

**GRADING NOTES:**

- A Geotechnical Engineer shall be employed by the owner and be on site during grading operations. All soil tests shall be verified by the Geotechnical Engineer concurrent with the grading and back filling 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 Sole Engineer at least two days in advance of the commencement of the grading operation. The Contractor shall also notify the City of Lake Saint Louis 48 hours prior to the commencement of grading and/or the commencement of construction. A pre-construction meeting will be required to be held before any land disturbance activities may commence.
- 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 shall be implemented as soon as possible. No graded area is to be allowed to remain bare over the winter without being seeded and mulched. Care should be exercised to prevent soil from damaging adjacent property and silt from entering storm drainage system.
- Any existing trash and debris currently on this property must be removed and disposed of off-site. Debris and foundation material from any existing on-site building or structure which is scheduled to be razed for this development must be properly disposed of off-site.
- Soft soil in the bottom and banks of any existing or former pond sites or tributaries should be removed, spread out and permitted to dry sufficiently to be used as fill. None of this material should be placed in proposed right-of-way locations or on 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 non-wood structures. The unsuitable material shall be properly disposed from the bottom of the fill up to 95% of maximum density as determined by the Standard Compaction Test (ASTM D-99). All tests shall be verified by a Sole Engineer concurrent with grading and back filling operations.

- The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system.
- All sanitary sewer flowlines and tops built without elevations furnished by the engineer will be the responsibility of the sewer contractor.
- Easements shall be provided for all public sanitary sewers, storm sewers and utilities on the record plat. See record plat (if required) for location and size of easement.
- All construction and materials shall conform to the current construction standards of the City of Lake Saint Louis.
- City of Lake Saint Louis shall be notified at least 48 hours prior to start of construction for coordination and inspection.
- All sanitary sewer manholes shall be waterproofed on the exterior in accordance Missouri Dept. Of Natural Resources specifications 10 CSR-8.12X(7)(E).
- All PVC sanitary sewer pipe is to be SDR-35 or equal. (Note: All P.V.C. Force Main shall be C-900, Class 200 P.V.C.)
- All sanitary and storm sewer trench backfills shall be mechanically compacted. See specifications for details.
- All pipes shall have positive drainage through manholes. No flat base structures are allowed.
- Brick shall not be used on sanitary/storm structures.
- All sanitary and storm sewers shall meet all specifications and installation requirements of the local governing authority.
- Storm sewers 18 inch diameter and smaller shall be Class III.
- Storm sewers 21 inch diameter and larger shall be Class III.
- All storm sewer pipe in the right-of-way shall be reinforced concrete pipe (A.S.T.M. C-76, Class III).
- All storm sewer pipe shall be Class III.
- All water lines shall be laid at least 10 feet horizontally from any sanitary sewer, or manhole. Whenever water lines 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 18 inches 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 fire lines shall be C-900 with working pressure of 150 P.S.I.
- Upon completion of the storm sewers, attention control shall be provided around all open sewer laterals and shall remain until the disturbed drainage areas have been properly installed.
- The contractor shall verify quantities prior to construction.
- All sanitary sewer laterals shall be a minimum of 4 inches in diameter.
- All sanitary sewer construction and materials to be in accordance with Public Water Supply District No. 2.
- A Permit must be obtained from the MoDOT before any work is allowed to commence in the Right-Of-Way of public road under the MoDOT control or maintenance.
- The contractor is responsible for following the current Unified Development Ordinance Section 412 for the installation of sediment and erosion control devices as well as site inspections and providing a full documentation of rainfall inspections as outlined in the ordinance to the County.
- Design plans and calculations for the proposed retaining walls and any required safety features must still be submitted to the City of Lake Saint Louis for their review and permit approval.
- All water line construction shall be in accordance with Public Water Supply District No. 2 and Wentzville Fire Protection District standards and specifications.
- Perforated tile drain 4" in diameter with fabric sleeve shall be provided at all low points within the vertical profile of the streets, and connected to curb inlets or manholes.

Cohesive Material (Satisfactory Soil)	Required Densities(%)
Building areas (below footing subgrade)	95%
Building areas (above footing subgrade)	98%
Backfill adjacent to foundations	98%
Pavements	95%
Low Areas	90% Equal to adjacent unexcavated earth

Required densities are expressed as a percentage of the maximum dry density determined in accordance with ASTM D-998 laboratory test procedure (Standard Proctor)

Non-Cohesive Material (Granular Material)	Required Densities(%)
Building areas and pavements	100%

Required densities are expressed as a percentage of the maximum dry density determined in accordance with ASTM D-998 laboratory test procedure (Standard Proctor)

- Any contaminated soil encountered during excavation shall be removed and disposed of offsite by the contractor.
- All grades shall be within 0.2 feet of those shown on the Grading Plan unless otherwise noted in plans or specifications.
- The developer must supply City construction inspectors with all soils reports during site soil testing.
- The Contractor shall assume complete responsibility for controlling all siltation and erosion of the project area. The Contractor shall use whatever means necessary to control erosion and siltation including, but not limited to, staked straw bales and/or siltation fabric fences (possible methods of control are detailed in the plan). Erosion control shall commence with the grading and be maintained throughout the project until acceptance of the work by the Owner and/or the City of Lake Saint Louis may, at their option, direct the Contractor in his methods as deemed fit to protect property and improvements. And depositing of silts or mud on new or existing pavement or in new or existing storm sewers or swales shall be removed after each rain and affected areas cleaned to the satisfaction of the Owner and/or City of Lake Saint Louis.
- The sediment control plan must be implemented before grading begins. No graded area is to remain without at least seventy-five (75) percent vegetative ground cover for more than thirty (30) days without being seeded and mulched or sodded. Also, positive steps must be exercised to prevent transported soil from damaging adjacent property and being deposited in the form of silts in storm drainage systems whether on-site or off-site. All siltation control details shall comply with City of Lake Saint Louis standards.
- Equipment and vehicles shall be cleaned before entering public roadways so that no mud shall be tracked onto the streets. A tractor with a blade, a broom tractor, or a street sweeper shall be available to the site at all times for the removal of mud from the streets.
- Where natural vegetation is removed during grading, vegetation shall be reestablished in such a density (at least seventy-five (75) percent vegetative cover of area disturbed) as to prevent erosion. Permanent type grasses shall be established as soon as possible or during the next seeding period after grading has been completed in accordance with City of Lake Saint Louis standards.
- When grading operations are completed or suspended for more than thirty (30) days, permanent grass must be established at sufficient density (at least seventy-five (75) percent vegetative cover) to provide erosion control on the site. Between permanent grass seeding periods, temporary cover shall be provided according to the City of Lake Saint Louis standards. All finished grades (areas not to be disturbed by future improvement) in excess of twenty (20) percent slopes (5 horizontal to 1 vertical) shall be mulched and tacked as prescribed by City of Lake Saint Louis standards.

**GRADING QUANTITIES:**  
 12,540 C.Y. CUT  
 12,540 C.Y. FILL  
 0 C.Y. EXCESS

THE ABOVE GRADING QUANTITY IS APPROXIMATE ONLY, NOT FOR BIDDING PURPOSES. CONTRACTOR SHALL VERIFY QUANTITIES PRIOR TO CONSTRUCTION.

IT IS THE INTENTION OF THE ENGINEERING FOR THE EARTHWORK TO BALANCE ON-SITE. THE ENGINEER SHALL BE NOTIFIED IF ANY DIFFICULTIES ARISE IN ACHIEVING THE BALANCE.

BASED UPON SOIL TYPE THE SHRINKAGE FACTOR SHOULD BE ASSUMED AT 15%.

**GENERAL NOTES:**

- Underground utilities have been plotted from available information and therefore locations shall be considered approximate only. The verifications 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 improvements.
- Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing or proposed sanitary and storm sewers, including building laterals.
- All existing site improvements scheduled to remain that are disturbed, damaged or destroyed shall be replaced or replaced to closely match pre construction conditions.
- All fill placed under proposed storm and sanitary sewer and/or paved areas shall be compacted to 90% of maximum density as determined by the Modified Compaction Test (ASTM T-180). The compacted fill shall be free of rutting and shall be non-yielding and non-pumping during proof rolling and compaction. All fill placed under proposed roads shall be compacted from the bottom of the fill up to 95% of maximum density as determined by the Standard Compaction Test (ASTM D-99). All tests shall be verified by a Sole Engineer concurrent with grading and back filling operations.
- The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system.
- All sanitary sewer flowlines and tops built without elevations furnished by the engineer will be the responsibility of the sewer contractor.
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**REFERENCE BENCHMARKS:**

REFERENCE BENCHMARK: RM45 ELEV 526.16' CHISELED SQUARE ON THE SOUTHEAST WINGWALL OF THE LAKE SAINT LOUIS BOULEVARD BRIDGE OVER THE SPRINGWAY OF LAKE SAINT LOUIS.  
 SITE BENCHMARK: ELEV. 526.24' SANITARY MANHOLE ON THE EAST SIDE OF SOUTH HENKE ROAD, LOCATED APPROXIMATELY 470 FEET SOUTHWEST OF THE INTERSECTION OF SOUTH HENKE ROAD AND RIDGEPOINTE PLACE DRIVE, 13 FEET SOUTHWEST OF A 48' FLARED END SECTION, AND 50 FEET NORTHEAST OF A TELEPHONE PEDestal.

**A SET OF CONSTRUCTION PLANS FOR VILLAS AT RIDGEPOINTE**

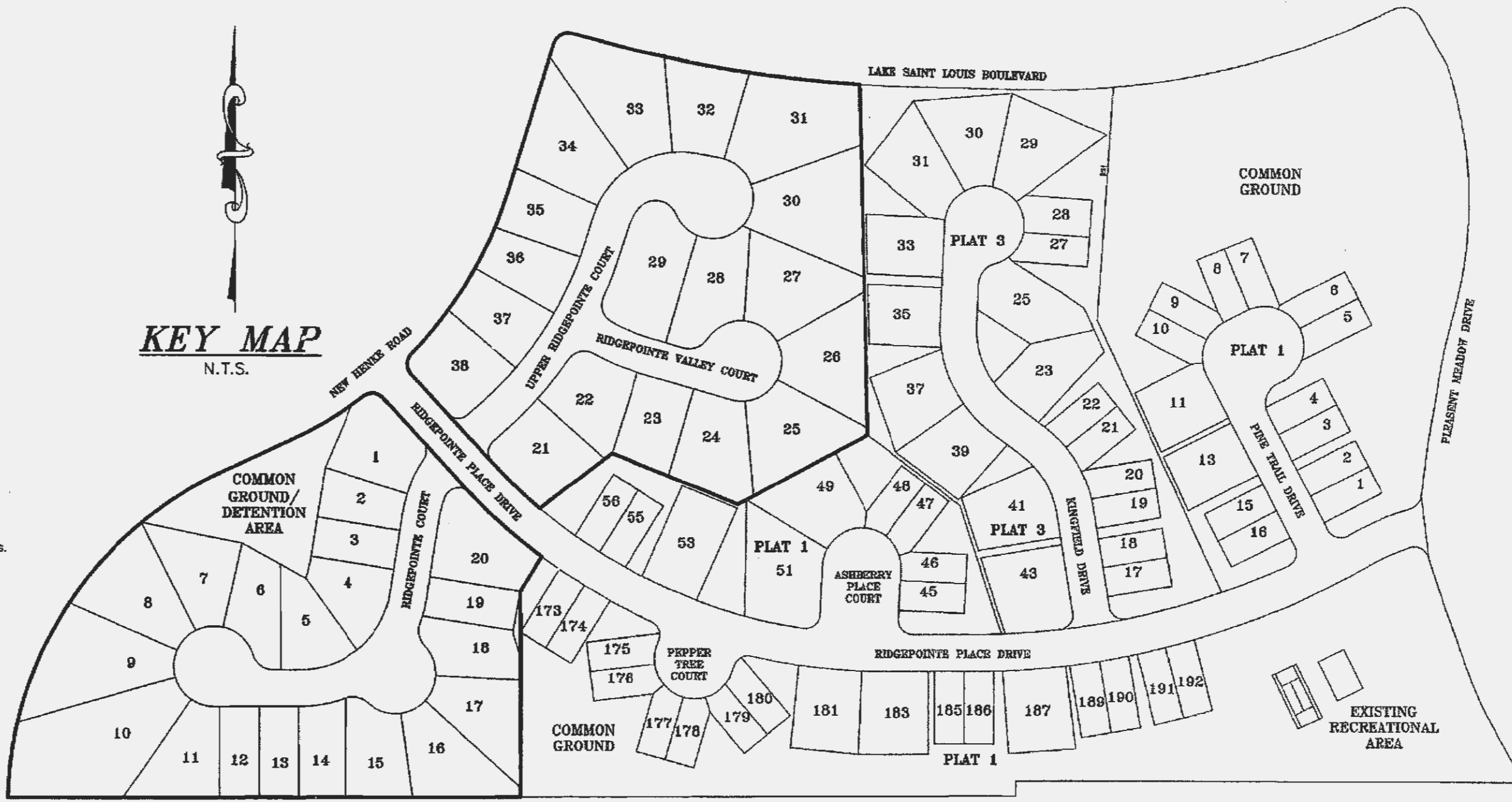
A TRACT OF LAND BEING PART OF U.S. SURVEY 287, TOWNSHIP 47 NORTH, RANGE 2 EAST OF THE FIFTH PRINCIPAL MERIDIAN CITY OF LAKE SAINT LOUIS ST. CHARLES COUNTY, MISSOURI

**SHEET INDEX**

- 1 COVER SHEET
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- 3-4 SITE PLAN
- 5-6 GRADING PLAN
- 7-8 WATER PLAN
- 9-11 STORM WATER POLLUTION PREVENTION PLAN
- 12 PRE-DEVELOPED DRAINAGE AREA MAP
- 13-14 POST-DEVELOPED DRAINAGE AREA MAP
- 15 STREET PROFILES
- 16-19 SEWER PROFILES
- 20 INTERSECTION & WARPING DETAILS
- 21-21A SIGHT DISTANCE DETAILS
- 21B CONSTRUCTION DETAILS
- 22 WATER DETAILS
- 23 SANITARY SEWER DETAILS
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**DEVELOPMENT NOTES**

- Total Area of Tract: 13,259 Acres
- Existing Zoning: PR-Planned Residential
- Proposed Uses: Single Family
- Number of Units Proposed: 20 Detached Villa Lots (1-20)  
18 Single Family Lots (21-38)
- Property Owner: Alpha Land Development, L.L.C.  
320 N. Bemiston Avenue  
Clayton, MO 63105
- Developer: The Kemp Homes Company  
320 N. Bemiston Avenue  
Clayton, MO 63105
- This Site is served by:  
Public Water Supply District #2 636-561-3737  
Culvers River Electric Cooperative, Inc. 800-392-3709  
Laclede Gas Company 314-522-2287  
Charter Cable Company 888-438-2427  
CenturyTel Telephone Company 636-332-7261  
Wentzville School District 636-327-3800  
Lake Saint Louis Fire Protection District 636-561-9200
- No Flood Plain exists on this site per F.I.R.M. #29183C0220E, dated August 2, 1996.
- All homes shall have a minimum of 2 off street parking places with 2 car garages per City Ordinances.
- All utilities must be located underground.
- One street tree, selected from City's list of approved trees and sizes as required by current ordinance at the time of installation, shall be planted by developer (or builder, as appropriate) for every forty (40) linear feet of curbing, along streets internal or adjacent to development, including Lake Saint Louis Boulevard and South Henke Road. (1,568 L.F. / 40 = 34)
- All streets are to be public and constructed to City of Lake Saint Louis specifications.
- The building setback line along Ridgepointe Place Drive is 30 feet.
- Lakes and detention facilities to be maintained by the subdivision association.
- Handicap ramps are to be provided on walks at all intersections.
- Street lights shall be installed as directed by the City of Lake Saint Louis.
- Sight triangle easements are required at all intersections and shall be provided on the final subdivision plat.
- Easements which cover utilities shall be provided on the final subdivision plat.
- Height, setback and building size standards are as follows:  
Detached Villas:  
Front Yard: 20'  
Side Yard: 12' between buildings  
Rear Yard: 25'  
Maximum Height: 35'  
Minimum Building Size: 1,500 s.f. on first floor  
Single Family Lots:  
Front Yard: 20'  
Side Yard: 6'  
Rear Yard: 25'  
Maximum Height: 35'  
Minimum Building Size: 1,500 s.f. on first floor
- Utility easements shall be as follows:  
• Side yard easements for all lots shall be a minimum of 5'.  
• Rear yard easements for all lots shall be a minimum of 5'.  
• Easements on property lines adjacent to road right-of-ways shall be a minimum of 10'.  
• Rear yard easements for Lots 10 thru 31 shall be a minimum of 10'.  
• Common Ground shall be considered an easement.



**KEY MAP**  
N.T.S.

**CITY OF LAKE SAINT LOUIS**

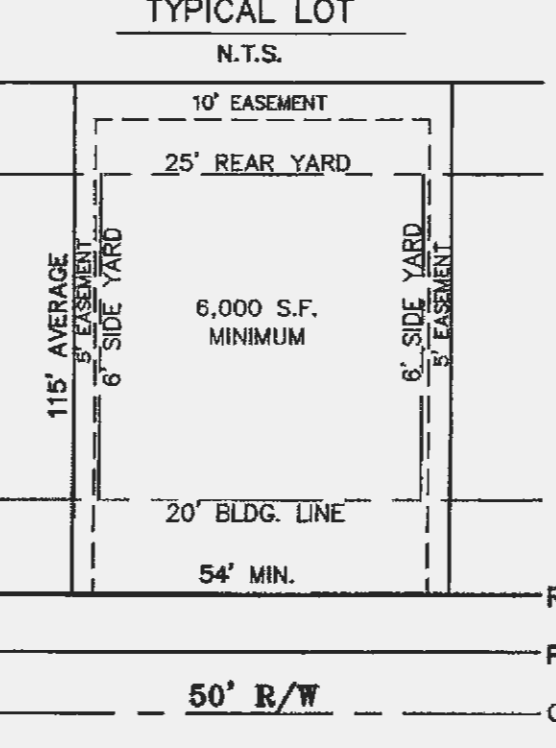
**GENERAL NOTES:**

- All improvements constructed herein shall comply with all City Ordinances.
- If an area of greater than one acre is disturbed, a Land Disturbance permit is required prior to commencing excavation operation. Provide copy of approval from the Department of Natural Resources to the Public Works Department.
- Erosion and sedimentation control shall be the responsibility of the contractor. Additional erosion and sedimentation control may be required as directed by the City Engineer. (Ordinance 440.040 D.)
- When grading operations are completed or suspended vegetation in sufficient density to provide effective erosion control must be reestablished within 30 days. (Ordinance 440.050 D.)
- All mud, material and debris from construction site to be kept off of City maintained streets. (Ordinance 440.050).
- All water main construction including valves, sleeves, meters, hydrants and fittings must conform to Public Water Supply District #2 design standards.
- All sanitary sewer construction must conform to Public Water Supply District #2 standards and specifications.
- All street and sidewalk construction is to be per the latest St. Louis County Standard Specifications for Highway Construction, current edition.
- Flowable fill backfill shall be used for all backfill on sewer trenches that are under City streets, from the top of the bedding material (6 inches above the pipe) to the surface, or to within one foot of grade in landscaped areas.
- Earth backfill (meeting MSD standards) may be used outside of paved areas, from the top of the bedding material to 6" above the pipe to the surface. Earth backfill shall be placed in a maximum 8-inch loose lifts and shall be mechanically compacted to a minimum density equal to that of the adjacent, undisturbed soil.
- All storm sewer construction is to be per the Metropolitan St. Louis Sewer District (MSD) Standard Construction Specifications for Sewers and Drainage Facilities, 2009.
- For New Subdivisions Only:  
Except under streets, utility trenches may be jetted. All jetting shall be performed with a probe route no greater than 7.5-foot centers with the jetting probe centered over and parallel with the direction of the pipe. Trench widths greater than 10 feet will require multiple probes every 7.5-foot centers. Trench backfill depths less than 8 feet in depth shall be probed to a depth extending to half of the trench backfill, but not less than 3 feet. Trench backfill greater than 8 feet in depth shall be probed to half the depth of the trench backfill but not greater than 8 feet. Jetting shall be performed from the low surface topographic point and proceed toward the high point, and from the bottom of the trench backfill towards the surface. The flooding of each jetting probe shall be started slowly allowing slow saturation of the soil. Water is not to be allowed to flow away from the ditch without first saturating the trench. Contractor shall identify the locations of surface bridging (the tendency for the upper backfill crust to arch over the trench rather than collapse and consolidate during the jetting process). The contractor shall break down the bridged areas using an appropriate method such as the wheels or bucket of a backhoe. When the surface crust is collapsed, the void shall be backfilled with the same material within the sunken/jetted area shall be compacted such that no further surface subsidence occurs.
- All pipe joints and joints on new structures shall use City approved rubber compression type joints such as connections to existing structures.
- Concrete covers on structures will not be allowed. Only cast iron covers are permitted.
- All storm sewer design is to conform to the City of Lake Saint Louis design requirements.
- It shall be the responsibility of the contractor/developer to provide traffic control per the latest edition of the Manual of Uniform Traffic Control Devices.
- Finished grades shall not exceed a 3:1 slope (33%).

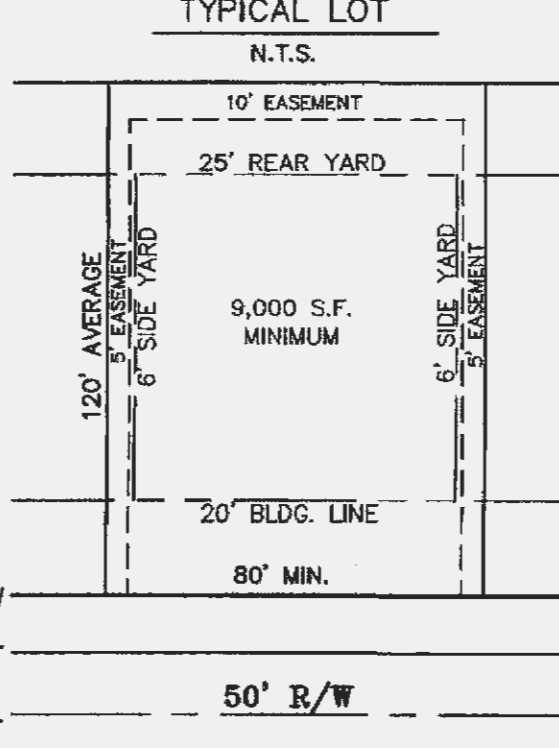
**LEGEND:**



**LOTS 1-20 TYPICAL LOT**

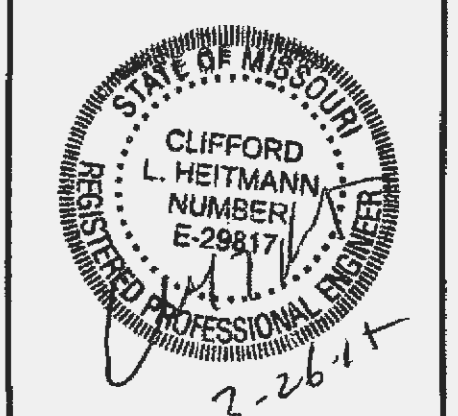


**LOTS 21-38 TYPICAL LOT**



**A SET OF CONSTRUCTION PLANS FOR VILLAS AT RIDGEPOINTE**  
**PREPARED FOR: THE KEMP HOMES COMPANY**  
**320 NORTH BEMISTON AVENUE**  
**CLAYTON, MO 63105**  
**(314) 721-7779**

**DISCLAIMER OF RESPONSIBILITY**  
 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 other than those authenticated by my seal.



Clifford L. Heitmann  
 Civil Engineer  
 E29817

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 Engineering Authority No. 000655  
 Surveying Authority No. 000144  
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REVISIONS	CITY & P.W.S.D.2 COMMENTS
02/25/15	CITY & P.W.S.D.2 COMMENTS
03/16/15	CITY COMMENTS
03/16/15	CITY COMMENTS
03/25/15	CITY & P.W.S.D.2 COMMENTS

21. Islands shall be landscaped, as approved by City's Arborist/Horticulturalist, and will be the maintenance responsibility of the Homeowner's Association.
22. Previously Approved model home plans that will be offered on Lots 1-20:  
• Fairfax  
• Danbury  
• Saratoga  
• Bristol  
• Grand Saratoga  
• Saratoga II  
Buildings shown on plan are a representation of possible building locations.
23. Previously Approved model home plans that will be offered on Lots 21-34:  
• Grandview  
• Chandler  
• Auburn  
• Bedford  
• Emerald  
• Amhurst  
• Wellesley  
Buildings shown on plan are a representation of possible building locations.
24. Parking will be prohibited in all cur-de-sacs (including eyebrow cul-de-sac).
25. Enclosed decks must maintain a twenty-five (25) foot setback from rear property line. Unenclosed decks may extend up to, but not exceed, fifteen (15) feet into rear yard setback.
26. All common ground, including detention areas, landscape/buffer screen, and cul-de-sac islands will be maintained by a homeowners association established for the development.
27. All required street signage will be installed by developer at the direction of the City's Department of Public Works.
28. No utility cabinets, pedestals, control boxes, vaults, covers or similar equipment (i.e. phone, cable, electric) can be located forward of any rear building lines, except where agreed-upon circumstances make the practice undesirable.
29. All building designs will be approved by the City's Architectural Review Board.
30. Monument sign must be approved by City's Architectural Review Board.
31. Except for subdivision entrance and along street frontage adjacent to common ground/detention area, sidewalks and street trees will be installed by builder at the time that each individual lot is built upon.
32. All sanitary manholes to be 48" I.D. minimum per Public Water Supply District #2 Specifications.
33. Public Water Supply District #2 requires 1 week notice before construction begins.
34. All water mains, valves, fittings, hydrants, and related items are to be installed in accordance with the current St. Charles County Public Water Supply District #2 Guidelines and Specifications as approved by MDR Review No. 6050805-13.
35. All utilities must be bored under existing City of Lake Saint Louis streets.
36. A Tree Preservation Plan and Tree Stand Delineation will not be needed since there are little to no trees on the site.

DATE: 02/12/2015  
 PROJECT NUMBER: 92-3471BE  
 SHEET OF: 25  
 FILE NAME: 3471BEcon.dwg  
 DRAWN: CLM  
 DESIGNED: D.J.B. CLH  
 CHECKED: [ ]

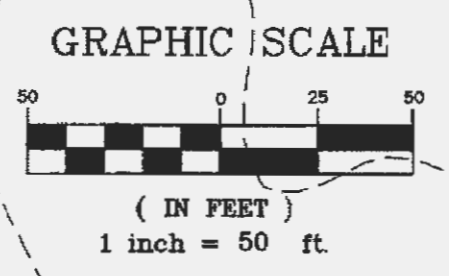
APPROVED FOR CONSTRUCTION AND/OR INSTALLATION BY:  
 [Signature]  
 ST. CHARLES COUNTY PUBLIC WATER SUPPLY DISTRICT NO. 2

SCANNED



REVISED 02/25/15 - PER CITY & P.W.S.D. COMMENTS  
 REVISED 03/11/15 - PER CITY COMMENTS  
 REVISED 03/16/15 - PER CITY COMMENTS  
 REVISED 03/25/15 - PER CITY & P.W.S.D. COMMENTS

PROPERTY N/F  
 THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS  
 3194/1169  
 ZONED: COMMUNITY BUSINESS



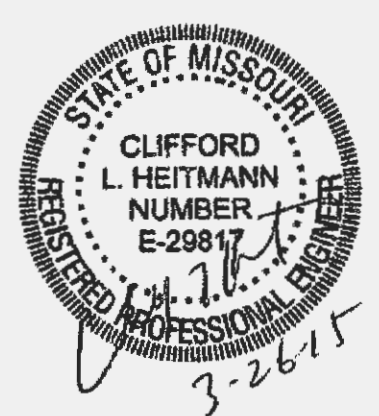
VILLAS AT RIDGEPOINTE PLAT 2  
 P.B.38 PG.192  
 &  
 VILLAS AT RIDGEPOINTE PLAT 4  
 P.B.43 PG.234  
 ZONED: PLANNED RESIDENTIAL

VILLAS AT RIDGEPOINTE PLAT  
 P.B.36 PG.331  
 ZONED: PLANNED RESIDENTIAL

PROPERTY N/F  
 WATERWAYS APARTMENTS, L.P.  
 2741/1675  
 ZONED: PLANNED DEVELOPMENT

**DEMOLITION/INTERIM SWPPP NOTES:**

1. CONTRACTOR TO INSTALL CONSTRUCTION ENTRANCE WHERE SHOWN.
2. CONTRACTOR TO INSTALL PERIMETER SILTATION CONTROL.
3. CONTRACTOR TO REMOVE EXISTING TREES WHERE SHOWN.
4. CONTRACTOR TO PROVIDE TEMPORARY SILTATION BASINS FOR DETENTION BASIN AND STORM SEWER INSTALLATION (A13-MH10). INSTALL CHECK DAMS EVERY 100 FEET ALONG EXISTING DITCH.
5. CONTRACTOR TO INSTALL SEDIMENT PROTECTION TO EXISTING SEWER STRUCTURES AS SHOWN PRIOR TO GRADING START UP.
6. CONTRACTOR TO MONITOR TEMPORARY BASINS AND REMOVE SEDIMENT AND PUMP OUT WATER TO MAINTAIN STORAGE VOLUME.
7. ONCE DETENTION BASIN AND STORM SEWER LINE COMPLETE CONTRACTOR CAN COMMENCE ON SITE GRADING AND REMOVE TEMPORARY BASINS.



