A SET OF AS-BUILT PLANS FOR

AVONDALE HEIGHTS PHASE 4

A TRACT OF LAND BEING PART OF FRACTIONAL SECTION 9,
TOWNSHIP 46 NORTH, RANGE 3 EAST
OF THE FIFTH PRINCIPAL MERIDIAN,
CITY OF O'FALLON, ST. CHARLES COUNTY, MISSOURI

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 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.
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 6 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).

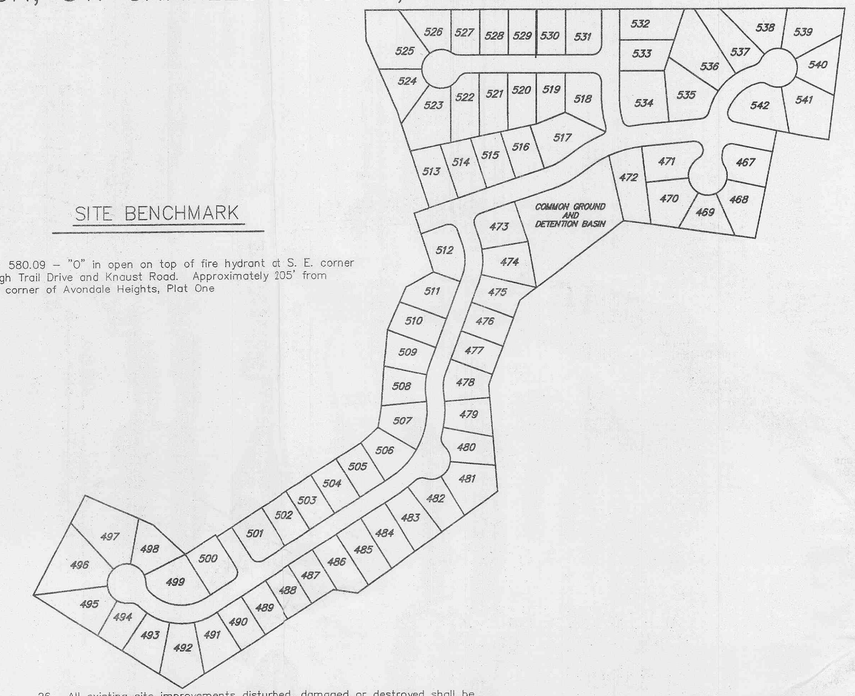
Moisture content must be within 2 percent below or 4 percent above optimum moisture content if fill is deeper than 10 feet.

GENERAL NOTES

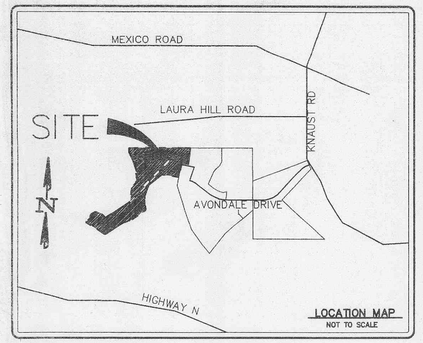
1. Underground utilities have been plotted from available information and therefore their locations shall be considered approximate only. The verification of the location of all underground utilities, either shown or not shown on these plans shall be the responsibility of the contractor, and shall be located prior to any grading or construction of the improvements.
2. All manhole tops built without elevations furnished by the Engineer will be the responsibility of the sewer contractor.
3. 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.
4. 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% of maximum density as determined by the "Standard Proctor Test AASHTO T-99, Method C" (A.S.T.M.-D-698).
5. 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.
6. 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.
7. No area shall be cleared without the permission of the Project Engineer.
8. 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 same size "clean" or minus stone from springline of pipe to 6" above the top of pipe.
9. All soils test shall be verified by a Soils Engineer concurrent with the grading and backfilling operations.
10. Easements shall be provided for sanitary sewers, and all utilities on the Recorded Plat. See Record Plat for location and size of easements.
11. Maintenance and upkeep of the common ground area shall be the responsibility of the developer and/or successors.
12. A 25' building line shall be established along all Public Rights-Of-Way.
13. 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.
18. 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.
19. 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.
20. 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.
21. All sanitary manholes shall be waterproofed on the exterior in accordance with Missouri Department of Natural Resources specifications 10 CSR-8.120 (7)E.
22. Brick will not be used in the construction of sanitary sewer manholes.
23. All pipes shall have positive drainage through manholes. No flat base structures are allowed.
24. The City of O'Fallon and Ducket Creek Sanitary District shall be notified 48 hours prior to construction for coordination and inspection.
25. 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.

SITE BENCHMARK

ELEV: 580.09 - "O" in open on top of fire hydrant at S. E. corner of High Trail Drive and Knaust Road. Approximately 105' from N. E. corner of Avondale Heights, Plat One



26. All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match pre-construction conditions.
27. The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system.
28. All construction and materials shall conform to the current construction standards of the City of O'Fallon and Ducket Creek Sanitary District.
29. All sanitary and storm sewer trench backfills shall be water jetted. Granular backfill will be used under pavement areas.
30. All existing areas disturbed during construction of the off-site sanitary sewer line shall be seeded and mulched to prevent erosion.
31. All sanitary sewer laterals shall be a minimum of 4" in diameter per City of O'Fallon.
32. No flushing hydrants or water meters shall be located in driveways and or walkways.
33. 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. it shall be 15".
34. The ADS N-12 pipe shall have a smooth interior wall.
35. 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 (A.S.T.M.-C-443). Band-type gaskets depending entirely on cement for adhesion and resistance to displacement during jointing shall not be used.
36. When HDPE pipe is used, City of O'Fallon specifications or manufacturers specifications, which ever are more stringent, shall be followed.
37. The use of High Density Polyethylene Corrugated pipe, ADS N-12 or equal will be permitted as an acceptable alternative to reinforced concrete pipe, ADS N-12 HC shall be used for all ADS pipe greater than 36". Pipe shall meet A.S.T.M.-D-2321 and A.A.S.H.T.O. M-294-291.
38. All flared end sections and inlet structures will be concrete.
39. All storm sewer pipe installed in the Public Right-of-Way shall be Reinforced concrete Class III pipe.
40. 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.
41. All Fire Hydrants and Water Meters shall not be located in driveways and/or sidewalks.
42. All creek crossings shall be grouted rip-rap as directed by District inspectors. (All grout shall be high slump ready-mix concrete.)
43. Existing sanitary sewer service shall not be interrupted.
44. Pre-manufactured adapters shall be used at all PVC to DIP connections. Rubber boot / Mission-type couplings will not be allowed.
45. Any permits, licenses, easements, or approvals required to work on public or private properties or roadways are the responsibility of the developer.
46. No slopes shall exceed 3(H) : 1(V).
47. Driveway locations shall not interfere with the sidewalk handicap ramps in the cul-de-sacs.
48. "NO PARKING" signage will be required along the south side of Avondale Drive through this phase.



DEVELOPMENT NOTES

1. Area of Tract: 30.56 Acres
2. Existing Zoning: R-1 (City of O'fallon)
3. Proposed Use: Single Family Homes
4. Number of Lots Proposed: 76 Lots
5. 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
6. Current Owner/Developer: Tom Johnson Construction, 631 Avondale Drive, St. Peters, MO 63376
7. Site is served by: Duckett Creek Sewer District, AmerenUE, St. Charles Gas Company, St. Charles County Public Water District No. 2, GTE Telephone Company, Fort Zumwalt School District, O'Fallon Fire Protection District
8. No Flood Plain exists on this site per F.I.R.M. #29183 C 0243E, dated Aug. 2, 1996.
9. Topographic information is per Walker and Associates Topo on U.S.G.S. Datum.
10. Boundary information is per Bax Engineering during June, 1999.
11. All lots shall have two (2) trees (deciduous) planted in front yard.
12. All 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.
13. All cul-de-sacs and bubbles 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.
14. Minimum street grades shall be 1%.
15. A 4 foot wide concrete sidewalk shall be constructed on one side of streets where indicated.
16. All homes shall have a minimum of 2 off-street parking places with 2-car garages.
17. All utilities must be located underground.
18. 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.
19. Existing tree masses shall be identified during the topographic survey. An overall landscape plan shal be submitted prior to any grading operation.
20. Additional lighting may be required by the City of O'Fallon
21. The following lots are susceptible to street movement: 467, 468, 469, 470, 471, 472, 474, 480, 481, 482, 491, 492, 493, 494, 495, 496, 497, 498, 508, 509, 517, 518, 522, 523, 524, 525, 534, 535, 536, 537, 538, 539, 540, 541, and 542.
22. The developer understands that the City of O'Fallon requires a separate Site Plan Approval on the Clubhouse and Pool area.
23. Calculations in accordance to the Tree Preservation Ordinance:
    - Existing trees 12.17 acres
    - Saved trees 2.65 acres
    - Trees removed 9.52 acres

    Trees Required:
    12.17 acres X 80% = 9.74 acres
    12.17 acres - 9.74 acres = 2.43 acres
    2.65 acres > 2.43 acres (no additional trees required)

RECEIVED SEP 27 2005 By .....

