

GRADING NOTES

- A Geotechnical Engineer shall be employed by the owner and be on site during grading operations. All soils tests shall be verified by the Geotechnical Engineer concurrent with the grading and backfilling operations.
- The grading contractor shall perform a complete grading and compaction operation as shown on the plans, stated in these notes, or reasonably implied therefrom, all in accordance with the plans and notes as interpreted by the Geotechnical Engineer.
- The Contractor shall notify the Soils Engineer at least two days in advance of the start of the grading operation.
- All areas shall be allowed to drain. All low points shall be provided with temporary ditches.
- A sediment control plan that includes monitored and maintained sediment control basins and/or straw bales should be implemented as soon as possible. No graded area is to be allowed to remain bare without being seeded and mulched. Care should be exercised to prevent soil from damaging adjacent property and siting up existing downstream storm drainage system.
- Debris and foundation material from any existing on-site building or structure which is scheduled to be razed for this development must be disposed of off-site.
- All trash and debris on site, either existing or from construction, must be removed and properly disposed of off-site.
- Soft soil in the bottom and banks of any existing or former pond sites or tributaries or on any sediment basins or traps should be removed, spread out and permitted to dry sufficiently to be used as fill. None of this material should be placed in proposed public right-of-way locations or on any storm sewer locations.
- Site preparation includes the clearance of all stumps, trees, bushes, shrubs, and weeds; the grubbing and removal of roots and other surface obstructions from the site; and the demolition and removal of any man-made structures. The material shall be properly disposed of off-site. Topsoil and grass in the fill areas shall be thoroughly disced prior to the placement of any fill. The Soils Engineer shall approve the discing operation.
- Compaction equipment shall consist of tamping rollers, pneumatic-tired rollers, vibratory roller, or high speed impact type drum rollers acceptable to the Soils Engineer. The roller shall be designed so as to avoid the creation of a layered fill without proper blending of successive fill layers.
- The Soils Engineer shall observe and test the placement of the fill to verify that specifications are met. A series of fill density tests will be determined on each lift of fill. Interim reports showing fill quality will be made to the Owner at regular intervals.
- The Soils Engineer shall notify the Contractor of rejection of a lift of fill or portion thereof. The Contractor shall rework the rejected portion of fill and obtain notification from the Soils Engineer of its acceptance prior to the placement of additional fill.
- All areas to receive fill shall be scarified to a depth of not less than 6 inches and then compacted in accordance with the specifications given below. Natural slopes steeper than 1 vertical to 5 horizontal to receive fill shall have horizontal benches, cut into the slopes before the placement of any fill. The width and height to be determined by the Soils Engineer. The fill shall be loosely placed in horizontal layers not exceeding 8 inches in thickness and compacted in accordance with the specifications given below. The Soils Engineer shall be responsible for determining the acceptability of soils placed. Any unacceptable soils placed shall be removed at the Contractor's expense.
- The sequence of operation in the fill areas will be fill, compact, verify acceptable soil density, and repetition of the sequence. The acceptable moisture contents during the filling operation are those at which satisfactory dry densities can be obtained. The acceptable moisture contents during the filling operation in the remaining areas are from 2 to 8 percent above the optimum moisture control.
- The surface of the fill shall be finished so that it will not impound water. If at the end of a days work it would appear that there may be rain prior to the next working day, the surface shall be finished smooth. If the surface has been finished smooth for any reason, it shall be scarified before proceeding with the placement of succeeding lifts. Fill shall not be placed on frozen ground, nor shall filling operations continue when the temperature is such as to permit the layer under placement to freeze.
- Fill and backfill should be compacted to the criteria specified in the following table:

CATEGORY	MINIMUM PERCENT COMPACTION
Fill in building areas below footings	90%
Fill under slabs, walks, and pavement	90%
Fill other than building areas	88%
Natural subgrade	88%
Pavement subgrade	90%
Pavement base course	90%

Measured as a percent of the maximum dry density as determined by modified Proctor Test (ASTM-D-1557).

Moisture content must be within 2 percent below or 4 percent above optimum moisture content if fill is deeper than 10 feet.

AS-BUILTS ADDED JUNE, 2003
AS-BUILTS REVISED DECEMBER, 2003

A SET OF AS-BUILT PLANS FOR
BROOK HOLLOW
PLAT TWO

A TRACT OF LAND BEING PART OF FRACTIONAL SECTION 6,
 TOWNSHIP 46 NORTH, RANGE 3 EAST
 OF THE FIFTH PRINCIPAL MERIDIAN,
 CITY OF O'FALLON, ST. CHARLES COUNTY, MISSOURI

