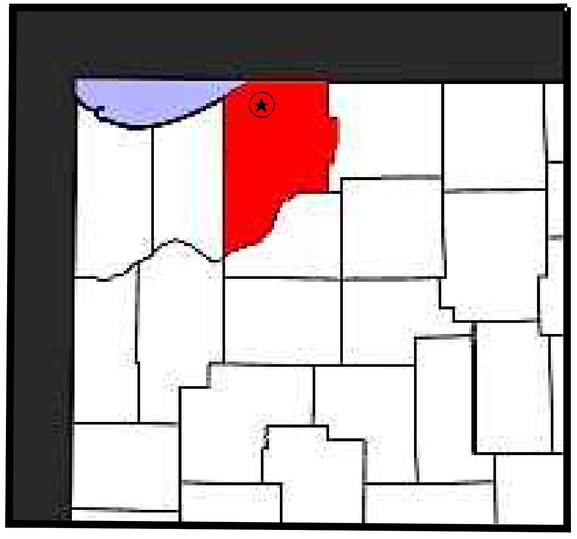
LA PORTE COUNTY WATER AND SEWER EXTENSIONS (SR 421 & CR 300 NORTH UTILITY EXTENSIONS)

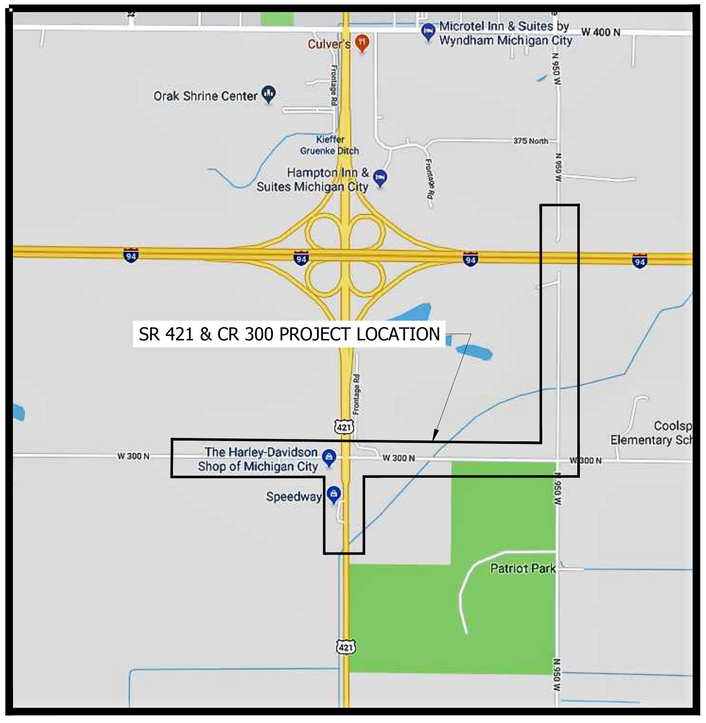
MAY 2019

LA PORTE COUNTY REDEVELOPMENT COMMISSION
809 STATE ST., LA PORTE, IN 46350



LA PORTE COUNTY, INDIANA

VINCINITY MAP



LOCATION MAP

LA PORTE COUNTY REDEVELOPMENT COMMISSION MEMBERS

Dr. Vidya Kora
Joe Coar
Terry Larson
Randy Novak
Michael Mollenhauer
Rhonda Spence
Lydia Post

LA PORTE COUNTY HIGHWAY DEPARTMENT

Jerry Sullivan, PE - La Porte County Engineer
Mitch Bishop - La Porte County Planner

SHEET NUMBER	SHEET TITLE
G100	TITLE SHEET
G101	GENERAL NOTES & LEGEND
G102	SURVEY & CONTROL DATA
G103	OVERALL SITE LAYOUT
C200	LIFT STATION LAYOUT PLAN
C201	LIFT STATION LAYOUT PLAN & PROPOSED GRADING
C202	LIFT STATION - PUMP STATION DETAIL
C203	LIFT STATION - PUMP STATION DETAIL
C300	FORCE MAIN OVERALL PLAN
C301	SANITARY SEWER FORCE MAIN STA. 10+00 TO STA. 14+50
C302	SANITARY SEWER FORCE MAIN STA. 14+50 TO STA. 20+00
C303	SANITARY SEWER FORCE MAIN STA. 20+00 TO STA. 25+50
C304	SANITARY SEWER FORCE MAIN DTS. 25+50 TO STA. 31+00
C305	SANITARY SEWER FORCE MAIN STA. 31+00 TO STA. 36+50
C306	SANITARY SEWER FORCE MAIN STA. 36+50 TO STA. 39+00
C307	SANITARY SEWER FORCE MAIN STA. 39+00 TO STA. 44+50
C308	SANITARY SEWER FORCE MAIN STA. 44+50 TO STA. 50+00
C309	SANITARY SEWER FORCE MAIN STA. 50+00 TO STA. 55+50
C310	SANITARY SEWER FORCE MAIN STA. 55+50 TO STA. 61+00
C311	SANITARY SEWER FORCE MAIN STA. 61+00 TO STA. 62+85
C312	METER PIT LAYOUT PLAN
C313	SANITARY SEWER FORCE MAIN DETAILS
C314	SANITARY SEWER FORCE MAIN DETAILS
C400	GRAVITY SEWER OVERALL PLAN
C401	GRAVITY SEWER LINE G-1 START TO STA. 13+75
C402	GRAVITY SEWER LINE G-1 STA. 13+75 TO STA. 16+99
C403	GRAVITY SEWER LINE G-1 STA. 16+99 TO 22+01
C404	GRAVITY SEWER LINE G-1 STA. 22+01 TO 24+81
C405	GRAVITY SEWER LINE G-1 STA. 24+81 TO STA. 28+53
C406	GRAVITY SEWER LINE G-1 STA. 28+53 TO 32+26
C407	GRAVITY SEWER LINE G-1 STA. 32+26 TO 35+76
C408	GRAVITY SEWER LINE G-1 STA. 35+76 TO END
C409	GRAVITY SEWER LINE G-2 START TO END
C410	GRAVITY SEWER LINE G-3 START TO END
C411	GRAVITY SEWER LINE G-4 START TO END
C412	GRAVITY SEWER LINE G-5 START TO END
C413	GRAVITY SEWER DETAILS
C414	GRAVITY SEWER DETAILS
C500	WATER MAIN OVERALL PLAN
C501	WATER MAIN - STA. 10+00 TO STA. 14+50 (LINE A1)
C502	WATER MAIN - STA. 14+50 TO STA. 20+00 (LINE A1)
C503	WATER MAIN - STA. 20+00 TO STA. 25+50 (LINE A1)
C504	WATER MAIN - STA. 25+50 TO STA. 31+00 (LINE A1)
C505	WATER MAIN - STA. 31+00 TO STA. 36+50 (LINE A1)
C506	WATER MAIN - STA. 36+50 TO STA. 38+33 (LINE A1) STA. 10+00 TO STA. 11+50 (LINE A2)
C507	WATER MAIN - STA. 11+50 TO STA. 17+00 (LINE A2)
C508	WATER MAIN - STA. 17+00 TO STA. 22+50 (LINE A2)
C509	WATER MAIN - STA. 22+50 TO STA. 28+00 (LINE A2)
C510	WATER MAIN - STA. 28+00 TO STA. 33+50 (LINE A2)
C511	WATER MAIN - STA. 33+50 TO STA. 39+00 (LINE A2)
C512	WATER MAIN - STA. 39+00 TO STA. 44+50 (LINE A2)
C513	WATER MAIN - STA. 44+50 TO STA. 50+00 (LINE A2)
C514	WATER MAIN - STA. 50+00 TO STA. 55+50 (LINE A2)
C515	WATER MAIN - STA. 55+50 TO STA. 61+02 (LINE A2)
C516	WATER MAIN - STA. 10+00 TO STA. 12+59 (LINE B) WATER MAIN - STA. 10+00 TO STA. 12+50 (LINE B1)
C517	WATER MAIN - STA. 12+50 TO STA. 17+50 (LINE B1)
C518	WATER MAIN - STA. 17+50 TO STA. 20+17 (LINE B1)
C519	WATER MAIN - STA. 10+00 TO STA. 14+50 (LINE C)
C520	WATER MAIN - STA. 14+50 TO STA. 20+00 (LINE C)
C521	WATER MAIN - STA. 20+00 TO STA. 23+94 (LINE C)
C522	WATER MAIN DETAILS
C523	WATER MAIN DETAILS
C524	WATER MAIN CONNECTION DETAILS
C525	MISC. CONSTRUCTION DETAILS
C600	EROSION CONTROL DETAILS
C601	EROSION CONTROL DETAILS
C602	STORM WATER POLLUTION PREVENTION PLAN

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION
WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
TITLE SHEET

#	Revision	Date

Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL N. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

TITLE SHEET

G100

GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS FOR THIS PROJECT. ADDITIONS, DELETIONS, AND/OR REVISIONS SHALL NOT BE MADE WITHOUT PRIOR APPROVAL BY THE ENGINEER. KEEP, AND MAINTAIN IN GOOD CONDITION, A COMPLETE SET OF THE CONTRACT DOCUMENTS ON THE JOB SITE AT ALL TIMES.
2. IN THE EVENT THAT THE CONTRACTOR DISCOVERS A DISCREPANCY IN THE CONTRACT DOCUMENTS OR A POTENTIAL UTILITY CONFLICT, NOTIFY THE ENGINEER IMMEDIATELY FOR CLARIFICATION, PRIOR TO PROCEEDING WITH CONSTRUCTION OF THE PORTION OF THE WORK IN QUESTION. FIELD LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONFIRM VERTICAL AND HORIZONTAL LOCATIONS TO BE CONFIRMED. ANY NECESSARY PIPE MODIFICATIONS SHALL BE MADE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
3. ALL WORK WITHIN THE INDOT RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH INDOT STD. SPEC 716. COMPLY WITH ALL LOCAL, STATE AND FEDERAL CODES, ORDINANCES, RULES, REGULATIONS, ORDERS, AND OTHER LEGAL REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
4. ALL RIGHT-OF-WAY AND PROPERTY LINES AND EASEMENTS SHOWN OF THE PLANS ARE APPARENT AND WERE DETERMINED BASED UPON AVAILABLE INFORMATION. STAKE ALL RIGHT-OF-WAY, PROPERTY, AND EASEMENT LINES.
5. PRESERVE EXISTING RIGHT-OF-WAY MARKERS. IF R/W MARKERS ARE DISTRIBUTED, RESET MARKERS AT NO ADDITIONAL COST TO THE OWNER.
6. CONSTRUCTION STAKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
7. PROTECT ALL EXISTING UTILITIES FROM DAMAGE, IN A MANNER APPROVED BY THE UTILITY COMPANIES AND THE ENGINEER. COORDINATE WITH THE UTILITY COMPANIES, AS NECESSARY, TO COMPLETE THE WORK.
8. PROVIDE ALL AUTOMOBILE AND PEDESTRIAN TRAFFIC CONTROL DEVICES REQUIRED BY FEDERAL, STATE, OR LOCAL AGENCIES. THE AMOUNT, LOCATION AND SIZE SHALL BE AS REQUIRED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
9. DURING CONSTRUCTION, IT MAY BE NECESSARY TO TRIM OR REMOVE A TREE WITHIN THE RIGHT-OF-WAY OR AN EASEMENT. NOTIFY THE ENGINEER, OWNER AND ANY AFFECTED PROPERTY OWNER PRIOR TO ANY REQUIRED TREE REMOVAL. TREE TRIMMING AS REQUIRED WITHIN THE RIGHT-OF-WAY OR EASEMENT SHALL BE MINIMIZED. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR TREE REMOVAL OR TRIMMING.
10. ALL DISTURBED AREAS INCLUDING, BUT NOT LIMITED TO, STREETS, DRIVES, WALKS, LAWNS, FENCES, RETAINING WALLS, ETC. SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.
11. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ALL MUD, DIRT, GRAVEL AND ANY OTHER MATERIALS TRACKED ONTO ANY PUBLIC OR PRIVATE STREETS, PARKING LOTS, OR WALKS. THIS MATERIAL REMOVAL OR SWEEPING OF THE STREETS SHALL BE DONE AS FREQUENTLY AS NECESSARY TO MAINTAIN AREAS REASONABLY CLEAN. AIRBORNE DUST SHALL BE KEPT TO A MINIMUM BY USING WATER OR OTHER METHODS AS NECESSARY.
12. PROVIDE TEMPORARY GRASS SEED WITHIN 7-DAYS OF ALL EARTH DISTURBING ACTIVITIES.
13. PROVIDE AND MAINTAIN ALL NECESSARY STRAWBALES, FILTER FENCE, INLET PROTECTION, ETC. IN EXISTING AND PROPOSED DITCHES, CULVERTS, STORM PIPES & DRAINAGE STRUCTURES TO PREVENT DAMAGE BY EROSION INSTALL. BIO-DEGRADABLE EROSION IN ALL DISTURBED DRAINAGE DITCHES WITH DEPTHS GREATER THAN 12".
14. REGRADE AREAS AS NECESSARY WITHIN THE CONSTRUCTION LIMIT TO ALLOW PROPER DRAINAGE TO EXISTING STORM SEWER STRUCTURES.
15. MAINTAIN 10'-0" HORIZONTAL AND 1'6" VERTICAL SEPARATION FROM SEWERS IN ACCORDANCE WITH I.D.E.M. REQUIREMENTS. UNLESS SPECIFICALLY NOTED IN THE PLANS.
16. COORDINATE AND PAY ANY COSTS FOR THE POWER UTILITY TO HOLD POWER POLES IF REQUIRED DURING CONSTRUCTION.
17. COORDINATE PRIVATE DRIVEWAY CLOSINGS IN ADVANCE W/ EACH PROPERTY OWNER, A MINIMUM OF 72 HOURS IN ADVANCE. IN NO CASE SHALL DRIVES OR ROADWAYS BE CLOSED OVERNIGHT.
18. HYDRO-STATICALLY PRESSURE TEST THE NEW WATER MAIN IN ACCORDANCE WITH THE SPECIFICATIONS AND AWWA C-600 PRIOR TO ACCEPTANCE BY THE OWNER.
19. ALL NEW WATER MAINS AND APPURTENANCES SHALL BE CHLORINATED IN ACCORDANCE WITH THE SPECIFICATIONS AND AWWA C-651-14 PRIOR TO BEING PLACED INTO SERVICE.
20. REPAIR ALL FIELD AND DRAINAGE TILE DAMAGED DURING CONSTRUCTION. AT NO ADDITIONAL COST.
21. PROVIDE FILL AROUND PROPOSED AND EXISTING PIPING AT ALL OPEN-CUT UTILITY CROSSINGS TO ADEQUATELY SUPPORT AND PROTECT EACH CONDUIT.

MEETING IDNR GENERAL LICENSE NOTES:

A. TREE REMOVAL AND BRUSH CLEARING SHALL BE CONTAINED AND MINIMIZED IN THE UTILITY LINE CROSSING AREA WITHIN THE FLOODWAY. NO MORE THAN ONE ACRE OF TREES SHALL BE REMOVED WITHIN THE FLOODWAY.

B. CONSTRUCTION ACTIVITIES WITHIN THE WATERWAY FROM APRIL 1 THROUGH JUNE 30 SHALL NOT EXCEED A TOTAL OF TWO CALENDAR DAYS.

C. FOLLOWING THE COMPLETION OF CONSTRUCTION, DISTURBED AREAS SHALL BE RECLAIMED AND REVEGETATED. DISTRUBED AREAS SHALL BE MULCHED WITH STRAW, WOOD FIBER, BIODEGRADABLE EROSION BLANKET, OR OTHER SUITABLE MATERIAL. TO PREVENT EROSION UNTIL REVEGETATED SPECIES ARE ESTABLISHED, LOOSE MULCH SHALL BE ANCHORED BY CRIMPING, TACKIFIERS, OR NETTING. TO THE EXTENT PRACTICABLE, REVEGETATION SHALL BE PERFORMED BY THE PLANTING OF A MIXTURE OF RED CLOVER, ORCHARD GRASS, TIMOTHY, PERENNIAL RYE GRASS, OR ANOTHER SPECIES THAT IS APPROVED BY THE DEPARTMENT AS BEING SUITABLE TO SITE AND CLIMATE CONDITIONS. IN NO CASE SHALL TALL FESCUE BE USED TO REVEGETATE DISTRUBED AREAS.

D. BEST MANAGEMENT PRACTICES SHALL BE USED DURING AND AFTER CONSTRUCTION TO MINIMIZE EROSION AND SEDIMENTATION.

E. DISTRUBED AREAS WITH SLOPES OF THREE TO ONE (3:1) OR STEEPER, OR AREAS WHERE RUN-OFF IS CONVEYED THROUGH A CHANNEL OR SWALE, SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS OR SUITABLE STRUCTURAL ARMAMENT.

F. NO PESTICIDE WILL BE USED ON THE BANKS OF WATERWAYS.

G. ALL UTILITY PIPING SHALL HAVE AT LEAST 5' OF COVER AT ALL TIMES TO MEET FROST LINE AND RIVER/STREAM BURIAL REQUIREMENTS.

LA PORTE COUNTY DRAINAGE BOARD NOTES:

A. CONTACT THE LA PORTE COUNTY SURVEYOR'S OFFICE AT LEAST 24 HOURS PRIOR TO THE START OF THE PROJECT TO ARRANGE FOR A PRELIMINARY INSPECTION OF THE PROJECT SITE IN ORDER TO MAKE CERTAIN THAT PROPER NETTING IS IN PLACE.

B. APPLICANT IS REQUIRED TO CONTACT THE LA PORTE COUNTY SURVEYOR'S OFFICE AT LEAST 24 HOURS PRIOR TO THE COMPLETION OF THE PROJECT TO ARRANGE FOR A FINAL INSPECTION OF THE PROJECT SITE IN ORDER TO MAKE CERTAIN THAT DEBRIS HAS NOT BEEN LEFT IN THE DITCH.

LINETYPES:

	EXISTING GUARDRAIL
X	EXISTING FENCE
20" W	EXISTING WATER MAIN
2" GAS	EXISTING 2" GAS LINES
6" GAS	EXISTING 6" GAS LINES
8" GAS	EXISTING 8" GAS LINES
10" GAS	EXISTING 10" GAS LINES
22" GAS	EXISTING 22" GAS LINES
30" GAS	EXISTING 30" GAS LINES
42" GAS	EXISTING 42" GAS LINES
T	EXISTING TELEPHONE
UGT	EXISTING UNDERGROUND TELEPHONE LINES
OHE	EXISTING OVERHEAD ELECTRIC LINES
UGE	EXISTING UNDERGROUND ELECTRIC LINES
6" ST	EXISTING 6" STORM SEWER
8" ST	EXISTING 8" STORM SEWER
9" ST	EXISTING 9" STORM SEWER
10" ST	EXISTING 10" STORM SEWER
12" ST	EXISTING 12" STORM SEWER
15" ST	EXISTING 15" STORM SEWER
18" ST	EXISTING 18" STORM SEWER
21" ST	EXISTING 21" STORM SEWER
24" ST	EXISTING 24" STORM SEWER
30" ST	EXISTING 30" STORM SEWER
36" ST	EXISTING 36" STORM SEWER
9' ST	EXISTING 9' STORM SEWER
SS	EXISTING SANITARY SEWER
R/W	EXISTING RIGHT-OF-WAY
	EXISTING PROPERTY EASEMENT
	EXISTING MAJOR CONTOUR LINES
	EXISTING MINOR CONTOUR LINES
	UTILITY PROPERTY EASEMENT
	LIFT STATION PROPERTY EASEMENT
	PROPERTY BOUNDARY LINE
18" GS	PROPOSED 18 INCH GRAVITY SEWER
8" GS	PROPOSED 8 INCH GRAVITY SEWER
6" FM	PROPOSED 6 INCH FORCE MAIN
20" W	PROPOSED 20 INCH WATER MAIN
12" W	PROPOSED 12 INCH WATER MAIN
	PROPOSED CASING PIPE
	PROPOSED FLOW LINE
	PROPOSED PAVEMENT SLOPE BREAK
	PROPOSED GRADE
SF	SILT FENCE

ABBREVIATIONS:

EG = EXISTING GRADE

ME = MATCH EXISTING

FP = PROPOSED PAVEMENT GRADE

UTILITY CONTACT INFORMATION:

1. STORM SEWER - MICHIGAN CITY SANITARY DISTRICT GENERAL MANAGER:
   MICHAEL KUSS ; mkuss@mcsan.org ; (219) 874-7799
2. SANITARY SEWER- MICHIGAN CITY SANITARY DISTRICT GENERAL MANAGER:
   MICHAEL KUSS ; mkuss@mcsan.org ; (219) 874-7799
3. WATER - MICHIGAN CITY WATER SUPERINTENDENT:
   RANDY RUSSELL ; rrussell@mcwaterdept.com ; (219) 874-3228
4. GAS - ANR PIPELINE :
   LAWRENCE JASKOWIEC ; lawrence_jaskowiec@transcanada.com;(248) 205-7550

   MARATHON PETROLEUM:
   GREGORY NEWMAN ; gcnewman@marathonpetroleum.com ; (419) 564-8826

   NIPSCO GAS LINE:
   PHILLIP PATRICK ; ppatrick@nisource.com ; (219) 286-4450
5. ELECTRIC - NIPSCO : PAT KIESZKOWSKI ; pkieszkowski@nisource.com ; (219) 263-8193
6. TELEPHONE - AT&T : BURIED WIRE CENTER ; (800) 924-9420
7. CABLE - AT&T : BURIED WIRE CENTER ; (800) 924-9420

HATCHES:

	EXISTING ASPHALT
	EXISTING CONCRETE
	EXISTING GRAVEL
	EXISTING BUILDINGS
	PROPOSED FULL DEPTH GRANULAR BACKFILL
	PROPOSED ASPHALT
	PROPOSED LIFT STATION PLATFORM
	EXISTING LANDSCAPE

STUCTURES:

	TREE
	ELECTRICAL POLE
	TRAFFIC LIGHT POLE
	SIGN
	STORM INVERT
MB	MAILBOX
	FENCE POST
	FLAGPOLE
	LARGE SIGN STRUCTURE
Well	PROPERTY WELL
T	UNDERGROUND TELECOMMUNICATIONS
	EXISTING SANITARY SEWER MANHOLE
	EXISTING FIRE HYDRANT
WV	EXISTING WATER VALVE
	GEOTECHNICAL BORING LOCATIONS
	BORE PIT
	PROPOSED SANITARY SEWER MANHOLE
	PROPOSED FIRE HYDRANT
WV	PROPOSED WATER VALVE
	GRADING ELEVATION CALLOUT
	INLET PROTECTION

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GENERAL NOTES & LEGEND

#	Revision	Date

Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

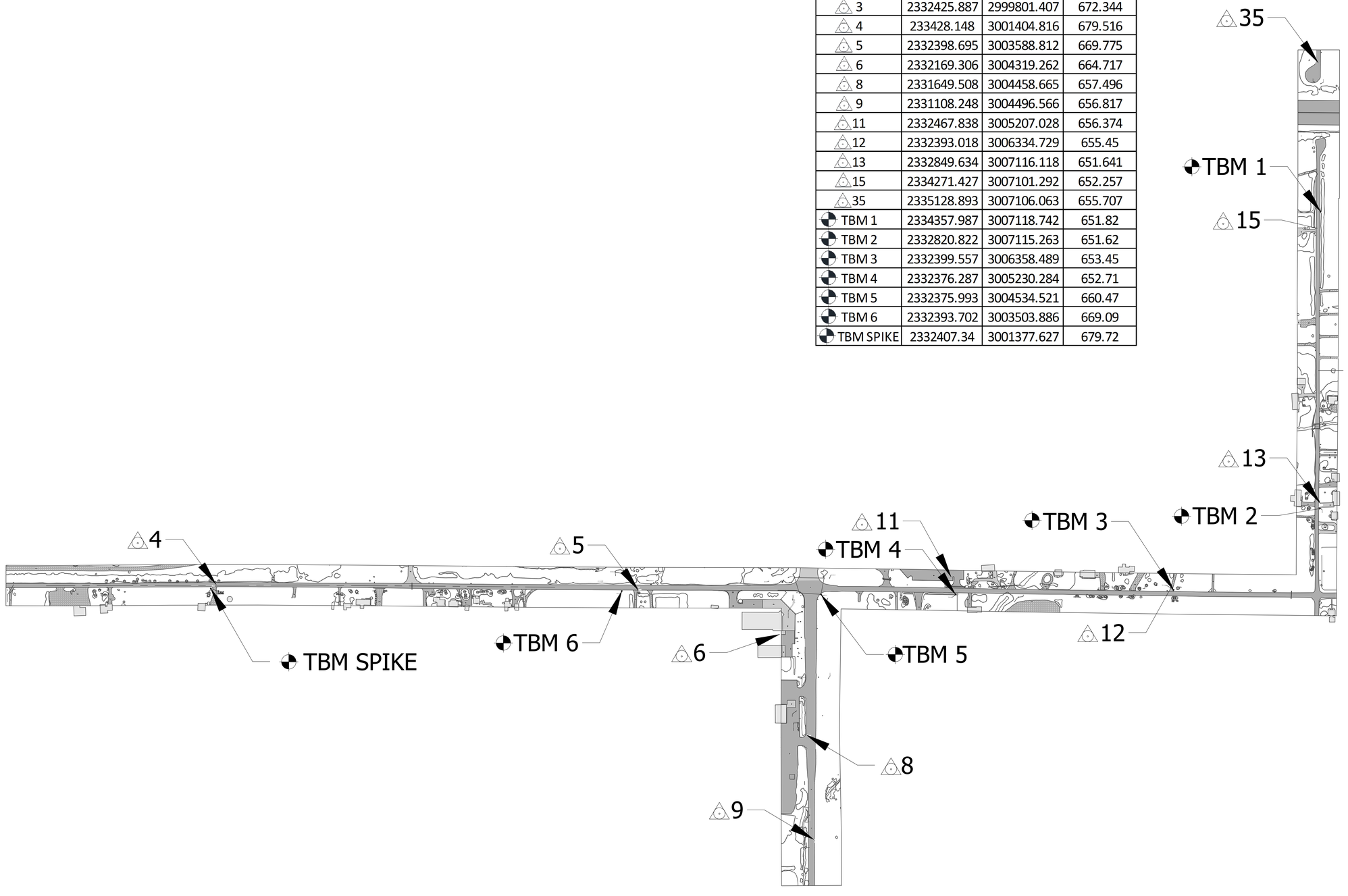
PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

GENERAL NOTES & LEGEND

G101

SURVEYING CONTROL MAP

COORDINATE TABLE			
DESCRIPTION	NORTHING	EASTING	ELEVATION
3	2332425.887	2999801.407	672.344
4	233428.148	3001404.816	679.516
5	2332398.695	3003588.812	669.775
6	2332169.306	3004319.262	664.717
8	2331649.508	3004458.665	657.496
9	2331108.248	3004496.566	656.817
11	2332467.838	3005207.028	656.374
12	2332393.018	3006334.729	655.45
13	2332849.634	3007116.118	651.641
15	2334271.427	3007101.292	652.257
35	2335128.893	3007106.063	655.707
TBM 1	2334357.987	3007118.742	651.82
TBM 2	2332820.822	3007115.263	651.62
TBM 3	2332399.557	3006358.489	653.45
TBM 4	2332376.287	3005230.284	652.71
TBM 5	2332375.993	3004534.521	660.47
TBM 6	2332393.702	3003503.886	669.09
TBM SPIKE	2332407.34	3001377.627	679.72



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SURVEYING CONTROL MAP

#	Revision	Date

Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

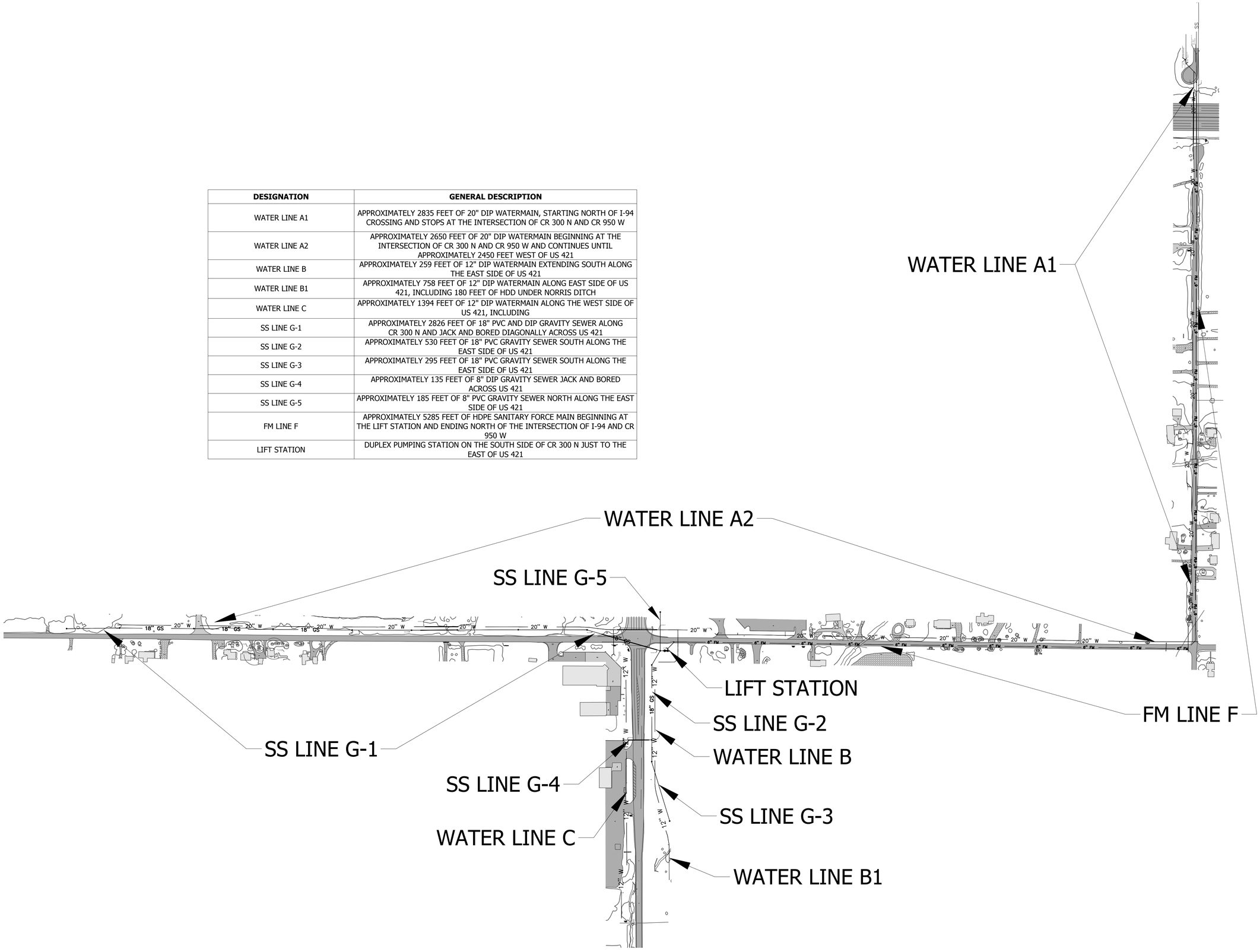
PAUL N. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 250'
0 250' 500'
GRAPHIC SCALE
N

SURVEYING CONTROL MAP

G102

DESIGNATION	GENERAL DESCRIPTION
WATER LINE A1	APPROXIMATELY 2835 FEET OF 20" DIP WATERMAIN, STARTING NORTH OF I-94 CROSSING AND STOPS AT THE INTERSECTION OF CR 300 N AND CR 950 W
WATER LINE A2	APPROXIMATELY 2650 FEET OF 20" DIP WATERMAIN BEGINNING AT THE INTERSECTION OF CR 300 N AND CR 950 W AND CONTINUES UNTIL APPROXIMATELY 2450 FEET WEST OF US 421
WATER LINE B	APPROXIMATELY 259 FEET OF 12" DIP WATERMAIN EXTENDING SOUTH ALONG THE EAST SIDE OF US 421
WATER LINE B1	APPROXIMATELY 758 FEET OF 12" DIP WATERMAIN ALONG EAST SIDE OF US 421, INCLUDING 180 FEET OF HDD UNDER NORRIS DITCH
WATER LINE C	APPROXIMATELY 1394 FEET OF 12" DIP WATERMAIN ALONG THE WEST SIDE OF US 421, INCLUDING
SS LINE G-1	APPROXIMATELY 2826 FEET OF 18" PVC AND DIP GRAVITY SEWER ALONG CR 300 N AND JACK AND BORED DIAGONALLY ACROSS US 421
SS LINE G-2	APPROXIMATELY 530 FEET OF 18" PVC GRAVITY SEWER SOUTH ALONG THE EAST SIDE OF US 421
SS LINE G-3	APPROXIMATELY 295 FEET OF 18" PVC GRAVITY SEWER SOUTH ALONG THE EAST SIDE OF US 421
SS LINE G-4	APPROXIMATELY 135 FEET OF 8" DIP GRAVITY SEWER JACK AND BORED ACROSS US 421
SS LINE G-5	APPROXIMATELY 185 FEET OF 8" PVC GRAVITY SEWER NORTH ALONG THE EAST SIDE OF US 421
FM LINE F	APPROXIMATELY 5285 FEET OF HDPE SANITARY FORCE MAIN BEGINNING AT THE LIFT STATION AND ENDING NORTH OF THE INTERSECTION OF I-94 AND CR 950 W
LIFT STATION	DUPLEX PUMPING STATION ON THE SOUTH SIDE OF CR 300 N JUST TO THE EAST OF US 421



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
OVERALL SITE LAYOUT

#	Revision	Date

Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL W. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 250'
0 250' 500'
GRAPHIC SCALE
N

OVERALL SITE LAYOUT

G103

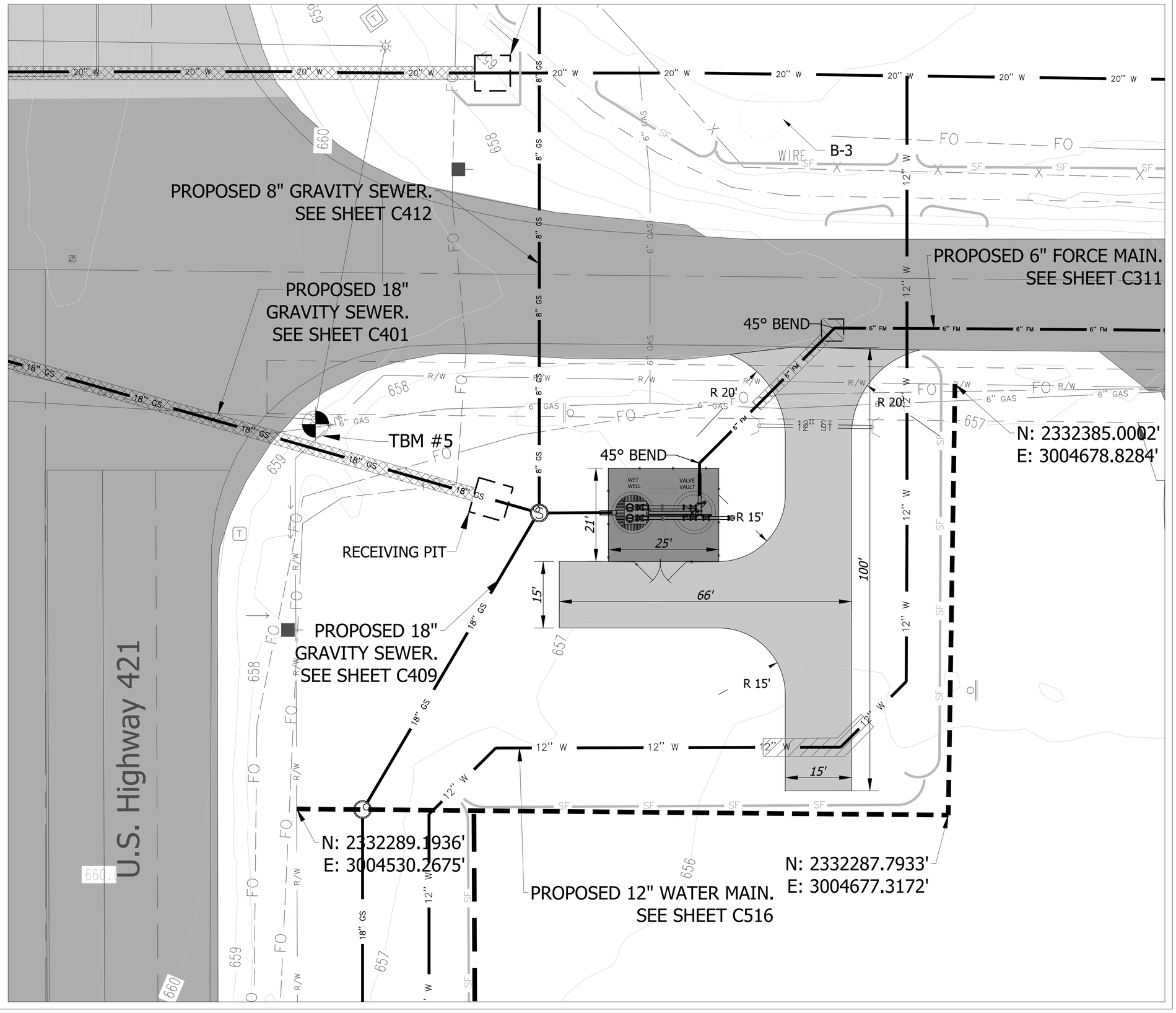
NOTE:

CONTRACTOR TO ASSIST MICHIGAN CITY SANITARY DISTRICT IN SUBMITTING AN INSTALL ELECTRIC ORDER TO NIPSCO 20 DAYS PRIOR TO POWER BEING REQUIRED FOR OPERATION. 1-800-4-NIPSCO

NIPSCO TO INSTALL UTILITIES POLES AND RUN 480 VOLT 3-PHASE POWER TO LIFT STATION. CONTACT PAT KIESZKOWSKI FOR ANY QUESTIONS.
PKIESZKOWSKI@NISOURCE.COM
219.263.8193

THE INTERIOR OF THE PRECAST WET WELL SHALL HAVE A BASE COAT OF RAVEN 760 HPPC WITH A TOP COAT OF RAVEN 405FS (100 MILLIMETER THICKNESS)

A TEMPORARY CONSTRUCTION ENTRANCE SHALL BE USED OFF OF COUNTY ROAD 300 NORTH UNTIL WORK IS COMPLETE.



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
LIFT STATION LAYOUT PLAN

#	Revision	Date

Project Number: 18-400-024-1
Designed By: B.J.N.
Drawn By: B.J.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL N. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 10'
0 10' 20'
GRAPHIC SCALE
N

LIFT STATION
LAYOUT PLAN

C200

TBM #5

RECEIVING PIT

PROPOSED FLOW LINE

WET WELL

VALVE VAULT

EG: 658.01
FP: ME

EG: 657.61
FP: ME

12" DIA. CMP
Inv.=656.81

12" DIA. CMP
Inv.=656.69

EG: 657.17
FP: 657.50

EG: 656.72
FP: 657.50

EG: 656.70
FP: 659.70

EG: 656.77
FP: 659.82

EG: 656.67
FP: 659.67

EG: 656.53
FP: 659.82

EG: 657.22
FP: 657.50

EG: 656.90
FP: 657.50

EG: 657.23
FP: 657.04

EG: 657.19
FP: ME

EG: 657.16
FP: 657.50

EG: 656.74
FP: 657.50

EG: 656.44
FP: 658.13

EG: 657.10
FP: 657.04

EG: 659.42
FP: 656.40

EG: 655.00
FP: 656.40

EG: 655.50
FP: 656.40

9%

6%

2%

3%

658.00

657.00

659.00

656.00

8" GS

6" GAS

6" FM

12" W

18" GS

SF

FO

R/W

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N

LIFT STATION LAYOUT PLAN & PROPOSED GRADING

#	Revision	Date

Project Number: 18-400-024-1
Designed By: B.J.N.
Drawn By: B.J.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 5'
0 5' 10'
GRAPHIC SCALE

N

LIFT STATION LAYOUT PLAN & PROPOSED GRADING

C201

LIFT STATION NOTES

1. THE ELECTRICAL POWER SUPPLY AND THE TELEPHONE SYSTEM MONITORING SUPPLY FOR THE LIFT STATION SHALL BE PROVIDED BY THE CONTRACTOR. ALL COORDINATION WITH THESE UTILITY COMPANIES AND THE COST OF THEIR FEES, PERMITS, AND INSTALLATION WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

2. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ALL LOCAL ELECTRICAL CODES AND THE ELECTRICAL UTILITY, NIPSCO.

3. ALL BURIED ELECTRICAL AND TELEPHONE CONDUIT SHALL BE MARKED WITH CONTINUOUS PLASTIC TAPE, 6 INCHES WIDE AND 4 MILS THICK MINIMUM AND BURIED DIRECTLY ABOVE THE CONDUIT, APPROXIMATELY 8 INCHES BELOW FINISHED GRADE.

4. THE LIFT STATION CONTRACTOR SHALL MEET ON-SITE WITH MICHIGAN CITY SANITARY DISTRICT (MCSD) OFFICIALS AND THE ENGINEER AT THE FOLLOWING LIFT STATION CONSTRUCTION TIME PERIODS: (1) PRIOR TO BEGINNING, (2) AT 50% COMPLETION AND (3) AT 100% COMPLETION START-UP OF THE LIFT STATION. PRIOR TO SCHEDULING THE 100% COMPLETION START-UP WITH MCSD OFFICIALS, THE CONTRACTOR SHALL FULLY START-UP ALL LIFT STATION EQUIPMENT.

5. THE CONTRACTOR SHALL FURNISH THE MCSD WITH FOUR COPIES OF THE FOLLOWING DOCUMENTS: (A) LIFT STATION OPERATION AND MAINTENANCE MANUAL, WITH COMPLETE DETAILED INFORMATION ON ALL LIFT STATION EQUIPMENT AND COMPONENTS AND A FIRST PAGE SUMMARY SHEET OR INDEX WHICH CLEARLY INDICATES THE CONTENTS OF THE MANUAL ALL REFERENCED AND MARKED BY TAB NUMBERS. (B) AS-BUILT CONSTRUCTION DRAWINGS OF THE LIFT STATION, INCLUDING A SITE PLAN (C) LIFT STATION START-UP PROCEDURE AND RESULTS CHECK LIST.

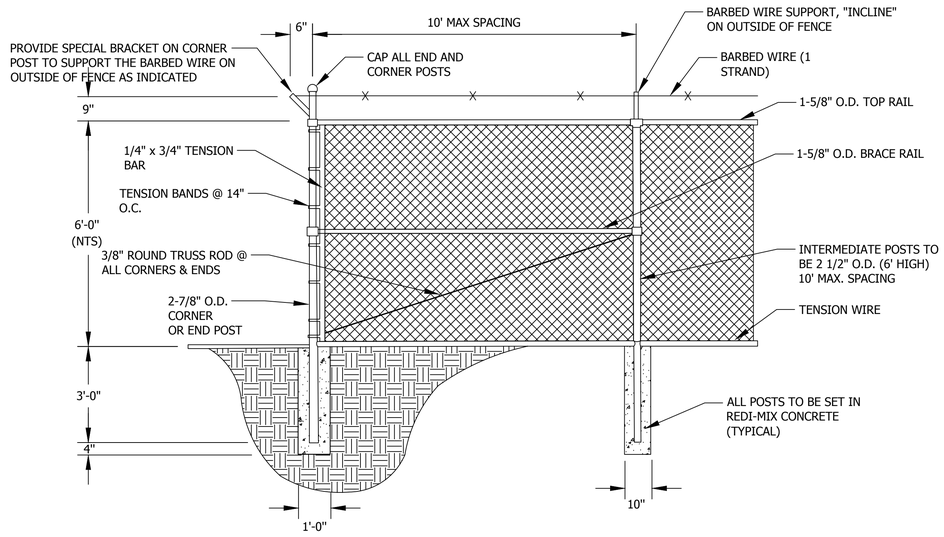
6. THE FOLLOWING LIFT STATION EQUIPMENT SHALL BE PROVIDED:
   - A. SUBMERSIBLE PUMPS AND COMPLETE PUMP CONTROLS BY ABS PUMPS, INC., YEOMANS PUMP OR APPROVED EQUAL.
   - B. IF A PERMANENT GENERATOR IS REQUIRED FOR EMERGENCY/ELECTRICAL POWER SUPPLY, NATURAL GAS POWERED AND WITH AN AUTOMATIC TRANSFER SWITCH WITH ADJUSTABLE TIME DELAY, ALL BY ONAN CORP., GENERAC CORP., OR APPROVED EQUAL.
   - C. IF AN ELECTRICAL PHASE CONVERTED IS REQUIRED FOR 3 PHASE ELECTRICAL POWER SUPPLY, IT SHALL BE BY RONK ELECTRICAL INDUSTRIES OR APPROVED EQUAL.
   - D. THE PORTABLE GENERATOR RECEPTACLE, IF REQUIRED, SHALL BE THE FOLLOWING;
     1. HUBBELL 560B9W FOR 240 VOLT, 3 PHASE FOR KW/KVA LESS THAN 65/81.
     2. HUBBELL 460B7W FOR 480 VOLT, 3 PHASE FOR KW/KVA LESS THAN 65/81.
     3. APPLETON AR20044 FOR 480 VOLT, 3 PHASE FOR KW/KVA GREATER THAN 288.

   APPROVED EQUAL IN THE PRECEDING ITEMS SHALL MEAN BY ANOTHER ANOTHER MANUFACTURER THAT IS APPROVED PRIOR TO BIDDING THE PROJECT. THIS PRE-BID APPROVAL SHALL INVOLVE A SUBMITTAL FOR THE ENGINEER'S APPROVAL, WHICH VERIFIES THAT THE MANUFACTURER HAS ACCEPTABLE EXPERIENCE AND MEETS THE EQUIPMENT SPECIFICATIONS, OPERATING CONDITIONS AND INSTALLATION REQUIREMENTS.

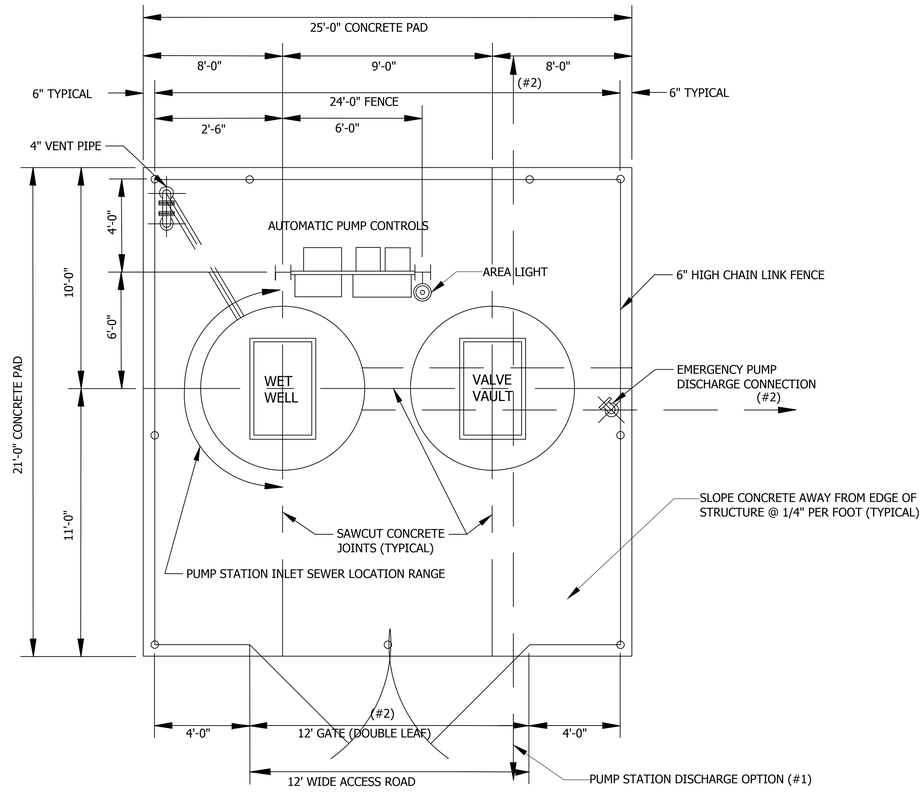
7. THE PUMP CONTROLS SHALL BE PROVIDED BY THE PUMP MANUFACTURER AND SHALL INCLUDE THE FOLLOWING:
   - A. A NEMA 3R STAINLESS STEEL ENCLOSURE WITH OUTSIDE SOLID DOOR AND AN INSIDE DOOR WITH INSTRUMENTATION MOUNTING
   - B. THE FOLLOWING FACILITIES FOR EACH PUMP:
     1. A COMBINATION NEMA RATED MOTOR STARTER AND CIRCUIT PROTECTOR TO PROVIDE SHORT CIRCUIT AND GROUND FAULT PROTECTION PER NEC CODE.
     2. A MANUAL RESET FOR DUAL PROTECTION AGAINST CURRENT OVERLOADS AND SHORT-CIRCUIT PROTECTION.
     3. AN OVERLOAD RELAY TO BE PRE-CALIBRATED TO MATCH MOTOR CHARACTERISTICS.
     4. A HAND/OFF/AUTO SELECTOR SWITCH MOUNTED ON THE INSIDE DOOR OF THE CONTROL ENCLOSURE.
   - C. AN AUTOMATIC ELECTRIC ALTERNATOR FOR BOTH PUMPS WHICH WILL ALTERNATE THE "LEAD" AND "LAG" PUMP WITH EACH OPERATING CYCLE.
   - D. THERMAL OVERLOAD PROTECTION SHUTOFF SWITCHES AND WARNING LIGHTS AND MOISTURE SENSOR WARNING LIGHTS FOR EACH PUMP.
   - E. A RUNNING TIME METER FOR EACH PUMP.
   - F. A RELAY WITH SINGLE POLE, DOUBLE THROW CONTACTS, MOUNTED IN THE MAIN CONTROL PANEL TO SIGNAL FAILURE OF THE 115 VOLT CONTROL POWER SUPPLY.
   - G. A STORAGE BATTERY AND CHARGER FOR THE "HIGH LEVEL ALARM" CONDITION IN CASE OF POWER FAILURE, TO ACTUATE A RED LIGHT ON THE PUMP STATION CONTROL PANEL AND THE AUTOMATIC TELEMETRY MONITORING SYSTEM.
   - H. A G.F.I. RECEPTACLE IN THE PUMP CONTROL SYSTEM ENCLOSURE.
   - I. ON, OFF FAIL AND MOISTURE SENSOR LIGHTS FOR EACH PUMP MOUNTED ON THE INSIDE DOOR OF THE CONTROL ENCLOSURE. THE FAIL LIGHT SHALL RESULT IF A PUMP IS "CALLED" BY THE LEVEL CONTROL AND ITS MOTOR STARTER FAILS TO FUNCTION.
   - J. A MAIN CIRCUIT BREAKER FOR THE ENTIRE PUMP CONTROL SYSTEM.
   - K. LIGHTNING/SURGE PROTECTION FOR THE ENTIRE PUMP CONTROL SYSTEM.
   - L. A 100 WATT HEATER WITH THERMOSTAT AND OVER - TEMPERATURE CONTROL FOR MOISTURE CONTROL INSIDE THE PUMP CONTROL ENCLOSURE
   - M. PROVISION FOR THE FUTURE INSTALLATION OF A PLC FOR THE MONITORING OF ADDITIONAL ALARM CONDITIONS AT THE LIFT STATION, SUCH AS, PUMP MOISTURE ALARMS, STATION POWER FAILURE, STATION LOW WATER LEVEL, AND PUMP FAILURE.

LIFT STATION NOTES:

1. CONTRACTOR SHALL ENSURE THAT ADEQUATE PROVISIONS BE MADE TO FACILITATE REMOVING PUMPS, MOTORS, AND OTHER MECHANICAL AND ELECTRICAL EQUIPMENT. INDIVIDUAL PUMP AND MOTOR REMOVAL SHALL NOT INTERFERE WITH THE CONTINUED OPERATION OF REMAINING PUMPS.
2. PROVIDE ANTI-BUOYANCY COLLAR TO WET WELL AS INDICATED IN DETAIL SECTION A-A ON PLAN SHEET C203. COLLAR SHALL BE 12" HIGH BY 12" WIDE AND SHALL BE INTEGRAL TO THE PRECAST BASE SECTION OF THE WET WELL.
3. CONTRACTOR SHALL PROVIDE DUPLEX PUMP STATION WITH BOTH PUMPS RATED FOR 251 GPM AT 66' TDH PROVIDED BY ABS PUMPS, INC. CONTRACTOR SHALL INCLUDE START-UP AND TESTING SERVICES BY SUPPLIER WITHIN THEIR SCOPE.
4. PUMPS HANDLING RAW WASTEWATER SHALL BE CAPABLE OF PASSING SOLID SPHERES OF AT LEAST 3 INCHES IN DIAMETER.
5. ELECTRICAL SYSTEMS AND COMPONENTS IN RAW WASTEWATER WET WELLS, OR IN ENCLOSED OR PARTIALLY ENCLOSED SPACES WHERE HAZARDOUS CONCENTRATIONS OF FLAMMABLE GASES OR VAPORS MAY BE PRESENTS, SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE REQUIREMENTS.
6. WATER LEVEL CONTROL SENSING DEVICES SHOULD BE LOCATED TO PREVENT UNDUE AFFECTS FROM TURBULENT FLOWS ENTERING THE WELL OR BY THE TURBULENT SUCTION OF THE PUMPS.
7. THE WET WELL FLOOR SHALL HAVE A MINIMUM SLOPE OF 1 TO 1 TO THE HOPPER BOTTOM. SEE SHEET C203 FOR REQUIREMENTS.
8. CONTRACTOR SHALL INSTALL A MISSION M800 REAL TIME RTU AND SIEMENS SITRANS F M MAG 5100 W FLOW METER (DN 150) WITH A SIGNAL CONVERTOR MAG 6000, PROVIDED BY J.M. PROCESS EQUIPMENT CO. (708-429-3040), FOR MEASURING WASTEWATER FLOW SHALL BE PROVIDED AT ALL PUMPING STATIONS. M800 SHALL BE ENCLOSED WITHIN THE NEMA 4X ENCLOSURE. SHALL HAVE THE CAPABILITY FOR EIGHT DIGITAL INPUTS (DI) AND TWO ANALOG INPUTS (AI).
9. SUBMERSIBLE PUMPS AND MOTORS SHALL BE DESIGNED SPECIFICALLY FOR RAW WASTEWATER USE, INCLUDING TOTALLY SUBMERGED OPERATION DURING A PORTION OF EACH PUMPING CYCLE, AND SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE FOR SUCH UNITS. AN EFFECTIVE METHOD TO DETECT SHAFT SEAL FAILURE OR POTENTIAL SEAL FAILURE SHALL BE PROVIDED.
10. CONTRACTOR SHALL INSURE THAT SUBMERSIBLE PUMPS BE READILY REMOVABLE AND REPLACEABLE WITHOUT PERSONNEL ENTERING OR DEWATERING THE WET WELL OR DISCONNECTING ANY PIPING IN THE WET WELL BY USING STAINLESS STEEL CHAINS AND GUIDE RAIL SYSTEM.
11. PUMPS SHALL BE XFP 100E CB1.4 PE90/4 FROM ABS AND MAINTAIN 28" SEPARATION FROM CENTER TO CENTER. WET WELL DESIGNED TO FIT XFP 150M-CB2 60HZ FROM THE XFP PE4-PE7 SERIES FOR THE FUTURE FLOW



1 C202 MICHIGAN CITY DETAIL - LIFT STATION FENCE
NOT TO SCALE



NOTE: (MINIMUM SIZE) WITHOUT PERMANENT ELECTRICAL GENERATOR.

