slutter, P.E.  
1815 McGee St, #200  
Kansas City, MO 64116  
mslutter@ric-consult.com

**LANDSCAPE ARCHITECT:**  
Andy Gabbert, PLA  
5015 NW Canal St, #100  
Riverside, MO 64150  
agabbert@ric-consult.com

UTILITIES

**WATER & SANITARY SEWER**  
City of Lee's Summit Water Utilities  
220 SE Green St  
Lee's Summit, MO  
Phone: 816.969.1900

**TELEPHONE**  
AT&T  
Phone: 800.288.2020

Time Warner Cable  
Phone: 816.222.5952

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

**CABLE TV**  
Comcast  
Phone: 816.795.1100

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

Time Warner Cable  
Phone: 816.358.8833



ADA ACCESSIBLE ROUTE NOTES

- All Accessible route construction shall conform to the latest version of the ADA Standards for Accessible Design published by the Department of Justice and the Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way published by the United States Access Board.
- Other than ramps and ramp runs, walking surfaces must have running slopes not steeper than 1:20.
- The cross slope of walking surfaces shall not be steeper than 2%.
- The minimum width for a linear segment of accessible route shall be 36 inches.
- Where the accessible route makes a 180 degree turn around an element which is less than 48 inches wide, clear width shall be 42 inches minimum approaching the turn, 48 inches minimum at the turn and 42 inches leaving the turn.
- An accessible route with a clear width less than 60 inches shall provide passing spaces at intervals of 200 feet maximum. Passing spaces shall be 60 inch by 60 inch minimum.
- Ramp runs shall have a running slope not steeper than 1:12.
- Ramp runs with a rise greater than 6 inches shall have handrails.
- Ramp landings with a maximum slope of 1:48 shall be provided before and after ramp runs.
- The maximum rise of a ramp run shall be 30 inches.
- The maximum counter slope between the pavement and the curb at a curb ramp shall be 1:20.
- Curb ramp landings with a maximum slope of 1:48 shall be provided at the top of curb ramps with a clear width of 60 inches.
- Detectable warning surfaces complying with the latest ADA Standards shall be provided at pedestrian street crossings and refuge islands.
- Passenger loading zones shall be provided adjacent to any ADA Accessible stall and have a 2% maximum slope in all directions.
- Contractor to field verify existing site conditions and contact the engineer if field conditions do not match plan prior to construction.

GRADING NOTES

- All construction shall conform to the City's minimum design standards.
- Spot Grades shown herein shall govern over finished grades.
- The contractor shall provide evidence that his insurance meets the requirements of the Project.
- All traffic control shall be in conformance with the Manual of Uniform Traffic Control Devices (MUTCD).
- The contractor is responsible for the protection of all property corners and section corners. Any property corners and/or section corners disturbed or damaged by construction activities shall be reset by a Registered Land Surveyor licensed in the State of Kansas, at the contractor's expense.
- The contractor shall be responsible for the restoration of the right-of-way and for damaged improvements such as curbs, driveways, sidewalks, street light and traffic signal junction boxes, traffic signal loop lead ins, signal poles, irrigation systems, etc. Damaged improvements shall be repaired in conformance with the latest City standards and to the City's satisfaction.
- The contractor is responsible for providing erosion and sediment control BMPs to prevent sediment from reaching paved areas, storm sewer systems, drainage courses and adjacent properties. In the event the prevention measures are not effective, the contractor shall remove any debris, silt, or mud and restore the right-of-way, or adjacent properties to original or better condition.
- The contractor shall sod all disturbed areas within the public street right-of-way unless otherwise noted on the plans or if specific written approval is granted by the City.
- All public street sidewalk ramps constructed will be required to comply with the Americans with Disabilities Act (ADA).
- Excavation for utility work in public street right-of-way requires a Right-of-Way Work Permit from the Public Works Department, in addition to all other permits.
- All work shall be confined within easements and/or construction limits as shown on the plans.
- Curb stakes and hubs shall be provided at all high points, low points, ADA ramp openings, and on each side of all curb inlets when setting string line.
- All National Pollution Discharge Elimination System(NPDES) standards shall be met.
- Public and Private utility facilities shall be moved or adjusted as necessary by the owners to fit the new construction unless otherwise noted on the plans. The Contractor is responsible for the cost of utility relocations unless otherwise indicated on the plans.

SITE UTILITY NOTES

- The contractor is specifically cautioned that the location and/or elevation of existing utilities as Shown on these plans is based on records of the various utility Companies, and where possible, measurements taken in the field. The information is not to be relied on as being exact or complete. The contractor must call the appropriate utility companies at least 48 hours before any excavation to request exact field location of utilities. It shall be the responsibility of the contractor to coordinate with and relocate and/or remove all existing utilities which conflict with the proposed improvements shown on the plans.
- The construction of storm sewers on this project shall conform to the requirements of Jackson County, Lee's Summit Technical Specifications and Design Criteria.
- The contractor shall field verify the exact location and elevation of the existing storm sewer locations and the existing elevations at locations where the proposed storm sewer collects or releases to existing ground. If discrepancies are encountered from the information shown on the plans. The contractor shall contact the design engineer. No pipes shall be laid until direction is received from the design engineer.
- It will be the contractors responsibility to field adjust the top of all manholes and boxes as necessary to match the grade of the adjacent area. Tops of existing manholes shall be raised as necessary to be flush with proposed pavement elevations, and to be 6-inches above finished ground elevations in non-paved areas. No separate or additional compensation will be made to the contractor for making final adjustments to the manholes and boxes.
- Inlet locations, horizontal pipe information and vertical pipe information is shown to the center of the structure. Deflection angles shown for storm sewer pipes are measured from the center of the curb inlets and manholes. The contractor shall adjust the horizontal location of the pipes to go to the face of the boxes. All roof drains shall be connected to storm sewer structures. Provide cleanouts on roof drain lines at 100' max. spacing and at all bend points. Do not connect roof drains directly to storm sewer pipes.
- The contractor shall be responsible for furnishing and installing all fire and domestic water lines, meters, back flow devices, pits, valves and all other incidentals required for a complete operable fire protection and domestic water system, if not furnished or installed by the Board of Public Utilities. Coordinate with the Board of Public Utilities. All costs associated with the complete water system for the building shall be the responsibility of the contractor. All work shall conform to the requirements of Jackson County, Lee's Summit.
- The contractor shall be responsible for furnishing and installing all sanitary sewer service lines from the building to the public line. The contractor shall refer to the architectural plans for specific locations and elevations of the service lines of the building connection. All work shall conform to the requirements of Lee's Summit.
- The contractor is responsible for securing all permits, bonds and insurance required by the contract documents, Lee's Summit, and all other governing agencies (including local, county, state and federal authorities) having jurisdiction over the work proposed by the construction documents. The cost for all permit bonds and insurance shall be the contractors responsibility and shall be included in the bid for the work.
- By the use of these construction documents the contractor hereby agrees that he/she 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 shall be responsible for furnishing all materials, tools and equipment and installation of electrical power, telephone and gas service from a point of connection from the public utility lines to the building structure. This will include all conduits, service lines, meters, concrete pads and all other incidentals required for a complete and operational system as required by the owner and the public utilities. Refer to building plans for exact tie-in locations of all utilities. Contractor shall verify connection points prior to installation of utility line.
- All fill material is to be in place, compacted, and consolidated before installation of proposed utilities. On-site geotechnical engineer shall provide written confirmation that this requirement has been met and that utilities may proceed in the fill areas. All utilities are to be placed in trench conditions.
- Contractor shall notify the utility authorities inspectors 49 hours before connecting to any existing line.
- Storm sewer roof drains(st) shall be as follows (unless otherwise shown on plans).  
-PVC SDR 35 per ASTM D3034, for pipes less than 12' deep.  
-PVC SDR 26 per ASTM D3034, for pipes 12' to 20' deep.
- Waterlines shall be as follows (unless otherwise shown on plans):  
-for 8" and larger: ductile iron pipe per AWWA C150  
-between 2" and 6": copper tube Type "K" per ANSI 816.22 or ductile iron pipe per AWWA C150  
-For smaller than 2":copper tube Type "K" per ANSI 816.22
- Minimum trench width shall be 2 feet.
- Contractor shall maintain a minimum of 42" of cover on all waterlines. All water line joints are to be mechanical joints with thrust blocking as called out in specifications and construction plans. Water mains and service lines shall be constructed in accordance to the Board of Public Utilities specifications for commercial services.
- All waterlines shall be kept ten feet (10') apart (parallel) from sanitary sewer lines or manholes. Or when crossing, an 18" vertical clearance (outside edge of pipe to outside edge of pipe) of the waterline above the sewer line is required.
- Trench Drain shall be ACO S200K or approved equal.
- Trench Drain shall be installed in accordance with the manufacturer's installation instructions and recommendations.
- In the event of a vertical conflict between waterlines, sanitary lines, storm lines and gas lines (existing and proposed), the sanitary line shall be ductile iron pipe with mechanical joints at least 10 feet on both sides of the crossing (or encased in concrete the same distance), the waterline shall have mechanical joints with appropriate thrust blocking as required to provide a minimum of 18" clearance. Meeting requirements ANSI A21.10 or ANSI 21.11 (AWWA C151)(Class 50).
- All underground storm, sanitary, water and other utility lines shall be installed, inspected and approved before backfilling. Failure to have inspection approval prior to backfill will constitute rejection of work.
- All necessary inspections and/or certifications required by codes and/or utility service companies shall be performed prior to announced building possession and the final connection of service. Contractor shall coordinate with all utility companies for installation requirements and specifications.
- refer to building plans for site lighting electrical plan, irrigation, parking lot security system and associated conduit requirements. Coordinate with Owner that all required conduits are in place and tested prior to paving.
- When a building utility Connection from site utilities leading up to the building cannot be made immediately, temporarily mark all such utility terminations.

EARTHWORK NOTES:

- CONTOURS AND ELEVATIONS: Existing and proposed contours are shown on plans at one foot (1') contour intervals, unless otherwise noted. Proposed contours and elevations shown represent approximate finish grade.
- CLEARING AND GRUBBING: Prior to the start of grading and earthwork, the areas to be graded shall be stripped of all vegetation, organic matter, and topsoil, to a minimum depth of four inches (4") or as otherwise directed by the Geotechnical Engineer. Stripping materials shall not be incorporated into structural fills. Topsoil materials shall not be used in building and pavement areas.
- TOPSOIL: Prior to the start of grading, the contractor shall strip all topsoil from areas to be graded and stockpile at a location on or adjacent to the site as directed by the owner. At completion of grading operations and related construction, the contractor will be responsible for redistribution of topsoil over all areas disturbed by the construction activities. Topsoil shall be placed to a minimum depth of six inches (6") and in accordance with specifications for landscaping.
- SUBGRADE PREPARATION: Prior to placement of new fill material, the existing subgrade shall be proofrolled and approved under the direction of the Geotechnical Engineer or his representative.
- PROOFROLLING: Prior to the placement of new fill material, the existing subgrade shall be proofrolled and approved under the direction of the Geotechnical Engineer. Unsuitable areas identified by the proofrolling areas shall be undercut and replaced with controlled structural fill or treated with flyash per the Geotechnical report.
- EARTHWORK:
  - GEOTECHNICAL: All earthwork shall conform to the recommendations of the Geotechnical report.
  - SURFACE WATER: Surface water shall be intercepted and diverted during the placement of fill.
  - FILLS: All fills shall be considered controlled or structural fill and shall be free of vegetation, organic matter, topsoil, and debris. All fill required for project shall be provided by the Contractor. Material Shall be pre-approved by the Engineer prior to placement.
  - EXISTING SLOPES: Where fill material is to be placed on existing slopes greater than 5:1 (horizontal to vertical), existing slope shall be benched providing a minimum vertical face of twelve inches (12"). Fill material shall be placed and compacted in horizontal lifts not exceeding nine inches (9") (loose fit measurement), unless otherwise approved by the Geotechnical Engineer.
  - COMPACTION REQUIREMENTS: Earth fill material shall be placed and compacted to a minimum density of ninety five percent (95%) of the material's maximum dry density as determined by ASTM D698 (standard proctor compaction). The moisture content at the time of placement and compaction shall be within a range of -2% to 3% above the optimum moisture content as defined by the standard proctor compaction procedure. The moisture contents shall be maintained within this range until completion of the work. Where compaction of earth fill by a large roller is impractical or undesirable, the earth fill shall be hand compacted with small vibrating rollers or mechanical tampers.
- TESTING AND INSPECTION: Testing and inspection services required to make tests required by the specifications and to observe the placement of fills and other work performed on this project shall be provided by a commercial testing laboratory (Geotechnical Engineer) selected by the owner. The cost of testing will be the owner's responsibility.
- SEEDING: All areas disturbed by earthwork operations in the right-of-way shall be seeded.

Summary of Quantities			
Item	Description	Qty.	Unit
1	Clearing and Grubbing	1	LS
2	Demolition	1	LS
3	2" Asphaltic Concrete Surface	152	TONS
4	4" Asphaltic Concrete Base	305	TONS
5	6" MODOT Type 5 Base	226	CY
6	6" Chemical Subgrade Stabilization	226	CY
7	Curb and Gutter	755	LF
8	Sidewalk	2163	SF
9	ADA Ramp	2	EA
10	R8-3a NO PARKING SIGN (24" x 30")	10	LS
11	R1-1 STOP SIGN (30" x 30")	1	LS
12	4" Data Line Conduit	1,926	LF
13	4" Underground Power Conduit	1,920	LF
14	4' x 3' Curb Inlet	2	EA
15	15" RCP	35	LF
16	18" HDPE	122	LF
17	End Section	1	EA
18	4' Dia. Sanitary Manhole	4	EA
19	8" (SDR-26) PVC	496	LF
20	Connection to Existing Manhole	1	LS
21	AWWA C900 PVC	510	LF
22	6" Tee	1	LF
23	6" x 11.25° Horizontal Bend	4	EA
24	6" x 22.5° Horizontal Bend	2	EA
25	6" x 45° Horizontal Bend	5	EA
26	Relocate Existing Fire Hydrant	1	LS
27	Fire Hydrant Assembly	1	EA
28	Erosion Control	1	LS

Note:  
Quantities are for Information only

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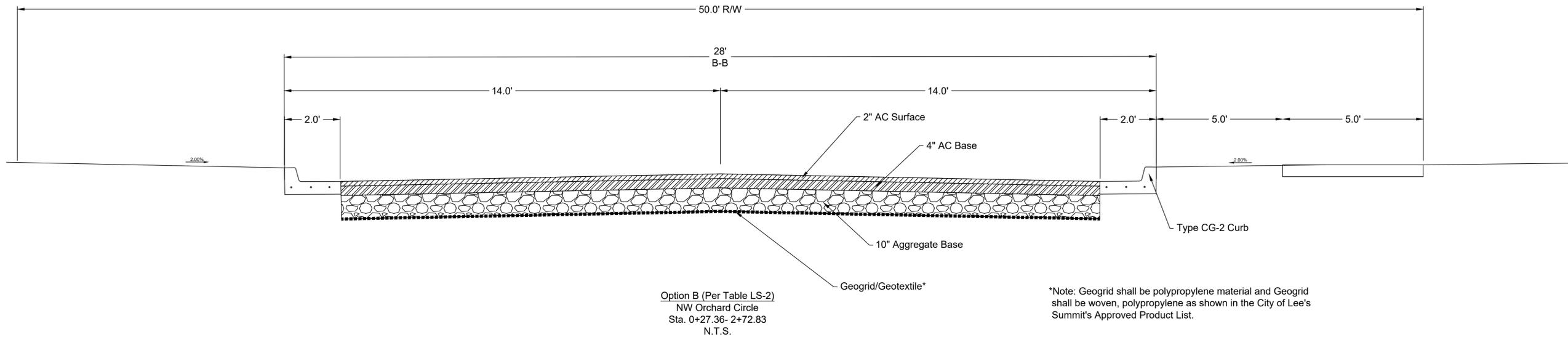
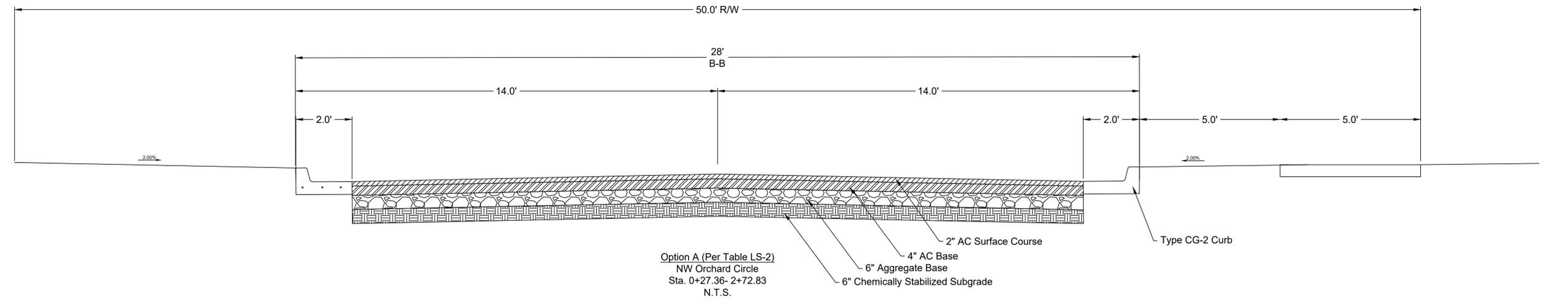
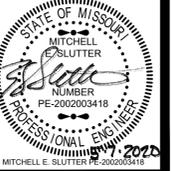
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Roadway Typical  
Section

