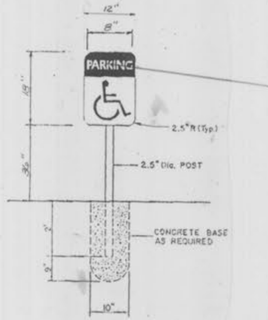
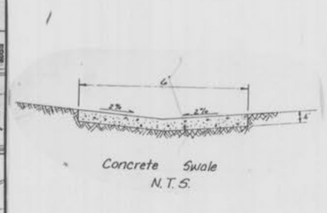
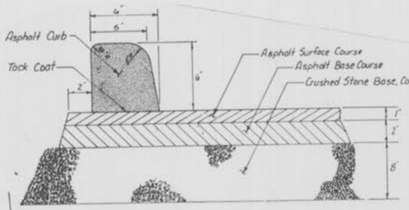
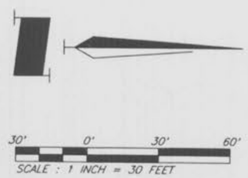

NOTE: THIS SIGN IS SINGLE FACED WITH WHITE LETTERS & BORDER ON BLUE BACKGROUND




HANDICAPPED SIGN
N.T.S.







HANDICAP RAMP DETAIL
N.T.S.

OWNER/DEVELOPER: O'Fallon True Value Hardware
513 South Main Street
O'Fallon, Mo. 63366
Attn: Mr. Don Schappe & Mr. Fred Pund

BENGHMARKS: "T" Chisled on SW cor. sidewalk at South entrance Commerce Bank Elev. 568.77

Chisled "T" on edge walk South of the SE cor. of building (O'Fallon Health Center) Elev. 571.85

① Curve Data
R= 100.00'
Δ= 11°00'00"
L= 19.19'

NOTE:
Existing underground and overhead utilities and drainage structures have been plotted from available information and their locations must be considered approximate only. It is the responsibility of the contractor to notify the utility companies and to verify the locations of existing utilities before actual construction begins. Any descrepancies notes must be reported to the Engineer immediately.




STRAW BALE DETAIL

SILTATION CONTROL NOTE
Siltation Control shall be Bales of Straw placed end to end, countersunk, and anchored to ground with 4' long reinforcing rods.
Note: Siltation control is to be placed in all areas where a potential exists for silt to leave the construction site.
Note: Straw Bale Erosion Control to be used until vegetation is established.

SILTATION CONTROL DETAIL
N.T.S.







CONCRETE CURB & GUTTER DETAIL
N.T.S.

GBA
GEORGE BUTLER ASSOCIATES, INC.
Engineers / Architects / Landscape Architects / Planners
Kansas City, Mo. / Lenexa, Ks. / O'Fallon, Mo. / Ames, Ia. / Oklahoma City, Ok.

DATE: 3/19/92
DESIGN BY: PLL/MCV
DRAWN BY: MCV
PROJECT NO.: 6491
SHEET NO.: G1
TOTAL SHEETS: 6

TRUE VALUE HARDWARE
SITE PLAN
O'FALLON, MO.

| REVISIONS | BY | DATE |
|---|---|---|
| Revised per MHTD & City of O'Fallon Comments | MCV | 4/8/92 |
| Revised per MHTD Comments | MCV | 4/22/92 |
| AS-BUILT (DET. AREA, STORM, 16" BLOCK WALL, PROPANE PAD) | JG | 2/5/93 |
| | | 4/12/93 |

