ARIA APARTMENTS LEE'S SUMMIT

MASTER

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

PROJECT INFORMATION

SITE DATA	
SITE ZONING:	(SEE CIVIL)
SITE SIZE:	(SEE CIVIL)
SITE DENSITY:	(SEE CIVIL)
NO. OF PARKING SPACES:	(SEE CIVIL)
CODES AND REGULATIONS	
BLDG. & RELATED CODES:	2018 IBC, IPC, IMC & 2018 IECC W/ LOCAL AMMENDMENTS
ELECT. CODE:	2017 NEC W/ LOCAL AMMENDMENTS
FIRE CODE:	2018 IFC W/ LOCAL AMMENDMENTS
ACCESSIBILITY:	AMERICANS WITH DISABILITIES ACT- 2010; FAIR HOUSING ACT; ICC/ANSI A117.1-2009
MISC.:	ALL APPLICABLE FEDERAL, STATE & LOCAL CODES, LAWS & ORDINANCES
BUILDING CODE DATA	
USE GROUP:	(SEE SPECIFIC BUILIDING COVER SHEETS)
CONSTRUCTION TYPE:	(SEE SPECIFIC BUILIDING COVER SHEETS)
EXT. WALL CONSTRUCTION:	(SEE SPECIFIC BUILIDING COVER SHEETS)
OTHER WALL CONSTRUCTION:	(SEE SPECIFIC BUILIDING COVER SHEETS)
TOTAL ALLOW. AREA:	(SEE SPECIFIC BUILIDING COVER SHEETS)
TOTAL ACTUAL AREA:	(SEE SPECIFIC BUILIDING COVER SHEETS)
ALLOW. HEIGHT & FLOORS:	(SEE SPECIFIC BUILIDING COVER SHEETS)
ACTUAL HEIGHT & FLOORS:	(SEE SPECIFIC BUILIDING COVER SHEETS)
HEIGHT/AREA ADJUSTMENTS:	(SEE SPECIFIC BUILIDING COVER SHEETS)
OCCUPANT LOAD	(SEE SPECIFIC BUILIDING COVER SHEETS)
SPRINKLER SYSTEM:	(SEE SPECIFIC BUILIDING COVER SHEETS)

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ARCHITECT'S JOB NO. 3984

PROJECT LOCATION MAP

SIGNATURE AREAS

NOTE: PROJECT CONSTRUCTION MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES, ORDINANCES, LAWS, AND REGULATIONS AS ENUMERATED ELSEWHERE IN THE PLANS AND SPECIFICATIONS.

ARCHITECT: WALLACE ARCHITECTS, L.L.C.
302 CAMPUSVIEW DRIVE SUITE 208, COLUMBIA, MO 65201
BY: DATE:

OWNER: ARIA LS, LLC.
4240 PHILIPS FARM ROAD, COLUMBIA, MO 65201
BY: DATE:

CONTRACTOR: CENTRAL STATES CONSTRUCTION
4215 PHILIPS FARM ROAD, STE. 109, COLUMBIA, MO 65201
BY: DATE:

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\- DATE:

PM: RP
PC: RS

PLAN SET NO. _____

MASTER COVER SHEET

PERMIT SET

STATE OF MISSOURI
M. RANDALL PORTER
2012006244
ARCHITECT
04 FEB 2021
M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

WALLACE ARCHITECTS, LLC
MISSOURI STATE CERTIFICATE OF AUTHORITY: 2003019614

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04 FEB 2021

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EL153	GARAGE "E" LIGHTING PLAN	07 JAN 2021	07 JAN 2021	PERMIT SET
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EL162	CLUBHOUSE - LIGHTING PLAN	07 JAN 2021	07 JAN 2021	PERMIT SET
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STATE OF MISSOURI
M. RANDALL PORTER
2012006244
ARCHITECT
04 FEB 2021

ARIA APARTMENTS LEE'S SUMMIT
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

WALLACE ARCHITECTS, LLC
MISSOURI STATE CERTIFICATE OF AUTHORITY: 2003019614

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PERMIT SET

DIVISION 03 - CONCRETE

SECTION 03 54 00 - CAST UNDERLAYMENT

MANUFACTURERS

Gypsum Underlayment:
ARDEX Engineered Cements; ARDEX K15: www.ardexamericas.com.

MATERIALS

Refer to Specification/Selection Detail sheets.

Gypsum-Based Underlayment: Gypsum based mix, that when mixed with water in accordance with manufacturer's directions will produce self-leveling underlayment with the following properties:
Compressive Strength: Minimum 2500 pounds per square inch, tested per ASTM C472.
Density: Maximum 120 pounds per cubic foot.
Surface Burning Characteristics: Flame spread/Smoke developed/Fuel Contribution index of 0/0/0 in accordance with ASTM E84.
Material shall not contain any source of nutrients to sustain mold growth.

Aggregate: Dry, well graded, washed silica aggregate, approximately 1/8 inch in size and acceptable to underlayment manufacturer.

Water: ASTM C1602/C1602M; clean, potable, and not detrimental to underlayment mix materials.

Primer: Manufacturer's recommended type.

Joint and Crack Filler: Latex based filler, as recommended by manufacturer.

DIVISION 04 - MASONRY

SECTION 04 05 11 - MORTAR AND MASONRY GROUT

MORTAR AND GROUT APPLICATIONS

Refer to Specification/Selection Detail sheets.

At Contractor's option, mortar and grout may be field-mixed from packaged dry materials, made from factory premixed dry materials with addition of water only, or ready-mixed.

Mortar Mix Designs: ASTM C270, Property Specification.
Masonry below grade and in contact with earth: Type S.
Exterior Masonry Veneer: Type N.

Grout Mix Designs:
All locations: 3,000 psi strength at 28 days; 8-10 inches slump; mix in accordance with ASTM C476.
Fine grout for spaces with smallest horizontal dimension of 2 inches or less.
Coarse grout for spaces with smallest horizontal dimension greater than 2 inches.

MATERIALS

SECTION 04 20 00 - UNIT MASONRY

CONCRETE MASONRY UNITS

Refer to Specification/Selection Detail sheets.

Concrete Block: Comply with referenced standards and as follows:
Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depth of 8 inches.
Load-Bearing Units: ASTM C90, medium weight.

BRICK UNITS

Refer to Specification/Selection Detail sheets.

Facing Brick: ASTM C216, Type FBS Smooth, Grade SW.

MORTAR AND GROUT MATERIALS

Mortar and Grout: As specified in Section 04 05 11.

REINFORCEMENT AND ANCHORAGE

Reinforcing Steel: ASTM A615/A615M, Grade 40 (40,000 psi), deformed billet bars; galvanized.

Multiple Wythe Joint Reinforcement: ASTM A951/A951M.
Type: Truss.
Material: ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M, Class 3.
Size: 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not less than 5/8 inch of mortar coverage on each exposure.

Residential Wall Ties: Corrugated formed sheet metal, 7/8 inch wide by 0.05 inch thick, hot dip galvanized to ASTM A 153/A 153M, Class B, sized to extend at least 1-1/2 inches into the veneer with at least 5/8 inch of mortar coverage from masonry face.

THROUGH-WALL FLASHINGS

Membrane Non-Asphaltic Flashing Materials:
Composite Polymer Flashings - Self-Adhering: Composite PVC with Elvaloy KEE; 30 mil thick with pressure-sensitive adhesive and release paper.

Factory-Fabricated Flashing Corners and End Dams: by flashing manufacturer.

ACCESSORIES

Type: Polyester mesh.

COURSING

Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

Concrete Masonry Units:
Bond: Running.

Brick Units:
Bond: Running.

DIVISION 05 - METALS

SECTION 05 50 00 - METAL FABRICATIONS

MATERIALS - STEEL

Steel Sections: ASTM A36/A36M.

Plates: ASTM A283/A283M.

Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.

Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.

Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

FABRICATION

Fit and shop assemble items in largest practical sections, for delivery to site.

Fabricate items with joints tightly fitted and secured.

FINISHES - STEEL

Prime paint steel items.

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

SECTION 06 20 00 - FINISH CARPENTRY

FINISH CARPENTRY ITEMS

Refer to Specification/Selection Detail sheets.

Quality Standard: Economy Grade, in accordance with AWI/AWMAC/WI (AWS), unless noted otherwise.

Exterior Finish Carpentry Items:
Door and Window Casings and Moldings at Masonry Veneer: Molded Cellular PVC; suitable for paint finish, in profiles scheduled below:
Door and Window trim: To match Azek Brick mould,1-1/2 inch x 2 inch.

Interior Finish Carpentry Items (Dwelling Units):
Moldings, Bases, Casings, and Miscellaneous Trim: Clear white pine, solid or finger jointed; primed for paint finish, in profiles as scheduled below:
Stair Railings and Handrails: Match existing profiles and configurations for top rails and spindles.

LUMBER MATERIALS

Softwood Lumber: Clear White Pine species, plain sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.

CELLULAR PVC MOLDINGS AND TRIM (EXTERIOR)

Cellular PVC Trim: Extruded, expanded PVC; UV-resistant, heat-stabilized, and rigid material.

FABRICATION

When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

SECTION 06 63 00 - VINYL RAILINGS

VINYL GUARDRAIL SYSTEM

Refer to Specification/Selection Detail sheets.

Performance Requirements:
Distributed Loads: Design railing assembly, wall rails, and attachments to resist distributed force of 125 pounds per linear foot applied to the top of the assembly and in any direction, without damage or permanent set, when tested in accordance with ASTM D7032.
Concentrated Loads: Design railing assembly, wall rails, and attachments to resist a concentrated force of 200 pounds applied at any point on the top of the assembly and in any direction, without damage or permanent set, when tested in accordance with ASTM D7032.

Railing System: Cellular PVC: ASTM D4216 Extruded, expanded PVC with a small-cell microstructure, recommended for exterior use, made from UV- and heat-stabilized, rigid material.

SECTION 06 66 00 - ORNAMENTAL SIMULATED WOODWORK

SIMULATED WOOD PRODUCTS

MATERIALS

Cellular PVC, Extruded, expanded PVC; UV-resistant, heat-stabilized, and rigid material.

Polypropylene, Molded high-density, UV stabilized.

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

SECTION 07 21 00 - THERMAL INSULATION

FOAM BOARD INSULATION MATERIALS

Refer to Specification/Selection Design sheets.

Extruded Polystyrene (XPS) Board Insulation: Complies with ASTM C578 with either natural skin or cut cell surfaces.
Type: ASTM C578, Type IV.
Type and Thermal Resistance, R-value: Type IV, 5.0 (0.88) per 1 inch thickness at 75 degrees F mean temperature.

BATT INSULATION MATERIALS

Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
Thermal Resistance at exterior walls: R-value of 20 minimum.
Thickness at new floor/ceilings: 3-1/2 inch for sound attenuation.
Facing: kraft paper.
Provide unfaced insulation at floor/ceilings and Unit Separation wall applications.

FOAM INSULATION

Single component polyurethane, low pressure foam sealant complying with ASTM E2178 for exterior wall penetrations.
R-value; 1 inch of material at 72 degrees F: 4.7, minimum.
Minimum Density: 1.0 pounds per cubic foot.

Single component polyurethane, low pressure, low pressure build, foam sealant complying with ASTM E2178 for windows and doors.
R-value; 1 inch of material at 72 degrees F: 4.7, minimum.
Minimum Density: 1.10 pounds per cubic foot.

ACCESSORIES

Sheet Weather Barrier: Specified in Section 07 25 00.

Tape: Reinforced polyethylene film with acrylic pressure sensitive adhesive.

Adhesive: Type recommended by insulation manufacturer for application.

SECTION 07 21 26 - BLOWN INSULATION

MATERIALS

Refer to Specification/Selection Design sheets.

Applications: Provide blown insulation in attic as indicated on drawings.

Loose Fill Insulation: ASTM C739, cellulose fiber type, bulk for pneumatic placement.
Thermal Transmittance (U-value): 0.27 BTU/hr sq ft deg F, maximum.
Total Thermal Resistance at Attic:
Dwelling Units: R-value of 49 (deg F hr sq ft)/Btu, minimum.
Community Building: R-value of 38 (deg F hr sq ft)/Btu, minimum.

ACCESSORIES

Roof Ventilation Baffles: Prefabricated ventilation channels for placement under roof sheathing with baffles to prevent wind-washing.

SECTION 07 25 00 - WEATHER BARRIERS

WEATHER BARRIER ASSEMBLIES

Air Barrier/Secondary Moisture Barrier:
On outside surface of sheathing of exterior walls use air barrier/secondary moisture barrier sheet, mechanically fastened type.

AIR BARRIER MATERIALS (WATER VAPOR PERMEABLE AND WATER-RESISTIVE)

Air Barrier Sheet, Mechanically Fastened:
Air Permeance: 0.004 cfm/sq ft, maximum, when tested in accordance with ASTM E2178 and or ASTM E1677 (Type1).
Water Vapor Permeance: 43 perms, minimum, when tested in accordance with ASTM E96/E96M Procedure A (Desiccant Method) at 73.4 degrees F.
Water Penetration Resistance: Withstand a water head of 21 inches, minimum, for minimum of 5 hours, when tested in accordance with AATCC Test Method 127.

SECTION 07 31 13 - ASPHALT SHINGLES

MANUFACTURERS

ASPHALT SHINGLES

Refer to Specification/Selection Design sheets.

Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462/D3462M.
Fire Resistance: Class A, complying with ASTM E108.
Wind Resistance (Uplift): Class D, when tested in accordance with ASTM D7158/D7158M.
Self-sealing type.
Style: Laminated overlay.

SHEET MATERIALS

Eave and Valley Protection Membrane: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970/D1970M; 40 mil total thickness; with strippable treated release paper and polyethylene sheet top surface.

Underlayment: Asphalt-saturated organic roofing felt, unperforated, complying with ASTM D226/D226M, Type I ("No.15").

Roof Vents: Aluminum construction with nailing flange and insect screen; equal to Model RVA 50 manufactured by Air Vent Inc.
Free Vent Area (net): 70 square inches.

METAL FLASHINGS

General: Provide prefinished aluminum sheet metal flashing at eave edge, gable edge, fascia, and gable face, color as selected by Owner/Architect.

Drip Flashings: Pre-formed drip-edge strips, 28 gauge, 0.0149 inch, furnished in 10 foot lengths minimum.
Profile: Equal to Amerimax profile # FHA
Manufacturers:
Amerimax: www.amerimax.com
Or approved equal.

SECTION 07 46 46 - FIBER-CEMENT SIDING

FIBER-CEMENT SIDING

Refer to Specification/Selection Detail sheets.

Lap Siding: Individual horizontal boards made of cement and cellulose fiber formed under high pressure with integral surface texture, complying to ASTM C1186, Type A, Grade II; with machined edges, for nail attachment.
Style: Standard lap style.
Texture: Smooth.
Length: 12 ft, nominal.
Width (Height): 9-1/2 inches.
Thickness: 7/16 inch, nominal.
Finish: Factory applied primer.
Warranty: 30 year limited; transferable.

Soffit Panels: Smooth panels of same material and finish.

Alluminum Soffit: Prefinished Aluminum complying with ASTM B209 ; 2-coat fluoropolymer polyester coating, AAMA 2604, thermally cured.
Profile: 16 inch Quad-4, 3/8 inch depth; Fully-vented.
Thickness: 26 gauge, (0.016 inch).
Net Free Vent Area: 9 sq. in. per linear foot, minimum.
Finish: Smooth.

SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

SHEET MATERIALS

Refer to Specification/Selection Detail sheets.

Pre-Finished Aluminum: ASTM B209 (ASTM B209M); 26 gauge, 0.018 inch thick; plain finish shop pre-coated with modified silicone coating.

FABRICATION

General: Provide preformed, prefinished aluminum sheet metal flashing at changes in adjacent siding materials and other flashing indicated.

Form sections true to shape, accurate in size, square, and free from distortion or defects.

Form pieces in longest possible lengths.

SECTION 07 71 23 - MANUFACTURED GUTTERS AND DOWNSPOUTS

MATERIALS

Pre-Finished Aluminum Sheet: ASTM B209 (ASTM B209M); 0.027 inch thick.
Finish: Plain, shop pre-coated with acrylic coating.

COMPONENTS

Refer to Specification/Selection Detail sheets.

Gutters: 6 inch K-style profile.

Downspouts: 3 inch by 4 inch Rectangular profile, minimum.

Anchors and Supports: Profiled to suit gutters and downspouts.

Fasteners: Same material and finish as gutters and downspouts, with soft neoprene washers.

FINISHES

Acrylic polyester coating: Baked enamel system complying with AAMA 2603.

SECTION 07 84 00 - FIRESTOPPING

FIRESTOPPING SYSTEMS

Refer to Specification/Selection Detail sheets.

Firestopping: Caulk or putty.
Fire Ratings: Use any system that is listed by UL (FRD) and tested in accordance with ASTM E814 with F Rating equal to fire rating of penetrated assembly and T Rating Equal to F Rating and in compliance with other specified requirements.
Systems penetrating a horizontal fire rated assembly, where contained and located within the cavity of a wall, do not require a T Rating.
Fire Ratings: See drawings for required systems and ratings.

SECTION 07 92 00 - JOINT SEALANTS

JOINT SEALANT APPLICATIONS

Refer to Specification/Selection Detail sheets.

Scope:
Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
Wall expansion and control joints.
Joints between door, window, and other frames and adjacent construction.
Joints between different exposed materials including, but not limited to:
Flashing and adjacent building materials.
Vertical siding/masonry joints.
Sleeves or pipes penetrating exterior walls.
Sleeves or pipes penetrating masonry or concrete walls.
Openings below ledge angles in masonry.
Lap joints in and penetrations through weather barriers.
Exterior Siding:
Fiber-Cement Siding.
Other joints indicated below.
Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
Joints between door, window, and other frames and adjacent construction.
Gypsum board to wood.
Metal to gypsum board, wood, or masonry.
Perimeter of plumbing fixtures, shower surrounds, drains, or piping.
Perimeter of counter tops and vanity tops
Other joints indicated below.
Do not seal the following types of joints.
Joints where sealant is specified to be provided by manufacturer of product to be sealed.
Joints where installation of sealant is specified in another section.
Additional Locations: In addition to locations listed or shown on the Drawings to receive continuous sealant materials, a continuous bead of sealant, appropriate to construction materials and locations, shall be provided/installed at:
Horizontal joint between bottom of wood sill plate and top of foundation wall or slab on grade.
Horizontal joint(s) between double/triple top plates.
Vertical joint(s) between double/triple studs in general framing and at door/window rough openings.
Stud cavities blocked at change in ceiling heights.
Penetrations through top and bottom plates.
Seam(s) in band joists.
Gaps in exterior wall sheathing.
Penetrations in exterior wall sheathing.
Penetrations in gypsum board of insulated exterior walls.

Exterior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
Masonry Expansion Joints: Two-part polyurethane.
Metal to Masonry: Two-part polyurethane.
Lap Joints in Sheet Metal Fabrications: Two-part polyurethane, non-curing.
General Flashing and Flashing to Brick: One-part polyurethane.
Sleeves in Walls: One-part polyurethane.

Interior Joints: Use non-sag acrylic sealant, unless otherwise indicated.
Gypsum Board or Plaster to Masonry or Wood: Acrylic.
Metal to Gypsum Board, Plaster or Masonry: Acrylic.
Metal to Brick: Two-part polyurethane.
Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.

Interior Wet Areas: Bathrooms and kitchens; fixtures in wet areas include plumbing fixtures, countertops, and cabinets.

JOINT SEALANTS - GENERAL

Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

DIVISION 08 - OPENINGS

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PERFORMANCE REQUIREMENTS

Requirements for Hollow Metal Doors and Frames:
Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
Accessibility: Comply with ICC A117.1 and ADA Standards.
Typical Door Face Sheets: Flush.
Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.

HOLLOW METAL DOORS

Refer to Specification/Selection Detail sheets.

Door Finish: Factory primed and field finished.

Exterior Doors: Thermally insulated. Provide fire-rated door construction as indicated on Door Schedule.
Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
Level 1 - Standard-duty.
Model 1 - Full Flush.
Door Face Metal Thickness: 20 gage, 0.032 inch, minimum.
Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.
Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
Door Thickness: 1-3/4 inch, nominal.

Fire-Rated Doors:
Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
Level 1 - Standard-duty.
Model 1 - Full Flush.
Door Face Metal Thickness: 20 gage, 0.032 inch, minimum.
Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.
Fire Rating: As indicated on Door Schedule, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
Provide units listed and labeled by UL (DIR).
Door Thickness: 1-3/4 inch, nominal.

HOLLOW METAL FRAMES

Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

Exterior Door Frames: Knock-down type.
Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
Frame Metal Thickness: 18 gage, 0.042 inch, minimum.
Frame Finish: Factory primed and field finished.

Door Frames, Fire-Rated: Knock-down type.
Fire Rating: Same as door, labeled.
Frame Metal Thickness: 18 gage, 0.042 inch, minimum.
Frame Finish: Factory primed and field finished.

SECTION 08 11 16 - ALUMINUM ENTRY DOORS AND FRAMES

DOORS AND FRAMES

Refer to Specification/Selection Detail sheets.

Accessibility: Comply with ICC A117.1 and ADA Standards.

CONSTRUCTION SPECIFICATIONS

PERMIT SET

STATE OF MISSOURI
M. RANDALL PORTER
2012006244
ARCHITECT
04 FEB 2021
M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

WALLACE ARCHITECTS, LLC
MISSOURI STATE CERTIFICATE OF AUTHORITY: 2003019614

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Glazed Aluminum Doors: Extruded aluminum tube frame, full glazed, without middle rail; factory glazed.
Thickness: 1-3/4 inches, nominal.
Stile Width: As indicated on drawings.
Finish: Class I - Color anodized.
Glazing, Exterior Doors: Sealed insulating units, 1 inch thick, made of clear 1/4 inch thick fully tempered glass.

Aluminum Frames for Doors, Sidelights, or Transoms: Extruded aluminum, thermally broken hollow or C-shaped sections; no steel components.
Frame Depth: 4-1/4 inches.
Finish: Same as doors.
Weatherstripping: Replaceable pile type; at jambs and head.

Dimensions and Shapes: As indicated on drawings; dimensions indicated are nominal.
Provide the following clearances:
Hinge and Lock Stiles: 1/8 inch.
Between Meeting Stiles: 1/4 inch.
At Top Rail and Bottom Rail: 1/8 inch.

PERFORMANCE REQUIREMENTS

Provide door assemblies that have been designed and fabricated in compliance with specified performance requirements.

Water Leakage: No uncontrolled leakage on interior face when tested in accordance with ASTM E331 at differential pressure of 7.5 psf.

Air Leakage: Maximum of 0.1 cu ft/min/sq ft at 6.27 psf differential pressure, when tested in accordance with ASTM E283.

Condensation Resistance Factor: 50, measured in accordance with AAMA 1503.

Overall U-value, Including Glazing: 0.35, minimum, measured on exterior door size required for this project.

SECTION 08 11 20 - STEEL PATIO DOORS

COMPONENTS

Steel Patio Doors: Insulated steel door; prehung in wood frames.
Style: As indicated on drawings.
Thickness: 1-3/4 inches, unless otherwise indicated.
Exterior Skin: 24 gauge (0.022 inch), tension leveled cold rolled steel, zinc coated, factory primed.
Interior Frame: Kiln-dried pine or engineered lumber; door bottom edge: moisture/decay resistant composite.
Core: Foamed-in-place, CFC-free, polyurethane foam bonded to exterior skin; density 1.9 pcf minimum.
U-Factor: 0.32 maximum.
Reinforcement: Solid wood blocking in full area of passage and deadbolt locksets.
Provide continuous blocking for top 8 inches of door for installation of automatic closer devise where scheduled.
Finish: Factory primed; ready for field painting.

Dwelling Unit Patio Door:
Configuration: Single door.
Glazing: As indicated on drawings.

Frames: Provided and assembled by third party fabricators to manufacturer's specifications.
Frame: Milled from 5/4 kiln-dried white pine, finger-jointed composite at bottom of frame, profiled 1/2 inch stops, and factory-clad with prefinished metal or vinyl. Provide 6 degree sill gain prep.

Thresholds: Low profile complying with ANSI or USAF Accessibility requirements. Refer to Section 08 71 00 - Door Hardware
Inswing: Aluminum with Thermal Break.

Glazing: Double glazed, clear, Low-E coated, argon gas filled, fully tempered, with glass thicknesses as recommended by manufacturer for specified wind conditions.

Grilles:
Simulated Divided Lites: Permanent exterior and interior grills, style and color as selected by Architect from manufacturer's standard line.

Weatherstripping: Jacketed thermoset closed-cell foam, press-fit in kerfs at jamb stops in frames.

Door Sweeps: Extruded thermoplastic elastomer, finned and chambered design, press-fit into bottom edge of doors.

PERFORMANCE REQUIREMENTS

Comply with AAMA/WDMA/CSA 101/I.S.2/A440 requirements in accordance with the following:
Performance Class (PC): R.

Design Pressure (DP): In accordance with applicable codes.

FABRICATION

Fabricate doors in accordance with door quality standard specified.

Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

SECTION 08 14 16 - WOOD DOORS

DOORS

Doors:
Quality Standard: Standard Grade, Standard Duty performance, in accordance with AWI/AWMAC/WI (AWS), unless noted otherwise.

Interior Doors: 1-3/8 inches thick unless otherwise indicated; molded panel construction.
Style: Single-panel stile and rail

DOOR AND PANEL CORES

Hollow Core Doors: Type - Standard (FSHC); plies and faces as indicated above.

DOOR FACINGS

Hardboard Facing for Opaque Finish: ANSI A135.4, Class 2 - Standard, Molded Panel hardboard, 1/8 inch thick.

DOOR CONSTRUCTION

Fabricate doors in accordance with door quality standard specified.

Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

Vertical door edges to be beveled lock strike side and meeting rails.

Factory fit and hang doors to frames constructed for the opening dimensions identified on the Drawings, with edge clearances in accordance with specified quality standard.

FRAMES

Jambs: Wood jambs shall be fabricated as a flat jamb with applied stops, or a one piece jamb with milled stops, solid or finger-jointed white pine. Factory primed, white.

Hinges: Mortise jamb for 3-1/2 inch, standard duty radius hinges.

Strike: Jamb to be machined for a full lip cylindrical strike plate.

FACTORY FINISHING

Factory prime door faces with manufacturer's standard water based latex primer; white.

SECTION 08 14 33 - STILE AND RAIL WOOD DOORS

DOORS

Refer to Specification/Selection Detail sheets.

Quality Standard: Standard Grade, Standard Duty performance, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless otherwise indicated.

Interior Doors: 1-3/4 inches thick unless otherwise indicated; veneer and lumber stile and rail construction; dowel joints. Opaque finish.

Wood veneer facing for field transparent finish.

DOOR FACINGS

Veneer Facing for Transparent Finish: Natural Birch, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.

Adhesive: Type I - Waterproof.

DOOR CONSTRUCTION

Fire Rated Doors: Tested to ratings indicated on drawings in accordance with NFPA 252 or UL 10B - Negative (Neutral) Pressure; listed in UL (DIR) or ITS (DIR) and without any visible seals when door is open.

FRAMES

Jambs: Wood jambs shall be fabricated as a flat jamb with applied stops, or a one piece jamb with milled stops, solid or finger-jointed white pine. Factory primed, white.

Hinges: Mortise jamb for 3-1/2 inch, standard duty radius hinges.

Strike: Jamb to be machined for a full lip cylindrical strike plate.

SECTION 08 36 13 - SECTIONAL OVERHEAD DOORS

SUBMITTALS

Product Data: Show component construction, anchorage method, and hardware.

STEEL DOORS

Refer to Specification/Selection Detail sheets.

Steel Doors: embossed panel; standard lift operating style with track and hardware; complying with DASMA 102, Residential application.
Door Nominal Thickness: 1-3/4 inches thick.
Exterior Finish: Factory finished with polyester baked enamel; color as selected from manufacturers standard line.
Interior Finish: Factory finished with polyester baked enamel; white.
Electric Operation: Electric control station.

Door Panels: Hot-dipped steel construction; outer steel sheet of 24 gauge, 0.0239 inch minimum thickness, embossed profile; inner steel sheet of 27 gauge, 0.0164 inch minimum thickness, flat profile; core reinforcement sheet steel roll formed to channel shape, rabbeted weather joints at meeting rails; expanded polystyrene (EPS) insulation.

COMPONENTS

Track: Rolled galvanized steel, 0.090 inch minimum thickness; 2 inch wide, sectional; galvanized steel mounting brackets 1/8 inch thick.

Hinge and Roller Assemblies: Manufacturer's standard hinges and adjustable roller holders of galvanized steel; floating hardened steel bearing rollers, located at top and bottom of each panel, each side.

Lift Mechanism: Torsion spring on cross head shaft, with braided galvanized steel lifting cables.

ELECTRIC OPERATION

Electric Operators:
Motor Rating: 1/2 hp; continuous duty.

Control Station: Standard single button momentary type control for each electric operator.

SECTION 08 53 13 - VINYL WINDOWS

DESCRIPTION

Refer to Specification/Selection Detail sheets.

Vinyl Windows: Factory fabricated frame and sash members of extruded, hollow, ultra-violet-resistant, polyvinyl chloride (PVC) with integral color; with factory-installed glazing, hardware, related flashings, anchorage and attachment devices.
Configuration: As indicated on drawings.
Product Type: H - Hung window, vertically sliding; Single Hung.
Egress Units: Window units installed in dwelling unit bedrooms shall meet or exceed minimum requirements for classification as emergency egress units per the currently adopted edition of the building code.
Color: White.

Energy Star Rating: Provide windows eligible for Energy Star Rating.

PERFORMANCE REQUIREMENTS

Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific window type:
Performance Class (PC): R.
Performance Grade (PG): 15, with minimum design pressure (DP) of 15.04 psf.

HARDWARE

Vertical Sliding Sash: Concealed, heavy duty block and tackle balancers, provide two for each sash and jamb.

Sash lock: Lever handle and keeper with cam lock, provide at least one for each operating sash.

Window Opening Control Devices: ASTM F2090-13 opening control devices that limit opening size to less than 4 inches maximum with release function to permit window to open fully.
Required for all Dwelling Unit operable windows when sill is less than 36 inches above finish floor, and window unit is located greater than 72 inches above finish grade.

Finish of Exposed Hardware: Baked enamel, match interior sash and frame color.

SECTION 08 71 00 - DOOR HARDWARE

DESIGN AND PERFORMANCE CRITERIA

Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.

Provide door hardware products that comply with the following requirements:
Applicable provisions of federal, state, and local codes.

HINGES

Hinges: Comply with BHMA A156.1, Grade 3.
Provide hinges on every swinging door.
Provide self-closing spring hinges on dwelling unit entry doors.
Provide ball-bearing hinges at each door with closer.
Provide non-removable pins on exterior outswinging doors.

CYLINDRICAL LOCKS

Cylindrical Locks (Bored): Comply with BHMA A156.2, Grade 3.
Bored Hole: 2-1/8 inch diameter.
Latchbolt Throw: 1/2 inch, minimum.
Backset: 2-3/4 inch unless otherwise indicated.

AUXILIARY LOCKS (DEADLOCKS)

Auxiliary Locks (Deadlocks): Comply with BHMA A156.36, Grade 3.

CLOSERS

Closers: Comply with BHMA A156.4, Grade 3.

WALL STOPS

Wall Stops: Comply with BHMA A156.16, Grade 3 and Resilient Material Retention Test as described in this standard.

THRESHOLDS

Thresholds: Comply with BHMA A156.21.
Provide threshold at each exterior door, unless otherwise indicated.

BALL CATCH

Ball Catch: Provide on doors not provided with latchsets that must stay in closed position within the frame.

VIEWER

Viewer: Provide at inside of door at eye level to see who is on outside of door.

KEY CONTROL SYSTEMS

Key Control Systems: Comply with guidelines of BHMA A156.28.

FINISHES

Finishes: Provide door hardware of same finish, unless otherwise indicated.
Primary Finish: 619; satin nickel plated, clear coated, with brass or bronze base material; BHMA A156.18.

DIVISION 09 - FINISHES

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

METAL FRAMING MATERIALS

Non-structural Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf.

BOARD MATERIALS

Refer to Specification/Selection Detail sheets.

Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
Glass mat faced gypsum panels as defined in ASTM C1658/C1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.

Mold-Resistant Board For Wet Areas:
Application: Surfaces in wet areas including tub and shower surrounds, shower ceilings, and toilet area.

Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
Application: Ceilings, unless otherwise indicated.

GYPSUM WALLBOARD ACCESSORIES

Acoustic Insulation: As specified in Section 07 21 00.

Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless noted otherwise.

Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
Joint Compound: Drying type, vinyl-based, ready-mixed.

SECTION 09 30 00 - TILING

TILE

Refer to Specification/Selection Detail sheets.

Glazed Wall Tile, Type Kitchen Backsplash:
Size: 3 by 6 inch, nominal.
Surface Finish: High gloss.

Glazed Wall Tile, Type Tub Accent:
Size: 6 by 12 inch, nominal.
Surface Finish: High gloss.

Porcelain Tile, Type Bathroom Floor: ANSI A137.1, standard grade.
Size: 12 by 24 inch, nominal.
Surface Finish: Non-slip.

TRIM AND ACCESSORIES

Non-Ceramic Trim: Satin natural anodized extruded aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive.

Thresholds: Marble, white or gray, honed finish; 2 inches wide by full width of wall or frame opening; 1/2 inch thick; beveled one long edge with radiused corners on top side; without holes, cracks, or open seams.

SETTING MATERIALS

Latex-Portland Cement Mortar Bond Coat: ANSI A118.4.
Applications: Use this type of bond coat where indicated and where no other type of bond coat is indicated.

GROUTS

High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
Applications: Use this type of grout where indicated and where no other type of grout is indicated.

MAINTENANCE MATERIALS

Grout Sealer: Liquid-applied, moisture and stain protection for existing or new Portland cement grout.
Composition: Water-based colorless silicone.

ACCESSORY MATERIALS

Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.

SECTION 09 65 00 - RESILIENT FLOORING

TILE FLOORING

Refer to Specification/Selection Detail sheets.

Vinyl Plank: Printed film type, with transparent or translucent wear layer, floating floor.
Minimum Requirements: Comply with ASTM F1700, of Class corresponding to type specified.
Plank Tile Size: 6 by 48 inch.
Wear Layer Thickness: 0.020 inch.
Total Thickness: 0.100 inch.
Color: As indicated on drawings.

SOUND CONTROL UNDERLAYMENT

Sound Control Underlayment: Recycled rubber type.
Roll Thickness: 3/8 inch, nominal.

SECTION 09 68 16 - SHEET CARPETING

CARPET

Refer to Specification/Selection Detail sheets.

Carpet, Type C2; Dwelling Units:

Carpet: Tufted, nylon.
Color: As selected by Owner.
Pattern: Impress Me1.
Primary Backing:
Material: Polypropylene.

For each type of carpeting specified; all carpeting shall be from the manufacturer's same dye lot.

CUSHION

Cushion: Synthetic Fiber; Typical Dwelling Units (omit at Accessible Units).
Nominal Thickness: 0.275 inch.
Weight: 24 oz/sq yd.

SECTION 09 91 13 - EXTERIOR PAINTING

SECTION INCLUDES

Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
Factory-primed Entry doors.
Exposed surfaces of steel lintels and ledge angles.
Galvanized roof flashings and drip edges.
Steel Bollards.
Mechanical and Electrical:
Exposed pipe and conduit.

Do Not Paint or Finish the Following Items:
Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
Items indicated to receive other finishes.
Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
Stainless steel, anodized aluminum, bronze, terne coated stainless steel, zinc, and lead.
Floors, unless specifically indicated.
Brick, glass unit masonry, architectural concrete, cast stone, integrally colored plaster and stucco.
Glass.

PAINTS AND FINISHES - GENERAL

Refer to Specification/Selection Detail Sheets.

Volatile Organic Compound (VOC) Content: Comply with Section 01 61 16.

Colors: As indicated on drawings.

PAINT SYSTEMS - EXTERIOR

Paint E-OP - Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including concrete masonry units, fiber cement siding, primed wood, primed metal, and primed urethane decorative elements.
Two top coats and one coat primer.
Top Coat(s): Exterior Latex.
Primer: As recommended by top coat manufacturer for specific substrate.

Paint ME-OP-2A - Ferrous Metals, Primed, Alkyd, Water Based, 2 Coat:

Paint MgE-OP-3A - Galvanized Metals, Alkyd, 3 Coat:

PRIMERS

Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
Interior/Exterior Latex Block Filler.
Rust-Inhibitive Water Based Primer; MPI #107.
Latex Primer for Exterior Wood; MPI #6.

SECTION 09 91 23 - INTERIOR PAINTING

SECTION INCLUDES

Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
Both sides and all edges of interior wood doors.
Mechanical and Electrical:
Paint interior surfaces of air ducts that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.

Do Not Paint or Finish the Following Items:
Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
Items indicated to receive other finishes.
Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
Floors, unless specifically indicated.
Ceramic and other tiles.
Glass.
Concealed pipes, ducts, and conduits.

PAINTS AND FINISHES - GENERAL

Refer to Specification/Selection Detail Sheets.

Volatile Organic Compound (VOC) Content: Comply with Section 01 61 16.

Colors: To be selected from manufacturer's full range of available colors.

PAINT SYSTEMS - INTERIOR

Paint I-OP - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, wood, uncoated steel, and shop primed steel.
Two top coats and one coat primer.
Top Coat(s): Interior Latex.
Primer: As recommended by top coat manufacturer for specific substrate.

PRIMERS

Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
Interior Latex Primer Sealer.
Latex Primer for Interior Wood.

DIVISION 10 - SPECIALTIES

SECTION 10 14 00 - SIGNAGE

SIGNAGE APPLICATIONS

Refer to Specification/Selection Detail sheets.

Accessibility Compliance: Signs are required to comply with, UFAS, ADA Standards, and ICC A117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.

Room and Door Signs: Provide signs as indicated in Signage Schedule.
Sign Type: Flat signs with raised panel media as specified.

Interior Directional and Informational Signs:
Sign Type: Same as room and door signs.

Occupant Load Sign, Community Building: Shall be as required by the Local Fire Marshal, or Local Authority having Jurisdiction.

Other Dimensional Letter/Number Signs: Wall-mounted.
Exterior: Allow for total of 100 letters/numbers, 8 inches high, metal.

Monument Sign: Provide sign as indicated on Drawings.

Traffic Signs: Provide Parking/Traffic signs and mounting poles of types indicated on drawings.

SIGN TYPES

Flat Signs: Signage media without frame.

SECTION 10 28 00 - TOILET AND BATH ACCESSORIES

MATERIALS

Refer to Specification/Selection Detail sheets.

Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.

TOILET AND BATHROOM ACCESSORIES

Toilet Paper Dispenser: Single roll, surface mounted bracket type, chrome-plated solid brass.
Finish: Polished
Product: Baker Beach Collection manufactured by Better Homes Products, or equal.

Paper Towel Dispenser: Folded paper type, stainless steel, surface-mounted, with viewing slots on sides as refill indicator and tumbler lock.

Mirrors: Stainless steel framed, 1/4 inch thick annealed float glass; ASTM C1036.

Grab Bars: Stainless steel, textured surface.
Standard Duty Grab Bars:
Dimensions: 1-1/4 inch outside diameter, minimum 0.05 inch wall thickness, concealed flange mounting, 1-1/2 inch clearance between wall and inside of grab bar.
Finish: Safety-grip.
Product: HC Series manufactured by Better Home Products, or equal.

CONSTRUCTION SPECIFICATIONS

PERMIT SET

STATE OF MISSOURI
M. RANDALL PORTER
A-2012006244
ARCHITECT
04 FEB 2021

M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

WALLACE ARCHITECTS, LLC
MISSOURI STATE CERTIFICATE OF AUTHORITY: 2003019614

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1 04 FEB 2021 PERMIT SET
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6

SHEET NO.
SP1.1M

JOB NO.
3984

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Shower Curtain Rod: Stainless steel tube, 1 inch outside diameter, 0.04 inch wall thickness, satin-finished, with 3 inch outside diameter, minimum 0.04 inch thick satin-finished stainless steel flanges, for concealed mounting.
Product: Soma IV manufactured by Better Home Products, or equal.

Towel Bar: Solid brass, chrome-plated.
Finish: Polished.
Product: Baker Beach Collection manufactured by Better Homes Products, or equal.

Towel Ring: Solid brass, chrome-plated, 2-1/2 inch extension from wall, with round ring, for concealed attachment.
Finish: Polished.

Robe Hook: Solid brass, chrome-plated, double-prong for concealed attachment.
Finish: Polished.
Product: Baker Beach Collection manufactured by Better Homes Products, or equal.

Under-Counter Pipe and Drain Covers
Specified in 22 00 00 - Plumbing.

SECTION 10 44 00 - FIRE PROTECTION SPECIALTIES

FIRE EXTINGUISHERS

Refer to Specification/Selection Detail sheets.

Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.

Multipurpose Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gauge.
Stored Pressure Operated: Deep Drawn.
Class: 2A-10BC type.
Size: 10 pound; For installation in Community Building and Common areas.
Size: 5 pound; For installation in individual Dwelling Units.

FIRE EXTINGUISHER CABINETS

Fire Rating: Listed and labeled in accordance with ASTM E814 requirements for fire resistance rating of walls where being installed.

Cabinet Construction: Non-fire rated.
Formed primed steel sheet; 0.036 inch thick base metal.

Fire Rated Cabinet Construction: hour-rating as required for assembly.
Steel; double wall or outer and inner boxes with 5/8 inch thick fire barrier material.

Cabinet Configuration: Semi-recessed type.

Door Glazing: Acrylic plastic, clear, 1/8 inch thick, full view bubble shape and set in resilient channel glazing gasket.

SECTION 10 55 00 - POSTAL SPECIALTIES

CENTRAL MAIL DELIVERY BOXES

Refer to Specification/Selection Detail sheets.

Central Mail Delivery Boxes: Provide products approved for United States Postal Service (USPS) delivery.

Wall-Mounted Mailboxes:, Complying with 39 CFR 111 (USPS-STD-4C).
Typical Unit: Front-loading with pair of master doors, double-column design, 14 customer compartments, 1 outgoing mail compartment, and 2 parcel compartments.
Florence Manufacturing Company; Model 4C14D-14, or equal.

SECTION 10 57 23 - CLOSET AND UTILITY SHELVING

SHELVING APPLICATIONS

Refer to Specification/Selection Detail sheets.

Shelf Depth: 12 inches, unless otherwise indicated.

Bedroom Closets:
Wall-to-wall shelf with free sliding hanger rod.
Provide intermediate bracing for shelves longer than 36 inches.

Coat Closets:
Wall-to-wall shelf with integral hanger rod.
Provide intermediate bracing for shelves longer than 36 inches.

Linen and Pantry Shelving:
Wall-to-wall shelves spaced at 13 inch vertically, not less than 16 inch deep.

MATERIALS

Wire Shelving: Factory-assembled coated wire mesh shelf assemblies for wall-mounting, with all components and connections required to produce a rigid structure that is free of buckling and warping.
Construction: Cold-drawn steel wire with average tensile strength of 100,000 psi resistance welded into uniform mesh units, square, rigid, flat, and free of dents or other distortions, with wires trimmed smooth.
Coating: PVC or epoxy, applied after fabrication, covering all surfaces.

Hanging Rod: Tubular steel, 1 inch diameter, with end caps on open ends.
Finish: Epoxy powder coat.

Wall-Mounted Standards: Vertically slotted channel standards with double-tab cantilever brackets to suit shelving; factory finished to match shelving.

Mounting Hardware: Provide manufacturer's standard mounting hardware; include support braces, wall brackets, back clips, end clips, poles, and other accessories as required for complete and secure installation; factory finished to match shelving.

Fasteners: As recommended by manufacturer for mounting substrates.

DIVISION 11 - EQUIPMENT

SECTION 11 30 13 - RESIDENTIAL APPLIANCES

KITCHEN APPLIANCES

Refer to Specification/Selection Detail sheets.

Energy Star Rating: Provide Equipment Eligible for Energy Star Rating where available and applicable.

Refrigerator, Accessible Dwelling Units: Free-standing, bottom-mounted freezer, and frost-free.
Capacity: Total minimum storage of 22 cubic ft; minimum 25 percent freezer capacity.
Exterior Finish: Stainless steel.

Refrigerator, Typical Dwelling Units: Free-standing, top-mounted freezer, and frost-free.
Capacity: Total minimum storage of 22 cubic ft; minimum 29 percent freezer capacity.
Exterior Finish: Stainless steel.

Range, Accessible Dwelling Units: Electric, drop-in, with glass-ceramic cooktop.
Size: 30 inches wide.
Oven: Self-cleaning.
Elements: Four (4).
Exterior Finish: Stainless steel.

Range, Typical Dwelling Units: Electric, slide-in, with standard burners and removable drip pans.
Size: 30 inches wide.
Oven: Self-cleaning.
Elements: Four (4).
Exterior Finish: Stainless steel.

Cooking Exhaust, Accessible Dwelling Units: Range hood; fan and light wired to wall switches. Refer to drawings for switch heights.
Size: 30 inches wide.
Exterior Finish: Stainless steel.

Microwave/Hood, Typical Dwelling Units: Over-the-range, microwave/hood combination.
Capacity: 1.7 cubic ft.
Power: 1000 watts.
Exterior Finish: Stainless steel.

Dishwasher, Accessible Dwelling Units: Undercounter, for installation at 34 inch counters.
Finish: Stainless steel.

Dishwasher, Typical Dwelling Units: Undercounter.
Finish: Stainless steel.

RESIDENTIAL AND COMMERCIAL LAUNDRY APPLIANCES

Provide Equipment Eligible for Energy Star Rating.

Clothes Washer: Top-loading stationary.
Size: Large capacity.
Provide Accessible washers; Front-loading with front-mounted controls at accessible Units.

Clothes Dryer: Electric.
Size: Large capacity.

DIVISION 12 - FURNISHINGS

SECTION 12 21 13 - HORIZONTAL LOUVER BLINDS

BLINDS

Refer to Specification/Selection Detail sheets.

Description: Horizontal slat louvers hung from full-width headrail with full-width bottom rail.
Provide 2 inch 'Faux-Wood' horizontal louver blinds at all Dwelling Unit windows.
Provide 2 inch 'Faux-Wood' horizontal louver blinds at all Common Area windows.

Manual Operation: Control of raising and lowering by cord with full range locking; blade angle adjustable by control wand.

Plastic Slats: Extruded PVC, square slat corners.
Width: 2 inch.
Thickness: 0.10 inch.
Texture: Simulated wood-grain.

Slat Support: Woven polypropylene cord, ladder configuration.

Head Rail: Pre-finished, formed steel box, with end caps; internally fitted with hardware, pulleys, and bearings for operation; same depth as width of slats.

Bottom Rail: Pre-finished, formed steel ; with end caps.
Color: Same as headrail.

Lift Cord: Braided nylon; continuous loop; complying with WCMA A100.1.

SECTION 12 35 30 - RESIDENTIAL CABINETS

CABINETS

Refer to Specification/Selection Detail sheets.

Cabinet Box: Framed construction.

Cabinet Door/Drawer Configuration: Full overlay.

Cabinet Doors:

Drawers:
1/2 inch plywood full box, 1/4 inch plywood bottom.

Shelves: 1/2 inch plywood.

Exterior Finish: Factory-applied urethane; 2 color coats with top coat min.

FABRICATION

Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.

SECTION 12 36 00 - COUNTERTOPS

COUNTERTOPS

Refer to Specification/Selection Detail sheets.

Natural Stone Countertops (Kitchen): Stone slabs bonded to substrate; use as large pieces as possible with inconspicuous adhesive joints.
Stone: Granite without cracks, voids, or pin holes; filling with matching epoxy resin is acceptable.
Stone Thickness: 1/2 inch, minimum.
Surface Finish: Honed, non-glare.

Natural Quartz and Resin Composite Countertops (Bath): Sheet or slab of natural quartz and plastic resin over continuous substrate.
Flat Sheet Thickness: 1-1/4 inch, minimum.
Natural Quartz and Resin Composite Sheets, Slabs and Castings: Complying with ISFA 3-01 and NEMA LD 3; orthophthalic polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.

DIVISION 21 - FIRE SUPPRESSION

SECTION 21 13 00 - FIRE-SUPPRESSION SPRINKLER SYSTEMS

SPRINKLER SYSTEM

Sprinkler contractor to provide complete "Sprinkler System" for fire protection throughout the building. Contractor shall be responsible for the design, layout, and installation of the entire fire protection system. Contractor shall prepare all drawings required and receive approval from Architect, State and local authorities prior to starting work.

Sprinkler System: Provide coverage for individual dwelling units, lobbies, corridors, and common areas.

Occupancy: Residential; comply with NFPA 13R.

Water Supply: Provide ductile iron service line, sized as required, from street main to into buildings as indicated on the drawings. Verify and coordinate domestic water line locations, size, and requirements with the Plumbing Contractor and Authorities having Jurisdiction.

Interface system with building fire and smoke alarm system.

Provide fire department connections if required by jurisdiction having authority.

Pipe Hanger Fasteners: Attach hangers to structure using appropriate fasteners, as follows:

SPRINKLERS

Sidewall Type: Semi-recessed horizontal sidewall type with matching screw on escutcheon plate for exterior applications.
Response Type: Standard.
Coverage Type: As required.

Residential Sprinklers: Concealed pendant and/or sidewall type with matching push on escutcheon plate.
Response Type: Standard.

STATE OF MISSOURI
M. RANDALL PORTER
A-2012006244
ARCHITECT
04 FEB 2021
M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

WALLACE ARCHITECTS, LLC
MISSOURI STATE CERTIFICATE OF AUTHORITY: 2003010614

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CONSTRUCTION SPECIFICATIONS

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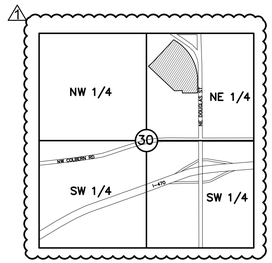
ARIA APARTMENTS
PHASE 1
SITE DEVELOPMENT PLANS

SECTION 30, TOWNSHIP 48N, RANGE 31W
IN LEE'S SUMMIT, JACKSON COUNTY, MO



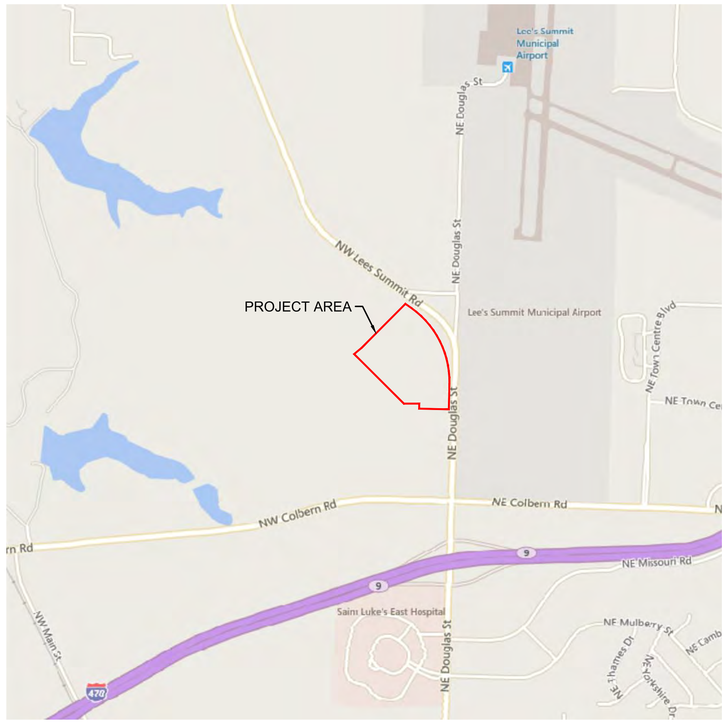
VICINITY MAP
S30, T48N, R31W
N.T.S.

PROJECT TEAM & UTILITY CONTACT LIST	
OWNER ARIA LS, LLC 4220 PHILIPS FARM RD. COLUMBIA, MO 65201 CONTACT: BRIAN MAENNER PHONE: 573.449.9902 EMAIL: BPMAENEER@CENTRALSTATESCONST.COM	UTILITY SERVICE NUMBERS NAME: LEE'S SUMMIT PUBLIC WORKS PHONE: 816-969-1800 NAME: LEE'S SUMMIT WATER & SERVICES DEPARTMENT PHONE: 816-969-1940 NAME: SPIRE (MGE) PHONE: 314-342-0500 NAME: AT&T PHONE: 800-286-8313 NAME: EVERGY PHONE: 816-471-5275 NAME: SPECTRUM (TWC) PHONE: 877-772-2253 NAME: GOOGLE FIBER PHONE: 877-454-6959
DEVELOPER CENTRAL STATES CONSTRUCTION 4215 PHILIPS FARM RD. SUITE 109 COLUMBIA, MO 65201 CONTACT: BRIAN MAENNER PHONE: 573.449.9902 EMAIL: BPMAENEER@CENTRALSTATESCONST.COM	
ENGINEER OLSSON 1301 BURLINGTON, SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: NICHOLAS HEISER PHONE: 816.361.1177 EMAIL: NHEISER@OLSSON.COM	
SURVEYOR OLSSON 1301 BURLINGTON, SUITE 100 NORTH KANSAS CITY, MO 64116 CONTACT: JASON ROUDEBUSH PHONE: 816.361.1177 EMAIL: JROUDEBUSH@OLSSON.COM	

☐ NOT FOR CONSTRUCTION

☒ REVIEWED FOR CONSTRUCTION

CALL BEFORE YOU DIG 1-800-DIG-RITE MISSOURI ONE CALL SYSTEM



PROPERTY DESCRIPTION:

AS PROVIDED BY STEWART TITLE GUARANTY COMPANY:
TRACT OF LAND IN THE NORTHEAST QUARTER OF SECTION 30 TOWNSHIP 48 NORTH, RANGE 31 WEST OF THE 5TH PRINCIPAL MERIDIAN IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI BEING BOUNDED AND DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID NORTHEAST QUARTER SECTION; THENCE SOUTH 01 DEGREES 37 MINUTES 50 SECONDS WEST, ON THE WEST LINE OF SAID QUARTER SECTION, 853.75 FEET TO A POINT ON THE SOUTHEAST LOT LINE OF LOT 1, LEE'S SUMMIT ROAD PUMP STATION, A SUBDIVISION RECORDED IN BOOK I 51 AT PAGE 90 IN THE JACKSON COUNTY RECORDER OF DEEDS OFFICE; THENCE NORTH 50 DEGREES 41 MINUTES 15 SECONDS EAST, ON SAID SOUTHEAST LOT LINE, 59.22 FEET; TO THE POINT OF BEGINNING OF THE TRACT OF LAND TO BE HEREIN DESCRIBED; THENCE CONTINUING NORTH 50 DEGREES 41 MINUTES 15 SECONDS EAST ALONG SAID LINE, 116.89 FEET; THENCE NORTH 44 DEGREES 49 MINUTES 51 SECONDS EAST, 792.38 FEET TO A POINT ON THE WESTERLY RIGHT-OF-WAY LINE OF NW LEE'S SUMMIT ROAD AS ESTABLISHED BY DOCUMENT NUMBER 2015E0017982 IN THE JACKSON COUNTY RECORDER OF DEEDS OFFICE; THENCE ON SAID WESTERLY RIGHT-OF-WAY LINE, SOUTH 54 DEGREES 34 MINUTES 12 SECONDS EAST, 95.69 FEET; THENCE SOUTHEASTERLY ALONG A CURVE TO THE RIGHT BEING TANGENT TO THE LAST DESCRIBED COURSE WITH A RADIUS OF 1,142.00 FEET, A CENTRAL ANGLE OF 56 DEGREES 01 MINUTES 43 SECONDS AND AN ARC DISTANCE OF 1,116.74 FEET; THENCE SOUTH 01 DEGREES 27 MINUTES 31 SECONDS WEST, 322.27 FEET; THENCE LEAVING SAID RIGHT-OF-WAY LINE, NORTH 88 DEGREES 32 MINUTES 29 SECONDS WEST, 375.74 FEET; THENCE NORTH 01 DEGREES 27 MINUTES 27 SECONDS EAST, 62.94 FEET; THENCE SOUTH 90 DEGREES 00 MINUTES 00 SECONDS WEST, 195.68 FEET; THENCE NORTH 45 DEGREES 00 MINUTES 00 SECONDS WEST, 889.18 FEET TO THE POINT OF BEGINNING, SUBJECT TO THAT PART, IF ANY, IN STREETS, ROADWAYS, HIGHWAYS OR OTHER PUBLIC RIGHT-OF-WAYS.

BENCHMARK

BMK 1
LOCATED NEAR SE CORNER OF COLBERN RD. & DOUGLAS ST. INTERSECTION.
N: 1012195.53
E: 2823382.89
EL: 982.46

BMK 2
LOCATED ON LIGHTPOLE BASE AT NE CORNER OF LEE'S SUMMIT RD. & DOUGLAS ST INTERSECTION.
N: 1014699.72
E: 2823025.86
EL: 932.31

BMK 5
N: 1014159.31
E: 2822030.75
EL: 908.88

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LANDSCAPE NOTES	L402

DEVELOPMENT DATA	
EXISTING ZONING	RP-4
GROSS AREA (AC.)	22.50
PROPOSED STREET R/W (AC.)	0.00
NET AREA (AC.)	22.50
IMPERVIOUS COVERAGE	60.10%
LAND USE (EXISTING/ PROPOSED)	UNDEVELOPED/ MULTI-FAMILY RESIDENTIAL
NUMBER OF FLOORS	4
FLOOR AREA (S.F.)	553,841
BUILDING COVERAGE (S.F.)	190,357
# OF UNITS	257 1-BR 216 2-BR 12 3-BR 485 TOTAL
F.A.R.	0.19
REQUIRED PARKING (RATIO)	1 PER STUDIO UNIT 1.5 PER 1 OR 2 BR UNIT 2 PER 3+ BR UNIT PLUS 0.5 PER UNIT
REQUIRED PARKING SPACES	976
PROVIDED PARKING SPACES	976

1

BUILDING UNIT BREAKDOWN			
	BUILDING TYPE A	BUILDING TYPE B	BUILDING TYPE C
1 BR. UNIT	20	19	24
ACC. 1 BR. UNIT	0	1	0
2 BR. UNIT	19	20	12
ACC. 2 BR. UNIT	1	0	0
3 BR. UNIT	0	0	3
ACC. 3 BR. UNIT	0	0	1

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KS CERTIFICATE OF AUTHORITY # E-2090
NORTH KANSAS CITY, MO 64116 TEL 816.361.1177
www.olsson.com

STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

TITLE SHEET
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C101

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_TTL01_ B190012.dwg ~ Layout: TITLE SHEET ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

GENERAL NOTES:

1. ALL PAVING DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.

2. REFER TO DETAIL SHEET FOR INSTALLATION OF SIGNS.

3. CONTRACTOR SHALL MATCH EXISTING PAVEMENT IN GRADE AND ALIGNMENT TO PROVIDE SMOOTH SURFACE TRANSITIONS BETWEEN NEW ENTRANCE DRIVES AND EXISTING STREETS.

4. CONTRACTOR SHALL MATCH EXISTING CURB & GUTTER IN GRADE, SIZE, TYPE, AND ALIGNMENT AT CONNECTIONS TO EXISTING STREETS.

5. ALL WORK ON THIS PLAN SHALL BE DONE IN STRICT ACCORDANCE WITH THE OWNER'S SITE WORK SPECIFICATIONS.

6. ALL TRAFFIC CONTROL SIGNS SHALL BE FABRICATED AS SHOWN IN THE NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS.

7. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF VESTIBULE, SLOPED PAVING, EXIT PORCHES, RAMPS, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS, SIDEWALK AND SPECIFIC BUILDING AREA TREATMENTS AND IMPROVEMENTS. FOR EXACT BUILDING DIMENSIONS, SEE ARCHITECTURAL PLANS. CONTRACTOR TO STAKE AND CONSTRUCT FOUNDATIONS AND FOOTINGS FROM STRUCTURAL PLAN. BUILDING DIMENSIONS ON THIS PLAN ARE FOR REFERENCE ONLY.

8. ALL DIMENSIONS SHOWN ON BUILDING ARE TO OUTSIDE FACE OF BUILDING.

9. CONTRACTOR SHALL COORDINATE PROTECTION OF BUILDING CORNERS, TRANSFORMERS, AND ALL OTHER APPLICABLE STRUCTURES WITH GUARD POST BOLLARDS WITHIN 5' OF THE BUILDINGS TO BE INSTALLED BY GENERAL CONTRACTOR.

10. PARKING LOT STRIPING SHALL BE INCLUDED IN PAVING CONTRACTOR'S SCOPE OF WORK. ALL STRIPING IS TO BE TWO LAYERS, 4" STROKE, REFLECTIVE PAINT, INCLUDING ADA SYMBOL AND HATCHING. PAINT COLOR TO BE WHITE ON ASPHALT AND YELLOW ON CONCRETE.

11. ALL ACCESSIBLE PARKING SIGNAGE AND STRIPING SHALL BE IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS.

12. THE CONTRACTOR SHALL SUPPLY THE OWNER WITH A LIST OF ALL SUBCONTRACTORS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION.

13. ALL ASPHALT PAVING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF LEES SUMMIT DESIGN AND CONSTRUCTION MANUAL SECTION 2200.

14. THE GENERAL CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR, AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO, AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO: DRAINAGE UTILITIES, PAVEMENT, STRIPING, CURB, ETC. ANY WORK IN CITY R.O.W. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL PROPERTY CORNERS AND SURVEY MONUMENTS AND IS RESPONSIBLE FOR RE-ESTABLISHMENT OF ANY PROPERTY CORNERS OR SURVEY MONUMENTS IF DISTURBED BY CONSTRUCTION ACTIVITIES.

15. SAFETY NOTICE TO CONTRACTOR: IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE.

16. ALL CONSTRUCTION IN STATE HIGHWAY DEPARTMENT RIGHT-OF-WAY SHALL BE COORDINATED WITH THE HIGHWAY DEPARTMENT RESIDENT MAINTENANCE ENGINEER PRIOR TO START OF CONSTRUCTION. LATEST SPECIFICATIONS ADOPTED BY US DEPARTMENT OF TRANSPORTATION AND STATE HIGHWAY DEPARTMENT SHALL GOVERN ON THIS PROJECT.

17. ALL SITE WORK FOR THIS PROJECT SHALL MEET OR EXCEED THE SPECIFICATIONS OF THE RELEVANT UTILITY COMPANY OR REGULATORY AUTHORITY, AND THE SPECIFICATIONS FOR THE CONSTRUCTION OF THE EXISTING IMPROVEMENTS WHICH ARE BEING ALTERED OR REPLACED. CONTRACTOR SHALL CONTACT THE ENGINEER FOR SPECIFICATION SECTIONS FOR ITEMS SUCH AS LANDSCAPING AND IRRIGATION THAT ARE AFFECTED BY THE WORK BUT NOT COMPLETELY DETAILED OR SPECIFIED ON THESE PLANS.

18. ALL CONSTRUCTION WITHIN THE RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF LEE'S SUMMIT, MISSOURI STANDARDS AND SPECIFICATIONS.

19. ALL CURB RETURN RADII ARE 4.0' UNLESS OTHERWISE NOTED.

20. SITE TOPOGRAPHY TAKEN FROM FIELD WORK BY OLSSON ASSOCATES ON THE SURVEY DATED 10-2016. CONTRACTOR TO VERIFY EXISTING CONDITIONS OF THE SITE THAT MAY NOT BE REPRESENTATIVE OF THE CONSTRUCTION PLANS.

WETLANDS NOTICE:

1. ANY DEVELOPMENT, EXCAVATION, CONSTRUCTION, OR FILLING IN A U.S. CORPS OF ENGINEERS DESIGNATED WETLAND IS SUBJECT TO LOCAL, STATE AND FEDERAL APPROVALS. THE CONTRACTOR SHALL COMPLY WITH ALL PERMIT REQUIREMENTS AND/OR RESTRICTIONS AND ANY VIOLATION WILL BE SUBJECT TO FEDERAL PENALTY. THE CONTRACTOR SHALL HOLD THE OWNER/DEVELOPER, THE ENGINEER AND THE LOCAL GOVERNING AGENCIES HARMLESS AGAINST SUCH VIOLATION.

WARRANTY/DISCLAIMER:

1. THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER THE ENGINEER NOR ITS PERSONNEL CAN OR DO WARRANT THESE DESIGNS OR PLANS AS CONSTRUCTED EXCEPT IN THE SPECIFIC CASES WHERE THE ENGINEER INSPECTS AND CONTROLS THE PHYSICAL CONSTRUCTION ON A TEMPORARY BASIS AT THE SITE.

FLOOD CERTIFICATION:

1. THE ENTIRE SITE IS LOCATED WITHIN ZONE X, "AREAS OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN" AS DEPICTED ON THE FEMA FLOOD INSURANCE RATE MAP (FIRM) MAP NUMBER 290174 0412G, REVISION DATE JANUARY 20, 2017

OIL/GAS WELLS:

NO OIL OR GAS WELLS LOCATED WITHIN THE PROJECT LIMITS.

INFORMATION OBTAINED FROM THE MISSOURI DEPARTMENT OF NATURAL RESOURCES, GEOLOGICAL SURVEY GEOSCIENCES TECHNICAL RESOURCE ASSESSMENT TOOL (GEOSTRAT).

DEMOLITION NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR RAISING AND REMOVAL OF THE EXISTING STRUCTURES, RELATED UTILITIES, PAVING, AND ANY OTHER EXISTING IMPROVEMENTS AS NOTED.

2. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

3. ALL DEMOLITION WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE OWNER'S SITE WORK SPECIFICATIONS.

4. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE AND ADJUSTMENTS DUE TO CONFLICTS OR GRADING TO ANY EXISTING STRUCTURES OR UNDERGROUND UTILITIES THAT ARE TO REMAIN IN PLACE.

5. ALL ITEMS DESIGNATED TO BE DEMOLISHED AND REMOVED FROM THE SITE SHALL BE DISPOSED OF IN AN APPROPRIATE LOCATION IN ACCORDANCE WITH STATE OR LOCAL GUIDELINES.

6. PUBLIC STREETS AND SIDEWALKS SHALL BE KEPT CLEAN AND CLEAR OF TRASH AND DEBRIS FROM DEMOLITION OPERATIONS AT ALL TIMES.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST AND EROSION CONTROL DURING DEMOLITION OPERATIONS.

8. THE CONTRACTOR SHALL COORDINATE WITH ALL APPLICABLE UTILITY COMPANIES PRIOR TO REMOVAL OR RELOCATION OF ANY UTILITIES AND TO SAFELY STOP SERVICES AND DISMANTLE SERVICE LINES PRIOR TO BEGINNING DEMOLITION OPERATIONS.

9. CONTRACTOR IS TO REMOVE AND RE-USE SEWER PIPES, POWER POLES AND GUY WIRES, WATER LINES AND METERS, VEGETATION, ASPHALT, AND OTHER UNSUITABLE DEBRIS OR MATERIAL. SHOWN OR NOT SHOWN WITHIN CONSTRUCTION LIMITS AND WHERE NECESSARY TO ALLOW FOR CONSTRUCTION ACTIVITY. ALL MATERIAL TO BE REMOVED AS UNCLASSIFIED EXCAVATION.

10. ALL CAVITIES CREATED BY REMOVAL OF EXISTING FACILITIES IN THE AREA OF PROPOSED CONSTRUCTION SHALL BE FILLED AND COMPACTED IN ACCORDANCE WITH THE SITE WORK SPECIFICATIONS TO SUBGRADE ELEVATION.

11. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING IN THE VICINITY OF EXISTING OVERHEAD ELECTRICAL POWER LINES.

12. EXISTING UTILITIES ARE SHOWN AS LOCATED AND IDENTIFIED IN THE FIELD BY UTILITY COMPANY REPRESENTATIVE. THE OWNER AND THE ENGINEER MAKE NO ASSURANCE OF THE ACTUAL LOCATION, DEPTH, SIZE OR TYPE OF UTILITY LINES SHOWN. THE OWNER AND THE ENGINEER MAKES NO ASSURANCE THAT ALL OF THE EXISTING UTILITY LINES ON THE SITE ARE SHOWN.

GRADING AND CLEARING NOTES:

1. EXISTING UTILITIES AS SHOWN ARE APPROXIMATE LOCATIONS ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO THE START OF ANY CONSTRUCTION WORK. ANY DAMAGE TO EXISTING STRUCTURES, UTILITIES, FENCES AND/OR INCIDENTALS NOT DESIGNATED FOR REMOVAL SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.

2. CONTRACTOR SHALL ADHERE TO THE "DESIGN AND CONSTRUCTION MANUAL" SECTION 2100 AS ADOPTED BY THE CITY OF LEES SUMMIT, MISSOURI (LATEST EDITION), FOR EXCAVATION AND EMBANKMENT WORK WITHIN THE PROPOSED DRIVE LANES.

3. CONTRACTOR SHALL PROVIDE A LEVEL BUILDING PAD BASED UPON PROPOSED FINISHED FLOOR ELEVATION TO ± 0.10' OR AS ESTABLISHED THROUGH ALTERNATIVE BID DOCUMENTS.

4. PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH A MINIMUM OF FOUR INCHES OF TOPSOIL APPLIED. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON SITE THE CONTRACTOR SHALL PROVIDE TOPSOIL, APPROVED BY THE OWNER, AS NEEDED. THE AREA SHALL THEN BE SEEDED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE PROJECT SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

5. AREAS OF CONSTRUCTION SHALL BE STRIPPED OF ALL VEGETATION, ORGANIC MATTER AND TOPSOIL TO A DEPTH AS RECOMMENDED BY GEOTECHNICAL ENGINEER AND/ OR TESTING AGENCY. SOILS REMOVED DURING SITE STRIPPING SHOULD BE EVALUATED TO DETERMINE IF PORTIONS OF THE TOPSOIL STRATUM MAY BE UTILIZED AS STRUCTURAL FILL WITHIN PAVEMENT AREAS. ANY MATERIAL NOT DEEMED AS SUITABLE FILL MATERIAL BY THE GEOTECHNICAL ENGINEER AND/ OR TESTING AGENCY SHALL BE REMOVED FROM THE JOB SITE BY THE CONTRACTOR AT HIS EXPENSE.

6. CONTRACTOR SHALL ADHERE TO THE SITE PREPARATION AND STRUCTURAL FILL RECOMMENDATIONS AS CALLED OUT IN THE GEOTECHNICAL REPORT AND ENGINEERING EVALUATION AS PROVIDED BY THE GEOTECHNICAL ENGINEER.

7. ALL EMBANKMENT SHOULD BE PLACED IN CONTROLLED LIFTS HAVING A MAXIMUM LOOSE LIFT THICKNESS OF 9". EMBANKMENT PLACED WITHIN THE PAVEMENT AREAS SHOULD BE COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698 (STANDARD PROCTOR COMPACTION). EMBANKMENT PLACED WITHIN THE BUILDING AREAS SHOULD BE COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698 (STANDARD PROCTOR COMPACTION). MOISTURE CONTENT OF THE FILL AT THE TIME OF COMPACTION SHALL BE WITHIN A RANGE OF 0 TO 4 PERCENT ABOVE OPTIMUM MOISTURE CONTENT AS DEFINED BY THE STANDARD PROCTOR COMPACTION PROCEDURE. ALL EMBANKMENT PLACED WITHIN 18" OF THE BUILDING SUBGRADE SHOULD HAVE A LIQUID LIMIT LESS THAN 60. THE GEOTECHNICAL REPORT SHALL SUPERSEDE RECOMMENDATIONS AS STATED IN THIS PLAN SET.

UTILITY CONSTRUCTION NOTES:

1. PRIOR TO INSTALLATION OF ANY PROPOSED UTILITY THE CONTRACTOR SHALL EXCAVATE, VERIFY, AND CALCULATE ALL CROSSINGS WITH EXISTING UTILITIES AND INFORM THE OWNER AND THE ENGINEER OF ANY CONFLICTS. THE ENGINEER WILL BE HELD HARMLESS IN THE EVENT THE ENGINEER IS NOT NOTIFIED OF CONFLICTS WITH EXISTING UTILITIES.

2. 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 COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT IS THE CONTRACTORS RESPONSIBILITY TO RELOCATE AND/OR ADJUST ALL EXISTING UTILITIES THAT CONFLICT WITH PROPOSED SITE IMPROVEMENTS.

3. UNLESS OTHERWISE SHOWN, CALLED OUT OR SPECIFIED HEREON OR WITHIN THE SPECIFICATIONS:
   ALL STORM DRAIN PIPE BEDDING SHALL BE INSTALLED PER CITY STANDARD DETAILS.
   ALL STORM DRAIN PIPES ARE MEASURED FROM CENTER OF STRUCTURES AND ENDS OF FLARED END SECTIONS.

4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTROL DOWNSTREAM EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION. EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO CONSTRUCTION.

5. TELEPHONE CONDUIT SHALL HAVE A MINIMUM COVER OF 30". CONDUIT SHALL BE DUAL 4" SCHEDULE 40 PVC. CONTRACTOR SHALL COORDINATE LOCATION WITH THE UTILITY REPRESENTATIVE AND LOCATE PVC CROSSINGS AS NECESSARY. SEE ELEC. PLANS FOR ENTRANCE LOCATIONS.

6. FOR ALL SERVICE LINE ENTRANCE LOCATIONS WITHIN THE BUILDING, INCLUDING ROOF DRAIN CONNECTIONS, SEE ARCHITECTURAL PLANS AND DETAILS.

7. ALL WATER SERVICE LINES SHALL BE A MINIMUM OF 48" BELOW FINISHED GRADE.

8. ALL SANITARY SEWER LINES SHALL BE SDR-26 WITH 42" MIN. COVER.

9. CONTRACTOR SHALL COORDINATE ANY DISRUPTIONS TO EXISTING UTILITY SERVICES WITH ADJACENT PROPERTY OWNERS A MINIMUM OF 48 HOURS PRIOR TO DISRUPTION.

10. ALL ELECTRIC AND TELEPHONE, INCLUDING SERVICE LINES SHALL BE CONSTRUCTED TO THE APPROPRIATE UTILITY COMPANY SPECIFICATIONS. ALL UTILITY DISCONNECTION'S SHALL BE COORDINATED WITH THE DESIGNATED UTILITY COMPANIES.

11. PRIOR TO ORDERING PRECAST STRUCTURES, SHOP DRAWINGS SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL.

12. ALL PRIVATE INSTALLATIONS SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS AS ADOPTED BY THE CITY OF LEE'S SUMMMIT, MISSOURI.

13. EXTENSION OF BOTH DOMESTIC WATER SERVICE AND FIRE PROTECTION LINE MAY NOT BE PROVIDED UNTIL PUBLIC MAIN HAS BEEN TESTED AND ACCEPTED BY WRITTEN AUTHORIZATION FROM LEE'S SUMMIT WATER DEPARTMENT.

14. CONTRACTOR TO CONTACT LEE'S SUMMIT WATER SERVICES DEPARTMENT FOR MAIN LINE TAP AND METER SET A MINIMUM OF 48 HOURS PRIOR TO CONNECTION.

17. CONSTRUCTION SHALL NOT START ON ANY PUBLIC UTILITY SYSTEM UNTIL THE APPROPRIATE PERMITS HAVE BEEN PULLED FROM THE CITY OF LEE'S SUMMIT AND/OR JACKSON COUNTY AND CONTRACTOR HAS BEEN NOTIFIED BY THE ENGINEER.

18. ALL ELECTRICAL CONDUIT SHALL BE SCHEDULE 40 ELECTRICAL PVC, AS CALLED OUT AND HAVE AN AVERAGE OF 36" TO 42" COVER WITH A MINIMUM OF 30" CONFORMING TO THE CURRENT REGULATIONS SET FORTH BY MISSOURI PUBLIC SERVICE. SEE MECH. PLANS FOR ENTRANCE LOCATIONS.

19. CONTRACTOR SHALL MAKE APPLICATION WITH SPIRE ENERGY FOR PROPOSED METER.

LEGEND

GENERAL		SURVEY MARKERS	
ACU	AIR CONDITIONING UNIT	BMK	BENCHMARK
AST	ARROW STRAIGHT	CPT	CONTROL POINT
ATL	ARROW TURN LEFT	FND	FOUND MONUMENT
ATR	ARROW TURN RIGHT	ROW	ROW MARKER
BLB	BILLBOARD	SCR	SECTION CORNER
BOV	BLOW OFF VALVE	SET	SET MONUMENT
BSH	BUSH	**BOUNDARIES**	
COL	COLUMN		SECTION LINE
CTR	CONIFEROUS TREE	ER	EXISTING PROPERTY BOUNDARY
DRN	DRAIN GRATE	PL	PROPOSED PROPERTY BOUNDARY
DTR	DECIDUOUS TREE		EXISTING LOT LINE
FLP	FLAG POLE		PROPOSED LOT LINE
GDP	GUARD POST	ER/W	EXISTING RIGHT-OF-WAY
GPL	GUY POLE	R/W	PROPOSED RIGHT-OF-WAY
GTP	GREASE TRAP	**UTILITIES**	
GUY	GUY WIRE	CAB	CABLE BOX
HCP	ACCESSABLE PARKING MARKER	CAV	CABLE VAULT
LST	LIFT STATION	TVP	TELEVISION PEDESTAL
MLB	MAILBOX	TVR	TELEVISION RISER
MP	MILE POST MARKER	ECTVOH	EXISTING CABLE TV, OVERHEAD
MWL	MONITORING WELL	ECTV	EXISTING CABLE TV, UNDERGROUND
PIV	POST INDICATOR VALVE	CTVOH	PROPOSED CABLE TV, OVERHEAD
PPT	PROPANE TANK	CTV	PROPOSED CABLE TV, UNDERGROUND
RAT	RADIO TOWER	FOB	FIBER OPTIC BOX
SAD	SATELLITE	FOM	FIBER OPTIC MANHOLE
SCV	SPRINKLER CONTROL VALVE	FOP	FIBER OPTIC PEDESTAL
SGN	SIGN	FOV	FIBER OPTIC VAULT
SLB	STREET LIGHT BOX	EFOOH	EXISTING FIBER OPTIC, OVERHEAD
SLC	STREET LIGHT CABINET	EFO	EXISTING FIBER OPTIC, UNDERGROUND
SPB	SPRINKLER BOX	FOOH	PROPOSED FIBER OPTIC, OVERHEAD
SPH	SPRINKLER HEAD	FO	PROPOSED FIBER OPTIC, UNDERGROUND
STP	STUMP	FDC	FIRE DEPT. CONNECTION
SVL	SEWER VALVE	EFP	EXISTING FIRE PROTECTION SYSTEM LINE
TCB	TRAFFIC CONTROL BOX	FP	PROPOSED FIRE PROTECTION SYSTEM LINE
TSA	TRAFFIC SIGNAL WITH MAST ARM	EFL	EXISTING FUEL LINE
TSC	TRAFFIC SIGNAL CABINET	FPL	PROPOSED FUEL LINE
TSMH	TRAFFIC SIGNAL MANHOLE	GAR	GAS RISER
TSP	TRAFFIC SIGNAL POLE	GMH	GAS MANHOLE
	EXISTING TREELINE	GMK	GAS MARKER
	PROPOSED TREELINE	GMT	GAS METER
	EXISTING SIDEWALK	GRG	GAS REGULATOR
	PROPOSED SIDEWALK	GVL	GAS VALVE
	FUTURE SIDEWALK	EG	EXISTING NATURAL GAS LINE
	EXISTING BUILDINGS	G	PROPOSED NATURAL GAS LINE
	PROPOSED BUILDINGS	TEC	TELEPHONE CABINET
	FUTURE BUILDINGS	TEP	TELEPHONE PEDESTAL
	EXISTING EDGE OF PAVEMENT	TER	TELEPHONE RISER
	PROPOSED EDGE OF PAVEMENT	TEV	TELEPHONE VAULT
	FUTURE EDGE OF PAVEMENT	TMH	TELEPHONE MANHOLE
	EXISTING ROADWAY CENTER LINE	ETELOH	EXISTING TELEPHONE LINE, OVERHEAD
	PROPOSED ROADWAY CENTER LINE	ETEL	EXISTING TELEPHONE LINE, UNDERGROUND
	FUTURE ROADWAY CENTER LINE	TELOH	PROPOSED TELEPHONE LINE, OVERHEAD
	EXISTING CURB & GUTTER	TEL	PROPOSED TELEPHONE LINE, UNDERGROUND
	PROPOSED CURB & GUTTER	GLT	GROUND LIGHT
	FUTURE CURB & GUTTER	LTP	LIGHT POLE
R	RADIUS	PWP	POWER POLE
L	ARC DISTANCE	TRF	ELECTRIC TRANSFORMER
D	DELTA / CENTRAL ANGLE	EBX	ELECTRIC BOX
EASEMENTS & SETBACKS		ELC	ELECTRIC CABINET
A.E.	ACCESS EASEMENT	ELR	ELECTRIC RISER
B.M.P.	BEST MANAGEMENT PRACTICE EASEMENT	EMH	ELECTRIC MANHOLE
B.L.	BUILDING SETBACK	EMT	ELECTRIC METER
C.T.V.E.	CABLE TV EASEEMNT	ESC	ELECTRIC SECTIONALIZER
C.E.	CONSERVATION EASEMENT	EVT	ELECTRIC VAULT
C.G.E.	CONSTRUCTION GRADING EASEMENT	YDL	YARD LIGHT
F.P.E.	FLOOD PLAIN EASEMENT	EELOH	EXISTING POWER\ELECTRIC LINE, OVERHEAD
F.O.E.	FIBER OPTIC EASEMENT	EE	EXISTING POWER\ELECTRIC LINE, UNDERGROUND
F.P.S.E.	FIRE PROTECTION SYSTEM EASEMENT	SCO	SEWER CLEANOUT
F.L.E.	FUEL LINE EASEMENT	SSMH	SANITARY MANHOLE
L.S.E.	LANDSCAPE EASEMENT	ESS	EXISTING SANITARY SEWER
G.E.	NATURAL GAS EASEMENT	SS	PROPOSED SANITARY SEWER
T.E.	TELEPHONE EASEMENT	FSS	FUTURE SANITARY SEWER
E.E.	POWER\ELECTRIC EASEMENT	ESL	EXISTING STEAM LINE
P.S.	PARKING SETBACK	SL	PROPOSED STEAM LINE
S.B.	STREAM BUFFER	SDMH	STORM SEWER MANHOLE
S.D.E.	SURFACE DRAINAGE EASEMENT	FES	FLARED END SECTION
SIGHT DIST. ESMT.	SIGHT DISTANCE EASEMENT	RDN	ROOF DRAIN
S.E.	SANITARY SEWER EASEMENT	EST	EXISTING STORM SEWER
S.L.E.	STEAM LINE EASEMENT	ST	PROPOSED STORM SEWER
D.E.	STORM DRAINAGE EASEMENT		
S.W.M.E.	STORM WATER MANAGEMENT EASEMENT	FH	FIRE HYDRANT
T.C.D.S.E.	TEMPORARY CUL-DE-SAC EASEMENT	WMH	WATER MANHOLE
TEMP. ESMT.	TEMPORARY EASEMENT	WMK	WATER MARKER
TRAIL ESMT.	TRAIL\PATH EASEMENT	WMT	WATER METER
U.E.	UTILITY EASEMENT	WVL	WATER VALVE
W.E.	WATER EASEMENT	EW	EXISTING WATER LINE
F.Y.S	FRONT YARD SETBACK	W	PROPOSED WATER LINE
R.Y.S.	REAR YARD SETBACK		
S.Y.S.	SIDE YARD SETBACK		
CONTOURS			
-100-	EXISTING INDEX CONTOURS		
-100-	EXISTING INTERMEDIATE CONTOURS		
100	PROPOSED INDEX CONTOURS		
100	PROPOSED INTERMEDIATE CONTOURS		

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

GENERAL NOTES
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C102

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GEN01_B190012.dwg ~ Layout: GENERAL NOTES ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

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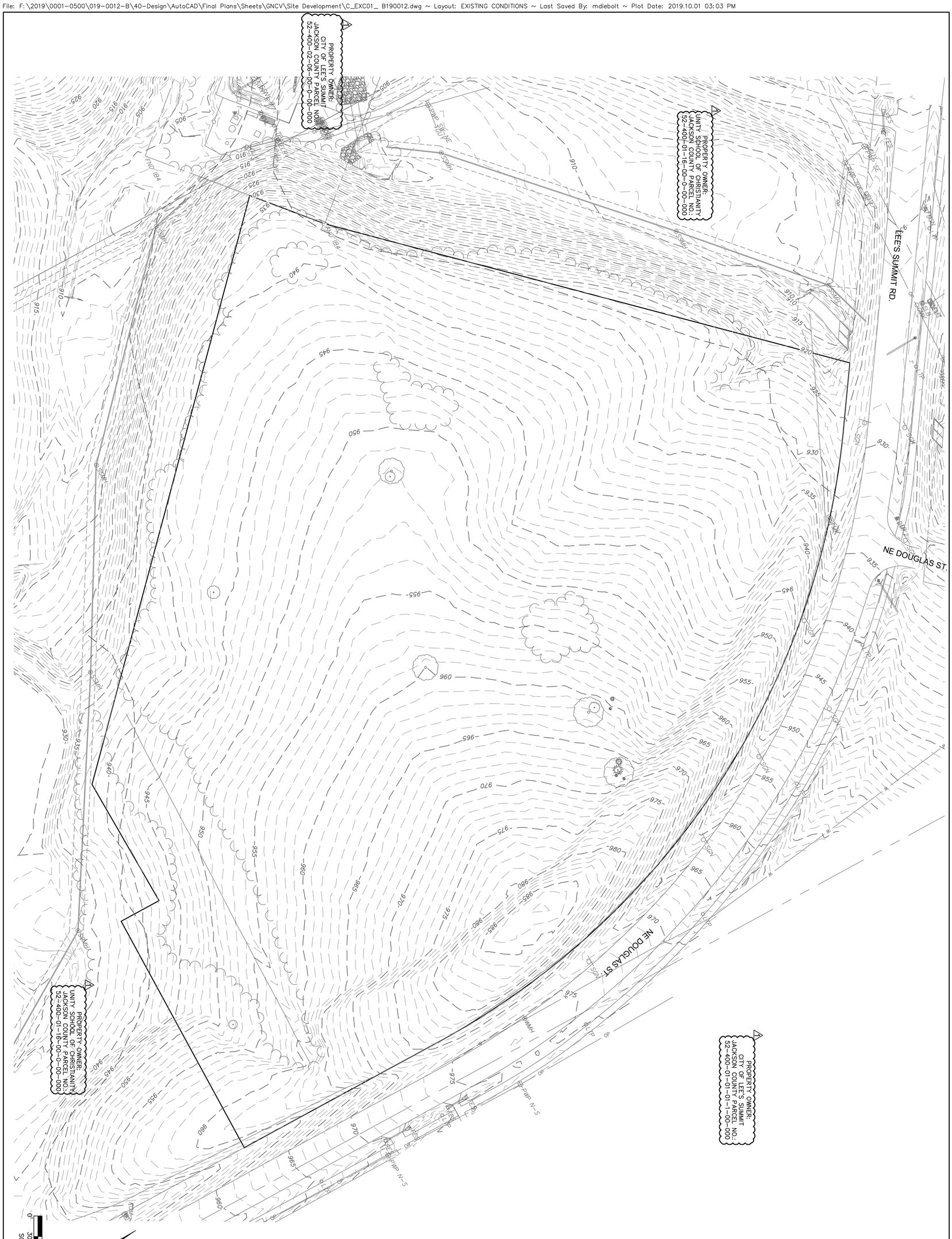

SHEET
C103

EXISTING CONDITIONS
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO | 2020

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

drawn by: M.A.D.
checked by: N.J.H.
designed by: N.J.H.
QA/QC by: N.J.H.
project no.: B190012.B
date: 2020.08.27

NICHOLAS D. HEBERER, P.E.
MO# 2015000555

STATE OF MISSOURI
NICHOLAS D. HEBERER
NUMBER PE-2015000555
02/04/2021
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LEE'S SUMMIT RD.

NE DOUGLAS ST.

NE DOUGLAS ST.

BLDG 13 (FUTURE)

BLDG 12 (FUTURE)

BLDG 11 (FUTURE)

BLDG 10 (FUTURE)

BLDG 9 (FUTURE)

BLDG 8 (FUTURE)

BLDG 7 (FUTURE)

BLDG 6

BLDG 5

BLDG 4

BLDG 3

BLDG 2

BLDG 1 CLUBHOUSE

MAINT. BLDG

10' U.E.

50' B.L.

15' D.E.

T.C.E.

L.S.E.

20' D.E.

0' 30' 60' 120'
SCALE IN FEET

N

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

GENERAL LAYOUT
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

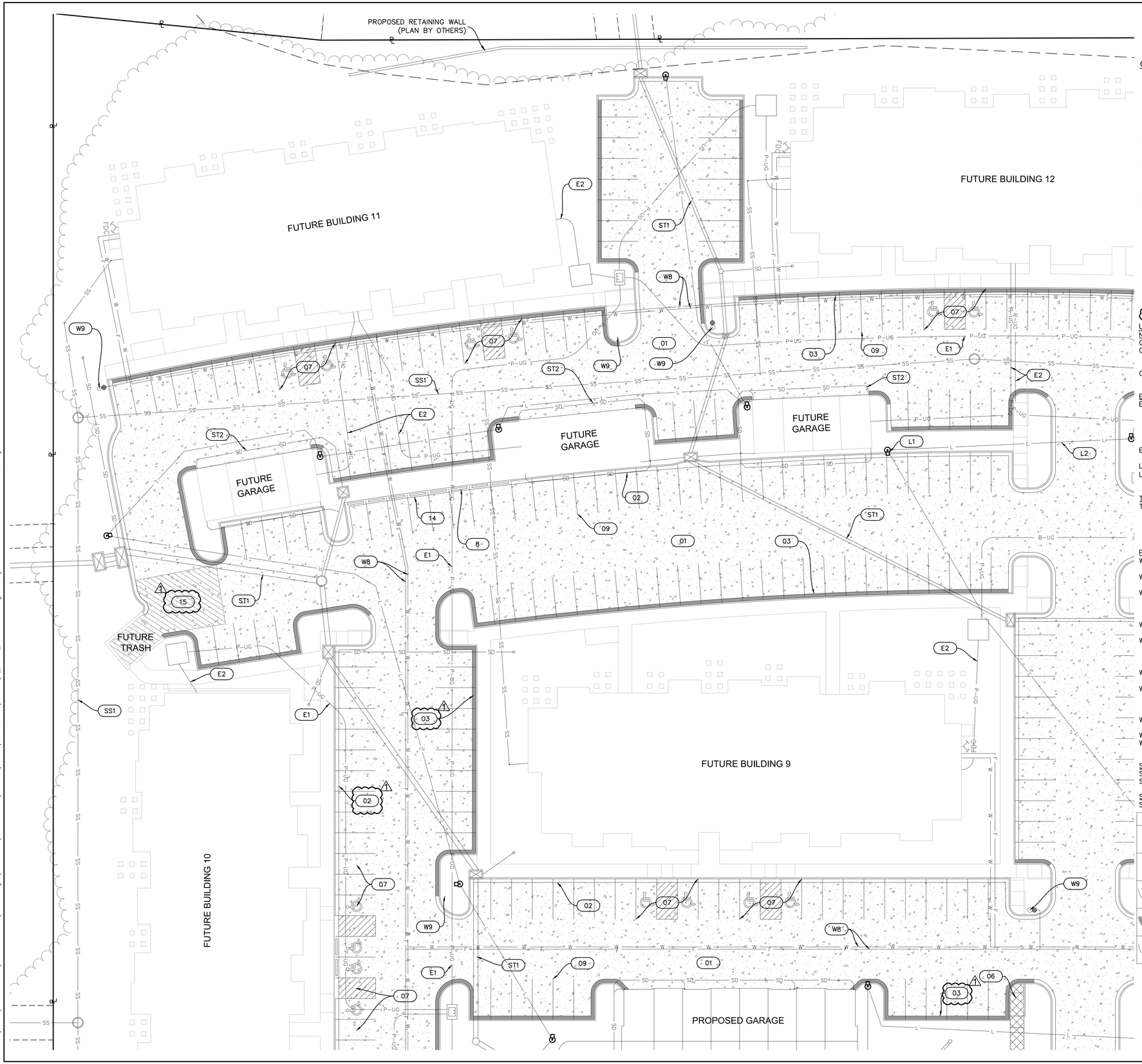
LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C104

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GEN02_ B190012.dwg ~ Layout: GENERAL LAYOUT ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



PROPERTY LEGEND	
R/W	PROPERTY / RIGHT-OF-WAY LINE
	EASEMENT LINE

CONSTRUCTION NOTES (##)

1. CONSTRUCT STANDARD CONCRETE PAVEMENT (SEE LEGEND)
2. CONSTRUCT TYPE CG-1 CONCRETE CURB AND GUTTER (TYP.) (SEE LEGEND)
3. CONSTRUCT TYPE CG-1 'DRY' CONCRETE CURB AND GUTTER (TYP.) (SEE LEGEND)
4. CONSTRUCT PRIVATE CONCRETE SIDEWALK
5. CONSTRUCT ACCESSIBLE PARALLEL SIDEWALK RAMP (SEE SPOT ELEVATION PLANS)
6. CONSTRUCT PERPENDICULAR SIDEWALK RAMP (SEE SPOT ELEVATION PLANS)
7. PROPOSED ACCESSIBLE PARKING STALLS WITH SIGNAGE AND STRIPING (TYP.)
8. INSTALL 7-FT CONCRETE WHEEL STOP. (SEE DETAIL SHEET)
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11. TRASH ENCLOSURE, RE: ARCH PLANS
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13. PROPOSED MONUMENT SIGN. RE: LANDSCAPE PLANS.
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UTILITY NOTES (##)

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L1. PRIVATE SITE LIGHTING (TYP.), RE: LIGHTING PLANS FOR DETAILS.
L2. PRIVATE SITE LIGHTING WIRING ROUTING (TYP.), RE: LIGHTING PLANS FOR DETAILS.

TELEPHONE/CABLE/DATA SERVICE

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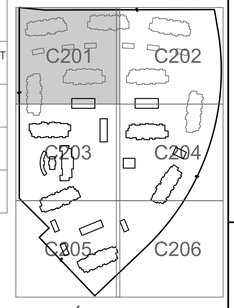

SITE PLAN KEY MAP
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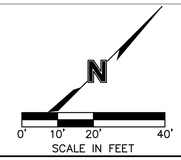

SCALE IN FEET

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MO CERTIFICATE OF AUTHORITY #:001592
KS CERTIFICATE OF AUTHORITY #:E-1045
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TEL 816.361.1177
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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
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1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

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LEE'S SUMMIT, MO

2020

drawn by:	M.J.D.
checked by:	N.D.H.
designed by:	M.J.D.
QA/QC by:	N.D.H.
project no.:	019-0012-B
date:	2020.08.27

SHEET
C201

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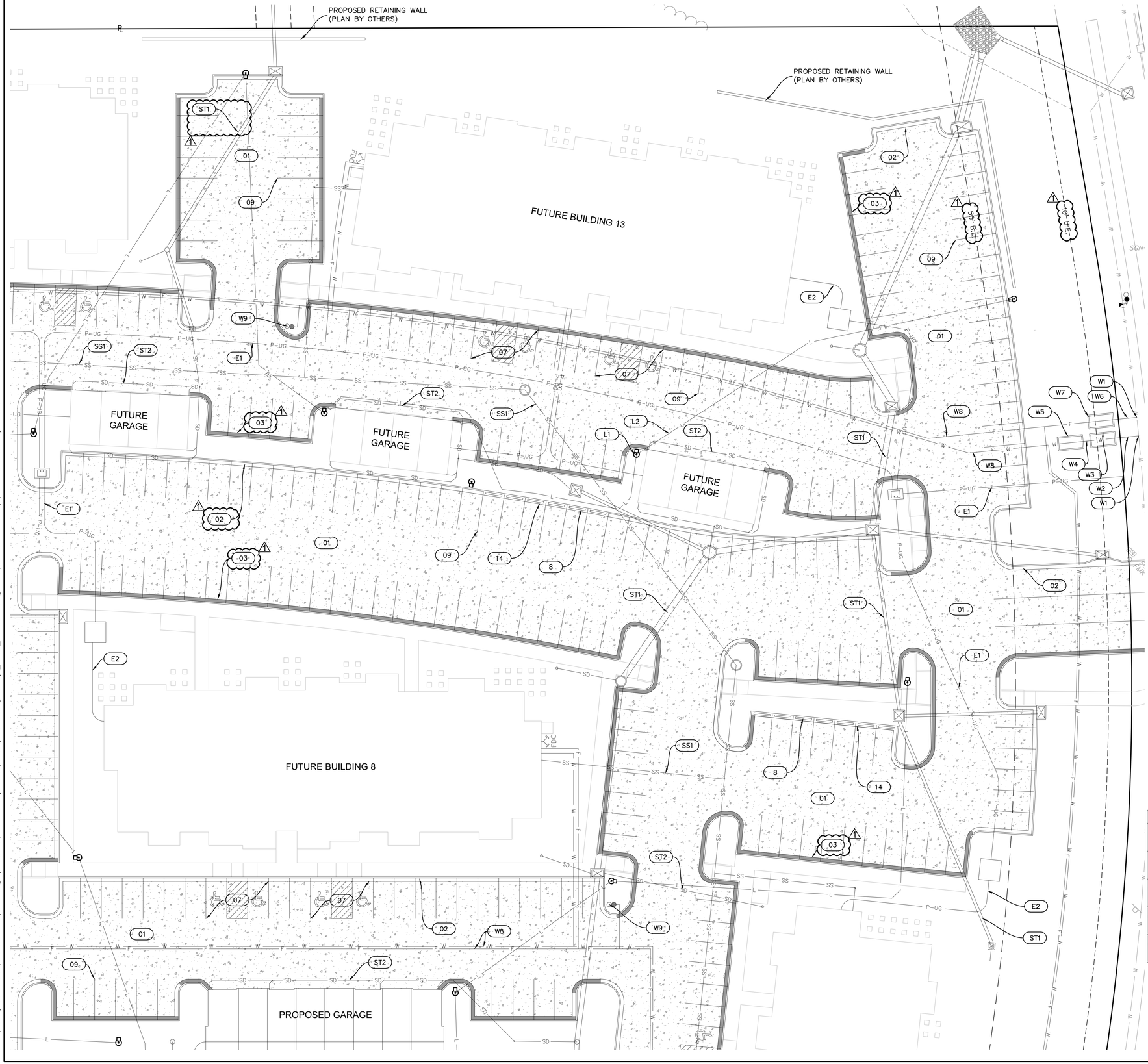

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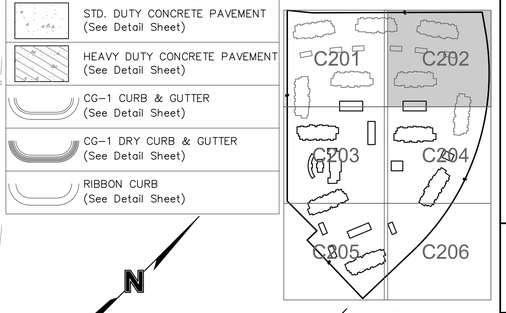

SITE PLAN
KEY MAP
NOT TO SCALE

0' 10' 20' 40'
SCALE IN FEET

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2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
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SHEET
C202

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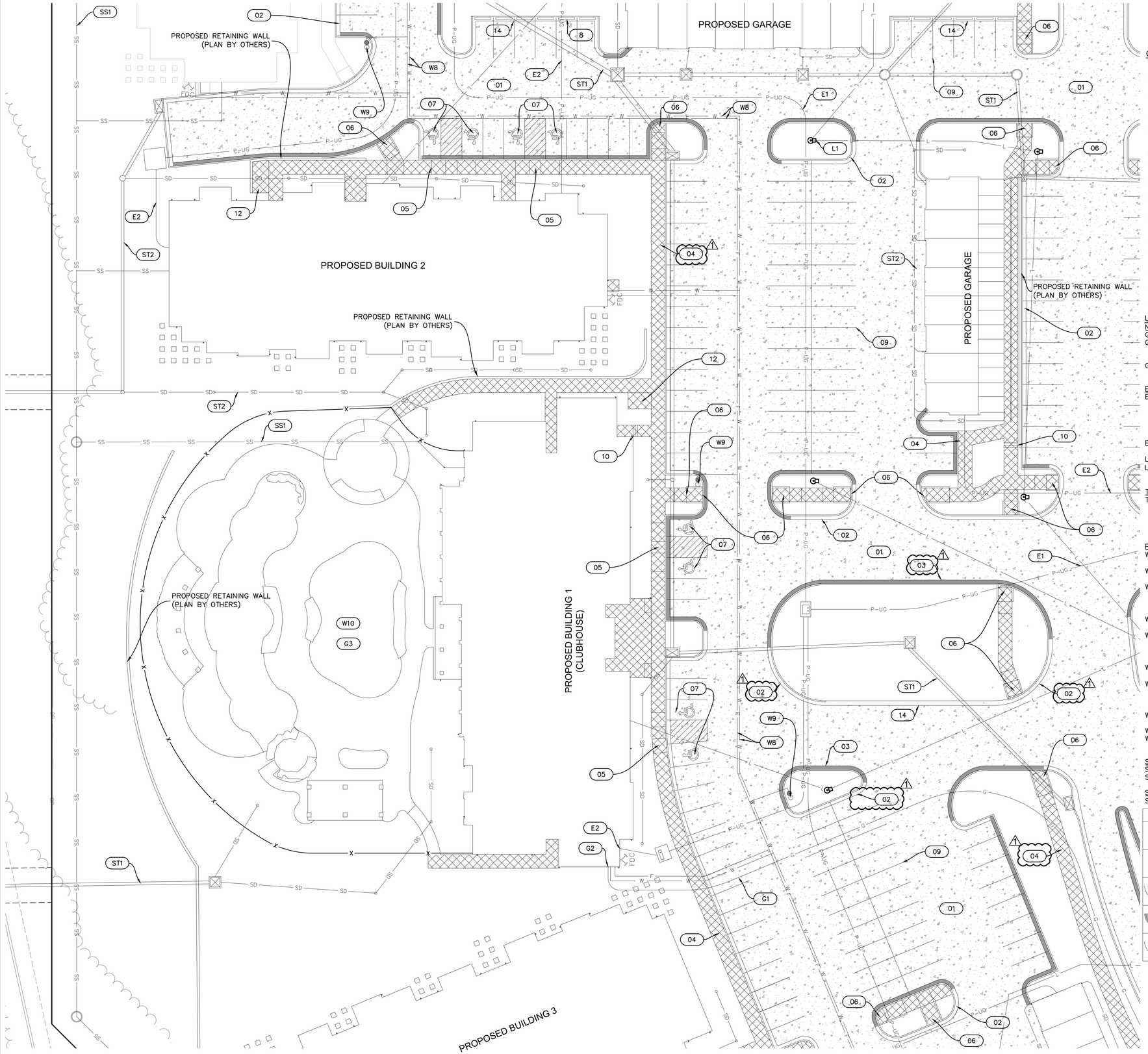

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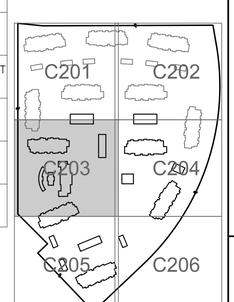

SITE PLAN KEY MAP
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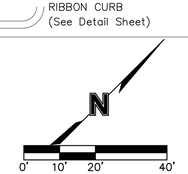

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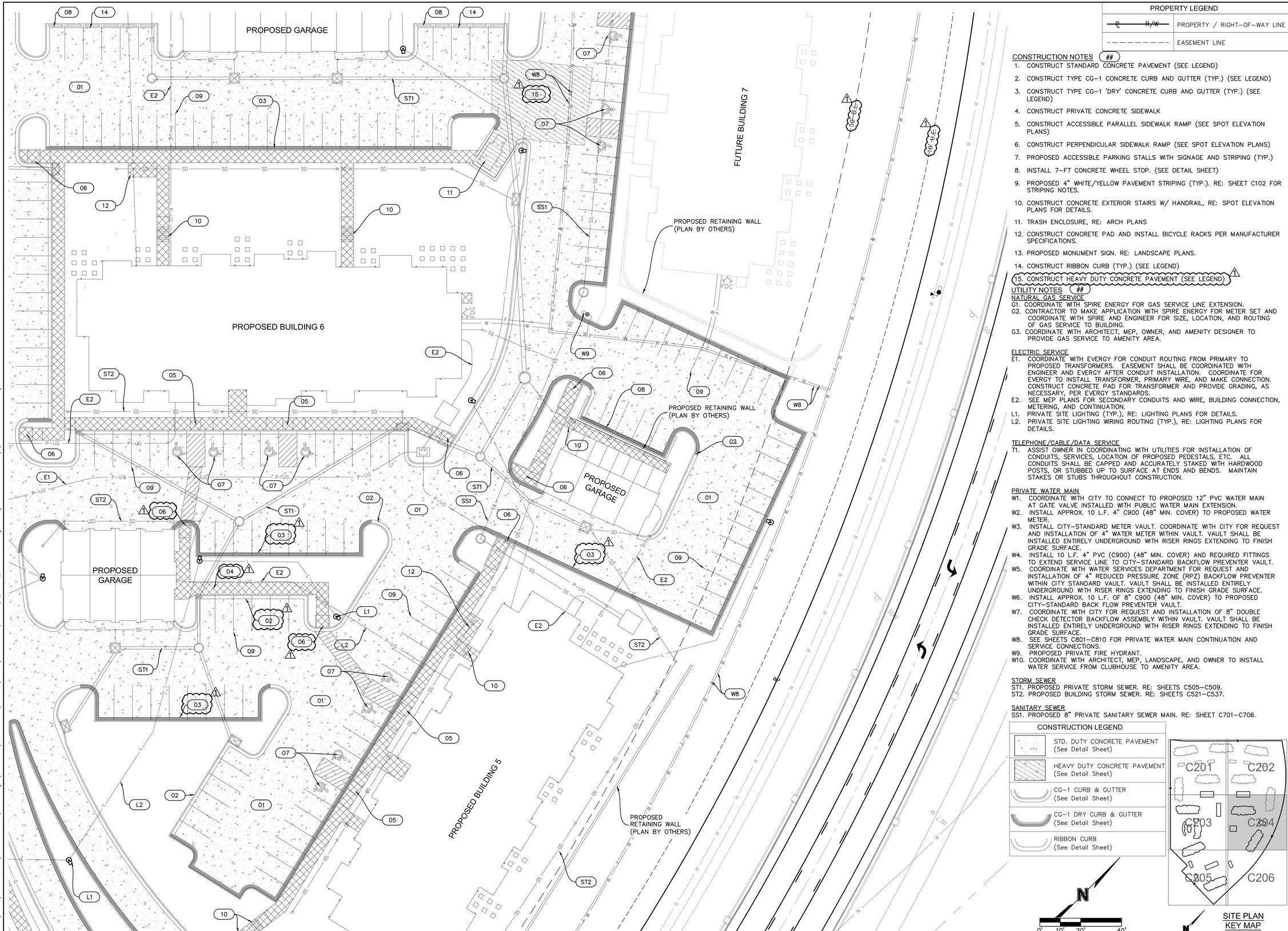

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W2. INSTALL APPROX. 10 L.F. 4" C900 (48" MIN. COVER) TO PROPOSED WATER METER.
W3. INSTALL CITY-STANDARD METER VAULT. COORDINATE WITH CITY FOR REQUEST AND INSTALLATION OF 4" WATER METER WITHIN VAULT. VAULT SHALL BE INSTALLED ENTIRELY UNDERGROUND WITH RISER RINGS EXTENDING TO FINISH GRADE SURFACE.
W4. INSTALL 10 L.F. 4" PVC (C900) (48" MIN. COVER) AND REQUIRED FITTINGS TO EXTEND SERVICE LINE TO CITY-STANDARD BACKFLOW PREVENTER VAULT.
W5. COORDINATE WITH WATER SERVICES DEPARTMENT FOR REQUEST AND INSTALLATION OF 4" REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTER WITHIN CITY STANDARD VAULT. VAULT SHALL BE INSTALLED ENTIRELY UNDERGROUND WITH RISER RINGS EXTENDING TO FINISH GRADE SURFACE.
W6. INSTALL APPROX. 10 L.F. OF 8" C900 (48" MIN. COVER) TO PROPOSED CITY-STANDARD BACK FLOW PREVENTER VAULT.
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W8. SEE SHEETS C801-C810 FOR PRIVATE WATER MAIN CONTINUATION AND SERVICE CONNECTIONS.
W9. PROPOSED PRIVATE FIRE HYDRANT.
W10. COORDINATE WITH ARCHITECT, MEP, LANDSCAPE, AND OWNER TO INSTALL WATER SERVICE FROM CLUBHOUSE TO AMENITY AREA.

STORM SEWER

ST1. PROPOSED PRIVATE STORM SEWER. RE: SHEETS C505-C509.
ST2. PROPOSED BUILDING STORM SEWER. RE: SHEETS C521-C537.

SANITARY SEWER

SS1. PROPOSED 8" PRIVATE SANITARY SEWER MAIN. RE: SHEET C701-C706.

CONSTRUCTION LEGEND	
	STD. DUTY CONCRETE PAVEMENT (See Detail Sheet)
	HEAVY DUTY CONCRETE PAVEMENT (See Detail Sheet)
	CG-1 CURB & GUTTER (See Detail Sheet)
	CG-1 DRY CURB & GUTTER (See Detail Sheet)
	RIBBON CURB (See Detail Sheet)

SITE PLAN KEY MAP
NOT TO SCALE

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MO CERTIFICATE OF AUTHORITY #:001592
KS CERTIFICATE OF AUTHORITY #:E-1253
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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

SITE PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C204

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_SIT01_ B190012.dwg ~ Layout: SITE PLAN (4) ~ Last Saved By: nheiser ~ Plot Date: 2019.10.01 03:03 PM

PROPERTY LEGEND	
R/W	PROPERTY / RIGHT-OF-WAY LINE
	EASEMENT LINE

CONSTRUCTION NOTES (##)

1. CONSTRUCT STANDARD CONCRETE PAVEMENT (SEE LEGEND)
2. CONSTRUCT TYPE CG-1 CONCRETE CURB AND GUTTER (TYP.) (SEE LEGEND)
3. CONSTRUCT TYPE CG-1 'DRY' CONCRETE CURB AND GUTTER (TYP.) (SEE LEGEND)
4. CONSTRUCT PRIVATE CONCRETE SIDEWALK
5. CONSTRUCT ACCESSIBLE PARALLEL SIDEWALK RAMP (SEE SPOT ELEVATION PLANS)
6. CONSTRUCT PERPENDICULAR SIDEWALK RAMP (SEE SPOT ELEVATION PLANS)
7. PROPOSED ACCESSIBLE PARKING STALLS WITH SIGNAGE AND STRIPING (TYP.)
8. INSTALL 7-FT CONCRETE WHEEL STOP. (SEE DETAIL SHEET)
9. PROPOSED 4" WHITE/YELLOW PAVEMENT STRIPING (TYP.). RE: SHEET C102 FOR STRIPING NOTES.
10. CONSTRUCT CONCRETE EXTERIOR STAIRS W/ HANDRAIL, RE: SPOT ELEVATION PLANS FOR DETAILS.
11. TRASH ENCLOSURE, RE: ARCH PLANS
12. CONSTRUCT CONCRETE PAD AND INSTALL BICYCLE RACKS PER MANUFACTURER SPECIFICATIONS.
13. PROPOSED MONUMENT SIGN. RE: LANDSCAPE PLANS.
14. CONSTRUCT RIBBON CURB (TYP.) (SEE LEGEND)
15. CONSTRUCT HEAVY DUTY CONCRETE PAVEMENT (SEE LEGEND)

UTILITY NOTES (##)

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G1. COORDINATE WITH SPIRE ENERGY FOR GAS SERVICE LINE EXTENSION.
G2. CONTRACTOR TO MAKE APPLICATION WITH SPIRE ENERGY FOR METER SET AND COORDINATE WITH SPIRE AND ENGINEER FOR SIZE, LOCATION, AND ROUTING OF GAS SERVICE TO BUILDING.
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E2. SEE MEP PLANS FOR SECONDARY CONDUITS AND WIRE, BUILDING CONNECTION, METERING, AND CONTINUATION.
L1. PRIVATE SITE LIGHTING (TYP.), RE: LIGHTING PLANS FOR DETAILS.
L2. PRIVATE SITE LIGHTING WIRING ROUTING (TYP.), RE: LIGHTING PLANS FOR DETAILS.

TELEPHONE/CABLE/DATA SERVICE

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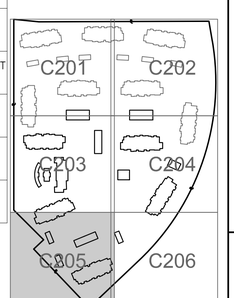

SITE PLAN KEY MAP
NOT TO SCALE

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

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SITE PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C205

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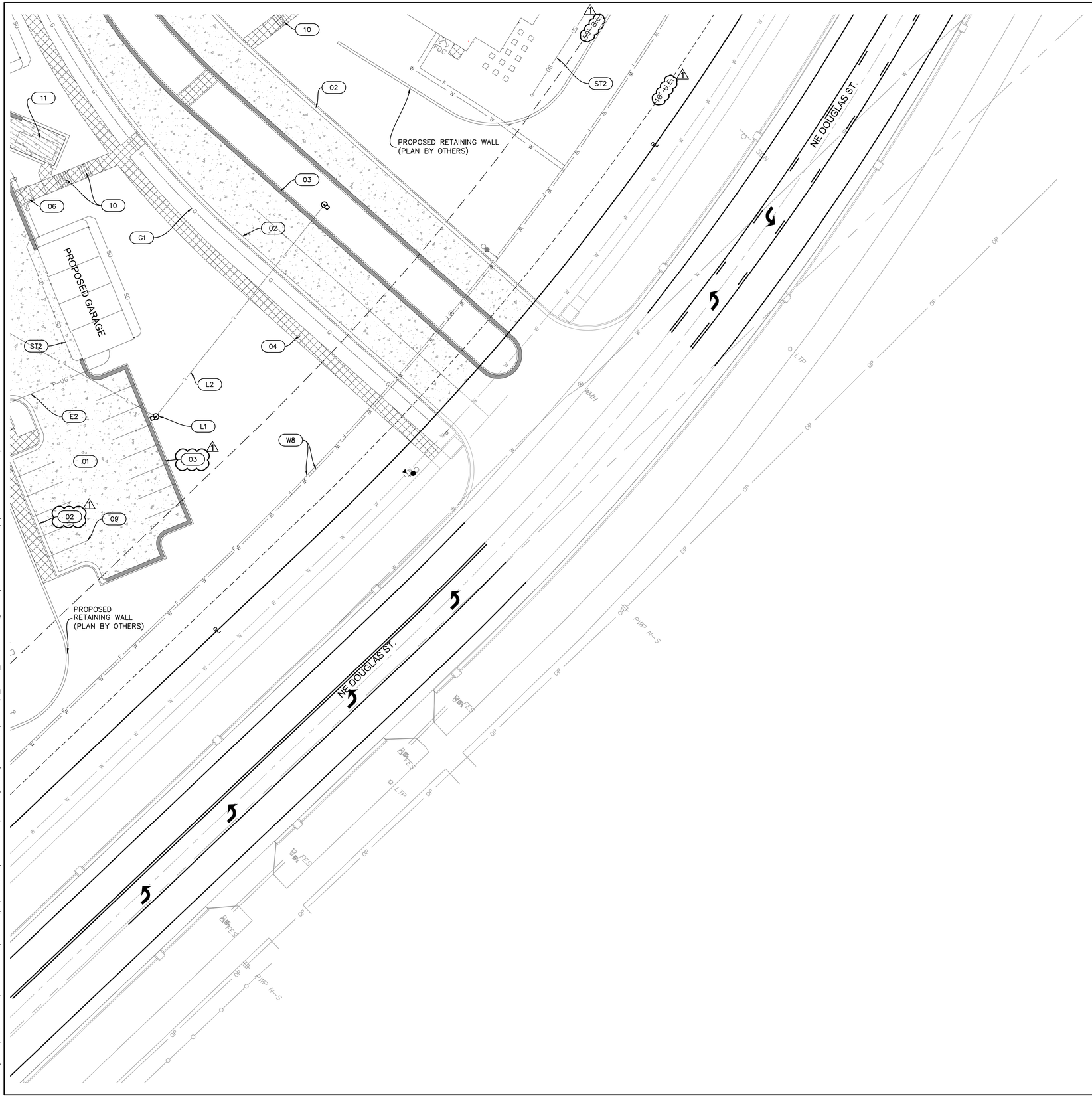

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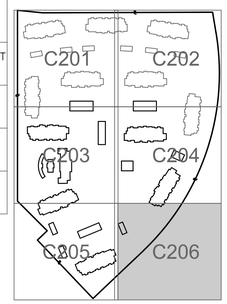
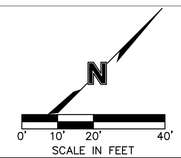


SITE PLAN
KEY MAP
NOT TO SCALE



SCALE IN FEET

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1.	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

SITE PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
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SHEET
C206

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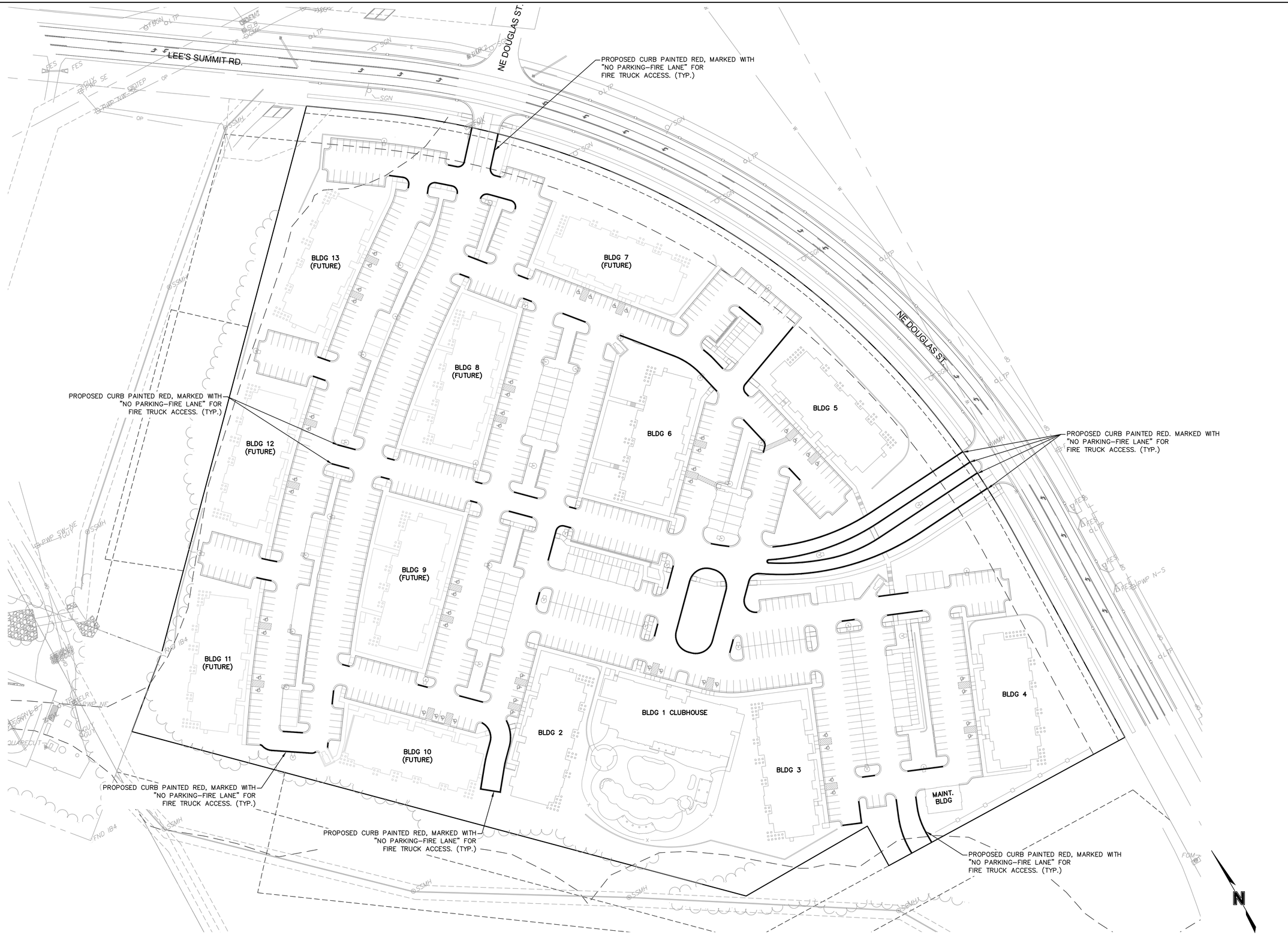

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REVISIONS

FIRE LANE STRIPING PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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checked by: N.D.H.
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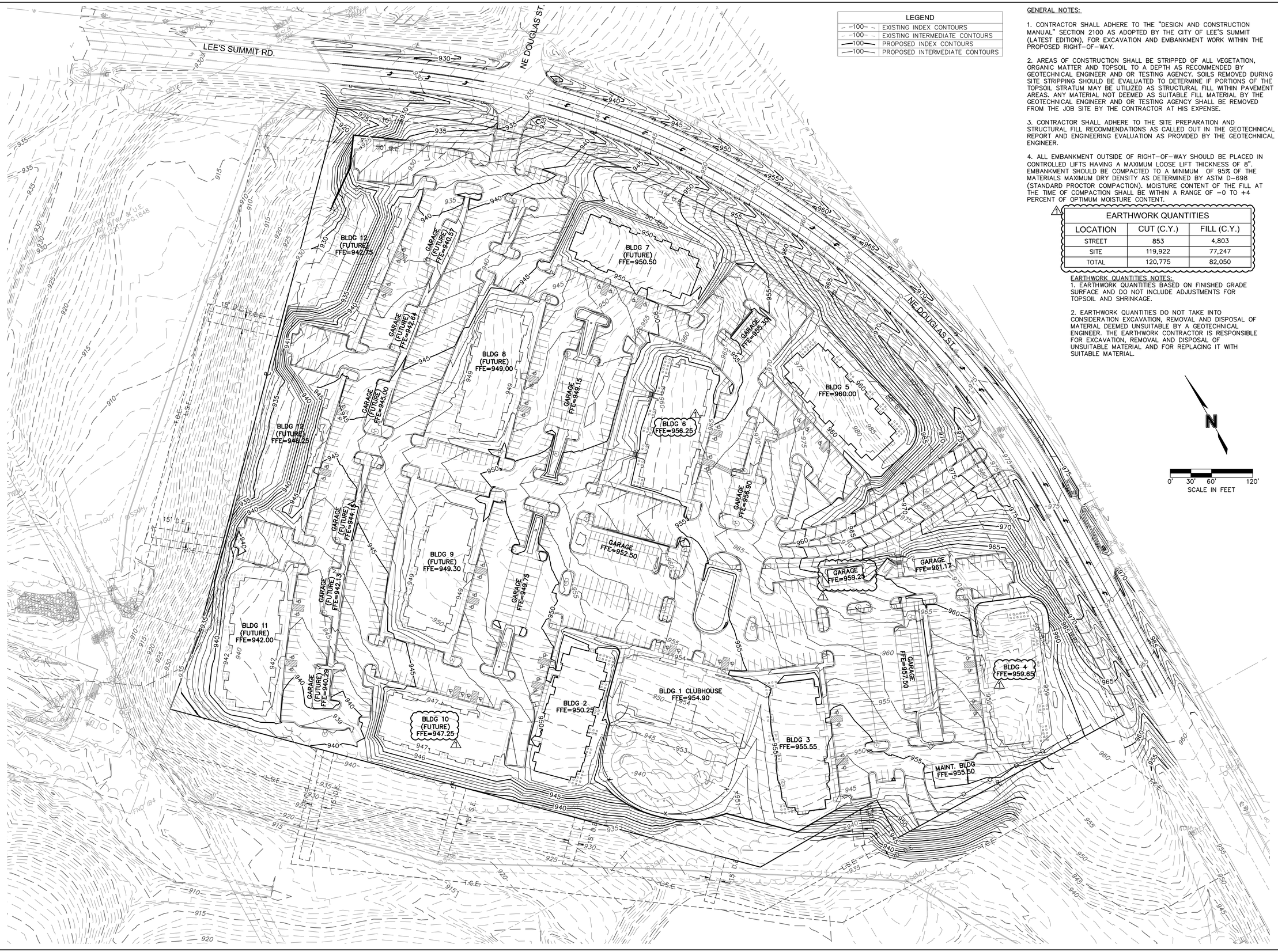
SHEET
C207



LEGEND	
-100-	EXISTING INDEX CONTOURS
-100-	EXISTING INTERMEDIATE CONTOURS
100	PROPOSED INDEX CONTOURS
100	PROPOSED INTERMEDIATE CONTOURS

GENERAL NOTES:

1. CONTRACTOR SHALL ADHERE TO THE "DESIGN AND CONSTRUCTION MANUAL" SECTION 2100 AS ADOPTED BY THE CITY OF LEE'S SUMMIT (LATEST EDITION), FOR EXCAVATION AND EMBANKMENT WORK WITHIN THE PROPOSED RIGHT-OF-WAY.

2. AREAS OF CONSTRUCTION SHALL BE STRIPPED OF ALL VEGETATION, ORGANIC MATTER AND TOPSOIL TO A DEPTH AS RECOMMENDED BY GEOTECHNICAL ENGINEER AND OR TESTING AGENCY. SOILS REMOVED DURING SITE STRIPPING SHOULD BE EVALUATED TO DETERMINE IF PORTIONS OF THE TOPSOIL STRATUM MAY BE UTILIZED AS STRUCTURAL FILL WITHIN PAVEMENT AREAS. ANY MATERIAL NOT DEEMED AS SUITABLE FILL MATERIAL BY THE GEOTECHNICAL ENGINEER AND OR TESTING AGENCY SHALL BE REMOVED FROM THE JOB SITE BY THE CONTRACTOR AT HIS EXPENSE.

3. CONTRACTOR SHALL ADHERE TO THE SITE PREPARATION AND STRUCTURAL FILL RECOMMENDATIONS AS CALLED OUT IN THE GEOTECHNICAL REPORT AND ENGINEERING EVALUATION AS PROVIDED BY THE GEOTECHNICAL ENGINEER.

4. ALL EMBANKMENT OUTSIDE OF RIGHT-OF-WAY SHOULD BE PLACED IN CONTROLLED LIFTS HAVING A MAXIMUM LOOSE LIFT THICKNESS OF 8". EMBANKMENT SHOULD BE COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698 (STANDARD PROCTOR COMPACTION). MOISTURE CONTENT OF THE FILL AT THE TIME OF COMPACTION SHALL BE WITHIN A RANGE OF -0 TO +4 PERCENT OF OPTIMUM MOISTURE CONTENT.

1

EARTHWORK QUANTITIES		
LOCATION	CUT (C.Y.)	FILL (C.Y.)
STREET	853	4,803
SITE	119,922	77,247
TOTAL	120,775	82,050

EARTHWORK QUANTITIES NOTES:
1. EARTHWORK QUANTITIES BASED ON FINISHED GRADE SURFACE AND DO NOT INCLUDE ADJUSTMENTS FOR TOPSOIL AND SHRINKAGE.

2. EARTHWORK QUANTITIES DO NOT TAKE INTO CONSIDERATION EXCAVATION, REMOVAL AND DISPOSAL OF MATERIAL DEEMED UNSUITABLE BY A GEOTECHNICAL ENGINEER. THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR EXCAVATION, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL AND FOR REPLACING IT WITH SUITABLE MATERIAL.

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SHEET
C301

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GRD01_ B190012.dwg ~ Layout: GRADING PLAN ~ Last Saved By: mdlebolt ~ Plot Date: 2019.10.01 03:03 PM

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LEGEND	
TC–	TOP OF CURB
PV–	TOP OF PAVEMENT
SW–	SIDEWALK
TE–	TOP ELEVATION OF STRUCTURE
TS–	TOP OF STEPS
BS–	BOTTOM OF STEPS
TW–	PROPOSED GRADE AT TOP OF WALL
BW–	PROPOSED GRADE AT BOTTOM OF WALL

CONSTRUCTION LEGEND

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1 PROPOSED RETAINING WALL (PLAN BY OTHERS)

FUTURE BUILDING 11
FFE=942.00

FUTURE BUILDING 12
FFE=935.25

FUTURE GARAGE
FFE=940.30

FUTURE GARAGE
FFE=942.13

FUTURE GARAGE
FFE=944.15

FUTURE TRASH

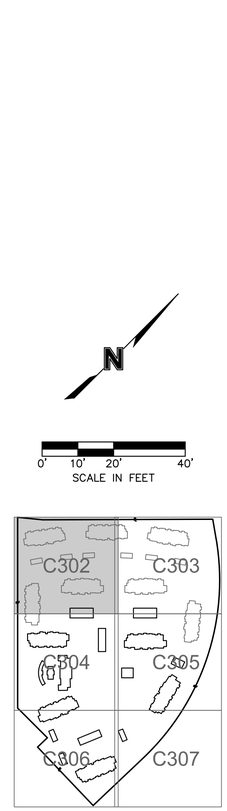
FUTURE BUILDING 10
FFE=947.25

FUTURE BUILDING 9
FFE=949.30

PROPOSED GARAGE

RIBBON CURB

SEE ADA DETAIL 3 ON SHEET C308



SPOT ELEVATION KEY MAP
NOT TO SCALE

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TEL 816.361.1177
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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

SPOT ELEVATION PLAN
SITE DEVELOPMENT PLANS

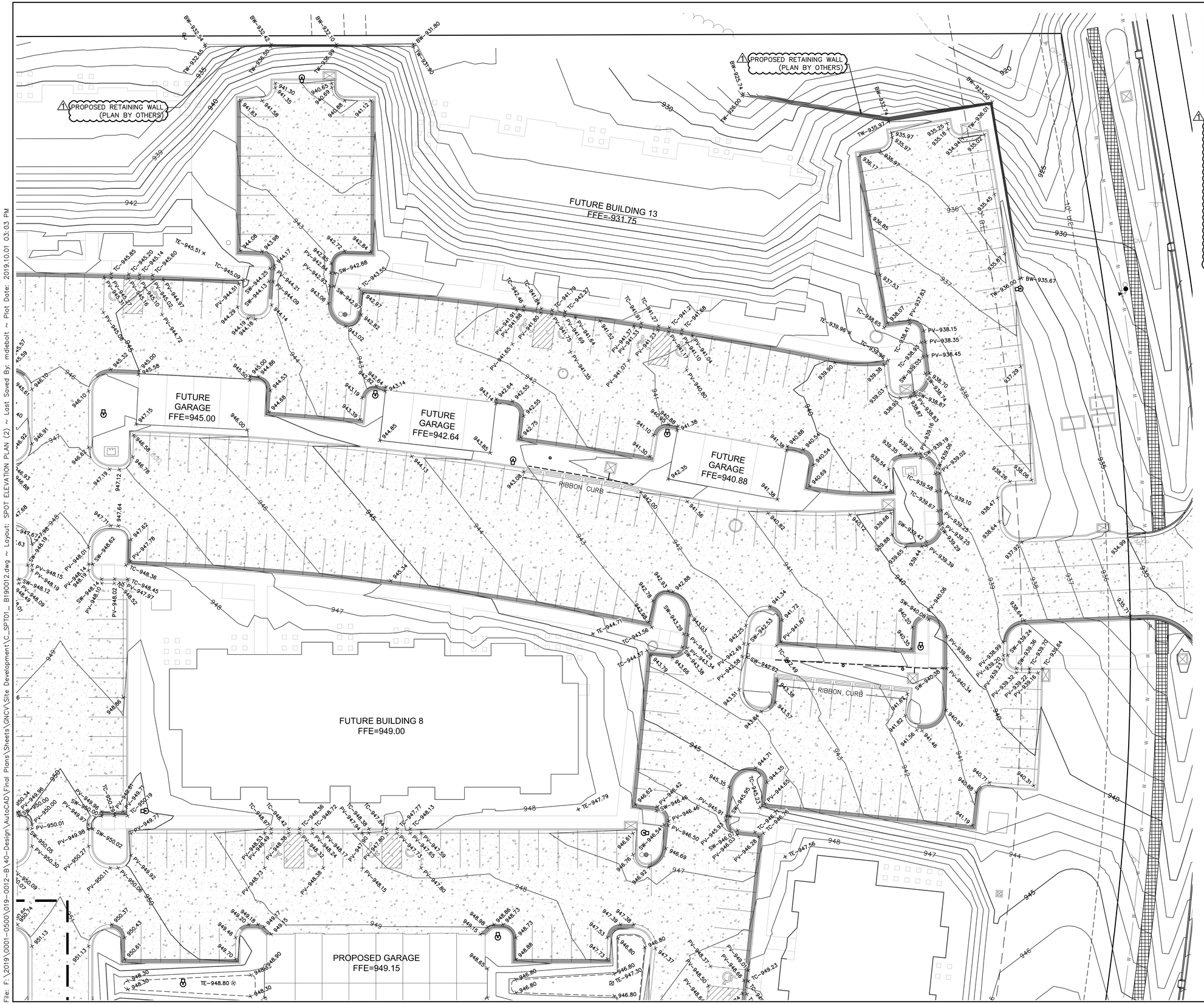
ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C302

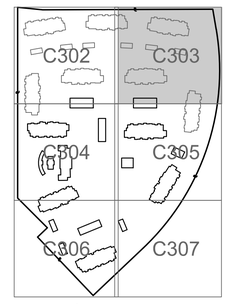


LEGEND	
TC–	TOP OF CURB
PV–	TOP OF PAVEMENT
SW–	SIDEWALK
TE–	TOP ELEVATION OF STRUCTURE
TS–	TOP OF STEPS
BS–	BOTTOM OF STEPS
TW–	PROPOSED GRADE AT TOP OF WALL
BW–	PROPOSED GRADE AT BOTTOM OF WALL

CONSTRUCTION LEGEND

- STD. DUTY CONCRETE PAVEMENT (See Detail Sheet)
- HEAVY DUTY CONCRETE PAVEMENT (See Detail Sheet)
- CG–1 CURB & GUTTER (See Detail Sheet)
- CG–1 DRY CURB & GUTTER (See Detail Sheet)
- RIBBON CURB (See Detail Sheet)

0' 10' 20' 40'
SCALE IN FEET



SPOT ELEVATION KEY MAP
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SHEET
C303

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_SP101_ B190012.dwg ~ Layout: SPOT ELEVATION PLAN (2) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

PROPOSED GARAGE
FFE=949.75

PROPOSED BUILDING 2
FFE=950.25

PROPOSED GARAGE
FFE=952.50

PROPOSED BUILDING 1
(CLUBHOUSE)
FFE=954.90

PROPOSED BUILDING 3
FFE=955.55

PROPOSED GARAGE
FFE=958.25

COMMON AREA
FFE=953.40

RIBBON CURB

PROPOSED RETAINING WALL (PLAN BY OTHERS)

SEE ADA DETAIL 1 ON SHEET C308

SEE ADA DETAIL 2 ON SHEET C308

SEE ADA DETAIL 3 ON SHEET C308

SEE ADA DETAIL 6 ON SHEET C310

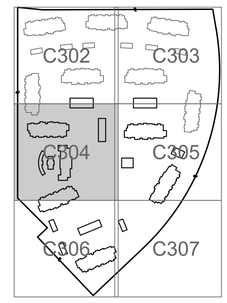
LEGEND	
TC–	TOP OF CURB
PV–	TOP OF PAVEMENT
SW–	SIDEWALK
TE–	TOP ELEVATION OF STRUCTURE
TS–	TOP OF STEPS
BS–	BOTTOM OF STEPS
TW–	PROPOSED GRADE AT TOP OF WALL
BW–	PROPOSED GRADE AT BOTTOM OF WALL

CONSTRUCTION LEGEND

- STD. DUTY CONCRETE PAVEMENT (See Detail Sheet)
- HEAVY DUTY CONCRETE PAVEMENT (See Detail Sheet)
- CG–1 CURB & GUTTER (See Detail Sheet)
- CG–1 DRY CURB & GUTTER (See Detail Sheet)
- RIBBON CURB (See Detail Sheet)

0' 10' 20' 40'
SCALE IN FEET

SPOT ELEVATION KEY MAP
NOT TO SCALE



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ARIA APARTMENTS
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SHEET
C304

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_SPT01_ B190012.dwg ~ Layout: SPOT ELEVATION PLAN (3) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

LEGEND	
TC–	TOP OF CURB
PV–	TOP OF PAVEMENT
SW–	SIDEWALK
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TS–	TOP OF STEPS
BS–	BOTTOM OF STEPS
TW–	PROPOSED GRADE AT TOP OF WALL
BW–	PROPOSED GRADE AT BOTTOM OF WALL

CONSTRUCTION LEGEND

- STD. DUTY CONCRETE PAVEMENT (See Detail Sheet)
- HEAVY DUTY CONCRETE PAVEMENT (See Detail Sheet)
- CG-1 CURB & GUTTER (See Detail Sheet)
- CG-1 DRY CURB & GUTTER (See Detail Sheet)
- RIBBON CURB (See Detail Sheet)

PROPOSED GARAGE FFE=949.15

PROPOSED BUILDING 6 FFE=956.25

PROPOSED GARAGE FFE=956.90

PROPOSED GARAGE FFE=955.30

PROPOSED BUILDING 5 FFE=960.00

FUTURE BUILDING 7 FFE=950.50

PROPOSED RETAINING WALL (PLAN BY OTHERS)

PROPOSED RETAINING WALL (PLAN BY OTHERS)

RIBBON CURB

CONSTRUCT 8 STEPS

CONSTRUCT 8 STEPS

SEE ADA DETAIL 6 ON SHEET C309

SEE ADA DETAIL 5 ON SHEET C309

SEE ADA DETAIL 7 ON SHEET C309

SEE ADA DETAIL 4 ON SHEET C309

TRACT 2 979,966 SQ.FT. 22.50 ACRES

NE DOUGLAS ST

0' 10' 20' 40'
SCALE IN FEET

C302 C303 C304 C305 C306 C307

SPOT ELEVATION KEY MAP
NOT TO SCALE

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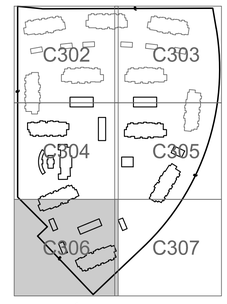
SHEET
C305

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_SPT01_ B190012.dwg ~ Layout: SPOT ELEVATION PLAN (4) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

LEGEND	
TC–	TOP OF CURB
PV–	TOP OF PAVEMENT
SW–	SIDEWALK
TE–	TOP ELEVATION OF STRUCTURE
TS–	TOP OF STEPS
BS–	BOTTOM OF STEPS
TW–	PROPOSED GRADE AT TOP OF WALL
BW–	PROPOSED GRADE AT BOTTOM OF WALL

CONSTRUCTION LEGEND	
	STD. DUTY CONCRETE PAVEMENT (See Detail Sheet)
	HEAVY DUTY CONCRETE PAVEMENT (See Detail Sheet)
	CG-1 CURB & GUTTER (See Detail Sheet)
	CG-1 DRY CURB & GUTTER (See Detail Sheet)
	RIBBON CURB (See Detail Sheet)

0' 10' 20' 40'
SCALE IN FEET



SPOT ELEVATION KEY MAP
NOT TO SCALE

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project no.: 019-0012-B
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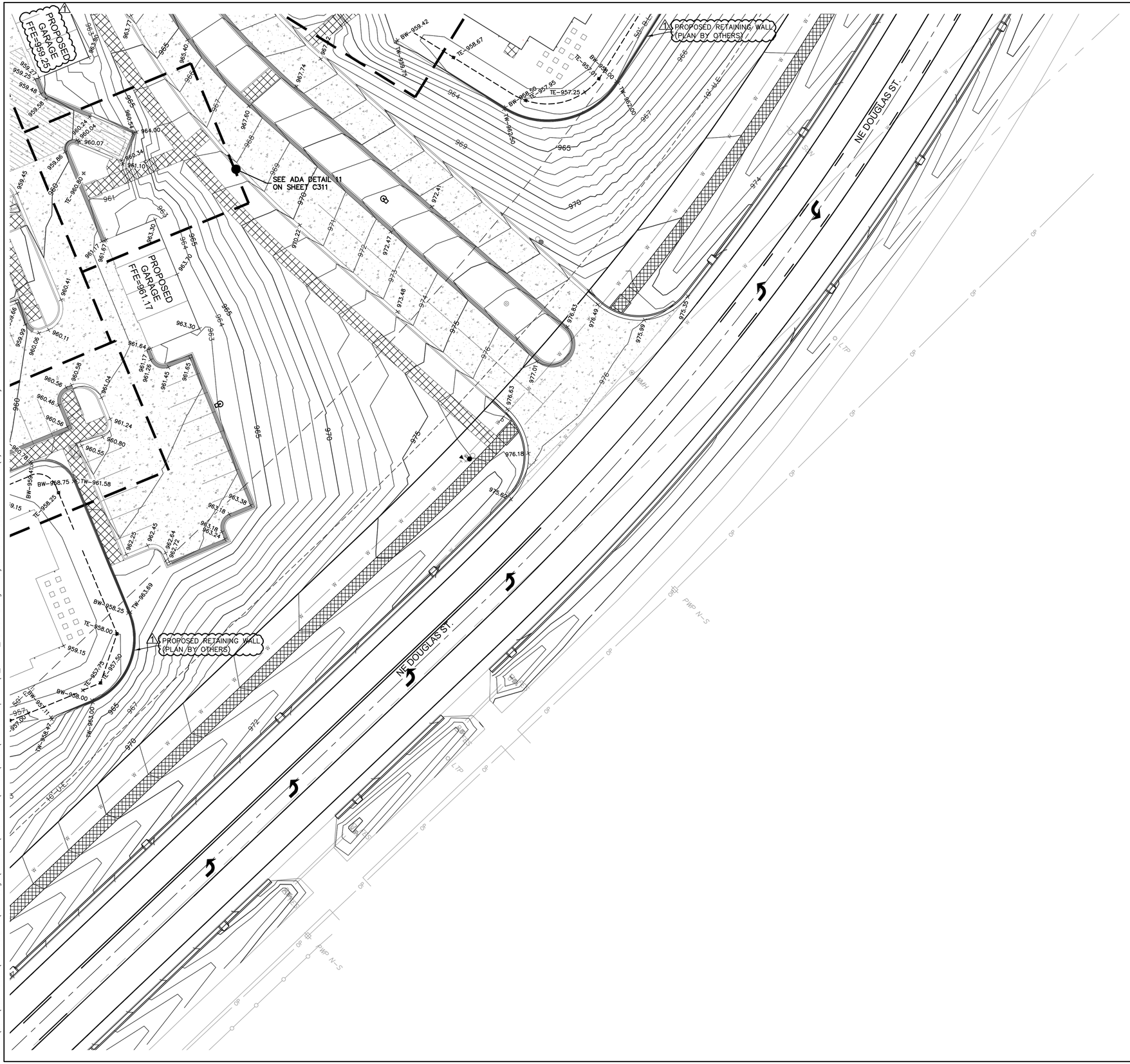
SHEET
C306

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_SP101_ B190012.dwg ~ Layout: SPOT ELEVATION PLAN (5) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM


PROPOSED GARAGE FFE=959.25
PROPOSED GARAGE FFE=961.17
SEE ADA DETAIL 11 ON SHEET C311
PROPOSED RETAINING WALL (PLAN BY OTHERS)
PROPOSED RETAINING WALL (PLAN BY OTHERS)
NE DOUGLAS ST.
NE DOUGLAS ST.
BW=959.42
TW=959.75
TE=958.67
BW=958.50
TE=957.85
TE=957.25
BW=958.00
TW=962.00
TW=962.50
BW=958.75
TW=961.58
BW=958.25
TW=963.69
TE=958.00
TE=957.75
TE=957.50
BW=958.00
TW=963.00
TE=957.70
16' U/E
959.15
960.07
960.34
961.10
960.41
960.11
961.64
961.17
961.26
961.45
961.65
961.04
960.58
960.56
960.46
960.56
961.24
960.80
960.55
963.38
963.18
963.18
963.24
962.25
962.45
962.64
962.72
963.30
963.70
964.00
967.60
967.74
972.41
972.41
973.48
976.83
976.49
975.89
975.35
977.01
976.63
976.18
976.62
970.22
959.27
959.22
959.48
959.38
959.86
959.45
959.66
959.99
960.06
960.60
960.58
960.41
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963.89
965.40
965.40
963.30
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963.30
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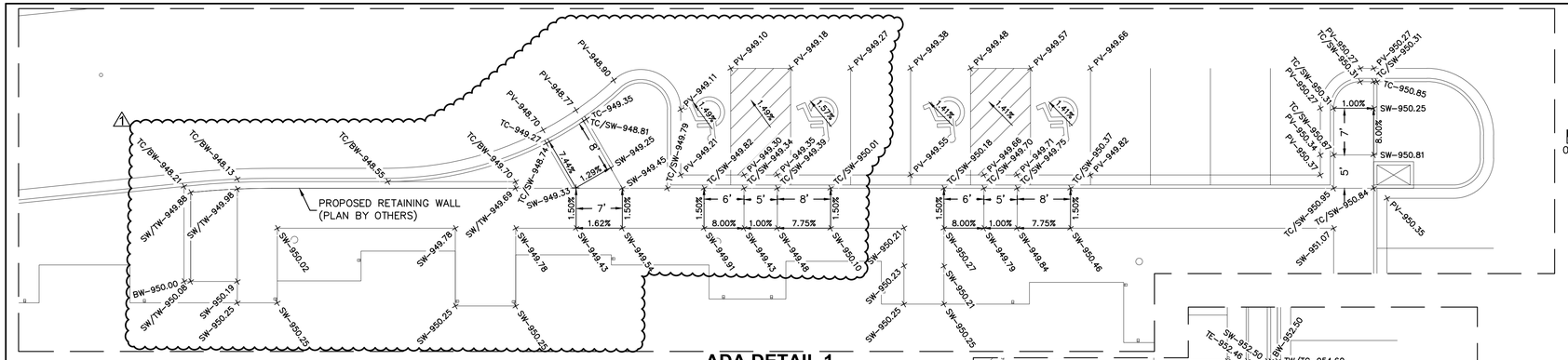
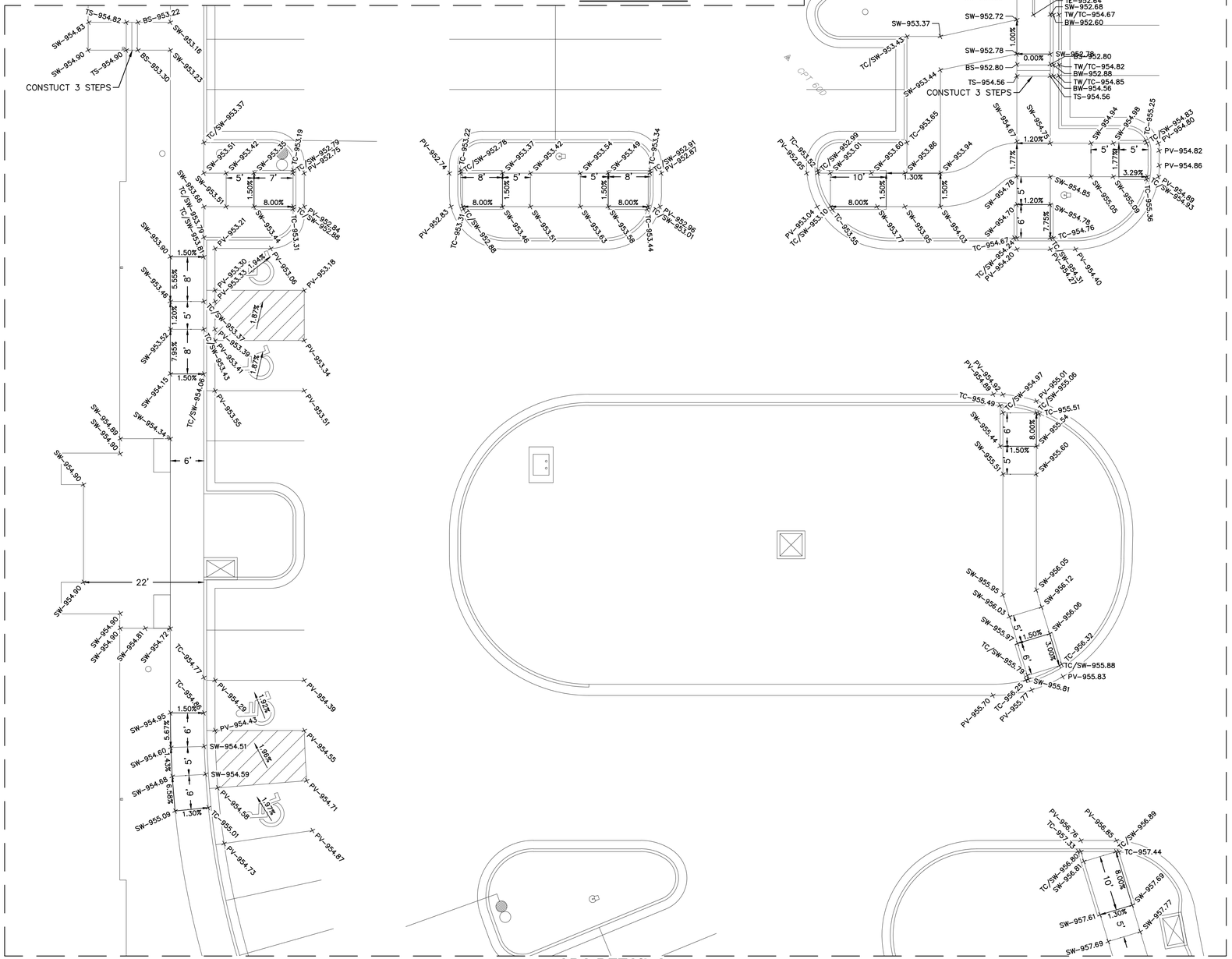


ADA DETAIL 1



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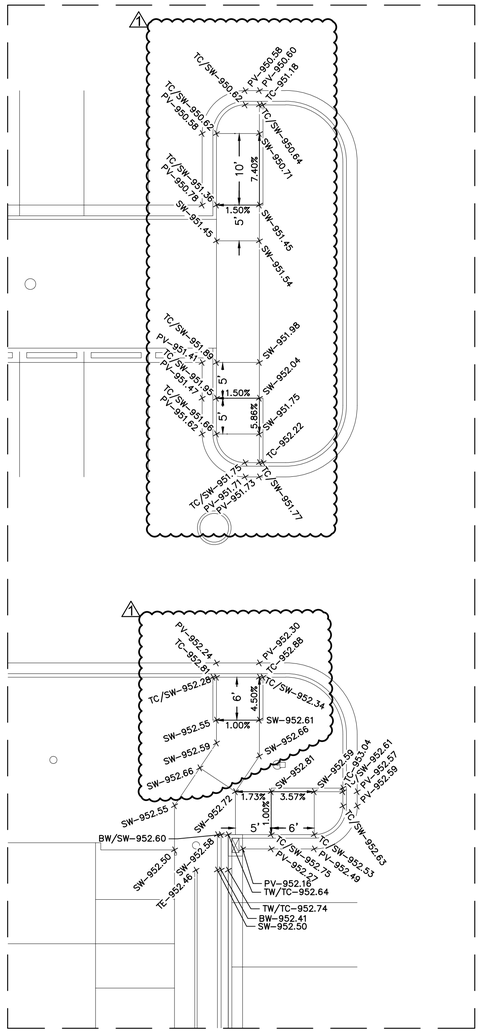

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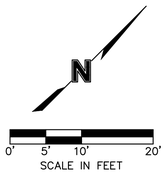

LEGEND	
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PV–	TOP OF PAVEMENT
SW–	SIDEWALK
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ADA DETAILS
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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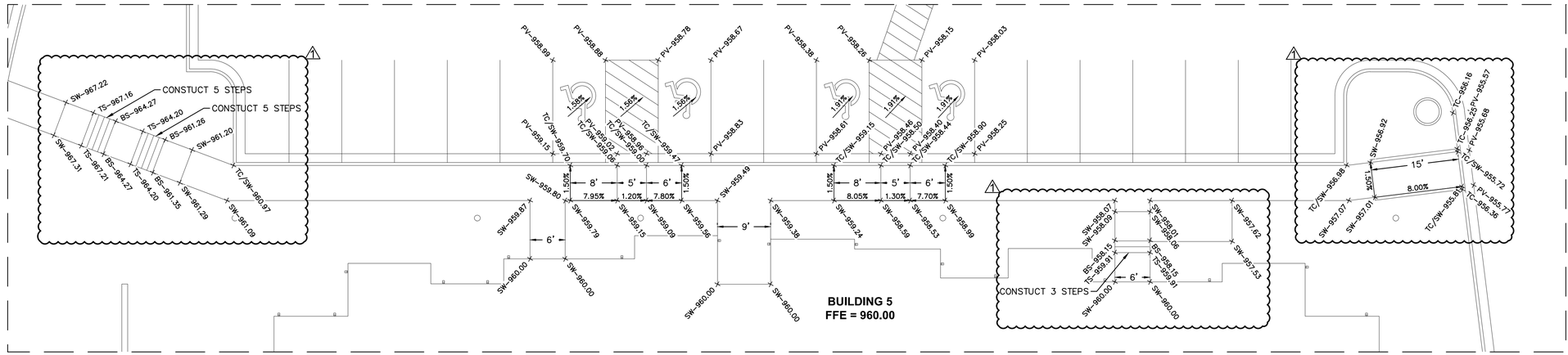
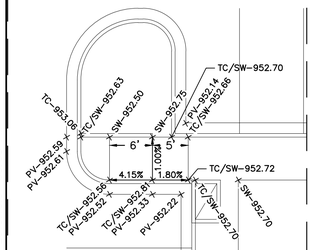
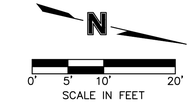
SHEET
C308

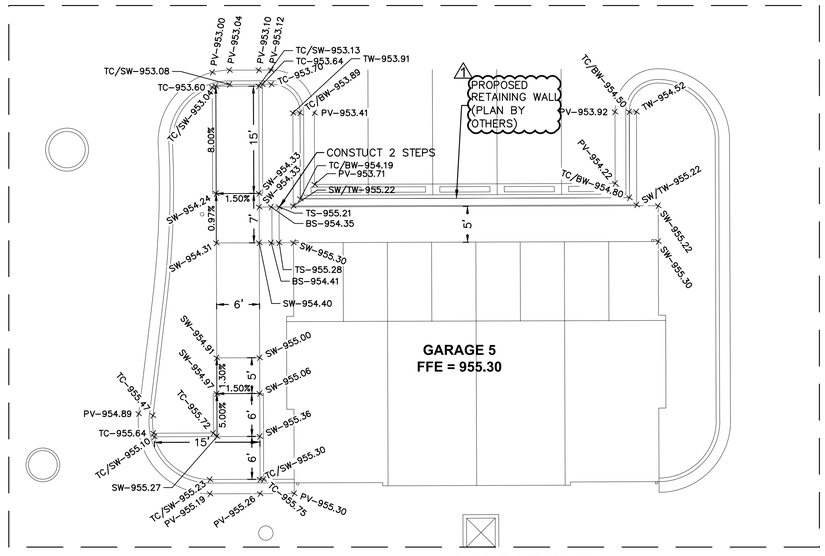
File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_ADA01_ B190012.dwg ~ Layout: ADA DETAILS ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



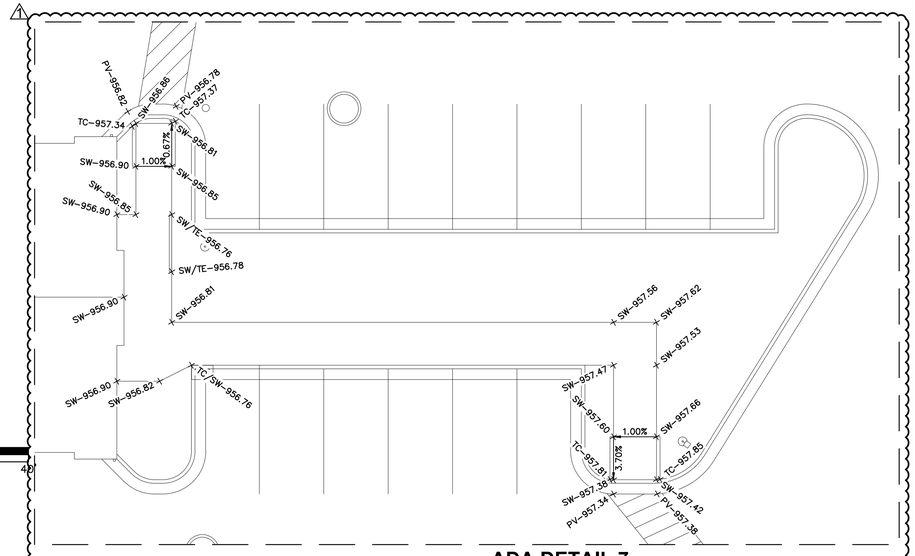
ADA DETAIL 4







ADA DETAIL 5



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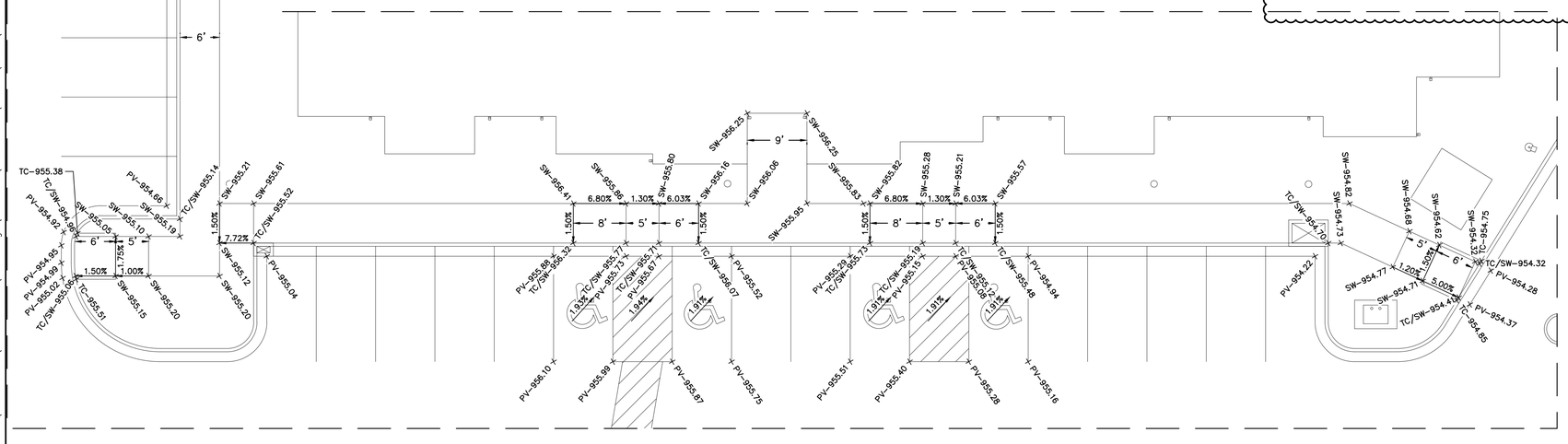
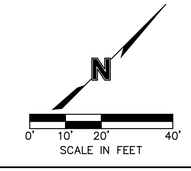


ADA DETAIL 6



LEGEND	
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PV–	TOP OF PAVEMENT
SW–	SIDEWALK
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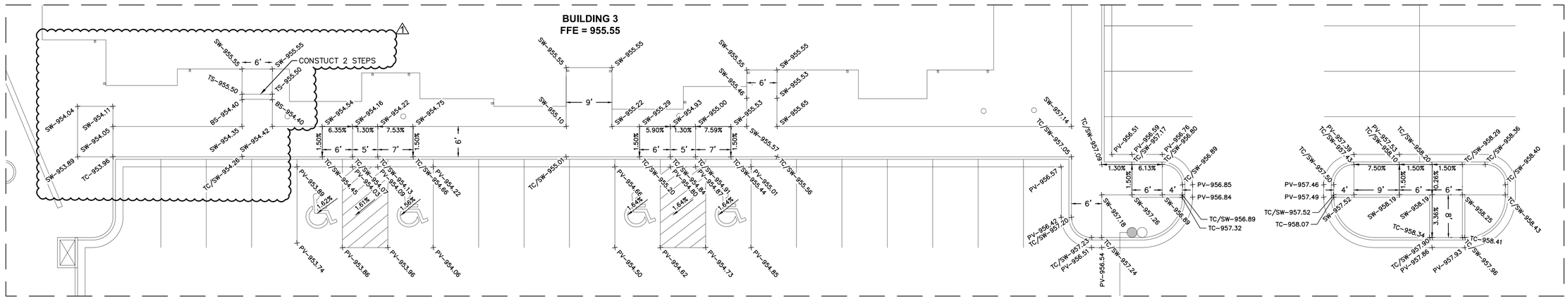
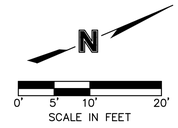
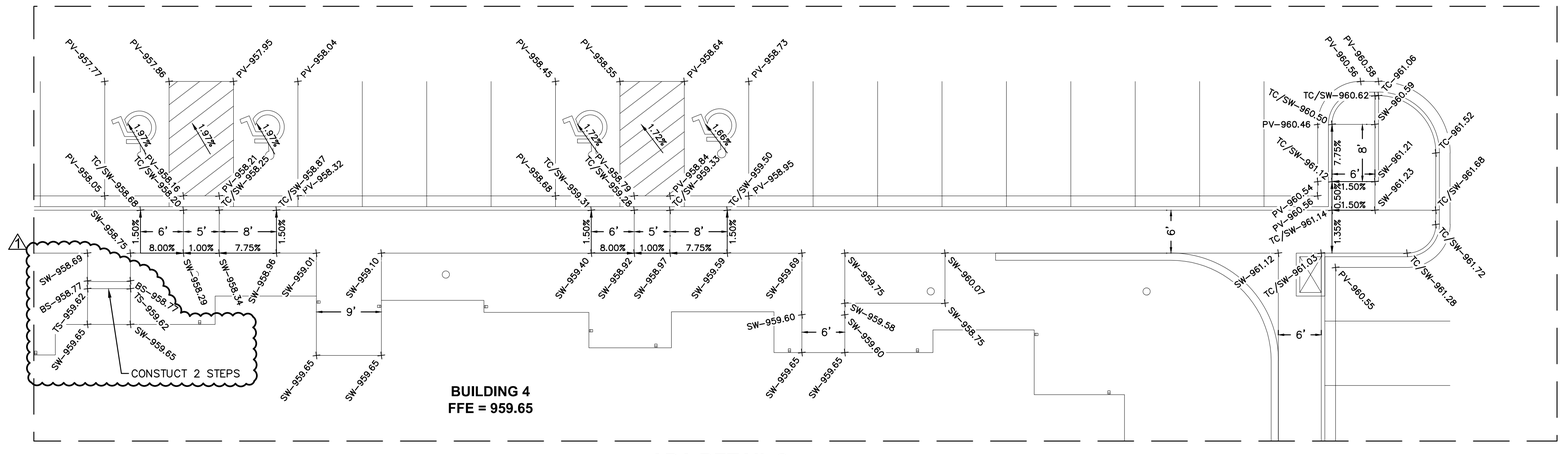
SHEET
C309

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_ADA01_ B190012.dwg ~ Layout: ADA DETAILS (2) ~ Last Saved By: mdlebolt ~ Plot Date: 2019.10.01 03:03 PM

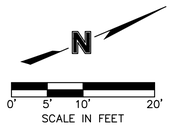


ADA DETAIL 8





ADA DETAIL 9



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NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

ADA DETAILS
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

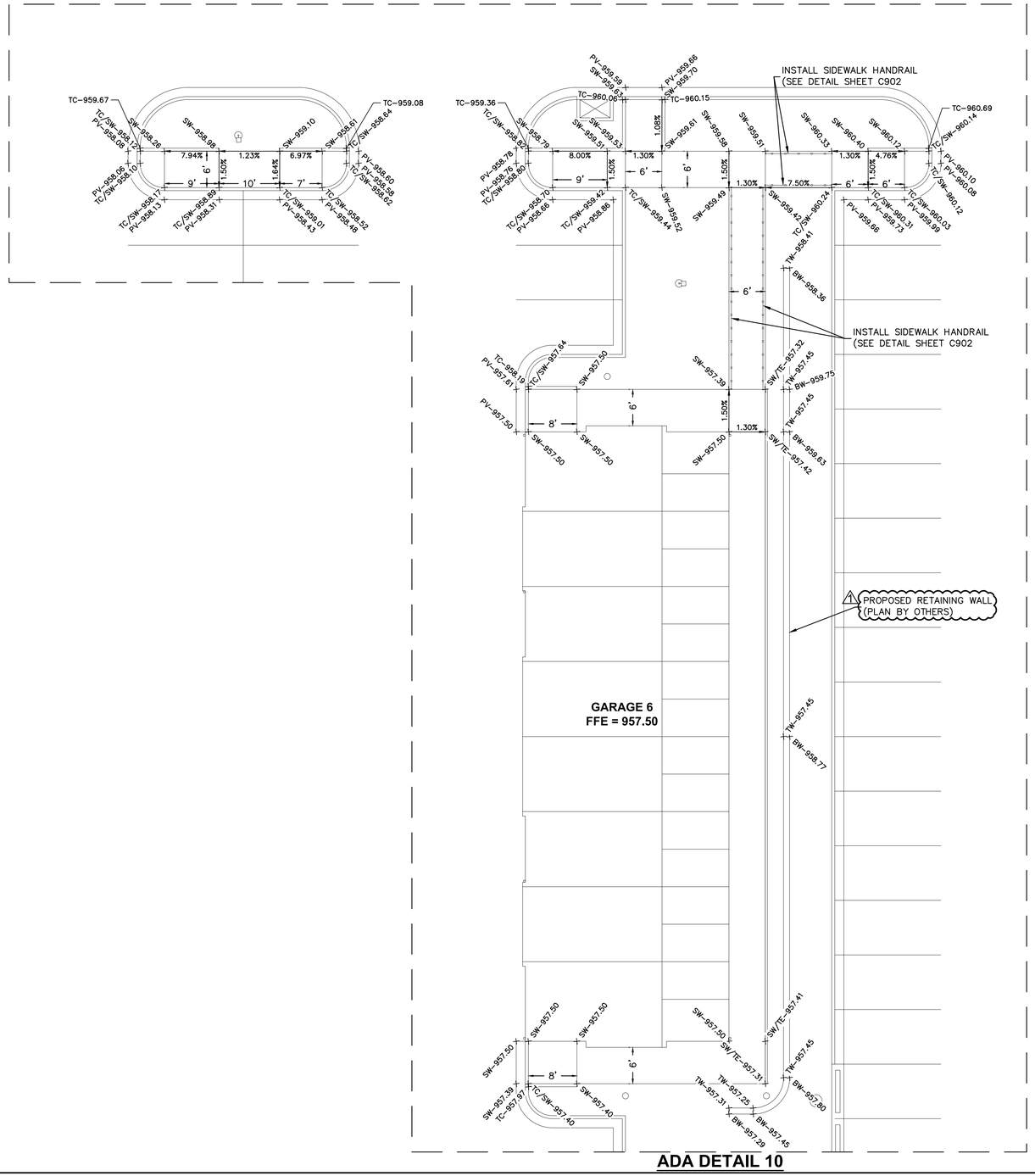
2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

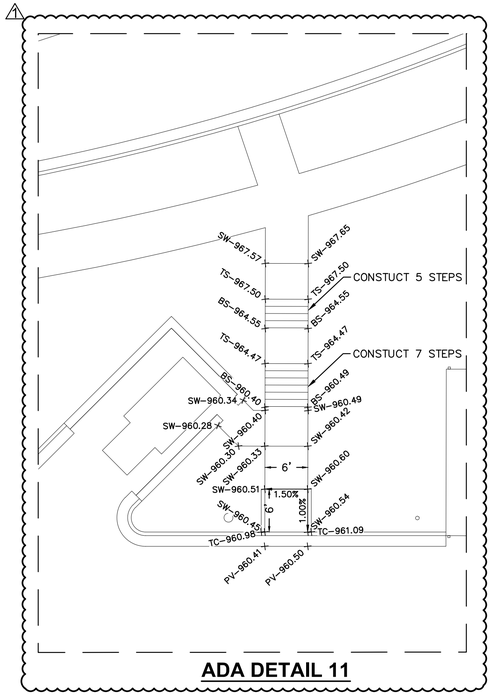
SHEET
C310

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_ADA01_ B190012.dwg ~ Layout: ADA DETAILS (3) ~ Last Saved By: mdlebolt ~ Plot Date: 2019.10.01 03:03 PM

LEGEND	
TC–	TOP OF CURB
PV–	TOP OF PAVEMENT
SW–	SIDEWALK
TE–	TOP ELEVATION OF STRUCTURE
TS–	TOP OF STEPS
BS–	BOTTOM OF STEPS
TW–	PROPOSED GRADE AT TOP OF WALL
BW–	PROPOSED GRADE AT BOTTOM OF WALL



ADA DETAIL 10



ADA DETAIL 11

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1301 BURLOW ROAD, SUITE 100
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TEL 816.361.1177
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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

ADA DETAILS
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C311

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_ADA01_ B190012.dwg ~ Layout: ADA DETAILS (4) ~ Last Saved By: mdlebolt ~ Plot Date: 2019.10.01 03:03 PM

FUTURE BUILDING 11

FUTURE BUILDING 12

FUTURE BUILDING 10

FUTURE BUILDING 9

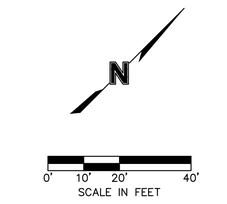
PROPOSED GARAGE

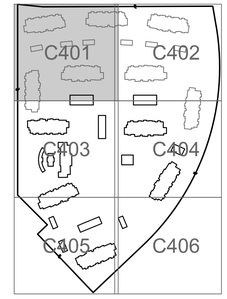
FUTURE GARAGE

FUTURE GARAGE

FUTURE GARAGE

27.93'
44.09'
30.00'
4.00'
4.00'
12.00'
13.50'
22.65'
20.02'
26.00'
73.00'
73.00'
21.50'
20.44'
18.0
11.94'
R=4.00'
L=6.24'
(TYP.)
12.01'
13.99'
R=185.00'
L=11.75'
R=215.00'
L=14.12'
R=8.00'
L=12.47'
4.83'
R=3.00'
L=4.71'
R=4.00'
L=6.27'
7.35'
12.01'
6.0'
8.0'
5.0'
219.03'
R=1933.00'
L=219.03'
9.00'
6.0'
9.0'
5.0'
236.14'
R=1933.00'
L=237.20'
8.0'
6.0'
5.0'
R=3.00'
L=4.71'
19.34'
R=4.00'
L=3.10'
R=20.00'
L=15.26'
26.00'
R=1871.00'
L=72.98'
7.95'
12.08'
R=1887.00'
L=2.67'
R=1871.00'
L=36.99'
11.99'
9'
R=1887.00'
L=2.67'
R=4.00'
L=6.29'
3.01'
R=1871.00'
L=54.99'
R=1887.00'
L=4.36'
R=4.00'
L=6.29'
R=8.00'
L=12.52'
11.99'
23.27'
50.98'
54.56'
23.27'
11.99'
9'
11.99'
9'
20.52'
26.00'
R=8.00'
L=12.81'
26.00'
25.97'
54.56'
12.06'
R=8.00'
L=12.32'
3.02'
23.27'
28.14'
12.00'
FUTURE GARAGE
50.98'
11.99'
23.27'
9'
291.81'
R=1862.00'
L=132.01'
18.00'
9.00'
12.03'
R=1845.48'
L=4.33'
R=8.00'
L=12.61'
26.00'
55.97'
26.00'
46.00'
12.05'
1'
R=8.00'
L=12.28'
R=10.00'
L=7.45'
R=2.00'
L=3.62'
26.00'
19'
R=8.00'
L=13.81'
3.71'
12.00'
6.88'
12.00'
53.50'
R=8.00'
L=11.51'
R=1800.00'
L=234.94'
18.00'
R=1816.00'
L=4.43'
R=8.00'
L=12.52'
R=8.00'
L=12.78'
R=1440.00'
L=3.46'
11.99'
10'
234.94'
12.34'
10.6'
11.49'
12.00'
R=4.00'
L=6.28'
(TYP.)
12.00'
48.37'
18.00'
26.00'
18.00'
91.00'
109.00'
109.00'
171.50'
12.00'
14.08'
6.0'
8.0'
5.0'
226.00'
10'
10'
R=8.00'
L=12.57'
9.00'
18.00'
26.00'
5.66'
R=8.00'
L=12.57'
3.56'
R=8.00'
L=12.57'
R=4.
L=6.
(TYP
4.26'
3.66'
55.00'
6.00'
(TYP.)
54.95'
8.0'
6.0'





SITE GEOMETRY KEY MAP
NOT TO SCALE

olsson
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KS CERTIFICATE OF AUTHORITY #:E-1253
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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

GEOMETRIC PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by:	M.J.D.
checked by:	N.D.H.
designed by:	M.J.D.
QA/QC by:	N.D.H.
project no.:	019-0012-B
date:	2020.08.27

SHEET
C401

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GE001_ B190012.dwg ~ Layout: GEOMETRIC PLAN ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

FUTURE BUILDING 13

FUTURE BUILDING 8

FUTURE GARAGE

FUTURE GARAGE

FUTURE GARAGE

PROPOSED GARAGE

REFER TO PUBLIC STREET & STORM PLANS FOR ENTRANCE CONSTRUCTION WITHIN PUBLIC R/W.

