TENTATIVE AGENDA
MARCH 11, 2026 6:00 P.M.
ARCHITECTURAL REVIEW BOARD

I. MEETING CALLED TO ORDER

II. ROLL CALL

III. APPROVAL OF MINUTES: FEBRUARY 11, 2026

IV. REVIEW OF PLANS FOR AN ADDITION, MARK AND ANN PRATT, 41 BERRY OAKS LANE

V. REVIEW OF PLANS FOR A NEW HOME, JEFF BRINKMANN, 810 BROWNELL AVENUE

VI. REVIEW OF PLANS FOR A NEW HOME, JOHN SCHARF, 5 HILLARD ROAD

VII. MISCELLANEOUS

VIII. ADJOURNMENT

_____

Gabrielle Macaluso
Community Engagement Officer

POSTED: __, 2026

MINUTES
ARCHITECTURAL REVIEW BOARD MEETING
February 11, 2026 – 6:00 p.m.

CALL TO ORDER

A meeting of the Architectural Review Board (ARB) of the City of Glendale was held on Wednesday, February 11, 2026. Chairman Fernhoff presided and called the meeting to order at 6:00 p.m.

ROLL CALL

Members Present	Members Absent
Chairman Fernhoff	
Jon Emert	
Laura Switzer	
Mike Moran	
Reed Voorhees	
John Falk	
Brad Weitekamp	

Also present was Gabby Wesche, Community Engagement Officer.

APPROVAL OF MINUTES

Mr. Moran moved to approve the minutes from the January 14, 2026 meeting with changes as suggested by Mr. Moran and distributed to the Board by email. The motion was seconded by Mr. Weitekamp and unanimously carried.

PRELIMINARY REVIEW OF PLANS FOR A NEW HOME – Benchmark Homes, 810 Brownell Ave.

Chairman Fernhoff introduced the project at 810 Brownell Ave. and invited the applicant to present the project. The project's builder, Benchmark Homes, had two representatives in attendance—Project Manager, Jeff Brinkman, and Director of Operations, Sydney Rasch.

The Board discussed with the applicant the project being slightly over the maximum Floor Area Ratio (FAR) of 0.30. The applicant stated that the additional square footage, bringing the FAR to 0.326 was necessary to make the living space economical and efficient. They noted that it was difficult to build a home that meets market demands on such a small lot while also complying with the FAR.

The Board asked if the applicant considered renovating the home rather than demolishing and rebuilding, and the applicant said yes, but the work needed was too extensive.

The Board noted that they would not reject a proposed project based solely on a small exceedance of the FAR, given the challenges of building on a small lot. They requested that the applicant consider reducing the size of closets and making other small adjustments to bring the home into compliance with the FAR limitation.

The applicant noted that they would add a detached garage on the rear of the property since there is a rear yard access from Venneman Alley.

Mr. Emert expressed concerns that the front of the proposed new house does not align with the houses on either side of it. He asked for confirmation that the new house was proposed to be located closer to the street than the current house.

The applicant confirmed that the proposed house has been pushed closer to the street in order to provide more space in the backyard.

Drainage and Landscaping

Mr. Falk noted that the ARB requires hydraulic stormwater calculations and that the applicant will need to capture the entire roof area and treat it. He noted that it's usually handled by a "Flow-well" or some other underground detention structure.

The Board noted that a landscaping plan will be required when the project undergoes its official ARB review. Mr. Weitekamp explained that the landscaping plan must include and be consistent with all utility locations.

Ms. Switzer asked if there is a retaining wall on the property. The applicant noted that the wall is on the neighbor's property. They noted that the elevations marked on the plan for the neighboring two-story home are incorrect. The applicant noted that they intend to build the new home one foot higher than the existing home to address the height differences with adjoining properties.

The applicant also said that they will preserve the natural swale between 810 Brownell and the house immediately west of it.

The Board expressed the importance of managing stormwater runoff from the property to avoid creating issues for properties of a lower elevation.

Architecture

Mr. Moran expressed concerns about the squareness of the design. He asked them to consider designing a house that is narrower and extends further back into the lot.

Ms. Switzer said she isn't concerned about the square design of the home and understands the applicant's desire to maximize space in the backyard.

Mr. Voorhees also did not object to the square design and understands that the maximum FAR is too low for the small lots common on Brownell Ave., although he noted that the proposed home looks boxy.

Mr. Voorhees expressed concerns regarding the proposed home's massing and would like the home to have more of the character details and windows that are common in/on the homes on Brownell Ave. He noted that this would make the house feel less boxy, reduce the flatness on the home's side elevations, and enable the home to feel more in keeping with the character of the street.

All ARB members shared concerns about the side elevations being too flat and lacking details such as windows, trim board or other materials to scale the side. The ARB expressed concern about the limited use of brick on only the façade of the home and recommended extending the same materials and visual interest on the home's side elevations. Additionally, the Board disliked the "doghouse" design for the chimney.

There was no public comment regarding the project.

ADJOURN

Mr. Moran moved to adjourn the meeting at 6:55 p.m. The motion was seconded by Ms. Switzer and unanimously carried to adjourn the meeting.

CITY OF Glendale
424 N. Sappington Road Glendale, Missouri 63122 (314) 965-3600 fax (314) 965-4772

APPLICATION FOR ARCHITECTURAL REVIEW BOARD

APPLICATION DATE 12/22/25 DATE OF ARB MEETING 1/14/26 ESTIMATED COST 950k

PROJECT ADDRESS 41 BERRY OAKS LANE GLENDALE, MO 63122

NAME OF PROPERTY OWNER MARK & ANN PRATT PHONE NUMBER (314) 283-6059

CONTRACTOR (NAME) TBD PHONE NUMBER _____

CONTRACTOR ADDRESS _____

ARCHITECT (NAME) MAX BEMBERG PHONE NUMBER (314) 626-3230

ARCHITECT ADDRESS 3901 Shenandoah Ave, St. Louis, MO 63110

DETAILED DESCRIPTION OF WORK BEING PROPOSED: NEW 2ND STORY ADDITION AND REAR YARD, SINGLE STORY ADDITION. EXPAND EXIST. DRIVEWAY. INTERIOR REMODEL

FLOOR AREA RATIO 0.29 (FAR = Gross Floor Area divided by total area of lot. Gross Floor Area includes all areas provided with heat and/or air conditioning. Includes all conditioned half stories with ceiling heights of more than 5 feet. All living space with ceiling heights of sixteen (16) feet or greater shall be counted at 200%. Attached garages shall be counted at 50%. Exclude any finished or unfinished basement, a detached garage, and any unenclosed porch).

TOTAL FLOOR AREA OF NEW CONSTRUCTION (SQ. FT.) 2897 sf

TOTAL FLOOR AREA OF EXISTING STRUCTURE (SQ. FT.) 2350 sf + 621 sf garage

TOTAL SQ. FT. OF LOT 17,865 sf WIDTH AND DEPTH OF LOT (FT.) 161'X110.24'

HEIGHT OF STRUCTURE 27'-4" NUMBER OF STORIES 2

ESTIMATED COMMENCE DATE 4/1/26 EST. COMPLETION DATE 4/1/27

Each application shall be accompanied with payment of a fee as follows:

Addition or Accessory Structure:	**$150.00**
New Home:	**$200.00**

(SEE REVERSE SIDE FOR APPLICATION CHECKLIST)

Applications must include 7 copies of all the following items (11x17 size paper is acceptable). Electronic PDF copies must also be submitted, either by email to permits@glendalemo.org or on a USB Flash Drive. Packets are due no later than 5:00 p.m. 20 days prior to the scheduled ARB meeting. Please check each item included. The complete ARB Guidelines may be viewed on the City's website.

Applications for additions to existing homes must include the following content unless specific requirements are shown by the applicant to be not applicable to the proposed project and are modified or waived by the City Administrator.

Please ensure that all required items are included with your submission and that all plans have the required detail. If revisions or additional information are necessary, your submission will be held over to the following ARB meeting.

1. **Existing Conditions Site Survey**. Show all site conditions, paved areas, trees and landscaping, and servicing utilities on the subject property. Note the first-floor elevation of existing buildings. 1" = 20" minimum scale.

2. **Site Demolition Plan**. This may be incorporated into the Existing Conditions Plan, if the drawing is presented legibly. 1" = 20" minimum scale.

3. **Proposed Site Plan -- Geometrics.** 1" = 10' minimum scale. Show all:
    - Site improvements, existing-to-remain and proposed. Include buildings, walls, retaining walls, patios, pavement, walks and ground-based equipment. Provide key setting out dimensions. Dimension proposed buildings and structures to the property line. Label materials for paving/walks.
    - Adjacent neighbor properties to each side and rear of the subject property. Include the full site for side adjoining parcels. Show rear adjoining parcels to the extent of building facades on the rear neighbor's lot. Adjoining property geometrics do not need to be surveyed and can be created using St. Louis County GIS data or online mapping tools.
    - Property boundaries, setbacks, easements, and right-of-way lines.
    - Proposed site servicing utility lines and physical utility items.
    - Existing and proposed trees

4. **Proposed Site Plan – Grading and Drainage**. May be presented as a separate plan or combined with above, provided that geometrics graphics are used as background. 1" = 10' minimum scale. Show all:
    - Existing and proposed contours with 1' contour interval.
    - Downspout locations serving roof areas of the proposed buildings. Show how downspout drainage flow is collected and piped/conveyed to discharge points. Include over-land drainage discharge patterns, drainage swales, detention basins, and flow direction. Coordinate with the architectural plans and elevations.
    - Drainage detention structures and their overflow discharge points. Show all piping into drainage detention structures.
    - Erosion control measures and tree protection barriers.
    - Drainage differential discharge calculations showing the engineered basis of pre- and post-development stormwater flow off of the site. No development shall result in an increase of stormwater discharge volume from the site.

☑ 5. **Architectural Floor Plan**. 1/4" = 1' minimum scale. Show all levels, including finished/ unfinished basements and detached structures. Fully dimension and indicate functions for all rooms. Include a roof plan accurately showing geometry, slopes, gutters and downspouts and coordinate with Site Grading and Drainage Plan. Limit size reductions to not more than 50%.

☑ 6. **Pervious and Impervious Area Coverage Plan**. Illustrate all impervious improvements and diagram the impervious areas in comparison to pervious areas. Indicate types of site area coverage by shading and/or patterns with a legend of materials. Measure and show in a schedule areas of each type of coverage. Provide calculations of pervious and impervious areas and the ratio of impervious coverage.

NA 7. **Landscape Plan**. 1/8" = 1' minimum scale. Use the Site Geometric Plan as background. The landscape planting plan should include:

- Current information from the site development plan, including existing/proposed grades and all buildings/structures.
- Location of all lot lines, building setbacks, and easements as depicted on the site development plan.
- Graphic legend depicting existing vegetation and proposed conditions.
- Location of all improvements (walks, patios, driveways, retaining walls, etc.)
- Location of all existing and proposed utilities and sewers.
- Graphic depiction of all existing trees, including location, types and caliper inch.
- Graphic depiction of the accurate drip line canopy showing the critical root zone.
- Tabulation of all existing trees to be saved, removed or impacted.
- Graphic depiction, plant schedule and planting details of all proposed trees, landscape plantings, shrubs, lawn areas, and groundcovers. Botanical and common names should be listed on plans.
- Graphic depiction indicating limits of ground disturbance and all associated areas of lawn to be seeded or sodded upon project completion.

NA 8. **Arborist Report**. The arborist report should include Tree Protection Plan (TPP) with the following information:

- Project title or name, owner name, and firm name or individual who prepared the plan.
- Scaled based plan using the site development plan depicting line of disturbance, existing/ proposed grades, location of all improvements, existing/proposed utilities and sewers.
- Graphic depiction of all existing trees to remain and to be removed including location, types and Diameter Breast Height (DBH) size of 6" or greater.
- Graphic depiction of the accurate drip line canopy showing the extent of the Critical Root Zones and Structural Root Zones.
- Graphic depiction of proposed Tree Protection Zones and tree protection fencing.
- Identification of any areas of invasive plants recommended for removal.
- Tree Report Summary with the common and scientific name of the tree and the DBH at 4.5' above grade; comments on the vitality, structure and form of the tree; tree number (to correspond with the TPP); assessment of value/significance and recommended action to be taken; and reason for proposing removal or trimming of the tree.

☑ 9. **FAR Illustration Plan**. 1/8" = 1' minimum scale. Present a diagrammatic illustration of the plan areas as measured in CAD-based takeoff or as calculated by dimensions. Note the measured or calculated area of each floor plan level, show the boundary of each measured area graphically,

and indicate how each area is assessed for FAR. Account for all floor areas and classify (i.e. conditioned space, enclosed porches, attached or detached garage, two-story living space, etc.).

☑ 10. **Color Photos of Adjoining Properties**. Color photos of existing and neighboring properties. Include rear yard and neighboring rear yards.

☑ 11. **Aerial Photo Plan**. Submit an illustration compositing the proposed development with buildings shaded black and pavements shaded grey, superimposed to scale onto an aerial photo image showing the project Street in its entirety.

☑ 12. **Composite Street Elevation**. ¼" = 1' minimum scale. Provide a colored elevation of the street façade superimposed on a photographic montage showing the adjoining neighbors to each side of the property. The exhibit must accurately depict the proposed design and the first-floor level in relation to the neighboring houses.

☑ 13. **Building Elevations**. Minimum ¼" = 1' scale. Reduced size exhibits limited to not more than 50 percent. Provide building elevations of all principal facades and detached structures with building materials noted. Accurately show the line of grade, as defined in the ARB guidelines, and coordinate with the Grading Plan. Note basements as a Story Below Grade or a Building Story, and show the roof height on each elevation, as defined in the ARB guidelines.

☑ 14. **Colored Illustration**. Provide a 3-dimensional rendering or a colored building elevation of the principal street façade. For additions, illustrate the most prominent façade whether side or rear.

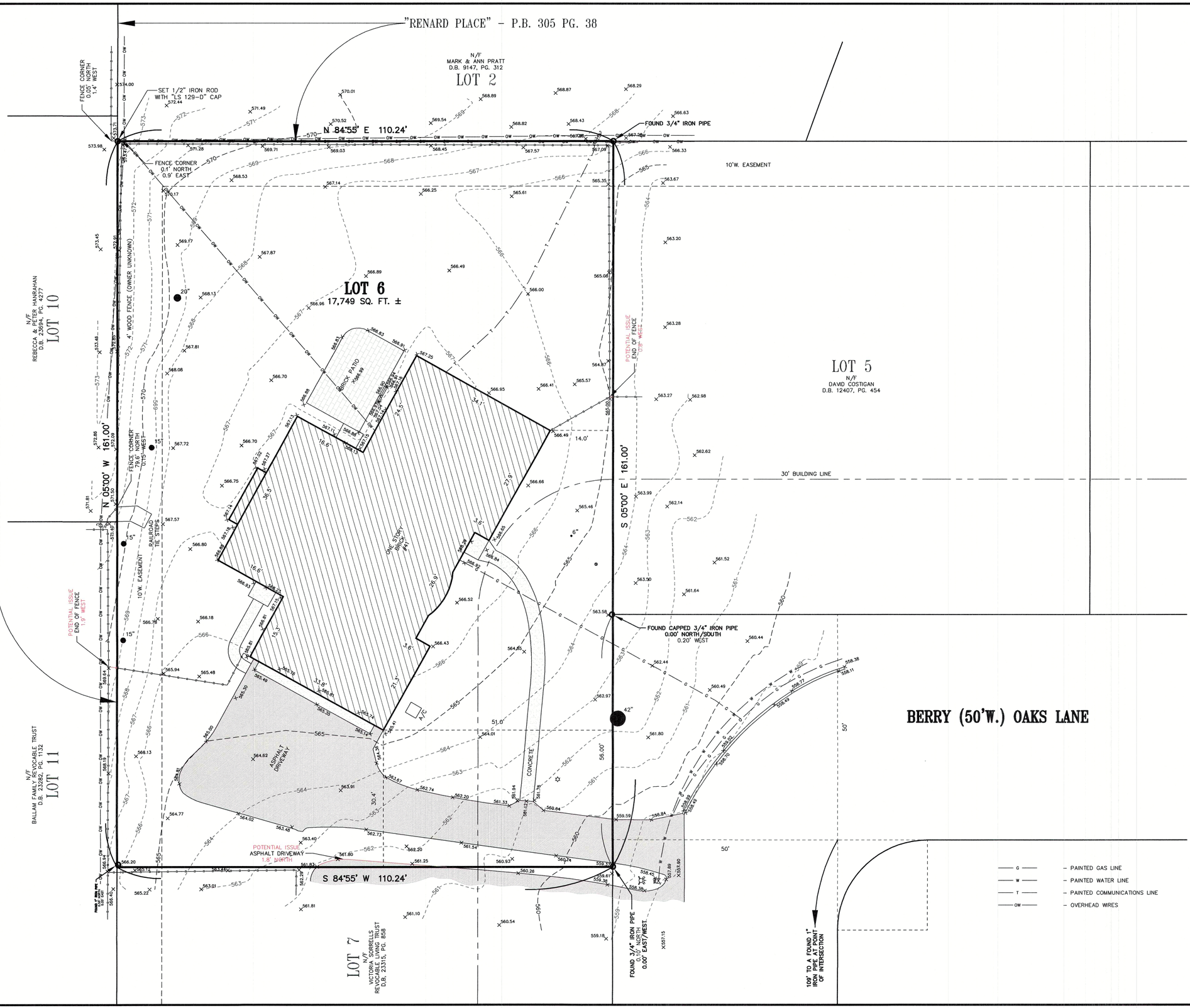
☐ 15. **Materials and Samples**. Applicants are required to bring physical samples of the building materials to the ARB meeting.

SIGNATURE OF APPLICANT

12/22/25

DATE

PROPERTY BOUNDARY SURVEY



GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

Alliant National Title Insurance Company, Inc. – Commitment Number: 25LT04031 Dated: May 20, 2025

BENCHMARK: Based on G.P.S. Observation

The location of existing underground facilities, structures and utilities, if and when shown, have been plotted from available surveys and records and do not necessarily reflect the actual existence, nonexistence, size, type, number or location, therefore these locations must be considered approximate. There may be others, the existence of which is presently not known. The contractor shall be responsible for verifying the actual location of all utilities, shown or not shown, and said utilities shall be located in the field prior to any project construction.

This is to certify to the best of my belief, knowledge and ability, that **James Surveying Company**, at the request of **Christian Roberts**, on the **3rd day of June, 2025 and the 15th day of December, 2025**, executed a Property Boundary Survey, based on field information obtained from field personnel under my direct personal supervision, and located the improvements on **Lot 6 of BERRY OAKS SUBD., according to the plat thereof recorded in Plat Book 43, Page 62 of the St. Louis County Records in St. Louis County, Missouri**, and that the results of said survey is represented upon this plat. The Bearing Reference System, Building Lines and Easements, unless otherwise referenced, were taken from the Record Plat, the current Zoning Set Backs may not be shown.

I also declare that under my supervision and to the best of my ability and professional judgment that the results shown hereon are made in accordance with the Missouri Standards for Property Boundary Surveys as set forth by the Missouri Department of Agriculture, Division of Geology and Land Survey and rules promulgated by the Missouri Board for Architects, Professional Engineers, Professional Land Surveyors and Landscape Architects, Urban Class Survey. **This Survey is non-transferable.**

12/19/2025

STATE OF MISSOURI
LEO J. KLUTHO
NUMBER PLS-2005019212
PROFESSIONAL LAND SURVEYOR

Leo J. Klutho
Professional Land Surveyor In Responsible Charge
Missouri Registration Number PLS-2005019212
EXPIRES: DECEMBER 31, 2025

PROPERTY BOUNDARY SURVEY

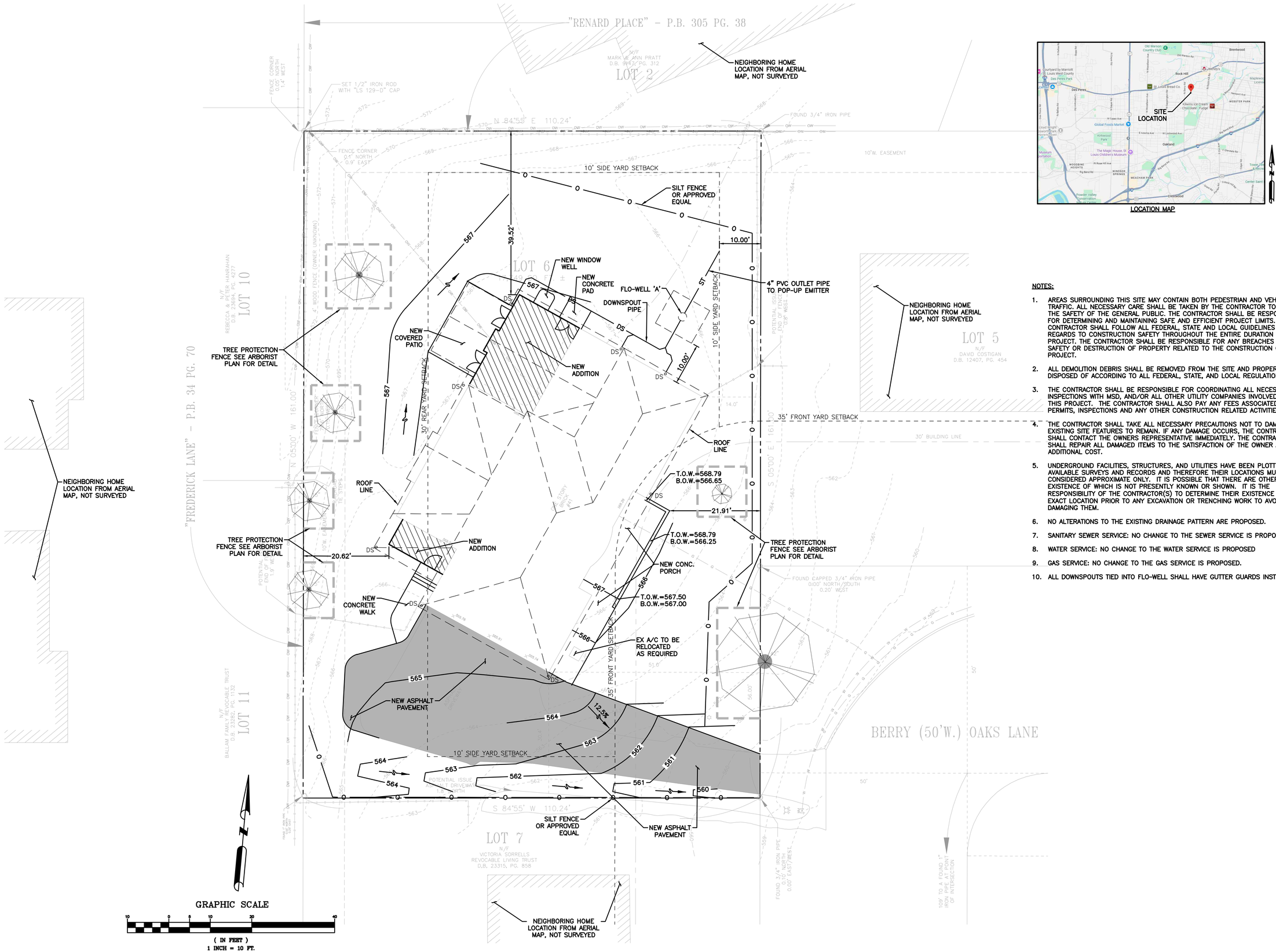
James Surveying Company
Professional Land Surveying Corporation
Original Certificate/License No. 000129

Project Address: 41 Berry Oaks Lane
Glendale, MO
63122

REV.	DATE	BY	DESCRIPTION

FLD. C.W. DES. | PROJECT NUMBER 217296-A
DRW. L.J.K. CHK. L.J.K. | SCALE: 1" = 10'
DATE PREPARED: DECEMBER 19, 2025 | SHEET 1 OF 1

JAMES SURVEYING COMPANY
LAND SURVEYORS
10811 BIG BEND BOULEVARD KIRKWOOD, MO. 63122
PHONE: (314) 822-1006 FAX: (314) 822-0006



LOCATION MAP

NOTES:

1. AREAS SURROUNDING THIS SITE MAY CONTAIN BOTH PEDESTRIAN AND VEHICLE TRAFFIC. ALL NECESSARY CARE SHALL BE TAKEN BY THE CONTRACTOR TO ENSURE THE SAFETY OF THE GENERAL PUBLIC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND MAINTAINING SAFE AND EFFICIENT PROJECT LIMITS. THE CONTRACTOR SHALL FOLLOW ALL FEDERAL, STATE AND LOCAL GUIDELINES WITH REGARDS TO CONSTRUCTION SAFETY THROUGHOUT THE ENTIRE DURATION OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY BREACHES OF SAFETY OR DESTRUCTION OF PROPERTY RELATED TO THE CONSTRUCTION OF THIS PROJECT.
2. ALL DEMOLITION DEBRIS SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF ACCORDING TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL NECESSARY INSPECTIONS WITH MSD, AND/OR ALL OTHER UTILITY COMPANIES INVOLVED WITH THIS PROJECT. THE CONTRACTOR SHALL ALSO PAY ANY FEES ASSOCIATED WITH PERMITS, INSPECTIONS AND ANY OTHER CONSTRUCTION RELATED ACTIVITIES
4. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS NOT TO DAMAGE ANY EXISTING SITE FEATURES TO REMAIN. IF ANY DAMAGE OCCURS, THE CONTRACTOR SHALL CONTACT THE OWNERS REPRESENTATIVE IMMEDIATELY. THE CONTRACTOR SHALL REPAIR ALL DAMAGED ITEMS TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.
5. UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THAT THERE ARE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN OR SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR(S) TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION PRIOR TO ANY EXCAVATION OR TRENCHING WORK TO AVOID DAMAGING THEM.
6. NO ALTERATIONS TO THE EXISTING DRAINAGE PATTERN ARE PROPOSED.
7. SANITARY SEWER SERVICE: NO CHANGE TO THE SEWER SERVICE IS PROPOSED.
8. WATER SERVICE: NO CHANGE TO THE WATER SERVICE IS PROPOSED
9. GAS SERVICE: NO CHANGE TO THE GAS SERVICE IS PROPOSED.
10. ALL DOWNSPOUTS TIED INTO FLO-WELL SHALL HAVE GUTTER GUARDS INSTALLED

MB Engineering, Inc.
606 Ryan Dr.
Energy, IL 62933
(314) 368-3040

STATE OF MISSOURI
MICHAEL A. BUESCHER
NUMBER E-2001018714
REGISTERED PROFESSIONAL ENGINEER
2/9/26

Michael A. Buescher, P.E. Civil Engineering
Missouri P.E. E-2001018714

MB Engineering, Inc. Missouri Authority No. E-2015041404

The Professional Engineer's seal affixed to this sheet indicates that the named Engineer has prepared or directed the preparation of the material shown only on this sheet. Other drawings and documents not exhibiting this seal shall not be considered prepared by or the responsibility of the undersigned.

PROJECT REVISION:

NO:	DATE:	DESCRIPTION:
1	12-31-25	FOR REVIEW
2	01-08-26	CITY COMMENTS
3	02-09-26	CITY COMMENTS

41 Berry Oaks Ln.
Glendale, MO 63122

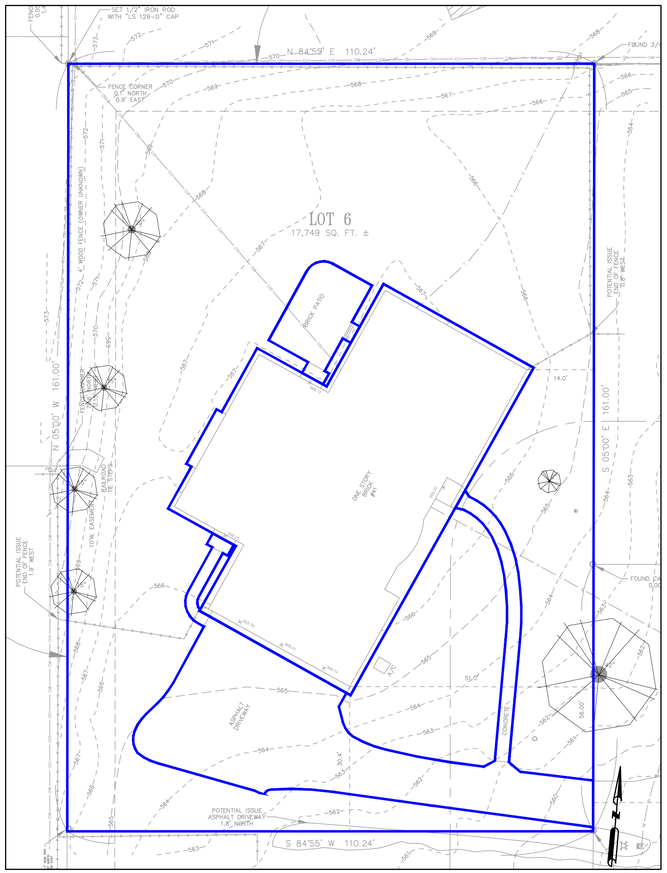
Plans are prepared for:
Bemberg Architecture
8001 Clayton Rd.
Clayton, MO 63117
(314)626-3030

DATE: 12-31-25
DRAFTED BY: KB
APPRVD. BY: MB

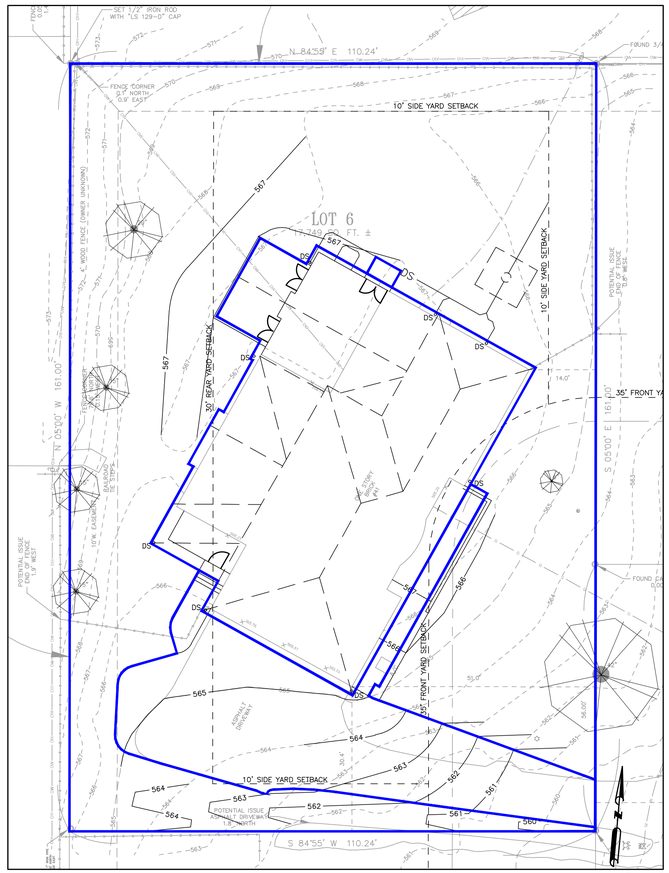
SHEET TITLE:
SITE PLAN

SHEET NUMBER:
C1

PROJECT NO: 25-1118



SCALE: 1"=15'



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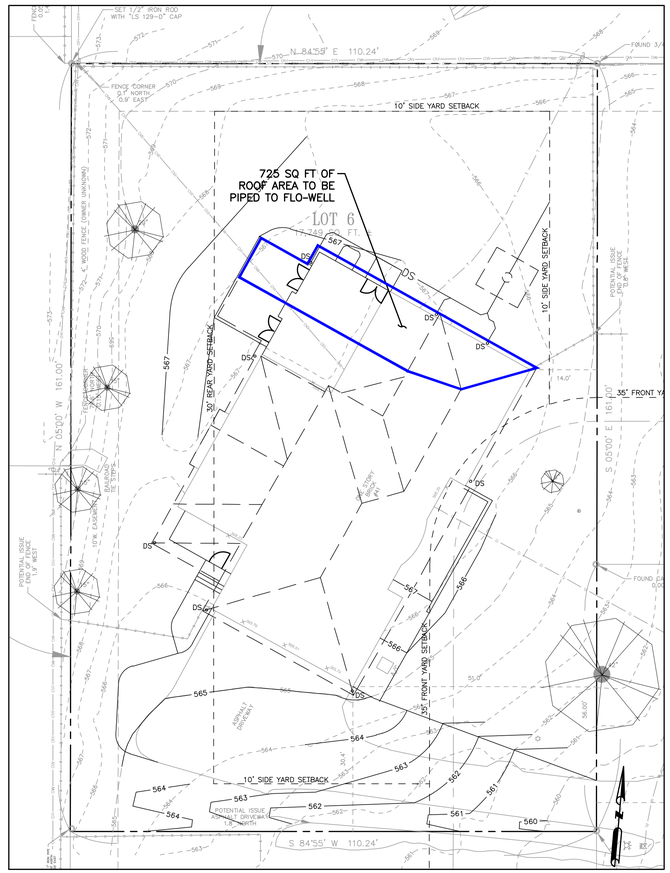

SCALE: 1"=15'

EXISTING AREA

	AREA (SF)	COVERAGE	ACRES	PI	CFS
ROOF	3,490.38	19.67%	0.080	4.20	0.337
POOL	0.00	0.00%	0.000	3.54	0.000
PAVEMENT	2,143.86	12.08%	0.049	3.54	0.174
LAWN	12114.39	68.26%	0.278	1.70	0.473
TOTALS	17,748.63	100.00%	0.407		0.984

PROPOSED AREA

	AREA (SF)	COVERAGE	ACRES	PI	CFS
ROOF	4,244.66	23.92%	0.097	4.20	0.409
POOL	0.00	0.00%	0.000	3.54	0.000
PAVEMENT	2,396.90	13.50%	0.055	3.54	0.195
LAWN	11,107.07	62.58%	0.255	1.70	0.433
TOTALS	17,748.63	100.00%	0.407		1.038

0.054 CFS OF ADDITIONAL RUNOFF WILL NEED TO BE MITIGATED
0.054 / 3.54 * 43,560 = 664.47 SQ FT MIN IMPERVIOUS AREA NEEDS TO BE COLLECTED

725 SQ FT OF IMPERVIOUS AREA WILL BE COLLECTED

CONTRIBUTING DRAINAGE AREA = 725 S.F.
IMPERVIOUS COVER (I) = 100%
Rv = 0.05 + 0.009 x 100% = 0.950

WQv = (Pc Rv x A)/12 = (2.5" x 0.95 x 725)/12 = 143.49 C.F.

VOLUME OF STORM WATER STORAGE
ASSUMING 40% POROSITY = 358.73 CF OF ROCK IS REQUIRED
USING A 4 FOOT ROCK DEPTH = 89.68 SQ. FT.
9 x 10 = 90 SQ. FT.

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Energy, IL 62933
(314) 368-3040

STATE OF MISSOURI
MICHAEL A. BUESCHER
NUMBER E-2001018714
REGISTERED PROFESSIONAL ENGINEER
2/9/26

Michael A. Buescher, P.E. Civil Engineering
Missouri P.E. E-2001018714

MB Engineering, Inc. Missouri Authority No. E-2015041404

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41 Berry Oaks Ln.

Glendale, MO 63122

Plans are prepared for:
Bemberg Architecture
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Clayton, MO 63117
(314)626-3030

DATE: 12-31-25
DRAFTED BY: KB
APPRVD. BY: MB

SHEET TITLE:
DRAINAGE AREA MAP

SHEET NUMBER:
C2

PROJECT NO: 25-1118

SILT FENCE

PHYSICAL DESCRIPTION - Silt fences are used as temporary perimeter controls, appropriate to the BMP, at sites where construction activities will disturb the soil. They can also be used on the interior of the site. A silt fence consists of a length of filter fabric stretched between anchoring posts spaced at regular intervals along the site at low and down slope areas. The filter fabric should be entrenched in the ground. When installed correctly and inspected frequently, silt fence can be an effective barrier to silt leaving the site in storm water runoff.

WHERE BMP IS TO BE INSTALLED - Silt fences apply to construction sites with relatively small drainage areas. They are appropriate in areas where runoff will occur as low-level flow, not exceeding 0.5 c.f.s. The drainage area for silt fences should not exceed 0.25 acre per 100-foot fence length (100 square feet per foot of fence). The slope length above the fence should not exceed 100 feet (NAHB, 1995). The fence should be designed to withstand the runoff from a 10-year peak storm event.

CONDITIONS FOR EFFECTIVE USE OF BMP - Spacing of parallel lengths of silt fence along slopes is relative to slope steepness as follows:

Type of Flow:	Sheet flow only.
Contributing Slope Length:	30 foot maximum for 3:1 slopes. 50 foot maximum for slopes between 3:1 and 10:1. 100 foot maximum for slopes under 10%.

For additional information see Section 806.70 of St. Louis County's Standard Specification for Highway Construction.

WHEN BMP IS TO BE INSTALLED - Prior to disturbance of natural vegetation and at intervals during construction of fill slopes. Install on the perimeter of the site (where storm water exits the site) prior to disturbance of natural vegetation, around material stock piles and interior to the site along slopes, at the base of slopes and at intervals during construction of slopes.

INSTALLATION / CONSTRUCTION PROCEDURES

- ✓ Drive post for fence line.
- ✓ Dig trench to required dimensions in front of posts for fabric burial.
- ✓ Attach wire mesh to posts.
- ✓ Attach fabric to posts, allowing required length below ground level to run fabric along bottom of trench
- ✓ Backfill and compact soil in trench to protect and anchor fabric.

If a standard-strength fabric is used, it can be reinforced with wire mesh behind the filter fabric. This increases the effective life of the fence. The maximum life expectancy for synthetic fabric silt fences is about 6 months, depending on the amount of rainfall and runoff.

The stakes used to anchor the filter fabric should be wood or metal. Wooden stakes should have minimum dimensions of 2 by 2 inches if a hardwood like oak is used. Stakes from soft woods like No. 2 Southern Pine, should have minimum dimensions of 4 by 4 inches. When using steel (standard U, T, L or C shape sections) posts in place of wooden stakes, they should weigh no less than 1.0 lb/linear foot. If metal posts are used, attachment points are needed for fastening the filter fabric with wire ties. Posts should be least 5 feet long and driven or placed at a slight upstream angle into the ground to a

minimum depth of 18 inches. Depth shall be increased to a minimum of 22 inches if fence is placed on a slope of 3:1 or greater. When the post embedment depth is impossible to obtain, the posts shall be adequately secured to prevent overturning of the fence due to sediment loading.

Erect silt fence in a continuous fashion from a single roll of fabric to eliminate gaps in the fence. If a continuous roll of fabric is not available, overlap the fabric from both directions only at stakes or posts. Overlap at least 6 inches.

The Geosynthetic filter fabric and wire mesh (when applicable) shall be no less than 30 inches above ground and are stapled or wired to the upslope side of the post. Staples should be a 17-gauge wire and ½ inch long. Excavate a trench to bury the bottom of the fabric fence in a "J" configuration at least 6 inches below the ground surface. The trench shall be backfilled with native soil and the soil compacted over the geotextile. This helps to prevent gaps from forming near the ground surface. Gaps would make the fencing useless as a sediment barrier.

The height of the fence posts should be 38 (22-inch embedment) to 42 (18-inch embedment) inches above the original ground surface. If standard-strength fabric is used with 14-gauge steel wire with a mesh spacing of 6 inches by 6 inches (or a prefabricated polymeric mesh of equivalent strength), space the posts no more than 4 feet apart. If extra-strength fabric is used without wire mesh reinforcement, space the posts no more than 4 feet apart with woven or 6 feet apart with non-woven geosynthetic.

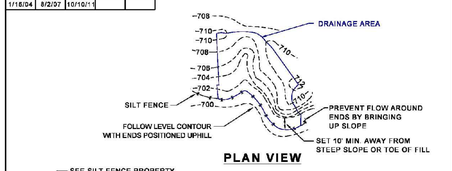
Alternate Construction:	Install fence by slicing it into ground with specialized equipment. Install posts at reduced spacing indicated on detail.

LIMITATIONS - Do not install silt fences along areas where rocks or other hard surfaces will prevent you from uniformly anchoring the fence posts and entrenching the filter fabric. Installing fences in such an area greatly reduces their effectiveness and can create runoff channels leading offsite. Silt fences are not suitable for areas where large amounts of concentrated runoff are likely. Fence shall not be used when slope is 1:1 or greater and water flow rates exceed 2 cubic feet per minute. Open, windy areas present a maintenance challenge, too, because high winds can make the filter fabric deteriorate faster. Do not install silt fences across streams, ditches, or waterways (Smolen et al., 1988).

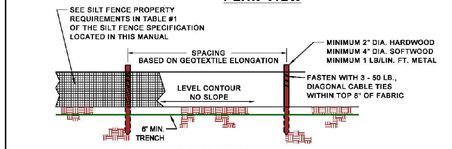
When the pores of the fence fabric become clogged with sediment, pools of water are likely to form on the uphill side of the fence. Setting and design of the silt fence should account for this. Take care to avoid unnecessarily diverting stormwater from these pools, causing further erosion damage.

MAINTENANCE CONSIDERATIONS - Inspect silt fences regularly and frequently, as well as after each rainfall event, to make sure that they are intact and that there are no gaps where the fence meets the ground or tears along the length of the fence. If you find gaps or tears, repair or replace the fabric immediately. Remove accumulated sediments from the fence base when the sediment reaches one-third to one-half the fence height. Remove sediment more frequently if accumulated sediment is creating noticeable strain on the fabric and the fence might fail from a sudden storm event. When you remove the silt fence, remove the accumulated sediment, dress the area disturbed to give it a pleasing appearance and vegetate all bare areas as well.

NEW	REVISIONS			
1/18/04	8/2/07	10/10/11		

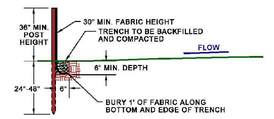


PLAN VIEW



ELEVATION

FOR ADDITIONAL INFORMATION ON SILT FENCE GEOTEXTILE REQUIREMENTS, POST SPACING, HEIGHT AND SIZE, SEE THE SILT FENCE SPECIFICATION AND TABLE #1 LOCATED IN THIS MANUAL.



SECTION

WRAP GEOTEXTILE AROUND STAKES BEFORE DRIVING

JOINING SECTIONS OF SILT FENCE

NOTE: IF FABRIC IS INSTALLED BY EQUIPMENT DESIGNED TO SLICE INTO THE GROUND, THE TRENCH IS NOT NEEDED.

SAINT LOUIS COUNTY
DEPARTMENT OF HIGHWAYS AND TRAFFIC
CLAYTON, MISSOURI

TYPICAL BMP DETAIL

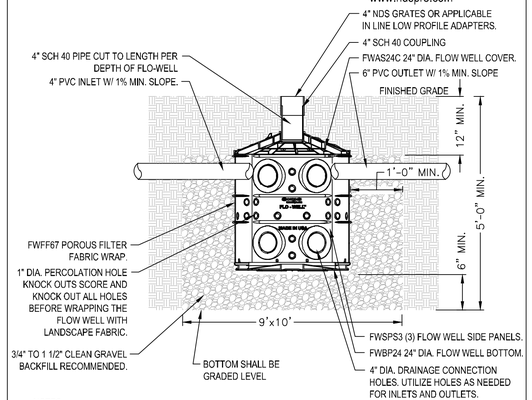
SILT FENCE

REVISION DATE: October 10, 2011

DRAWING 806-70.00

NDS, INC.
851 NORTH HARVARD AVE.
LINDSAY, CA 93247
TOLL FREE: 1-800-726-1994
PHONE: (559) 562-9888
FAX: (559) 562-4488
www.ndspro.com

NDS™ WE PUT WATER IN ITS PLACE



NOTES:
1. MUST BE INSTALLED 10' AWAY FROM STRUCTUREOR FOUNDATION.
2. FWAS24 KIT DOES NOT COME WITH FWPB24 BTM.
3. REFERENCE FLO-WELL CALCULATOR ON NDSPRO.COM
4. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
5. DO NOT SCALE DRAWING.
6. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY.
7. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.

