

**GRADING NOTES**

1. 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.
2. The grading contractor shall perform a complete grading and compaction operation as shown on the plans, stated in these notes, or reasonably implied there from, all in accordance with the plans and notes as interpreted by the Geotechnical Engineer.
3. The Contractor shall notify the Soils Engineer at least two days in advance of the start of the grading operation.
4. All areas shall be allowed to drain. All low points shall be provided with temporary ditches.
5. 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 silting up existing downstream storm drainage system.
6. 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.
7. All trash and debris on site, either existing or from construction, must be removed and properly disposed of off-site.
8. 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.
9. 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.
10. Compaction equipment shall consist of tamping rollers, pneumatic-tired rollers, vibratory rollers, 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.

**GENERAL NOTES**

1. Underground utilities have been plotted from available information and, therefore, their locations shall be considered approximate only. The depth or 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.
2. All manhole tops built without elevations furnished by the engineer will be the responsibility of the sewer contractor.
3. 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-1577). All filled places within public roadways shall be compacted to 95% of maximum density as determined by the "Standard Proctor Test AASHTO T-99, Method C" (A.S.T.M. D-698).
4. 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.
5. No area shall be cleared without the permission of the Project Engineer.
6. All soils test shall be verified by a Soils Engineer concurrent with the grading and backfilling operations.
7. Easements shall be provided for sanitary sewers and all utilities on Record Plat. See Record Plat for location and size of easements.
8. Maintenance and upkeep of the common ground area shall be the responsibility of the developer and/or successors.
9. All water lines shall be laid at least 10 feet horizontally from any sanitary sewer or manhole. 18" vertical clearance from outside of pipe to outside of pipe shall be maintained wherever water lines meet cross-sanitary sewers or laterals, the water line shall be laid at such an elevation that the bottom of the water line is above the top of 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.
10. All PVC water pipe shall conform to ASTM D2241, SDR 21 Standard Specification for P.V.C. Pressure Pipe, 200 P.S.I. working pressure for water, with approved joint.
11. Water lines, valves, sleeves, meters, and fittings shall meet all specifications and installation requirements of City of O'Fallon.
12. 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.
13. All pipes shall have positive drainage through manholes. No flat invert structures are allowed.
14. The City of O'Fallon shall be notified 48 hours prior to construction for coordination of inspection.
15. 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.
16. All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match preconstruction conditions.
17. All construction and materials shall conform to the current construction standards of the City of O'Fallon.
18. No flushing hydrants or water meters shall be located in driveways and or walkways.
19. Concrete pipe for storm sewers shall be Class III, A.S.T.M. C-76 with a minimum diameter of 12" except in the R.O.W. where it shall be 15".
20. The ADS N-12 pipe shall have a smooth interior wall.
21. Concrete pipe joints shall be MSD type "A" approved compression-type joints and shall conform to the requirements of the specifications for joints for circular concrete sewer and culvert pipe, using flexible, watertight, rubber-type gaskets ASTM C443. Band-type gaskets depending entirely on cement for adhesion and resistance to displacement during jointing shall not be used.
22. When HDPE pipe is used, City of O'Fallon specifications or manufacturer's specifications, which ever are more stringent, shall be followed.
23. The use of High Density Polyethylene Corrugated pipe, ADS N-12 or equal will be permitted as an acceptable alternative to reinforced concrete pipe. Pipe shall meet A.S.T.M. D-2321 and A.A.S.H.T.O. M-294-291.
24. All flared end sections and inlet structures will be concrete.
25. All storm sewer pipe installed in the Public Right-of-Way shall be reinforced concrete Class III pipe.
26. All concrete pipe or ADS N-12 pipe shall be installed with "O-Ring" Rubber type gaskets per M.S.D. standard construction specifications or manufacturer.
27. Right-of-way lines for internal streets shall be back of curb, or edge of pavement where there is no curb.
28. All internal street lighting shall be private.