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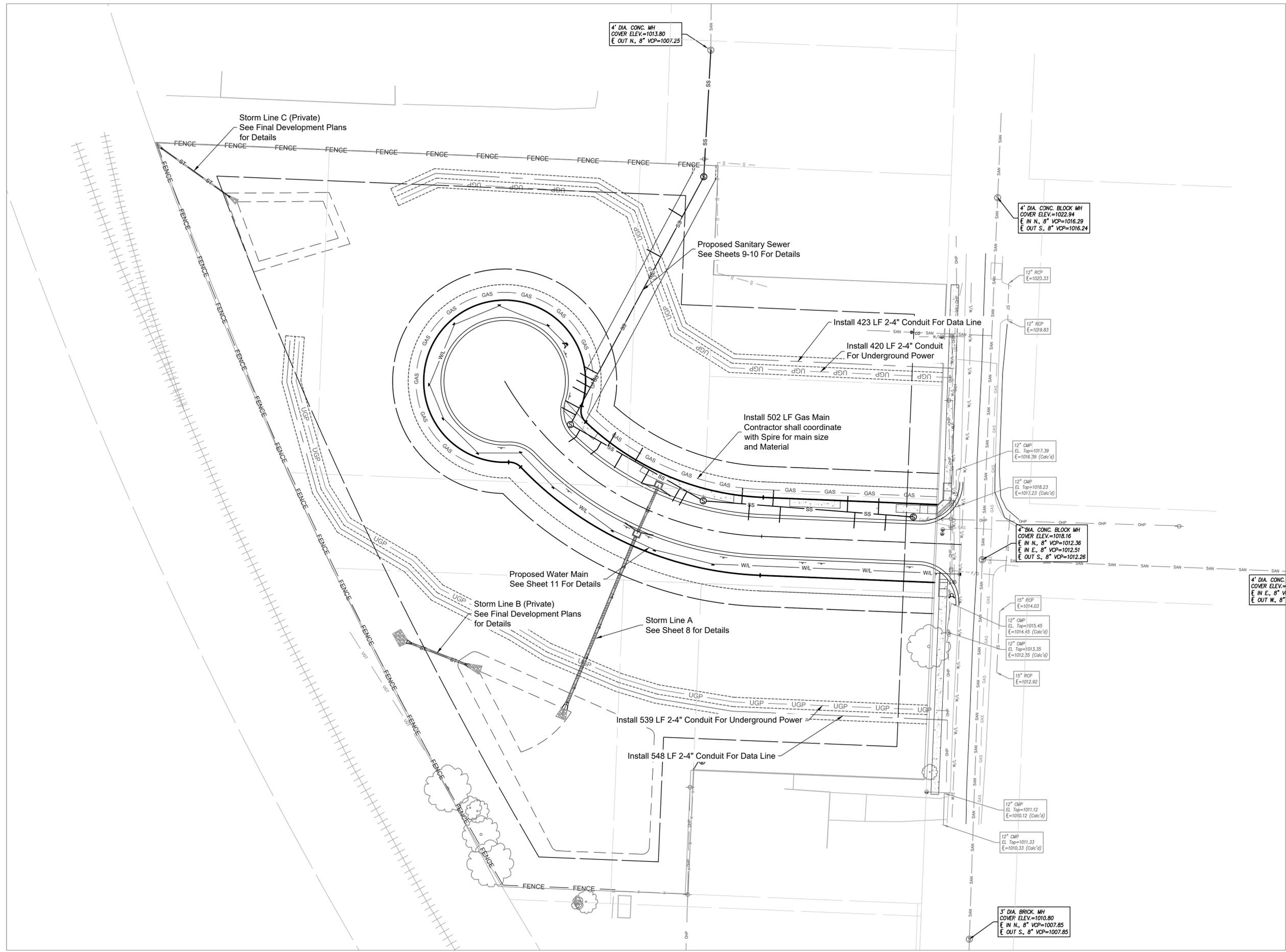
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**Mitchell E. Slutter**  
Professional Engineer  
No. PE-200203418  
Exp. 12/31/2023

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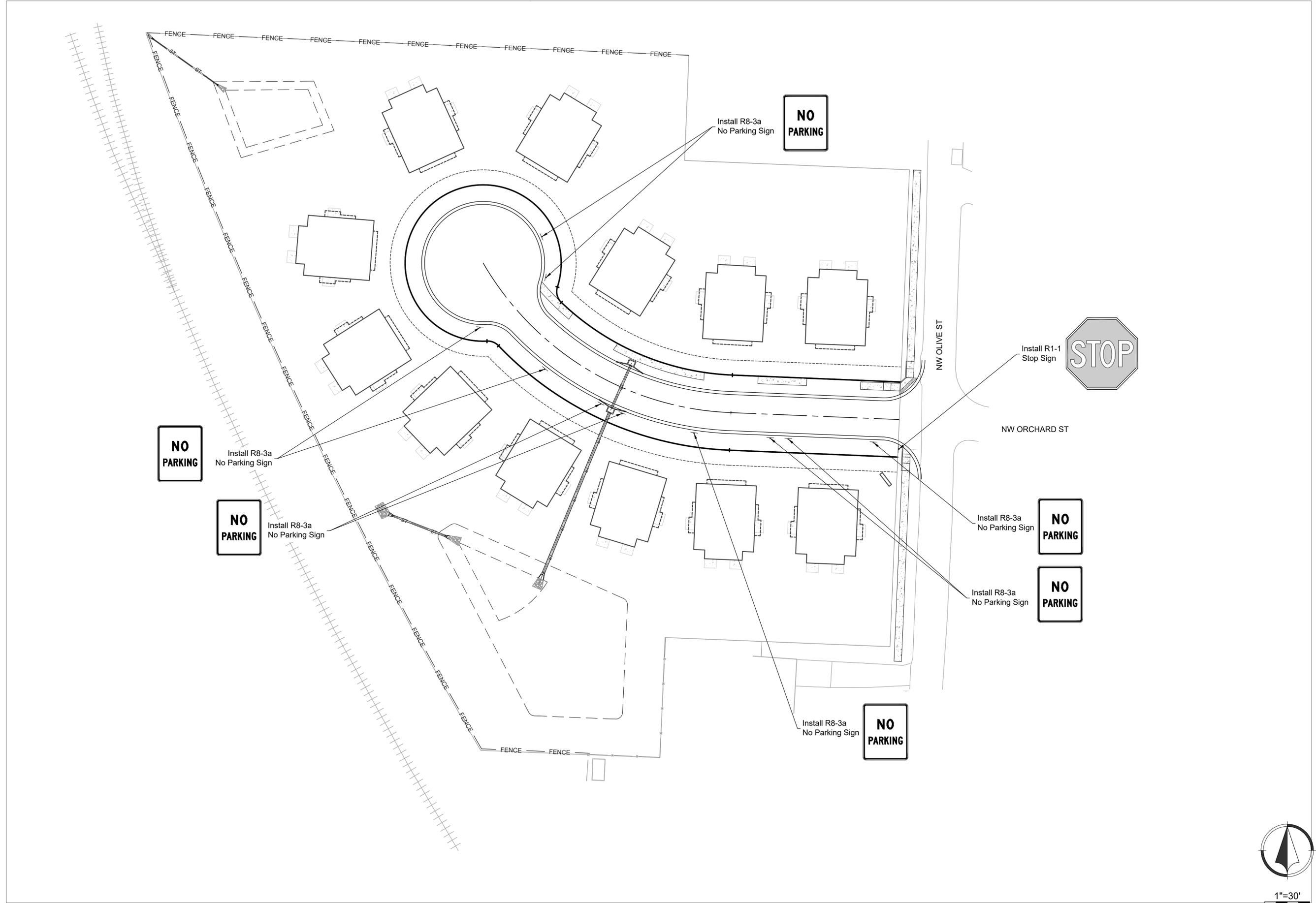
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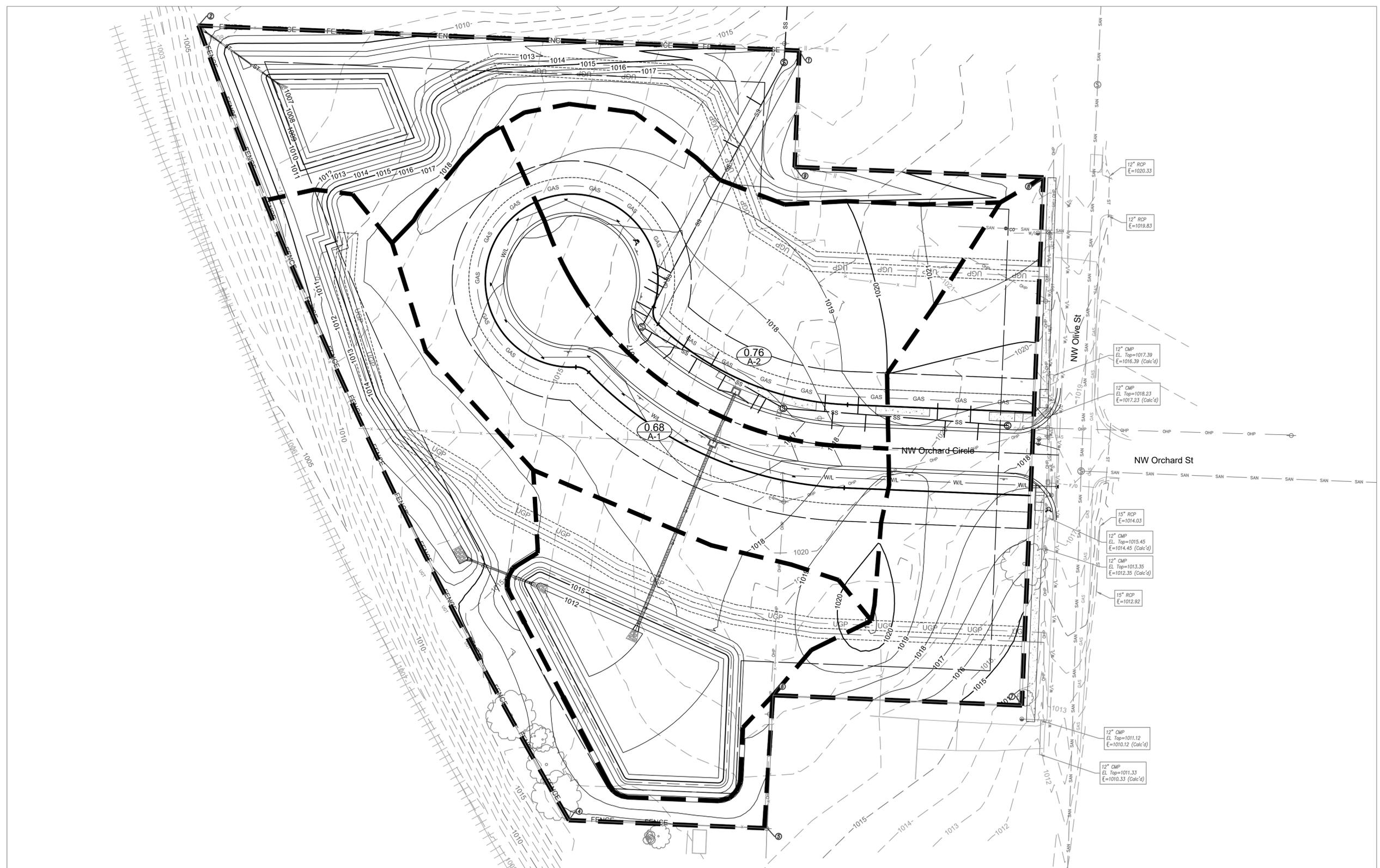
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Drainage Plan



Overland Flow										System Flow					Pipe Design										Structure Design															
Line	Point	Trib. Area (Ac.)	"C" Value	Design Storm	"K" Value	Time of Conc. (min.)	Intensity i (in./hr.)	Trib Runoff (cfs)	Bypass flow (cfs)	Total Runoff (cfs)	Total Area (Ac.)	Total (K*A*C)	Time of Conc. (min.)	Intensity i (in./hr.)	System Discharge (cfs)	U/S Node	D/S Node	Pipe Type	Pipe Shape	Pipe Diameter (in.)	Pipe Length (ft.)	Mannings "n" value	Pipe Slope (%)	Design Flow (cfs)	Pipe Capacity (cfs)	Full Flow Velocity (fps)	Design Flow Velocity (fps)	Depth of Flow (in.)	Flow Time (min.)	U/S Invert El.	U/S Crown El.	D/S Invert El.	D/S Crown El.	U/S Depth of Cover (ft.)	D/S Depth of Cover (ft.)	Headwater Inlet Elev. (EGL)	Headwater Outlet Elev. (EGL)	Inlet/Outlet Control	Top Elevation	
A	A-2	0.760	0.66	25	1.1	5.00	7.35	4.06	0.00	4.06	0.760	0.55	7.35	4.06	A-2	A	RCP	Round	15	34.37	0.013	0.52	4.06	4.66	3.79	4.27	10.8	0.13	1013.05	1014.30	1012.87	1014.12	2.34	-2.51	1014.05	1014.05	I	1016.64		
				100			1.25	10.32	6.47	1.82		8.29	0.63	10.32									6.47			6.47	3.79	15.0					0.15							
A	A-1	0.680	0.66	25	1.1	5.00	7.35	3.63	0.00	3.63	1.440	1.05	7.35	7.69	A-1	0	HDPE	Round	18	121.61	0.01	0.51	7.69	9.72	5.50	6.10	12.1	0.33	1012.62	1014.12	1012.00	1013.50	2.51	-1.50	1013.72	1013.58	I	1016.63		
				100			1.25	10.32	5.79	2.54		8.34	1.19	10.32									12.26			12.26	5.50	18.0					0.37							
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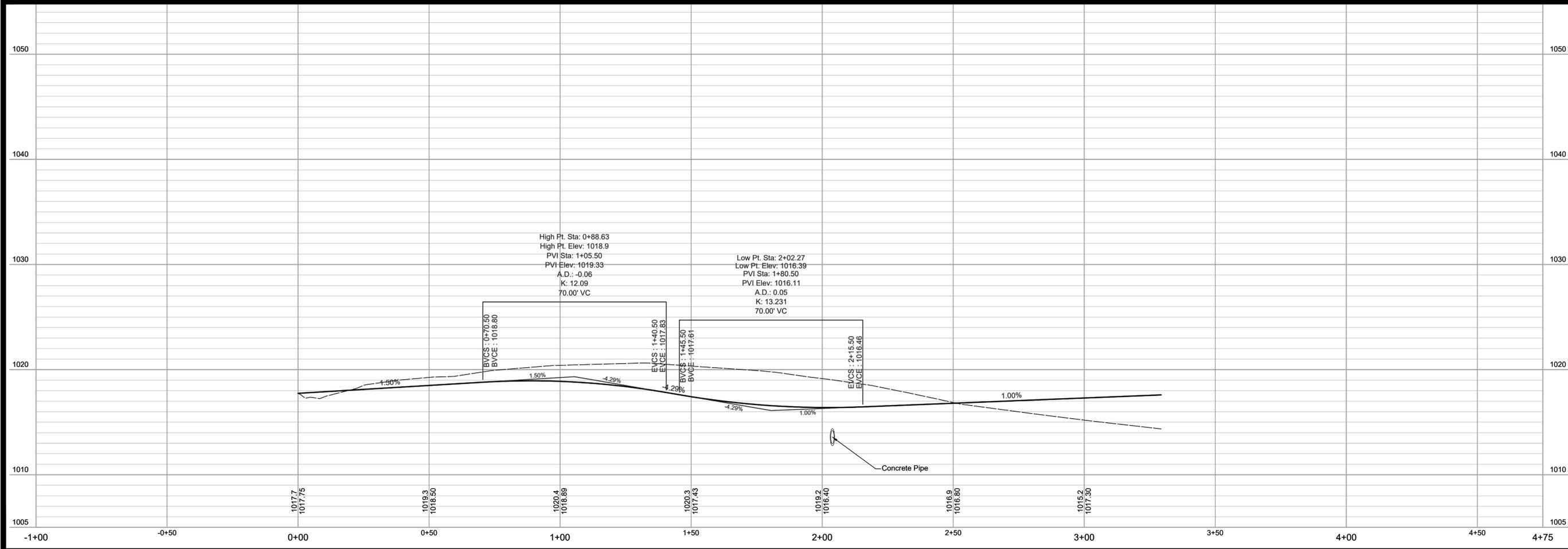
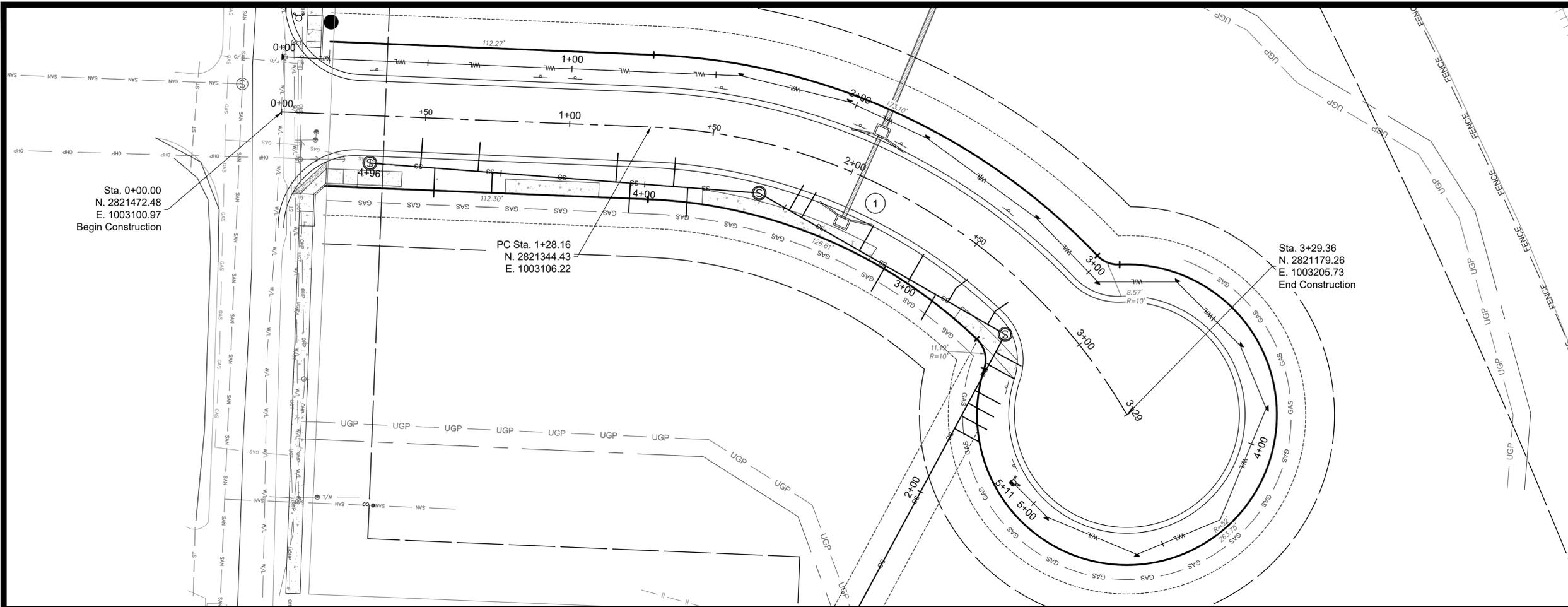
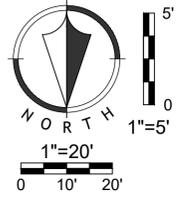
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			REVISION

**Renaissance Infrastructure Consulting**  
 816.800.0950  
 1815 MCCOY STREET, SUITE 200  
 KANSAS CITY, MISSOURI 64108  
 WWW.RIC-CONSULT.COM

MO Certificate of Authority: E-2010033630  
 Mitchell E. Slutter  
 PE-200203418  
 STATE OF MISSOURI  
 PROFESSIONAL ENGINEER  
 LICENSE NUMBER  
 07-2022