RECEIVED SEP 12 2005

THIS IS TO CERTIFY THAT WE HAVE DURING THE MONTH OF JULY, 2000, BY ORDER OF TOM JOHNSON CONSTRUCTION, EXECUTED AN AS-BUILT SURVEY OF EXISTING SANITARY SEWERS, STORM SEWERS, FIRE HYDRANTS AND WATER VALVES WITHIN "AVONDALE HEIGHTS PHASE 4", A SUBDIVISION ACCORDING TO THE PLAT THEREOF RECORDED IN PLAT BOOK 37 PAGE 128 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.

STATE OF MISSOURI
DARREL R. OAKLEY
LS-2005
9/20/2005

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

AVONDALE HEIGHTS PHASE 4

PREPARED FOR: TOM JOHNSON CONSTRUCTION
631 AVONDALE DRIVE
ST. PETERS, MISSOURI 63376
(636) 978-9200

DISCLAIMER OF RESPONSIBILITY
I hereby specify that the documents intended to be authenticated 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.

REVISIONS

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

January 2000 — DATE
95-7230M — PROJECT NUMBER
1 of 25 — SHEET OF
7230Mcov.dwg — FILE NAME
JS/TC MGG — DRAWN CHECKED

REVISED – 03-10-00 CITY & DCSD COMMENTS
REVISED – 04-07-00 CITY COMMENTS
REVISED – 04-25-00 CITY COMMENTS
AS-BUILTS– 07-20-00

SITE PLAN
AVONDALE HEIGHTS
Phase Four – Plat Five
January 2000 95-7230M

PROPERTY N/F OF
KAPLAN LUMBER CO., INC.
BOOK 1413 PAGE 268

PROPERTY N/F OF
KAPLAN LUMBER CO., INC.
BOOK 1413 PAGE 264
PARCEL 5

S E C T I O N 1
F R A C. S E C T I O N 9

N89°58'20"E 1329.04'
S89°56'52"E 10.27'
S01°04'02"W 365.77'
N01°28'24"W 84.23'
N24°11'52"W 211.26'
N18°34'36"W 285.00'
N18°34'36"W 170.00'
N71°25'24"E 44.84'
N06°00'30"E 102.40'
N24°20'14"E 139.99'
N61°31'46"E 87.30'
S52°55'07"W 363.55'
S19°16'51"E 215.32'
N82°20'44"W 371.34'
S11°38'00"W 362.54'
N78°30'00"W 55.82'
R=1075.00'
L=80.66'

BENTON DOWNS (50' W PUBLIC) COURT
26' W. PAVEMENT

MORGAN HILL (50' W PUBLIC) DRIVE
26' W. PAVEMENT

SUTTON VALLEY (50' W PUBLIC) PLACE
26' W. PAVEMENT

AVONDALE (60' W PUBLIC) DRIVE
36' W. PAVEMENT

DRAKE (50' W PUBLIC) COURT
26' W. PAVEMENT

KENDALL PLACE

DARDENNE FARMS DRIVE

10' x 10' HEAVY STONE REVETMENT

TEMPORARY END OF PAVEMENT MARKERS (SEE DETAIL–SHEET 24)

4" SANITARY LATERAL (typ.)

PROPOSED LIGHT STANDARD (TYP.)

HANDICAP RAMP (TYP.)

4' WIDE CONCRETE SIDEWALK (TYP.)

STREET SIGN (TYP.)

SILTATION CONTROL (TYPICAL)

EXISTING 4' WIDE CONCRETE SIDEWALK (TYP.)

EXISTING PAVEMENT

12' x 20' HEAVY STONE REVETMENT W/ DISSIPATOR BLOCKS

PROPOSED 20' W. ACCESS EASEMENT

EXISTING DITCH

COMMON GROUND AND DETENTION BASIN "A"
100-YR. H.W.L. = 525.46

4' WIDE CONCRETE SWALE (1% MIN. SLOPE)

THE ENCLAVE AT DARDENNE FARMS
P.B.29 PG. 142

AVONDALE HEIGHTS PLAT FOUR

525 0+43 | 526 1+27 | 527 2+43 | 528 1+78 | 529 0+98 | 530 0+58 | 531 1+01 | 532 2+47 | 533 1+62 | 534 0+45 | 535 1+89 | 536 0+11 | 537 0+89 | 538 0+17 | 539 0+09 | 540 0+14 | 541 0+53 | 542 0+68
524 0+09 | 521 1+82 | 520 1+02 | 519 0+62 | 518 0+64 | 522 0+24 | 523 0+15
513 0+62 | 514 0+23 | 515 1+13 | 516 1+63 | 517 0+36
512 0+87 | 511 1+48 | 510 0+66 | 509 0+17 | 473 0+88 | 474 0+10 | 475 2+16 | 476 1+31 | 477 0+31
471 0+52 | 472 0+32 | 470 0+07 | 469 0+15 | 468 0+08 | 467 0+48

SIGN LEGEND
- ☒ STOP SIGN
- ▲ YIELD SIGN
- ⊗ TEMPORARY NO OUTLET SIGN
- Ⓟ PERMANENT NO OUTLET SIGN
- [P] NO PARKING THIS SIDE OF STREET SIGN

DARREL R. DAVIS
NUMBER LS-2001018
STATE OF MISSOURI
REGISTERED LAND SURVEYOR
9/20/2000

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

THE UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTAENCE, NONEXISTENCE, SIZE, TYPE, NUMBER OR LOCATION OF THESE OR OTHER UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITES, SHOWN OR NOT SHOWN, AND SAID UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319, RSMo

AS–BUILTS ADDED JULY 2000

2

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REVISED – 03-10-00 CITY & DCSD COMMENTS
REVISED – 04-07-00 CITY COMMENTS
REVISED – 04-25-00 CITY COMMENTS
AS-BUILTS- 07-20-00

SITE PLAN
AVONDALE HEIGHTS
Phase Four – Plat Five
January 2000 95-7230M

PROPERTY N/F OF
KAPLAN LUMBER CO., INC.
BOOK 1413 PAGE 264
PARCEL 5

PROPERTY N/F
FRED J. LOEFFLER
298/113

THE ENCLAVE AT
DARDENNE FARMS
P.B.29 PG. 142

THE ENCLAVE AT
DARDENNE FARMS
P.B.29 PG. 142

DETENTION BASIN

LOGAN VALLEY (50' W. PUBLIC) DRIVE

OXFORD TRAIL (50' W) DRIVE

LAC TERRE COURT

ENCLAVE COURT

HEAVY STONE REVETMENT

10' x 20' HEAVY STONE REVETMENT W/ DISSIPATOR BLOCKS

TO CONNECT TO EXISTING GRAVITY SEWER

EXISTING 8" PVC SANITARY SEWER

EXISTING 8" SANITARY SEWER

A TEMPORARY SCRIPT EASEMENT SHALL BE PROVIDED TO COVER OFFSITE ACCESS, MAINTENANCE, STORMWATER DRAINAGE AND STORM SEWERS.

TEMPORARY END OF PAVEMENT MARKERS (SEE DETAIL-SHEET 24)

PROPOSED 10' W. UTILITY EASEMENT

PROPOSED 20' W. TEMP. ACCESS EASEMENT

PROPOSED 5' W. UTILITY EASEMENT

PROPOSED 60' W. STORMWATER DRAINAGE AND UTILITY EASEMENT

PROPOSED 30' W. STORMWATER DRAINAGE AND UTILITY EASEMENT

4' WIDE CONCRETE SIDEWALK (TYP.)

4' WIDE CONCRETE SIDEWALK (TYP.)

4" SANITARY LATERAL (typ.)

HANDICAP RAMP (TYP.)

PROPOSED LIGHT STANDARD (TYP.)

STREET SIGN (TYP.)

100-YR HWL

SIGN LEGEND
⊠ STOP SIGN
▲ YIELD SIGN
⊗ TEMPORARY NO OUTLET SIGN
(P) PERMANENT NO OUTLET SIGN
[P] NO PARKING THIS SIDE OF STREET SIGN

AS-BUILTS ADDED JULY 2000

GRAPHIC SCALE
50 0 25 50 11 100 200
(IN FEET)
1 inch = 50 ft.