SCALE IN FEET

0' 10' 20' 40'

SITE GEOMETRY KEY MAP
NOT TO SCALE

C401 C402 C403 C404 C405 C406

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	01 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

GEOMETRIC PLAN (2)
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C402

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GE001_ B190012.dwg ~ Layout: GEOMETRIC PLAN (2) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

PROPOSED GARAGE

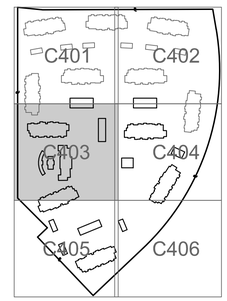
PROPOSED BUILDING 2

PROPOSED GARAGE

PROPOSED BUILDING 1
(CLUBHOUSE)

PROPOSED BUILDING 3

SCALE IN FEET
0' 10' 20' 40'



SITE GEOMETRY
KEY MAP
NOT TO SCALE

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KS CERTIFICATE OF AUTHORITY #:E-1255
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NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

GEOMETRIC PLAN (3)
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C403

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GE001_ B190012.dwg ~ Layout: GEOMETRIC PLAN (3) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

PROPOSED GARAGE

PROPOSED BUILDING 6

TRACT B
979,988 SQFT +/-
22.50 AC +/-

FUTURE BUILDING 7

PROPOSED GARAGE

PROPOSED GARAGE

PROPOSED BUILDING 5

55.00' 11.99' 18.00' 12.00' 3.66' 4.31' 46.00' 12.00' 3.66' 4.20' 12.00' 2.69' 26.00' R=8.00' L=11.74' R=8.00' L=12.57' 15.0' 8.0' 16' 9.00' 15.0' 6.0' 8.0' 9.00' 208.00' 15.37' 2.18' 15.39' 198.79' 12.00' 10' 12.00' 18.00' 26.00' 127.00' 80.40' 12.00' 3.91' 12.00' R=8.00' L=9.93' 10' 91.00' R=98.00' L=44.35' R=8.00' L=12.93' R=128.00' L=21.56' 5.84' 26.00' 17.19' 14.75' 95.12' 12.00' 16.46' 6.00' (TYP.) 33.88' R=4.00' L=6.28' R=8.00' L=12.57' 46.00' 12.00' 39.19' 26.00' 11.77' 50.98' 110.00' 26.00' R=8.00' L=12.57' R=8.00' L=13.55' R=8.00' L=8.12' 2.66' 12.00' 163.00' 18.00' 9.00' 7' 10.2' R=4.00' L=6.28' (TYP.) R=13.00' L=20.42' 26.00' 2.64' 3.79' 1.48' 2.96' R=13.00' L=21.25' R=8.00' L=11.58' R=8.00' L=17.02' 6' 12.00' 82.00' 18.00' 9.00' 40.62' 122.44' R=298.00' L=25.77' 4.24' 55.00' 18.00' 12.00' 9.00' 26.00' 3.41' 1.16' 5.55' R=13.00' L=18.09' R=8.00' L=8.12' R=13.00' L=20.15' R=4.00' L=2.35' 1.05' R=7.00' L=14.89' 12.00' 82.00' 18.00' 12.00' 22.34' 1.37' R=297.00' L=5.99' 9.00' R=298.00' L=136.70' R=318.00' L=163.61' 35.00' 12.00' 4.00' 30.00' 4.00' 12.00' R=352.00' L=225.11' R=200.00' L=77.76'

SCALE IN FEET
0' 10' 20' 40'

C401 C402 C403 C404 C405 C406

SITE GEOMETRY KEY MAP
NOT TO SCALE

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

GEOMETRIC PLAN (4)
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

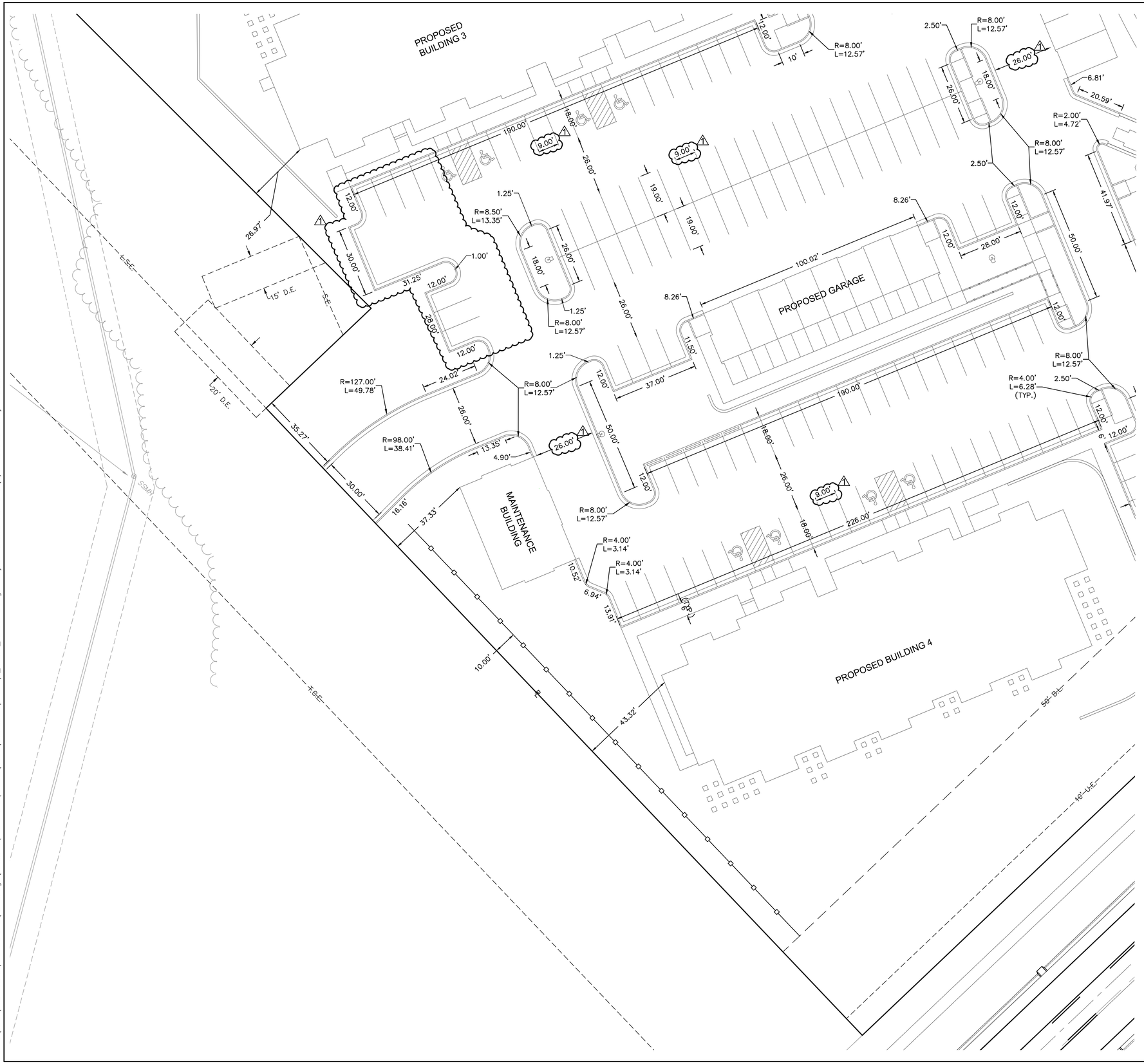
LEE'S SUMMIT, MO

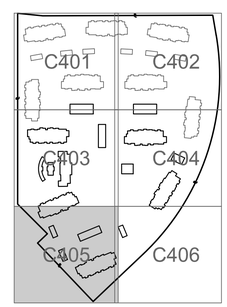
2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C404

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GE001_ B190012.dwg ~ Layout: GEOMETRIC PLAN (4) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM





0' 10' 20' 40'
SCALE IN FEET

SITE GEOMETRY KEY MAP
NOT TO SCALE

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

GEOMETRIC PLAN (5)
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

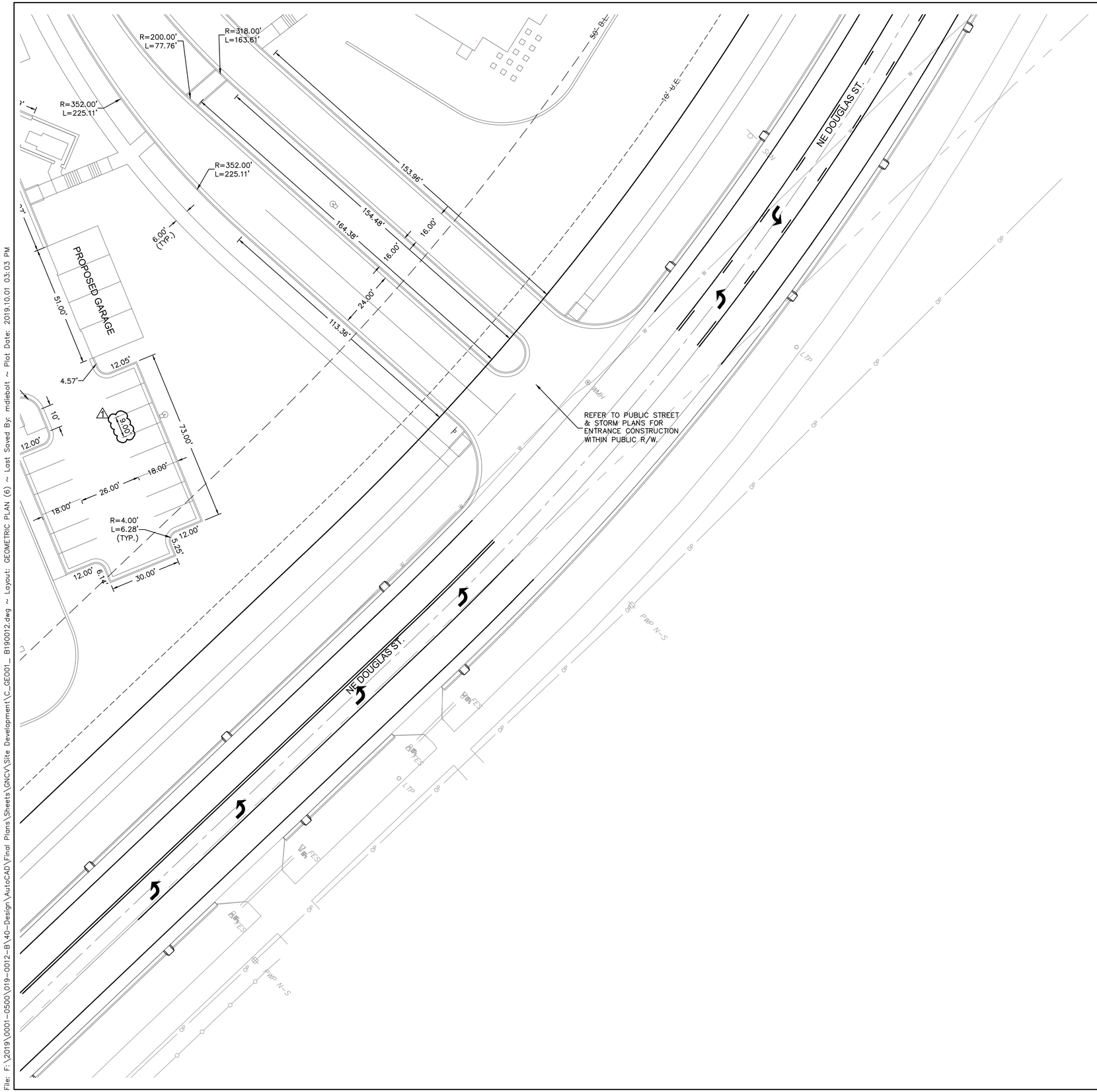
LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C405

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GE001_ B190012.dwg ~ Layout: GE001 ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GE001_ B190012.dwg ~ Layout: GEOMETRIC PLAN (6) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

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NUMBER PE-2015000555
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NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
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REVISIONS

GEOMETRIC PLAN (6)
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C406

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GEN04_ B1900012.dwg ~ Layout: STORMWATER MANAGEMENT PLAN ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

BMM5 SQ W EGELL

BLDG 11 (FUTURE)

BLDG 12 (FUTURE)

BLDG 13 (FUTURE)

BLDG 9 (FUTURE)

BLDG 8 (FUTURE)

BLDG 10 (FUTURE)

BLDG 7 (FUTURE)

BLDG 6

BLDG 2

9-4 A=0.23 ac. C=0.85

9-5 A=0.06 ac. C=0.90

8-4 A=0.06 ac. C=0.90

8-3 A=0.17 ac. C=0.88

10-3 A=0.85 ac. C=0.85

9-6 A=0.28 ac. C=0.85

8-5 A=0.18 ac. C=0.85

1-3 A=0.12 ac. C=0.90

1-2 A=0.38 ac. C=0.82

1-4 A=0.50 ac. C=0.80

1-6 A=0.03 ac. C=0.90

9-7 A=0.34 ac. C=0.83

11-1 A=0.56 ac. C=0.85

4-1 A=0.43 ac. C=0.82

1-5 A=0.56 ac. C=0.80

19-1 A=0.07 ac. C=0.88

9-8 A=0.09 ac. C=0.90

9-9 A=0.09 ac. C=0.90

3-1 A=0.23 ac. C=0.75

1-8 A=0.58 ac. C=0.85

10-5 A=0.58 ac. C=0.85

10-6 A=0.57 ac. C=0.85

2-1 A=0.41 ac. C=0.80

10-8 A=0.05 ac. C=0.90

10-7 A=0.[illegible] C=0.[illegible]

12-1 A=0.08 ac. C=0.88

13-1 A=0.16 ac. C=0.60

5-4 A=0.12 ac. C=0.75

1-9 A=0.34 ac. C=0.85

2-2 A=0.58 ac. C=0.50

5-1 A=0.18 ac. C=0.70

21-4 A=0.11 ac. C=0.85

12-2 A=0.16 ac. C=0.85

5-2 A=0.35 ac. C=0.70

1-8 A=0.06 ac. C=0.60

21-3 A=0.18 ac. C=0.85

12-3 A=0.04 ac. C=0.90

12-5 A=0.15 ac. C=0.90

12-6 A=0.21 ac. C=0.88

10-9 A=0.88 ac. C=0.82

21-2 A=0.66 ac. C=0.80

20-1 A=0.06 ac. C=0.90

1-14 A=0.82 ac. C=0.80

1-12 A=0.02 ac. C=0.90

1-11 A=0.57 ac. C=0.84

6-1 A=0.01 ac. C=0.90

1-15 A=0.03 ac. C=0.90

T.C.E.

T.S.E.

15' D.E.

15' S.E.

50' B.L.

SSMH

FND IRF

FND NE

0' 20' 40' 80'
SCALE IN FEET

N

olsson

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KS CERTIFICATE OF AUTHORITY # E-2014
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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

STORMWATER MANAGEMENT PLAN
SITE DEVELOPMENT PLANS

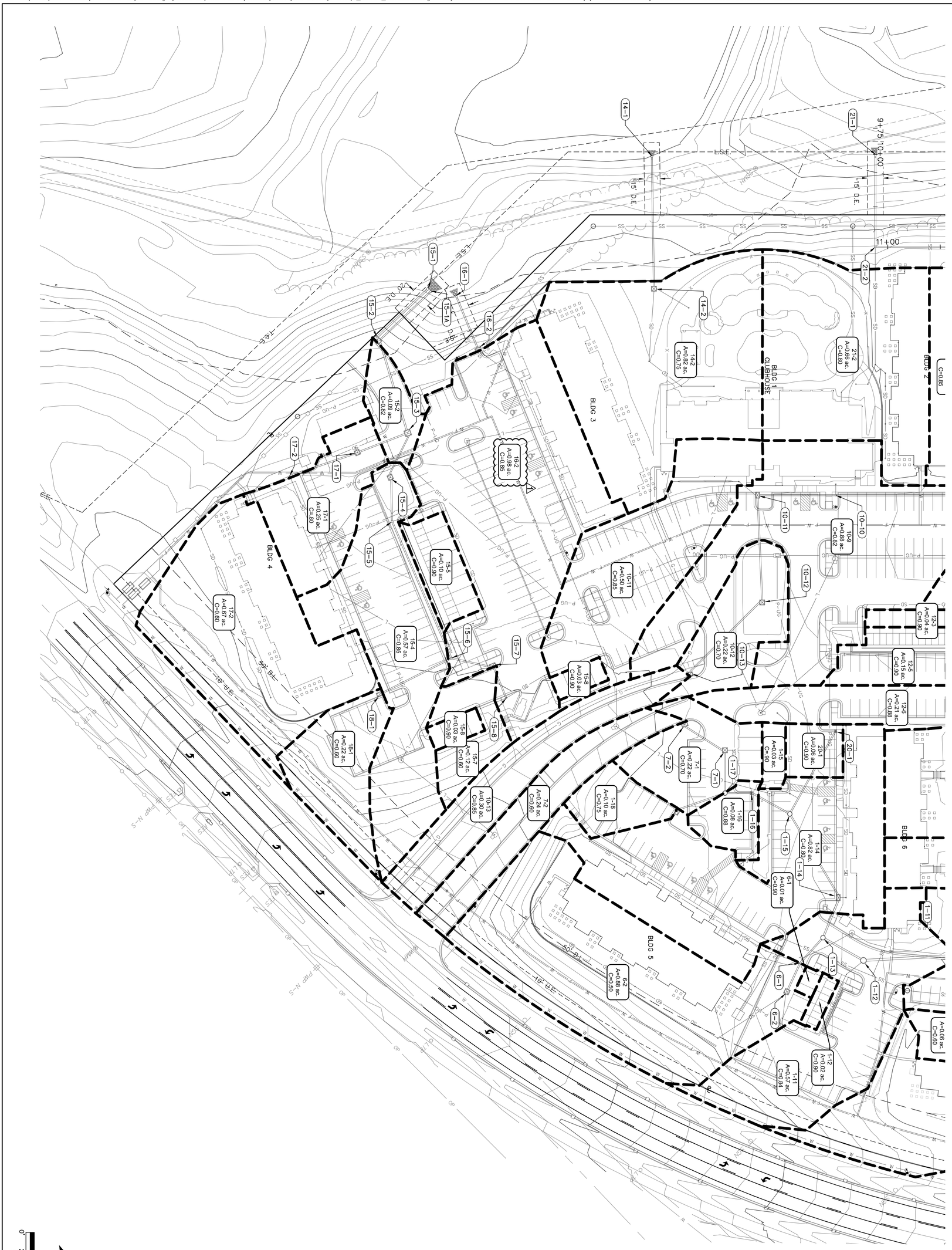
ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.06.12

SHEET
C501



SHEET
C502

STORMWATER MANAGEMENT PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

drawn by: M.A.D.
checked by: N.J.H.
designed by: M.A.D.
QA/QC by: N.J.H.
project no.: B190012.B
date: 2020.06.12

NICHOLAS D. HEBERER, P.E.
MO# 2015000555

STATE OF MISSOURI
NICHOLAS D. HEBERER
NUMBER
PE-2015000555
PROFESSIONAL ENGINEER
02/04/2021

olsson

OLSSON - CIVIL ENGINEERING
MO CERTIFICATE OF AUTHORITY #:001592
1301 BURLINGTON, SUITE 100
NORTH KANSAS CITY, MO 64116
TEL 816.361.1177
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Drainage Area Design Table

10 Year Return Frequency

Inlet ID	Drainage Area	C	Tc	i	K	Peak Flow
	(ac)		(min)	(in/hr)		(cfs)
1-2	0.38	0.82	5.00	7.35	1.00	2.29
1-3	0.12	0.90	5.00	7.35	1.00	0.79
1-4	0.50	0.80	5.00	7.35	1.00	2.94
1-5	0.47	0.80	5.00	7.35	1.00	2.76
1-6	0.03	0.90	5.00	7.35	1.00	0.20
1-8	0.64	0.85	5.00	7.35	1.00	4.00
1-9	0.34	0.85	5.00	7.35	1.00	2.13
1-11	0.57	0.84	5.00	7.35	1.00	3.52
1-12	0.02	0.90	5.00	7.35	1.00	0.13
1-14	0.82	0.80	5.00	7.35	1.00	4.82
1-15	0.03	0.90	5.00	7.35	1.00	0.20
1-16	0.14	0.88	5.00	7.35	1.00	0.91
1-18	0.10	0.75	5.00	7.35	1.00	0.55
2-1	0.41	0.80	5.00	7.35	1.00	2.41
2-2	0.58	0.50	5.00	7.35	1.00	2.13
3-1	0.23	0.75	5.00	7.35	1.00	1.27
4-1	0.43	0.82	5.00	7.35	1.00	2.59
5-1	0.18	0.70	5.00	7.35	1.00	0.93
5-2	0.35	0.70	5.00	7.35	1.00	1.80
5-4	0.12	0.75	5.00	7.35	1.00	0.66
6-1	0.01	0.90	5.00	7.35	1.00	0.07
6-2	0.88	0.50	5.00	7.35	1.00	3.24
7-1	0.22	0.70	5.00	7.35	1.00	1.13
7-2	0.24	0.60	5.00	7.35	1.00	1.06
8-3	0.17	0.88	5.00	7.35	1.00	1.10
8-4	0.06	0.90	5.00	7.35	1.00	0.40
8-5	0.18	0.85	5.00	7.35	1.00	1.13
9-4	0.23	0.85	5.00	7.35	1.00	1.44
9-5	0.06	0.90	5.00	7.35	1.00	0.40
9-6	0.28	0.85	5.00	7.35	1.00	1.75
9-7	0.34	0.83	5.00	7.35	1.00	2.08
9-8	0.09	0.90	5.00	7.35	1.00	0.60
9-9	0.09	0.90	5.00	7.35	1.00	0.60
10-3	0.89	0.85	5.00	7.35	1.00	5.56
10-5	0.58	0.85	5.00	7.35	1.00	3.63
10-6	0.57	0.85	5.00	7.35	1.00	3.56
10-7	0.12	0.75	5.00	7.35	1.00	0.66
10-8	0.05	0.90	5.00	7.35	1.00	0.33
10-9	0.88	0.82	5.00	7.35	1.00	5.31
10-11	0.50	0.85	5.00	7.35	1.00	3.13
10-12	0.22	0.75	5.00	7.35	1.00	1.21
10-13	0.30	0.85	5.00	7.35	1.00	1.88
11-1	0.56	0.85	5.00	7.35	1.00	3.50
12-1	0.08	0.88	5.00	7.35	1.00	0.52
12-2	0.16	0.85	5.00	7.35	1.00	1.00
12-3	0.04	0.90	5.00	7.35	1.00	0.26
12-5	0.15	0.90	5.00	7.35	1.00	0.99
12-6	0.21	0.88	5.00	7.35	1.00	1.36
13-1	0.16	0.60	5.00	7.35	1.00	0.71
14-2	0.82	0.75	5.00	7.35	1.00	4.52
15-2	0.09	0.82	5.00	7.35	1.00	0.54
15-4	0.57	0.85	5.00	7.35	1.00	3.56
15-5	0.10	0.90	5.00	7.35	1.00	0.66
15-7	0.12	0.60	5.00	7.35	1.00	0.53
15-8	0.05	0.90	5.00	7.35	1.00	0.40
16-2	0.98	0.85	5.00	7.35	1.00	6.13
17-1	0.25	0.80	5.00	7.35	1.00	1.47
17-2	0.67	0.60	5.00	7.35	1.00	2.96
18-1	0.22	0.60	5.00	7.35	1.00	0.97
19-1	0.07	0.88	5.00	7.35	1.00	0.45
20-1	0.06	0.90	5.00	7.35	1.00	0.40
21-2	0.66	0.80	5.00	7.35	1.00	3.88
21-3	0.18	0.85	5.00	7.35	1.00	1.13
21-4	0.11	0.85	5.00	7.35	1.00	0.69

Storm Sewer Design Calculation Table

10 Year Return Frequency

Upstream Structure	Downstream Structure	Length (ft)	Upstream Invert (ft)	Downstream Invert (ft)	Slope (%)	Diameter (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Struct. HGL (ft)	Upstream Top Elev. (ft)
1-2	1-1	33.35	921.67	919.00	8.01	24	0.012	11.09	6.29	34.31	1.27	944.08	952.14
1-3	1-2	105.47	927.63	923.67	3.75	30	0.012	43.33	13.79	69.33	1.96	923.63	935.46
1-4	1-3	27.74	928.68	928.13	2.00	30	0.012	41.04	17.32	86.09	2.15	929.78	939.31
1-5	1-4	53.79	930.26	929.18	2.00	30	0.012	40.25	11.72	62.56	2.13	930.81	939.36
1-6	1-5	71.06	934.39	931.08	4.66	30	0.012	37.31	10.99	62.95	2.07	932.33	940.25
1-7	1-6	83.31	938.57	937.74	1.00	30	0.012	28.29	11.58	95.89	1.81	936.20	941.24
1-8	1-7	67.19	937.24	934.89	3.50	30	0.012	25.50	9.34	44.35	1.72	940.29	947.18
1-9	1-8	73.04	939.80	939.07	1.00	24	0.012	25.50	9.77	83.09	1.72	938.96	943.96
1-10	1-9	35.74	940.66	940.30	1.00	24	0.012	21.50	8.79	24.50	1.66	941.46	947.30
1-11	1-10	59.52	942.72	941.16	2.62	24	0.012	19.37	8.67	24.59	1.58	942.24	947.97
1-12	1-11	87.37	944.97	943.22	2.00	24	0.012	15.98	9.22	39.67	1.44	944.16	949.92
1-13	1-12	44.18	946.85	945.97	2.00	18	0.012	12.46	8.59	34.68	1.27	946.24	952.99
1-14	1-13	40.80	947.76	947.35	1.00	18	0.012	12.33	10.02	16.06	1.33	948.18	954.72
1-15	1-14	92.13	949.18	948.26	1.00	15	0.012	9.02	7.15	11.40	1.16	948.92	954.75
1-16	1-15	41.82	950.10	949.68	1.00	15	0.012	4.20	5.95	6.99	0.83	950.01	956.53
1-17	1-16	25.05	950.85	950.60	1.00	15	0.012	3.60	5.75	7.01	0.77	950.87	956.10
1-18	1-17	48.76	953.60	951.38	4.55	15	0.012	2.69	5.32	6.99	0.66	951.51	957.20
2-1	1-5	80.82	934.19	933.38	1.00	18	0.012	0.55	5.79	14.93	0.29	953.89	959.05
2-2	2-1	106.82	937.86	934.69	3.00	15	0.012	5.81	6.47	11.39	0.93	935.12	940.75
3-1	2-1	61.23	935.30	934.69	1.00	15	0.012	2.13	5.71	12.05	0.58	938.44	944.64
4-1	1-6	63.37	936.27	935.00	2.00	15	0.012	1.27	3.40	6.98	0.44	935.74	939.63
5-1	1-10	81.58	941.98	941.16	1.00	15	0.012	2.59	2.14	9.90	0.64	936.91	942.00
5-2	5-1	50.24	942.98	942.48	1.00	15	0.012	3.39	3.01	7.01	0.74	942.72	948.78
5-3	5-2	40.43	943.88	943.48	1.00	15	0.012	2.46	5.19	6.98	0.63	943.61	948.78
5-4	5-3	35.71	944.74	944.38	1.00	15	0.012	0.66	3.57	6.96	0.32	944.20	949.73
6-1	1-13	32.58	948.23	947.90	1.00	15	0.012	0.66	3.59	7.02	0.32	945.06	949.10
6-2	6-1	30.07	948.73	948.43	1.00	15	0.012	3.31	5.65	7.04	0.73	948.96	955.38
7-1	1-17	40.84	951.79	951.38	1.00	15	0.012	3.24	5.58	6.99	0.72	949.45	955.03
7-2	7-1	45.44	953.92	952.29	3.59	15	0.012	2.14	5.01	7.01	0.58	952.37	956.57
8-2	8-1	30.00	908.70	907.20	5.00	15	0.012	1.06	6.46	13.25	0.40	954.32	958.76
8-3	8-2	79.43	929.40	912.86	20.82	15	0.012	2.63	2.41	15.64	0.65	909.35	917.35
8-4	8-3	89.89	935.00	931.40	4.00	15	0.012	2.63	15.71	31.92	0.65	930.05	941.22
8-5	8-4	35.60	936.39	935.50	2.50	15	0.012	1.53	7.48	14.00	0.49	935.49	944.60
9-2	9-1	33.33	908.00	906.00	6.00	15	0.012	1.13	5.80	11.06	0.42	936.81	944.43
9-3	9-2	38.36	916.75	911.00	14.99	15	0.012	6.87	5.62	17.14	1.05	909.05	915.45
9-4	9-3	33.15	924.97	920.00	14.99	15	0.012	6.87	18.41	27.08	1.05	917.80	924.78
9-5	9-4	92.79	934.67	932.81	2.00	15	0.012	6.87	18.41	27.09	1.05	926.02	940.11
9-6	9-5	27.97	935.45	935.17	1.00	15	0.012	5.43	8.25	9.90	0.94	935.61	943.35
9-7	9-6	54.90	936.50	935.95	1.00	15	0.012	5.03	6.21	7.00	0.91	936.36	943.34
9-8	9-7	155.37	941.68	937.00	3.01	15	0.012	3.28	5.61	7.00	0.73	937.23	944.46
9-9	9-8	66.00	943.50	942.18	2.00	15	0.012	1.20	6.30	12.14	0.43	942.11	948.53
10-2	10-1	54.35	914.17	912.00	4.00	24	0.012	0.60	4.44	9.89	0.30	943.80	948.53
10-3A	10-2	107.56	927.29	919.21	7.51	24	0.012	33.57	10.69	48.96	1.91	916.08	924.98
10-3	10-3A	10.00	932.60	932.10	5.00	24	0.012	33.57	21.37	67.16	1.91	929.20	939.42
10-4	10-3	87.39	932.85	931.10	2.00	30	0.012	33.57	18.31	54.79	1.91	934.51	938.93
10-5	10-4	30.97	934.37	933.35	3.29	24	0.012	28.01	5.71	62.87	1.80	934.65	941.58
10-6	10-5	115.86	937.19	934.87	2.00	24	0.012	24.55	9.87	44.47	1.75	936.12	943.40
10-7	10-6	72.50	939.28	937.69	2.19	24	0.012	20.92	8.87	34.67	1.64	938.83	947.51
10-8	10-7	69.03	940.58	939.78	1.16	24	0.012	17.44	9.47	36.29	1.50	940.78	948.25
10-9	10-8	42.04	941.50	941.08	1.00	24	0.012	16.78	8.89	26.38	1.48	942.06	949.74
10-10	10-9	139.50	944.32	942.93	1.00	18	0.012	11.53	7.58	24.49	1.22	942.72	950.87
10-11	10-10	74.43	945.56	944.82	1.00	15	0.012	6.22	6.57	11.36	0.96	945.28	953.37
10-12	10-11	102.33	947.08	946.06	1.00	15	0.012	6.22	6.42	6.98	1.01	946.57	954.55
10-13	10-12	97.33	951.98	947.58	4.52	15	0.012	3.09	5.51	6.98	0.71	947.79	954.00
11-1	10-4	39.65	934.50	934.10	1.00	15	0.012	1.88	8.29	14.87	0.55	952.53	957.97
12-1	10-8	29.38	942.38	942.09	1.00	18	0.012	3.50	5.72	7.03	0.75	935.25	940.75
12-2	12-1	50.24	943.38	942.88	1.00	18	0.012	4.92	6.17	11.30	0.85	943.23	949.38
12-3	12-2	35.22	944.23	943.88	1.00	15	0.012	4.40	6.01	11.35	0.80	944.18	949.38
12-4	12-3	56.84	945.87	944.73	2.00	15	0.012	3.40	5.64	6.97	0.74	944.97	950.31
12-5	12-4	44.47	946.81	946.37	1.00	15	0.012	2.35	6.61	9.91	0.60	946.48	951.77
12-6	12-5	62.52	947.94	947.31	1.00	15	0.012	2.35	5.12	6.96	0.61	947.42	952.41
13-1	12-3	46.17	945.29	944.83	1.00	15	0.012	0.71	3.20	7.02	0.46	948.40	952.78
14-2	14-1	126.56	938.86	930.00	7.00	15	0.012	0.13	1.59	7.03	0.14	946.01	950.75
15-2	15-1	69.13	942.81	936.52	9.10	18	0.012	4.52	3.77	18.51	0.86	939.72	950.81
15-3	15-2	93.37	944.94	943.07	2.00	18	0.012	10.55	8.30	16.10	1.25	946.19	954.90
15-4	15-3	45.47	948.01	946.83	2.60	15	0.012	6.12	9.37	11.27	1.00	949.01	955.90
15-5	15-4	41.99	949.60	948.51	2.60	15	0.012	2.56	5.60	11.27	0.64	950.24	957.14
15-6	15-5	142.09	952.00	950.10	1.34	15	0.012	1.90	5.38	8.09	0.55	952.55	958.98
15-7	15-6	40.07	952.91	952.51	1.00	15	0.012	0.93	3.95	6.99	0.38	953.29	959.89
15-8	15-7	33.50	953.75	953.42	1.00	15	0.012	0.40	3.07	6.94	0.25	954.00	960.75
16-2	16-1	55.38	944.79	938.15	12.00	15	0.012	6.13	5.03	24.22	1.00	945.79	954.28
17-1	15-3	51.48	946.88	946.37	1.00	15	0.012	4.43	6.01	6.96	0.85	947.73	955.19
17-2	17-1	68.17	948.08	947.38	1.00	15	0.012	2.96	5.52	7.09	0.69	948.77	956.74
18-1	15-6	76.38	955.00	954.24	1.00	15	0.012	0.97	4.00	6.98	0.39	955.39	961.15
19-1	1-5	99.50	932.50	931.51	1.00	15	0.012	0.45	0.53	6.98	0.26	932.76	936.13
20-1	1-15	90.24	950.66	949.62	1.15	15	0.012	0.40	1.23	7.51	0.25	950.91	955.29
21-2	21-1	88.08	936.55	925.98	12.00	15	0.012	5.70	4.69	24.23	0.97	937.52	944.25
21-3	21-2	92.09	940.81	939.43	1.50	15	0.012	1.82	5.54	8.56	0.54	941.35	946.84
21-4	21-3	34.857	941.83	941.31	1.5	15	0.012	0.69	4.18	8.54	0.32	942.15	946.99

olsson

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. / REV.	DATE	REVISIONS DESCRIPTION	BY
1.	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

STORMWATER MANAGEMENT CALCULATIONS
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
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SHEET
C503

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GEN04_ B190012.dwg ~ Layout: STORMWATER MANAGEMENT CALCULATIONS ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

Drainage Area Design Table

100 Year Return Frequency

Inlet ID	Drainage Area (ac)	C	Tc (min)	i (in/hr)	K	Peak Flow (cfs)
1-2	0.38	0.82	5.00	10.32	1.25	3.92
1-3	0.12	0.90	5.00	10.32	1.25	1.24
1-4	0.50	0.80	5.00	10.32	1.25	5.16
1-5	0.47	0.80	5.00	10.32	1.25	4.85
1-6	0.03	0.90	5.00	10.32	1.25	0.31
1-8	0.64	0.85	5.00	10.32	1.25	6.61
1-9	0.34	0.85	5.00	10.32	1.25	3.51
1-11	0.57	0.84	5.00	10.32	1.25	5.88
1-12	0.02	0.90	5.00	10.32	1.25	0.21
1-14	0.82	0.80	5.00	10.32	1.25	8.46
1-15	0.03	0.90	5.00	10.32	1.25	0.31
1-16	0.14	0.88	5.00	10.32	1.25	1.45
1-18	0.10	0.75	5.00	10.32	1.25	0.97
2-1	0.41	0.80	5.00	10.32	1.25	4.23
2-2	0.58	0.50	5.00	10.32	1.25	3.74
3-1	0.23	0.75	5.00	10.32	1.25	2.23
4-1	0.43	0.82	5.00	10.32	1.25	4.44
5-1	0.18	0.70	5.00	10.32	1.25	1.63
5-2	0.35	0.70	5.00	10.32	1.25	3.16
5-4	0.12	0.75	5.00	10.32	1.25	1.16
6-1	0.01	0.90	5.00	10.32	1.25	0.10
6-2	0.88	0.50	5.00	10.32	1.25	5.68
7-1	0.22	0.70	5.00	10.32	1.25	1.99
7-2	0.24	0.60	5.00	10.32	1.25	1.86
8-3	0.17	0.88	5.00	10.32	1.25	1.75
8-4	0.06	0.90	5.00	10.32	1.25	0.62
8-5	0.18	0.85	5.00	10.32	1.25	1.86
9-4	0.23	0.85	5.00	10.32	1.25	2.37
9-5	0.06	0.90	5.00	10.32	1.25	0.62
9-6	0.28	0.85	5.00	10.32	1.25	2.89
9-7	0.34	0.83	5.00	10.32	1.25	3.51
9-8	0.09	0.90	5.00	10.32	1.25	0.93
9-9	0.09	0.90	5.00	10.32	1.25	0.93
10-3	0.89	0.85	5.00	10.32	1.25	9.19
10-5	0.58	0.85	5.00	10.32	1.25	5.99
10-6	0.57	0.85	5.00	10.32	1.25	5.88
10-7	0.12	0.75	5.00	10.32	1.25	1.16
10-8	0.05	0.90	5.00	10.32	1.25	0.52
10-9	0.88	0.82	5.00	10.32	1.25	9.08
10-11	0.50	0.85	5.00	10.32	1.25	5.16
10-12	0.22	0.75	5.00	10.32	1.25	2.13
10-13	0.30	0.85	5.00	10.32	1.25	3.10
11-1	0.56	0.85	5.00	10.32	1.25	5.78
12-1	0.08	0.88	5.00	10.32	1.25	0.83
12-2	0.16	0.85	5.00	10.32	1.25	1.65
12-3	0.04	0.90	5.00	10.32	1.25	0.41
12-5	0.15	0.90	5.00	10.32	1.25	1.55
12-6	0.21	0.88	5.00	10.32	1.25	2.17
13-1	0.16	0.60	5.00	10.32	1.25	1.24
14-2	0.82	0.75	5.00	10.32	1.25	7.94
15-2	0.09	0.82	5.00	10.32	1.25	0.93
15-4	0.57	0.85	5.00	10.32	1.25	5.88
15-5	0.10	0.90	5.00	10.32	1.25	1.03
15-7	0.12	0.60	5.00	10.32	1.25	0.93
15-8	0.06	0.90	5.00	10.32	1.25	0.62
16-2	0.98	0.85	5.00	10.32	1.25	10.12
17-1	0.25	0.80	5.00	10.32	1.25	2.58
17-2	0.67	0.60	5.00	10.32	1.25	5.19
18-1	0.22	0.60	5.00	10.32	1.25	1.70
19-1	0.07	0.88	5.00	10.32	1.25	0.72
20-1	0.06	0.90	5.00	10.32	1.25	0.62
21-2	0.66	0.80	5.00	10.32	1.25	6.81
21-3	0.18	0.85	5.00	10.32	1.25	1.86
21-4	0.11	0.85	5.00	10.32	1.25	1.14

Storm Sewer Design Calculation Table

100 Year Return Frequency

Upstream Structure	Downstream Structure	Length (ft)	Upstream Invert (ft)	Downstream Invert (ft)	Slope (%)	Diameter (in)	Manning's n	Total Flow (cfs)	Velocity (ft/s)	Capacity (cfs)	Flow Depth (ft)	Upstream Struct. HGL (ft)	Upstream Top Elev. (ft)
1-2	1-1	33.35	921.67	919.00	8.01	24	0.012	74.44	23.70	69.33	2.00	924.08	935.46
1-3	1-2	105.47	927.63	923.67	3.75	30	0.012	70.52	14.37	86.09	2.47	930.10	939.31
1-4	1-3	27.74	928.68	928.13	2.00	30	0.012	69.28	14.12	62.56	2.50	932.06	939.36
1-5	1-4	53.79	930.26	929.18	2.00	30	0.012	64.12	13.06	62.95	2.50	934.42	940.25
1-6	1-5	71.06	934.39	931.08	4.66	30	0.012	48.35	9.85	95.89	2.28	936.67	941.24
1-7	1-6	83.31	938.57	937.74	1.00	30	0.012	43.60	10.30	44.35	2.20	940.77	947.18
1-8	1-7	67.19	937.24	934.89	3.50	30	0.012	43.60	11.69	83.09	2.20	939.44	943.96
1-9	1-8	73.04	939.80	939.07	1.00	24	0.012	36.99	11.78	24.50	2.00	942.74	947.30
1-10	1-9	35.74	940.66	940.30	1.00	24	0.012	33.48	10.66	24.59	2.00	944.27	947.97
1-11	1-10	59.52	942.72	941.16	2.62	24	0.012	27.53	8.76	39.67	2.00	945.72	949.92
1-12	1-11	87.37	944.97	943.22	2.00	24	0.012	21.65	6.89	34.68	1.78	946.75	952.99
1-13	1-12	44.18	946.85	945.97	2.00	18	0.012	21.44	12.13	16.06	1.50	949.04	954.72
1-14	1-13	40.80	947.76	947.35	1.00	18	0.012	15.66	8.86	11.40	1.50	950.73	954.75
1-15	1-14	92.13	949.18	948.26	1.00	15	0.012	7.20	5.87	6.99	1.25	952.19	956.53
1-16	1-15	41.82	950.10	949.68	1.00	15	0.012	6.27	5.11	7.01	1.25	952.74	956.10
1-17	1-16	25.05	950.85	950.60	1.00	15	0.012	4.82	3.93	6.99	1.25	953.03	957.20
1-18	1-17	48.76	953.60	951.38	4.55	15	0.012	0.97	0.79	14.93	0.39	953.99	959.05
2-1	1-5	80.82	934.19	933.38	1.00	18	0.012	10.20	5.77	11.39	1.50	936.13	940.75
2-2	2-1	106.82	937.86	934.69	3.00	15	0.012	3.74	3.05	12.05	0.78	938.64	944.64
3-1	2-1	61.23	935.30	934.69	1.00	15	0.012	2.23	1.82	6.98	1.09	936.39	939.63
4-1	1-6	63.37	936.27	935.00	2.00	15	0.012	4.44	3.62	9.90	0.85	937.12	942.00
5-1	1-10	81.58	941.98	941.16	1.00	15	0.012	5.95	4.85	7.01	1.25	945.56	948.78
5-2	5-1	50.24	942.98	942.48	1.00	15	0.012	4.32	3.52	6.98	1.25	945.90	948.78
5-3	5-2	40.43	943.88	943.48	1.00	15	0.012	1.16	0.95	6.96	1.25	945.99	949.73
5-4	5-3	35.71	944.74	944.38	1.00	15	0.012	1.16	0.95	7.02	1.25	946.00	949.10
6-1	1-13	32.58	948.23	947.90	1.00	15	0.012	5.78	4.71	7.04	1.25	950.18	955.38
6-2	6-1	30.07	948.73	948.43	1.00	15	0.012	5.68	4.63	6.99	1.25	950.51	955.03
7-1	1-17	40.84	951.79	951.38	1.00	15	0.012	3.85	3.14	7.01	1.25	953.25	956.57
7-2	7-1	45.44	953.92	952.29	3.59	15	0.012	1.86	1.74	13.25	0.54	954.46	958.76
8-2	8-1	30.00	908.70	907.20	5.00	15	0.012	4.23	3.88	15.64	0.83	909.53	917.35
8-3	8-2	79.43	929.40	912.86	20.82	15	0.012	4.23	18.03	31.92	0.83	930.23	941.22
8-4	8-3	89.89	935.00	931.40	4.00	15	0.012	2.48	8.60	14.00	0.63	935.63	944.60
8-5	8-4	35.60	936.39	935.50	2.50	15	0.012	1.86	6.70	11.06	0.54	936.93	944.43
9-2	9-1	33.33	908.00	906.00	6.00	15	0.012	11.25	9.20	17.14	1.21	909.21	915.45
9-3	9-2	38.36	916.75	911.00	14.99	15	0.012	11.25	21.04	27.08	1.21	917.96	924.78
9-4	9-3	33.15	924.97	920.00	14.99	15	0.012	11.25	21.04	27.09	1.21	926.18	940.11
9-5	9-4	92.79	934.67	932.81	2.00	15	0.012	8.88	9.13	9.90	1.15	935.82	943.35
9-6	9-5	27.97	935.45	935.17	1.00	15	0.012	8.26	6.73	7.00	1.25	936.81	943.34
9-7	9-6	54.90	936.50	935.95	1.00	15	0.012	5.37	4.57	7.00	0.94	937.44	944.46
9-8	9-7	155.37	941.68	937.00	3.01	15	0.012	1.86	4.84	12.14	0.54	942.22	948.53
9-9	9-8	66.00	943.50	942.18	2.00	15	0.012	0.93	5.06	9.89	0.38	943.88	948.53
10-2	10-1	54.35	914.17	912.00	4.00	24	0.012	55.79	17.77	48.96	2.00	916.73	924.98
10-3A	10-2	107.56	927.29	919.21	7.51	24	0.012	55.79	23.90	67.16	1.99	929.28	939.42
10-3	10-3A	10.00	932.60	932.10	5.00	24	0.012	55.79	19.86	54.79	1.99	934.59	938.93
10-4	10-3	87.39	932.85	931.10	2.00	30	0.012	46.60	9.50	62.87	2.50	935.55	941.58
10-5	10-4	30.97	934.37	933.35	3.29	24	0.012	40.82	13.00	44.47	2.00	936.97	943.40
10-6	10-5	115.86	937.19	934.87	2.00	24	0.012	34.83	11.09	34.67	2.00	940.36	947.51
10-7	10-6	72.50	939.28	937.69	2.19	24	0.012	29.15	9.28	36.29	2.00	942.15	948.25
10-8	10-7	69.03	940.58	939.78	1.16	24	0.012	27.99	8.91	26.38	2.00	943.59	949.74
10-9	10-8	42.04	941.50	941.08	1.00	24	0.012	19.47	6.20	24.49	2.00	944.35	950.87
10-10	10-9	139.50	944.32	942.93	1.00	18	0.012	10.39	5.88	11.36	1.28	945.60	953.37
10-11	10-10	74.43	945.56	944.82	1.00	15	0.012	10.39	8.47	6.98	1.25	947.71	954.55
10-12	10-11	102.33	947.08	946.06	1.00	15	0.012	5.23	4.26	6.98	1.25	948.73	954.00
10-13	10-12	97.33	951.98	947.58	4.52	15	0.012	3.10	2.53	14.87	0.71	952.69	957.97
11-1	10-4	39.65	934.50	934.10	1.00	15	0.012	5.78	4.71	7.03	1.25	936.38	940.75
12-1	10-8	29.38	942.38	942.09	1.00	18	0.012	8.00	4.53	11.30	1.50	944.23	949.38
12-2	12-1	50.24	943.38	942.88	1.00	18	0.012	7.17	4.07	11.35	1.04	944.42	949.38
12-3	12-2	35.22	944.23	943.88	1.00	15	0.012	5.52	6.30	6.97	0.95	945.18	950.31
12-4	12-3	56.84	945.87	944.73	2.00	15	0.012	3.72	7.50	9.91	0.78	946.65	951.77
12-5	12-4	44.47	946.81	946.37	1.00	15	0.012	3.72	5.76	6.96	0.78	947.59	952.41
12-6	12-5	62.52	947.94	947.31	1.00	15	0.012	2.17	5.04	7.02	0.59	948.53	952.78
13-1	12-3	46.17	945.29	944.83	1.00	15	0.012	1.24	3.76	6.98	0.47	945.76	949.50
14-2	14-1	126.56	938.86	930.00	7.00	15	0.012	7.94	6.62	18.51	1.11	939.97	950.81
15-2	15-1	69.13	942.81	936.52	9.10	18	0.012	18.86	10.70	34.31	1.46	944.27	952.14
15-3	15-2	93.37	944.94	943.07	2.00	18	0.012	17.93	10.15	16.10	1.50	946.89	954.90
15-4	15-3	45.47	948.01	946.83	2.60	15	0.012	10.16	10.39	11.27	1.19	949.20	955.90
15-5	15-4	41.99	949.60	948.51	2.60	15	0.012	4.28	6.19	11.27	0.84	950.44	957.14
15-6	15-5	142.09	952.00	950.10	1.34	15	0.012	3.25	6.23	8.09	0.73	952.73	958.98
15-7	15-6	40.07	952.91	952.51	1.00	15	0.012	1.55	4.57	6.99	0.49	953.40	959.89
15-8	15-7	33.50	953.75	953.42	1.00	15	0.012	0.62	3.50	6.94	0.31	954.06	960.75
16-2	16-1	55.38	944.79	938.15	12.00	15	0.012	10.12	8.30	24.22	1.19	945.98	954.28
17-1	15-3	51.48	946.88	946.37	1.00	15	0.012	7.77	6.33	6.96	1.25	948.26	955.19
17-2	17-1	68.17	948.08	947.38	1.00	15	0.012	5.19	4.46	7.09	0.92	949.00	956.74
18-1	15-6	76.38	955.00	954.24	1.00	15	0.012	1.70	4.69	6.98	0.52	955.52	961.15
19-1	1-5	99.50	937.50	931.51	1.00	15	0.012	0.72	0.59	6.98	1.25	935.49	936.13
20-1	1-15	90.24	950.66	949.62	1.15	15	0.012	0.62	0.51	7.51	1.25	952.42	955.29
21-2	21-1	88.08	936.55	925.98	12.00	15	0.012	9.81	8.07	24.23	1.18	937.73	944.25
21-3	21-2	92.09	940.81	939.43	1.50	15	0.012	3.00	6.36	8.56	0.70	941.51	946.84
21-4	21-3	34.857	941.83	941.31	1.5	15	0.012	1.14	4.84	8.54	0.42	942.25	946.99

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

STORMWATER MANAGEMENT CALCULATIONS
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

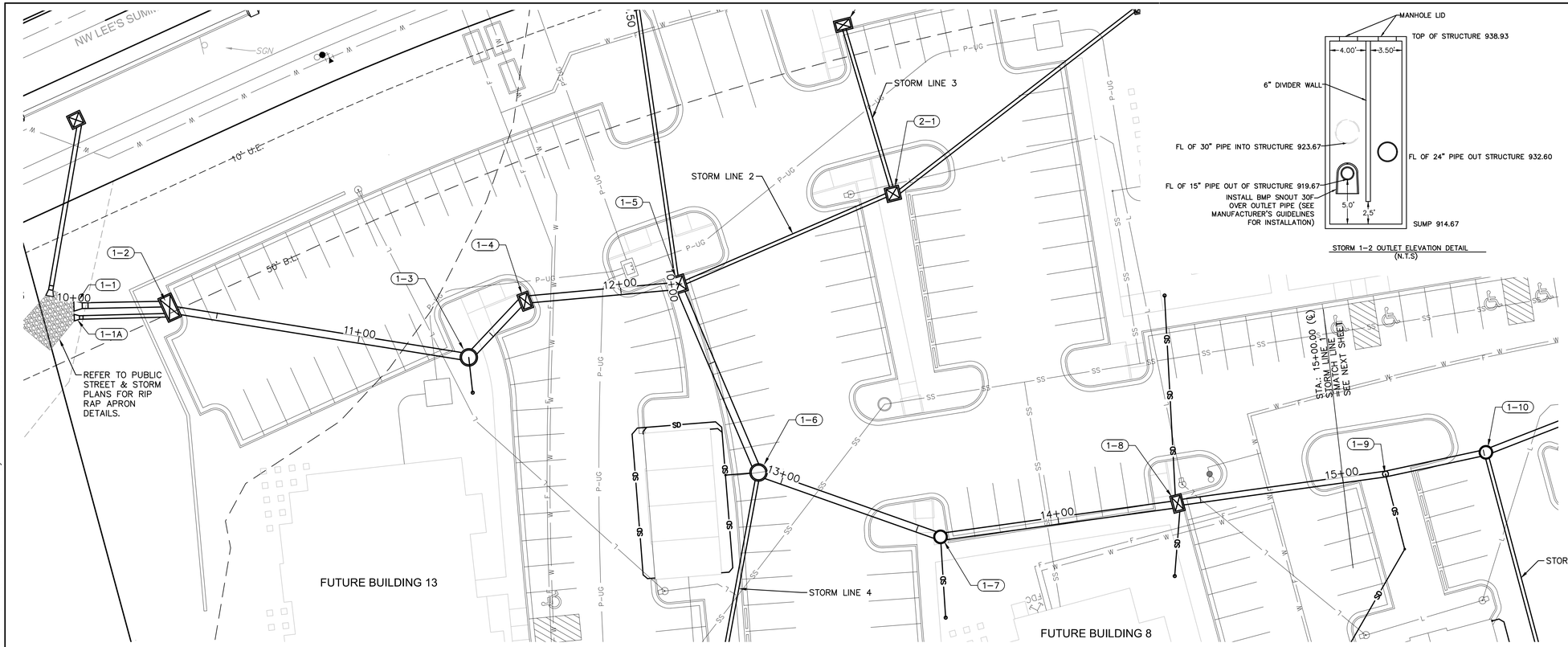
LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.06.12

SHEET
C504

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GEN04_ B190012.dwg ~ Layout: STORMWATER MANAGEMENT CALCULATIONS (2) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

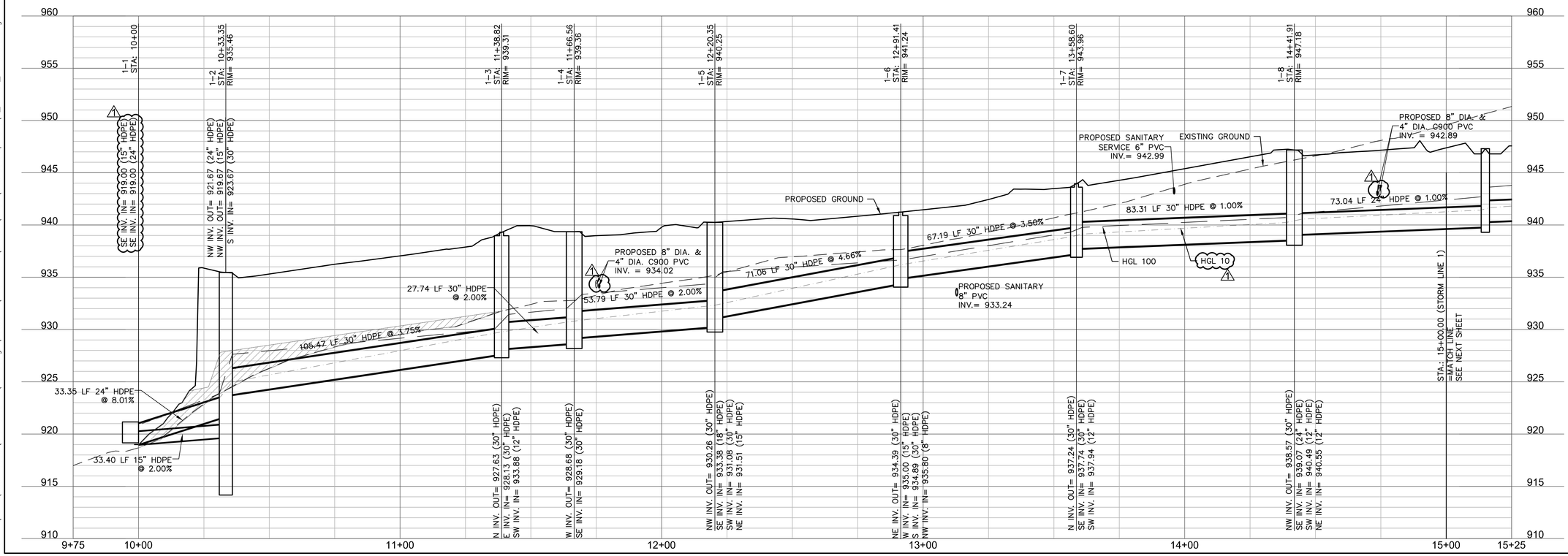


STORM 1-2 OUTLET ELEVATION DETAIL
(N.T.S)

NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

STRUCTURES	
ID	DESCRIPTION
1–1	10+00 STORM LINE 1 24" FES N: 1014723.073; E: 2822780.699
1–1A	10+00.26 STORM LINE 1 15" FES N: 1014720.702; E: 2822776.823
1–2	10+33.35 STORM LINE 1 8' X 4' CURB INLET (NON–SETBACK) (SEE DETAIL) N: 1014693.673; E: 2822796.441
1–3	11+38.82 STORM LINE 1 60" MH N: 1014594.917; E: 2822833.471
1–4	11+66.56 STORM LINE 1 5' X 3' CURB INLET (NON–SETBACK) N: 1014587.648; E: 2822860.241
1–5	12+20.35 STORM LINE 1 5' X 4' CURB INLET (NON–SETBACK) N: 1014544.291; E: 2822892.079
1–6	12+91.41 STORM LINE 1 60" MH N: 1014487.617; E: 2822849.210
1–7	13+58.60 STORM LINE 1 48" MH N: 1014421.553; E: 2822861.471
1–8	14+41.91 STORM LINE 1 5' X 3' CURB INLET (NON–SETBACK) N: 1014355.953; E: 2822912.816

STORM LINE 1 (9+75 - 15+25)



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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C505

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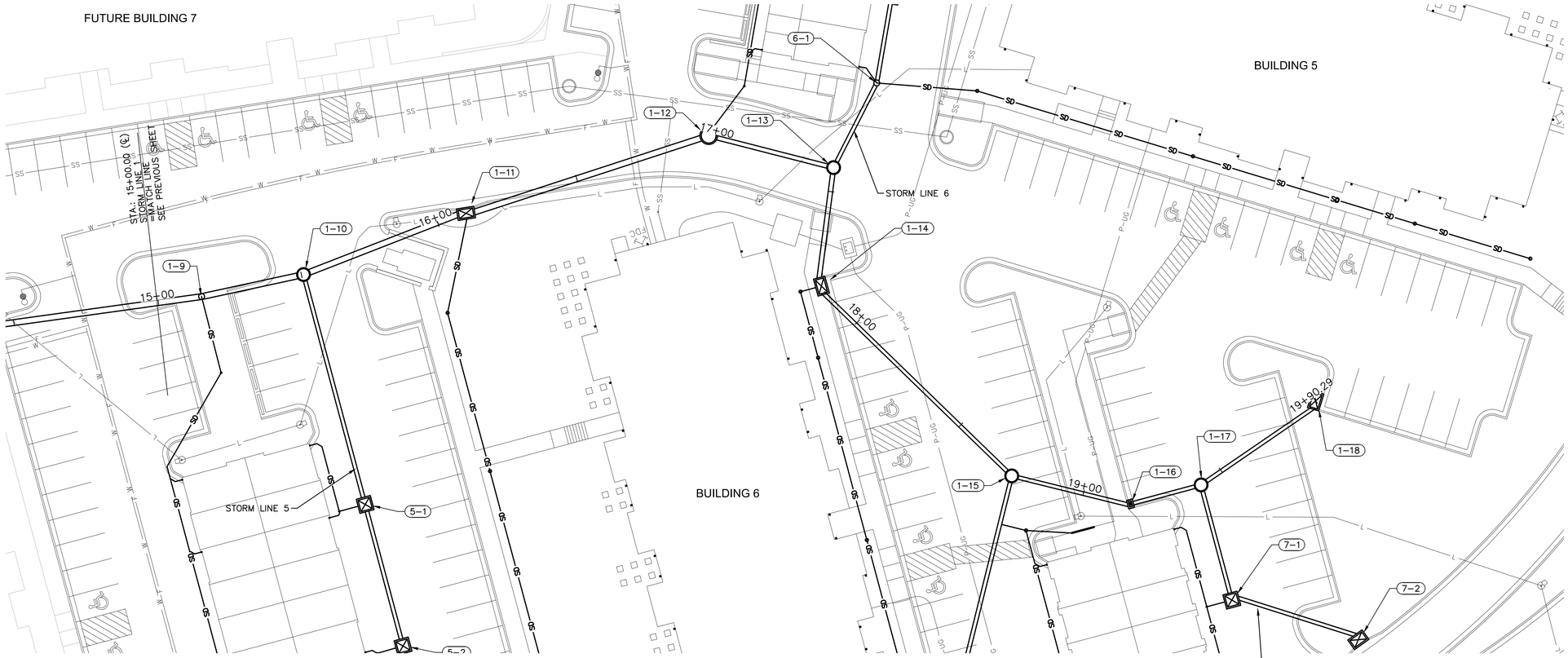
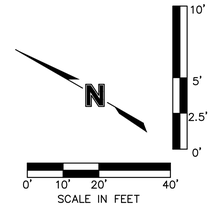
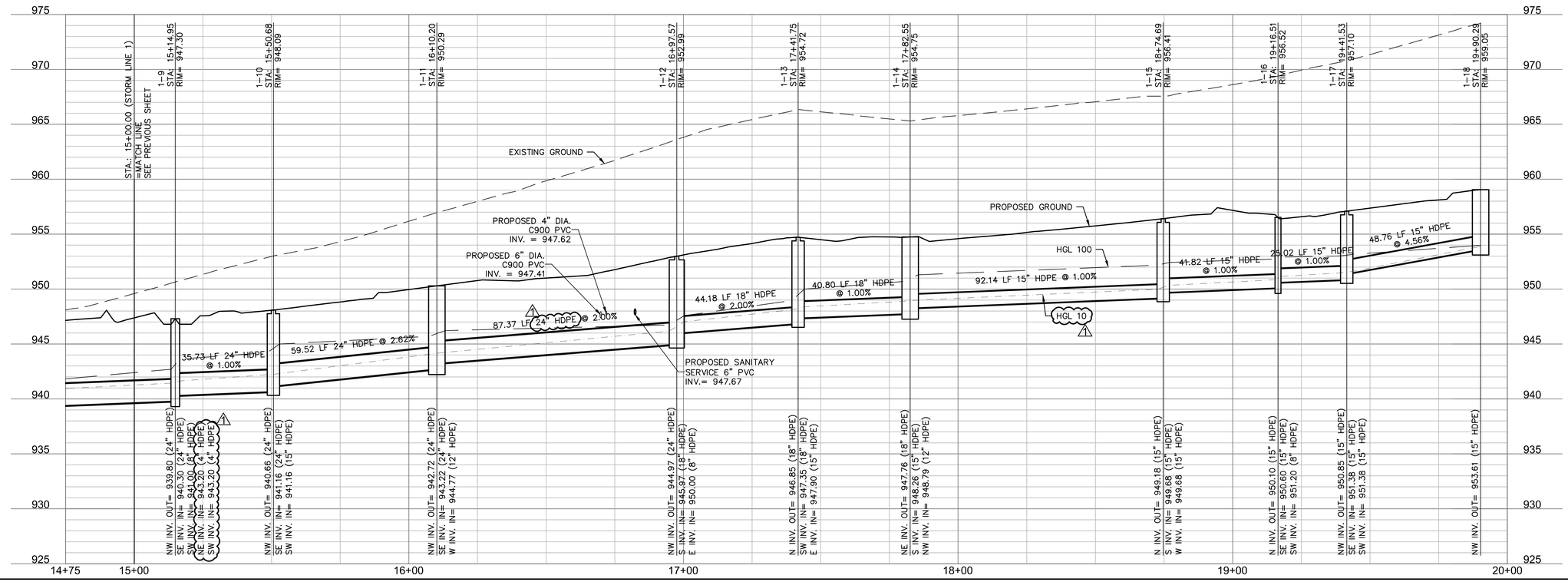


NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

STRUCTURES	
ID	DESCRIPTION
1–9	15+14.95 STORM LINE 1 30" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1014298.415; E: 2822957.809
1–10	15+50.68 STORM LINE 1 48" MH N: 1014271.938; E: 2822981.808
1–11	16+10.20 STORM LINE 1 5' X 3' CURB INLET (SETBACK) N: 1014234.207; E: 2823027.836
1–12	16+97.57 STORM LINE 1 60" MH N: 1014175.468; E: 2823092.511
1–13	17+41.75 STORM LINE 1 48" MH N: 1014132.919; E: 2823104.401
1–14	17+82.55 STORM LINE 1 5' X 3' CURB INLET (NON-SETBACK) N: 1014116.225; E: 2823067.168
1–15	18+74.69 STORM LINE 1 48" MH N: 1014027.198; E: 2823043.425 ⚠1
1–16	19+16.51 STORM LINE 1 NYLOPLAST CURB INLET (18" – 2X3') N: 1013987.149; E: 2823055.472 ⚠1
1–17	19+41.53 STORM LINE 1 48" MH N: 1013969.459; E: 2823073.162 ⚠1
1–18	19+90.29 STORM LINE 1 5' X 3' CURB INLET (NON-SETBACK) N: 1013949.833; E: 2823117.797



STORM LINE 1 (14+75 - 20+00)



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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

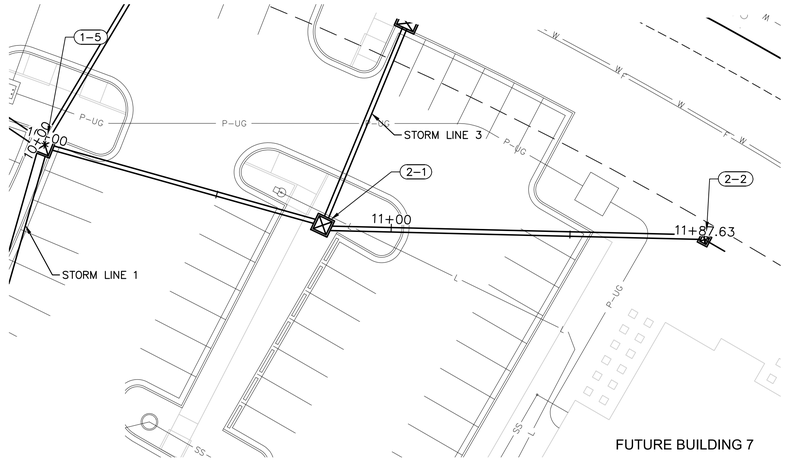
LEE'S SUMMIT, MO

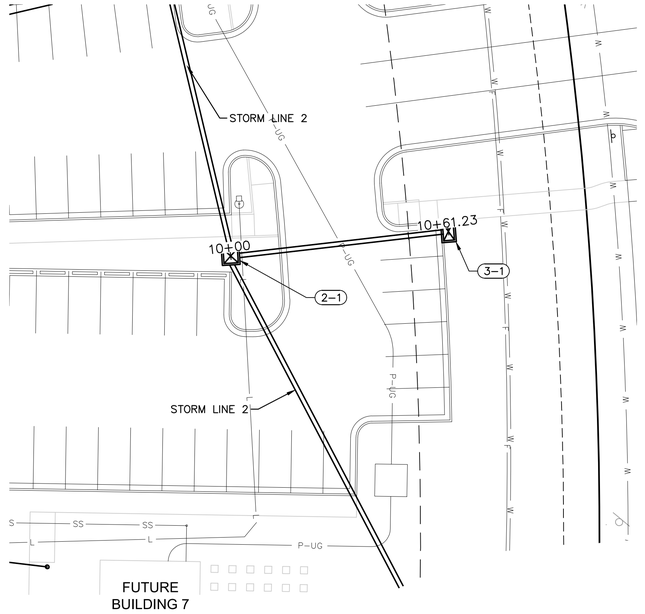
2020

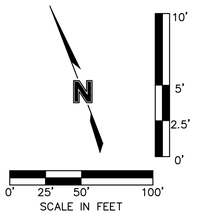
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C506

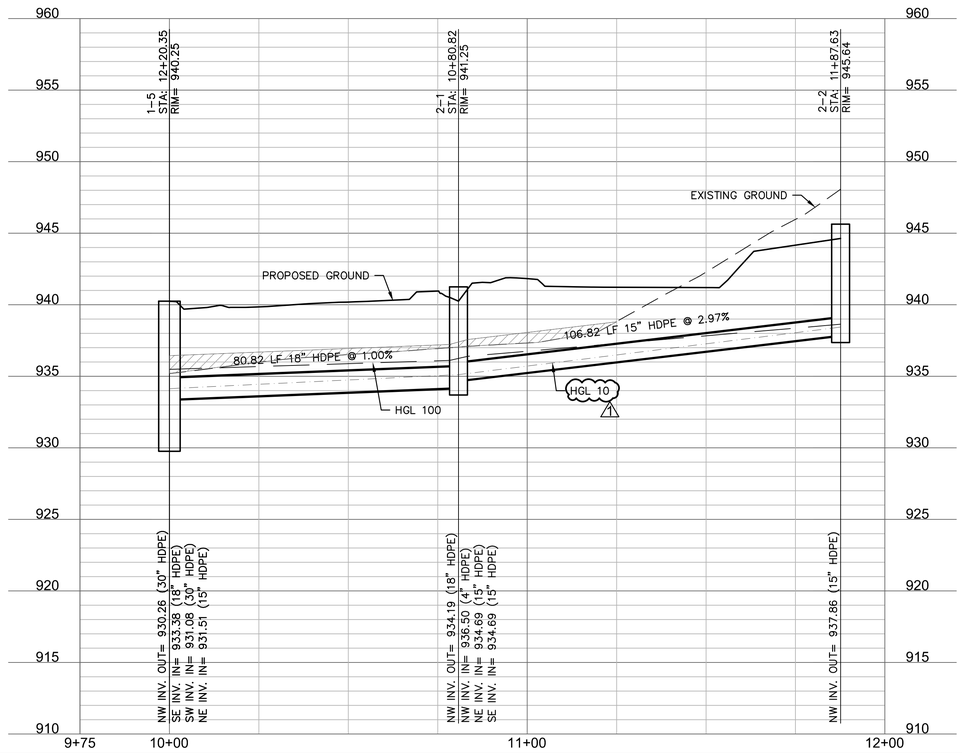
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.



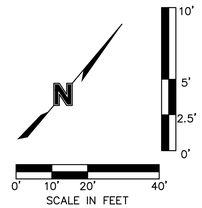




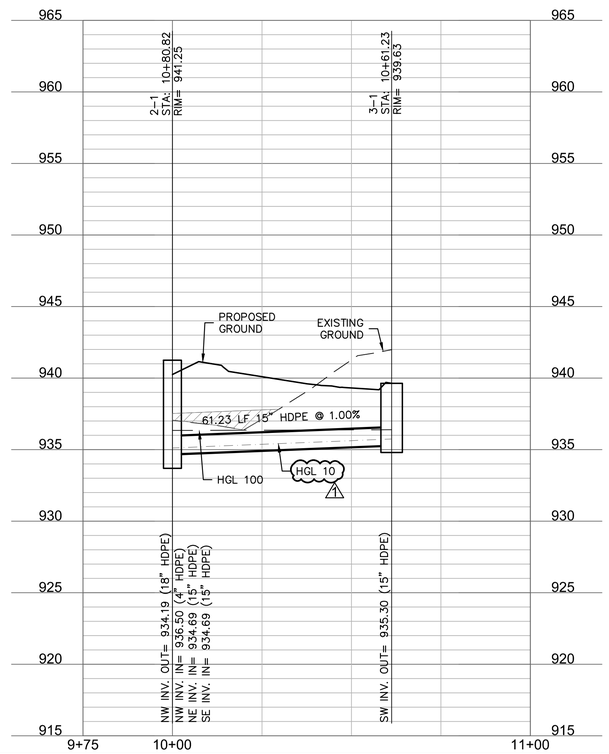
STORM LINE 2 (9+75 - 12+00)



STRUCTURES	
ID	DESCRIPTION
2–1	10+80.82 STORM LINE 2 4' X 4' FIELD INLET (OPEN 2 SIDES–W,S) N: 1014495.562; E: 2822956.552
2–2	11+87.63 STORM LINE 2 4' X 4' FIELD INLET (OPEN 3 SIDE–S, E, W) N: 1014453.644; E: 2823054.799



STORM LINE 3 (9+75 - 11+00)



STRUCTURES	
ID	DESCRIPTION
3–1	10+61.23 STORM LINE 3 5' X 3' CURB INLET (NON–SETBACK) N: 1014539.914; E: 2822998.762

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KS CERTIFICATE OF AUTHORITY #:E-2914
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NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS

REVISIONS

REVISIONS DESCRIPTION

STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

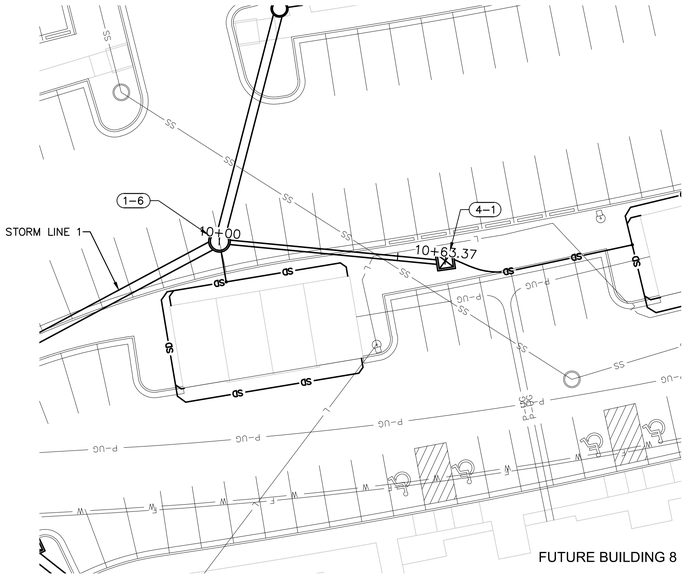
LEE'S SUMMIT, MO

2020

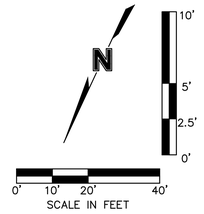
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C507

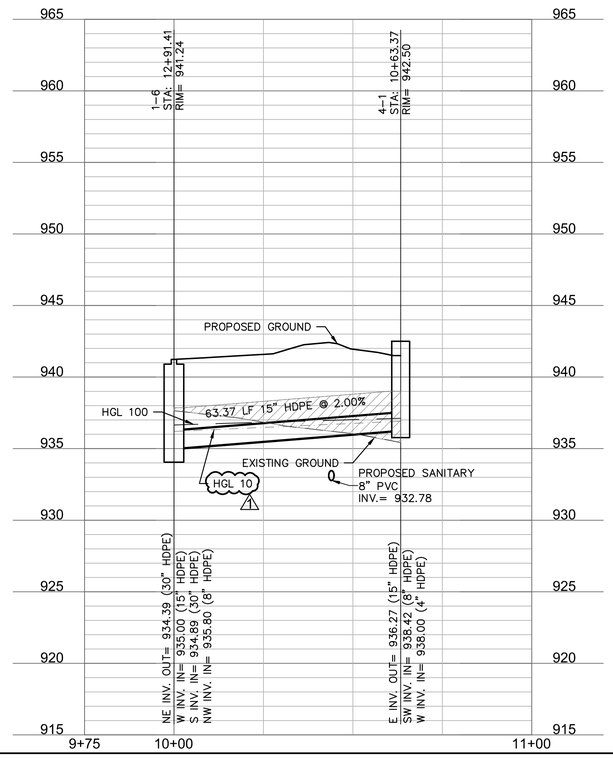
File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_STM01_ B190012.dwg ~ Layout: STORM SEWER PLAN & PROFILE (3) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



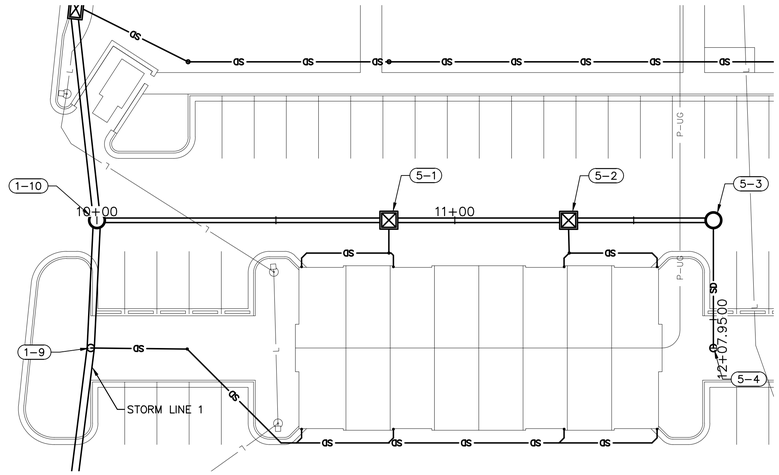
STRUCTURES	
ID	DESCRIPTION
4–1	10+63.37 STORM LINE 4 4' X 4' FIELD INLET (OPEN 4 SIDES) ⚠1 N: 1014465.854; E: 2822789.693

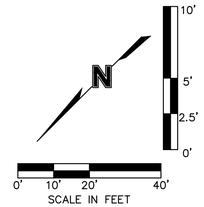


STORM LINE 4 (9+75 - 11+00)



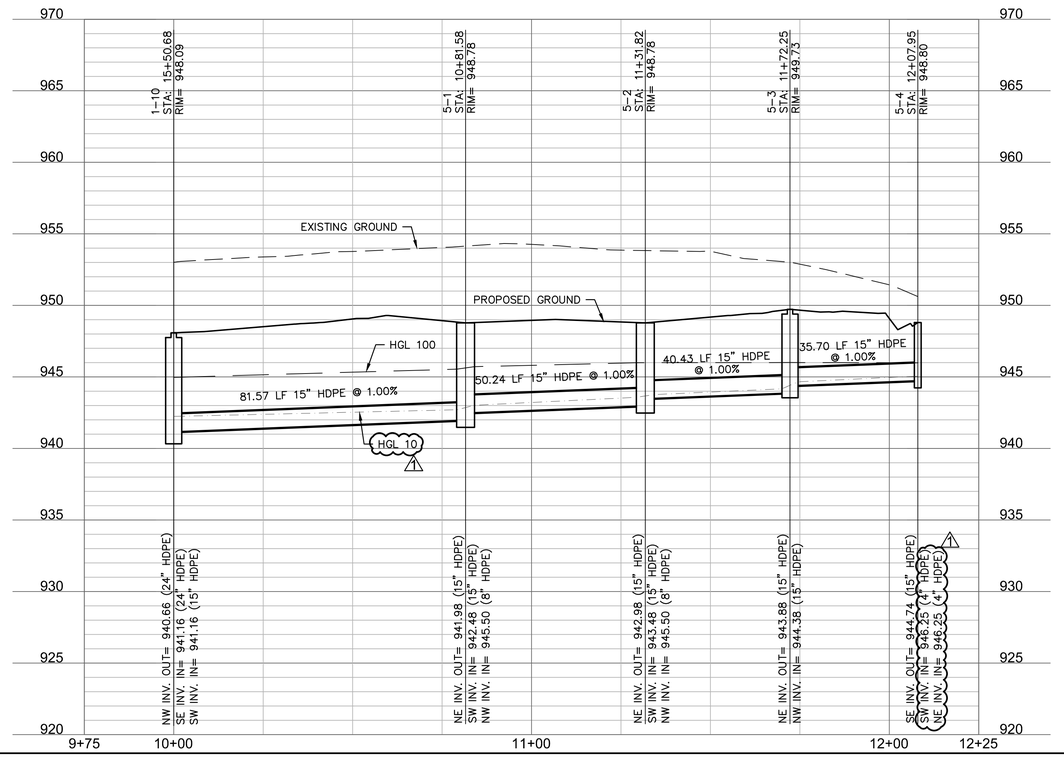
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





STRUCTURES	
ID	DESCRIPTION
5–1	10+81.58 STORM LINE 5 4' X 4' GRATE INLET N: 1014214.237; E: 2822924.146
5–2	11+31.82 STORM LINE 5 4' X 4' GRATE INLET N: 1014178.732; E: 2822888.601
5–3	11+72.25 STORM LINE 5 48" MH N: 1014150.141; E: 2822860.011
5–4	12+07.95 STORM LINE 5 15" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1014175.388; E: 2822834.763

STORM LINE 5 (9+75 - 12+25)



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STATE OF MISSOURI
NICHOLAS D. HEISER
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PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

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STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

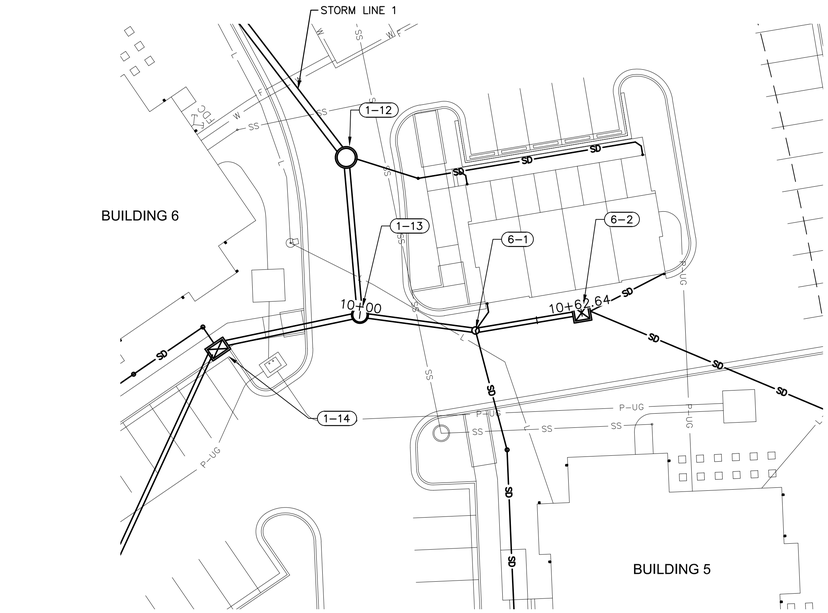
LEE'S SUMMIT, MO

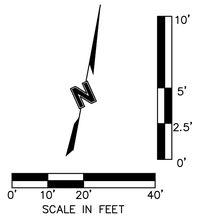
2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

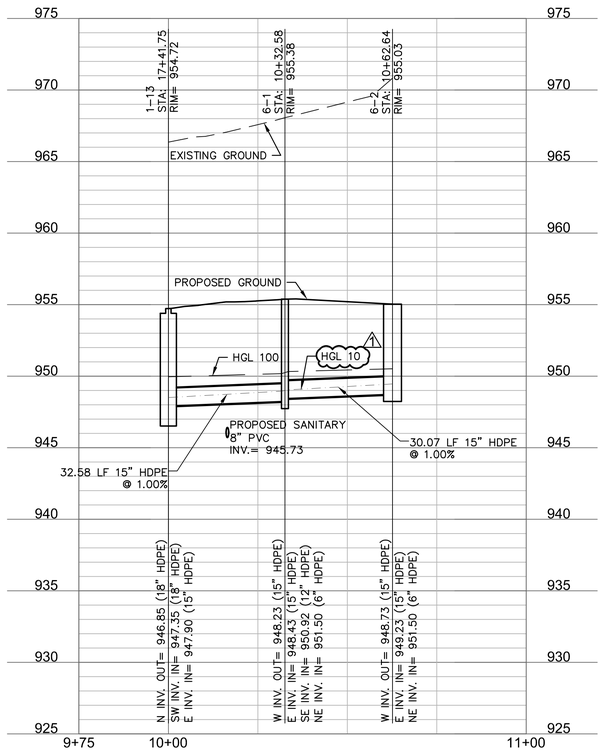
SHEET
C508

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_STM01_ B1900012.dwg ~ Layout: STORM SEWER PLAN & PROFILE (4) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



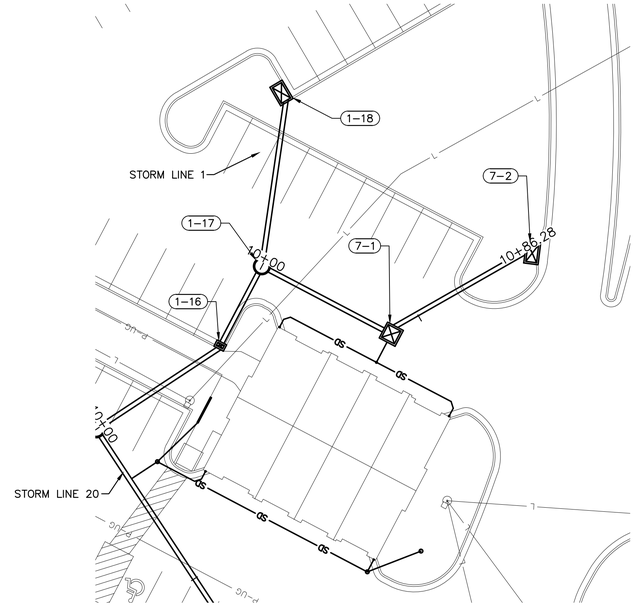


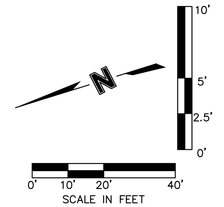
STORM LINE 6 (9+75 - 11+00)



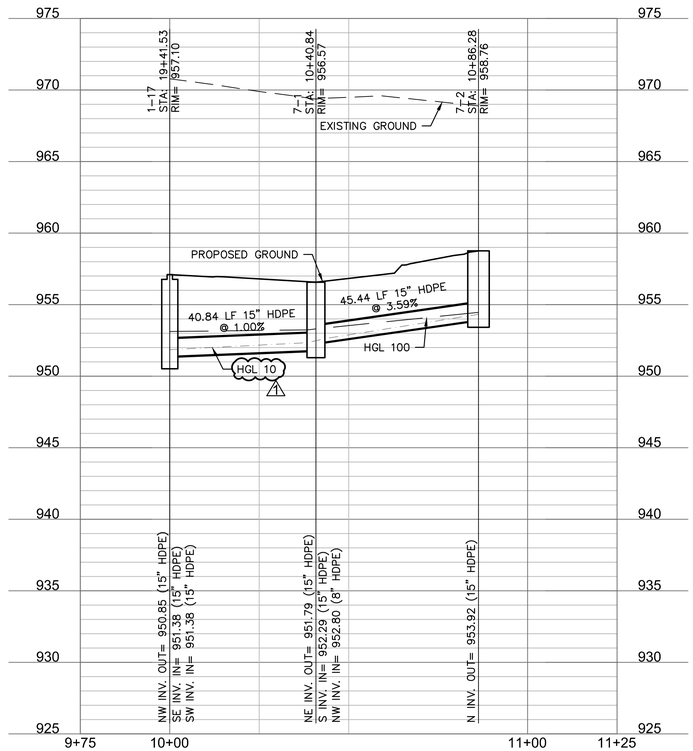
STRUCTURES	
ID	DESCRIPTION
6–1	10+32.58 STORM LINE 6 15" NYLOPLAST D.B. W/ SOLID TOP N: 1014134.610; E: 2823136.935
6–2	10+62.64 STORM LINE 6 4' X 4' GRATE INLET N: 1014144.983; E: 2823165.156

NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





STORM LINE 7 (9+75 - 11+25)



STRUCTURES	
ID	DESCRIPTION
7–1	10+40.84 STORM LINE 7 4' X 4' GRATE INLET N: 1013940.578; E: 2823044.281
7–2	10+86.28 STORM LINE 7 5' X 3' CURB INLET (SETBACK) N: 1013896.234; E: 2823054.194

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

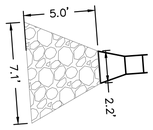
2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C509

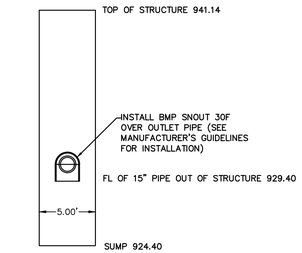
File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_STM01_ B190012.dwg ~ Layout: STORM SEWER PLAN & PROFILE (5) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

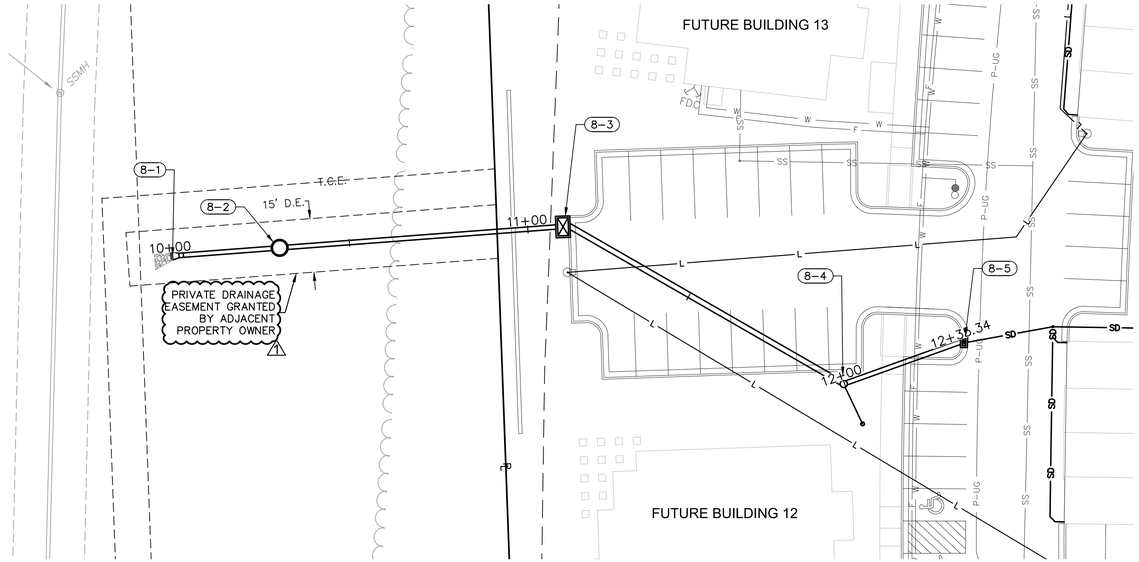


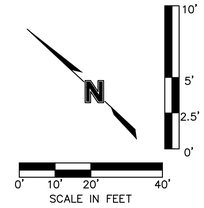
SCALE 1": 5'

Riprap Calculations							
End Section	Q_{100} (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
8-1	4.23	1.25	1	5	5	1.46	3.0
*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18							

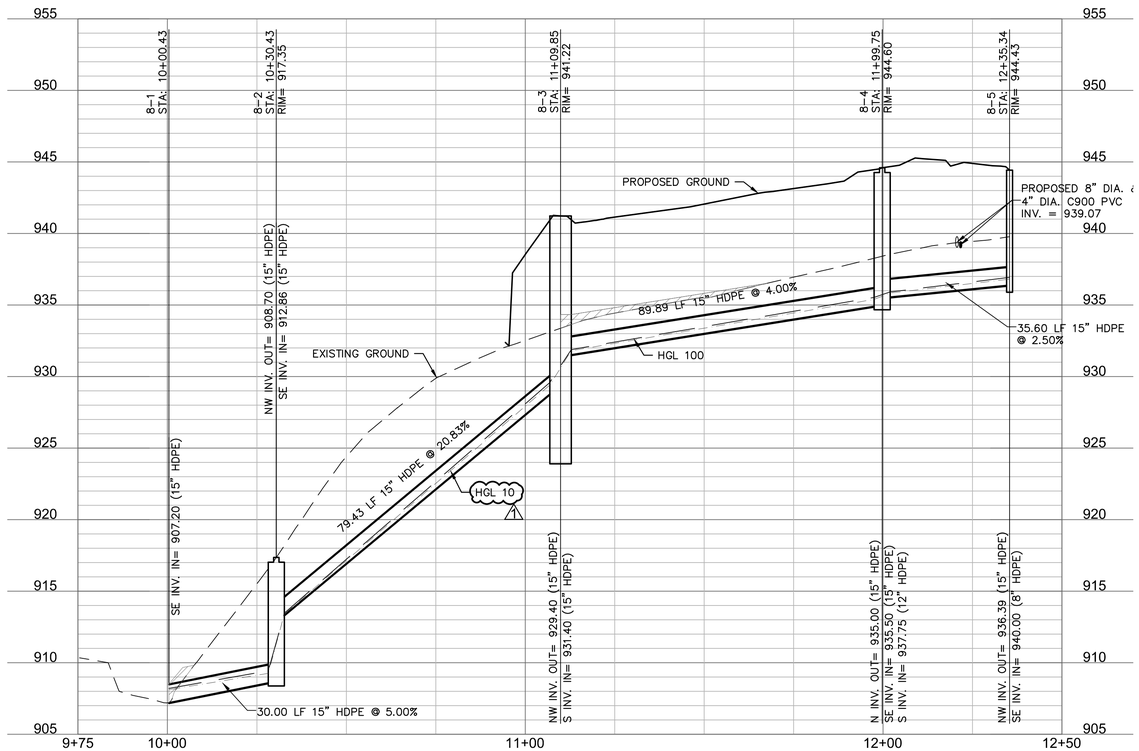


STORM 8-3 PIPE OUTLET ELEVATION DETAIL
(N.T.S)





STORM LINE 8 (9+75 - 12+50)



STRUCTURES	
ID	DESCRIPTION
8-1	10+00.43 STORM LINE 8 15" FES N: 1014576.203; E: 2822490.294
8-2	10+30.43 STORM LINE 8 48" MH N: 1014555.863; E: 2822512.346
8-3	11+09.85 STORM LINE 8 5' X 3' CURB INLET (NON-SETBACK) (SEE DETAIL) N: 1014502.013; E: 2822570.731
8-4	11+99.75 STORM LINE 8 48" MH N: 1014414.713; E: 2822592.155
8-5	12+35.34 STORM LINE 8 NYLOPLAST CURB INLET (18" – 2'X3') N: 1014398.103; E: 2822623.639

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
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PROFESSIONAL ENGINEER

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1.	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

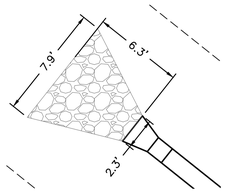
LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C510

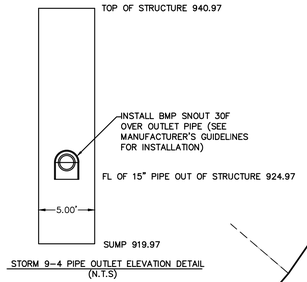
File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_STM02_ B190012.dwg ~ Layout: STORM SEWER PLAN & PROFILE (6) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



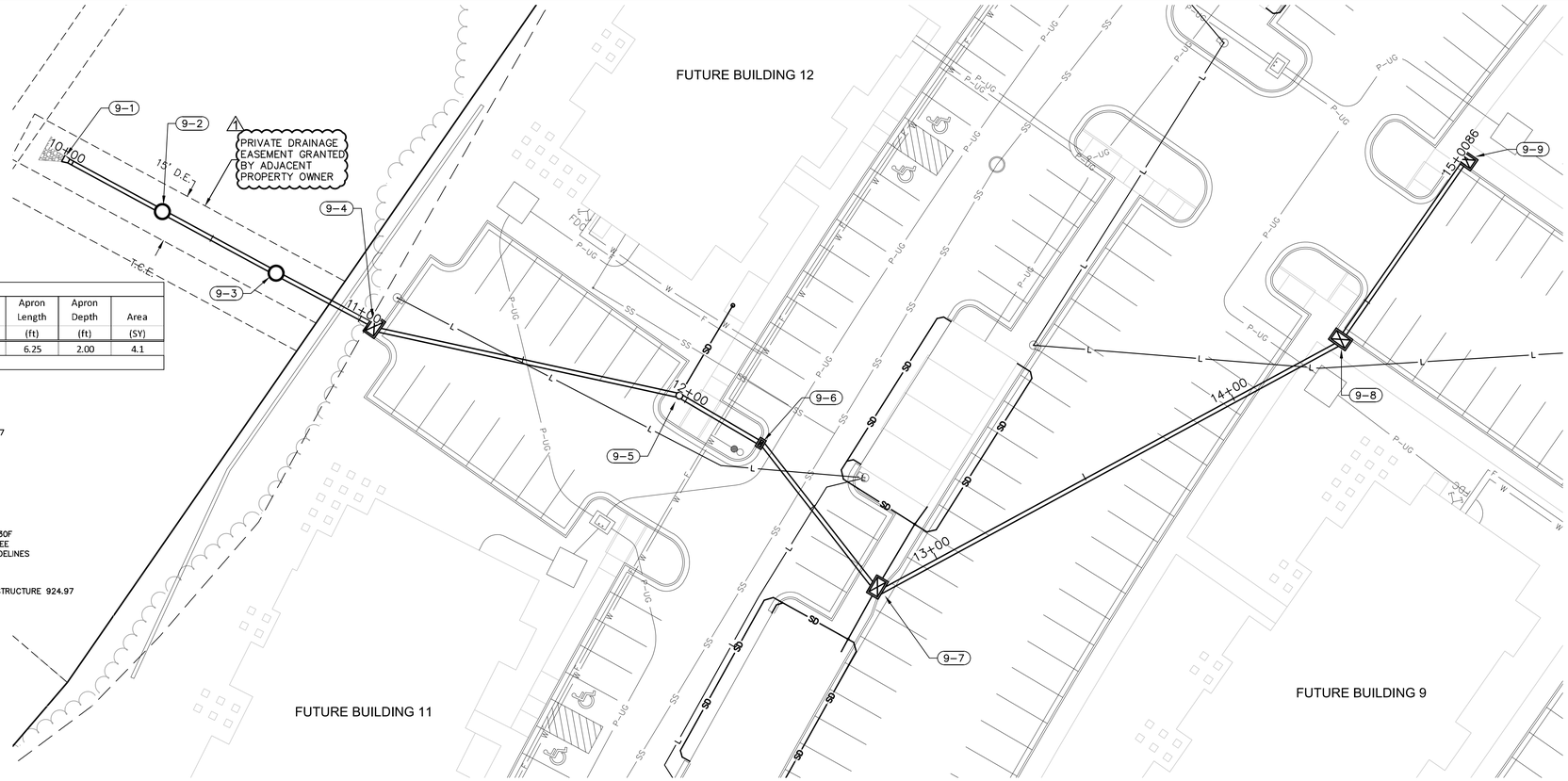
SCALE 1": 5'

Riprap Calculations								
End Section	Q_{100} (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
9-1	11.25	1.25	3	10	6.25	2.00	4.1

*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18

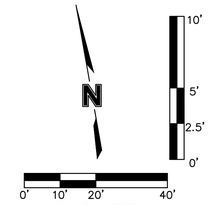


STORM 9-4 PIPE OUTLET ELEVATION DETAIL
(N.T.S)

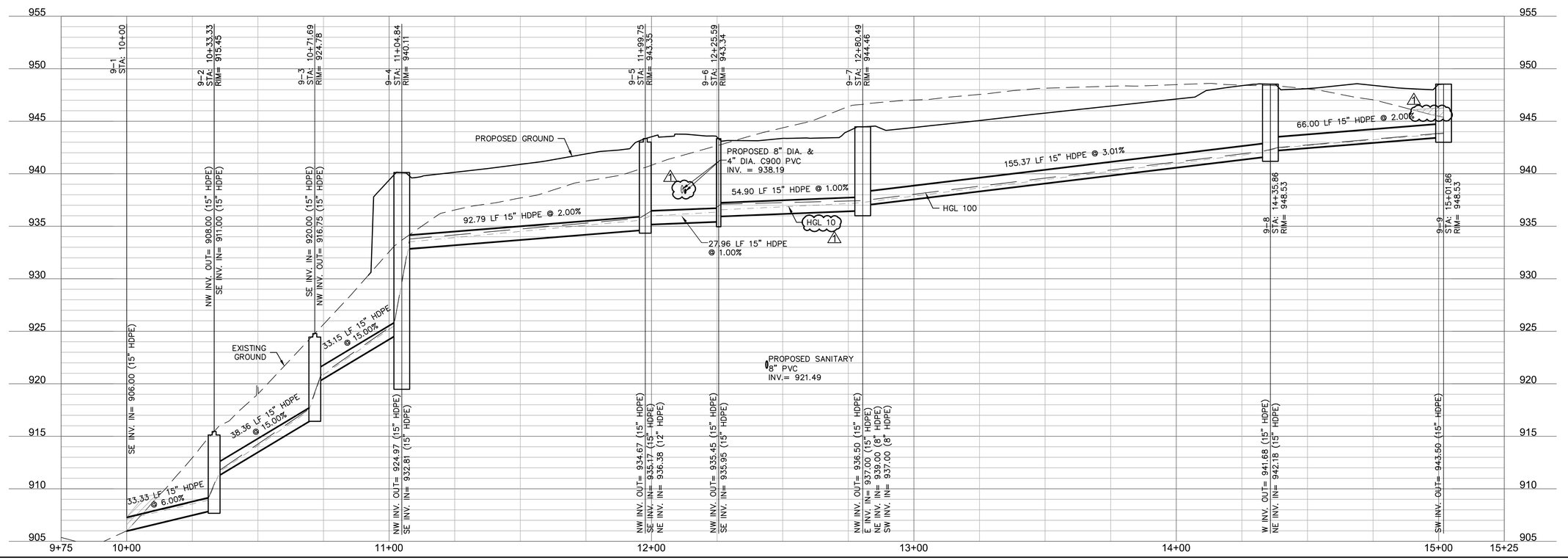


NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

STRUCTURES	
ID	DESCRIPTION
9-1	10+00 STORM LINE 9 15" FES N: 1014345.160; E: 2822262.670
9-2	10+33.33 STORM LINE 9 48" MH N: 1014324.373; E: 2822288.723
9-3	10+71.69 STORM LINE 9 48" MH N: 1014300.448; E: 2822318.707
9-4	11+04.84 STORM LINE 9 5' X 3' CURB INLET (NON-SETBACK) (SEE DETAIL) N: 1014279.774; E: 2822344.617
9-5	11+99.75 STORM LINE 8 48" MH N: 1014243.618; E: 2822430.074
9-6	12+25.59 STORM LINE 9 NYLOPLAST CURB INLET (18" – 2'X3') N: 1014225.407; E: 2822451.297
9-7	12+80.49 STORM LINE 9 5' X 3' CURB INLET (SETBACK) N: 1014177.363; E: 2822477.866
9-8	14+35.86 STORM LINE 9 5' X 3' CURB INLET (NON-SETBACK) N: 1014225.119; E: 2822625.712
9-9	15+01.86 STORM LINE 9 5' X 3' CURB INLET (NON-SETBACK) N: 1014271.788; E: 2822672.381



STORM LINE 9 (9+75 - 15+25)



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1	07 JAN 2021		PERMIT SET / CITY COMMENT REVISIONS

STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

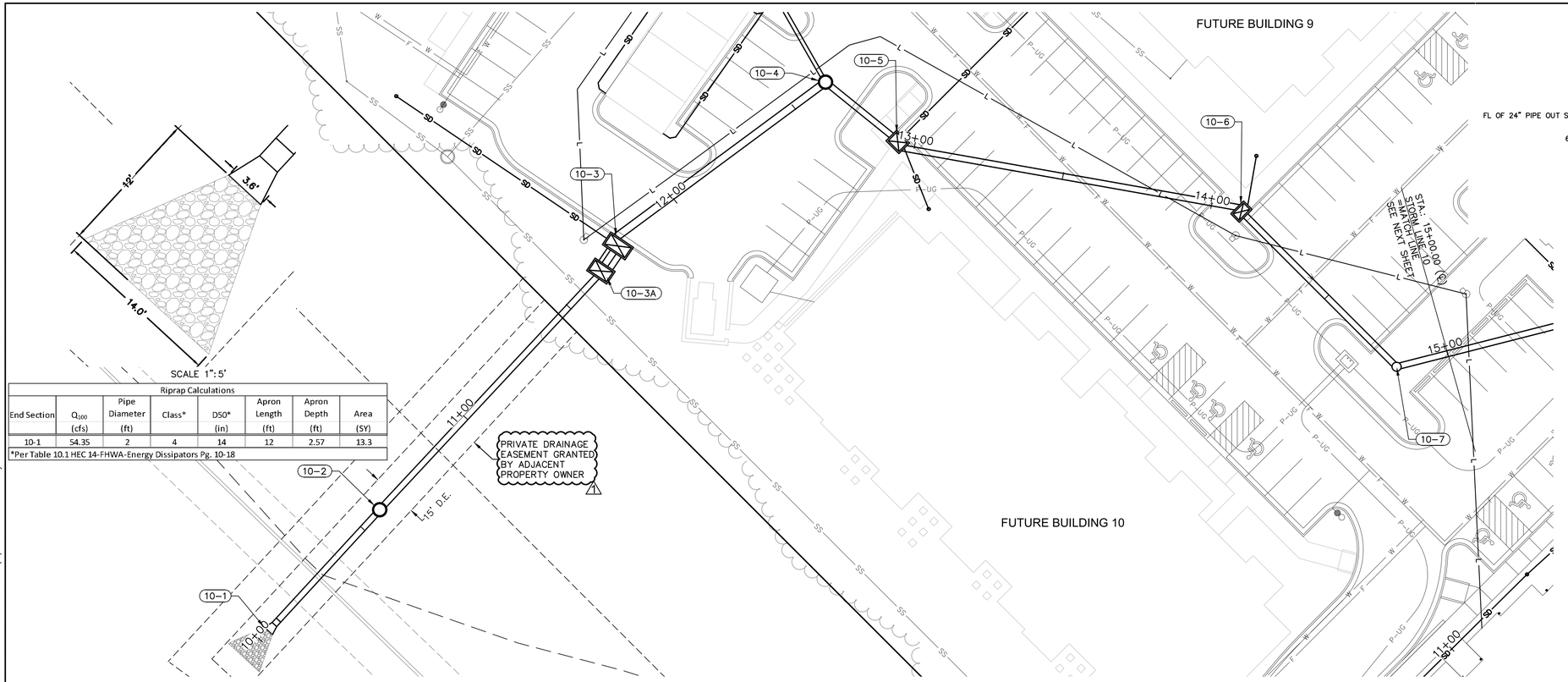
LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C511

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_STM02_ B190012.dwg ~ Layout: STORM SEWER PLAN & PROFILE (7) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



STORM 10-3 OUTLET ELEVATION DETAIL
(N.T.S)

Riprap Calculations								
End Section	Q_{100} (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
10-1	54.35	2	4	14	12	2.57	13.3

*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18

ID	DESCRIPTION
10-1	10+04.01 STORM LINE 10 24" FES N: 1013844.614; E: 2822218.514
10-2	10+58.36 STORM LINE 10 48" MH N: 1013884.665; E: 2822255.256
10-3A	11+65.92 STORM LINE 10 7' X 4' JUNCTION BOX N: 1013963.537; E: 2822328.383
10-3	11+75.92 STORM LINE 10 8' X 4' CURB INLET (NON-SETBACK) (SEE DETAIL) N: 1013971.825; E: 2822333.979
10-4	12+13.51 STORM LINE 8 48" MH N: 1014025.927; E: 2822402.604
10-5	12+94.28 STORM LINE 10 5' X 4' CURB INLET (NON-SETBACK) N: 1014006.213; E: 2822426.490
10-6	14+10.14 STORM LINE 10 5' X 3' CURB INLET (NON-SETBACK) N: 1013983.175; E: 2822540.038
10-7	14+82.64 STORM LINE 10 30" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013931.909; E: 2822591.303

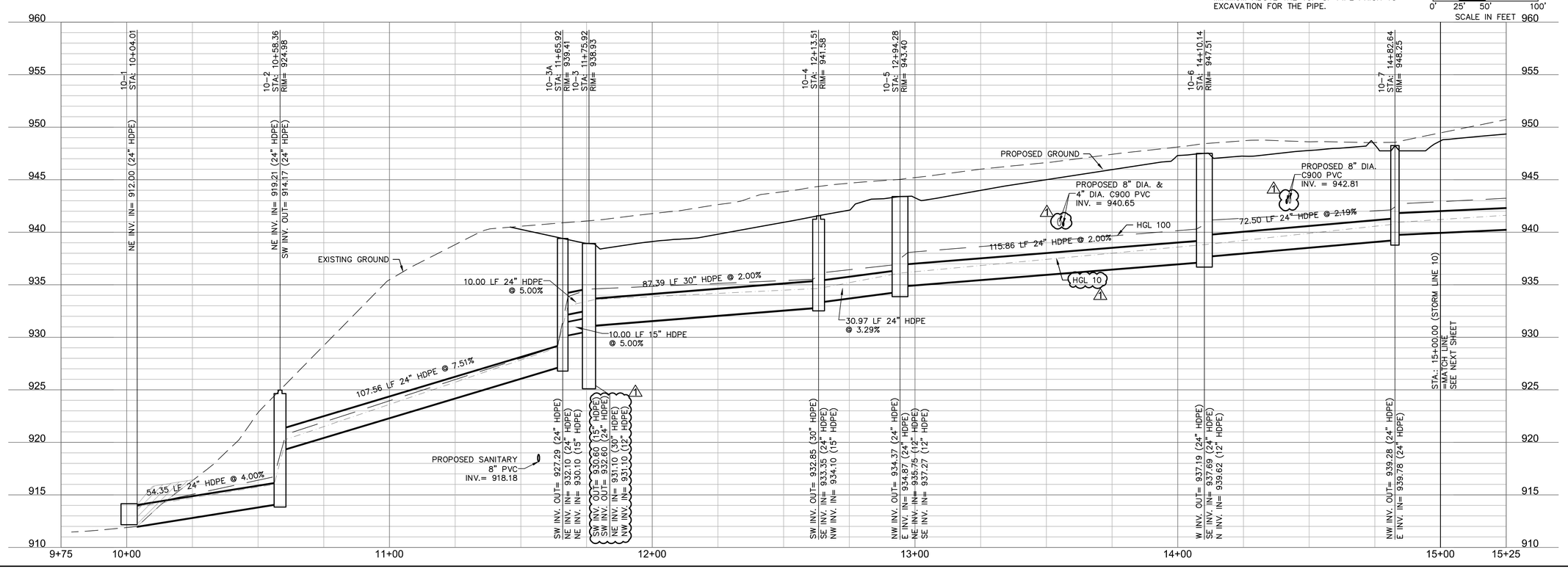
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

N

0' 25' 50' 100'
SCALE IN FEET

10' 5' 2.5' 0'

STORM LINE 10 (9+75 - 15+25)



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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

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SHEET
C512

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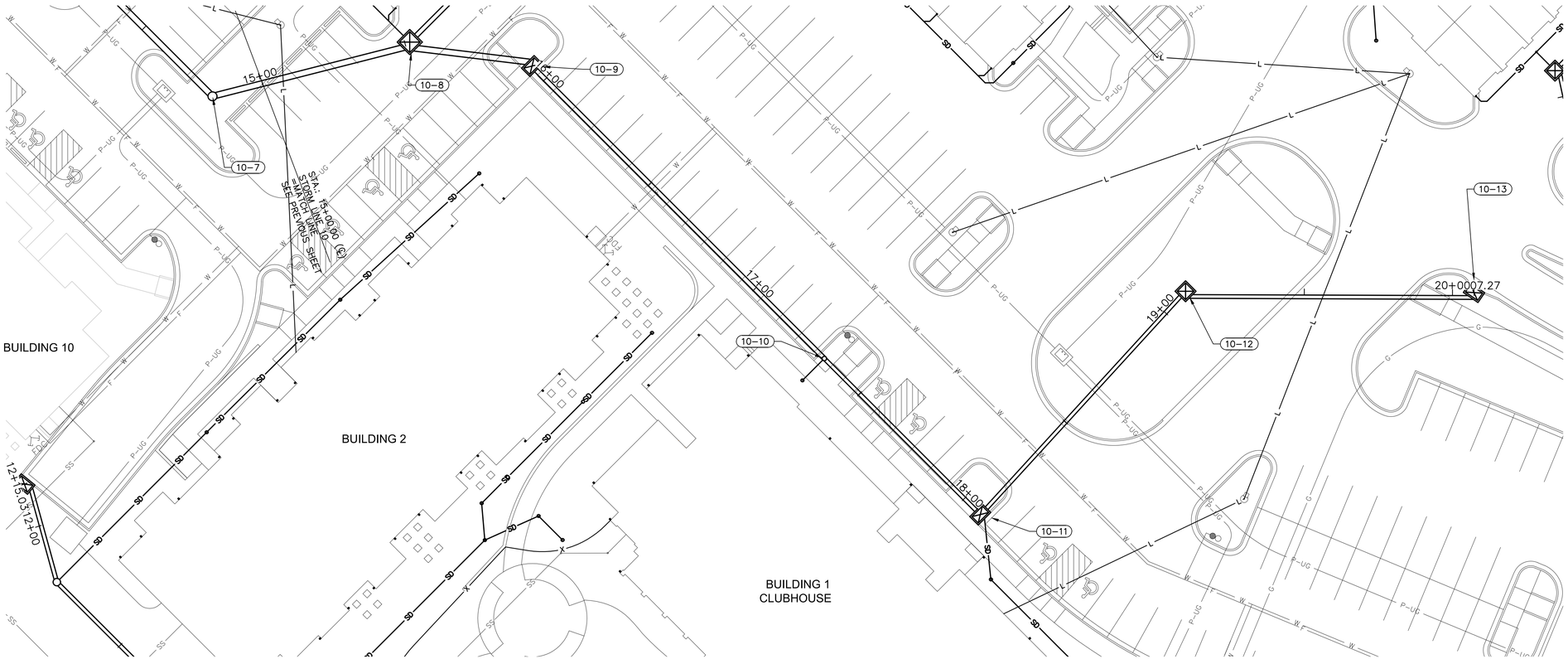
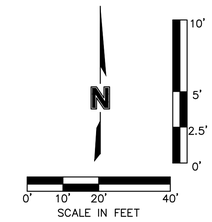
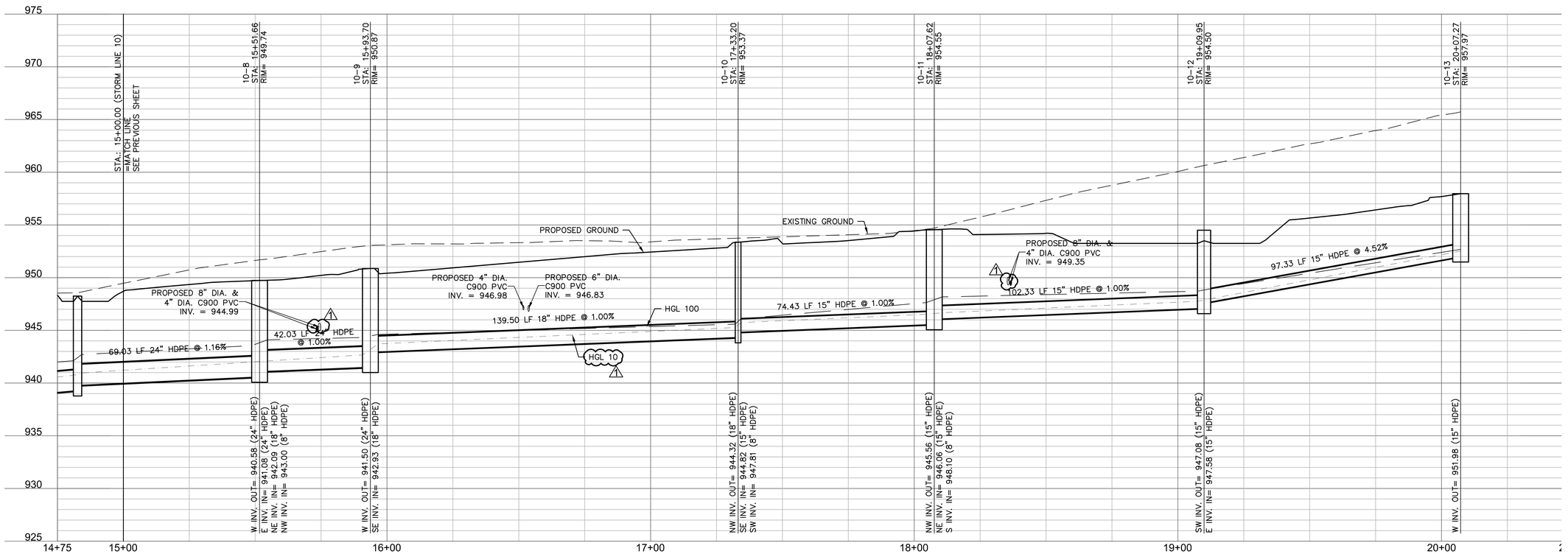


NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

STRUCTURES	
ID	DESCRIPTION
10–8	15+51.66 STORM LINE 10 5' X 5' – JUNCTION BOX N: 1013950.205; E: 2822657.860
10–9	15+93.70 STORM LINE 10 5' X 3' CURB INLET (NON–SETBACK) N: 1013942.117; E: 2822699.109
10–10	17+33.20 STORM LINE 10 18" NYLOPLAST D.B. W/ SOLID TOP N: 1013843.476; E: 2822797.751
10–11	18+07.62 STORM LINE 10 5' X 3' CURB INLET (NON–SETBACK) N: 1013790.849; E: 2822850.377
10–12	19+09.95 STORM LINE 10 4' X 4' FIELD INLET (OPEN 4 SIDES) N: 1013866.168; E: 2822919.641
10–13	20+07.27 STORM LINE 10 5' X 3' CURB INLET (SETBACK) N: 1013865.704; E: 2823016.966



STORM LINE 10 (14+75 - 20+50)



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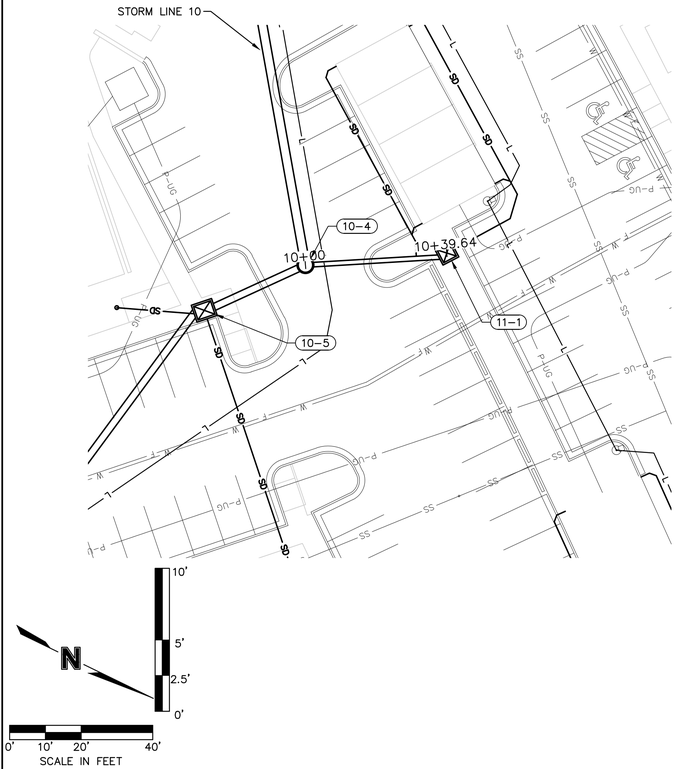
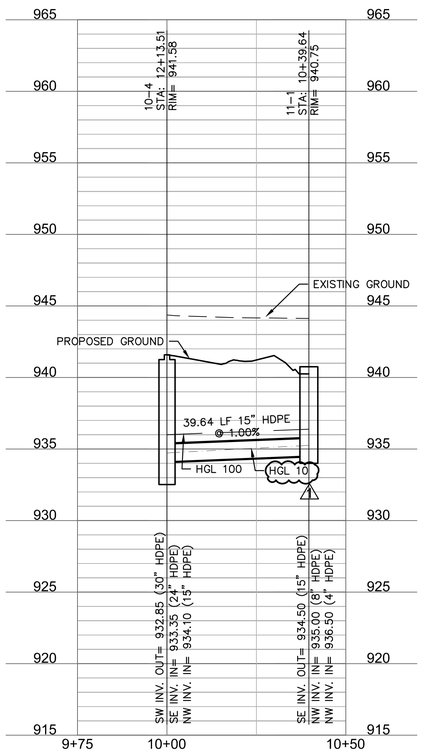
SHEET
C513

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_STM02_ B190012.dwg ~ Layout: STORM SEWER PLAN & PROFILE (9) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

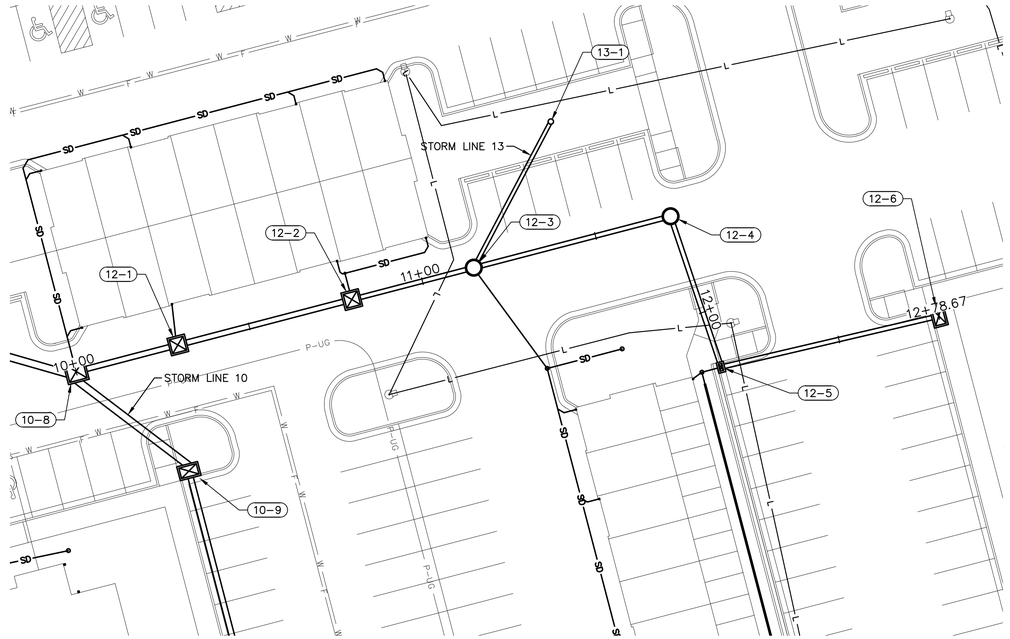


STORM LINE 11 (9+75 - 10+50)

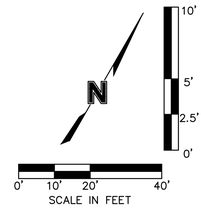


STRUCTURES	
ID	DESCRIPTION
11–1	10+39.64 STORM LINE 11 4' X 4' FIELD INLET (OPEN 4 SIDES) N: 1014059.816; E: 2822382.031

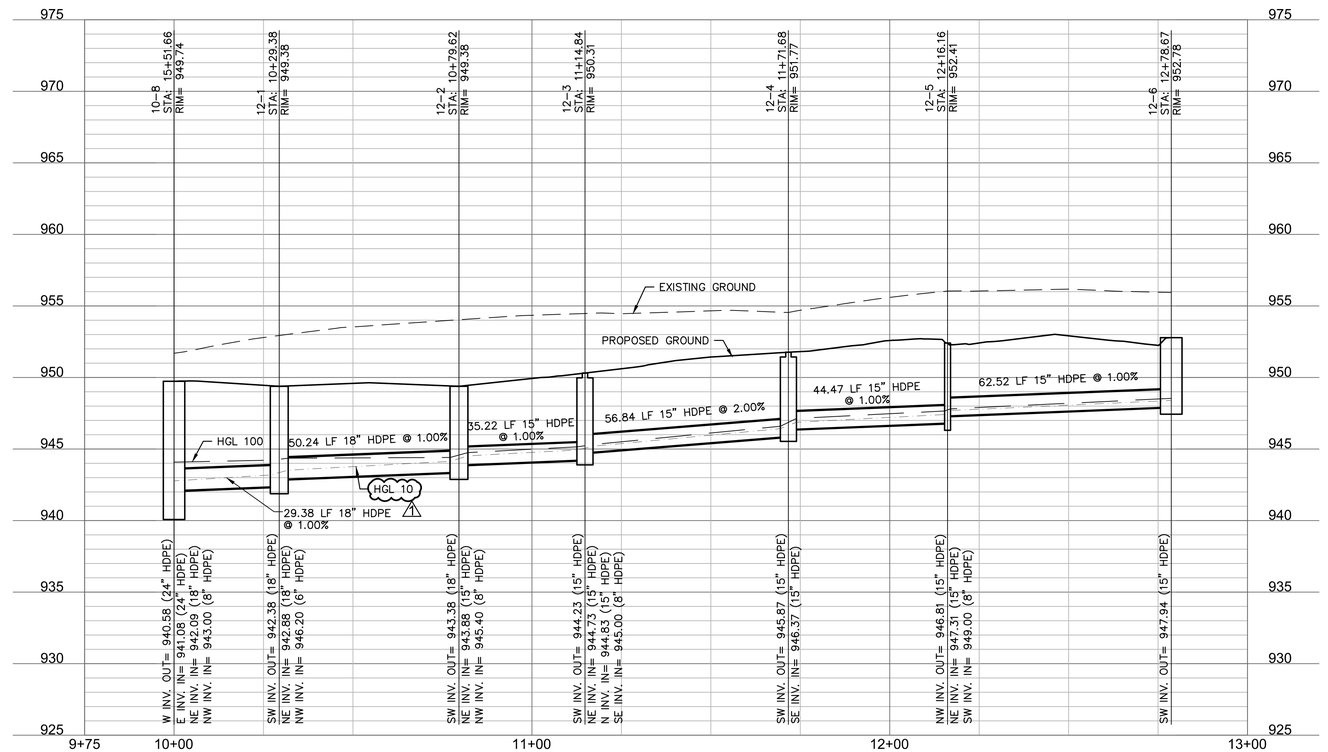
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.



STRUCTURES	
ID	DESCRIPTION
12–1	10+29.38 STORM LINE 12 4' X 4' GRATE INLET N: 1013970.980; E: 2822678.635
12–2	10+79.62 STORM LINE 12 4' X 4' GRATE INLET N: 1014006.505; E: 2822714.160
12–3	11+14.84 STORM LINE 12 48" MH N: 1014031.409; E: 2822739.064
12–4	11+71.68 STORM LINE 12 48" MH N: 1014071.602; E: 2822779.258
12–5	12+16.16 STORM LINE 12 NYLOPLAST CURB INLET (18" – 2'X3') N: 1014042.332; E: 2822812.742
12–6	12+78.67 STORM LINE 12 5' X 3' CURB INLET (NON-SETBACK) N: 1014085.465; E: 2822857.997



STORM LINE 12 (9+75 - 13+00)



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STATE OF MISSOURI
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SHEET
C514

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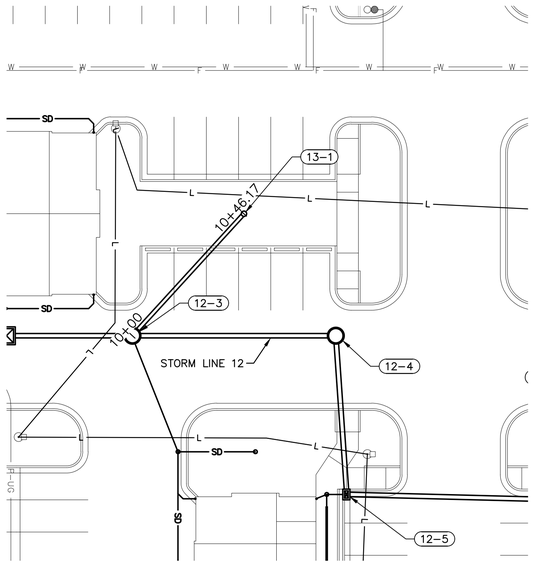
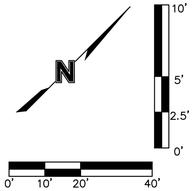
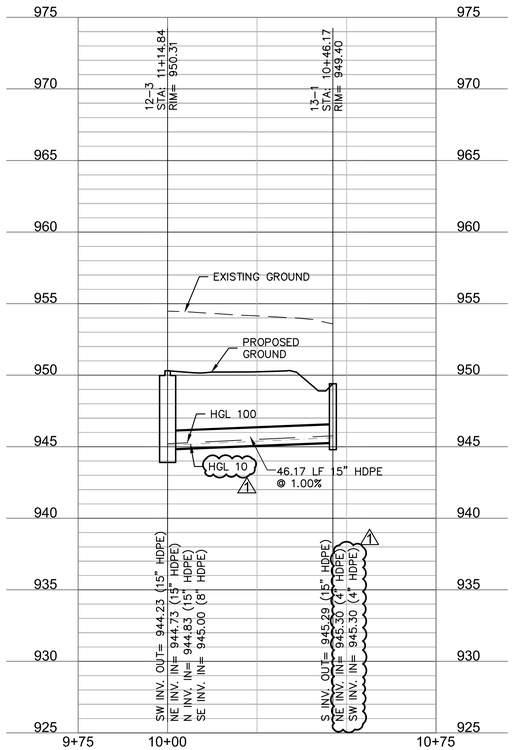


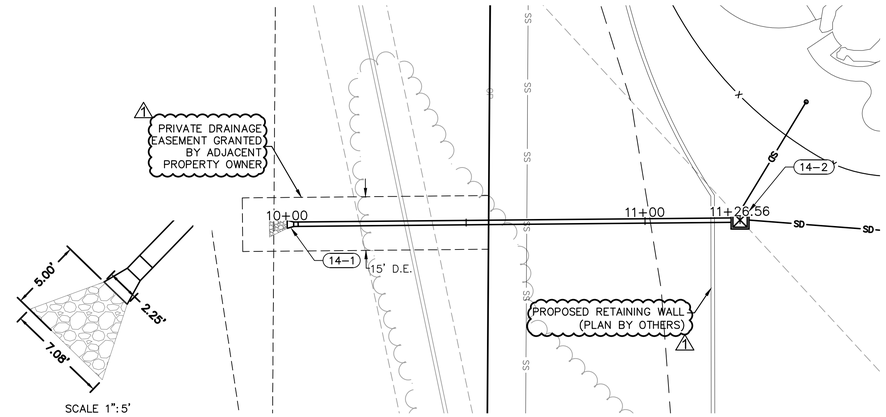


STORM LINE 13 (9+75 - 10+75)

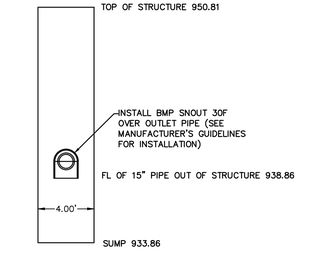


STRUCTURES	
ID	DESCRIPTION
13–1	10+46.17 STORM LINE 13 8" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1014077.537; E: 2822737.002

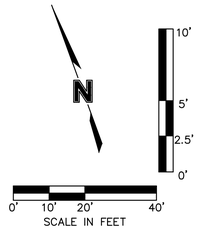
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.



