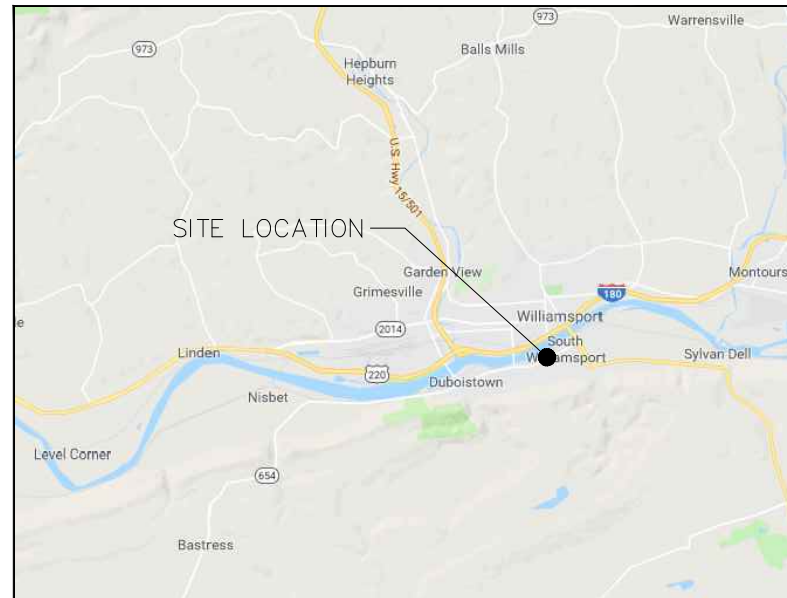


BOROUGH OF SOUTH WILLIAMSPORT RELIEF WELL REPLACEMENT PROJECT SOUTH WILLIAMSPORT, PENNSYLVANIA

APRIL 23, 2019



VICINITY MAP
NOT TO SCALE



Environment & Infrastructure Solutions, Inc.
3800 Ezell Road, Suite 100 Nashville, Tennessee 37211
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MARK	DESCRIPTION	DATE	APPR

DESIGNED BY: NCL	DATE: APRIL 23, 2019
DRAWN BY: SJR	PROJECT NO.: 7777190001
CHECKED BY: JR	FILE NAME: South Williamsport.dwg
SUBMITTED BY: MS	ANSI ID
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. 3800 EZELL ROAD, SUITE 100 NASHVILLE, TN 37211 PHONE: 615-333-0630	PLOT SCALE AS SHOWN

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CITY OF SOUTH WILLIAMSPORT



RELIEF WELL REPLACEMENT PROJECT
COVER SHEET

SHEET IDENTIFICATION
1
SHEET 1 OF 13

GENERAL NOTES:

1. ALL WORK REQUIRED TO COMPLETE THE IMPROVEMENTS SHOWN IN THESE PLANS SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS PROVIDED IN THESE PLANS. CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH ALL SPECIFICATIONS PRIOR TO BIDDING ANY IMPROVEMENTS SHOWN IN THESE CONSTRUCTION DOCUMENTS.
2. ALL EXISTING LOCATIONS AND PROPOSED IMPROVEMENTS SHOWN IN THESE PLANS ARE SHOWN ON THE PENNSYLVANIA NORTH STATE PLANE COORDINATE SYSTEM OF 1983 (FIPS 1202), AND THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. ALL EXISTING LOCATIONS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND IS SUBJECT TO ERROR AND OMISSION. ALL EXISTING LOCATION FEATURES SHALL BE CONSIDERED APPROXIMATE. CONTRACTORS SHALL SATISFY THEMSELVES AS TO THE ACTUAL SITE CONDITIONS PRIOR TO BIDDING ANY PROPOSED IMPROVEMENTS SHOWN IN THESE CONSTRUCTION DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL METHODS, SEQUENCING, AND SAFETY USED DURING CONSTRUCTION UNLESS SPECIFICALLY ADDRESSED OTHERWISE IN THESE PLANS.
5. ANY MODIFICATIONS TO THE DESIGN INTENT SHALL BE DONE UNDER THE DIRECTION OF THE UNITED STATES CORPS OF ENGINEERS (USACE).
6. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS APPLICABLE TO THE CONSTRUCTION COVERED BY THESE PLANS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COMPLYING WITH ALL PERMITS, LICENSES, REGISTRATIONS, NOTIFICATIONS, AND EMPLOYEE TRAINING REQUIRED TO COMPLETE ALL WORK PROPOSED IN THESE PLANS, UNLESS OTHERWISE NOTED.
8. THE QUANTITIES AND SITE CONDITIONS SHOWN IN THESE CONSTRUCTION DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE SUBJECT TO ERROR AND OMISSION. CONTRACTORS SHALL SATISFY THEMSELVES AS TO THE ACTUAL QUANTITIES AND SITE CONDITIONS PRIOR TO BIDDING ANY WORK PROPOSED IN THESE CONSTRUCTION DRAWINGS.
9. THE CONTRACTOR SHALL CALL THE PENNSYLVANIA UTILITY ONE CALL SYSTEM (CALL 811 OR 800-242-1776 FOR LOCATE REQUESTS) AT LEAST 3 WORKING DAYS PRIOR TO ANY EXCAVATION. CONTRACTOR SHALL ENSURE THAT ALL UTILITY LOCATES HAVE BEEN MARKED PRIOR TO EXCAVATION. THE CONTRACTOR CANNOT BEGIN EXCAVATION BEFORE THE DIG SMART TIME OF THE DIG TICKET, EVEN IF ALL UTILITIES HAVE BEEN MARKED. HOWEVER, THE CONTRACTOR MUST BEGIN THE EXCAVATION WITHIN 10 BUSINESS DAYS OF CONTRACT WITH PA ONE CALL, OR THE TICKET SHALL BE RENEWED.
10. THE LOCATIONS OF ANY UTILITIES SHOWN IN THESE CONSTRUCTION DRAWINGS HAVE NOT BEEN SURVEYED, FIELD VERIFIED, OR IN ANY OTHER WAY CONFIRMED. THE LOCATIONS OF EXISTING UTILITIES AND FACILITIES SHOWN ON THESE CONSTRUCTION DRAWINGS ARE TO BE REGARDED AS PRELIMINARY INFORMATION ONLY, SUBJECT TO FURTHER VERIFICATIONS BY THE CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR, BY ENTERING INTO THIS CONTRACT, EXPRESSLY WAIVES AND DISCLAIMS ANY CLAIM OR ACTION AGAINST THE OWNER AND/OR ENGINEER UNDER ANY THEORY FOR DAMAGES RESULTING FROM LOCATION OF EXISTING UTILITIES AND/OR FACILITIES.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION AND COST OF CONSTRUCTION EFFORTS AFFECTING EXISTING UTILITIES.
12. ALL WORK IN THE VICINITY OF HIGH VOLTAGE POWER LINES SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE ANY NECESSARY DE-ENERGIZING OF POWER LINES WITH THE LOCAL POWER COMPANY.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK AGAINST WEATHER CONDITIONS. WEST BRANCH SUSQUEHANNA RIVER STAGE, AND TIME OF DAY TO MINIMIZE SCHEDULE DELAY, EROSION AND SILTATION DURING ALL PHASES OF CONSTRUCTION.
14. ALL IMPROVEMENTS PROPOSED IN THESE CONSTRUCTION DRAWINGS SHALL ONLY BE CONSTRUCTED AT OR BELOW A GAGE READING OF 10 FEET OR LESS ON THE WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT (MARKET STREET BRIDGE) GAGE, UNLESS OTHERWISE NOTED. DAILY GAGE LEVELS CAN BE OBTAINED BY VISITING <http://water.weather.gov/ahps2/hydrograph.php?info=ctp&gagne=wilpl>. BACKFILLING OF OPEN EXCAVATIONS AND BOREHOLES SHALL BEGIN AT A GAGE READING OF 8 FEET TO ENSURE NO OPEN EXCAVATIONS ONCE THE RIVER REACHES A READING OF 10 FEET.
15. THE CONTRACTOR SHALL THOROUGHLY SATISFY THEMSELVES AS TO THE ACTUAL CONDITIONS, REQUIREMENTS OF THE WORK AND EXCESS OR DEFICIENCY OF QUANTITIES, IF ANY. NO CLAIMS SHALL BE MADE AGAINST THE OWNER OR ENGINEER FOR ANY EXCESS OR DEFICIENCY THEREIN, ACTUAL OR RELATIVE.
16. ANY QUANTITIES SHOWN IN THESE CONSTRUCTION DRAWING ARE THE BEST ESTIMATE OF THE ENGINEER. THE CONTRACTOR OR SUBCONTRACTOR(S) SHALL MAKE THEIR OWN INDEPENDENT ESTIMATE ON QUANTITIES AND BASE THEIR BID THEREIN.
17. THESE CONSTRUCTION DOCUMENTS AND ASSOCIATED CONSTRUCTION SPECIFICATIONS DO NOT CONTAIN ANY CONTRACTUAL AGREEMENT OR RELATIONSHIP BETWEEN THE CONTRACTOR(S) OR SUBCONTRACTOR(S) AND THE ENGINEER(S), NOR SHALL ONE BE CONSTRUED AT ANY TIME DURING CONSTRUCTION.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR SALVAGING PROTECTED NATIVE PLANTS PRIOR TO START OF CONSTRUCTION.
19. THE CONTRACTOR SHALL CONDUCT CLEARING, GRUBBING AND CONSTRUCTION ACTIVITIES IN A MANNER MINIMIZING TO THE EXTENT PRACTICAL, THE DESTRUCTION OF TREES, EXISTING CHANNEL LINING, STREAM BANK, ETC.
20. THE CONTRACTOR SHALL RESHAPE GROUND SURFACE DAMAGED DURING CONSTRUCTION TO ORIGINAL GRADES. ANY DEVIATION FROM THE APPROVED CONSTRUCTION DRAWINGS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO THAT CHANGE BEING INCORPORATED IN TO THE PROJECT.
21. THIS PROJECT REQUIRES A REGULAR ONGOING MAINTENANCE PROGRAM TO MAINTAIN THE OPERATIONAL AND DESIGN INTEGRITY OF THE LEVEE. REGULAR MAINTENANCE IS REQUIRED FOR THE IMPROVEMENT SHOWN IN THESE CONSTRUCTION DRAWINGS TO MAINTAIN THEIR OPERATIONAL INTEGRITY. FAILURE TO PROVIDE ADEQUATE MAINTENANCE SHALL JEOPARDIZE THE LEVEE'S PERFORMANCE DURING A FLOOD AND COULD RESULT IN LEVEE FAILURE, PROPERTY DAMAGE AND LOSS OF HUMAN LIFE.
22. COORDINATION BETWEEN ALL PARTIES IS NECESSARY AS PART OF THE CONTRACT.
23. AN APPROVED SET OF THESE CONSTRUCTION DRAWING SHALL BE PRESENT ON SITE AT ALL TIMES.
24. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OR RELOCATION AND REPLACEMENT OF ALL OBSTRUCTIONS WITHIN THE PROJECT'S CONSTRUCTION LIMITS, UNLESS OTHERWISE NOTED.
25. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING DAMAGE TO ANY EXISTING UTILITIES, FENCES, MONUMENTS, PAVING, LANDSCAPING, OR OTHER STRUCTURES WHICH MAY BE IN CONFLICT WITH CONSTRUCTION OPERATIONS. THE CONTRACTOR, AT HIS EXPENSE, SHALL RESTORE TO EXISTING CONDITIONS ANY UTILITIES, FENCES, MONUMENTS, PAVING, LANDSCAPING, OR OTHER STRUCTURES THAT ARE DAMAGED AS PART OF CONSTRUCTION OPERATIONS.
26. AT THE COMPLETION OF THE PROJECT THE CONTRACTOR SHALL RETURN ALL DISTURBED AREAS, ACCESS ROADS, AND STAGING AREAS TO THE CONDITION THAT EXISTED PRIOR TO INITIATION OF THE PROJECT. ANY DISTURBED CONCRETE OR ASPHALT SHALL BE REPAIRED TO AS NEW CONDITIONS.
27. THE CONTRACTOR SHALL IMPLEMENT MEASURES TO PROTECT PROPERTY AND SURVEY MONUMENTS, PROPERTY CORNERS, ETC. DISTURBED BY CONSTRUCTION ACTIVITIES. ALL DISTURBED MONUMENTS MUST BE REPLACED BY A PROFESSIONAL SURVEYOR LICENSED TO PRACTICE SURVEYING IN THE STATE OF PENNSYLVANIA.
28. THE CONTRACTOR SHALL REMOVE ALL DEBRIS INCLUDING WASTE CONCRETE AND GROUT, PIPE, ETC. FROM THE PROJECT SITE AND DISPOSE OF IN A LICENSED LANDFILL, COMPLIANT WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS.
29. ALL TRAFFIC IMPACTED BY THIS CONSTRUCTION SHALL BE REGULATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCO), LATEST EDITION.
30. THE CONTRACTOR SHALL DEVELOP AND MAINTAIN FOR THE DURATION OF CONSTRUCTION OPERATIONS, AN ENVIRONMENTAL, HEALTH, AND SAFETY PROGRAM THAT WILL INCORPORATE AND IMPLEMENT REQUIRED ENVIRONMENTAL, HEALTH, AND SAFETY PROVISIONS. THE CONTRACTOR SHALL APPOINT AN EMPLOYEE WHO IS BOTH QUALIFIED AND AUTHORIZED TO ENFORCE COMPLIANCE WITH THE ENVIRONMENTAL, HEALTH, AND SAFETY PROGRAM.
31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING RELIEF WELLS DURING CONSTRUCTION OPERATIONS. ANY DAMAGE TO EXISTING RELIEF WELLS SHALL BE REPAIRED WITHIN 30 DAYS TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.

