

BLADEN COUNTY WATER DISTRICT

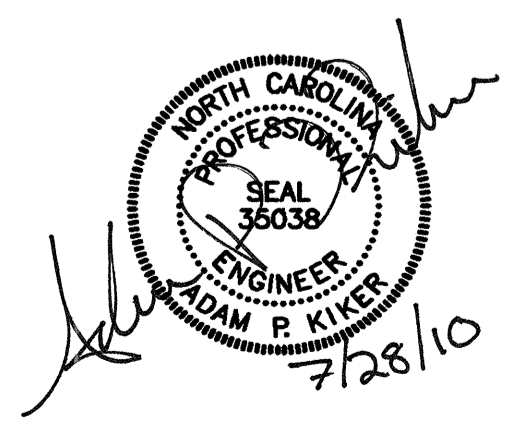
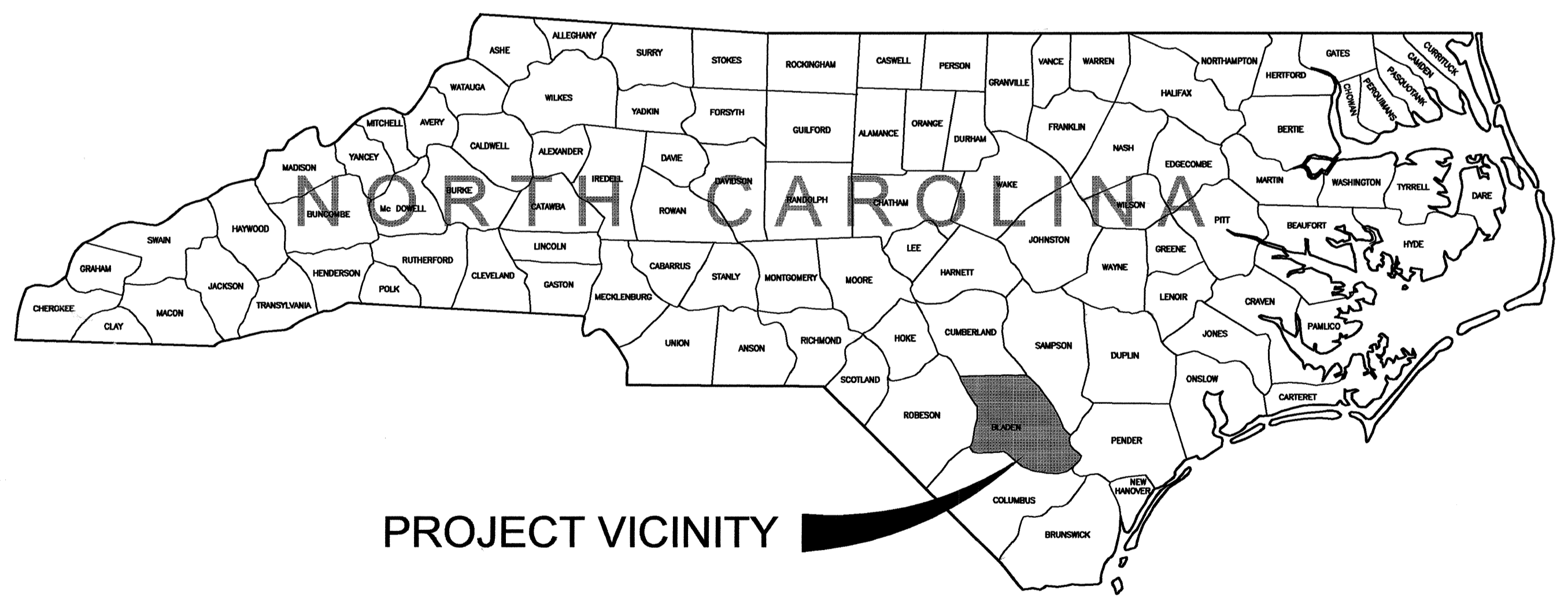
WATER MAIN RELOCATIONS AT

NC HWY 41 & NC HWY 131

BLADEN COUNTY, NORTH CAROLINA

COMMISSIONERS

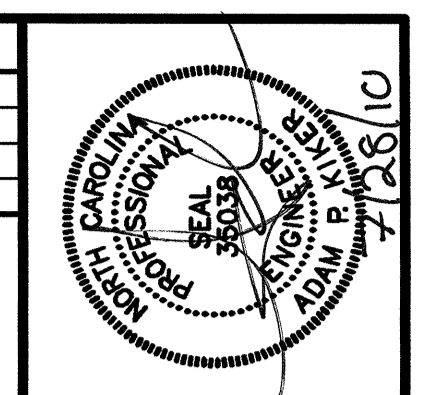
- | | | |
|------------------------|---|----------------------|
| Chairman | - | Billy Ray Pait |
| Vice Chairperson | - | Delilah Blanks |
| Commissioner | - | Daniel R. Dowless |
| Commissioner | - | Lewis Tatum |
| Commissioner | - | Margaret Lewis-Moore |
| Commissioner | - | Larry Smith |
| Commissioner | - | W. D. Neill Jr. |
| Commissioner | - | David Gooden |
| Commissioner | - | Charles Ray Peterson |
| County Manager | - | Gregory Martin |
| Dir. of Water District | - | Randy Garner |



H **Hobbs, Upchurch & Associates, P.A.**
Consulting Engineers, Surveyors & Land Planners
 Southern Pines, North Carolina 28387
 300 S.W. Broad Street, Southern Pines, North Carolina 28387
 Phone: (910) 692-5616 - Fax: (910) 692-7342

H:\5121\B10 DESIGN\B10 DESIGN\B10 DESIGN\PLANS\COVER SHEET-LAYOUT1.DWG, PLOTTED: 07/28/10 13:11 SCALE: 12"=1'-0" (1:1)
 H:\5121\B10 DESIGN\B10 DESIGN\B10 DESIGN\PLANS\COVER SHEET-LAYOUT1.DWG, PLOTTED: 07/28/10 13:11 SCALE: 12"=1'-0" (1:1)
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 H:\5121\B10 DESIGN\B10 DESIGN\B10 DESIGN\PLANS\COVER SHEET-LAYOUT1.DWG, PLOTTED: 07/28/10 13:11 SCALE: 12"=1'-0" (1:1)

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
W-2, W-3	RE-ALIGNMENTS	01MAR10	GER
	REVISED AS PER NCDOT	21AUG10	GER



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 License Number: C-0454

LAYOUT, GENERAL NOTES, LEGEND AND SHEET INDEX

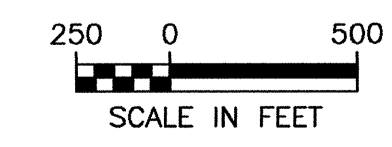
**BLADEN COUNTY WATER DISTRICT
 WATER MAIN RELOCATIONS AT
 NC HWY 41 & NC HWY 131**

DATE:	OCTOBER, 2009
DESIGNED:	APK/GER
DRAWN:	GER
CHECKED:	APK
SCALE:	AS SHOWN
SHEET NO.	UC-1

LEGEND	
---	LIMITS OF DISTURBANCE
—	PROPOSED WATER MAIN
—W—	EXISTING WATER MAIN
---	EXISTING GRAVITY SEWER
●	EXISTING SEWER MANHOLE
--- FM ---	EXISTING FORCE MAIN
--- RW ---	EXISTING RAW WATER MAIN
---	EXISTING C DITCH
---	RIGHT-OF-WAY
x	EXISTING WIRE FENCE
□	EXISTING WOODEN FENCE
~~~~~	EXISTING TREE LINE
---	EXISTING DRAINAGE PIPE
⊙	EXISTING TREE
⊗	EXISTING SHRUB/LANDSCAPE
	EXISTING POND
Ⓢ	INLET/OUTLET PROTECTION
⊗	EXISTING GATE VALVE
⊕	EXISTING FIRE HYDRANT
⊗	PROPOSED GATE VALVE
⊗	PROPOSED BUTTERFLY VALVE
⊗	PROPOSED AIR RELEASE VALVE
⊕	PROPOSED FIRE HYDRANT
▷	EXISTING REDUCER
▷	PROPOSED REDUCER
⊕	PROPOSED OR EXISTING PLUG
⊕	EXISTING POWER POLE
⊕	EXISTING GUY ANCHOR
---	SILT FENCE
□	SEDIMENT TRAP
□	EXISTING DROP INLET
□	TELEPHONE PEDESTAL
⊕	RIGHT-OF-WAY MONUMENT
⊕	CABLE TELEVISION BOX
←	EXCELSIOR/ENKA MATTING

**GENERAL NOTES:**

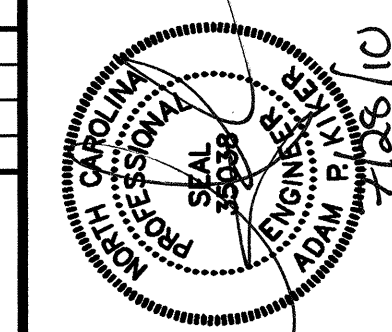
- 1) WORK WITHIN PUBLIC RIGHT-OF-WAYS OR PRIVATE EASEMENTS SHALL BE ACCOMPLISHED BY THE CONTRACTOR ACCORDING TO THE REQUIREMENTS OR CONDITIONS OF THE ENCROACHMENT PERMIT OR OTHER LEGAL DOCUMENTS AS THOUGH DOCUMENTS WERE ISSUED IN THE CONTRACTORS NAME. THE CONTRACTOR SHALL MAINTAIN COPIES OF THESE DOCUMENTS ON THE SITE AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF PUBLIC RIGHT-OF-WAYS DURING CONSTRUCTION OF THE PROJECT AND UNTIL THE CONTRACTOR OBTAINS AND DELIVERS TO THE OWNER A WRITTEN SIGN-OFF FROM THE N.C.D.O.T. THAT THE PUBLIC AGENCY HAS ACCEPTED THE RIGHT-OF-WAY BACK FOR MAINTENANCE. FINAL PAYMENT AND RELEASE OF RETAINAGE WILL NOT BE MADE TO THE CONTRACTOR UNTIL WRITTEN SIGN-OFF HAS BEEN OBTAINED FROM THE APPROPRIATE PUBLIC AGENCY AND PROVIDED TO THE OWNER.
- 2) PROVISIONS SHALL BE MADE TO PREVENT EROSION AND SILTATION CAUSED BY CONSTRUCTION. TEMPORARY GRASSING, HAY BALES, SILT FENCES, CHECK DAMS OR OTHER METHODS SHALL BE USED IN ACCORDANCE WITH THE APPROVED EROSION CONTROL PERMIT.
- 3) DISTANCES SHOWN ON THE PLAN FOR THE DESIGNATED LOCATION OF THE PROPOSED LINE WHICH MAY BE FROM THE EDGE OF PAVEMENT OR OTHERWISE SHOWN IS INTENDED ONLY AS A DESIRED LOCATION FOR THIS INSTALLATION. HOWEVER, SHOULD A CONFLICT OCCUR AND/OR DUE TO UNFORESEEN OR OTHER UTILITIES DISCOVERED THAT ARE IN CONFLICT, IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE FOR ANY AND ALL INSTALLATIONS AND DEVIATIONS OF ALIGNMENT NECESSARY TO ACHIEVE A CHANGED AND SATISFACTORY LOCATION FOR THIS INSTALLATION. THE INSTALLATION COSTS THAT MAY OCCUR DUE TO ALIGNMENT CHANGES ARE CONSIDERED TO BE A PART OF THE PRICE SUBMITTED FOR PIPE INSTALLATION AND NO ADDITIONAL COMPENSATION IS ALLOWED. THE FINAL LOCATION SELECTED FOR INSTALLATION BY THE CONTRACTOR OTHER THAN WHAT IS SHOWN ON THE PLANS SHALL BE FIRST APPROVED BY THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK AND ACTUAL INSTALLATION.
- 4) WHEN THE CONTRACTOR IS UNABLE TO COMPLETE HIS WORK AS SHOWN ON THE PLANS BECAUSE OF AN EXISTING UTILITY, CONTRACTOR SHALL STAKE LOCATION OF THE UTILITY PRIOR TO PROCEEDING AND CONTACT THE ENGINEER.
- 5) THE CONTRACTOR SHALL NOTIFY ALL PUBLIC AGENCIES, THE OWNER, THE ENGINEER AND ALL OTHER PARTIES WHEN CONSTRUCTION IS TO COMMENCE SO THAT INSPECTIONS AND OTHER SITE VISITS MAY BE SCHEDULED.
- 6) DATA REQUIRED FOR PREPARATION OF AS-BUILT DRAWINGS SHALL BE OBTAINED BY THE CONTRACTOR AT THE TIME OF INSTALLATION. THIS DATA SHALL BE ACCUMULATED BY THE CONTRACTOR AND COORDINATED WITH THE PROJECT INSPECTOR ON A DAILY BASIS DURING THE CONSTRUCTION PERIOD AND BE SUBMITTED TO THE PROJECT INSPECTOR IN A NEAT AND LEGIBLE MANNER WITH EACH PAY REQUEST AND AFTER COMPLETION OF THE PROJECT.
- 7) ALL WORK SHALL BE IN ACCORDANCE WITH THE APPLICABLE FEDERAL, NORTH CAROLINA AND LOCAL ORDINANCES, REGULATIONS, SPECIFICATIONS AND PERMITS.
- 8) REPLACE IN KIND ALL AREAS WHERE PROPERTY OWNER HAS DEVELOPED SPECIAL GRASS, TURF, FENCES, SHRUBS OR LANDSCAPING. ALL DISTURBED AREAS ARE TO BE RAKED AND SEEDED OR TURF REPLACED IN KIND WHERE TURF EXISTS. ITEMS LISTED HEREIN ARE CONSIDERED TO BE INCLUDED IN THE BID ITEMS AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
- 9) FINAL LOCATIONS FOR ALL BUTTERFLY VALVES, FIRE HYDRANTS AND AIR RELEASE VALVES TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION.
- 10) THE CONTRACTOR IS REQUIRED TO PROVIDE FOR TEMPORARY EXCAVATIONS TO DETERMINE LINE LOCATIONS, DEPTH, AND TYPE OF MATERIAL, PRIOR TO DETERMINATION OF NEW LINE LOCATION.
- 11) LIMITS OF DISTURBANCE SHALL NOT EXCEED 6' EITHER SIDE OF WATER MAIN AND ALL APPURTENANCES.