GENERAL NOTES

- Underground utilities have been plotted from available information and therefore their locations shall be considered approximate only. The verification of the location of all underground utilities, either shown or not shown on these plans shall be the responsibility of the contractor, and shall be located prior to any grading or construction of the improvements.
- All manhole tops & flowlines built without elevations furnished by the Engineer will be the responsibility of the sewer contractor.
- 8" P.V.C. sanitary sewer pipe shall meet the following standards. A.S.T.M.-D-3034 SDR-35, with wall thickness compression joint A.S.T.M.-D-3212. An appropriate rubber seal waterstop as approved by the sewer district shall be installed between P.V.C. pipe and masonry structures.
- All filled places, including trench backfills, under buildings, proposed storm and sanitary sewer lines and/or paved areas, shall be compacted to 90% maximum density as determined by the "Modified AASHTO T-180 Compaction Test," (A.S.T.M.-D-1557). All filled places within public roadways shall be compacted to 95% maximum density as determined by the "Standard Proctor Test AASHTO T-99, Method C" (A.S.T.M.-D-698).
- All trench backfills under paved areas shall be granular backfill, and shall be compacted to 90% of the maximum density as determined by the "Modified AASHTO T-180 Compaction Test," (A.S.T.M.-D-1557). All other trench backfills may be earth material (free of large clods or stones). All trench backfills shall be water jetted.
- All sanitary house connections have been designed so that the minimum vertical distance from the low point of the basement to the flow line of a sanitary sewer at the corresponding house connection is not less than the diameter of the pipe plus the vertical distance of 2 1/2 feet.
- No area shall be cleared without the permission of the Project Engineer.
- All P.V.C. sanitary sewer is to be SDR-35 or equal with clean 1/2" to 1" granular stone bedding uniformly graded. This bedding shall extend from 4" below the pipe to the springline of the pipe. Immediate backfill over pipe shall consist of some size "clean" or minus stone from springline of pipe to 6" above the top of pipe.
- All soils test shall be verified by a Soils Engineer concurrent with the grading and backfilling operations.
- Easements shall be provided for sanitary sewers, and all utilities on the Record Plat. See Record Plat for location and size of easements.
- Maintenance and upkeep of the common ground area shall be the responsibility of the developer and/or successors.
- A 25' building line shall be established along all Public Rights-Of-Way.
- All water lines shall be laid at least 10 feet horizontally, from any sanitary sewer, storm sewer, or manhole. 18" vertical clearance from outside of pipe to outside of pipe shall be maintained wherever water lines must cross sanitary sewers, laterals, or storm drains. The water line shall be laid at such an elevation that the bottom of the water line is above the top of the drain or sewer. A full length of water pipe shall be centered over the sewer line to be crossed so that the joints will be equally distant from the sewer and as remote therefrom as possible. This vertical separation shall be maintained for that portion of the water line located within 10 feet horizontally, of any sewer or drain it crosses.
- All PVC water pipe shall conform to A.S.T.M.-D-2241, SDR 21 Standard Specification for P.V.C. Pressure Pipe, 200 P.S.I. working pressure for water, with approved joint.
- Water lines, valves, sleeves, meters, and fittings shall meet all specifications and installation requirements of Public Water Supply District No. 2 of St. Charles County.
- All water hydrants and valves shall be ductile iron and installed in accordance with plans and details. All ductile iron pipe for water mains shall conform to A.W.W.A. Specifications C-106 and/or C-108. The ductile iron fittings shall conform to A.W.W.A. Specification CC-110. All rubber gasket joints for water ductile iron pressure pipe and fittings shall conform to A.W.W.A. Specification C-111.
- All sanitary manholes shall be waterproofed on the exterior in accordance with Missouri Department of Natural Resources specifications 10 CSR-B-120 (7)E.
- Brick will not be used in the construction of sanitary sewer manholes.
- All pipes shall have positive drainage through manholes. No flat base structures are allowed.
- The City of O'Fallon and Duck Creek Sanitary District shall be notified 48 hours prior to construction for coordination and inspection.
- Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing or proposed sanitary or storm sewers, including house laterals.
- All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match pre-construction conditions.
- The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system.
- All construction and materials shall conform to the current construction standards of the City of O'Fallon and Duck Creek Sanitary District.
- All sanitary and storm sewer trench backfills shall be water jetted. Granular backfill will be used under pavement areas.
- Maintain access to ex. residential driveway and streets.



SHEET INDEX

- 1 COVER SHEET
- 2 SITE PLANS
- 3-4 SANITARY SEWER PROFILES
- 5-6 STORM SEWER PROFILES



DEVELOPMENT NOTES

- Area of Residential Tract: 36.42 Acres
- Existing Zoning: R-1 (City of O'Fallon)
- Proposed Use: Single Family Residential
- Number of Lots Proposed: 92 Lots
- Area in Common Ground: 4.36 Acres
- Area in Right-of-Way: 6.42 Acres
- Area in Lots: 25.64 Acres
- Average Lot Area (not including common ground): 12,140 Square Feet
- Average Lot Area (including common ground): 14,204 Square Feet
- The proposed height and lot setbacks are as follows:
 Minimum Front Yard: 25 feet
 Minimum Side Yard: 6 feet
 Minimum Rear Yard: 25 feet
 Minimum Lot Area: 10,000 square feet
 Maximum Height of Building: 2 1/2 stories or 35 feet
- Current Owner of Property: First Land Company of St. Charles County, Inc. P.O. Box 176 St. Peters, MO 63376
- Site is served by: Duckett Creek Sanitary Sewer District AmerenUE St. Charles Gas Company St. Charles County P.W.S.D.No. 2 Verizon Telephone Company Fort Zumwalt School District O'Fallon Fire Protection District
- No Floodplain exists on this tract per F.I.R.M #29183C0240 E. dated Aug. 2, 1996.
- Topographic information is by Walker & Associates.
- Boundary information is per survey completed by Bax Engineering in September of 2001.
- One tree shall be planted for every lot. Every corner lot shall have two street trees planted in the right-of-way.
- All local streets will be constructed to City of O'Fallon standards. Streets will consist of 26 foot wide concrete pavement with integral rolled curb centered in a 50 foot right-of-way. Minimum radius shall be 150 feet.
- All cul-de-sacs and babbles will have pavement radii of 42 feet with right-of-way radii of 54 feet. Street intersections shall have a minimum rounding radius of 25 feet with pavement radii of 37 feet.
- Minimum street grades shall be 1%.
- A 4 foot wide concrete sidewalk shall be constructed on one side of streets where indicated.
- All homes shall have a minimum of 2 off-street parking places with 2-car garages.
- All proposed utilities must be located underground.
- The developer realizes that they will comply with current Tree Preservation Ordinance Number 1689 and provide landscaping as set forth in Article 23 of the City of O'Fallon Zoning Ordinances.
- Additional lighting may be required by the City of O'Fallon.
- The following lots are susceptible to street movement: 147, 150-156, 164-174, 190-196, 198-199, 202-208, 211-216, 220-221, 223, 225-229, 233-235.
- Tree Preservation Calculations:
 Existing trees: 20.73 acres
 x 20%: 4.14 acres
 Saved trees: 5.62 acres
 Trees removed: 15.11 acres
 Landscape Requirements
 1 Tree per lot & 2 trees per corner lot = 108
- Detention for this development to be provided in detention basins.
- All existing creeks to remain shall be enclosed within a stormwater discharge easement. The width of which to be specified by the size of the water shed drained by the creek and to be determined during the improvement plan approval process.
- Proposed rip-rap pads to be evaluated following installation to determine if pad is of sufficient size to prevent erosion.
- Street trees to have a minimum of 2" caliper per O'Fallon standards. Species to be selected by homebuilder from O'Fallon Tree Planting Guide. Street trees to be maintained by the Home Owner's Association per subdivision C.C. & R.'s.