A SET OF SANITARY AND STORM SEWER "AS-BUILTS"  
**WINGHAVEN**  
**WAKE FOREST VILLAGE**

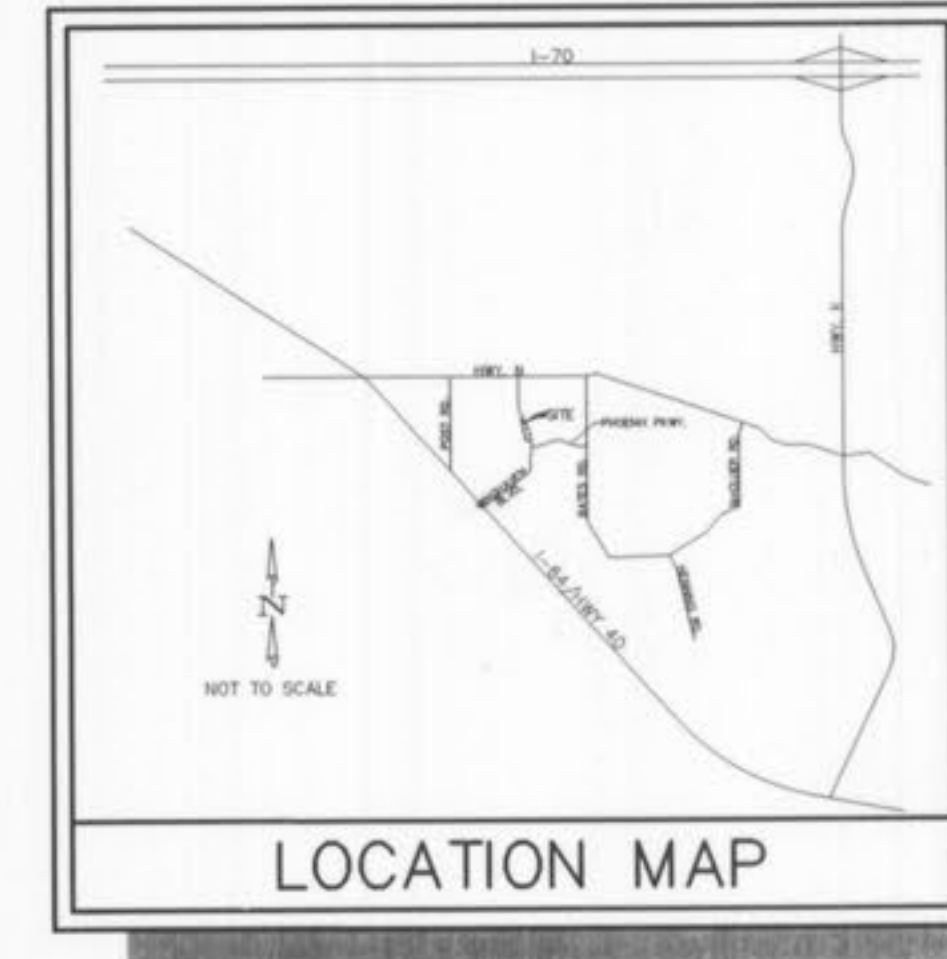
PART OF U.S. SURVEY NO. 1669 AND PART OF SECTIONS 11 & 12  
TOWNSHIP 46 NORTH, RANGE 2 EAST  
CITY OF O'FALLON, MISSOURI