REPLACEMENT SPECIFICATIONS

1. WELL REPLACEMENT SHALL CONSIST OF CONSTRUCTING NEW RELIEF WELLS TO DIMENSIONS CONSISTENT WITH THE EXISTING WELL. SEE TABLE 2 SHEET 3 FOR REPLACEMENT WELL DIMENSIONS. DRILLING FOR REPLACEMENT WELLS SHALL BE MUD ROTARY. THE CONTRACTOR SHALL SUBMIT A DRILLING PROGRAM PLAN (DPP) IN ACCORDANCE WITH EM 1110-1-1807). PLEASE SEE THE FOLLOWING LINK FOR THE ENGINEERING MANUAL (EM) http://www.publications.usace.army.mil/portals/76/publications/engineerregulations/er_1110-1-1807.pdf. **NO DRILLING SHALL BE CONDUCTED WITHOUT A DRILL PROGRAM PLAN (DPP) APPROVED BY USACE.** DRILL CUTTINGS MAY BE SPREAD ON SITE BUT NOT CLOG ANY DITCH OR SWALE OR BE PLACED ON ANY FILTER SURFACE.
2. THE WELL RISER AND LATERAL SHALL CONSIST OF PVC PIPE SCHEDULE 80 THAT CONFORMS TO ASTM D1784, D1785, D2466, OR D2467. ALL JOINTS IN THE PVC SHALL INCLUDE COUPLINGS AND SHALL BE GLUED WITH A SOLVENT CEMENT CONFORMING TO ASTM D2564.
3. THE WELL SCREEN PIPE SHALL CONSIST OF 0.050" SLOT STAINLESS STEEL V-WIRE SCREEN WITH CENTRALIZERS AT THE TOP AND BOTTOM OF THE SCREEN. COUPLINGS FOR THE STEEL WELL SCREEN SHALL CONSIST OF THE SAME MATERIAL AS THE WELL SCREEN AND SHALL BE THREADED, FLANGED, AND/OR FITTED WITH A WELDING RING. THE COUPLINGS SHALL CONFORM IN DESIGN TO THE COUPLINGS RECOMMENDED BY THE WELL SCREEN MANUFACTURER.
4. THE BOTTOM PLUG FOR EACH WELL SCREEN SHALL BE MADE OF THE SAME MATERIAL AS THE WELL SCREEN AND AT LEAST THE SAME MINIMUM THICKNESS. PLUGS SHALL BE THE SAME DIAMETER AS THE OUTSIDE OF THE SCREEN AND FASTENED TO THE BOTTOM OF THE SCREEN PORTION IN AN APPROVED MANNER.
5. A #2 GRAVEL PACK (NOMINAL GRADATION OF 8 X 16 MESH ASTM E-11) SHALL BE INSTALLED FROM THE TOTAL DEPTH UP TO 2 FEET ABOVE TOP OF SCREEN. IN AN ANNULAR SPACE OF AT LEAST 1.8 INCHES BUT NO MORE THAN 3.8 INCHES. A FINE SAND TRANSITION SHALL BE PLACED FROM 2 FEET ABOVE THE SCREEN TO 3 FEET ABOVE THE SCREEN. A NEAT CEMENT OR SAND/CEMENT GROUT SEAL SHALL BE PLACED FROM THE FINE SAND TRANSITION TO 1 FOOT BELOW GROUND SURFACE.
6. CONSTRUCT CONCRETE PAD AT GROUND SURFACE AROUND COMPLETED WELL PER DETAIL IN THESE DRAWINGS. CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF AT LEAST 3,000 PSI. CONTRACTOR SHALL USE SURVEY EQUIPMENT BEFORE AND DURING WELL CONSTRUCTION TO ENSURE THAT THE TOP OF CONCRETE PAD MATCHES EXISTING GROUND SURFACE AND INVERT ELEVATION.
7. DEVELOPMENT SHALL CONSIST OF SWAB/AIRLIFTING OR SWAB/PUMPING TO LOOSEN AND REMOVE FINES. FINES PRODUCTION SHALL BE MEASURED ONCE PER 20 MINUTES DURING THE SWAB/AIRLIFTING OR SWAB/PUMPING PHASE BY FILLING A GRADUATED CONTAINER WITH PUMPED WATER, WAITING 5 MINUTES AND MEASURING FINES IN THE SAMPLE AS A PERCENT OF VOLUME. COMPLETION OF DEVELOPMENT IS BASED ON TWO SAMPLES TAKEN 10 MINUTES APART WITH LESS THAN A 10% IMPROVEMENT IN FINES PRODUCTION, AND NTU LESS THAN 50.
8. IF MORE THAN 6-INCHES OF FILL HAS ACCUMULATED IN THE WELL AFTER DEVELOPMENT, THEN THIS SHALL BE REMOVED BY BAILER. FLUIDS MAY BE DISCHARGED TO GRASS AREAS.
9. PERFORM PUMP TEST OF COMPLETED WELL TO DETERMINE 24-HOUR PROJECTED SPECIFIC CAPACITY.
10. WELLS THAT ARE REPLACED WILL BE ABANDONED VIA GROUTING FROM THE BOTTOM TO TOP WITH NEAT CEMENT IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTIONS (PADEP) GROUNDWATER MONITORING GUIDANCE MANUAL. THE CEMENT SHALL BE PLACED TO WITHIN 2 FEET OF THE GROUND SURFACE. AFTER THE CEMENT HAS SETUP, THE RISER PIPE SHALL BE CUTOFF 2 FEET BELOW THE GROUND SURFACE. THE HOLE SHALL THEN BE BACKFILLED WITH ADDITIONAL CEMENT OR SOIL BACKFILL. THE AREA SHALL BE RE-SEEDED WITH A DROUGHT TOLERANT TALL FESCUE SEEDING/MULCHING MIX (LIKE SCOTT'S TURFBUILDER EZSEED), COVERED WITH STRAW AND WATERED.
11. DRILLING, CONSTRUCTION, AND DEVELOPMENT DATA SHALL BE RECORDED, AND AS-BUILT LOGS PREPARED INCLUDING GPS COORDINATES. GPS COORDINATES SHALL BE PROVIDED IN FEET, AND REFERENCE THE PENNSYLVANIA NORTH STATE PLACE COORDINATE SYSTEM (NAD83).
12. CONTRACTOR SHALL PROVIDE A CONNECTION FOR PVC LATERAL CONNECTING TO CMP COLLECTOR PIPE FOR APPROVAL TO THE CITY ENGINEER PRIOR TO CONSTRUCTION.