VEGETATIVE ESTABLISHMENT
 For Urban Development Sites
 APPENDIX A

Seeding Rates:
 Permanent:
 Tall Fescue - 30 lbs./ac.
 Smooth Brome - 20 lbs./ac.
 Combined Fescue @ 15 lbs./ac. and Brome @ 10 lbs./ac.
 Temporary:
 Wheat or Rye - 150 lbs./ac. (3.5 lbs. per square foot)
 Oats - 120 lbs./ac. (2.75 lbs. per square foot)
 Seeding Periods:
 Fescue or Brome - March 1 to June 1
 August 1 to October 1
 Wheat or Rye - March 15 to November 1
 Oats - March 15 to September 15
 Mulch Rates: 100 lbs. per 1,000 sq. feet (4,356 lbs. per acre)
 Fertilizer Rates: Nitrogen 30 lbs./ac.
 Phosphate 30 lbs./ac.
 Potassium 30 lbs./ac.
 Lime 600 lbs./ac. ENM*

* ENM = effective neutralizing material as per State evaluation of quarried rock.

REFERENCE BENCHMARK
 R.M. #65 - ELEV. = 509.47 (U.S.G.S. DATUM)
 CHISEL "L" ON THE SOUTH END OF THE WEST HEADWALL OF COUNTY HIGHWAY K BRIDGE OVER BELLEAU CREEK.

SITE BENCHMARK
 ELEV. = 667.66 NAVD 1929 DATUM (U.S.G.S.)
 ST. CHARLES COUNTY GEOGRAPHIC REFERENCE STATION "ORF" STANDARD BRASS DISK STAMPED "ORF 1931" IN A SQUARE CONCRETE POST IN A SMALL MOUND ± 107' NORTHWEST OF THE NORTHWEST CORNER OF A SHED ADDITION TO AN OLDER BARN; 20'-25' SOUTHWEST OF A SMALL POND; 39' NORTHEAST OF A LONE PEAR TREE AND 24.9' NORTHEAST OF A METAL WITNESS POST AND SIGN. LOCATED AT 1301 BRYAN ROAD 350' NORTHWEST OF HOUSE.

STORM SEWER MEASUREMENTS

THE EXISTING SEWER LENGTHS, SIZES, FLOWLINES, DEPTHS OF STRUCTURES AND SEWERS AND LOCATIONS WITH RESPECT TO EXISTING OR PROPOSED EASEMENTS HAVE BEEN MEASURED. THE RESULTS OF THOSE MEASUREMENTS ARE SHOWN ON THIS SET OF FINAL MEASUREMENT PLANS.

ALL PUBLIC SEWERS ARE LOCATED WITHIN DESIGNATED EXISTING OR PROPOSED EASEMENTS EXCEPT AS FOLLOWS:

SIGNED: _____ DATE: _____
 P.E./A.S. _____

AS-BUILTS NOTE:
 ALL DISTANCE AND SLOPE CALCULATIONS ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.

DISCLAIMER OF RESPONSIBILITY
 I hereby certify that the documents contained herein were prepared by me or under my direct supervision and that I am a duly licensed professional engineer in the State of Missouri. I am not responsible for any errors or omissions in this document or any other documents prepared by me or under my supervision.

REVISIONS

NO.	DATE	DESCRIPTION



1052 South Cloverleaf Drive
 St. Peters, MO. 63376-6445
 314-928-5552
 FAX 928-1718

06-16-03
 DATE
 00-11289
 PROJECT NUMBER
 1 of 6
 SHEET OF
 11289ASB2.dwg
 FILE NAME
 ECF
 DRAWN CHECKED

AS-BUILT PLANS
PLAT TWO
BROOK HOLLOW
 PREPARED FOR:
 FIRST LAND COMPANY OF ST. CHARLES COUNTY, INC.
 P.O. BOX 176
 ST. PETERS, MISSOURI
 63376
 (636) 928-4988