**DUCKETT CREEK SANITARY DISTRICT  
CONSTRUCTION NOTES**

1. Underground utilities have been plotted from available information and, therefore, location 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 improvements.
2. Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing or proposed sanitary and storm sewers, including house laterals.
3. All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match preconstruction conditions.
4. All fill, including places under proposed storm and sanitary sewer lines and paved areas, including trench backfills within and off the road right-of-way, shall be compacted to 90 percent of maximum density as determined by the "Modified AASHTO T-180 Compaction Test (ASTM D 1557)". All tests shall be verified by a Soils Engineer concurrent with grading and backfilling operations. The compacted fill shall be free of rutting and shall be non-yielding and non-pumping during proofrolling and compaction.
5. The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system.
6. All sanitary sewer flowlines and tops built without elevations furnished by the engineer will be the responsibility of the sewer contractor.
7. Easements shall be provided for all sanitary sewers, storm sewers and all utilities on the record plat.
8. All construction and materials shall conform to the current construction standards of the Duckett Creek Sanitary District.
9. The Duckett Creek Sanitary District shall be notified at least 48 hours prior to construction for coordination of inspection.
10. All sanitary sewer building connections shall be designed so that the minimum vertical distance from the low point of the basement to the flowline of a sanitary sewer at the corresponding building connection

**DUCKETT CREEK SANITARY DISTRICT  
CONSTRUCTION NOTES (Continued)**

- shall not be less than the diameter of the pipe plus the vertical distance of 2 1/2 feet.
11. All sanitary sewer manholes shall be waterproofed on the exterior in accordance with Missouri Department of Natural Resources specification 10 CSR-8.120(7)(E).
  12. All PVC sanitary sewer pipe shall conform to the requirements of ASTM D-3034 Standard Specification for PSM Polyvinyl Chloride Sewer Pipe, SDR-35 or equal, with "clean" 1/2 inch to 1 inch granular stone bedding uniformly graded. This bedding shall extend 4 inches below the pipe to springline of pipe. Immediate backfill over pipe shall consist of some size "clean" or "minus" stone from springline of pipe to 6 inches above the top of pipe.
  13. All sanitary and storm sewer trench backfills shall be water jetted. Granular backfill will be used under pavement areas.
  14. All pipes shall have positive drainage through manholes. No flat invert structures are allowed.
  15. All creek crossings shall be grouted rip-rap as directed by District inspectors. (All grout shall be high slump ready-mix concrete.)
  16. Brick shall not be used on sanitary sewer manholes.
  17. Existing sanitary sewer service shall not be interrupted.
  18. Maintain access to existing residential driveways and streets.
  19. Pre-manufactured adapters shall be used at all PVC to DIP connections. Rubber boot/Mission-type couplings will not be allowed.
  20. Any permits, licenses, easements or approvals to work on public or private properties or roadways are the responsibility of the developer.
  21. All sanitary sewer laterals shall be a minimum of 4" in diameter.



**DEVELOPMENT NOTES**

1. Area of Tract: 4.52 Acres
2. Existing Zoning: R-2 (P.U.D.)
3. Proposed Use: Attached Multi-Family
4. Number of Lots Proposed: 20 Lots
5. Minimum Lot Area Proposed: 5,497 Square Feet
6. The proposed height and lot setbacks are as follows:  
Minimum Front Yard: 20 feet  
Minimum Side Yard: 6 feet  
Minimum Rear Yard: 25 feet  
Maximum Height of Building: 2 1/2 stories or 35 feet
7. Site is served by:  
Duckett Creek Sanitary District  
Ameren UE  
St. Charles Gas Company  
St. Charles County Public Water Supply District No. 2  
GTE Telephone Company  
Wentzville School District  
Wentzville Fire Protection District
8. No flood plain exists on this site per the Federal Insurance Rate Maps, 29183C0240E, 29183C0220E, and 29183C0440E, dated August 2, 1996.
9. All streets will be private.
10. Minimum street grade shall be 1%.
11. All homes shall have a minimum of 2 off-street parking places with 2 car garages.
12. All utilities must be located underground.
13. A 4' wide concrete sidewalk shall be constructed on one side of streets as indicated on plan.
14. The developer realizes that they will comply with the current Tree Preservation Ordinance Number 1689 and provide landscaping as set forth in Article 23 of the City of O'Fallon Zoning Ordinance.
15. All lots shall access interior streets only. No driveways shall access Winghaven Boulevard.