2 C202 MICHIGAN CITY DETAIL - PUMP STATION SITE PLAN
NOT TO SCALE

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
LIFT STATION PUMP STATION DETAIL

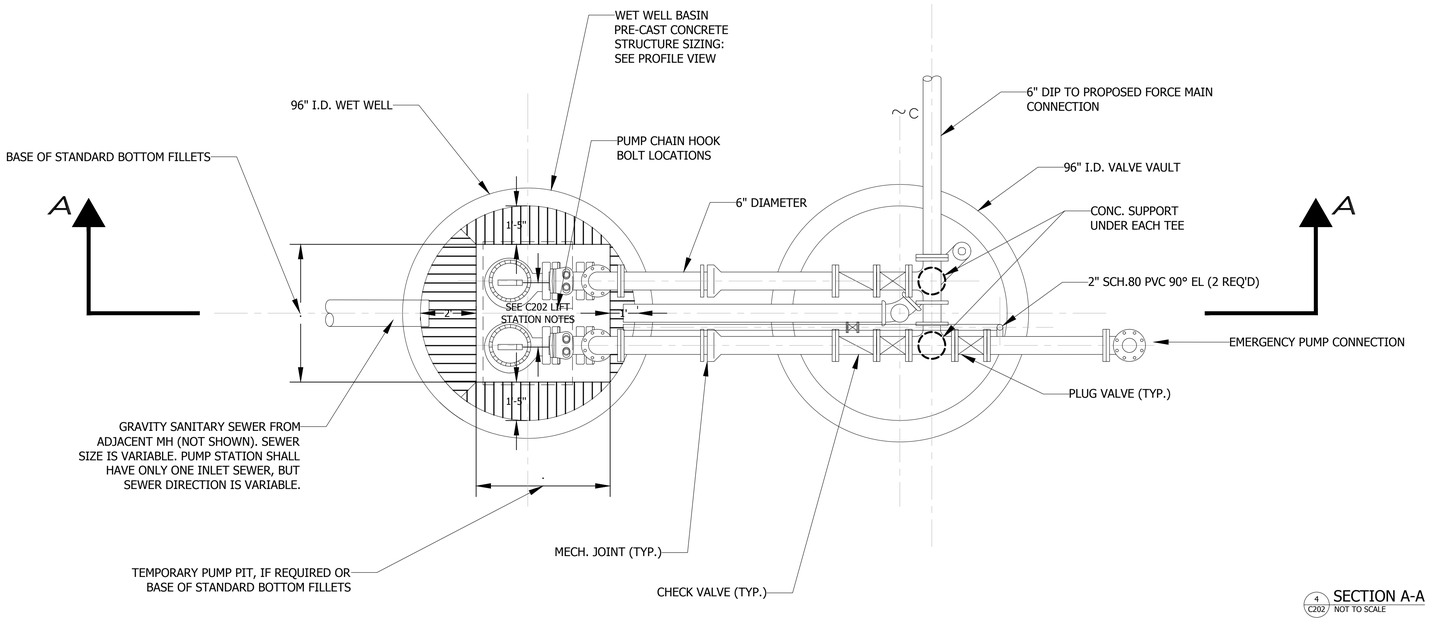
#	Revision	Date

Project Number: 18-400-024-1
Designed By: B.J.N.
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PAUL W. VINCENT REGISTERED No. PE10200112 STATE OF INDIANA PROFESSIONAL ENGINEER

LIFT STATION
PUMP STATION DETAIL

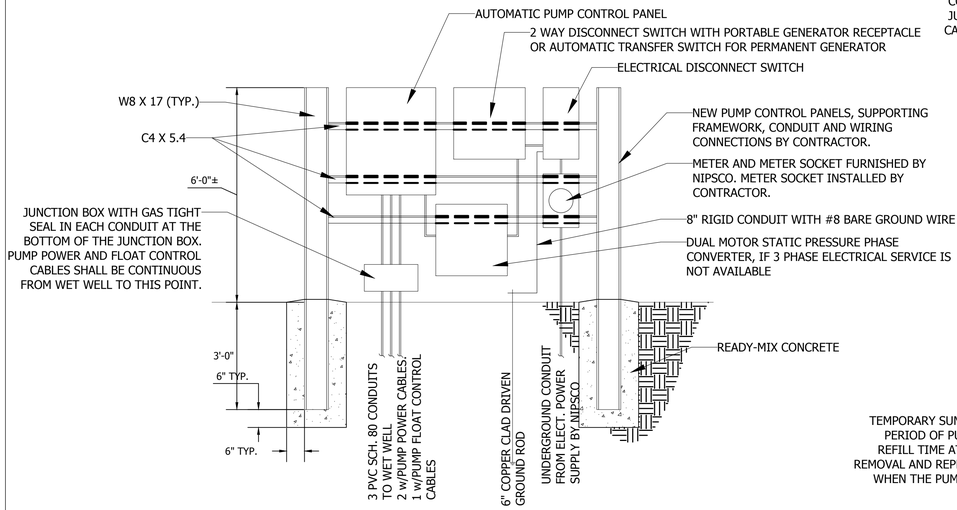
C202



4 C202 MICHIGAN CITY DETAIL - PUMP STATION
NOT TO SCALE

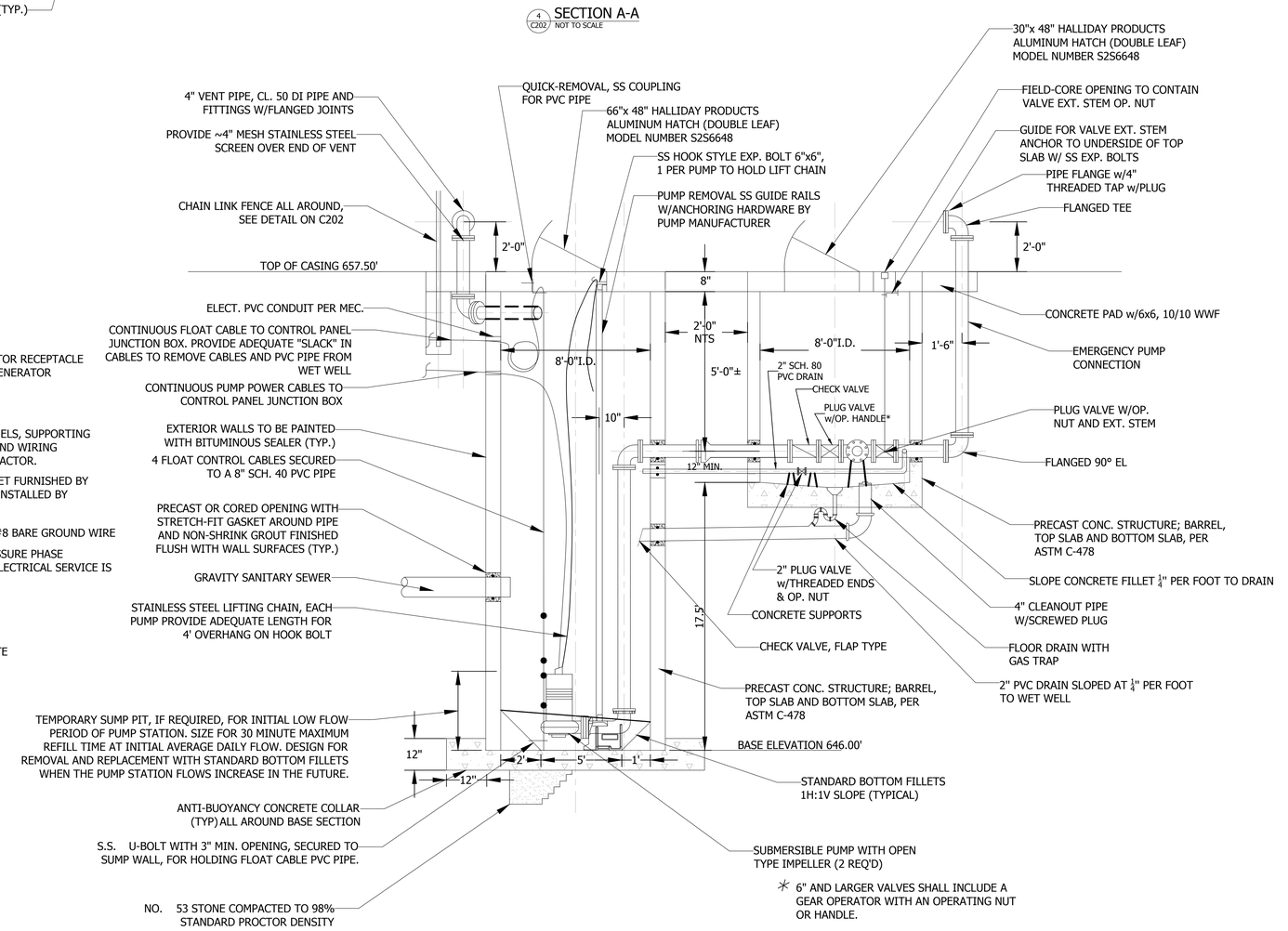
NOTE:
BURIED PIPE SHALL HAVE DI MECHANICAL JOINTS, UNLESS INDICATED OTHERWISE.
PIPE WITHIN WET WELL AND VALVE VAULT SHALL BE CL 50 DI FLANGED JOINTS.

PUMP STATION SCHEDULE	
TOP OF STRUCTURE=	657.50'
LOWEST INVERT INTO WET WELL =	646.00'
ALARM LEVEL =	637.00'
LAG PUMP ON =	636.00'
LEAD PUMP ON =	635.00'
PUMP OFF =	634.00'
TOP OF PUMP VOLUTE =	632.00'
BOTTOM OF WET WELL =	631.50'
FORCEMAIN I.E. DISCHARGE =	650.83'



3 C202 MICHIGAN CITY DETAIL - AUTOMATIC PUMP CONTROLS
NOT TO SCALE

4 C202 SECTION A-A
NOT TO SCALE



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
LIFT STATION PUMP STATION DETAIL

#	Revision	Date

Project Number: 18-400-024-1
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PAUL W. VINCENT
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No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

LIFT STATION
PUMP STATION DETAIL

C203

Know what's below. Call before you dig.
CALL 2 WORKING DAYS BEFORE YOU DIG

SITE UTILITY PLAN LEGEND:

- PROPERTY LINE
- PROPOSED CONSTRUCTION LIMITS
- XX" ST — EXISTING STORM SEWER
- XX" SS — EXISTING SANITARY SEWER
- XX" W — EXISTING WATER LINE
- XX" GAS — EXISTING GAS LINE
- OHE — EXISTING ELECTRIC LINE
- XX" ST — PROPOSED STORM SEWER
- XX" SS — PROPOSED SANITARY SEWER
- XX" W — PROPOSED WATER LINE

- PROPOSED STORM MANHOLE
- PROPOSED BEEHIVE INLET
- PROPOSED STORM INLET
- PROPOSED CURB INLET
- PROPOSED CLEANOUT
- PROPOSED SANITARY MANHOLE
- PROPOSED LIGHT POLE
- PROPOSED WATER METER
- PROPOSED WATER VALVE
- PROPOSED POST INDICATOR VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED GAS METER
- PROPOSED GAS VALVE
- PROPOSED ELECTRIC METER

SITE UTILITY PLAN NOTES:

1. RIM OR TOP OF CASTING ELEVATION EQUALS THE LOWEST POINT ON THE CASTING WHERE WATER ENTERS THE STRUCTURE OR THE TOP OF A SOLID CASTING.
2. PIPE LENGTHS ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE OR END OF PIPE END SECTION.
3. WATER MAINS THROUGHOUT THE PROJECT SHALL BE INSTALLED WITH AT LEAST 60 INCHES OF COVER FROM FINISH GRADE TO TOP OF WATER LINE. CONTRACTOR TO PROVIDE ALL FITTINGS REQUIRED TO ASSURE PROPER INSTALLATION OF WATER MAINS AND LATERALS.
4. ELECTRICAL CONDUIT SHALL BE INSTALLED AT A MINIMUM OF 36 INCHES BELOW THE FINISH GRADE. ENDS OF THE CONDUIT SHALL BE MARKED BY INSTALLING A 4X4 WOOD POST PAINTED RED.
5. LOCATIONS OF EXISTING UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE. THE CONTRACTOR IS TO FIELD VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS PRIOR TO CONSTRUCTION.
6. CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY COORDINATION WITH LOCAL JURISDICTION AND ALL RESPECTIVE UTILITY COMPANIES FOR GAS, ELECTRIC, TELEPHONE, AND CABLE SERVICES.
7. CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PROVIDING TRAFFIC CONTROL PER LOCAL STANDARDS AND REQUIREMENTS. ALL STREET CUTS SHALL BE REPAIRED PER LOCAL REQUIREMENTS.
8. FOR VIEWING CLARITY OF THESE CONSTRUCTION PLANS, PIPES OR STRUCTURES MAY NOT BE SHOWN TO SCALE.
9. ALL UTILITY MATERIALS AND INSTALLATION SHALL CONFORM TO LOCAL STANDARDS FOR EACH UTILITY AGENCY HAVING JURISDICTION.
10. IN THE EVENT OF A CONFLICT BETWEEN WATER LINES AND STORM DRAINS, THE CONTRACTOR SHALL EITHER ADJUST THE WATER LINE DOWNWARD IN SUCH A MANNER SO THAT THE PIPE MANUFACTURER'S RECOMMENDATIONS ON PIPE DEFLECTION AND JOINT STRESS ARE NOT EXCEEDED OR THE CONTRACTOR SHALL PROVIDE APPROPRIATE BENDS AND CROSSINGS.
11. WATER AND SEWER MAIN CROSSINGS SHALL BE IN ACCORDANCE WITH 10 STATE STANDARDS. WATER AND SEWER MAINS SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET FROM EDGE OF PIPE TO EDGE OF PIPE. WATER PIPES CROSSING ABOVE SEWER PIPES MUST HAVE A MINIMUM VERTICAL SEPARATION OF 18 INCHES CLEARANCE BETWEEN PIPES. IF THESE STANDARDS CANNOT BE MET THEN THE SEWER PIPE SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE FOR AT LEAST 10 FEET, MEASURED PERPENDICULAR TO THE WATER LINE, ON EITHER SIDE OF THE CROSSING. NO JOINT ON THE DUCTILE IRON PIPE SHALL BE LESS THAN 5 FEET PERPENDICULAR FROM THE WATER LINE.
12. THE CONTRACTOR SHALL CONTACT ENGINEER FOR ALL QUESTIONS REGARDING UTILITY PLAN DISCREPANCIES AND/OR CONFLICTS IN THE FIELD.

UTILITY CONTACT INFORMATION:

1. STORM SEWER - MICHIGAN CITY SANITARY DISTRICT GENERAL MANAGER:
   MICHAEL KUSS ; mkuss@mcsan.org ; (219) 874-7799
2. SANITARY SEWER- MICHIGAN CITY SANITARY DISTRICT GENERAL MANAGER:
   MICHAEL KUSS ; mkuss@mcsan.org ; (219) 874-7799
3. WATER - MICHIGAN CITY WATER SUPERINTENDENT:
   RANDY RUSSELL ; rrussell@mcwaterdept.com ; (219) 874-3228
4. GAS - ANR PIPELINE :
   LAWRENCE JASKOWIEC ; lawrence_jaskowiec@transcanada.com;(248) 205-7550

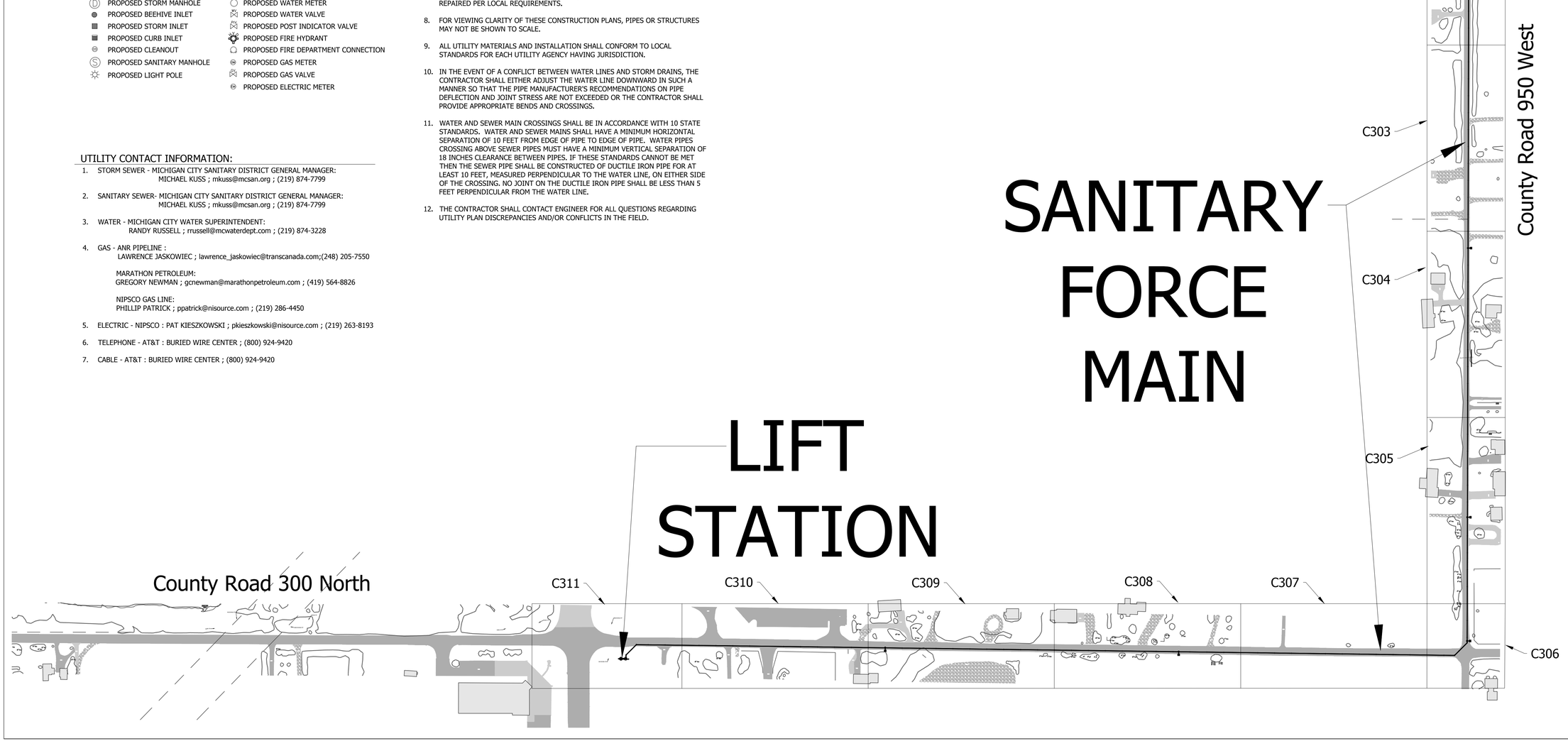
   MARATHON PETROLEUM:
   GREGORY NEWMAN ; gcnewman@marathonpetroleum.com ; (419) 564-8826

   NIPSCO GAS LINE:
   PHILLIP PATRICK ; ppatrick@nisource.com ; (219) 286-4450
5. ELECTRIC - NIPSCO : PAT KIESZKOWSKI ; pkieszkowski@nisource.com ; (219) 263-8193
6. TELEPHONE - AT&T : BURIED WIRE CENTER ; (800) 924-9420
7. CABLE - AT&T : BURIED WIRE CENTER ; (800) 924-9420

DISCHARGE LOCATION

SANITARY FORCE MAIN

LIFT STATION



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
FORCE MAIN OVERALL PLAN

#	Revision	Date

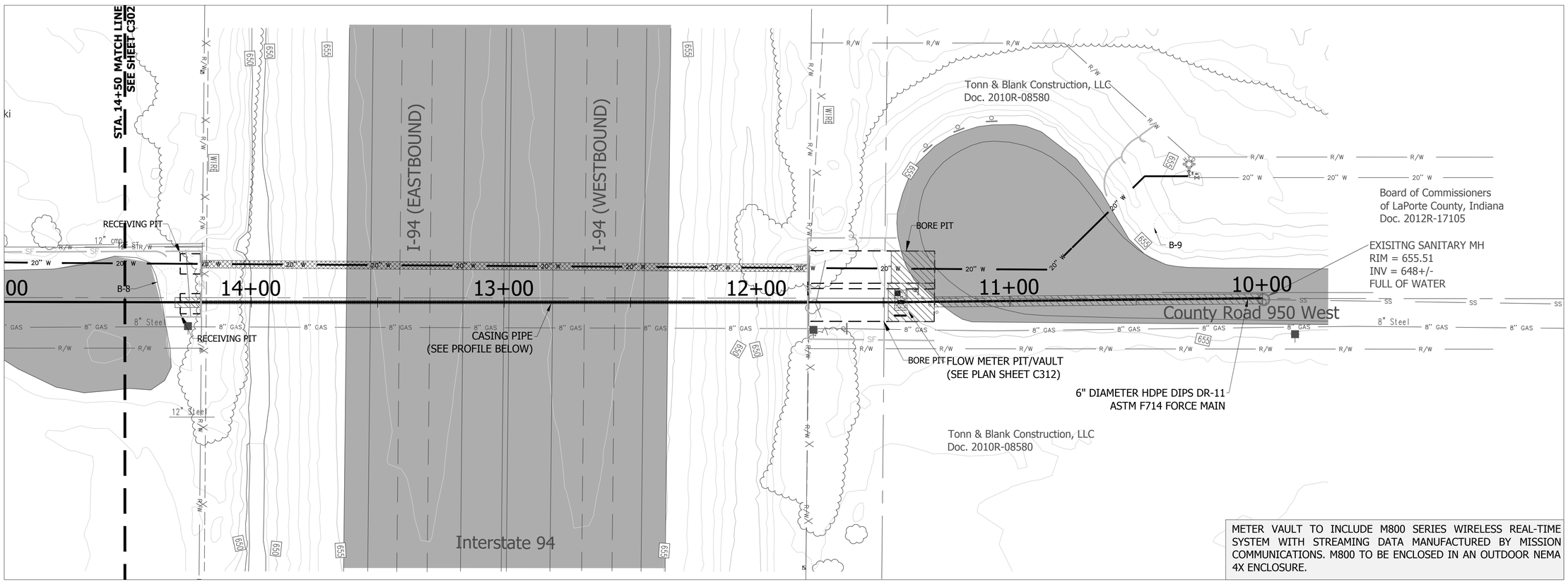
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

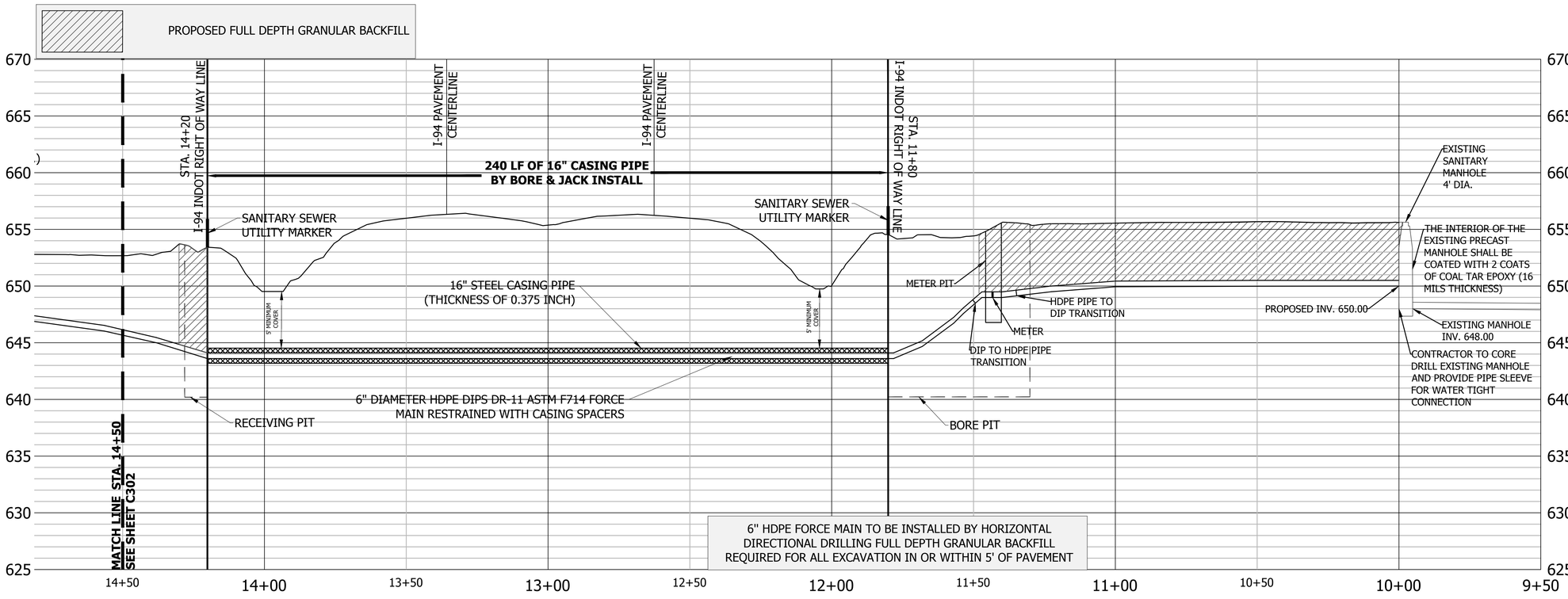
PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 150'
0 150' 300'
GRAPHIC SCALE
N

FORCE MAIN
OVERALL PLAN

C300





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN
STA. 10+00 TO STA. 14+50

#	Revision	Date

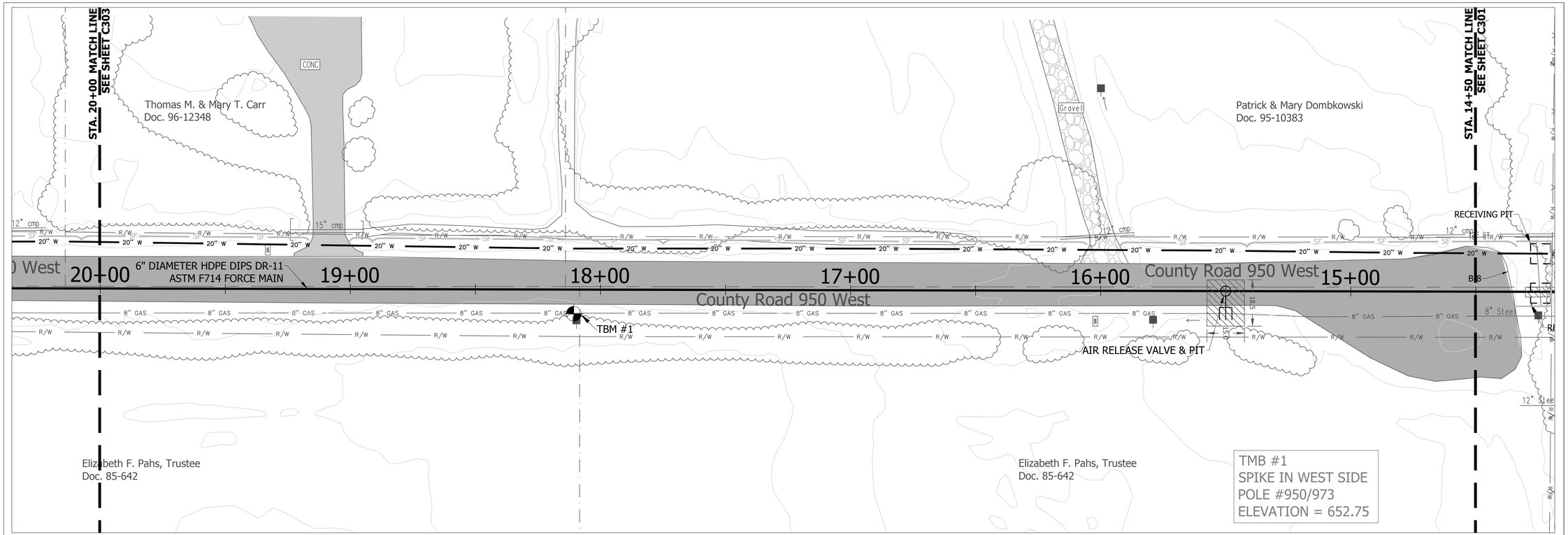
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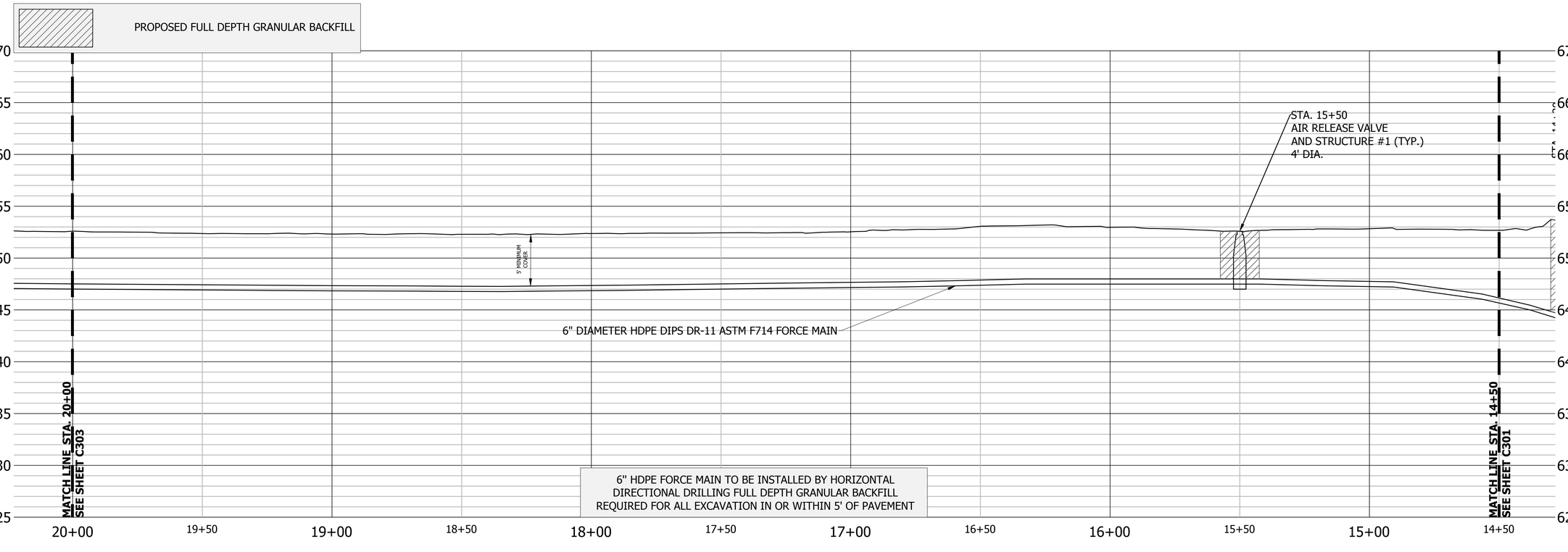
PAUL W. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

SANITARY SEWER
FORCE MAIN
STA. 10+00 TO STA. 14+50

C301





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN
STA. 14+50 TO STA. 20+00

#	Revision	Date

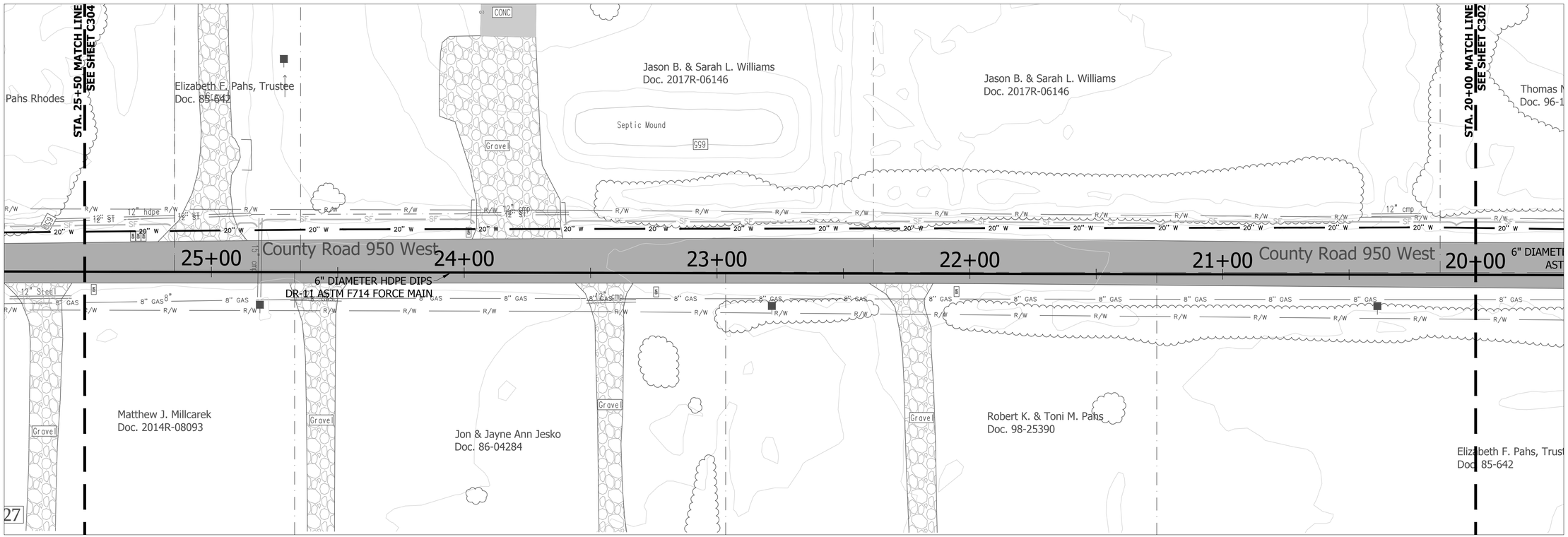
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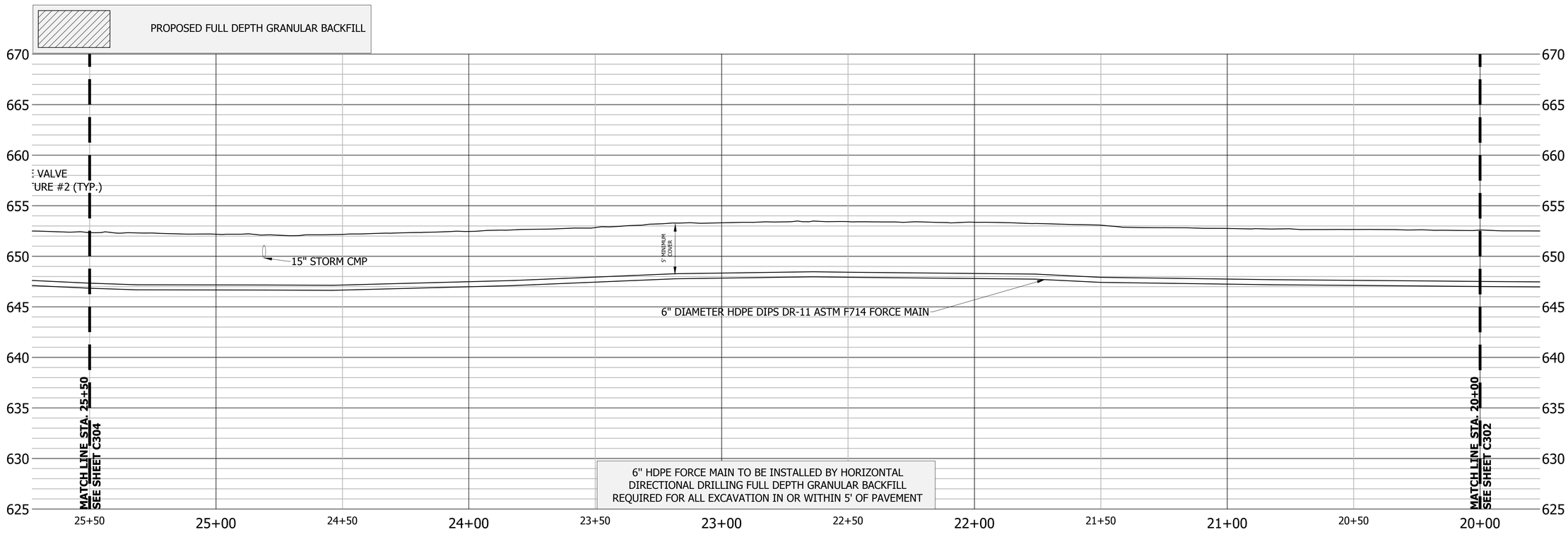
PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

SANITARY SEWER
FORCE MAIN
STA. 14+50 TO STA. 20+00

C302





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN
STA. 20+00 TO STA. 25+50

#	Revision	Date

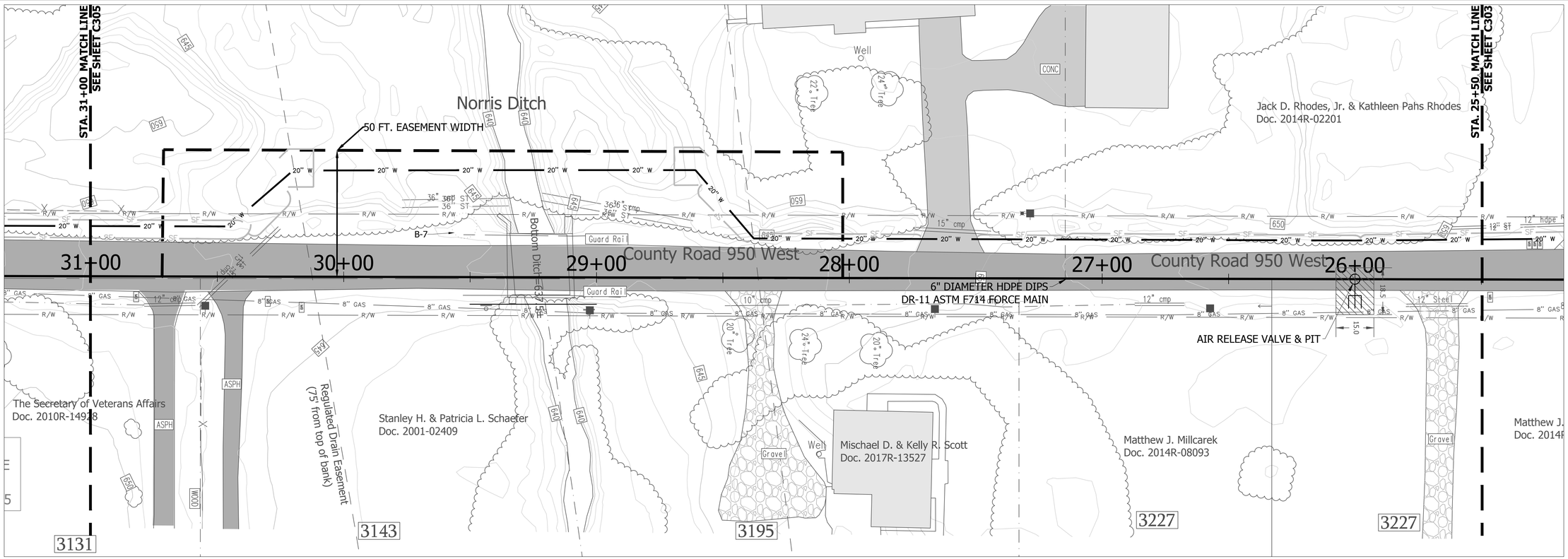
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Checked By: M.P.Z.
Date: 7/24/19

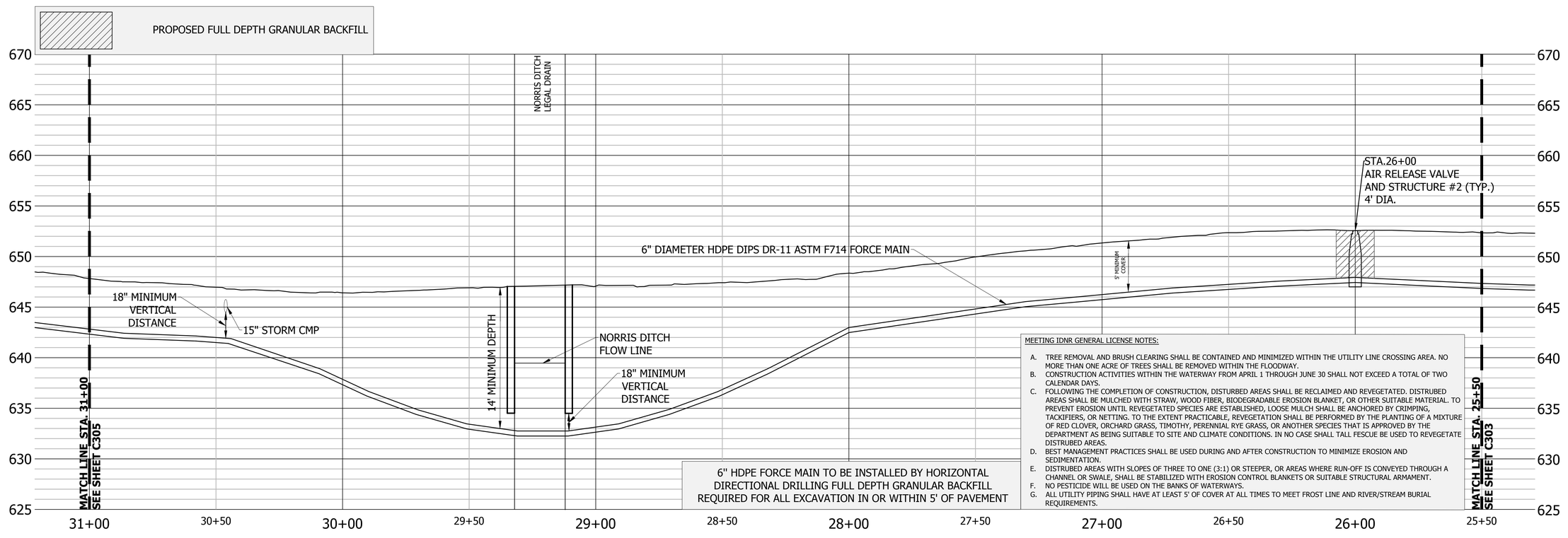
PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

SANITARY SEWER
FORCE MAIN
STA. 20+00 TO STA. 25+50

C303





6" HDPE FORCE MAIN TO BE INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING FULL DEPTH GRANULAR BACKFILL REQUIRED FOR ALL EXCAVATION IN OR WITHIN 5' OF PAVEMENT

MEETING IDNR GENERAL LICENSE NOTES:

A. TREE REMOVAL AND BRUSH CLEARING SHALL BE CONTAINED AND MINIMIZED WITHIN THE UTILITY LINE CROSSING AREA. NO MORE THAN ONE ACRE OF TREES SHALL BE REMOVED WITHIN THE FLOODWAY.
B. CONSTRUCTION ACTIVITIES WITHIN THE WATERWAY FROM APRIL 1 THROUGH JUNE 30 SHALL NOT EXCEED A TOTAL OF TWO CALENDAR DAYS.
C. FOLLOWING THE COMPLETION OF CONSTRUCTION, DISTURBED AREAS SHALL BE RECLAIMED AND REVEGETATED. DISTRUBED AREAS SHALL BE MULCHED WITH STRAW, WOOD FIBER, BIODEGRADABLE EROSION BLANKET, OR OTHER SUITABLE MATERIAL. TO PREVENT EROSION UNTIL REVEGETATED SPECIES ARE ESTABLISHED, LOOSE MULCH SHALL BE ANCHORED BY CRIMPING, TACKIFIERS, OR NETTING. TO THE EXTENT PRACTICABLE, REVEGETATION SHALL BE PERFORMED BY THE PLANTING OF A MIXTURE OF RED CLOVER, ORCHARD GRASS, TIMOTHY, PERENNIAL RYE GRASS, OR ANOTHER SPECIES THAT IS APPROVED BY THE DEPARTMENT AS BEING SUITABLE TO SITE AND CLIMATE CONDITIONS. IN NO CASE SHALL TALL FESCUE BE USED TO REVEGETATE DISTRUBED AREAS.
D. BEST MANAGEMENT PRACTICES SHALL BE USED DURING AND AFTER CONSTRUCTION TO MINIMIZE EROSION AND SEDIMENTATION.
E. DISTRUBED AREAS WITH SLOPES OF THREE TO ONE (3:1) OR STEEPER, OR AREAS WHERE RUN-OFF IS CONVEYED THROUGH A CHANNEL OR SWALE, SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS OR SUITABLE STRUCTURAL ARMAMENT.
F. NO PESTICIDE WILL BE USED ON THE BANKS OF WATERWAYS.
G. ALL UTILITY PIPING SHALL HAVE AT LEAST 5' OF COVER AT ALL TIMES TO MEET FROST LINE AND RIVER/STREAM BURIAL REQUIREMENTS.

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN
STA. 25+00 TO STA. 31+00

#	Revision	Date

Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL N. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

SANITARY SEWER
FORCE MAIN
STA. 25+00 TO STA. 31+00

C304

STA. 36+50 MATCH LINE SEE SHEET C306

STA. 31+00 MATCH LINE SEE SHEET C304

FT. EASEMENT WIDTH

County Road 950 West

36+00 35+00 34+00 33+00 32+00 31+00

6" DIAMETER HDPE DIPS DR-11
ASTM F714 FORCE MAIN

AIR RELEASE VALVE & PIT

TBM #2

Pipe Line - Blanket Easement
Deed Book 269, Page 321

Reigns of Life, Inc.
Doc. 2009R-12898

William Robertson Goodson
Doc. 2014R-10860

Edwin L. & Mary L. Amm
Doc. 89-08447

Raymond Peo, Daniel Peo, &
Doc. 2015R-13072

The Secretary of Veterans Affairs
Doc. 2010R-14928

TMB #2
SPIKE IN WEST SIDE
POLE #950/963
ELEVATION = 653.05

PROPOSED FULL DEPTH GRANULAR BACKFILL

STA. 33+95
AIR RELEASE VALVE
AND STRUCTURE #3 (TYP.)
4' DIA.

5' MINIMUM COVER

18" MIN
VER
DIST

6" DIAMETER HDPE DIPS DR-11 ASTM F714 FORCE MAIN

6" HDPE FORCE MAIN TO BE INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING FULL DEPTH GRANULAR BACKFILL REQUIRED FOR ALL EXCAVATION IN OR WITHIN 5' OF PAVEMENT

MATCH LINE STA. 36+50
SEE SHEET C306

MATCH LINE STA. 31+00
SEE SHEET C304

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN
STA. 31+00 TO STA. 36+50

#	Revision	Date

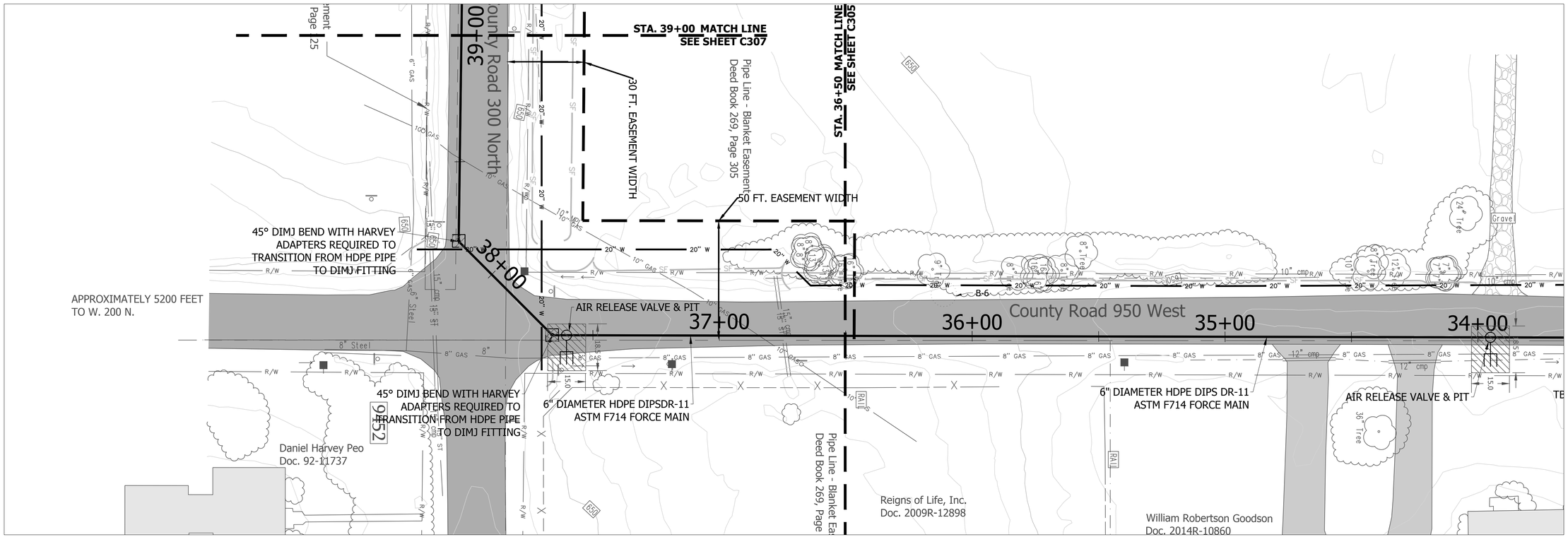
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

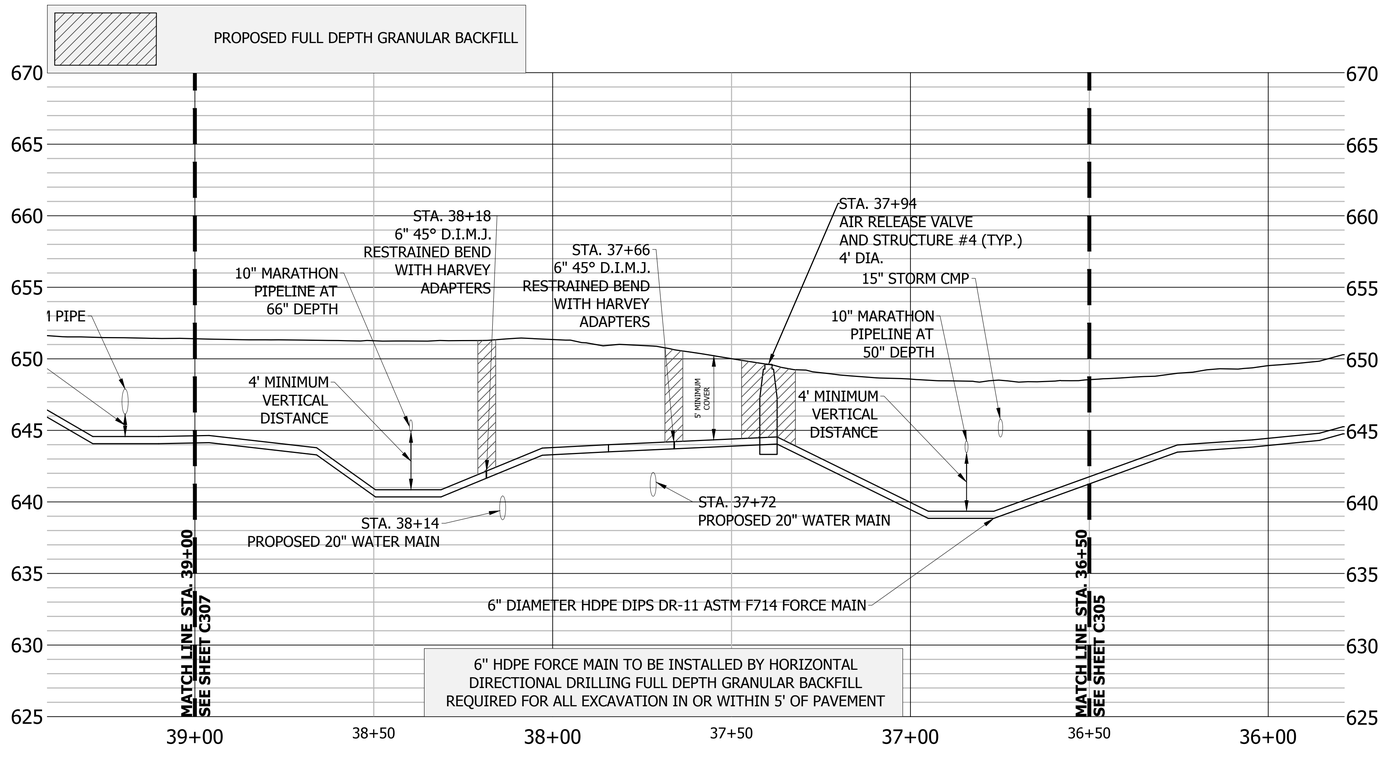
PAUL N. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

SANITARY SEWER
FORCE MAIN
STA. 31+00 TO STA. 36+50

C305





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN
STA. 36+50 TO STA. 39+00

#	Revision	Date

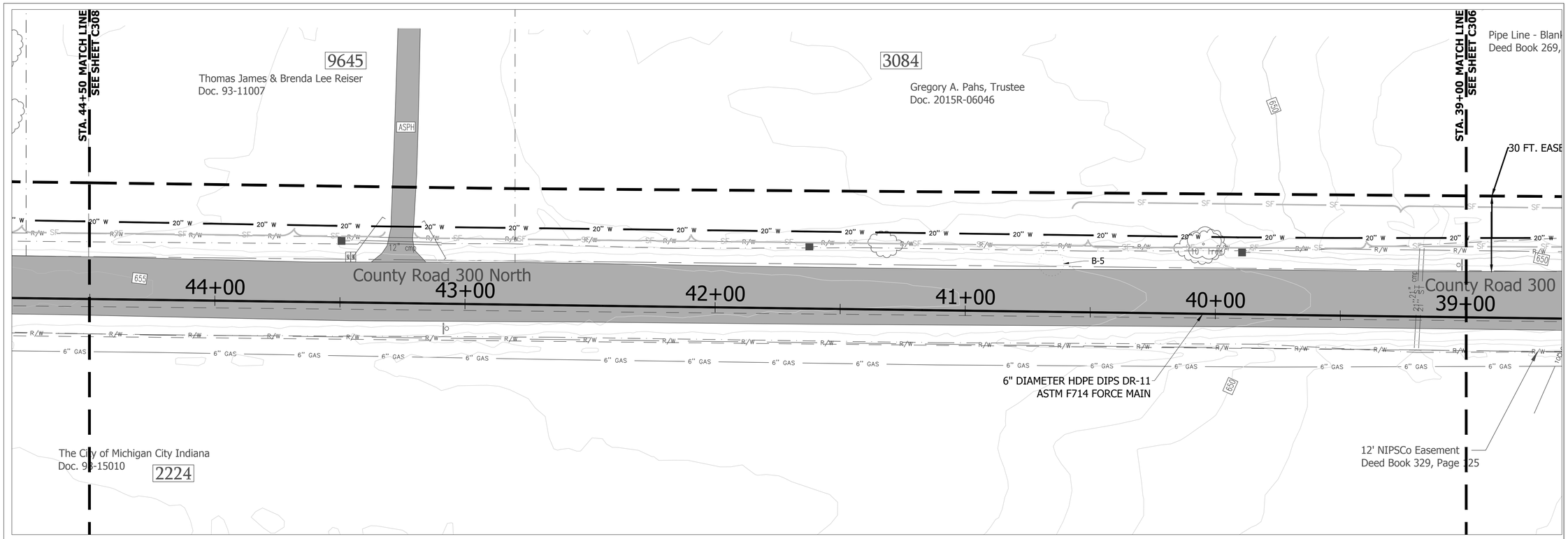
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

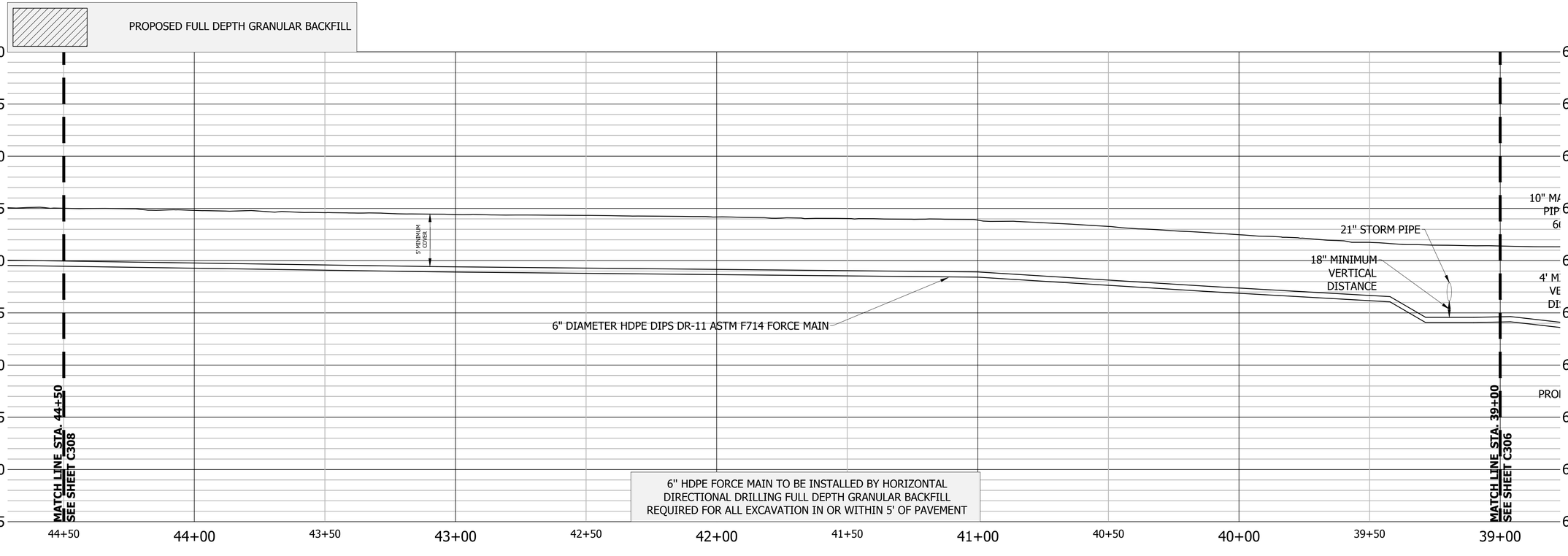
PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

SANITARY SEWER FORCE MAIN
STA. 36+50 TO STA. 39+00

C306





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN
STA. 39+00 TO STA. 44+50

#	Revision	Date

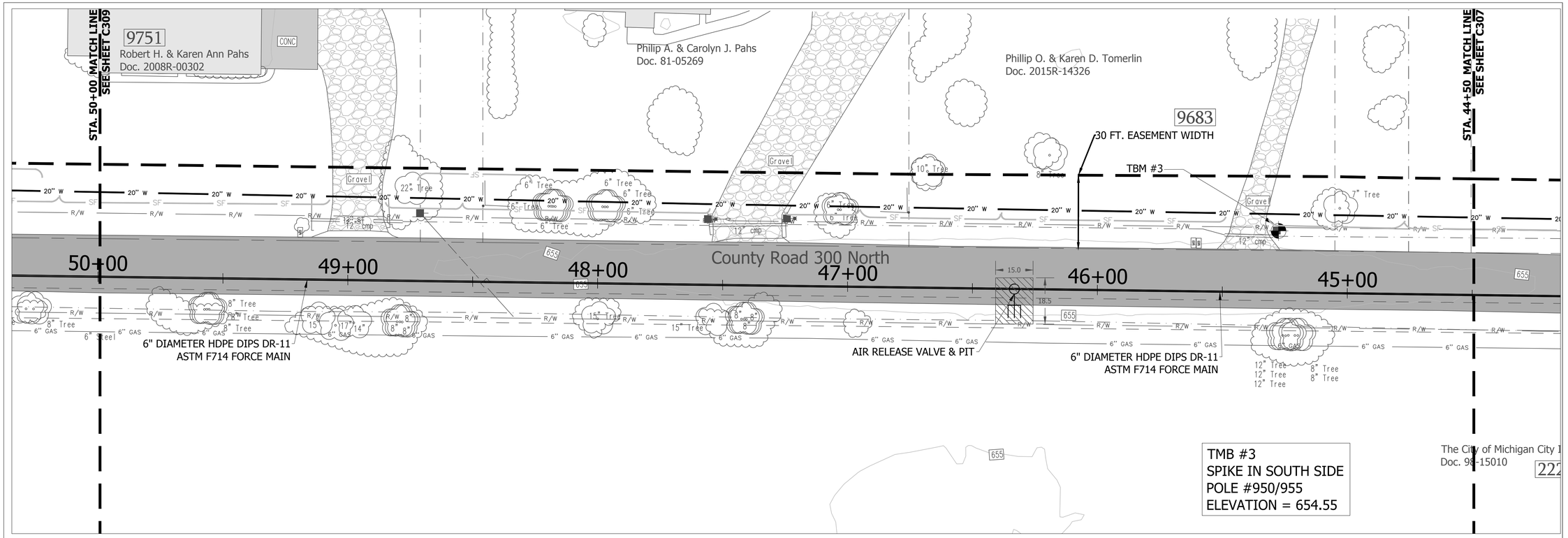
Project Number: 18-400-024-1
Designed By: H.R.N.
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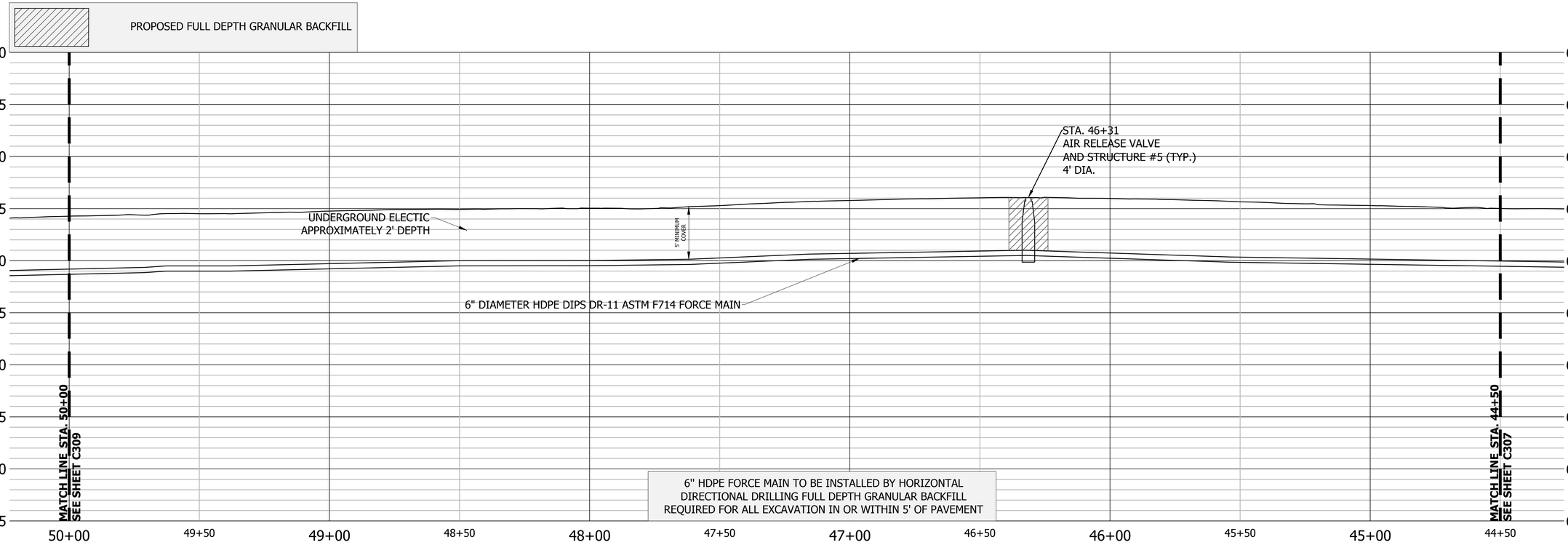
PAUL N. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