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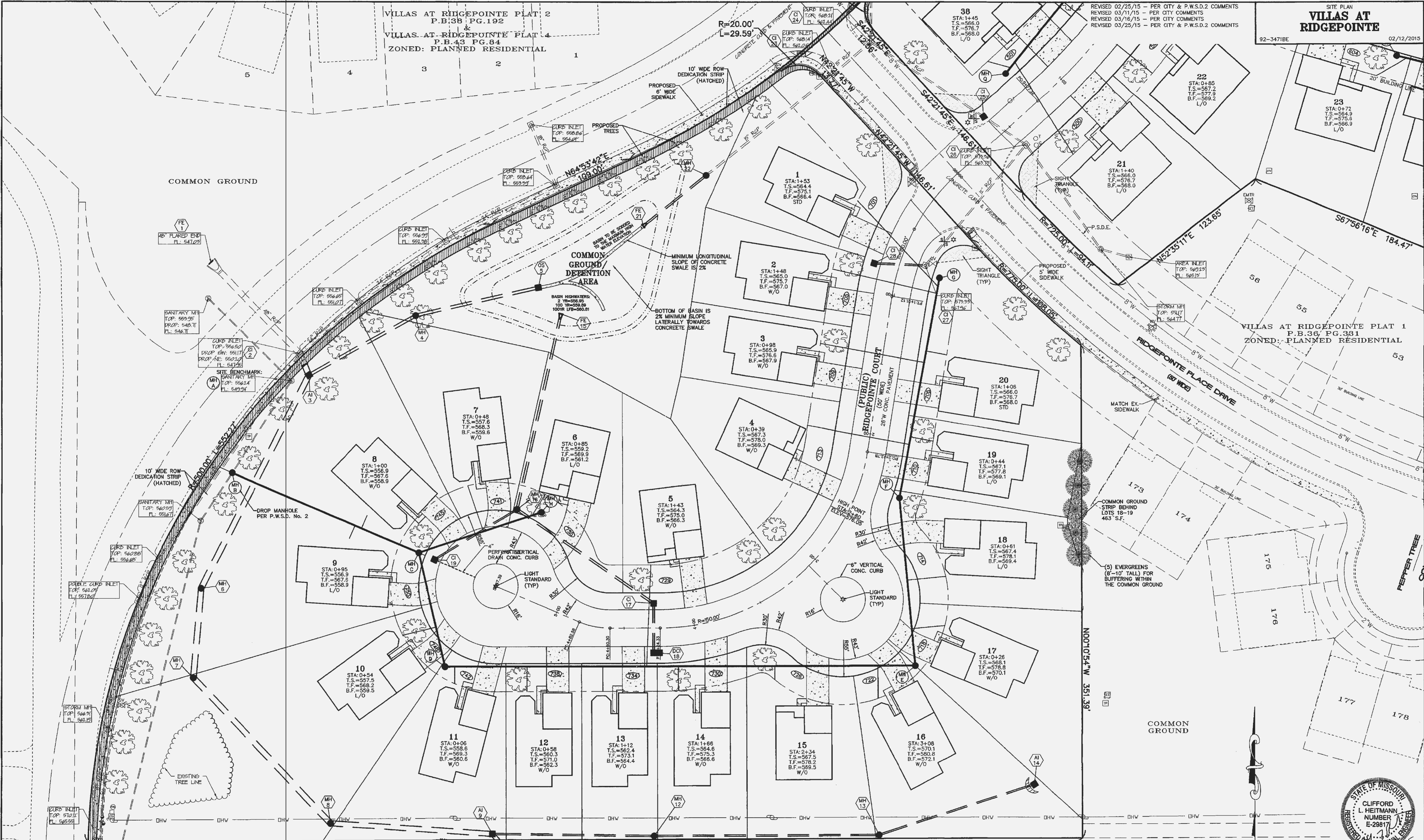
UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS SHALL BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF ALL UNDERGROUND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SHALL BE LOCATED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



VILLAS AT RIDGEPONTE PLAT 2  
P.B.38 PG.192  
VILLAS AT RIDGEPONTE PLAT 4  
P.B.43 PG.84  
ZONED: PLANNED RESIDENTIAL

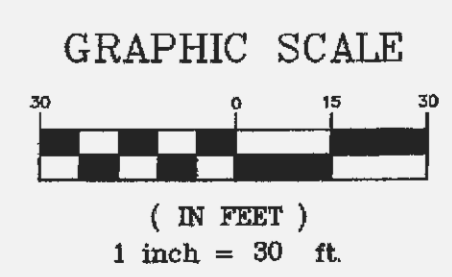
SITE PLAN  
**VILLAS AT RIDGEPONTE**  
92-3471BE 02/12/2015

REVISED 02/25/15 - PER CITY & P.W.S.D. COMMENTS  
REVISED 03/11/15 - PER CITY COMMENTS  
REVISED 03/16/15 - PER CITY COMMENTS  
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VILLAS AT RIDGEPONTE PLAT 1  
P.B.36 PG.331  
ZONED: PLANNED RESIDENTIAL

PROPERTY N/F  
WATERWAYS APARTMENTS, L.P.  
2741/1675  
ZONED: PLANNED DEVELOPMENT



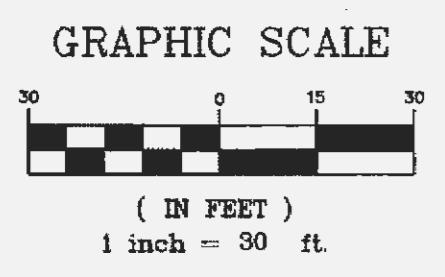
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Civil Engineer  
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DETAIL  
SCALE: 1"=30'

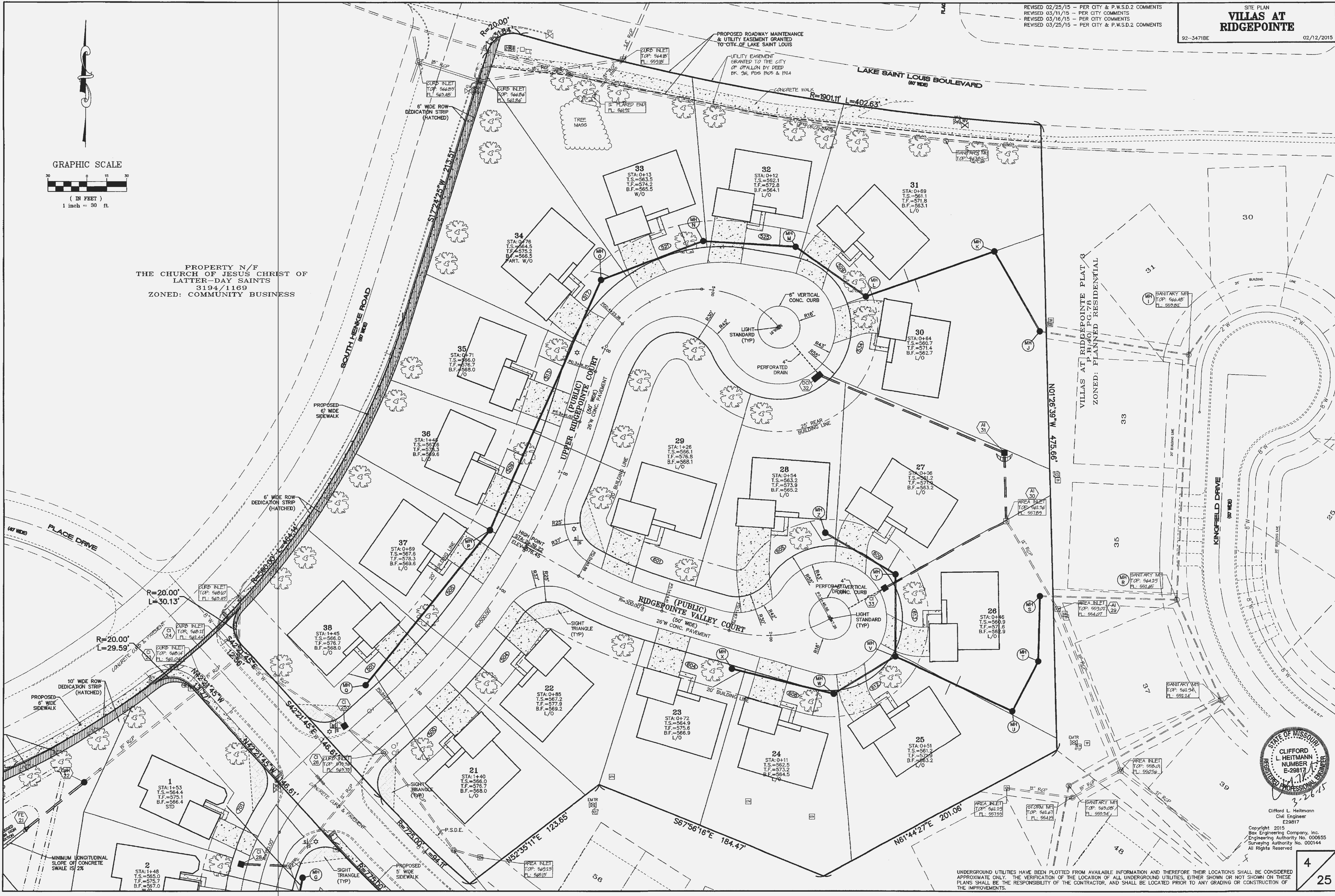
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PROPERTY N/F  
 THE CHURCH OF JESUS CHRIST OF  
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 3194/1169  
 ZONED: COMMUNITY BUSINESS



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VILLAS AT RIDGEPOINTE PLAT 2  
P.B. 38 PG. 192  
VILLAS AT RIDGEPOINTE PLAT 4  
P.B. 43 PG. 84  
ZONED: PLANNED RESIDENTIAL

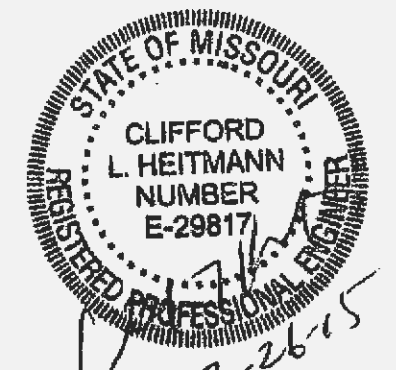
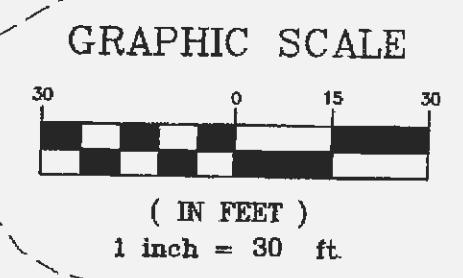
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REVISED 03/16/15 - PER CITY COMMENTS  
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GRADING PLAN  
**VILLAS AT RIDGEPOINTE**

92-34718E 02/12/2015

VILLAS AT RIDGEPOINTE PLAT 1  
P.B. 36 PG. 331  
ZONED: PLANNED RESIDENTIAL

PROPERTY N/F  
WATERWAYS APARTMENTS, L.P.  
2741/1875  
ZONED: PLANNED DEVELOPMENT

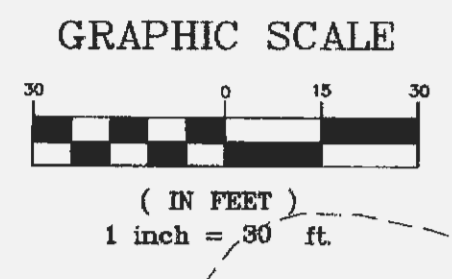


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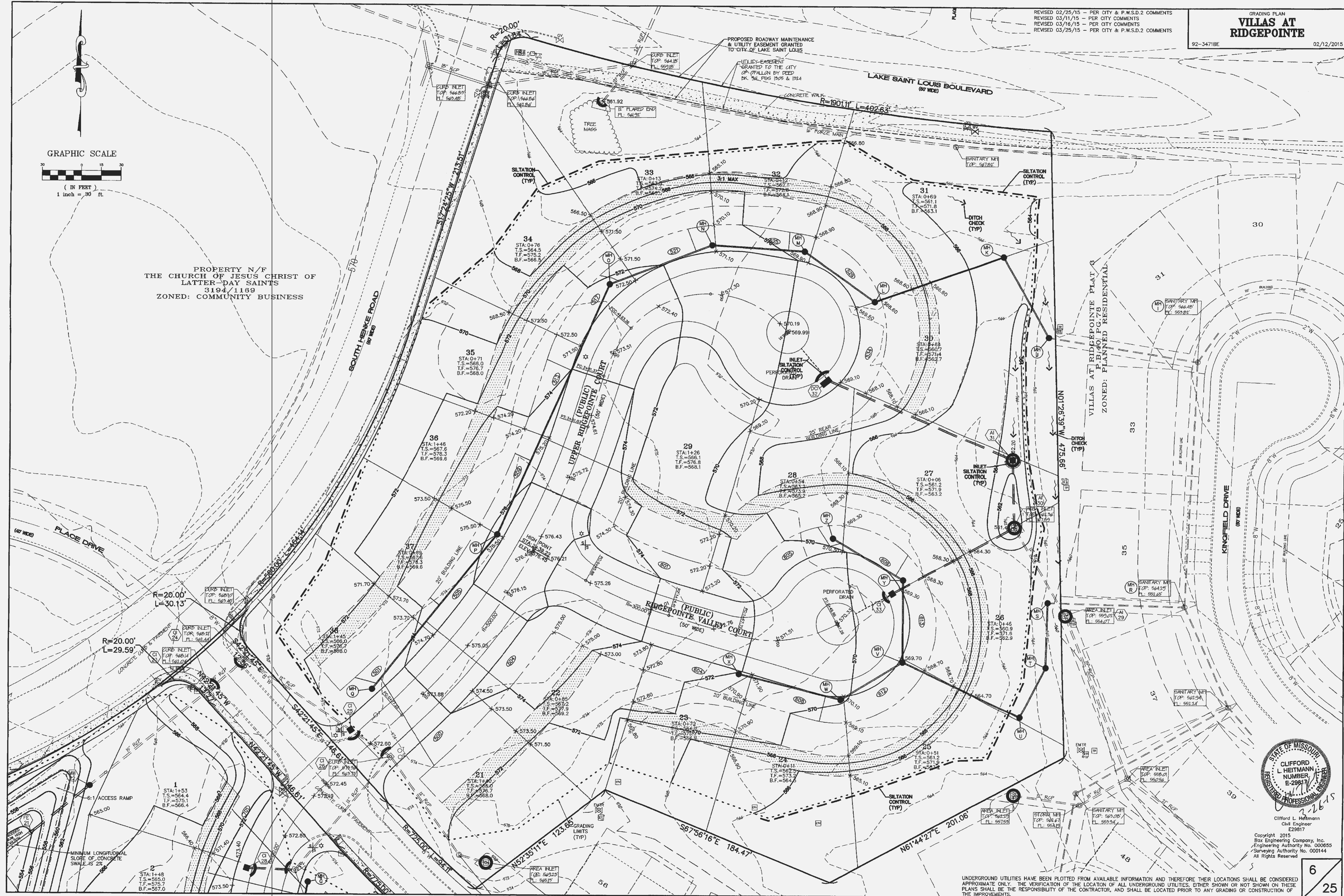
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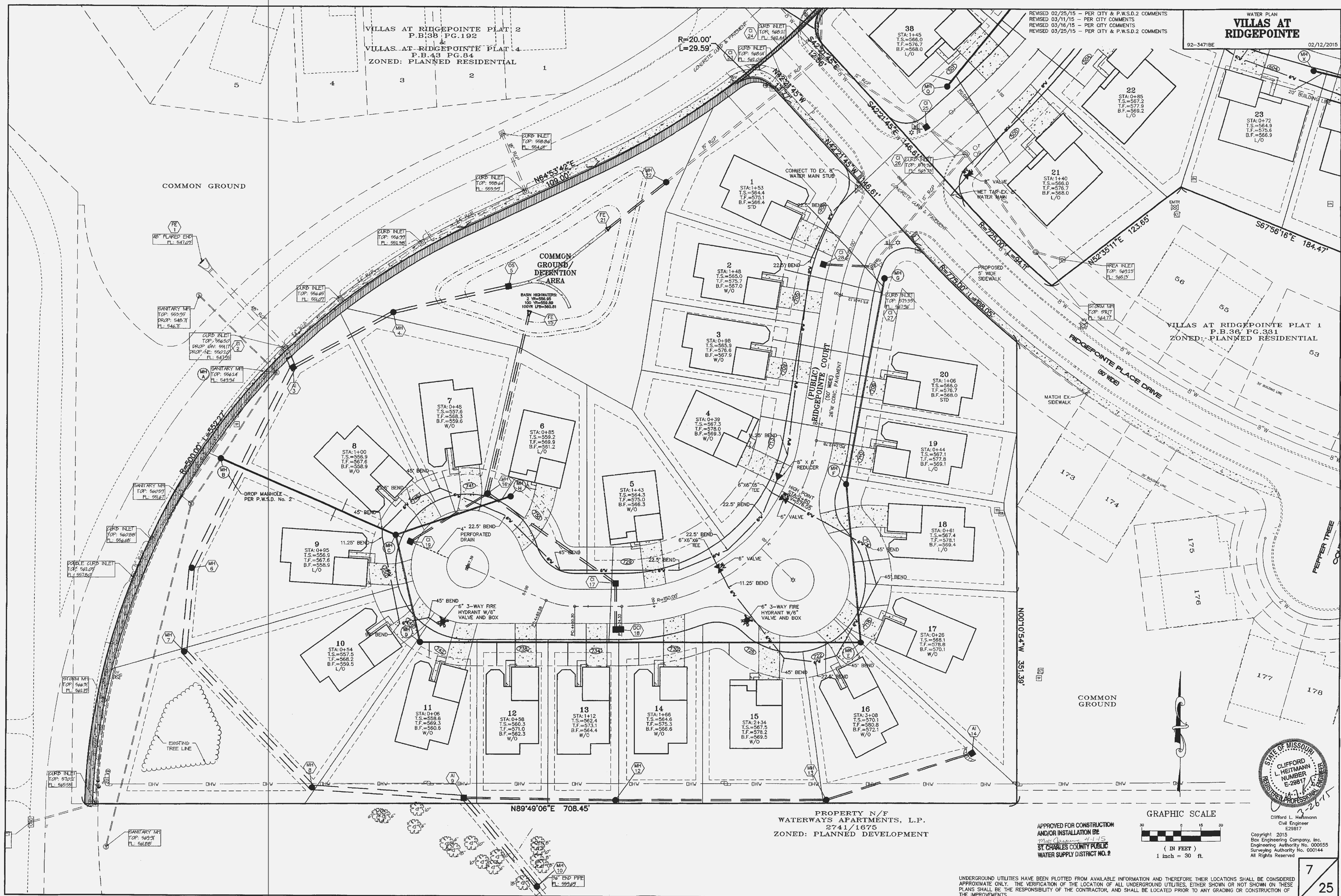
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VILLAS AT RIDGEPOINTE PLAT 2  
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&  
VILLAS AT RIDGEPOINTE PLAT 4  
P.B.43 PG.84  
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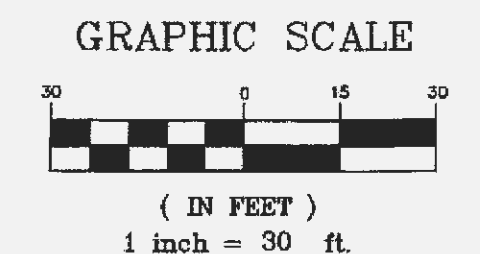
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WATER PLAN  
**VILLAS AT RIDGEPOINTE**  
92-3471BE 02/12/2015



PROPERTY N/F  
WATERWAYS APARTMENTS, L.P.  
2741/1675  
ZONED: PLANNED DEVELOPMENT

APPROVED FOR CONSTRUCTION  
AND/OR INSTALLATION BY  
*Clifford L. Heitmann*  
ST. CHARLES COUNTY PUBLIC  
WATER SUPPLY DISTRICT NO. 2



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VILLAS AT RIDGEPOINTE PLAT 4  
P.B.43 PG.84  
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STORM WATER POLLUTION PREVENTION PLAN  
**VILLAS AT RIDGEPOINTE**  
92-3471BE 02/12/2015

**STORM WATER POLLUTION PREVENTION PLAN**

- A. PURPOSE:**
- The purpose of the Storm Water Pollution Prevention Plan (SWPPP) is to inform the Developer/Contractor of the following objectives they are required to meet:
- Prevent erosion where construction activities shall occur.
  - Prevent pollutants from mixing with storm water.
  - Prevent pollutants from being discharged by trapping them on-site, before they can affect the receiving waters.
  - All regulations of Missouri Department of Natural Resources are met.
  - All regulations of the Environmental Protection Agency are met.
  - All regulations of the local municipality are met.

- B. PROJECT DESCRIPTION:**
- The project is located in the Perdue Creek watershed in St. Charles County, Missouri. The project disturbs approximately 11.3 acres.
- The project activities consist of Single Family Development. The site will be protected by the various erosion protection measures listed below:
- Silt Control:** The entire perimeter of the project that allows storm water to exit will have silt fence and/or straw bales installed. The contractor may use silt socks in lieu of silt fence and straw bales. Details of these devices are depicted on the detail plans prepared by Box Engineering Company, Inc.
  - Stabilized Construction Entrance:** A stabilized construction entrance will be installed at the site staging areas to prevent sediment from being tracked onto public roads. The entrance shall consist of 2'-3" washed stone 6" thick. A detail of the stabilized construction entrance is included with the grading plans.
  - Revegetation:** The site will consist of varying ground slopes, upon completion of the grading activities the slope prone to erosion will be seeded and stowed to stabilize the slope and prevent erosion.

- C. MAINTENANCE AND INSPECTION:**
- Regular Maintenance:** Weekly inspections of the project will include: (a) The repair of any sediment (silt) fence and/or staked straw bale barriers damaged or out of place; (b) The removal of any accumulated trash and/or debris; and (c) The removal of any externally deposited waste materials.
- Periodic Inspections:** Following each rain of more than 0.50 inch in 24 hours, the site will be inspected, and any necessary maintenance will be provided for a period of one year following the completion of the above remediation measures. Summaries of the maintenance and the inspections will be maintained and shall be kept available from the owner. An inspection report shall be filed and kept on site for every inspection. The report shall detail the findings of the inspection and if any action was required. The inspection form needs to include, name of the site, name of the inspector, permit number, date of inspection, major observations and actions taken to correct problems and the signature of the inspector. The inspection reports need to be kept on file by the permittee for three years after the project is completed.

The field inspections will be conducted in a systematic manner to minimize the possibility of any significant feature being overlooked. A detailed checklist will be developed and followed for the examination. Particular attention will be given to detecting evidence of erosion, slope instability, undue settlement, displacement, and tilting. Photographs and drawings will be used freely to record conditions in order to minimize descriptions. The field inspection will include appropriate features and items, including potential hazards to human life or property.

The condition of the slopes and vegetative cover will be evaluated and examined for erosion.

Measures will be taken to promote the growth of vegetation and repair of damage caused by erosion and sedimentation. The inspection will also provide recommendations for measures that need to be undertaken immediately, based on the experience and judgment of the inspector. Necessary follow up inspections will be made as necessary to verify that any maintenance, alteration, or repair measures are accomplished by methods acceptable by standard engineering practice.

Table 60-5 Soil Stabilization Schedule

Soil Disturbance Activity or Condition	Required Stabilization Time
Soil disturbance has ceased in areas greater than 2,000 square feet.	14 days
After construction of dikes, swales, diversions, and other concentrated flow areas.	5 days
When slopes are steeper than 3 horizontal to 1 vertical.	7 days
When slopes are greater than 3% and longer than 150 feet.	14 days
Perimeter controls around soil stockpiles.	End of workday
Stabilization or covering of inactive stockpiles.	30 days
When land disturbance is completed, permanent soil stabilization must be installed.	30 days

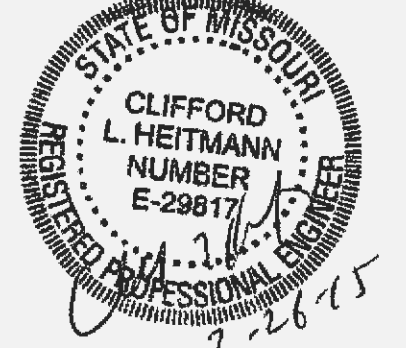
**SPILL AND SITE POLLUTION:**

Should an accidental spill occur refer to material safety data sheets. Any spills of hazardous materials in quantities in excess of reportable quantities as defined by EPA or the state agency regulations, shall be immediately reported to the EPA National Response Center (800-424-8802) and Missouri Department of Natural Resources (573-634-2436). Reportable spills for petroleum products is greater than 50 gallons. All other reportable hazardous materials and their quantities may be found on the web site at <http://www.dnr.mo.gov> on the local number is 573-840-9750. Federal law requires the responsible party to report any release of oil if it reaches or threatens a sewer, lake, creek, stream, river, groundwater, wetlands, or area like a road ditch, that drains into the above.

CALL BEFORE YOU DIG!  
1-800-DIG-RITE  
\*FIBER OPTICS MAYBE PRESENT

**STORM WATER POLLUTION PREVENTION PLAN SITE NOTES:**

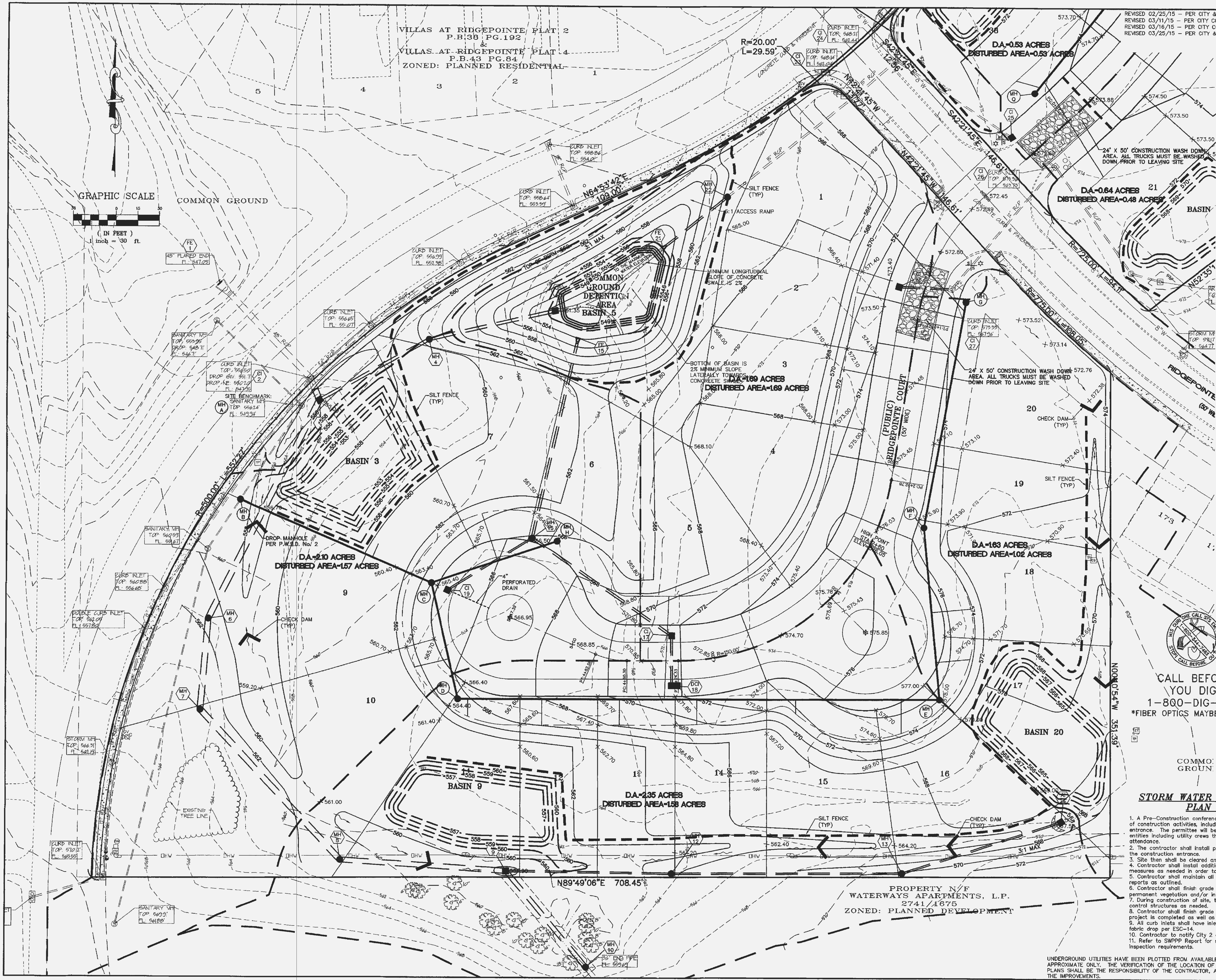
- A Pre-Construction conference will be scheduled with the City prior to the start of construction activities, including installation of the temporary construction entrance. The permittee will be responsible for notifying all contractors and other entities including utility crews that will perform work at the site to be in attendance.
- The contractor shall install perimeter siltation control (silt fencing) and install the construction entrance.
- Site then shall be cleared and stripped.
- Contractor shall install additional silt fencing and any other sediment control measures as needed in order to control siltation on site.
- Contractor shall maintain all siltation control devices and provide inspection reports as outlined.
- Contractor shall finish grade all areas as soon as practical and establish permanent vegetation and/or install erosion control matting as shown.
- During construction of site, the contractor shall maintain all drainage and erosion control structures as needed.
- Contractor shall finish grade and install any final erosion control measures as project is completed as well as all permanent landscaping.
- All curb inlets shall have inlet protection per ESC-17. All area inlets shall have fabric drop per ESC-14.
- Contractor to notify City 2 days prior to start of any site work.
- Refer to SWPPP Report for sediment controls construction, maintenance and inspection requirements.



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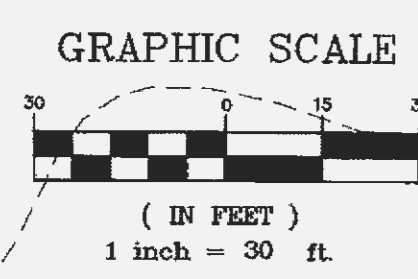


COMMON GROUND

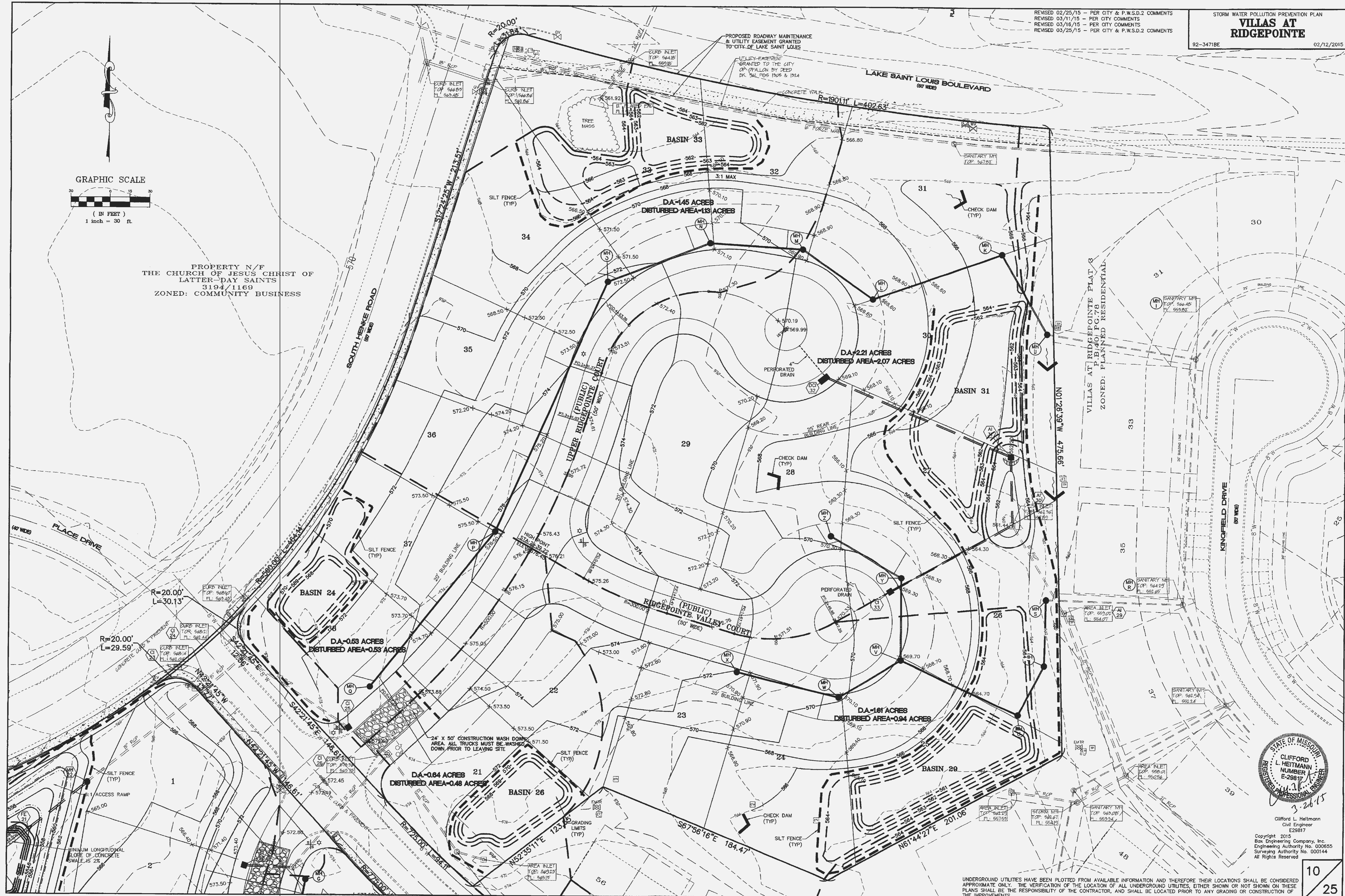
PROPERTY N/F  
WATERWAYS APARTMENTS, L.P.  
2741/4675  
ZONED: PLANNED DEVELOPMENT



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PROPERTY N/F  
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**ROCK CHECK DAM**

**CROSS SECTION**  
 LEVEL CENTER SECTION WITH 6" - 12" RISE ON BOTH SIDES TO CAUSE FLOW OVER, NOT AROUND.  
 WOVEN FABRIC\* (MIRAFI 600X OR EQUAL)  
 8" MINIMUM  
 1'-3"

**PROFILE**  
 APRON\*  
 6"  
 2'-3" WASHED STONE  
 3:1 SLOPE  
 FLOW  
 WOVEN FABRIC\* (MIRAFI 600X OR EQUAL)  
 APRON\* LENGTH = 2X HEIGHT OF DAM

**CROSS SECTION**  
 SAND BAG, GRAVEL BAG, FIBER ROLLS OR WATTLES  
 8" MINIMUM

**PROFILE**  
 60 DEGREES MAX  
 FLOW  
 1'-3"  
 18"

**GENERAL NOTES**

1. NUMBER OF BAGS AND ARRANGEMENT MAY VARY WITH ON-SITE CONDITIONS.
2. SEE GRAVEL BAG OR WATTLE BMP FOR ADDITIONAL INFORMATION.
3. INSTALL GEOTEXTILE FABRIC PER MANUFACTURER'S SPECIFICATIONS.
4. SEE ADDITIONAL GEOTEXTILE REQUIREMENTS AT THE END OF THE SEDIMENT & EROSION CONTROL MANUAL.