PUMP TESTING SPECIFICATIONS

1. THE PUMPING TESTS SHALL BE PERFORMED OVER A PERIOD OF 2 HOURS PER WELL USING A 5, 10, OR 15 GPM FLOW RESTRICTOR/REGULATOR DEPENDING ON THE ASSESSED YIELD AFTER DEVELOPMENT. A SUBMERSIBLE PUMP CAPABLE OF 5 TO 15 GPM SHALL BE UTILIZED.
2. STATIC WATER LEVEL SHALL BE RECORDED, AND PUMPING WATER LEVELS SHALL BE RECORDED EVERY MINUTE FOR THE FIRST TEN MINUTES, EVERY TWO MINUTES FOR NEXT TEN MINUTES, AND EVERY TWENTY MINUTES FOR THE REMAINING 100 MINUTES. A DATA LOGGING PRESSURE TRANSDUCER MAY BE USED TO COLLECT WATER LEVEL DATA. FLUIDS MAY BE DISCHARGED TO GRASS AREAS.
3. A 24-HOUR PROJECTED SPECIFIC CAPACITY SHALL BE CALCULATED FROM THE WATER LEVEL (DRAWDOWN) DATA PLOTTED ON A SEMI-LOG CHART AND THE PUMPING RATE.
4. PROVIDE PLOTS OF PUMPING TESTS WITH CALCULATIONS OF PROJECT 24-HOUR SPECIFIC CAPACITY.

DATE	DESCRIPTION	MARK	APPR

DATE: APRIL 23, 2019	PROJECT NO.: 7777190001	FILE NAME: South Williamsport.dwg
DESIGNED BY: NCL	CD BY: JR	ANSI D
DRAWN BY: SRR		
SUBMITTED BY: Wood Environment & Infrastructure Solutions, Inc.		
PLOT SCALE: AS SHOWN		

Environment & Infrastructure Solutions, Inc.
3800 Ezell Road, Suite 100
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Phone: 610-333-9430

CITY OF SOUTH WILLIAMSPORT

JAMES DOUGLAS BARBIS
REGISTERED PROFESSIONAL ENGINEER
PE087655
PENNSYLVANIA

RELIEF WELL REPLACEMENT PROJECT

NOTES AND SPECIFICATIONS

SHEET IDENTIFICATION

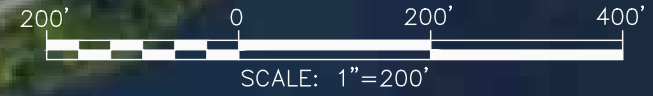
2

SHEET 2 OF 13



D
C
B
A

1 2 3 4 5



WEST BRANCH SUSQUEHANNA RIVER

W. SOUTHERN AVE.

CLARK ST.

HILL ST.

SHEET 5

SHEET 6

SHEET 7

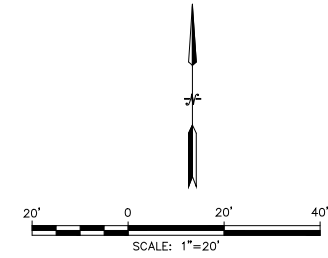
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SHEET 9







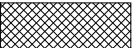
SHEET 10

SHEET 11

RELIEF WELL REPLACEMENT PROJECT OVERALL AERIAL AND SITE LOCATIONS	
SHEET IDENTIFICATION 4 <small>SHEET 4 OF 13</small>	
CITY OF SOUTH WILLIAMSPORT	
 Environment & Infrastructure Solutions, Inc. 3800 Ezell Road, Suite 100 Williamsport, PA 17701 Phone: 610-333-9630	
DESIGNED BY: NCL	DATE: APRIL 23, 2019
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CHECKED BY: SUR	FILE NAME: South Williamsport.dwg
SUBMITTED BY: Wood Environment & Infrastructure Solutions, Inc.	PLOT SCALE: AS SHOWN
ANSID	ANSID
DESCRIPTION	DATE
MARK	APPR



LEGEND:

-  WELL TO REMAIN UNCHANGED
-  WELL TO BE REPLACED
-  REPLACEMENT WELL
-  COLLECTOR PIPE
-  EXISTING LATERAL PIPE
-  PROPOSED LATERAL PIPE
-  AREA OF DISTURBANCE

NOTE:

AERIAL IMAGE OBTAINED FROM
 GOOGLE EARTH ON 3/28/2019 DATE OF IMAGE
 8/6/2015

SEE SHEET 12 & 13 FOR RELIEF WELL
 REPLACEMENT CONFIGURATION AND DETAILS

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 Pittsburgh, PA 15201
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CITY OF SOUTH WILLIAMSPORT



RELIEF WELL REPLACEMENT PROJECT
**AERIAL VIEW AND SITE PLAN -
 WELLS 1 TO 3**

SHEET IDENTIFICATION
5
 SHEET 5 OF 13



RW-8
LID = 524.53'
HAG = 523.98'
LAG = 523.59'
INV. = 519.63'

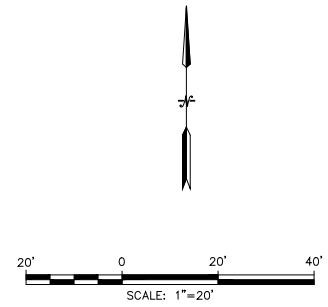
RW-7
LID = 523.74'
HAG = 524.06'
LAG = 523.85'
INV. = 519.49'








RW-6
LID = 523.65'
HAG = 524.27'
LAG = 524.16'
INV. = 519.55'

RW-5
LID = 523.93'
HAG = 524.64'
LAG = 524.55'
INV. = 519.93'

RW-4
LID = 525.11'
HAG = 524.90'
LAG = 524.88'
INV. = 520.06'

42" CMP COLLECTOR PIPE
(LOCATION IS APPROXIMATE)