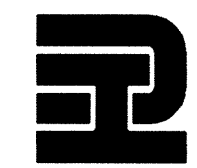
HUBBS, UPCHURCH & ASSOCIATES, P.A. DRAWINGS 810 DESIGN DRAWINGS PLOTS 3422 (02) LAYOUT SHEET LAYOUT PLOTTED: 07/28/10 13:11 SCALE: 1"=1' (11)  
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 HUBBS, UPCHURCH & ASSOCIATES, P.A. 300 S.W. BROAD STREET, SOUTHERN PINES, NORTH CAROLINA 28387



REVISIONS			
SYM.	DESCRIPTION	DATE	BY
W-2, W-3	RE-ALIGNMENTS	01MAR10	GER
	REVISED AS PER NCDOT	21AUG10	GER



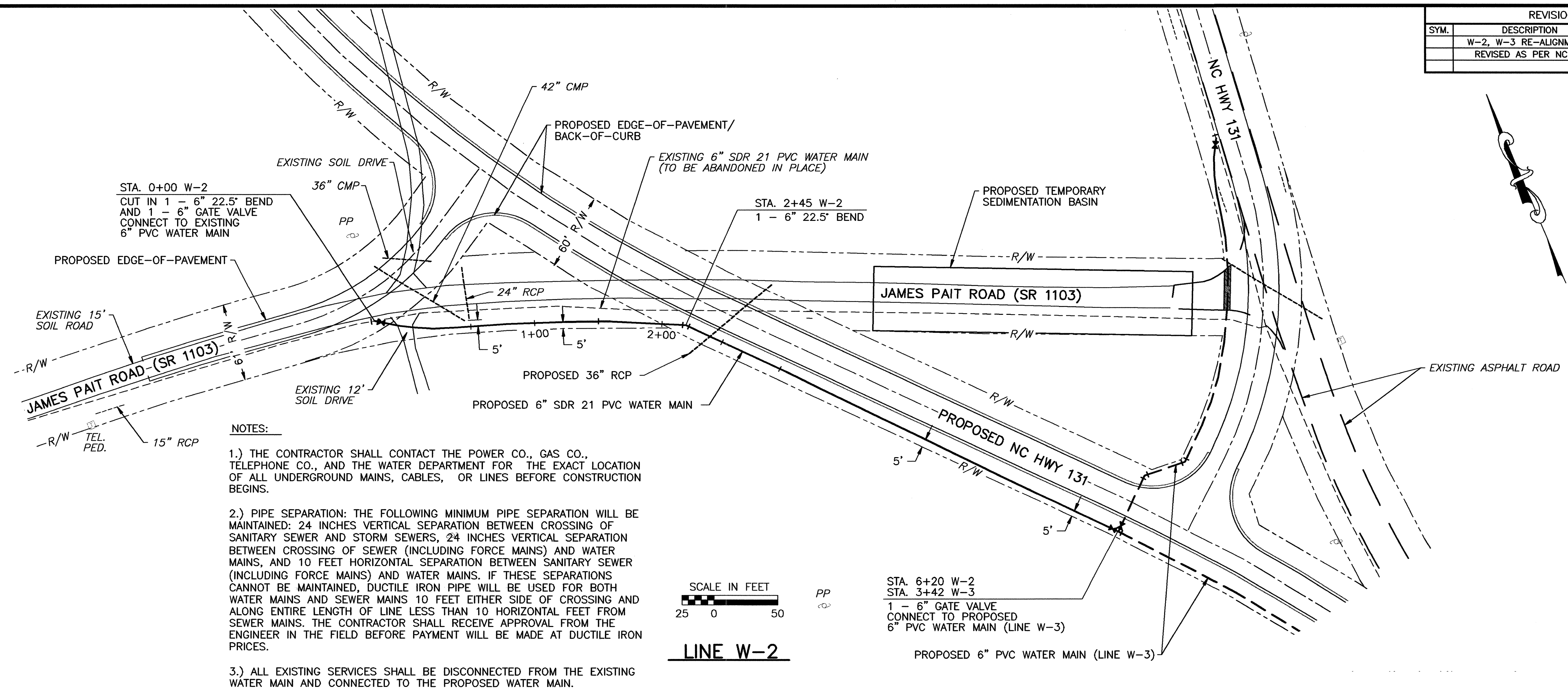
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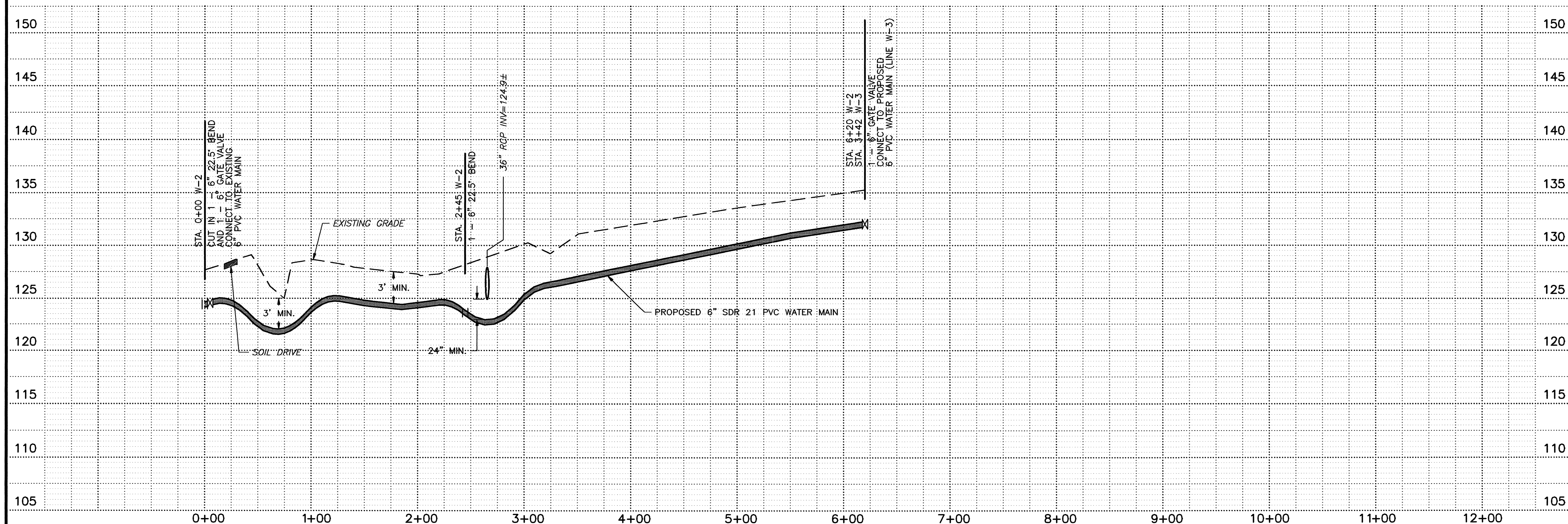
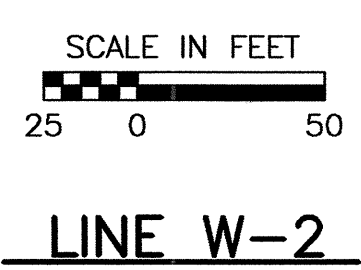
LINE W-2  
 STA 0+00 TO STA 3+55

BLADEN COUNTY WATER DISTRICT  
 WATER MAIN RELOCATIONS AT  
 NC HWY 41 & NC HWY 131

DATE:	OCTOBER, 2009
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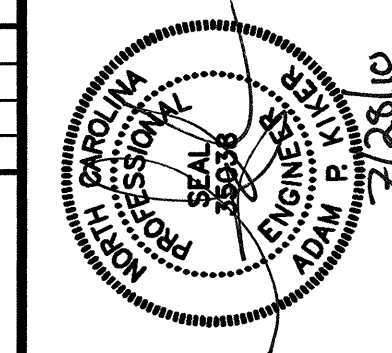
- NOTES:**
- THE CONTRACTOR SHALL CONTACT THE POWER CO., GAS CO., TELEPHONE CO., AND THE WATER DEPARTMENT FOR THE EXACT LOCATION OF ALL UNDERGROUND MAINS, CABLES, OR LINES BEFORE CONSTRUCTION BEGINS.
  - PIPE SEPARATION: THE FOLLOWING MINIMUM PIPE SEPARATION WILL BE MAINTAINED: 24 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SANITARY SEWER AND STORM SEWERS, 24 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SEWER (INCLUDING FORCE MAINS) AND WATER MAINS, AND 10 FEET HORIZONTAL SEPARATION BETWEEN SANITARY SEWER (INCLUDING FORCE MAINS) AND WATER MAINS. IF THESE SEPARATIONS CANNOT BE MAINTAINED, DUCTILE IRON PIPE WILL BE USED FOR BOTH WATER MAINS AND SEWER MAINS 10 FEET EITHER SIDE OF CROSSING AND ALONG ENTIRE LENGTH OF LINE LESS THAN 10 HORIZONTAL FEET FROM SEWER MAINS. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER IN THE FIELD BEFORE PAYMENT WILL BE MADE AT DUCTILE IRON PRICES.
  - ALL EXISTING SERVICES SHALL BE DISCONNECTED FROM THE EXISTING WATER MAIN AND CONNECTED TO THE PROPOSED WATER MAIN.



H:\02001\02001.dwg (1:1) DESIGN: JRM, DATE: 07/28/10 13:11 SCALE: 1"=1' (1:1)  
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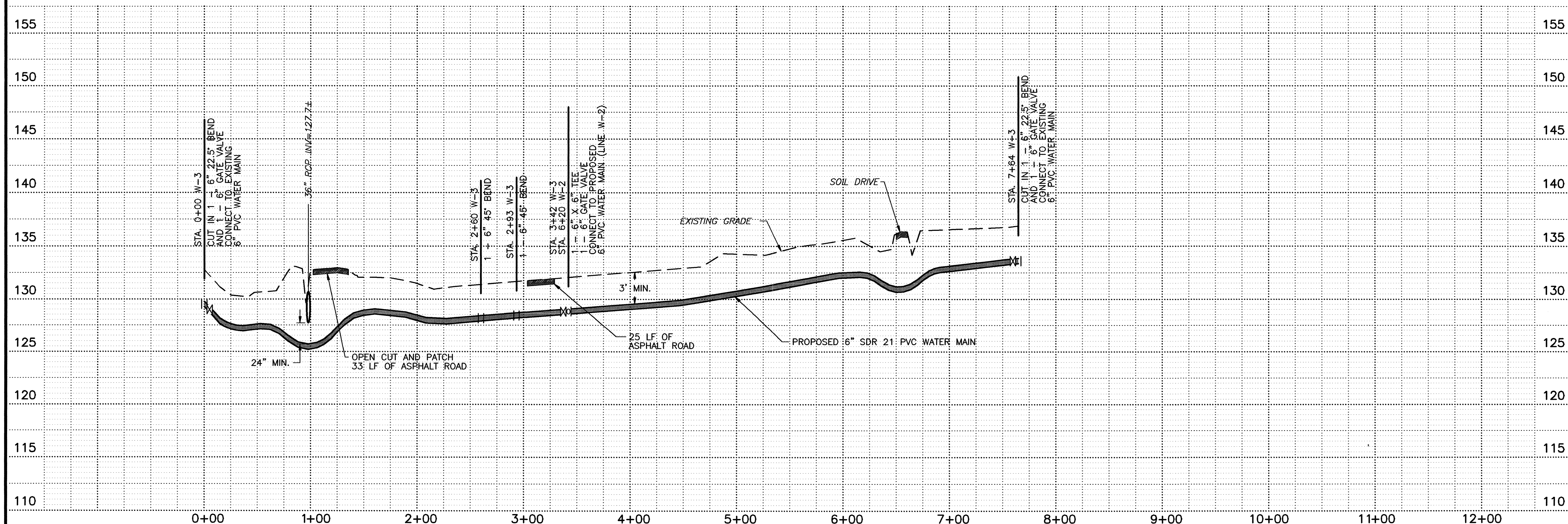
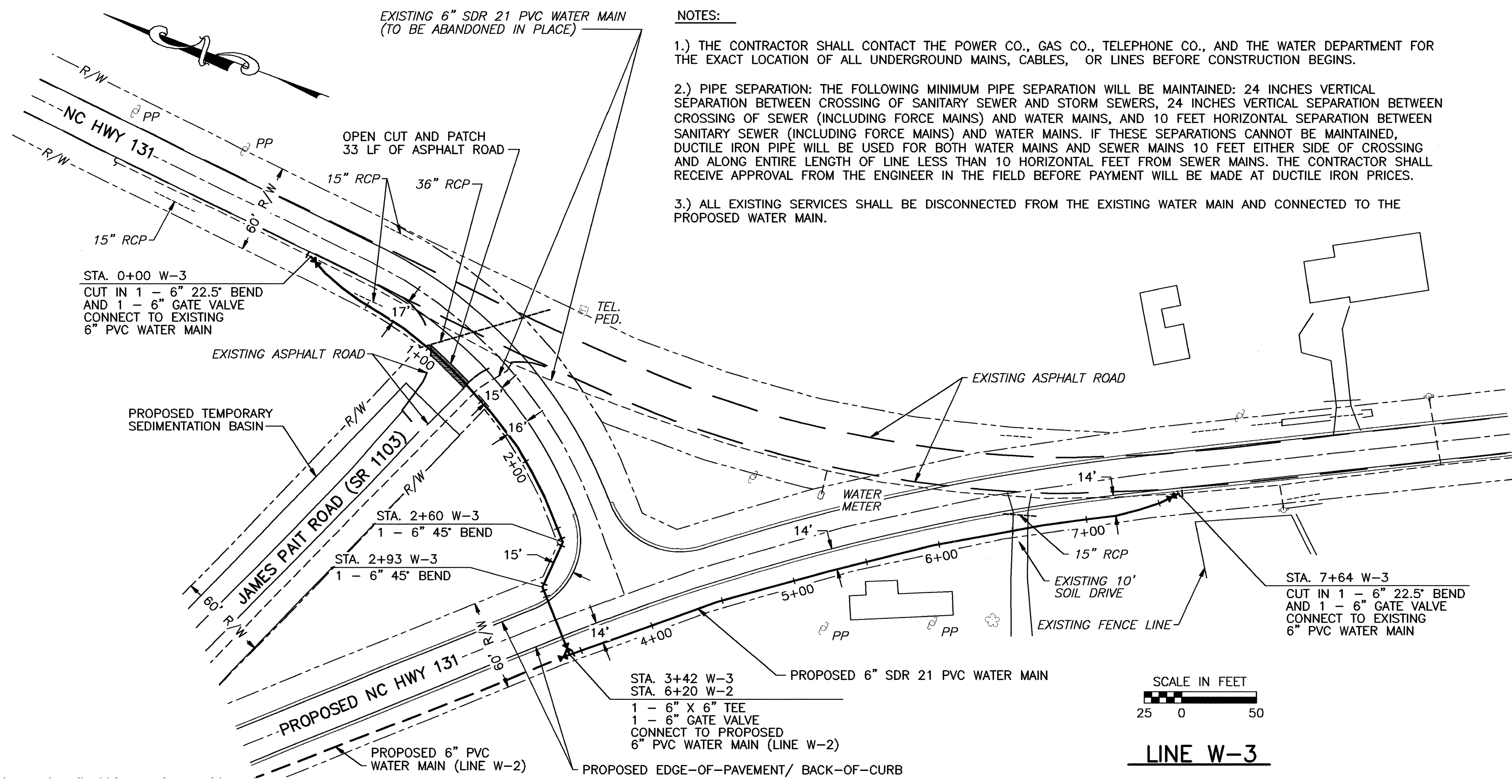


LINE W-3  
 STA 0+00 TO STA 7+64

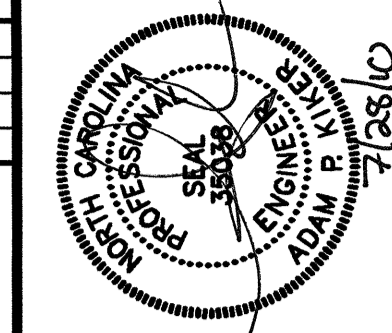
BLADEN COUNTY WATER DISTRICT  
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 NC HWY 41 & NC HWY 131

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- NOTES:**
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  - 2.) PIPE SEPARATION: THE FOLLOWING MINIMUM PIPE SEPARATION WILL BE MAINTAINED: 24 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SANITARY SEWER AND STORM SEWERS, 24 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SEWER (INCLUDING FORCE MAINS) AND WATER MAINS, AND 10 FEET HORIZONTAL SEPARATION BETWEEN SANITARY SEWER (INCLUDING FORCE MAINS) AND WATER MAINS. IF THESE SEPARATIONS CANNOT BE MAINTAINED, DUCTILE IRON PIPE WILL BE USED FOR BOTH WATER MAINS AND SEWER MAINS 10 FEET EITHER SIDE OF CROSSING AND ALONG ENTIRE LENGTH OF LINE LESS THAN 10 HORIZONTAL FEET FROM SEWER MAINS. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER IN THE FIELD BEFORE PAYMENT WILL BE MADE AT DUCTILE IRON PRICES.