GENERAL NOTES

1. Total area of property = 2.8943 Acres
2. Present Zoning C-2, General Business
3. Temporary Facilities: Light, Power, Water, and Toilet Facilities shall be provided by the General Contractor.
4. Protection: Each contractor shall protect his excavations: All excavations shall be kept free of water and lighted barricades shall be maintained.
5. Clean-Up: The General Contractor shall remove all debris from site. Tools, equipment, and scaffolding not in active use shall be removed.
6. Topsoil, and, and debris is to be removed from area of new construction. This includes existing concrete foundation and walks.
7. Excavate to produce an undisturbed soil bearing surface at required levels. Remove all soft spots in subgrade and fill with compacted granular fill.
8. Fill soils shall not contain organic material, vegetation, rubbish, cinders or frozen materials. Horizontal fills may be clay or granular fill. Remove all unacceptable or excess excavated material from site.
9. All existing underground utilities and servicng that are to remain are to be protected throughout construction.
10. Clayey Material: Deposit fill in 8" lifts, breakdown oversized lumps and mix to secure a uniform moisture content and compaction. After each lift has been spread and sprinkled if required, roll or tamp that lift uniformly over its entire area. Compact clayey fill to not less than 95% of maximum density at optimum moisture as determined by compaction tests.
11. Granular Material: Deposit fill in 1' lifts and compact as specified for clayey materials. Puddling of granular material will not be permitted. Compact granular fill to not less than 95% of maximum density as determined by compaction tests.
12. All top, flowline and invert elevations shown have been established from the grading plan and/or topographic survey. The General Contractor shall verify all elevations upon grading completion to insure continuity with proposed and existing utilities.
13. All construction and materials required shall conform to the City of O'Fallon standards.
14. All reinforced concrete pipe to be Class II in unpaved areas. Class III shall be used under pavement.
15. All corrugated steel pipe shall be asphalt polymer, or aluminized coated, 16 gauge shall be installed in unpaved areas, 14 gauge under pavement up to 42", 48" and above shall be 14 gauge in unpaved areas and 12 gauge under pavement. Corrugations shall be 2 2/3" x 1/2" up to 42" and 3" x 1" for 48" and above or equivalent for arch pipe.
16. All storm and sanitary trench backfills shall be water jetted. Granular fill, compacted will be used under paved areas.
17. A 48" tall picket fence shall be constructed along the top of all retaining walls.
18. Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing and proposed sanitary and storm sewers, including laterals.
19. All filled places under buildings, proposed sanitary and storm sewer lines, and/or paved areas including trench backfills shall be compacted to 90% of maximum density as determined by the "Modified A.A.S.H.T.O. T-180 Compaction Test" (ASTM D-1557). All tests will be verified by a Soils Engineer.
20. All grade shall be within 0.2 feet (more or less) of those shown on the grading plan.
21. No slope shall be greater than 3:1 and shall be either sodded or seeded and mulched.
22. All PVC water pipe shall have a minimum pressure rating of PR-200 or SDR-21.
23. All PVC sanitary sewer pipe shall be SDR-35 or equal with crushed stone bedding uniformly graded between 1" and 1" size. This bedding shall extend from 6" below the pipe to 12" inches above the top of the pipe.
24. Brick shall not be used on manholes.
25. The City of O'Fallon shall be notified at least 48 hours prior to construction of sanitary sewers for coordination and inspection.
26. All trees to be saved shall be protected during construction. Extreme care shall be taken to prevent soil compaction around the roots of existing trees, and no equipment or materials shall be stored within the dripline of trees to be saved.
27. Extreme care shall be taken when excavating near trees to be saved. Root damage shall be kept to a minimum, but when it does occur, roots shall be sawcut.

This tract is served by:

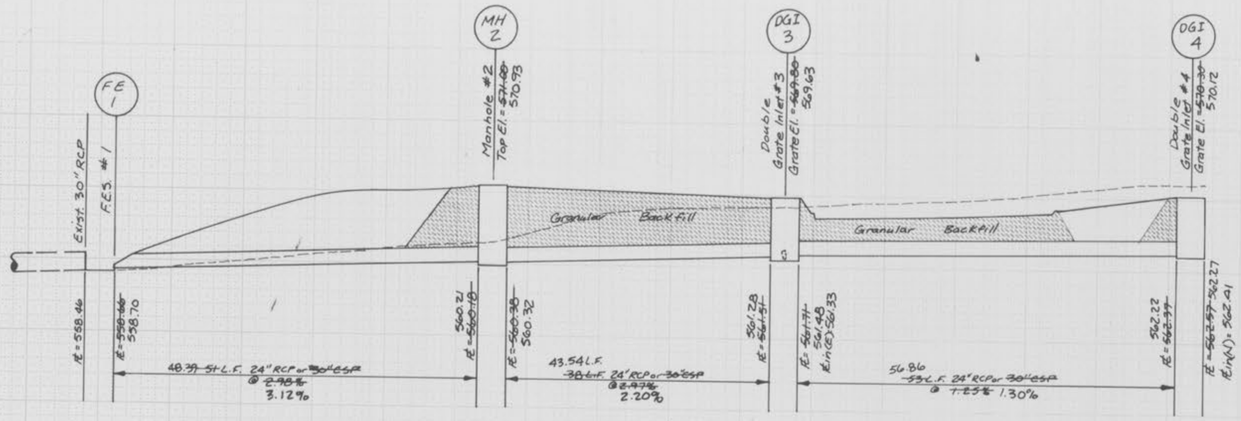
Sewers - City of O'Fallon (MMEI) - 281-2058
Water - City of O'Fallon (MMEI) - 281-2858
Electric - Union Electric Company - 327-6203
Gas - St. Charles Gas Company - 535-7700
Telephone - GTE, Inc. - 327-3114
Fire - O'Fallon Fire Protection District - 272-3693