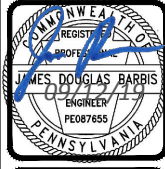


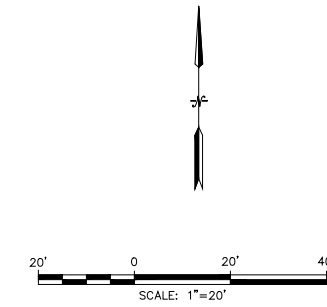
- LEGEND:**
-  WELL TO REMAIN UNCHANGED
 -  WELL TO BE REPLACED
 -  REPLACEMENT WELL
 -  COLLECTOR PIPE
 -  EXISTING LATERAL PIPE
 -  PROPOSED LATERAL PIPE
 -  AREA OF DISTURBANCE

NOTE:

AERIAL IMAGE OBTAINED FROM GOOGLE EARTH ON 3/28/2019 DATE OF IMAGE 8/6/2015

SEE SHEET 12 & 13 FOR RELIEF WELL REPLACEMENT CONFIGURATION AND DETAILS

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 Environment & Infrastructure Solutions, Inc. 3800 Eazel Road, Suite 100 P.O. Box 1211 Phone: 615.333.9630		
CITY OF SOUTH WILLIAMSPORT		
		
RELIEF WELL REPLACEMENT PROJECT	AERIAL VIEW AND SITE PLAN - WELLS 4 TO 8	
SHEET IDENTIFICATION 6		
<small>R301 - Infrastructure Design_2019 Project\777190001 - S. Williamsport Relief Wells\South Williamsport.dwg LAYOUT: 6 SAVEID: 4232018 8:43 AM PAGESETUP: ---- PLOTTED: 9/12/2019 SHEET 6 OF 13</small>		



- LEGEND:**
- WELL TO REMAIN UNCHANGED
 - WELL TO BE REPLACED
 - REPLACEMENT WELL
 - STORM MANHOLE
 - STORM INLET
 - STORM PIPE
 - EXISTING COLLECTOR PIPE
 - LATERAL PIPE
 - PROPOSED LATERAL PIPE
 - AREA OF DISTURBANCE

NOTE:

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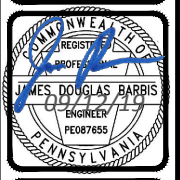
SEE SHEET 12 & 13 FOR RELIEF WELL REPLACEMENT CONFIGURATION AND DETAILS

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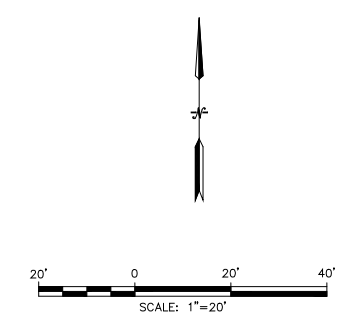
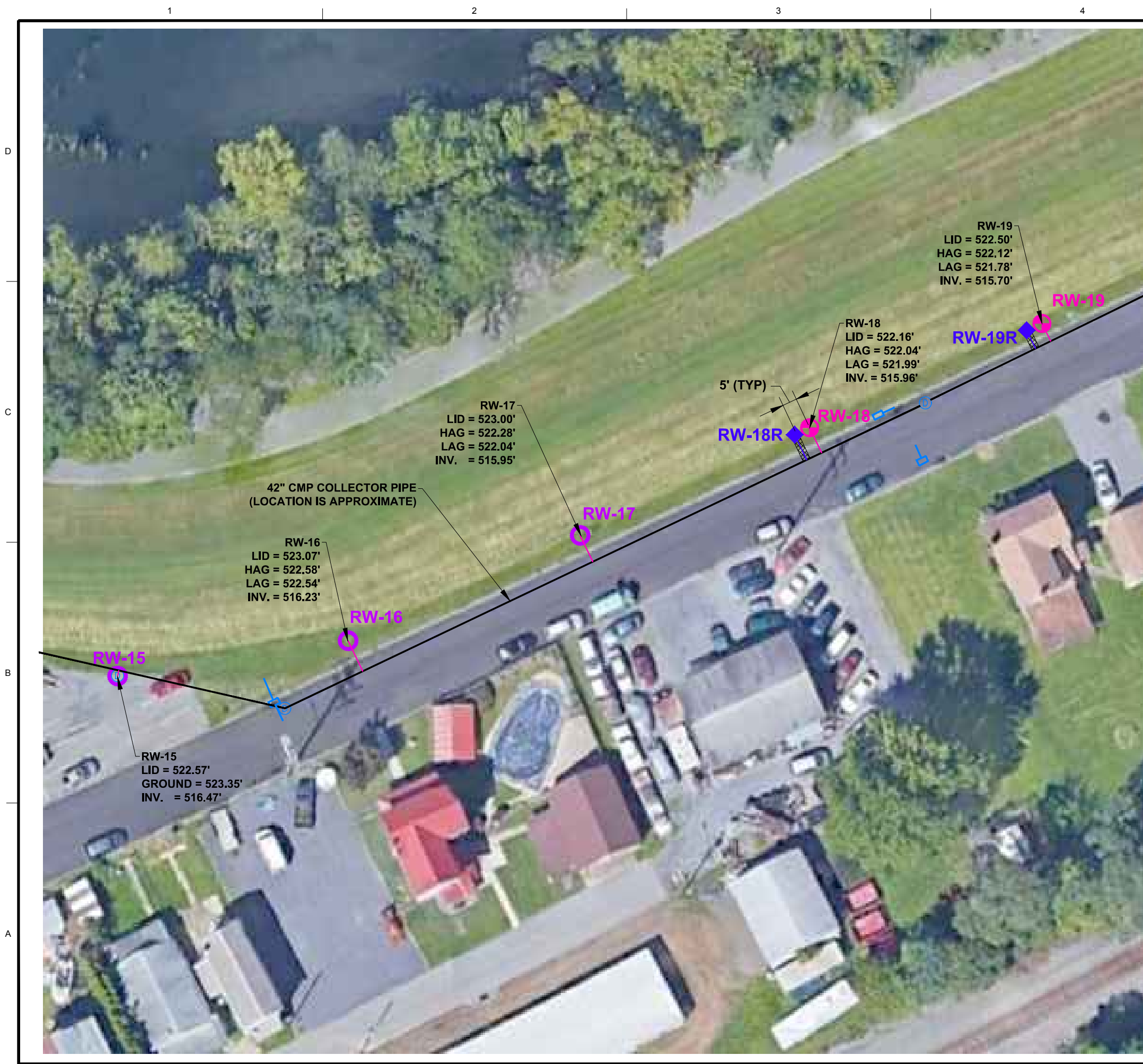
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CITY OF SOUTH WILLIAMSPORT



RELIEF WELL REPLACEMENT PROJECT
AERIAL VIEW AND SITE PLAN - WELLS 9 TO 14

SHEET IDENTIFICATION
7
SHEET 7 OF 13



- LEGEND:**
-  WELL TO REMAIN UNCHANGED
 -  WELL TO BE REPLACED
 -  REPLACEMENT WELL
 -  STORM MANHOLE
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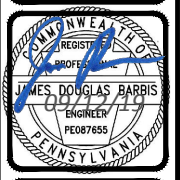
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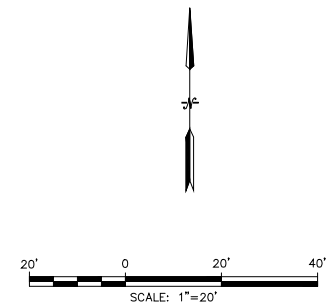
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Williamsport, PA 17701
Phone: 610-332-3430










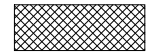
CITY OF SOUTH WILLIAMSPORT



RELIEF WELL REPLACEMENT PROJECT
AERIAL VIEW AND SITE PLAN - WELLS 15 TO 19

SHEET IDENTIFICATION
8
SHEET 8 OF 13



- LEGEND:**
-  WELL TO REMAIN UNCHANGED
 -  WELL TO BE REPLACED
 -  REPLACEMENT WELL
 -  STORM MANHOLE
 -  STORM INLET
 -  STORM PIPE
 -  EXISTING COLLECTOR PIPE
 -  LATERAL PIPE
 -  PROPOSED LATERAL PIPE
 -  AREA OF DISTURBANCE

NOTE:

AERIAL IMAGE OBTAINED FROM
GOOGLE EARTH ON 3/28/2019 DATE OF IMAGE
8/6/2015

SEE SHEET 12 & 13 FOR RELIEF WELL
REPLACEMENT CONFIGURATION AND DETAILS

5'

RW-20R

RW-20

RW-20
LID = 523.00'
HAG = 522.37'
LAG = 522.36'
INV. = 515.50'

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: NCL	DATE: APRIL 23, 2019	PROJECT NO.:	FILE NAME:
DRAWN BY: SJR	CD BY: JR	7777190001	South Williamsport.dwg
SUBMITTED BY: Wood Environment & Infrastructure Solutions, Inc.		PLOT SCALE:	ANSI D
3800 Ezel Road, Suite 100 Pittsburgh, PA 15201 Phone: 615.333.9630		AS SHOWN	