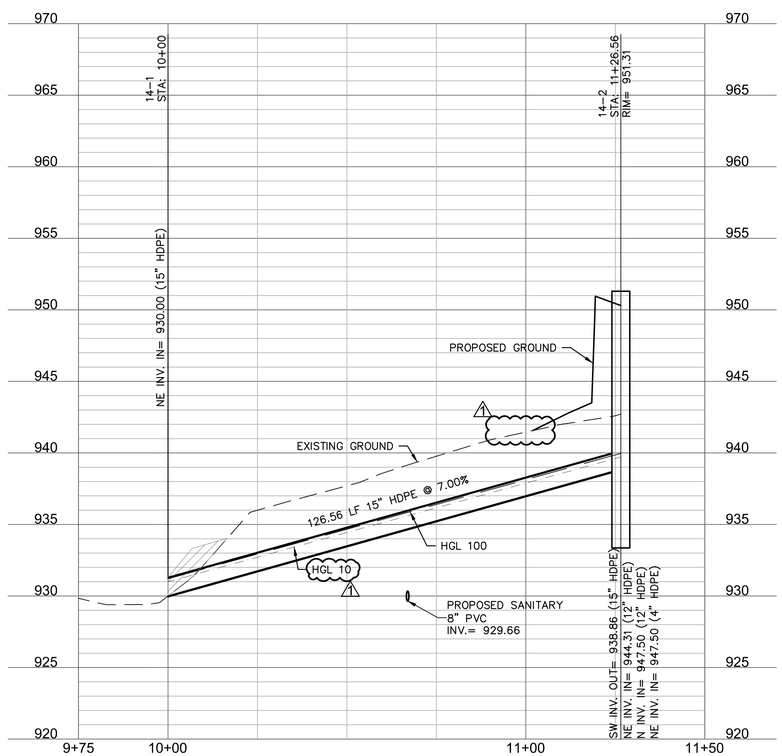
Riprap Calculations							
End Section	Q_{100}	Pipe Diameter	Class*	D50*	Apron Length	Apron Depth	Area
	(cfs)	(ft)		(in)	(ft)	(ft)	(SY)
14-1	7.94	1.25	2	6	5	1.65	3.0
*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18							



STORM 14–2 PIPE OUTLET ELEVATION DETAIL
(N.T.S)



STORM LINE 14 (9+75 - 11+50)



STRUCTURES	
ID	DESCRIPTION
14–1	10+00 STORM LINE 14 15" FES N: 1013490.977; E: 2822693.191
14–2	11+26.56 STORM LINE 14 4' X 4' FIELD INLET (OPEN 3 SIDES–N,S,E) (SEE DETAIL) N: 1013581.886; E: 2822781.243

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02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

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MO# 2015000555

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SHEET
C515

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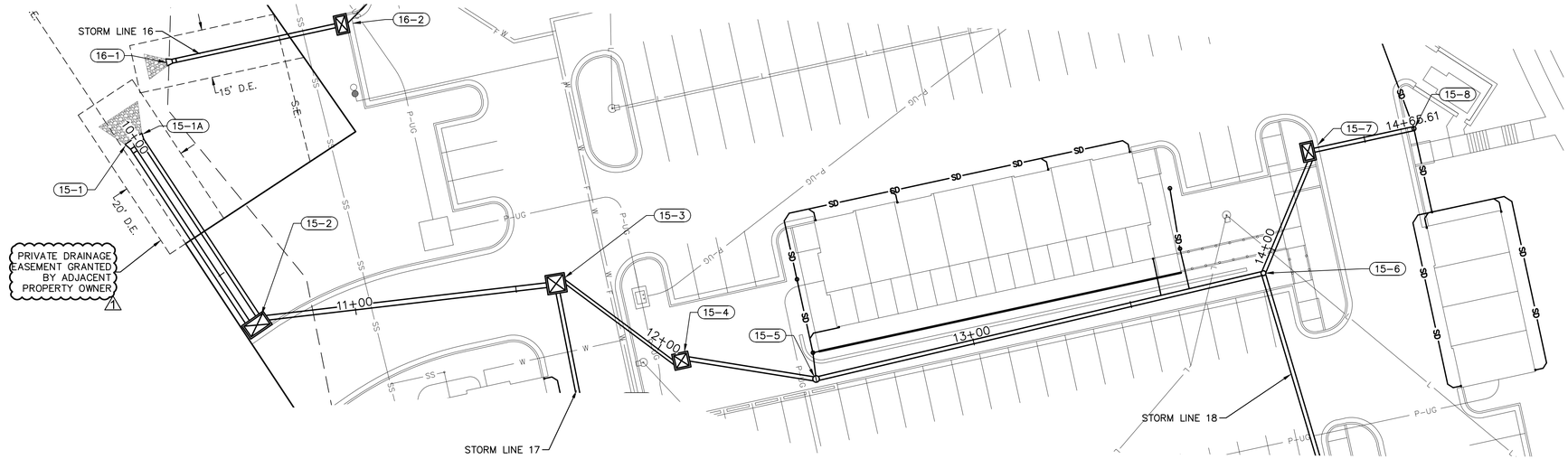
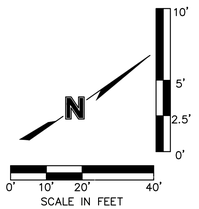
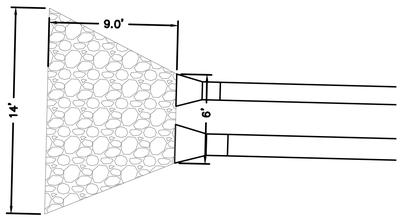


NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

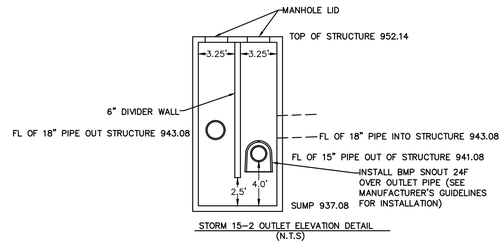
STRUCTURES	
ID	DESCRIPTION
15-1	10+00 STORM LINE 15 18" FES N: 1013429.663; E: 2822932.913
15-1A	10+00.10 STORM LINE 15 15" FES N: 1013433.411; E: 2822933.009
15-2	10+69.13 STORM LINE 15 7' X 4' CURB INLET (NON-SETBACK) (SEE DETAIL) N: 1013429.821; E: 2823002.048
15-3	11+62.50 STORM LINE 15 5' X 5' - JUNCTION BOX N: 1013513.040; E: 2823044.379
15-4	12+07.97 STORM LINE 15 4' X 4' FIELD INLET (OPEN 4 SIDES) N: 1013531.201; E: 2823086.059
15-5	12+49.95 STORM LINE 15 24" NYLOPLAST D.B. W/ SOLID TOP N: 1013562.104; E: 2823114.484
15-6	13+92.04 STORM LINE 15 18" NYLOPLAST D.B. W/ SOLID TOP N: 1013694.272; E: 2823166.637
15-7	14+32.11 STORM LINE 15 5' X 3' CURB INLET (NON-SETBACK) N: 1013727.098; E: 2823143.654
15-8	14+65.61 STORM LINE 15 15" NYLOPLAST D.B. W/ SOLID TOP N: 1013758.033; E: 2823156.511





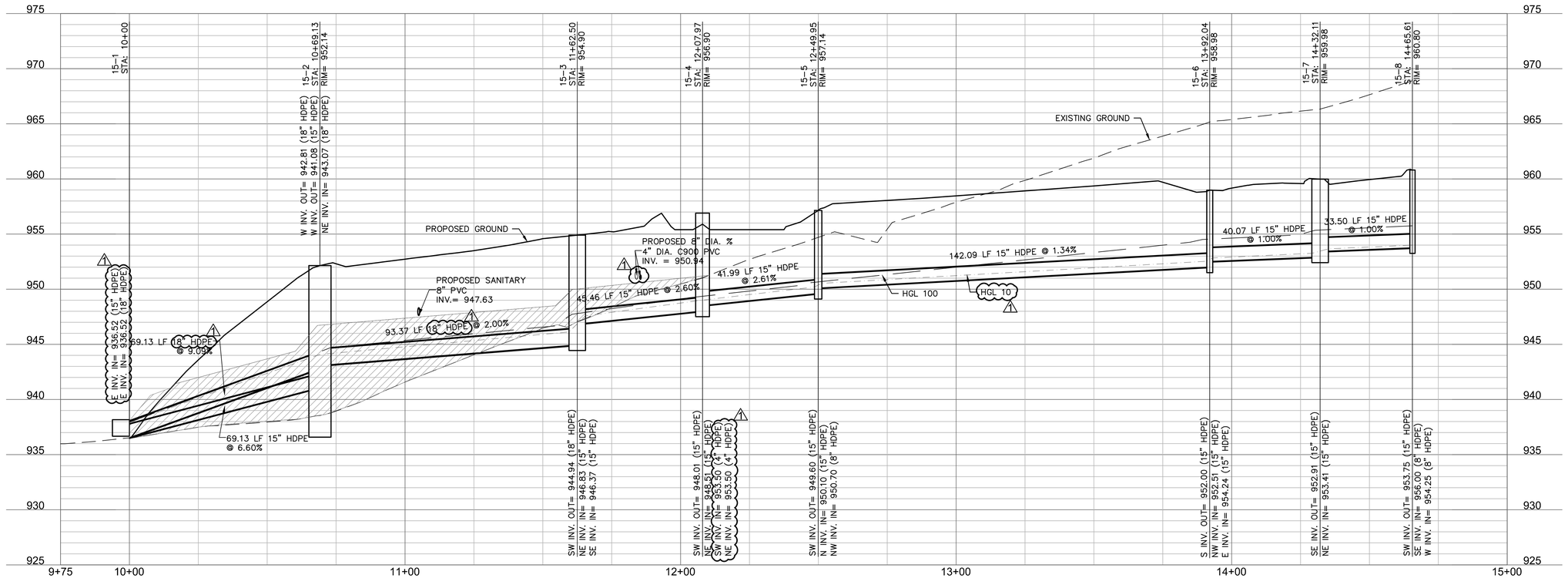
SCALE 1":5'

Riprap Calculations							
End Section	Q_{100} (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
15-1	18.86	1.5	4	14	9	2.57	13.3
*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18							



STORM 15-2 OUTLET ELEVATION DETAIL
(N.T.S)

STORM LINE 15 (9+75 - 15+00)



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SHEET
C516

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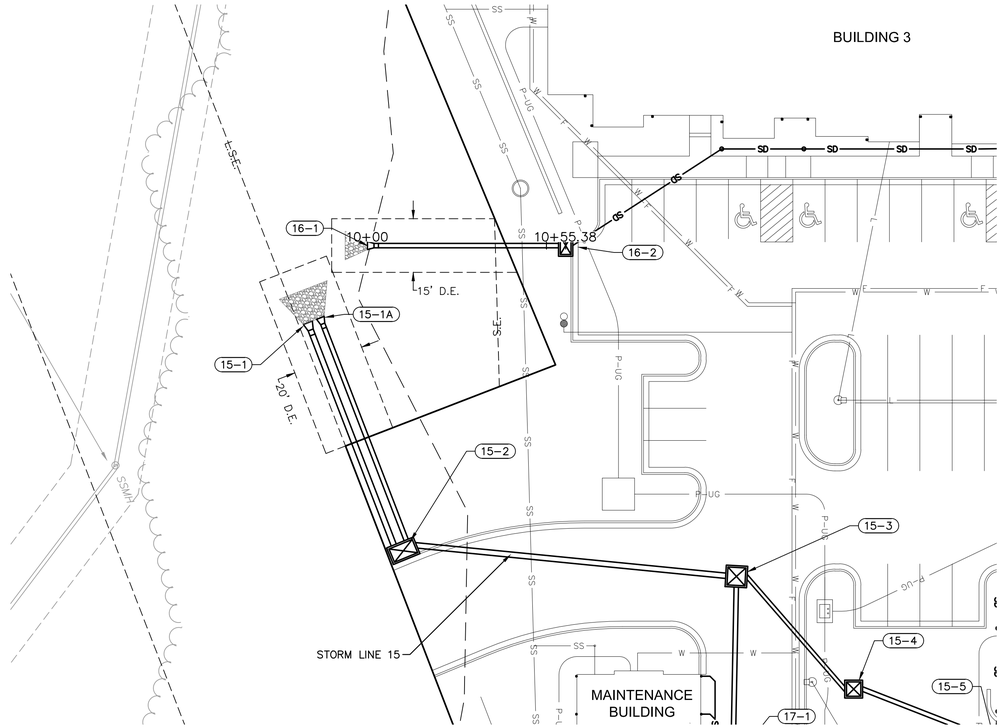
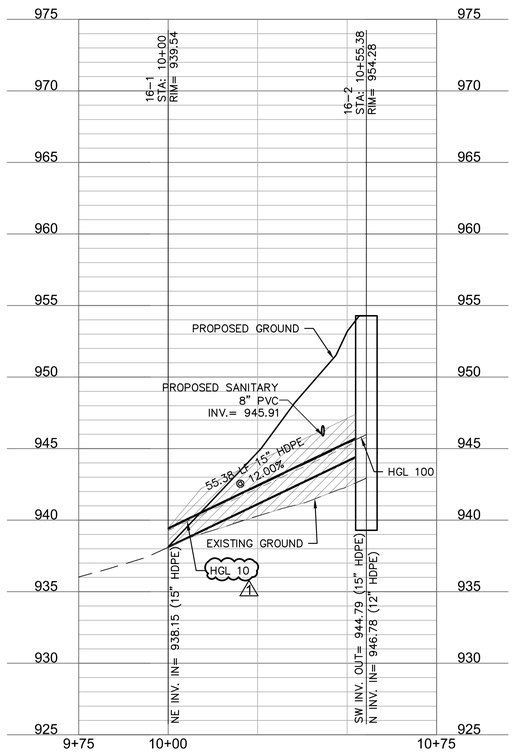
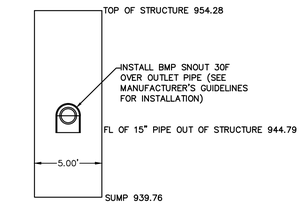
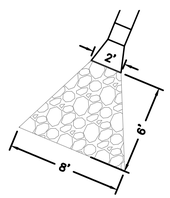


STORM LINE 16 (9+75 - 10+75)





STORM 16–2 PIPE OUTLET ELEVATION DETAIL
(N.T.S)

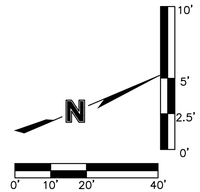


SCALE 1": 5'

End Section	Q_{100} (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
16-1	10.12	1.25	3	10	6.25	2.00	4.1

*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18

STRUCTURES	
ID	DESCRIPTION
16–1	10+00 STORM LINE 16 15" FES N: 1013453.320; E: 2822919.406
16–2	10+55.38 STORM LINE 16 5' X 3' CURB INLET (NON–SETBACK) N: 1013504.456; E: 2822940.659



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STATE OF MISSOURI
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02/04/2021
NUMBER PE-2015000555
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NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

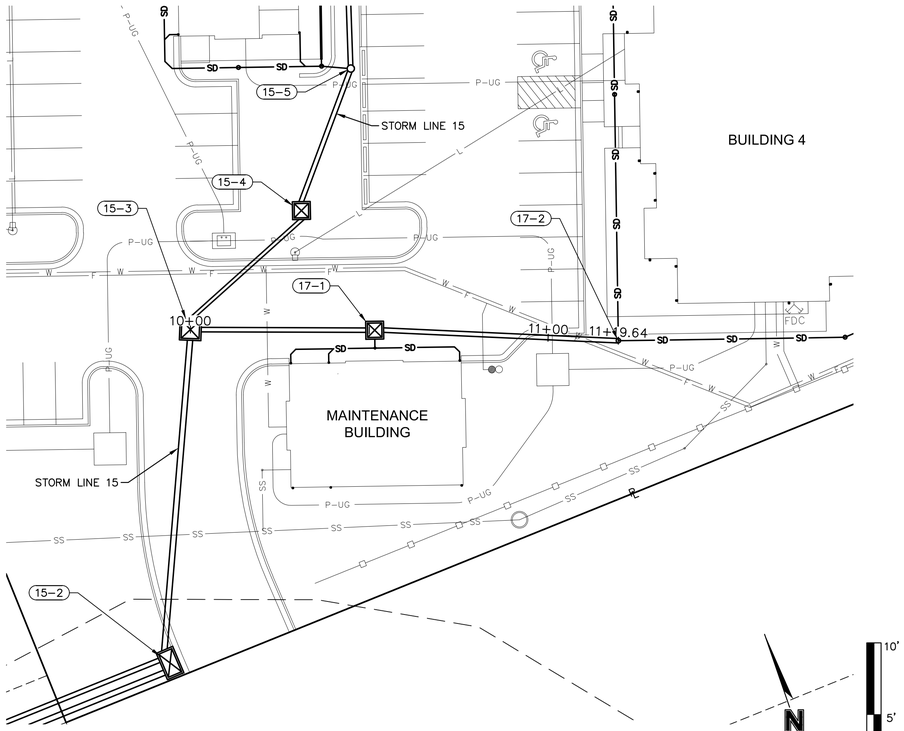
LEE'S SUMMIT, MO

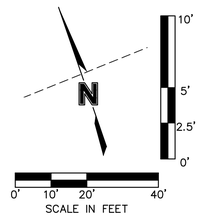
2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

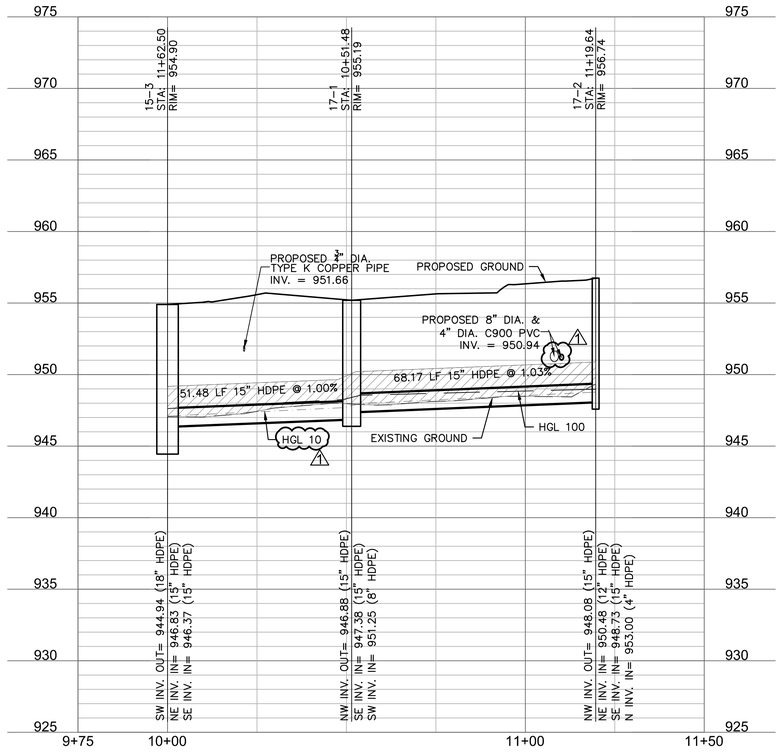
SHEET
C517

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_STM03_ B190012.dwg ~ Layout: STORM SEWER PLAN & PROFILE (13) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



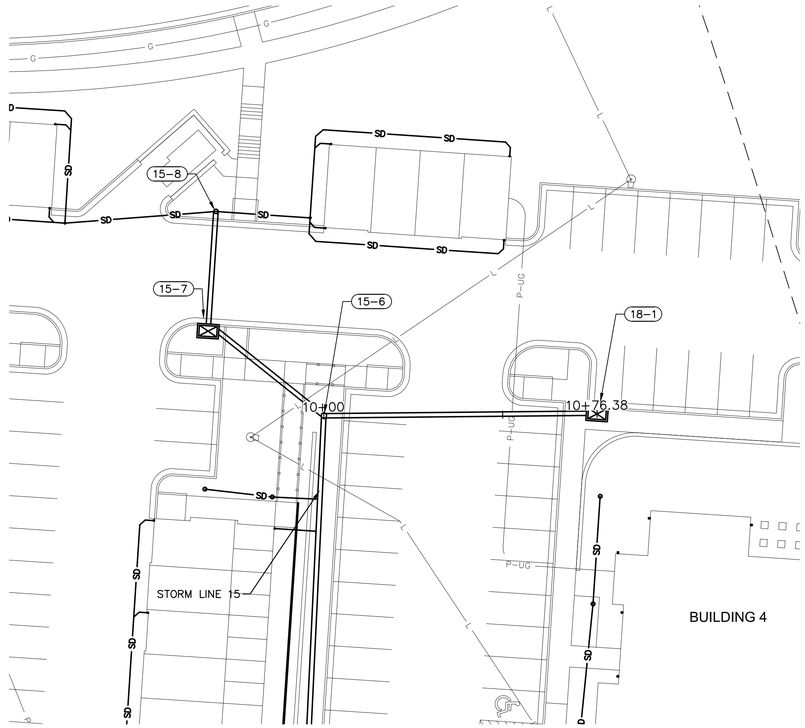


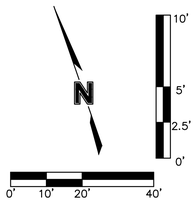
STORM LINE 17 (9+75 - 11+50)



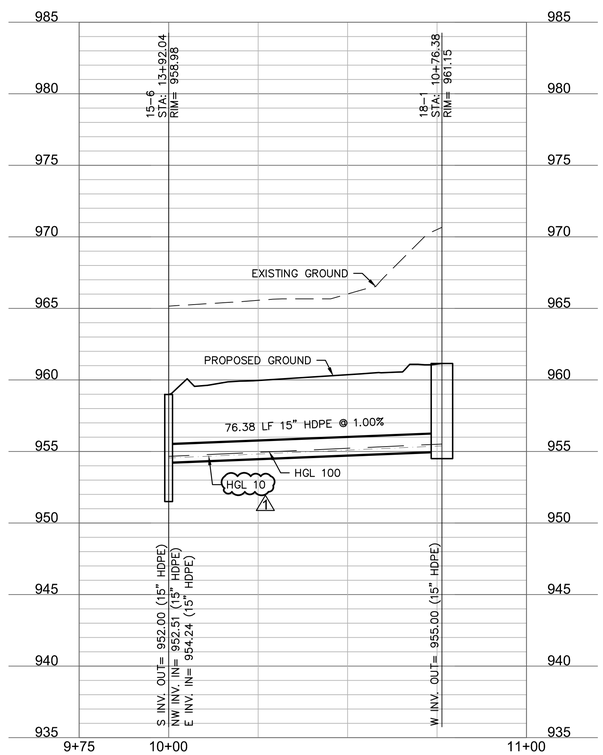
STRUCTURES	
ID	DESCRIPTION
17–1	10+51.48 STORM LINE 17 4' X 4' GRATE INLET N: 1013492.378; E: 2823091.527
17–2	11+19.64 STORM LINE 17 15" NYLOPLAST D.B. W/ SOLID TOP N: 1013462.567; E: 2823152.831

NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





STORM LINE 18 (9+75 - 11+00)



STRUCTURES	
ID	DESCRIPTION
18–1	10+76.38 STORM LINE 18 5' X 3' CURB INLET (NON–SETBACK) N: 1013670.106; E: 2823239.090

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PROFESSIONAL ENGINEER

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MO# 2015000555

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ARIA APARTMENTS
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LEE'S SUMMIT, MO

2020

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checked by: N.D.H.
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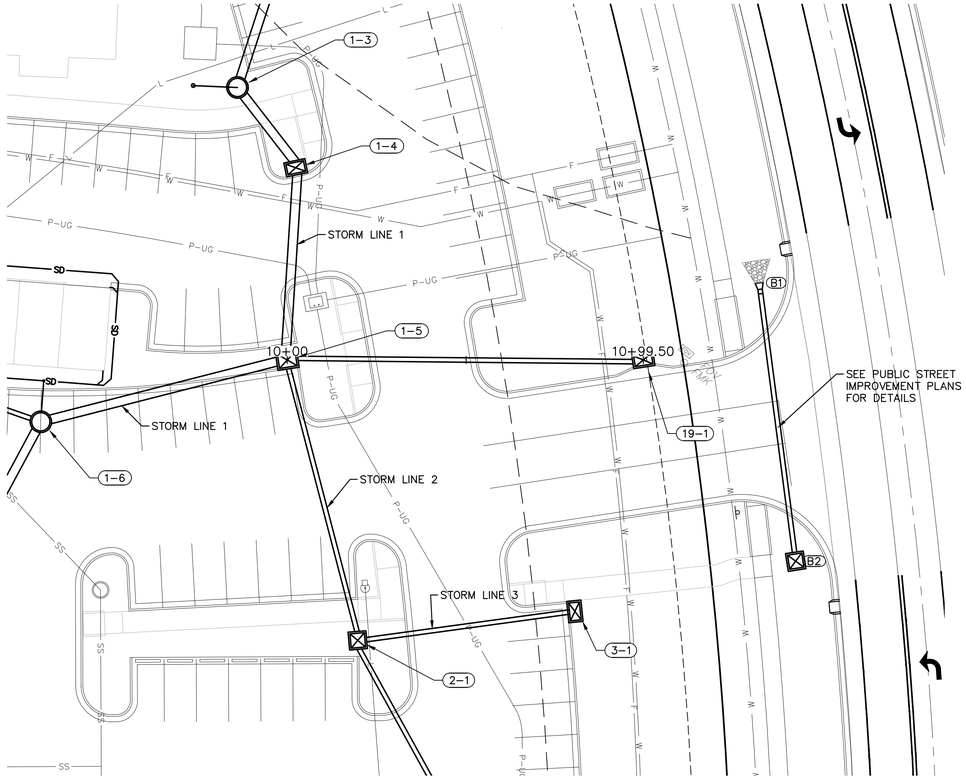
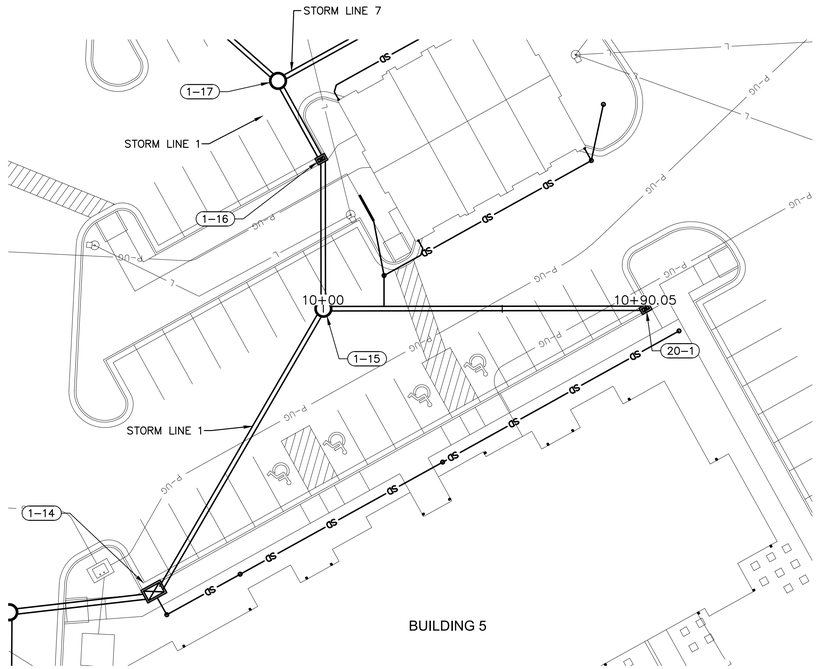
SHEET
C518

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_STM03_ B190012.dwg ~ Layout: STORM SEWER PLAN & PROFILE (14) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

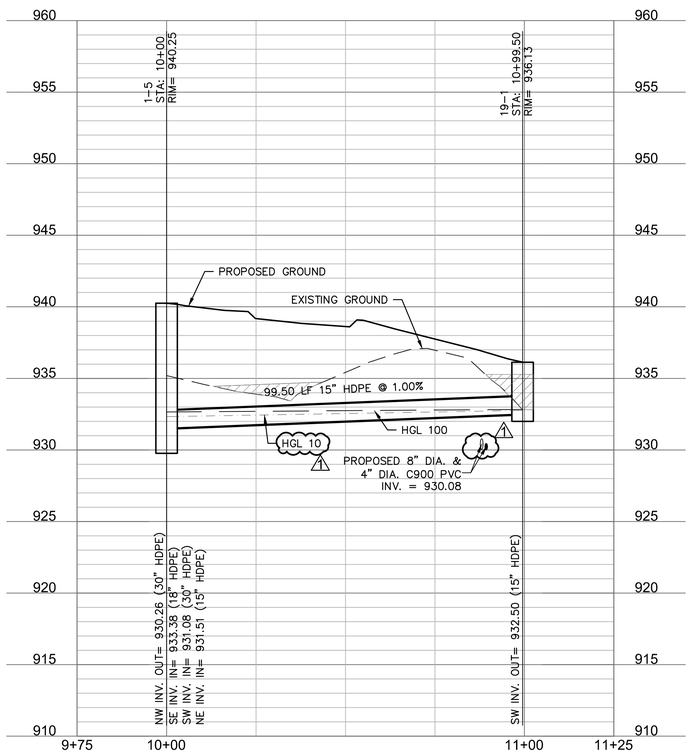
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

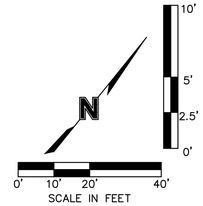




BUILDING 5

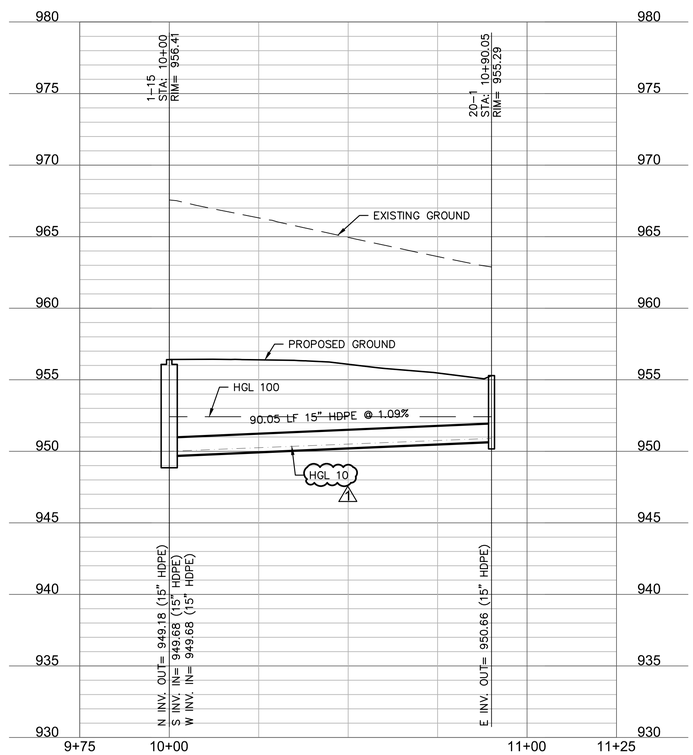
STORM LINE 19 (9+75 - 11+25)

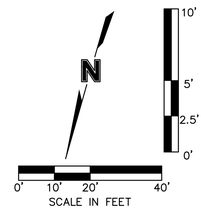




STRUCTURES	
ID	DESCRIPTION
19–1	10+99.50 STORM LINE 19 5' X 3' CURB INLET (SETBACK) N: 1014606.651; E: 2822969.610

STORM LINE 20 (9+75 - 11+25)





STRUCTURES	
ID	DESCRIPTION
20–1	10+90.05 STORM LINE 20 NYLOPLAST CURB INLET (18" – 2'X3') N: 1014002.381; E: 2822956.859

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ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
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SHEET
C519

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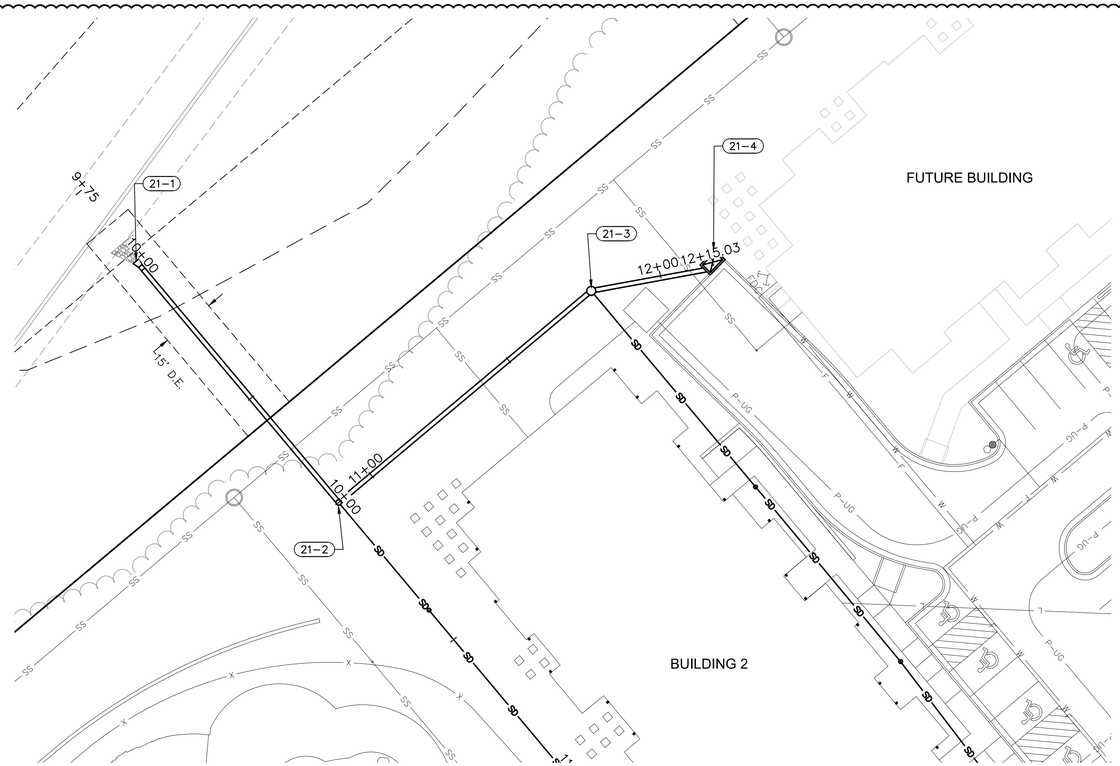
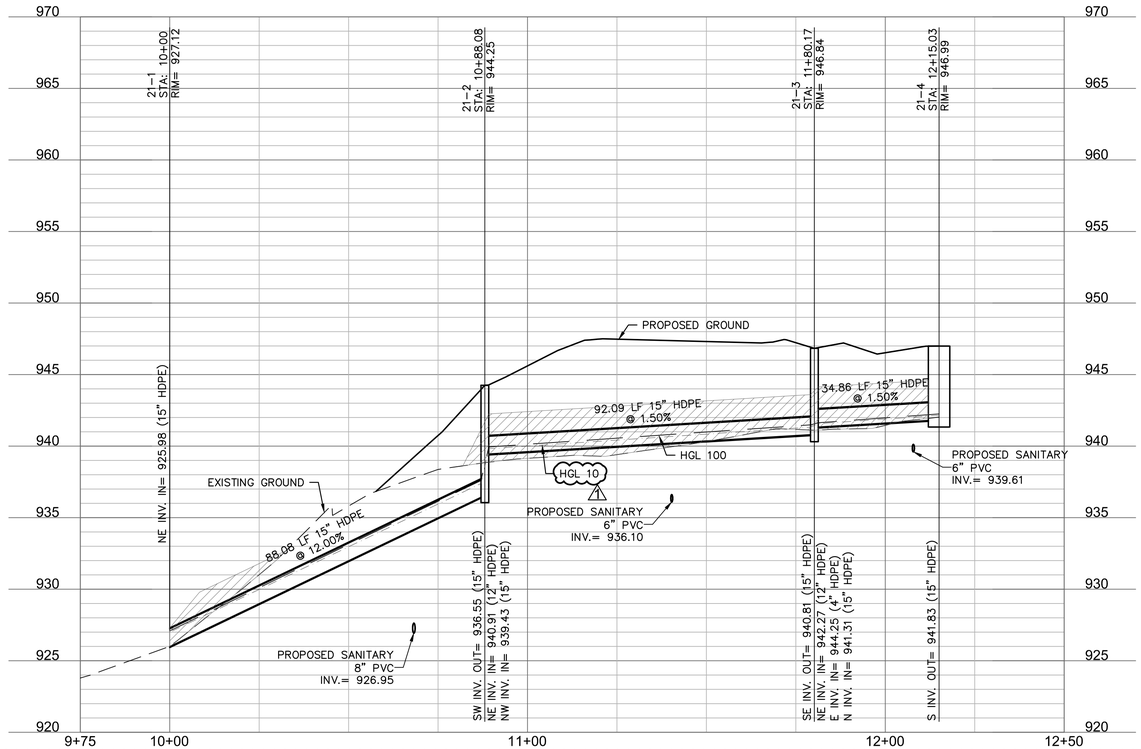
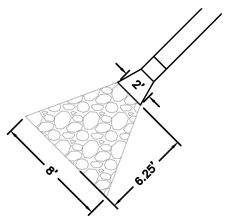
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.



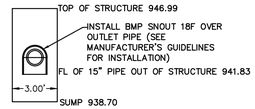
STORM LINE 21 (9+75 - 12+50)





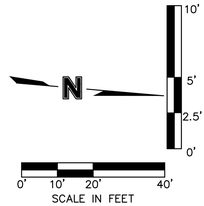
SCALE 1": 5'

Riprap Calculations							
End Section	Q_{100} (cfs)	Pipe Diameter (ft)	Class*	D50* (in)	Apron Length (ft)	Apron Depth (ft)	Area (SY)
21-1	9.81	1.25	3	10	6.25	2.00	4.1
*Per Table 10.1 HEC 14-FHWA-Energy Dissipators Pg. 10-18							



STORM 21-4 PIPE OUTLET ELEVATION DETAIL (N.T.S)

STRUCTURES	
ID	DESCRIPTION
21-1	10+00 STORM LINE 21 15" FES N: 1013640.646; E: 2822541.605
21-2	10+88.08 STORM LINE 21 18" NYLOPLAST D.B. W/ SOLID TOP N: 1013702.925; E: 2822603.884
21-3	11+80.17 STORM LINE 21 30" NYLOPLAST D.B. W/ SOLID TOP N: 1013768.044; E: 2822538.765
21-4	12+15.03 STORM LINE 21 5' X 3' CURB INLET (NON-SETBACK) N: 1013801.141; E: 2822527.827



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02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

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STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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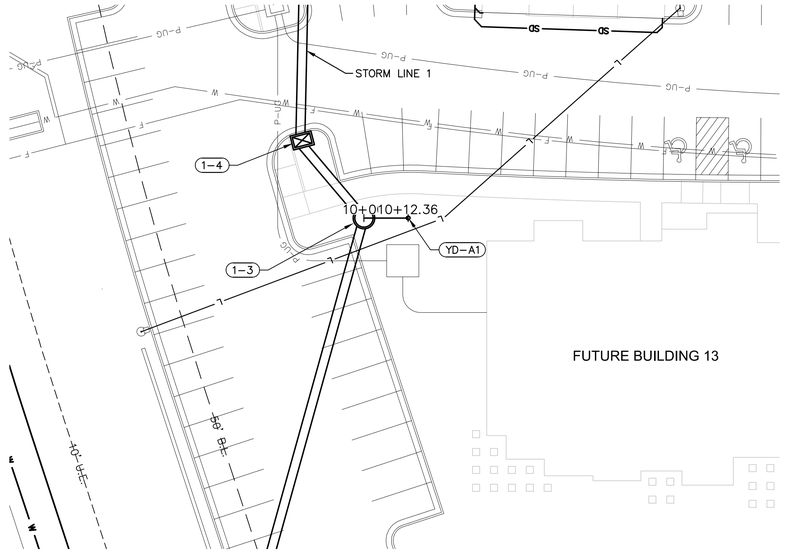
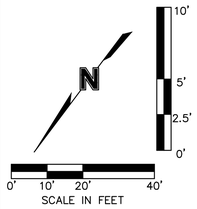
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

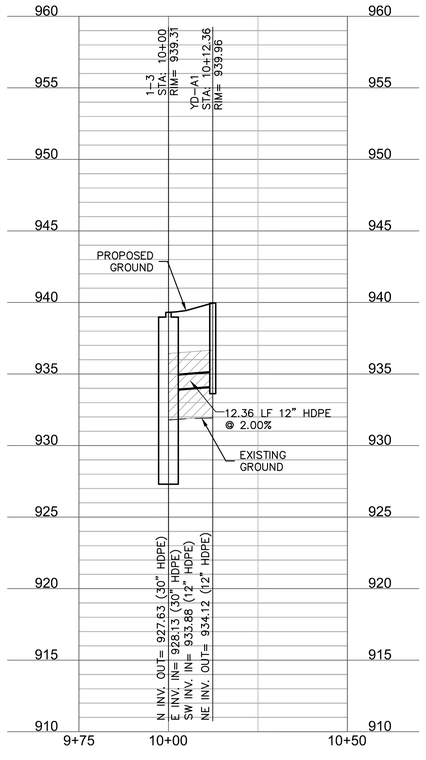
SHEET
C520

NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

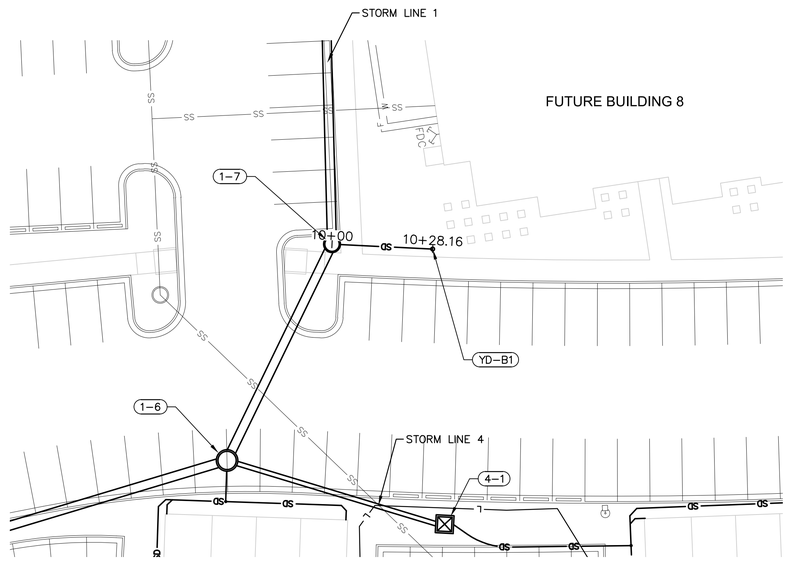


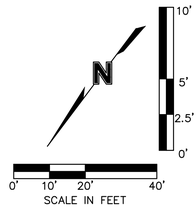


BUILDING STORM LINE A (9+75 - 10+50)

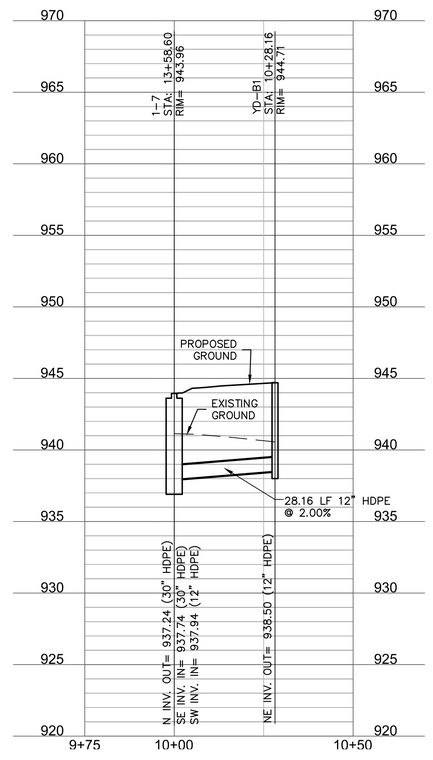


STRUCTURES	
ID	DESCRIPTION
YD–A1	10+12.36 BUILDING STORM LINE A 12" NYLOPLAST D.B. W/ SOLID TOP N: 1014587.580; E: 2822823.521





BUILDING STORM LINE B (9+75 - 10+50)



STRUCTURES	
ID	DESCRIPTION
YD–B1	10+28.16 BUILDING STORM LINE B 12" NYLOPLAST D.B. W/ SOLID TOP N: 1014405.960; E: 2822838.028

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ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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project no.: 019-0012-B
date: 2020.08.27

SHEET
C521

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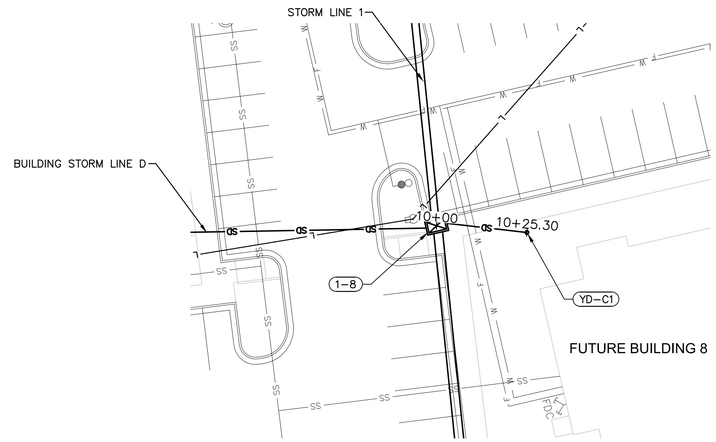
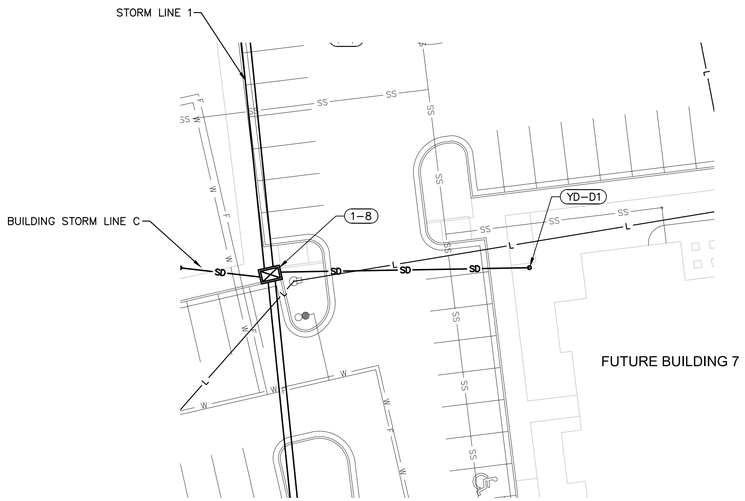
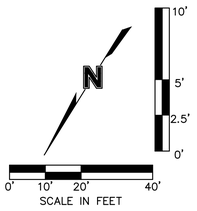
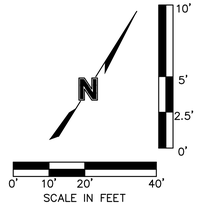
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

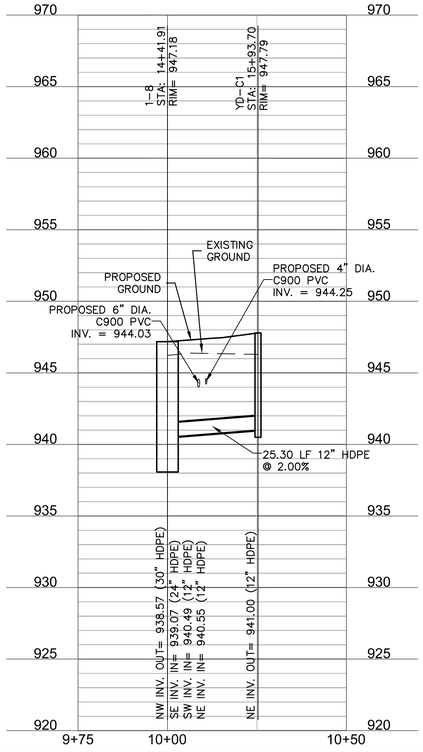






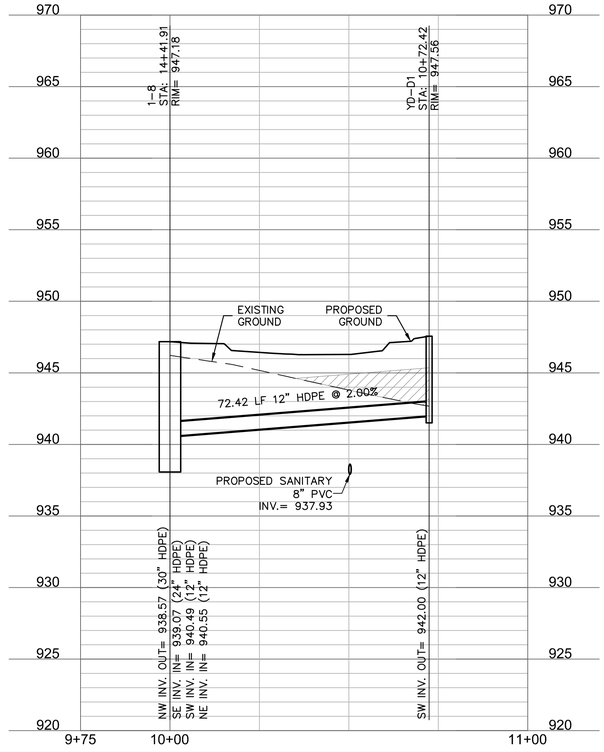


BUILDING STORM LINE C (9+75 - 10+50)



STRUCTURES	
ID	DESCRIPTION
YD–C1	15+93.70 STORM LINE 10 12" NYLOPLAST D.B. W/ SOLID TOP N: 1014344.168; E: 2822890.425

BUILDING STORM LINE D (9+75 - 11+00)



STRUCTURES	
ID	DESCRIPTION
YD–D1	10+72.42 BUILDING STORM LINE D 12" NYLOPLAST D.B. W/ SOLID TOP N: 1014396.001; E: 2822973.150

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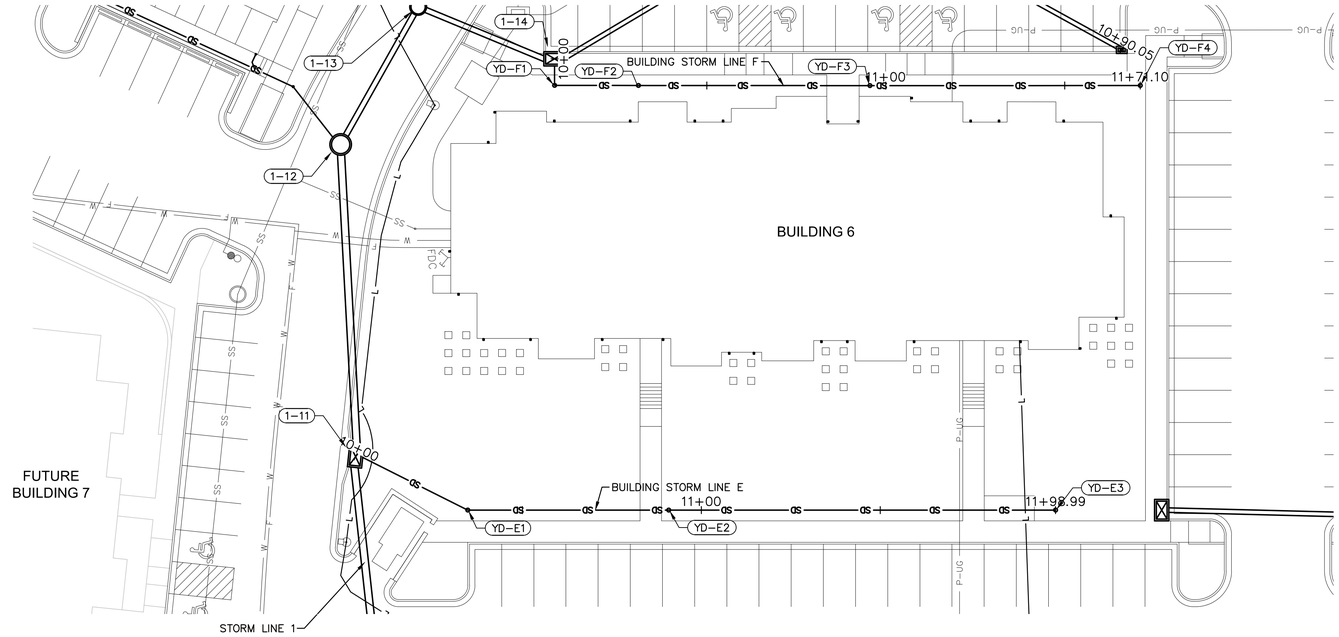
C522

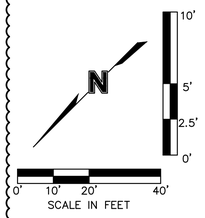
File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP01_ B190012.dwg ~ Layout: ROOF DRAIN PLAN & PROFILE (2) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

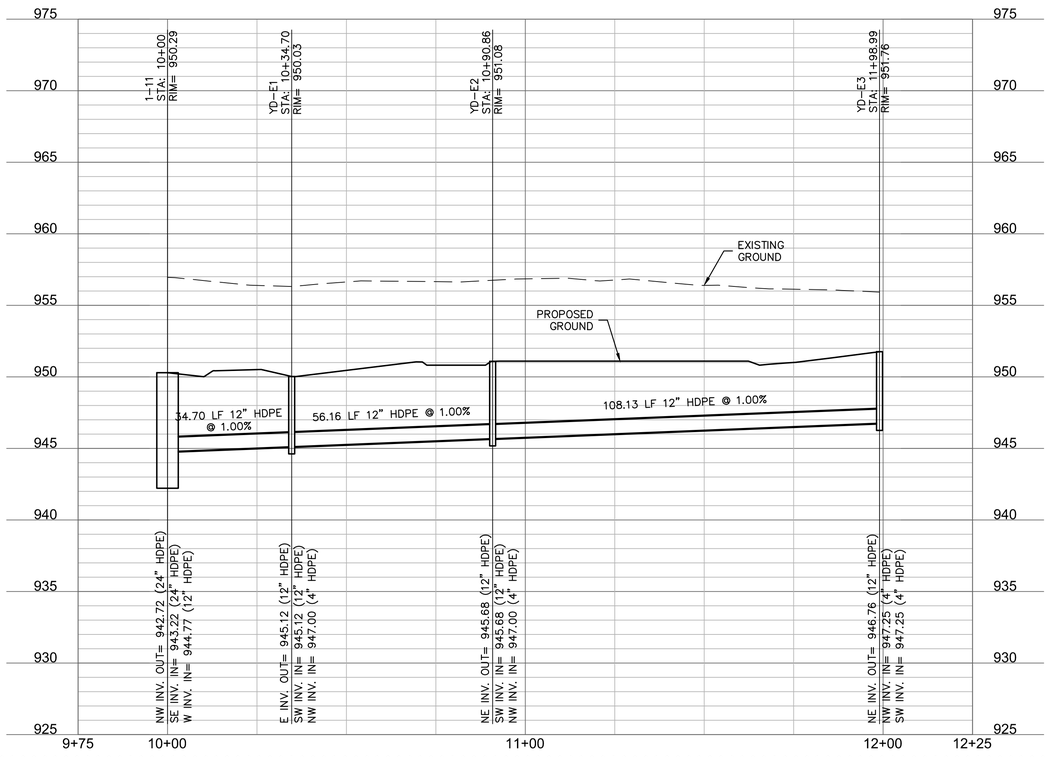


STRUCTURES	
ID	DESCRIPTION
YD–E1	10+34.70 BUILDING STORM LINE E 12" NYLOPLAST D.B. W/ SOLID TOP N: 1014222.608; E: 2822995.132
YD–E2	10+90.86 BUILDING STORM LINE E 12" NYLOPLAST D.B. W/ SOLID TOP N: 1014182.894; E: 2822955.420
YD–E3	11+98.99 BUILDING STORM LINE E 12" NYLOPLAST D.B. W/ SOLID TOP N: 1014106.434; E: 2822878.965

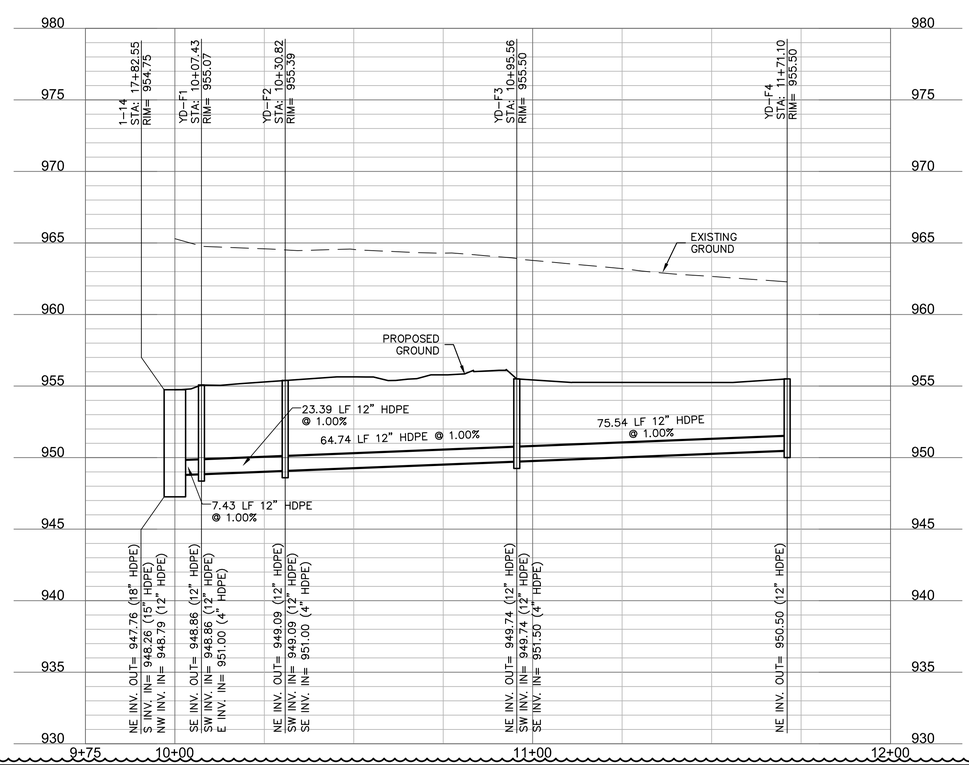
STRUCTURES	
ID	DESCRIPTION
YD–F1	10+07.43 BUILDING STORM LINE F 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1014121.486; E: 2823061.917
YD–F2	10+30.82 BUILDING STORM LINE F 12" INLINE DRAIN W/ DOME GRATE TOP N: 1014104.977; E: 2823045.351
YD–F3	10+95.56 BUILDING STORM LINE F 12" INLINE DRAIN W/ DOME GRATE TOP N: 1014059.223; E: 2822999.556
YD–F4	11+71.10 BUILDING STORM LINE F 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1014005.779; E: 2822946.164



BUILDING STORM LINE E (9+75 - 12+25)



BUILDING STORM LINE F (9+75 - 12+00)



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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

BUILDING STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

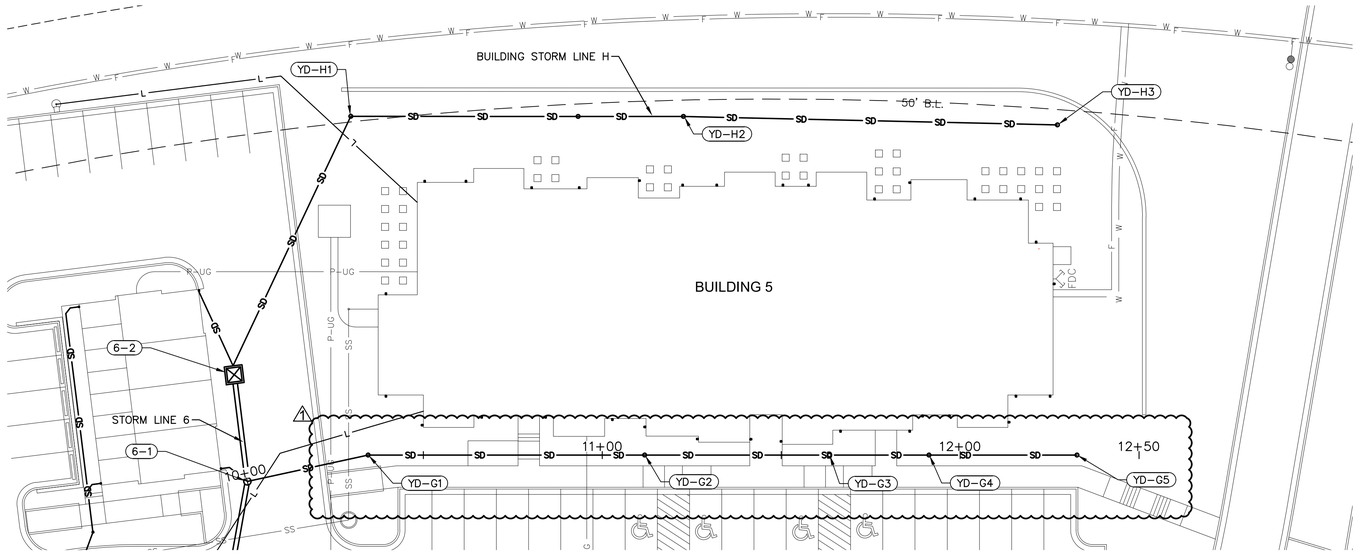
2020

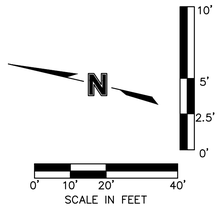
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C523

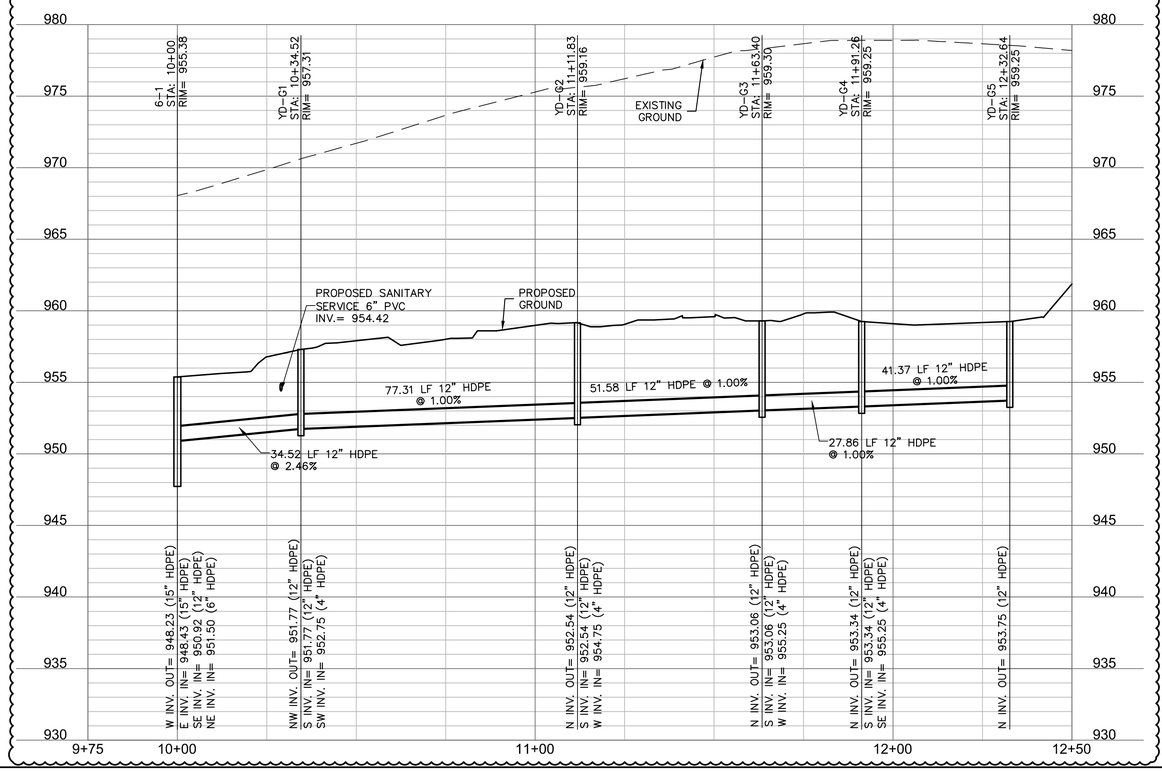
File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP01_ B190012.dwg ~ Layout: ROOF DRAIN PLAN & PROFILE (3) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





BUILDING STORM LINE G (9+75 - 12+50)



STRUCTURES	
ID	DESCRIPTION
YD-G1	10+34.52 BUILDING STORM LINE G 12" NYLOPLAST D.B. W/ SOLID TOP N: 1014103.448; E: 2823151.785
YD-G2	11+11.83 BUILDING STORM LINE G 12" NYLOPLAST D.B. W/ SOLID TOP N: 1014028.162; E: 2823169.349
YD-G3	11+63.40 BUILDING STORM LINE G 12" NYLOPLAST D.B. W/ SOLID TOP N: 1013977.935; E: 2823181.067
YD-G4	11+91.26 BUILDING STORM LINE G 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013950.802; E: 2823187.397
YD-G5	12+32.64 BUILDING STORM LINE G 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013910.512; E: 2823196.797

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STATE OF MISSOURI
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MO# 2015000555

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REVISIONS

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SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

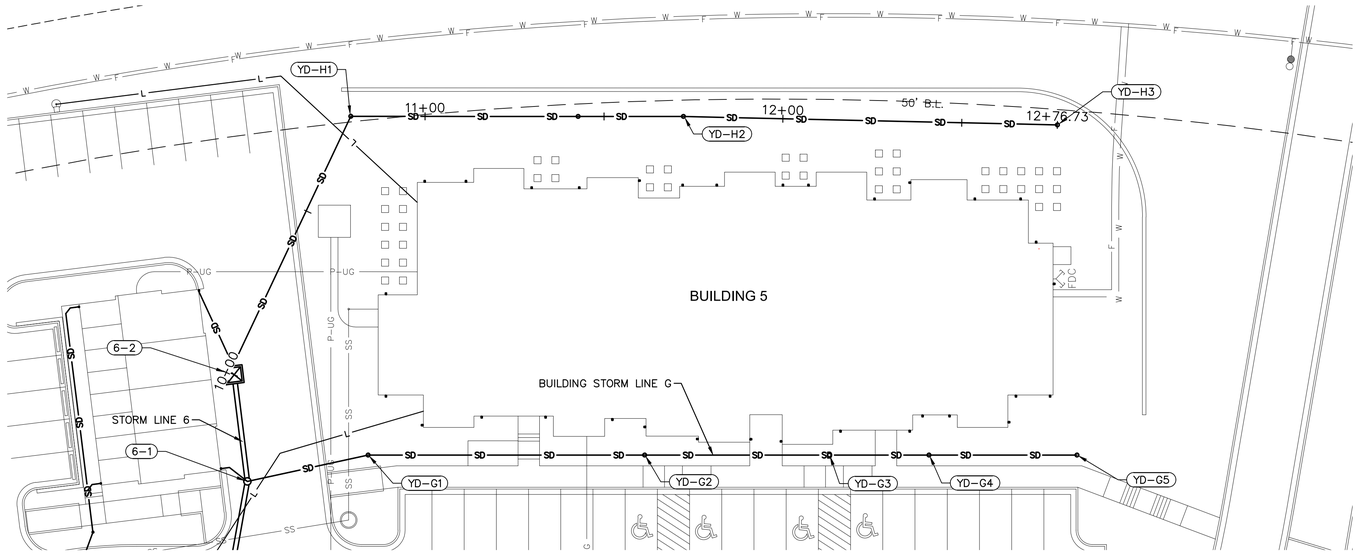
2020

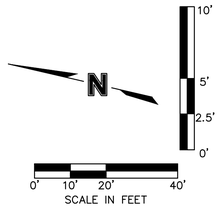
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C524

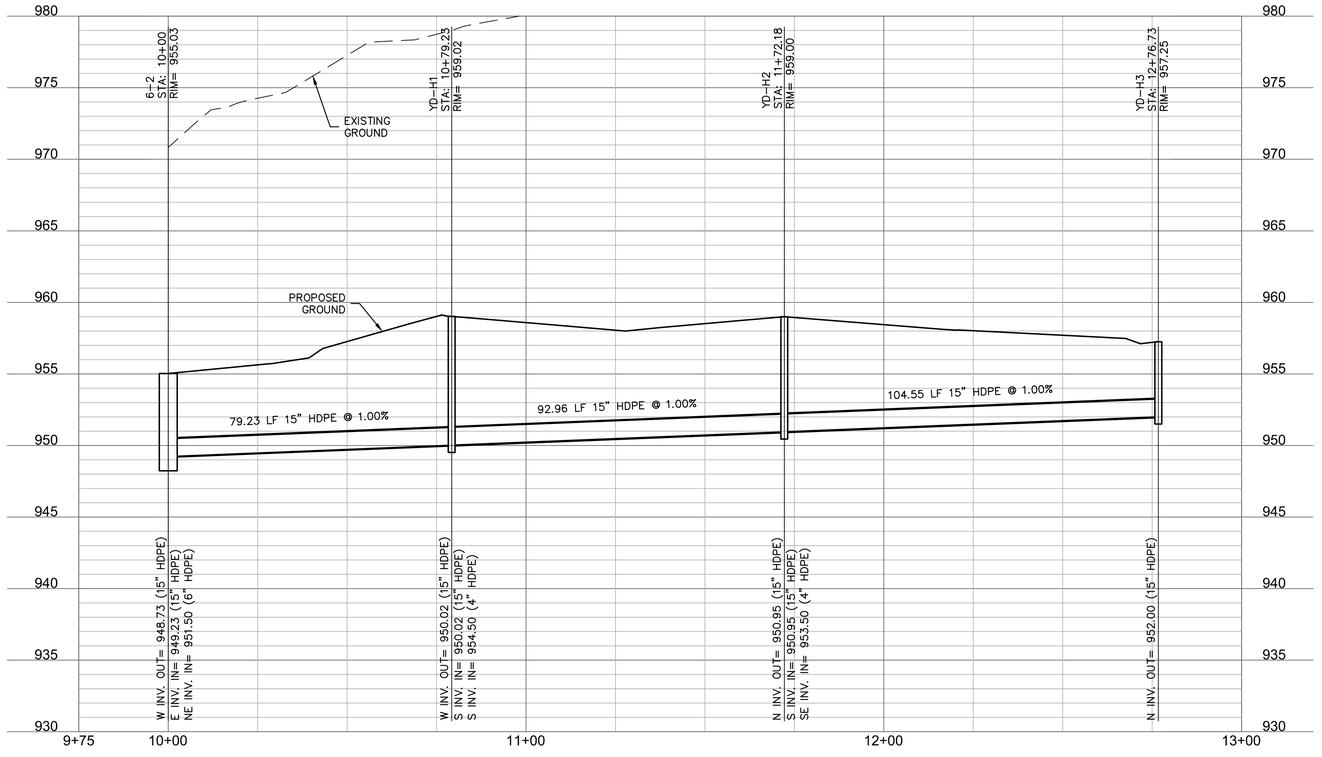
File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP01_ B190012.dwg ~ Layout: ROOF DRAIN PLAN & PROFILE (4) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





BUILDING STORM LINE H (9+75 - 13+00)



STRUCTURES	
ID	DESCRIPTION
YD-H1	10+79.23 BUILDING STORM LINE H 15" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1014129.651; E: 2823242.886
YD-H2	11+72.18 BUILDING STORM LINE H 15" INLINE DRAIN W/ DOME GRATE TOP N: 1014039.119; E: 2823263.975
YD-H3	12+76.73 BUILDING STORM LINE H 15" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013936.796; E: 2823285.438

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

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REVISIONS

BUILDING STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

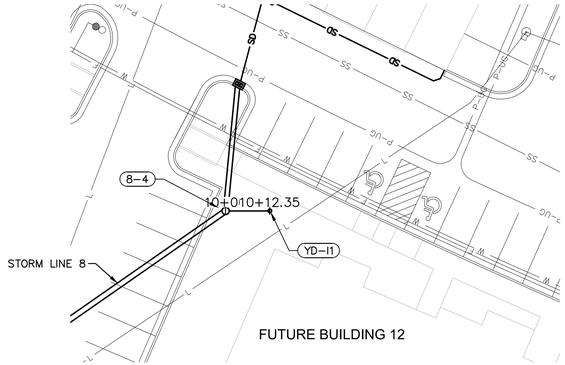
2020

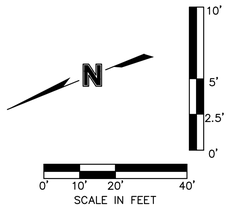
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C525

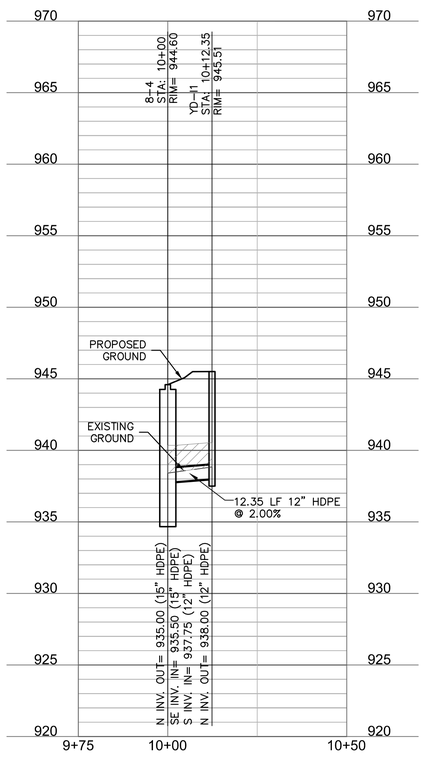
File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP01_ B190012.dwg ~ Layout: ROOF DRAIN PLAN & PROFILE (5) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





BUILDING STORM LINE I (9+75 - 10+50)



STRUCTURES	
ID	DESCRIPTION
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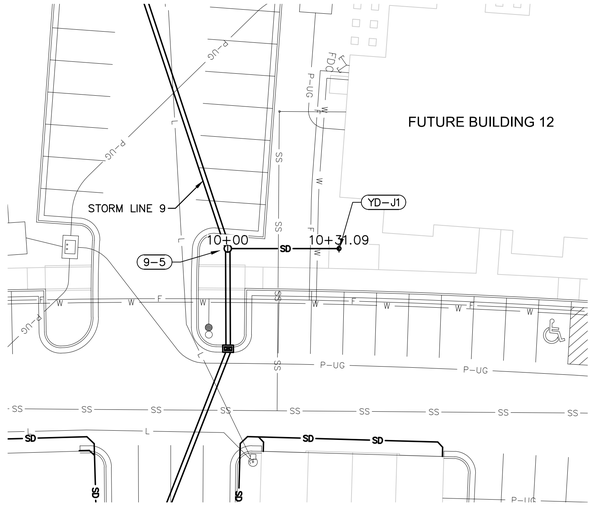
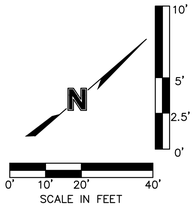
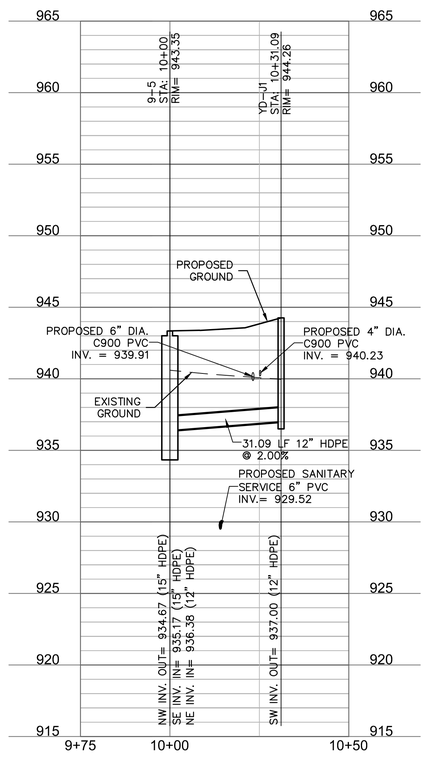




BUILDING STORM LINE J (9+75 - 10+50)



STRUCTURES	
ID	DESCRIPTION
YD–J1	10+31.09 BUILDING STORM LINE J 12" NYLOPLAST D.B. W/ SOLID TOP N: 1014267.141; E: 2822450.395

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

BUILDING STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

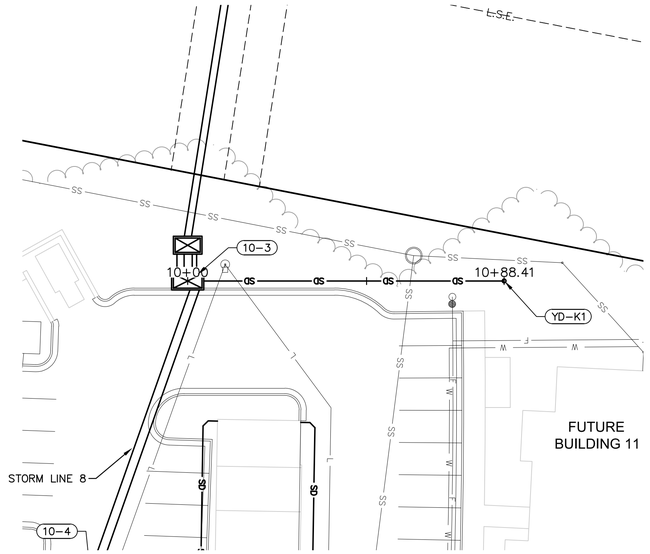
2020

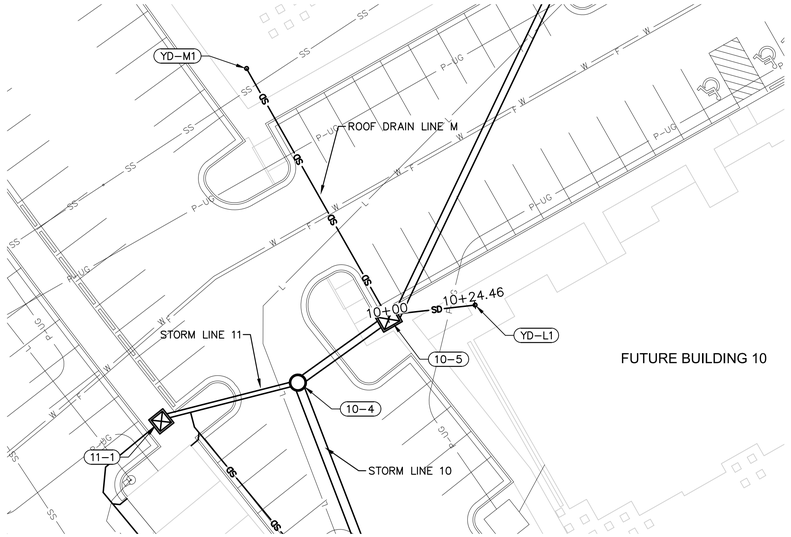
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

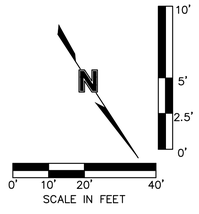
SHEET
C526

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP02_ B190012.dwg ~ Layout: ROOF DRAIN PLAN & PROFILE (6) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

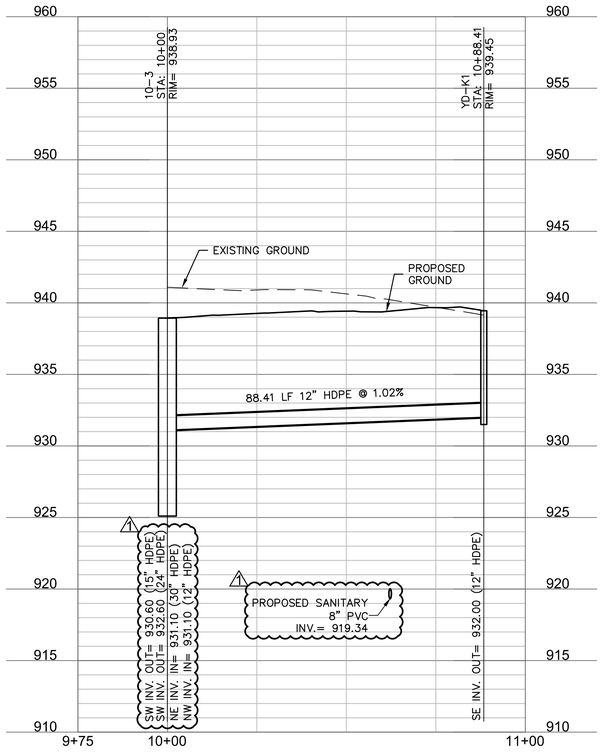
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





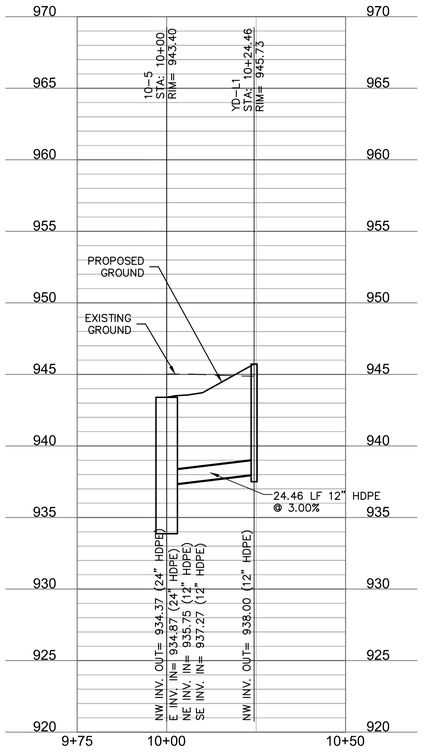


BUILDING STORM LINE K (9+75 - 11+00)

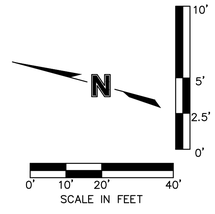


STRUCTURES	
ID	DESCRIPTION
YD-K1	10+88.41 BUILDING STORM LINE K 12" NYLOPLAST D.B. W/ SOLID TOP N: 1014021.298; E: 2822260.711

BUILDING STORM LINE L (9+75 - 10+50)



STRUCTURES	
ID	DESCRIPTION
YD-L1	10+24.46 BUILDING STORM LINE L 12" NYLOPLAST D.B. W/ SOLID TOP N: 1013983.988; E: 2822436.694



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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

BUILDING STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C527

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP02_ B190012.dwg ~ Layout: ROOF DRAIN PLAN & PROFILE (7) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

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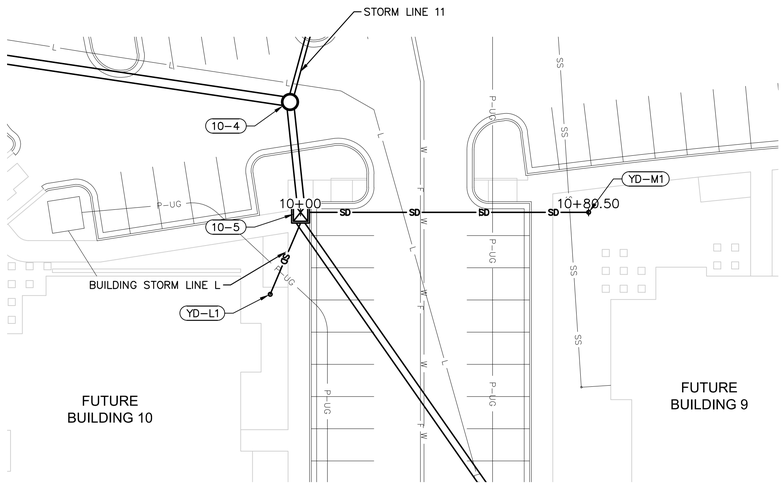
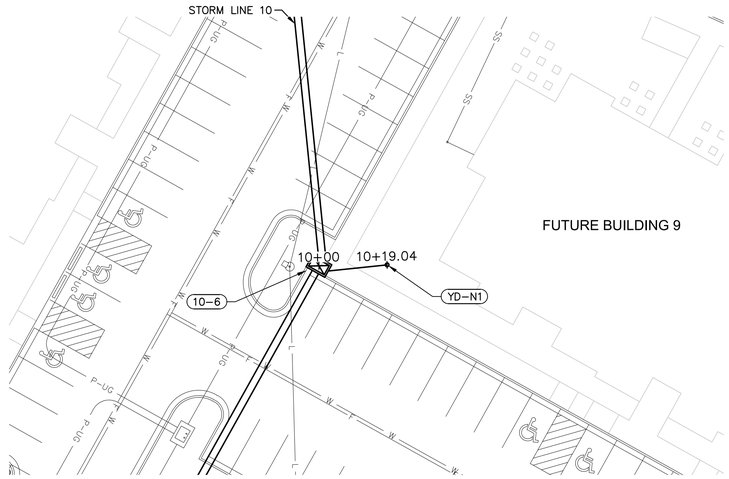
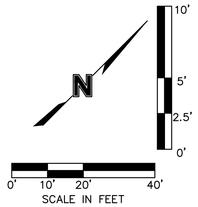
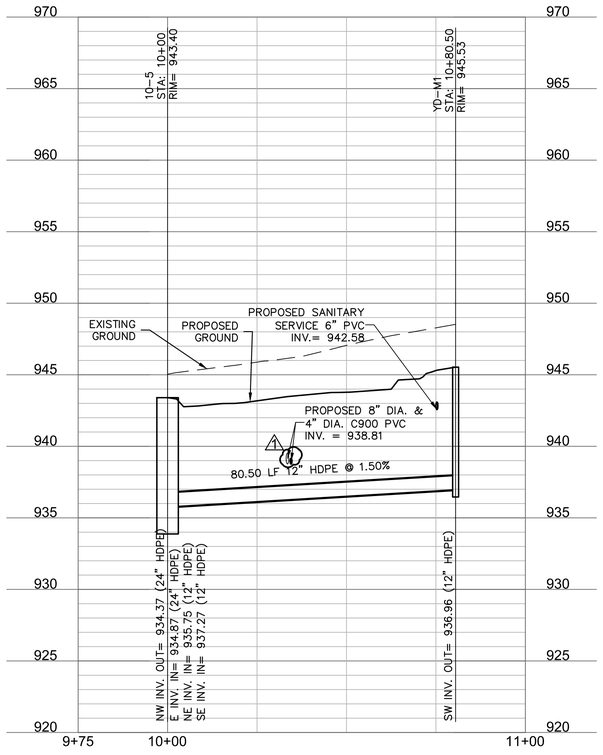






BUILDING STORM LINE M (9+75 - 11+00)



STRUCTURES	
ID	DESCRIPTION
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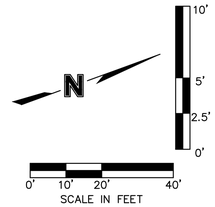
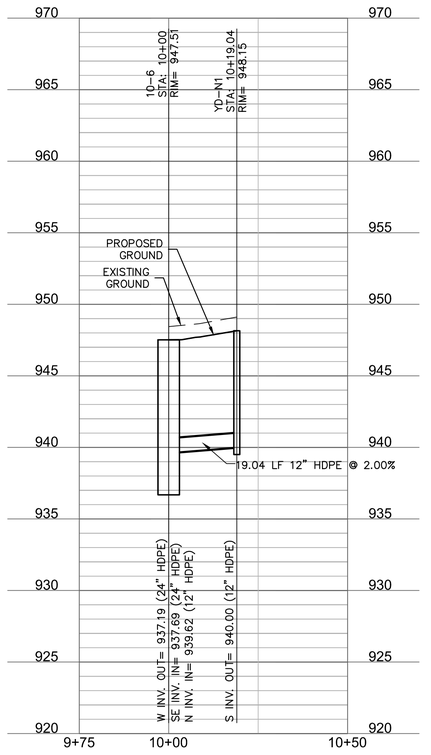


BUILDING STORM LINE N (9+75 - 10+50)



STRUCTURES	
ID	DESCRIPTION
YD–N1	10+19.04 BUILDING STORM LINE N 12" NYLOPLAST D.B. W/ SOLID TOP N: 1014001.559; E: 2822544.988

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MO# 2015000555

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BUILDING STORM SEWER PLAN & PROFILE
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date: 2020.08.27

SHEET
C528

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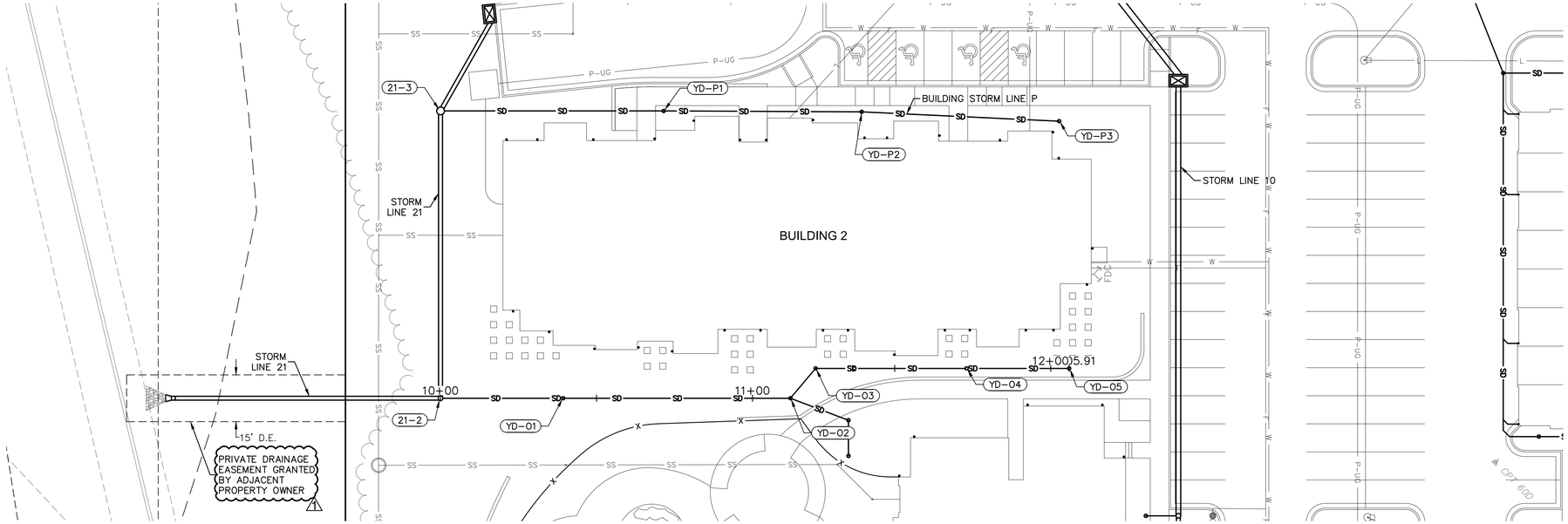
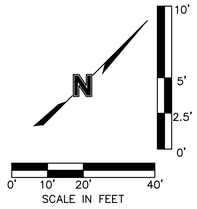
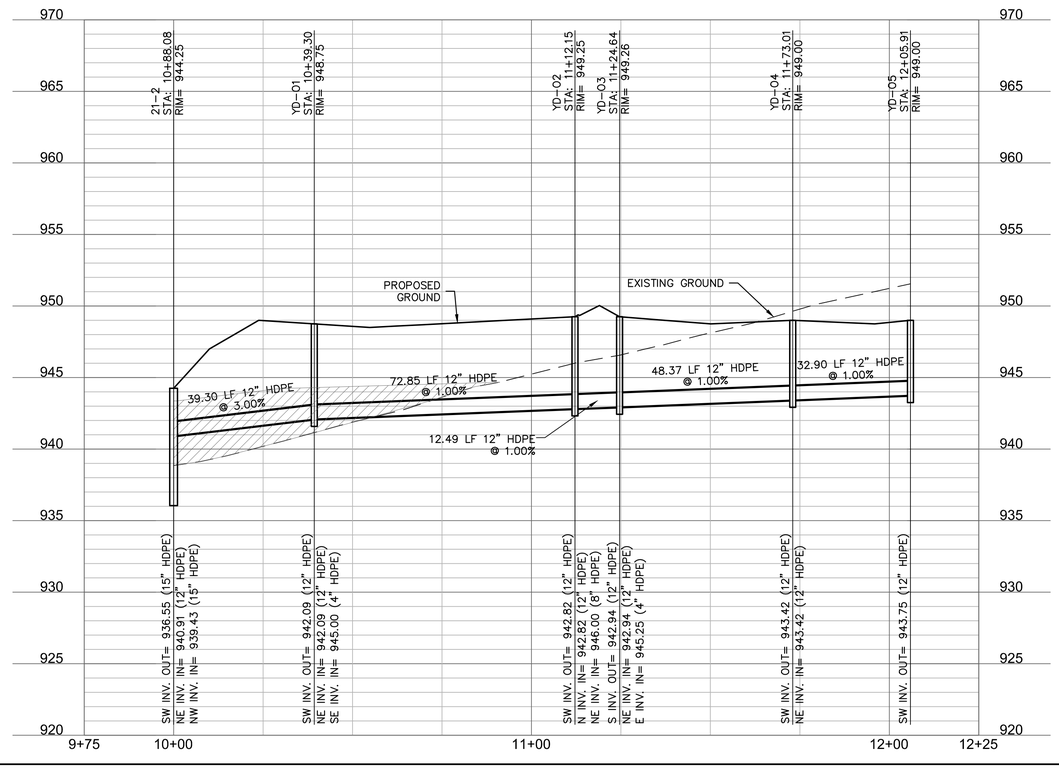
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





BUILDING STORM LINE O (9+75 - 12+25)



STRUCTURES	
ID	DESCRIPTION
YD-01	10+39.30 BUILDING STORM LINE O 12" INLINE DRAIN W/ DOME GRATE TOP N: 1013730.712; E: 2822631.671
YD-02	11+12.15 BUILDING STORM LINE O 12" NYLOPLAST D.B. W/ SOLID TOP N: 1013782.224; E: 2822683.183
YD-03	11+24.64 BUILDING STORM LINE O 12" INLINE DRAIN W/ DOME GRATE TOP N: 1013794.672; E: 2822682.122
YD-04	11+73.01 BUILDING STORM LINE O 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013828.878; E: 2822716.328
YD-05	12+05.91 BUILDING STORM LINE O 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013852.143; E: 2822739.593

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	DESCRIPTION
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS

BY

BUILDING STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

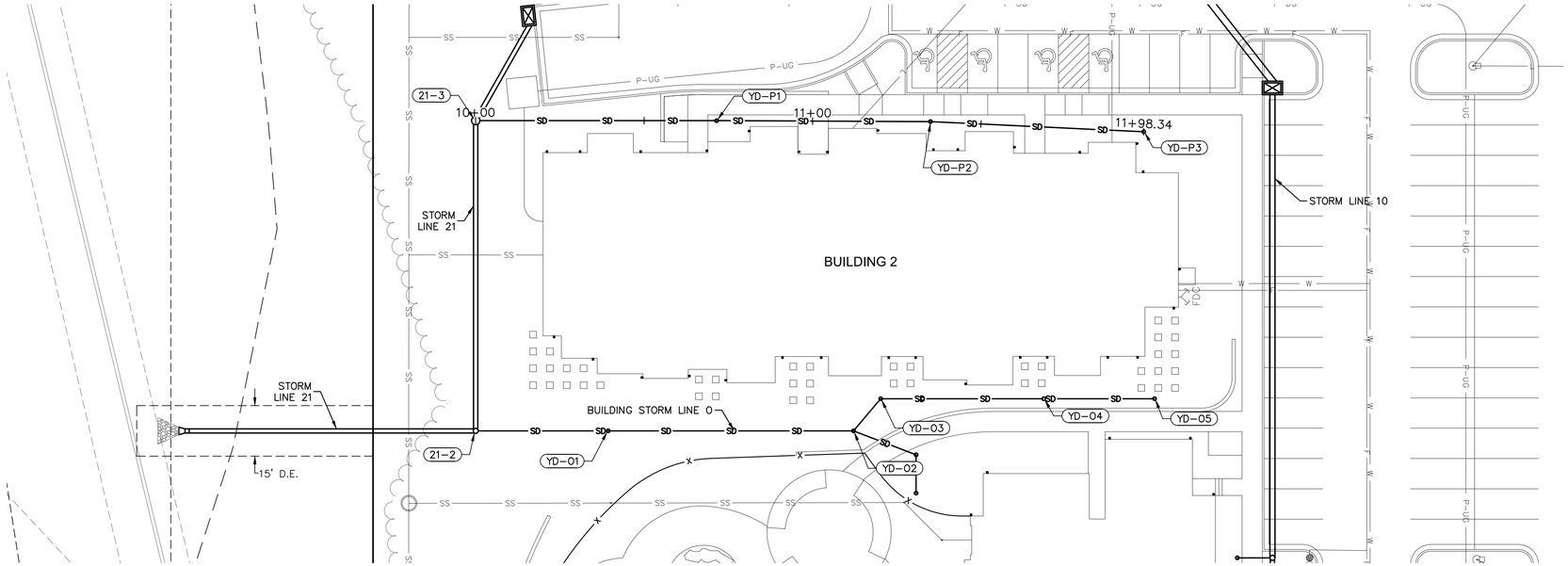
2020

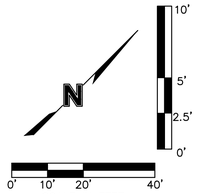
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C529

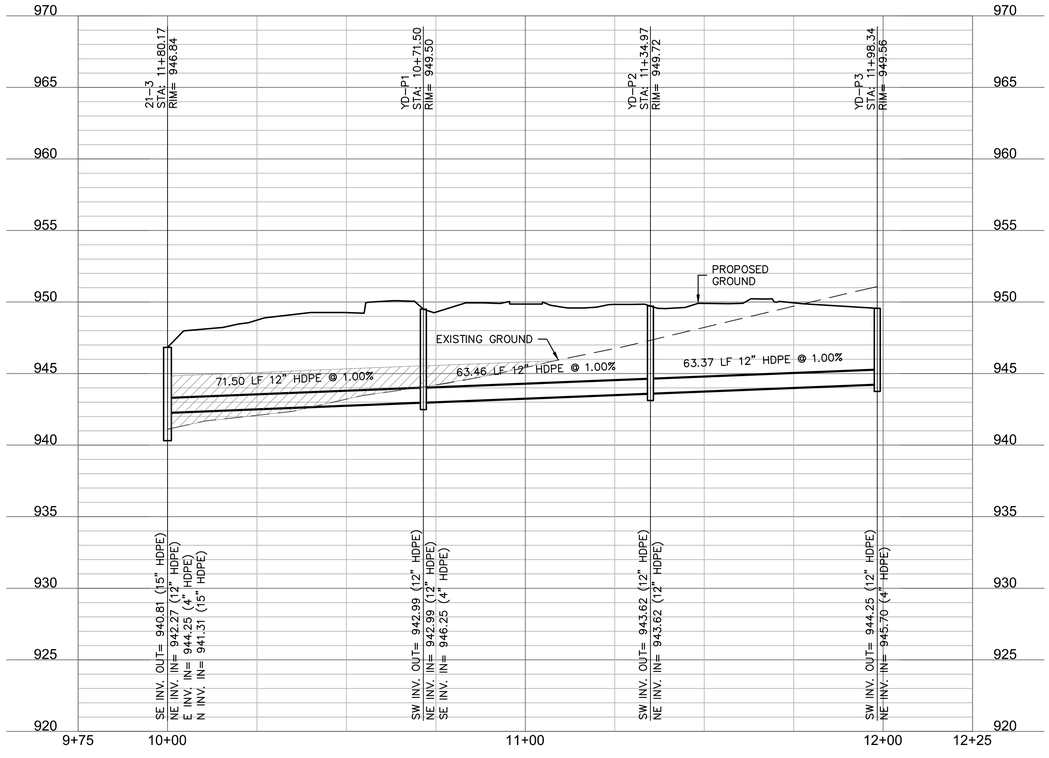
File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP02_ B190012.dwg ~ Layout: ROOF DRAIN PLAN & PROFILE (9) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





BUILDING STORM LINE P (9+75 - 12+25)



STRUCTURES	
ID	DESCRIPTION
YD-P1	10+71.50 BUILDING STORM LINE P 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013818.606; E: 2822589.326
YD-P2	11+34.97 BUILDING STORM LINE P 12" NYLOPLAST D.B. W/ SOLID TOP N: 1013863.283; E: 2822634.400
YD-P3	11+98.34 BUILDING STORM LINE P 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013905.909; E: 2822681.292

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REVISIONS

BUILDING STORM SEWER PLAN & PROFILE
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ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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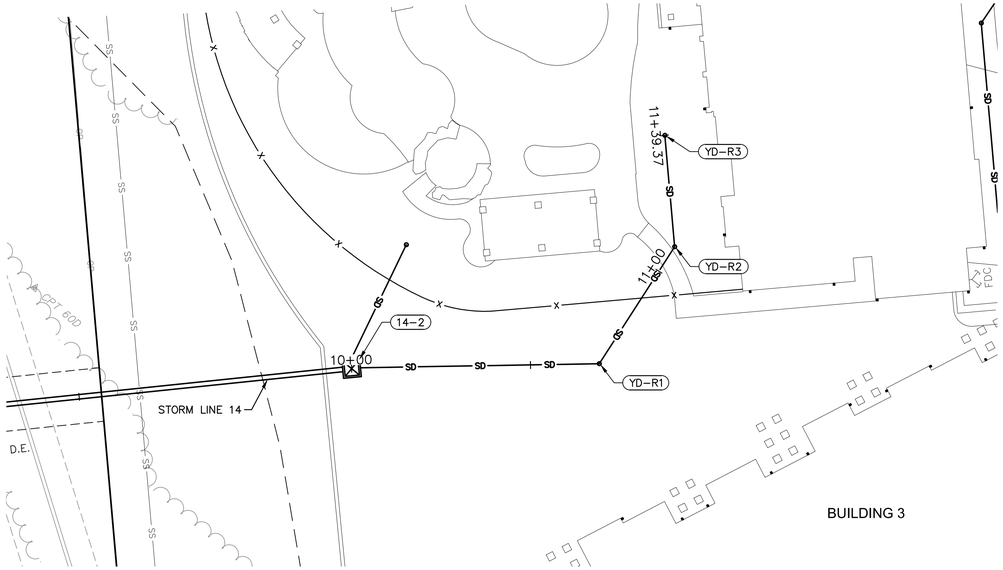
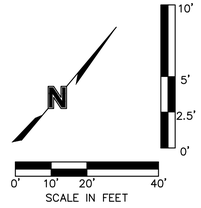
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C530

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP02_ B190012.dwg ~ Layout: ROOF DRAIN PLAN & PROFILE (10) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

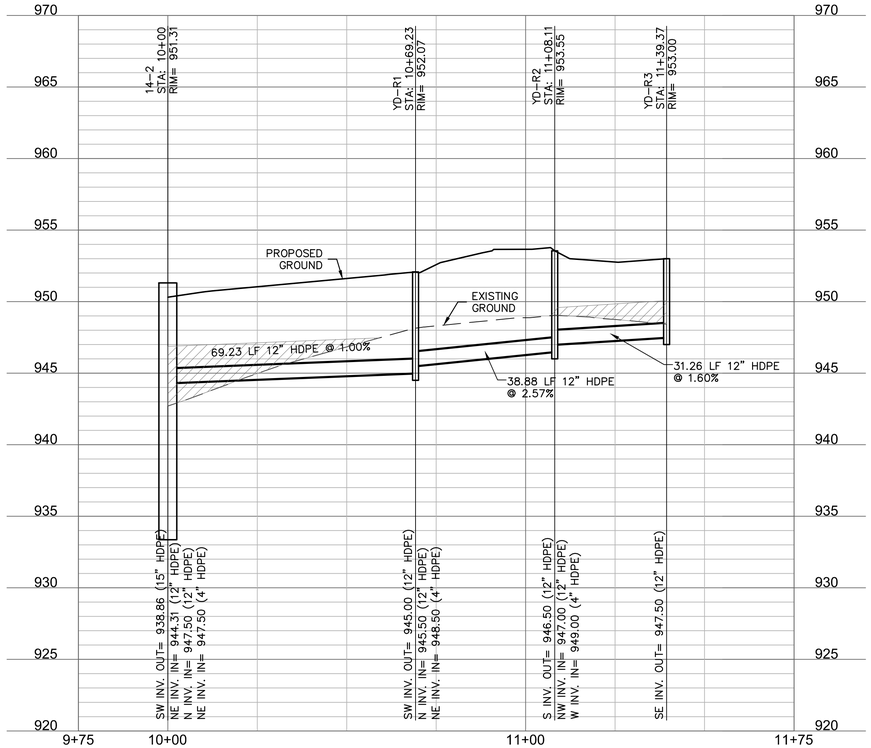
NOTE: CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 18" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.





STRUCTURES	
ID	DESCRIPTION
YD–R1	10+69.23 BUILDING STORM LINE R 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013627.421; E: 2822833.391
YD–R2	11+08.11 BUILDING STORM LINE R 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013665.992; E: 2822828.507
YD–R3	11+39.37 BUILDING STORM LINE R 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013688.097; E: 2822806.402

BUILDING STORM LINE R (9+75 - 11+75)



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STATE OF MISSOURI
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MO# 2015000555

REVISIONS

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BUILDING STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

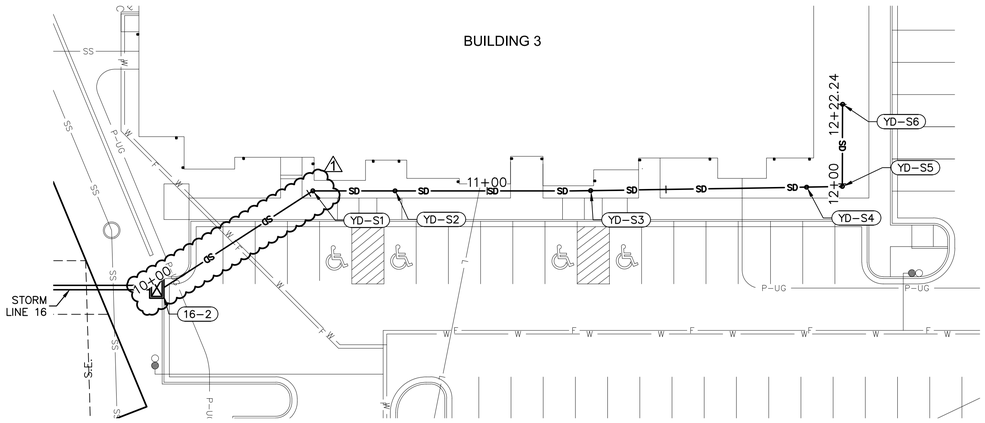
LEE'S SUMMIT, MO

2020

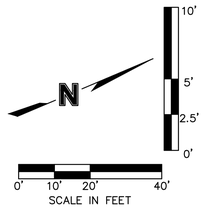
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C531

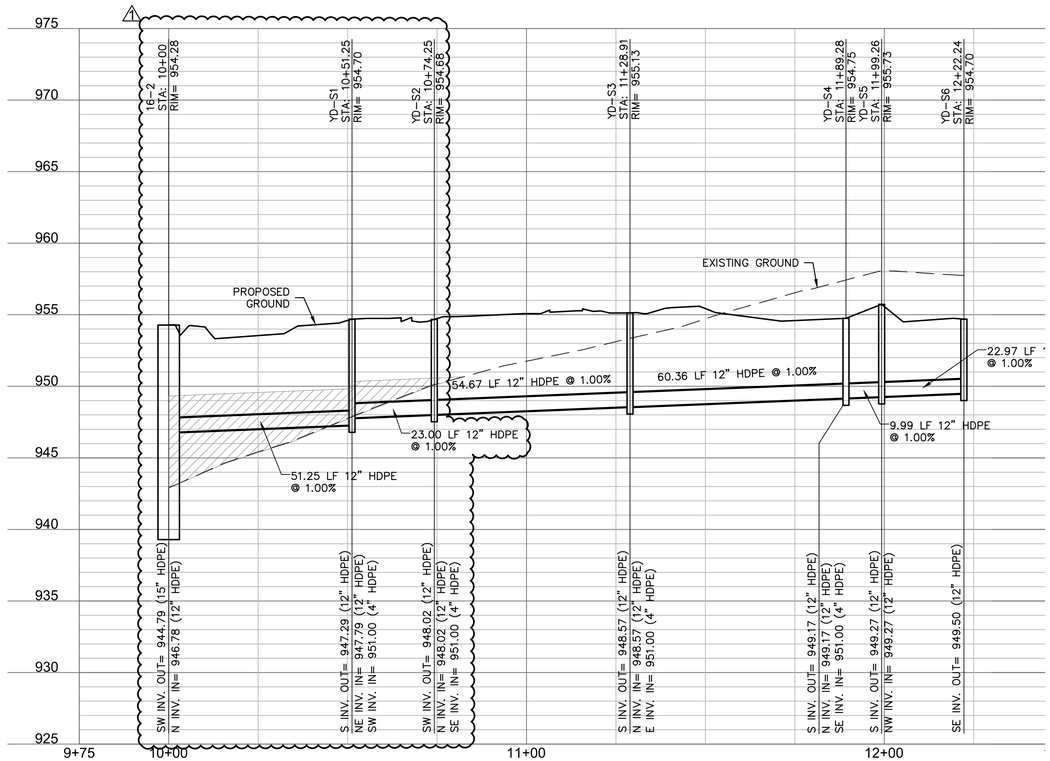
File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP03_ B190012.dwg ~ Layout: ROOF DRAIN PLAN & PROFILE (11) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



STRUCTURES	
ID	DESCRIPTION
YD-S1	10+51.25 BUILDING STORM LINE S 12" NYLOPLAST D.B. W/ SOLID TOP N: 1013555.045; E: 2822932.446
YD-S2	10+74.25 BUILDING STORM LINE S 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013576.281; E: 2822941.272
YD-S3	11+28.91 BUILDING STORM LINE S 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013626.793; E: 2822962.175
YD-S4	11+89.28 BUILDING STORM LINE S 12" INLINE DRAIN W/ DOME GRATE TOP N: 1013682.903; E: 2822984.432
YD-S5	11+99.26 BUILDING STORM LINE S 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013692.187; E: 2822988.108
YD-S6	12+22.24 BUILDING STORM LINE S 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013701.079; E: 2822966.927



BUILDING STORM LINE S (9+75 - 12+50)



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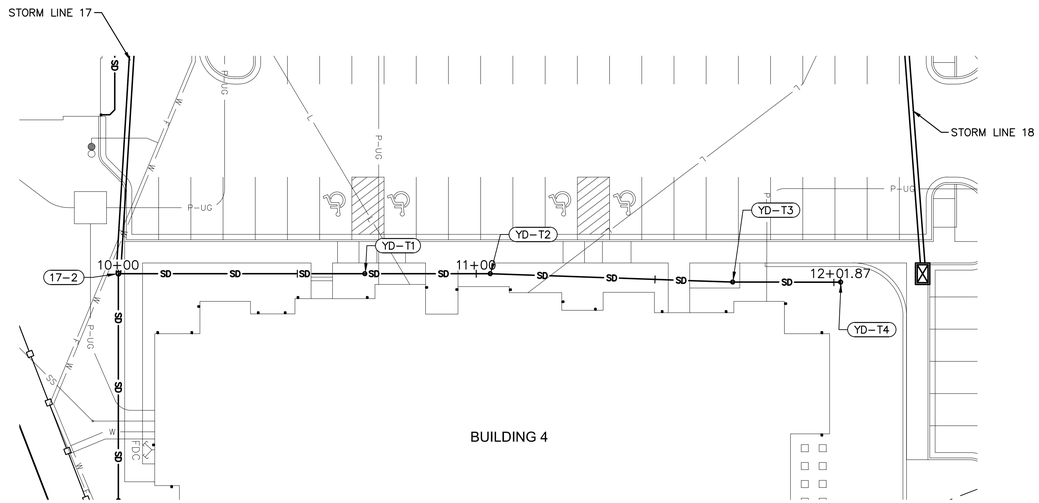
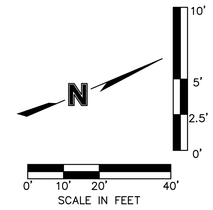
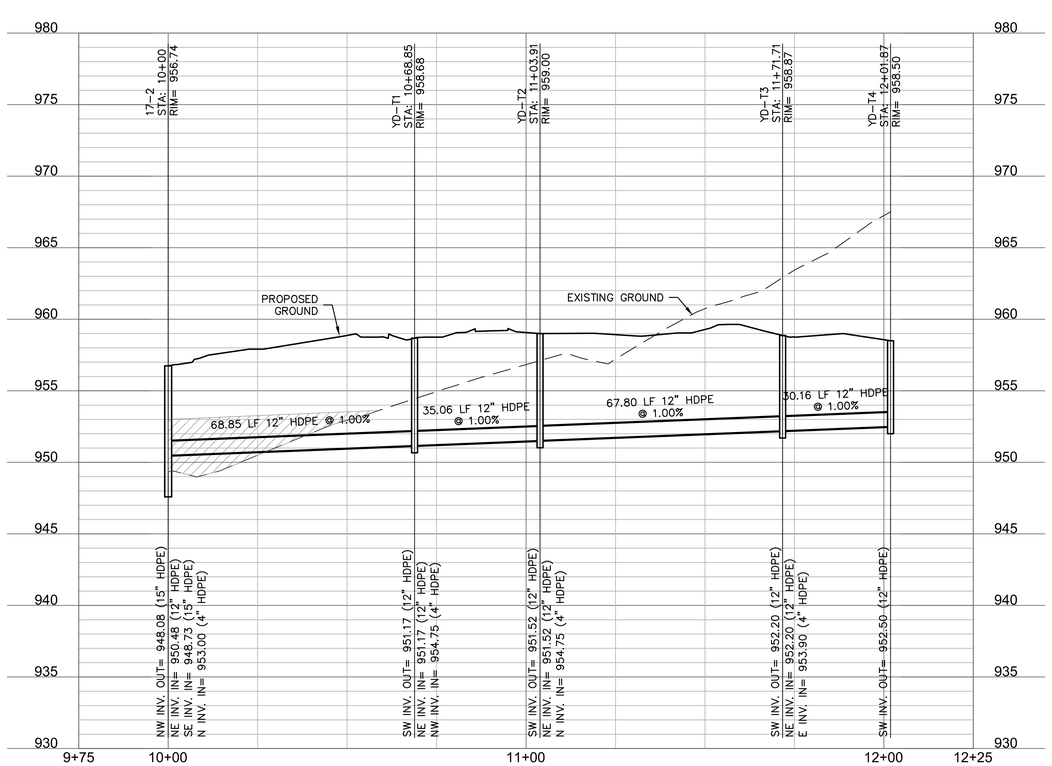


STRUCTURES	
ID	DESCRIPTION
YD-T1	10+68.85 BUILDING STORM LINE T 12" NYLOPLAST D.B. W/ SOLID TOP N: 1013526.146; E: 2823179.256
YD-T2	11+03.91 BUILDING STORM LINE T 12" NYLOPLAST D.B. W SOLID TOP N: 1013558.519; E: 2823192.711
YD-T3	11+71.71 BUILDING STORM LINE T 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013620.188; E: 2823220.890
YD-T4	12+01.87 BUILDING STORM LINE T 12" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013648.036; E: 2823232.473



BUILDING STORM LINE T (9+75 - 12+25)



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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1.	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

BUILDING STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C532

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP03_ B190012.dwg ~ Layout: ROOF DRAIN PLAN & PROFILE (12) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

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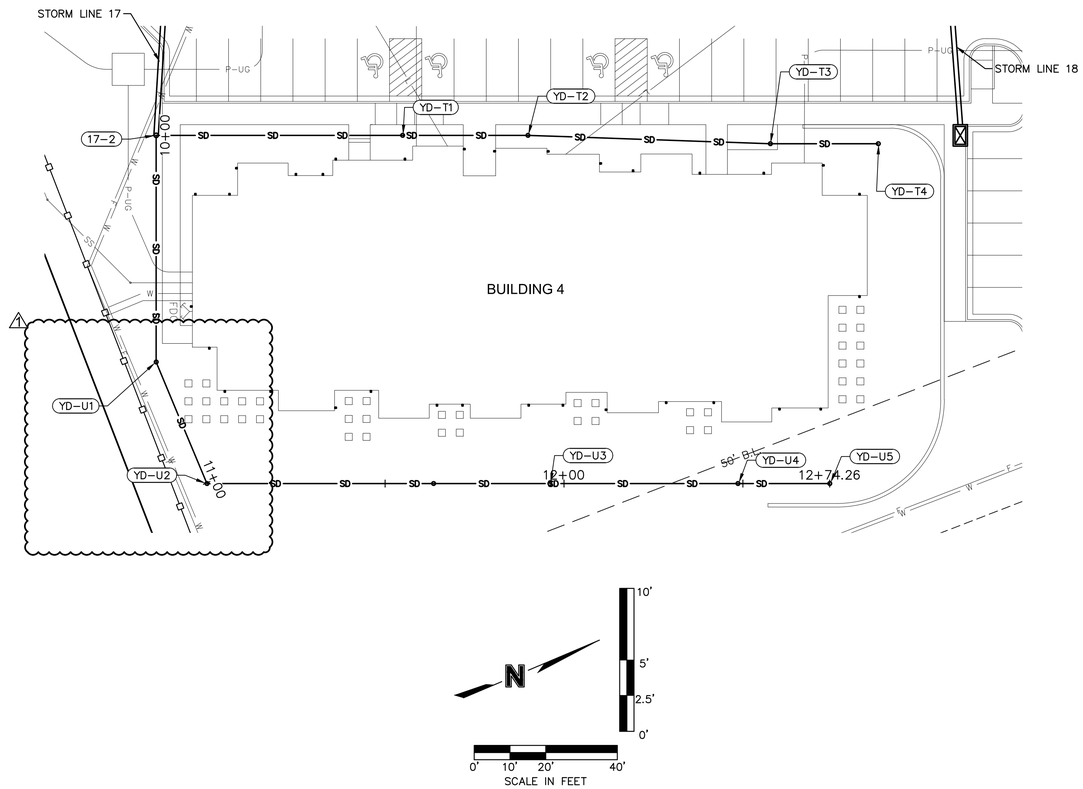
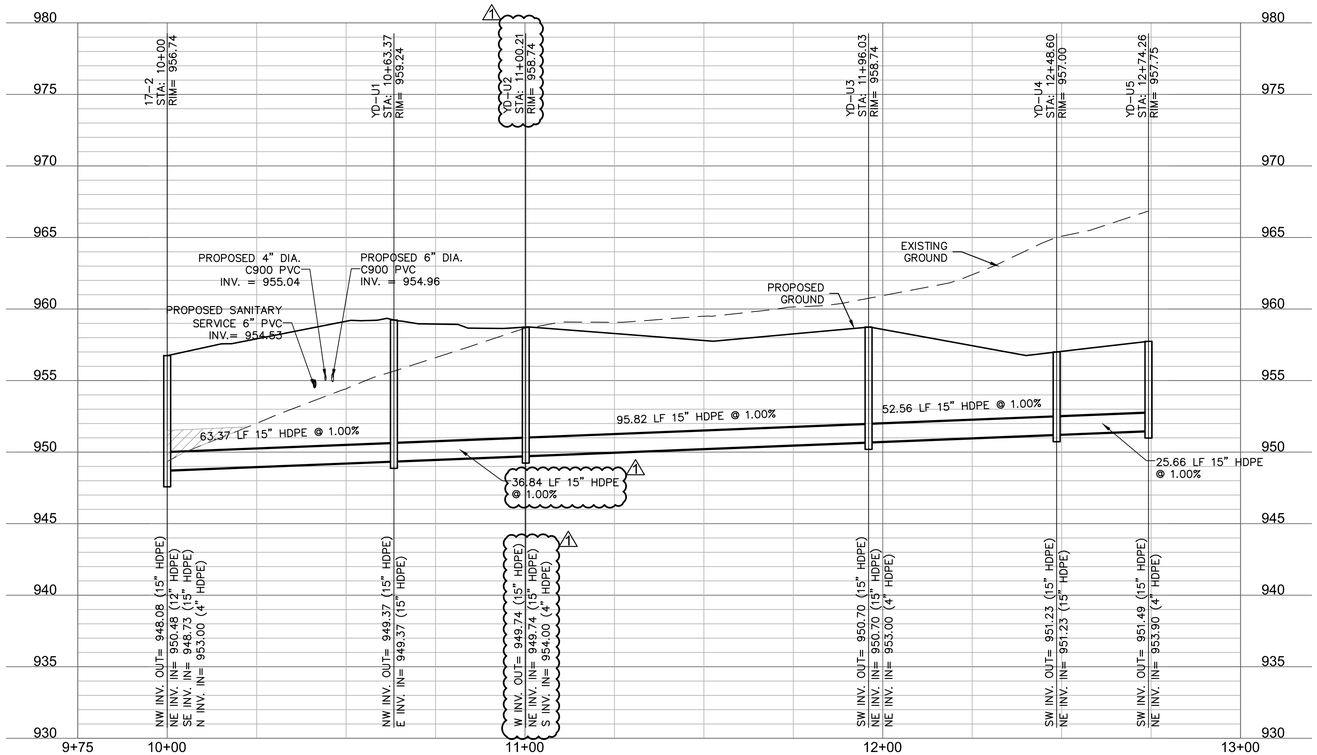


BUILDING STORM LINE U (9+75 - 13+00)



STRUCTURES	
ID	DESCRIPTION
YD-U1	10+63.37 BUILDING STORM LINE U 15" NYLOPLAST D.B. W/ SOLID TOP N: 1013438.246; E: 2823211.347
YD-U2	11+00.21 BUILDING STORM LINE U 15" NYLOPLAST D.B. W/ SOLID TOP N: 1013438.315; E: 2823248.188
YD-U3	11+96.03 BUILDING STORM LINE U 15" INLINE DRAIN W/ DOME GRATE TOP N: 1013526.801; E: 2823284.964
YD-U4	12+48.60 BUILDING STORM LINE U 15" INLINE DRAIN W/ DOME GRATE TOP N: 1013575.337; E: 2823305.136
YD-U5	12+74.26 BUILDING STORM LINE U 15" NYLOPLAST D.B. W/ DOME GRATE TOP N: 1013599.035; E: 2823314.985

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REVISIONS

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BUILDING STORM SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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project no.: 019-0012-B
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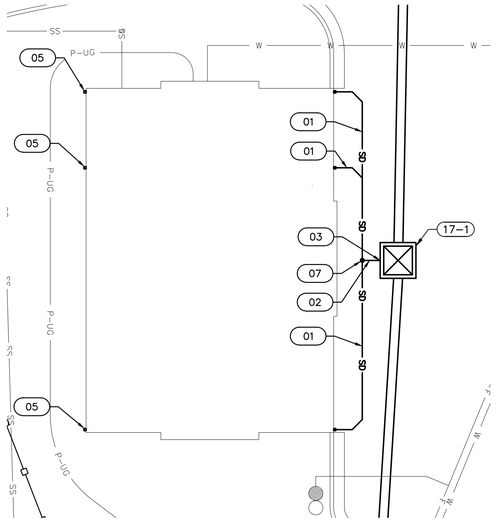
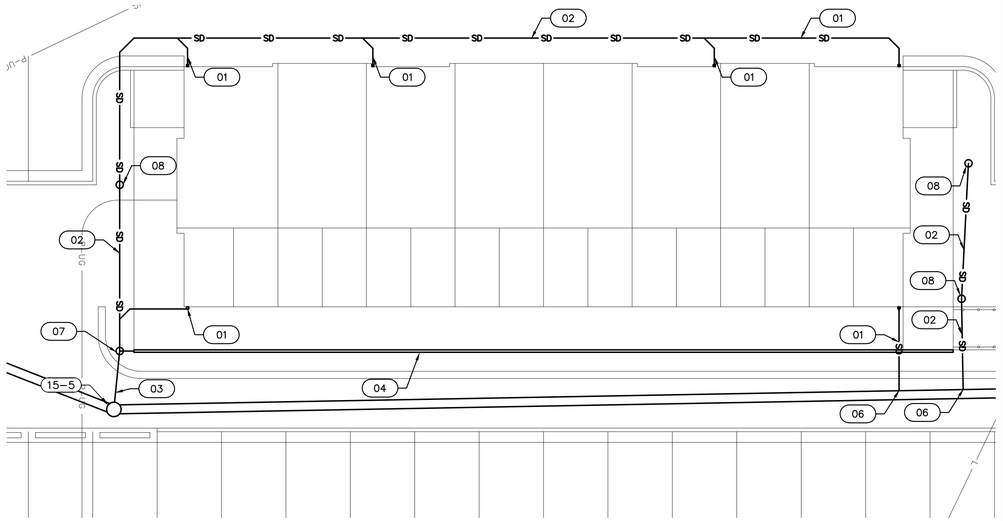
SHEET
C533

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP04_ B190012.dwg ~ Layout: ROOF DRAIN PLAN ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



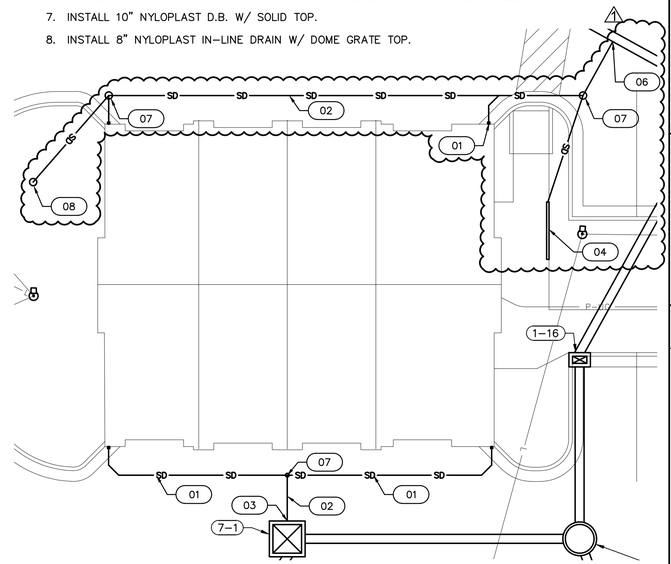
ROOF DRAINS @ MAINTENANCE BUILDING



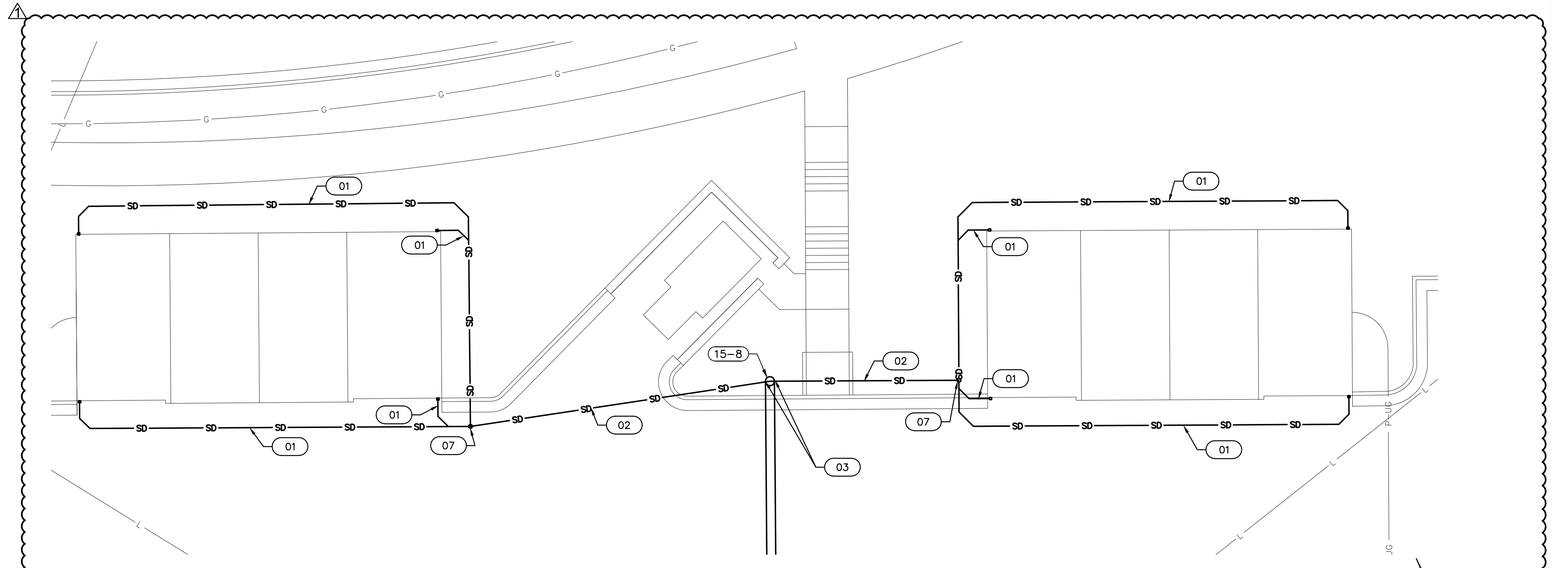
ROOF DRAINS @ GARAGE #2

ROOF DRAIN LINE NOTES ##

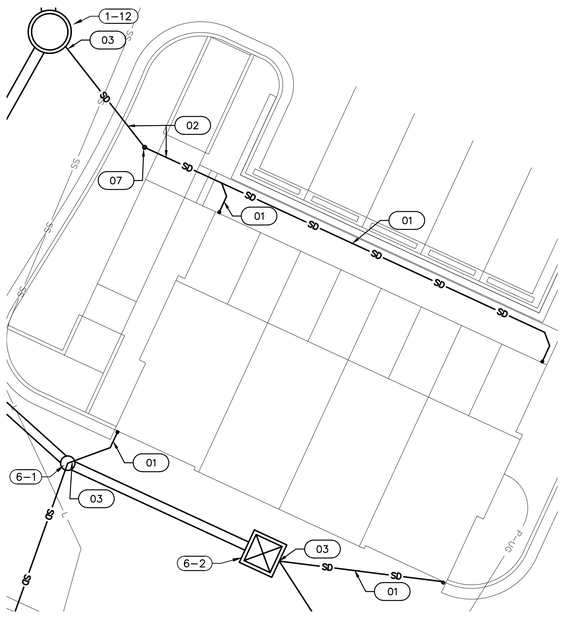
1. INSTALL 6" HDPE PIPE FROM DOWNSTREAM FITTING/STRUCTURE @ 2.0% MIN. SLOPE TO BUILDING ROOF DRAIN CONNECTION, INLCUDING ALL BENDS, FITTINGS, AND CONNECTIONS. FL @ BUILDING TO BE 3' MINUS BUILDING FFE.
2. INSTALL 8" HDPE PIPE @ 2.0% MIN. SLOPE INCLUDING ALL NECESSARY BENDS, FITTINGS, AND CLEANOUTS.
3. CONNECT ROOF DRAIN LINE TO PROPOSED STORM SEWER STRUCTURES. REFER TO STORM SEWER PLAN & PROFILE SHEETS (C505-C518) FOR ROOF DRAIN CONNECTION FL'S AT STORM STRUCTURES.
4. INSTALL ACO K100 TRENCH DRAIN (OR APPROVED EQUAL) W/ PEDESTRIAN HEEL PROOF GRATE AND INLINE CATCH BASIN. REFER TO DETAIL SHEETS FOR MANUFACTURER AND PRODUCT INFORMATION AND SPOT ELEVATION SHEETS FOR TOP OF TRENCH GRATE ELEVATIONS.
5. BUILDING DOWNSPOUT TO DISCHARGE AT GRADE.
6. CONNECT ROOF DRAIN LINE TO 15" HDPE STORM SEWER WITH ADS INSERTA TEE.
7. INSTALL 10" NYLOPLAST D.B. W/ SOLID TOP.
8. INSTALL 8" NYLOPLAST IN-LINE DRAIN W/ DOME GRATE TOP.



ROOF DRAINS @GARAGE #4



ROOF DRAINS @ GARAGE #1 & #3



ROOF DRAINS @ GARAGE #5

N
0' 5' 10' 20'
SCALE IN FEET

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ROOF DRAIN PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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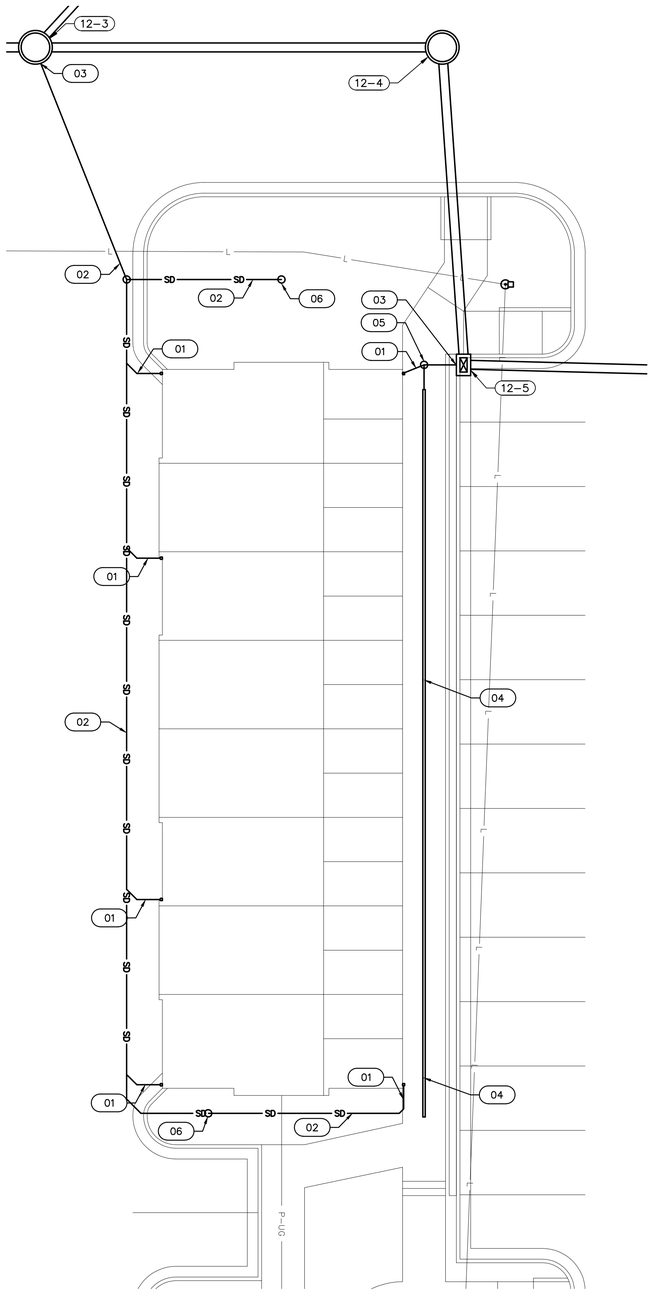
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

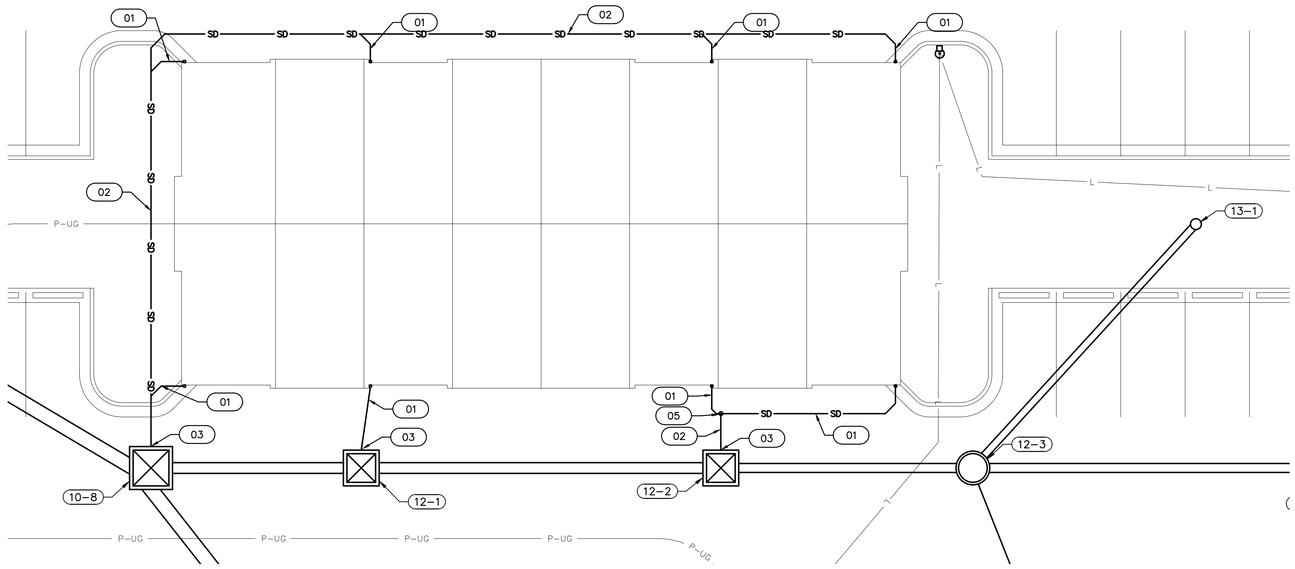
SHEET
C534

ROOF DRAIN LINE NOTES ##

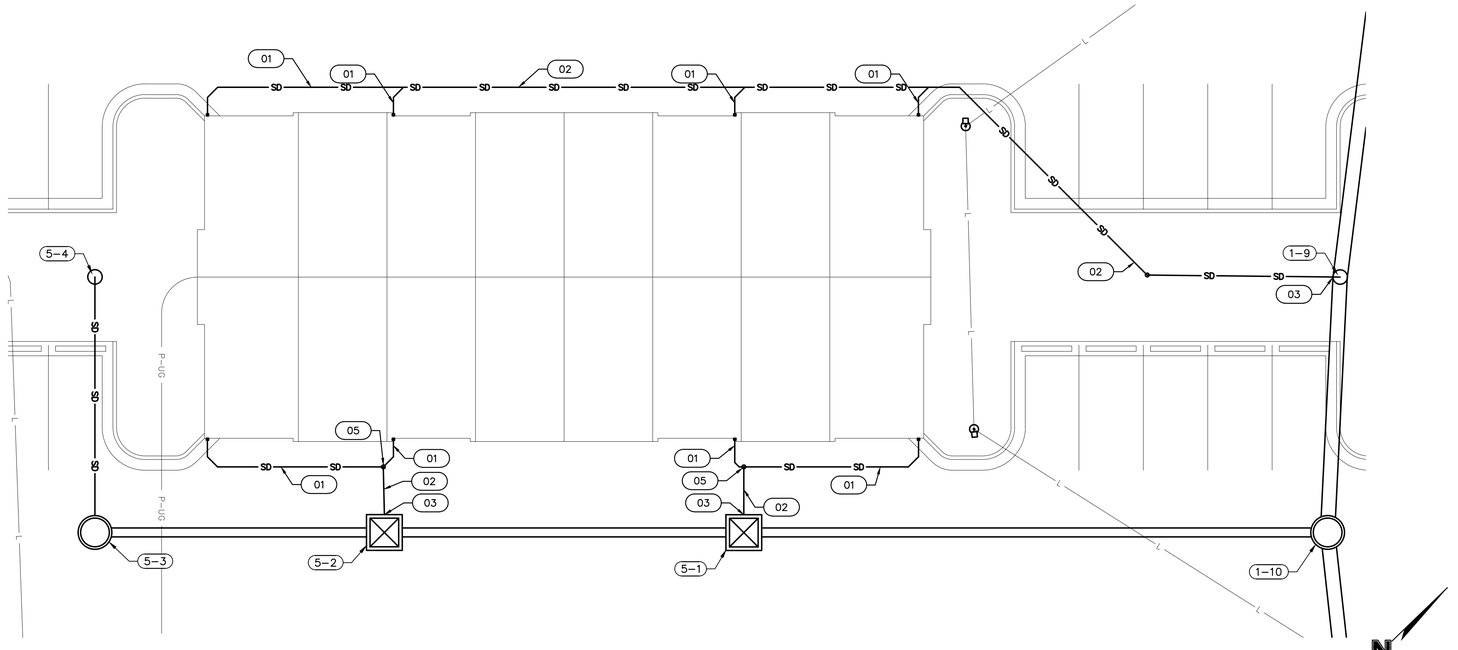
1. INSTALL 6" HDPE PIPE FROM DOWNSTREAM FITTING/STRUCTURE @ 2.0% MIN. SLOPE TO BUILDING ROOF DRAIN CONNECTION, INLCUDING ALL BENDS, FITTINGS, AND CONNECTIONS. FL @ BUILDING TO BE 3' MINUS BUILDING FFE.
2. INSTALL 8" HDPE PIPE @ 2.0% MIN. SLOPE INCLUDING ALL NECESSARY BENDS, FITTINGS, AND CLEANOUTS.
3. CONNECT ROOF DRAIN LINE TO PROPOSED STORM SEWER STRUCTURES. REFER TO STORM SEWER PLAN & PROFILE SHEETS (C505–C518) FOR ROOF DRAIN CONNECTION FL'S AT STORM STRUCTURES.
4. INSTALL ACO K100 TRENCH DRAIN (OR APPROVED EQUAL) W/ PEDESTRIAN HEEL PROOF GRATE AND INLINE CATCH BASIN. REFER TO DETAIL SHEETS FOR MANUFACTURER AND PRODUCT INFORMATION AND SPOT ELEVATION SHEETS FOR TOP OF TRENCH GRATE ELEVATIONS.
5. INSTALL 10" NYLOPLAST D.B. W/ SOLID TOP.
6. INSTALL 8" NYLOPLAST IN–LINE DRAIN W/ DOME GRATE TOP.



ROOF DRAINS @ GARAGE #6



ROOF DRAINS @ GARAGE #7



ROOF DRAINS @ GARAGE #8

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KS CERTIFICATE OF AUTHORITY # E-2014
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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

ROOF DRAIN PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

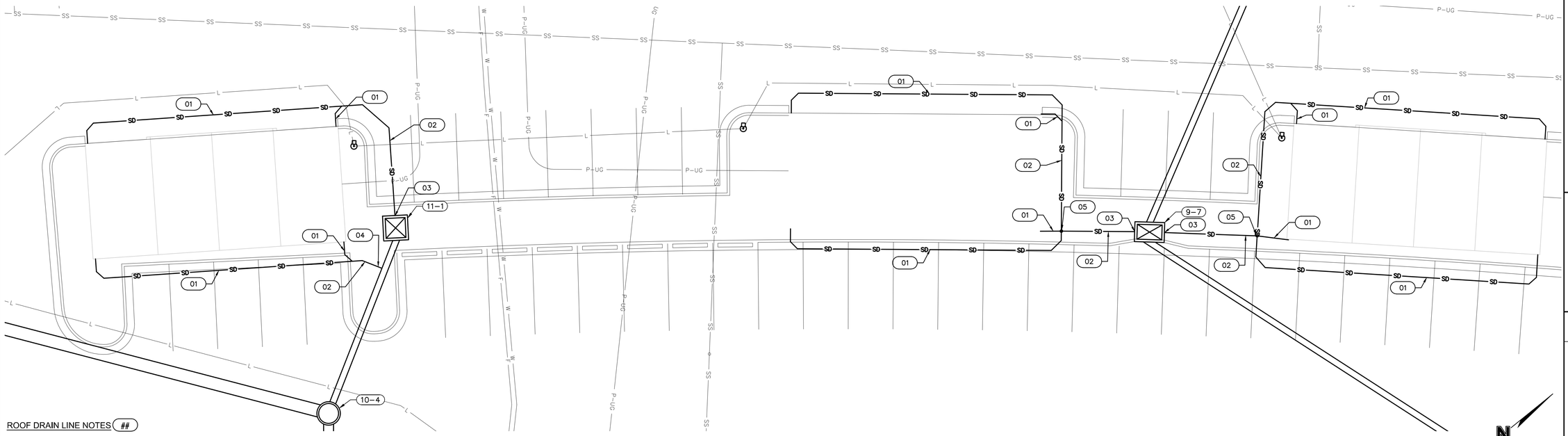
LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C535

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP04_ B190012.dwg ~ Layout: ROOF DRAIN PLAN (2) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



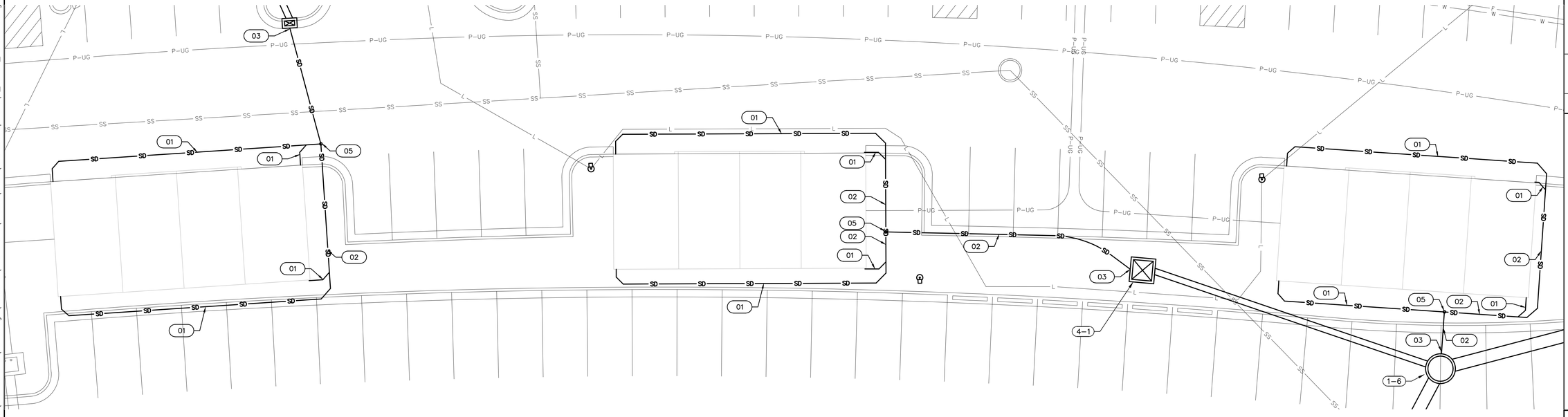
ROOF DRAIN LINE NOTES ##

1. INSTALL 6" HDPE PIPE FROM DOWNSTREAM FITTING/STRUCTURE @ 2.0% MIN. SLOPE TO BUILDING ROOF DRAIN CONNECTION, INLCUDING ALL BENDS, FITTINGS, AND CONNECTIONS. FL @ BUILDING TO BE 3' MINUS BUILDING FFE.
2. INSTALL 8" HDPE PIPE @ 2.0% MIN. SLOPE INCLUDING ALL NECESSARY BENDS, FITTINGS, AND CLEANOUTS.
3. CONNECT ROOF DRAIN LINE TO PROPOSED STORM SEWER STRUCTURES. REFER TO STORM SEWER PLAN & PROFILE SHEETS (C505–C518) FOR ROOF DRAIN CONNECTION FL'S AT STORM STRUCTURES
4. CONNECT ROOF DRAIN LINE TO PROPOSED STORM SEWER W/ INSERT–A–TEE.
5. INSTALL 10" NYLOPLAST D.B. W/ SOLID TOP.

ROOF DRAINS @ GARAGES #9,10, & 11

N

0' 5' 10' 20'
SCALE IN FEET



ROOF DRAINS @ GARAGES #12,13, & 14

N

0' 5' 10' 20'
SCALE IN FEET

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MO# 2015000555

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1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

ROOF DRAIN PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

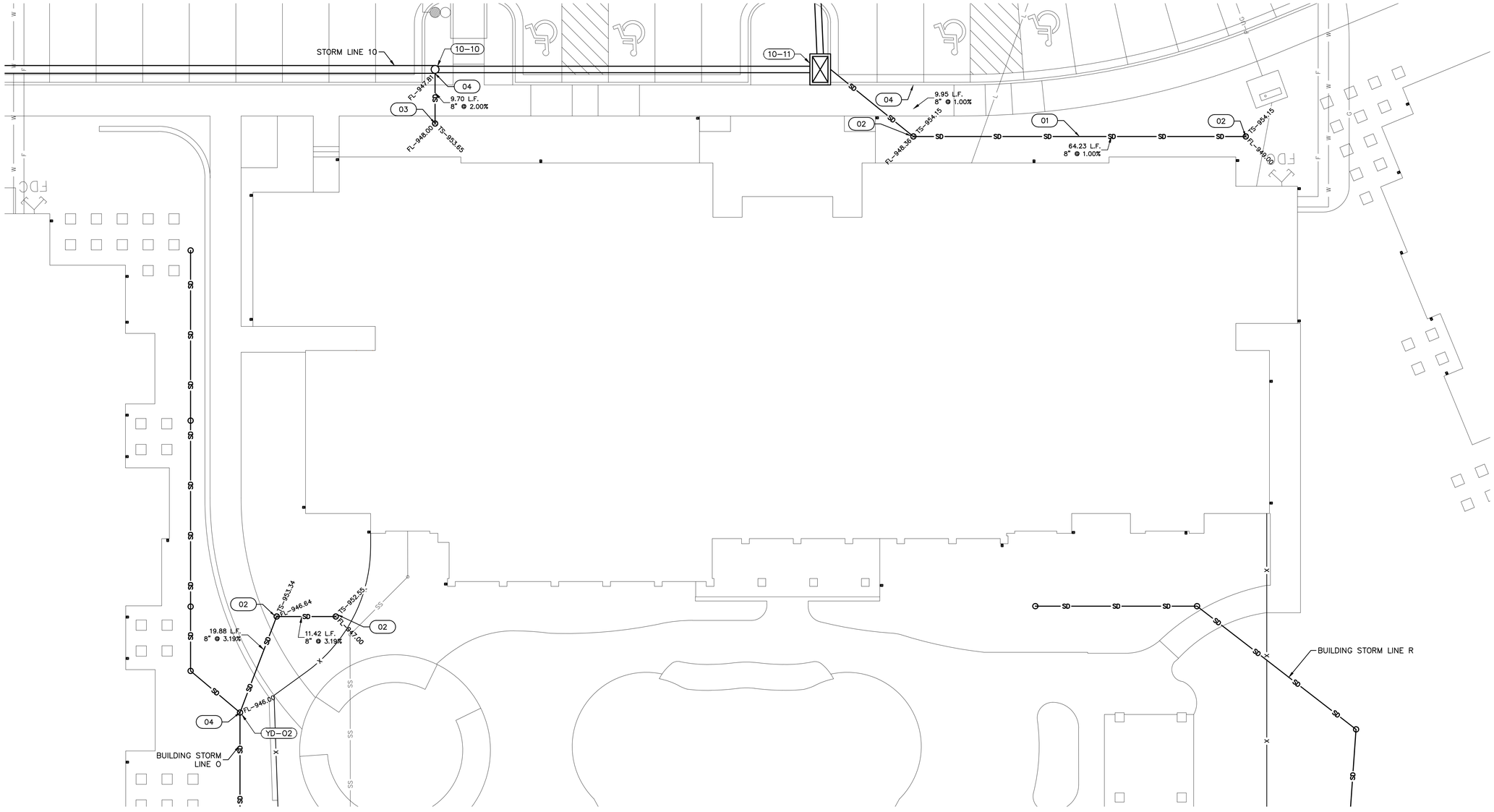
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C536

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP04_ B190012.dwg ~ Layout: ROOF DRAIN PLAN (3) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

ROOF DRAIN LINE NOTES (##)

1. INSTALL 8" HDPE PIPE @ 1.0% MIN. SLOPE INCLUDING ALL NECESSARY BENDS, FITTINGS, AND CLEANOUTS.
2. INSTALL 12" NYLOPLAST DRAIN BASIN W/ DOME GRATE TOP.
3. INSTALL 12" NYLOPLAST DRAIN BASIN W/ SOLID LID.
4. CONNECT BUILDING STORM LINE TO PROPOSED STORM SEWER STRUCTURES. REFER TO STORM SEWER PLAN & PROFILE SHEETS (C505–C518) FOR ROOF DRAIN CONNECTION FL'S AT STORM STRUCTURES.



ROOF DRAINS @ CLUBHOUSE (BLDG 1)

N

0' 5' 10' 20'
SCALE IN FEET

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ROOF DRAIN PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C537

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_RDP04_ B190012.dwg ~ Layout: ROOF DRAIN PLAN (4) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

NOTE:
FILTRATION TRENCHES AROUND FUTURE BUILDINGS (BUIILDINGS 7–13) TO BE INSTALLED IN THE FUTURE, AT THE TIME OF BUILDING CONSTRUCTION.

LEE'S SUMMIT RD.

NE DOUGLAS ST.

S54°34'12"E
1,258.30'

BLDG 13 (FUTURE)

BLDG 12 (FUTURE)

BLDG 11 (FUTURE)

BLDG 10 (FUTURE)

BLDG 9 (FUTURE)

BLDG 8 (FUTURE)

BLDG 7 (FUTURE)

BLDG 6

BLDG 5

BLDG 4

BLDG 3

BLDG 2

BLDG 1 CLUBHOUSE

MAINT. BLDG

SEE SHEET C608

SEE SHEET C609

SEE SHEET C610

SEE SHEET C607

SEE SHEET C606

SEE SHEET C611

SEE SHEET C605

SEE SHEET C604

SEE SHEET C603

SEE SHEET C602

10' U.E.

50' B.L.

15' D.E.

T.C.E.

L.S.E.

S.S.E.

20' D.E.

SSMH

FND IB4

0' 30' 60' 120'
SCALE IN FEET

N

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REVISIONS

FILTRATION TRENCH LAYOUT
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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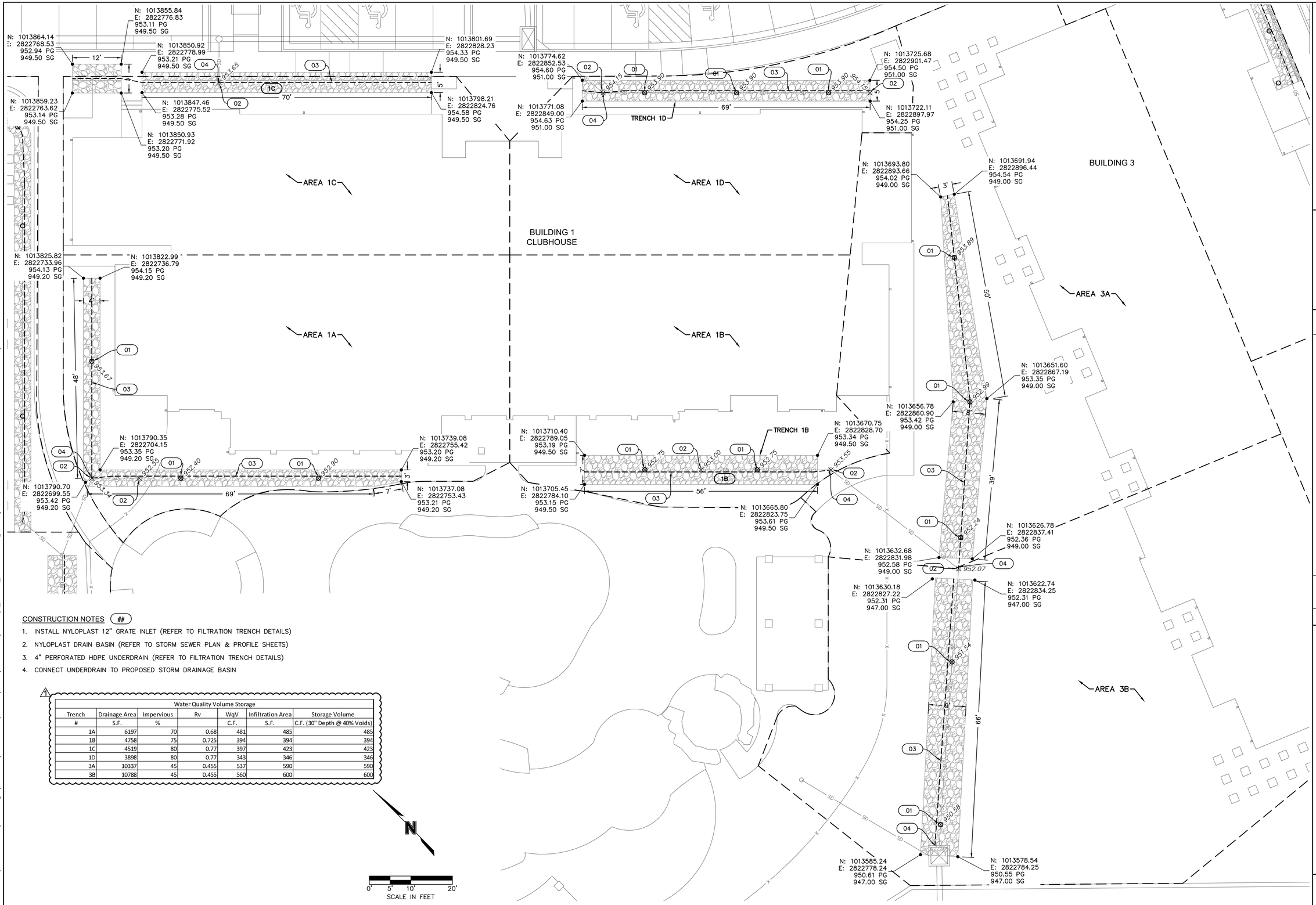
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C601

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_BMP01_ B190012.dwg ~ Layout: INFILTRATION TRENCH GENERAL LAYOUT ~ Last Saved By: mdlebolt ~ Plot Date: 2019.10.01 03:03 PM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949.50 SG
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949.50 SG
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949.50 SG
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949.50 SG
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951.00 SG
N: 1013850.93
E: 2822771.92
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TRENCH 1D
AREA 1C
AREA 1D
BUILDING 1
CLUBHOUSE
BUILDING 3
N: 1013693.80
E: 2822893.66
954.02 PG
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949.00 SG
N: 1013825.82
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E: 2822736.79
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949.20 SG
AREA 1A
AREA 1B
AREA 3A
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949.20 SG
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949.50 SG
TRENCH 1B
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949.50 SG
N: 1013790.70
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953.42 PG
949.20 SG
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949.20 SG
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953.15 PG
949.50 SG
N: 1013665.80
E: 2822823.75
953.61 PG
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949.00 SG
N: 1013632.68
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949.00 SG
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947.00 SG
N: 1013622.74
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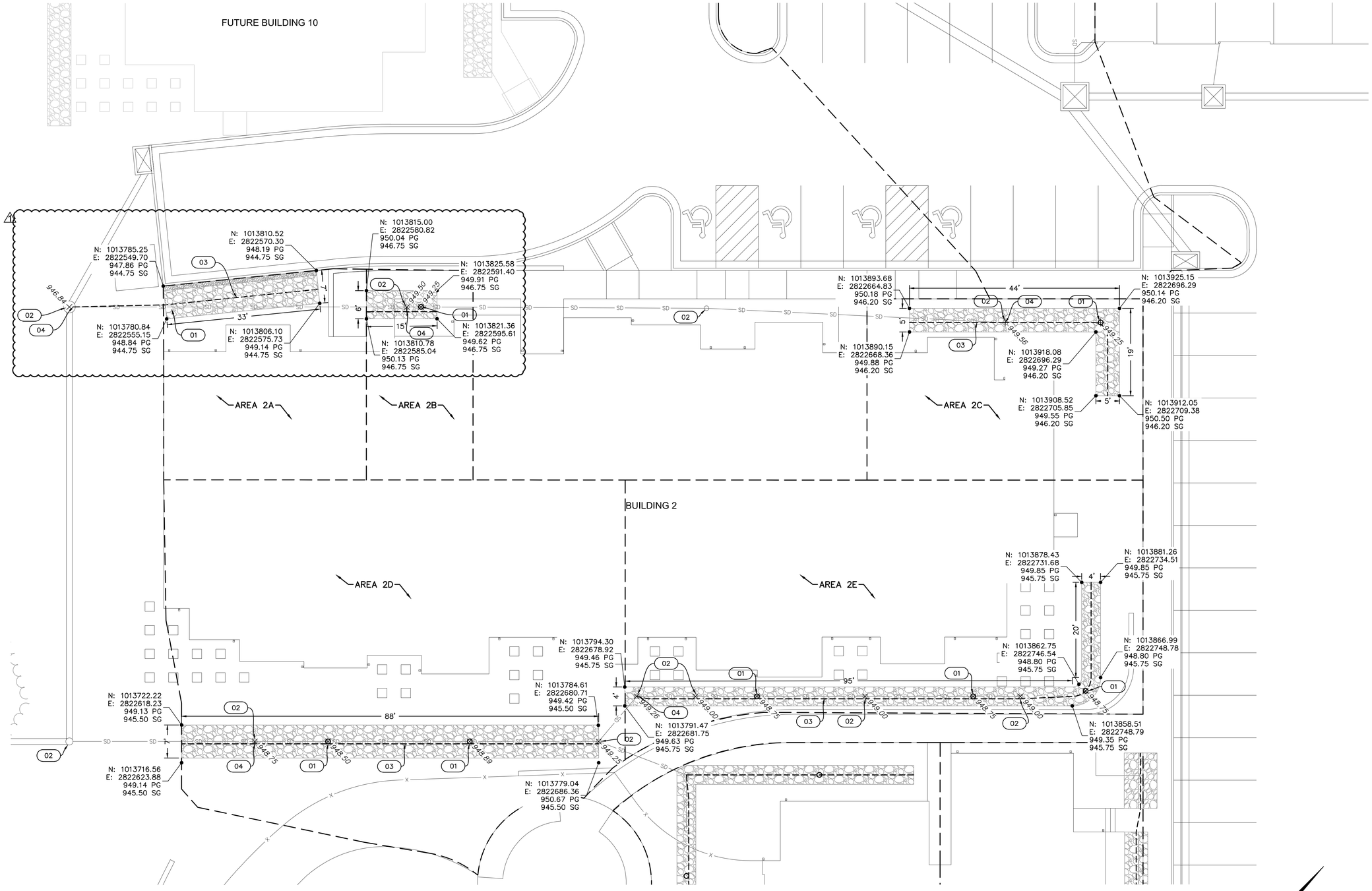
947.00 SG
AREA 3B
N: 1013585.24
E: 2822778.24
950.61 PG
947.00 SG
N: 1013578.54
E: 2822784.25
950.55 PG
947.00 SG
70'
69'
56'
48'
50'
39'
66'
12'
7'
8'
3'
9'
953.65
953.15
953.90
954.15
953.90
953.90
954.15
953.89
952.99
953.67
953.74
952.40
952.90
952.75
953.00
952.75
953.55
952.24
952.07
953.54
950.58
950.55
01
02
03
04
1C
1B
5'
4'
6'
8'
5'
5'
5



1

Water Quality Volume Storage						
Trench #	Drainage Area S.F.	Impervious %	Rv	WqV C.F.	Infiltration Area S.F.	Storage Volume C.F. (30" Depth @ 40% Voids)
2A	1855	80	0.77	163	228	228
2B	1005	80	0.77	88	89	89
2C	2246	60	0.59	151	290	290
2C	6977	70	0.68	542	618	618
2E	5524	65	0.635	400	485	485

CONSTRUCTION NOTES (##)

1. INSTALL NYLOPLAST 12" GRATE INLET (REFER TO FILTRATION TRENCH DETAILS)
2. NYLOPLAST DRAIN BASIN (REFER TO STORM SEWER PLAN & PROFILE SHEETS)
3. 4" PERFORATED HDPE UNDERDRAIN (REFER TO FILTRATION TRENCH DETAILS)
4. CONNECT UNDERDRAIN TO PROPOSED STORM DRAINAGE BASIN

N

0' 5' 10' 20'
SCALE IN FEET

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KS CERTIFICATE OF AUTHORITY #:E1015
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02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

FILTRATION TRENCH PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C603

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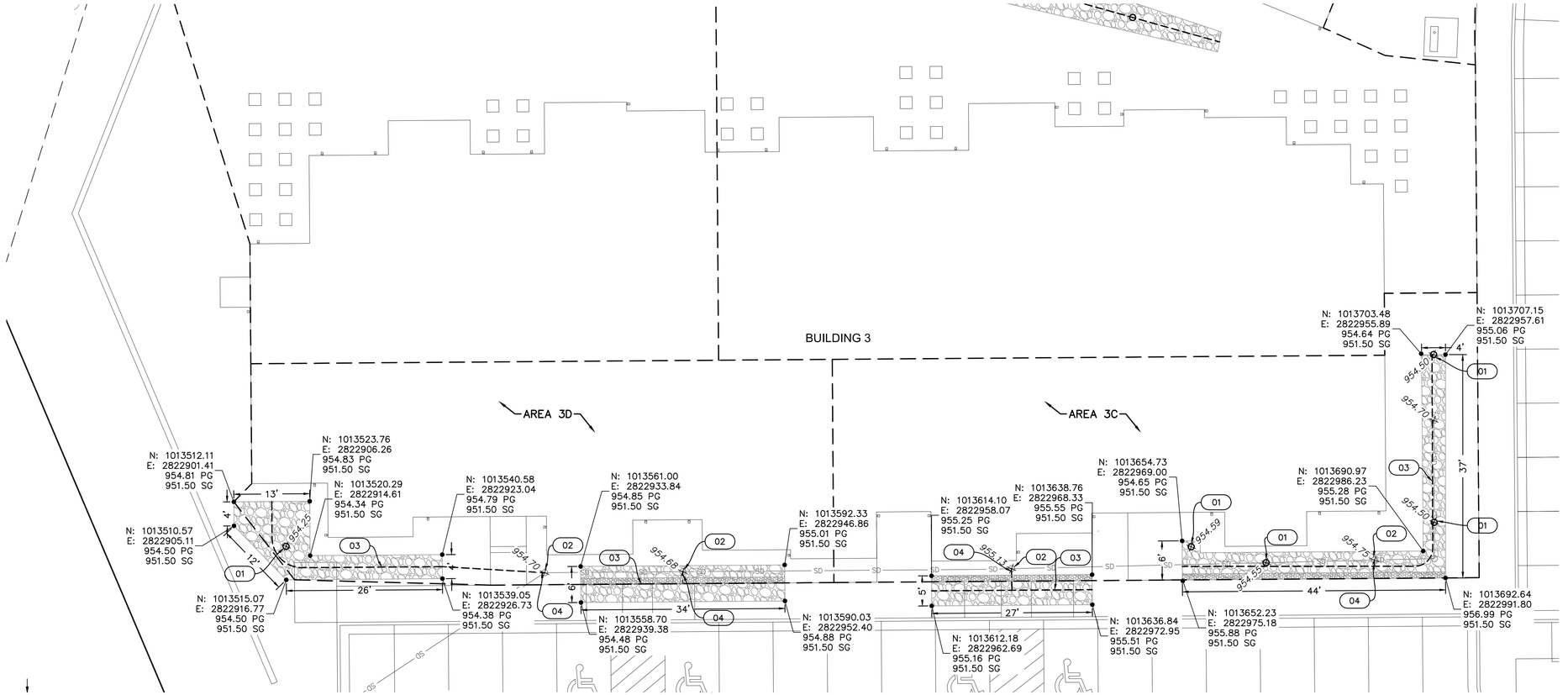

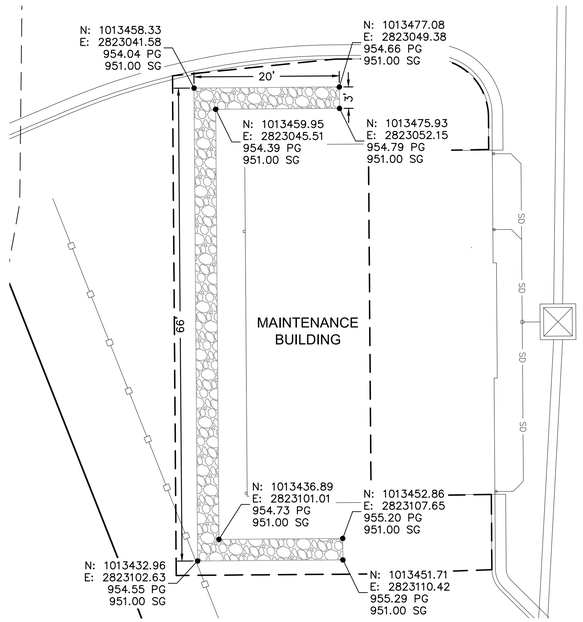

Water Quality Volume Storage						
Trench	Drainage Area	Impervious	Rv	WqV	Infiltration Area	Storage Volume
#	S.F.	%		C.F.	S.F.	C.F. (30" Depth @ 40% Voids)
3C	4142	85	0.815	385	461	461
3D	3789	90	0.86	372	417	417
Maint.	2310	50	0.5	132	302	302

CONSTRUCTION NOTES (##)

1. INSTALL NYLOPLAST 12" GRATE INLET (REFER TO FILTRATION TRENCH DETAILS)
2. NYLOPLAST DRAIN BASIN (REFER TO STORM SEWER PLAN & PROFILE SHEETS)
3. 4" PERFORATED HDPE UNDERDRAIN (REFER TO FILTRATION TRENCH DETAILS)
4. CONNECT UNDERDRAIN TO PROPOSED STORM DRAINAGE BASIN

N

0' 5' 10' 20'
SCALE IN FEET

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OLSSON - CIVIL ENGINEERING
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KS CERTIFICATE OF AUTHORITY #:E-1253
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MO# 2015000555

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REVISIONS

FILTRATION TRENCH PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C604

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_BMP01_ B190012.dwg ~ Layout: INFILTRATION TRENCH PLAN (3) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

Water Quality Volume Storage						
Trench	Drainage Area	Impervious	Rv	WqV	Filtration Area	Storage Volume
#	S.F.	%		C.F.	S.F.	C.F. (30" Depth @ 40% Voids)
4A	8394	30	0.32000	307	562	562
4B	5116	85	0.81500	476	481	481
4C	2380	75	0.72500	197	208	208
4D	8158	35	0.36500	340	363	363
4E	13836	35	0.36500	577	596	596

CONSTRUCTION NOTES (##)

1. INSTALL NYLOPLAST 12" GRATE INLET (REFER TO FILTRATION TRENCH DETAILS)
2. NYLOPLAST DRAIN BASIN (REFER TO STORM SEWER PLAN & PROFILE SHEETS)
3. 4" PERFORATED HDPE UNDERDRAIN (REFER TO FILTRATION TRENCH DETAILS)
4. CONNECT UNDERDRAIN TO PROPOSED STORM DRAINAGE BASIN

N

0' 5' 10' 20'
SCALE IN FEET

10" U.E.