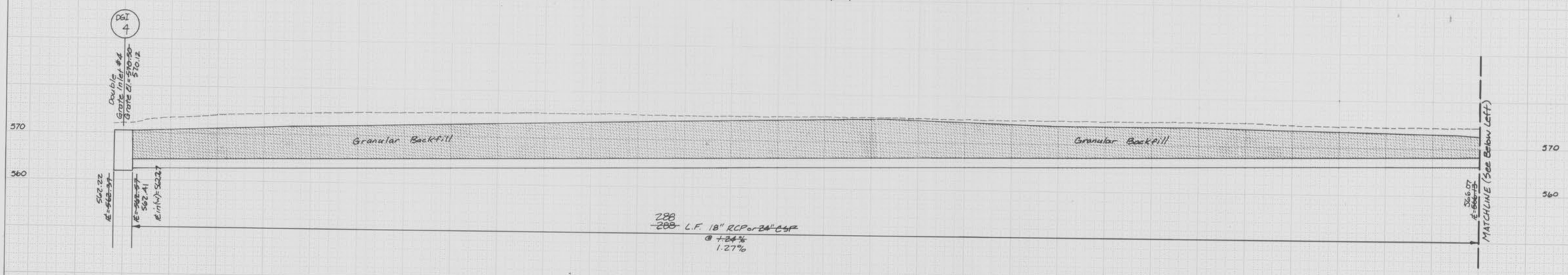
HARDWARE
TRUE VALUE 1/5
AS-BUILTS

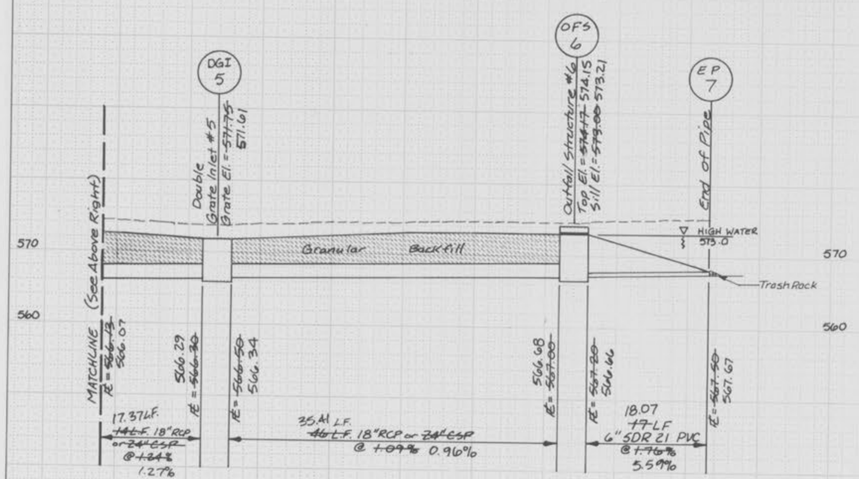
| GBA | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| GEORGE BUTLER ASSOCIATES, INC. Engineers / Architects / Landscape Architects / Planners | TRUE VALUE HARDWARE STORM SEWERS O'FALLON, MO. | G2 | 6 |
| | PROJECT NO.: 6491 | | DATE: 3/19/92 |
| | REVISIONS: | | |

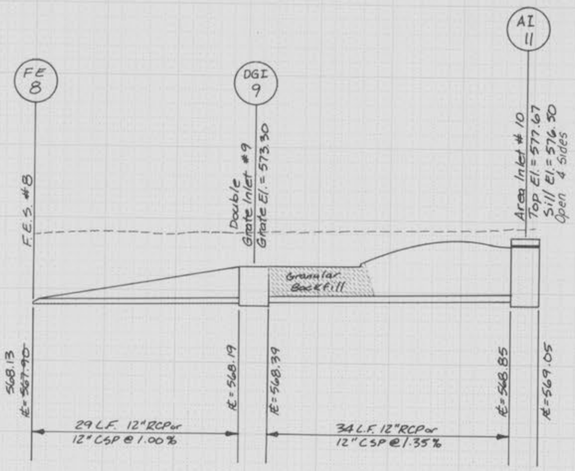
AS-BUILT 2/5/93 J.G.

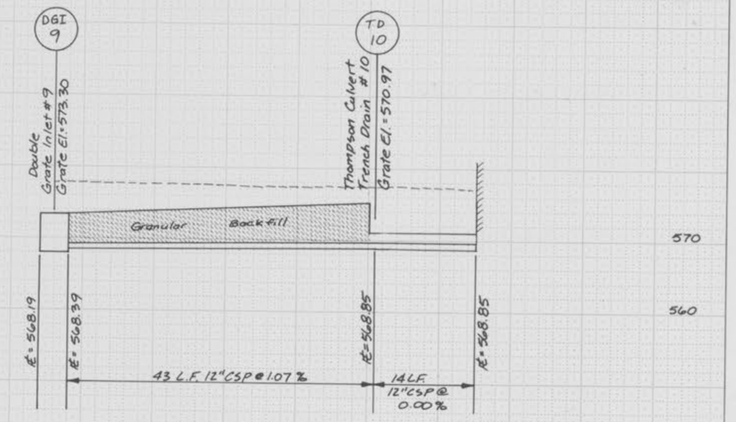
Scale: 1"=10' Horizontal
1"=10' Vertical




**AS-BUILT STRUCTURES:**
F.E. 1 to MH 2, MH 2 to D.G.I 3
D.G.I. 3 to D.G.I 4, D.G.I 4 to D.G.I 5
D.G.I 5 to O.F.S 6, O.F.S. 6 to E.P 7

AS-BUILT-2/5/93-J.G.

