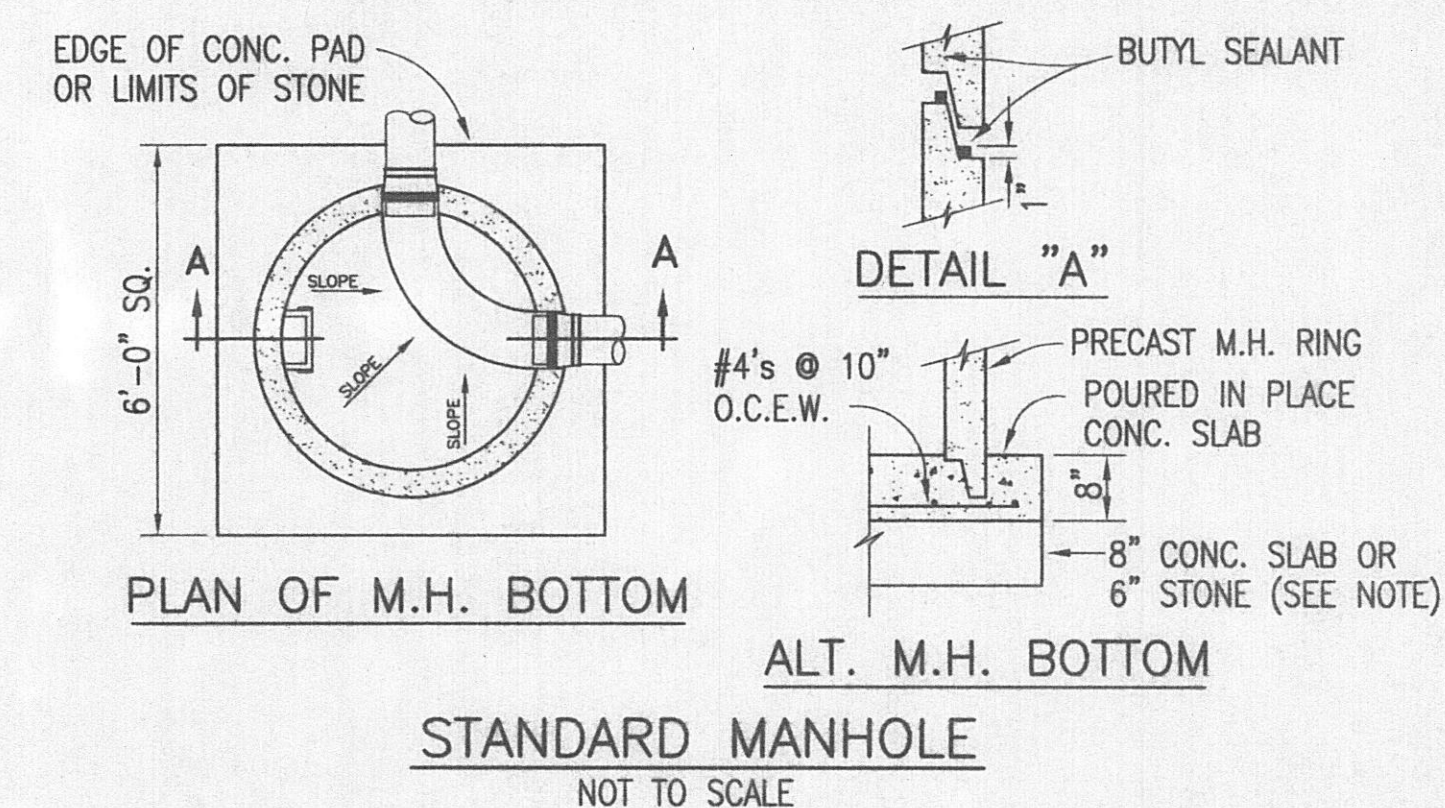


- MIN. OF 42" COVER AT EASEMENT LINE.
- 30" MIN. COVER AT DITCH CROSSINGS OR USE CONC. ENCASEMENT.
- SEWER MARKER SET FLUSH WITH GROUND - PRESSURE TREATED WOOD 2"x2" WITH LARGE HEAD TACK IN TOP OR METAL POST/PIPE.
- TEES/WYES ON MAIN LINE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EA. INSTALLED WITH NO DEDUCTION BEING MADE FROM THE MAIN LINE QUANTITY.
- SANITARY SERVICE LATERALS WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE LENGTH OF STRAIGHT 6" SERVICE LINE AND THERE SHALL BE NO ADDITIONAL PAYMENT FOR MARKER, FITTINGS AND PLUG.
- PROPOSED CONNECTION POINT TO EXISTING PIPING SHALL BE FIELD DETERMINED.

**SANITARY SEWER CONNECTIONS**  
NOT TO SCALE



**RECORD DRAWINGS**

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CHECKED BY: *SG*

ENGINEER'S REPRESENTATIVE

DATE: *8/1/04*

**CALL BEFORE YOU DIG**

IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION. THE LOCATION OF UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND POSSIBLY INCOMPLETE, THEREFORE CERTIFICATION TO THE LOCATION OF ALL UNDERGROUND UTILITIES IS WITHHELD.

KENTUCKY UNDERGROUND PROTECTION

IN KENTUCKY CALL

1-800-752-6007

TWO BUSINESS DAYS BEFORE YOU DIG

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NO. DESCRIPTION DATE BY

REVISIONS

WASTEWATER SYSTEM IMPROVEMENTS

HARRIMAN UTILITY BOARD

SOUTH HARRIMAN

SANITARY SEWER STANDARD DETAILS

GRW PROJECT NO. 7601-30

CONTRACT S04-01

**GRW**

**GRW Elrod Dunson, Inc.**

Engineers, Architects, Planners

LEXINGTON LOUISVILLE NASHVILLE KNOXVILLE INDIANAPOLIS PORT MITCHELL ARLINGTON

DESIGNED: RGT

DRAWN: SG

REVIEWED: RGT

APPROVED: RGT

DATE: MAY, 2005

SCALE: NONE

SHEET NO. C-9







CONSTRUCTION PLANS  
FOR  
WASTEWATER SYSTEM IMPROVEMENTS

**HARRIMAN UTILITY BOARD**  
**HARRIMAN, TENNESSEE**

**SOUTH HARRIMAN  
SEWER REHABILITATION**

CONTRACT S04-01  
FEBRUARY, 2004

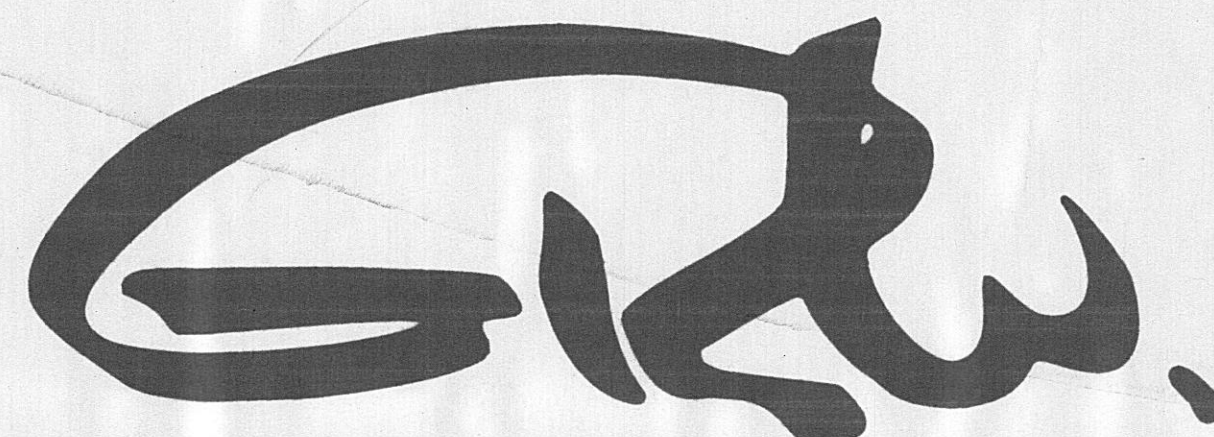
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CHECKED BY:

*Scowen*  
ENGINEER'S REPRESENTATIVE

*8/1/04*  
DATE



***GRW Elrod Dunson, Inc.***

Engineers, Architects, Planners

404 BNA Drive, Suite 201 NASHVILLE, TN 37217  
PH. (615)366-1600 FAX (615)366-0406

LEXINGTON LOUISVILLE NASHVILLE KNOXVILLE INDIANAPOLIS

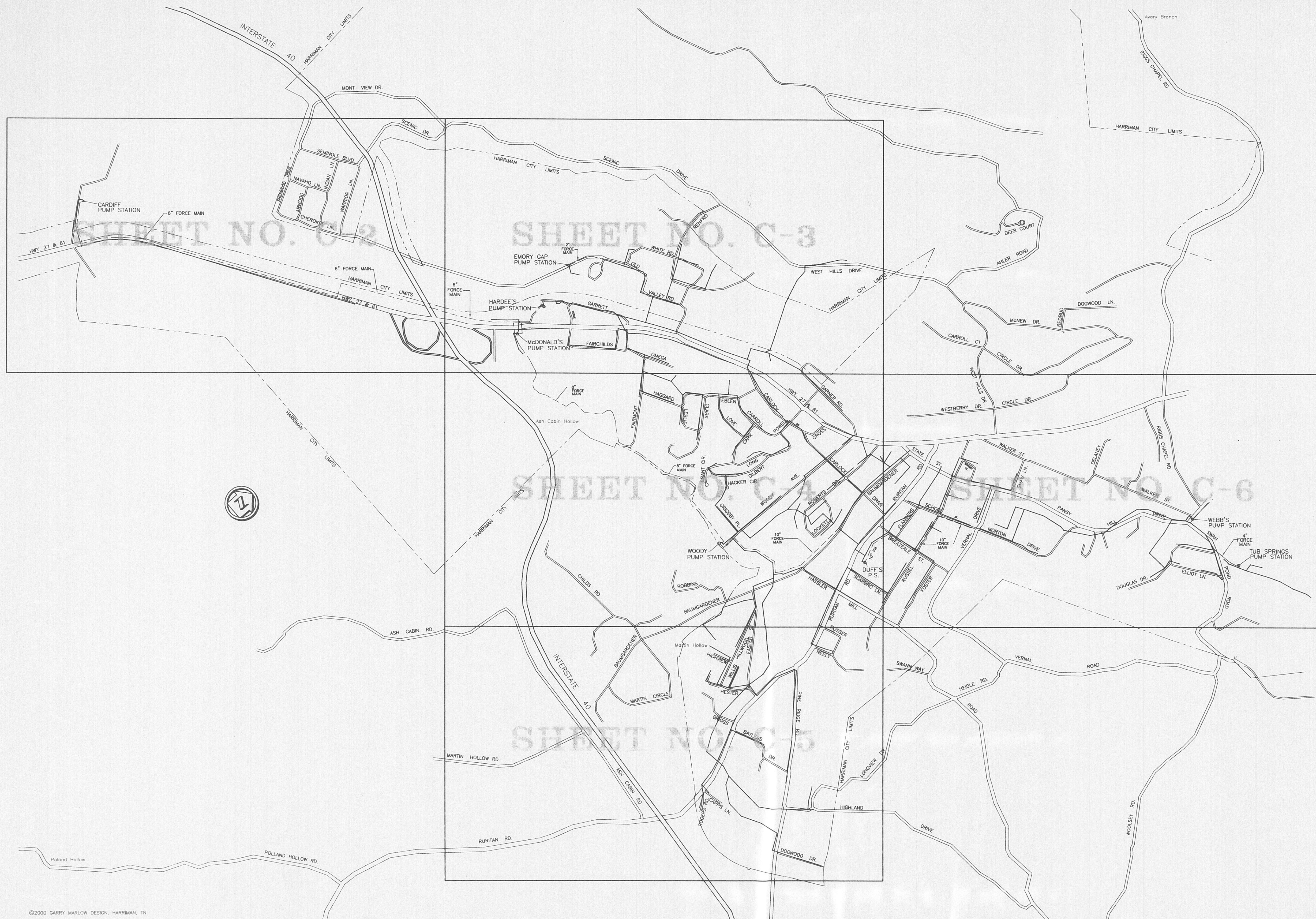
Accepted By: \_\_\_\_\_  
Title: MANAGER  
For: HARRIMAN UTILITY BOARD  
Date: \_\_\_\_\_

PROJECT NO. 7601-30

SET NO.

This document belongs in the  
HUB Engineering Office  
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# INDEX OF SHEETS

- C-1 LOCATION MAP, INDEX OF SHEETS
- C-2 SEWER SYSTEM REHABILITATION
- C-3 SEWER SYSTEM REHABILITATION
- C-4 SEWER SYSTEM REHABILITATION
- C-5 SEWER SYSTM REHABILITATION
- C-6 SEWER SYSTEM REHABILITATION
- C-7 STANDARD SEWER REHABILITATION DETAILS
- C-8 MORTON STREET GRAVITY SEWER REPLACEMENT
- C-9 SANITARY SEWER STANDARD DETAILS

## RECORD DRAWINGS

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CHECKED BY:

ENGINEER'S REPRESENTATIVE

DATE

GRW PROJECT NO. 7601-30 CONTRACT NO. S04-01

WASTEWATER SYSTEM IMPROVEMENTS  
HARRIMAN UTILITY BOARD  
SOUTH HARRIMAN  
LOCATION PLAN AND INDEX OF SHEETS

**GRW**  
GRW Elrod Dunson, Inc.  
Engineers, Architects, Planners  
LEXINGTON LOUISVILLE NASHVILLE KNOXVILLE  
INDIANAPOLIS FORT MITCHELL ARLINGTON

DESIGNED: RGT  
DRAWN: DGR  
REVIEWED: RGT  
APPROVED: RGT  
DATE: FEBRUARY, 2004  
SCALE: AS NOTED  
SHEET NO. C-1

REVISIONS			
NO.	DESCRIPTION	DATE	BY





SEE SHEET NO. C-3

M.H. WAS REHABILITATED AS PER FIELD EVALUATION

171 L.F. - 8" LINE WAS REHABILITATED BY CURED IN PLACE METHOD

M.H. WAS REHABILITATED AS PER FIELD EVALUATION

M.H. WAS REHABILITATED AS PER FIELD EVALUATION

CARDIFF PUMP STATION

305 L.F. - 8" LINE WAS REHABILITATED BY CURED IN PLACE METHOD

300 L.F. - 8" (N/R) PB

236 L.F. - 8" (REH) CP

195 L.F. - 8" (REH) CP

264 L.F. - 8" (REH) CP

185 L.F. - 8" (REH) CP

216 L.F. - 8" (REH) CP

254 L.F. - 8" (REH) CP

180 L.F. - 8" (REH) CP

354 L.F. - 8" (REH) CP

75 L.F. - 8" (REH) CP

29 L.F. - 8" (REH) CP

359 L.F. - 8" LINE WAS REHABILITATED BY CURED IN PLACE METHOD

LINE WAS REHABILITATED BY CURED IN PLACE METHOD

TV FOR FURTHER EVALUATION

328 L.F. - 8" (REH) CP

175 L.F. - 8" (REH) CP

258 L.F. - 8" (REH) CP

344 L.F. - 8" (REH) CP

102 L.F. - 8" (REH) CP

6" FORCE MAIN TO HARDEE'S P.S.

### SEWER REHABILITATION STANDARD LEGEND

INTERNAL POINT REPAIRS  
DISTANCE AND DIRECTION FROM MANHOLE

POINT REPAIRS  
DISTANCE AND DIRECTION FROM MANHOLE

SERVICE REPAIRS  
DISTANCE AND DIRECTION FROM MANHOLE

PIPE REPLACEMENT  
LENGTH-SIZE PIPE REPLACEMENT

PIPE LINING  
PIPE LINING BY CURED-IN-PLACE METHOD WITH TRENCHLESS OR EXCAVATABLE SERVICE RENEWAL/LENGTH SIZE

PIPE LINING BY PIPE BURSTING/LENGTH-SIZE

MANHOLE REHABILITATION  
6 0.0 TO 6.0 DEPTH  
8 6.1 TO 8.0 DEPTH  
10 8.1 TO 10.0 DEPTH  
12 10.1 TO 12.0 DEPTH  
14 12.1 TO 14.0 DEPTH  
16 14.1 TO 16.0 DEPTH  
NA UNKNOWN DEPTH

MANHOLE REPAIR  
A-08 = MANHOLE NUMBER  
(REH) = REHABILITATED AS PER CONTRACT PLANS

LINE REPAIR  
181 L.F. - 8" = LENGTH/SIZE  
(N/R) = SEE NOTE FOR TYPE WORK PERFORMED  
(REH) = REHABILITATED AS PER CONTRACT PLANS

### AS BUILT LEGEND

POINT REPAIR  
(N/R) = NOT REQUIRED, (NOT LOCATED DURING PRE T.V.)  
(REH) = REHABILITATED AS PER CONTRACT PLANS

SERVICE REPAIR  
(N/R) = NOT REQUIRED, (NOT LOCATED DURING PRE T.V.)  
(REH) = REHABILITATED AS PER CONTRACT PLANS  
RECONNECTED TO MAIN

BURIED TELEPHONE CABLES AND UTILITIES  
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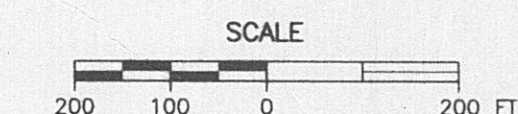
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ENGINEER'S REPRESENTATIVE