FLO-WELL DRY WELL SYSTEM

FLO-WELL INSTALLATION DETAIL - LOAD CLASS "A" & "B" - GRAVEL INSTALLATION DETAIL

MB Engineering, Inc.
606 Ryan Dr.
Energy, IL 62933
(314) 368-3040

STATE OF MISSOURI — MICHAEL A BUESCHER — NUMBER E-2001018714 — REGISTERED PROFESSIONAL ENGINEER

2/9/26

Michael A. Buescher, P.E., Civil Engineering
Missouri P.E. E-2001018714

MB Engineering, Inc. Missouri Authority No. E-2015041404

PROJECT REVISION:

NO:	DATE:	DESCRIPTION:
1	12-31-25	FOR REVIEW
2	01-08-26	CITY COMMENTS
3	02-09-26	CITY COMMENTS

41 Berry Oaks Ln.
Glendale, MO 63122

Plans are prepared for:
Bemberg Architecture
8001 Clayton Rd.
Clayton, MO 63117
(314)626-3030

DATE: 12-31-25
DRAFTED BY: KB
APPRVD. BY: MB

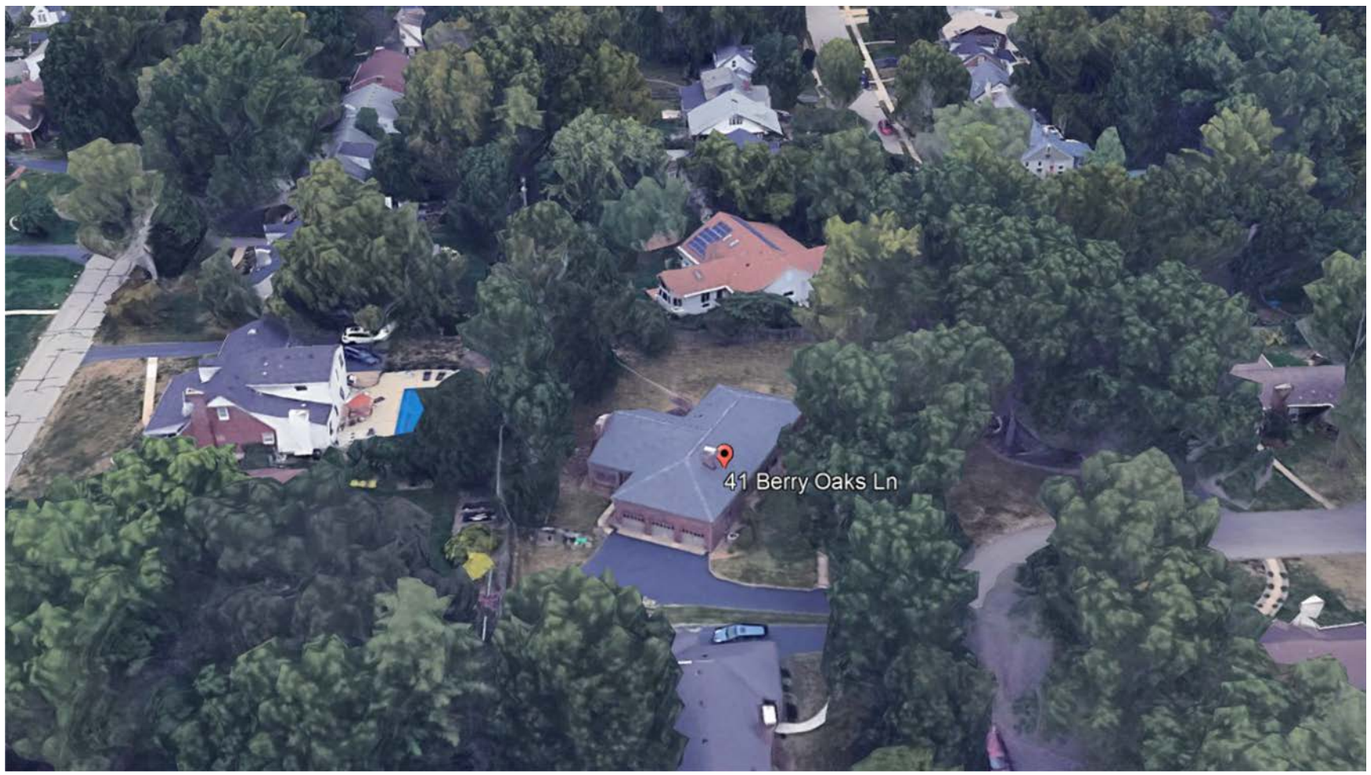
SHEET TITLE:
TYPICAL DETAILS

SHEET NUMBER:
C3

PROJECT NO: 25-1118

AERIAL IMAGES

EXIST. VIEW FROM NORTH



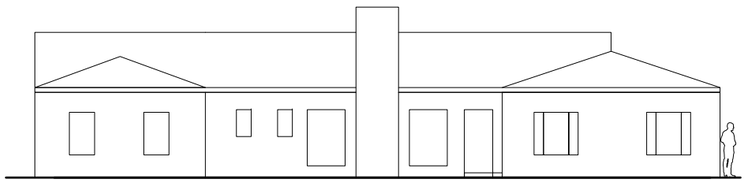
EXIST. VIEW FROM SOUTH

41 BERRY OAKS - AERIAL IMAGE

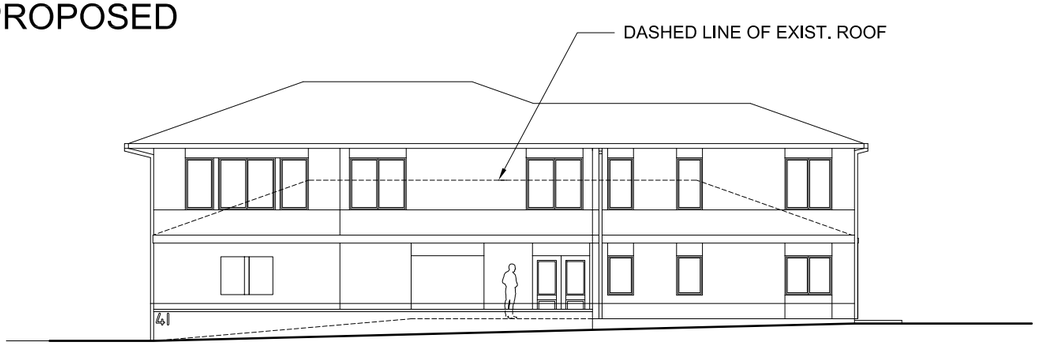
SCALE:
1/64" = 1'-0"

NEIGHBOR ELEVS

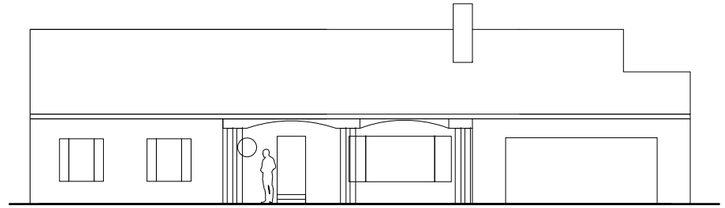
PROPOSED



49 BERRY OAKS
1/16" = 1'-0"



41 BERRY OAKS - PROJECT SITE
1/16" = 1'-0"



33 BERRY OAKS
1/16" = 1'-0"

49 BERRY OAKS

41 BERRY OAKS - PROJECT SITE

33 BERRY OAKS

Neighboring Property Photos

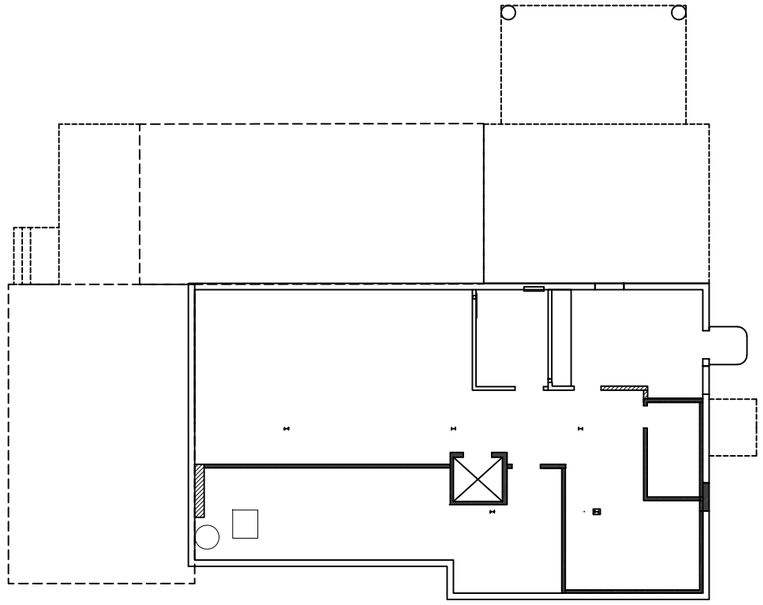
49 BERRY OAKS

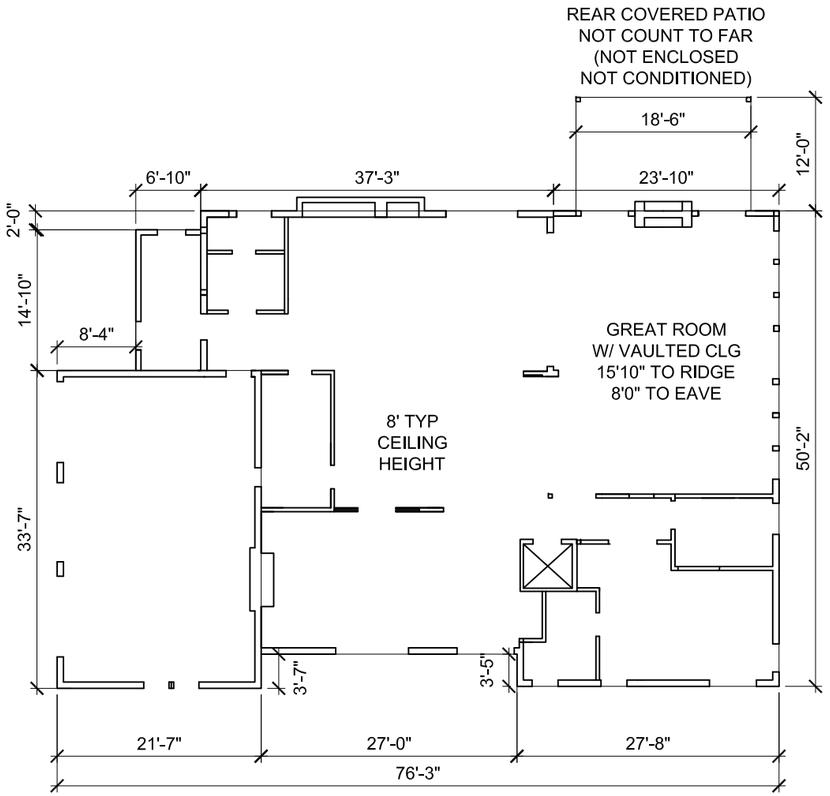
33 BERRY OAKS

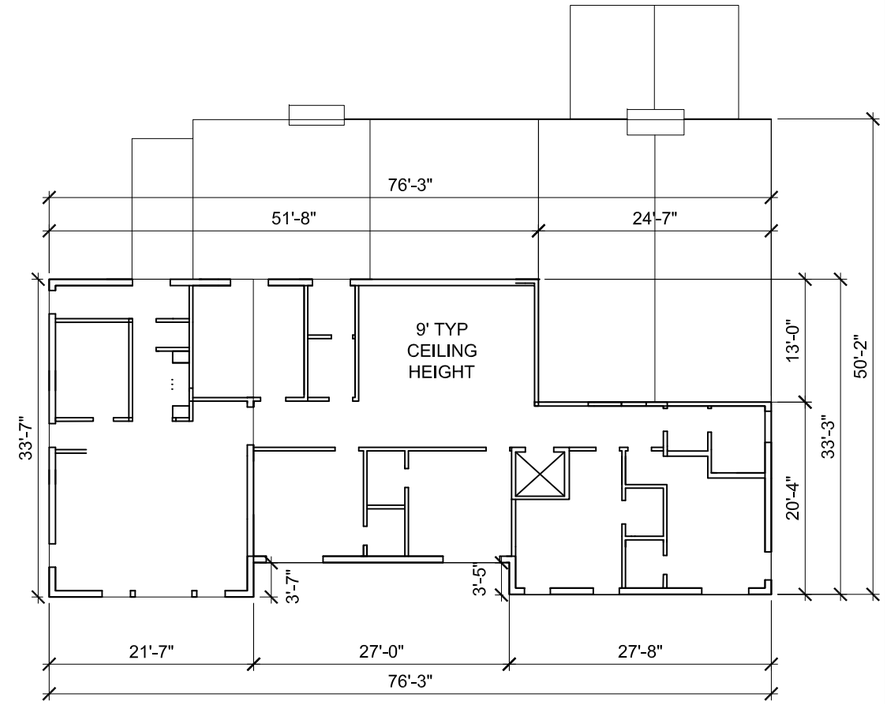
FAR SUMMARY

17865 sf site
FAR - 0.3 = 5359 sf total max
2350 sf exist total living area (742 sf garage)
3008 sf added

total = 5358 sf to FAR (complies) = 0.29 FAR





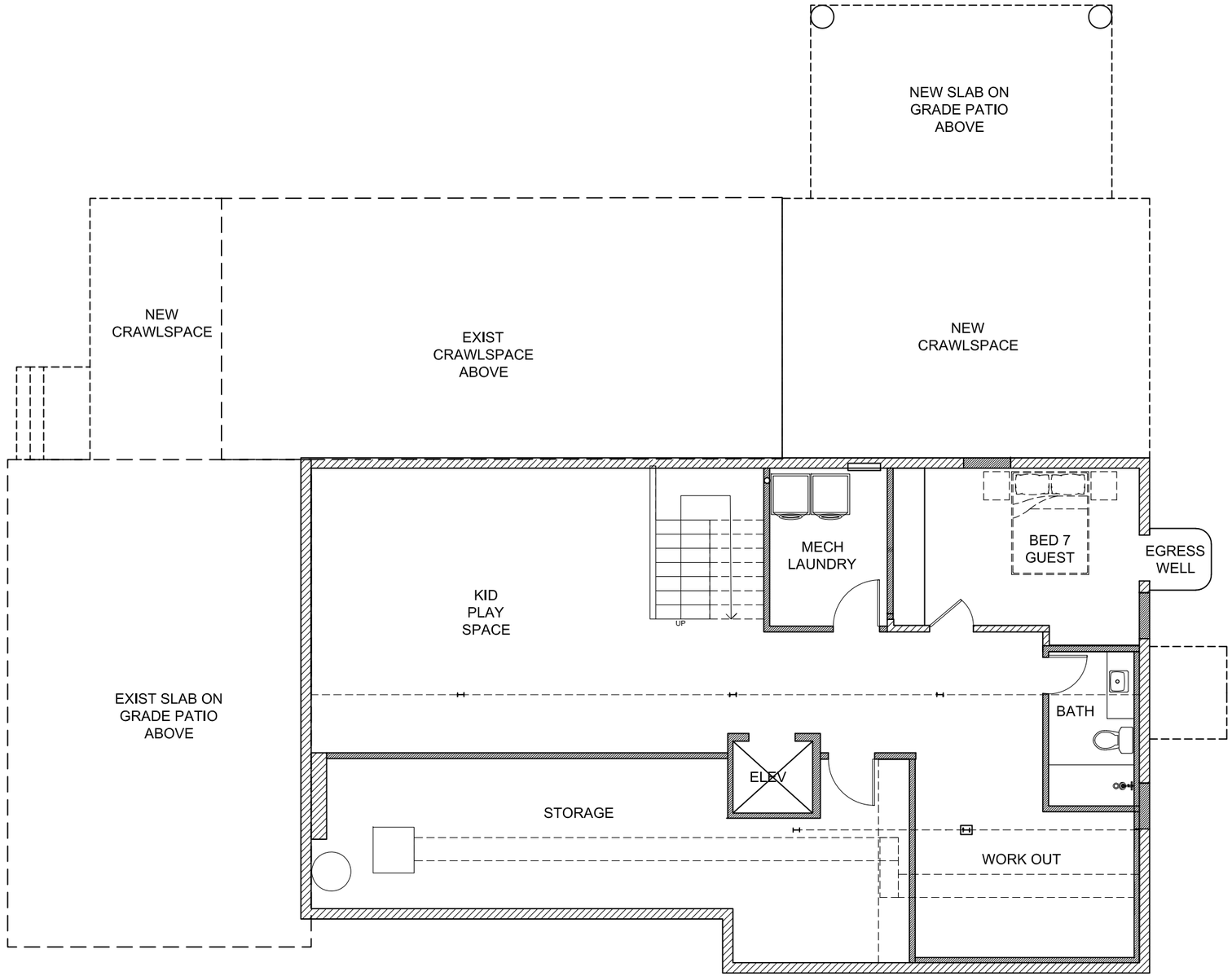


BASEMENT (LEVEL 0)
ENTIRELY BELOW GRADE
NOT COUNT TO FAR

LEVEL 1
2862 sf existing & new to FAR
+ 726 sf garage / 2 = 363 sf to FAR
3,225 sf to FAR

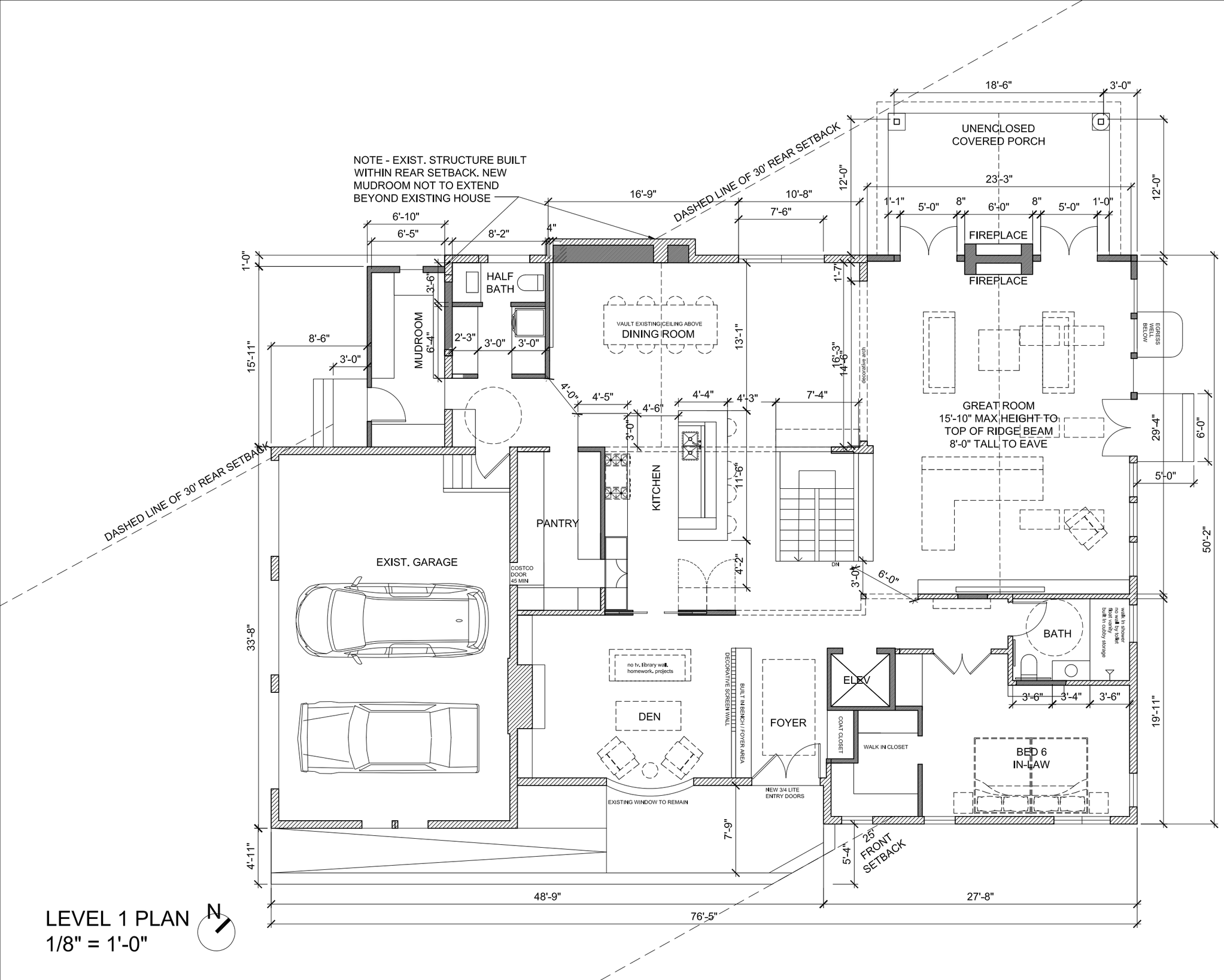
LEVEL 2
2133 sf to FAR

PLANS
1/16" = 1'-0"



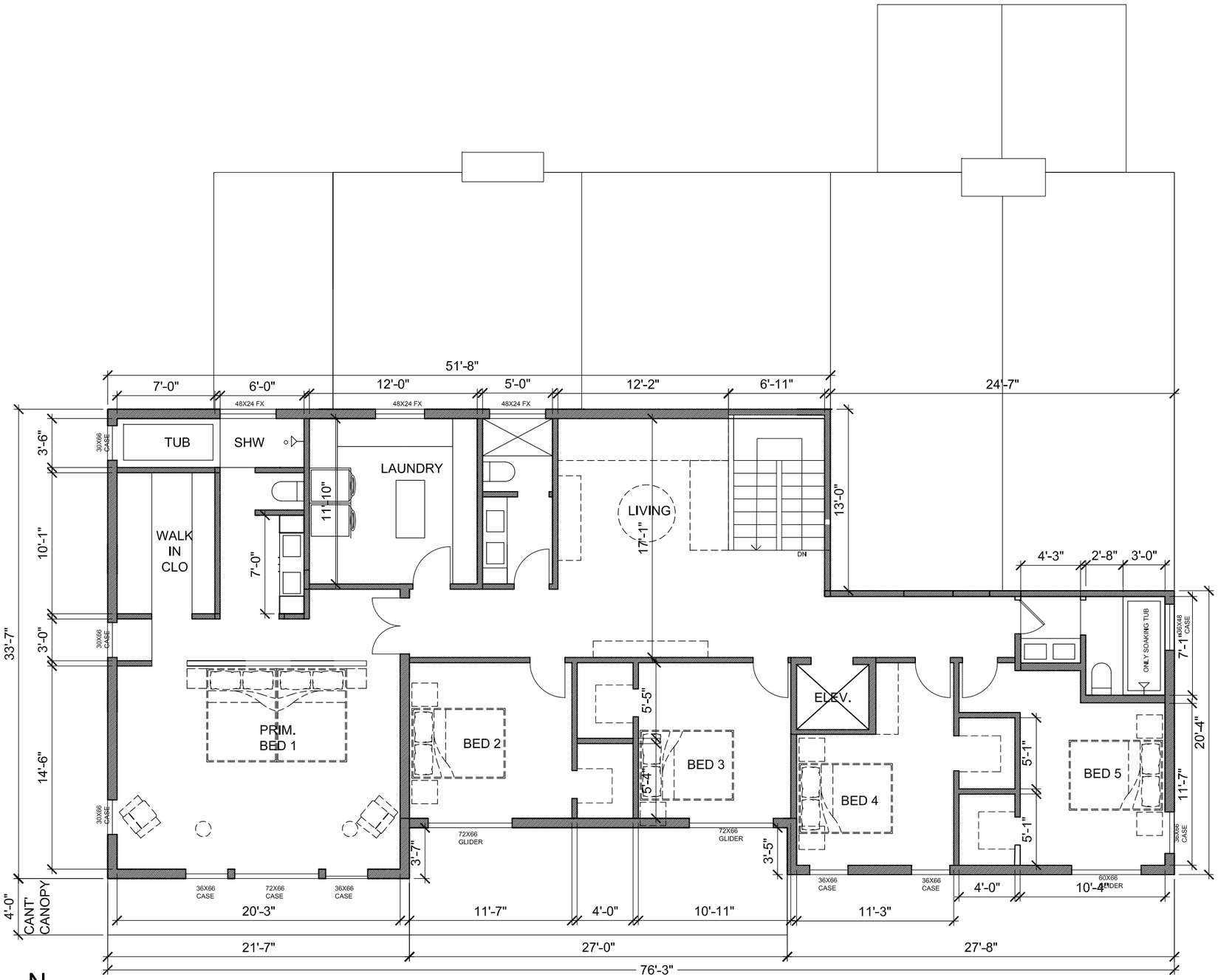
LEVEL 0 PLAN
1/8" = 1'-0"

N



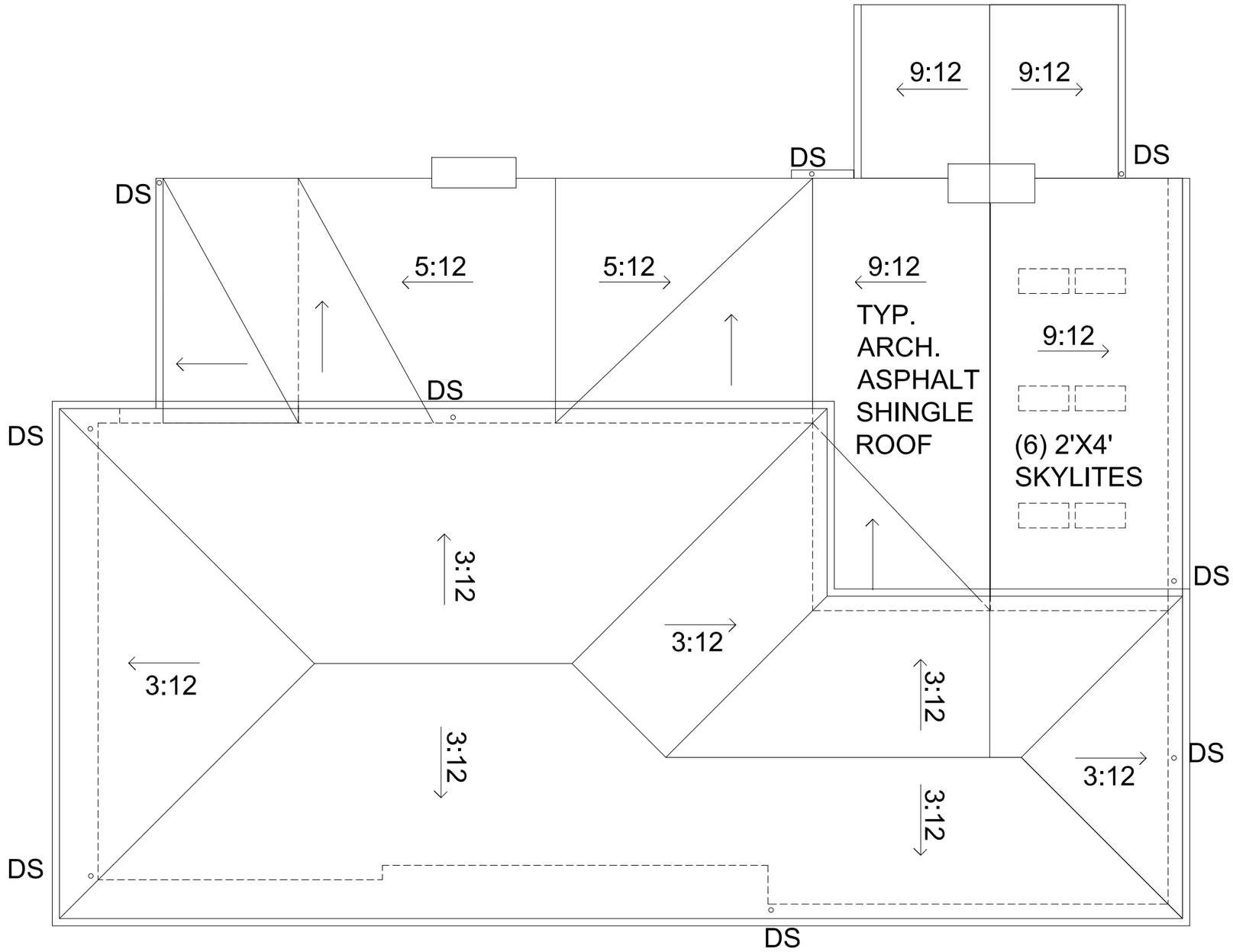
LEVEL 1 PLAN
1/8" = 1'-0"

N



LEVEL 2 PLAN
1/8" = 1'-0"

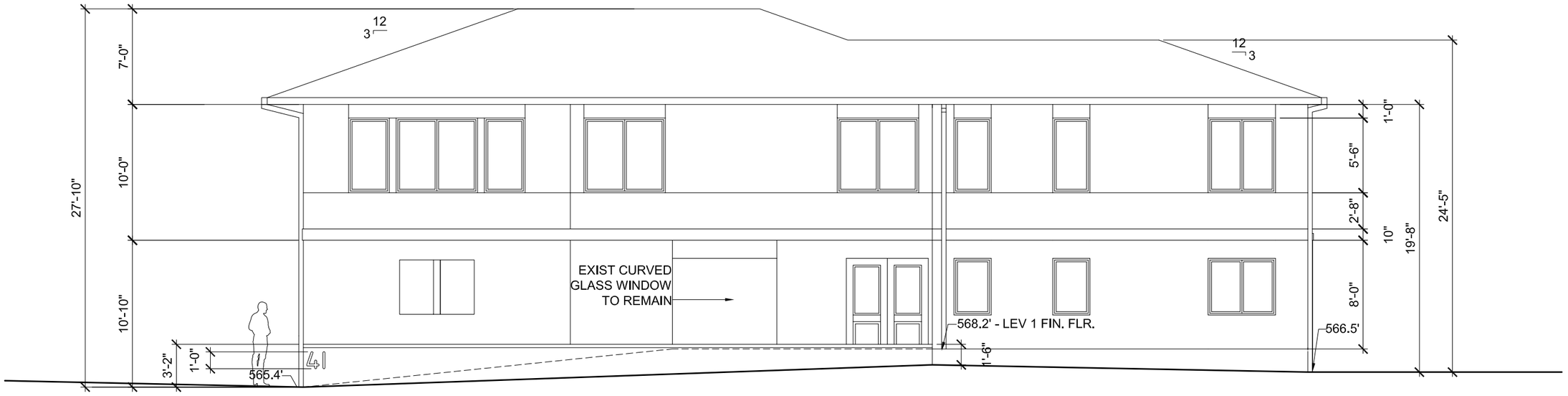
N



ROOF PLAN
1/8" = 1'-0"

N

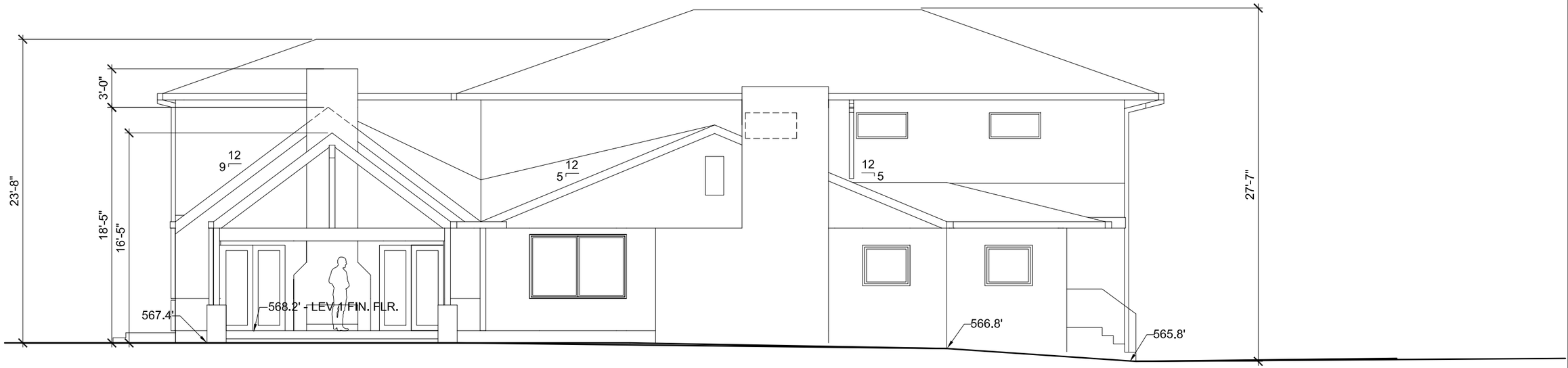
Exterior Elevations



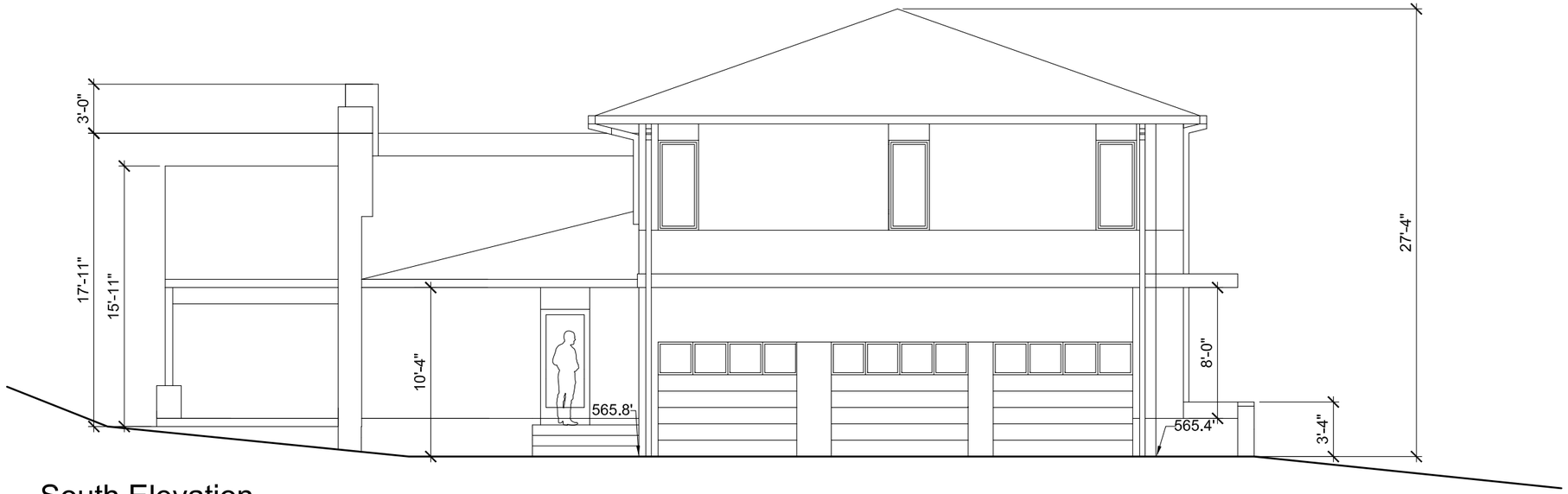
East Elevation
1/8" = 1'-0"

North Elevation
1/8" = 1'-0"

Exterior Elevations



West Elevation
1/8" = 1'-0"



South Elevation
1/8" = 1'-0"

Rendered Exterior Elevations

East Elevation
1/8" = 1'-0"

North Elevation
1/8" = 1'-0"

Rendered Exterior Elevations

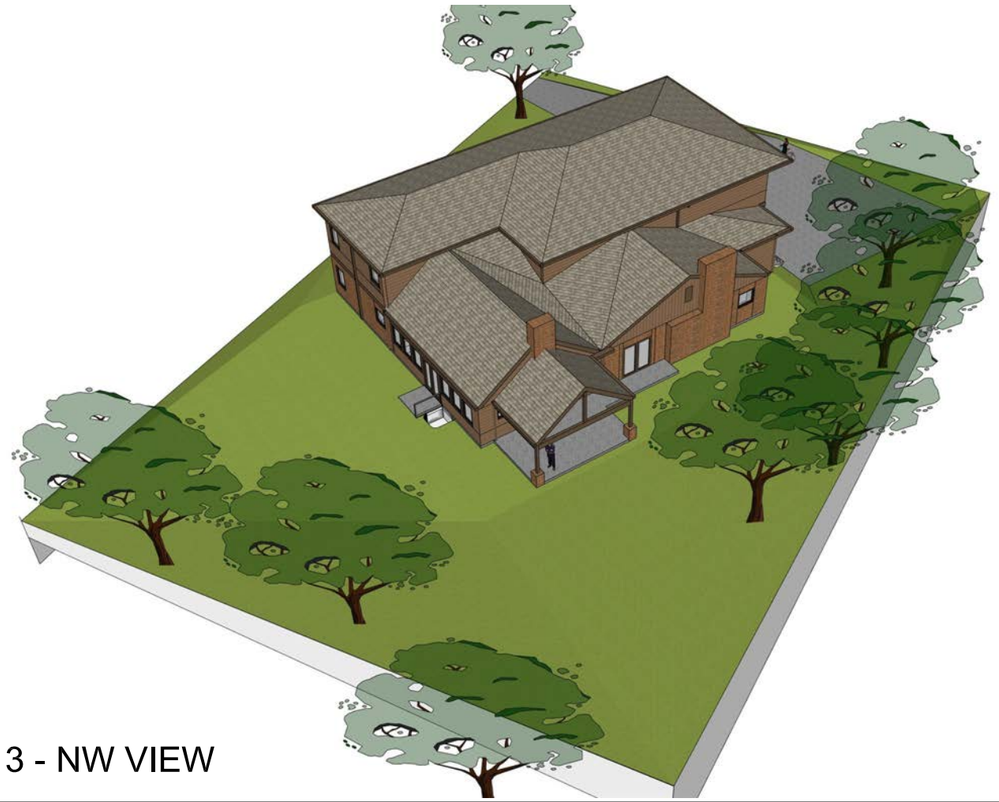
West Elevation
1/8" = 1'-0"

South Elevation
1/8" = 1'-0"

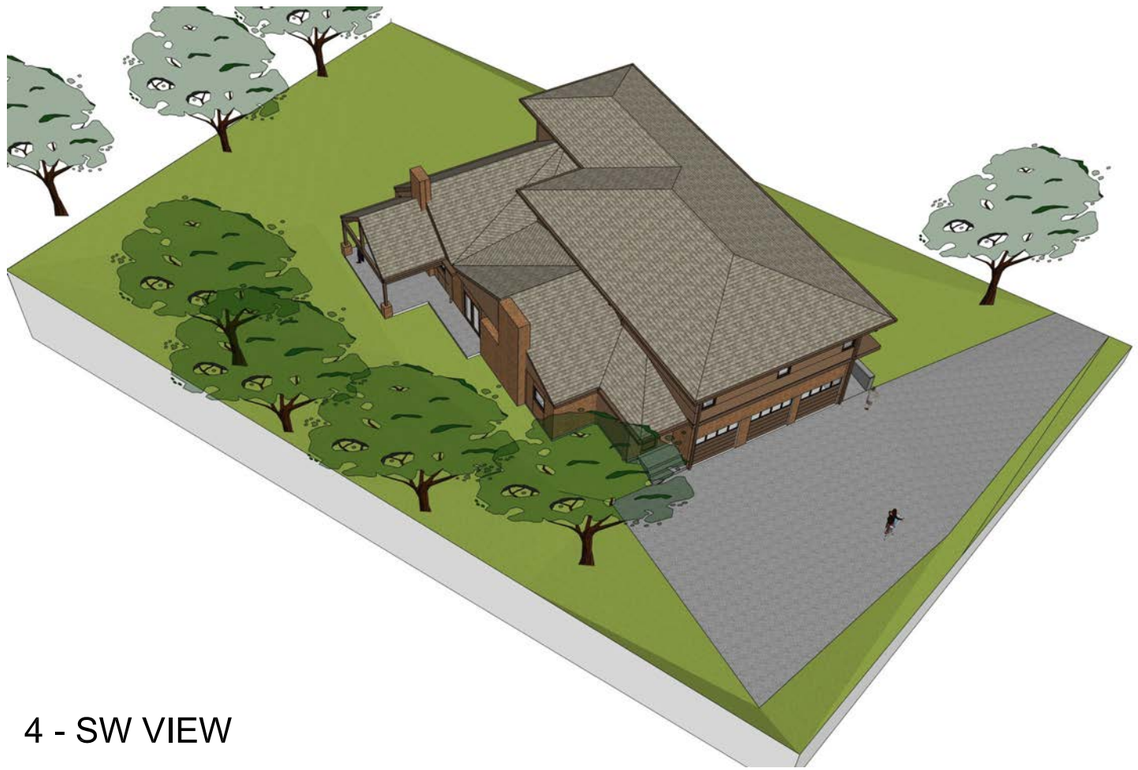
AERIAL RENDERS

1 - SE VIEW

2 - NE VIEW



3 - NW VIEW



4 - SW VIEW

RENDERINGS

1 - SOUTHEAST VIEW (NOTE - FRONT WINDOW INTO GARAGE MISSING IN RENDERING - SEE EAST ELEVATION DRAWING)

2 -EAST VIEW

3 - NORTH EAST VIEW

4 - NORTH VIEW (NOTE: WINDOWS AND DOORS TO ADDITION WILL HAVE 12" TALLER HEAD HEIGHT & SKYLITES - SEE ELEV. DWGS)

RENDERINGS

5 - NORTHWEST VIEW 1

6 - NORTHWEST VIEW 2

7 - WEST VIEW (NOTE - PATIO DOORS TO BE LOCATED UNDER COVERED PATIO - SEE WEST EXT. ELEV DWG)

8 - SOUTHWEST VIEW - (NOTE - MUDROOM EXPANDED - SEE PLAN DWGS AND EXTERIOR ELEV DWGS)

RENDERINGS

9 - SOUTHWEST VIEW

10 - SOUTHEAST VIEW

pd card 2/17/26 km

CITY OF Glendale

424 N. Sappington Road Glendale, Missouri 63122 (314) 965-3600 fax (314) 965-4772

APPLICATION FOR ARCHITECTURAL REVIEW BOARD

APPLICATION DATE 2-17-26 DATE OF ARB MEETING 3-11-26 ESTIMATED COST 650,000

PROJECT ADDRESS 810 BROWNELL AVE GLENDALE, MO 63122

NAME OF PROPERTY OWNER Benchmark Homes PHONE NUMBER 314-749-7750

CONTRACTOR (NAME) SAME PHONE NUMBER _____

CONTRACTOR ADDRESS 13281 SPINDLE LANE ST LOUIS, MO 63122

ARCHITECT (NAME) TIM HOLLERBACH PHONE NUMBER 314-578-9470

ARCHITECT ADDRESS 1548 JEFFCO BLVD. ARNOLD, MO 63010

DETAILED DESCRIPTION OF WORK BEING PROPOSED: _____

NEW SINGLE FAMILY RESD.

FLOOR AREA RATIO 32.6 % (FAR = Gross Floor Area divided by total area of lot. Gross Floor Area includes all areas provided with heat and/or air conditioning. Includes all conditioned half stories with ceiling heights of more than 5 feet. All living space with ceiling heights of sixteen (16) feet or greater shall be counted at 200%. Attached garages shall be counted at 50%. Exclude any finished or unfinished basement, a detached garage, and any unenclosed porch).

TOTAL FLOOR AREA OF NEW CONSTRUCTION (SQ. FT.) 2202

TOTAL FLOOR AREA OF EXISTING STRUCTURE (SQ. FT.) 1344

TOTAL SQ. FT. OF LOT 6752 WIDTH AND DEPTH OF LOT (FT.) 50' x 135'

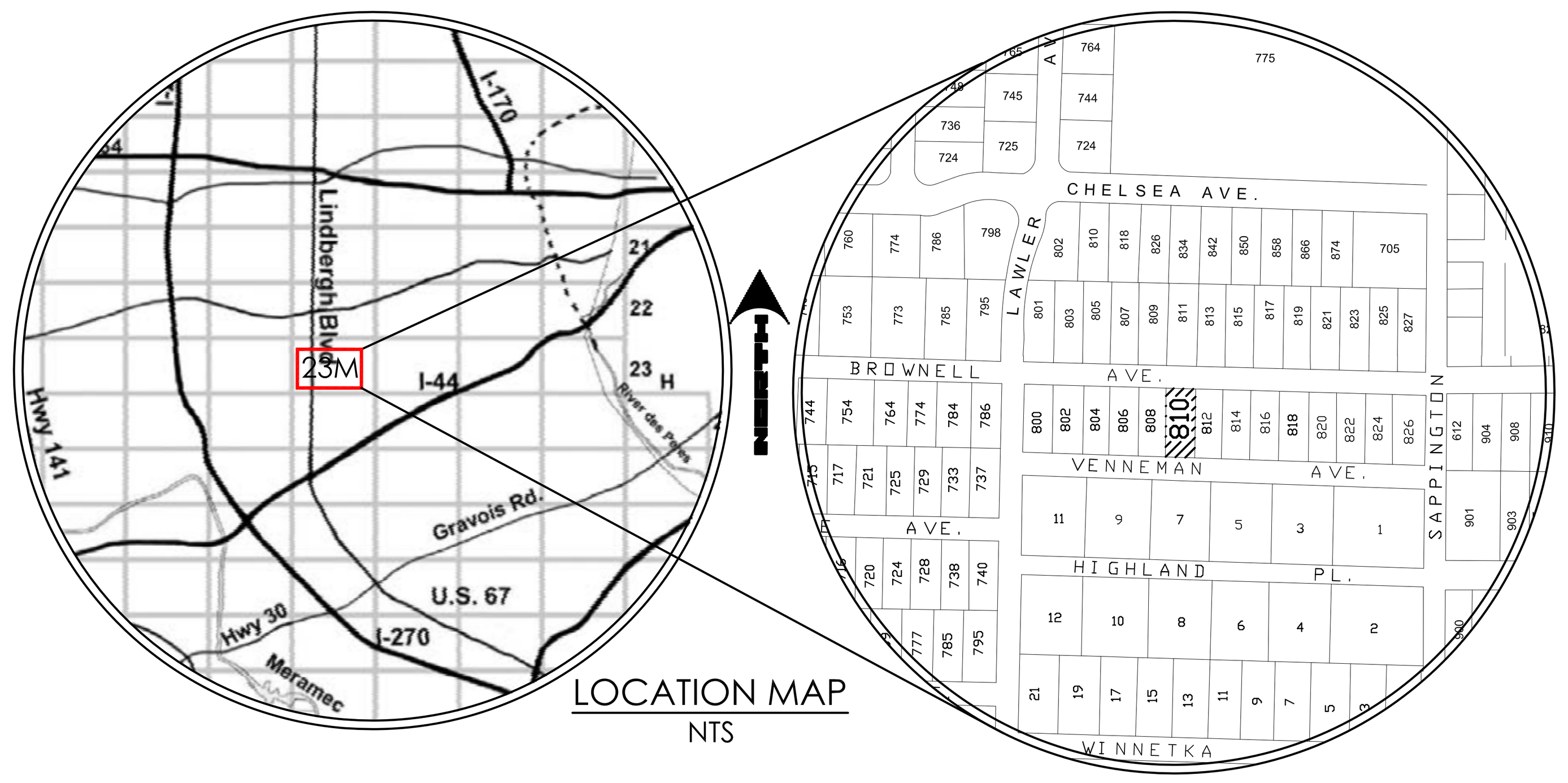
HEIGHT OF STRUCTURE 30'-8" FROM GRADE NUMBER OF STORIES 2

ESTIMATED COMMENCE DATE APRIL 2026 EST. COMPLETION DATE Dec. 2026

Each application shall be accompanied with payment of a fee as follows:

Addition or Accessory Structure:	**$150.00**
New Home:	**$200.00**

(SEE REVERSE SIDE FOR APPLICATION CHECKLIST)



LOCATION MAP
NTS

SITE DEVELOPMENT PLANS
FOR A
A PROPOSED RESIDENCE
AT
810 BROWNELL AVENUE

CITY OF GLENDALE, ST. LOUIS COUNTY, MO 63122

PERTINENT DATA

TOTAL AREA OF TRACT	:	±0.16 AC
LOCATOR NUMBER	:	23M641121
SITE ADDRESS	:	810 BROWNELL
ZIP CODE	:	63122
FIRE DISTRICT	:	GLENDALE
SCHOOL DISTRICT	:	KIRKWOOD
MUNICIPALITY	:	GLENDALE
SEWER DISTRICT	:	MSD
RECORD OWNERS OF TRACT	:	BENCHMARK CUSTOM HOMEBUILDERS INC
WATERSHED	:	GRAVOIS CREEK
FIRM PANEL	:	29189C0309K
ZONING	:	R-2

INDEX OF SHEETS

LEGAL DESCRIPTION

LOT 6 IN BLOCK 2 OF LAWLER'S SUBDIVISION, ST. LOUIS COUNTY, MISSOURI, PB 16, PG 29

SOURCE OF BOUNDARY AND TOPOGRAPHIC INFORMATION

BOUNDARY AND TOPOGRAPHICAL INFORMATION PROVIDED BY CHECKPOINT SURVEYING LLC.

ADDITIONAL INFORMATION FROM AVAILABLE RECORDS AND SITE RECONNAISSANCE.

BENCHMARK

PROJECT BENCHMARK: TOP OF SANITARY MANHOLE 23M2-177S IN THE REAR OF THE LOT @ 625.65

UTILITIES/SERVICE PROVIDERS

CABLE TV
SPECTRUM COMMUNICATIONS
941 CHARTER COMMONS
TOWN AND COUNTRY, MO 63017
PHONE: 636.220.2174

TELEPHONE
AT&T TELEPHONE COMPANY
13075 MANCHESTER ROAD
DES PERES, MO 63131
ATTN: MR. DOUG LAMPERT
PHONE: 314) 957-3748; (314) 963-3824

ELECTRIC
AMEREN UE
ONE AMEREN PLAZA
1901 CHOUTEAU AVENUE
P.O. BOX 66149. MC 700
ST. LOUIS, MO 63166
PHONE: (314) 992-9721

WATER
MISSOURI AMERICAN WATER
727 CRAIG ROAD
ST. LOUIS, MO 63141
PHONE: 314.996.2396

SEWER
MSD
2350 MARKET STREET
ST. LOUIS, MO 63103
PHONE: 314.768.6260

FIRE
GLENDALE CITY FIRE DEPARTMENT
424 N SAPPINGTON RD
ST. LOUIS, MO 63122
PHONE: 314.965.0000

GAS
SPIRE INC
720 OLIVE STREET
ST. LOUIS, MO 63101
PHONE: 314.621.6960

EXISTING CONDITIONS

THIS DRAWING REFLECTS THE RESULTS OF TOPOGRAPHIC AND BOUNDARY SURVEYS (AS MAY BE BASED UPON FIELD WORK, AVAILABLE RECORDS, OR A COMBINATION THEREOF), AND RESEARCH OF AVAILABLE UTILITY RECORDS, AS MAY OR MAY NOT HAVE BEEN SUPPLEMENTED BY SITE RECONNAISSANCE, TO THE BEST OF OUR KNOWLEDGE AND BELIEFS, CURRENT AS OF OCTOBER 2025 PUBLICATION OF THIS DRAWING DOES NOT CONSTITUTE OR IMPLY A WARRANTY OR GUARANTEE OF SITE CONDITIONS. IT IS NOT INTENDED AND SHOULD NOT BE USED TO SUBSTITUTE OR REPLACE THE INVESTIGATIVE EFFORT(S) OF ANY DESIGN PROFESSIONAL, CONTRACTORS (PRIME OR SUB), OWNER, LENDER, END USERS, PURCHASERS OR ANYONE ELSE NOW HAVING OR AS WILL (MAY) HAVE AN INTEREST IN THE PROPERTY, SAME TO PERFORM THEIR OWN INDEPENDENT RESEARCH PRIOR TO OR DURING CONSTRUCTION, TO ASCERTAIN CONDITIONS AS EXIST AT THE SITE. REFER TO PROJECT GEOTECHNICAL REPORT FOR INFORMATION AS TO SUBSURFACE CONDITIONS. SEE NOTICES TO CONTRACTOR THIS SHEET. CONTACT 1-800-DIG-RITE FOR LOCATES OF MEMBER UTILITIES. PRIVATE SERVICE LINES MAY/WILL ADDITIONAL INVESTIGATION, BEYOND ANY PRIOR EFFORTS OF THIS OFFICE AS TO EXISTENCE AND/OR LOCATIONS.

GENERAL NOTES

1. NO PAVED, IMPERVIOUS, OR PARKING AREA GREATER THAN 3,000 SQUARE FEET IN AREA OO OVERLAND FLOW GREATER THAN ONE CFS SHALL DISCHARGE ACROSS A SIDEWALK OR DRIVEWAY.
2. SANITARY SEWER PLANS SHALL BE REVIEWED AND APPROVED BY MSD PRIOR TO SUBMITTAL OF A FINAL SUBDIVISION PLAT.
3. A LAND DISTURBANCE PERMIT IS REQUIRED FROM THE MISSOURI DEPARTMENT OF NATURAL RESOURCES IF LAND DISTURBANCE EXCEEDS ONE (1) ACRE.
4. A DRAFT COPY OF THE SUBDIVISION DEED RESTRICTIONS AND COVENANTS SHALL BE INCLUDED WITH THE FINAL PLAT SUBMITTAL PACKAGE.
5. THE FINAL PLAT AND DEVELOPMENT PLANS SHALL BE CONSISTENT WITH THE PRELIMINARY DEVELOPMENT PLANS.
6. THE LOCATION OF THE RESIDENTIAL STRUCTURES SHALL BE REVIEWED BY STAFF FOLLOWING THE SUBMITTAL OF AN "APPLICATION FOR SITE PLAN REVIEW FOR NEW SINGLE FAMILY RESIDENCES" AND FOLLOWING APPROVAL OF THE FINAL SUBDIVISION PLAT FOR THIS PROJECT.
7. A GRADING PERMIT SHALL BE OBTAINED FROM THE PUBLIC SERVICES DEPARTMENT IN ACCORDANCE WITH THE GLENDALE CODE OF ORDINANCES PRIOR TO ANY GRADING ON THE SITE. THE GRADING PERMIT SHALL INCLUDE A GRADING PLAN IN ACCORDANCE WITH THE CODE OF ORDINANCES.
8. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE SUFFICIENT TO PROTECT ALL OFF-SITE PROPERTY FROM SILTATION SHALL BE MAINTAINED DURING THE CONSTRUCTION ACTIVITIES. FAILURE TO MAINTAIN THESE DEVICES AUTHORIZES THE PUBLIC SERVICES DEPARTMENT TO ISSUE A STOP WORK ORDER FOR THE BUILDING PERMIT UNTIL SUCH DEVICES ARE RESTORED.
9. NO PARKING OF CONSTRUCTION TRAILERS, MATERIAL STORAGE, EQUIPMENT STORAGE OR CONSTRUCTION EQUIPMENT IS AUTHORIZED ON THE PUBLIC STREETS AT ANY TIME, OR ON THE SITE UNLESS ACTIVELY IN USE FOR THE SITE DEVELOPMENT AND BUILDING CONSTRUCTION.
10. TREE PROTECTION FENCING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE TREE STUDY AS DESIGNATED ON THE LANDSCAPE PLAN. FAILURE TO MAINTAIN THE TREE-PROTECTION FENCING DURING THE DEMOLITION AND CONSTRUCTION ACTIVITIES SHALL AUTHORIZE THE PUBLIC SERVICES DEPARTMENT TO ISSUE A STOP WORK ORDER FOR THE GRADING, FOUNDATION, OR BUILDING PERMIT UNTIL THE FENCING IS RESTORED.
11. ROAD FRONTAGE IMPROVEMENTS INCLUDING SIDEWALKS SHALL BE AS DIRECTED BY THE CITY OF GLENDALE.
12. THE SLOPE OF THE FINISHED GROUND SURFACE BETWEEN LOTS, AND BETWEEN LOTS AND STREETS SHALL NOT BE STEEPER THAN A RATIO OF THREE HORIZONTAL TO ONE VERTICAL WHEN IN CUT, NOR STEEPER THAN A RATIO OF THREE HORIZONTAL TO ONE VERTICAL WHEN IN FILL.
13. ANY EXISTING STREET, CURBS, OR SIDEWALKS THAT ARE DAMAGED SHALL BE RECONSTRUCTED TO CITY STANDARDS.
14. THE APPROVAL OF THIS SUBDIVISION PLAT SHALL NOT AUTHORIZE ANY PERSON TO UNREASONABLY ALTER, INCREASE, OR REDIRECT THE SURFACE WATER RUN OFF SO AS TO CAUSE HARM TO ANY PERSON OR PROPERTY.
15. THE FOLLOWING MSD COMMENTS SHALL BE ADDRESSED:
    A. FORMAL MSD REVIEW, APPROVAL, AND PERMITS ARE REQUIRED.
    B. SANITARY LATERALS SHALL NOT CROSS PROPERTY LINES.
    C. CARE SHALL BE TAKEN AS TO NOT DIVERT WATER ONTO ADJOINING PROPERTIES.
16. WATER SERVICE AND APPURTENANCES SHALL MEET THE REQUIREMENTS OF THE MISSOURI AMERICAN WATER COMPANY SPECIFICATIONS AND DNR REGULATIONS.
17. ALL PORTIONS OF THE SITE ARE LOCATED BEYOND THE LIMITS OF FLOODPLAIN AS SHOWN ON THE APPLICABLE FEMA FIRM MAPS.