N: 1013600.10
E: 2823317.63
957.76 PG
954.40 SG

N: 1013595.30
E: 2823316.14
957.65 PG
953.50 SG

N: 1013606.79
E: 2823320.38
957.60 PG
954.40 SG

N: 1013597.22
E: 2823311.53
957.92 PG
953.50 SG

N: 1013628.36
E: 2823309.56
958.02 PG
954.40 SG

N: 1013625.24
E: 2823306.65
958.14 PG
954.40 SG

N: 1013601.63
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957.78 PG
954.40 SG

N: 1013606.64
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957.61 PG
954.40 SG

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954.50 SG

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953.50 SG

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N: 1013431.44
E: 2823248.62
958.64 PG
954.50 SG

N: 1013433.76
E: 2823243.08
958.40 PG
954.50 SG

AREA 4D

AREA 4E

BUILDING 4

AREA 4A

AREA 4B

AREA 4C

N: 1013651.62
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954.40 SG

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E: 2823223.52
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954.40 SG

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E: 2823244.71
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E: 2823234.68
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954.40 SG

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955.25 SG

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E: 2823230.98
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E: 2823219.82
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E: 2823201.95
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953.50 SG

N: 1013474.24
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956.92 PG
953.50 SG

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KS CERTIFICATE OF AUTHORITY # E-2011
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FILTRATION TRENCH PLAN
SITE DEVELOPMENT PLANS

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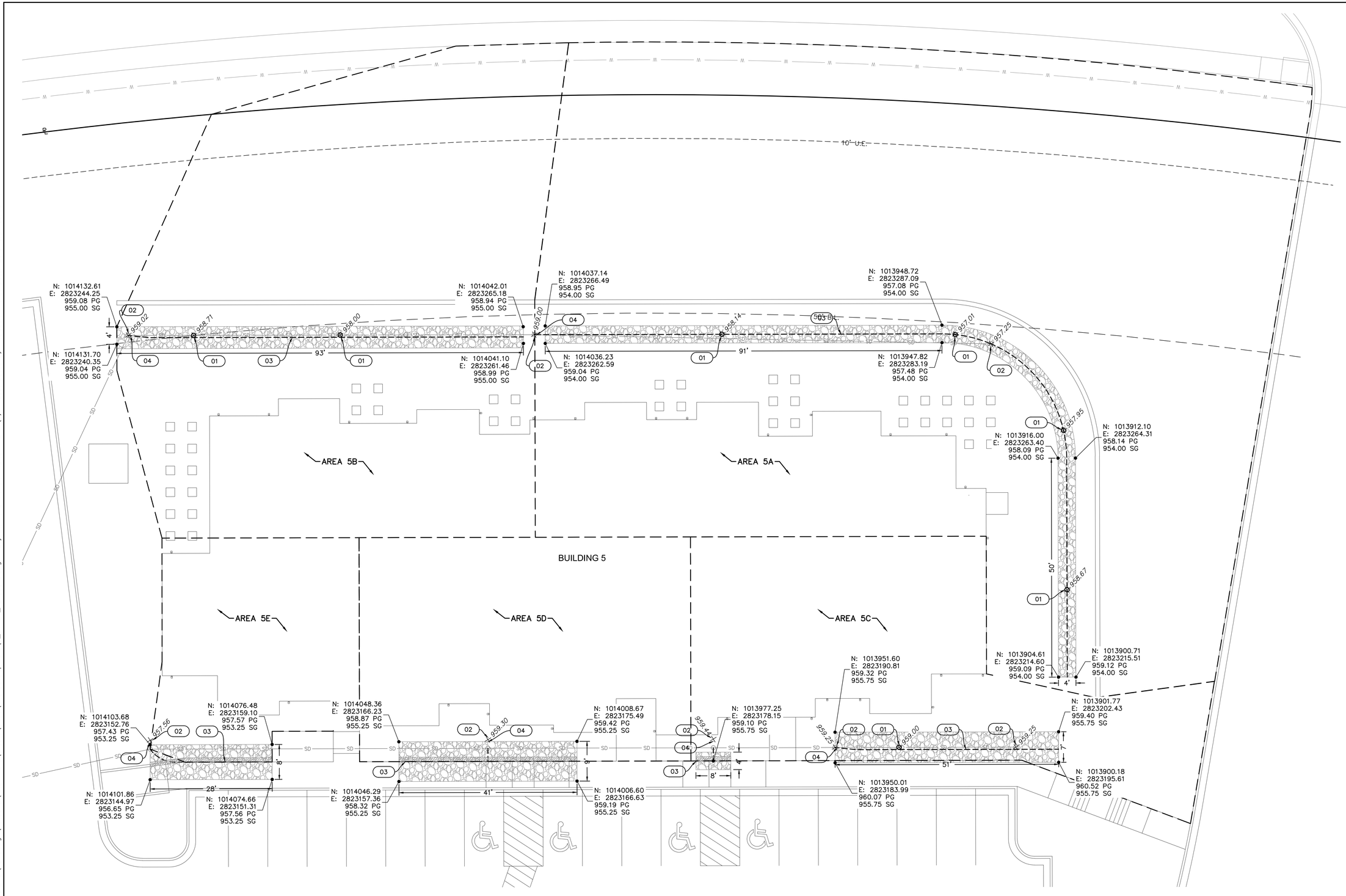
SHEET
C605

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_BMP01_ B190012.dwg ~ Layout: INFILTRATION TRENCH PLAN (4) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



Water Quality Volume Storage						
Trench	Drainage Area	Impervious	Rv	WqV	Infiltration Area	Storage Volume
#	S.F.	%		C.F.	S.F.	C.F. (30" Depth @ 40% Voids)
5A	20453	25	0.275	642	742	742
5B	9479	33	0.347	376	465	465
5C	4605	70	0.68	358	358	358
5D	3888	80	0.77	342	371	371
5E	2135	80	0.77	188	223	223

CONSTRUCTION NOTES (##)

1. INSTALL NYLOPLAST 12" GRATE INLET (REFER TO FILTRATION TRENCH DETAILS)
2. NYLOPLAST DRAIN BASIN (REFER TO STORM SEWER PLAN & PROFILE SHEETS)
3. 4" PERFORATED HDPE UNDERDRAIN (REFER TO FILTRATION TRENCH DETAILS)
4. CONNECT UNDERDRAIN TO PROPOSED STORM DRAINAGE BASIN

N

0' 5' 10' 20'
SCALE IN FEET

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OLSSON - CIVIL ENGINEERING
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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

FILTRATION TRENCH PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

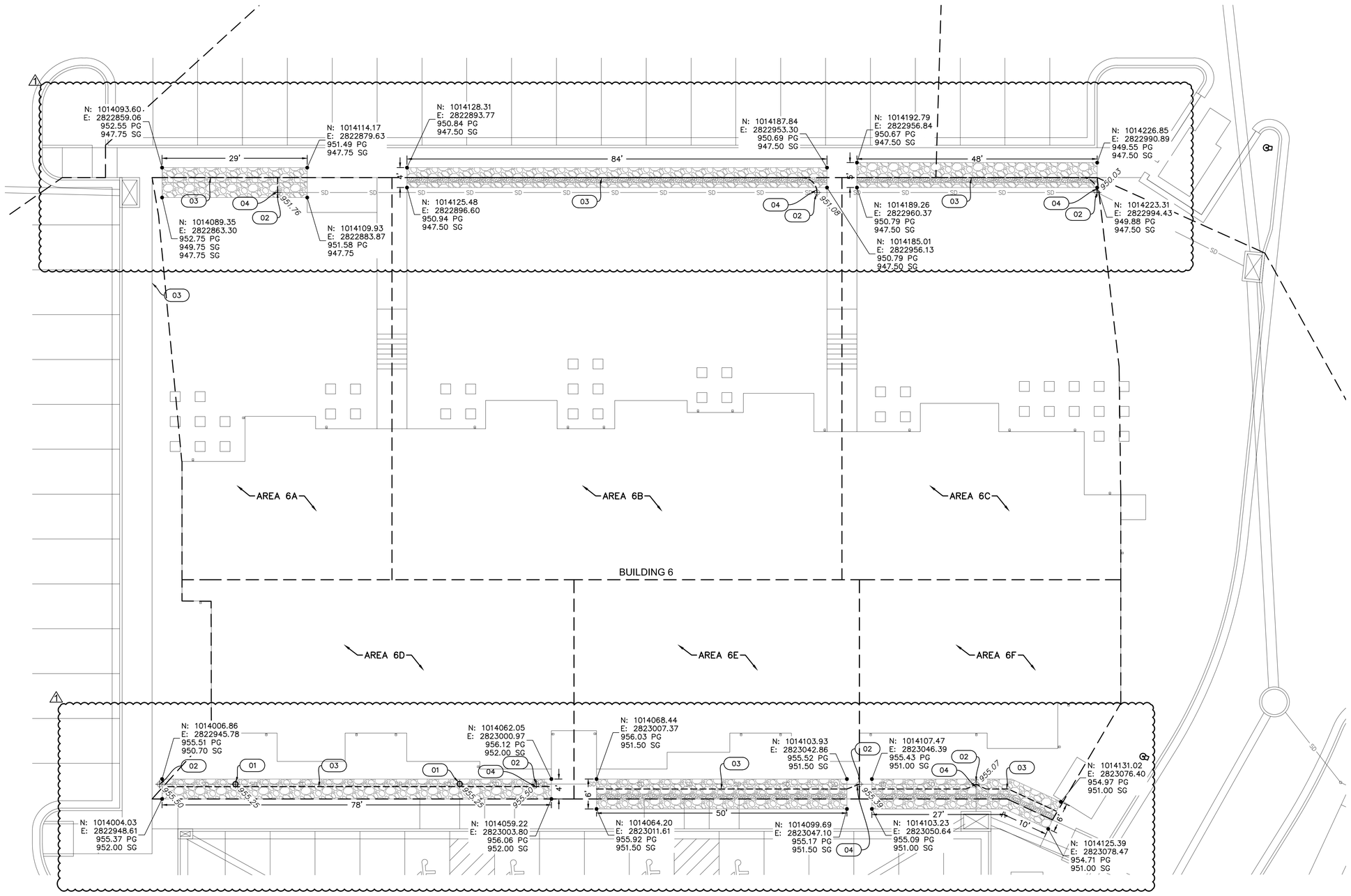
LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C606

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_BMP01_ B190012.dwg ~ Layout: INFILTRATION TRENCH PLAN (5) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



Water Quality Volume Storage						
Trench	Drainage Area	Impervious	Rv	WqV	Infiltration Area	Storage Volume
#	S.F.	%		C.F.	S.F.	C.F. (30" Depth @ 40% Voids)
6A	3553	40	0.41	166	174	174
6B	7275	38	0.392	326	336	336
6C	4408	38	0.392	197	240	240
6D	3301	75	0.725	273	312	312
6E	2516	80	0.77	221	301	301
6F	2220	72	0.698	177	225	225

CONSTRUCTION NOTES (##)

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0' 5' 10' 20'
SCALE IN FEET

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MO# 2015000555

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REVISIONS

FILTRATION TRENCH PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

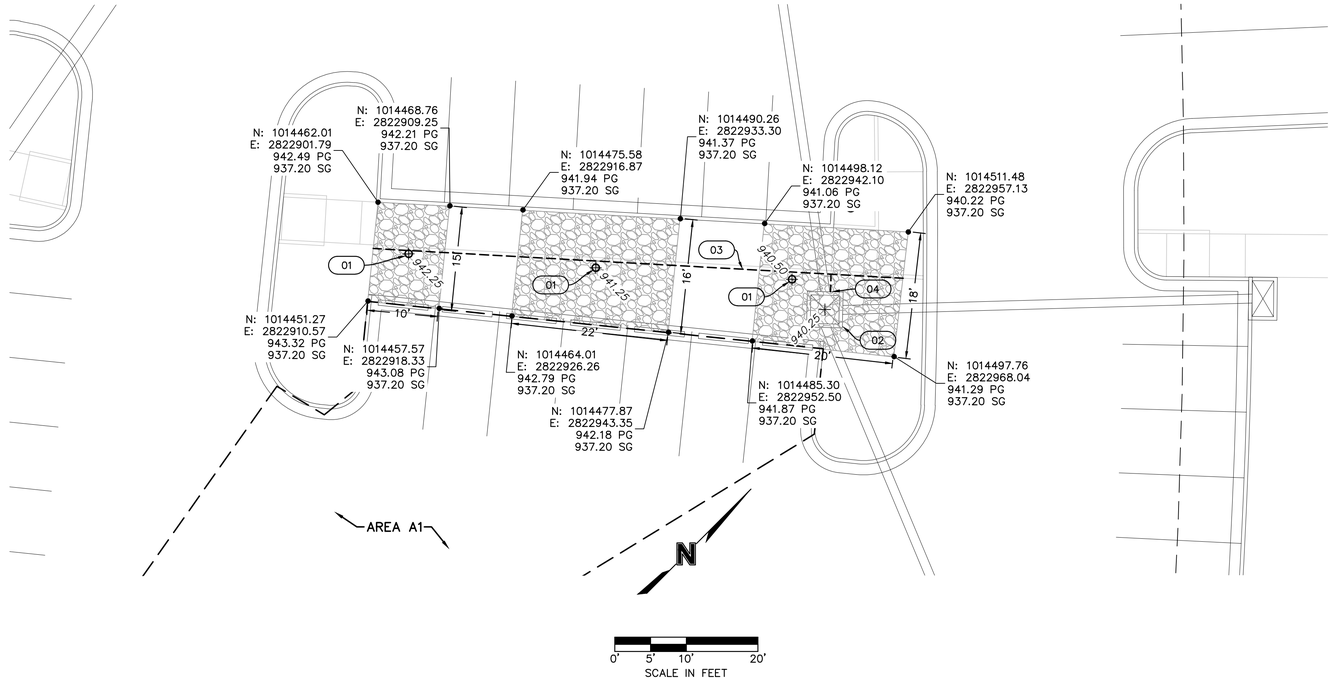
LEE'S SUMMIT, MO

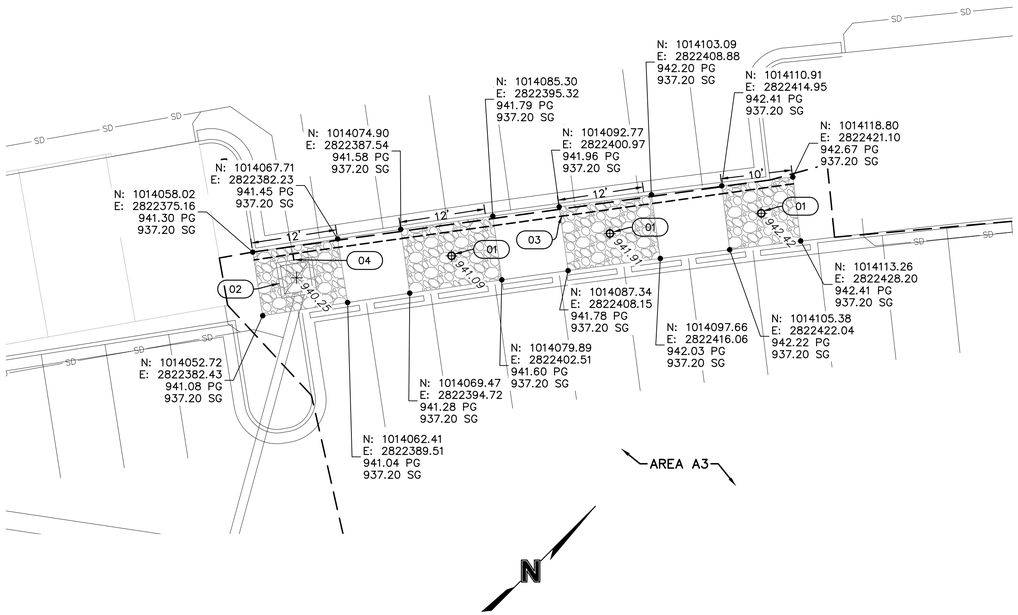
2020

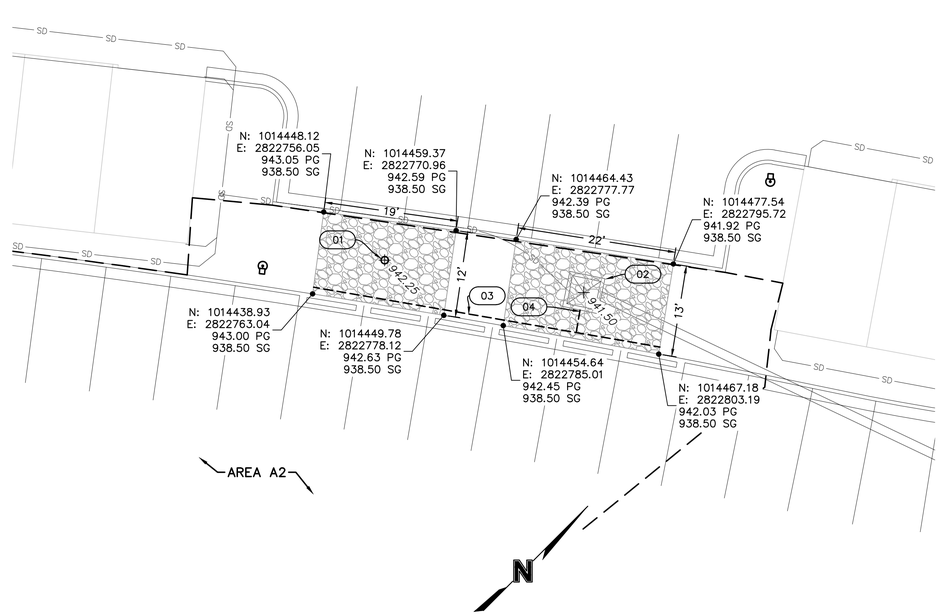
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C607

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_BMP01_ B190012.dwg ~ Layout: INFILTRATION TRENCH PLAN (6) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM







1

Water Quality Volume Storage						
Trench	Drainage Area	Impervious	Rv	WqV	Infiltration Area	Storage Volume
#	S.F.	%		C.F.	S.F.	C.F. (30" Depth @ 40% Voids)
A1	9990	85	0.815	930	822	822
A2	18511	85	0.815	1722	495	495
A3	19403	85	0.815	1805	431	431

CONSTRUCTION NOTES (##)

1. INSTALL NYLOPLAST 12" GRATE INLET (REFER TO FILTRATION TRENCH DETAILS)
2. FIELD INLET (REFER TO STORM SEWER PLAN & PROFILE SHEETS)
3. 4" PERFORATED HDPE UNDERDRAIN (REFER TO FILTRATION TRENCH DETAILS)
4. CONNECT UNDERDRAIN TO PROPOSED STORM DRAINAGE BASIN

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REVISIONS

FILTRATION TRENCH PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

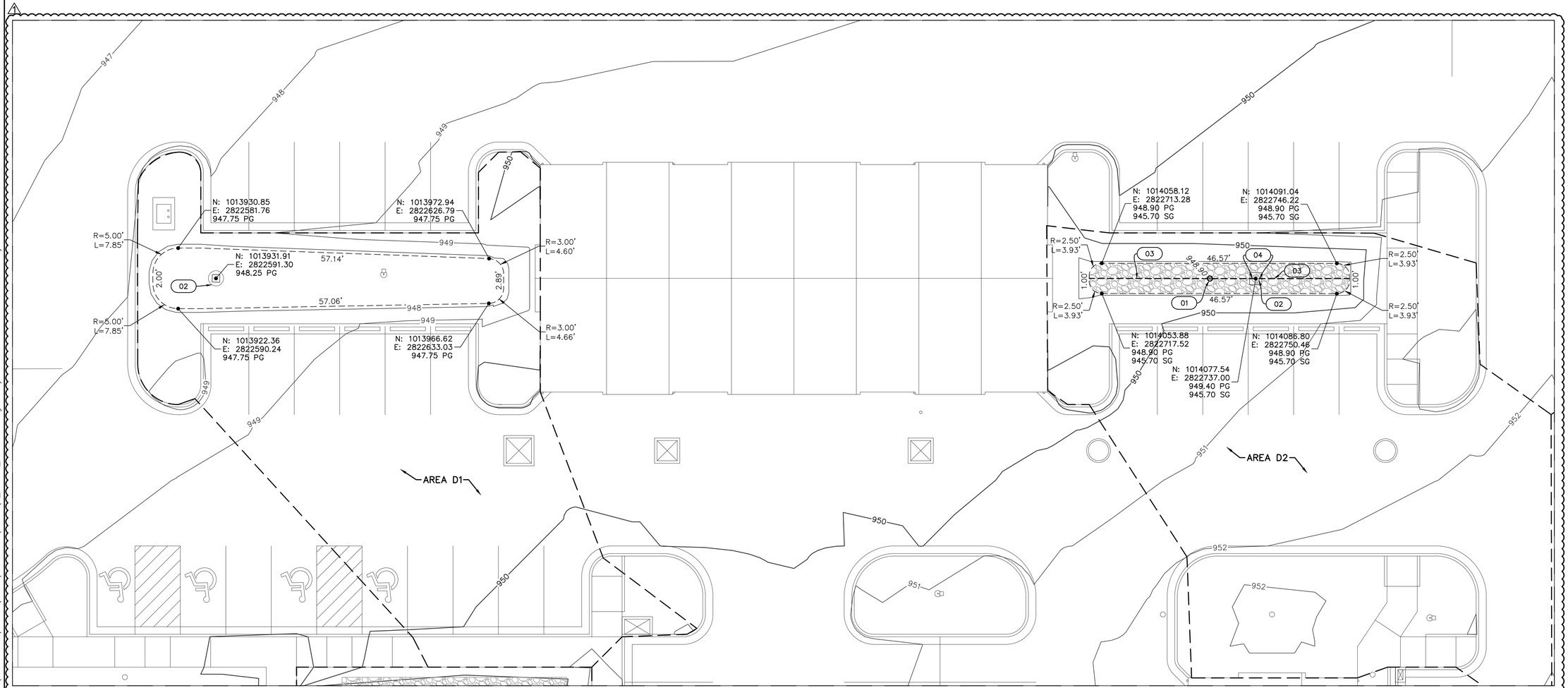
LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C608

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_BMP01_ B190012.dwg ~ Layout: INFILTRATION TRENCH PLAN (7) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



Water Quality Volume Storage - Depressed Areas								
	Drainage Area	Impervious	Rv	WqV	Surface Area	Ponding Depth	Provided Depth	Provided Vol
ID	S.F.	%		C.F.	S.F.	in	in.	C.F.
D1	5968	60	0.59	402	812	5.94	6.00	406

Water Quality Volume Storage - Depressed Areas w/ Filtration											
	Drainage Area	Impervious	Rv	WqV	Surface Area	Ponding Depth	Provided Ponding Vol	Filtration Area	Trench Depth	Trench Storage Volume	Total Storage Volume
ID	S.F.	%		C.F.	S.F.	in	C.F.	S.F.	in.	C.F. (@ 40% Voids)	C.F.
D2	7124	60	0.59	480	310	6.00	155	310	32	331	486

CONSTRUCTION NOTES (##)

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3. 4" PERFORATED HDPE UNDERDRAIN (REFER TO FILTRATION TRENCH DETAILS)
4. CONNECT UNDERDRAIN TO PROPOSED STORM DRAINAGE BASIN

N

0' 5' 10' 20'
SCALE IN FEET

olsson

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02/04/2021
NUMBER PE-2015000555
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MO# 2015000555

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1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

FILTRATION TRENCH PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

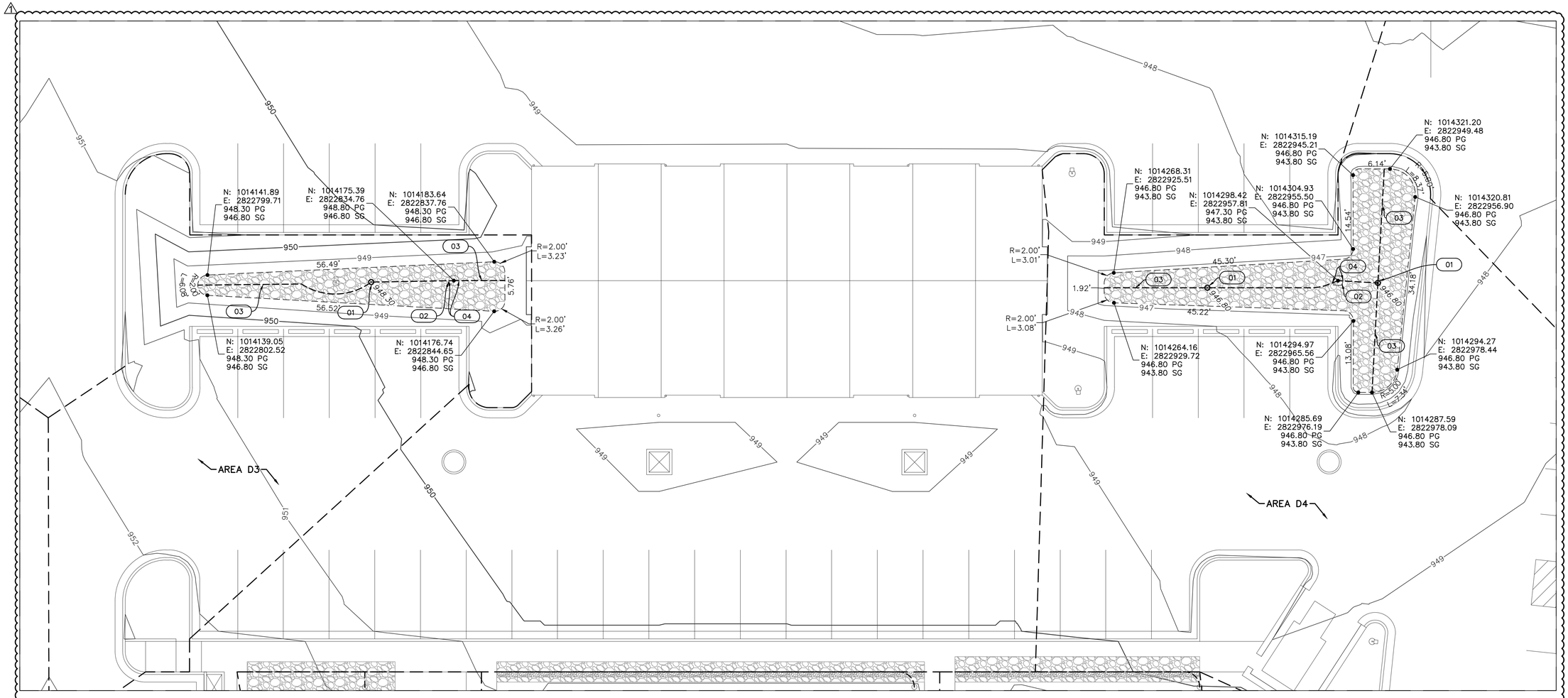
LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C609

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_BMP03_ B190012.dwg ~ Layout: BMP PLAN ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



Water Quality Volume Storage - Depressed Areas w/ Filtration											
Drainage Area ID	Drainage Area	Impervious	Rv	WqV	Surface Area	Ponding Depth	Provided Ponding Vol	Filtration Area	Trench Depth	Trench Storage Volume	Total Storage Volume
ID	S.F.	%		C.F.	S.F.	in	C.F.	S.F.	in.	C.F. (@ 40% Voids)	C.F.
D3	6173	65	0.635	413	500	6.00	250	500	12	200	450
D4	13691	75	0.725	1133	843	6.00	422	843	30	843	1265

CONSTRUCTION NOTES (##)

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N

0' 5' 10' 20'
SCALE IN FEET

olsson

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KS CERTIFICATE OF AUTHORITY #:E-1451
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02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

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MO# 2015000555

REVISIONS

NO. REV.	DATE	BY	REVISIONS DESCRIPTION
1	07 JAN 2021		PERMIT SET / CITY COMMENT REVISIONS

FILTRATION TRENCH PLAN
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ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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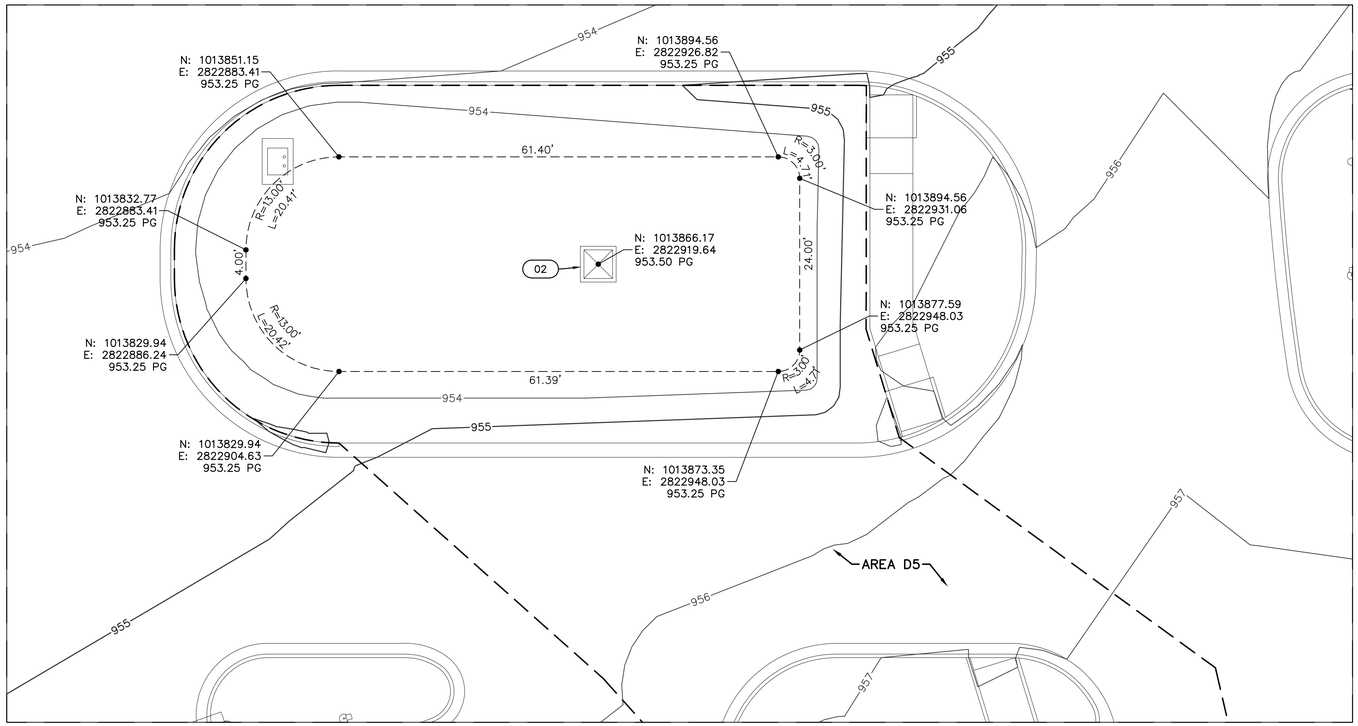
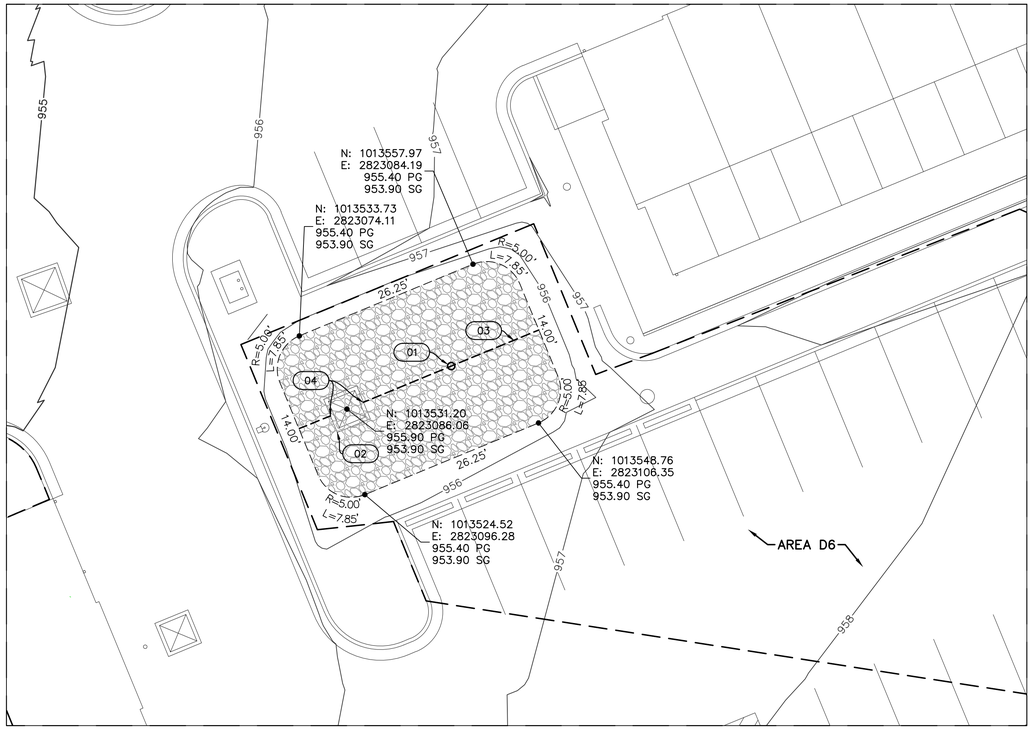
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C610

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_BMP03_ B190012.dwg ~ Layout: BMP PLAN (2) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM





Water Quality Volume Storage - Depressed Areas

Drainage Area ID	Drainage Area	Impervious	Rv	WqV	Surface Area	Required Depth	Provided Depth	Provided Vol
ID	S.F.	%		C.F.	S.F.	in	in.	C.F.
D5	9700	36	0.374	414	2245	2.21	3.00	561

Water Quality Volume Storage - Depressed Areas w/ Filtration

Drainage Area ID	Drainage Area	Impervious	Rv	WqV	Surface Area	Ponding Depth	Provided Ponding Vol	Filtration Area	Trench Depth	Trench Storage Volume	Total Storage Volume
ID	S.F.	%		C.F.	S.F.	in	C.F.	S.F.	in.	C.F. (@ 40% Voids)	C.F.
D6	8582	62	0.608	596	848	6.00	424	848	12	339	763

CONSTRUCTION NOTES (##)

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2. STORM INLET (REFER TO STORM SEWER PLAN & PROFILE SHEETS)
3. 4" PERFORATED HDPE UNDERDRAIN (REFER TO FILTRATION TRENCH DETAILS)
4. CONNECT UNDERDRAIN TO PROPOSED STORM DRAINAGE BASIN

N

0' 5' 10' 20'
SCALE IN FEET

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02/04/2021
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NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

FILTRATION TRENCH PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C611

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_BMP03_ B190012.dwg ~ Layout: BMP PLAN (3) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

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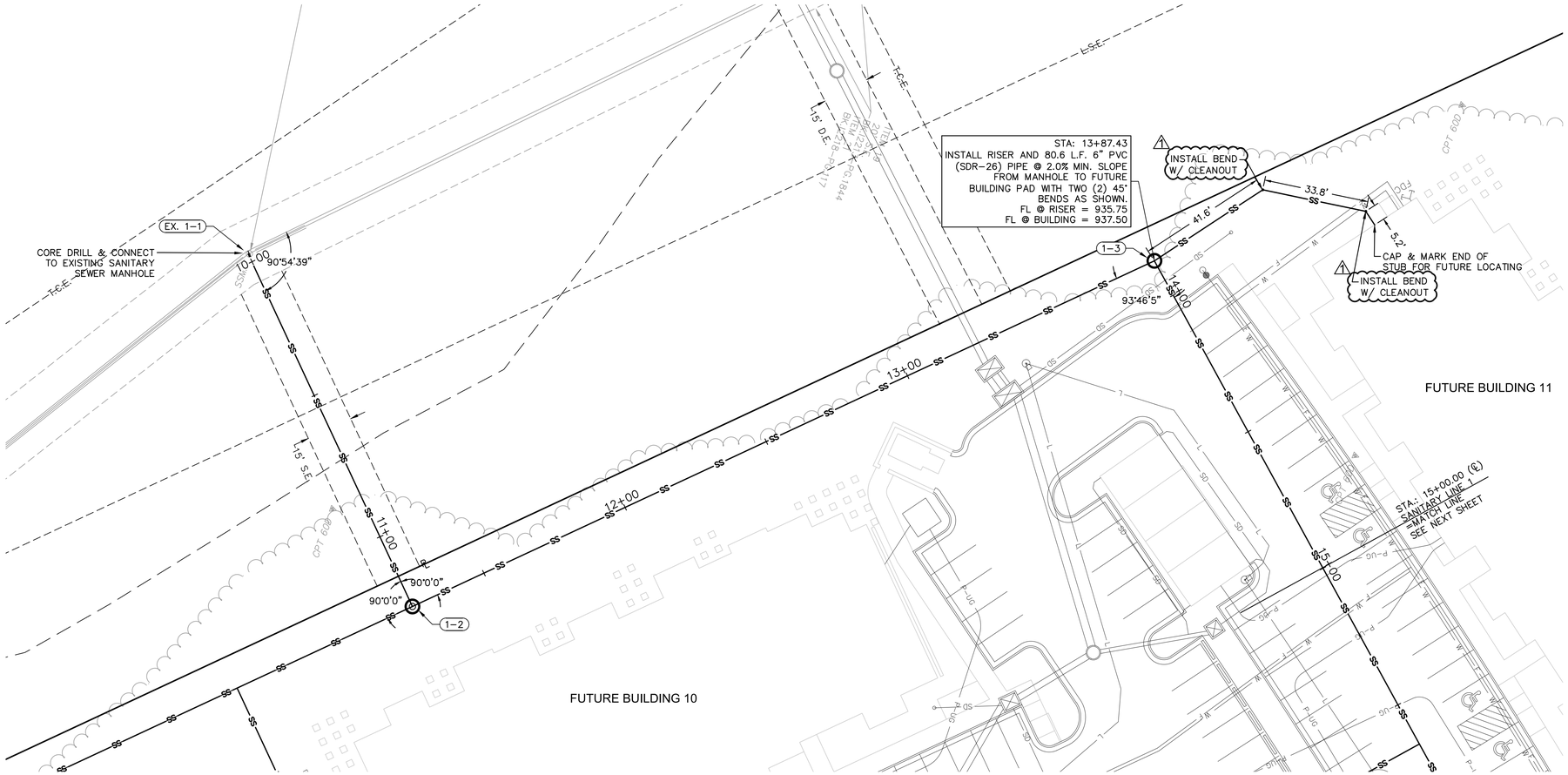
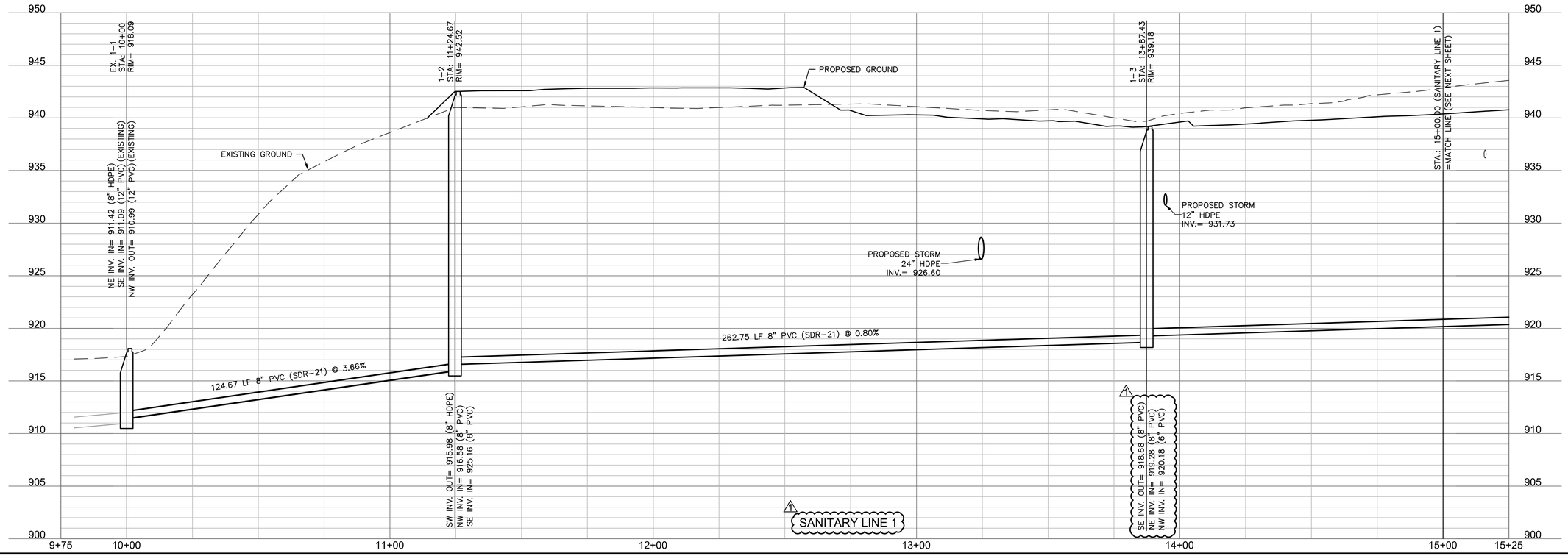


STRUCTURES	
ID	DESCRIPTION
EX. 1–1	10+00 SANITARY LINE 1 48" MH N: 1013727.564; E: 2822374.980
1–2	11+24.67 SANITARY LINE 1 48" MH W/ OUTSIDE DROP N: 1013815.438; E: 2822463.422
1–3	13+87.43 SANITARY LINE 1 48" MH N: 1014001.301; E: 2822277.693



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KS CERTIFICATE OF AUTHORITY # E-2066
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SANITARY SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C701

FUTURE BUILDING 11

FUTURE BUILDING 12

FUTURE BUILDING 13

FUTURE BUILDING 9

INSTALL BEND W/ CLEANOUT

CAP & MARK END OF STUB FOR FUTURE LOCATING

18.6'

STA.: 15+00.00 (℄) SANITARY LINE 1 =MATCH LINE SEE PREVIOUS SHEET

STA: 15+64.34
INSTALL 8"X6" WYE, RISER AND 170.7 L.F. 6" PVC (SDR-26) PIPE @ 2.0% MIN. SLOPE FROM WYE TO FUTURE BUILDING PAD AS SHOWN.
FL @ RISER = 938.00
FL @ BUILDING = 944.75

STA: 16+84.21
INSTALL 8"X6" WYE, RISER AND 102.3 L.F. 6" PVC (SDR-26) PIPE @ 2.0% MIN. SLOPE FROM WYE TO FUTURE BUILDING PAD AS SHOWN.
FL @ RISER = 928.60
FL @ BUILDING = 930.75

INSTALL BEND W/ CLEANOUT

19.8'

CAP & MARK END OF STUB FOR FUTURE LOCATING

STA.: 20+00.00 (℄) SANITARY LINE 1 =MATCH LINE SEE NEXT SHEET

STRUCTURES	
ID	DESCRIPTION
1–4	17+77.43 SANITARY LINE 1 48" MH N: 1014294.505; E: 2822534.853

15+00 16+00 17+00 18+00 19+00 20+00

83.7'

82.0'

62.5'

106.0'

173°1'11"

INSTALL CLEANOUT

STA: 19+82.34
INSTALL 8"X6" WYE AND 101.8 L.F. 6" PVC (SDR-26) PIPE @ 2.0% MIN. SLOPE FROM WYE TO FUTURE BUILDING PAD AS SHOWN.
FL @ MAIN = 924.50
FL @ BUILDING = 927.25

INSTALL BEND W/ CLEANOUT

8.2'

CAP & MARK END OF STUB FOR FUTURE LOCATING

N

0' 10' 20' 40'
SCALE IN FEET

0' 2.5' 5' 10'

955 950 945 940 935 930 925 920 915 910 905

STA.: 15+00.00 (SANITARY LINE 1) =MATCH LINE (SEE PREVIOUS SHEET)

EXISTING GROUND

PROPOSED GROUND

1–4
STA.: 17+77.43
RIM= 944.84

STA.: 20+00.00 (SANITARY LINE 1) =MATCH LINE (SEE NEXT SHEET)

PROPOSED 8" DIA. & 4" DIA. PVC (C900)
INV. = 936.23

PROPOSED STORM 15" HDPE
INV.= 936.13

PROPOSED STORM 8" HDPE
INV.= 940.21

390.00 LF 8" PVC (SDR-26) @ 0.80%

279.92 LF 8" PVC (SDR-26) @ 0.80%

SW INV. OUT= 922.40 (8" PVC)
NE INV. IN= 923.00 (8" PVC)

SANITARY LINE 1 (CONT.)

14+75 15+00 16+00 17+00 18+00 19+00 20+00 20+25

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SANITARY SEWER PLAN & PROFILE
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ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C702

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_SAN01_ B190012.dwg ~ Layout: SANITARY SEWER PLAN & PROFILE (2) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

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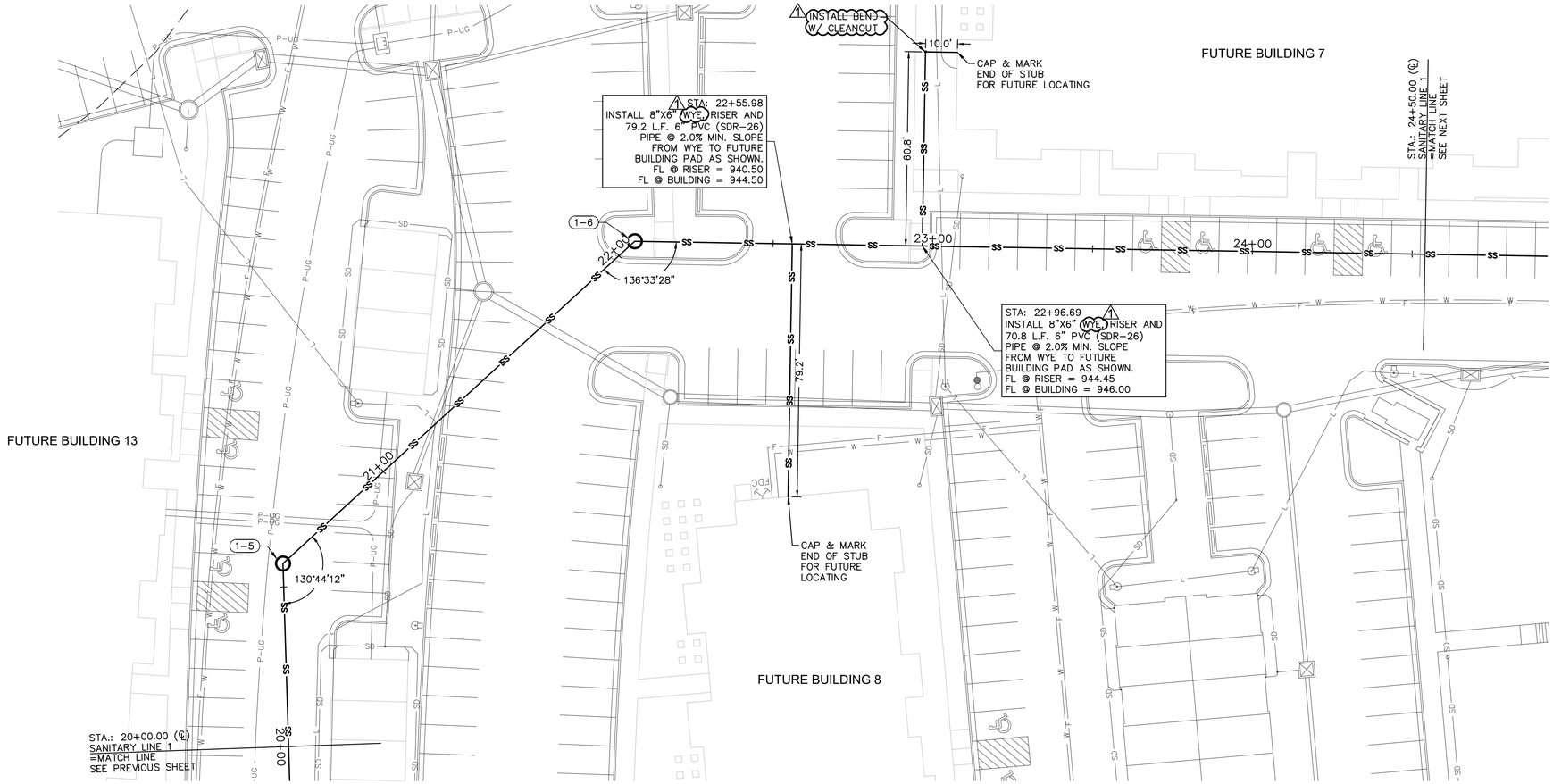
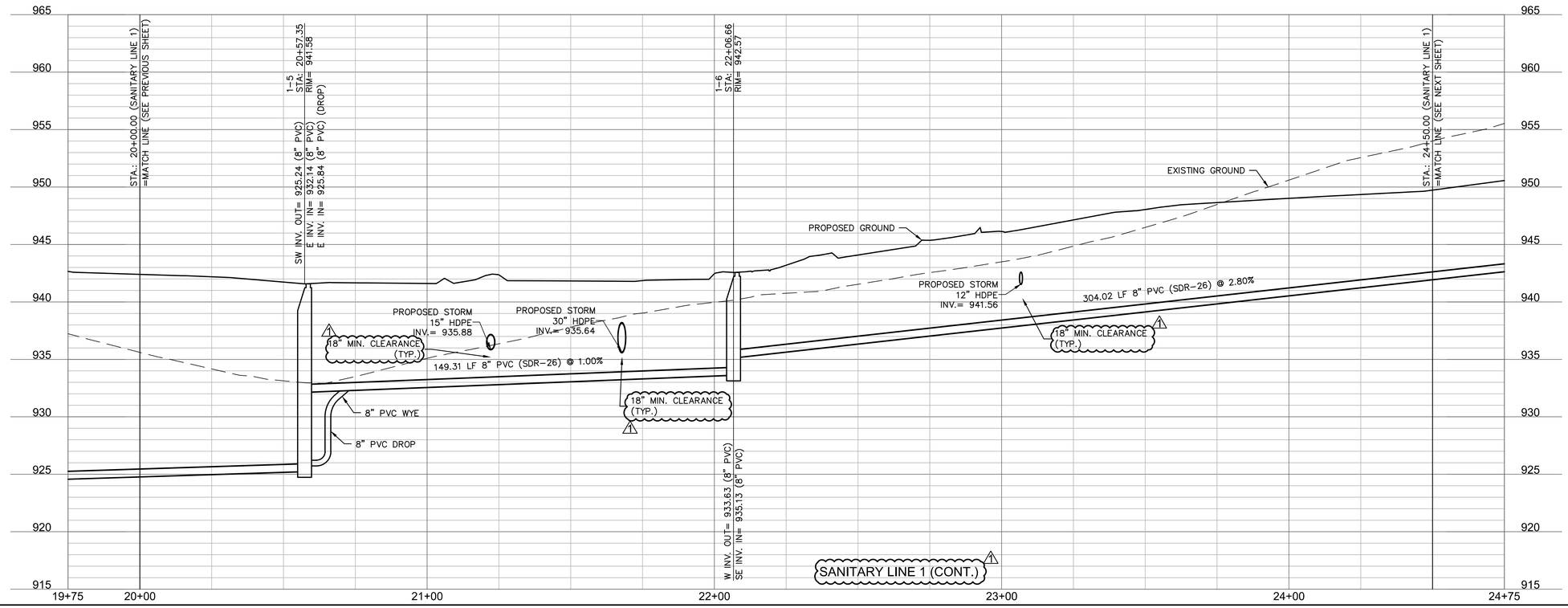


STRUCTURES	
ID	DESCRIPTION
1-5	20+57.35 SANITARY LINE 1 48" MH (W/ OUTSIDE DROP) N: 1014480.959; E: 2822743.634
1-6	22+06.66 SANITARY LINE 1 48" MH N: 1014461.478; E: 2822891.672



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KS CERTIFICATE OF AUTHORITY #:E-1005
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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

SANITARY SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

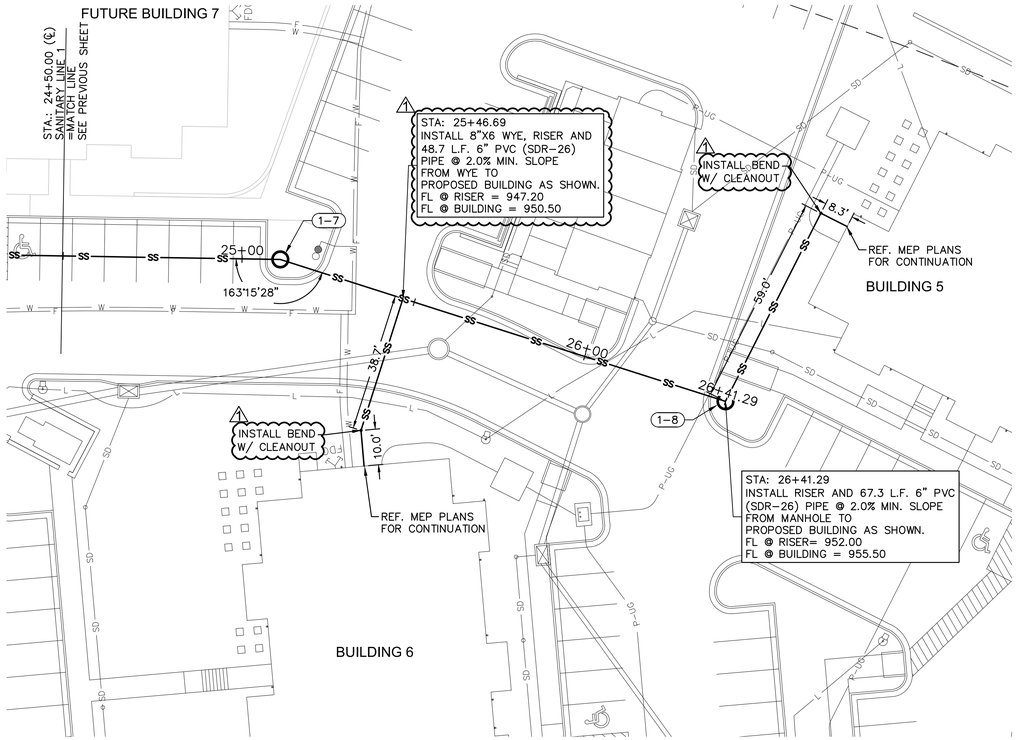
ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

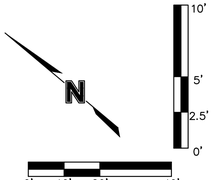
2020

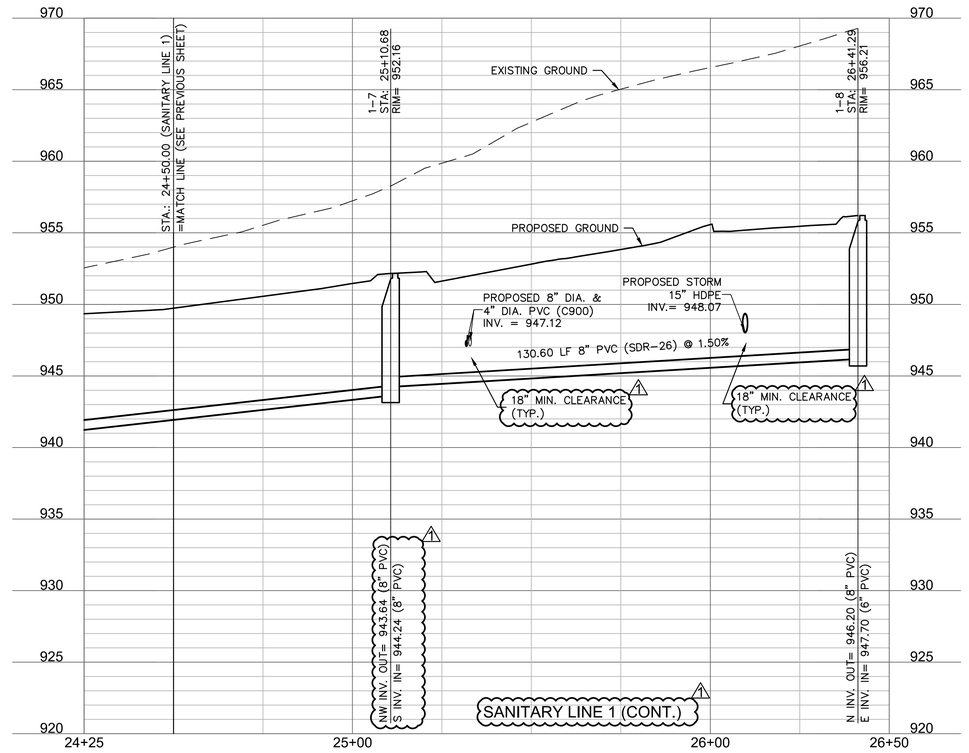
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C703



STRUCTURES	
ID	DESCRIPTION
1-7	25+10.68 SANITARY LINE 1 48" MH N: 1014225.414; E: 2823083.250
1-8	26+41.29 SANITARY LINE 1 48" MH N: 1014104.595; E: 2823132.848





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REVISIONS

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ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

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date: 2020.08.27

SHEET
C704

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_SAN01_ B190012.dwg ~ Layout: SANITARY SEWER PLAN & PROFILE (4) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM

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BUILDING 1 CLUBHOUSE

BUILDING 2

BUILDING 3

FUTURE BUILDING 10

INSTALL BEND W/ CLEANOUT

INSTALL CLEANOUT

INSTALL BEND W/ CLEANOUT

16.7'

15.8'

8.8'

87.1'

62.3'

39.8'

60.0'

90°0'0"

180°0'0"

134°59'52"

1–2

2–1

2–2

10+00

11+00

12+00

13+00

14+00

15+00

STA: 10+62.07
INSTALL 8"X6" WYE, RISER AND 79.0 L.F. 6" PVC (SDR-26) PIPE @ 2.0% MIN. SLOPE FROM WYE TO PROPOSED BUILDING AS SHOWN
FL @ RISER = 937.50
FL @ BUILDING = 942.75

STA: 11+26.63
INSTALL 8"X6" (WYE) RISER AND 39.8 L.F. 6" PVC (SDR-26) PIPE @ 2.0% MIN. SLOPE FROM WYE TO PROPOSED BUILDING AS SHOWN
FL @ RISER = 937.50
FL @ BUILDING = 945.75

STA: 12+00.38
INSTALL RISER AND 171.7 L.F. 4" PVC (SDR-26) PIPE @ 2.0% MIN. SLOPE FROM MANHOLE TO PROPOSED BUILDING AS SHOWN
FL @ RISER = 946.50
FL @ BUILDING = 950.25

STA.: 15+00.00 (℄ SANITARY LINE 2)
=MATCH LINE (SEE NEXT SHEET)

EXCEPT 600

955

NOTES:
CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 36" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

STRUCTURES	
ID	DESCRIPTION
2–1	12+00.38 SANITARY LINE 2 48" MH N: 1013673.699; E: 2822605.057
2–2	14+47.73 SANITARY LINE 2 48" MH N: 1013498.863; E: 2822780.036

N

0' 10' 20' 40'

10' 5' 2.5' 0'

SCALE IN FEET

955 950 945 940 935 930 925 920 915 910 905 900

9+75 10+00 11+00 12+00 13+00 14+00 15+00 15+25

1–2
STA: 11+24.67
RIM= 942.52

2–1
STA: 12+00.38
RIM= 939.00

2–2
STA: 14+47.73
RIM= 939.27

PROPOSED GROUND

EXISTING GROUND

PROPOSED STORM
15" HDPE
INV.= 934.17

PROPOSED STORM
15" HDPE
INV.= 934.69

STA.: 15+00.00 (SANITARY LINE 2)
=MATCH LINE (SEE NEXT SHEET)

200.38 LF 8" PVC (SDR-26) @ 1.00%

247.36 LF 8" PVC (SDR-26) @ 1.00%

141.03 LF 8" PVC (SDR-26) @ 8.00%

8" PVC WYE

8" PVC DROP

SW INV. OUT= 915.98 (8" HDPE)
NW INV. IN= 916.58 (8" PVC)
SE INV. IN= 925.16 (8" PVC)
SE INV. IN= 916.58 (8" PVC) (DROP)

NW INV. OUT= 927.16 (8" PVC)
SE INV. IN= 927.76 (8" PVC)
NE INV. IN= 928.81 (4" PVC)

NW INV. OUT= 930.23 (8" PVC)
E INV. IN= 930.83 (8" PVC)

1 SANITARY LINE 2

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STATE OF MISSOURI
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02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

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REVISIONS

SANITARY SEWER PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

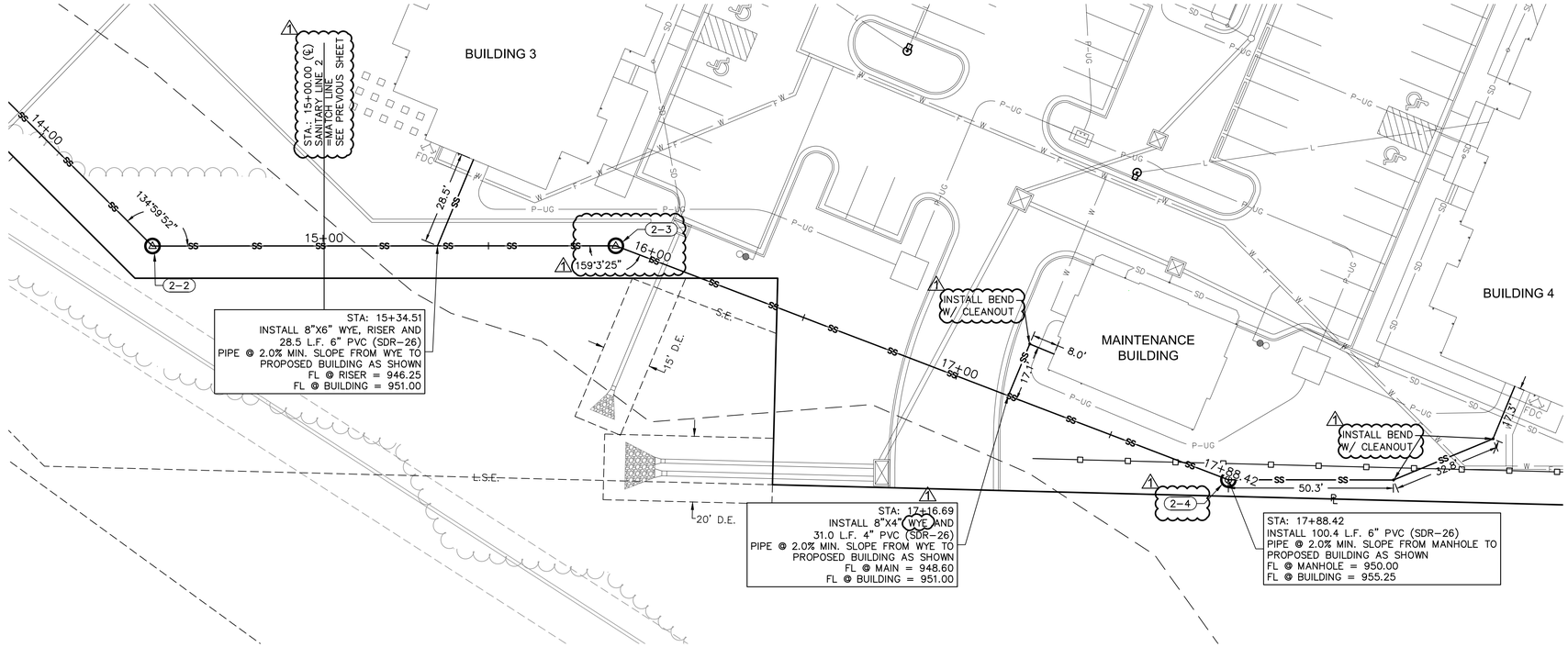
2020

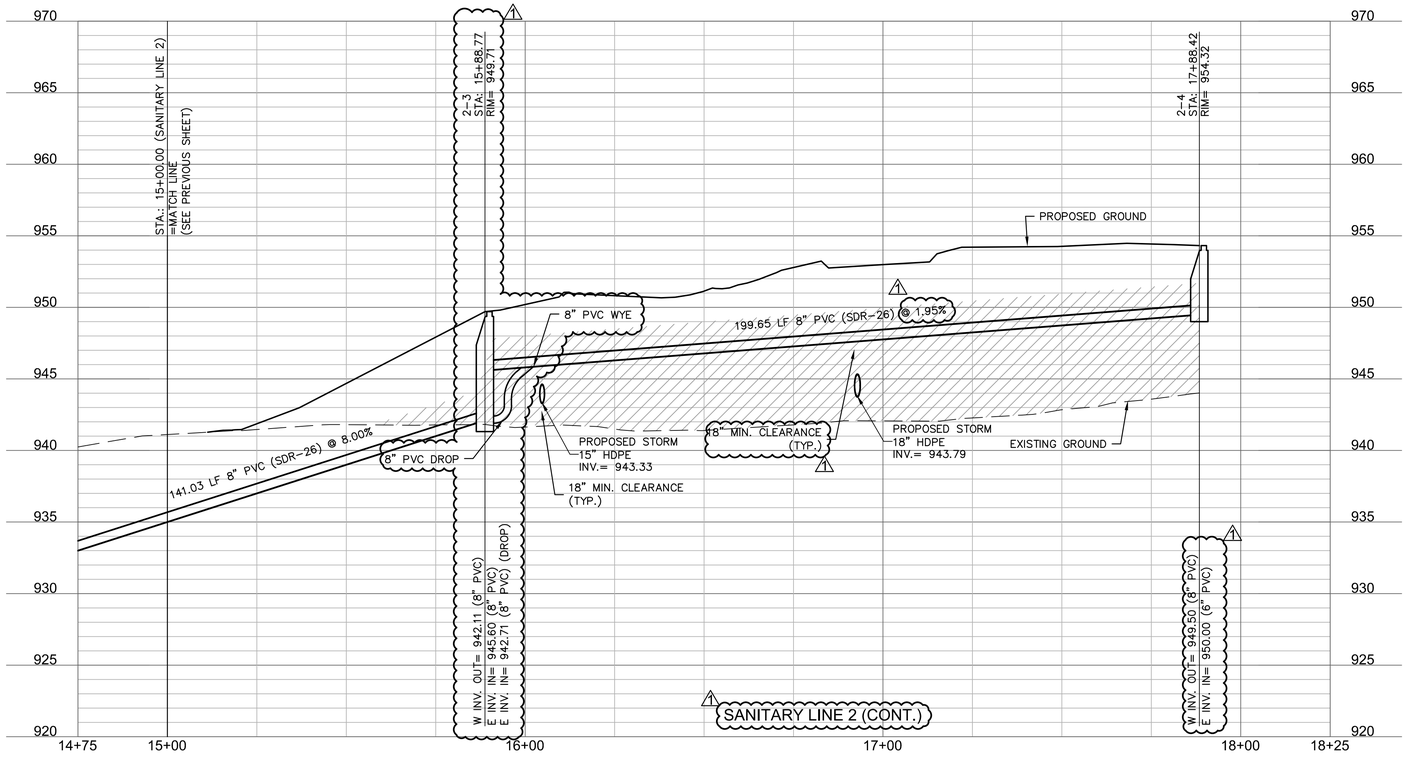
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

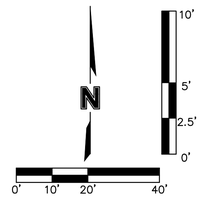
SHEET
C705

NOTES:
CONTRACTOR SHALL FILL AND COMPACT TO 95% STANDARD DENSITY TO A POINT 36" MINIMUM ABOVE THE TOP OF PIPE PRIOR TO EXCAVATION FOR THE PIPE.

STRUCTURES	
ID	DESCRIPTION
2–3	15+88.77 SANITARY LINE 2 48" MH (W/ OUTSIDE DROP) N: 1013498.933; E: 2822921.069
2–4	17+88.42 SANITARY LINE 2 48" MH N: 1013427.662; E: 2823107.565







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ARIA APARTMENTS
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QA/QC by: N.D.H.
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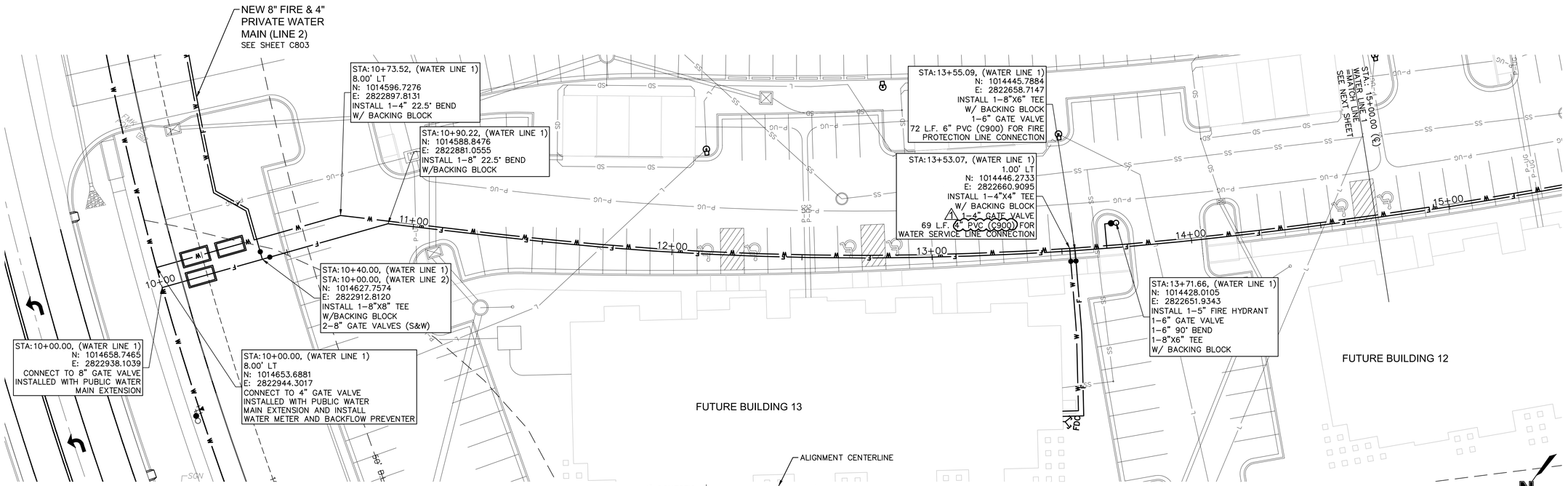
SHEET
C706

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_SAN02_ B190012.dwg ~ Layout: SANITARY SEWER PLAN & PROFILE (2) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



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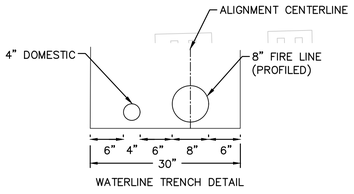
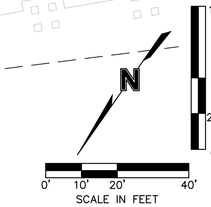
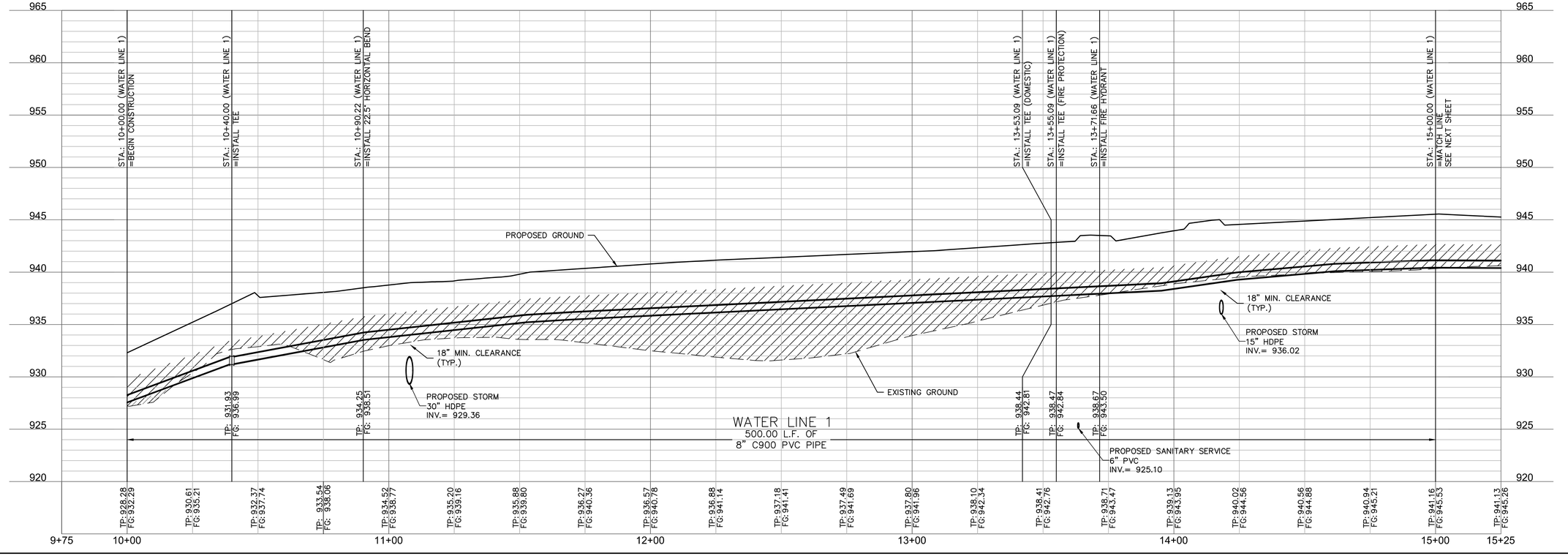


WATERLINE TRENCH DETAIL



SCALE IN FEET



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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

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WATER MAIN PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

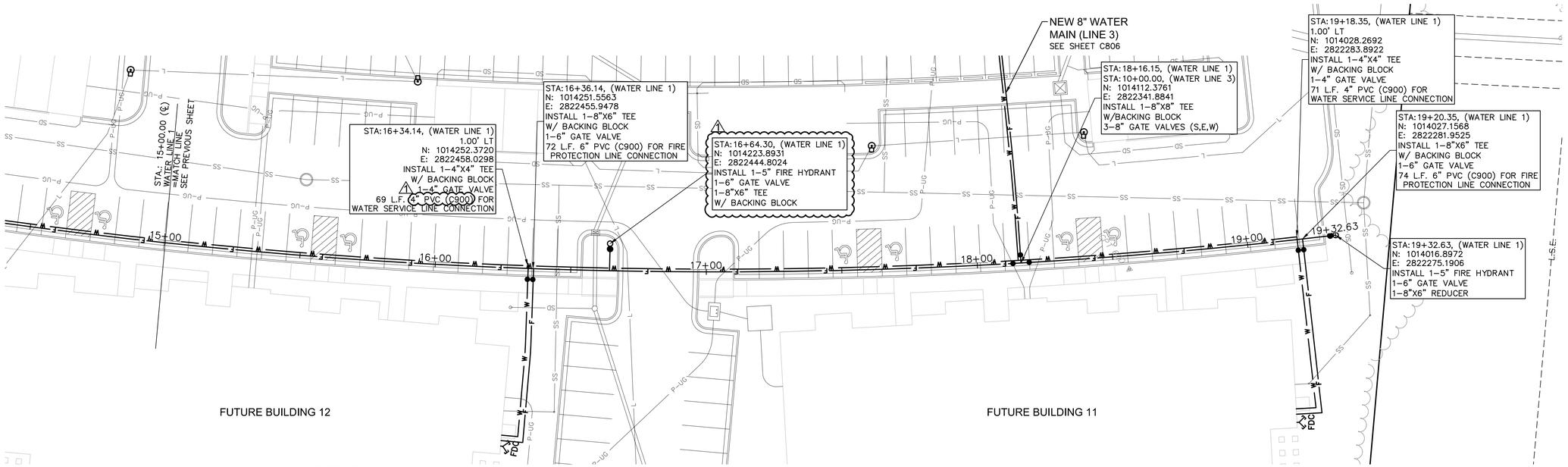
LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C801

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_WAT01_ B190012.dwg ~ Layout: WATER MAIN PLAN & PROFILE ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



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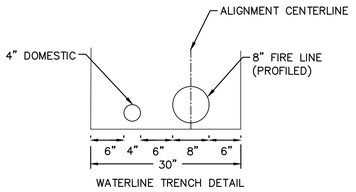
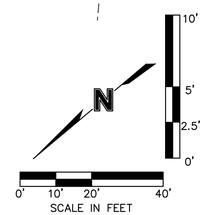
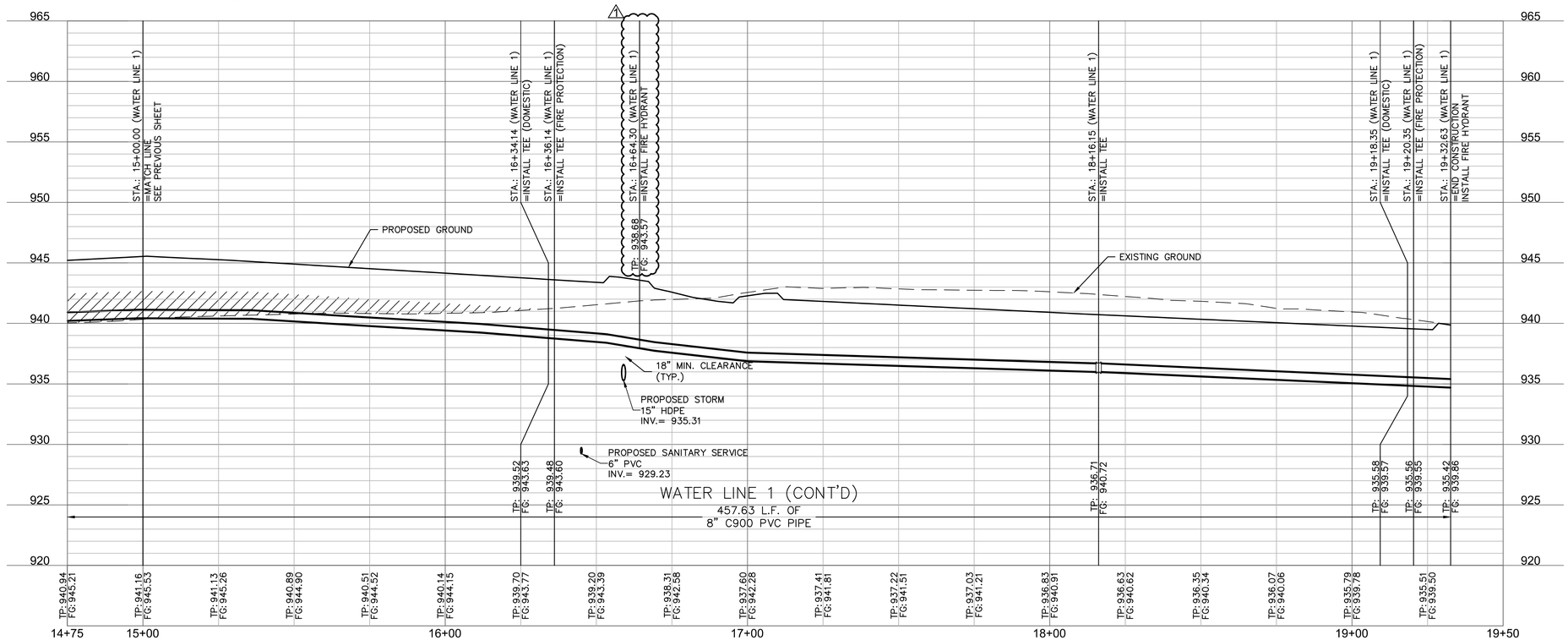


WATERLINE TRENCH DETAIL



SCALE IN FEET



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STATE OF MISSOURI
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WATER MAIN PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

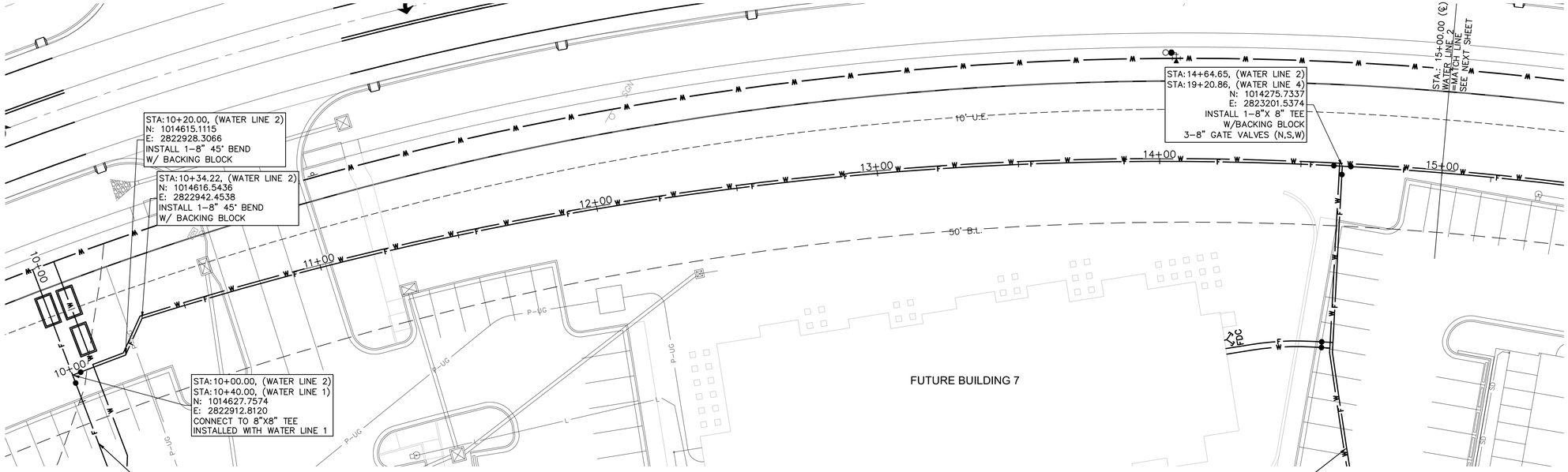
LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C802

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_WAT01_ B190012.dwg ~ Layout: WATER MAIN PLAN & PROFILE (2) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



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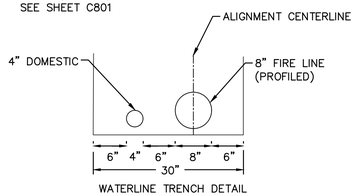
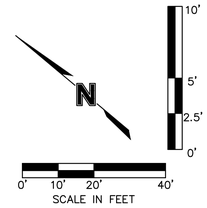
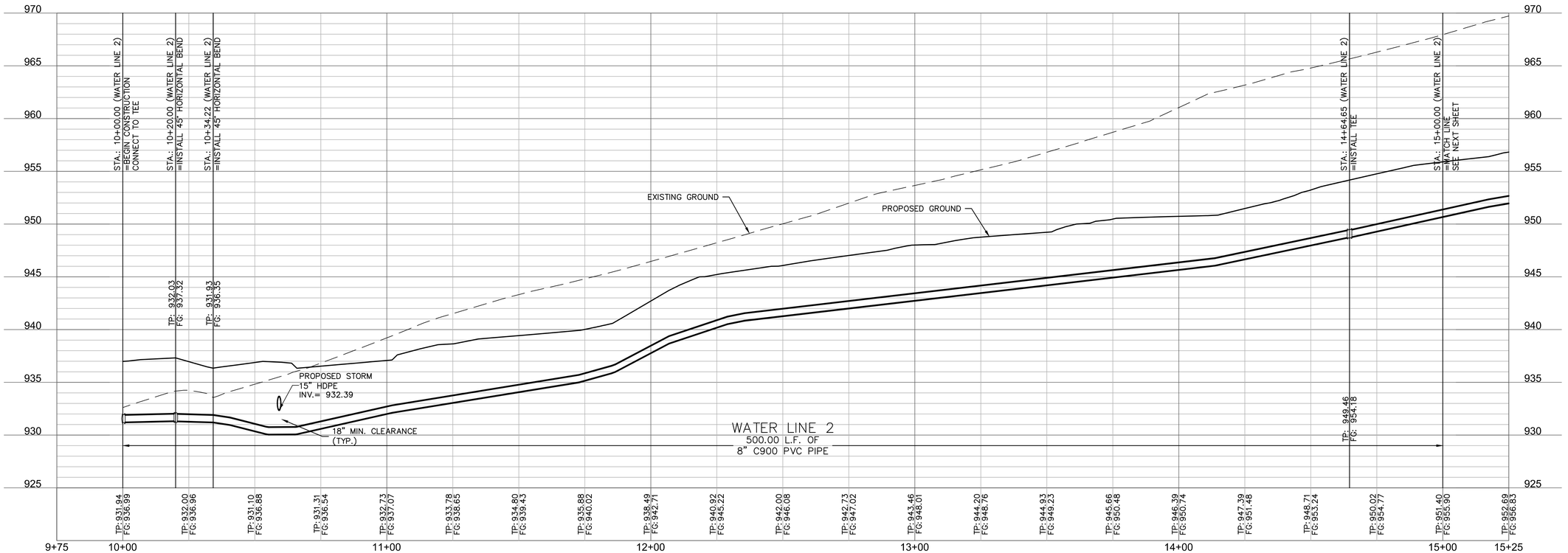


WATERLINE TRENCH DETAIL



SCALE IN FEET



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WATER MAIN PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

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date: 2020.08.27

SHEET
C803

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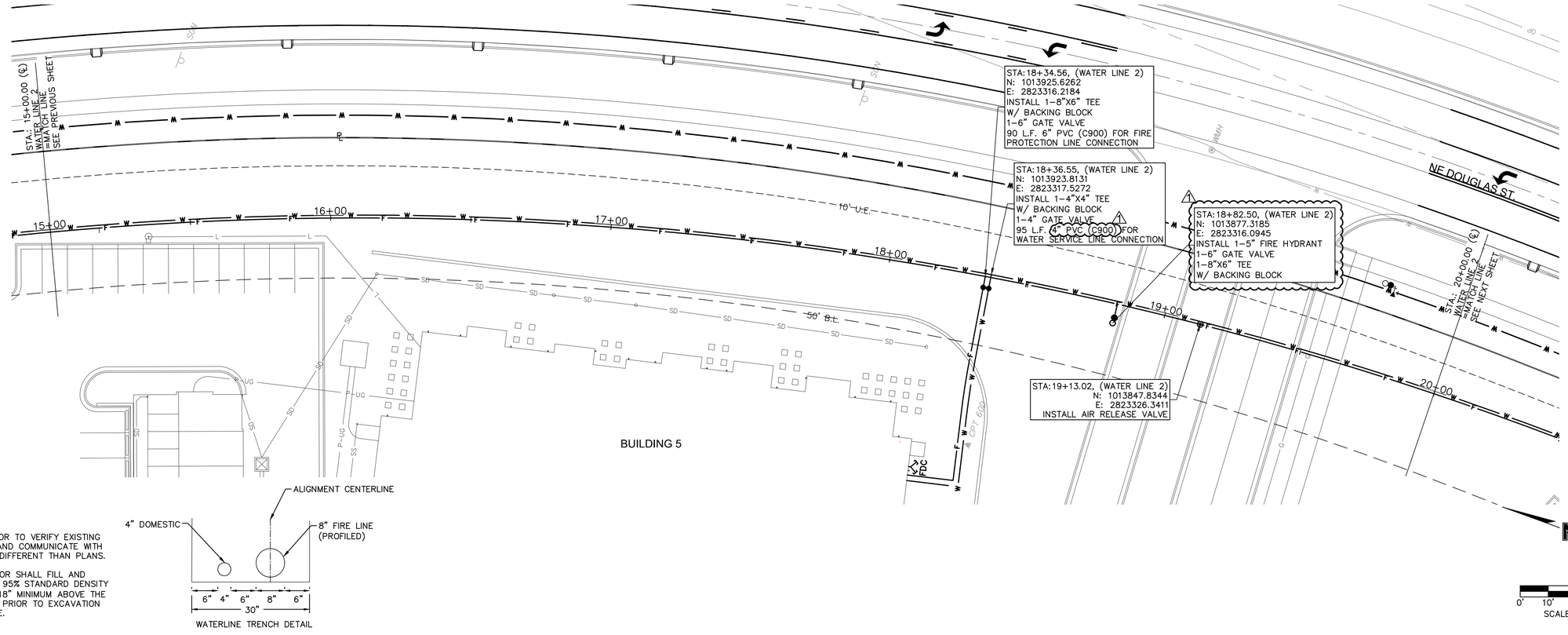

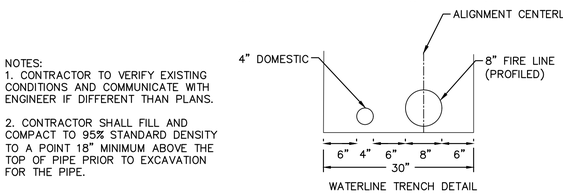

WATERLINE TRENCH DETAIL

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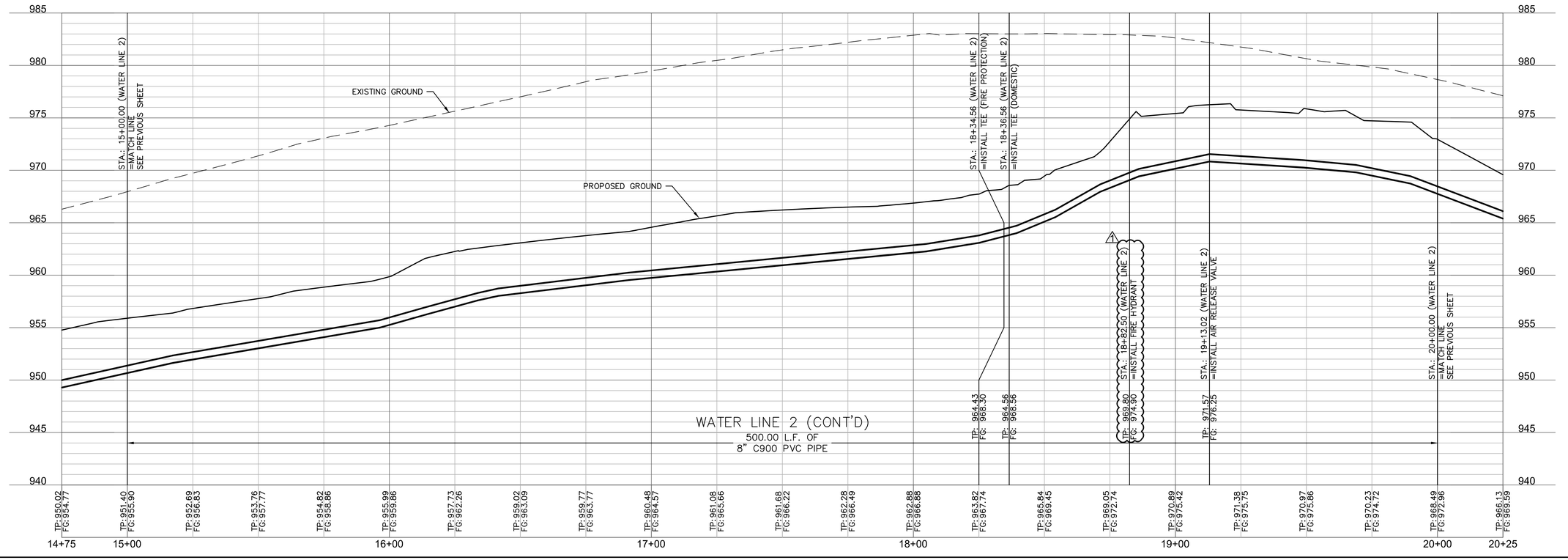

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WATER MAIN PLAN & PROFILE
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ARIA APARTMENTS
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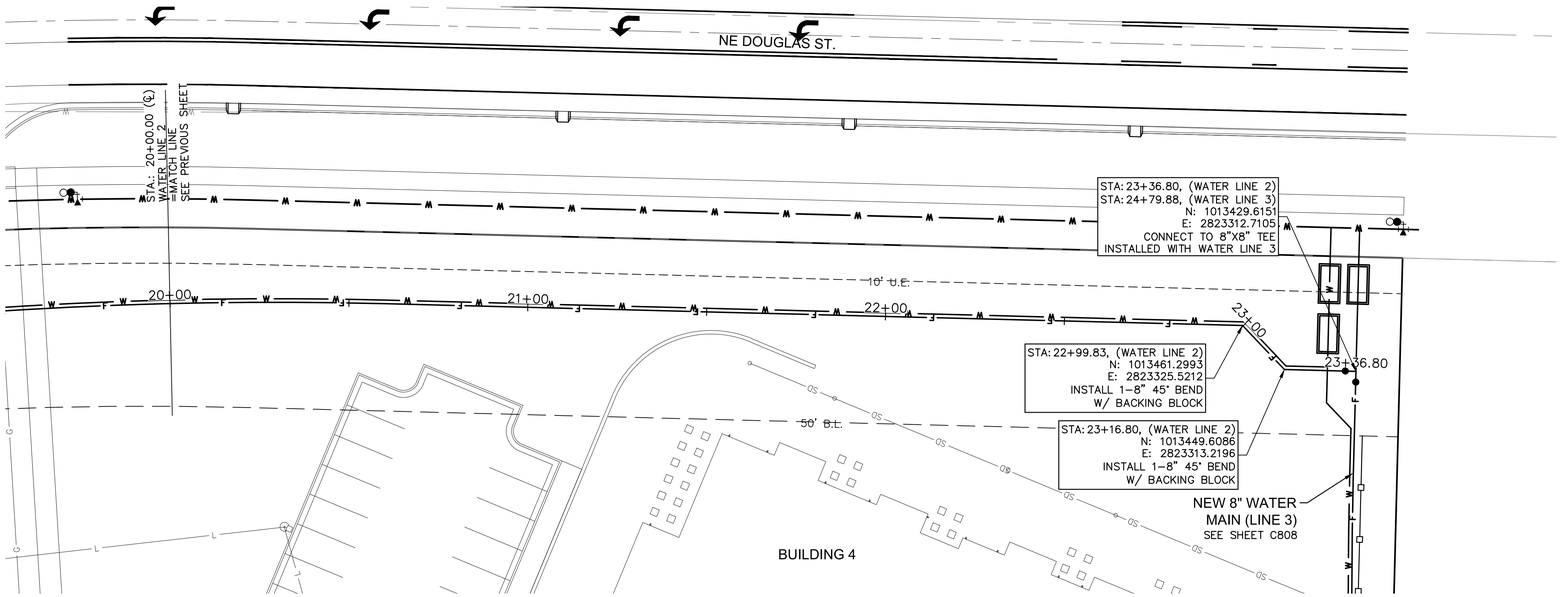
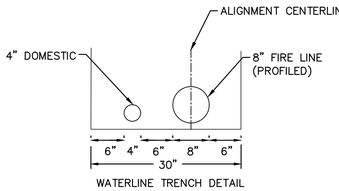
SHEET
C804

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_WAT02_ B190012.dwg ~ Layout: WATER MAIN PLAN & PROFILE (2) ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM





WATERLINE TRENCH DETAIL

NOTES:
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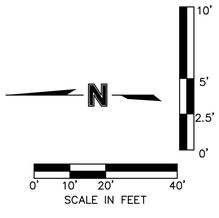

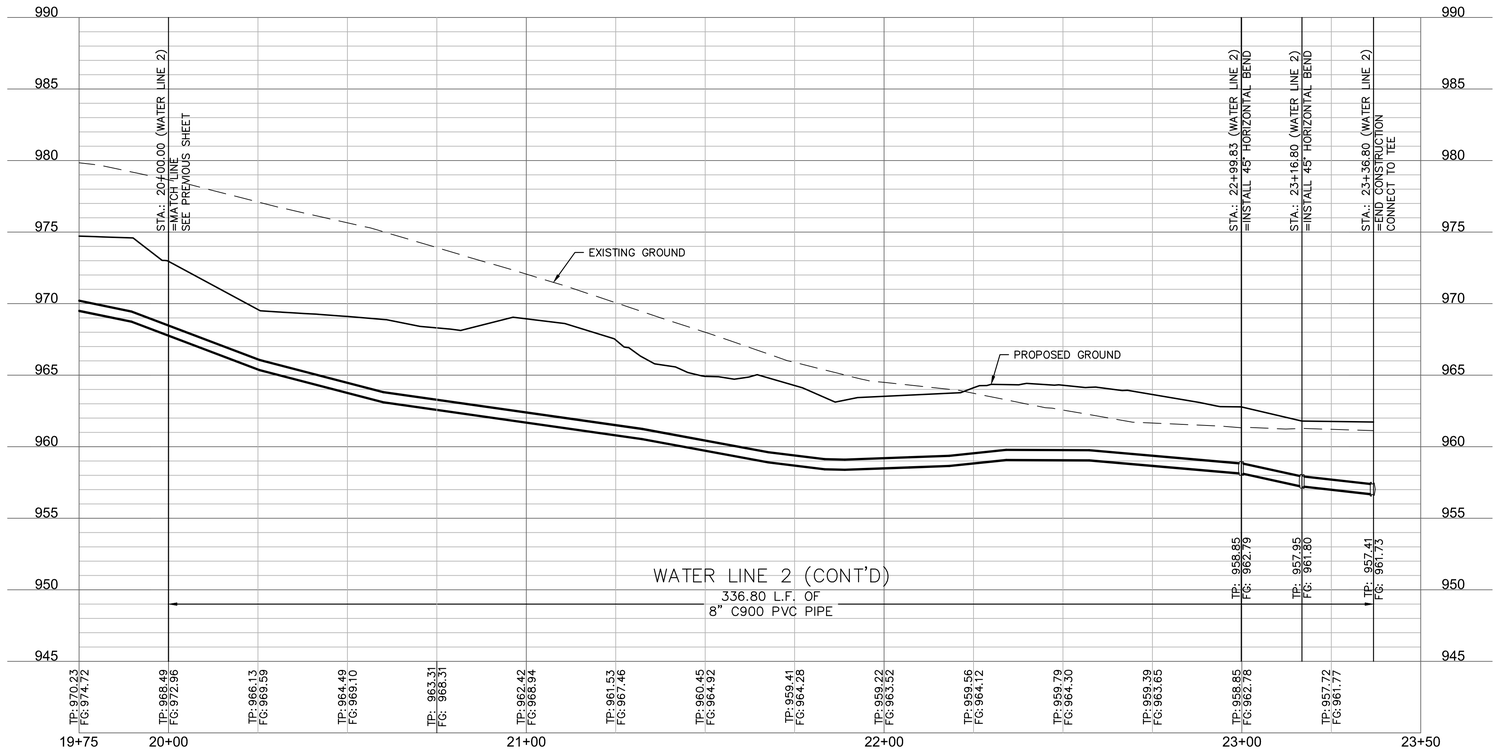

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STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

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REVISIONS

WATER MAIN PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C805

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NEW 8" WATER MAIN (LINE 1)
SEE SHEET C802

FUTURE BUILDING 9

NEW 8" WATER MAIN (LINE 4)
SEE SHEET C809

STA.: 15+00.00 (℄)
=MATCH LINE
SEE NEXT SHEET

BUILDING 2

STA: 10+00.00, (WATER LINE 3)
STA: 18+16.15, (WATER LINE 1)
N: 1014112.3761
E: 2822341.8841
CONNECT TO 8"X8" TEE
INSTALLED WITH WATER LINE 1

STA: 11+00.07, (WATER LINE 3)
N: 1014055.7231
E: 2822424.3560
INSTALL 1–8" 11.25° BEND
W/BACKING BLOCK

1 STA: 13+28.02, (WATER LINE 3)
N: 1013882.1751
E: 2822573.1837
INSTALL 1–5" FIRE HYDRANT
1–6" GATE VALVE
1–6" 90° BEND
1–8"X6" TEE
W/ BACKING BLOCK

STA: 13+58.67, (WATER LINE 3)
N: 1013872.8659
E: 2822607.2133
INSTALL 1–8" 90° BEND
W/BACKING BLOCK

STA: 12+65.67, (WATER LINE 3)
STA: 10+00.00, (WATER LINE 4)
N: 1013938.6268
E: 2822541.4524
INSTALL 1–8"X8" TEE
W/BACKING BLOCK
3–8" GATE VALVES (N,S,E)

STA: 13+47.67, (WATER LINE 3)
1.00' LT
N: 1013881.3511
E: 2822600.1422
INSTALL 1–4"X4" TEE
W/ BACKING BLOCK
1 1–4" GATE VALVE
106.9 L.F (4" PVC (C900) FOR
WATER SERVICE LINE CONNECTION

STA: 13+49.67, (WATER LINE 3)
N: 1013879.2298
E: 2822600.8493
INSTALL 1–8"X6" TEE
W/ BACKING BLOCK
1–6" GATE VALVE
110.0 L.F. 6" PVC (C900) FOR FIRE
PROTECTION LINE CONNECTION

FUTURE BUILDING 11

FUTURE BUILDING 10

ALIGNMENT CENTERLINE
4" DOMESTIC
8" FIRE LINE (PROFILED)
6" 4" 6" 8" 6"
30"
WATERLINE TRENCH DETAIL

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

STA: 10+00.00 (WATER LINE 3)
=BEGIN CONSTRUCTION
CONNECT TO TEE
TP: 936.71
FG: 940.72

STA: 11+00.07 (WATER LINE 3)
=INSTALL 11.25° HORIZONTAL BEND
TP: 938.14
FG: 942.31

STA: 12+65.67 (WATER LINE 3)
=INSTALL TEE
TP: 942.92
FG: 946.82

STA: 13+28.02 (WATER LINE 3)
=INSTALL FIRE HYDRANT
TP: 944.22
FG: 948.11

STA: 13+47.67 (WATER LINE 3)
=INSTALL TEE (DOMESTIC)
TP: 944.63
FG: 948.77

STA: 13+49.67 (WATER LINE 3)
=INSTALL TEE (FIRE PROTECTION)
TP: 944.67
FG: 948.80

STA: 13+58.67 (WATER LINE 3)
=INSTALL 90° HORIZONTAL BEND
TP: 944.86
FG: 948.95

STA: 15+00.00 (WATER LINE 3)
=MATCH LINE
SEE NEXT SHEET

EXISTING GROUND
PROPOSED GROUND

18" MIN. CLEARANCE (TYP.)
PROPOSED STORM
24" HDPE
INV.= 936.08

18" MIN. CLEARANCE (TYP.)
PROPOSED STORM
24" HDPE
INV.= 941.31

WATER LINE 3
500.00 L.F. OF
10" C900 PVC PIPE

TP: 936.71 FG: 940.72
TP: 936.94 FG: 940.63
TP: 937.17 FG: 941.10
TP: 937.62 FG: 941.59
TP: 938.14 FG: 942.31
TP: 939.07 FG: 943.10
TP: 940.03 FG: 943.92
TP: 940.98 FG: 944.78
TP: 941.61 FG: 945.63
TP: 942.10 FG: 946.26
TP: 942.60 FG: 946.65
TP: 943.12 FG: 946.95
TP: 943.64 FG: 947.44
TP: 944.16 FG: 948.01
TP: 944.68 FG: 948.80
TP: 945.00 FG: 949.11
TP: 945.20 FG: 949.38
TP: 945.40 FG: 949.64
TP: 945.60 FG: 949.95
TP: 945.80 FG: 950.08
TP: 946.01 FG: 949.82
TP: 946.44 FG: 950.75

970 965 960 955 950 945 940 935 930 925
9+75 10+00 11+00 12+00 13+00 14+00 15+00 15+25

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STATE OF MISSOURI
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02/04/2021
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NICHOLAS D. HEISER, P.E.
MO# 2015000555

REVISIONS

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WATER MAIN PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012.B
date: 2020.08.27

SHEET
C806

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STA: 15+00.62, (WATER LINE 3)
N: 1013973.2385
E: 2822707.5860
INSTALL 1–8" 90° BEND
W/BACKING BLOCK

STA: 15+74.68, (WATER LINE 3)
1.00' LT
N: 1013921.5765
E: 2822760.6622
INSTALL 1–4"X4" TEE
W/ BACKING BLOCK
1–4" GATE VALVE
56.9 L.F. 4" PVC (C900) FOR
WATER SERVICE LINE CONNECTION

STA: 15+76.68, (WATER LINE 3)
N: 1013919.4552
E: 2822761.3694
INSTALL 1–8"X6" TEE
W/ BACKING BLOCK
1–6" GATE VALVE
55.9 L.F. 6" PVC (C900) FOR FIRE
PROTECTION LINE CONNECTION

STA: 15+00.00 (℄)
WATER LINE 3
=MATCH LINE
SEE PREVIOUS SHEET

STA: 16+58.13, (WATER LINE 3)
N: 1013849.8400
E: 2822806.9429
INSTALL 1–5" FIRE HYDRANT
1–6" GATE VALVE
1–6" 90° BEND
1–8"X6" TEE
W/ BACKING BLOCK

STA: 17+82.16, (WATER LINE 3)
N: 1013774.1561
E: 2822906.6684
INSTALL 1–8" 22.5° BEND
W/BACKING BLOCK

STA: 18+18.07, (WATER LINE 3)
N: 1013760.4131
E: 2822939.8412
INSTALL 1–8"X6" TEE
W/ BACKING BLOCK
1–6" GATE VALVE
77.0 L.F. 6" PVC (C900) FOR FIRE
PROTECTION LINE CONNECTION

STA: 18+00.96, (WATER LINE 3)
N: 1013782.7692
E: 2822930.5900
INSTALL 1–5" FIRE HYDRANT
1–6" GATE VALVE
1–6" 90° BEND
1–8"X6" TEE
W/ BACKING BLOCK

STA: 18+20.07, (WATER LINE 3)
1.00' LT
N: 1013760.5737
E: 2822942.0725
INSTALL 1–4"X4" TEE
W/ BACKING BLOCK
1–4" GATE VALVE
1–4"X 1½" REDUCER
82.0 L.F 1½" COPPER (TYPE K) FOR
WATER SERVICE LINE CONNECTION

STA: 19+29.06, (WATER LINE 3)
N: 1013717.8897
E: 2823042.3631
INSTALL 1–8" 90° BEND
W/BACKING BLOCK

STA: 19+52.18, (WATER LINE 3)
N: 1013702.6794
E: 2823018.7144
INSTALL 1–5" FIRE HYDRANT
1–6" GATE VALVE
1–6" 90° BEND
1–8"X6" TEE
W/ BACKING BLOCK

STA: 20+00.00 (℄)
WATER LINE 3
=MATCH LINE
SEE NEXT SHEET

BUILDING 2

BUILDING 1 CLUBHOUSE

BUILDING 3

15+00 16+00 17+00 18+00 19+00 20+00

FDC

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

NOTES:
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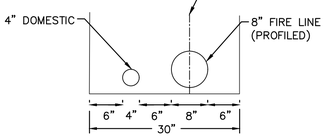
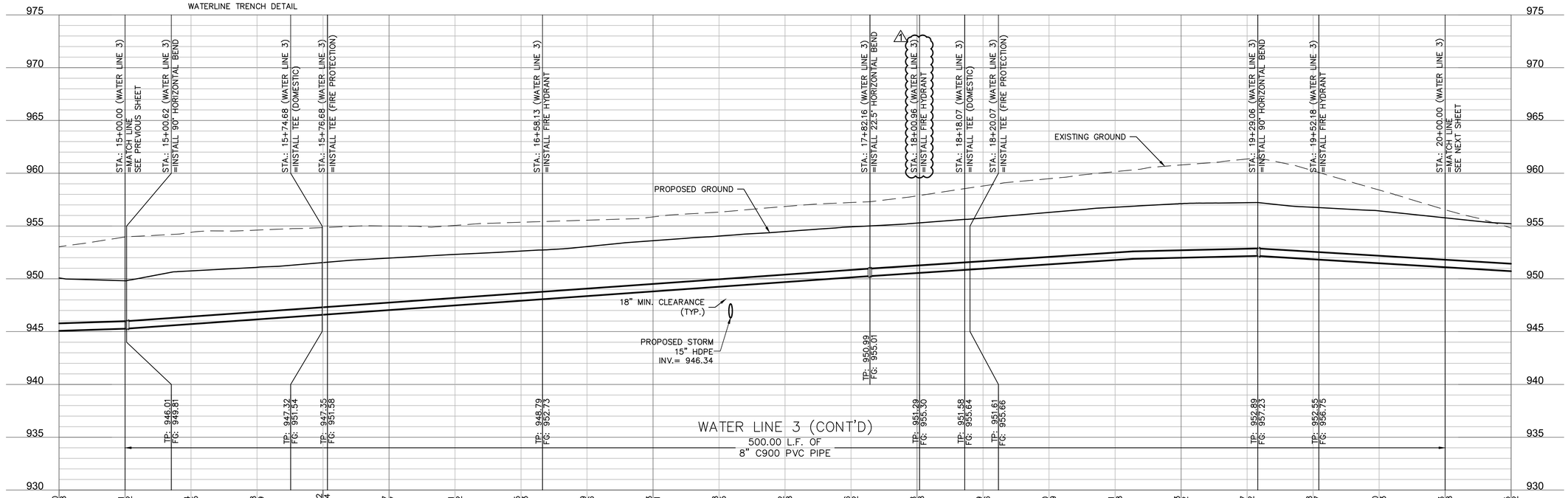


WATERLINE TRENCH DETAIL



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MO# 2015000555

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SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C807

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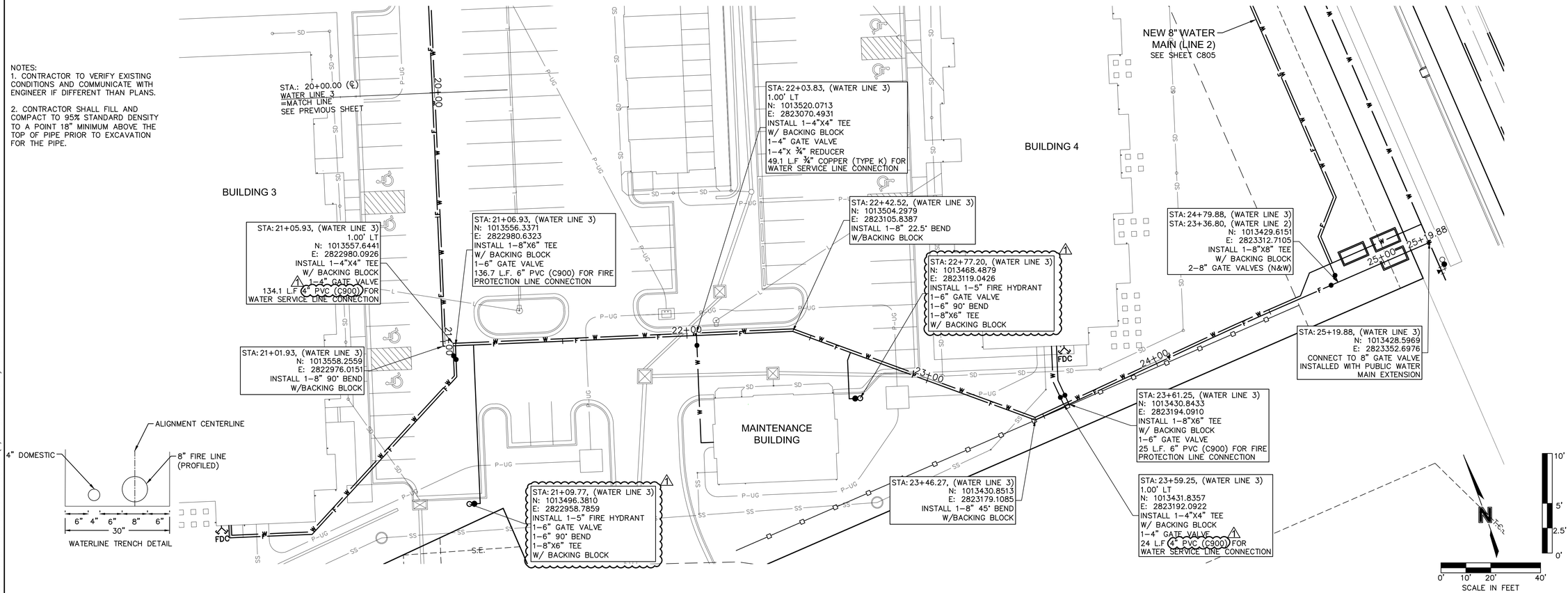

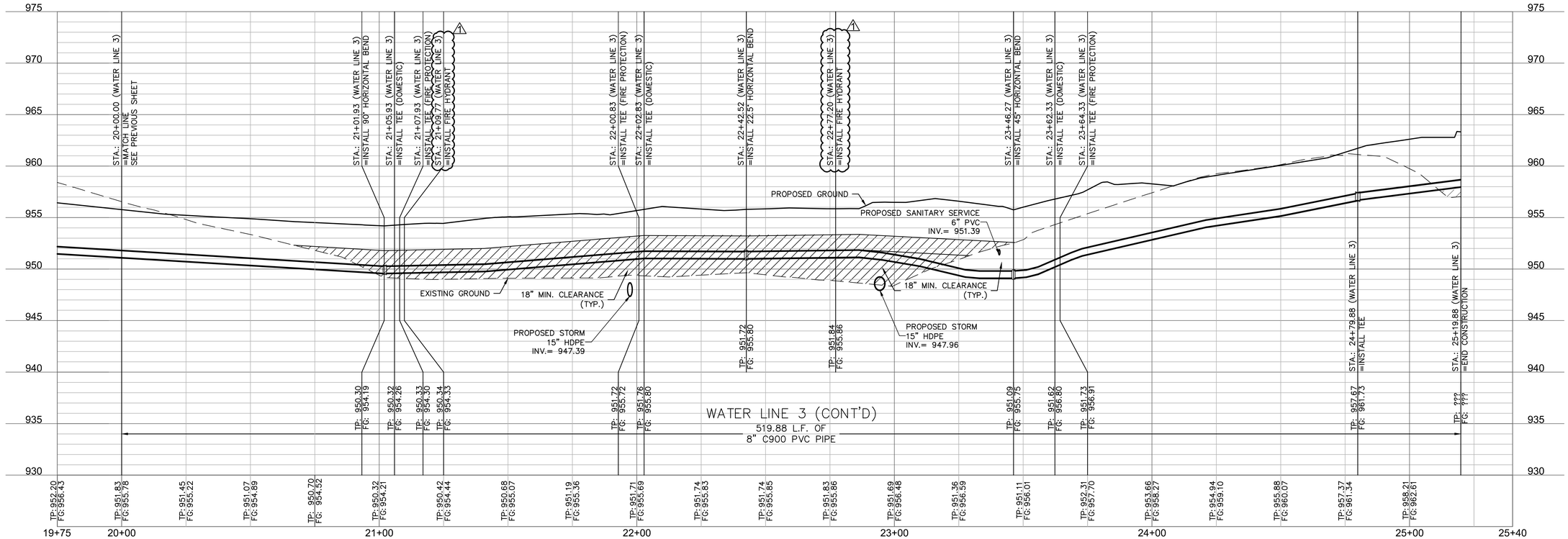

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WATER MAIN PLAN & PROFILE
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

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SHEET
C808

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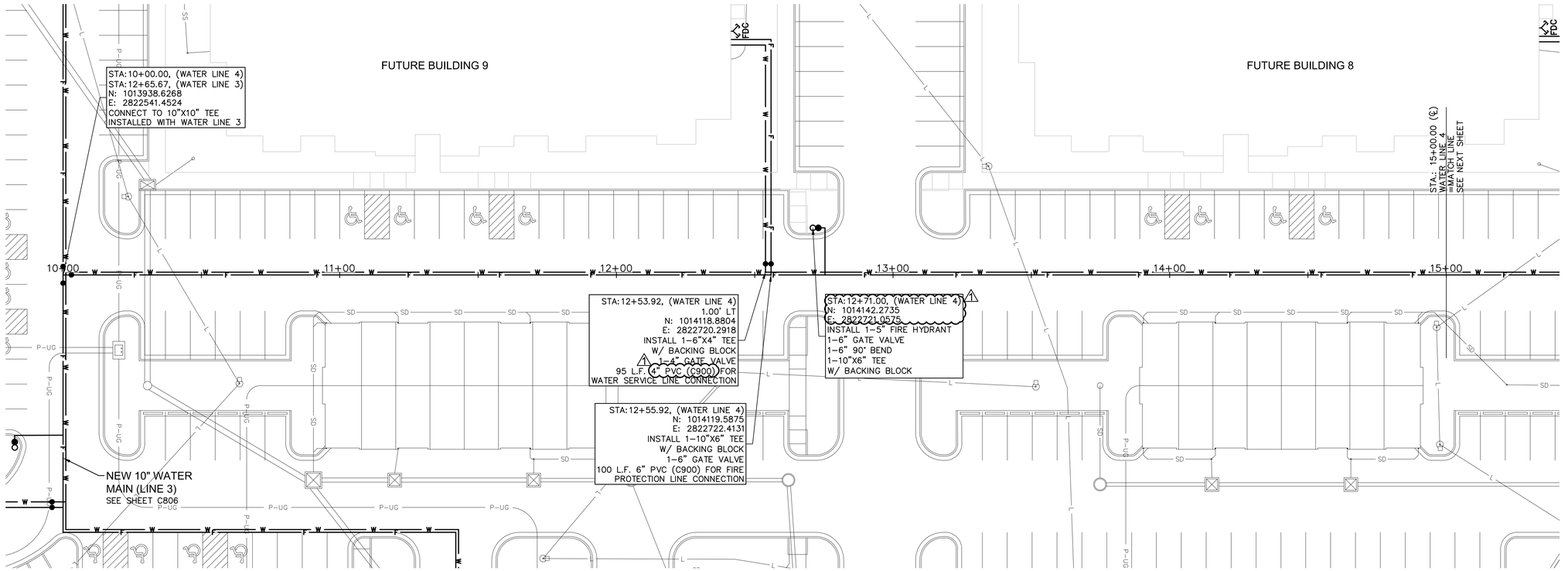

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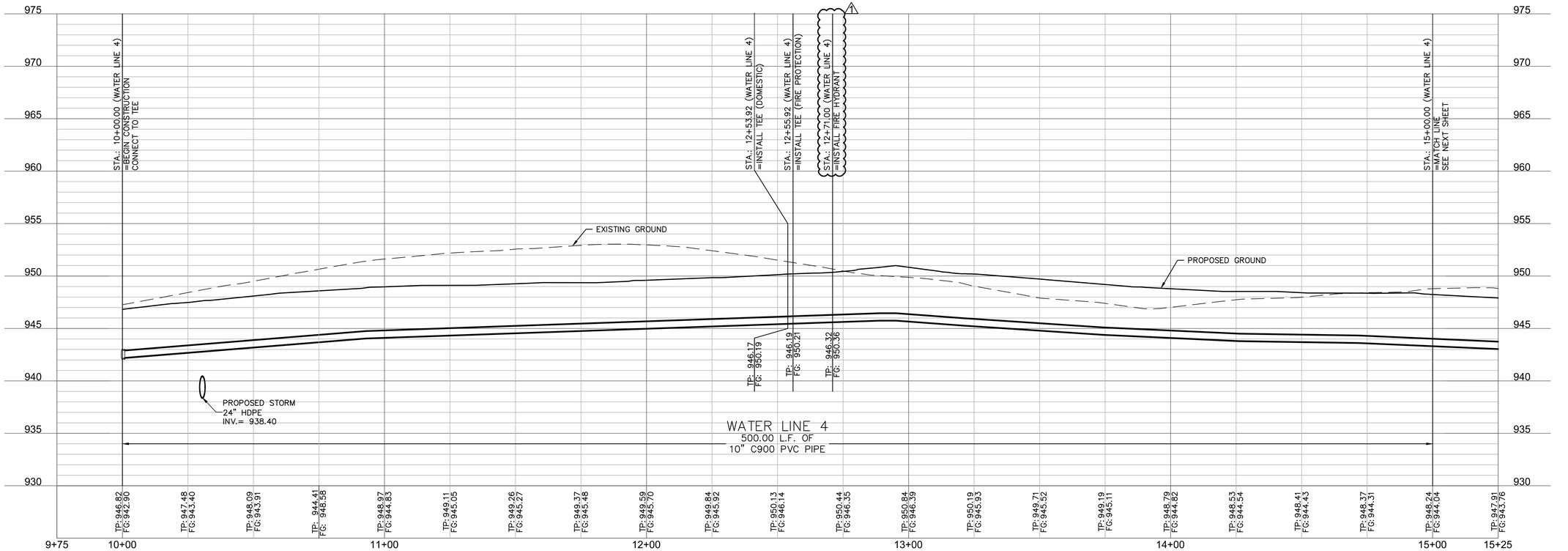

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SHEET
C809

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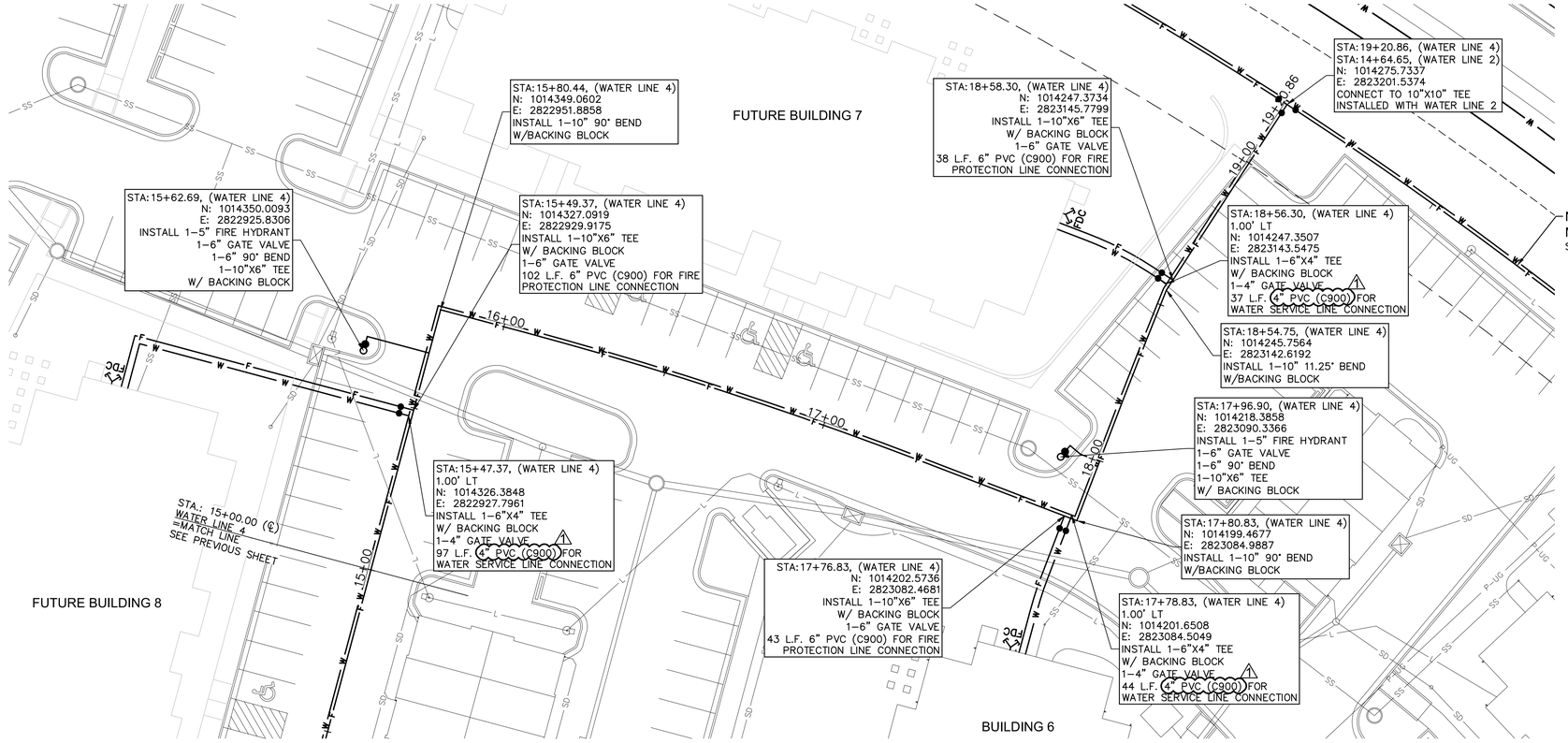

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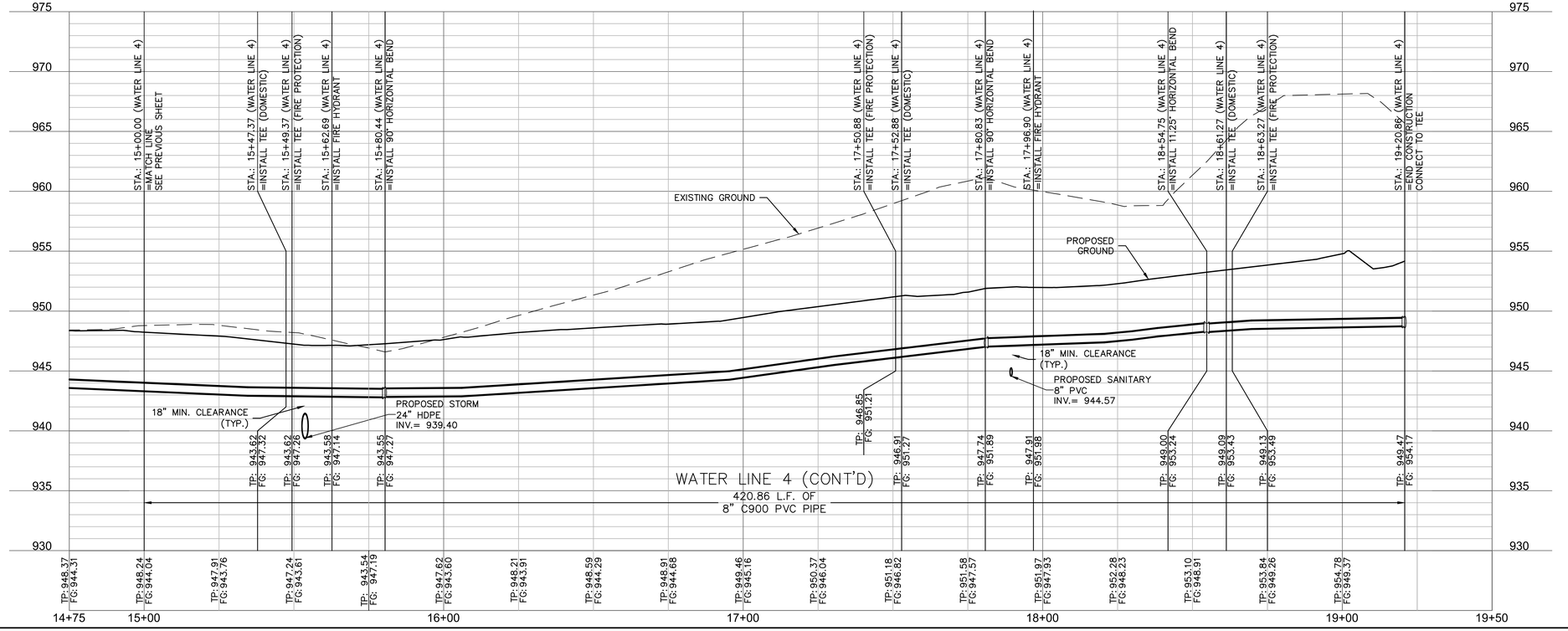

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SHEET
C810

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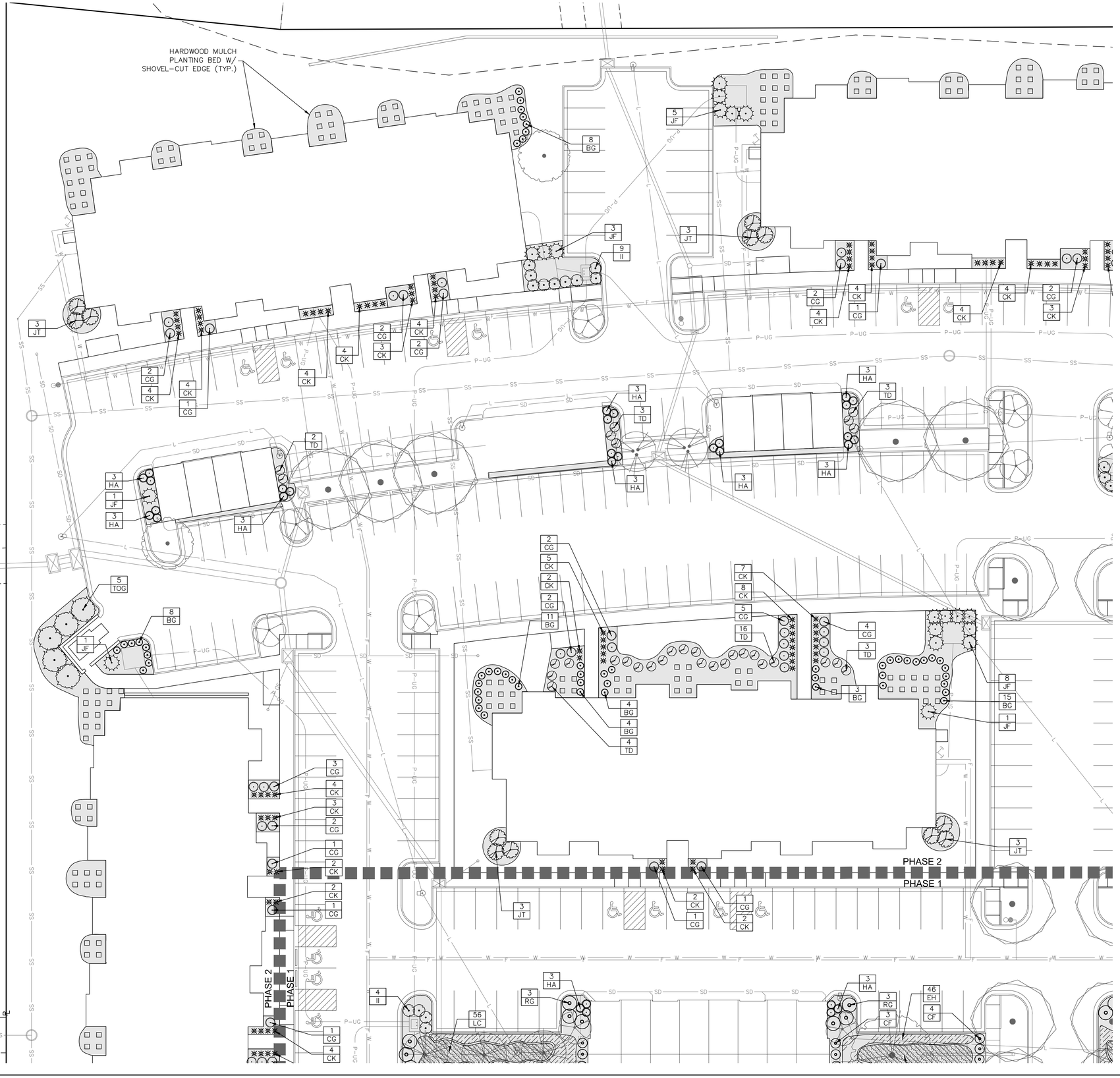

PLANT SCHEDULE - OVERALL

DECIDUOUS SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	CF	120	CORNUS SERICEA 'FARROW' / ARCTIC FIRE RED TWIG DOGWOOD	3 GAL
	HR	11	HYDRANGEA QUERCIFOLIA 'RUBY SLIPPERS' / RUBY SLIPPERS HYDRANGEA	5 GAL
	RG	94	RHUS AROMATICA 'GRO-LOW' / GRO-LOW FRAGRANT SUMAC	3 GAL
EVERGREEN SHRUBS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BG	370	BUXUS X 'GREEN MOUNTAIN' / GREEN MOUNTAIN BOXWOOD	5 GAL
	CG	111	CHAMAECYPARIS PISIFERA 'GOLDEN MOP' / GOLDEN MOP THREADLEAF FALSE CYPRESS	5 GAL
	II	43	ILEX GLABRA 'COMPACTA' / COMPACT INKBERRY	5 GAL
	JF	171	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	5 GAL
	JT	58	JUNIPERUS VIRGINIANA 'TORULOSA' / TORULOSA JUNIPER	5 GAL
	TD	167	TAXUS X MEDIA 'DENSIFORMIS' / DENSE YEW	5 GAL
	TOG	9	THUJA OCCIDENTALIS 'GREEN GIANT' / GREEN GIANT ARBORVITAE	6'-8" HT.
	HA	112	THUJA OCCIDENTALIS 'HOLMSTRUP' / HOLMSTRUP CEDAR	3 GAL
ORNAMENTAL GRASSES	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BB	45	BOUTELOUA GRACILIS 'BLONDE AMBITION' / BLONDE AMBITION BLUE GRAMA	3 GAL
	CK	284	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / KARL FOERSTER FEATHER REED GRASS	1 GAL
	ST	62	SPOROBOLUS HETEROLEPIS 'TARA' / TARA PRAIRIE DROPSEED	1 GAL
GROUND COVERS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**
	EH	434	EQUISETUM HYEMALE / HORSETAIL REED	1 GAL
	LC	360	LOBELIA CARDINALIS / CARDINAL FLOWER	1 GAL

PLANT SCHEDULE PHASE 1

DECIDUOUS SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	CF	120	CORNUS SERICEA 'FARROW' / ARCTIC FIRE RED TWIG DOGWOOD	3 GAL
	HR	11	HYDRANGEA QUERCIFOLIA 'RUBY SLIPPERS' / RUBY SLIPPERS HYDRANGEA	5 GAL
	RG	94	RHUS AROMATICA 'GRO-LOW' / GRO-LOW FRAGRANT SUMAC	3 GAL
EVERGREEN SHRUBS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BG	186	BUXUS X 'GREEN MOUNTAIN' / GREEN MOUNTAIN BOXWOOD	5 GAL
	CG	42	CHAMAECYPARIS PISIFERA 'GOLDEN MOP' / GOLDEN MOP THREADLEAF FALSE CYPRESS	5 GAL
	II	20	ILEX GLABRA 'COMPACTA' / COMPACT INKBERRY	5 GAL
	JF	76	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	5 GAL
	JT	27	JUNIPERUS VIRGINIANA 'TORULOSA' / TORULOSA JUNIPER	5 GAL
	TD	94	TAXUS X MEDIA 'DENSIFORMIS' / DENSE YEW	5 GAL
	TOG	4	THUJA OCCIDENTALIS 'GREEN GIANT' / GREEN GIANT ARBORVITAE	6'-8" HT.
	HA	58	THUJA OCCIDENTALIS 'HOLMSTRUP' / HOLMSTRUP CEDAR	3 GAL
ORNAMENTAL GRASSES	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BB	45	BOUTELOUA GRACILIS 'BLONDE AMBITION' / BLONDE AMBITION BLUE GRAMA	3 GAL
	CK	134	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / KARL FOERSTER FEATHER REED GRASS	1 GAL
	ST	62	SPOROBOLUS HETEROLEPIS 'TARA' / TARA PRAIRIE DROPSEED	1 GAL
GROUND COVERS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**
	EH	434	EQUISETUM HYEMALE / HORSETAIL REED	1 GAL
	LC	360	LOBELIA CARDINALIS / CARDINAL FLOWER	1 GAL

PLANT SCHEDULE PHASE 2

EVERGREEN SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	BG	212	BUXUS X 'GREEN MOUNTAIN' / GREEN MOUNTAIN BOXWOOD	5 GAL
	CG	69	CHAMAECYPARIS PISIFERA 'GOLDEN MOP' / GOLDEN MOP THREADLEAF FALSE CYPRESS	5 GAL
	II	23	ILEX GLABRA 'COMPACTA' / COMPACT INKBERRY	5 GAL
	JF	45	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	5 GAL
	JT	33	JUNIPERUS VIRGINIANA 'TORULOSA' / TORULOSA JUNIPER	5 GAL
	TD	73	TAXUS X MEDIA 'DENSIFORMIS' / DENSE YEW	5 GAL
	TOG	5	THUJA OCCIDENTALIS 'GREEN GIANT' / GREEN GIANT ARBORVITAE	6'-8" HT.
	HA	48	THUJA OCCIDENTALIS 'HOLMSTRUP' / HOLMSTRUP CEDAR	3 GAL
ORNAMENTAL GRASSES	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	CK	150	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / KARL FOERSTER FEATHER REED GRASS	1 GAL

NOTES:
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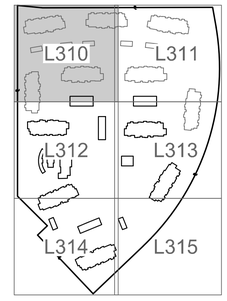

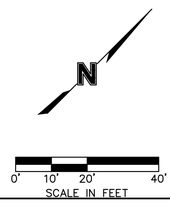

SITE PLAN
KEY MAP
NOT TO SCALE

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STATE OF MISSOURI
CHRISTOPHER HOLMQUIST
NUMBER PLA-2019026430
2020.12.31
PROFESSIONAL LANDSCAPE ARCHITECT

CHRIS HOLMQUIST, P.L.A.
MO# 2019026430

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REVISIONS

LANDSCAPE UNDERSTORY PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
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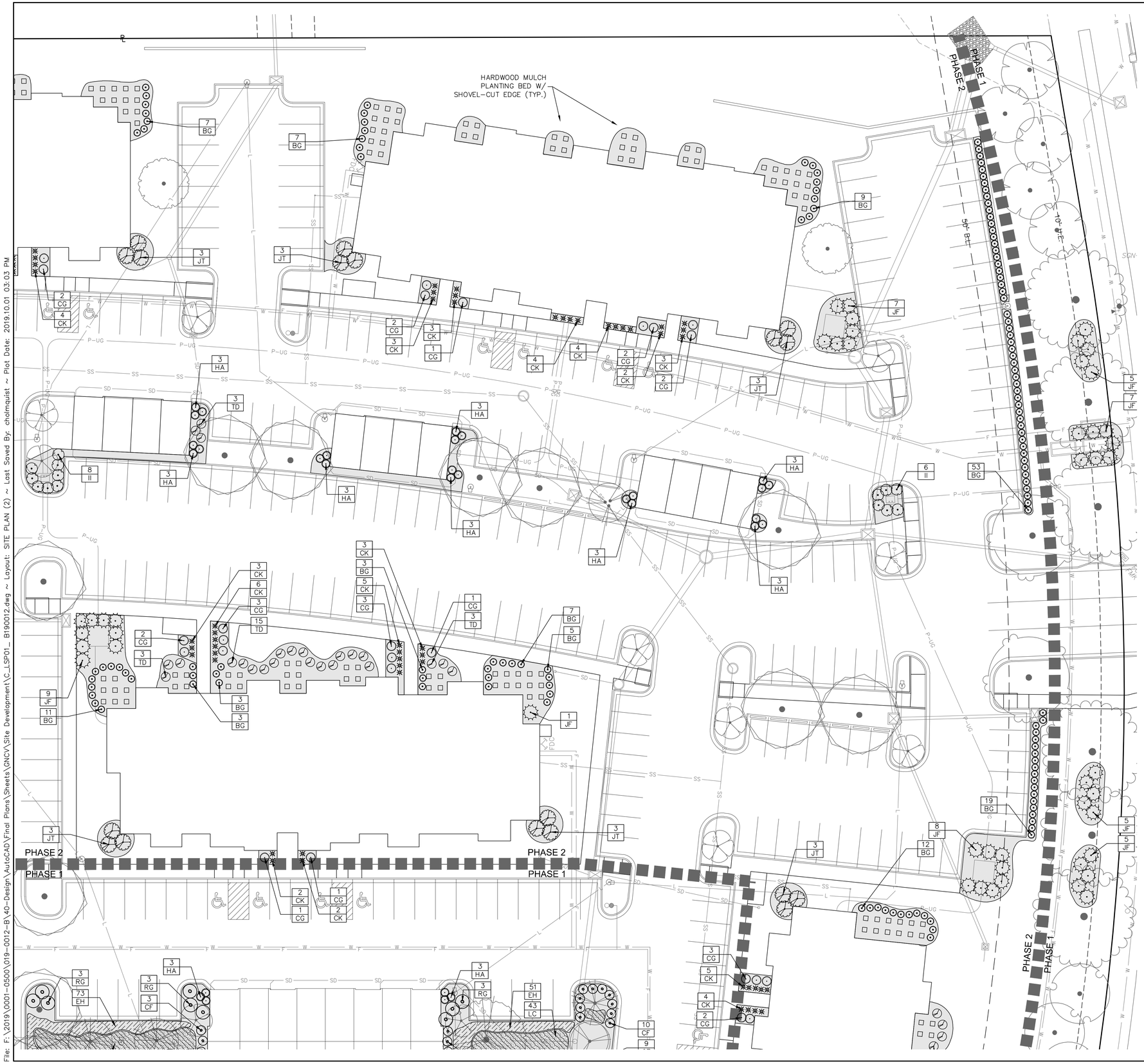

PLANT SCHEDULE - OVERALL

DECIDUOUS SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	CF	120	CORNUS SERICEA 'FARROW' / ARCTIC FIRE RED TWIG DOGWOOD	3 GAL
	HR	11	HYDRANGEA QUERCIFOLIA 'RUBY SLIPPERS' / RUBY SLIPPERS HYDRANGEA	5 GAL
	RG	94	RHUS AROMATICA 'GRO-LOW' / GRO-LOW FRAGRANT SUMAC	3 GAL
EVERGREEN SHRUBS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BG	370	BUXUS X 'GREEN MOUNTAIN' / GREEN MOUNTAIN BOXWOOD	5 GAL
	CG	111	CHAMAECYPARIS PISIFERA 'GOLDEN MOP' / GOLDEN MOP THREADLEAF FALSE CYPRESS	5 GAL
	II	43	ILEX GLABRA 'COMPACTA' / COMPACT INKBERRY	5 GAL
	JF	171	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	5 GAL
	JT	58	JUNIPERUS VIRGINIANA 'TORULOSA' / TORULOSA JUNIPER	5 GAL
	TD	167	TAXUS X MEDIA 'DENSIFORMIS' / DENSE YEW	5 GAL
	TOG	9	THUJA OCCIDENTALIS 'GREEN GIANT' / GREEN GIANT ARBORVITAE	6'-8" HT.
	HA	112	THUJA OCCIDENTALIS 'HOLMSTRUP' / HOLMSTRUP CEDAR	3 GAL
ORNAMENTAL GRASSES	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BB	45	BOUTELOUA GRACILIS 'BLONDE AMBITION' / BLONDE AMBITION BLUE GRAMA	3 GAL
	CK	284	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / KARL FOERSTER FEATHER REED GRASS	1 GAL
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GROUND COVERS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**
	EH	434	EQUISETUM HYEMALE / HORSETAIL REED	1 GAL
	LC	360	LOBELIA CARDINALIS / CARDINAL FLOWER	1 GAL

PLANT SCHEDULE PHASE 1

DECIDUOUS SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	CF	120	CORNUS SERICEA 'FARROW' / ARCTIC FIRE RED TWIG DOGWOOD	3 GAL
	HR	11	HYDRANGEA QUERCIFOLIA 'RUBY SLIPPERS' / RUBY SLIPPERS HYDRANGEA	5 GAL
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EVERGREEN SHRUBS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BG	186	BUXUS X 'GREEN MOUNTAIN' / GREEN MOUNTAIN BOXWOOD	5 GAL
	CG	42	CHAMAECYPARIS PISIFERA 'GOLDEN MOP' / GOLDEN MOP THREADLEAF FALSE CYPRESS	5 GAL
	II	20	ILEX GLABRA 'COMPACTA' / COMPACT INKBERRY	5 GAL
	JF	76	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	5 GAL
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PLANT SCHEDULE PHASE 2

EVERGREEN SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	BG	212	BUXUS X 'GREEN MOUNTAIN' / GREEN MOUNTAIN BOXWOOD	5 GAL
	CG	69	CHAMAECYPARIS PISIFERA 'GOLDEN MOP' / GOLDEN MOP THREADLEAF FALSE CYPRESS	5 GAL
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	JF	45	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	5 GAL
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	TD	73	TAXUS X MEDIA 'DENSIFORMIS' / DENSE YEW	5 GAL
	TOG	5	THUJA OCCIDENTALIS 'GREEN GIANT' / GREEN GIANT ARBORVITAE	6'-8" HT.
	HA	48	THUJA OCCIDENTALIS 'HOLMSTRUP' / HOLMSTRUP CEDAR	3 GAL
ORNAMENTAL GRASSES	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	CK	150	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / KARL FOERSTER FEATHER REED GRASS	1 GAL

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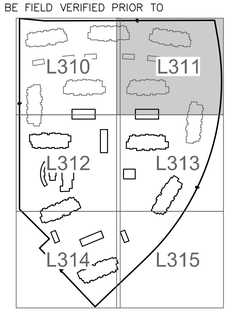

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SITE DEVELOPMENT PLANS

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LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
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QA/QC by: N.D.H.
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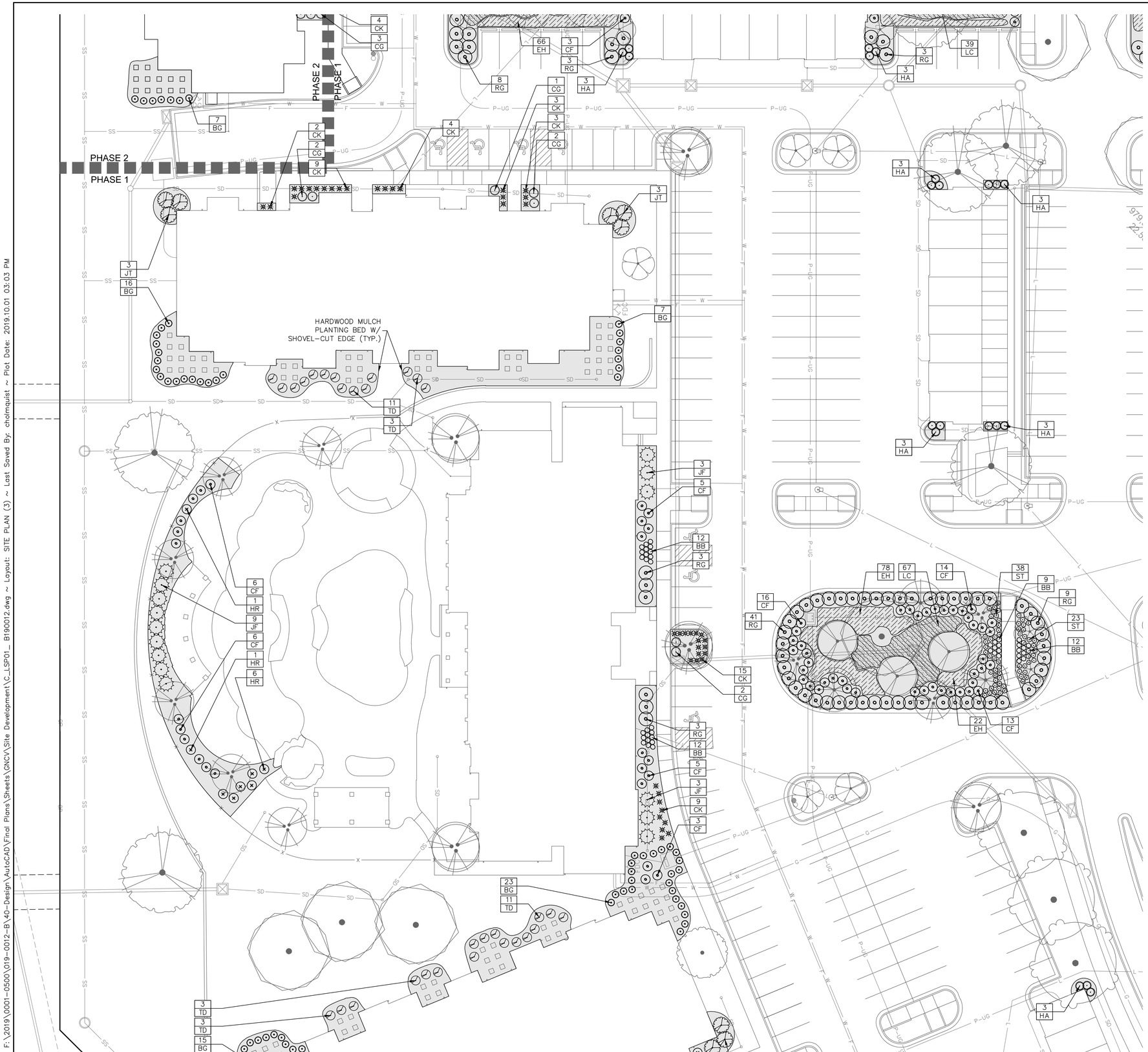

PLANT SCHEDULE - OVERALL

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	JF	171	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	5 GAL
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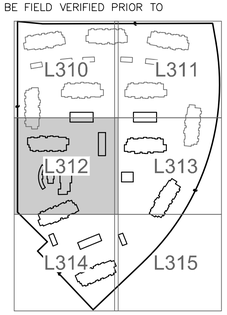

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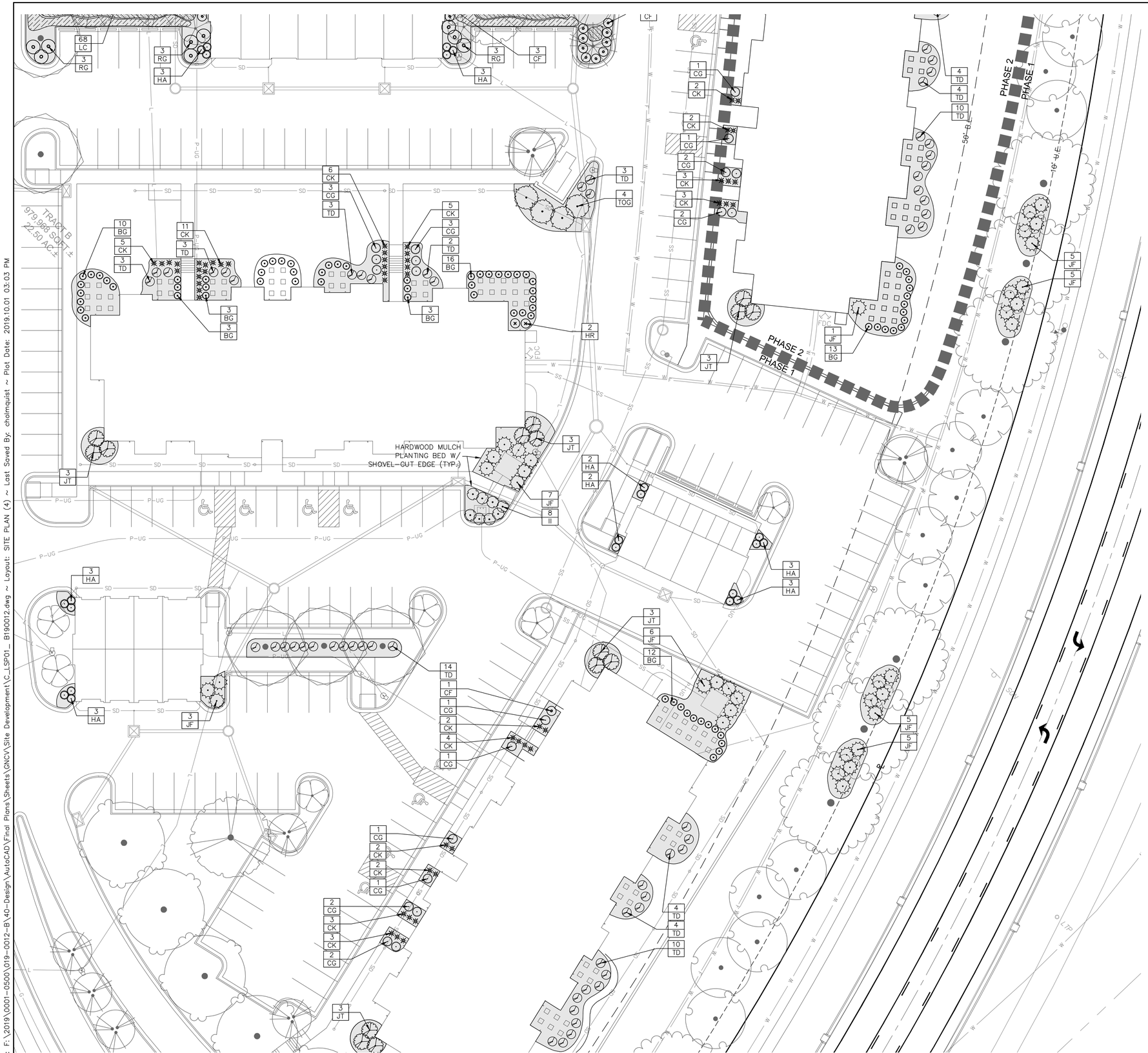

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EVERGREEN SHRUBS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BG	370	BUXUS X 'GREEN MOUNTAIN' / GREEN MOUNTAIN BOXWOOD	5 GAL
	CG	111	CHAMAECYPARIS PISIFERA 'GOLDEN MOP' / GOLDEN MOP THREADLEAF FALSE CYPRESS	5 GAL
	II	43	ILEX GLABRA 'COMPACTA' / COMPACT INKBERRY	5 GAL
	JF	171	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	5 GAL
	JT	58	JUNIPERUS VIRGINIANA 'TORULOSA' / TORULOSA JUNIPER	5 GAL
	TD	167	TAXUS X MEDIA 'DENSIFORMIS' / DENSE YEW	5 GAL
	TOG	9	THUJA OCCIDENTALIS 'GREEN GIANT' / GREEN GIANT ARBORVITAE	6'-8' HT.
	HA	112	THUJA OCCIDENTALIS 'HOLMSTRUP' / HOLMSTRUP CEDAR	3 GAL
ORNAMENTAL GRASSES	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BB	45	BOUTELOUA GRACILIS 'BLONDE AMBITION' / BLONDE AMBITION BLUE GRAMA	3 GAL
	CK	284	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / KARL FOERSTER FEATHER REED GRASS	1 GAL
	ST	62	SPOROBOLUS HETEROLEPIS 'TARA' / TARA PRAIRIE DROPSEED	1 GAL
GROUND COVERS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**
	EH	434	EQUISETUM HYEMALE / HORSETAIL REED	1 GAL
	LC	360	LOBELIA CARDINALIS / CARDINAL FLOWER	1 GAL

PLANT SCHEDULE PHASE 1

DECIDUOUS SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	CF	120	CORNUS SERICEA 'FARROW' / ARCTIC FIRE RED TWIG DOGWOOD	3 GAL
	HR	11	HYDRANGEA QUERCIFOLIA 'RUBY SLIPPERS' / RUBY SLIPPERS HYDRANGEA	5 GAL
	RG	94	RHUS AROMATICA 'GRO-LOW' / GRO-LOW FRAGRANT SUMAC	3 GAL
EVERGREEN SHRUBS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BG	186	BUXUS X 'GREEN MOUNTAIN' / GREEN MOUNTAIN BOXWOOD	5 GAL
	CG	42	CHAMAECYPARIS PISIFERA 'GOLDEN MOP' / GOLDEN MOP THREADLEAF FALSE CYPRESS	5 GAL
	II	20	ILEX GLABRA 'COMPACTA' / COMPACT INKBERRY	5 GAL
	JF	76	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	5 GAL
	JT	27	JUNIPERUS VIRGINIANA 'TORULOSA' / TORULOSA JUNIPER	5 GAL
	TD	94	TAXUS X MEDIA 'DENSIFORMIS' / DENSE YEW	5 GAL
	TOG	4	THUJA OCCIDENTALIS 'GREEN GIANT' / GREEN GIANT ARBORVITAE	6'-8' HT.
	HA	58	THUJA OCCIDENTALIS 'HOLMSTRUP' / HOLMSTRUP CEDAR	3 GAL
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	BB	45	BOUTELOUA GRACILIS 'BLONDE AMBITION' / BLONDE AMBITION BLUE GRAMA	3 GAL
	CK	134	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / KARL FOERSTER FEATHER REED GRASS	1 GAL
	ST	62	SPOROBOLUS HETEROLEPIS 'TARA' / TARA PRAIRIE DROPSEED	1 GAL
GROUND COVERS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**
	EH	434	EQUISETUM HYEMALE / HORSETAIL REED	1 GAL
	LC	360	LOBELIA CARDINALIS / CARDINAL FLOWER	1 GAL

PLANT SCHEDULE PHASE 2

EVERGREEN SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	BG	212	BUXUS X 'GREEN MOUNTAIN' / GREEN MOUNTAIN BOXWOOD	5 GAL
	CG	69	CHAMAECYPARIS PISIFERA 'GOLDEN MOP' / GOLDEN MOP THREADLEAF FALSE CYPRESS	5 GAL
	II	23	ILEX GLABRA 'COMPACTA' / COMPACT INKBERRY	5 GAL
	JF	45	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	5 GAL
	JT	33	JUNIPERUS VIRGINIANA 'TORULOSA' / TORULOSA JUNIPER	5 GAL
	TD	73	TAXUS X MEDIA 'DENSIFORMIS' / DENSE YEW	5 GAL
	TOG	5	THUJA OCCIDENTALIS 'GREEN GIANT' / GREEN GIANT ARBORVITAE	6'-8' HT.
	HA	48	THUJA OCCIDENTALIS 'HOLMSTRUP' / HOLMSTRUP CEDAR	3 GAL
ORNAMENTAL GRASSES	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	CK	150	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / KARL FOERSTER FEATHER REED GRASS	1 GAL

NOTES:
1. LANDSCAPING IN PHASE 2 SHALL BE DELAYED UNTIL COMPLETION OF CONSTRUCTION OF BUILDINGS TO AVOID DISTURBANCE AND RE-INSTALLATION.
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3. QUANTITIES LISTED IN THE PLANT LIST SCHEDULE ARE FOR ESTIMATES ONLY. TREES, SHRUBS, AND GROUND COVER OF CONTRACT QUANTITIES SHALL BE THE NUMBER OF ITEMS SHOWN ON THE DRAWINGS.
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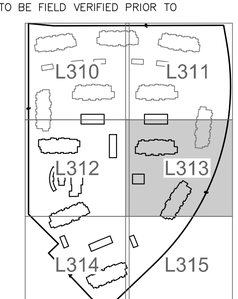

SITE PLAN
KEY MAP
NOT TO SCALE

0' 10' 20' 40'
SCALE IN FEET

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MO CERTIFICATE OF AUTHORITY #:001592
KS CERTIFICATE OF AUTHORITY #:E-1044
NORTH KANSAS CITY, MO 64116
TEL: 816.361.1177
www.olsson.com

STATE OF MISSOURI
CHRISTOPHER HOLMQUIST
NUMBER PLA-2019026430
2020.12.31
PROFESSIONAL LANDSCAPE ARCHITECT

CHRIS HOLMQUIST, P.L.A.
MO# 2019026430

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

LANDSCAPE UNDERSTORY PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
L313

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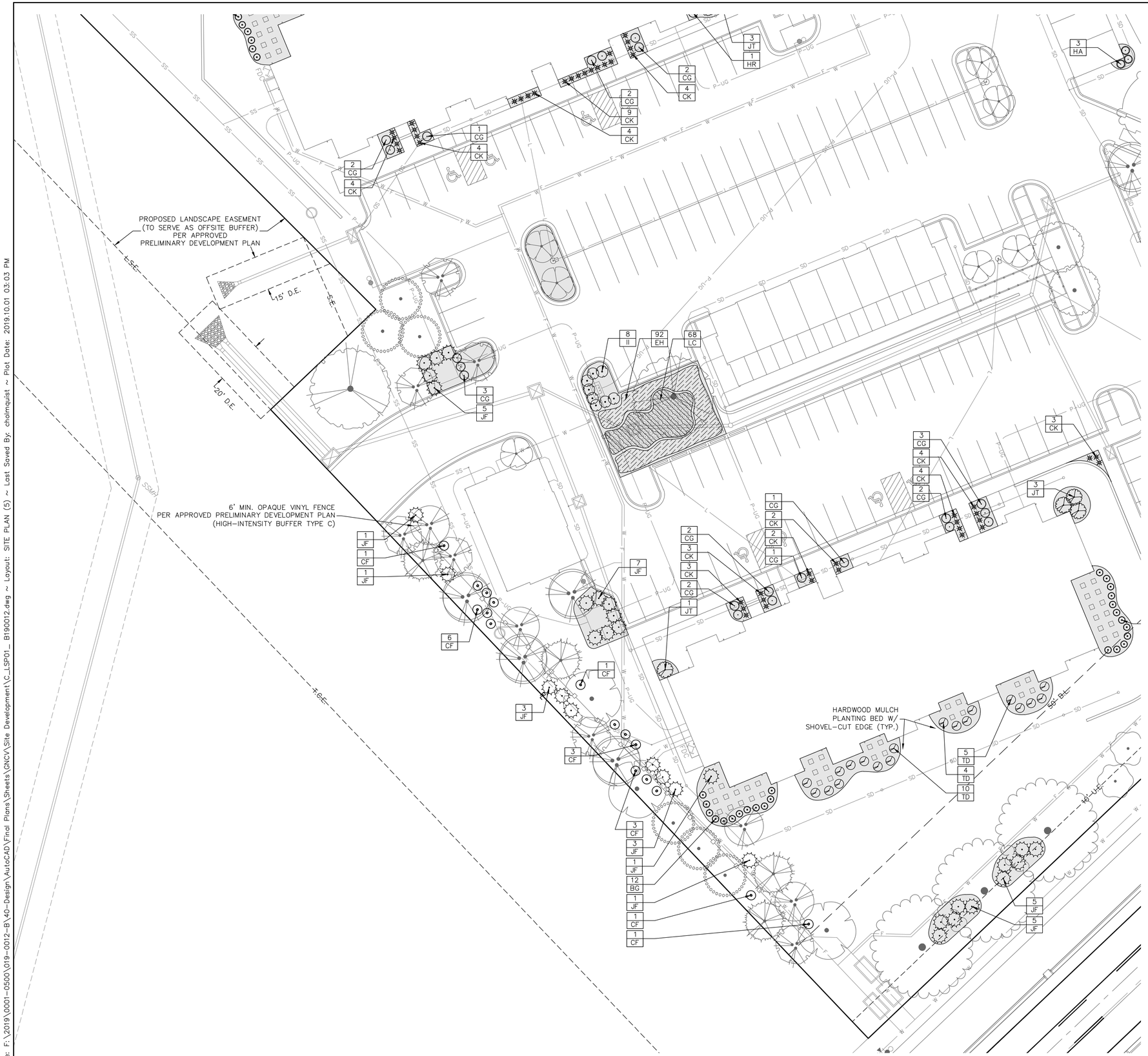

PLANT SCHEDULE - OVERALL

DECIDUOUS SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	CF	120	CORNUS SERICEA 'FARROW' / ARCTIC FIRE RED TWIG DOGWOOD	3 GAL
	HR	11	HYDRANGEA QUERCIFOLIA 'RUBY SLIPPERS' / RUBY SLIPPERS HYDRANGEA	5 GAL
	RG	94	RHUS AROMATICA 'GRO-LOW' / GRO-LOW FRAGRANT SUMAC	3 GAL
EVERGREEN SHRUBS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BG	370	BUXUS X 'GREEN MOUNTAIN' / GREEN MOUNTAIN BOXWOOD	5 GAL
	CG	111	CHAMAECYPARIS PISIFERA 'GOLDEN MOP' / GOLDEN MOP THREADLEAF FALSE CYPRESS	5 GAL
	II	43	ILEX GLABRA 'COMPACTA' / COMPACT INKBERRY	5 GAL
	JF	171	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	5 GAL
	JT	58	JUNIPERUS VIRGINIANA 'TORULOSA' / TORULOSA JUNIPER	5 GAL
	TD	167	TAXUS X MEDIA 'DENSIFORMIS' / DENSE YEW	5 GAL
	TDG	9	THUJA OCCIDENTALIS 'GREEN GIANT' / GREEN GIANT ARBORVITAE	6'-8' HT.
	HA	112	THUJA OCCIDENTALIS 'HOLMSTRUP' / HOLMSTRUP CEDAR	3 GAL
ORNAMENTAL GRASSES	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BB	45	BOUTELOUA GRACILIS 'BLONDE AMBITION' / BLONDE AMBITION BLUE GRAMA	3 GAL
	CK	284	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / KARL FOERSTER FEATHER REED GRASS	1 GAL
	ST	62	SPOROBOLUS HETEROLEPIS 'TARA' / TARA PRAIRIE DROPSEED	1 GAL
GROUND COVERS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**
	EH	434	EQUISETUM HYEMALE / HORSETAIL REED	1 GAL
	LC	360	LOBELIA CARDINALIS / CARDINAL FLOWER	1 GAL

PLANT SCHEDULE PHASE 1

DECIDUOUS SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	CF	120	CORNUS SERICEA 'FARROW' / ARCTIC FIRE RED TWIG DOGWOOD	3 GAL
	HR	11	HYDRANGEA QUERCIFOLIA 'RUBY SLIPPERS' / RUBY SLIPPERS HYDRANGEA	5 GAL
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EVERGREEN SHRUBS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	BG	186	BUXUS X 'GREEN MOUNTAIN' / GREEN MOUNTAIN BOXWOOD	5 GAL
	CG	42	CHAMAECYPARIS PISIFERA 'GOLDEN MOP' / GOLDEN MOP THREADLEAF FALSE CYPRESS	5 GAL
	II	20	ILEX GLABRA 'COMPACTA' / COMPACT INKBERRY	5 GAL
	JF	76	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	5 GAL
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PLANT SCHEDULE PHASE 2

EVERGREEN SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	BG	212	BUXUS X 'GREEN MOUNTAIN' / GREEN MOUNTAIN BOXWOOD	5 GAL
	CG	69	CHAMAECYPARIS PISIFERA 'GOLDEN MOP' / GOLDEN MOP THREADLEAF FALSE CYPRESS	5 GAL
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	TDG	5	THUJA OCCIDENTALIS 'GREEN GIANT' / GREEN GIANT ARBORVITAE	6'-8' HT.
	HA	48	THUJA OCCIDENTALIS 'HOLMSTRUP' / HOLMSTRUP CEDAR	3 GAL
ORNAMENTAL GRASSES	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	CK	150	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / KARL FOERSTER FEATHER REED GRASS	1 GAL

NOTES:
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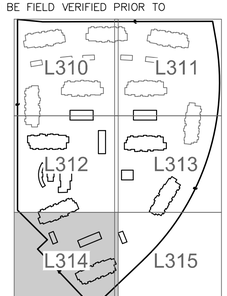

SITE PLAN
KEY MAP
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0' 10' 20' 40'
SCALE IN FEET

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1.	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

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SITE DEVELOPMENT PLANS

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PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
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L314

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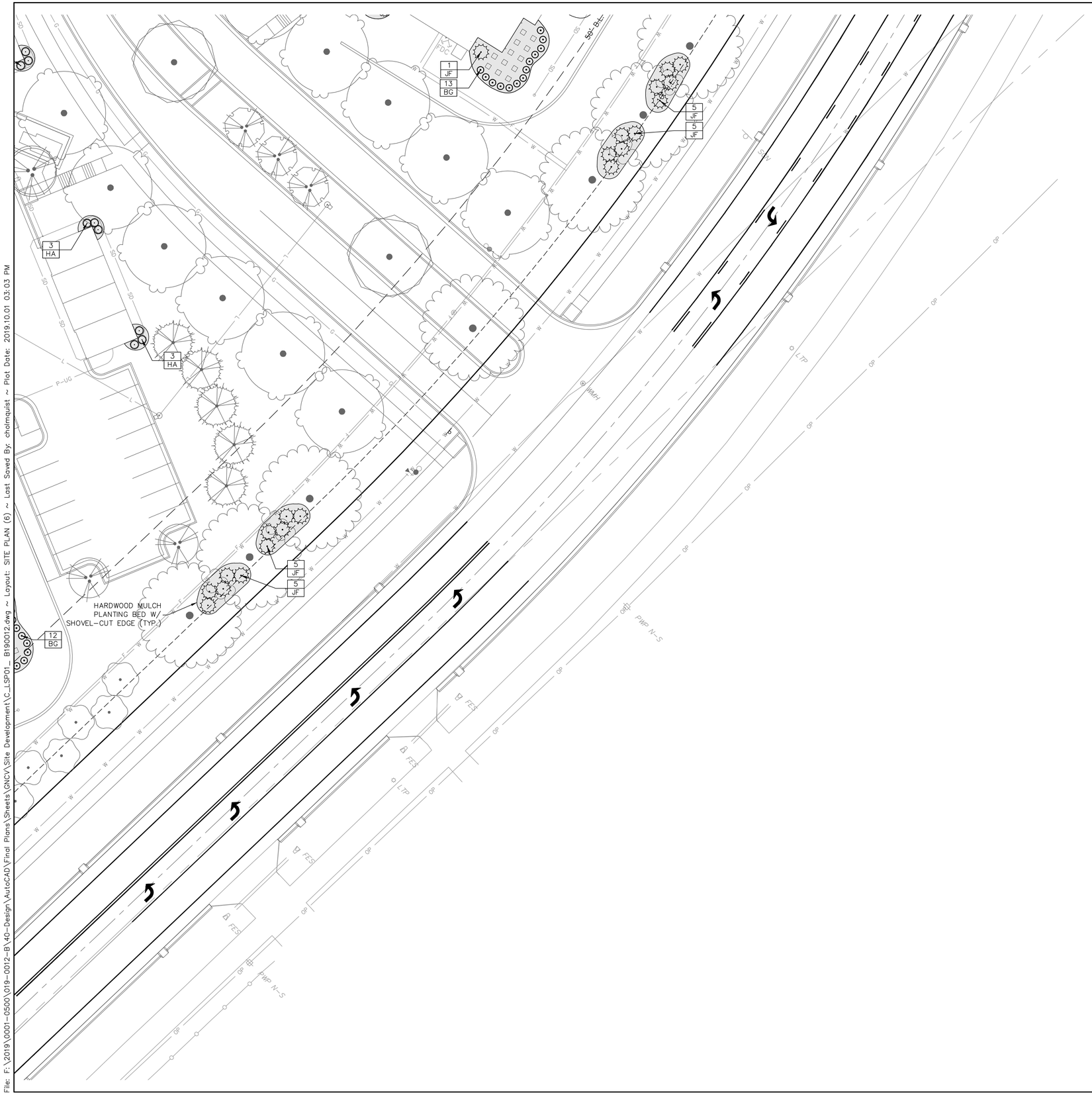

PLANT SCHEDULE - OVERALL

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PLANT SCHEDULE PHASE 2

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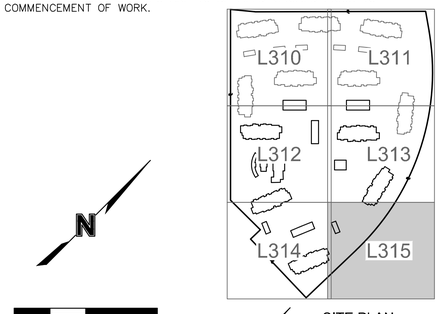

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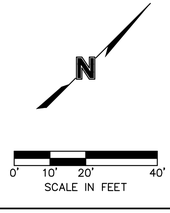

0' 10' 20' 40'
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MO CERTIFICATE OF AUTHORITY #:001592
1301 BURLINGTON, SUITE 100
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STATE OF MISSOURI
CHRISTOPHER HOLMQUIST
NUMBER PLA-2019026430
2020.12.31
PROFESSIONAL LANDSCAPE ARCHITECT

CHRIS HOLMQUIST, P.L.A.
MO# 2019026430

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

LANDSCAPE UNDERSTORY PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
L315

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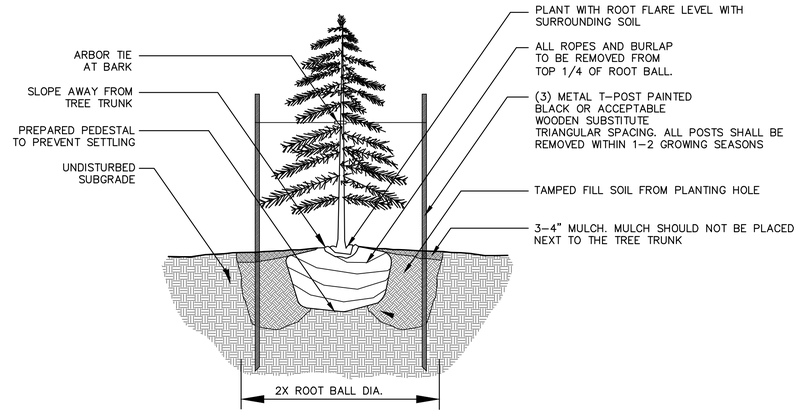
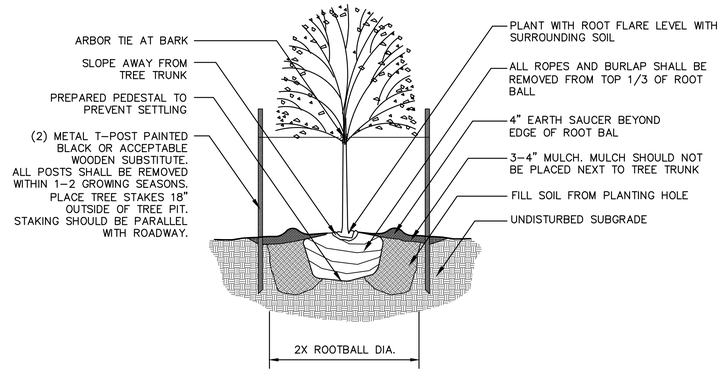


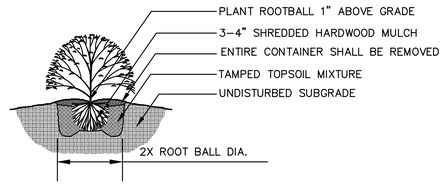
NOTES:
1. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING
2. IN AREAS OF TURF, SURROUND BED WITH 6' DIAMETER OF MULCH

1 Evergreen Tree Planting Detail
not to scale



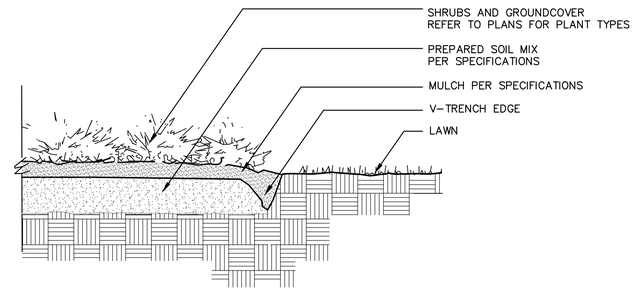
NOTES:
1. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING
2. IN AREAS OF TURF, SURROUND BED WITH 6' DIAMETER OF MULCH. ENSURE TREE STAKES ARE WITHIN MULCH AREA PLACED IN UNDISTURBED SUBGRADE.