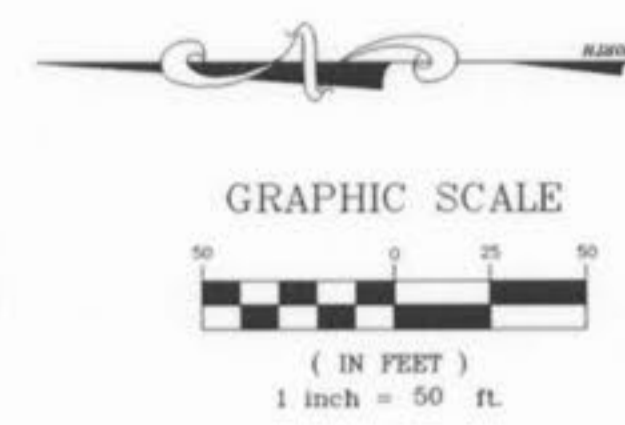
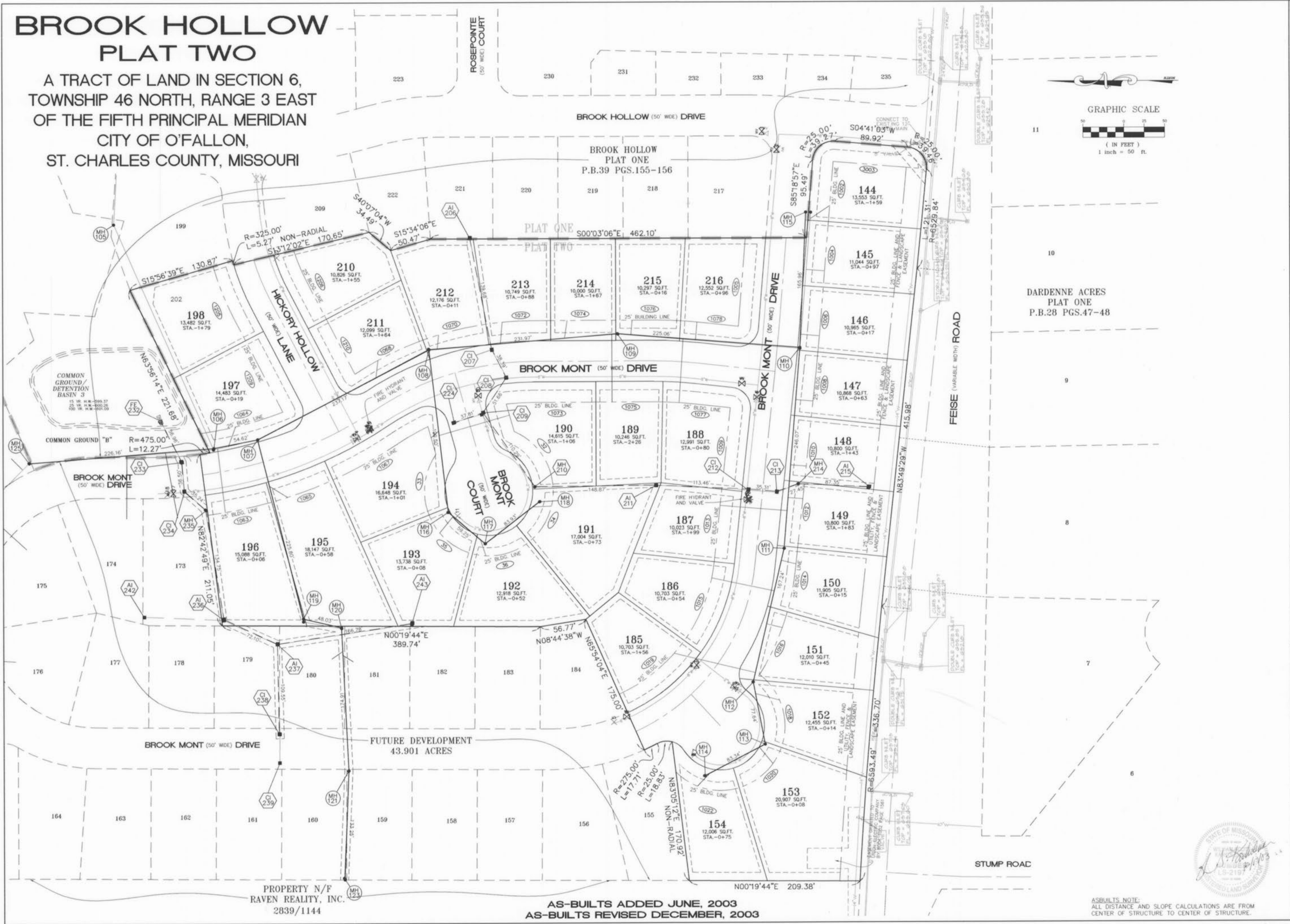


CALL BEFORE YOU DIG!
 1-800-DIG-RITE

Approved 12-19-03 ABK
 Brook Hollow Plat 2 As Builts

BROOK HOLLOW PLAT TWO

A TRACT OF LAND IN SECTION 6,
TOWNSHIP 46 NORTH, RANGE 3 EAST
OF THE FIFTH PRINCIPAL MERIDIAN
CITY OF O'FALLON,
ST. CHARLES COUNTY, MISSOURI



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PLAT TWO

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(636) 928-4988

DISCLAIMER OF RESPONSIBILITY
I hereby certify that the documents intended to be authenticated by my seal are limited to the sheet and I neither disclaim any responsibility for all other drawings, specifications, estimates, reports or other documents or instruments relating to or intended to be used for any part or parts of the architecture or engineering project or survey.

REVISIONS

NO.	DATE	DESCRIPTION

B&A
ENGINEERING
PLANNING
SURVEYING
1052 South Cloverleaf Drive
St. Peters, MO. 63376-6445
636-928-5552
FAX 928-1718