May 08, 2020 11:52am  
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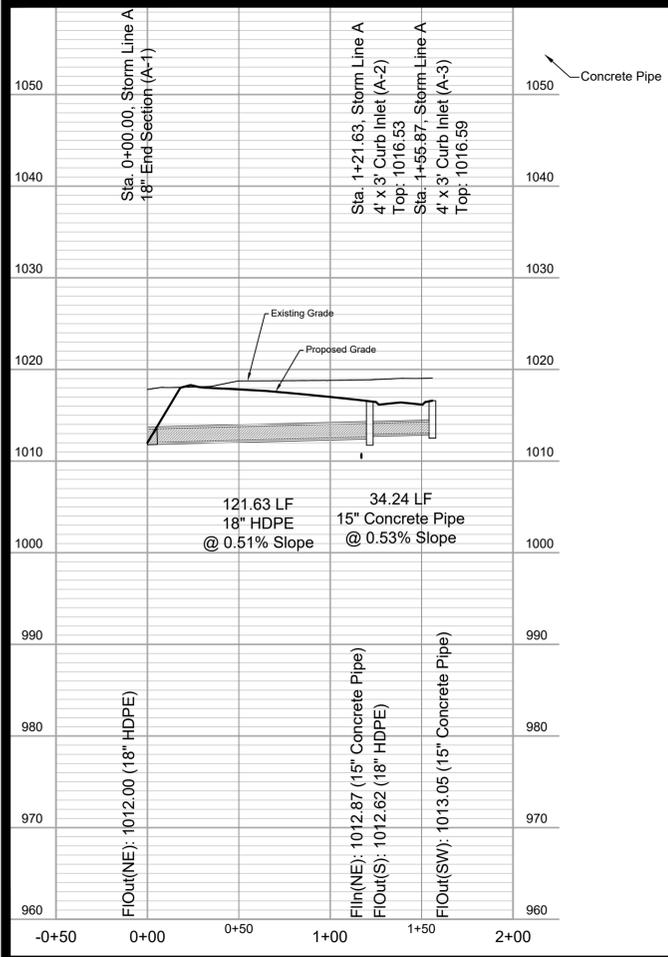
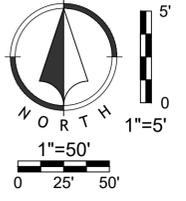
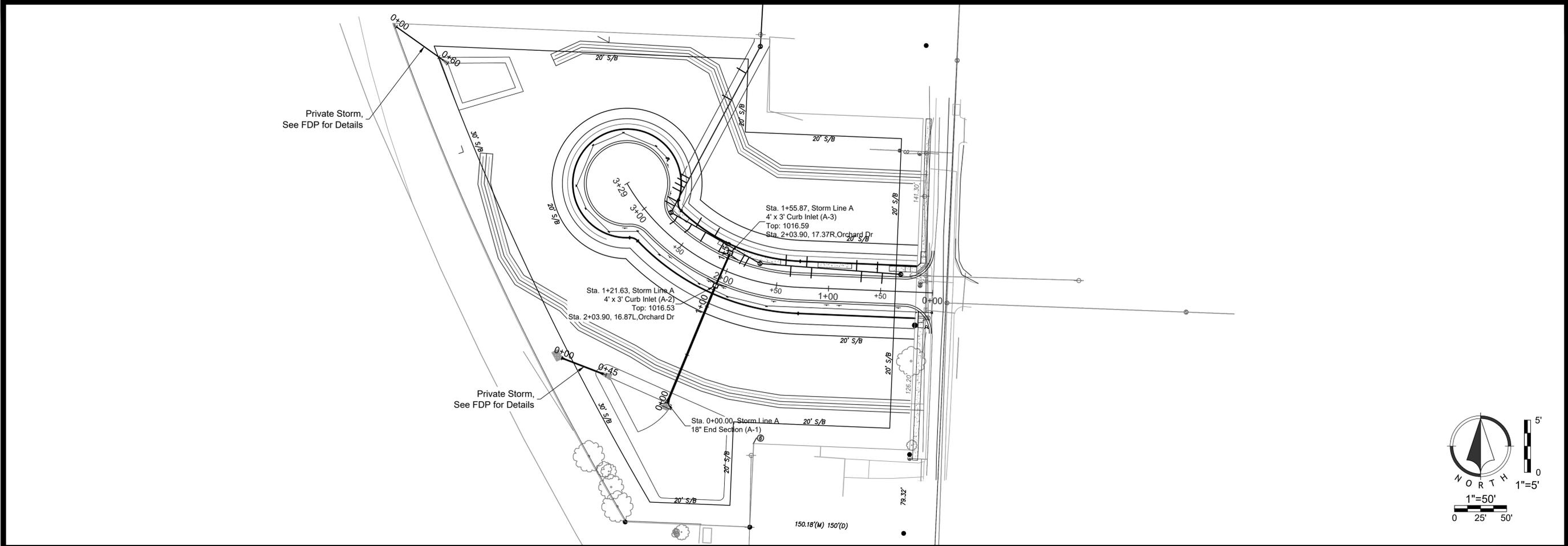
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Delta Angle: 57.64°



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			REVISION

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NO.	BY	DATE	REVISION
1.	JMG	MES 05/08/2020	ORIGINAL SUBMISSION

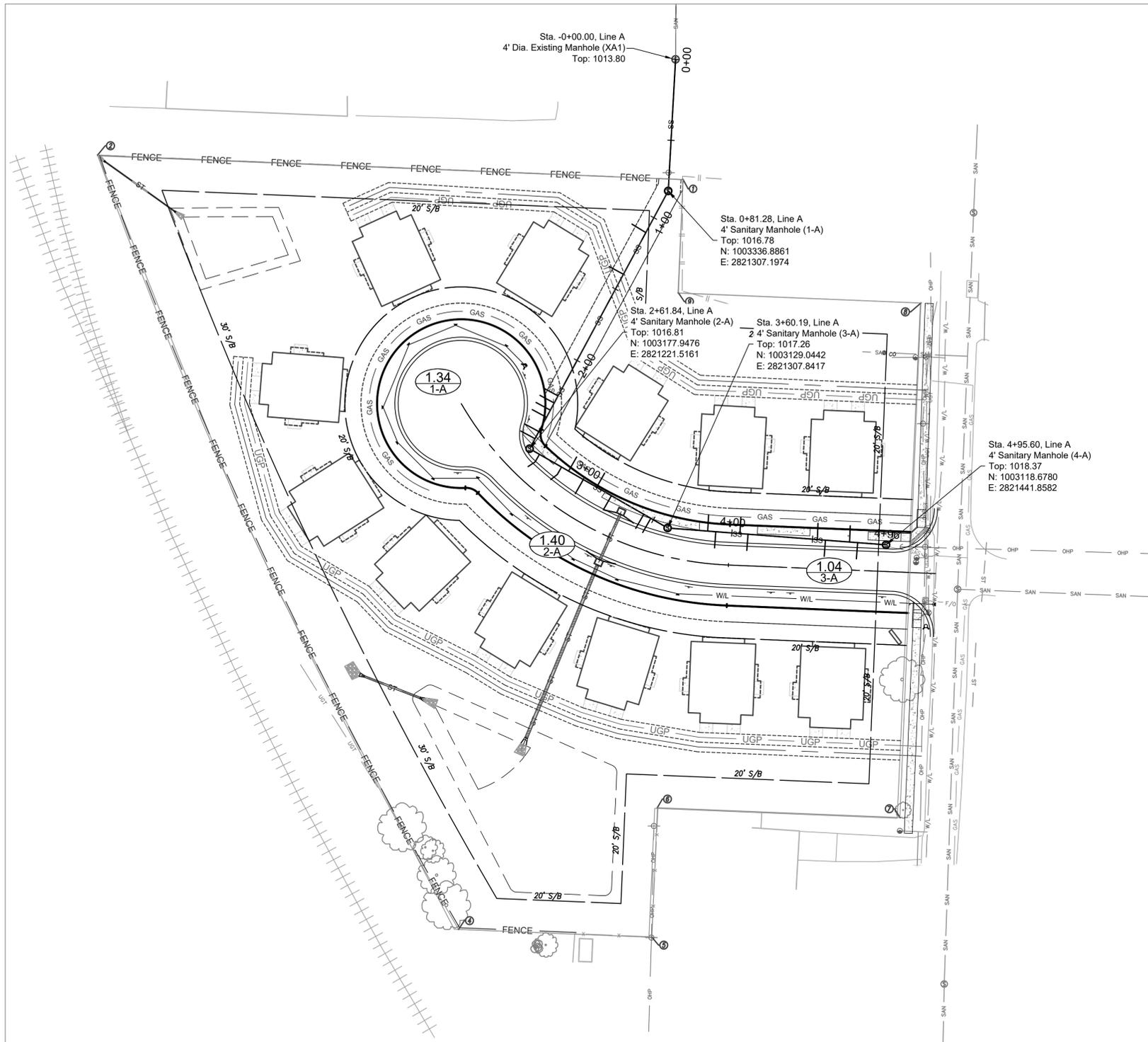
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 KANSAS CITY, MISSOURI 64108  
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GENERAL NOTES

- All construction materials and procedures on this project shall conform to the following requirements:
  - City of Lee's Summit, Missouri Standard Specifications: Section 3500 - Sanitary Sewers
- The contractor will be responsible for securing all bonds, and insurance required by the Final Development Plans, City of Lee's Summit, 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 Final Development Plans 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 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.
- The Developer (not the contractor) to pick up all permits.



Summary of Quantities			
Item	Description	Qty.	Unit
1	8" (SDR-26)PVC	496	LF
2	4" Dia. Concrete Manhole	4	EA
3	8" x 4" PVC Wye	12	EA
4	Erosion Control	1	LS

Segment	Peak Base Flow (Residential)				Peak Infiltration			Peak Inflow			Design Peak Flow, cfs	Pipe Full Capacity, cfs	Pipe Dia. Inches	Pipe Length, ft	Pipe Slope, %	Vel Full, fps	Design Vel, fps		
	U/S MH	D/S MH	Area, acres	PDWF, gpd/ac	Flow, cfs	Area, acres	Infiltration Rate, gpd/ac	Flow, cfs	Tributary Area, acres	Rainfall Intensity, in/h								Inflow Factor	Flow, cfs
4-A	3-A	0.000	1500	0.000	0.000	500.000	0.000	0.000	0.000	5.490	0.006	0.000	0.000	0.941	8.000	135.410	0.700	2.697	0.000
3-A	2-A	1.040	1500	0.002	1.040	500.000	0.001	1.040	5.490	0.006	0.034	0.037	0.941	8.000	98.350	0.700	2.697	1.276	
2-A	1-A	1.400	1500	0.003	1.400	500.000	0.001	2.440	5.490	0.006	0.080	0.119	0.941	8.000	180.560	0.700	2.697	1.846	
1-A	Existing	1.300	1500	0.003	1.340	500.000	0.001	3.780	5.490	0.006	0.125	0.209	0.941	8.000	81.280	0.700	2.697	2.168	
Existing	Existing	0.000	1500	0.000	0.000	500.000	0.000	3.780	5.490	0.006	0.125	0.249	0.900	8.000	323.770	0.470	2.578	2.173	

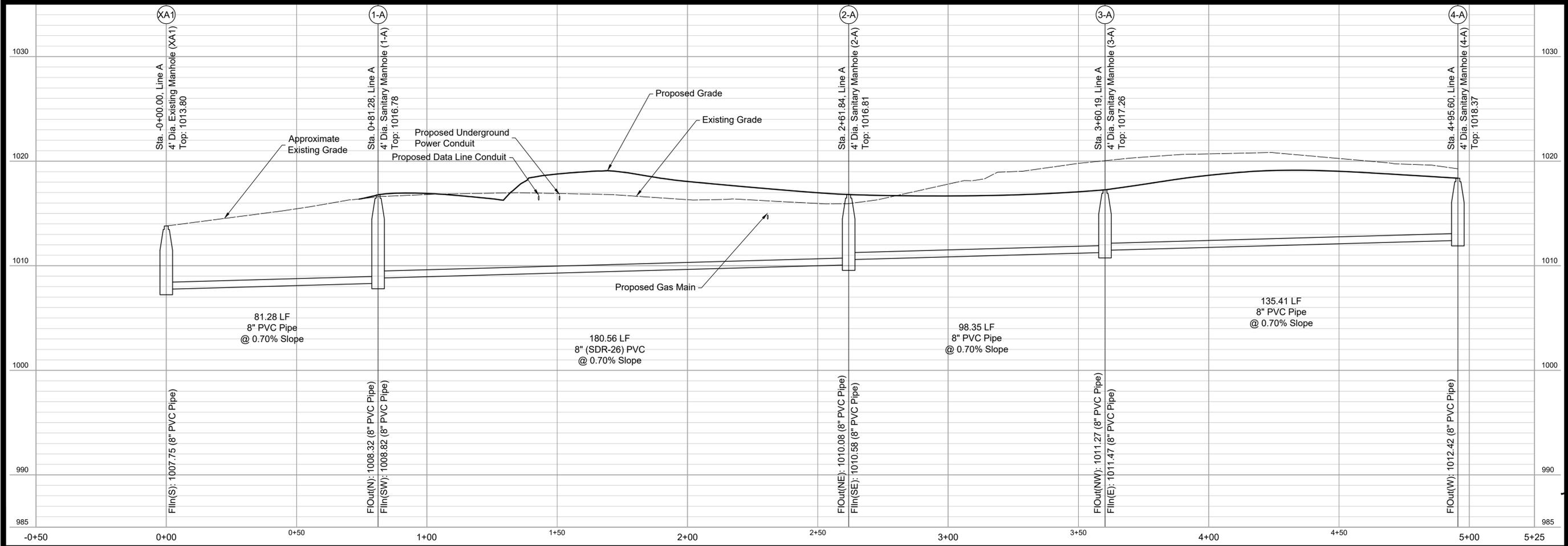
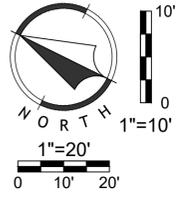
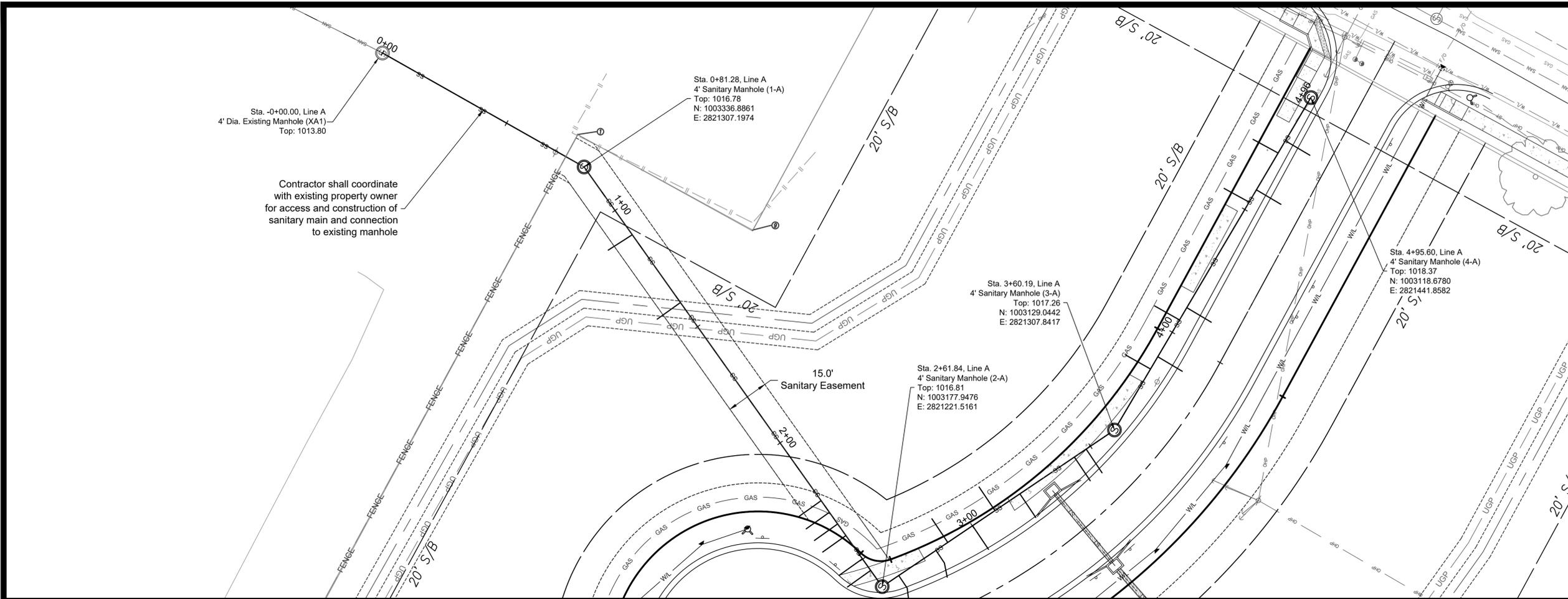