THE UNDERGROUND UTILITIES SHOWN HEREON WERE PLOTTED FROM AVAILABLE INFORMATION AND DO NOT NECESSARILY REFLECT THE ACTUAL EXISTAENCE, NONEXISTENCE, SIZE, TYPE, NUMBER OR LOCATION OF THESE OR OTHER UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND UTILITES, SHOWN OR NOT SHOWN, AND SAID UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319, RSMo

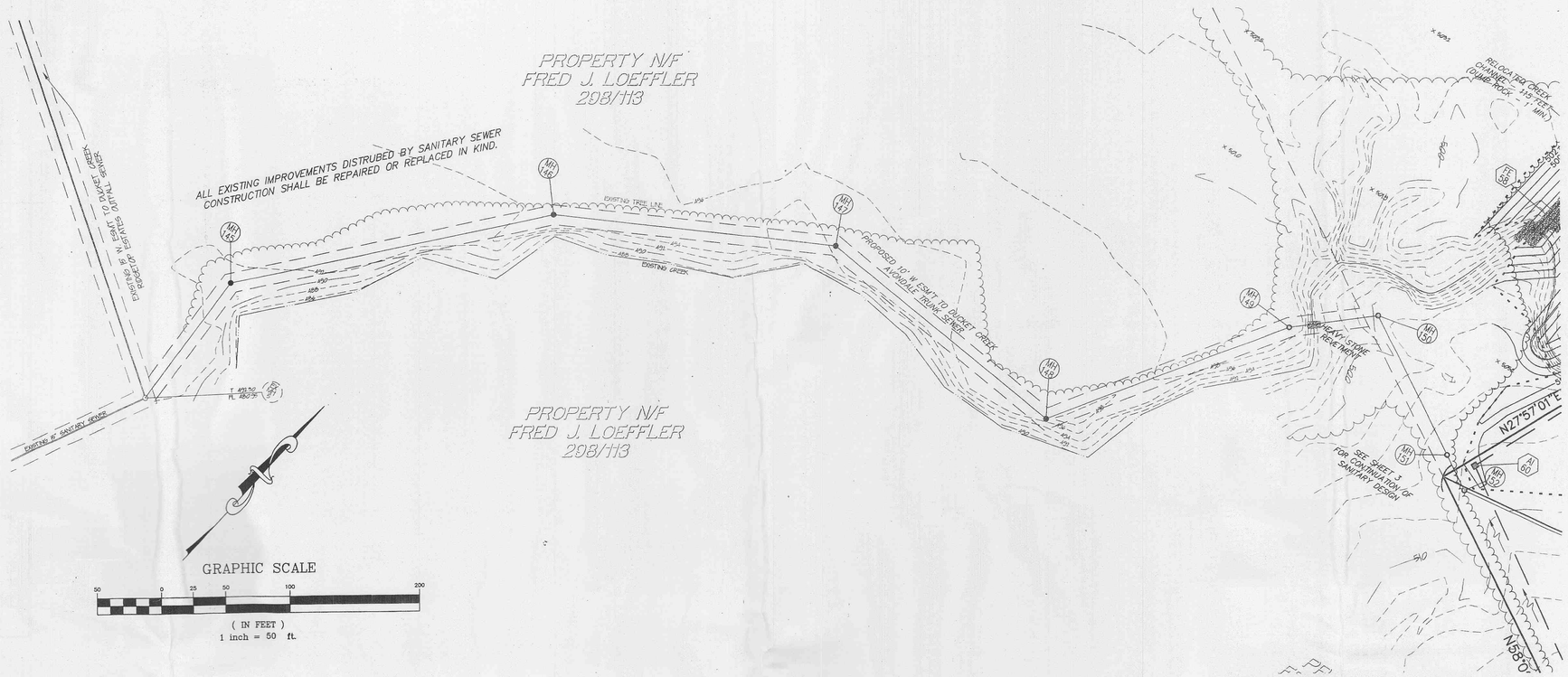
STATE OF MISSOURI
DARREL R. OLIVER
LS-2295
9/20/2000

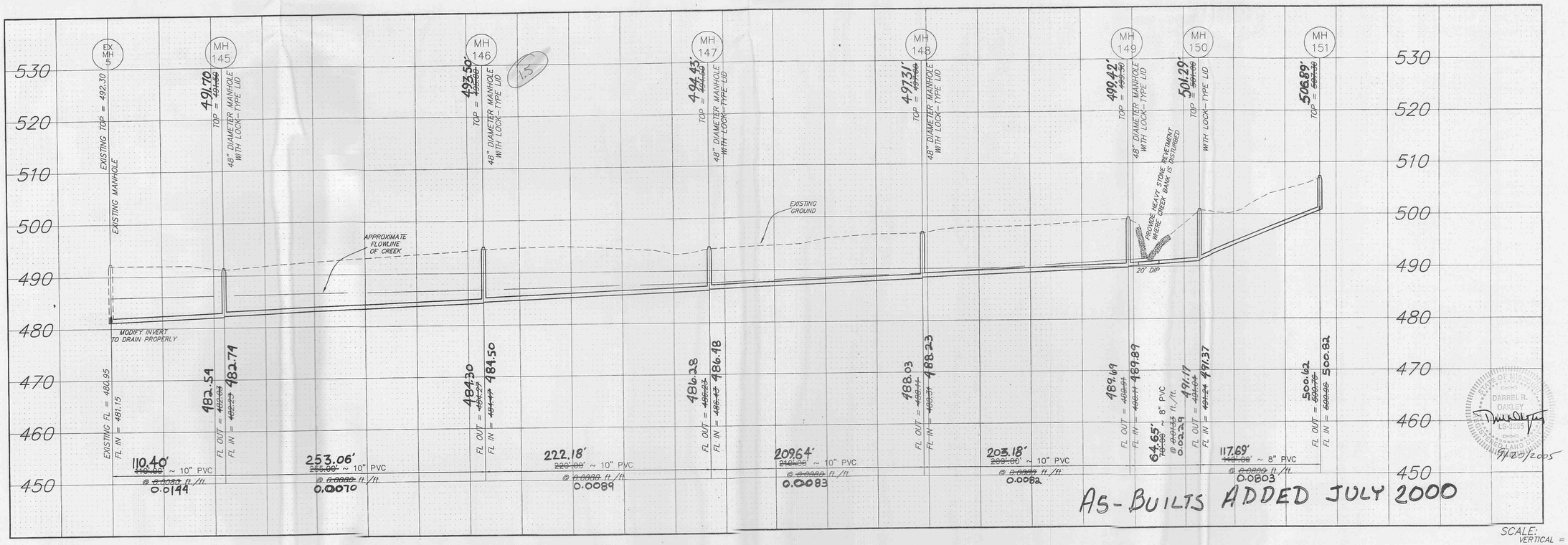
3

\\Baxsrv\d-drive\OMG\7000PLUS\7230mASBUILT.dwg Fri Jul 21 16:35:31 2000 DEVIN

REVISED – 03-10-00 CITY & DCSD COMMENTS
REVISED – 04-07-00 CITY COMMENTS
REVISED – 04-25-00 CITY COMMENTS

OFFSITE SANITARY SEWER
AVONDALE HEIGHTS
Phase Four – Plat Five
January 2000 95-7230M





AS-BUILTS ADDED JULY 2000

STATE OF MISSOURI
DARREL R. OAKLEY
LS-2205
REGISTERED LAND SURVEYOR
5/22/2005

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

11

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REVISED – 03-10-00 CITY & DCSD COMMENTS
REVISED – 03-15-00 DCSD COMMENTS
REVISED – 04-07-00 CITY COMMENTS
REVISED – 04-25-00 CITY COMMENTS

SANITARY PROFILES
AVONDALE HEIGHTS
Phase Four – Plat Five
January 2000 95-7230M

NOTE:
Where sanitary sewers cross under storm sewers at an elevation difference of 3' or greater, backfill with clean rock from the sanitary to the storm. For crossings with less than 3' difference, both pipes shall be concrete encased.

NOTE:
All sanitary sewer lateral tailstake elevations have been designed for 9.0' basements in homes.

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

12

As-Builts ADDED JULY 2000

9/20/2000

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REVISED – 03-10-00 CITY & DGSD COMMENTS
REVISED – 03-15-00 DGSD COMMENTS
REVISED – 04-07-00 CITY COMMENTS
REVISED – 04-25-00 CITY COMMENTS