8/11/06  
DATE



GRW PROJECT NO. 7601-30

CONTRACT NO. S04-01

WASTEWATER SYSTEM IMPROVEMENTS  
HARRIMAN UTILITY BOARD  
SOUTH HARRIMAN  
SEWER SYSTEM REHABILITATION

**GRW**  
GRW Elrod Dunson, Inc.  
Engineers, Architects, Planners  
LEXINGTON LOUISVILLE NASHVILLE ENOXVILLE  
INDIANAPOLIS FORT MITCHELL ARLINGTON

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APPROVED: RGT	



SEE SHEET NO. C-2

HARRIMAN CITY LIMITS

SCENIC

DRIVE



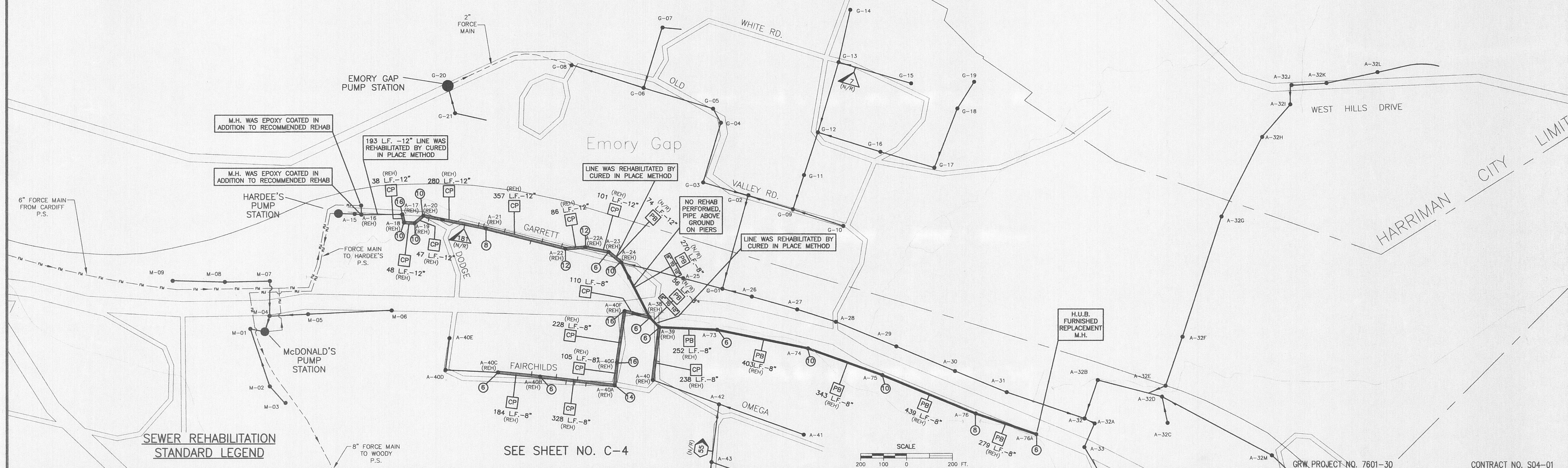
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8/11/09  
DATE



**INTERNAL POINT REPAIRS**

 DISTANCE AND DIRECTION FROM MANHOLE

POINT REPAIRS

DISTANCE AND DIRECTION FROM MANHOLE

**SERVICE REPAIRS**

 DISTANCE AND DIRECTION  
FROM MANHOLE

PIPE REPLACEMENT  
160 L.F.—18"  
PR LENGTH—SIZE PIPE REPLACEMENT

PIPE LINING  
160 L.F.—18"

MANHOLE REHABILITATION

6	0.0 TO 6.0 DEPTH
8	6.1 TO 8.0 DEPTH
10	8.1 TO 10.0 DEPTH
12	10.1 TO 12.0 DEPTH
14	12.1 TO 14.0 DEPTH
16	14.1 TO 16.0 DEPTH
NA	UNKNOWN DEPTH


AS BUILT LEGEND

**MANHOLE REPAIR**

● — MANHOLE


A-08 = MANHOLE NUMBER  
(REH) = REHABILITATED AS PER CONTRACT PLANS

LINE REPAIR





181 L.F.-8" = LENGTH/SIZE  
(N/R) = SEE NOTE FOR TYPE WORK PERFORMED  
(REH) = REHABILITATED AS PER CONTRACT PLANS

**POINT REPAIR**

 (N/R) = NOT REQUIRED, (NOT LOCATED DURING PRE T.V.).  
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 RECONNECTED TO MAIN

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NO.	DESCRIPTION	DATE	BY
DEVIATIONS			

WASTEWATER SYSTEM IMPROVEMENTS  
HARRIMAN UTILITY BOARD  
SOUTH HARRIMAN  
SEWER SYSTEM REHABILITATION

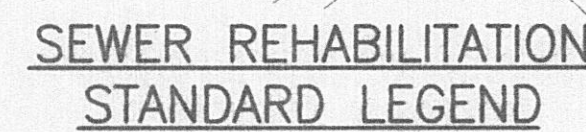
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Engineers, Architects, Planners  
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DRAWN: DGR	SCALE: AS NOTED
REVIEWED: RGT	SHEET NO. C-3
APPROVED: RGT	

C-3



Emory Go




## SERVICE REPAIRS


PIPE LINING BY CURED-IN-PLACE  
METHOD WITH TRENCHLESS OR  
EXCAVATABLE SERVICE RENEWAL/  
LENGTH SIZE

⑥	0.0 TO 6.0 DEPTH
⑧	6.1 TO 8.0 DEPTH
⑩	8.1 TO 10.0 DEPTH
⑫	10.1 TO 12.0 DEPTH
⑭	12.1 TO 14.0 DEPTH
⑯	14.1 TO 16.0 DEPTH
NA	UNKNOWN DEPTH

MANHOLE  
A-08 = MANHOLE NUMBER  
(REH) = REHABILITATED AS PER CONTRACT PLANS

181 L.F.-8" = LENGTH/SIZE  
(N/R) = SEE NOTE FOR TYPE WORK PERFORMED  
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(REH) = REHABILITATED AS PER CONTRACT PLANS  
 SERVICE

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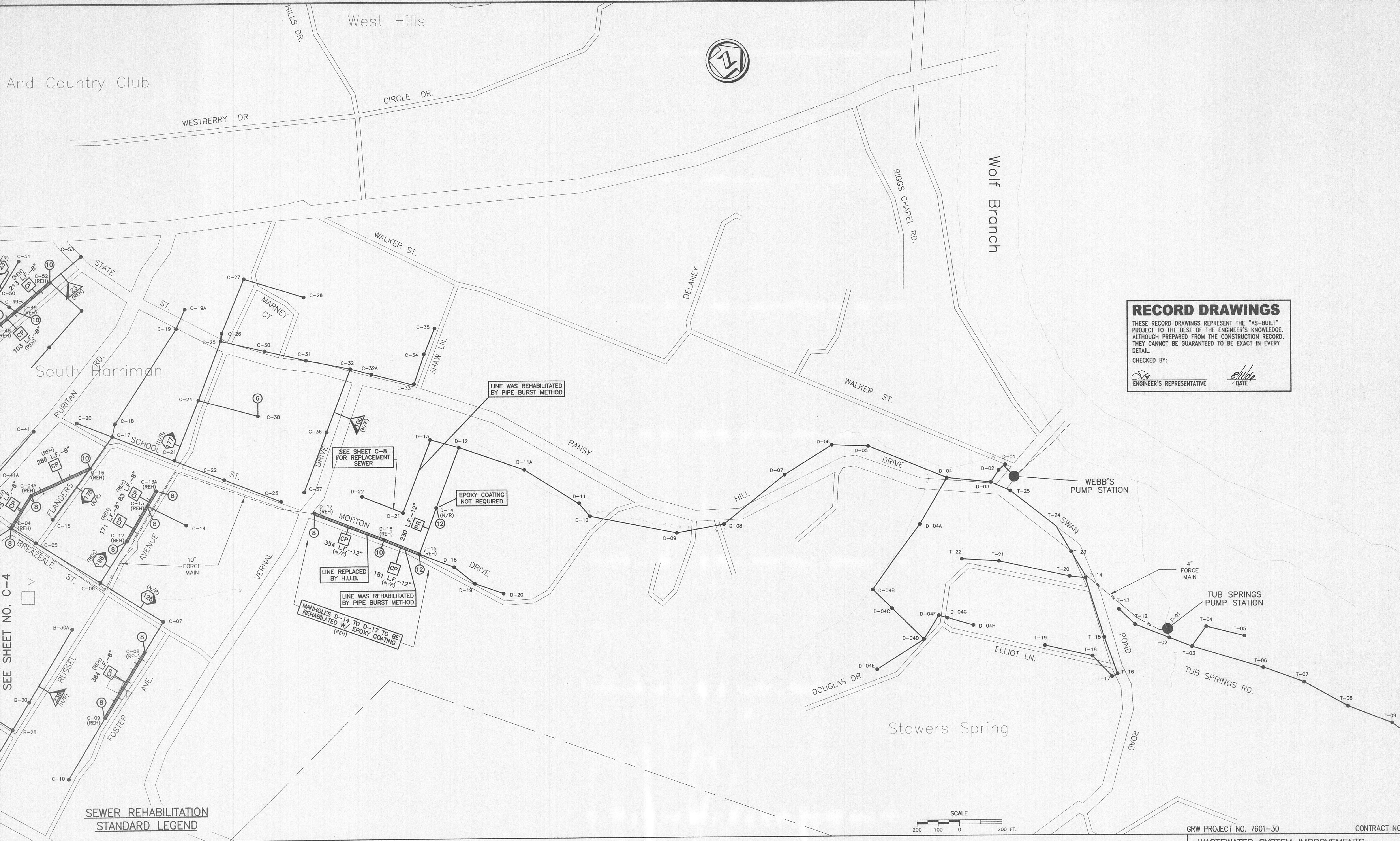
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CHECKED BY: *[Signature]* DATE: *[Signature]*  
ENGINEER'S REPRESENTATIVE