2 Deciduous Tree Planting Detail
not to scale



NOTES:
1. MINIMUM ROOT SPREAD TO BE IN ACCORDANCE WITH ANLA STANDARDS
2. PRUNE DAMAGED LIMBS OR ROOTS AFTER INSTALLATION
3. MAKE SURE ROOTS DO NOT DRY OUT DURING INSTALLATION
4. SOAK GENEROUSLY TO COMPACT AND SETTLE

3 Shrub Planting Detail
not to scale



4 V-Trench Edging Detail
not to scale

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LANDSCAPE DETAILS
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SHEET
L401

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PART 1 - GENERAL

1.1 PROJECT CONDITIONS

A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.

B. Site Examination: Contractor shall verify all conditions, dimensions, and elevations in the field before starting work, and notify the project engineer or Landscape Architect immediately of any discrepancies between drawings and field conditions if encountered.

C. Interruption of Existing Services or Utilities: Do not interrupt services or utilities to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary services or utilities according to requirements indicated:
1. Notify Landscape Architect no fewer than seven (7) days in advance of proposed interruption of each service or utility.
2. Do not proceed with interruption of services or utilities without Landscape Architect's written permission.

D. Site Conditions:
1. Contractor shall keep the premises clean and free from rubbish and all debris associated with the work at all times. All unused materials and debris shall be removed from the site.
2. Contractor is responsible for repairs or damage to any existing improvements during construction such as but not limited to: drainage utilities, pavement, striping, curb, etc. Any repair work in the city R.O.W. shall be equal to or better than existing conditions.
3. Contractor shall comply with specifications prior to commencement of any type of work.
4. All disturbed areas outside of the project limits as shown on the plans are to be restored back to the original conditions with turf-type, tall fescue seed.
5. Contractor shall not commence with work until the site is free of debris caused by ongoing construction operations. Removal of debris shall be the responsibility of the General Contractor.
6. Contractor shall coordinate all work with other Contractors on site throughout the construction.

E. Safety:
1. Neither the Owner nor the Landscape Architect will enforce safety measures or regulations. The Contractor shall design, construct and maintain all safety devices, and shall be solely responsible for conforming to all local, state and federal safety and health standards, laws and regulations.

F. Utilities:
1. Contractor shall take all necessary precautions and responsibility to locate and protect any and all public and private underground or concealed conduit, plumbing or other utilities where new work is being performed. Contractor is responsible for repairing any and all damage to utilities, structures, site appurtenances, etc., which occur as a result of the landscape construction. Contractor shall maintain stakes set by others until all parties concerned mutually agree upon removal. In no case shall landscape material be planted in a way which will interfere with or cause damage to overhead or underground utilities.
2. Missouri one call system: 1-800-344-7483

G. Requirements:
1. All work shall conform to all federal, state, and local requirements for installation and maintenance.
2. The final, approved landscape plan must be available for onsite inspection at all times.

H. Clearzone:
1. The clearzone shall be maintained at all intersections that ingress and egress to the site. It is the Owner's responsibility to maintain the plant material at a height of not over thirty (30) inches above pavement and provide unobstructed sight distance for drivers in vehicles approaching the intersection.
2. Vertical clearance of at least eighty (80) inches must be provided above walks at all times. It is the Owner's responsibility to maintain trees and other overhanging objects to provide adequate headroom to comply with ADA guidelines.

I. Conflicts:
1. Should a conflict arise between specifications, codes, standards, ordinances and plans, the most stringent requirements shall apply.
2. Where no construction details are shown or noted for any part of the work, such details shall be the same as for similar work shown on the drawing and shall meet with Manufacturer's specifications.

J. Measurements:
1. Before commencing work or ordering any materials, the Contractor shall verify all measurements and shall be responsible for their accuracy. Any discrepancies shall be reported to the project Landscape Architect. The Contractor shall be responsible for the differences between actual dimensions and measurements indicated.
2. Written dimensions shall prevail. In no case shall working dimensions be scaled from plans, sections or details on the drawing.
3. Landscape Contractor shall supply bid to Olsson Associates for review. Bid shall include unit costs for all materials.

K. Plan Changes:
1. All drawings, specifications, and other work products developed by Olsson Associates are instruments of service for this project only and shall remain the property of Olsson Associates. Instruments of service may not be used, reproduced or changed in any form without the prior written permission of Olsson Associates.
2. In the event any changes are made to the plans and specifications by Owner or persons other than Olsson Associates, any liability arising out of such changes is waived against Olsson Associates. Owner assumes full responsibility for such changes unless Owner has given Olsson Associates prior notice and has received written consent for such changes.

L. Substitutions:
1. Any changes or deviations from these plans must be approved in writing by Owner, Olsson Associates and the Local Municipal Agencies. Changes shall possess the same characteristics as indicated on the plans and specifications.

M. Delegated design irrigation system:
1. If an irrigation system is not provided with the Landscape Plans, the Contractor is to design a 100 percent coverage irrigation system, including comprehensive engineering analysis by a qualified Professional Engineer, using performance requirements and design criteria indicated per Owner's direction.
2. Irrigation Contractor to design and install irrigation system and shall include all required components including, but not limited to, rain shut off sensor, controller, taps, backflow preventers, all approvals, and all fees required by city.
3. Irrigation Contractor shall submit a copy of plan to Owner's Representative or Project Landscape Architect for review prior to installation of system.
4. Irrigation Contractor shall conduct a training session with the owner (or representatives) demonstrating the operation of the system and the controller. As part of this training, Contractor shall provide one spring start-up and one fall shut-down of the system.
5. Landscape Contractor to provide cost estimates for irrigation system for all plant material indicated on plans.
6. Irrigation system shall be tested and approved by Owner's Representative or Landscape Architect prior to backfilling trenches. Irrigation system shall be fully operational prior to the installation of any plant materials.
7. All planting beds shall be watered by the irrigation system.
8. General Contractor to supply all power required to operate irrigation system.
9. Irrigation Contractor shall notify Owner's Representative or Project Landscape Architect of any changes to irrigation conduit locations or sizes.
10. It is the Landscape Contractor's responsibility to determine water application rates and timer cycling. The Irrigation Contractor will instruct the Owner on the operation and programming of the controller.
11. All zones and main lines will be pressure-tested at the time of installation and again prior to building turnover. Results shall be submitted in writing to Project Landscape Architect and Owner or Owner's Representative.
12. Irrigation shall not spray on building, sidewalks, and drives.
13. Irrigation controller location shall be coordinated with other wall-mounted service panels per Owner's approval.
14. Landscape Contractor shall hand-water all trees, turf grass areas, and native seed mix areas until substantial completion.
15. Treegator bags (or approved equal) shall be used for all proposed trees on site.

1.2 SUBMITTALS

A. Qualification Data for qualified Landscape Installers: Include list of similar projects completed by Landscape Contractor demonstrating Landscape Contractor's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of Owners' contact persons.

B. Samples shall be approved by Landscape Architect prior to installation on project.

C. Product Data: Provide for each type of product indicated, including soils.
1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.
2. Pesticides and Herbicides: Include product label and Manufacturer's application instructions specific to the Project.
3. Plant Photographs: Include color photographs in digital format of each required species and size of plant material as it will be furnished to the Project. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. For species where more than 20 plants are required, include a minimum of three photographs showing the average plant, the best quality plant, and the worst quality plant to be furnished. Identify each photograph with the full scientific name of the plant, plant size, and name of the growing nursery.

D. Samples for Verification: Provide as listed for each of the following:
1. Trees and Shrubs: Three samples of each variety and size must be delivered to the site for review. Maintain approved samples on-site as a standard for comparison.
2. Hardwood Mulch, Leaf Compost Mulch, & Rock Mulch: 1-quart volume of each organic mulch, in sealed plastic bags labeled with composition of materials by percentage weight and source of mulch, is required. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and organic makeup.
3. Weed Control Barrier: 12 by 12 inches.

E. Product Certificates: Each type of manufactured product, from Manufacturer, shall comply with the following:
1. Manufacturer's certified analysis of standard products.
2. All plant material inspection certificates required by federal, state or other governing authorities will accompany each shipment and be turned over to the Owner's Representative upon delivery.
3. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
4. Invoice:
   a. Vendor or Grower's invoice for each shipment of plants shall show sizes, quantities, and root treatment of plants, i.e. containerized, balled and burlapped, or plug.
   b. Invoice for each shipment of soil amendments and seed mixtures.
5. Label data substantiating that plants, trees, shrubs, perennials, seed and planting materials comply with specifications.
6. Seed Vendor's certified statement for each seed mixture required stating botanical and common name, percentages by weight, and percentages of purity, germination, and weed seed for each seed mixture.

F. Material Test Reports: For standardized ASTM D5268 topsoil, existing native surface topsoil, existing in-place surface soil and imported or manufactured topsoil.

G. Maintenance Instructions: Recommended typewritten instructions and procedures to be established by the Owner for maintenance of plants during a calendar year. Submit before start of required maintenance periods and prior to final acceptance of landscape material.

H. Warranty: Sample of special warranty.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful establishment of plants.
1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
2. Experience: A minimum of five (5) years experience on projects similar in characteristics and size. Contractor shall be a company specializing in landscape installation.
3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on project site when work is in progress.
4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:
   a. Certified Landscape Technician - Exterior, with designated CLT-Exterior.
   b. Certified Ornamental Landscape Professional, designated COLP.
5. Pesticide Applicator: State licensed, commercial.

B. Soil Testing
1. Laboratory Qualifications: An independent or university laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in the types of tests to be performed.
2. The Contractor shall be responsible for having both the topsoil and existing soil tested for proposed plant material locations. Topsoil shall be tested by an independent soil testing agency. The Contractor shall furnish one (1) copy of the soil analysis plus recommended amendments prepared to meet the desired pH and nutritional and organic levels determined to be adequate for the area by the County Extension Agent or approved independent soil testing agency to the Landscape Architect prior to application of any amendments or fertilizer.

C. Soil Analysis: For each unamended soil type, furnish soil analysis and a written report by a qualified soil testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of the soil.
1. Testing methods and written recommendations shall comply with USDA's Handbook No. 60.
2. The soil testing laboratory shall oversee soil sampling with depth, location, and number of samples to be taken per instructions from Landscape Architect. A minimum of three representative samples shall be taken from varied locations for each soil to be used or amended for planting purposes.
3. Report suitability of tested soil for plant growth.
   a. Based upon the test results, state the recommendations for soil treatments and soil amendments to be incorporated. State recommendations in weight per 1000 sq. ft, or volume per cubic yard for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.
   b. Report presence of problem salts, minerals, or heavy metals including aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, and vanadium. If such problem materials are present, provide additional recommendations for corrective action.

D. Measurements: Measure according to ANSI Z60.1 - *American Standard for Nursery Stock*. Do not prune to obtain required sizes.
1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container-grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.
2. Other Plants: Measure with stems, petioles, and foliage in their normal position.

E. Quality and Size:
1. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1 - American Standard for Nursery Stock.
2. Required plant materials shall conform to type stated on the plant list. Sizes shall be the minimum stated on the plant list or larger. All installation and measurements shall be in accordance with the latest editions of the American Standard for Nursery Stock (ANSI Z60.1) and with the general planting specifications as set forth by the local municipal agency's landscape ordinance.
3. Landscape plant material shall satisfy AAN American Standards, be State Department of Agriculture inspected, and no. 1 grade with straight, unscarred trunk and well developed uniform crown (park grade trees will not be accepted).
4. The plant material shall be nursery grown and inspected by the Owner's Representative before planting.
5. Plants designated "B&b" shall be balled and burlapped, with firm balls of earth.
6. All installed plant materials shall be certified by the State to be disease-free and pest-free and not of a species known to carry or be host to destructive pathogens or pests. Plants shall be healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practices, free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions or disfigurement.
7. All trees shall have a central leader and a radial branching structure.
8. Plant materials delivered to site and not planted within 24 hours of delivery shall be "heeled" and watered in a shaded area, protected from weather, mechanical damage and dehydration prior to planting.
9. Each tree and shrub shall be securely labeled with a waterproof tag indicating the botanical name, common name, and size for delivery to site.
10. Provide healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practices, free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions or disfigurement. Place all plants in shaded area, protected from weather, mechanical damage and dehydration prior to planting.
11. All plant surfaces shall receive emulsion type, film-forming anti-desiccant agent designed to permit transpiration, but retard excessive loss of moisture from plants. Anti-desiccant to be delivered in Manufacturer's fully identified containers and mixed in accordance with Manufacturer's specifications.

F. Plant Material Observation: Landscape Architect may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Landscape Architect retains right to observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, 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 project site.
1. Notify Landscape Architect of sources of planting materials seven (7) days in advance of delivery to site.
2. Inspections and Testing:
   a. The Landscape Architect reserves the right to inspect and/or tag plants at place of growth with Landscape Contractor.
   b. All plants must be inspected and approved by the Landscape Architect before they are planted. Inspection and approval by the Landscape Architect at place of growth or upon delivery shall be for quality, size, and variety only and shall not in any way impair the right of rejection for failure to meet other requirements during progress of work. Plants damaged during delivery or at job site shall be rejected.
3. All site work, including plant locations, shall be staked by the Landscape Contractor and shall be approved by the Landscape Architect prior to installation. Any walks, walls or edging shall be installed in a manner consistent with the plans as shown, and shall be installed free of kinks, bends or abrupt curves.
4. All dead plant materials shall be removed and replaced as required in order to maintain an attractive landscape at all times.

G. Quantities:
1. Contractor is responsible for verifying all quantities shown on these plans before pricing the work. Any difference in quantities should be brought to the attention of the Landscape Architect for clarification.
2. Quantities listed in the plant list schedule are for estimates only. Trees, shrubs, and groundcover of contract quantities shall be the number of items shown on the drawings. Contractor shall supply the quantities necessary to complete the work as shown on the drawings. Quantities listed on the plant list are approximate only. Any difference in quantities should be brought to the attention of the Project Landscape Architect for clarification.
3. Contractor shall provide trees, shrubs, and plants of quantity, size, genus, species and variety shown and scheduled for landscape work.

H. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
1. Spring Planting: April 1st to June 15th
2. Fall Planting: August 15th to November 1st

I. Weather Limitations: Proceed with plant material installation and sodding only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to Manufacturer's written instructions and warranty requirements.

J. Coordination with Turf Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.
1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of Manufacturer, and indication of conformance with state and federal laws if applicable.

B. Bulk Materials:
1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
3. Accompany each delivery of bulk fertilizers, lime, and soil amendments with appropriate certificates.

C. Deliver bare-root stock plants freshly dug. Immediately after digging up bare-root stock, pack root system in wet straw, hay, or other suitable material to keep root system moist until planting.

D. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

E. Handle planting stock by root ball.

F. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.
1. Heel-in bare-root stock. Soak roots that are in dry condition in water for two hours. Reject dried-out plants.
2. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
3. Do not remove container-grown stock from containers before time of planting.
4. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly-wet condition.

G. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod in time for planting within 24 hours of harvesting. Protect sod from breakage and drying.

1.5 WARRANTY

A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
1. Failures include, but are not limited to, the following:
   a. Death, unhealthy condition, plant material with more than 25% die back and unsatisfactory growth as determined by the Owner's Representative, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control.
   b. Structural failures including plantings falling or blowing over.
   c. Faulty performance of tree stabilization.
2. Warranty Periods from Date of Substantial Completion:
   a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
   b. Ground Covers, Biennials, Perennials, and Other Plants: 12 months.
   c. Annuals: Two months.
3. Include the following remedial actions as a minimum:
   a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
   b. Replace plants that are not in good condition or in an unhealthy condition as judged by the Owner's Representative prior to Substantial Completion and at end of the warranty period at no additional cost to the Owner.
   c. A limit of one replacement of each plant will be required except for losses or replacements due to failure to comply with requirements.
   d. Provide extended warranty for period equal to original warranty period for replaced plant material.

1.6 MAINTENANCE SERVICE

A. Installation Maintenance:
1. Maintenance shall begin immediately after installation of each plant, sod or turf. All plant material, sod and/or shall be maintained in a vigorous, thriving condition until all planting is completed and accepted.
2. Maintain turf, material and plants until Substantial Completion or until Owner accepts landscape installation,
3. Maintenance activities of turf or sod shall include watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, regrading and replanting as required to establish a smooth sodded surface, free of eroded or bare areas, free of weeds and acceptable by Owner.
4. Maintenance activities of plant material - trees, shrubs, ornamental grasses, perennials, annuals, and groundcover - include watering, weeding, cultivating, mulching, adjusting of stakes, removal of dead materials, resetting plants to proper grades or upright positions, restoration of the planting saucer, and any other procedures consistent with good horticultural practices necessary to insure normal, vigorous, and healthy growth.

B. Initial Maintenance Service for Trees and Shrubs: Provide maintenance by skilled employees of Landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established but for not less than the maintenance period below.
1. Maintenance Period: Twelve (12) months from date of Substantial Completion.

C. Initial Maintenance Service for Ground Cover and Other Plants: Provide maintenance by skilled employees of Landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established but for not less than the maintenance period below.
1. Maintenance Period: Twelve (12) months from date of Substantial Completion.

D. Initial Maintenance Service for Turf: Provide full maintenance by skilled employees of Landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable turf is established but for not less than the following periods:
1. Sodded Turf: Twelve (12) months from date of Substantial Completion.

E. Continuing Maintenance Proposal: From Installer to Owner, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant Schedule or Plant Legend shown on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots will be rejected.
2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated. Park Grade material is not acceptable.

B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Landscape Architect, with a proportionate increase in size of roots or balls.

C. Root Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

D. Labeling: Label each plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant as shown on Drawings.

E. If formal arrangements or consecutive order of plants is shown on Drawings, select stock for uniform height and spread, and number the labels to assure symmetry in planting.

F. Perennials: Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the container. Provide only plants that are acclimated to outdoor conditions before delivery.

2.2 NATIVE SEED

A. All disturbed areas, fills and embankments shall be seeded and fertilized as specified on the plans.

B. Native seed shall be obtained from sources specified on plans or approved alternate source.

2.3 TURF SEED

A. All disturbed areas, fills and embankments shall be seeded and fertilized as specified on the plans.

B. Grass seed shall have a rating of 6.0 or better in the Kansas State Turf Grass Test, with the following characteristics: Purity - 98%, and Inert - 1.75%

2.4 TURF SOD

A. Sod shall be grown from a seed with a rating of 6.0 or better in the Kansas State Turf Grass Test.

B. Sod shall be composed of fescue blend free from insects, disease, weeds and other grasses, cut in uniform strips consisting of 1 square yard per strip or approved equal.

2.5 PLANTING SOILS

A. Soil Testing:
1. Landscape Contractor to test soil on site and provide results to the Owner and Landscape Architect prior to commencement of work.
2. Landscape Contractor to verify and guarantee that the onsite topsoil will support grass seed, sod, and plant material.
3. Landscape Contractor to recommend soil amendments if soil test is not acceptable.

B. Planting Soil:
1. Existing, in-place surface soil. Verify suitability of existing surface soil to produce viable planting soil. Remove stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.
2. ASTM D5268 topsoil, with pH range of 5.5 to 7, a minimum of five (5) percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth. Soil shall be free from clay lumps, coarse sand, plant roots, sticks and other foreign materials. Mix ASTM D5268 topsoil with the following soil amendments and fertilizers as recommended by soil analysis.
3. Topsoil shall be fertile, friable, natural topsoil, typical of the locality, obtained from well-drained areas possessing characteristics of soils in the vicinity that produce heavy growth or grasses and other vegetative material. Stockpiled topsoil may be used. It shall be without admixture of subsoil or slag and shall be free of subsoil, stones, lumps, sticks, plants or their roots, toxic substances or other extraneous matter that may be harmful to plant growth.

2.6 MULCHES

A. Hardwood Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, consisting of the following:
1. Type: Double-shredded hardwood
2. Size Range: 1 inch minimum to 3 inches maximum
3. Color: Dark brown

B. Leaf Compost Mulch: Free from deleterious materials and suitable as a top dressing for ornamental grasses, perennials, and groundcovers.

C. Mineral Mulch: Hard, durable stone, washed free of loam, sand, clay, and other foreign substances, of following type, size, range, and color:
1. Type: Washed Cobble
2. Size Range: 8-inch maximum, 4-inch minimum
3. Color: Uniform tan-beige color range acceptable to Landscape Architect

2.4 WEED-CONTROL BARRIERS

A. Nonwoven Geotextile Filter Fabric: Polypropylene or polyester fabric, 3 oz./sq. yd. minimum, composed of fibers formed into a stable network so that fibers retain their relative position. Fabric shall be inert to biological degradation and resist naturally-encountered chemicals, alkalis, and acids.

2.5 PESTICIDES

A. General: Pesticide registered and approved by EPA, acceptable to authorities having jurisdiction, and of type recommended by Manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction. Do not apply herbicide when weather conditions are unfavorable, such as during drought or high winds.

B. Pre-Emergent Herbicide (Selective and Non-Selective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer. Pre-emergence application of "treflan 5% granules" or equivalent applied according to manufacturer's recommendations and incorporated into soil as specified.

C. Post-Emergent Herbicide (Selective and Non-Selective): Effective for controlling weed growth that has already germinated. Post-emergent application of "Roundup" or equivalent, applied as specified by manufacturer. Spray with extreme caution to avoid contact with landscape plantings.

2.8 MISCELLANEOUS PRODUCTS

A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to Manufacturer's written instructions.

B. Burlap: Non-synthetic, biodegradable.

C. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb of ectomycorrhizal fungi. 33 percent hydrogel, and a maximum of 5.5 percent inert material.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive plants for compliance with requirements and conditions affecting installation and performance.
1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
2. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.
3. Suspend soil spreading, grading, and tilling operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
4. Uniformly moisten excessively dry soil that is not workable and which is too dusty.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. If contamination by foreign or deleterious material or liquid is present in planting area soil, remove the soil and contamination as directed by Owner's Representative and replace with new planting soil.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

C. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Landscape Architect's acceptance of layout before excavating or planting. Make minor adjustments as required.

D. Lay out plants at locations directed by Landscape Architect. Stake locations of individual trees and shrubs and outline areas for multiple plantings.

E. Owner's Representative shall inspect all plant material prior to commencing with planting work. No plant excavations shall be undertaken by the Contractor prior to the approval of the Owner's Representative.

F. Power-spray antidesiccant to trees and shrubs to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.
1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

G. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.

3.3 PLANTING AREA ESTABLISHMENT

A. Loosen subgrade of planting areas to a minimum depth of 12 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
1. Apply fertilizer directly to subgrade before loosening.
2. Thoroughly blend planting soil off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil.
   a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
   b. Mix lime with dry soil before mixing fertilizer.
3. Spread planting soil to a depth of 4 inches but not less than required to meet finish grades after natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
   a. Spread approximately one-half the thickness of planting soil over loosened subgrade. Mix thoroughly into top 4 inches of subgrade. Spread remainder of planting soil.

B. Underground utility lines must be taken into account in the excavation of the planting areas.

C. Finish Grading:
1. Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
2. Finished grades shall provide positive drainage, free of depressions and any irregularities, after thorough settlement and compaction of sod, and will be uniform in slope between grading controls and the elevations indicated.

D. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 NATIVE SEED ESTABLISHMENT

A. Prepare the area to be seeded with native plantings by removing existing vegetation. Begin herbicide application in September with additional applications as necessary to achieve a total kill of all vegetation. Ensure that herbicides will not be harmful to native plantings, and follow manufactures application recommendations.

B. Remove thatch, by burning, mowing, raking, and/or dragging with a harrow. Approximately 80% of soil should be exposed. Obtain all required permits if burning.

C. Place a 2" compacted layer of topsoil over all areas to be established with native plantings. The topsoil layer shall bring all native planting areas to finish grade. Prepare planting area by fine grading the surface to a smooth surface, remove all rocks, sticks, dirt clumps, and trash.

D. A cover crop shall be added to seed mixes to stabilize swale slopes until native seed is established.

E. Winter wheat shall be used as a cover crop if planting is to take place during winter months. Spring oats shall be used for spring planting.

F. Sow seeds with a drill to a depth of $\frac{1}{4}$" in rows.

G. Seadling operations must be completed by end of April.

H. Lightly mulch slopes with weed-free wheat or oat straw.

I. Provide water to keep seeds from drying out completely. Continual watering is not needed.

J. Do not fertilize.

K. Do not spray with herbicides.

3.5 TURF AREA PREPARATION

A. Limit turf subgrade preparation to areas to be planted.

B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 8 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
1. Apply fertilizer directly to subgrade before loosening.
2. Spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil.
   a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
   b. Mix lime with dry soil before mixing fertilizer.
3. Spread planting soil to a depth of 2 inches but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
   a. Spread approximately 1/2 the thickness of planting soil over loosened subgrade. Mix thoroughly into top 2 inches of subgrade. Spread remainder of planting soil.
   b. Reduce elevation of planting soil to allow for soil thickness of sod.

C. Unchanged Subgrades: If turf is to be planted in areas unaltered or undisturbed by excavating, grading, or surface-soil stripping operations, prepare surface soil as follows:
1. Remove existing grass, vegetation, and turf. Do not mix surface soil.
2. Loosen surface soil to a depth of at least 8 inches. Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches of soil. Till soil to a homogeneous mixture of fine texture.
3. Remove stones larger than 1 inch in any dimension and sticks, roots, trash, and extraneous matter.
4. Legally dispose of waste material, including grass, vegetation, and turf off Owner's property.

D. Finish Grading:
1. Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.
2. Finished grades shall provide positive drainage, free of depressions and any irregularities, after thorough settlement and compaction of sod, and will be uniform in slope between grading controls and the elevations indicated.

E. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

F. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.6 HYDROSEEDING NEW TURF LAWNS

A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
1. Mix slurry with nonasphaltic tackifier.
2. Apply slurry uniformly to all areas to be seeded in a 1-step process. Apply mulch at the minimum rate of 1500 lb per acre dry weight but not less than the rate required to obtain specified seed-sowing rate.

3.7 SODDING NEW TURF LAWNS

A. All areas specified as "sod" shall be sodded per direction of the Project Landscape Architect; Landscape Contractor shall verify quantities in field prior to installation.

B. Lay sod within 24 hours of stripping. Do not lay sod if dormant or if ground is frozen.

C. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to subgrade or sod during installation. Tamp and roll lightly to ensure contact with subgrade. eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.

D. Lay sod across angle of slopes exceeding 1:3.

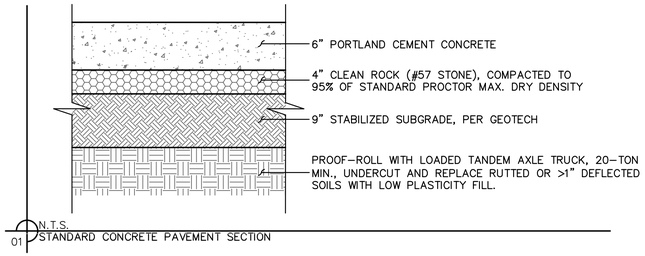
E. Anchor sod on slopes exceeding 1:6 with wood pegs spaced as recommended by sod Manufacturer but not less than 2 anchors per sod strip to prevent slippage.

F. Saturate sod with fine water spray within 2 hours of planting. During first week, water daily or more frequently as needed to maintain moist soil to a minimum depth of 1-1/2 inches (38 mm) below the sod.

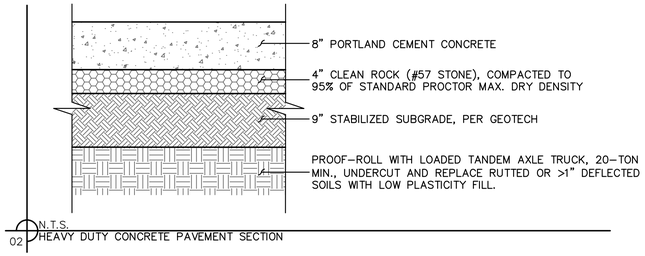
G. After two weeks following sod installation, apply fertilizer at the Manufacturer's recommended rate for newly established lawns. Maintain turf during warranty period by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, regrading and replanting as required to establish a smooth sodded surface, free of eroded or bare areas, free of weeds and acceptable by Owner.

3.8 EXCAVATION FOR TREES AND SHRUBS

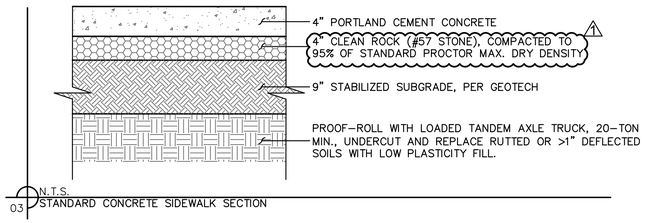
A. Planting Pits and Trenches: Excavate circular planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are not acceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
1. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots for balled and burlapped stock.
2. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
3. If area under the plant was initially dug too deep, add soil to raise it to the correct level and thoroughly tamp the added soil to prevent settling.
4. Maintain required angles of repose of adjacent materials as shown on the Drawings. Do not excavate subgrades of adjacent paving, structures, hardscap



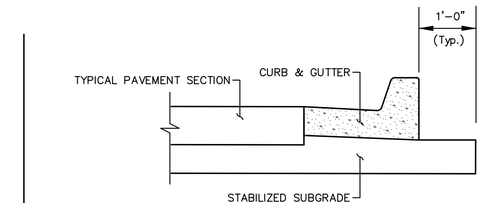
N.T.S.
01 STANDARD CONCRETE PAVEMENT SECTION



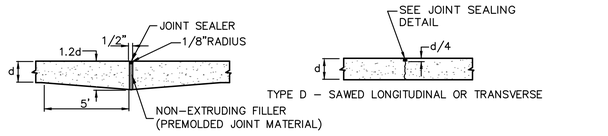
N.T.S.
02 HEAVY DUTY CONCRETE PAVEMENT SECTION



N.T.S.
03 STANDARD CONCRETE SIDEWALK SECTION

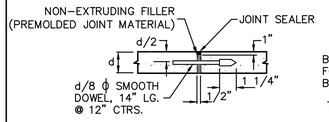


N.T.S.
04 PAVING DETAIL

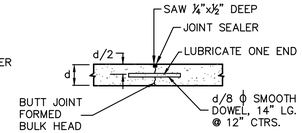


TYPE A – EXPANSION JOINT

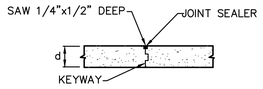
TYPE D – SAWED LONGITUDINAL OR TRANSVERSE



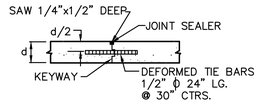
TYPE A – ALTERNATE EXPANSION JOINT



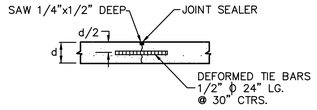
TYPE E – PLANNED TRANSVERSE CONSTRUCTION JOINT (USED AT NORMAL JOINT SPACING)



TYPE B – LONGITUDINAL CONSTRUCTION JOINT



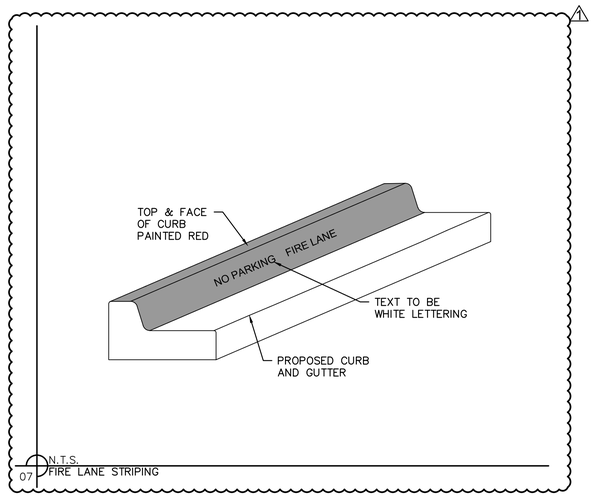
TYPE F – EMERGENCY TIED TRANSVERSE CONSTRUCTION JOINT (USED AT MIDDLE THIRD NORMAL JOINT SPACING)



TYPE C – TIED BUTT LONGITUDINAL CONSTRUCTION JOINT

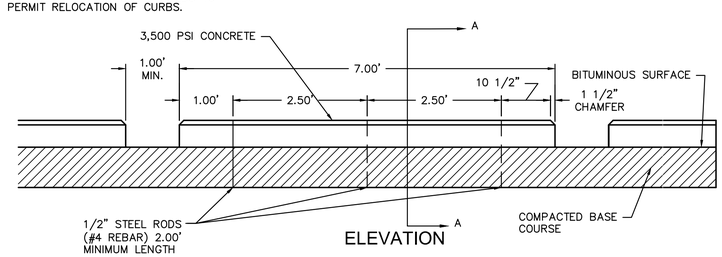
KEYWAYS FOR TYPE B AND F CONSTRUCTION JOINT

N.T.S.
06 CONCRETE PAVEMENT JOINTING DETAILS

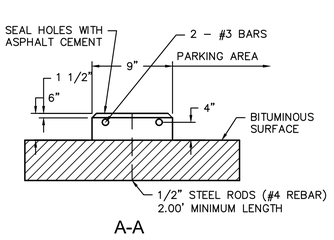


N.T.S.
07 FIRE LANE STRIPING

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

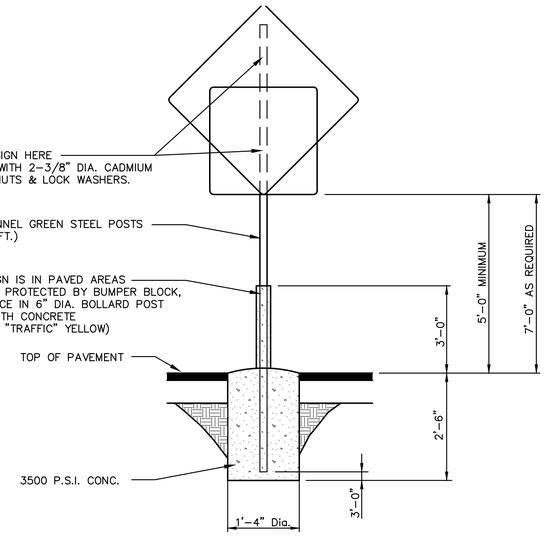


ELEVATION



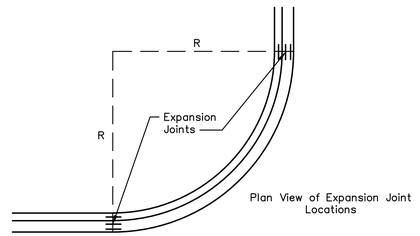
A-A

N.T.S.
05 WHEEL STOP DETAIL



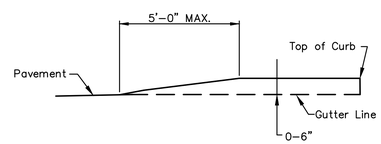
1. ALL SIGNS SHOULD COMPLY WITH U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION'S "UNIFORM TRAFFIC CONTROL DEVICES", AND LOCAL CODES AS SPECIFIED. MOUNT SIGNS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. IF ANY SIGN PROTRUDES MORE THAN 1'-0" PAST THE CENTER LINE OF THE POST IT IS MOUNTED TO THE BOTTOM OF THE SIGN SHALL BE SET AT 7'-0" INSTEAD OF 5'-0".
3. ALL SIGNS MAY NOT BE APPLICABLE TO THIS PROJECT. USE SIGNS SPECIFIED ON PLOT PLAN.
4. SIGNS SHALL BE LOCATED 2'-6" BEHIND CURB WHERE THERE IS CURB & GUTTER.

N.T.S.
08 SIGN BASE



NOTES:
1. 3/4" EXPANSION JOINTS WITH 2' DOWELS TO BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESES DOWELS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 2" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APPROXIMATELY 10' INTERVALS.
3. FIX DOWELS WITH BAR CHAIRS OR EQUAL.

N.T.S.
09 EXPANSION JOINT PLACEMENT DETAIL



N.T.S.
10 CURB TERMINUS DETAIL

olsson
OLSSON - CIVIL ENGINEERING
MO CERTIFICATE OF AUTHORITY #:001592
KS CERTIFICATE OF AUTHORITY #:E-2014
1301 MCGEE STREET, SUITE 500
NORTH KANSAS CITY, MO 64116
TEL 816.361.1177
www.olsson.com

STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1.	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

DETAIL SHEET
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

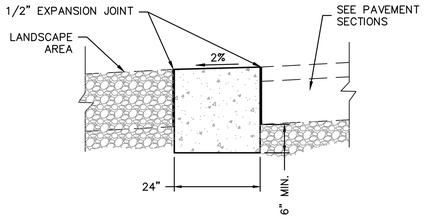
LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C901

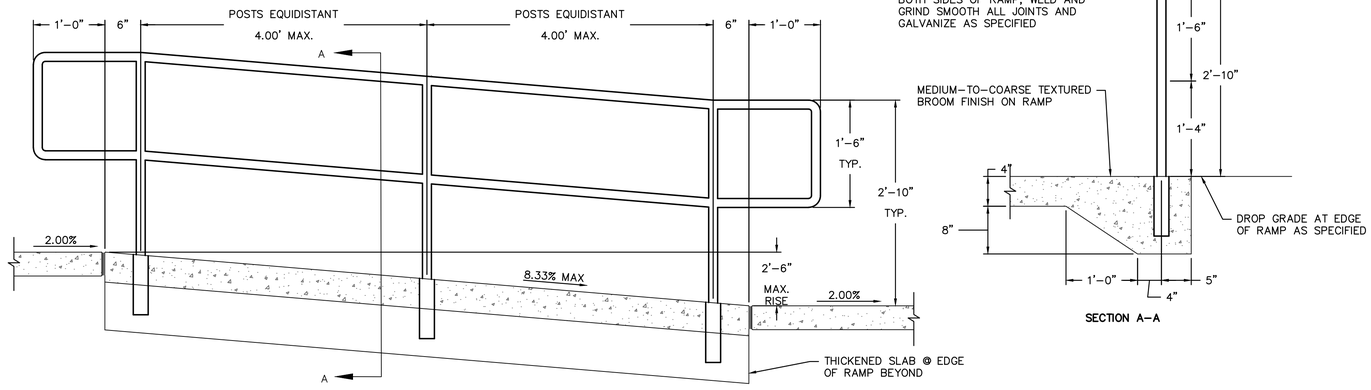
File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_DTL01_ B190012.dwg ~ Layout: DETAIL SHEET ~ Last Saved By: mdiebolt ~ Plot Date: 2019.10.01 03:03 PM



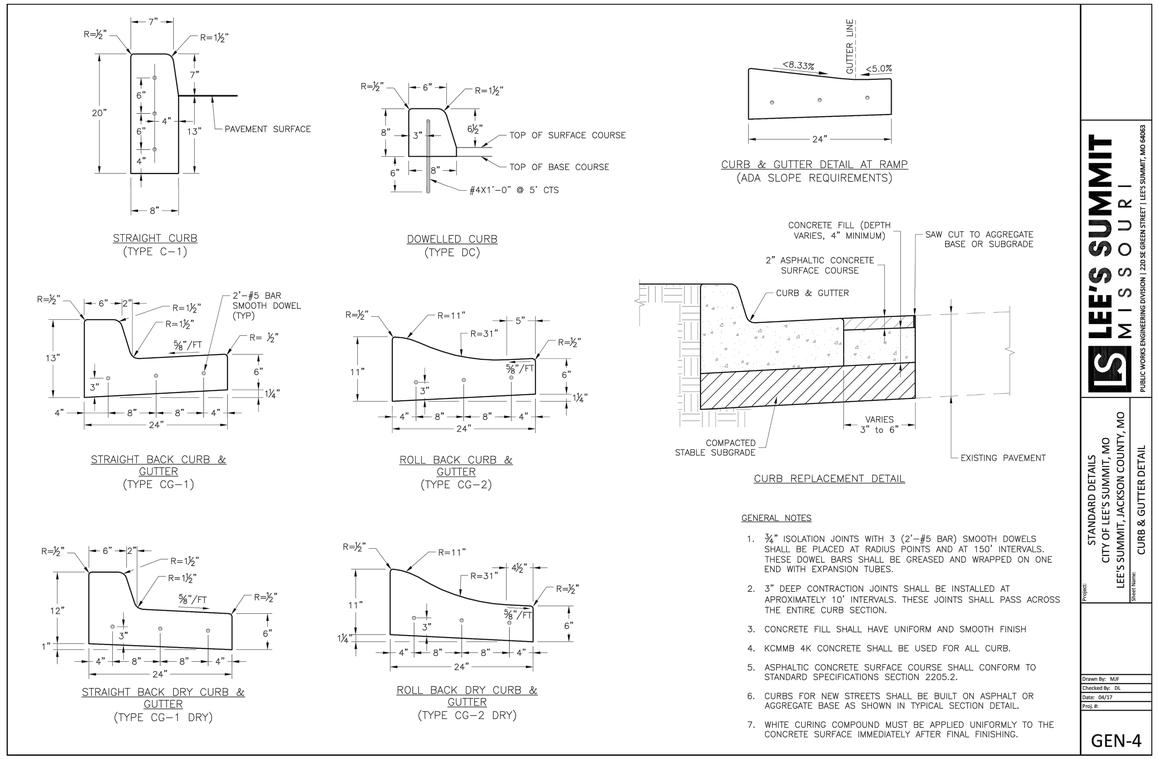
GENERAL NOTES:

1. 3/4" ISOLATION JOINTS WITH 5/8" DIA. X 2' SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' INTERVALS. THESE DOWEL BARS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES.
2. 1" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APPROXIMATELY 10' INTERVALS. THESE JOINTS SHALL PASS ACROSS THE ENTIRE CURB SECTION.
3. FIX DOWEL BARS WITH BAR SUPPORTS.

01 N.T.S.
RIBBON CURB DETAIL



02 N.T.S.
SIDEWALK WITH HANDRAIL



GENERAL NOTES

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

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

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

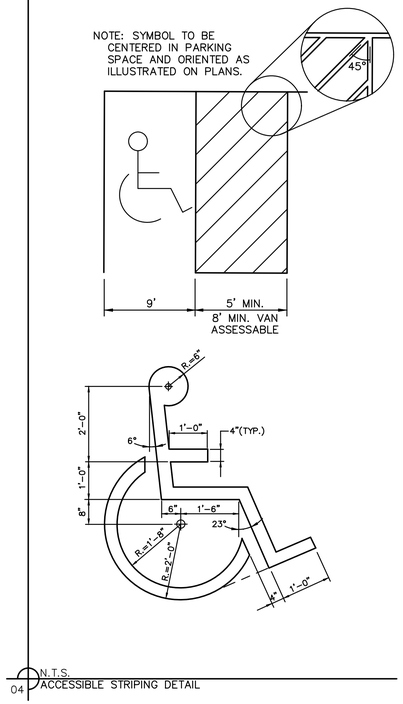
Sheet Name: CURB & GUTTER DETAIL

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

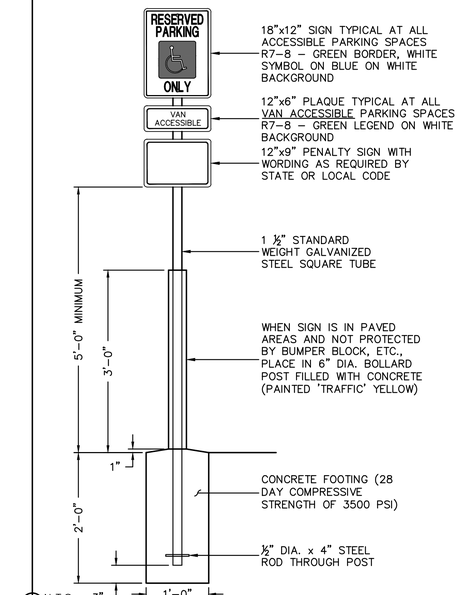
GEN-4

NOTES:
1. ALL SIGNS SHALL COMPLY WITH THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES", LOCAL CODES AND AS SPECIFIED. MOUNT SIGNS TO POST IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS
2. GALVANIZED SQUARE TUBE:
POST TUBES – 2"X2"X3/16" 12GA.
POST TUBE SHALL MEET ASTM A1011 GRADE 50.
POST TUBE GALVANIZED AS PER ASTM A653 GRADE 90.
ANCHOR TUBE – 2-3/4"x2-3/4"x3/16" 12GA.
HEAVY DUTY ANCHOR TUBE SHALL MEET ASTM A500 GRADE B.
STRUCTURAL TUBE AND STEEL SHALL BE HOT DIP GALVANIZED PER ASTM A123

THE UPPER SIGN POST SHALL TELESCOPE INSIDE THE ANCHOR TUBE A MINIMUM OF 12". THE ANCHOR TUBE SHALL BE A MINIMUM 27" DEEP WITH 3" MIN., 4" MAX. EXPOSED ABOVE FINISH GRADE.



04 N.T.S.
ACCESSIBLE STRIPING DETAIL



05 N.T.S.
ACCESSIBLE SIGNAGE DETAIL

olsson
OLSSON - CIVIL ENGINEERING
MO CERTIFICATE OF AUTHORITY #.001592
1301 BURLINGTON, SUITE 100
NORTH KANSAS CITY, MO 64116
TEL 816.361.1177
www.olsson.com

STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

DETAIL SHEET
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

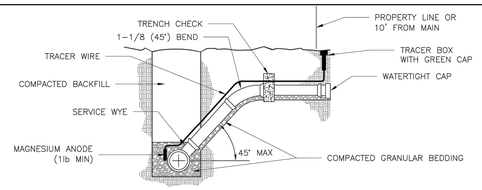
LEE'S SUMMIT, MO

2020

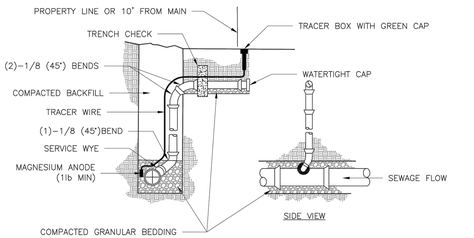
drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C902

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_DTL01_ B190012.dwg ~ Layout: DETAIL SHEET (1) ~ Last Saved By: mdlebolt ~ Plot Date: 2019.10.01 03:03 PM



STANDARD INSTALLATION
NOT TO SCALE



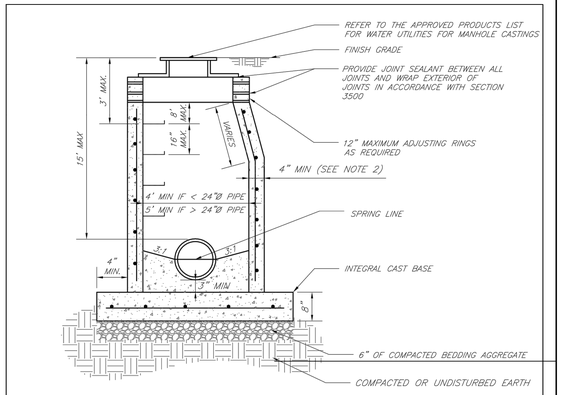
VERTICAL RISER
NOT TO SCALE

NOTES:
1. ALL SEWER STUBS SHALL BE CONSTRUCTED TO PROPERTY LINE OR 10' MINIMUM FROM THE MAIN. WHERE SIDEWALKS ARE PRESENT, CONTRACTOR SHALL EXTEND SERVICE LINE UNDER EXISTING SIDEWALK TO TWO FEET BEYOND.
2. ALL NEW CONSTRUCTION OFF SEWER STUBS SHALL BE TEMPORARILY MARKED WITH A MARKING STAKE, 36" ABOVE GROUND AND PAINTED GREEN.
3. IMPERVIOUS TRENCH CHECKS SHALL BE PLACED ON BUILDING SEWER STUBS (AT LEAST 5' AWAY FROM THE SANITARY SEWER MAIN).
4. TRENCH CHECKS ON THE BUILDING SEWER STUBS SHALL EXTEND 6" BELOW THE BOTTOM OF THE PIPE. LENGTH SHALL BE A MINIMUM OF 12", THE HEIGHT OF THE TRENCH CHECK SHALL EXTEND 12" ABOVE THE TOP OF THE PIPE. THE WIDTH OF THE TRENCH CHECK SHALL BE THE WIDTH OF THE TRENCH.
5. SEE SPECIFICATION SECTION 2100 FOR SEWER MAIN BEDDING AND BACKFILL.
6. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER.
7. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP. WIRE SHALL BE TAPED OR TIED TO THE PIPE AT 5' INTERVALS.
8. TRACER WIRE BOX SHALL BE INSTALLED WITHIN 1.0' OF PROPERTY LINE.
9. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

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

BUILDING SEWER STUB AND RISER

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

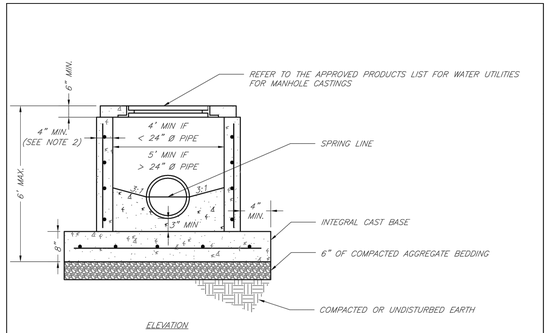


NOTES:
1. PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C478 EXCEPT AS MODIFIED BY THE SPECIFICATIONS.
2. A WALL THICKNESS NOT LESS THAN ONE-TWELFTH (t_{wall}) OF THE INSIDE DIAMETER OR 4", WHICHEVER IS GREATER, SHALL BE USED WHEN THE MANHOLE DEPTH IS LESS THEN 15'.
3. WATERPROOFING SHALL BE REQUIRED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

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

STANDARD PRECAST MANHOLE – SANITARY SEWER

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



ELEVATION

NOTES:
1. PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C478 EXCEPT AS MODIFIED BY THE SPECIFICATIONS.
2. A WALL THICKNESS NOT LESS THAN ONE-TWELFTH (1/12) OF THE INSIDE DIAMETER OR 4", WHICHEVER IS GREATER SHALL BE USED.
3. WATERPROOFING SHALL BE REQUIRED ON THE OUTSIDE OF MANHOLES. THE WATERPROOFING SHALL CONSIST OF A TOTAL DRY FILM THICKNESS OF NOT LESS THEN 14 MILS OF BITUMINOUS COATING.
4. THE FILL CONCRETE FLOW CHANNEL FOR SIDE BRANCHES SHALL BE PLACED TO PROVIDE A SMOOTH TRANSITION INTO THE FLOW LINE.
5. REFER TO THE APPROVED PRODUCTS LIST FOR WATER UTILITIES FOR MANHOLE GASKET MODELS.
6. PROVIDE STEPS AS SHOWN ON THE APPROVED PRODUCTS LIST FOR MANHOLE DEPTHS GREATER THAN 4'.

LEE'S SUMMIT
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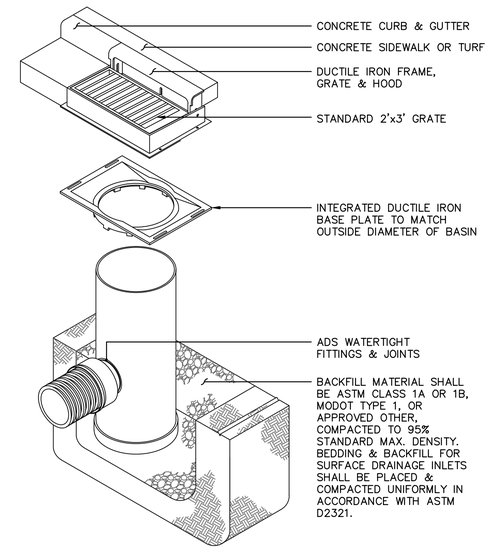
SHALLOW PRECAST MANHOLE – SANITARY SEWER

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



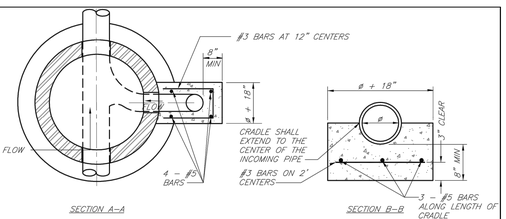
DRAIN BASIN NOTES:

1. BOTH DRAIN BASINS AND CURB INLETS USE STANDARD BASIN ASSEMBLY.
2. UNLESS OTHERWISE COORDINATED WITH ENGINEER, NO SUBSTITUTION FOR ADS NYLOPLAST STRUCTURES, INCLUDING ALL PARTS. ALL CONSTRUCTION SHALL BE PER MANUFACTURER'S STANDARDS AND RECOMMENDATIONS.

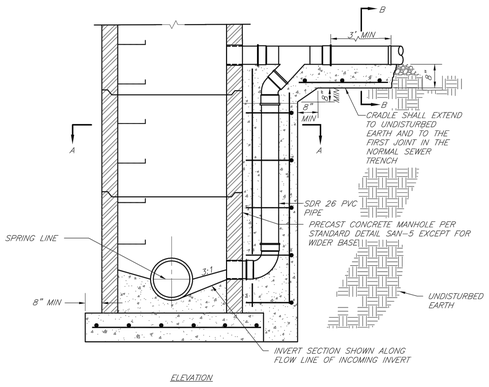
DOME COVER

SOLID COVER

02 N.T.S.
ADS NYLOPLAST STRUCTURES



SECTION A-A SECTION B-B



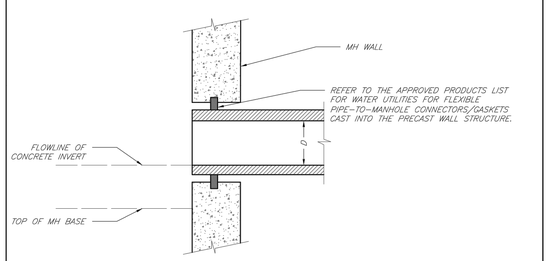
ELEVATION

NOTE:
REFER TO DRAWING SAN-2 FOR MANHOLE DETAILS NOT SHOWN.

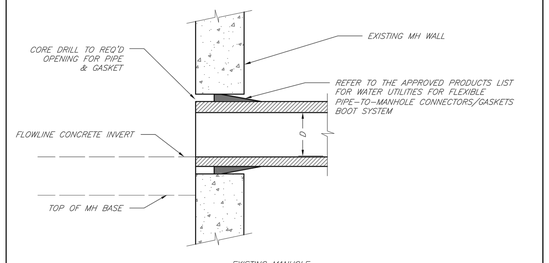
LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

DROP SANITARY SEWER MANHOLE

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



NEW MANHOLE



EXISTING MANHOLE

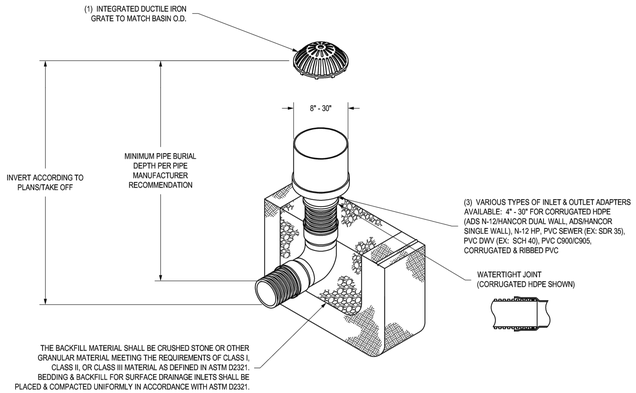
LEE'S SUMMIT
MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

MANHOLE WALL CONNECTIONS

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

1

NYLOPLAST INLINE DRAIN WITH DOME GRATE



1 - 8" - 30" DOME GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER (4" - 24").
3 - 8" - 30" DOME GRATES HAVE NO LOAD RATING

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DRAWN BY	EBC
DATE	03-25-10
REVISED BY	NMH
DATE	03-15-16
DWG SIZE	A
MATERIAL	
PROJECT NO./NAME	
SCALE	1:40
SHEET	1 OF 1

Nyloplast
3130 VERONA AVE
BUFORD, GA 30518
PHN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com

TITLE
INLINE DRAIN WITH DOME GRATE
QUICK SPEC INSTALLATION DETAIL

DWG NO. 7003-110-657 REV D

olsson
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OLSSON - CIVIL ENGINEERING
MO CERTIFICATE OF AUTHORITY #:001592
KS CERTIFICATE OF AUTHORITY #:E2010
NORTH KANSAS CITY, MO 64116
TEL 816.361.1177

STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

DETAIL SHEET
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

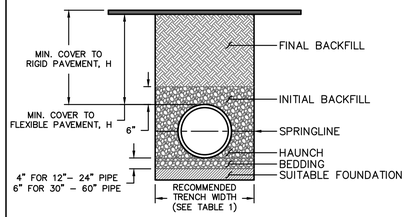
LEE'S SUMMIT, MO

2020

drawn by: MJ.D.
checked by: N.D.H.
designed by: MJ.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C903

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_DTL01_ B190012.dwg ~ Layout: DETAIL SHEET (2) ~ Last Saved By: mdlebolt ~ Plot Date: 2019.10.01 03:03 PM



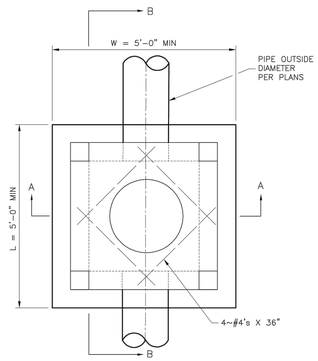
PIPE DIA.	MIN. TRENCH WIDTH*
<4"	O.D.+15"
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

*TRENCH CENTERED ON PIPE

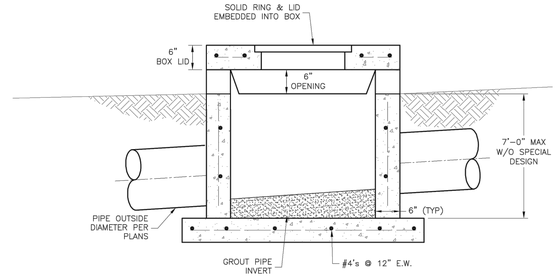
NOTES:

1. ALL HDPE AND PVC PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST EDITION.
2. IF TRENCH IS EXCAVATED IN ROCK OR HIGH–BEARING STRENGTH SOILS, TRENCH WIDTHS FOR 24" – 60" DIA. MAY BE REDUCED, FROM VALUES IN TABLE 1, TO THE PIPE OD PLUS 12".
3. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
4. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE GEOTECHNICAL ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE GEOTECHNICAL ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
5. BEDDING: SUITABLE MATERIAL SHALL BE ASTM CLASS 1A OR 1B, MODOT TYPE 1, OR APPROVED OTHER, COMPACTED TO 95% STANDARD MAX. DENSITY.. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR PIPE 24" DIAMETER AND LESS; 6" FOR 30"–60" DIAMETER PIPE.
6. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE ASTM CLASS 1A OR 1B, MODOT TYPE 1, OR APPROVED OTHER, COMPACTED TO 95% STANDARD MAX. DENSITY IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION. INSTALL AND COMPACT IN 6" MAXIMUM LIFTS.
7. FINAL BACKFILL: EXCEPT WHERE SUPERCEDED BY CITY REQUIREMENTS FOR RIGHT–OF–WAY CONSTRUCTION, GEOTECHNICAL REQUIREMENTS FOR UTILITY TRENCH BACKFILL, AND OTHER CONSIDERATIONS, SUITABLE MATERIAL MAY BE SITE SOILS COMPACTED TO 95% STANDARD MAX. DENSITY TO WITHIN 12" OF THE PAVEMENT SUBGRADE, AND TO SUBGRADE ELEVATION FOR NON–PAVED AREAS.
8. MINIMUM COVER: MINIMUM COVER, H, IN NON–TRAFFIC RATED APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED PER CITY AND/OR UTILITY STANDARDS AND/OR TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" FOR UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR UP TO 60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE OR TO TOP OF RIGID PAVEMENT.

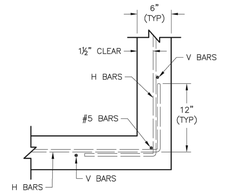
N.T.S.
01 PIPE TRENCHING & BEDDING



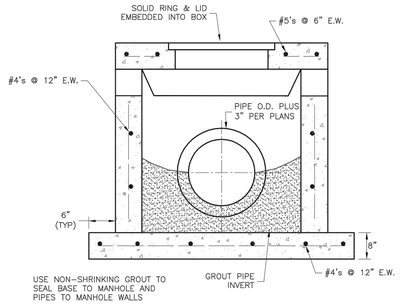
PLAN VIEW



SECTION B–B



WALL CORNER DETAIL



SECTION A–A

GENERAL NOTES:

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

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

STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Grant Name:
FIELD INLET DETAIL
Project:

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

STM-2

1

STRUCTURAL DESIGN FOR FIELD INLETS >7 FT DEEP							
WIDTH X DEPTH (FT, MAX)	HEIGHT (FT, MAX)	WALL THICKNESS (IN.)	BASE SLAB THICKNESS (IN.)	VERTICAL WALL REINFORCEMENT (INSIDE FACE)	HORIZONTAL WALL REINFORCEMENT (INSIDE FACE)	VERTICAL WALL REINFORCEMENT (OUTSIDE FACE)	BASE SLAB REINFORCEMENT (BOTH WAYS)
4 X 4	12	6	8	#5 @ 6" O.C.	#5 @ 10" O.C.	N/A	#4 @ 6"
4 X 4	18	8	8	#5 @ 6" O.C.	#5 @ 10" O.C.	N/A	#4 @ 6"

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OLSSON - CIVIL ENGINEERING
MO CERTIFICATE OF AUTHORITY # 001592
KS CERTIFICATE OF AUTHORITY # E-947
NORTH KANSAS CITY, MO 64116
TEL 816.361.1177
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STATE OF MISSOURI
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NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

DETAIL SHEET
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

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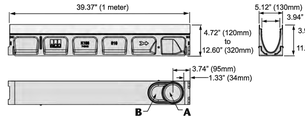
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C904

ACO DRAIN

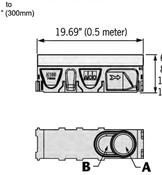
KlassikDrain - K100 Galvanized steel edge rail channel system

One meter channel

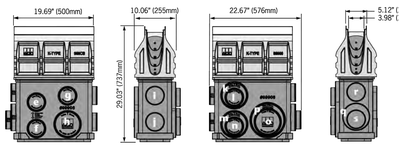


Knock-outs included on every 5th channel

Half meter channel



Type K901G In-line catch basin



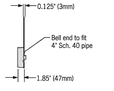
Total capacity = 10.49 gallons

Outlet flow rates

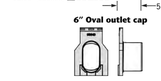
Outlet	Product	Outlet size (Sch. 40)	Invert Depth	GPM	CFS
a	Bottom outlet - K00	4" round	3.94"	108	0.24
a	Bottom outlet - K40	4" round	11.81"	187	0.42
b	Bottom outlet - K00	6" oval	3.94"	177	0.39
b	Bottom outlet - K40	6" oval	11.81"	306	0.68
c	End outlet - K20	4" round	7.87"	132	0.29
c	End outlet - K40	4" round	11.81"	171	0.38
d	K1-308-6 6" outlet cap	6" oval	9.84"	233	0.52
e	K1-408-6 6" outlet cap	6" oval	11.81"	264	0.59
f	Type K1-901G	4" round	19.30"	226	0.50
g	Type K1-901G	4" round	25.67"	265	0.59
h	Type K1-901G	4" round	25.30"	263	0.59
i	Type K1-901G	4" round	18.56"	222	0.49
j	Type K1-901G	6" round	25.85"	586	1.30
k	Type K1-901G	4" round	26.43"	269	0.60
l	Type K1-901G	4" round	19.36"	227	0.51
m	Type K1-901G	6" round	27.30"	604	1.35
n	Type K1-901G	6" round	19.99"	505	1.12
o	Type K1-901G	6" round	26.43"	593	1.32
p	Type K1-901G	8" round	27.30"	1051	2.34
q	Type K1-901G	4" round	27.17"	273	0.61
r	Type K1-901G	4" round	20.68"	235	0.52
s	Type K1-901G	4" round	18.99"	224	0.50
t	Type K1-901G	6" round	27.17"	602	1.34

Note: These are the pipe flow rates at the specified outlet, **NOT** channel flow rates. Catch basin flow rates are without trash bucket - using trash bucket reduces flow.

End Cap



6" Oval inlet cap



6" Oval outlet cap

April 2018

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ACO Specification Information

ACO DRAIN

KlassikDrain - K100 Galvanized steel edge rail channel system

Description	Part No.	Invert Inches²	Invert mm²	Weight Lbs.
K1-00 Neutral channel - 39.37" (1m)[2]	**74041**	**3.94**	**100**	**28.1**
K1-1 Sloped channel - 39.37" (1m)	74001	4.13	105	28.1
K1-2 Sloped channel - 39.37" (1m)	74002	4.33	110	28.9
K1-3 Sloped channel - 39.37" (1m)	74003	4.53	115	29.7
K1-4 Sloped channel - 39.37" (1m)	74004	4.72	120	30.5
K1-5 Sloped channel - 39.37" (1m)[2]	74005	4.92	125	31.3
K1-6 Sloped channel - 39.37" (1m)	74006	5.12	130	32.1
K1-7 Sloped channel - 39.37" (1m)	74007	5.31	135	32.9
K1-8 Sloped channel - 39.37" (1m)	74008	5.51	140	33.7
K1-9 Sloped channel - 39.37" (1m)	74009	5.71	145	34.5
K1-10 Sloped channel - 39.37" (1m)[2]	74010	5.91	150	35.3
K1-010 Neutral channel - 39.37" (1m)[2]	**74043**	**5.91**	**150**	**35.3**
K1-0103 Neutral channel - 19.69" (0.5m)[2]	**74044**	**5.91**	**150**	**17.0**
K1-11 Sloped channel - 39.37" (1m)	74011	6.10	155	36.1
K1-12 Sloped channel - 39.37" (1m)	74012	6.30	160	36.9
K1-13 Sloped channel - 39.37" (1m)	74013	6.50	165	37.7
K1-14 Sloped channel - 39.37" (1m)	74014	6.69	170	38.5
K1-15 Sloped channel - 39.37" (1m)[2]	74015	6.89	175	39.3
K1-16 Sloped channel - 39.37" (1m)	74016	7.09	180	40.1
K1-17 Sloped channel - 39.37" (1m)	74017	7.28	185	40.9
K1-18 Sloped channel - 39.37" (1m)	74018	7.48	190	41.7
K1-19 Sloped channel - 39.37" (1m)	74019	7.68	195	42.5
K1-20 Sloped channel - 39.37" (1m)[2]	74020	7.87	200	43.4
K1-020 Neutral channel - 39.37" (1m)[2]	**74045**	**7.87**	**200**	**43.4**
K1-0203 Neutral channel - 19.69" (0.5m)[2]	**74046**	**7.87**	**200**	**20.5**
K1-21 Sloped channel - 39.37" (1m)	74021	8.07	205	44.2
K1-22 Sloped channel - 39.37" (1m)	74022	8.27	210	45.0
K1-23 Sloped channel - 39.37" (1m)	74023	8.46	215	45.8
K1-24 Sloped channel - 39.37" (1m)	74024	8.66	220	46.6
K1-25 Sloped channel - 39.37" (1m)[2]	74025	8.86	225	47.4
K1-26 Sloped channel - 39.37" (1m)	74026	9.06	230	48.2
K1-27 Sloped channel - 39.37" (1m)	74027	9.25	235	49.0

Description	Part No.	Invert Inches²	Invert mm²	Weight Lbs.
K1-28 Sloped channel - 39.37" (1m)	74028	9.45	240	49.8
K1-29 Sloped channel - 39.37" (1m)	74029	9.65	245	50.6
K1-30 Sloped channel - 39.37" (1m)[2]	74030	9.84	250	51.4
K1-030 Neutral channel - 39.37" (1m)[2]	**74047**	**9.84**	**250**	**51.4**
K1-0303 Neutral channel - 19.69" (0.5m)[2]	**74048**	**9.84**	**250**	**24.0**
K1-31 Sloped channel - 39.37" (1m)	74031	10.04	255	52.2
K1-32 Sloped channel - 39.37" (1m)	74032	10.24	260	53.0
K1-33 Sloped channel - 39.37" (1m)	74033	10.43	265	53.8
K1-34 Sloped channel - 39.37" (1m)	74034	10.63	270	54.6
K1-35 Sloped channel - 39.37" (1m)[2]	74035	10.83	275	55.4
K1-36 Sloped channel - 39.37" (1m)	74036	11.02	280	56.2
K1-37 Sloped channel - 39.37" (1m)	74037	11.22	285	57.0
K1-38 Sloped channel - 39.37" (1m)	74038	11.42	290	57.9
K1-39 Sloped channel - 39.37" (1m)	74039	11.61	295	58.7
K1-40 Sloped channel - 39.37" (1m)[2]	74040	11.81	300	59.5
K1-040 Neutral channel - 39.37" (1m)[2]	**74049**	**11.81**	**300**	**59.5**
K1-0403 Neutral channel - 19.69" (0.5m)[2]	**74050**	**11.81**	**300**	**27.5**
K1-901G Inline catch basin - 19.69' (0.5m)[2]	94608	28.81	701.9	52.6
K1-621G catch basin - 19.69' (0.5m)[2]	94617	28.84	732.5	55.8
K1-631G catch basin - 19.69' (0.5m)[2]	94631	40.84	1037.4	65.8
K1-Series 600 Optional plastic riser	99902	-	-	10.0
Foul air trap - fits both 900 & 600 series basins	90854	-	-	1.2
K1-3046 6" Inlet Cap	96839	9.84	250	5.2
K1-3086 6" Outlet Cap	96840	9.84	250	5.0
K1-4046 6" Inlet Cap	96834	11.81	300	6.0
K1-4086 6" Outlet Cap	96836	11.81	300	5.8
Universal end cap	96822	11.81	300	0.4
Debris strainer for 4' bottom knockout	93488	-	-	0.2
4" Oval to 6" round outlet adapter	95140	-	-	1.1
K1-Installation device	97477	-	-	2.8
Grate removal tool	01318	-	-	0.3
K1-QuickLok locking bar	02899	-	-	0.1

Notes:
1. This channel offers a bottom knockout feature; 4" round/6" oval.
2. Inverts shown are for the male end; for female invert depth subtract 5mm (–0.2") from the male invert (except for neutral channels, where it will be same as male invert). To calculate the overall channel depth add 20mm (+0.8") to invert depth.
3. This catch basin kit includes a polymer concrete top, removable Quicklok locking bar, trash bucket and plastic base. Select an appropriate grate.
4. This catch basin kit includes a polymer concrete top, removable Quicklok locking bar, deep trash bucket, plastic riser and plastic base. Select an appropriate grate.

ACO Specification Information

Specifications

General
The surface drainage system shall be ACO Drain K100 complete with gratings secured with 'QuickLok' locking as manufactured by ACO, Inc. or approved equal.

Materials
The trench system bodies shall be manufactured from polyester polymer concrete with the minimum properties as follows:

Compressive strength:	14,000 psi
Flexural strength:	4,000 psi
Water absorption	0.07%
Frost proof	YES
Salt proof	YES
Dilute acid and alkali resistant	YES

The nominal clear opening shall be 4" (100mm) with overall width of 5.12" (130mm). Pre-cast units shall be manufactured with either an invert slope of 0.5% or with neutral invert and have a wall thickness of at least 0.50" (13mm). Each unit will feature a partial radius in the trench bottom and a male to female interconnecting end profile. Units shall have horizontal cast in anchoring keys on the outside wall to ensure maximum mechanical bond to the surrounding bedding material and pavement surface. The galvanized steel edge rail will be integrally cast in by the manufacturer to ensure maximum homogeneity between polymer concrete body and edge rail. Each edge rail shall be at least 3/32" (2.5mm) thick.

Grates
Grates shall be specified. See separate ACO Spec Info grate sheets for details. After removal of grates and 'QuickLok' bar there shall be uninterrupted access to the trench to aid maintenance.

Installation
The trench drain system shall be installed in accordance with the manufacturer's installation instructions and recommendations.

ACO, Inc.
Northeast Sales Office
9470 Pinecrest Drive
Mentor, OH 44060
Tel: (440) 639-7230
Toll free: (800) 543-4764
Fax: (440) 639-7235

West Sales Office
825 W. Beechcraft St.
Casa Grande, AZ 85122
Tel: (520) 421-9988
Toll Free: (888) 490-9552
Fax: (520) 421-9899

Southeast Sales Office
4211 Pleasant Road
Fort Mill, SC 29708
Toll free: (800) 543-4764
Fax: (803) 802-1063

Electronic Contact:
info@ACODrain.us
www.ACODrain.us

SPEC INFO

© April 2018 ACO, Inc. This information is believed to be accurate but it is not guaranteed to be so. We cannot assume liability for results that buyer obtains with our product since conditions of use are beyond the control of the company. It is the customer's responsibility to evaluate suitability and safety of product for his own use. ACO, Inc. reserves the right to change the product and specifications without notice. v1.0

April 2018

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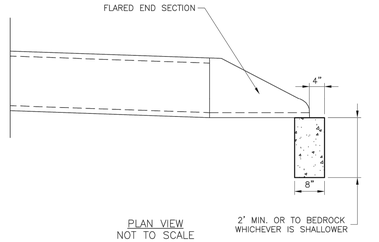

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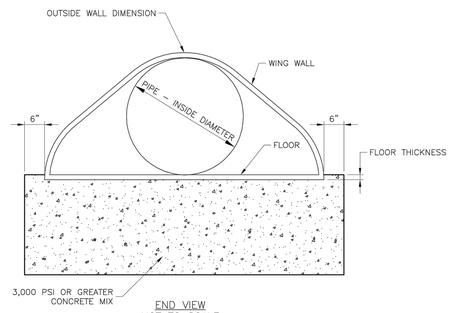

END VIEW
NOT TO SCALE

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

FLARED END SECTION SUPPORT DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

STM-5

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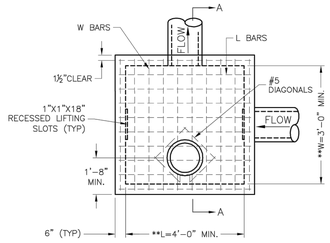

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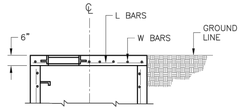
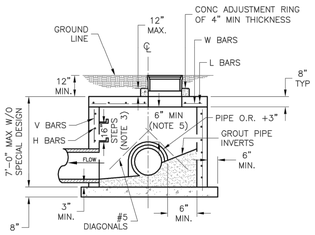


SLAB TOP ALTERNATE FOR
JUNCTION BOX (SHALLOW)

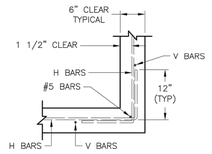
** INCREASE IN MULTIPLES OF 6"
(7'-0") MAX WITHOUT SPECIAL DESIGN.
(SEE PROJECT PLANS FOR DETAILS)

REINFORCING

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



SECTION A–A



WALL CORNER DETAIL

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

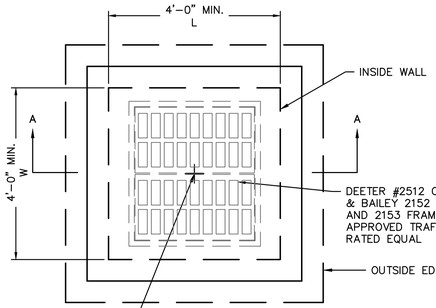
LEE'S SUMMIT MISSOURI
PUBLIC WORKS ENGINEERING DIVISION | 220 SE GREEN STREET | LEE'S SUMMIT, MO 64063

Issues:
STANDARD DETAILS
CITY OF LEE'S SUMMIT, MO
LEE'S SUMMIT, JACKSON COUNTY, MO
Sheet Name:
JUNCTION BOX DETAIL

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

STM-3

STRUCTURAL DESIGN FOR JUNCTION BOXES >7 FT DEEP							
WIDTH X DEPTH (FT, MAX)	HEIGHT (FT, MAX)	WALL THICKNESS (IN.)	BASE SLAB THICKNESS (IN.)	VERTICAL WALL REINFORCEMENT (INSIDE FACE)	HORIZONTAL WALL REINFORCEMENT (INSIDE FACE)	VERTICAL WALL REINFORCEMENT (OUTSIDE FACE)	BASE SLAB REINFORCEMENT (BOTH WAYS)
7 X 5	12	6	8	#5 @ 6" O.C.	#5 @ 10" O.C.	N/A	#4 @ 6"
7 X 5	18	8	8	#5 @ 6" O.C.	#5 @ 10" O.C.	N/A	#4 @ 6"



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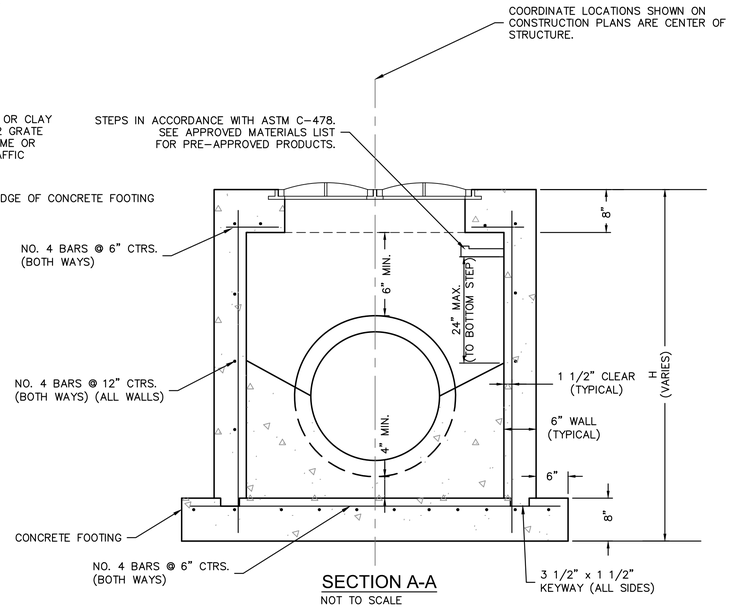
NOT TO SCALE



SECTION A-A
NOT TO SCALE

01 N.T.S.
GRATE INLET DETAIL

NOTES

GENERAL

1. ALL STORM SEWER STRUCTURES SHALL BE PRECAST. PRECAST SHOP DRAWINGS SHALL BE APPROVED BY THE DESIGN ENGINEER.
2. PRE–CAST SHOP DRAWINGS ARE TO BE APPROVED BY THE CITY ENGINEER FOR PUBLICLY FINANCED OR ADMINISTERED PROJECTS. PRE–CAST SHOP DRAWINGS FOR PRIVATELY FINANCED PROJECTS ARE TO BE SUBMITTED TO THE ENGINEERING SERVICES DIVISION OF THE PLANNING AND DEVELOPMENT SERVICES DEPARTMENT.
3. DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY ENGINEER PRIOR TO CONSTRUCTION.
4. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION. THE CONCRETE THICKNESS AND REINFORCEMENT SHOWN IS FOR BOXES WITH ("L"+"H") AND ("W"+"H") LESS THEN OR EQUAL TO 20. FOR BOXES WITH EITHER OF THESE CALCULATIONS GREATER THAN 20, A SPECIAL DESIGN IS REQUIRED. CONCRETE
5. CONCRETE USED IN THIS WORK SHALL BE KCMMB4K, AS APPROVED BY THE KANSAS CITY METROPOLITAN MATERIALS BOARD, AND SHALL MEET THE REQUIREMENTS OF THE CITY MUNICIPAL CODE.
6. CONCRETE CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF STANDARD SPECIFICATIONS FOR STATE ROAD AND BRIDGE CONSTRUCTION, MISSOURI DEPARTMENT OF TRANSPORTATION, LATEST EDITION, EXCEPT AS MODIFIED IN THE CITY MUNICIPAL CODE.
7. INLET FLOORS SHALL BE SHAPED WITH NON–REINFORCED CONCRETE INVERTS TO PROVIDE SMOOTH FLOW.
8. BEVEL ALL EXPOSED EDGES WITH 3/4" TRIANGULAR MOLDING. REINFORCING STEEL
9. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 60 AS PER ASTM A615, AND SHALL BE BENT COLD.
10. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF +/– 1/8" SHALL BE PERMITTED.
11. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
12. ALL REINFORCING STEEL SHALL BE SUPPORTED ON FABRICATED STEEL BAR SUPPORTS @ 3'–0" MAXIMUM SPACING.
13. ALL DOWELS SHALL BE ACCURATELY PLACED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF BOTTOM SLAB CONCRETE. STICKING OF DOWELS INTO FRESH OR PARTIALLY HARDENED CONCRETE WILL NOT BE ACCEPTABLE. CONSTRUCTION
14. THE BOTTOM SLAB SHALL BE AT LEAST 24 HOURS OLD BEFORE PLACING SIDEWALL CONCRETE. ALL SIDEWALL FORMS SHALL REMAIN IN PLACE A MINIMUM OF 24 HOURS AFTER SIDEWALLS ARE POURED BEFORE REMOVAL, AND AFTER REMOVAL SHALL BE IMMEDIATELY TREATED WITH MEMBRANE CURING COMPOUND.
15. PIPE CONNECTIONS TO PRE–CAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2' OF THE STRUCTURE.
16. MATERIAL SELECTION AND COMPACTION REQUIREMENTS FOR BACKFILL AROUND STRUCTURES SHALL BE AS SPECIFIED IN THE MANUAL OF INFRASTRUCTURE STANDARDS, AS PROMULGATED BY THE CITY ENGINEER.

STRUCTURAL DESIGN FOR GRATE INLETS >7 FT DEEP							
WIDTH X DEPTH (FT, MAX)	HEIGHT (FT, MAX)	WALL THICKNESS (IN.)	BASE SLAB THICKNESS (IN.)	VERTICAL WALL REINFORCEMENT (INSIDE FACE)	HORIZONTAL WALL REINFORCEMENT (INSIDE FACE)	VERTICAL WALL REINFORCEMENT (OUTSIDE FACE)	BASE SLAB REINFORCEMENT (BOTH WAYS)
4 X 4	12	6	8	#5 @ 6" O.C.	#5 @ 10" O.C.	N/A	#4 @ 6"

olsson
OLSSON - CIVIL ENGINEERING
MO CERTIFICATE OF AUTHORITY #:001592
KS CERTIFICATE OF AUTHORITY #:E-1253
NORTH KANSAS CITY, MO 64116
TEL 816.361.1177
www.olsson.com

STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

DETAIL SHEET
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C905

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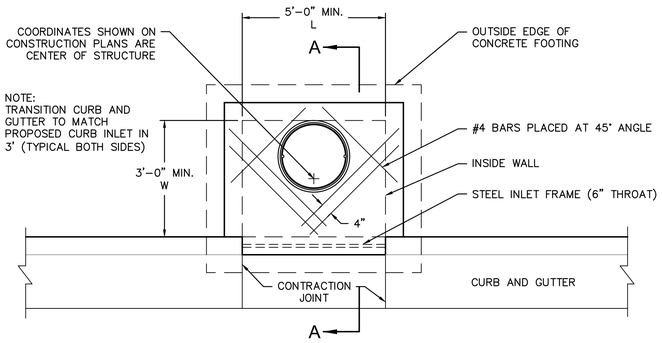

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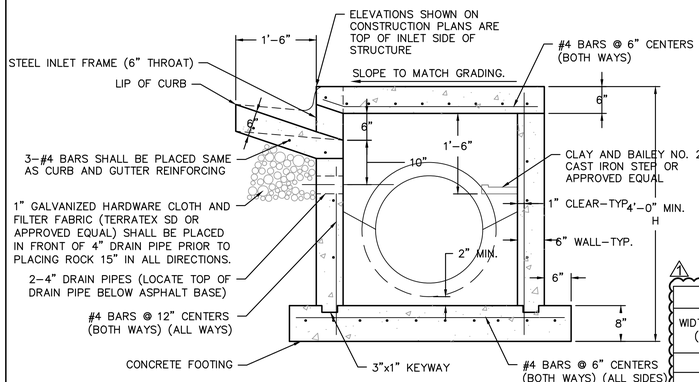


SECTION A-A

NON-SETBACK CURB INLET

N.T.S.
CURB INLETS

04

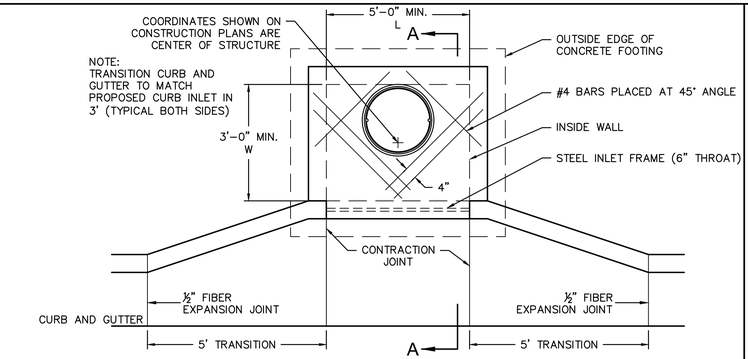
NOTES:

1. ALL STORM SEWER STRUCTURES SHALL BE PRECAST. PRECAST SHOP DRAWINGS SHALL BE APPROVED BY THE DESIGN ENGINEER.
2. PRECAST SHOP DRAWINGS ARE TO BE APPROVED BY THE CITY ENGINEER FOR PUBLICLY FINANCED OR ADMINISTERED PROJECTS. PRECAST SHOP DRAWINGS FOR PRIVATELY FINANCED PROJECTS ARE TO BE SUBMITTED TO THE ENGINEERING SERVICES DIVISION OF THE PLANNING AND DEVELOPMENT SERVICES DEPARTMENT.
3. DO NOT SCALE THESE DRAWINGS FOR DIMENSIONS OR CLEARANCES. ANY QUESTIONS REGARDING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CITY ENGINEER PRIOR TO CONSTRUCTION.
4. RING & COVER TO BE NEENAH R-1537, CLAY & BAILEY #2020, DEETER #2016, OR APPROVED EQUAL.
5. ON-GRADE INLETS SHALL CONFORM TO THE STREET GRADE AND SUMP INLETS SHALL BE LEVEL.
6. THE FIRST DIMENSION LISTED IN THE CONSTRUCTION NOTES IS THE "L" DIMENSION. THE SECOND DIMENSION IS THE "W" DIMENSION. THE CONCRETE THICKNESS AND REINFORCEMENT SHOWN IS FOR BOXES WITH ("L"+"H") AND ("W"+"H") LESS THEN OR EQUAL TO 20. FOR BOXES WITH EITHER OF THESE CALCULATIONS GREATER THAN 20, A SPECIAL DESIGN IS REQUIRED.
7. CONCRETE USED IN THIS WORK SHALL BE APPROVED BY THE CITY, AND SHALL MEET THE REQUIREMENTS OF THE CITY MUNICIPAL CODE.
8. CONCRETE CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF STANDARD SPECIFICATIONS FOR STATE ROAD AND BRIDGE CONSTRUCTION, DEPARTMENT OF TRANSPORTATION, LATEST EDITION, EXCEPT AS MODIFIED IN THE CITY MUNICIPAL CODE.
9. INLET FLOORS SHALL BE SHAPED WITH NON-REINFORCED CONCRETE INVERTS TO PROVIDE SMOOTH FLOW.
10. BEVEL ALL EXPOSED EDGES WITH 3/4" TRIANGULAR MOLDING.
11. REINFORCING STEEL SHALL BE NEW BILLET, MINIMUM GRADE 60 AS PER ASTM A615M, AND SHALL BE BENT COLD.
12. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BARS. 2" CLEARANCE SHALL BE PROVIDED THROUGHOUT UNLESS NOTED OTHERWISE. TOLERANCE OF +/- 1/8"SHALL BE PERMITTED.
13. ALL LAP SPLICES NOT SHOWN SHALL BE A MINIMUM OF 40 BAR DIAMETERS IN LENGTH.
14. ALL REINFORCING STEEL SHALL BE SUPPORTED ON FABRICATED STEEL BAR SUPPORTS @ 3'-0" MAXIMUM SPACING.
15. ALL DOWELS SHALL BE ACCURATELY PLACED AND SECURELY TIED IN PLACE PRIOR TO PLACEMENT OF BOTTOM SLAB CONCRETE. STICKING OF DOWELS INTO FRESH OR PARTIALLY HARDENED CONCRETE WILL NOT BE ACCEPTABLE.
16. PIPE CONNECTIONS TO PRE-CAST STRUCTURES SHALL HAVE A MINIMUM OF 6" OF CONCRETE AROUND THE ENTIRE PIPE WITHIN 2' OF THE STRUCTURE.
17. MATERIAL SELECTION AND COMPACTION REQUIREMENTS FOR BACKFILL AROUND STRUCTURES SHALL BE AS SPECIFIED IN THE GEOTECHNICAL REPORT.

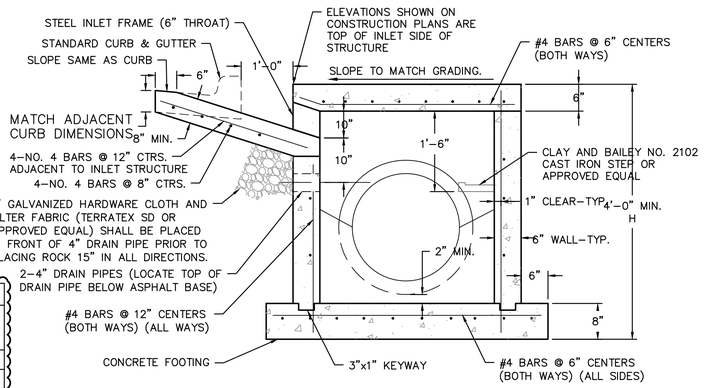
1

STRUCTURAL DESIGN FOR CURB INLETS >7 FT DEEP

WIDTH X DEPTH (FT, MAX)	HEIGHT (FT, MAX)	WALL THICKNESS (IN.)	BASE SLAB THICKNESS (IN.)	VERTICAL WALL REINFORCEMENT (INSIDE FACE)	HORIZONTAL WALL REINFORCEMENT (INSIDE FACE)	VERTICAL WALL REINFORCEMENT (OUTSIDE FACE)	BASE SLAB REINFORCEMENT (BOTH WAYS)
8 X 4	12	6	8	#5 @ 6" O.C.	#5 @ 10" O.C.	N/A	#4 @ 6"
8 X 4	18	8	8	#5 @ 6" O.C.	#5 @ 10" O.C.	N/A	#4 @ 6"
8 X 4	22	10	10	#5 @ 12" O.C.	#5 @ 12" O.C.	#5 @ 12" O.C.	#5 @ 6"

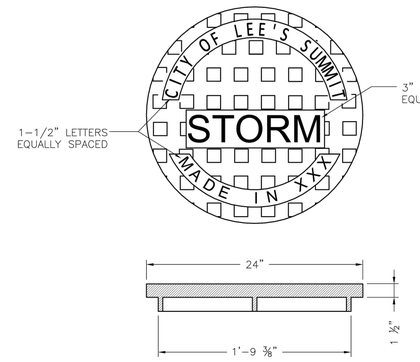


PLAN



SECTION A-A

SETBACK CURB INLET



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

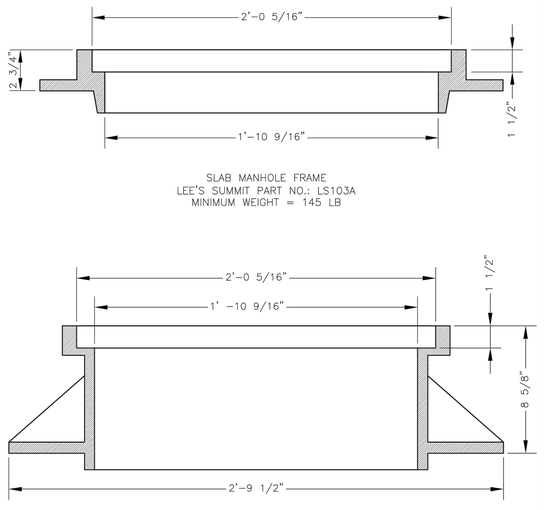
*COVER AND FRAME MODEL INFORMATION REFER TO THE STORMWATER APPROVED PRODUCT LIST.

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

STORM MANHOLE COVER DETAIL

Date: 04/17
Drawn By: MJF
Checked By: DL

STM-6



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

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

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

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

STORM MANHOLE FRAME DETAIL

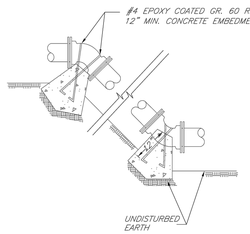
Date: 04/17
Drawn By: MJF
Checked By: DL

STM-7

REQUIRED CONCRETE VOLUME (CUBIC FEET – CF)

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

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



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

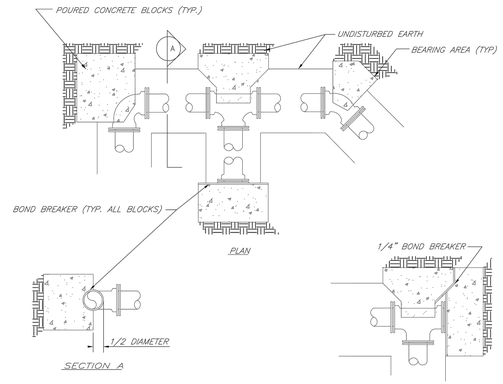
VERTICAL THRUST BLOCKS

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

REQUIRED CONCRETE BEARING AREA (SQUARE FEET – SF)

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

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



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

HORIZONTAL THRUST BLOCKS

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

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1301 BURLINGTON, SUITE 100
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www.olsson.com

STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

DETAIL SHEET
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: MJD
checked by: NDH
designed by: MJD
QA/QC by: NDH
project no.: 019-0012-B
date: 2020.08.27

SHEET
C906

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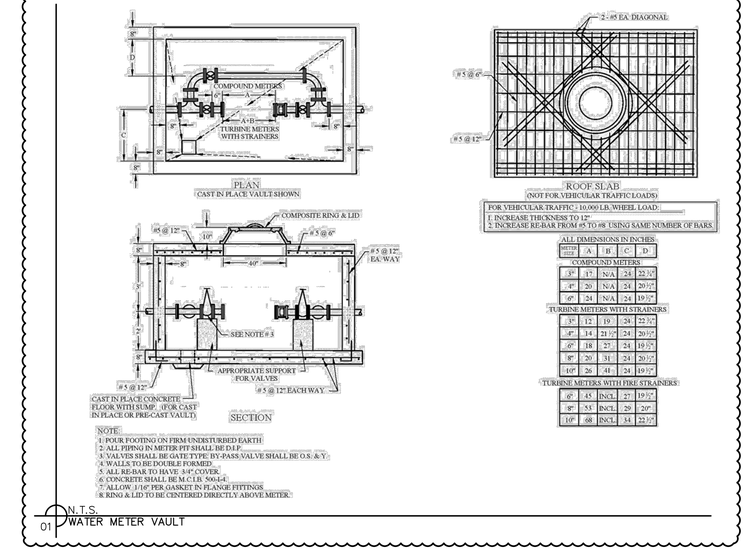

FOR VEHICULAR TRAFFIC : 10,000 LB. WHEEL LOAD :
1. INCREASE THICKNESS TO 12".
2. INCREASE RE-BAR FROM #5 TO #8 USING SAME NUMBER OF BARS.

ALL DIMENSIONS IN INCHES

METER SIZE	A	B	C	D
COMPOUND METERS				
3"	17	N/A	24	22 1/2"
4"	20	N/A	24	20 1/2"
6"	24	N/A	24	19 1/2"
TURBINE METERS WITH STRAINERS				
3"	12	19	24	22 1/2"
4"	14	21 1/2"	24	20 1/2"
6"	18	27	24	19 1/2"
8"	20	31	24	20 1/2"
10"	26	41	24	19 1/2"
TURBINE METERS WITH FIRE STRAINERS				
6"	45	INCL	27	19 1/2"
8"	53	INCL	29	20"
10"	68	INCL	34	22 1/2"

NOTE:
1. POUR FOOTING ON FIRM UNDISTURBED EARTH.
2. ALL PIPING IN METER PIT SHALL BE D.I.P.
3. VALVES SHALL BE GATE TYPE. BY-PASS VALVE SHALL BE O.S. & Y.
4. WALLS TO BE DOUBLE FORMED.
5. ALL RE-BAR TO HAVE 3/4" COVER.
6. CONCRETE SHALL BE M.C.I.S. 500-4.
7. ALLOW 1/16" PER GASKET IN FLANGE FITTINGS.
8. RING & LID TO BE CENTERED DIRECTLY ABOVE METER.

N.T.S.
01 WATER METER VAULT

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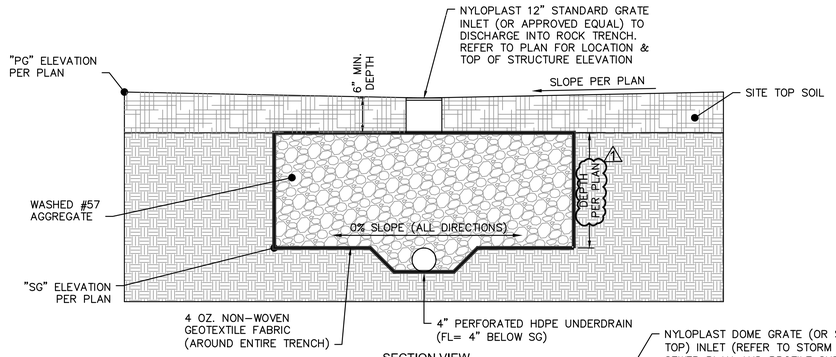
LEE'S SUMMIT, MO

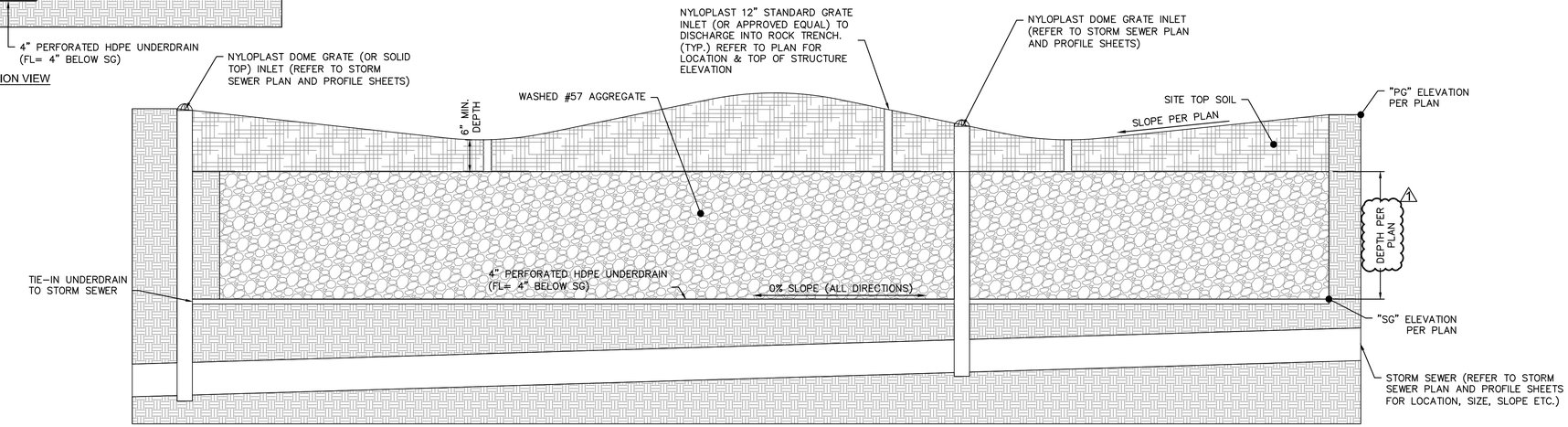
2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C907

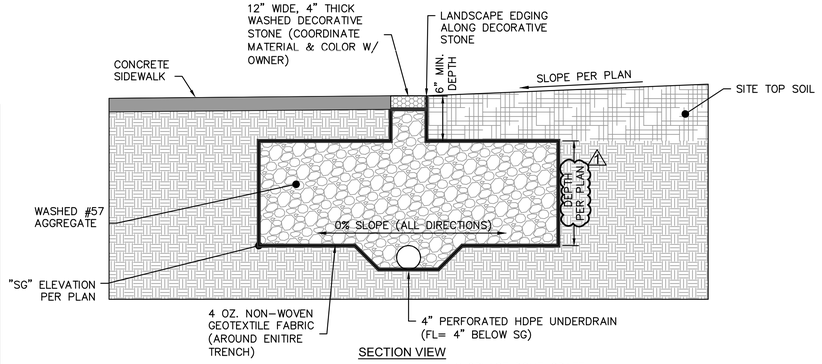


SECTION VIEW

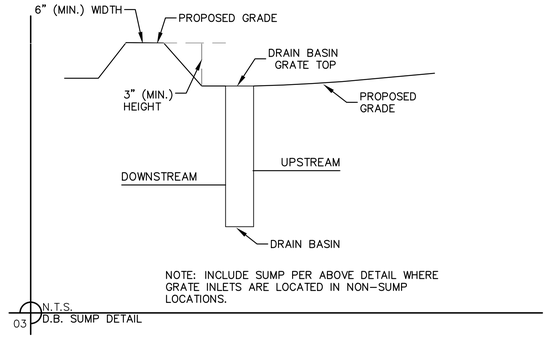


PROFILE VIEW

01 N.T.S.
FILTRATION TRENCH DETAIL A

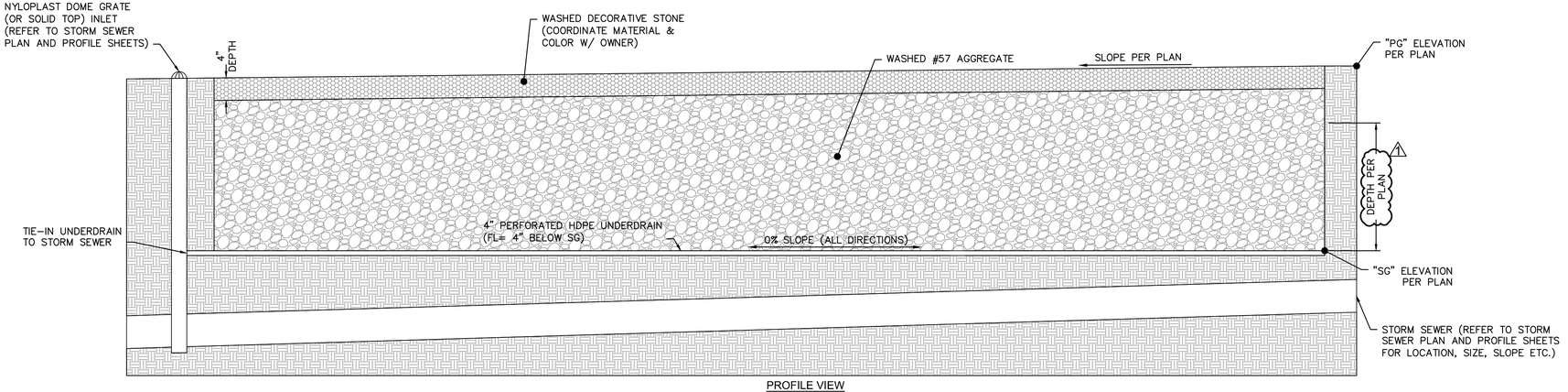


SECTION VIEW



NOTE: INCLUDE SUMP PER ABOVE DETAIL WHERE GRATE INLETS ARE LOCATED IN NON-SUMP LOCATIONS.

03 N.T.S.
D.B. SUMP DETAIL



PROFILE VIEW

02 N.T.S.
FILTRATION TRENCH DETAIL B

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KS CERTIFICATE OF AUTHORITY # E-2014
1301 BURLINGTON, SUITE 100
NORTH KANSAS CITY, MO 64116
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www.olsson.com

STATE OF MISSOURI
NICHOLAS D. HEISER
02/04/2021
NUMBER PE-2015000555
PROFESSIONAL ENGINEER

NICHOLAS D. HEISER, P.E.
MO# 2015000555

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

DETAIL SHEET
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
C908

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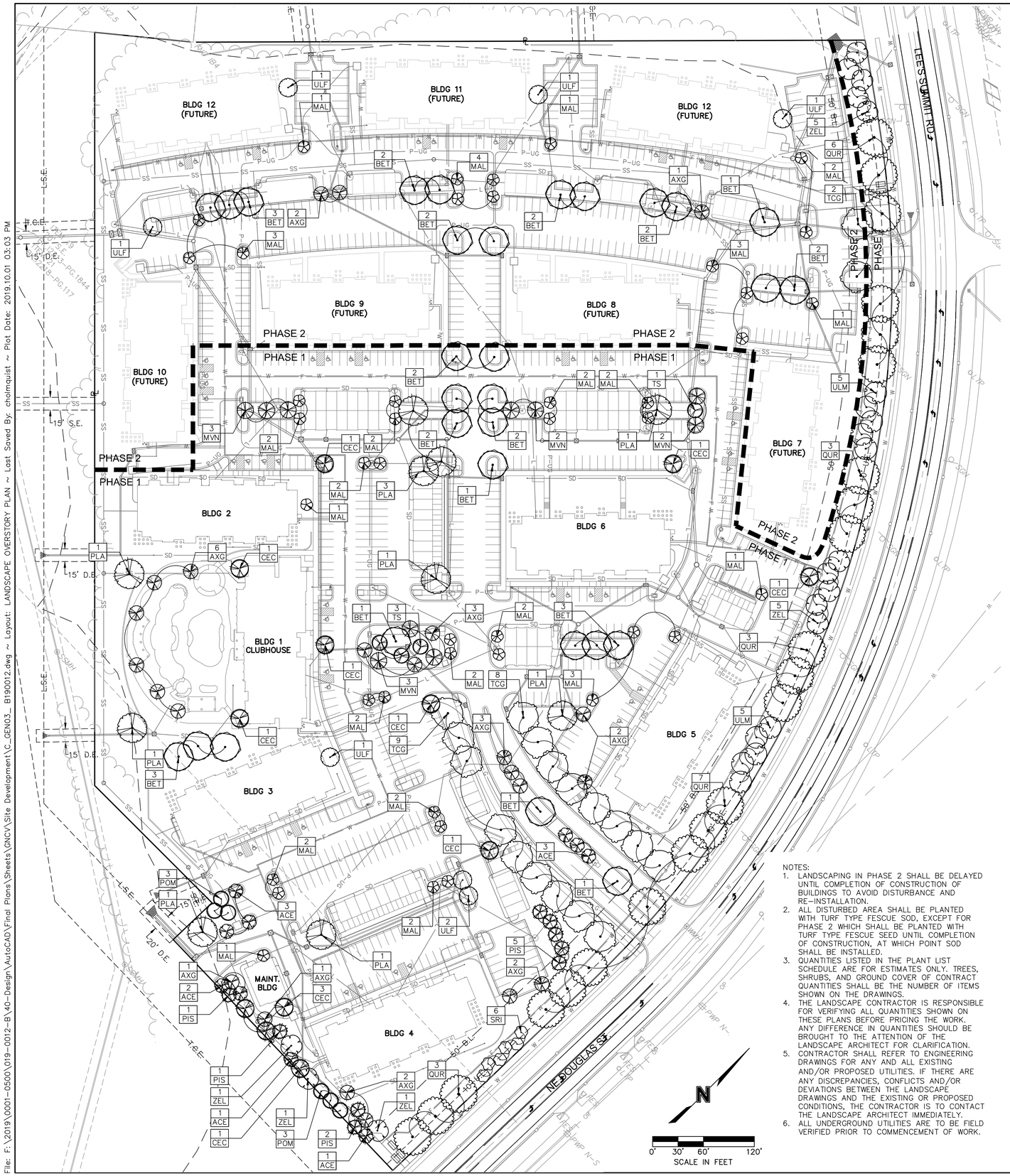

NOTES:

1. LANDSCAPING IN PHASE 2 SHALL BE DELAYED UNTIL COMPLETION OF CONSTRUCTION OF BUILDINGS TO AVOID DISTURBANCE AND RE-INSTALLATION.
2. ALL DISTURBED AREA SHALL BE PLANTED WITH TURF TYPE FESCUE SOD, EXCEPT FOR PHASE 2 WHICH SHALL BE PLANTED WITH TURF TYPE FESCUE SEED UNTIL COMPLETION OF CONSTRUCTION, AT WHICH POINT SOD SHALL BE INSTALLED.
3. QUANTITIES LISTED IN THE PLANT LIST SCHEDULE ARE FOR ESTIMATES ONLY. TREES, SHRUBS, AND GROUND COVER OF CONTRACT QUANTITIES SHALL BE THE NUMBER OF ITEMS SHOWN ON THE DRAWINGS.
4. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON THESE PLANS BEFORE PRICING THE WORK. ANY DIFFERENCE IN QUANTITIES SHOULD BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR CLARIFICATION.
5. CONTRACTOR SHALL REFER TO ENGINEERING DRAWINGS FOR ANY AND ALL EXISTING AND/OR PROPOSED UTILITIES. IF THERE ARE ANY DISCREPANCIES, CONFLICTS AND/OR DEVIATIONS BETWEEN THE LANDSCAPE DRAWINGS AND THE EXISTING OR PROPOSED CONDITIONS, THE CONTRACTOR IS TO CONTACT THE LANDSCAPE ARCHITECT IMMEDIATELY.
6. ALL UNDERGROUND UTILITIES ARE TO BE FIELD VERIFIED PRIOR TO COMMENCEMENT OF WORK.

PLANT SCHEDULE OVERALL

DECIDUOUS TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION
	ACE	10	ACER GRISEUM	PAPERBARK MAPLE	3" CAL.	B&B
	BET	30	BETULA NIGRA 'HERITAGE'	HERITAGE RIVER BIRCH	3" CAL.	B&B
	PLA	10	PLATANUS X ACERIFOLIA 'EXCLAMATION' TM	EXCLAMATION LONDON PLANE TREE	3" CAL.	B&B
	QUR	22	QUERCUS RUBRA	RED OAK	3" CAL.	B&B
	TS	4	TAXODIUM DISTICHUM 'SHAWNEE BRAVE' TM	BALD CYPRESS	3" CAL.	B&B
	TCG	19	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LITTLELEAF LINDEN	3" CAL.	B&B
	ULF	7	ULMUS X 'FRONTIER'	AMERICAN ELM	3" CAL.	B&B
	ULM	10	ULMUS X 'PATRIOT'	ELM	3" CAL.	B&B
	ZEL	13	ZELKOVA SERRATA 'GREEN VASE'	GREEN VASE SAWLEAF ZELKOVA	3" CAL.	B&B
EVERGREEN TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION
	POM	6	PICEA OMORIKA	SERBIAN SPRUCE	8' HT	B&B
	PIS	9	PINUS STROBUS	WHITE PINE	8' HT	B&B
ORNAMENTAL TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONDITION
	AXG	23	AMELANCHIER X GRANDIFLORA	APPLE SERVICEBERRY	3" CAL.	B&B
	CEC	12	CERCIS CANADENSIS	EASTERN REDBUD	3" CAL.	B&B
	MVN	10	MAGNOLIA VIRGINIANA 'NORTHERN BELLE'	NORTHERN BELLE SWEET BAY MAGNOLIA	3" CAL.	B&B
	MAL	43	MALUS X 'ROYAL RAINDROPS'	ROYAL RAINDROPS CRABAPPLE	3" CAL.	B&B
	SRI	6	SYRINGA RETICULATA 'IVORY SILK'	IVORY SILK JAPANESE TREE LILAC	3" CAL.	B&B

PLANT SCHEDULE PHASE 1

DECIDUOUS TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
	ACE	10	ACER GRISEUM / PAPERBARK MAPLE	3" CAL.	B&B
	BET	13	BETULA NIGRA 'HERITAGE' / HERITAGE RIVER BIRCH	3" CAL.	B&B
	PLA	10	PLATANUS X ACERIFOLIA 'EXCLAMATION' TM / EXCLAMATION LONDON PLANE TREE	3" CAL.	B&B
	QUR	5	QUERCUS RUBRA / RED OAK	3" CAL.	B&B
	TS	4	TAXODIUM DISTICHUM 'SHAWNEE BRAVE' TM / BALD CYPRESS	3" CAL.	B&B
	TCG	16	TILIA CORDATA 'GREENSPIRE' / GREENSPIRE LITTLELEAF LINDEN	3" CAL.	B&B
	ULF	3	ULMUS X 'FRONTIER' / AMERICAN ELM	3" CAL.	B&B
	ZEL	8	ZELKOVA SERRATA 'GREEN VASE' / GREEN VASE SAWLEAF ZELKOVA	3" CAL.	B&B
EVERGREEN TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
	POM	6	PICEA OMORIKA / SERBIAN SPRUCE	8' HT	B&B
	PIS	9	PINUS STROBUS / WHITE PINE	8' HT	B&B
ORNAMENTAL TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
	AXG	20	AMELANCHIER X GRANDIFLORA / APPLE SERVICEBERRY	3" CAL.	B&B
	CEC	11	CERCIS CANADENSIS / EASTERN REDBUD	3" CAL.	B&B
	MVN	10	MAGNOLIA VIRGINIANA 'NORTHERN BELLE' / NORTHERN BELLE SWEET BAY MAGNOLIA	3" CAL.	B&B
	MAL	27	MALUS X 'ROYAL RAINDROPS' / ROYAL RAINDROPS CRABAPPLE	3" CAL.	B&B
	SRI	6	SYRINGA RETICULATA 'IVORY SILK' / IVORY SILK JAPANESE TREE LILAC	3" CAL.	B&B

PLANT SCHEDULE PHASE 2

DECIDUOUS TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
	BET	16	BETULA NIGRA 'HERITAGE' / HERITAGE RIVER BIRCH	3" CAL.	B&B
	TCG	2	TILIA CORDATA 'GREENSPIRE' / GREENSPIRE LITTLELEAF LINDEN	3" CAL.	B&B
	ULF	4	ULMUS X 'FRONTIER' / AMERICAN ELM	3" CAL.	B&B
ORNAMENTAL TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
	AXG	3	AMELANCHIER X GRANDIFLORA / APPLE SERVICEBERRY	3" CAL.	B&B
	MAL	15	MALUS X 'ROYAL RAINDROPS' / ROYAL RAINDROPS CRABAPPLE	3" CAL.	B&B

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KS CERTIFICATE OF AUTHORITY #:E-2090
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STATE OF MISSOURI — CHRISTOPHER HOLMQUIST — NUMBER PLA-2019026430 — 2020.12.31 — REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

CHRIS HOLMQUIST, P.L.A.
MO# 2019026430

NO. REV.	DATE	REVISIONS DESCRIPTION	BY
1	07 JAN 2021	PERMIT SET / CITY COMMENT REVISIONS	

REVISIONS

LANDSCAPE OVERSTORY PLAN
SITE DEVELOPMENT PLANS

ARIA APARTMENTS
PHASE 1

LEE'S SUMMIT, MO

2020

drawn by: M.J.D.
checked by: N.D.H.
designed by: M.J.D.
QA/QC by: N.D.H.
project no.: 019-0012-B
date: 2020.08.27

SHEET
L301

File: F:\2019\0001-0500\019-0012-B\40-Design\AutoCAD\Final Plans\Sheets\GNCV\Site Development\C_GEN03_ B190012.dwg ~ Layout: LANDSCAPE OVERSTORY PLAN ~ Last Saved By: cholmquist ~ Plot Date: 2019.10.01 03:03 PM

Aria Lee's Summit Retaining Walls

Lee's Summit, Jackson County, Missouri

1. MATERIALS

A. BACKFILL SOILS

a. REINFORCED STRUCTURAL BACKFILL MATERIALS SHALL BE APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE AND SHALL MEET THE STRENGTH REQUIREMENTS AS DEFINED IN SECTION 5.0. THE REINFORCED BACKFILL MATERIAL SHALL BE:

MODOT TYPE 1, TYPE 5, OR 1" CLEAN.

b. FURTHERMORE, REINFORCED BACKFILL AND RETAINED SOIL/FILL MATERIALS SHALL BE FREE OF EXCESS MOISTURE, ROOTS, MUCK, SOD, SNOW, FROZEN LUMPS, ORGANIC MATTER OR OTHER DELETERIOUS MATERIALS. ALL ROCK PARTICLES AND HARD EARTH CLODS SHALL BE LESS THAN THREE INCHES IN THE LONGEST DIMENSION. REINFORCED BACKFILL MATERIALS WHICH DO NOT MEET THIS CRITERION SHALL BE CONSIDERED UNSUITABLE AND SHALL BE REMOVED.

c. DRAINAGE FILL BEHIND BASKET FACE SHALL CONSIST OF CLEAN CRUSHED STONE OR CRUSHED GRAVEL (1" CLEAN).

B. GEOGRID REINFORCING SHALL BE SYNTEEN GEOGRIDS AS SHOWN OR APPROVED EQUAL

2. TECHNICAL REQUIREMENTS

A. PRIOR TO CONSTRUCTION OF THE WALLS, THE GRADING CONTRACTOR SHALL CLEAR AND GRUB THE REINFORCED BACKFILL ZONE AREA, REMOVING TOP SOILS, BRUSH, SOD OR OTHER ORGANIC MATERIALS. ANY UNSUITABLE SOILS SHALL BE OVER-EXCAVATED, REPLACED AND COMPACTED WITH REINFORCED BACKFILL MATERIAL TO PROTECT SPECIFICATIONS OR OTHERWISE DIRECTED BY THE OWNER'S GEOTECHNICAL ENGINEER.

B. THE GEOTECHNICAL ENGINEER SHALL CONFIRM THAT THE SITE HAS BEEN PROPERLY PREPARED AND THE DESIGN PARAMETERS IN SECTION 5 ARE APPROPRIATE PRIOR TO FILL PLACEMENT. A WRITTEN CONFIRMATION SHALL BE PROVIDED TO CROCKETT ENGINEERING PRIOR TO FILL PLACEMENT.

C. FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 10 INCHES IN UNCOMPACTED THICKNESS FOR HEAVY COMPACTION EQUIPMENT. FOR ZONES WHERE COMPACTION IS ACCOMPLISHED WITH HAND OPERATED EQUIPMENT, FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 6 INCHES IN UNCOMPACTED THICKNESS. ONLY HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN THREE FEET OF THE BACK FACE WALL.

D. FILL MATERIALS SHALL BE PLACED FROM THE BACK OF THE FACING UNITS TOWARDS THE ENDS OF THE GEOGRID TO ENSURE FURTHER TENSIONING.

E. FILL SHALL BE COMPACTED AS SPECIFIED BY PROJECT SPECIFICATIONS OR TO A MINIMUM 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D-698.

F. TESTING METHODS, FREQUENCY, VERIFICATION OF MATERIAL SPECIFICATIONS, AND COMPACTION SHALL BE THE RESPONSIBILITY OF THE OWNER'S GEOTECHNICAL ENGINEER. A COPY OF THE REPORT SHALL BE PROVIDED TO CROCKETT ENGINEERING.

G. CAP UNITS SHALL BE PERMANENTLY SECURED TO THE BLOCK UNITS USING AN OUTDOOR CONSTRUCTION ADHESIVE.

3. GEOGRID PLACEMENT

A. GEOGRID SHALL BE PLACED AT THE LOCATIONS AND ELEVATIONS SHOWN ON THE DRAWINGS. REINFORCED FILL ZONE LENGTH IS MEASURED FROM THE BACK FACE OF THE WALL UNITS, EXTENDING TO THE END OF THE GEOGRID.

B. GEOGRID REINFORCEMENT SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTH(S).

C. PRIOR TO PLACING FILL, THE GEOGRID MATERIALS SHALL BE PLACED IN BETWEEN BLOCK COURSES, THE SLACK REMOVED AND ANCHORED.

D. CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY ON THE GEOGRID. A MINIMUM FILL THICKNESS OF SIX INCHES IS REQUIRED FOR OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TURNING OF TRACKED VEHICLES SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND/OR THE GEOGRID.

E. GEOGRID SHALL BE ROLLED OUT WITH THE LONG AXIS OF THE APERTURES (MACHINE DIRECTION) PERPENDICULAR TO THE WALL FACE.

F. A MINIMUM OF 3 INCHES OF FILL MATERIAL SHALL BE REQUIRED BETWEEN OVERLAPPING LAYERS OF GEOGRID AND FILTER FABRIC, UNLESS OTHERWISE SHOWN.

4. DRAINAGE

A. AT THE END OF EACH WORK DAY, BACKFILL SURFACE SHALL BE COMPACTED WITH A SMOOTH PLATE COMPACTOR TO MINIMIZE PONDING OF WATER AND SATURATION OF THE BACKFILL.

B. PERMANENT SURFACE WATER DIVERSION SHALL BE AS REQUIRED AND PROVIDED BY THE OWNER OR OWNER'S REPRESENTATIVE.

5. DESIGN PARAMETERS

A. DESIGN OF THE REINFORCED SOIL STRUCTURE IS BASED ON THE FOLLOWING PARAMETERS BASED ON SITE EXPOSED ROCK ENTIRE WALL SURFACE:

	EFFECTIVE FRICTION ANGLE	EFFECTIVE COHESION	MOIST UNIT WT
REINFORCED FILL	34	0	125
RETAINED SOILS	23	0	120
FOUNDATION SOILS	23	0	120

MINIMUM BEARING CAPACITY 2,500 PSF

B. DESIGN METHODOLOGY: NCMA GUIDELINES

C. FACTOR OF SAFETY:

INTERNAL STABILITY: STATIC

MINIMUM FACTOR OF SAFETY (FOS) FOR UNCERTAINTIES = 1.5
MINIMUM FOS FOR GEOGRID PULLOUT = 1.5
MINIMUM FOS FOR CONNECTION = 1.5
MINIMUM FOS FOR FACING STABILITY = 1.5
MINIMUM FOS FOR SLIDING AT LOWEST GEOGRID = 1.5
SOIL – GEOGRID INTERACTION COEFFICIENT = 0.8
PERCENT COVERAGE OF GEOGRID = 100%

D. EXTERNAL STABILITY

MINIMUM FACTOR OF SAFETY FOR OVERTURNING = 1.5
MINIMUM FACTOR OF SAFETY FOR SLIDING = 1.5

E. SURCHARGE LOADING

100 PSF SIDEWALKS/PARKING LOTS

6. SPECIAL PROVISIONS

A. THE DESIGN PRESENTED HEREIN IS BASED ON SOIL PARAMETERS, FOUNDATION CONDITIONS, GROUNDWATER CONDITIONS, AND LOADINGS STATED IN SECTION 5.

B. WALL ELEVATION VIEWS AND LOCATIONS AND GEOMETRY OF EXISTING STRUCTURES AND GRADE ABOVE AND BELOW WALLS MUST BE VERIFIED BY THE CONTRACTOR, TO MATCH ELEVATIONS SHOWN IN THE CONTRACT DOCUMENTS, PRIOR TO CONSTRUCTION.

C. THE ENGINEER OF RECORD IS RESPONSIBLE FOR THE SEGMENTED RETAINING WALL & REINFORCED SOIL IN ITS FINAL CONDITION ONLY. GLOBAL STABILITY, BEARING CAPACITY, AND SETTLEMENT ANALYSIS IS THE RESPONSIBILITY OF THE OWNER'S GEOTECHNICAL ENGINEER. ANY CHANGES TO THE WALL REQUIRED BASED ON THE GEOTECHNICAL ANALYSIS SHOULD BE COORDINATED BY THE GEOTECHNICAL ENGINEER PRIOR TO WALL CONSTRUCTION.

D. REFER TO BLOCK MANUFACTURE'S WRITTEN INSTALLATION INSTRUCTIONS FOR SEGMENTED RETAINING WALL INSTALLATION, SPECIFICALLY REGARDING CONNECTIONS FROM BLOCK TO BLOCK AND GEOGRID INSTALLATION.

E. THE SOIL DESIGN PARAMETERS STATED IN SECTION 5.0 SHALL BE VERIFIED BY THE PROJECT GEOTECHNICAL ENGINEER. WRITTEN VERIFICATION OF DESIGN PARAMETERS SHALL BE SUBMITTED TO CROCKETT ENGINEERING AND PRIOR TO COMMENCING WITH CONSTRUCTION.

F. ANY REVISIONS TO DESIGN PARAMETERS STATED IN SECTION 5.0 OR STRUCTURE GEOMETRY SHALL REQUIRE DESIGN MODIFICATIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.

7. GUARDRAIL SPEC

A. SHALL BE 42" TALL ABOVE ADJACENT WALKING SURFACE.

B. SHALL NOT HAVE OPENINGS LARGE ENOUGH TO PASS A 4" SPHERE.

C. MAIN RAILS SHALL RESIST 50 POUND PER LINEAL FOOT LATERALLY AT THE TOP RAIL OR 200 POUNDS CONCENTRATED LOAD LATERALLY.

D. INTERMEDIATE RAILS SHALL RESIST A CONCENTRATED LOAD OF 50 POUNDS LATERALLY.

INDEX OF SHEETS

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RETAINING WALL PROFILE	RW3-RW10
DETAILS	RW11

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
GREGORY L. LINNEMAN
NUMBER PE-2005001013

GREGORY L. LINNEMAN - PE
MO LICENSE - 2005001013

STRUCTURAL ENGINEER:
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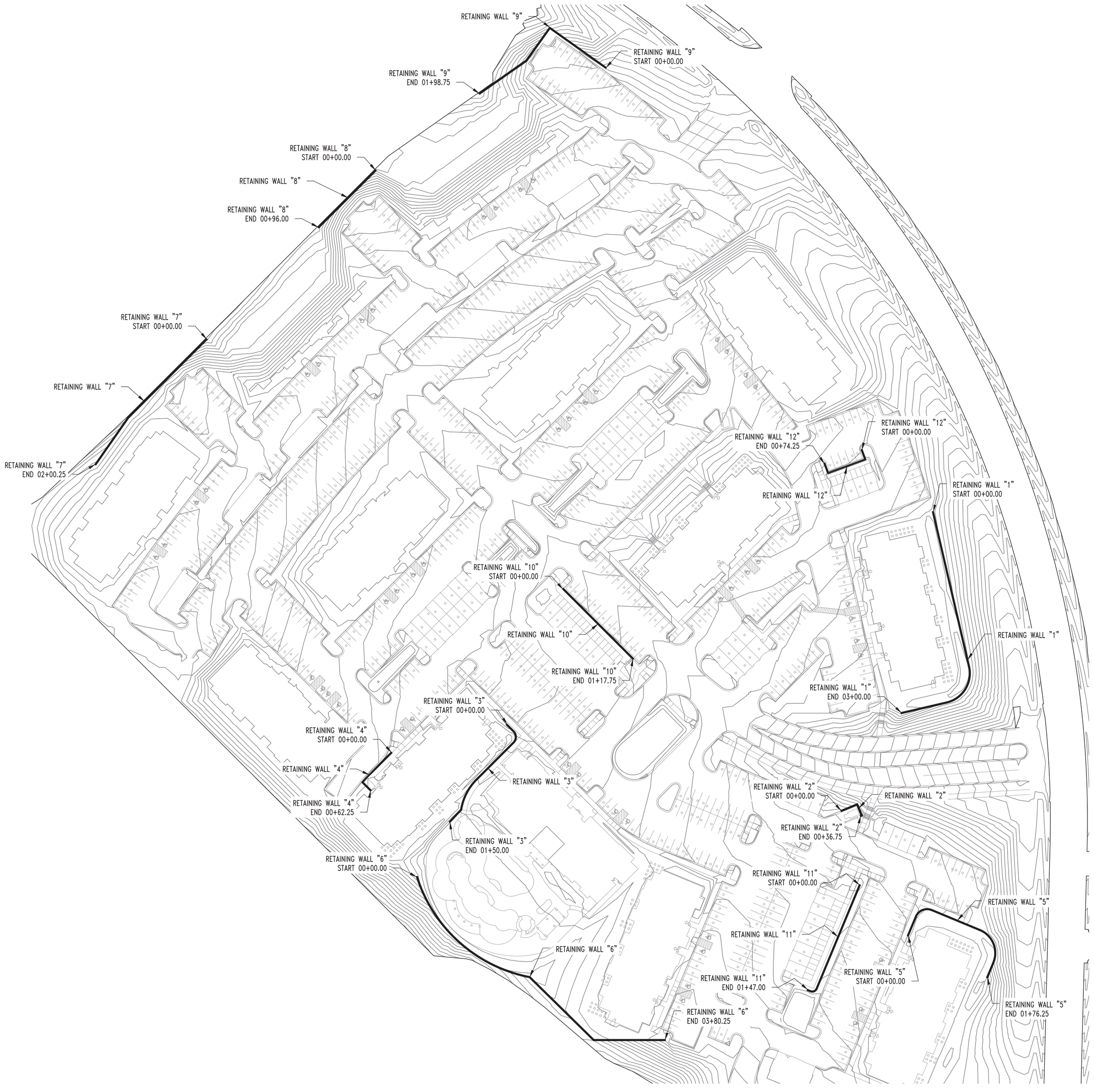
#2006015501

CLIENT:
CENTRAL STATES CONSTRUCTION
4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
GENERAL
STRUCTURAL DATA

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299
SHEET:	RW1



1 RW2 RETAINING WALL PLAN

NOT TO SCALE

N PLAN NORTH

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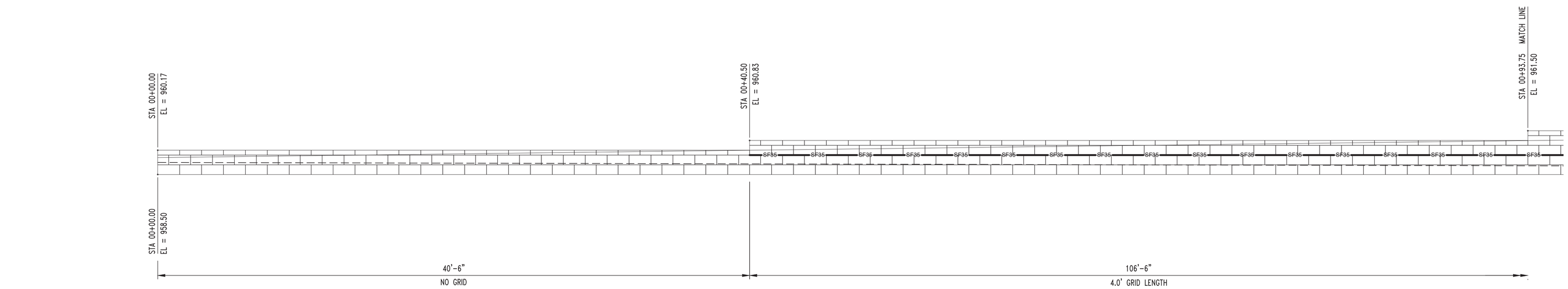
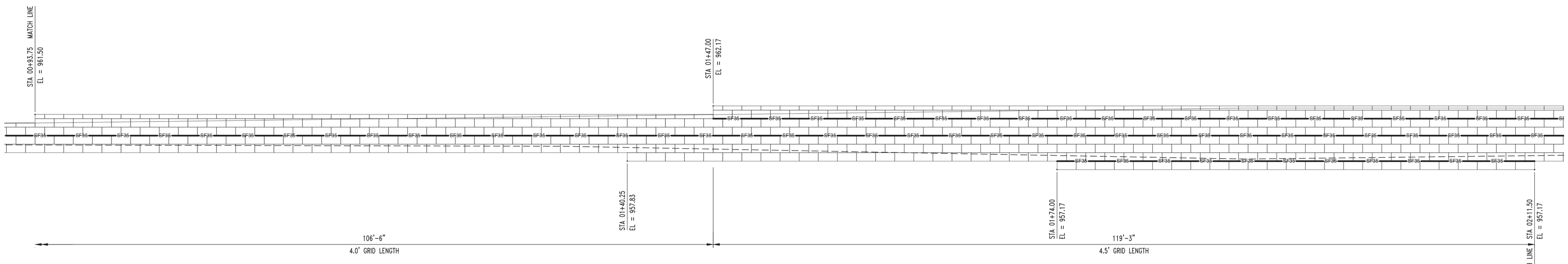
PARTIAL SITE PLAN

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299
SHEET:	RW2



1 RW3 RETAINING WALL 1 (AREA 880 SQ. FT.)

SCALE: ¼" = 1'-0"



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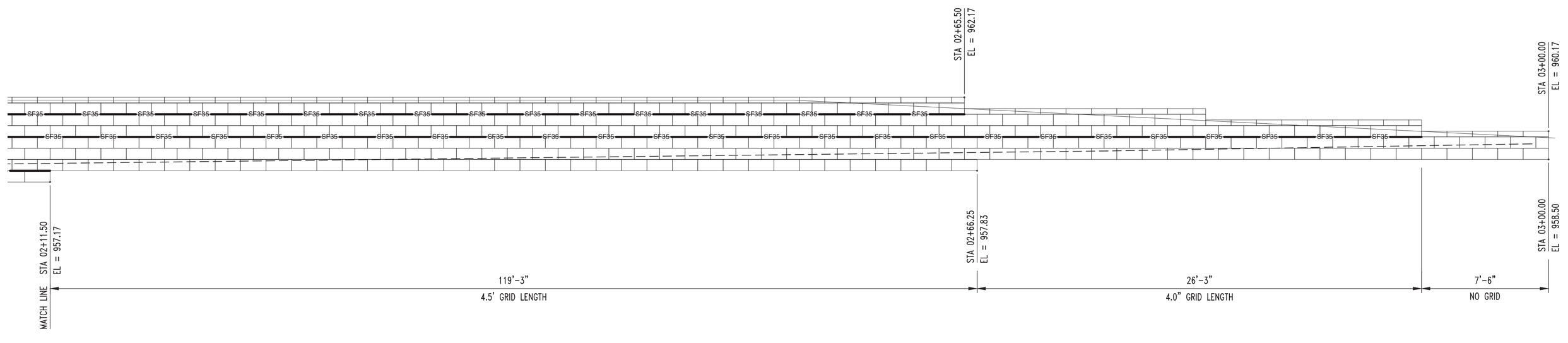
SCALE: ¼" = 1'-0"



3 RW3 RETAINING WALL 1 (AREA 880 SQ. FT.)

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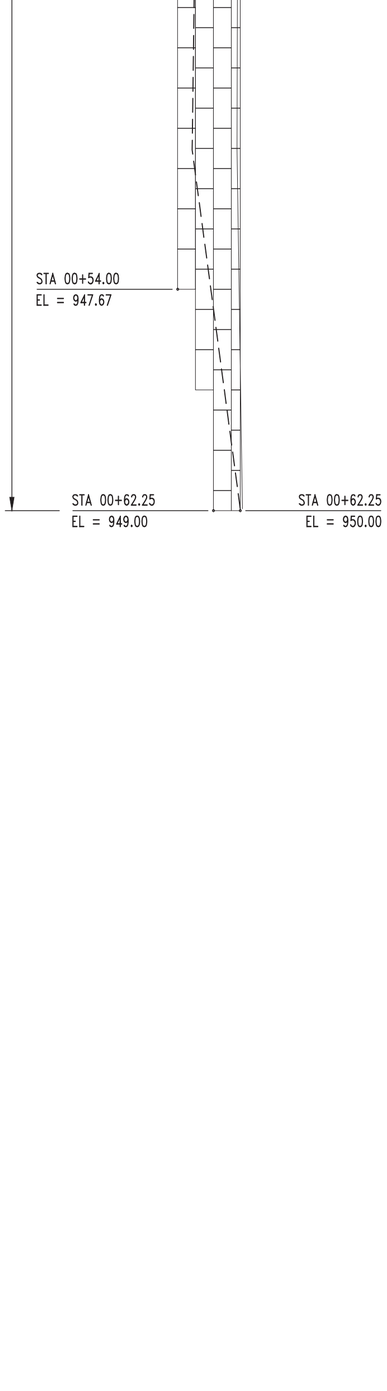
DRAWING INCLUDES:

RETAINING WALL PROFILE

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299

SHEET:
RW3



4 RW4

RETAINING WALL 4 (AREA 95 SQ. FT.)

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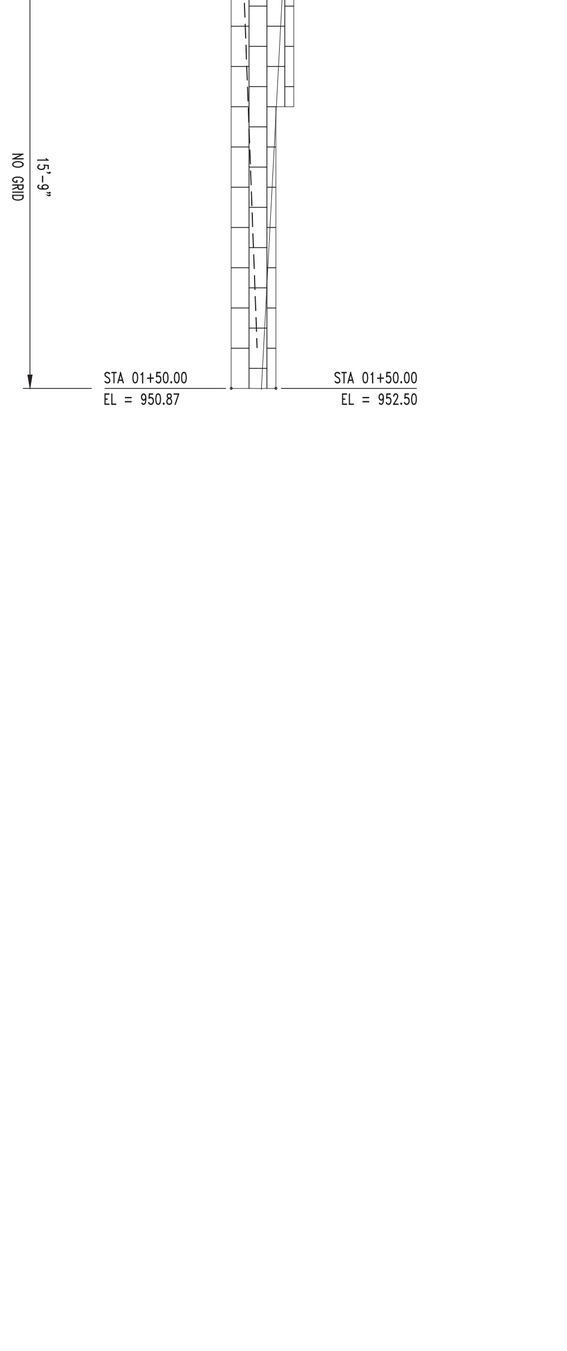

3 RW4

RETAINING WALL 3 (AREA 552 SQ. FT.)

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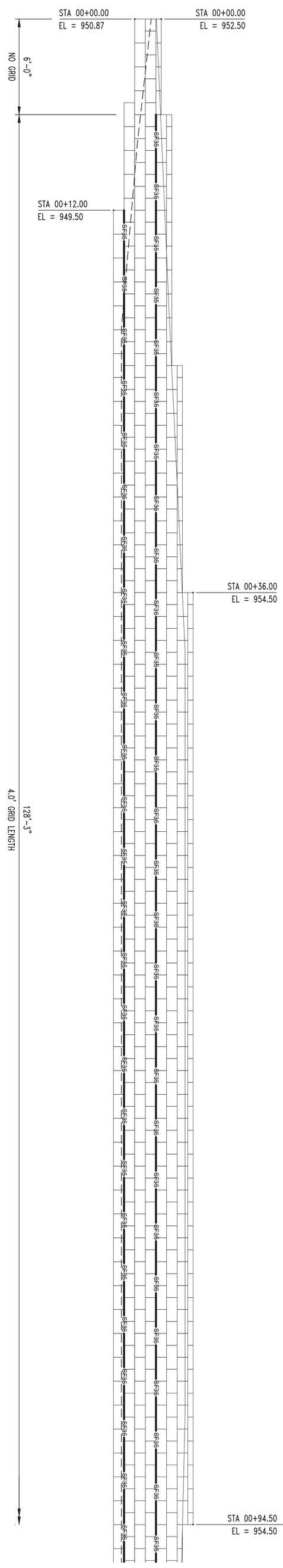
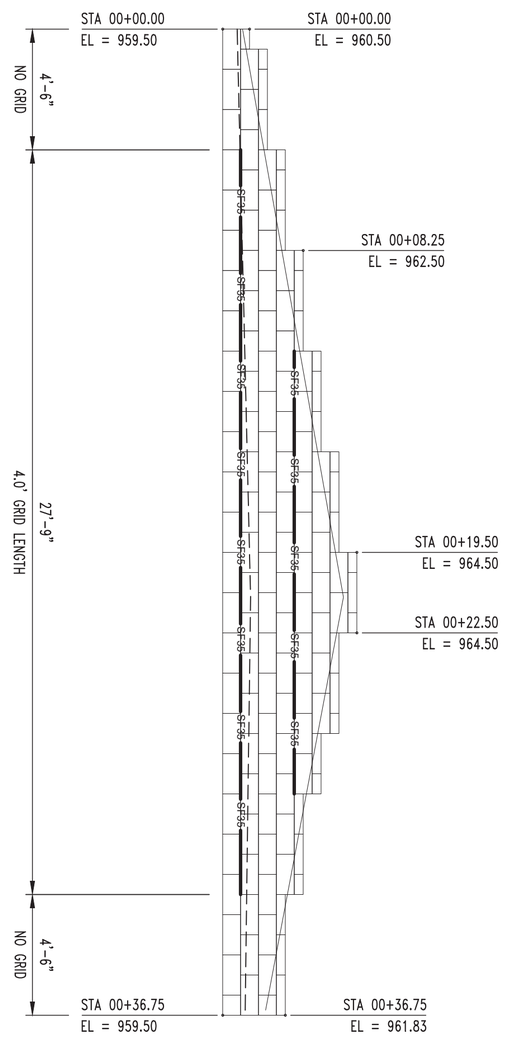


2 RW4

RETAINING WALL 3 (AREA 552 SQ. FT.)

SCALE: 1/4" = 1'-0"



1 RW4

RETAINING WALL 2 (AREA 106 SQ. FT.)

SCALE: 1/4" = 1'-0"

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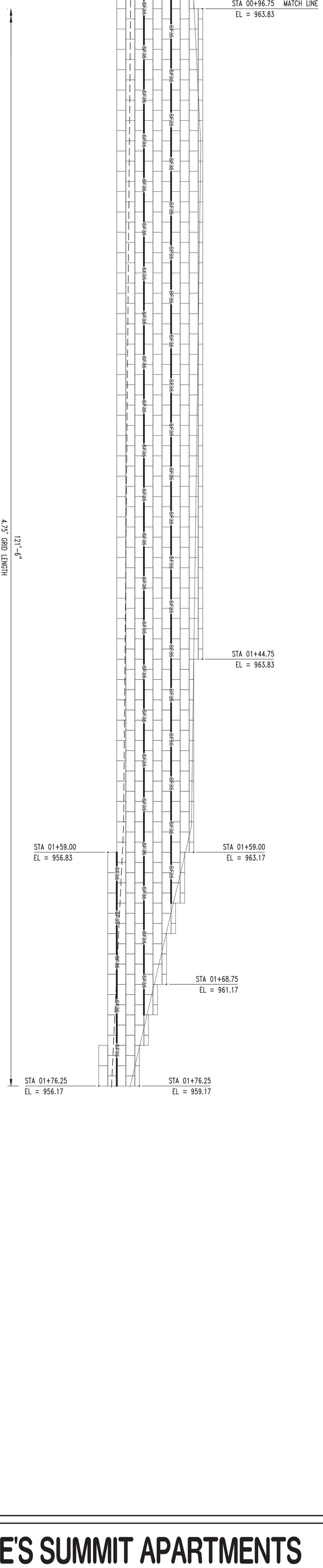
DRAWING INCLUDES:
RETAINING WALL PROFILE

DESIGNED: JWV
DRAWN: SEH
PROJECT NO.: 190299

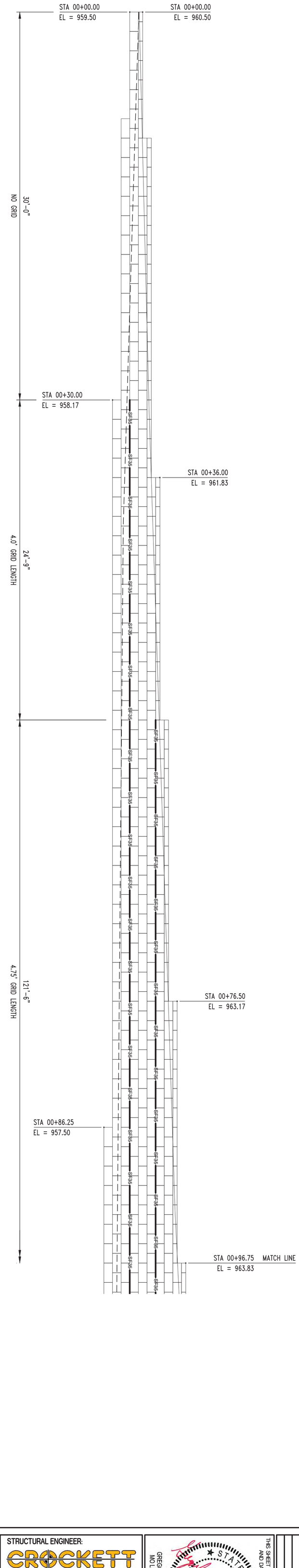
SHEET: RW4



2 RW5

RETAINING WALL 5 (AREA 746 SQ. FT.)

SCALE: ¼" = 1'-0"



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DRAWING INCLUDES:
RETAINING WALL PROFILE

DESIGNED: JWV
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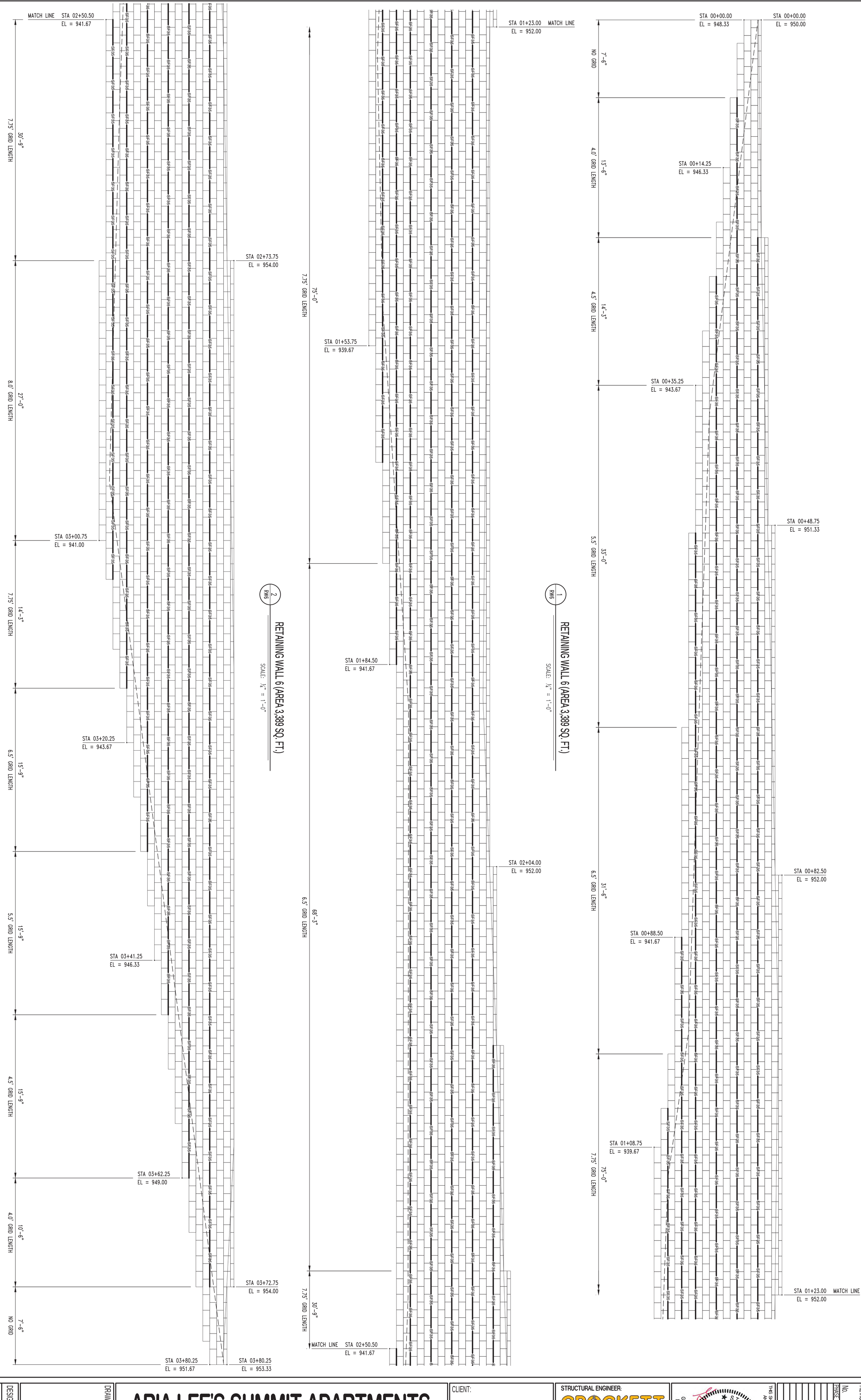
PROJECT NO.: 190299

SHEET: RW5



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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

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SHEET: RW6

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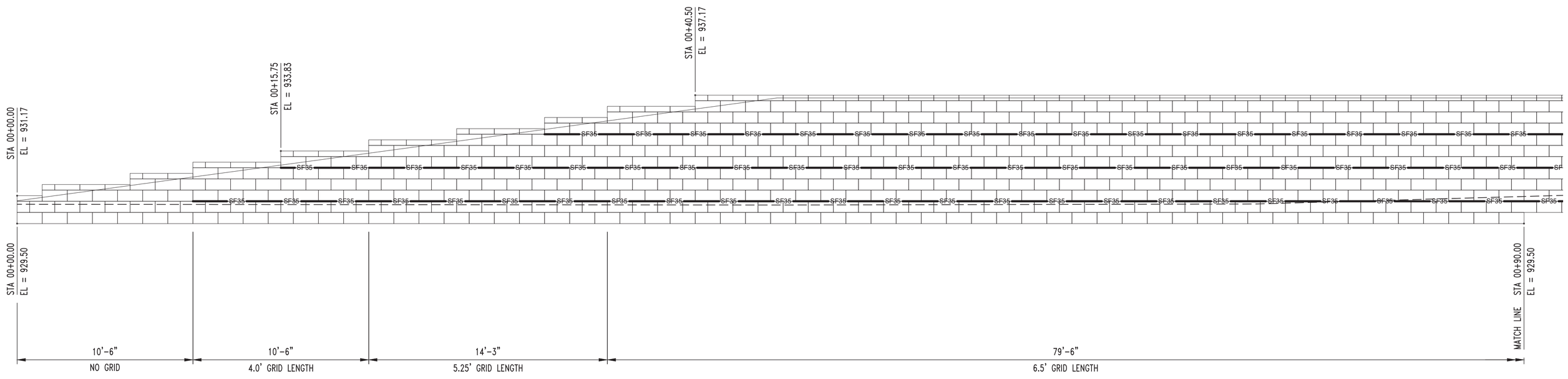
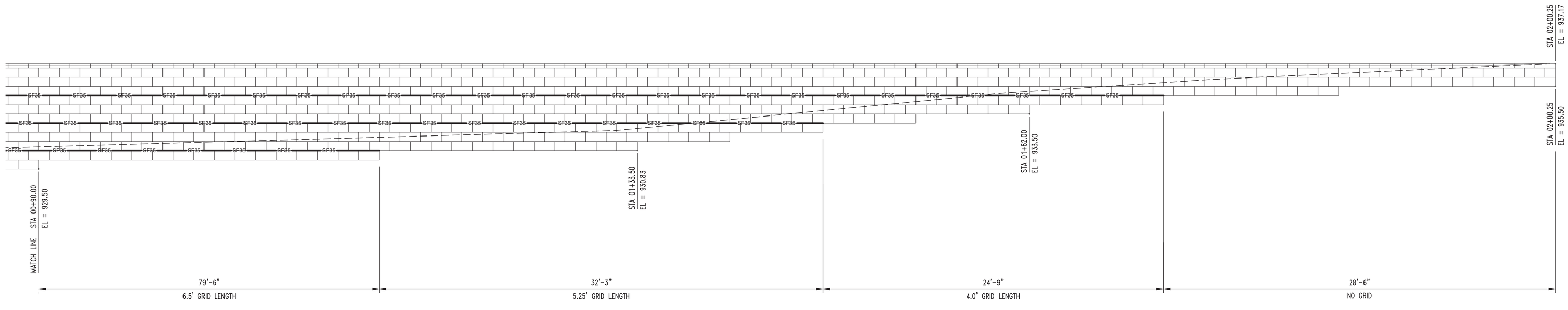


1 RW7 RETAINING WALL 7 (AREA 1,006 SQ. FT.)

SCALE: 1/4" = 1'-0"



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DRAWING INCLUDES:
RETAINING WALL PROFILE

DESIGNED:	JWV
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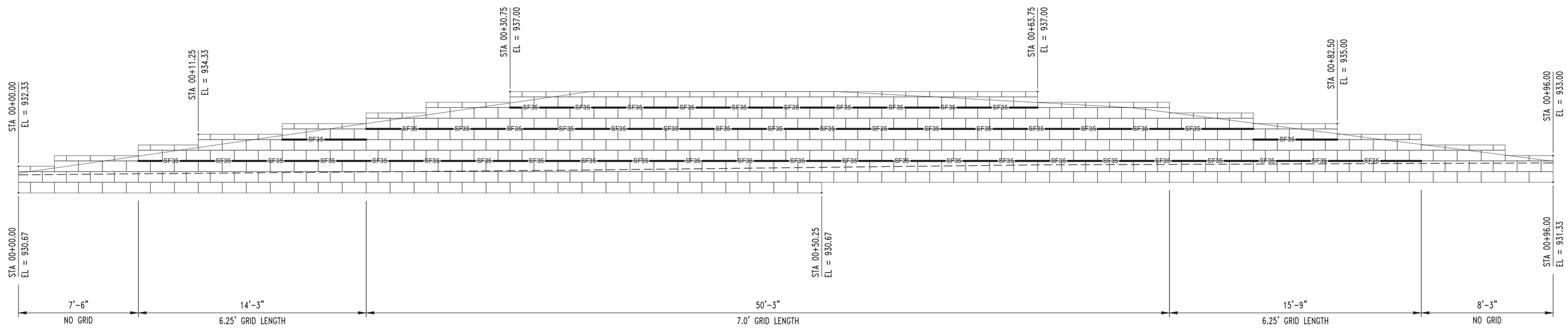
SHEET:
RW7



1 RW8 RETAINING WALL 8 (AREA 402 SQ. FT.)

SCALE: ¼" = 1'-0"

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COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:

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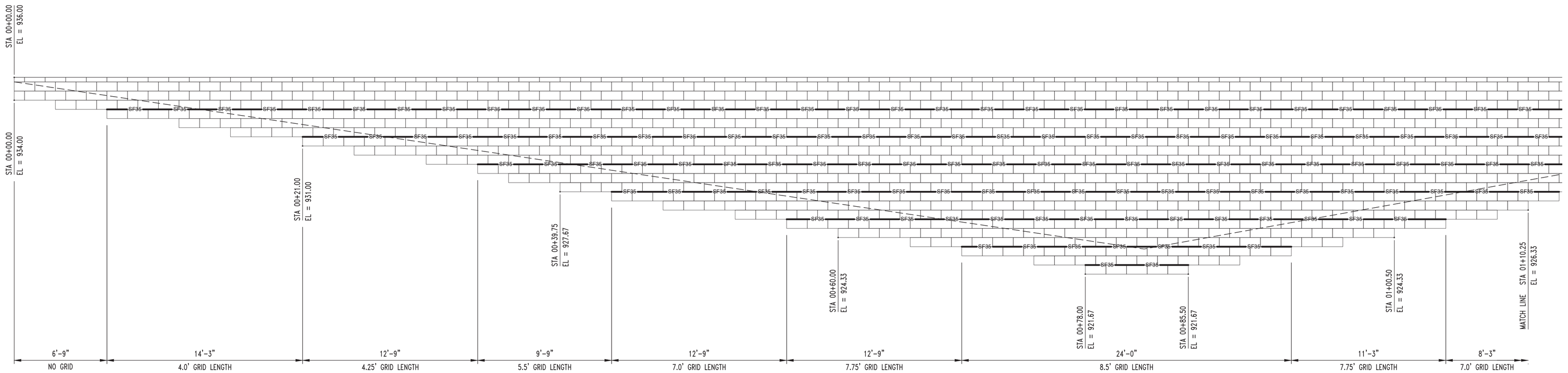
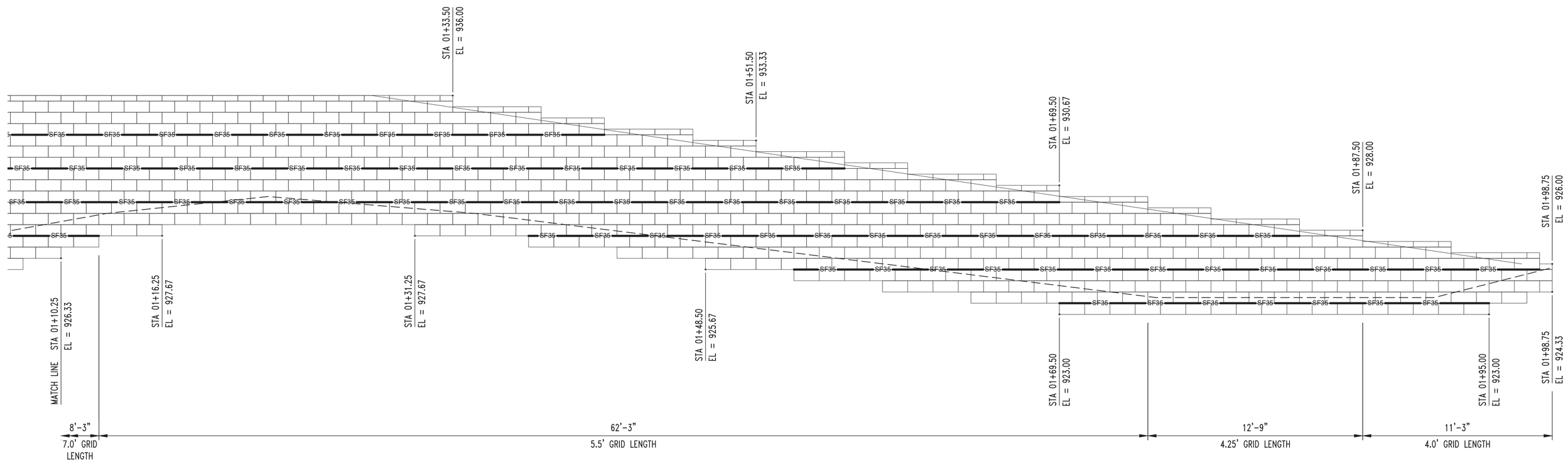
DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299
SHEET:	RW8



1 / RW9 RETAINING WALL 9 (AREA 1,541 SQ. FT.)