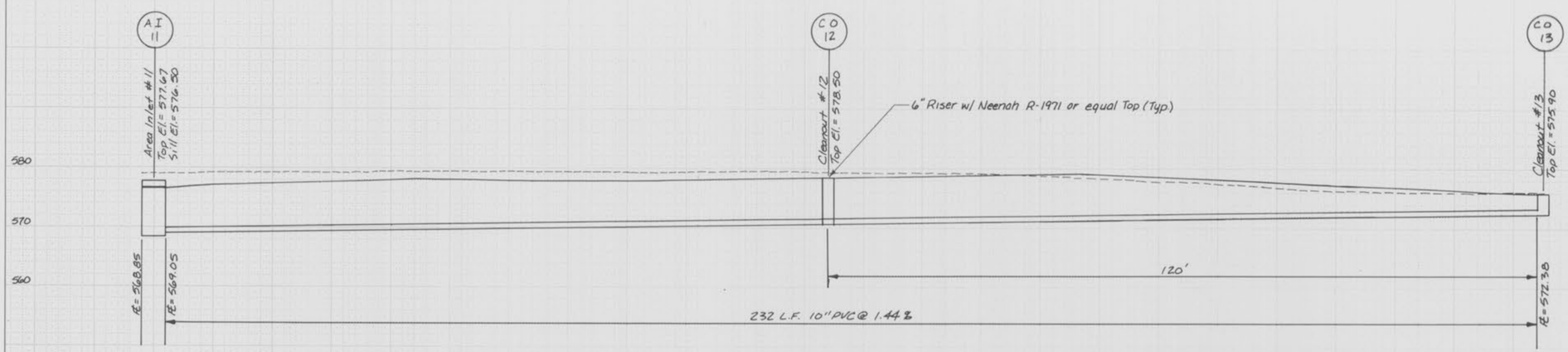
TRUE VALUE 2/5
AS-BUILTS

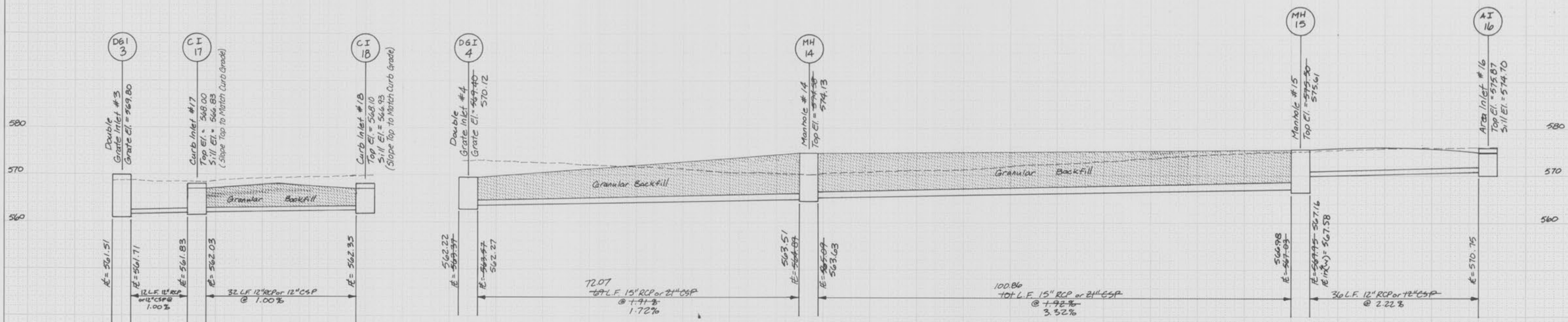
GBA
GEORGE BUTLER ASSOCIATES, INC.
Engineers / Architects / Landscape Architects / Planners

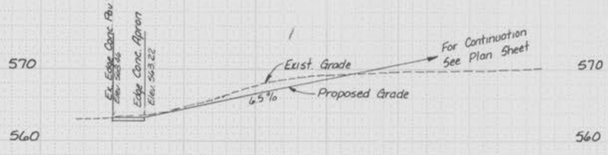
| PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|
| TRUE VALUE HARDWARE STORM SEWERS O'FALLON, MO. | G 3 | 6 |
| PROJECT NO.: 6491 | DATE: 3/19/92 | |
| REVISIONS: MHTD Comments 4/22/92 | | |

AS-BUILT 2/5/93 JG
4/12/93 JG

Scale: 1"=10' Horizontal
1"=10' Vertical

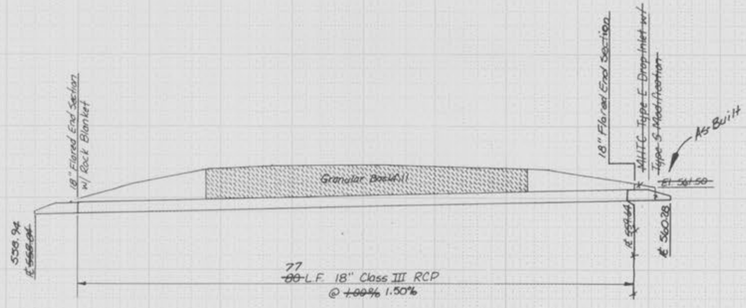



Scale: Horiz. 1"=30'
Vert. 1"=10'