AERIAL:NTS

LEGEND

EXISTING	DESCRIPTION	PROPOSED
528	CONTOURS	528
x 528	SPOT(S)	+ 528
	SLOPE DESIGNATOR	
——G——	GAS W/ VALVE	——G——
——T——	UNDERGROUND TELEPHONE	——T——
——CATV——	CABLE TV	——CATV——
	TRANSFORMER	
	PEDESTAL	
——OHV——	OVERHEAD LINES	——OHV——
PP	UTILITY POLE	PP
——E——	UNDERGROUND ELECTRIC	——E——
	LIGHT STANDARD	
——W——	WATER	——W——
WV	WATER VALVE	WV
WM	WATER METER/VAULT	WM
	FIRE HYDRANT	
——ST——	STORM SEWER	——ST——
	BIO-SWALE UNDERDRAIN	
——SS——	SANITARY SEWER	——SS——
	CURB INLET	
	AREA INLET & OPEN SIDE (ALL IF NO ARROWS)	
	GRATED INLET	
	MANHOLE	
	FLARED END SECTION WITH HEADWALL	
	DRAINAGE SWALE / DIRECTION OF FLOW	
	15 YR. 20 MIN HGL	
	100 YR. 20 MIN HGL	
MH XXXX–XXXS (EX)	SANITARY STRUCTURE	(A)
A1/C1 XXXX–XXXD (EX)	STORM STRUCTURE	(#)
	DRAINAGE AREA LIMITS	
[#]	DRAINAGE AREA DESIGNATOR	[#]
	CONCRETE	
	ASPHALT PAVEMENT	
	RIP RAP	
	BENCHMARK	
	SIGN (SINGLE POST)	
——X——X——	FENCE	——O——O——
	LAND DISTURBANCE	
	SAWCUT	
	SILT FENCE	——X——X——
	RETAINING WALL	

ABBREVIATIONS

AC	ACRE
AHJ	AUTHORITY HAVING JURISDICTION
ASP	ASPHALT
BF	BASEMENT FLOOR
BL	BUILDING LINE
CALC.	CALCULATED
℄	CENTER LINE
CO	CLEANOUT
CONC.	CONCRETE
DB	DEED BOOK
DS	DOWNSPOUT
ESMT.	EASEMENT
ELEV.	ELEVATION
EOP	EDGE OF PAVEMENT
EX	EXISTING
FDC	FIRE DEPARTMENT CONNECTION
FT	FEET
FF	FINISHED FLOOR ELEVATION
FL	FLOWLINE
GrLS	GRADE AT LOW SILL
HBW	HIGH BOTTOM WALL
HP	HIGH POINT
HORIZ.	HORIZONTAL
HWEL	HIGH WATER ELEVATION
HBW	HIGH BOTTOM WALL
LBW	LOW BOTTOM WALL
LP	LOW POINT
LS	LOW SILL
MH	MANHOLE
ME	MATCH EXISTING
MAX.	MAXIMUM
MIN.	MINIMUM
N/F	NOW OR FORMERLY
PB	PLAT BOOK
PG	PAGE
PIV	POST INDICATOR VALVE
#" PVC	POLYVINYL CHLORIDE
ℙ	PROPERTY LINE
#" RCP	RCP
R/W	RIGHT OF WAY
SAN.	SANITARY
SBM	SITE BENCHMARK
SF	SQUARE FEET
STA.	STATION
STM.	STORM
(TBA)	TO BE ABANDONED
(TBA&R)	TO BE ABANDONED & RELOCATED
(TBD)	TO BE DETERMINED
(TBR)	TO BE REMOVED
(TBR&R)	TO BE REMOVED & REPLACED
TF	TOP OF FOUNDATION
TW	TOP OF WALL
UNK	UNKNOWN
(UIP)	USE IN PLACE
#" VCP	VITRIFIED CLAY PIPE
VERT.	VERTICAL

NOTICE TO CONTRACTOR

THE LOCATION OF ANY UNDERGROUND FACILITIES, STRUCTURES, UTILITIES, SEWERS AND DRAINAGE FACILITIES, PUBLIC OR PRIVATE, AS MAY BE SHOWN ON THESE DRAWINGS HAVE BEEN APPROXIMATED FROM: FACILITY MAPS PROVIDED TO OUR OFFICE BY UTILITY PROVIDERS, RECEIVED AS OF THE DATE OF THIS DRAWING: EXTRAPOLATION FROM SURFACE FEATURES AS MAY HAVE BEEN NOTED DURING FIELD RECONNAISSANCE OR FIELD SURVEYS, AND/OR LOCATES AS MAY HAVE BEEN MARKED ON THE SURFACE BY MO ONE CALL / DIG-RITE. THEIR LOCATION(S) MUST BE CONSIDERED STRICTLY APPROXIMATE, ARE INTENDED FOR GENERAL INFORMATION ONLY, AND SHOULD NOT BE RELIED UPON BY ANYONE HAVING ACCESS TO THIS DRAWING. IT IS THE RESPONSIBILITY OF ANY CONTRACTORS / SUBCONTRACTORS OR ANYONE PERFORMING EXCAVATIONS OR CONSTRUCTING IMPROVEMENTS ON THIS SITE TO VERIFY NOT JUST THE X-Y-Z LOCATION(S) OF UTILITIES AS MAY BE SHOWN, BUT ALSO THE EXISTENCE OF ANY FACILITIES AS MAY NOT BE SHOWN, INCLUDING SERVICE LINES, AND THE RELATIONSHIP / COMPATIBILITY BETWEEN ANY PROPOSED WORK AND SUCH EXISTING FACILITIES, STRUCTURES, UTILITIES, SEWERS AND DRAINAGE FACILITIES, TO VERIFY ADEQUATE CLEARANCE/COVER/STRUCTURAL CAPABILITIES OR INTEGRITY VERSUS ANY PROPOSED GRADING, SEWERS AND/OR DRAINAGE FACILITIES, FOOTINGS, IMPROVEMENTS, ETC. PRIOR TO CONSTRUCTION. REPRESENTATIVES OF UTILITY COMPANIES, SEWER AND/OR WATER AUTHORITIES, INCLUDING LOCAL MUNICIPAL AGENCIES AS MAY HAVE JURISDICTION OVER SAME, SHALL BE ON SITE DURING SUCH TIMES THAT ANY WORK IS TAKING PLACE OVER, UNDER OR IN THE VICINITY OF ANY FACILITIES AS MAY BE SHOWN ON THE DRAWINGS OR OTHERWISE FOUND TO EXIST, AND THE CONTRACTOR(S) SHALL GIVE ADVANCE NOTICE TO SUCH REPRESENTATIVES AS NEEDED TO COORDINATE THEIR EFFORTS IN THIS REGARD. ADDITIONALLY, CONTRACTORS/ SUBCONTRACTORS SHALL INVESTIGATE, ASCERTAIN AND CONFORM TO ANY AND ALL PERMIT REQUIREMENTS OF THE (ANY) VARIOUS AFFECTED UTILITY PROVIDERS AND/OR REGULATORY AGENCIES WITH REGARDS TO MAKING CONNECTIONS TO, OR CROSSINGS OF, THEIR FACILITIES; WORKING WITHIN THEIR RIGHTS-OF-WAY OR EASEMENTS; INSPECTIONS AND ASSOCIATED DOLLAR CHARGES; AND/OR SPECIAL BACKFILL OR RESTORATION REQUIREMENTS. SUCH INVESTIGATIONS TO INCLUDE BUT NOT BE LIMITED TO THE MAKING OF NECESSARY APPLICATIONS AND PAYMENT OF ANY AND ALL REQUIRED FEES.}

NOTICE TO CONTRACTOR

1. PRIOR TO BIDDING AND CONSTRUCTION, THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL THOROUGHLY REVIEW THE DRAWINGS AND AGENCY PERMITS, AND ALL REQUIREMENTS DEPICTED THEREON INCLUDING KEYED AND GENERAL NOTES, DETAILS, REFERENCES TO STANDARDS, ETC., AND SUBMIT RFI TO OWNER FOR FORWARDING TO THE ENGINEER AND AHJ AS NEEDED, AND ALLOW SUFFICIENT TIME FOR ADVANCE CLARIFICATION AS NEEDED.
2. CONTRACTOR SHALL CREATE AND MAINTAIN SUFFICIENT DOCUMENTATION, AS MAY INCLUDE FIELD MEASUREMENTS, RED-LINED PLANS, DIGITAL PHOTOGRAPHS, MATERIAL TICKETS, ETC., FROM WHICH RECORD DRAWINGS (A.K.A. "AS BUILTS") COULD BE DEVELOPED, REGARDLESS OF WHETHER OR NOT SUCH INFORMATION IS REQUIRED BY THE VARIOUS AHJ.

KEYED NOTES

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GENERAL: SEE NOTICE TO CONTRACTOR THIS SHEET AND KEYED NOTES OTHER SHEETS AS MAY BE APPLICABLE TO WORK DEPICTED IN THIS DRAWING.

811 Know what's below. Call before you dig.

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS ARE TO BE CONSIDERED APPROXIMATE. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS NOT KNOWN OR SHOWN.

RESERVED FOR AGENCY REVIEW

Professional Engineer
MISSOURI NO. E-19364
EXPIRES: 12-31-2027
Daniel C. Wind, P.E.

DISCLAIMER

810 BROWNELL AVE
CITY OF GLENDALE, ST. LOUIS COUNTY, MO 63122
TITLE SHEET

Prepared For:
BENCHMARK CUSTOM HOME BUILDERS, INC
ST. LOUIS, MO 63122

Prepared By:
122 N. Kirkwood Road
Kirkwood, MO 63122
Telephone: 314.965.WIND

No.	Date:	Description:	P.E. Signature
1	3/3/2026	ARB SUBMITTAL	

REVISIONS/STATUS

Date:	1/19/2026
Field Work:	PC
Field Checked:	DW
Drawn By:	PC
C.S.O.:	PC
Checked By:	DW
Project Number:	25038
Sheet Number:	C1

THE GRID, AS DEFINED BY THE NUMBERS AND LETTERS IN THE BINDING AND UPPER MARGINS OF THIS SHEET, ARE FOR REFERENCE ONLY AND SHOULD NOT BE INTERPRETED AS HAVING ANY SCALE WITH RESPECT TO THE DRAWING'S CONTENTS OR GEOMETRY.

CONSTRUCTION NOTES

A. GENERAL (as may also be Common across multiple work tasks)

1. SEE INDIVIDUAL SHEETS AS FOLLOWS, AND ARCHITECTURAL / MEP / STRUCTURAL / LANDSCAPE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR POSSIBLE ADDITIONAL NOTES AND CONDITIONS REGARDING SITE AND DETAIL-SPECIFIC CONSTRUCTION REQUIREMENTS. THE MORE STRINGENT OF ANY DUPLICATIVE OR CONFLICTING NOTES AND REQUIREMENTS SHALL CONTROL.
2. ALL REFERENCES TO STANDARDS AND SPECIFICATIONS OF AGENCIES, INDUSTRY AND TRADE ASSOCIATIONS, RESEARCH INSTITUTES OR ORGANIZATIONS, ETC. EXPECT ADHERENCE TO THEIR (ANY) LATEST REVISIONS AND UPDATES, REGARDLESS OF THE DATES AS MAY BE INDICATED IN THE NOTES, DRAWINGS OR DETAILS. IT IS THE RESPONSIBILITY OF THE INDIVIDUAL CONTRACTORS AND SUBCONTRACTORS TO RESEARCH, REVIEW AND ADHERE TO THE CURRENT, APPLICABLE LOCAL STANDARDS, CODES AND SPECIFICATIONS FOR MATERIALS AND METHODS OF INSTALLATION.
3. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE RECORDS, THEREFORE, THE RELATIONSHIP BETWEEN PROPOSED WORK AND EXISTING FACILITIES, STRUCTURES AND UTILITIES MUST BE CONSIDERED APPROXIMATE AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THEIR EXACT LOCATION AND THE EXISTENCE OF ANY NOT SHOWN, INCLUDING PRIVATE SERVICE LINES. (ALL UTILITIES SHALL BE LOCATED BOTH HORIZONTALLY AND \VERTICALLY TO VERIFY CLEARANCE/COVER OF ANY PROPOSED GRADING, SEWERS, FOOTINGS, ETC. PRIOR TO CONSTRUCTION. UTILITY COMPANY REPRESENTATIVES SHALL BE ONSITE DURING SUCH TIMES THAT EXCAVATIONS ARE TAKING PLACE IN THE VICINITY OF THEIR FACILITIES.)
4. SIDEWALKS AND CURB RAMPS, RAMPS, WALKWAYS AND ACCESSIBLE PARKING SPACES, EXTERIOR PATHS AS PROPOSED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT APPROVED "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES" (ADAAG), INCLUDING SPECIFICATIONS FOR SIGNAGE AND STRIPING, GRADES, DETECTABLE WARNING DEVICES, RAILINGS, AND CONSTRUCTIONS MATERIALS. IN THE EVENT THERE IS A CONFLICT BETWEEN THE INFORMATION AS SHOWN UPON THE DRAWINGS AND THE ADAAG, ADAAG SHALL TAKE PRECEDENCE. PRIOR TO CONSTRUCTING ANY MODIFICATIONS FROM AS SHOWN UPON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE OFFICE OF THE ENGINEER AS TO THE SPECIFIC CONFLICT AND THE PROPOSED ADJUSTMENT.
5. ALL ELEVATIONS ARE BASED ON U.S.G.S OR ST. LOUIS COUNTY DATUM. SEE APPLICABLE CONVERSION ON TITLE SHEET.
6. BOUNDARY, IMPROVEMENT, AND TOPOGRAPHICAL INFORMATION PROVIDED BY CHECKPOINT SURVEYING LLC.
7. ADDITIONAL TOPOGRAPHIC AND IMPROVEMENT INFORMATION FROM AVAILABLE RECORDS AND SITE RECONNAISSANCE.
8. OMITTED
9. THE RESULTS OF ANY DEPTH TO ROCK OR SOIL TESTING AS MAY BE SHOWN HEREON ARE FOR INFORMATION ONLY, WITHOUT ANY EXPRESSED OR IMPLIED AGREEMENT OR GUARANTEE THAT THE DEPTHS, CHARACTER OF, OR VARIATIONS IN MATERIALS ARE CORRECTLY SHOWN, OR THAT CONDITIONS AFFECTING THE WORK WILL NOT DIFFER FROM THAT AS SHOWN ON THESE DRAWINGS.
10. ROCK ELEVATIONS AS MAY BE SHOWN ON SEWER PROFILES ON CROSS SECTIONS HAVE BEEN INTERPOLATED BETWEEN TEST HOLES, BASED ON INFORMATION SUPPLIED BY PROJECT GEOTECH ENGINEER, AND ARE TO BE CONSIDERED APPROXIMATE ONLY.
11. PRIOR TO BEGINNING ANY WORK ON THE SITE, THE CONTRACTOR(S) SHALL CONTACT THE OFFICE OF THE OWNER/DEVELOPER FOR SPECIFIC INSTRUCTIONS RELEVANT TO THE COORDINATION AND SEQUENCING OF WORK AMONGST THE VARIOUS TRADES.
12. REFERENCE LINES AND GRADES SHALL BE ESTABLISHED BY THE CONTRACTOR(S) PRIOR TO STARTING THEIR WORK AND SHALL BE MAINTAINED DURING THE DURATION OF CONSTRUCTION.
13. THE CONTRACTOR SHALL RESTORE TO ORIGINAL CONDITION, ALL "OFF SITE" PROPERTY IN EASEMENTS DISTURBED BY HIS OPERATIONS THAT ARE NOT PROPOSED HEREON. ANY OFFISTE IMPROVEMENTS SHALL BE AS DIRECTED AND AUTHORIZED BY OWNER / OWNER AGREEMENT(S) WITH AJOINNIG PROPERTY AND VERIFICATION OF PROPERTY LINE / BOUNDARY BY OWNER'S BOUNDARY SURVEYOR AND TITLE AS NEEDED.
14. ALL WORK BEYOND THE LIMITS OF OWNER'S PROPERTY MUST BE PERFORMED WITHIN EXISTING OR ACQUIRED EASEMENTS. AGENCY APPROVAL OF THESE PLANS DOES NOT AUTHORIZE OR CONDONE WORK OUTSIDE OF EASEMENTS. OFFSITE PROPERTY \OWNERS SHALL BE GIVEN NOTICE 48 HOURS IN ADVANCE OF ANY WORK ON THEIR PROPERTY.
15. ANY OFFSITE PROPERTY (I.E. BUSHES, FENCES, MAILBOXES, ETC.) DISTURBED BY THE CONTRACTORS OPERATIONS SHALL BE REPLACED IN KIND, FULLY AT THE CONTRACTOR'S EXPENSE.
16. REMOVAL OF CONCRETE PAVEMENT OR PAVERS SHALL BE TO THE NEAREST JOINT(S) OR EDGE OF PAVEMENT. INCREASE THE LIMITS OF REMOVAL AS NEEDED TO PERFORM THE SPECIFIC WORK THAT MANDATES REMOVAL OF PAVEMENT OR PAVERS. REMOVAL OF ASPHALT PAVEMENT SHALL BE ACCOMPLISHED VIA SAW CUT LOCATED AT LEAST 12 INCHES BEYOND THE LIMITS OF NEW WORK. REMOVAL OF CURBS (OR CURBS AND GUTTER) SHALL BE VIA SAW CUT LOCATED AT LEAST TWO FEET BEYOND THE LIMITS OF THE WORK REQUIRED. IF AN EXISTING JOINT IS LOCATED WITHIN 12 INCHES (BEYOND) A PLANNED SAW CUT AS DESCRIBED ABOVE, THE CURB SHALL BE REMOVED TO THE JOINT AND THE SAW CUT ELIMINATED. CONTRACTOR TO REPLACE ANY ADJACENT PAVEMENT, PAVERS OR CURBS, BEYOND THE LIMITS OF REMOVAL, THAT ARE DAMAGED BY HIS OPERATIONS.
17. ALL SAW CUTS SHALL BE TO A STRAIGHT AND TRUE LINE, PERPENDICULAR TO THE ALIGNMENT OF CURBS, PARALLEL AND PERPENDICULAR TO EXISTING JOINTS OR EDGES OF PAVEMENT, AND SHALL EXTEND THE FULL DEPTH OF THE PAVEMENT. SAW CUTTING OF PAVERS IS NOT PERMITTED.
16. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE CURRENT STANDARDS, SPECIFICATIONS AND CROSS REFERENCES OF THE CITY OF GLENDALE. IN THE ABSENCE OF ANY APPLICABLE LOCAL STANDARDS, THE REQUIREMENTS SET FORTH OR AS REFERENCED HEREON SHALL GOVERN.
17. THE TERMS 'SOILS ENGINEER' AND 'GEOTECHNICAL ENGINEER' ARE TO BE CONSIDERED INTERCHANGEABLE, ONE AND THE SAME.
18. PROPOSED CONTOURS AND FINISH SPOT ELEVATIONS AS SHOWN ON THE DRAWINGS ARE FINAL GRADES AND READ TO TOP OF PAVEMENT AND/OR FINISH DIRT GRADE. THE CONTRACTORS ARE TO MAKE APPROPRIATE ADJUSTMENTS FOR VARIOUS SUBGRADE REQUIREMENTS.
19. "SPOT" FINISH GRADES ("SPOT ELEVATIONS") AND/OR ELEVATIONS OF THE TOP OF SEWER OR UTILITY STRUCTURES AS MAY BE SHOWN ON THE SITE PLAN AND/OR PROFILES ARE TO BE VERIFIED AT THE JOB SITE, BY THE CONTRACTORS, AND PROPER ADJUSTMENTS MADE AT NO ADDITIONAL COST. CONTRACTORS, OWNER AND/OR DEVELOPERS ARE HEREBY MADE AWARE OF THIS RESPONSIBILITY. CONTRACTORS SHOULD INCLUDE IN THEIR QUOTE TO THE OWNER OR DEVELOPER PROVISIONS FOR SUCH VERIFICATION. IT IS THEREFORE THE RESPONSIBILITY OF THE CONTRACTORS TO IDENTIFY ANY NEEDED ADJUSTMENTS AND NOTIFY THE DESIGN ENGINEER OF THE PROPOSED CHANGE, PRIOR TO CONSTRUCTION OF THOSE ITEMS THAT WOULD BE AFFECTED BY THE CHANGE IN ELEVATION. ADJUSTMENTS TO GRADES, PAVING, STRUCTURES OR OTHER ELEMENTS OF THE PROJECT DURING OR FOLLOWING CONSTRUCTION ARE LIKEWISE THE RESPONSIBILITY OF THE CONTRACTORS AS PART OF THIS VERIFICATION PROCEDURE.
20. ALL MANHOLES, INLETS, CLEANOUTS, METER VAULTS, UTILITY ACCESS BOXES, RISERS, VALVE AND SHUT-OFF BOXES, ETC. SHALL BE ADJUSTED TO ADAPT TO FINISH GRADES.
21. THE CONTRACTOR(S) SHALL VERIFY THE X-Y-Z LOCATION OF EXISTING UTILITIES, SEWERS AND DRAINAGE FACILITIES AS LOCATED EITHER ON OR ADJOINING THE SITE, PRIOR TO ANY OTHER ACTIVITIES THEY MAY UNDERTAKE ON THE SITE, AND PROTECT SAME DURING THEIR WORK.
22. THE CONTRACTOR SHALL KEEP EXISTING ROADWAYS CLEAN OF MUD AND DEBRIS.
23. OMITTED
24. ALL TRENCHES UNDER AREAS TO BE PAVED, AND UNDER EXISTING PAVING, SHALL BE BACKFILLED TO SUBGRADE WITH DURABLE CRUSHED LIMESTONE. USE CLEAN STONE WHERE RECOMMENDED BY THE SOILS ENGINEER. REFERENCE THE PROJECT GEOTECHNICAL REPORT. THE GRANULAR MATERIAL, INCLUDING GRADATION AND PLACEMENT, TO BE IN ACCORDANCE WITH THE STANDARDS OF MODOT, M.S.D., THE CITY OF GLENDALE. AND/OR THE SOILS ENGINEER, WHICHEVER REQUIREMENTS MAY BE MORE STRINGENT. WHEREVER THE EDGE OF THE UTILITY AND/OR SEWER TRENCH IS LESS THAN THREE (3) FEET FROM THE PROPOSED OR EXISTING EDGE OF PAVED AREAS, GRANULAR BACKFILL IS REQUIRED.
25. IN ALL REGARDS THE PREVENTION OF TRENCH SETTLEMENT UNDER IMPROVED AREAS IS ESSENTIAL. RESTORATION OF SETTLED AREAS AND ANY DAMAGE RESULTING THEREFROM IS THE RESPONSIBILITY OF THE CONTRACTOR.
26. OMITTED
27. ALL DIMENSIONS AND OFF-SET DISTANCES ARE TO THE BACK OF CURB, EXCEPT WHERE NOTED.
28. VERTICAL CLEARANCE BETWEEN SANITARY SEWERS AND WATER SERVICE LINES OR WATER MAINS SHALL BE MINIMUM OF 2' -0"
29. RETAINING WALLS OF CAST-IN-PLACE CONCRETE, PRE-CAST SEGMENTAL UNITS (SRW) OR OTHER SYSTEMS TO BE DESIGNED BY THE SOILS ENGINEER OR THE WALL CONTRACTOR. WALL CONTRACTOR TO SUPPLY SEALED SHOP DRAWINGS, DETAILS AND STRUCTURAL CALCULATIONS AS MAY BE REQUIRED TO OBTAIN PERMITS FROM LOCAL REVIEW AGENCIES FOR ANY RETAINING WALLS.
30. THE DEVELOPER IS ADVISED THAT UTILITY COMPANIES MAY/WILL/CAN REQUIRE COMPENSATION FOR RELOCATION OR ADJUSTMENT OF THEIR FACILITIES WITHIN THE PUBLIC ROAD RIGHT-OF-WAY. UTILITY RELOCATION OR ADJUSTMENT COSTS MAY BE THE DEVELOPER'S RESPONSIBILITY. THE DEVELOPER SHOULD ALSO BE AWARE OF EXTENSIVE DELAYS TO ACCOMPLISH UTILITY RELOCATIONS AND ADJUSTMENTS. SUCH DELAYS MAY ENCUMBER THE CONSTRUCTION SCHEDULE OR OCCUPANCY.
31. ALL CONTRACTORS ARE TO PROVIDE ADEQUATE OFF-STREET PARKING FOR THEIR EMPLOYEES AND SUBCONTRACTORS. PARKING ON H NON-SURFACED AREAS SHALL BE PROHIBITED IN ORDER TO ELIMINATE THE CONDITION WHEREBY MUD FROM CONSTRUCTION AND EMPLOYEE VEHICLES MAY BE TRACKED ONTO THE STREET PAVEMENT AS MAY POTENTIALLY CREATE HAZARDOUS CONDITIONS. CONSTRUCTION ENTRANCE, EMPLOYEE PARKING, WASHDOWN AREA: PROVIDE 8" TYPE "1" (MODOT) FREE-DRAINING AGGREGATE BASE OF A SIZE AS NEEDED TO ACCOMMODATE THE NUMBER AND SIZE OF CONSTRUCTION VEHICLES. A WASH STATION CONSISTING OF A ROCKED AREA CONNECTED TO ANY TEMPORARY DRIVEWAY AND PARKING AREA, INCLUDING A WATER SERVICE LINE OR WATER TRUCK, WILL NORMALLY BE REQUIRED ALONG WITH ADEQUATE PERSONNEL / STAFFING FOR REMOVAL OF MUD FROM VEHICLES LEAVING THE SITE. OTHER METHODS OF MUD CONTROL MAY BE SUBMITTED TO THE CITY FOR CONSIDERATION AND APPROVAL PRIOR TO IMPLEMENTATION. LIMITATIONS AS TO THE USE OF TEMPORARY ENTRANCES SHALL BE AS DETERMINED BY THE CITY.
32. ALL WORK WITHIN THE STREET RIGHT-OF-WAY, INCLUDING HAULING, SHALL OCCUR ONLY BETWEEN THE HOURS OF 9:00 AM AND 2:00 PM, UNLESS APPROVED OTHERWISE BY THE CITY OF GLENDALE.

B. SITE PREPARATION AND GRADING

1. DEMOLITION CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH UTILITY PROVIDERS AND LOCAL REVIEW AGENCIES, AND ACQUIRE ALL NEEDED PERMITS, FOR REMOVAL, RELOCATIONS, DISCONNECTS AND/OR THE CAPPING OFF OF ALL EXISTING UTILITIES INCLUDING PRIVATE SERVICE LINES AS MAY BE ENCOUNTERED ON THE SITE.
2. DEMOLITION CONTRACTOR TO REMOVE ALL RESIDUAL DEBRIS FOLLOWING HIS ACTIVITIES. DISPOSAL OF ALL DEBRIS TO BE IN ACCORD WITH LOCAL, STATE AND FEDERAL REQUIREMENTS. OCATED
3. AS DIRECTED BY THE OWNER OR LOCAL AGENCIES, ANY MATERIALS AS RESULT FROM DEMOLITION THAT ARE TO BE SALVAGED FOR RE-USE SHALL BE STORED AND PROTECTED FROM DAMAGE BY THE CONTRACTOR.
4. SEWERS AND SEWER STRUCTURES EITHER TO BE DEMOLISHED OR ABANDONED AND REMOVED FROM SERVICE ARE TO BE TREATED AS DIRECTED BY M.S.D. AS MAY INCLUDE COMPLETE REMOVAL, GROUT INFILL, ETC.
5. IT SHALL BE THE RESPONSIBILITY OF THE GRADING CONTRACTOR TO NOTIFY THE PROJECT GEOTECHNICAL ENGINEER OF WORK IN PROGRESS AND TO COMPLY WITH THE SPECIFICATIONS DEVELOPED BY THE GEOTECHNICAL ENGINEER WITH REGARDS TO SURFACE PREPARATION, EXCAVATION, PLACEMENT OF FILL, AND COMPACTION. SHOULD THE OWNER NOT HAVE A SOILS REPORT FOR THIS PROJECT, IT IS THE RESPONSIBILITY OF THE GRADING CONTRACTOR TO ARRANGE FOR ONE TO BE PERFORMED, AT THEIR EXPENSE, AND TO COMPLY WITH THE RECOMMENDATIONS WITHIN THE REPORT.
6. ALL EXCAVATIONS, WHETHER THEY BE UTILITY TRENCHES OR FOOTING EXCAVATIONS, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) "CONSTRUCTION STANDARDS FOR EXCAVATIONS.
7. IN THE ABSENCE OF ANY REQUIREMENTS AS SET FORTH BY THE PROJECT GEOTECHNICAL ENGINEER, ALL WEEDS, BRUSH, SHRUBS, TREES STUMPS, ROOTS, TRASH, DEBRIS, RUBBLE, BROKEN ASPHALT, FOUNDATIONS, TANKS, VAULTS, ORGANIC MATERIAL & REFUSE, OR ANY OTHER DELETERIOUS FILL MATERIAL, DEEMED BY THE SOILS ENGINEER AS BEING INCAPABLE OF SUPPORTING THE BUILDING, VEHICULAR AND/OR OVERBURDEN LOADS TO BE IMPOSED, [SUCH MATERIAL AS MAY BE LOCATED EITHER ON THE SURFACE OR BURIED WITHIN THE LIMITS OF GRADING AND/OR BUILDING OR PAVED AREAS], SHALL BE CLEARED, GRUBBED OR EXCAVATED AS THE CASE MAY DICTATE, PRIOR TO GRADING, AND SHALL BE REMOVED FROM THE SITE OR DISPOSED OF ON SITE IN A MANNER AS APPROVED BY APPLICABLE RULES AND REGULATIONS OF THE LOCAL REGULATORY AGENCIES AND AS FURTHER DIRECTED BY THE SOILS ENGINEER.

CONSTRUCTION NOTES CONT.

B. SITE PREPARATION AND GRADING (CONT')

8. IN THE ABSENCE OF ANY REQUIREMENTS AS SET FORTH BY THE PROJECT GEOTECHNICAL ENGINEER, SHOULD BURIED TANKS OR CHAMBERS BE ENCOUNTERED, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ANY CONTENTS. DISPOSAL REQUIREMENTS MAY VARY DEPENDING UPON THE CONTENTS OF THE TANK OR CHAMBER, AND THE CONTRACTOR SHALL COMPLY WITH PERTINENT LOCAL, STATE AND FEDERAL REGULATIONS IN THIS REGARD. UNLESS SPECIFIED ON THE SITE PLAN OR WITHIN THE PROJECT GEOTECHNICAL REPORT FOR THE TANK TO BE COMPLETELY REMOVED, THE BOTTOM OF THE CHAMBER SHALL BE PERFORATED TO ALLOW FOR DRAINAGE. IF THE TOP OF THE TANK IS CONCRETE, IT MAY BE BROKEN UP AND SELECTIVELY DEPOSITED IN THE TANK WITH DUE CONCERN TO ELIMINATE ANY VOIDS. THE SIDEWALLS SHALL BE LOWERED AT LEAST TWO (2) FEET BELOW PROPOSED SUBGRADE. THE REMAINDER OF THE TANK SHALL BE FILLED WITH GRANULAR MATERIAL. SELECT EARTH, COMPACTED IN PLACE, SHALL BE USED TO BRING THE SURFACE TO SUBGRADE. TANKS LOCATED BENEATH BUILDINGS OR AREAS TO BE PAVED SHALL BE COMPLETELY REMOVED, AND THE RESULTANT EXCAVATION BACKFILLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SOILS ENGINEER. ANY TANKS IN CORRIDORS FOR UNDERGROUND INSTALLATIONS, INCLUDING BUT NOT LIMITED TO SEWERS, UTILITY SERVICE LINES, ETC., SHALL BE SIMILARLY TREATED AND/OR REMOVED BY THE CONTRACTOR, IN THE EVENT OF A CONFLICT.
9. SILTATION AND EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBANCE, AND SHALL BE INSPECTED AND MAINTAINED ON A REGULAR BASIS, INCLUDING THE REMOVAL OF ANY ACCUMULATED SILT, UNTIL SUFFICIENT VEGETATION OR IMPROVEMENTS HAVE BEEN ESTABLISHED ON THE SITE TO PREVENT EROSION AND CONTAIN SILT-LADEN RUNOFF. IF LAND DISTURBANCE OPERATIONS OCCUR DURING A SEASON NOT FAVORABLE FOR IMMEDIATE ESTABLISHMENT OF A PERMANENT GROUND COVER, A FAST GERMINATING ANNUAL SUCH AS RYE GRASSES SHALL BE UTILIZED TO RETARD EROSION.
10. THE INSTALLATION AND MAINTENANCE OF ALL SILTATION AND EROSION CONTROL DEVICES (INCLUDING BEST MANAGEMENT PRACTICES A.K.A. BMP'S, FURTHER REFERENCE ANY STORMWATER POLLUTION PREVENTION PLAN [SWPPP] AS MAY BE WITHIN THE DRAWING SET) SHALL BE THE RESPONSIBILITY OF THE GRADING CONTRACTOR. THE APPURTENANT BMP DEVICES, SYSTEMS AND STRUCTURES SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. IN ALL REGARDS CONFORM TO THE REQUIREMENTS OF ANY SITE-SPECIFIC, GENERAL, MAJOR, MINOR OR ORDINARY LAND DISTURBANCE PERMITS, AS MAY INCLUDE THE USE OF APPROVED INSPECTORS TO SAMPLE AND TEST RUNOFF, THE MAKING OR FILING OF REPORTS, AND ANY ASSOCIATED REMEDIAL ACTIVITIES. PRIOR TO ANY LAND DISTURBANCE THE GRADING CONTRACTOR SHALL RESEARCH AND REVIEW WHAT, IF ANY, LAND DISTURBANCE REGULATIONS AND PERMITS ARE EITHER ALREADY IN PLACE OR MAY YET NEED TO BE OBTAINED FOR THE PROPOSED WORK.
11. ALL TOPSOIL IN BORROW AND FILL AREAS SHALL BE EXCAVATED AND DISPOSED OF ON-SITE IN LOCATIONS OUTSIDE THE CONSTRUCTION AREA, OR REMOVED FROM THE SITE. IF THE DRAWINGS INDICATED PLANTING, LANDSCAPING & BERM AREAS, THE TOPSOIL MAY BE STOCKPILED ON-SITE FOR FUTURE REDISTRIBUTION IN THESE PLANTING AREAS. IN NO INSTANCE SHALL TOPSOIL BE PLACED IN BUILDING PADS AND/OR AREAS TO BE PAVED.
12. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT GRADED AREAS FROM, AND AS NECESSARY RESTORE TO GRADE, ANY RUTS, WASHES OR OTHER CHANGES FROM THE DESIGN ELEVATIONS SHOWN HEREON, UNTIL THE GRADING WORK IS ACCEPTED BY THE OWNER.
13. IN THE ABSENCE OF ANY REQUIREMENTS AS SET FORTH BY THE PROJECT GEOTECHNICAL ENGINEER, ALL FILLS, REFILLED OVEREXCAVATIONS, SCARIFIED SURFACES AND TRENCHES BACKFILLED WITH EARTH SHALL BE COMPACTED TO A MINIMUM OF 90% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED AASHTO COMPACTION TEST, OR ASTM D 1557-78. FILL MATERIAL SHALL BE EVENLY SPREAD IN LIFTS OF THICKNESSES SUCH THAT FOLLOWING THE REQUIRED COMPACTIVE EFFORT; THE COMPACTED LAYER WILL NOT EXCEED SIX (6) INCHES IN DEPTH. THE MOISTURE CONTENT OF THE FILL MATERIAL SHALL BE CONTROLLED WITH THE LIMITS ESTABLISHED BY THE MODIFIED AASHTO COMPACTION TEST OR ASTM D 1557-78. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RETAIN A QUALIFIED SOILS ENGINEER TO OBSERVE ALL PHASES OF THE GRADING OPERATIONS AND TO TEST COMPACTION OF THE FILL DURING PLACEMENT.
14. TOLERANCE OF ALL LINES AND GRADES IN SUBGRADE CROSS SECTIONS TO BE 0.08'.
15. ALL FOOTING EXCAVATIONS SHOULD TERMINATE IN FIRM BEARING SOILS, WHICH IN THE OPINION OF THE SOILS ENGINEER, ARE CAPABLE OF SUPPORTING THE LOADS TO BE IMPOSED. THE BASE OF ALL EXCAVATIONS SHOULD BE PROTECTED FROM EXTREME TEMPERATURES, PRECIPITATION AND CONSTRUCTION DISTURBANCES.
16. SLOPES ON THIS PROJECT SHALL NOT BE GREATER THAN ONE UNIT VERTICAL TO THREE UNITS HORIZONTAL. SLOPES ARE STEEPER THAN 3:1 REQUIRE A STABILITY ANALYSIS BY THE PROJECT GEOTECHNICAL ENGINEER.
17. ALL EXISTING IMPROVEMENTS AND STRUCTURES ON-SITE SHALL BE REMOVED UNLESS OTHERWISE NOTED ON THE SITE PLANS OR AS DIRECTED BY THE OWNER OR DEVELOPER.
18. THE FINISH GRADE OF THE GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL SLOPE AWAY FROM THE BUILDING AT 1:20 (5 PERCENT) FOR A DISTANCE OF TEN (10) FEET, UNLESS ALTERNATE METHOD(S) ARE PROVIDED TO PREVENT THE ACCUMULATION OF WATER (E.G. STORM DRAINS AND INLETS) AND DIVERT RUNOFF AWAY FROM THE FOUNDATION, IN WHICH CASE THE ELEVATION OF THE TOP OF FOUNDATION OR SLAB SHALL BE A MINIMUM OF TWELVE (12) INCHES ABOVE THE POINT OF DISCHARGE, PLUS TWO (2) PERCENT. ALTERNATE ELEVATIONS ARE PERMITTED SO LONG AS POSITIVE DRAINAGE AWAY FROM THE STRUCTURE IS PROVIDED AT ALL LOCATIONS ON THE SITE, SUBJECT TO APPROVAL BY THE LOCAL BUILDING OFFICIAL.
19. PRIOR TO COMMENCEMENT OF ANY HAULING ONTO OR OFF THE SITE, THE GRADING CONTRACTOR SHALL OBTAIN APPROVAL OF THE HAUL ROUTE(S) AS MAY BE REQUIRED BY THE CITY OF GLENDALE ADDITIONAL INFORMATION AND/OR PLANS MAY BE REQUIRED BY THE CITY.
20. THE OWNER AND/OR GENERAL CONTRACTOR SHALL FULLY COORDINATE THE ACTIVITIES OF THE VARIOUS SUBCONTRACTORS WITH RESPECT TO ATTAINING FINISH ELEVATIONS AND POSITIVE DRAINAGE PATTERNS ON / ACROSS THE SITE, I.E. BULK GRADING TO RECOGNIZE POSSIBLE FUTURE LANDSCAPING, SUCH WORK AS MAY INCLUDE IMPORT OF TOPSOIL PRIOR TO SODDING, SEEDING, PLANTINGS OR PLACING OF MULCH; PROVISIONS FOR REMOVAL OR REDISTRIBUTION OF SPOILS FROM UTILTIES AND SEWER INSTALLATIONS, ETC. REFERENCE NOTE 18.

C. SEWERS AND DRAINAGE

1. ALL MATERIALS AND METHODS OF CONSTRUCTION FOR PUBLIC SANITARY SEWERS AND PUBLIC STORM DRAINAGE TO MEET THE LATEST STANDARDS AND SPECIFICATIONS OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT. (2009 EDITION OR LATER)
2. ALL PUBLIC SEWER AND DRAINAGE STRUCTURES TO CONFORM TO THE STANDARD DETAILS SHOWN IN METROPOLITAN ST. LOUIS SEWER DISTRICT "STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES" (2009 EDITION OR LATER).
3. ALL MANHOLE AND INLET COVERS SHALL BE AS APPROVED BY METROPOLITAN ST. LOUIS SEWER DISTRICT.
4. ALL LATERAL (BUILDING SEWER) CONSTRUCTION METHODS AND MATERIALS TO CONFORM TO THE LATEST STANDARDS AND SPECIFICATIONS OF THE CITY OF GLENDALE PLUMBING CODE.
5. CLEANOUTS SHALL BE LOCATED AT ALL HORIZONTAL CHANGES IN DIRECTION OF FLOW OF LATERALS AND ANY SANITARY LATERAL OF 100' FEET NEE OR LONGER. LOCAL PLUMBING CODES MAY REQUIRE VENTS BE INSTALLED IN THE BUILDING SEWER, CONTRACTOR TO VERIFY AND ADAPT TO THE SITE REQUIREMENTS AS NECESSARY.
6. CLEANOUTS LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC TO BE HEAVY DUTY, WITH A CAST IRON RISER AND A RECESSED LID MARKED `SEWER'. FULLY ENCASE RISER, AND SEWER FITTING AT POINT RISER CONNECTION, WITH CLASS `B' CONCRETE.
7. LIDS FOR CLEANOUTS IN PEDESTRIAN WALKWAYS AND SHALL BE COUNTERSUNK MPT AND SET FLUSH WITH THE FINISH WALKING SURFACE.
8. CAPS FOR CLEANOUTS IN LANDSCAPED AREAS SHALL BE SOLID PVC, MINIMALLY PROJECTED ABOVE GRADE AS NEEDED TO FACILITATE REMOVAL, COLOR AS SELECTED BY OWNER
9. THE TOP ELEVATIONS OF ALL SEWER AND DRAINAGE STRUCTURES AND CLEANOUTS SHALL BE ADJUSTED IN THE FIELD TO MATCH FINAL GRADES.
10. MANHOLES LOCATED IN PAVED AREAS TO HAVE A LOCK TYPE FRAME AND COVER WHERE SO DIRECTED BY M.S.D. OR THE CITY OF GLENDALE PERMIT REQUIREMENTS AND CONSTRUCTION SPECIFICATIONS.
11. FRAMES AND COVERS, FRAMES AND GRATES, OR OTHER SIMILAR PAIRS OF ITEMS SHALL HAVE TRUE COMMON BEARING SURFACES SUCH THAT THE COVERS OR GRATES WILL SEAT FIRMLY WITHOUT ROCKING OR SHIFTING. THE GRATES OR COVERS SHALL BE PLACED AFTER THE FRAMES OR FITTINGS HAVE BEEN INSTALLED AND AFTER THE CONCRETE OR MORTAR HAS BEEN ALLOWED TO HARDEN FOR AT LEAST 24 HOURS AND WILL NOT BE DAMAGED.
12. CONTRACTOR TO START LAYING PIPE AT DOWNSTREAM STRUCTURE AND WORK UPSTREAM.
13. GRATES FOR PRIVATE INLETS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS:
    - A. NON-PAVED PEDESTRIAN WAYS AND PLAY AREAS: FLAT POLYETHYLENE, COLOR AS SELECTED BY OWNER.
    - B. PAVED PEDESTRIAN WAYS AND PLAZAS: FLAT BRONZE, PATTERN AS SELECTED BY OWNER OR LANDSCAPE ARCHITECT
    - C. AREAS SUBJECT TO VEHICULAR TRAFFIC: FLAT GALVANIZED, OF SUFFICIENT CROSS SECTION AS RECOMMENDED BY THE GRATE MFGR FOR THE ANTICIPATED WHEEL LOADINGS, INCLUDING SUPPORTING FRAME, RISER AND ANY ADAPTER
    - D. NON PAVED AREAS NOT SUBJECT TO PEDESTRIAN TRAFFIC, INCLUDING LANDSCAPED AREAS: DOMED OR ATRIUM POLYETHYLENE, COLOR AS SELECTED BY OWNER
14. PIPE LENGTHS ARE MEASURED FROM CENTER OF STRUCTURES OR TO THE END OF FLARED END SECTIONS.
15. 90°BENDS ON PRIVATE DRAIN LINES TO BE ACCOMPLISHED USING DUAL MITER FITTINGS OR 2-45° ELBOWS.
16. ATTENTION SEWER CONTRACTOR:
    - a. FOR SEWER PIPE (STORM AND SANITARY) WITH A DESIGN GRADE LESS THAN ONE PERCENT (1%), VERIFICATION OF THE PIPE GRADE WILL BE REQUIRED FOR EACH INSTALLED REACH OF SEWER, PRIOR TO ANY SURFACE RESTORATION OR INSTALLATION OF ANY SURFACE IMPROVEMENTS. THE CONTRACTOR'S FIELD SUPERVISOR WILL BE REQUIRED TO PROVIDE DAILY DOCUMENTATION VERIFYING THAT THE AS-BUILT PIPE GRADE MEETS THE DESIGN GRADE THROUGH THE SUBMITTAL OF SIGNED CUT SHEETS TO THE MSD INSPECTOR UPON REQUEST.
    - b. FIELD SURVEYED VERIFICATION MUST BE MADE UNDER THE DIRECTION OF A LICENSED LAND SURVEYOR OR REGISTERED ENGINEER. THE CONTRACTOR WILL BE REQUIRED TO REMOVE AND REPLACE ANY SEWER REACH HAVE AN AS-BUILT GRADE WHICH IS FLATTER THAN THE DESIGN GRADE BY MORE THAN 0.1%. SEWERS WITH GRADES GREATER THAN THE DESIGN SLOPE MAY BE LEFT IN PLACE, PROVIDED NO OTHER SEWER GRADE IS REDUCED BY THIS VARIATION IN THE AS-BUILT GRADE.
    - c. MSD RESERVES THE RIGHT TO REQUIRE THE CONTRACTOR TO REMOVE AND REPLACE ANY SEWER (AT ANY TIME PRIOR TO CONSTRUCTION APPROVAL) FOR WHICH THE AS-BUILT GRADE DOES NOT COMPLY WITH THE GRADE TOLERANCE STATED IN THE ABOVE PARAGRAPH.
    - d. THE SEWER CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COSTS ASSOCIATED WITH THE FIELD VERIFICATION OF THE SEWER T L ENEET L GRADE, OR REMOVAL AND REPLACEMENT OF THE SEWER PIPE OR ASSOCIATED APPURTENANCES.
17. MAINTENANCE OF THE SEWERS DESIGNATED AS "PUBLIC" SHALL BE THE RESPONSIBILITY OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT UPON DEDICATION OF THE SEWERS TO THE DISTRICT.
18. CONTRACTOR'S INSURANCE REQUIREMENTS: PRIOR TO OBTAINING A CONSTRUCTION PERMIT FROM THE METROPOLITAN ST. LOUIS SEWER DISTRICT, THE CONTRACTOR SHALL PROVIDE TO THE DISTRICT AS NECESSARY A COPY OF AN EXECUTED "CERTIFICATE OF INSURANCE" INDICATING THAT THE PERMITEE HAS OBTAINED AND WILL CONTINUE TO CARRY COMMERCIAL GENERAL LIABILITY AND COMPREHENSIVE AUTO LIABILITY INSURANCE. THE REQUIREMENTS AND LIMITS SHALL BE AS STATED IN THE "RULES AND REGULATIONS AND ENGINEERING DESIGN REQUIREMENTS FOR SANITARY AND STORMWATER DRAINAGE FACILITY", SECTION 10.090 (ADDENDUM).
19. CONNECTIONS TO SEWERS SHALL BE TRAPPED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF M.S.D. AND THE CITY OF GLENDALE PLUMBING CODE.
20. PIPE FOR PRIVATE ON-SITE GRAVITY STORM DRAINAGE SYSTEM SHALL BE PVC OR DUAL-WALL CORRUGATED HIGH DENSITY OUT POLYETHYLENE (CHDPE) UNLESS WHERE EITHER IS NOTED ON THE DRAWINGS.
21. PVC PIPE FOR PRIVATE ON-SITE STORM DRAINAGE LINES SHALL BE SCHEDULE 40 MEETING THE REQUIREMENTS OF ASTM D1785 "Standard Specification for PolyVinyl Chloride (PVC) Plastic Pipe". WHERE STORM DRAINAGE PIPES ARE LOCATED BENEATH FOOTINGS OR FOUNDATIONS, OR AS OTHERWISE MAY BE DIRECTED ON THE PLANS, SCHEDULE 80 PVC IS REQUIRED. PIPE AND FITTINGS TO BE PRODUCED BY THE SAME MANUFACTURER. FITTINGS SHALL BE MONOLITHIC IN CONSTRUCTION, OF THE SAME MATERIAL AND STRENGTH REQUIREMENTS AS THE PIPE PROPER. FITTINGS AND JOINTS SHALL BE SOLVENT WELDED AND MEET THE REQUIREMENTS OF ASTM D 2466 "PVC Plastic Fittings, Schedule <AS REQUIRED>" AND ASTM D 2564 "Solvent Cements for PVC Pipe and Fittings." CONTRACTOR TO FIRST DRY FIT THE PIPE ASSEMBLY TO THE REQUIRED ALIGNMENT, PRIOR TO GLUING THE JOINTS. INSTALLATION TO BE IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS AND/OR APPLICABLE LOCAL PLUMBING CODES.
22. CHDPE PIPE FOR PRIVATE ONSITE STORM DRAINAGE SHALL BE MADE ENTIRELY OF POST-INDUSTRIAL RECYCLED POLYETHYLENE, AND HAVE A SMOOTH INTERIOR WALL THAT PROVIDES A MANNING'S "N" VALUE OF NOT GREATER THAN 0.013. FITTINGS SHALL BE FABRICATED AT THE FACTORY, UNLESS APPROVED BY THE ENGINEER. JOINTS SHALL BE BELL AND SPIGOT, SILT-TIGHT APPLICABLE TESTING REQUIREMENTS INCLUDE: AAHSTO M252, TYPE S, EXCEPT FOR RAW MATERIAL REQUIREMENTS; ASTM D3350, CELL CLASSIFICATION ASTM 324420C; ASTM F477. INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D2321. MINIMUM COVER IN ALL LAWN AREAS SHALL BE 12 INCHES, 24 INCHES IN PAVED AREAS. CHDPE PIPE AND FITTINGS SHALL BE MANUFACTURED BY HANCOR, ADS OR APPROVED EQUAL.

CONSTRUCTION NOTES CONT.

C. SEWER AND DRAINAGE (CONT')

23. BEDDING AND BACKFILL OF PRIVATE STORM DRAINAGE LINES SHALL BE IN ACCORDANCE WITH LOCAL PLUMBING CODES.
24. ALL FILL UNDER STORM OR SANITARY LINES CONSTRUCTED ABOVE THE ORIGINAL GRADE SHALL BE COMPACTED TO 90% OF MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED A.A.S.H.T.O. COMPACTION TEST. THE SOILS ENGINEER SHALL VERIFY THAT ALL COMPRESSIBLE MATERIAL HAS BEEN REMOVED PRIOR TO PLACEMENT OF ANY FILL AND THAT ALL FILL, UNDER SANITARY AND STORM LINES CONSTRUCTED ABOVE ORIGINAL GRADE, HAS BEEN COMPACTED TO 90% OF THE "MODIFIED PROCTOR". FILL IS TO BE PLACED IN A MAXIMUM OF 9" LIFTS. TESTS SHALL BE TAKEN AT A MAXIMUM OF 50 FOOT INTERVALS ALONG THE ROUTE OF THE PIPE; AT A MAXIMUM OF TWO (2) FEET VERTICALLY; AND LATERALLY ON EACH SIDE OF THE PIPE, AT A DISTANCE EQUAL TO THE DEPTH OF FILL OVER THE PIPE. A COPY OF THESE TEST RESULTS IS TO BE SUBMITTED BY THE SOILS ENGINEER TO M.S.D. PRIOR TO CONSTRUCTION OF THE SEWER LINE.
25. M.S.D. TYPE "C" BEDDING IS REQUIRED FOR PIPES INSTALLED IN AREAS OF ROCK EXCAVATION.
26. **STANDARD CONSTRUCTION:** ALL STORM AND SANITARY SEWER STRUCTURES AND APPURTENANCES TO BE DEDICATED TO MSD, OR TO BE PRIVATE UNDER MSD INSPECTION, SHALL CONFORM TO THE METROPOLITAN ST. LOUIS SEWER DISTRICT, STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWERS AND DRAINAGE FACILITIES, 2009. THAT WILL INCLUDE STANDARD DETAILS SHOWN THEREIN, AND SHALL INCLUDE ALL SUBSEQUENT CHANGES MADE THERETO.
27. SOME RECENT CHANGES CONCERN PIPE FIELD TESTING AND PERFORMANCE, AND INCLUDE THE FOLLOWING:

PART 2 - MATERIALS OF CONSTRUCTION:

HIGH DENSITY POLYETHYLENE (HDPE) PIPE IS NOT ALLOWED FOR GRAVITY SEWERS FOR STORM, COMBINED, OR SANITARY SEWERS THAT ARE "PUBLIC" OR "PRIVATE UNDER MSD INSPECTION". POLYPROPYLENE (PP) PIPE IS ALLOWED AS FOLLOWS FOR GRAVITY SEWERS THAT ARE "PUBLIC" OR "PRIVATE UNDER MSD INSPECTION:

- FOR USE IN SANITARY AND COMBINED SEWERS 12 TO 60 INCHES IN DIAMETER IT SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2764 "STANDARD SPECIFICATION FOR 6 TO 60 IN. POLYPROPYLENE (PP) CORRUGATED DOUBLE AND TRIPLE WALL PIPE AND FITTINGS FOR NON- PRESSURE SANITARY SEWER APPLICATIONS."
- FOR USE IN STORM SEWERS 12 TO 24 INCHES IN DIAMETER IT SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2881 "STANDARD SPECIFICATION FOR 12 TO 60 IN. POLYPROPYLENE (PP) DUAL WALL PIPE AND FITTINGS FOR NON-PRESSURE STORM SEWER APPLICATIONS;" OR
- FOR USE IN STORM SEWERS 12 TO 60 INCHES IN DIAMETER IT SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2764 "STANDARD SPECIFICATION FOR 6 TO 60 IN. POLYPROPYLENE (PP) CORRUGATED DOUBLE AND TRIPLE WALL PIPE AND FITTINGS FOR NON-PRESSURE SANITARY SEWER APPLICATIONS."