**INTERNAL POINT REPAIRS**  
DISTANCE AND DIRECTION FROM MANHOLE  
**POINT REPAIRS**  
DISTANCE AND DIRECTION FROM MANHOLE  
**SERVICE REPAIRS**  
DISTANCE AND DIRECTION FROM MANHOLE

**PIPE REPLACEMENT**  
160 L.F.-18" LENGTH-SIZE PIPE REPLACEMENT  
**PIPE LINING**  
160 L.F.-18" PIPE LINING BY CURED-IN-PLACE METHOD WITH TRENCHLESS OR EXCAVATABLE SERVICE RENEWAL/LENGTH SIZE  
160 L.F.-18" PIPE LINING BY PIPE BURSTING/LENGTH-SIZE

**MANHOLE REHABILITATION**  
⑥ 0.0 TO 6.0 DEPTH  
⑧ 6.1 TO 8.0 DEPTH  
⑩ 8.1 TO 10.0 DEPTH  
⑫ 10.1 TO 12.0 DEPTH  
⑭ 12.1 TO 14.0 DEPTH  
⑯ 14.1 TO 16.0 DEPTH  
NA UNKNOWN DEPTH

**MANHOLE REPAIR**  
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**LINE REPAIR**  
181 L.F.-8" = LENGTH/SIZE  
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**AS BUILT LEGEND**

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○ RECONNECTED TO MAIN  
○ SERVICE

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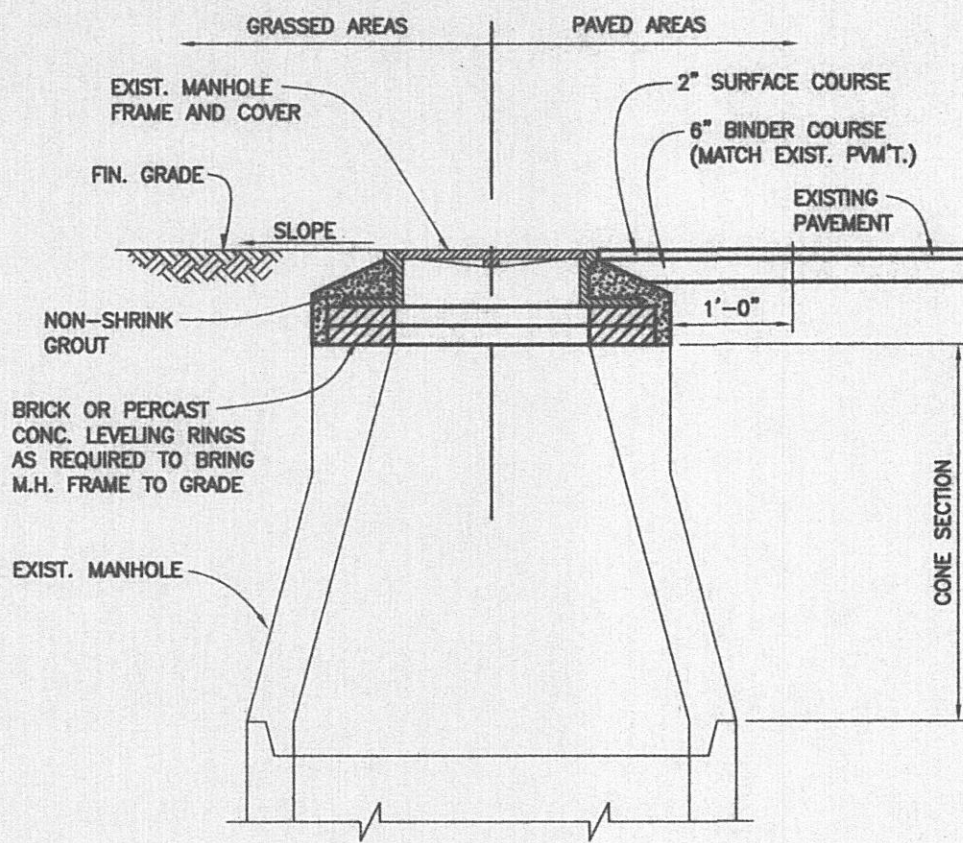
GRW PROJECT NO. 7601-30 CONTRACT NO. S04-01

WASTEWATER SYSTEM IMPROVEMENTS  
HARRIMAN UTILITY BOARD  
SOUTH HARRIMAN  
SEWER SYSTEM REHABILITATION

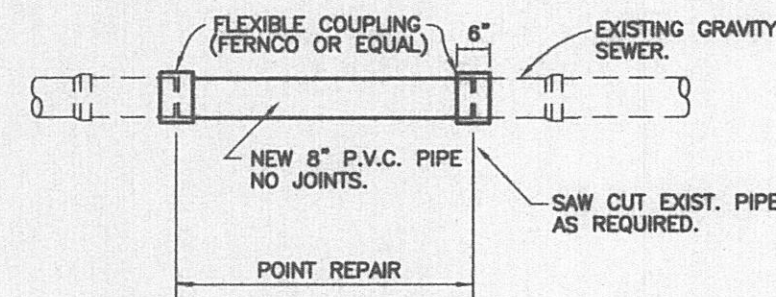
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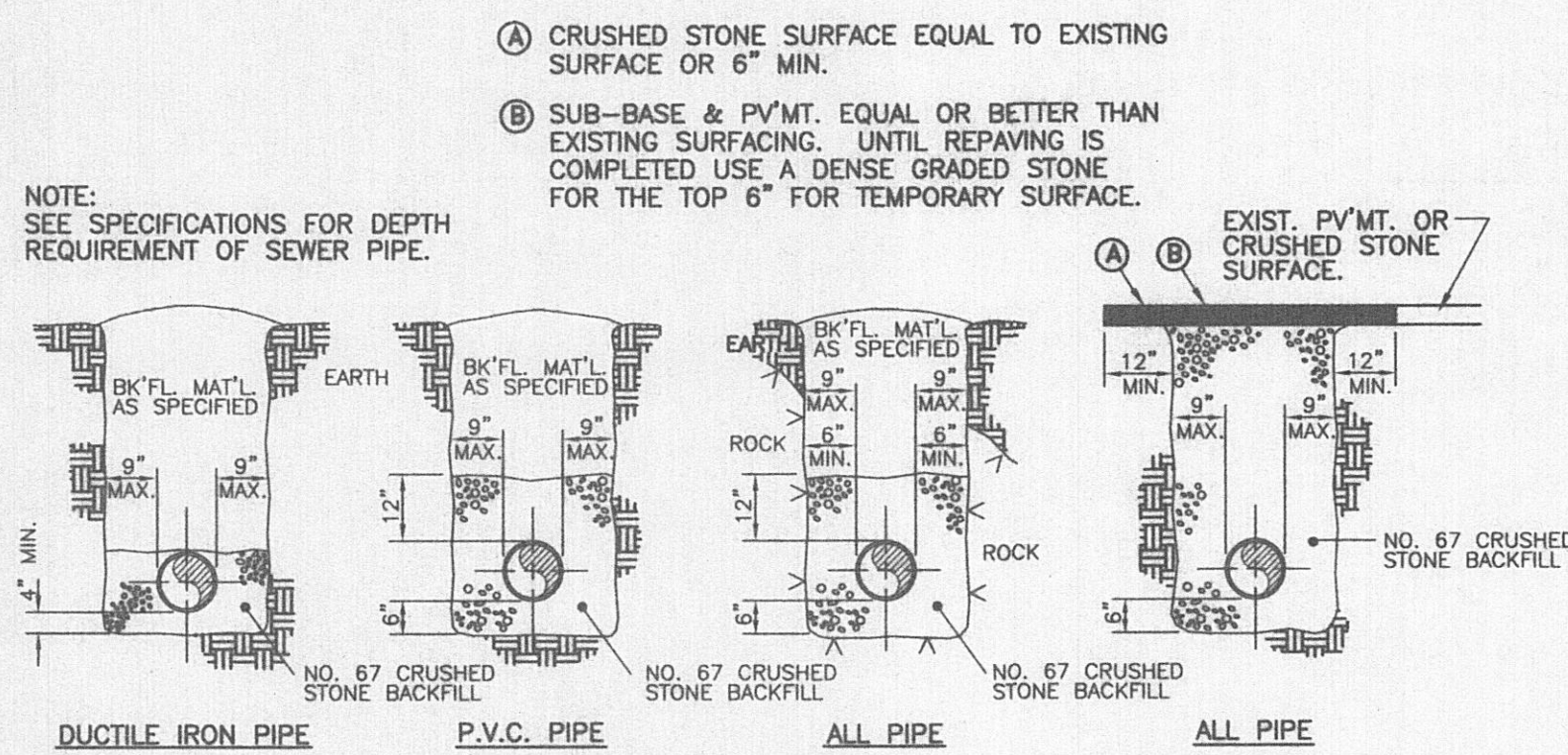