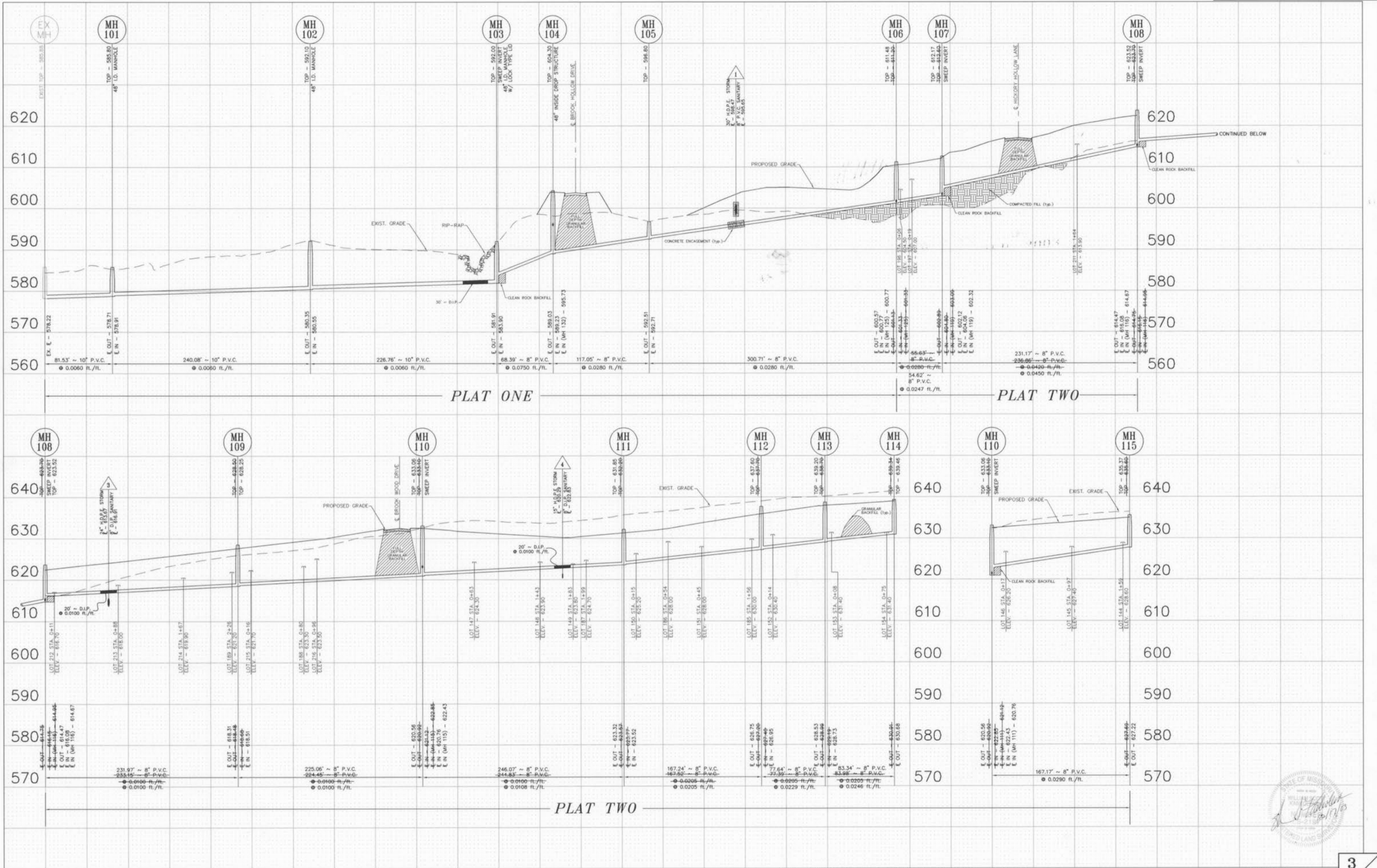
06-16-03
DATE
00-11289
PROJECT NUMBER
2 of 6
SHEET OF
11289ASB2.DWG
FILE NAME
ECF
DRAWN CHECKED
JUN5, 2003
DATE DONE IN FIELD



AS-BUILTS ADDED JUNE, 2003
AS-BUILTS REVISED DECEMBER, 2003

AS-BUILTS NOTE:
ALL DISTANCE AND SLOPE CALCULATIONS ARE FROM
CENTER OF STRUCTURE TO CENTER OF STRUCTURE.

