GRW Record Dwgs

BID SET

FALL CREEK REGIONAL WASTE DISTRICT
SANITARY SEWER REHABILITATION PROJECT
PHASE I

PENDLETON, INDIANA

Jack Hatfield

FCRWD MEMBERS

MARK A. JABLONSKI	- PRESIDENT
MICHELLE W. PATISHALL	- VICE PRESIDENT
GREGORY L. VALENTINE	- TREASURER
DAVID K. PADGETT	- SECRETARY
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JACK C. WEIST	- BOARD MEMBER
ALBERT B. STEWART	- BOARD MEMBER
TERESA HUTTON	- GENERAL MANAGER
STEVE UNGER	- ATTORNEY

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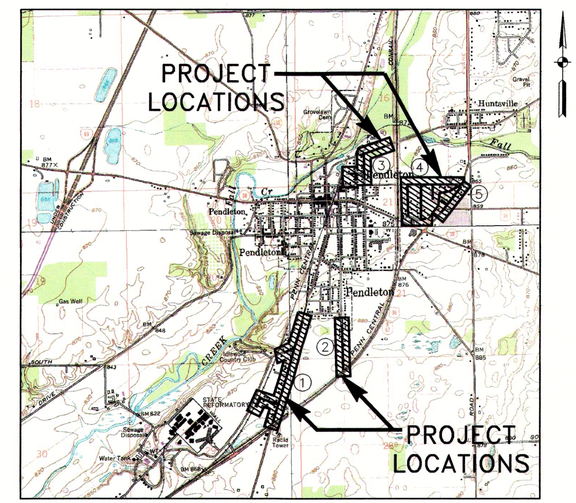
JOSEPH P. TIERNEY REGISTERED No. 19300407 STATE OF INDIANA PROFESSIONAL ENGINEER

DATE: 4-22-2016

JOSEPH P. TIERNEY, P.E.
INDIANA REG. NO. 19300407

APRIL 2016



SCALE: 1" = 2000'

PROJECT AREAS:

1. SOUTH PENDLETON
2. SOUTH BROADWAY
3. FALLS PARK
4. EAST WATER STREET
5. STATE ROAD 67

PLAN SET IS FULL SCALE ON 24"X36"
AND HALF SCALE ON 12"X18"

Pendleton Phase I As-builts

SRF NO. WW16074803
GRW PROJECT NO. 4447-14

FILE NAME: G:\4447-FCRWD-2015\Working Drawings\AutoCAD\REHABILITATION PHASE I\4447-14-G-00.dwg

PRINTED: 6/24/2016 @ 11:54AM

GENERAL NOTES:

1. THE FOLLOWING GENERAL NOTES ARE APPLICABLE TO THE ENTIRE SET OF PLANS, AND ARE NOT SHOWN ON EACH INDIVIDUAL SHEET. HOWEVER, THIS DOES TO RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY TO PROVIDE THESE ITEMS FOR ALL AREAS.
2. PROPERTY LINES AND RIGHTS-OF-WAY SHOWN ARE BASED ON DEED RESEARCH AND THE RECORD DRAWINGS FOR THE SANITARY SEWER AND SHALL BE CONSIDERED APPROXIMATE.
3. THE DISTRICT ASSUMES NO RESPONSIBILITY FOR THE LACK OF LOCATION OR MISSED LOCATION OF EXISTING UTILITIES.
4. THE CONTRACTOR SHOULD VERIFY THE EXISTING CONDITIONS TO HIS SATISFACTION PRIOR TO BEGINNING ANY EXCAVATION. INDIANA UNDERGROUND UTILITIES PROTECTION SERVICE SHALL BE NOTIFIED AT LEAST 72 HOURS PRIOR TO BEGINNING ANY WORK. INDIANA UNDERGROUND UTILITIES PROTECTION SERVICE TELEPHONE IS 811.
5. ALL DISTURBED AREAS, INCLUDING BUT NOT LIMITED TO STREETS, DRIVES, WALKS, FENCES, LAWNS, ETC. SHALL BE RESTORED TO CONDITIONS EQUAL TO OR BETTER THAN THOSE PRIOR TO CONSTRUCTION.
6. BASELINE STATIONING IS ALONG THE CENTERLINE OF PROPOSED SEWER.
7. ALL EXISTING SIZES AND LOCATIONS OF EXISTING UTILITIES ARE BASED ON BEST INFORMATION AVAILABLE. HOWEVER, THE ENGINEER DOES NOT GUARANTEE OR ASSURE THAT SUCH INFORMATION IS TRUE OR APPROXIMATE. THE CONTRACTOR SHALL DETERMINE WHICH UTILITIES MAY CONFLICT WITH HIS WORK AND VERIFY THEIR LOCATIONS, SIZES, AND INVERTS, ETC. ADJUST HIS WORK ACCORDINGLY, AND NOTIFY THE ENGINEER OF ANY SUCH CONFLICT. THE CONTRACTOR SHALL REFER TO SPECIFICATIONS RELATIVE TO THE ABOVE.
8. ALL INFORMATION REGARDING HORIZONTAL AND VERTICAL LOCATIONS OF THE EXISTING SEWERS ARE BASED ON THE BEST INFORMATION AVAILABLE UTILIZING RECORD DRAWINGS. THE ENGINEER DOES NOT GUARANTEE OR ASSURE THAT SUCH INFORMATION IS TRUE OR ACCURATE. THE CONTRACTOR SHALL FIELD VERIFY THOSE ELEVATIONS, ETC. AND ADJUST HIS WORK ACCORDINGLY TO MAINTAIN POSITIVE DOWN HILL SLOPE ON THE NEW SEWERS TO AT LEAST MATCH THE EXISTING SLOPE RELATIVE TO THE VERIFIED ELEVATIONS, AND NOTIFY THE ENGINEER OF ANY SUCH CHANGE FOR APPROVAL.
9. THE CONTRACTOR IS RESPONSIBLE FOR RELOCATING, ADJUSTING, AND/OR HOLDING ANY UTILITY LINE AND/OR ASSOCIATED SERVICE POLE, OR DOWN GUY AT HIS OWN EXPENSE. HE SHALL ALSO BE RESPONSIBLE TO CONTACT ANY UTILITY OWNER AS NECESSARY TO RESOLVE ALL UTILITY CONFLICTS INCURRED DURING THE COMPLETION OF HIS CONSTRUCTION OPERATIONS.
10. CONTRACTOR SHALL USE CAUTION DURING THEIR WORK SO AS TO NOT DAMAGE EXISTING UTILITIES, ETC. CONTRACTOR IS RESPONSIBLE FOR REPAIR AND/OR REPLACEMENT OF ANY UTILITIES DAMAGED AS A RESULT OF CONTRACTOR'S CONSTRUCTION OPERATIONS AND PRACTICES.
11. CONNECTIONS OF ROOF DRAINS, FOUNDATION DRAINS AND ANY OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEMS ARE PROHIBITED.
12. LIMITS OF CONSTRUCTION SHALL BE MAINTAINED WITHIN PERMANENT, TEMPORARY EASEMENTS, AND RIGHT OF WAY AS SHOWN ON PLANS.
13. ALL INFORMATION REGARDING INVERTS, TOP OF CASTING, AND SLOPES OF THE SANITARY SEWER MAIN AND ALL INFORMATION REGARDING LOCATION, DEPTHS AND LENGTH OF SANITARY SEWER LATERALS ARE BASED ON THE BEST INFORMATION AVAILABLE UTILIZING RECORD DRAWINGS OF THE SANITARY SEWER SYSTEM. THE ENGINEER DOES NOT ASSURE THIS INFORMATION IS TRUE OR APPROXIMATE AND SHOULD BE VERIFIED BY THE CONTRACTOR. NOTIFY THE ENGINEER OF ANY CHANGE FOR APPROVAL.
14. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL. TRAFFIC CONTROL SHALL CONFORM TO APPLICABLE LOCAL/STATE STANDARDS.
15. CONTRACTOR SHALL NOTIFY RESIDENTS 48 HOURS PRIOR TO TEMPORARILY CLOSING PRIVATE DRIVEWAYS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AFFECTED UTILITIES, TRASH PICK-UP SERVICES, SCHOOL DISTRICT, AND EMERGENCY & LAW ENFORCEMENT AUTHORITIES REGARDING SAID CLOSURES. AFFECTED PRIVATE DRIVEWAYS SHALL NOT BE SHUT DOWN LONGER THAN 8 HOURS. TRAFFIC SHALL BE BARRICADED FROM DRIVEWAY OR DRIVEWAY SHALL BE STEEL PLATE SPANNED TO MINIMIZE CLOSURES.
16. CONTRACTOR SHALL REMOVE AND REPLACE ALL DRIVEWAY CULVERTS AFFECTED BY CONSTRUCTION WITH NEW DRIVEWAY CULVERT PIPING OF IN-KIND MATERIALS PER TOWN OF PENDLETON STANDARDS. CONTRACTOR SHALL ALSO PROVIDE TOWN APPROVED END SECTIONS ON EACH REPLACED CULVERT. THE CONTRACTOR SHALL OBTAIN THE ACTUAL INVERT ELEVATIONS OF EACH CULVERT TO BE REMOVED AND SUPPLY ELEVATIONS TO THE R.P.R. THE CONTRACTOR SHALL THEN PLACE THE NEW DRIVEWAY CULVERT AS CLOSE AS POSSIBLE TO THE FORMER INVERT ELEVATIONS AND PROVIDE POSITIVE DRAINAGE OF THE RECONSTRUCTED DITCH LINE.
17. CONTRACTOR SHALL CLEAN STREETS OF CONSTRUCTION DEBRIS DAILY TO THE SATISFACTION OF THE OWNER AND ENGINEER. CONTRACTOR SHALL FURTHER ENSURE THAT AT LEAST ONE LANE OF TRAFFIC IS OPEN AT ALL TIMES DURING CONSTRUCTION ALONG ROADWAYS UNLESS THE CONTRACTOR HAS WRITTEN APPROVAL AND AN APPROVED TRAFFIC MAINTENANCE PLAN FROM THE TOWN.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING SANITARY FLOW AND PROVIDING BYPASS PUMPING AND/OR SUPPLEMENTAL STORAGE AS REQUIRED DURING CONSTRUCTION OPERATIONS. SUCH FLOW SHALL BE MONITORED SO AS NOT TO ALLOW SEWAGE BACK-UP WHICH MAY CAUSE PROPERTY DAMAGE. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGE INCURRED AND MUST MAKE RESTITUTION WITH ANY AFFECTED PROPERTY OWNER(S). CONTRACTOR SHALL PROVIDE CONTINUOUS ON-SITE SUPERVISION OF ANY BYPASS PUMPING OPERATIONS THAT OCCUR DURING CONSTRUCTION & NON-CONSTRUCTION HOURS. PROPOSED BYPASS SYSTEM SHALL INCLUDE EMERGENCY STANDBY/BACK-UP PROVISIONS AND SHALL BE APPROVED BY THE OWNER AT LEAST TWO (2) FULL WORKING DAYS IN ADVANCE OF INITIATING ANY BYPASS OPERATIONS. CONTRACTOR SHALL COORDINATE BYPASS PUMPING EFFORTS WITH FALL CREEK REGIONAL WASTE DISTRICT.
19. THE GRAVITY SEWER PIPE LENGTHS SHOWN ON THE DRAWING ARE MEASURED FROM CENTER OF MANHOLE TO CENTER OF CONSECUTIVE MANHOLES.
20. BID SCHEDULE A INCLUDES DIG AND REPLACEMENT OF THE OLD VITRIFIED CLAY GRAVITY SEWER SEGMENTS WITH PVC SEWER AS SHOWN ON THESE DRAWINGS AND ALL ASSOCIATED WORK IDENTIFIED ON THESE PLANS AND IN THE SPECIFICATIONS.
21. BID SCHEDULE B INCLUDES CURED-IN-PLACE PIPE REHABILITATION OF THE SEWER SEGMENTS IDENTIFIED ON THESE DRAWINGS AND ALL ASSOCIATED WORK IDENTIFIED ON THESE PLANS AND IN THE SPECIFICATIONS.
22. ALL WORK SHALL CONFORM TO THE FALL CREEK WASTE DISTRICT STANDARDS FOR DESIGN AND CONSTRUCTION OF SANITARY SEWERS UNLESS OTHERWISE NOTED.

UTILITIES

DESCRIPTION

WATER, PUBLIC WORKS AND STREETS
PENDLETON UTILITIES
100 WEST STATE STREET
PENDLETON, IN 46064
765-208-0094
DONNIE MOYER
765-208-0093
ROY BAKER

GAS
VECTREN ENERGY
2001 REV. J.T. MENIFEE STREET
ANDERSON, IN 46016
765-620-0747
BRIAN HARGER

PHONE
VERIZON
19845 NORTH U.S. 31
WESTFIELD, IN 46074
317-896-6005
STEVE COSTLOW

SEWER
FALL CREEK REGIONAL WASTE DISTRICT
9378 S. COUNTY ROAD 650 WEST
PENDLETON, IN 46064
765-778-7544
JOE ROWLETT

ELECTRIC
PENDLETON UTILITIES
100 WEST STATE STREET
PENDLETON, IN 46064
765-208-0104
CRAIG SWITZER

CABLE
COMCAST CABLEVISION
9750 E. 105TH STREET, STE. 1600
NOBLESVILLE, IN, 46060
317-774-3384
MATT STRINGER

PHONE
AT&T INDIANA
241 E. MARKET STREET
HUNTINGTON, IN 46750
260-358-4507
CHRIS CARTWRIGHT

EXISTING LEGEND

- EXISTING BENCHMARK
- EXISTING CATCH BASIN
- EXISTING CABLE BOX
- EXISTING CONTROL POINT
- EXISTING DECIDUOUS TREE
- EXISTING ELECTRICAL BOX
- EXISTING ELECTRIC METER
- EXISTING ELECTRIC TRANSFORMER
- EXISTING FIRE HYDRANT
- EXISTING FLAG POLE
- EXISTING FIBER OPTIC BOX
- EXISTING GAS METER
- EXISTING GAS MARKER
- EXISTING GAS PRESSURE VALVE
- ROAD ℄
- EXISTING DITCH
- EXISTING POWER/ELECTRIC
- EXISTING FENCE
- EXISTING NATURAL GAS
- EXISTING GUARDRAIL
- EXISTING GRADE (PROFILE)
- EXISTING PROPERTY LINE
- EXISTING RAILROAD
- EXISTING CABLE TV
- EXISTING TELEPHONE LINE
- EXISTING FIBER OPTIC LINE
- EXISTING WATER SERVICE
- EXISTING WATER'S EDGE
- EXISTING RIGHT-OF-WAY
- EXISTING SANITARY SEWER
- EXISTING SANITARY SEWER LATERAL
- EXISTING STORM SEWER
- EXISTING GAS STOP
- EXISTING GAS VALVE
- EXISTING GUY WIRE
- EXISTING GRAVE STONE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING TELEPHONE MANHOLE
- EXISTING PKNAIL FOUND
- EXISTING PINE TREE
- EXISTING POWER POLE
- EXISTING SIGN
- EXISTING SHRUB
- EXISTING TEMP BENCHMARK
- EXISTING TELEPHONE BOX
- EXISTING TELEPHONE MARKER
- EXISTING TRAFFIC POLE
- EXISTING VALVE VAULT
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING MANHOLE
- EXISTING ELECTRIC MANHOLE
- EXISTING FIBER OPTIC MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING STEAM MANHOLE
- EXISTING STORM MANHOLE
- DI DUCTILE IRON
- RJDI RESTRAINED JOINT DUCTILE IRON

Indiana 811

Indiana Underground Plant Protection Service

CALL TWO WORKING DAYS BEFORE YOU DIG IT'S THE LAW 811

PROPOSED LEGEND

- PROPOSED SANITARY MANHOLE
- PROPOSED CURB INLET
- PROPOSED STORM MANHOLE
- PROPOSED 11° BEND
- PROPOSED 22° BEND
- PROPOSED 45° BEND
- PROPOSED 90° BEND
- PROPOSED CAP
- PROPOSED FIRE HYDRANT (2 ACCESS)
- PROPOSED TEE
- PROPOSED VERTICAL TEE
- PROPOSED WATER VALVE
- PROPOSED REDUCER
- PROPOSED DITCH
- PROPOSED RIGHT-OF-WAY
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED WATER SERVICE
- PROPOSED FENCE
- SURFACE RESTORATION AND BACKFILL
- BORE AND JACK
- DIRECTIONAL DRILL

SANITARY LATERALS:

A
X
Y

A= DISTANCE FROM DOWN STREAM MANHOLE
X= APPROX. DEPTH AT R/W
Y= LENGTH FROM MAIN TO R/W

INDEX OF DRAWINGS

JOSEPH P. TIERNEY
REGISTERED
No. 19300407
STATE OF INDIANA
PROFESSIONAL ENGINEER

BID SET

GRW PROJECT NO. 4447-14

SRF NO. WW16074803

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GENERAL NOTES
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED:	GWL
DRAWN:	GCR
REVIEWED:	JPT
APPROVED:	JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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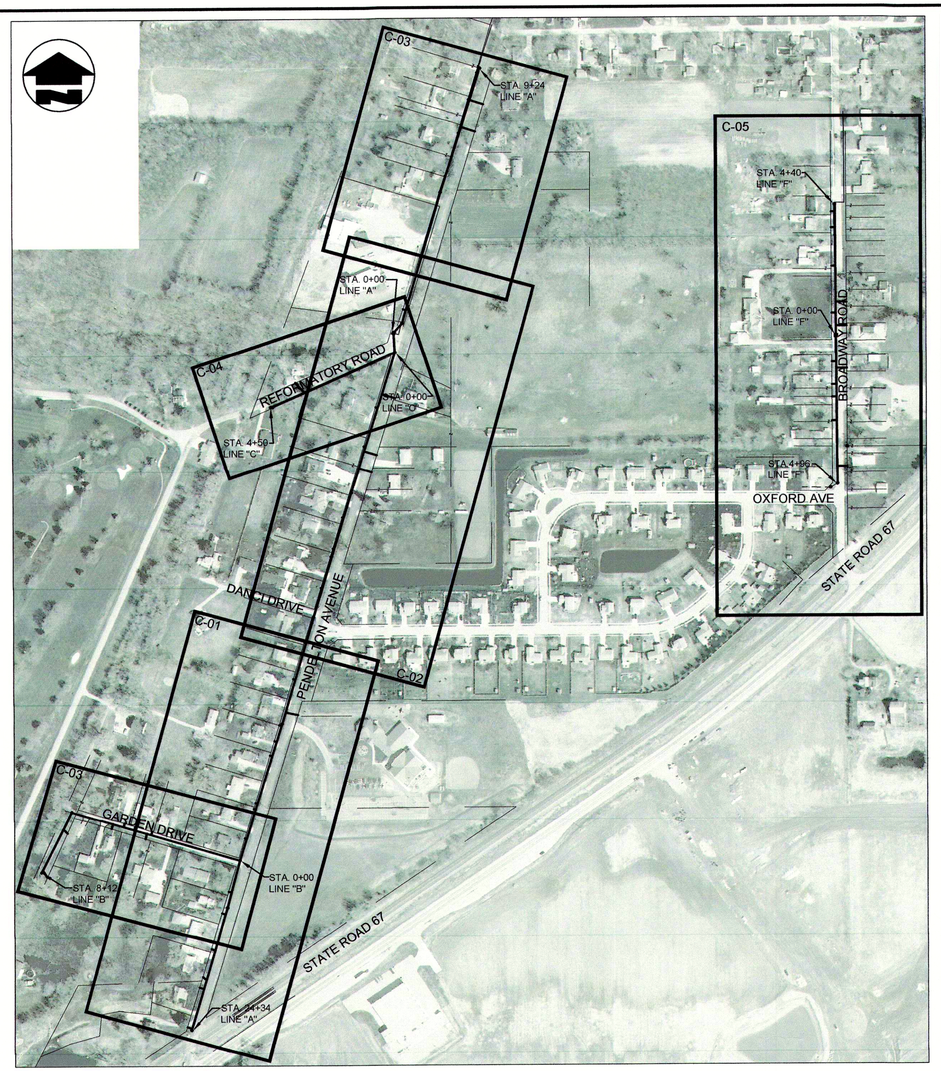
THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK

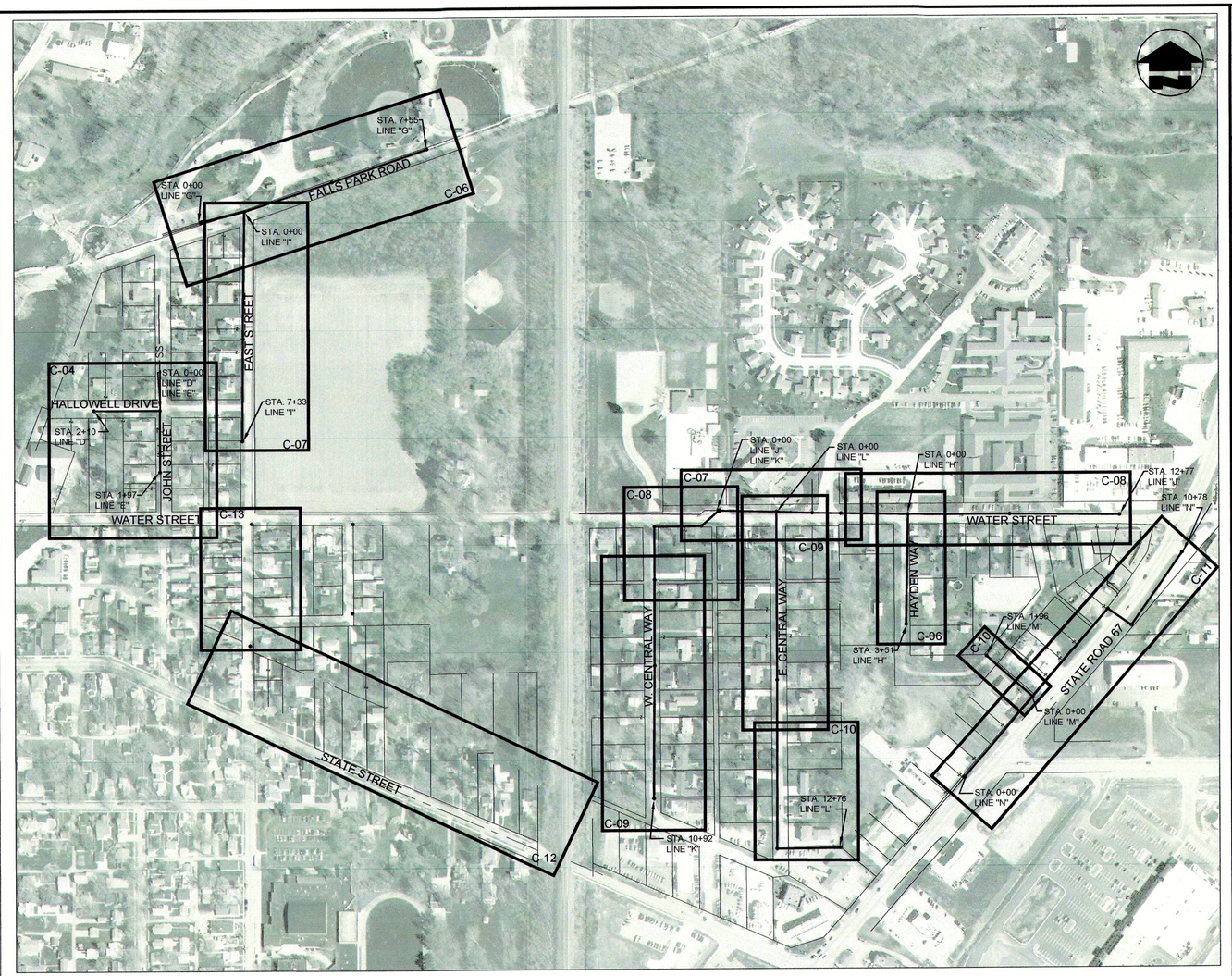
DATE: APRIL 2016

SCALE: N.T.S.