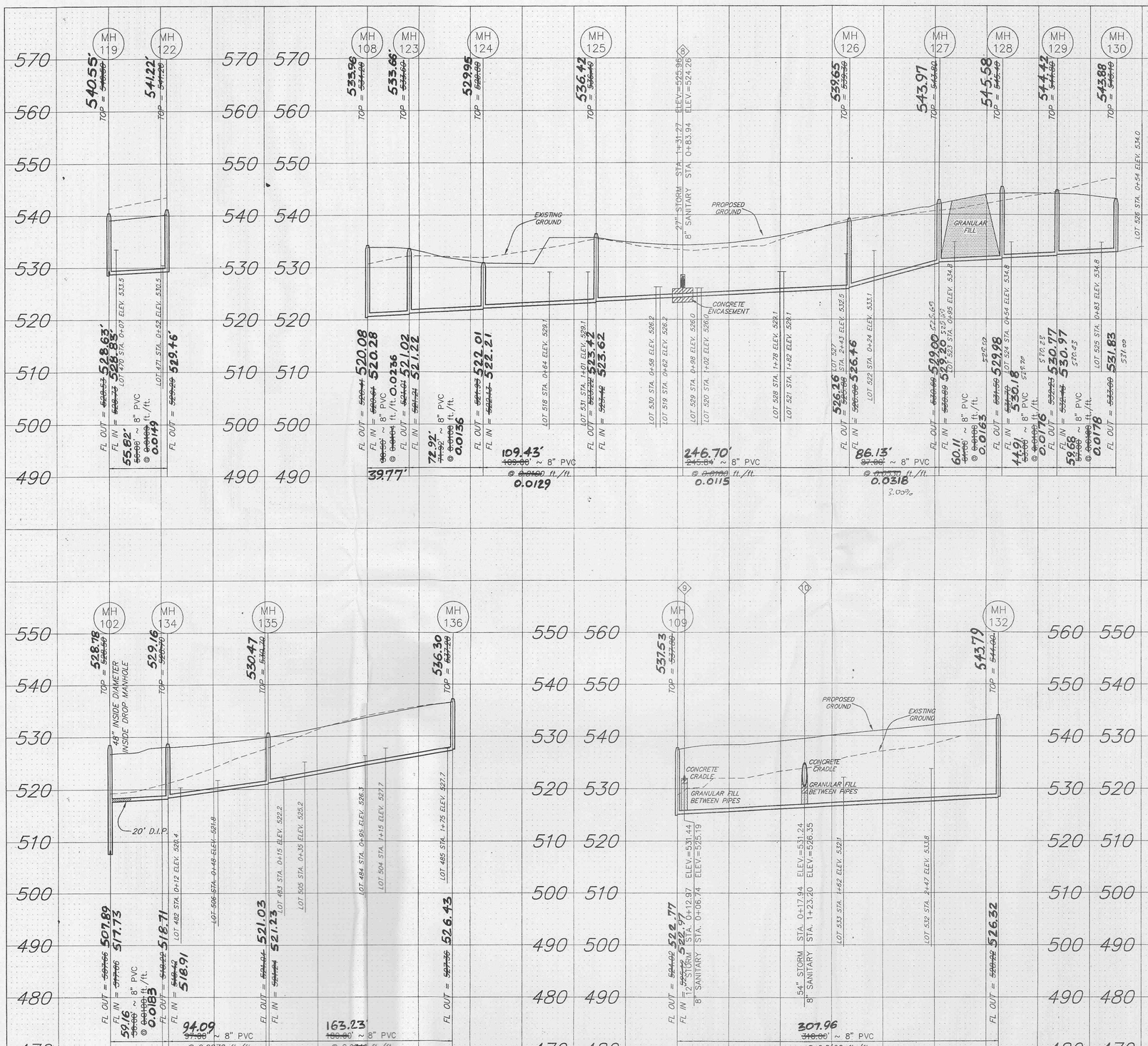
SANITARY PROFILES

AVONDALE HEIGHTS

Phase Four – Plat Five

January 2000

95-7230M



-68

DARREL R. OAKEY LS-2205 REGISTERED LAND SURVEYOR 9/20/2005

AS-BUILTS ADDED July 2000

NOTE:
Where sanitary sewers cross under storm sewers at an elevation difference of 3' or greater, backfill with clean rock from the sanitary to the storm. For crossings with less than 3' difference, both pipes shall be concrete encased.

NOTE:
All sanitary sewer lateral tailstake elevations have been designed for 9.0' basements in homes.

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

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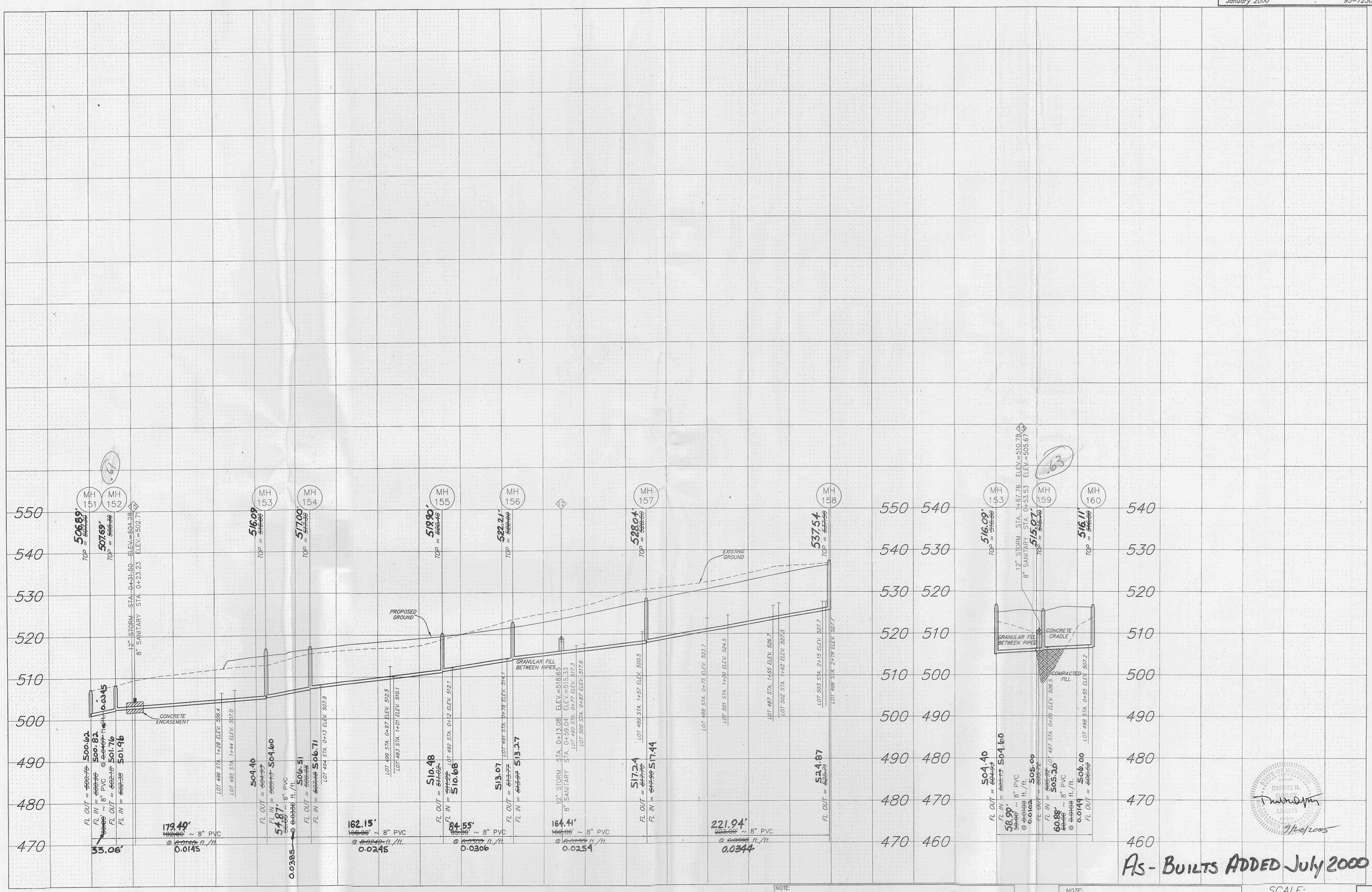
REVISED – 03-10-00 CITY & DCSD COMMENTS
REVISED – 03-15-00 DCSD COMMENTS
REVISED – 04-07-00 CITY COMMENTS
REVISED – 04-25-00 CITY COMMENTS

SANITARY PROFILES

AVONDALE HEIGHTS

Phase Four – Plat Five

January 2000 95-7230M



As-Builts Added July 2000

NOTE:
Where sanitary sewers cross under storm sewers at an elevation difference of 3' or greater, backfill with clean rock from the sanitary to the storm. For crossings with less than 3' difference, both pipes shall be concrete encased.

NOTE:
All sanitary sewer lateral tailstake elevations have been designed for 9.0' basements in homes.

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

14

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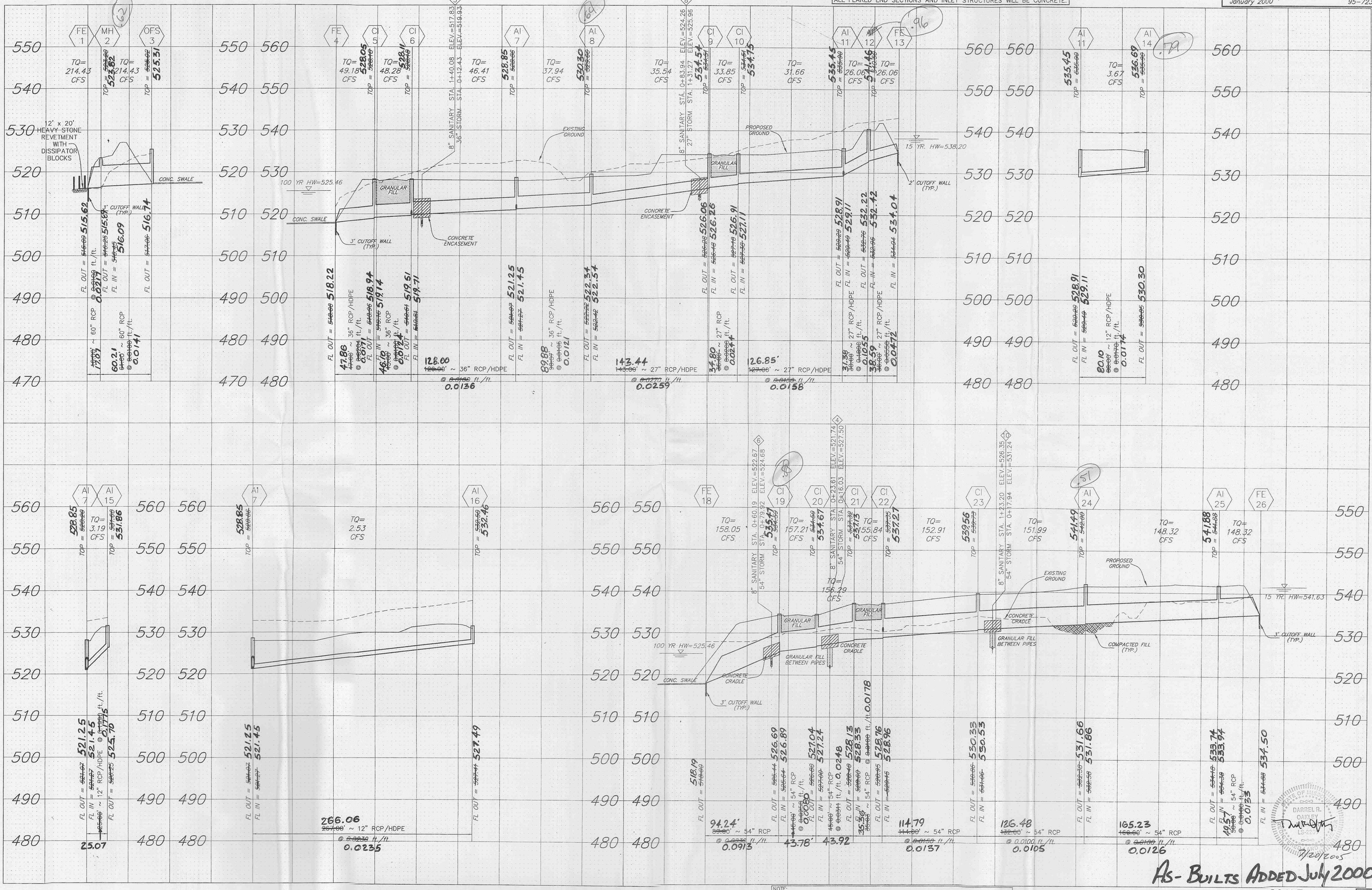
NOTE:
IF CONTRACTOR/DEVELOPER USES ALTERNATIVE HDPE PIPE, ALL SEWER CROSSINGS SHALL BE CONCRETE ENCASED.