SANITARY SEWER
FORCE MAIN
STA. 39+00 TO STA. 44+50

C307





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN
STA. 44+50 TO STA. 50+00

#	Revision	Date

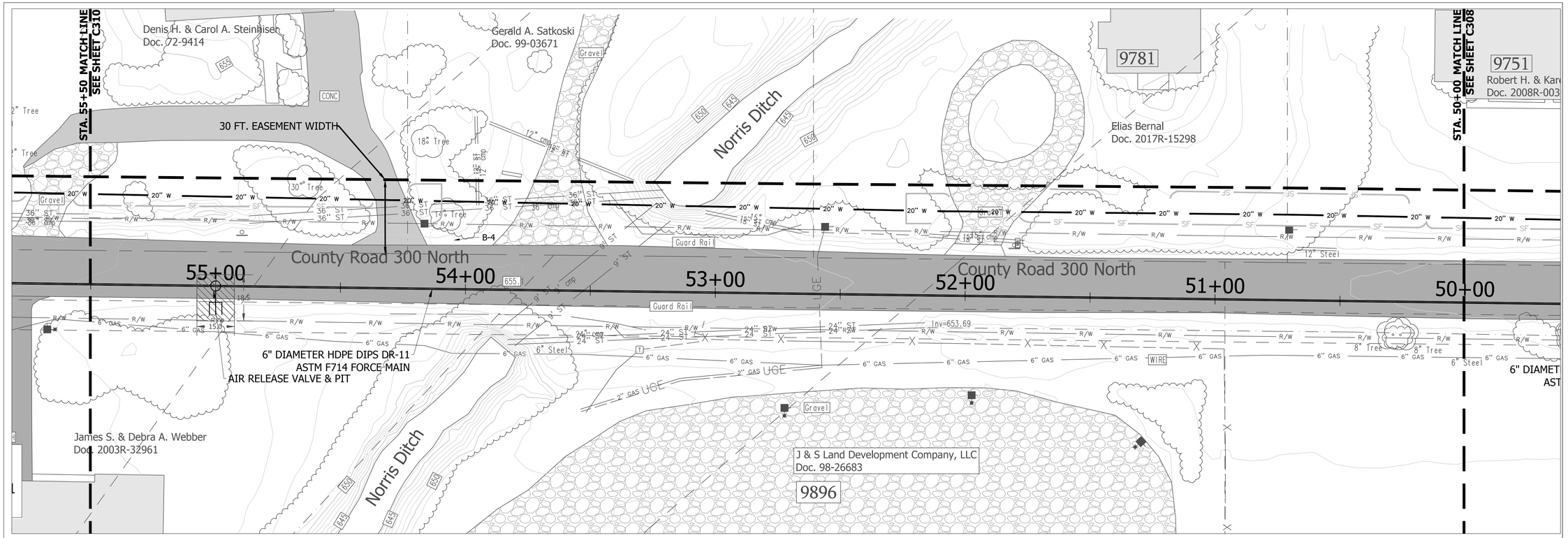
Project Number: 18-400-024-1
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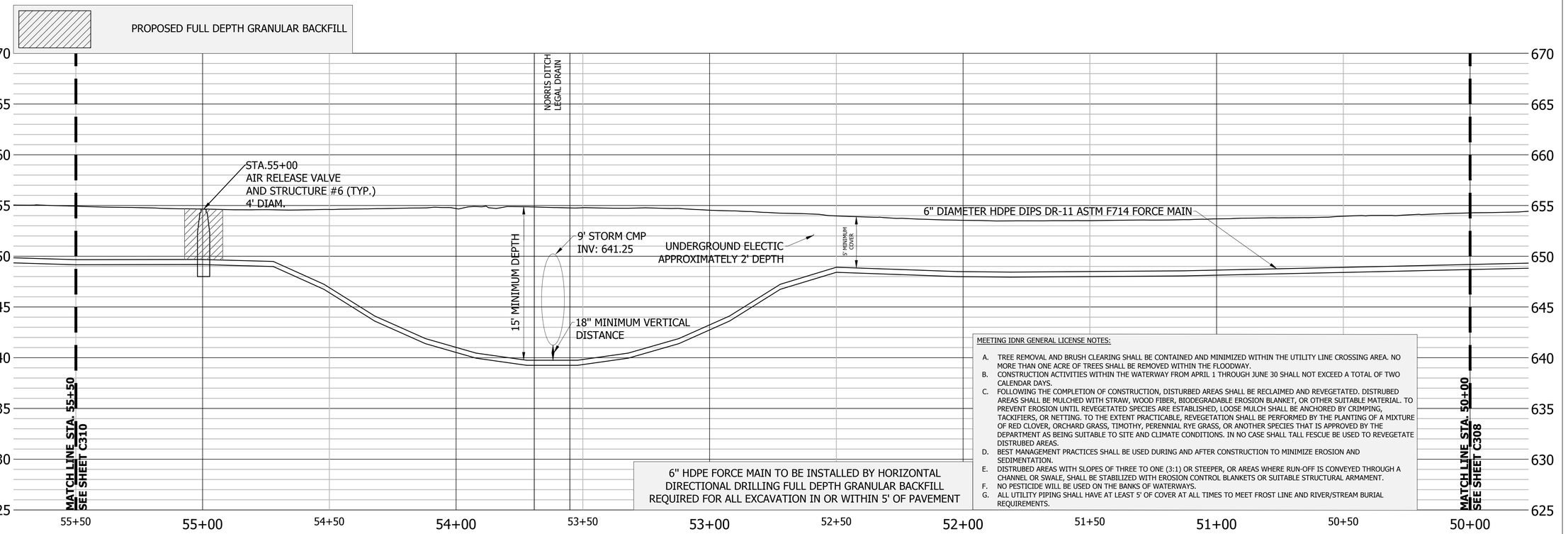
PAUL N. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

SANITARY SEWER
FORCE MAIN
STA. 44+50 TO STA. 50+00

C308





MEETING IDNR GENERAL LICENSE NOTES:

A. TREE REMOVAL AND BRUSH CLEARING SHALL BE CONTAINED AND MINIMIZED WITHIN THE UTILITY LINE CROSSING AREA. NO MORE THAN ONE ACRE OF TREES SHALL BE REMOVED WITHIN THE FLOODWAY.
B. CONSTRUCTION ACTIVITIES WITHIN THE WATERWAY FROM APRIL 1 THROUGH JUNE 30 SHALL NOT EXCEED A TOTAL OF TWO CALENDAR DAYS.
C. FOLLOWING THE COMPLETION OF CONSTRUCTION, DISTURBED AREAS SHALL BE RECLAIMED AND REVEGETATED. DISTRUBED AREAS SHALL BE MULCHED WITH STRAW, WOOD FIBER, BIODEGRADABLE EROSION BLANKET, OR OTHER SUITABLE MATERIAL. TO PREVENT EROSION UNTIL REVEGETATED SPECIES ARE ESTABLISHED, LOOSE MULCH SHALL BE ANCHORED BY CRIMPING, TACKIFIERS, OR NETTING. TO THE EXTENT PRACTICABLE, REVEGETATION SHALL BE PERFORMED BY THE PLANTING OF A MIXTURE OF RED CLOVER, ORCHARD GRASS, TIMOTHY, PERENNIAL RYE GRASS, OR ANOTHER SPECIES THAT IS APPROVED BY THE DEPARTMENT AS BEING SUITABLE TO SITE AND CLIMATE CONDITIONS. IN NO CASE SHALL TALL FESCUE BE USED TO REVEGETATE DISTRUBED AREAS.
D. BEST MANAGEMENT PRACTICES SHALL BE USED DURING AND AFTER CONSTRUCTION TO MINIMIZE EROSION AND SEDIMENTATION.
E. DISTRUBED AREAS WITH SLOPES OF THREE TO ONE (3:1) OR STEEPER, OR AREAS WHERE RUN-OFF IS CONVEYED THROUGH A CHANNEL OR SWALE, SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS OR SUITABLE STRUCTURAL ARMAMENT.
F. NO PESTICIDE WILL BE USED ON THE BANKS OF WATERWAYS.
G. ALL UTILITY PIPING SHALL HAVE AT LEAST 5' OF COVER AT ALL TIMES TO MEET FROST LINE AND RIVER/STREAM BURIAL REQUIREMENTS.

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN
STA. 50+00 TO STA. 55+50

#	Revision	Date

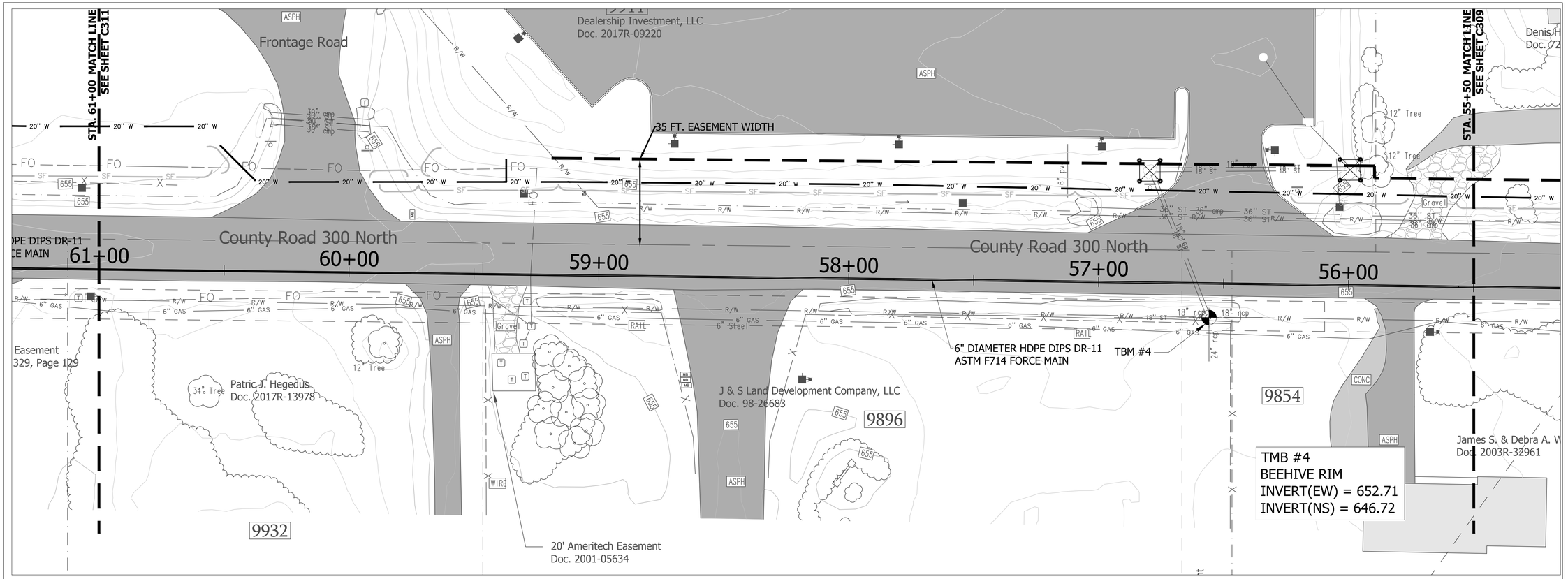
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

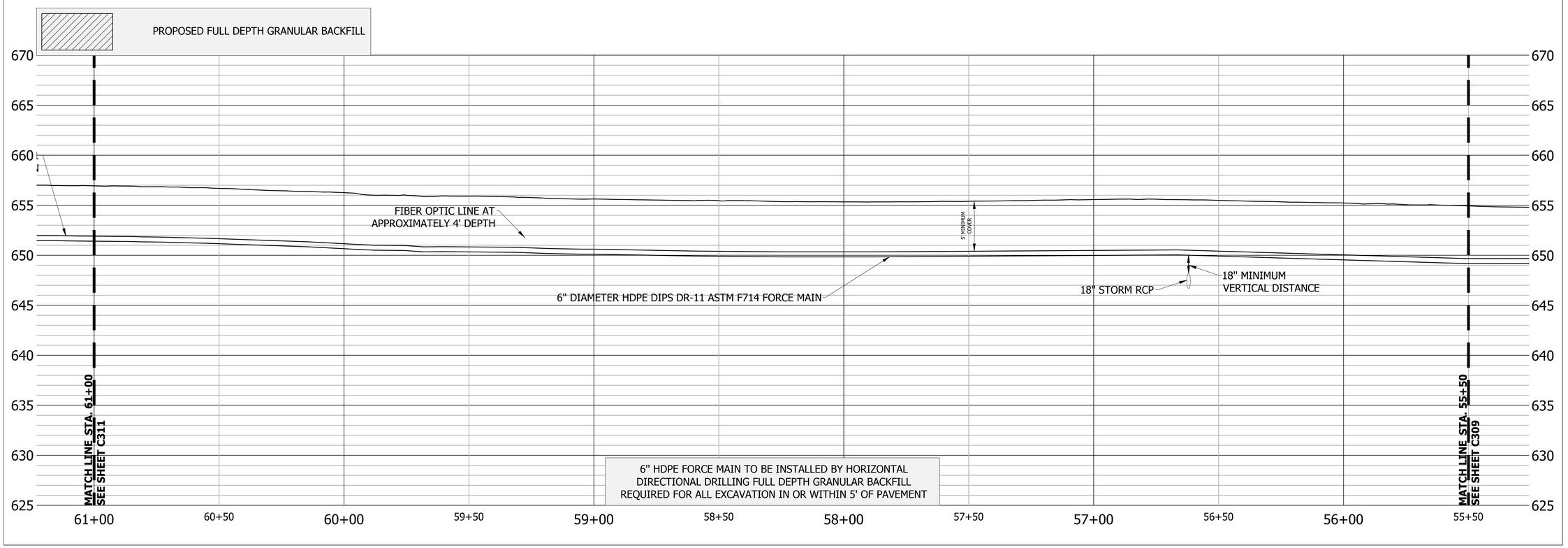
PAUL N. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

SANITARY SEWER
FORCE MAIN
STA. 50+00 TO STA. 55+50

C309





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN
STA. 55+50 TO STA. 61+00

#	Revision	Date

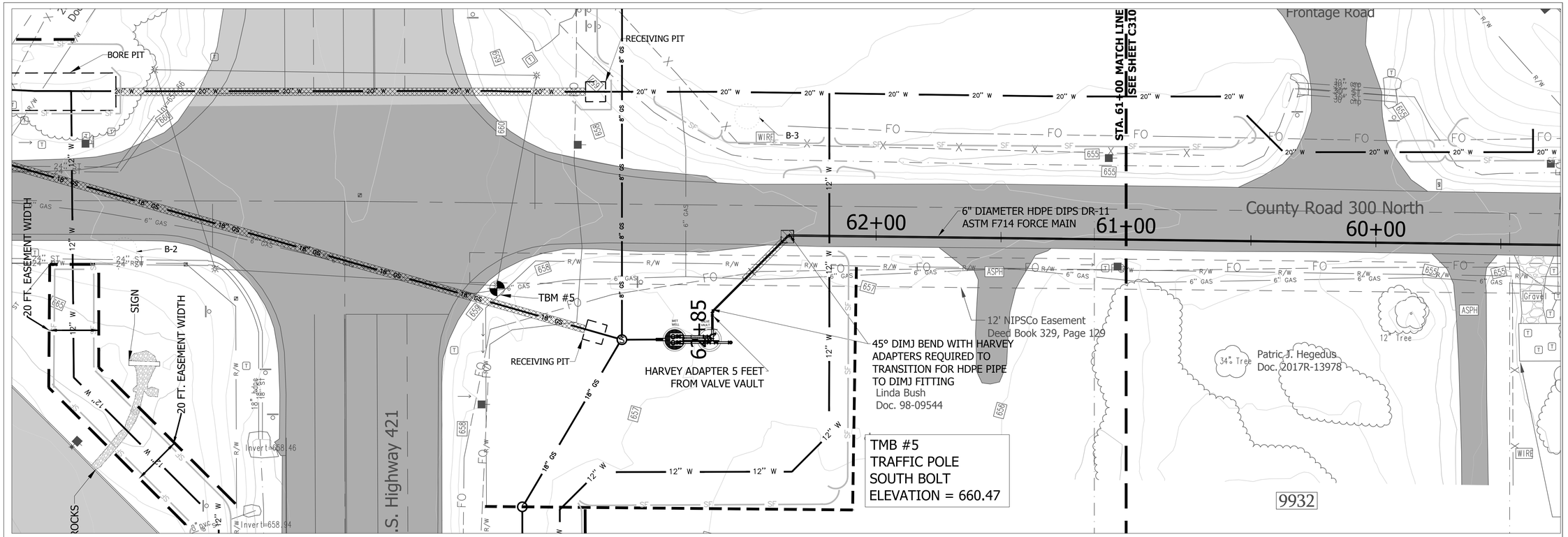
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
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Date: 7/24/19

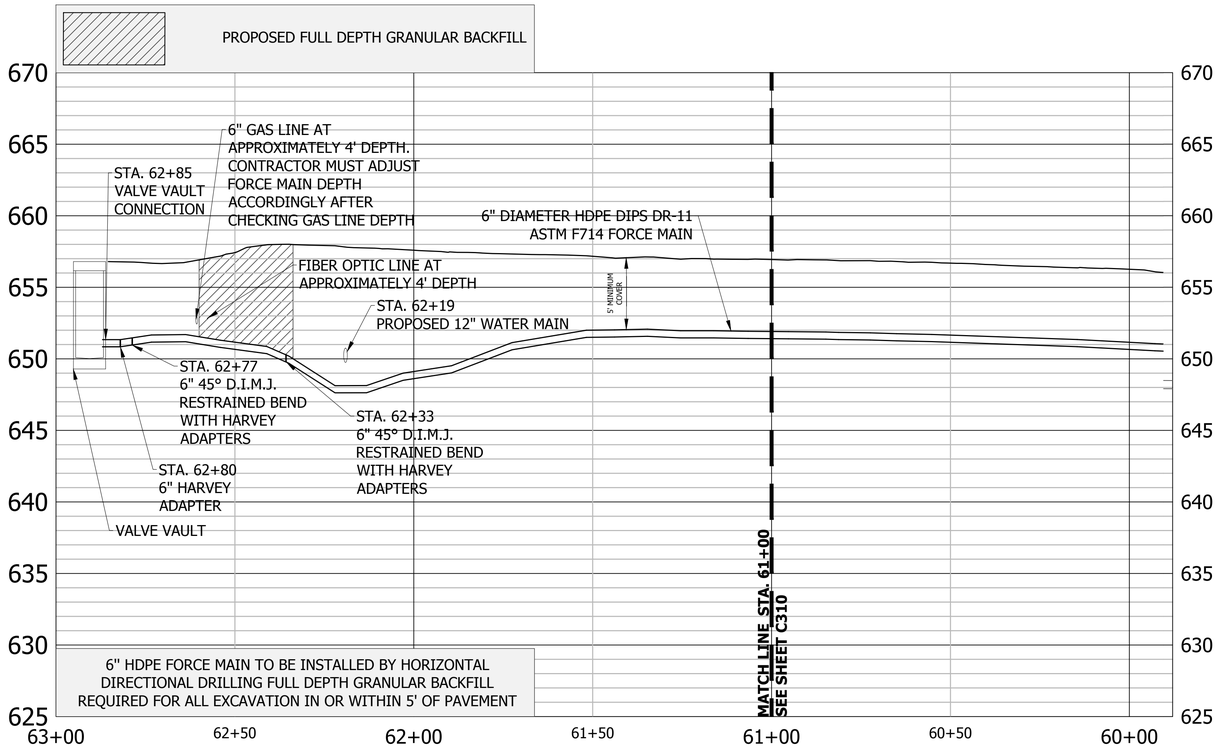
PAUL W. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

SANITARY SEWER
FORCE MAIN
STA. 55+50 TO STA. 61+00

C310





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN
STA. 61+00 TO STA. 62+91

#	Revision	Date

Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL N. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

SANITARY SEWER
FORCE MAIN
STA. 61+00 TO STA. 62+85

C311

METER VAULT NOTES

1. THE ELECTRICAL POWER SUPPLY AND THE TELEPHONE SYSTEM MONITORING SUPPLY FOR THE METER VAULT SHALL BE PROVIDED BY THE CONTRACTOR. ALL COORDINATION WITH THESE UTILITY COMPANIES AND THE COST OF THEIR FEES, PERMITS, AND INSTALLATION WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

2. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ALL LOCAL ELECTRICAL CODES AND THE ELECTRICAL UTILITY, NIPSCO.

3. ALL BURIED ELECTRICAL AND TELEPHONE CONDUIT SHALL BE MARKED WITH CONTINUOUS PLASTIC TAPE, 6 INCHES WIDE AND 4 MILS THICK MINIMUM AND BURIED DIRECTLY ABOVE THE CONDUIT, APPROXIMATELY 8 INCHES BELOW FINISHED GRADE.

4. THE METER VAULT CONTRACTOR SHALL MEET ON-SITE WITH MICHIGAN CITY SANITARY DISTRICT (MCSD) OFFICIALS AND THE ENGINEER AT THE FOLLOWING METER VAULT CONSTRUCTION TIME PERIODS: (1) PRIOR TO BEGINNING, (2) AT 50% COMPLETION AND (3) AT 100% COMPLETION START-UP OF THE METER VAULT. PRIOR TO SCHEDULING THE 100% COMPLETION START-UP WITH MCSD OFFICIALS, THE CONTRACTOR SHALL FULLY START-UP ALL METER VAULT EQUIPMENT.

5. CONTRACTOR SHALL ENSURE THAT ADEQUATE PROVISIONS BE MADE TO FACILITATE REMOVING METERS, PLUG VALVES, AND OTHER MECHANICAL AND ELECTRICAL EQUIPMENT.

6. ELECTRICAL SYSTEMS AND COMPONENTS IN RAW WASTEWATER WET WELLS, OR IN ENCLOSED OR PARTIALLY ENCLOSED SPACES WHERE HAZARDOUS CONCENTRATIONS OF FLAMMABLE GASES OR VAPORS MAY BE PRESENTS, SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE REQUIREMENTS.

7. CONTRACTOR SHALL INSTALL A SIEMENS SITRANS F M MAG 5100W FLOW METER (DN 150) WITH A SIGNAL CONVERTOR MAG 6000, MODEL NO.: 7ME6920-2EA10-1AA0. PROCESS EQUIPMENT CO. (708-429-3040), FOR MEASURING WASTEWATER FLOW SHALL BE PROVIDED AT ALL PUMPING STATIONS. THE MAG6000 SHALL BE ENCLOSED WITHIN THE NEMA 4X ENCLOSURE.

8. NIPSCO WILL PROVIDE A SERVICE CONNECTION UP THE THE METER BASE.

9. A 100 AMP, 240 VOLT, SINGLE THROW SAFETY SWITCH (OR DISCONNECT SWITCH) SHALL BE ENCLOSED WITHIN A NEMA 3R ENCLOSURE. A TWO CIRCUIT, 100 AMP METER MAIN SHALL BE USED. CONFIRM ALL CONNECTIONS WITH AN ELECTRICIAN.

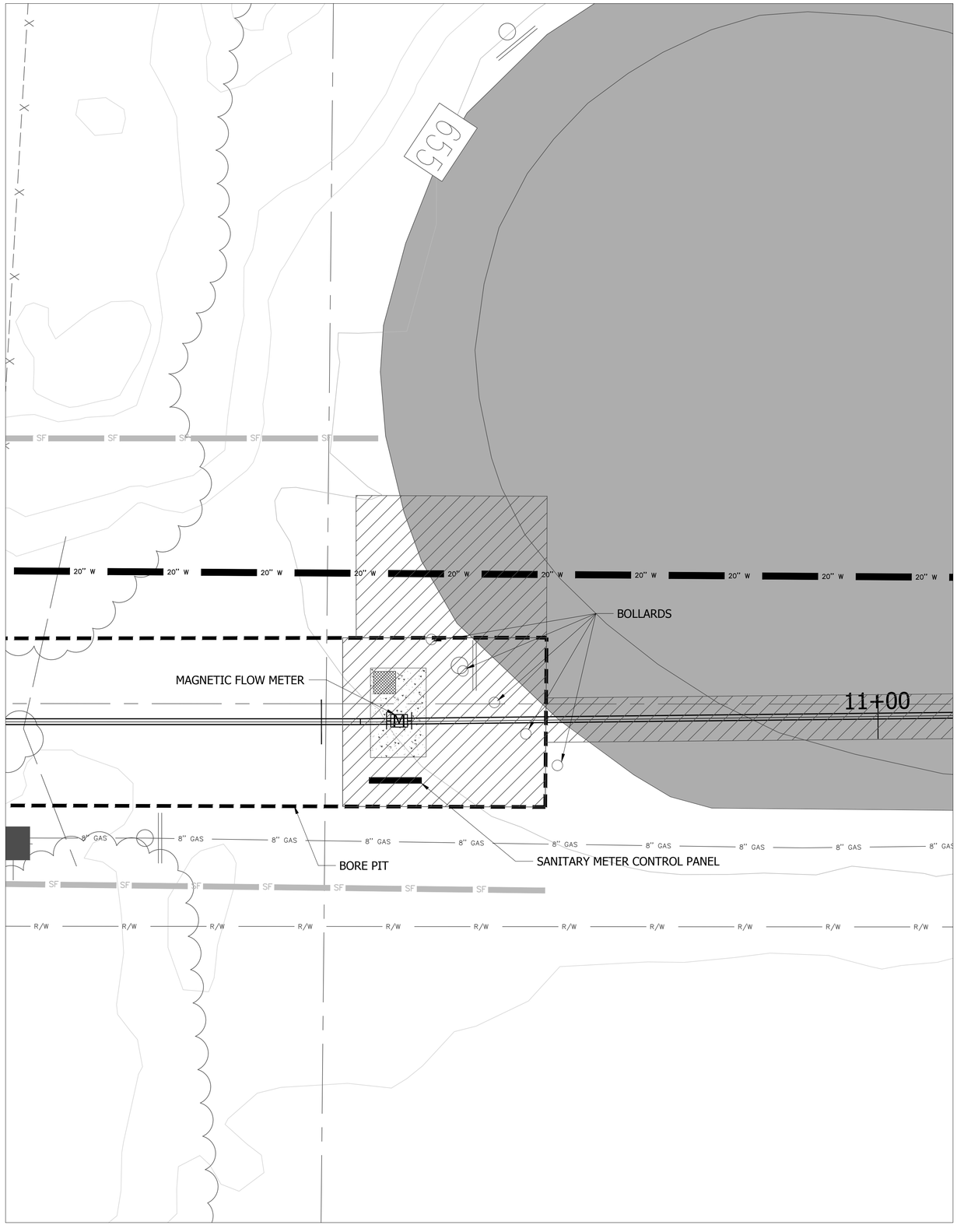
10. ALL WIRES SHALL BE PLACED WITHIN $\frac{1}{2}$" SCHEDULE 80 PVC CONDUIT.

NOTE:

CONTRACTOR TO ASSIST MICHIGAN CITY SANITARY DISTRICT IN SUBMITTING AN INSTALL ELECTRIC ORDER TO NIPSCO 20 DAYS PRIOR TO POWER BEING REQUIRED FOR OPERATION. 1-800-4-NIPSCO

NIPSCO TO INSTALL A TRANSFORMER ON EXISTING UTILITY POLE AND RUN 100 AMP, 120/240 VOLT SINGLE POWER FOR A NEW COMMERCIAL SERVICE LINE. A SITE VISIT BY NIPSCO TO CONFIRM METERING SITE LOCATIONS MUST BE SCHEDULED BEFORE CONSTRUCTION.

CONTACT PAT KIESZKOWSKI FOR ANY QUESTIONS. PKIESZKOWSKI@NISOURCE.COM
219.263.8193



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
METER PIT LAYOUT PLAN

#	Revision	Date

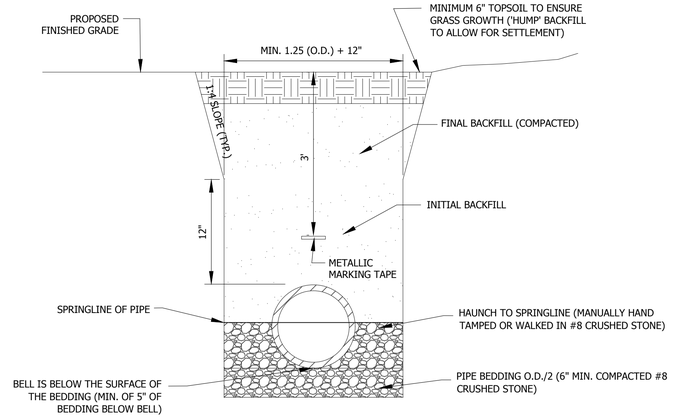
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

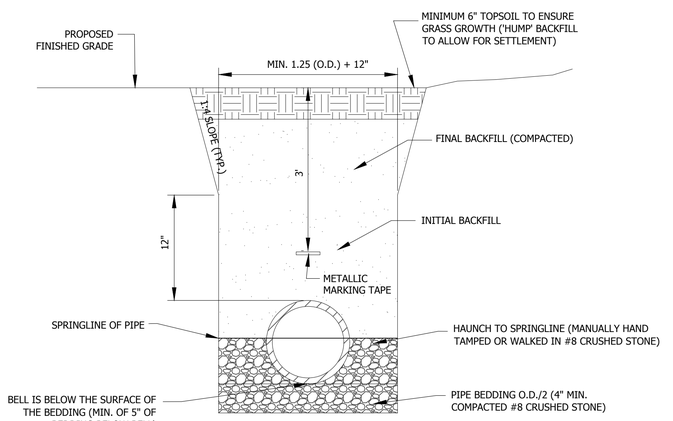
1" = 5'
0 5' 10'
GRAPHIC SCALE
N

METER PIT LAYOUT PLAN

C312

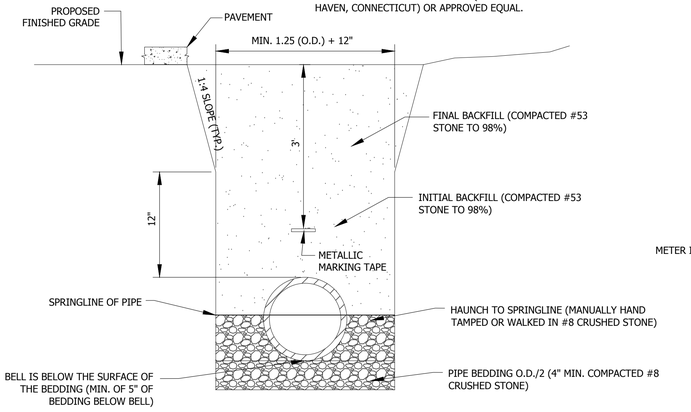


1 C312 DIP SEWER PIPE TRENCH DETAIL - NON PAVED
NOT TO SCALE

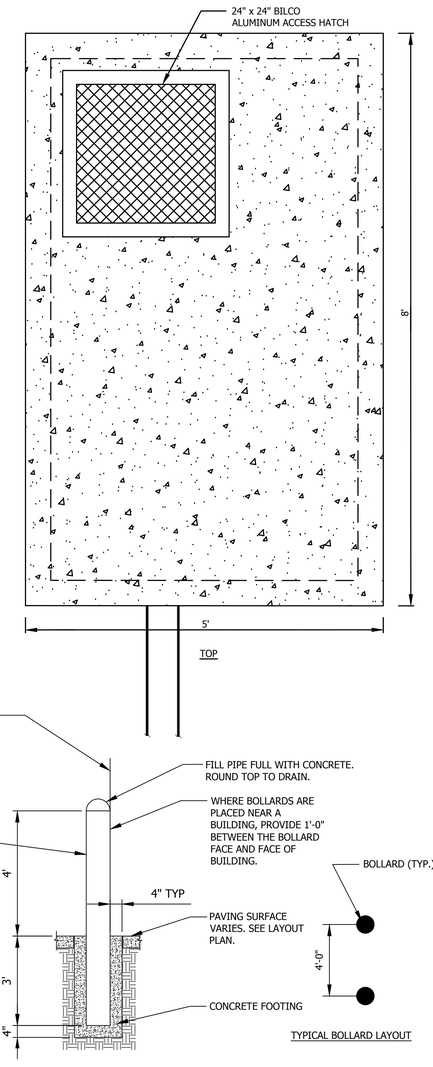


3 C312 HDPE SEWER PIPE TRENCH DETAIL - NON PAVED
NOT TO SCALE

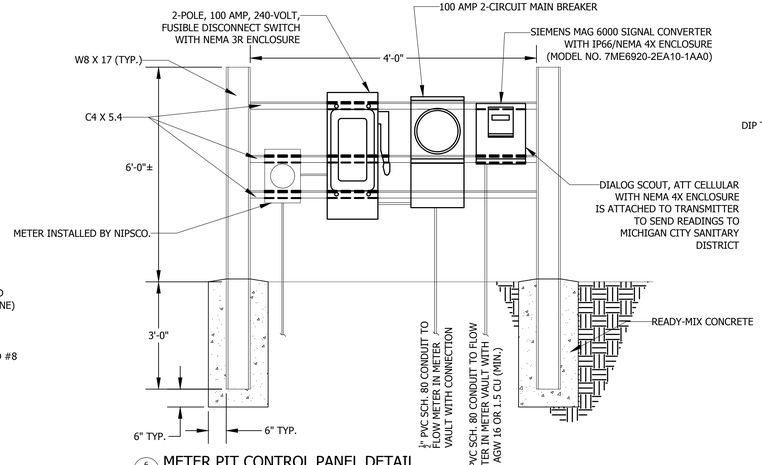
HDPE TRENCH NOTE:
UNDERGROUND DETECTABLE WARNING TAPE SHALL BE PLACED ABOVE THE SEWER APPROXIMATELY THREE (3) FEET BELOW FINISHED GRADE. TAPE TO BE TWO (2) INCHES WIDE, METALLIC LINED, WITH THE WORDING "CAUTION SEWER LINE BURIED BELOW" CONTINUOUSLY PRINTED, AS MANUFACTURED BY THE SETON NAME PLATE CORP. (NEW HAVEN, CONNECTICUT) OR APPROVED EQUAL.



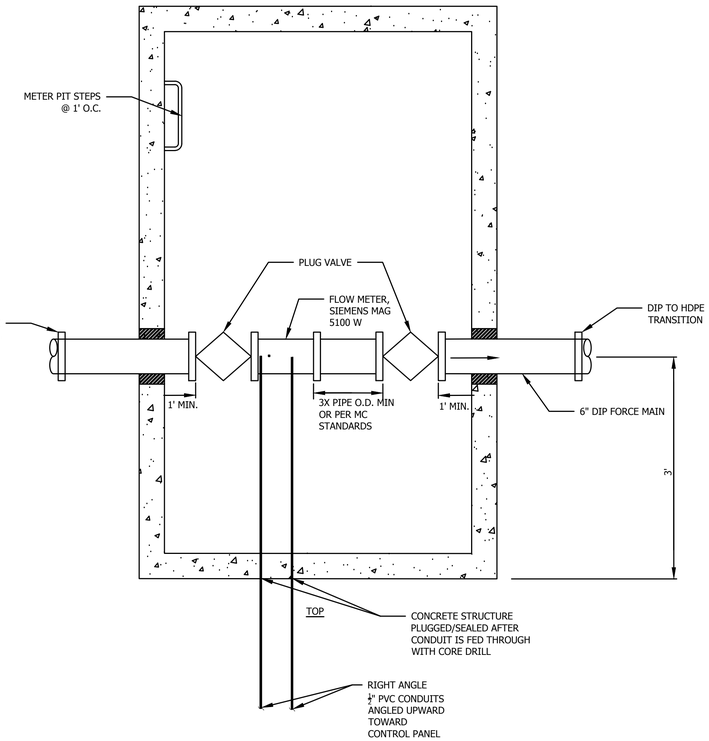
4 C312 HDPE SEWER PIPE TRENCH DETAIL - WITHIN 5' OF PAVEMENT
NOT TO SCALE

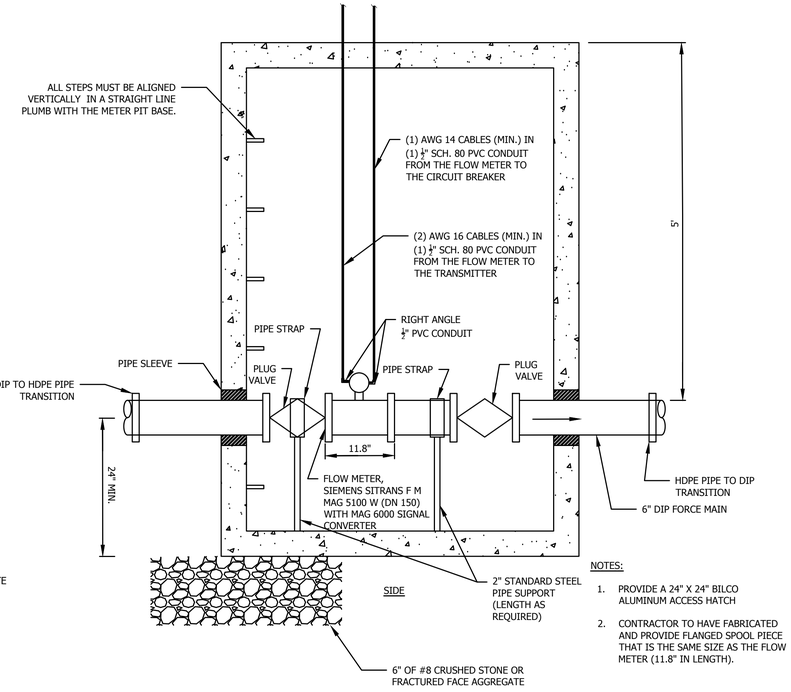


5 C312 EXTERIOR BOLLARD DETAIL
NOT TO SCALE



6 C312 METER PIT CONTROL PANEL DETAIL
NOT TO SCALE





NOTES:
1. PROVIDE A 24" X 24" BILCO ALUMINUM ACCESS HATCH
2. CONTRACTOR TO HAVE FABRICATED AND PROVIDE FLANGED SPOOL PIECE THAT IS THE SAME SIZE AS THE FLOW METER (11.8" IN LENGTH).

7 C312 METER PIT DETAIL
NOT TO SCALE

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

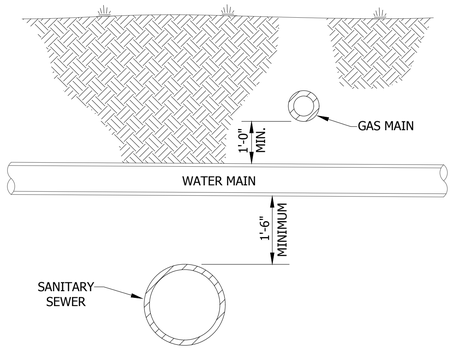
WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN DETAILS

#	Revision	Date

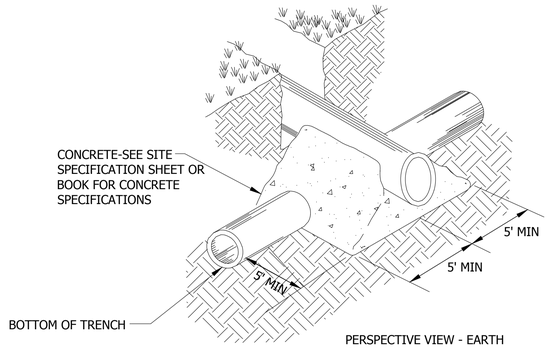
Project Number: 18-400-024-1
Designed By: J.R.M.
Drawn By: J.R.M.
Checked By: M.P.Z.
Date: 7/24/19

PAUL W. VINCENT REGISTERED No. PE10200112 STATE OF INDIANA PROFESSIONAL ENGINEER

SANITARY SEWER FORCE MAIN DETAILS
C313



1 C313 TYPICAL UTILITY CROSSING
NOT TO SCALE



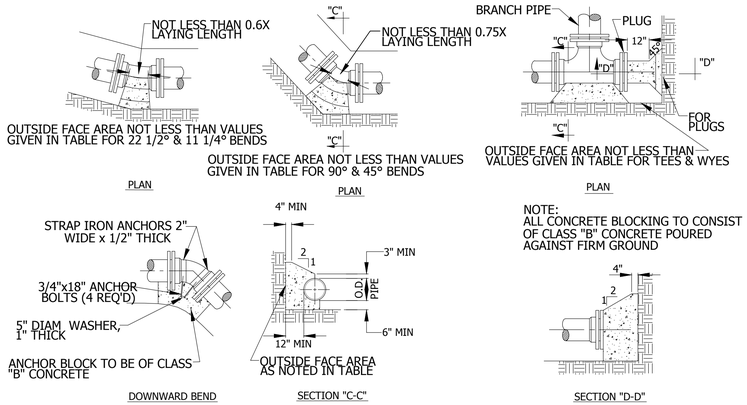
PERSPECTIVE VIEW - EARTH CUT AWAY
CRADLE SHALL BEAR ON UNDISTURBED EARTH

NOTE: TO BE USED WHEN CLEAR DISTANCE (FROM EXTERIOR PIPE DIAMETER TO EXTERIOR PIPE DIAMETER) BETWEEN SANITARY SEWER PIPING (MAINS, LATERALS, FORCE MAINS, ETC.) AND ALL OTHER PIPES ARE 18" OR LESS, PER INSPECTOR'S DIRECTION, OR WHERE NOTED ON THE DRAWINGS. A MINIMUM CLEAR DISTANCE OF 6" MUST BE PROVIDED TO MAINTAIN STRUCTURAL INTEGRITY OF THE CONCRETE.

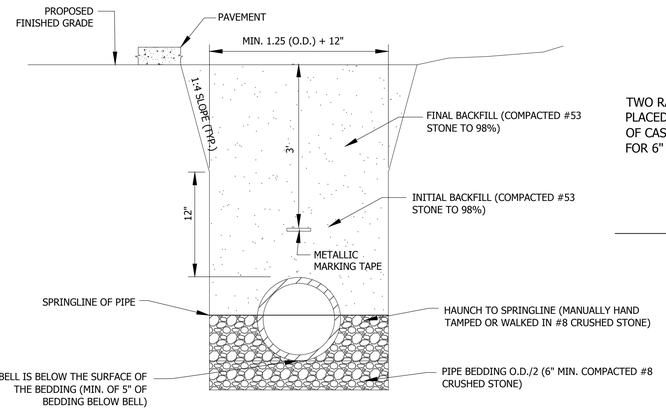
2 C313 MICHIGAN CITY DETAIL - CONCRETE CRADLE
NOT TO SCALE

BLOCKING FOR TEES & WYES		
SIZE OF RUN	SIZE OF BRANCH	OUTSIDE FACE AREA (SQ. FT.)
20" OR 16"	16"	12
	12"	9
	10"	6
	8"	5
12" OR LESS	12"	7
	10"	6
	8"	4
	6"	2
	4"	2

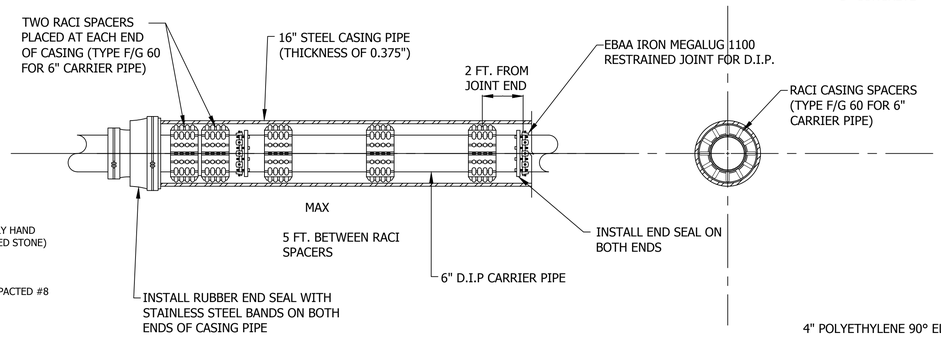
BLOCKING FOR PLUGS & BENDS					
PIPE SIZE	OUTSIDE FACE AREA (SQ FT)				
	PLUG	90° BEND	45° BEND	22 1/2°	11 1/4°
20"	16	25	14	7	4
16"	12	16	9	5	3
12"	7	9	5	3	2
10"	4	7	4	2	1
8"	3	5	3	2	1
6"	2	3	2	1	1
4"	2	3	2	1	1



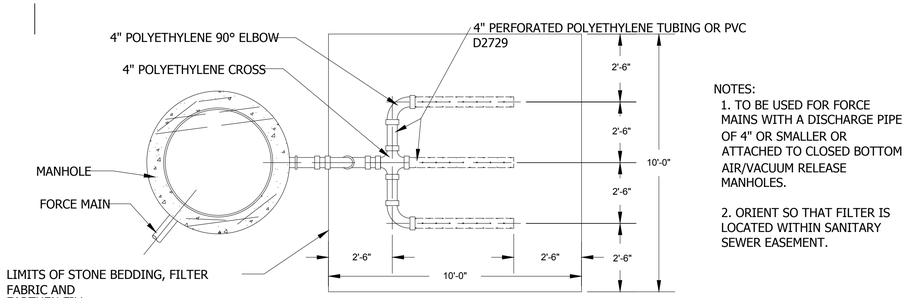
3 C313 CONCRETE THRUST BLOCK DETAILS
NOT TO SCALE



2 C312 DIP SEWER PIPE TRENCH DETAIL - WITHIN 5' OF PAVEMENT
NOT TO SCALE



4 C313 CASING PIPE DETAIL
NOT TO SCALE

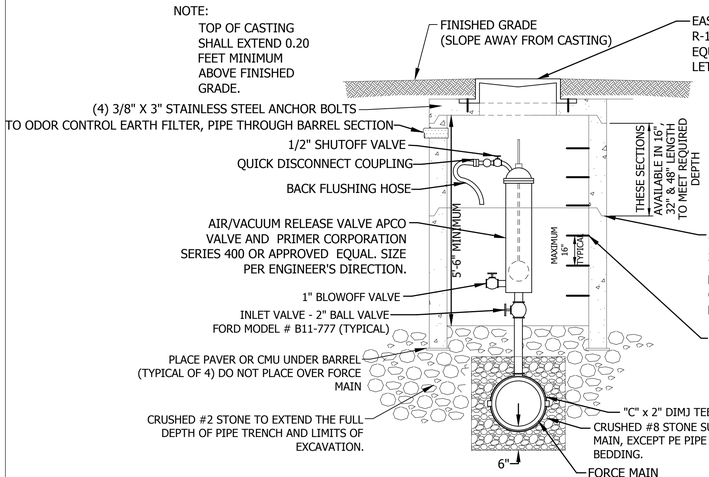


NOTES:
1. TO BE USED FOR FORCE MAINS WITH A DISCHARGE PIPE OF 4" OR SMALLER OR ATTACHED TO CLOSED BOTTOM AIR/VACUUM RELEASE MANHOLES.

2. ORIENT SO THAT FILTER IS LOCATED WITHIN SANITARY SEWER EASEMENT.

PLAN VIEW

NOTE:
TOP OF CASTING SHALL EXTEND 0.20 FEET MINIMUM ABOVE FINISHED GRADE.



NOTE: DIMENSION "C" IS SIZE OF FORCE MAIN

5 C313 MICHIGAN CITY DETAIL - AIR RELEASE MANHOLE
NOT TO SCALE

NOTE:
MANHOLE SECTIONS SHALL CONFORM TO ASTM C 478 UTILIZING 4,000 PSI CONCRETE. JOINTS SHALL CONFORM TO ASTM C 443.

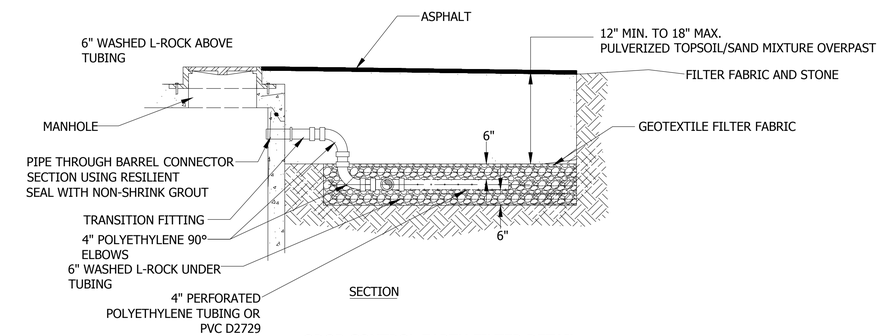
ALL JOINTS SHALL BE SEALED BY AN O-RING GASKET PLUS 1/2" OR 3/4" APPROVED FLEXIBLE BUYTL RESIN CONCRETE SEALANT (ROPE) CONFORMING TO ASTM C 990. COMPOSITION AND THICKNESS OF MATERIAL SHALL BE DEPENDENT ON SEASON OF INSTALLATION AND AS DIRECTED BY ENGINEER. CONTRACTOR SHALL GROUT ALL INTERNAL MANHOLE JOINTS WITH NON-SHRINK GROUT.

ALL STEPS MUST BE ALIGNED VERTICALLY IN A STRAIGHT LINE.

NOTE:
IF EVIDENCE OF GROUND WATER EXISTS, THEN INSTALL CLOSED BOTTOM AIR/VACUUM RELEASE MANHOLE

CORE DRILLED OPENING WITH RESILIENT CONNECTOR OR CAST IN PLACE A-LOC OR ENGINEER APPROVED EQUAL (TYPICAL ALL PIPE PENETRATIONS)

NO CORE WILL BE PERMITTED WITHIN 6" OF INTERNAL OR EXTERNAL JOINTS.



SECTION

6 C313 ODOR CONTROL EARTH FILTER DETAIL
NOT TO SCALE

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
SANITARY SEWER FORCE MAIN DETAILS

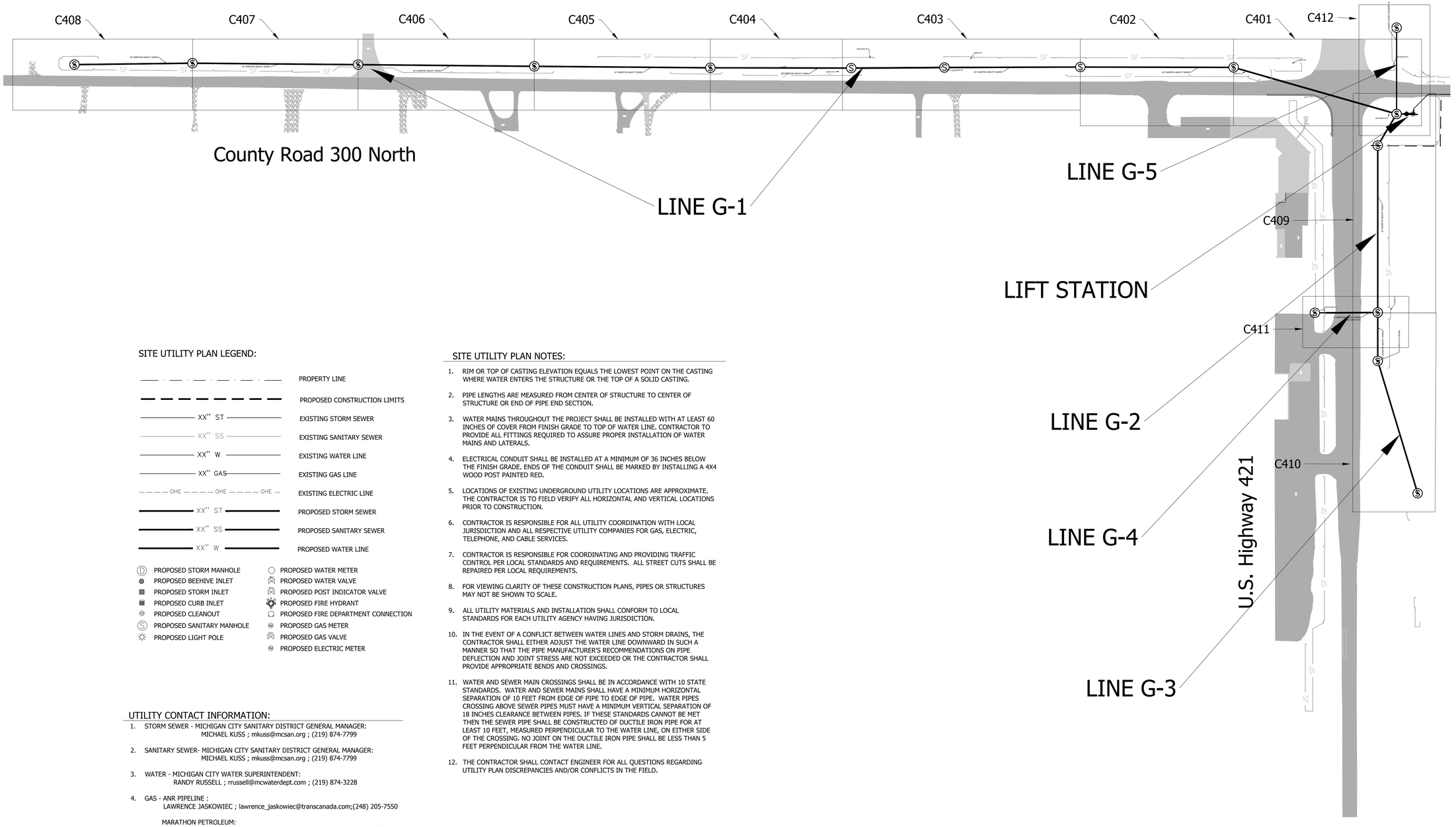
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Project Number: 18-400-024-1
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PAUL W. VINCENT REGISTERED No. PE10200112 STATE OF INDIANA PROFESSIONAL ENGINEER

SANITARY SEWER FORCE MAIN DETAILS

C314



SITE UTILITY PLAN LEGEND:

- PROPERTY LINE
- PROPOSED CONSTRUCTION LIMITS
- XX" ST — EXISTING STORM SEWER
- XX" SS — EXISTING SANITARY SEWER
- XX" W — EXISTING WATER LINE
- XX" GAS — EXISTING GAS LINE
- OHE — EXISTING ELECTRIC LINE
- XX" ST — PROPOSED STORM SEWER
- XX" SS — PROPOSED SANITARY SEWER
- XX" W — PROPOSED WATER LINE

- PROPOSED STORM MANHOLE
- PROPOSED BEEHIVE INLET
- PROPOSED STORM INLET
- PROPOSED CURB INLET
- PROPOSED CLEANOUT
- PROPOSED SANITARY MANHOLE
- PROPOSED LIGHT POLE
- PROPOSED WATER METER
- PROPOSED WATER VALVE
- PROPOSED POST INDICATOR VALVE
- PROPOSED FIRE HYDRANT
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED GAS METER
- PROPOSED GAS VALVE
- PROPOSED ELECTRIC METER

SITE UTILITY PLAN NOTES:

1. RIM OR TOP OF CASTING ELEVATION EQUALS THE LOWEST POINT ON THE CASTING WHERE WATER ENTERS THE STRUCTURE OR THE TOP OF A SOLID CASTING.
2. PIPE LENGTHS ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE OR END OF PIPE END SECTION.
3. WATER MAINS THROUGHOUT THE PROJECT SHALL BE INSTALLED WITH AT LEAST 60 INCHES OF COVER FROM FINISH GRADE TO TOP OF WATER LINE. CONTRACTOR TO PROVIDE ALL FITTINGS REQUIRED TO ASSURE PROPER INSTALLATION OF WATER MAINS AND LATERALS.
4. ELECTRICAL CONDUIT SHALL BE INSTALLED AT A MINIMUM OF 36 INCHES BELOW THE FINISH GRADE. ENDS OF THE CONDUIT SHALL BE MARKED BY INSTALLING A 4X4 WOOD POST PAINTED RED.
5. LOCATIONS OF EXISTING UNDERGROUND UTILITY LOCATIONS ARE APPROXIMATE. THE CONTRACTOR IS TO FIELD VERIFY ALL HORIZONTAL AND VERTICAL LOCATIONS PRIOR TO CONSTRUCTION.
6. CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY COORDINATION WITH LOCAL JURISDICTION AND ALL RESPECTIVE UTILITY COMPANIES FOR GAS, ELECTRIC, TELEPHONE, AND CABLE SERVICES.
7. CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PROVIDING TRAFFIC CONTROL PER LOCAL STANDARDS AND REQUIREMENTS. ALL STREET CUTS SHALL BE REPAIRED PER LOCAL REQUIREMENTS.
8. FOR VIEWING CLARITY OF THESE CONSTRUCTION PLANS, PIPES OR STRUCTURES MAY NOT BE SHOWN TO SCALE.
9. ALL UTILITY MATERIALS AND INSTALLATION SHALL CONFORM TO LOCAL STANDARDS FOR EACH UTILITY AGENCY HAVING JURISDICTION.
10. IN THE EVENT OF A CONFLICT BETWEEN WATER LINES AND STORM DRAINS, THE CONTRACTOR SHALL EITHER ADJUST THE WATER LINE DOWNWARD IN SUCH A MANNER SO THAT THE PIPE MANUFACTURER'S RECOMMENDATIONS ON PIPE DEFLECTION AND JOINT STRESS ARE NOT EXCEEDED OR THE CONTRACTOR SHALL PROVIDE APPROPRIATE BENDS AND CROSSINGS.
11. WATER AND SEWER MAIN CROSSINGS SHALL BE IN ACCORDANCE WITH 10 STATE STANDARDS. WATER AND SEWER MAINS SHALL HAVE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET FROM EDGE OF PIPE TO EDGE OF PIPE. WATER PIPES CROSSING ABOVE SEWER PIPES MUST HAVE A MINIMUM VERTICAL SEPARATION OF 18 INCHES CLEARANCE BETWEEN PIPES. IF THESE STANDARDS CANNOT BE MET THEN THE SEWER PIPE SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE FOR AT LEAST 10 FEET, MEASURED PERPENDICULAR TO THE WATER LINE, ON EITHER SIDE OF THE CROSSING. NO JOINT ON THE DUCTILE IRON PIPE SHALL BE LESS THAN 5 FEET PERPENDICULAR FROM THE WATER LINE.
12. THE CONTRACTOR SHALL CONTACT ENGINEER FOR ALL QUESTIONS REGARDING UTILITY PLAN DISCREPANCIES AND/OR CONFLICTS IN THE FIELD.