PART 4 - PIPE SEWER CONSTRUCTION:

SECTION B, PIPE FIELD TESTS, PARAGRAPH 2, REACH INTEGRITY TESTING - DELETE THE FIRST SENTENCE AND THE FOLLOWING REPLACEMENT APPLIES:

-ALL SANITARY AND COMBINED SEWERS SHALL SUSTAIN A MAXIMUM LEAKAGE LIMIT OF 100 GALLONS/INCH OF PIPE DIAMETER MILE OF LINE/DAY, AS REQUIRED BY THE MISSOURI DEPARTMENT OF NATURAL RESOURCES SPECIFICATIONS.

SECTION B, PIPE FIELD TESTS, PARAGRAPH 2, REACH INTEGRITY TESTING, SUBPARAGRAPH C, INFILTRATION/EXFILTRATION TESTING - DELETE THE SIXTH SENTENCE, CONCERNING LEAKAGE LIMITS, AND THE FOLLOWING REPLACEMENT APPLIES:

-THE MEASUREMENT OF LEAKAGE SHALL NOT EXCEED 100 GALLONS/INCH OF PIPE DIAMETER/MILE OF LINE/DAY, AS REQUIRED BY THE MISSOURI DEPARTMENT OF NATURAL RESOURCES SPECIFICATIONS.

SECTION B, PIPE FIELD TESTS, PARAGRAPH 4, MANHOLE TESTING, SUBPARAGRAPH A, VACUUM TESTING - AFTER THE FIRST SENTENCE, THE FOLLOWING ADDITION APPLIES:

-THE VACUUM TEST MUST BE PERFORMED PRIOR TO BACKFILLING AROUND THE MANHOLE UNLESS THE CONTRACTOR PROVIDES DOCUMENTATION FROM THE PRECAST MANHOLE MANUFACTURER STATING THAT THE MANHOLE MAY BE VACUUM TESTED AFTER BACKFILLING HAS TAKEN PLACE. THE CONTRACTOR MUST SUBMIT THIS DOCUMENTATION PRIOR TO BACKFILLING AROUND ANY MANHOLE.

SECTION B, PIPE FIELD TESTS, PARAGRAPH 4, MANHOLE TESTING, SUBPARAGRAPH B, EXFILTRATION TESTING - DELETE THE SECOND SENTENCE, CONCERNING LEAKAGE LIMITS, AND THE FOLLOWING ADDITION APPLIES:

-FOR EXFILTRATION TESTING, THE ALLOWABLE LEAKAGE LIMIT IS 100 GALLONS/INCH OF PIPE DIAMETER/MILE OF LINE/DAY WHEN THE AVERAGE HEAD ON THE TEST SECTION IS THREE FEET (3') OR LESS.

-IF REINFORCED CONCRETE PIPE IS USED FOR SANITARY OR COMBINED SEWERS LARGER THAN 27", ALL PIPE AND JOINTS SHALL CONFORM TO ASTM C 361, IN ADDITION, IF THE DIAMETER IS LARGER THAN 48", THE JOINT TYPE MUST INCLUDE A GASKET THAT IS CONFINED IN A GROOVE IN THE SPIGOT OF THE PIPE.

D. OTHER UTILITIES

1. MATERIALS FOR AND INSTALLATION OF WATER SERVICE LINES, TAPS AND METER SETS, INCLUDING FIRE SUPPRESSION SERVICE, SHALL BE IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODE(S) AND THE RULES OF THE MISSOURI AMERICAN WATER COMPANY.
2. DOMESTIC WATER SERVICE LINES LESS THAN 4" IN DIAMETER SHALL BE RIGID COPPER, WITH SILVER SOLDERED JOINTS.
3. FIRE SUPPRESSION LINES, PRIVATE DOMESTIC WATER SERVICE LINES (4 INCHES OR GREATER IN DIAMETER) AND/OR MAINS TO SERVICE ON-SITE PRIVATE FIRE HYDRANTS SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE CONFORMING TO THE REQUIREMENTS OF AWWA C150 AND C151, WITH A MINIMUM PRESSURE CLASS OF 250. THE WALL THICKNESS SHALL BE INCREASED AS NEEDED TO ADAPT TO THE EXPECTED MAXIMUM LOCAL WORKING PRESSURE PLUS 100 PSI SURGE ALLOWANCE, OR AS MAY BE FURTHER INCREASED PER LOCAL PLUMBING CODES. THE PIPE SHALL HAVE ASPHALTIC COATING ON THE EXTERIOR (WITH POLYETHYLENE WRAP WHERE REQUIRED BY LOCAL PLUMBING CODES) AND A CEMENT MORTAR LINING ON THE INTERIOR (AWWA C104). FITTINGS SHALL BE DUCTILE IRON WITH MECHANICAL JOINTS MEETING THE APPLICABLE STANDARDS OF AWWA C110, C111, OR C153 AND BE FURNISHED COMPLETE WITH ALL NECESSARY ACCESSORIES. ALL PIPE, FITTINGS AND ACCESSORIES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH AWWA C600. MAINS AND SERVICE LINES PROVIDING DOMESTIC WATER SERVICE SHALL BE DISINFECTED PER AWWA C651 PRIOR TO PLACING IN SERVICE
4. WATER SERVICE LINES MUST BE LAID IN A TRENCH SEPARATE FROM THE SEWER TRENCHES BY AT LEAST TEN *10) FEET HORIZONTALLY, AND WHERE THE SERVICE LINE CROSSES THE SEWER, EIGHTEEN (18") INCHES HIGHER ABOVE OR BELOW THE SEWER.
5. ALL FIRE AND DOMESTIC WATER SERVICE LINES TO HAVE A MINIMUM COVER OF FORTY TWO (42) INCHES AT ALL POINTS.

E. PAVING

1. MATCH EXISTING CURBING AND PAVEMENT IN HORIZONTAL LOCATION AND ELEVATION.
2. EXISTING PAVEMENT AS REMOVED AND REPLACED SHALL BE FINISHED TO THE SAME LEVEL, SURFACE TEXTURE (CRACKS OR OTHER DETERIORATION ARE NOT CONSIDERED TEXTURE) AND COLOR AS THE ADJOINING PAVEMENT THAT REMAINS IN PLACE.
3. ASPHALTIC CONCRETE CURBS SHALL BE MACHINE LAID, UNLESS AS OTHERWISE APPROVED BY THE ENGINEER.
4. MATERIALS AND METHODS OF CONSTRUCTION FOR ALL PAVING, FLATWORK AND CURBING, CONCRETE OR ASPHALT, TO BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF MODOT AND/OR THE CITY OF GLENDALE, INCLUDING ASPHALT, AGGREGATE, BASE MATERIAL, GEOTEXTILES, CONCRETE AND REINFORCING, JOINTS AND SEALANTS, EXCEPT WHERE OTHERWISE NOTED ON THE DRAWINGS.
5. CONCRETE PAVING TO HAVE A COMPRESSIVE STRENGTH OF 4000 PSI. REFER TO MODOT SECTIONS 501, 502 AND ANY CROSS REFERENCES.
6. BRICK OR COBBLESTONE PAVERS AND STONE CURBS, WHERE REQUIRED, TO MEET THE CITY OF GLENDALE STANDARDS WITH RESPECT TO BOTH MATERIALS AND INSTALLATION.
7. CONTRACTOR TO WARP PAVING TO ADAPT TO DESIGN INTENT FOR DRAINAGE PATTERNS. REFER TO DRAINAGE AREA MAP AS NEEDED. FULLY SHAPE AND REVIEW SUBGRADE FOR PROPER DRAINAGE PATTERNS PRIOR TO PLACING ANY PAVING IN WARPED AREAS, ESP. PARKING LOTS. FOR CONCRETE PAVING, SET FORMS TO ADAPT TO FINISH ELEVATIONS, INCLUDING VERTICAL BREAK POINTS AS MAY BE REQUIRED INCREMENTAL TO HORIZONTAL SURFACE JOINTING. CONTACT THE OFFICE OF THE ENGINEER FOR ADDITIONAL AND/OR HIGHER-ORDER SPOT ELEVATIONS AND/OR CONSTRUCTION LAYOUT AS NEEDED TO ESTABLISH FORMS. UPON COMPLETION, ALL PAVING TO EXHIBIT POSITIVE DRAINAGE. REMOVE AND REPLACE ANY PAVING THAT DOES NOT DRAIN.
8. THE FINAL POSITION OF ALL DOWELS AND TIE-BARS SHALL BE PERPENDICULAR TO THE PLANE OF THE JOINT AND PARALLEL TO THE SURFACE OF THE PAVEMENT AND PARALLEL TO EACH OTHER.
9. THE WIDTH AND LOCATION OF EACH POURED PORTION OF CONCRETE PAVEMENT MAY CHANGE THE TYPE AND LOCATION OF JOINT REQUIRED.
10. ALL DEFORMED BARS FOR JOINTS AND CURBS SHALL BE IN ACCORDANCE WITH AASHTO M 31, GRADE 40 AND EPOXY COATED. A
11. THE FREE END OF DOWEL BARS, FOR A LENGTH OF AT LEAST 11 INCHES, SHALL BE COATED WITH AN APPROVED LUBRICANT CONFORMING TO MODOT STANDARD SPECIFICATIONS, OR THE CONTRACTOR MAY SUBSTITUTE COMPLETE BASKET UNITS PRE-DIPPED IN AN APPROVED BOND BREAKER SOLUTION.
12. ALL DOWEL BARS SHALL BE EPOXY COATED.
13. PRIOR TO SETTING FORMS FOR CURBS OR OTHERWISE PLACING PAVEMENT THROUGH INTERSECTIONS AND ROUNDINGS, CONTRACTOR SHALL CAUSE THE IMPROVEMENTS TO BE STAKED AND ESTABLISH A CONTINUOUS STRING LINE AT THE PROPOSED TOP OF CURB ELEVATION, TO VERIFY SMOOTH GRADE TRANSITIONS, POSITIVE DRAINAGE AT ALL LOCATIONS, AND COMPATIBILITY WITH ANY ADJOINING ACCESSIBLE RAMPS AND WALKS. PENDING SUCH REVIEW, SHOULD ADJUSTMENTS PROVE NECESSARY, CONTRACTOR SHALL INQUIRE WITH OFFICE OF THE ENGINEER FOR INPUT ON ANY PROPOSED MODIFICATIONS.
14. ISOLATION JOINTS TO BE FLEXIBLE, NON-DEGRADEABLE SPONGE RUBBER OF THE THICKNESS NOTED ON THE PLANS.
15. SEALING OF ISOLATION JOINTS: PROVIDE BOND BREAKER SURFACE OR PLASTIC TAPE BETWEEN SEALANT AND JOINT FILLER BOARD. SEALER TO BE COLOR MATCHED TO PAVEMENT, AND MEET THE MATERIAL SPECS OF MODOT. INSTALL PER MFGR RECOMMENDATIONS, AND TOOL SURFACE.
16. SEAL EXPANSION JOINT FILLER BOARD IN PLAZAS, ENTRYWAYS, RAMPS & STAIRS WITH PERFORMED MATERIAL SIMILAR TO "G-SEAL" AS MFGR BY GREENSTREAK, OR AS APPROVED BY ARCHITECT OR ENGINEER.
17. SEAL EXPANSION JOINT FILLER BOARDS AS EXPOSED TO WEATHER, HORIZONTAL AND VERTICAL PLANES, IN SIDEWALKS CURBS, OR CURBS AND GUTTERS, WITH GUN-GRADE SEALANT COLOR MATCHED TO THE ADJOINING CONCRETE. SEALER TO MEET APPLICABLE MODOT SPECIFICATIONS. TRIM FILLER BOARDS AS NECESSARY PRIOR TO PLACING SEALANT. TOOL EXPOSED SURFACE OF SEALANT FOR A SMOOTH APPEARANCE, AND TO FILL ANY VOIDS.
18. JOINTING OF NEW PAVEMENT TO BE IN ACCORD WITH MODOT AND/OR CITY OF DES PERES STANDARDS AND DETAILS. THE CONTRACTOR SHALL DETERMINE THE FINAL JOINT SPACING BASED ON FIELD CONDITIONS. SEE SHEET C7 FOR GENERAL JOINTING PLAN, CONTRACTOR TO ADAPT TO ACTUAL FIELD CONDITIONS.
19. COLOR OF STRIPING FOR NON-ACCESSIBLE PARKING SPACES TO BE EITHER AS SELECTED BY THE OWNER OR AS MAY BE REGULATED BY THE LOCAL PERMIT AUTHORITY, AND SHALL SUPERSEDE THAT AS MAY BE SHOWN ON THE DRAWINGS.
20. PEDESTRIAN WALKS INTERNAL TO THE SITE SHALL HAVE A BROOM FINISH APPLIED ACROSS THE WIDTH OF THE WALK. SIDEWALKS IN THE PUBLIC RIGHT-OF-WAY SHALL HAVE A JOINT PATTERN AND BE SURFACE FINISHED IN ACCORD WITH THE STANDARDS AND SPECIFICATIONS OF THE APPLICABLE LOCAL PERMIT AUTHORITY. PLAZAS AND ENTRY WAYS SHALL BE FINISHED AND PATTERNED (JOINTED) PER THE ARCHITECTURAL OR LANDSCAPE ARCHITECTURAL PLANS, AS MAY INCLUDE EXPOSED AGGREGATE, COLORING, STAMPING OR A SMOOTH TOWELED FINISH. IN THE ABSENCE OF ANY DIRECTIVES BY THE ARCHITECT OR LANDSCAPE ARCHITECT, CONTRACTOR TO CONSULT WITH THE OWNER FOR PREFERRED FINISH AND REFER TO ANY JOINTING PLAN WITHIN THE DRAWINGS.

F. EXCAVATIONS IN PUBLIC RIGHTS OF WAY OR PAVED AREAS

1. OPEN TRENCH CROSSINGS OR EXCAVATIONS REQUIRE PAVEMENT REMOVAL TO AN EXISTING JOINT IN CONCRETE PAVEMENT OR AREAS OF PAVER STONES, OR TO A SAW CUT EDGE IN ASPHALT PAVEMENT. BACK FILL TO BE IN ACCORDANCE WITH THE PERMIT REQUIREMENTS OF THE CITY OF GLENDALE STREET DEPARTMENT.
2. THE CITY OF GLENDALE STREET DEPARTMENT SHALL BE NOTIFIED PRIOR TO BEGINNING WORK WITHIN ANY STREET OR ALLEY R.O.W., WITH SUFFICIENT ADVANCE NOTICE PER THE CONDITIONS IN THE APPLICABLE PERMITS, OR A MINIMUM OF 48 HOURS.
3. ALL EXCAVATIONS WITHIN THE PUBLIC ROAD RIGHT-OF-WAY SHALL BE COVERED AND PROTECTED AT ALL TIMES OTHER THAN DURING WORKING OPERATIONS. EXCAVATED MATERIALS SHALL NOT BE STORED ON THE ROADWAY SURFACE OVERNIGHT. PAVEMENT SHALL BE KEPT CLEAN AND FREE OF MUD, ROCK AND DEBRIS AT ALL TIMES. FLAGMEN, BARRICADES AND/OR OTHER SAFETY DEVICES TO BE AS DIRECTED BY THE CITY OF GLENDALE STREET DEPARTMENT, MODOT OR OSHA REQUIREMENTS.
4. FOLLOWING COMPLETION OF CONSTRUCTION, ALL TEMPORARY MATERIALS SHALL BE REMOVED AND THE RIGHT-OF-WAY FULLY RESTORED TO ITS ORIGINAL CONDITION. ALL DISTURBED EARTHEN AREAS WITH THE RIGHT-OF-WAY SHALL BE REGRADED AND RESTORED BY SODDING. EXISTING IMPROVEMENTS DAMAGED WITHIN THE ROAD RIGHT-OF-WAY SHALL BE REPLACED AS DIRECTED BY THE CITY OF GLENDALE.

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Daniel C. Wind, P.E.

DISCLAIMER

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810 BROWNELL AVE
CITY OF GLENDALE, ST. LOUIS COUNTY, MO 63122
CONSTRUCTION NOTES

Prepared By:

122 N. Kirkwood Road
Kirkwood, MO 63122
Telephone: 314.965.WIND

Prepared For:

BENCHMARK
CUSTOM HOME BUILDERS, INC
13281 SPINDLE LANE
ST. LOUIS, MO 63122

No.	Date:	Description:	P.E. Signature
1	3/3/2026	ARB SUBMITTAL	

REVISIONS/STATUS

WIND ENGINEERING
COMPANY
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Date:	1/19/2026
Field Work: PC	Field Checked: DW
Drawn By: PC	C. S. O.: PC
Checked By:	DW
Project Number:	25038
Sheet Number:	C2

THE GRID, AS DEFINED BY THE NUMBERS AND LETTERS IN THE BINDING AND UPPER MARGINS OF THIS SHEET, ARE FOR REFERENCE ONLY AND SHOULD NOT BE INTERPRETED AS HAVING ANY SCALE WITH RESPECT TO THE DRAWING'S CONTENTS OR GEOMETRY.

NORTH

SCALE: 1"=10'


#1

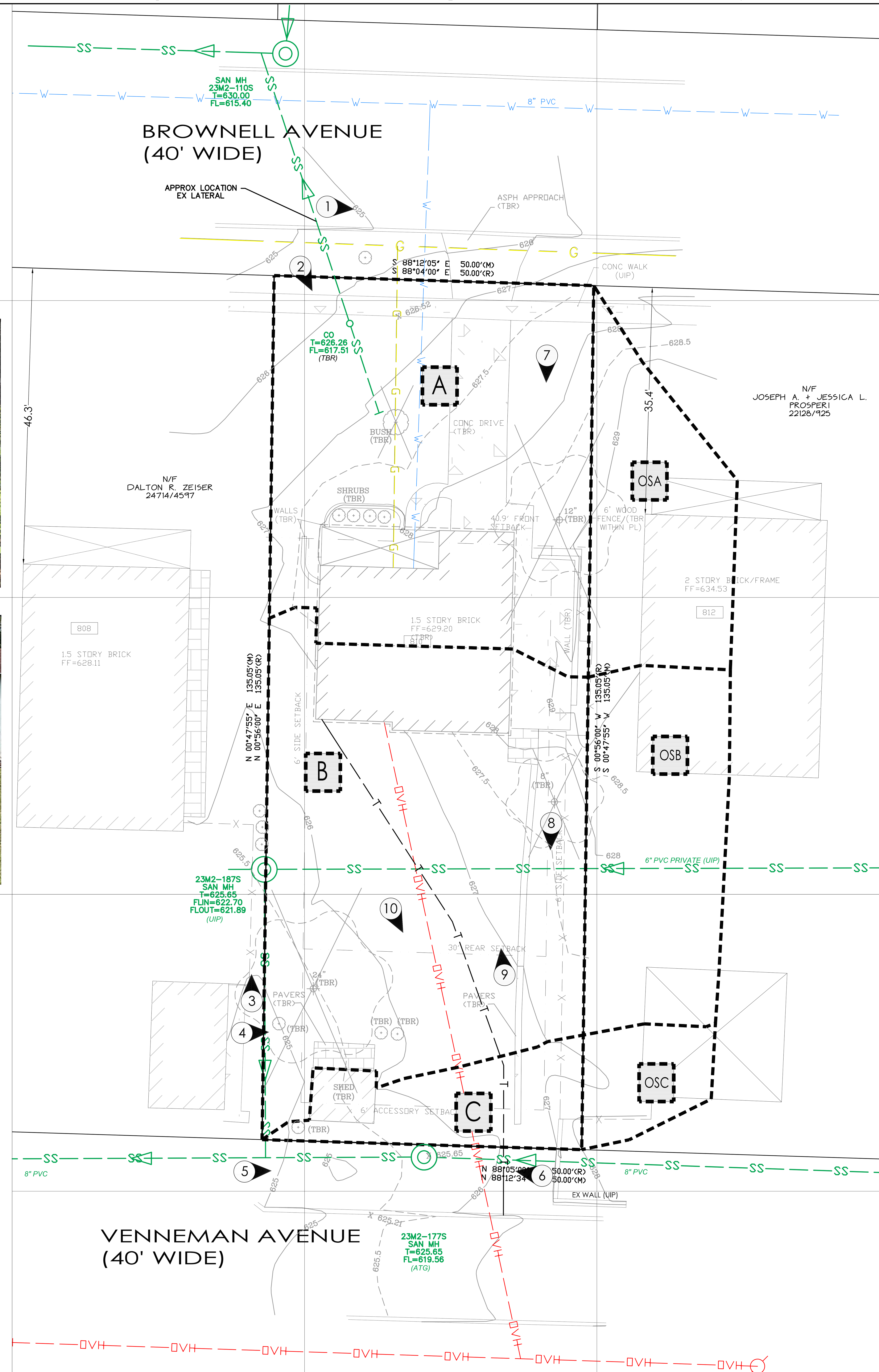

#2


#3


#4


#5

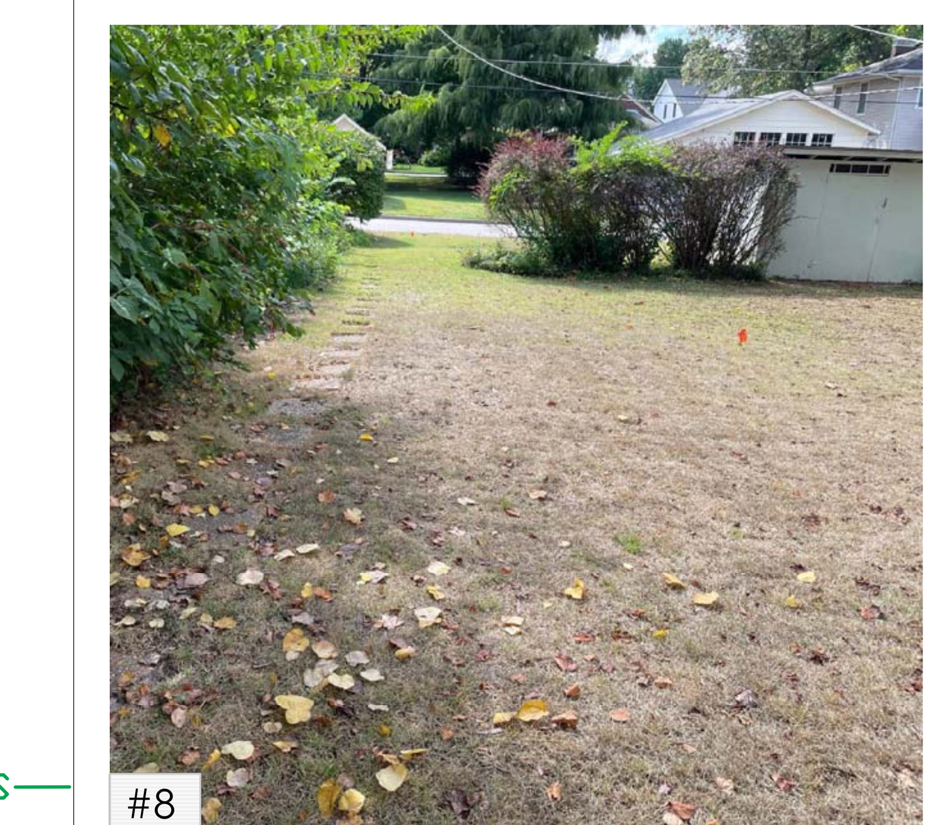

#6



KEYED NOTES

GENERAL: SEE NOTICES TO CONTRACTOR THIS SHEET AND KEYED NOTES OTHER SHEETS AS MAY BE APPLICABLE TO WORK DEPICTED ON THIS DRAWING.


#7


#8


#9


#10

EXISTING DRAINAGE AREAS

ON-SITE

DRAINAGE AREA	SURFACE	AREA (SF)	AREA (AC)	PI 15YR/20MIN (CFS/AC)		Q 15YR/20MIN (CFS)	PI 100YR/20MIN (CFS/AC)		Q 100YR/20MIN (CFS)	AVERAGE % IMPERVIOUS	TRIBUTARY TO
A	ROOF	574	0.01		3.54	0.05		4.78	0.06	44.58%	NORTHWEST
	PAVEMENT	698	0.02		3.54	0.06		4.78	0.08		
	TURF	1581	0.04		1.70	0.06		2.30	0.08		
	TOTAL	2853	0.07	AVE	2.52	0.17	AVE	3.40	0.22		
B	ROOF	405	0.01		3.54	0.03		4.78	0.04	18.41%	SOUTHWEST
	PAVEMENT	209	0.00		3.54	0.02		4.78	0.02		
	TURF	2721	0.06		1.70	0.11		2.30	0.14		
	TOTAL	3335	0.08	AVE	2.04	0.16	AVE	2.75	0.21		
C	ROOF	83	0.00		3.54	0.01		4.78	0.01	16.67%	VENNEMAN AVE
	PAVEMENT	11	0.00		3.54	0.00		4.78	0.00		
	TURF	470	0.01		1.70	0.02		2.30	0.02		
	TOTAL	564	0.01	AVE	2.01	0.03	AVE	2.71	0.04		
TOTALS	ROOF	1062	0.02		3.54	0.09		4.78	0.12	29.32%	
	PAVEMENT	918	0.02		3.54	0.07		4.78	0.10		
	TURF	4772	0.11		1.70	0.19		2.30	0.25		
	TOTAL	6752	0.16	AVE	2.24	0.35	AVE	3.02	0.47		

OFF-SITE

DRAINAGE AREA	SURFACE	AREA (SF)	AREA (AC)	PI 15YR/20MIN (CFS/AC)		Q 15YR/20MIN (CFS)	PI 100YR/20MIN (CFS/AC)		Q 100YR/20MIN (CFS)	AVERAGE % IMPERVIOUS	TRIBUTARY TO
OSA	ROOF	416	0.01		3.54	0.03		4.78	0.05	42.76%	
	PAVEMENT	9	0.00		3.54	0.00		4.78	0.00		
	TURF	569	0.01		1.70	0.02		2.30	0.03		
	TOTAL	994	0.02	AVE	2.49	0.06	AVE	3.36	0.08		
OSB	ROOF	363	0.01		3.54	0.03		4.78	0.04	29.85%	
	PAVEMENT	0	0.00		3.54	0.00		4.78	0.00		
	TURF	853	0.02		1.70	0.03		2.30	0.04		
	TOTAL	1216	0.03	AVE	2.25	0.06	AVE	3.04	0.08		
OSC	ROOF	124	0.00		3.54	0.01		4.78	0.01	37.35%	
	PAVEMENT	0	0.00		3.54	0.00		4.78	0.00		
	TURF	208	0.00		1.70	0.01		2.30	0.01		
	TOTAL	332	0.01	AVE	2.39	0.02	AVE	3.22	0.02		
TOTALS	ROOF	903	0.02		3.54	0.07		4.78	0.10	35.88%	
	PAVEMENT	9	0.00		3.54	0.00		4.78	0.00		
	TURF	1630	0.04		1.70	0.06		2.30	0.09		

Professional Engineer
MISSOURI NO. E-19364
EXPIRES: 12-31-2027
Daniel C. Wind, P.E.

DISCLAIMER

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810 BROWNELL AVE
CITY OF GLENDALE, ST. LOUIS COUNTY, MO 63122
EXISTING CONDITIONS

Prepared By:

122 N. Kirkwood Road
Kirkwood, MO 63122
Telephone: 314.965.WIND

Prepared For:

BENCHMARK
CUSTOM HOME BUILDERS, INC
13281 SPINDLE LANE
ST. LOUIS, MO 63122

No.	Date:	Description:	P.E. Signature
1	3/3/2026	ARB SUBMITTAL	

REVISIONS/STATUS

Date:	1/19/2026
Field Work: PC	Field Checked: DW
Drawn By: PC	C.S.O.: PC
Checked By:	DW
Project Number:	25038
Sheet Number:	C3

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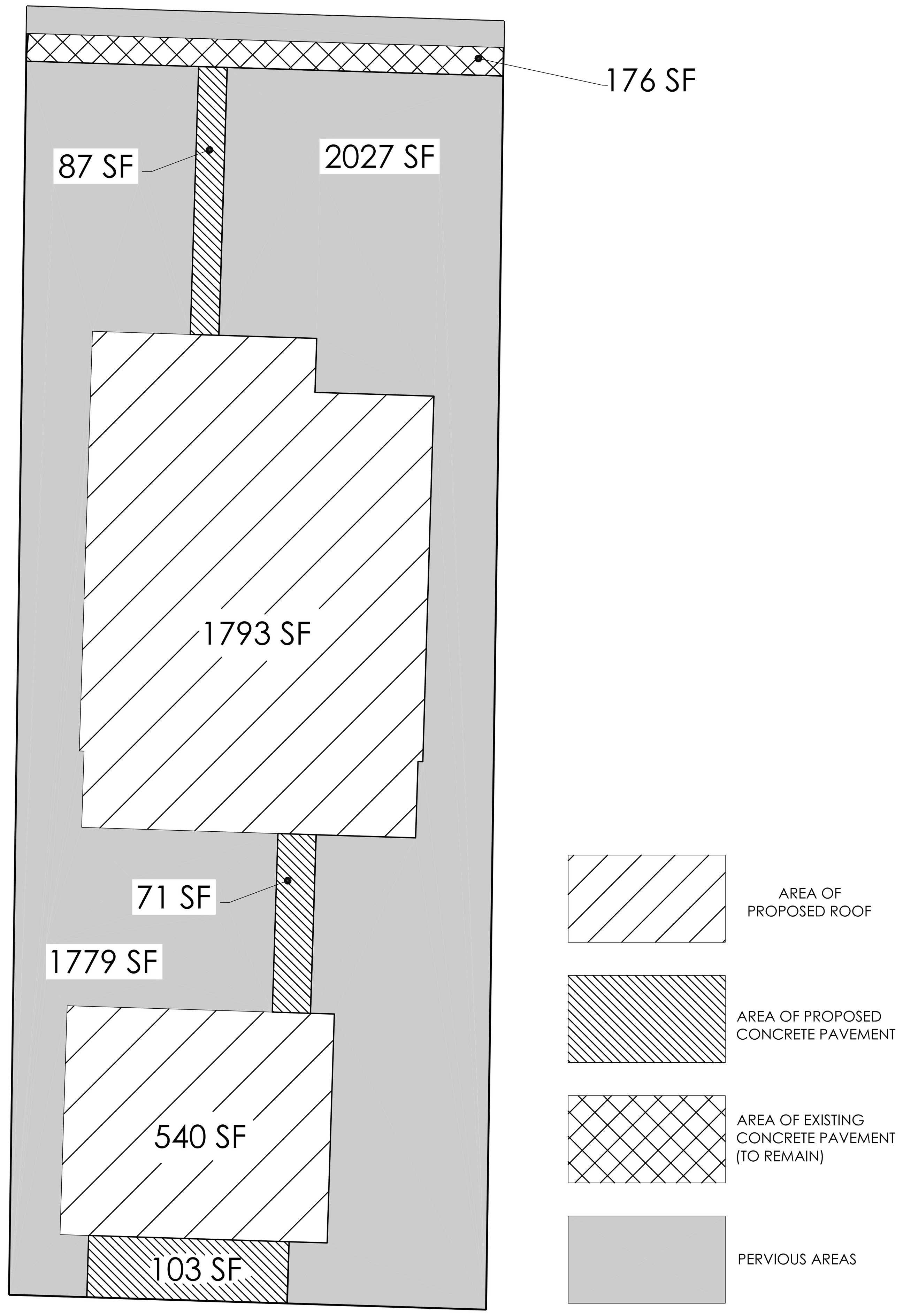


PERVIOUS/IMPERVIOUS AREA COVERAGE

SCALE:NTS

IMPERVIOUS LOT COVERAGE CALCULATIONS

	AREA (SF)	ACRES	PERCENTAGE
TOTAL LOT	6752	0.16	
EXISTING IMPERVIOUS AREA	1980	0.05	29.3%
PROPOSED IMPERVIOUS AREA	2781	0.06	41.2%
CHANGE	801	1.8%	11.9%
FRONT YARD SETBACK	2045	0.05	
EXISTING IMPERVIOUS AREA	595	0.01	
PROPOSED IMPERVIOUS AREA	263	0.01	
CHANGE	-332	-0.01	-16.2%

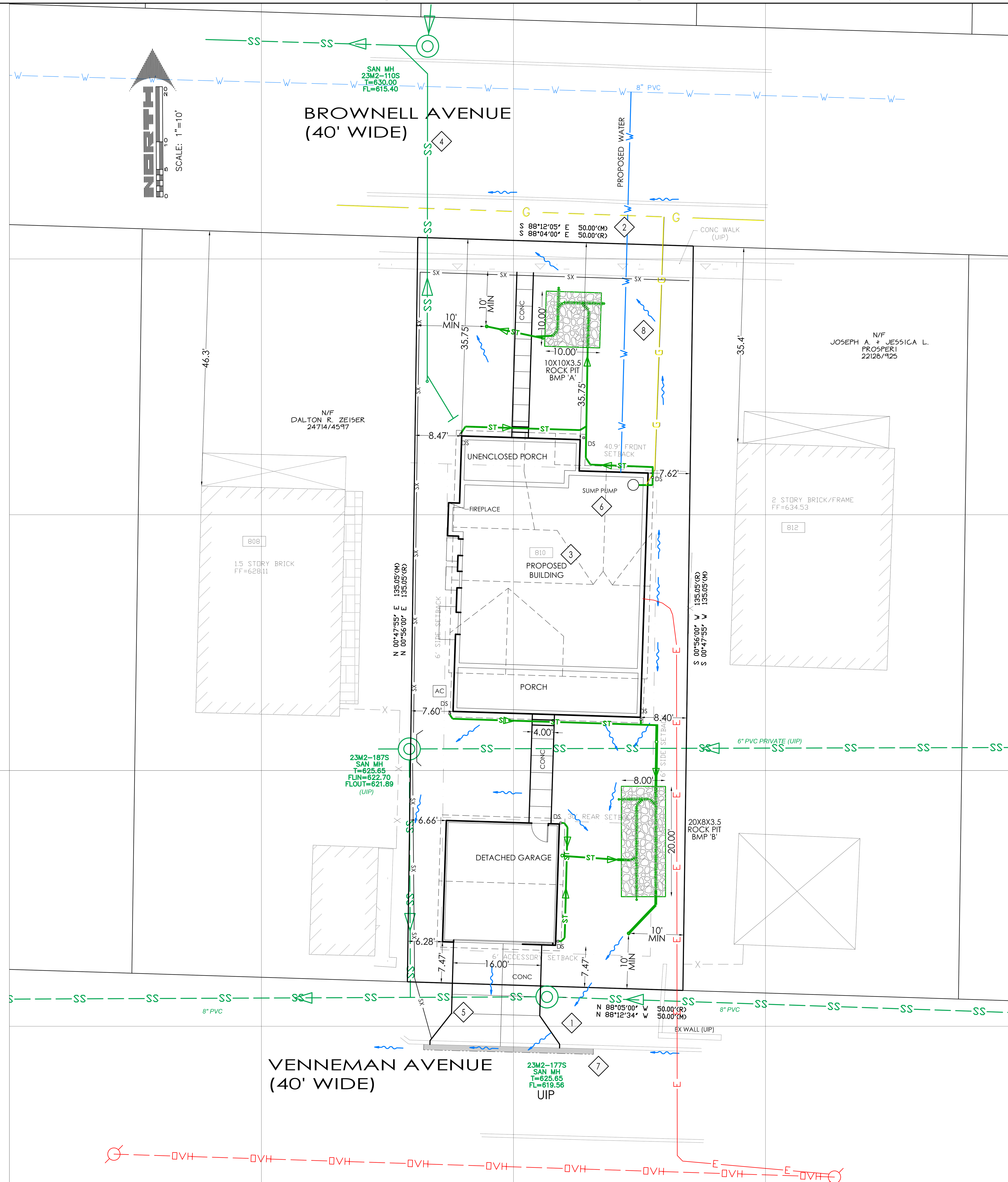
DIFFERENTIAL RUNOFF CALCULATIONS

PROPOSED	AREA (SF)	ACRES	PI	Q (CFS)
ROOF (BUILDING)	1793	0.041	4.20	0.173
ROOF (GARAGE)	540	0.012	4.20	0.052
TOTALS	2333	0.054	N/A	0.225

REQUIRED STORAGE	0.238 CFS x 60 x 20	=	269.9 CF
PROVIDED STORAGE (BMP A)		=	140.0 CF
PROVIDED STORAGE (BMP B)		=	224.0 CF
TOTAL PROVIDED STORAGE		=	364.0 CF

FRONT YARD SETBACK

ADDRESS	FRONT YARD SETBACK	COMMENT
808 BROWNELL AVE (EXISTING)	46.3 FT	PER SURVEY
810 BROWNELL AVE (PROPOSED)	40.9 FT	AVERAGE OF 808 & 812
812 BROWNELL AVE (EXISTING)	35.4 FT	PER SURVEY



KEYED NOTES

GENERAL: SEE NOTICES TO CONTRACTOR SHEET C1 AND KEYED NOTES OTHER SHEETS AS MAY BE APPLICABLE TO WORK DEPICTED ON THIS DRAWING.

1. JOINTING AND FLATWORK PER ACI RECOMMENDATIONS. ADJUST AS NECESSARY ANY JOINT PATTERNS SHOWN HEREON.
2. LOCATION OF PROPOSED UTILITY SERVICES TO BE CONSIDERED APPROXIMATE PENDING FINAL COORDINATION WITH SERVICE PROVIDERS.
3. SEE AE PLANS FOR FINAL DIMENSIONS, DOWNSPOUT LOCATIONS, BASEMENT WINDOW INFORMATION, ETC.
4. CONNECT TO SEWERS AND UTILITY LINES IN RIGHT-OF-WAY, AS PER CITY PERMIT REQUIREMENTS, EG FULL OPEN CUT OR PUSH BORE AND ACCESS PITS, INCLUDING TRAFFIC CONTROL, BACKFILL AND PAVEMENT RESTORATION, LIMITATIONS ON START/STOP TIMES, ETC.
5. DRIVEWAY APPROACH AND FLARES PER CITY OF GLENDALE STANDARDS.
6. SUMP PUMP TO DISCHARGE TO BMP.
7. SAWCUT EXISTING CURB AT NEW ENTRANCE.
8. PROPOSED TREE, SEE TREE STUDY BY OTHERS.
9. SEE DETAIL SHEET C7.4 FOR JOINTING PLAN AT EXISTING MANHOLE IN DRIVEWAY.

PRETREATMENT NOTE

GUTTER SCREENS SHALL BE INSTALLED IN ORDER TO PREVENT CLOGGING OF THE BMP. SCREENS NEED TO BE CLEANED OUT PERIODICALLY TO ENSURE THAT THEY ARE STILL FUNCTIONING AND TO REMOVE ANY BUILDUP OF DEBRIS.

DRYWELL NOTES

1. ALL PERFORATED PIPES SHALL BE WRAPPED WITH A POLYESTER FILTER SOCK.
2. ALL PIPE OR PROPRIETARY BMP FEATURES SHALL BE INSTALLED PER MANUFACTURER'S GUIDELINES/ SPECIFICATIONS.
3. POP-UP EMITTERS SHALL HAVE 12" DEEP DRAINABLE ASTM NO 57 CRUSHED STONE, ¾" TO 1-½"CLEAN AGGREGATE UNDER THE LAST 5' AND UNDER PIPE ELBOW. LAST 5' SHALL BE FILTER SOCK WRAPPED PERFORATED PIPE. .
4. UNDERGROUND ROCK BMPS SHALL BE WRAPPED IN MIRAFI 140 N GEOSYNTHETIC OR APPROVED EQUAL.
5. ALL BMPS & BMP COMPONENTS SHALL BE MAINTAINED IN ACCORDANCE WITH CITY AND MANUFACTURERS GUIDELINES.
6. BMP OUTFALL SHALL BE LOCATED 10' FROM PROPERTY LINES AND PROTECTED FROM CAUSING EROSION. BMP DISCHARGE SHALL NOT CAUSE A NUISANCE TO OTHERS.
7. ALL STORAGE AGGREGATE IN DRYWELLS SHALL BE ¾" - 1" CLEAN AND WASHED AGGREGATE.

Professional Engineer
MISSOURI NO. E-19364
EXPIRES: 12-31-2027
Daniel C. Wind, P.E.

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810 BROWNELL AVE
CITY OF GLENDALE, ST. LOUIS COUNTY, MO 63122
FLAT + GEOMETRIC PLAN

Prepared For:
BENCHMARK HOMES
BENCHMARK
CUSTOM HOME BUILDERS, INC
13281 SPINDLE LANE
ST. LOUIS, MO 63122

Prepared By:
WIND ENGINEERING COMPANY
122 N. Kirkwood Road
Kirkwood, MO 63122
Telephone: 314.965.WIND

No.	Date:	Description:	P.E. Signature
1	3/3/2026	ARB SUBMITTAL	

REVISIONS/STATUS

Date:	1/19/2026
Field Work:	PC
Field Checked:	DW
Drawn By:	PC
C.S.O.:	PC
Checked By:	DW
Project Number:	25038
Sheet Number:	C4

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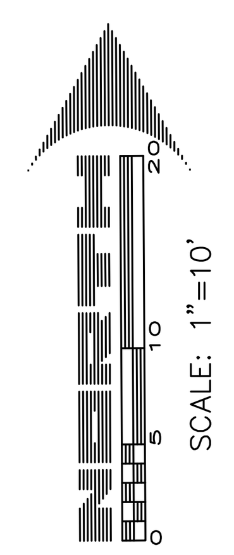
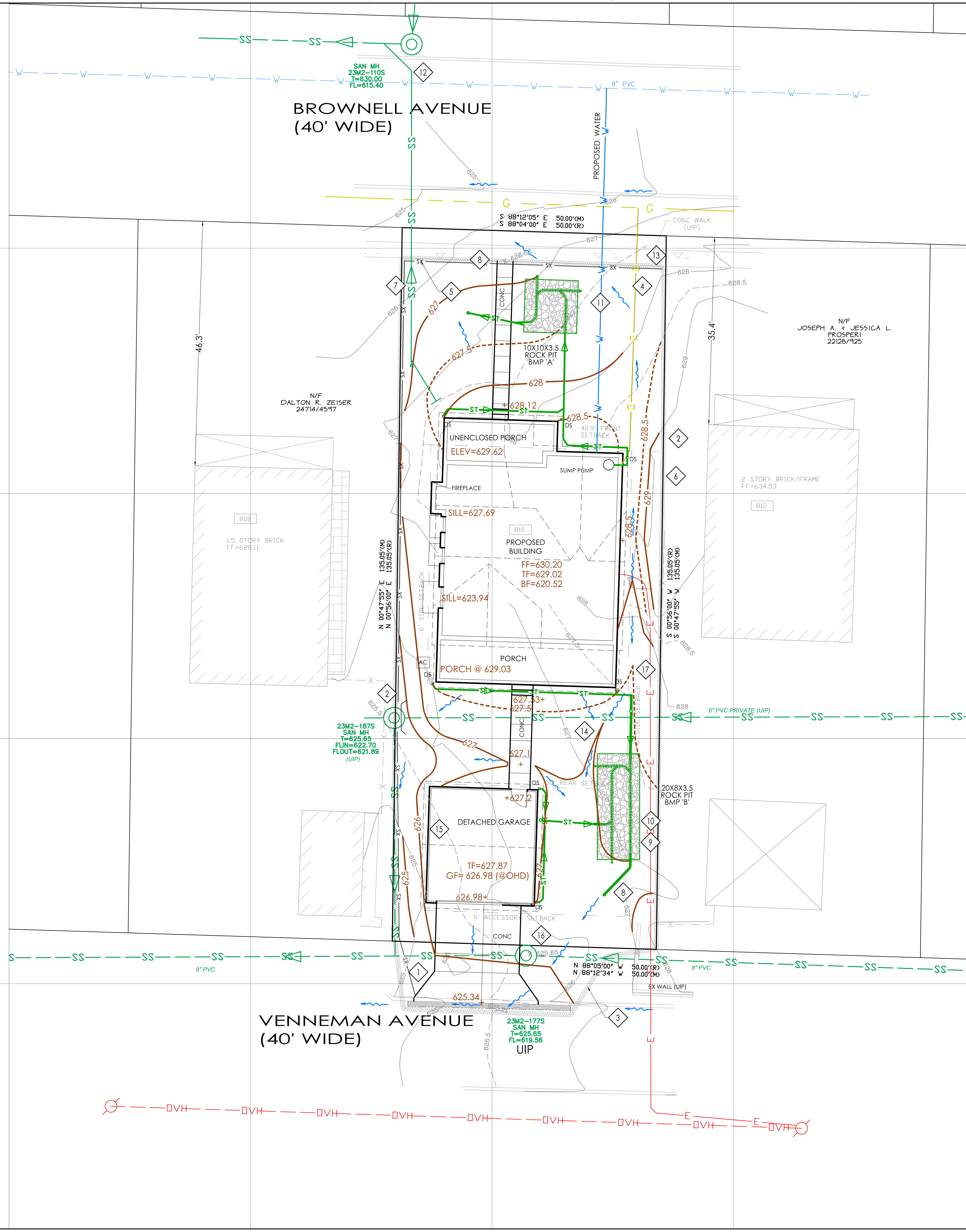
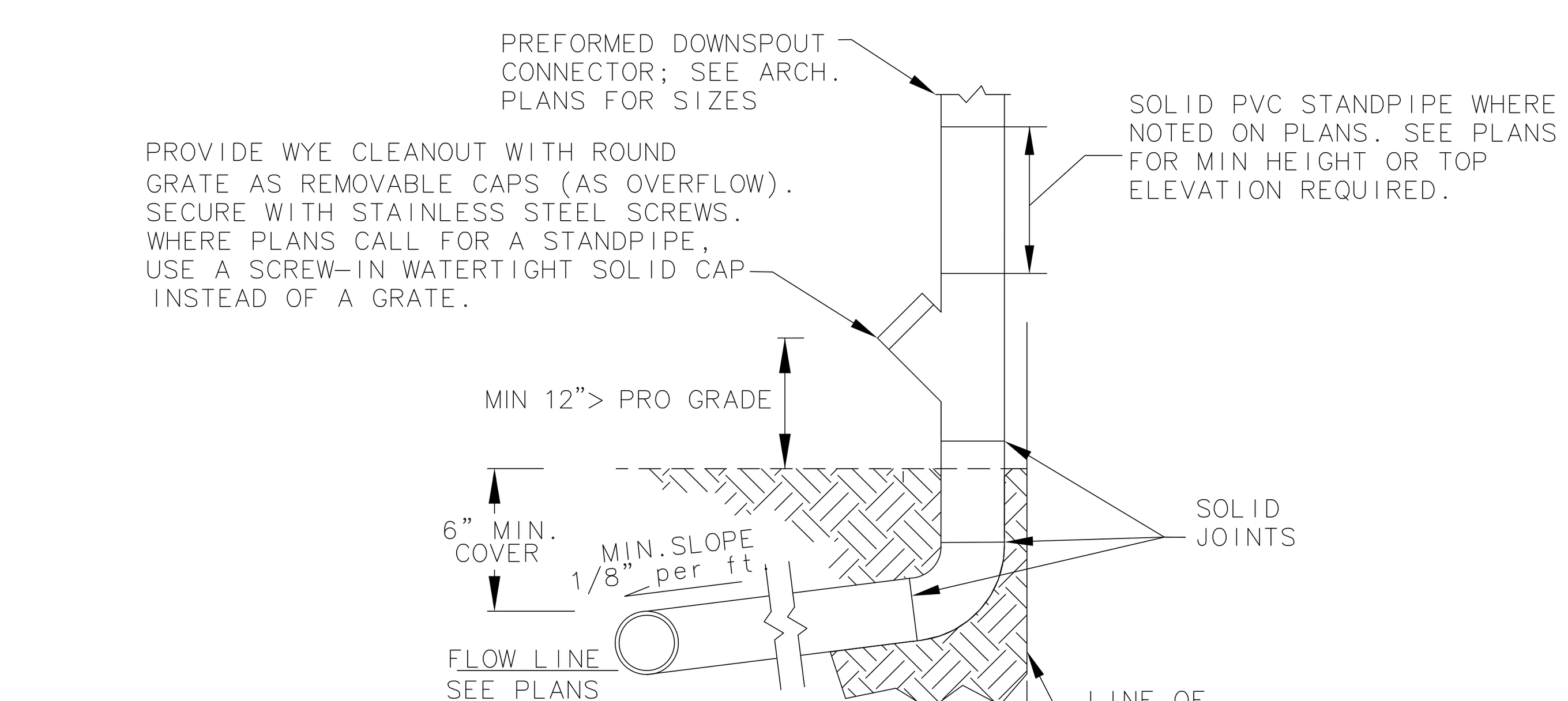
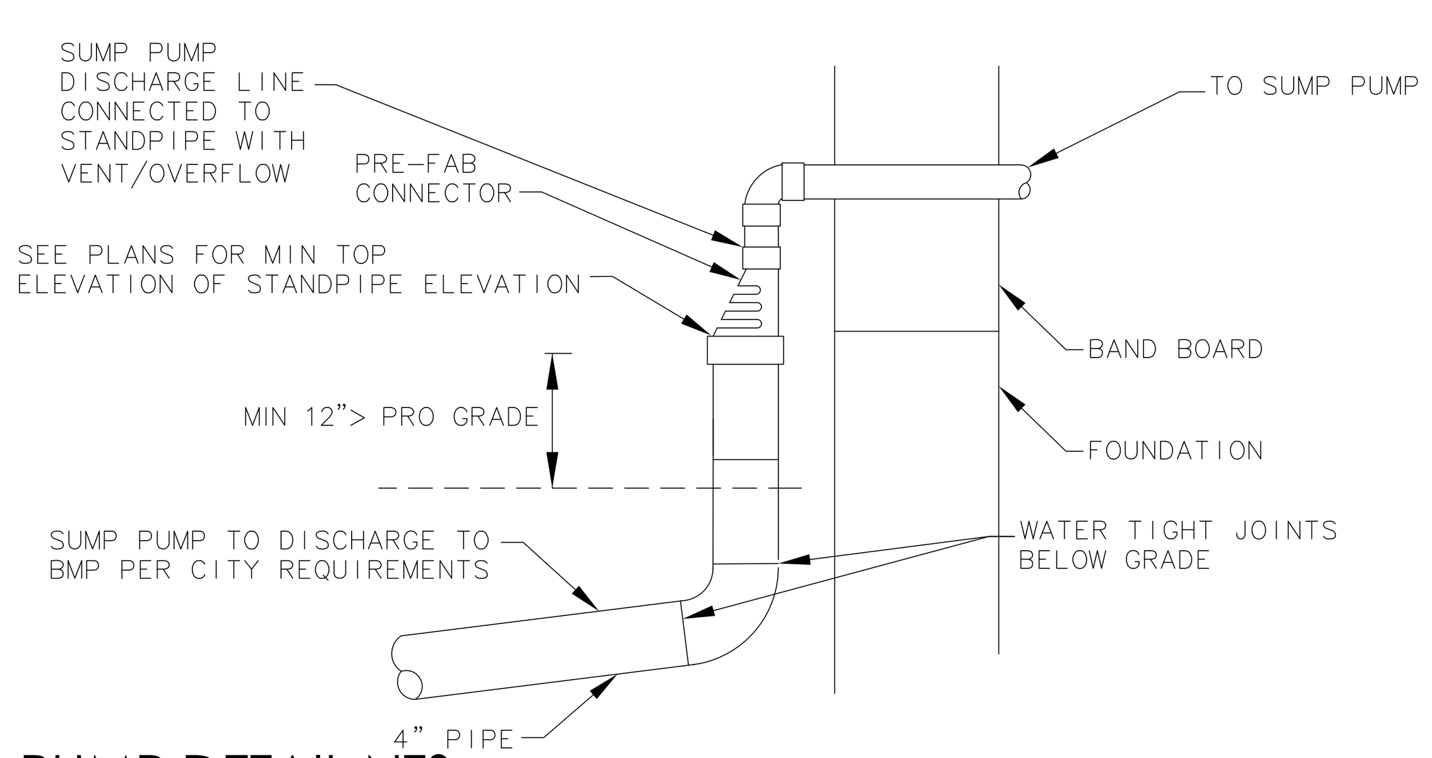






DOWNSPOUT W/ CLEANOUT

SCALE:NTS



SUMP PUMP DETAIL:NTS

SCALE:NTS

KEYED NOTES

GENERAL: SEE GENERAL NOTES AND NOTICE TO CONTRACTOR SHEET C1 AND KEYED NOTES OTHER SHEETS AS MAY BE APPLICABLE TO WORK DEPICTED IN THIS DRAWING.