ALL FLARED END SECTIONS AND INLET STRUCTURES WILL BE CONCRETE.

REVISED – 03-10-00 CITY & DCSD COMMENTS
REVISED – 04-07-00 CITY COMMENTS
REVISED – 04-25-00 CITY COMMENTS

STORM PROFILES
AVONDALE HEIGHTS
Phase Four – Plat Five
January 2000
95-7230M



NOTE:
Where sanitary sewers cross under storm sewers at an elevation difference of 3' or greater, backfill with clean rock from the sanitary to the storm. For crossings with less than 3' difference, both pipes shall be concrete encased.

DARREL R. OAKLEY LS-22[illegible]
7/20/2000

As-Builts Added July 2000

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

15

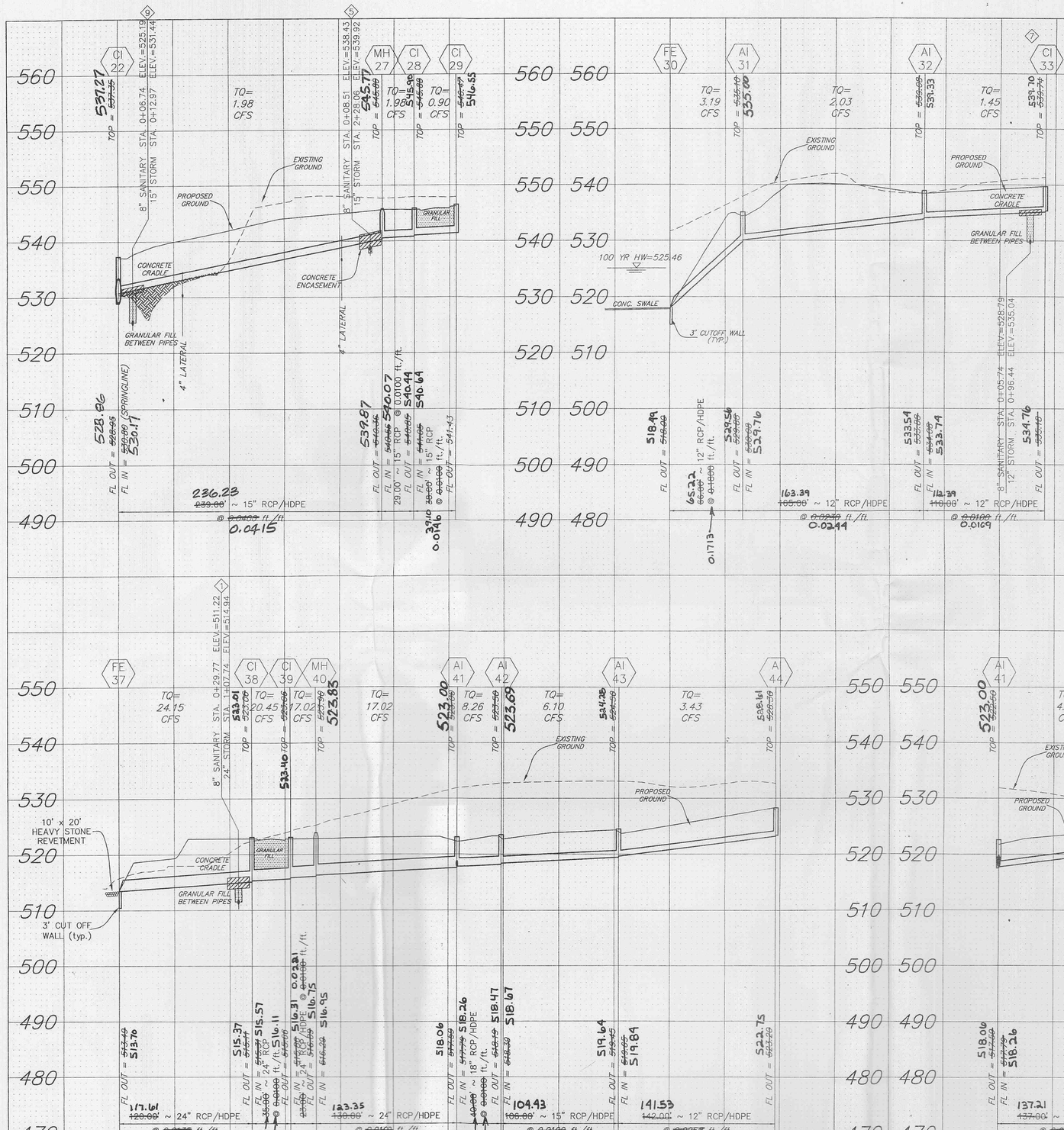
\\baksrv\d-drive\dwg\7000plus\7230ncon.dwg Wed Apr 26 15:51:09 2000 RLA

NOTE:
IF CONTRACTOR/DEVELOPER USES ALTERNATIVE HDPE PIPE, ALL SEWER CROSSINGS SHALL BE CONCRETE ENCASED.

ALL FLARED END SECTIONS AND INLET STRUCTURES WILL BE CONCRETE.

REVISED – 03-10-00 CITY & DCSD COMMENTS
REVISED – 04-07-00 CITY COMMENTS
REVISED – 04-25-00 CITY COMMENTS

STORM PROFILES
AVONDALE HEIGHTS
Phase Four – Plat Five
January 2000 95-7230M



NOTE:
Where sanitary sewers cross under storm sewers at an elevation difference of 3' or greater, backfill with clean rock from the sanitory to the storm. For crossings with less than 3' difference, both pipes shall be concrete encased.

