# UTILITY CONSTRUCTION

### **UC-27 UTILITY NOTES:**

1.PURSUANT TO TRAFFIC CONTROL REQUIRMENTS, CONTRACTOR MUST BE COMPLETE WITH WORK ON THE SOUTH SIDE OF RAEFORD ROAD BEFORE BEGINNING WORK ON THE NORTH SIDE. CONTRACTOR SHALL NOT BE PERFORMING WATER MAIN INSTALLATION LONGITUDINALLY TO THE ROAD ON BOTH SIDES.

2.WL-25 IS TO PROVIDE SOURCE WATER TO FACILITATE INSTALLATION SEQUENCE FOR WL-26 BETWEEN 12" IN-LINE VALVE AT STA. 40+15 TO 12"ÎN-LINE VALVE AT STA. 30+64.

3.WL-26 BETWEEN IN-LINE VALVE AT APPROX. STA. 30+64 TO THE IN-LINE VALVE AT APPROX. STA. 40+15 SHALL BE INSTALLED AND FULLY OPERATIONAL, INCLUDING FORSYTHE DRIVE CROSS-LINE CONNECTION, PRIOR TO CONNECTION TO PREVIOUSLY INSTALLED WL-25 SEGMENT. (SEE UTILITY NOTES FOR SHEET UC-32)

4.PROPOSED WL-26 BRANCH VALVE (APPROX. STA. 40+34) SHALL BE INSTALLED AND REMAIN CLOSED. THE INSTALLATION OF THE PORTION OF WL-26 CROSSING RAEFORD ROAD SHALL BE OPEN CUT SIMULTANIOUSLY WITH THE PROPOSED 24"PARALLEL DRAINAGE PIPE.

5.ALL EXISTING METERS THAT OVERLAP THIS RELOCATION SEGMENT SHALL BE SWITCHED OVER TO THIS NEW SEGMENT. CROSS LINE IN FORSYTHE ROAD SHALL BE FULLY RESTRAINED THROUGH BRANCH VALVES.

6.THE NEXT IN-LINE VALVE FOR EXISTING 6"WATER LINE LOCATED IN FORSYTHE DRIVE IS APPROX. 400 LF FROM TIE-IN CONNECTION AND HAS A LOOPED SYSTEM AND AN EXISTING VALVE AT THE INTERSECTION OF BREEZEWOOD AVE APPROX. 370 LF FROM TIE-IN LOCATION. CONTRACTOR TO COORDINATE WITH THE ENGINEER TO FACILITATE TEMPORARY SHUTDOWN.

7.CONTRACTOR SHALL CONNECT TO EXISTING 6"WATER MAIN USING FULLBODY SLEEVE AND RESTRAINING GLANDS. THIS PART OF THE CONNECTION SHALL BE SWABBED PRIOR TO RECONNECTION OF THE EXISTING 6" WATER MAIN. THE EXISTING CROSS LINE AT FORESYTHE DRIVE SHALL BE KILLED OUT BY PERMANENTLY CLOSING AND ABANDONING EXISTING VALVE EV-102. KILL OUT SHALL BE DONE BETWEEN 9:00 P.M. TO 6:00 A.M. TO COMPLY WITH TRAFFIC CONTROL REQUIREMENTS.

8.WL-26 FROM 12"BRANCH VALVE (APPROX. STA. 40+34) TO 12"IN-LINE VALVE (APPROX. STA. 41+10) AND 12"X12"X12"TEE (APPROX. STA. 42+25 WL-28) SHALL BE INSTALLED, RESTRAINED, AND FULLY OPERATIONAL PRIOR TO MOVING TO INSTALLATION OF WL-28.

9.WL-28 BETWEEN THE 12"X8"REDUCER (APPROX. STA. 41+95) TO 12"X12"X12"TEE (APPROX. STA. 45+22) SHALL BE INSTALLED AND FULLY OPERATIONAL PRIOR TO MOVING TO INSTALLATION OF WL-27. THIS INSTALLATION SHALL BE PERFORMED BETWEEN 9:00 P.M. AND 6:00 A.M. ALL OPEN EXCAVATIONS SHALL BE PLATED AND READY FOR TRAFFIC BY 6:00 A.M. UNLESS EXCAVATIONS ARE BACKFILLED/COMPACTED AND PATCHED BY 6:00 A.M.