SHEET NO. G-01



SOUTH PENDLETON & SOUTH BROADWAY AREAS



FALLS PARK, EAST WATER STREET & STATE ROAD 67 AREAS

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DRAWING INDEX
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED	GWL
DRAWN	GCR
REVIEWED	JPT
APPROVED	JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL 2016

SCALE: N.T.S.

SHEET NO. G-02

PRINTED: 6/24/2016 @ 11:55AM

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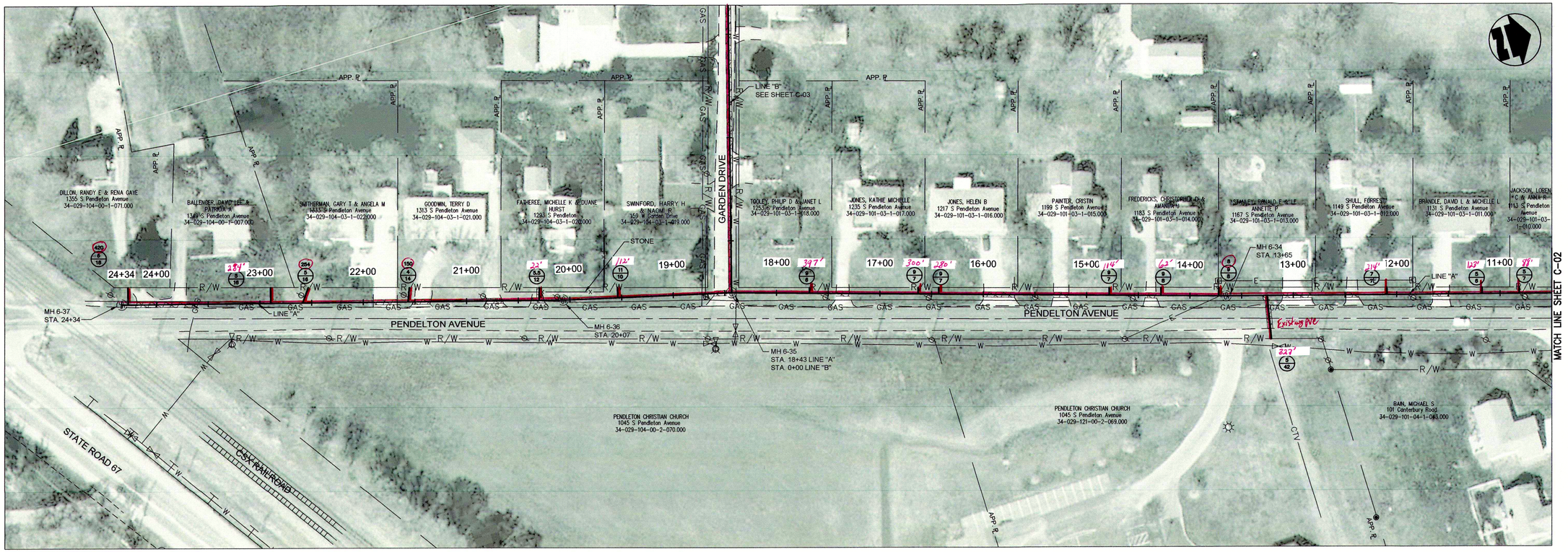
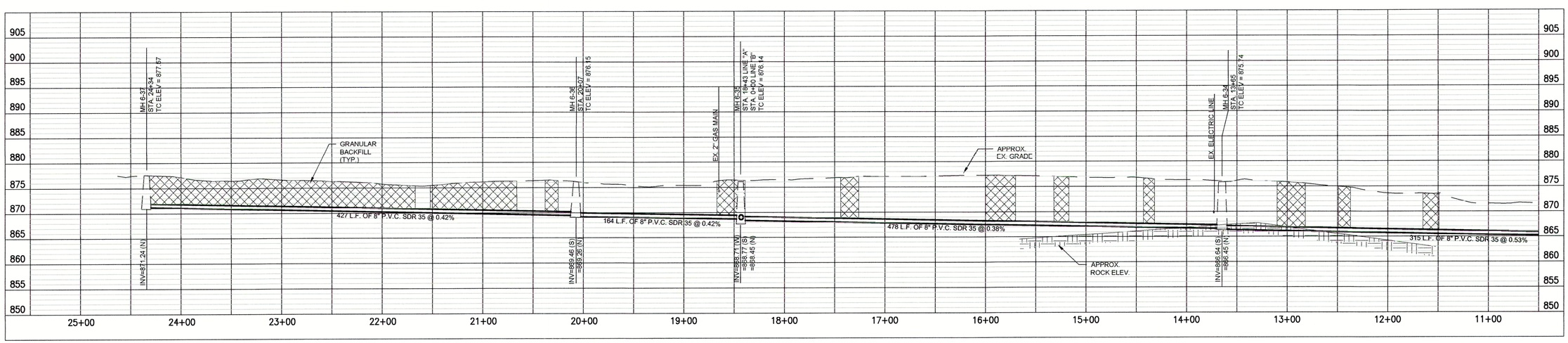


PLAN VIEW - STA. 24+34 TO STA. 10+50 LINE "A"

From MH# 6-37 to MH # 6-30 - CIPP



PROFILE - STA. 24+46 TO STA. 10+50 LINE "A"

"BID SCHEDULE A" (OPEN CUT) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY ALL EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, INSTALL 6" SDR 35 SEWER PIPE TO R/W LINE AND CONNECT TO EXISTING LATERAL.
2. THE EXISTING MANHOLES ARE TO REMAIN IN PLACE WITH NEW SEWERS RECONNECTED. THE MANHOLES SHALL BE REHABILITATED PER THE MANHOLE REHABILITATION SCHEDULE.

BID SCHEDULES A & B NOTES:

1. SANITARY LATERAL LEGEND:

A
X
Y

A= DISTANCE FROM DOWN STREAM MANHOLE
X= APPROX. DEPTH AT R/W
Y= LENGTH FROM MAIN TO R/W

"BID SCHEDULE B" (CIPP) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, FOR LATERAL REPLACEMENTS, MAKE CONNECTION DIRECTLY TO CIPP LINER AS SHOWN IN THE DETAILS AND ON SHEETC-16. INSTALL 6" SDR 35 SEWER PIPE FROM MAIN TO R/W LINE AND CONNECT TO EXISTING LATERAL.
2. IF THE PLANS SHOW C.I.P.P. LATERAL REHABILITATION, COMPLETE PER THE DETAIL ON SHEET C-16.
3. MANHOLE SHALL BE REHABILITATION PER THE MANHOLE REHABILITATION SCHEDULE.

JOSEPH P. TIERNEY
REGISTERED
No. 19300407
STATE OF INDIANA
PROFESSIONAL ENGINEER

BID SET

GRW PROJECT NO. 4447-14

SRF NO. WW6074803 ----

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PLAN & PROFILE
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED:	GWL
DRAWN:	GCR
REVIEWED:	JPT
APPROVED:	JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK

DATE: APRIL 2016

SCALE: H: 1"=50' V: 1"=10'

SHEET NO. C-01

PRINTED: 5/24/2016 @ 11:56AM

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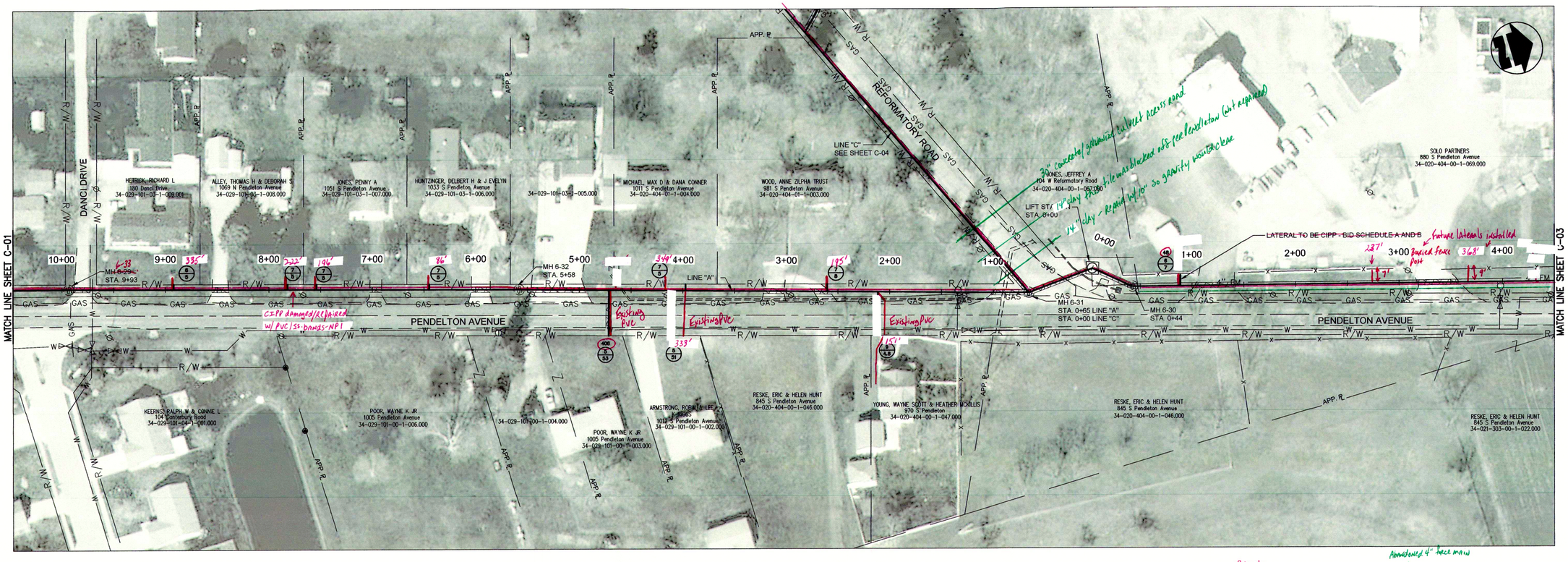
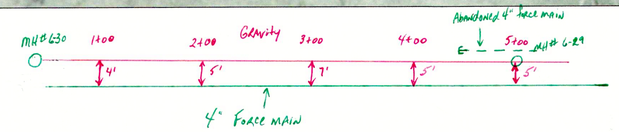
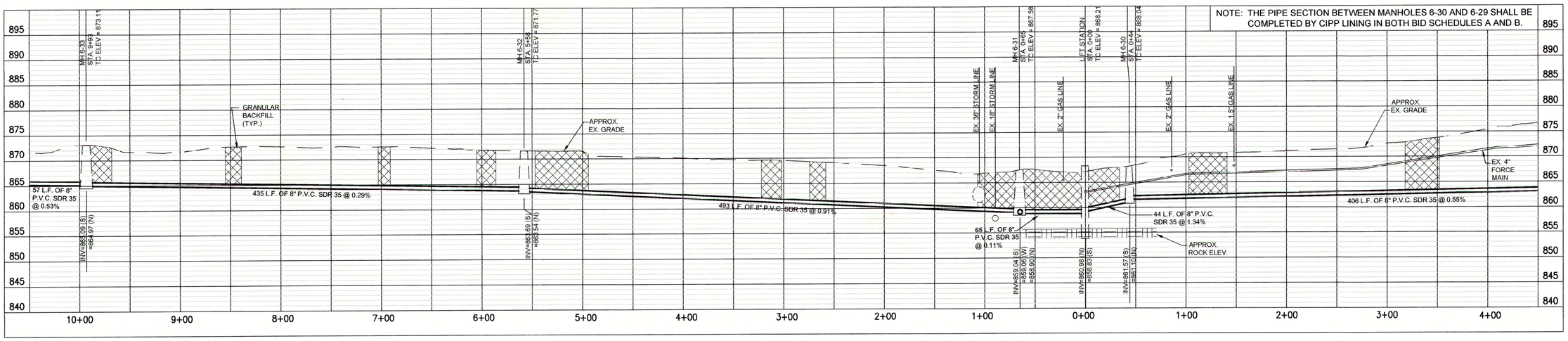


PLAN VIEW - STA. 10+50 TO STA. 4+50 LINE "A"

From MH# 6-30 to MH# 6-37 - CIPP





PROFILE - STA. 10+50 TO STA. 4+50 LINE "A"

"BID SCHEDULE A" (OPEN CUT) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY ALL EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, INSTALL 6" SDR 35 SEWER PIPE TO R/W LINE AND CONNECT TO EXISTING LATERAL.
2. THE EXISTING MANHOLES ARE TO REMAIN IN PLACE WITH NEW SEWERS RECONNECTED. THE MANHOLES SHALL BE REHABILITATED PER THE MANHOLE REHABILITATION SCHEDULE.

BID SCHEDULES A & B NOTES:

1. SANITARY LATERAL LEGEND:

A
X
Y

A= DISTANCE FROM DOWN STREAM MANHOLE
X= APPROX. DEPTH AT R/W
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"BID SCHEDULE B" (CIPP) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, FOR LATERAL REPLACEMENTS, MAKE CONNECTION DIRECTLY TO CIPP LINER AS SHOWN IN THE DETAILS AND ON SHEETC-16. INSTALL 6" SDR 35 SEWER PIPE FROM MAIN TO R/W LINE AND CONNECT TO EXISTING LATERAL.
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SRF NO. WW16074803 ---

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PLAN & PROFILE
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

-LMK-
-GPK-

DESIGNED	DRAWN	REVIEWED	APPROVED
GWL	GCR	JPT	JPT

REVISIONS

NO	DATE	BY	DESCRIPTION
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DATE: APRIL 2016

SCALE: H: 1"=50' V: 1"=10'

SHEET NO. C-02

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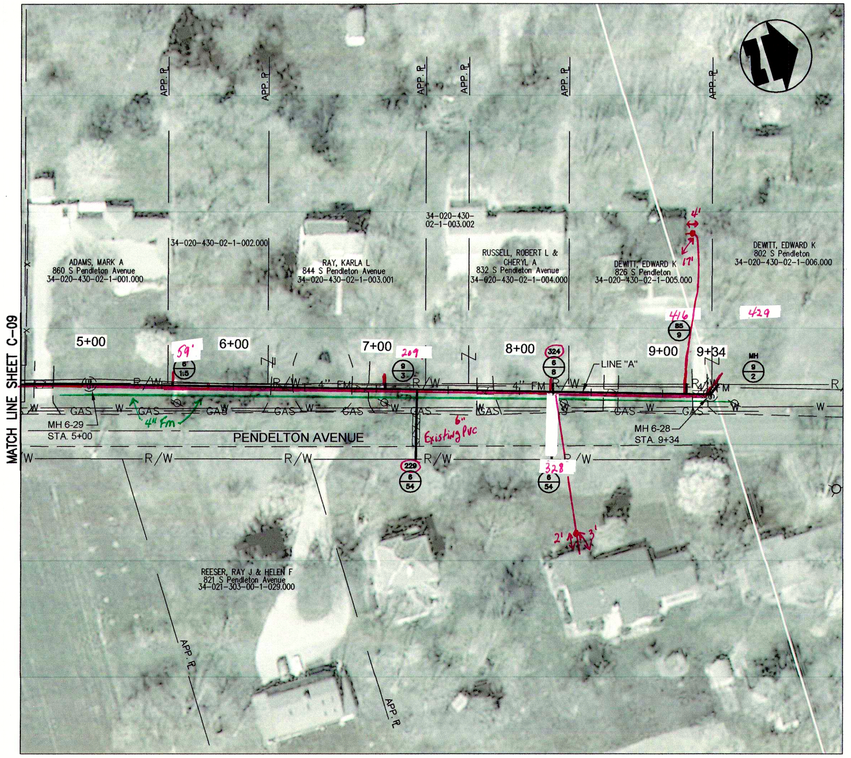
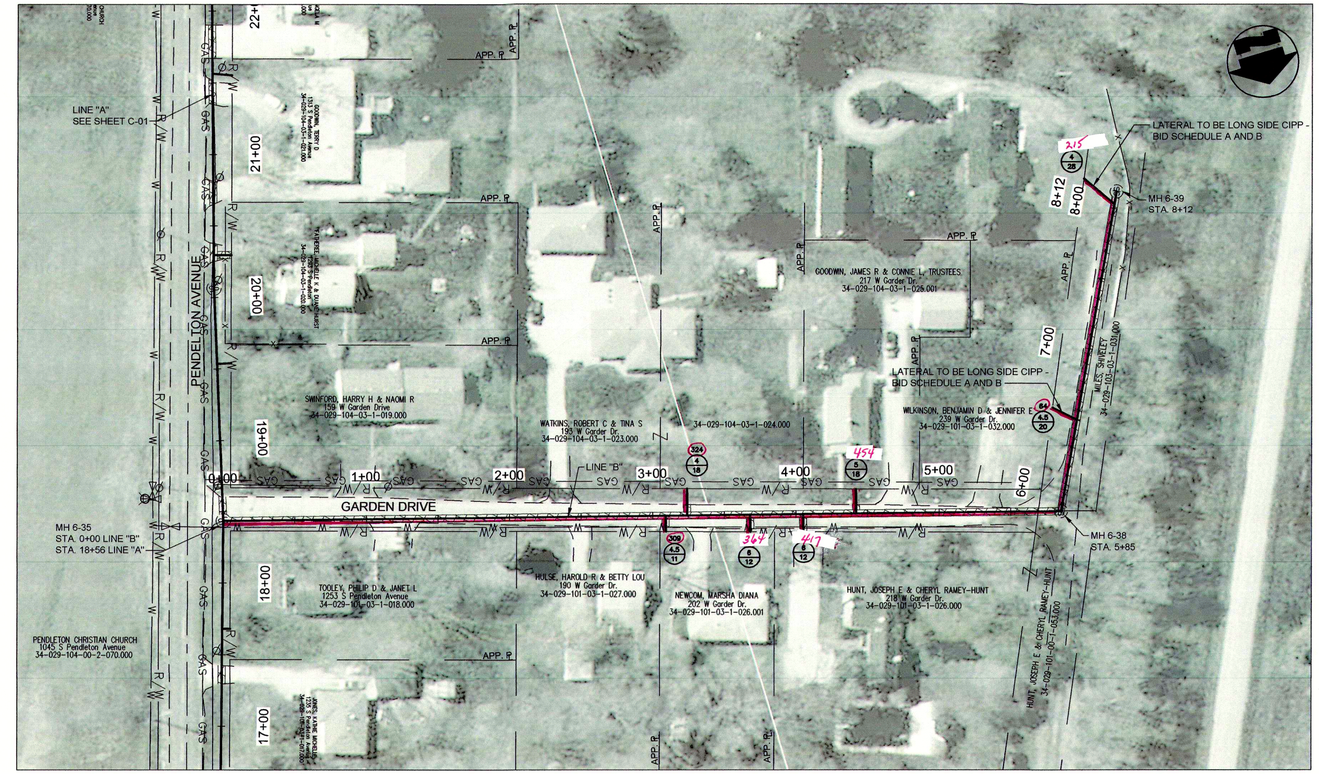


PLAN VIEW - STA. 4+50 TO E.O.P. STA. 9+34 LINE "A"



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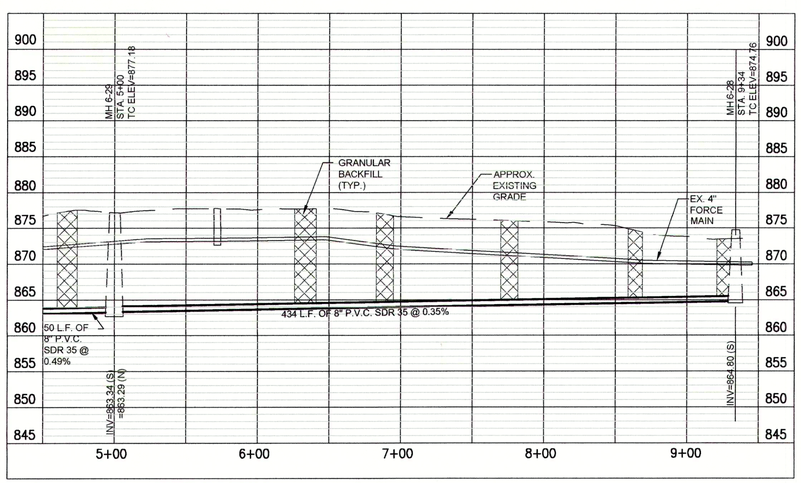
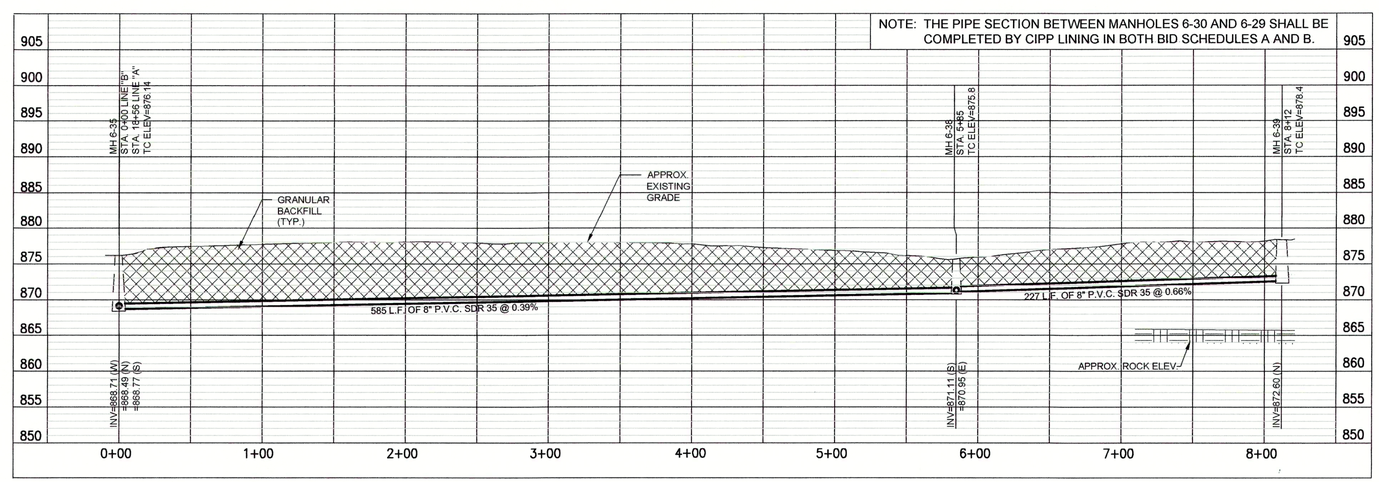


PROFILE - STA. 4+50 TO STA. 9+34 LINE "A"



PROFILE - STA. 0+00 TO STA. 8+12 LINE "B"

"BID SCHEDULE A" (OPEN CUT) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY ALL EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, INSTALL 6" SDR 35 SEWER PIPE TO R/W LINE AND CONNECT TO EXISTING LATERAL.
2. THE EXISTING MANHOLES ARE TO REMAIN IN PLACE WITH NEW SEWERS RECONNECTED. THE MANHOLES SHALL BE REHABILITATED PER THE MANHOLE REHABILITATION SCHEDULE.