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

16

AS-BUILTS ADDED JULY 2000

DARREL R. OAKLEY LS 5775 REGISTERED LAND SURVEYOR 9/20/2000

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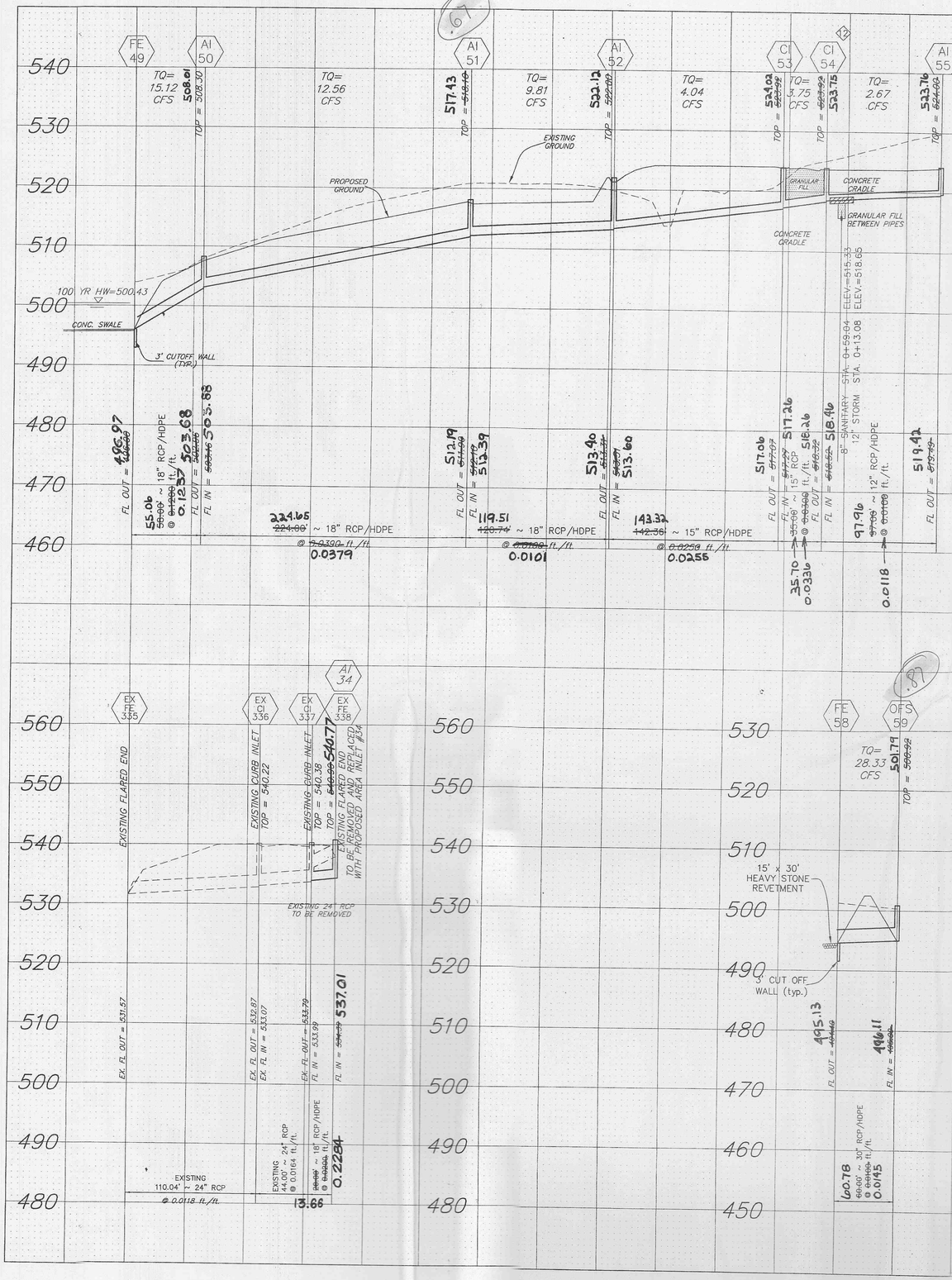
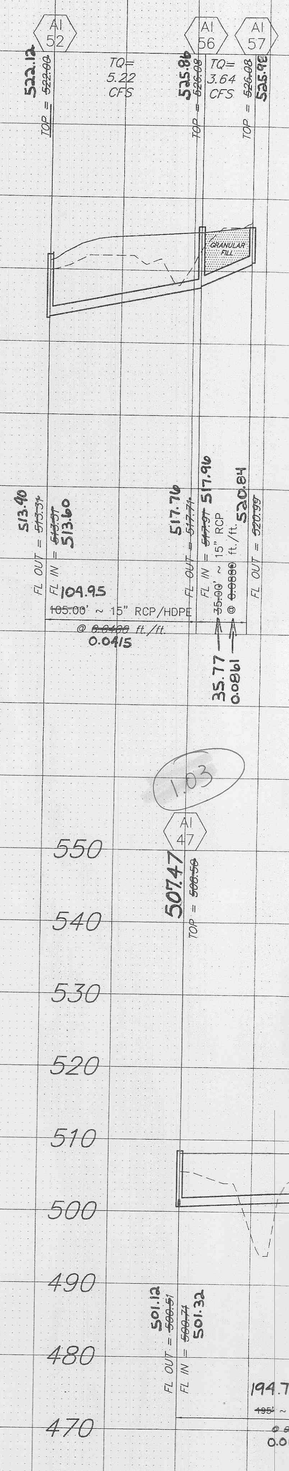
NOTE:
IF CONTRACTOR/DEVELOPER USES ALTERNATIVE HDPE PIPE, ALL SEWER CROSSINGS SHALL BE CONCRETE ENCASED.

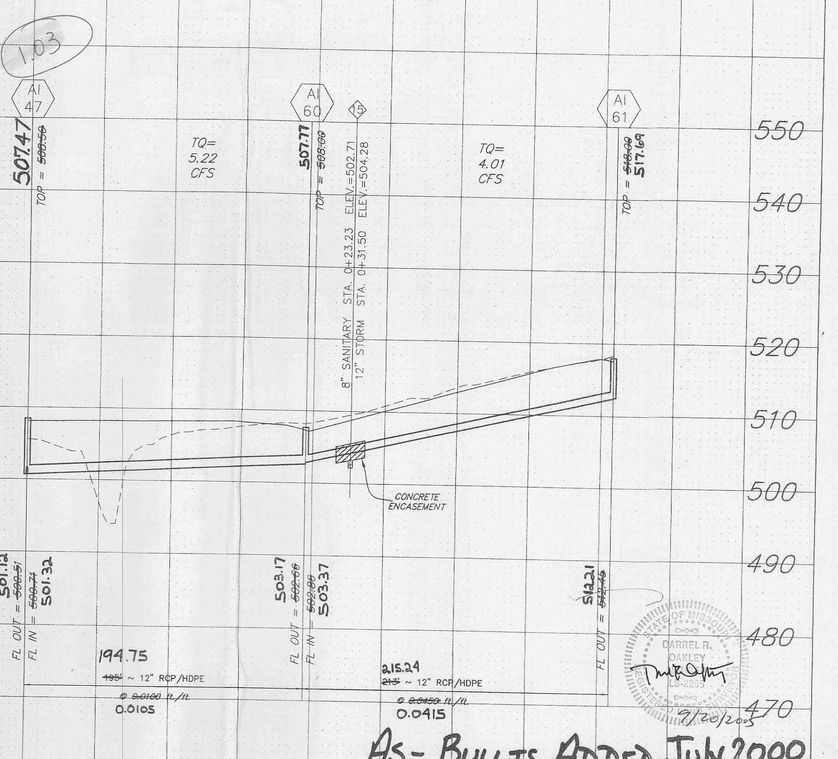
ALL FLARED END SECTIONS AND INLET STRUCTURES WILL BE CONCRETE.

REVISED – 03-10-00 CITY & DCSD COMMENTS
REVISED – 04-07-00 CITY COMMENTS
REVISED – 04-25-00 CITY COMMENTS

STORM PROFILES
AVONDALE HEIGHTS
Phase Four – Plat Five
January 2000 95-7230M







DARREL R. MILES
STATE OF MISSOURI
NUMBER 2003
9/26/2003

AS-BUILTS ADDED JULY 2000

NOTE:
Where sanitary sewers cross under storm sewers at an elevation difference of 3' or greater, backfill with clean rock from the sanitary to the storm. For crossings with less than 3' difference, both pipes shall be concrete encased.

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

REVISED – 03-10-00 CITY & DCSD COMMENTS
REVISED – 04-07-00 CITY COMMENTS
REVISED – 04-25-00 CITY COMMENTS

HYDRAULICS / DETAILS
AVONDALE HEIGHTS
Phase Four – Plat Five
January 2000 97-7230M

STORM SEWER HYDRAULICS

Job Name: AVONDALE HEIGHTS PLAT FIVE Date: 12/17/99
Prepared by: JWS Checked by: RF
Job No: 7230 Sheet No: 2 Revised: 03/07/00