10.WL-27 BETWEEN 12"IN-LINE VALVE (APPROX. STA. 0+13) TO 6"X6"X6"TAPPING SLEEVE AND VALVE ON AMIGO DRIVE (APPROX. STA. 8+67), INCLUDING WL-30 FROM 6"x6"x6"TAPPING SLEEVE & VALVE ON SOUTH SIDE OF RAEFORD ROAD SHALL BE INSTALLED AND OPERATIONAL PRIOR TO TIE-IN OF EXISTING 12"WATER MAIN IN MCPHEE DRIVE.

11.ALL EXISTING METERS THAT OVERLAP THIS RELOCATION SEGMENT SHALL BE SWITCHED OVER TO THIS NEW SEGMENT. CROSS LINE IN FORSYTHE ROAD SHALL BE FULLY RESTRAINED THROUGH BRANCH VALVES.

12.THE EXISTING 12"WATER MAIN LOCATED IN MCPHEE DRIVE HAS AN IN-LINE VALVE APPROX. 83 FEET FROM TIE-IN LOCATION. SINCE EXISTING 12-INCH WATER MAIN MAY NOT BE RESTRAINED, THERE IS A LOOPED SYSTEM AND FOUR EXISTING VALVES IN MCBAIN DRIVE (EV-118, EV-119, EV-120 AND EV-121) TO FACILITATE SHUTDOWN FOR KILL-OUT OF EXISTING 12"CI WATER MAIN. CONTRACTOR TO COORDINATE WITH THE ENGINEER TO FACILITATE TEMPORARY SHUTDOWN.

13.CONTRACTOR SHALL CONNECT TO EXISTING 12" WATER MAIN USING FULLBODY SLEEVE AND RESTRAINING GLANDS. THIS PART OF THE CONNECTION SHALL BE SWABBED PRIOR TO RECONNECTION OF THE EXISTING 12"WATER MAIN. THE EXISTING 12"WATER MAIN AT MCPHEE DRIVE SHALL BE KILLED OUT BY PERMANENTLY CLOSING AND ABANDONING EXISTING VALVE EV-107. KILL OUT SHALL BE DONE BETWEEN 9:00 P.M. TO 6:00 A.M. TO COMPLY WITH TRAFFIC CONTROL REQUIREMENTS AND MINIMIZE SERVICE INTERUPTION.

14.EXISTING VALVES, EV-112, EV-113, EV-109, EV-111, EV-110 AND IN-LINE VALVE NEAR CLUB CIRCLE (APPROX. 578 FEET FROM EV-113) TO FACILITATE SHUTDOWN FOR KILL-OUT OF EXISTING 6"CI WATER MAIN. PLANNED SHUT DOWN SHALL BE COORDINATED WITH THE ENGINEER.

15.KILL OUT OF EXISTING WATER MAIN AT THE INTERSECTION OF AMIGO DRIVE AND RAEFORD ROAD SHALL INCLUDE THE ABANDONMENT OF 60 LF OF 6"PIPE AND SHALL BE PER PWC DETAIL W.22

16.WL-29 SHALL BE BUILT OUT FROM TAPPING SLEEVE & VALVE. NEXT IN-LINE VALVE TO FACILITATE SHUTDOWN OF WL-29 IS APPROXIMATELY 187 LF FROM PROPOSED RECONNECTION POINT.

17.CONNECT EXISTING 2"WATER MAIN TO NEW 8"WATER MAIN USING SADDLE TAP.

### UC-27 UTILITY NOTES

18.CONTRACTOR SHALL CONNECT TO EXISTING 6"WATER MAIN USING FULLBODY SLEEVE AND RESTRAINING GLANDS. THIS PART OF THE CONNECTION SHALL BE SWABBED PRIOR TO RECONNECTION OF THE EXISTING 6" WATER MAIN. THE EXISTING 6"WATER MAIN AT FAIRWAY DRIVE SHALL BE KILLED OUT BY PERMANENTLY CLOSING AND ABANDONING EXISTING VALVE EV-111. KILL OUT SHALL BE DONE BETWEEN 9:00 P.M. TO 6:00 A.M. TO COMPLY WITH TRAFFIC CONTROL REQUIREMENTS AND MINIMIZE SERVICE INTERUPTION.