Entrance Drive Profile

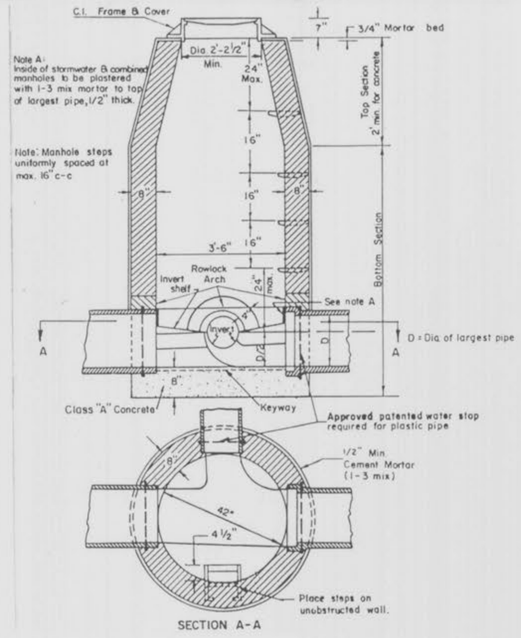



Entrance Drive Culvert

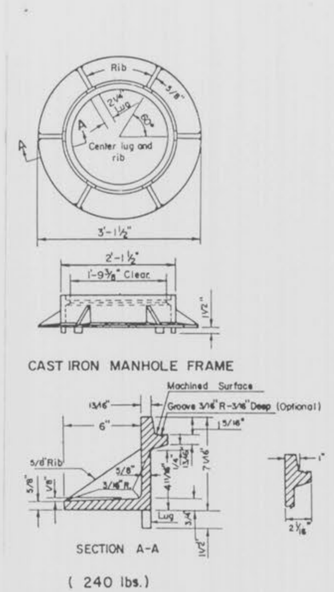
Scale: Horiz. 1"=10'
Vert. 1"=10'

AS BUILT STRUCTURES:
DGI 4 to MH 14
MH 14 to MH 15
Entrance Drive Culvert
4/12/93 JG
AS BUILT- 2/5/93 - JG

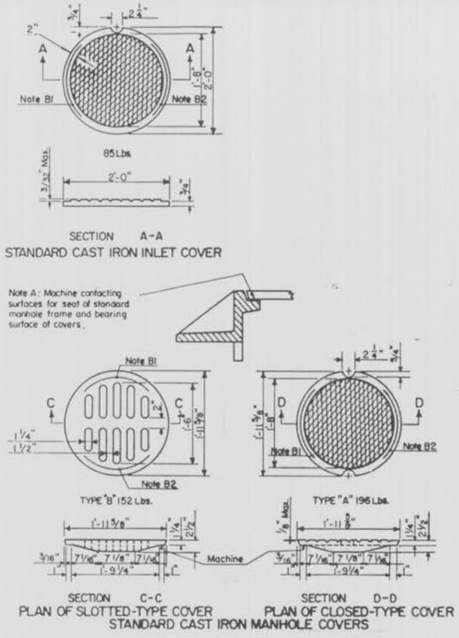
TRUE VALUE 3/5
AS-BUILTS 3/5



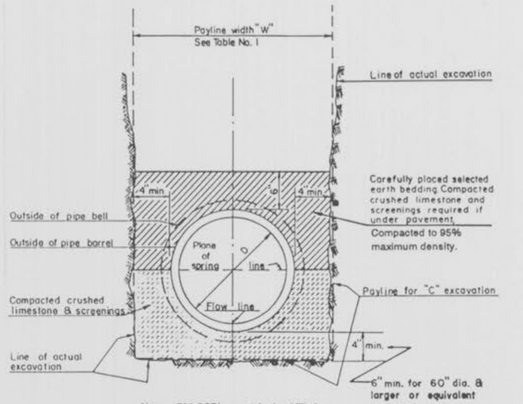

**MANHOLE DETAIL**
**N.T.S.**




**CAST IRON MANHOLE FRAME**
**N.T.S.**

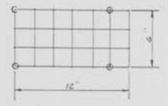



**CAST IRON COVERS**
**MANHOLES AND INLETS**
**N.T.S.**

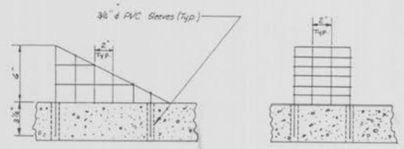



*Note: For Pipe Bedding on State Right-of-Way, see Missouri Standard Plans for Highway Construction, January 1990 Drwg No. 726.30C Class B Bedding for Reinforced Concrete Pipe Culverts.*