  - 3.) ALL EXISTING SERVICES SHALL BE DISCONNECTED FROM THE EXISTING WATER MAIN AND CONNECTED TO THE PROPOSED WATER MAIN.



HUBBS, UPCHURCH & ASSOCIATES, P.A. DESIGN DRAWINGS (PLOTS) JAMES PAIT ROAD & PROFILE SHEET WM-03-LAYOUT PLOTTED: 07/28/10 13:12 SCALE: 1"=1' (1:1)  
 INTER-AGENCY COORDINATION: BLADEN COUNTY WATER DISTRICT, SOUTHERN PINES, NORTH CAROLINA  
 DATE: 07/28/10 13:09 SCALE: 1"=1' (1:1)



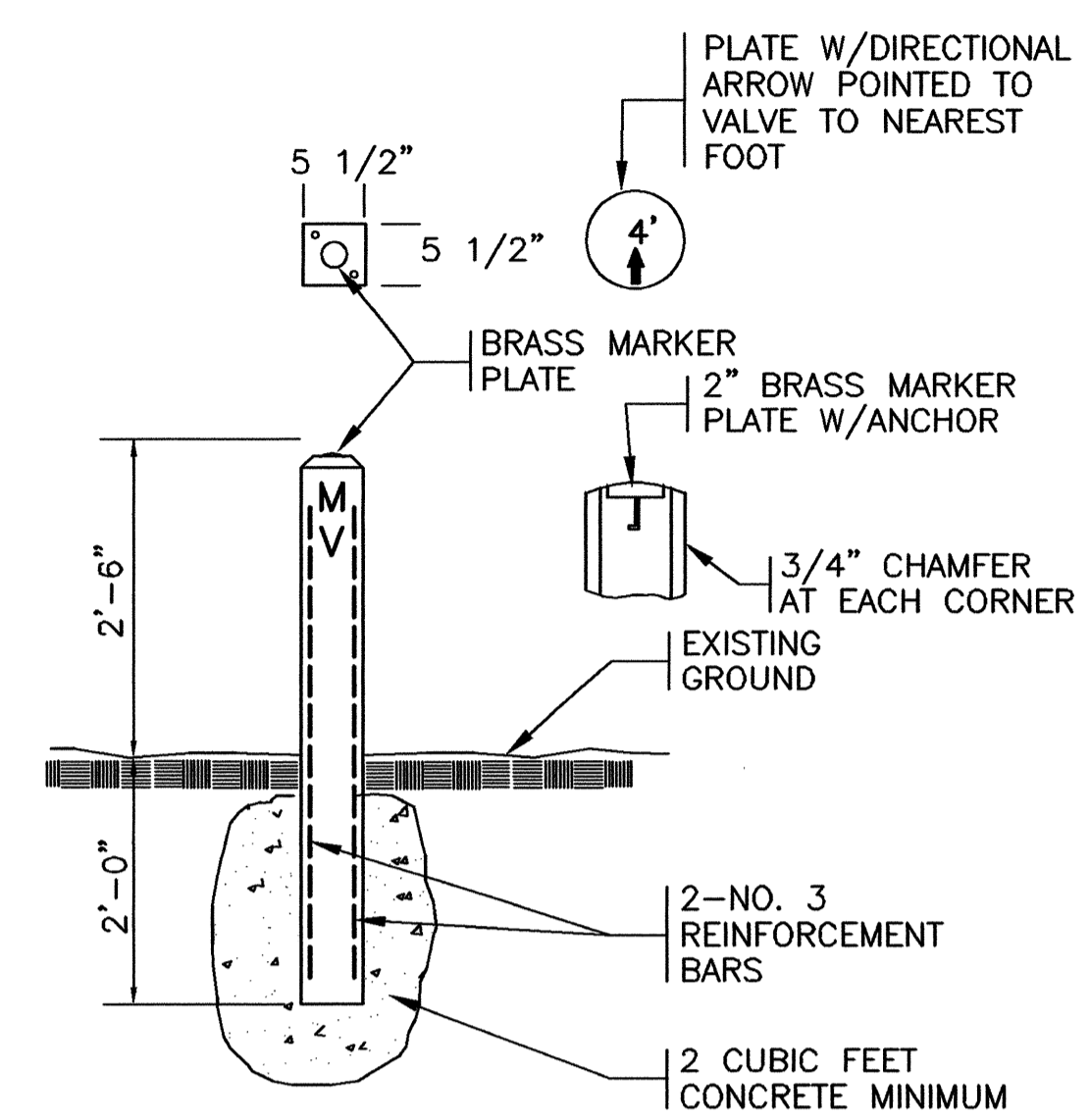
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MISCELLANEOUS DETAILS

BLADEN COUNTY WATER DISTRICT  
 WATER MAIN RELOCATIONS AT  
 NC HWY 41 & NC HWY 131  
 BLADEN COUNTY, NORTH CAROLINA

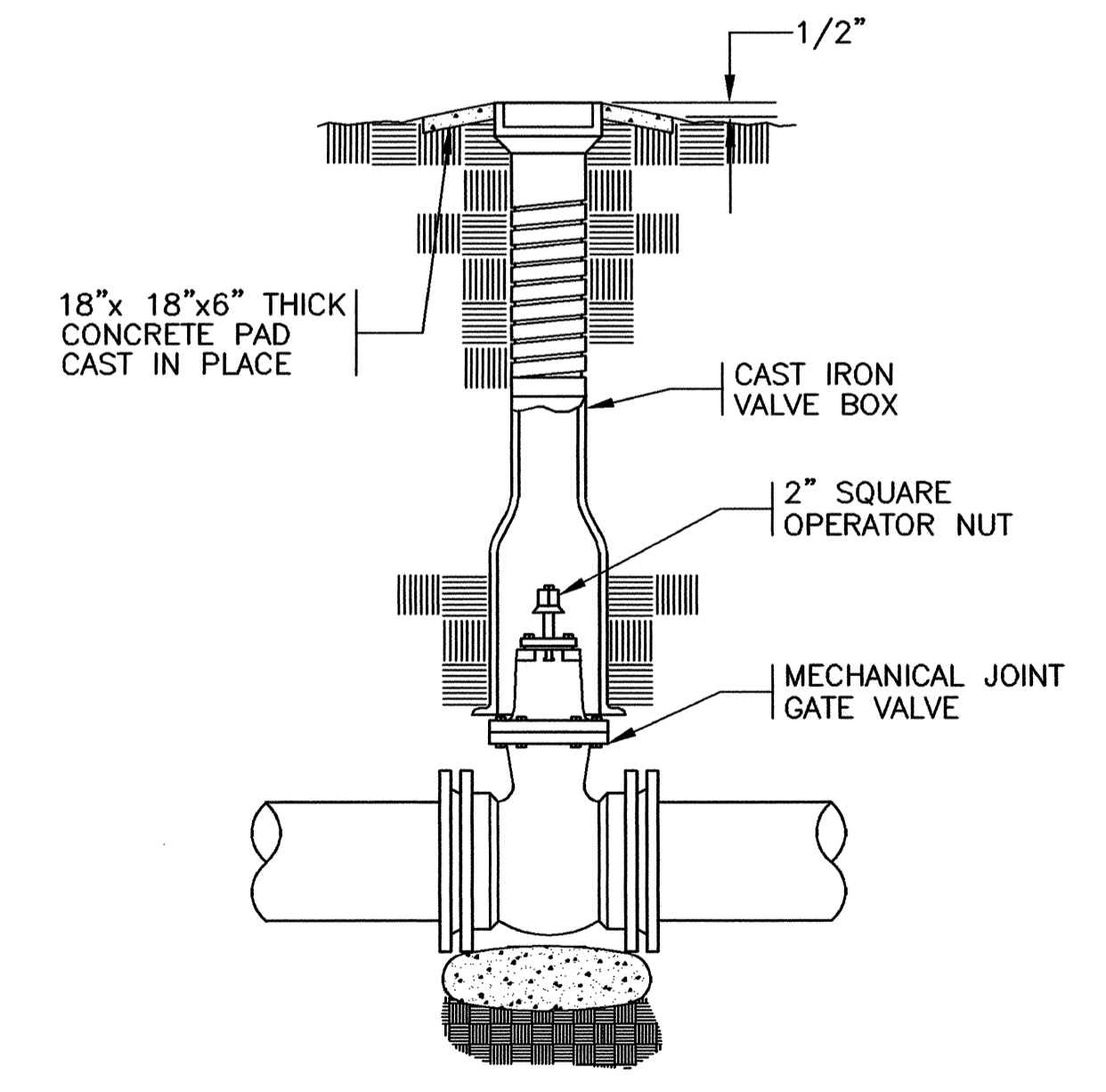
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W-2, W-3	RE-ALIGNMENTS	01MAR10	GER
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**VALVE MARKER POST DETAIL**  
N.T.S.

- NOTES:
- 1.) INSTALL MARKER POSTS ON EDGE OF THE DOT R/W LINE.
  - 2.) PROVIDE MARKER POSTS AT ALL LINE VALVES.
  - 3.) ABBREVIATIONS STAMPED ON POST AS FOLLOWS:  
 MV = MAIN VALVE      BO = BLOW OFF VALVE

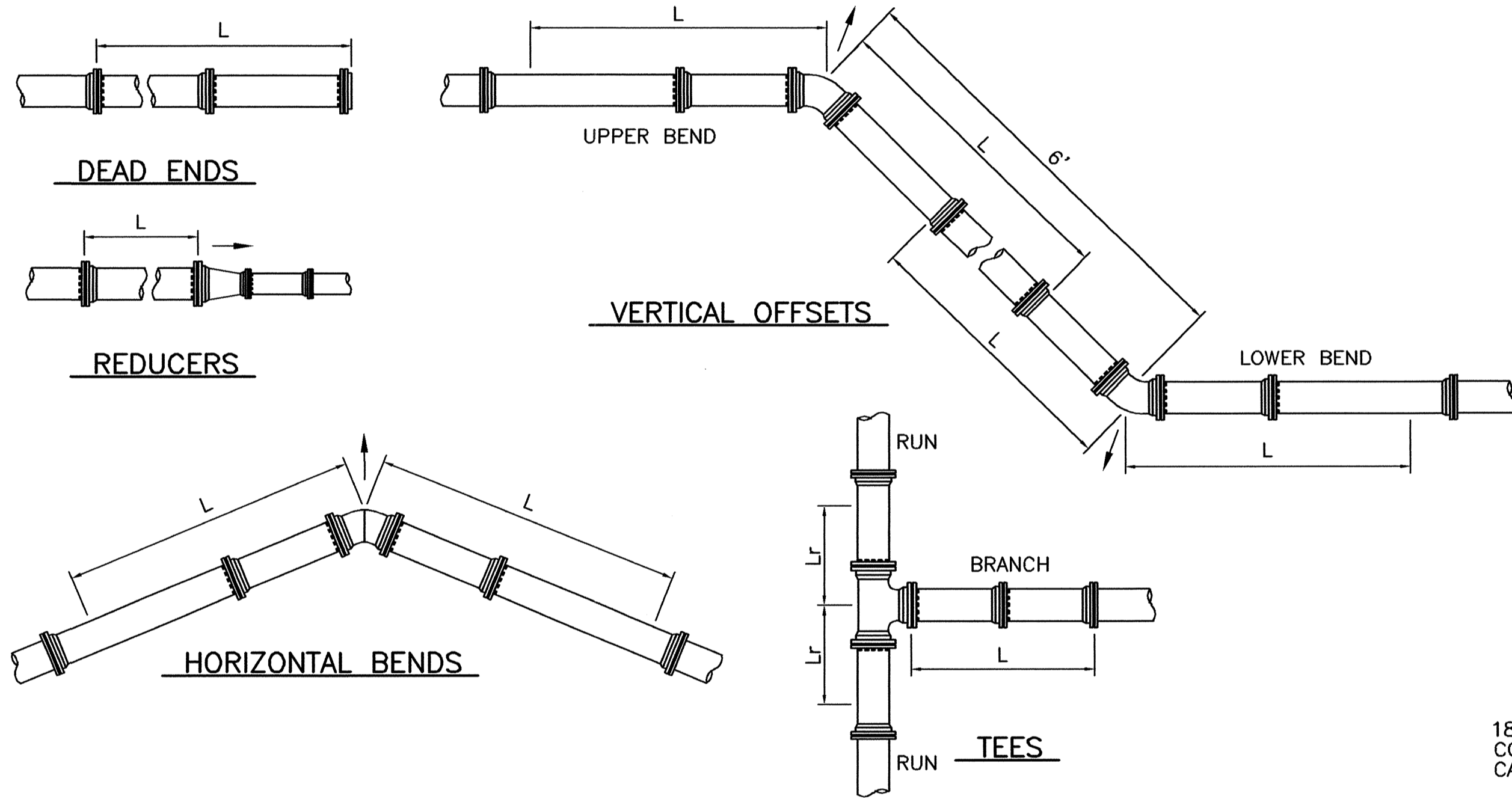


**GATE VALVE ASSEMBLY**  
N.T.S.

NOTE:  
 ALL GATE VALVES SHALL BE PLACED ON AN 80 LB. BAG OF SACRETE.