**RAISING CASTING INSTALLATION DETAIL**  
NOT TO SCALE

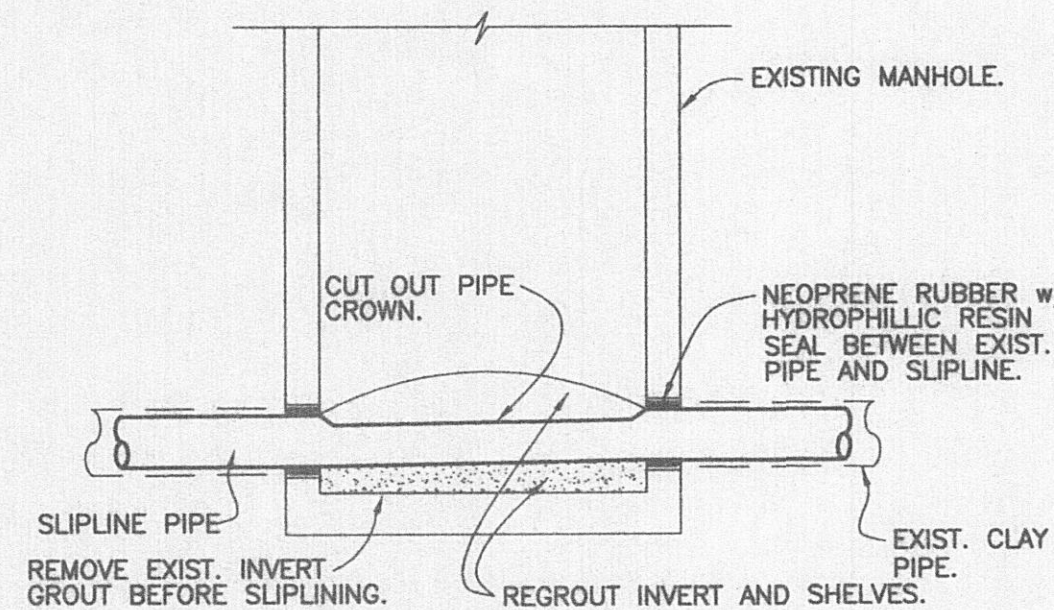


NOTE: BEDDING FOR POINT REPAIR SHALL BE CRUSHED STONE 6" MIN. COMPACTED CRUSHED STONE UNDER PIPE TO A MIN. OF 12" OVER PIPE. ALL MUD SHALL BE UNDERGROUT FROM BELOW PIPE AND BACKFILLED WITH STONE. BACKFILL IN PAVED AREAS SHALL BE CRUSHED STONE. USE EXCAVATED MATERIAL IN UNPAVED AREAS.

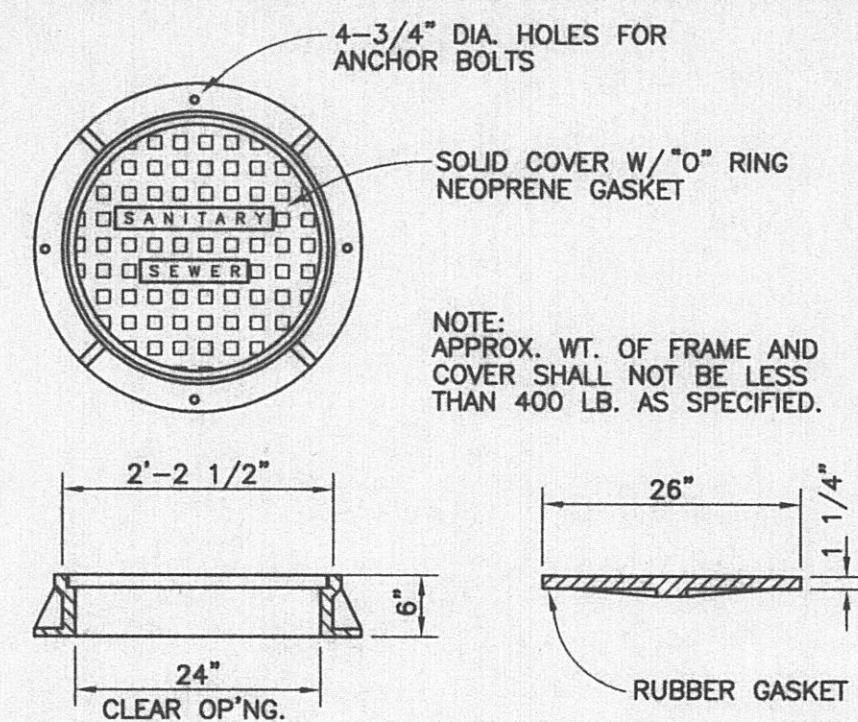
**POINT REPAIR DETAIL**  
NOT TO SCALE



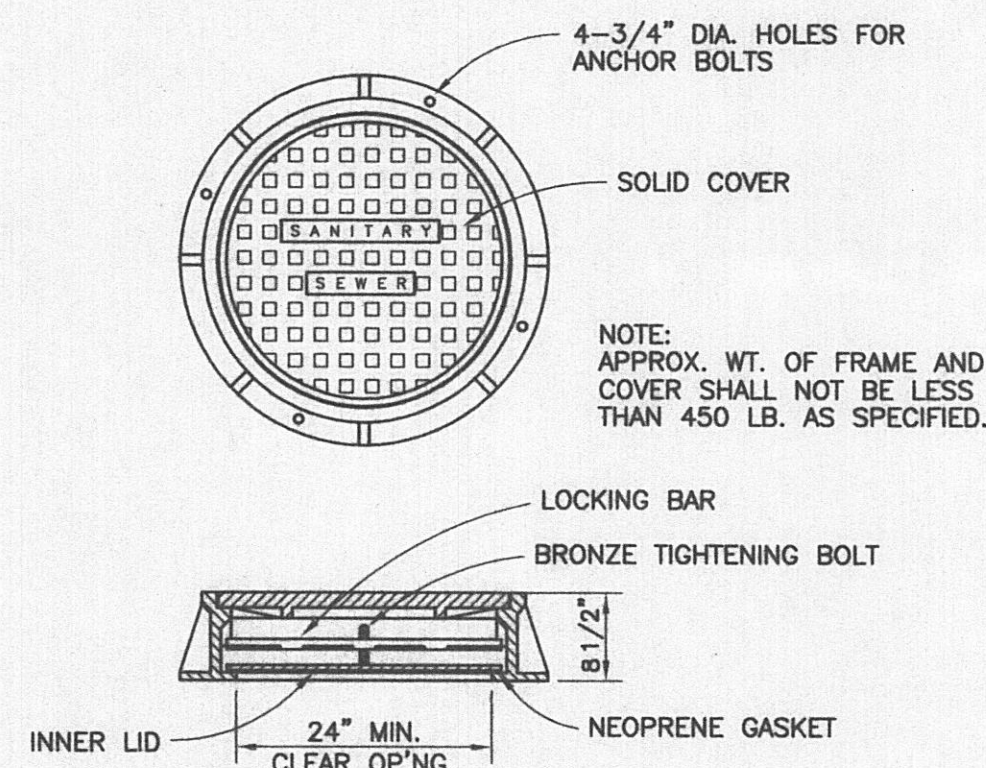
**STANDARD GRAVITY SEWER BEDDING AND BACKFILLING**  
NOT TO SCALE