1. PROPOSED DRIVEWAY APPROACH AND FLARES PER CITY STANDARDS.
2. MATCH EXISTING AT PROPERTY LINE (TYP).
3. LIMITS OF PROPOSED LAND DISTURBANCE.
4. REFER TO ANY TREE STUDY (BY OTHERS); SHOULD OWNER OPT TO POSSIBLY SAVE EXISTING TREE (TYP):
   A. HAVE TREE REVIEWED BY ARBORIST/FORESTER.
   B. IMPLEMENT TREE PRESERVATION TECHNIQUES INCLUDING ROOT CROWN PRUNING, POSSIBLE CHEMICAL TREATMENTS,TREE PROTECTION FENCING, ETC. PRIOR TO AND DURING CONSTRUCTION.
5. INSTALL AND MAINTAIN SILT CONTROL MEASURES AS REQUIRED TO PREVENT MUD FROM MIGRATING OFFSITE (TYP).
6. CONTRACTOR SHALL UNDERTAKE NECESSARY PRECAUTIONS TO PROTECT OFF-SITE IMPROVEMENTS, BE THEY ABOVE- OR BELOW-GROUND; (TYPICAL ALL PROPERTY LINES).
7. NEW SCHEDULE 40 PVC LATERAL TO BE 30" MIN BELOW FINISHED GRADE INSTALLED WITH A 6" CLEANOUT; 2% SLOPE MIN; INSTALL CHECK VALVE AT THE DISCRETION OF THE OWNER.
8. CONTRACTOR TO GRADE FOR POSITIVE DRAINAGE FROM POPUPS (TYP).
9. CONTRACTOR TO INVESTIGATE CONDITION OF EXISTING SOILS AND VERIFY ADEQUATE DRAINAGE PRIOR TO CONSTRUCTION.
10. ALL PERFORATED PIPE SHALL BE WRAPPED WITH POLYESTER FILTER SOCK (TYP).
11. PROPOSED TREE, SEE LANDSCAPE PLAN BY OTHERS.
12. TOP AND FLOW LINE ELEVATIONS ON MANHOLE HAVE NOT BEEN FIELD SURVEYED AND ARE PER MSD GIS BASEMAP. CONTRACTOR TO FIELD MEASURE AND VERIFY THAT NEW SANITARY LATERAL CAN ADEQUATELY DRAIN AND CONFORM TO MSD STANDARDS; HANG PLUMBING AS REQUIRED.
13. REPLACE ANY EXISTING, CRACKED OR DAMAGED CONCRETE SLABS AS DIRECTED BY THE CITY.
14. LOCATE SWALE TO BYPASS PROPOSED ROCK PIT BMP.
15. EXPOSE FOUNDATION WALL WEST SIDE OF GARAGE, OVERDEEPEN FOOTING AS REQUIRED.
16. TURN DOWN EDGE OF SLAB WHERE SWALE FLOW ENTERS DRIVEWAY TO PREVENT UNDERCUTTING.
17. CLEANOUT WITH GRATED TOP AS A BLOWOFF.

Professional Engineer
MISSOURI NO. E-19364
EXPIRES: 12-31-2027
Daniel C. Wind, P.E.

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810 BROWNELL AVE
CITY OF GLENDALE, ST. LOUIS COUNTY, MO 63122

SITE AND GRADING PLAN

Prepared By: Wind
122 N. Kirkwood Road
Kirkwood, MO 63122
Telephone: 314.965.WIND

Prepared For: BENCHMARK HOMES
BENCHMARK
CUSTOM HOME BUILDERS, INC
13281 SPINDLE LANE
ST. LOUIS, MO 63122

No.	Date:	Description:	P.E. Signature
1	3/3/2026	ARB SUBMITTAL	

REVISIONS/STATUS

WIND ENGINEERING COMPANY

Date:	1/19/2026
Field Work:	PC
Field Checked:	DW
Drawn By:	PC
C.S.O.:	PC
Checked By:	DW
Project Number:	25038
Sheet Number:	C5

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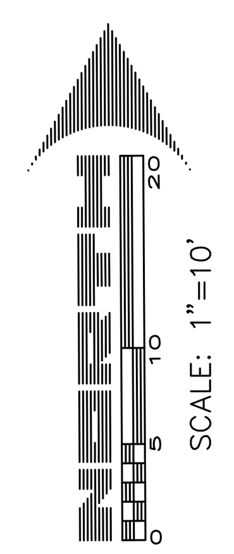

FOR DRAINAGE PURPOSES ONLY,
NOT FOR CONSTRUCTION

AREA OF ROOF PIPED TO FRONT YARD BMP

AREA OF ROOF PIPED TO REAR YARD BMP

PROPOSED DRAINAGE AREAS

ON-SITE									
DRAINAGE AREA	SURFACE	AREA (SF)	AREA (AC)	PI 15YR/20MIN (CFS/AC)	Q 15YR/20MIN (CFS)	PI 100YR/20MIN (CFS/AC)	Q 100YR/20MIN (CFS)	AVERAGE % IMPERVIOUS	TRIBUTARY TO
A	ROOF	0	0.00	3.54	0.00	4.78	0.00	13.98%	NORTHWEST
	PAVEMENT	230	0.01	3.54	0.02	4.78	0.03		
	TURF	1415	0.03	1.70	0.06	2.30	0.07		
	TOTAL	1645	0.04	AVE 1.96	0.07	AVE 2.64	0.10		
B	ROOF	0	0.00	3.54	0.00	4.78	0.00	3.70%	SOUTHWEST
	PAVEMENT	45	0.00	3.54	0.00	4.78	0.00		
	TURF	1171	0.03	1.70	0.05	2.30	0.06		
	TOTAL	1216	0.03	AVE 1.77	0.05	AVE 2.39	0.07		
C	ROOF	0	0.00	3.54	0.00	4.78	0.00	11.10%	VENNEMAN AVE
	PAVEMENT	173	0.00	3.54	0.01	4.78	0.02		
	TURF	1385	0.03	1.70	0.05	2.30	0.07		
	TOTAL	1558	0.04	AVE 1.90	0.07	AVE 2.57	0.09		
D	ROOF	903	0.02	3.54	0.07	4.78	0.10	100.00%	FRONT YARD BMP
	PAVEMENT	0	0.00	3.54	0.00	4.78	0.00		
	TURF	0	0.00	1.70	0.00	2.30	0.00		
	TOTAL	903	0.02	AVE 3.54	0.07	AVE 4.78	0.10		
E1,E2	ROOF	1430	0.03	3.54	0.12	4.78	0.16	100.00%	REAR YARD BMP
	PAVEMENT	0	0.00	3.54	0.00	4.78	0.00		
	TURF	0	0.00	1.70	0.00	2.30	0.00		
	TOTAL	1430	0.03	AVE 3.54	0.12	AVE 4.78	0.16		
TOTALS	ROOF	2333	0.05	3.54	0.19	4.78	0.26	41.19%	
	PAVEMENT	448	0.01	3.54	0.04	4.78	0.05		
	TURF	3971	0.09	1.70	0.15	2.30	0.21		
	TOTAL	6752	0.16	AVE 2.46	0.38	AVE 3.32	0.51		

OFF-SITE									
OSA	ROOF	416	0.01	3.54	0.03	4.78	0.05	42.76%	
	PAVEMENT	9	0.00	3.54	0.00	4.78	0.00		
	TURF	569	0.01	1.70	0.02	2.30	0.03		
	TOTAL	994	0.02	AVE 2.49	0.06	AVE 3.36	0.08		
OSC	ROOF	487	0.01	3.54	0.04	4.78	0.05	31.46%	
	PAVEMENT	0	0.00	3.54	0.00	4.78	0.00		
	TURF	1061	0.02	1.70	0.04	2.30	0.06		
	TOTAL	1548	0.04	AVE 2.28	0.08	AVE 3.08	0.11		
TOTALS	ROOF	903	0.02	3.54	0.07	4.78	0.10	35.88%	
	PAVEMENT	9	0.00	3.54	0.00	4.78	0.00		
	TURF	1630	0.04	1.70	0.06	2.30	0.09		

Professional Engineer
MISSOURI NO. E-19364
EXPIRES: 12-31-2027
Daniel C. Wind, P.E.

DISCLAIMER

THE WORK WHICH THE REGISTERED PROFESSIONAL ENGINEER HAS PREPARED OR HAD PREPARED UNDER HIS DIRECTION, AS AUTHENTICATED BY HIS SEAL AND DATED SIGNATURE, IS LIMITED TO ONLY SITEWORK ITEMS OF GRADING, SEWERS, DRAINAGE, PAVING, AND APPURTENANT SITE IMPROVEMENTS, BUT DOES NOT COVER, AND NO RESPONSIBILITY IS TAKEN BY THE ENGINEER FOR SERVICES NOT RENDERED (PURSUANT TO 327.411 RSMo), INCLUDING: ARCHITECTURAL PLANS; INCLUDING MECHANICAL, STRUCTURAL AND ELECTRICAL COMPONENTS; GEOTECHNICAL INVESTIGATIONS AND RECOMMENDATIONS; WATER, GAS, ELECTRIC AND TELEPHONE SUPPLY AND DISTRIBUTION FACILITIES; ANY AND ALL OTHER PLANS, SPECIFICATIONS, ESTIMATES, PLATS, REPORTS, SURVEYS OR OTHER DOCUMENTS OR INSTRUMENTS RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THIS PROJECT, UNLESS AUTHENTICATED BY THE DATED SIGNATURE AND SEAL OF THE REGISTERED PROFESSIONAL ENGINEER; CONSTRUCTION MEANS AND METHODS OF ANY PART OF THE TOTAL PROJECT; AND ANY REVISIONS UNLESS AUTHENTICATED.

810 BROWNELL AVE
CITY OF GLENDALE, ST. LOUIS COUNTY, MO 63122
PROPOSED DRAINAGE AREAS

Prepared By:
122 N. Kirkwood Road
Kirkwood, MO 63122
Telephone: 314.965.WIND

Prepared For:
BENCHMARK
CUSTOM HOME BUILDERS, INC
13281 SPINDLE LANE
ST. LOUIS, MO 63122

No.	Date:	Description:	P.E. Signature
1	3/3/2026	ARB SUBMITTAL	

REVISIONS/STATUS

WIND ENGINEERING COMPANY

Date: 1/19/2026
Field Work: PC Field Checked: DW
Drawn By: PC C.S.O.: PC
Checked By: DW
Project Number: 25038
Sheet Number: C6

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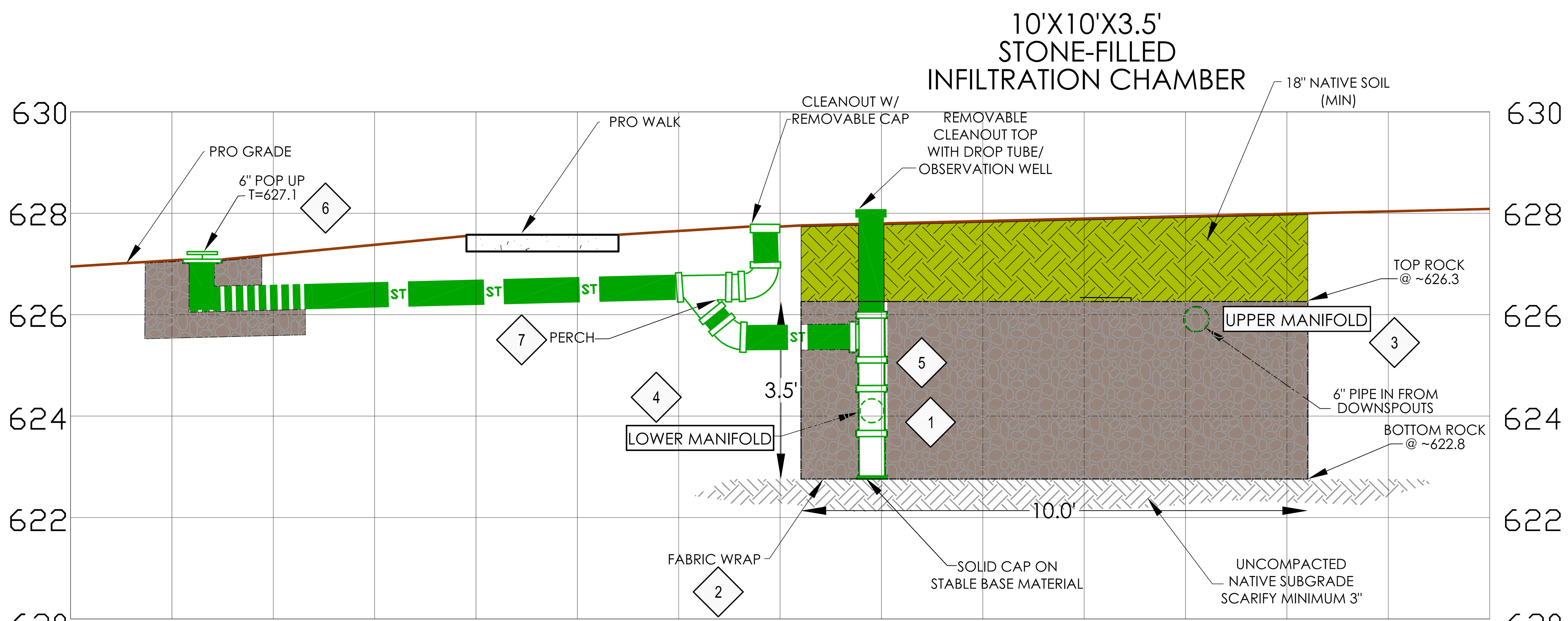
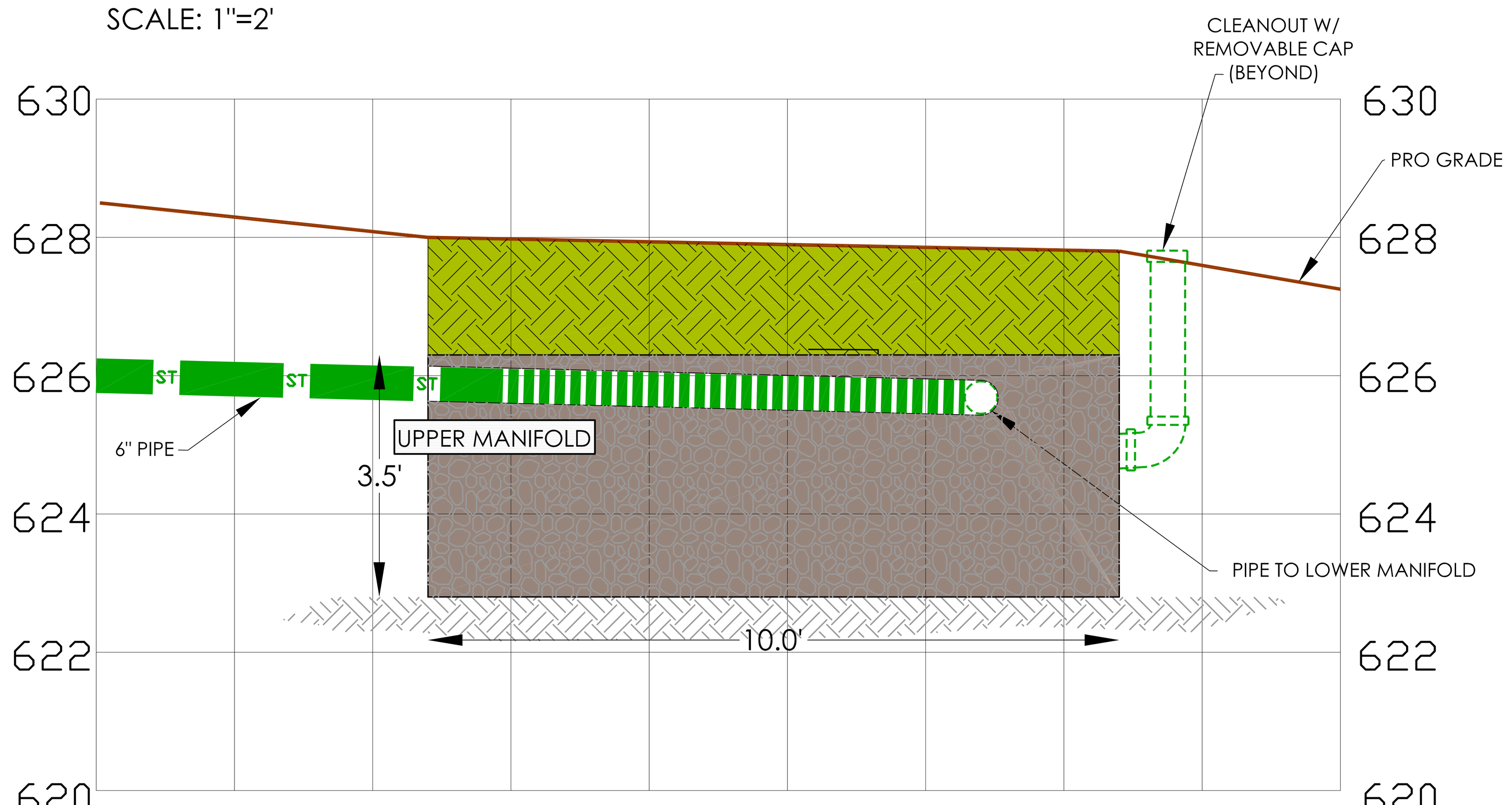


BMP 'A' SECTION 1

SCALE: 1"=2'

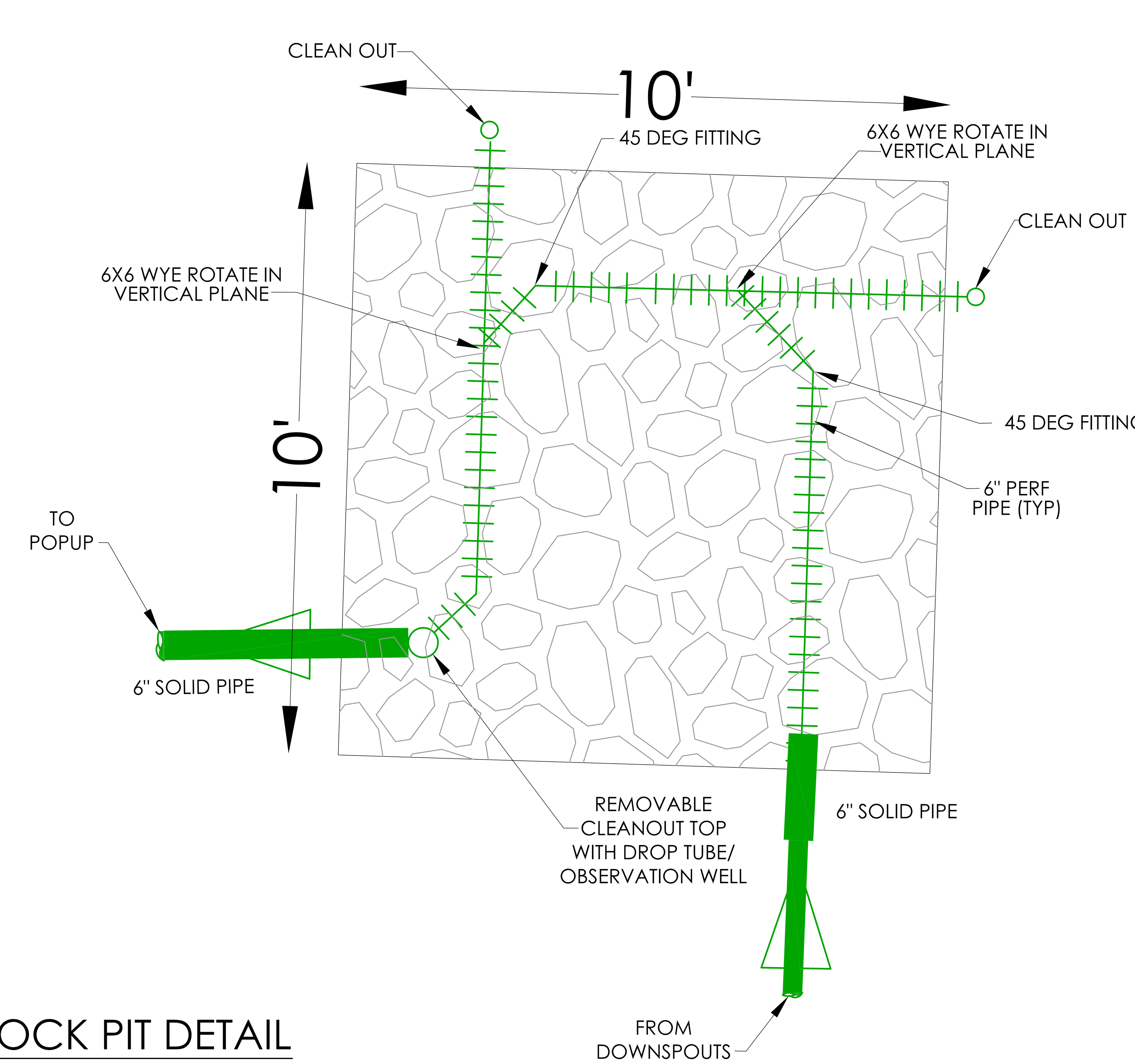


BMP 'A' SECTION 2

SCALE: 1"=2'

IMPERVIOUS TO BMP 'A'	903 SF
STORAGE REQUIRED = 903/43560*4.2*60*20	104 CF
LENGTH OF PIT	10 FT
WIDTH	10 FT
DEPTH OF STORAGE	3.5 FT
MIN EXCAVATION VOLUME FOR ROCK PIT = 104 /.4	261 CF
PROVIDED EXCAVATION VOLUME FOR ROCK PIT	350 CF

BMP 'A'



ROCK PIT DETAIL

SCALE: NTS

KEYED NOTES

GENERAL: SEE NOTICES TO CONTRACTOR SHEET C1 AND KEYED NOTES OTHER SHEETS AS MAY BE APPLICABLE TO WORK DEPICTED ON THIS DRAWING.

1. ROTATE FITTINGS IN HORIZONTAL AND VERTICAL PLANE AS REQUIRED TO ATTAIN X-Y-Z ALIGNMENT AS SHOWN ON PLAN.
2. FILTER FABRIC ON THE TOP, BOTTOM AND SIDES OF ROCK PIT, FOLD OVER AT TOP BELOW THE SOIL LAYER. FABRIC MUST BE NEEDLE-PUNCHED, NON-WOVEN POLY-PROPELENE GEOTEXTILE MIRAFI 140N (OR EQUIVALENT). LAP SPLICING OF GEOSYNTHETIC WRAP SHALL BE A MINIMUM OF 18".
3. UPPER MANIFOLD TO BE 6" PERFORATED PIPE WITH HOLES FACING DOWN.
4. LOWER MANIFOLD TO BE 6" PERFORATED PIPE WITH HOLES FACING UP.
5. PERFORATED PIPE INTERIOR TO STONE-FILLED INFILTRATION CHAMBER TO BE FABRIC-WRAPPED.
6. CONTRACTOR TO GRADE FOR POSITIVE DRAINAGE FROM POPUP (TYP).
7. OUTFALL ELEVATION CANNOT BE LOWER THAN THE TOP OF THE ROCK IN DRYWELL (TYP).

810 BROWNELL AVE
CITY OF GLENDALE, ST. LOUIS COUNTY, MO 63122
BMP 'A'

Prepared For: BENCHMARK HOMES

Prepared By: Wind, 122 N. Kirkwood Road, Kirkwood, MO 63122, Telephone: 314.965.WIND

No.	Date:	Description
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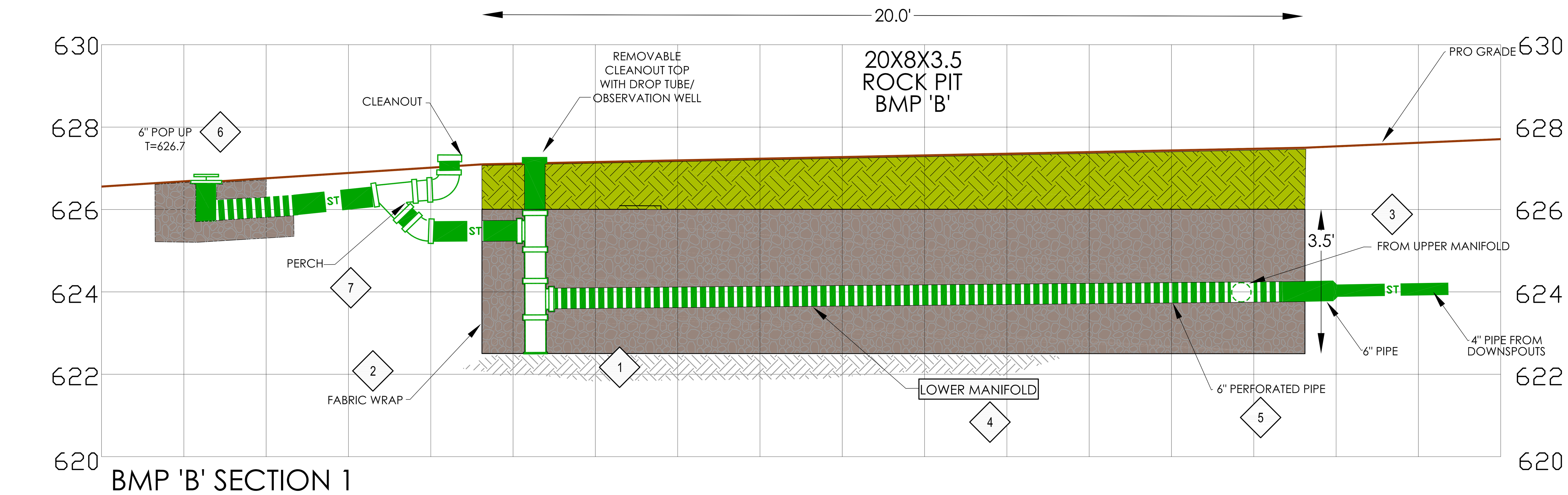
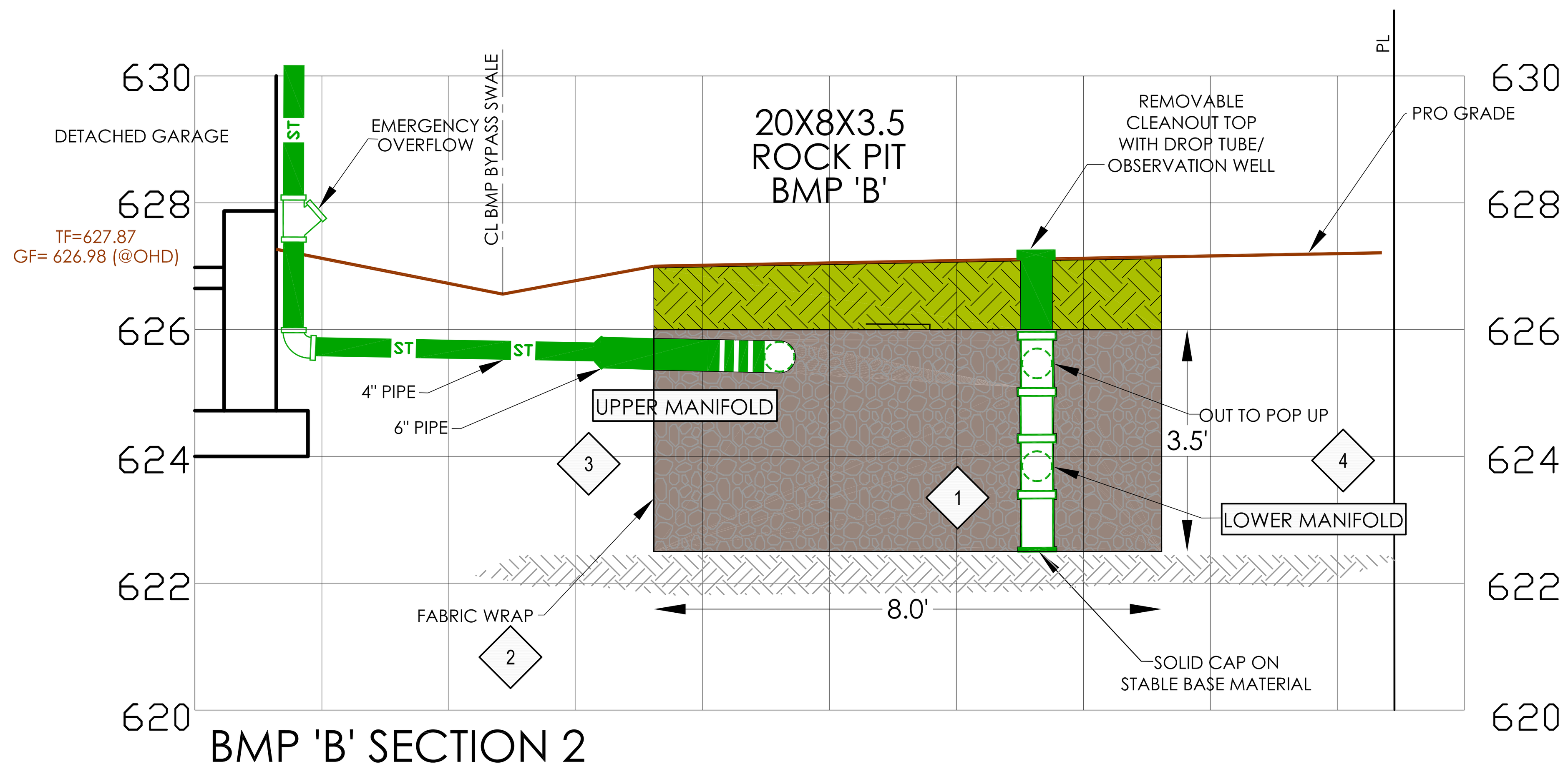


BMP 'B' SECTION 1

SCALE: 1"=2'



BMP 'B' SECTION 2

SCALE: 1"=2'

IMPERVIOUS TO BMP 'B'	1430 SF
STORAGE REQUIRED = 1430/43560*4.2*60*20	165 CF
LENGTH OF PIT	20 FT
WIDTH	8 FT
DEPTH OF STORAGE	3.5 FT
MIN EXCAVATION VOLUME FOR ROCK PIT	414 CF
PROVIDED EXCAVATION VOLUME FOR ROCK PIT	560 CF

KEYED NOTES

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2. FILTER FABRIC ON THE TOP, BOTTOM AND SIDES OF ROCK PIT, FOLD OVER AT TOP BELOW THE SOIL LAYER. FABRIC MUST BE NEEDLE-PUNCHED, NON-WOVEN POLY-PROPELENE GEOTEXTILE MIRAFI 140N (OR EQUIVALENT). LAP SPLICING OF GEOSYNTHETIC WRAP SHALL BE A MINIMUM OF 18".
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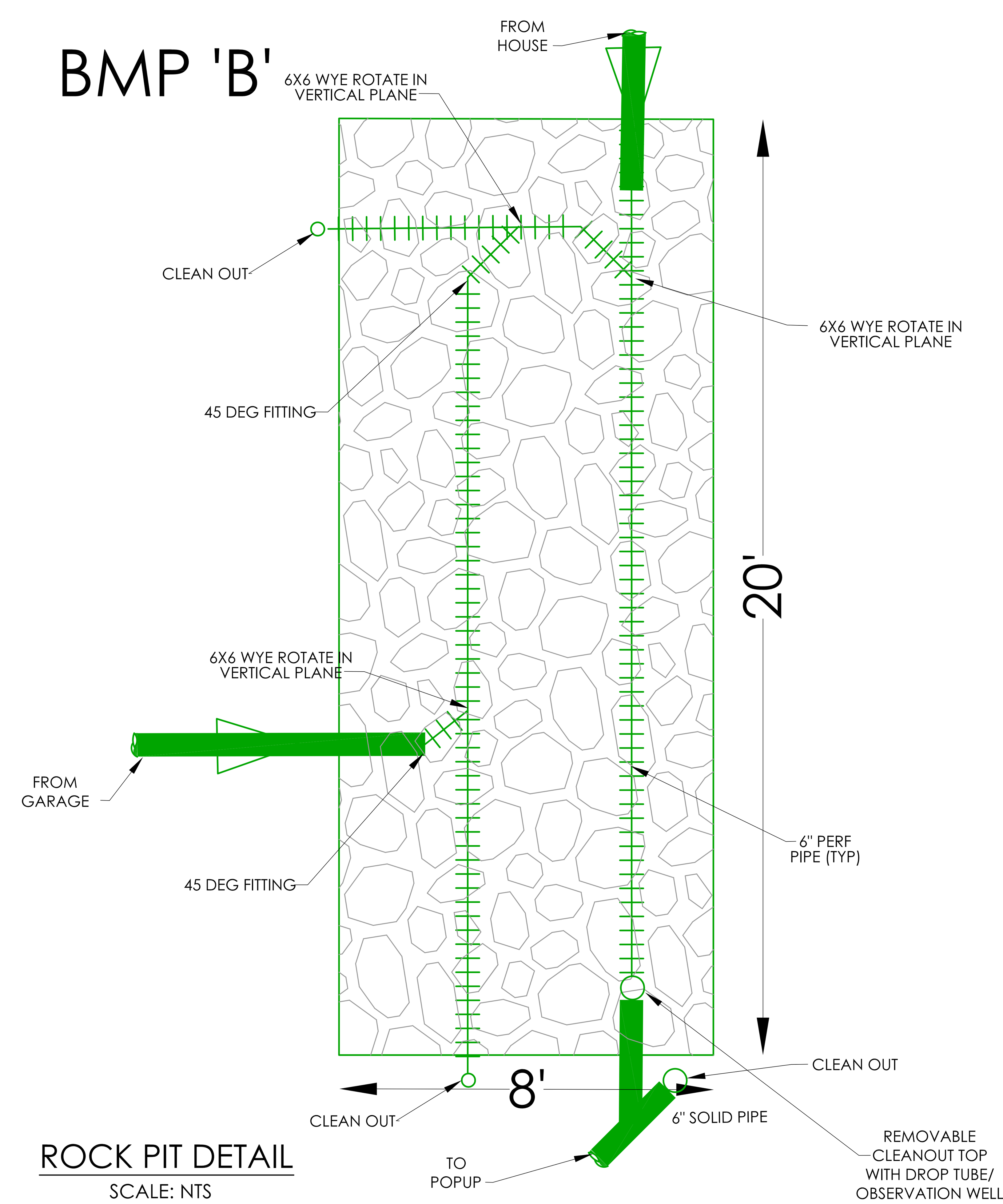
4. LOWER MANIFOLD TO BE 6" PERFORATED PIPE WITH HOLES FACING UP.
5. PERFORATED PIPE INTERIOR TO STONE-FILLED INFILTRATION CHAMBER TO BE FABRIC-WRAPPED.
6. CONTRACTOR TO GRADE FOR POSITIVE DRAINAGE FROM POPUP (TYP).
7. OUTFALL ELEVATION CANNOT BE LOWER THAN THE TOP OF THE ROCK IN DRYWELL (TYP).

BMP 'B'



ROCK PIT DETAIL

SCALE: NTS

Professional Engineer MISSOURI NO. E-19364 EXPIRES: 12-31-2027 Daniel C. Wind, P.E.

DISCLAIMER

810 BROWNELL AVE
CITY OF GLENDALE, ST. LOUIS COUNTY, MO 63122
DETAILS

Prepared For: BENCHMARK HOMES
BENCHMARK CUSTOM HOME BUILDERS, INC 13261 SPINDLE LANE ST. LOUIS, MO 63122

Prepared By: Wind
122 N. Kirkwood Road Kirkwood, MO 63122 Telephone: 314.965.WIND

No.	Date:	Description:	P.E. Signature
1	3/3/2026	ARB SUBMITTAL	

REVISIONS/STATUS

Date:	1/19/2026
Field Work: PC	Field Checked: DW
Drawn By: PC	C.S.O.: PC
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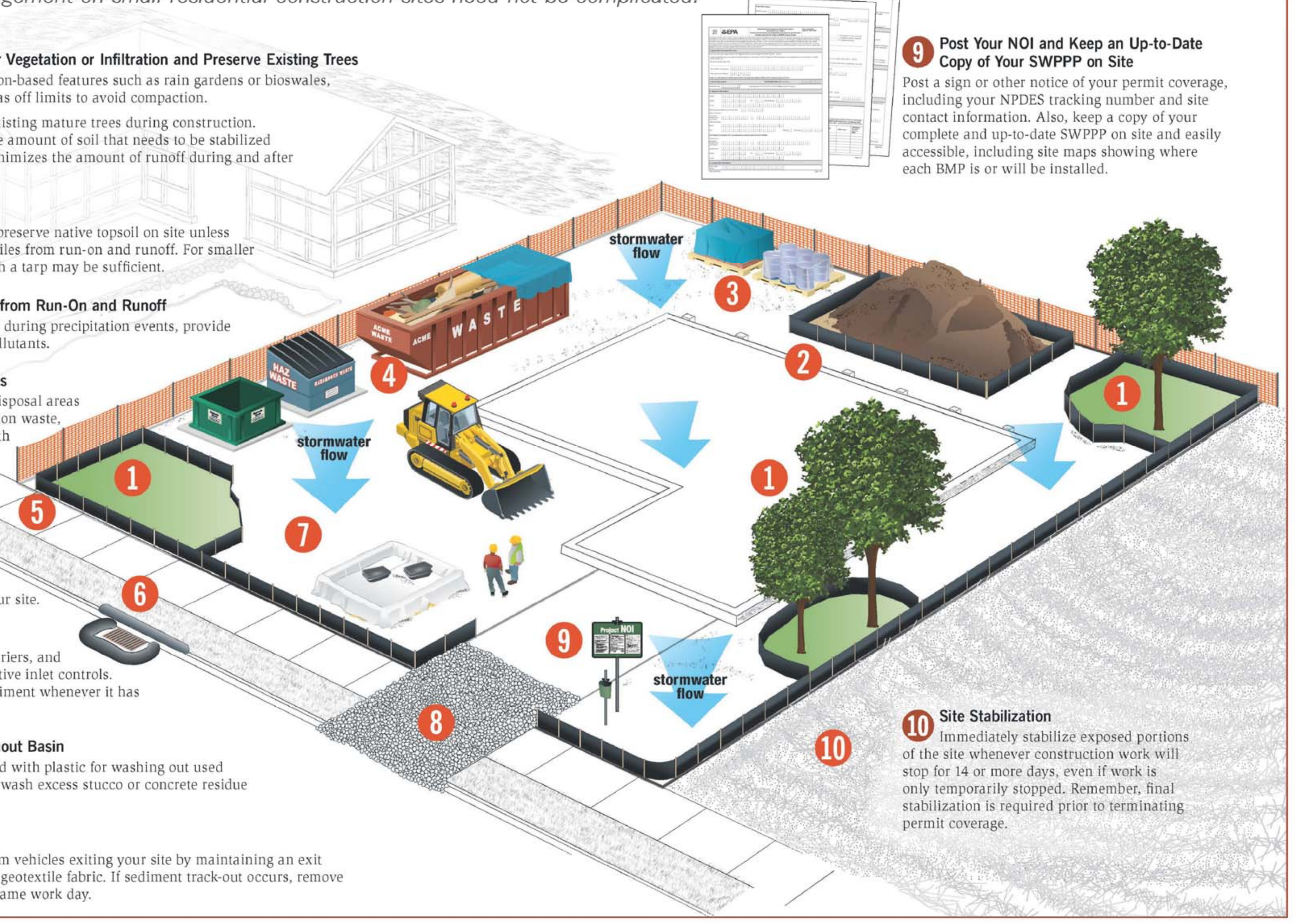
Project Number:	25038
Sheet Number:	C7.2

10 Steps to Stormwater Pollution Prevention on Small Residential Construction Sites

Stormwater management on small residential construction sites need not be complicated.



1 Protect Any Areas Reserved for Vegetation or Infiltration and Preserve Existing Trees
If you will be installing infiltration-based features such as rain gardens or bioswales, make sure these areas are designated as off limits to avoid compaction.

Save time and money by preserving existing mature trees during construction. Preserving mature trees minimizes the amount of soil that needs to be stabilized once construction is complete, and minimizes the amount of runoff during and after construction activity.

2 Stockpile Your Soil
EPA's CGP requires operators to preserve native topsoil on site unless infeasible and protect all soil storage piles from run-on and runoff. For smaller stockpiles, covering the entire pile with a tarp may be sufficient.

3 Protect Construction Materials from Run-On and Runoff
At the end of every workday and during precipitation events, provide cover for materials that could leach pollutants.

4 Designate Waste Disposal Areas
Clearly identify separate waste disposal areas on site for hazardous waste, construction waste, and domestic waste by designating with signage, and protect from run-on and runoff.

5 Install Perimeter Controls on Downhill Lot Line
Install perimeter controls such as sediment filter logs or silt fences around the downhill boundaries of your site.

6 Install Inlet Controls
Sediment control logs, gravel barriers, and sand or rock bags are options for effective inlet controls. Make sure to remove accumulated sediment whenever it has reached halfway up the control.

7 Install a Concrete/Stucco Washout Basin
Designate a leak-proof basin lined with plastic for washing out used concrete and stucco containers. Never wash excess stucco or concrete residue down a storm drain or into a stream!

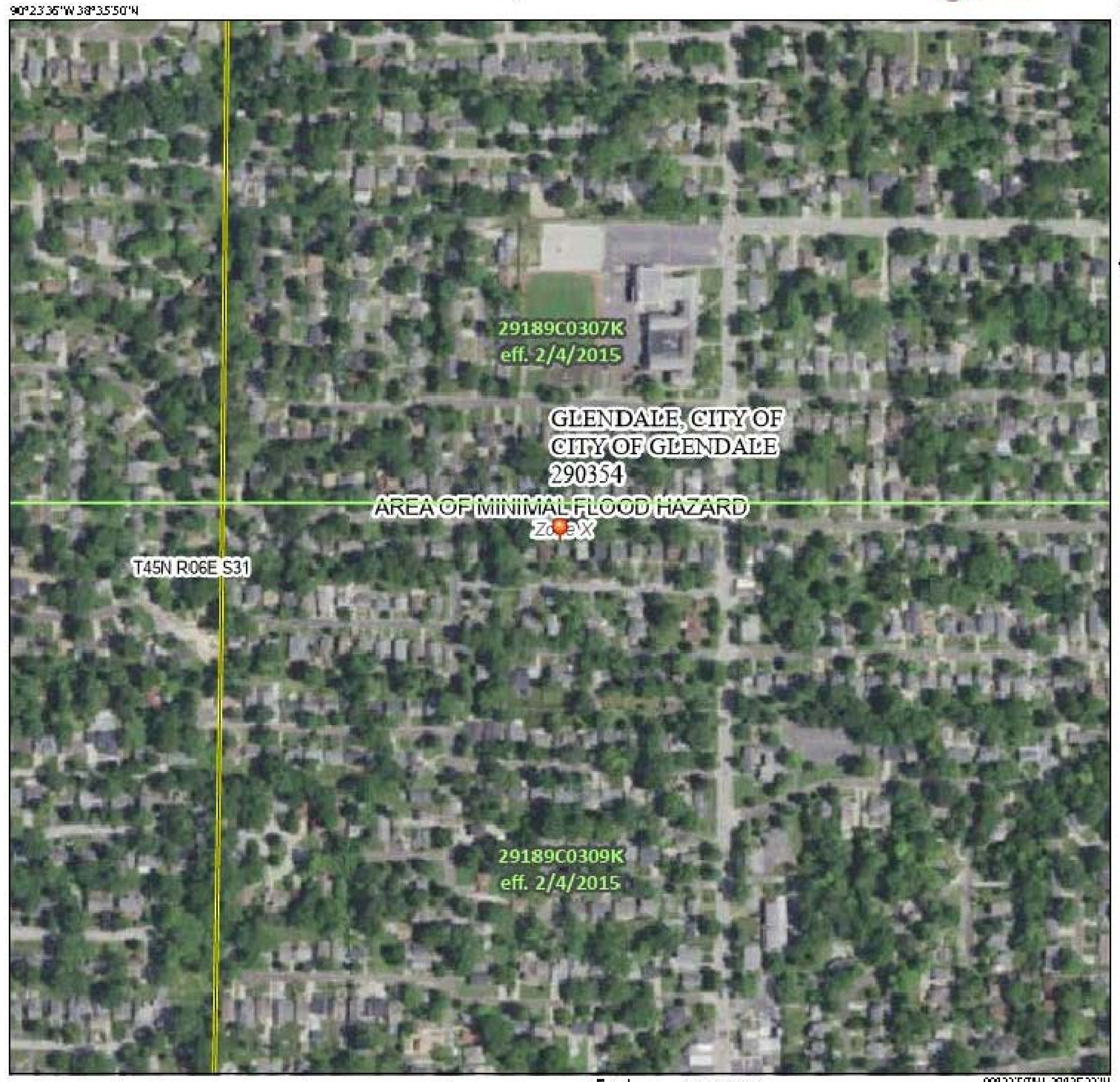
8 Maintain a Stabilized Exit Pad
Minimize sediment track-out from vehicles exiting your site by maintaining an exit pad made of crushed rock spread over geotextile fabric. If sediment track-out occurs, remove deposited sediment by the end of the same work day.

9 Post Your NOI and Keep an Up-to-Date Copy of Your SWPPP on Site
Post a sign or other notice of your permit coverage, including your NPDES tracking number and site contact information. Also, keep a copy of your complete and up-to-date SWPPP on site and easily accessible, including site maps showing where each BMP is or will be installed.

10 Site Stabilization
Immediately stabilize exposed portions of the site whenever construction work will stop for 14 or more days, even if work is only temporarily stopped. Remember, final stabilization is required prior to terminating permit coverage.