Brook Hollow Plat 2
As Builts

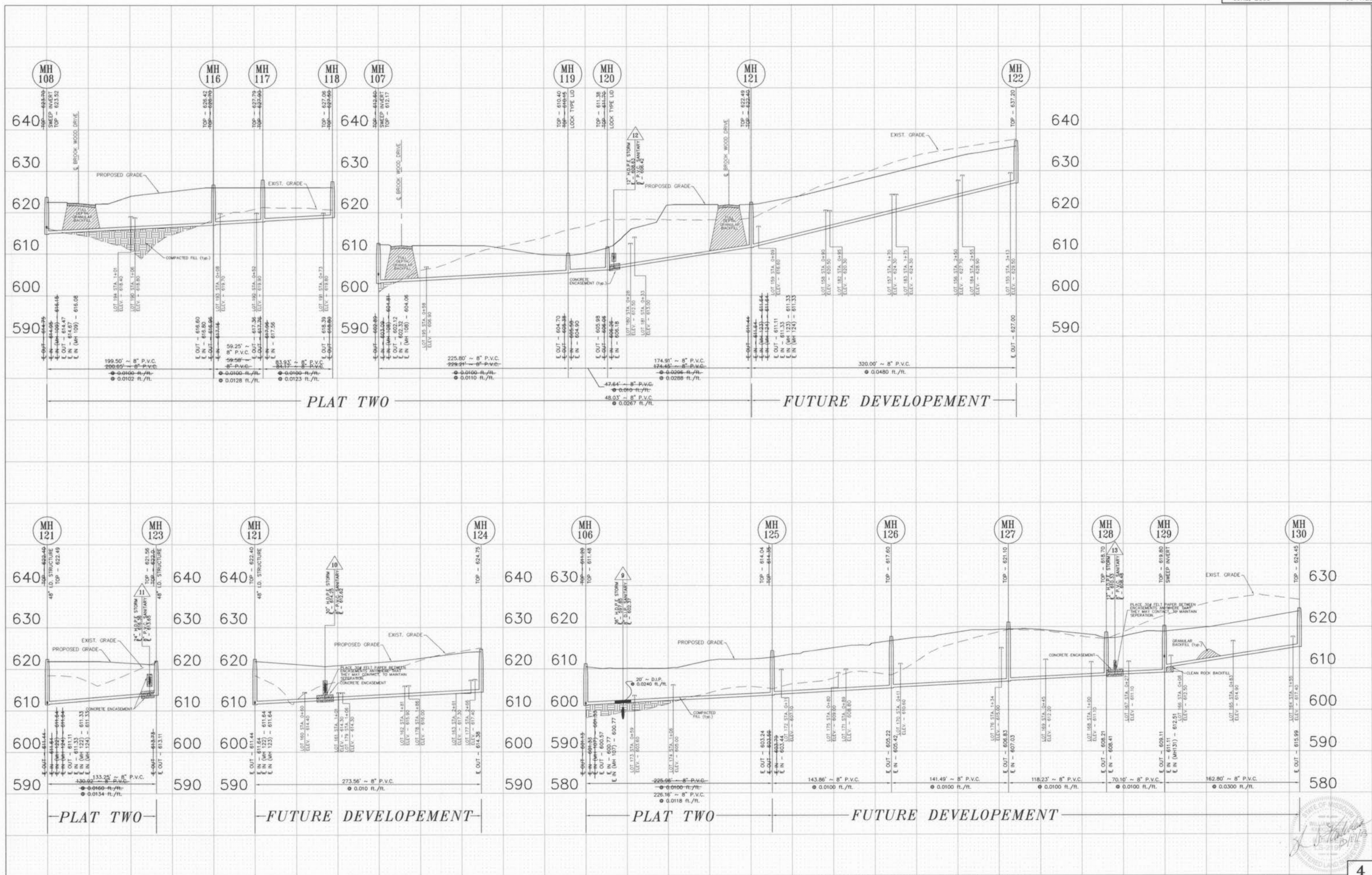


UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS SHALL BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF ALL UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE LOCATED PRIOR TO ANY GRADING OR CONSTRUCTION OF THE IMPROVEMENTS.

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SCALE:
 VERTICAL = 1" = 10'
 HORIZONTAL = 1" = 50'