NO.	BY	DATE	REVISION
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**Renaissance Infrastructure Consulting**  
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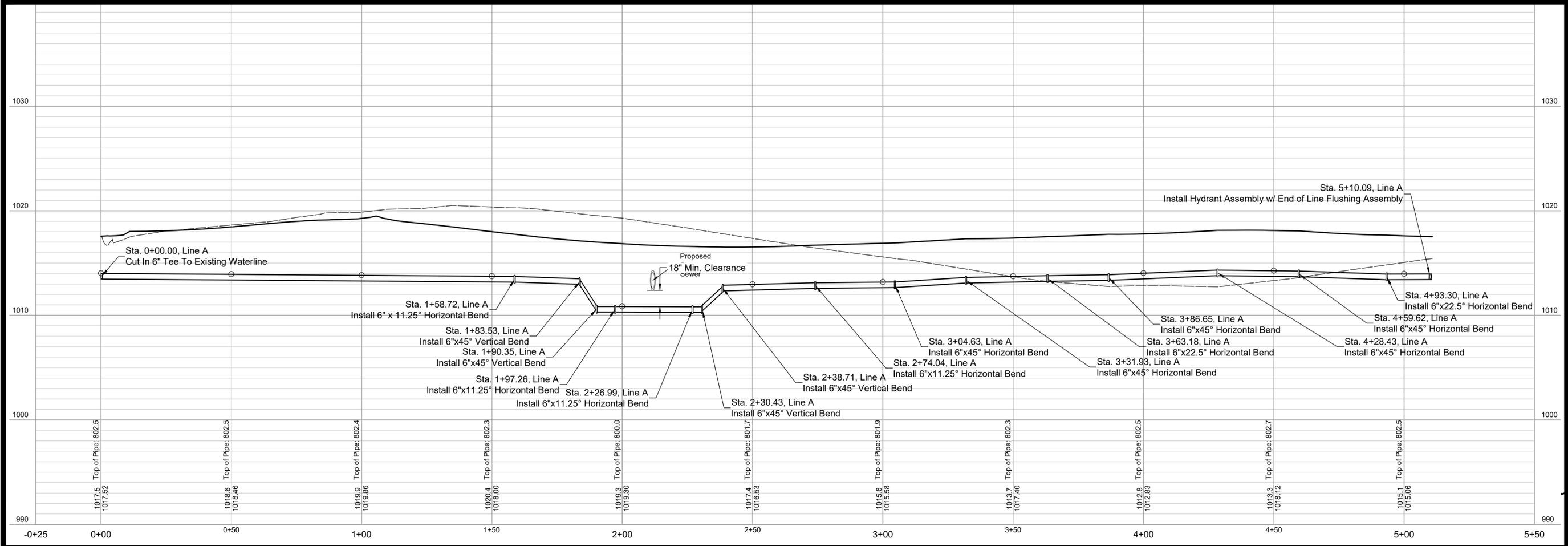
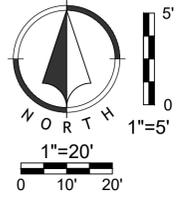
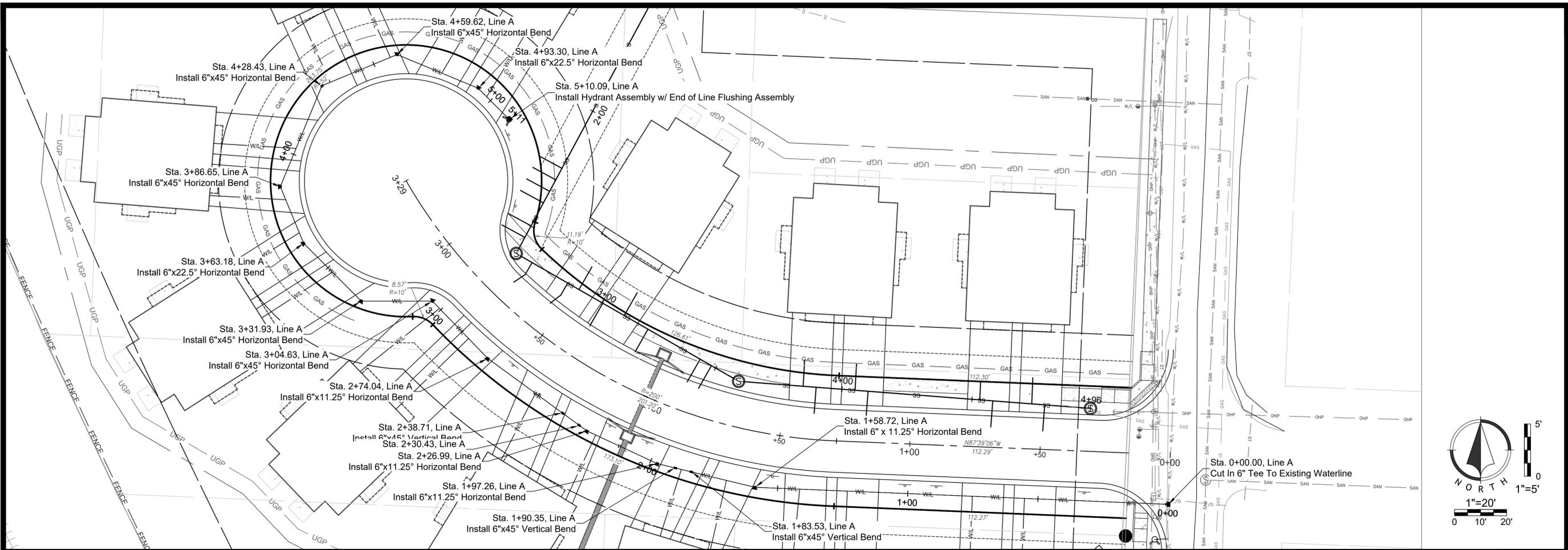
NO.	BY	DATE	DESCRIPTION
1.	JMG	MES 05/08/2020	ORIGINAL SUBMISSION
			REVISION

**Renaissance Infrastructure Consulting**

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 KANSAS CITY, MISSOURI 64108  
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NO.	BY	DATE	REVISION
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EROSION CONTROL LEGEND

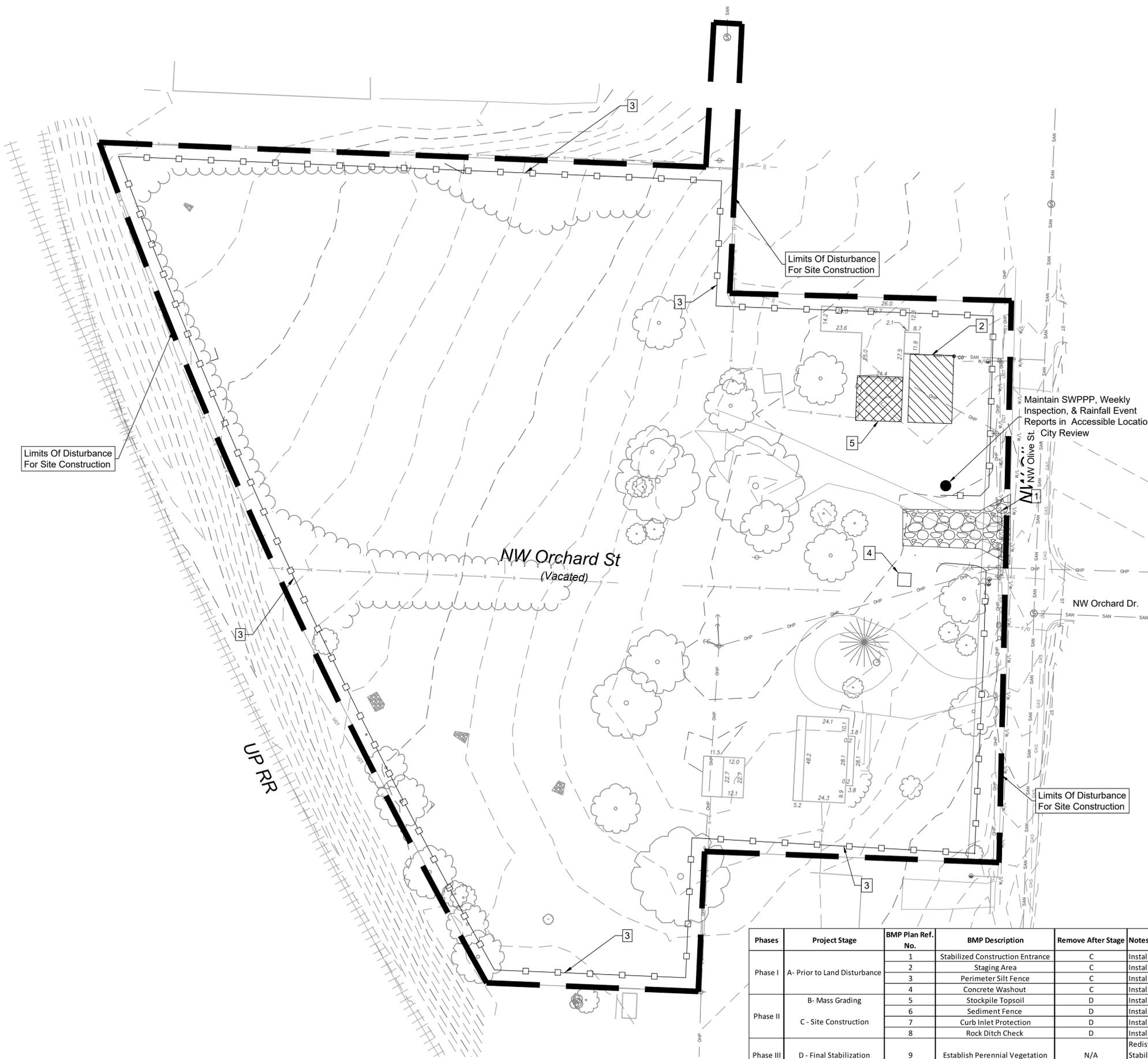
- Stabilized Construction Entrance
- Staging Area
- Stockpile Area
- Concrete Washout
- Limits of Disturbance
- Perimeter Silt Fence
- Inlet Protection
- Rock Ditch Check

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



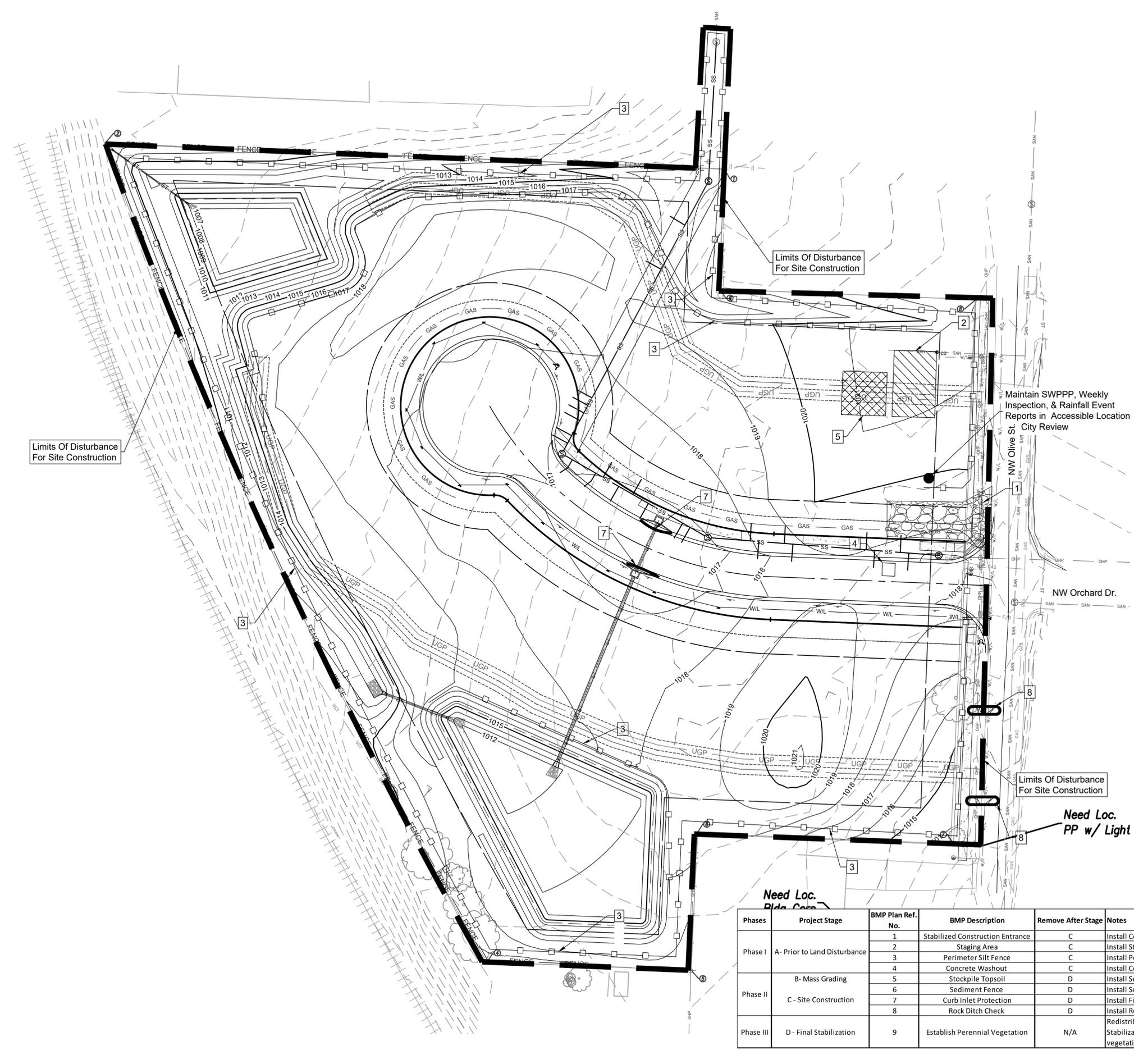
Phases	Project Stage	BMP Plan Ref. No.	BMP Description	Remove After Stage	Notes
Phase I	A- Prior to Land Disturbance	1	Stabilized Construction Entrance	C	Install Construction Entrance, as shown on Plans.
		2	Staging Area	C	Install Staging Area
		3	Perimeter Silt Fence	C	Install Perimeter Silt Fence, as Shown on Plans.
		4	Concrete Washout	C	Install Concrete Washout as shown on plans prior to pouring any concrete
Phase II	B- Mass Grading	5	Stockpile Topsoil	D	Install Sediment Fence a Minimum of 5' Beyond Toe of Slope
		6	Sediment Fence	D	Install Sediment Fence, as Shown on Plans
		7	Curb Inlet Protection	D	Install Filter Bags around Proposed Curb Inlets
		8	Rock Ditch Check	D	Install Rock Ditch Check, as Shown on Plans
Phase III	D- Final Stabilization	9	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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**EROSION CONTROL LEGEND**

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

**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

Phases	Project Stage	BMP Plan Ref. No.	BMP Description	Remove After Stage	Notes
Phase I	A- Prior to Land Disturbance	1	Stabilized Construction Entrance	C	Install Construction Entrance, as shown on Plans.
		2	Staging Area	C	Install Staging Area
		3	Perimeter Silt Fence	C	Install Perimeter Silt Fence, as Shown on Plans.
		4	Concrete Washout	C	Install Concrete Washout as shown on plans prior to pouring any concrete
Phase II	B- Mass Grading	5	Stockpile Topsoil	D	Install Sediment Fence a Minimum of 5' Beyond Toe of Slope
		6	Sediment Fence	D	Install Sediment Fence, as Shown on Plans
		7	Curb Inlet Protection	D	Install Filter Bags around Proposed Curb Inlets
		8	Rock Ditch Check	D	Install Rock Ditch Check, as Shown on Plans
Phase III	D- Final Stabilization	9	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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1815 MCGEE STREET, SUITE 200  
KANSAS CITY, MISSOURI 64108  
Professional Engineer  
MICHHELL E. SLUTTER  
PE-2002003418  
E-2010033630  
MO Certificate of Authority

EROSION CONTROL LEGEND

Establish Perennial Vegetation

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:**  
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- 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

4" DIA. CONC. MH  
COVER ELEV.=1013.80  
E OUT N., 8" VCP=1007.25

4" DIA. CONC. BLOCK MH  
COVER ELEV.=1022.94  
E IN N., 8" VCP=1016.29  
E OUT S., 8" VCP=1016.24

12" RCP  
E=1020.33

12" RCP  
E=1019.83

12" CMP  
EL Top=1017.39  
E=1016.39 (Calc'd)

12" CMP  
EL Top=1018.23  
E=1017.23 (Calc'd)

4" DIA. CONC. BLOCK MH  
COVER ELEV.=1018.16  
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NW Orchard Dr. 1  
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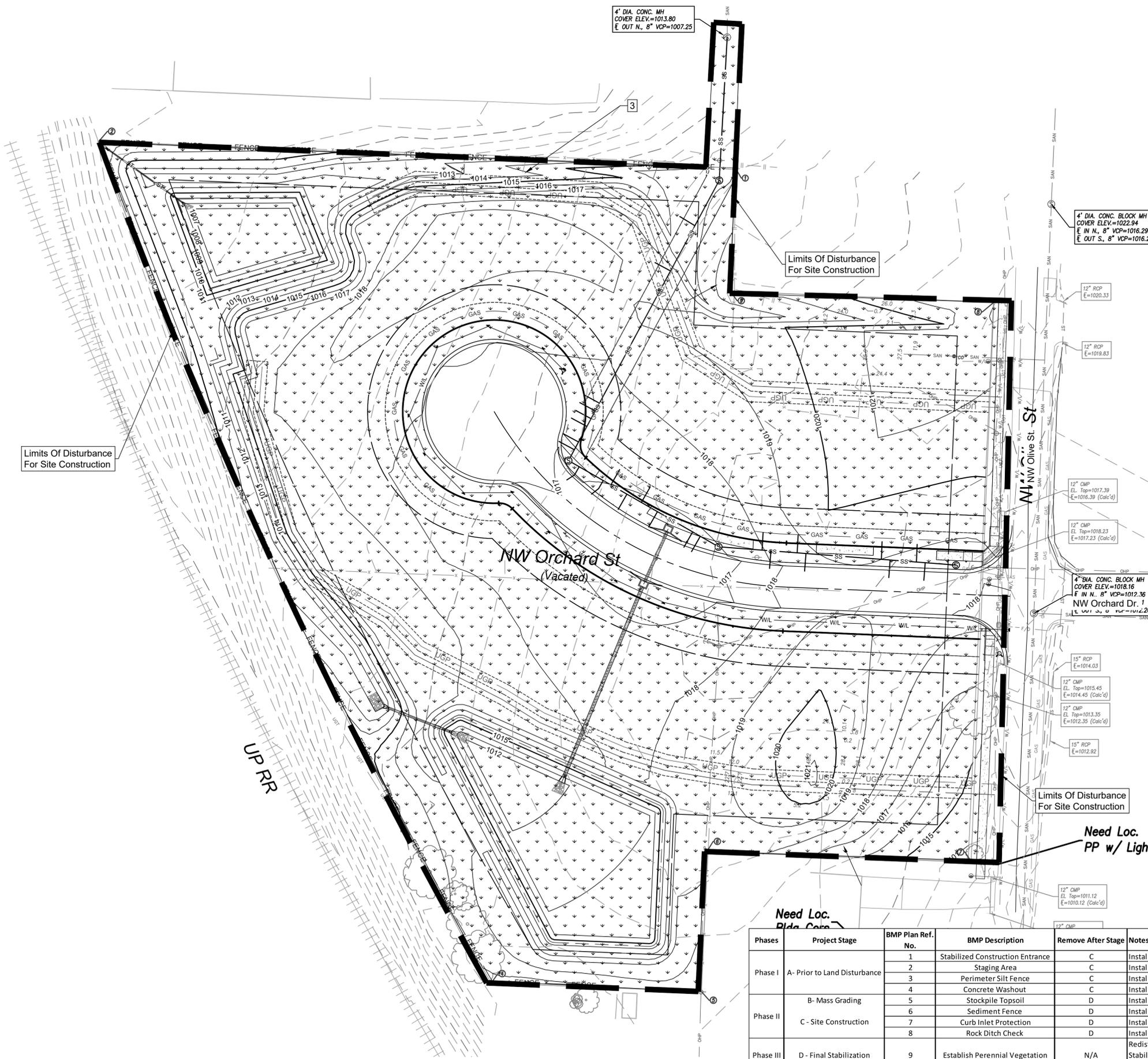
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E=1012.92

12" CMP  
EL Top=1011.12  
E=1010.12 (Calc'd)

12" CMP

Phases	Project Stage	BMP Plan Ref. No.	BMP Description	Remove After Stage	Notes
Phase I	A- Prior to Land Disturbance	1	Stabilized Construction Entrance	C	Install Construction Entrance, as shown on Plans.
		2	Staging Area	C	Install Staging Area
		3	Perimeter Silt Fence	C	Install Perimeter Silt Fence, as Shown on Plans.
		4	Concrete Washout	C	Install Concrete Washout as shown on plans prior to pouring any concrete
Phase II	B- Mass Grading	5	Stockpile Topsoil	D	Install Sediment Fence a Minimum of 5' Beyond Toe of Slope
		6	Sediment Fence	D	Install Sediment Fence, as Shown on Plans
		7	Curb Inlet Protection	D	Install Filter Bags around Proposed Curb Inlets
Phase III	C- Site Construction	8	Rock Ditch Check	D	Install Rock Ditch Check, as Shown on Plans
		9	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%.