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99
	With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee. See Notes. Zone X
	Area with Flood Risk due to Levee Zone D
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard Zone X
	Effective LOMRs
	Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
	Coastal Transect
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
MAP PANELS	Digital Data Available
	No Digital Data Available
	Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

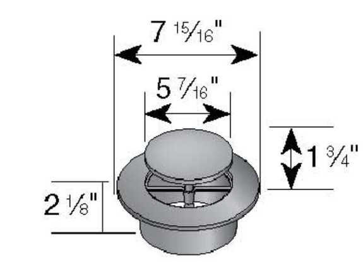
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/6/2026 at 5:24 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

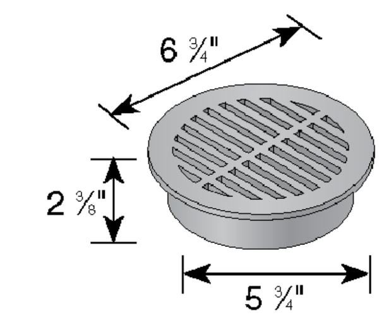
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

GENERAL INFORMATION ON THE INSTALLATION OF ROCK-FILLED CHAMBERS

1. LOCATE THE PROPOSED CHAMBER. ALWAYS CONTACT MISSOURI ONE CALL TO LOCATE UTILITY LINES BEFORE YOU DIG.
2. CHAMBERS SHOULD ALSO NOT BE LOCATED: 1) IN COMPACTED FILL; 2) BENEATH AN IMPERVIOUS (PAVED) SURFACE (OR SHED); 3) ABOVE AN AREA WITH A WATER TABLE OR BEDROCK LESS THAN TWO FEET BELOW THE BOTTOM OF THE CHAMBER; 4) WITHIN AN AREA WHERE THE SLOPE EXCEEDS 5%; 5) OVER OTHER UTILITY LINES; 6) ABOVE A SEPTIC FIELD; AND 7) AVOID SETTING CHAMBER IN LOW SPOTS OR AREAS THAT EVIDENCE POOR DRAINAGE, E.G. AS MAY INDICATE SOILS NOT CONDUCIVE TO INFILTRATING WATER.
3. MEASURE ELEVATIONS AND DIG THE HOLE TO THE REQUIRED DIMENSIONS.
4. OBSERVE THE SOILS IN THE EXCAVATION, IT IS IMPORTANT THE IN-SITU MATERIALS ARE ABLE TO INFILTRATE WATER AT A MINIMUM 0.25 IN/HR.
5. THE SIDES OF THE EXCAVATION SHALL BE CAREFULLY TRIMMED OF ALL ROOTS THAT WILL HAMPER THE INSTALLATION OF THE PERMEABLE DRAINAGE FABRIC USED TO LINE THE BOTTOM, SIDES AND TOP. TO PROMOTE RETENTION OF ADJOINING TREES TO REMAIN IN PLACE, THE ROOTS SHOULD BE HAND PRUNED OR SAW CUT VS. SHEARED OFF DURING EXCAVATION.
6. SCARIFY/LOOSEN THE BOTTOM SOIL SURFACE 3-4 INCHES. VERIFY THE BOTTOM OF THE EXCAVATION IS +/- LEVEL.
7. A PERMEABLE DRAINAGE FABRIC IS USED TO SEPARATE THE INFILL AGGREGATE FROM THE SOIL. THIS FABRIC MUST BE A NEEDLE-PUNCHED NONWOVEN POLYPROPYLENE GEOTEXTILE OF MIRAFI® BRAND 140N OR EQUIVALENT. PLACE AND SECURE FILTER CLOTH ON THE BOTTOM AND DOWN SIDES OF THE EXCAVATION LEAVING ENOUGH TO FOLD OVER THE TOP OF THE FUTURE AGGREGATE INFILL.
8. CAREFULLY PLACE 1ST LAYER OF WASHED (*)#57 CRUSHED STONE IN PIT TO THE BOTTOM OF ANY OUTFLOW PIPING. NO.57 STONE AVERAGES ½ INCH TO 1-½ INCHESIN SIZE.(*) VERIFY STONE IS CLEAN AND WASHED, AS ANY LIMESTONE DUST WILL SERVE TO CLOG THE FILTER FABRIC OVER TIME.
9. SET LOWER MANIFOLD PIPING, TAKING CARE TO INSTALL THE PIPE THRU THE FILTER FABRIC.DO NOT LEAVE LARGE GAPS BETWEEN FABRIC AND PIPES THAT PENETRATE THE LINER AS SOIL PARTICLES MAY MIGRATE INTO THE CHAMBER AND SERVE TO CONTAMINATE THE FREE-DRAINING STONE INFILL.IDEALLY THE HOLE THOUGH THE FABRIC IS CUT SUCH THAT RADIAL SERRATIONS CAN BE WRAPPED OR TAPED TO THE PIPE PENETRATIONS TO FORM A GOOD SEAL.
10. CONTINUE LAYERING THE STONE INFILL WHILE SETTING OTHER INFLOW PIPES, FITTINGS, OBSERVATION WELL PIPES, ETC. (AN OBSERVATION WELL INVOLVES PLACEMENT OF A VERTICAL STANDPIPE WITH GRATED OR SOLID REMOVABLE TOP CONNECTED TO THE PIPING INTERIOR TO THE CHAMBER. THE APPROVED PLANS MAY CALL FOR THE OBSERVATION WELL TO ALSO SERVE AS AN OVERFLOW DEVICE, IN SUCH INSTANCE THE TOP OF THE STANDPIPE WILL BE EQUIPPED WITH A GRATE).
11. ALL PIPING SHALLOWER THAN FROST DEPTH MUST BE TRIPLE WALLED ADA 3000 OR DOUBLE WALLED N-12.
12. WHEN THE TOP OF THE DRAINAGE MEDIA IS AT THE CORRECT ELEVATION, AND LEVELED, FOLD OVER THE FABRIC, LAP 18 INCHES MINIMUM AFTER ALL STONE IS IN PLACE.
13. FILL THE FINAL 8 INCHES (MIN) OF THE EXCAVATION ABOVE THE FABRIC WITH SELECT TOPSOIL AND TURF (OR OTHER MANAGED VEGETATION). ALTERNATIVELY, THE AREA ABOVE THE CHAMBER CAN BE COVERED WITH PEA GRAVEL, ESP. IF WATER IS TO ENTER THE CHAMBER THROUGH SURFACE FEATURES OTHER THAN A PIPE. THIS PEA GRAVEL LAYER ALSO PROVIDES SEDIMENT REMOVAL AND ADDITIONAL PRETREATMENT UPSTREAM OF THE DRY WELL AND CAN BE EASILY REMOVED AND REPLACED WHEN IT BECOMES CLOGGED. IF PEA GRAVEL IS USED, INSTALL LANDSCAPE EDGING AROUND THE PERIMETER OF THE CHAMBER TO RETAIN THE MATERIAL IN PLACE.
14. VERIFY ALL DOWNSPOUTS OR OTHER RAINWATER DELIVERY COMPONENTS ARE PROPERLY ROUTED TO THE CORRECT LINES AND GRADES, AND HAVE PRETREATMENT DEVICES (E.G. SUMPS, LEAF SCREENS, ETC.)FOR CONTRIBUTING NON-ROOFTOP RUNOFF, PRECEDE THE CHAMBER WITH AN IN-GROUND SUMP GRATE OR INLET LEAF TRAP. REVIEW THE APPROVED PLANS TO SEE IF THE DESIGN INDICATED ANY "BLOW OFF" GRATED INLETS UPSTREAM OF THE CHAMBER, SAME AS WILL PROVIDE ACCESS TO DELIVERY PIPING INTERMEDIATE BETWEEN CHAMBER AND THE CONTRIBUTING AREAS.
15. ANY OVERFLOW DEVICES/DISCHARGES (E.G. POP UP EMITTERS) FROM THE CHAMBER, INCLUDING UNDERDRAINS, SHOULD BE AT LEAST 10 FEET FROM PROPERTY LINES, AT A LOCATION THAT IS UNLIKELY TO CREATE NUISANCE DRAINAGE PROBLEMS SUCH AS A WET LAWN AREAS OR SEEPAGE ACROSS SIDEWALKS, AND PROTECTED FROM EROSION.
16. DURING FINISH GRADING, SHAPE THE AREAS UPSTREAM OF THE CHAMBER SUCH THAT RUNOFF FROM LARGE STORM EVENTS OR FLOWS FROM AREAS NOT INTENDED TO ENTER THE CHAMBER ARE SAFELY CONVEYED AROUND AND BYPASS THE DEVICE, WITH SPECIAL REGARD TO "MIMICKING" EXISTING (PRE-CONSTRUCTION) DRAINAGE \ PATTERNS BETWEEN THE CHAMBER AND DOWNSTREAM, OFF-SITE PROPERTIES.

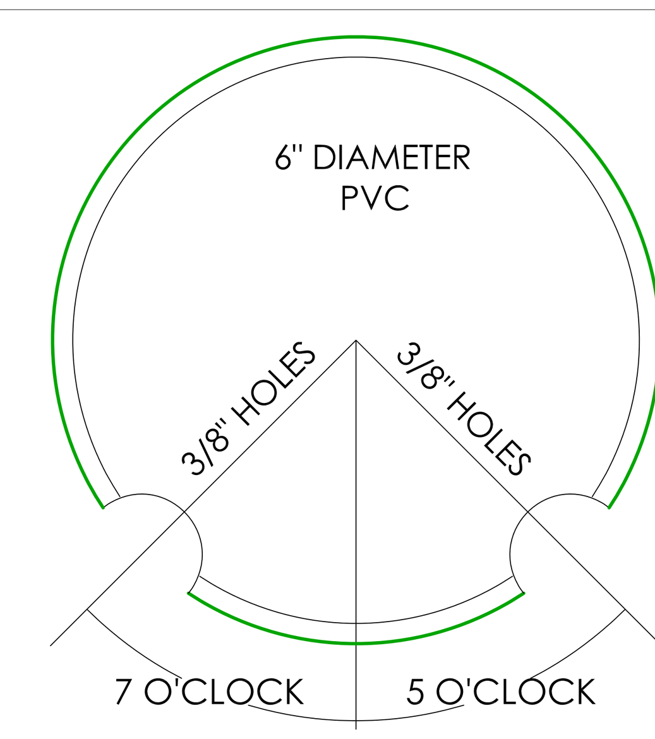


Part No.	Description	Color	Pkg. Qty.	Wt. Ea. (lbs.)	Product Class	Specifications
620	6" Pop-up Drainage Emitter	Green	15	0.61	10ND	6" polyolefin spring-loaded Pop-up Drainage Emitter with UV inhibitor. 88 GPM capacity. 0.04 psi or 1" of head to raise top.
	Can be used with Flo-Well to relieve overflow.					



¼" Grate Opening

Part No.	Description	Color	Pkg. Qty.	Wt. Ea. lbs.	Product Class	Specifications
40	6" Round Grate	Black	10	0.49	10ND	6" Round Structural Foam Polyolefin Grate with UV inhibitor. Open surface area 9.10 square inches. 27.84 GPM.
50	6" Round Grate	Green	10	0.49	10ND	
60	6" Round Grate	Gray	10	0.49	10ND	
60S	6" Round Grate	Sand	10	0.49	10ND	
	Fits Spee-D® Basin, 6" Sewer and Drain Pipe & Fittings and 6" Corrugated Pipe. (see page 75). ADA Compliant/Heel-proof.					

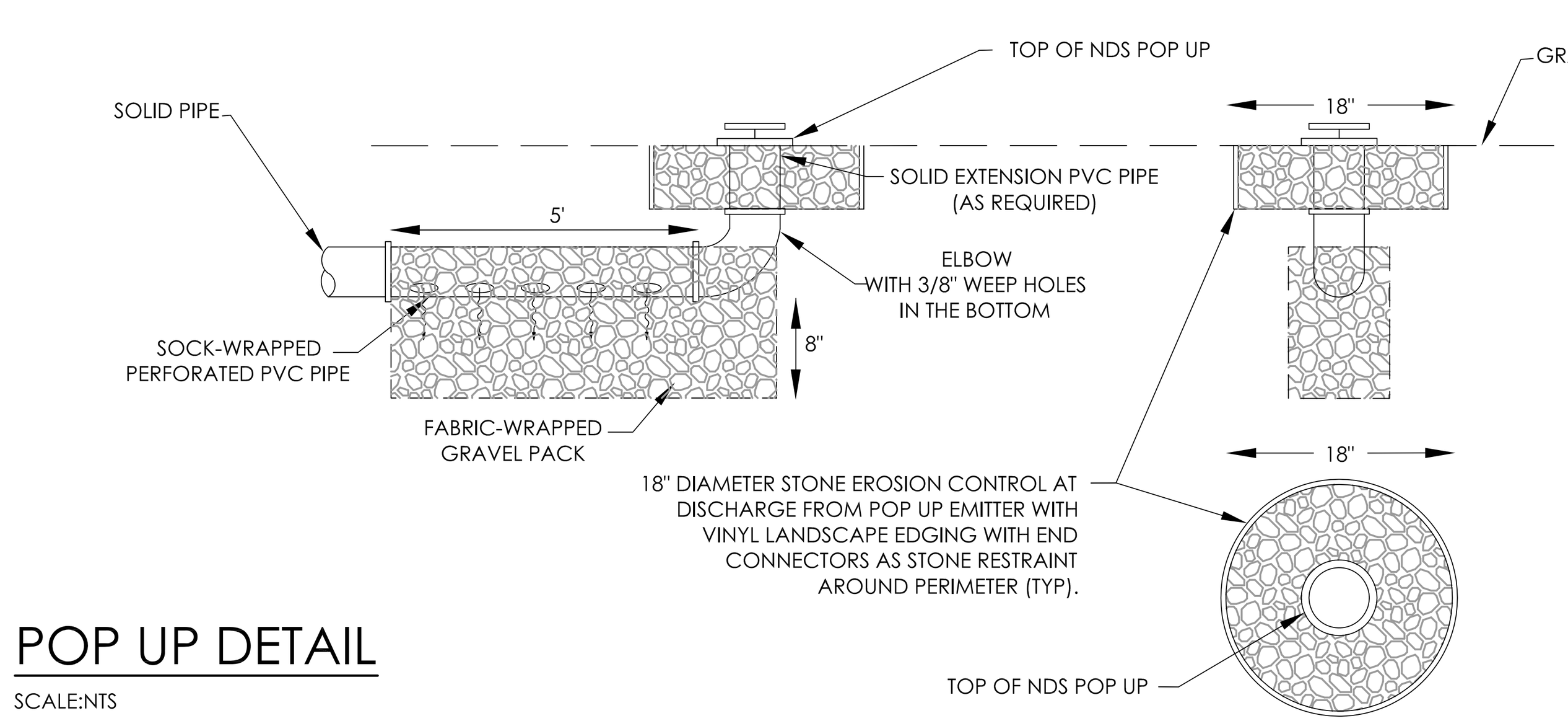


NOTE: FOR UPPER MANIFOLD, HOLES TO BE FACING DOWN; FOR LOWER MANIFOLD, HOLES TO BE FACING UP.

3/8" HOLES AT 5 & 7 O'CLOCK, SPACED @ 12" CENTERS

MANIFOLD PIPE PERFORATION PATTERN

SCALE:NTS



POP UP DETAIL

SCALE:NTS

810 BROWNELL AVE
CITY OF GLENDALE, ST. LOUIS COUNTY, MO 63122
DETAILS

Prepared For: BENCHMARK HOMES

Prepared By: Wind, 122 N. Kirkwood Road, Kirkwood, MO 63122, Telephone: 314.965.WIND

REVISIONS/STATUS

No.	Date	Description	P.E. Signature
1	1/3/2026	ARB SUBMITTAL	

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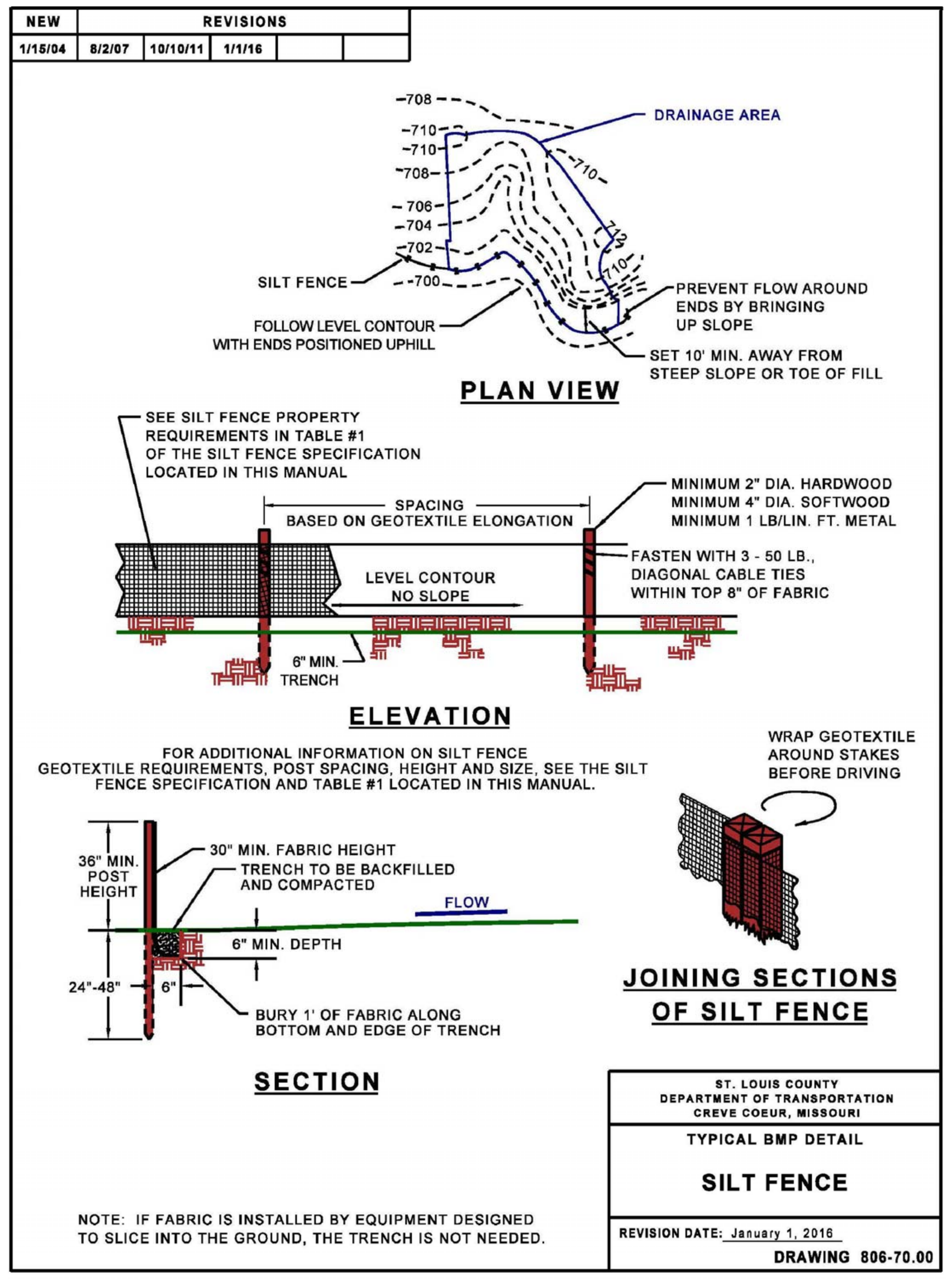


SILT FENCE

PHYSICAL DESCRIPTION - Silt fences are used as temporary perimeter controls, appropriate to the BMP, at sites where construction activities will disturb the soil. They can also be used on the interior of the site. A silt fence consists of a length of filter fabric stretched between anchoring posts spaced at regular intervals along the site at low and down slope areas. The filter fabric should be entrenched in the ground. When installed correctly and inspected frequently, silt fence can be an effective barrier to silt leaving the site in storm water runoff.

WHERE BMP IS TO BE INSTALLED - Silt fences apply to construction sites with relatively small drainage areas. They are appropriate in areas where runoff will occur as low-level flow, not exceeding 0.5 c.f.s. The drainage area for silt fences should not exceed 0.25 acre per 100-foot fence length (100 square feet per foot of fence). The slope length above the fence should not exceed 100 feet (NAHB, 1995). The fence should be designed to withstand the runoff from a 10-year peak storm event.

CONDITIONS FOR EFFECTIVE USE OF BMPs - Spacing of parallel lengths of silt fence along slopes is relative to slope steepness as follows:

Type of Flow: Sheet flow only.

Contributing Slope Length: 30-foot maximum for 3:1 slopes.
50 foot maximum for slopes between 3:1 and 10:1.
100 foot maximum for slopes under 10%.

For additional information see Section 806.70 of St. Louis County's Standard Specification for Road and Bridge Construction.

WHEN BMP IS TO BE INSTALLED - Prior to disturbance of natural vegetation and at intervals during construction of fill slopes. Install on the perimeter of the site (where storm water exits the site) prior to disturbance of natural vegetation, around material stockpiles and interior to the site along slopes, at the base of slopes and at intervals during construction of slopes.

INSTALLATION / CONSTRUCTION PROCEDURES

- ✓ Drive post for fence line.
- ✓ Dig trench to required dimensions in front of posts for fabric burial.
- ✓ Attach wire mesh to posts.
- ✓ Attach fabric to posts, allowing required length below ground level to run fabric along bottom of trench
- ✓ Backfill and compact soil in trench to protect and anchor fabric.

If a standard-strength fabric is used, it can be reinforced with wire mesh behind the filter fabric. This increases the effective life of the fence. The maximum life expectancy for synthetic fabric silt fences is about 6 months, depending on the amount of rainfall and runoff.

The stakes used to anchor the filter fabric should be wood or metal. Wooden stakes should have minimum dimensions of 2 by 2 inches if a hardwood like oak is used. Stakes from soft woods like No. 2 Southern Pine, should have minimum dimensions of 4 by 4 inches. When using steel (standard U, T, L or C shape sections) posts in place of wooden stakes, they should weigh no less than 1.0 lb/linear foot. If metal posts are used, attachment points are needed for fastening the filter fabric with wire ties. Posts should be least 5 feet long and driven or placed at a slight upstream angle into the ground to a

minimum depth of 18 inches. Depth shall be increased to a minimum of 22 inches if fence is placed on a slope of 3:1 or greater. When the post embedment depth is impossible to obtain, the posts shall be adequately secured to prevent overturning of the fence due to sediment loading.

Erect silt fence in a continuous fashion from a single roll of fabric to eliminate gaps in the fence. If a continuous roll of fabric is not available, overlap the fabric from both directions only at stakes or posts. Overlap at least 6 inches.

The Geosynthetic filter fabric and wire mesh (when applicable) shall be no less than 30 inches above ground and are stapled or wired to the upslope side of the post. Staples should be a 17-gauge wire and ½ inch long. Excavate a trench to bury the bottom of the fabric fence in a "J" configuration at least 6 inches below the ground surface. The trench shall be backfilled with native soil and the soil compacted over the geotextile. This helps to prevent gaps from forming near the ground surface. Gaps would make the fencing useless as a sediment barrier.

The height of the fence posts should be 38 inches (22-inch embedment) to 42 inches (18-inch embedment) above the original ground surface. If standard-strength fabric is used with 14-gauge steel wire with a mesh spacing of 6 inches by 6 inches (or a prefabricated polymeric mesh of equivalent strength), space the posts no more than 4 feet apart. If extra-strength fabric is used without wire mesh reinforcement, space the posts no more than 4 feet apart with woven or 6 feet apart with non-woven geosynthetic.

Alternate Construction: Install fence by slicing it into ground with specialized equipment.
Install posts at reduced spacing indicated on detail.

LIMITATIONS - Do not install silt fences along areas where rocks or other hard surfaces will prevent you from uniformly anchoring the fence posts and entrenching the filter fabric. Installing fences in such an area greatly reduces their effectiveness and can create runoff channels leading offsite. Silt fences are not suitable for areas where large amounts of concentrated runoff are likely. Fence shall not be used when slope is 1:1 or greater and water flow rates exceed 2 cubic feet per minute. Open, windy areas present a maintenance challenge, too, because high winds can make the filter fabric deteriorate faster. Do not install silt fences across streams, ditches, or waterways (Smolen et al., 1988).

When the pores of the fence fabric become clogged with sediment, pools of water are likely to form on the uphill side of the fence. Setting and design of the silt fence should account for this. Take care to avoid unnecessarily diverting stormwater from these pools, causing further erosion damage.

MAINTENANCE CONSIDERATIONS - Inspect silt fences regularly and frequently, as well as after each rainfall event, to make sure that they are intact and that there are no gaps where the fence meets the ground or tears along the length of the fence. If you find gaps or tears, repair or replace the fabric immediately. Remove accumulated sediments from the fence base when the sediment reaches one-third to one-half the fence height. Remove sediment more frequently if accumulated sediment is creating noticeable strain on the fabric and the fence might fail from a sudden storm event. When you remove the silt fence, remove the accumulated sediment, dress the area disturbed to give it a pleasing appearance and vegetate all bare areas as well.

O&M PROCEDURES

- ✓ Inspect every week and after every storm.
- ✓ Remove sediment buildup deeper than ½ the fence height or 12", whichever is less.
- ✓ Replace torn of clogged fabric; repair loose fabric.

- ✓ Repair unstable or broken posts.
- ✓ Stabilize any areas susceptible to undermining.
- ✓ Extend fence or add additional row(s) of fence if necessary to provide adequate protection.

SILTING AND DESIGN CONSIDERATIONS - The material for silt fences should be a pervious sheet of synthetic fabric such as polypropylene, nylon, and polyester or polyethylene yarn. Choose the material based on the minimum synthetic fabric requirements shown in **Table 1** below.

Table 1- Temporary Silt Fence Property Requirements

Physical Property	Test Method	Units	MARV Geotextile Requirements		
			Supported Silt Fence [2]	Unsupported Silt Fence	
				Woven: Elongation ≥ 50% [1]	Non-Woven: Elongation ≤ 50% [1]
Post Spacing (Maximum)		feet	4	4	6
Height of Wire / Polymer Fence (Minimum)		inches	30	---	---
Grab Strength (Minimum): Machine Direction / Cross Machine Direction	ASTM D 4632	pounds	90 / 90	125 / 100	125 / 100
Permittivity (Minimum)	ASTM D 4491	sec^{-1}	0.05	0.05	0.05
Apparent Opening Size (AOS) [3]	ASTM D 4751	Sieve Number	30	30	30
Ultraviolet Stability (Minimum) (retained strength)	ASTM D 4355	70% after 500 h of exposure			

Notes:

MARV Minimum Average Roll Value

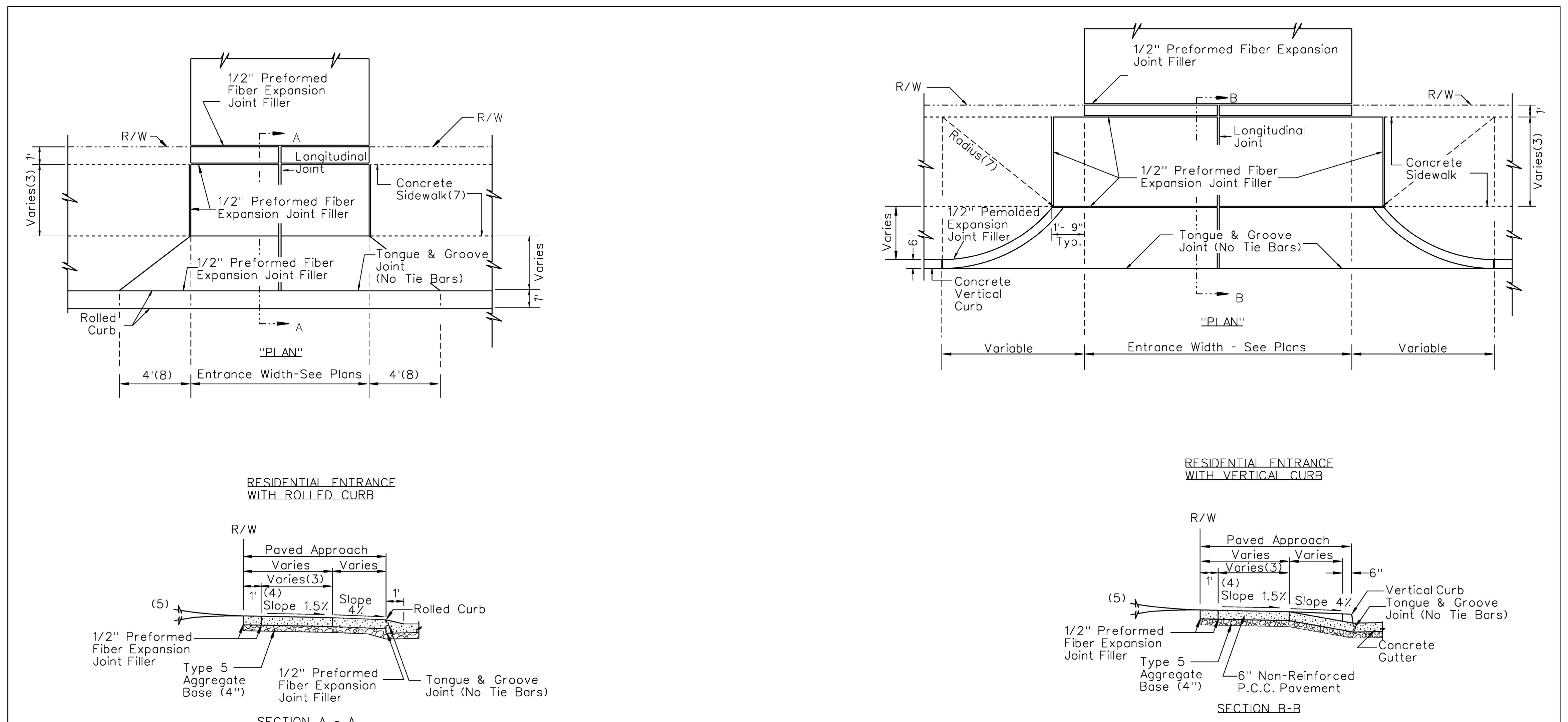
1 Elongation measured in accordance with ASTM D 4632

2 **Silt Fence Support** - 14-gauge steel wire with a mesh spacing of 6 inches by 6 inches (or a prefabricated polymeric mesh of equivalent strength)

3 Maximum Average Roll Value

SITE CONDITIONS FOR REMOVAL - After permanent vegetation of slope is established. Remove fence and post, re-grade trench area and vegetate.

TYPICAL DETAIL - 806-70.0



GENERAL NOTES

1) Do not scale drawing, follow dimensions.
2) The thickness of the first section of sidewalk on each side of the entrance shall be increased to match the driveway approach pavement thichness (6 inches).
3) Minimum sidewalk width shall be as defined by the sidewalk master plan. Sidewalk width shall be a minimum of 5 feet where not defined by the sidewalk master plan. Sidewalk width may be reduced to 4 feet within residential subdivision developments.
4) Cross slopes 1.5% (+/- 0.5%)
5) See Design Criteria For The Preparation of Improvement Plans, Saint Louis County Transportation.
6) Approach shall be platformed to accomodate furture sidewalk when new sidewalk is not required.
7) See approved plan.
8) Driveway flare is optional within residential subdivisions. Flare is required along Arterial and Collector roadways.
9) Additional construction requirements apply for driveways opposite "T" intersections or on outside of a curve, refer to "Entrance Construction Details Guidelines for Joint Filler Installation", Std. Dwg. C608.10.
10) This detail is not applicable where sidewalk is installed at the back of curb.

ISSUE DATE 03/09/2020	THIS IS NOT A CERTIFIED DOCUMENT	Saint Louis COUNTY TRANSPORTATION 1050 NORTH LINDBERGH BLVD. ST. LOUIS, MISSOURI 63132	ENTRANCE CONSTRUCTION DETAILS: RESIDENTIAL CONCRETE ENTRANCES
REVISIONS			EFFECTIVE 05/01/2020 · SHEET 1 OF 1 · DRAWING C608.00

TENCATE Mirafi®

TENCATE GEOSYNTHETICS
Americas

Mirafi® 140N

DRAINAGE · EROSION PROTECTION · FILTRATION · SEPARATION

Mirafi® 140N is a nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. Mirafi® 140N is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids. Mirafi® 140N meets AASHTO M288 Class 3 for Elongation > 50%.

TenCate Geosynthetics Americas Laboratories are accredited by Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP). NTPEP Listed

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value	
			MD	CD
Grab Tensile Strength	ASTM D4632	lbs (N)	120 (534)	120 (534)
Grab Tensile Elongation	ASTM D4632	%	50	50
Trapezoid Tear Strength	ASTM D4533	lbs (N)	50 (223)	50 (223)
CBR Puncture Strength	ASTM D6241	lbs (N)	310 (1380)	
			Maximum Opening Size	
Apparent Opening Size (AOS)	ASTM D4751	U.S. Sieve (mm)	70 (0.212)	
			Minimum Roll Value	
Permittivity	ASTM D4491	sec^{-1}	1.7	
Flow Rate	ASTM D4491	gal/min/ft² (l/min/m²)	135 (5500)	
			Minimum Test Value	
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	70	

Physical Properties	Unit	Roll Sizes	
Roll Dimensions (width x length)	ft (m)	12.5 x 360 (3.8 x 110)	15 x 360 (4.5 x 110)
Roll Area	yd² (m²)	500 (418)	600 (502)

365 South Holland Drive, Pendergrass, GA 30567
Tel 706 693 2226 · Tel 888 795 0808 · Fax 706 693 4400 · www.tencate.com

FGS000385
ETQR77
GAI-LAP-25-97

Professional Engineer MISSOURI NO. E-19364 EXPIRES: 12-31-2027 Daniel C. Wind, P.E.

810 BROWNELL AVE
CITY OF GLENDALE, ST. LOUIS COUNTY, MO 63122
DETAILS

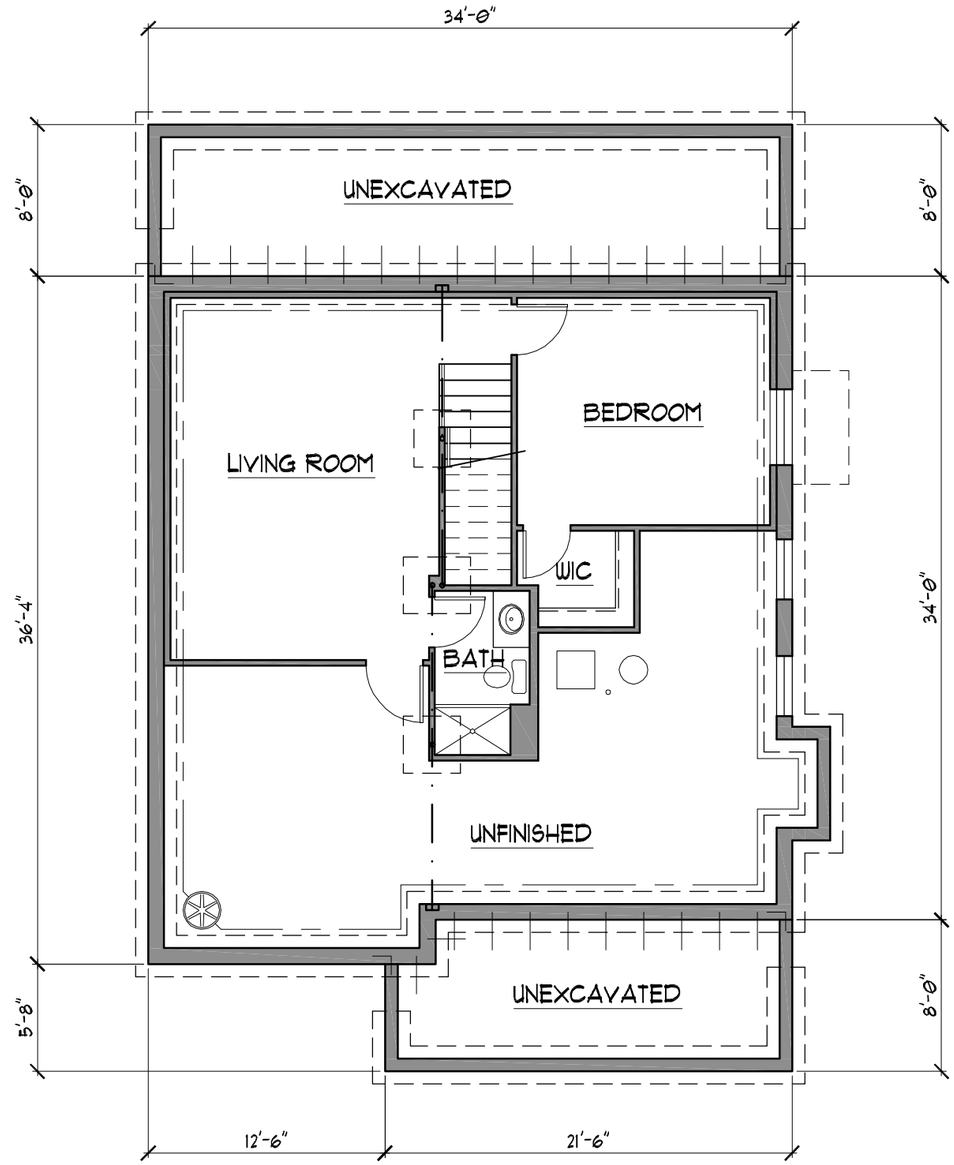
Prepared For: BENCHMARK HOMES — BENCHMARK CUSTOM HOME BUILDERS, INC 13281 SPINDLE LANE ST. LOUIS, MO 63122

Prepared By: Wind ENGINEERING COMPANY — 122 N. Kirkwood Road, Kirkwood, MO 63122, Telephone: 314.965.WIND

No.	Date:	Description:	P.E. Signature
1	3/3/2026	ARB SUBMITTAL	

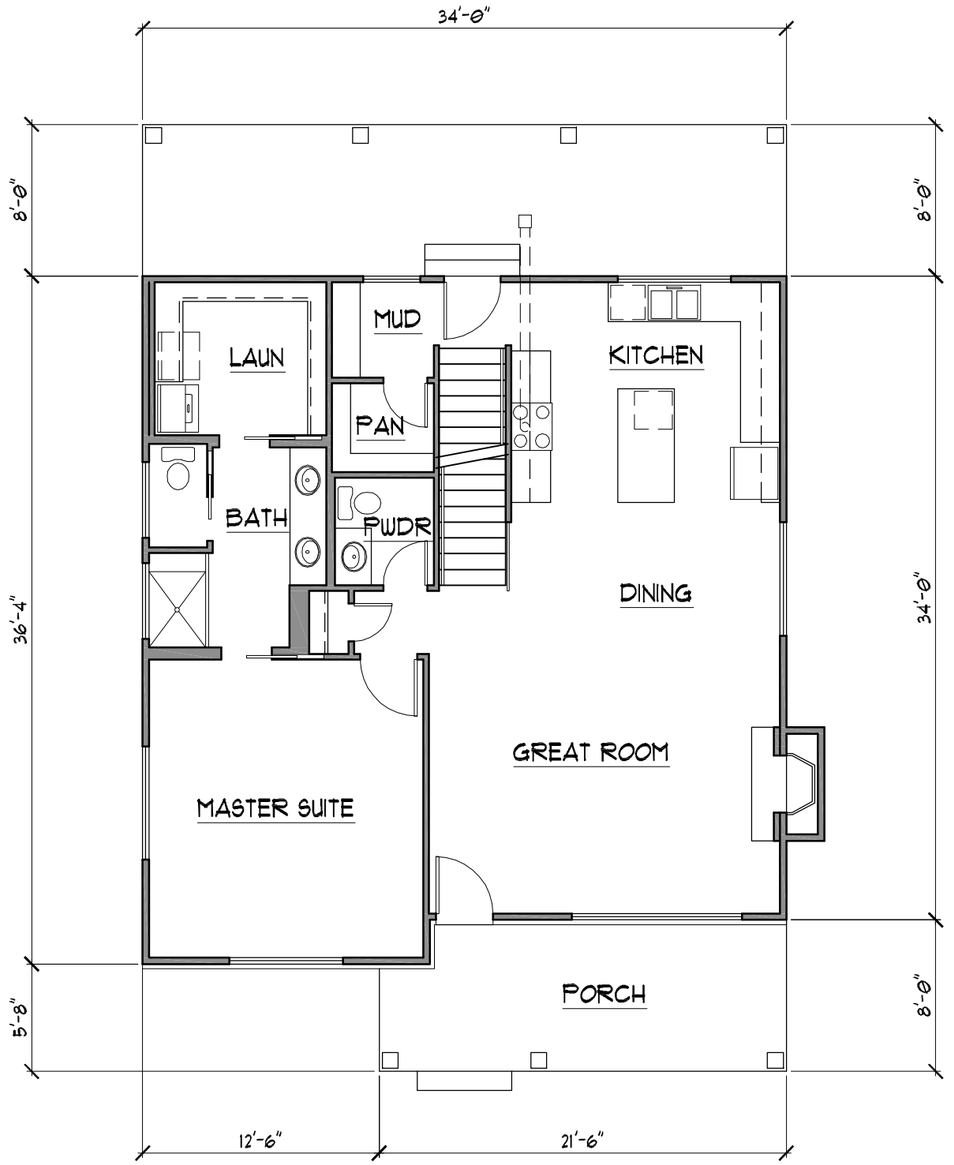
REVISIONS/STATUS

Date:	1/19/2026
Field Work: PC	Field Checked: DW
Drawn By: PC	C.S.O.: PC
Checked By:	DW
Project Number:	25038
Sheet Number:	C7.4



LOWER LEVEL

SCALE: 1/8" = 1'-0"



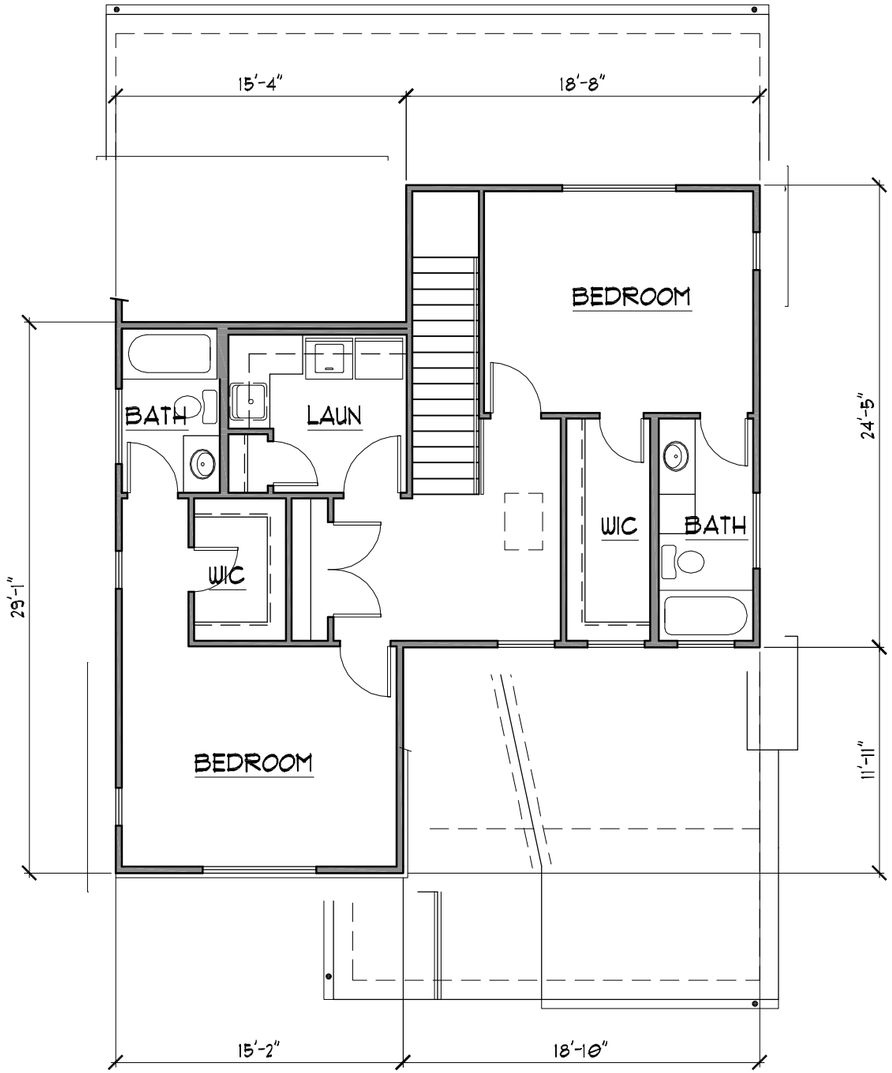
MAIN LEVEL

SCALE: 1/8" = 1'-0"

BENCHMARK HOMES

810 BROWNELL
GLENDALE, MO

TIM HOLLERBACH
DESIGNS
1548 JEFFCO BLVD
ARNOLD, MO 63010
314-578-8470
www.timhollerbachdesigns.com



SECOND LEVEL

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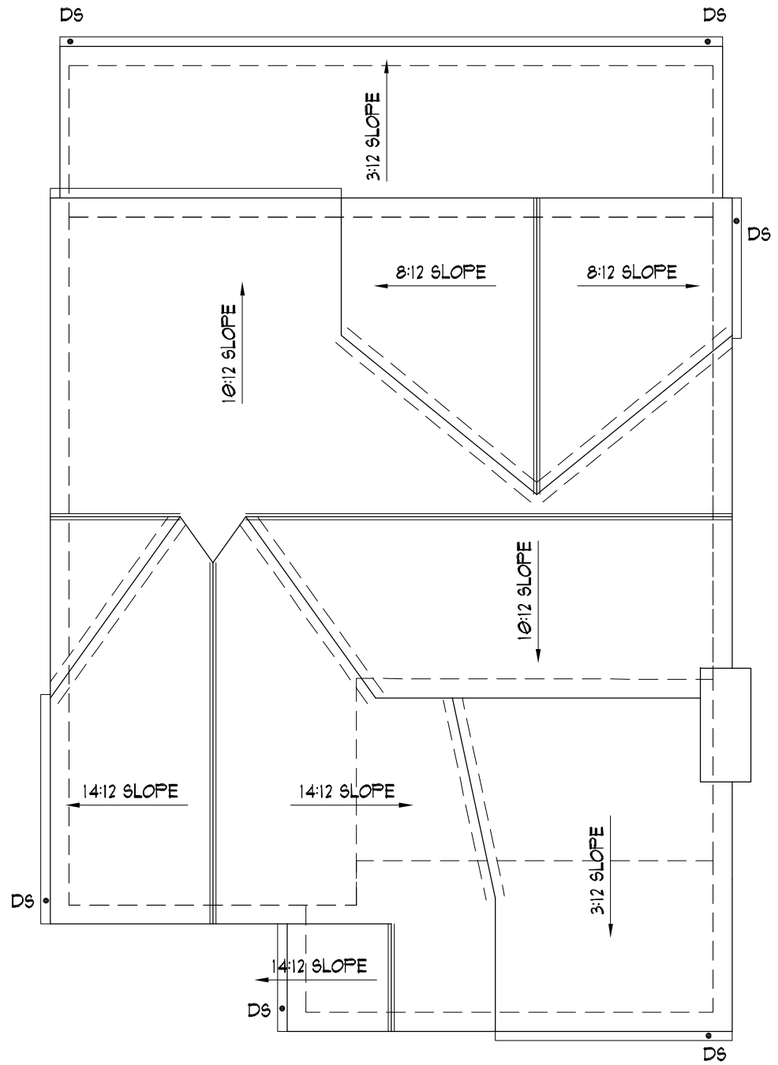

ROOF PLAN

SCALE: 1/8" = 1'-0"

BENCHMARK HOMES

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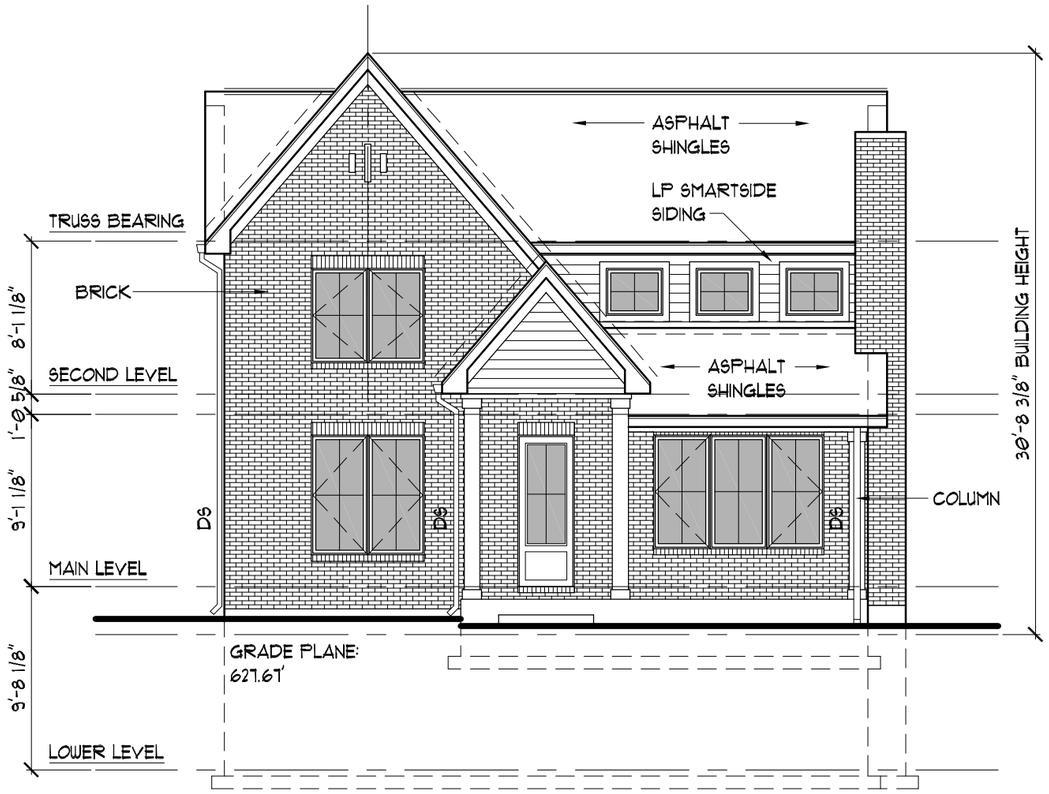
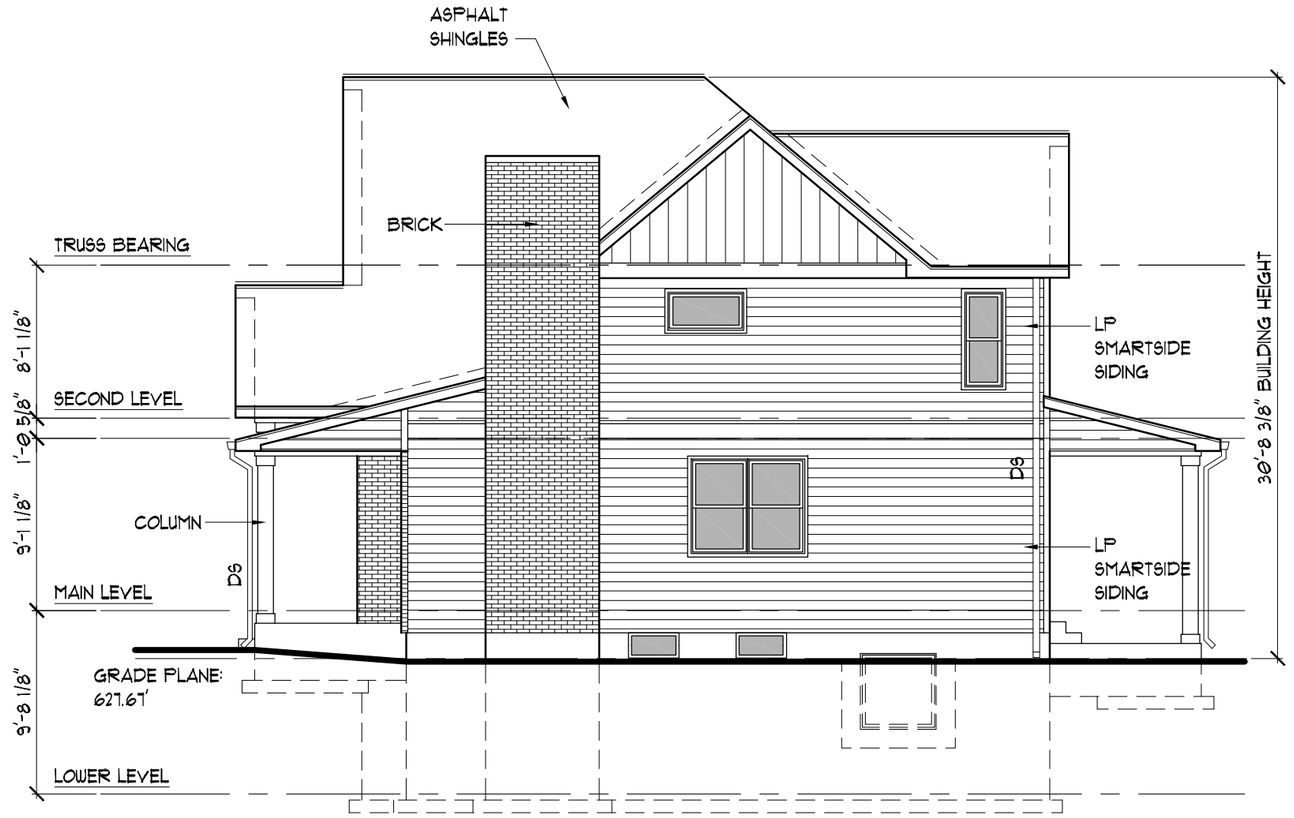


FRONT ELEVATION

SCALE: 1/8" = 1'-0"



RIGHT SIDE ELEVATION

SCALE: 1/8" = 1'-0"