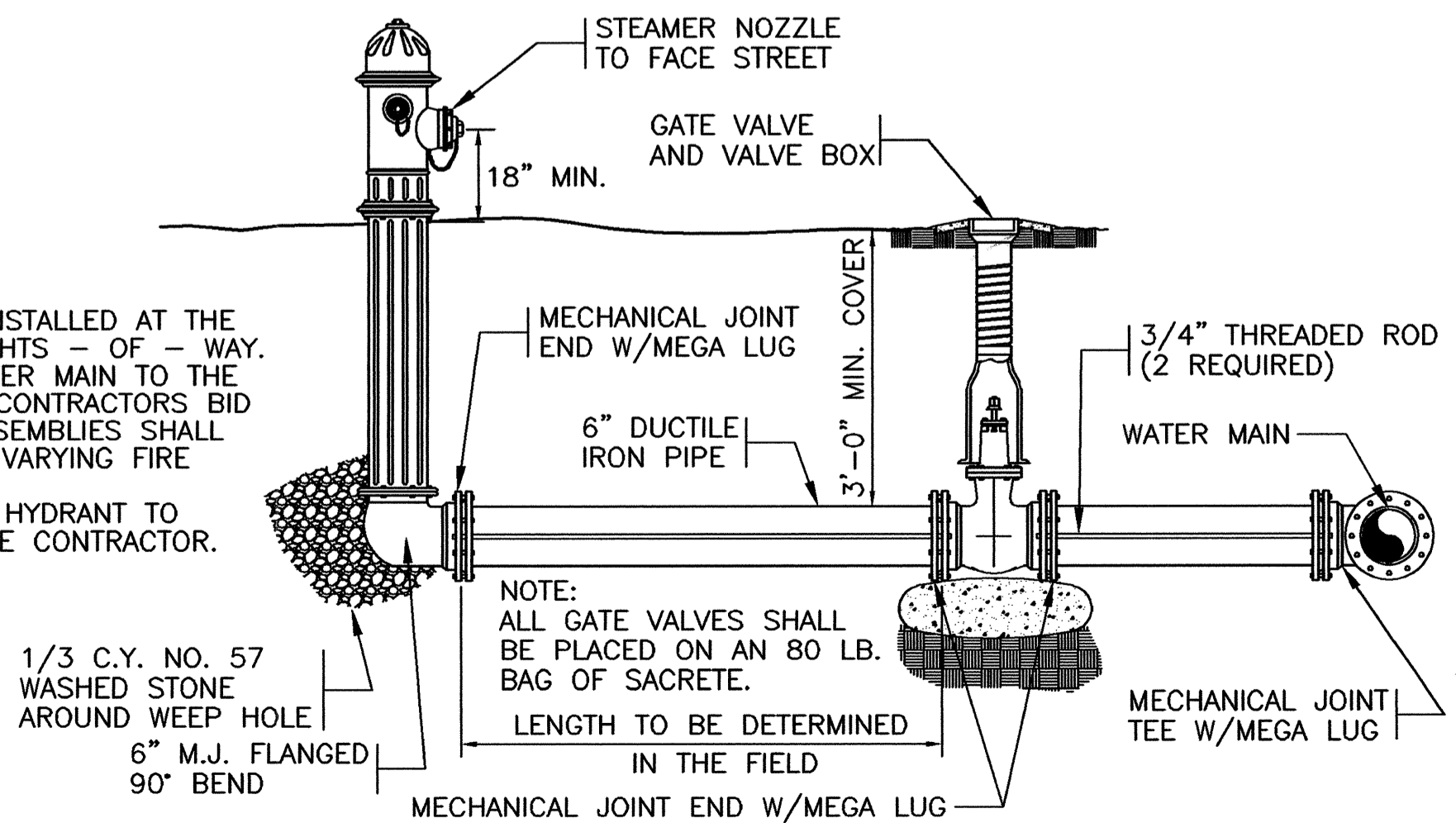
Size & Material		Horizontal Bend (Degrees)				Tee	Reducer	Dead End	Vertical Offset 45° Bend	
		90	45	22.5	11.25				Upper	Lower
12" PVC	Length Restrained (ft)	60	25	12	6	6" Branch	X 6"	136	66	21
10" PVC	Length Restrained (ft)	51	21	10	5	40	71	115	56	18
8" PVC	Length Restrained (ft)	43	18	8	4	47	40	96	46	15
6" PVC	Length Restrained (ft)	33	14	7	3	53	4" - 38	56	35	11

Size & Material		Horizontal Bend (Degrees)				Tee	Reducer	Dead End	Vertical Offset 45° Bend	
		90	45	22.5	11.25				Upper	Lower
12" DIP	Length Restrained (ft)	48	20	9	5	6" Branch	X 6"	87	35	15
10" DIP	Length Restrained (ft)	41	17	8	4	26	45	73	29	12
8" DIP	Length Restrained (ft)	34	14	7	3	30	26	61	25	10
6" DIP	Length Restrained (ft)	26	11	5	2	34	4" - 24	47	19	8



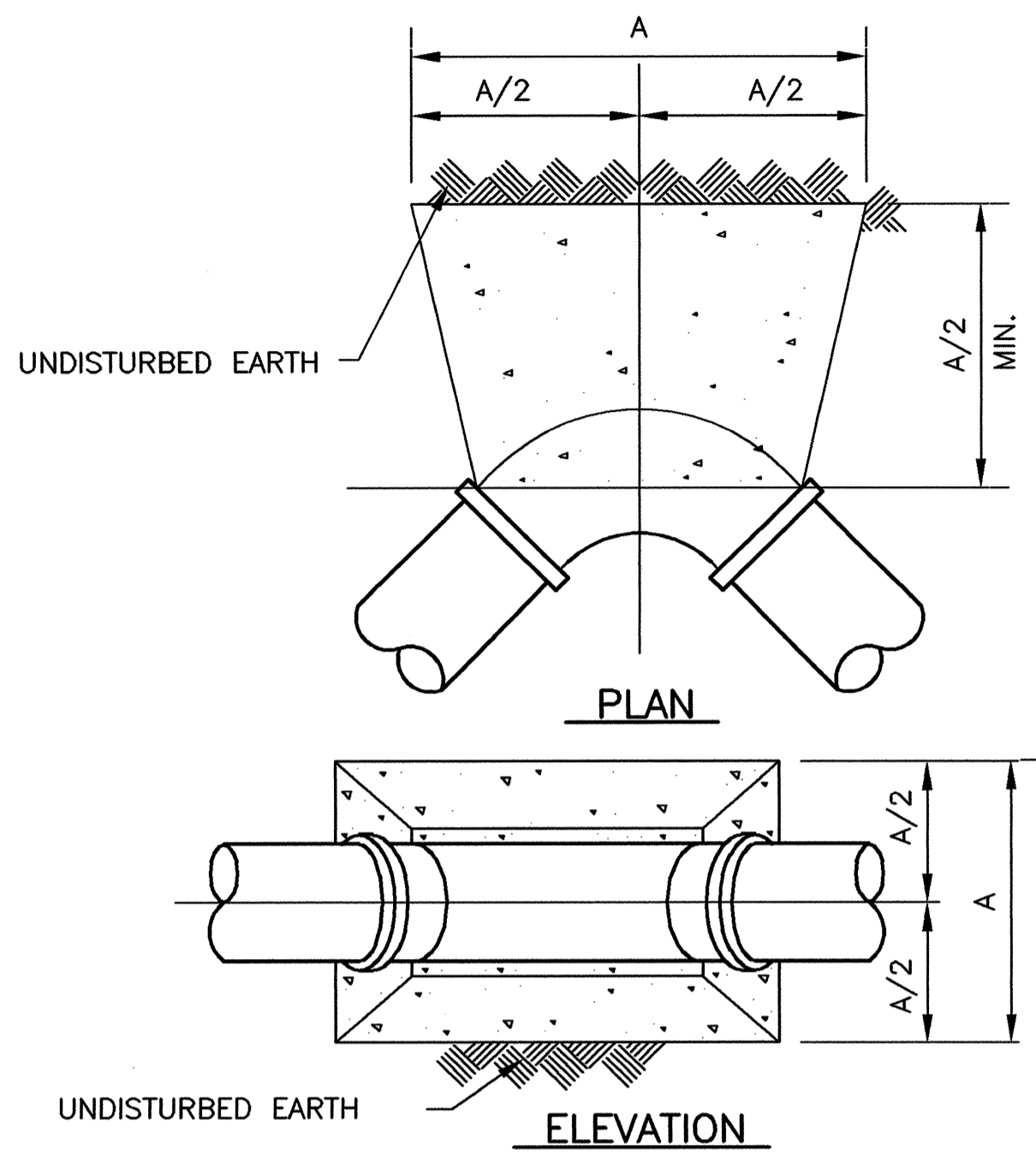
**MECHANICAL JOINT RESTRAINT DETAILS**  
N.T.S.

- FIRE HYDRANT NOTES:**
1. FIRE HYDRANTS SHALL BE INSTALLED AT THE EDGE OF THE N.C. D.O.T. RIGHTS - OF - WAY. THE DISTANCE FROM THE WATER MAIN TO THE FIRE HYDRANT VARIES. THE CONTRACTORS BID PRICE FOR FIRE HYDRANT ASSEMBLIES SHALL INCLUDE THE COST FOR THE VARYING FIRE HYDRANT LEG LENGTH.
  2. COSTS TO INSTALL THE FIRE HYDRANT TO GRADE SHALL BE PAID BY THE CONTRACTOR.



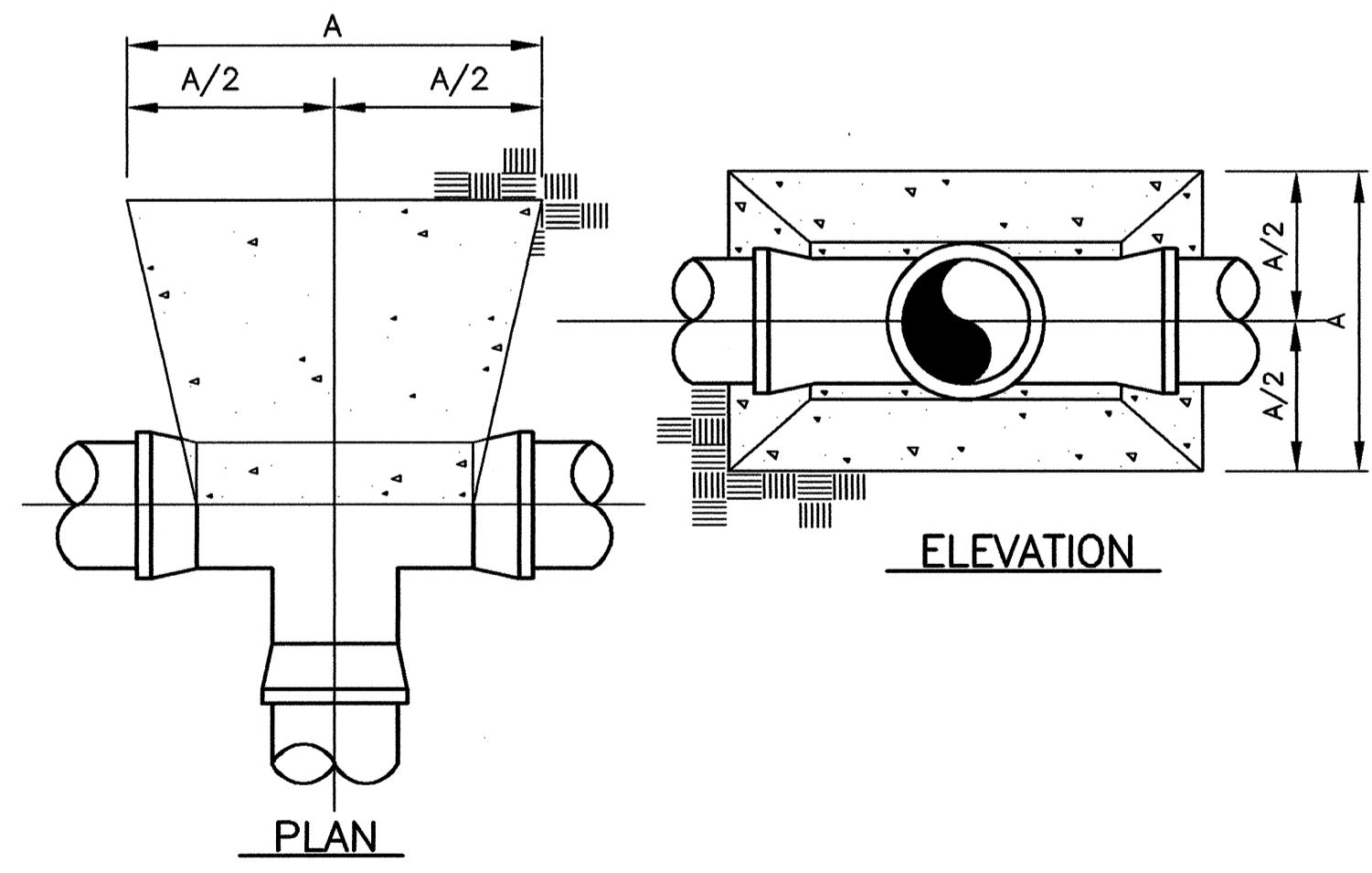
**FIRE HYDRANT AND VALVE DETAIL**  
N.T.S.

NOTE:  
 ALL GATE VALVES SHALL BE PLACED ON AN 80 LB. BAG OF SACRETE.  
 LENGTH TO BE DETERMINED IN THE FIELD



BEND	PIPE SIZE (NOM. DIA. IN INCHES)				
	2	4	6	8	10
90°	1.5	1.9	2.8	3.8	4.7
45°	1.0	1.4	2.1	2.8	3.5
22 1/2°	0.8	1.0	1.5	2.0	2.5
11 1/4°	0.8	1.0	1.1	1.5	1.8

NOTE: THRUST BLOCKS SHALL BE CONSTRUCTED OF 2000 P.S.I. CONCRETE TABLE "A" DIMENSIONS (IN FEET)



NOTE: THRUST BLOCK SIZE DETERMINED BY SMALLEST DIA. OF TEE

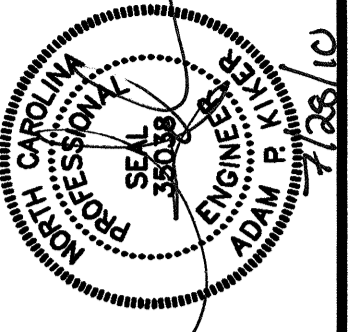
DIM. (IN INCHES)	PIPE SIZE (INCHES)				
	2	4	6	8	10
A	1.6	1.9	2.8	3.8	4.7

**CONCRETE THRUST BLOCK DETAIL**  
N.T.S.