BID SCHEDULES A & B NOTES:

1. SANITARY LATERAL LEGEND:

A
X
Y

A= DISTANCE FROM DOWN STREAM MANHOLE
X= APPROX. DEPTH AT R/W
Y= LENGTH FROM MAIN TO R/W

"BID SCHEDULE B" (CIPP) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, FOR LATERAL REPLACEMENTS, MAKE CONNECTION DIRECTLY TO CIPP LINER AS SHOWN IN THE DETAILS AND ON SHEETC-16. INSTALL 6" SDR 35 SEWER PIPE FROM MAIN TO R/W LINE AND CONNECT TO EXISTING LATERAL.
2. IF THE PLANS SHOW C.I.P.P. LATERAL REHABILITATION, COMPLETE PER THE DETAIL ON SHEET C-16.
3. MANHOLE SHALL BE REHABILITATION PER THE MANHOLE REHABILITATION SCHEDULE.

JOSEPH P. TIERNEY
REGISTERED
No. 19300407
STATE OF INDIANA
PROFESSIONAL ENGINEER

BID SET

GRW PROJECT NO. 4447-14

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PLAN & PROFILE
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED:	GWL
DRAWN:	GCR
REVIEWED:	JPT
APPROVED:	JPT

REVISIONS

NO.	DATE	BY	DESCRIPTION
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SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL 2016

SCALE: H: 1"=50' V: 1"=10'

SHEET NO. C-03

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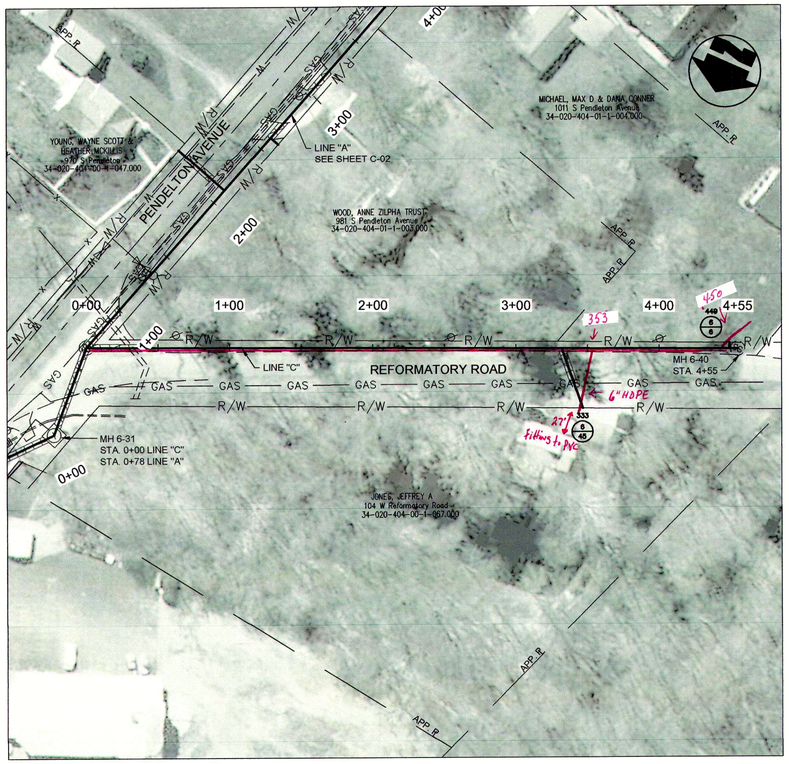
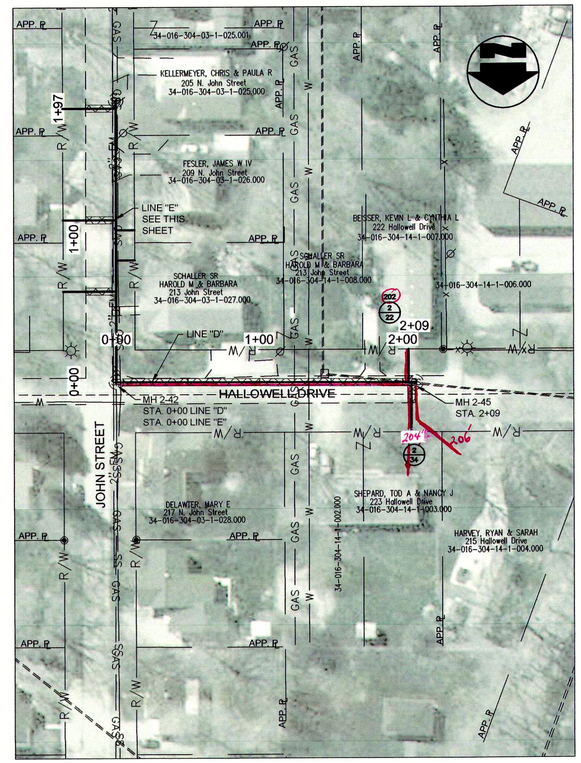
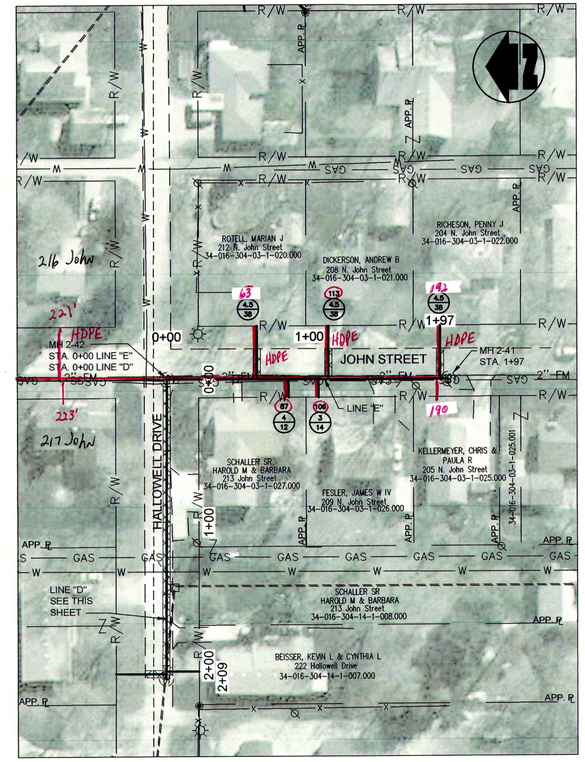


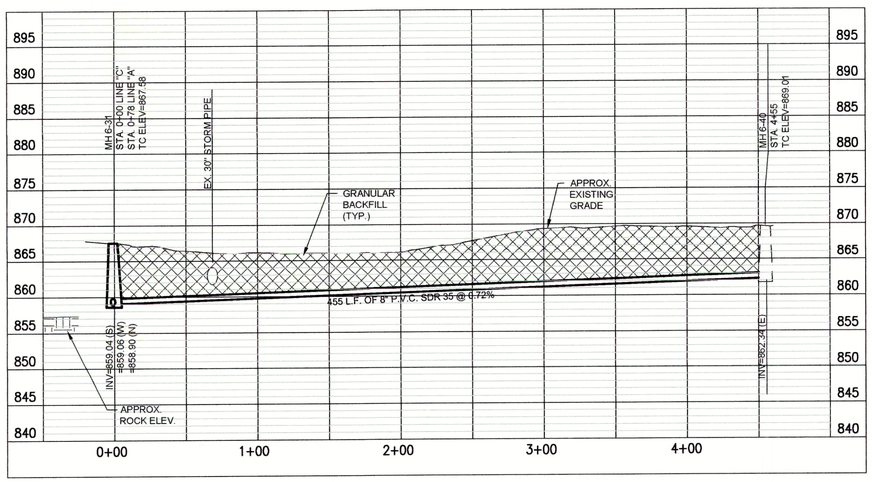
PLAN VIEW - STA. 0+00 TO STA. 4+55 LINE "C"



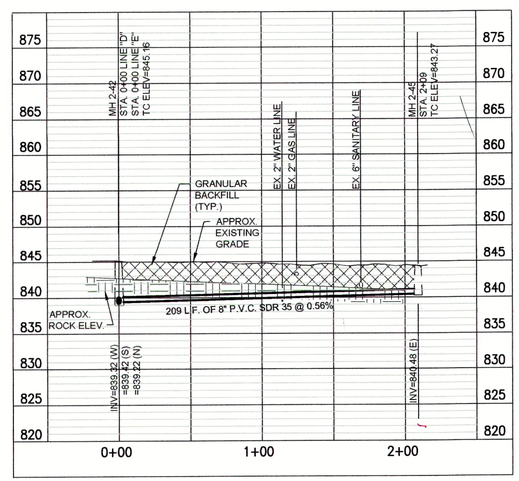
PLAN VIEW - STA. 0+00 TO STA. 2+09 LINE "D"



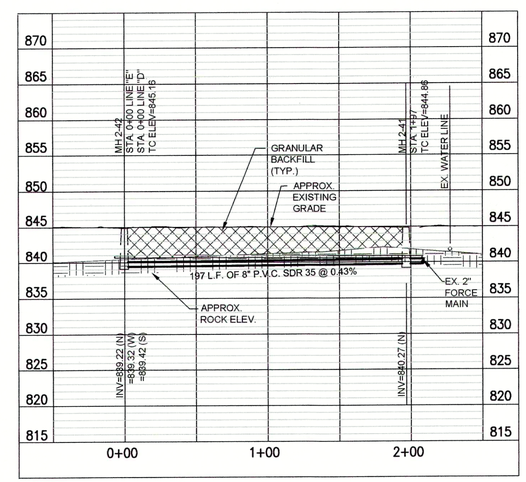
PLAN VIEW - STA. 0+00 TO STA. 1+97 LINE "E"



PROFILE - STA. 0+00 TO STA. 4+55 LINE "C"



PROFILE - STA. 0+00 TO STA. 2+09 LINE "D"



PROFILE - STA. 0+00 TO STA. 1+97 LINE "E"

"BID SCHEDULE A" (OPEN CUT) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY ALL EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, INSTALL 6" SDR 35 SEWER PIPE TO R/W LINE AND CONNECT TO EXISTING LATERAL.
2. THE EXISTING MANHOLES ARE TO REMAIN IN PLACE WITH NEW SEWERS RECONNECTED. THE MANHOLES SHALL BE REHABILITATED PER THE MANHOLE REHABILITATION SCHEDULE.

BID SCHEDULES A & B NOTES:

1. SANITARY LATERAL LEGEND:

A
X
Y

A= DISTANCE FROM DOWN STREAM MANHOLE
X= APPROX. DEPTH AT R/W
Y= LENGTH FROM MAIN TO R/W

"BID SCHEDULE B" (CIPP) NOTES:

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JOSEPH P. TIERNEY
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BID SET

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DESIGNED	DRAWN	REVIEWED	APPROVED
GWL	GCR	JPT	JPT

REVISIONS

NO	DESCRIPTION	DATE	BY
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SCALE CHECK

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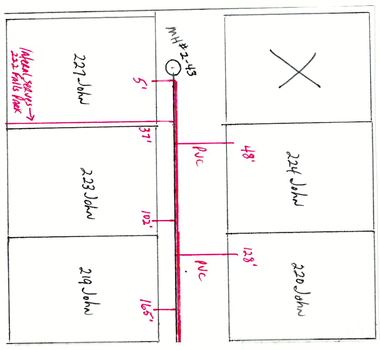

DATE	APRIL 2016
SCALE	N.T.S.
SHEET NO.	C-04 A

REVISIONS

NO.	DESCRIPTION	DATE	BY
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DESIGNED: GWL
DRAWN: GCR
REVIEWED: JPT
APPROVED: JPT

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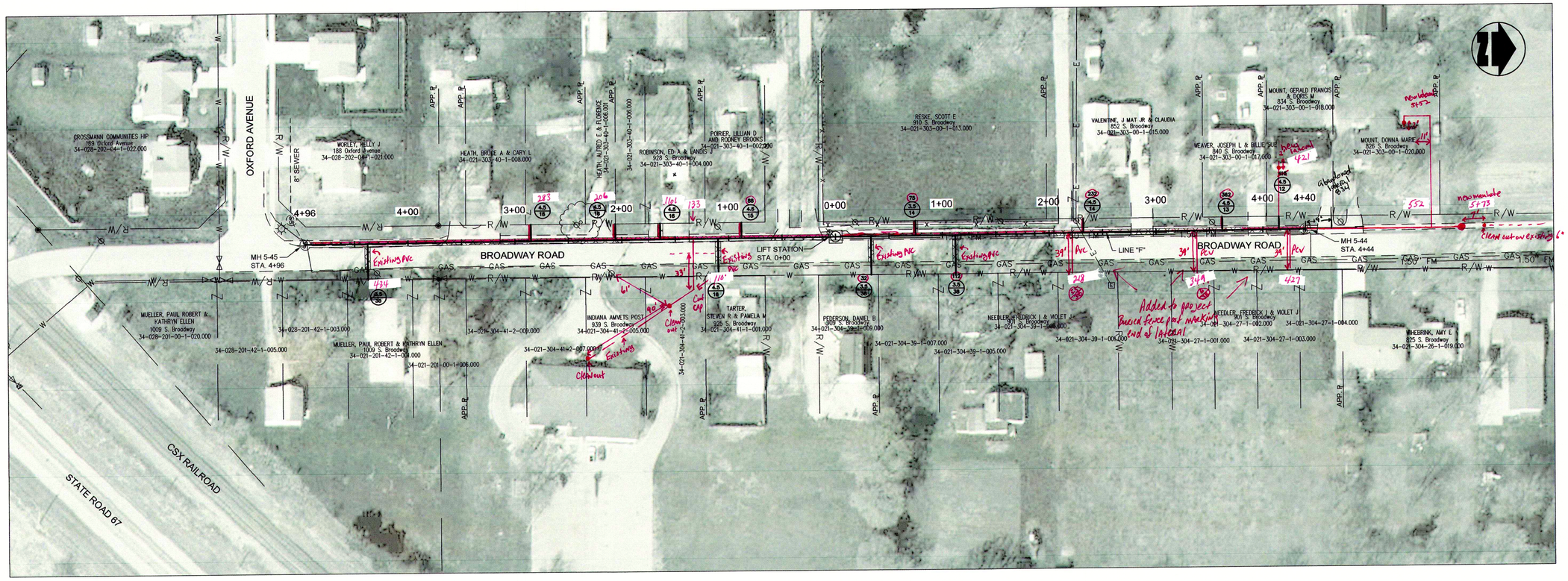
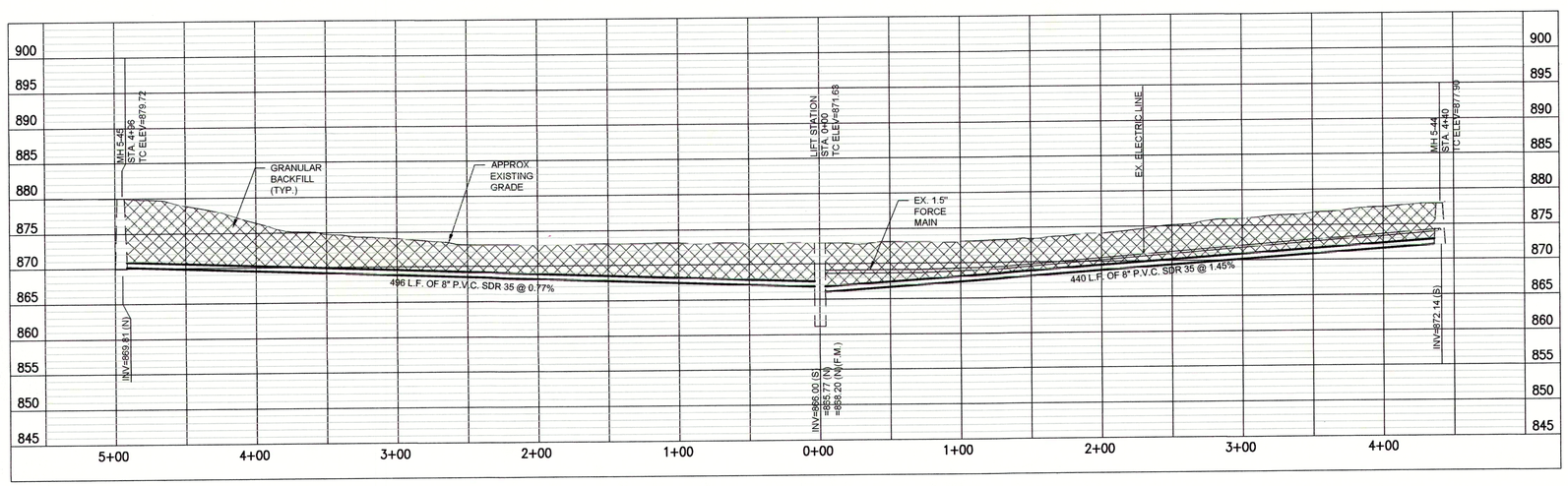


PLAN VIEW - STA. 4+96 TO STA. 4+40 LINE "F"



PROFILE - STA. 4+96 TO 4+40 LINE "F"

270
120
390
40
430
190
560

1,0691

"BID SCHEDULE A" (OPEN CUT) NOTES:

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BID SCHEDULES A & B NOTES:

1. SANITARY LATERAL LEGEND:

A
X
Y

A= DISTANCE FROM DOWN STREAM MANHOLE
X= APPROX. DEPTH AT R/W
Y= LENGTH FROM MAIN TO R/W

"BID SCHEDULE B" (CIPP) NOTES:

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PENDLETON, INDIANA

DESIGNED	GWL
DRAWN	GGR
REVIEWED	JPT
APPROVED	JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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SCALE CHECK

DATE: APRIL 2016

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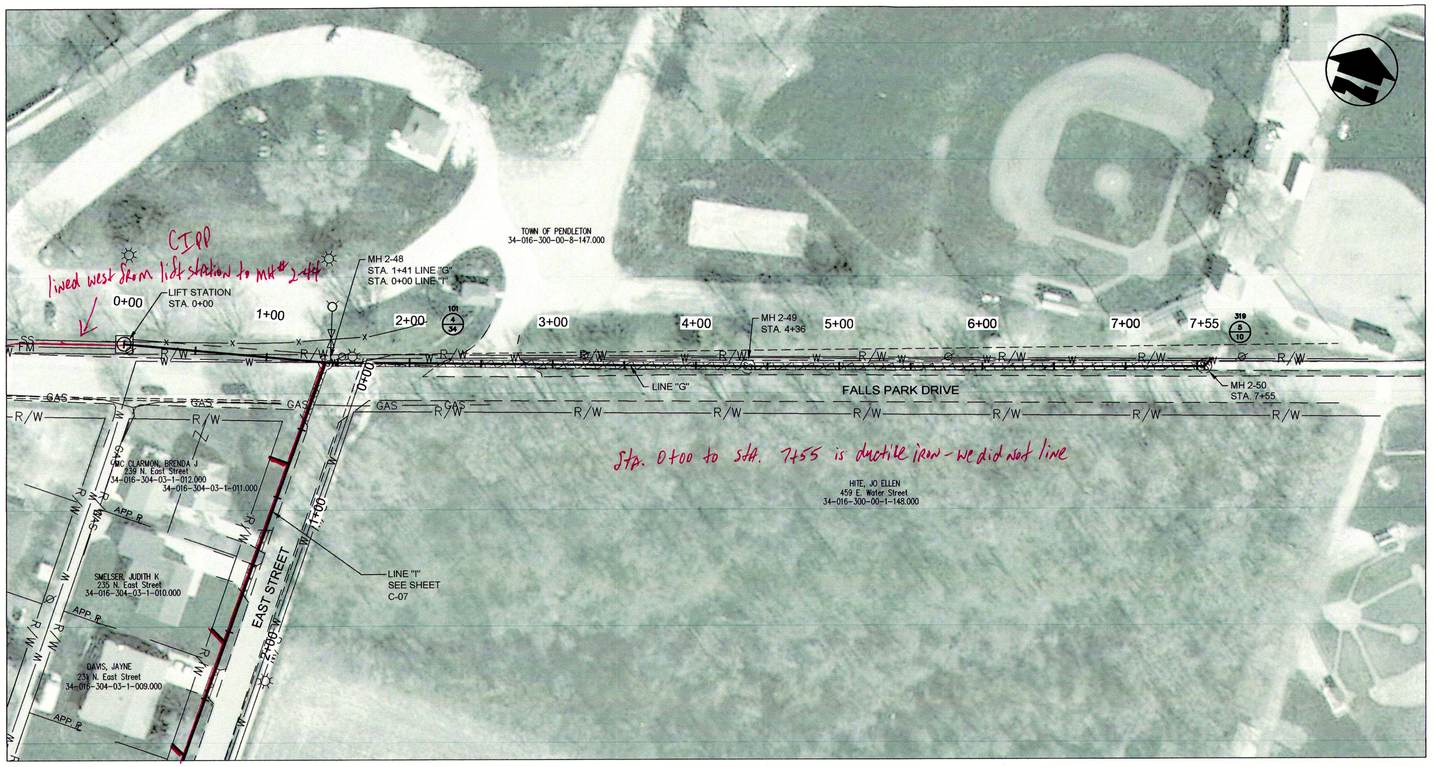
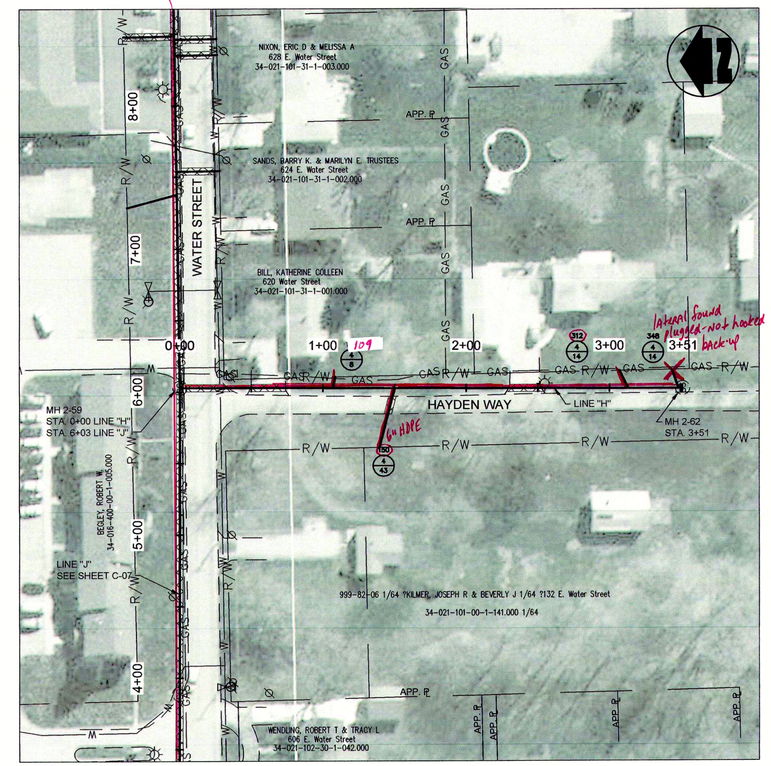
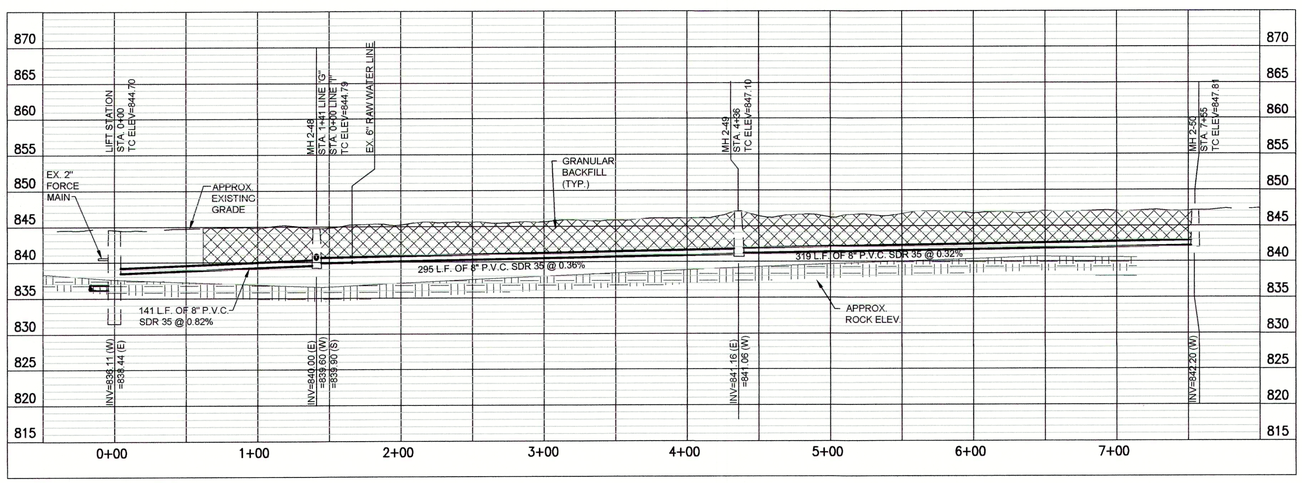