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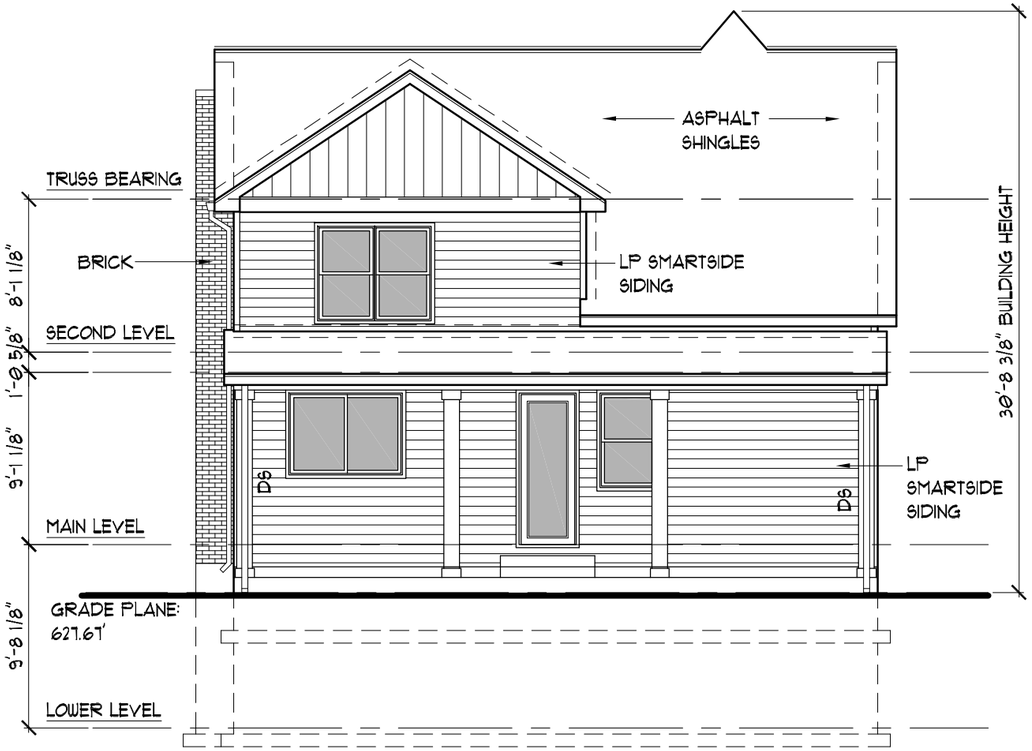

REAR ELEVATION

SCALE: 1/8" = 1'-0"

LEFT SIDE ELEVATION

SCALE: 1/8" = 1'-0"

BENCHMARK HOMES

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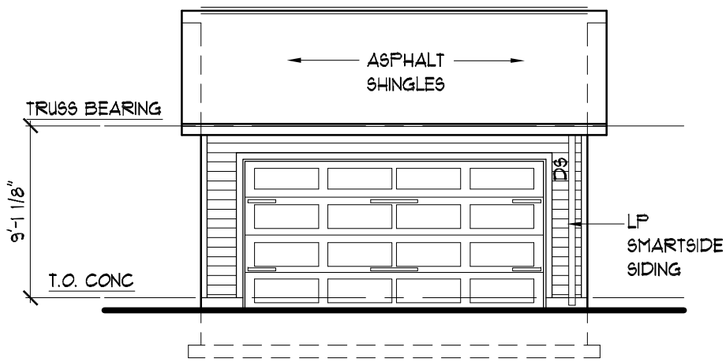
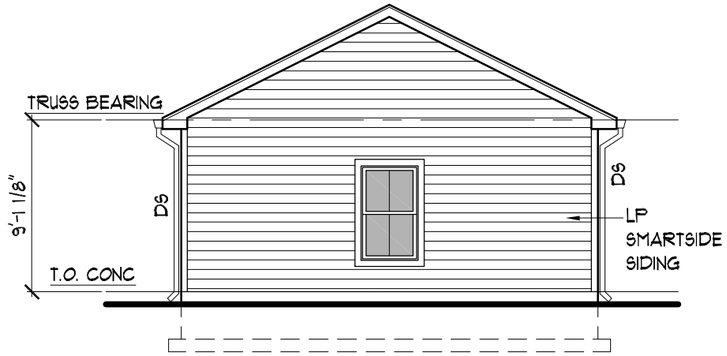


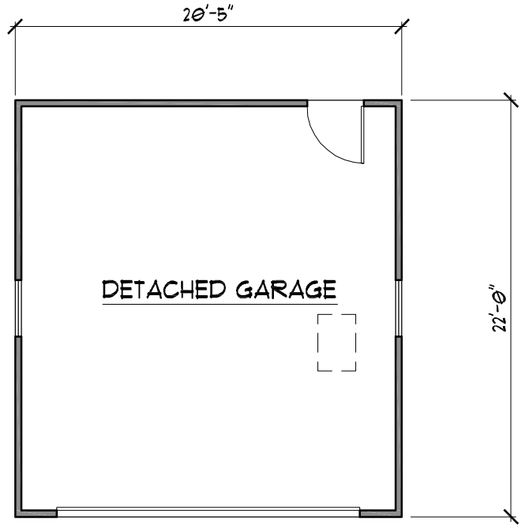
FRONT ELEVATION (ALLEY)

SCALE: 1/8" = 1'-0"



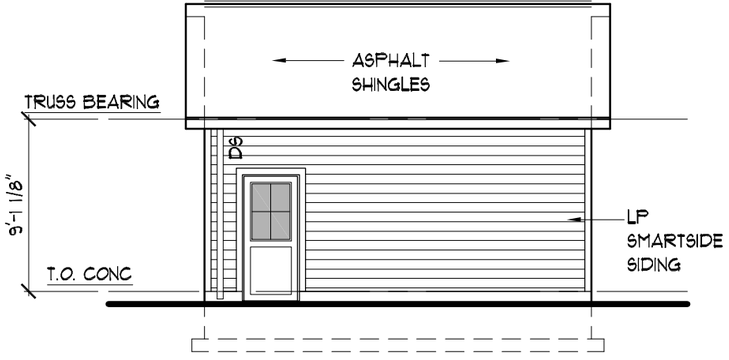
SIDE ELEVATION

SCALE: 1/8" = 1'-0"



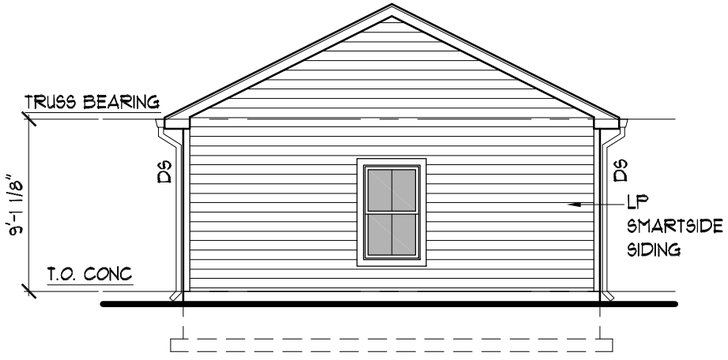
DETACHED GARAGE

SCALE: 1/8" = 1'-0"



REAR ELEVATION (YARD)

SCALE: 1/8" = 1'-0"



SIDE ELEVATION

SCALE: 1/8" = 1'-0"

BENCHMARK HOMES

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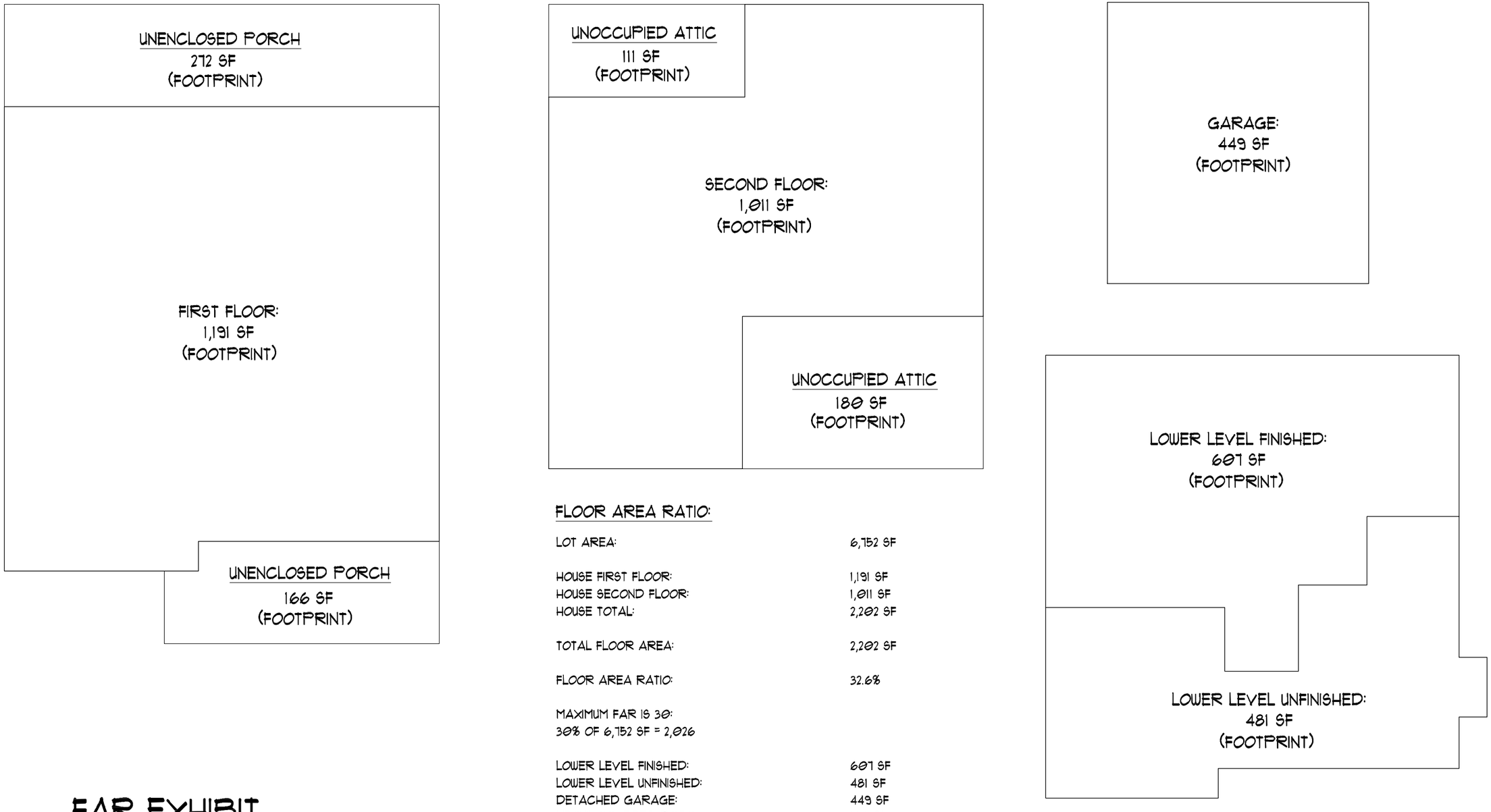

FLOOR AREA RATIO:

LOT AREA:	6,752 SF
HOUSE FIRST FLOOR:	1,191 SF
HOUSE SECOND FLOOR:	1,011 SF
HOUSE TOTAL:	2,202 SF
TOTAL FLOOR AREA:	2,202 SF
FLOOR AREA RATIO:	32.6%
MAXIMUM FAR IS 30: 30% OF 6,752 SF = 2,026	
LOWER LEVEL FINISHED:	607 SF
LOWER LEVEL UNFINISHED:	481 SF
DETACHED GARAGE:	449 SF
FRONT COVERED PORCH:	166 SF
REAR COVERED PORCH:	272 SF
HOUSE HEIGHT:	30'- 8 3/8"

FAR EXHIBIT

SCALE: 1/8" = 1'-0"

BENCHMARK HOMES

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GLENDALE, MO

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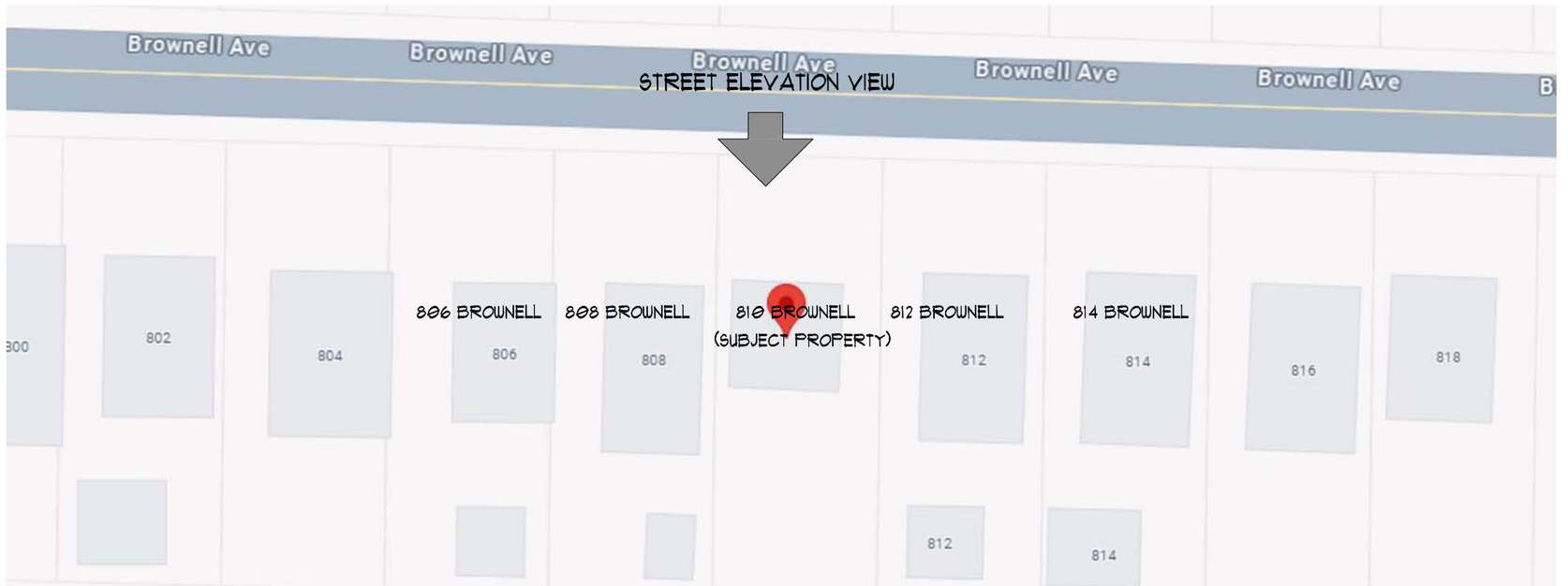

814 BROWNELL | 812 BROWNELL | 810 BROWNELL (SUBJECT PROPERTY) | 808 BROWNELL | 806 BROWNELL

COMPOSITE STREET ELEVATION

SCALE: N.T.S. (VIEW LOOKING SOUTH)

810 BROWNELL
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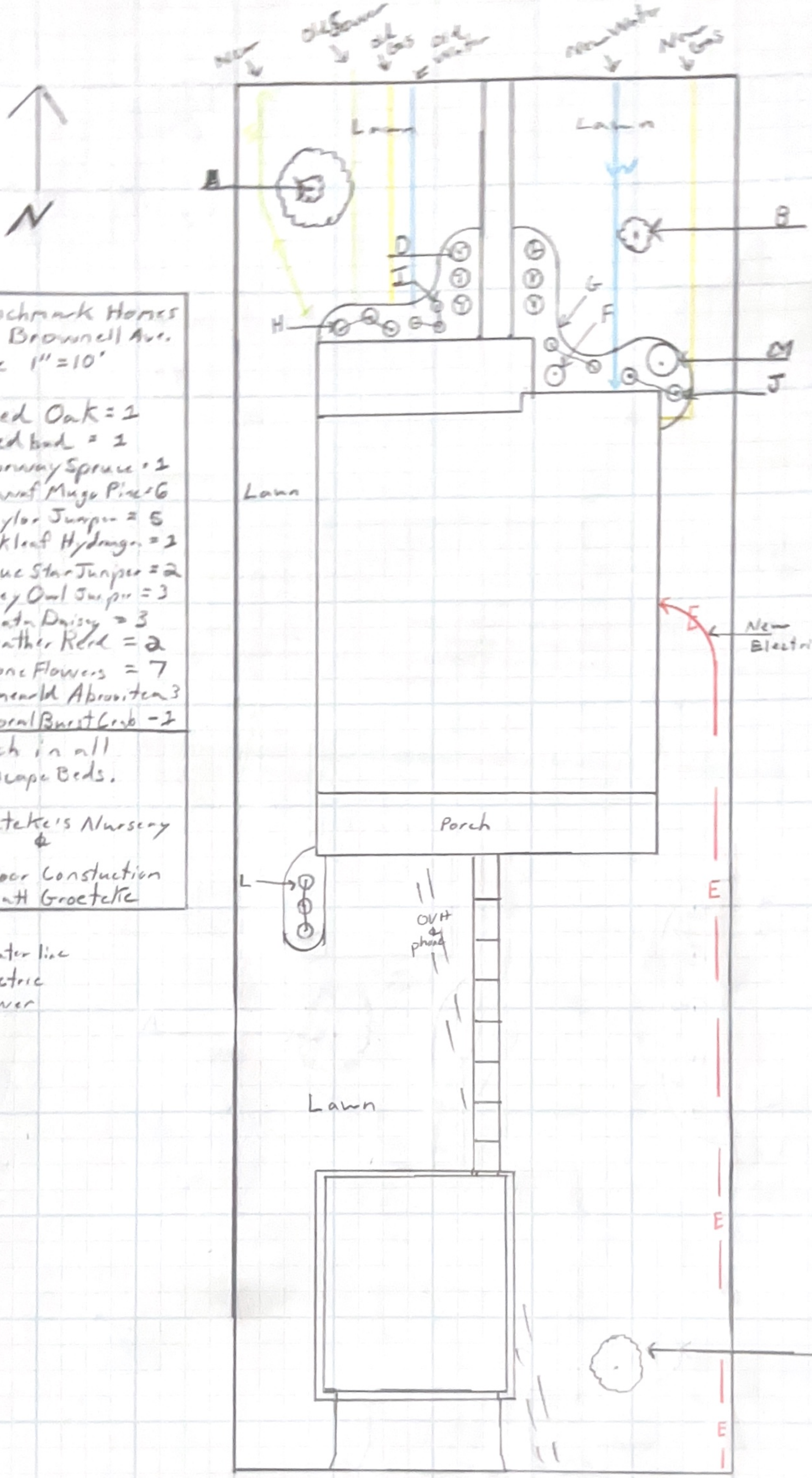


Benchmark Homes
810 Brownell Ave.
Scale 1" = 10'

A - Red Oak = 1
B - Redbud = 1
C - Norway Spruce = 1
D - Dwarf Mugo Pine = 6
E - Taylor Juniper = 5
F - Oakleaf Hydrangea = 1
G - Blue Star Juniper = 2
H - Grey Owl Juniper = 3
I - Shasta Daisy = 3
J - Feather Reed = 2
K - Cone Flowers = 7
L - Emerald Arborvitae 3
M - Coral Burst Crab - 1

mulch in all Landscape Beds.

Groetekte's Nursery
&
Outdoor Construction
Matt Groetekte

W - water line
E - Electric
S - sewer

February 25, 2026

Benchmark Custom Homes
13281 Spindle Ln
St. Louis, MO 63122

CREATING PROPERTY WEALTH
THROUGH PLANT HEALTH

Tree study for 810 Brownell Ave, Glendale, MO 63122

Attached is the revised tree study for 810 Brownell Ave as of the site visit on 12/24/2025. All trees on property are to be removed and stumps ground out to remove the root crown or removed via excavation due to conflict with construction. Neighbor's American sycamore is to be protected and tree protection zone installed along edge of existing driveway and 7' beyond sidewalk.
Pruning of the west side of the neighbor's American sycamore is recommended to improve vertical clearance and reduce the likelihood of damage during construction. If pruning is elected to be performed the pruning should consist of removal of the 5" diameter 4th lowest first order branch and reducing the 6th lowest first order branch using 2 reduction cuts 2-3" diameter. Pruning should be performed by a certified arborist following ANSI A300 standards.

Please refer to the City of Glendale MO ARB Guidelines-Section 5 for additional information regarding requirements and ordinances.

Xavier Kaighin
ISA Certified Arborist MW6241-A
Cell: (314) 779-9563

TREE STUDY SPECIES

Ref #	Species	Common Name	DBH (in.)	Physical Deterioration *(health, structure, form)* **(0-100%)**	Functional Limitations *(species-site interaction)* **(0-100%)**	External Limitations *(outside factors)* **(0-100%)**	Tree Mgmt Fund $	Remove / Protect	Additional comments
1	Juglans nigra	black walnut	26	45	90	90	3,120	Remove	Multiple heading cuts/low vitality
2	Cercis canadensis	eastern redbud	13	80	70	90	1,560	Remove	
3	Platanus occadentalis	American sycamore	33	85	60	90		Protect	Neighbor's tree
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
		Total DBH:	**72**						

TREE STUDY TRUNK DIAMETER INCHES SUMMARY

Total diameter inches on property	39
Diameter inches to be removed	39
Remaining diameter inches	0
Minimum replacement trees (10"=1 tree)	4

TREES TO BE REMOVED

Reference #	Species	Common Name	DBH *(inches)*
1	Juglans nigra	black walnut	26
2	Cercis canadensis	eastern redbud	13

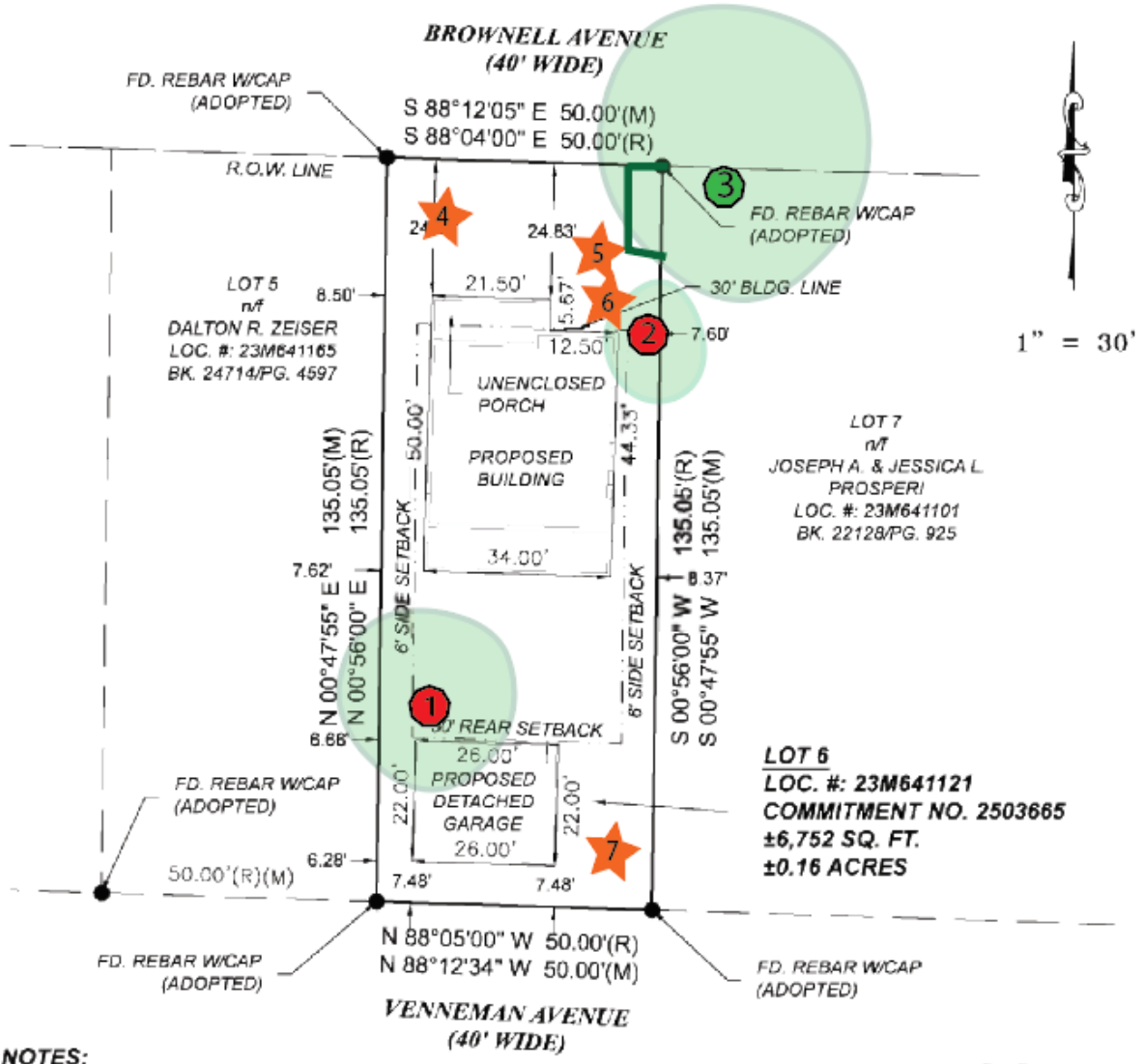
TREES TO BE INSTALLED

Reference #	Species	Common Name	Caliper Size *(inches)*
4	Quercus rubra	northern red oak	2.5
5	Cercis canadensis	eastern redbud	2.5
6	Malus × 'Coralcole'	Coralburst crabapple	2.5
7	Picea abies	Norway spruce	2.5

= Tree protection zone
= Tree canopy
= Root pruning
= Existing tree to preserve
= Existing tree to remove
= Proposed new tree location
= Electric service
= Water service
= Sewer service
= Gas service
= Comm service

PLOT PLAN

LOT 6 IN BLOCK 2 OF LAWLER'S SUBDIVISION
ST. LOUIS COUNTY, MISSOURI
P.B. 16 PG. 29



NOTES:

ADDRESS: 810 BROWNELL AVENUE
ST. LOUIS, MO 63122

LEGEND:

STATE OF MISSOURI

CITY OF Glendale

424 N. Sappington Road Glendale, Missouri 63122 (314) 965-3600 fax (314) 965-4772

APPLICATION FOR ARCHITECTURAL REVIEW BOARD

APPLICATION DATE 2/12/26 DATE OF ARB MEETING 3/11/26 ESTIMATED COST 980,000

PROJECT ADDRESS 5 Hillard Road GLENDALE, MO 63122

NAME OF PROPERTY OWNER Scharf Land Development Company PHONE NUMBER (317)707-4238

CONTRACTOR (NAME) Same as Owner PHONE NUMBER same

CONTRACTOR ADDRESS 16833 Kingstowne Estates Dr., Ballwin, MO 63011

ARCHITECT (NAME) Tim Hollerbach Designs. PHONE NUMBER (314)578-9470

ARCHITECT ADDRESS 1548 Jeffco Blvd., Arnold, MO 63010

DETAILED DESCRIPTION OF WORK BEING PROPOSED: New Home

FLOOR AREA RATIO 29.7 (FAR = Gross Floor Area divided by total area of lot. Gross Floor Area includes all areas provided with heat and/or air conditioning. Includes all conditioned half stories with ceiling heights of more than 5 feet. All living space with ceiling heights of sixteen (16) feet or greater shall be counted at 200%. Attached garages shall be counted at 50%. Exclude any finished or unfinished basement, a detached garage, and any unenclosed porch).

TOTAL FLOOR AREA OF NEW CONSTRUCTION (SQ. FT.) 3228

TOTAL FLOOR AREA OF EXISTING STRUCTURE (SQ. FT.) 0

TOTAL SQ. FT. OF LOT 10,854 WIDTH AND DEPTH OF LOT (FT.) 75'x165'±

HEIGHT OF STRUCTURE 27'-10" NUMBER OF STORIES 2

ESTIMATED COMMENCE DATE 4/15/26 EST. COMPLETION DATE 3/15/27

Each application shall be accompanied with payment of a fee as follows:

Addition or Accessory Structure: $150.00

New Home: $200.00

(SEE REVERSE SIDE FOR APPLICATION CHECKLIST)

Applications must include 7 copies of all the following items (Arch D 24" x 36" size paper is acceptable). Electronic PDF copies must also be submitted, either by email to permits@glendalemo.org or on a USB Flash Drive. Packets are due no later than 5:00 p.m. 20 days prior to the scheduled ARB meeting. Please check each item included. The complete ARB Guidelines may be viewed on the City's website.

Applications for additions to existing homes must include the following content unless specific requirements are shown by the applicant to be not applicable to the proposed project and are modified or waived by the City Administrator.

Scharf Land Development Company

President 2/12/26 Date

☐ **1. Existing Conditions Site Survey.** Show all site conditions, paved areas, trees and landscaping,

SITE PLAN

5 HILLARD ROAD

LOT 3 OF 'ALGONQUIN FOREST', PLAT BOOK 38 PAGE 8, CITY OF GLENDALE, ST. LOUIS COUNTY, MISSOURI

LEGEND

DESCRIPTION	SYMBOL
EXISTING MAJOR CONTOUR	----500----
EXISTING MINOR CONTOUR	----502----
PROPOSED MAJOR CONTOUR	——504——
PROPOSED MINOR CONTOUR	——502——
PROPOSED SPOT ELEVATION	+502.00
EXISTING SANITARY SEWER	---●---
EXISTING STORM SEWER	---□---
PROPOSED SANITARY SEWER	——●——
PROPOSED STORM SEWER	——■——
EXISTING WATERLINE	——W——
EXISTING FIRE HYDRANT	
EXISTING GAS LINE	——G——
EXISTING OVERHEAD UTILITY	——OW——
USE IN PLACE	(U.I.P.)
ADJUST TO GRADE	(A.T.G.)
TO BE REMOVED	(T.B.R.)
TO BE REMOVED AND REPLACED	(T.B.R.&R.)
TO BE REMOVED AND RELOCATED	(T.B.R.&REL.)

FF = FINISHED FLOOR ELEVATION
TF = TOP OF FOUNDATION ELEVATION
BF = BASEMENT FLOOR ELEVATION
GF = GARAGE FLOOR ELEVATION
CO = CLEAN OUT
DS = DOWNSPOUT
TW = FINISHED GRADE AT TOP OF WALL
BW = FINISHED GRADE AT BOTTOM OF WALL

PROPOSED SITE PLAN

GENERAL NOTES

1. BOUNDARY & IMPROVEMENT SURVEY PROVIDED BY SHERRILL ASSOCIATES, INC..
2. GRADING AND STORMWATER DRAINAGE TO CONFORM TO THE STANDARDS OF THE CITY OF GLENDALE, MSD, AND MoDNR.
3. SLOPES SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL.
4. SANITARY SEWERS TO MEET THE CITY OF GLENDALE AND M.S.D. STANDARDS ON SITE.
5. ALL UTILITY SERVICES SHALL BE UNDERGROUND.
6. UTILITY INFORMATION PER SURVEY PROVIDED AND AVAILABLE RECORDS.
7. ALL PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED TO THE CITY OF GLENDALE STANDARDS.
8. THE FINISHED GRADE LEVEL AT THE BUILDING TO BE MINIMUM OF 6" BELOW TOP OF FOUNDATION FOR MASONRY AND 8" FOR FRAME AND BRICK VENEER.
9. THE GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN ONE UNIT VERTICAL IN 12 UNITS HORIZONTAL (1:12) FOR A MINIMUM DISTANCE OF 8 FEET MEASURED PERPENDICULAR TO THE FACE OF THE WALL.
10. ALL GRADING SHALL CONFORM TO THE APPROVED GRADING PLAN.
11. FOUNDATION FOOTINGS SHALL BE CONSTRUCTED SO AS TO MAINTAIN A 2'6" DEPTH OF EARTH COVER OR AS REQUIRED BY THE LOCAL BUILDING CODES.
12. BUILDING DIMENSIONS ARE TO BE VERIFIED WITH ARCHITECT PRIOR TO EXCAVATION OR CONSTRUCTION.
13. THIS IS NOT A SURVEY AND DOES NOT MEET THE "MISSOURI MINIMUM STANDARDS FOR BOUNDARY SURVEYS.
14. ALL SEWER CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE METROPOLITAN ST. LOUIS SEWER DISTRICT STANDARD CONSTRUCTION SPECIFICATIONS FOR SEWER AND DRAINAGE FACILITIES, 2009.
15. LEAF SCREENS ARE RECOMMENDED ON ALL DOWNSPOUTS THAT ARE PIPED TO STORM WATER BMP. SEE DOWNSPOUT DETAIL

SITE COVERAGE

	AREA (S.F.)	AREA (AC.)	PERCENTAGE
TOTAL SITE	10,854	0.249	
EXISTING IMPERVIOUS	3,011	0.069	27.7%
PROPOSED IMPERVIOUS	5,965	0.137	55.0% *
CHANGE	+2,954	+0.068	+98.1%
FRONT YARD SETBACK	2,735	0.063	
EXISTING IMPERVIOUS	831	0.019	30.4%
PROPOSED IMPERVIOUS	862	0.020	31.5% **
CHANGE	+31	+0.001	+3.7%

* NO MORE THAN 55% ALLOWABLE PER SECTION 3B
** NO MORE THAN 45% ALLOWABLE PER SECTION 3B

PROPOSED BUILDINGS (3,142 S.F.) (ROOFS = 3,679 S.F.)

PROPOSED PAVEMENT (2,823 S.F.) AND WALLS

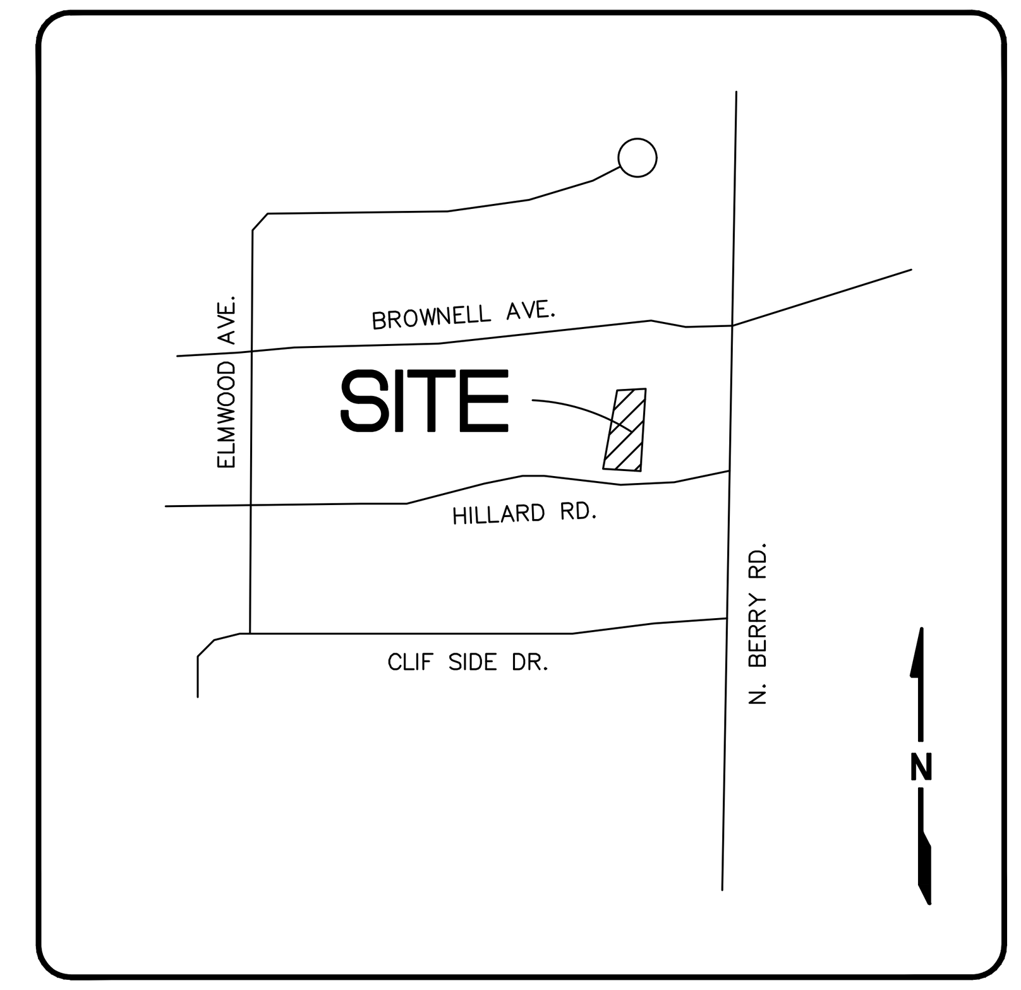
DIFFERENTIAL RUNOFF

DESIGN STORM: 15-YEAR 20-MINUTE
4.20 CFS/AC ROOF SURFACE
3.54 CFS/AC. PAVED SURFACE
1.70 CFS/AC. PERVIOUS SURFACE

EXISTING CONDITIONS:
ROOF – 1,570 S.F. x 4.20 / 43,560 = 0.151
PAVED – 1,441 S.F. x 3.54 / 43,560 = 0.117
OPEN – 7,843 S.F. x 1.70 / 43,560 = 0.306
TOTAL Q = 0.57 CFS

PROPOSED CONDITIONS:
ROOF (HOUSE) – 2,911 S.F. x 4.20 = 0.281
ROOF (GARAGE) – 768 S.F. x 4.20 = 0.074
PAVED – 2,823 S.F. x 3.54 = 0.229
OPEN – 4,352 S.F. x 1.70 = 0.170
TOTAL Q = 0.75 CFS

NET INCREASE OF 0.18 CFS



LOCATION MAP

N.T.S.

PROJECT DATA

LOCATOR NO.	: 23L440653
ADDRESS	: 5 HILLARD ROAD GLENDALE, MO 63122
OWNER	: JOHN & PATRICIA CRIMMINS
AREA OF TRACT	: 10,854 S.F. (0.249 AC.)
PRESENT ZONING	: R-1
PRESENT USAGE	: SINGLE FAMILY RESIDENCE
PROPOSED USAGE	: SINGLE FAMILY RESIDENCE
SCHOOL DISTRICT	: KIRKWOOD
FIRE DISTRICT	: GLENDALE
WATERSHED(S)	: RIVER DES PERES
FIRM PANEL	: 29189C0309K
UTILITIES	: MISSOURI-AMERICAN WATER CO. : METRO. ST. LOUIS SEWER DIST. : SPIRE / LACLEDE GAS COMPANY : AT&T TELEPHONE COMPANY : AMEREN UE

YARD SETBACK REQUIREMENTS

FRONT: 37.55' (AVERAGE OF ADJACENT HOUSES)
SIDE: 7.07' (10% OF LOT WIDTH OF 70.72' AT BUILDING LINE)
REAR: 30'

ACCESSORY BUILDINGS: 6' FROM SIDE & REAR

STORM WATER CALCULATIONS

DESIGN STORM: 15-YEAR 20-MINUTE
4.20 CFS/AC. ROOF SURFACE
3.54 CFS/AC. PAVED SURFACE
1.70 CFS/AC. PERVIOUS SURFACE

FOR NEW CONSTRUCTION, THE RUNOFF FROM THE ENTIRE ROOF AREA IS TO BE COLLECTED AND DETAINED.

PROPOSED ROOF AREA: HOUSE = 2,911 S.F.
GARAGE = 768 S.F.
TOTAL = 3,679 S.F.

RUNOFF = 3,679 S.F. x 4.20 CFS/AC. / 43,560 = 0.35 CFS

RUNOFF VOLUME TO BE DETAINED:
0.35 CFS x 60 S/MIN x 20 MIN = 420 C.F.

VOLUME OF PROPOSED DRY WELL:
26' x 8' x 5' x 40% VOIDS = 416 C.F.
PLUS FOUR 50 GAL FLO-WELLS x 60% = 16 C.F.

TOTAL VOLUME PROVIDED = 432 C.F.

EXISTING UTILITY NOTE

BEFORE YOU DIG – DRILL – BLAST
1-800-344-7483 (TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THEREFORE, THE LOCATIONS OF ANY UNDERGROUND FACILITIES SHOWN HEREON MUST BE CONSIDERED APPROXIMATE. PRIOR TO BEGINNING WORK ON THE SITE, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXACT LOCATION OF THESE FACILITIES, ALONG WITH ANY IN EXISTENCE THAT ARE NOT SHOWN; TO VERIFY THEIR LOCATION BOTH HORIZONTALLY AND VERTICALLY (IN ACCORDANCE WITH THE REQUIREMENTS OF THE RESPECTIVE UTILITY/FACILITY OWNER); AND TO VERIFY THAT MINIMUM CLEARANCES AND COVER REQUIREMENTS BETWEEN THE EXISTING FACILITIES AND THE PROPOSED WORK WILL BE MET.

Scharf Custom Homes
16833 Kingstowne Estates Drive
St. Louis, MO 63011

Vance Engineering, Inc.
10537 Lackland Road
St. Louis, MO 63114
P: 314.427.1800

VANCE ENGINEERING, INC.
MISSOURI STATE CERTIFICATE OF AUTHORITY NO. 2003022194

5 HILLARD ROAD

SITE PLAN

PRELIMINARY

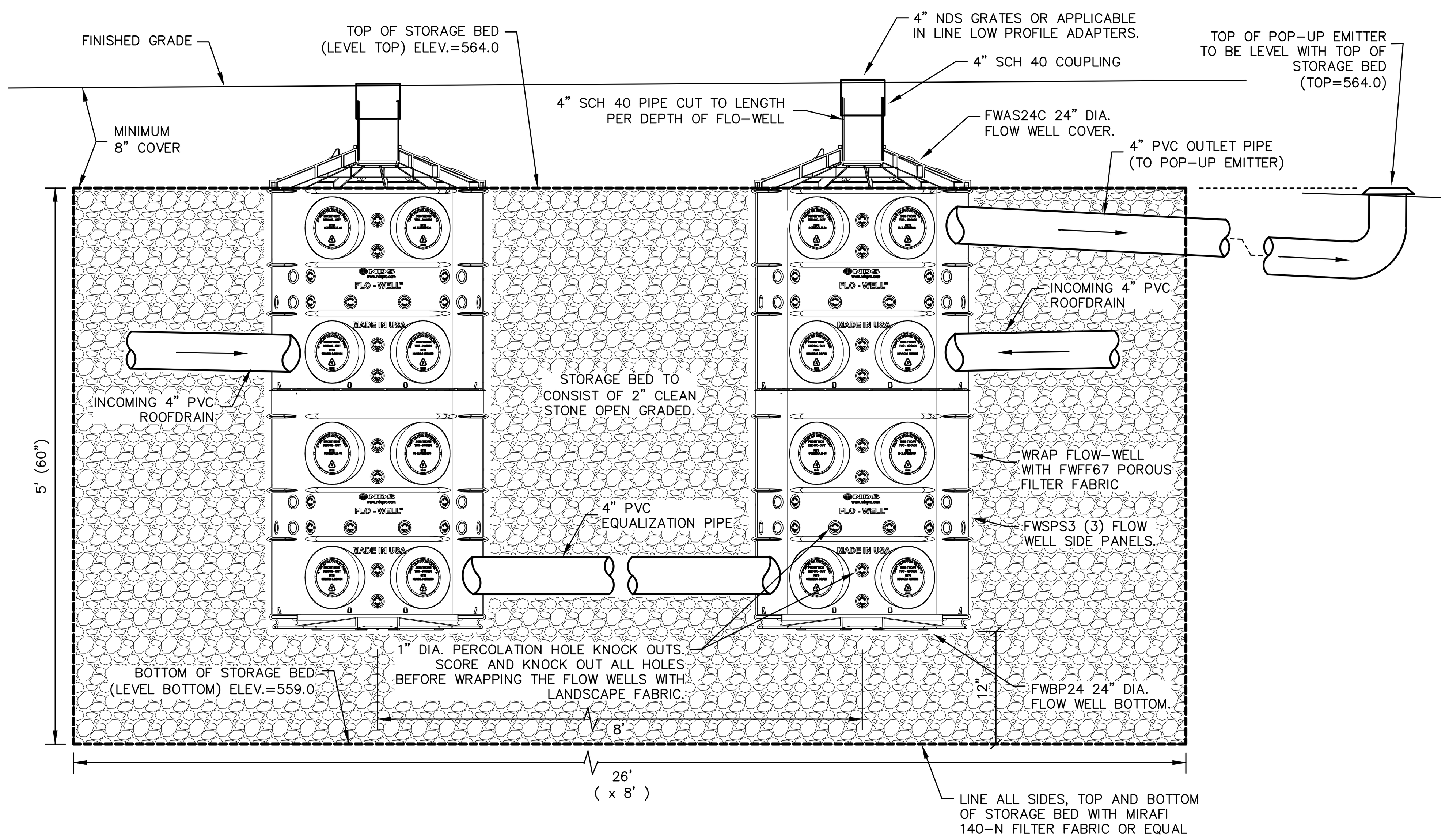
3/2/2026
MICHAEL CLAY VANCE
PROFESSIONAL ENGINEER
MISSOURI LIC NO E-25616

REVISED

03/02/26 CITY

25095

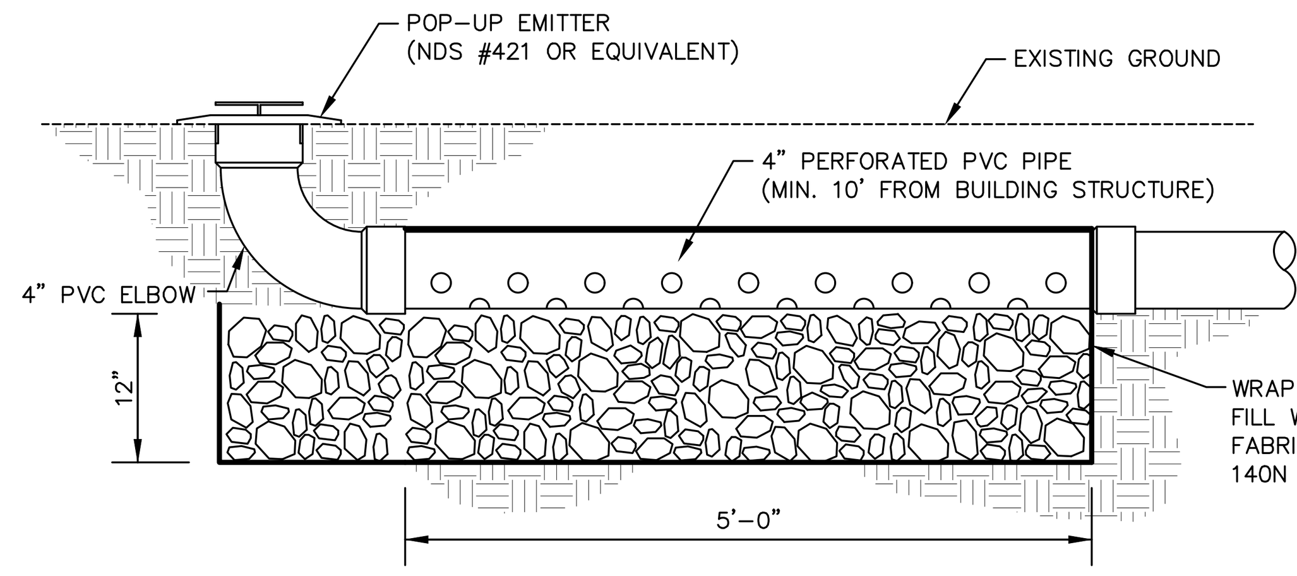
12/02/25



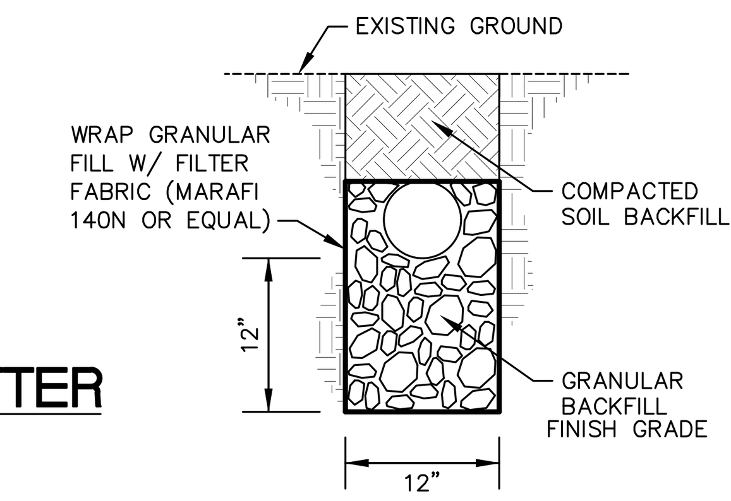
STORM WATER STORAGE BED (DRY WELL) with NDS FLO-WELL

NOT TO SCALE

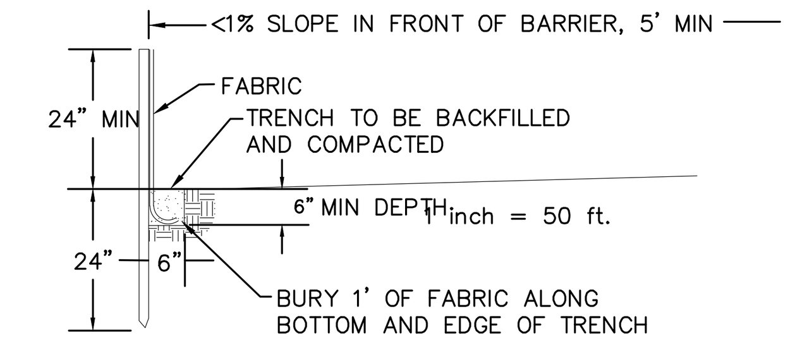
NOTE:
CONTRACTOR SHALL REFER TO AND FOLLOW THE INSTALLATION PROCEDURES PROVIDED IN THE MANUFACTURERS INSTALLATION GUIDE.