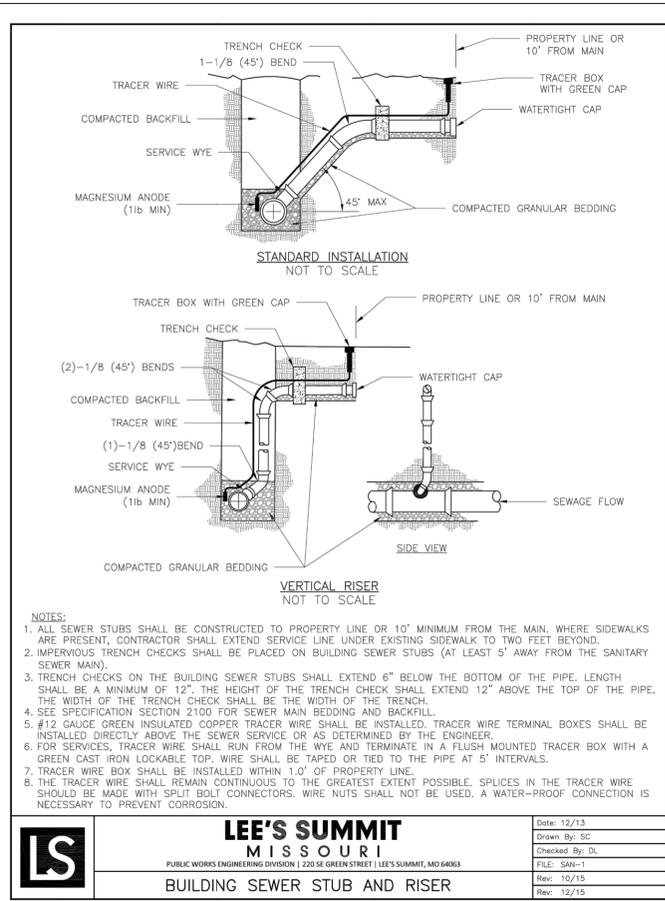
Limits Of Disturbance For Site Construction

Limits Of Disturbance For Site Construction

Limits Of Disturbance For Site Construction

Need Loc. PP w/ Light

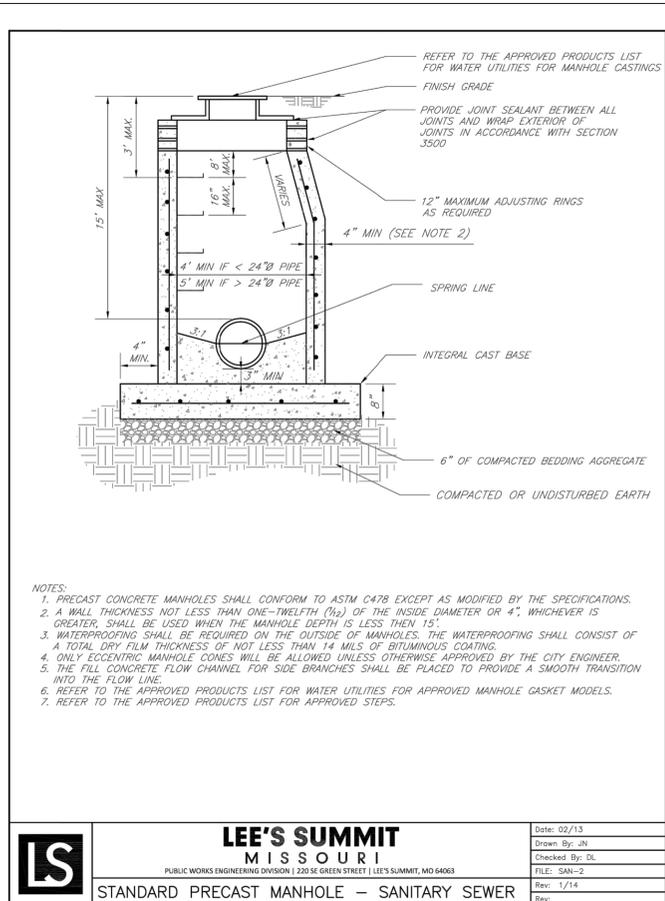
Need Loc. Side Curb



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

**BUILDING SEWER STUB AND RISER**

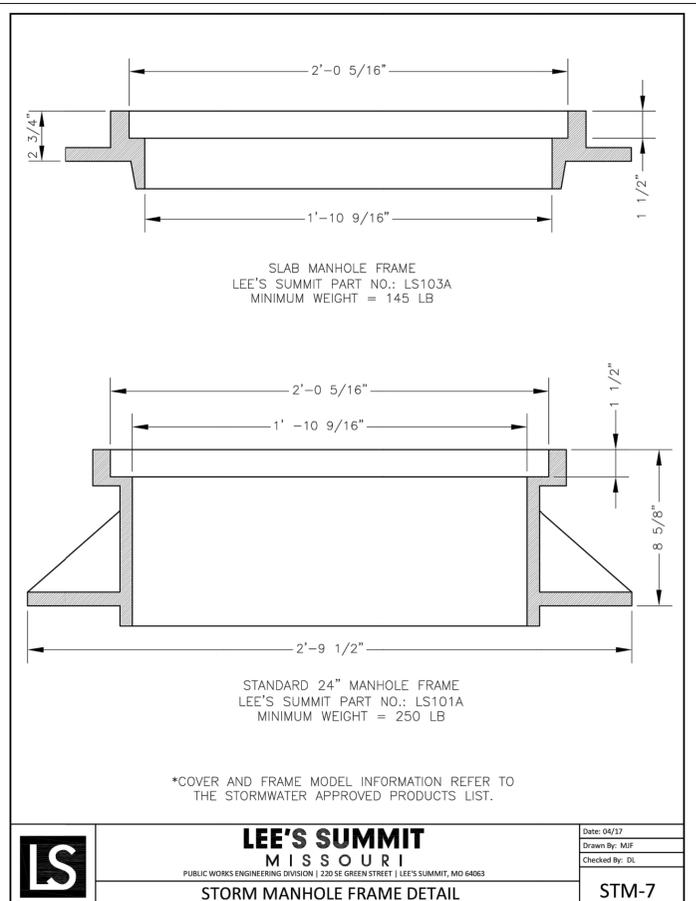
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File: SAN-1  
Rev: 10/15  
Rev: 12/15



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

**STANDARD PRECAST MANHOLE - SANITARY SEWER**

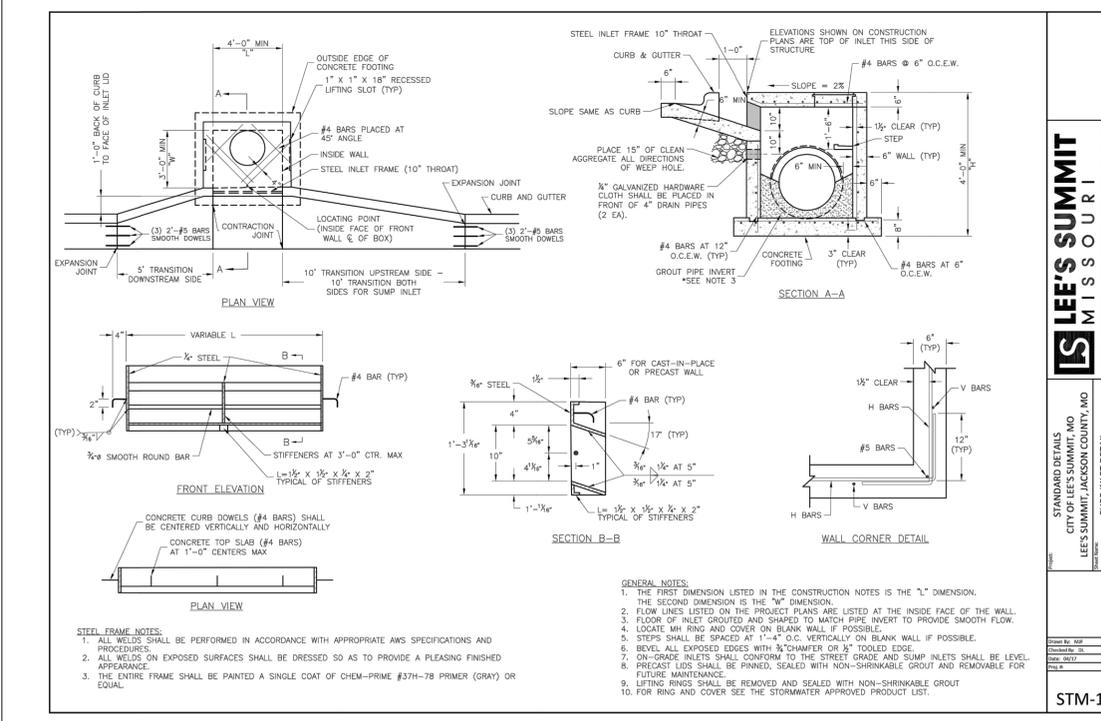
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Rev: 1/14  
Rev:



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

**STORM MANHOLE FRAME DETAIL**

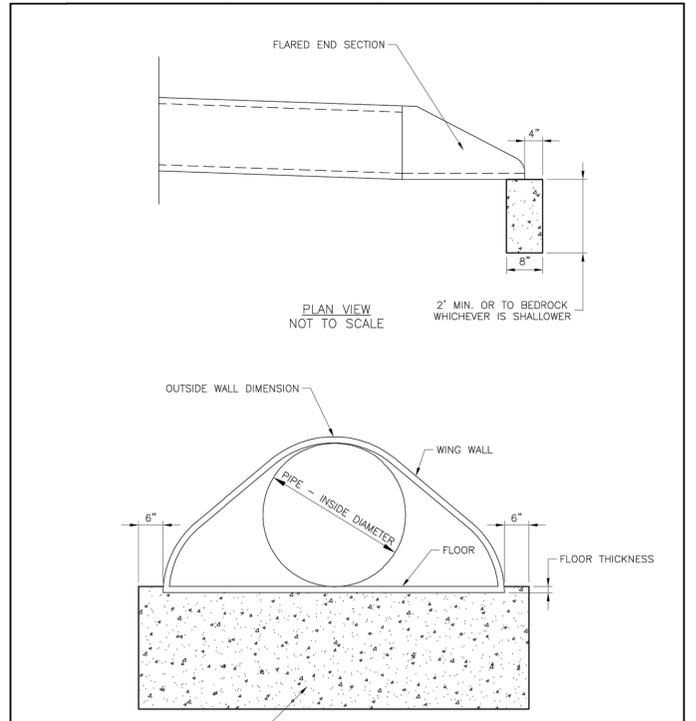
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File: STM-7



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

**STM-1**

Date: 04/17  
Drawn By: MJF  
Checked By: DL  
File: STM-1



**LEE'S SUMMIT MISSOURI**  
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**FLARED END SECTION SUPPORT DETAIL**

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

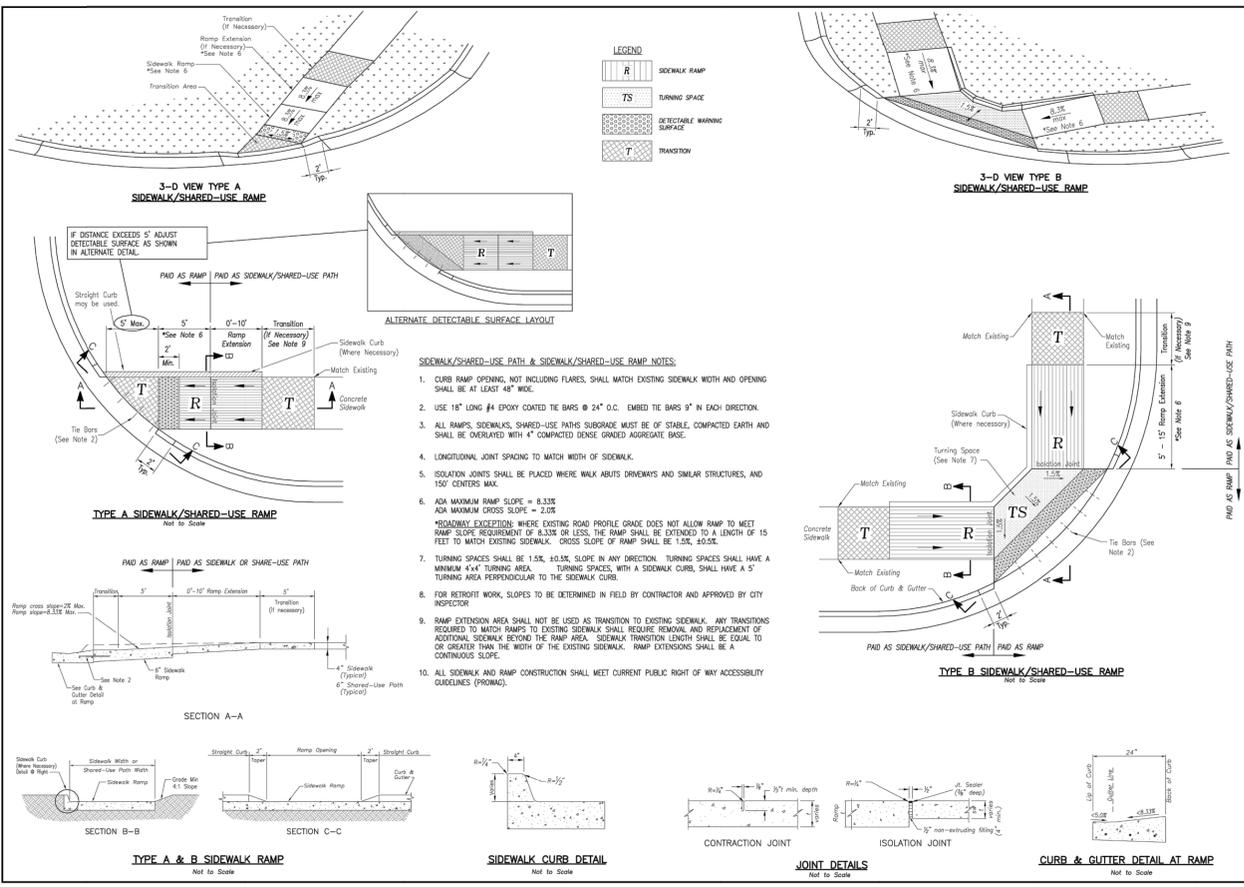
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NO.	BY	DATE	REVISION
1.	JDG	MES 05/09/2020	ORIGINAL SUBMISSION

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816.800.0950  
1815 MCGEE STREET, SUITE 200  
KANSAS CITY, MISSOURI 64108  
WWW.RIC-CONSULT.COM

MO Certificate of Authority: E-2010033630  
STATE OF MISSOURI  
Professional Engineer  
MITCHELL E. SLUTTER  
NUMBER PE-2002003418  
EXPIRES 07/2025



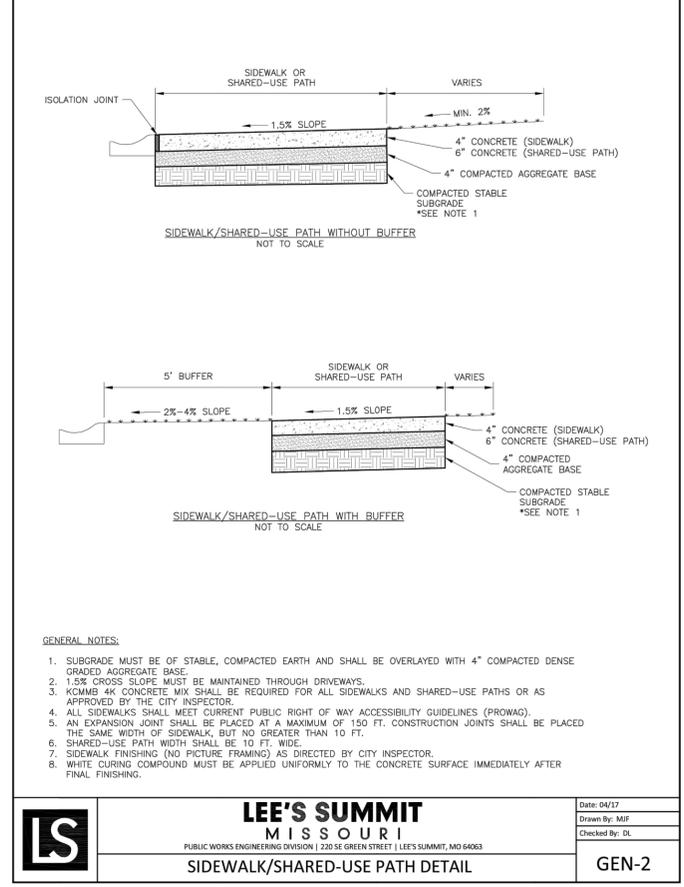


**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64083

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

GEN-3A  
ADA RAMP RETROFIT DETAIL

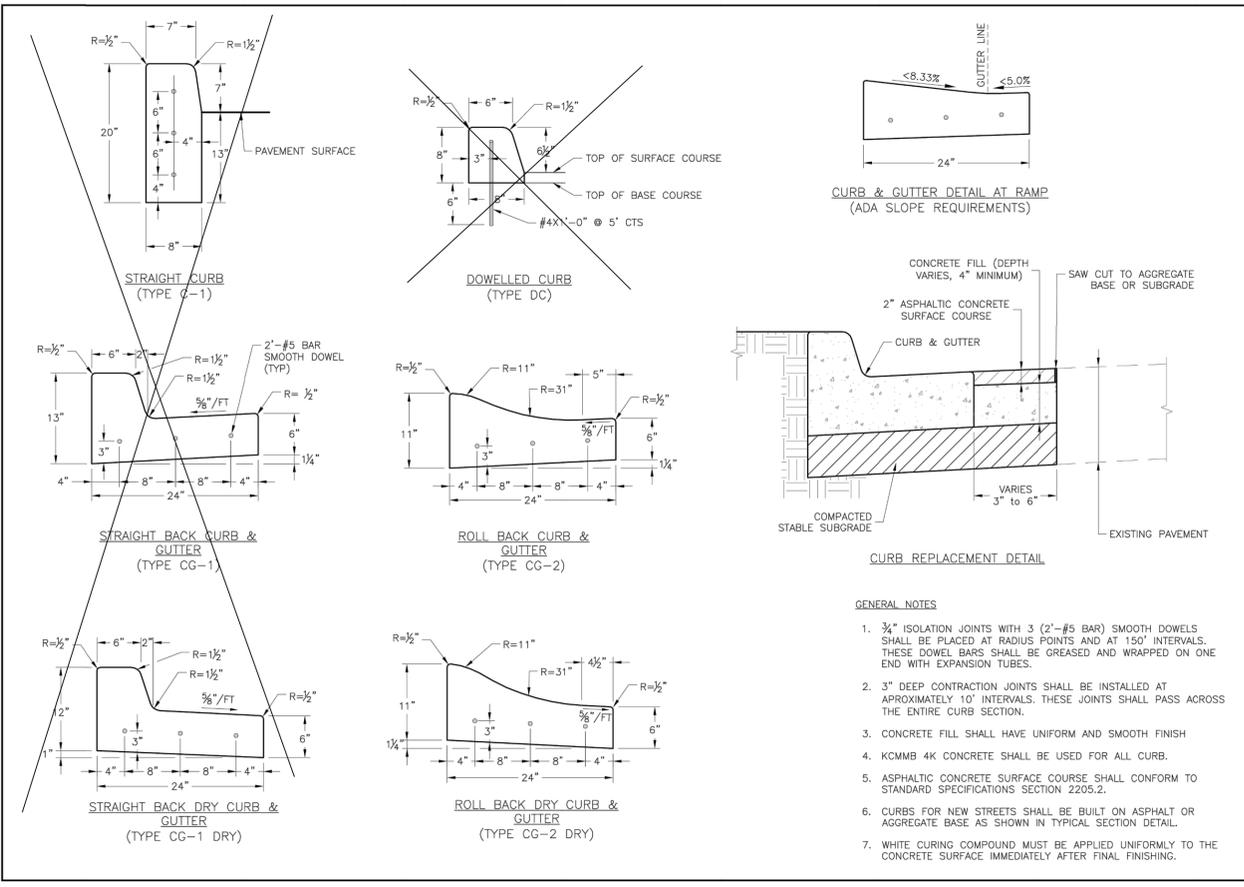
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Date: 04/17  
Scale: AS SHOWN