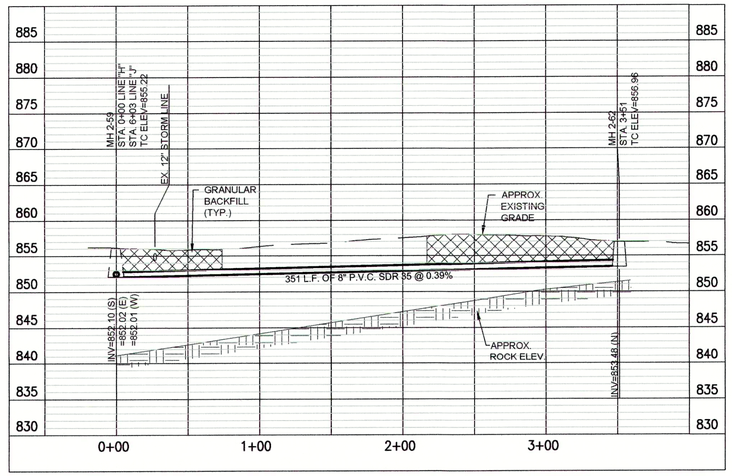
PLAN VIEW - STA. 0+00 TO STA. 7+55 LINE "G"



PLAN VIEW - STA. 0+00 TO STA. 3+51 LINE "H"



PROFILE - STA. 0+00 TO 7+55 LINE "G"



PROFILE - STA. 0+00 TO STA. 3+51 LINE "H"

"BID SCHEDULE A" (OPEN CUT) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY ALL EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, INSTALL 6" SDR 35 SEWER PIPE TO R/W LINE AND CONNECT TO EXISTING LATERAL.
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BID SCHEDULES A & B NOTES:

1. SANITARY LATERAL LEGEND:

A
X
Y

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"BID SCHEDULE B" (CIPP) NOTES:

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JOSEPH P. TIERNEY
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BID SET

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GWL	GCR	JPT	JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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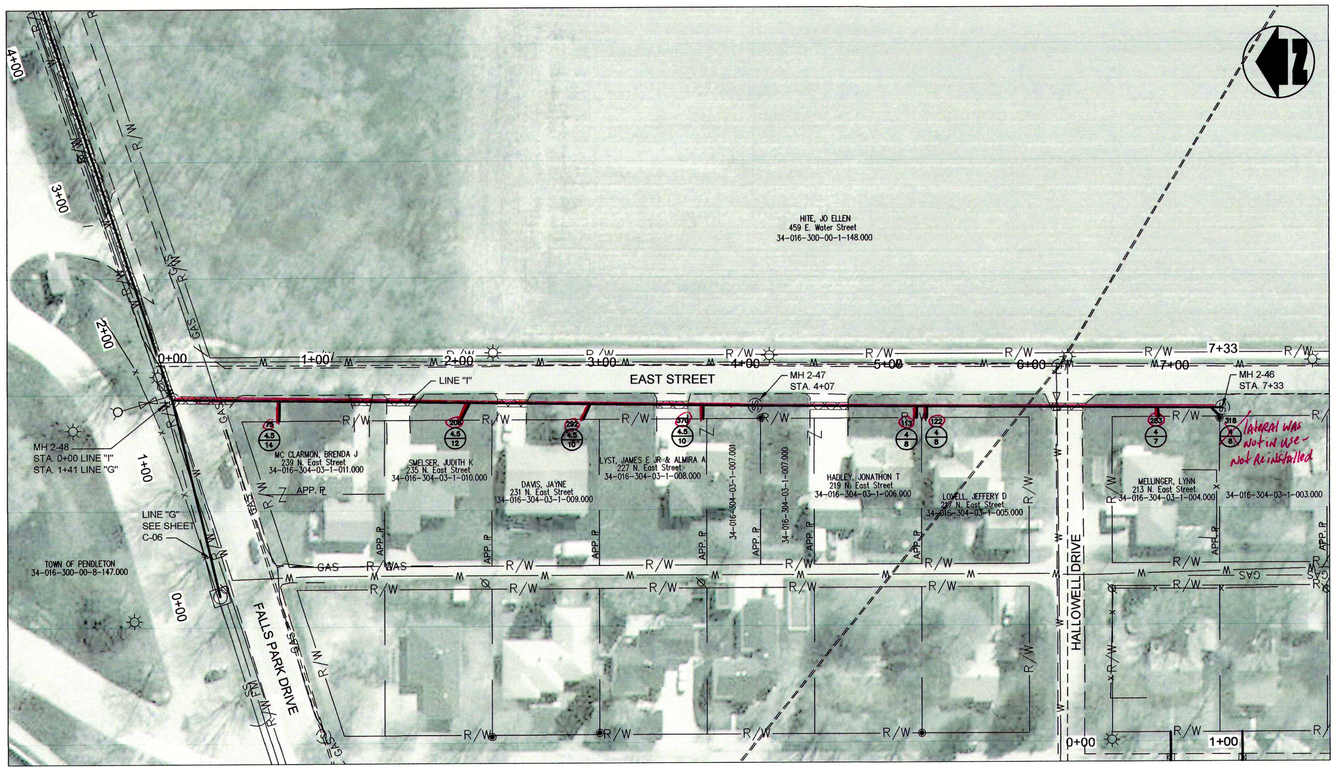
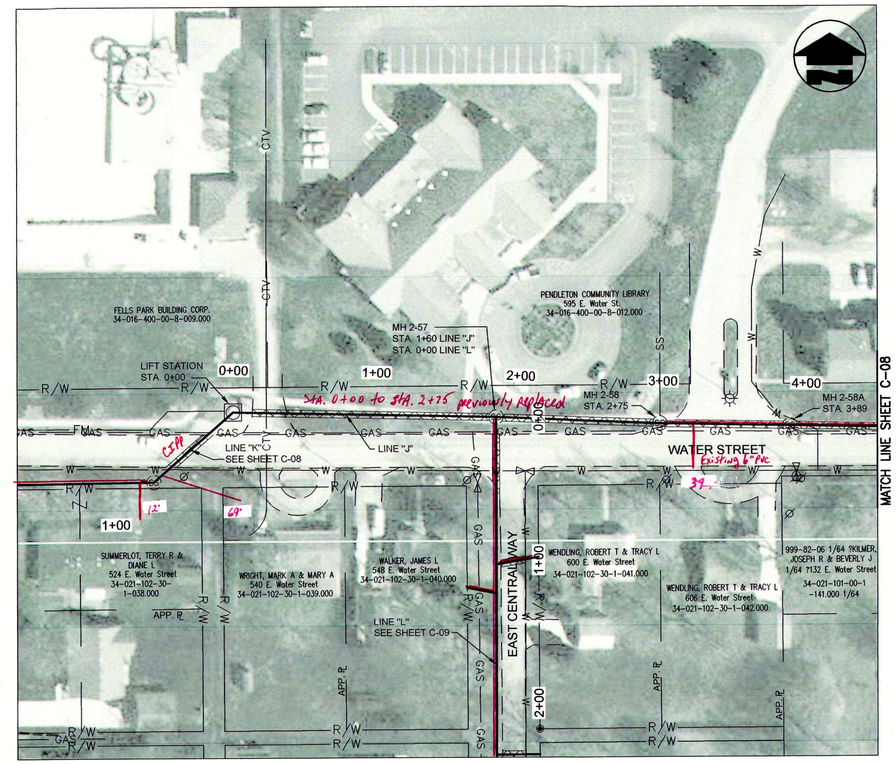
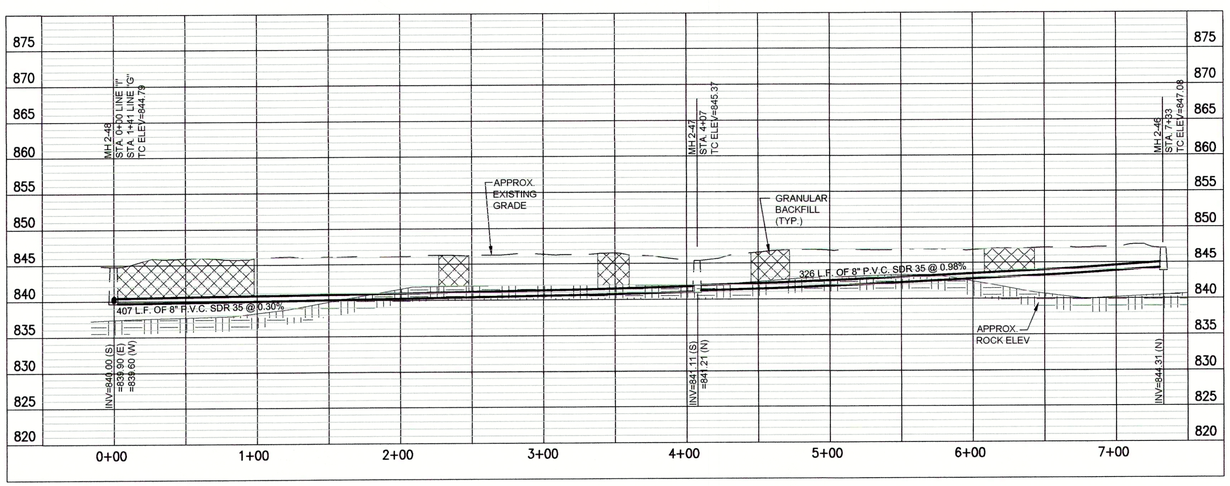


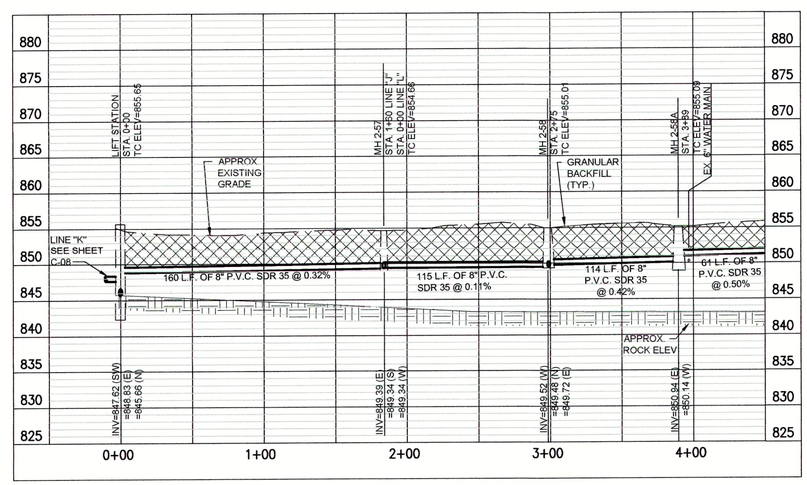
PLAN VIEW - STA. 0+00 TO STA. 7+33 LINE "I"



PLAN VIEW - B.O.P. STA. 0+00 TO STA. 4+50 LINE "J"



PROFILE - STA. 0+00 TO STA. 7+33 LINE "I"



PROFILE - B.O.P. STA. 0+00 TO STA. 4+50 LINE "J"

"BID SCHEDULE A" (OPEN CUT) NOTES:

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BID SCHEDULES A & B NOTES:

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X
Y

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STATE OF INDIANA
PROFESSIONAL ENGINEER

BID SET

GRW PROJECT NO. 4447-14

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PENDLETON, INDIANA

DESIGNED	DRAWN	REVIEWED	APPROVED
GWL	GCR	JPT	JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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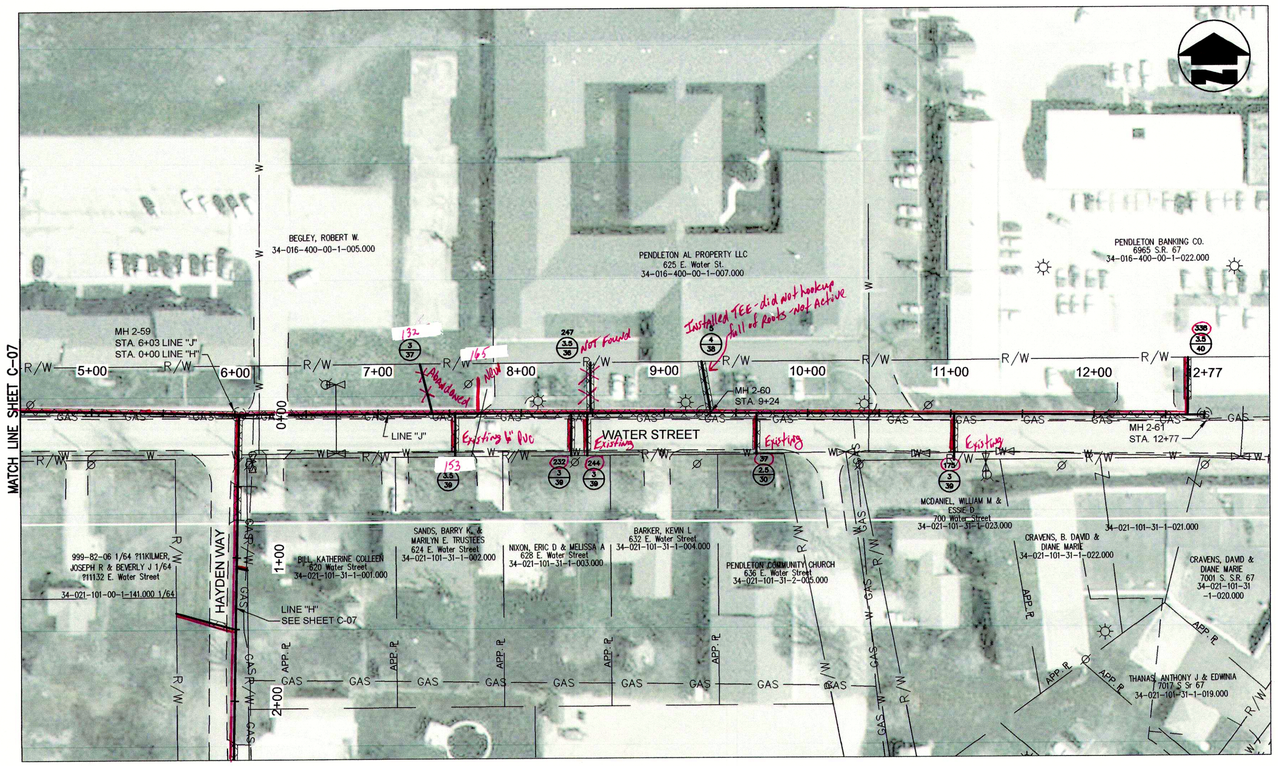
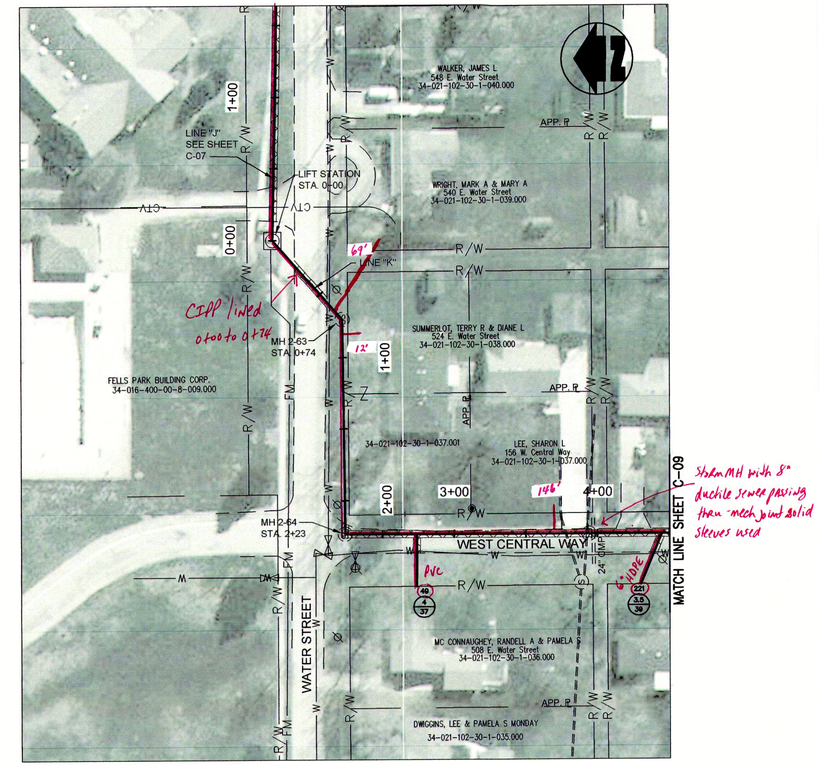
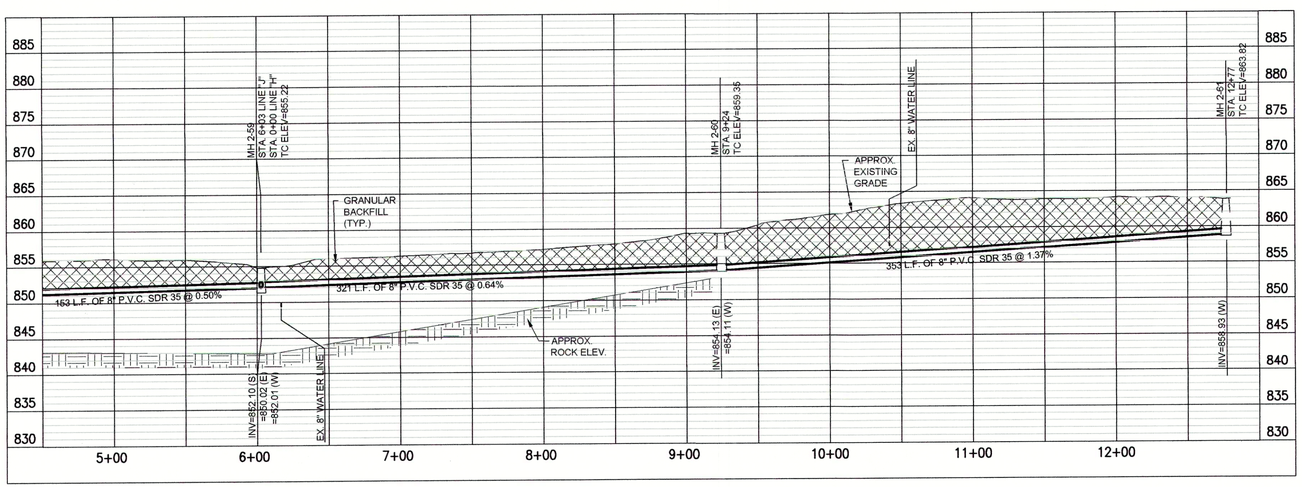


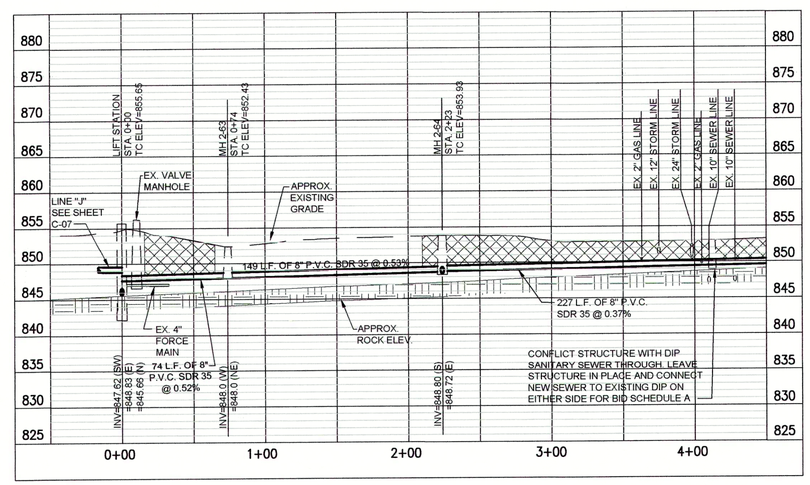
PLAN VIEW - STA. 4+50 TO STA. 12+77 LINE "J"