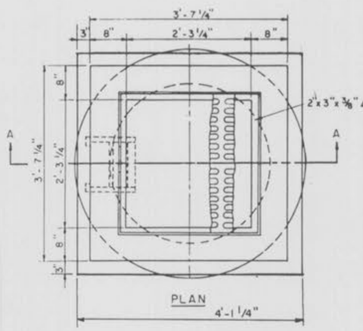
**PIPE BEDDING DETAIL**
**N.T.S.**

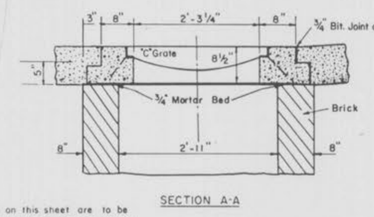



*Fabricate Trash Rack from ½" dia. bars welded together & spaced as shown.*



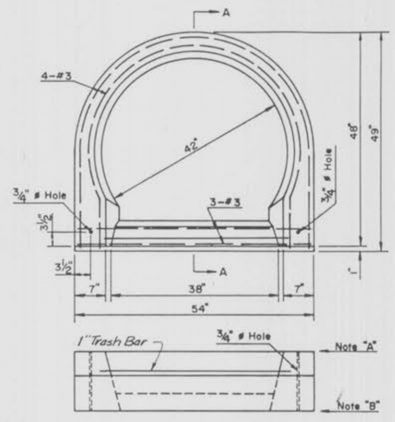

*Trash Rack Detail*
*N.T.S.*

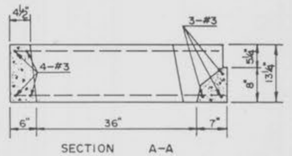



Note: Inlets on this sheet are to be used in locations where standard open throat inlets can not be used, in paved traffic way, and in limited easements.

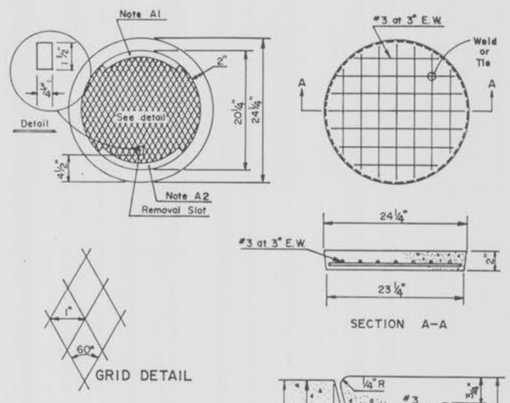
**2 - GRATE INLET**
**N.T.S.**



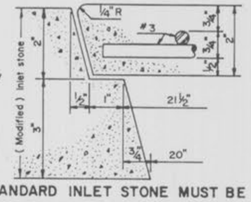

NOTES
A. Set standard inlet stone in 3/4" mortar bed and dowel with 5/8" ø 1'-0" long pins and grout.
B. Raise to final grade with courses of brick and 3/4" morter bed.
C. This unit to be used with, 42" I.D., poured in place concrete or brick base.
D. 4000 P.S.I. concrete required.

**PRE-CAST CONCRETE UNIT**
**FOR SINGLE CURB INLET**
**N.T.S.**



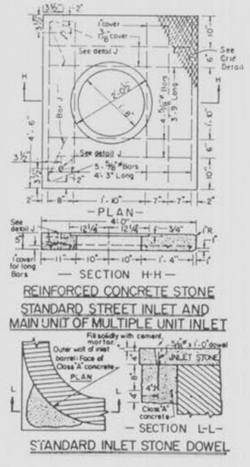

Note:
Provide 1/8" raised lettering approximately 3/4" to 1" high.
A1: METRO ST. LOUIS
A2: SEWER DIST SEWERS

4000 P.S.I. concrete required.

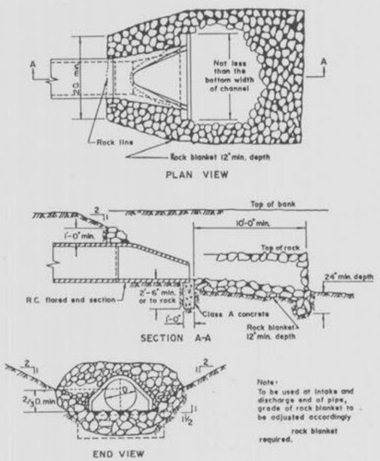



STANDARD INLET STONE MUST BE MODIFIED TO RECEIVE CONC. COVER

**PRE-CAST CONCRETE INLET COVER**
**N.T.S.**




**INLET DETAILS**
**N.T.S.**

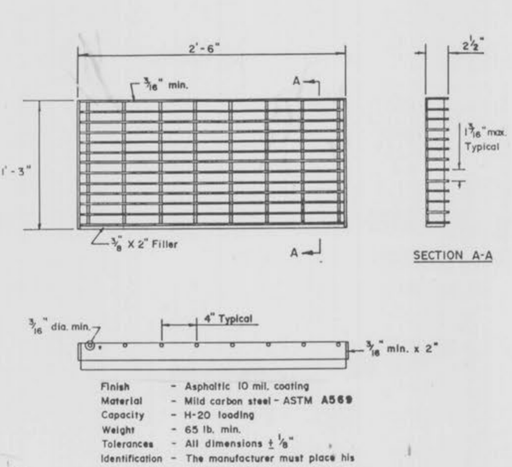



Note:
To be used at intake and discharge end of pipe, grade of rock blanket to be adjusted accordingly

rock blanket required.