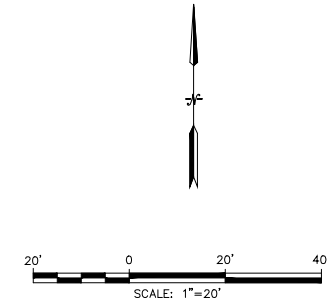
wood.
Environment & Infrastructure Solutions, Inc.
3800 Ezel Road, Suite 100
Pittsburgh, PA 15201
Phone: 615.333.9630

CITY OF SOUTH WILLIAMSPORT



RELIEF WELL REPLACEMENT PROJECT
**AERIAL VIEW AND SITE PLAN -
WELL - 20**

SHEET IDENTIFICATION
9
SHEET 9 OF 13



- LEGEND:**
- WELL TO REMAIN UNCHANGED
 - WELL TO BE REPLACED
 - REPLACEMENT WELL
 - STORM MANHOLE
 - STORM INLET
 - STORM PIPE
 - EXISTING COLLECTOR PIPE
 - LATERAL PIPE
 - PROPOSED LATERAL PIPE
 - AREA OF DISTURBANCE

NOTE:

AERIAL IMAGE OBTAINED FROM
 GOOGLE EARTH ON 3/28/2019 DATE OF IMAGE
 8/6/2015

SEE SHEET 12 & 13 FOR RELIEF WELL
 REPLACEMENT CONFIGURATION AND DETAILS

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: NCL	DATE: APRIL 23, 2019	PROJECT NO.:	FILE NAME:
DRAWN BY: SJR	COO BY: JR	7777190001	South Williamsport.dwg
SUBMITTED BY: Wood Environment & Infrastructure Solutions, Inc.		PLOT SCALE:	ANSI D
3800 Eazel Road, Suite 100 Pittsburgh, PA 15201 Phone: 615-333-9630		SIZE:	AS SHOWN

wood.
 Environment & Infrastructure Solutions, Inc.
 3800 Eazel Road, Suite 100
 Pittsburgh, PA 15201
 Phone: 615-333-9630

CITY OF SOUTH WILLIAMSPORT



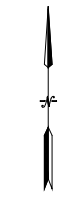
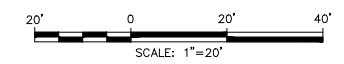
RELIEF WELL REPLACEMENT PROJECT
**AERIAL VIEW AND SITE PLAN -
 WELLS 21 TO 26**

SHEET IDENTIFICATION
10
 SHEET 10 OF 13



RW-28
 LID = 523.54'
 GROUND = 524.01'
 INV. = 520.84'

RW-27
 LID = 523.38'
 GROUND = 523.41'
 INV. = 519.96'



LEGEND:

○ WELL TO REMAIN UNCHANGED

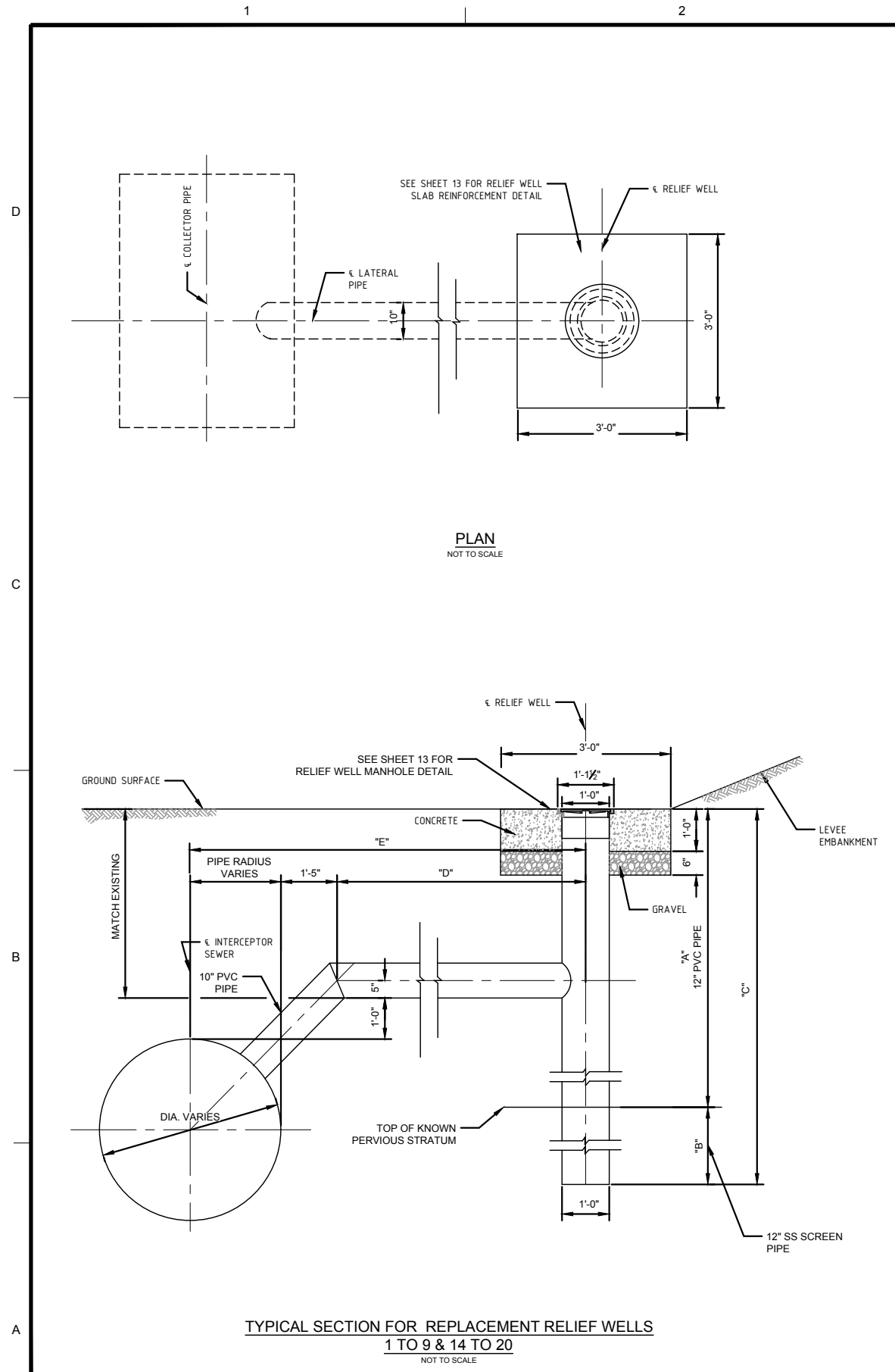
NOTE:

AERIAL IMAGE OBTAINED FROM
 GOOGLE EARTH ON 3/28/2019 DATE OF IMAGE
 8/6/2015

DESIGNED BY: NCL	DATE: APRIL 23, 2019	PROJECT NO.: 7777190001	FILE NAME: South Williamsport.dwg
DRAWN BY: SJR	CAD BY: JR	PLOT SCALE: AS SHOWN	ANSI: ANSI
SUBMITTED BY: Wood Environment & Infrastructure Solutions, Inc.		DATE: APRIL 23, 2019	
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. 3800 Ezel Road, Suite 100 Williamsport, PA 17741 Phone: 610-333-9630		DESCRIPTION:	