PLAN VIEW - STA. 0+00 TO STA. 4+50 LINE "K"



PROFILE - STA. 4+50 TO STA. 12+77 LINE "J"



PROFILE - STA. 0+00 TO STA. 4+50 LINE "K"

"BID SCHEDULE A" (OPEN CUT) NOTES:

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JOSEPH P. TIERNEY REGISTERED No. 19300407 STATE OF INDIANA PROFESSIONAL ENGINEER

BID SET

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FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED: GWL
DRAWN: GCR
REVIEWED: JPT
APPROVED: JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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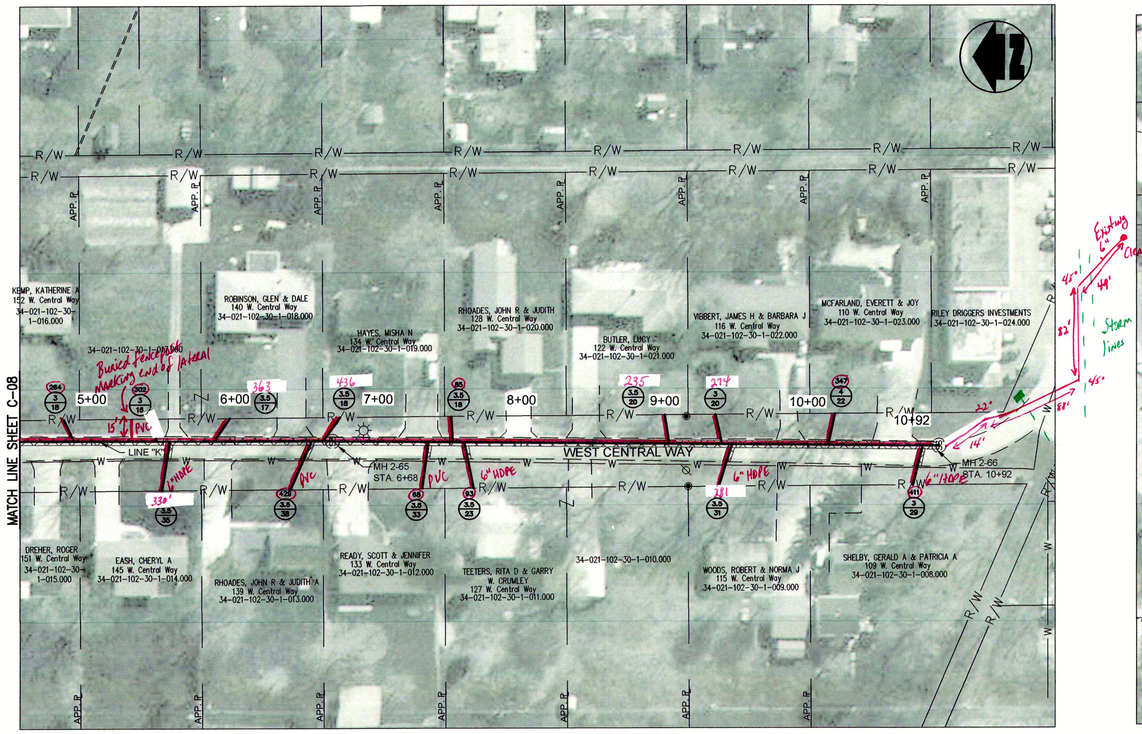
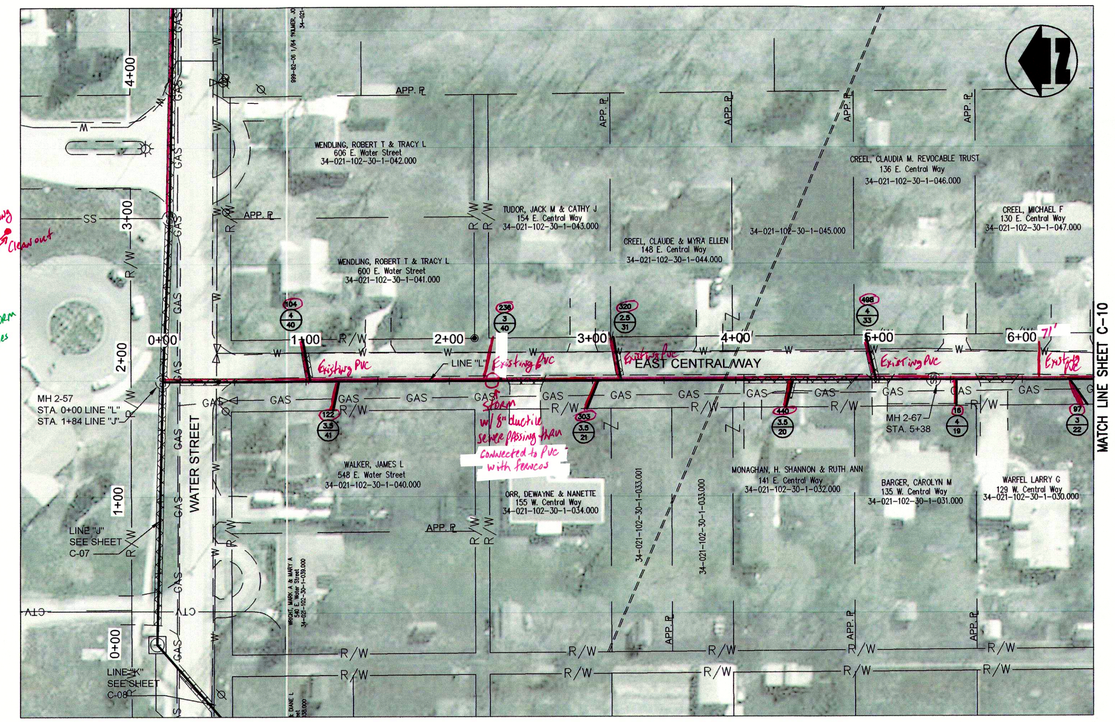
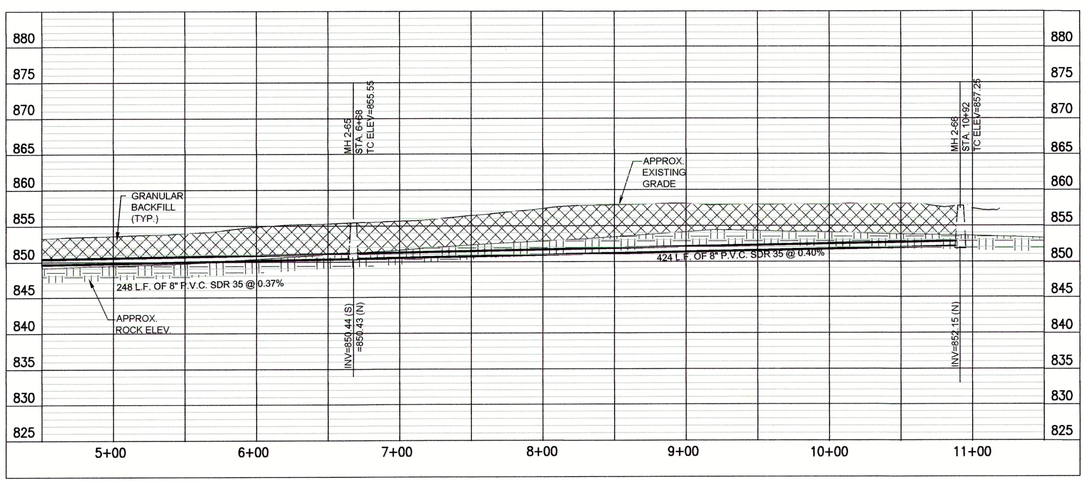


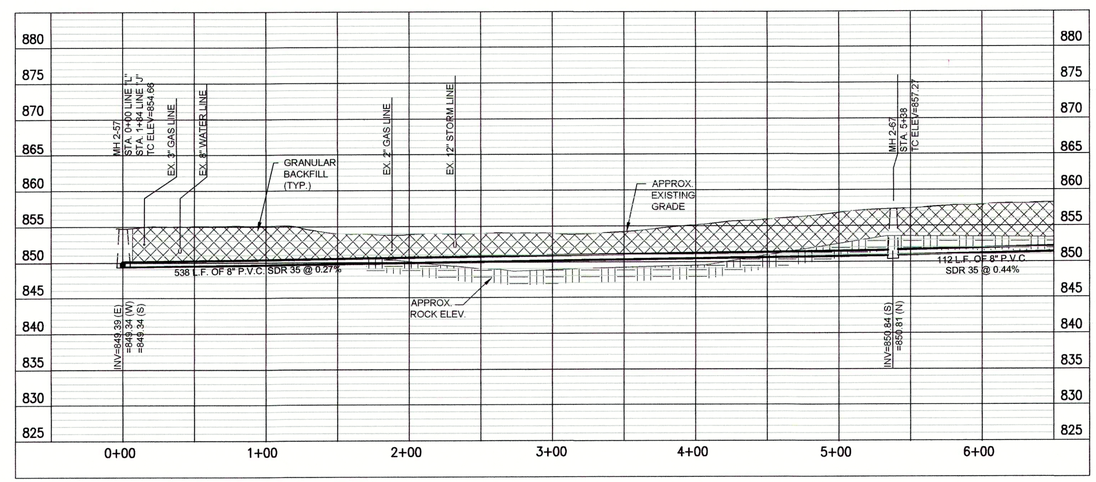
PLAN VIEW - STA. 4+50 TO STA. 10+92 LINE "K"



PLAN VIEW - STA. 0+00 TO STA. 6+50 LINE "L"



PROFILE - STA. 4+50 TO STA. 10+92 LINE "K"



PROFILE - STA. 0+00 TO STA. 6+50 LINE "L"

"BID SCHEDULE A" (OPEN CUT) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY ALL EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, INSTALL 6" SDR 35 SEWER PIPE TO R/W LINE AND CONNECT TO EXISTING LATERAL.
2. THE EXISTING MANHOLES ARE TO REMAIN IN PLACE WITH NEW SEWERS RECONNECTED. THE MANHOLES SHALL BE REHABILITATED PER THE MANHOLE REHABILITATION SCHEDULE.

BID SCHEDULES A & B NOTES:

1. SANITARY LATERAL LEGEND:

A
X
Y

A= DISTANCE FROM DOWN STREAM MANHOLE
X= APPROX. DEPTH AT R/W
Y= LENGTH FROM MAIN TO R/W

"BID SCHEDULE B" (CIPP) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, FOR LATERAL REPLACEMENTS, MAKE CONNECTION DIRECTLY TO CIPP LINER AS SHOWN IN THE DETAILS AND ON SHEETC-16. INSTALL 6" SDR 35 SEWER PIPE FROM MAIN TO R/W LINE AND CONNECT TO EXISTING LATERAL.
2. IF THE PLANS SHOW C.I.P.P. LATERAL REHABILITATION, COMPLETE PER THE DETAIL ON SHEET C-16.
3. MANHOLE SHALL BE REHABILITATION PER THE MANHOLE REHABILITATION SCHEDULE.

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GRW PROJECT NO. 4447-14

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PLAN & PROFILE
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED: GWL
DRAWN: GCR
REVIEWED: JPT
APPROVED: JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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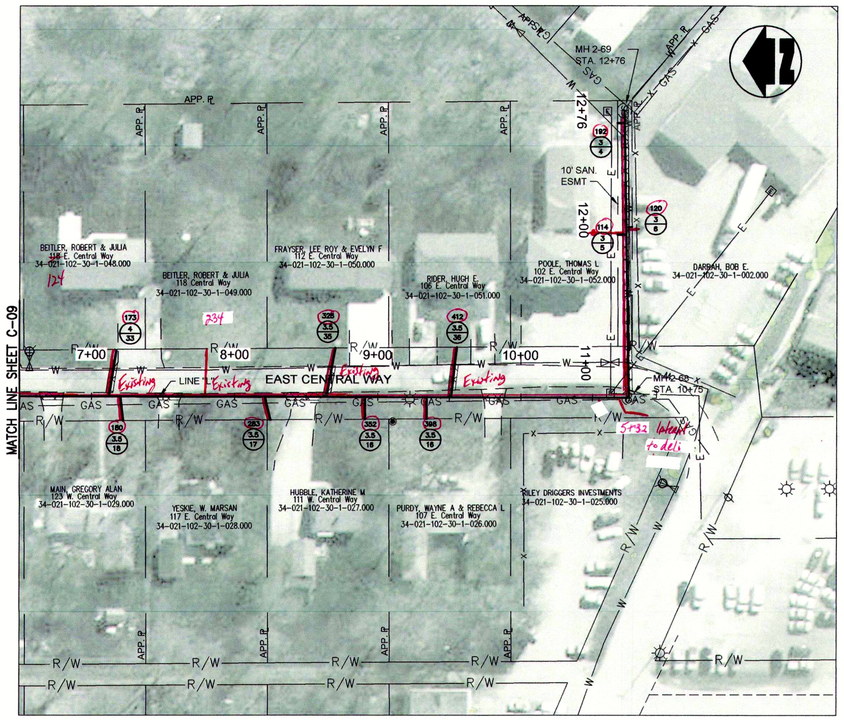
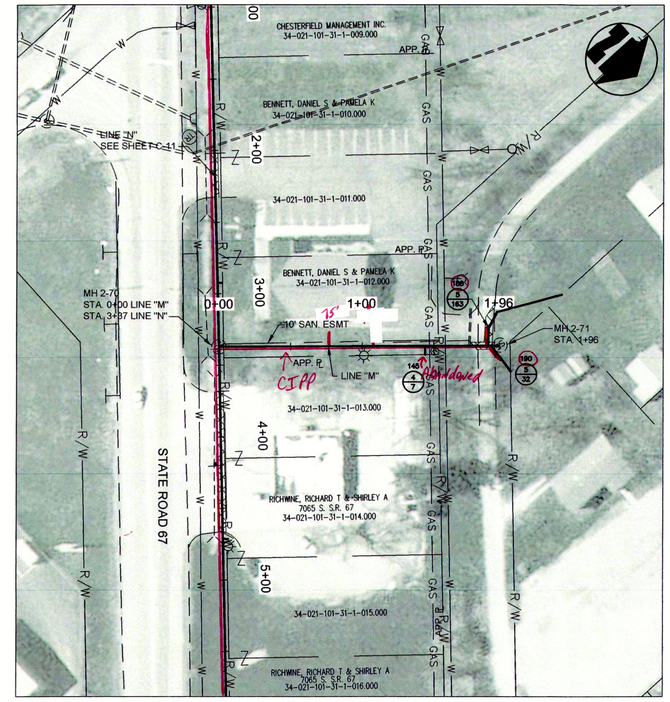
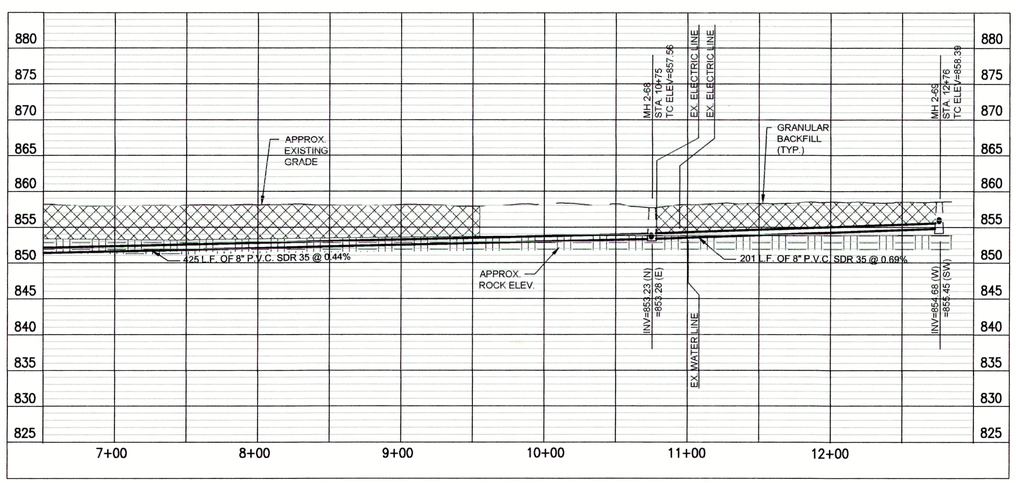


PLAN VIEW - STA. 6+50 TO STA. 12+76 LINE "L"

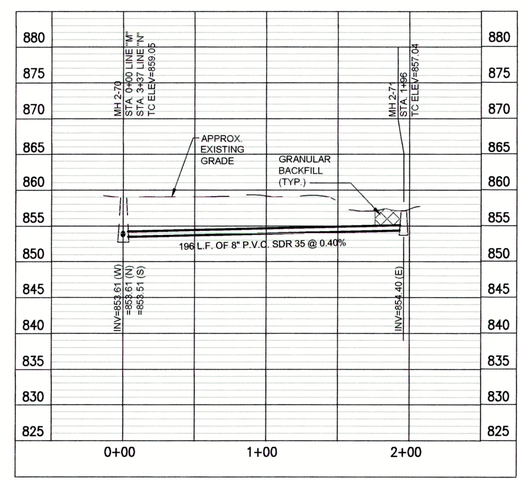


PLAN VIEW - STA. 0+00 TO STA. 1+96 LINE "M"

CIPP



PROFILE - STA. 6+50 TO STA. 12+76 LINE "L"



PROFILE - STA. 0+00 TO STA. 1+96 LINE "K"

"BID SCHEDULE A" (OPEN CUT) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY ALL EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, INSTALL 6" SDR 35 SEWER PIPE TO R/W LINE AND CONNECT TO EXISTING LATERAL.
2. THE EXISTING MANHOLES ARE TO REMAIN IN PLACE WITH NEW SEWERS RECONNECTED. THE MANHOLES SHALL BE REHABILITATED PER THE MANHOLE REHABILITATION SCHEDULE.

BID SCHEDULES A & B NOTES:

1. SANITARY LATERAL LEGEND:

A
X
Y

A= DISTANCE FROM DOWN STREAM MANHOLE
X= APPROX. DEPTH AT R/W
Y= LENGTH FROM MAIN TO R/W

"BID SCHEDULE B" (CIPP) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, FOR LATERAL REPLACEMENTS, MAKE CONNECTION DIRECTLY TO CIPP LINER AS SHOWN IN THE DETAILS AND ON SHEETC-16. INSTALL 6" SDR 35 SEWER PIPE FROM MAIN TO R/W LINE AND CONNECT TO EXISTING LATERAL.
2. IF THE PLANS SHOW C.I.P.P. LATERAL REHABILITATION, COMPLETE PER THE DETAIL ON SHEET C-16.
3. MANHOLE SHALL BE REHABILITATION PER THE MANHOLE REHABILITATION SCHEDULE.

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GRW PROJECT NO. 4447-14
SRF NO. WW16074803 ----

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PLAN & PROFILE
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED: GML
DRAWN: GCR
REVIEWED: JPT
APPROVED: JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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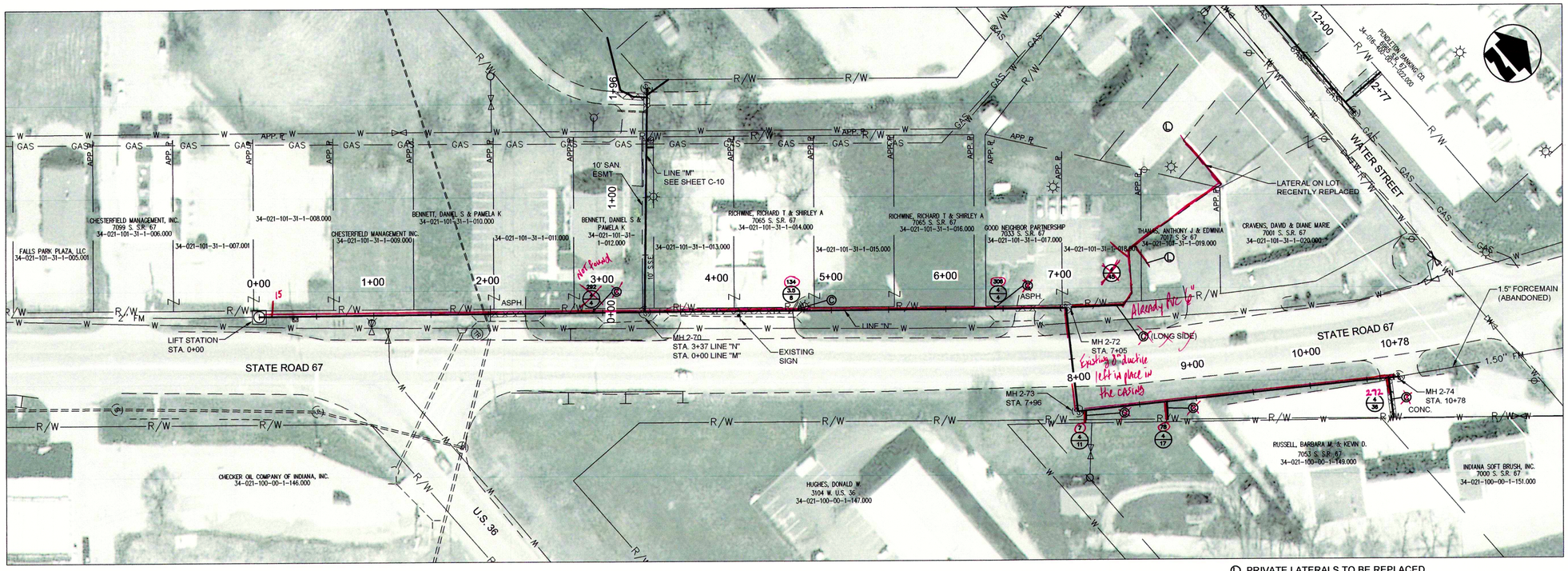
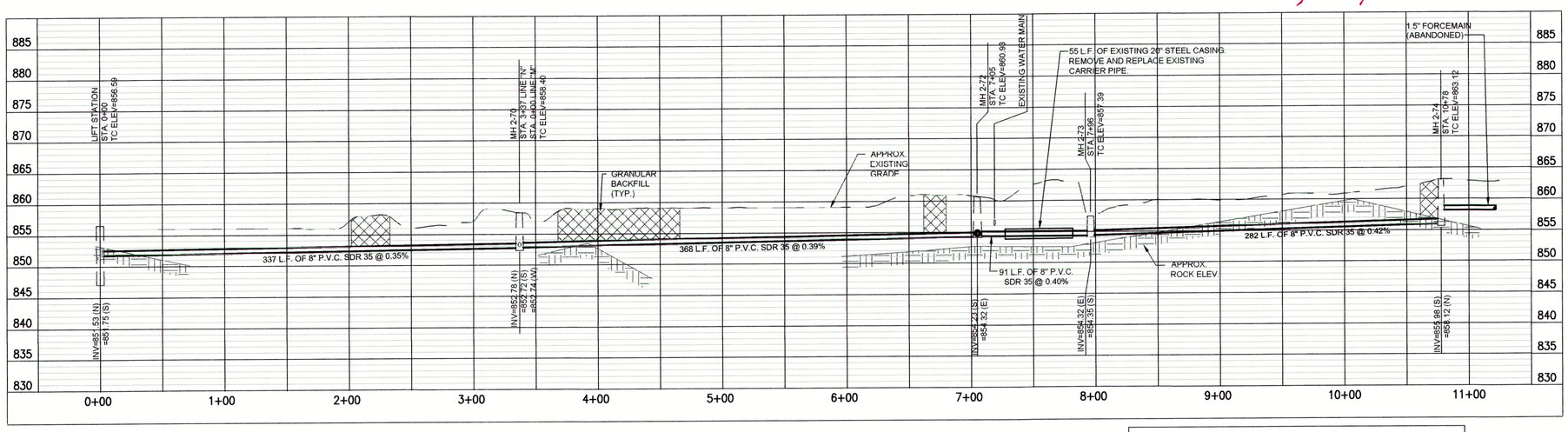


PLAN VIEW - STA. 0+00 TO STA. 10+78 LINE "N"

Ⓛ PRIVATE LATERALS TO BE REPLACED.
SEE WORK DESCRIPTION IN MEASUREMENTS AND PAYMENT.