HUSAR, H.A. 06/20/09 0:00 DRAWINGS 810 DESIGN DRAWINGS 34223(0)-1 MISCELLANEOUS DETAILS-LAYOUT; PLOTTED: 07/28/10 13:12 SCALE: 1"=1' (1:1)  
 WBS: 06/20/09 11:51 AM HUSAR, H.A. 06/20/09 0:00 DRAWINGS 810 DESIGN DRAWINGS 34223(0)-1 MISCELLANEOUS DETAILS-LAYOUT; PLOTTED: 07/28/10 13:10 SCALE: 1"=1' (1:1)



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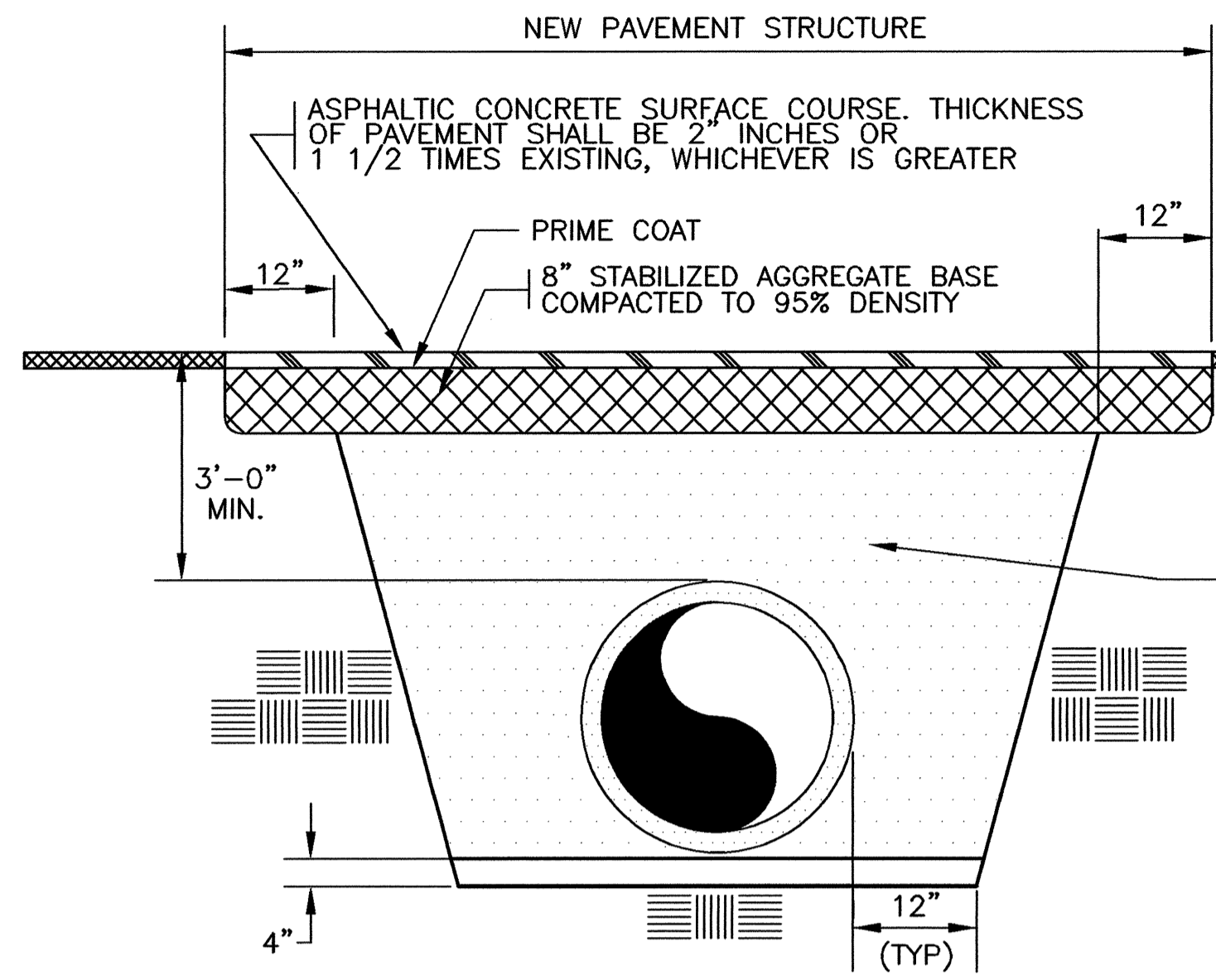
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**MISCELLANEOUS DETAILS**

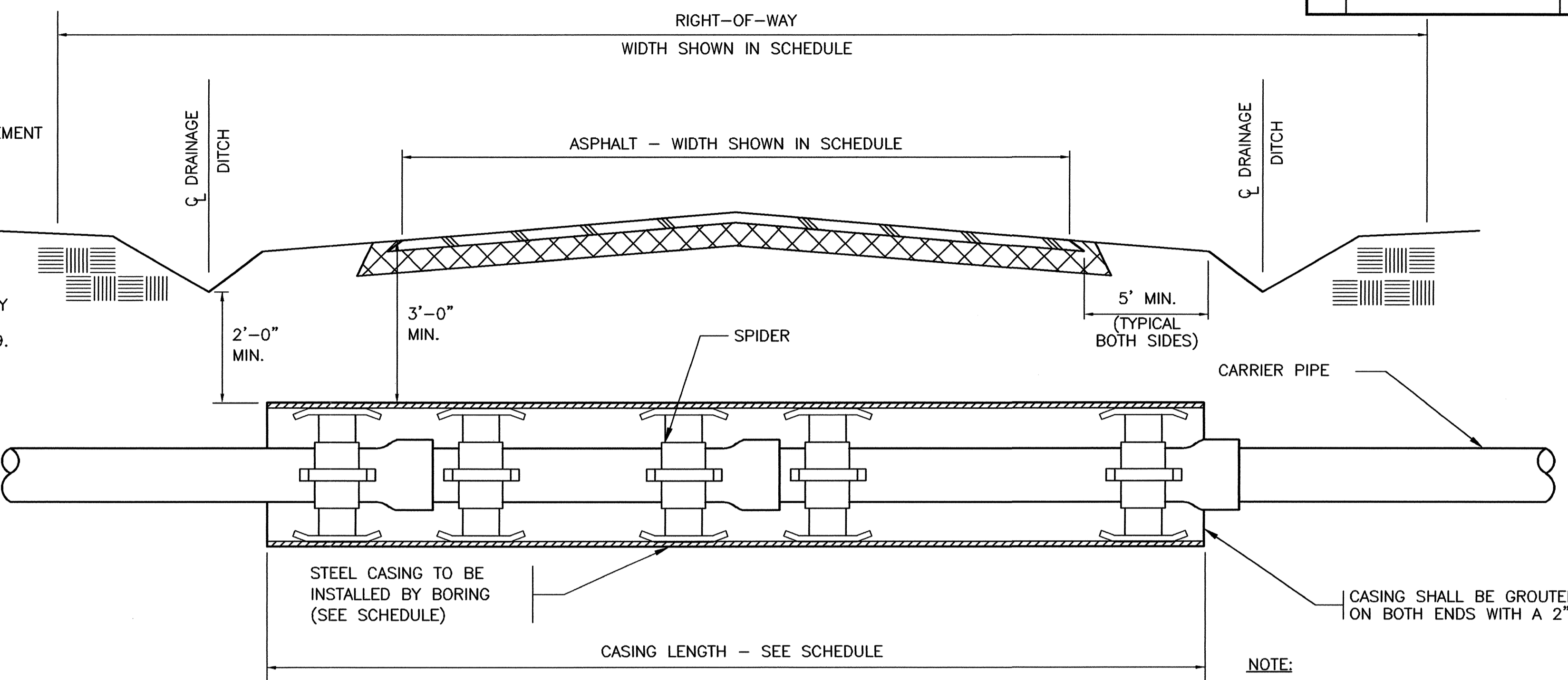
**BLADEN COUNTY WATER DISTRICT  
 WATER MAIN RELOCATIONS AT  
 NC HWY 41 & NC HWY 131**

BLADEN COUNTY, NORTH CAROLINA

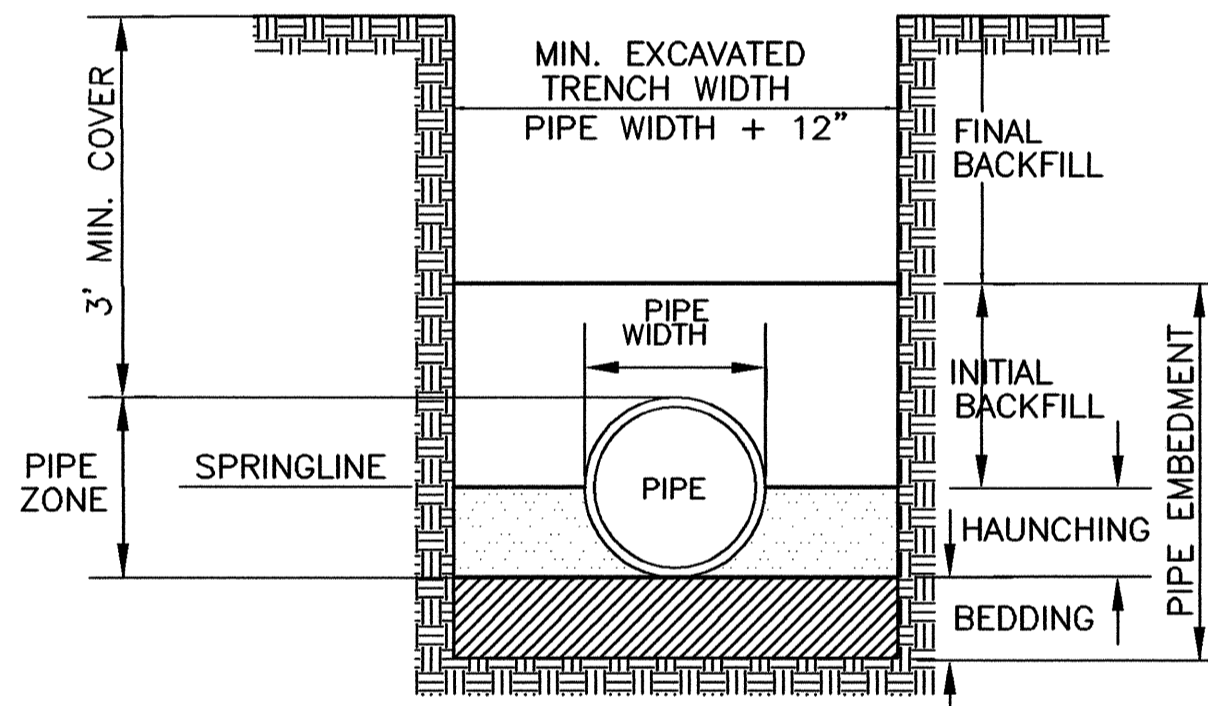
DATE:	OCTOBER, 2009
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**OPEN CUT ROADWAY CROSSING**  
 N.T.S.

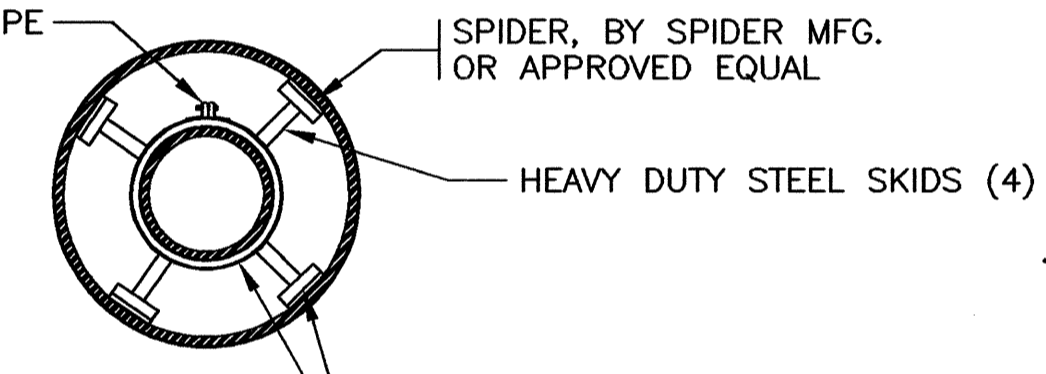


**TYPICAL BORING AND SPIDER DETAIL**  
 N.T.S.

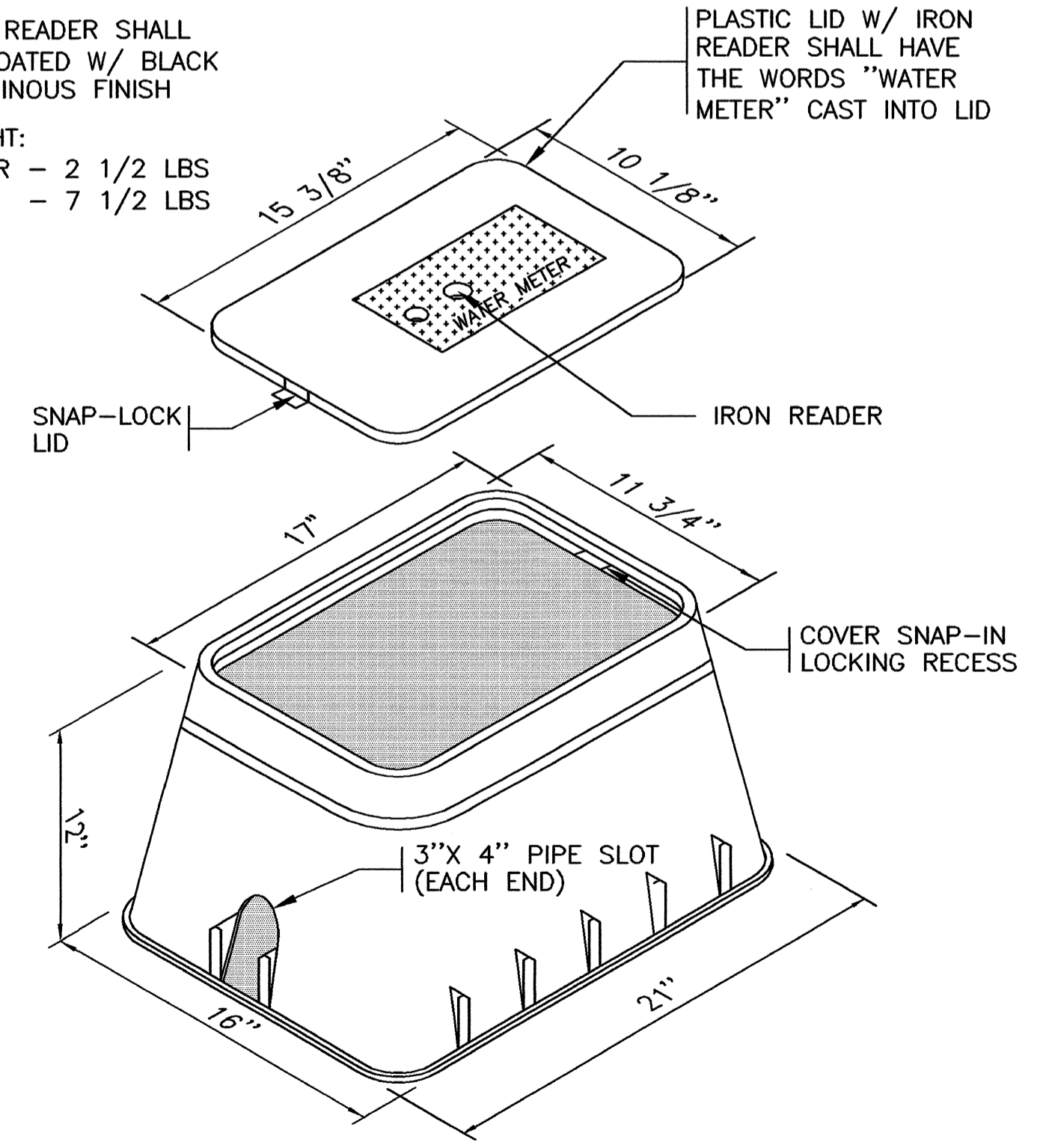


**TRENCH DETAIL**  
 N.T.S.