**TYPICAL BMP DETAIL CHECK DAM**  
 SAINT LOUIS COUNTY DEPARTMENT OF HIGHWAYS AND TRAFFIC CLAYTON, MISSOURI  
 REVISION DATE: October 19, 2011  
**DRAWING 806-36.00**

11/1/2014 Page 116 Sediment and Erosion Control Manual Standard Drawings

**SEDIMENT BASIN**

**PLAN VIEW**  
 POROUS BAFFLES  
 MONITORING POST  
 STABILIZED EMERGENCY SPILLWAY IN UNFILLED AREA (TYP.)  
 12" OF STONE (4" OR LARGER DIAMETER STONE)  
 FLOW  
 PERFORATED RISER PIPE OR SURFACE SKIMMER  
 EMBANKMENT

**PROFILE**  
 MONITORING POST (SEE DETAILS ON DRAWING 806-45.02B)  
 POROUS BAFFLES (UTE MATING, ROCK SILT FENCE, ETC.) IF NEEDED  
 SEDIMENT STORAGE  
 2' CLEAN ROCK (MIN.)  
 9" PERFORATED DEWATERING RISER PIPE THROUGH BEND, WRAPPED WITH FILTER FABRIC (OR A SURFACE SKIMMER MAY BE USED)  
 EMBANKMENT  
 12" OF STONE (4" OR LARGER DIAMETER STONE)  
 3" MAX (TYP.)  
 8" MIN.  
 5" DEWATERING OUTFALL PIPE BACKFILLED WITH A MINIMUM OF 6" OF MOIST CLAYEY SOIL

**GENERAL NOTES**

1. TOP OF RISER PIPE SHOULD BE A MINIMUM OF 1 FOOT BELOW THE TOP OF THE EMBANKMENT AND 6 INCHES BELOW THE FLOW LINE OF ANY EMERGENCY SPILLWAY.
2. IF NO EMERGENCY SPILLWAY IS PROPOSED, THERE SHALL BE A MINIMUM OF 1.5 FEET OF FREEBOARD.
3. BAFFLE HEIGHT SHOULD BE GREATER THAN THE TOP OF THE RISER PIPE AND LESS THAN THE TOP OF THE EMBANKMENT.
4. SILT MONITORING POST(S) SHALL BE INSTALLED NEAR THE OUTLET OF THE BASIN AND BE MARKED WITH THE MAXIMUM PERMISSIBLE LEVEL OF SEDIMENT.
5. MAINTAIN PERFORATED RISER PIPE TO ENSURE THE BASIN IS COMPLETELY DRAINED WITHIN 72 HOURS AFTER THE LAST STORM EVENT.

**TYPICAL BMP DETAIL SEDIMENT BASIN**  
 SAINT LOUIS COUNTY DEPARTMENT OF HIGHWAYS AND TRAFFIC CLAYTON, MISSOURI  
 REVISION DATE: November 1, 2014  
**DRAWING 806-40.01**

11/1/2014 Page 117 Sediment and Erosion Control Manual Standard Drawings

**GENERAL NOTES**

1. LOCATION, DIAMETER AND LENGTH OF SOCK IS DEPENDENT ON THE INLET/OUTLET BEING PROTECTED (I.E. SODS, TREE INLET, ETC.).
2. GRAVEL FILTER BAGS MAY BE SUBSTITUTED FOR FILTER SOCKS.
3. SOME LOCATIONS WILL NOT HAVE SIDEWALKS (AS SHOWN IN THIS DETAIL).
4. IF THE AREA BEHIND THE INLET AND SIDEWALK IS NOT STABILIZED, A BMP SHALL BE USED TO PREVENT POLLUTANTS FROM ENTERING THE INLET FROM BEHIND.
5. WHEN A WATTLE IS USED TO PREVENT POLLUTANTS FROM ENTERING AN INLET FROM BEHIND, IT MUST BE PLACED ON A SIDEWALK TO MAINTAIN A MINIMUM 3' FOOT WALKING PATH. THE BMP SHALL BE MAINTAINED TO PREVENT SEDIMENT ACCUMULATION ON THE SIDEWALK.
6. SOCKS / BAGS (BMP) SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBANCE ACTIVITY OR EXISTING INLETS AND IMMEDIATELY AFTER INSTALLATION OF PROPOSED INLETS.
7. ACCUMULATED SEDIMENT SHALL BE REMOVED BEFORE IT REACHES ONE HALF THE DIAMETER OF THE SOCK OR BAG HEIGHT AT A MINIMUM OR ENCLOSED ONTO A TRAVEL LANE.
8. SEE GRAVEL BAG, FILTER SOCK (WATTLE, FIBER ROLL) AND INLET PROTECTION SPECIFICATIONS IN THE SEDIMENT AND EROSION CONTROL MANUAL FOR ADDITIONAL INFORMATION. GRAVEL BAGS MUST BE LAYERED AND PACKED THIRTY SUCH THAT NO GAPS ARE DETECTED.
9. LEAVE ONE GRAVEL BAG GAP IN THE TOP LAYER TO PROVIDE A SPILLWAY FOR OVERFLOW.
10. STRAIN BALES MAY NOT BE USED AS A BMP. INSTALL A PAIR OF FILTER SOCKS, NEXT TO EACH OTHER, PARALLEL TO THE CURB INLET IF DIRECTED BY THE COUNTY.
11. BMP'S MUST BE INSTALLED TO ALLOW THE INLET/OUTLET TO FUNCTION WITHOUT COMPLETELY BLOCKING FLOW TO ELIMINATE LOCALIZED FLOODING. CHOOSE THE DIAMETER OF SOCK AND LAYER(S) OF BAGS SUITABLE TO THE INDIVIDUAL APPLICATION.
12. INLET PROTECTION IS NOT A STAND ALONE BMP AND SHOULD BE USED IN CONJUNCTION WITH OTHER UP GRADIENT BMP'S.
13. SOCKS NEED TO BE WEIGHTED FOR USE AROUND INLETS. INTERNAL ROLL WEIGHT OR BY PLACING A WEIGHT, SUCH AS A CONCRETE BLOCK, ON THE DOWN STREAM SIDE OF THE SOCKS. USE ALTERNATE BMP IF LOCALIZED FLOODING IS POSSIBLE.
14. AT LOCATIONS WITHOUT CURBS, THE GUTTER PROTECTION MAY BE SHAPED INTO A HOUSHEROE, WITH THE OPENING FACING OPPOSITE THE DIRECTION OF FLOW. GUTTER PROTECTION CAN HELP PRE-TREAT STORM WATER IF NEEDED.
15. AT LOCATIONS WITHOUT CURBS, PLACE BMP'S OF CHOICE COMPLETELY AROUND THE INLET. OVERLAP ENDS IF NEEDED.

**CURB AND GRATE INLET FILTER SOCK PROTECTION DETAIL**  
 SIDEWALK  
 CURB  
 Gutter  
 Filter Sock  
 Filter Roll (Typ.)  
 Detail Works As Shown When Area Behind Element or Inlet Is Not Stabilized (Typ.)

**CURB INLET FILTER SOCK PROTECTION DETAIL**  
 Filter Sock  
 Filter Roll (Typ.)  
 BMP'S Shall Not Encroach Into Travel Lane (Typ.)

**GUTTER FILTER SOCK PROTECTION DETAIL**  
 6" MINIMUM  
 30 Degree (Approximate)  
 FLOW

**TYPICAL BMP DETAIL GRATED UNIT, INLET AND GUTTER PROTECTION FILTER SOCK AND GRAVEL FILTER BAG**  
 SAINT LOUIS COUNTY DEPARTMENT OF HIGHWAYS AND TRAFFIC CLAYTON, MISSOURI  
 REVISION DATE: November 1, 2011  
**DRAWING 806-46.08**

11/1/2014 Page 124 Sediment and Erosion Control Manual Standard Drawings

**PERSPECTIVE**

STEEL FENCE POSTS OR 2" x 4" WOOD FRAME MIN. LENGTH 3' MAX. LENGTH 3.5'  
 1' MIN.  
 2-1/2" MAX.  
 1% MAX. SLOPE WITHIN 3' OF INLET  
 1'-0" MIN. 1.5' MAX.  
 FLOW

TEMPORARY BERM - 1" HIGHER THAN SILT FENCE TO PREVENT BYPASS

**ELEVATION**

STAKE / POST  
 FABRIC  
 TRENCH TO BE BACKFILLED AND COMPACTED  
 BURY 1' OF FABRIC  
 6" MIN DEPTH  
 18"

AREA INLET  
 FRAME  
 WOVEN FABRIC (MIRAFI 100X OR EQUAL)  
 GATHER EXCESS FABRIC AT CORNERS, OVERLAP TO THE NEXT STAKE FOR JOINTS

**FABRIC**

**TYPICAL BMP DETAIL INLET PROTECTION - FABRIC DROP**  
 SAINT LOUIS COUNTY DEPARTMENT OF HIGHWAYS AND TRAFFIC CLAYTON, MISSOURI  
 REVISION DATE: October 19, 2011  
**DRAWING 806-45.12**

11/1/2014 Page 125 Sediment and Erosion Control Manual Standard Drawings

**CONSTRUCTION ENTRANCE**

**PLAN VIEW**  
 DRAINAGE CULVERT (IF NEEDED)  
 50' MIN. (OR 30' FOR ACCESS TO INDIVIDUAL HOUSE LOT)  
 10' MIN.  
 \*W IS EQUAL TO:  
 14' MIN. FOR ONE WAY  
 24' MIN. FOR TWO WAY  
 WASHDOWN AREA (SEE SEPARATE BMP)  
 RIGHT-OF-WAY DIVERSION TO DIRECT RUNOFF IF SLOPE TOWARDS ENTRANCE IS >2%  
 ROAD OR OTHER EXISTING PAVED SURFACE  
 6" - 8" ROAD OR OTHER EXISTING PAVED SURFACE  
 RIGHT-OF-WAY DIVERSION (AS NEEDED)  
 WASHDOWN AREA (SEE SEPARATE BMP)  
 DRAINAGE CULVERT (IF NEEDED)  
 3' MIN. ENTRENCHMENT ENTIRE LENGTH  
 WASH, SCRAPER & REMOVE DEBRIS, ROCKS, WOOD, ETC. FROM TIRES & UNDERCARRIAGE PRIOR TO ENTERING ROADWAY  
 6" TO 7" GROUND LEVEL

**PROFILE**

**SIGN**

**TYPICAL BMP DETAIL CONSTRUCTION ENTRANCE**  
 SAINT LOUIS COUNTY DEPARTMENT OF HIGHWAYS AND TRAFFIC CLAYTON, MISSOURI  
 REVISION DATE: October 19, 2011  
**DRAWING 806-48.01**

11/1/2014 Page 129 Sediment and Erosion Control Manual Standard Drawings

**ROCK OUTLET**

**PLAN**  
 PIPE DIAMETER  
 WIDTH UPSTREAM  
 WIDTH DOWNSTREAM  
 LENGTH  
 1' MIN.  
 THICKNESS

**SECTION / ELEVATION**  
 GEOTEXTILE FABRIC ALONG BOTTOM AND ALL SIDES\*\*

PIPE DIAMETER (INCHES)	WIDTH UPSTREAM (FEET)	WIDTH DOWNSTREAM (FEET)	LENGTH (FEET) *	ROCK SIZE (INCHES)	THICKNESS (INCHES)
6	1.5	8	5	5-10	15
12	3	12	10	5-10	15
18	4.5	16	15	9-14	21
24	6	20	20	9-14	21
30	7.5	22	25	9-14	21

\* 10 x PIPE DIAMETER  
 NOTE: WIDTH UPSTREAM IS MEASURED AT END OF PIPE

**TYPICAL BMP DETAIL ROCK OUTLET**  
 SAINT LOUIS COUNTY DEPARTMENT OF HIGHWAYS AND TRAFFIC CLAYTON, MISSOURI  
 REVISION DATE: October 19, 2011  
**DRAWING 806-55.10**

11/1/2014 Page 130 Sediment and Erosion Control Manual Standard Drawings

**GRAVEL BAGS AS SILT FENCE**

**ELEVATION**  
 LEVEL CONTOUR NO SLOPE  
 1'-3"  
 FLAT SLOPE, LESS THAN 1% IN FRONT OF BARRIER  
 60 DEGREES MAX  
 5' MIN.  
 FLOW

**GRAVEL BAGS AS ROCK OUTLET PROTECTION**

**ELEVATION**  
 60 DEGREES MAX  
 1'-3"  
 FLOW  
 18"  
 18"  
 26"-27"  
 14"-17"

**GRAVEL BAGS AS CHECK DAM**

**ELEVATION**  
 60 DEGREES MAX  
 1'-2"  
 FLOW

**GRAVEL BAGS AS DIVERSION RIDGE**

**ELEVATION**  
 60 DEGREES MAX  
 1'-2"  
 FLOW

**TYPICAL BMP DETAIL GRAVEL BAGS**  
 SAINT LOUIS COUNTY DEPARTMENT OF HIGHWAYS AND TRAFFIC CLAYTON, MISSOURI  
 REVISION DATE: October 19, 2011  
**DRAWING 806-55.17**

11/1/2014 Page 135 Sediment and Erosion Control Manual Standard Drawings

**PLAN VIEW**

LEVEL CONTOUR NO SLOPE  
 DRAINAGE AREA  
 SILT FENCE  
 FOLLOW LEVEL CONTOUR WITH ENDS POSITIONED UPHILL  
 PREVENT FLOW AROUND ENDS BY BRINGING UP SLOPE  
 SET 10' MIN. AWAY FROM STEEP SLOPE OR TOE OF FILL

**ELEVATION**

SEE SILT FENCE PROPERTY REQUIREMENTS IN TABLE #1 OF THE SILT FENCE SPECIFICATION LOCATED IN THIS MANUAL.  
 SPACING  
 BASED ON GEOTEXTILE ELONGATION  
 MINIMUM 2" DIA. HARDWOOD  
 MINIMUM 4" DIA. SOFTWOOD  
 MINIMUM 1 LB./LIN. FT. METAL  
 FASTEN WITH 3 - 50 LB. DIAGONAL DANGLE TIES WITHIN TOP 8" OF FABRIC  
 36" MIN. POST HEIGHT  
 30" MIN. FABRIC HEIGHT  
 TRENCH TO BE BACKFILLED AND COMPACTED  
 6" MIN. DEPTH  
 BURY 1' OF FABRIC ALONG BOTTOM AND EDGE OF TRENCH  
 FLOW

**JOINING SECTIONS OF SILT FENCE**

**TYPICAL BMP DETAIL SILT FENCE**  
 SAINT LOUIS COUNTY DEPARTMENT OF HIGHWAYS AND TRAFFIC CLAYTON, MISSOURI  
 REVISION DATE: October 19, 2011  
**DRAWING 806-70.00**

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

11/1/2014 Page 143 Sediment and Erosion Control Manual Standard Drawings

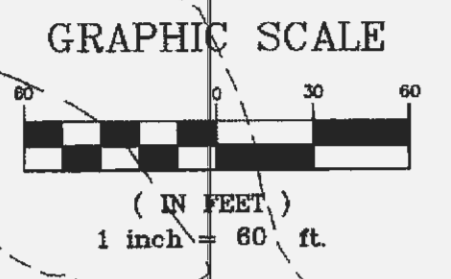
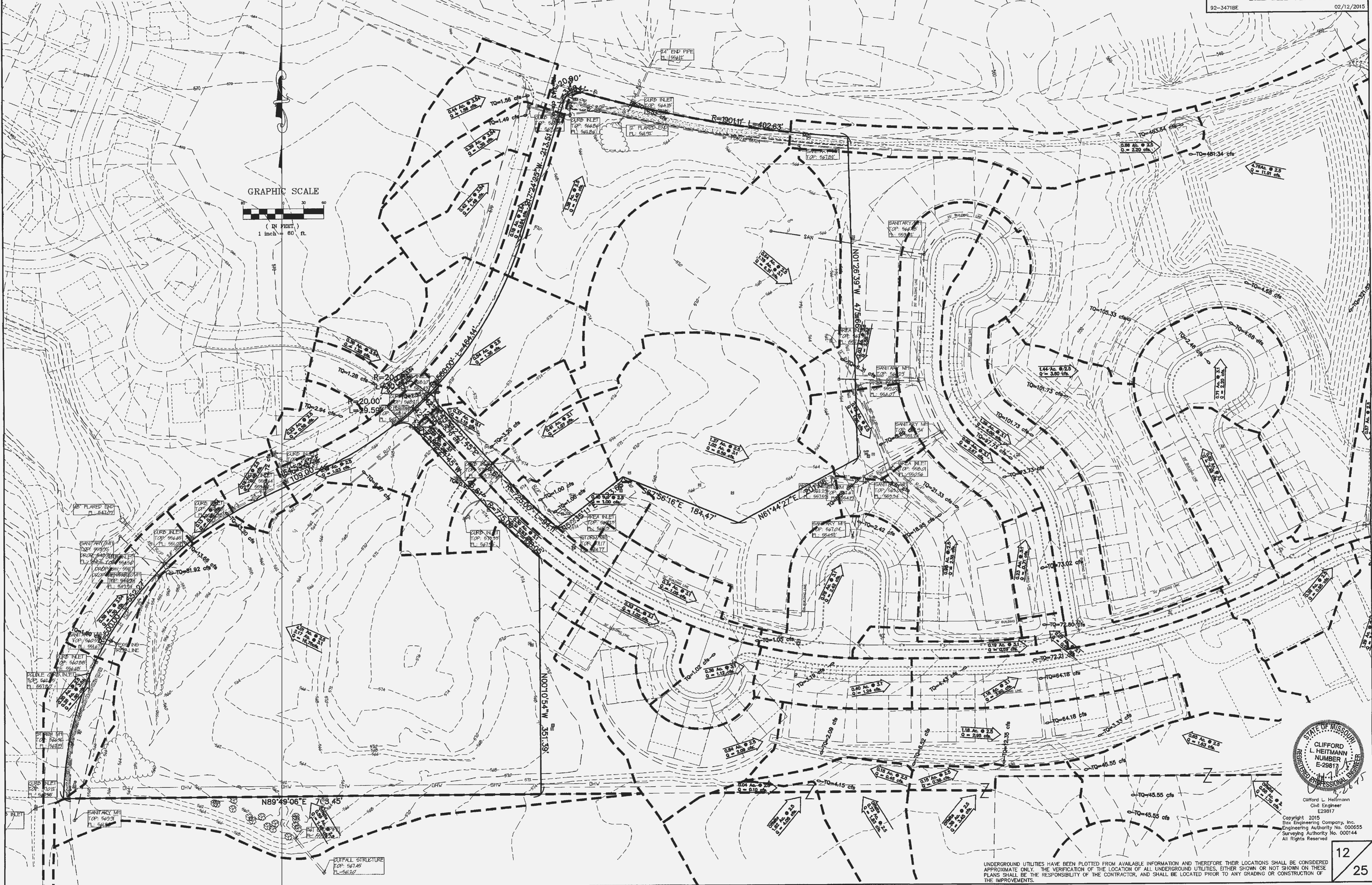
ENGINEERS SEAL DOES NOT APPLY TO DETAILS ON THIS SHEET.



**THIS SHEET FOR DRAINAGE PURPOSES ONLY. NOT TO BE USED FOR CONSTRUCTION**

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 REVISED 03/11/15 - PER CITY COMMENTS  
 REVISED 03/16/15 - PER CITY COMMENTS  
 REVISED 03/25/15 - PER CITY & P.W.S.D.2 COMMENTS

PRE-DEVELOPED DRAINAGE AREA MAP  
**VILLAS AT RIDGEPOINTE**  
 92-3471BE 02/12/2015



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 Civil Engineer  
 E29817  
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**THIS SHEET FOR DRAINAGE PURPOSES ONLY. NOT TO BE USED FOR CONSTRUCTION**

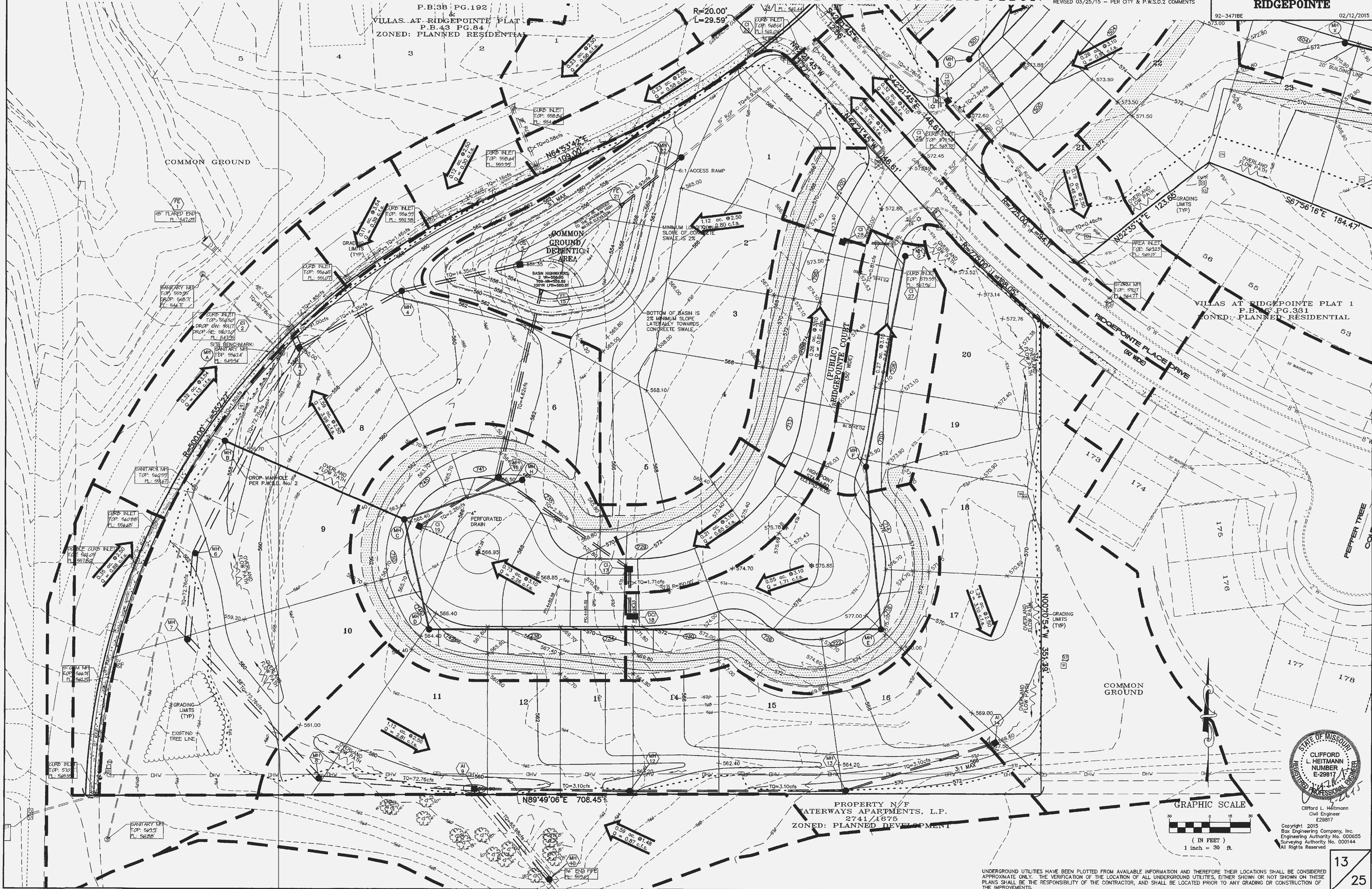
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 REVISED 03/11/15 - PER CITY COMMENTS  
 REVISED 03/16/15 - PER CITY COMMENTS  
 REVISED 03/25/15 - PER CITY & P.W.S.D.2 COMMENTS

POST-DEVELOPED DRAINAGE AREA MAP  
**VILLAS AT RIDGEPOINTE**  
 92-3471BE 02/12/2015

P.B.38 PG.192

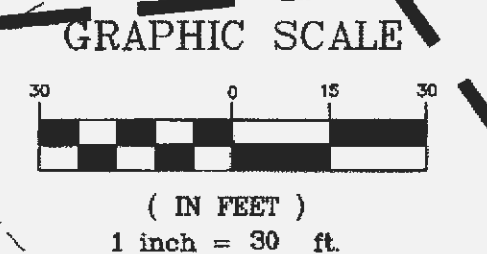
VILLAS AT RIDGEPOINTE PLAT 1  
 P.B.43 PG.84  
 ZONED: PLANNED RESIDENTIAL

R=20.00'  
 L=29.59'



VILLAS AT RIDGEPOINTE PLAT 1  
 P.B.46 PG.381  
 ZONED: PLANNED RESIDENTIAL

PROPERTY OF  
 WATERWAYS APARTMENTS, L.P.  
 2741/1675  
 ZONED: PLANNED DEVELOPMENT



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 Civil Engineer  
 E29817

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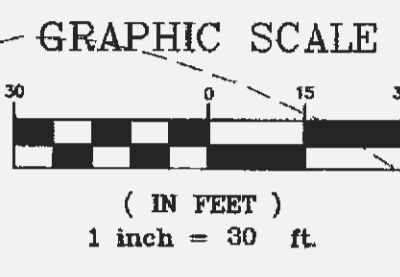
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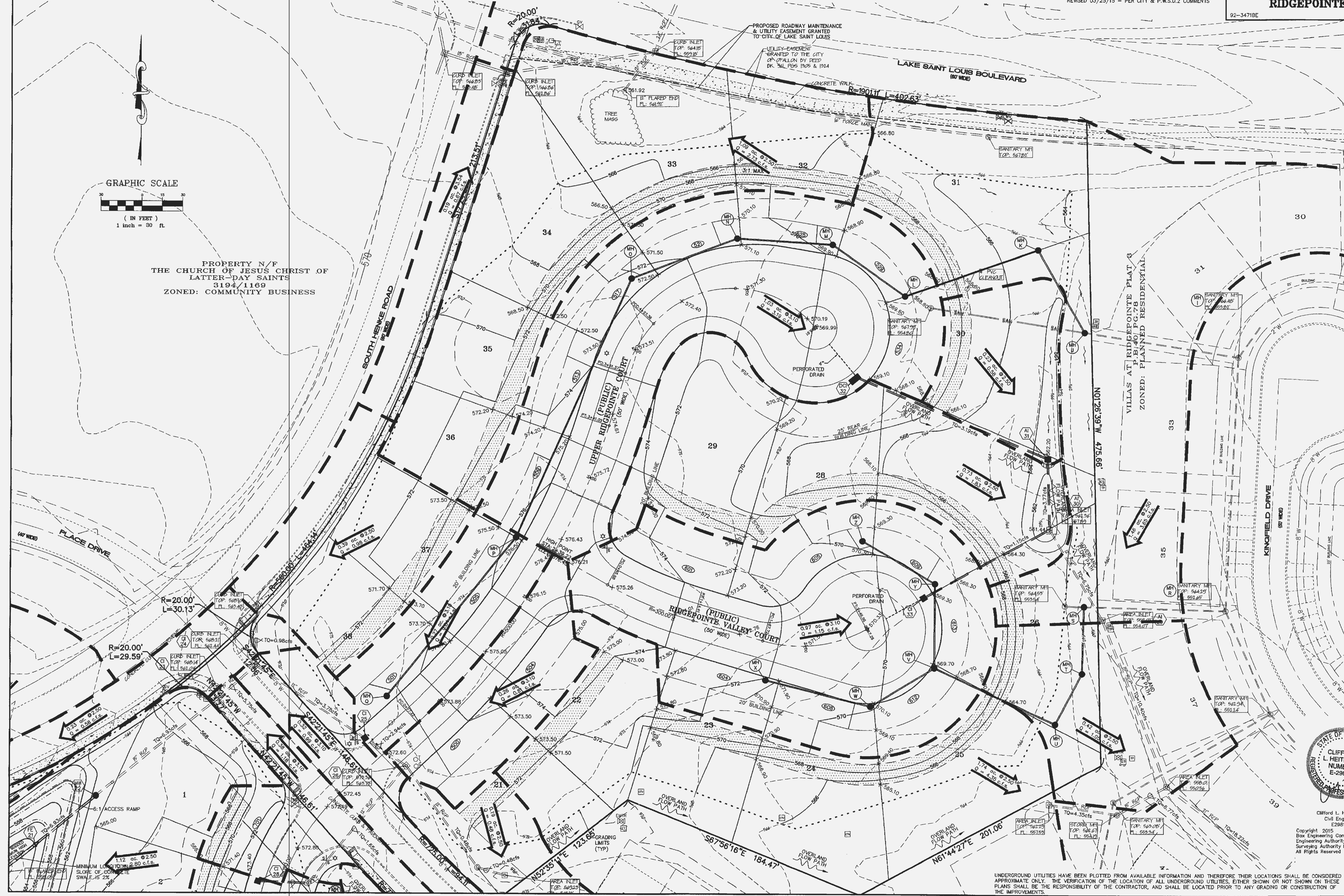
**THIS SHEET FOR DRAINAGE PURPOSES ONLY. NOT TO BE USED FOR CONSTRUCTION**