Ⓒ ~~LATERAL TO BE CIPP LINED -~~
~~BID SCHEDULE B ONLY~~



PROFILE - STA. 0+00 TO STA. 10+78 LINE "N"

NOTE:
THE PRIVATE LATERAL REPLACEMENT WORK ON THIS SHEET SHALL BE INCLUDED IN ADDITIVE ALTERNATE NO.2.

"BID SCHEDULE A" (OPEN CUT) NOTES:

1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY ALL EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, INSTALL 6" SDR 35 SEWER PIPE TO R/W LINE AND CONNECT TO EXISTING LATERAL.
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BID SCHEDULES A & B NOTES:

1. SANITARY LATERAL LEGEND:
   A (X / Y)
   A= DISTANCE FROM DOWN STREAM MANHOLE
   X= APPROX. DEPTH AT R/W
   Y= LENGTH FROM MAIN TO R/W

"BID SCHEDULE B" (CIPP) NOTES:

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BID SET

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FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

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GWL	GCR	JPT	JPT

REVISIONS

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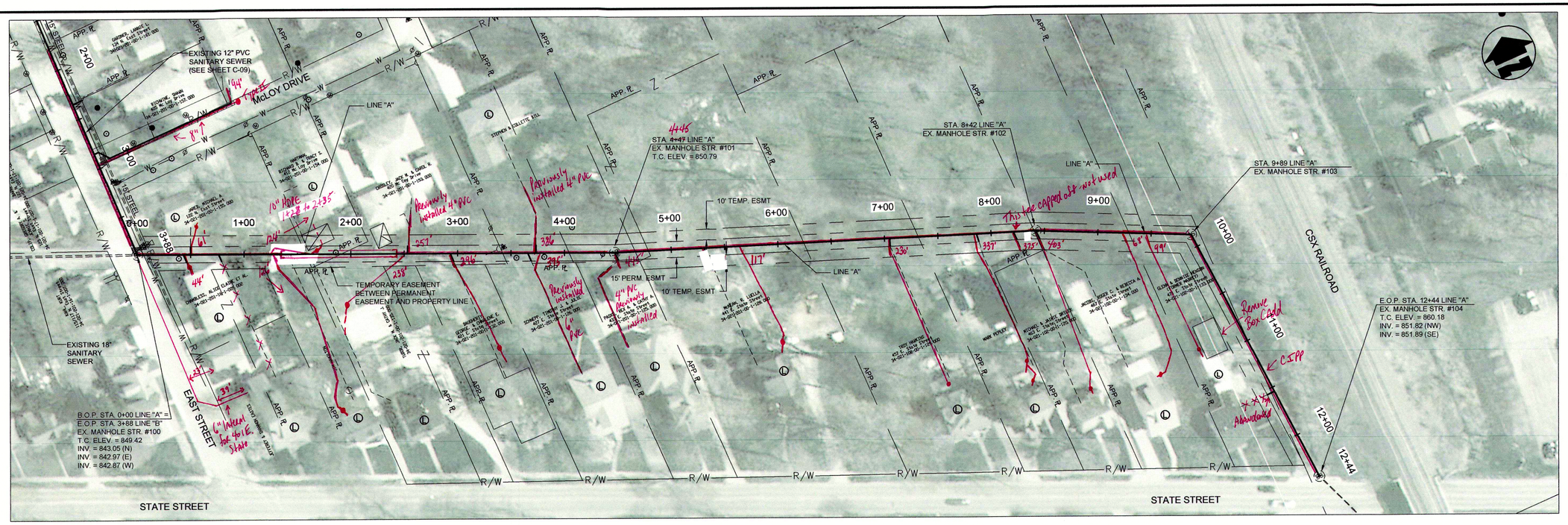
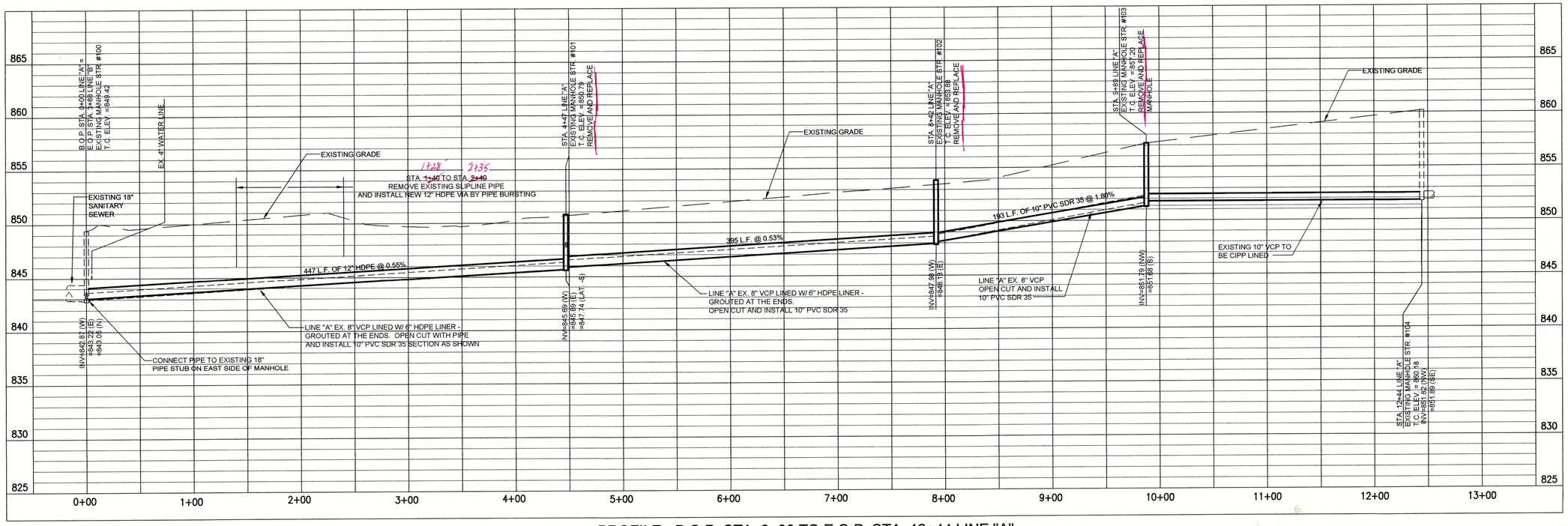


PLAN VIEW - B.O.P. STA. 0+00 TO E.O.P. STA. 12+44 LINE "A"

- - - - - - - - - - ASSUMED EXISTING PRIVATE LATERAL ROUTE.



PROFILE - B.O.P. STA. 0+00 TO E.O.P. STA. 12+44 LINE "A"

Ⓛ PRIVATE LATERALS TO BE REPLACED. SEE WORK DESCRIPTION IN MEASUREMENT AND PAYMENT SPECIFICATION.

NOTE:
1. THE WORK ON THIS SHEET TO REPLACE THE MAIN AND RECONNECT TO THE LATERALS WITHIN PERMANENT EASEMENT SHALL BE INCLUDED IN ADDITIVE ALTERNATE NO. 1.
2. THE WORK TO REPLACE THE PRIVATE LATERALS SHALL BE INCLUDED IN ADDITIVE ALTERNATE NO. 2
3. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY EXISTING LATERAL LOCATIONS AND DEPTHS.

JOSEPH P. TIERNEY REGISTERED No. 19300407 STATE OF INDIANA PROFESSIONAL ENGINEER

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FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED:	GWL
DRAWN:	GCR
REVIEWED:	JPT
APPROVED:	JPT

REVISIONS

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SCALE CHECK

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SHEET NO. C-12

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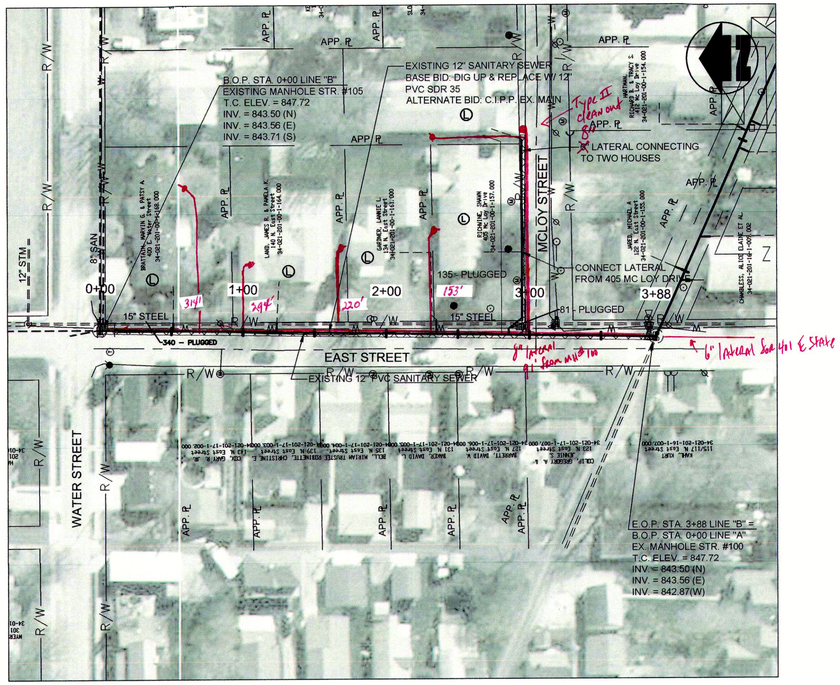
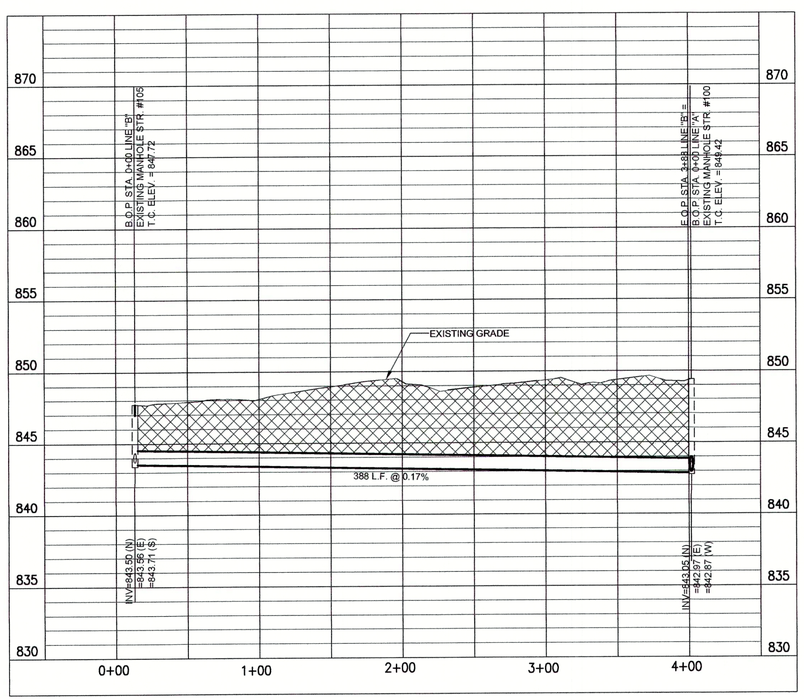


PLAN VIEW - B.O.P. STA. 0+00 TO E.O.P. STA. 3+88 LINE "B"

Ⓛ PRIVATE LATERALS TO BE REPLACED.
SEE WORK DESCRIPTION IN MEASUREMENTS AND PAYMENT.

NOTE:
1. THE WORK TO REPLACE THE MAINS AND RECONNECT TO THE LATERALS WITHIN RIGHT-OF-WAY SHALL BE INCLUDED IN THE BAS BID.
2. THE WORK TO REPLACE THE PRIVATE LATERALS SHALL BE INCLUDED IN ALTERNATE NO. 2
3. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY EXISTING LATERAL LOCATIONS AND DEPTHS.
4. THE 6" LATERAL SERVING TWO HOUSES OFF MCLOY DRIVE SHALL BE-SHALL BE INCLUDED IN THE BASE BID, INSTALLED WITHIN THE RIGHT-OF-WAY AND PAID FOR AS 1 LONG SIDE LATERAL AND 1 SHORT SIDE LATERAL. THE PORTIONS ON PRIVATE PROPERTY SHALL BE PART OF ALTERNATE NO. 2



PROFILE - B.O.P. STA. 0+00 TO E.O.P. STA. 3+88 LINE "B"

"BID SCHEDULE A" (OPEN CUT) NOTES:
1. LATERAL LOCATIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR TO FIELD VERIFY ALL EXISTING SANITARY LATERAL LOCATIONS AND DEPTHS, INSTALL 6" SDR 35 SEWER PIPE TO R/W LINE AND CONNECT TO EXISTING LATERAL.
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"BID SCHEDULE B" (CIPP) NOTES:
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SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED	GWL
DRAWN	GCR
REVIEWED	JPT
APPROVED	JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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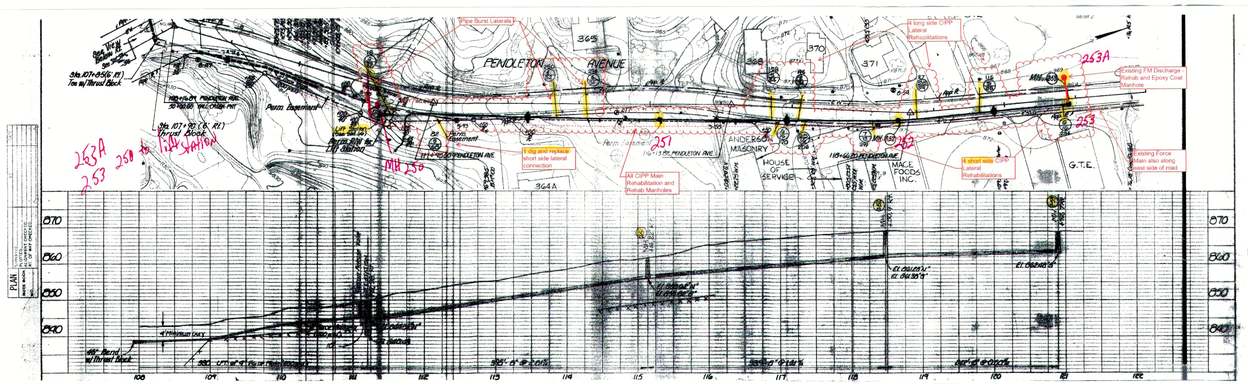

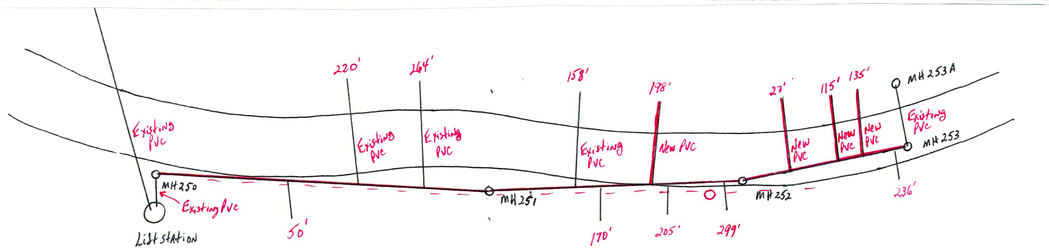

MH#250 to MH#253 CIPP

Existing force main on east side of the road

Rehab all manholes/epoxy coat

N. Pendleton

North

South

6" CIPP - lined thru the brick manhole then PVC

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PLAN & PROFILE ADDITIONAL AREA SANITARY SEWER REHABILITATION

FALL CREEK REGIONAL WASTE DISTRICT

PENDLETON, INDIANA

DESIGNED: GWL
DRAWN: GCR
REVIEWED: JPT
APPROVED: JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE: APRIL 2016

SCALE: N.T.S.

SHEET NO. C-13 A

SANITARY SEWER REHABILITATION SCHEDULE - MANHOLE

Sheet No.	Manhole (MH) No.	MH Material	General Location	MH Diameter (ft.)	MH Depth (ft.)	Surface Type	Grout Leaks, Patch Defects and Apply Cementitious Sealant to all Joints	Full Cementitious Lining	Epoxy Lining	Mastic Chimney Seal	Replace Frame & Cover	Raise Casting	Remove Steps	Install Marker Post	Notes
PENDLETON AVENUE															
C-01	MH 6-37	PRECAST CONCRETE	WEST OF PENDLETON AVENUE	4	6.3	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-01	MH 6-36	PRECAST CONCRETE	WEST OF PENDLETON AVENUE	4	6.9	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-01	MH 6-35	PRECAST CONCRETE	WEST OF PENDLETON AVENUE	4	7.7	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-01	MH 6-34	PRECAST CONCRETE	WEST OF PENDLETON AVENUE	4	9.3	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-02	MH 6-33	PRECAST CONCRETE	WEST OF PENDLETON AVENUE	4	8.1	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-02	MH 6-32	PRECAST CONCRETE	WEST OF PENDLETON AVENUE	4	8.2	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-02	MH 6-31	PRECAST CONCRETE	WEST OF PENDLETON AVENUE	4	8.7	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
C-02	MH 6-30	PRECAST CONCRETE	WEST OF PENDLETON AVENUE	4	6.9	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-03	MH 6-29	PRECAST CONCRETE	WEST OF PENDLETON AVENUE	4	13.9	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-03	MH 6-28	PRECAST CONCRETE	WEST OF PENDLETON AVENUE	4	10.0	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*86.0*										
GARDEN DRIVE															
C-03	MH 6-38	PRECAST CONCRETE	WEST END OF GARDEN DRIVE	4	4.8	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-03	MH 6-39	PRECAST CONCRETE	APPROX 227 FT. SOUTH OF GARDEN DRIVE	4	5.8	GRAVEL	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*10.6*										
REFORMATORY ROAD															
C-04	MH 6-40	PRECAST CONCRETE	SOUTH SIDE OF REFORMATORY ROAD	4	6.7	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*6.7*										
HALLOWELL DRIVE															
C-04	MH 2-42	PRECAST CONCRETE	INTERSECTION OF HALLOWELL DR. AND JOHN ST.	4	5.9	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
C-04	MH 2-45	PRECAST CONCRETE	HALLOWELL DRIVE WITHIN PAVEMENT	4	2.8	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*8.7*										
JOHN STREET															
C-04	MH 2-41	PRECAST CONCRETE	WEST EDGE OF JOHN STREET	4	4.6	GRAVEL	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*4.6*										
BROADWAY RD															
C-05	MH 5-45	PRECAST CONCRETE	WEST SIDE OF BROADWAY	4	9.9	CONCRETE	YES	NO	NO	YES	NO	NO	NO	NO	
C-05	MH 5-44	PRECAST CONCRETE	WEST SIDE OF BROADWAY	4	5.8	CONCRETE	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*15.7*										
FALLS PARK DRIVE															
C-06	MH 2-48	PRECAST CONCRETE	NORTH OF FALLS PARK DRIVE	4	4.9	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-06	MH 2-49	PRECAST CONCRETE	NORTH OF FALLS PARK DRIVE	4	6.0	CONCRETE	YES	NO	NO	YES	NO	NO	NO	NO	
C-06	MH 2-50	PRECAST CONCRETE	NORTH OF FALLS PARK DRIVE	4	5.6	CONCRETE	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*16.5*										
HAYDEN WAY															
C-06	MH 2-59	PRECAST CONCRETE	NORTH SIDE OF INTERSECTION OF HAYDEN WAY AND WATER ST.	4	3.2	CONCRETE	YES	NO	NO	YES	NO	NO	NO	NO	
C-06	MH 2-62	PRECAST CONCRETE	EAST SIDE OF HAYDEN WAY	4	3.5	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*6.7*										
EAST STREET															
C-07	MH 2-47	PRECAST CONCRETE	WEST SIDE OF EAST STREET	4	4.2	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-07	MH 2-46	PRECAST CONCRETE	WEST SIDE OF EAST STREET	4	2.7	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*6.9*										
WATER STREET															
C-07	MH 2-57	PRECAST CONCRETE	NORTH SIDE OF WATER STREET	4	5.3	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-07	MH 2-58	PRECAST CONCRETE	NORTH SIDE OF WATER STREET	4	5.3	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-07	MH 2-58A	PRECAST CONCRETE	NORTH SIDE OF WATER STREET	4	5.0	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-08	MH 2-60	PRECAST CONCRETE	NORTH SIDE OF WATER STREET	4	5.2	CONCRETE	YES	NO	NO	YES	NO	NO	NO	NO	
C-08	MH 2-61	PRECAST CONCRETE	NORTH SIDE OF WATER STREET	4	4.9	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-08	MH 2-63	PRECAST CONCRETE	SOUTH SIDE OF WATER STREET	4	4.4	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*30.1*										
WEST CENTRAL WAY															
C-08	MH 2-64	PRECAST CONCRETE	INTERSECTION OF WEST CENTRAL WAY AND WATER ST.	4	5.2	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
C-09	MH 2-65	PRECAST CONCRETE	EAST SIDE OF WEST CENTRAL WAY	4	5.1	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
C-09	MH 2-66	PRECAST CONCRETE	EAST SIDE OF WEST CENTRAL WAY	4	5.1	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*15.4*										
EAST CENTRAL WAY															
C-09	MH 2-67	PRECAST CONCRETE	WEST SIDE OF EAST CENTRAL WAY	4	6.5	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
C-10	MH 2-68	PRECAST CONCRETE	WEST SIDE OF EAST CENTRAL WAY	4	4.3	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-10	MH 2-69	PRECAST CONCRETE	APPROX 200 FT EAST OF EAST CENTRAL WAY IN EASEMENT	4	2.9	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*13.7*										
STATE ROAD 67															
C-10	MH 2-70	PRECAST CONCRETE	WEST SIDE OF STATE ROAD 67	4	5.5	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-10	MH 2-71	PRECAST CONCRETE	APPROX 200 FT WEST OF SR 67, JUST WEST OF HAYDEN WAY	4	2.6	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-11	MH 2-72	PRECAST CONCRETE	WEST SIDE OF STATE ROAD 67	4	6.6	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-11	MH 2-73	PRECAST CONCRETE	EAST SIDE OF STATE ROAD 67	4	3.0	GRASS	YES	NO	NO	YES	NO	NO	NO	NO	
C-11	MH 2-74	PRECAST CONCRETE	EAST SIDE OF STATE ROAD 67	4	7.5	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*25.3*										
STATE STREET															
C-12	MH 100	PRECAST CONCRETE	EAST SIDE OF EAST STREET	4	6.4	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
C-12	MH 101	PRECAST CONCRETE	WITHIN EASEMENT APPROX 200 FT NORTH OF STATE STREET	4	5.0	GRASS	NO	NO	NO	YES	NO	NO	NO	NO	TO BE REPLACED
C-12	MH 102	PRECAST CONCRETE	WITHIN EASEMENT APPROX 200 FT NORTH OF STATE STREET	4	6.0	GRASS	NO	NO	NO	YES	NO	NO	NO	NO	TO BE REPLACED
C-12	MH 103	PRECAST CONCRETE	WITHIN EASEMENT APPROX 200 FT NORTH OF STATE STREET	4	6.0	GRASS	NO	NO	NO	YES	NO	NO	NO	NO	TO BE REPLACED
C-12	MH 104	PRECAST CONCRETE	NORTH SIDE OF STATE STREET WEST OF RR	4	8.4	GRAVEL	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*31.8*										
EAST STREET															
C-13	MH 105	PRECAST CONCRETE	INTERSECTION OF EAST AND WATER	4	4.2	ASPHALT	YES	NO	NO	YES	NO	NO	NO	NO	
				Total:	*4.2*										
				Combined:	*282.9*										