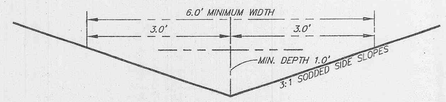
Upper Str.	Structr. Number Upr	Lowr	Len. in ft.	Q in c.f.s.	Total Q c.f.s.	Pipe Size in.	Const. Grade	V in f.p.s.	Vh in ft.	Q x Vh	Hyd. Grade	Flow Line Elevation Upper	Lower	Top of Structure Elevation Upper	Lower	Free Board	Hydraulic Grade Line Upper	Lower	Frict. Loss	Curve Loss	Junc. Loss ft.	Entr. Loss ft.	Angle (5 a)	Turn Loss ft.	Capacity c.f.s.	Q/Cap.	Normal Depth ft.
T	57	56	35	3.64	3.64	15	8.80%	2.97	0.14	0.50	0.32%	520.99	517.91	526.08	526.08	4.73	521.35	519.16	0.11		0.25	0.14			19.16	0.19	0.36
AI	56	52	105	1.58	5.22	15	4.00%	4.25	0.28	1.47	0.65%	517.71	513.51	526.08	522.00	5.00	518.26	515.50	0.69				75	0.20	12.92	0.40	0.55
T	55	54	97	2.67	2.67	12	1.00%	3.40	0.18	0.48	0.56%	519.49	518.52	524.00	523.92	3.87	520.13	519.52	0.54		0.02	0.18	15	0.03	3.56	0.75	0.64
CI	54	53	35	1.08	3.75	15	3.00%	3.06	0.14	0.54	0.34%	518.32	517.67	523.92	524.33	4.40	518.81	518.52	0.12		0.04		15	0.03	11.19	0.34	0.49
CI	53	52	142.36	0.29	4.04	15	2.50%	3.29	0.17	0.68	0.39%	517.07	513.51	524.33	522.00	5.81	517.61	515.50	0.56		0.35		15	0.03	10.22	0.40	0.54
AI	52	51	120.74	0.55	9.81	18	1.00%	5.55	0.48	4.69	0.87%	513.31	512.10	522.00	518.10	6.50	514.95	513.90	1.05		0.55		20	0.11	10.52	0.93	1.14
AI	51	50	224	2.75	12.56	18	3.90%	7.11	0.78	9.85	1.43%	511.90	503.16	518.10	508.30	4.20	512.74	504.98	3.20		0.65		40	0.34	20.75	0.61	0.84
AI	50	49	58	2.56	15.12	18	12.00%	8.56	1.14	17.19	2.07%	502.96	496.00	508.30		3.32	503.62	498.67	1.20						36.39	0.42	0.66
T	61	60	213	4.01	4.01	12	4.50%	5.11	0.40	1.62	1.27%	512.45	502.86	518.00	508.00	5.04	512.96	503.86	2.70			0.40	90	0.28	7.56	0.53	0.51
AI	60	47	195	1.21	5.22	15	1.00%	4.25	0.28	1.47	0.65%	502.66	500.71	508.00	508.50	4.14	503.51	501.93	1.27		1.99		90	0.22	6.46	0.81	0.85
T	48	47	178	2.43	2.43	12	6.00%	3.09	0.15	0.36	0.47%	511.39	500.71	515.74	508.50	3.99	511.75	503.28	0.83		1.99	0.15	15	0.22	8.73	0.28	0.36
AI	47	46	41	0.61	8.26	12	11.00%	10.52	1.72	14.19	5.37%	500.51	496.00	508.50		5.22	501.12	498.67	2.20						11.82	0.70	0.61
T	45	41	137	4.54	4.54	12	2.50%	5.78	0.52	2.36	1.62%	521.21	517.79	526.20	522.50	4.31	521.89	519.58	2.22			0.52	90	0.60	5.63	0.81	0.68
T	44	43	142	3.43	3.43	12	2.50%	4.37	0.30	1.02	0.93%	523.20	519.65	528.30	524.50	4.54	523.76	521.21	1.32		0.29	0.30			5.63	0.61	0.56
AI	43	42	106	2.67	6.10	15	1.00%	4.97	0.38	2.34	0.89%	519.45	518.39	524.50	523.50	3.29	520.92	519.97	0.95		0.07		15	0.07	6.46	0.94	0.96
AI	42	41	40	2.16	8.26	18	1.00%	4.67	0.34	2.80	0.62%	518.19	517.79	523.50	523.00	3.53	519.83	519.58	0.25		0.20		90	0.60	10.50	0.79	0.99
AI	41	40	130	4.22	17.02	24	1.00%	5.42	0.46	7.76	0.57%	517.59	516.29	523.00	523.90	3.42	519.03	518.29	0.74				40	0.20	22.62	0.75	1.28
MH	40	39	23		17.02	24	1.00%	5.42	0.46	7.76	0.57%	516.09	515.86	523.90	523.06	5.61	517.99	517.86	0.13		0.37		40	0.20	22.62	0.75	1.28
CI	39	38	35	3.43	20.45	24	1.00%	6.51	0.66	13.46	0.82%	515.66	515.31	523.06	523.06	5.80	517.60	517.31	0.29		0.48		5	0.04	26.62	0.90	1.48
CI	38	37	120	3.70	24.15	24	1.35%	7.69	0.92	22.16	1.14%	515.11	513.49	523.06		5.75	516.86	515.49	1.37						26.28	0.92	1.50
T	59	58	60	28.33	28.33	30	1.00%	5.77	0.52	14.65	0.48%	495.00	494.40	500.92		3.73	497.19	496.90	0.29			0.52			41.02	0.69	1.53
T	29	28	38	0.90	0.90	15	1.00%	0.73	0.01	0.01	0.02%	541.43	541.05	546.47	545.88	4.16	542.31	542.30	0.01		0.05	0.01	40	0.00	6.46	0.14	0.31
CI	28	27	29	1.08	1.98	15	1.00%	1.61	0.04	0.08	0.09%	540.85	540.56	545.88	545.80	3.58	541.84	541.81	0.03				35	0.02	6.46	0.31	0.46
MH	27	22	239		1.98	15	4.00%	1.61	0.04	0.08	0.09%	540.36	530.80	545.80	537.35	3.99	540.69	533.65	0.22				15	0.94	12.92	0.15	0.33
AI	26	25	50	148.32	148.32	54	1.00%	9.33	1.35	200.30	0.57%	534.88	534.38		541.88		539.16	539.88	0.28			1.35	25	0.41	196.65	0.75	2.88
AI	25	24	160		148.32	54	1.00%	9.33	1.35	200.30	0.57%	534.18	532.58	541.88	542.00	3.00	537.99	537.08	0.91		0.13		60	0.74	196.65	0.75	2.88
AI	24	23	132	3.67	151.99	54	1.00%	9.56	1.42	215.54	0.60%	532.38	531.06	542.00	539.73	4.92	536.35	535.56	0.79		0.03		80	0.92	196.65	0.77	2.93
CI	23	22	114	0.92	152.91	54	1.50%	9.61	1.44	219.48	0.60%	530.86	529.15	539.73	537.35	4.17	534.34	533.65	0.69		0.11		80	0.94	240.85	0.63	2.57
CI	22	21	35.03	0.95	155.84	54	1.00%	9.80	1.49	232.34	0.63%	528.95	528.60	537.35	537.32	3.70	533.32	532.10	1.22		0.02		45	0.70	196.56	0.79	3.02
CI	21	20	45	0.45	156.29	54	3.11%	9.83	1.50	234.36	0.63%	528.40	527.00	537.32	534.59	4.22	531.78	531.50	0.28		0.04		50	0.75	346.86	0.45	2.12
CI	20	19	45	0.92	157.21	54	2.58%	9.88	1.52	238.52	0.64%	526.80	525.64	534.59	534.59	3.09	530.43	530.14	0.29		0.03		50	0.76	315.73	0.50	2.21
CI	19	18	89	0.84	158.05	54	8.36%	9.94	1.53	242.36	0.65%	525.44	518.00	534.59		4.45	527.06	523.04	0.57						568.57	0.28	1.62
T	33	32	110	1.45	1.45	12	1.00%	1.85	0.05	0.08	0.17%	535.18	534.08	539.74	539.00	4.12	535.62	535.08	0.18		0.09	0.05	70	0.03	3.56	0.41	0.44
AI	32	31	165	0.58	2.03	12	2.30%	2.58	0.10	0.21	0.32%	533.88	530.08	539.00	535.10	3.92	534.30	531.08	0.54		0.25		5	0.01	5.41	0.38	0.42
AI	31	30	66	1.16	3.19	12	18.00%	4.06	0.26	0.82	0.80%	529.88	518.00	535.10		4.02	530.19	523.04	0.53						15.12	0.21	0.31
T	340	339	137.79	1.95	1.95	15	4.23%	1.59	0.04	0.08	0.09%	543.96	538.13	550.10	544.38	5.83	544.27	539.38	0.13			0.04		0.32	13.29	0.15	0.31
T	36	35	154	5.28	5.28	15	1.90%	4.30	0.29	1.52	0.67%	543.93	541.00	549.00	549.60	4.38	544.62	542.25	1.03		0.34	0.29			8.91	0.59	0.69
AI	35	339	130	1.53	6.81	15	1.90%	5.55	0.48	3.26	1.11%	540.80	538.33	549.60	544.38	7.35	541.61	540.17	1.44		0.71		85	0.32	8.90	0.76	0.81
CI	339	337	139.57	0.53	9.29	15	3.11%	7.57	0.89	8.27	2.07%	538.13	533.79	544.38	540.38	4.21	538.98	535.04	2.89				85	0.60	11.39	0.82	0.85
T	34	337	20	2.27	2.27	18	2.00%	1.29	0.03	0.06	0.05%	534.39	533.99	540.90	540.38	5.58	535.32	535.31	0.01		0.15	0.03		0.60	14.86	0.15	0.39
CI	337	336	44	0.95	12.52	24	1.64%	7.08	0.78	9.76	1.42%	533.79	533.07	540.38	540.22	5.04	535.19	534.56	0.63						10.50	1.19	1.50
CI	336	335	110.04	1.00	13.52	24	1.18%	4.30	0.29	3.89	0.36%	532.87	531.57	540.22		5.79	534.15	533.57	0.39						22.62	0.60	1.10
T	16	7	267	2.53	2.53	12	2.30%	3.22	0.16	0.41	0.50%	527.41	521.27	532.50	528.86	4.61	527.89	525.52	1.35			0.16	90	0.40	5.40	0.47	0.48
T	15	7	25	3.19	3.19	12	19.90%	4.06	0.26	0.82	0.80%	526.25	521.27	531.60	528.20	5.05	526.55	525.52	0.20			0.26	10	0.40	15.90	0.20	0.30
T	14	11	80	3.67	3.67	12	1.70%	4.67	0.34	1.24	1.06%	530.85	529.49	535.90	535.90	3.31	532.59	531.74	0.85			0.34	90	0.24	4.65	0.79	0.67
T	13	12	36	26.06	26.06	27	5.50%	6.55	0.67	17.38	0.71%	534.94	532.96		540.50		535.86	535.21	0.25			0.67			72.63	0.36	0.92
AI	12	11	30		26.06	27	10.90%	6.55	0.67	17.38	0.71%	532.76	529.49	540.50	535.90	5.29	533.53	531.74	0.21		0.53			0.24	102.25	0.25	0.77
CI	11	10	127	1.93	31.66	27	1.05%	7.96	0.98	31.17	1.05%	529.29	527.38	535.90	534.51	4.16	530.96	529.63	1.33		0.27				37.98	0.83	1.55
CI	10	9	35	2.19	33.85	27	2.00%	8.51	1.13	38.10	1.19%	527.18	522.42	534.51	529.66	5.78	527.69	525.81	1.88		0.22				50.88	0.70	1.37
AI	9	8	143	1.69	35.54	27	2.70%	8.94	1.24	44.09	1.32%	526.28	522.42	534.51	529.66	3.85	525.81	525.52	0.29		0.37		65	0.40	68.31	0.56	1.59
AI	8	7	90.57	2.40	37.94	36	1.05%	5.37	0.45	16.97	0.32%	522.22	521.27	529.66	528.86	3.34	524.75	524.14	0.61		0.11		65	0.45	66.70	0.70	1.83
AI	7	6	126	2.75	46.41	36	1.00%	6.57	0.67	31.07	0.48%	521.07	519.81	528.86	528.18	3.34	524.75	524.14	0.61		0.11				66.70	0.72	1.89
CI	6	5	45	1.87	48.28	36	1.00%	6.83	0.72	34.97	0.52%	519.61	519.16	528.18	528.18	4.04	523.59	523.35	0.24		0.05				66.70	0.72	1.89
CI	5	4	47	0.90	49.18	36	2.04%	6.96	0.75	36.97	0.54%	518.96	518.00	528.18		4.83	523.30	523.04	0.26				25	0.23	95.32	0.52	1.50
T	3	2	61	214.43	214.43	60	1.00%	10.92	1.85	397.11	0.68%	517.06	516.45	525.92	523.20	4.06	521.86	521.45	0.41			1.85	80	1.20	260.44	0.82	3.45
MH	2	1	16		214.43	60	1.00%	10.92	1.85	397.11	0.68%	516.25	516.09	523.20		1.75	521.20	521.09	0.11						260.44	0.82	3.45