NOTES:
1. GRANULAR FILL SHALL BE 1" MIN. CLEAN DRAINAGE ROCK.
2. COMPACT SOIL MATERIAL UNDER LAWNS TO 85% MAXIMUM DENSITY AS DETERMINED BY THE MODIFIED PROCTOR COMPACTION TEST. (ASTM D 1557)



POP-UP EMITTER

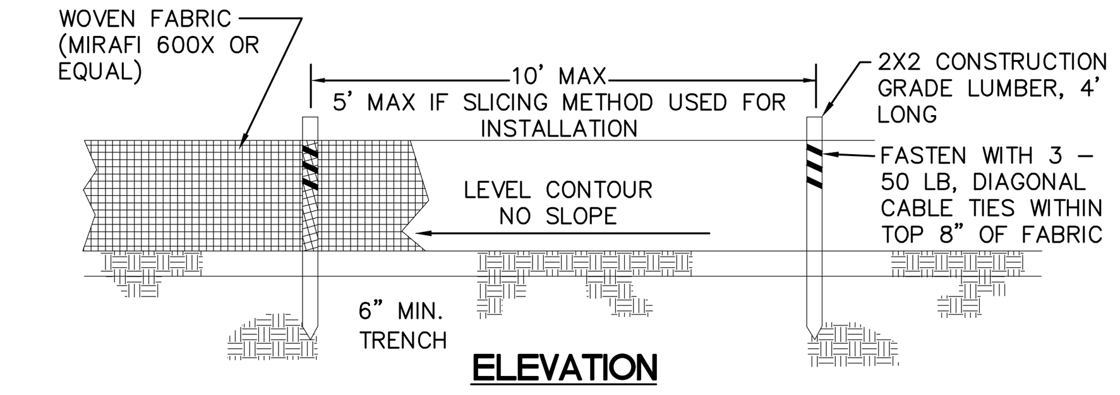


SECTION

NOTE: IF FABRIC IS INSTALLED BY EQUIPMENT DESIGNED TO SLICE INTO THE GROUND, THE TRENCH IS NOT NEEDED

MAXIMUM SPACING ALONG SLOPES

3:1 SLOPES	30' FENCE TO FENCE
3:1 TO 10:1 SLOPES	50' FENCE TO FENCE
SLOPES <10%	100' FENCE TO FENCE

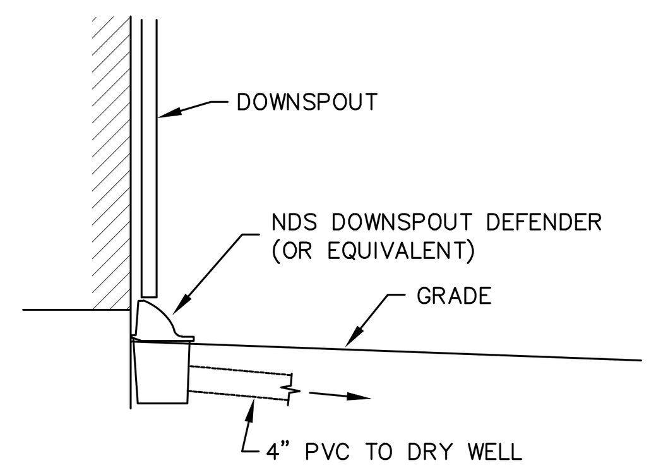


ELEVATION

NOTES:
1. SEE PLAN FOR INITIAL INSTALLATION LOCATION.
2. INSTALL SILT FENCE PRIOR TO DISTURBANCE OF NATURAL VEGETATION AND AT APPROPRIATE INTERVALS DURING CONSTRUCTION OF FILL SLOPES.
3. INSPECT & MAINTAIN FENCE AFTER EVERY RAINSTORM OR MINIMUM 2 WEEK INTERVALS DURING DRY PERIODS.
4. SILT IS TO BE REMOVED WHEN DEPTH ALONG THE FENCE REACHES 12" OR 1/2 THE FENCE HEIGHT.
5. REPAIR / REPLACE TORN OR CLOGGED FABRIC, LOOSE FABRIC, BROKEN POSTS, ETC. TO MAINTAIN INTERGRITY OF SILT FENCE THOUGHOUT CONSTRUCTION.
6. STABILIZE ANY AREAS SUSCEPTIBLE TO UNDERMINING AS SOON AS THEY ARE NOTICED.
7. EXTEND/ADD FENCE AS NECESSARY TO MAINTAIN/PROVIDE ADEQUATE PROTECTION.
8. UPON ESTABLISHMENT OF ADEQUATE VEGETATION, REMOVE FENCE, REGRADE AND VEGETATE TRENCH AREA.

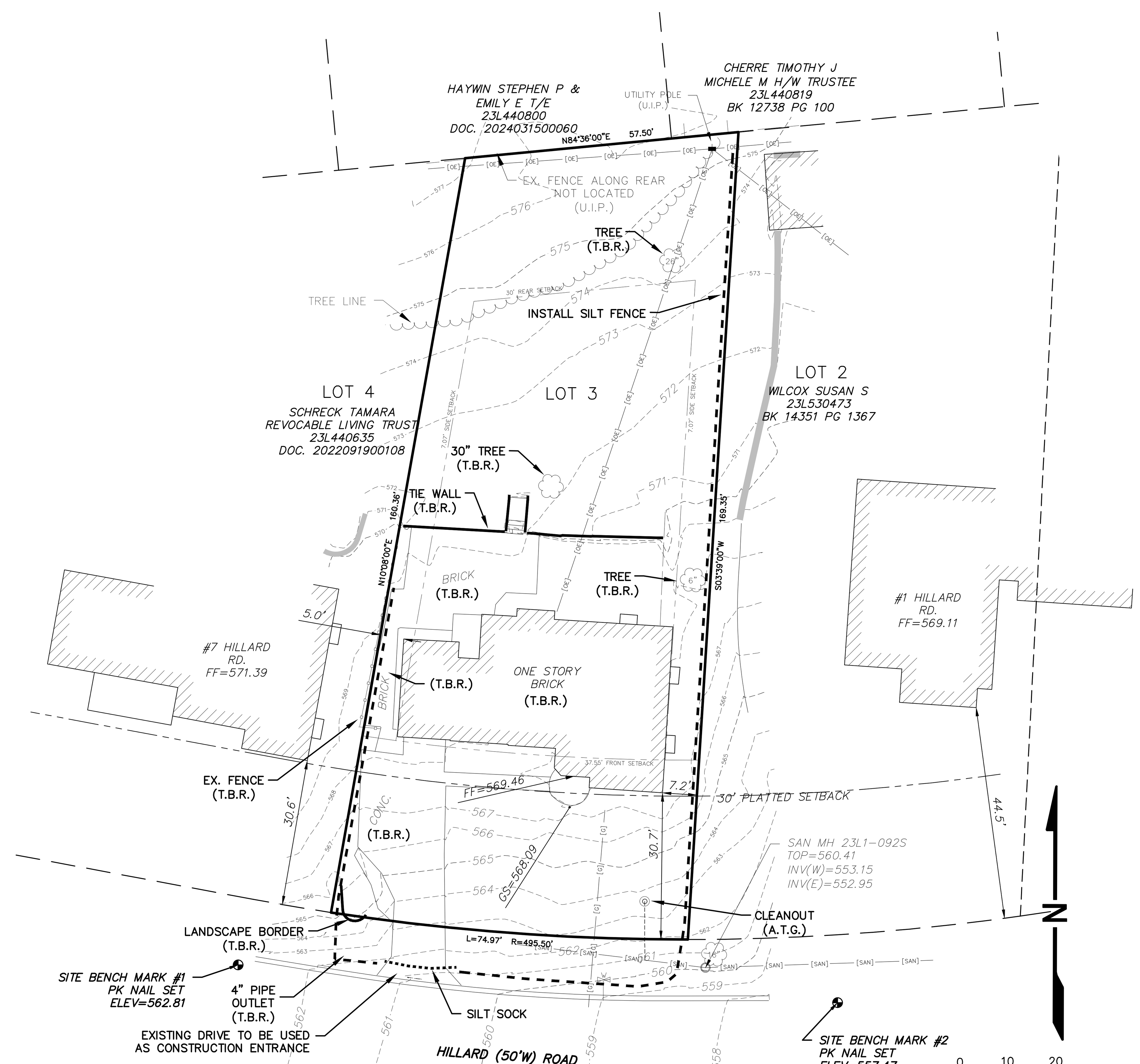
SILT FENCE DETAIL

N.T.S.



DOWNSPOUT DETAIL

FOR DOWNSPOUTS THAT ARE PIPED TO DRY WELL



0 10 20 40

1 inch = 20 ft.

EXISTING CONDITIONS / DEMO PLAN

0 10 30 60

1 inch = 30 ft.

AERIAL - ADJOINING PROPERTIES

EXISTING UTILITY NOTE

BEFORE YOU DIG - DRILL - BLAST
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5 HILLARD ROAD

SITE PLAN

PRELIMINARY

3/2/2026
MICHAEL CLAY VANCE
PROFESSIONAL ENGINEER
MISSOURI LIC NO E-25616

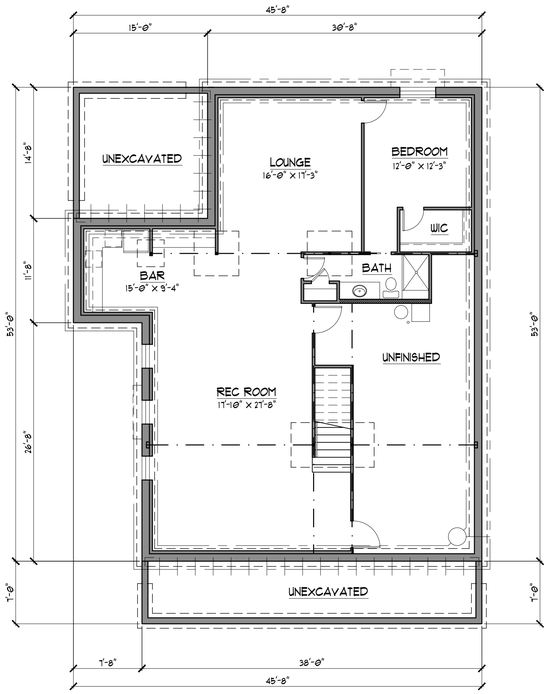
REVISED

03/02/26 CITY

25095

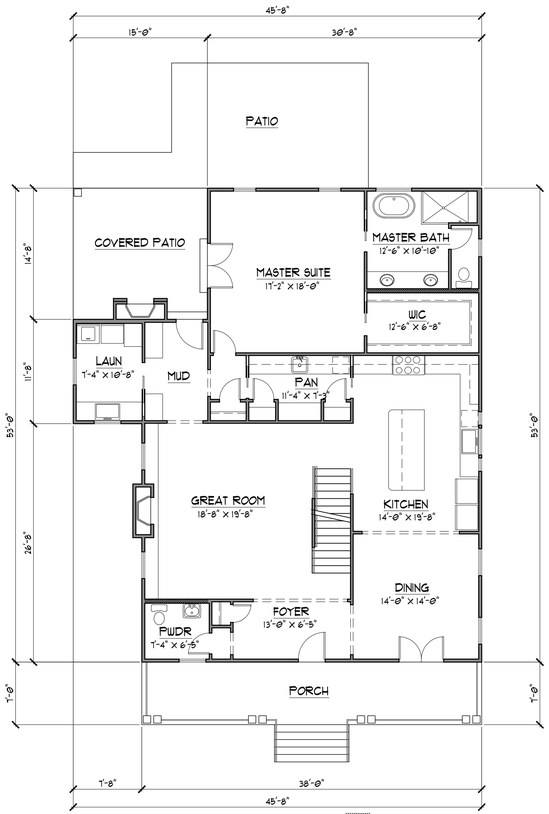
12/02/25

2 / 2



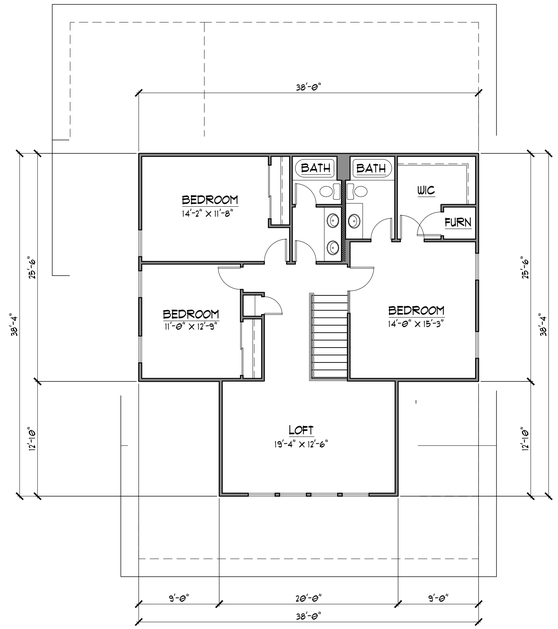
LOWER LEVEL PLAN

SCALE: 1/8" = 1'-0"
SQUARE FEET: 1,347.00 (FINISHED)



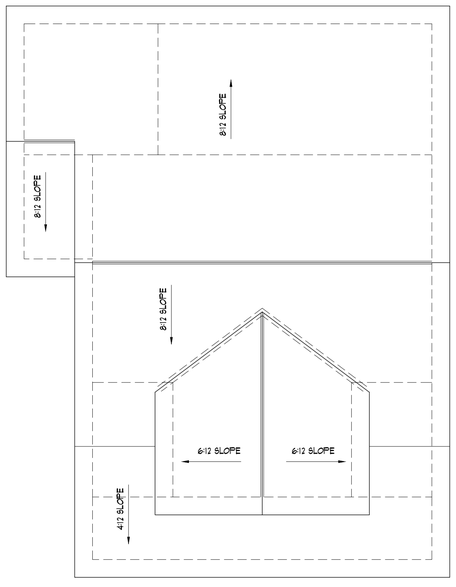
MAIN LEVEL PLAN

SCALE: 1/8" = 1'-0"
SQUARE FEET: 2,002.00



SECOND LEVEL PLAN

SCALE: 1/8" = 1'-0"
SQUARE FEET: 1,226.00



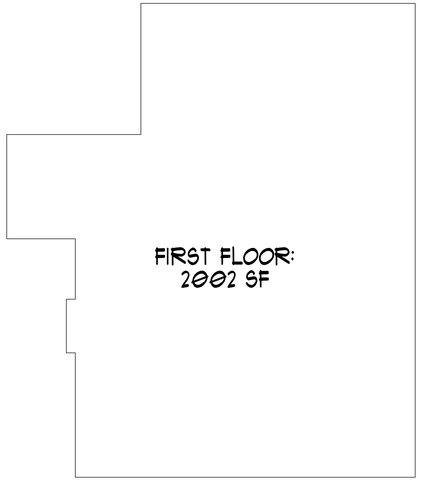
ROOF PLAN

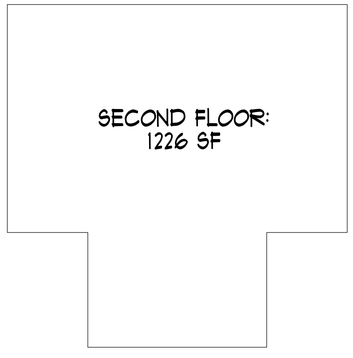
SCALE: 1/8" = 1'-0"

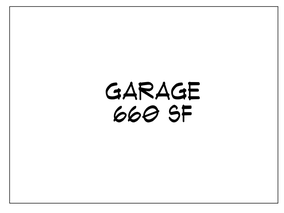
SUMMARY

1ST FLOOR	2002
2ND FLOOR	1226
SUBTOTAL	3228

OVERALL CALCULATIONS SUMMARY:
5 HILLARD LOT SIZE 10,854 SF
3228 / 10854 = 29.7%







5 HILLARD

SCALE: 1/8" = 1'-0"

TIM HOLLERBACH
DESIGNS
1548 JEFFCO BLVD
ARNOLD, MO 63010
314-578-9470
www.timhollerbachdesigns.com

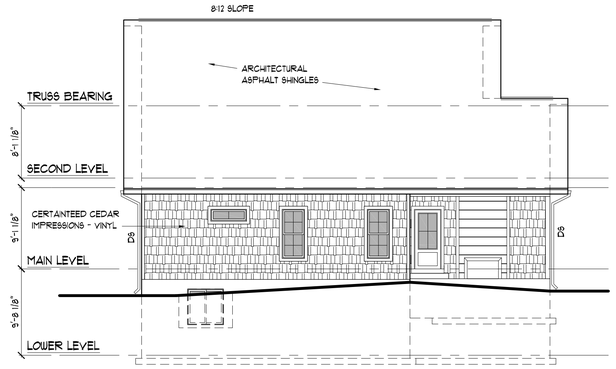
A NEW RESIDENCE FOR:
5 HILLARD ROAD
GLENDALE, MO
SCHARF HOMES

DESCRIPTION:

JOB NUMBER: 25224
ISSUE DATE: 02.10.2026
REVISIONS:

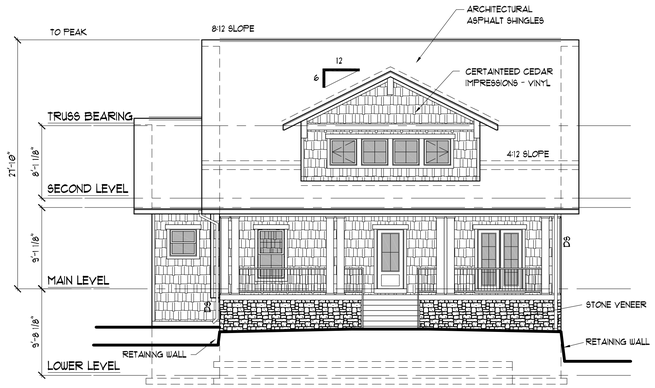
SHEET TITLE:

SHEET NUMBER:



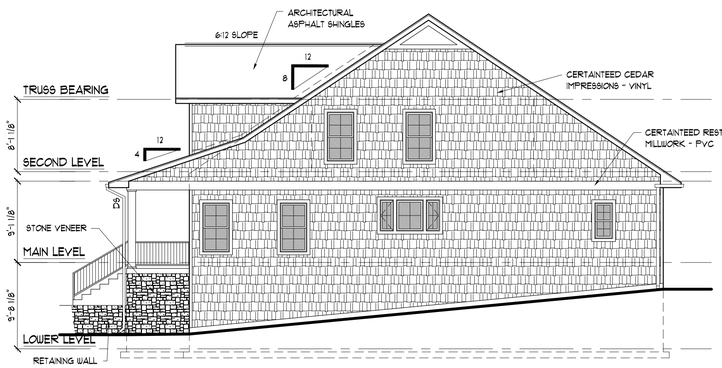
REAR ELEVATION

SCALE: 1/8" = 1'-0"



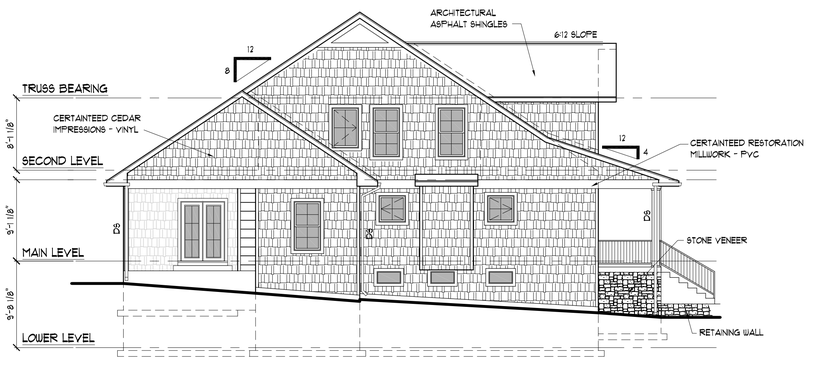
FRONT ELEVATION

SCALE: 1/8" = 1'-0"



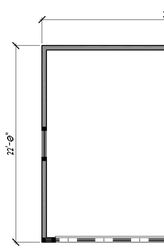
RIGHT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



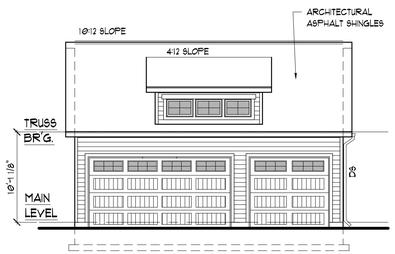
LEFT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



DETACHED GARAGE

SCALE: 1/8" = 1'-0"



FRONT ELEVATION

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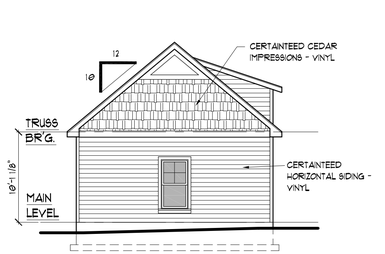
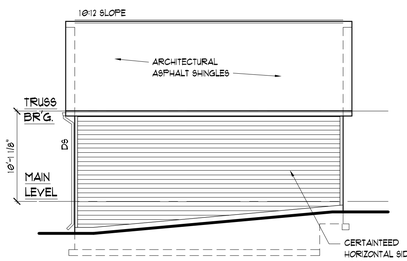


SIDE ELEVATION

SCALE: 1/8" = 1'-0"



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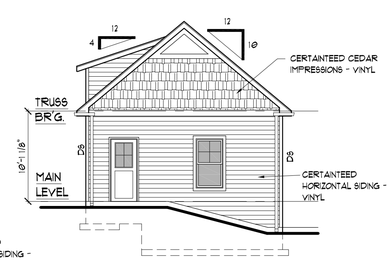

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A NEW RESIDENCE FOR:

5 HILLARD ROAD

GLENDALE, MO
SCHARF HOMES

DESCRIPTION:

JOB NUMBER: 25224
ISSUE DATE: 02.10.2026
REVISIONS:

SHEET TITLE:

SHEET NUMBER:

11

9

7

5

3

Hillard Rd

N. Berry Rd

10

8

6

4

2

Sappington

Glen Elm

SITE PLAN

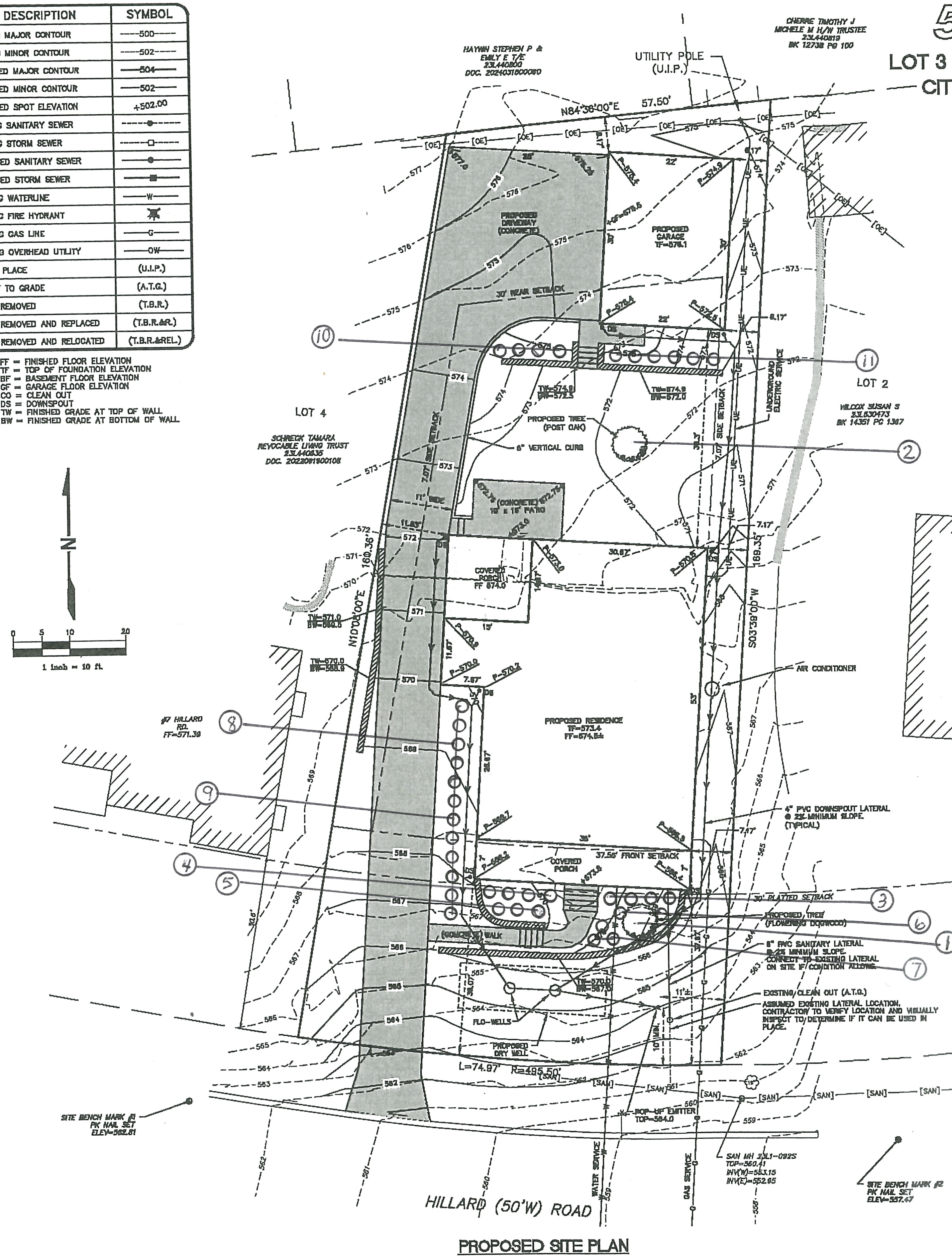
5 HILLARD ROAD

LOT 3 OF 'ALGONQUIN FOREST', PLAT BOOK 38 PAGE 8, CITY OF GLENDALE, ST. LOUIS COUNTY, MISSOURI

LEGEND

DESCRIPTION	SYMBOL
EXISTING MAJOR CONTOUR	----500----
EXISTING MINOR CONTOUR	----502----
PROPOSED MAJOR CONTOUR	---504---
PROPOSED MINOR CONTOUR	---502---
PROPOSED SPOT ELEVATION	+502.00
EXISTING SANITARY SEWER	
EXISTING STORM SEWER	
PROPOSED SANITARY SEWER	
PROPOSED STORM SEWER	
EXISTING WATERLINE	---W---
EXISTING FIRE HYDRANT	
EXISTING GAS LINE	---G---
EXISTING OVERHEAD UTILITY	---OW---
USE IN PLACE	(U.I.P.)
ADJUST TO GRADE	(A.T.G.)
TO BE REMOVED	(T.B.R.)
TO BE REMOVED AND REPLACED	(T.B.R.&R.)
TO BE REMOVED AND RELOCATED	(T.B.R.&REL.)

FF = FINISHED FLOOR ELEVATION
TF = TOP OF FOUNDATION ELEVATION
BF = BASEMENT FLOOR ELEVATION
GF = GARAGE FLOOR ELEVATION
CO = CLEAN OUT
DS = DOWNSPOUT
TW = FINISHED GRADE AT TOP OF WALL
BW = FINISHED GRADE AT BOTTOM OF WALL



PROPOSED SITE PLAN

GENERAL NOTES

1. BOUNDARY & IMPROVEMENT SURVEY PROVIDED BY SHERRILL ASSOCIATES, INC..
2. GRADING AND STORMWATER DRAINAGE TO CONFORM TO THE STANDARDS OF THE CITY OF GLENDALE, MSD, AND MoDNR.
3. SLOPES SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL.
4. SANITARY SEWERS TO MEET THE CITY OF GLENDALE AND M.S.D. STANDARDS ON SITE.
5. ALL UTILITY SERVICES SHALL BE UNDERGROUND.
6. UTILITY INFORMATION PER SURVEY PROVIDED AND AVAILABLE RECORDS.
7. ALL PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED TO THE CITY OF GLENDALE STANDARDS.
8. THE FINISHED GRADE LEVEL AT THE BUILDING TO BE MINIMUM OF 8" BELOW TOP OF FOUNDATION FOR MASONRY AND 8" FOR FRAME AND BRICK VENEER.
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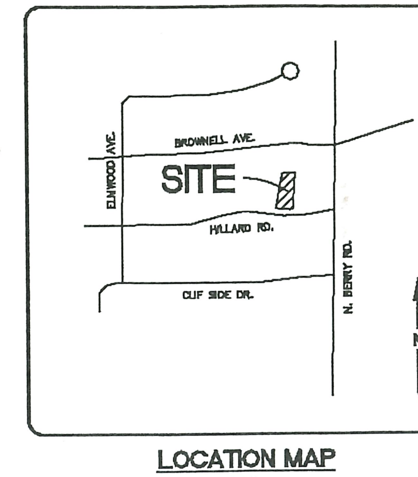
EXISTING CONDITIONS:
ROOF - 1,570 S.F. x 4.20 / 43,560 = 0.151
PAVED - 1,441 S.F. x 3.54 / 43,560 = 0.117
OPEN - 7,843 S.F. x 1.70 / 43,560 = 0.306
TOTAL Q = 0.57 CFS

PROPOSED CONDITIONS:
ROOF (HOUSE) - 2,911 S.F. x 4.20 = 0.281
ROOF (GARAGE) - 768 S.F. x 4.20 = 0.074
PAVED - 2,823 S.F. x 3.54 = 0.229
OPEN - 4,352 S.F. x 1.70 = 0.170
TOTAL Q = 0.75 CFS



LOCATION MAP

N.T.S.

PROJECT DATA

LOCATOR NO.	: 23L440653
ADDRESS	: 5 HILLARD ROAD GLENDALE, MO 63122
OWNER	: JOHN & PATRICIA CRUMMINS
AREA OF TRACT	: 10,854 S.F. (0.249 AC.)
PRESENT ZONING	: R-1
PRESENT USAGE	: SINGLE FAMILY RESIDENCE
PROPOSED USAGE	: SINGLE FAMILY RESIDENCE
SCHOOL DISTRICT	: KIRKWOOD
FIRE DISTRICT	: GLENDALE
WATERSHED(S)	: RIVER DES PERES
FIRM PANEL	: 29189C0308K
UTILITIES	: MISSOURI-AMERICAN WATER CO.
	: METRO. ST. LOUIS SEWER DIST.
	: SPIRE / LACLEDE GAS COMPANY
	: AT&T TELEPHONE COMPANY
	: AMEREN UE

YARD SETBACK REQUIREMENTS

FRONT: 37.55' (AVERAGE OF ADJACENT HOUSES)
SIDE: 7.07' (10% OF LOT WIDTH OF 70.72' AT BUILDING LINE)
REAR: 30'

ACCESSORY BUILDINGS: 6' FROM SIDE & REAR

STORM WATER CALCULATIONS

DESIGN STORM: 15-YEAR 20-MINUTE
4.20 CFS/AC. ROOF SURFACE
3.54 CFS/AC. PAVED SURFACE
1.70 CFS/AC. PERVIOUS SURFACE

FOR NEW CONSTRUCTION, THE RUNOFF FROM THE ENTIRE ROOF AREA IS TO BE COLLECTED AND DETAINED.

PROPOSED ROOF AREA: HOUSE = 2,911 S.F.
GARAGE = 768 S.F.
TOTAL = 3,879 S.F.

RUNOFF = 3,879 S.F. x 4.20 CFS/AC. / 43,560 = 0.35 CFS

RUNOFF VOLUME TO BE DETAINED:
0.35 CFS x 60 S/MIN x 20 MIN = 420 C.F.

VOLUME OF PROPOSED DRY WELL:
26' x 8' x 5' x 40% VOIDS = 416 C.F.
PLUS FOUR 50 GAL FLO-WELLS x 60% = 16 C.F.

TOTAL VOLUME PROVIDED = 432 C.F.

5 Hillard Road - Planting list

	#	Scientific Name	Common Name	Size
1	1	genus Cornus	Dogwood	2.5"
2	1	Quercus stellata	Post Oak	2.5"
3	4	Buxus microphylla 'Little Missy'	Little Missy Boxwood	5g
4	5	Buxus microphylla 'Little Missy'	Little Missy Boxwood	5g
5	3	Chamaecyparis pisifera	Gloden Mop	3g
6	3	Chamaecyparis pisifera	Gloden Mop	3g
7	3	Buddleia 'Pugster Blue'	Pugster Blue Butterfly	3g
8	6	Thuja occidentalis 'Hetz Midget'	Hetz Midget Arborvitae	3g
9	6	Hydrangea paniculata 'ILVOBO'	Bobo Hydrangea	5g
10	4	Buddleia 'Pugster Blue'	Pugster Blue Butterfly	3g
11	6	Buxus microphylla 'Little Missy'	Little Missy Boxwood	5g

EXISTING UTILITY NOTE

BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THEREFORE, THE LOCATIONS OF ANY UNDERGROUND FACILITIES SHOWN HEREON MUST BE CONSIDERED APPROXIMATE. PRIOR TO BEGINNING WORK ON THE SITE, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXACT LOCATION OF THESE FACILITIES, ALONG WITH ANY IN EXISTENCE THAT ARE NOT SHOWN; TO VERIFY THEIR LOCATION BOTH HORIZONTALLY AND VERTICALLY (IN ACCORDANCE WITH THE REQUIREMENTS OF THE RESPECTIVE UTILITY/FACILITY OWNER); AND TO VERIFY THAT MINIMUM CLEARANCES AND COVER REQUIREMENTS BETWEEN THE EXISTING FACILITIES AND THE PROPOSED WORK WILL BE MET.

Scharf Custom Homes
16833 Kingstowne Estates Drive
St. Louis, MO 63011

Vance Engineering, Inc.
10537 Lackland Road
St. Louis, MO 63114
P: 314.427.1800

5 HILLARD ROAD

SITE PLAN

MICHAEL CLAY VANCE
PROFESSIONAL ENGINEER
MISSOURI LIC NO E-25618

REVISED

03/02/26 CITY

25095

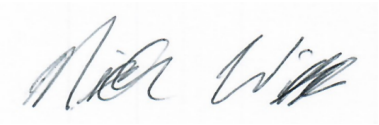
12/02/25

1/2

FRONTENAC FORESTRY

Install and maintain tree protection fence as indicated on preservation plan for all trees marked save. Silt protection shall be installed in a trenchless manner within the critical root zone of any tree to be SAVED. (I.E. woodchips, wattles, and hay bales)

I hereby certify that I have viewed the premises and provided this professional opinion regarding the survivability of significant trees on this site and abutting the site. Attached is a site plan illustrating the recommended location of tree protection fencing. This fence is to remain erect throughout the construction project . All tree inspections were performed from the ground and are limited in scope. Tree and utility locations are approximate and locations of utilities are subject to change.



Nick Wibbenmeyer
I.S.A. Certified Arborist
MW 6357A

CERTIFIED ARBORIST ISA

TREE STUDY
SITE PLAN REVIEW
12/23/2025

PROPERTY LOCATION: 5 Hillard

#	TREE SPECIES	DBH	PRESERVE/ TBR	ADJOINING LOT	COMMENTS	CONDITION
A	shingle oak	30"	TBR		epicormic growth, deadwood, storm damage, branch dieback **PROPOSED FOUNDATION/ CONDITION**	Poor
B	shingle oak	23"	TBR		epicormic growth, deadwood co-dominant at 40' **PROPOSED GARAGE**	Fair
1	flowering dogwood	2.5”	INSTALL		installed understory tree	
2	post oak	2.5”	INSTALL		installed canopy tree	

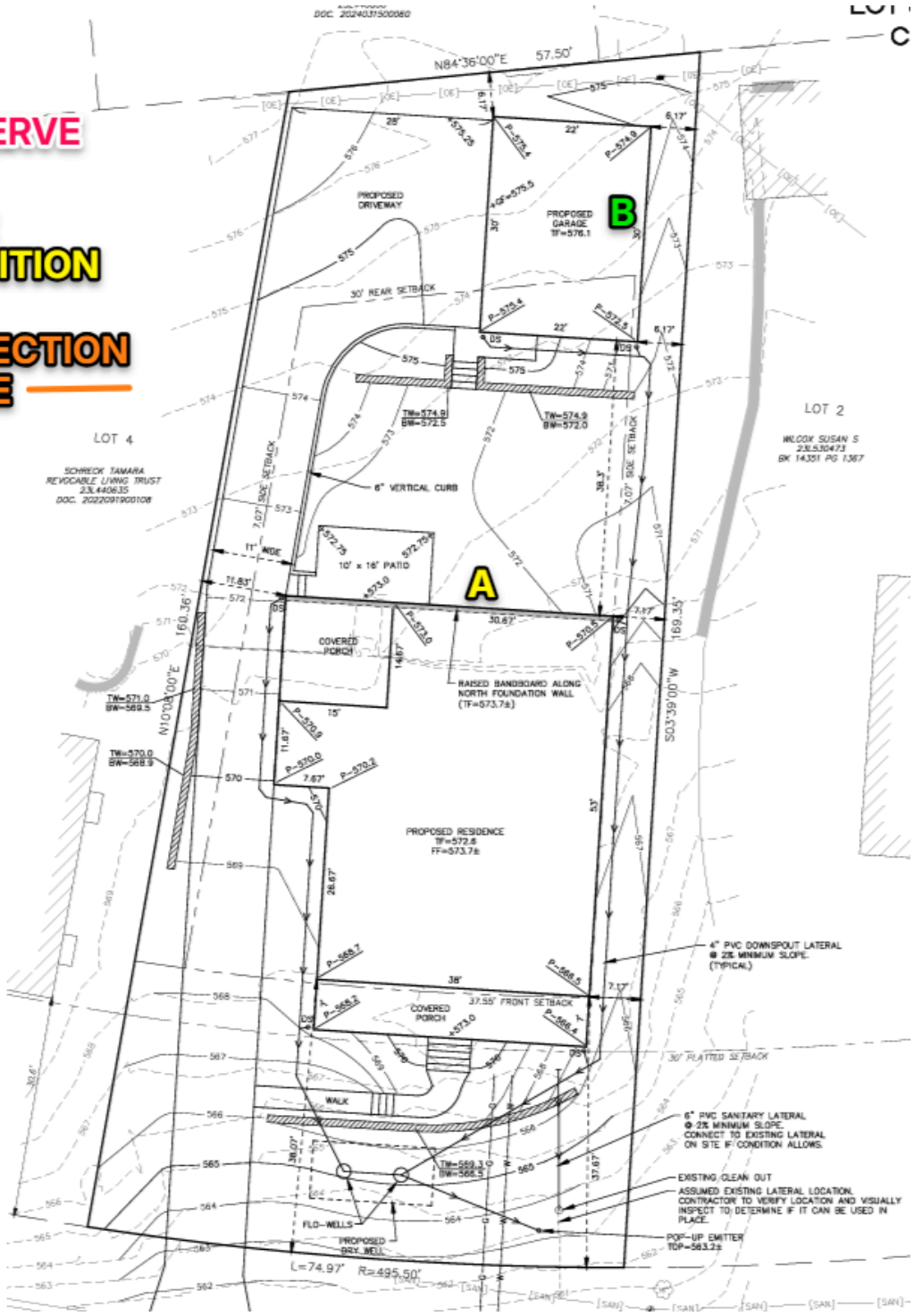
TOTAL TREES **(** @ or above 6” DBH **)**	TOTAL VIABLE TREES	TREES REMOVED	DEAD/DYING/ DISEASED REMOVE	VIABLE TREES REMOVED	# OF VIABLE INCHES REMOVED	# OF 2.5” CALIPER REPLACEMENT TREES REQUIRED (1 per 10” removed)	OR REPLACEMENT COST @ $120 PER CALIPER INCH
2	**2**	**2**	**N/A**	**2**	**23**	**2**	**$600**

PRESERVE

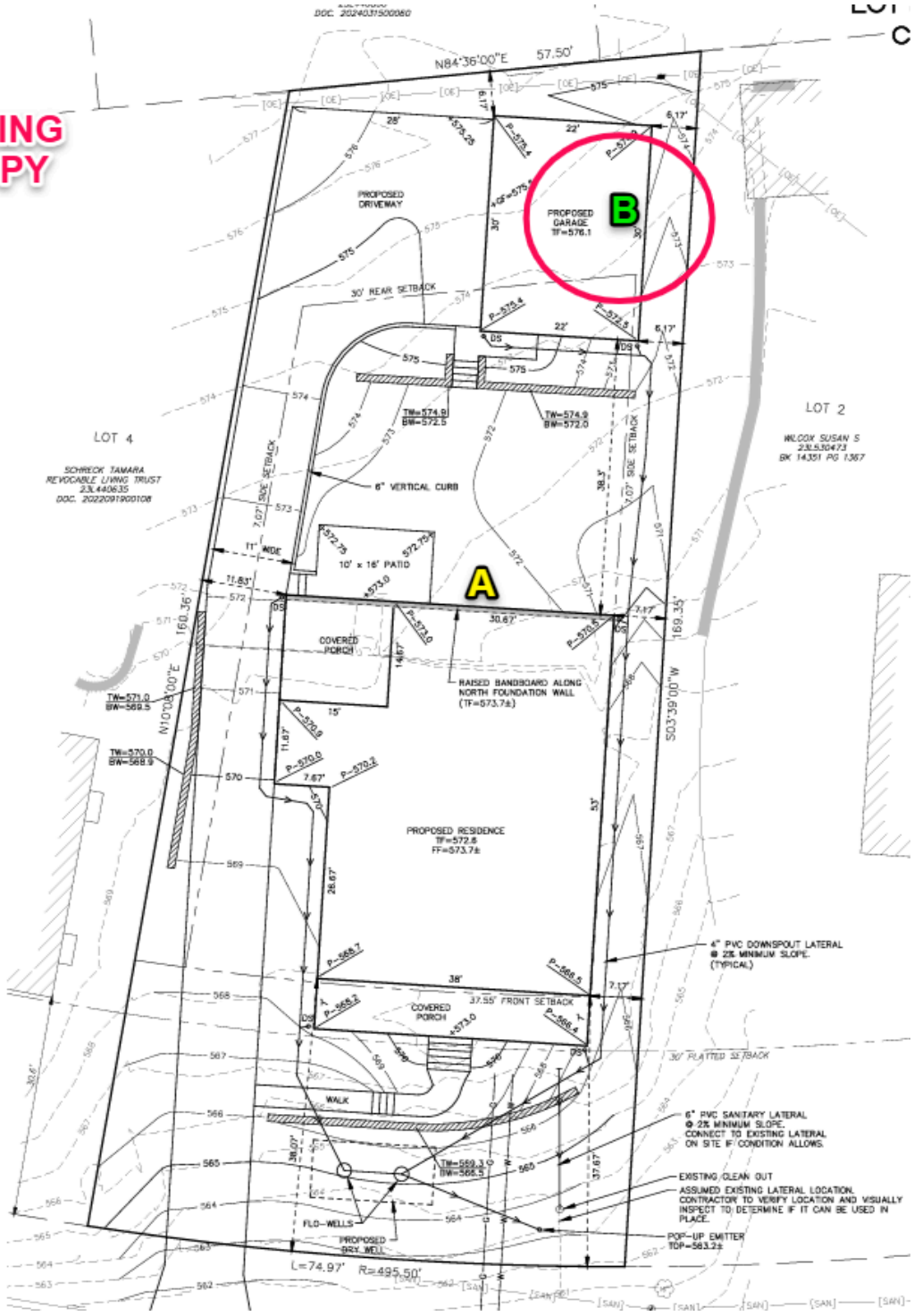
TBR

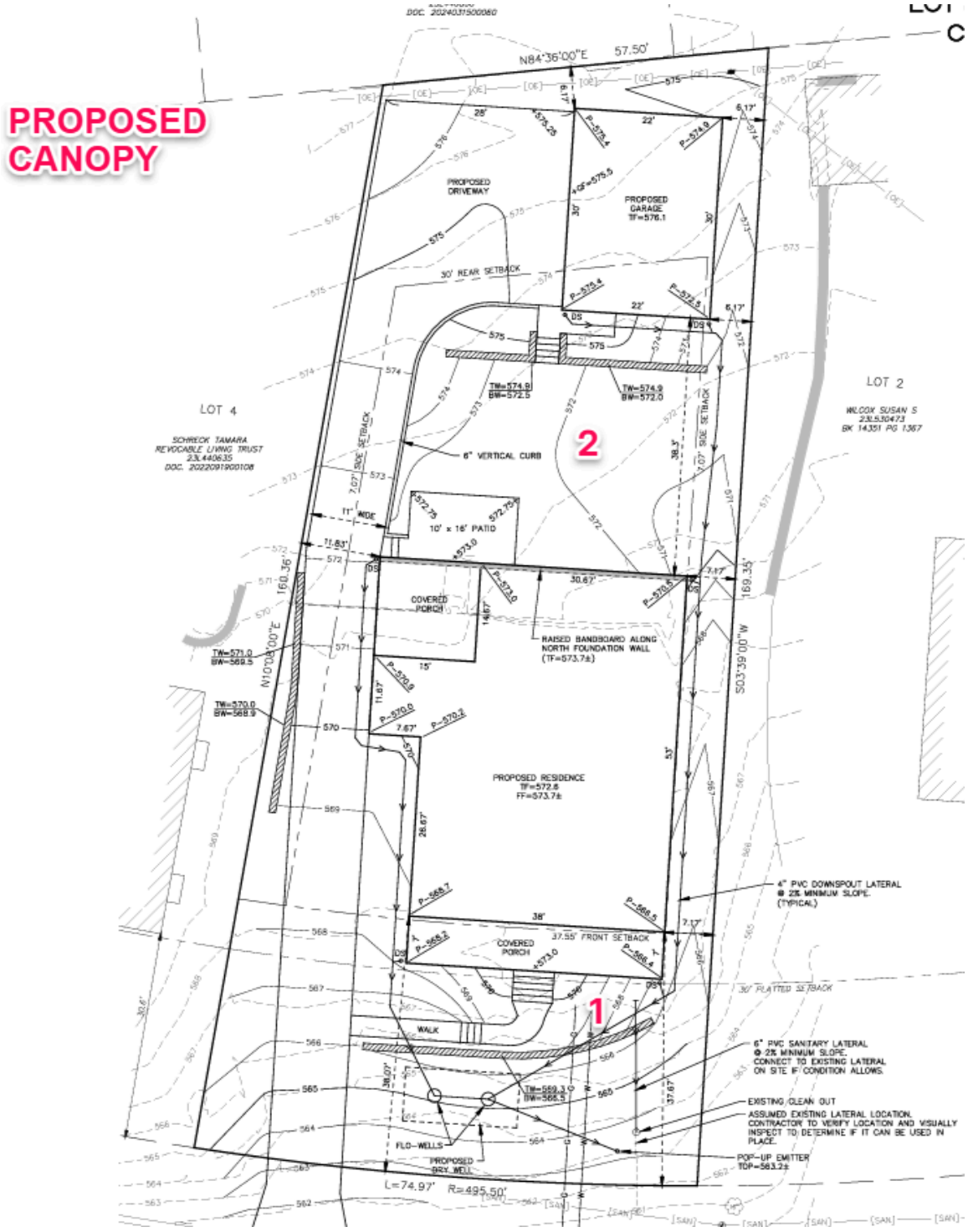
POOR CONDITION

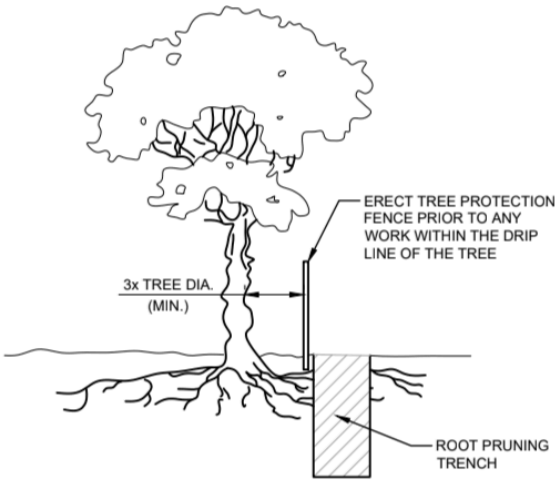
TREE PROTECTION FENCE



EXISTING CANOPY




PROPOSED CANOPY
DOC. 20240315000060
N84°36'00"E 57.50'
PROPOSED DRIVEWAY
PROPOSED GARAGE TF=576.1
30' REAR SETBACK
LOT 4
SCHRECK TAMARA REVOCABLE LIVING TRUST 23.4406.35 DOC. 20220913000108
LOT 2
WILCOX SUSAN S 23.5.30473 BK 14,351 PG 1,367
6" VERTICAL CURB
2
10' x 16' PATIO
COVERED PORCH
RAISED BANDBOARD ALONG NORTH FOUNDATION WALL (TF=573.7±)
PROPOSED RESIDENCE TF=572.6 FF=573.7±
37.55' FRONT SETBACK
1
WALK
30' PLATTED SETBACK
4" PVC DOWNSPOUT LATERAL @ 2% MINIMUM SLOPE. (TYPICAL)
6" PVC SANITARY LATERAL @ 2% MINIMUM SLOPE. CONNECT TO EXISTING LATERAL ON SITE IF CONDITION ALLOWS.
EXISTING CLEAN OUT
ASSUMED EXISTING LATERAL LOCATION. CONTRACTOR TO VERIFY LOCATION AND VISUALLY INSPECT TO DETERMINE IF IT CAN BE USED IN PLACE.
POP-UP EMITTER TOP=563.2±
FLO-WELLS
PROPOSED DRY WELL
L=74.97' R=495.50'
160.36'
169.35'
N10°03'00"E
S03°39'00"W



NOTES:

1. ROOT PRUNING SHALL BE DONE WHENEVER THERE WILL BE GRADING, CUTTING OR COMPACTION DISTURBANCE UNDERNEATH THE DRIP LINE OF A TREE. PRIOR TO ANY WORK WITHIN DRIP LINE, THE CONTRACTOR SHALL ERECT A TREE PROTECTION FENCE AND CONTACT AN ISA CERTIFIED ARBORIST TO COORDINATE WORK. NO DISTURBANCE SHALL BE DONE WITHIN A DISTANCE OF 3X THE DIAMETER OF THE TREE, DUE TO STABILITY CONCERNS.
2. ROOT PRUNING SHALL BE DONE WITH A SHARP TOOL, IN SUCH A WAY THAT DOES NOT PULL ON THE ROOTS, BUT LEAVES SMOOTH CUTS. DO NOT TEAR ROOTS WITH EXCAVATION EQUIPMENT. IT IS PREFERABLE TO EXPOSE THE ROOTS PRIOR TO ROOT PRUNING. AFTER PRUNING, FILL THE AREA WITH QUALITY TOPSOIL AND WATER UNTIL THOROUGHLY SOAKED.
3. ONCE EXPOSED, ROOTS MUST BE COVERED WITHIN 8 HOURS. IF ROOTS WILL BE LEFT EXPOSED FOR LONGER THAN 8 HOURS, THEY MUST BE KEPT MOIST. ONE OPTION IS TO PUT MOIST BURLAP OVER THE EXPOSED ROOTS.

NOTES (CONT.):

4. ROOT PRUNING SHALL MEET OR EXCEED ANSI A300 OR APPROVED TREE CARE INDUSTRY STANDARDS.

DIGGING PROCESS

1. THE PRUNING TRENCH SHOULD BE CLEARED IN A WAY THAT EXPOSES THE ROOTS WHILE LEAVING THEM INTACT.
   1.1. USE HAND TOOLS OR AN AIR KNIFE II) DO NOT USE AN EXCAVATOR, AS THIS WILL PULL ON THE ROOTS AND POSSIBLY DAMAGE THE TRUNK III) IF A ROOT LARGER THAN 2" IS EXPOSED, LEAVE THIS ROOT INTACT AND CONTACT LANDSCAPE SERVICES
2. ONCE THE ROOTS ARE EXPOSED, USE A SHARP TOOL TO CLEANLY CUT ALL ROOTS WHICH ARE BETWEEN 1-2" DIAMETER, TO THE DEPTH OF THE PROPOSED DISTURBANCE
   2.1. APPROPRIATE TOOLS INCLUDE SHARP LOPPING SHEARS, HANDSAWS, A SHARPENED AXE, A ROOT PRUNER GRINDER, A RECIPROCATING SAW AND ANY OTHER SHARP TOOL WHICH LEAVES A CLEAN CUT
   2.2. YOU MAY NOT USE A CHAINSAW OR CHAIN TRENCHER TO MAKE THE FINAL CUTS
   2.3. ALL ROOTS SHALL BE LEFT WITH A CLEAN, SMOOTH ENDS AND NO RAGGED EDGES
3. POST PRUNING
   3.1. TREE ROOTS MUST BE KEPT MOIST. IF ROOTS ENDS WILL BE LEFT EXPOSED FOR MORE THAN 8 HOURS, COVER THE HOLE WITH MOIST BURLAP.
   3.2. FILL THE HOLE WITH HIGH QUALITY TOP SOIL, MULCH THE AREA WITH TRIPLE SHREDDED HARDWOOD TO A DEPTH OF 3", AND WATER WELL.