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FILE NAME: G:\4447-FCRWD-2015\Working Drawings\AutoCAD\REHABILITATION PHASE I\4447-14-C-14-Rehab Schedule.dwg

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MANHOLE REHABILITATION SCHEDULE
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED: GWL
DRAWN: GCR
REVIEWED: JPT
APPROVED: JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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DATE: APRIL 2016

SCALE: NONE

SHEET NO. C-14

SOUTH PENDLETON C.I.P.P. REHABILITATION SCHEDULE – BID SCHEDULE "B"

SEWER SEGMENT (USMH TO DSMH)	PIPE DIAMETER (IN)	APPROXIMATE LENGTH (FT)	NUMBER OF ACTIVE CONNECTIONS	SHEET NUMBER
6–37 TO 6–36	8	427	5	C–01
6–36 TO 6–35	8	164	1	C–01
6–35 TO 6–34	8	478	6	C–01
6–34 TO 6–33	8	372	4	C–01/C–02
6–33 TO 6–32	8	435	4	C–02
6–32 TO 6–31	8	493	5	C–02
6–31 TO LIFT STATION	8	65	0	C–02
6–30 TO LIFT STATION	8	44	0	C–02
6–29 TO 6–30	8	456	1	C–02/C–03
6–28 TO 6–29	8	434	5	C–03
6–38 TO 6–35	8	585	5	C–03
6–39 TO 6–38	8	227	2	C–03
6–40 TO 6–31	8	455	2	C–04
SUB–TOTALS		4635	40	

FALLS PARK C.I.P.P. REHABILITATION SCHEDULE – BID SCHEDULE "B"

SEWER SEGMENT (USMH TO DSMH)	PIPE DIAMETER (IN)	APPROXIMATE LENGTH (FT)	NUMBER OF ACTIVE CONNECTIONS	SHEET NUMBER
2–41 TO 2–42	8	197	5	C–04
2–45 TO 2–42	8	209	2	C–04
2–50 TO 2–49	8	319	1	C–06
2–49 TO 2–48	8	295	0	C–06
2–48 TO LIFT STATION	8	141	0	C–06
2–46 TO 2–47	8	326	4	C–07
2–47 TO 2–48	8	407	4	C–07
SUB–TOTALS		1894	16	

SOUTH BROADWAY REHABILITATION SCHEDULE – BID SCHEDULE "B"

SEWER SEGMENT (USMH TO DSMH)	PIPE DIAMETER (IN)	APPROXIMATE LENGTH (FT)	NUMBER OF ACTIVE CONNECTIONS	SHEET NUMBER
5–45 TO LIFT STATION	8	496	6	C–05
5–44 TO LIFT STATION	8	440	6	C–05
SUB–TOTALS		936	12	

STATE ROAD 67 REHABILITATION SCHEDULE – BID SCHEDULE "B"

SEWER SEGMENT (USMH TO DSMH)	PIPE DIAMETER (IN)	APPROXIMATE LENGTH (FT)	NUMBER OF ACTIVE CONNECTIONS	SHEET NUMBER
2–71 TO 2–70	8	196	3	C–10
2–74 TO 2–73	8	282	3	C–11
2–73 TO 2–72	8	91	0	C–11
2–72 TO 2–70	8	368	2	C–11
2–70 TO LIFT STATION	8	337	1	C–11
SUB–TOTALS		1274	9	

EAST WATER STREET REHABILITATION SCHEDULE – BID SCHEDULE "B"

SEWER SEGMENT (USMH TO DSMH)	PIPE DIAMETER (IN)	APPROXIMATE LENGTH (FT)	NUMBER OF ACTIVE CONNECTIONS	SHEET NUMBER
2–61 TO 2–60	8	353	4	C–08
2–60 TO 2–59	8	321	5	C–08
2–59 TO 2–58A	8	214	0	C–07/C–08
2–58A TO 2–58	8	114	0	C–07
2–58 TO 2+57	8	115	0	C–07
2–57 TO LIFT STATION	8	160	0	C–07
2–66 TO 2–65	8	424	8	C–09
2–65 TO 2–64	8	445	8	C–08/C–09
2–64 TO 2–63	8	149	0	C–08
2–63 TO LIFT STATION	8	74	0	C–08
2–69 TO 2–68	8	201	3	C–10
2–68 TO 2–67	8	537	9	C–09/C–10
2–67 TO 2–57	8	538	7	C–09
2–62 TO 2–59	8	351	4	C–06
SUB–TOTALS		3996	48	

REHABILITATION SCHEDULE SUMMARY – BID SCHEDULE "B"

	APPROX. LENGTH (FT.)	NO. SERVICE CONNECTIONS
TOTALS FOR ALL AREAS – BID SCHEDULE "B"	13,123	129

NOTES:

1. REFERENCE PLAN AND PROFILE SHEETS FOR APPROXIMATE LENGTHS, DEPTHS AND LOCATIONS OF LATERALS.
2. THE BIDDERS ARE RESPONSIBLE FOR DETERMINING THE ACTUAL NUMBER OF ACTIVE SERVICE CONNECTIONS.

EAST STREET REHAB SUMMARY – BID SCHEDULE "B"

SEWER SEGMENT (USMH TO DSMH)	PIPE DIAMETER (IN)	APPROXIMATE LENGTH (FT)	NUMBER OF ACTIVE CONNECTIONS	SHEET NUMBER
105 TO 100	12	388	4	C–13

STATE STREET REHAB SUMMARY – ADDITIVE ALTERNATE NO. 1

SEWER SEGMENT (USMH TO DSMH)	PIPE DIAMETER (IN)	APPROXIMATE LENGTH (FT)	NUMBER OF ACTIVE CONNECTIONS	SHEET NUMBER
103 TO 104	10	252	1	C–12

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GRW PROJECT NO. 4447-14

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C.I.P.P. REHABILITATION SCHEDULE
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED:	GWL
DRAWN:	GCR
REVIEWED:	JPT
APPROVED:	JPT

REVISIONS

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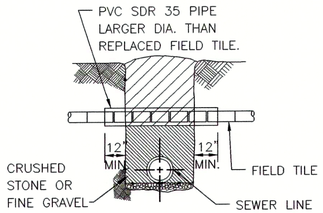
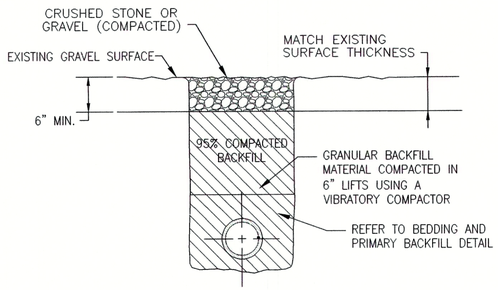


NOTE: FIELD DRAIN REPLACEMENT SHALL BE INCLUDED IN UNIT PRICE FOR GRAVITY SEWER INSTALLATION.

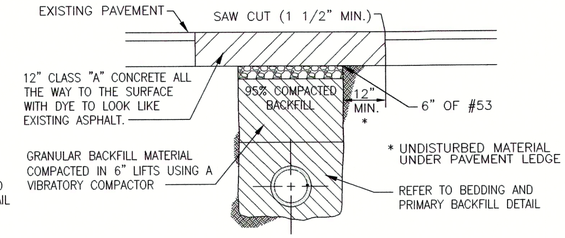
FIELD DRAIN REPLACEMENT DETAIL

SCALE: N.T.S.



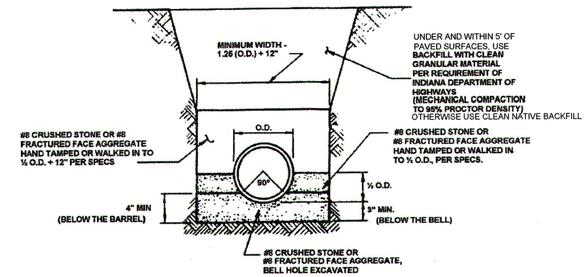
GRAVEL DRIVEWAYS - METHOD "B"

SCALE: N.T.S.



ROADWAYS DETAIL - METHOD "C"

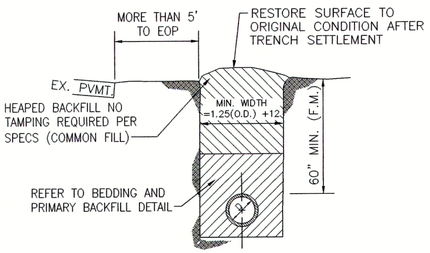
SCALE: N.T.S.



PIPE SIZE	8" TO 15"	18" & OVER
BEDDING BELOW THE PIPE BARREL	O.D. / 4 MIN. = 4"	O.D. / 4 MAX. = 6"

FLEXIBLE PIPE BEDDING DETAIL - PVC AND HDPE PIPE

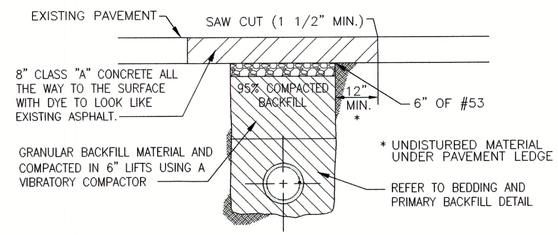
SCALE: N.T.S.



OPEN TERRAIN - METHOD "A"

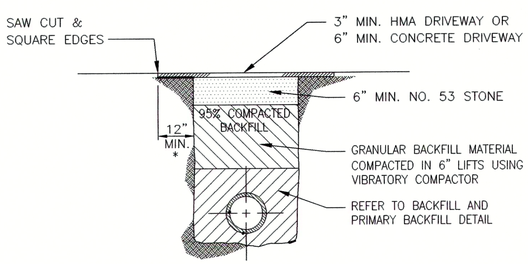
SCALE: N.T.S.

NOTES:
1.) GRANULAR BACKFILL MECHANICAL COMPACTION TO 95% PROCTOR DENSITY UNDER OR WITHIN 5 FEET OF PAVEMENT.



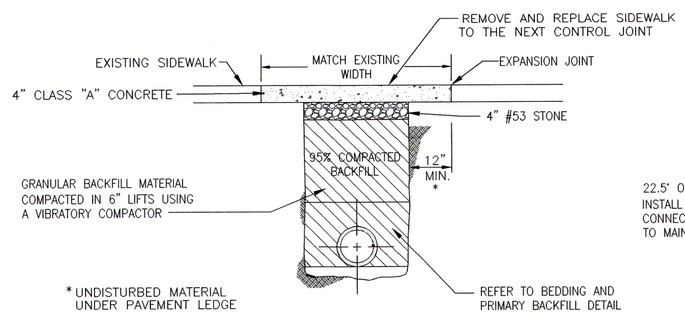
PAVED ALLEY DETAIL - METHOD "C1"

SCALE: N.T.S.



PAVED DRIVEWAYS - METHOD "D1"

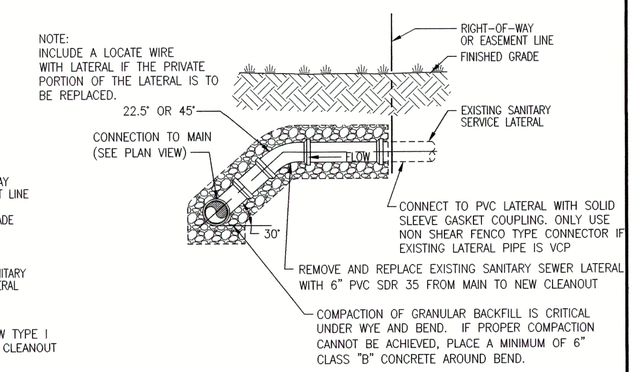
SCALE: N.T.S.



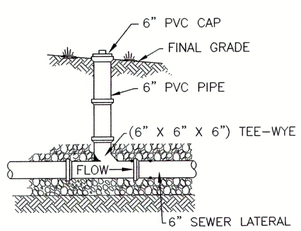
CONCRETE SIDEWALKS - METHOD "D2"

SCALE: N.T.S.

SECTION



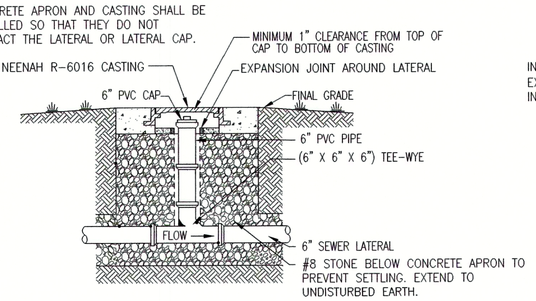
SECTION



TYPE I - LANDSCAPE CLEANOUT DETAIL

SCALE: N.T.S.

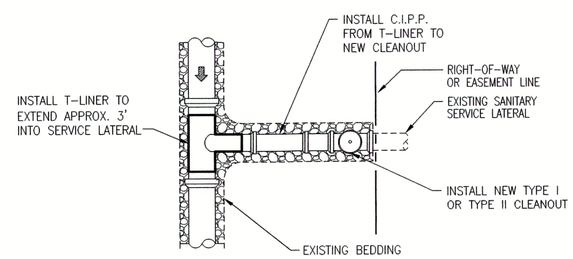
NOTE: CONCRETE APRON AND CASTING SHALL BE INSTALLED SO THAT THEY DO NOT CONTACT THE LATERAL OR LATERAL CAP.



TYPE II - HARDSCAPE CLEANOUT DETAIL

SCALE: N.T.S.

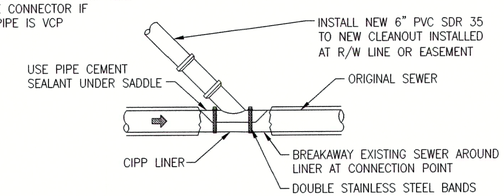
NOTE:
FOR PRIVATE LATERAL REPLACEMENTS, CLEANOUT SHALL BE WITHIN 5 FT. OF THE HOME AND EVERY 100 FT.



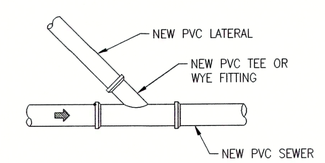
PLAN VIEW

CIPP SERVICE LATERAL LINING DETAILS

SCALE: N.T.S.



CONNECTION TO CIPP LINED MAIN
PLAN VIEW



CONNECTION TO PVC MAIN
PLAN VIEW

DIG AND REPLACE SERVICE LATERAL DETAILS

SCALE: N.T.S.

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STANDARD DETAILS
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED	GWL
DRAWN	GCR
REVIEWED	JPT
APPROVED	JPT

REVISIONS

NO.	DATE	BY	DESCRIPTION
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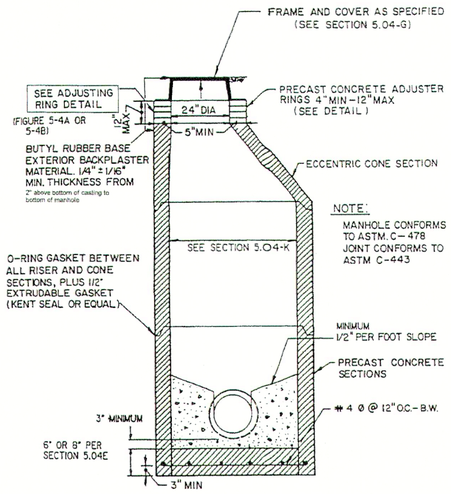
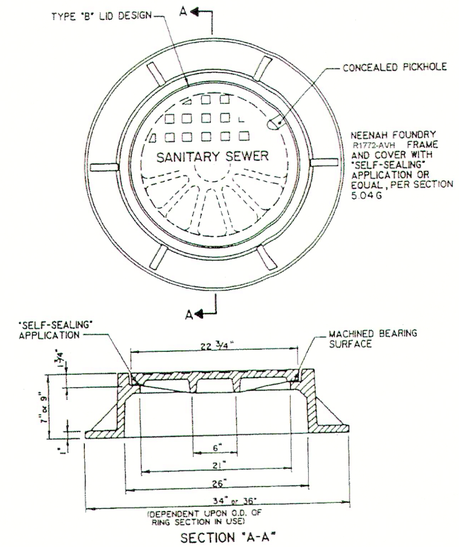


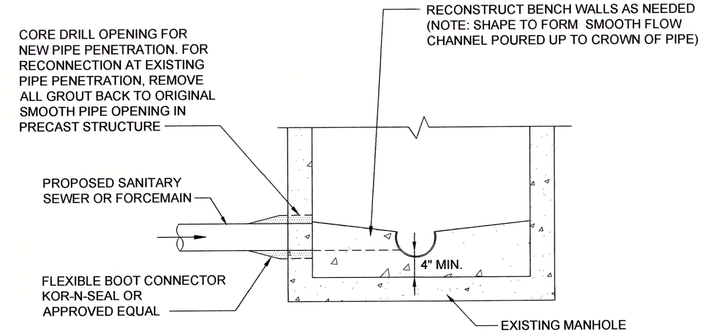
STANDARD MANHOLE FOR PIPE SIZES 8" - 24" (STRAIGHT THRU)

FIGURE 5–1



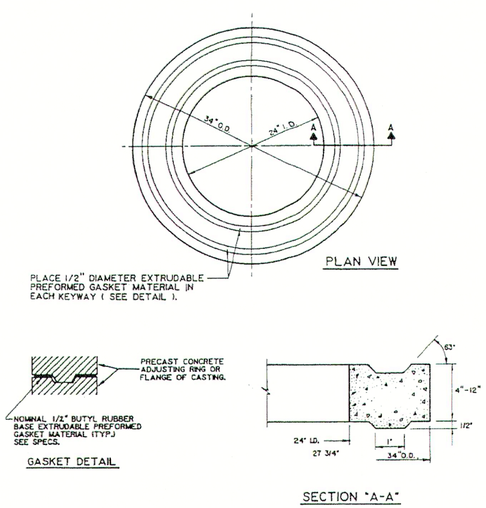
SANITARY SEWER MANHOLE FRAME & COVER - STANDARD MANHOLE

FIGURE 5–7



EXISTING MANHOLE CONNECTION DETAIL

NOT TO SCALE



ADJUSTING RING

FIGURE 5–48

SEWER POINT REPAIR NOTES (IF REQUIRED & APPROVED BY OWNER):

1. PRIOR TO CIPP INSTALLATION, CONTRACTOR SHALL PERFORM DIG-UP & REPLACE POINT REPAIR WITH NEW PVC SDR-35 PIPE CONFORMING TO A.S.T.M. D3034 WITH A.S.T.M. 3212 BELL AND SPIGOT RUBBER GASKETED JOINTS. POINT REPAIR SHALL EXTEND A MINIMUM OF ONE FULL PIPE JOINT BEYOND EITHER SIDE OF REPAIR LOCATION, NOT TO EXCEED 10FT. TOTAL LENGTH. JOIN NEW PIPE SECTION WITH EXISTING PIPE USING NON-SHEAR TYPE FERNCO COMPRESSION COUPLINGS; OR EQUAL, MEETING THE REQUIREMENTS OF A.S.T.M. C425 AND SUITABLE FOR THE SERVICE IN WHICH IT IS INTENDED. BANDS SHALL BE SERIES 300 STAINLESS STEEL CONFORMING TO A.S.T.M. A240.
2. REFER TO DETAILS ON SHEET C-16 FOR PIPE BEDDING, BACKFILL, AND SURFACE RESTORATION REQUIREMENTS.
3. SHOULD SEWER POINT REPAIR VARY SIGNIFICANTLY FROM DESCRIPTION ABOVE, ITEM SHALL BE NEGOTIATED THROUGH THE CHANGE ORDER PROCESS.

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FALL CREEK STANDARD DETAILS
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED	GWL
DRAWN	GCR
REVIEWED	JPT
APPROVED	JPT

REVISIONS

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EROSION CONTROL NOTES

During all phases of construction the site general contractor and all sub-contractors shall exercise measures to prevent the erosion of soils due to the action of water and wind. The contractors shall use the following measures to accomplish this objective:

A. Surface Protection
   1. Clearing shall be limited so as to expose the smallest possible area of land for the shortest possible time.
   2. Exposed areas shall be immediately graded and protected with temporary or permanent cover, such as sod, seed and mulch, crown vetch, lespedeza or creeper. Newly graded channels or steep slopes will require the use of fibrous matting, netting of seeded and mulched areas, or the staking or shingling of sod while vegetation is becoming established.

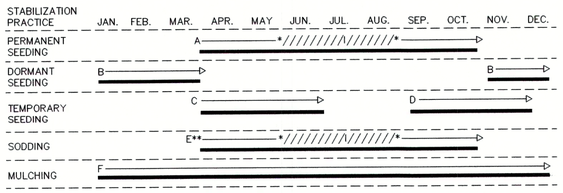
B. Run-off Control
   1. Long and/or steep slopes will require contour benching and furrowing, or berms to reduce run-off velocities.