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 REVISED 03/11/15 - PER CITY COMMENTS  
 REVISED 03/16/15 - PER CITY COMMENTS  
 REVISED 03/25/15 - PER CITY & P.W.S.D.2 COMMENTS

POST-DEVELOPED DRAINAGE AREA MAP  
**VILLAS AT RIDGEPOINTE**  
 92-34718E 02/



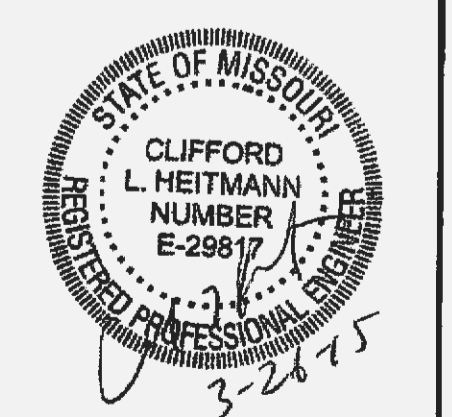
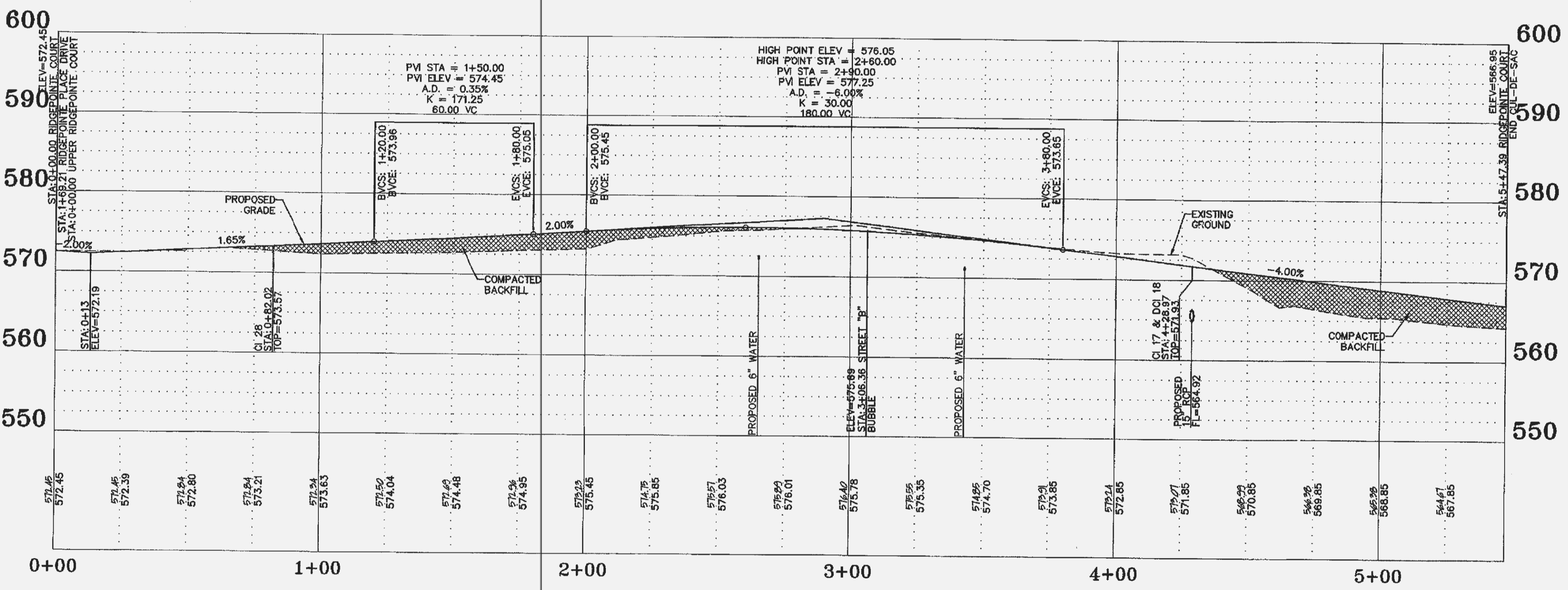
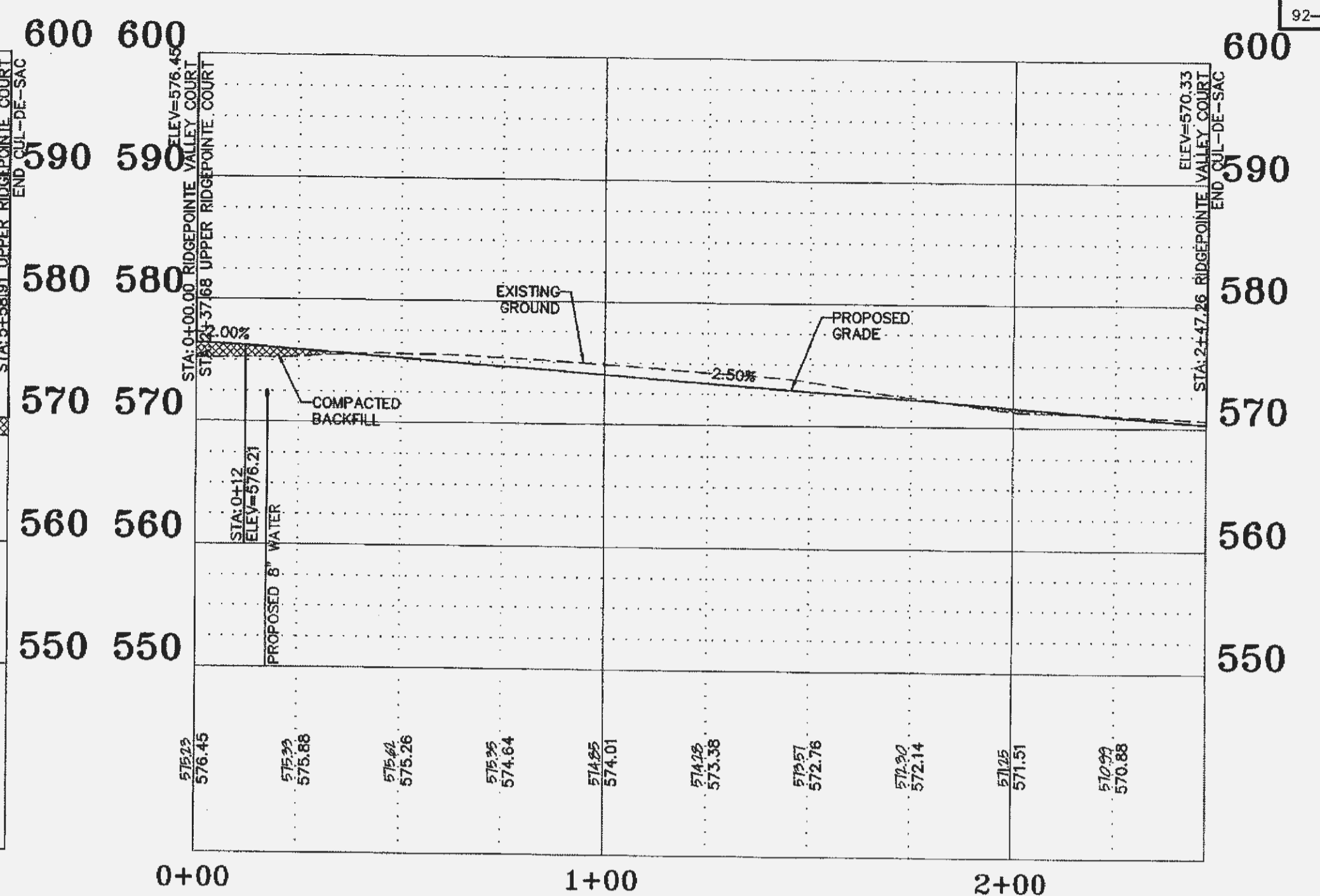
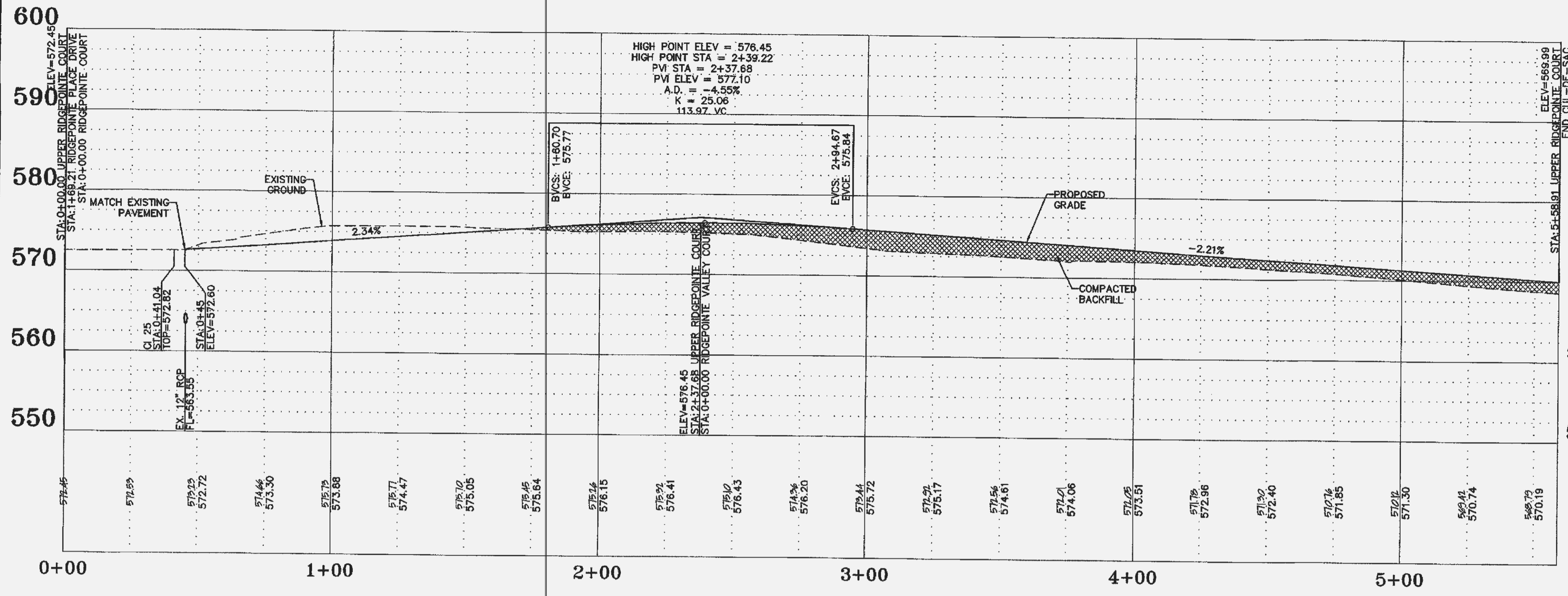
PROPERTY N/F  
 THE CHURCH OF JESUS CHRIST OF  
 LATTER-DAY SAINTS  
 3194/1169  
 ZONED: COMMUNITY BUSINESS



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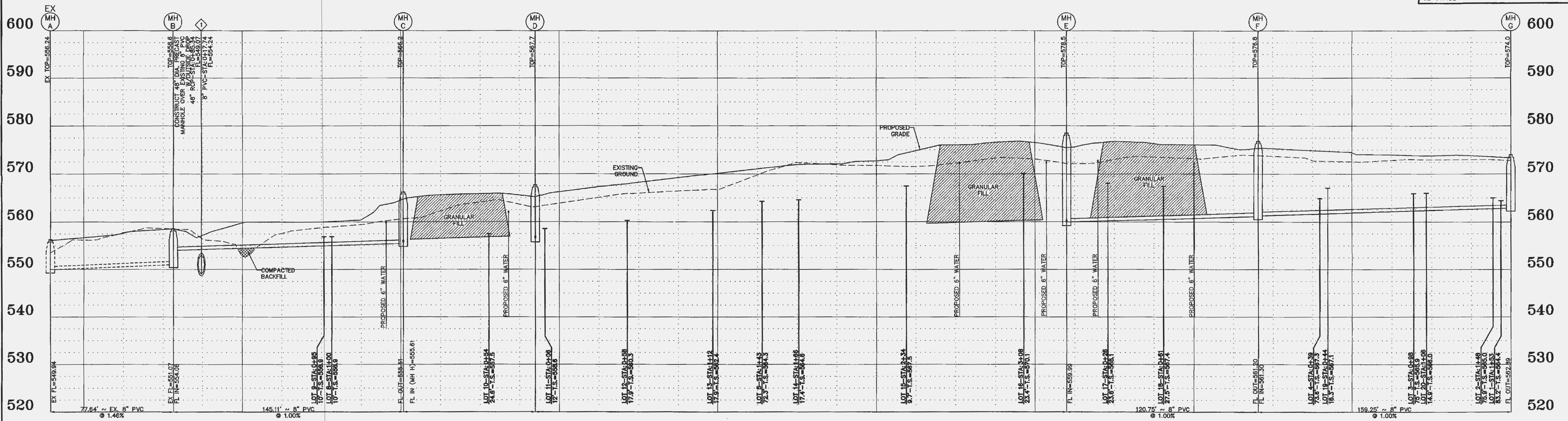




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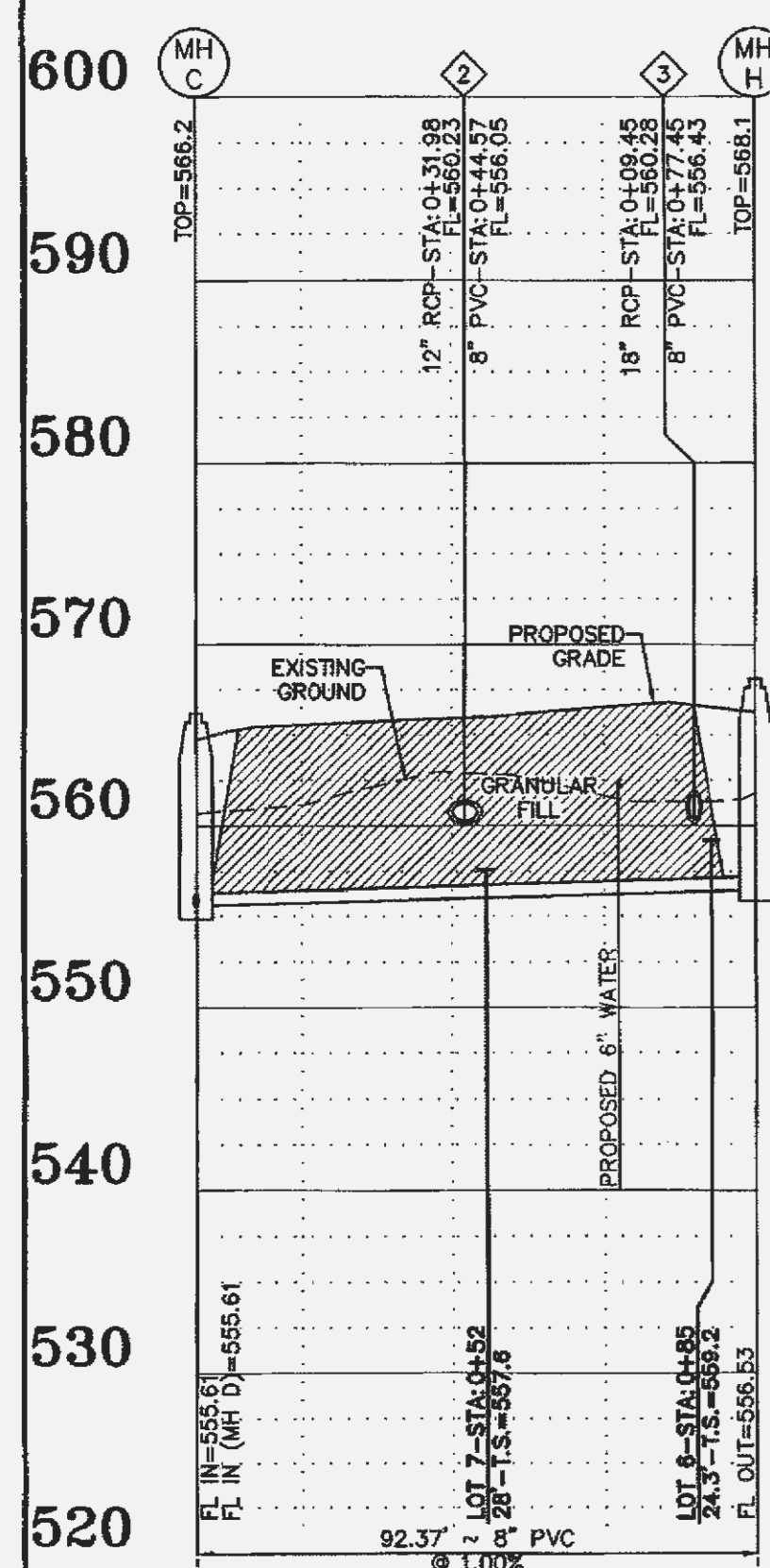
NOTE: ALL SANITARY MANHOLES TO BE 48" I.D. MINIMUM PER PUBLIC WATER SUPPLY DISTRICT #2 SPECIFICATIONS.

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 REVISED 03/16/15 - PER CITY COMMENTS  
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PROFILES  
**VILLAS AT  
 RIDGEPOINTE**