UTILITY CONTACT INFORMATION:

1. STORM SEWER - MICHIGAN CITY SANITARY DISTRICT GENERAL MANAGER:
   MICHAEL KUSS ; mkuss@mcsan.org ; (219) 874-7799
2. SANITARY SEWER- MICHIGAN CITY SANITARY DISTRICT GENERAL MANAGER:
   MICHAEL KUSS ; mkuss@mcsan.org ; (219) 874-7799
3. WATER - MICHIGAN CITY WATER SUPERINTENDENT:
   RANDY RUSSELL ; rrussell@mcwaterdept.com ; (219) 874-3228
4. GAS - ANR PIPELINE :
   LAWRENCE JASKOWIEC ; lawrence_jaskowiec@transcanada.com;(248) 205-7550

   MARATHON PETROLEUM:
   GREGORY NEWMAN ; gcnewman@marathonpetroleum.com ; (419) 564-8826

   NIPSCO GAS LINE:
   PHILLIP PATRICK ; ppatrick@nisource.com ; (219) 286-4450
5. ELECTRIC - NIPSCO : PAT KIESZKOWSKI ; pkieszkowski@nisource.com ; (219) 263-8193
6. TELEPHONE - AT&T : BURIED WIRE CENTER ; (800) 924-9420
7. CABLE - AT&T : BURIED WIRE CENTER ; (800) 924-9420

GRAVITY SEWER STATIONING:

G-1	STA. 10+00 TO 38+26
G-2	STA. 50+00 TO 55+33
G-3	STA. 55+33 TO 58+27
G-4	STA. 70+00 TO 71+33
G-5	STA. 80+00 TO 81+82

Know what's below. Call before you dig.

CALL 2 WORKING DAYS BEFORE YOU DIG

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION
WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER OVERALL PLAN

#	Revision	Date

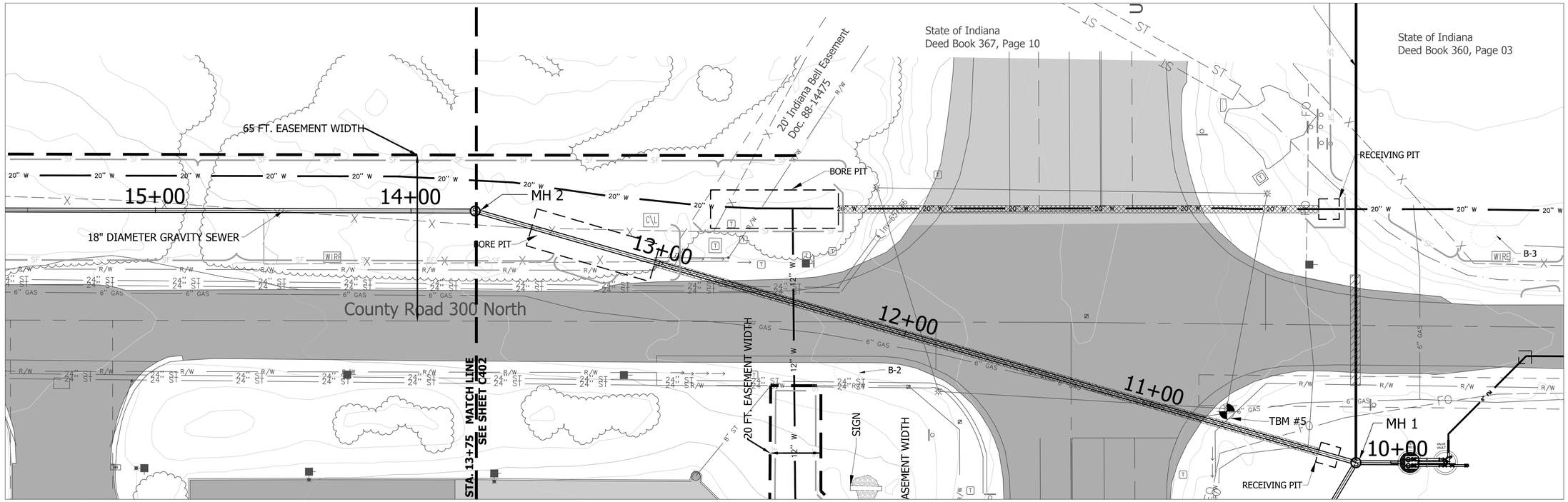
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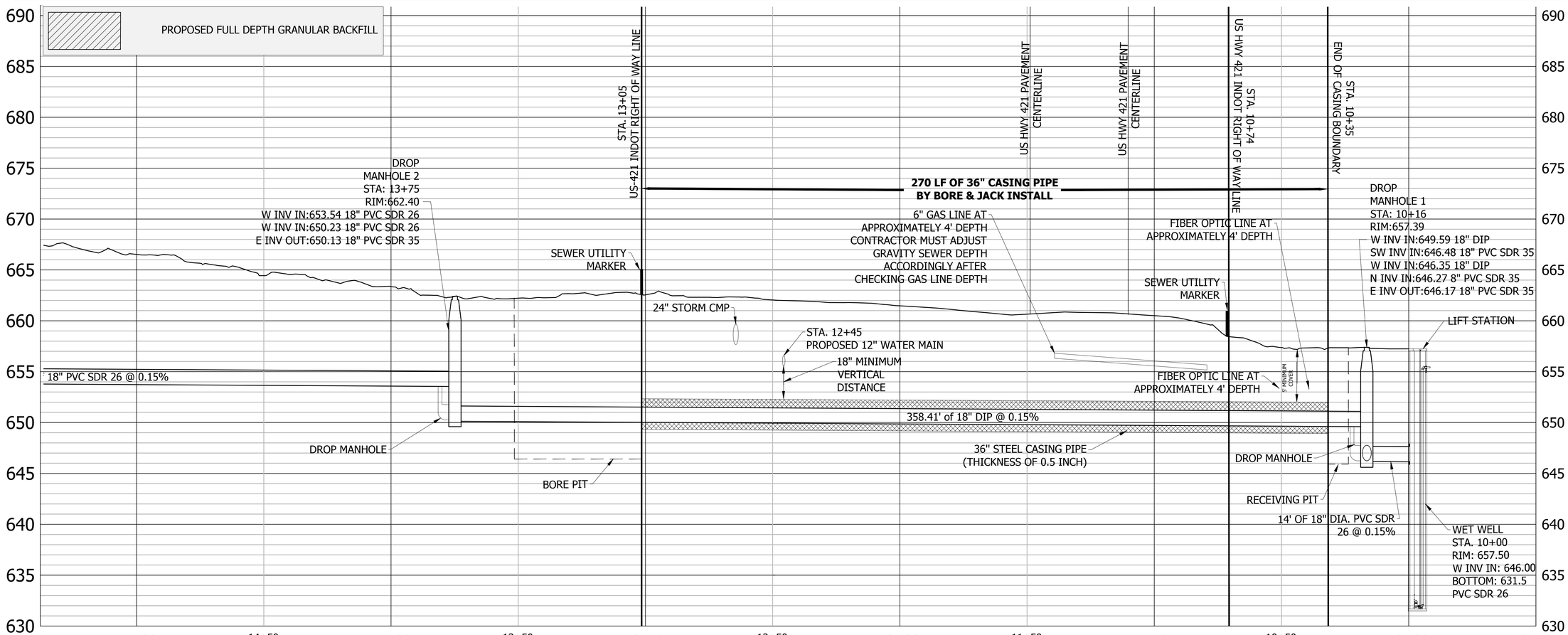
PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 150'
0 150' 300'
GRAPHIC SCALE
N

GRAVITY SEWER OVERALL PLAN

C400





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER, LINE G-1
STA. 10+00 TO STA. 13+75

#	Revision	Date

Project Number: 18-400-024-1
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Checked By: M.P.Z.
Date: 7/24/19

PAUL W. VINCENT REGISTERED No. PE10200112 STATE OF INDIANA PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

GRAVITY SEWER
LINE G-1
STA. 10+00 TO 13+75

C401

Route 421 Partners, LLC
Doc. 2017R-16021

65 FT. EASEMENT WIDTH

20' Indiana Bell Easement
Doc. 88-14475

18+00 | 17+00 | 16+00 | 15+00 | 14+00 | 13+00

MH 3

18" DIAMETER GRAVITY SEWER

MH 2

BORE PIT

County Road 300 North

County Road 300 North

20 FT. EASEMENT WIDTH

STA. 16+99 MATCH LINE
SEE SHEET C403

STA. 13+75 MATCH LINE
SEE SHEET C401

TMB #6
SPIKE NORTH SIDE
POLE #950/933
ELEVATION = 669.70

Steel J. Forszt & Mark J. Forszt
Inst. 2002R-17763

ASPH

CONC.

PROPOSED FULL DEPTH GRANULAR BACKFILL

MANHOLE 3
STA:16+99
RIM:668.46
W INV IN:654.13 18" PVC SDR 26
E INV OUT:654.03 18" PVC SDR 26

DROP
MANHOLE 2
STA: 13+75
RIM:662.40
W INV IN:653.54 18" PVC SDR 26
W INV IN:650.23 18" PVC SDR 26
E INV OUT:650.13 18" PVC SDR 35

STA. 13+05
US-421 INDOT RIGHT OF WAY LINE

SEWER UTILITY MARKER

24" STORM CMP

287.40' of 18" PVC SDR 26 @ 0.15%

324.09' of 18" PVC SDR 26 @ 0.15%

DROP MANHOLE

BORE PIT

690 | 685 | 680 | 675 | 670 | 665 | 660 | 655 | 650 | 645 | 640 | 635

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER, LINE G-1
STA. 13+75 TO STA. 16+99

#	Revision	Date

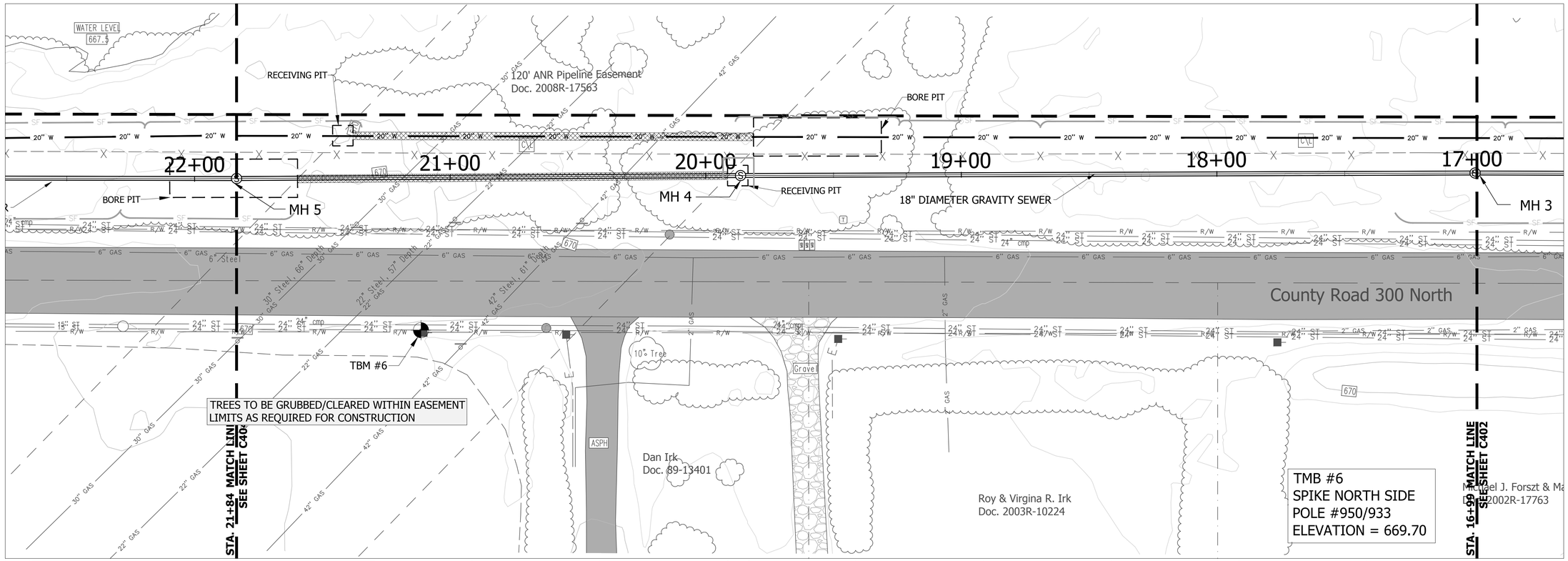
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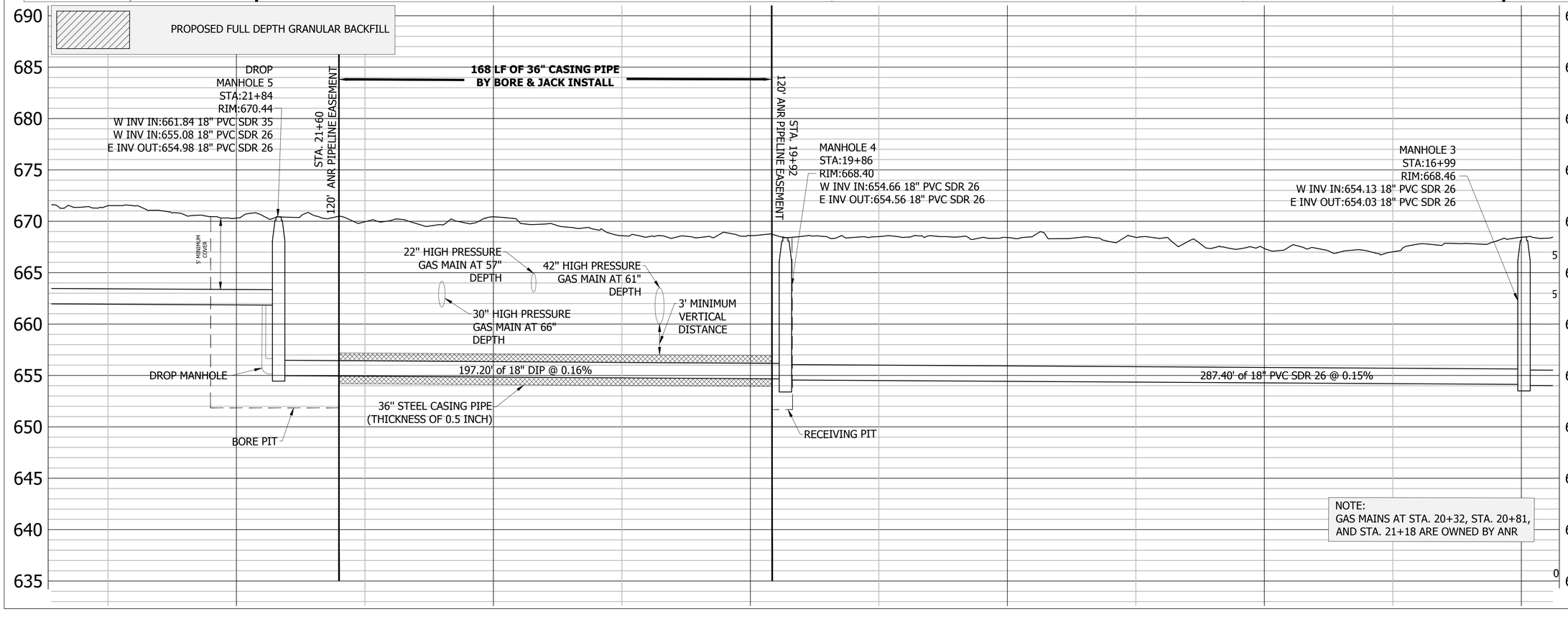
PAUL W. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
20' 40'
GRAPHIC SCALE
N

GRAVITY SEWER
LINE G-1
STA. 13+75 TO STA. 16+99

C402





NOTE:
GAS MAINS AT STA. 20+32, STA. 20+81, AND STA. 21+18 ARE OWNED BY ANR

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER, LINE G-1
STA. 16+99 TO STA. 22+01

#	Revision	Date

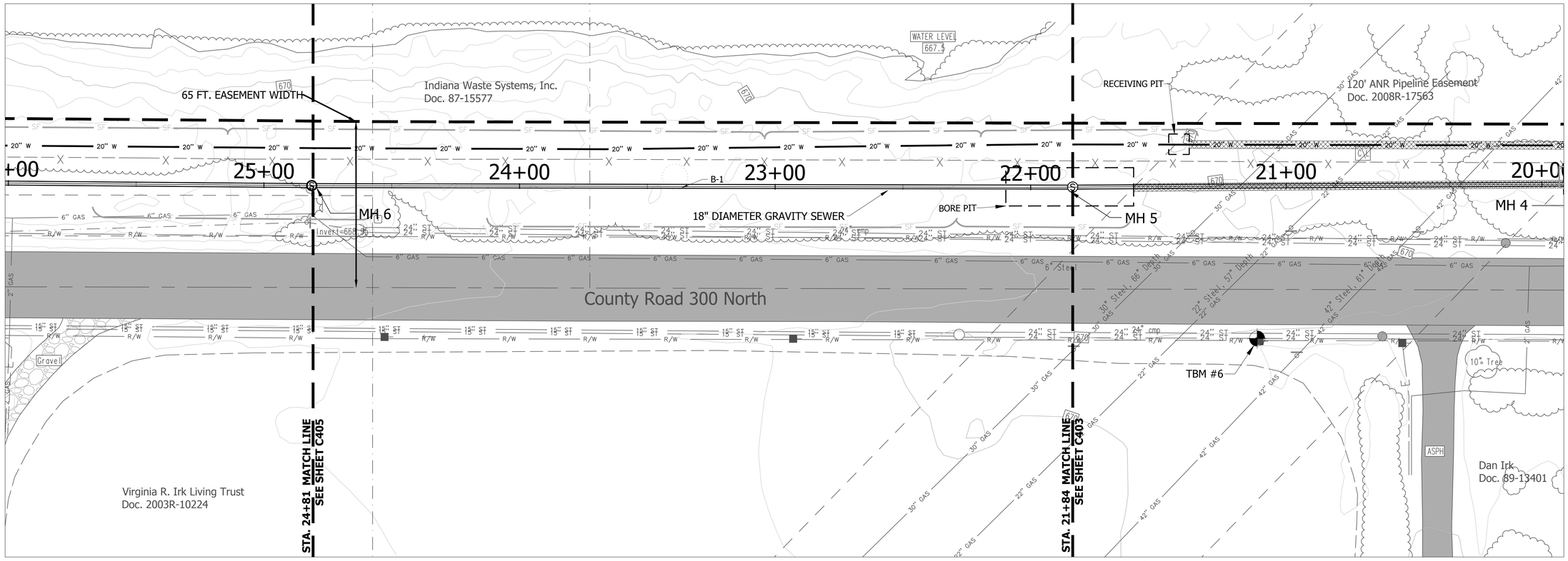
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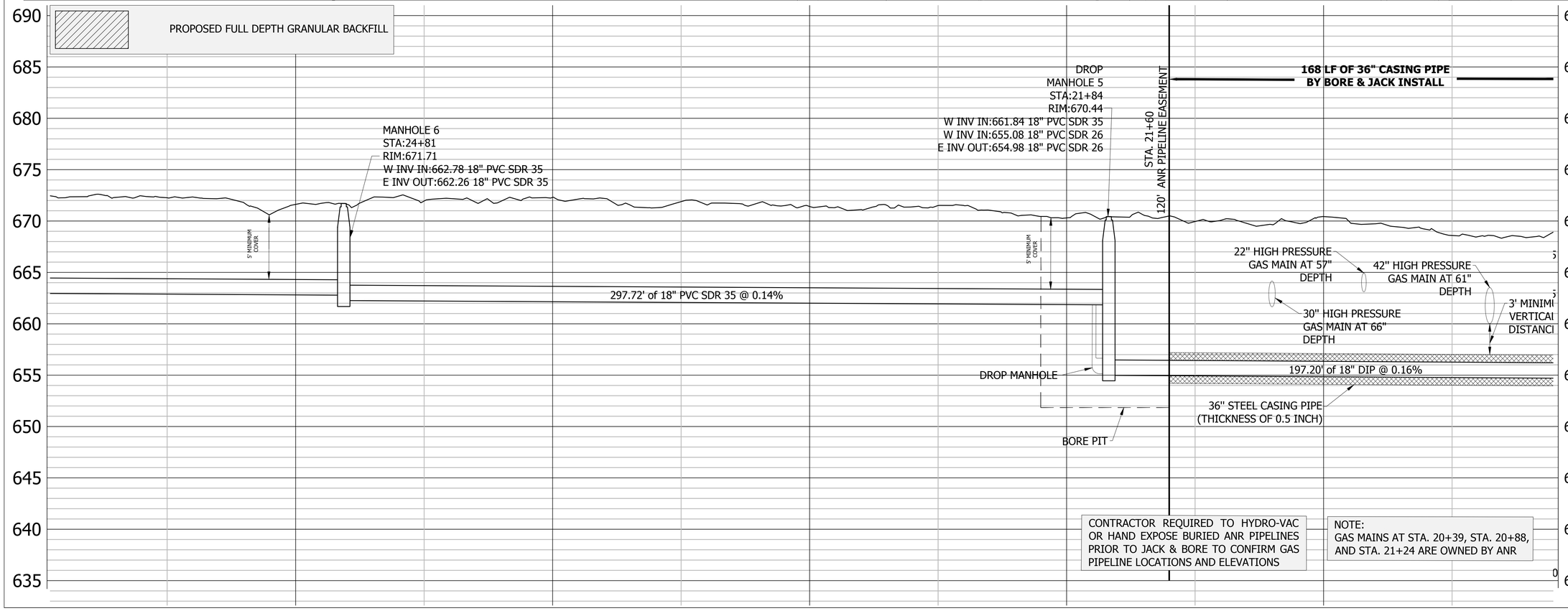
PAUL W. VINCENT REGISTERED No. PE10200112 STATE OF INDIANA PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

GRAVITY SEWER
LINE G-1
STA. 16+99 TO STA. 21+84

C403





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N

GRAVITY SEWER, LINE G-1
STA. 22+01 TO STA. 24+81

#	Revision	Date

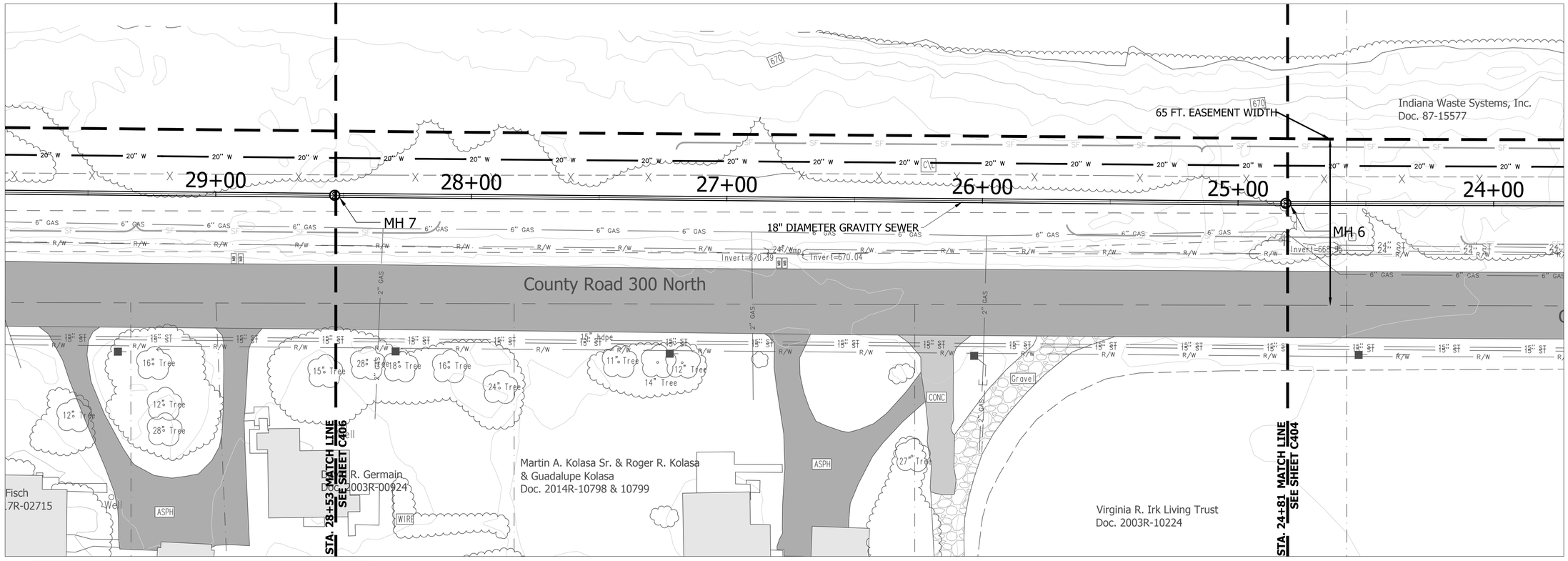
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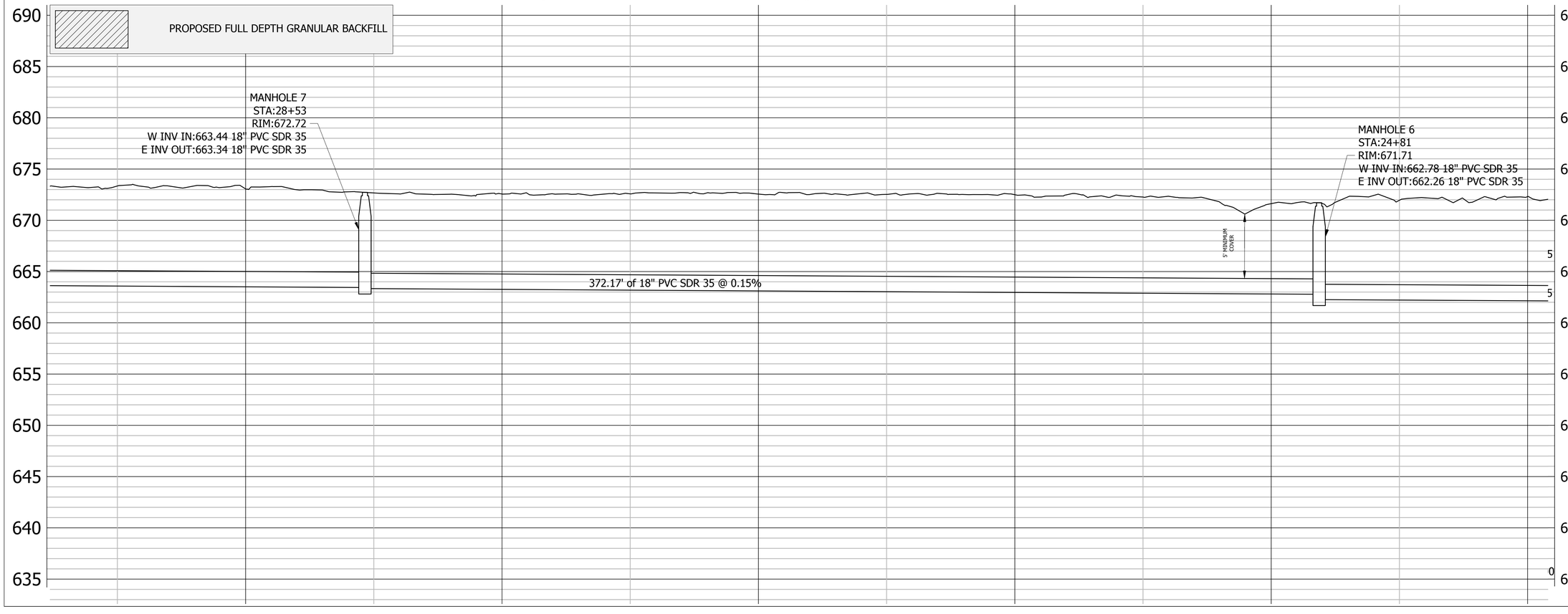
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No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

GRAVITY SEWER
LINE G-1
STA. 21+84 TO STA. 24+81

C404





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER, LINE G-1
STA. 24+81 TO STA. 28+53

#	Revision	Date

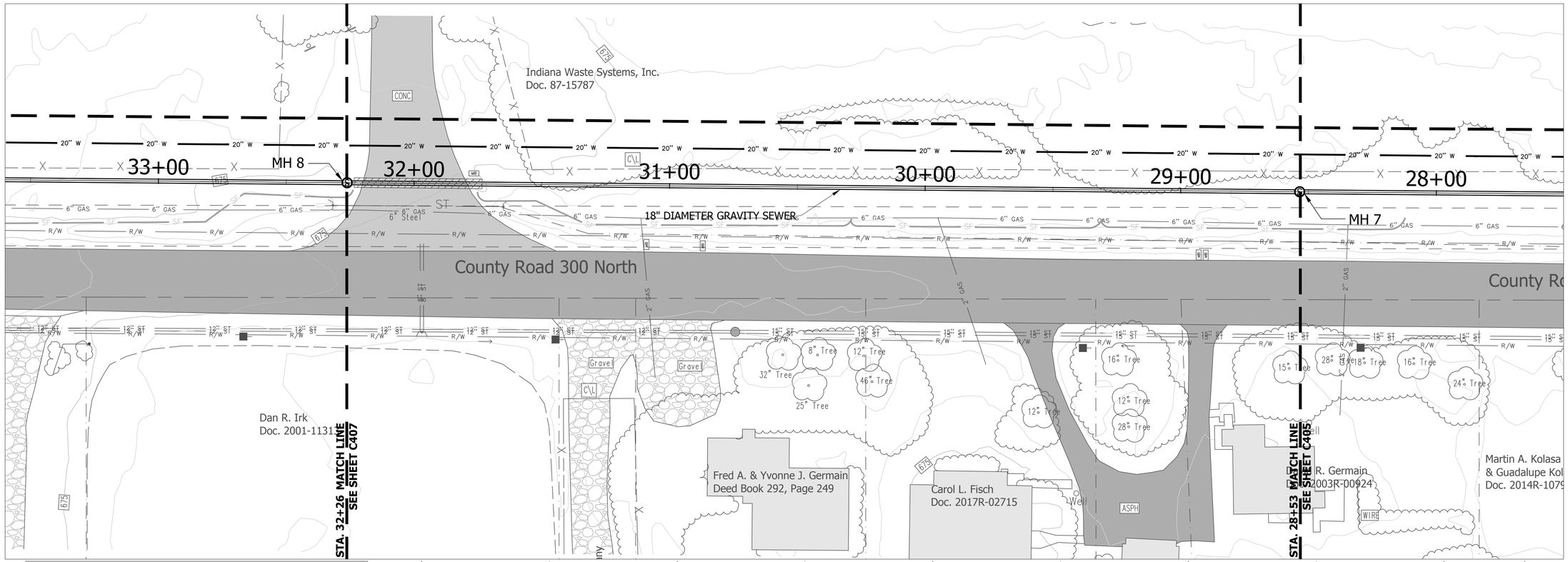
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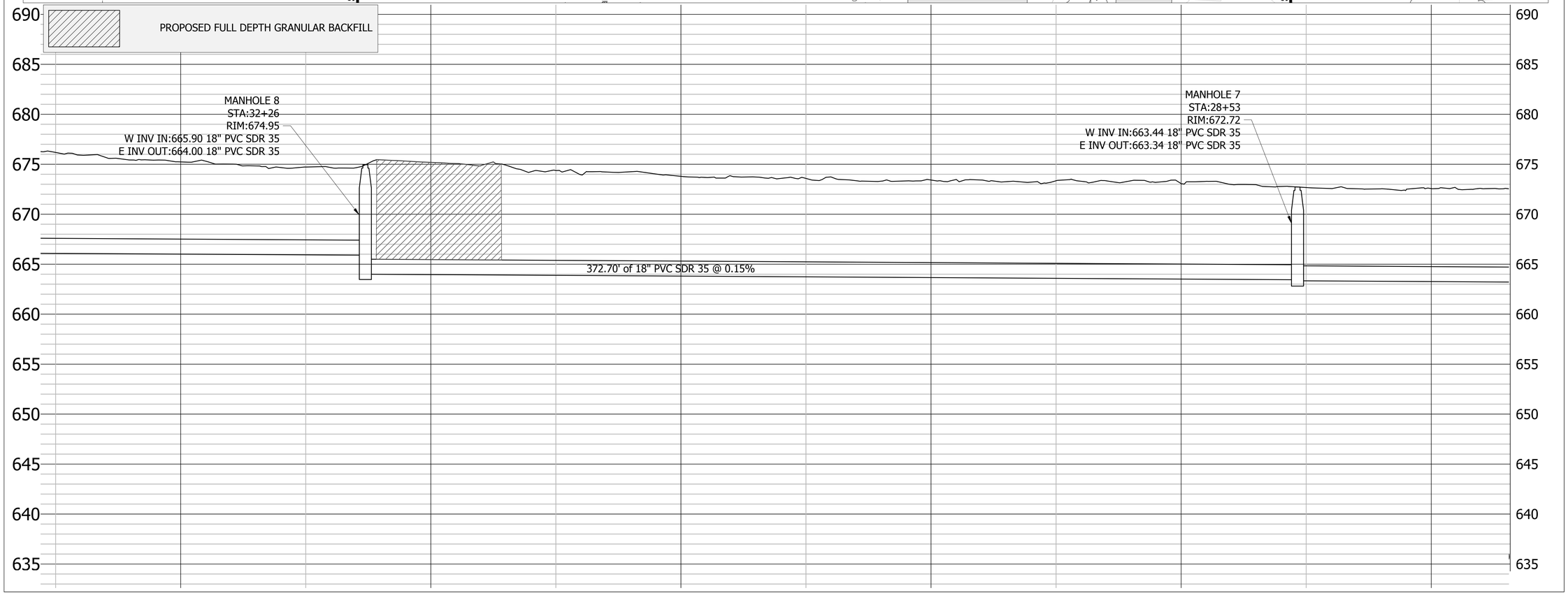
PAUL W. VINCENT
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STATE OF
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PROFESSIONAL ENGINEER

0 1" = 20' N
0 20' 40'
GRAPHIC SCALE

GRAVITY SEWER
LINE G-1
STA. 24+81 TO STA. 28+53

C405





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WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER, LINE G-1
STA. 28+53 TO STA. 32+26

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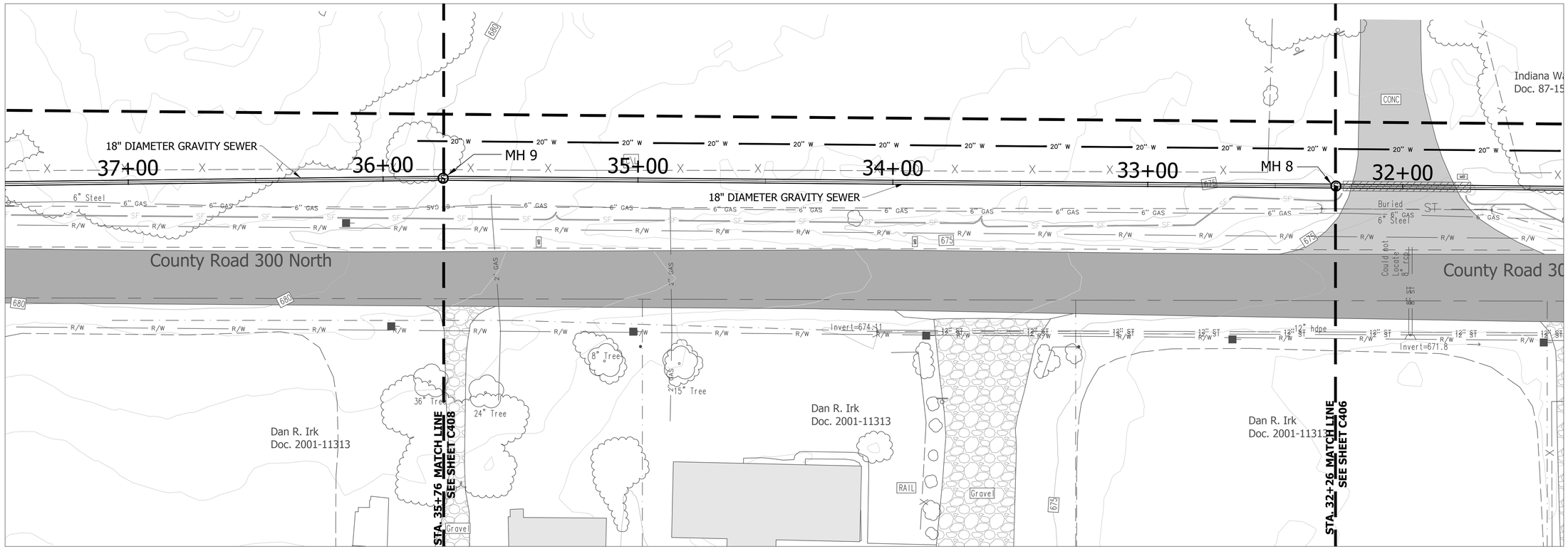
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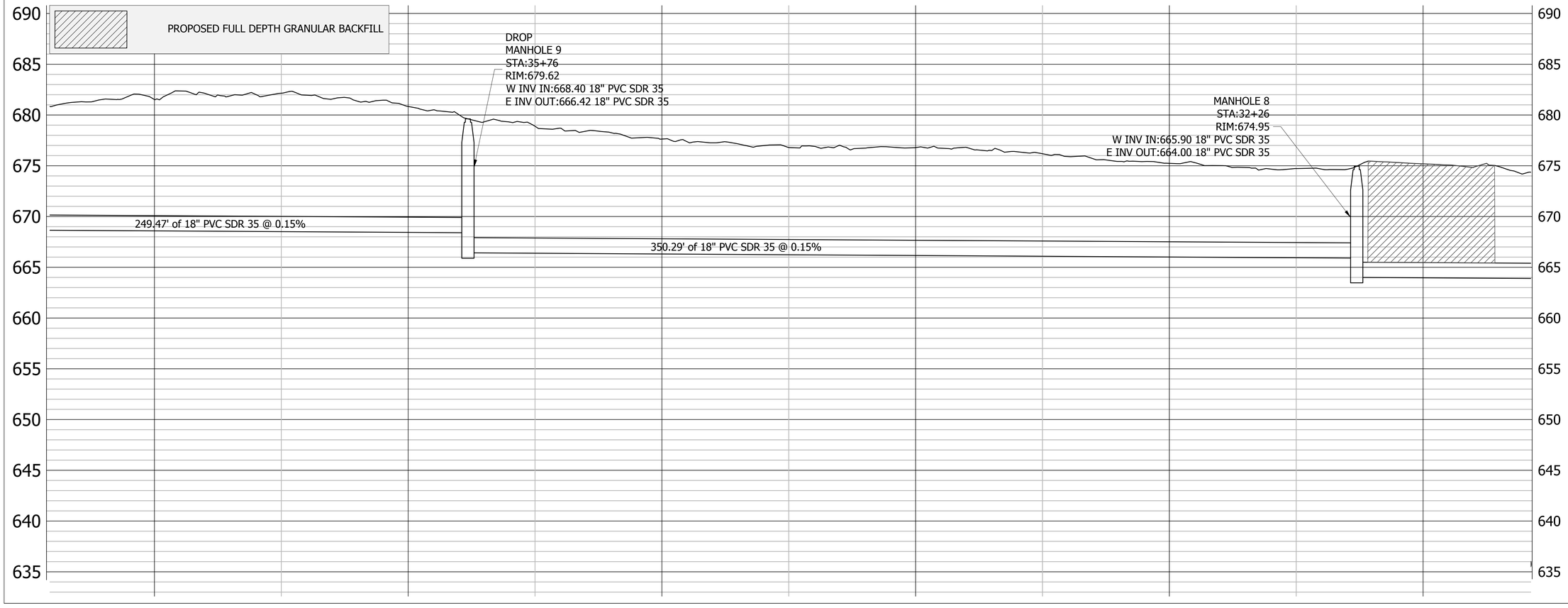
PAUL W. VINCENT
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PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

GRAVITY SEWER
LINE G-1
STA. 28+53 TO STA. 32+26

C406





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INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER, LINE G-1
STA. 32+26 TO STA. 35+76

#	Revision	Date

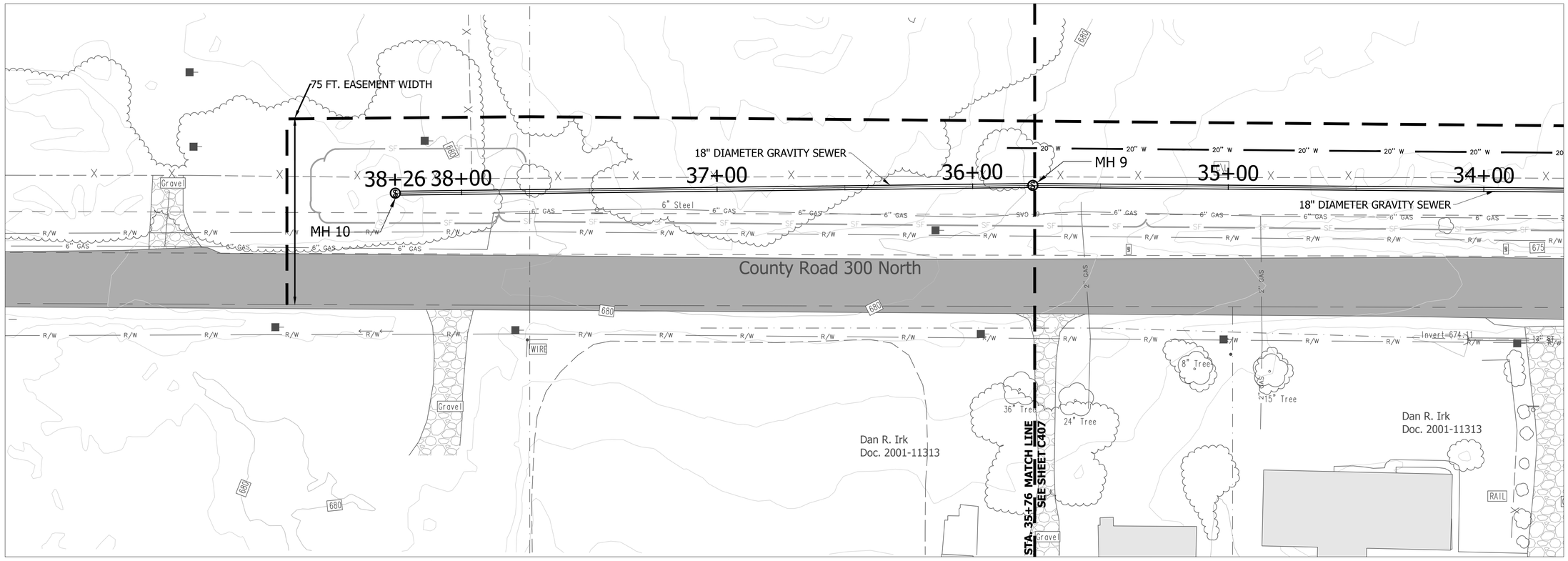
Project Number: 18-400-024-1
Designed By: J.R.M.
Drawn By: J.R.M.
Checked By: M.P.Z.
Date: 7/24/19

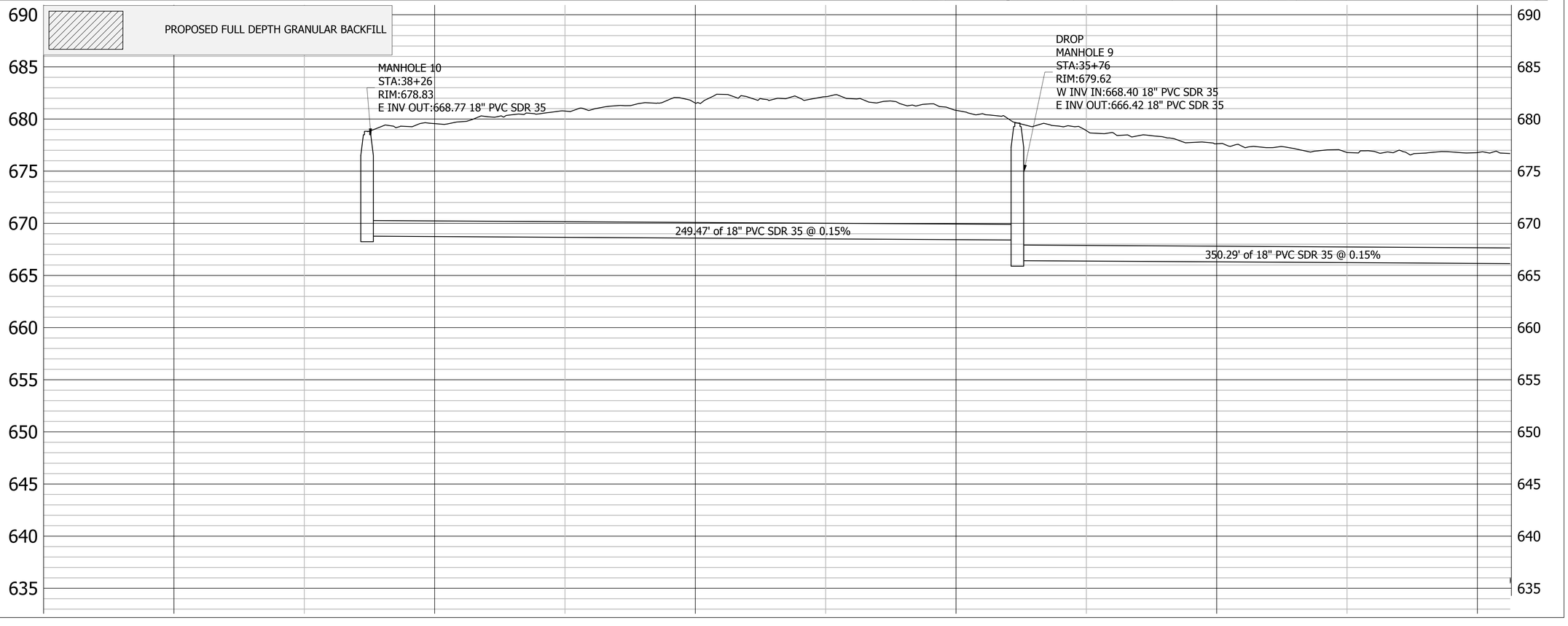
PAUL W. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

GRAVITY SEWER
LINE G-1
STA. 32+26 TO STA. 35+76

C407





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER, LINE G-1
STA. 35+76 TO STA. 38+26

#	Revision	Date

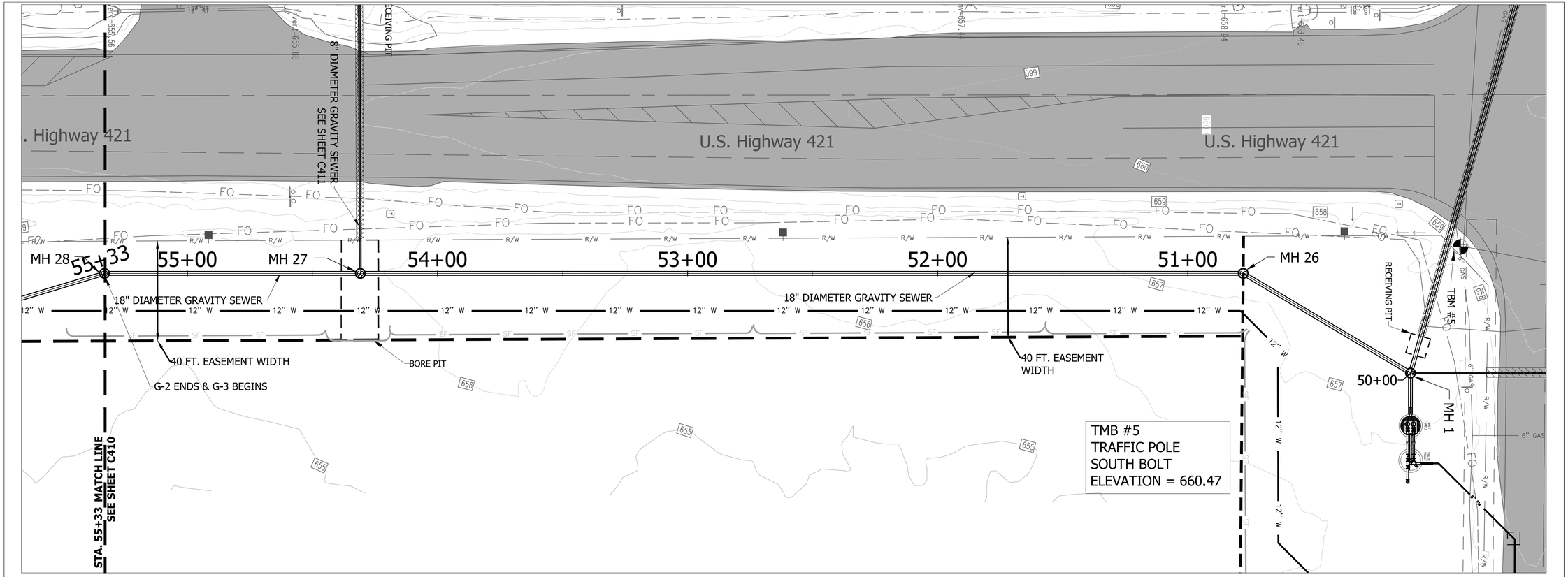
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Designed By: J.R.M.
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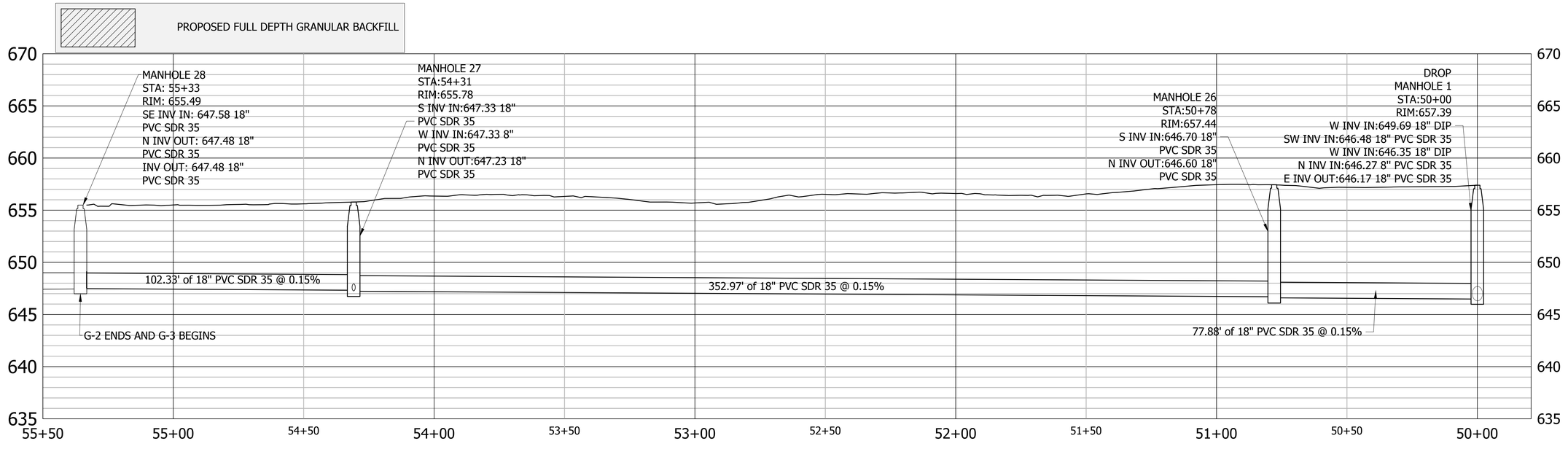
PAUL W. VINCENT
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No.
PE10200112
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PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
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GRAVITY SEWER
LINE G-1
STA. 35+76 TO STA. 38+26

C408





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER, LINE G-2
STA. 50+00 TO STA. 55+33

#	Revision	Date

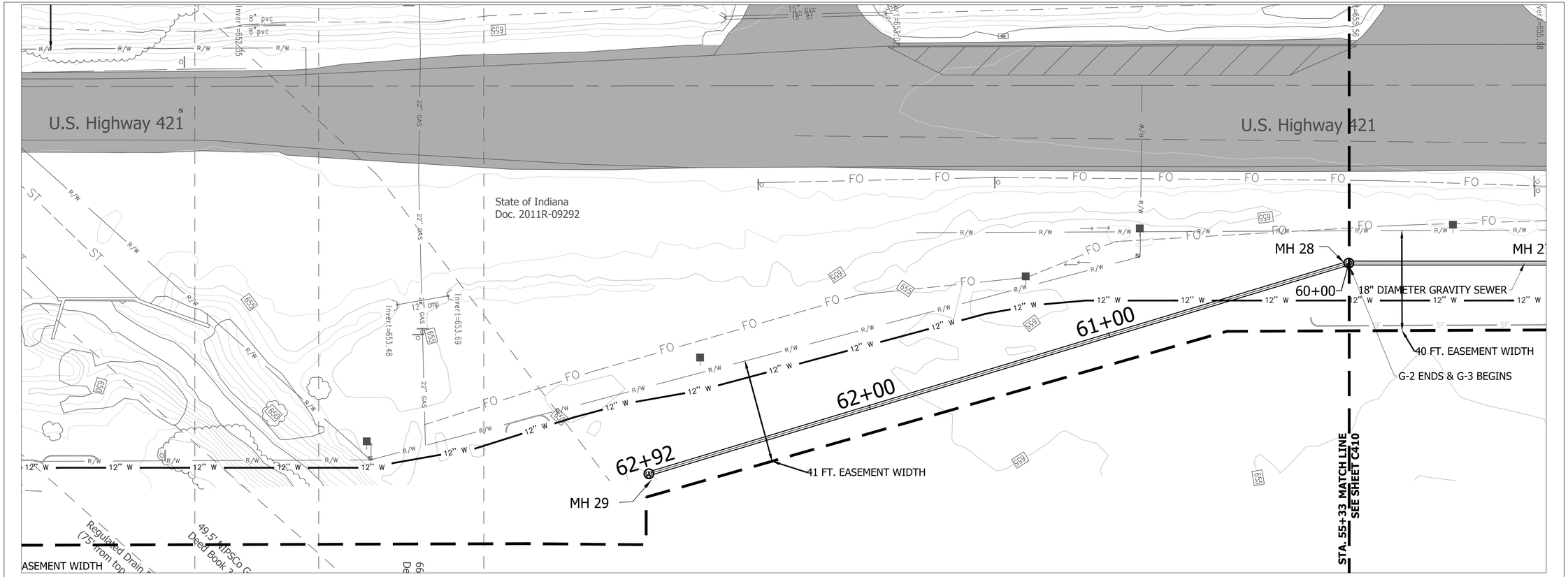
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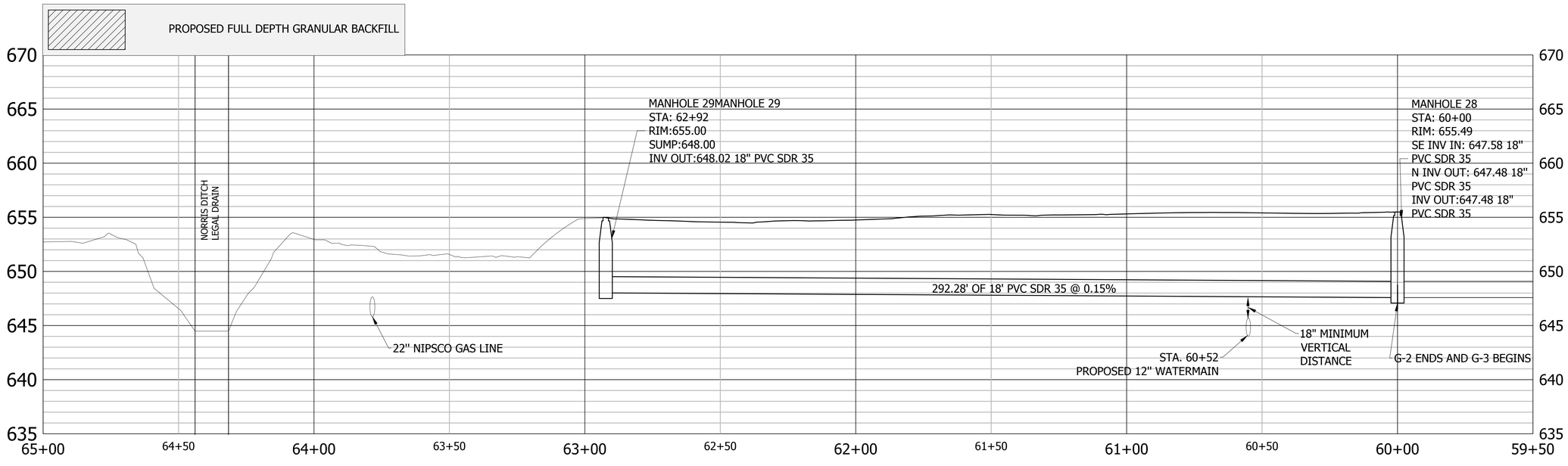
PAUL W. VINCENT
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PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE

GRAVITY SEWER
LINE G-2
STA. 50+00 TO STA. 55+33

C409





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER, LINE G-3
STA. 60+00 TO STA. 62+92