SCALE: ¼" = 1'-0"



2 / RW9 RETAINING WALL 9 (AREA 1,541 SQ. FT.)

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Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#2004015501

CLIENT:
CENTRAL STATES CONSTRUCTION
4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

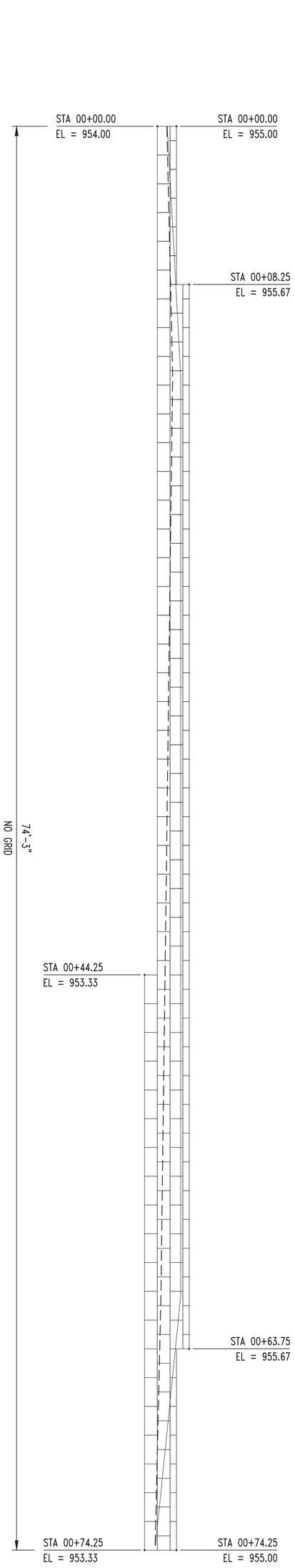
ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:

RETAINING WALL PROFILE

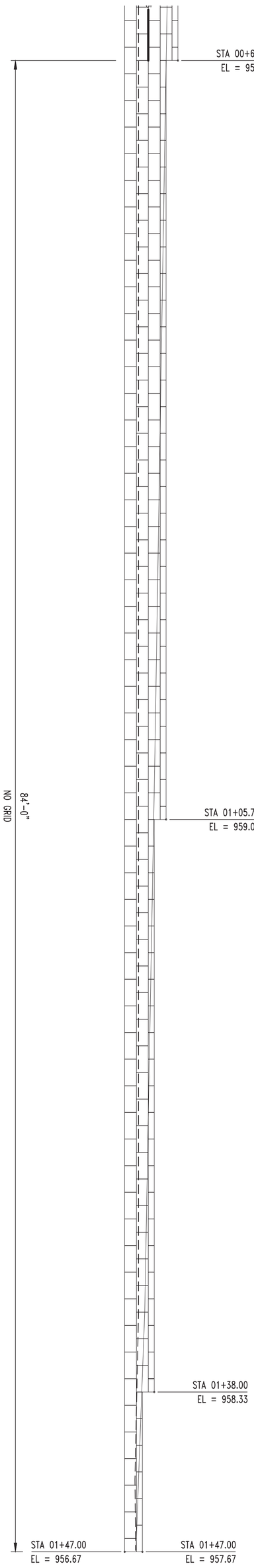
DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299
SHEET:	RW9



4 / RW10

RETAINING WALL 12 (AREA 107 SQ. FT.)

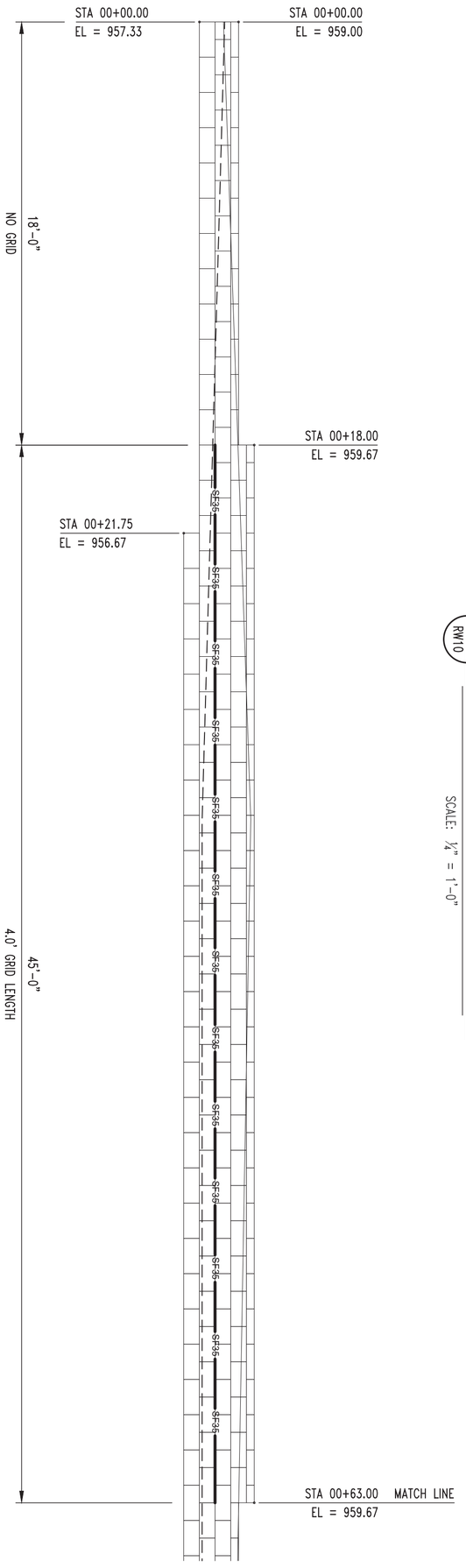
SCALE: ¼" = 1'-0"



3 / RW10

RETAINING WALL 11 (AREA 276 SQ. FT.)

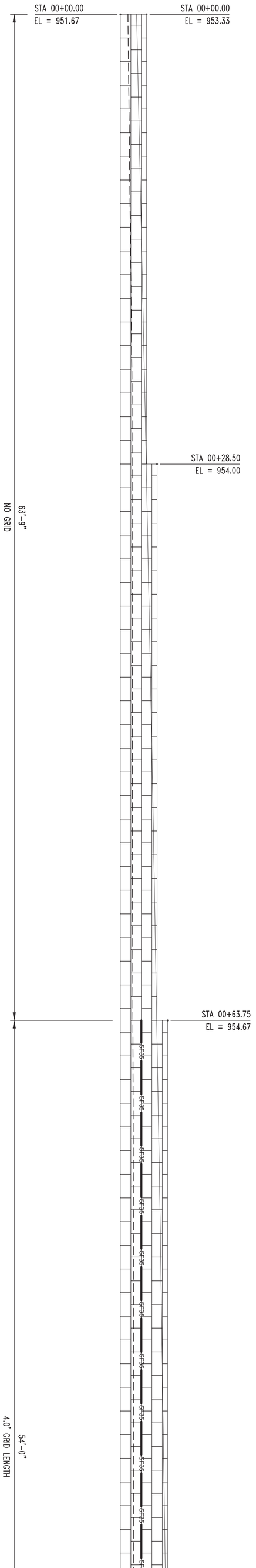
SCALE: ¼" = 1'-0"



2 / RW10

RETAINING WALL 11 (AREA 276 SQ. FT.)

SCALE: ¼" = 1'-0"



1 / RW10

RETAINING WALL 10 (AREA 253 SQ. FT.)

SCALE: ¼" = 1'-0"

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

CLIENT:

CENTRAL STATES CONSTRUCTION
4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

STRUCTURAL ENGINEER:

CROCKETT
ENGINEERING CONSULTANTS
1000 W. Nifong Blvd., Bldg. 1
Columbia, Missouri 65203
(573) 447-0292
www.crockettengineering.com
Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#2000151301

GREGORY L. LINNEMAN - PE
MO LICENSE - 2005001013

STATE OF MISSOURI
GREGORY L LINNEMAN
NUMBER PE-2005001013

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

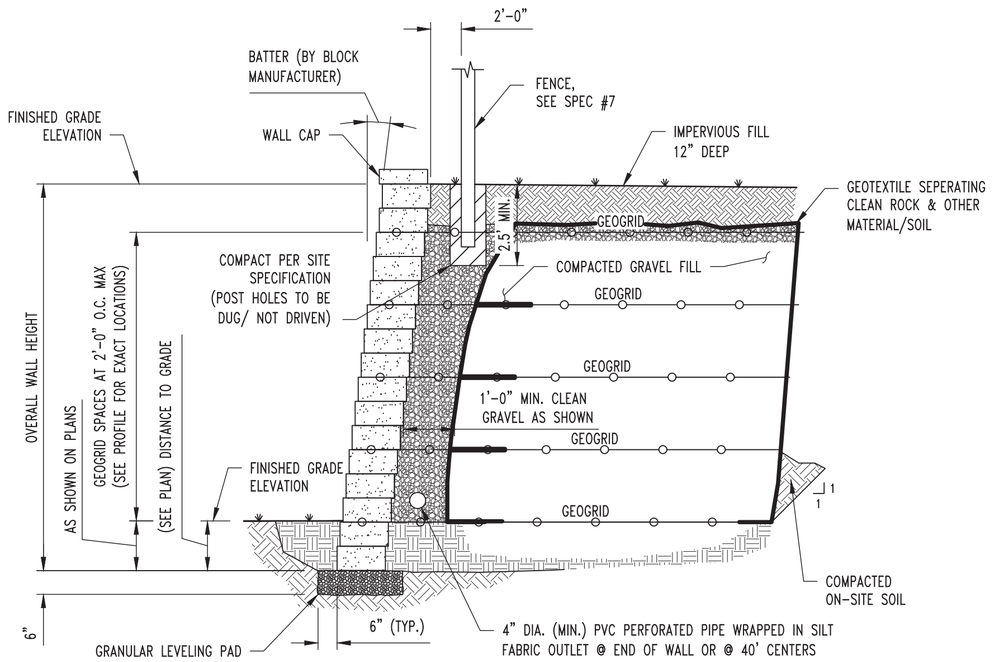
REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

DRAWING INCLUDES:
RETAINING WALL PROFILE

DESIGNED: JWV
DRAWN: SEH
PROJECT NO.: 190299

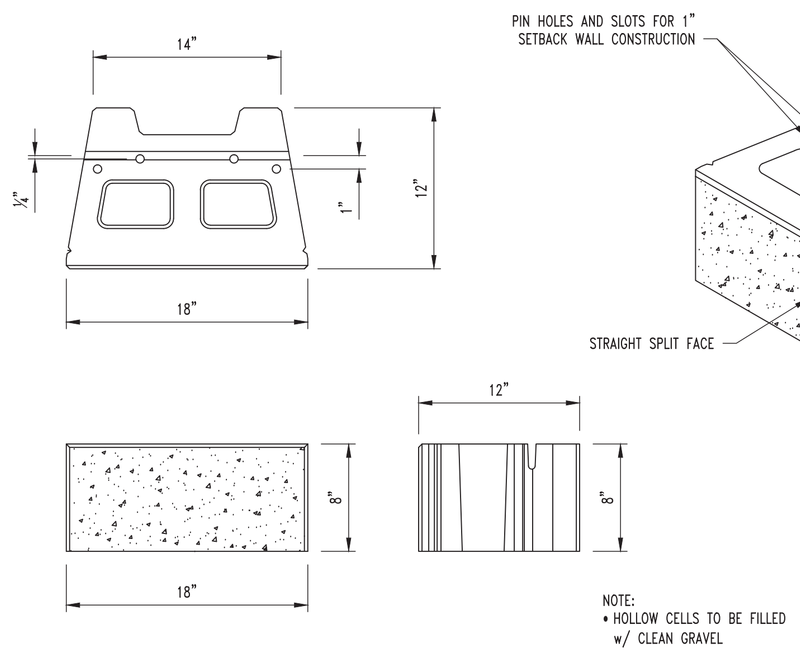
SHEET:
RW10



REINFORCED RETAINING WALL

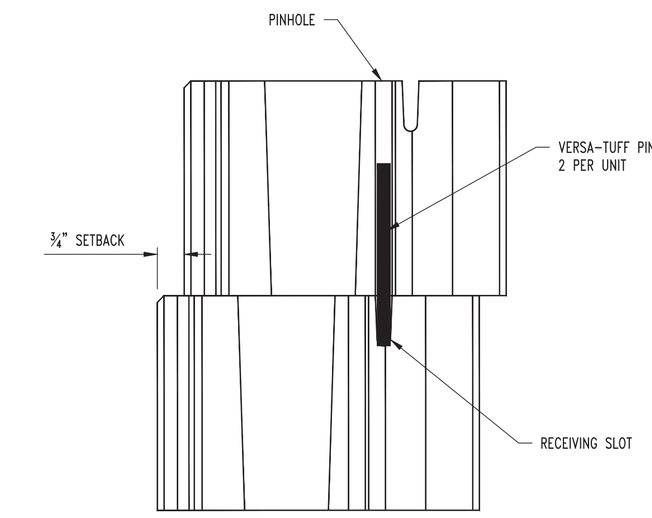
SCALE: NONE

NOTE:
THIS WALL SECTION IS GENERIC IN NATURE & REPRESENTS BASIC WALL CONSTRUCTION & COMPONENTS ONLY. ACTUAL DESIGN IS BASED ON ACTUAL PROJECT PARAMETERS, WHICH MAY NOT BE REPRESENTED IN THIS SECTION. REFER TO CIVIL DRAWINGS FOR ACTUAL SITE SPECIFIC SECTIONS & REQUIREMENTS.



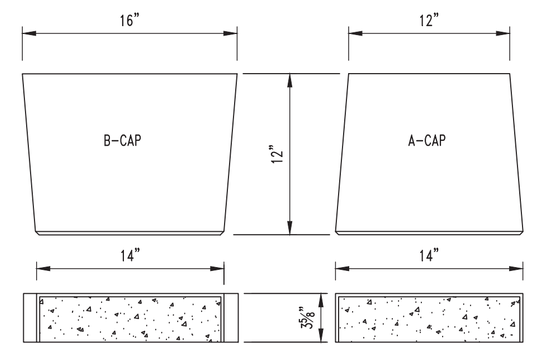
VERSA-LOK SQUARE FOOT UNIT

SCALE: NONE



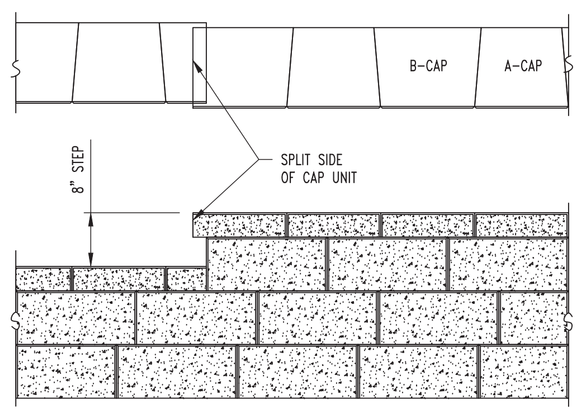
PINNING DETAIL

SCALE: NONE



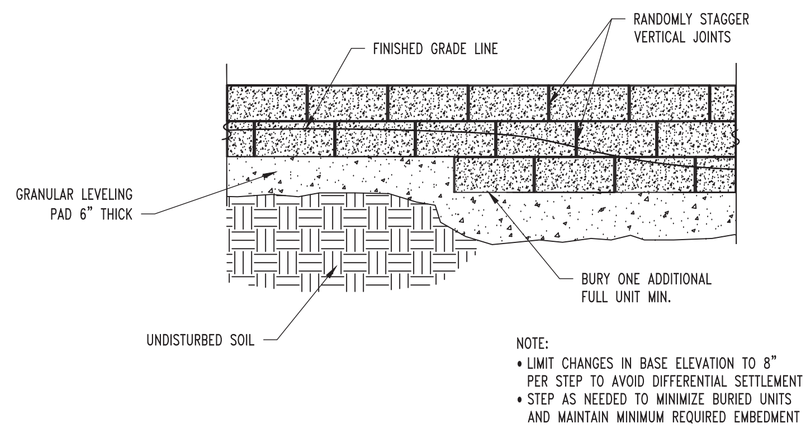
VERSA-LOK CAP UNITS

SCALE: NONE



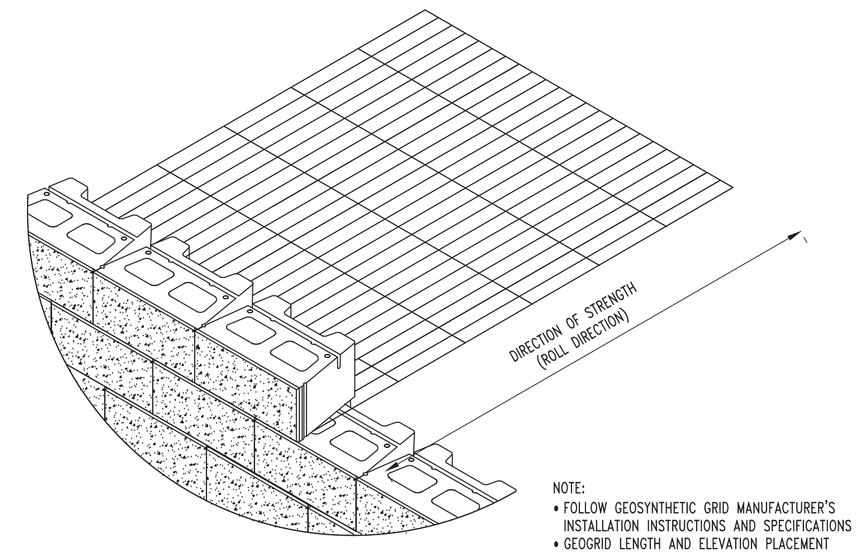
CAPPING DETAIL-PROFILE

SCALE: NONE



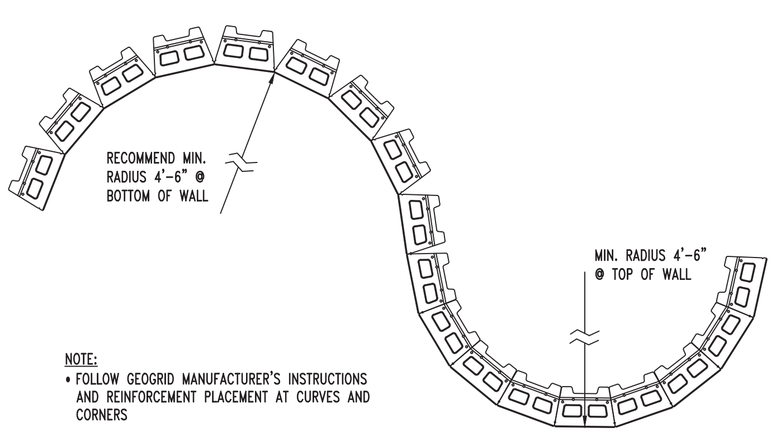
STEPPING BASE DETAIL

SCALE: NONE



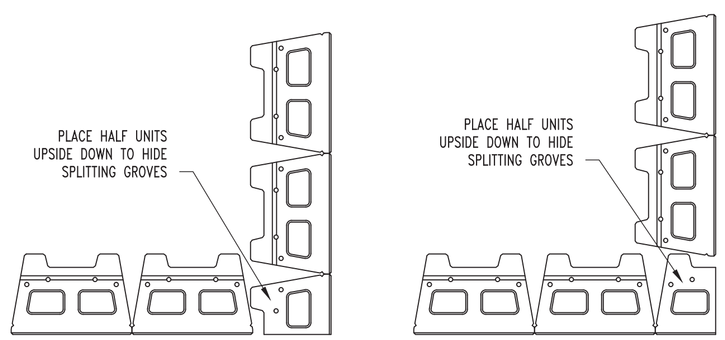
GEOSYNTHETIC INSTALLATION DETAIL

SCALE: NONE



CURVE DETAIL

SCALE: NONE



CORNER DETAIL

SCALE: NONE

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
GREGORY L. LINNEMAN
NUMBER PE-2005001013

GREGORY L. LINNEMAN - PE
MO LICENSE - 2005001013

STRUCTURAL ENGINEER:
CROCKETT
ENGINEERING CONSULTANTS
1000 West Nifong Blvd. Building 1
Columbia, Missouri 65203
(573) 447-0292
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ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
RETAINING WALL DETAILS

DESIGNED: JWV
DRAWN: SEH
PROJECT NO.: 190299

SHEET:
RW11

NOTE: INSTALL HANDRAILS @ ACCESSIBLE ROUTES AND WHERE OTHERWISE NOTED EXCEEDING 5% BUT LESS THAN 8.33%. 5'-0" LANDING REQUIRED AT TOP AND BOTTOM OF RAMP.

ACCESSIBILITY NOTES

1. SIDEWALK ON THE ACCESSIBLE ROUTE SHALL NOT EXCEED 5% (1'-0" IN 20'--0") RUNNING SLOPE WITH A 2% (1'-0" IN 50'-0") CROSS-SLOPE AND SHALL BE 4' WIDE MIN. EXCEPT AS NOTED ON SITE PLAN. PROVIDE STAIRS, RAMPS, CURBS, ETC., AS NOTED AND DETAILED.

2. PARKING AREAS AND ACCESSIBLE SPACES AND ACCESS AISLES SHALL NOT EXCEED A 2% (1'-0" IN 50'-0" SLOPE IN EACH DIRECTION. OTHER PORTIONS OF THE ACCESSIBLE ROUTE SHALL NOT EXCEED A 5% (1'-0" IN 20'-0") LONGITUDINAL SLOPE NOR A 2% (1'-0" IN 50'-0") CROSS-SLOPE.

NOTE: SEE CIVIL PLANS FOR ADDITIONAL INFORMATION

1 AS1.0M ARCHITECTURAL SITE PLAN
SCALE: 1" = 80'-0"

N

ARCHITECTURAL SITE PLAN

PERMIT SET

STATE OF MISSOURI
M. RANDALL PORTER
A-2012006244
ARCHITECT

04 FEB 2021
M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

WALLACE ARCHITECTS, LLC
MISSOURI STATE CERTIFICATE OF AUTHORITY: 2003019614

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1ST ISSUE
04 FEB 2021

ISSUE/REVISIONS

1	04 FEB 2021	PERMIT SET
2		
3		
4		
5		
6		

SHEET NO.
AS1.0M

JOB NO.
3984

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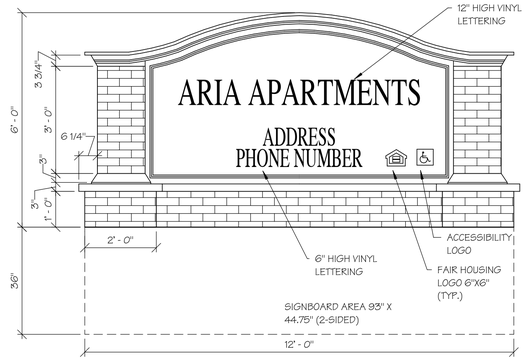
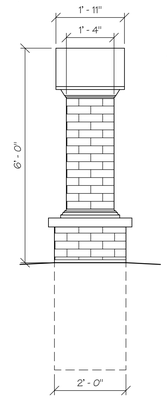
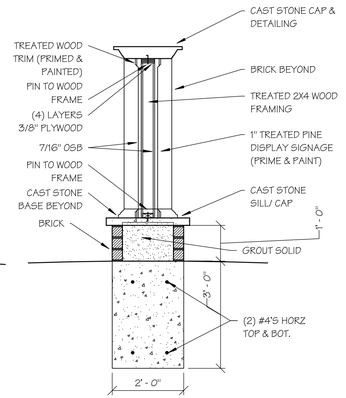


NOTES:
1) SIGN TO BE LIGHTED. COORDINATE WITH POWER CO. AND/OR ELECTRICAL CONTRACTOR.
2) REQUIRES OWNER APPROVAL PRIOR TO ORDERING.
3) SIGN TO BE TWO SIDED.



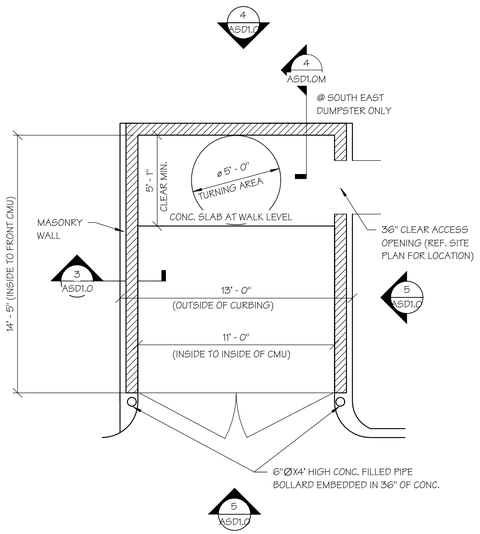
END ELEVATION



SECTION AA:

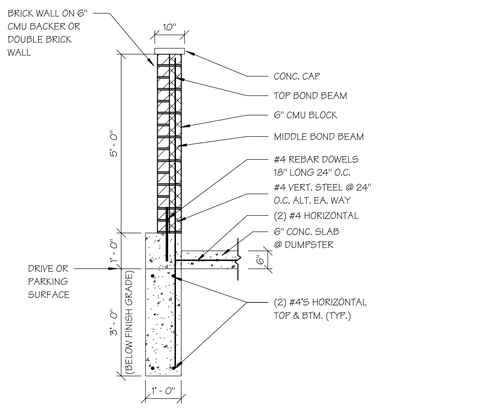
PROJECT MONUMENT SIGN

1 / ASD1.0M SCALE: 1/2" = 1'-0"



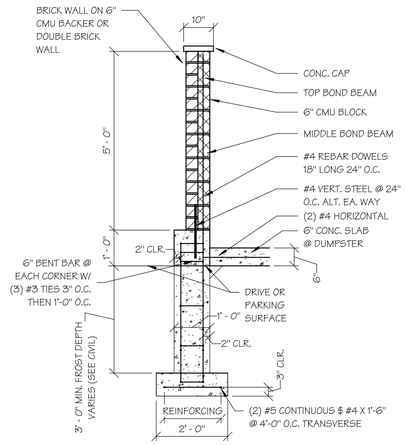
DUMPSTER ENCLOSURE

2 / ASD1.0M SCALE: 1/4" = 1'-0"



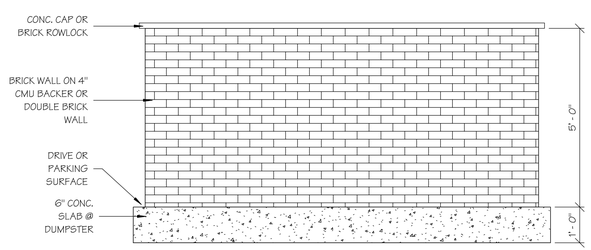
DUMPSTER ENCLOSURE WALL SECTION

3 / ASD1.0M SCALE: 1/2" = 1'-0"

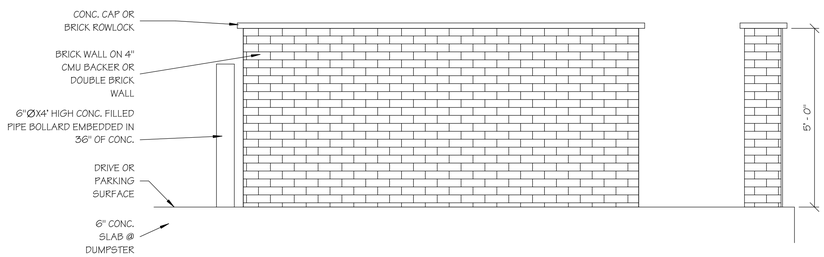


SOUTH EAST DUMPSTER ENCLOSURE REAR STEM WALL SECTION

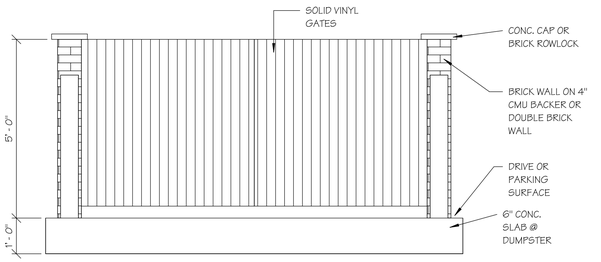
4 / ASD1.0M SCALE: 1/2" = 1'-0"



REAR



TYP. SIDE



FRONT

DUMPSTER ENCLOSURE ELEVATIONS

5 / ASD1.0M SCALE: 1/2" = 1'-0"

SITE DETAILS

PERMIT SET

M. RANDALL PORTER
2012006244
ARCHITECT
04 FEB 2021
M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

WALLACE ARCHITECTS, LLC
MISSOURI STATE CERTIFICATE OF AUTHORITY: 2003010614

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1ST ISSUE
04 FEB 2021

ISSUE/REVISIONS
1 04 FEB 2021 PERMIT SET

SHEET NO. ASD1.0M

JOB NO. 3984

2/17/2021 4:58:12 PM

ARIA APARTMENTS LEE'S SUMMIT

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

PROJECT INFORMATION

SITE DATA

SITE ZONING:	(SEE CIVIL)
SITE SIZE:	(SEE CIVIL)
SITE DENSITY:	(SEE CIVIL)
NO. OF PARKING SPACES:	(SEE CIVIL)

BUILDING DATA

UNIT LABEL	BED BATH MIX	IN COMPLIANCE WITH	GROSS SQ FT	QTY	SUBTOTAL
11A	1-BR 1-BA	ANSI B, FHA	715	32	22,880 SF
11B	1-BR 1-BA	ANSI B, FHA	768	40	30,720 SF
11B A/V	1-BR 1-BA	ANSI B, FHA	768	1	768 SF
11B ACC	1-BR 1-BA	ANSI A, FHA	768	2	1,536 SF
11C	1-BR 1-BA	ANSI B, FHA	821	8	6,568 SF
11D	1-BR 1-BA	ANSI B, FHA	825	20	16,500 SF
11E	1-BR 1-BA	ANSI B, FHA	913	5	4,565 SF
22A	2-BR 2-BA	ANSI B, FHA	1,063	23	24,449 SF
22A ACC	2-BR 2-BA	ANSI A, FHA	1,063	1	1,063 SF
22B	2-BR 2-BA	ANSI B, FHA	1,160	32	37,120 SF
22C	2-BR 2-BA	ANSI B, FHA	1,260	19	23,940 SF
22C A/V	2-BR 2-BA	ANSI B, FHA	1,260	1	1,260 SF
22D	2-BR 2-BA	ANSI B, FHA	1,360	8	10,880 SF
32A	3-BR 3-BA	ANSI B, FHA	1,483	5	7,415 SF
32A A/V	3-BR 3-BA	ANSI B, FHA	1,483	2	2,966 SF
32A ACC	3-BR 3-BA	ANSI A, FHA	1,483	1	1,483 SF
	UNIT TOTAL:			200	
	DWELLING UNIT AREA:				78,972 SF
	NON-DWELLING AREA:				18,969 SF
	TOTAL BUILDING AREA				97,941 SF

RENTAL UNITS BY BUILDING:	(1) BUILDING "A" = (20) 1-BR UNITS, (19) 2-BR UNITS, (1) 2-BR ACC UNIT (2) BUILDING "B" = (19) 1-BR UNITS, (20) 2-BR UNITS, (1) 1-BR ACC UNIT (2) BUILDING "C" = (24) 1-BR UNITS, (12) 2-BR UNITS, (3) 3-BR UNITS, (1) 3-BR ACC UNIT
TOTAL RENTAL UNITS:	(106) 1-BR UNITS, (2) ACC 1-BR UNITS, (83) 2-BR UITS, (1) ACC 2-BR UNIT), (7) 3-BR UNITS, (1) ACC 3-BR UNIT TOTAL UNITS: (200)

CODES/REGULATIONS

BLDG. & RELATED CODES:	2018 IBC, IFC, IMC W/ LOCAL AMMENDMENTS
ELECTRICAL CODE:	2017 NEC W/ LOCAL AMMENDMENTS
FIRE CODE:	2018 IFC W/ LOCAL AMMENDMENTS
ACCESSIBILITY CODE:	2009 ICC/ANSI A117.1; FAIR HOUSING ACT
MISC.:	ALL APPLICABLE FEDERAL, STATE, LOCAL CODES, LAWS AND ORDINANCES

BUILDING CODE DATA

USE GROUP:	R-2 (APT. BLDGS.)
CONSTRUCTION TYPE:	5-A (APT. BLDGS.)
EXTERIOR WALL CONSTRUCTION:	1-HR RATED (RATED FROM INSIDE ONLY)
OTHER WALL CONSTRUCTION:	1-HR RATED UNIT SEPERATION WALLS, 1-HR RATED ROOF/CEILING & FLOOR/CEILING, 1-HR RATED INTERIOR LOAD BEARING WALLS; 1-HR RATED CORRIDOR WALLS; UN-RATED UNIT INTERIOR WALLS; 2-HR RATED ELEVATOR...
TOTAL ACTUAL AREA:	BUILDING "A" 1ST FLOOR = 10,929 SF, TOTAL = 43,322 BUILDING "B" 1ST FLOOR = 11,572 SF, TOTAL = 45,905 BUILDING "C" 1ST FLOOR = 11,371 SF, TOTAL = 45,160
ALLOWABLE HEIGHT & FLOORS:	60'-0", 4 STORIES PER IBC 2018, TABLES 504.3 & 504.4
ACTUAL HEIGHT & FLOORS:	R-2 (BUILDING "A") 58'-8" =/- & 4 STORIES R-2 (BUILDING "B") 58'-8" =/- & 4 STORIES R-2 (BUILDING "C") 59'-8" =/- & 4 STORIES
HEIGHT/AREA ADJUSTMENTS:	NONE REQUIRED, NONE TAKEN

OCCUPANT LOAD

DWELLING UNITS:	(1)-BR 11A UNIT = 715 SF/200 = 3.58, (4 PERSONS) (1)-BR 11B UNIT = 768 SF/200 = 3.84, (4 PERSONS) (1)-BR 11B A/V UNIT = 768 SF/200 = 3.84, (4 PERSONS) (1)-BR 11B ACC UNIT = 768 SF/200 = 3.84, (4 PERSONS) (1)-BR 11C UNIT = 821 SF/200 = 4.12, (5 PERSONS) (1)-BR 11D UNIT = 825 SF/200 = 4.13, (5 PERSONS) (1)-BR 11E UNIT = 913 SF/200 = 4.57, (5 PERSONS) (2)-BR 22A UNIT = 1,063 SF/200 = 5.32, (6 PERSONS) (2)-BR 22A ACC UNIT = 1,063 SF/200 = 5.32, (6 PERSONS) (2)-BR 22B UNIT = 1,160 SF/200 = 5.8, (6 PERSONS) (2)-BR 22C UNIT = 1,260 SF/200 = 6.3, (7 PERSONS) (2)-BR 22C A/V UNIT = 1,260 SF/200 = 6.3, (7 PERSONS) (2)-BR 22D UNIT = 1,360 SF/200 = 6.8, (7 PERSONS) (3)-BR 32A UNIT = 1,483 SF/200 = 7.42, (8 PERSONS) (3)-BR 32A A/V UNIT = 1,483 SF/200 = 7.42, (8 PERSONS) (3)-BR 32A ACC UNIT = 1,483 SF/200 = 7.42, (8 PERSONS)
FIRE SUPPRESSION SYSTEM:	NFPA 13R DESIGNED AND INSTALLED BY ACCREDITED FIRE PROTECTION SYSTEM DESIGNER AND INSTALLER. PROTECTION SHALL INCLUDE ALL AREAS AS APPLICABLE BY LOCAL AND STATE CODES. DRYWET SYSTEMS AS REQUIRED - NO WET PIPING TO BE INSTALLED IN ATTIC OR OTHER UNCONDITIONED SPACES. DRAFTSTOPPING PROVIDED AT ATTIC.

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2 - STRUCTURAL (BY CROCKETT ENGINEERING CONSULTANTS)				
S100	COVER/GENERAL STRUCTURAL DATA	04 FEB 2021	04 FEB 2021	PERMIT SET
S101-S102	SHEAR WALL PLAN	04 FEB 2021	04 FEB 2021	PERMIT SET
S200-S202	FOUNDATION PLAN	04 FEB 2021	04 FEB 2021	PERMIT SET
S210	FOUNDATION DETAILS	04 FEB 2021	04 FEB 2021	PERMIT SET
S300-S302	2ND FLR FRAMING PLAN	04 FEB 2021	04 FEB 2021	PERMIT SET
S400-S402	3RD FLR FRAMING PLAN	04 FEB 2021	04 FEB 2021	PERMIT SET
S500-S502	4TH FLT FRAMING PLAN	04 FEB 2021	04 FEB 2021	PERMIT SET
S510	FLOOR FRAMING DETAILS	04 FEB 2021	04 FEB 2021	PERMIT SET
S600-S602	ROOF FRAMING PLAN	04 FEB 2021	04 FEB 2021	PERMIT SET
S610-S611	ROOF FRAMING DETAILS	04 FEB 2021	04 FEB 2021	PERMIT SET
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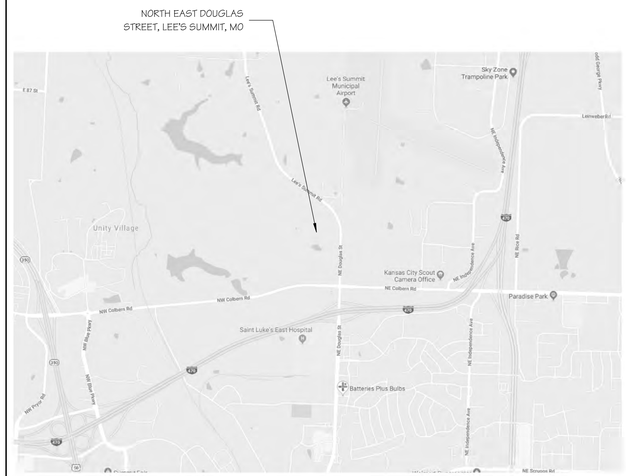
A1.2	BUILDING B BUILDING PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A1.3	BUILDING B BUILDING PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A1.4	BUILDING C BUILDING PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A1.5	BUILDING C BUILDING PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A1.6	UNITS 11A, 11B, 11C, 11D & 11E DIMENSION PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A1.7	UNITS 22A, 22B, 22C & 22D DIMENSION PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A1.8	UNITS 32A, 11B ACC, 22A ACC & 32A ACC DIMENSION PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A1.9	DOOR SCHEDULE	04 FEB 2021	04 FEB 2021	PERMIT SET
A1.10	UNITS 11A, 11B & 11C CLEAR FLOOR SPACE PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A1.11	UNITS 11D, 11E, 22A & 22B CLEAR FLOOR SPACE PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A1.12	UNITS 22C, 22D, 32A & 11B ACC CLEAR FLOOR SPACE PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A1.13	UNITS 22A ACC & 32A ACC CLEAR FLOOR SPACE PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A2.0	BUILDING A ROOF PLAN & ROOF DETAILS	04 FEB 2021	04 FEB 2021	PERMIT SET
A2.1	BUILDINGS B & C ROOF PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A3.0	BUILDING A EXTERIOR ELEVATIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A3.1	BUILDING B EXTERIOR ELEVATIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A3.2	BUILDING C EXTERIOR ELEVATIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A4.0	WALL SECTIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A4.1	WALL SECTIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A4.2	WALL SECTIONS & DETAILS	04 FEB 2021	04 FEB 2021	PERMIT SET
A4.3	FRAMING DETAILS	04 FEB 2021	04 FEB 2021	PERMIT SET
A4.4	STAIR SECTIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A5.0	FIRE RESISTANCE RATED ASSEMBLIES	04 FEB 2021	04 FEB 2021	PERMIT SET
A5.1	FIRE RESISTANCE RATED ASSEMBLIES	04 FEB 2021	04 FEB 2021	PERMIT SET
A5.2	FIRE RESISTANCE RATED ASSEMBLIES	04 FEB 2021	04 FEB 2021	PERMIT SET
A5.3	FIRE RESISTANCE RATED ASSEMBLIES	04 FEB 2021	04 FEB 2021	PERMIT SET
A5.4	FIRE RESISTANCE RATED ASSEMBLIES	04 FEB 2021	04 FEB 2021	PERMIT SET
A5.5	FIRE RESISTANCE RATED ASSEMBLIES	04 FEB 2021	04 FEB 2021	PERMIT SET
A5.6	FIRE RESISTANCE RATED ASSEMBLIES	04 FEB 2021	04 FEB 2021	PERMIT SET
A5.7	FIRE RESISTANCE RATED ASSEMBLIES	04 FEB 2021	04 FEB 2021	PERMIT SET
A5.8	FIRE RESISTANCE RATED ASSEMBLIES	04 FEB 2021	04 FEB 2021	PERMIT SET
A6.0	UNITS 11A, 11B, 11B ACC & 11C FINISH PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A6.1	UNITS 11D, 11E, 22A, 22A ACC & 22B FINISH PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A6.2	UNITS 22C, 22D, 32A & 32A ACC FINISH PLANS	04 FEB 2021	04 FEB 2021	PERMIT SET
A7.0	INTERIOR ELEVATIONS NOTES AND DETAILS	04 FEB 2021	04 FEB 2021	PERMIT SET
A7.1	INTERIOR ELEVATIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A7.2	INTERIOR ELEVATIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A7.3	INTERIOR ELEVATIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A7.4	INTERIOR ELEVATIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A7.5	INTERIOR ELEVATIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A7.6	INTERIOR ELEVATIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A7.7	INTERIOR ELEVATIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
A7.8	INTERIOR ELEVATIONS	04 FEB 2021	04 FEB 2021	PERMIT SET
4-FIRE STOPPING REFERENCE DETAILS (PROVIDED BY STI)				
FS1.0	FIRE STOPPING REFERENCE DETAILS	04 FEB 2021	04 FEB 2021	PERMIT SET
FS1.1	FIRE STOPPING REFERENCE DETAILS	04 FEB 2021	04 FEB 2021	PERMIT SET

ARCHITECT'S JOB NO. 3984

PROJECT LOCATION MAP



SIGNATURE AREAS

NOTE: PROJECT CONSTRUCTION MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES, ORDINANCES, LAWS, AND REGULATIONS AS ENUMERATED ELSEWHERE IN THE PLANS AND SPECIFICATIONS.

ARCHITECT: WALLACE ARCHITECTS, L.L.C.
302 CAMPUSVIEW DRIVE SUITE 208, COLUMBIA, MO 65201
BY: DATE:

OWNER: ARIA LS, L.L.C.
4240 PHILIPS FARM ROAD, COLUMBIA, MO 65201
BY: DATE:

CONTRACTOR: CENTRAL STATES CONSTRUCTION
4215 PHILIPS FARM ROAD, STE. 109, COLUMBIA, MO 65201
BY: DATE:

DATE:

PM: RP
PC: RS

PLAN SET NO. _____

COVER SHEET

PERMIT SET

M. RANDALL PORTER
2012006244
ARCHITECT
STATE OF MISSOURI
04 FEB 2021
M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

WALLACE ARCHITECTS, LLC
MISSOURI STATE CERTIFICATE OF AUTHORITY: 2003019614

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1ST ISSUE
04 FEB 2021

ISSUE/REVISIONS
1 04 FEB 2021 PERMIT SET
2
3
4
5

SHEET NO. 0.0

JOB NO. 3984

2/10/2021 1:30:06 PM

Aria Lee's Summit Apartments

Lee's Summit, Jackson County, Missouri

GENERAL NOTES

ELEVATION DATUM
SEE ARCHITECTURAL DRAWINGS OR SITE PLAN FOR FINISH FLOOR ELEVATIONS

DESIGN SPECIFICATIONS
2018 INTERNATIONAL BUILDING CODE

EARTHWORK
EARTHWORK OPERATIONS SHALL BE PERFORMED UNDER THE DIRECTION OF A PROFESSIONAL TESTING AGENCY TO ASSURE COMPLIANCE WITH THE RECOMMENDATIONS OF THE SOILS REPORT BY OLSSON, INC. DATED AUGUST 22, 2019.

CONCRETE

CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF THE CURRENT ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS, ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 305 SPECIFICATIONS FOR HOT WATER CONCRETE, AND ACI 306 SPECIFICATIONS FOR COLD WEATHER CONCRETE, WITH THE FOLLOWING ADDITIONAL REQUIREMENTS:

1. CONCRETE SHALL DEVELOP THE FOLLOWING 28-DAY MINIMUM COMPRESSIVE STRENGTH:
   - FOUNDATIONS – 3,000 PSI
   - CAST-IN-PLACE WALLS – 3,500 PSI
   - FLOOR SLAB – 4,000 PSI
   - EXTERIOR SLABS, WALLS AND CURBS – 4,000 PSI
2. ALL FOOTINGS SHALL BEAR ON UNDISTURBED SOIL OR ENGINEERED FILL.
3. CHLORIDE- BASED ADMIXTURES ARE PROHIBITED IN ALL REINFORCED CONCRETE.
4. REINFORCING STEEL SHALL CONFORM TO ASTM A615, A616, OR A617, GRADE 60.
5. ALL CONTINUOUS REINFORCING STEEL THAT MEETS AT A CORNER SHALL BE TIED TOGETHER WITH A CORNER BAR THAT HAS SUFFICIENT LAP DISTANCE IN EACH DIRECTION
6. CONTINUOUS REINFORCING BARS LAP LENGTH SHALL BE A MINIMUM OF 48 BAR DIAMETERS UNLESS NOTED OTHERWISE
7. CONCRETE SLUMP SHALL BE A MAXIMUM OF 4" +/- 1" (ASTM C- 143) AS DELIVERED IN THE FIELD. CONTRACTOR MAY USE CHEMICAL ADMIXTURES TO ATTAIN A MAXIMUM SLUMP OF 8" FOR WORKABILITY. NO WATER MAY BE ADDED TO THE CONCRETE MIX ON SITE UNLESS WATER IS WITHHELD AT THE BATCHING FACILITY. IF WATER IS WITHHELD AT THE BATCHING FACILITY IT SHOULD BE REFLECTED ON THE LOAD TICKET. THE TOTAL AMOUNT OF WATER IN THE MIX SHALL NOT EXCEED WHAT IS NOTED ON THE APPROVED MIXED. THIS SHALL BE NOTED IN THE SPECIAL INSPECTOR'S RECORDS.
8. CONCRETE EXPOSED TO WEATHER, VEHICLES, AND/OR DEICING CHEMICALS SHALL BE AIR-ENTRAINED WITH 6% (+/-) 1.5% ENTRAINED AIR BY VOLUME AT POINT OF DISCHARGE. DO NOT ALLOW AIR CONTENT OF TROWELED FINISHED FLOORS TO EXCEED 3%.
9. SUBMIT CONCRETE MIX PROPORTIONS PRIOR TO START OF WORK. DO NOT BEGIN CONCRETE PRODUCTION UNTIL MIXES HAVE BEEN REVIEWED AND ARE ACCEPTABLE TO THE ENGINEER.
10. READY MIX CONCRETE SHALL COMPLY WITH REQUIREMENTS OF ASTM C94.
11. CONCRETE WORK EXECUTION
    - A. CONSTRUCT FORMS TO CORRECT SIZE, SHAPE, ALIGNMENT, ELEVATION AND POSITION; AND TO SUPPORT VERTICAL AND LATERAL LOADS.
    - B. POSITION, SUPPORT, AND SECURE REINFORCEMENT AGAINST DISPLACEMENT. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE, UNLESS NOTED OTHERWISE ON THE DRAWINGS:
      - CAST AGAINST AND EXPOSED TO EARTH.....3 INCHES
      - EXPOSED TO EARTH OR WEATHER.....2 INCHES
      - NOT EXPOSED TO WEATHER OR
      - IN CONTACT WITH EARTH.....1 ½ INCHES
    - C. PROVIDE CONTROL JOINTS IN SLABS-ON-GRADE AT NOT GREATER THAN 15 FEET ON CENTER IN EACH DIRECTION. SAW CUT CONTROL JOINTS MINIMUM ¼ OF SLAB DEPTH, AS SOON AFTER SLAB FINISHING WITHOUT DISLODGING AGGREGATE.
    - D. STEEL TROWEL FINISH ALL INTERIOR CONCRETE SLABS, BROOM FINISH ALL EXTERIOR CONCRETE SLABS.
    - E. CURE ALL CONCRETE IN COMPLIANCE WITH ACI 301, USING A LIQUID TYPE MEMBRANE, NON-RESIDUAL, CURING COMPOUND COMPLYING WITH ASTM C309. ASSURE COMPATIBILITY WITH FINISH FLOOR COVERING.

POST-INSTALLED ANCHORS

1. ALL POST-INSTALLED ANCHORS SHALL MEET THE REQUIREMENTS OF THE CODE-CITED EDITION OF ACI 318, APPENDIX "D", AND SHALL BE ACCEPTABLE FOR BOTH CRACKED AND UNCRACKED CONCRETE.
2. EXPANSION ANCHORS HAVE BEEN DESIGNED AS HILTI KWIK BOLT TZ ANCHORS, UNLESS NOTED OTHERWISE.
3. ADHESIVE ANCHORS HAVE BEEN DESIGNED TO USE HILTI HIT HY 200 ADHESIVE IN CONCRETE OR SOLID MASONRY, UNLESS NOTED OTHERWISE.
4. EQUIVALENT ANCHORS MAY BE SUBMITTED FOR THE ENGINEER'S APPROVAL. SUBMITTALS ARE THE CONTRACTOR'S RESPONSIBILITY AND MUST INCLUDE EVALUATION REPORTS FROM THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS (ICBO).
5. EMBEDMENT DEPTH IS DEFINED AS THE DISTANCE FROM THE SURFACE OF THE LOAD-BEARING BASE MATERIAL TO THE DEEPEST PART OF THE ANCHOR AFTER THE ANCHOR HAS BEEN DRIVEN INTO THE HOLE BUT NOT YET EXPANDED.
6. ADHESIVE ANCHORS SHALL BE ACCEPTABLE FOR LONG-TERM LOADING. WHEN BASE MATERIAL TEMPERATURES ARE BELOW 40 DEG F, ONLY NON-EPOXY-BASED ADHESIVES SHALL BE USED.
7. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE DRAWINGS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER PRIOR TO USING POST-INSTALLED ANCHORS FOR MISSING OR MISPLACED CAST-IN-PLANE ANCHORS. CARE SHALL BE TAKEN TO AVOID CONFLICTS WITH EXISTING REINFORCING BARS. HOLES SHALL BE DRILLED AND CLEANED PER ANCHOR MANUFACTURER'S SPECIFICATIONS.
8. STAINLESS STEEL ANCHORS ARE REQUIRED AT ALL PERMANENTLY EXPOSED WEATHER CONDITIONS.

TIMBER

TIMBER WORK SHALL CONFORM TO ALL REQUIREMENTS OF THE CURRENT ANSI/AF&PA NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION, WITH THE FOLLOWING SUPPLEMENTAL REQUIREMENTS:

1. FOR COMMON MEMBER SIZES, THE SPECIES AND GRADES SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:
   - A. 2X4 SPF No.1/No.2
   - B. 2X6 SPF No.1/No.2
   - C. 2X8 DF-L No.2
   - D. 2X10 DF-L S.S.
   - E. 2X12 DF-L S.S.

   EQUIVALENT (OR BETTER) GRADES & SPECIES MAY BE SUBMITTED FOR THE ENGINEER'S APPROVAL.
2. SIZES SHOWN FOR LUMBER ARE NOMINAL SIZES.
3. TIMBER EXPOSED TO WEATHER OR GROUND, OR IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE-IMPREGNATED BY AN APPROVED PROCESS AND PRESERVATIVE.
4. SPLICING OF JOISTS, STUDS, OR HEADERS IS PROHIBITED EXCEPT AS SHOWN.
5. BOLTS SHALL CONFORM TO ASTM A307. HOLES SHALL BE DRILLED PER SECTION 11.1.2 OF THE 2005 ANSI/AF&PA NDS FOR WOOD CONSTRUCTION.
6. LAG SCREWS AND WOOD SCREWS SHALL BE INSTALLED PER SECTIONS 11.1.3 AND 11.1.4, RESPECTIVELY, OF THE 2005 ANSI/AF&PA NDS FOR WOOD CONSTRUCTION.
7. COMMON NAILS SHALL BE USED, UNLESS NOTED OTHERWISE. IN ADDITION, NAILS SHALL BE GALVANIZED, IF EXPOSED TO WEATHER OR MOISTURE. TOE-NAILS SHALL BE DRIVEN PER SECTION 11.1.5.4 OF THE 2005 ANSI/AF&PA NDS FOR WOOD CONSTRUCTION.
8. FASTENING SHALL BE PER THE IBC MINIMUM FASTENING SCHEDULE, TABLE 2304.9.1, UNLESS NOTED OTHERWISE.
9. CONNECTIONS/CONNECTORS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
10. SOLID BLOCKING IN THE TRUSS SPACE IS REQUIRED IN ALL LOCATIONS WHERE JAMB STUDS DO NOT LAND DIRECTLY ON A TRUSS. SIZE AND QUANTITY TO MATCH JAMB STUD REQUIREMENTS.

PREFABRICATED WOOD TRUSSES

1. FLOOR & ROOF TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE TRUSS PLATE INSTITUTE (TPI) DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES, AND THE ANSI/NF&PA NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION.
2. PROVIDE TEMPORARY AND PERMANENT BRACING ON ALL TRUSSES, AS REQUIRED TO PROVIDE MEMBER AND TRUSS STABILITY.
3. FLOOR & ROOF TRUSSES SHALL BE DESIGNED AND CONSTRUCTED FOR A MAXIMUM TOTAL LOAD DEFLECTION OF L/360 AND TO SAFELY SUPPORT THE FOLLOWING LOADS:
   - A. DEAD, LIVE, SNOW, WIND, EARTHQUAKE: SEE PROJECT DESIGN DATA ON COVER SHEET.
   - B. MECHANICAL PIPE LOAD: TRUSSES SHALL BE DESIGNED FOR A CONCENTRATED LOAD OF 250 LBS HUNG ANYWHERE ALONG THE BOTTOM CHORD.
   - C. OVER-FRAMING LOAD: TRUSSES SHALL ALSO BE DESIGNED TO SUPPORT ADDITIONAL OVERBUILD FRAMING, SUCH AS THAT WHICH FORMS VALLEYS AND HIPS ON ROOFS.
   - D. DRIFTED SNOW LOAD: TRUSSES SHALL BE DESIGNED TO SUPPORT DRIFTED SNOW LOADS IN ACCORDANCE WITH THE APPROPRIATE BUILDING CODE.
   - E. IN-PLANE LATERAL LOADS: TRUSSES SHALL BE DESIGNED TO SUPPORT ANY LATERAL LOADS CARRIED AXIALLY IN THE PLANE OF THE TRUSS, AS SHOWN ON THE PLANS.
4. GABLED END TRUSSES SHALL HAVE VERTICAL MEMBERS SPACED AT 16" O.C. MAXIMUM.
5. SUBMITTALS SHALL INCLUDE THE FOLLOWING:
   - A. SHOP DRAWINGS PREPARED UNDER THE SUPERVISION OF, AND SIGNED AND SEALED BY, A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS BUILT. THESE DRAWINGS SHALL INDICATE SPECIES, GRADE, AND SIZES OF LUMBER TO BE USED; PITCH, SPAN, CAMBER, CONFIGURATION, AND SPACING FOR EACH TYPE OF TRUSS REQUIRED; TYPE, SIZE, MATERIAL, FINISH, AND LOCATION OF METAL CONNECTOR PLATES; AND BEARING DETAILS. SHOW TRUSS LAYOUT AND ALL REQUIRED TEMPORARY AND PERMANENT BRACING AFFECTING THE STRUCTURAL CAPACITY OF THE TRUSSES.

PROVIDE COMPLETE ENGINEERING DESIGN CALCULATIONS THAT INCLUDE DESIGN VALUES, DESIGN ANALYSIS INDICATING LOADING, ASSUMED ALLOWABLE STRESSES, STRESS DIAGRAMS, AND CALCULATIONS, AND ANY OTHER INFORMATION NEEDED FOR REVIEW. THE CALCULATIONS SHALL HAVE BEEN SIGNED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER WHO IS REGISTERED IN THE STATE WHERE THE PROJECT IS BUILT AND WHO IS RESPONSIBLE FOR PREPARATION OF THE CALCULATIONS.

SPECIAL INSPECTIONS

THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION IN ACCORDANCE WITH CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE.

- a. CONCRETE GROUT DESIGN MIX (PERIODIC)
- b. PLACING OF CONCRETE AND REINFORCING STEEL (CONTINUOUS OF CONCRETE SAMPLING / PERIODIC OF REINFORCING)
- c. BOLTS & ANCHORS EMBEDDED IN CONCRETE (PERIODIC)
- d. STRUCTURAL STEEL FABRICATIONS (UNLESS AISC APPROVED) (PERIODIC)
- e. STRUCTURAL STEEL BOLTING & WELDING (PERIODIC)
- f. POST INSTALLED ANCHORS IN CONCRETE (CONTINUOUS)
- g. IN-SITU SOILS, EXCAVATIONS, FILLING & COMPACTION (PERIODIC)
- h. MASONRY AND REINFORCING STEEL (CONTINUOUS ON CELL GROUTING / PERIODIC ON REINFORCING)
- i. WOOD FRAMING:
  - i.a. SHEAR WALLS; WALL SIZE, CONFIGURATION, BLOCKING, PANEL GRADE, PANEL THICKNESS, AND FASTENING. (PERIODIC)
  - i.b. DIAPHRAGMS (FLOOR AND ROOF SHEATHING); SIZE, CONFIGURATION, BLOCKING, PANEL GRADE, PANEL THICKNESS, AND FASTENING. (PERIODIC)
  - i.c. FRAMING MEMBERS AND DETAILS (PERIODIC)
  - i.d. MATERIAL GRADE (PERIODIC)
  - i.e. CONNECTIONS; HANGERS, HOLD DOWNS, BUILT-UP COLUMNS, BUILT-UP BEAMS (PERIODIC)
  - i.f. PRE-ENGINEERED TRUSSES; FRAMING, CONNECTIONS, BRIDGING (PERIODIC)

THE CONTRACTOR SHALL REQUEST SPECIAL INSPECTION OF THE ITEMS LISTED ABOVE PRIOR TO THOSE ITEMS BECOMING INACCESSIBLE AND UNOBSERVABLE DUE TO PROGRESSION OF THE WORK.

DESIGN DATA

2018 INTERNATIONAL BUILDING CODE / ASCE 7-16

BUILDING OCCUPANCY CATEGORY	II
ROOF LOAD	
LIVE LOAD	20
TOP CHORD DEAD/COLLATERAL LOAD	10
BOTTOM CHORD DEAD/COLLATERAL LOAD	10
TOTAL TO TRUSS	40 lbs/sq.ft
2ND/3RD/4TH FLOOR LOAD	
LIVE LOAD (COMMON AREA)	40 (100)
3/4" LIGHTWEIGHT CONCRETE & 3/4" PLYWOOD	15
MECHANICAL ALLOWANCE	4
INSULATION/CEILING	3
FLOOR STRUCTURE	3
TOTAL TO FLOOR TRUSS	65 (125) lbs/sq.ft
ROOF SNOW LOAD*	(*UNBALANCED & DRIFTING SNOW TO BE DETERMINED IN ADDITION TO UNIFORM LOAD, WHERE APPLICABLE)
P_g =	20 lbs/sq.ft
C_e =	1.0
I_s =	1.0
C_t =	1.0
P_f =	20 lbs/sq.ft
P_s =	20 lbs/sq.ft
BASIC DESIGN WIND LOAD	
V =	115 M.P.H. (3-SECOND GUST)
I_w =	1.0
EXPOSURE	C
INTERNAL PRESSURE COEFFICIENT =	± 0.18
MAXIMUM COMPONENTS & CLADDING WIND	± 33.05 lbs/sq.ft
EARTHQUAKE DESIGN DATA	
S_S= 0.100	
S_1= 0.068	
S_{DS}= 0.086	
S_{D1}= 0.068	
SITE CLASS C	
SEISMIC DESIGN CATEGORY B	
BASIC SEISMIC-FORCE-RESISTING SYSTEM = LIGHT-FRAMED WALLS SHEATHED WITH STRUCTURAL PANELS	
R = 6.5	
Ω_o = 3.0	
C_d = 4.0	
I_e = 1.0	
EQUIVALENT LATERAL FORCE PROCEDURE	
V = 0.013W	
NET ALLOWABLE SOIL BEARING	2,500 lbs/sq.ft**

(**PER OLSSON, INC GEOTECHNICAL REPORT DATED AUGUST 22, 2019)

INDEX OF SHEETS

COVER / GENERAL STRUCTURAL DATA	S100
SHEAR WALL PLAN	S101-S102
FOUNDATION PLAN	S200-S202
FOUNDATION DETAILS	S210
2ND FLR FRAMING PLAN	S300-S302
3RD FLR FRAMING PLAN	S400-S402
4TH FLR FRAMING PLAN	S500-S502
FLOOR FRAMING DETAILS	S510
ROOF FRAMING PLAN	S600-S602
ROOF FRAMING DETAILS	S610-S611

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
JARED W. VERSLUIS
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER:
CROCKETT
ENGINEERING CONSULTANTS
1000 West Nifong, Building 1
Columbia, Missouri 65203
(573) 447-0292
www.crockettengineering.com
Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#2006015501

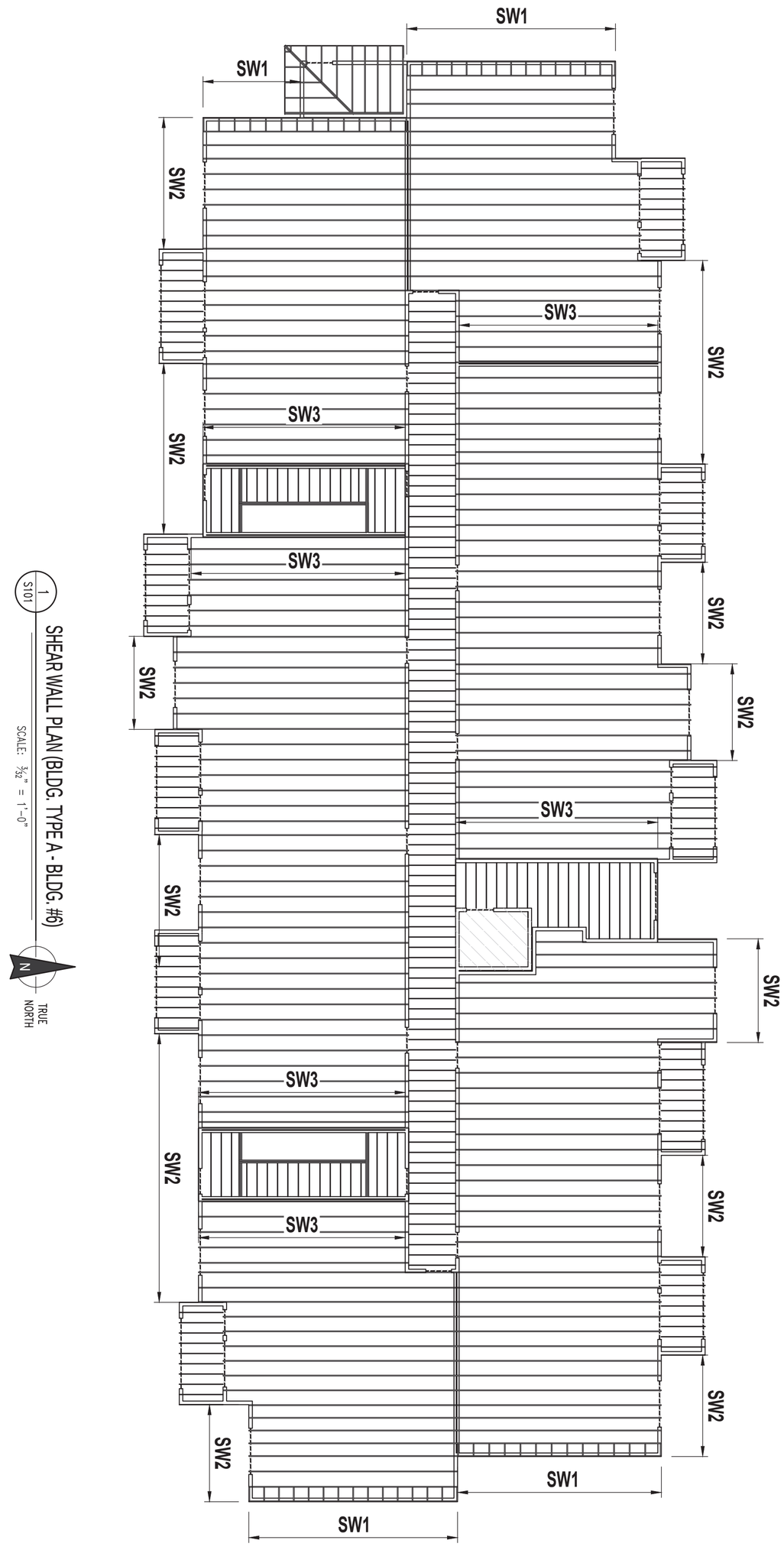
CLIENT:
CENTRAL STATES CONSTRUCTION
4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
GENERAL STRUCTURAL DATA

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299

SHEET:
S100

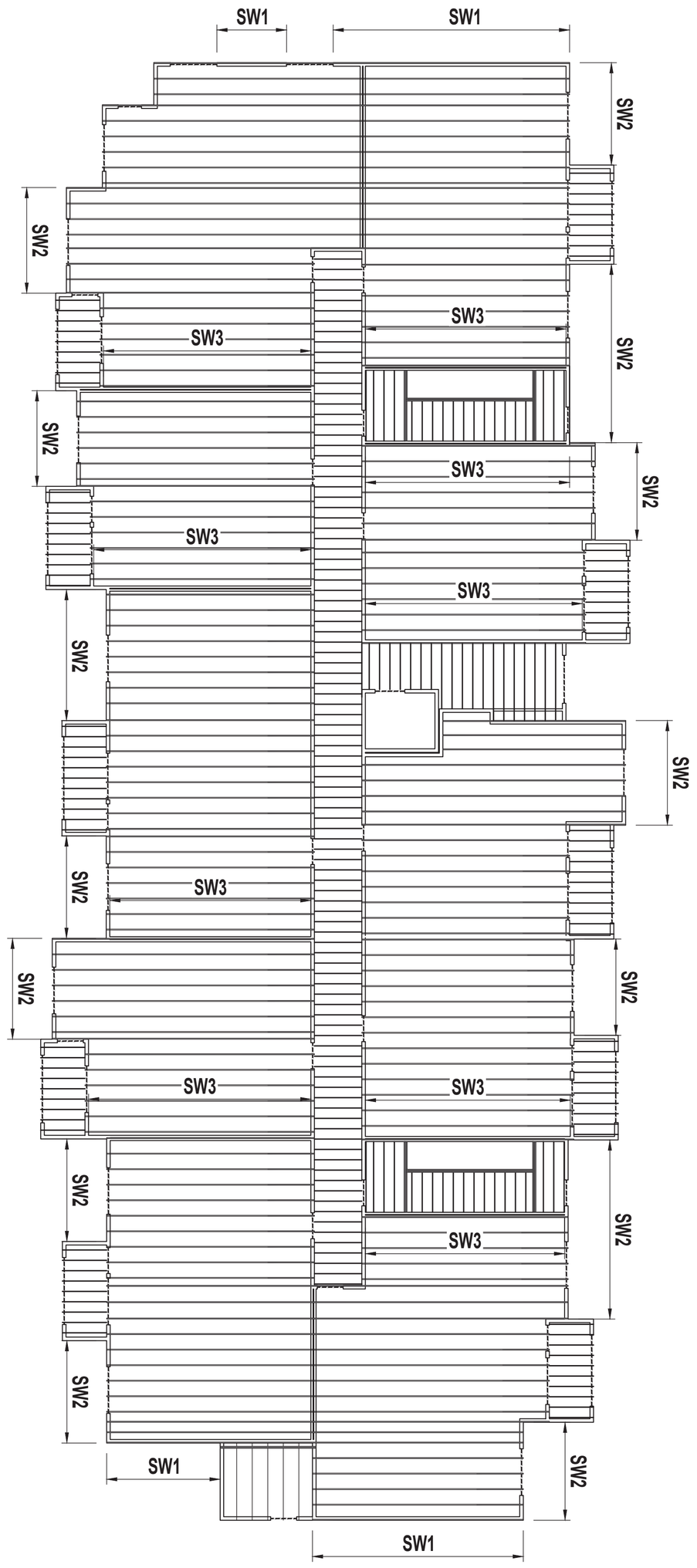


1 S101

SHEAR WALL PLAN (BLDG. TYPE A - BLDG. #6)

SCALE: 3/32" = 1'-0"

N TRUE NORTH



2 S101

SHEAR WALL PLAN (BLDG. TYPE B - BLDG. #2-3)

SCALE: 3/32" = 1'-0"

N TRUE NORTH

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

CLIENT:

CENTRAL STATES CONSTRUCTION

4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

STRUCTURAL ENGINEER:

CROCKETT
ENGINEERING CONSULTANTS
1000 W. Nifong Blvd., Bldg. 1
Columbia, Missouri 65203
(573) 447-0292
www.crockettengineering.com
Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#2000151301

STATE OF MISSOURI
JARED W. YBRSLIES
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

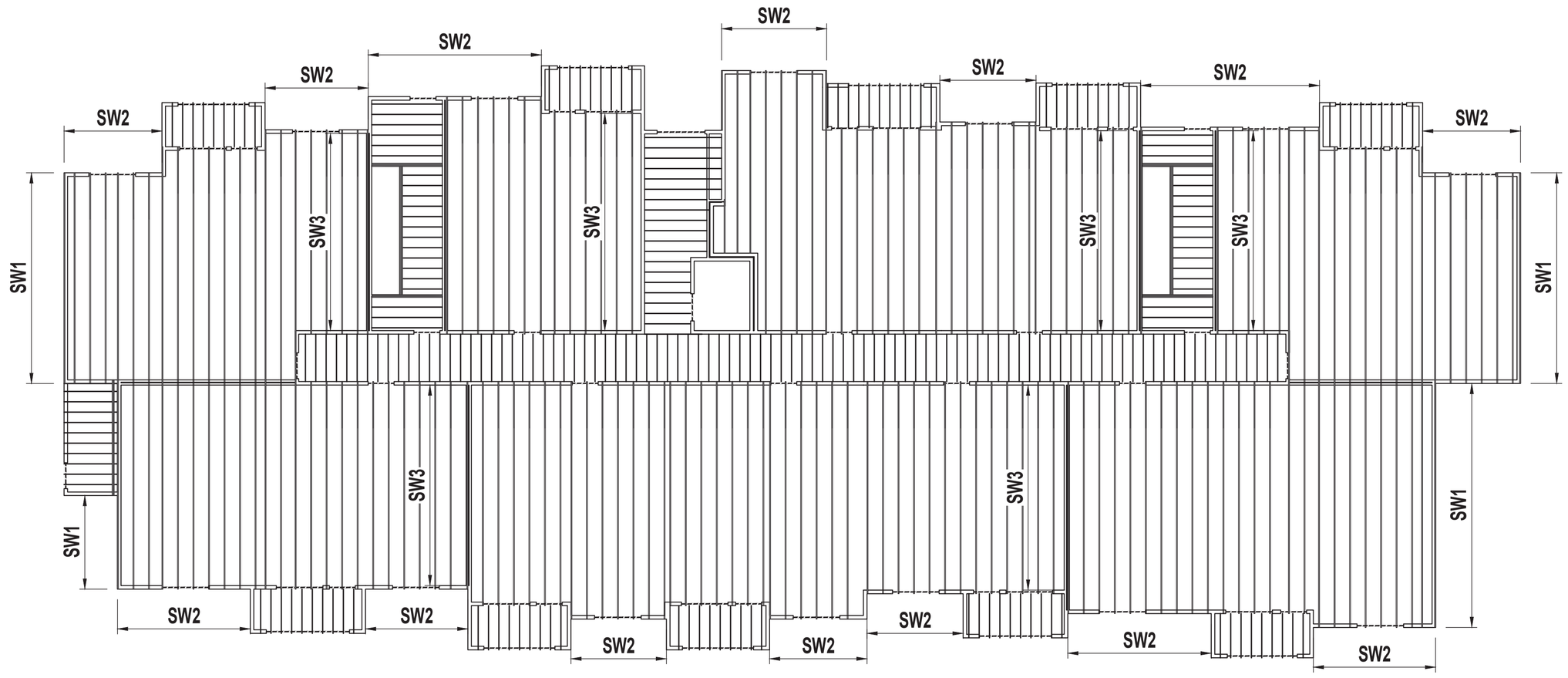
REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

DESIGNED: JWV
DRAWN: SEH
PROJECT NO.: 190299

DRAWING INCLUDES:
SHEAR WALL PLAN

SHEET: S101



1 / S102 SHEAR WALL PLAN (BLDG. TYPE C - BLDG. #4-5)

SCALE: 3/32" = 1'-0"

TRUE NORTH

SHEAR WALL KEY

SW-1

1ST FLOOR

7/16" OSB SHEATHING EACH FACE FASTENED W/ 8D NAILS @ 3" O.C. @ PERIMETER & 12" O.C. @ FIELD & 5/8"X8" TITEN HD ANCHORS @ 1'-6" O.C. W/ SIMPSON HTT4 HOLDDOWN FASTENED W/ (18) 16D SINKER NAILS TO (2) 2X6 STUDS AND A 5/8" A307 THREADED ROD W/ 6" HILTI HY-200 EPOXY EMBEDMENT INTO THE FOOTING (14" TOTAL EMBEDMENT) AT EACH END OF THE SHEAR WALL

2ND FLOOR

7/16" OSB SHEATHING FASTENED W/ 8D NAILS @ 2" O.C. @ PERIMETER & 12" O.C. @ FIELD W/ SIMPSON MSTC40 FASTENED W/ (28) 16D SINKER NAILS TO (2) 2X6 STUDS AT EACH END OF THE SHEAR WALL

3RD FLOOR

7/16" OSB SHEATHING FASTENED W/ 8D NAILS @ 4" O.C. @ PERIMETER & 12" O.C. @ FIELD W/ SIMPSON MSTC40 FASTENED W/ (20) 16D SINKER NAILS TO (2) 2X6 STUDS AT EACH END OF THE SHEAR WALL

4TH FLOOR

7/16" OSB SHEATHING FASTENED W/ 8D NAILS @ 4" O.C. @ PERIMETER & 12" O.C. @ FIELD W/ SIMPSON MSTC40 FASTENED W/ (20) 16D SINKER NAILS TO (2) 2X6 STUDS AT EACH END OF THE SHEAR WALL

SW-2

1ST FLOOR

7/16" OSB SHEATHING FASTENED W/ 8D NAILS @ 3" O.C. @ PERIMETER & 12" O.C. @ FIELD & 5/8"X8" TITEN HD ANCHORS @ 2'-0" O.C. W/ SIMPSON HTT4 HOLDDOWN FASTENED W/ (18) 16D SINKER NAILS TO (2) 2X6 STUDS AND A 5/8" A307 THREADED ROD W/ 6" HILTI HY-200 EPOXY EMBEDMENT INTO THE FOOTING (14" TOTAL EMBEDMENT) AT EACH END OF THE SHEAR WALL

2ND FLOOR

7/16" OSB SHEATHING FASTENED W/ 8D NAILS @ 3" O.C. @ PERIMETER & 12" O.C. @ FIELD W/ SIMPSON MSTC40 FASTENED W/ (28) 16D SINKER NAILS TO (2) 2X6 STUDS AT EACH END OF THE SHEAR WALL

3RD FLOOR

7/16" OSB SHEATHING FASTENED W/ 8D NAILS @ 4" O.C. @ PERIMETER & 12" O.C. @ FIELD W/ SIMPSON MSTC28 FASTENED W/ (12) 16D SINKER NAILS TO (2) 2X6 STUDS AT EACH END OF THE SHEAR WALL

4TH FLOOR

7/16" OSB SHEATHING FASTENED W/ 8D NAILS @ 4" O.C. @ PERIMETER & 12" O.C. @ FIELD W/ SIMPSON MSTC28 FASTENED W/ (12) 16D SINKER NAILS TO (2) 2X6 STUDS AT EACH END OF THE SHEAR WALL

SW-3

1ST FLOOR

7/16" OSB SHEATHING FASTENED W/ 8D NAILS @ 4" O.C. @ PERIMETER & 12" O.C. @ FIELD & 5/8"X8" TITEN HD ANCHORS @ 2'-0" O.C.

2ND FLOOR

7/16" OSB SHEATHING FASTENED W/ 8D NAILS @ 3" O.C. @ PERIMETER & 6" O.C.

3RD FLOOR

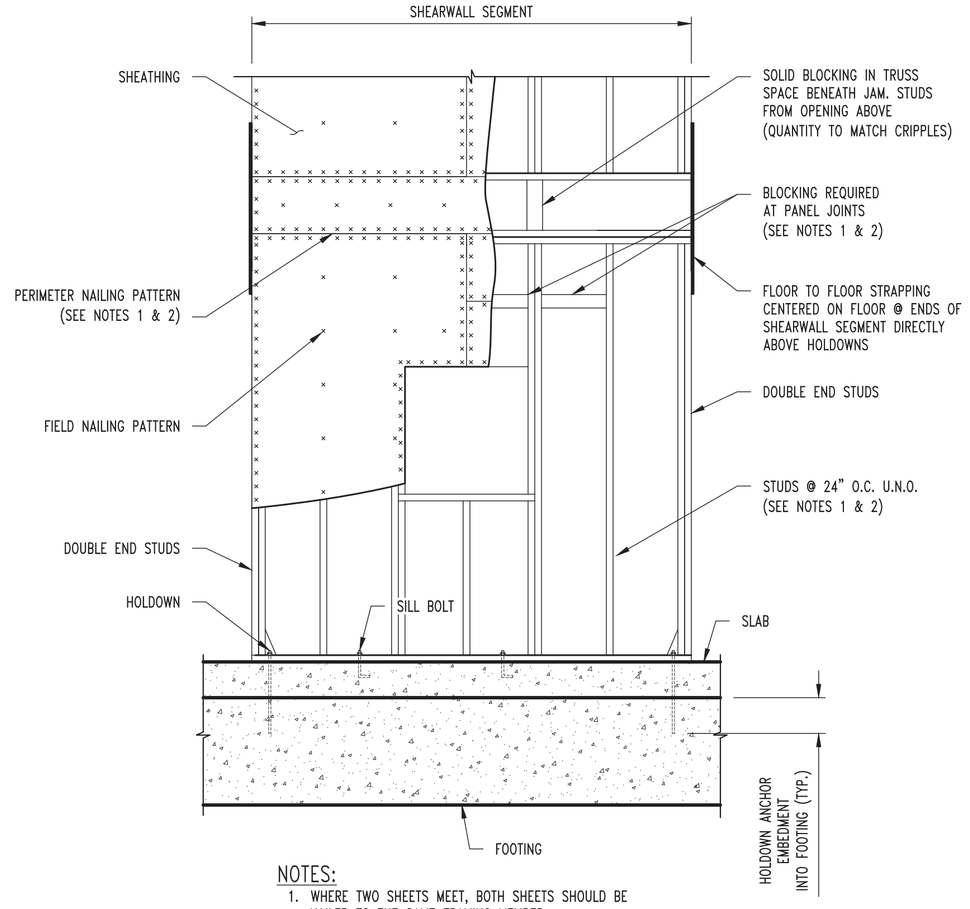
7/16" OSB SHEATHING FASTENED W/ 8D NAILS @ 3" O.C. @ PERIMETER & 6" O.C.

4TH FLOOR

7/16" OSB SHEATHING FASTENED W/ 8D NAILS @ 3" O.C. @ PERIMETER & 6" O.C.

NOTE:

IF WALL IS NOT LABELED AS A SHEAR WALL THE SHEATHING SHALL BE 7/16" OSB SHEATHING FASTENED W/ 8D NAILS @ 6" O.C. @ PERIMETER & 12" O.C. @ FIELD & 5/8"X8" TITEN HD ANCHORS @ 4'-0" O.C.



NOTES:

1. WHERE TWO SHEETS MEET, BOTH SHEETS SHOULD BE NAILED TO THE SAME FRAMING MEMBER.
2. WHEN SHEATHING NAILS ARE SPACED AT 2" O.C. FOR 8d NAILS OR 3" O.C. FOR 10d NAILS, 3x OR DOUBLE 2x FRAMING MEMBERS ARE REQUIRED WHERE SHEETS MEET. FACE NAIL DOUBLE 2x MEMBERS TOGETHER w/ 16d NAILS @ 2½" O.C. STAGGERED EACH FACE OF STUD.
3. SEE WALL SECTIONS FOR ADDITIONAL INFORMATION.

TYP. MULTI-STORY SHEAR WALL/BLOCKING DETAIL

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
JARED W. VERSLUIS
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER:
CROCKETT
ENGINEERING CONSULTANTS
1000 West Nifong Blvd. Bldg. 1
Columbia, Missouri 65203
(573) 447-0292
www.crockettengineering.com
Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#2006015501

CLIENT:
CENTRAL STATES CONSTRUCTION
4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:

SHEAR WALL PLAN & DETAILS

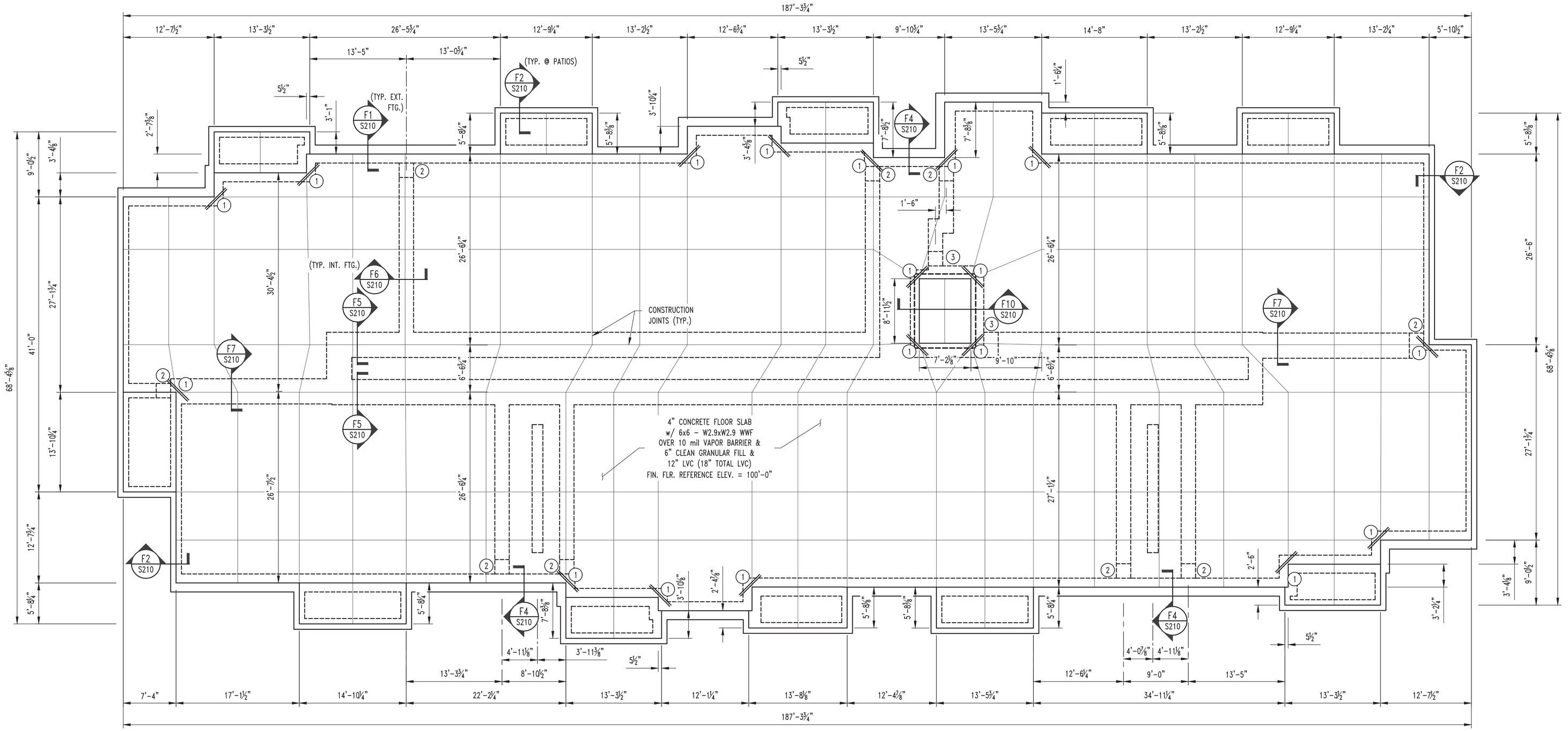
DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299

SHEET: S102

NOTE:
ALL DIMENSIONS TO EDGE OF SLAB
& ℄ OF FOOTING, UNLESS NOTED OTHERWISE.

FOUNDATION NOTES

1. REENTRANT CORNER BARS, REFER TO TYPICAL CRACK CONTROL REINFORCING DETAIL S210.
2. FOOTING STEP-REFER TO DETAIL FS1/S210
3. FOOTING STEP-REFER TO DETAIL FS2/S210



1 S200 FOUNDATION PLAN (BLDG. TYPE A - BLDG. #6)
SCALE: ⅛" = 1'-0"

TRUE NORTH

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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JARED W. VERSLUES
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COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FOUNDATION PLAN

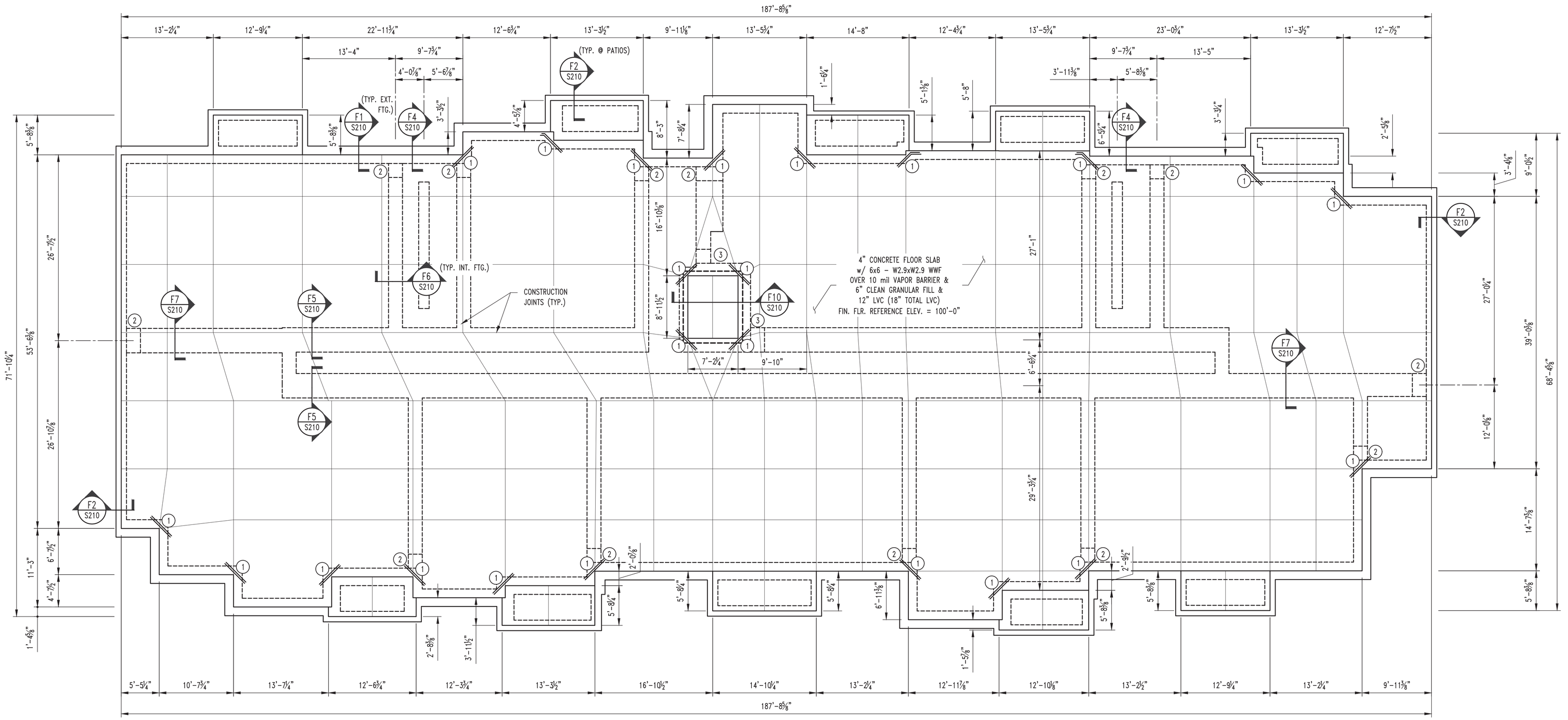
DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299

SHEET:
S200

NOTE:
ALL DIMENSIONS TO EDGE OF SLAB
& ℄ OF FOOTING, UNLESS NOTED OTHERWISE.

FOUNDATION NOTES

1. REENTRANT CORNER BARS, REFER TO TYPICAL CRACK CONTROL REINFORCING DETAIL S210.
2. FOOTING STEP-REFER TO DETAIL FS1/S210
3. FOOTING STEP-REFER TO DETAIL FS2/S210



1/S201 FOUNDATION PLAN (BLDG. TYPE B - BLDG. #2-3)
SCALE: ⅜" = 1'-0"

TRUE NORTH

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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JARED W. VERSLUES
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COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

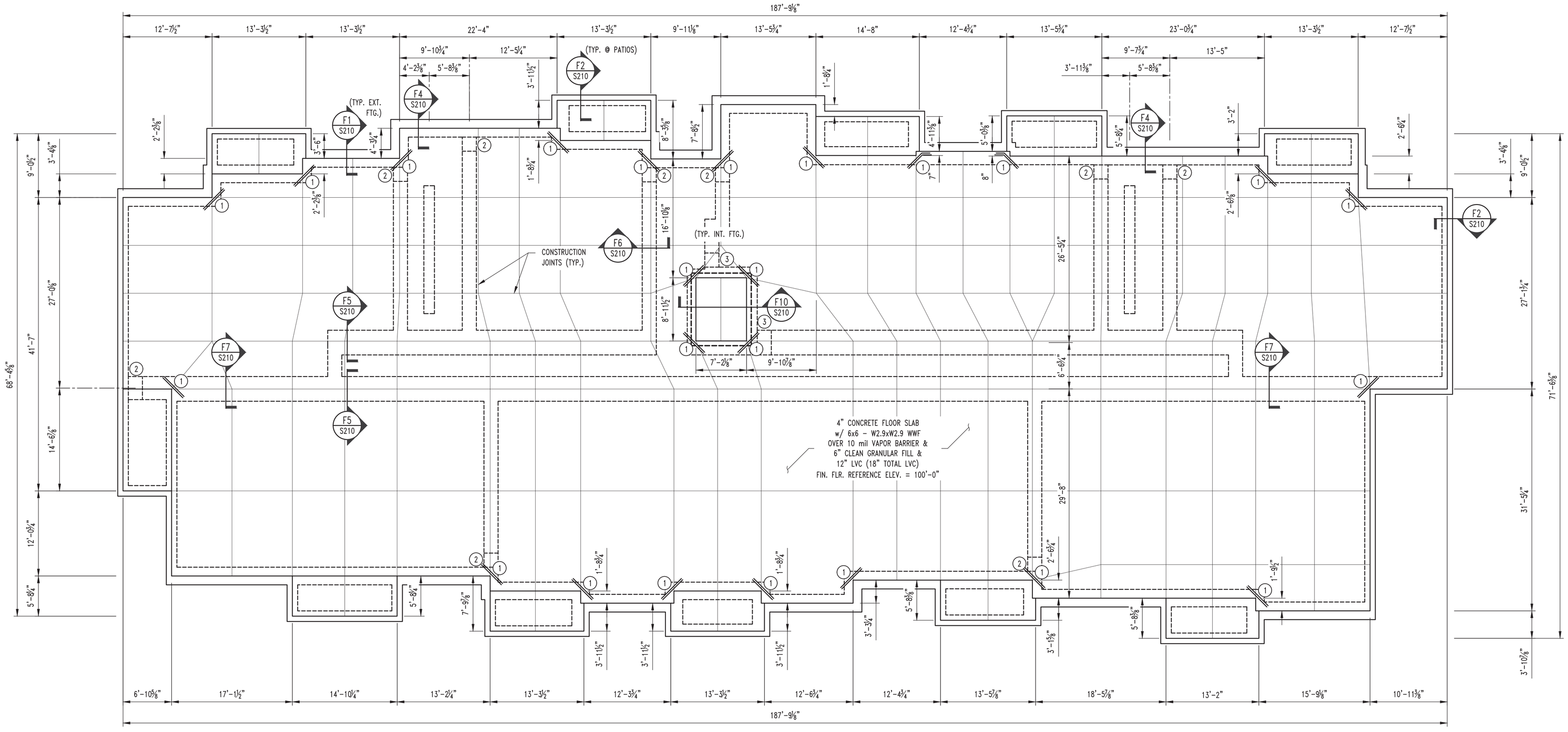
DRAWING INCLUDES:
FOUNDATION PLAN

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299
SHEET:	S201

NOTE:
ALL DIMENSIONS TO EDGE OF SLAB
& ℄ OF FOOTING, UNLESS NOTED OTHERWISE.

FOUNDATION NOTES

1. REENTRANT CORNER BARS, REFER TO TYPICAL CRACK CONTROL REINFORCING DETAIL S210.
2. FOOTING STEP-REFER TO DETAIL FS1/S210
3. FOOTING STEP-REFER TO DETAIL FS2/S210



1 S200 FOUNDATION PLAN (BLDG. TYPE C - BLDG. #4-5)
SCALE: ⅛" = 1'-0"

TRUE NORTH

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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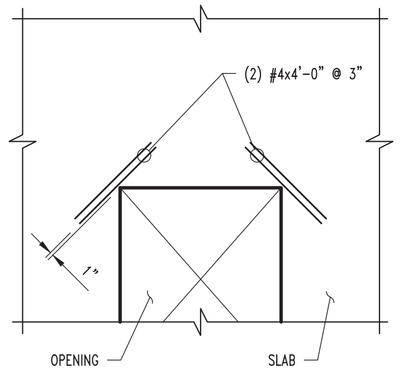
ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FOUNDATION PLAN

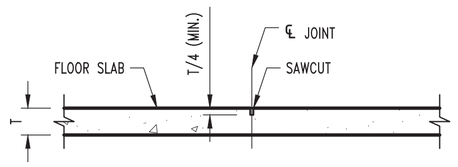
DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299

SHEET:
S202

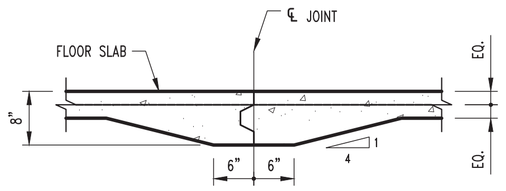


NOTE:
TYPICAL AT ALL REENTRANT CORNERS FOR SLAB-ON-GRADE & STRUCTURAL SLAB. REINFORCING TO BE CENTERED IN SLAB THICKNESS.

CRACK CONTROL REINFORCING



CONTRACTION JOINT



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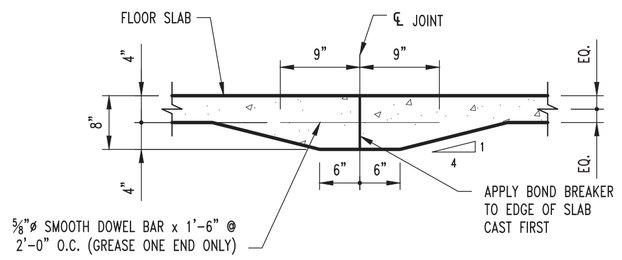

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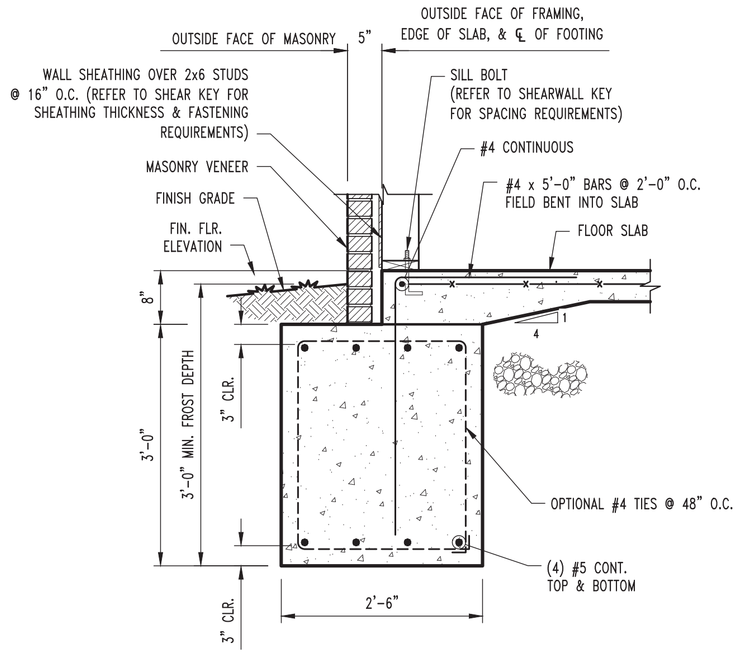
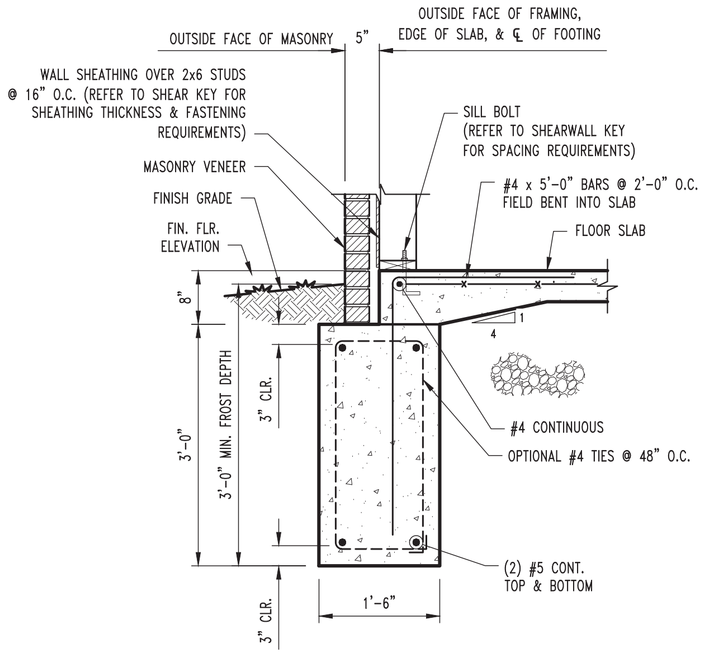


F1 S200-202 CONT. FOOTING SECTION
SCALE: ¾" = 1'-0"



F2 S200-202 CONT. FOOTING SECTION
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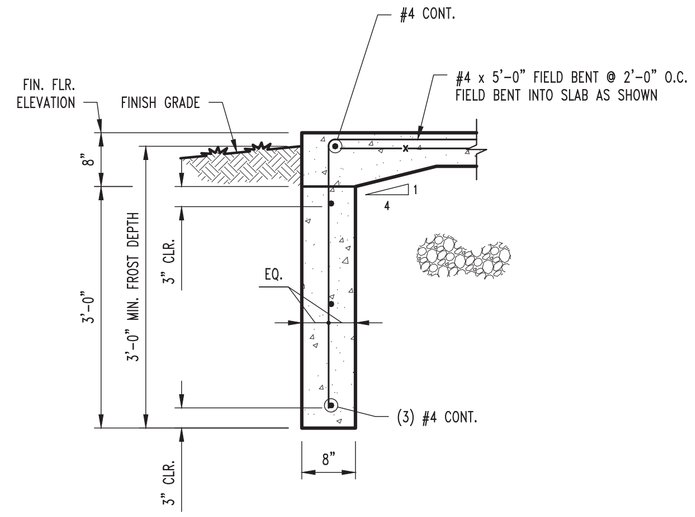
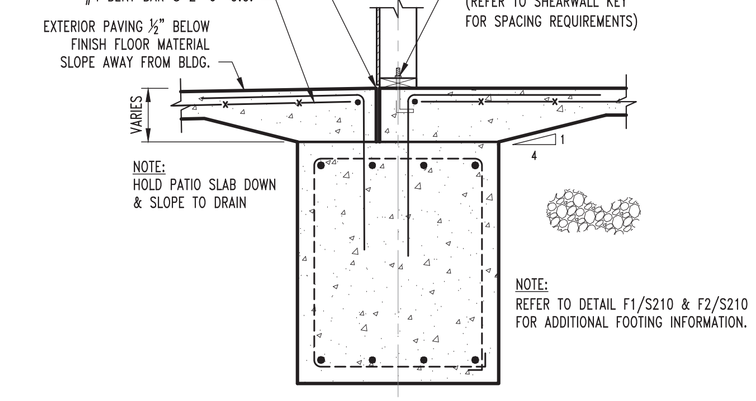
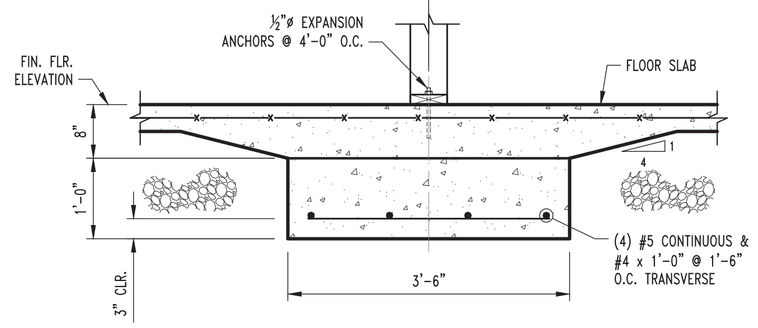


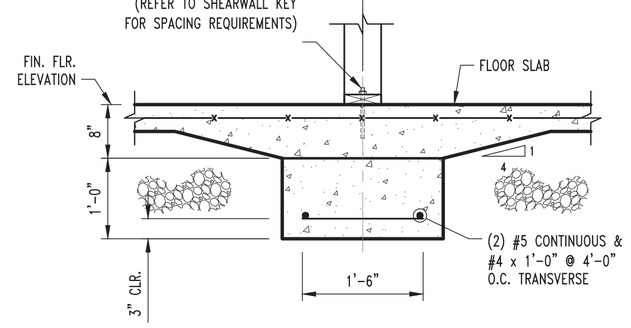
F3 S200-202 PORCH / TYP. CONCRETE SECTION
SCALE: ¾" = 1'-0"



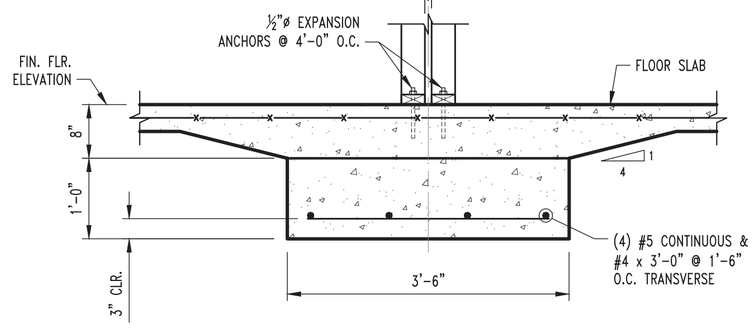
F4 S200-202 CONT. FOOTING SECTION
SCALE: ¾" = 1'-0"



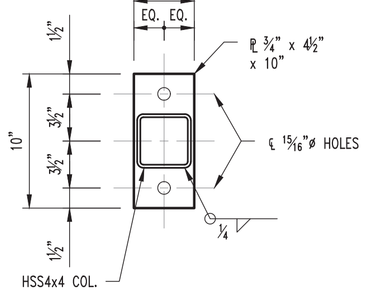
F5 S200-202 CONT. INTERIOR FOOTING SECTION
SCALE: ¾" = 1'-0"



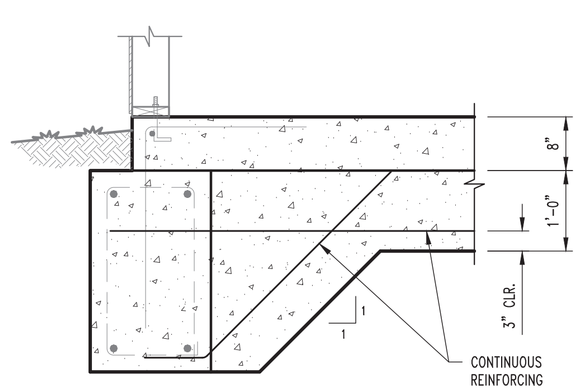
F6 S200-202 CONT. INTERIOR FOOTING SECTION
SCALE: ¾" = 1'-0"



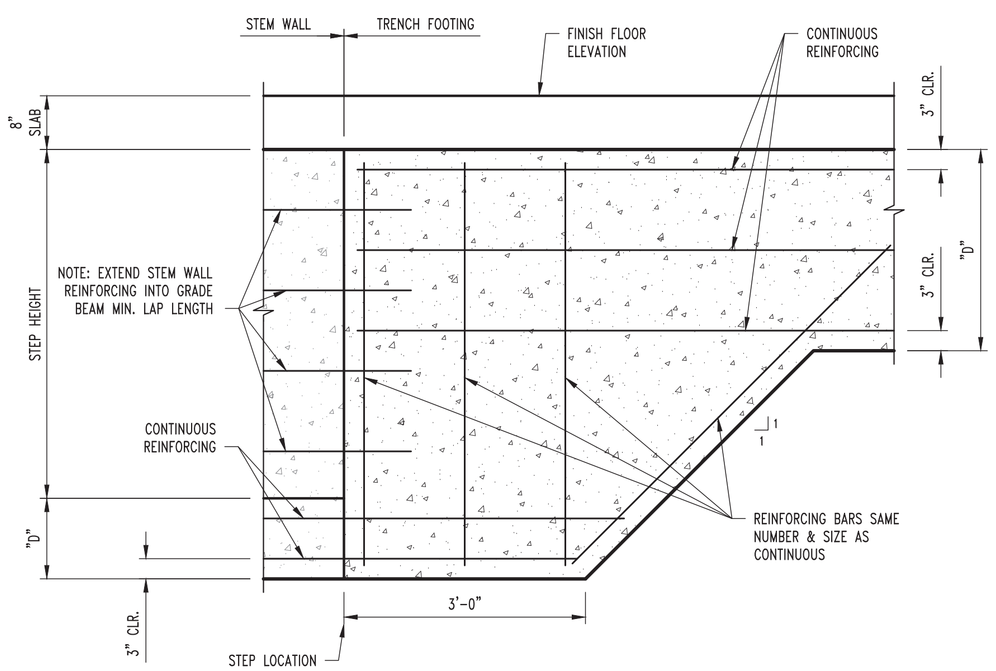
F7 S200-202 CONT. INTERIOR FOOTING SECTION
SCALE: ¾" = 1'-0"



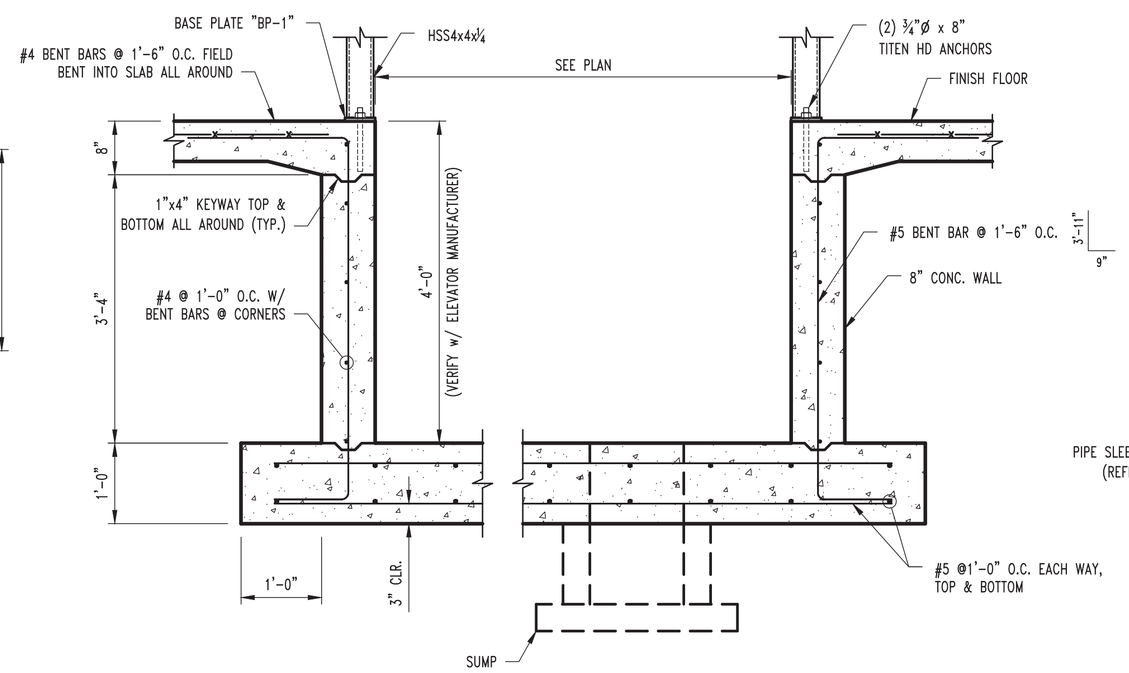
BASE PLATE "BP-1"



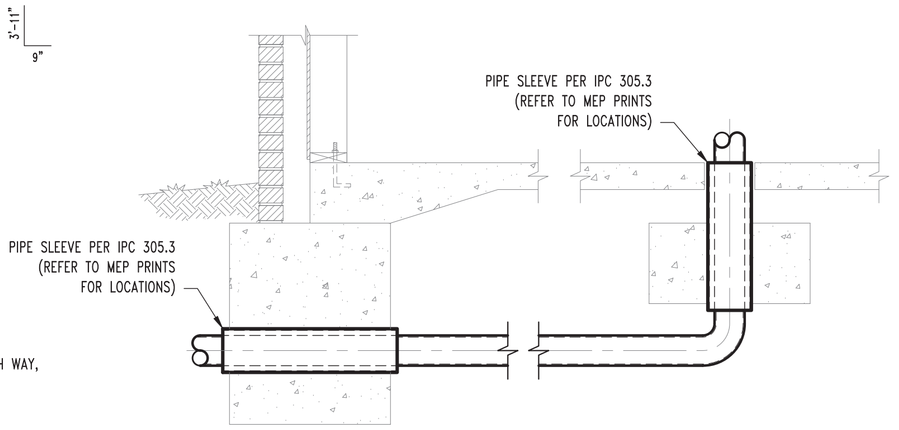
FS1 S200-202 FOOTING STEP SECTION
SCALE: ¾" = 1'-0"



FS2 S200-202 FOOTING STEP DETAIL
SCALE: ¾" = 1'-0"



F10 S200-202 ELEVATOR PIT SECTION
SCALE: ¾" = 1'-0"



TYP. PLUMBING COORDINATION DETAILS

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
JARED W. VERSLUES
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER:
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4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FOUNDATION DETAILS

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299

SHEET:
S210

NOTE:
ALL DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING UNLESS NOTED OTHERWISE.

STUD WALL FRAMING NOTES:

FIRST LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 SEL. STR. SPF @ 16" O.C. w/ BLOCKING @ MID-HEIGHT

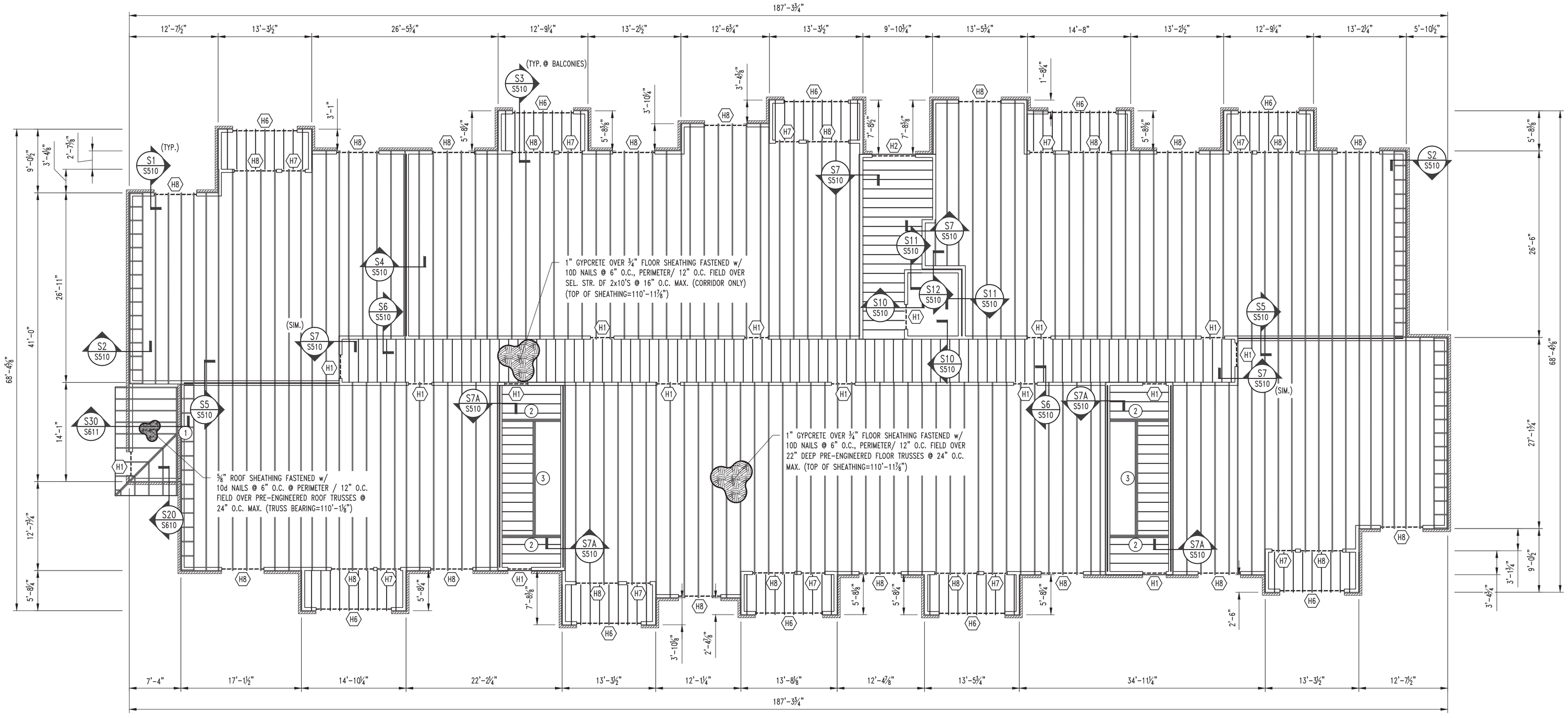
SECOND LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C.

THIRD LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C. OR 2x4 SEL. STR. SPF @ 16" O.C.

FOURTH LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – 2x4 STUD GRADE SPF @ 16" O.C.

NOTES

1. GIRDER TRUSS w/ 3 PLY BUILT-UP POST @ EACH END
2. 3 PLY SEL. STR. DF 2x10 w/ 3 PLY BUILT-UP POST @ EACH END
3. 3 PLY MICROLAM 2.0E 1.75x9.25 w/ SIMPSON HGUS 5.50/10



1 S300 — 2ND FLOOR FRAMING PLAN (BLDG. TYPE A - BLDG. #6)
SCALE: ⅛" = 1'-0"
TRUE NORTH

BRICK LINTEL SCHEDULE

SPAN	Lintel
L ≤ 4'-0"	L4x3-1/2x3/8 w/ 6" BEARING EACH SIDE
L ≤ 6'-6"	L5x3-1/2x3/8 w/ 6" BEARING EACH SIDE
BALCONY LINTEL	L6x4x3/8 w/ 8" BEARING EACH SIDE

HEADER SCHEDULE

MARK	HEADER	CRIPPLE	JAMB
"H1"	(2) SPF No. 1/No. 2 2x6's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H2"	(2) DFL No. 2 2x8's	(1) SPF No. 1/No. 2 2x6	(2) SPF No. 1/No. 2 2x6's
"H3"	(2) DFL Sel. Str. 2x10's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H4"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H5"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H6"	(2) DFL Sel. Str. 2x10's	(3) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H7"	(2) DFL Sel. Str. 2x10's	(4) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H8"	(2) DFL Sel. Str. 2x10's	(5) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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STATE OF MISSOURI — JARED W. VERSLUIS — NUMBER PE-2017000387 — PROFESSIONAL ENGINEER

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ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING PLAN

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299
SHEET:	S300

NOTE:
ALL DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING UNLESS NOTED OTHERWISE.

STUD WALL FRAMING NOTES:

FIRST LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 SEL. STR. SPF @ 16" O.C. w/ BLOCKING @ MID-HEIGHT

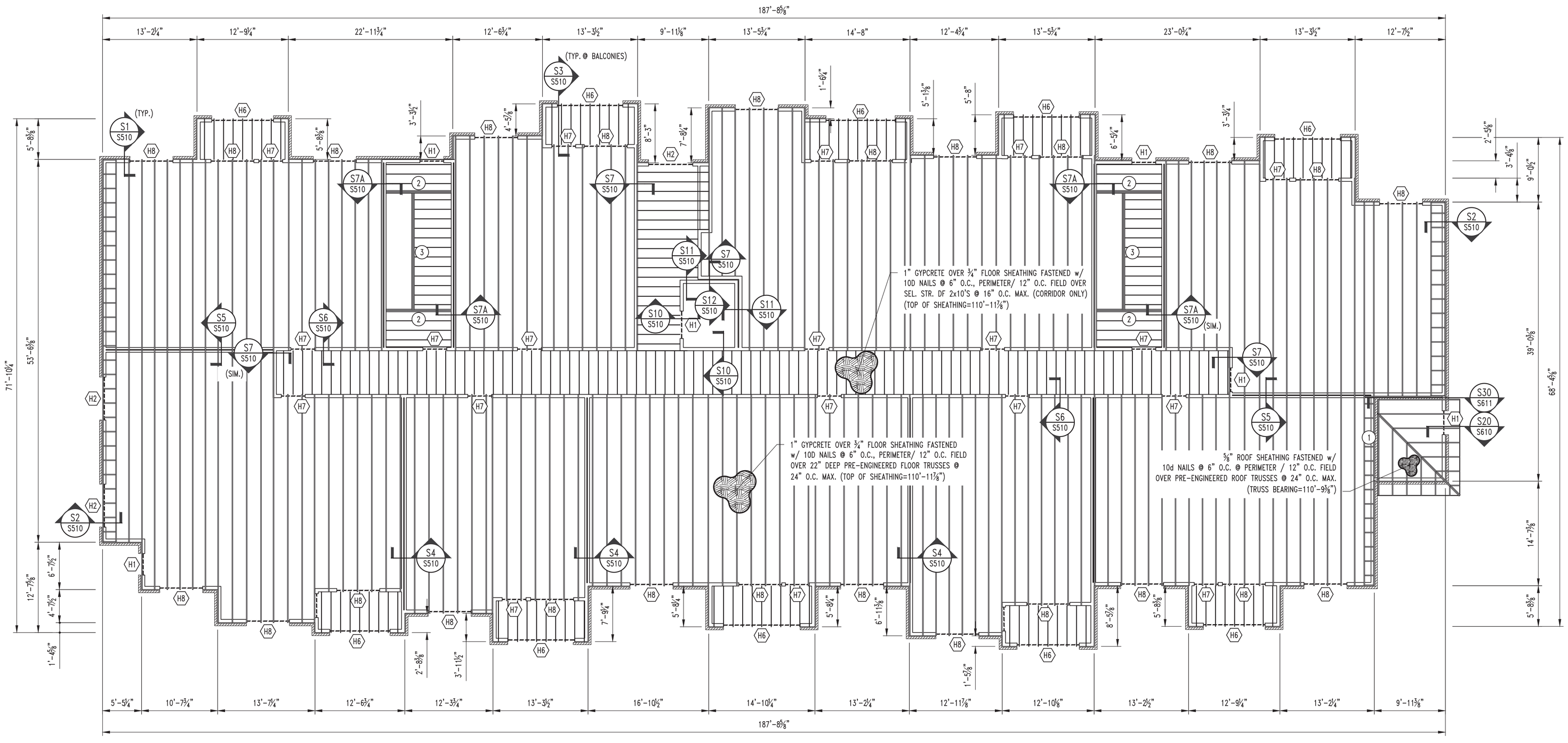
SECOND LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C.

THIRD LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C. OR 2x4 SEL. STR. SPF @ 16" O.C.

FOURTH LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – 2x4 STUD GRADE SPF @ 16" O.C.

NOTES

1. GIRDER TRUSS w/ 3 PLY BUILT-UP POST @ EACH END
2. 3 PLY SEL. STR. DF 2x10 w/ 3 PLY BUILT-UP POST @ EACH END
3. 3 PLY MICROLAM 2.0E 1.75x9.25 w/ SIMPSON HGUS 5.50/10



1 / S301 2ND FLOOR FRAMING PLAN (BLDG. TYPE B - BLDG. #2-3)
SCALE: ⅛" = 1'-0"
TRUE NORTH

BRICK LINTEL SCHEDULE

SPAN	Lintel
L ≤ 4'-0"	L4x3-1/2x3/8 w/ 6" BEARING EACH SIDE
L ≤ 6'-6"	L5x3-1/2x3/8 w/ 6" BEARING EACH SIDE
BALCONY LINTEL	L6x4x3/8 w/ 8" BEARING EACH SIDE

HEADER SCHEDULE

MARK	HEADER	CRIPPLE	JAMB
"H1"	(2) SPF No. 1/No. 2 2x6's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H2"	(2) DFL No. 2 2x8's	(1) SPF No. 1/No. 2 2x6	(2) SPF No. 1/No. 2 2x6's
"H3"	(2) DFL Sel. Str. 2x10's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H4"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No.2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H5"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H6"	(2) DFL Sel. Str. 2x10's	(3) SPF No. 1/No.2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H7"	(2) DFL Sel. Str. 2x10's	(4) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H8"	(2) DFL Sel. Str. 2x10's	(5) SPF No. 1/No.2 2x6's	(2) SPF No. 1/No. 2 2x6's

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
JARED W. VERSLUIS
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER:
CROCKETT ENGINEERING CONSULTANTS
1000 West Nifong Blvd. Building 1
Columbia, Missouri 65203
(573) 447-0292
www.crockettengineering.com
Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#2004019501

CLIENT:
CENTRAL STATES CONSTRUCTION
4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING PLAN

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299

SHEET:
S301

NOTE:
ALL DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING UNLESS NOTED OTHERWISE.

STUD WALL FRAMING NOTES:

FIRST LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 SEL. STR. SPF @ 16" O.C. w/ BLOCKING @ MID-HEIGHT

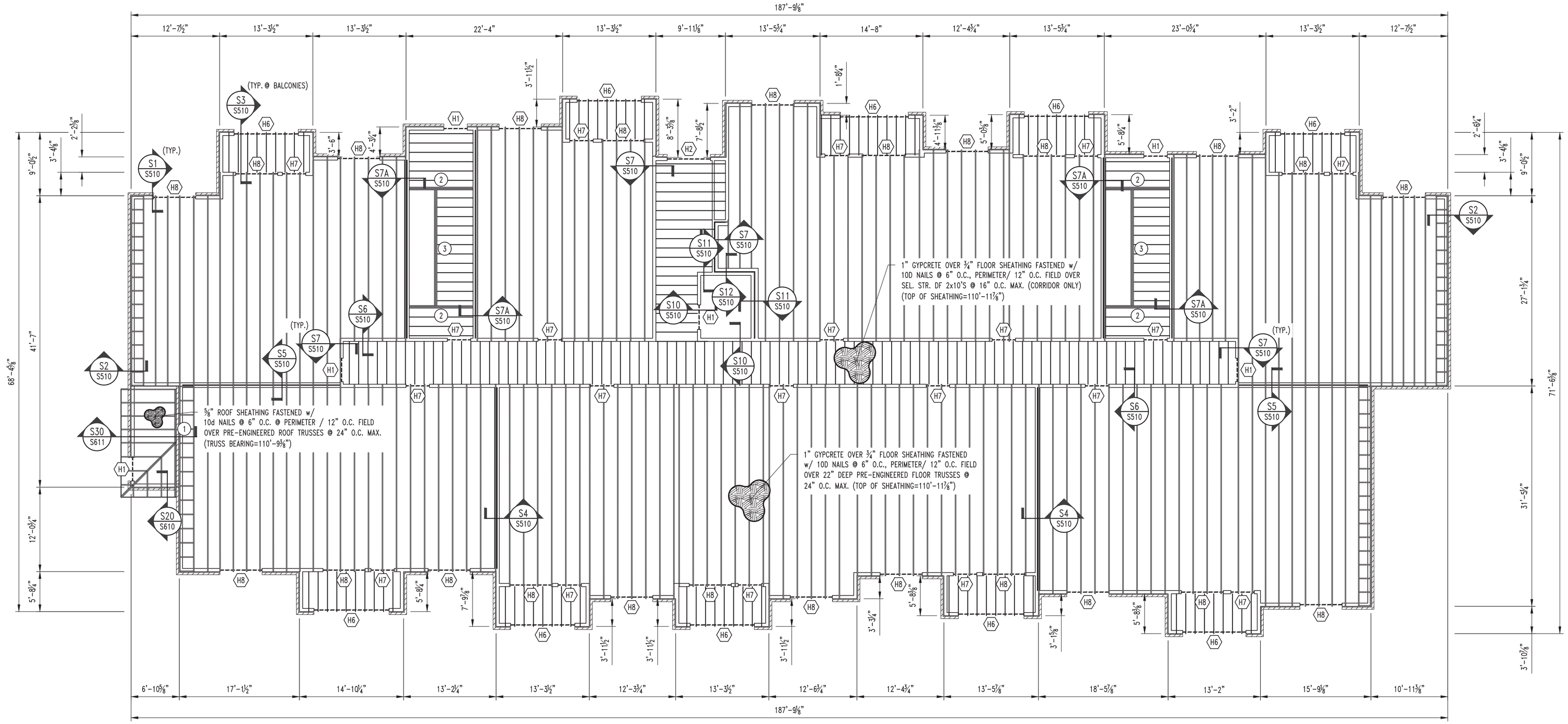
SECOND LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C.

THIRD LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C. OR 2x4 SEL. STR. SPF @ 16" O.C.

FOURTH LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – 2x4 STUD GRADE SPF @ 16" O.C.

NOTES

1. GIRDER TRUSS w/ 3 PLY BUILT-UP POST @ EACH END
2. 3 PLY SEL. STR. DF 2x10 w/ 3 PLY BUILT-UP POST @ EACH END
3. 3 PLY MICROLAM 2.0E 1.75x9.25 w/ SIMPSON HGUS 5.50/10



1 S302 2ND FLOOR FRAMING PLAN (BLDG. TYPE C - BLDG. #4-5)
SCALE: ⅛" = 1'-0"

TRUE NORTH

BRICK LINTEL SCHEDULE

SPAN	Lintel
L ≤ 4'-0"	L4x3-1/2x3/8 w/ 6" BEARING EACH SIDE
L ≤ 6'-6"	L5x3-1/2x3/8 w/ 6" BEARING EACH SIDE
BALCONY LINTEL	L6x4x3/8 w/ 8" BEARING EACH SIDE

HEADER SCHEDULE

MARK	HEADER	CRIPPLE	JAMB
"H1"	(2) SPF No. 1/No. 2 2x6's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H2"	(2) DFL No. 2 2x8's	(1) SPF No. 1/No. 2 2x6	(2) SPF No. 1/No. 2 2x6's
"H3"	(2) DFL Sel. Str. 2x10's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H4"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H5"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H6"	(2) DFL Sel. Str. 2x10's	(3) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H7"	(2) DFL Sel. Str. 2x10's	(4) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H8"	(2) DFL Sel. Str. 2x10's	(5) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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STATE OF MISSOURI
JARED W. VERSLUIS
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER:
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Missouri Certificate of Authority
#2000139501

CLIENT:
CENTRAL STATES CONSTRUCTION
4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING PLAN

DESIGNED: JWV
DRAWN: SEH
PROJECT NO.: 190299

SHEET: S302

NOTE:
ALL DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING UNLESS NOTED OTHERWISE.

STUD WALL FRAMING NOTES:

FIRST LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 SEL. STR. SPF @ 16" O.C. w/ BLOCKING @ MID-HEIGHT

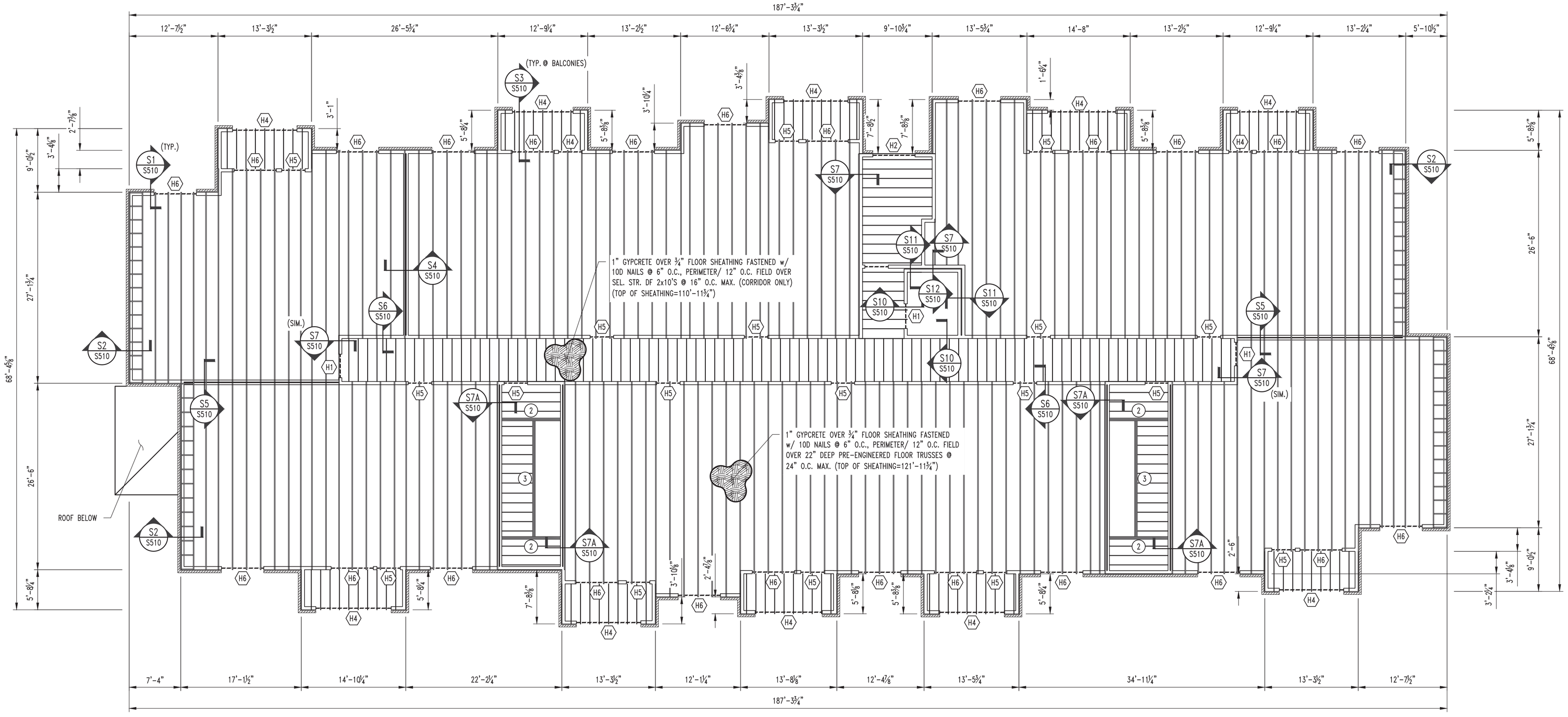
SECOND LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C.

THIRD LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C. OR 2x4 SEL. STR. SPF @ 16" O.C.

FOURTH LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – 2x4 STUD GRADE SPF @ 16" O.C.

NOTES

1. GIRDER TRUSS w/ 3 PLY BUILT-UP POST @ EACH END
2. 3 PLY SEL. STR. DF 2x10 w/ 3 PLY BUILT-UP POST @ EACH END
3. 3 PLY MICROLAM 2.0E 1.75x9.25 w/ SIMPSON HGUS 5.50/10



1 S400 — 3RD FLOOR FRAMING PLAN (BLDG. TYPE A - BLDG. #6)
SCALE: ⅛" = 1'-0"
TRUE NORTH

BRICK LINTEL SCHEDULE

SPAN	Lintel
L ≤ 4'-0"	L4x3-1/2x3/8 w/ 6" BEARING EACH SIDE
L ≤ 6'-6"	L5x3-1/2x3/8 w/ 6" BEARING EACH SIDE
BALCONY LINTEL	L6x4x3/8 w/ 8" BEARING EACH SIDE

HEADER SCHEDULE

MARK	HEADER	CRIPPLE	JAMB
"H1"	(2) SPF No. 1/No. 2 2x6's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H2"	(2) DFL No. 2 2x8's	(1) SPF No. 1/No. 2 2x6	(2) SPF No. 1/No. 2 2x6's
"H3"	(2) DFL Sel. St. 2x10's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H4"	(2) DFL Sel. St. 2x10's	(2) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H5"	(2) DFL Sel. St. 2x10's	(2) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H6"	(2) DFL Sel. St. 2x10's	(3) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H7"	(2) DFL Sel. St. 2x10's	(4) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H8"	(2) DFL Sel. St. 2x10's	(5) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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STATE OF MISSOURI
JARED W. VERSLUIS
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER:
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CLIENT:
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4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING PLAN

DESIGNED: JWV
DRAWN: SEH
PROJECT NO.: 190299

SHEET: S400

NOTE:
ALL DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING UNLESS NOTED OTHERWISE.

STUD WALL FRAMING NOTES:

FIRST LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 SEL. STR. SPF @ 16" O.C. w/ BLOCKING @ MID-HEIGHT

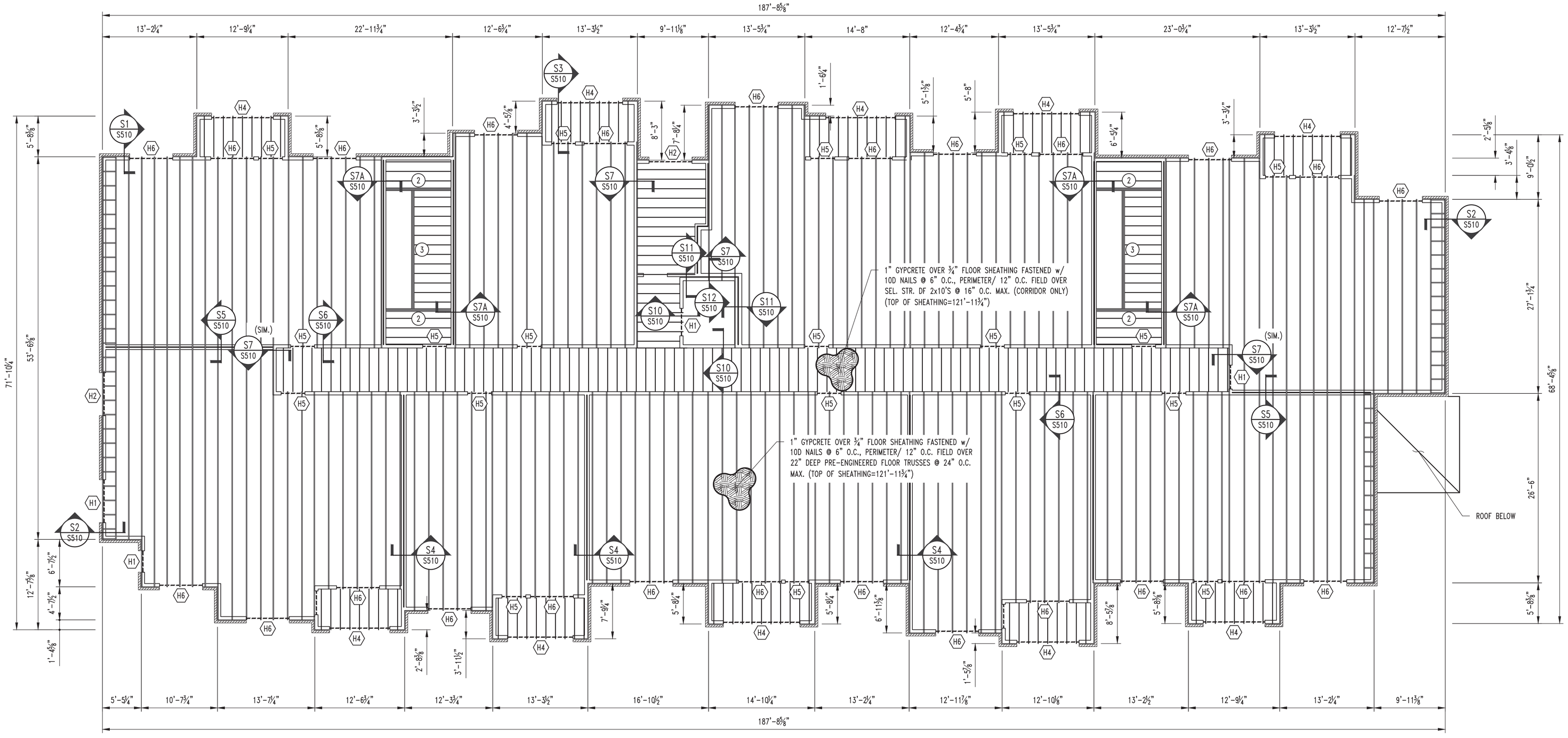
SECOND LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C.

THIRD LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C. OR 2x4 SEL. STR. SPF @ 16" O.C.

FOURTH LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – 2x4 STUD GRADE SPF @ 16" O.C.

NOTES

1. GIRDER TRUSS w/ 3 PLY BUILT-UP POST @ EACH END
2. 3 PLY SEL. STR. DF 2x10 w/ 3 PLY BUILT-UP POST @ EACH END
3. 3 PLY MICRO=LAM 2.0E 1.75x9.25 w/ SIMPSON HGUS 5.50/10



1/S401 3RD FLOOR FRAMING PLAN (BLDG. TYPE B - BLDG. #2-3)
SCALE: ⅛" = 1'-0"
TRUE NORTH

BRICK LINTEL SCHEDULE

SPAN	Lintel
L ≤ 4'-0"	L4x3-1/2x3/8 w/ 6" BEARING EACH SIDE
L ≤ 6'-6"	L5x3-1/2x3/8 w/ 6" BEARING EACH SIDE
BALCONY LINTEL	L6x4x3/8 w/ 8" BEARING EACH SIDE

HEADER SCHEDULE

MARK	HEADER	CRIPPLE	JAMB
"H1"	(2) SPF No. 1/No. 2 2x6's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H2"	(2) DFL No. 2 2x8's	(1) SPF No. 1/No. 2 2x6	(2) SPF No. 1/No. 2 2x6's
"H3"	(2) DFL Sel. Str. 2x10's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H4"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H5"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H6"	(2) DFL Sel. Str. 2x10's	(3) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H7"	(2) DFL Sel. Str. 2x10's	(4) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H8"	(2) DFL Sel. Str. 2x10's	(5) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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STATE OF MISSOURI
JARED W. VERSLUES
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER:
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CLIENT:
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4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING PLAN

DESIGNED: JWV
DRAWN: SEH
PROJECT NO.: 190299

SHEET: S401

NOTE:
ALL DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING UNLESS NOTED OTHERWISE.

STUD WALL FRAMING NOTES:

FIRST LEVEL

- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 SEL. STR. SPF @ 16" O.C. w/ BLOCKING @ MID-HEIGHT

SECOND LEVEL

- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C.

THIRD LEVEL

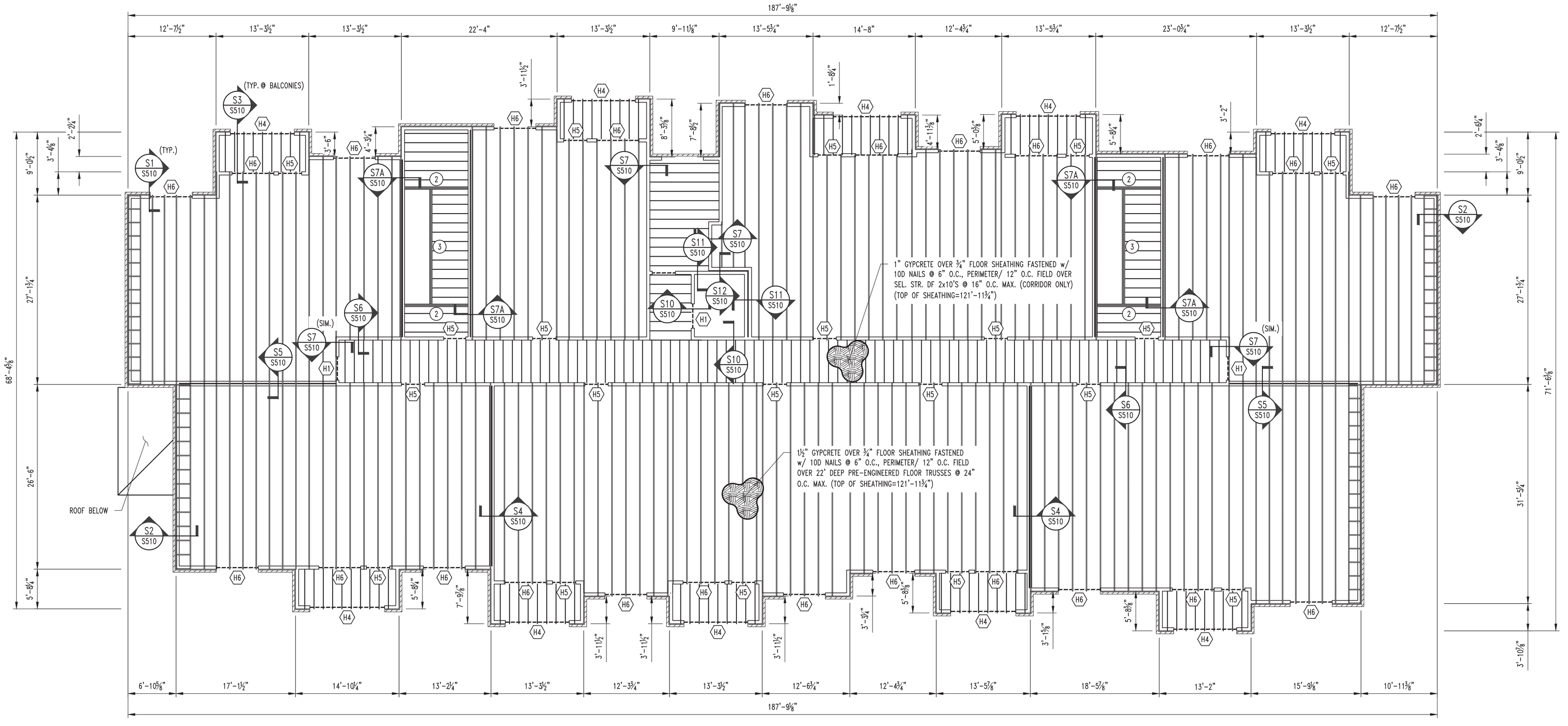
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C. OR 2x4 SEL. STR. SPF @ 16" O.C.

FOURTH LEVEL

- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – 2x4 STUD GRADE SPF @ 16" O.C.

NOTES

1. GIRDER TRUSS w/ 3 PLY BUILT-UP POST @ EACH END
2. 3 PLY SEL. STR. DF 2x10 w/ 3 PLY BUILT-UP POST @ EACH END
3. 3 PLY MICROLAM 2.0E 1.75x9.25 w/ SIMPSON HGUS 5.50/10



1 / S402 3RD FLOOR FRAMING PLAN (BLDG. TYPE C - BLDG. #4-5)
SCALE: ⅛" = 1'-0"

TRUE NORTH

BRICK LINTEL SCHEDULE

SPAN	Lintel
L ≤ 4'-0"	L4x3-1/2x3/8 w/ 6" BEARING EACH SIDE
L ≤ 6'-6"	L5x3-1/2x3/8 w/ 6" BEARING EACH SIDE
BALCONY LINTEL	L6x4x3/8 w/ 8" BEARING EACH SIDE

HEADER SCHEDULE

MARK	HEADER	CRIPPLE	JAMB
"H1"	(2) SPF No. 1/No. 2 2x6's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H2"	(2) DFL No. 2 2x8's	(1) SPF No. 1/No. 2 2x6	(2) SPF No. 1/No. 2 2x6's
"H3"	(2) DFL Sel. Str. 2x10's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H4"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H5"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H6"	(2) DFL Sel. Str. 2x10's	(3) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H7"	(2) DFL Sel. Str. 2x10's	(4) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H8"	(2) DFL Sel. Str. 2x10's	(5) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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JARED W. VERSLUIS
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

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COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING PLAN

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299
SHEET:	S402

NOTE:
ALL DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING UNLESS NOTED OTHERWISE.

STUD WALL FRAMING NOTES:

FIRST LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 SEL. STR. SPF @ 16" O.C. w/ BLOCKING @ MID-HEIGHT

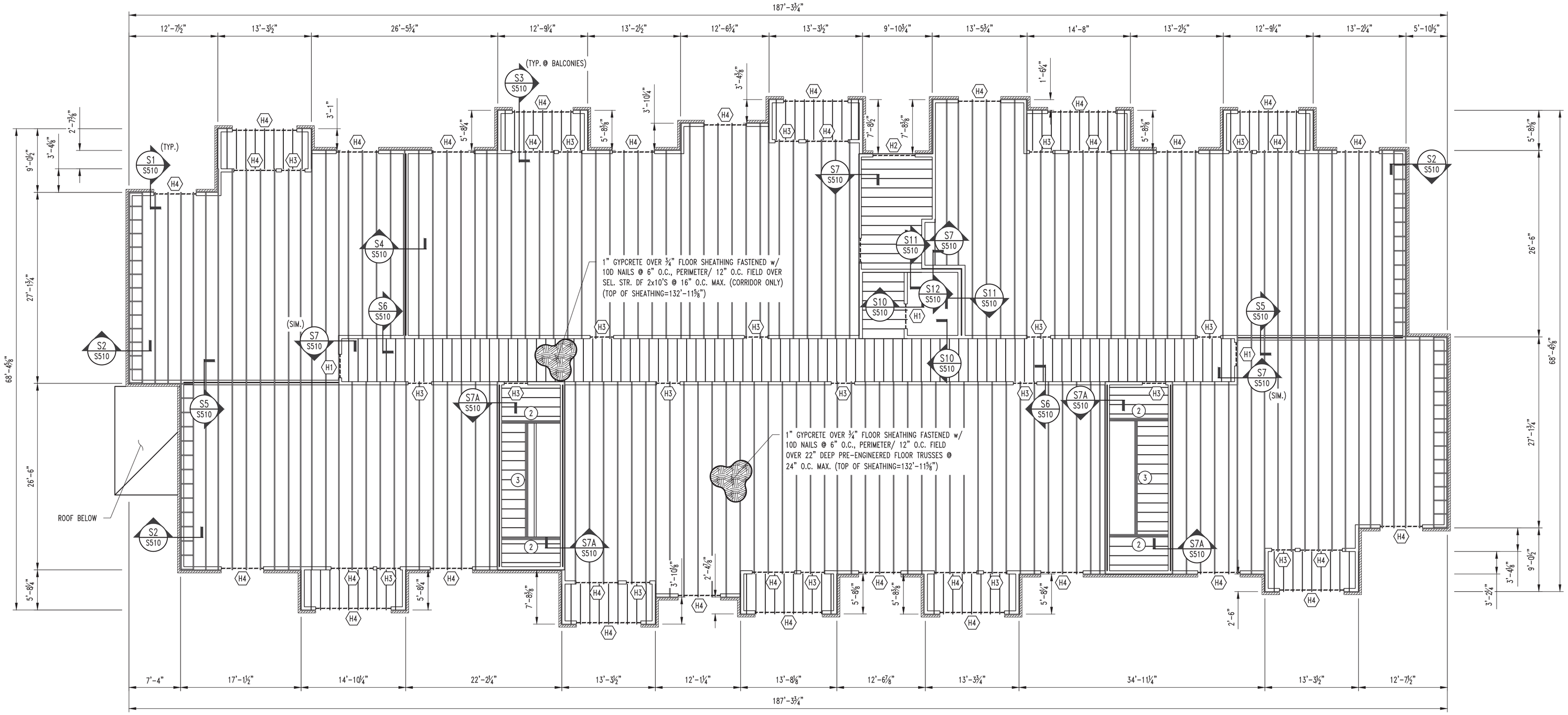
SECOND LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C.

THIRD LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C. OR 2x4 SEL. STR. SPF @ 16" O.C.

FOURTH LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – 2x4 STUD GRADE SPF @ 16" O.C.

NOTES

1. GIRDER TRUSS w/ 3 PLY BUILT-UP POST @ EACH END
2. 3 PLY SEL. STR. DF 2x10 w/ 3 PLY BUILT-UP POST @ EACH END
3. 3 PLY MICROLAM 2.0E 1.75x9.25 w/ SIMPSON HGUS 5.50/10



1 S500 4TH FLOOR FRAMING PLAN (BLDG. TYPE A - BLDG. #6)
SCALE: ⅛" = 1'-0"
TRUE NORTH

BRICK LINTEL SCHEDULE

SPAN	Lintel
L ≤ 4'-0"	L4x3-1/2x3/8 w/ 6" BEARING EACH SIDE
L ≤ 6'-6"	L5x3-1/2x3/8 w/ 6" BEARING EACH SIDE
BALCONY LINTEL	L6x4x3/8 w/ 8" BEARING EACH SIDE

HEADER SCHEDULE

MARK	HEADER	CRIPPLE	JAMB
"H1"	(2) SPF No. 1/No. 2 2x6's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H2"	(2) DFL No. 2 2x8's	(1) SPF No. 1/No. 2 2x6	(2) SPF No. 1/No. 2 2x6's
"H3"	(2) DFL Sel. Str. 2x10's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H4"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H5"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H6"	(2) DFL Sel. Str. 2x10's	(3) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H7"	(2) DFL Sel. Str. 2x10's	(4) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H8"	(2) DFL Sel. Str. 2x10's	(5) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
JARED W. VERSLUIS
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER:
CROCKETT
ENGINEERING CONSULTANTS
1000 West Nifong Blvd. Bldg. 1
Columbia, Missouri 65203
(573) 447-0292
www.crockettengineering.com
Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#2009019501

CLIENT:
CENTRAL STATES CONSTRUCTION
4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING PLAN

DESIGNED: JWV
DRAWN: SEH
PROJECT NO.: 190299

SHEET:
S500

NOTE:
ALL DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING UNLESS NOTED OTHERWISE.

STUD WALL FRAMING NOTES:

FIRST LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 SEL. STR. SPF @ 16" O.C. w/ BLOCKING @ MID-HEIGHT

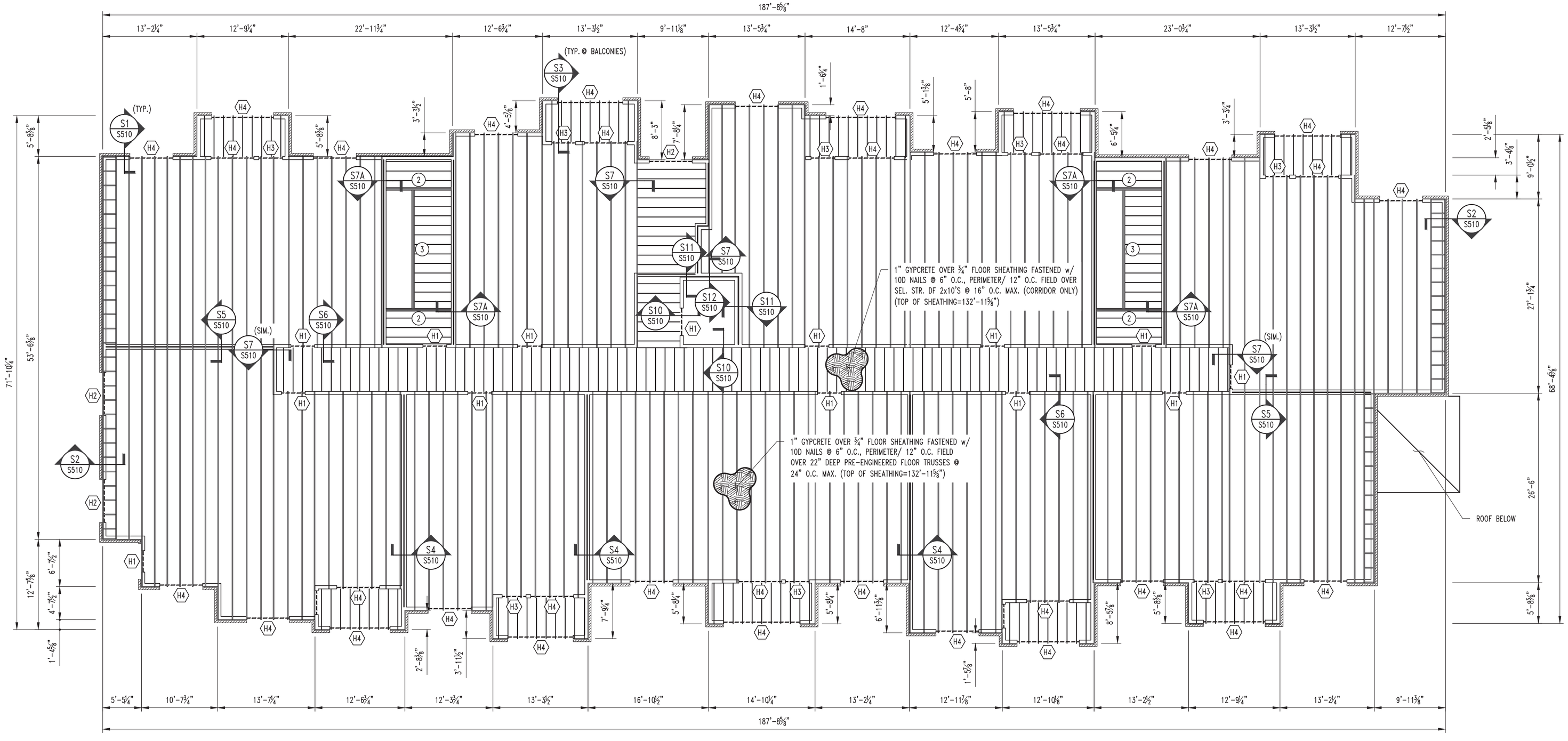
SECOND LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C.

THIRD LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C. OR 2x4 SEL. STR. SPF @ 16" O.C.

FOURTH LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – 2x4 STUD GRADE SPF @ 16" O.C.

NOTES

1. GIRDER TRUSS w/ 3 PLY BUILT-UP POST @ EACH END
2. 3 PLY SEL. STR. DF 2x10 w/ 3 PLY BUILT-UP POST @ EACH END
3. 3 PLY MICROLAM 2.0E 1.75x9.25 w/ SIMPSON HGUS 5.50/10



1 S501 4TH FLOOR FRAMING PLAN (BLDG. TYPE B - BLDG. #2-3)
SCALE: ⅛" = 1'-0"

TRUE NORTH

BRICK LINTEL SCHEDULE

SPAN	Lintel
L ≤ 4'-0"	L4x3-1/2x3/8 w/ 6" BEARING EACH SIDE
L ≤ 6'-6"	L5x3-1/2x3/8 w/ 6" BEARING EACH SIDE
BALCONY LINTEL	L6x4x3/8 w/ 8" BEARING EACH SIDE

HEADER SCHEDULE

MARK	HEADER	CRIPPLE	JAMB
"H1"	(2) SPF No. 1/No. 2 2x6's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H2"	(2) DFL No. 2 2x8's	(1) SPF No. 1/No. 2 2x6	(2) SPF No. 1/No. 2 2x6's
"H3"	(2) DFL Sel. Str. 2x10's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H4"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No.2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H5"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H6"	(2) DFL Sel. Str. 2x10's	(3) SPF No. 1/No.2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H7"	(2) DFL Sel. Str. 2x10's	(4) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H8"	(2) DFL Sel. Str. 2x10's	(5) SPF No. 1/No.2 2x6's	(2) SPF No. 1/No. 2 2x6's

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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STATE OF MISSOURI
JARED W. VERSLUES
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER:
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Columbia, Missouri 65203
(573) 447-0292
www.crockettengineering.com
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#2000139501

CLIENT:
CENTRAL STATES CONSTRUCTION
4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING PLAN

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299

SHEET:
S501

NOTE:
ALL DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING UNLESS NOTED OTHERWISE.