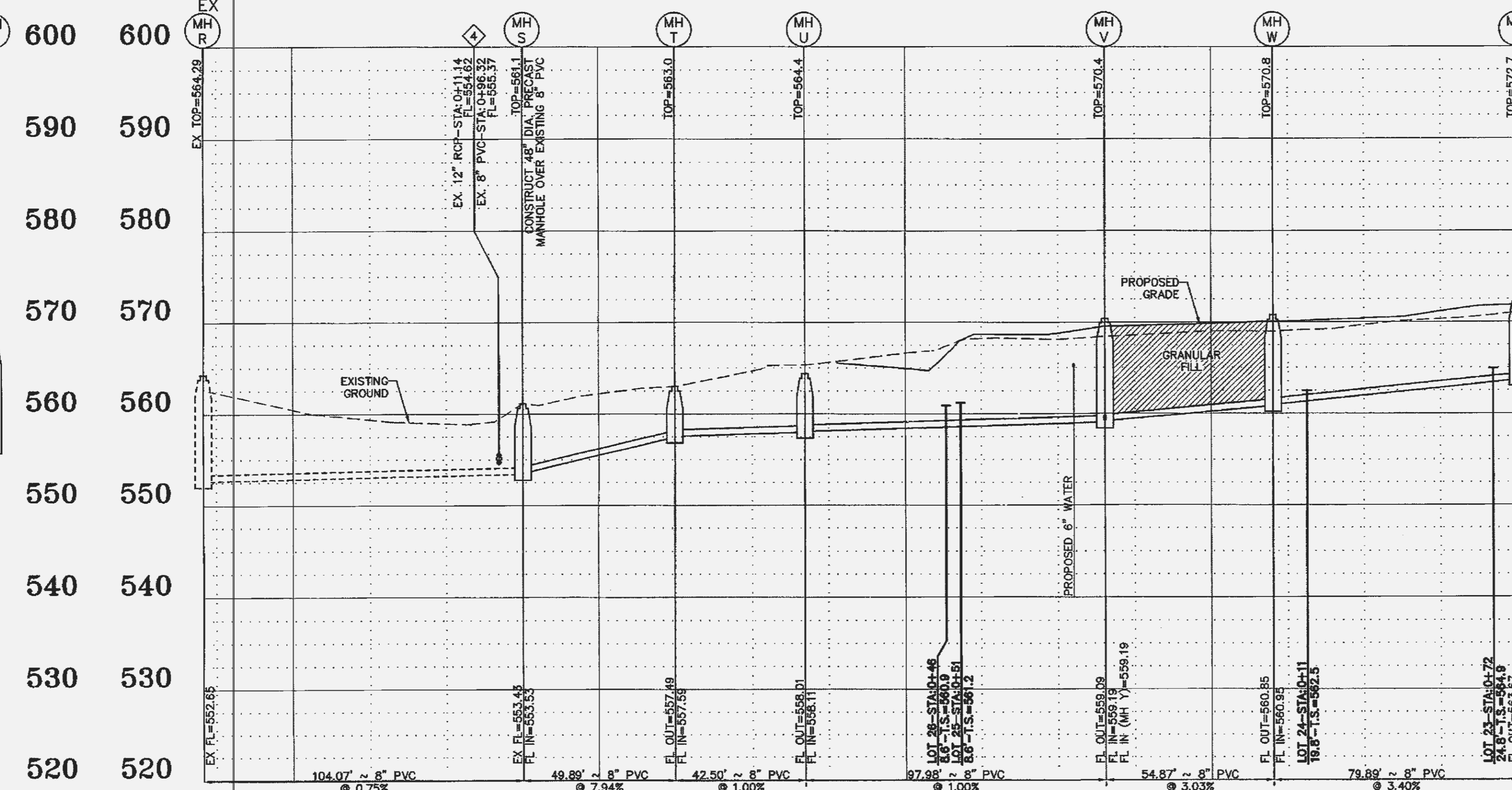
92-3471BE

02/12/2015



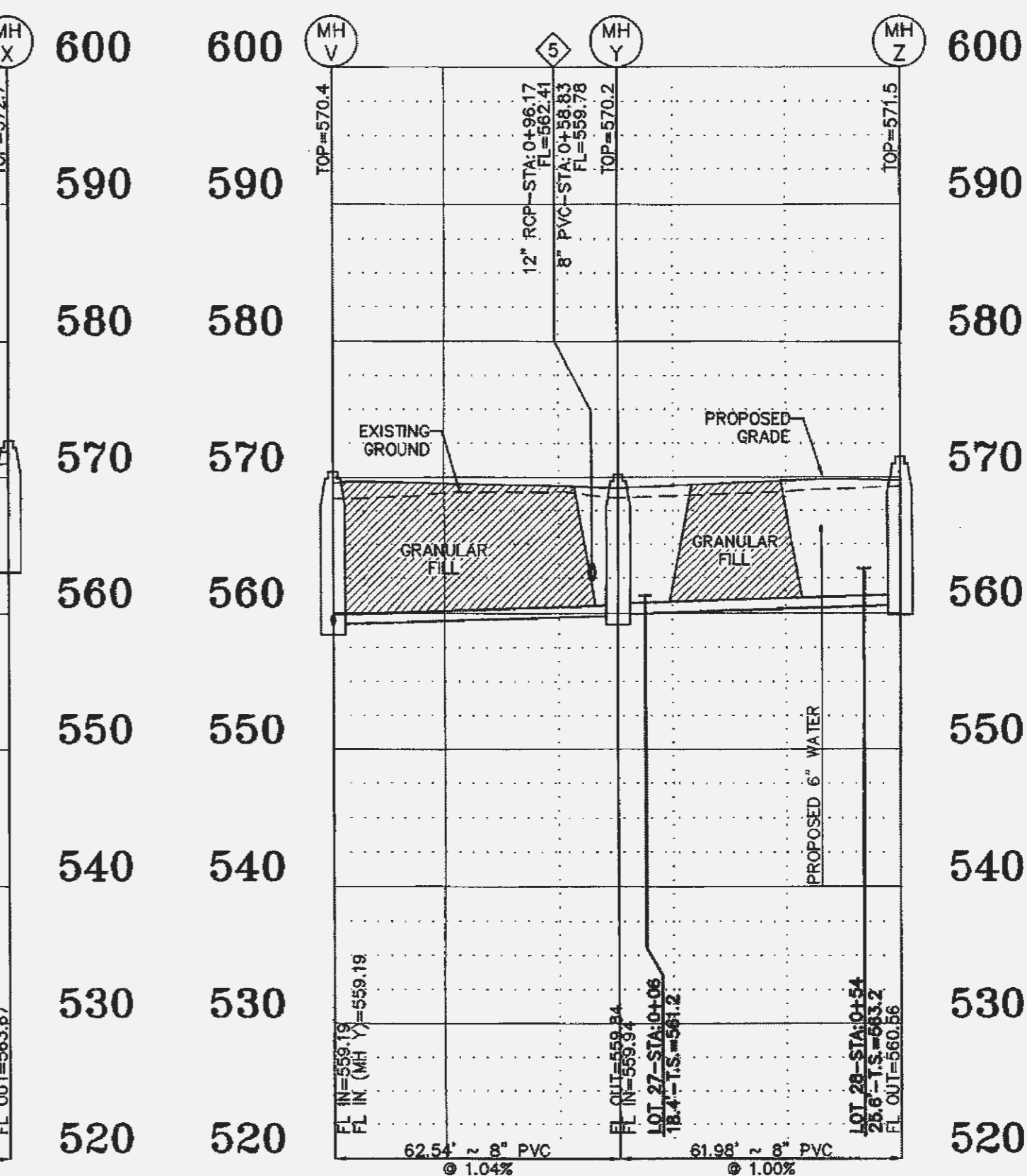
**SANITARY SEWER PROFILE**

SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



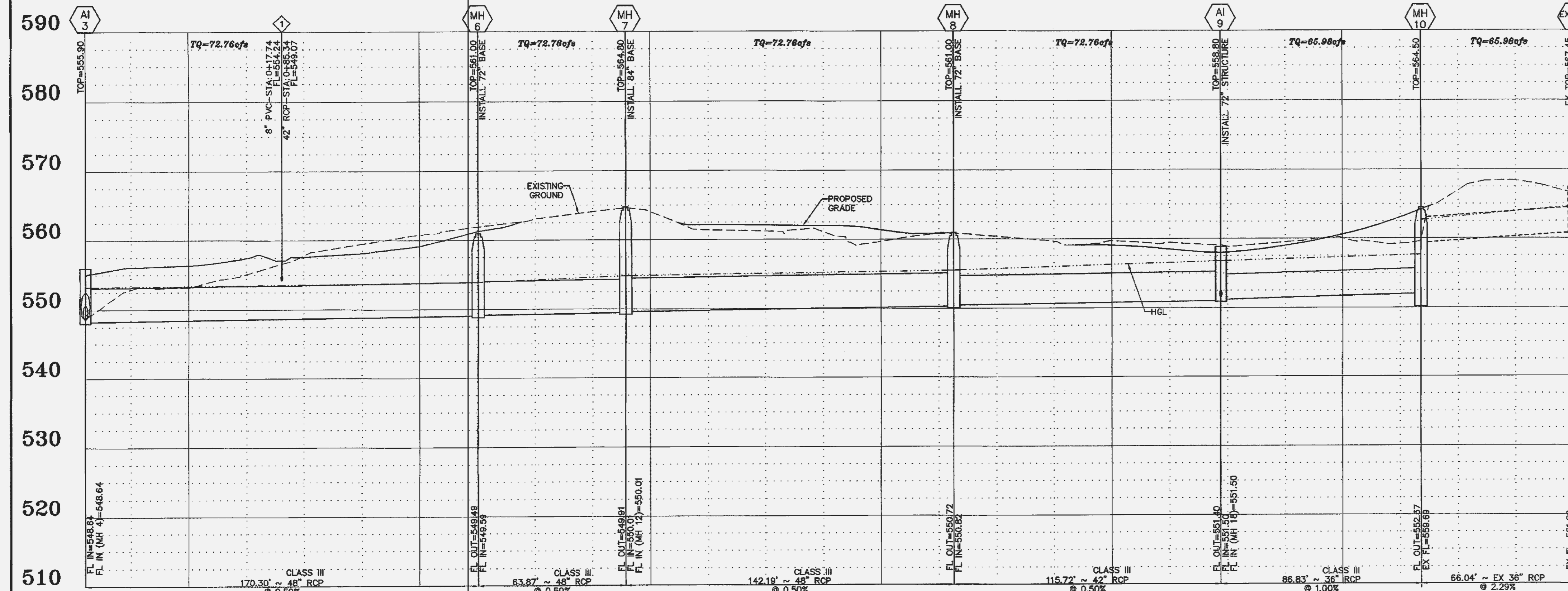
**SANITARY SEWER PROFILE**

SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



**SANITARY SEWER PROFILE**

SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



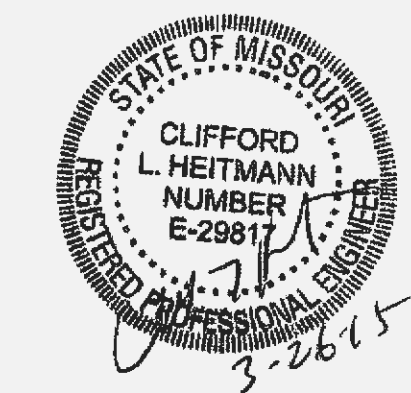
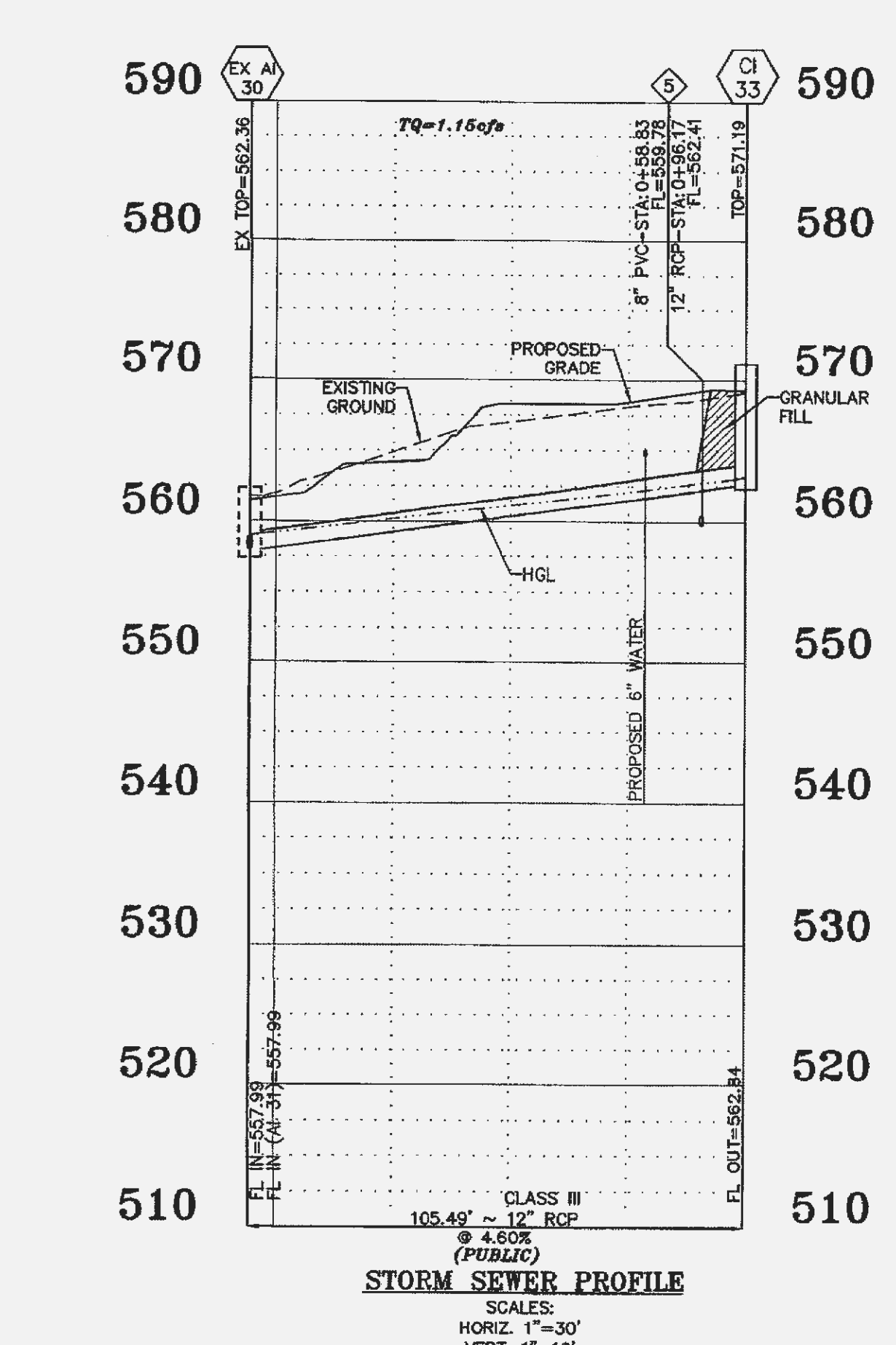
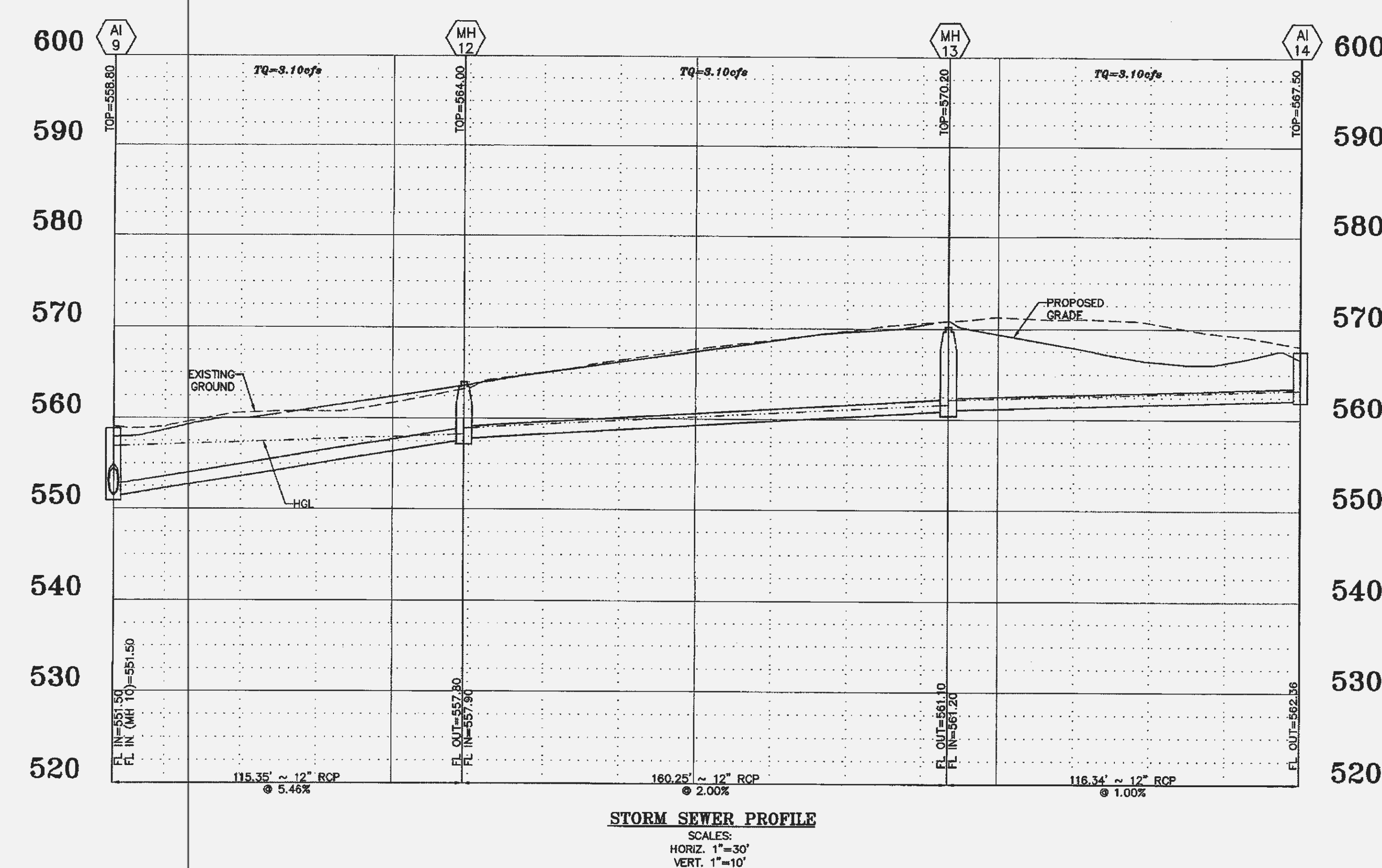
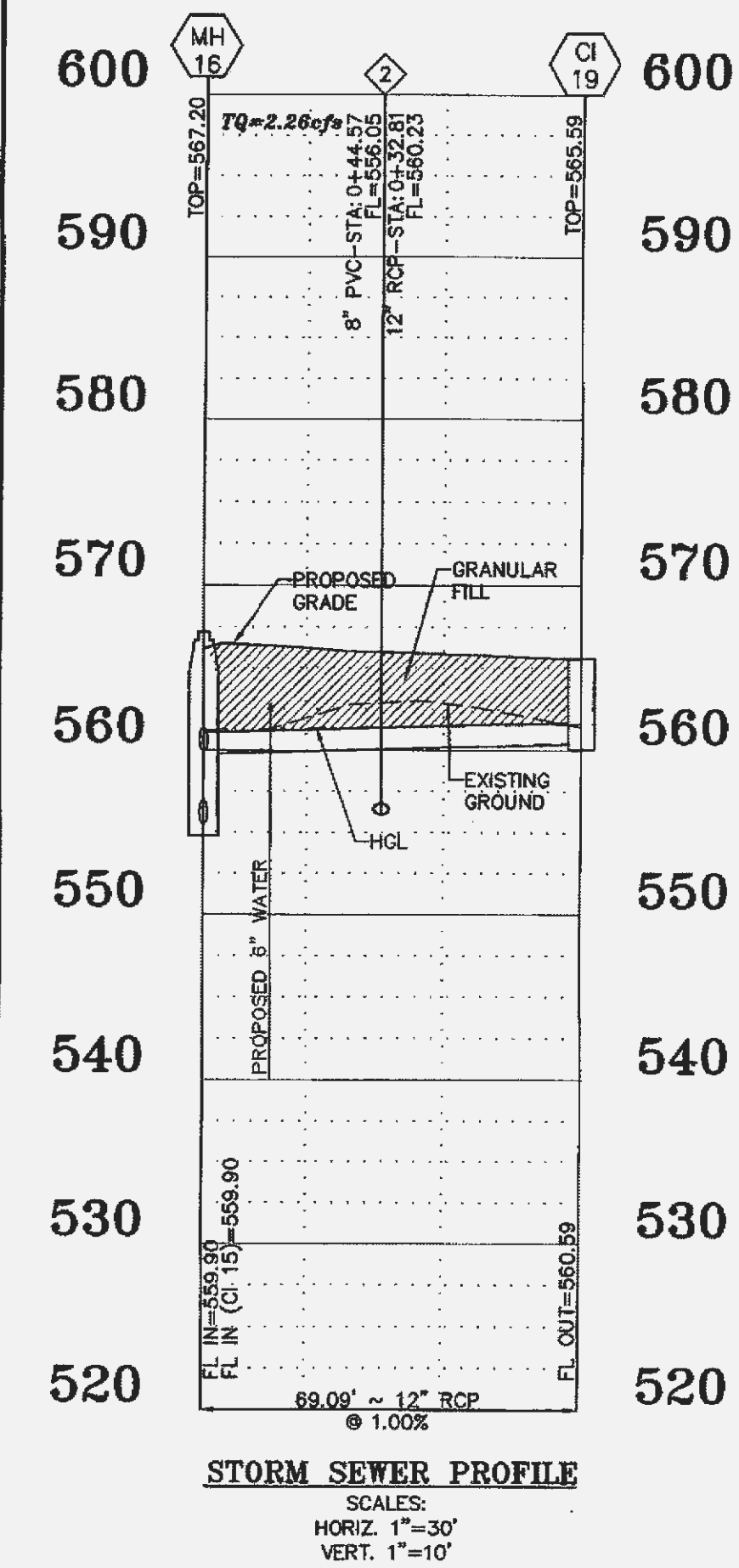
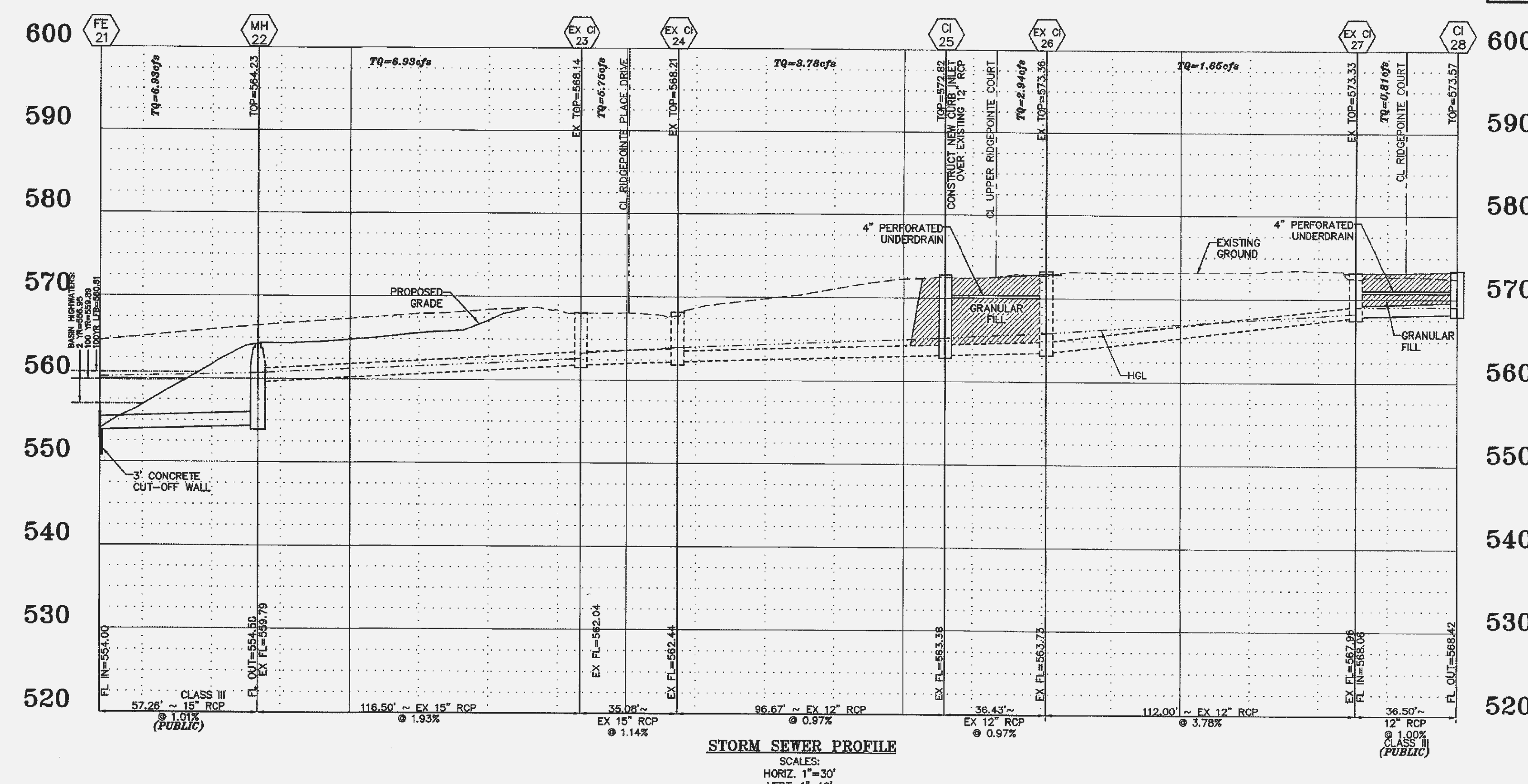
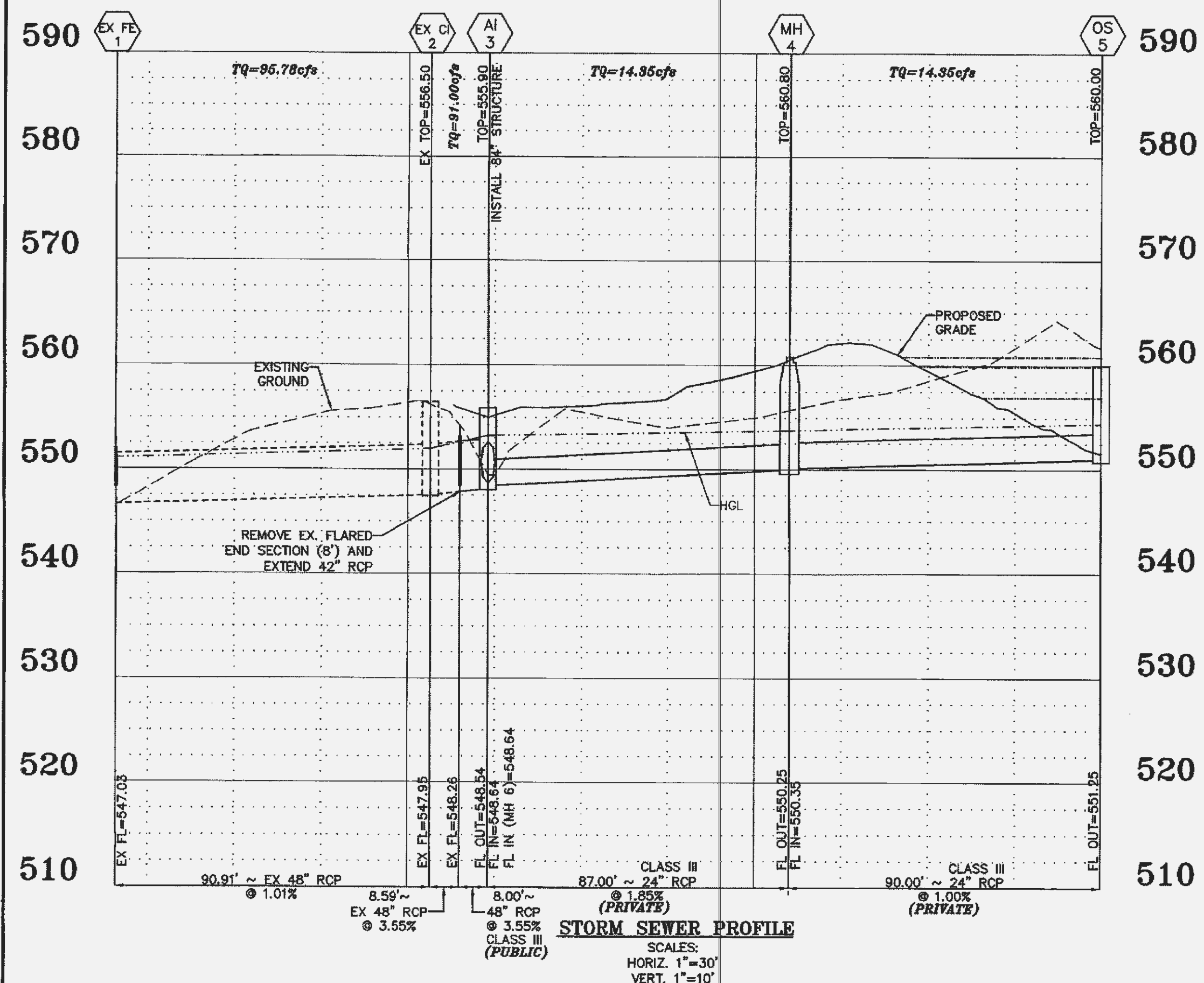
**STORM SEWER PROFILE**

SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



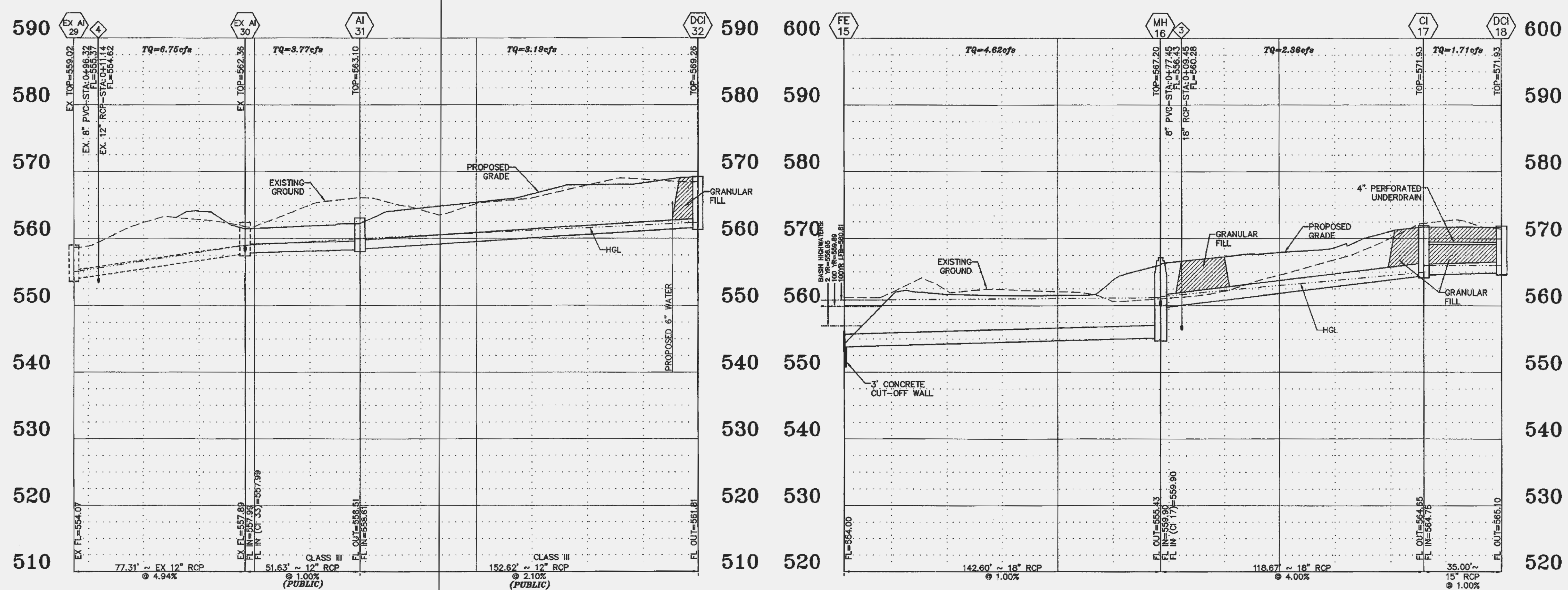
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**STORM SEWER PROFILE**

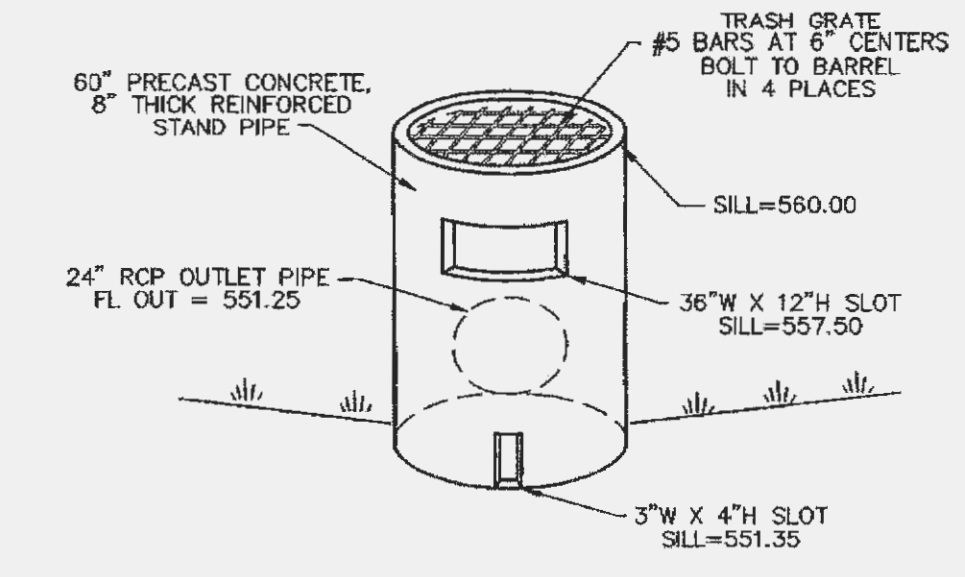
**STORM SEWER PROFILE**

BAX PROJECT NAME : VILLAS AT RIDGEPOINTE  
 BAX PROJECT NO. : 92-3471BE  
 DESIGN DATE : 03/24/2015

FILENAME: 3471BE

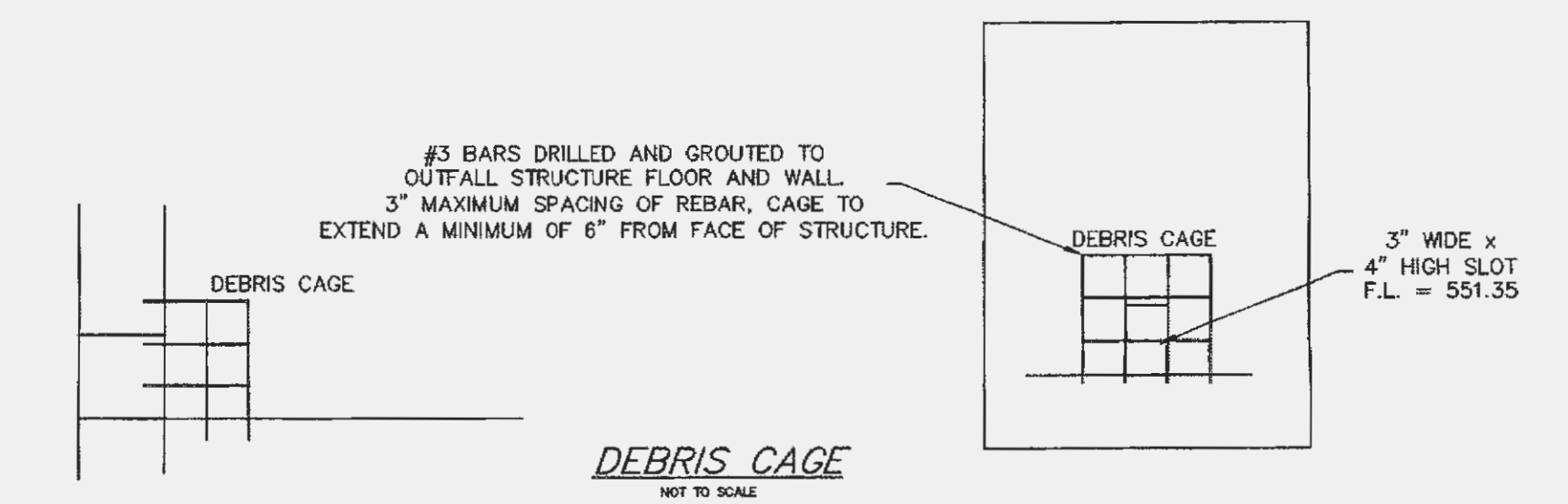
UPP STR	LOW STR	L	DIA	UPPER FL LN	LOWER FL LN	PS	UPPER ST EL	DEPTH HY GR	UPPER HY EL	LOWER HY EL	HYDR GRADE	FR HEAD	VEL	VEL HEAD	JUNC LOSS	TURN LOSS	CURVE LOSS	STR GRADE	INL CAP	DR AREA	PT	Q	TQ	PIPE CAP	REMARKS	
CI33	EXAI30	105	12	562.84	557.99	4.60	571.19	8.09	563.10*	558.99	.00100	0.11	1.46	0.03	0.03	0.00	0.00	0.00	LOW	3.40	0.97	3.10	1.15	1.15	7.64	1
CI32	AI31	153	12	561.81	558.61	2.10	569.26	6.88	562.38*	559.99	.00800	1.22	4.06	0.26	0.26	0.00	0.00	LOW	3.40	1.03	3.10	3.19	3.19	5.16	2	
AI31	EXAI30	52	12	558.51	557.99	1.01	563.10	3.11	559.99	558.99	.01120	0.58	4.80	0.36	0.27	0.15	0.00	45	11.00	0.23	2.50	0.58	3.77	3.58	3	
EXAI30	EXAI29	77	12	557.89	554.07	4.94	562.36	3.37	558.99	555.07	.03590	2.77	8.59	1.15	1.01	0.14	0.00	45	11.00	0.73	2.50	1.83	6.75	7.92	4	
CI28	EXCI27	37	12	568.42	568.06	0.99	573.57	4.47	569.10	569.06	.00050	0.02	1.03	0.02	0.02	0.00	0.00	1.7%	2.04	0.26	3.10	0.81	0.81	3.54	5	
EXCI27	EXCI26	112	12	567.96	563.73	3.78	573.33	5.03	568.30*	566.04	.00210	0.24	2.10	0.07	0.07	0.01	0.00	1.7%	2.04	0.27	3.10	0.84	1.65	6.92	6	
EXCI26	CI25	36	12	563.73	563.38	0.96	573.36	7.32	566.04	565.50	.00680	0.25	3.74	0.22	0.22	0.07	0.00	2.3%	1.82	0.26	3.10	0.81	2.94	3.49	7	
EXCI25	EXCI24	97	12	563.38	562.44	0.97	572.82	7.32	565.50	564.05	.01130	1.09	4.81	0.36	0.36	0.00	0.00	2.3%	1.82	0.27	3.10	0.84	3.78	3.51	8	
EXCI24	EXCI23	35	15	562.44	562.04	1.14	568.21	4.16	564.05	563.29	.00790	0.28	4.69	0.34	0.25	0.23	0.00	4%	1.21	0.32	3.10	0.99	5.75	6.90	9	
EXCI23	MH22	132	15	562.04	554.75	5.51	568.14	5.11	563.03	561.29	.01150	1.52	5.65	0.50	0.22	0.00	0.00	4%	1.21	0.38	3.10	1.18	6.93	15.17	10	
MH22	FE15	42	15	554.42	554.00	1.01	562.10	0.81	561.29	560.81	.01150	0.48	5.65	0.50	0.00	0.00	0.00	MH	0.00	0.00	0.00	0.00	6.93	6.49	11	
CI19	MH16	69	12	560.39	559.90	1.00	565.59	3.94	561.65	561.24	.00400	0.28	2.88	0.13	0.13	0.00	0.00	LOW	3.40	0.73	3.10	2.26	2.26	3.56	12	
DCI18	CI17	35	15	565.10	564.75	1.00	571.93	5.88	566.05	566.00	.00070	0.02	1.39	0.03	0.03	0.00	0.00	4%	3.56	0.55	3.10	1.71	1.71	6.46	13	
CI17	MH16	119	18	564.65	559.90	4.00	571.93	6.95	564.98*	561.40	.00050	0.06	1.34	0.03	0.02	0.00	4%	1.21	0.21	3.10	0.65	2.36	21.02	14		
MH16	FE15	143	18	555.43	554.00	1.00	567.20	5.96	561.24	560.81	.00190	0.28	2.61	0.11	0.07	0.08	0.00	MH	0.00	0.00	0.00	0.00	4.62	10.52	15	
AI14	MH13	116	12	562.36	561.20	1.00	567.50	4.18	563.32	562.20	.00760	0.88	3.95	0.24	0.24	0.00	0.00	45	11.00	1.24	2.50	3.10	3.10	3.56	16	
MH13	MH12	160	12	561.10	557.90	2.00	570.20	8.53	561.67*	558.90	.00760	1.21	3.95	0.24	0.05	0.05	0.00	MH	0.00	0.00	0.00	0.00	3.10	5.03	17	
MH12	AI9	115	12	557.80	551.50	5.46	564.00	5.78	558.23*	556.85	.00760	0.87	3.95	0.24	0.00	0.00	0.00	MH	0.00	0.00	0.00	0.00	3.10	8.33	18	
EXOS11	MH10	56	36	561.20	559.69	2.29	567.45	2.76	564.69	562.69	.00980	0.65	9.33	1.35	1.35	0.00	0.00	OS	0.00	0.00	0.00	0.00	65.98	100.86	19	
MH10	AI9	87	36	552.37	551.50	1.00	564.50	6.80	557.70	556.85	.00980	0.85	9.33	1.35	0.00	0.00	0.00	MH	0.00	0.00	0.00	0.00	65.98	66.76	20	
AI9	MH8	116	42	551.40	550.82	0.50	558.80	1.95	556.85	555.37	.00520	0.61	7.56	0.89	0.23	0.64	0.00	45	11.00	1.71	1.99	3.68	72.76	71.23	21	
MH8	MH7	142	48	550.72	550.01	0.50	561.00	5.63	555.37	554.58	.00260	0.36	5.79	0.52	0.03	0.40	0.00	MH	0.00	0.00	0.00	0.00	72.76	101.50	22	
MH7	MH6	64	48	549.91	549.59	0.50	564.80	10.22	554.58	553.92	.00260	0.16	5.79	0.52	0.25	0.00	0.00	MH	0.00	0.00	0.00	0.00	72.76	101.67	23	
MH6	AI3	370	48	549.49	548.64	0.50	561.00	7.08	553.92	553.22	.00260	0.44	5.79	0.52	0.13	0.13	0.00	MH	0.00	0.00	0.00	0.00	72.76	101.48	24	
OS5	MH4	90	24	551.25	550.35	1.00	560.00	5.63	554.37	553.69	.00400	0.36	4.57	0.32	0.32	0.00	0.00	OS	0.00	0.00	0.00	0.00	14.35	22.62	25	
MH4	AI3	87	24	550.25	548.64	1.85	560.80	7.11	553.69	551.22	.00400	0.35	4.57	0.32	0.06	0.06	0.00	MH	0.00	0.00	0.00	0.00	14.35	30.77	26	
AI3	EXCI2	17	48	548.54	547.95	3.56	555.90	2.68	553.22	551.97	.00400	0.07	7.24	0.81	0.60	0.58	0.00	45	11.00	1.59	2.50	3.98	91.00	270.58	27	
EXCI2	EXFE1	91	48	547.95	547.03	1.01	556.50	4.53	551.97	551.03	.00440	0.40	7.62	0.90	0.33	0.21	0.00	LOW	3.40	0.32	3.54	1.13	95.78	144.50	28	