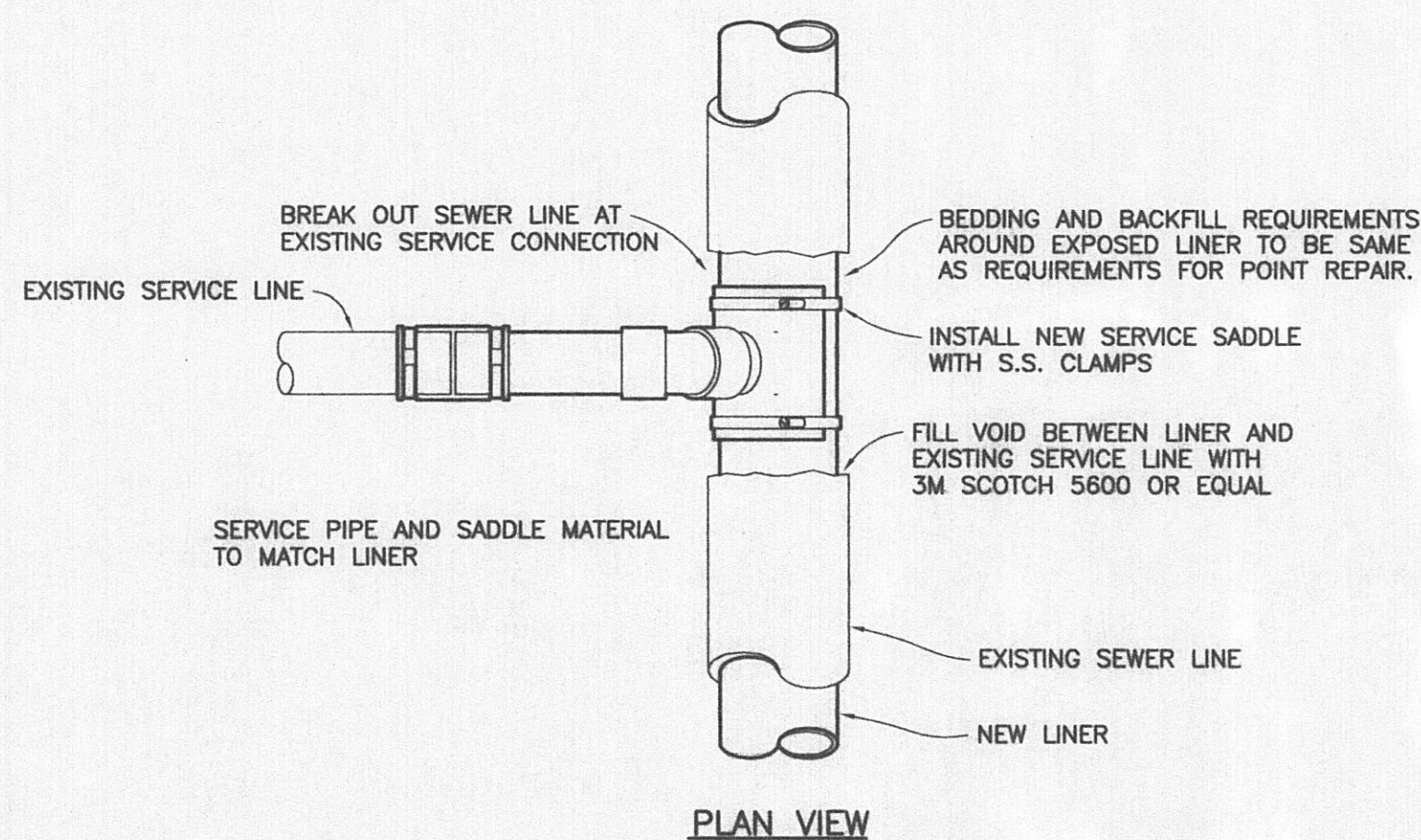
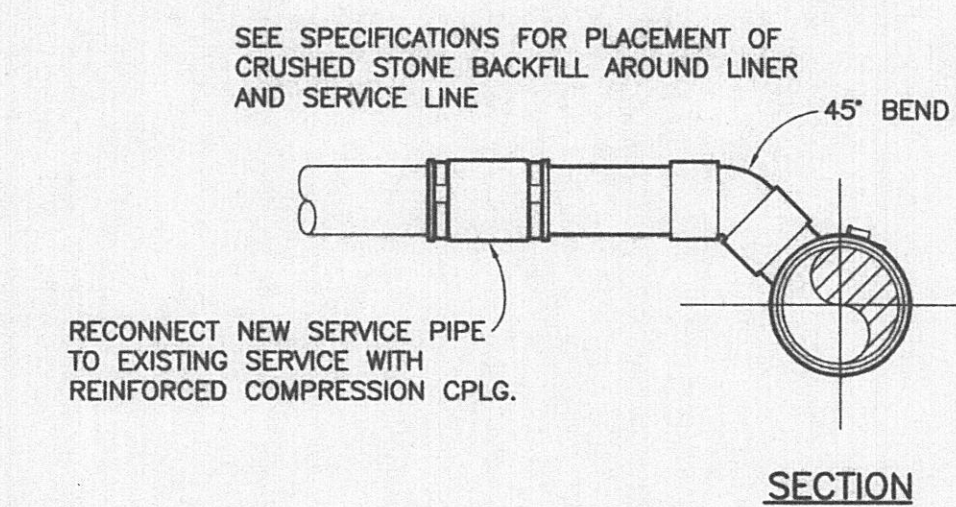
**SLIPLINE THROUGH MANHOLE DETAIL**  
NOT TO SCALE



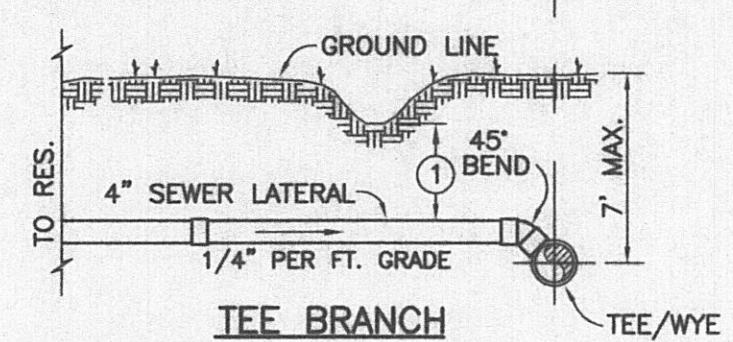
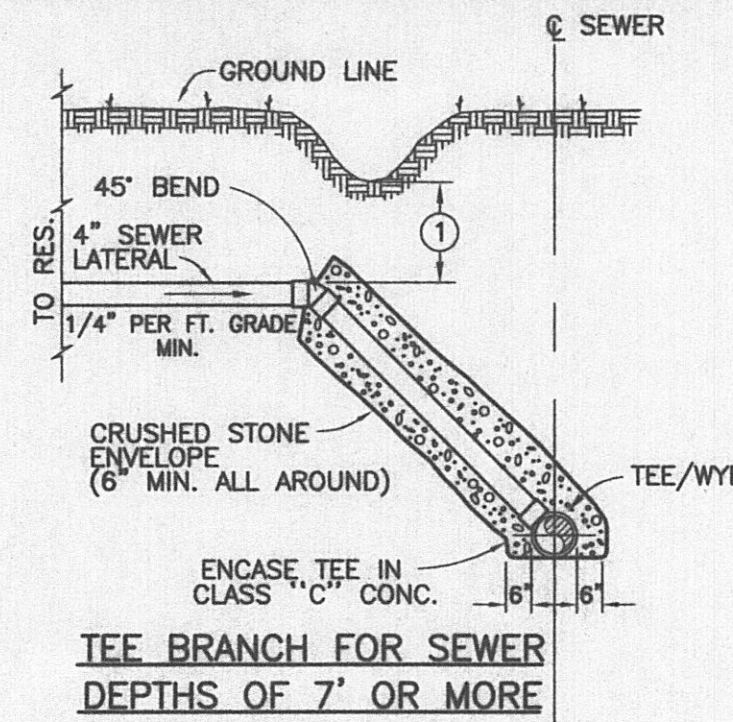
**STANDARD MANHOLE FRAME & COVER**  
NOT TO SCALE