*Note: For Flared End Sections on State Right-of-Way, see Missouri Standard Plans for Highway Construction, January 1990 Drwg. No. 732.00L*

**FLAIRED END SECTION DETAIL**
**N.T.S.**




| | |
|---|---|
| Finish | - Asphaltic 10 mil. coating |
| Material | - Mild carbon steel - ASTM A569 |
| Capacity | - H-20 loading |
| Weight | - 65 lb. min. |
| Tolerances | - All dimensions ± 1/8" |
| Identification | - The manufacturer must place his name or mark on each unit for the purpose of identification |

**STEEL GRATE DETAIL**
**N.T.S.**

GBA
GEORGE BUTLER ASSOCIATES, INC.
Engineers / Architects / Landscape Architects / Planners
Kansas City, Mo. / Lenexa, Ks. / O'Fallon, Mo. / Ames, Ia. / Oklahoma City, Ok.

| | |
|---|---|
| DATE: | 3/19/92 |
| DESIGN BY: | MCV |
| DRAWN BY: | JMG |
| PROJECT NO. | 6491 |

# DETAILS

| SHEET NO. | TOTAL SHEETS |
|---|---|
| G 4 | 6 |

| REVISIONS | BY | DATE |
|---|---|---|
| Revised Per MHTD Comments | MCV | 4/8/92 |

TRUE VALUE 4/5
AS-BUILTS

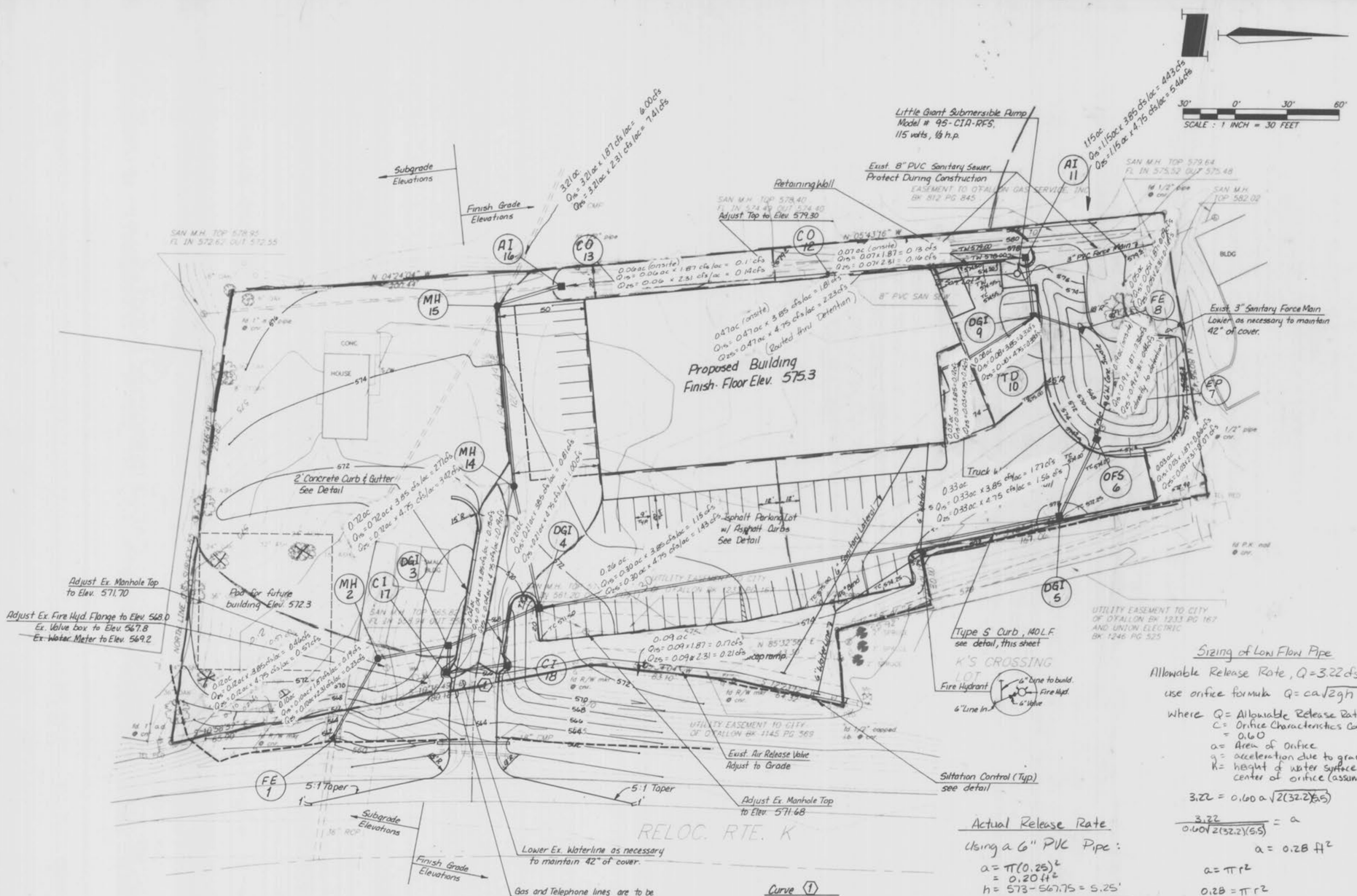
GBA
GEORGE BUTLER ASSOCIATES, INC.
Engineers / Architects / Landscape Architects / Planners
Kansas City, Mo. / Lenexa, Ks. / O'Fallon, Mo. / Ames, Ia. / Oklahoma City, Ok.