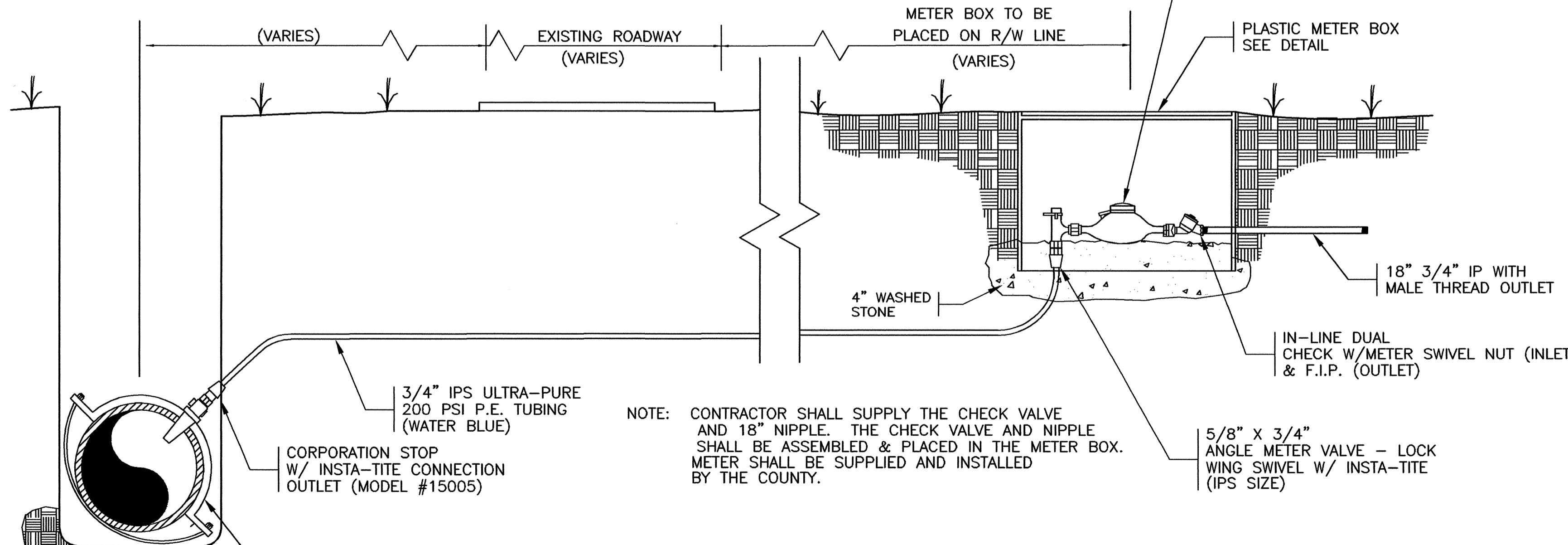
NOTE: BEDDING SHALL BE SMOOTH TRENCH BOTTOM, OR COMPACTED LOOSE FILL MATERIAL AS REQUIRED TO PROVIDE A FIRM, STABLE AND UNIFORM SUPPORT FOR THE FULL LENGTH OF PIPE.



IRON READER SHALL BE COATED W/ BLACK BITUMINOUS FINISH  
 WEIGHT:  
 COVER - 2 1/2 LBS  
 BODY - 7 1/2 LBS



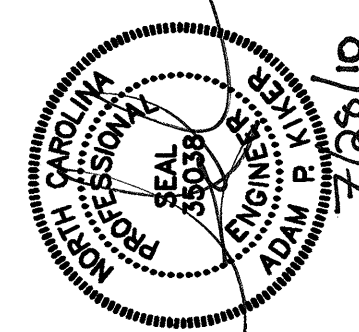
**TYPICAL METER BOX**



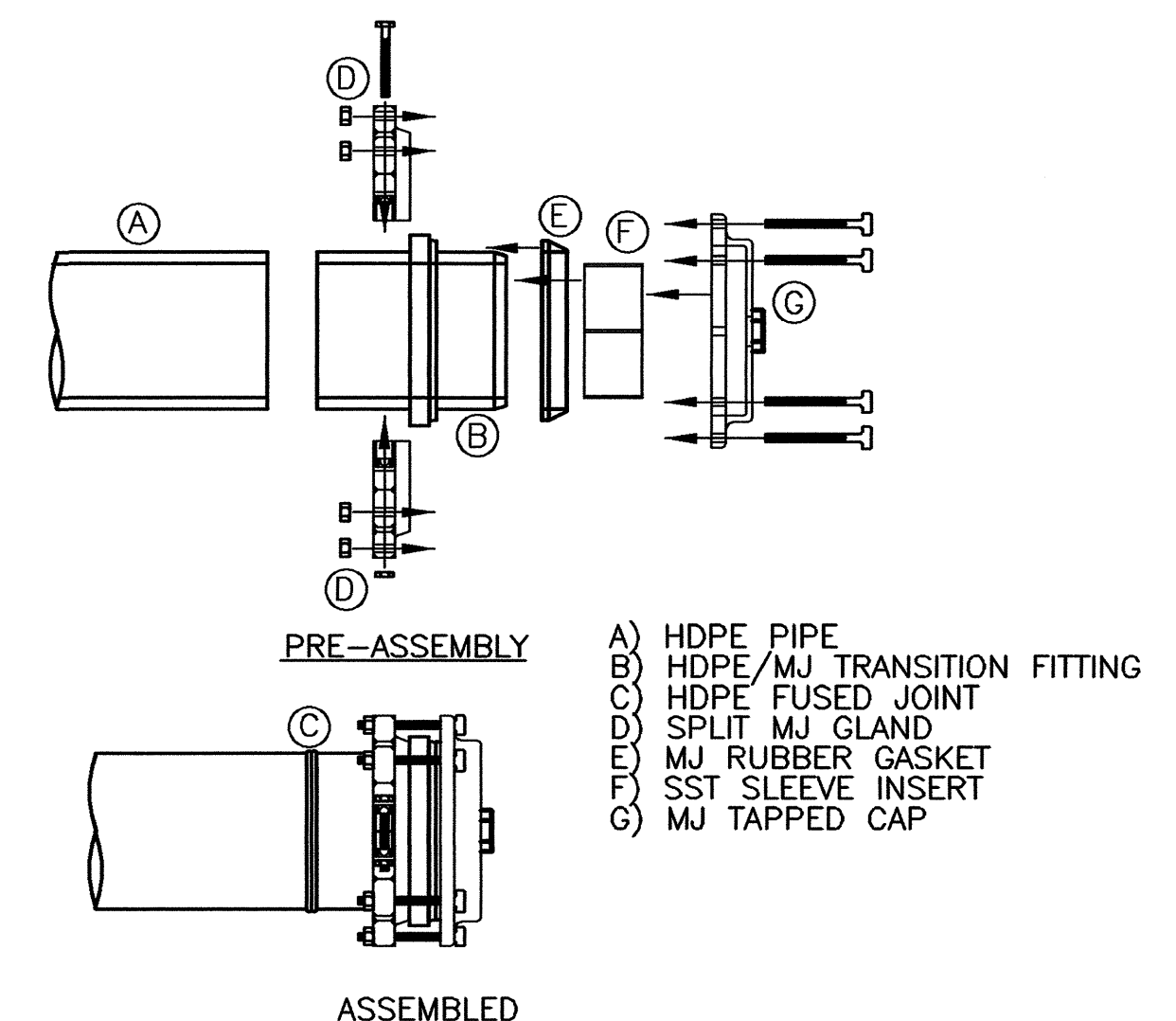
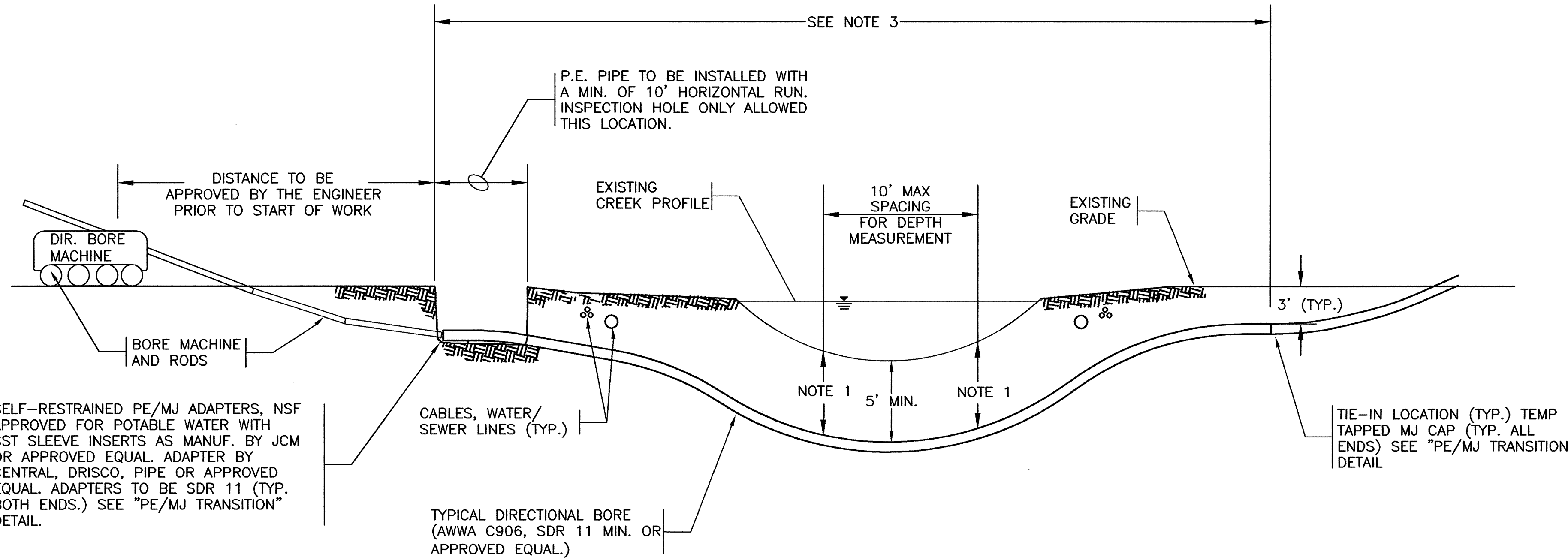
**TYPICAL SERVICE CONNECTION**  
 N.T.S.

HUBBARD HUBBARD DRAWINGS & DESIGN DRAWINGS PLOTS 3/22/2009 UC-2 MISCELLANEOUS DETAILS-AYOUT1 PLOTTED: 07/28/10 13:12 SCALE: 1"=1' (1:1)  
 INTER: HUBBARD HUBBARD DRAWINGS & DESIGN DRAWINGS PLOTS 3/22/2009 UC-2 MISCELLANEOUS DETAILS-AYOUT1 PLOTTED: 07/28/10 13:10 SCALE: 1"=1' (1:1)  
 HUBBARD HUBBARD DRAWINGS & DESIGN DRAWINGS PLOTS 3/22/2009 UC-2 MISCELLANEOUS DETAILS-AYOUT1 PLOTTED: 07/28/10 13:10 SCALE: 1"=1' (1:1)

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
W-2, W-3	RE-ALIGNMENTS	01MAR10	GER
	REVISED AS PER NCDOT	21AUG10	GER



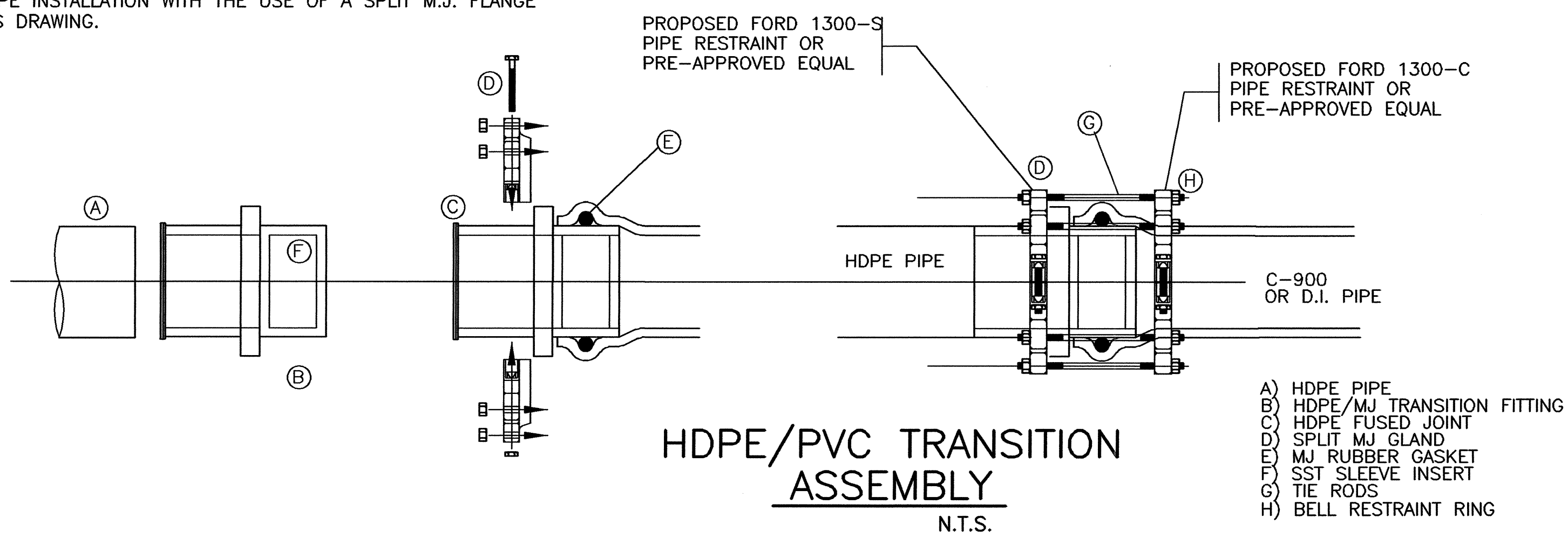
**Hobbs, Upchurch & Associates, P.A.**  
*Consulting Engineers, Surveyors & Land Planners*  
 Southern Pines, North Carolina 28387  
 300 S.W. Broad Street, Southern Pines, North Carolina 28387  
 Phone: (910) 692-5616 - Fax: (910) 692-7342  
 License Number: C-0454



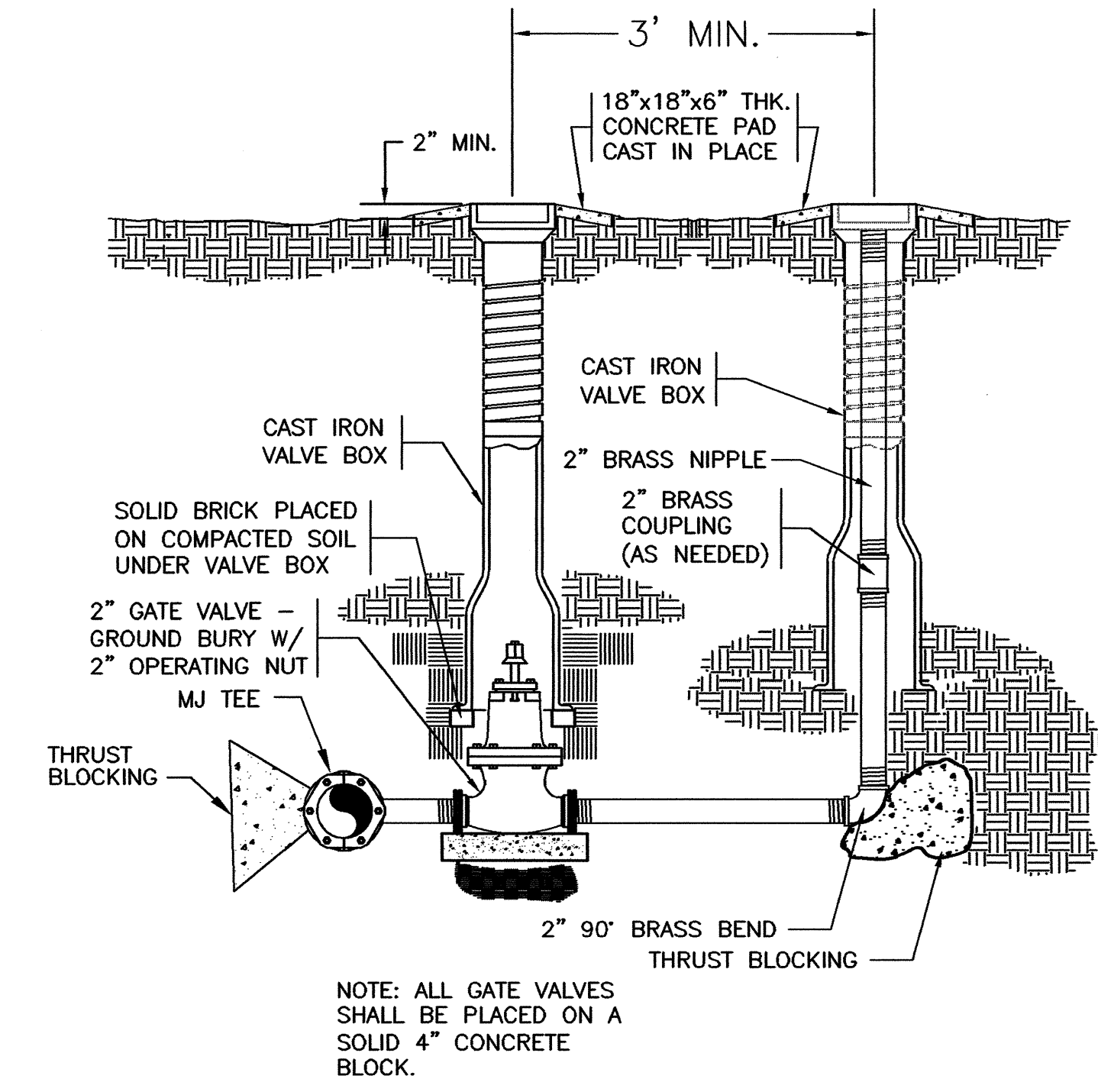
PE/MJ TRANSITION ASSEMBLY  
N.T.S.