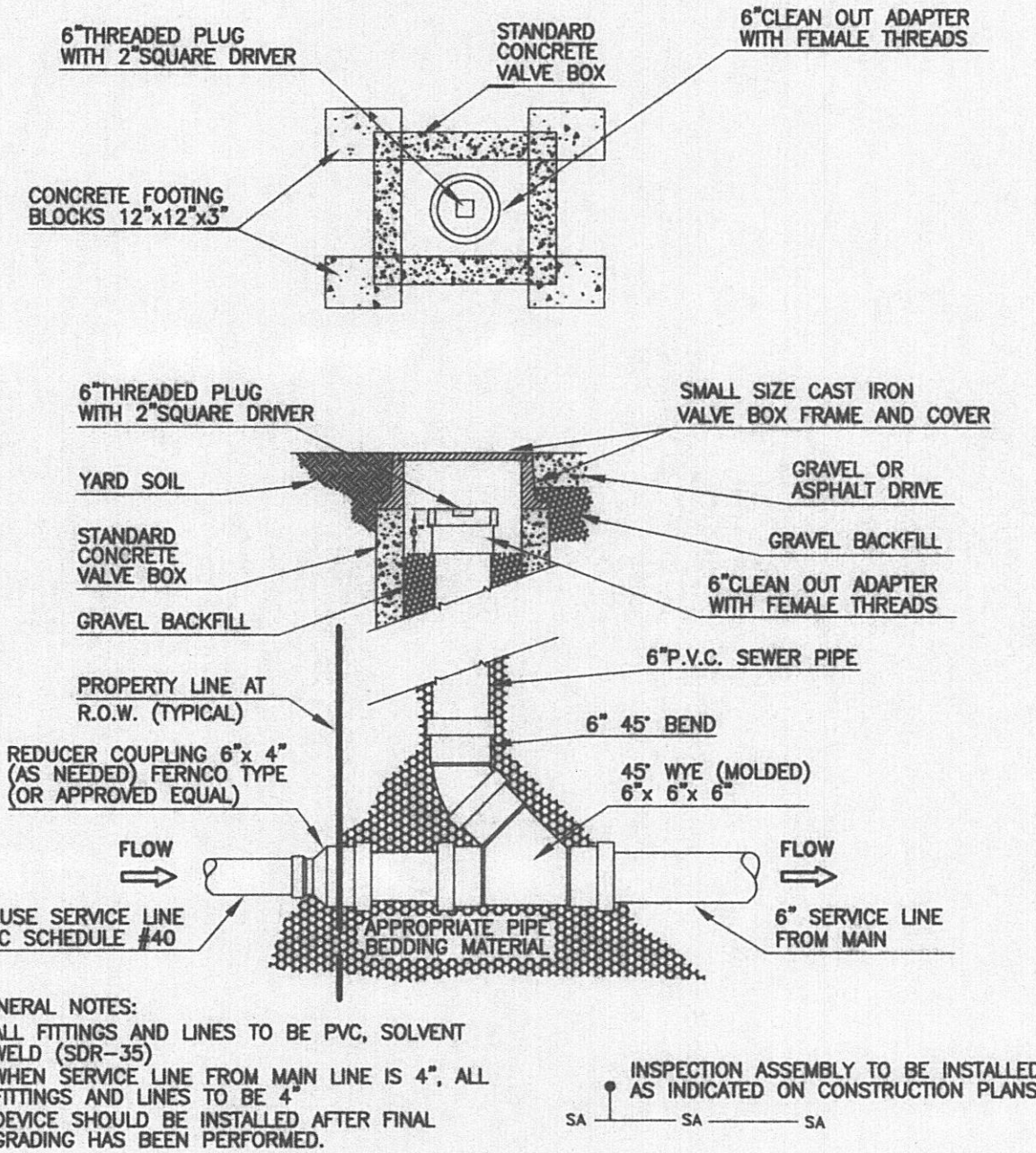
**WATERTIGHT FRAME & COVER**  
NOT TO SCALE



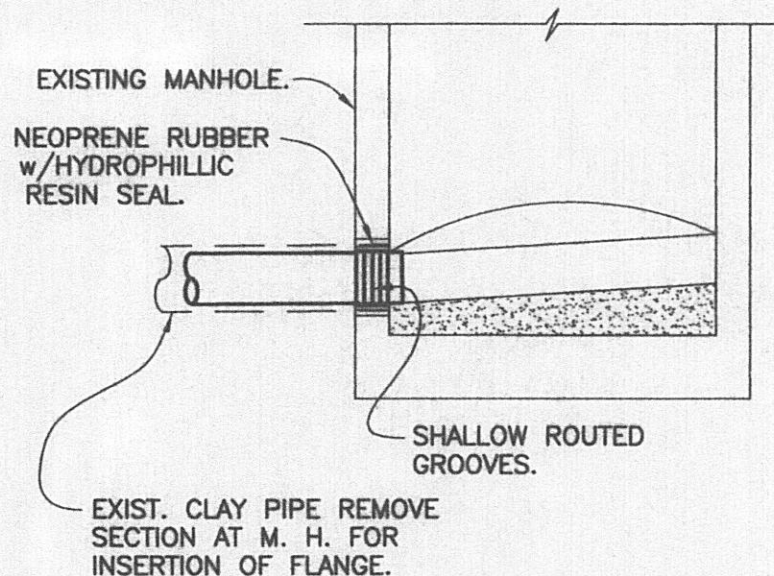
**SERVICE RECONNECTION TO LINER**  
NOT TO SCALE



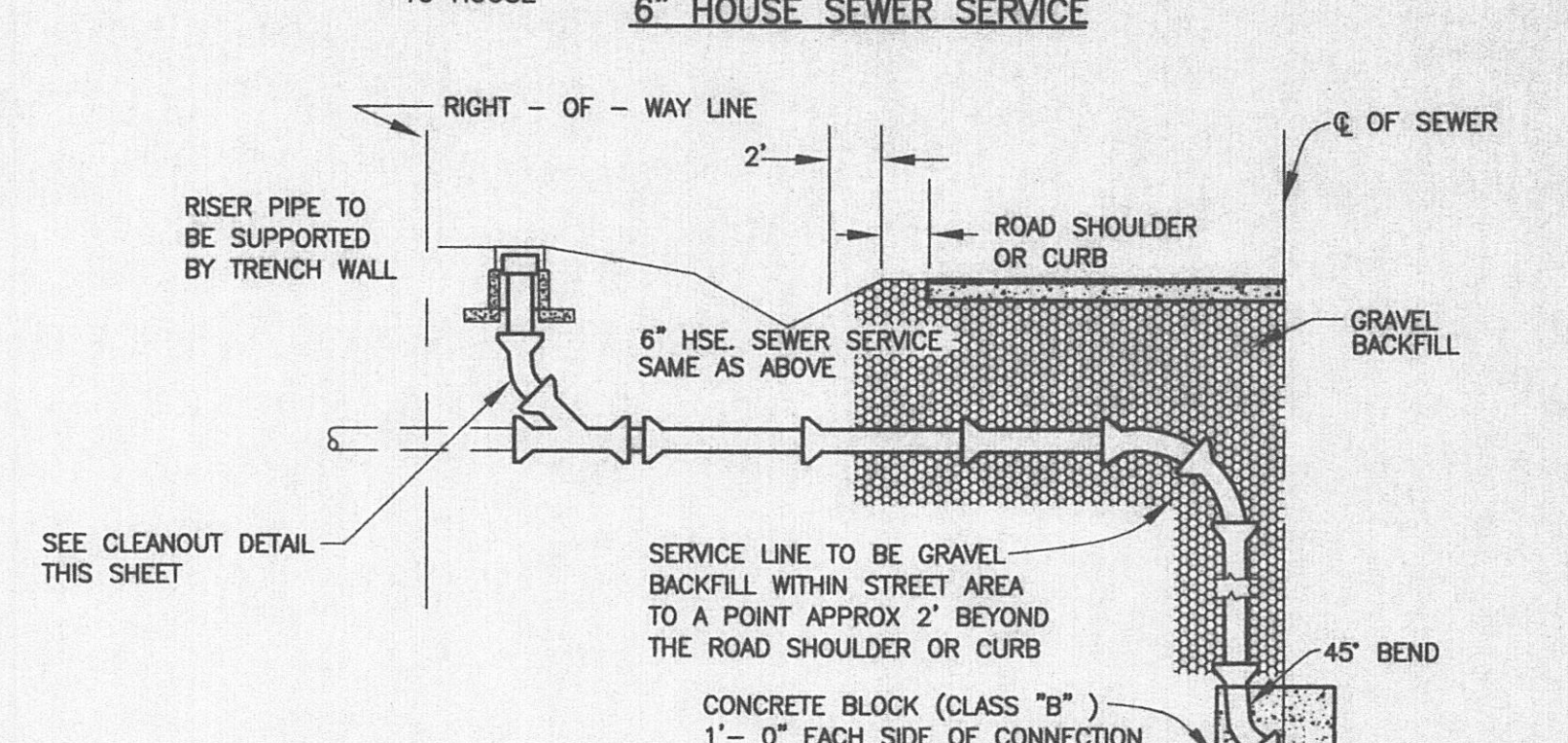
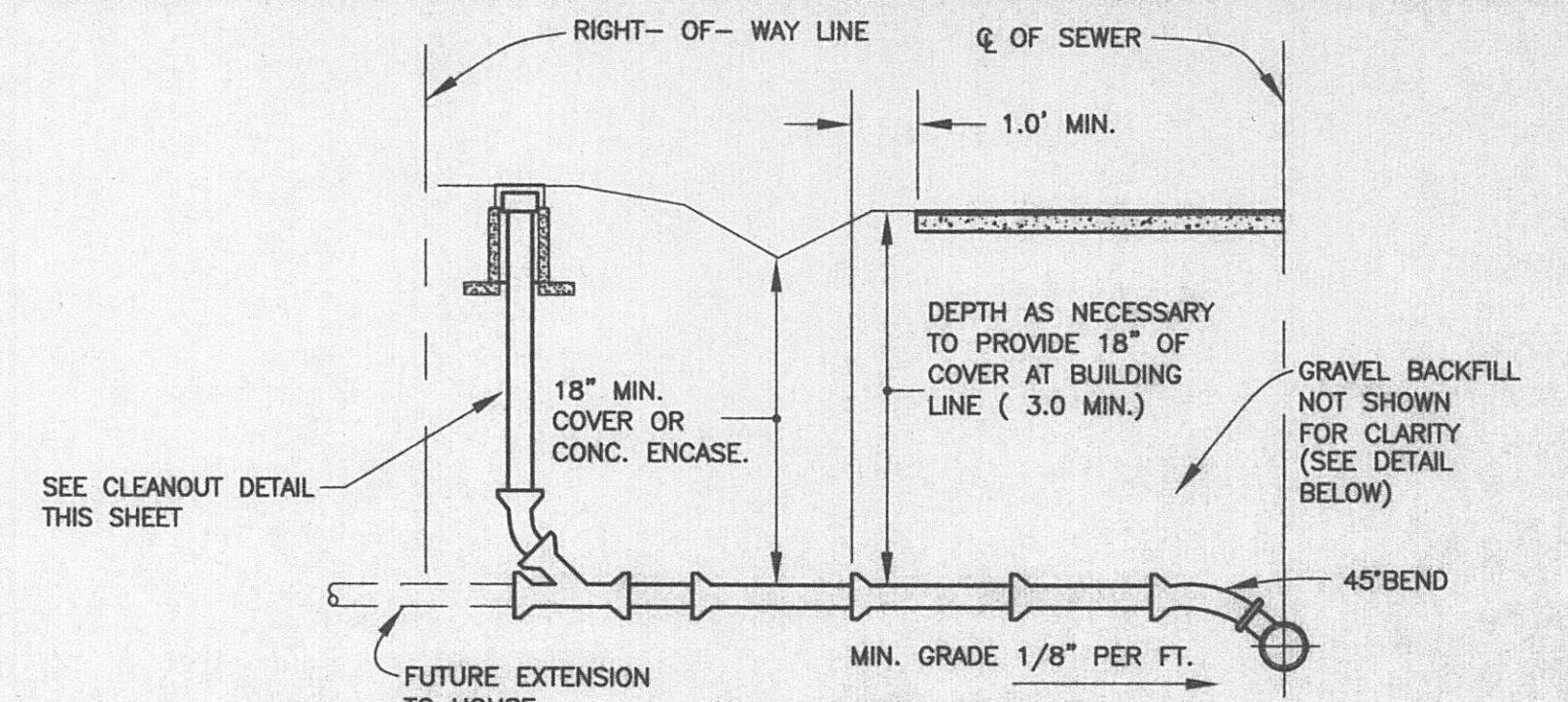
**SERVICE RECONNECTIONS AT POINT REPAIRS**  
NOT TO SCALE