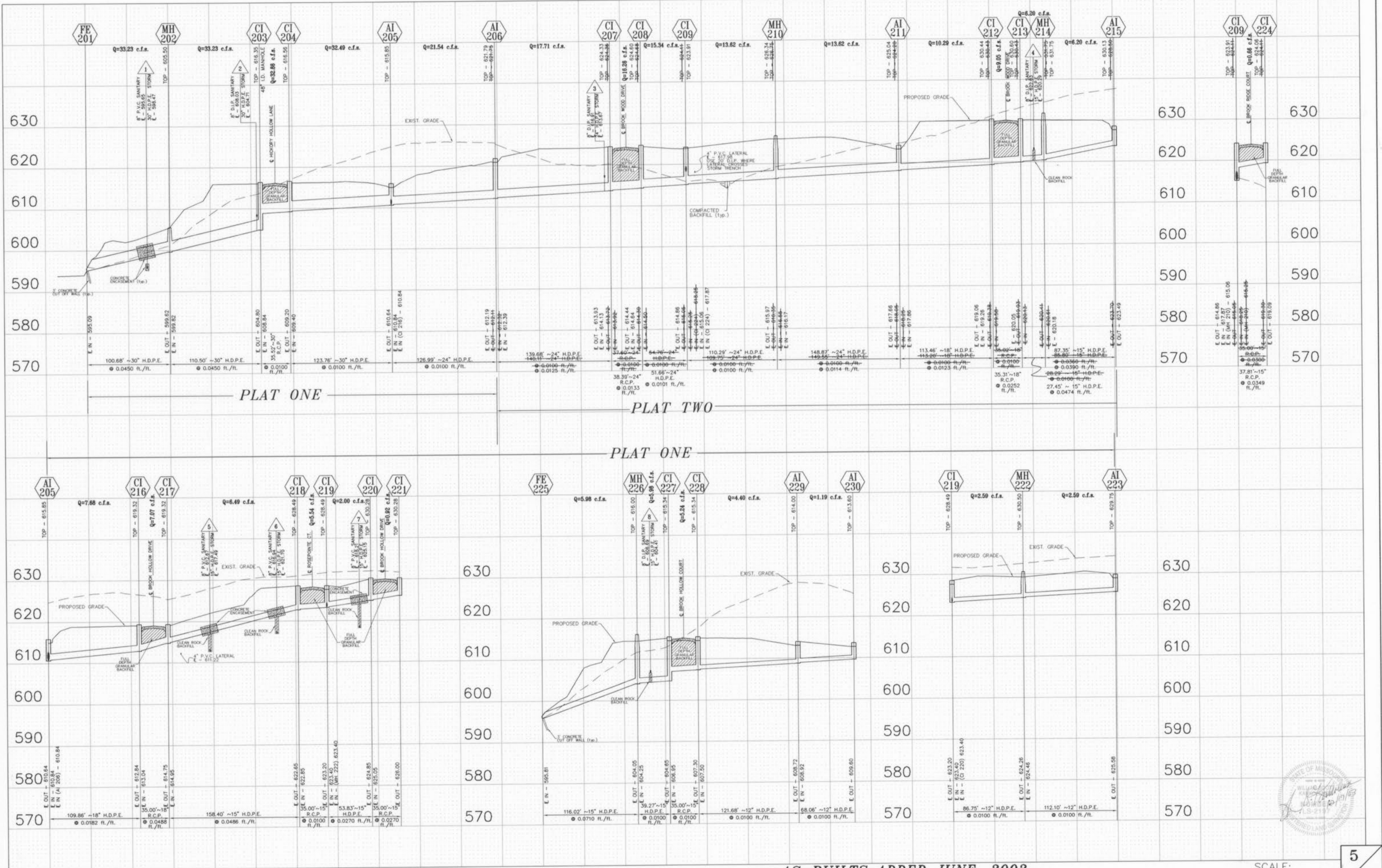
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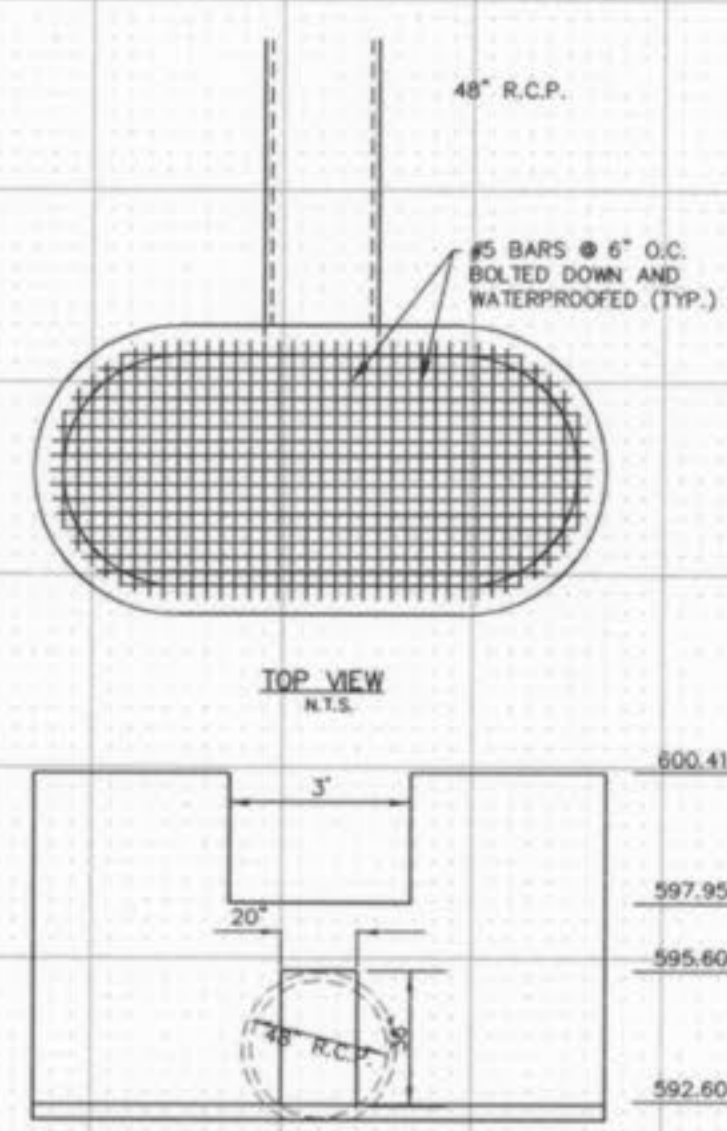
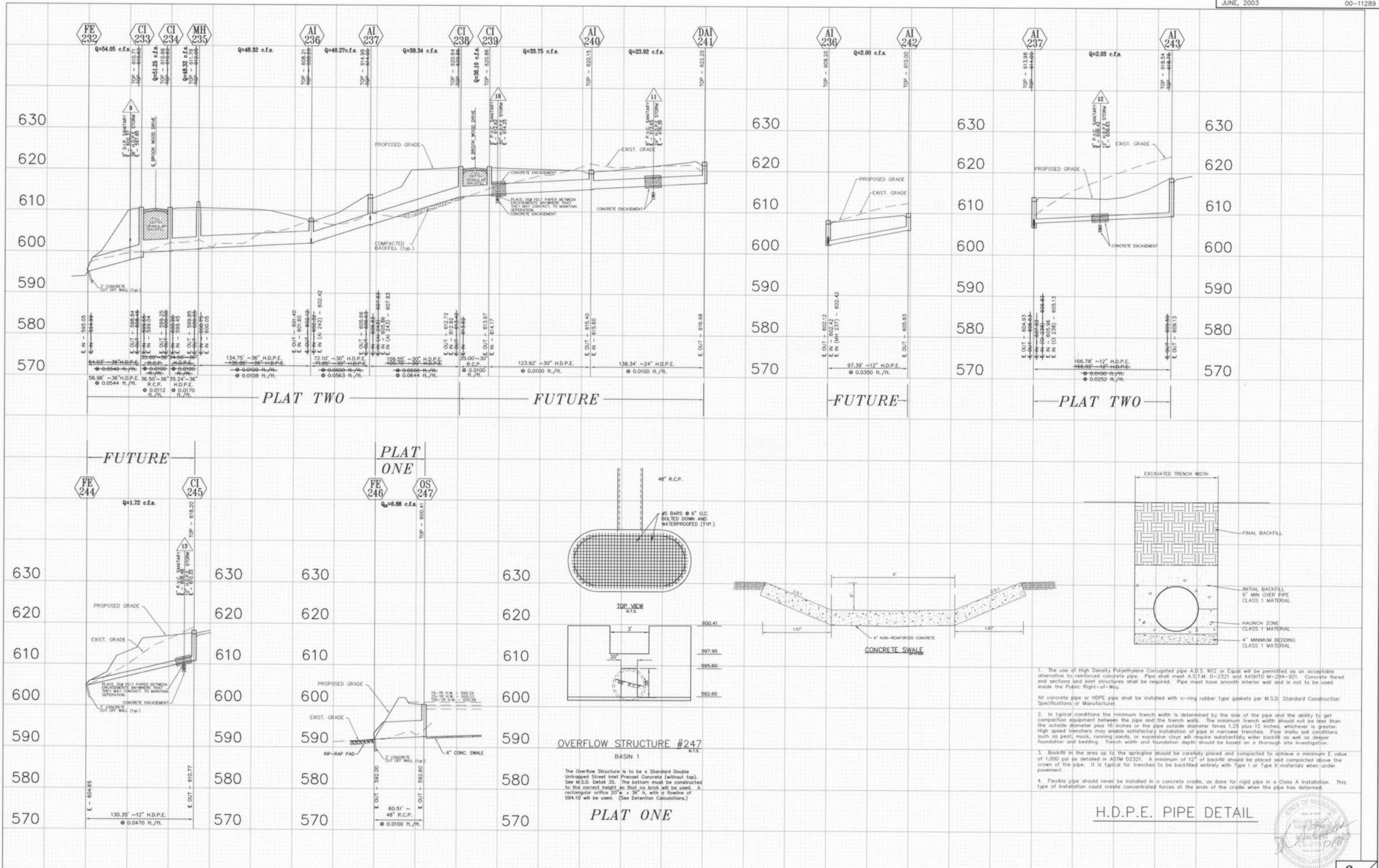
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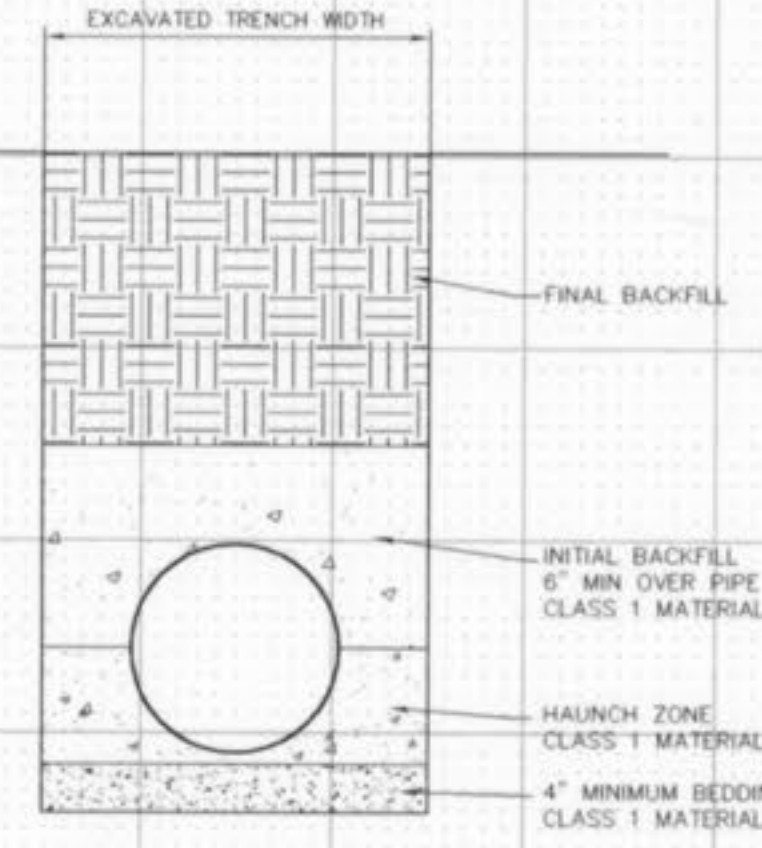
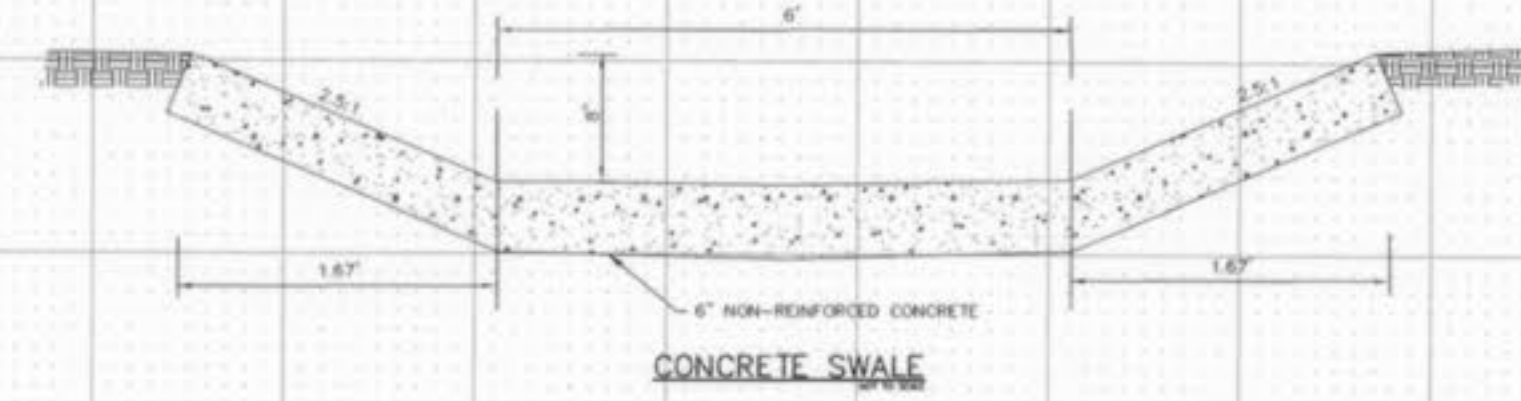
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Brook Hollow Plat 2
 As-Builts