19.WL-28 BETWEEN THE 12"X8"REDUCER (APPROX. STA. 41+95) TO THE NEXT 8"IN-LINE VALVE (APPROX. STA. 37+58 ON SHEET UC-26) SHALL BE INSTALLED AND FULLY OPERATIONAL PRIOR TO INSTALLING WL-28 SECTION BETWEEN IN-LINE VALVES (APPROX. STA. 27+22 AND APPROX. STA. 37+58) ON SHEET UC-26. THE INSTALLATION BETWEEN HORIZONTAL 45 DEGREE BEND (APPROX. STA. 40+45) AND THE 12"X8" REDUCER (APPROX. STA. 41+95) SHALL BE PERFORMED BETWEEN 9:00 P.M. AND 6:00 A.M. ALL OPEN EXCAVÁTIONS SHALL BE PLATED AND READY FOR TRAFFIC BY 6:00 A.M. UNLESS EXCAVATIONS ARE BACKFILLED/COMPACTED AND PATCHED BY 6:00 A.M.

20.ALL EXISTING METERS THAT OVERLAP THIS RELOCATION SEGMENT SHALL BE SWITCHED OVER TO THIS NEW SEGMENT.

### UC-27A UTILITY NOTES:

1.TEMPORARY SHORING IF REQUIRED FOR BUILDING FOUNDATION PROTECTION OR MAINTENANCE OF TRAFFIC WILL BE PAID AS TEMPORARY SHORING IN SQUARE FEET BELOW GROUND SURFACE.

2.CONTRACTOR SHALL SUBMIT A DETAILED SEWAGE BYPASS PLAN FOR MAINTAINING ALL SEWAGE FLOWS THAT WILL BE IMPACTED BY THE SEWER RELOCATION AND ADHERE TO ALL REQUIREMENTS IN OWNER'S WASTE WATER CONTROL SPECIFICATIONS.

3.CONTRACTOR SHALL VERIFY SEWER SERVICE DEPTH AND LOCATION PRIOR TO ORDERING MATERIALS.

4.CONTRACTOR SHALL REPLACE EXISTING CLEAN OUT AND SEWER SEVICE LINE AT SAME DEPTH AND SLOPE.

5.CONTRACTOR SHALL REMOVE EXISTING CLEAN OUT AND EXISTING SEWER SERVICE TO PROPOSED CLEAN OUT LOCATION. CONTRACTOR SHALL GROUT FILL EXISTING SERVICE CORE IN MANHOLE WITH NON-SHRINK GROUT.

6.CONTRACTOR SHALL COORDINATE WITH DRAINAGE INSTALLATION OF 15"AND 18" STORM PIPE BETWEEN DRAINAGE STRUCTURE 2734, 2724 AND 2725 TO REPLACE 200 FEET OF EXISTING 12"VCP PIPE WITH DIP AT SAME SLOPE.

# **UC-32 UTILITY NOTES:**

1.PURSUANT TO TRAFFIC CONTROL REQUIRMENTS, CONTRACTOR MUST BE COMPLETE WITH WORK ON THE SOUTH SIDE OF RAEFORD ROAD BEFORE BEGINNING WORK ON THE NORTH SIDE. CONTRACTOR SHALL NOT BE PERFORMING WATER MAIN INSTALLATION LONGITUDINALLY TO THE ROAD ON BOTH SIDES.

2.WL-25 FROM 12"x12"x12" TAPPING SLEEVE & VALVE ON ROBESON STREET, INCLUDING CROSS-LINE CONNECTION CWL-EY46 TO IN-LINE VALVE APPROX. STA. 40+15 ON WL-26 AND 12"BRANCH VALVE APPROX. STA. 40+34 ON WL-26 (SEE UTILITY NOTES ON UC-27) SHALL BE INSTALLED AND OPERATIONAL.

3.ALL EXISTING METERS THAT OVERLAP THIS RELOCATION SEGMENT SHALL BE SWITCHED OVER TO THIS NEW SEGMENT. CROSS-LINE IN CWL-EY46 SHALL BE FULLY RESTRAINED THROUGH BRANCH VALVES.