NOTE: AI=Area Inlet, M=Manhole, T=Terminal Structure, CI=Curb Inlet, DCI= Double Curb Inlet, SCI=Skewed Curb Inlet, TP=Tangent Point, EP= End of Pipe, OS=Outfall Structure
n=0.013 For RCP, 0.024 For CMP. For Drainage Areas, P.I. & Bypass, See Drainage Area Map.

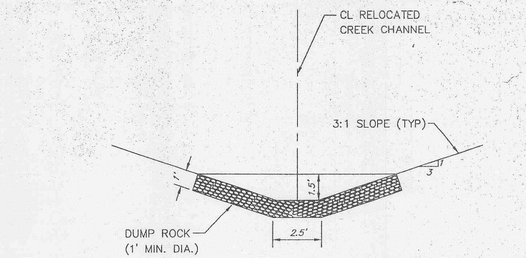
TYPICAL YARD SWALE

Maximum Discharge (Q) = 4.00 cfs
Maximum Velocity (V) = 4.00 ft/sec
N = 0.030 (grass)
Maximum side slopes = 3 (horizontal) :1 (vertical)

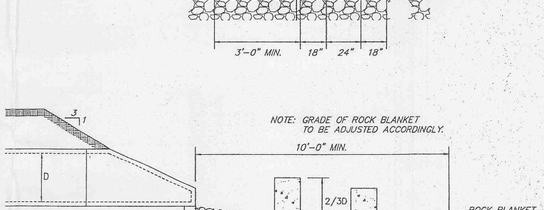
Longitudinal Slope (%)	Discharge (cfs)	Velocity (ft/sec)	Depth (ft)
0.5	4	1.894816182	0.838852789
1.0	4	2.4572734	0.736818511
2.0	4	3.118668934	0.646843926
3.0	4	3.710000035	0.599490621
4.0	3.510171886	4	0.54088807
5.0	2.51206592	4	0.457535601
6.0	1.91099329	4	0.399060698
7.0	1.516488	4	0.355491209
8.0	1.24122656	4	0.321613971
9.0	1.04021299	4	0.294422173
10.0	0.888149422	4	0.242052296

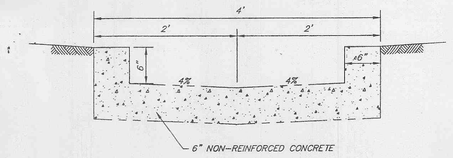


Structure	Street Grade	Capacity	Inflow	Bypass
CI 5	Low	4.00	1.72	-
CI 6	Low	4.00	0.90	-
CI 10	Low	4.00	1.69	-
CI 11	Low	4.00	2.19	-
CI 16	2%	1.90	0.16	-
CI 19	5%	0.85	0.84	-
CI 20	5%	0.85	0.16	-
CI 21	2%	1.90	0.45	-
CI 22	2%	1.90	0.34	-
CI 23	2%	1.90	0.58	-
CI 28	4%	1.25	1.08	-
CI 29	4%	1.25	0.90	-
CI 53	4%	1.25	0.29	-
CI 54	4%	1.25	1.08	-



TYPICAL RELOCATED CREEK CHANNEL SECTION
NO SCALE

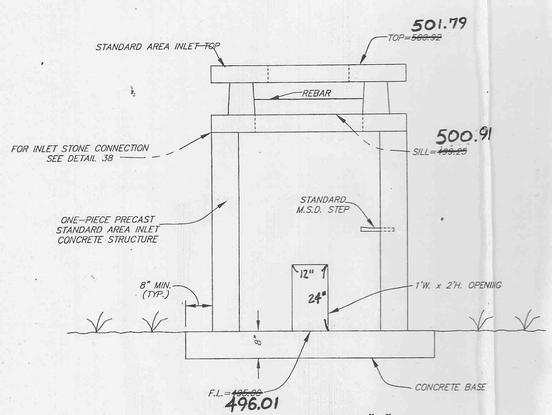




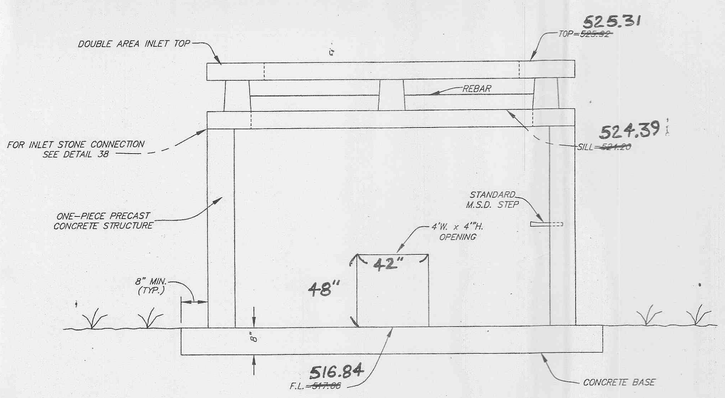
NOTES:
1. A MINIMUM 1% SLOPE SHALL BE PROVIDED.
2. CONSTRUCTION JOINTS SHALL BE PROVIDED EVERY 20 FEET.
3. EXPANSION JOINTS SHALL BE PROVIDED EVERY 100 FEET.

CONCRETE SWALE
NOT TO SCALE

ENERGY DISSIPATORS
N.T.S.

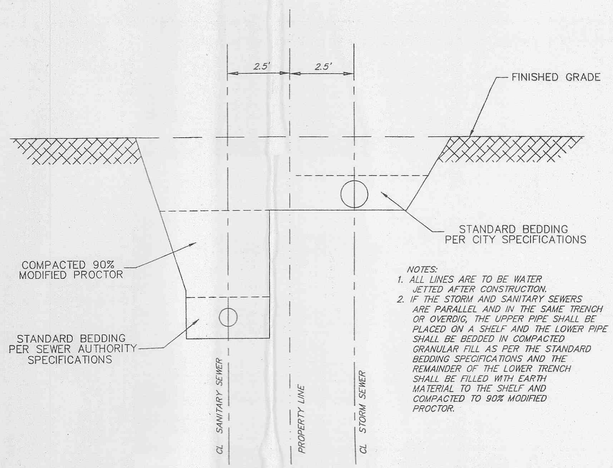


DETENTION BASIN "B"



DETENTION BASIN "A"

OVERFLOW STRUCTURE DETAIL
(NOTE: NO BRICK ALLOWED) NOT TO SCALE



NOTES:
1. ALL LINES ARE TO BE WATER JETTED AFTER CONSTRUCTION.
2. IF THE STORM AND SANITARY SEWERS ARE PARALLEL AND IN THE SAME TRENCH OR OVERDIG, THE UPPER PIPE SHALL BE PLACED ON A SHELF AND THE LOWER PIPE SHALL BE BEDDED IN COMPACTED GRANULAR FILL AS PER THE STANDARD BEDDING SPECIFICATIONS AND THE REMAINDER OF THE LOWER TRENCH SHALL BE FILLED WITH EARTH MATERIAL TO THE SHELF AND COMPACTED TO 90% MODIFIED PROCTOR.

SANITARY AND STORM SEWER TRENCH DETAIL
(FOR PARALLEL LINES) NO SCALE

STATE OF MISSOURI
DARREL R. OAKLEY
LS-2001
9/20/2005

As- Builts Added July 2000