**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64083

GEN-2  
SIDEWALK/SHARED-USE PATH DETAIL

Drawn By: MIF  
Checked By: DL  
Date: 04/17  
Scale: AS SHOWN

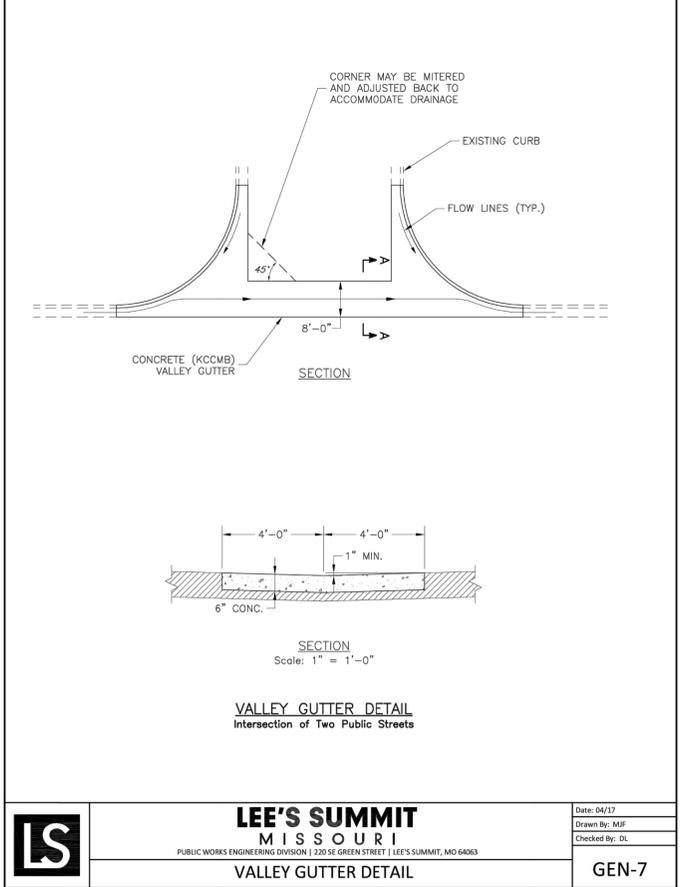


**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64083

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

GEN-4  
CURB & GUTTER DETAIL

Drawn By: MIF  
Checked By: DL  
Date: 04/17  
Scale: AS SHOWN



**LEE'S SUMMIT MISSOURI**  
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64083

GEN-7  
VALLEY GUTTER DETAIL

Drawn By: MIF  
Checked By: DL  
Date: 04/17  
Scale: 1" = 1'-0"

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1.	JDG	MES 05/09/2020	ORIGINAL SUBMISSION

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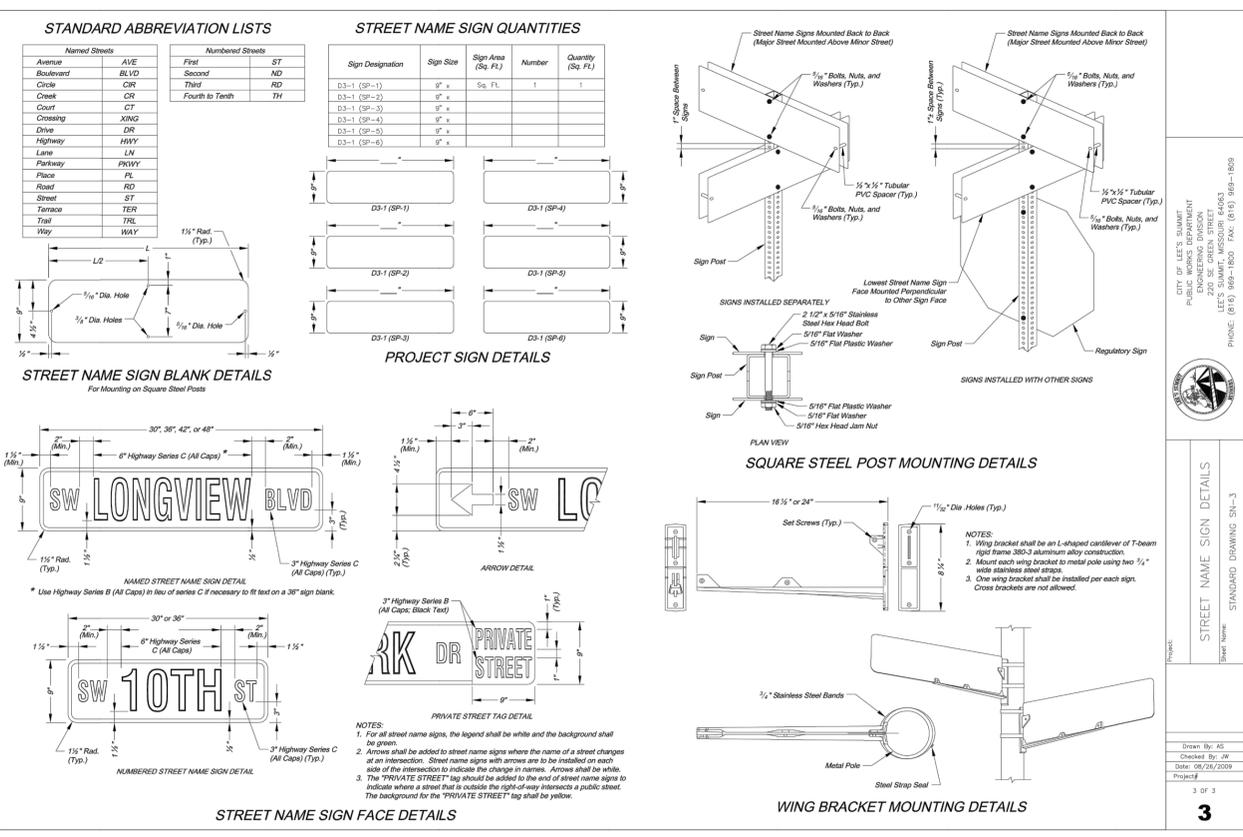
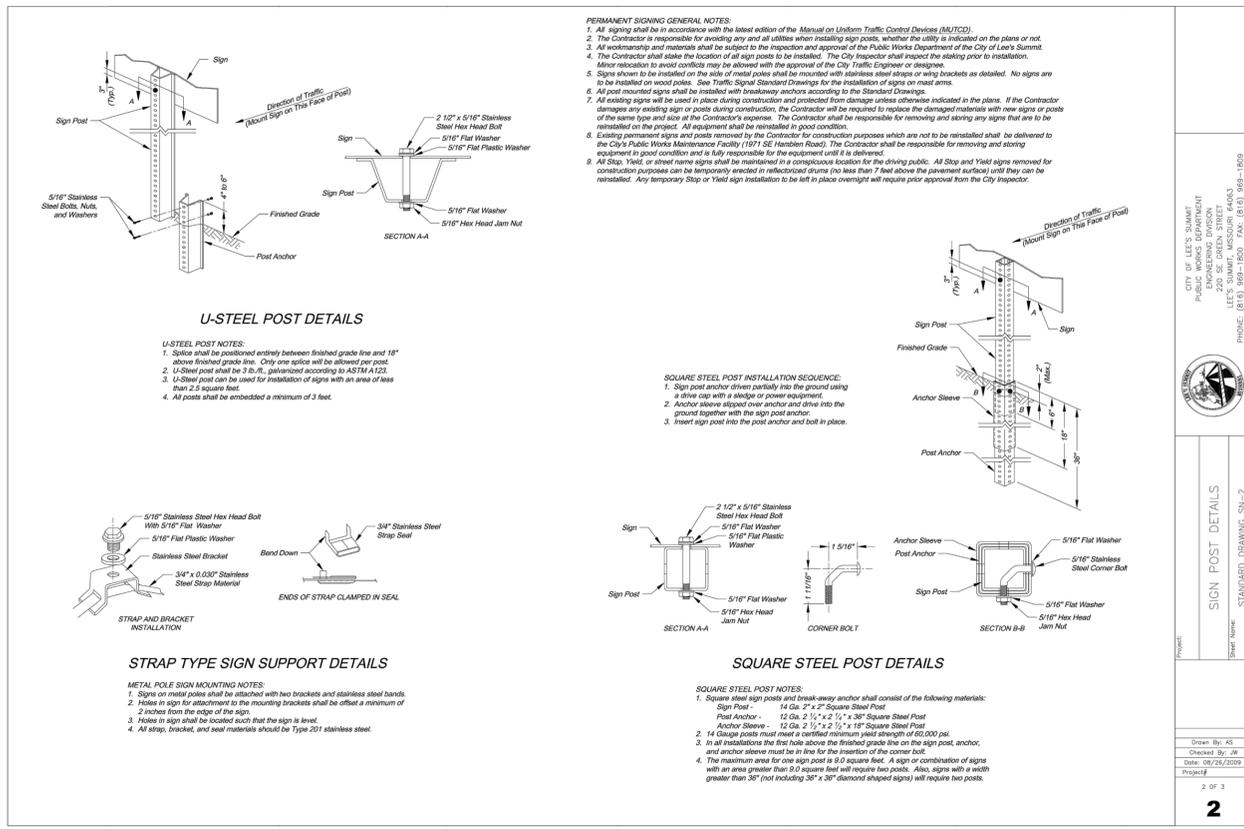
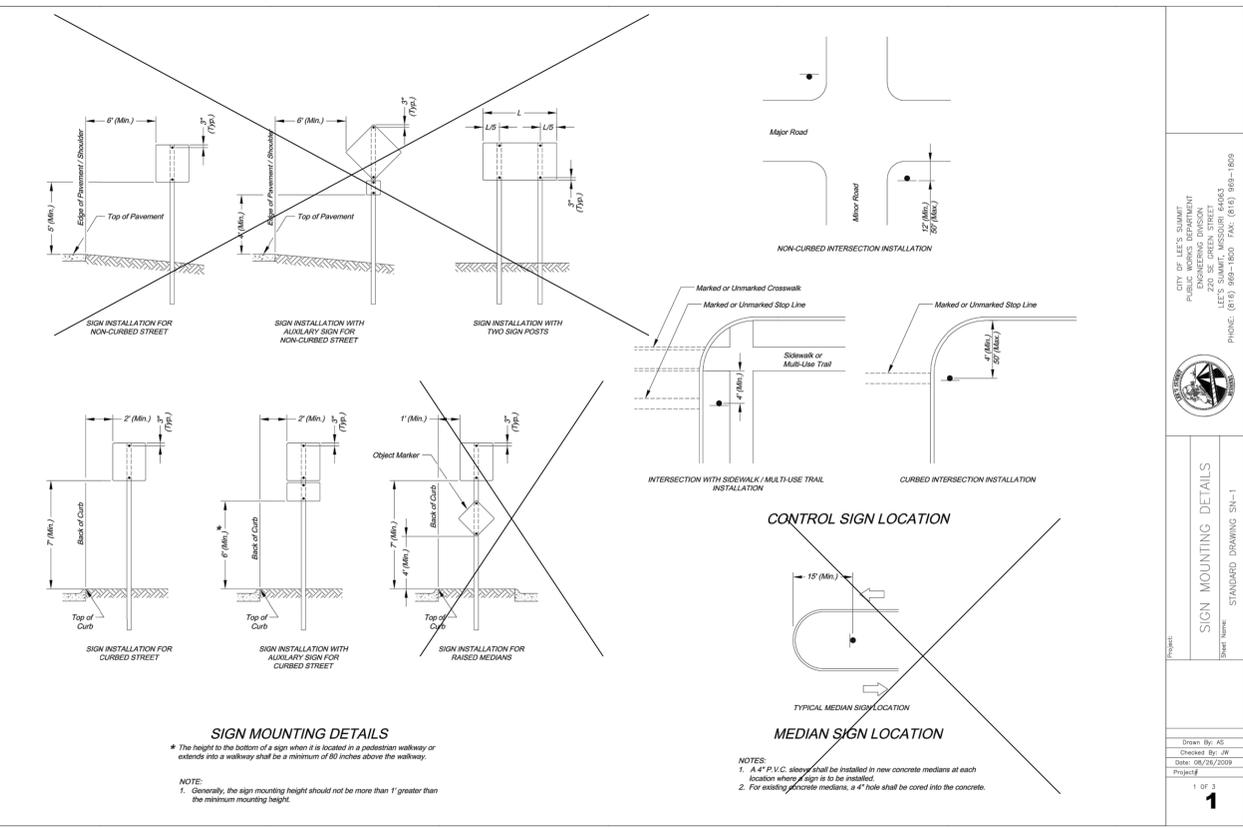
MO Certificate of Authority: E-2010033630



NO.	BY	DATE	REVISION
1.	JDG	MES 05/08/2020	ORIGINAL SUBMISSION

**Renaissance Infrastructure Consulting**  
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1815 MCGEE STREET, SUITE 200  
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Professional Engineer  
STATE OF MISSOURI  
MITCHELL E. SLUTTER  
NUMBER PE-2002003418  
JUL 17 2020



NO.	DATE	BY	CD	REVISION
1	JUN 14 2018	JAG	001	ORIGINAL SUBMISSION
2				REVISION

**Renaissance Infrastructure Consulting**  
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T. ANDREW GABBERT  
LANDSCAPE ARCHITECT  
NUMBER LA-2007013278  
MO# LA-2007013278

MO Certificate of Authority: E-2010033630

**PLANT SCHEDULE STREET FRONTAGE**

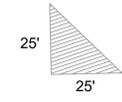
DECIDUOUS TREES	BOTANICAL / COMMON NAME	CONT	CAL	QTY
ARO	Acer rubrum 'October Glory' TM / October Glory Maple	B&B	2.5" Cal.	4
CB	Carpinus betulus 'Fastigiata' / Pyramidal European Hornbeam	B&B	2.5" Cal.	4
GBP2	Ginkgo biloba 'Princeton Sentry' / Princeton Sentry Ginkgo	B&B	2.5" Cal.	13
QRR	Quercus robur 'Regal Prince' / Regal Prince English Oak	B&B	2.5" Cal.	4
QS	Quercus shumardii / Shumard Red Oak	B&B	2.5" Cal.	7
UA	Ulmus americana 'Valley Forge' / American Elm	B&B	2.5" Cal.	4
SHRUBS	BOTANICAL / COMMON NAME	CONT	QTY	
AM	Aronia melanocarpa 'Morton' TM / Iroquois Beauty Black Chokeberry	3 Gal.	3	
IG	Ilex glabra / Inkberry Holly	6" Ht.	7	
IV	Itea virginica 'Henry's Garnet' / Henry's Garnet Sweetspire	5 Gal.	12	
JG	Juniperus chinensis 'Gold Lace' / Gold Lace Juniper	5 Gal.	14	
MS	Miscanthus sinensis 'Gracillimus' / Maiden Grass	5 Gal.	9	
PV	Panicum virgatum 'Haense Herms' / Haense Herms Switch Grass	5 Gal.	8	
GROUND COVERS	BOTANICAL / COMMON NAME	CONT	SPACING	QTY
	ANNUAL/SEASONAL Plants Per OWNER	TBD	12" o.c.	63

**LANDSCAPE NOTES**

- LOCATE UTILITIES PRIOR TO COMMENCING LANDSCAPE OPERATIONS. ALL TREES SHALL BE FIELD POSITIONED AS TO AVOID CONFLICTS WITH EXISTING AND PROPOSED UTILITIES. NOTIFY LANDSCAPE ARCHITECT OF ANY CONFLICTS OR OBSTRUCTIONS.
- CONTRACTOR SHALL STAKE ALL PLANTING AREAS IN THE FIELD PRIOR TO PLANTING FOR APPROVAL OF THE OWNER OR THEIR REPRESENTATIVE.
- CONTRACTOR SHALL VERIFY ALL PLANT QUANTITIES PRIOR TO PLANTING. ANY DISCREPANCIES WITH THE PLAN SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. THE PLAN QUANTITIES SHALL SUPERCEDE SCHEDULED QUANTITIES.
- ALL PLANT MATERIAL SHALL BE SPECIMEN QUALITY AND SHALL COMPLY WITH RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 THE 'AMERICAN STANDARD FOR NURSERY STOCK'.
- ALL PLANTING BEDS & NATIVE GRASS STANDS SHALL BE EDGED AS SHOWN IN PLAN.
- PREPARE PLANTING BEDS AND INCORPORATE AMENDMENTS ACCORDING TO PLANS.
- SHREDDED HARDWOOD MULCH, PER SPECIFICATIONS SHALL BE USED AS A THREE INCH (3") TOP DRESSING IN ALL PLANTING BEDS AND AROUND ALL TREES. SINGLE TREES AND SHRUBS SHALL BE MULCHED TO THE OUTSIDE EDGE OF THE SAUCER OR LANDSCAPE ISLAND.
- ALL TREES SHALL BE STAKED PER DETAIL.
- ALL PLANT MATERIAL SHALL BE INSTALLED TO ALLOW A ONE FOOT (1') CLEARANCE BETWEEN PLANT AND ADJACENT PAVEMENT.
- THE LANDSCAPE CONTRACTOR SHALL NOT COMMENCE WORK UNTIL THE SITE IS FREE OF DEBRIS CAUSED BY ON-GOING CONSTRUCTION OPERATIONS. REMOVAL OF DEBRIS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. LANDSCAPE WORK SHALL NOT BEGIN UNTIL THE LANDSCAPE ARCHITECT AND OWNER HAVE GIVEN WRITTEN APPROVAL FOR SUCH. THERE SHALL BE NO DELAYS DUE TO LACK OF COORDINATION FOR THIS ACTIVITY.
- THE LANDSCAPE ARCHITECT AND OWNER SHALL APPROVE GRADES AND CONDITION OF SITE PRIOR TO SODDING/SEEDING OPERATIONS.
- ALL AREAS DISTURBED DURING CONSTRUCTION AND NOT DESIGNATED FOR OTHER PLANTINGS OR HARDSCAPE SHALL BE SODDED WITH TURF TYPE FESCUE.
- LIMITS OF IRRIGATION SHALL BE DETERMINED BY OWNER. TURF AREAS SHALL BE IRRIGATED BY SPRAY OR ROTOR. PLANT BEDS SHALL BE IRRIGATED BY DRIP IRRIGATION. IRRIGATION SYSTEM SHALL INCLUDE AUTOMATIC RAIN-SENSOR DEVICE. IRRIGATION SHOP DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR FOR APPROVAL PRIOR TO CONSTRUCTION.