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OVERFLOW STRUCTURE #247
 BASIN 1
 N.T.S.
 The Overflow Structure is to be a Standard Double Untrapped Street Inlet Precast Concrete (without top). See M.S.D. Detail 35. The bottom must be constructed to the correct height, no flat no brick will be used. A rectangular orifice 20" x 36" h, with a flowline of 594.10 will be used. (See Detention Calculations.)



- The use of High Density Polyethylene Corrugated pipe A.D.S. N12 or Equiv will be permitted as an acceptable alternative to reinforced concrete pipe. Pipe shall meet A.S.T.M. D-2321 and AASHTO M-294-921. Concrete flared end sections and inlet structures shall be required. Pipe must have smooth interior wall and is not to be used inside the Public Right-of-Way.
- All concrete pipe or HDPE pipe shall be installed with o-ring rubber type gaskets per M.S.D. Standard Construction Specifications or Manufacturer.
- In typical conditions the minimum trench width is determined by the size of the pipe and the ability to get compaction equipment between the pipe and the trench walls. The minimum trench width should not be less than the outside diameter plus 16 inches or the pipe outside diameter times 1.25 plus 12 inches, whichever is greater. High speed trenchers may enable satisfactory installation of pipe in narrower trenches. Poor in situ soil conditions such as peat, muck, running sands, or expansive clays will require substantially wider backfill as well as deeper foundation and bedding. Trench width and foundation depth should be based on a thorough site investigation.
- Backfill in the area up to the springline should be carefully placed and compacted to achieve a minimum E value of 1,000 psi as detailed in ASTM D2321. A minimum of 12" of backfill should be placed and compacted above the crown of the pipe. It is typical for trenches to be backfilled entirely with Type I or Type II materials when under pavement.
- Flexible pipe should never be installed in a concrete cradle, as done for rigid pipe in a Class A installation. This type of installation could create concentrated forces at the ends of the cradle when the pipe has deformed.

H.D.P.E. PIPE DETAIL



UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS SHALL BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF ALL UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE LOCATED PRIOR TO ANY GRADING OR CONSTRUCTION OF THE IMPROVEMENTS.

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