#	Revision	Date

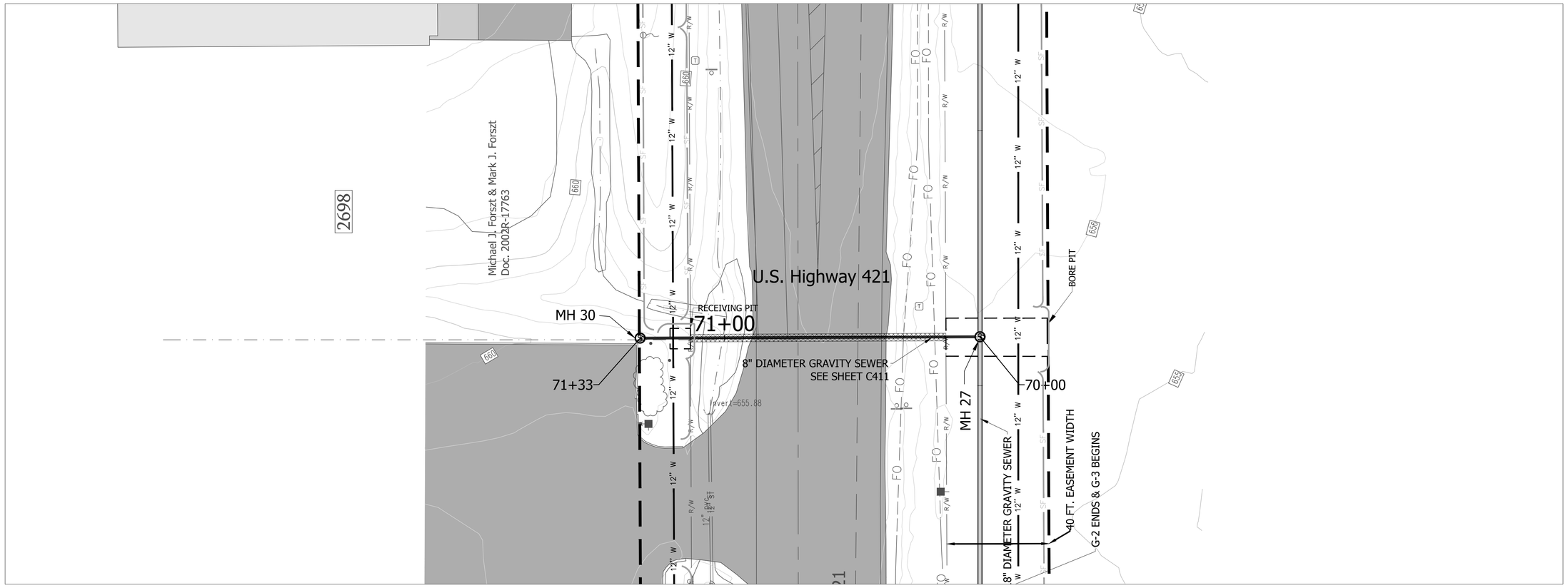
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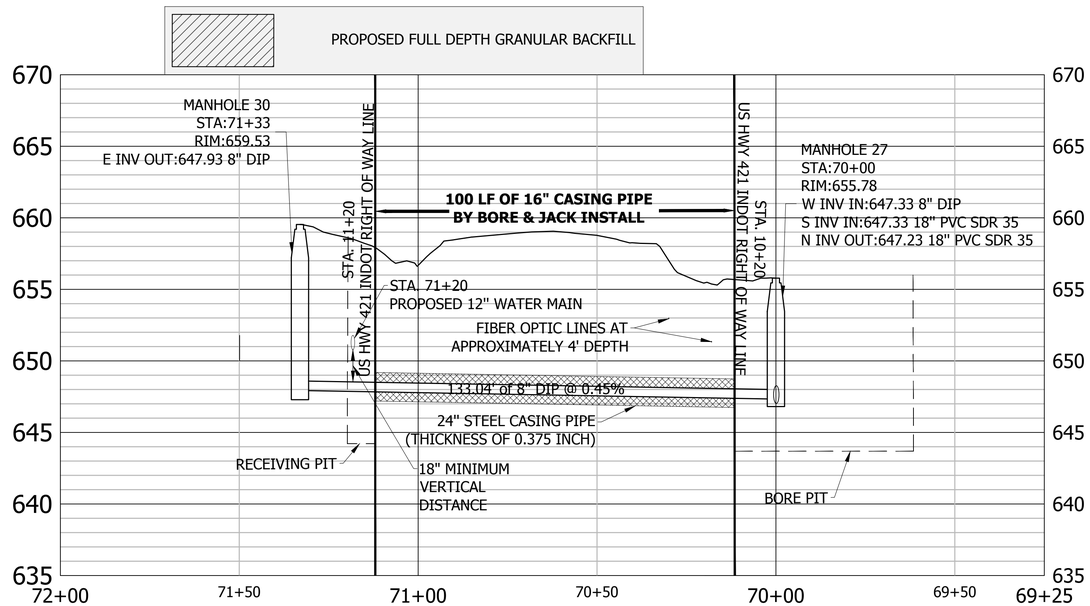
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PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

GRAVITY SEWER
LINE G-3
STA. 60+00 TO STA. 62+92

C410





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER, LINE G-4
STA. 70+00 TO STA. 71+33

#	Revision	Date

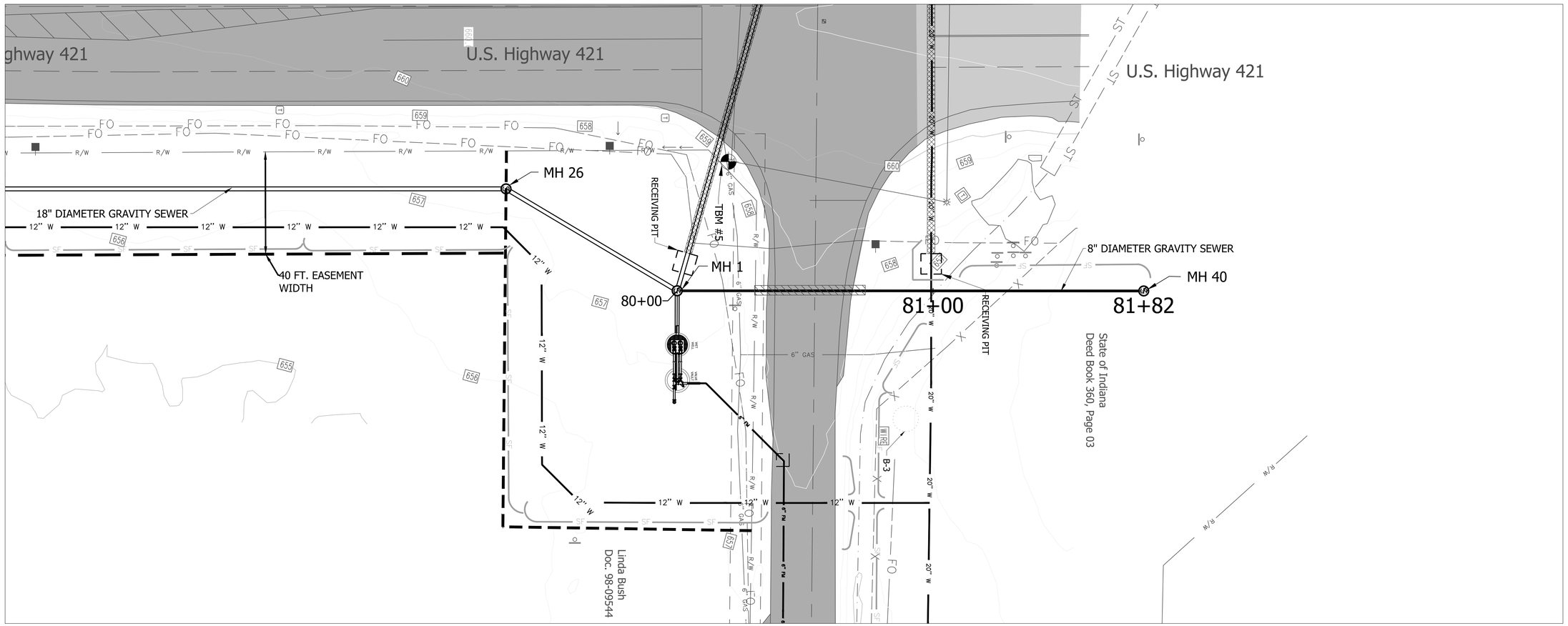
Project Number: 18-400-024-1
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PAUL W. VINCAN
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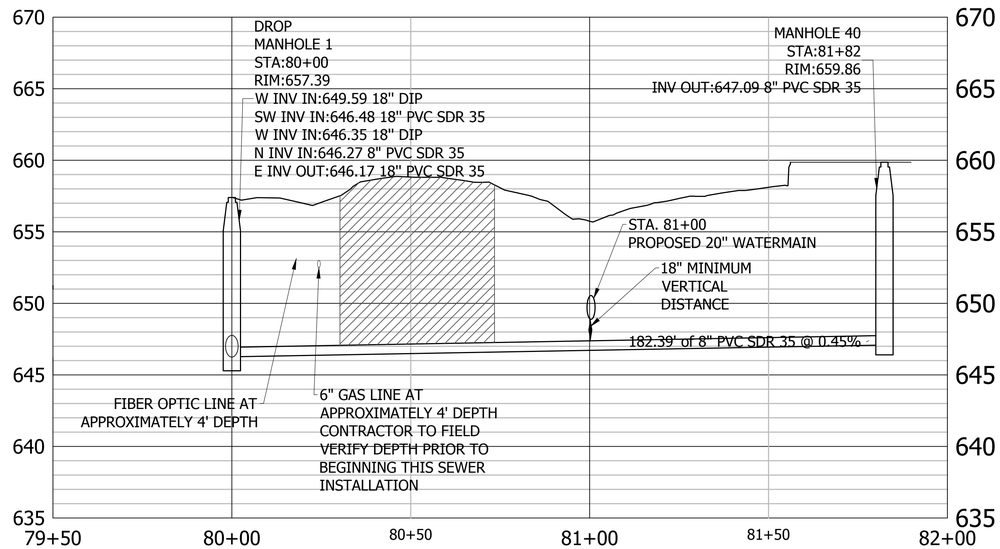
1" = 20'
0 20' 40'
GRAPHIC SCALE
N

GRAVITY SEWER
LINE G-4
STA. 70+00 TO STA. 71+33

C411



PROPOSED FULL DEPTH GRANULAR BACKFILL



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER, LINE G-5
STA. 80+00 TO STA. 81+82

#	Revision	Date

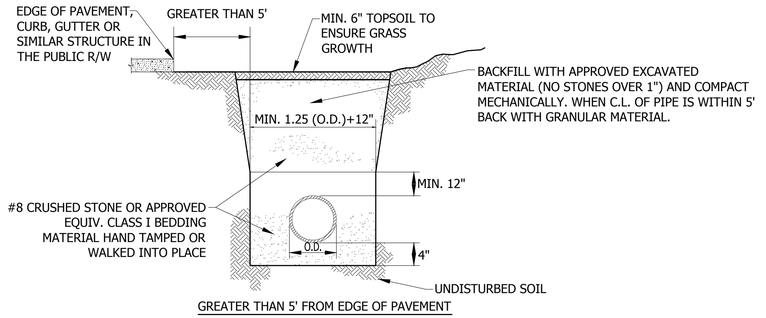
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PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40' N
GRAPHIC SCALE

GRAVITY SEWER
LINE G-5
STA. 80+00 TO STA. 81+82

C412



NOTE:
ALL BEDDING & INITIAL BACKFILL SHALL BE INSTALLED IN 6" TO 12" BALANCED LIFTS
A MINIMUM 12" OF CLEARANCE SHALL BE PROVIDED ON EACH SIDE OF THE INSTALLED PIPE
USE PVC SDR-26 FOR OVER 14'-19' DEPTH
USE PVC SDR-35 FOR LESS 0-14' DEPTH

NOTE:
UNDERGROUND DETECTABLE WARNING TAPE SHALL BE PLACED ABOVE THE SEWER APPROXIMATELY THREE (3) FEET BELOW FINISHED GRADE AND IN ACCORDANCE WITH MICHIGAN CITY STANDARDS.

NOTES:
BACKFILL MATERIALS:
- CLASS I OR II GRANULAR MATERIALS ARE PREFERRED SINCE THEY REQUIRED LITTLE COMPACTIVE EFFORT.
- IF PROPERLY COMPACTED, CLASS III MATERIAL CAN BE USED WITH SOME LIMITATION TO FILL HEIGHTS.
- NATIVE MATERIAL SHOULD BE EVALUATED FOR SUITABILITY BEFORE USING.

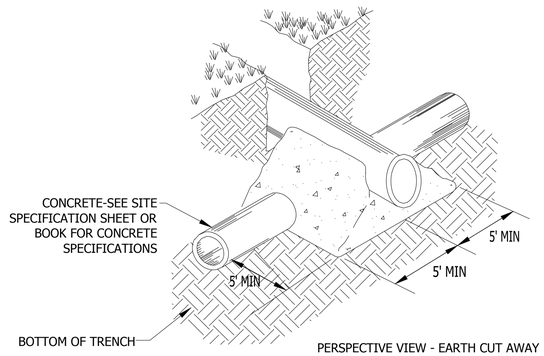
TRENCH CONSTRUCTION:
- TRENCH WIDTH SHOULD BE AT LEAST THE O.D. PLUS 16", OR AS WIDE AS NECESSARY TO PERMIT ADEQUATE PLACEMENT AND COMPACTION OF BACKFILL.
- PARALLEL PIPES TO 24" SHOULD BE SEPARATED A MINIMUM OF 12". LARGE PIPES SHOULD BE SEPARATED BY ONE-HALF THEIR DIAMETER.
- PIPE SHOULD BE PLACED ON 4" OF BEDDING AND BACKFILL; PROPERLY COMPACTED AT THE HAUNCHES.
- FOR EMBANKMENT CONSTRUCTION THE "STRUCTURAL BACKFILL" SHOULD BE BETWEEN 12" AND 24" ON EITHER SIDE OF THE PIPE.

BACKFILL PLACEMENT:
- PLACE BACKFILL IN 6" LIFTS COMPACT TO A MINIMUM OF 90% OF MAXIMUM DENSITY.
- BACKFILL AND COMPACT UNIFORMLY TAKING CARE NOT TO DISTORT OR DEFLECT PIPE.
- COMPACTED BACKFILL SHOULD EXTEND 12" ABOVE THE TOP OF THE PIPE BEFORE THE REMAINDER OF THE FILL IS PLACED.

CONSTRUCTION LOADS:
- KEEP CONSTRUCTION LOADS AWAY FROM PIPE DURING INSTALLATION TO PREVENT DISTORTION.
- INCREASE MINIMUM FILL HEIGHT BY AN ADDITIONAL.
- INCREASE MINIMUM FILL HEIGHT BY AN ADDITIONAL 2-4' TO ACCOMMODATE HEAVY CONSTRUCTION EQUIPMENT OVER PIPE.

NOTES:
1. ALL BEDDING & INITIAL BACKFILL SHALL BE INSTALLED IN 6" LIFTS
2. MINIMUM 9" OF CLEARANCE SHALL BE PROVIDED ON EACH SIDE OF THE INSTALLED PIPE.

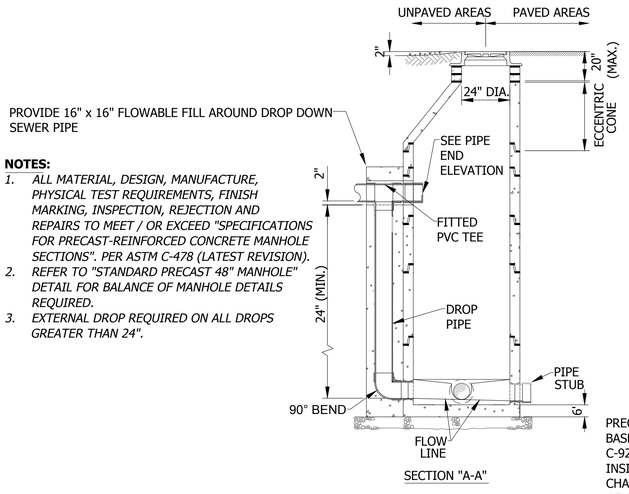
1 C413 SANITARY SEWER PIPE PVC TRENCH DETAIL
NOT TO SCALE



PERSPECTIVE VIEW - EARTH CUT AWAY
CRADLE SHALL BEAR ON UNDISTURBED EARTH

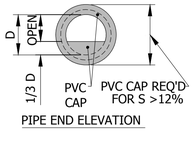
NOTE: TO BE USED WHEN CLEAR DISTANCE (FROM EXTERIOR PIPE DIAMETER TO EXTERIOR PIPE DIAMETER) BETWEEN SANITARY SEWER PIPING (MAINS, LATERALS, FORCE MAINS, ETC.) AND ALL OTHER PIPES ARE 18" OR LESS, PER INSPECTOR'S DIRECTION, OR WHERE NOTED ON THE DRAWINGS. A MINIMUM CLEAR DISTANCE OF 6" MUST BE PROVIDED TO MAINTAIN STRUCTURAL INTEGRITY OF THE CONCRETE.

2 C413 MICHIGAN CITY DETAIL - CONCRETE CRADLE
NOT TO SCALE

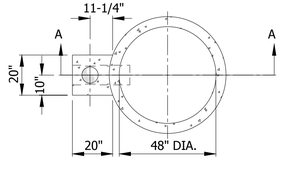


SECTION "A-A"

NOTES:
1. *ALL MATERIAL, DESIGN, MANUFACTURE, PHYSICAL TEST REQUIREMENTS, FINISH MARKING, INSPECTION, REJECTION AND REPAIRS TO MEET / OR EXCEED "SPECIFICATIONS FOR PRECAST-REINFORCED CONCRETE MANHOLE SECTIONS". PER ASTM C-478 (LATEST REVISION).*
2. *REFER TO "STANDARD PRECAST 48" MANHOLE" DETAIL FOR BALANCE OF MANHOLE DETAILS REQUIRED.*
3. *EXTERNAL DROP REQUIRED ON ALL DROPS GREATER THAN 24".*

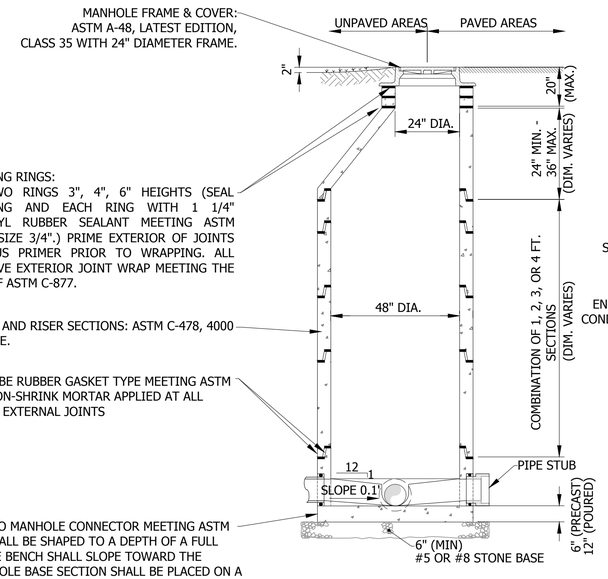


PIPE END ELEVATION



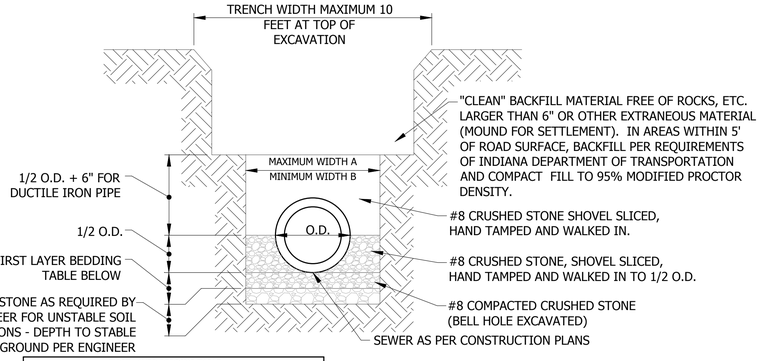
MANHOLE BASE/RISER PLAN

3 C413 STANDARD PRECAST 48" DROP MANHOLE
NOT TO SCALE



NOTES:
1. *ALL MANHOLE LIDS SHALL BEAR "SANITARY SEWER" MOLDED INTO THE EXTERIOR SURFACE.*
2. *WATERTIGHT CASTINGS EQUAL TO EJ 1022-WT GASKETED AND BOLT DOWN LIDS REQUIRED AS NOTED.*
3. *ALL PRECAST CONCRETE FOR FORCE MAIN RECEIVING MANHOLES AND ALL NEW MANHOLES WITHIN 500 FEET UPSTREAM OR DOWNSTREAM OF THE RECEIVING MANHOLE SHALL CONTAIN ANTI-CORROSION ADDITIVE, CONSHIELD OR EQUIVALENT.*
4. *IN TRAFFIC AREAS:*
   7" MIN. HGT., EQUAL TO EAST JORDAN 1022 OR EQUAL WITH HEAVY DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES. (SET LID FLUSH WITH FINISHED STREET SURFACE).
5. *IN NON-TRAFFIC AREAS:*
   7" MIN. HGT., EQUAL TO EAST JORDAN 1022 OR EQUAL WITH MEDIUM DUTY COVER, MACHINED BEARING SURFACE & CONCEALED LIFT HOLES. (SET TOP 2" ABOVE GRADE - AFTER EARTH SETTLEMENT).

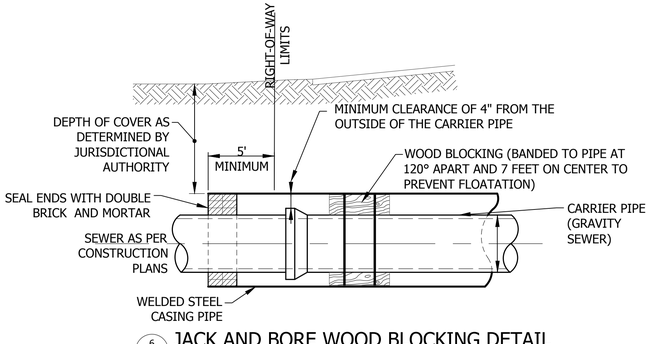
4 C413 STANDARD PRECAST 48" MANHOLE
NOT TO SCALE



FIRST LAYER BEDDING TABLE		
PIPE SIZE	6" TO 15"	18" & OVER
BEDDING BELOW THE PIPE BARREL AND BELL	MINIMUM = 6"	MINIMUM = 10"

PIPE SIZE	A	B
UP TO 18"	3' - 0"	2' - 6"
18" AND GREATER	O.D. + 24"	O.D. + 18"

5 C413 SANITARY SEWER DIP TRENCHING, BEDDING, & BACKFILL DETAIL
NOT TO SCALE



6 C413 JACK AND BORE WOOD BLOCKING DETAIL
NOT TO SCALE

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INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER DETAILS

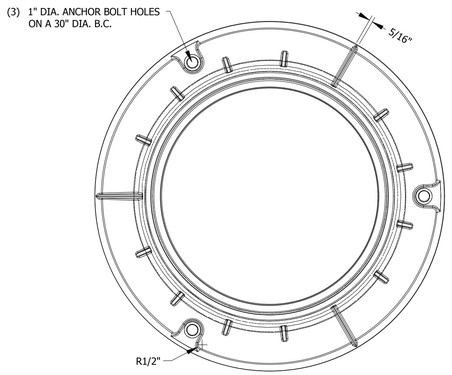
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Project Number: 18-400-024-1
Designed By: J.R.M.
Drawn By: J.R.M.
Checked By: M.P.Z.
Date: 7/24/19

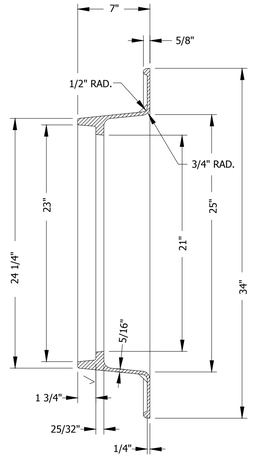
PAUL W. VINCENT REGISTERED No. PE10200112 STATE OF INDIANA PROFESSIONAL ENGINEER

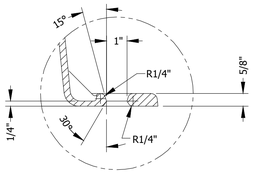
GRAVITY SEWER DETAILS

C413

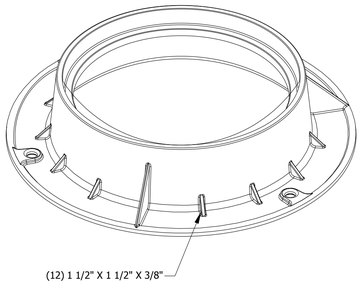


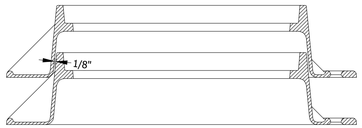






DETAIL A
SCALE 1:4

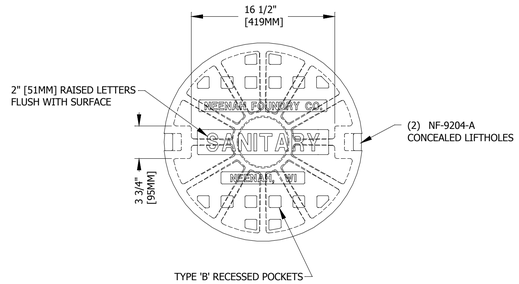


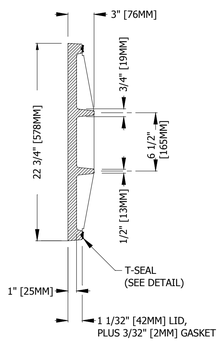


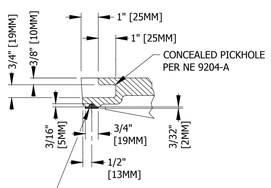
STACKING DETAIL

NOTE: MEETS LOADING REQUIREMENTS OF HS-25.
MADE IN THE USA.
QUALIFIES FOR "LEED" CREDITS.
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 40A
FINISH: NO PAINT
WEIGHT: 123# WAS 1772T69

7 C414 NEENAH R-1772 FRAME DETAIL
NOT TO SCALE



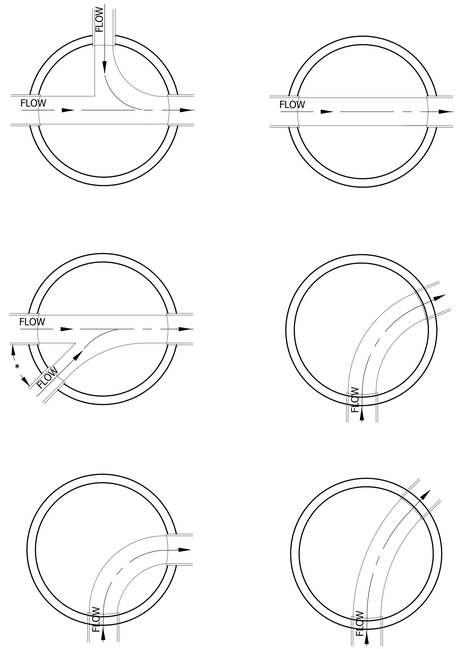


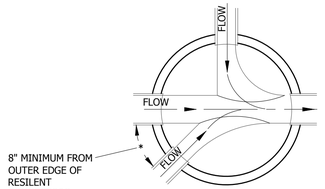


T-SEAL W/
CONCEALED PICKHOLE DETAIL
SCALE 1:4

NOTE: ALL DIMENSIONS ARE SHOWN IN ENGLISH AND [METRIC].
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
FINISH: NO PAINT
WEIGHT: 117#

8 C414 NEENAH R-1772 COVER DETAIL
NOT TO SCALE





NOTE:
IF MANHOLE HAS ONLY ONE INFLUENT PIPE WHICH IS APPROXIMATELY 90 DEGREES TO EFFLUENT PIPE, THEN CONTRACTOR SHALL MAINTAIN A RADIUSED CHANNEL OF SAME WIDTH AS INFLUENT PIPE.

9 C414 FLOW CHANNEL DETAIL
NOT TO SCALE

NOTE:
IF SEPARATION IS BETWEEN 8" AND 18", THEN ADDITIONAL REINFORCEMENT (REBAR OR MESH AREA) SHALL BE INCREASED AS DEEMED NECESSARY BY ENGINEER

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
GRAVITY SEWER DETAILS

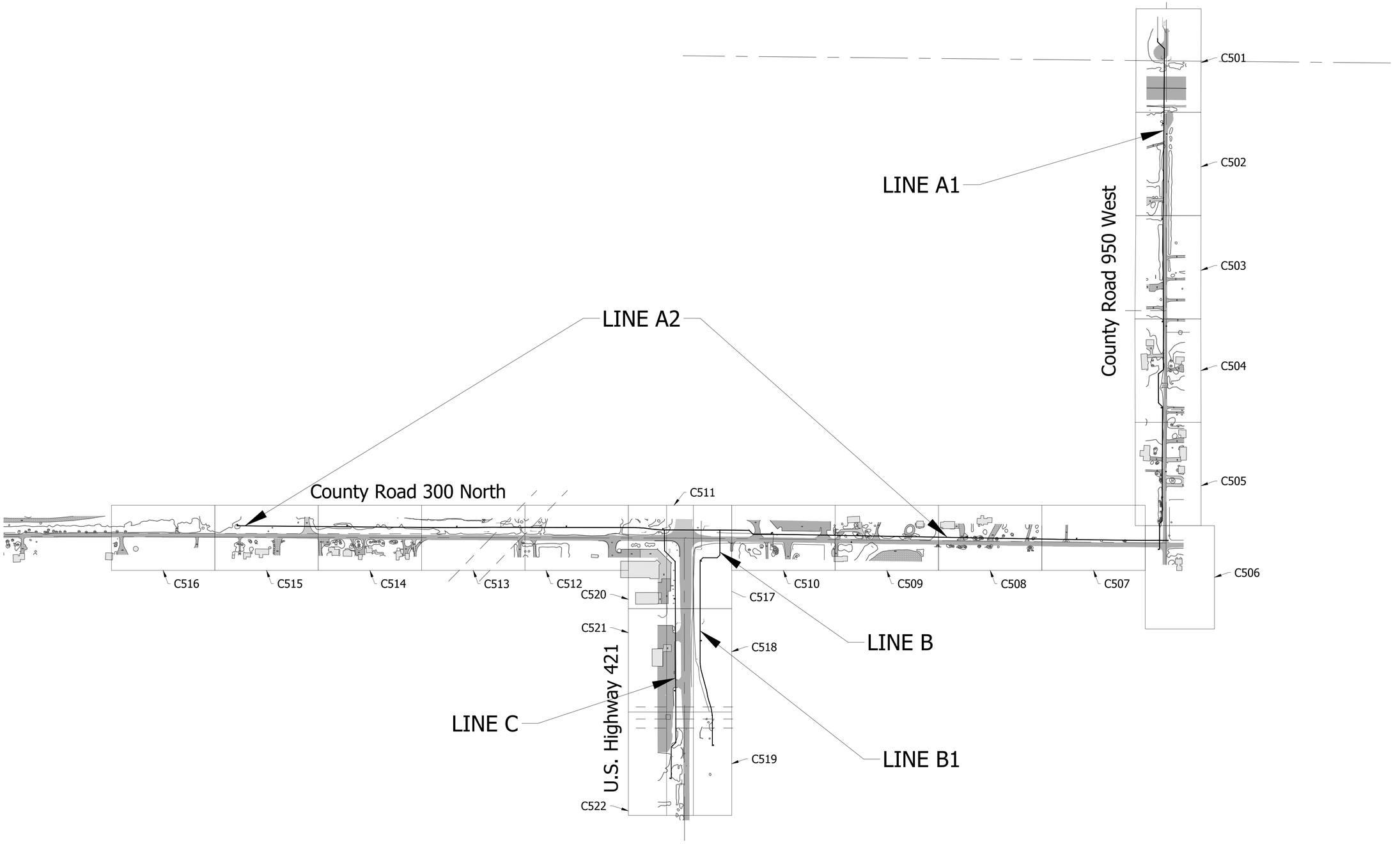
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Drawn By: J.R.M.
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PAUL W. VINCENT
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No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

GRAVITY SEWER DETAILS

C414



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
OVERALL PALN

#	Revision	Date

Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

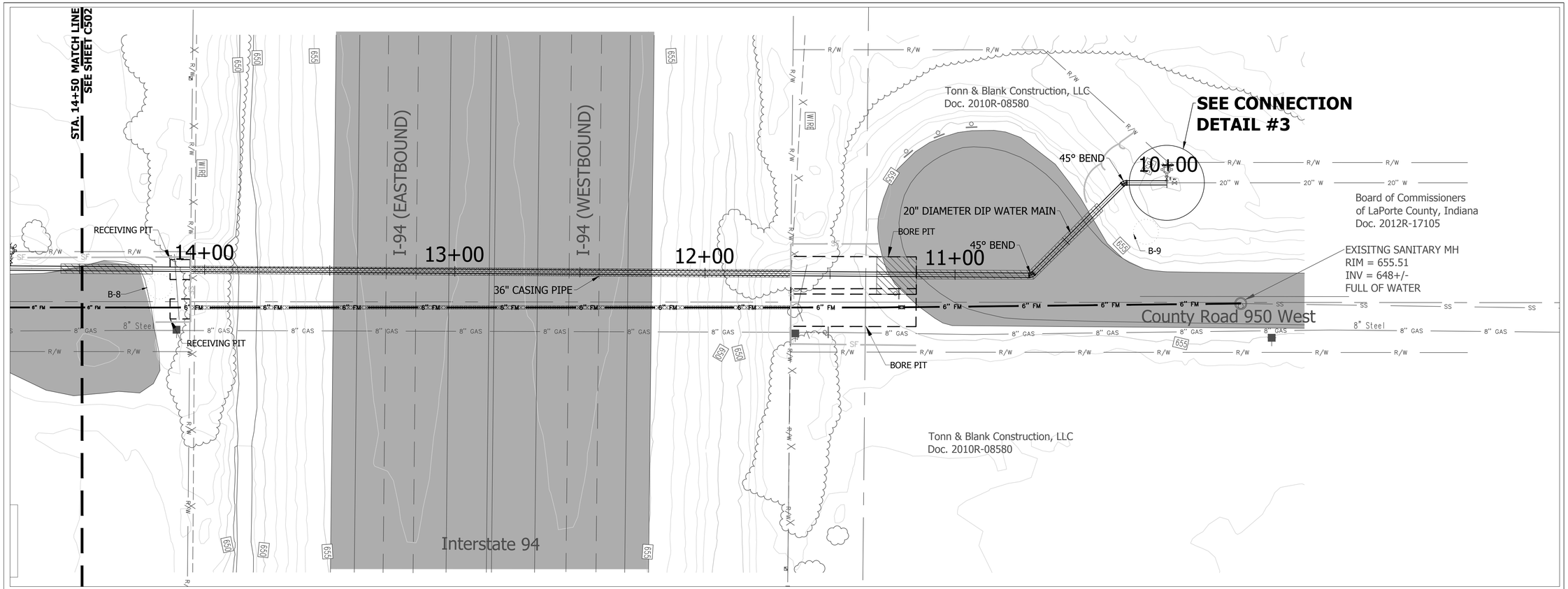
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STATE OF INDIANA
PROFESSIONAL ENGINEER

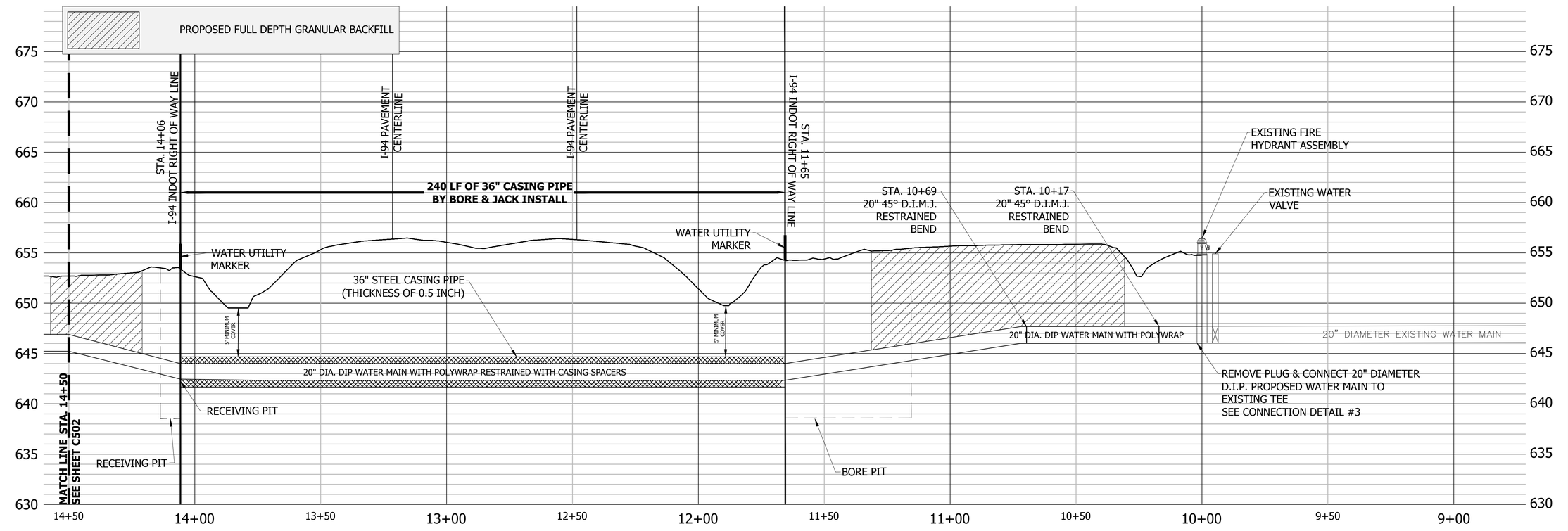
1" = 250'
0 250' 500'
GRAPHIC SCALE
N

811 Know what's below. Call before you dig.
INDIANA 811 Know What's Below. Call Before You Dig.
CALL 2 WORKING DAYS BEFORE YOU DIG

WATER MAIN
OVERALL PLAN

C500





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 10+00 TO STA. 14+50 (LINE A1)

#	Revision	Date

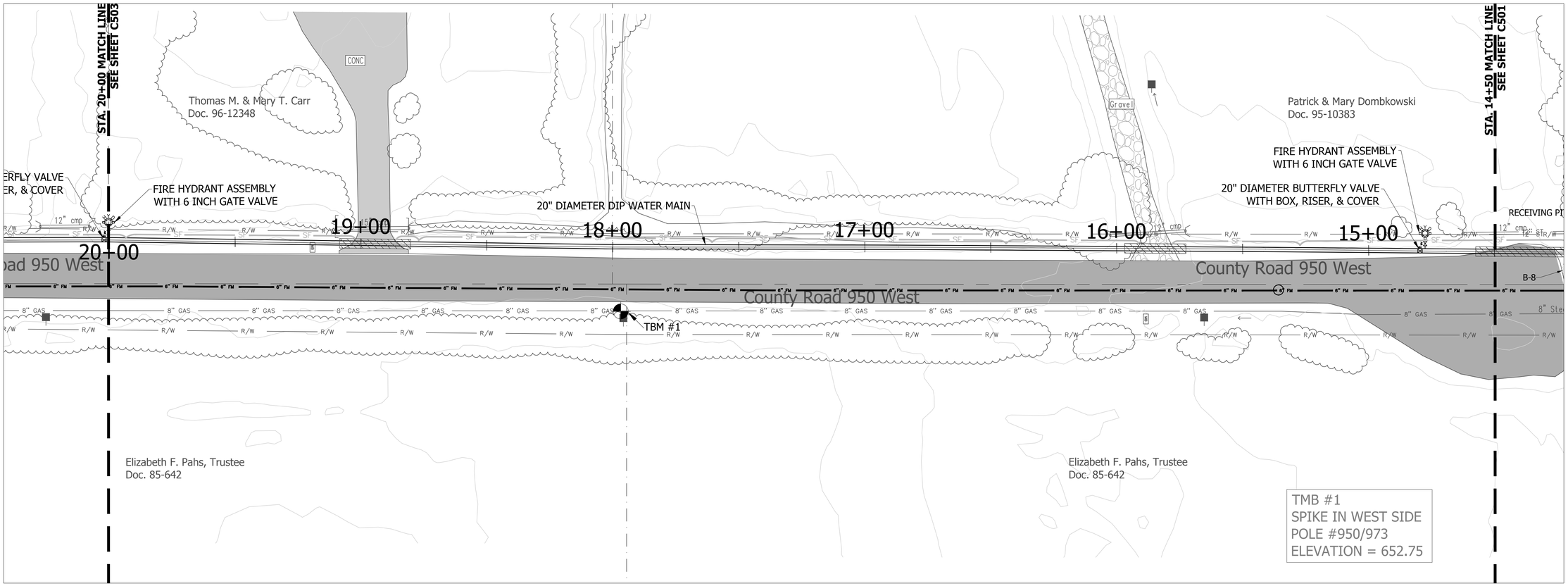
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

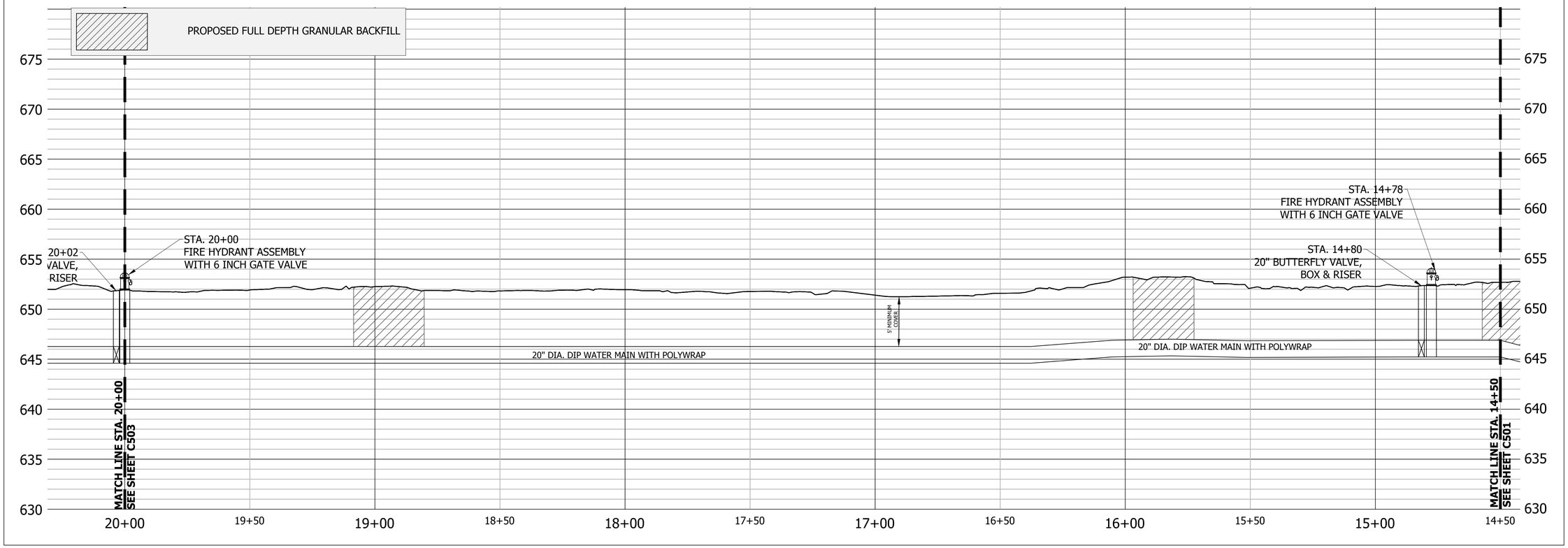
PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 10+00 TO STA. 14+50
(LINE A1)

C501





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 14+50 TO STA. 20+00 (LINE A1)

#	Revision	Date

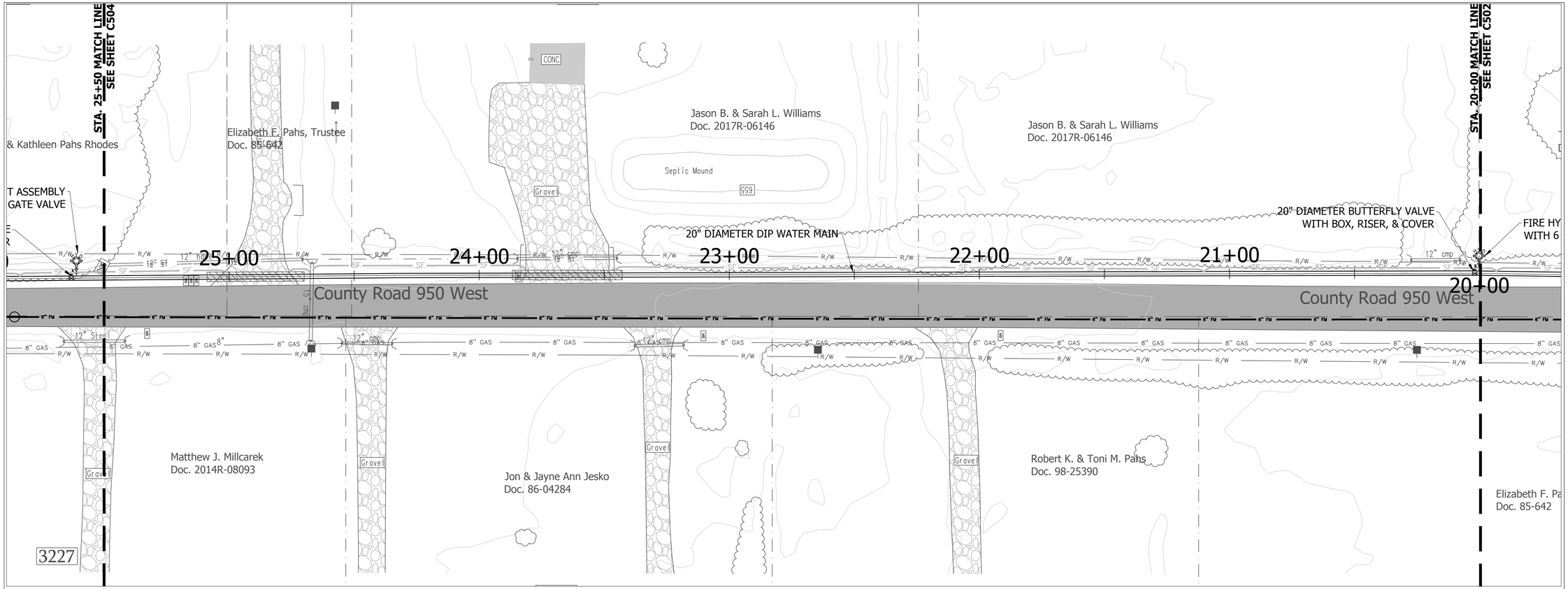
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

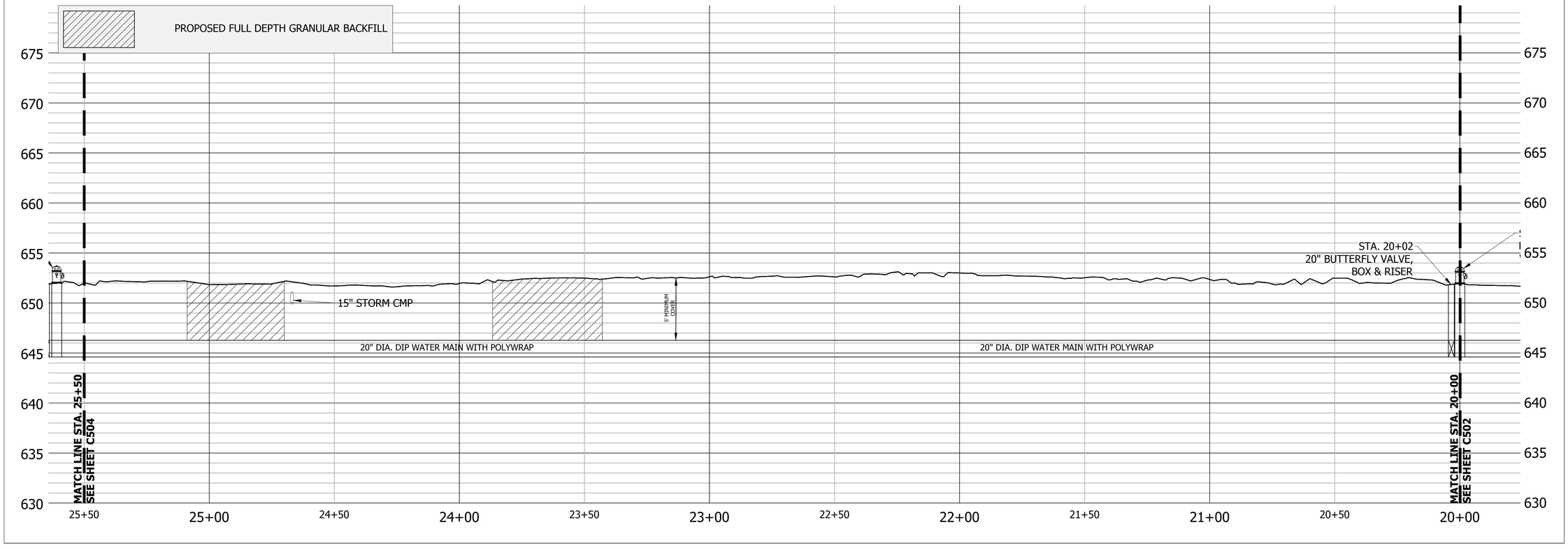
PAUL W. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 14+50 TO STA. 20+00
(LINE A1)

C502





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 20+00 TO STA. 25+50 (LINE A1)

#	Revision	Date

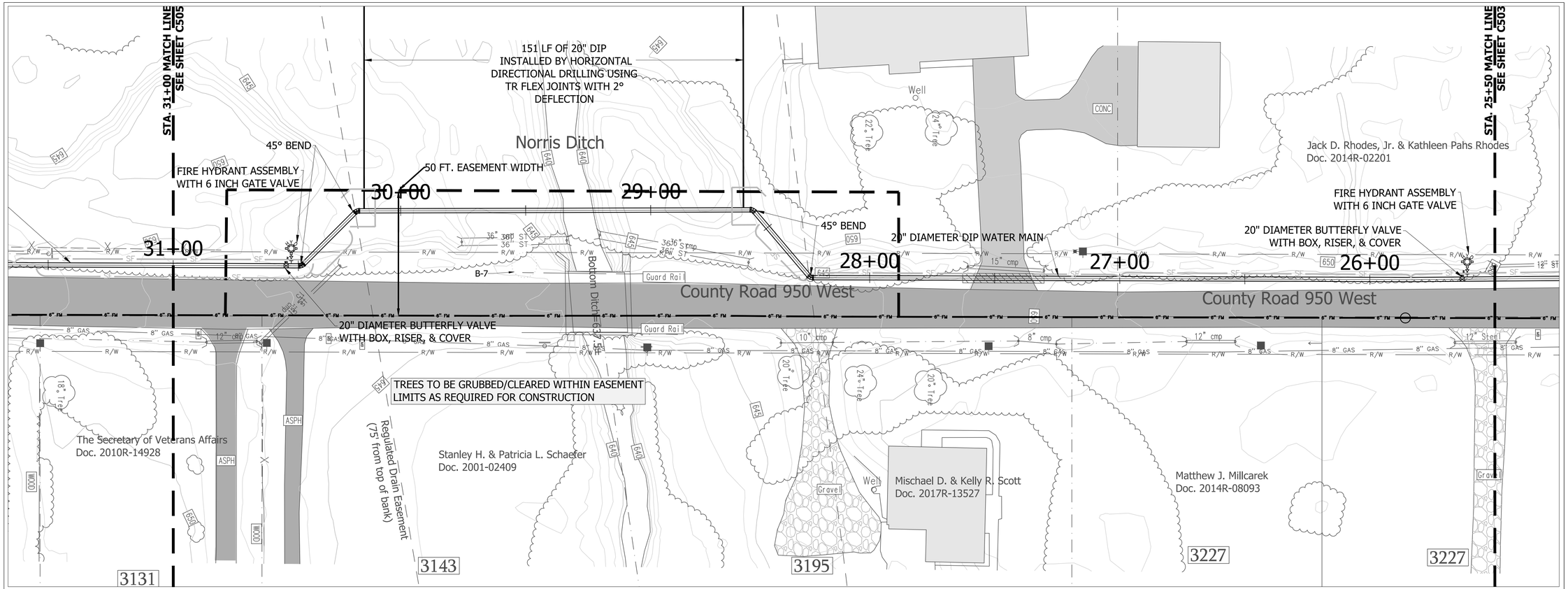
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

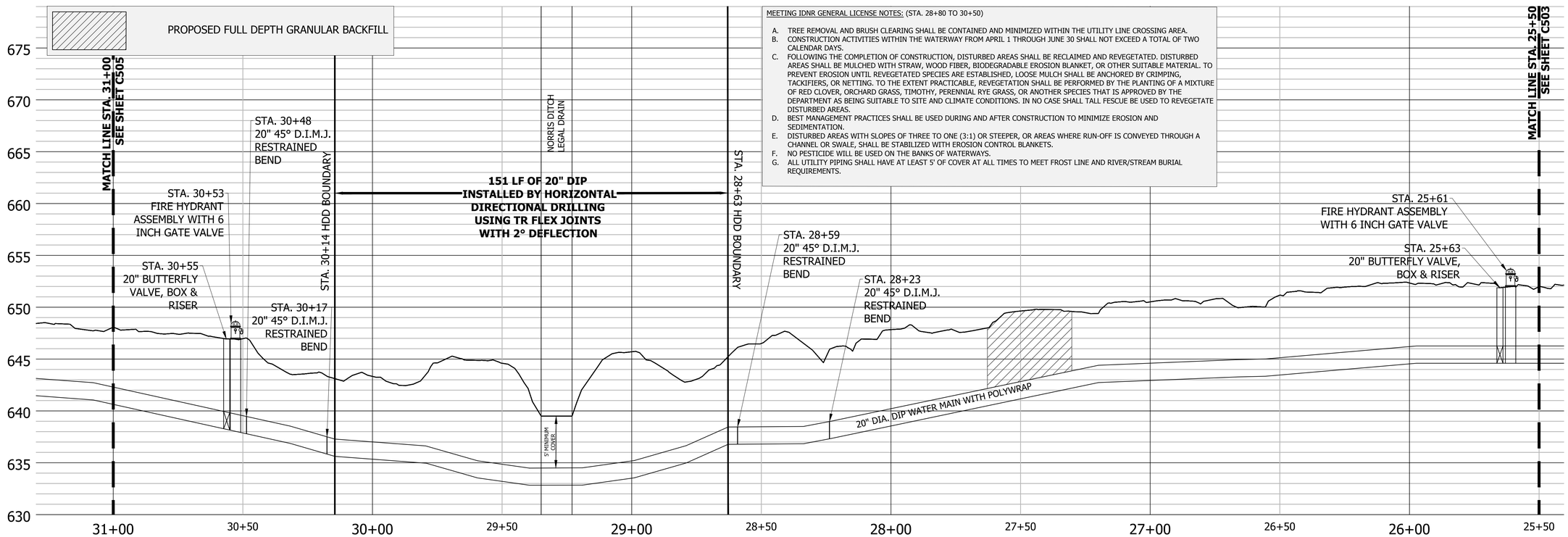
PAUL N. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 20+00 TO STA. 25+50
(LINE A1)

C503





MEETING IDNR GENERAL LICENSE NOTES: (STA. 28+80 TO 30+50)

A. TREE REMOVAL AND BRUSH CLEARING SHALL BE CONTAINED AND MINIMIZED WITHIN THE UTILITY LINE CROSSING AREA.
B. CONSTRUCTION ACTIVITIES WITHIN THE WATERWAY FROM APRIL 1 THROUGH JUNE 30 SHALL NOT EXCEED A TOTAL OF TWO CALENDAR DAYS.
C. FOLLOWING THE COMPLETION OF CONSTRUCTION, DISTURBED AREAS SHALL BE RECLAIMED AND REVEGETATED. DISTURBED AREAS SHALL BE MULCHED WITH STRAW, WOOD FIBER, BIODEGRADABLE EROSION BLANKET, OR OTHER SUITABLE MATERIAL. TO PREVENT EROSION UNTIL REVEGETATED SPECIES ARE ESTABLISHED, LOOSE MULCH SHALL BE ANCHORED BY CRIMPING, TACKIFIERS, OR NETTING. TO THE EXTENT PRACTICABLE, REVEGETATION SHALL BE PERFORMED BY THE PLANTING OF A MIXTURE OF RED CLOVER, ORCHARD GRASS, TIMOTHY, PERENNIAL RYE GRASS, OR ANOTHER SPECIES THAT IS APPROVED BY THE DEPARTMENT AS BEING SUITABLE TO SITE AND CLIMATE CONDITIONS. IN NO CASE SHALL TALL FESCUE BE USED TO REVEGETATE DISTURBED AREAS.
D. BEST MANAGEMENT PRACTICES SHALL BE USED DURING AND AFTER CONSTRUCTION TO MINIMIZE EROSION AND SEDIMENTATION.
E. DISTURBED AREAS WITH SLOPES OF THREE TO ONE (3:1) OR STEEPER, OR AREAS WHERE RUN-OFF IS CONVEYED THROUGH A CHANNEL OR SWALE, SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS.
F. NO PESTICIDE WILL BE USED ON THE BANKS OF WATERWAYS.
G. ALL UTILITY PIPING SHALL HAVE AT LEAST 5' OF COVER AT ALL TIMES TO MEET FROST LINE AND RIVER/STREAM BURIAL REQUIREMENTS.