\* INDICATES CRITICAL DEPTH

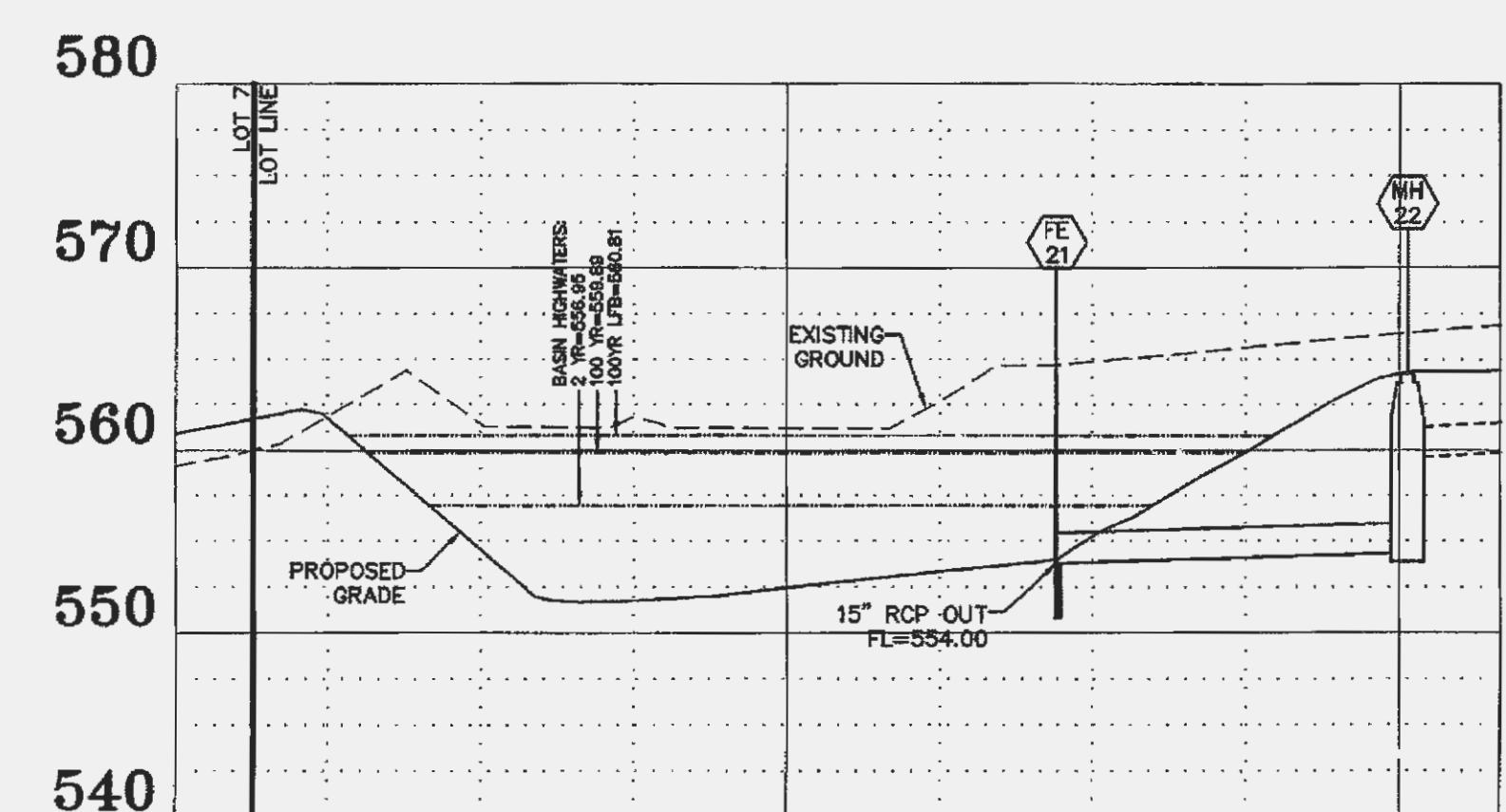


**OVERFALL STRUCTURE '5' DETAIL**  
 NOT TO SCALE

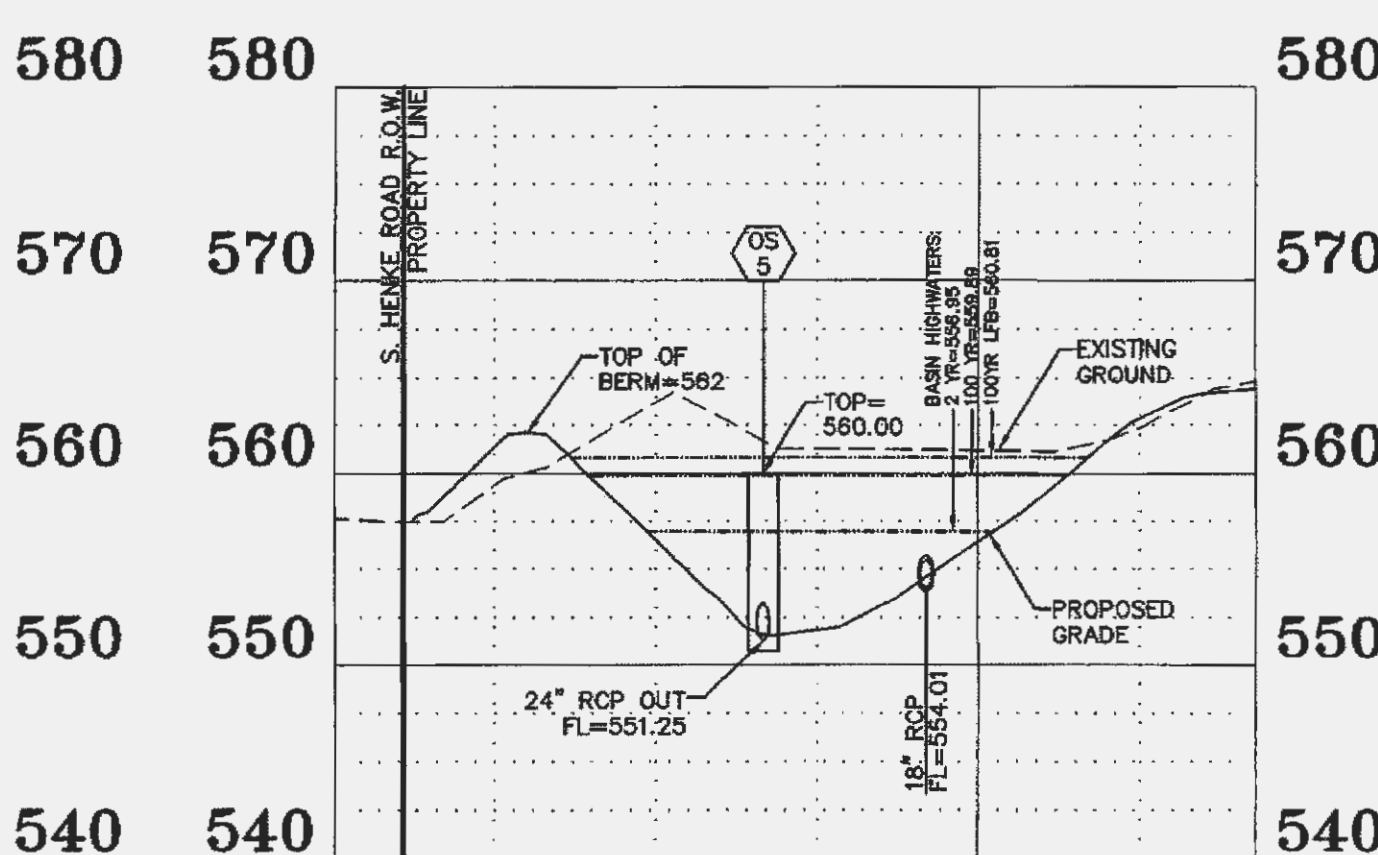
2 YEAR HIGHWATER 556.95  
 100 YEAR HIGHWATER 559.89  
 100 YEAR LOW FLOW BLOCKED HIGHWATER 560.81



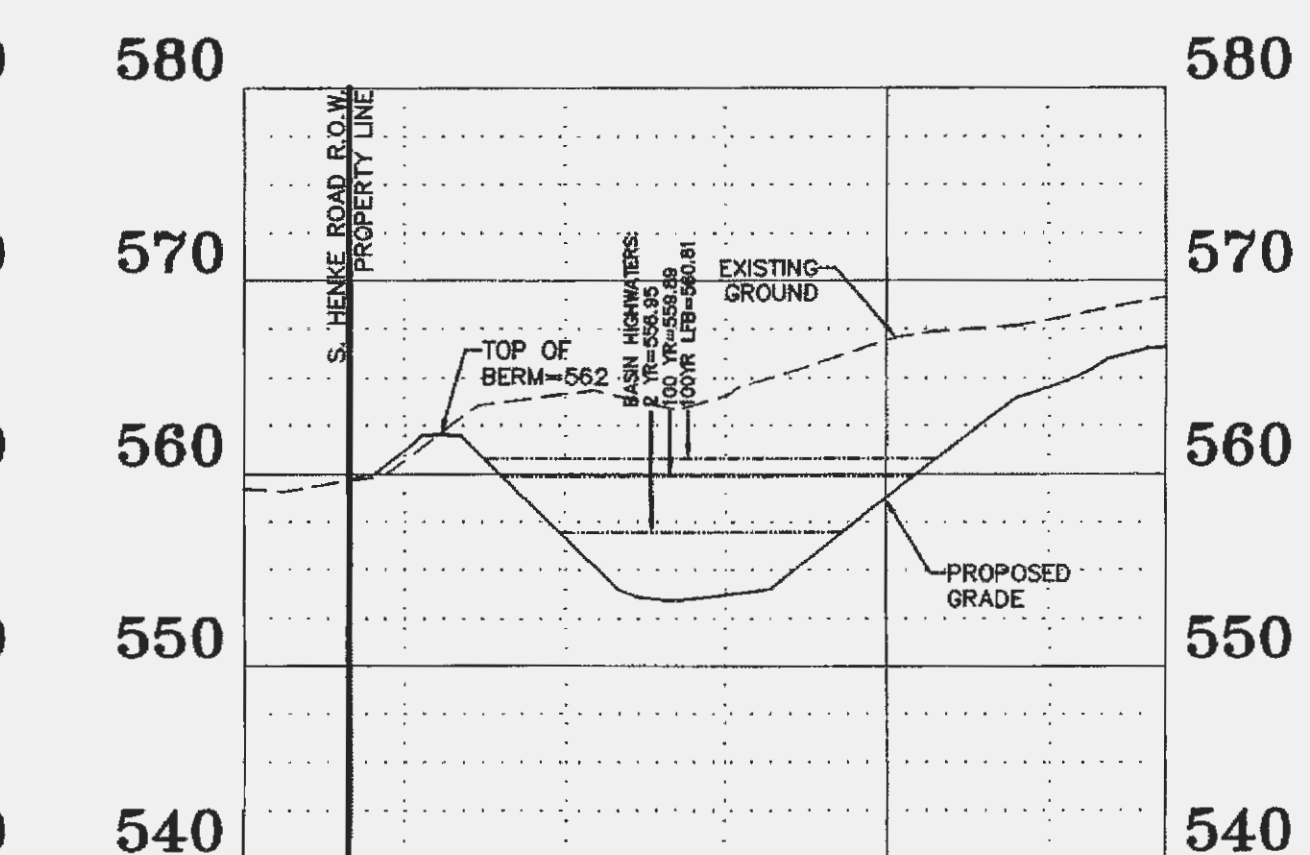
**DEBRIS CAGE**  
 NOT TO SCALE



**BASIN SECTION A**  
 SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



**BASIN SECTION B**  
 SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



**BASIN SECTION C**  
 SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'

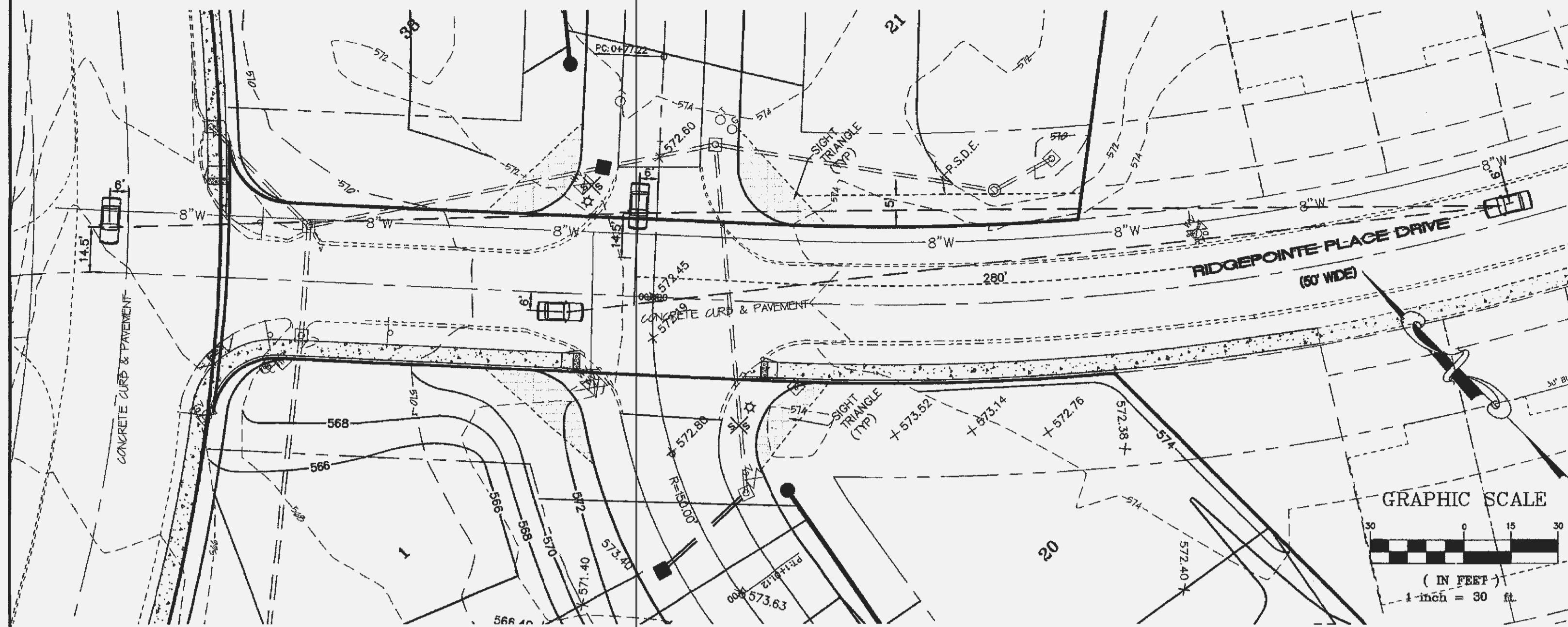


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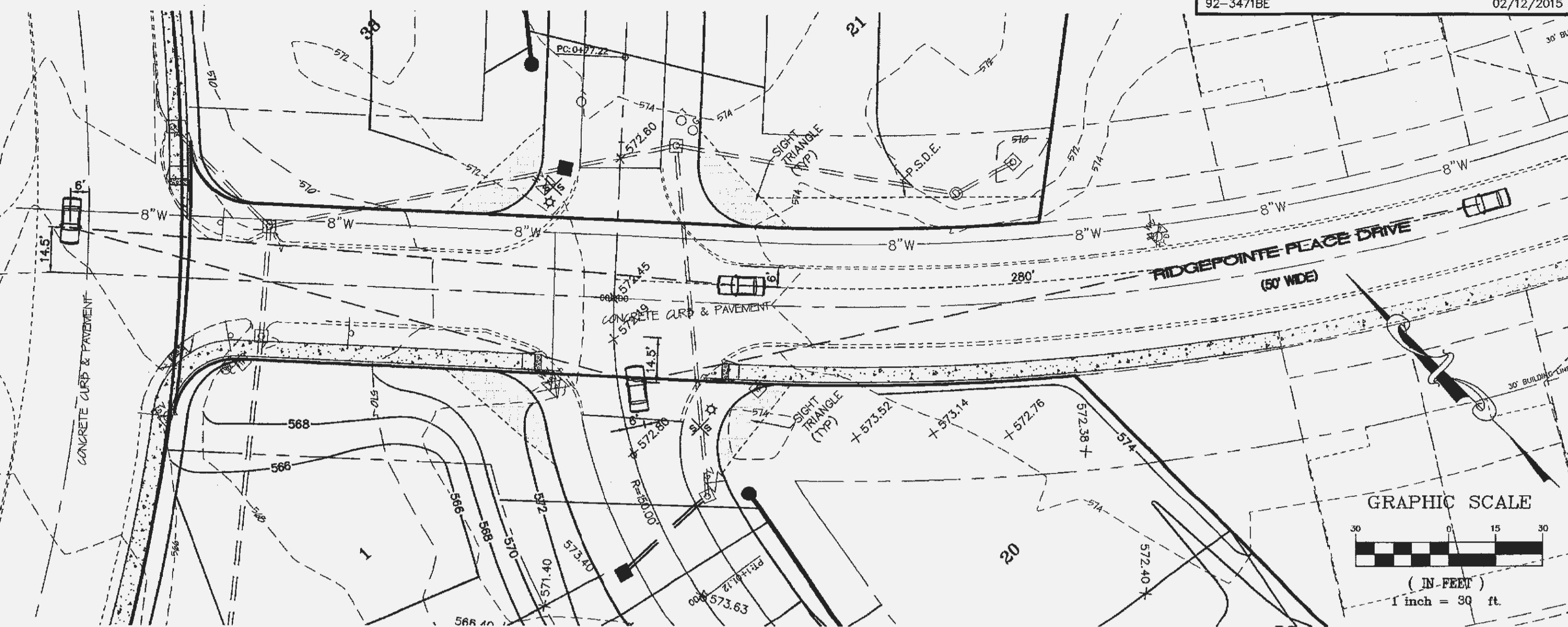




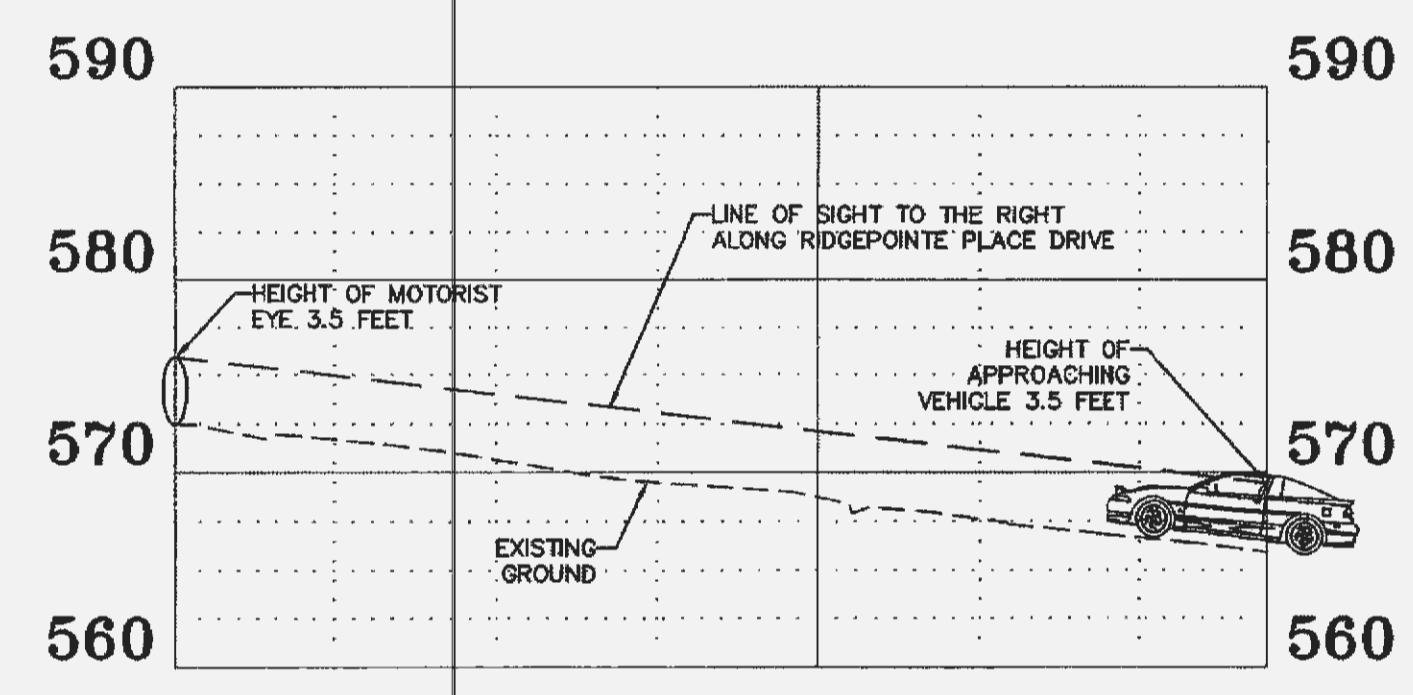




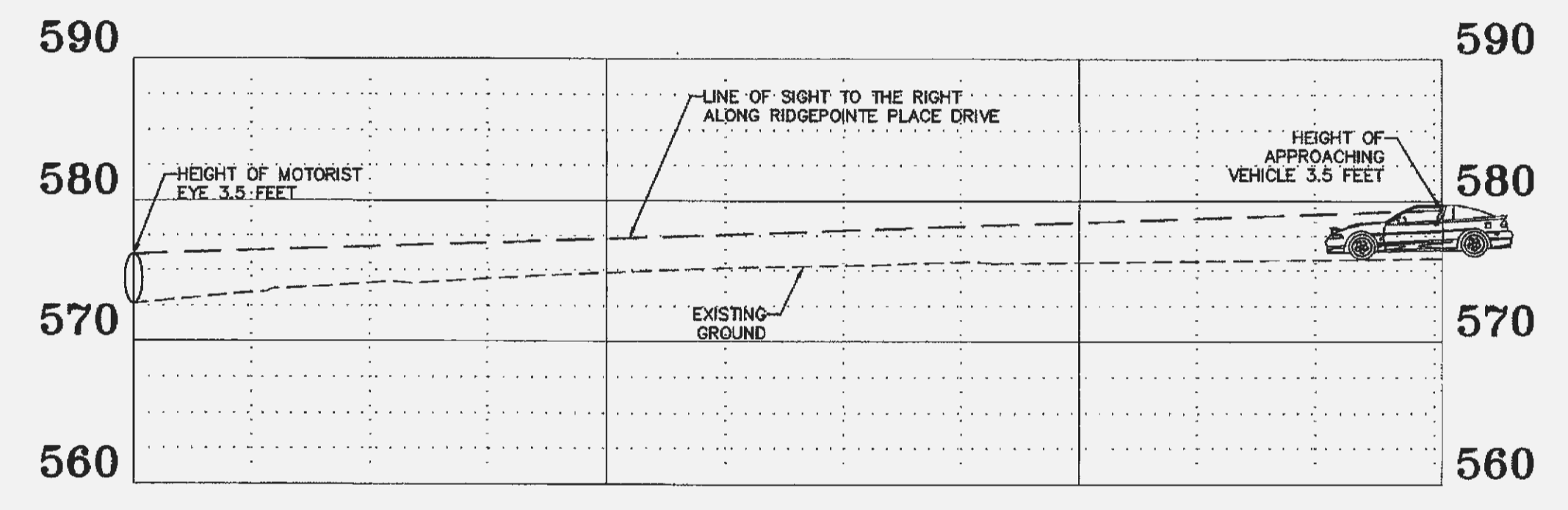
**SIGHT DISTANCE 1**



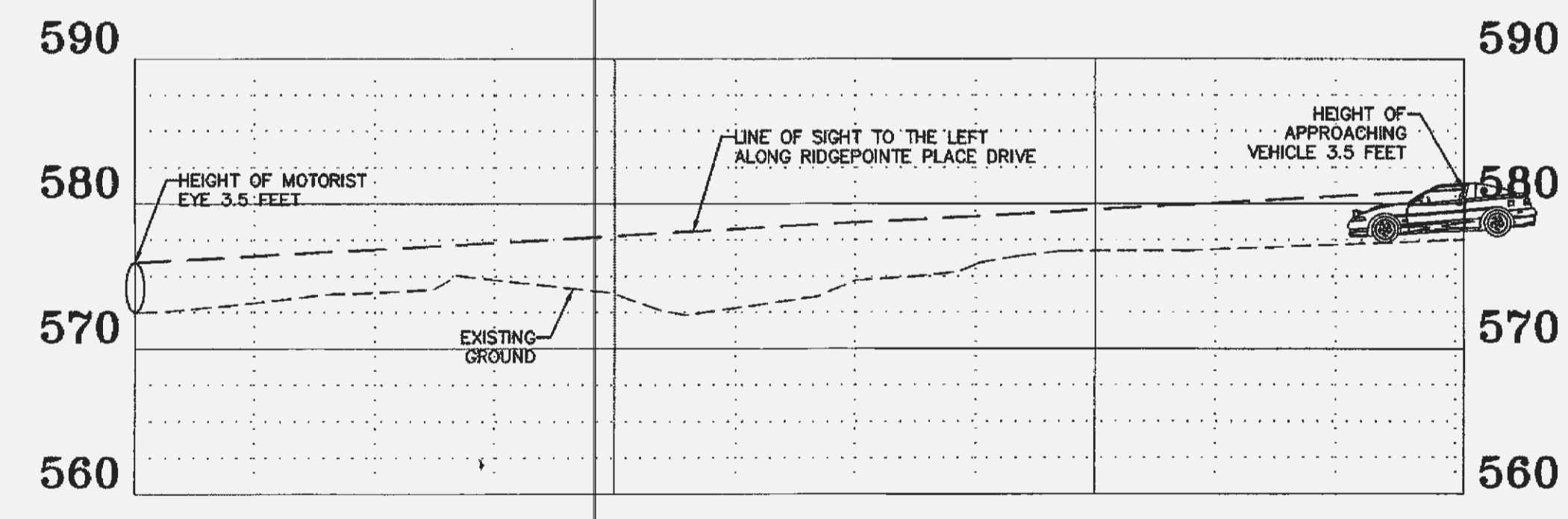
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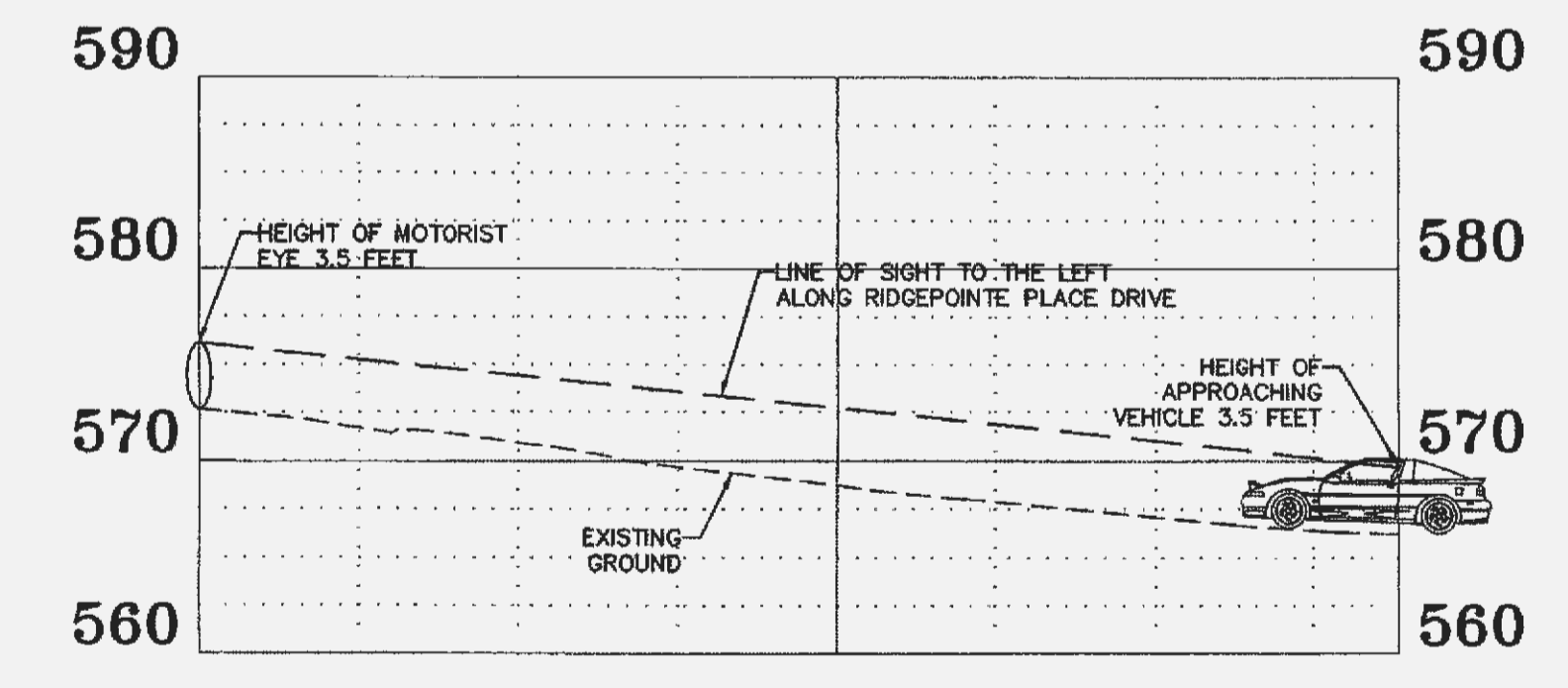
**SIGHT DISTANCE 1 - LOOKING RIGHT**  
 SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



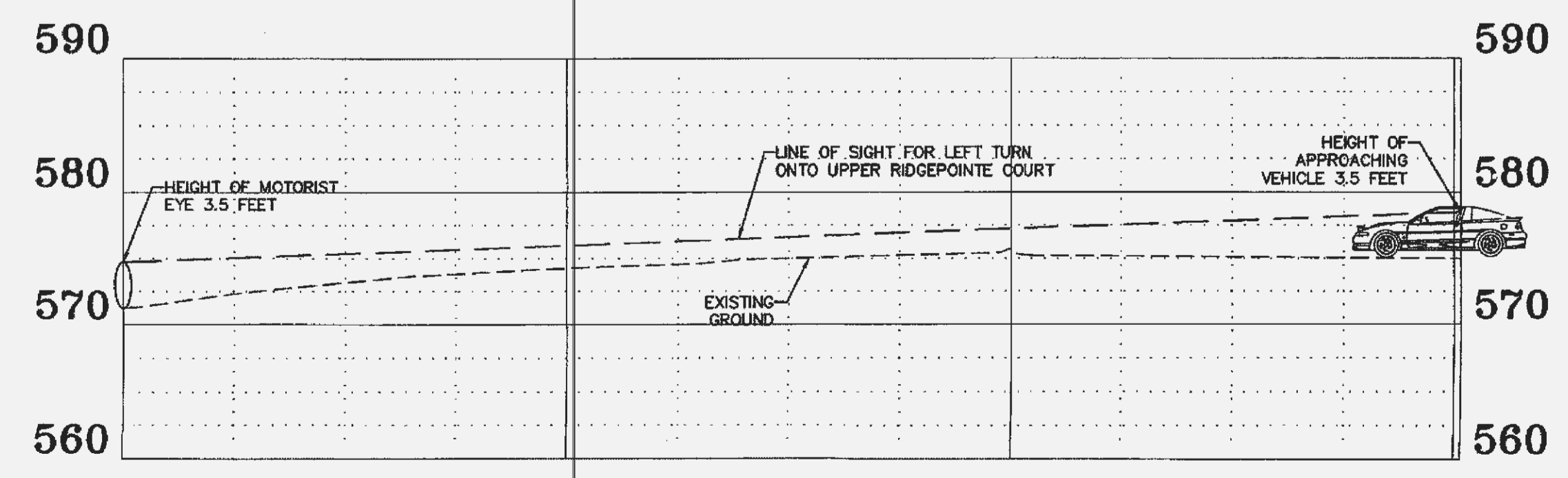
**SIGHT DISTANCE 2 - LOOKING RIGHT**  
 SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