**REFERENCE BENCHMARK**

RM36 ELEV=501.92-CHISEL SQUARE ON TOP OF SOUTHWEST WINGWALL AT EAST END OF WESTBOUND U.S. HIGHWAY 40 BRIDGE OVER DARDENNE CREEK

**SITE BENCHMARK**

ELEV=592.44-OLD IRON ROD AT POINT OF CURVE ROUNDING AT NORTH SIDE OF ENTRANCE TO WAKE FOREST VILLAGE, 5' WEST OF CURB AND 4' NORTHWEST OF CENTERLINE OF GTE MANHOLE.

THIS IS TO CERTIFY THAT WE HAVE DURING THE MONTH OF JULY, 2000, BY ORDER OF WINGHAVEN RESIDENTIAL L.L.C., EXECUTED AN AS-BUILT SURVEY OF EXISTING SANITARY SEWERS, STORM SEWERS, FIRE HYDRANTS AND WATER VALVES WITHIN "WINGHAVEN PHASE 1 - WAKE FOREST VILLAGE", A SUBDIVISION ACCORDING TO THE PLAT THEREOF RECORDED IN PLAT BOOK 36 PAGE 250 OF THE ST. CHARLES COUNTY RECORDS. THE SANITARY LATERALS THAT ARE SHOWN WERE TAKEN FROM INFORMATION SUPPLIED TO BAX ENGINEERING BY THE SEWER CONTRACTOR. THEREFORE THEIR LOCATION IS ASSUMED APPROXIMATE. ALL SEWERS SHOWN LIE WITHIN THE EASEMENTS AS SHOWN ON SAID RECORDED SUBDIVISION PLAT UNLESS OTHERWISE NOTED. THE RESULTS OF THIS AS-BUILT SURVEY ARE SHOWN ON THIS PLAT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



DARREL R. OAKLEY  
BAX ENGINEERING CO., INC.  
MO. REG. L.S. #2265



PREPARED FOR: WINGHAVEN RESIDENTIAL, L.L.C. by  
McBRIDE and SON  
#1 McBRIDGE AND SON CORPORATE CENTER DRIVE  
CHESTERFIELD, MISSOURI 63005  
(314) 537-2000; FAX (314) 537-2546  
WAKE FOREST VILLAGE AT WINGHAVEN

DISCLAIMER OF RESPONSIBILITY: I hereby certify that the documents intended to be authorized by my seal are limited to this sheet, and I hereby 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 architectural or engineering project or survey.

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DATE	CLIENT, CITY COMMENTS
06-18-99	CLIENT, CITY COMMENTS
06-21-99	DUCKETT CREEK COMMENTS
07-21-00	"AS-BUILTS" ADDED
01-25-02	"AS-BUILTS" REVISED
06-18-07	CITY COMMENTS
07-23-07	CITY COMMENTS
10-22-07	CITY COMMENTS