- NOTES:**
- A PROFILE AND PLAN SHALL BE PROVIDED FROM ENTRY TO EXIT FOR EACH DIRECTIONAL BORE SECTION BY THE DIRECTIONAL BORE CONTRACTOR.
  - ALL BORE SECTIONS SHALL BE HYDROSTATICALLY TESTED PER SPECIFICATION STANDARDS UPON COMPLETION OF INSTALLATION AND PRIOR TO PLACING THE WATER MAIN ON-LINE.
  - LENGTH OF CROSSING, LOCATION OF INSPECTION/OBSERVATION EXCAVATION, NUMBER OF P.E. PIPE JOINTS, LOCATION OF BORE MACHINE, AUGER ENTRANCE LOCATION, AND TIE-IN POINTS ARE TO BE APPROVED BY THE ENGINEER PRIOR TO ANY START OF WORK.
  - THIS DETAIL IS ALSO APPLICABLE TO STREAMS, WETLANDS, LARGE STORM DRAINS, AND SIMILAR APPLICATIONS FOR DIRECTIONAL BORE WITH POLY-ETHYLENE PIPE.
  - THE BORE DEVELOPED FOR THE LEAD IN END OF THE PIPE SHALL BE KEPT AT A MINIMUM DIAMETER FOR THE PIPE INSTALLATION. THE LEAD IN END SHALL BE PULLED THROUGH WITHOUT THE M.J. FLANGE ATTACHED FOR LARGER THAN 6" PIPE INSTALLATIONS. THE M.J. FLANGE FOR SAID LEAD IN END SHALL BE INSTALLED AFTER THE PIPE INSTALLATION WITH THE USE OF A SPLIT M.J. FLANGE PER THE DETAIL ON THIS DRAWING.

TYPICAL DIRECTIONAL BORE FOR POLYETHYLENE (PE) PIPE  
N.T.S.



HDPE/PVC TRANSITION ASSEMBLY  
N.T.S.



TYPICAL 2" BLOWOFF ASSEMBLY  
N.T.S.

MISCELLANEOUS DETAILS

BLADEN COUNTY WATER DISTRICT  
 WATER MAIN RELOCATIONS AT  
 NC HWY 41 & NC HWY 131  
 BLADEN COUNTY, NORTH CAROLINA

DATE:	OCTOBER, 2009
DESIGNED:	APK/GER
DRAWN:	GER
CHECKED:	APK
SCALE:	AS SHOWN
SHEET NO.	

P:\ASB\H:\BLADEN\WATER DISTRICT\DRG\DWG\WATER MAIN RELOCATIONS AT NC HWY 41 & NC HWY 131\13110.dwg, 07/28/10 13:12 SCALE: 1"=1' (1:1)  
 H:\BLADEN\WATER DISTRICT\DRG\DWG\WATER MAIN RELOCATIONS AT NC HWY 41 & NC HWY 131\MISCELLANEOUS DETAILS\DWG\WATER MAIN RELOCATIONS AT NC HWY 41 & NC HWY 131\MISCELLANEOUS DETAILS.dwg, 07/28/10 13:10 SCALE: 1"=1' (1:1)  
 H:\BLADEN\WATER DISTRICT\DRG\DWG\WATER MAIN RELOCATIONS AT NC HWY 41 & NC HWY 131\MISCELLANEOUS DETAILS\DWG\MISCELLANEOUS DETAILS.dwg, 07/28/10 13:10 SCALE: 1"=1' (1:1)







STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLAN  
BLADEN COUNTY**

LOCATION: NC 131 AT NC 41

TYPE OF WORK: AERIAL POWER, BURIED TELEPHONE  
AND AERIAL CATV

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5121	UO-1	4

**KCI ASSOCIATES OF N.C.**

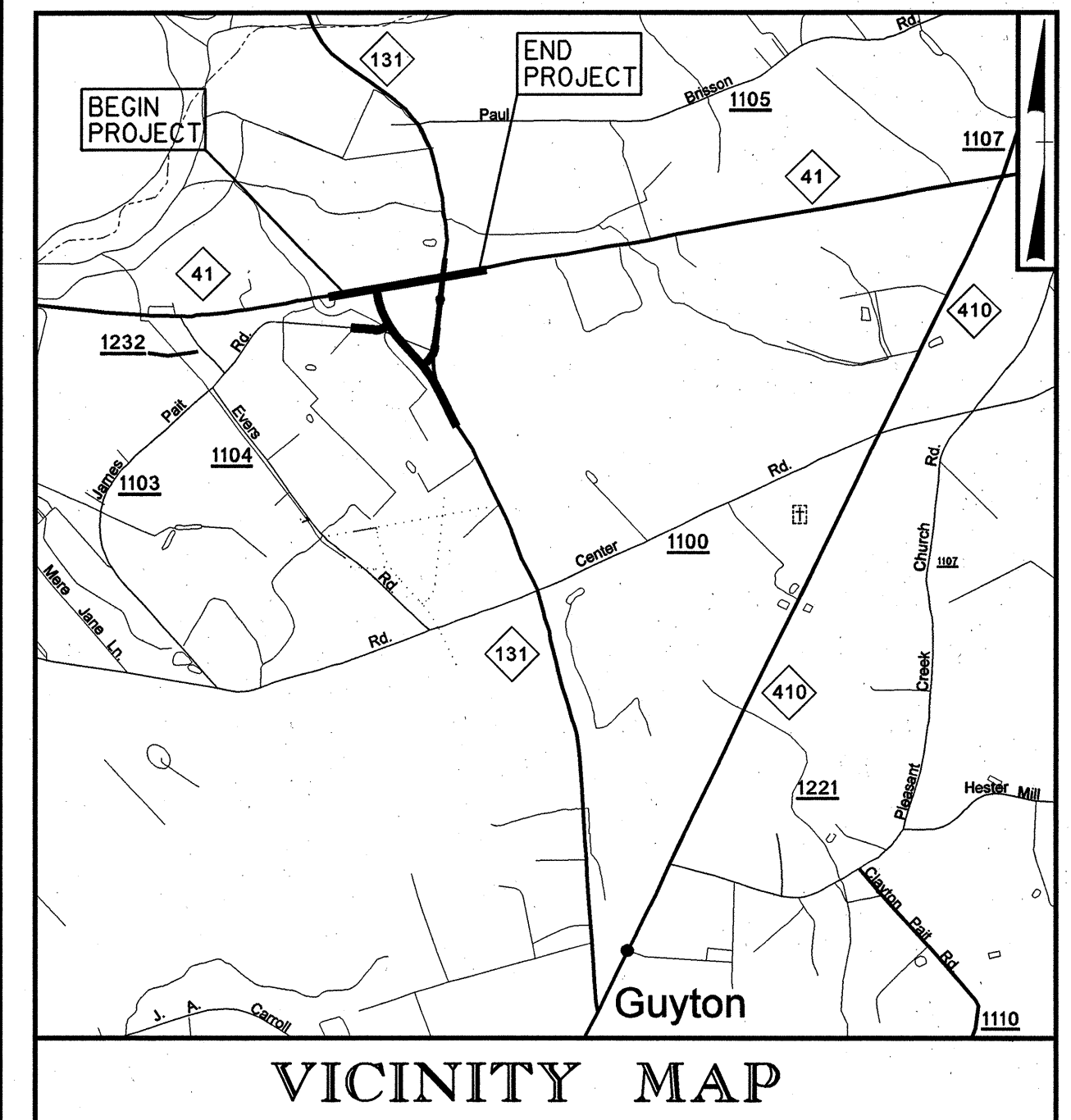
CIVIL ENGINEERS  
ENVIRONMENTAL - CEI  
LAND SURVEYING  
SUBSURFACE UTILITY ENGINEERING

SUITE 220, LANDMARK CENTER II  
4601 SIX FORKS ROAD  
RALEIGH, NORTH CAROLINA 27609  
(919) 783-9214  
WWW.KCI.COM

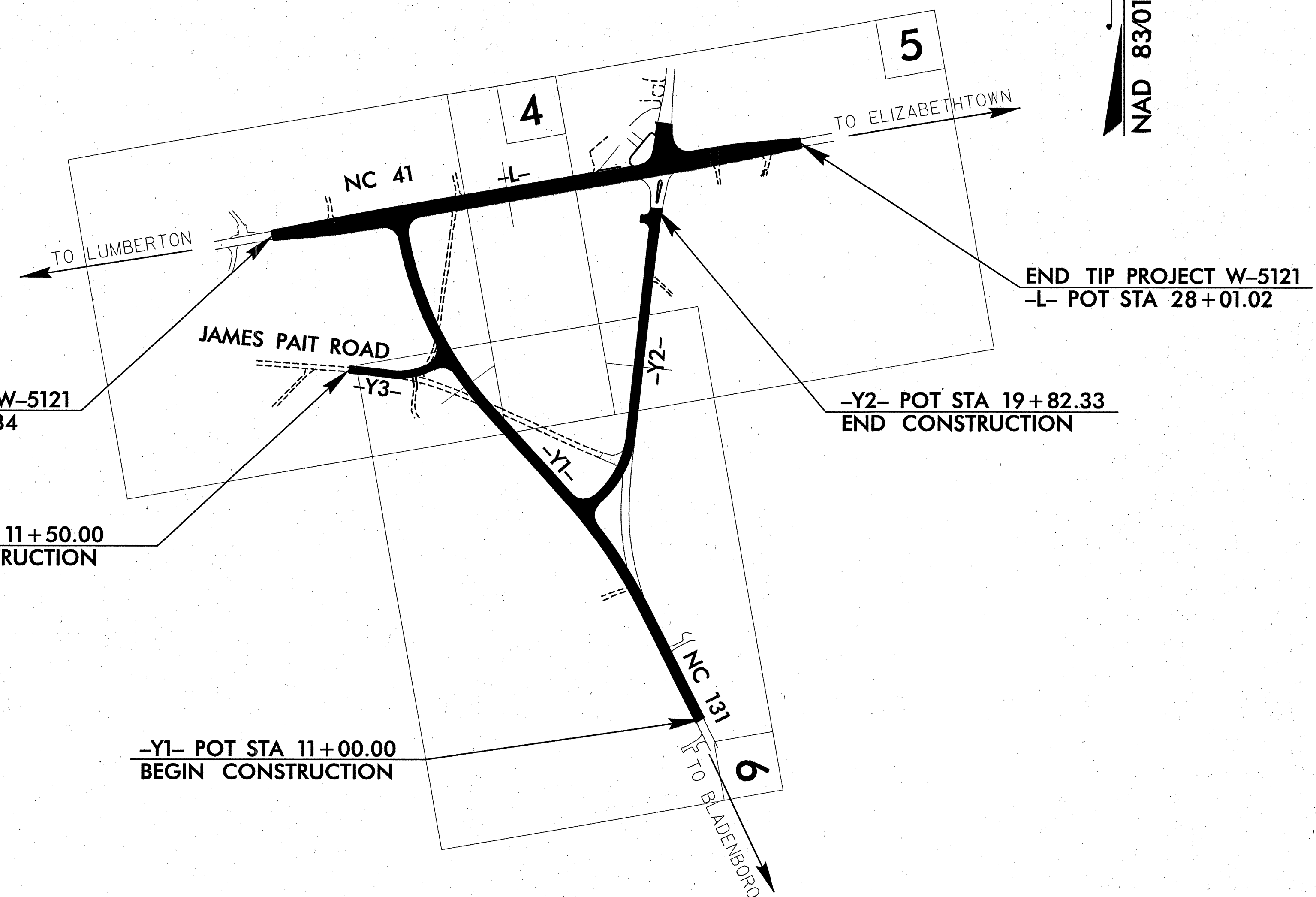
UTILITIES BY OTHERS

NOTE:  
ALL PROPOSED UTILITY WORK  
SHOWN ON THIS SHEET WILL  
BE DONE BY OTHERS

TIP PROJECT: W-5121

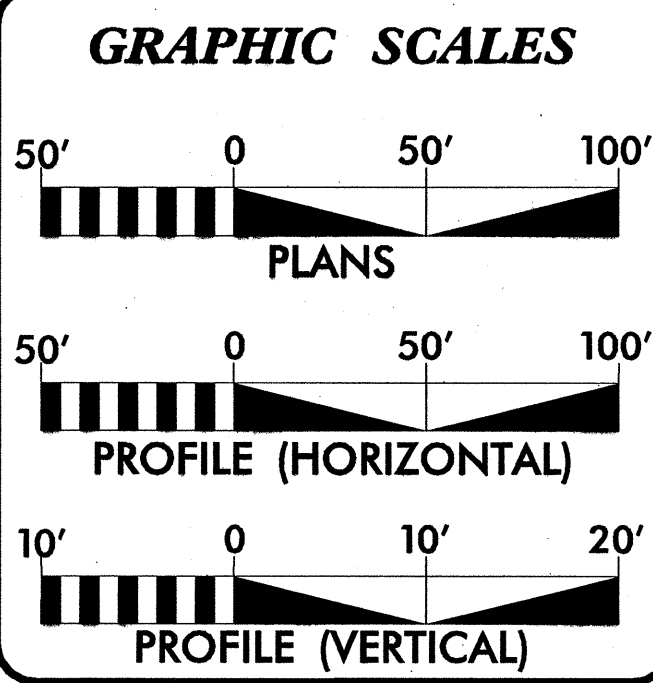


VICINITY MAP



NAD 8301 - NC GRID

CONTRACT:



**INDEX OF SHEETS**

SHEET No.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UBO - PLAN SHEET
UO-3	UBO - PLAN SHEET
UO-4	UBO - PLAN SHEET

**UTILITY OWNERS ON PROJECT**

1) AT&T	TELEPHONE
2) CENTURY LINK	TELEPHONE
3) TIME WARNER CABLE	CABLE T.V.
4) FOUR COUNTY EMC	POWER

**ARCADIS**  
G & M of North Carolina, Inc.  