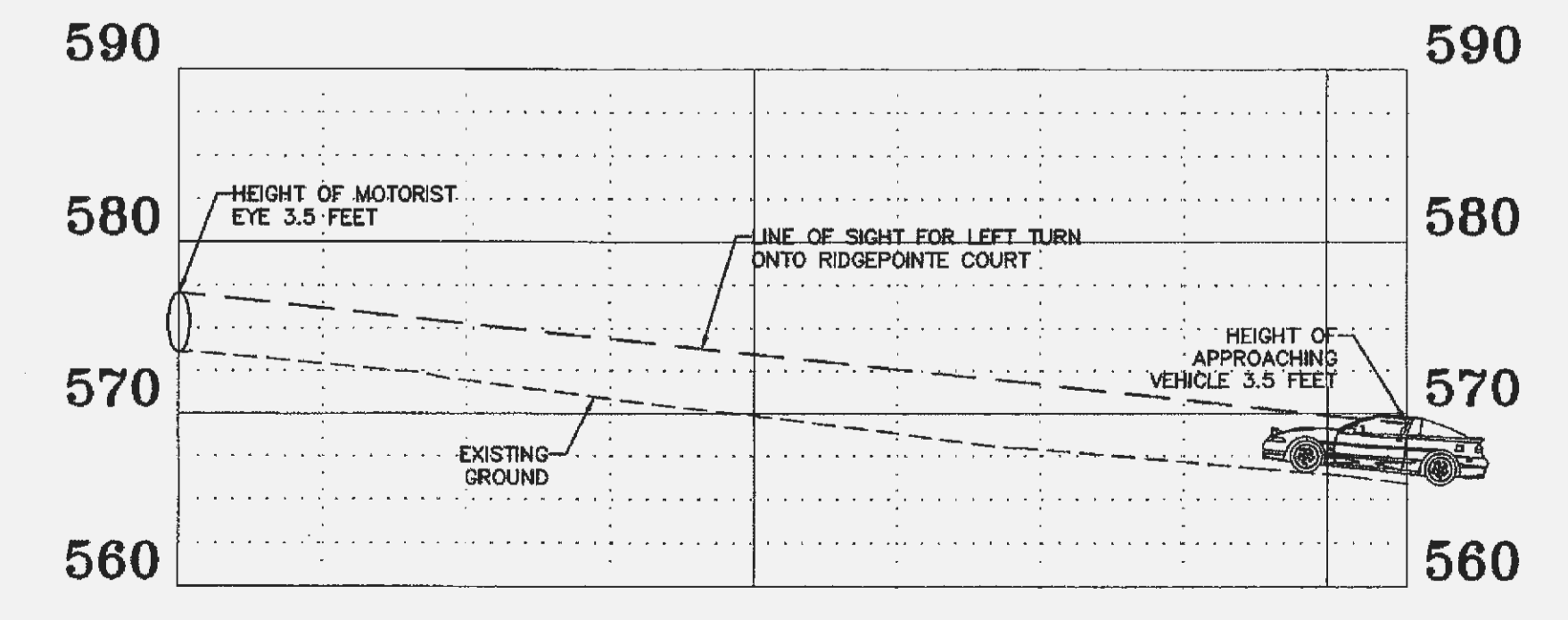
**SIGHT DISTANCE 1 - LOOKING LEFT**  
 SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



**SIGHT DISTANCE 2 - LOOKING LEFT**  
 SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



**SIGHT DISTANCE 1 - LEFT TURN**  
 SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



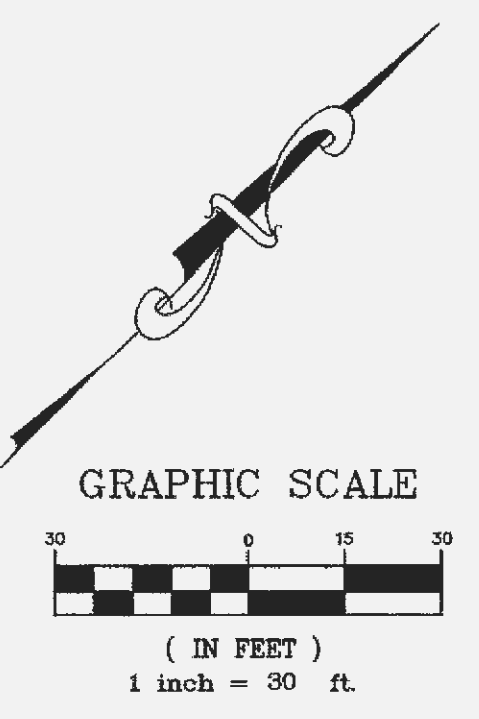
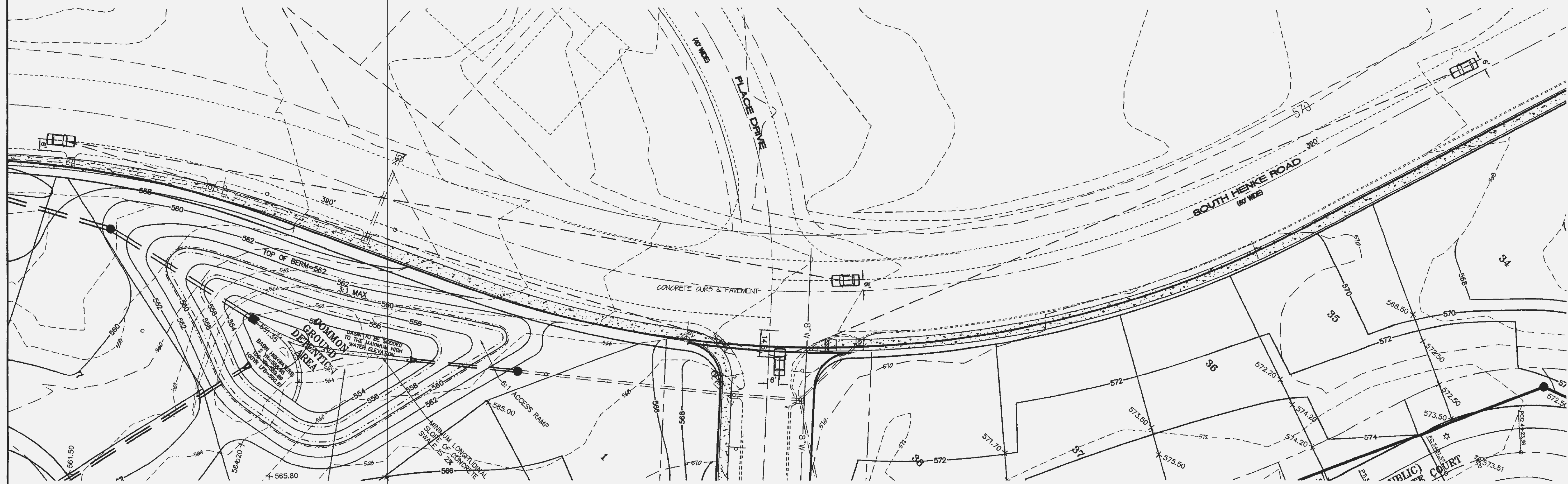
**SIGHT DISTANCE 2 - LEFT TURN**  
 SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'

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.

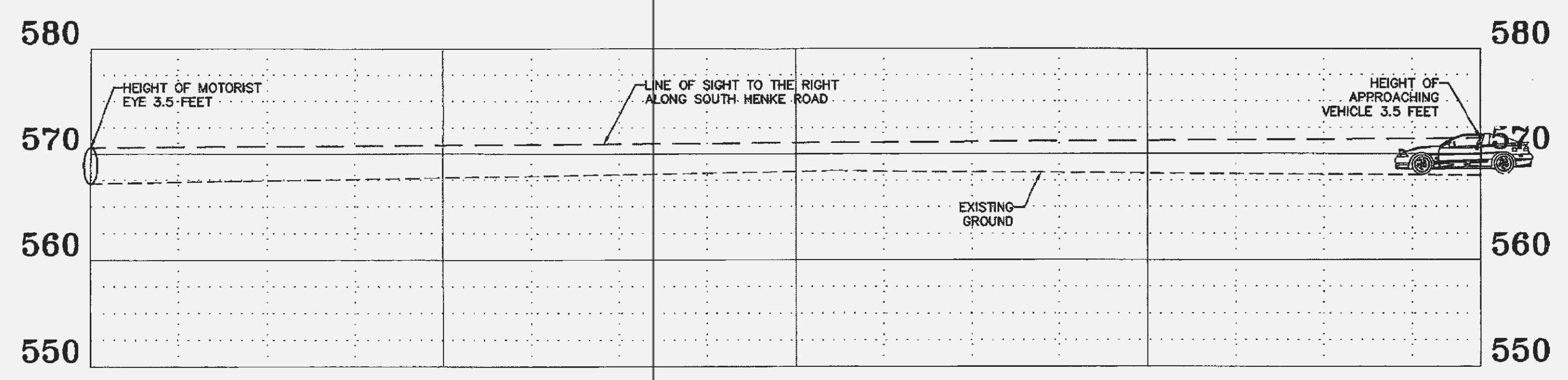


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 Civil Engineer  
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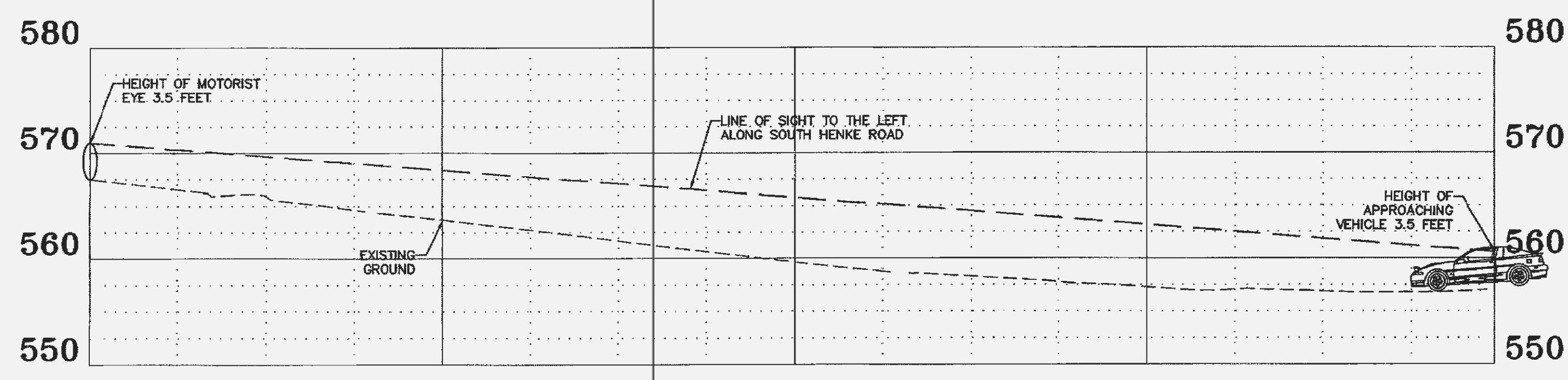




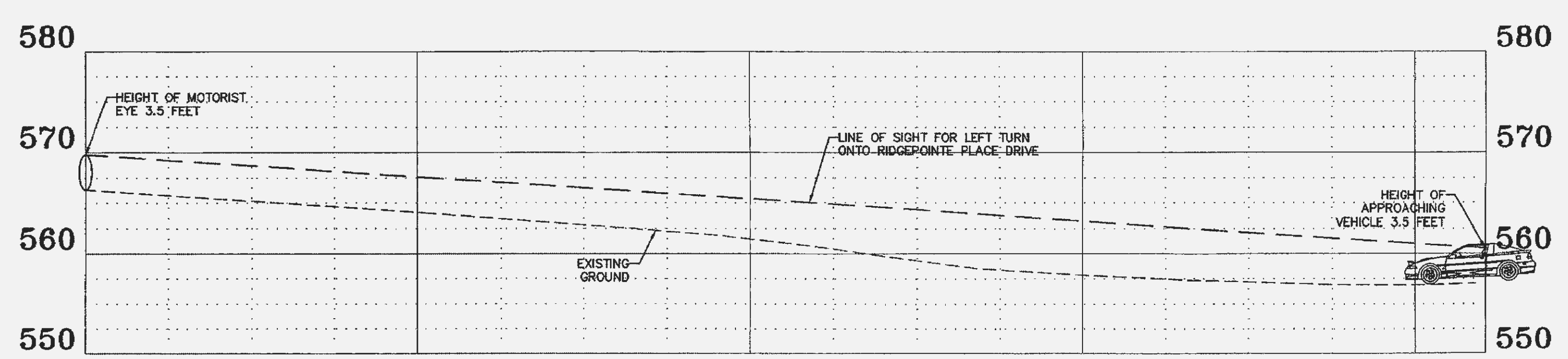
**SIGHT DISTANCE 3**



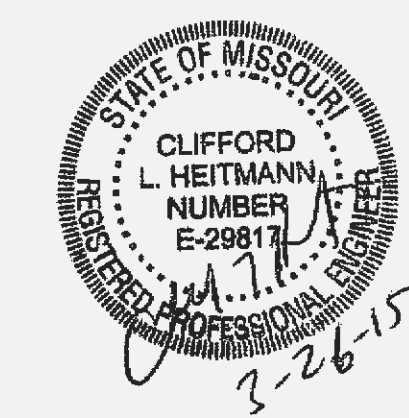
**SIGHT DISTANCE 3 - LOOKING RIGHT**  
 SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



**SIGHT DISTANCE 3 - LOOKING LEFT**  
 SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



**SIGHT DISTANCE 3 - LEFT TURN**  
 SCALES:  
 HORIZ. 1"=30'  
 VERT. 1"=10'



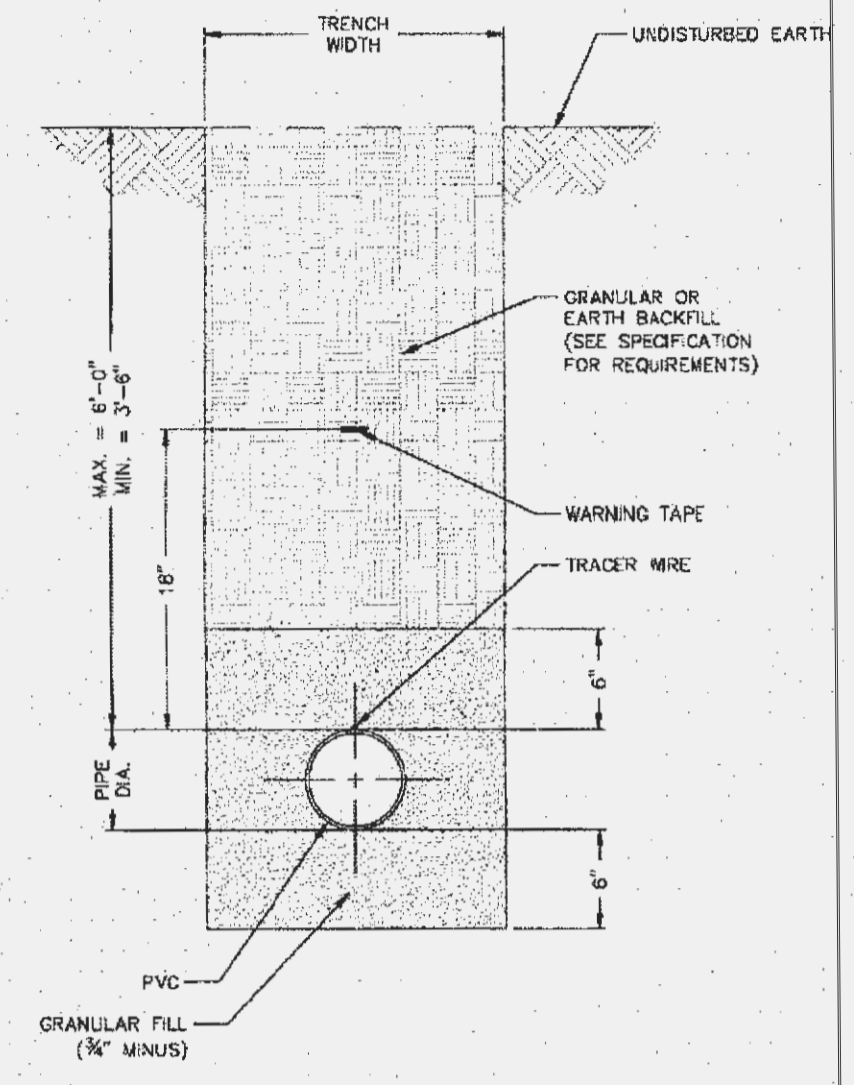
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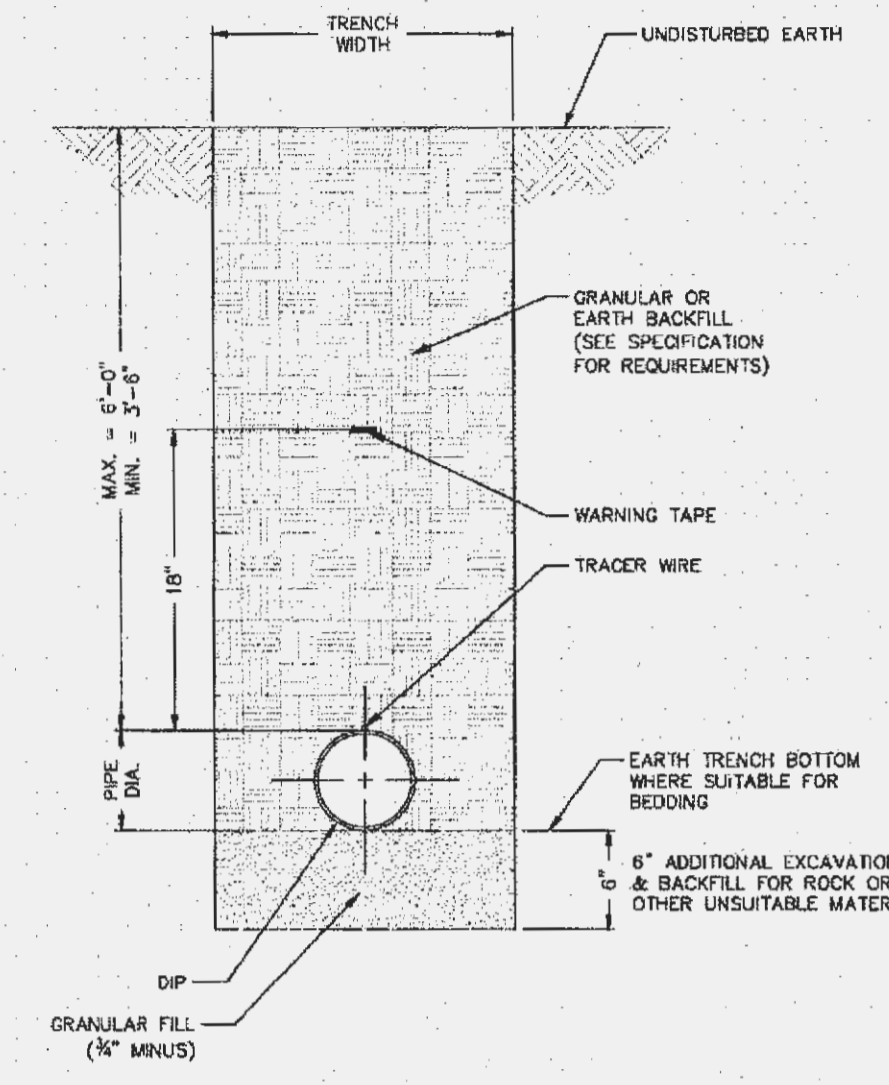




**NOTES**

- 1) SEE SPECIFICATIONS FOR ADDITIONAL DETAILS FOR BEDDING AND BACKFILL.

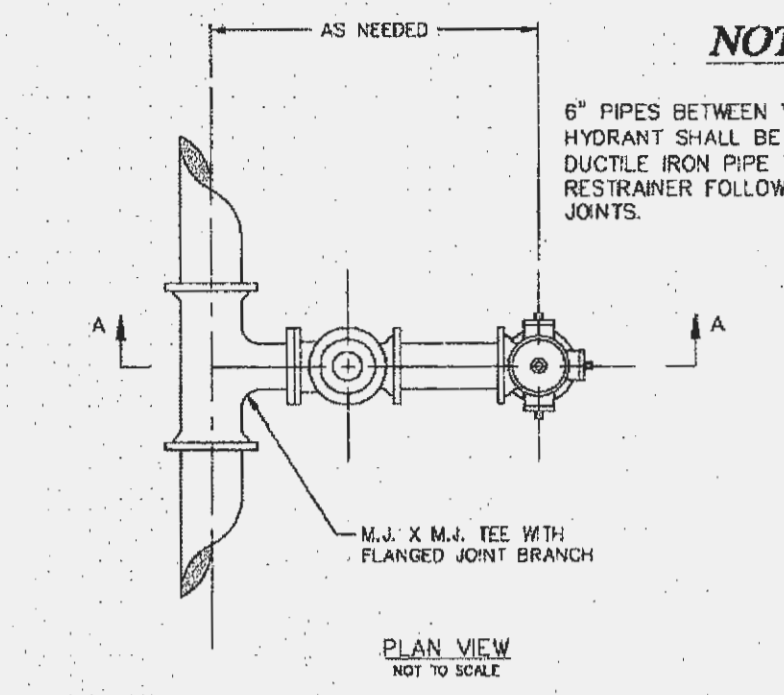
TYPICAL TRENCH SECTION FOR PVC PIPE  
 NOT TO SCALE  
**DETAIL "A"**  
 PAGE 1 OF 2



**NOTES**

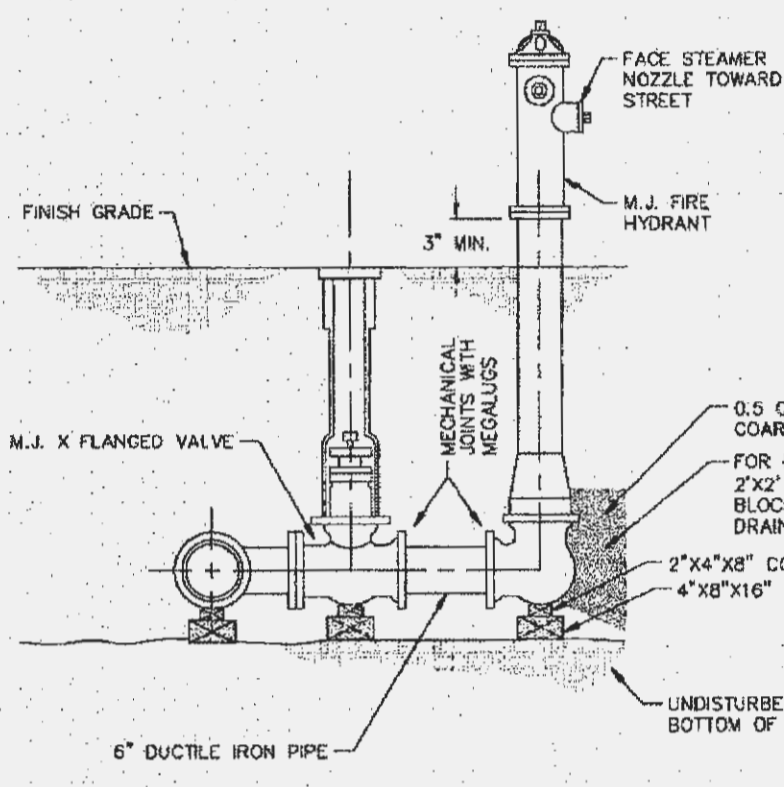
- 1) POLYWRAP REQUIRED FOR DUCTILE IRON PIPE
- 2) SEE SPECIFICATIONS FOR ADDITIONAL DETAILS FOR BEDDING AND BACKFILL.

TYPICAL TRENCH SECTION FOR DUCTILE IRON PIPE  
 NOT TO SCALE  
**DETAIL "A"**  
 PAGE 2 OF 2



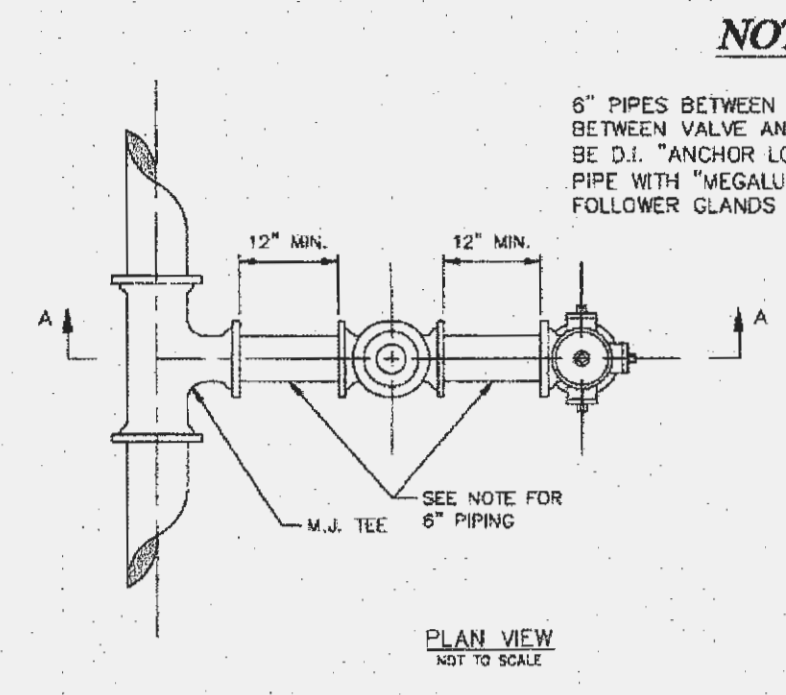
**NOTES**

- 6" PIPES BETWEEN VALVE AND FIRE HYDRANT SHALL BE D.I. "ANCHOR LOCKS" OR DUCTILE IRON PIPE WITH "MEGALUG" RESTRAINER FOLLOWER GLANDS ON ALL M.J. JOINTS.



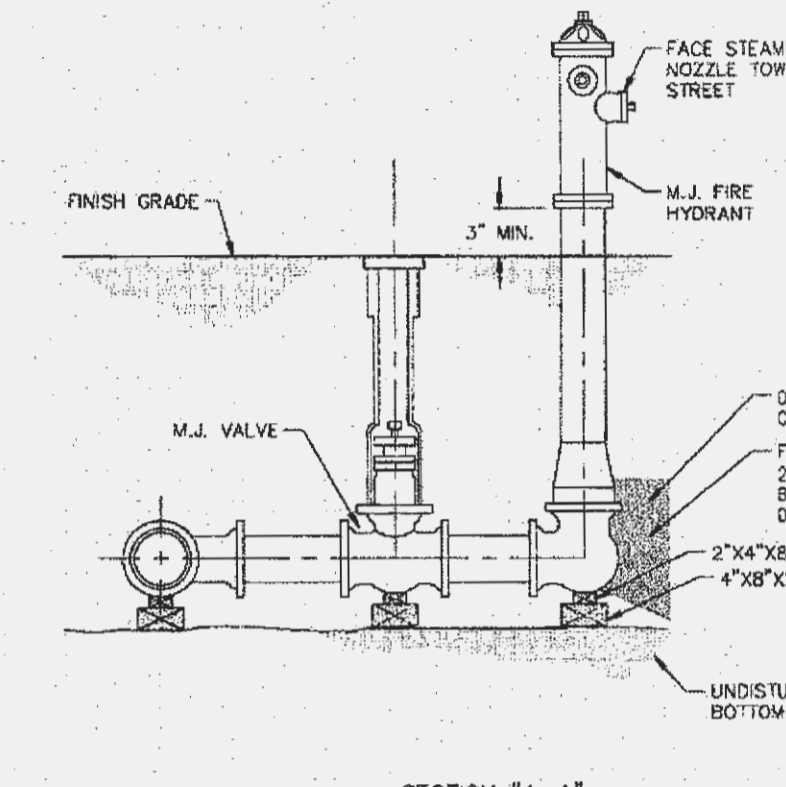
SECTION "A-A"

FIRE HYDRANT DETAIL  
**DETAIL "B"**  
 PAGE 1 OF 3



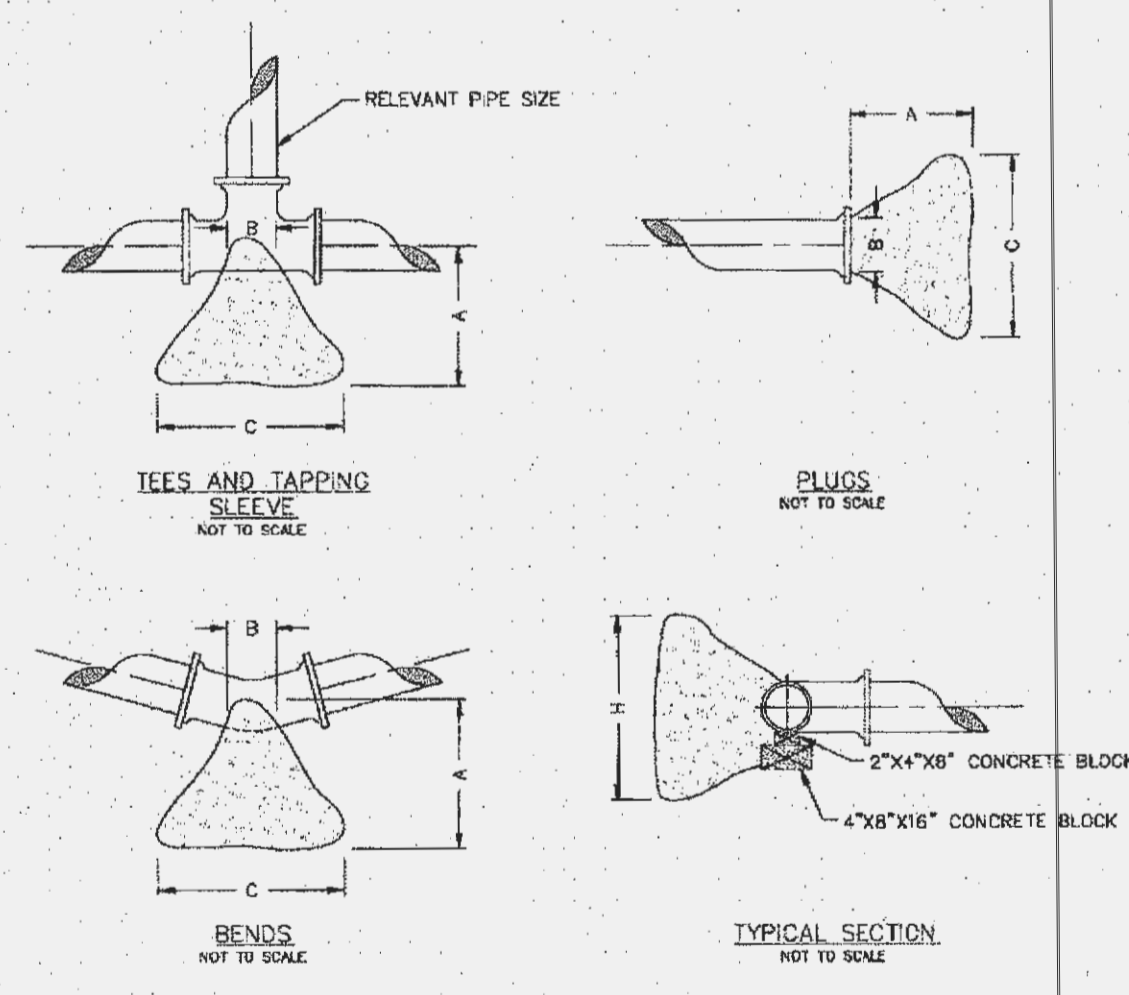
**NOTES**

- 6" PIPES BETWEEN TEE AND VALVE AND BETWEEN VALVE AND FIRE HYDRANT SHALL BE D.I. "ANCHOR LOCKS" OR DUCTILE IRON PIPE WITH "MEGALUG" RESTRAINER FOLLOWER GLANDS ON ALL M.J. JOINTS.