4.EXISTING IN-LINE VALVE, EV-106 (AT INTERSECTION OF RAEFORD RD AND ROBESON ST, AND EXISTING 12" IN-LINE VALVE LOCATED APPROX. 685 LF FROM APPROX. TIE-IN LOCATION TO FACILITATE SHUTDOWN FOR KILL-OUT OF EXISTING 12" AC WATER MAIN. PLANNED SHUT DOWN SHALL BE COORDINATED WITH THE ENGINEER.

5.KILL OUT OF EXISTING 12 "AC WATER MAIN AT PROP. 12" TAPPING SLEEVE AND VALVE SHALL INCLUDE FULLY GROUT OF 60 LF OF 12"PIPE AND SHALL BE PER PWC DETAIL W.22

6.CWL-EY46 AN 8"CUT-IN VALVE SHALL BE INSTALLED BETWEEN 9:00 P.M. AND 6:00 A.M. TO MINIMIZE SERVICE INTERUPTION. EXISTING IN-LINE VALVE EV-115 (IN FAIRWAY DRIVE), EV-114 (IN ROBESON ST), AND EXISTING BRANCH VALVES EV-116 AND EV117 TO FACILITATE SHUTDOWN FOR INSTALLATION OF 8"CUT-IN VALVE. PLANNED SHUT DOWN SHALL BE COORDINATED WITH THE ENGINEER.

7.AFTER INSTALLATION OF 8"CUT-IN VALVE, CONTRACTOR SHALL CONNECT TO EXISTING 8"WATER MAIN USING FULLBODY SLEEVE AND RESTRAINING GLANDS OUTSIDE OF EXISTING 16"ENCASEMENT. THIS PART OF THE CONNECTION SHALL BE SWABBED PRIOR TO RECONNECTION OF THE EXISTING 8"WATER MAIN. THE CROSS-LINE SHALL BE KILLED OUT BY PERMANENTLY CLOSING AND ABANDONING EXISTING VALVE EV-106. IF THERE IS NOT ENOUGH EXISTING 8"WATER MAIN PIPE BETWEEN EXISTING ENCASEMENT AND EXISTING 12"X 8" TAPPING SLEEVE AND VALVE (EV-114) TO CONNECT TO, CONTRACTOR SHALL PROPERLY REMOVE EXISTING 12"X 8"TAPPING SLEEVE (EV-114) AFTER KILL OUT OF EXISTING 12"WATER MAIN.

PROJECT REFERENCE	NO.	SHEET NO.
U-4405		UC-3G
DESIGNED BY: AMH		8/8/2018
DRAWN BY: AMH/AB		CAROLINA CESSION
CHECKED BY: AMH		OFESSION NA
APPROVED BY: MWF		SEAL 1
REVISED:		
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	11,1	ARKWFISHELLING
UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	UTILI	Mark W. Sister - Texasofor 28 Sept. UCTION PLANS ONLY

### **UC-33 UTILITY NOTES:**

## UTILITY CONSTRUCTION

1.CONTRACTOR SHALL SUBMIT A DETAILED SEWAGE BYPASS PLAN FOR MAINTAINING ALL SEWAGE FLOWS THAT WILL BE IMPACTED BY THE SEWER RELOCATION AND ADHERE TO ALL REQUIREMENTS IN OWNER'S WASTE WATER CONTROL SPECIFICATIONS.

2.CONTRACTOR SHALL VERIFY SEWER SERVICE DEPTH AND LOCATION PRIOR TO ORDERING MATERIALS.

3.SL-8 SHALL BE INSTALLED AND OPERATIONAL FROM EXIST MANHOLE AT STA. 0+00 TO PROP. MANHOLE MH-4 AT STA. 7+35.71 PRIOR TO INSTALLING 4"SEWER SERVICE IN PROP. MANHOLE MH-4, SL-9 AND SL-10.

4.CONTRACTOR SHALL RETAIN DOWNSTREAM PORTION OF EXISTING SEWER OF PROP. MH-4 SO EXISTING 4" SEWER SERVICE CAN REMAIN ACTIVE UNTIL NEW SEWER IS READY FOR SERVICE LATERAL RELOCATION.