**REVISIONS**

**BAX**  
ENGINEERING  
PLANNING  
SURVEYING

221 Point West Blvd.  
St. Charles, MO. 63301  
314-928-5552  
FAX 928-1718

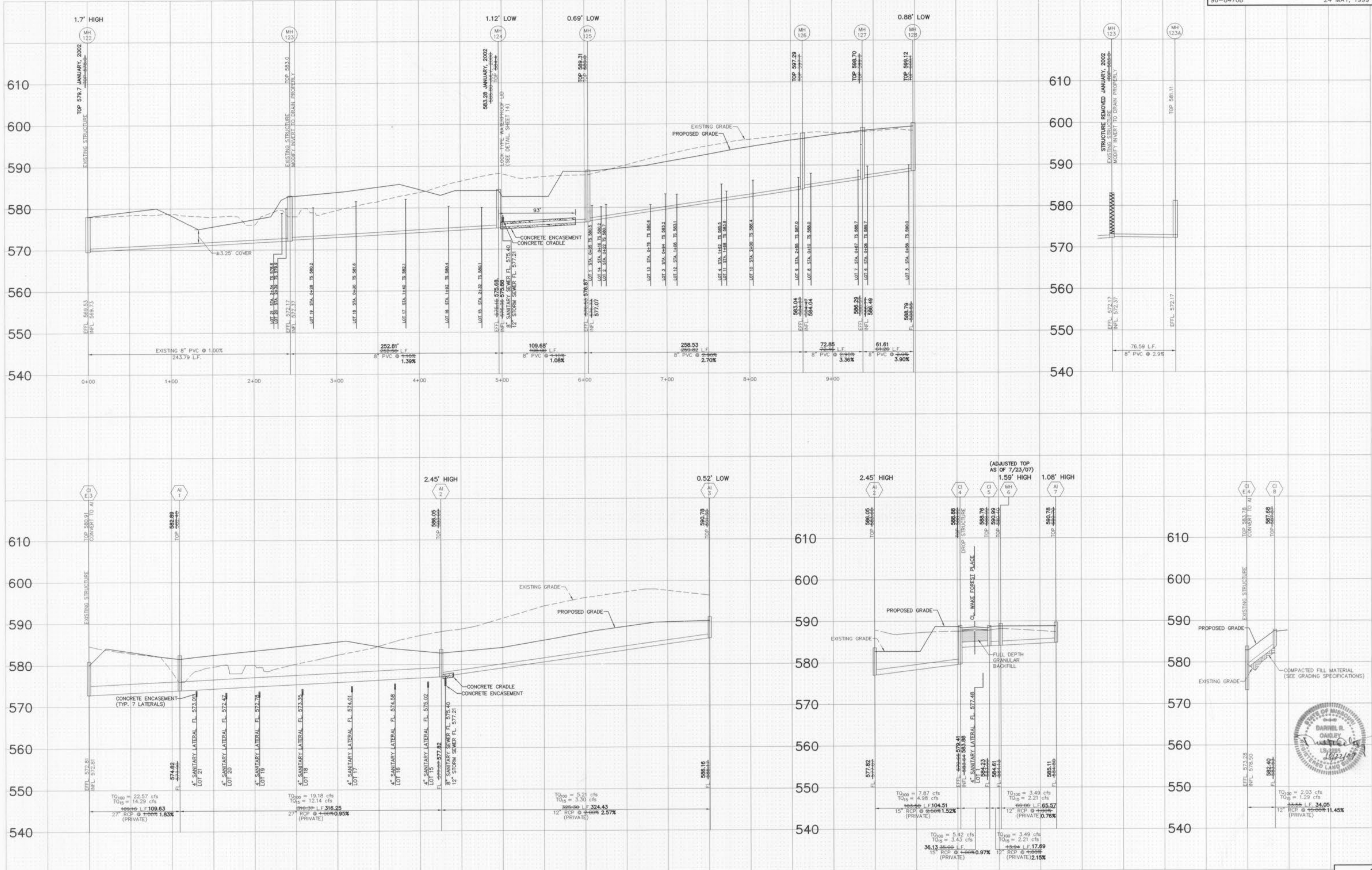
MAY 24, 1999  
DATE  
97-8470B  
PROJECT NUMBER  
1 OF 3  
SHEET OF  
8470BASB.DWG  
FILE NAME  
MLA MGG  
DRAWN CHECKED







06-15-99 CLIENT, CITY COMMENTS  
 06-22-99 BUCKETT CREEK COMMENTS  
 06-29-99 BUCKETT CREEK COMMENTS  
 06-18-07 CITY COMMENTS  
 07-23-07 CITY COMMENTS



AS-BUILTS ADDED JULY 2000.

AS-BUILTS REVISED JANUARY, 2002.

AS-BUILTS REVISED JUNE 18, 2007.

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