WWW.ARCADIS-US.COM  
801 Corporate Center Drive, Suite 300  
Raleigh, NC 27607-5073  
Tel: 919/854-1282 Fax: 919/854-5448

2006 STANDARD SPECIFICATIONS

**ARCADIS CONTACT:**

**RW DATE:**  
7 / 26 / 09

**LETTING DATE:**  
10 / 12 / 10

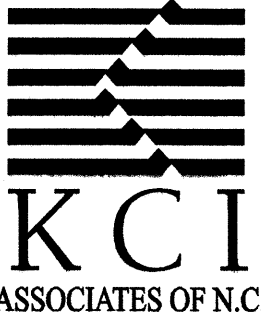
**LAURA FISHER, P.E.**  
PROJECT ENGINEER

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

ROGER WORTHINGTON P.E.  
UTILITY SECTION ENGINEER

RICHY NARRON - KCI ASSOCIATES OF N.C.  
UTILITY COORDINATION CONSULTANT

ARCADIS, C&M  
DATE: 04/10/09  
TIME: 10:00 AM  
FILE: 041009_01.DWG

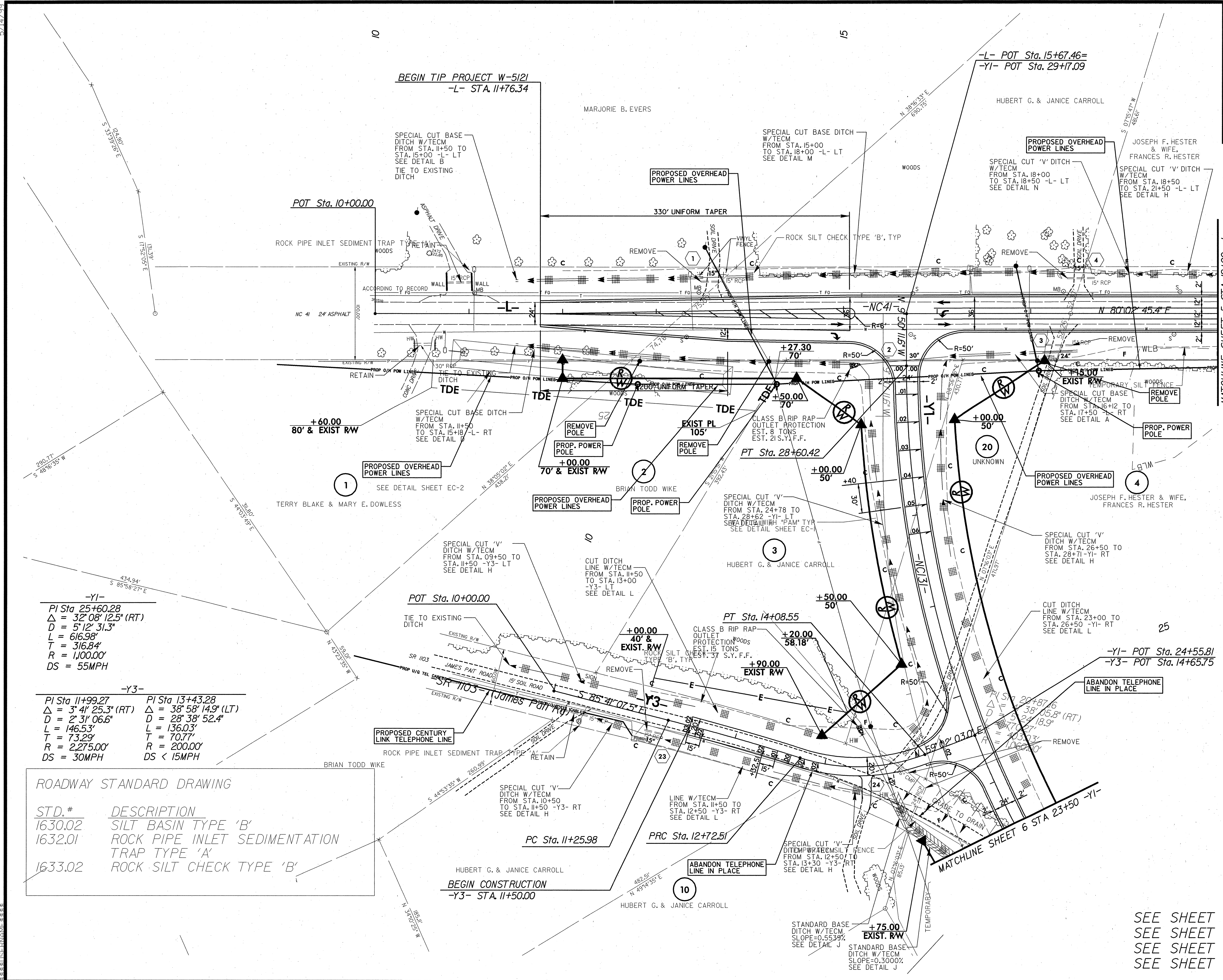


CIVIL ENGINEERS  
ENVIRONMENTAL - CEI  
LAND SURVEYING  
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SUITE 220, LANDMARK CENTER II,  
4601 SIX FORKS ROAD  
RALEIGH, NORTH CAROLINA 27609  
(919) 783-9214  
WWW.KCI.COM

UTILITIES BY OTHERS

NOTE:  
ALL PROPOSED UTILITY WORK  
SHOWN ON THIS SHEET WILL  
BE DONE BY OTHERS



-Y1-

PI Sta. 25+60.28  
Δ = 32° 08' 12.5" (RT)  
D = 5' 12" 31.3"  
L = 616.98'  
T = 316.84'  
R = 1,100.00'  
DS = 55MPH

-Y3-

PI Sta. 11+99.27	PI Sta. 13+43.28
Δ = 3° 41' 25.3" (RT)	Δ = 38° 58' 14.9" (LT)
D = 2' 31" 06.6"	D = 28' 38" 52.4"
L = 146.53'	L = 136.03'
T = 73.29'	T = 70.77'
R = 2,275.00'	R = 200.00'
DS = 30MPH	DS < 15MPH

ROADWAY STANDARD DRAWING

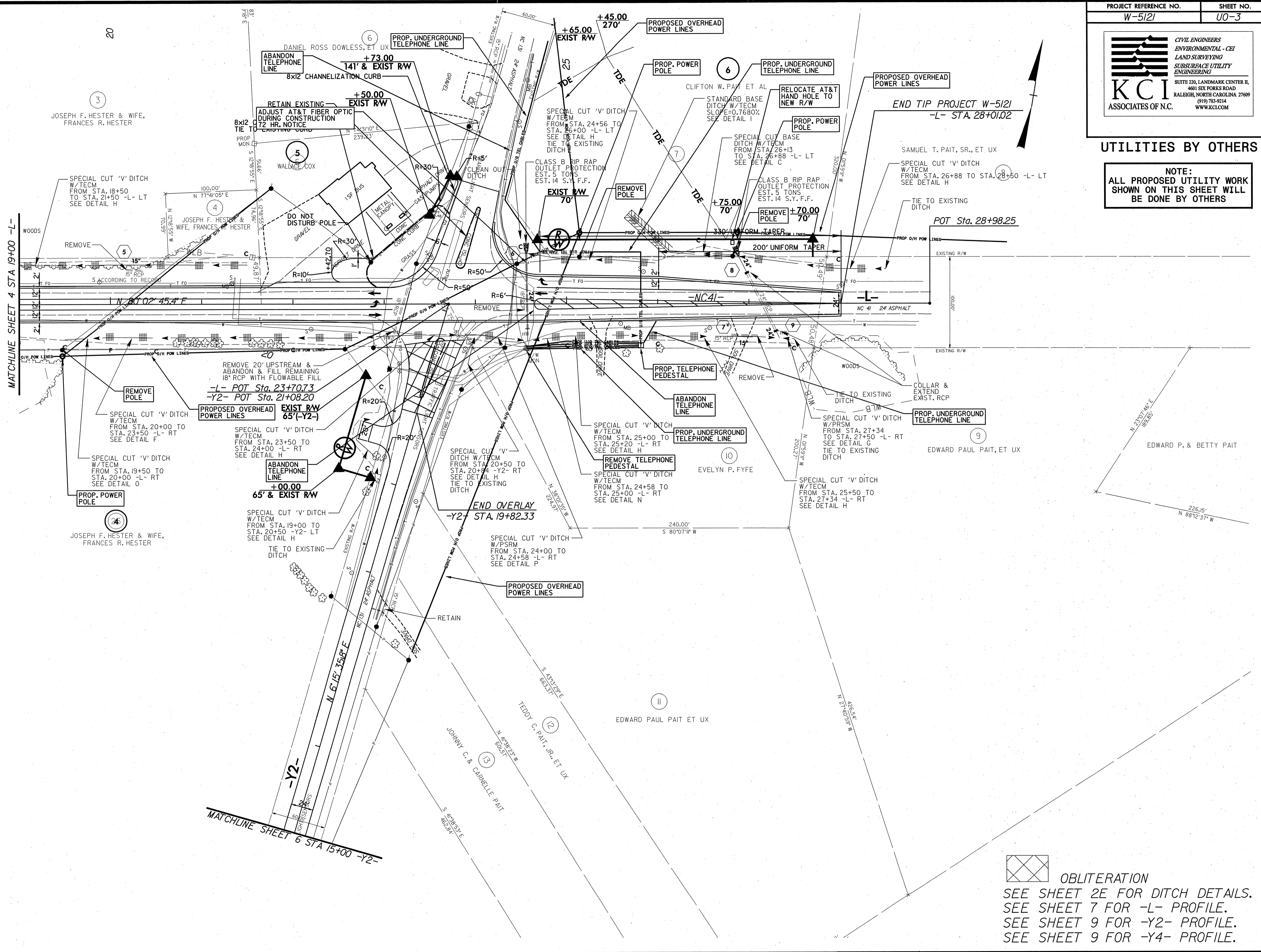
STD.#	DESCRIPTION
1630.02	SILT BASIN TYPE 'B'
1632.01	ROCK PIPE INLET SEDIMENTATION TRAP TYPE 'A'
1633.02	ROCK SILT CHECK TYPE 'B'

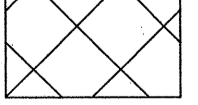
SEE SHEET 2E FOR DITCH DETAILS.  
SEE SHEET 7 FOR -L- PROFILE.  
SEE SHEET 8 FOR -Y1- PROFILE.  
SEE SHEET 9 FOR -Y3- PROFILE.



**UTILITIES BY OTHERS**

**NOTE:**  
ALL PROPOSED UTILITY WORK  
SHOWN ON THIS SHEET WILL  
BE DONE BY OTHERS




**OBLITERATION**  
 SEE SHEET 2E FOR DITCH DETAILS.  
 SEE SHEET 7 FOR -L- PROFILE.  
 SEE SHEET 9 FOR -Y2- PROFILE.  
 SEE SHEET 9 FOR -Y4- PROFILE.

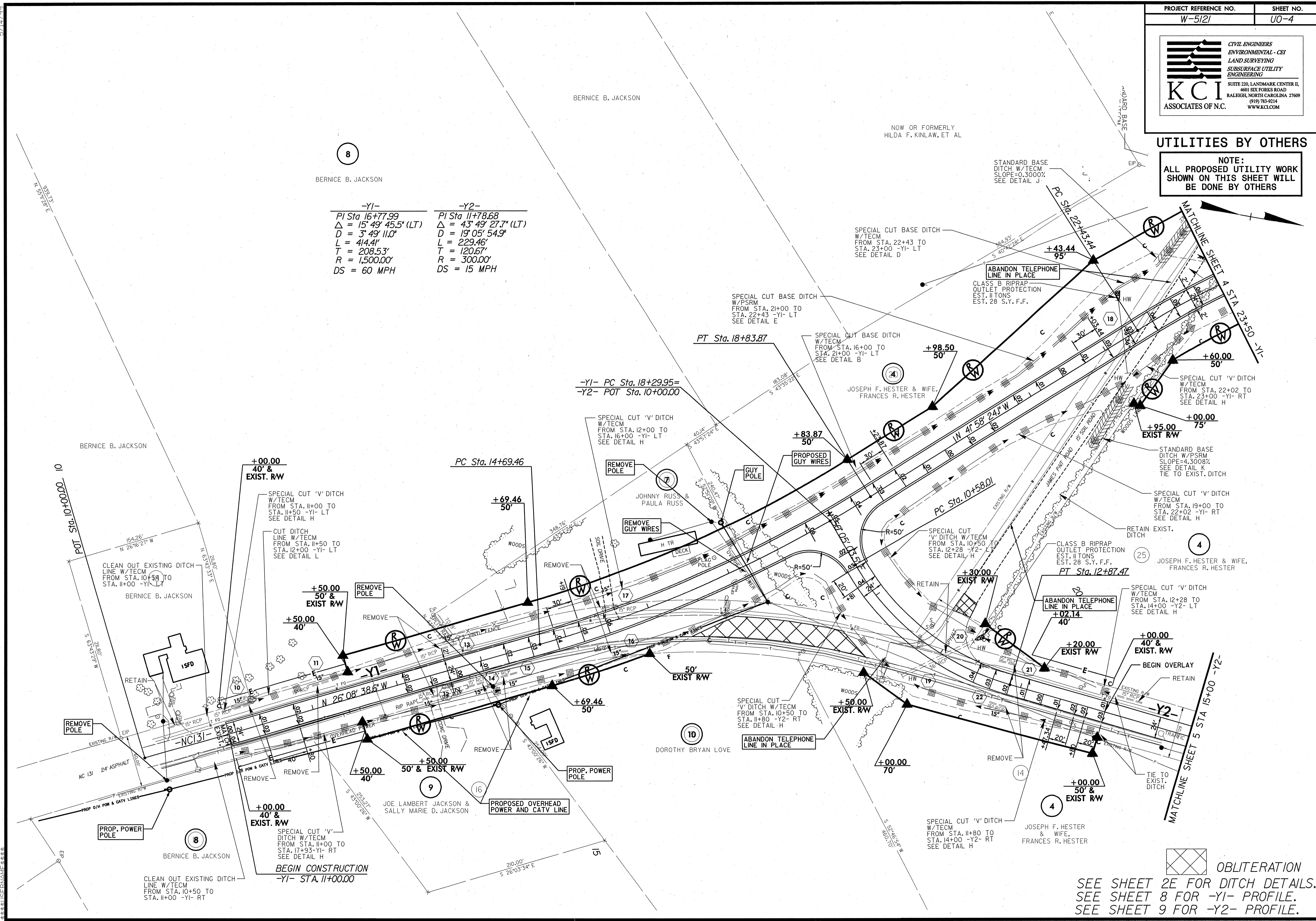
5/14/99  
 20  
 3  
 5  
 4  
 5  
 6  
 7  
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 9  
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 11  
 12  
 13



**UTILITIES BY OTHERS**

**NOTE:**  
 ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

-Y1-	-Y2-
PI Sta 16+77.99	PI Sta 11+78.68
$\Delta = 15^\circ 49' 45.5" (LT)$	$\Delta = 43^\circ 49' 27.7" (LT)$
$D = 3^\circ 49' 11.0"$	$D = 19^\circ 05' 54.9"$
$L = 414.4'$	$L = 229.46'$
$T = 208.53'$	$T = 120.67'$
$R = 1,500.00'$	$R = 300.00'$
$DS = 60 MPH$	$DS = 15 MPH$



**OBLITERATION**  
 SEE SHEET 2E FOR DITCH DETAILS.  
 SEE SHEET 8 FOR -Y1- PROFILE.  
 SEE SHEET 9 FOR -Y2- PROFILE.