C. Sediment Trapping
   1. The trapping of eroded particles will be accomplished by the diversion of run-off to sediment basins, excavation traps, berms, staked hay bales, or floating silt curtains.
   2. The proposed retention and/or detention pond(s) along with any environmental berm(s)/rear yard swale(s) shall be constructed first. The pond(s) and outfall structure(s) must be complete and operational prior to the placement of any impervious surface.
   3. Trapping devices shall be periodically inspected during dry periods and after each rainfall event by the site contractor. Trapping devices shall be replaced if determined to be incapable of performing intended function of sediment trapping.
   4. Trapping devices shall remain in place until a vegetative cover has established sufficiently to stabilize the soils and prevent erosion.

D. Soil Moisture
   1. The contractor shall have available on the construction site a water source capable of applying water to dry exposed soil in order to prevent wind erosion. The application rate and manner shall be such that soil moisture is attained and no surface run-off is created.

E. Responsibility
   1. The contractor shall be held responsible until the Certificate of Completion is issued. After that, the Owner will be responsible for maintenance of the stormwater collection and detention system.

SEASONAL SOIL PROTECTION CHART



A = INDOT SEED MIXTURE TYPE "R" – 170 LBS/ACRE
PLUS 2 TONS STRAW MULCH/ACRE.

B = KENTUCKY BLUEGRASS 60 LBS/ACRE; CREEPING RED FESCUE 60 LBS/ACRE;
PLUS 2 TONS STRAW MULCH/ACRE, OR ADD ANNUAL RYEGRASS 30 LBS/ACRE.

C = INDOT SEED MIXTURE TYPE "T" SPRING OATS – 150 LBS/ACRE

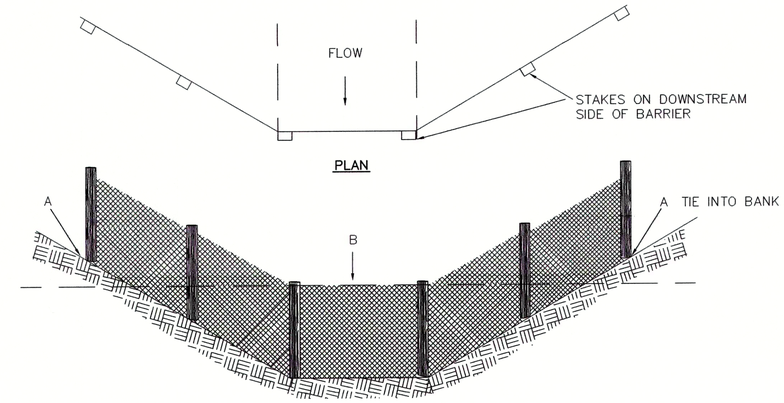
D = INDOT SEE MIXTURE TYPE "T" WINTER WHEAT – 150 LBS/ACRE

E = SOD

F = STRAW MULCH 2 TONS/ACRE

/^// IRRIGATION NEEDED DURING JUNE, JULY, AND/OR AUGUST.

** IRRIGATION NEEDED FOR 2 TO 3 WEEKS AFTER APPLYING SOD.

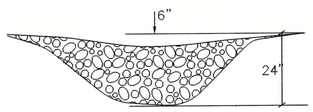


POINT A SHOULD BE HIGHER THAN POINT B

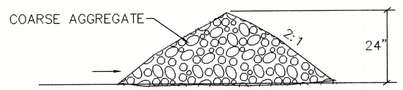
DETAIL - LOW VELOCITY SWALE APPLICATION PLACEMENT OF FILTER BARRIER IN DRAINAGE WAY

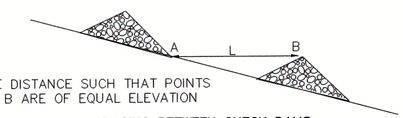
SCALE: N.T.S

NOTE: FIBER ROLLS OR COMMERCIAL SILT CHECK PRODUCTS MAY BE USED. INSTALL IN SIMILAR MANNER. TIE EDGES INTO SIDES AND TOP OF BANK.



ROCK CHECK DAM



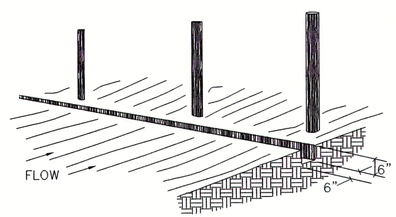


L= THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

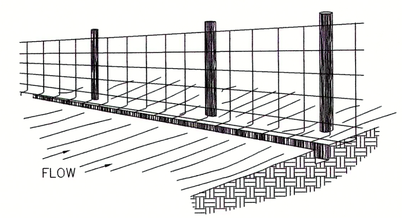
SPACING BETWEEN CHECK DAMS

DETAIL - CHECK DAM

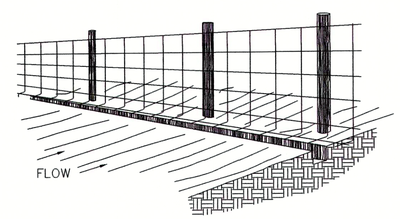
SCALE: N.T.S



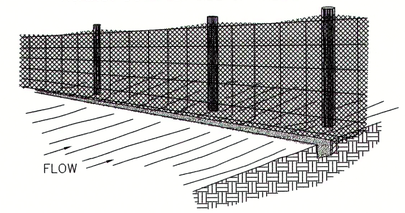
1. EXCAVATE A 6"X6" TRENCH BELOW BARE SOIL AREA



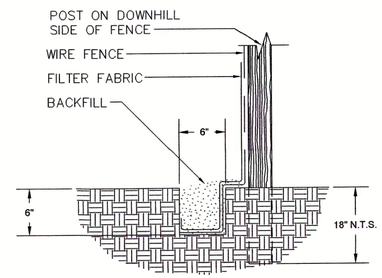
2. DRIVE STAKES (& WIRE FABRIC) IN AGAINST DOWNHILL SIDE OF TRENCH



3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH



4. BACKFILL AND COMPACT THE EXCAVATED SOIL

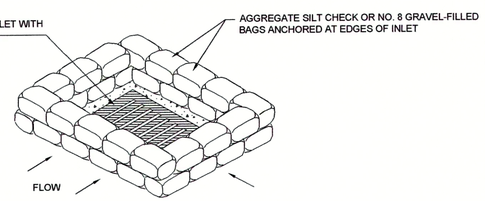


EXTENSION OF POST, FABRIC AND WIRE INTO THE TRENCH

DETAIL - REINFORCED SILT FENCE CONSTRUCTION PROCEDURES

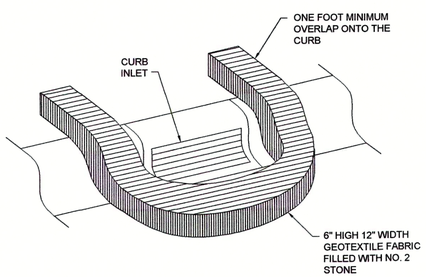
SCALE: N.T.S

NOTE: REGULAR SILT FENCE WITHOUT WIRE FENCING TO BE INSTALLED IN SAME MANNER.



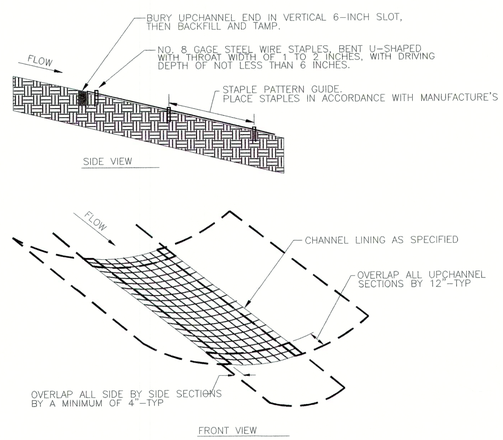
DETAIL - INLET SEDIMENT FILTER

SCALE: N.T.S



INLET PROTECTION DETAIL

SCALE: N.T.S.



SEEDING TO BE APPLIED PRIOR TO THE INSTALLATION OF BLANKET. CONTRACTOR TO ENSURE A STABILE AND UNIFORM GRASS COVER DEVELOPES IN THE SWALE.

EROSION CONTROL BLANKET INSTALLATION DETAIL

SCALE: N.T.S.

IN EVENT OF A HAZARDOUS SPILL, CONTACT
MADISON EMERGENCY MANAGEMENT AGENT: (765) 642-0221

JOSEPH P. TIERNEY REGISTERED No. 19300407 STATE OF INDIANA PROFESSIONAL ENGINEER

BID SET

GRW PROJECT NO. 4447-14

SRF NO. WW16074803 ----

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EROSION CONTROL DETAILS
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED	GWL
DRAWN	GCR
REVIEWED	JPT
APPROVED	JPT

REVISIONS

NO.	DESCRIPTION	DATE	BY
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THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED
SCALE CHECK

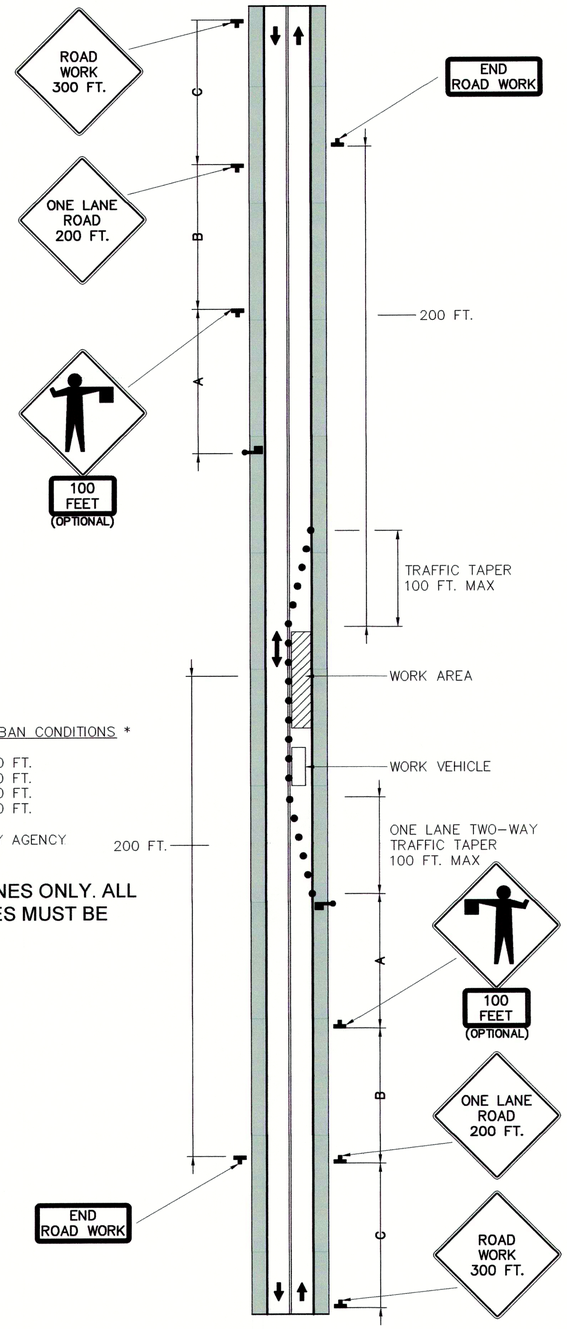
DATE: APRIL 2016
SCALE: N.T.S.
SHEET NO. C-18

PRINTED: 6/24/2016 @ 12:05PM

FILE NAME: G:\4447-FCRWD-2015\Working Drawings\AutoCAD\REHABILITATION PHASE I\4447-14-C-18-Erosion.dwg

NOTES:

1. FOR LOW-VOLUME SITUATIONS WITH SHORT WORK ZONES ON STRAIGHT ROADWAYS WHERE THE FLAGGER IS VISIBLE TO ROAD USERS APPROACHING FROM BOTH DIRECTIONS, A SINGLE FLAGGER, POSITIONED TO BE VISIBLE TO ROAD USERS APPROACHING FROM BOTH DIRECTIONS, MAY BE USED.
2. THE "ROAD WORK AHEAD" AND THE "END ROAD WORK" SIGNS MAY BE OMITTED FOR SHORT-DURATION OPERATIONS.
3. FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ADVANCE WARNING SIGNS. A "BE PREPARED TO STOP" SIGN MAY BE ADDED TO THE SIGN SERIES.
4. THE BUFFER SPACE SHOULD BE EXTENDED SO THAT THE TWO-WAY TRAFFIC TAPER IS PLACED BEFORE A HORIZONTAL (OR CREST VERTICAL) CURVE TO PROVIDE ADEQUATE SIGHT DISTANCE FOR THE FLAGGER AND A QUEUE OF STOPPED VEHICLES.
5. AT NIGHT, FLAGGER STATIONS SHALL BE ILLUMINATED, EXCEPT IN EMERGENCIES.
6. WHEN USED, THE "BE PREPARED TO STOP" SIGN SHOULD BE LOCATED BETWEEN THE "FLAGGER" SIGN AND THE "ONE LANE ROAD" SIGN.



FOR HIGH SPEED URBAN CONDITIONS *

A=350 FT.
B=350 FT.
C=350 FT.
L=350 FT.

FOR LOW SPEED URBAN CONDITIONS *

A=100 FT.
B=100 FT.
C=100 FT.
L=350 FT.

* SPEED CATEGORY SHALL BE DETERMINED BY HIGHWAY AGENCY

NOTE: TRAFFIC CONTROL PLANS ARE GUIDELINES ONLY. ALL TRAFFIC CONTROL PLANS AND LANE CLOSURES MUST BE APPROVED BY THE APPROPRIATE AGENCY.
TOWN OF PENDLETON: (765) 778-2173

DETAIL - TRAFFIC CONTROL PLAN (AT TWO LANE ROAD)

SCALE: N.T.S.

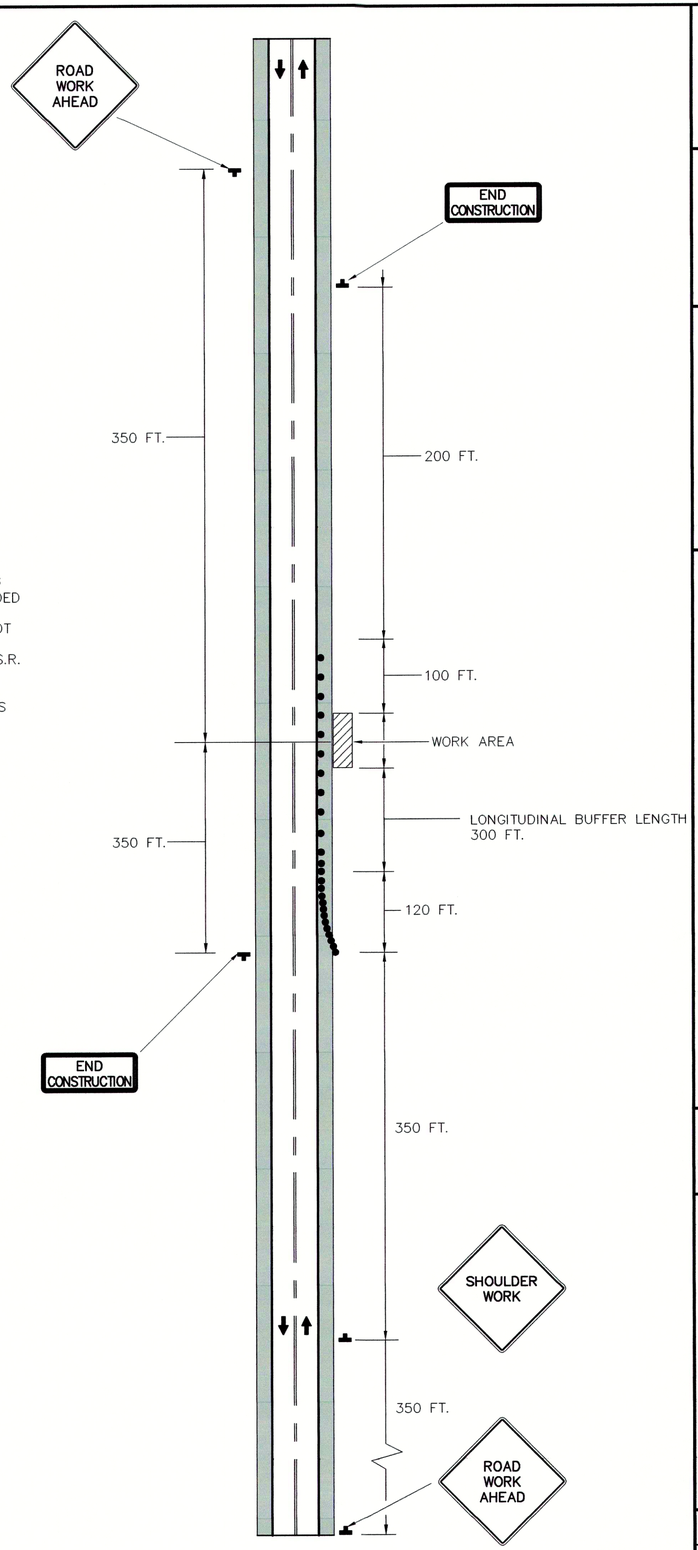
NOTES:

1. FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED TO CALL ATTENTION TO THE ADVANCE WARNING SIGNS. A "BE PREPARED TO STOP" SIGN MAY BE ADDED TO THE SIGN SERIES.
2. FOR MORE DETAILED DRAWINGS AND NOTES, SEE INDOT DETAILS E 801-TCLC-07 AND E 801-TCLG-01.
3. THIS IS APPLICABLE TO THE WORK PLANNED ALONG S.R. 67 – POSTED SPEED LIMIT 40 MPH.
4. FOR ALL LOCAL STREET AND ALLEY CLOSURES, SEE INDOT "URBAN DETOUR" DETAIL E 801-TCDT-02 (THIS SHEET) AND DETAIL E 801-TCDT-03.

LEGEND

- SIGN
- CHANNELIZING DEVICE

NOTE: TRAFFIC CONTROL PLANS ARE GUIDELINES ONLY. ALL TRAFFIC CONTROL PLANS AND LANE CLOSURES MUST BE APPROVED BY THE APPROPRIATE AGENCY.
LOCAL INDOT: (317) 467-3426
TOWN OF PENDLETON: (765) 778-2173



DETAIL - TRAFFIC CONTROL PLAN FOR SHOULDER WORK ON TWO-LANE TWO-WAY HIGHWAY

SCALE: N.T.S.

JOSEPH P. TIERNEY REGISTERED No. 19300407 STATE OF INDIANA PROFESSIONAL ENGINEER

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MAINTENANCE OF TRAFFIC
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED: GWL
DRAWN: GCR
REVIEWED: GWL
APPROVED: JPT

REVISIONS

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DATE: APRIL 2016
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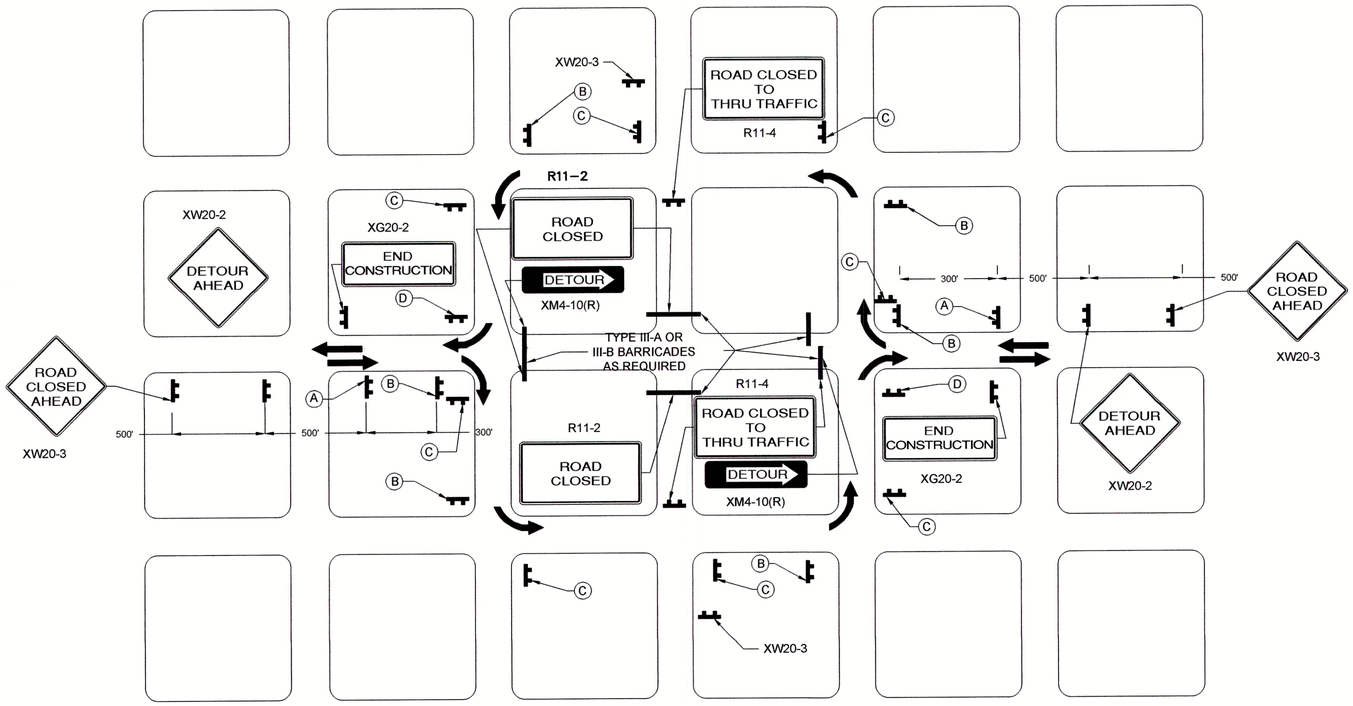

TYPICAL APPLICATIONS OF TRAFFIC DEVICES
FOR AN URBAN DETOUR

NOTES:

1. FOR DETOUR ROUTE MARKER ASSEMBLIES Ⓐ,Ⓑ,Ⓒ, AND Ⓓ SEE INDOT STANDARD DRAWINGS E 801-TCDT-03.
2. SEE INDOT STANDARD DRAWING E 801-TCLG-01 FOR STANDARD NOTES AND LEGEND.

DETAIL - TRAFFIC CONTROL PLAN FOR LOCAL DETOUR
SCALE: N.T.S.

NOTE: TRAFFIC CONTROL PLANS ARE GUIDELINES ONLY. ALL TRAFFIC CONTROL PLANS AND LANE CLOSURES MUST BE APPROVED BY THE APPROPRIATE AGENCY.
TOWN OF PENDLETON: (765) 778-2173

JOSEPH P. TIERNEY
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MAINTENACE OF TRAFFIC
SANITARY SEWER REHABILITATION
FALL CREEK REGIONAL WASTE DISTRICT
PENDLETON, INDIANA

DESIGNED: GWL
DRAWN: GCR
REVIEWED: GWL
APPROVED: JPT

REVISIONS

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