5.INSTALLATION OF SL-9 AND SL-10 SHALL BE COORDINATED WITH INSTALLATION OF SL-8. MAINTAIN FLOW CONTROL PROVISIONS WHEN CONSTRUCTING SL-9 AND SL-10. BYPASS PUMP AND PIPIING TO MAINTAIN SEWER FLOW DURING CUT IN CONSTRUCTION SHALL BE SITUATED TO MAINTAIN TRAFFIC FLOW.

6.AFTER SEWER IS INSTALLED AND OPERATIONAL WITHIN EXECUTIVE PLACE, CONTRACTOR SHALL PLUG INVERT OF 12" INSIDE EXISTING MANHOLE LOCATED IN RAEFORD ROAD. THIS WORK SHALL BE PERFORMED BETWEEN 9:00 P.M. AND 6:00 A.M. TO MINIMIZE TRAFFIC IMPACTS.

Shoring ocation No.	Begin Station & Offset		EARY SHORING LO Estimated Average Height (ft)	Estimated  Maximum Height  (ft)	Shoring Location Type	Square Footage (ft)	Trench Length (ft
No. 1	67+17.82 -L-, 43.94' Right	67+66.02 -L-, 37.17' Right	6.5	10.81	Roadway (Longtitudinal Trench)	715	50
No. 2		76+10.56 -L-, 181.02' Left	9.55	9.71	Roadway Shoulder (Perpendicular Trench)	286.5	10
	98.92.49 -L-, 221.06'	99+11.68 -L-, 226.64'		0.75	Bore (Receiving) Within		
No. 3	Left 134+33.75 -L-, 41.97'	Left 134+33.75 -L-, 52.97'	6.75	6.75	Roadway Bore (Receiving)	270	10
No. 4	Left 135+62.47 -L-, 74.20'	Left 135+62.49 -L-, 84.20'	4.25	4.55	Adjacent to Roadway Bore (Receiving)	170	10
No. 5	Right 153+80.37 -L-, 38.39'	Right 154+94.88 -L-, 46.14'	10	10	Adjacent to Roadway Roadway (Longitudinal	400	10
No. 6	Right 184+34.82 -L-, 77.40'	Right 185+44.40 -L-, 57.10'	6	6	Trench) Roadway (Longitudinal	1500	120
No. 7		Right 188+60.72 -L-, 90.74'	7	12	Trench) Roadway (Longitudinal	1820	125
No. 8	, , , , , , , , , , , , , , , , , , , ,	Right 190+61.05 -L-, 71.16'	5	5	Trench) Bore (Receiving)	1300	125
No. 9	Right	Right	6.25	6.5	Adjacent to Roadway	250	10
No. 10	190+60.30 -L-, 65.72 Right	190+59.92 -L-, 95.72 Right	5.3	5.3	Bore (Jacking) Adjacent to Roadway	636	40
No. 11	220+74.37 -L-, 41.38 Left	220+47.04 -L 62.55 Left	8	8	Roadway Shoulder (Perpindicular Trench)	640	20
No. 12	209+39.92 -L-, 71.75 Left	209.+59.92 -L-, 71.65 Left	6.5	6.5	Roadway Shoulder (Longitudinal Trench)	325	20
No. 13	215.30.54 -L-, 64.76 Left	223+33.67 -L-, 51.76 Left	8	13	Roadway Shoulder (Longitudinal Trench)	13280	825
	253+62.17 -L-, 41.37	255+57.16 -L-, 53.56			Roadway (Longitudinal		
No. 14	Left 258+57.39 -L-, 67.23	Left 259+47.75 -L-, 41.43	9	9.5	Trench) Roadway (Longitudinal	3690	200
No. 15	Left 257+96.91 -L-, 46.56	Left 261+40.32 -L-, 40.75	6.5	6.5	Trench) Roadway (Longitudinal	1365	100
No. 16	Right 260+63.52 -L-, 18.16	Right 260+63.85 -L-, 28.16	8	8	Trench) Roadway (Perpindicular	5744	354
No. 17	Left	Left	14	14	Trench)	280	5
No. 18	261+00.09 -L-, 19.80 Left	261+01.34 -L-, 59.78 Left	10	14	Bore (Jacking) Within Roadway	1200	40