**NOTES:**

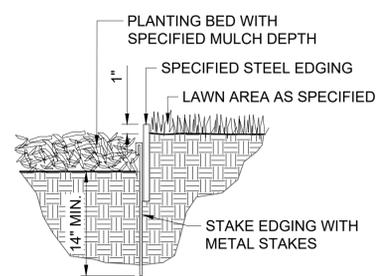
- TREES THAT DO NOT MEET THE SIZE REQUIREMENT WILL BE REJECTED
- TREES SHALL BE INSPECTED BY OWNERS REPRESENTATIVE PRIOR TO INSTALLATION.



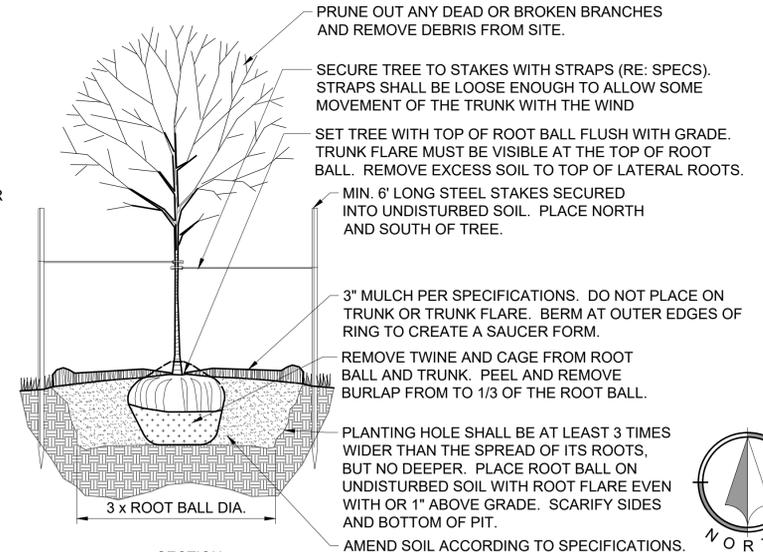
SIGHT TRIANGLE - NTS

**NOTES:**

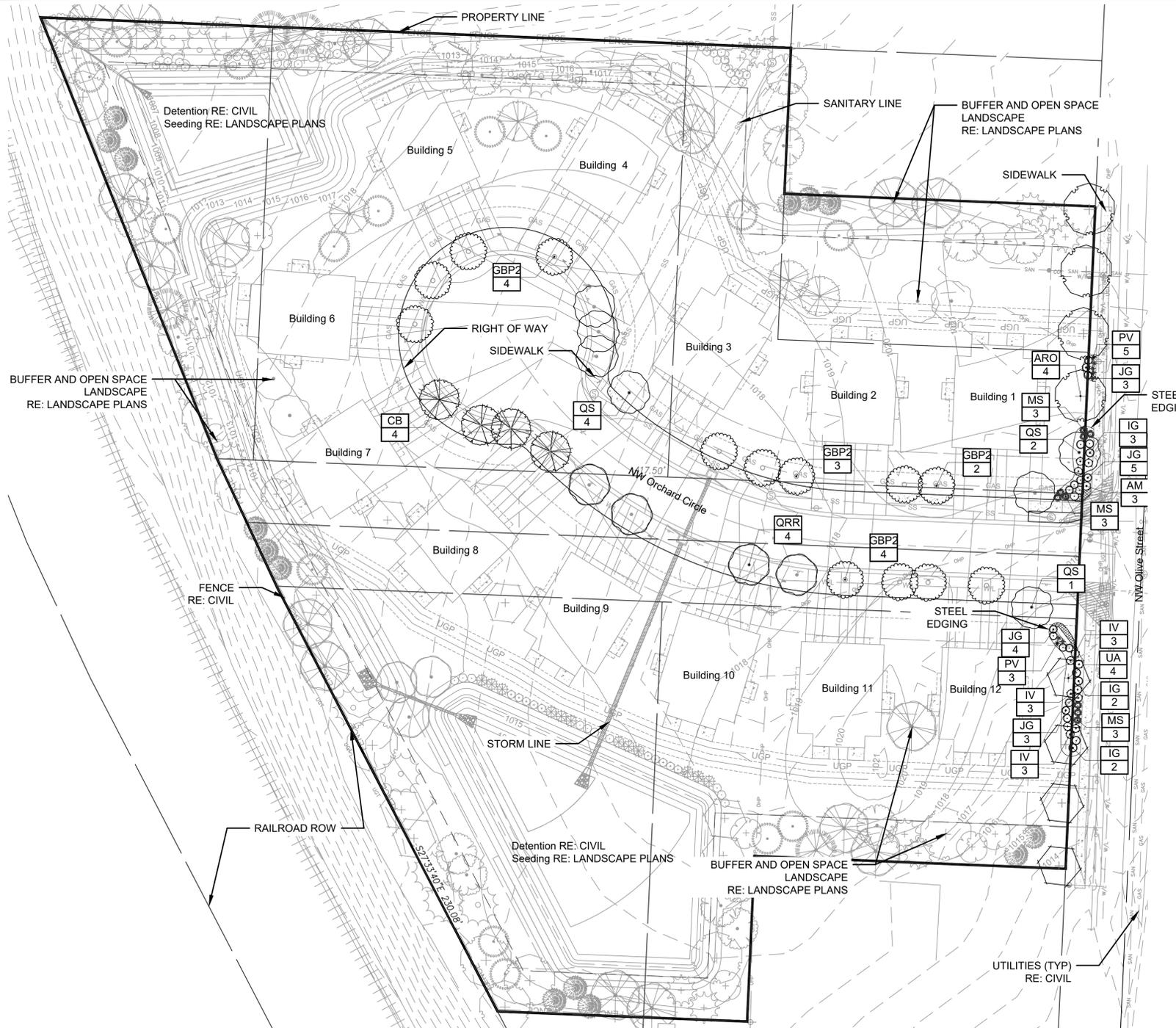
- EDGING PER SPECIFICATION L03 2.07 A. SET ALL EDGING 1" ABOVE FINISH GRADE (TURF) SURFACE AS SHOWN.
- EDGING SHALL ABUT ALL CONCRETE CURBS AND WALKS PERPENDICULAR AND FLUSH WITH TOP OF CONCRETE.
- ALL JOINTS SHALL BE SECURELY STAKED.
- FINISH SHALL BE POWDER COAT; COLOR: GREEN. CONTRACTOR SHALL SUBMIT COLOR SAMPLE TO OWNERS REPRESENTATIVE PRIOR TO PURCHASE.
- CONTRACTOR SHALL LOCATE AND MARK ALL PLANT BED LOCATIONS PRIOR TO INSTALLATION OF STEEL FOR FINAL APPROVAL BY OWNER OR LANDSCAPE ARCHITECT.



SECTION STEEL EDGING DETAIL - NTS

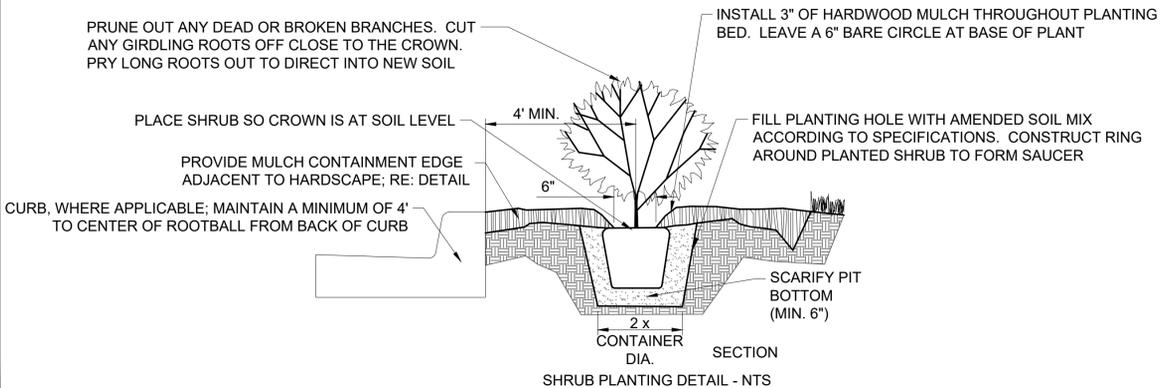


SECTION DECIDUOUS TREE PLANTING DETAIL - NTS



**NOTES:**

- REFER TO SPECIFICATIONS FOR TOPSOIL BACKFILL MIX.
- CONTRACTOR TO WATER THOROUGHLY AFTER PLANTING
- INSTALLATION TO BE IN ACCORDANCE WITH PLANTING SPECIFICATIONS
- WHERE ADJACENT TO CURB, MAINTAIN THE MINIMUM OFFSET SHOWN. FOR SHRUBS LARGER THAN 4' MATURE DIAMETER, PROVIDE A GREATER OFFSET EQUAL TO 1/2 OF THE MATURE DIAMETER MINIMUM.



May 07, 2020 12:34pm Z:\R\C Design\2018\18-0251 Burton Townhomes Lee's Summit\Draw\Street & Storm Plans\18-0251 LND ST Tree.dwg

1.01 SUMMARY:

- A. This Section includes the following:
  - Furnishing trees, shrubs & plants.
  - Preparation of planting pits and beds, including excavation, backfilling, and disposal of surplus and unsuitable excavated material.
  - Planting of plants (trees, shrubs, groundcovers, vines & perennials), including fertilizing, mulching, trimming, guying, and wrapping.
  - Maintenance of plants.

1.02 REFERENCE:

- B. Applicable Standards:
  - American National Standards Institute (ANSI):
    - Z60.1 Nursery Stock.

1.03 SUBMITTALS:

- A. General: Upon completion of the installation, deliver to Landscape Architect the following in accordance with the Conditions of the Contract and Division 1 Specification Sections.
  - Product Certifications: Certificate of inspection as may be required by governing authorities. For standard products, submit manufacturer's certified analysis. For other materials, submit analysis by a recognized laboratory made in accordance with methods established by Association of Official Agricultural Chemists, wherever applicable.
  - Manufacturers Literature: Submit three (3) copies of fertilizer manufacturer's literature along with schedule of maintenance program spanning the life of the guarantee and three (3) copies of a recommended post guarantee maintenance program.
  - Label data substantiating that trees and shrubs comply with specified requirements.
  - Materials List: Within 15 days after award of contract, and before any materials are delivered to the job site, submit to Landscape Architect a complete list of all plants including the sizes ordered and the type of equipment to be used on this project.
  - As-Built Drawings: During course of installation, carefully record in red line on a print of the planting drawings all changes made to the planting system layout during installations; approved by the Landscape architect.
  - Planting Schedule: Proposed planting schedule, indicating dates for each type of landscape work during normal seasons for such work in area of site. Correlate with specified maintenance periods to provide maintenance from date of Substantial Completion. Once accepted, revise dates only as approved in writing, after documentation of reasons for delays.
  - Maintenance Instructions: Typewritten instructions recommending procedures to be established by Owner for maintenance of landscape work for one full year. Submit prior to expiration of required maintenance period(s).
- D. Product Data: Submit product data, supplier sources and small sample of the following:
  - Shredded Hardwood Mulch
  - Fertilizer Planting Tablets
  - Steel Edging
  - Filter Fabric
  - Herbicide and Pre-emergent
  - Imported Topsoil & Analysis
  - Decorative Gravel

1.04 QUALITY ASSURANCE:

- A. Installers Qualifications: Engage a single firm specializing in landscape work with a minimum of 5 years experience who has completed landscaping work similar in material, design, and extent to that indicated for this project and with a record of successful landscape establishment.
  - Installers Field Supervision: Require installers to maintain an experienced full-time Supervisor on the project site during times that landscaping is in progress.
- B. Source Quality Control.
  - General: ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
  - Do not make substitutions. If specified landscape material is not obtainable, submit proof of non-availability to Landscape Architect, together with proposal for use of equivalent material.
  - Topsoil: ASTM 5268, pH range 5.5 to 7. Free of stones 1-inch or larger in any dimension and other extraneous materials harmful to plant growth. All topsoil used in planting operations shall meet standards as defined in this specification.
    - Before delivery of topsoil, furnish Landscape Architect with written statement giving location of properties from which the topsoil is to be obtained, names and addresses of owners, depth to be stripped and crops grown during the past 2 years.
  - Plant Material: Provide plant material of quantity, size, genus, species, and variety shown and scheduled for landscape work and complying with recommendations and requirements of (ANSI Z60.1-1986) "American Standard for Nursery Stock" for number one grade nursery stock as adopted by the American Association of Nurserymen. Provide healthy, vigorous stock, grown in recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae, and defects such as knots, sun-scald, injuries, abrasions, and discoloration.
    - Measurements: Measure trees and shrubs according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above ground for trees up to 4-inch caliper size. Measure main body of tree or shrub for height and spread; do no measure branches or roots tip-to-tip.
    - Plants shall be true to species and variety and shall conform to measurements specified in the plant schedule. Larger plants may be used if approved by the landscape architect, however, if approved shall not increase the contract price.
  - Label at least one tree and one shrub of each variety with a securely attached waterproof tag bearing legible designation of botanical and common name.
- C. Inspection: The Subcontractor shall notify the Landscape Architect of the location of plant materials to be used and allow the Landscape Architect the opportunity to inspect them either at the place of growth or at the site before planting, for compliance with requirements for genus, species, variety, size, and quality. The Owner retains the right to further inspect trees and shrubs for size and condition of root balls and root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from the project site.
  - Landscape Contractor shall provide a minimum of 72 hours prior notice of readiness for landscape material inspection.
- D. Reinstallation Conference: Subcontractor to conduct conference at Project Site prior to installation.

1.05 OBSERVATIONS:

- A. In addition to normal progress observations, schedule, and conduct the following formal observations to verify compliance with the specifications, giving the Landscape Architect at least 24 hours prior notice of readiness for observation.
  - Plant Material: The Landscape Architect shall observe the plant material at site before planting for compliance with requirements for genus, species, variety, size, and quality.
    - If the Subcontractor requests, the Landscape Architect may observe plant materials at place of growth or storage.
    - The Subcontractor shall notify the Landscape Architect 72 hours in advance of when plant material is to be delivered and shall furnish an itemized listing of the actual quantities and size of plant materials to be observed at the point of delivery.
  - Landscape Architect retains the right to further observe plant material for size and conditions of balls and root systems, insects, injuries, and latent defects, and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected plants immediately from project site and replace at the Subcontractor's expense with approved materials.
  - Landscape Architect further retains the right for:
    - Observation of labels and the condition of all items delivered to the site.
    - Observation of any repairs or replacements necessary.
    - Observe the staking for all trees and shrubs prior to planting.
    - Observation of bed preparation prior to planting of trees and shrubs.
    - Observation of plant material at end of plant warranty period.

1.06 DELIVERY, STORAGE, AND HANDLING:

- A. Provide freshly dug trees and shrubs. Do not prune prior to delivery. Provide adequate protection of root systems and balls from drying winds and sun. Do not bend or bind-tie trees or shrubs in such a manner as to damage bark, break branches, or destroy natural shape. Provide protective covering during delivery. Do not drop balled and burlapped stock during delivery.
  - Packaged Material: Deliver packaged materials to the site in their original container with all labels showing weight, analysis, and name of manufacturer intact and legible. Use all means necessary to protect all materials from deterioration before and during delivery, and while stored on site. Protect the installed work and materials of all other trades.
  - Deliver plant material after preparations for planting have been completed, and plant immediately. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist as follows:
    - Heel-in bare root stock. Soak roots in water for 2 hours if dried out.
    - Set balled stock on ground and cover ball with soil, peat moss, sawdust or other acceptable material.
    - Do not remove container-grown stock from containers until planting time.
    - Periodically water root systems of trees and shrubs stored on site using a fine mist spray. Water as often as necessary to maintain root systems in a moist condition.
- C. Replacements: In the event of damage or rejection, immediately make all repairs and replacements necessary to the approval of the Landscape Architect and at no additional cost to the Owner.

1.07 JOB CONDITIONS:

- A. Utilities: determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as pebble fill, adverse drainage conditions, or obstructions, notify Landscape Architect before planting.

C. Sequencing or Scheduling:

- Planting Time: Proceed with, and complete landscape work as rapidly as portions of site become available, working within seasonal limitations for each kind of landscape work required.
- All planting shall be performed during favorable weather conditions. The planting operations shall not be performed during times of extreme drought, when ground is frozen, or during times of other unfavorable climatic conditions unless otherwise approved by the Landscape Architect. The Subcontractor assumes full and complete responsibility for all such plantings and operations.
- Dig, ball and burlap deciduous plants only when dormant (before March 15 and after October 15). Such plants may be planted at any time during the same year, subject to the other requirements of the specification.
- Recommended dates for tree and shrub planting shall be March 15 - May 31 and September 15 - October 31st or as approved by the Landscape Architect.
- Plant trees and shrubs after final grades are established and prior to planting of lawns, unless otherwise acceptable to the Landscape Architect. If planting of trees and shrubs occur after lawn work, protect lawn areas and promptly repair damage to lawns resulting from planting operations.
- Ecorelate planting with specified maintenance periods to provide maintenance from date of Substantial Completion.
- Coordination: All planting work shall be coordinated with all other work included in this contract and with work being done by others.

1.08 PROJECT WARRANTY:

- A. General Warranty: Warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Subcontractor under requirements of the Contract Documents.
- B. Special Warranty: Warrant the following living planting materials for a period of one (1) year after date of Substantial Completion, against defects including death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, or abuse by the Owner, abnormal weather conditions unusual for warranty period, or incidents that are beyond the Subcontractor's control.
  - Trees
  - Shrubs/Grasses/Vines
  - Perennials
- C. Immediately prior to plant warranty observation, the Subcontractor will be responsible for the removal of all staking material on site.
- D. Replacement Plants: The Subcontractor shall replace once, without cost to Owner, and as soon as weather conditions permit, and within a specified planting period, all dead plants and all plants not in a vigorous, thriving condition as determined by the Landscape Architect during and at the end of the warranty period. The plants shall be free of dead or dying branches and branch tips, and shall bear foliage of a normal density, size, and color.
- E. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in the Specifications.
- F. The Subcontractor shall make all necessary repairs to other site and project features due to plant replacements. Such repairs shall be done at no cost to the Owner.
- G. Materials and Operations: All replacements shall be plants of the same kind and size specified in the plant schedule. They shall be furnished and planted as specified. The cost shall be borne by the Subcontractor. After Substantial Completion replacements resulting from the removal, loss, or damage due to occupancy of the project site by others, vandalism, or acts or neglect on the part of others, or physical damage by animals, may be approved and paid for by the Owner.