SECTION "A-A"

FIRE HYDRANT DETAIL  
**DETAIL "B"**  
 PAGE 2 OF 3

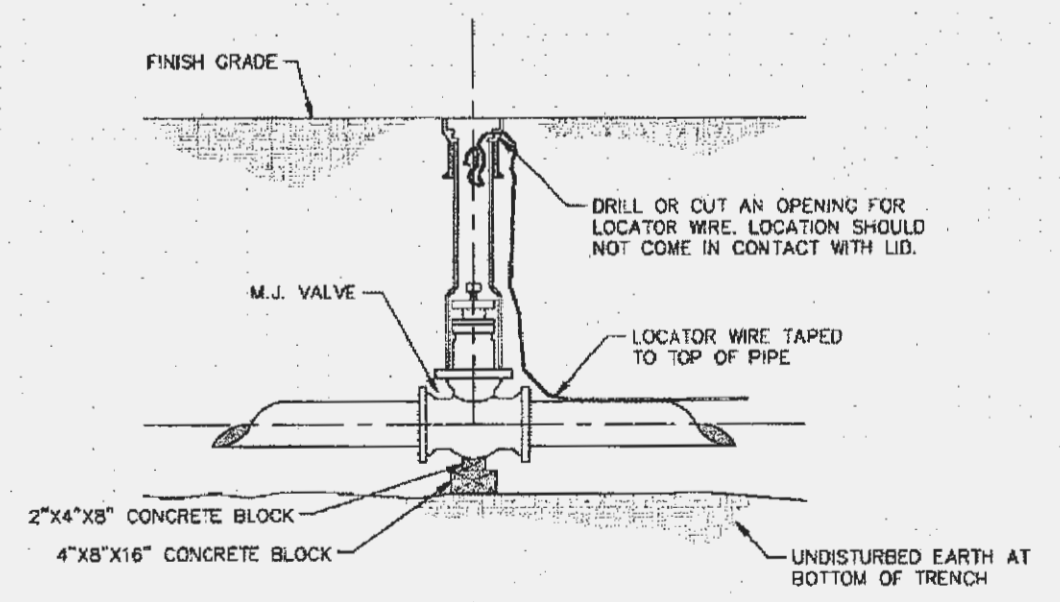


**THRUST BLOCK DIMENSIONS - INCHES**

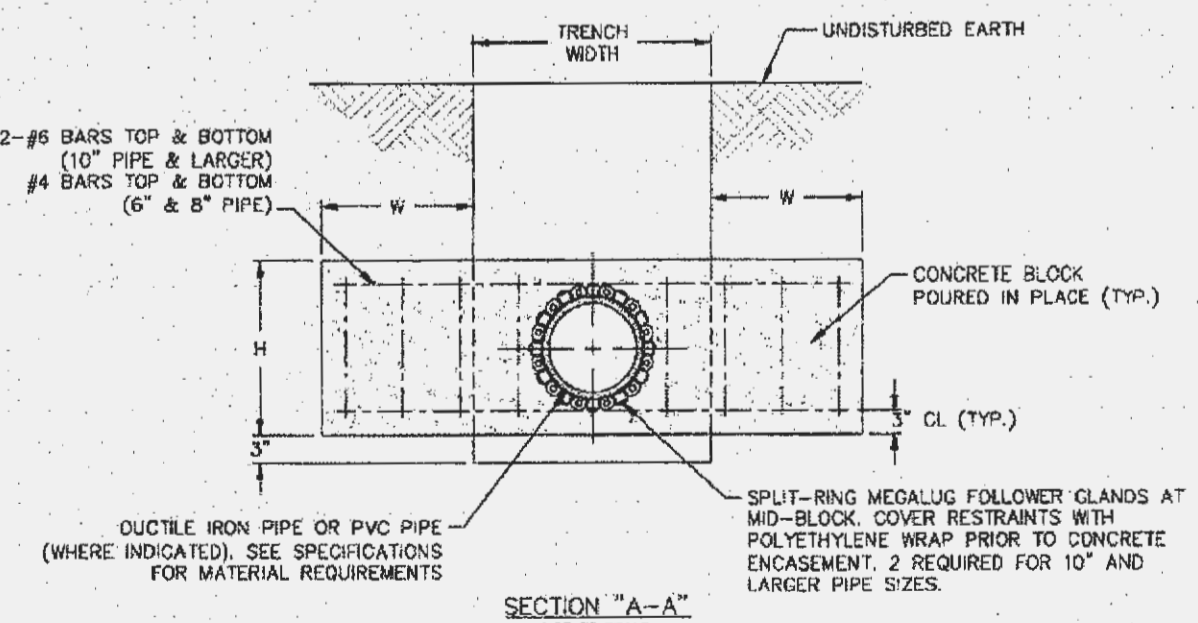
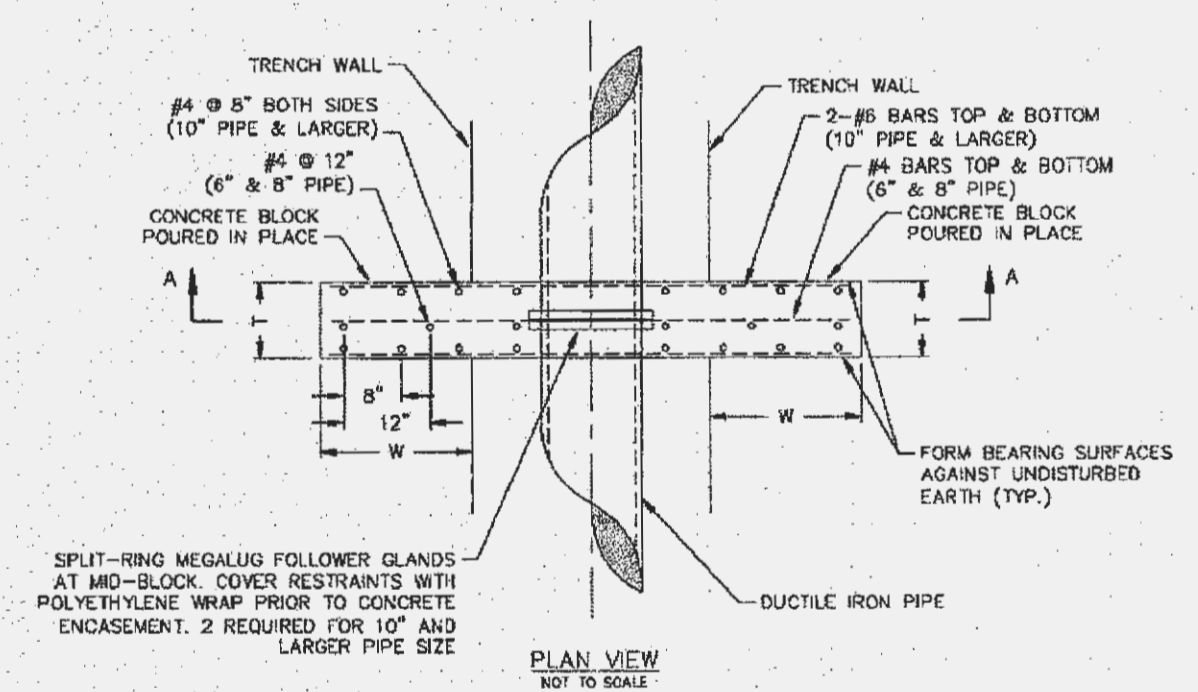
PIPE DIA.	ALL FTGS.		TEE PLUG TAPPING		90 DEGREE BEND		45 DEGREE BEND		22-1/2 BEND		11-1/4 BEND	
	A	B	C	H	C	H	C	H	C	H	C	H
4	14	4	24	12	26	15	18	12	12	12	12	12
6	16	6	36	18	36	24	30	18	24	12	12	12
8	20	8	36	30	42	36	36	24	24	18	18	12
10	20	10	48	36	66	36	36	36	28	24	18	18
12	24	12	68	36	82	42	52	36	40	24	28	18

**NOTE**  
 FOR FITTINGS LARGER THAN 12", SPECIAL RESTRAINT DESIGNS ARE REQUIRED.

HORIZONTAL THRUST BLOCKING  
**DETAIL "C"**



GATE VALVE DETAIL  
 NOT TO SCALE  
**DETAIL "D"**



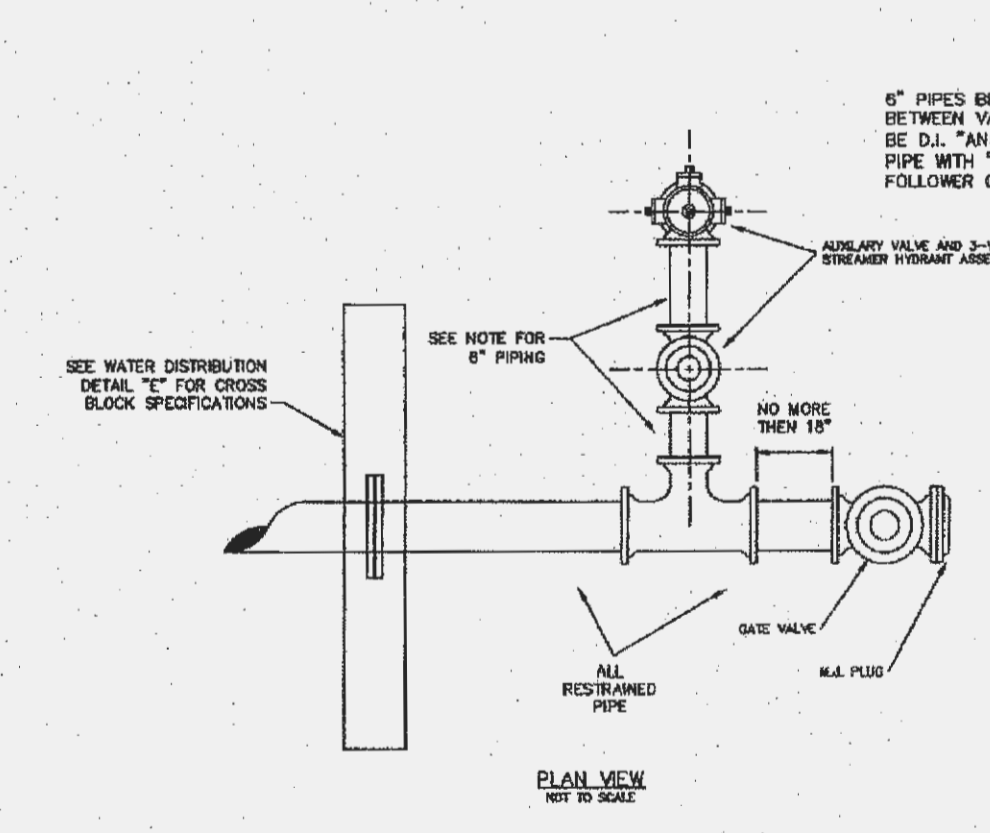
**NOTES**

- 1) CONSTRUCT CROSS BLOCKS AT A MINIMUM OF 15' FROM CONNECTION POINT AND 5' FROM THE BELL END OF PIPE.
- 2) CROSS BLOCKS SHALL BE PRE-POURED PRIOR TO SHUTDOWN AND CONNECTIONS.

**CROSS BLOCK DIMENSIONS**

PIPE DIA. "D"	WIDTH "W"	HEIGHT "H"	THICKNESS "T"
4	12	12	12
6	24	24	12
8	36	36	12
10	36	36	18
12	36	36	18

CROSS BLOCK  
**DETAIL "E"**

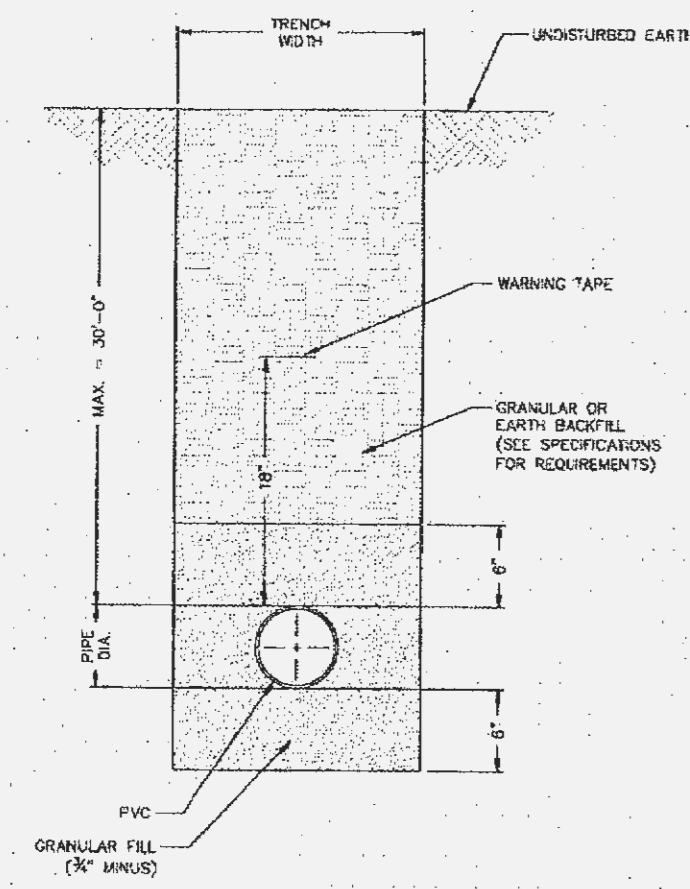


**NOTES**

- 6" PIPES BETWEEN TEE AND VALVE AND BETWEEN VALVE AND FIRE HYDRANT SHALL BE D.I. "ANCHOR LOCKS" OR DUCTILE IRON PIPE WITH "MEGALUG" RESTRAINER FOLLOWER GLANDS ON ALL M.J. JOINTS.

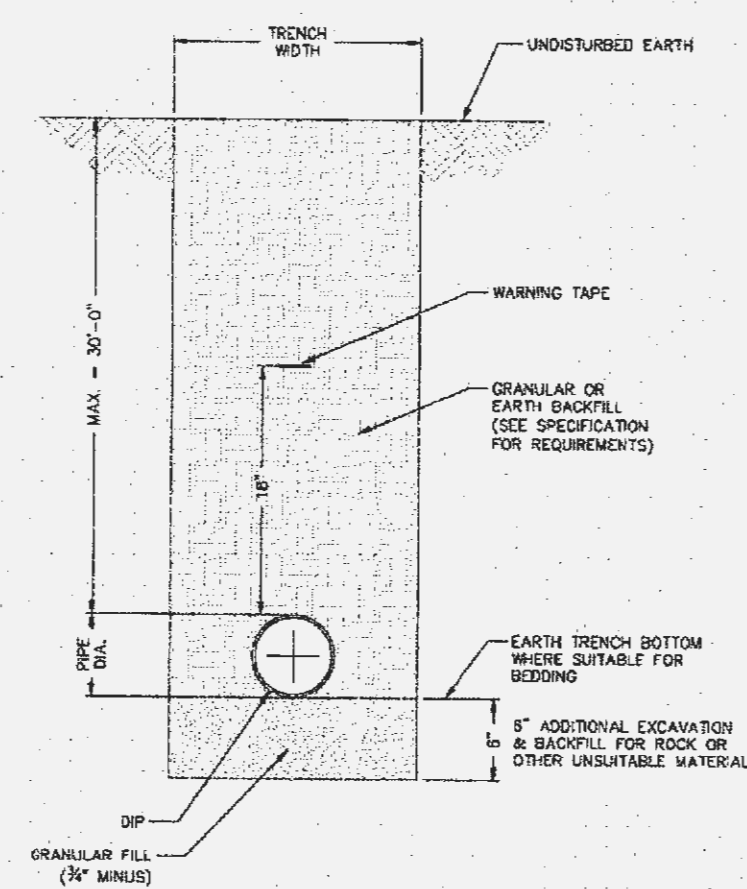
WATER MAIN  
 TERMINATION DETAIL





NOTE:  
 1) BACKFILL TO BE COMPACTED TO 95% PER STANDARD PROCTOR TEST METHOD (ASTM D998)  
 2) SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

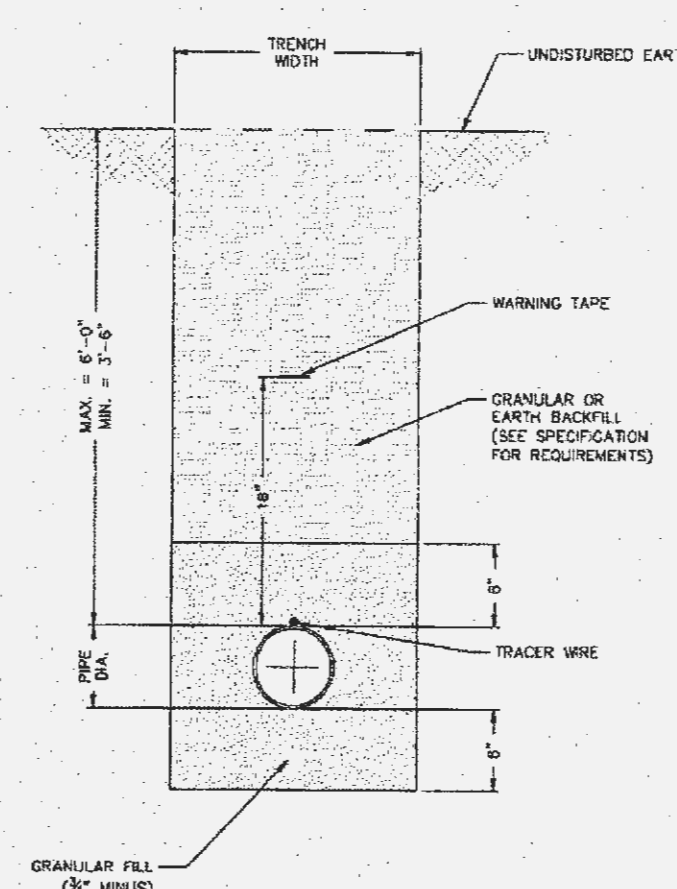
TYPICAL GRAVITY SEWER TRENCH SECTION  
 NOT TO SCALE  
**DETAIL "A"**  
 PAGE 1 OF 3



**NOTES**

SEE SPECIFICATIONS FOR ADDITIONAL DETAILS FOR BEDDING AND BACKFILL.

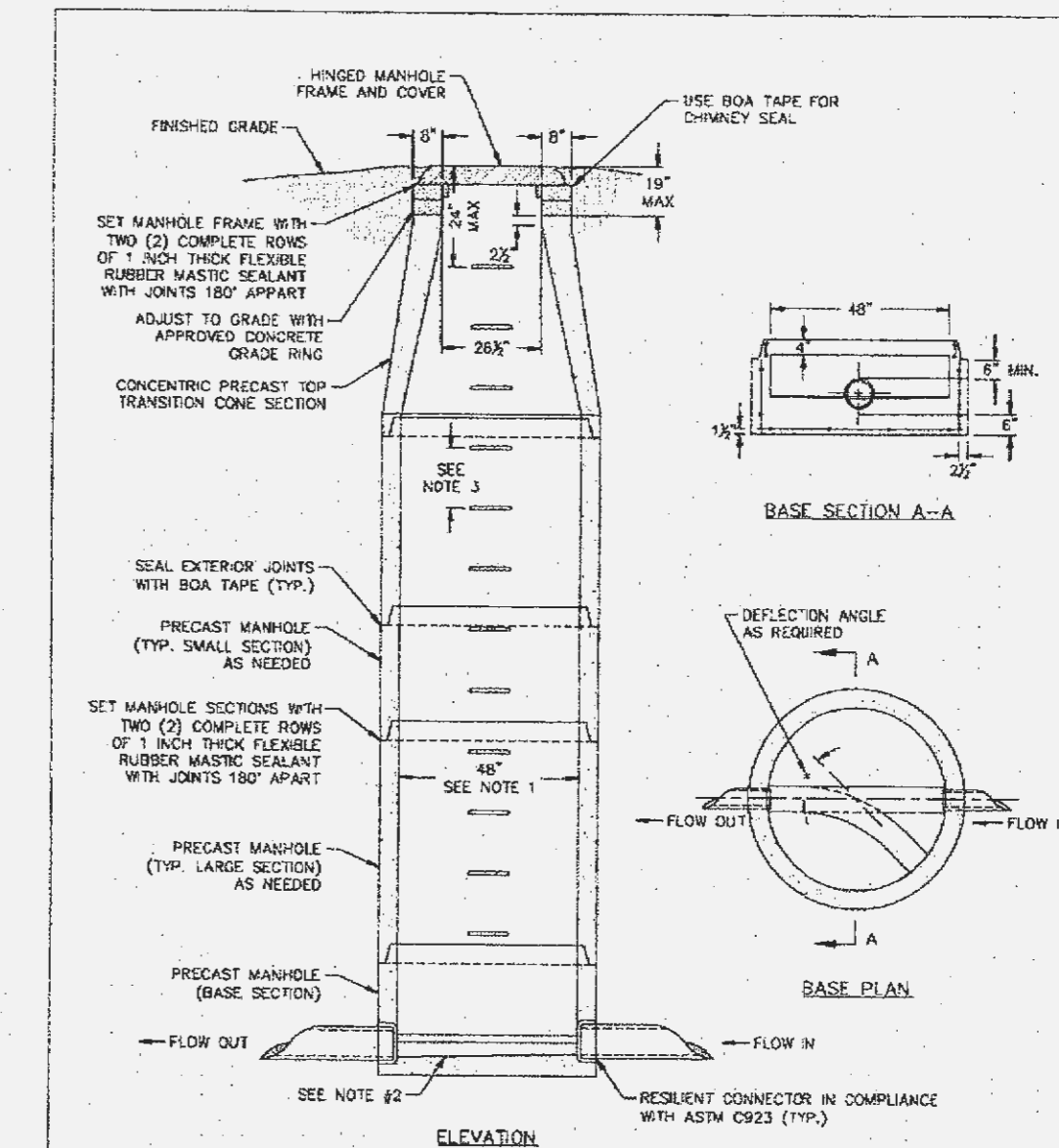
TYPICAL GRAVITY SEWER TRENCH SECTION  
 NOT TO SCALE  
**DETAIL "A"**  
 PAGE 2 OF 3



**NOTES**

SEE SPECIFICATIONS FOR ADDITIONAL DETAILS FOR BEDDING AND BACKFILL.

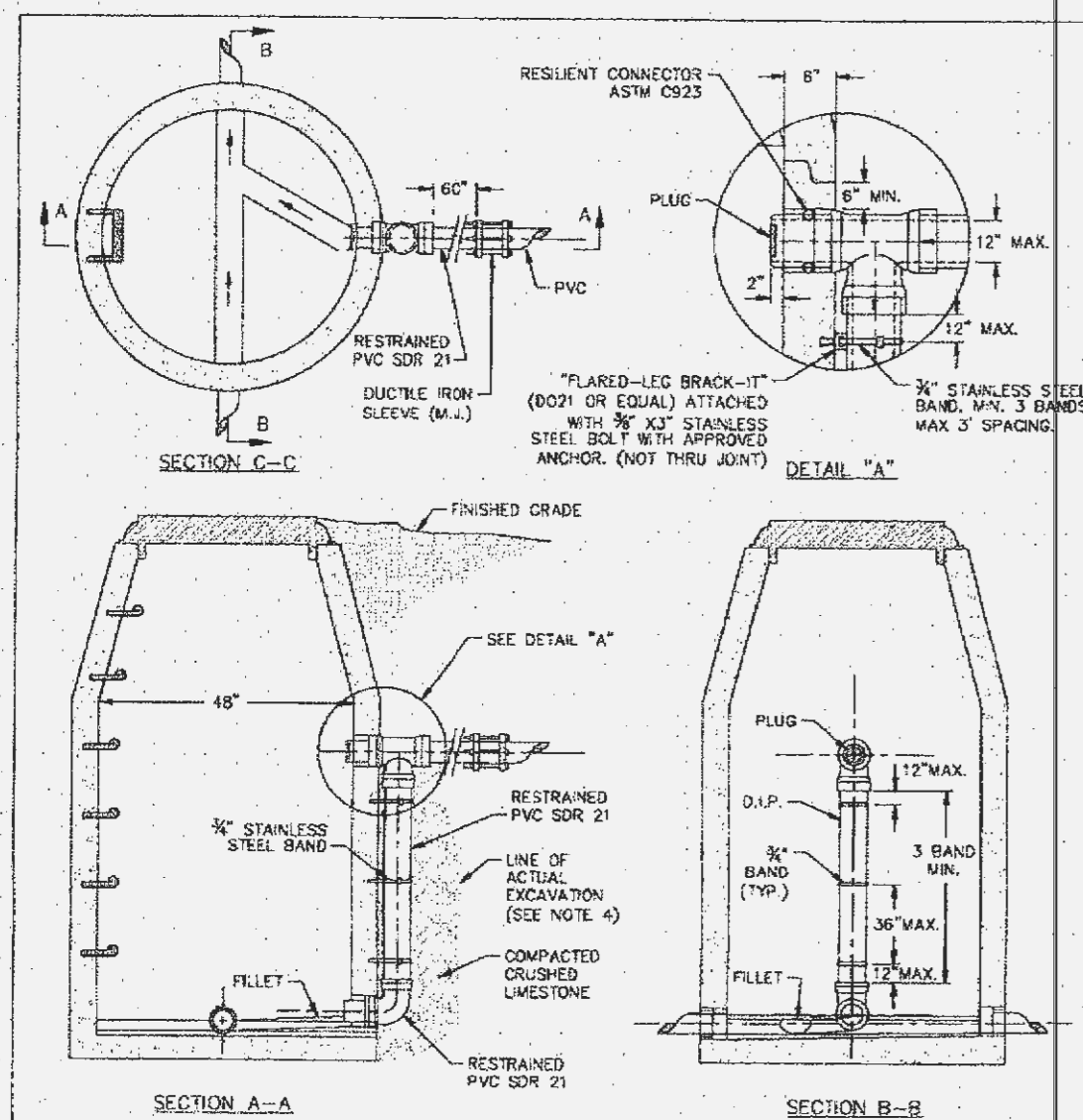
TYPICAL TRENCH SECTION  
 NOT TO SCALE  
**DETAIL "A"**  
 PAGE 3 OF 3



**NOTES:**

- 1) THE MINIMUM INSIDE DIAMETER FOR THE BASE AND RISER SECTIONS SHALL BE 48" FOR ALL SANITARY SEWERS. MANHOLE SHALL MEET ASTM C-478 REQUIREMENTS.
- 2) FLOW LINE ELEVATION OF INCOMING PIPES SHALL BE 1" HIGHER THAN THAT OF OUTGOING PIPE. SHALL EXTEND 45° FROM WALL.
- 3) SHAFT STEPS UNIFORMLY SPACED AT 16" O/C. STEPS SHOULD NOT BE OVER TOP OF PIPES AND SHALL EXTEND 45° FROM WALL.
- 4) LINE OUTSIDE WITH LACRYNASE ASPHALT @ 20 M/L

TYPICAL MANHOLE  
 NOT TO SCALE  
**DETAIL "B"**



**NOTES:**

- 1) THE MINIMUM INSIDE DIAMETER FOR THE BASE AND RISER SECTIONS SHALL BE 48" FOR ALL SANITARY SEWERS.
- 2) NEW OUTSIDE DROP OR EXISTING MANHOLE REQUIRES THAT THE FLOW LINE OF THE NEW DROP PIPE ELBOW BE CONSTRUCTED AT THE SAME ELEVATION AS THE SPRINGLINE OF THE EXISTING SEWER MAIN AT THE CENTER OF THE EXISTING MANHOLE. A CLASS "A" CONCRETE FILLET AND INVERT SHALL BE CONSTRUCTED FOR DROP PIPE.
- 3) DIAMETER OF DROP PIPE FOR COMBINED SEWERS AND SANITARY SEWERS IS THE SAME AS INCOMING PIPE UNLESS OTHERWISE SHOWN ON PRODUCT PLANS.
- 4) IF EXCAVATED SPACE OUTSIDE OF DROP PIPE EXCEEDS ONE FOOT (1'), PROVIDE 6" CLASS "A" CONCRETE ENCASEMENT ON INCOMING LINE FROM WALL OF MANHOLE TO A MINIMUM OF TWO FEET INTO UNDISTURBED EARTH WITH A MINIMUM OF 4-#4 REBARS FOR THE LENGTH OF ENCASEMENT.

TYPICAL DROP MANHOLE  
 NOT TO SCALE  
**DETAIL "C"**



ROUND PIPE				HORIZONTAL ELLIPTICAL PIPE			
INSIDE DIAMETER OF PIPE (INCHES)	"W" PAYLINE WIDTH OF TRENCH (INCHES)	"W" PAYLINE WIDTH OF TRENCH (FEET)	PAY-VOLUMES CONCRETE ENCASUREMENT	INSIDE DIMENSIONS OF PIPE (INCHES)	"W" PAYLINE WIDTH OF TRENCH (INCHES)	"W" PAYLINE WIDTH OF TRENCH (FEET)	PAY-VOLUMES CONCRETE ENCASUREMENT
4	30	2.50	3.28				
6	30	2.50	3.59				
8	30	2.50	3.87				
10	30	2.50	4.09				
12	30	2.50	4.26				
15	36	3.00	5.55				
18	36	3.00	5.77	14 x 23	41	3.42	5.94
21	39	3.25	6.61				
24	42	3.50	7.39	19 x 30	49	4.08	7.68
27	45	3.75	8.18	22 x 34	53	4.42	8.61
30	49	4.08	9.30	24 x 38	58	4.83	9.70
33	53	4.42	10.53	27 x 42	62	5.17	10.71
36	56	4.67	11.43	29 x 46	66	5.50	11.72
DISCONTINUED							
42	63	5.25	13.38	34 x 53	75	6.25	14.05
48	70	5.83	15.67	38 x 60	83	6.92	16.18
54	77	6.42	18.15	43 x 68	92	7.67	18.81
60	84	7.00	20.73	48 x 76	101	8.42	21.59
66	91	7.58	23.45	53 x 83	109	9.08	24.35
72	98	8.17	26.37	58 x 91	118	9.83	27.45
78	105	8.75	29.39	63 x 98	126	10.50	30.50
84	112	9.33	32.57	68 x 106	135	11.25	33.91
90	119	9.92	35.90	72 x 113	143	11.92	36.99
96	126	10.50	39.37	77 x 121	152	12.67	40.69
102	133	11.08	42.99	82 x 128	160	13.33	44.45
108	140	11.67	46.75	87 x 136	168	14.00	47.79
114	147	12.25	50.66	92 x 143	176	14.67	51.70
120	154	12.83	54.72	97 x 151	185	15.42	56.01
126	161	13.42	58.92				
132	168	14.00	63.27	108 x 168	202	16.83	64.48
144	182	15.17	72.40	116 x 180	218	18.17	73.59

**TABLE 1**  
 PAYLINE WIDTHS OF TRENCH AND PAY-QUANTITIES OF CONCRETE

METROPOLITAN ST. LOUIS SEWER DISTRICT  
 Standard Details of Sewer Construction

Dr. B.E.B./Ch. J.C.K. 2009 SHEET 1