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 25+50 TO STA. 31+00 (LINE A1)

#	Revision	Date

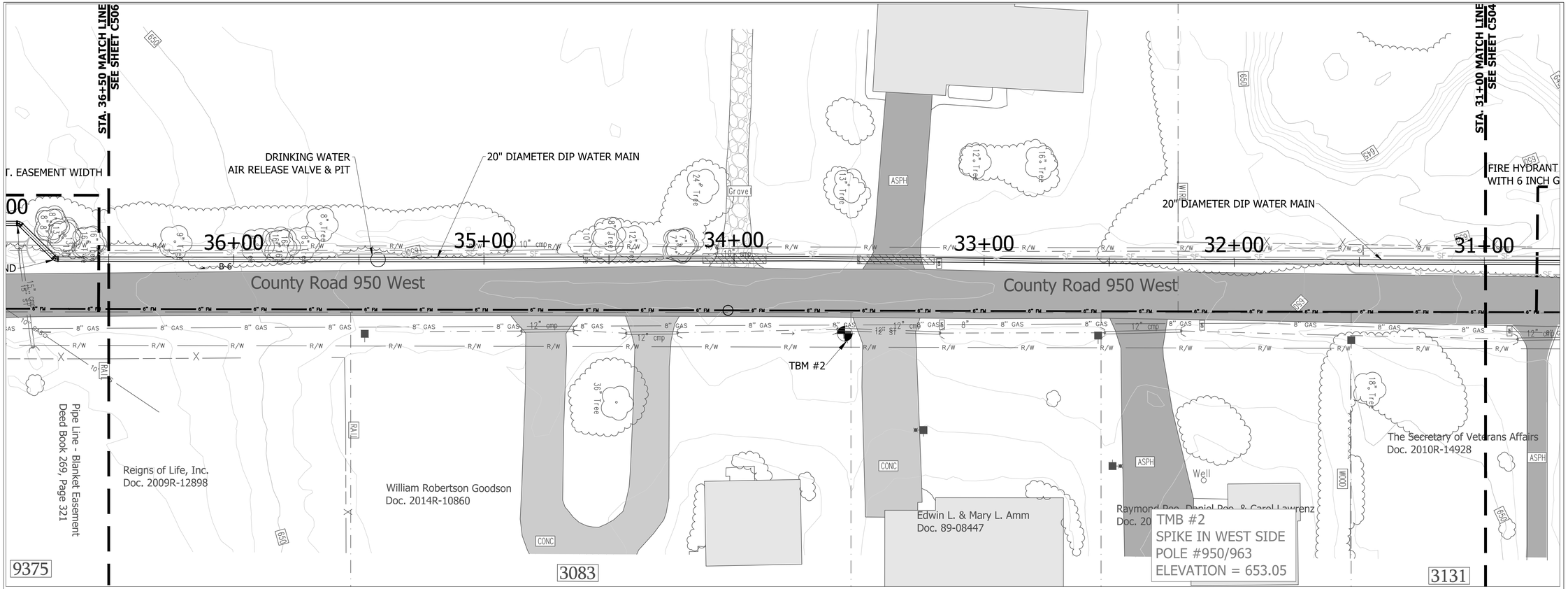
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

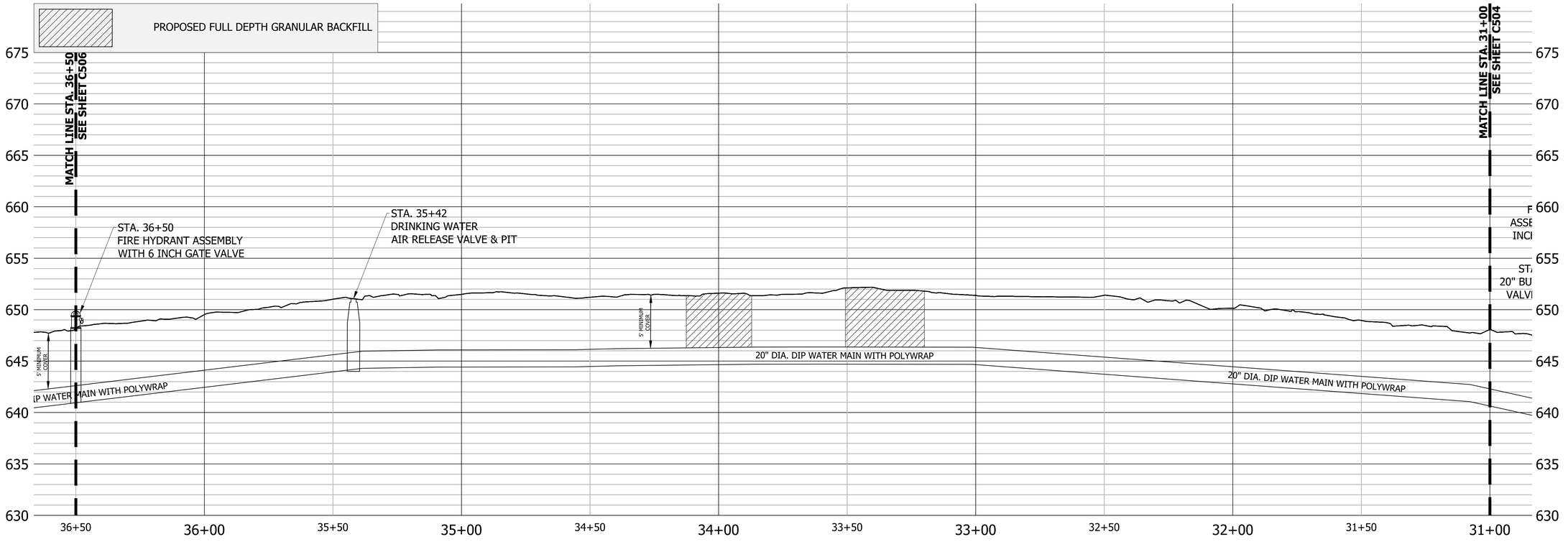
PAUL W. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 25+50 TO STA. 31+00
(LINE A1)

C504





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 31+00 TO STA. 36+50 (LINE A1)

#	Revision	Date

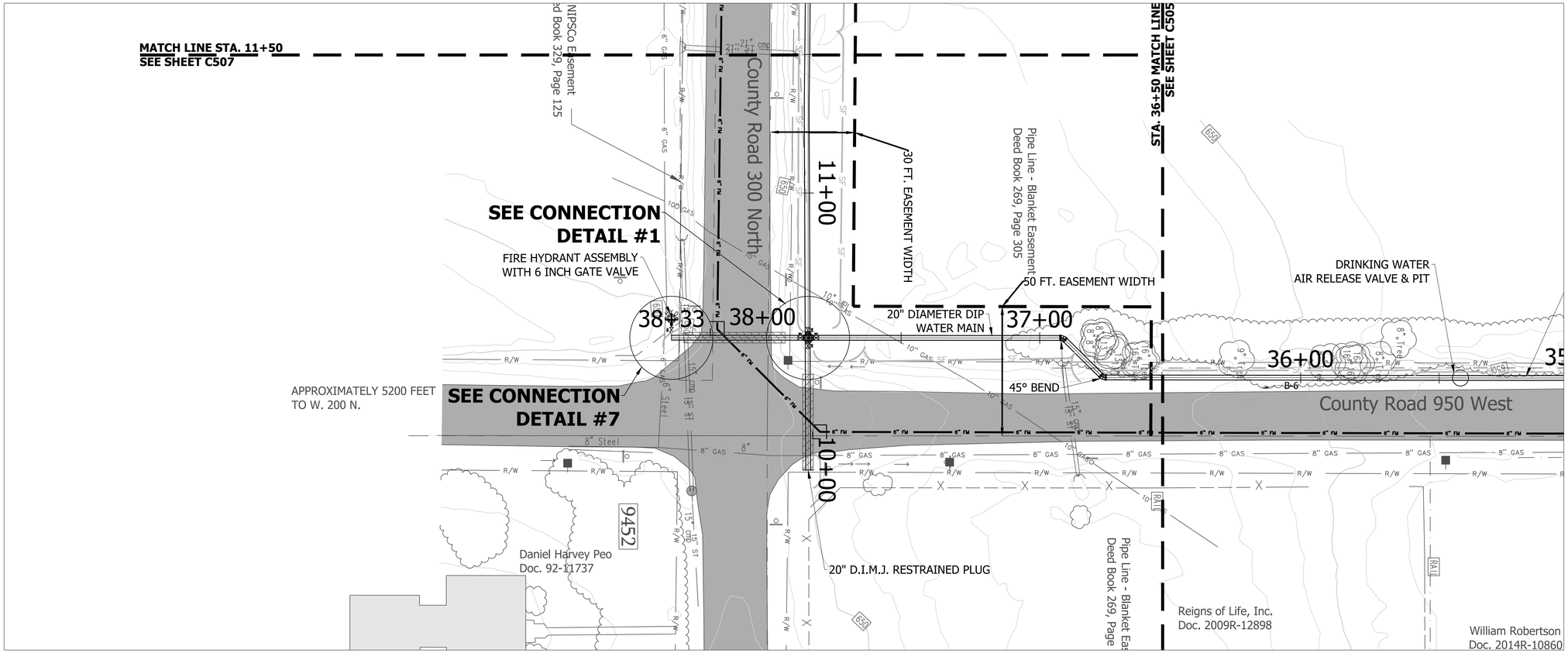
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

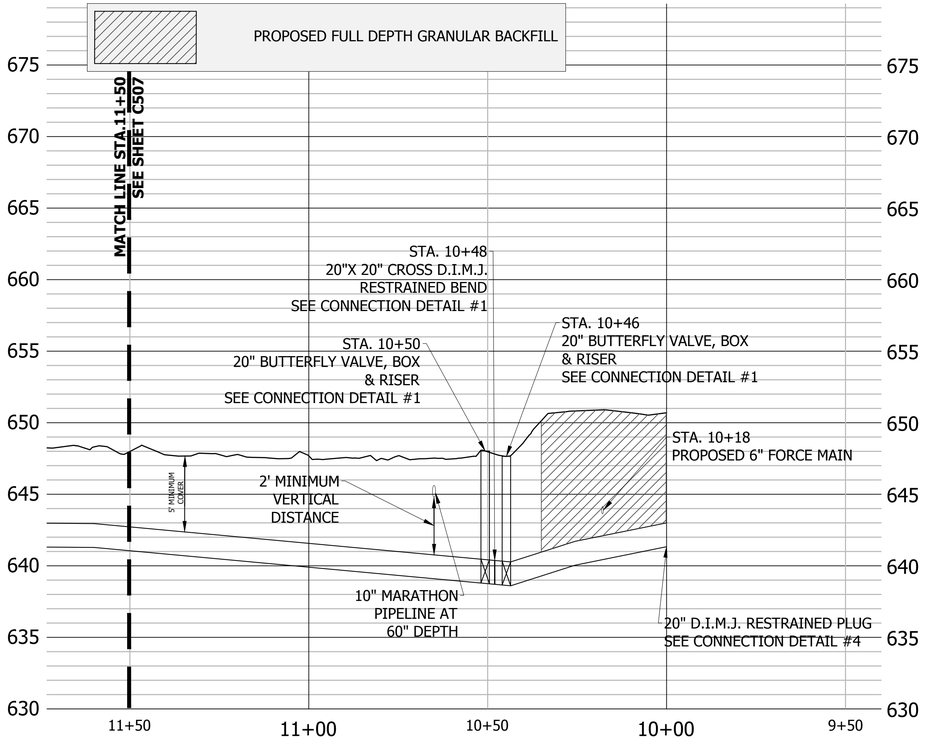
PAUL N. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

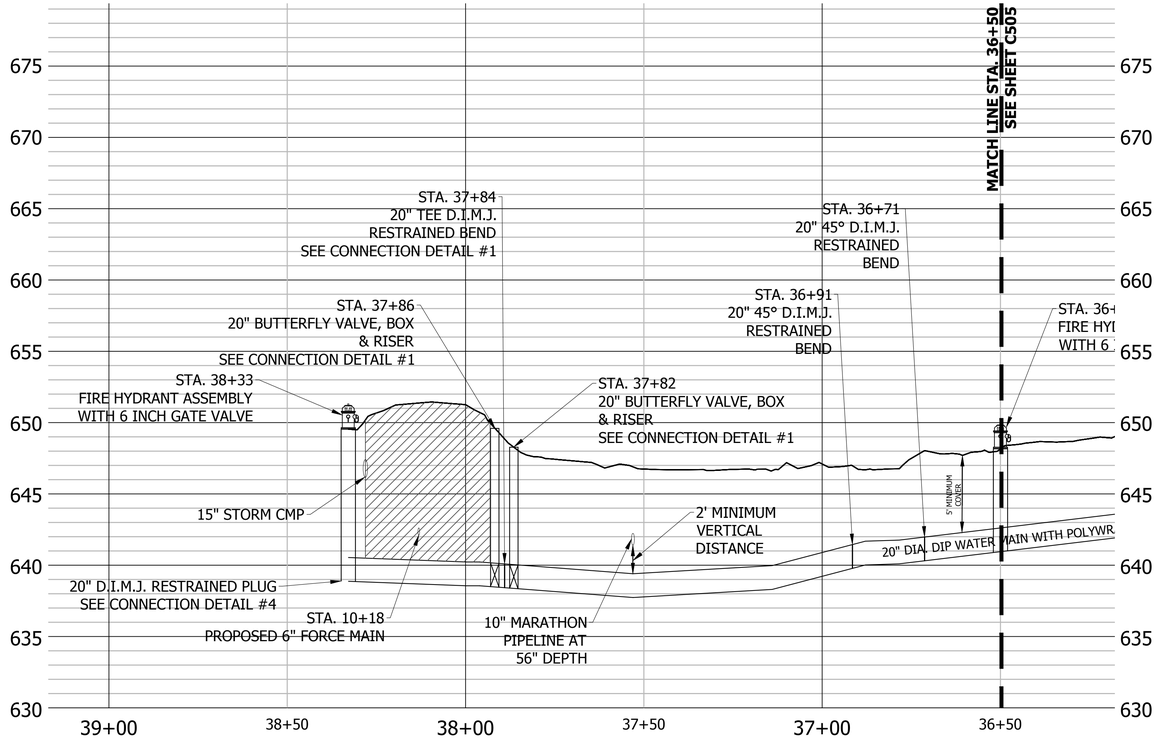
1" = 20'
0 20' 40'
GRAPHIC SCALE

WATER MAIN
STA. 31+00 TO STA. 36+50
(LINE A1)

C505







RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 36+50 TO STA. 38+33 (LINE A1)
STA. 10+00 TO STA. 11+50 (LINE A2)

#	Revision	Date

Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 36+50 TO STA. 38+33
(LINE A1)
STA. 10+00 TO STA. 11+50
(LINE A2)

C506

STA. 17+00 MATCH LINE SEE SHEET C508

9645
Thomas James & Brenda Lee Reiser
Doc. 93-11007

3084
Gregory A. Pahs, Trustee
Doc. 2015R-06046

FIRE HYDRANT ASSEMBLY WITH 6 INCH GATE VALVE

20" DIAMETER BUTTERFLY VALVE WITH BOX, RISER, & COVER

20" DIAMETER DIP WATER MAIN

STA. 11+50 MATCH LINE SEE SHEET C506

17+00 16+00 15+00 14+00 13+00 12+00

County Road 300 North

B-5

12' NIPSCo Easement
Deed Book 329, Page 125

The City of Michigan City Indiana
Doc. 98-15010
2224

PROPOSED FULL DEPTH GRANULAR BACKFILL

MATCH LINE STA. 17+00 SEE SHEET C508

STA. 15+02
20" BUTTERFLY VALVE, BOX & RISER

STA. 15+00
FIRE HYDRANT ASSEMBLY WITH 6 INCH GATE VALVE

20" DIA. DIP WATER MAIN WITH POLYWRAP

5' MINIMUM COVER

20" DIA. DIP WATER MAIN WITH POLYWRAP

MATCH LINE STA. 11+50 SEE SHEET C506

675 670 665 660 655 650 645 640 635 630

17+00 16+50 16+00 15+50 15+00 14+50 14+00 13+50 13+00 12+50 12+00 11+50

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 11+50 TO STA. 17+00 (LINE A2)

#	Revision	Date

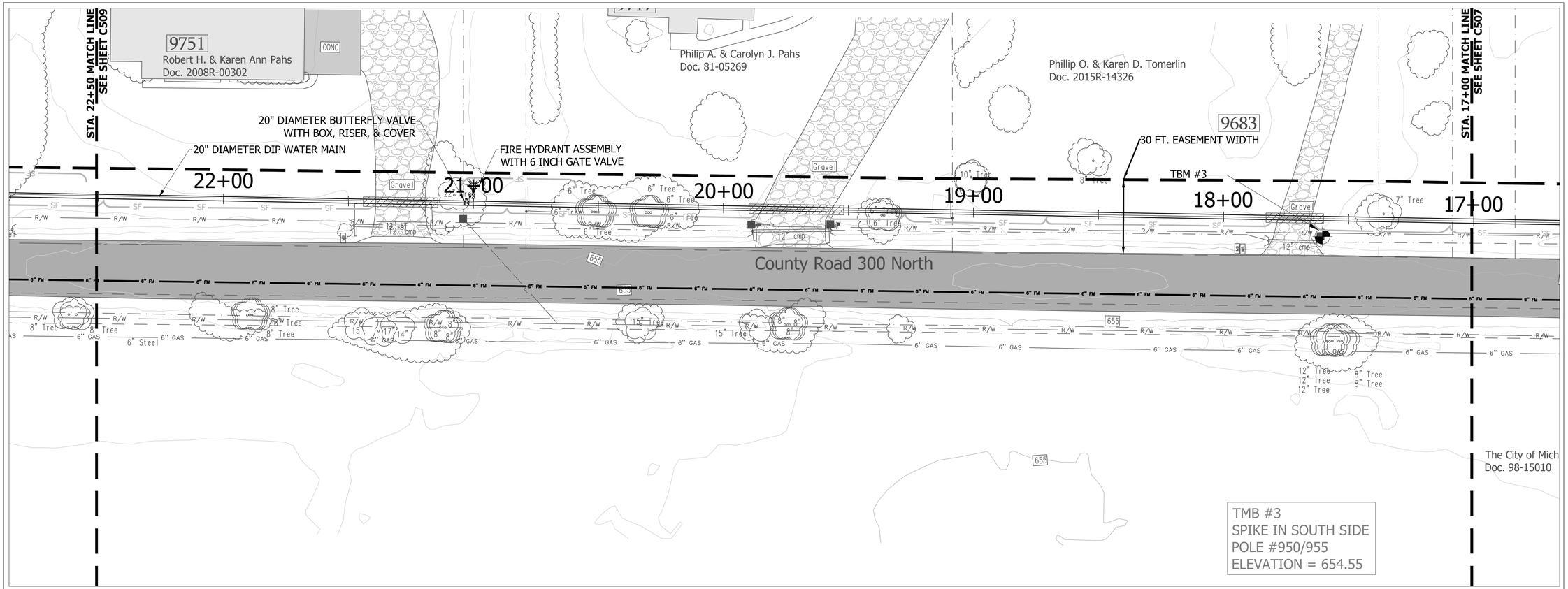
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

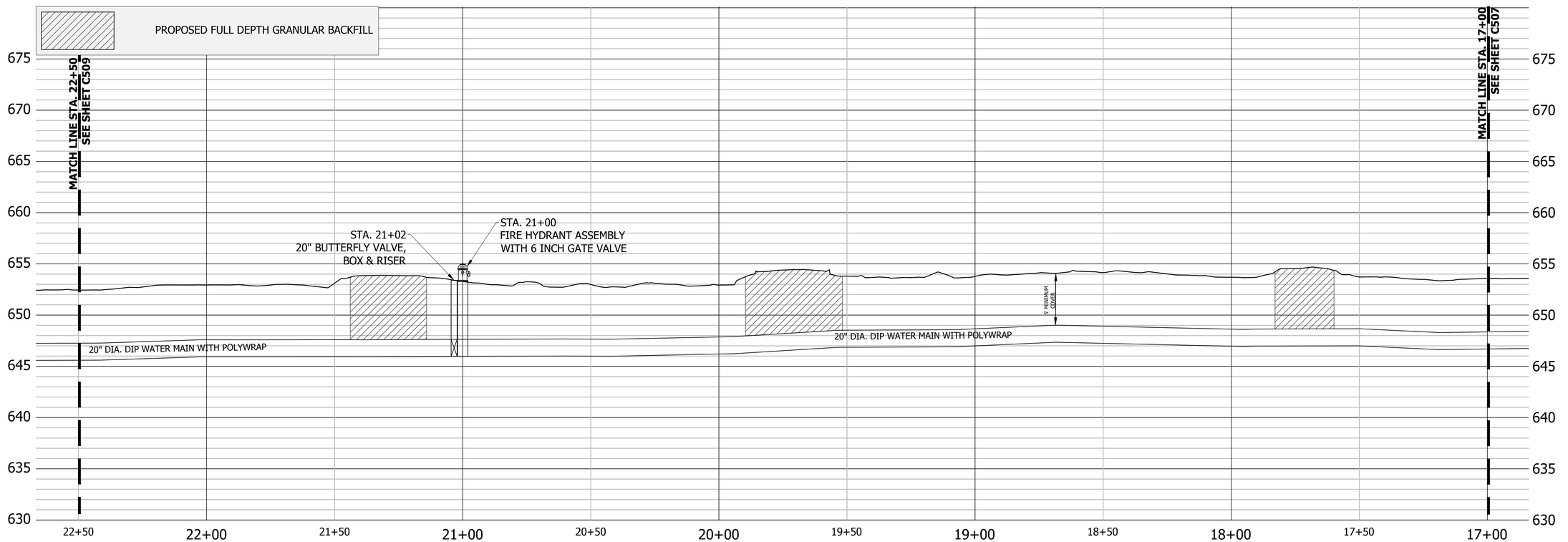
PAUL M. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 11+50 TO STA. 17+00
(LINE A2)

C507





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 17+00 TO STA. 22+50 (LINE A2)

#	Revision	Date

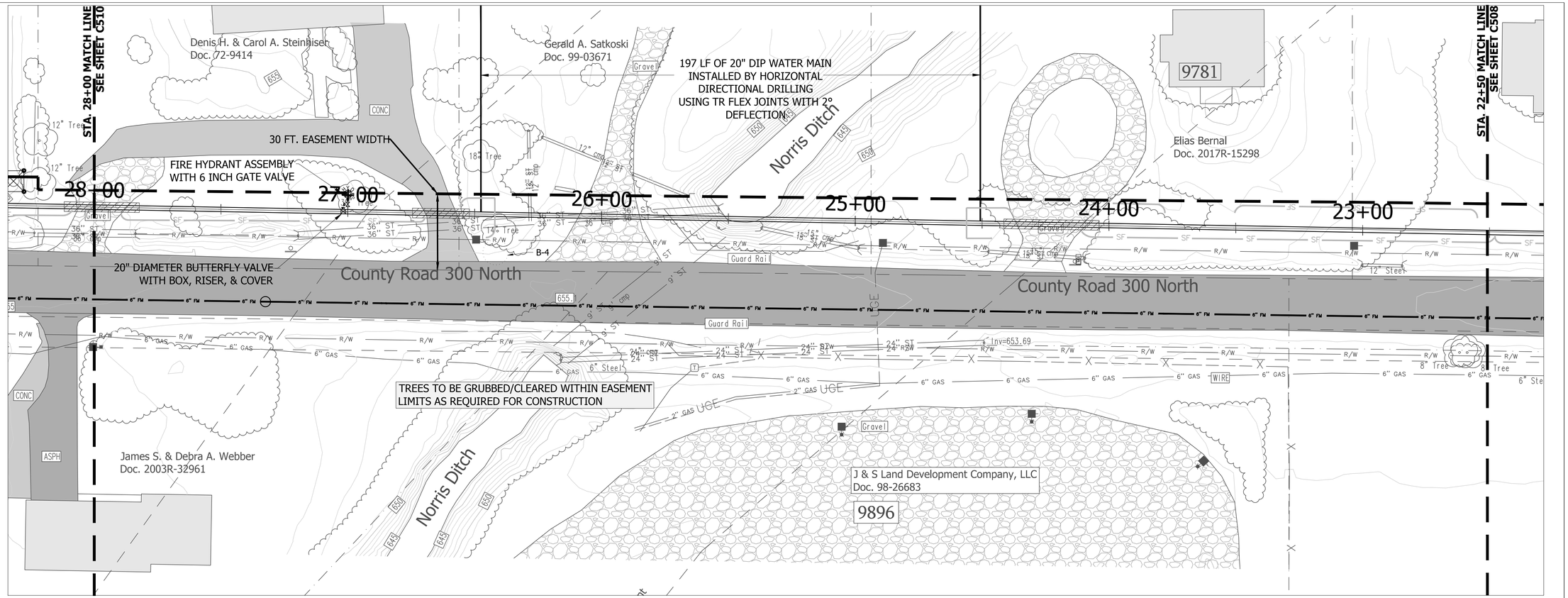
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

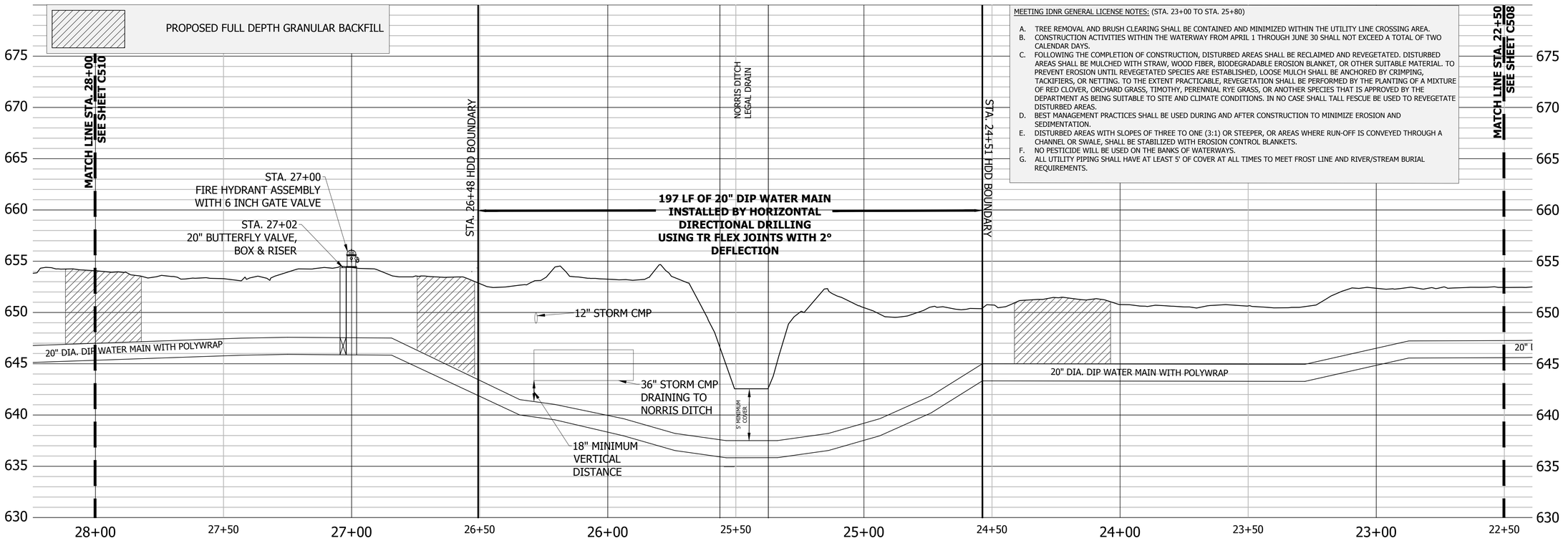
PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 17+00 TO STA. 22+50
(LINE A2)

C508





MEETING IDNR GENERAL LICENSE NOTES: (STA. 23+00 TO STA. 25+80)

A. TREE REMOVAL AND BRUSH CLEARING SHALL BE CONTAINED AND MINIMIZED WITHIN THE UTILITY LINE CROSSING AREA.
B. CONSTRUCTION ACTIVITIES WITHIN THE WATERWAY FROM APRIL 1 THROUGH JUNE 30 SHALL NOT EXCEED A TOTAL OF TWO CALENDAR DAYS.
C. FOLLOWING THE COMPLETION OF CONSTRUCTION, DISTURBED AREAS SHALL BE RECLAIMED AND REVEGETATED. DISTURBED AREAS SHALL BE MULCHED WITH STRAW, WOOD FIBER, BIODEGRADABLE EROSION BLANKET, OR OTHER SUITABLE MATERIAL. TO PREVENT EROSION UNTIL REVEGETATED SPECIES ARE ESTABLISHED, LOOSE MULCH SHALL BE ANCHORED BY CRIMPING, TACKIFIERS, OR NETTING. TO THE EXTENT PRACTICABLE, REVEGETATION SHALL BE PERFORMED BY THE PLANTING OF A MIXTURE OF RED CLOVER, ORCHARD GRASS, TIMOTHY, PERENNIAL RYE GRASS, OR ANOTHER SPECIES THAT IS APPROVED BY THE DEPARTMENT AS BEING SUITABLE TO SITE AND CLIMATE CONDITIONS. IN NO CASE SHALL TALL FESCUE BE USED TO REVEGETATE DISTURBED AREAS.
D. BEST MANAGEMENT PRACTICES SHALL BE USED DURING AND AFTER CONSTRUCTION TO MINIMIZE EROSION AND SEDIMENTATION.
E. DISTURBED AREAS WITH SLOPES OF THREE TO ONE (3:1) OR STEEPER, OR AREAS WHERE RUN-OFF IS CONVEYED THROUGH A CHANNEL OR SWALE, SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS.
F. NO PESTICIDE WILL BE USED ON THE BANKS OF WATERWAYS.
G. ALL UTILITY PIPING SHALL HAVE AT LEAST 5' OF COVER AT ALL TIMES TO MEET FROST LINE AND RIVER/STREAM BURIAL REQUIREMENTS.

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 22+50 TO STA. 28+00 (LINE A2)

#	Revision	Date

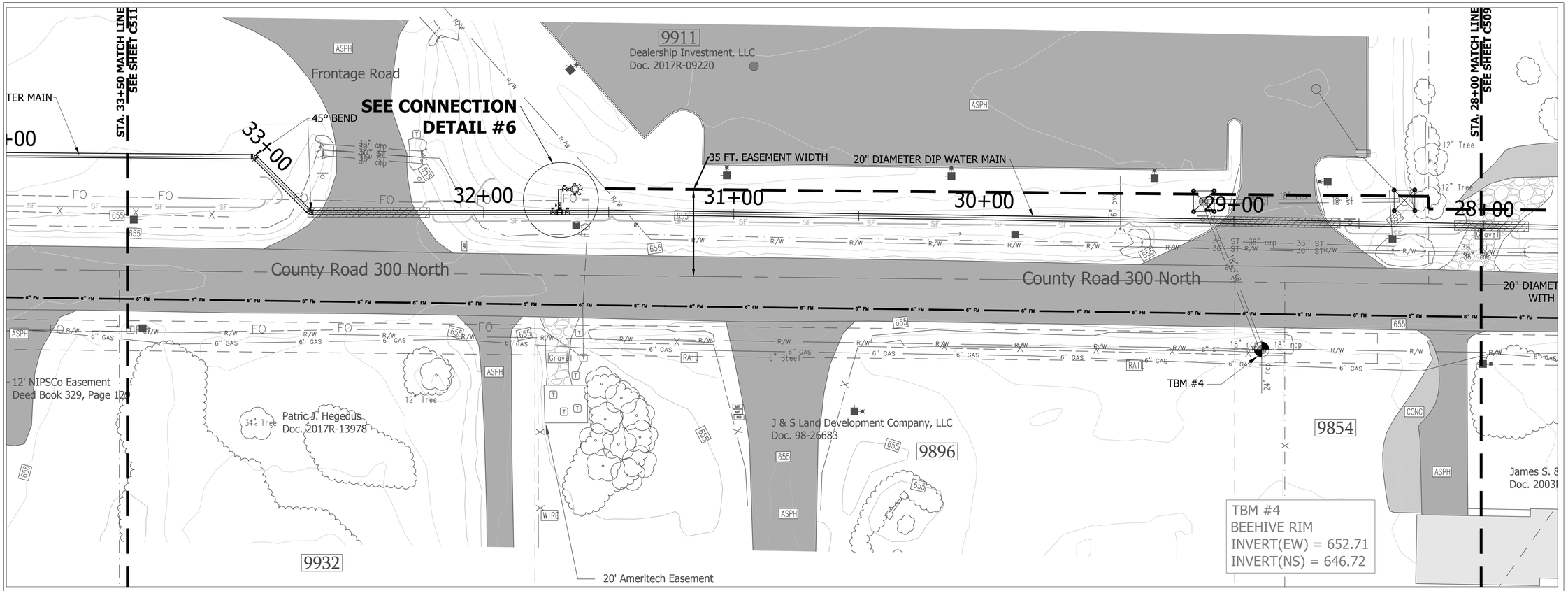
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

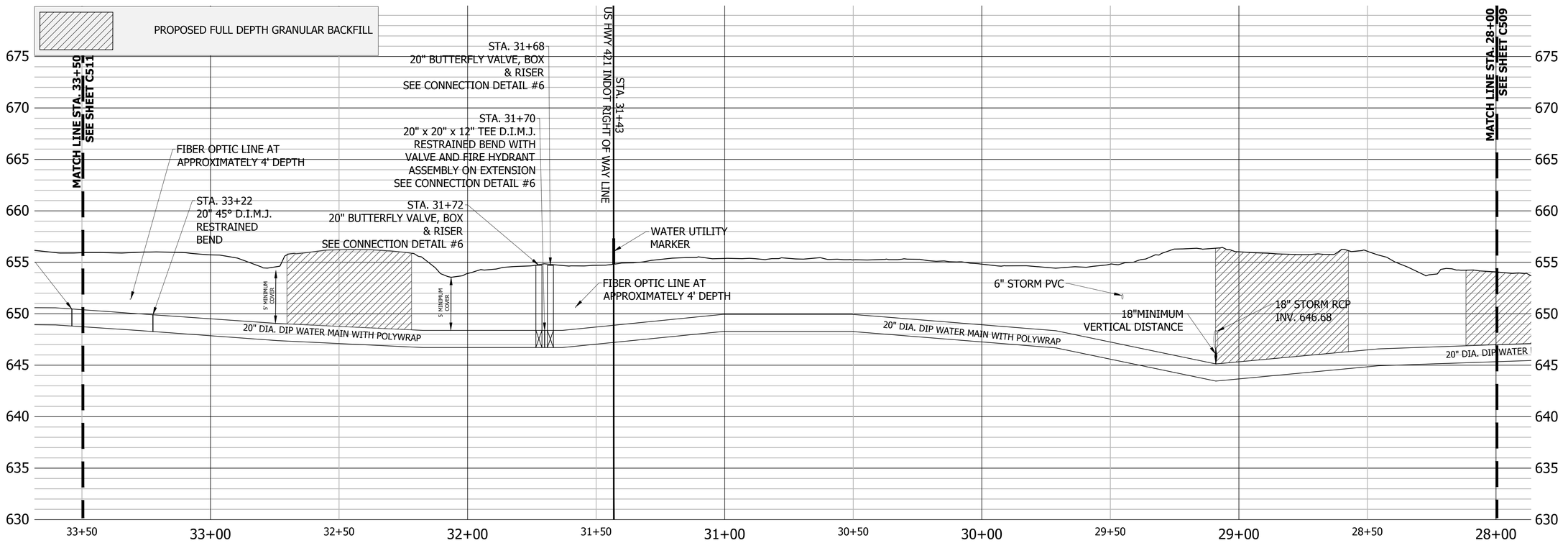
PAUL N. VINCENT REGISTERED No. PE10200112 STATE OF INDIANA PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 22+50 TO STA. 28+00
(LINE A2)

C509





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 28+00 TO STA. 33+50 (LINE A2)

#	Revision	Date

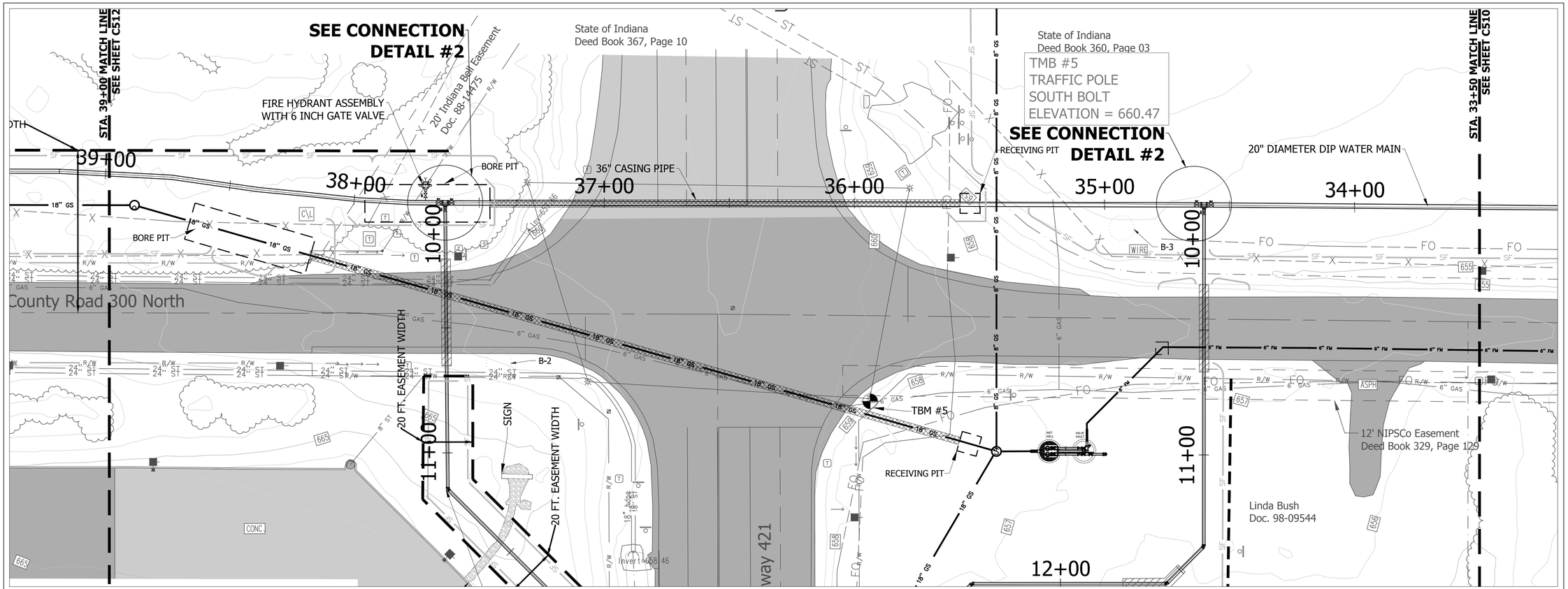
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

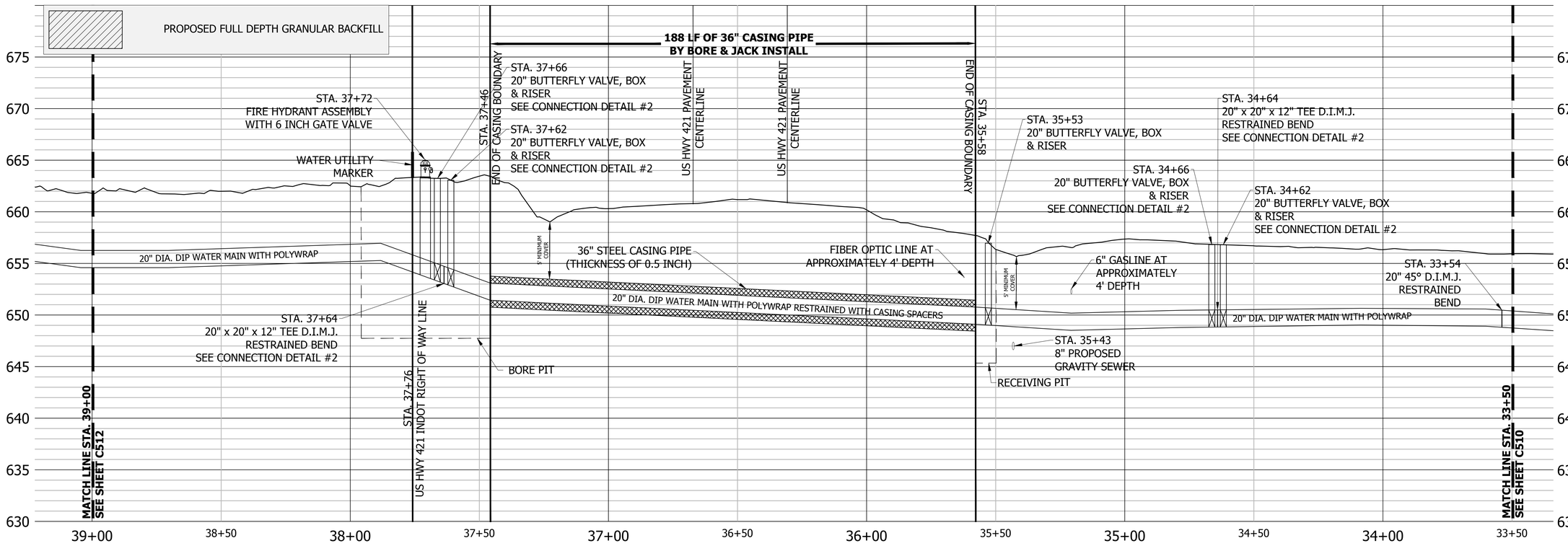
PAUL W. VINCENT
REGISTERED
No.
PE10200112
STATE OF
INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 28+00 TO STA. 33+50
(LINE A2)

C510





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 33+50 TO STA. 39+00 (LINE A2)

#	Revision	Date

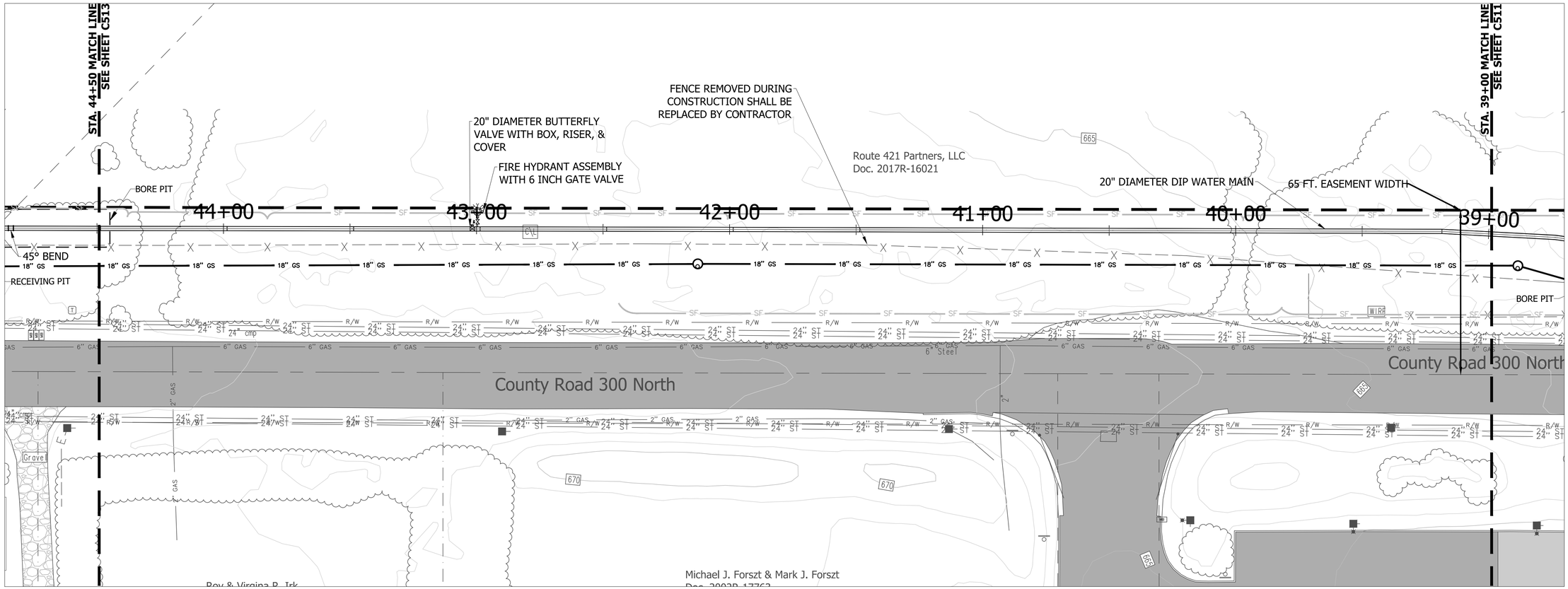
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

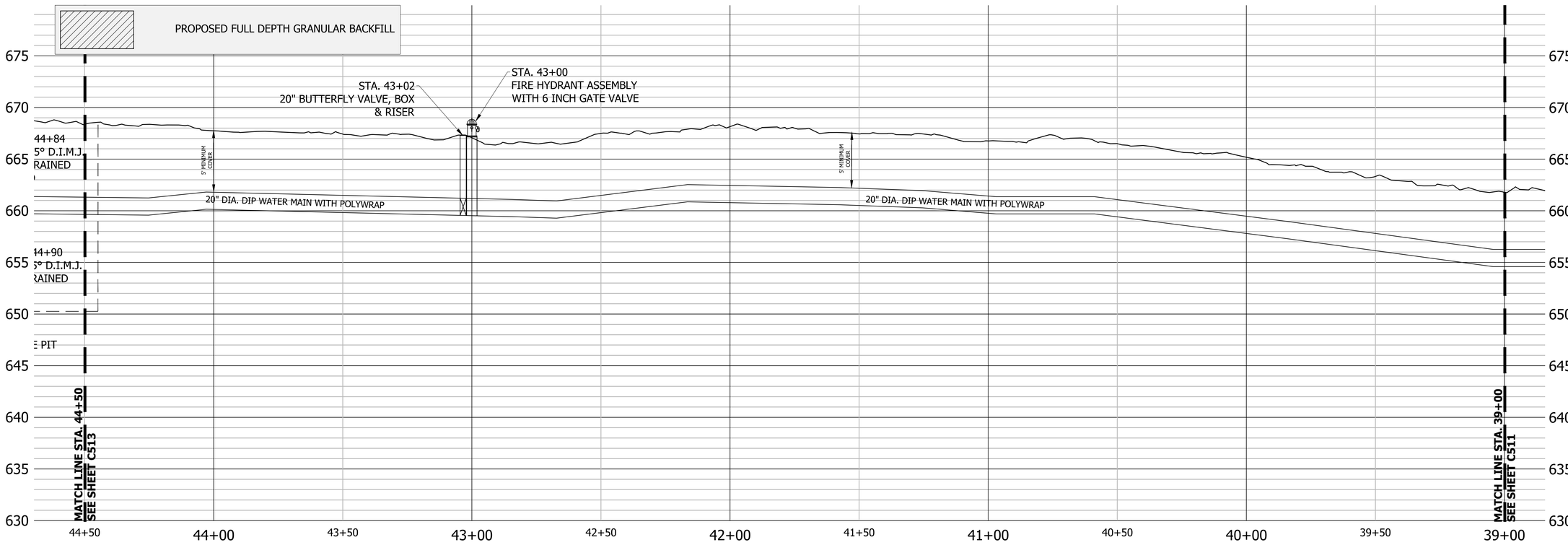
PAUL N. VINCENT REGISTERED No. PE10200112 STATE OF INDIANA PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 33+50 TO STA. 39+00
(LINE A2)

C511





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 39+00 TO STA. 44+50 (LINE A2)

#	Revision	Date

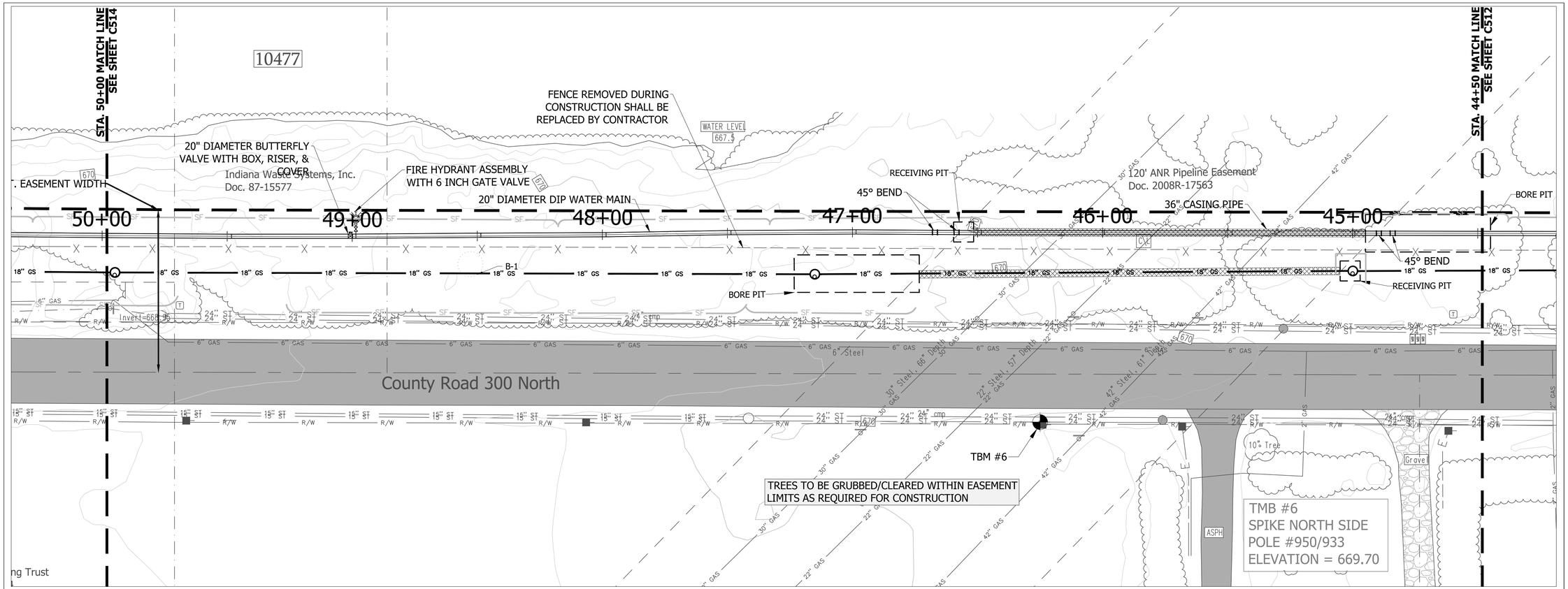
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

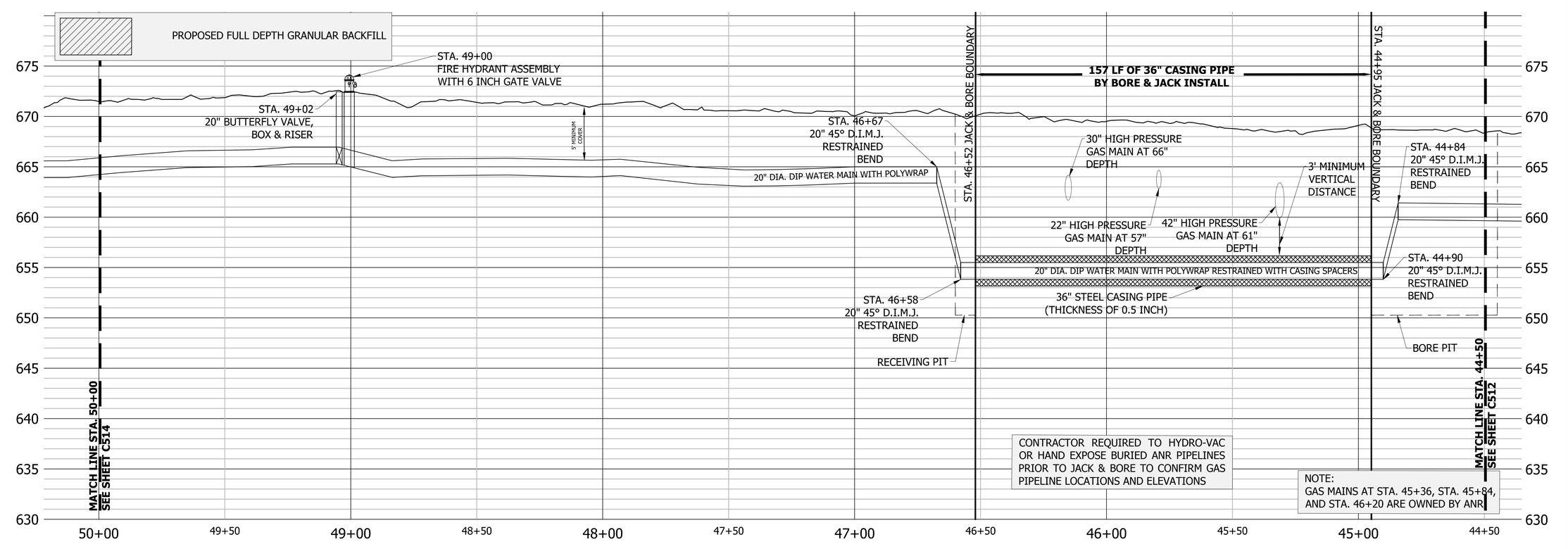
PAUL M. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 39+00 TO STA. 44+50
(LINE A2)

C512





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 44+50 TO STA. 50+00 (LINE A2)

#	Revision	Date

Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL W. VINCENT REGISTERED No. PE10200112 STATE OF INDIANA PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 44+50 TO STA. 50+00
(LINE A2)

C513

STA. 55+50 MATCH LINE
SEE SHEET C515

STA. 50+00 MATCH LINE
SEE SHEET C513

20" DIAMETER BUTTERFLY VALVE WITH BOX, RISER, & COVER

FIRE HYDRANT ASSEMBLY WITH 6 INCH GATE VALVE

FENCE REMOVED DURING CONSTRUCTION SHALL BE REPLACED BY CONTRACTOR

20" DIAMETER DIP WATER MAIN

65 FT. EASEMENT WIDTH

55+00 54+00 53+00 52+00 51+00 50+00

18" GS 8" GS 6" GAS 2" GAS SF R/W 15" ST 15" Adpe 24" Wmp

Invert=670.39 Invert=670.04 Invert=666.36

County Road 300 North

32" Tree 8" Tree 12" Tree 46" Tree 25" Tree 12" Tree 16" Tree 12" Tree 28" Tree 15" Tree 28" Tree 18" Tree 16" Tree 24" Tree 11" Tree 12" Tree 14" Tree 27" Tree

Well Well

Gravel CONC ASPH ASPH

A. & Yvonne J. Germain
Book 292, Page 249

Carol L. Fisch
Doc. 2017R-02715

David R. Germain
Doc. 2003R-00924

Martin A. Kolasa Sr. & Roger R. Kolasa
& Guadalupe Kolasa
Doc. 2014R-10798 & 10799

Virginia R. Irk Living Trust

STA. 55+00
20" BUTTERFLY VALVE, BOX & RISER

STA. 54+98
FIRE HYDRANT ASSEMBLY WITH 6 INCH GATE VALVE

5' MINIMUM COVER

20" DIA. DIP WATER MAIN WITH POLYWRAP

20" DIA. DIP WATER MAIN WITH POLYWRAP

5' MINIMUM COVER

675 670 665 660 655 650 645 640 635 630

MATCH LINE STA. 55+50
SEE SHEET C515

MATCH LINE STA. 50+00
SEE SHEET C513

PROPOSED FULL DEPTH GRANULAR BACKFILL

55+50 55+00 54+50 54+00 53+50 53+00 52+50 52+00 51+50 51+00 50+50 50+00

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 50+00 TO STA. 55+50 (LINE A2)

#	Revision	Date

Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL N. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 50+00 TO STA. 55+50
(LINE A2)

C514

10477

STA. 83+00 MATCH LINE
SEE SHEET C514

SEE CONNECTION DETAIL #4

FENCE REMOVED DURING CONSTRUCTION SHALL BE REPLACED BY CONTRACTOR

Indiana Waste Systems, Inc.
Doc. 87-15787
20" DIAMETER DIP WATER MAIN

61+00 60+00 59+00 58+00 57+00 56+00

County Road 300 North

Dan R. Irk
Doc. 2001-11313

Dan R. Irk
Doc. 2001-11313

Fred A. & Yvonne J. Germain
Deed Book 292, Page 249

Buried 6" Steel

Could not locate 8" tap

Invert=674.11

Invert=671.8

8" Tree
15" Tree
36" Tree
24" Tree
32" Tree
25" Tree
12" Tree
40" Tree

Grave

RAIL

CONC

13

STA. 61+00
20" BUTTERFLY VALVE, BOX & RISER
SEE CONNECTION DETAIL #4

STA. 60+98
FIRE HYDRANT ASSEMBLY
WITH 6 INCH GATE VALVE
SEE CONNECTION DETAIL #4

20" DIA. DIP WATER MAIN WITH POLYWRAP

20" D.I.M.J. RESTRAINED PLUG
SEE CONNECTION DETAIL #4

5' MINIMUM COVER

20" DIA. DIP WATER MAIN WITH POLYWRAP

20" BUTTE
E

PROPOSED FULL DEPTH GRANULAR BACKFILL

680 675 670 665 660 655 650 645 640 635

61+00 60+50 60+00 59+50 59+00 58+50 58+00 57+50 57+00 56+50 56+00 55+50

MATCH LINE STA. 83+00
SEE SHEET C514

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 55+50 TO STA. 61+02 (LINE A2)

#	Revision	Date

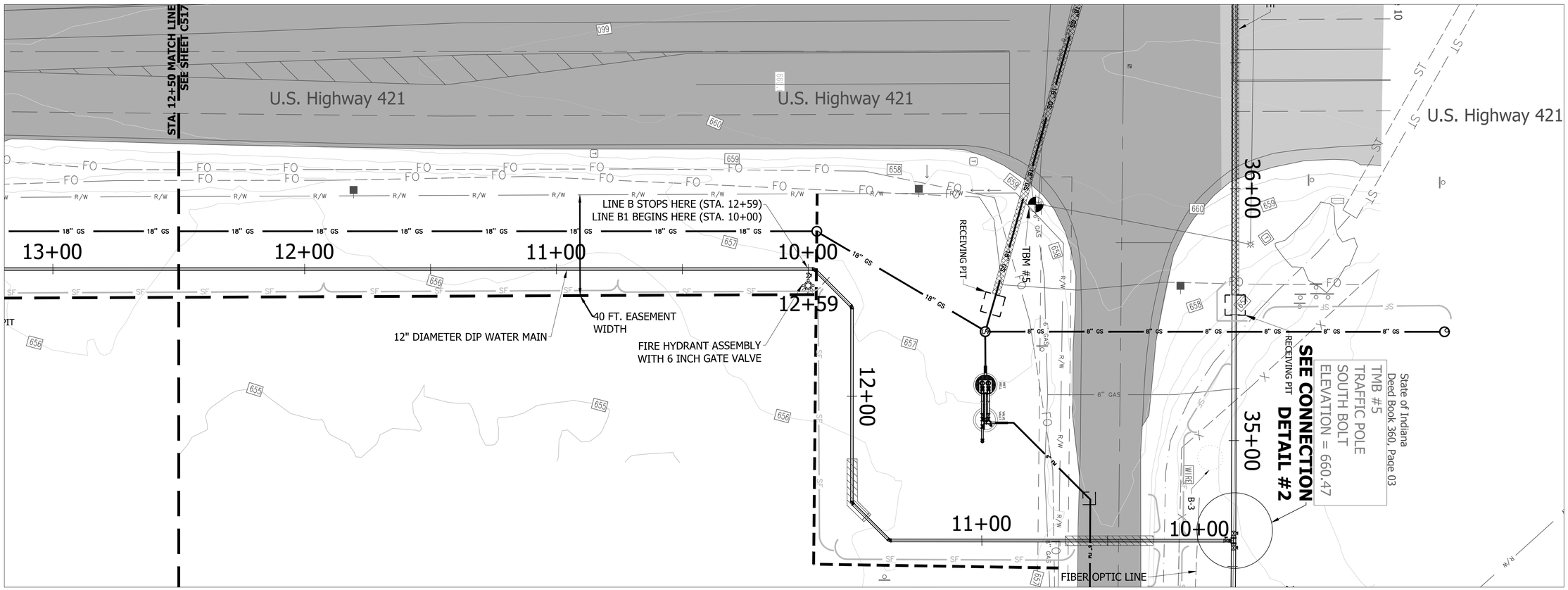
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

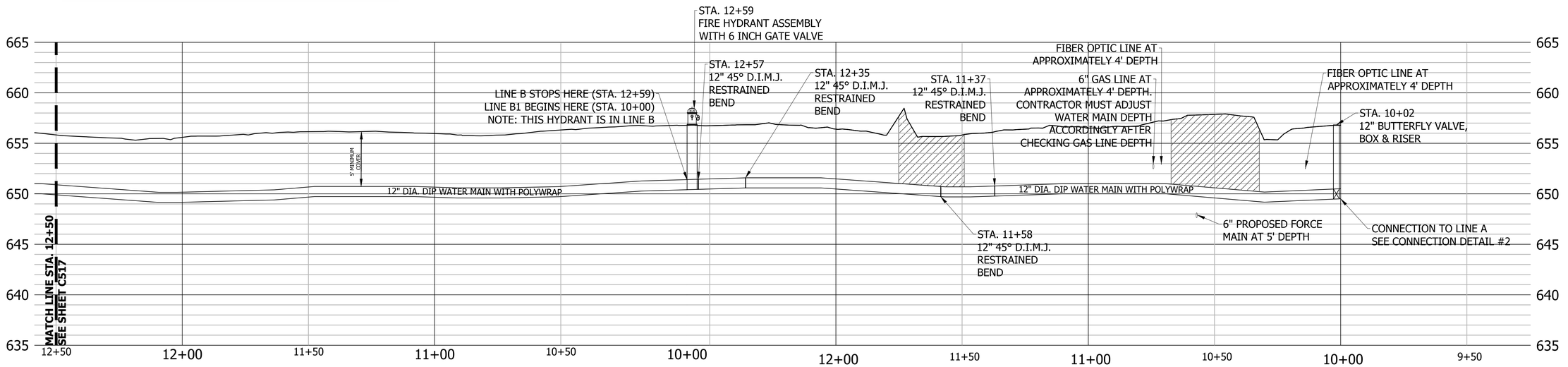
1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 55+50 TO STA. 61+02
(LINE A2)