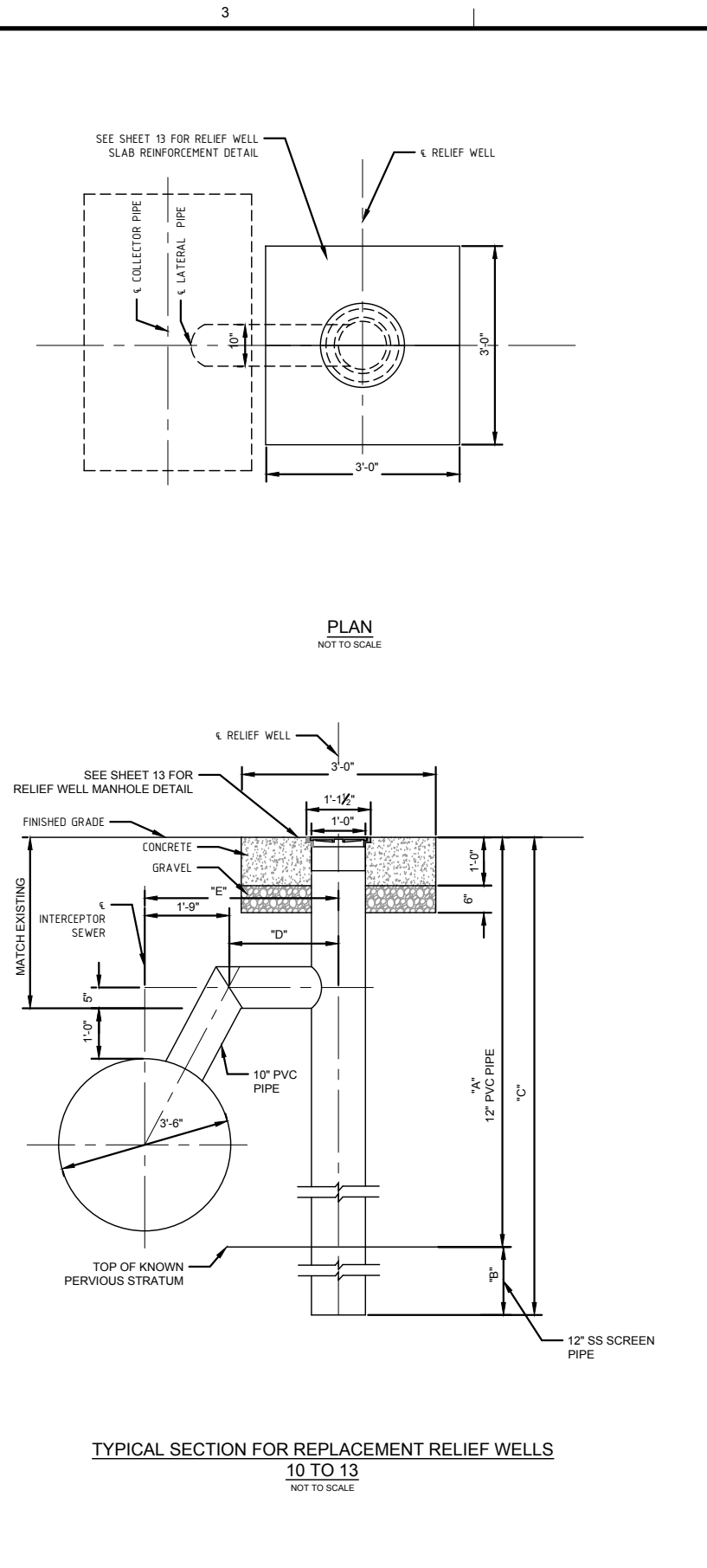
wood. Environment & Infrastructure Solutions, Inc.
CITY OF SOUTH WILLIAMSPORT
RELIEF WELL REPLACEMENT PROJECT
AERIAL VIEW AND SITE PLAN - WELLS 27 TO 28
SHEET IDENTIFICATION 11 SHEET 11 OF 13

R301-Infrastructure Design_2019 Project\777190001 - S. Williamsport Relief Wells\South Williamsport.dwg LAYOUT: 11 SAVED: 4/23/2019 9:43 AM PAGES: 11 PLOTTED: 9/12/2019



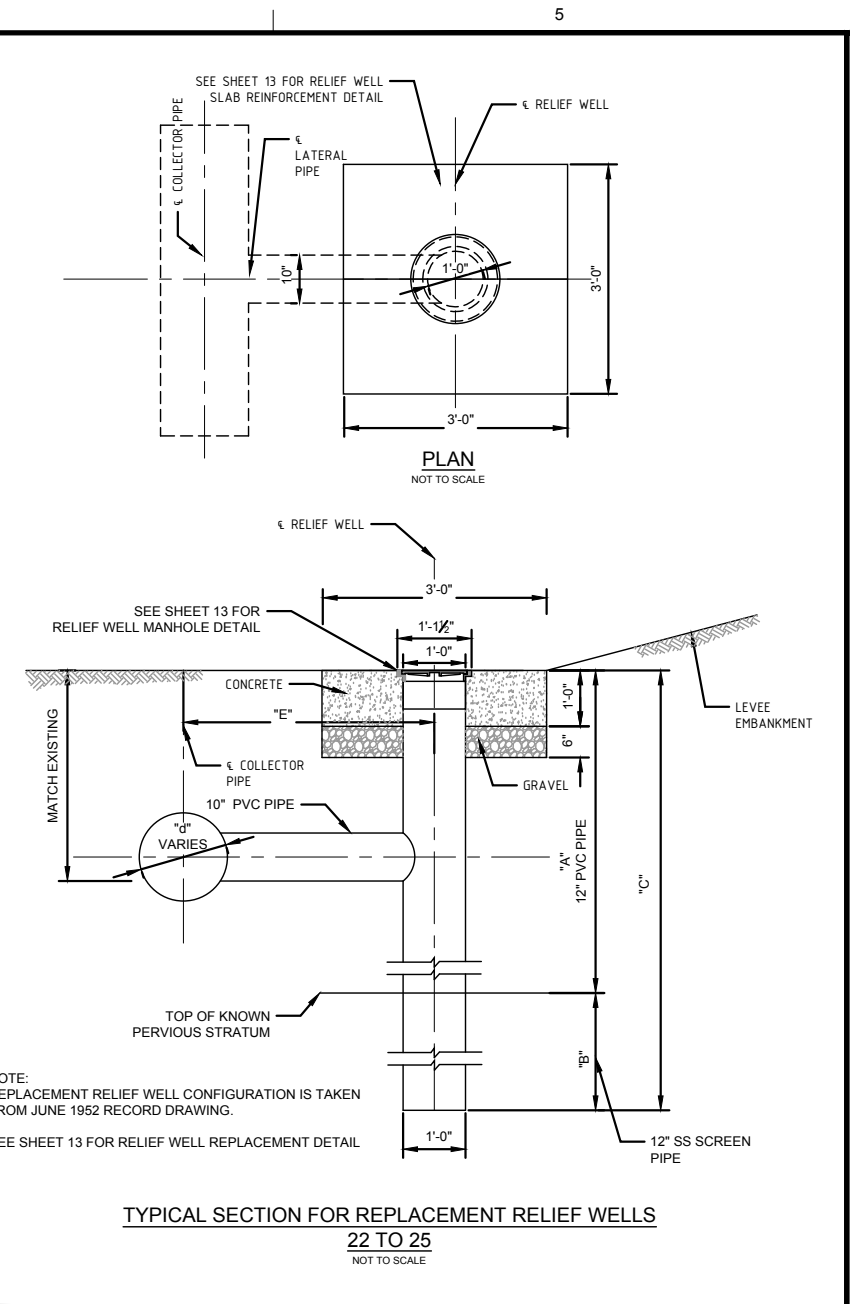
TYPICAL SECTION FOR REPLACEMENT RELIEF WELLS
1 TO 9 & 14 TO 20
NOT TO SCALE

NOTE:
REPLACEMENT RELIEF WELL CONFIGURATION IS TAKEN
FROM JUNE 1952 RECORD DRAWING.
SEE SHEET 13 FOR RELIEF WELL REPLACEMENT DETAIL



TYPICAL SECTION FOR REPLACEMENT RELIEF WELLS
10 TO 13
NOT TO SCALE

NOTE:
REPLACEMENT RELIEF WELL CONFIGURATION IS TAKEN
FROM JUNE 1952 RECORD DRAWING.
SEE SHEET 13 FOR RELIEF WELL REPLACEMENT DETAIL



TYPICAL SECTION FOR REPLACEMENT RELIEF WELLS
22 TO 25
NOT TO SCALE

NOTE:
REPLACEMENT RELIEF WELL CONFIGURATION IS TAKEN
FROM JUNE 1952 RECORD DRAWING.
SEE SHEET 13 FOR RELIEF WELL REPLACEMENT DETAIL

WELL NO.	REPLACEMENT RELIEF WELL DIMENSIONS				
	LENGTHS IN FEET				
	A	B	C	D	E
RW-1	10	20	30	*	*
RW-3	6	24	30	*	*
RW-4	6	24	30	*	*
RW-5	6	26	32	*	*
RW-6	6	26	32	*	*
RW-7	6	28	34	*	*
RW-8	6	28	34	*	*
RW-9	6	28	34	*	*
RW-10	6	28	34	*	*
RW-11	6	28	34	*	*
RW-12	6	28	34	*	*
RW-13	6	30	36	*	*
RW-14	8	28	36	*	*
RW-18	8	30	38	*	*
RW-19	8	32	40	*	*
RW-20	8	32	40	*	*
RW-22	8	30	38	*	*
RW-24	6	32	38	*	*
RW-25	10	28	38	*	*

* CONTRACTOR TO FIELD VERIFY LOCATION OF RELIEF WELL AND CONNECTOR PIPE PRIOR TO CONSTRUCTION.