STUD WALL FRAMING NOTES:

FIRST LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 SEL. STR. SPF @ 16" O.C. w/ BLOCKING @ MID-HEIGHT

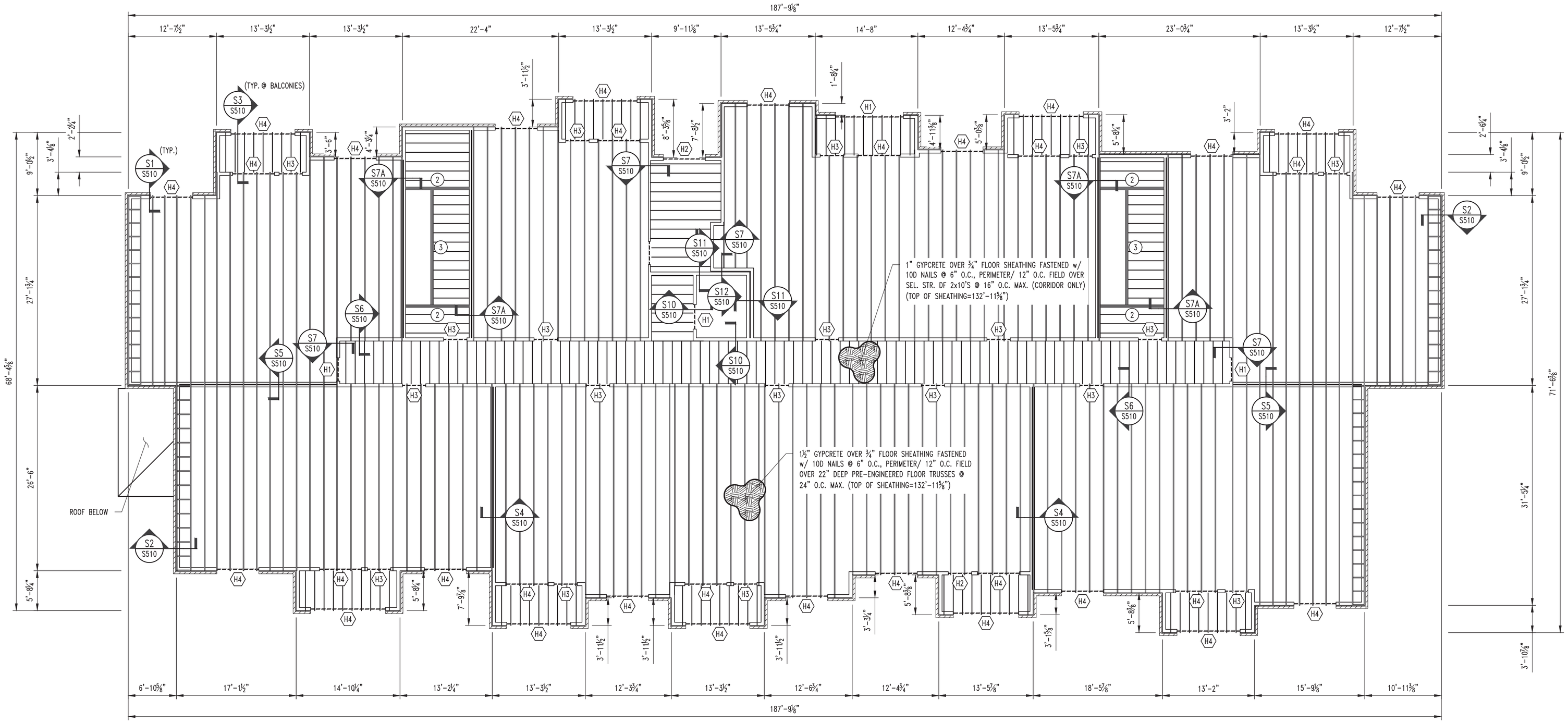
SECOND LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C.

THIRD LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C. OR 2x4 SEL. STR. SPF @ 16" O.C.

FOURTH LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – 2x4 STUD GRADE SPF @ 16" O.C.

NOTES

1. GIRDER TRUSS w/ 3 PLY BUILT-UP POST @ EACH END
2. 3 PLY SEL. STR. DF 2x10 w/ 3 PLY BUILT-UP POST @ EACH END
3. 3 PLY MICROLAM 2.0E 1.75x9.25 w/ SIMPSON HGUS 5.50/10



1 S502 — 4TH FLOOR FRAMING PLAN (BLDG. TYPE C - BLDG. #4-5)
SCALE: ⅛" = 1'-0"
TRUE NORTH

BRICK LINTEL SCHEDULE

SPAN	Lintel
L ≤ 4'-0"	L4x3-1/2x3/8 w/ 6" BEARING EACH SIDE
L ≤ 6'-6"	L5x3-1/2x3/8 w/ 6" BEARING EACH SIDE
BALCONY LINTEL	L6x4x3/8 w/ 8" BEARING EACH SIDE

HEADER SCHEDULE

MARK	HEADER	CRIPPLE	JAMB
"H1"	(2) SPF No. 1/No. 2 2x6's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H2"	(2) DFL No. 2 2x8's	(1) SPF No. 1/No. 2 2x6	(2) SPF No. 1/No. 2 2x6's
"H3"	(2) DFL Sel. Str. 2x10's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H4"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H5"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H6"	(2) DFL Sel. Str. 2x10's	(3) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H7"	(2) DFL Sel. Str. 2x10's	(4) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H8"	(2) DFL Sel. Str. 2x10's	(5) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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STATE OF MISSOURI
JARED W. VERSLUIS
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER:
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CLIENT:
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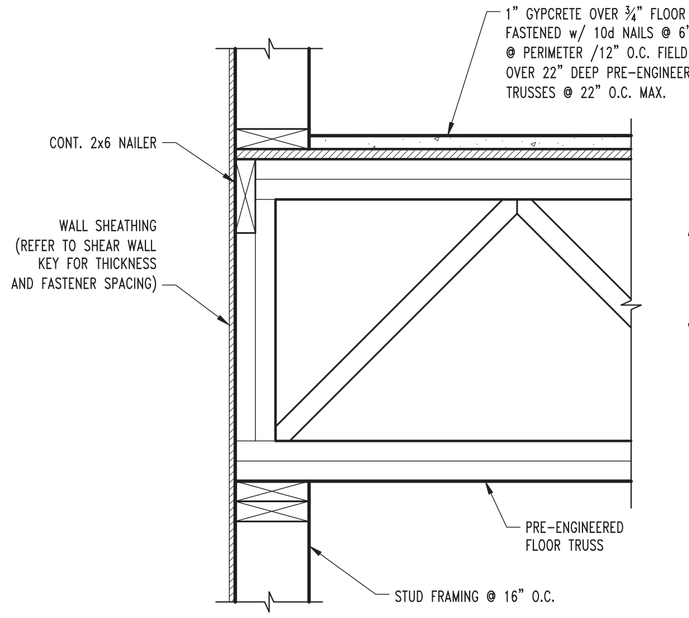
4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

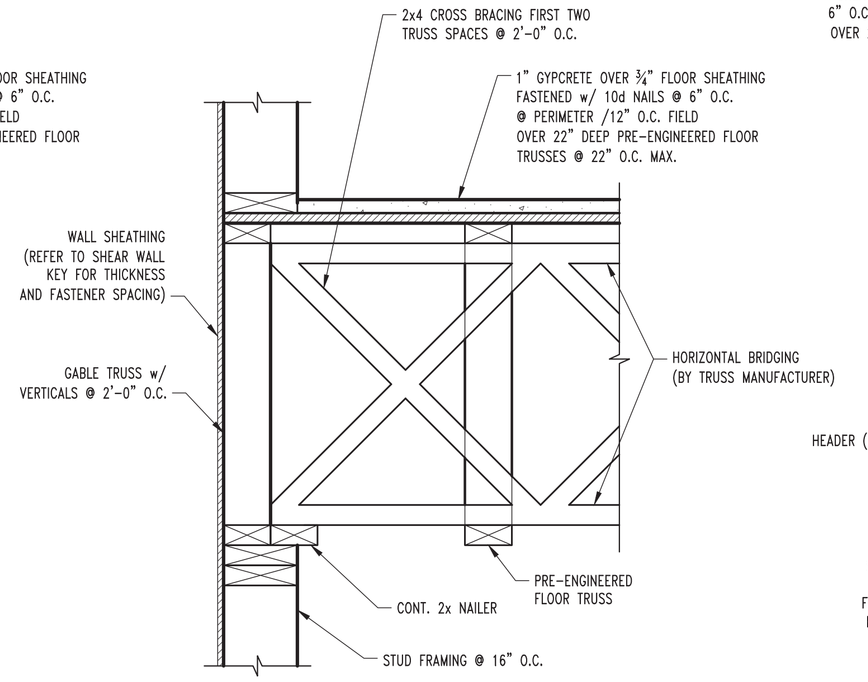
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING PLAN

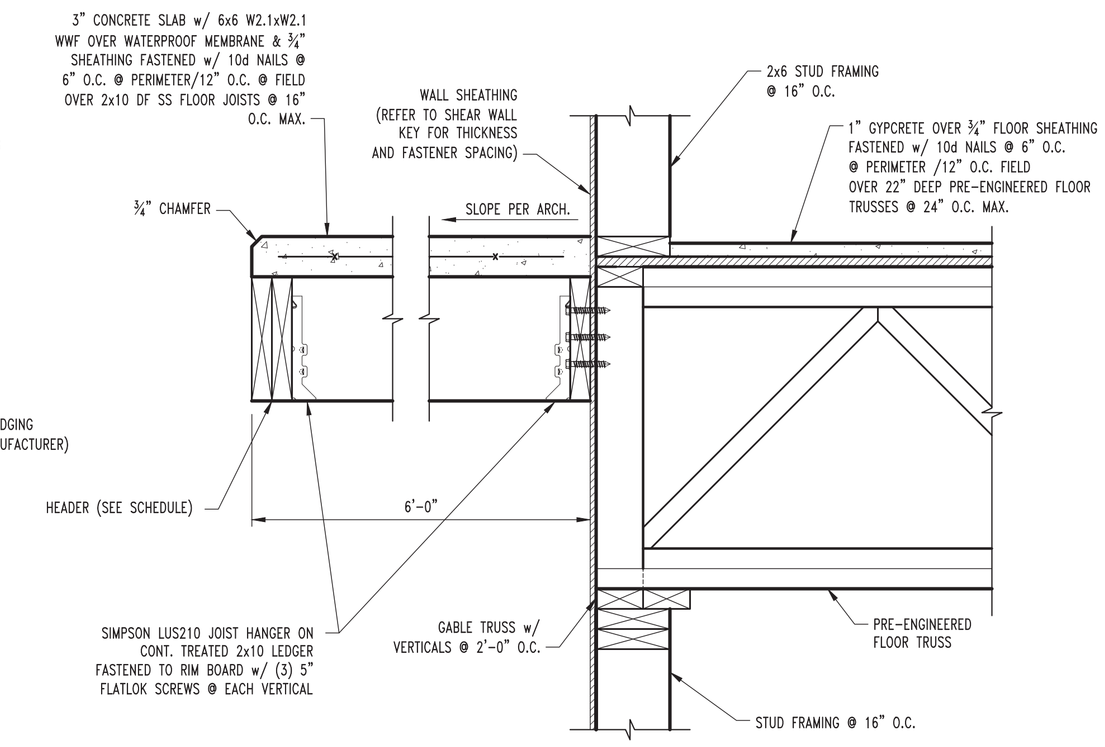
DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299
SHEET:	S502



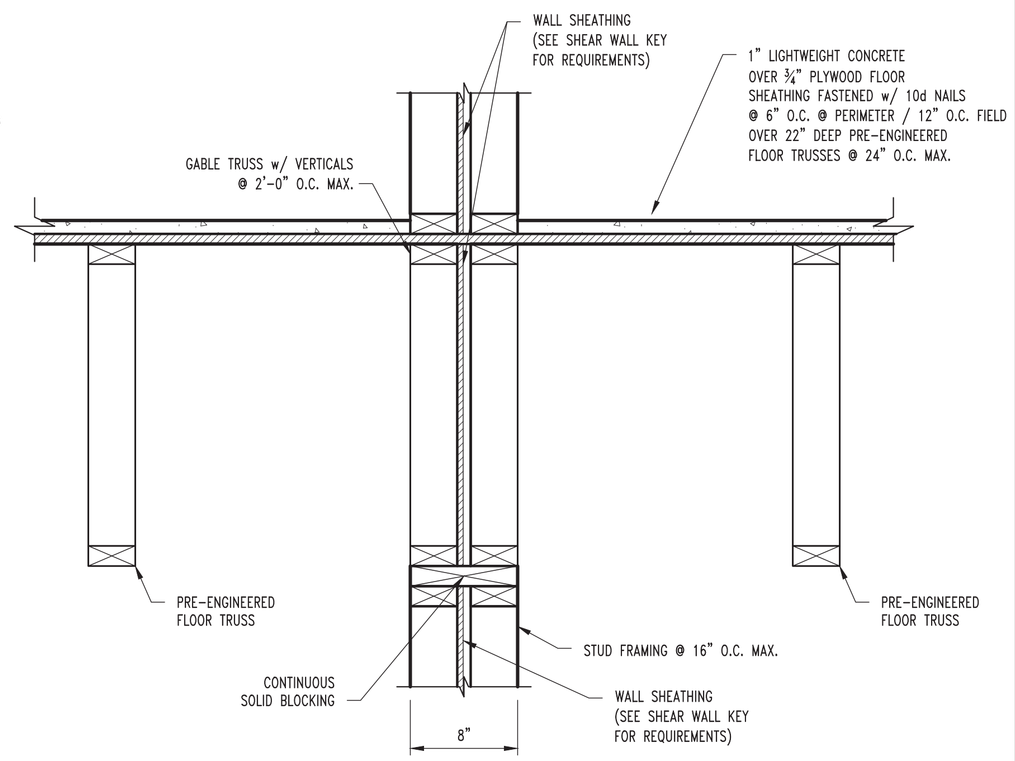
S1 S300–S502 **FRAMING SECTION** SCALE: 1½" = 1'–0"



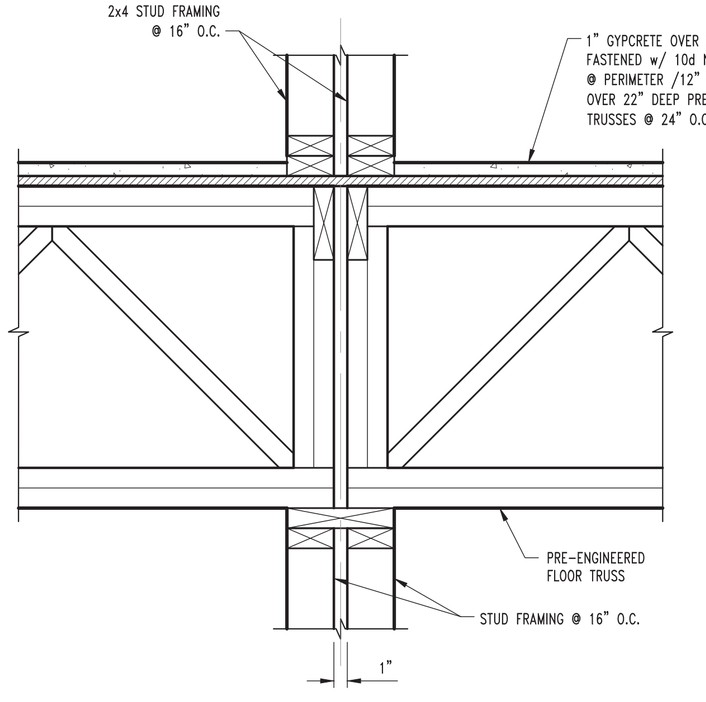
S2 S300–S502 **FRAMING SECTION** SCALE: 1½" = 1'–0"



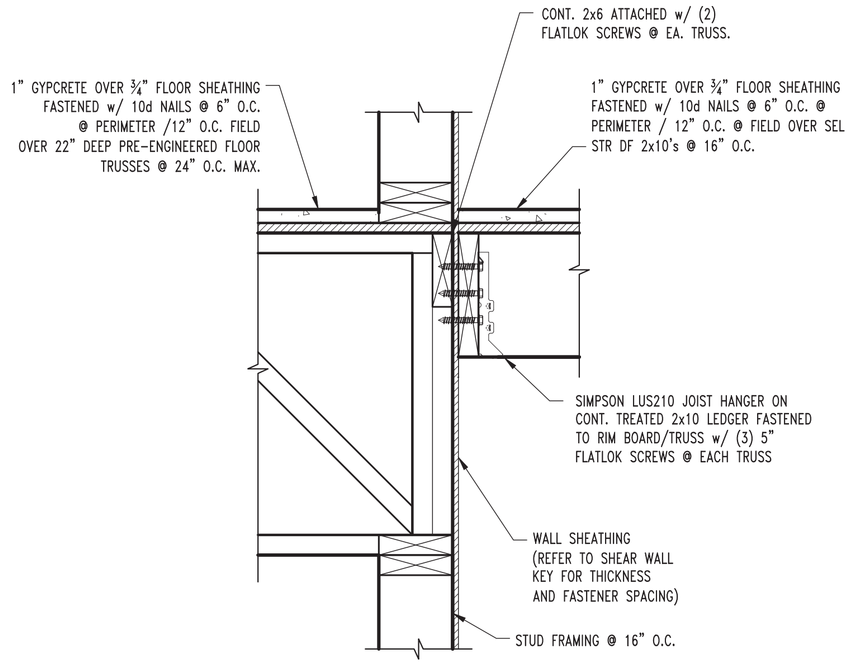
S3 S300–S502 **FRAMING SECTION** SCALE: 1½" = 1'–0"



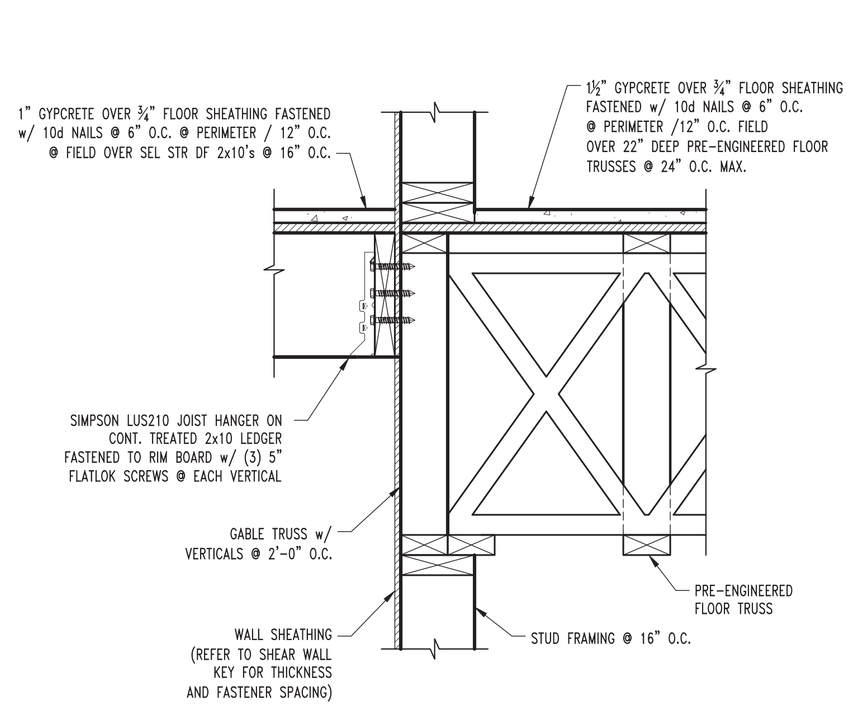
S4 S300–S502 **FRAMING DETAIL**



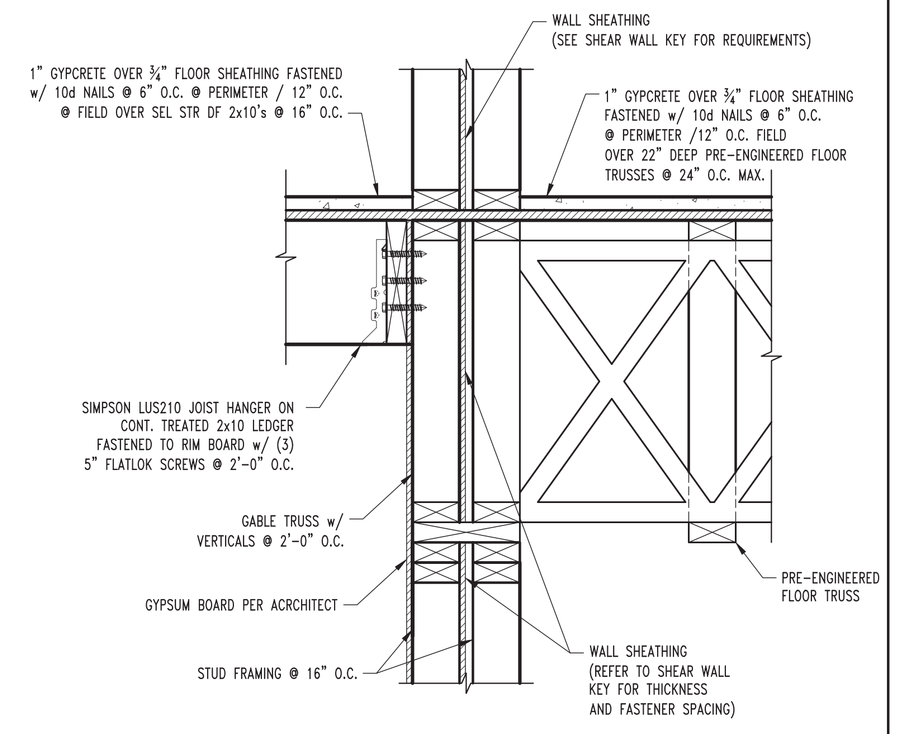
S5 S300–S502 **FRAMING SECTION** SCALE: 1½" = 1'–0"



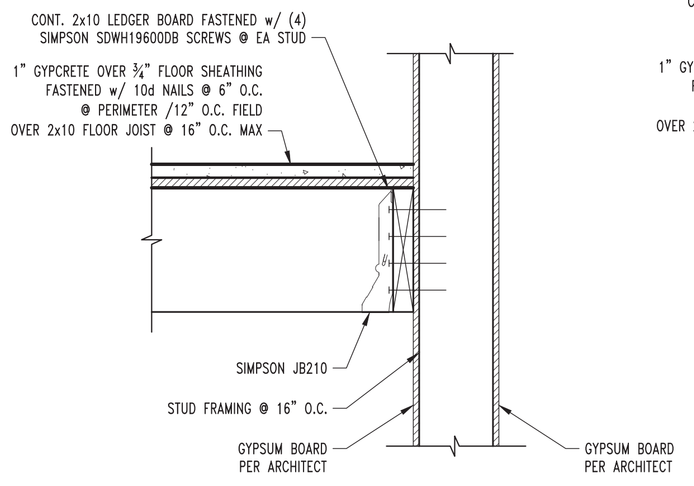
S6 S300–S502 **FRAMING SECTION** SCALE: 1½" = 1'–0"



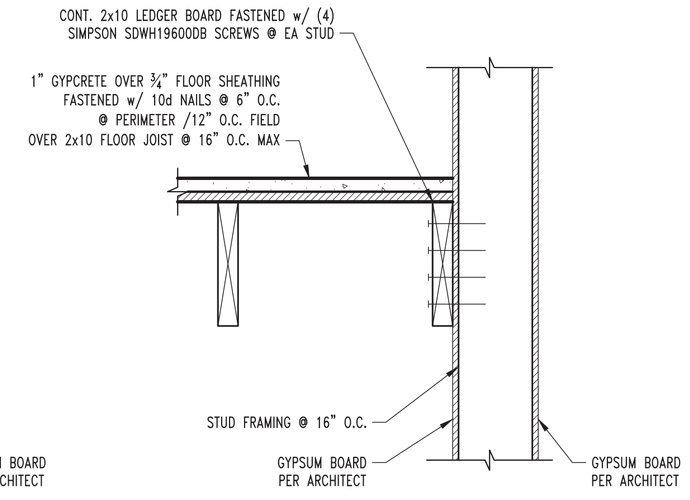
S7 S300–S502 **FRAMING SECTION** SCALE: 1½" = 1'–0"



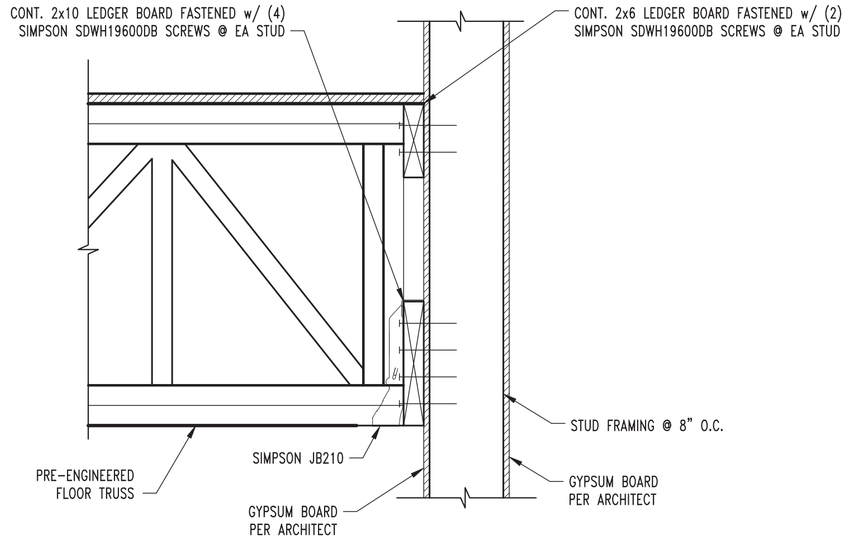
S7A S300–S502 **FRAMING SECTION** SCALE: 1½" = 1'–0"



S10 S301–304 **FRAMING SECTION** SCALE: 1½" = 1'–0"



S11 S301–304 **FRAMING SECTION** SCALE: 1½" = 1'–0"



S11 S301–304 **FRAMING SECTION** SCALE: 1½" = 1'–0"

REVISIONS:

No.	Date
PHASE 1–PERMIT	02/04/2021

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
JARED W. VERSLUES
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER:
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4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING DETAILS

DESIGNED: JWV
DRAWN: SEH
PROJECT NO.: 190299

SHEET: S510

NOTE:
ALL DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING UNLESS NOTED OTHERWISE.

STUD WALL FRAMING NOTES:

FIRST LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 SEL. STR. SPF @ 16" O.C. w/ BLOCKING @ MID-HEIGHT

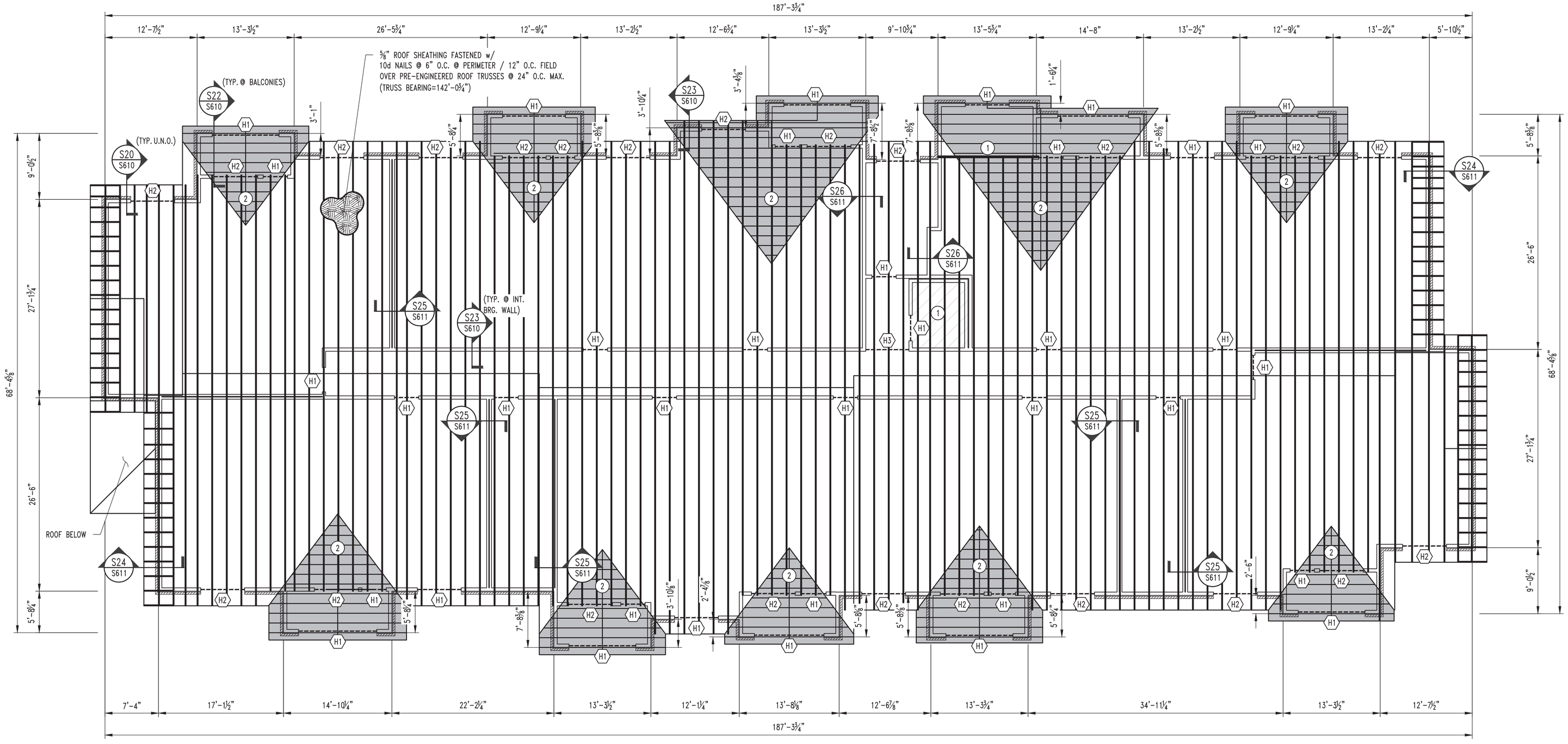
SECOND LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C.

THIRD LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C. OR 2x4 SEL. STR. SPF @ 16" O.C.

FOURTH LEVEL
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – 2x4 STUD GRADE SPF @ 16" O.C.

ROOF FRAMING NOTES

1. REFER TO ARCHITECTURAL DRAWINGS FOR BOTTOM CHORD ELEVATION AT ELEVATOR (HATCHED AREA)
2. FRAME ROOF OVER PRE-ENGINEERED TRUSSES TO CREATE RIDGE, VALLEY, OR HIP w/ 2x NO. 2 SPF RAFTERS OR PRE-ENGINEERED TRUSSES @ 24" O.C. MAX



1 S600 ROOF FRAMING PLAN (BLDG. TYPE A - BLDG. #6)
SCALE: ⅛" = 1'-0"

TRUE NORTH

HEADER SCHEDULE

MARK	HEADER	CRIPPLE	JAMB
"H1"	(2) SPF No. 1/No. 2 2x6's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H2"	(2) DFL No. 2 2x8's	(1) SPF No. 1/No. 2 2x6	(2) SPF No. 1/No. 2 2x6's
"H3"	(2) DFL Sel. Str. 2x10's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H4"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H5"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H6"	(2) DFL Sel. Str. 2x10's	(3) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H7"	(2) DFL Sel. Str. 2x10's	(4) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H8"	(2) DFL Sel. Str. 2x10's	(5) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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STATE OF MISSOURI
JARED W. VERSLUES
NUMBER PE-2017000387
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CLIENT:
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4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING PLAN

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299
SHEET:	S600

NOTE:
ALL DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING UNLESS NOTED OTHERWISE.

STUD WALL FRAMING NOTES:

FIRST LEVEL

- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 SEL. STR. SPF @ 16" O.C. w/ BLOCKING @ MID-HEIGHT

SECOND LEVEL

- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C.

THIRD LEVEL

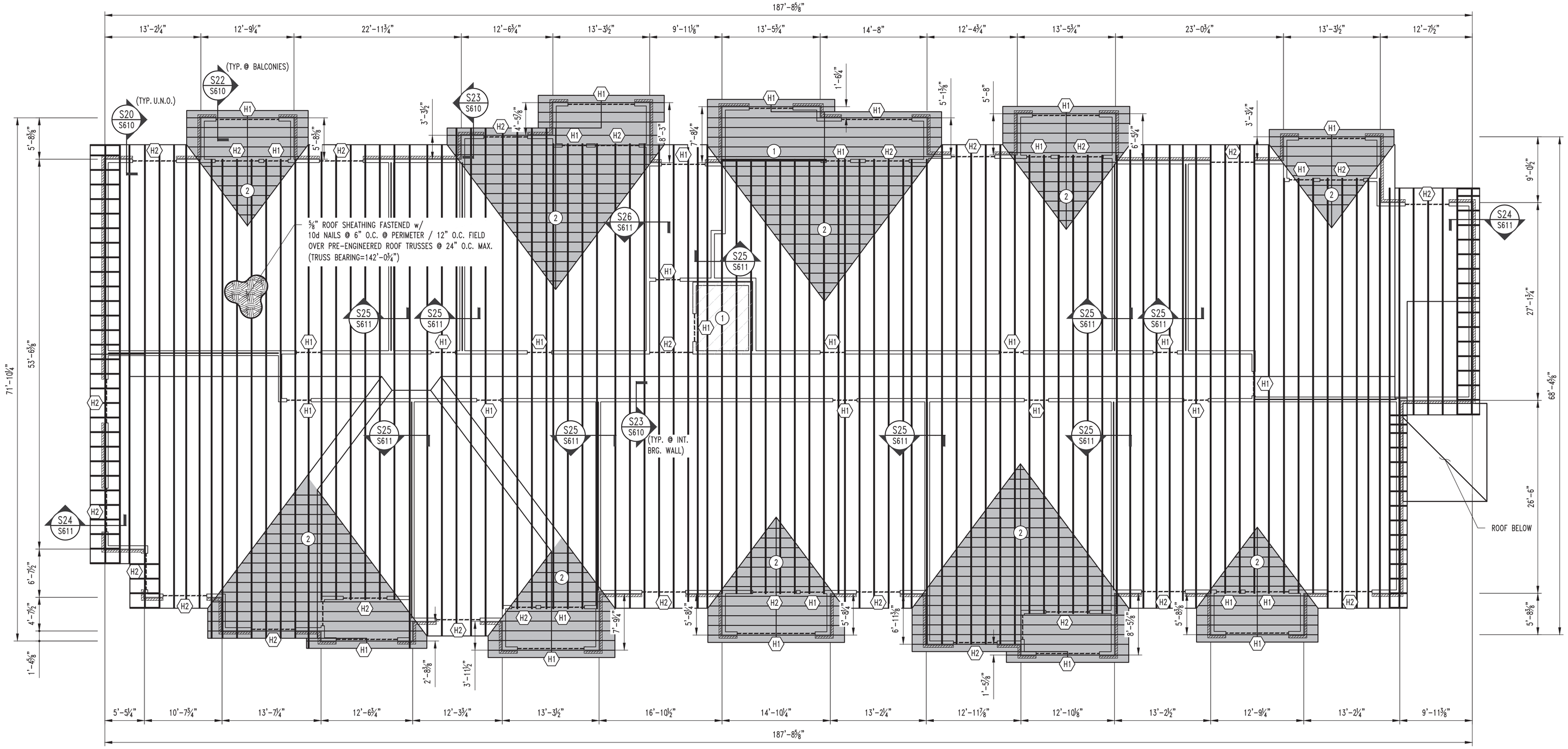
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C. OR 2x4 SEL. STR. SPF @ 16" O.C.

FOURTH LEVEL

- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – 2x4 STUD GRADE SPF @ 16" O.C.

ROOF FRAMING NOTES

1. REFER TO ARCHITECTURAL DRAWINGS FOR BOTTOM CHORD ELEVATION AT ELEVATOR (HATCHED AREA)
2. FRAME ROOF OVER PRE-ENGINEERED TRUSSES TO CREATE RIDGE, VALLEY, OR HIP w/ 2x NO. 2 SPF RAFTERS OR PRE-ENGINEERED TRUSSES @ 24" O.C. MAX



1 S601 ROOF FRAMING PLAN (BLDG. TYPE B - BLDG. #2-3)
SCALE: ⅛" = 1'-0"

TRUE NORTH

HEADER SCHEDULE

MARK	HEADER	CRIPPLE	JAMB
"H1"	(2) SPF No. 1/No. 2 2x6's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H2"	(2) DFL No. 2 2x8's	(1) SPF No. 1/No. 2 2x6	(2) SPF No. 1/No. 2 2x6's
"H3"	(2) DFL Sel. St. 2x10's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H4"	(2) DFL Sel. St. 2x10's	(2) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H5"	(2) DFL Sel. St. 2x10's	(2) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H6"	(2) DFL Sel. St. 2x10's	(3) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H7"	(2) DFL Sel. St. 2x10's	(4) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H8"	(2) DFL Sel. St. 2x10's	(5) SPF No. 1/No. 2 2x6's	(2) SPF No. 1/No. 2 2x6's

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

STATE OF MISSOURI
JARED W. VERSLUIS
NUMBER PE-2017000387
PROFESSIONAL ENGINEER

STRUCTURAL ENGINEER:
CROCKETT
ENGINEERING CONSULTANTS
1000 West Nifong Blvd. Bldg. 1
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(573) 447-0292
www.crockettengineering.com
Crockett Engineering Consultants, LLC
Missouri Certificate of Authority
#2006015501

CLIENT:
CENTRAL STATES CONSTRUCTION
4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING PLAN

DESIGNED: JWV
DRAWN: SEH
PROJECT NO.: 190299

SHEET:
S601

NOTE:
ALL DIMENSIONS ARE TO OUTSIDE FACE OF FRAMING UNLESS NOTED OTHERWISE.

STUD WALL FRAMING NOTES:

FIRST LEVEL

- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 SEL. STR. SPF @ 16" O.C. w/ BLOCKING @ MID-HEIGHT

SECOND LEVEL

- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C.

THIRD LEVEL

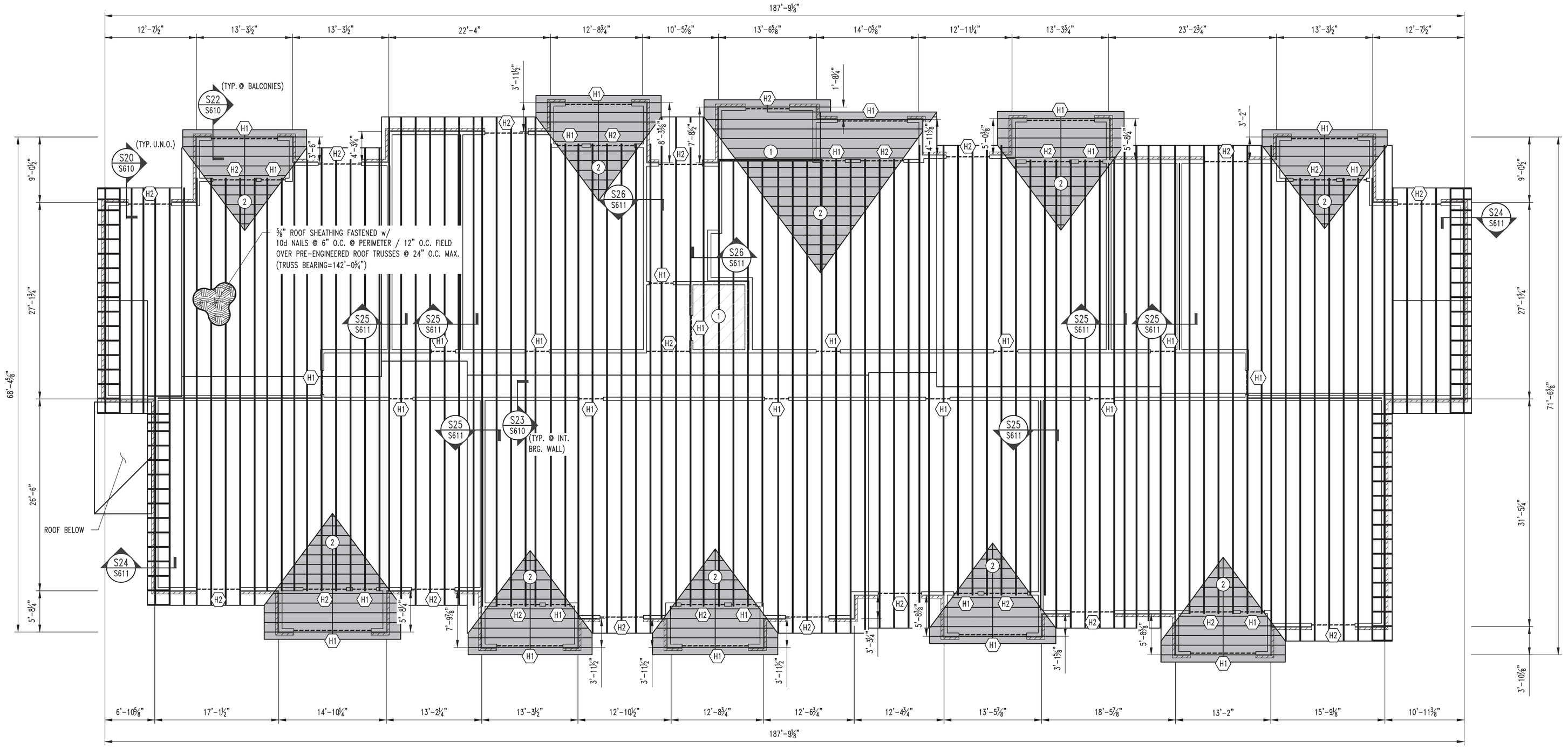
- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – (2) 2x4 STUD GRADE SPF @ 16" O.C. OR 2x4 SEL. STR. SPF @ 16" O.C.

FOURTH LEVEL

- EXTERIOR STUDS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- CORRIDOR WALLS: – 2x6 NO. 1/NO. 2 SPF @ 16" O.C.
- INTERIOR COMMON WALLS – 2x4 STUD GRADE SPF @ 16" O.C.

ROOF FRAMING NOTES

1. REFER TO ARCHITECTURAL DRAWINGS FOR BOTTOM CHORD ELEVATION AT ELEVATOR (HATCHED AREA)
2. FRAME ROOF OVER PRE-ENGINEERED TRUSSES TO CREATE RIDGE, VALLEY, OR HIP w/ 2x NO. 2 SPF RAFTERS OR PRE-ENGINEERED TRUSSES @ 24" O.C. MAX



1 / S602 ROOF FRAMING PLAN (BLDG. TYPE C - BLDG. #4-5)
SCALE: ⅛" = 1'-0"

TRUE NORTH

HEADER SCHEDULE

MARK	HEADER	CRIPPLE	JAMB
"H1"	(2) SPF No. 1/No. 2 2x6's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H2"	(2) DFL No. 2 2x8's	(1) SPF No. 1/No. 2 2x6	(2) SPF No. 1/No. 2 2x6's
"H3"	(2) DFL Sel. Str. 2x10's	(1) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H4"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No.2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H5"	(2) DFL Sel. Str. 2x10's	(2) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H6"	(2) DFL Sel. Str. 2x10's	(3) SPF No. 1/No.2 2x6's	(2) SPF No. 1/No. 2 2x6's
"H7"	(2) DFL Sel. Str. 2x10's	(4) SPF No. 1/No. 2 2x6	(1) SPF No. 1/No. 2 2x6
"H8"	(2) DFL Sel. Str. 2x10's	(5) SPF No. 1/No.2 2x6's	(2) SPF No. 1/No. 2 2x6's

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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STATE OF MISSOURI
JARED W. VERSLUIS
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4215 PHILIPS FARM RD
COLUMBIA, MISSOURI

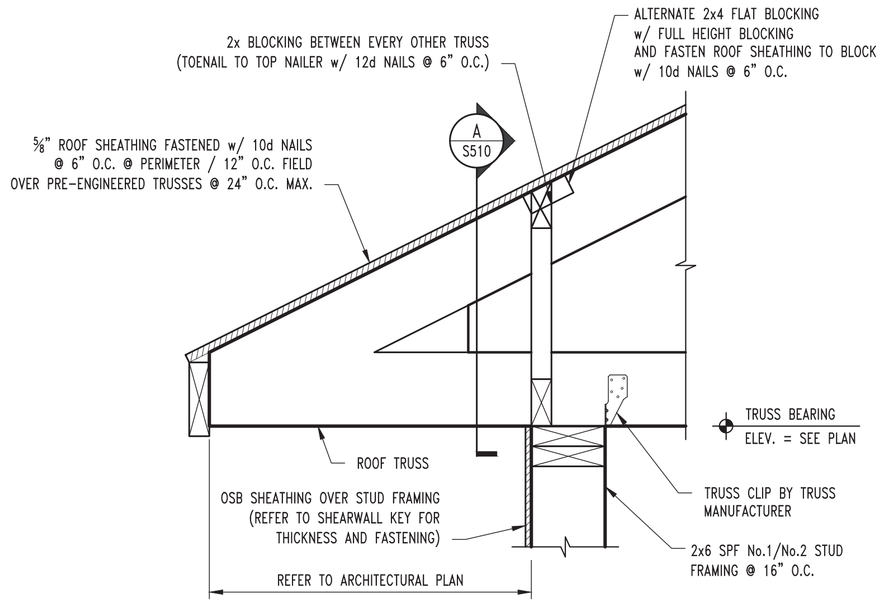
ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

DRAWING INCLUDES:
FRAMING PLAN

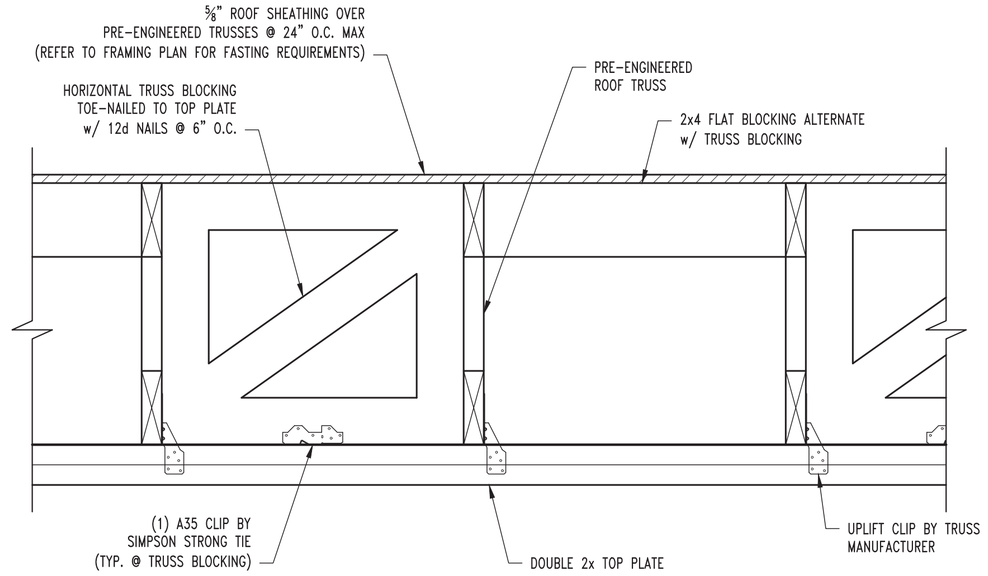
DESIGNED: JWV
DRAWN: SEH
PROJECT NO.: 190299

SHEET: S602



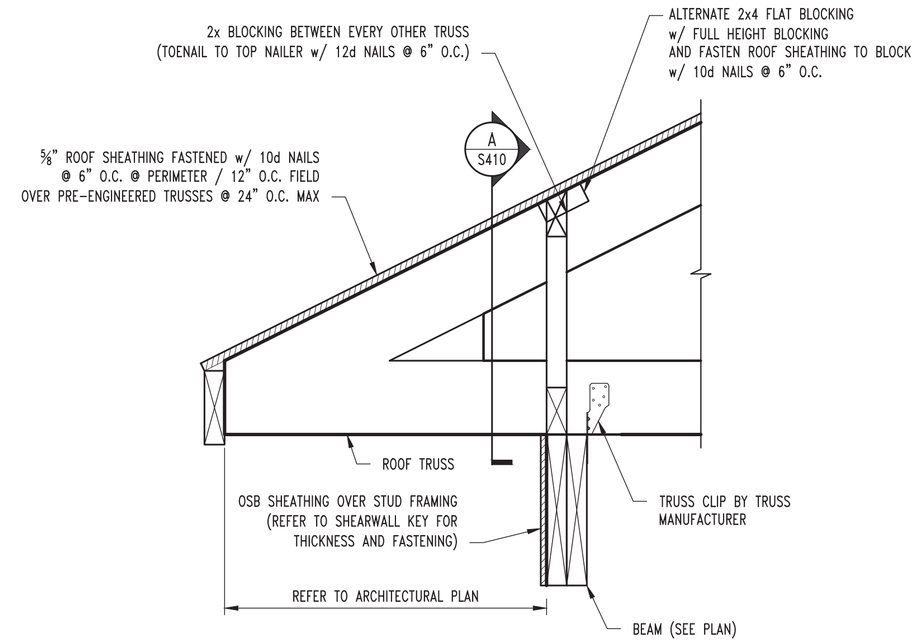
S20 S600-S602 **TYP. ROOF FRAMING SECTION**

SCALE: 1½" = 1'-0"



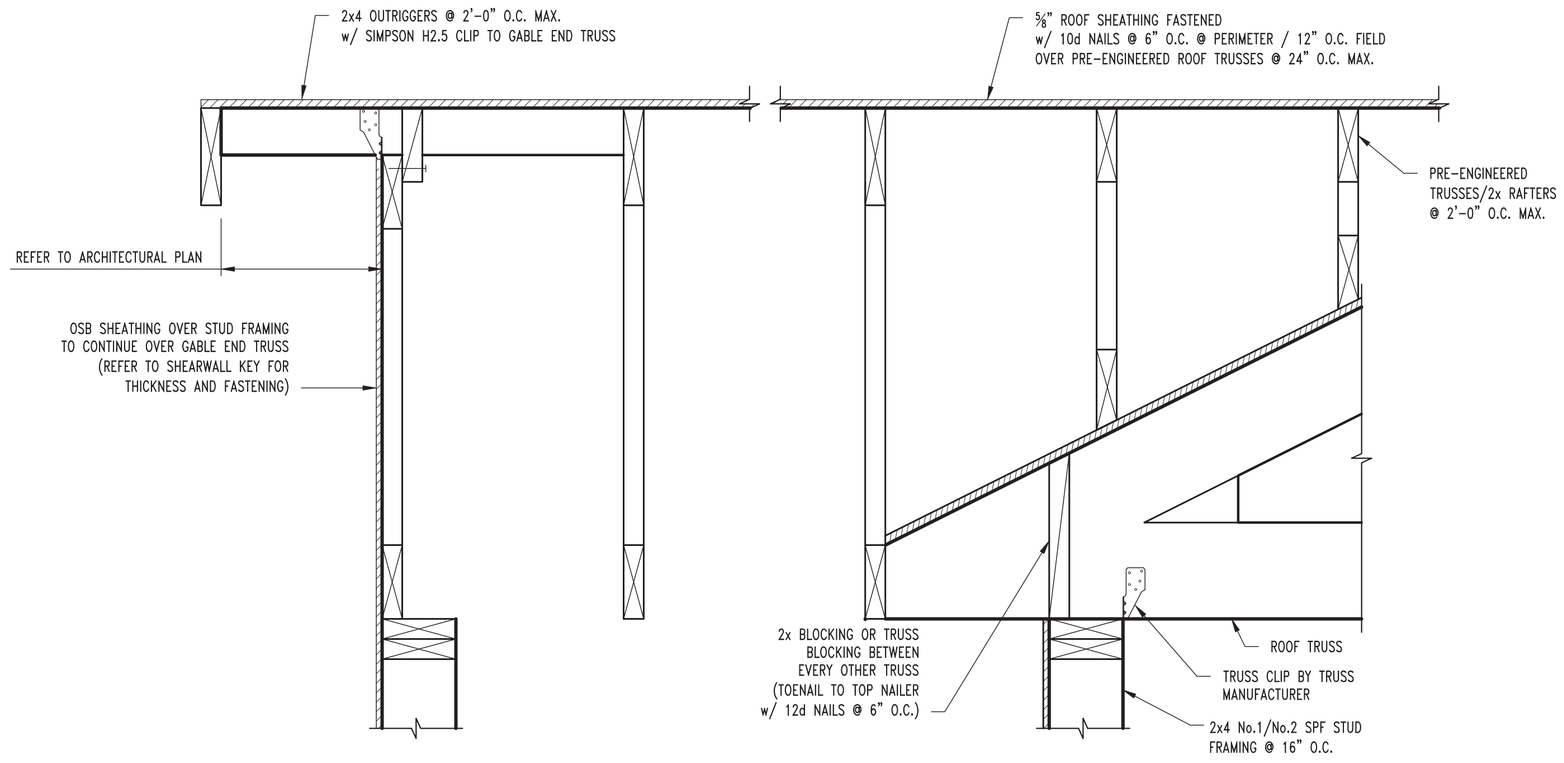
A S610 **TYP. TRUSS BLOCKING SECTION**

SCALE: 1½" = 1'-0"



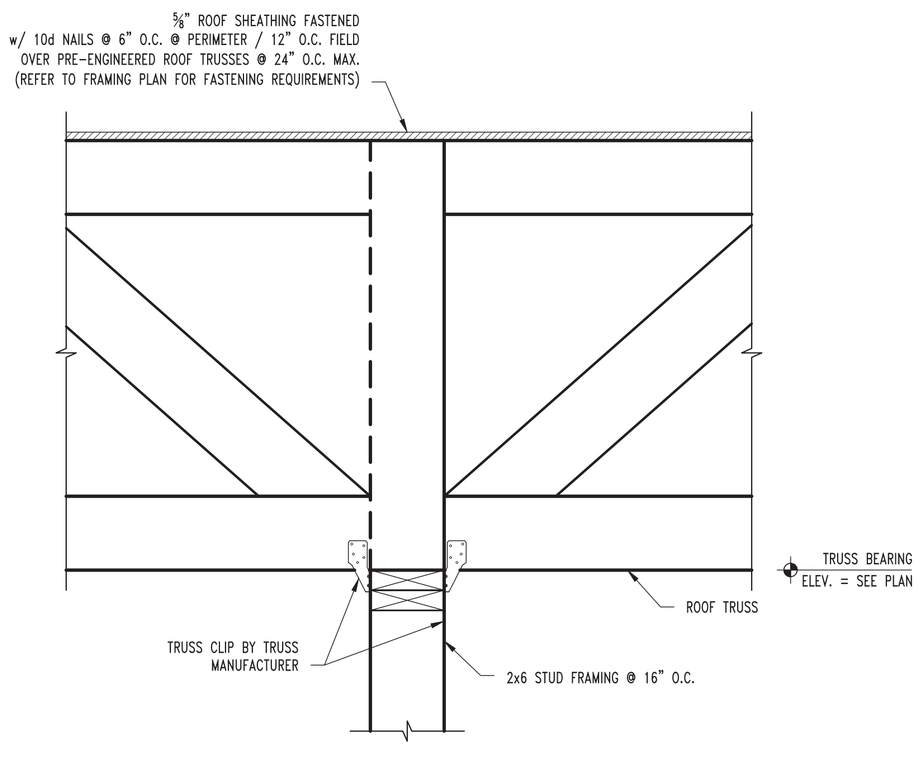
S21 S600-S602 **TYP. BALCONY ROOF SECTION**

SCALE: 1½" = 1'-0"



S22 S600-S602 **TYP. ROOF FRAMING SECTION**

SCALE: 1½" = 1'-0"



S23 S600-S602 **ROOF FRAMING SECTION**

SCALE: 1½" = 1'-0"

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COLUMBIA, MISSOURI

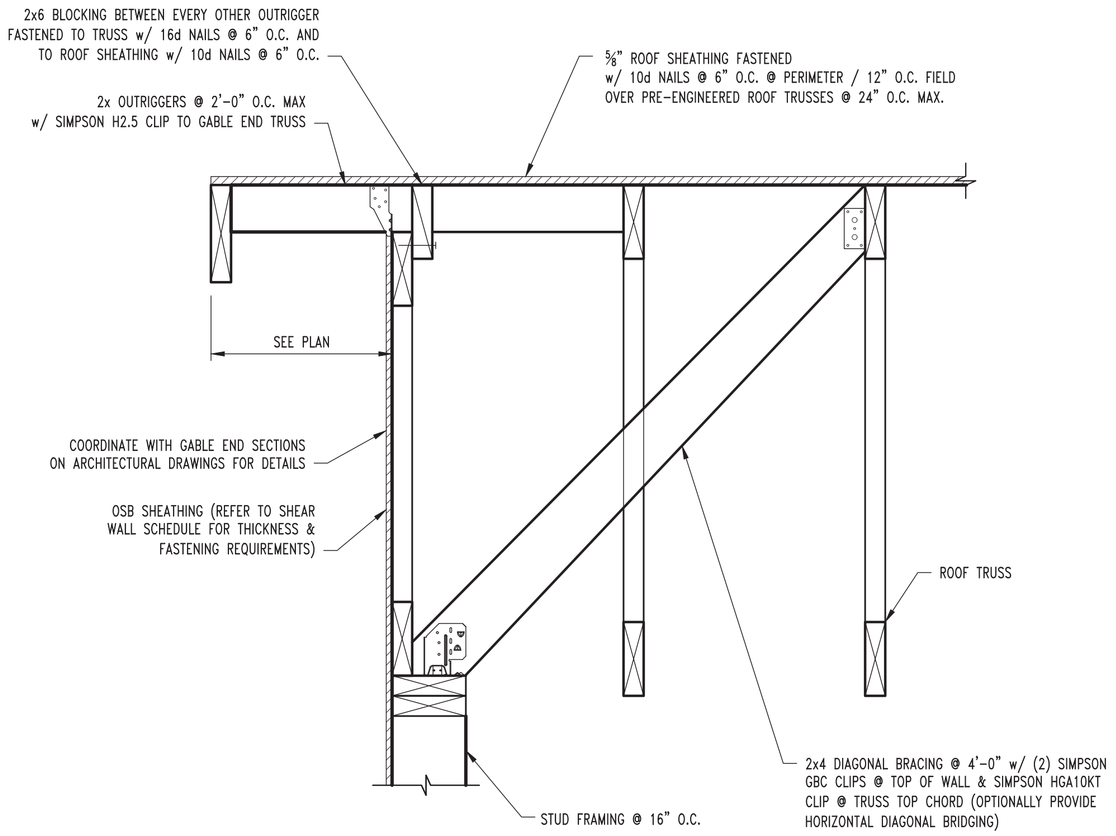
ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

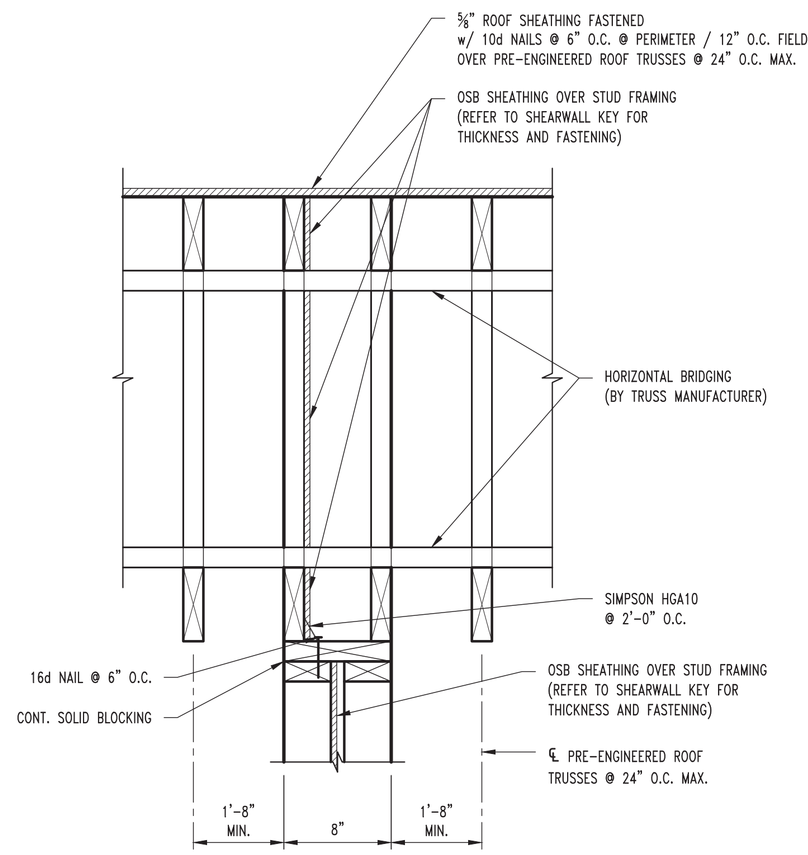
DRAWING INCLUDES:

FRAMING DETAILS

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299
SHEET:	S610



S24 S600–S602 ROOF FRAMING DETAIL
SCALE: 1" = 1'-0"



S25 S600–S602 ROOF FRAMING DETAIL
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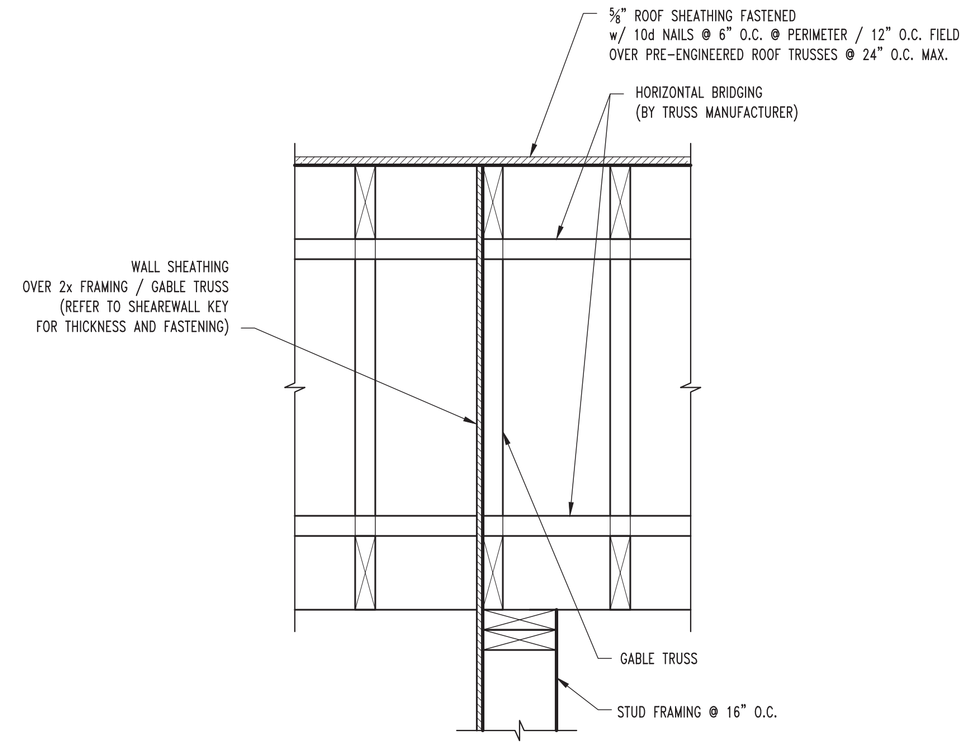

S26 S600–S602 ROOF FRAMING DETAIL
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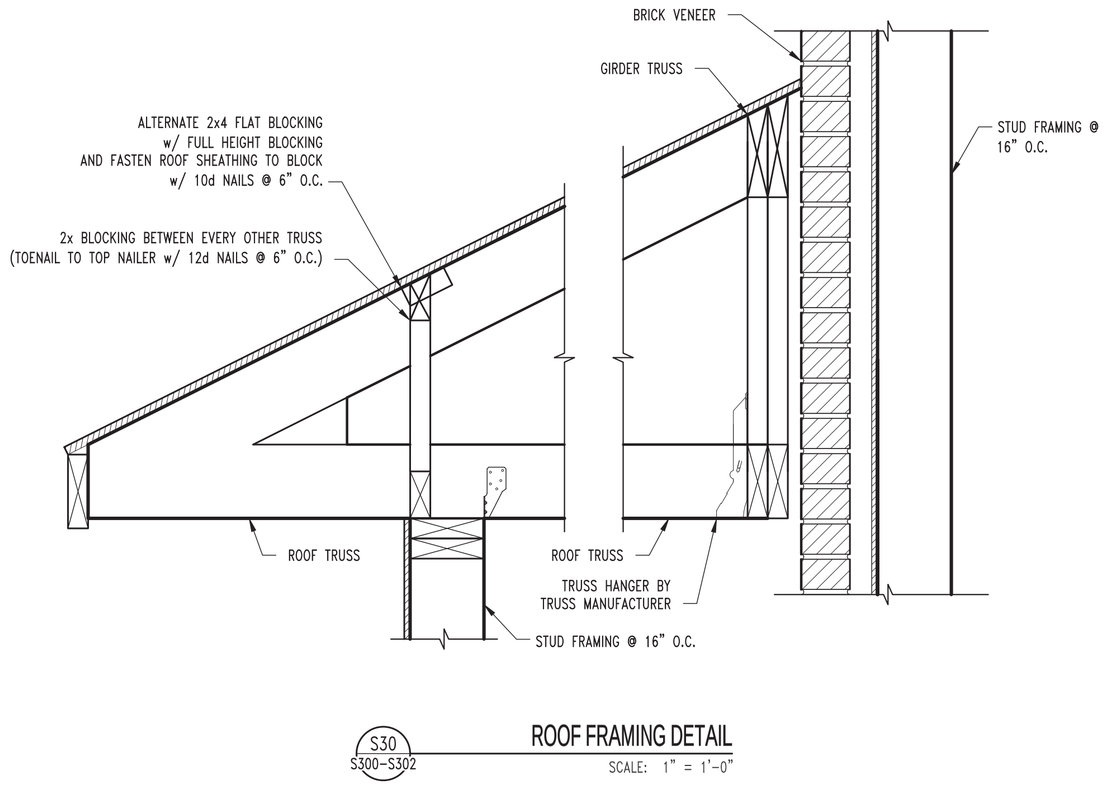

S30 S300–S302 ROOF FRAMING DETAIL
SCALE: 1" = 1'-0"

REVISIONS:

No.	Date
PHASE 1-PERMIT	02/04/2021

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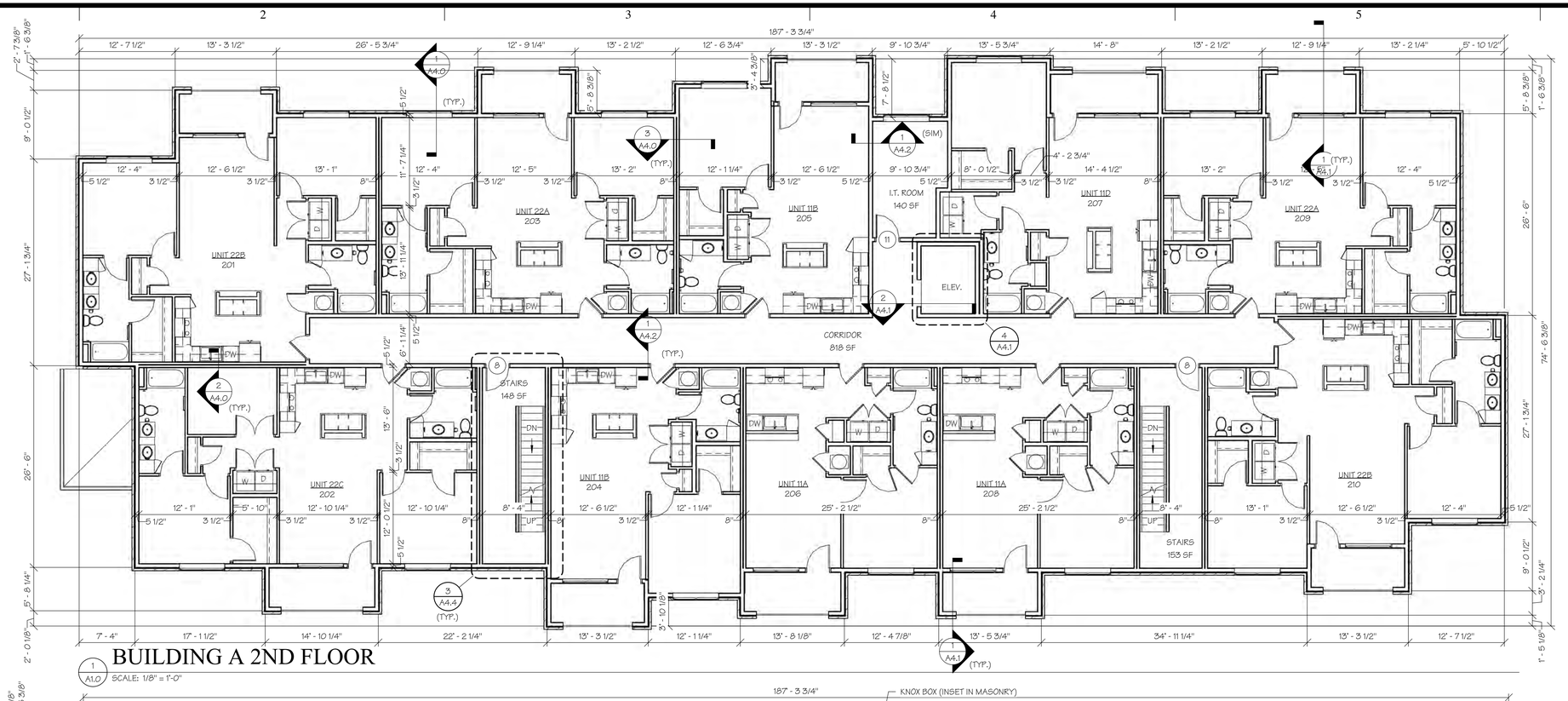
COLUMBIA, MISSOURI

ARIA LEE'S SUMMIT APARTMENTS

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

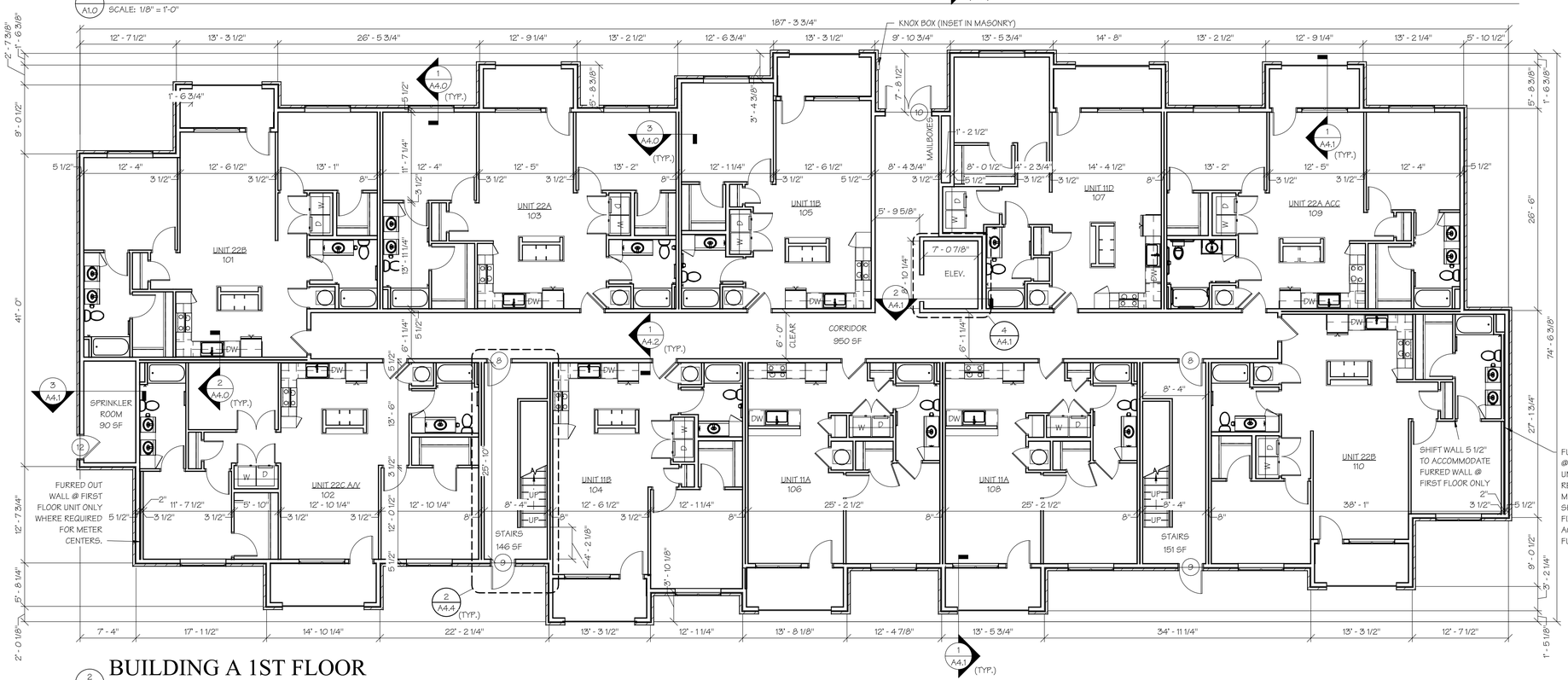
DRAWING INCLUDES:
FRAMING DETAILS

DESIGNED:	JWV
DRAWN:	SEH
PROJECT NO.:	190299
SHEET:	S611



1 A1.0 SCALE: 1/8" = 1'-0"

BUILDING A 2ND FLOOR



2 A1.0 SCALE: 1/8" = 1'-0"

BUILDING A 1ST FLOOR

STATE OF MISSOURI
M. RANDALL PORTER
2012006244
ARCHITECT
04 FEB 2021
M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

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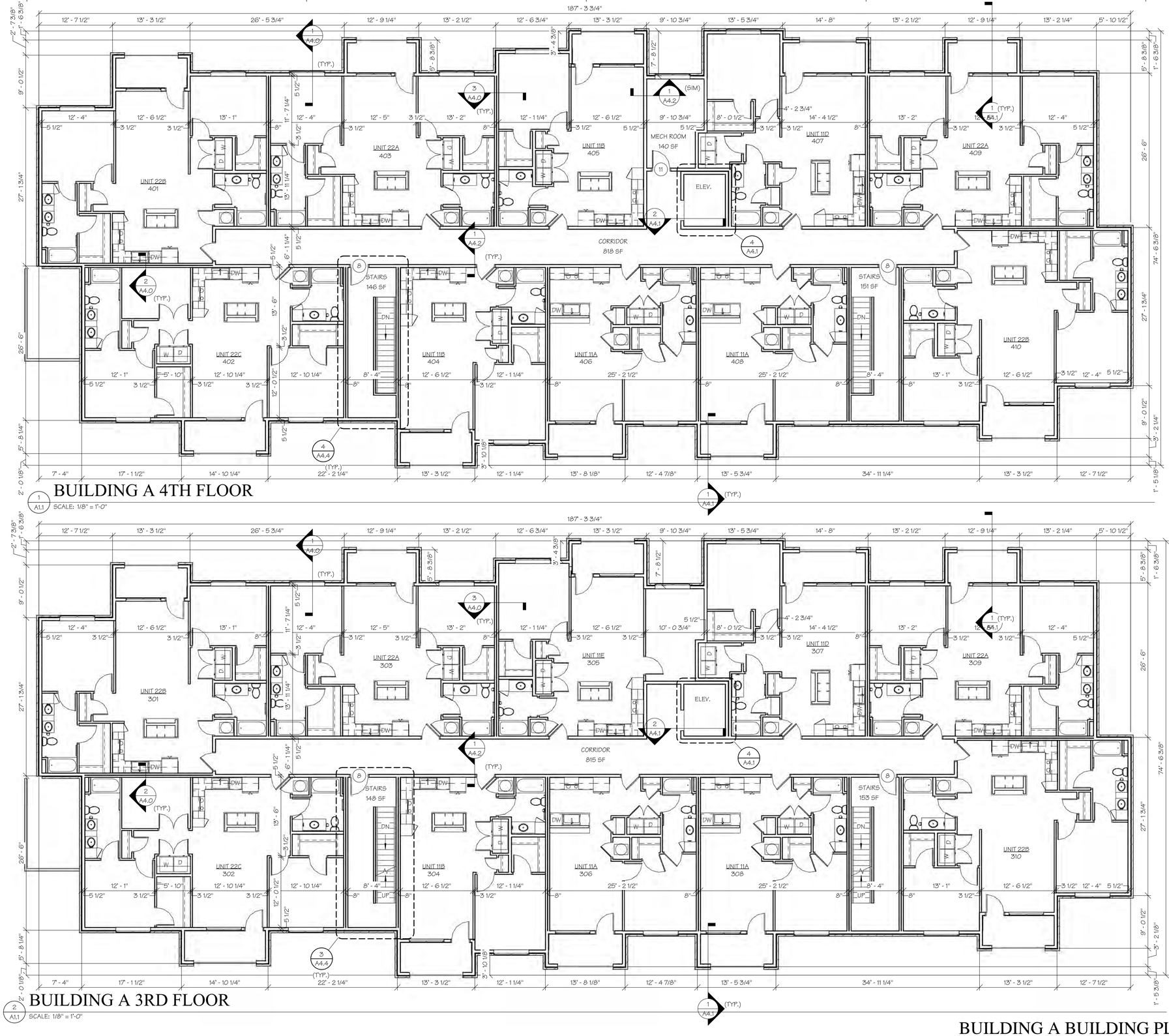
BUILDING A BUILDING PLANS
PERMIT SET



BUILDING A 4TH FLOOR

1 A1.1 SCALE: 1/8" = 1'-0"

BUILDING A 3RD FLOOR

2 A1.1 SCALE: 1/8" = 1'-0"

BUILDING A BUILDING PLANS

PERMIT SET

M. RANDALL PORTER
2012006244
ARCHITECT
STATE OF MISSOURI
04 FEB 2021
M. RANDALL PORTER
A-2012006244

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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

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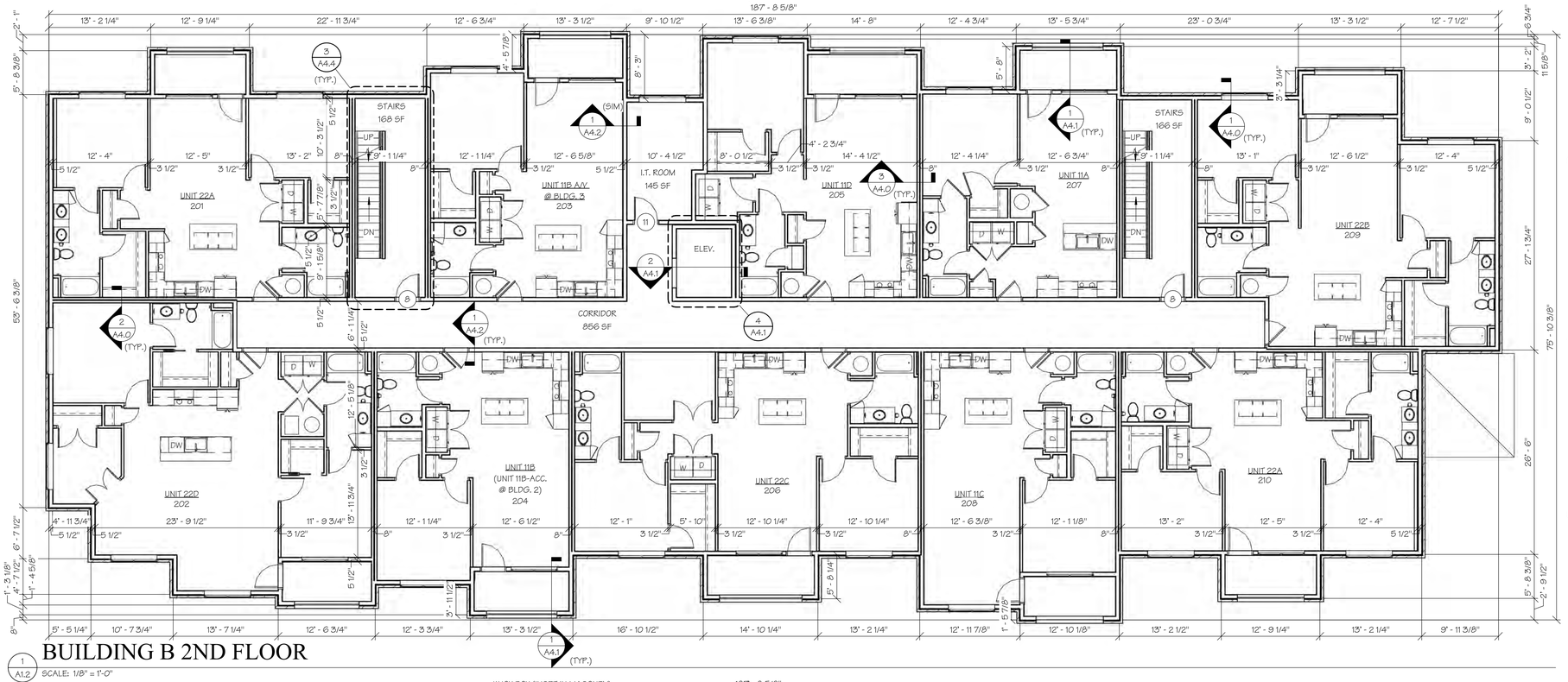
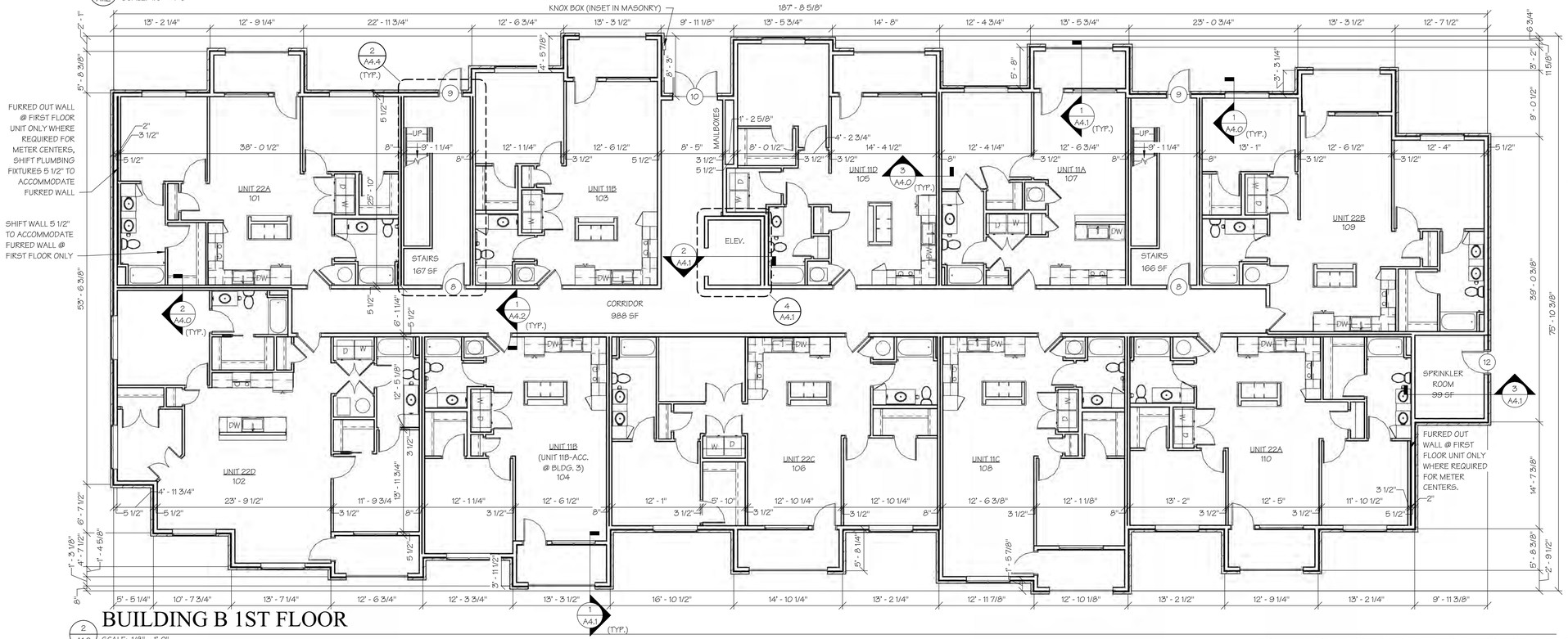


1 A1.2 SCALE: 1/8" = 1'-0"

BUILDING B 2ND FLOOR



2 A1.2 SCALE: 1/8" = 1'-0"

BUILDING B 1ST FLOOR

BUILDING B BUILDING PLANS

PERMIT SET

STATE OF MISSOURI
M. RANDALL PORTER
2012006244
ARCHITECT
04 FEB 2021
M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

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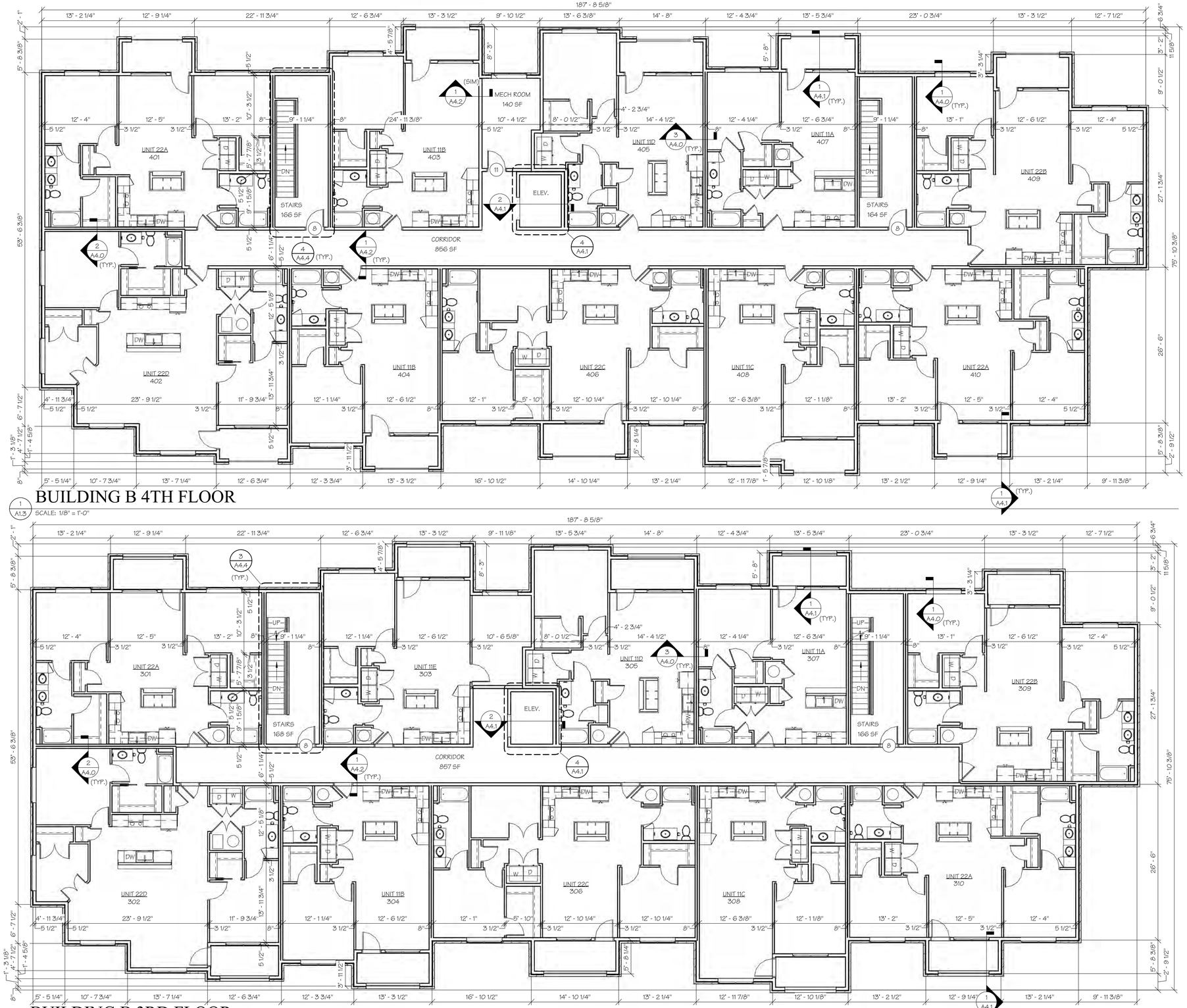

STATE OF MISSOURI
M. RANDALL PORTER
2012006244
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04 FEB 2021
M. RANDALL PORTER
A-2012006244

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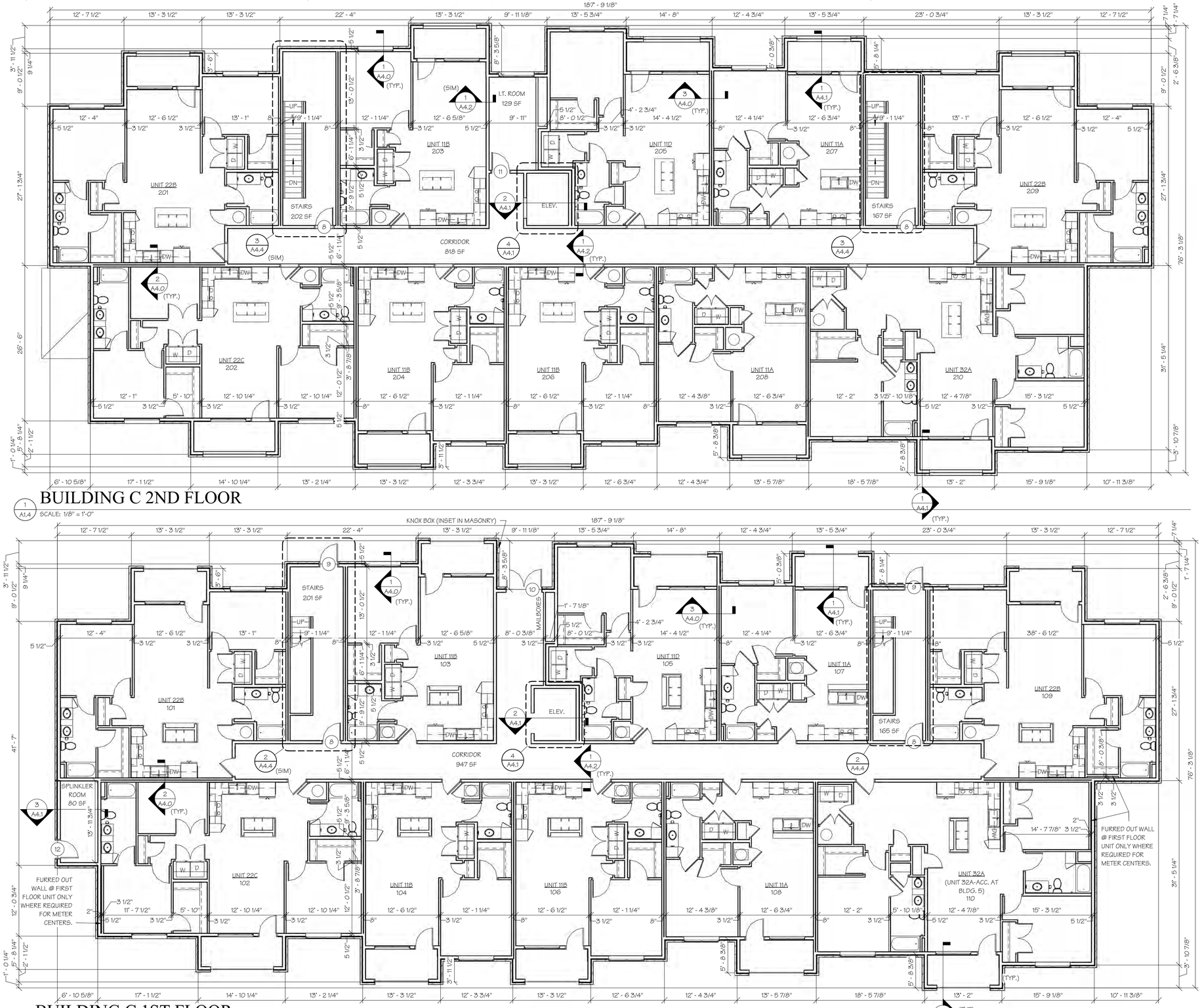
BUILDING B BUILDING PLANS

PERMIT SET



1 A1.4 BUILDING C 2ND FLOOR
SCALE: 1/8" = 1'-0"

2 A1.4 BUILDING C 1ST FLOOR
SCALE: 1/8" = 1'-0"

STATE OF MISSOURI
M. RANDALL PORTER
2012006244
ARCHITECT
04 FEB 2021
M. RANDALL PORTER
A-2012006244

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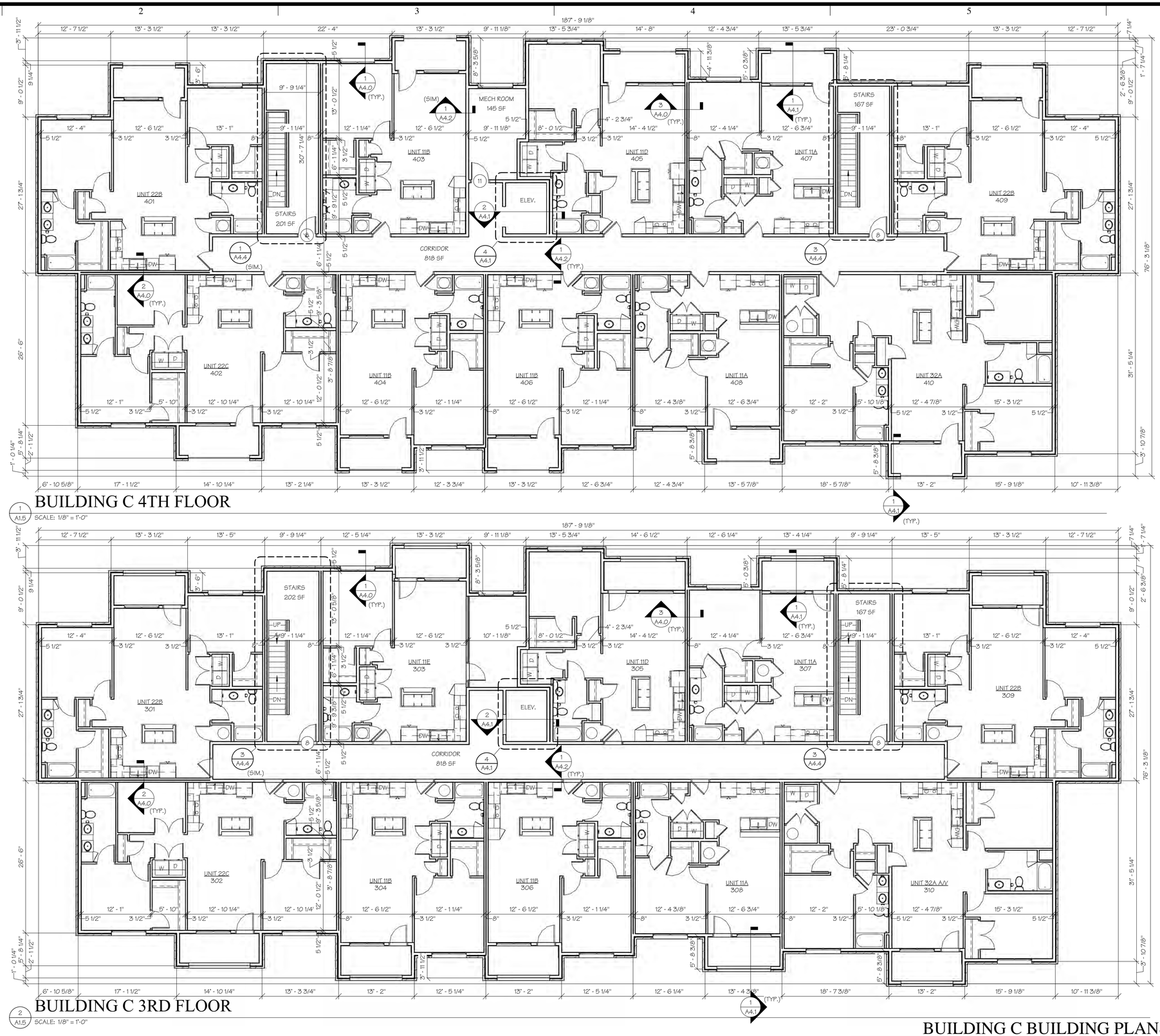
BUILDING C BUILDING PLANS
PERMIT SET



1 A1.5 SCALE: 1/8" = 1'-0"

BUILDING C 4TH FLOOR

2 A1.5 SCALE: 1/8" = 1'-0"

BUILDING C 3RD FLOOR

M. RANDALL PORTER
2012006244
ARCHITECT
STATE OF MISSOURI
04 FEB 2021
M. RANDALL PORTER
A-2012006244

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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

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BUILDING C BUILDING PLANS

PERMIT SET

WALL NOTES

1)	DIMENSIONS ARE STUD FACE TO STUD FACE UNLESS NOTED OTHERWISE.
2)	PROVIDE SOLID BLOCKING BEHIND GRAB BARS, CURTAIN RODS, SHOWER RODS, SHOWER HEADS, TOWEL BARS, ALL CABINETS, AND ALL SOFFITS.
3)	ALL EXTERIOR WALLS FRAMED W/ 2X6'S 16" O.C. AND COVERED W/ (1) LAYER 5/8" TYPE "X" GYP. BD. AT INTERIOR.
4)	ALL INTERIOR WALLS FRAMED WITH 2X4'S OR 2X6'S (ALL PLUMBING WALLS) 16" O.C. AND COVERED WITH (1) LAYER 5/8" GYP. BD.
5)	ALL UNIT SEPARATION WALLS FRAMED WITH 2X4'S 16" O.C. AND COVERED WITH (1) LAYER 5/8" TYPE "X" GYP. BD. (EACH SIDE) PER WALL SECTION.

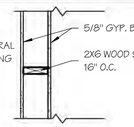
GENERAL UNIT NOTES

1)	ALL WASHERS & DRYERS ARE TO BE FRONT LOADING.
2)	MR GYP. BD. @ DAMP WALL LOCATIONS

WALL TYPES

W1

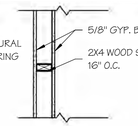
NOTE: SEE STRUCTURAL FOR INTERIOR BEARING WALL LOCATIONS



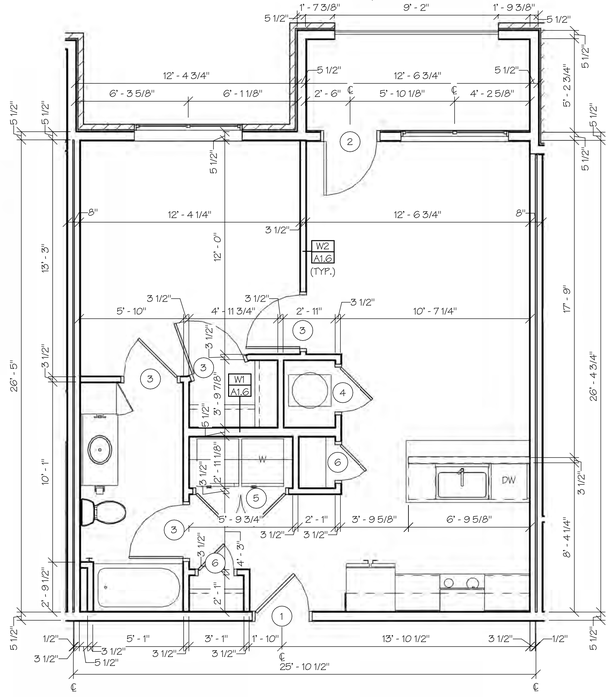
6-3/4" WALL

W2

NOTE: SEE STRUCTURAL FOR INTERIOR BEARING WALL LOCATIONS

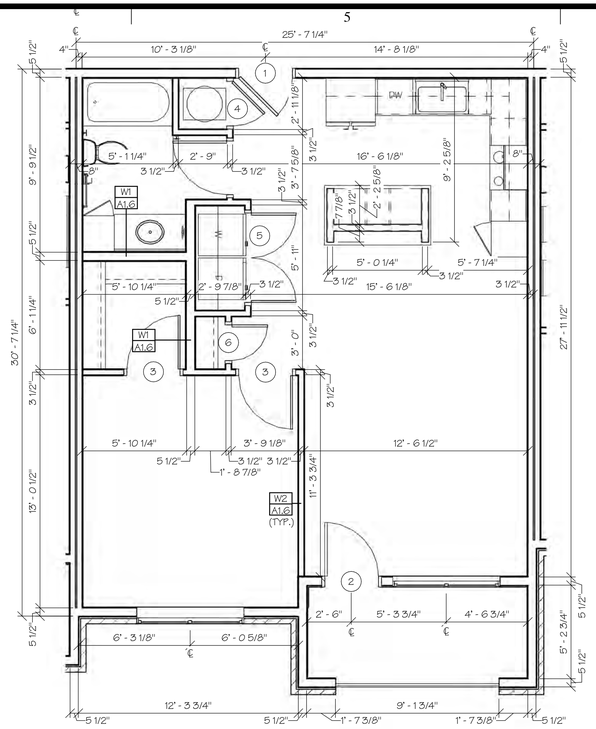


4-3/4" WALL



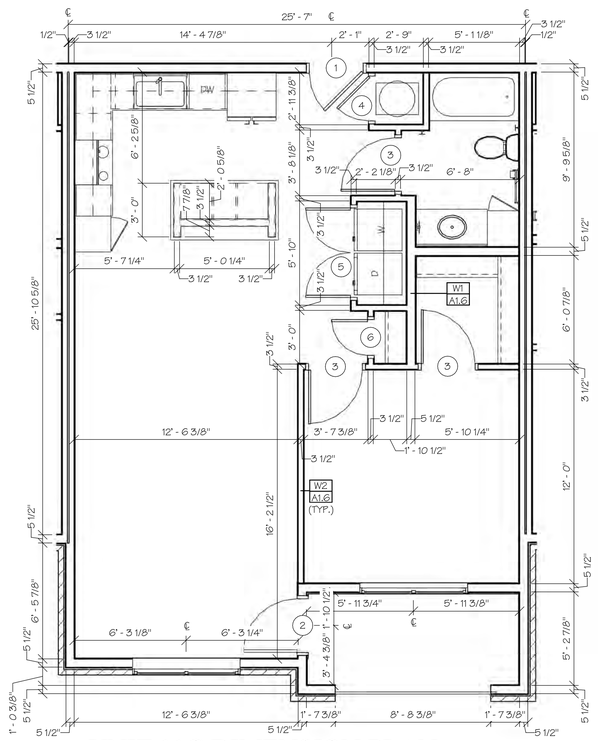
1 A1.6 UNIT 11A DIMENSION PLAN

SCALE: 1/4" = 1'-0"



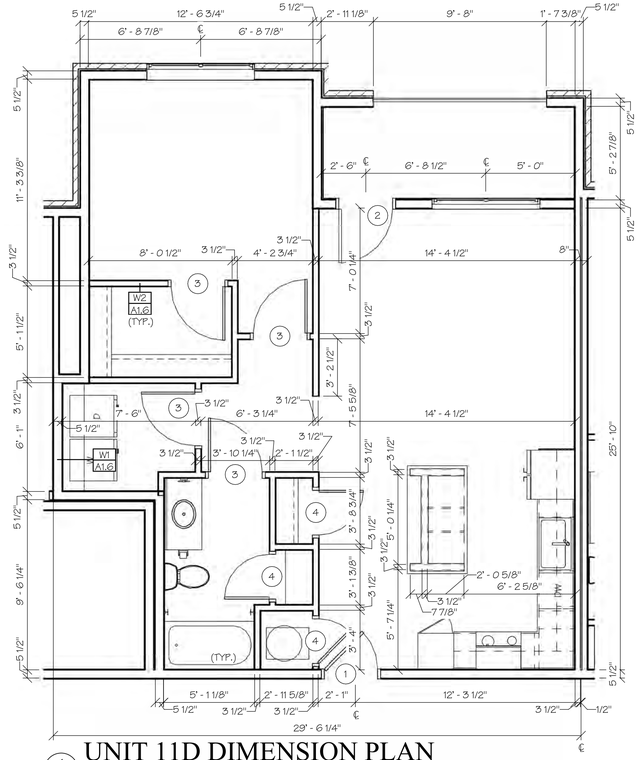
2 A1.6 UNIT 11B DIMENSION PLAN

SCALE: 1/4" = 1'-0"



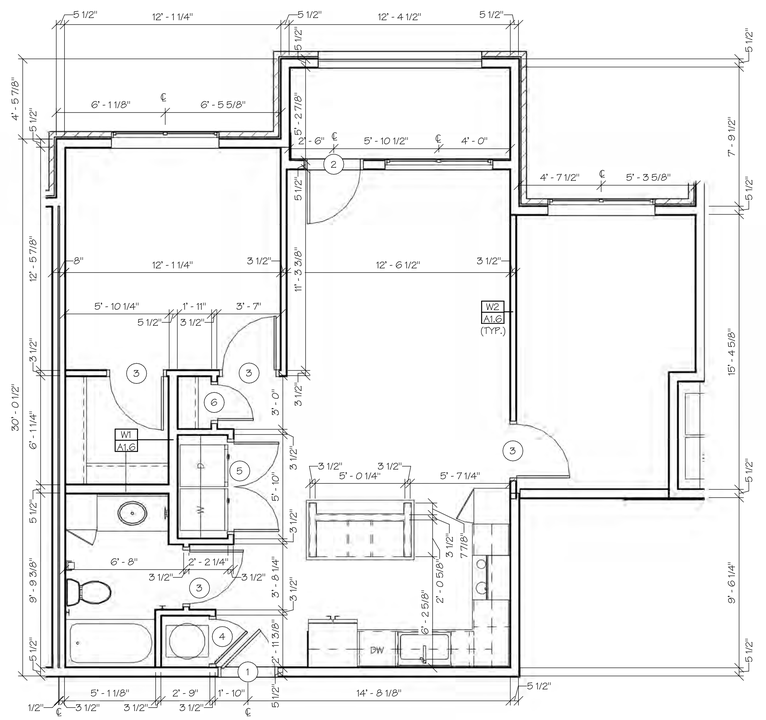
3 A1.6 UNIT 11C DIMENSION PLAN

SCALE: 1/4" = 1'-0"



4 A1.6 UNIT 11D DIMENSION PLAN

SCALE: 1/4" = 1'-0"



5 A1.6 UNIT 11E DIMENSION PLAN

SCALE: 1/4" = 1'-0"

UNITS 11A, 11B, 11C, 11D & 11E DIMENSION PLANS

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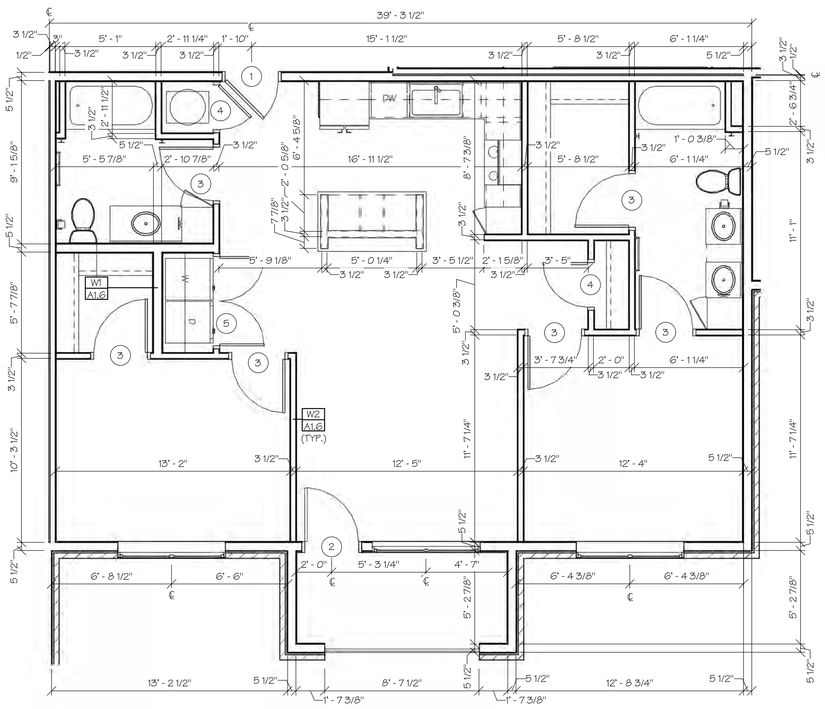
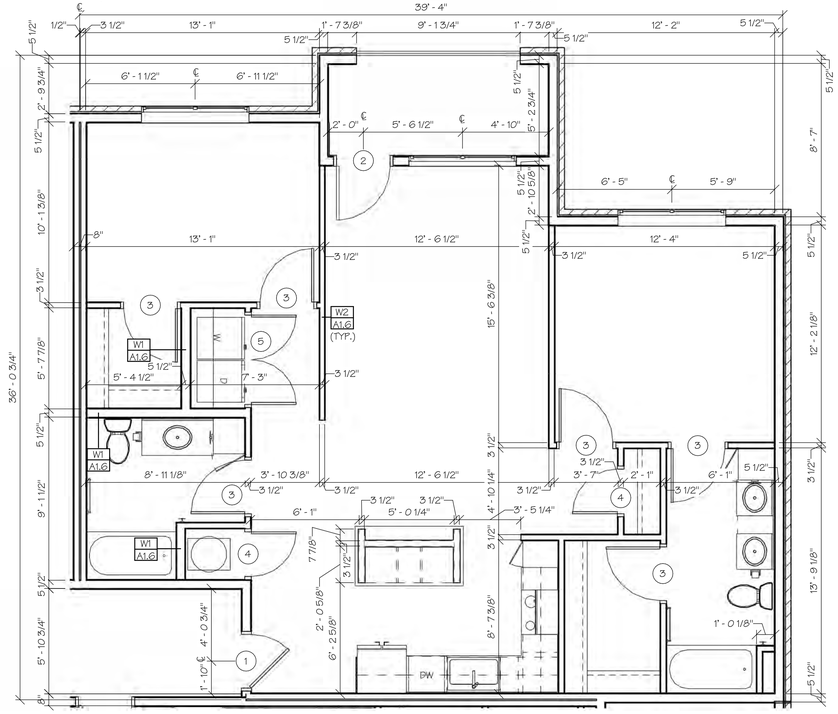


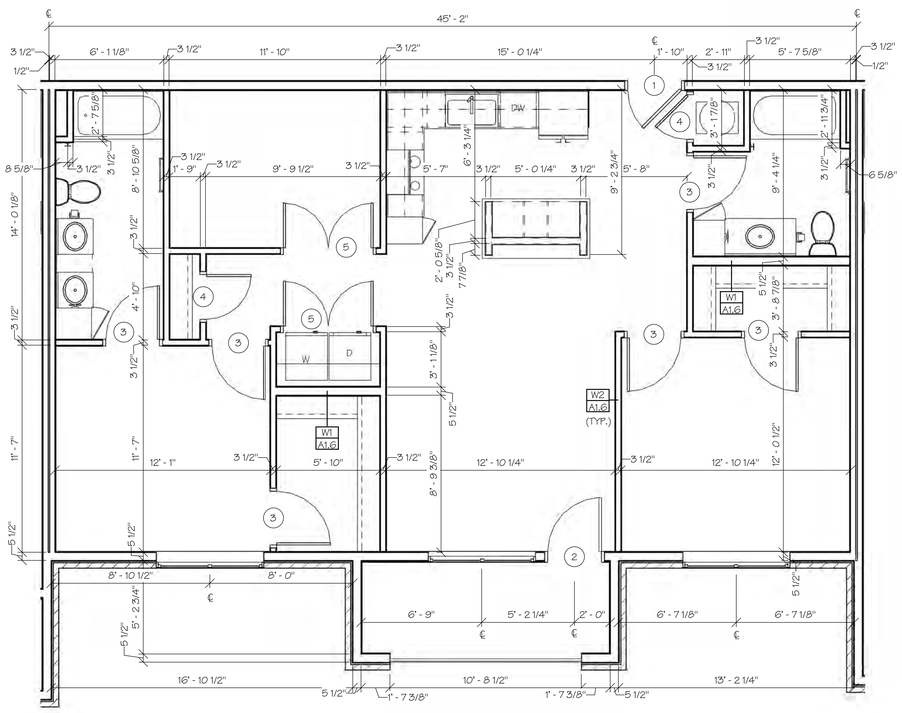
1 A1.7 UNIT 22A DIMENSION PLAN

SCALE: 1/4" = 1'-0"



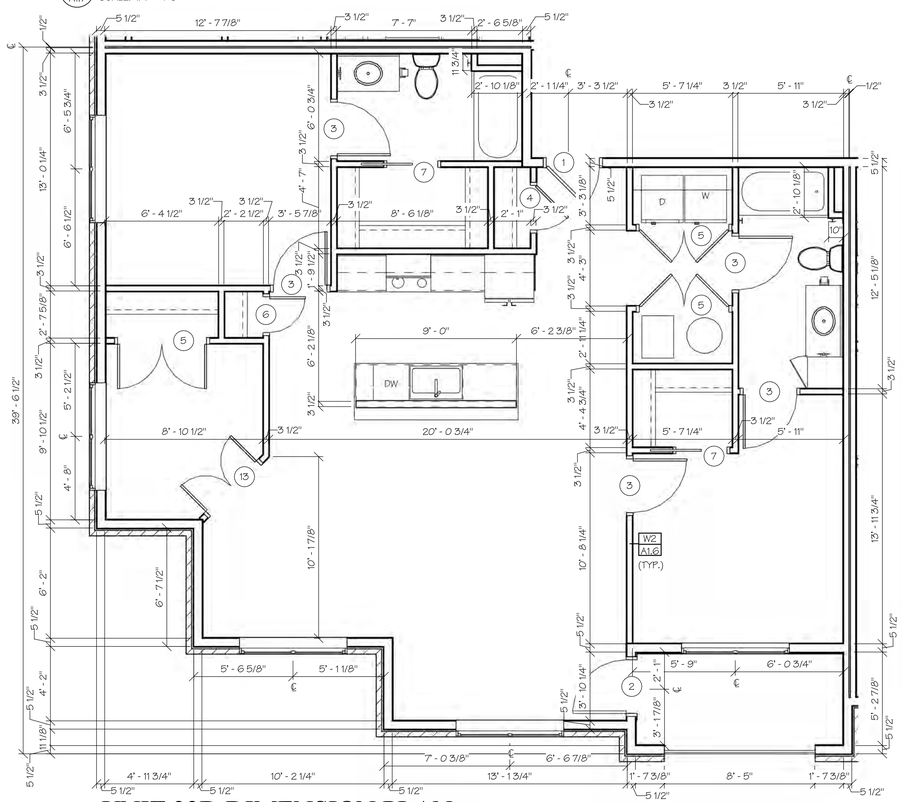
2 A1.7 UNIT 22B DIMENSION PLAN

SCALE: 1/4" = 1'-0"



3 A1.7 UNIT 22C DIMENSION PLAN

SCALE: 1/4" = 1'-0"



4 A1.7 UNIT 22D DIMENSION PLAN

SCALE: 1/4" = 1'-0"

UNITS 22A, 22B, 22C & 22D DIMENSION PLANS

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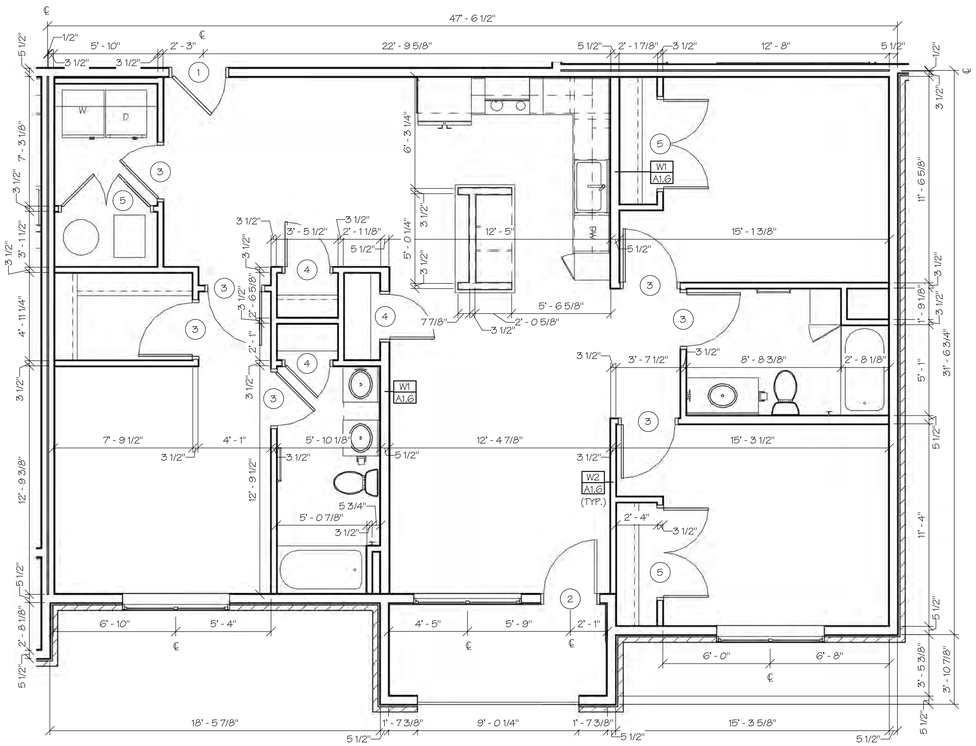
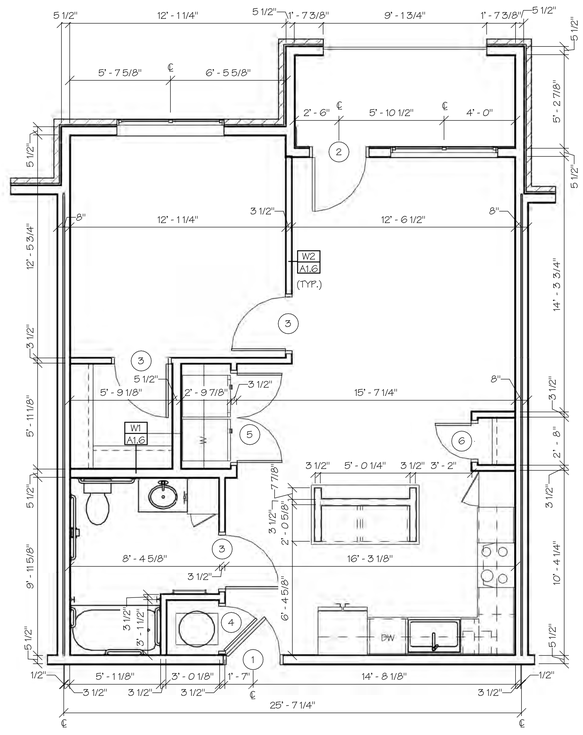


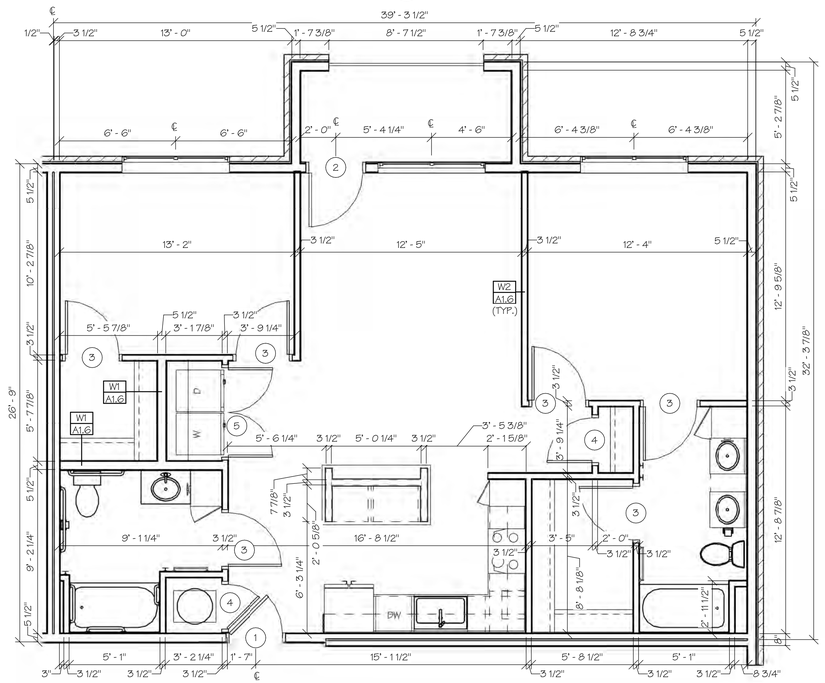
1 A1.8 UNIT 32A DIMENSION PLAN

SCALE: 1/4" = 1'-0"



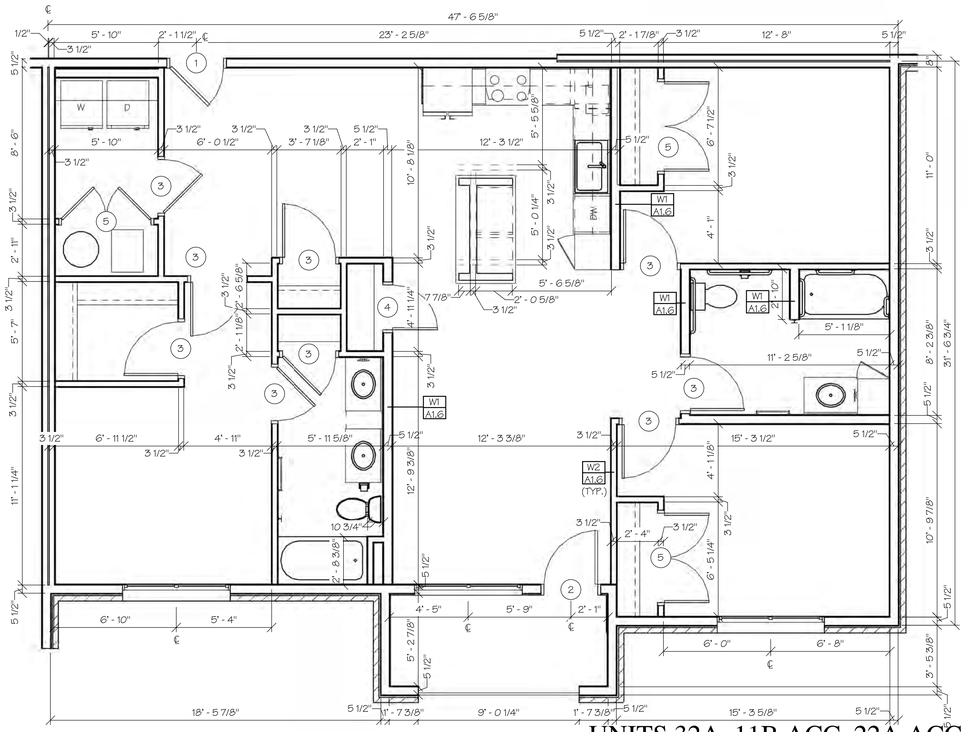
2 A1.8 UNIT 11B ACC DIMENSION PLAN

SCALE: 1/4" = 1'-0"



3 A1.8 UNIT 22A ACC DIMENSION PLAN

SCALE: 1/4" = 1'-0"



4 A1.8 UNIT 32A ACC DIMENSION PLAN

SCALE: 1/4" = 1'-0"

UNITS 32A, 11B ACC, 22A ACC & 32A ACC DIMENSION PLANS

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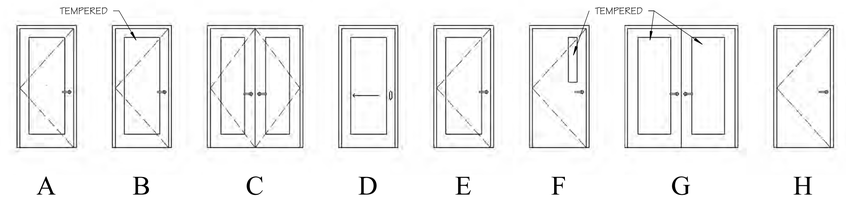
DOOR SCHEDULE

TYPE MARK	SIZE	ELEV.	PANEL MATL.	GLAZING	FIRE RATING	COMMENTS
1	3'-0" x 6'-8" x 1 3/4"	A	WOOD SC	NONE	20 MIN.	1 PANEL STYLE & RAIL DOOR (DARK WALNUT STAIN) W/PEEPHOLE, HOLLOW METAL FRAME, SMOKE GASKET, SPRING HINGES & ALUM. 1/4" LOW PROFILE THRESHOLD
2	3'-0" x 6'-8" x 1 3/4"	B	INSUL. METAL	INSUL. TEMPERED	NONE	STEEL FRAME & ALUM. 1/4" LOW PROFILE THRESHOLD
3	3'-0" x 6'-8" x 1 3/8"	E	WOOD HC	NONE	NONE	MASONITE, PRE-HUNG W/SATIN NICKEL HINGES
4				NONE		
5	PR. 2'-6" x 6'-8" x 1 3/8"	C	WOOD HC	NONE	NONE	MASONITE, PRE-HUNG W/SATIN NICKEL HINGES
7	2'-10" x 6'-8" x 1 3/8"	D	WOOD HC	NONE	NONE	MASONITE POCKET
8	3'-0" x 6'-8" x 1 3/4"	F	METAL	FIRE-RATED TEMPERED	90 MIN.	HOLLOW METAL FRAME, SMOKE GASKET, ALUM. 1/4" LOW PROFILE THRESHOLD & CLOSER, PANIC HARDWARE & MAG HOLD
9	3'-0" x 6'-8" x 1 3/4"	F	INSUL. METAL	INSUL. TEMPERED	NONE	HOLLOW METAL FRAME, ALUM. 1/4" LOW PROFILE THRESHOLD, CLOSER & WEATHER STRIPPING, PANIC HARDWARE
10	PR. 3'-0" x 6'-8" x 1 3/4"	G	INSUL. METAL	INSUL. TEMPERED	NONE	STORE FRONT, ALUM. 1/4" LOW PROFILE THRESHOLD, CLOSER & WEATHER STRIPPING, PANIC HARDWARE, ELECTRIC STRIKE AND FOB READER
11	2'-6" x 6'-8" x 1 3/4"	E	WOOD SC	NONE	20 MIN.	1 PANEL STYLE & RAIL DOOR (DARK WALNUT STAIN), HOLLOW METAL FRAME, SMOKE GASKET, SPRING HINGES & ALUM. 1/4" LOW PROFILE THRESHOLD
12	3'-0" x 6'-8" x 1 3/4"	H	INSUL. METAL	NONE	NONE	HOLLOW METAL FRAME, THRESHOLD & WEATHER STRIPPING
13	PR. 2'-0" x 6'-8" x 1 3/8"	C	WOOD HC	NONE	NONE	MASONITE, PRE-HUNG W/SATIN NICKEL HINGES



DOOR NOTES

1)	ALL DOORS TO HAVE LEVER HANDLES.
2)	ENTRY DOORS SHALL COMPLY WITH ANSI A117.1 ACCESSIBILITY REQUIREMENTS.
3)	PROVIDE ACCESSIBLE THRESHOLD AT ALL ENTRY DOORS 1/4" HIGH MAX., 1:2 SLOPE.

DOOR SCHEDULE

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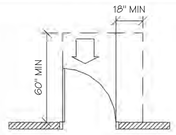
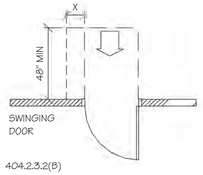
MANEUVERING CLEARANCES AT DOORS

PER ANSI A117.1

NOTE: WHERE ANY OBSTRUCTION WITHIN 18 INCHES OF THE LATCH SIDE OF A DOORWAY PROJECTS MORE THAN 8 INCHES BEYOND THE FACE OF THE DOOR, MEASURED PERPENDICULAR TO THE FACE OF THE DOOR, MANEUVERING CLEARANCES FOR A FORWARD APPROACH SHALL BE PROVIDED.

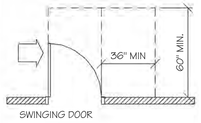


404.2.3.2(A)
FRONT APPROACH - PULL SIDE

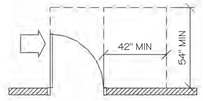


404.2.3.2(B)
FRONT APPROACH - PUSH SIDE
-EXISTING BUILDINGS

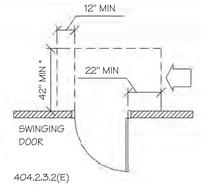
NOTE: X = 12" MIN IF DOOR HAS BOTH A CLOSER AND LATCH



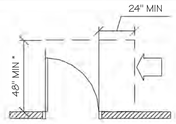
404.2.3.2(C)
HINGE APPROACH - PULL SIDE



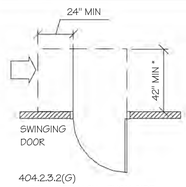
404.2.3.2(D)
HINGE APPROACH - PULL SIDE



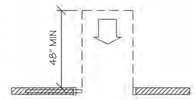
404.2.3.2(E)
HINGE APPROACH - PUSH SIDE
* 48" MIN IF BOTH CLOSER AND LATCH PROVIDED.



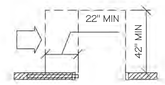
404.2.3.2(F)
LATCH APPROACH - PULL SIDE
* 54" MIN IF DOOR CLOSER IS PROVIDED



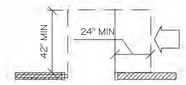
404.2.3.2(G)
LATCH APPROACH - PUSH SIDE
* 48" MIN IF DOOR CLOSER IS PROVIDED



404.2.3.3(A)
FRONT APPROACH - NEW BUILDINGS



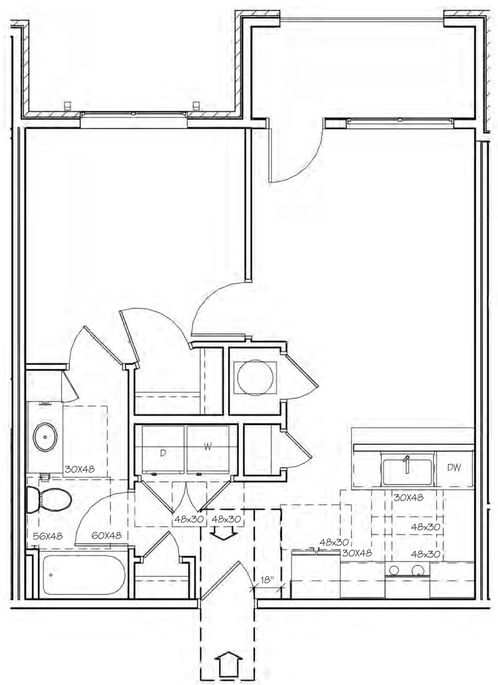
404.2.3.3(B)
POCKET OR HINGE APPROACH



404.2.3.3(C)
STOP OR LATCH APPROACH

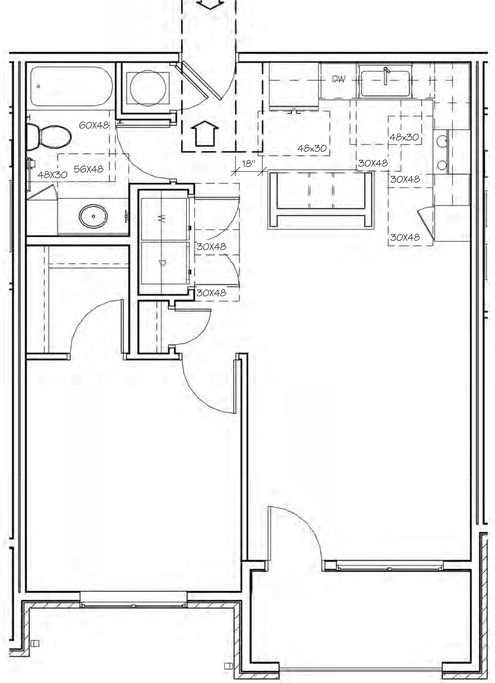
CHANGES IN LEVEL ON AN ACCESSIBLE ROUTE

NOTE: STAIRS SHALL NOT BE PART OF AN ACCESSIBLE ROUTE.



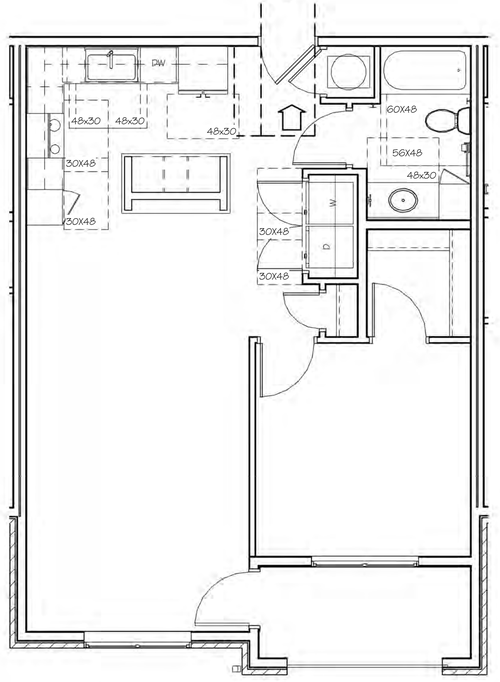
UNIT 11A CLEAR FLOOR SPACE PLAN

1 / A1.10 SCALE: 1/4" = 1'-0" (ANSI "B")



UNIT 11B CLEAR FLOOR SPACE PLAN

2 / A1.10 SCALE: 1/4" = 1'-0" (ANSI "B")



UNIT 11C CLEAR FLOOR SPACE PLAN

3 / A1.10 SCALE: 1/4" = 1'-0" (ANSI "B")

UNITS 11A, 11B & 11C CLEAR FLOOR SPACE PLANS

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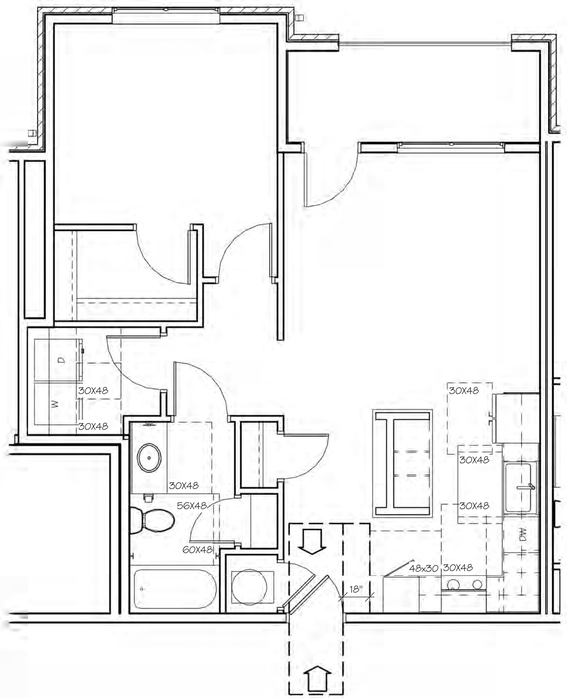
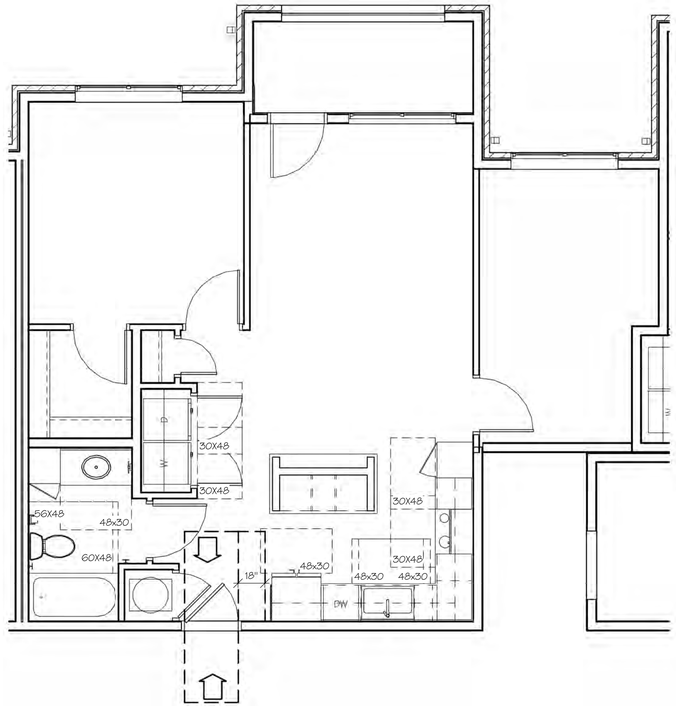


1 A1.11 SCALE: 1/4" = 1'-0"

UNIT 11D CLEAR FLOOR SPACE PLAN

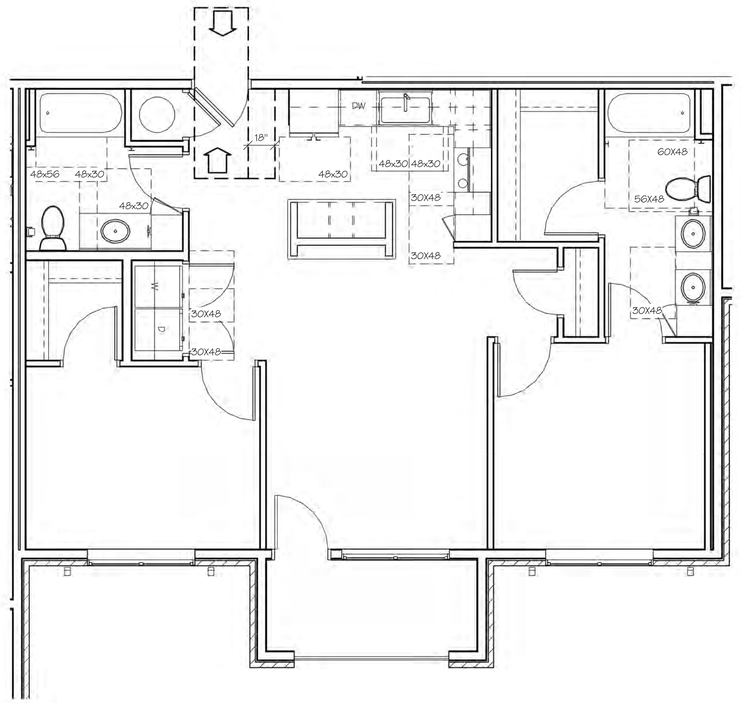
(ANSI "B")



2 A1.11 SCALE: 1/4" = 1'-0"

UNIT 11E CLEAR FLOOR SPACE PLAN

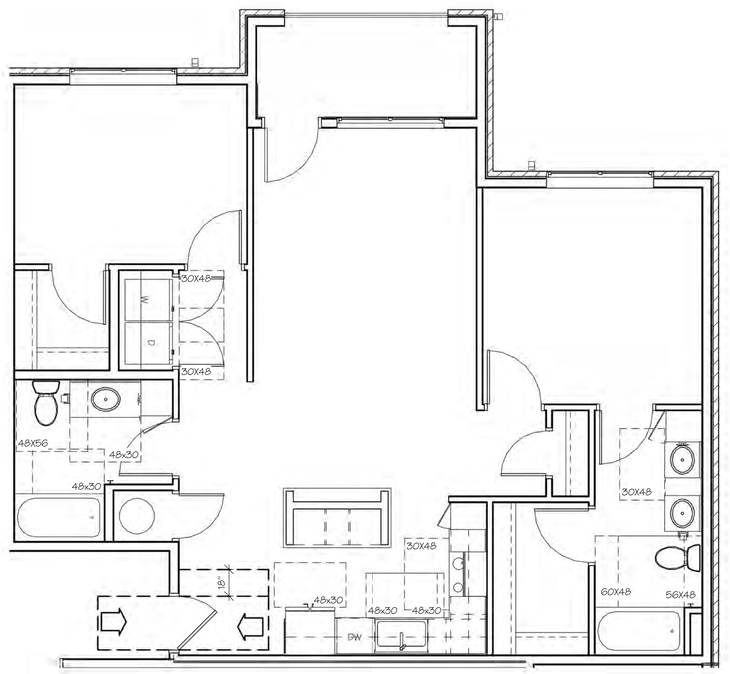
(ANSI "B")



3 A1.11 SCALE: 1/4" = 1'-0"

UNIT 22A CLEAR FLOOR SPACE PLAN

(ANSI "B")



4 A1.11 SCALE: 1/4" = 1'-0"

UNIT 22B CLEAR FLOOR SPACE PLAN

(ANSI "B")

UNITS 11D, 11E, 22A & 22B CLEAR FLOOR SPACE PLANS

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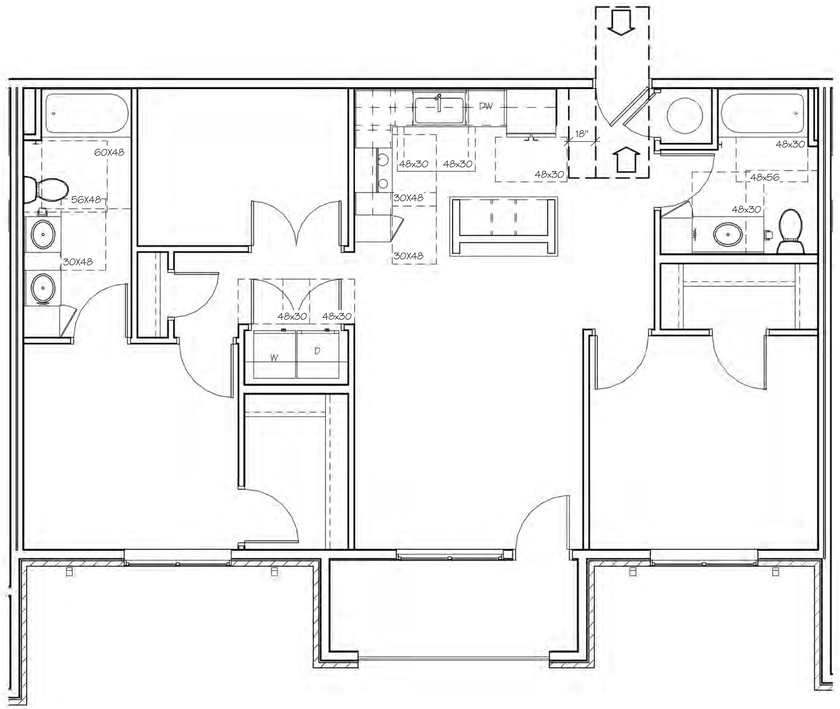
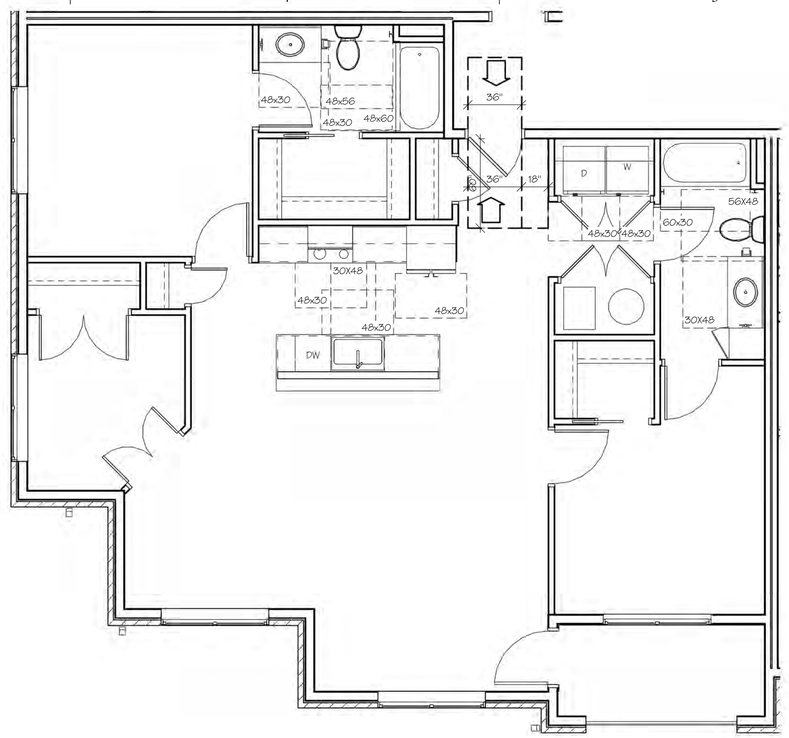


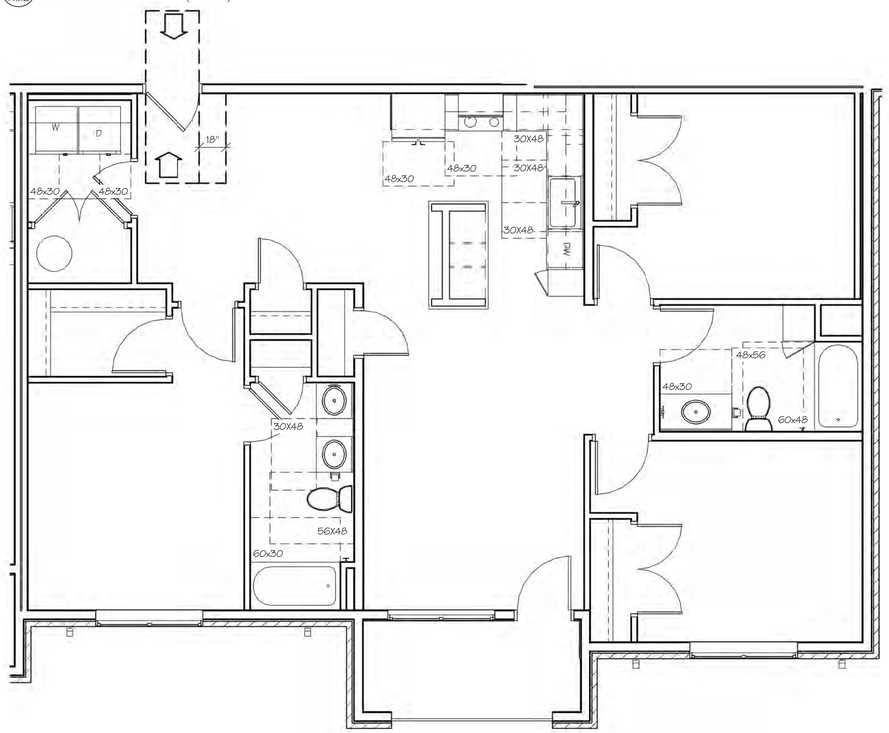
1 A1.12 UNIT 22C CLEAR FLOOR SPACE PLAN

SCALE: 1/4" = 1'-0" (ANSI "B")



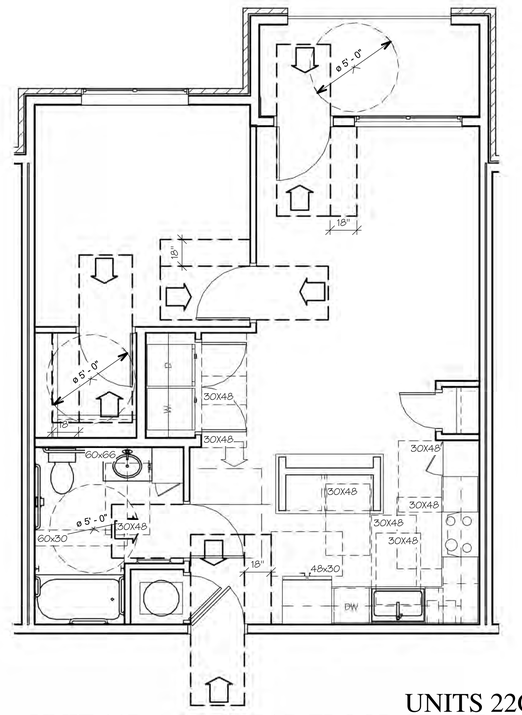
2 A1.12 UNIT 22D CLEAR FLOOR SPACE PLAN

SCALE: 1/4" = 1'-0" (ANSI "B")



3 A1.12 UNIT 32A CLEAR FLOOR SPACE PLAN

SCALE: 1/4" = 1'-0" (ANSI "B")



4 A1.12 UNIT 11B ACC CLEAR FLOOR SPACE PLAN

SCALE: 1/4" = 1'-0" (ANSI "A")

UNITS 22C, 22D, 32A & 11B ACC CLEAR FLOOR SPACE PLANS

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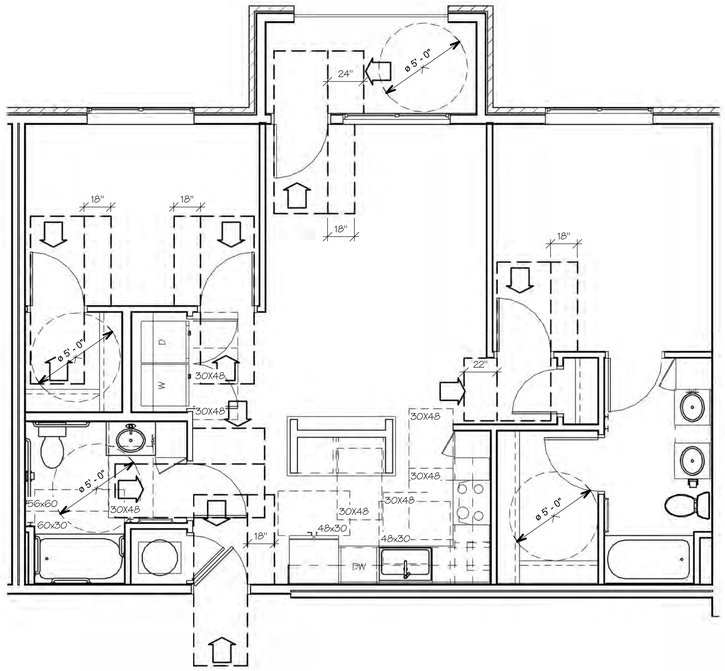
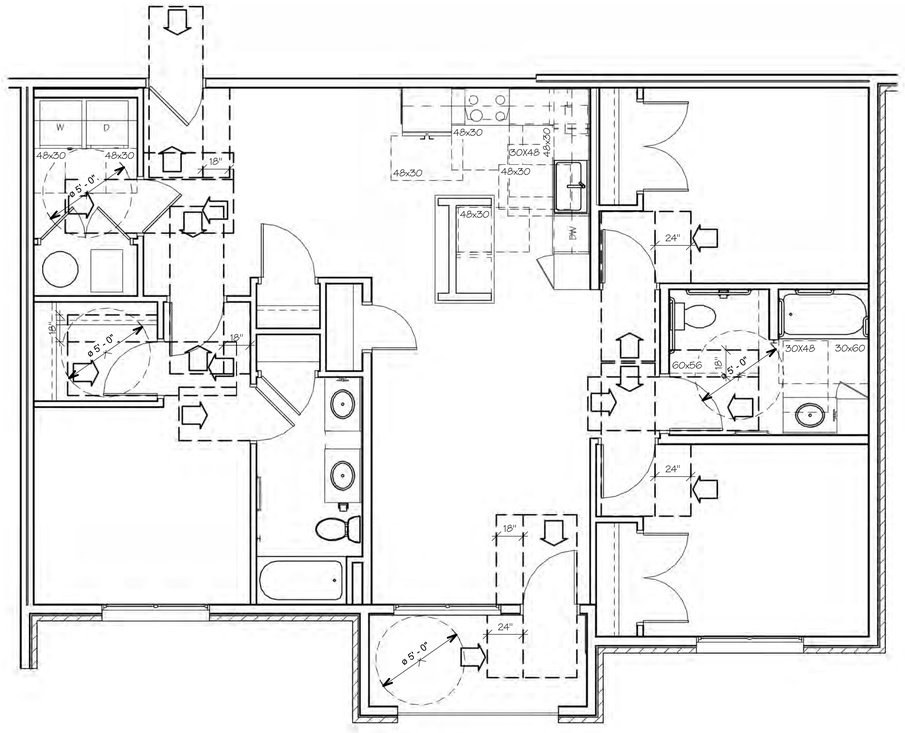


1 A1.13 UNIT 22A ACC CLEAR FLOOR SPACE PLAN

SCALE: 1/4" = 1'-0" (ANSI "A")



2 A1.13 UNIT 32A ACC CLEAR FLOOR SPACE PLAN

SCALE: 1/4" = 1'-0" (ANSI "A")

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UNITS 22A ACC & 32A ACC CLEAR FLOOR SPACE PLANS

PERMIT SET

LEGEND

- 36" x 48" DRAFTSTOPPING ACCESS DOOR IN DRAFTSTOPPING PARTITION
- ATTIC DRAFTSTOPPING
- DOWNSPOUT LOCATIONS
- POD ROOF VENT

ATTIC DRAFTSTOPPING NOTES:
1. DRAFTSTOPPING MATERIALS SHALL NOT BE LESS THAN 1/2" GYPSUM BOARD, 3/8" WOOD STRUCTURAL PANEL, 3/8" PARTICLEBOARD, 1" NOMINAL LUMBER, CEMENT FIBERBOARD, BATTS OR BLANKETS OF MINERAL WOOL OR GLASS FIBER, OR OTHER APPROVED MATERIALS ADEQUATELY SUPPORTED.
2. DRAFTSTOPPING SHALL BE PROVIDED IN ATTICS, MANSARDS, OVERHANGS, OR OTHER CONCEALED ROOF SPACES.
3. DRAFTSTOPPING SHALL BE INSTALLED ABOVE, AND IN LINE WITH, SLEEPING UNIT AND DWELLING UNIT SEPARATION WALLS THAT DO NOT EXTEND TO THE UNDERSIDE OF THE ROOF DECKING ABOVE.
4. WHERE CORRIDOR WALLS PROVIDE A SLEEPING UNIT OR DWELLING UNIT SEPARATION, DRAFTSTOPPING SHALL ONLY BE REQUIRED ABOVE ONE OF THE CORRIDOR WALLS.
5. THE ATTIC SPACE SHALL BE SUBDIVIDED BY DRAFTSTOPS INTO AREAS NOT EXCEEDING 3,000 SF OR ABOVE EVERY TWO DWELLING UNITS, WHICHEVER IS SMALLER.

SPECIAL INSTRUCTION:
Structural drawings and specifications take precedence over any drawing, detail or note shown on this sheet. Contractors, subcontractors, and suppliers must reference structural drawings and/or specifications before constructing, or supplying any load-bearing, or load-resisting element shown on this sheet.

ATTIC COMPARTMENT VENTILATION

NAME	TYPE	AREA	TOTAL REQ'D VENT. (SQ. IN.)	SOFFIT VENT (SQ. IN.)	ROOF VENT (SQ. IN.)
BLDG. A - AREA "A"	ATTIC SPACE	2813 SF	2701	1350	1350
BLDG. A - AREA "B"	ATTIC SPACE	2032 SF	1950	975	975
BLDG. A - AREA "C"	ATTIC SPACE	1433 SF	1376	688	688
BLDG. A - AREA "D"	ATTIC SPACE	2160 SF	2073	1037	1037
BLDG. A - AREA "E"	ATTIC SPACE	1673 SF	1606	803	803
BLDG. A - AREA "F"	ATTIC SPACE	1073 SF	1030	515	515
BLDG. A - AREA "G"	ATTIC SPACE	1319 SF	1267	633	633
BLDG. B - AREA "A"	ATTIC SPACE	1223 SF	1174	587	587
BLDG. B - AREA "B"	ATTIC SPACE	1127 SF	1082	541	541
BLDG. B - AREA "C"	ATTIC SPACE	1771 SF	1700	850	850
BLDG. B - AREA "D"	ATTIC SPACE	1580 SF	1517	759	759
BLDG. B - AREA "E"	ATTIC SPACE	1510 SF	1450	725	725
BLDG. B - AREA "F"	ATTIC SPACE	2256 SF	2166	1083	1083
BLDG. B - AREA "G"	ATTIC SPACE	2141 SF	2055	1028	1028
BLDG. B - AREA "H"	ATTIC SPACE	1175 SF	1128	564	564
BLDG. C - AREA "A"	ATTIC SPACE	2805 SF	2693	1347	1347
BLDG. C - AREA "B"	ATTIC SPACE	1157 SF	1111	555	555
BLDG. C - AREA "C"	ATTIC SPACE	1763 SF	1692	846	846

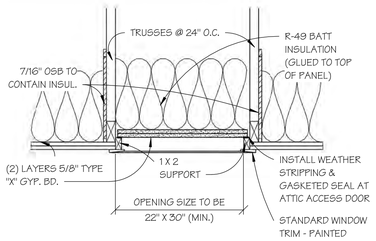
ATTIC COMPARTMENT VENTILATION

NAME	TYPE	AREA	TOTAL REQ'D VENT. (SQ. IN.)	SOFFIT VENT (SQ. IN.)	ROOF VENT (SQ. IN.)
BLDG. C - AREA "D"	ATTIC SPACE	1593 SF	1529	765	765
BLDG. C - AREA "E"	ATTIC SPACE	1193 SF	1145	573	573
BLDG. C - AREA "F"	ATTIC SPACE	1740 SF	1670	835	835
BLDG. C - AREA "G"	ATTIC SPACE	2446 SF	2349	1174	1174

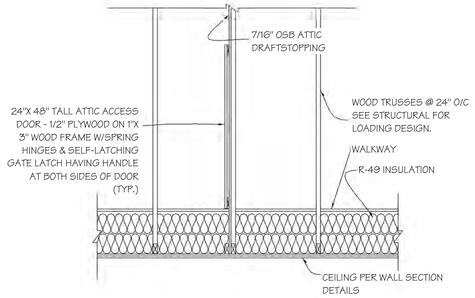
GENERAL ATTIC VENTILATION NOTES

1) TOTAL FREE AREA SHALL EQUAL 1/300 OF ATTIC AREAS W/50% OF VENT AREA AT ROOF AND 50% AT SOFFITS.

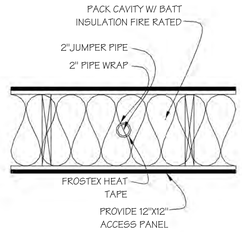
2) SPECIFID VENTILATION POD QUANTITY BASED ON 70 SQ. IN FREE AREA PER POD. ADJUST QUANTITY AS REQUIRED BASEED ON FREE AREA OF SPECIFIC VENTILATION POD USED.