C515



PROPOSED FULL DEPTH GRANULAR BACKFILL



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 10+00 TO STA. 12+59 (LINE B)
STA. 10+00 TO STA. 12+50 (LINE B1)

#	Revision	Date

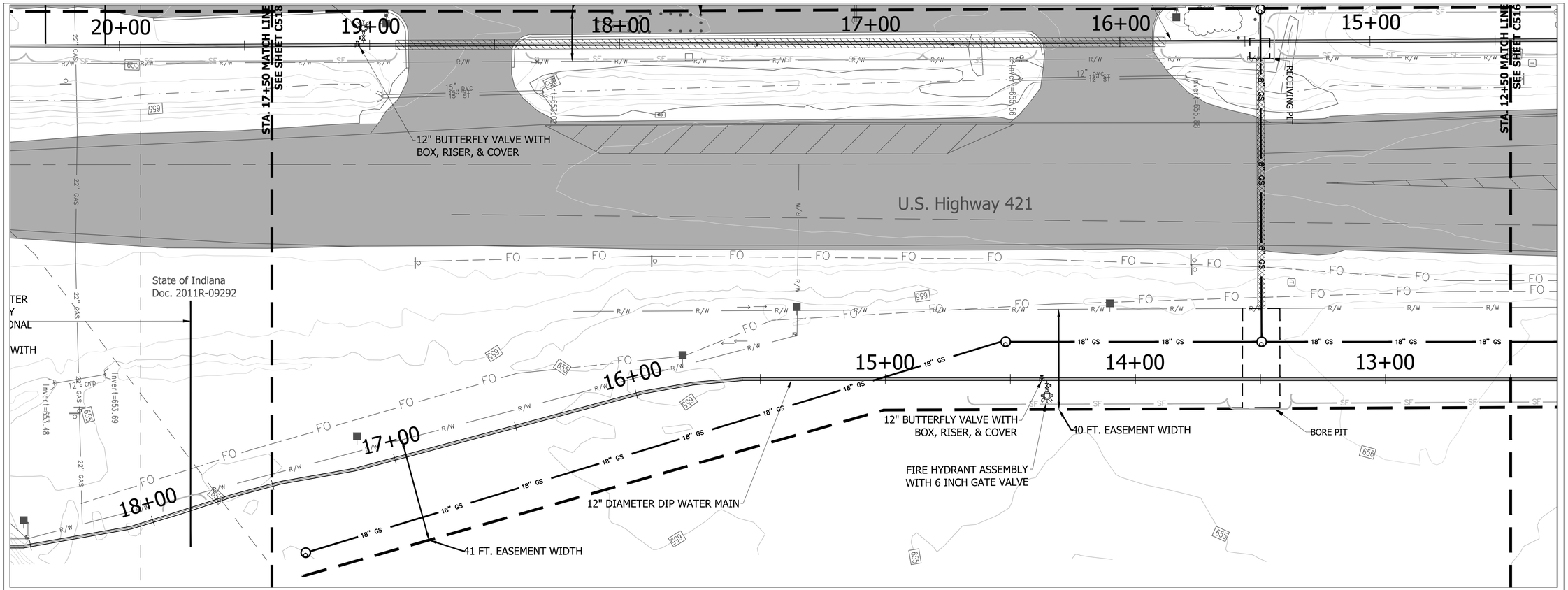
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL N. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

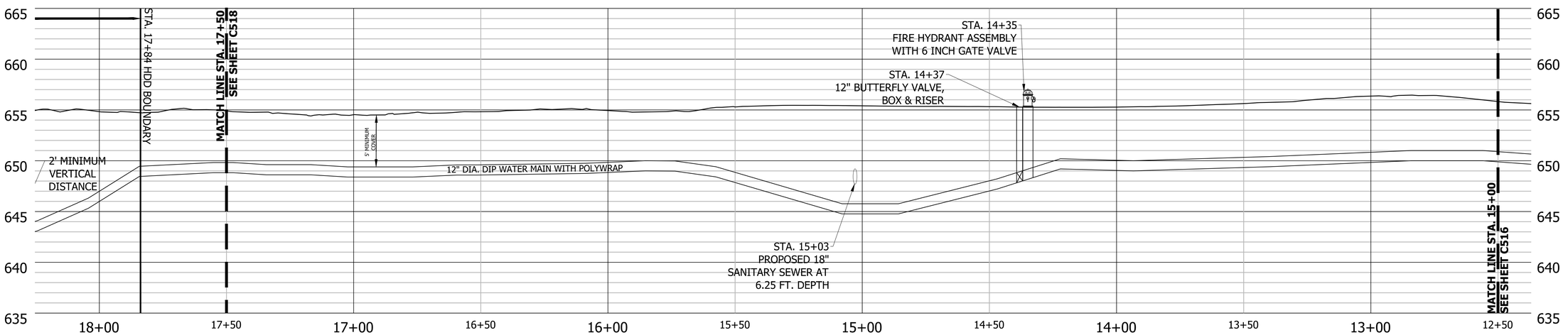
1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 10+00 TO STA. 12+59
(LINE B)
STA. 10+00 TO STA. 12+50
(LINE B1)

C516



PROPOSED FULL DEPTH GRANULAR BACKFILL



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 12+50 TO STA. 17+50 (LINE B1)

#	Revision	Date

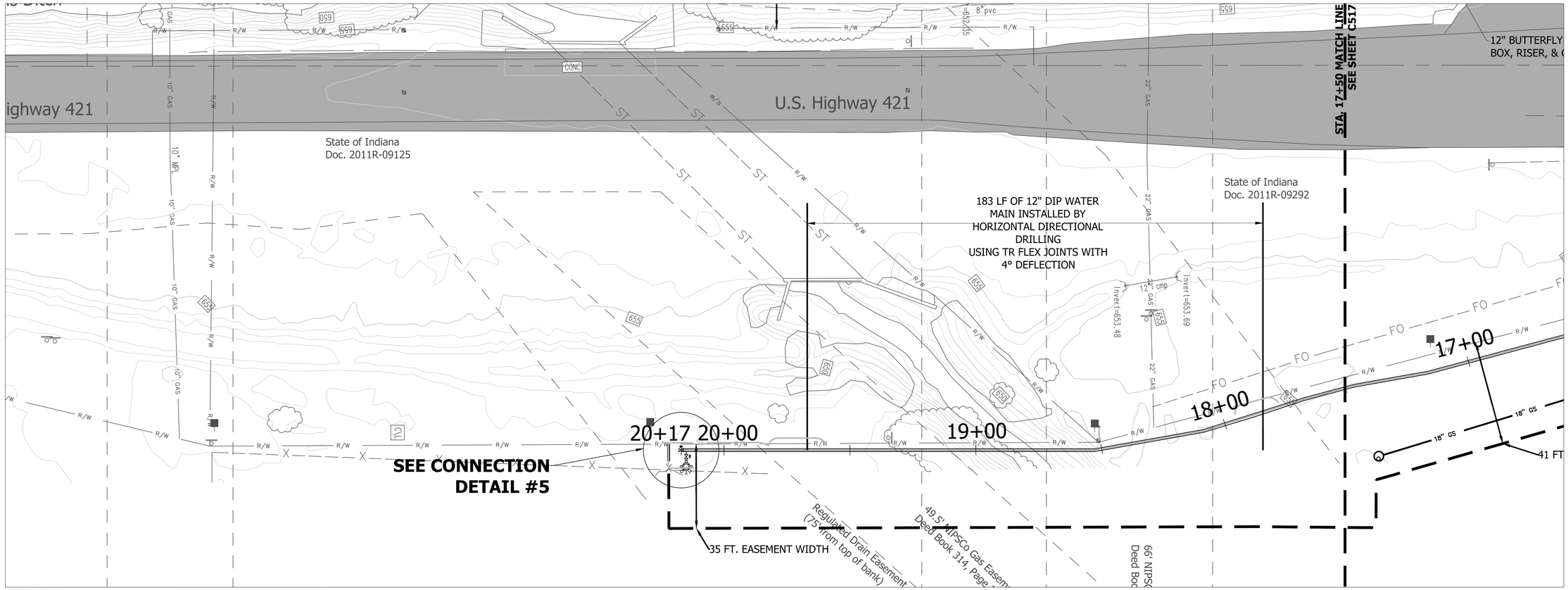
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL N. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE

WATER MAIN
STA. 12+50 TO STA. 17+50
(LINE B1)

C517

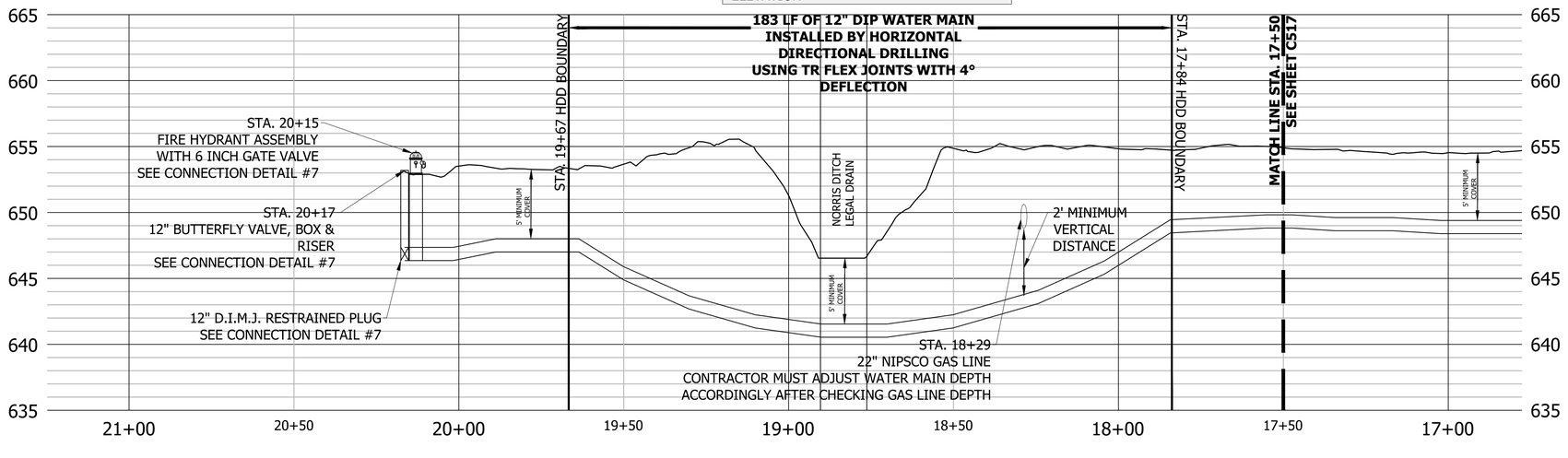


MEETING IDNR GENERAL LICENSE NOTES: (STA. 18+20 TO BEYOND END OF PROPOSED WATER LINE)

A. TREE REMOVAL AND BRUSH CLEARING SHALL BE CONTAINED AND MINIMIZED WITHIN THE UTILITY LINE CROSSING AREA.
B. CONSTRUCTION ACTIVITIES WITHIN THE WATERWAY FROM APRIL 1 THROUGH JUNE 30 SHALL NOT EXCEED A TOTAL OF TWO CALENDAR DAYS.
C. FOLLOWING THE COMPLETION OF CONSTRUCTION, DISTURBED AREAS SHALL BE RECLAIMED AND REVEGETATED. DISTURBED AREAS SHALL BE MULCHED WITH STRAW, WOOD FIBER, BIODEGRADABLE EROSION BLANKET, OR OTHER SUITABLE MATERIAL. TO PREVENT EROSION UNTIL REVEGETATED SPECIES ARE ESTABLISHED, LOOSE MULCH SHALL BE ANCHORED BY CRIMPING, TACKIFIERS, OR NETTING. TO THE EXTENT PRACTICABLE, REVEGETATION SHALL BE PERFORMED BY THE PLANTING OF A MIXTURE OF RED CLOVER, ORCHARD GRASS, TIMOTHY, PERENNIAL RYE GRASS, OR ANOTHER SPECIES THAT IS APPROVED BY THE DEPARTMENT AS BEING SUITABLE TO SITE AND CLIMATE CONDITIONS. IN NO CASE SHALL TALL FESCUE BE USED TO REVEGETATE DISTURBED AREAS.
D. BEST MANAGEMENT PRACTICES SHALL BE USED DURING AND AFTER CONSTRUCTION TO MINIMIZE EROSION AND SEDIMENTATION.
E. DISTURBED AREAS WITH SLOPES OF THREE TO ONE (3:1) OR STEEPER, OR AREAS WHERE RUN-OFF IS CONVEYED THROUGH A CHANNEL OR SWALE, SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS.
F. NO PESTICIDE WILL BE USED ON THE BANKS OF WATERWAYS.
G. ALL UTILITY PIPING SHALL HAVE AT LEAST 5' OF COVER AT ALL TIMES TO MEET FROST LINE AND RIVER/STREAM BURIAL REQUIREMENTS.

PROPOSED FULL DEPTH GRANULAR BACKFILL

CONTRACTOR REQUIRED TO HYDRO-VAC OR HAND EXPOSE BURIED NIPSCO PIPELINE PRIOR TO CONSTRUCTION TO CONFIRM GAS PIPELINE LOCATION AND ELEVATION



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 17+50 TO STA. 20+17 (LINE B1)

#	Revision	Date

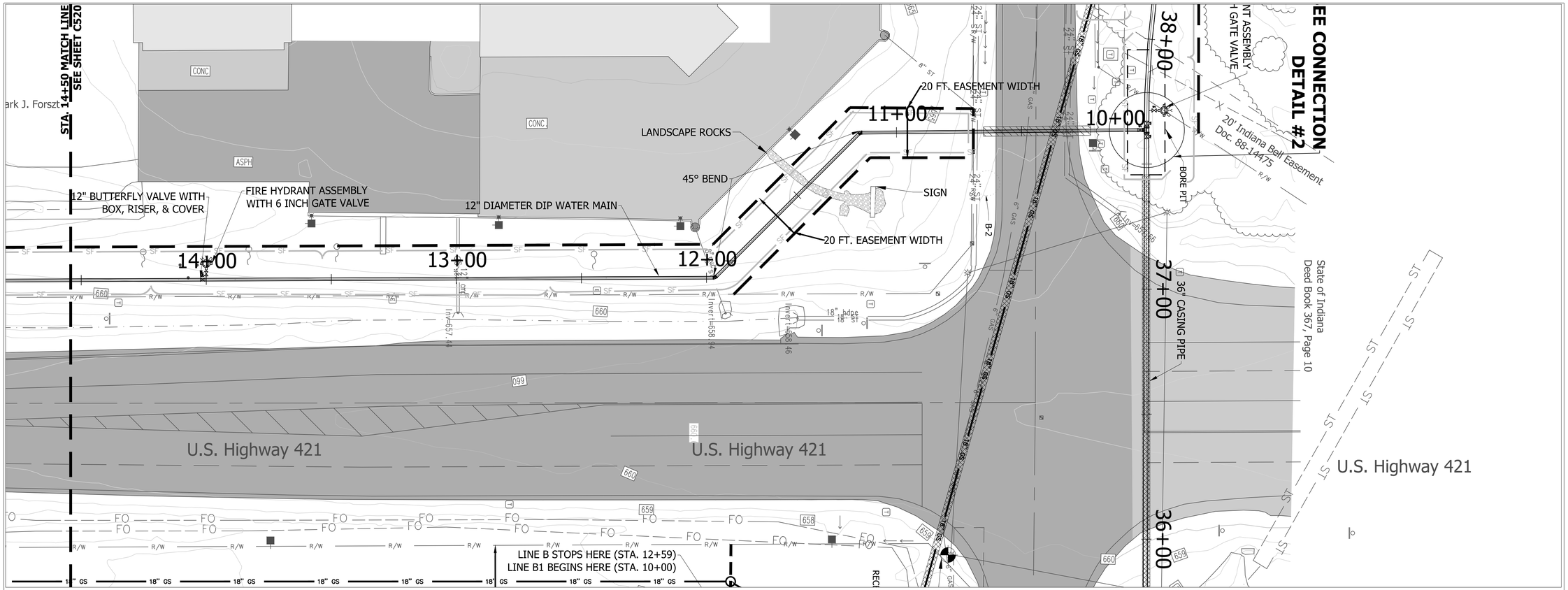
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL N. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

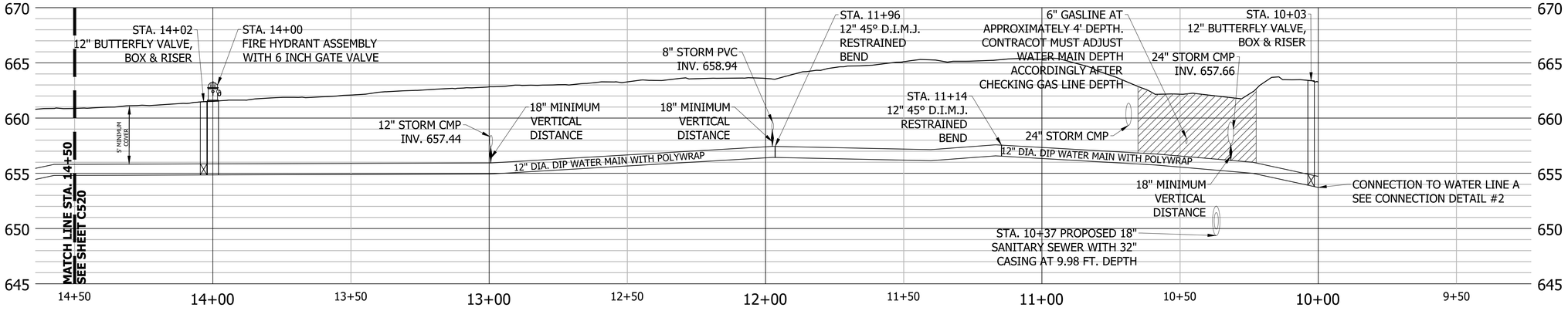
1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 17+50 TO STA. 20+17
(LINE B1)

C518



PROPOSED FULL DEPTH GRANULAR BACKFILL



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 10+00 TO STA. 14+50 (LINE C)

#	Revision	Date

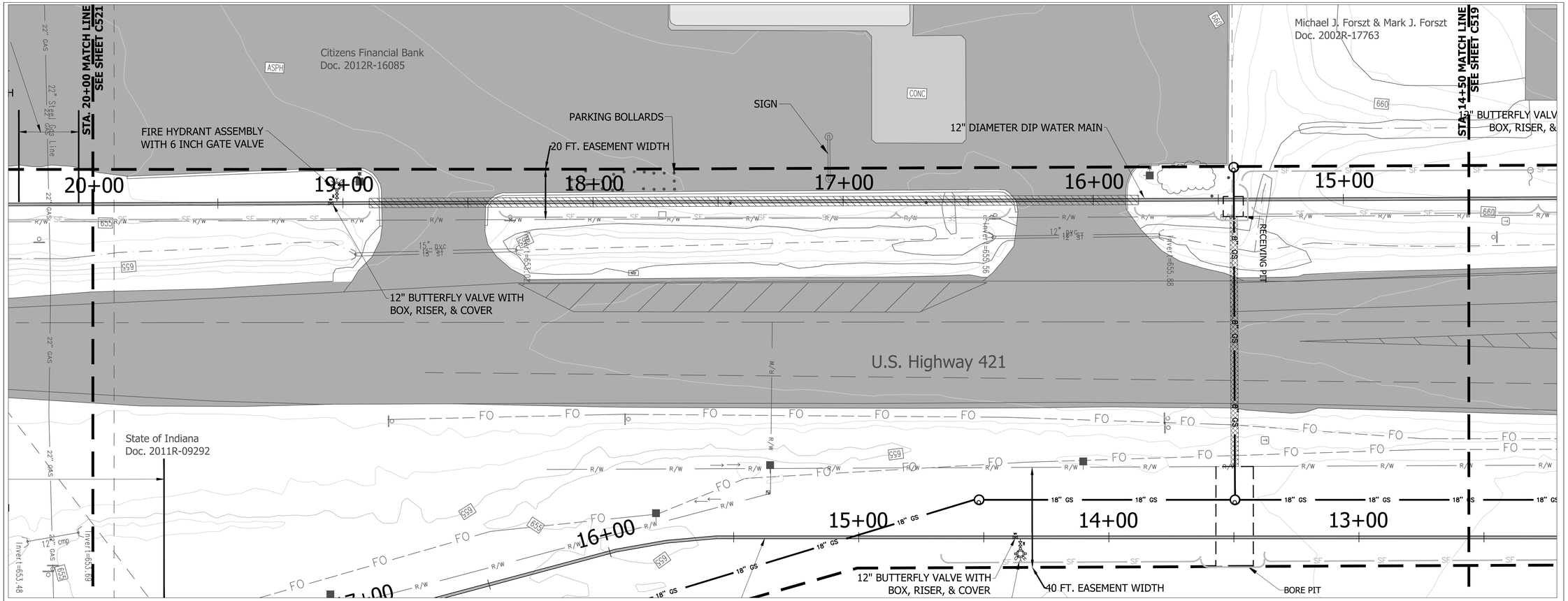
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

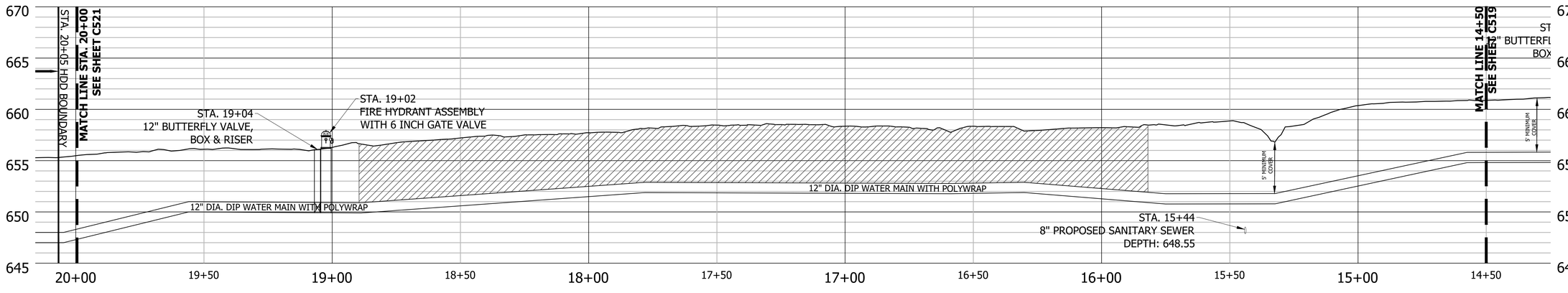
PAUL N. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 10+00 TO STA. 14+50
(LINE C)

C519





RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 14+50 TO STA. 20+00 (LINE C)

#	Revision	Date

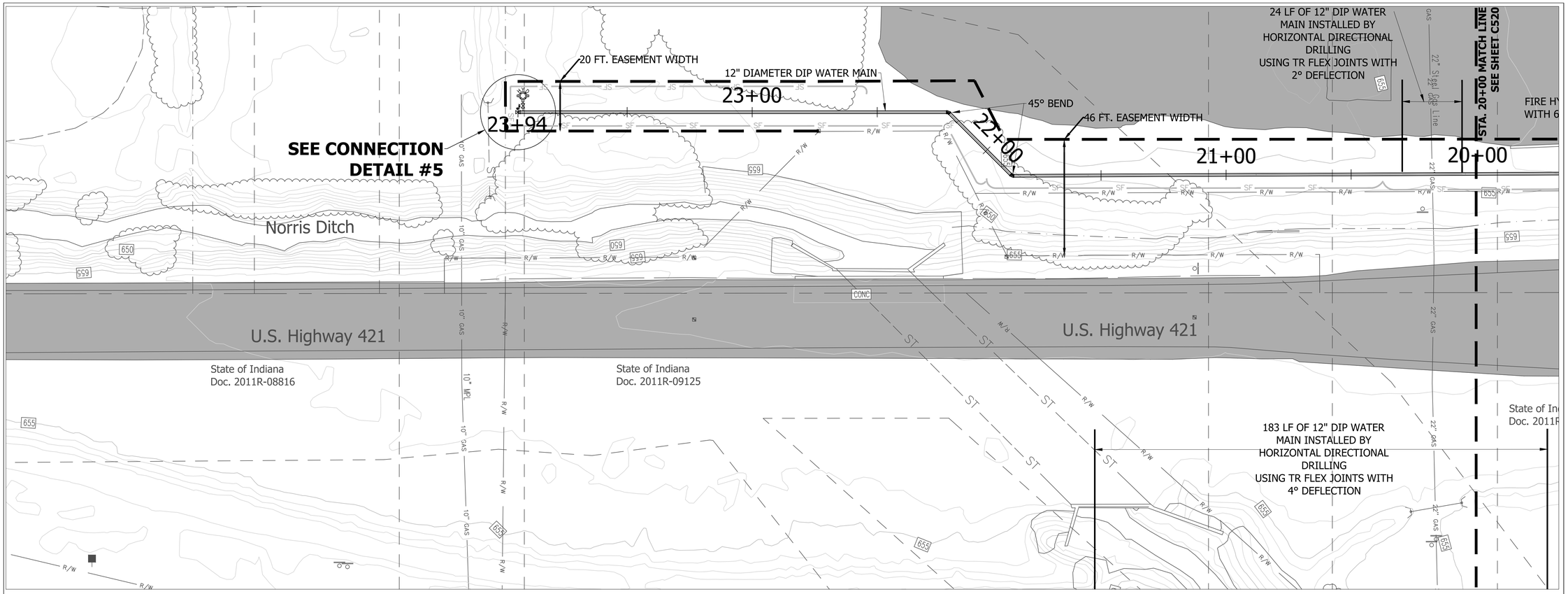
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

WATER MAIN
STA. 14+50 TO STA. 20+00
(LINE C)

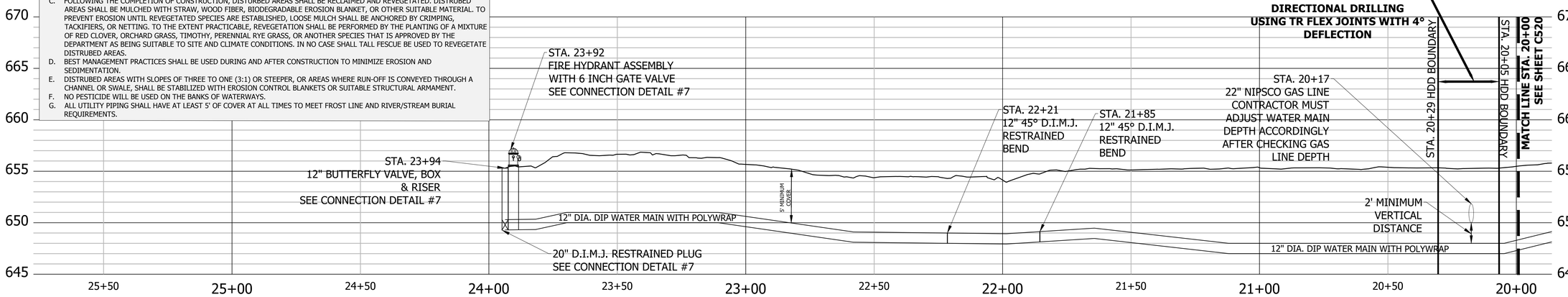
C520



PROPOSED FULL DEPTH GRANULAR BACKFILL

MEETING IDNR GENERAL LICENSE NOTES: (STA. 21+00 TO BEYOND END OF PROPOSED WATER LINE)

A. TREE REMOVAL AND BRUSH CLEARING SHALL BE CONTAINED AND MINIMIZED WITHIN THE UTILITY LINE CROSSING AREA. NO MORE THAN ONE ACRE OF TREES SHALL BE REMOVED WITHIN THE FLOODWAY.
B. CONSTRUCTION ACTIVITIES WITHIN THE WATERWAY FROM APRIL 1 THROUGH JUNE 30 SHALL NOT EXCEED A TOTAL OF TWO CALENDAR DAYS.
C. FOLLOWING THE COMPLETION OF CONSTRUCTION, DISTURBED AREAS SHALL BE RECLAIMED AND REVEGETATED. DISTRUBED AREAS SHALL BE MULCHED WITH STRAW, WOOD FIBER, BIODEGRADABLE EROSION BLANKET, OR OTHER SUITABLE MATERIAL. TO PREVENT EROSION UNTIL REVEGETATED SPECIES ARE ESTABLISHED, LOOSE MULCH SHALL BE ANCHORED BY CRIMPING, TACKIFIERS, OR NETTING. TO THE EXTENT PRACTICABLE, REVEGETATION SHALL BE PERFORMED BY THE PLANTING OF A MIXTURE OF RED CLOVER, ORCHARD GRASS, TIMOTHY, PERENNIAL RYE GRASS, OR ANOTHER SPECIES THAT IS APPROVED BY THE DEPARTMENT AS BEING SUITABLE TO SITE AND CLIMATE CONDITIONS. IN NO CASE SHALL TALL FESCUE BE USED TO REVEGETATE DISTRUBED AREAS.
D. BEST MANAGEMENT PRACTICES SHALL BE USED DURING AND AFTER CONSTRUCTION TO MINIMIZE EROSION AND SEDIMENTATION.
E. DISTRUBED AREAS WITH SLOPES OF THREE TO ONE (3:1) OR STEEPER, OR AREAS WHERE RUN-OFF IS CONVEYED THROUGH A CHANNEL OR SWALE, SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS OR SUITABLE STRUCTURAL ARMAMENT.
F. NO PESTICIDE WILL BE USED ON THE BANKS OF WATERWAYS.
G. ALL UTILITY PIPING SHALL HAVE AT LEAST 5' OF COVER AT ALL TIMES TO MEET FROST LINE AND RIVER/STREAM BURIAL REQUIREMENTS.



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
STA. 20+00 TO STA. 23+94 (LINE C)

#	Revision	Date

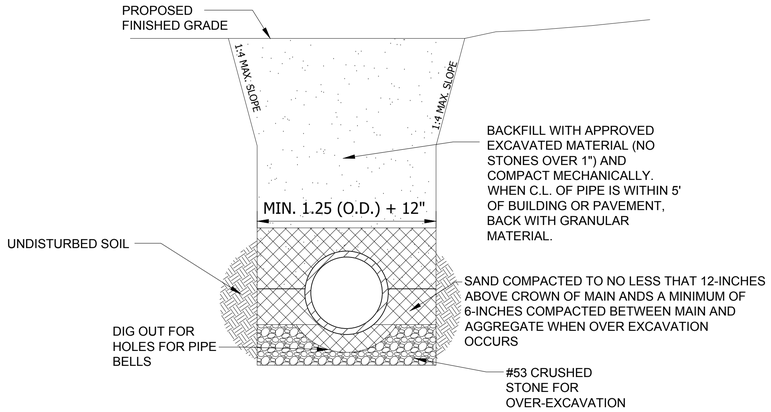
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL N. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

1" = 20'
0 20' 40'
GRAPHIC SCALE
N

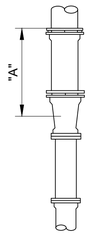
WATER MAIN
STA. 20+00 TO STA. 23+94
(LINE C)

C521

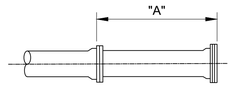


NOTE:
1. SLOPE TRENCH WALLS 1 FOOT ABOVE PIPE AS REQUIRED TO PREVENT SLIDES OR CAVE-INS UNLESS PROPER PRECAUTIONS, AS STIPULATED BY OSHA, ARE TAKEN. IF ADEQUATE TRENCH SLOPES ARE NOT PROVIDED, OR CANNOT BE PROVIDED, THEN THE USE OF SHEETING AND SHORING AND/OR A TRENCH BOX IS MANDATORY.
2. UNDER (AND WITHIN FIVE FEET OF) PAVEMENT AND STRUCTURES, ONLY APPROVED GRANULAR MATERIAL MAY BE USED.)

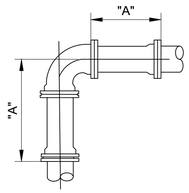
1 / C522 DUCTILE IRON PIPE TRENCH DETAIL
NOT TO SCALE



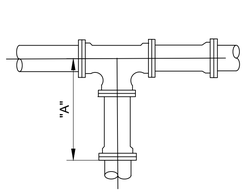
REDUCER



DEAD END PLUG



90° BEND



TEE

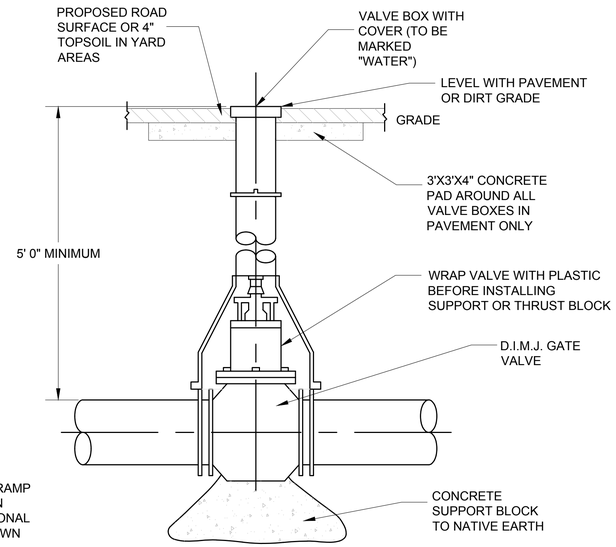
NOTES:
1. FITTINGS TO BE RESTRAINED WITH EBAA IRON MEGA-LUG SERIES FIELD-LOCK GASKETS OR APPROVED EQUAL.
2. DUCTILE IRON PIPE SHALL BE RESTRAINED WITH EBAA IRON, INC. SERIES 1100 OR EQUAL AT MECHANICAL JOINTS, AND SERIES 1700, FIELD-LOCK GASKETS, OR EQUAL AT PIPE BELLS.
3. DIP SHALL BE RESTRAINED WITH EBAA IRON, INC. SERIES 2000 AT MECHANICAL JOINTS, AND 1600 OR 2800 AT PIPE BELLS.
4. TO STABILIZE THE JOINTS AT TEES, PROVIDE RESTRAINT DEVICES ON BOTH RUN JOINTS OF ALL TEES. FULL LENGTHS OF PIPE SHOULD BE USED AT TEES.

NOTE:
TABLE VALUES BASED UPON A 5' MINIMUM BURY, GRANULAR BACKFILL, TYPE 3 LAYING CONDITION. 150 psig TEST PRESSURE AND A 1:5 FACTOR OF SAFETY FOR POLY WRAPPED DUCTILE IRON OR PVC PIPE.

	'A'	'A'	'A'	'A'	'A'	'A'	'A'	'A'	'A'
FITTING SIZE	90° HORIZ. BEND	45° HORIZ. BEND	22 1/2° HORIZ. BEND	BRANCH FOR TAPPING SLEEVE OR TEE	DEAD END PLUG OR IN-LINE VALVE	45° VERTICAL DOWNWARD BEND	22 1/2° VERTICAL DOWNWARD BEND	45° VERTICAL UPWARD BEND	22 1/2° VERTICAL UPWARD BEND
4"	21'-0"	9'-0"	4'-0"	14'-0"	19'-0"	16'-0"	8'-0"	9'-0"	4'-0"
6"	31'-0"	13'-0"	6'-0"	22'-0"	28'-0"	23'-0"	11'-0"	13'-0"	6'-0"
8"	40'-0"	17'-0"	8'-0"	31'-0"	36'-0"	30'-0"	14'-0"	17'-0"	8'-0"
12"	58'-0"	24'-0"	12'-0"	48'-0"	53'-0"	44'-0"	21'-0"	24'-0"	12'-0"
14"	67'-0"	28'-0"	13'-0"	56'-0"	61'-0"	51'-0"	24'-0"	28'-0"	13'-0"
16"	76'-0"	31'-0"	15'-0"	64'-0"	70'-0"	58'-0"	28'-0"	31'-0"	15'-0"
20"	93'-0"	39'-0"	19'-0"	81'-0"	87'-0"	72'-0"	35'-0"	39'-0"	19'-0"

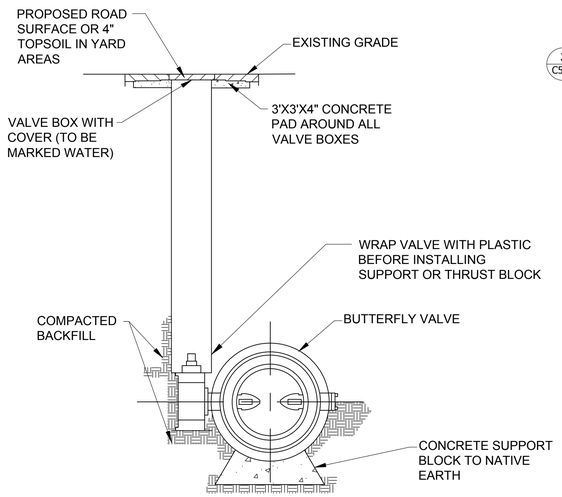
DIFFERENCE IN REDUCER NOMINAL SIZE	'A' RESTRAINED JOINT LENGTH
2-INCHES	16'-0"
4-INCHES	30'-0"
6-INCHES	47'-0"
8-INCHES	57'-0"
12-INCHES	93'-0"

2 / C522 RESTRAINED JOINT FITTING DETAILS
NOT TO SCALE

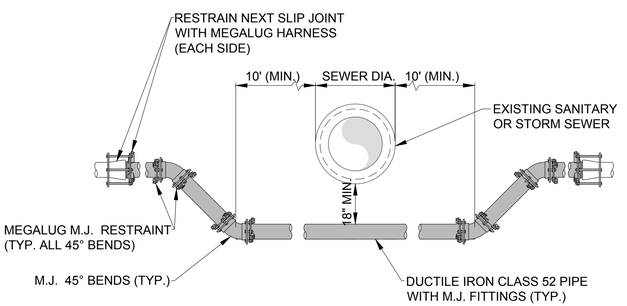


NOTE:
CONTRACTOR TO PLACE TEMPORARY CONCRETE RAMP AROUND TOP OF BOX IF IN PAVEMENT DURING SEASONAL ASPHALT PLANT SHUT-DOWN

3 / C522 GATE VALVE INSTALLATION DETAIL
NOT TO SCALE



4 / C522 BUTTERFLY VALVE INSTALLATION DETAIL
NOT TO SCALE



5 / C522 WATERMAIN LOWERING DETAIL
NOT TO SCALE

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN DETAILS

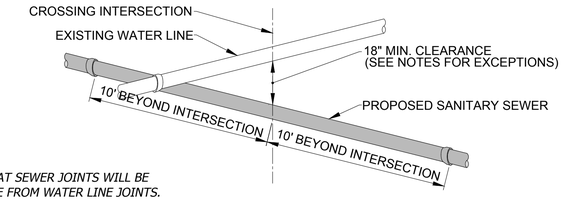
#	Revision	Date

Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

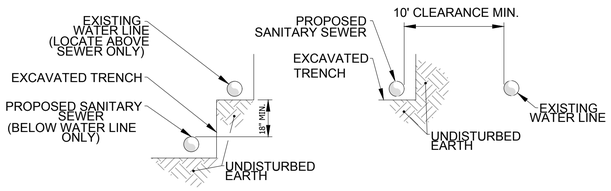
PAUL N. VINCENT REGISTERED No. PE10200112 STATE OF INDIANA PROFESSIONAL ENGINEER

WATER MAIN DETAILS

C522

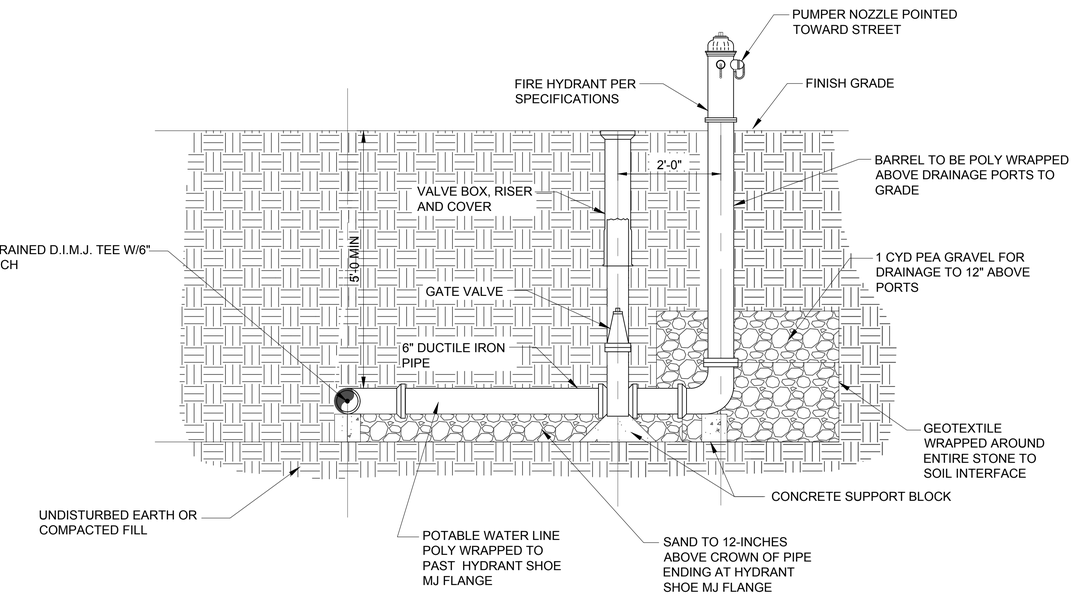


NOTES:
1. *CROSSING SHALL BE ARRANGED SO THAT SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM WATER LINE JOINTS.*
2. *CROSSING MUST BE MADE AT A MINIMUM OF 45 DEGREES MEASURED FROM THE CENTER LINES OF THE MAINS.*

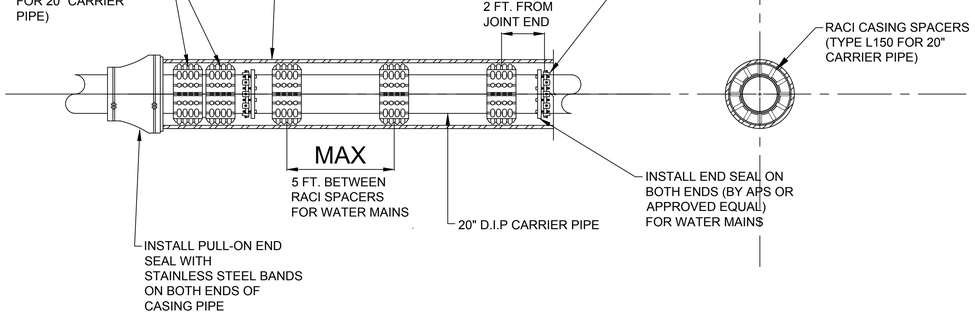


NOTES:
ALL OF THE FOLLOWING MUST BE MET :
- *THE SANITARY SEWER AND WATER MAIN ARE NOT IN CONTACT.*
- *THE SANITARY SEWER MEETS ALL PRESSURE TESTING REQUIREMENTS OF WATER MAIN.*
- *THE SANITARY SEWER AND WATER MAIN ARE LAID ON SEPARATE TRENCH SHELVES.*
- *ANY SANITARY SEWER JOINTS ARE A COMPRESSION TYPE JOINT THAT ARE PLACED EQUIDISTANTLY FROM THE WATER MAIN.*

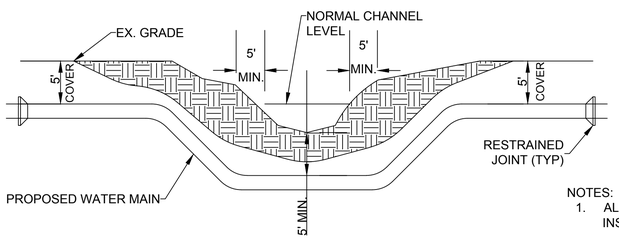
1 C523 MINIMUM VERTICAL CROSSING AND SEPARATION REQUIRED FOR WATER AND SEWER MAINS
NOT TO SCALE



2 C523 FIRE HYDRANT DETAIL
NOT TO SCALE

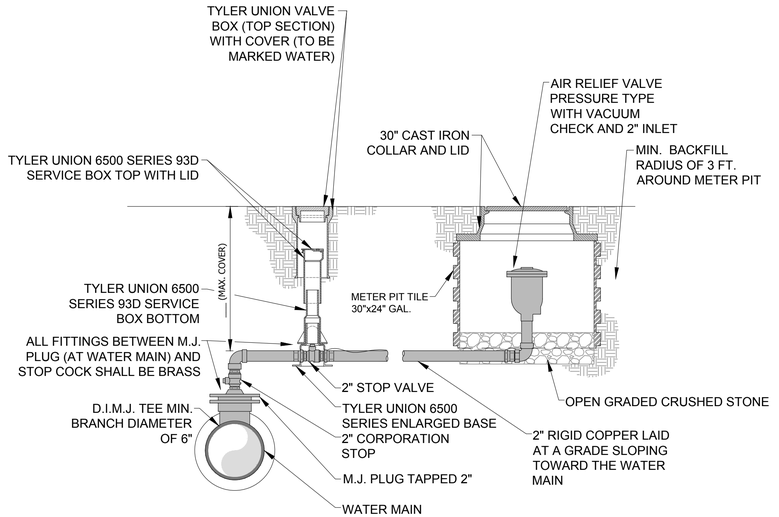


3 C523 CASING PIPE DETAIL
NOT TO SCALE



NOTES:
1. ALL PIPE USED IN STREAM CROSSING SHALL BE DUCTILE IRON PIPE , INSTALLED BY HORIZONTAL DIRECTIONAL DRILLING.
2. EXCAVATION WITHIN STREAM BED IS NOT ALLOWED.

4 C523 TYPICAL CHANNEL CROSSING
NOT TO SCALE



5 C523 AIR RELIEF ASSEMBLY DETAIL
NOT TO SCALE

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN DETAILS

#	Revision	Date

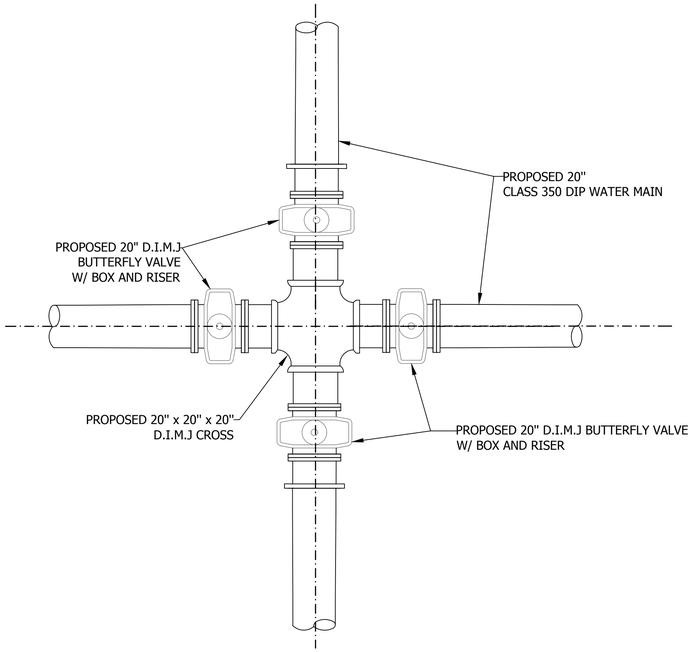
Project Number: 18-400-024-1
Designed By: H.R.N.
Drawn By: H.R.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL W. VINCENT REGISTERED No. PE10200112 STATE OF INDIANA PROFESSIONAL ENGINEER

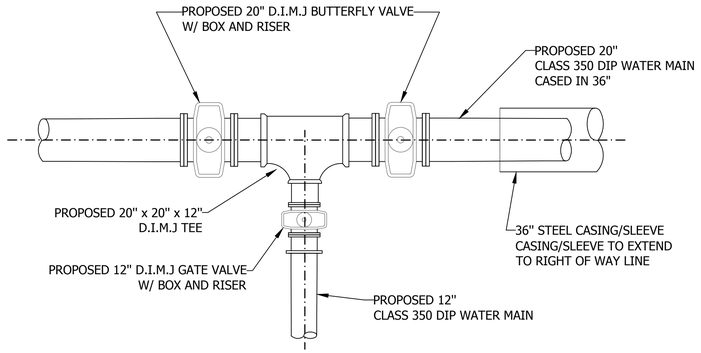
WATER MAIN DETAILS

C523

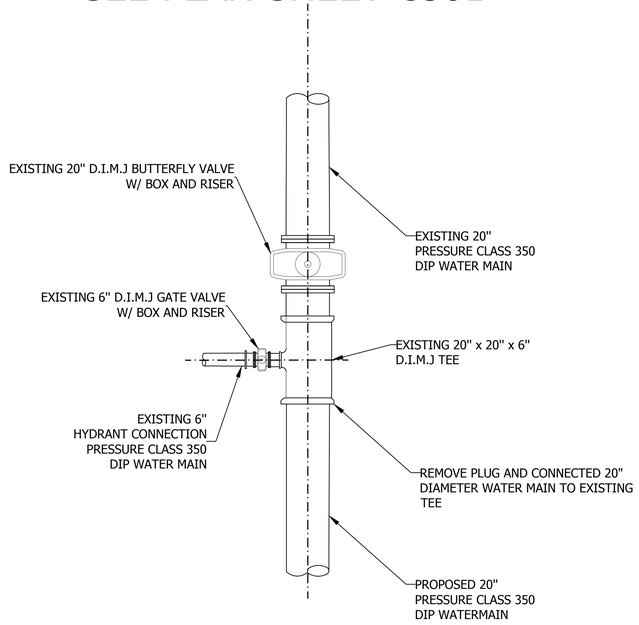
CONNECTION DETAIL #1
SEE PLAN SHEET C506



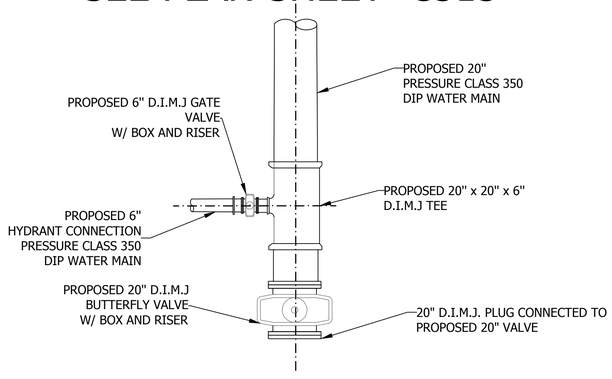
CONNECTION DETAIL #2
SEE PLAN SHEET C511, C516, & C519



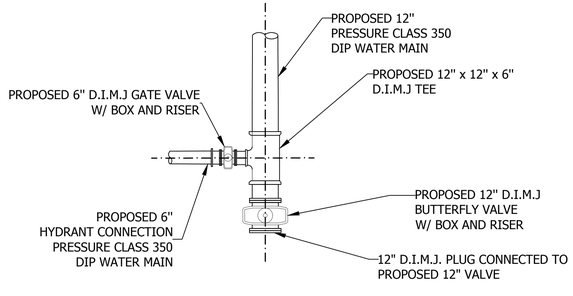
CONNECTION DETAIL #3
SEE PLAN SHEET C501



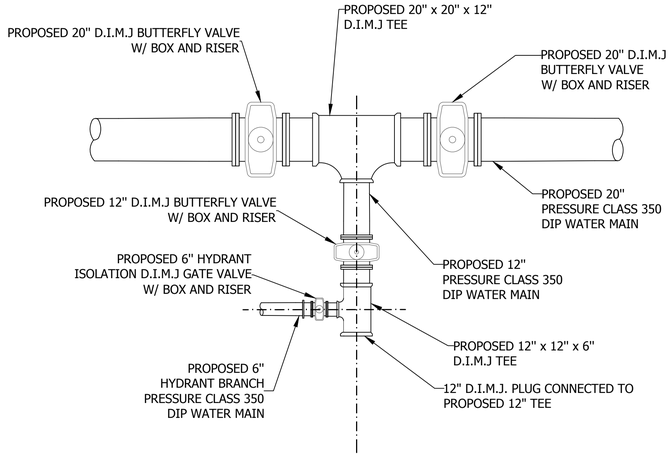
CONNECTION DETAIL #4
SEE PLAN SHEET C515



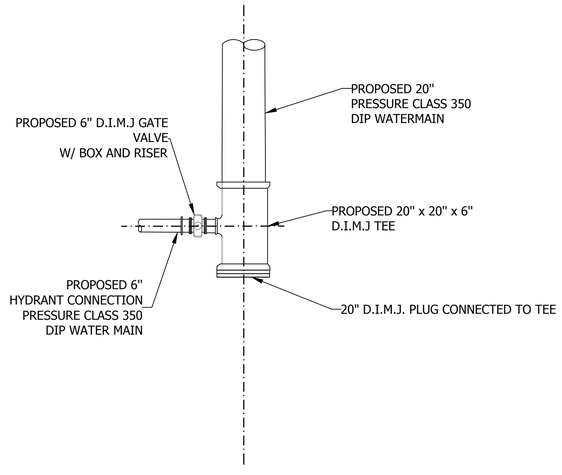
CONNECTION DETAIL #5
SEE PLAN SHEET C518 & C521



CONNECTION DETAIL #6
SEE PLAN SHEET C510



CONNECTION DETAIL #7
SEE PLAN SHEET C506



RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

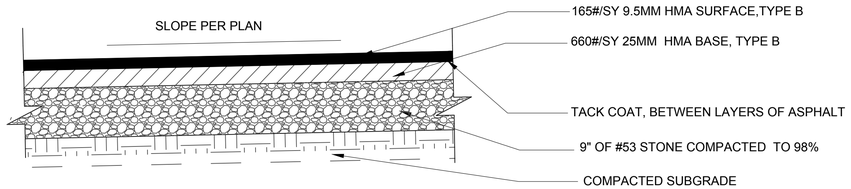
WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN
CONNECTION DETAILS

#	Revision	Date

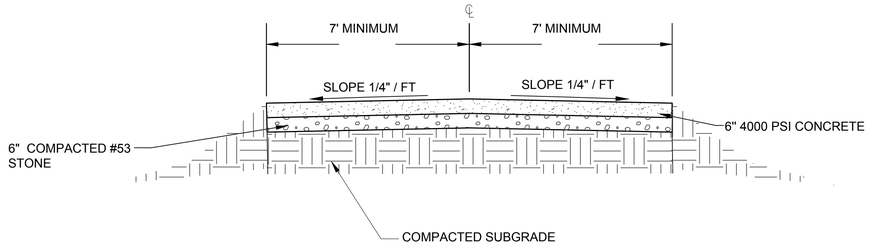
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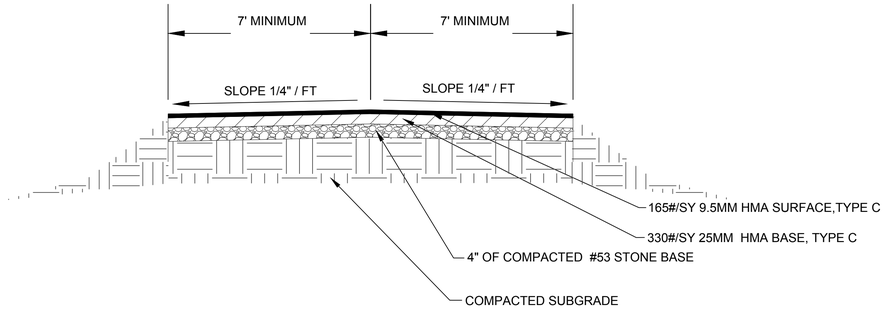
WATER MAIN
CONNECTION
DETAILS
C524



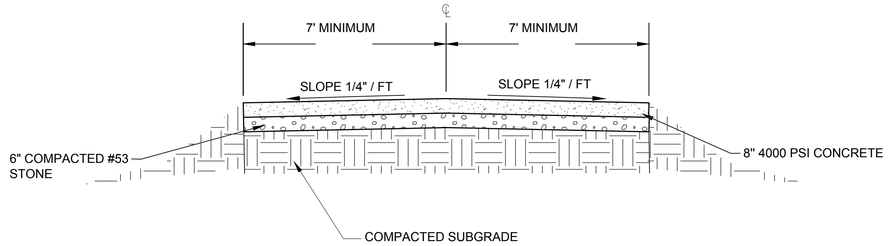
1 C525 LA PORTE COUNTY ASPHALT REPAIR PAVEMENT SECTION DETAIL
NOT TO SCALE



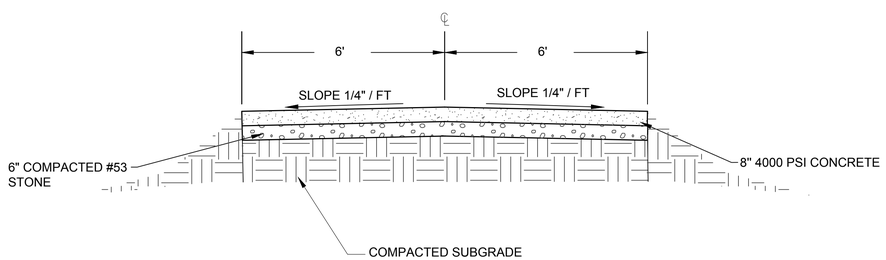
2 C525 RESIDENTIAL CONCRETE ACCESS DRIVE REPAIR DETAIL
NOT TO SCALE



3 C525 RESIDENTIAL ASPHALT ACCESS DRIVE REPAIR DETAIL
NOT TO SCALE



4 C525 COMMERCIAL CONCRETE ACCESS DRIVE REPAIR DETAIL
NOT TO SCALE



5 C525 LIFT STATION CONCRETE ACCESS DRIVE DETAIL
NOT TO SCALE

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
WATER MAIN DETAILS

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MISC. CONSTRUCTION DETAILS
C525

INSTALLATION:

PREFABRICATED WASHOUT SYSTEMS/CONTAINERS:

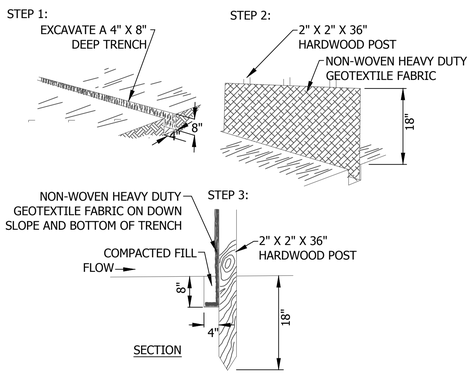
1. INSTALL AND LOCATE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

DESIGNED AND INSTALLED SYSTEMS:

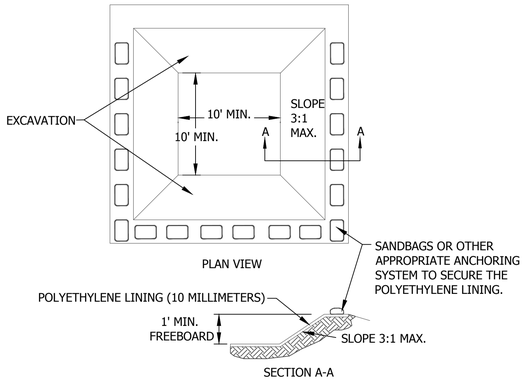
2. UTILIZE AND FOLLOW THE DESIGN IN THE STORM WATER POLLUTION PREVENTION PLAN TO INSTALL THE SYSTEM.
3. DEPENDENT UPON THE TYPE OF SYSTEM, EITHER EXCAVATE THE PIT OR INSTALL THE CONTAINMENT SYSTEM.
4. A BASE SHALL BE CONSTRUCTED AND PREPARED THAT IS FREE OF ROCKS AND OTHER DEBRIS THAT MAY CAUSE TEARS OR PUNCTURES IN THE POLYETHYLENE LINING.
5. INSTALL THE POLYETHYLENE LINING. FOR EXCAVATED SYSTEMS, THE LINING SHOULD EXTEND OVER THE ENTIRE EXCAVATION. THE LINING FOR BERMED SYSTEMS SHOULD BE INSTALLED OVER THE POOLING AREA WITH ENOUGH MATERIAL TO EXTEND THE LINING OVER THE BERM OR CONTAINMENT SYSTEM. THE LINING SHOULD BE SECURED WITH PINS, STAPLES, OR OTHER FASTENERS.
6. PLACE FLAGS, SAFETY FENCING, OR EQUIVALENT TO PROVIDE A BARRIER TO CONSTRUCTION EQUIPMENT AND OTHER TRAFFIC.
7. PLACE A NON-COLLAPSING, NON-WATER HOLDING COVER OVER THE WASHOUT FACILITY PRIOR TO A PREDICTED RAINFALL EVENT TO PREVENT ACCUMULATION OF WATER AND POSSIBLE OVERFLOW OF THE SYSTEM (OPTIONAL).
8. INSTALL SIGNAGE THAT IDENTIFIES CONCRETE WASHOUT AREAS.
9. POST SIGNS DIRECTING CONTRACTORS AND SUPPLIERS TO DESIGNATED LOCATIONS.
10. WHERE NECESSARY, PROVIDE STABLE INGRESS AND EGRESS OR ALTERNATIVE APPROACH PAD FOR CONCRETE WASHOUT SYSTEMS.