DATE: APRIL 23, 2019	PROJECT NO.: 7777190001	FILE NAME: South Williamsport.dwg
DESIGNED BY: NCL	CD BY: SUR	ANSI D
DRAWN BY: SUR	DATE: APRIL 23, 2019	DATE: APRIL 23, 2019
SUBMITTED BY: Wood Environment & Infrastructure Solutions, Inc.		
3800 Hazel Road, Suite 100, Williamsport, PA 17701		
Phone: 610-339-0630		

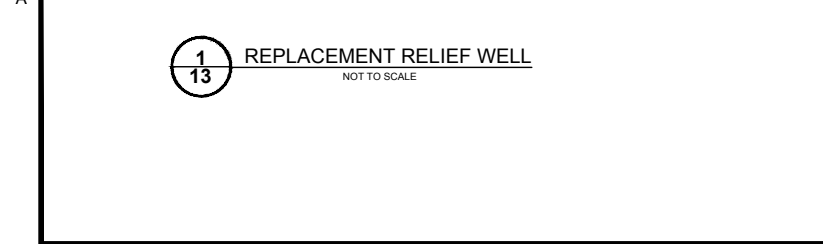
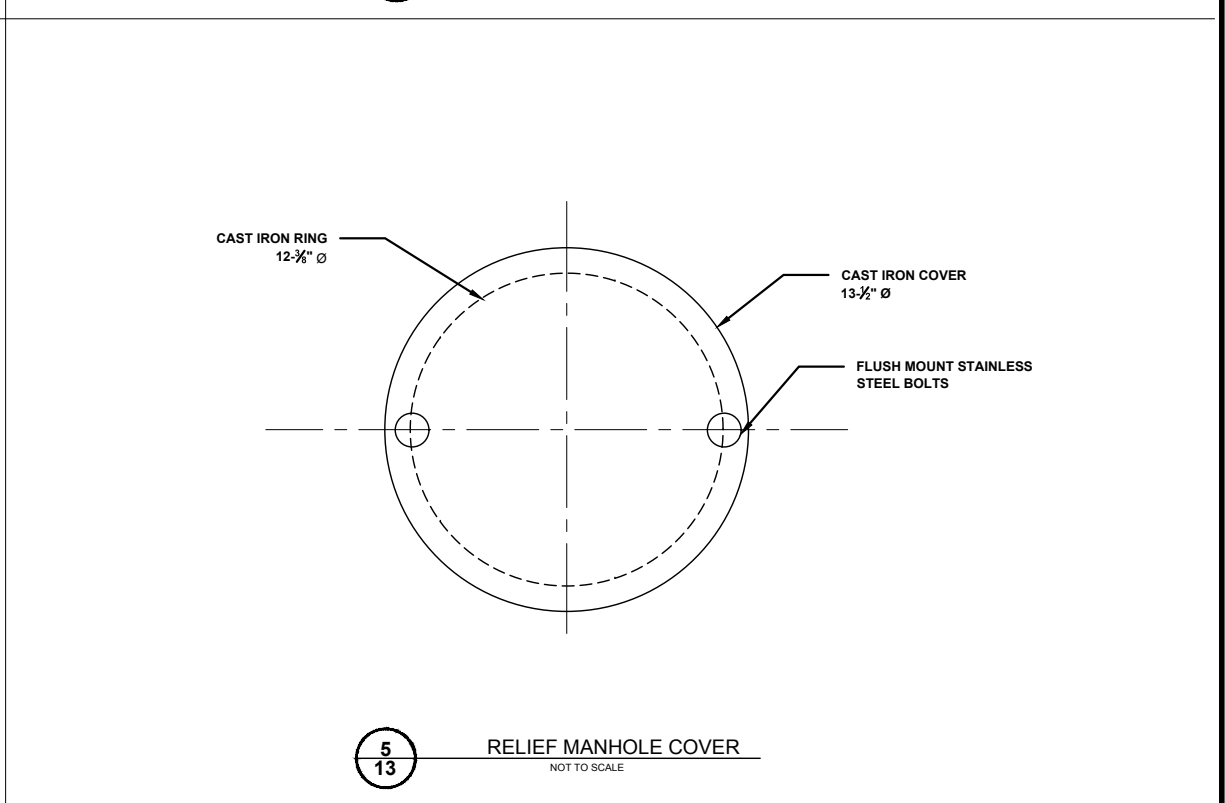
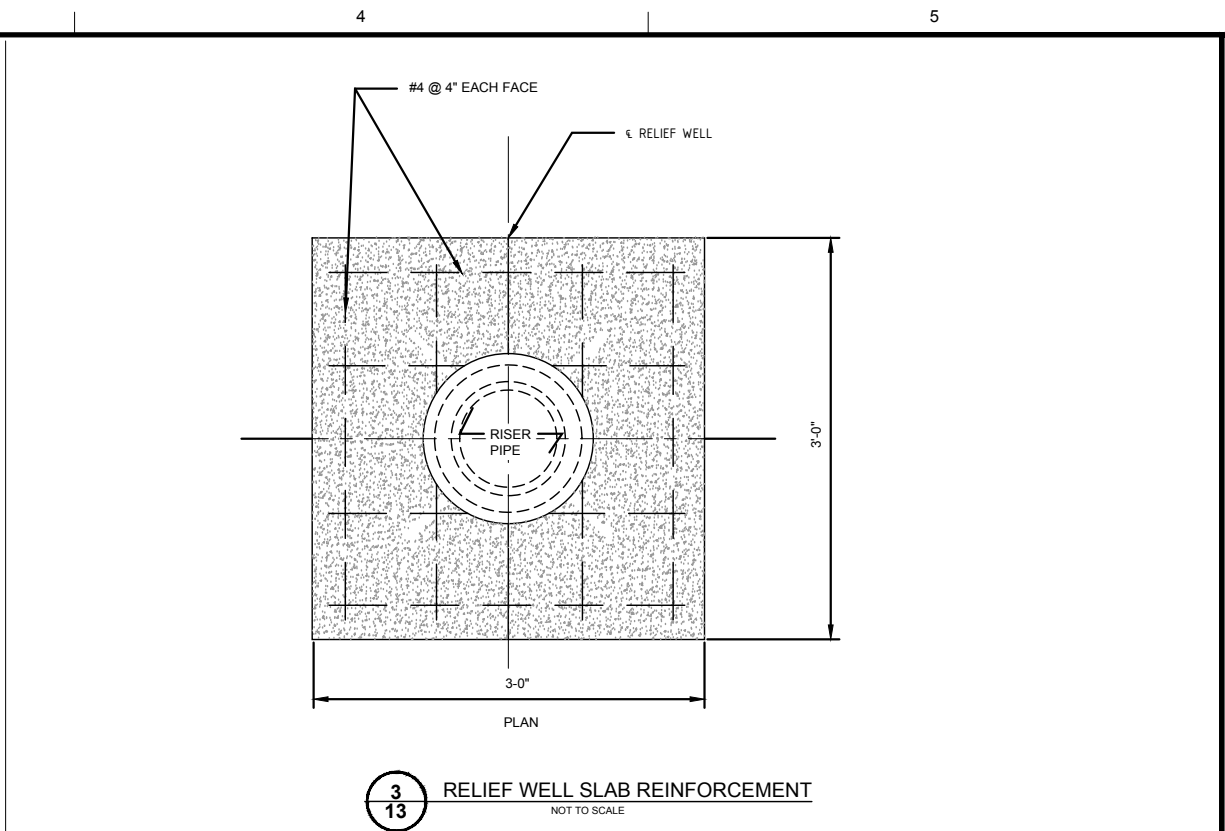
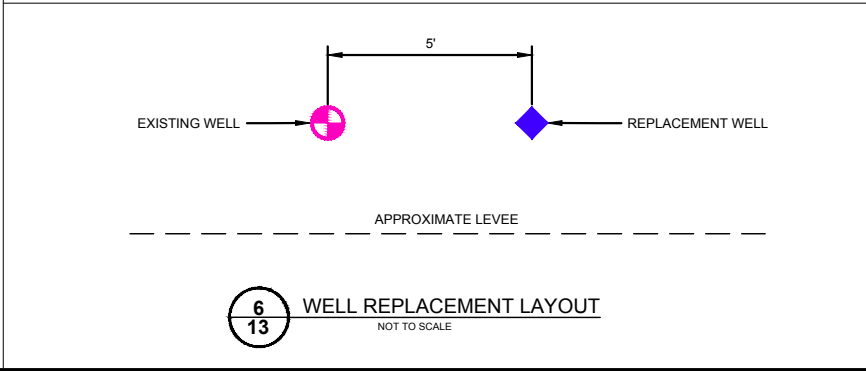
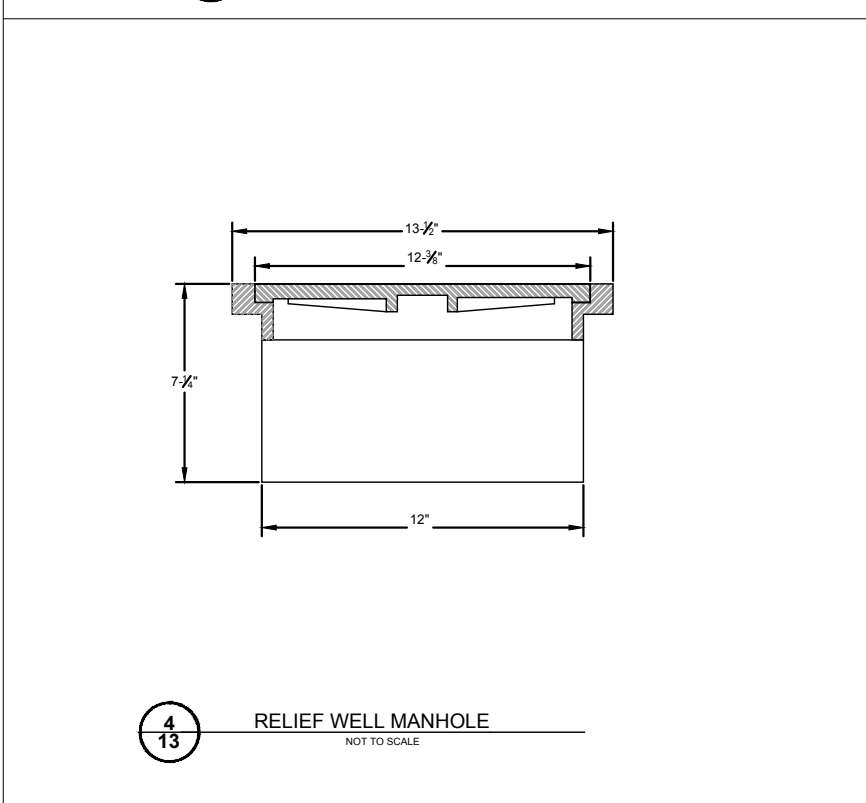
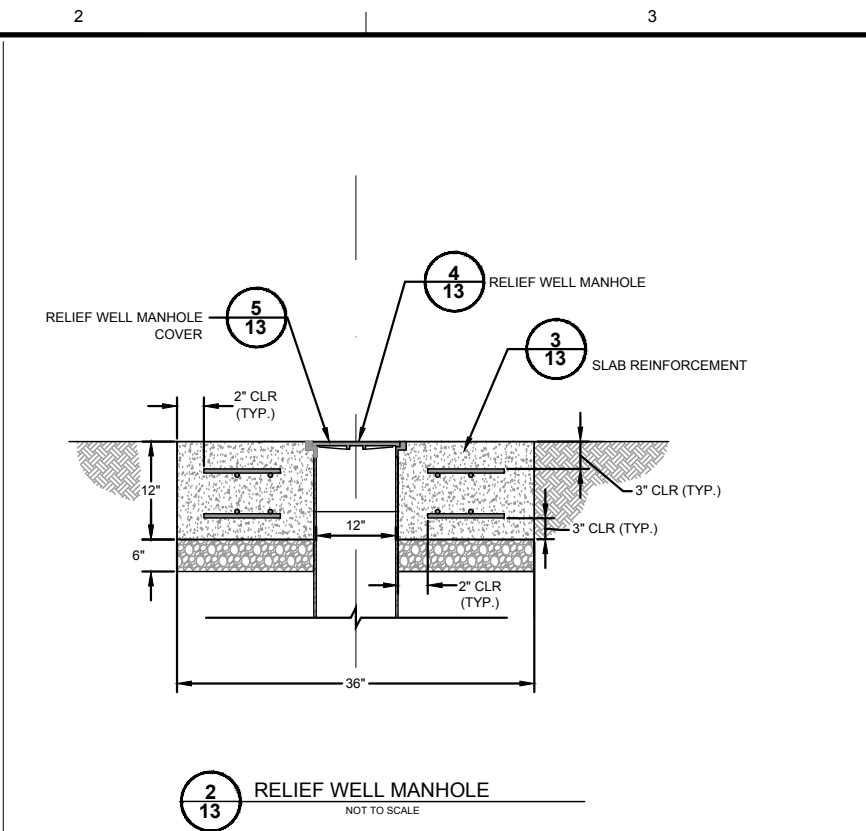
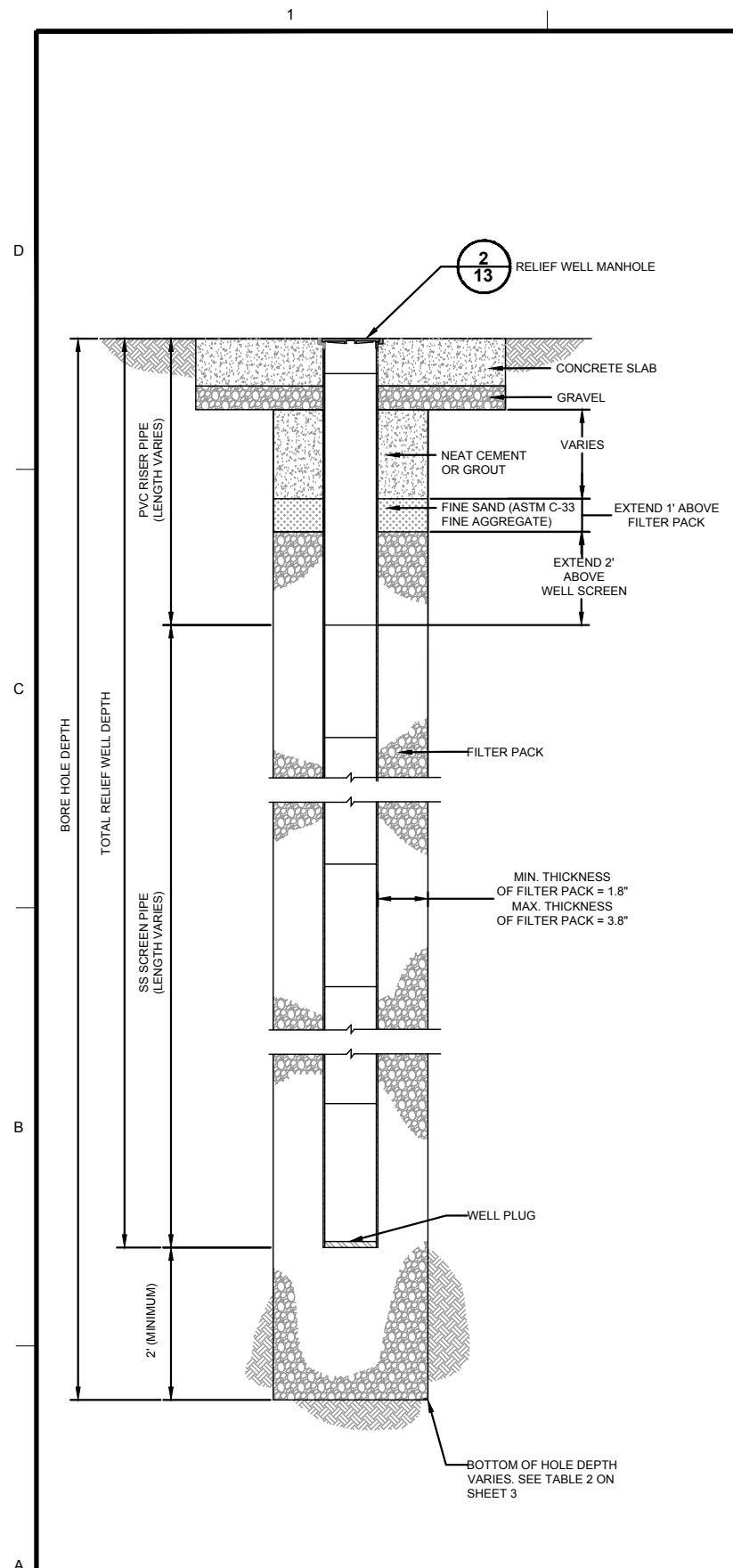
wood.
Environment & Infrastructure Solutions, Inc.
3800 Hazel Road, Suite 100
Williamsport, PA 17701
Phone: 610-339-0630

CITY OF SOUTH WILLIAMSPORT

RELIEF WELL REPLACEMENT PROJECT

DETAILS

SHEET IDENTIFICATION
12
SHEET 12 OF 13



NO.	REVISION	DATE	APPR.

DESIGNED BY: NCL	DATE: APRIL 23, 2019
DRAWN BY: SJR	PROJECT NO.: 777190001
CHECKED BY: SJR	FILE NAME: South Williamsport.dwg
SUBMITTED BY: SJR	ANSI ID
SUBMITTED BY: Wood Environment & Infrastructure Solutions, Inc.	
PLOT SCALE SIZE: AS SHOWN	

wood.
Environment & Infrastructure Solutions, Inc.
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Williamsport, PA 17701
Phone: 815.339.0630

CITY OF SOUTH WILLIAMSPORT

PROFESSIONAL SEAL
JAMES DOUGLAS BARRIS
ENGINEER
PE087655
PENNSYLVANIA

RELIEF WELL REPLACEMENT PROJECT
DETAILS

SHEET IDENTIFICATION
13
SHEET 13 OF 13