PART 2 - PRODUCTS

2.01 GENERAL:

- A. Provide nursery-grown trees and shrubs, grown in a recognized nursery in accordance with good horticultural practice, with healthy root systems developed by transplanting or root pruning. Provide only healthy, vigorous stock grown under climatic conditions similar to conditions in the locality of the Project and free of disease, insects, eggs, larva, and defects such as knots, sun scald, injuries, abrasions, or discoloration.
- B. Provide trees and shrubs of the sizes indicated in planting list and in accordance with dimensional requirements of ANSI Z60.1 for kind and size of trees and shrubs required. Trees and shrubs of larger size than indicated may be used if acceptable to Landscape Architect.
- C. Label each tree and shrub with a securely attached waterproof tag bearing legible designation of botanical and common name.
- D. Nomenclature: Scientific and common names used for plants are generally in conformity with "Standardized Plant Names." The names of varieties are generally in conformity with the names accepted in nursery trade.
- E. Plant material size and measurements shall conform to the "American Standard for Nursery Stock", ANSI Z60.1-1986.
- F. Digging, wrapping, and shipping:
  - Plants shall be dug up and prepared for shipment in a manner that will not cause damage to the branches, shape and future development of the plants after replanting. All plant material being transferred more than two miles shall be covered.

2.02 TREES:

- A. Trees shall not be pruned before delivery. Trees, which have a damaged or crooked leader or multiple leaders, unless otherwise specified, will be rejected. Trees with abrasion of bark, sunscalds, disfiguring knots, or fresh cuts of limbs over 1 inch in diameter which have not been completely calloused will be rejected.
  - Plants shall be measured when branches are in a normal position. If a range of size is given, no plants shall be less than the minimum size and not less than 50% of the plants shall be as large as the upper half of the range specified. The measurements specified are the minimum size acceptable and are the measurements after pruning where pruning is required. Plants that meet the measurements specified, but do not possess a normal balance between height and spread will be rejected.
  - Plants shall be true to species and variety and shall conform to measurements specified in the Plant Schedule except that plants larger than specified may be used if approved by the Landscape Architect. Use of such plants shall not increase the contract price. If larger plants are approved, the ball of earth shall be increased in proportion to the size of the plant according to ANSI Z60.1-1986.
- B. Balled and Burlapped Plants
  - All plants designated "B&B" in the Plant Schedule shall be adequately balled with firm natural balls of earth of a diameter and depth no less than that specified in ANSI 60.1-1986. Balls shall be firmly wrapped with burlap. All plants which are 2" in caliper or over shall be drum laced. No balled plants shall be planted if the ball is cracked or broken either before or during the process of planting.
  - Container grown plants will be acceptable in lieu of balled and burlapped deciduous plants subject to specified limitations of ANSI Z60.1 for container stock.

C. Protection against drying:

- 1. Root balls shall be adequately protected at all times from sun and from drying winds. All balled and burlapped plants which cannot be planted immediately upon delivery shall be set on the ground and well protected with soil or other acceptable material. Plants shall not remain unplanted for longer than 3 days after delivery.
- D. Where shade trees are required, provide single stem trees with straight trunk and intact leader, free of branches to a point about 50% of their height for the size and kind of trees required.
- E. Where small trees of upright or spreading type are required, provide trees with single stem, branched or pruned naturally according to species and type:
  - Where indicated as "multi-stem," provide trees with three canes starting from the ground.
- F. Except as otherwise specified or indicated, provide bare root trees. Where indicated as "B&B," provide balled and burlapped trees:
  - Container-grown trees will be acceptable in lieu of balled and burlapped deciduous trees, subject to the specified limitations for container stock.

2.03 SHRUBS & GRASSES:

- A. Provide shrubs of height and size indicated or specified.
- B. Provide with not less than the minimum number of canes required by ANSI Z60.1 for the type and height of shrub required.
- C. Except as otherwise specified or indicated, provide container grown shrubs.

2.04 CONTAINER PLANTS

- A. Provide plants in containers as sized or specified.
- B. Plants shall show a vigorous root system, visible when container is removed.
- C. Root system shall not show excess signs of overgrowth.
- D. Plants shall appear healthy, with no broken limbs. Leaves shall appear full with no apparent sun or wind scald.

2.05 TOPSOIL:

- A. Soil Mix: ASTM D 5268, pH range of 5.5 to 7, 4 percent organic material minimum, free of stones 1/2 inch or larger in any dimension, subsoil, clay lumps, roots, brush, weeds, weed seed, and other extraneous or toxic materials harmful to plant growth. Contents of the soil should contain no more than 15% Silt and 15% clay. Soil should also contain no less than 40% sand. Mix shall contain maximum soluble salts of 500 PPM.
- B. Soil Source: Reuse surface soil stockpiled on the site where available. Verify suitability of surface soil to produce topsoil meeting requirements and amend when necessary. Supplement with imported topsoil when quantities are insufficient. Clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful to plant growth.

2.06 SOIL AMENDMENTS:

- A. Sphagnum Peat Moss: Peat moss shall be Canadian Sphagnum Peat Moss, which is a light brown, fluffy material. Do not use hypnum, Michigan, or reed sedge peats.
- B. Commercial Fertilizer: Fertilizer shall be of the grade, type and form specified below and shall comply with the rules of the local governing authority and the following requirements:
  - The grade of fertilizer will be identified according to the percentage of nitrogen (N), percent available phosphoric acid (P2O5) and percent water soluble potassium (K2O), in that order and approval will be based on that identification.
  - Fertilizer shall be of a type that can be uniformly distributed either by hand or application equipment.
  - Fertilizer shall be furnished in dry form.
  - Fertilizer may be either homogenized or natural organic with at least 25 percent of the total nitrogen in a slow-release form.
  - Deliver fertilizer in original, unopened and undamaged containers showing weight, analysis and name of manufacturer. Store in manner to prevent wetting and deterioration.
- D. Fertilizer applications shall be provided as follows:

- 1. For trees and shrubs: Fertilizer shall be Agriform 20-10-5 Planting Tablets or approved equal, and shall be incorporated according to the manufacturer's directions and at the following rates:
  - Trees: Use 1 21-gram tablet for each 1/2-inch of trunk diameter for each foot of height or spread. Insert 21-gram tablets around the dripline
  - Shrubs: Use 1 to 2 tablets for each 1 foot of height or spread of shrubs and large perennial grasses.

2.07 MISCELLANEOUS MATERIALS:

- A. Steel Edging: Commercial steel edging fabricated in sections with loops pressed from or welded to face to receive stakes. Edging to be Col-Met Steel Landscape Edging (or approved equal), Collier Metal Specialties, Inc., Atlanta, GA., 1-800-829-8225; 1/8" thick x 4" wide x 10' lengths, hot rolled low carbon steel (ASTM-A-36, ASTM-A-283, ASTM-A-569), treated with rust preventative and factory finished, (submit sample). Provide minimum 12" integral anchor stakes.
- B. Shredded hardwood mulch: Double ground aged brown hardwood mulch.
- C. Tree Wrap: Material used in wrapping tree trunks shall be waterproof crepe paper or burlap strips as made and sold for this purpose and shall not be less than 4" or more than 8" wide having qualities to resist insect infestation. Twine for tying shall be a lightly tarred medium or coarse sisal yarn or approved equal.
- D. Pre-Emergent Herbicide: Provide pre-emergent herbicide Pre M 60 DG (granular). The Landscape Architect will consider an "equivalent" of the brand name specified. Provide the Landscape Architect with a complete description, literature, test reports, etc. on the proposed "equivalent". The burden of proof regarding the "equivalent" is upon the Subcontractor. The Landscape Architect will accept the pre-emergent herbicide based on brand name and visual inspection for condition.
- E. Tree Stakes and Guyes:
  - All trees shall be staked with a minimum of 2 metal "T" posts. Stakes shall be approximately 2" wide and 6-6.5 feet long. Stakes are to be driven a minimum of 2 feet into undisturbed stable earth.
  - Tree Ties: An acceptable tree tie is one that is easily adjustable, strong in all weather, and is easily attached and removed. Hose and wire are not acceptable for staked trees. Provide the following or approved equal:
    - "Cinch Ties"
    - "Adj.-A-Tye": Heavy weight only, a plastic chain twist tie, OR "Plastic Binder Tye", tie with tapered beads that snap-lock.
    - Other tree tying materials may be accepted upon submitting a sample, product information, and plant tying methods to the Landscape Architect for approval.
- F. Water: Upon request of the Subcontractor, the Owner may approve the use of water from existing hydrants or working irrigation system for this work. The Owner may pay for the cost of the water. The Subcontractor shall provide all needed hose, sprinkler heads and other appurtenances. If the Subcontractor provides his own water, it shall not contain material injurious to plant growth.
- G. Anti-Erosion Mulch: Provide clean, dry straw of winter wheat, rye, oats, or barley.
- H. Anti-Desiccant: Emulsion type, film-forming agent designed to permit transpiration, but retard excessive loss of moisture from plants. Deliver in manufacturer's fully identified containers and mix in accordance with manufacturer's instructions.
- I. Biostimulant: The Subcontractor shall utilize an organic, biological fungi for soil prep. The material shall be granular and applied per manufacturer's recommendation. Myke Mycorrhizae or approved equal.
- J. All other materials, not specifically described but required for a complete and proper installation or construction, shall be as selected by the Subcontractor subject to the approval of the Landscape Architect.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Inspection:
  - Prior to all landscape installation, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
  - Weeds that have emerged or persisted shall be removed or eradicated.
  - Verify that planting may be completed in accordance with the original design and the referenced standards.
- B. Discrepancies:
  - In the event of discrepancy, immediately notify the Landscape Architect.
  - Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 PREPARATION FOR PLANTING OF TREES, SHRUBS AND PLANT BEDS:

- A. Planting Soil Preparation:
  - Before mixing, clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful to plant growth.
  - Loosen subgrade of planting areas to a minimum of 8 inches.
  - Mix soil amendments and fertilizers with topsoil at rates indicated. Delay mixing fertilizer if planting does not follow placing of planting soil within two (2) days.
  - Grade planting areas to a smooth, uniform surface place with loose, uniformly fine texture. Roll, rake and remove ridges/depressions to meet finish grades.
- B. Schedule of Plantings Soil Mixture Requirements
  - For planting beds, provide not less than the following quantities of specified materials:
    - Loose peat humus by volume: 1 part
    - Well-rotted composted manure by volume: 1 part
    - Topsoil (as defined in this specification): 2 parts
    - Fertilizer: Incorporate 3 lbs/100sf
  - For backfill for trees provide specified materials in not less than the following quantities:
    - Loose peat humus by volume: 1 part
    - Well-rotted cow manure by volume: 1 part
    - Topsoil (as defined in this specification): 3 parts
    - Place Agriform tablet (or approved equal) in bottom of tree pit.

- B. Unless directed by the Landscape Architect, the indication of a plant on the Planting Plan is to be interpreted as including the prepping the landscape bed, digging of a hole, furnishing of a plant of the specified size, the work of planting, wrapping and other activities where called for.
- C. Planting Coordination:
  - Consult the Plant Schedule for type and size of plants.
  - The Subcontractor shall be responsible for selection and tagging at nurseries stocking the specified materials.
  - Subcontractor shall inform the Landscape Architect three (3) days in advance of when planting will commence, and of anticipated delivery date of material and will furnish an itemized listing of actual quantities of plant materials to be delivered. Failure to notify the Landscape Architect in advance, in order to arrange proper scheduling, may result in loss of time or removal of any plant or plants not installed as specified or directed.

D. Plant Location Staking:

- 1. The Subcontractor shall stake on the ground the beginning and ending points of all straight rows of plant materials. Rows will be parallel to adjacent walks, walls, or curbs.
- 2. The Subcontractor will stake locations of each plant in all random arrangements of plant materials (with the exception of groundcovers, and annual and perennial flowers) or may set the plants in their intended location, according to the arrangements shown on the plans.
- 3. The Landscape Architect will observe all plant locations. The Subcontractor shall not begin excavating plant pits until plant locations have been approved.
- 4. In case underground obstruction or utilities are encountered, locations shall be changed under the direction of the Landscape Architect without extra charge to the Owner.

3.03 EXCAVATION FOR TREES AND SHRUBS

- A. Holes for trees and shrubs shall be per the detail. Thoroughly spade slice the walls and the floor of all planting pits.
- B. Testing Plant Materials Holes: If stone, underground construction work, tree roots, poor drainage or obstructions are encountered in the excavation of plant pits, alternate locations may be selected by the Landscape Architect. Where locations cannot be changed as determined by the Landscape Architect, submit cost required to remove the obstructions to a depth of not less than 6 inches below the required pit depth.
- C. Excavate pits, beds, and trenches with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage. Loosen hard subsoil in bottom of excavation:
  - For bare-root trees and shrubs, make excavations as detailed.
  - For balled and burlapped trees and shrubs, make excavations as detailed.
  - For container-grown stock, excavate as specified for balled and burlapped stock, adjusted to size of container width and depth.
- D. Obstructions: If rock, underground construction, or other obstructions are encountered in excavation for planting of trees or shrubs, notify Landscape Architect. New locations may be selected by Landscape Architect, or Change Order may be issued to direct removal of obstructions to depth of not less than 6 inches below required planting depth.

3.04 TREE & SHRUB PLANTING:

- A. Before mixing, clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful or toxic to plant growth.
- B. Mix soil amendments and fertilizers with topsoil. Delay mixing of fertilizer if planting will not follow placing of planting soil within a few days.
- C. For pit- or trench-type backfill, mix planting soil prior to backfilling and stockpile at site.
- D. Setting and Backfilling:
  - Set balled and burlapped stock on layer of compacted planting soil mixture, plumb and in center of pit or trench with top of ball at same elevation as adjacent finished landscape grades. Remove burlap from sides and tops of balls, but do not remove from under balls. When set, place additional backfill around base and sides of ball, and work each layer to settle backfill to eliminate voids and air pockets. When excavation is approximately two-thirds full, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing final layer of backfill.
  - Set container-grown stock as specified for balled and burlapped stock, except cut out cans on two sides. Carefully remove containers so as not to damage root balls.
  - Move or set large specimen trees with crane or other recognized tree moving equipment.

- 4. Plant Pits
  - Around the perimeter of the plant pit, build a watering saucer 4 inches above the crown of the plant and shape and slope the surface away from the top of the saucer, approximately 18 inches wide down to existing grade.
  - Treat entire plant pit or bed with Trellan in accordance with manufacturer's recommendations.
- 6. Mulching: Apply the specified mulch to a depth as shown on plans, evenly spread over the entire area of each soil basin or plant bed area.
- 7. Apply antidesiccant using power spray to provide an adequate film over trunks, branches, stems, and twigs for foliage. If deciduous trees or shrubs are moved in full-leaf, spray with antidesiccant at nursery before moving and again 2 weeks after planting.
- 8. Prune, thin out, and shape trees and shrubs in accordance with standard horticultural practice. Prune shrubs to retain natural character and accomplish their use in the landscape design. Required shrub sizes indicated or specified are the size after pruning.
- 9. Remove and replace excessively pruned or misformed stock resulting from improper pruning.
- 10. Paint cuts over 13 mm (1/2 inch) in size with standard tree paint or compound, covering all exposed, living tissue. Use paint which is waterproof, antiseptic, adhesive, elastic, and free of kerosene, coal tar, creosote, and other substances harmful to plants. Do not use shellac.
- 11. Guy and stake trees immediately after planting and as indicated.
- 12. Wrap tree trunks of 50-mm (2-inch) caliper and larger. Start at ground and cover trunk to height of first branches and securely attach. Inspect tree trunks for injury, improper pruning, and insect infestation. Take corrective measures required before wrapping.

3.05 PERENNIALS/ANNUAL PLANTING:

- A. Prepare soil as stated in section 3.02
- B. Set out and space plants in triangular spacing as shown in plan
- C. Dig holes large enough to allow for spreading of roots
- D. Work soil around roots to eliminate air pockets
- E. Water thoroughly after planting
- F. Apply shredded hardwood mulch over the entire area of each plant bed location using caution to not cover, bend, break or smother newly installed plants.

3.06 INSTALLATION OF MISCELLANEOUS MATERIALS:

- A. Shredded Hardwood Mulch:
  - Apply shredded hardwood mulch over the entire area of each soil basin, on all exposed soil surfaces within the perimeter of groupings or rows of trees or shrubs.
  - The Subcontractor shall determine his own quantities based on the area, the work and site investigations.
  - Provide a minimum depth per plans for all trees and shrubs.
- B. Edging: Install specified edging at the locations indicated on the plans.
  - Trenched Edge shall be dug to 8" Depth and 8" Width.
  - Backfill Trenched Edge with shredded hardwood mulch to grade.
  - Steel Edging per manufacturer's recommendations.

3.07 MAINTENANCE:

- A. Begin maintenance immediately after planting. Maintenance shall continue until time of Substantial Completion, but in no case for less than a period of 90 days after Substantial Completion.
- B. Maintain trees and shrubs by pruning, watering, cultivating, mulching, and weeding as required for healthy growth. Restore planting saucers. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required. Restore or replace damaged wrappings. Spray as required to keep trees and shrubs free from disease and insects. Plants shall be inspected at least once per week by the Subcontractor and needed maintenance performed promptly.
- C. Remove and replace trees and shrubs found to be dying, dead, or in unhealthy condition during the warranty period. Make replacements during the growth season following end of warranty period. Replace trees and shrubs which are in doubtful condition at end of warranty period.

3.08 CLEAN-UP AND PROTECTION

- A. During landscape work, keep pavements clean and work area in an orderly condition. Properly dispose of all resultant dirt, debris, and other waste material.
- B. Protect landscape work and materials from damage due to landscape operations, operations by other subcontractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed by the Landscape Architect at no additional cost, unless damage is the result of vandalism.
- C. Disposal of Surplus and Waste Materials: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of it off the Owner's property.

3.09 OBSERVATION AND ACCEPTANCE

- A. When landscape work is completed, including maintenance, Landscape Architect will, upon request, make an observation to determine acceptability.
  - Landscape work may be observed for acceptance in portions as agreeable to Landscape Architect, provided each portion of work offered for observation is complete, including maintenance.
- B. When observed landscape work does not comply with requirements, replace rejected work and continue specified maintenance until approved by Landscape Architect and found to be acceptable. Remove rejected plants and materials promptly from project site.
- C. Trees, shrubs, groundcover, and all other specified plants are to be inspected to certify that all plants have been installed according to plans and are acceptable. Upon satisfactory completion of all replacements and repairs requested, Landscape Architect shall certify granting of Substantial Completion. The warranty will begin on the date of Substantial Completion. Subcontractor to continue maintenance of all plants for 90 days following Substantial Completion. Final Acceptance will be granted after all maintenance periods have ended. At end of twelve (12) month warranty period, Landscape Architect will inspect plants upon written request by Subcontractor. Any plant that is dead, or not in satisfactory health as determined by the Landscape Architect will be replaced by the Subs at no cost to the Owner. The Subcontractor will not be responsible for vandalism or theft.

END OF SECTION 329300

NO.	REV.	DATE	DESCRIPTION
1.	JMM	JAS 30/2020	ORIGINAL SUBMISSION
2.			REVISION

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Professional Seal: T. ANDREW GABBERT, LICENSE NUMBER LA-2007013278, MISSOURI LANDSCAPE ARCHITECT

M.O. Certificate of Authority: E-2010033630

May 07, 2020, 12:35pm  
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