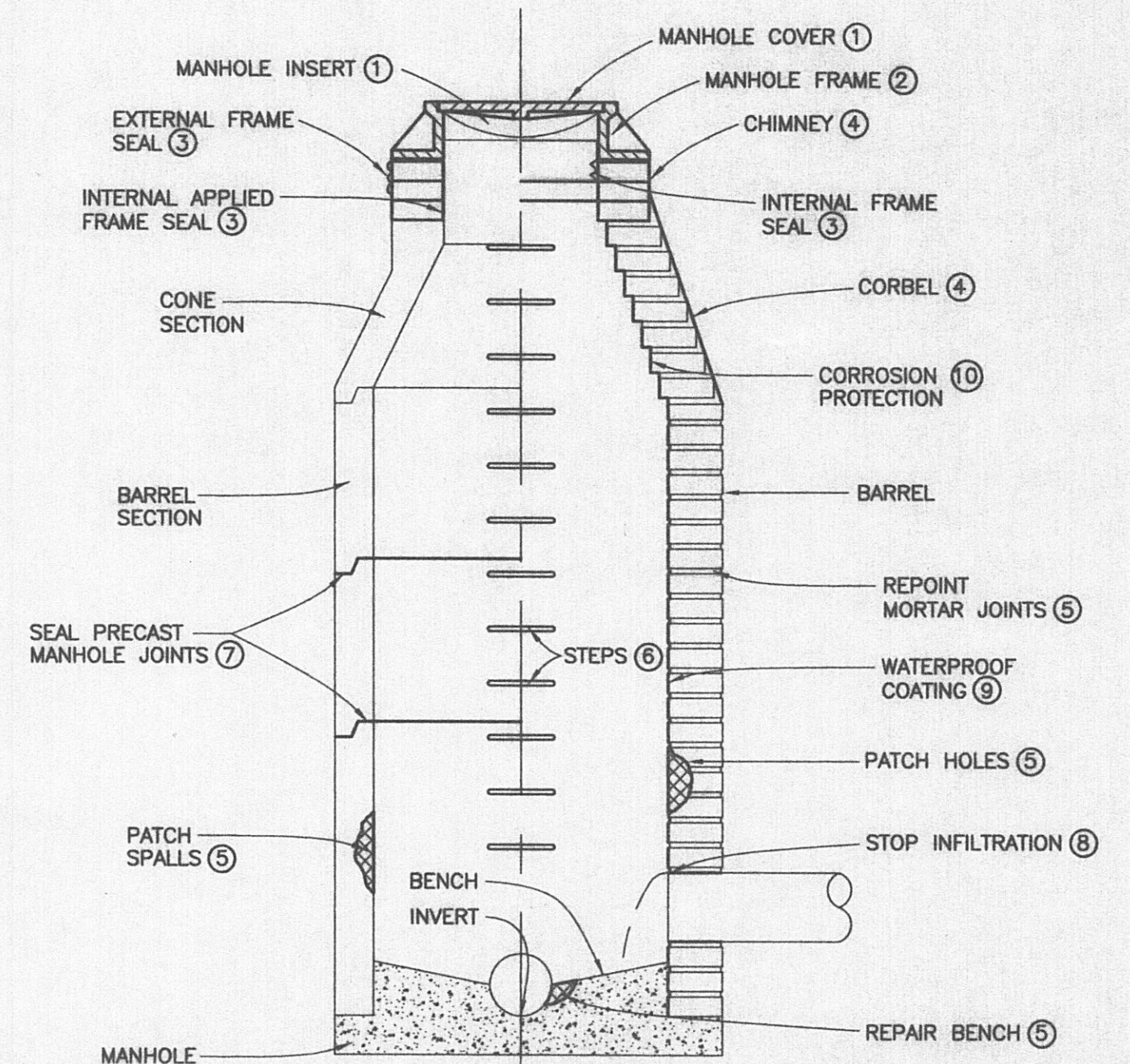
**CLEANOUT DETAIL**  
NOT TO SCALE



**END OF LINE MANHOLE CONNECTION DETAIL**  
NOT TO SCALE



**RISER PIPE FOR 6" HOUSE SEWER SERVICE SERVICE REPAIR DETAIL**  
NOT TO SCALE



- COVER SEALING
- FRAME & COVER REINSTALLATION OR REPLACEMENT
- FRAME SEALING
- CHIMNEY AND CORBEL REPAIR
- PATCHING, REPORTING AND REPAIR
- STEP REMOVAL\* AND REPLACEMENT
- PRECAST MANHOLE SEALING
- STOP INFILTRATION
- WATERPROOF COATING
- CORROSION PROTECTION

**MANHOLE REHABILITATION DETAIL**  
NOT TO SCALE

## RECORD DRAWINGS

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GRW PROJECT NO. 7601-30 CONTRACT NO. S04-01

WASTEWATER SYSTEM IMPROVEMENTS  
HARRIMAN, TENNESSEE  
SOUTH HARRIMAN  
STANDARD SEWER REHABILITATION DETAILS

GRW Elrod Dunson, Inc.  
Engineers, Architects, Planners  
LEXINGTON LOUISVILLE NASHVILLE KNOXVILLE  
INDIANAPOLIS PORT MITCHELL ARLINGTON

DESIGNED: RGT	DATE: FEBRUARY, 2004
DRAWN: DGR	SCALE: NONE
REVIEWED: RGT	SHEET NO. C-7
APPROVED: RGT	