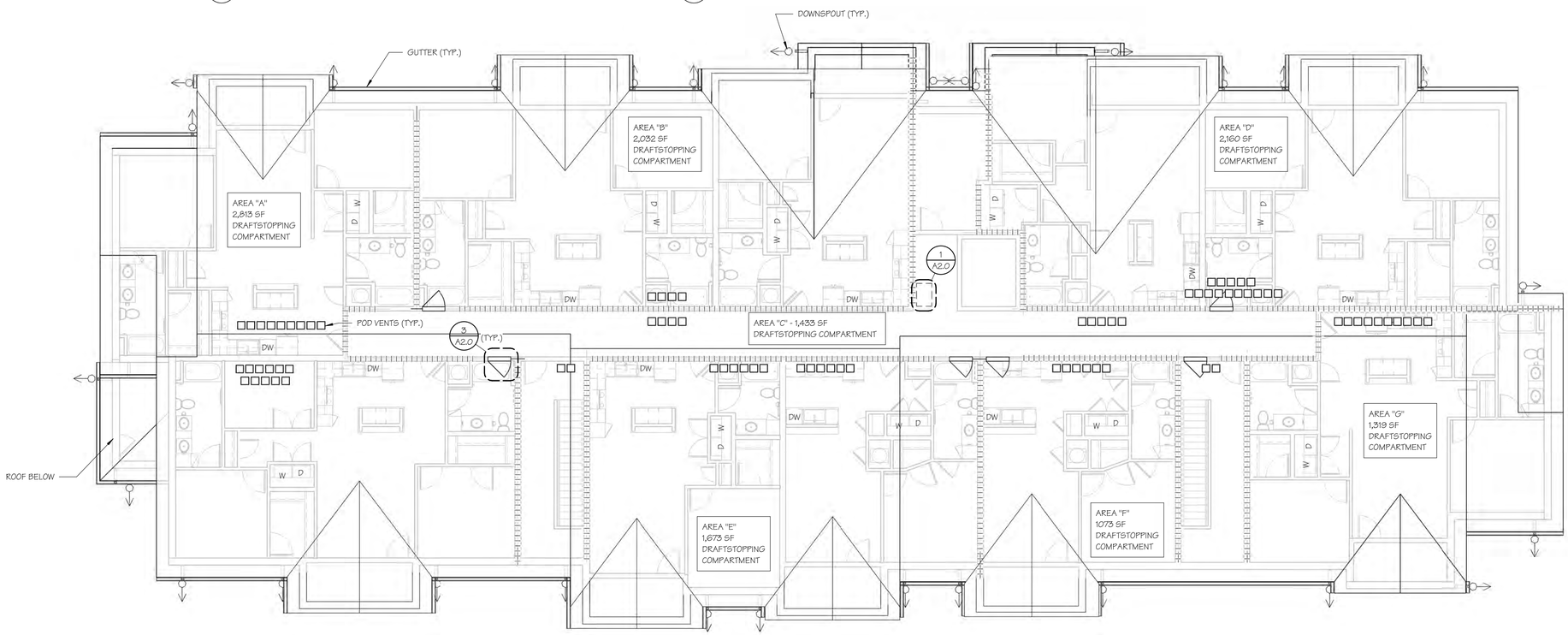
1 A2.0 ATTIC ACCESS DETAIL
SCALE: 1" = 1'-0"



3 A2.0 ATTIC DRAFTSTOP DOOR
SCALE: 1/2" = 1'-0"



5 A2.0 SPRINKLER JUMPER DETAIL
SCALE: 1" = 1'-0"



2 A2.0 ROOF BUILDING A
SCALE: 1/8" = 1'-0"

BUILDING A ROOF PLAN & ROOF DETAILS

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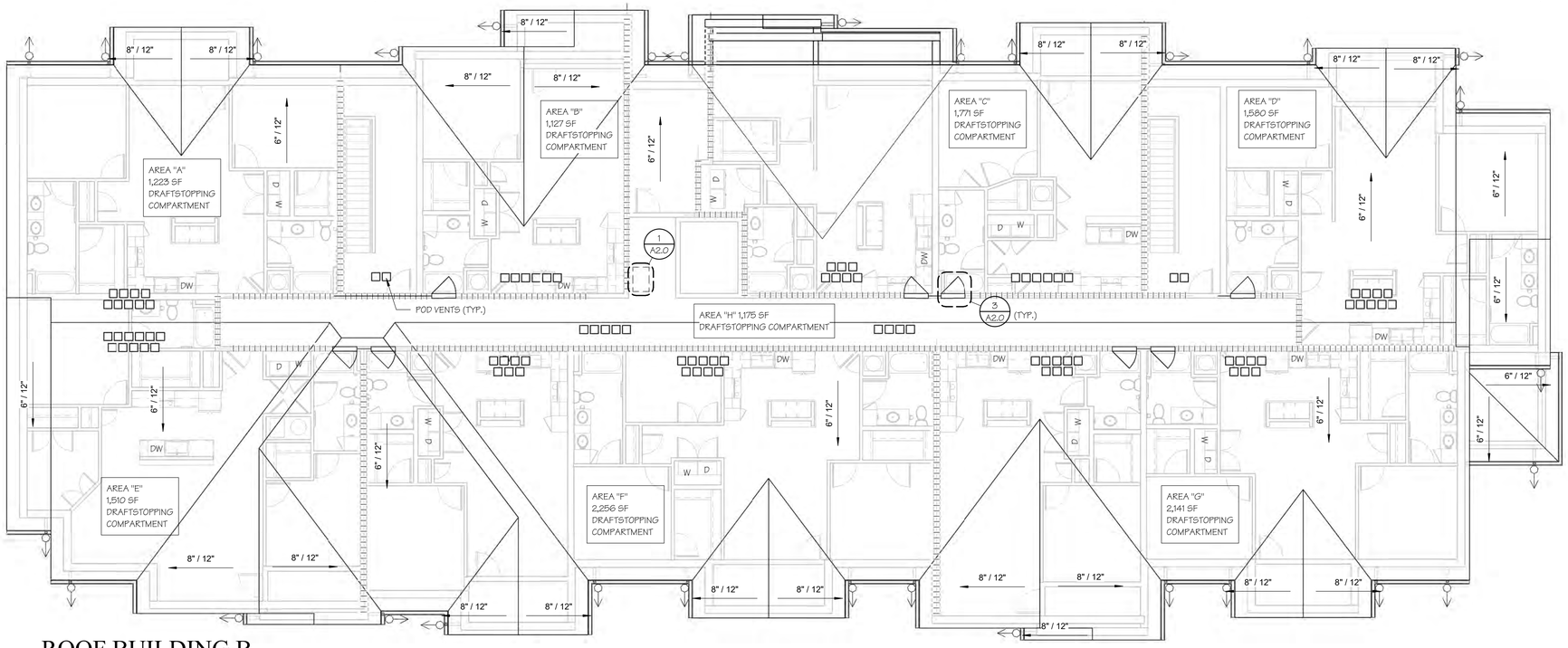
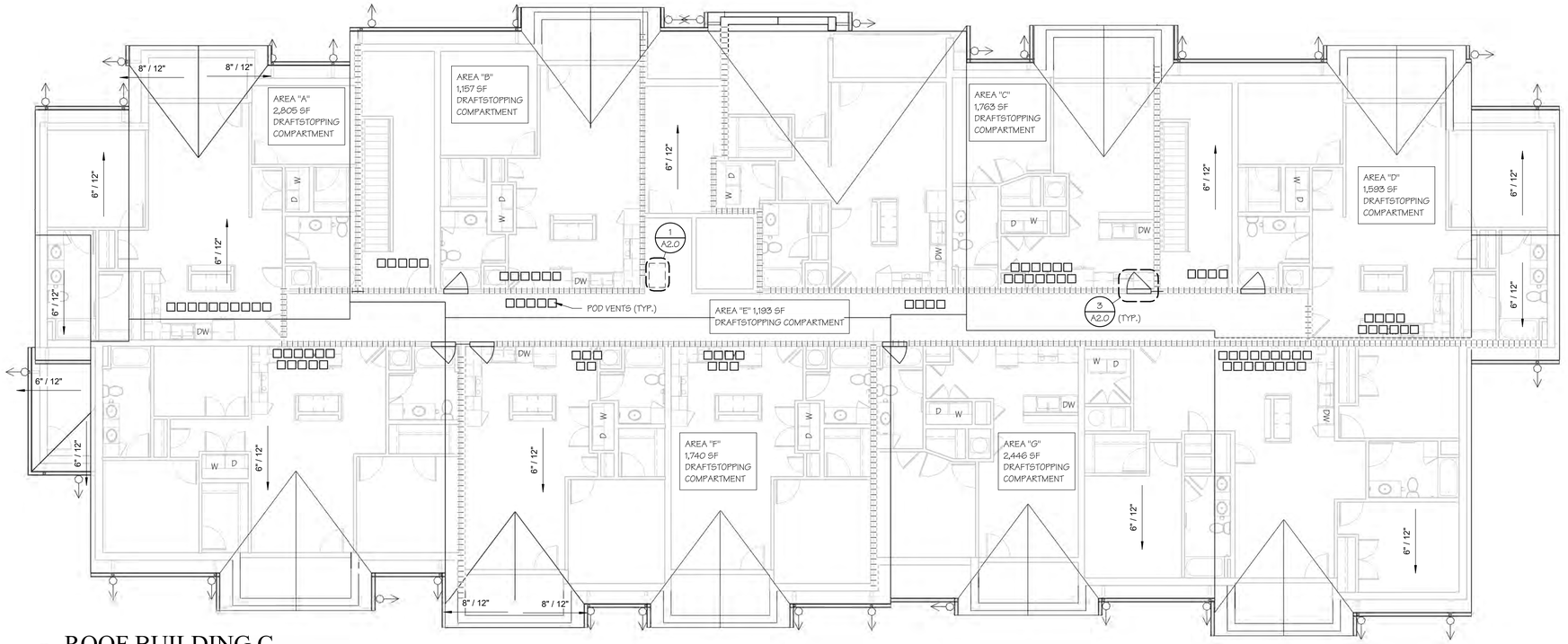


1 A2.1 ROOF BUILDING B

SCALE: 1/8" = 1'-0"



2 A2.1 ROOF BUILDING C

SCALE: 1/8" = 1'-0"

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BUILDINGS B & C ROOF PLANS

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WINDOW SCHEDULE TYPE MARK

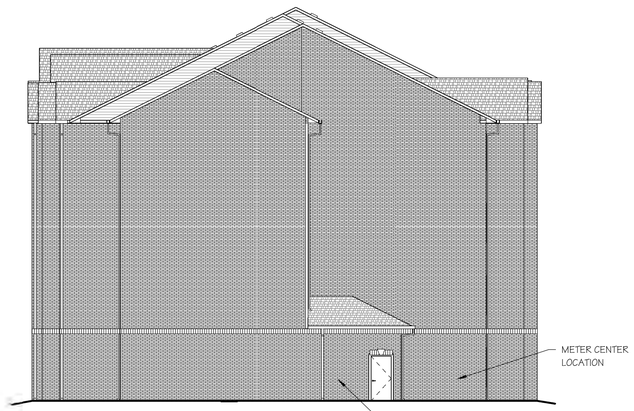
TYPE MARK	SIZE	HARDWARE	GLAZING	COMMENTS
1	PR. 3'-0" x 6'-0"	STANDARD	INSUL. LOW "E"	SINGLE HUNG W/SCREENS

WINDOW NOTES

1)	CONTRACTOR SHALL CERTIFY THAT BEDROOM WINDOWS INSTALLED PROVIDE EGRESS OPENING OF 5.7 SQ. FT. (MIN.) WITH MIN. CLEAR HEIGHT OF 24" AND MIN. CLEAR WIDTH OF 20".
2)	GLAZING WITHIN 24" OF DOORS SHALL BE SAFETY GLASS.
3)	INSTALL OPENING CONTROL DEVICES AT ALL WINDOWS, 2ND FLOOR AND ABOVE.
4)	ALL WINDOWS - MIN. U-FACTOR = 0.32 & SHGC = 0.40

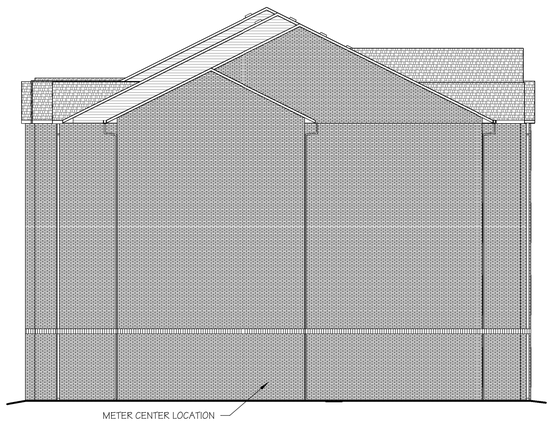
1 A3.0 BUILDING A REAR ELEVATION

SCALE: 3/32" = 1'-0"



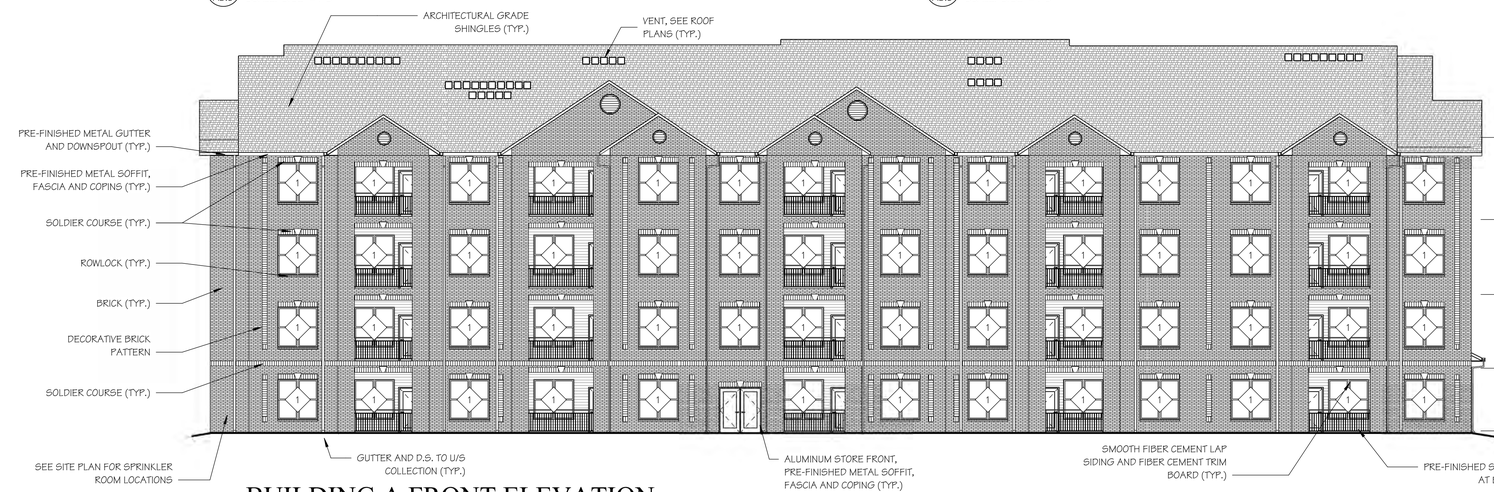
2 A3.0 BUILDING A LEFT SIDE ELEVATION

SCALE: 3/32" = 1'-0"



3 A3.0 BUILDING A RIGHT SIDE ELEVATION

SCALE: 3/32" = 1'-0"



4 A3.0 BUILDING A FRONT ELEVATION

SCALE: 3/32" = 1'-0"

BUILDING A EXTERIOR ELEVATIONS

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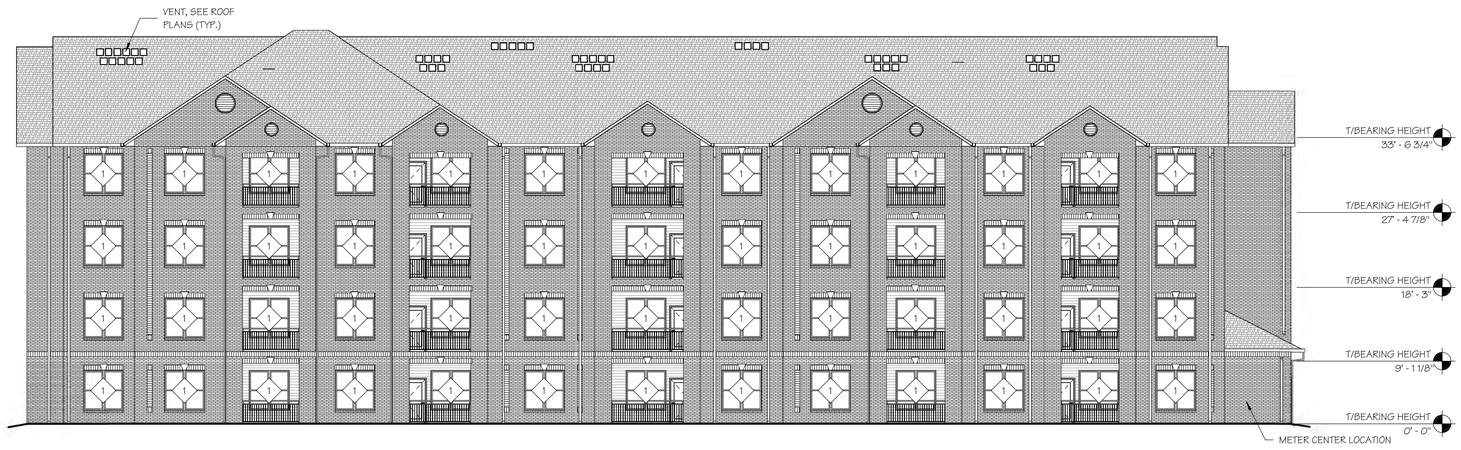
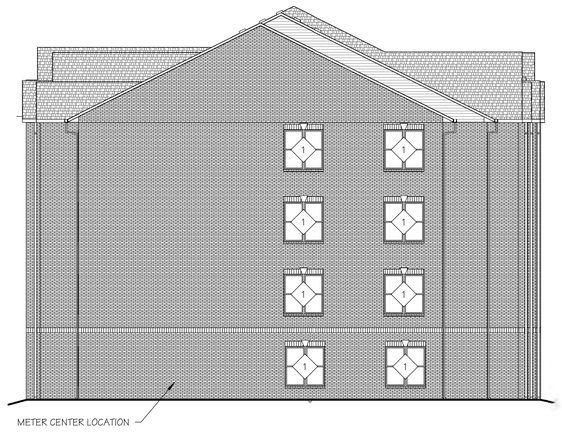


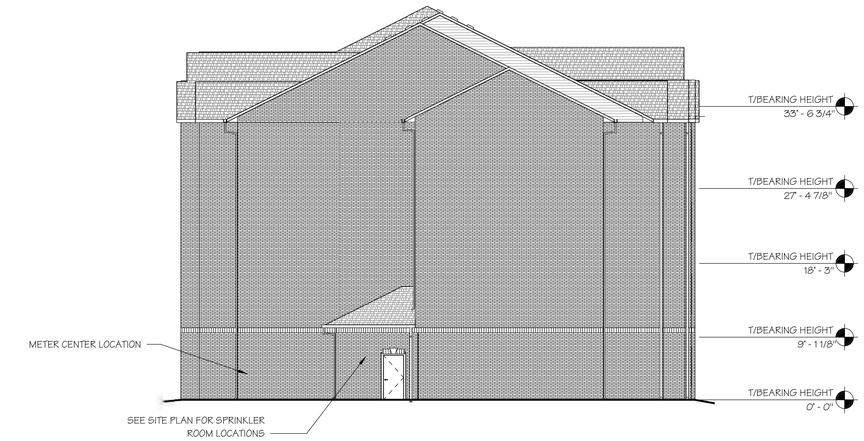
BUILDING B REAR ELEVATION

1 / A3.1 SCALE: 3/32" = 1'-0"



BUILDING B LEFT SIDE ELEVATION

2 / A3.1 SCALE: 3/32" = 1'-0"



BUILDING B RIGHT SIDE ELEVATION

3 / A3.1 SCALE: 3/32" = 1'-0"

BUILDING B FRONT ELEVATION

4 / A3.1 SCALE: 3/32" = 1'-0"

BUILDING B EXTERIOR ELEVATIONS

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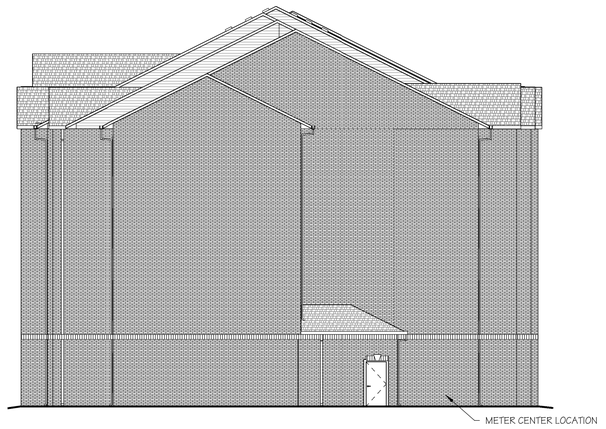
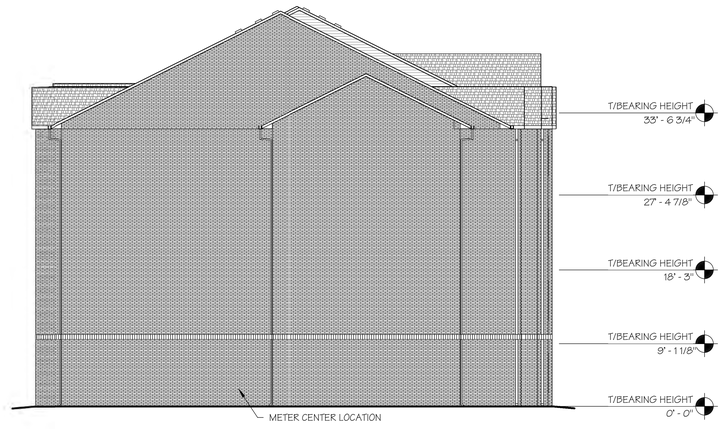
1 / A3.2 BUILDING C REAR ELEVATION

SCALE: 3/32" = 1'-0"



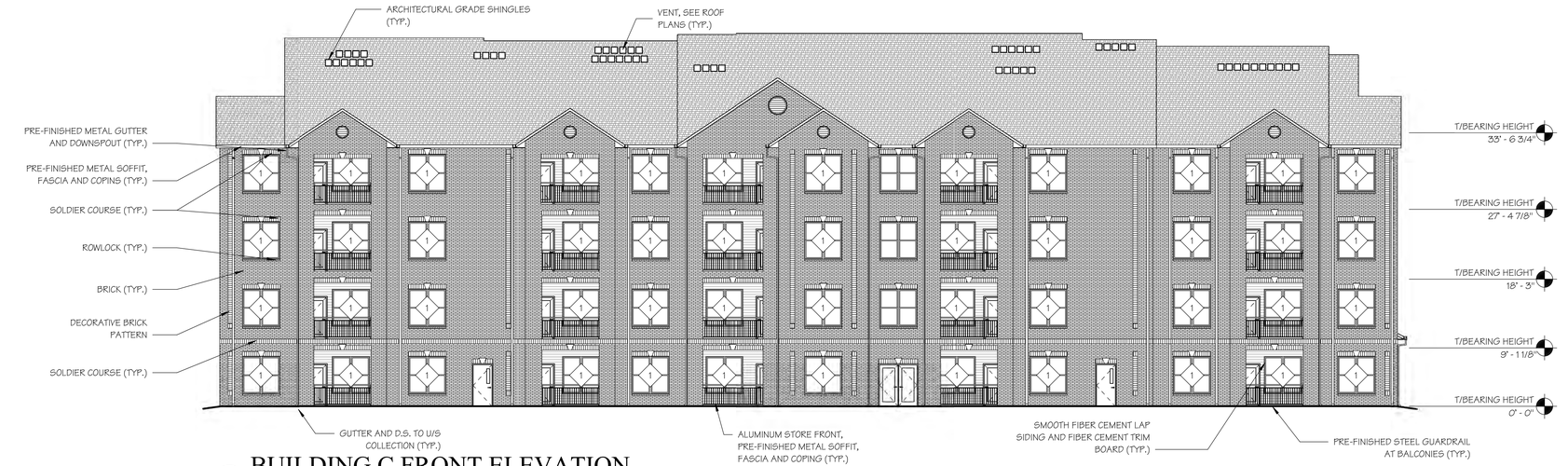
2 / A3.2 BUILDING C LEFT SIDE ELEVATION

SCALE: 3/32" = 1'-0"



4 / A3.2 BUILDING C RIGHT SIDE ELEVATION

SCALE: 3/32" = 1'-0"



3 / A3.2 BUILDING C FRONT ELEVATION

SCALE: 3/32" = 1'-0"

BUILDING C EXTERIOR ELEVATIONS

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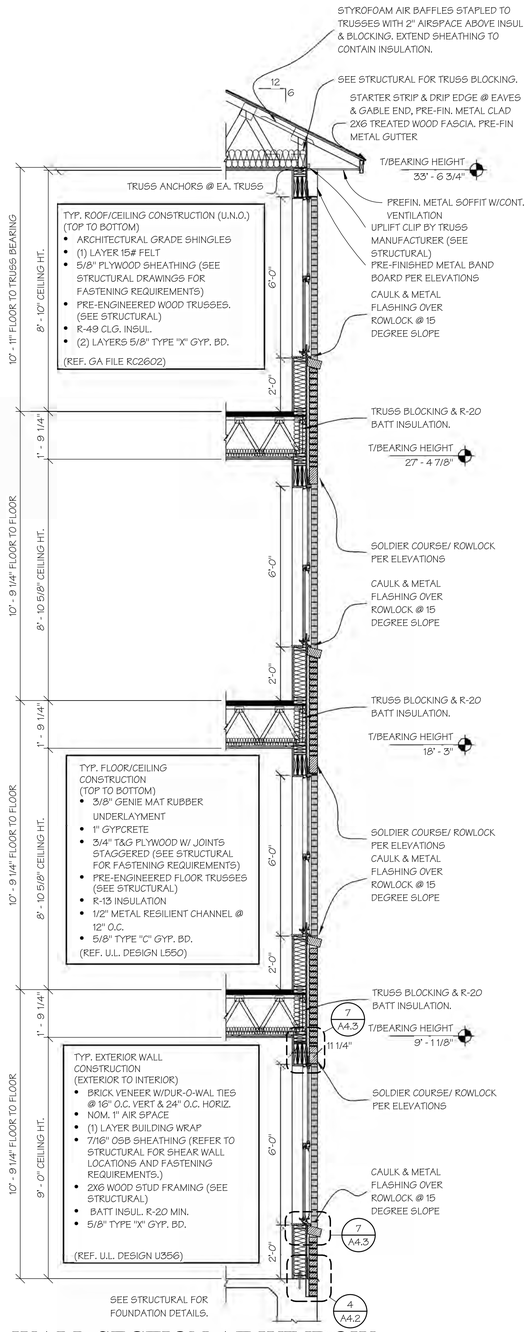
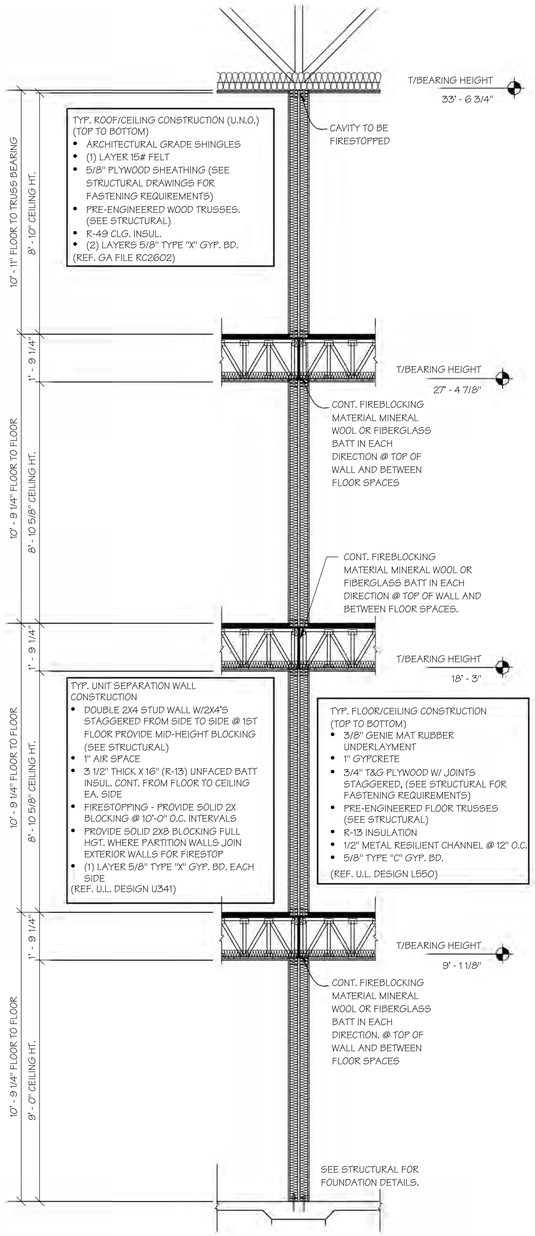


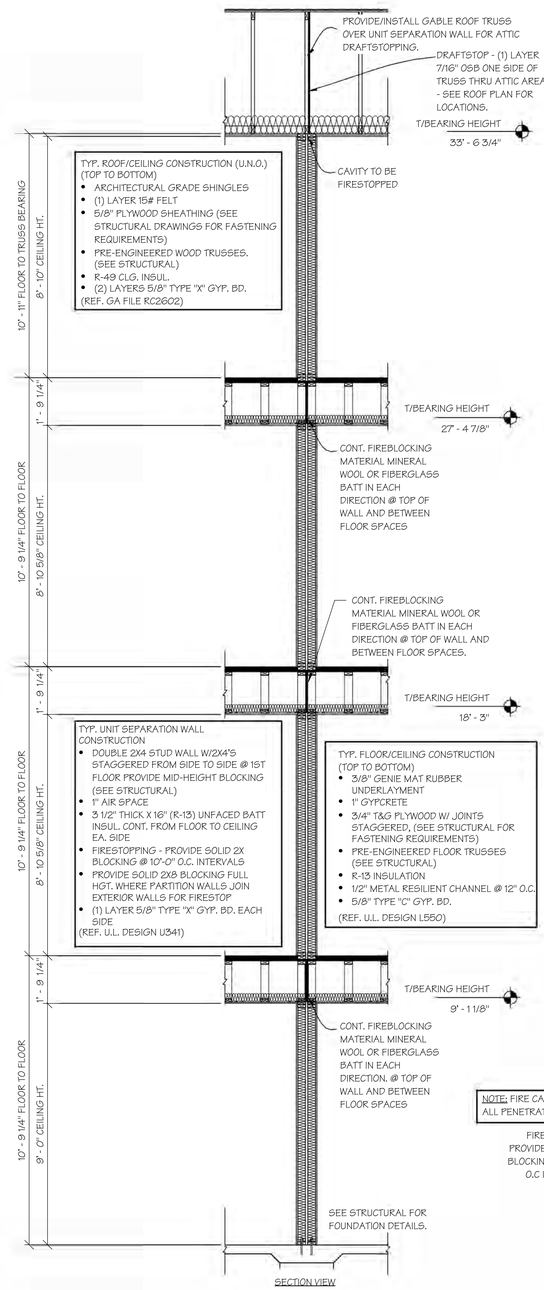
1 A4.0 SCALE: 3/8" = 1'-0"

WALL SECTION AT WINDOW



2 A4.0 SCALE: 3/8" = 1'-0"

1- HR UNIT SEPARATION WALL



3 A4.0 SCALE: 3/8" = 1'-0"

1-HOUR UNIT SEPARATION WALL

WALL SECTIONS

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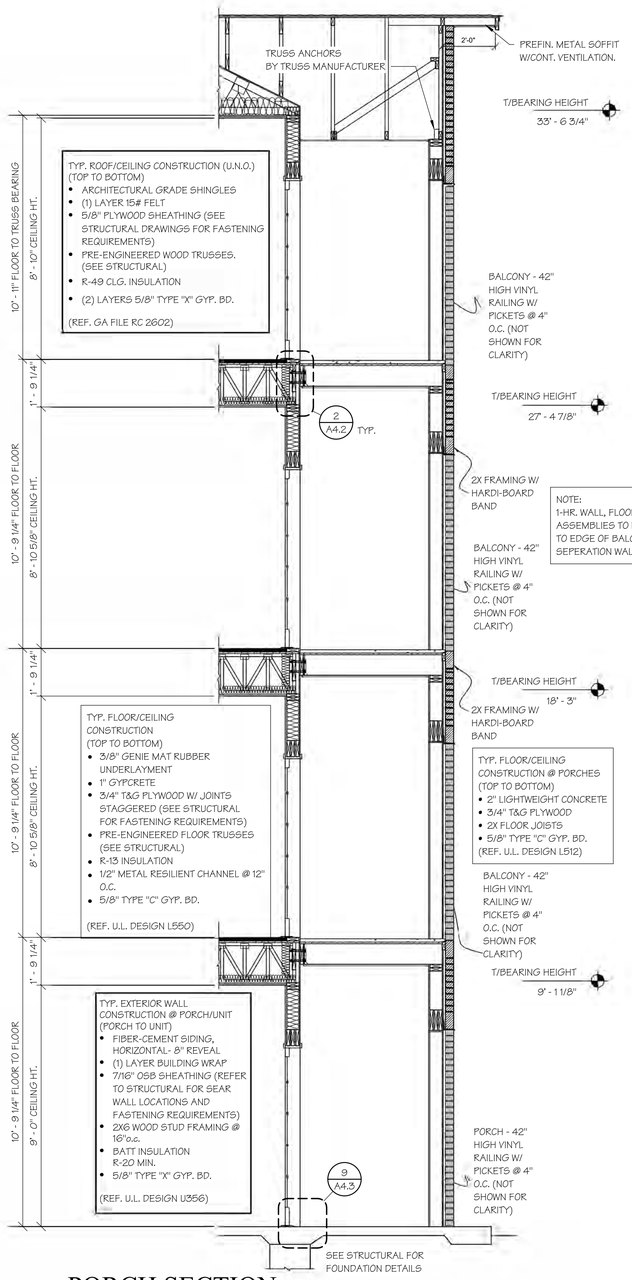
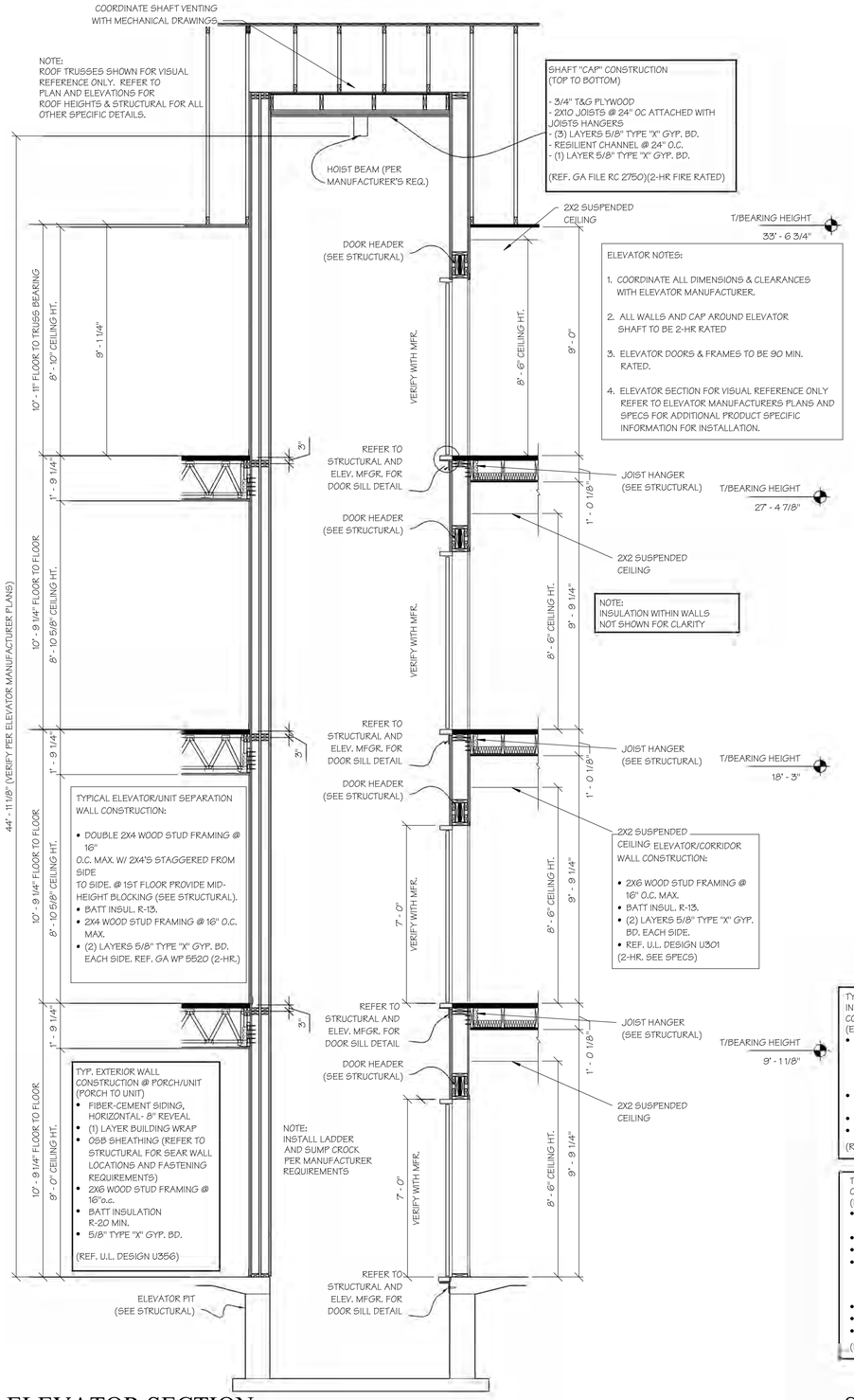


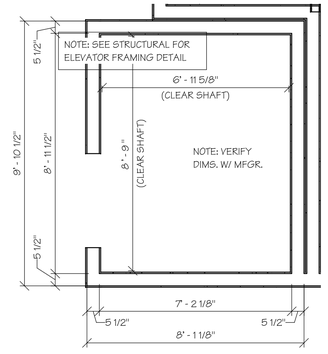
1 A4.1 PORCH SECTION

SCALE: 3/8" = 1'-0"



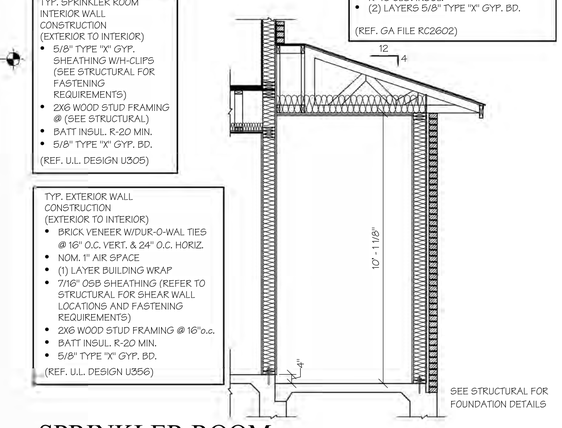
2 A4.1 ELEVATOR SECTION

SCALE: 3/8" = 1'-0"



4 A4.1 ELEVATOR FRAMING DETAIL

SCALE: 3/8" = 1'-0"



3 A4.1 SPRINKLER ROOM

SCALE: 3/8" = 1'-0"

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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

STATE OF MISSOURI
M. RANDALL PORTER
A-2012006244
ARCHITECT
04 FEB 2021

M. RANDALL PORTER
A-2012006244

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

WALLACE ARCHITECTS, LLC
MISSOURI STATE CERTIFICATE OF AUTHORITY: 2003019614

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SHEET NO.
A4.1

JOB NO.
3984

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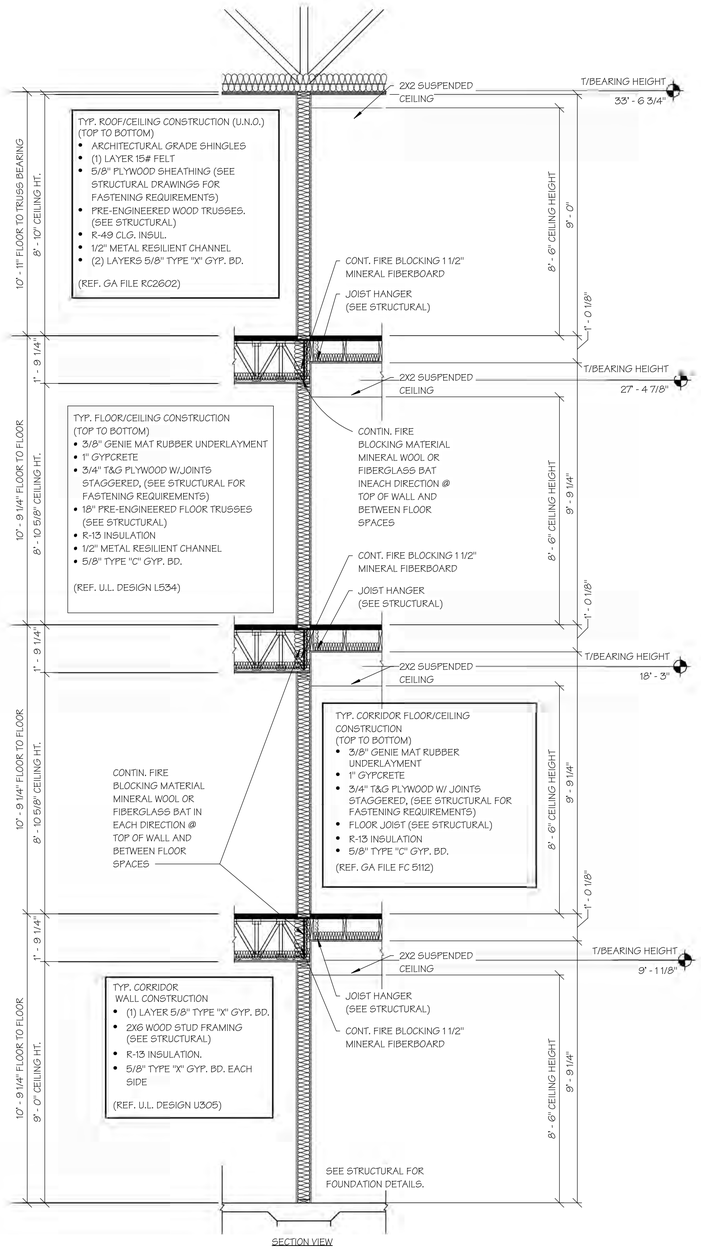
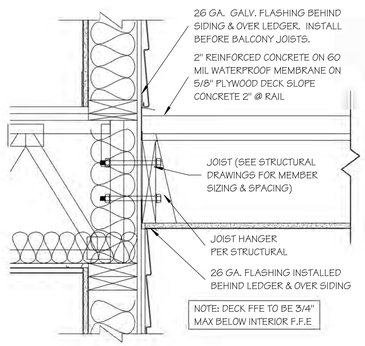


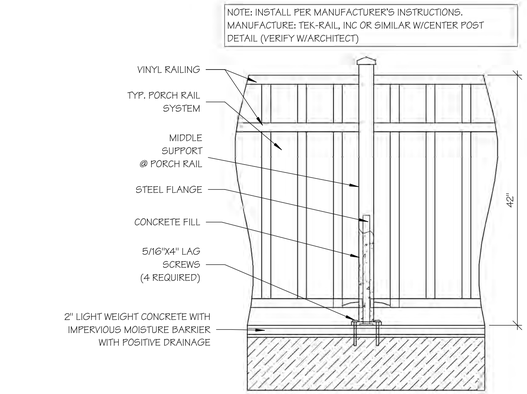
1 A4.2 WALL SECTION @ CORRIDOR

SCALE: 3/8" = 1'-0"



2 A4.2 DECK FLASHING DETAIL

SCALE: 1 1/2" = 1'-0"



3 A4.2 CENTER POST

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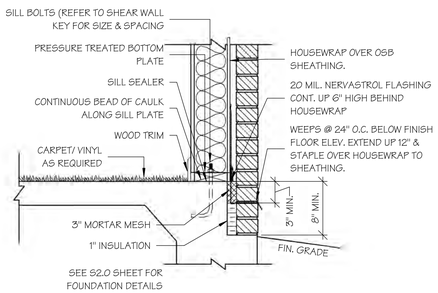

4 A4.2 FOUNDATION FLASHING DETAIL

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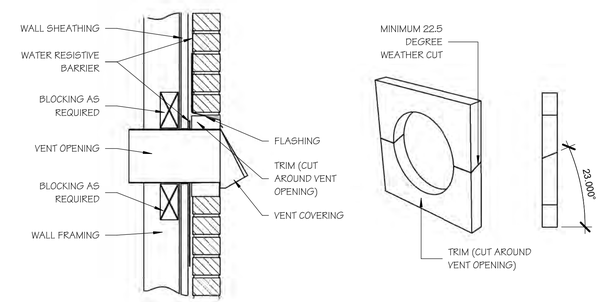

5 A4.2 DRYER VENT IN BRICK DETAIL

SCALE: 1/2" = 1'-0"

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WALL SECTIONS & DETAILS

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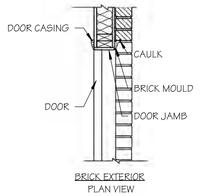
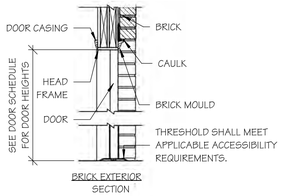
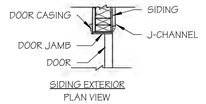


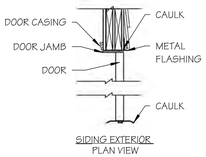
BRICK EXTERIOR
PLAN VIEW



BRICK EXTERIOR
SECTION



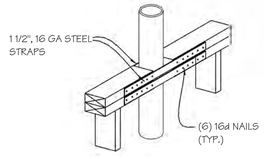
SIDING EXTERIOR
PLAN VIEW



SIDING EXTERIOR
PLAN VIEW

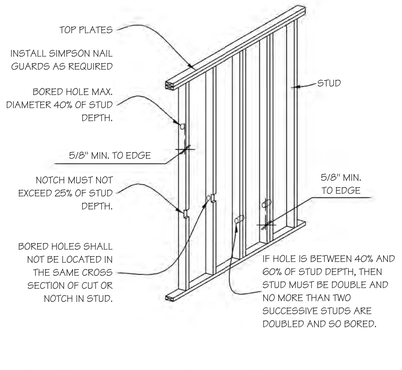
3 A4.3 WALL SECTIONS AND DETAILS @ DOOR

SCALE: 3/4" = 1'-0"



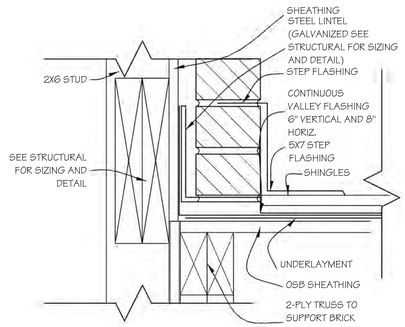
4 A4.3 NON-BEARING WALL PLATE CUT DETAIL

SCALE: 1" = 1'-0"



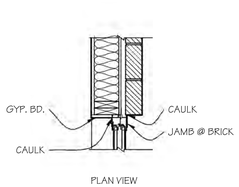
5 A4.3 NOTCH AND BORING HOLE REQUIREMENTS

SCALE: 3/8" = 1'-0"



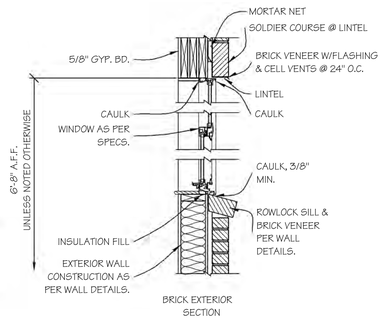
6 A4.3 FLASHING DETAIL @ BRICK/ ROOF

SCALE: 3" = 1'-0"



PLAN VIEW

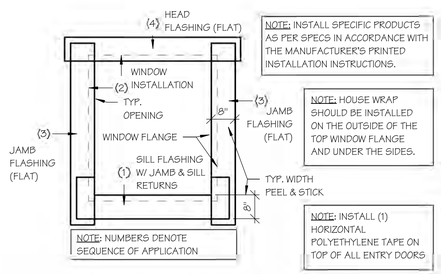
NOTE:
FILL ALL VOIDS AROUND WINDOW UNITS W/ STUFFED FIBERGLASS INSULATION PRIOR TO GYP. BD. INSTALLATION



BRICK EXTERIOR
SECTION

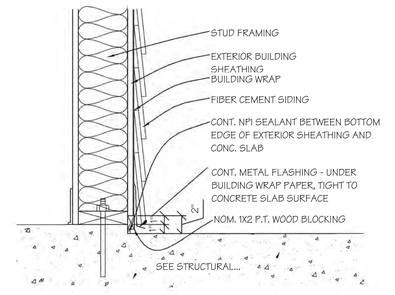
7 A4.3 WALL SECTIONS AND DETAILS AT WINDOWS

SCALE: 3/4" = 1'-0"



8 A4.3 WINDOW FLASHING

SCALE: 1/2" = 1'-0"



9 A4.3 SIDING DETAIL @ GROUND LEVEL DECK

SCALE: 1 1/2" = 1'-0"

FRAMING DETAILS

PERMIT SET

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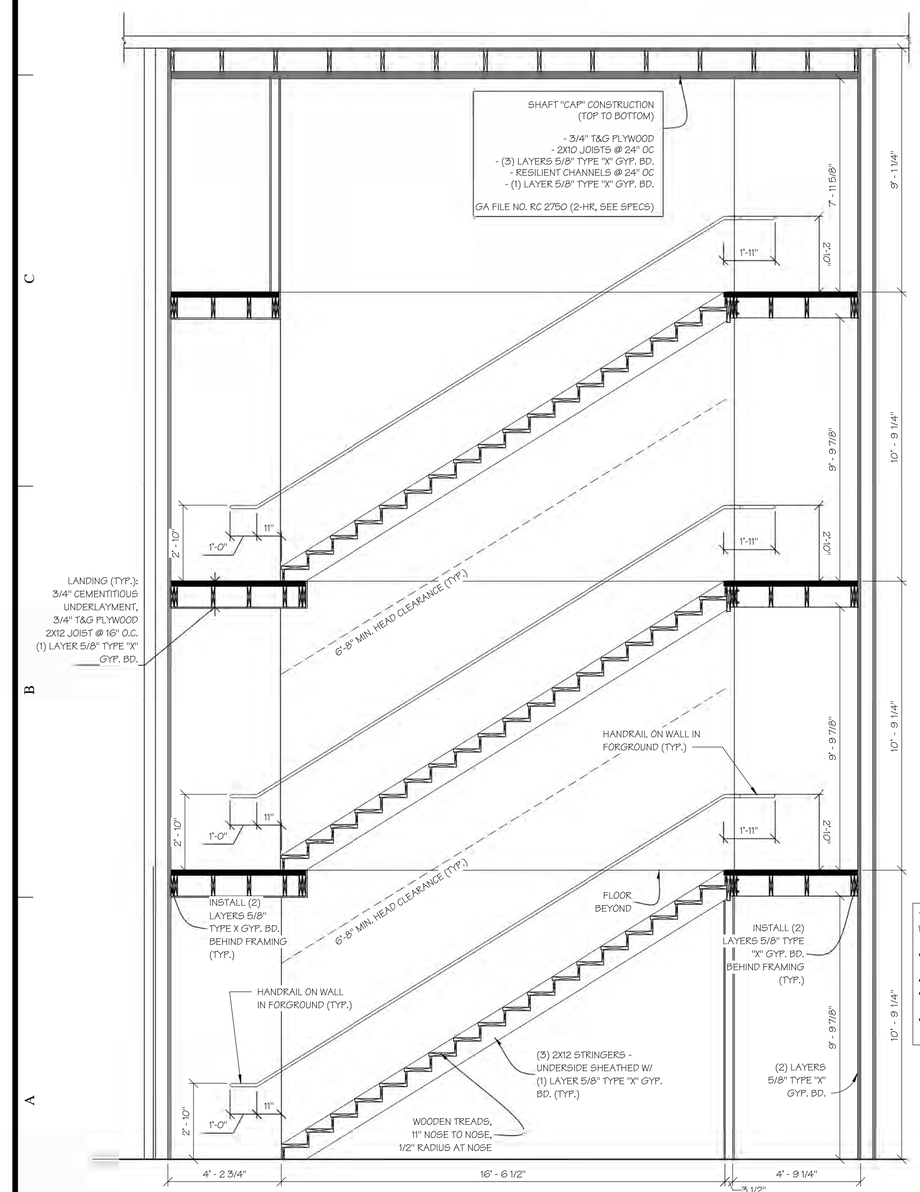
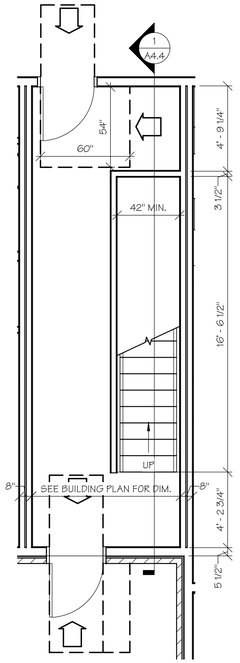


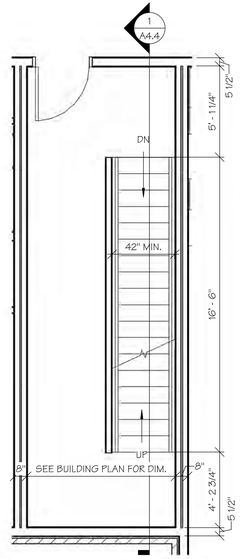
TYPICAL STAIR/UNIT SEPARATION WALL CONSTRUCTION:

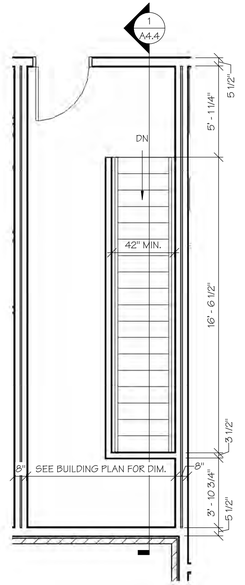
- 2X4 WOOD STUD FRAMING @ 16" O.C. MAX. W/2X4'S STAGGERED FROM SIDE TO SIDE @ 1ST FLOOR W/BLOCKING @ MID-HEIGHT @ FIRST (SEE STRUCTURAL)
- R-13 INSULATION
- (2) LAYERS 5/8" TYPE "X" GYP. BD. EACH SIDE.
- REF. GA WP 5520 (2-HR, SEE SPECS)

TYPICAL STAIR/CORRIDOR WALL CONSTRUCTION:

- 2X6 WOOD STUD FRAMING @ 16" O.C. MAX.
- R-13 INSULATION.
- (2) LAYERS 5/8" TYPE "X" GYP. BD. EACH SIDE.
- REF. UL DESIGN U301 (2-HR, SEE SPECS)







1 A4.4 TYPICAL STAIR SECTION
SCALE: 3/8" = 1'-0"

2 A4.4 TYP. 1ST FLOOR FLOOR STAIRS
SCALE: 1/4" = 1'-0"

3 A4.4 TYP. 2ND & 3RD FLOOR STAIRS
SCALE: 1/4" = 1'-0"

4 A4.4 TYP. 4TH FLOOR STAIRS
SCALE: 1/4" = 1'-0"

STAIR SECTIONS

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SHEET NO. A4.4

JOB NO. 3984

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Design No. U341

October 02, 2019

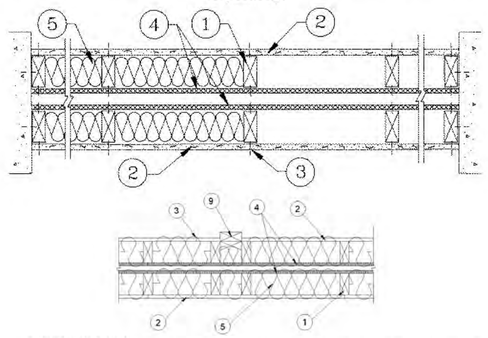
Bearing Wall Rating — 1 Hr.

Finish Rating — Min 20 min.

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for**

jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



HORIZONTAL SECTION

1. **Wood Studs —** Nom 2 by 4 in., spaced 24 in. OC max. Cross braced at mid-height and effectively firestopped at top and bottom of wall. No min. air space between stud rows except to accommodate attachment of sheathing, where required. See items 4 and 5.

2. **Gypsum Board* — Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Nom 5/8 in. thick 4 ft wide. Gypsum board applied horizontally or vertically, unless specified below, and nailed to studs and bearing plates 7 in. OC with 6d cement coated nails, 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam head. As an alternate, No. 6 bugle head drywall screws, 1-7/8 in. long, may be substituted for the 6d cement coated nails.
When **Steel Framing Members*** (Item 6-6C) are used, wallboard attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

When used in widths other than 48 in., gypsum board to be installed horizontally.

CABOT MANUFACTURING ULC (View Classification) — CKNX.R25370

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C (View Classification) — CKNX.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717

LOADMASTER SYSTEMS INC (View Classification) — CKNX.R11809

NATIONAL GYPSUM CO (View Classification) — CKNX.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094

PANEL REY S A (View Classification) — CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) — CKNX.R27517

UNITED STATES GYPSUM CO (View Classification) — CKNX.R1319

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG MEXICO S A DE C V (View Classification) — CKNX.R16089

2A. **Gypsum Board* —** (As an alternate to Item 2, not shown) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically to studs and bearing plates on one side of the assembly with 1-5/8 in. long Type S screws spaced 12 in. OC at perimeter of panels and 8 in. OC in the field. Horizontal joints of vertically applied panels need not be backed by studs. Panel joints covered with paper tape and two layers of joint compound. Screwheads covered with two layers of joint compound. Batts and Blankets placed in stud cavity as described in Item 5C. Not evaluated for use with Steel Framing Members, Furring Channels or Fiber, Sprayed.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-530 (finish rating 23 min)

2B. **Gypsum Board* —** (As an alternate to Item 2, not shown) — Any 5/8 in. thick gypsum panels that are eligible for use in Design Nos. L501, G512 or U305, supplied by the Classified companies listed below shown in the **Gypsum Board*** (CKNX) category. Applied horizontally or vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum board to be installed horizontally.
UNITED STATES GYPSUM CO

USG BORAL DRYWALL SFZ LLC

USG MEXICO S A DE C V

2C. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — 5/8 in. thick gypsum panels applied horizontally or vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel

steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum board to be installed horizontally.
AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, LightRoc

CERTAINTEED GYPSUM INC — Type C, Type X or Type X-1

NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C. Type FSW-C, Type FSMR-C, Type FSW-6, Type FSI.

THAI GYPSUM PRODUCTS PCL — Type C or Type X

2D. **Gypsum Board* —** (As an alternate to Items 2, 2A, 2B and 2C) — 5/8 in. thick gypsum panels, with square edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last 2 screws 1 and 4 in. from edge of board or nailed as described in Item 2. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.
GEORGIA-PACIFIC GYPSUM L L C — GreenGlass Type X, Type DGG.

2E. **Gypsum Board* —** (As an alternate to Items 2 through 2D) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically only and secured as described in Item 2.
GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board.

2F. **Gypsum Board* —** (As an alternate to Items 2 through 2E) - Installed as described in Item 2. 5/8 in. thick, 4 ft wide, paper surfaced, applied vertically only and fastened to the studs and plates with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads, 7 in. OC. Not for use with item #6.
NATIONAL GYPSUM CO — Type SBW8

2G. **Gypsum Board* —** (As an alternate to Items 2 through 2F) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 2.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types QuietRock ES.

2H. **Gypsum Board* —** (As an alternate to Items 2 through 2G) — Installed as described in Item 2. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically or horizontally fastened to the studs and plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.
CERTAINTEED GYPSUM INC — Type SilentFX

2I. **Wall and Partition Facings and Accessories* —** (As an alternate to Items 2 through 2H) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 2.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527.

2J. **Gypsum Board* —** (As an alternate to 5/8 in. Type FSW in Item 2) — 2 layers nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Horizontal joints on the same side need not be staggered. Inner layer attached with fasteners, as described in item 2, spaced 24 in. OC. Outer layer attached per Item 2.
NATIONAL GYPSUM CO — Type FSW.

2K. **Gypsum Board* —** (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.
CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC6A (finish rating 21 min), Type LGFCZA, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

3. **Joints and Nailheads —** Gypsum board joints of outer layer covered with tape and joint compound. Nail heads of outer layer covered with joint compound. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard with joints reinforced with paper tape.

4. **Sheathing —** (Optional) — Septum may be sheathed with min 7/16 in. thick wood structural panels min grade "C-D" or "Sheathing" or min 1/2 in. thick **Mineral and Fiber Boards***.
See **Mineral and Fiber Boards** (CERZ) category for names of Classified companies.

5. **Batts and Blankets* —** 3-1/2 in. max thickness glass or mineral fiber batt insulation. **Optional** when sheathing (Item 4) is used on both halves of wall.
See **Batts and Blankets** (BZJZ) category for list of Classified companies.

5A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 5) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.
U S GREENFIBER L L C — INS735, INS745 and INS750LD for use with wet or dry application. INS515LD, INS541LD, INS735, INS765LD, and INS773LD are to be used for dry application only.

5B. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 5) when Sheathing (Item 4) is used on both halves of wall - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.
NU-WOOL CO INC — Cellulose Insulation

5C. **Batts and Blankets* —** (Required for use with Wall and Partition Facings and Accessories, Item 2A. Use of Sheathing, Item 4, does not nullify requirement of Item 5C for use with Item 2A) — Glass fiber insulation, nom 3-1/2 in. thick, min. density of 0.80 pcf, with a flame spread of 25 or less and a smoke developed of 50 or less, friction-fitted to completely fill the stud cavities. See Batts and Blankets Category (BKNV) for names of manufacturers.

5D. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 5) and Item 5A when Sheathing (Item 4) is used on both halves of wall - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

5E. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 5) - Spray-applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. To facilitate the installation of the material, any thin, woven or non-woven netting may be attached by any means possible to the outer face the studs. The material shall reach equilibrium moisture content before the installation of materials on either face of the studs. The minimum dry density shall be 5.79 lbs/ft^3.
APPLEGATE HOLDINGS L L C — Applegate Advanced Stabilized Cellulose Insulation

6. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:

A. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Wallboard attached to furring channels as described in Item 2.

B. **Steel Framing Members* —** Used to attach furring channels (Item a) to studs (Item 1) . Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75).

6A. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to studs. Clips spaced 48 in. OC. Genie clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
PLITEQ INC — Type Genie Clip

6B. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:

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M. RANDALL PORTER
A-2012006244
ARCHITECT
04 FEB 2021
M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

WALLACE ARCHITECTS, LLC
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a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Ba) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

6C. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:

A. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 6Cb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 2.

B. **Steel Framing Members* —** Used to attach furring channels (Item 6CA) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

6D. **Steel Framing Members* —** (Optional, Not Shown) — Resilient channels and Steel Framing Members as described below:

a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 6Da) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

7. **Wall and Partition Facings and Accessories* —** (Optional, Not shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the wood framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 and QR-510

as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
HOMASOTE CO — Homasote Type 440-32

9. **Non-Bearing Wall Partition Intersection —** (Optional) — Two nominal 2 by 4 in. stud or nominal 2 by 6 in. stud nailed together with two 3in. long 10d nails spaced a max. 16 in. OC, vertically and fastened to one side of the minimum 2 by 4 In. stud with 3 in. long 10d nails spaced a max 16 in. OC, vertically. Intersection between partition wood studs to be flush with the 2 by 4 in. studs. The wall partition wood studs are to be framed by with a second 2 by 4 in. wood stud fastened with 3 in. long 10d nails spaced a max. 16 in. OC, vertically. Maximum one non-bearing wall partition intersection per stud cavity. Non-bearing wall partition stud depth shall be at a minimum equal to the depth of the bearing wall.

(Optional, Not Shown) Alternate Construction For Use On One Side Of The Wall.

10. **Mineral and Fiber Board* —** For use with Items 10A-10D) —Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to framing with minimum 1-3/8 in. long ring shanked nails or 1-1/4 in. long Type W steel screws, spaced 12 in. OC along board edges and 24 in. OC in field of board along intermediate framing. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
HOMASOTE CO — Homasote Type 440-32

10A. **Glass Fiber Insulation —** (For use with Item 10) — 3-1/2 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, placed to fill the interior of the wall. See Batts and Blankets (BKNV or BZJZ) categories for names of Classified companies.

10B. **Batts and Blankets* —** (As an alternate to Item 10B, For use with Item 10), 3 in. thick mineral wool batts, placed to fill interior of wall, attached to the 3-1/2 in. face of the studs with staples placed 24 in. OC.
THERMAFIBER INC — Type SAFB, SAFB FF

10C. **Adhesive —** (For use with Item 10) — Construction grade adhesive applied in vertical, serpentine, nominal 3/8 in. wide beads down the length of both vertical edges of Mineral and Fiber Board (Item 14A).

10D. **Gypsum Board* —** (For use with Item 10) — 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 14A) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber Board (Item 10). Secured to outermost studs and bearing plates with 2 in. long Type S screws spaced 8 in. OC. Gypsum Board joints covered with paper tape and joint compound. Screw heads covered with joint compound. Finish Rating 30 Min.
AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — Type FRPC, Type C

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC-C/A

GEORGIA-PACIFIC GYPSUM L L C — Types S, DAPC, TG-C

NATIONAL GYPSUM CO — Types FSK-C, FSW-C

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-C

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C

UNITED STATES GYPSUM CO — Type CTypes C, IP-X2, IPC-AR

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

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Design No. U356

October 02, 2019

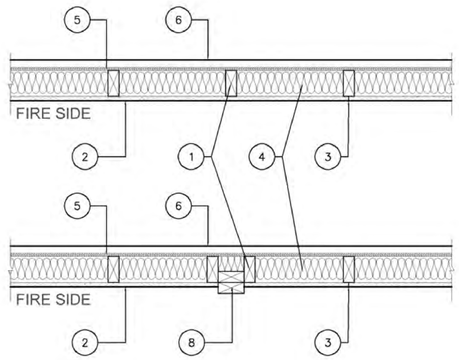
Bearing Wall Rating - 1 Hr Rating Exposed to Fire on Interior Face Only

Bearing Wall Rating — 1 Hr Rating Exposed to Fire on Exterior Face (See Item 6E)

Finish Rating — 23 Min or 25 Min (See Item 2C)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Wood Studs —** Nom 2 by 4 in. spaced 16 in. OC with two 2 by 4 in. top and one 2 by 4 in. bottom plates. Studs laterally-braced by wood structural panel sheathing (Item 5). When **Mineral and Fiber Boards*** (Item 5A) are considered as bracing for the studs, the load is restricted to 76% of allowable axial load. Walls effectively fire stopped at top and bottom of wall.

2. **Gypsum Board* — Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305,** Nom 5/8 in. thick, 4 ft wide, applied vertically and nailed to studs and bearing plates 7 in. OC with 6d cement-coated nails, 1-7/8 in. long with 1/4 in. diam head.
When Item 7, 7B, 7C, 7D or 7E **Steel Framing Members***, is used, gypsum panels attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

When Item 7A **Steel Framing Members***, is used, two layers of gypsum panels attached to furring channels. Base layer attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC. Face layer attached to furring channels with 1-5/8 in. long Type S bugle-head steel screws spaced 12 in. OC. All joints in face layers staggered with joints in base layers.

CABOT MANUFACTURING ULC (View Classification) — CKNX.R25370

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C (View Classification) — CKNX.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717

LOADMASTER SYSTEMS INC (View Classification) — CKNX.R11809

NATIONAL GYPSUM CO (View Classification) — CKNX.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094

PANEL REY S A (View Classification) — CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) — CKNX.R27517

UNITED STATES GYPSUM CO (View Classification) — CKNX.R1319

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG MEXICO S A DE C V (View Classification) — CKNX.R16089

2A. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — Any 5/8 in. thick 4 ft wide gypsum panels that are eligible for use in Design Nos. L501, G512 or U305, supplied by the Classified Companies listed below shown in the **Gypsum Board*** (CKNX) category. Applied vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.
CGC INC

UNITED STATES GYPSUM CO

USG BORAL DRYWALL SFZ LLC

USG MEXICO S A DE C V

2B. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — 5/8 in. thick 4 ft wide gypsum panels applied vertically and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.
CABOT MANUFACTURING ULC — Type X, 5/8 Type X, Type Blueglass Exterior Sheathing

AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, LightRoc

CERTAINTEED GYPSUM INC — Type C, Type X, Type X-1, Easi-Lite Type X-2

GEORGIA-PACIFIC GYPSUM L L C — Types X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X, Type X ComfortGuard Sound Deadening Gypsum Board.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-11, PGS-WRS.

THAI GYPSUM PRODUCTS PCL — Type C or Type X

2C. **Gypsum Board* —** (As an alternate to Item 2, Not Shown) — For Use with Item 5A only - 5/8 in. thick 4 ft wide gypsum panels applied horizontally and attached to studs and bearing plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screws 1 in.and 4 in. from edges of board. Finish Rating is 25 min.
CABOT MANUFACTURING ULC — 5/8 Type X, Type Blueglass Exterior Sheathing

GEORGIA-PACIFIC GYPSUM L L C — Type X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-11, PGS-WRS

2D. **Gypsum Board* —** (As an alternate to Item 2) — Not to be used with item 7. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically only and fastened to the studs and plates with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 1/4 in. diam heads, 7 in. OC.
NATIONAL GYPSUM CO — Type SBWB

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M. RANDALL PORTER
A-2012006244
ARCHITECT
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2E **Gypsum Board* —** (As an alternate to Items 2 through 2D) — Nominal 5/8 in. thick, 4 ft wide panels, secured as described in Item 2.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES.

2F. **Gypsum Board* —** (As an alternate to Item 2) — Not to be used with item 7. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically or horizontally and fastened to the studs and plates with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board.
CERTAINTEED GYPSUM INC — Type SilentFX

2G. **Wall and Partition Facings and Accessories* —** (As an alternate to Items 2 through 2F) — Nominal 5/8 in. thick, 4 ft wide panels, secured as described in Item 2.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527.

2H. **Gypsum Board* —** (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.
CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

2I. **Gypsum Board* —** (As an alternate to Item 2) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.
AMERICAN GYPSUM CO — Types AGX-1 (finish rating 25 min.), M-Glass (finish rating 25 min.), AG-C (finish rating 25 min.), LightRoc (finish rating 25 min.)

NATIONAL GYPSUM CO — Type FSK, Type FSK-G, Type FSW, Type FSW-3, Type FSW-5, Type FSW-G, Type FSK-C, Type FSW-C, Type FSMR-C, Type FSW-6, Type FSL

2J. **Gypsum Board* —** (As an alternate to Item 2) - 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread steel screws spaced a max 8 in. OC with the last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum boards are to be installed horizontally.
CERTAINTEED GYPSUM INC — Type C, Type X or Type X-1(finish rating 26 min), Easi-Lite Type X (finish rating 24 min), Easi-Lite Type X-2, Type EGRG or GlasRoc or GlasRoc Sheathing (finish rating 23 min)

3. **Joints and Fastener Heads —** (Not Shown) — Gypsum board joints covered with tape and joint compound. Fastener heads covered with joint compound.

4. **Batts and Blankets* —** Mineral fiber or glass fiber insulation, 3-1/2 in. thick, pressure fit to fill wall cavities between studs and plates. Mineral fiber insulation to be unfaced and to have a min density of 3 pcf. Glass fiber insulation to be faced with aluminum foil or kraft paper and to have a min density of 0.9 pcf (min R-13 thermal insulation rating).
See **Batts and Blankets*** (BKNV) Category in the Building Materials Directory and **Batts and Blankets*** (BZJZ) Category in the Fire Resistance Directory for names of Classified Companies.

4A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.
U S GREENFIBER L L C — INS735 and INS745 for use with wet or dry application. INS515LD, INS541LD, INS735, INS745, INS765LD, and INS773LD are to be used for dry application only.

4B. **Fiber, Sprayed* —** As an alternate to Item 4 and 4A — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 4.58 lb/ft^3.
NU-WOOL CO INC — Cellulose Insulation

4C. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

4D. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 4) — Spray applied, granulated mineral fiber material. The fiber is applied with adhesive, at a minimum density of 4.0 pcf, to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See Fiber, Sprayed (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

5. **Wood Structural Panel Sheathing —** Min 7/16 in. thick, 4 ft wide wood structural panels, min grade "C-D" or "Sheathing". Installed with long dimension of sheet (strength axis) or face grain of plywood parallel with or perpendicular to studs. Vertical joints centered on studs. Horizontal joints backed with nom 2 by 4 in. wood blocking. Attached to studs on exterior side of wall with 6d cement coated box nails spaced 6 in. OC at perimeter of panels and 12 in. OC along interior studs.

5A. **Mineral and Fiber Boards* —** As an alternate to Item 5 - Min 1/2 in. thick, 4 ft wide sheathing, installed vertically to studs. Vertical joints centered on studs. Horizontal joints backed with nom 2 by 4 in. wood blocking. Attached to studs on exterior side of wall with 1-1/2 in. long galvanized roofing nails spaced 6 in. OC at perimeter of panels and 12 in. OC along interior studs. As an option a weather resistive barrier may be applied over the Mineral and Fiber Boards.

6. **Exterior Facings —** Installed in accordance with the manufacturer's installation instructions. One of the following exterior facings is to be applied over the sheathing:
A. **Vinyl Siding — Molded Plastic* —** Contoured rigid vinyl siding having a flame spread value of 20 or less.

See **Molded Plastic** (BTAT) category in the Building Materials Directory for names of manufacturers.

B. **Particle Board Siding —** Hardboard exterior sidings including patterned panel or lap siding.

C. **Wood Structural Panel or Lap Siding —** APA Rated Siding, Exterior, plywood, OSB or composite panels with veneer faces and structural wood core, per PS 1 or APA Standard PRP-108, including textured, rough sawn, medium density overlay, brushed, grooved and lap siding.

D. **Cementitious Stucco —** Portland cement or synthetic stucco systems with self-furring metal lath or adhesive base coat. Thickness from 3/8 to 3/4 in., depending on system.

E. **Brick Veneer —** Any type on nom 4 in. wide brick veneer. When brick veneer is used, the rating is applicable with exposure on either face. Brick veneer fastened with corrugated metal wall ties attached over sheathing to wood studs with 8d nail per tie; ties spaced not more than each sixth course of brick and max 32 in. OC horizontally. One in. air space provided between brick veneer and sheathing.

F. **Exterior Insulation and Finish System (EIFS) —** Nom 1 in. **Foamed Plastic*** insulation bearing the UL Classification Marking, attached over sheathing and finished with coating system, or Portland cement or synthetic stucco systems, in accordance with manufacturer's instructions. See **Foamed Plastic** (BRYX and CCVW) categories for names of Classified companies.

G. **Siding —** Aluminum or steel siding attached over sheathing to studs.

H. **Fiber-Cement Siding —** Fiber-cement exterior sidings including smooth and patterned panel or lap siding.

I. **Wall and Partition Facings and Accessories* —** Stone veneer is mortar bonded to a lath, scratch coat and water resistant barrier applied to sheathing, installed in accordance with the manufacturers installation instructions, and meeting the requirements of local code agencies.
ELDORADO STONE OPERATIONS L L C — Type Eldorado Stone

J. **Cementitious Backer Units —** 1/2 in. or 5/8 in., min. 32 in. wide.- Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with cement board screws of adequate length to penetrate stud by a minimum 3/4 in., spaced a max of 8 in. OC. Horizontal joints need not be backed by framing. When Cementitious Backer Units are used, the rating is applicable with exposure on either face. Cementitious Backer Units for use as substrate for exterior finishes such as ceramic tile, slate, marble, natural stone, manufactured stone, thin brick, or Portland cement or synthetic stucco.
NATIONAL GYPSUM CO — Type PermaBase

6A. **Building Units* — As an alternate to Exterior Facing Item 6 —** Insulated steel panels, 12 through 42 in. wide. Attached over sheathing through retainer clips to studs or support steel with No. 14 hex head self-tapping screws located at each joint in the concealed lip of the units and spaced in accordance with the structural design requirements. KINGSPAN INSULATED PANELS INC — Types 200, 300, 400, 900, or KS series, 2 through 6 in. thickness; CWP-V, H, 2 through 3 in. nominal thickness or Designwall 2000 or Designwall 4000, 2 and 3 in. nominal thickness.

7. **Steel Framing Members* —** (Optional, Not Shown) — Furring Channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7A) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75).

7A. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. Two layers of gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Aa) to interior side of studs. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.
KINETICS NOISE CONTROL INC — Type Isomax.

7B. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to studs. Clips spaced 48 in. OC. Genie clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
PLITEQ INC — Type Genie Clip

7C. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire.Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ca) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

7D. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 7Db. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Da) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

7E. **Steel Framing Members* —** (Optional, Not Shown) — Resilient channels and Steel Framing Members as described below:
a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 2.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 7Ea) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

8. **Non-Bearing Wall Partition Intersection —** (Optional) — Two nominal 2 by 4 in. stud or nominal 2 by 6 in. stud nailed together with two 3in. long 10d nails spaced a max. 16 in. OC, vertically and fastened to one side of the minimum 2 by 4 in. stud with 3 in. long 10d nails spaced a max 16 in. OC, vertically. Intersection between partition wood studs to be flush with the 2 by 4 in. studs. The wall partition wood studs are to be framed by with a second 2 by 4 in. wood stud fastened with 3 in. long 10d nails spaced a max. 16 in. OC. vertically. Maximum one non-bearing wall partition intersection per stud cavity. Non-bearing wall partition stud depth shall be at a minimum equal to the depth of the bearing wall.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2019-10-02

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M. RANDALL PORTER
A-2012006244
ARCHITECT
04 FEB 2021
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LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

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Design No. U305

October 02, 2019

Bearing Wall Rating — 1 Hr

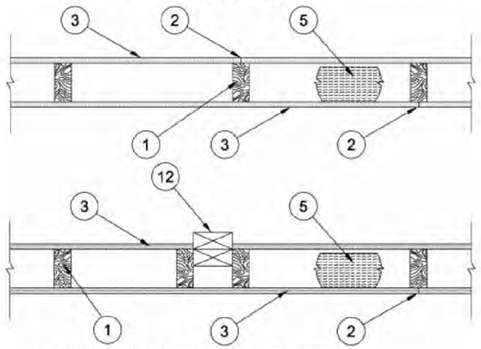
Finish Rating — See Items 3, 3A, 3D, 3E, 3F, 3G, 3H, 3J and 3L.

STC Rating - 56 (See Item 9)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for**

jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



1. **Wood Studs —** Nom 2 by 4 in. spaced 16 in. OC max, effectively firestopped.

2. **Joints and Nail-Heads —** Joints covered with joint compound and paper tape. Joint compound and paper tape may be omitted when square edge boards are used. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard with the joints reinforced with paper tape. Nailheads exposed or covered with joint compound.

3. **Gypsum Board* —** 5/8 in. thick paper or vinyl surfaced, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. When used in widths other than 48 in., gypsum panels are to be installed horizontally. For an alternate method of attachment of gypsum panels, refer to Items 6 through 6F, **Steel Framing Members***.

When Items 6, 6B, 6C, 6D, 6E, or 6F, **Steel Framing Members***, are used, gypsum panels attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC.

When Item 6A, **Steel Framing Members***, is used, two layers of gypsum panels attached to furring channels. Base layer attached to furring channels with 1 in. long Type S bugle-head steel screws spaced 12 in. OC. Face layer attached to furring channels with 1-5/8 in. long Type S bugle-head steel screws spaced 12 in. OC. All joints in face layers staggered with joints in base layers. One layer of gypsum board attached to opposite side of wood stud without furring channels as described in Item 3.

When Item 7, resilient channels are used, 5/8 in. thick, 4 ft wide gypsum panels applied vertically. Screw attached furring channels with 1 in. long, self-drilling, self-tapping Type S or S-12 steel screws spaced 8 in. OC, vertical joints located midway between studs.

CABOT MANUFACTURING ULC — Type X (finish rating 22 min), 5/8 Type X, Moisture Resistant Type X, Gypsum Sheathing Type X, Mold & Mildew Resistant Type X and Mold & Mildew Resistant AR Type X, Type Blueglass Exterior Sheathing

AMERICAN GYPSUM CO — Types AGX-1(finish rating 23 min.), M-Glass (finish rating 23 min.), Type AGX-11 (finish rating 26 min), Type AGX-12 (finish rating 22 min), Type LightRoc (Finish rating 23 min.) or Type AG-C

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO — Type DBX-1 (finish rating 24 min)

CERTAINTEED GYPSUM INC — Type 1, Type SF3 (finish rating 20 min) or FRPC; Type C., Type X or Type X-1 (finish rating 26 min); Type EGRG or GlasRoc (finish rating 23 min), GlasRoc-2, Type Habito (finish rating 26 min).

CGC INC — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SCX (finish rating 24 min), Type SHX (finish rating 24 min), Type ULX (finish rating 22 min), Type WRC (finish rating 24 min). Type WRX (finish rating 24 min)

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC6A (finish rating 34 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX (finish rating 21 min), Type CLLX (finish rating 24 min)

GEORGIA-PACIFIC GYPSUM L L C — Type 5 (finish rating 26 min), Type 6 (finish rating 23 min), Type 9 (finish rating 26 min), Type C (finish rating 26 min), Type DGG (finish rating 20 min), Type GPFS1 (finish rating 20 min), Type GPFS2 (finish rating 20 min), Type GPFS6 (finish rating 26 min), Type DS, Type DAP, Type DD (finish rating 20 min), Type DA, Type DAPC, Type LS (finish rating 23 min), Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, Type LWX (finish rating 22 min), Veneer Plaster Base-Type LWX (finish rating 22 min), Water Rated-Type LWX (finish rating 22 min), Sheathing Type-LWX (finish rating 22 min), Soffit-Type LWX (finish rating 22 min), Type DGLW (finish rating 22 min), Water Rated-Type DGLW (finish rating 22 min), Sheathing Type- DGLW (finish rating 22 min), Soffit-Type DGLW (finish rating 22 min), Type LWX (finish rating 22 min), Type LW2X (finish rating 22 min), Veneer Plaster Base - Type LW2X (finish rating 22 min), Water Rated - Type LW2X (finish rating 22 min), Sheathing - Type LW2X (finish rating 22 min). Soffit - Type LW2X (finish rating 22 min). Type DGL2W (finish rating 22 min), Water Rated - Type DGL2W (finish rating 22 min), Sheathing - Type DGL2W (finish rating 22 min)

NATIONAL GYPSUM CO — Type FSK (finish rating 20 min), Type FSK-G (finish rating 20 min), Type FSW (finish rating 20 min), Type FSW-2 (finish rating 24 min), Type FSW-3 (finish rating 20 min), Type FSW-5 (finish rating 22 min), Type FSW-G (finish rating 20 min), Type FSK-C (finish rating 20 min), Type FSW-C (finish rating 20 min), Type FSMR-C, Type FSW-6 (finish rating 20 min), Type FSL (finish rating 24 min), Type FSW-8, Type FSLX (finish rating 21 min).

NATIONAL GYPSUM CO — Riyadh, Saudi Arabia — Type FR, or WR.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types C, PG-2 (finish rating 20 min), PG-3 (finish rating 20 min), Types PG-3W, PG-5W (finish rating 20 min), Type PG-4 (finish rating 20 min), Type PG-6 (finish rating 23 min), Types PG-3WS, PG-5WS, PGS-WRS (finish rating 20 min), Types PG-5, PG-9 (finish rating 26 min), PG-11 PG-13 (Nails increased to 2 in.), or Type PG-C

PANEL REY S A — Type GREX, GRIX, PRX, PRC, PRC2; Types RHX, Guard Rey, MDX, ETX (finish rating 22 min)

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1 (finish rating 26 min)

THAI GYPSUM PRODUCTS PCL — Type C, Type X (finish rating 26 min)

UNITED STATES GYPSUM CO — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type FRX-G (finish rating 29 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SHX (finish rating 24 min), Type SCX (finish rating 24 min), Type SGX (finish rating 24 min), Type ULX (finish rating 22 min), Type WRX (finish rating 24 min), Type WRC (finish rating 24 min), Type ULIX (finish rating 20 min)

USG BORAL DRYWALL SFZ LLC — Type SGX (finish rating 24 min).

USG MEXICO S A DE C V — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type WRX (finish rating 24 min), Type WRC (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SHX (finish rating 24 min), SCX (finish rating 24 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min). Type ULX (finish rating 22 min)

3A. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.
AMERICAN GYPSUM CO — Types AGX-1 (finish rating 25 min.), M-Glass (finish rating 25 min.), AG-C (finish rating 25 min.), LighttRoc (finish rating 25 min.)

CERTAINTEED GYPSUM INC — Type C, Type X or Type X-1 (finish rating 26 min)

CGC INC — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SCX (finish rating 24 min), Type SHX (finish rating 24 min), Type WRC (finish rating 24 min), Type WRX (finish rating 24 min)

NATIONAL GYPSUM CO — Type FSW (finish rating 24 min)

UNITED STATES GYPSUM CO — Type AR (finish rating 24 min), Type SCX (finish rating 24 min), Type SGX (finish rating 24 min), Type C (finish rating 24 min), Type WRX (finish rating 24 min), Type WRC (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SHX (finish rating 24 min), Type FRX-G (finish rating 24 min), Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min)

USG BORAL DRYWALL SFZ LLC — Types C, SCX, SGX (finish rating 24 min).

USG MEXICO S A DE C V — Type AR (finish rating 24 min), Type C (finish rating 24 min), Type WRX (finish rating 24 min), Type WRC (finish rating 24 min), Type IP-X1 (finish rating 24 min), Type IP-X2 (finish rating 24 min), Type SHX (finish rating 24 min), Type SCX, Type IP-AR (finish rating 24 min), Type IPC-AR (finish rating 24 min)

3B. **Gypsum Board* —** (As an alternate to Item 3) — Nom 3/4 in. thick, installed with 1-7/8 in. long cement coated nails as described in Item 3 or 1-3/8 in. long Type W coarse thread gypsum panel steel screws as described in Item 3A.
CGC INC — Types AR, IP-AR

UNITED STATES GYPSUM CO — Types AR, IP-AR

USG MEXICO S A DE C V — Types AR, IP-AR

3C. **Gypsum Board* —** (As an alternate to Items 3, 3A and 3B) — 5/8 in. thick, 2 ft wide, tongue and groove edge, applied horizontally to one side of the assembly. Installed with 1-7/8 in. long cement coated nails as described in Item 3 or 1-1/4 in. long Type W coarse thread gypsum panel steel screws as described in Item 3A. Joint covering (Item 2) not required.
CGC INC — Type SHX

UNITED STATES GYPSUM CO — Type SHX

USG MEXICO S A DE C V — Type SHX

3D. **Gypsum Board* —** (As an alternate to Items 3, 3A, 3B, or 3C — Not Shown) — For Direct Application to Studs Only- Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs or tabs may be used in lieu of or in addition to the lead batten strips or optional at other locations. Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards underneath screw locations prior to the installation of the screws. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".
RAY-BAR ENGINEERING CORP — Type R8-LBG (finish rating 24 min)

3E. **Gypsum Board* —** (As an alternate to Items 3, 3A, 3B, 3C, and 3D) — 5/8 in. thick gypsum panels, with square edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last 2 screws 1 and 4 in. from edge of board or nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. When used in widths of other than 48 in., gypsum boards are to be installed horizontally.
GEORGIA-PACIFIC GYPSUM L L C — Type DGG (finish rating 20 min), GreenGlass Type X (finish rating 23 min)

3F. **Gypsum Board* —** (As an alternate to Items 3, 3A, 3B, 3C, 3D, and 3E) — 5/8 in. glass-mat faced with square edges, applied either horizontally or vertically. Gypsum panels nailed 7 in. OC around the perimeter and in the field with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. Nails shall be placed 1 inch and 3 inch from horizontal joints and 7 inch OC thereafter.
CGC INC — Type USGX (finish rating 22 min)

UNITED STATES GYPSUM CO — Type USGX (finish rating 22 min.)

USG BORAL DRYWALL SFZ LLC —, Type USGX (finish rating 22 min.)

USG MEXICO S A DE C V — Type USGX (finish rating 22 min.)

3G. **Gypsum Board* —** (As an alternate to Items 3 through 3F) — 5/8 in. thick paper surfaced applied vertically. Gypsum panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads.
GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board (finish rating 27 min)

3H. **Gypsum Board* —** (As an alternate to Items 3) — Not to be used with items 6 or 7. 5/8 in. thick paper surfaced applied vertically only. Gypsum panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads.
NATIONAL GYPSUM CO — Type SBWB

3I. **Gypsum Board* —** (As an alternate to Items 3 through 3H, Not Shown) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically. Panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. Panel joints covered with paper tape and two layers of joint compound. Nailheads covered with two layers of joint compound.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES (finish rating 20 min)

3J. **Gypsum Board* —** (As an alternate to Item 3) — Not to be used with items 6 or 7. 5/8 in. thick paper surfaced applied vertically or horizontally. Gypsum panels secured per item 3 or 3A.
CERTAINTEED GYPSUM INC — Type SilentFX

3K. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 8 in. OC with the last screw 1 in. from the edge of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.
NATIONAL GYPSUM CO — Type FSK (finish rating 20 min), Type FSK-G (finish rating 20 min), Type FSW (finish rating 20 min), Type FSW-2 (finish rating 24 min), Type FSW-3 (finish rating 20 min), Type FSW-5 (finish rating 22 min), Type FSW-G (finish rating 20 min), Type FSK-C (finish rating 20 min), Type FSW-C (finish rating 20 min), Type FSMR-C, Type FSW-6 (finish rating 20 min), Type FSL (finish rating 24 min).

3L. **Gypsum Board* —** (As an alternate to Item 3) — For Direct Application to Studs Only — Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 10 ft long with a max thickness of 0.140 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, max 5/16 in. diam by max 0.140 in. thick, compression fitted or adhered over the

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E-2012006244
ARCHITECT
STATE OF MISSOURI
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ARIA APARTMENTS LEE'S SUMMIT

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

WALLACE ARCHITECTS, LLC
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screw heads. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D".
MAYCO INDUSTRIES INC — "X-Ray Shielded Gypsum"

3M. **Gypsum Board* —** (As an alternate to Items 3) — For Direct Application to Studs Only — For use as the base layer or as the face layer, Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field when applied as the base layer. When applied as the face layer screw length to be increased to 2-1/2 in. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Fasteners for face layer gypsum panels (Items 4, 4A or 4B) when installed over lead backed board to be min 2-1/2 in. Type S-12 bugle head steel screws spaced as described in Item 4.
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

3N. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick, 4 ft. wide, applied horizontally or vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Secured as described in Item 3 or 3A.
CERTAINTEED GYPSUM INC — Easi-Lite Type X (finish rating 24 min), Easi-Lite Type X-2 (finish rating 24 min)

3O. **Wall and Partition Facings and Accessories* —** (As an alternate to Item 3, Not Shown) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically. Panels nailed 7 in. OC with 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam and 15/64 in. diam heads. Panel joints covered with paper tape and two layers of joint compound. Nailheads covered with two layers of joint compound.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527 (finish rating 24 min).

3P. **Gypsum Board* —** (As an alternate to Item 3, Not Shown) — Two layers nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by wood studs. Horizontal joints on the same side between face and base layers need not be staggered. Base layer gypsum panels fastened to studs with 1-1/4 in. long drywall nails spaced 8 in. OC. Face layer gypsum panels fastened to studs with 1-7/8 in. long drywall nails spaced 8 in. OC starting with a 4" stagger.
NATIONAL GYPSUM CO — Type FSW (finish rating 25 min)

3Q. **Gypsum Board* —** (As an alternate to Item 3) — 5/8 in. thick gypsum panels, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a maximum 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. When used in widths other than 48 in., gypsum panels are to be installed horizontally.
CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC6A (finish rating 21 min), Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

3R. **Gypsum Board* —** (As an alternate to Item 3. For use with Item 5H) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board listed in Item 3 above. Applied either horizontally or vertically, and screwed to panels with 1-5/8 in. long Type W coarse thread steel screws at 8 in. OC at perimeter and in the field with the last two screws 4 and 3/4 in. from the edges of the board when applied as the base layer. When used in widths other than 48 in., gypsum panels are to be installed horizontally.

3S. **Gypsum Board* —** 3/4 in. thick paper or vinyl surfaced, with beveled, square, or tapered edges, applied either horizontally or vertically. Gypsum panels secured as described in Item 3 with nail length increased to 2 in.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-13

3T. **Wall and Partition Facings and Accessories* —** (As an alternate to 5/8 in. thick board as outlined in Item 3) — Nominal 1-3/8 in. thick, 4 ft wide panels, applied vertically or horizontally. Fastened with #6 x 2 in. long drywall screws spaced 8 in. OC along the perimeter and 12 in. OC in the field.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 545

4. **Steel Corner Fasteners —** (Optional) — For use at wall corners. Channel shaped, 2 in. long by 1 in. high on the back side with two 1/8 in. wide cleats protruding into the 5/8 in. wide channel, fabricated from 24 gauge galv steel. Fasteners applied only to the end or cut edge (not along tapered edges) of the gypsum board, no greater than 2 in. from corner of gypsum board, max spacing 16 in. OC. Nailed to adjacent stud through tab using one No. 6d cement coated nail per fastener. Corners of wall board shall be nailed to top and bottom plate using No. 6d cement coated nails.

5. **Batts and Blankets* —** (Optional — Required when Item 6A is used (RC-1)) — Glass fiber or mineral wool insulation. Placed to completely or partially fill the stud cavities. When Item 6A is used, glass fiber or mineral wool insulation shall be friction-fitted to completely fill the stud cavities.
CERTAINTEED CORP

JOHNS MANVILLE

KNAUF INSULATION LLC

MANSON INSULATION INC

ROCK WOOL MANUFACTURING CO — Delta Board

ROCKWOOL — Acoustical Fire Batts - Type AFB, min. density 1.69 pcf / 27.0 kg/m³

THERMAFIBER INC — Type SAFB, SAFB FF

5A. **Fiber, Sprayed* —** (Not Shown — Not for use with Item 6) — As an alternate to Batts and Blankets (Item 5) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. When Item 6B is used, Fiber, Sprayed shall be INS735, INS745, INS750LD, INS765LD or INS773LD.
U S GREENFIBER L L C — INS735, INS745 and INS750LD for use with wet or dry application. INS515LD, INS541LD, INS735,

INS765LD, and INS773LD are to be used for dry application only

5B. **Fiber, Sprayed* —** (Not Shown - Not for use with Item 6) — As an alternate to Batts and Blankets (Item 5) - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.
NU-WOOL CO INC — Cellulose Insulation

5C. **Batts and Blankets* —** Required for use with resilient channels, Item 7, 3 in. thick mineral wool batts, friction-fitted to fill interior of wall.
THERMAFIBER INC — Type SAFB, SAFB FF

5D. **Glass Fiber Insulation —** (As an alternate to Item 5C) — 3 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, friction-fitted to fill the interior of the wall. See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

5E. **Batts and Blankets* —** (Required for use with Wall and Partition Facings and Accessories, Item 3D) — Glass fiber insulation, nom 3-1/2 in. thick, min. density of 0.80 pcf, with a flame spread of 25 or less and a smoke developed of 50 or less, friction-fitted to completely fill the stud cavities. See Batts and Blankets Category (BKNV) for names of manufacturers.

5F. **Fiber, Sprayed* —** (Optional, Not Shown — Not for use with Items 6, 6A, 6B, 6C, or 6D) — As an alternate to Batts and Blankets (Item 5) and Item 5A - Spray applied granulated mineral fiber material. The fiber is applied with adhesive, at a minimum density of 4.0 pcf, to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See **Fiber, Sprayed** (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

5G. **Fiber, Sprayed* —** (Optional, Not Shown — Not for use with Items 6, 6A, 6B, 6C, or 6D). — As an alternate to Batts and Blankets (Item 5) and Item 5A - Brown Colored Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed stud cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft³.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

5H. **Foamed Plastic* —** (Optional -For use with Item 3R) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
SES FOAM INC — Nexseal™ 2.0 or Nexseal™ 2.0 LE Spray Foam and Sucraseal Spray Foam.

5I. **Fiber, Sprayed* —** (Not Shown —Not for use with Item 6) — As an alternate to Batts and Blankets (Item 5) - Spray-applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. To facilitate the installation of the material, any thin, woven or non-woven netting may be attached by any means possible to the outer face the

studs. The material shall reach equilibrium moisture content before the installation of materials on either face of the studs. The minimum dry density shall be 5.79 lbs/ft³.
APPLEGATE HOLDINGS L L C — Applegate Advanced Stabilized Cellulose Insulation

6. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6a) to studs. Clips spaced 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75)

6A. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members on one side of studs as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. Batts and Blankets placed in stud cavity as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Aa) to one side of studs only. Clips spaced 48 in. OC., and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.
KINETICS NOISE CONTROL INC — Type Isomax

6B. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Ba) to studs. Clips spaced 48 in. OC. Genie clips secured to studs with No. 8 x 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

PLITEQ INC — Type Genie Clip

6C. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Ca) to studs. Clips spaced 48 in. OC., and secured to studs with No. 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

6D. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with a double strand of No. 18 AWG twisted steel wire. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Da) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

6E. **Steel Framing Members* —** (Optional, Not Shown) — Resilient channels and Steel Framing Members as described below:
a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 6Ea) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC - Type RC+ Assurance Clip

6F. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-23/32 in. wide by 7/8 in. or 1-1/2 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Gypsum board attached to furring channels as described in Item 3.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Fa) to studs. Clips spaced 48 in. OC. Clips secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips.
CLARKDIETRICH BUILDING SYSTEMS — Type ClarkDietrich Sound Clip

7. **Furring Channel —** Optional — Not Shown — For use on one side of the wall - Resilient channels, 25 MSG galv steel, spaced vertically 24 in. OC, flange portion screw attached to one side of studs with 1-1/4 in. long diamond shaped point, double lead Phillips head steel screws. When resilient channels are used, insulation, Items 5C or 5D is required.

8. **Caulking and Sealants —** (Not Shown, Optional) — A bead of acoustical sealant applied around the partition perimeter for sound control.

9. **STC Rating —** The STC Rating of the wall assembly is 56 when it is constructed as described by Items 1 through 6, except:

A. Item 2, above — Nailheads Shall be covered with joint compound.

B. Item 2, above — Joints As described, shall be covered with fiber tape and joint compound.

C. Item 5, above — Batts and Blankets* The cavities formed by the studs shall be friction fit with R-19 unfaced fiberglass insulation batts measuring 6-1/4 in. thick and 15-1/4 in. wide.

D. Item 6, above — Steel Framing Members* Type RSIC-1 clips shall be used to attach gypsum board to studs on either side of the wall assembly.

E. Item 8, above — Caulking and Sealants (Not Shown) A bead of acoustical sealant shall be applied around the partition perimeter for sound control.

F. Steel Corner Fasteners (Item 4), Fiber, Sprayed (Items 5A and 5B) and Steel Framing Members (Item 6A), not evaluated as alternatives for obtaining STC rating.

10. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the wood framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 and QR-510

11. **Cementitious Backer Units* —** (Optional Item Not Shown — For Use On Face Of 1 Hr Systems With All Standard Items Required) - 7/16 in., 1/2 in., 5/8 in., 3/4 in. or 1 in. thick, min. 32 in. wide. Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with cement board screws of adequate length to penetrate stud by a minimum of 3/8 in. for steel framing members, and a minimum of 3/4 in. for wood framing members spaced a max of 8 in. OC. When 4 ft. wide boards are used, horizontal joints need not be backed by framing.
NATIONAL GYPSUM CO — Type DuraBacker, PermaBase, DuraBacker Plus, or PermaBase Plus

FIRE RESISTANCE RATED ASSEMBLIES

PERMIT SET

STATE OF MISSOURI
M. RANDALL PORTER
A-2012006244
ARCHITECT
04 FEB 2021
M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200
WALLACE ARCHITECTS, LLC
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12. **Non-Bearing Wall Partition Intersection —** (Optional) —Two nominal 2 by 4 in. studs or nominal 2 by 6 in. studs nailed together with two 3 in. long 10d nails spaced a max. 16 in. OC. vertically and fastened to one side of the minimum 2 by 4 in. stud with 3 in. long 10d nails spaced a max. 16 in. OC. vertically. Intersection between partition wood studs to be flush with the 2 by 4 in. studs. The wall partition wood studs are to be framed by with a second 2 by 4 in. wood stud fastened with 3 in. long 10d nails spaced a max. 16 in. OC. vertically. Maximum one non-bearing wall partition intersection per stud cavity. Non-bearing wall partition stud depth shall be at a minimum equal to the depth of the bearing wall.

13. **Mesh Netting —** (Not Shown) — Any thin, woven or non-woven fibrous netting material attached with staples to the outer face of one row of studs to facilitate the installation of the sprayed fiber from the opposite row.

14. **Mineral and Fiber Board* —** (Optional, Not Shown) — For optional use as an additional layer on one side of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to framing with 2 in. long Type W steel screws, spaced 12 in. OC. The required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
HOMASOTE CO — Homasote Type 440-32

14A. **Mineral and Fiber Board* —** (Optional, Not Shown) — For use with Items 14B-14E) — For optional use as an additional layer on one side of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to framing with minimum 1-3/8 in. long ring shanked nails or 1-1/4 in. long Type W steel screws, spaced 12 in. OC along board edges and 24 in. OC in field of board along intermediate framing. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
HOMASOTE CO — Homasote Type 440-32

14B. **Glass Fiber Insulation —** (For use with Item 14A) — 3-1/2 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, placed to fill the interior of the wall. See Batts and Blankets (BKNV or BZJZ) categories for names of Classified companies.

14C. **Batts and Blankets* —** (As an alternate to Item 14B, For use with Item 14A), 3 in. thick mineral wool batts, placed to fill interior of wall, attached to the 3-1/2 in. face of the studs with staples placed 24 in. OC.
THERMAFIBER INC — Type SAFB, SAFB FF

14D. **Adhesive —** (For use with Item 14A) — Construction grade adhesive applied in vertical, serpentine, nominal 3/8 in. wide beads down the length of both vertical edges of Mineral and Fiber Board (Item 14A).

14E. **Gypsum Board* —** (For use with Item 14A) — 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 14A) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber Board (Item 14A). Secured to outermost studs and bearing plates with 2 in. long Type S screws spaced 8 in. OC. Gypsum Board joints covered with paper tape and joint compound. Screw heads covered with joint compound. Finish Rating 30 Min.
AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — Type FRPC, Type C

CGC INC — Types C, IP-X2, IPC-AR

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC-C/A

GEORGIA-PACIFIC GYPSUM L L C — Types S, DAPC, TG-C

NATIONAL GYPSUM CO — Types FSK-C, FSW-C

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-C

PANEL REY S A — Type PRC

THAI GYPSUM PRODUCTS PCL — Type C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

14F. **Mineral and Fiber Board —** (Optional, Not Shown) — For optional use as an additional layer on one side of wall - Nom 1/2 in. thick, 4 ft wide, square edge fiber boards applied vertically to studs on one side of the wall in between the wood studs and the UL Classified Gypsum Board (Item 3). Fiber boards installed with 1-1/4 in. long, Type W, bugle head, coarse thread gypsum board screws spaced 12 in. OC max, with the last screws spaced 2 in. and 6 in. from edge of board. Gypsum board (Item 3) installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
BLUE RIDGE FIBERBOARD INC — SoundStop

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2019-10-02

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Design No. U301

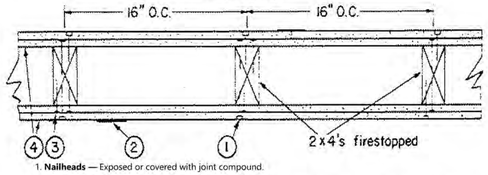
October 02, 2019

Bearing Wall Rating — 2 Hr.

Finish Rating — 66 Min.

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Nailheads —** Exposed or covered with joint compound.

2. **Joints —** Exposed joints covered with joint compound and paper tape. Joint compound and paper tape may be omitted when square edge boards are used. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard with the joints reinforced with paper tape.

3. **Nails —** 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam, 1/4 in. diam heads, and 8d cement coated nails 2-3/8 in. long, 0.113 in. shank diam, 9/32 in. diam heads.

4. **Gypsum Board* —** 5/8 in. thick, two layers applied either horizontally or vertically. Inner layer attached to studs with the 1-7/8 in. nails spaced 6 in. OC. Outer layer attached to studs over inner layer with the 2-3/8 in. long nails spaced 8 in. OC. Vertical joints located over studs. All joints in face layers staggered with joints in base layers. Joints of each base layer offset with joints of base layer on opposite side.
When used in widths other than 48 in., gypsum board to be installed horizontally.

When **Steel Framing Members*** (Item 6, 6A, 6B, or 6C) are used, base layer attached to furring channels with 1 in. long Type S bugle-head steel screws spaced max 24 in. OC; face layer attached with 1-5/8 in. long Type S bugle-head steel screws spaced max 12 in. OC.

CABOT MANUFACTURING ULC — Type X, 5/8 Type X, Moisture Resistant Type X, Gypsum Sheathing Type X, Mold& Mildew Resistant Type X and Mold & Mildew Resistant AR Type X, Type Blueglass Exterior Sheathing

AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, AGX-11, LightRoc

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO — Type DBX-1

CERTAINTEED GYPSUM INC — Types 1, FRPC, EGRG, GlasRoc, GlasRoc-2, Type C, Type X, Type X-1

CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC, WRX

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Types LGFC2A, LGFC6A, LGFC-C/A, LGFC-WD, LGLLX, CLLX

GEORGIA-PACIFIC GYPSUM L L C — Types 5, 6, 9, C, DAP, DD, DA, DAPC, DGG, DS, GPFS6, I.S, TG-C, Type X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing Type-X, Soffit-Type X, GreenGlass Type X, Type LWX, Veneer Plaster Base-Type LWX, Water Rated-Type LWX, Sheathing Type-LWX, Soffit-Type LWX, Type DGLW, Water Rated-Type DGLW, Sheathing Type- DGLW, Soffit-Type DGLW, Type LW2X, Veneer Plaster Base - Type LW2X, Water Rated - Type LW2X, Sheathing - Type LW2X, Soffit - Type LW2X, Type DGL2W, Water Rated - Type DGL2W, Sheathing - Type DGL2W

NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSW, FSW-3, FSW-5, FSW-6, FSW-8, FSW-C, FSW-G, FSMR-C, FSL

NATIONAL GYPSUM CO — Riyadh, Saudi Arabia — Type FR, or WR.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types C, PG-2, PG-3, PG-3W, PG-4, PG-5, PG-5W, PG-5WS, PG-9, PG-11, PG-C or PGS-WRS

PANEL REY S A — Types PRC, PRC2, PRX, RHX, MDX, ETX, GREX, GRIX

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1

THAI GYPSUM PRODUCTS PCL — Type C or Type X

UNITED STATES GYPSUM CO — Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULIX, ULX, USGX, WRC, WRX

USG BORAL DRYWALL SFZ LLC — Types C, SCX, USGX

USG MEXICO S A DE C V — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, ULX, USGX, WRC, WRX

4A. **Gypsum Board* —** (As an alternate to Item 4) — Nom 3/4 in. thick, installed as described in Item 4.
CGC INC — Types AR, IP-AR

UNITED STATES GYPSUM CO — Types AR, IP-AR

USG MEXICO S A DE C V — Types AR, IP-AR

4B. **Gypsum Board* —** (As an alternate to Items 4 and 4A) — 5/8 in. thick, 2 ft wide, tongue and groove edge, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 4. Joint covering (Item 2) not required.
CGC INC — Type SHX

UNITED STATES GYPSUM CO — Type SHX

USG MEXICO S A DE C V — Type SHX

4C. **Gypsum Board* —** (As an alternate to Items 4, 4A or 4B — Not Shown) — For Direct Application to Studs Only- For use on one or both sides of the wall as the base layer or one or both sides of the wall as the face layer. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field when applied as the base layer. When applied as the face layer screw length to be increased to 2-1/2 in. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-12 pan head steel screws, F4j.one at the top of the strip and one at the bottom of the strip. Lead discs or tabs may be used in lieu of or in addition to the lead batten strips or optional at other locations. Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards underneath screw locations prior to the installation of the screws. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Fasteners for face layer gypsum panels (Items 4, 4A or 4B) when installed over lead backed board to be min 2-1/2 in. Type S-12 bugle head steel screws spaced as described in Item 4.
RAY-BAR ENGINEERING CORP — Type RB-LBG.

4D. **Gypsum Board* —** As an Alternate to Item 4 — 5/8 in. thick applied either horizontally or vertically. Inner layers fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. Outer layers fastened to framing with 1-7/8 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum board to be installed horizontally. All joints in face layers staggered with joints in base layers. Joints of each base layer offset with joints of base layer on opposite side.
AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, LightRoc

4E. **Gypsum Board* —** (As an alternate to Items 4 through 4D) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically and secured as described in Item 4.
GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board

4F. **Gypsum Board* —** (As an alternate to Item 4) — Not to be used with item 6, 6A, 6B or 6C. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically and secured as described in Item 4.
NATIONAL GYPSUM CO — Type SBCB

4G. **Gypsum Board * —** (As an alternate to Items 4 through 4F) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types QuietRock ES

4H. **Gypsum Board* —** (As an alternate to Item 4) — Not to be used with item 6, 6A, 6B, or 6C. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically or horizontally and secured as described in Item 4.
CERTAINTEED GYPSUM INC — Type SilentFX

FIRE RESISTANCE RATED ASSEMBLIES

PERMIT SET

M. RANDALL PORTER
A-2012006244
04 FEB 2021

M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
Columbia, MO
P 573-256-7200

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4I. **Gypsum Board* —** (As an alternate to item 4) — 5/8 in. thick, two layers applied either horizontally or vertically. Inner layer attached to studs with 1-1/4 in. long Type W steel screws spaced 8 in. OC. Outer layer attached to studs over inner layer with 2 in. long Type W steel screws spaced 8 in. OC offset 6 in. from base layer. Vertical joints located over studs. Vertical and horizontal joints between inner and outer layers staggered. Outer layer joints covered with joint tape and compound, screwheads covered with joint compound. As an alternate to the joint compound nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Wallboard other than 48 in. wide must be applied horizontally. The SoundBreak XP Type X Gypsum Board is not to be used with Item 6, 6A, 6B, or 6C.
NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSW, FSW-3, FSW-5, FSW-6, FSW-C, FSW-G, FSMR-C, SoundBreak XP Type X Gypsum Board

4J. **Gypsum Board* —** (As an alternate to Items 4) — For Direct Application to Studs Only- For use as the base layer or as the face layer. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field when applied as the base layer. When applied as the face layer screw length to be increased to 2-1/2 in. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 10 ft long with a max thickness of 0.140 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, max 5/16 in. diam by max 0.140 in. thick, compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D". Fasteners for face layer gypsum panels (Items 4, 4A or 4B) when installed over lead backed board to be min 2-1/2 in. Type S-12 bugle head steel screws spaced as described in Item 4.
MAYCO INDUSTRIES INC — "X-Ray Shielded Gypsum"

4K. **Gypsum Board* —** For use with Item 7 — 5/8 in. thick, two layers applied vertically. Inner layer attached to resilient channels with 1 in. long steel screws spaced 8 in. OC. Outer layer attached to resilient channels over inner layer with 1-5/8 in. long steel screws spaced 8 in. OC. All joints in face layers staggered with joints in base layers. Joints of each base layer offset with joints of base layer on opposite side. Insulation, Items 8 or 9 is required.
AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C, AGX-11

4L. **Gypsum Board* —** (As an alternate to Items 4) — For Direct Application to Studs Only- For use as the base layer or as the face layer. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type W coarse thread gypsum panel steel screws spaced 8 in. OC at perimeter and in the field when applied as the base layer. When applied as the face layer screw length to be increased to 2-1/2 in. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick, compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Fasteners for face layer gypsum panels (Items 4, 4A or 4B) when installed over lead backed board to be min 2-1/2 in. Type S-12 bugle head steel screws spaced as described in Item 4.
RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

4M. **Gypsum Board* —** (As an alternate to Item 4) — 5/8 in. thick, 4 ft. wide, two layers applied vertically with vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Secured as described in Item 4.
CERTAINTEED GYPSUM INC — 5/8" Easi-Lite Type X

4N. **Gypsum Board* —** (As an alternate to 5/8 in. Type FSW in Items 4 or 4I) — Nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Two layers of 5/16 in. for every single layer of 5/8 in. gypsum board described in Item 4 or 4I. Horizontal joints on the same side need not be staggered. Inner layer of each double 5/16 in. layer attached with fasteners, as described in item 4 or 4I, spaced 24 in. OC. Outer layer of each double 5/16 in. layer attached per Item 4 or 4I.
NATIONAL GYPSUM CO — Type FSW

4O. **Wall and Partition Facings and Accessories* —** (As an alternate to Items 4 through 4N) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527

4P. **Gypsum Board* —** (As an alternate to Item 4) — 5/8 in. thick, two layers applied either horizontally or vertically. Inner layer attached to studs with 1-1/4 in. long Type W steel screws spaced 10 in. OC with the last two screws 4 and 1 in. from the edges of the board. Outer layer attached to studs over inner layer with 1-7/8 in. long Type W steel screws spaced 10 in. OC offset 5 in. from base layer with the last two screws 4 and 1 in. from the edges of the board. Vertical joints located over studs. Vertical and horizontal joints between inner and outer layers staggered. Outer layer joints covered with joint tape and compound, screwheads covered with joint compound. When used in widths other than 48 in., gypsum panels are to be installed horizontally.
CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC6A, Type LGFC2A, Type LGFC-C/A, Type LGFC-WD, Type LGLLX

4Q. **Gypsum Board* —** (As an alternate to Item 4. For use with Item 13) — Any 5/8 in. thick, 4 ft. wide, Gypsum Board UL Classified for Fire Resistance (CKNX) eligible for use in Design Nos. U305 and L501 or G512. Two layers, applied either horizontally or vertically, and screwed to studs with 1-5/8 in. long Type W coarse thread steel screws at 8 in. OC at perimeter and in the field with the last two screws 4 and 3/4 in. from the edges of the board when applied as the base layer. For the face layer, screw length to be increased to 2-1/2 in. All joints in face layers staggered with joints in base layers. When used in widths other than 48 in., gypsum panels are to be installed horizontally.

4R. **Gypsum Board* —** As an Alternate to Item 4 — 5/8 in. thick applied either horizontally or vertically. Inner layers fastened to framing with 1-1/4 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. Outer layers fastened to framing with 1-7/8 in. long Type W coarse thread gypsum panel steel screws spaced a max 8 in. OC, with last screw 1 in. from edge of board. When used in widths other than 48 in., gypsum board to be installed horizontally. All joints in face layers staggered with joints in base layers. Joints of each base layer offset with joints of base layer on opposite side.
CERTAINTEED GYPSUM INC — Types 1, FRPC, EGRG, GlasRoc, GlasRoc-2, Type C, Type X, Type X-1, Easi-Lite Type X, SilentFX

5. **Molded Plastic* —** Not Shown, Optional — Solid vinyl siding mechanically secured over the outer layer to framing members in accordance with manufacturer's recommended installation details.
ALSIDE, DIV OF ASSOCIATED MATERIALS INC

GENTEK BUILDING PRODUCTS LTD

VYTEC CORP

6. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
A. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap, As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping #6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Wallboard attached to furring channels as described in Item 4.

B. **Steel Framing Members* —** Used to attach furring channels (Item 6a) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.
PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75)

6A. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
A. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 4.

B. **Steel Framing Members* —** Used to attach furring channels (Item 6Aa) to studs. Clips spaced 48 in. OC., and secured to studs with 2 in. coarse drywall screw with 1 in. diam washer through the center hole. Furring channels are friction fitted into clips.
STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

6B. **Steel Framing Members* —** (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:
A. **Furring Channels —** Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 6Bb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire. Gypsum board attached to furring channels as described in Item 4.

B. **Steel Framing Members* —** Used to attach furring channels (Item 6Ba) to studs. Clips spaced 48 in. OC., and secured to studs with 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.
REGUPOL AMERICA — Type SonusClip

6C. **Steel Framing Members* —** (Optional, Not Shown) —Resilient channels and Steel Framing Members as described below:
a. **Resilient Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC, and perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured in place with two No. 8 15 x 1/2 in. Philips Modified Truss screws spaced 2-1/2 in. from the center of the overlap. Gypsum board attached to resilient channels as described in Item 4.

b. **Steel Framing Members* —** Used to attach resilient channels (Item 6Ca) to studs. Clips spaced 48 in. OC., and secured to studs with No. 8 x 2-1/2 in. coarse drywall screw through the center hole. Resilient channels are secured to clips with one No. 10 x 1/2 in. pan-head self-drilling screw.
KEENE BUILDING PRODUCTS CO INC — Type RC+ Assurance Clip

7. **Furring Channel —** Optional — Not Shown — For use on one side of the wall with Item 4K — Resilient channels, 25 MSG galv steel, spaced vertically 24 in. OC, flange portion screw attached to one side of studs with 1-1/4 in. long diamond shaped point, double lead Phillips head steel screws. When resilient channels are used, insulation, Item 8 or 9 is required.

8. **Batts and Blankets* —** Required for use with resilient channels, Item 7, min. 3 in. thick mineral wool batts, placed to fill interior of wall, attached to the nom 4 in. face of the studs with staples placed 24 in. OC.
ROCKWOOL — Type SAFEnSOUND

THERMAFIBER INC — Type SAFB, SAFB FF

9. **Batts and Blankets* —** (As an alternate to Item 8) — Min. 3 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, friction-fitted to fill the stud cavities. See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies.

9A. **Fiber, Sprayed* —** (Optional) — As an alternate to Batts and Blankets (Item 8), Required for use with resilient channels, Item 7, Not for use with Item 6, 6A, 6B, or 6C. — Spray applied mineral wool insulation. The fiber is applied with adhesive, at a minimum density of 4.0 pcf, to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See Fiber, Sprayed (CCAZ).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

10. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the wood framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 or QR-510

11. **Cementitious Backer Units* —** (Optional Item Not Shown — For Use On Face Of 2 Hr Systems With All Standard Items Required) — 7/16 in., 1/2 in., 5/8 in., 3/4 in. or 1 in. thick, min. 32 in. wide. Applied horizontally or vertically with vertical joints centered over studs. Face layer fastened over gypsum board to studs and runners

with cement board screws of adequate length to penetrate stud by a minimum of 3/8 in. for steel framing members, and a minimum of 3/4 in. for wood framing members spaced a max of 8 in. OC.
NATIONAL GYPSUM CO — Type DuraBacker, PermaBase, DuraBacker Plus, or PermaBase Plus

12. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) - When the Wall Assembly is used as an External Wall, on the External side of the wall one of the following Wall and Partition and Facing Accessories may be used, refer to items (A) to (C) below.
A. **Non Insulated system with metal channels —** Install moisture barrier over the Gypsum Board Item 4 and Install Acry Metal Channels vertically at a horizontal spacing not greater than 24 inches OC., over the moisture barrier. Acry Metal Channels attached through the moisture barrier and the Gypsum Board to the Wood Studs using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Install Acrytec Panels on Acry Metal Channels using 1-1/4" long corrosion coated stainless steel screws spaced at a max spacing of 24 inches OC, along with manufacturer's approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels shall be Tremco illmod 600 pre compressed polyurethane foam sealant.

B. **Insulated system with metal channels —** Install moisture barrier over the Gypsum Board Item 4. Install galvanized Z girt channels specified by the manufacturer over the moisture barrier and the Gypsum Board Item 4. Z girt channels to be installed horizontally at a max. spacing of 24" OC. Z girt channels attached through the Gypsum Board and the moisture barrier to the wood studs with screws provided by the manufacturer at a max spacing of 24 inches OC. Install mineral wool insulation between the Z girts. Maximum thickness of mineral wool insulation not to exceed 6 in. As per manufacturer's instructions install Acry Metal Channels vertically over the Z girts at a max horizontal spacing of 24 in. OC. Acrytec Panels installed on Acry channel with 1-1/4" long corrosion coated stainless steel screws at a max spacing of 24 in. OC, along with manufacturers approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

C. **Non insulated wood strapping system —** Install moisture barrier over the Gypsum Board Item 4 and Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC., over the moisture barrier. 1" x 3" wood strapping attached through the moisture barrier and the Gypsum Board to the Wood studs using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Acrytec Panels to be installed on the 1" x 3" wood strapping using manufacturers approved stainless steel fasteners spaced at maximum 24 inches OC along with Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

D. **Insulated Wood Strapping System —** Install moisture barrier over the Gypsum Board Item 4. Install Extruded Polystyrene Insulation over moisture barrier and the Gypsum Board Item 4, max thickness of insulation not to exceed 4 inches. Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC. Wood strapping attached through the Insulation, the Gypsum Board and moisture barrier to the Wood Studs using fasteners specified by the manufacturer and fasteners spaced max. 24 in. OC. Acrytec Panels to be installed over the wood strapping using manufacturers approved stainless steel fasteners at a max spacing of 24 in. OC and Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

ACRYTEC PANEL INDUSTRIES — Nominal 5/8 inch thick Acrytec Panel.

13. **Foamed Plastic* —** (Optional, Not Shown - For use with Item 4Q) — Spray applied, foamed plastic insulation, at any thickness from partial fill to completely filling stud cavity.
SES FOAM INC — Nexseal™ 2.0 or Nexseal™ 2.0 LE Spray Foam and Sucraseal Spray Foam. For use in Bearing and Non-Load Bearing Walls.

14. **Foamed Plastic* —** (Optional, Not Shown - For use over Gypsum Board, Item 4) - Polyisocyanurate foamed plastic boards, any thickness applied vertically with vertical joints located over studs. May be used with Molded Plastic, Item 5 or any exterior facing, as authorized by the Authority Having Jurisdiction and installed in accordance with the manufacturer's installation instructions.
HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — "Xci Class A", "Xci 286", "Xci Foil (Class A)", "Xci CG", "Xci Foil", "Xci CG NH", "Xci Foil NH"

15. **Building Units* —** (Optional, Not Shown - For use over Gypsum Board, Item 4) Polyisocyanurate composite foamed plastic boards, any thickness, applied vertically with vertical joints located over studs. May be used with Molded Plastic, Item 5 or any exterior facing, as authorized by the Authority Having Jurisdiction and installed in accordance with the manufacturer's installation instructions.
HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — "Xci N8", "Xci Ply"

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2019-10-02

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FIRE RESISTANCE RATED ASSEMBLIES

PERMIT SET

STATE OF MISSOURI
M. RANDALL PORTER
A-2012006244
ARCHITECT
04 FEB 2021
M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT
LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
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Design No. L550

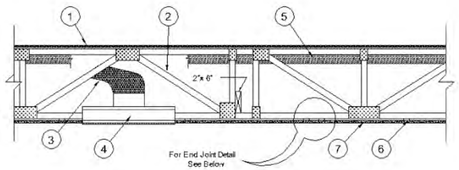
Feburary 26, 2015

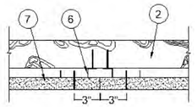
Unrestrained Assembly Rating — 1 Hr.

Finish Rating — 23 Min (See Items 5 or 5A)

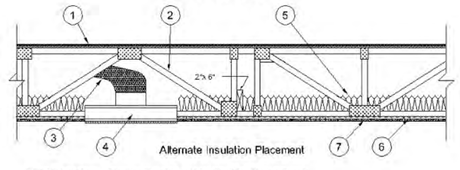
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**





End Joint Detail



Alternate Insulation Placement

1. **Flooring System —** The flooring system shall consist of one of the following:

System No. 1

Subflooring — Nom 23/32 in. thick wood structural panels installed perpendicular to trusses with end joints staggered. Plywood or panels secured to trusses with construction adhesive and No. 6d ringed shank nails, spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Subflooring (Alternate) - Structural Cement-Fiber Units* — Nominal 19 mm (3/4 in.) thick tongue and groove structural cement-fiber units. Long dimension of panels to be perpendicular to trusses with end joints staggered. Panels fastened to the trusses with #10 self-drilling, self-tapping cement board screws 1-3/4 in. long. Screws shall be spaced 6 in. OC along the perimeter of each sheet and 12 in. OC in the field of each sheet. Screws shall be spaced 1/2 in. from end joints and 1 in. from side joints.

ECTEK INTERNATIONAL INC — Armoroc Panel

Vapor Barrier - (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring — Min 1 by 4 in. T & G lumber fastened diagonally to trusses, or min 15/32 in. plywood, min grade "Underlayment" or "Sturd-I-Floor" with T & G edges and conforming to PS1-83 specifications, or nonveneer APA rated Sturd-I-Floor, T & G panels per APA specifications PRP-108. Face grain of plywood to be perpendicular to trusses with joint staggered.

System No. 2

Subflooring — Min 23/32 in. thick plywood with T & G edges along the 8 ft sides and exterior glue or nonveneer APA Sturd-I-Floor T & G panels per APA specifications PRP 108. Face grain of plywood or strength axis of panel to be perpendicular to trusses with joints staggered 4 ft. Plywood or panels secured to trusses with construction adhesive and No. 6d ring shank nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Floor Mat Materials* - (Optional) — Floor mat material nom 5/64 in. (2mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1 in. of floor-topping mixture.

ECORE INTERNATIONAL INC — Type QTscu 4002

HACKER INDUSTRIES INC — Type Hacker Sound-Mat.

Alternate Floor Mat Materials - (Optional)— Floor mat material nom 1/4 in. (6mm) thick adhered to subfloor with Hacker Floor Primer. Primer to be applied to the surface of the mat prior to the placement of a min 1-1/4 in. (32mm) of floor-topping mixture.

ECORE INTERNATIONAL INC — Type QTrbm 3006-3

HACKER INDUSTRIES INC — Type Hacker Sound-Mat II.

Alternate Floor Mat Materials - (Optional)— Floor mat material nom 1/8 in. (3mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 3/4 in. (19mm)

HACKER INDUSTRIES INC — FIRM-FILL SCM 125

Alternate Floor Mat Materials - (Optional) — Floor mat material nom 1/4 in. (6mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1 in. (25mm)

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 250, Quiet Qurl 55/025

Alternate Floor Mat Materials - (Optional)— Floor mat material nom 3/8 in. (10mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/4 in. (32mm)

HACKER INDUSTRIES INC — FIRM-FILL SCM 400, Quiet Qurl 60/040

Alternate Floor Mat Materials - (Optional)— Floor mat material nom 3/4 in. (19mm) thick loose laid over the subfloor. Floor topping thickness shall be a min of 1-1/2 in. (38mm)

HACKER INDUSTRIES INC — Type FIRM-FILL SCM 750, Quiet Qurl 65/075

Metal Lath (Optional) — For use with 3/8 in. (10 mm) floor mat materials, 3/8 in. expanded steel diamond mesh, 3.4 lbs/sq yd placed over the floor mat material. Hacker Floor Primer to be applied prior to the placement of the metal lath. When metal lath is used, floor topping thickness a nom 1-1/4 in. over the floor mat.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1100 psi. Mixture shall consist of 6.8 gal of water to 80 lbs of floor topping mixture to 1.9 cu ft of sand.

HACKER INDUSTRIES INC — Firm-Fill Gypsum Concrete, Firm-Fill 2010, Firm-Fill 3310, Firm-Fill 4010, Firm-Fill High Strength, Gyp-Span Radiant

System No. 3

Subflooring — Min 23/32 in. thick plywood with T & G edges along the 8 ft sides and exterior glue or nonveneer APA Sturd-I-Floor T & G panels per APA specifications PRP 108. Face grain of plywood or strength axis of panel to be perpendicular to trusses with joints staggered 4 ft. Plywood or panels secured to trusses with construction adhesive and No. 6d ring shank nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Finish Floor - Mineral and Fiber Board* — Min 1/2 in. thick, supplied in sizes ranging from 3 ft by 4 ft to 8 ft by 12 ft. All joints to be staggered a min of 12 in. with adjacent sub-floor joints.

HOMASOTE CO — Type 440-32 Mineral and Fiber Board

System No. 4

Subflooring — Nom 23/32 in. thick wood structural panels installed perpendicular to trusses with end joints staggered. Plywood or panels secured to trusses with construction adhesive and No. 6d ringed shank nails, spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Vapor Barrier - (Optional) — Nom 0.010 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1800 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

UNITED STATES GYPSUM CO — Types LRK, HSLRK, CSD

Floor Mat Materials* - (Optional) — Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

UNITED STATES GYPSUM CO — Types SAM, LEVELROCK® Brand Sound Reduction Board, LEVELROCK® Brand Floor Underlayment SRM-25

Alternate Floor Mat Materials* - (Optional) — Nom 3/8 in. thick floor mat material loose laid over the subfloor.

GRASSWORX L L C — Type SC50

System No. 5

Subflooring — Min 23/32 in. thick T & G wood structural panels installed perpendicular to trusses with joints staggered 4 ft. Plywood or nonveneer APA rated panels secured to trusses with construction adhesive and No. 6d ring shank nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Vapor Barrier - (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 1-1/2 in. thickness of floor topping mixture having a min compressive strength of 1000 psi and a cast density of 100 plus or minus 5 pcf. Foam concentrate mixed 40:1 by volume with water and expanded at 100 psi through nozzle. Mixture shall consist of 1.4 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 300 lbs of sand with 5-1/2 gal of water.

ELASTIZELL CORP OF AMERICA — Type FF

System No. 6

Subflooring — Min 23/32 in. thick T & G wood structural panels installed perpendicular to trusses with joints staggered 4 ft. Plywood or nonveneer APA rated panels secured to trusses with construction adhesive and No. 6d ring shank nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Vapor Barrier - (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 1 in. thickness of floor topping mixture having a min compressive strength of 1000 psi and a cast density of 100 plus or minus 5 pcf. Foam concentrate mixed 40:1 by volume with water and expanded at 100 psi through nozzle. Mixture shall consist of 1.4 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 62.5 lb of pea gravel, 312.5 lbs of sand with 5-1/2 gal of water.

LITE-CRETE INC — Type I

System No. 7

Subflooring— Min 23/32 in. thick T & G wood structural panels installed perpendicular to trusses with joints staggered 4 ft. Plywood or nonveneer APA rated panels secured to trusses with construction adhesive and No. 6d ring shank nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Vapor Barrier - (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 1-1/2 in. thickness of floor topping mixture having a min compressive strength of 1000 psi and a cast density of 100 plus or minus 5 pcf. Foam concentrate mixed 40:1 by volume with water and expanded at 100 psi through nozzle. Mixture shall consist of 1.2 cu feet of preformed foam concentrate to 94 lbs Type I Portland cement, 300 lbs of sand with 5.5 gal of water.

AERIX INDUSTRIES — Floor-Topping Mixture

System No. 8

Subflooring— Min 23/32 in. thick T & G wood structural panels installed perpendicular to trusses with joints staggered 4 ft. Plywood or nonveneer APA rated panels secured to trusses with construction adhesive and No. 6d ring shank nails spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1000 psi. Mixture shall consist of 5 to 8 gal of water to 80 lbs of floor topping mixture to 2.1 cu ft of sand.

ULTRA QUIET FLOORS — Types UQF-A, UQF-Super Blend, UQF-Plus 200

System No. 9

Subflooring — Nom 23/32 in. thick wood structural panels installed perpendicular to trusses with end joints staggered. Plywood or panels secured to trusses with construction adhesive and No. 6d ringed shank nails, spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Vapor Barrier - (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

ALLIED CUSTOM GYPSUM — Accu-Crete, AccuRadiant, AccuLevel G40 and AccuLevel SD30.

Floor Mat Material* — (Optional) - Floor mat material nominal 2 - 9.5 mm thick loose laid over the subfloor. Floor topping shall be a min of 3/4 in.

ALLIED CUSTOM GYPSUM — Type AccuQuiet P80, Type AccuQuiet C40, AccuQuiet D13, and Type AccuQuiet D-18.

System No. 10

Subflooring — Nom 23/32 in. thick wood structural panels installed perpendicular to trusses with end joints staggered. Plywood or panels secured to trusses with construction adhesive and No. 6d ringed shank nails, spaced 12 in. OC along each truss. Staples having equal or greater withdrawal and lateral resistance strength may be substituted for the 6d nails.

Vapor Barrier - (Optional) — Nom 0.030 in. thick commercial asphalt saturated felt.

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a min compressive strength of 1000 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

DEPENDABLE LLC — GSL M3.4, GSL K2.6 and GSL RH.

Floor Mat Materials* — (Optional) - Nom. 1/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 55/025 and Quiet Qurl 55/025 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 3/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 60/040 and Quiet Qurl 60/040 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 3/4 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 1-1/2 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 65/075, Quiet Qurl 65/075 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. 1/8 in. thick loose laid over the subfloor. Floor topping thickness shall be a minimum of 3/4 in.

KEENE BUILDING PRODUCTS CO INC — Type Quiet Qurl 52/013 and Quiet Qurl 52/013 N

Alternate Floor Mat Materials* — (Optional) - Floor mat material Nom. ¼ in. entangled net core with a compressible fabric attached to the bottom loose laid over the subfloor. Floor topping thickness shall be a minimum of 1 in.

KEENE BUILDING PRODUCTS CO INC — Quiet Qurl 55/025 MT and Quiet Qurl 55/025 N MT

System No. 11

Structural Cement-Fiber Units* — Nom 3/4 in. thick, with long edges tongue and grooved. Long dimension of panels to be perpendicular to wood trusses with end joints staggered a min of 2 ft and centered over the trusses. Panels secured to wood trusses with 1-5/8 in. long, No. 8, self- countersinking wood screw spaced a max of 12 in. OC in the field with a screw located 1 in. and 2 in. from each edge, and 8 in. OC on the perimeter with a screw located 2 in. from each edge, located 1/2 in. from the end edges of the panel.

UNITED STATES GYPSUM CO — Type STRUCTO-CRETE

Finish Flooring - Floor Topping Mixture* — Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1800 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

UNITED STATES GYPSUM CO — Types LRK, HSLRK, CSD

Floor Mat Materials* — (Optional) - Floor mat material loose laid over the subfloor. Refer to manufacturer\'s instructions regarding the minimum thickness of floor topping over each floor mat material.

UNITED STATES GYPSUM CO — Types SAM, LEVELROCK® Brand Sound Reduction Board, LEVELROCK® Brand Floor Underlayment SRM-25

2. **Trusses —** Parallel chord trusses, spaced a max of 24 in. OC, fabricated from nom 2 by 4 lumber, with lumber oriented vertically or horizontally. Min truss depth is 12 in. Truss members secured together with min 0. 0356 in. thick galvanized steel plates. Plates have 5/16 in. long teeth projecting perpendicular to the plane of the plate. The teeth are in pairs facing each other (made by the same punch), forming a split tooth type plate. Each tool has a chisel point on its outside edge. These points are diagonally opposite each other for each pair. The top half of each tooth has a twist for stiffness. The pairs are repeated on approx. 7/8 in. centers with four rows of teeth per inch of plate width.

3. **Air Duct* —** Any UL Class 0 or Class 1 flexible air duct installed in accordance with the instructions provided by the damper manufacturer.

4. **Damper* —** For use with min 18 in. deep trusses. Max nom 20 in. long by 18 in. wide by 2-1/8 in. high. fabricated from galvanized steel. Plenum box max size nom 21 in. long by 18 in. wide by 16 in. high fabricated from either galvanized steel or Classified Air Duct Materials bearing the UL Classification Marking for Class 0 or Class 1 rigid air duct material. Installed in accordance with the instructions provided by the manufacturer. Max damper openings not to exceed 180 sq in. per 100 sq ft of ceiling area.

NAILOR INDUSTRIES INC — Types 0755, 0755A, 0756, 0756D , 0757, 0757D, 0757FP, 0757DFP, 0758, 0759, 0760, 0761, 0762, CRD5, CRD5D, CRD6, CRD6D, CRD6FP, CRD6DFP

ROYAL METAL PRODUCTS INC — Models 241FRD, 243FRD, 505RD, 507RD, 509, 556RD, 556RDD, 557RD, 557RDD, 557RDFP, 557RDDFP, 0756, 0756D , 0757, 0757D, 0757FP, 0757DFP.

4A. **Damper* —** For use with min 18 in. deep trusses. Max nom 9 by 9 in. damper with Airzone fan installed in accordance with the instructions provided by the manufacturer. Max height of damper with fan shall be 11 in. Max damper openings not to exceed 180 sq in. per 100 sq ft of ceiling area.

PANAMEX GROUP INC — Type 0750HM

5. **Batts and Blankets* —** (Optional) - Glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. When no insulation is installed in the concealed space the resilient channels are spaced 24 in. OC. When the resilient channels (Item 6) are spaced 16 in. OC, the insulation shall be a max of 3-1/2 in. thick, and shall be secured against the subflooring with staples at 12 in. OC or held suspended in the concealed space with 0.090 in. diam galv steel wires attached to the wood trusses at 12 in. OC. When the resilient channels are spaced a max of 12 in. OC or when the Steel Framing Members (Item 6A) are used, there is no limit in the overall thickness of insulation, and the insulation can be secured against the subflooring, held suspended in the concealed space or draped over the resilient channels (or Steel Framing Members) and gypsum panel membrane. The finished rating has only been determined when the insulation is secured to the subflooring.

5A. **Loose Fill Material* —** (Optional) - As an alternate to Item 5, when the resilient channels (Item 6) are spaced a maximum of 12 in. OC, or when the Steel Framing Members (Item 6A) are used - Any loose fill material bearing the UL Classification Marking for Surface Burning Characteristics. There is no limit in the overall thickness of insulation. The finished rating when loose fill material is used has not been determined.

6. **Resilient Channels —** Formed from min 25 MSG galv steel installed perpendicular to trusses. When no insulation is installed in the concealed space resilient channles are spaced 24 in.. When the insulation (Item 5) is installed to the underside of the subfloor the resilient channels are spaced 16 in. OC. When insulation (Item 5 or 5A) is appied over the resilient channel/gypsum panel ceiling membrane, the resilient channel spacing shall be reduced to 12 in. OC. Channels secured to each truss with 1-1/4 in. long Type S bugle head steel screws. Channels overlapped 4 in. at splices. Two channels, spaced 6 in. OC, oriented opposite each gypsum panel end joint as shown in the above illustration. Additional channels shall extend min 6 in. beyond each side edge of panel.

6A. **Steel Framing Members* - (Not Shown) —** As an alternate to Item 6.

a. **Main Runners —** Nom 10 or 12 ft long, 15/16 in. or 1-1/2 in. wide face, spaced 4 ft OC perpendicular to trusses. Main runners hung a min of 2 in. from bottom chord of trusses with 12 SWG galv steel wire. Wires spaced max 48 in. OC.

b. **Cross tees or channels —** Cross tees, nom 4 ft long, 15/16 in. or 1-1/2 in. wide face, or cross channels, nom 4 ft long, 1-1/2 in. wide face, installed perpendicular to the main runners, spaced 16 in. OC. Additional cross tees or channels used at 8 in. from each side of butted panel end joints. The cross tees or channels may be riveted or screw-attached to the wall angle or channel to facilitate the ceiling installation.

c. **Wall angles or channels —** Min 0.016 in. thick painted or galvanized steel angle with 1 in. legs or channel with a 1 by 1 1/2 by 1 in. profile, attached to walls at perimeter of ceiling with fasteners 16 in. OC. Used to support steel framing member ends and for screw-attachment of the gypsum panels.

CGC INC — Type DGL, RX

USG INTERIORS LLC — Type DGL, RX

6B. **Steel Framing Members* —** (Not Shown) - As an alternate to Items 6 and 6A.

a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 12 in. OC perpendicular to wood structural members. Channels secured to trusses as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galv steel wire near each end of overlap.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to trusses (Item 2). Clips spaced 12 in. OC, RSIC-1 and RSIC-1 (2.75) clips secured to consecutive trusses with No. 8 by 2-1/2 in. course drywall screw through the center grommet. RSIC-V and RSIC-V (2.75) clips secured to consecutive trusses with No. 8 by 1-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item a. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7.

PAC INTERNATIONAL INC — Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75).

6C. **Steel Framing Members* —** (Not Shown) - As an alternate to Items 6, 6A and 6B.

a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-3/8 in. wide by 7/8 in. deep, spaced 12 in. OC perpendicular to trusses. When insulation (Item5 or 5A) is applied over the resilient channel/gypsum panel ceiling membrane, the resilient channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item 6Cb. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 AWG galvanized steel wire near each end of overlap.

b. **Steel Framing Members* —** Used to attach furring channels (Item 6Ca) to trusses (Item 2). Clips secured to the bottom chord of each truss (24 in. OC) with one No. 8 by 2-1/2 in. long coarse drywall screw through center grommet. Furring channels are friction fitted into clips. Adjoining channels are overlapped as described in Item 6Ca. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7.

PLITEQ INC — Type Genie Clip

6D. **Alternate Steel Framing Members —** (Not Shown)* - As an alternate to items 6, 6A, 6B and 6C, furring channels and Steel Framing Members as described below.

a. **Furring Channels —** Formed of No. 25 MSG galv steel, 2-5/8 in. wide by 7/8 in deep, spaced 24 in OC, perpendicular to trusses. When insulation (Item5 or 5A) is applied over the resilient channel/gypsum panel ceiling membrane, the resilient channel spacing shall be reduced to 12 in. OC. Channels secured to trusses as described in Item b.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to the trusses (Item 2). Clips spaced at 24" OC and secured to the bottom of the trusses with one No. 10 x 2-1/2 Coarse Drywall Screw through the center hole. Furring channels are then friction fitted into clips. Ends of channels are overlapped 6" and screwed with four No. 8 x 1/2 Self Drilling screws (2 per side 1 in. and 4 in. from overlap edge). Additional clips are required to hold the Gypsum Butt joints and side joints as described in Item 7.

STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237 or A237R

7. **Gypsum Board* —** Nom 5/8 in. thick, 48 in. wide gypsum panels. When resilient channels (Item 6) are used, gypsum panels installed with long dimension perpendicular to resilient channels. Gypsum panels secured with 1 in. long Type S bugle head steel screws spaced 12 in. OC and located a min of 1/2 in. from side joints and 3 in. from end joints. When insulation (Items 5 or 5A) is applied over the resilient channel/gypsum panel ceiling membrane the screw spacing shall be reduced to 8 in. OC. End joints secured to both resilient channels as shown in end joint detail. When **Steel Framing Members** (Item 6A) are used, gypsum panels installed with long dimension perpendicular to cross tees with side joints centered along main runners and end joints centered along cross tees. Panels fastened to cross tees with 1 in. long Type S bugle-head screws spaced 8 in. OC in the field and along end joints. Panels fastened to main runners with 1 in. long Type S bugle-head screws spaced midway between cross tees. Screws along sides and ends of panels spaced 3/8 to 1/2 in. from board edge. End joints of panels shall be staggered with spacing between joints on adjacent panels not less than 2 ft OC. When **Steel Framing Members** (Item 6B or 6C) are used, gypsum panels installed with long dimensions perpendicular to furring channels. Panels attached to the furring channels using 1 in. long Type S bugle-head steel screws spaced 8 in. OC along butted end joints and in the field of the panel. Butted end joints shall be staggered min. 2 ft within the assembly, and occur midway between the continuous furring channels. Each end of each gypsum panel shall be supported by a single length of furring channel equal to the width of the gypsum panel plus 6 in. on each end. The two support furring channels shall be spaced approximately 3-1/2 in. OC, and be attached to underside of the truss with one clip at each end of the channel. When **Steel Framing Members** (Item 6D) are used, one layer of nom 5/8 in. thick, 4 ft wide gypsum board is installed with long dimensions perpendicular to furring channels. Gypsum board secured to furring channels with nom 1 in. long Type S bugle-head steel screws spaced 8 in. OC in the field of the board. Gypsum board butted end joints shall be staggered minimum 72 in. At the gypsum board butt joints, each end of each gypsum board shall be supported by a single length of furring channel equal to the width of the gypsum board plus 3 in. on each end, spaced approximately 2 in. in from joint. Screw spacing along the gypsum board butt joint shall be 8 in. OC. Butt joint furring channels shall be attached with a RESILMOUNT Sound Isolation Clip secured to underside of every truss that is located over the butt joint. Over all Gypsum Board side joints, approximately 20 in. lengths of furring channel shall be installed parallel to trusses (Item 2) between main furring channels. Side joint furring channels shall be attached to underside of the truss with RESILMOUNT Sound Isolation Clips - located approximately 2 in. from each end of the approximate 20 in. length of channel. Both Gypsum Boards at side joints fastened into channel with screws spaced 8 in. OC, approximately 1/2 in. from joint edge.

CGC INC — Types C, IP-X2, IPC-AR

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR

USG MEXICO S A DE C V — Types C. IP-X2, IPC-AR

8. **Finishing System - (Not Shown) —** Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads. Nom 2 in. wide paper tape embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum board.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

FIRE RESISTANCE RATED ASSEMBLIES

PERMIT SET

STATE OF MISSOURI
M. RANDALL PORTER
A-2012006244
ARCHITECT
04 FEB 2021

M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS LLC.
Columbia, MO
P 573-256-7200

WALLACE ARCHITECTS, LLC
MISSOURI STATE CERTIFICATE OF AUTHORITY: 2003010614

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FLOOR-CEILING SYSTEMS, WOOD FRAMED

GA FILE NO. FC 5112 | **PROPRIETARY*** | **1 HOUR FIRE** | **50 to 54 STC SOUND**

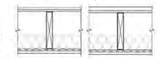
WOOD JOISTS, WOOD STRUCTURAL PANELS, GYPSUM FLOOR TOPPING, RESILIENT CHANNELS, GLASS OR MINERAL FIBER BATT OR LOOSE FILL INSULATION, GYPSUM WALLBOARD

One layer ⅝" proprietary type X gypsum wallboard or gypsum veneer base applied at *right* angles to resilient furring channels 24" o.c. (16" o.c. when batt insulation is used; 12" o.c. when loose fill insulation is used) with 1" Type S drywall screws 12" o.c. Gypsum board end joints located midway between continuous channels and attached with screws 8" to additional pieces of channel 60" long located 3" back on either side of end joint. Resilient channels applied at *right* angles to nominal 2 x 10 wood joists spaced a maximum of 24" o.c. with 1¼" Type S drywall screws. Glass or mineral fiber batt insulation stapled to subfloor or or loose fill insulation applied directly over gypsum board. Wood joists supporting ⅞sq" wood structural panel subfloor applied at *right* angles to joists with construction adhesive and 6d ring shank nails 12" o.c. Minimum ½" proprietary gypsum floor topping applied over subfloor.

STC and IIC rated with both joists and resilient channels spaced 16" o.c., 3½" glass fiber insulation in joist spaces, 1" proprietary gypsum floor topping poured over ¼" proprietary sound reduction mat, and with finish flooring of C&P, sheet vinyl, engineered wood laminate, and ceramic tile.

PROPRIETARY GYPSUM COMPONENTS

United States Gypsum Company
- ⅝" SHEETROCK® Brand FIRECODE® C Core Gypsum Panels
- LEVELROCK® Brand Floor Underlayment



Approx. Ceiling Weight: 3 psf
Fire Test: UL R1319, 05NK04589, 2-4-05; UL R1319, 05NK09486, 3-31-05; UL Design L569
Sound Test: RAL TL04-31 & 32, 2-11-04; RAL TL04-33 & 34, 2-22-04; RAL TL04-67, 3-19-04
IIC & Test: (51 generic sheet vinyl), RAL IN04-004, 4-22-04; (77 generic C&P) RAL IN04-005, 4-22-04; (54 cushion sheet vinyl) RAL IN04-006, 4-26-04; (55 engineered wood laminate) RAL IN04-007, 4-26-04; (52 ceramic tile) RAL IN04-009, 4-26-04

ROOF-CEILING SYSTEMS

GA FILE NO. RC 2602 | **GENERIC** | **1 HOUR FIRE**

WOOD TRUSSES, GYPSUM WALLBOARD

Base layer 5/8" type X gypsum wallboard applied at *right* angles to wood trusses 24" o.c. with 1 1/4" Type W or S drywall screws 24" o.c. **Face** layer 5/8" type X gypsum wallboard or gypsum veneer base applied at right angles to trusses with 1 7/8" Type W or S drywall screws 12" o.c. at joints and intermediate trusses and 1 1/2" Type G drywall screws 12" o.c. placed 2" back on either side of end joints. Joints offset 24" from base layer joints. Wood trusses supporting 1/2" wood structural panels applied at right angles to trusses with 8d nails. Appropriate roof covering.

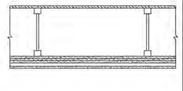
Approx. Ceiling Weight: 5 psf
Fire Test: FM FC 172, 2-25-72; ITS, 8-6-98

ROOF-CEILING SYSTEMS

GA FILE NO. RC 2750 | **GENERIC** | **2 HOUR FIRE**

GYPSUM WALLBOARD, RIGID FURRING CHANNELS WOOD JOISTS or WOOD I-JOISTS, ROOF COVERING

Base layer 5/8" type X gypsum wallboard applied at right angles to either 2 x 10 wood joists or 9 1/2" deep wood I-joists 24" o.c. with 1 1/4" Type W drywall screws 12" o.c. **Second** layer 5/8" type X gypsum wallboard applied at right angles to joists or I-joists with 2" Type W drywall screws 12" o.c. Second layer joints offset 24" from base layer joints. **Third** layer 5/8" type X gypsum wallboard applied at right angles to joists or I-joists with 2 1/2" Type W drywall screws 12" o.c. Third layer joints offset 12" from second layer joints. Hat-shaped rigid furring channels 24" o.c. applied at right angles to joists or I-joists over third layer with two 2 1/2" long Type W drywall screws at each joist or I-joist. **Face** layer 5/8" type X gypsum wallboard applied at right angles to furring channels with 1 1/8" Type S drywall screws 12" o.c. Wood joists or I-joists supporting 3/4" T & G edge plywood applied at right angles to joists or I-joists with 8d nails 6" o.c. at joints and 12" at intermediate joists or I-joists. Appropriate roof covering. **Ceiling provides two-hour fire-resistance protection for wood framing.**



Approx. Ceiling Weight: 12 psf
Fire Test: UL R4024, 00NK26545, 4-27-01, UL Design L556

CHASE WALLS, WOOD-FRAMED

GA FILE NO. WP 5520 | **GENERIC** | **2 HOUR FIRE** | **55 to 59 STC SOUND**

GYPSUM WALLBOARD, WOOD STUDS

Base layer 5/8" type X gypsum wallboard or gypsum veneer base applied at right angles to each side of double row of 2 x 4 wood studs 16" o.c. on separate plates 1" apart with 6d coated nails, 1 7/8" long, 0.085" shank, 1/4" heads, 24" o.c. **Face** layer 5/8" type X gypsum wallboard or gypsum veneer base applied at right angles to each side with 8d coated nails, 2 3/8" long, 0.100" shank, 1/4" heads, 8" o.c.

Joints staggered 16" each layer and side. Sound tested with 3 1/2" glass fiber insulation stapled fostuds in stud spaces on one side and with nails for base layer spaced 6" o.c. Horizontal bracing required at mid-height. **(LOAD-BEARING)**

Thickness: 10 3/4"
Approx. Weight: 13 psf
Fire Test: See WP 4135 (FM WP-360, 9-27-74)
Sound Test: NGC 3056, 4-7-70

FLOOR-CEILING SYSTEMS, WOOD-FRAMED

GA FILE NO. FC 5410 | **GENERIC** | **1 HOUR FIRE** | **35 to 39 STC SOUND**

WOOD JOISTS, GYPSUM WALLBOARD

One layer 1/2" type X gypsum wallboard or gypsum veneer base applied at right angles to 2 x 10 wood joists 16" o.c. with 5d nails, 1 5/8" long, 0.099 shank, 1/4" heads, 6" o.c. Nails placed 3/4" from board edge joints and 1/2" from board end joints. Wood joists supporting 1" nominal T & G wood subfloor and 1" nominal wood finish floor, or 19/32" plywood finished floor with long edges T & G and 15/32" interior plywood with exterior glue subfloor perpendicular to joists with joints staggered..

Approx. Ceiling Weight: 2 psf
Fire Test: UL R1319-66, 11-9-64, UL Design L512; UL R3501-45, 5-27-65, UL Design L522; UL R2717-38, 6-10-65, UL Design L503; UL R3543-6, 11-10-65, UL Design L519, ULC Design M502
Sound Test: NGC 4024, 7-13-66
IIC & Test: 32 (66 C & P) NGC 5032, 7-19-66

FIRE RESISTANCE RATED ASSEMBLIES

PERMIT SET

M. RANDALL PORTER
2012006244
ARCHITECT
STATE OF MISSOURI

04 FEB 2021
M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

Wallace ARCHITECTS L.L.C.
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WALLACE ARCHITECTS, LLC
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GENERAL FINISH NOTES

1)	CITY APPROVED NUMBERS OR ADDRESS IDENTIFICATION SHALL BE PROVIDED & INSTALLED BY THE CONTRACTOR. SIGNAGE IS TO BE PLAINLY VISIBLE & LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. EACH DWELLING UNIT SHALL BE IDENTIFIED AT THE MAIN ENTRY. NUMBERS SHALL BE 4" TALL MIN., MIN. STROKE OF 0.5" & SHALL BE OF CONTRASTING COLOR TO THE BACKGROUND.
2)	CONTRACTOR SHALL FURNISH ONE MAILBOX PER UNIT (SEE SPECS).
3)	CERTIFICATION OF R-49 CEILING INSULATION MUST BE POSTED IN ATTIC.
4)	PROVIDE CARPET EDGES AS NECESSARY, DESIGNATED BY "CE" (COLOR SELECTED BY OWNER).
5)	COAT AND BEDROOM CLOSETS SHALL HAVE EPOXY-COATED WIRE SHELVING.
6)	PRIME & PAINT WALLS BEHIND MILLWORK.
7)	STAIN & SEAL MILLWORK AS SPECIFIED.
8)	SUBMIT SAMPLES OF FLOOR TRANSITIONS FOR APPROVAL OF COLOR & TYPE.
9)	APPLY SILICONE CAULK BETWEEN CONCRETE AND BOTTOM OF THE DRYWALL.
10)	SEAL CONCRETE FLOOR TO REDUCE MOISTURE PENETRATION.
11)	APPROPRIATELY SIZED BLINDS SHALL BE PROVIDED AND INSTALLED FOR EACH GLAZED OPENING, INCLUDING PAIRED WINDOWS (PROVIDED WITH TWO SETS) AND DOOR GLAZING WHERE HALF LITE OR LARGER. 2" FAUX WOOD BLINDS (WHITE).
12)	IF ALTERNATE FLOORING IS SELECTED, ADDITIONAL TRANSITION STRIPS WILL BE REQUIRED.

ACCESSIBLE UNIT KITCHEN NOTES

1)	COUNTER HEIGHT SHALL BE 34" A.F.F. TO TOP OF SINK.
2)	EXTEND VINYL FLOORING BENEATH SINK SPACE AND THE 30" WORKSPACE. PROVIDE REMOVABLE FRONT & FLOOR IN LIEU OF SINK BASE.
3)	TOE KICK SPACE @ BOTTOM OF BASE CABINETS SHALL REMAIN 4" MIN. (STANDARD)
4)	ADD SEPARATE WALL SWITCHES FOR RANGE HOOD FAN AND RANGE HOOD LIGHT (SEE ELECTRICAL PLANS)
5)	TOP OF WALL TELEPHONE OUTLET TO BE 48" MAX. A.F.F.
6)	SWITCHES & OUTLETS IN KITCHEN ABOVE BASE CABINETS SHALL BE 39" A.F.F. TO BOTTOM OF SWITCH PLATE, SO AS NOT INTERFERE WITH WALL CABINET.
7)	INSULATE EXPOSED PIPING BELOW KITCHEN SINK W/ PIPE WRAP.
8)	DISHWASHER HOOKUPS ARE UNDER SINK, ACCESS OPENING IS TO BE MADE THROUGH END PANEL OF SINK.

ACCESSIBLE UNIT BATH NOTES

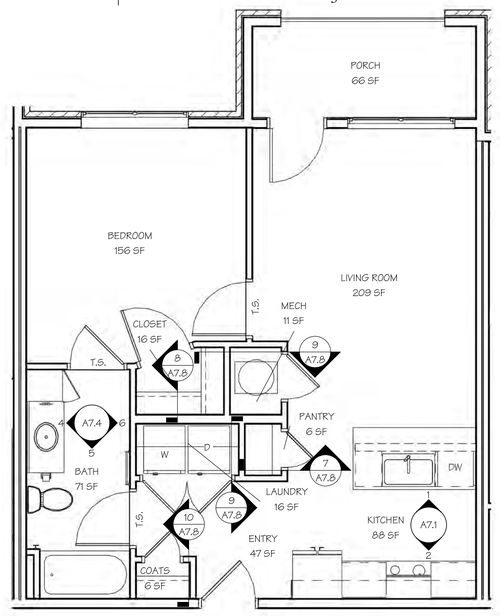
1)	PROVIDE HAND-HELD SHOWER W/VACUUM BREAKER (IN LIEU OF FIXED SHOWER HEAD), FLEXIBLE HOSE, & 24" SLIDE BAR.
2)	TUB/SHOWER VALVE CONTROL SO IT IS CENTERED 6" TO 16" FROM OUTER EDGE OF TUB/SHOWER, & 30" A.F.F. (LEVER TYPE CONTROL).
3)	INSTALL GRAB BARS WITH ROUND HEAD SCREWS.
4)	PROVIDE & INSTALL 36" GRAB BAR BEHIND @ 42" GRAB BAR BESIDE WATER CLOSET ON WALL @ 34" A.F.F. (SEE BATH ELEVATIONS SHEET A7.0)
5)	BOTTOM OF MIRROR TO REST ON COUNTERTOP BACKSPLASH.
6)	VANITY SINK FAUCET TO BE LEVER TYPE, & TRAP TO BE WRAPPED W/ PIPE WRAP.
7)	EXTEND VINYL FLOORING BENEATH LAV. SPACE.

COMMON AREA & UNIT FINISH SCHEDULE

Name	Floor Finish	Base Finish	Wall Finish	Ceiling Finish
BATH	PORCELAIN	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
BATH 1	PORCELAIN	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
BATH 2	PORCELAIN	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
BEDROOM	CARPET	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
CLOSET	CARPET	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
COATS	VINYL PLANK FLOORING	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
CORRIDOR	WALK OFF CARPET	4" COVE BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
DEN	CARPET	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
ENTRY	VINYL PLANK FLOORING	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
HALLWAY	VINYL PLANK FLOORING	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
I.T. ROOM	VINYL PLANK FLOORING	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
KITCHEN	VINYL PLANK FLOORING	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
LAUNDRY	VINYL PLANK FLOORING	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
LINEN	PORCELAIN	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
LIVING ROOM	VINYL PLANK FLOORING	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
MECH	VINYL PLANK FLOORING	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
MECH ROOM	VINYL PLANK FLOORING	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
PANTRY	VINYL PLANK FLOORING	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
PORCH	SEALED CONCRETE	NO ADDITIONAL FINISH	NO ADDITIONAL FINISH	NO ADDITIONAL FINISH
SPRINKLER ROOM	SEALED CONCRETE	NO ADDITIONAL FINISH	PAINTED GYP. BOARD	PAINTED GYP. BOARD
STAIRS	RUBBER STAIR TREAD & RISER @ STEPS, WALK OFF CARPET @ FLOORS.	4" COVE BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD
STORAGE	VINYL PLANK FLOORING	WOOD BASE	PAINTED GYP. BOARD	PAINTED GYP. BOARD

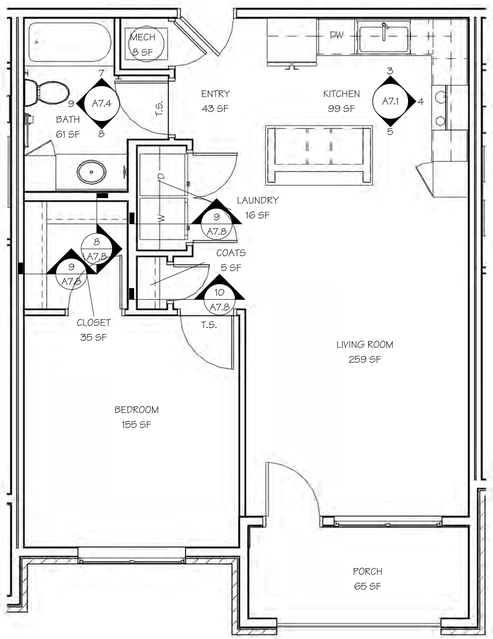
NOTE: 6" TILE BAND TO BE INLAID INTO BATH/SHOWER SURROUND

NOTE: COMMON AREAS DETAILED ON SHEETS A1.0-A1.4



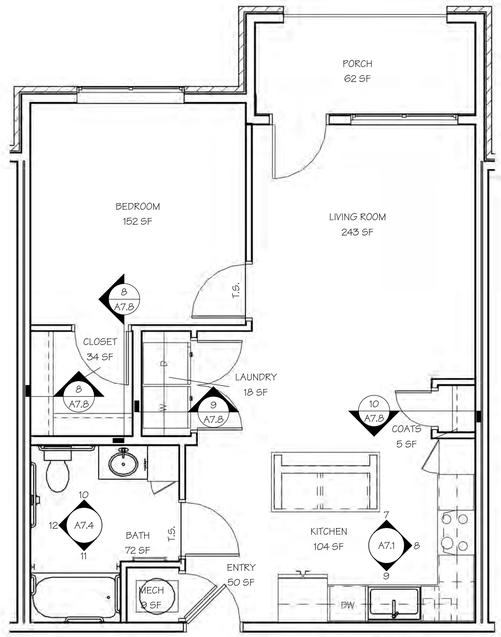
1 A6.0 UNIT 11A FINISH PLAN

SCALE: 1/4" = 1'-0"



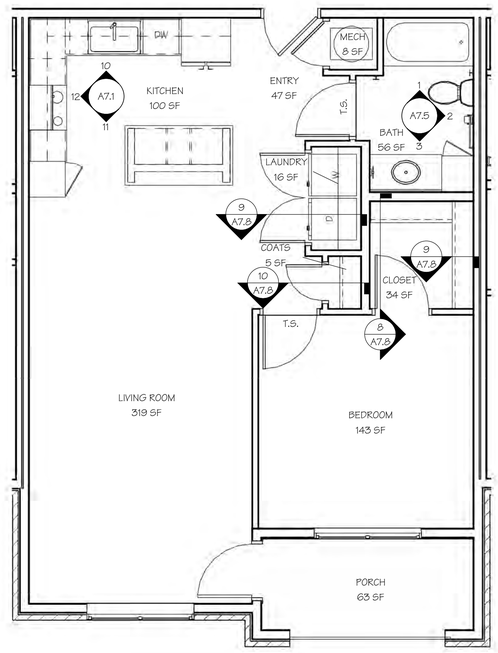
2 A6.0 UNIT 11B FINISH PLAN

SCALE: 1/4" = 1'-0"



3 A6.0 UNIT 11B ACC FINISH PLAN

SCALE: 1/4" = 1'-0"



4 A6.0 UNIT 11C FINISH PLAN

SCALE: 1/4" = 1'-0"

UNITS 11A, 11B, 11B ACC & 11C FINISH PLANS

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M. RANDALL PORTER
2012006244
STATE OF MISSOURI
ARCHITECT
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M. RANDALL PORTER
A-2012006244

ARIA APARTMENTS LEE'S SUMMIT
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