DATE: 8/14/92
DESIGN BY: PLL/MCV
DRAWN BY: MCV
PROJECT NO.: 6491
SHEET NO.: G 5
TOTAL SHEETS: 6

# DRAINAGE AREA MAP

| REVISIONS | BY | DATE |
|---|---|---|
| | | |

30' 0' 30' 60'
SCALE : 1 INCH = 30 FEET




## Detention Calculations

Impervious Area = 2.894ac. − 0.54ac. (Greenspace)
= 2.354ac.

Runoff Rate Factors; per O'Fallon Subdivision Ordinance

25yr - 30min Storm
Parks/Greenspace 2.31 cfs/ac.
Industrial/Commercial 4.75 cfs/ac

15yr - 30min Storm
Parks/Greenspace 1.87 cfs/ac
Industrial/Commercial 3.85 cfs/ac

Prior to Development Site is Parks/Greenspace
∴ 2.354ac x (4.75 − 2.31) cfs/ac = 5.74 cfs increase in flow for a 25yr. event.

Storage Required:
5.74 cfs x 30 min. x 60 sec/min = 10,332 cu ft ⟵

Actual Storage Capacity =

Post Development Flow to the Basin:

| | | | |
|---|---|---|---|
| offsite 1 | 1.15ac | x 4.75 cfs/ac = | 5.46 cfs |
| building | 0.47 ac. | x 4.75 cfs/ac = | 2.23 cfs |
| parking lot | 0.11 ac. | x 4.75 cfs/ac = | 0.52 cfs |
| greenspace | 0.07 ac | x 2.31 cfs/ac = | 0.16 cfs |
| basin | 0.19 ac | x 2.31 cfs/ac = | 0.44 cfs |
| | | | 8.81 cfs |

Post Development Flow Bypassing the Basin:

| | | | |
|---|---|---|---|
| offsite | 3.21 ac | x 2.31 cfs/ac = | 7.41 cfs |
| greenspace | 0.33 ac | x 2.31 cfs/ac = | 0.76 cfs |
| parking lot | 1.17 ac | x 4.75 cfs/ac = | 8.71 cfs |
| | | | 16.34 cfs |

Allowable Release Rate: 2.894ac x 2.31 cfs/ac = 6.69 cfs
+ 1.15 ac x 4.75 cfs/ac = 5.46 cfs
+ 3.21 ac x 2.31 cfs/ac = 7.41 cfs
19.56 cfs

Allowable Release Rate From Detention:
19.56 cfs − 16.34 cfs = 3.22 cfs

## Sizing of Low Flow Pipe

Allowable Release Rate, Q = 3.22 cfs
use orifice formula $Q = ca\sqrt{2gh}$
Where Q = Allowable Release Rate
c = Orifice Characteristics Coef. = 0.60
a = Area of Orifice
g = acceleration due to gravity
h = height of water surface above center of orifice (assume 5.5')

$3.22 = 0.60\, a\sqrt{2(32.2)(5.5)}$

$\frac{3.22}{0.60\sqrt{2(32.2)(5.5)}} = a$

$a = 0.28\ ft^2$

$a = \pi r^2$

$0.28 = \pi r^2$

$r^2 = \frac{0.28}{\pi}$

$r^2 = 0.091$

$r = 0.30'$

$d = 0.60'$

$d = 0.60' \times \frac{12''}{1'} = 7.23''$

∴ use 6" SDR 21 PVC Pipe

## Actual Release Rate

Using a 6" PVC Pipe:

$a = \pi(0.25)^2$
$= 0.20\ ft^2$
$h = 573 - 567.75 = 5.25'$
$Q = 0.6(0.20)\sqrt{2(32.2)(5.25)}$
$Q = 2.21$ cfs

## Actual Basin Storage Capacity

Storage Volume = 15,580 cu. ft.

Curve (1)
R = 100'
Δ = 11°00'00"
L = 19.19'

**THIS SHEET IS TO BE USED FOR DRAINAGE AREA PURPOSES ONLY, AND IS NOT TO BE USED FOR CONSTRUCTION**

REV 6-92

TRUE VALUE AS-BUILTS 5/2