No. 19		270+66.67 -L-, 75.60 Right	5.5	5.5	Roadway Shoulder (Longitudinal Trench)	1705	150
No. 20	279+30.51 -L-, 24.79	279+30.51 -L-, 19.79	10	10	Roadway (Perpindicular Trench)	200	5
NO. 20	Right 282+25.82 -L-, 24.63	Right 282+25.82 -L-, 19.63	10	10	Roadway (Perpindicular	200	3
No. 21	Right 284+69.72 -L-, 24.56	Right 284+69.72 -L-, 19.56	10	10	Trench) Roadway (Perpindicular	200	5
No. 22	Right	Right	8.9	8.9	Trench)	178	5
No. 23	285+35.91 -L-, 24.55 Right	285+35.91 -L-, 19.55 Right	8.9	8.9	Roadway (Perpindicular Trench)	178	5
No. 24	287+70.59 -L-, 24.69	287+70.59 -L-, 19.69	10	10	Roadway (Perpindicular Trench)	200	5
NO. 24	Right 288+40.99 -L-, 24.65	Right 288+40.99 -L-, 19.65	10	10	Roadway (Perpindicular	200	5
No. 25	Right	Right	10	10	Trench)	200	5
No. 26	288+89.31 -L-, 24.65 Right	288+89.31 -L-, 19.65 Right	10	10	Roadway (Perpindicular Trench)	200	5
No. 27	289+22.62 -L-, 24.66 Right	289+22.62 -L-, 19.66 Right	10	10	Roadway (Perpindicular Trench)	200	5
	289+75.62 -L-, 24.68	289+75.62 -L-, 19.68			Roadway (Perpindicular		
No. 28	Right 289+91.63 -L-, 27.39	Right 289+91.63 -L-, 27.39	13	13	Trench) Roadway (Perpindicular	260	5
No. 29	Right 291+47.33 -L-, 16.03	Right 291+47.33 -L-, 11.03	13	13	Trench) Roadway (Perpindicular	260	5
No. 30		Right 292+18.90 -L-, 10.41	12	12	Trench) Roadway (Perpindicular	240	5
No. 31	'	Right 292+64.20 -L-, 11.06	12	12	Trench) Roadway (Perpindicular	240	5
No. 32	Right 293+74.37 -L-, 16.08	Right 293+74.37 -L-, 11.08	12	12	Trench) Roadway (Perpindicular	240	5
No. 33	Right	Right	12	12	Trench)	240	5
No. 34	295+01.74 -L-, 16.08 Right	295+01.74 -L-, 11.08 Right	11	11	Roadway (Perpindicular Trench)	220	5
No. 35	296+86.13 -L-, 15.76 Right	296+86.13 -L-, 10.76 Right	11	11	Roadway (Perpindicular Trench)	220	5
	300+02.08 -L-, 15.62	300+02.08 -L-, 10.62			Roadway (Perpindicular		
No. 36	Right 300+73.89 -L-, 15.66	Right 300+73.89 -L-, 10.66	11	11	Trench) Roadway (Perpindicular	220	5
No. 37	Right 303+69.68 -L-, 15.32	Right 303+69.68 -L-, 10.32	11	11	Trench) Roadway (Perpindicular	220	5
No. 38	Right -L-, 15.32	Right	11	11	Trench)	220	5
No. 39	304+82.28 -L-, 15.72 Right	304+82.28 -L-, 10.72 Right	11	11	Roadway (Perpindicular Trench)	220	5
	308+20.09 -L-, 15.47	308+20.09 -L-, 15.47			Roadway (Perpindicular		
No. 40	Right 308+27.12 -L-, 15.46	Right 308+27.12 -L-, 10.46	12	12	Trench) Roadway (Perpindicular	240	5
No. 41	Right 264+91.28 -L-, 299.05	Right 265+28.19 -L-, 314.24	13	13	Trench) Bore (Entry) Within	260	5
No. 42	Left 265+83.32 -L-, 337.57	Left 266+01.74 -L-, 345.43	11	11	Roadway Bore (Receiving) Within	1320	40
No.43	Left	Left	11	11	Roadway	1100	40