MAINTENANCE:

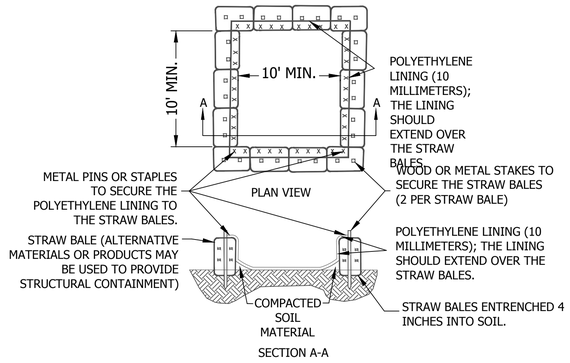
11. INSPECT DAILY AND AFTER EACH STORM EVENT.
12. INSPECT THE INTEGRITY OF THE OVERALL STRUCTURE INCLUDING, WHERE APPLICABLE, THE CONTAINMENT SYSTEM.
13. INSPECT THE SYSTEM FOR LEAKS, SPILLS, AND TRACKING OF SOIL BY EQUIPMENT.
14. INSPECT THE POLYETHYLENE LINING FOR FAILURE, INCLUDING TEARS AND PUNCTURES.
15. ONCE CONCRETE WASTES HARDEN, REMOVE AND DISPOSE OF THE MATERIAL.
16. EXCESS CONCRETE SHOULD BE REMOVED WHEN THE WASHOUT SYSTEM REACHES 50 PERCENT OF THE DESIGN CAPACITY. USE OF THE SYSTEM SHOULD BE DISCONTINUED UNTIL APPROPRIATE MEASURES CAN BE INITIATED TO CLEAN THE STRUCTURE. PREFABRICATED SYSTEMS SHOULD ALSO UTILIZE THIS CRITERION, UNLESS THE MANUFACTURER HAS ALTERNATE SPECIFICATIONS.
17. UPON REMOVAL OF THE SOLIDS, INSPECT THE STRUCTURE. REPAIR THE STRUCTURE AS NEEDED OR CONSTRUCT A NEW SYSTEM.
18. DISPOSE OF ALL CONCRETE IN A LEGAL MANNER. REUSE THE MATERIAL ON SITE, RECYCLE, OR HAUL THE MATERIAL TO AN APPROVED CONSTRUCTION/DEMOLITION LANDFILL SITE. RECYCLING OF MATERIAL IS ENCOURAGED. THE WASTE MATERIAL CAN BE USED FOR MULTIPLE APPLICATIONS INCLUDING BUT NOT LIMITED TO ROADBEDS AND BUILDING. THE AVAILABILITY FOR RECYCLING SHOULD BE CHECKED LOCALLY.
19. THE PLASTIC LINER SHOULD BE REPLACED AFTER EVERY CLEANING; THE REMOVAL OF MATERIAL WILL USUALLY DAMAGE THE LINING.
20. THE CONCRETE WASHOUT SYSTEM SHOULD BE REPAIRED OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE.
21. CONCRETE WASHOUT SYSTEMS ARE DESIGNED TO PROMOTE EVAPORATION. HOWEVER, IF THE LIQUIDS DO NOT EVAPORATE AND THE SYSTEM IS NEAR CAPACITY IT MAY BE NECESSARY TO VACUUM OR REMOVE THE LIQUIDS AND DISPOSE OF THEM IN AN ACCEPTABLE METHOD. DISPOSAL MAY BE ALLOWED AT THE LOCAL SANITARY SEWER AUTHORITY PROVIDED THEIR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMITS ALLOW FOR ACCEPTANCE OF THIS MATERIAL. ANOTHER OPTION WOULD BE TO UTILIZE A SECONDARY CONTAINMENT SYSTEM OR BASIN FOR FURTHER DEWATERING.
22. PREFABRICATED UNITS ARE OFTEN PUMPED AND THE COMPANY SUPPLYING THE UNIT PROVIDES THIS SERVICE.
23. INSPECT CONSTRUCTION ACTIVITIES ON A REGULAR BASIS TO ENSURE SUPPLIERS, CONTRACTORS, AND OTHERS ARE UTILIZING DESIGNATED WASHOUT AREAS. IF CONCRETE WASTE IS BEING DISPOSED OF IMPROPERLY, IDENTIFY THE VIOLATORS AND TAKE APPROPRIATE ACTION.
24. WHEN CONCRETE WASHOUT SYSTEMS ARE NO LONGER REQUIRED, THE CONCRETE WASHOUT SYSTEMS SHALL BE CLOSED. DISPOSE OF ALL HARDENED CONCRETE AND OTHER MATERIALS USED TO CONSTRUCT THE SYSTEM.
25. HOLES, DEPRESSIONS AND OTHER LAND DISTURBANCES ASSOCIATED WITH THE SYSTEM SHOULD BE BACKFILLED, GRADED, AND STABILIZED.



4 C600 SILT FENCE BARRIER INSTALLATION
NOT TO SCALE



1 C600 CONCRETE WASHOUT (BELOW GRADE)
NOT TO SCALE



2 C600 CONCRETE WASHOUT (ABOVE GRADE)
NOT TO SCALE

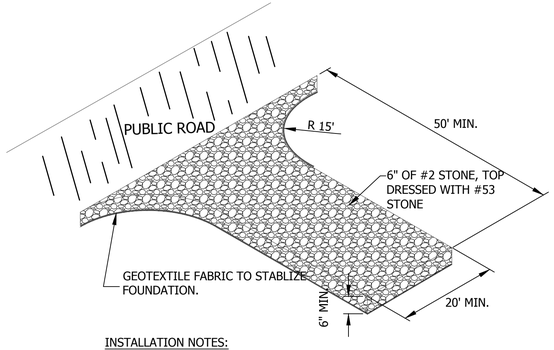
INSTALLATION:

1. LAYOUT THE LOCATION OF THE FENCE SO THAT IT IS PARALLEL TO THE CONTOUR OF THE SLOPE AND AT LEAST 10 FEET BEYOND THE TOE OF THE SLOPE TO PROVIDE A SEDIMENT STORAGE AREA. TURN THE ENDS OF THE FENCE UP SLOPE SUCH THAT THE POINT OF CONTACT BETWEEN THE GROUND AND THE BOTTOM OF THE FENCE END TERMINATES AT A HIGHER ELEVATION THAN THE TOP OF THE FENCE AT ITS LOWEST POINT.
2. EXCAVATE AN EIGHT-INCH DEEP BY FOUR-INCH WIDE TRENCH ALONG THE ENTIRE LENGTH OF THE FENCE LINE. INSTALLATION BY PLOWING IS ALSO ACCEPTABLE.
3. INSTALL THE SILT FENCE WITH THE FILTER FABRIC LOCATED ON THE UP-SLOPE SIDE OF THE EXCAVATED TRENCH AND THE SUPPORT POSTS ON THE DOWN-SLOPE SIDE OF THE TRENCH.
4. DRIVE THE SUPPORT POSTS AT LEAST 18 INCHES INTO THE GROUND, TIGHTLY STRETCHING THE FABRIC BETWEEN THE POSTS AS EACH IS DRIVEN INTO THE SOIL. A MINIMUM OF 12 INCHES OF THE FILTER FABRIC SHOULD EXTEND INTO THE TRENCH.
5. LAY THE LOWER FOUR INCHES OF FILTER FABRIC ON THE BOTTOM OF THE TRENCH AND EXTEND IT TOWARD THE UP-SLOPE SIDE OF THE TRENCH.
6. BACKFILL THE TRENCH WITH SOIL MATERIAL AND COMPACT IT IN PLACE.

NOTE: IF THE SILT FENCE IS BEING CONSTRUCTED ON-SITE, ATTACH THE FILTER FABRIC TO THE SUPPORT POSTS AND ATTACH WOODEN LATHE TO SECURE THE FABRIC TO THE POSTS. ALLOW FOR AT LEAST 12 INCHES OF FABRIC BELOW GROUND LEVEL. COMPLETE THE SILT FENCE INSTALLATION, FOLLOWING STEPS 1 THROUGH 6 ABOVE.

MAINTENANCE:

7. IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY. NOTE; ALL REPAIRS SHOULD MEET SPECIFICATIONS AS OUTLINED WITHIN THIS MEASURE.
8. REMOVE DEPOSITED SEDIMENT WHEN IT IS CAUSING THE FILTER FABRIC TO BULGE OR WHEN IT REACHES ONE-HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT. WHEN CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND SEDIMENT DEPOSITS, GRADE THE SITE TO BLEND WITH THE SURROUNDING AREA, AND STABILIZE.



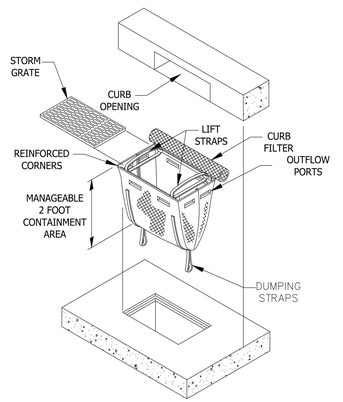
INSTALLATION NOTES:

1. REMOVE ALL VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA.
2. GRADE FOUNDATION AND CROWN FOR POSITIVE DRAINAGE. IF THE SLOPE OF THE CONSTRUCTION ENTRANCE IS TOWARD A PUBLIC ROAD AND EXCEEDS TWO PERCENT, CONSTRUCT AN EIGHT INCH HIGH DIVERSION RIDGE WITH A RATIO OF 3-TO-1 SIDE SLOPES ACROSS THE FOUNDATION AREA ABOUT 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE ROAD.
3. INSTALL A CULVERT PIPE UNDER THE PAD IF NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.
4. IF WET CONDITIONS ARE ANTICIPATED, PLACE GEOTEXTILE FABRIC ON THE GRADED FOUNDATION TO IMPROVE STABILITY.
5. PLACE AGGREGATE (#2 STONE) TO THE DIMENSIONS AND GRADE SHOWN IN THE CONSTRUCTION PLANS, LEAVING THE SURFACE SMOOTH AND SLOPED FOR DRAINAGE.
6. TOP-DRESS THE FIRST 50 FEET ADJACENT TO THE PUBLIC ROADWAY WITH TWO TO THREE INCHES OF WASHED AGGREGATE (#53 STONE) [OPTIONAL, USED PRIMARILY WHERE THE PURPOSED OF THE PAD IS KEEP SOIL FROM ADHERING TO VEHICLE TIRES]
7. WHERE POSSIBLE, DIVERT ALL STORM WATER RUNOFF AND DRAINAGE FROM THE INGRESS,/EGRESS PAD TO A SEDIMENT TRAP OR BASIN.

MAINTENANCE NOTES:

8. INSPECT DAILY.
9. RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
10. TOP DRESS WITH CLEAN AGGREGATE AS NEEDED.
11. IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS.
12. FLUSHING SHOULD ONLY BE USED IF THE WATER CAN BE CONVEYED INTO A SEDIMENT TRAP OR BASIN.

3 C600 TEMPORARY CONSTRUCTION ENTRANCE
NOT TO SCALE



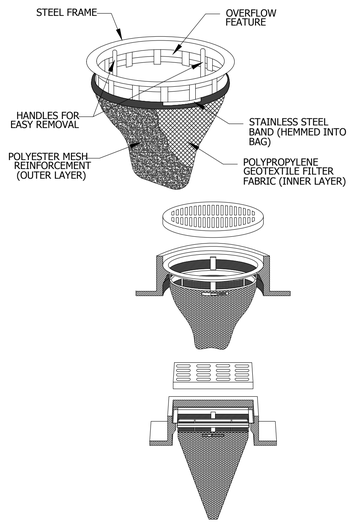
INSTALLATION AND MAINTENANCE GUIDELINES

INSTALLATION:

1. REMOVE THE GRATE FROM THE CATCH BASIN.
2. IF USING OPTION OIL ABSORBENTS, PLACE ABSORBENT PILLOW IN UNIT.
3. STAND THE GRATE ON END, MOVE THE TOP LIFTING STRAPS OUT OF THE WAY AND PLACE THE GRATE INTO THE DANDY SACK SO THAT THE GRATE IS BELOW THE TOP STRAPS AND ABOVE THE LOWER STRAPS.
4. HOLDING THE LIDTING DEVICES, INSTER THE GRATE INTO THE INLET.
5. MAKE SURE THE CYLINDRICAL PORTION IS UP AGAINST THE CURB OPENING TO PREVENT SILT AND DEBRIS FROM ENTERING THE INLET.

MAINTENANCE:

- INSPECT DAILY.
- REMOVE ALL ACCUMULATED SEDIMENT AFTER EACH STORM EVENT. DISPOSE OF SEDIMENT IN AN AREA WHERE IT WILL NOT REENTER THE PAVED AREA OR STORM DRAINS. TO EMPTY UNIT, LIFT THE UNIT OUT OF THE INLET BY USING THE LIFTING STRAPS AND REMOVE THE GRATE.
- WHEN CONTRIBUTING DRAINAGE AREA HAD BEEN STABILIZED, REMOVE INLET PROTECTION.



NOTE: CONTRACTOR TO USE FLEXSTORM CATCH-IT INLET PROTECTOR, DANDY BAG OR APPROVED ALTERNATE.

5 C600 DROP BAD INLET PROTECTION
NOT TO SCALE

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
EROSION CONTROL DETAILS

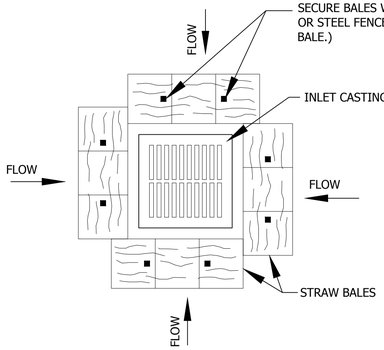
#	Revision	Date

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Designed By: B.J.N.
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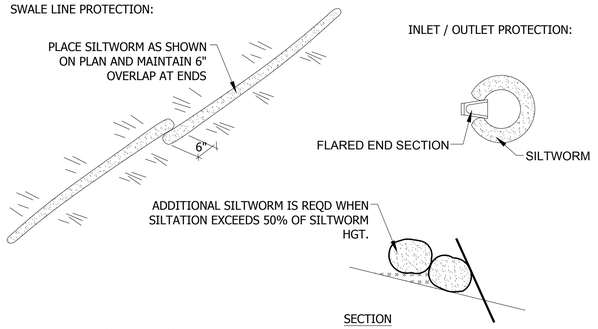
PAUL W. VINCENT
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No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

EROSION CONTROL DETAILS

C600



1 C601 STRAW BALES FOR INLET DETAIL
NOT TO SCALE



INSTALLATION:

1. SILTWORM CAN BE PLACED IN DITCHES OR AT THE TOP, ON THE FACE, OR AT THE TOE OF A SLOPE AS SEDIMENT TRAPPING DEVICE. SILTWORM CAN ALSO SERVE TO REMOVE SEDIMENT FROM RUNOFF AND RELEASE FILTERED WATER AS SHEET FLOW.

2. SILTWORM INSTALLATION ON A SLOPE SHALL BE PLACED ALONG OR ON THE GROUND CONTOUR. WHERE POSSIBLE SILTWORM APPLIED TO THE TOE OF A SLOPE SHOULD BE PLACED 10 FEET AWAY FROM THE TOE IN ORDER TO PROVIDE SPACE FOR SEDIMENT STORAGE. MAXIMUM DRAINAGE AREA SHALL BE ¼ ACRE PER 100 LF OF SILTWORM.

3. SILTWORM SHALL BE PLACED PERPENDICULAR TO THE FLOW OF WATER. SILTWORM SHALL CONTINUE UP THE SIDE SLOPES TO THE UP OF BANK OR A MAXIMUM OF 3 FEET ABOVE THE INSTALLED HEIGHT. SILTWORM SHALL REMAIN IN PLACE UNTIL ALL UPSTREAM AREAS ARE PERMANENTLY STABILIZED.

4. SILTWORM CONSIST OF A TUBULAR MESH SOCK WITH OPENINGS NO GREATER THAN ⅜" OF AN INCH. THE MESH SOCK IS BIODEGRADABLE. FILL MATERIAL CONSIST OF WOOD CHIPS AND OTHER COMPLOT MATERIAL.

5. SILTWORM IS SUPPLIED AND INSTALLED IN DIAMETERS OF 9", 12", 18" OR 24" DIAMETER TOLERANCES ARE 2". SILTWORM WILL FLATTEN OUT TO AN OVAL WHEN IN PLACE, THUS THE INSTALLED HEIGHT WILL BE LESS THAN NOMINAL DIAMETER.

6. SILTWORM SHOULD BE REMOVED FROM SLOPES AFTER STABILIZATION IS COMPLETE. THIS MAY BE ACCOMPLISHED BY CUTTING THE SILTWORM OPEN AND SPREADING THE FILL MATERIAL ON THE SITE. SILTWORM APPLIED IN DITCH SHALL BE COMPLETELY REMOVED.

NOTE: ALL REPAIRS SHOULD MEET SPECIFICATIONS AS OUTLINED WITHIN THIS MEASURE.

MAINTENANCE:

1. SILTWORM SHALL BE INSPECTED AFTER EACH RUNOFF EVENT AND SHALL BE REMOVED AND REPLACED IF SIGNS OF UNDERCUTTING OR DOWNSTREAM SPACING RILLS ARE OBSERVED.

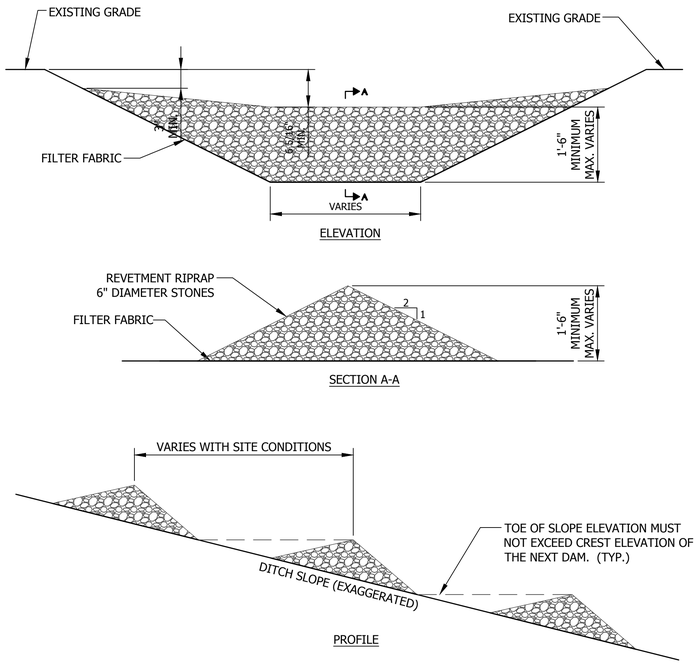
2. IF FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY.

3. ADD ADDITIONAL LINE OF DEFENSE WHEN SEDIMENTATION REACHES 50% HEIGHT OF THE SILTWORM.

4. IN THE EVENT THAT THE SILTWORM IS RUN OVER WITH LIGHT VEHICLE TRAFFIC OR COMPRESSED, RESHAPE TO ORIGINAL CONTOUR. IN THE EVENT THAT NETTING IS TORN, ADD PROVIDED SLEEVE OVER EXISTING TORN AREA, OR CUT OUT THE TORN AREA AND RE-TIE THE NEW EXISTING ENDS.

APPROVED EQUALS WILL ALSO BE ACCEPTED IN LIEU OF SILT WORM

2 C601 SILT WORM BARRIER DETAIL
NOT TO SCALE



3 C601 ROCK CHECK DAM DETAIL
NOT TO SCALE

RQAW
INTENTIONAL INNOVATION

LA PORTE COUNTY REDEVELOPMENT COMMISSION

WATER AND SEWER EXTENSIONS
SR 421 & CR 300 N
EROSION CONTROL DETAILS

#	Revision	Date

Project Number: 18-400-024-1
Designed By: B.J.N.
Drawn By: B.J.N.
Checked By: M.P.Z.
Date: 7/24/19

PAUL W. VINCENT
REGISTERED
No. PE10200112
STATE OF INDIANA
PROFESSIONAL ENGINEER

EROSION CONTROL DETAILS

C601

CONSTRUCTION/STORMWATER POLLUTION PREVENTION PLAN

ASSESSMENT OF CONSTRUCTION PLAN ELEMENTS (SECTION A)

A1 PLAN INDEX SHOWING LOCATIONS OF REQUIRED ITEMS:
SEE TITLE SHEET FOR INDEX OF CONSTRUCTION PLAN SHEETS AND THIS SHEET FOR INDEX OF REQUIRED SWPPP COMPONENTS - SECTIONS A, B, AND C.

A2 18X24 PLAT SHOWING SITE, BUILDINGS, PARKING LOTS, STREETS:
SEE SHEET C200, C300, C400, & C500 INCLUDED WITH THE SUBMITTAL.

A3 NARRATIVE DESCRIBING PROJECT NATURE AND PURPOSE:
THE PROPOSED PROJECT INCLUDES THE CONSTRUCTION OF A WATER MAIN AND SEWER OVER APPROXIMATELY 12,000 LINEAR FEET ON SR 421, CR 300 N., & CR 950 W.

A4 VICINITY MAP SHOWING PROJECT LOCATION:
SEE SHEET C100

A5 LEGAL DESCRIPTION OF THE PROJECT SITE:
SEE SHEET C100

A6 LOCATION OF ALL LOTS AND PROPOSED SITE IMPROVEMENTS:
SEE SHEET(S) C200, C300, C400, & C500

A7 HYDROLOGIC UNIT CODE-14 DIGIT:
040400010103 - TRAIL CREEK-WEST BRANCH TRAIL CREEK

A8 NOTATION OF ANY STATE OR FEDERAL WATER QUALITY PERMITS:
NONE

A9 SPECIFIC POINTS WHERE STORMWATER DISCHARGE WILL LEAVE THE SITE:
STORMWATER RUNOFF WILL BE COLLECTED THROUGH STORM SEWERS AND ROUTED THROUGH AN EXISTING DETENTION BASIN BEFORE BEING RELEASED. SEE SHEET(S) C200, C300, C400 AND C500 FOR THE EXTENTS OF THE STORMWATER MANAGEMENT PLAN COMPONENTS.

A10 LOCATION AND NAME OF ALL WETLANDS, LAKES AND WATER COURSES ON AND ADJACENT TO THE SITE:
WETLAND NORTH OF CR 300 N. AND WEST OF SR 421. STREAM CROSSING THROUGH CR 950 W., CR 300 N. AND TO SR 421.

A11 IDENTIFICATION OF ALL RECEIVING WATERS:
THE STORMWATER DISCHARGES TO TRAIL CREEK- WEST BRANCH TRAIL CREEK 040400010103 WATERSHED

A12 IDENTIFICATION OF POTENTIAL DISCHARGE TO GROUNDWATER:
NONE

A13 100 YEAR FLOODPLAINS, FLOODWAYS, AND FLOODWAY FRINGES:
FLOOD PLAINS EXIST ALONG THE STREAM AND IN THE LINE OF THE PROJECT PATH.

A14 PRE-CONSTRUCTION AND POST CONSTRUCTION ESTIMATE OF PEAK DISCHARGE:

PRE-DEVELOPED	POST DEVELOPED
LIFT STATION SITE	LIFT STATION SITE
10YR PRE= .317 CFS	10YR POST= .940 CFS
100YR PRE= .431 CFS	100YR POST= .733 CFS

A15 ADJACENT LAND USE, INCLUDING UPSTREAM WATERSHED:
SR 421
SOUTH-AGRICULTURAL, NORTH-GENERAL COMMERCIAL/AGRICULTURAL, EAST-AGRICULTURAL/SINGLE FAMILY RESIDENTIAL, WEST-AGRICULTURAL/SINGLE FAMILY RESIDENTIAL

CR 300 N.
SOUTH-SINGLE FAMILY RESIDENTIAL/AGRICULTURAL, NORTH-GENERAL COMMERCIAL/SINGLE FAMILY RESIDENTIAL/ AGRICULTURAL, EAST-SINGLE FAMILY RESIDENTIAL, WEST-SINGLE FAMILY RESIDENTIAL

CR 950 W.
RESIDENTIAL/AGRICULTURAL

A16 LOCATIONS AND APPROXIMATE BOUNDARIES OF ALL DISTURBED AREAS:
SEE SHEETS C200-C526

A17 IDENTIFICATION OF EXISTING VEGETATIVE COVER:
SEE SHEET C200 - C526

A18 SOILS MAP INCLUDING DESCRIPTIONS AND LIMITATIONS:
SEE THIS SHEET FOR SOILS DESCRIPTIONS AND LIMITATIONS. C103

A19 LOCATION, SIZE AND DIMENSIONS OF PROPOSED STORMWATER SYSTEMS:
SEE SHEET(S) C200 - C526

A20 PLAN FOR ANY OFF-SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT:
NONE

A21 LOCATIONS OF PROPOSED SOIL STOCKPILES, BORROW AND/OR DISPOSAL AREAS:
NONE

A22 EXISTING SITE TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO SHOW DETAILED DRAINAGE PATTERNS:
SEE SHEET(S) C102

A23 PROPOSED FINAL TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO SHOW DETAILED DRAINAGE PATTERNS:
SEE SHEET(S) C200-C526

ASSESSMENT OF STORMWATER POLLUTION PREVENTION PLAN-CONSTRUCTION COMPONENT (SECTION B)

B1 DESCRIPTION OF POTENTIAL POLLUTANT SOURCES ASSOCIATED WITH CONSTRUCTION ACTIVITIES:
THE PRIMARY POLLUTANT ASSOCIATED WITH CONSTRUCTION ACTIVITIES IS SEDIMENT. ADDITIONAL POLLUTANTS MAY BE GENERATED BY CONSTRUCTION VEHICLE OPERATION AND MAINTENANCE (E.G. FUELING, CHANGING HYDRAULIC FLUIDS AND OILS); CONCRETE WASHOUT; IMPROPER STORAGE OF CONSTRUCTION MATERIALS; IMPROPER DISPOSAL OF CONSTRUCTION TRASH AND DEBRIS; IMPROPER APPLICATION OR OVER APPLICATION OF FERTILIZERS AND PESTICIDES; AND IMPROPER STORAGE, APPLICATION, AND DISPOSAL OF SOLUBLE MATERIALS OR OTHER MATERIALS THAT MAY BE MOBILIZED BY STORM WATER RUNOFF. EQUIPMENT AND FUEL WILL BE STORED IN A CENTRAL LOCATION AND THE CONTRACTOR SHALL INSTITUTE METHODS AND PROCEDURES TO PREVENT DISCHARGE OF POLLUTANTS.

B2 SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION RELATIVE TO LAND DISTURBING ACTIVITIES:
SEE EROSION AND SEDIMENT CONTROL SEQUENCES AND IMPLEMENTATION ON THIS SHEET.

B3 STABLE CONSTRUCTION ENTRANCE LOCATIONS AND SPECIFICATIONS:
SEE SHEET(S) C200-C526 FOR LOCATIONS. SEE SHEET C600-C601 FOR DETAILS.

B4 SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS:
PRELIMINARY GRADING AND STABILIZATION MUST BE COMPLETED TO ENSURE ADEQUATE DRAINAGE TO THE TEMPORARY OR PERMANENT RUNOFF CONVEYANCE FACILITIES. SILT FENCING MUST ALSO BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION ACTIVITY TO ENSURE SILT CONTROL. STABILIZE DISTURBED AREAS DIRECTLY AFTER EARTH DISTURBING ACTIVITIES, TEMPORARY SEED AREAS SCHEDULED TO BE IDLE FOR UP TO ONE YEAR, PERMANENTLY SEED ALL AREAS THAT ARE AT FINAL GRADE, PHASE PROJECTS WHERE EACH SUBSEQUENT PHASE WILL NOT BEGIN FOR 8 MONTHS OR MORE, AND AREAS TO BE IDLE FOR MORE THAN ONE YEAR. EROSION CONTROL MEASURES TO BE INSTALLED IN SHEET FLOW AREA. SEE SHEET C600-C601 FOR DETAILS AS WELL AS INSTALLATION AND MAINTENANCE PROCEDURES. SEE THIS SHEET FOR SEEDING GUIDELINES.

B5 SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS:
ADEQUATE EROSION CONTROL MEASURES MUST BE INSTALLED WITHIN THESE AREAS PRIOR TO OPENING FOR RUNOFF ACCEPTANCE. IF IT IS A SWALE OR POND SIDE SLOPE, EROSION CONTROL BLANKET SHOULD BE INSTALLED PRIOR TO OPENING, THE EMERGENCY SPILLWAYS WILL CONTAIN RIPRAP TO CONTROL INTENSELY CHANNELED FLOWS FROM RUNOFF IN AN EMERGENCY. STABILIZE DISTURBED AREAS DIRECTLY AFTER EARTH DISTURBING ACTIVITIES, TEMPORARY SEED AREAS SCHEDULED TO BE IDLE FOR UP TO ONE YEAR. PERMANENTLY SEED ALL AREAS THAT ARE AT FINAL GRADE, PHASE PROJECTS WHERE EACH SUBSEQUENT PHASE WILL NOT BEGIN FOR 8 MONTHS OR MORE, AND AREAS TO BE IDLE FOR MORE THAN ONE YEAR. SEE SHEET(S) C200-C526 FOR EROSION CONTROL MEASURES TO BE INSTALLED IN CONCENTRATED FLOW AREAS. SEE SHEETS C600-C601 FOR DETAILS AS WELL AS INSTALLATION AND MAINTENANCE PROCEDURE.

B6 SEDIMENT CONTROL MEASURES FOR STORM SEWER INLETS PROTECTION:
SEE SHEET(S) C200-C526 AND ASSOCIATED EROSION CONTROL DETAILS ON SHEETS C600-C601.

B7 RUNOFF CONTROL MEASURES:
SEE SHEET(S) C200-C526

B8 STORMWATER OUTLET PROTECTION SPECIFICATIONS:
SEE SHEET(S) C600-C601

B9 GRADE STABILIZATION STRUCTURE LOCATIONS AND SPECIFICATIONS:
NONE

B10 LOCATION, DIMENSIONS, SPECIFICATIONS AND CONSTRUCTION DETAILS FOR EACH STORMWATER QUALITY MEASURE:
SEE SHEET(S) C200-C526 AND ASSOCIATED EROSION CONTROL DETAILS ON SHEETS C600-C601.

B11 TEMPORARY SURFACE STABILIZATION METHODS APPROPRIATE FOR EACH SEASON:
SEE SHEET(S) C600-C601 AND "GENERAL SEEDING & SURFACE STABILIZING PROCEDURES" ON THIS SHEET.

B12 PERMANENT SURFACE STABILIZATION SPECIFICATIONS:
SEE SHEET(S) C600-C601 AND "GENERAL SEEDING & SURFACE STABILIZING PROCEDURES" ON THIS SHEET.

B13 MATERIAL HANDLING AND SPILL PREVENTION:
EXPECTED CONSTRUCTION MATERIALS ON SITE MAY INCLUDE VEHICLE LUBRICANTS, OILS, VEHICULAR FUELS, CONCRETE WASH-OUT, ACIDS, CURING COMPOUNDS, PAINTS, MULCH, PESTICIDES, HERBICIDES, FERTILIZER, AND TRASH. ANY TOXIC WASTE MATERIALS ARE TO BE DISPOSED OF ACCORDING TO LOCAL AND STATE LAWS.

SMALL SPILLS AND LEAKS OF THESE MATERIALS ONTO NON-PAVED AREAS WILL BE SHOVELED INTO CONTAINERS OR DUMPSTERS FOR PROPER DISPOSAL.

FUELING TRUCKS WILL BE EQUIPPED WITH SPILL PREVENTION KITS FOR SMALLER FUEL SPILLS. ALL VEHICULAR MAINTENANCE SHALL BE PERFORMED IN THE SAME DESIGNATED AREA THROUGHOUT THE CONSTRUCTION TIME FRAME. IF POSSIBLE, VEHICULAR MAINTENANCE SHALL BE DONE OFF-SITE AT FACILITIES THAT ARE DESIGNED TO HANDLE ANY MATERIAL SPILLAGE. THIS SHALL INCLUDE FUELING OF VEHICLES WHENEVER POSSIBLE. IN CASE OF SPILL CALL 911. CALL THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, OFFICE OF EMERGENCY RESPONSE (800)-233-7745, SHALL BE NOTIFIED IMMEDIATELY FOR LARGER SPILLS OR LEAKS. THE NATIONAL RESPONSE CENTER (800)-424-8802 SHALL BE NOTIFIED AND PROVIDED WITH THE FOLLOWING INFORMATION: TIME OF SPILL, LOCATION OF SPILL, MATERIAL, SOURCE OF SPILL, APPROXIMATE VOLUME, AND LENGTH OF SPILLAGE, WEATHER CONDITIONS AT TIME OF SPILL, PERSONAL PRESENT AT TIME OF SPILL, AND ALL ACTION TAKEN FOR POST SPILL CLEANUP.

CONTRACTOR SHALL CONTACT A WASTE RECOVERY AGENCY IMMEDIATELY FOR REMOVAL OF CONTAMINATES AND COORDINATION OF MONITORING THE SITE DURING CLEANUP UNTIL ALL OF THE HAZARDOUS MATERIAL HAS BEEN REMOVED. CONTRACTOR SHALL COOPERATE WITH IDEM DURING AND AFTER THE SPILL TO INSURE ALL REQUIRED CLEANUP AND FILING REPORTS ARE PROPERLY SUBMITTED.

THE DEVELOPER SHALL BE CONTINUALLY INFORMED OF ANY CONTAMINATION CONCERNS OCCURRING ON THE SITE. THE CONSTRUCTION MANAGER SHALL KEEP ON SITE A LIST OF QUALIFIED CONTRACTORS FOR SPILL REMEDIATION. ALL SITE PERSONNEL, INCLUDING MAINTENANCE EMPLOYEES, SHALL BE MADE AWARE OF PROPER SPILL PREVENTION AND REMEDIATION TECHNIQUES. ALL MATERIALS USED TO ABSORB SPILLS SHALL BE PROPERLY DISPOSED OF IN AN APPROVED MANOR WITH LOCAL AND STATE LAWS. DO NOT FLUSH SPILL MATERIALS WITH WATER UNLESS DIRECTED TO DO SO BY A GOVERNING AGENCY. IT IS IMPORTANT THAT ALL MANUFACTURER'S INSTRUCTIONS BE FOLLOWED WHEN USING OR APPLYING ALL FERTILIZERS, HERBICIDES, AND PESTICIDES.

B14 MONITORING AND MAINTENANCE GUIDELINES FOR EACH PROPOSED STORM WATER QUALITY MEASURE:
SEE SHEET(S) C600-C601 FOR DETAILS CONTAINING MAINTENANCE REQUIREMENTS FOR EACH STORM WATER QUALITY MEASURE.

B15 EROSION AND SEDIMENT CONTROL SPECIFICATIONS FOR INDIVIDUAL BUILDING LOTS:
N/A

ADDITIONAL EROSION AND SEDIMENT CONTROL INFORMATION (WHERE APPLICABLE)

EROSION AND SEDIMENT CONTROL PROVISION FOR STREAM / CHANNEL CROSSINGS:
SEE SHEET(S) C600-C601

SEDIMENT CONTROL ASSOCIATED WITH DEWATERING AND DIRECTIONAL BORING OPERATION:
SEDIMENT LADEN WATER SHALL NOT BE PUMPED TO STORM SEWER OUTLETS OR NATURAL DRAINAGE WAYS. DISPOSAL SHALL BE CONFINED TO AREAS NOT SUBJECT TO SHEET FLOW RUNOFF WHERE THE EFFLUENT CAN BE DRIED OUT. THIS RESTRICTION SHALL APPLY TO AREAS WHERE LIME STABILIZATION HAS BEEN IMPLEMENTED. MAINTENANCE AND INSPECTION ARE REQUIRED FOR PROPER DE-WATERING PROCEDURES.

ASSESSMENT OF STORMWATER POLLUTION PREVENTION POST-CONSTRUCTION COMPONENT (SECTION C)

C1 DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED WITH THE PROPOSED LAND USE:
POTENTIAL POLLUTANT SOURCES POST CONSTRUCTION INCLUDE FERTILIZERS, HERBICIDES, PESTICIDES AND OTHER LAWN TREATMENT APPLICATIONS ALONG WITH ASSORTED FUELS, OILS AND LIQUIDS ASSOCIATED WITH VEHICULAR TRAFFIC THROUGHOUT THE DEVELOPED SITE. THERE ARE DOWNSTREAM WATER QUALITY EFFECTS DUE TO CHANNELLING DISCHARGES TO A SINGLE POINT. THIS CAN RESULT IN BANK EROSION, DOWN CUTTING OF THE CHANNEL BOTTOM.

C2 SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION:
THE POST-CONSTRUCTION STORMWATER QUALITY MEASURE IMPLEMENTATION SHALL BEGIN AFTER SUBSTANTIAL COMPLETION OF THE CONSTRUCTION ACTIVITIES FOR THE PROPOSED PROJECT. FOLLOWING CONSTRUCTION, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED UNTIL ALL PERMANENT MEASURES AND VEGETATION HAS BEEN ESTABLISHED AND CONSTRUCTION IS COMPLETE.

AFTER SITE IS PERMANENTLY VEGETATED, TEMPORARY EROSION CONTROL MEASURES MAY BE REMOVED INCLUDING THE FOLLOWING; SILT FENCE AND ROCK CHECK DAMS.

INSPECTION AND MAINTENANCE OF ALL COMMON AREAS, LANDSCAPE AREAS AND INFRASTRUCTURE IMPROVEMENTS ARE THE RESPONSIBILITY OF THE DEVELOPER/OWNER AND OR LOCAL AGENCIES TAKING JURISDICTION OVER THE INFRASTRUCTURE IMPROVEMENTS.

SEE THIS SHEET FOR DETAILED SEQUENCE AND IMPLEMENTATION.

C3 DESCRIPTION OF PROPOSED POST CONSTRUCTION STORMWATER QUALITY MEASURES:
PROJECT SITE WILL BE COMPLETELY STABILIZED WITH PERMANENT STABILIZATION MEASURES. STORMWATER WILL SHEET FLOW ACROSS GRASS AREAS AND THROUGH GRASS LINED SWALES WHICH WILL TREAT RUNOFF BY REMOVING TOTAL SUSPENDED SOLIDS (TSS).

C4 LOCATION, DIMENSIONS, SPECIFICATIONS, AND CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE:
SEE SHEET(S) C600-C601, AND THIS SHEET.

C5 DESCRIPTION OF MAINTENANCE GUIDELINES FOR POST CONSTRUCTION STORMWATER QUALITY MEASURES:
GRASS AREAS SHALL BE MAINTAINED ON A REGULAR MOWING CYCLE. TRASH AND DEBRIS SHALL BE REMOVED FROM GRASS AND GRAVEL AREAS.

ALL STORMWATER MANAGEMENT FACILITIES AND INFRASTRUCTURE WILL BE INSPECTED MONTHLY. DEBRIS AND TRASH AROUND OR OBSTRUCTING INLETS WILL BE REMOVED. DAMAGE TO STORM STRUCTURES AND/OR PIPES SHOULD BE REPAIRED AS SOON AS POSSIBLE.

EROSION AND SEDIMENT CONTROL SEQUENCE AND IMPLEMENTATION

1. A PRE-CONSTRUCTION CONFERENCE MUST BE SCHEDULED WITH THE CITY OF LAPORTE MS4 OPERATOR, MR. RICK BROWN (219-326-6808) SO THAT ALL REPORTING AND OTHER CONSTRUCTION REQUIREMENTS ARE MET. THE CITY OF LAPORTE MS4 IS THE REVIEW AUTHORITY FOR THIS PROJECT.
2. INSTALL TEMPORARY CONSTRUCTION ENTRANCE AS SHOWN ON SHEET C600
3. INSTALL SILT FENCING AS SHOWN ON SHEET(S) C600. DUST SHALL BE KEPT TO A MINIMUM BY UTILIZING SPRINKLING, CALCIUM CHLORIDE, VEGETATIVE COVER, SPRAY ON ADHESIVE OR OTHER APPROVED METHODS.
4. IDENTIFY CONTRACTOR STAGING, MATERIAL STORAGE, AND STOCKPILE AREAS. EACH AREA SHALL BE PROPERLY PROTECTED AND DELINEATED PRIOR TO CONSTRUCTION.
5. THE NOTICE OF INTENT AND CONTACT INFORMATION FOR THE PERSON WITH ONSITE RESPONSIBILITIES MUST BE POSTED.
6. IDEM AND LAPORTE COUNTY MS4 OPERATIOR, MR. RICK BROWN, MUST BE NOTIFIED WITHIN 48 HOURS OF COMMENCING EARTH MOVING ACTIVITIES.
7. CONTACT INDIANA UNDERGROUND PLANNED PROTECTION SYSTEMS, INC. (INDIANA 811) FOR UNDERGROUND UTILITY LOCATIONS. (1-800-382-5544)
9. BEGIN MASS EARTHWORK FOR BUILDING PAD AND GRAVEL AREAS. INSTALL AND COMPLETE ALL UNDERGROUND UTILITY WORK. SEE "GENERAL SEEDING AND SURFACE STABILIZATION PROCEDURES" FOR SEEDING GUIDELINES ON THIS SHEET.
10. REPAIR ANY SILT FENCING IF DAMAGED. IF SEDIMENT IS 1/3 HEIGHT OF FABRIC, REMOVE SEDIMENT AND REPLACE TO ORIGINAL CONDITION.
11. IMMEDIATELY AFTER FINAL GRADING, APPLY SURFACE STABILIZATION PRACTICES ON ALL GRADED AREAS, USING PERMANENT MEASURES IN ACCORDANCE WITH THE EROSION CONTROL PLAN. HOWEVER, IF WEATHER DELAYS PERMANENT STABILIZATION, TEMPORARY SEEDING AND/OR MULCHING MAY BE NECESSARY AS A PROVISIONAL MEASURE. ALSO STABILIZE (USING TEMPORARY SEEDING/MULCHING OR OTHER SUITABLE MEANS) ANY DISTURBED AREA WHERE ACTIVE CONSTRUCTION WILL NOT TAKE PLACE FOR 15 WORKING DAYS.
12. AFTER CONSTRUCTION AND FINAL GRADING, PERMANENTLY STABILIZE ALL DISTURBED AREAS. ALSO REMOVE TEMPORARY MEASURES AND ANY UNSTABLE SEDIMENT AROUND THEM, AND STABILIZE THOSE AREAS WITH PERMANENT SEEDING AND EROSION CONTROL BLANKET AS NECESSARY TO ACHIEVE COMPLETE STABILIZATION OF ALL DISTURBED AREAS.
13. MAINTAIN ALL EROSION AND SEDIMENT CONTROL PRACTICES UNTIL ALL DISTURBED AREAS ARE PERMANENTLY STABILIZED.
14. NOTICE OF TERMINATION OF NOTICE OF INTENT SHALL BE FILED WITH IDEM AND LAPORTE COUNTY WHEN WORK IS COMPLETE AND SITE IS STABILIZED.

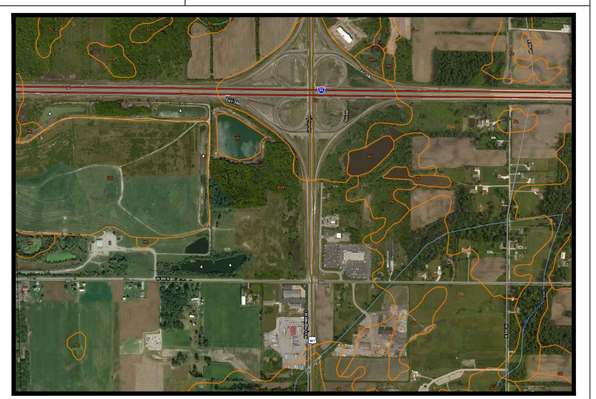
LAPORTE COUNTY SOILS CHARACTERISTICS AND LIMITATIONS:

BaA - BLOUNT SILT LOAM, .9 PERCENT SLOPES, SOMEWHAT POORLY DRAINED

Hk - HOMER LOAM, 1 PERCENT SLOPES, SOMEWHAT POORLY DRAINED

Gf - GILFORD FINE SANDY LOAM, 1 PERCENT SLOPES, POORLY DRAINED

Sb - SEBEWA LOAM, SHALY SAND SUBSTRATUM, 1 PERCENT SLOPES, VERY POORLY DRAINED



SOILS MAP
NOT TO SCALE

GENERAL SEEDING and SURFACE STABILIZATION PROCEDURES

(1) TEMPORARY SEEDING

TABLE 1. TEMPORARY SEEDING SPECIFICATIONS

SEED SPECIES 1	RATE PER ACRE	PLANTING DEPTH	OPTIMUM DATES 2
WHEAT OR RYE	150 LBS.	1 TO 1-1/2 INCHES	SEPT. 15 - OCT. 30
SPRING OATS	100 LBS.	1 INCH	MARCH 1 - APRIL 15
ANNUAL RYEGRASS	40 LBS.	1-1/4 INCH	MARCH 1 - MAY 1 AUG. 1 - SEPT. 1
GERMAN MILLET	40 LBS.	1 TO 2 INCHES	MAY 1 - JUNE 1
SUNDANGRASS	35 LBS.	1 TO 2 INCHES	MAY 1- JULY 30
BUCKWHEAT	60 LBS.	1 TO 2 INCHES	APRIL 15 - JUNE 1
CORN (BROADCAST)	300 LBS.	1 TO 2 INCHES	MAY 11 - AUG. 10
SORGHUM	35 LBS.	1 TO 2 INCHES	MAY 1 - JULY 15

1 PERENNIAL SPECIES MAY BE USED A TEMPORARY COVER, ESPECIALLY IF THE AREA TO BE SEEDED WILL REMAIN IDLE FOR MORE THAN ONE YEAR (SEE PERMANENT SEEDING). 2 SEEDING DONE OUTSIDE THE OPTIMUM SEEDING DATES INCREASES THE CHANCES OF SEEDING FAILURE. DATES MAY BE EXTENDED OR SHORTENED BASED ON THE LOCATION OF A PROJECT SITE WITHIN THE STATE.

NOTES:
MULCH ALONE IS AN ACCEPTABLE TEMPORARY COVER AND MAY BE USED IN LIEU OF TEMPORARY SEEDING, PROVIDED THAT IT IS APPROPRIATELY ANCHORED.
A HIGH POTENTIAL FOR FERTILIZER, SEED, AND MULCH TO WASH EXISTS ON STEEP BANKS, CUTS, AND IN CHANNELS AND AREAS OF CONCENTRATED FLOW.

APPLICATION
SEEDBED PREPARATION
1. TEST SOIL TO DETERMINE PH AND NUTRIENT LEVELS.
2. APPLY SOIL AMENDMENTS AS RECOMMENDED BY THE SOIL TEST. IF TESTING IS NOT DONE, APPLY 400 TO 600 POUNDS PER ACRE OF 12-12-12 ANALYSIS FERTILIZER, OR EQUIVALENT.
3. WORK THE SOIL AMENDMENTS INTO THE UPPER TWO TO FOUR INCHES OF THE SOIL WITH A DISK OR RAKE OPERATED ACROSS THE SLOPE.

SEEDING
1. SELECT A SEED SPECIES OR AN APPROPRIATE SEED MIXTURE AND APPLICATION RATE FROM TABLE 1.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER SEEDER OR BY BROADCASTING. PLANT OR COVER SEED TO THE DEPTH SHOWN IN TABLE 1.

NOTES
1. IF DRILLING OR BROADCASTING THE SEED, ENSURE GOOD SEED-TO-SOIL CONTACT BY FIRMING THE SEEDBED WITH A ROLLER OR CULIPACKER AFTER COMPLETEING SEEDING OPERATIONS.
DAILY SEEDING WHEN THE SOIL IS MOIST IS USUALLY MOST EFFECTIVE.
2. IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.
3. APPLY MULCH (SEE MULCHING AND COMPOST MULCHING REQUIREMENTS BELOW) AND ANCHOR IT IN PLACE.

MAINTENANCE
1. INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
2. CHECK FOR EROSION OR MOVEMENT OF MULCH AND REPAIR IMMEDIANTELY.
3. MONITOR FOR EROSION DAMAGE AND ADEQUATE COVER (80 PERCENT DENSITY); RESEED, FERTILIZE, AND APPLY MULCH WHERE NECESSARY.
4. IF NITROGEN DEFICIENCY IS APPARENT, TOP-DRESS FALL SEEDING WHEAT OR RYE SEEDING WITH 50 POUNDS PER ACRE OF NITROGEN IN FEBRUARY OR MARCH.

(2) PERMANENT SEEDING

APPLICATION
SITE PREPARATION
1. GRADE THE SITE TO ACHIEVE POSITIVE DRAINAGE.
2. ADD TOPSOIL OR COMPOST MULCH TO ACHIEVE NEEDED DEPTH FOR ESTABLISHMENT OF VEGETATION. (COMPOST MATERIAL MAY BE ADDED TO IMPROVE SOIL MOISTURE HOLDING CAPACITY, SOIL FRIABILITY, AND NUTRIENT AVAILABILITY.)

SEEDBED PREPARATION
1. TEST SOIL TO DETERMINE PH AND NUTRIENT LEVELS.
2. APPLY SOIL AMENDMENTS AS RECOMMENDED BY THE SOIL TEST AND WORK INTO THE UPPER TWO TO FOUR INCHES OF SOIL. IF TESTING IS NOT DONE, APPLY 400 TO 600 POUNDS PER ACRE OF 12-12-12 ANALYSIS FERTILIZER, OR EQUIVALENT.
3. TILL THE SOIL TO OBTAIN A UNIFORM SEEDBED. USE A DISK OR RAKE, OPERATED ACROSS THE SLOPE, TO WORK THE SOIL AMENDMENTS INTO THE UPPER TWO TO FOUR INCHES OF THE SOIL.

SEEDING
OPTIMUM SEEDING DATES ARE MARCH 1 TO MAY 10 AND AUGUST 10 TO SEPTEMBER 30. PERMANENT SEEDING DONE BETWEEN MAY 10 AND AUGUST 10 MAY NEED TO BE IRRIGATED. SEEDING OUTSIDE OR BEYOND OPTIMUM SEEDING DATES IS STILL POSSIBLE WITH THE UNDERSTANDING THAT RESEEDING OR OVERSEEDING MAY BE REQUIRED IF ADEQUATE SURFACE COVER IS NOT ACHIEVED. RESEEDING OR OVERSEEDING CAN BE EASILY ACCOMPLISHED IF THE SOIL SURFACE REMAINS WELL PROTECTED WITH MULCH.

1. SELECT A SEEDING MIXTURE AND RATE FROM TABLE 1 PERMANENT SEEDING RECOMMENDATIONS. SELECT SEED MIXTURE BASED ON SITE CONDITIONS, SOIL PH, INTENDED LAND USE, AND EXPECTED LEVEL OF MAINTENANCE.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER SEEDER OR BY BROADCASTING. PLANT OR COVER THE SEED TO A DEPTH OF ONE-FOURTH TO ONE-HALF INCH. IF DRILLING OR BROADCASTING THE SEED, ENSURE GOOD SEED-TO-SOIL CONTACT BY FIRMING THE SEEDBED WITH A ROLLER OR CULTIPACKER AFTER COMPLETING SEEDING OPERATIONS. (IF SEEDING IS DONE WITH A HYDROSEEDER FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SURRY MIXTURE.)
3. MULCH ALL SEEDED AREAS AND USE APPROPRIATE METHODS TO ANCHOR THE MULCH IN PLACE. CONSIDER USING EROSION CONTROL BLANKETS ON SLOPING AREAS AND CONVEYANCE CHANNELS.

MAINTENANCE
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS UNTIL THE VEGETATION IS SUCCESSFULLY ESTABLISHED.
- CHARACTERISTICS OF A SUCCESSFUL STAND INCLUDE VIGOROUS DARK GREEN OR BLUISHGREEN SEEDLINGS WITH A UNIFORM VEGETATIVE COVER DENSITY OF 90 PERCENT OR MORE.
- CHECK FOR EROSION OR MOVEMENT OF MULCH.
- REPAIR DAMAGED, BARE, GULLIED, OR SPARSELY VEGETATED AREAS AND THEN FERTILIZE, RESEED, AND APPLY AND ANCHOR MULCH.
- IF PLANT COVER IS SPARSE OR PATCHY, EVALUATE THE PLANT MATERIALS CHOSEN, SOIL FERTILITY, MOISTURE CONDITION, AND MULCH APPLICATION; REPAIR AFFECTED AREAS EITHER BY OVERSEEDING OR PREPARING A NEW SEEDBED AND RESEEDING. APPLY AND ANCHOR MULCH ON THE NEWLY SEEDED AREAS.
- IF VEGETATION FAILS TO GROW, CONSIDER SOIL TESTING TO DETERMINE SOIL PH OR NUTRIENT DEFICIENCY PROBLEMS. (CONTACT YOUR SOIL AND WATER CONSERVATION DISTRICT OR COOPERATIVE EXTENSION OFFICE FOR ASSISTANCE.)
- IF ADDITIONAL FERTILIZATION IS NEEDED TO GET A SATISFACTORY STAND, DO SO ACCORDING TO SOIL TEST RECOMMENDATIONS.
- ADD FERTILIZER THE FOLLOWING GROWING SEASON. FERTILIZE ACCORDING TO SOIL TEST RECOMMENDATIONS.
- FERTILIZE TURF AREAS ANNUALLY. APPLY FERTILIZER IN A SPLIT APPLICATION. FOR COOL-SEASON GRASSES, APPLY ONE-HALF OF THE FERTILIZER IN LATE SPRING AND ONE-HALF IN EARLY FALL. FOR WARM-SEASON GRASSES, APPLY ONE-THIRD IN EARLY SPRING, ONE-THIRD IN LATE SPRING, AND THE REMAINING ONE-THIRD IN MIDDLE SUMMER.

TABLE 1 PERMANENT SEEDING RECOMMENDATIONS
THIS TABLE PROVIDES SEVERAL SEED MIXTURE OPTIONS. ADDITIONAL SEED MIXTURES ARE AVAILABLE COMMERCIALLY. WHEN SELECTING A MIXTURE, CONSIDER INTENDED LAND USE AND SITE CONDITIONS, INCLUDING SOIL PROPERTIES (E.G., SOIL PH AND DRAINAGE), SLOPE ASPECT, AND THE TOLERANCE OF EACH SPECIES TO SHADE AND DROUGHT.

OPEN LOW-MAINTENANCE AREAS (REMAINING IDLE MORE THAN SIX MONTHS)

Seed Mixtures	Rate per Acre Pure Live Seed	Optimum Soil pH
1. Perennial ryegrass - white clover 1	70 lbs. 2 lbs.	5.6 to 7.0
2. Perennial ryegrass - tall fescue 2	70 lbs. 50 lbs.	5.6 to 7.0
3. Tall fescue 2 - white clover 1	70 lbs. 2 lbs.	5.5 to 7.5

STEEP BANKS AND CUTS, LOW-MAINTENANCE AREAS (NOT MOWED)

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL PH
1. Smooth brome grass - red clover 1	35 lbs. 20 lbs.	5.5 to 7.0
2. Tall fescue 2 - white clover 1	50 lbs. 2 lbs.	5.5 to 7.5
3. Tall fescue 2 - red clover 1	50 lbs. 20 lbs.	5.5 to 7.5
4. Orchard grass - red clover 1 - white clover 1	30 lbs. 20 lbs. 2 lbs.	5.6 to 7.0
5. Crownvetch 1 - tall fescue 2	12 lbs. 30 lbs.	5.6 to 7.0

LAWNS AND HIGH-MAINTENANCE AREAS

Seed Mixtures	Rate per Acre Pure Live Seed	Optimum Soil pH
1. Bluegrass	140 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf type)	60 lbs. 90 lbs.	5.6 to 7.0
3. Tall fescue (turf type) 2 - bluegrass	170 lbs. 30 lbs.	5.6 to 7.5

CHANNELS AND AREAS OF CONCENTRATED FLOW

Seed Mixtures	Rate per Acre Pure Live Seed	Optimum Soil pH
1. Perennial ryegrass - white 1	150 lbs. 2 lbs.	5.5 to 7.0
2. Kentucky bluegrass - smooth bromegrass - switchgrass - timothy - perennial ryegrass - white clover	20 lbs. 10 lbs. 3 lbs. 4 lbs. 10 lbs. 2 lbs.	5.5 to 7.5
3. Tall fescue 1 - white clover	150 lbs. 2 lbs.	5.5 to 7.5
4. Tall fescue 2 - perennial ryegrass - Kentucky bluegrass 1	150 lbs. 20 lbs. 20 lbs.	5.5 to 7.5

1 FOR BEST RESULTS: (A) LEGUME SEED SHOULD BE INOCULATED; (B) SEEDING MIXTURES CONT