

1. THE CONTRACTOR SHALL LOCATE AND EXPOSE ALL EXISTING UNDERGROUND UTILITIES TO BE AFFECTED BY WORK UNDER THIS CONTRACT SUFFICIENTLY AHEAD OF CONSTRUCTION TO ALLOW THE PROJECT ENGINEER TO REDESIGN, AS NECESSARY, CONFLICTS WITH SUCH UTILITIES THAT MAY BE FOUND TO BE DIFFERENT THAN SHOWN ON THESE PLANS.

2. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE NC811 CALL STATUTES AND SHALL HAVE ALL EXISTING UNDERGROUND UTILITIES WITHIN 500 FEET OF ANY EXCAVATION SITE AND/OR PIPE TRENCH, LOCATED AND MARKED PRIOR TO BEGINNING SUCH EXCAVATION. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND OTHER IMPROVEMENTS SHOWN ON THESE PLANS OR MARKED BY NC811 CALL FROM DAMAGE BY CONSTRUCTION OR CONSTRUCTION RELATED ISSUES. IN ADDITION, IF ANY UNDERGROUND OR ABOVEGROUND UTILITY OR OTHER IMPROVEMENT BE FOUND THAT IS NOT SHOWN ON THESE PLANS OR IS FOUND TO BE DIFFERENT THAN AS SHOWN ON THESE PLANS OR IS FOUND TO BE DIFFERENT THAN AS LOCATED BY NC811 CALL, HE SHALL IMMEDIATELY STOP HIS CONSTRUCTION AND NOTIFY THE MSD PROJECT ENGINEER AND SHALL MODIFY HIS CONSTRUCTION, AS MAY BE NECESSARY, (AND AS APPROVED BY MSD) TO INSURE THAT SUCH UTILITIES AND/OR IMPROVEMENTS ARE ADEQUATELY PROTECTED FROM DAMAGE BY CONSTRUCTION OR CONSTRUCTION RELATED ISSUES. ALL CONSTRUCTION MODIFICATIONS SHALL BE APPROVED BY THE MSD PROJECT ENGINEER PRIOR TO THE CONTRACTOR BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR REPAIRS OF ANY AND ALL UTILITIES AND/OR IMPROVEMENTS AS MAY BE DAMAGED BY CONSTRUCTION OR CONSTRUCTION RELATED ISSUES (WHETHER SHOWN OR NOT SHOWN UPON THE PROJECT PLANS) AND SHALL INSTALL, OPERATE, AND MAINTAIN SUFFICIENT PROTECTION MEASURES, DEVICES AND EQUIPMENT TO PROTECT ALL UTILITIES, PROPERTIES AND THE GENERAL PUBLIC WITHIN THE LIMITS OF THIS PROJECT OR AREAS IMMEDIATELY ADJACENT THERETO, FROM HARM OR DAMAGE BY CONSTRUCTION OR CONSTRUCTION RELATED ISSUES.


4. THE CONTRACTOR SHALL KEEP ACCURATE RECORDS OF "AS-BUILT" INFORMATION RELATING TO THE LOCATION OF SERVICE WYES, TEES, CLEAN OUTS, SEWER MAINS, MANHOLES, AND ALL INVERT ELEVATIONS, RIM ELEVATIONS AND OTHER INFORMATION AS MAY BE PERTINENT TO THE LOCATION OF THE SEWER FACILITY AND SHALL SUBMIT TO THE PROJECT ENGINEER, A COMPLETE FILE AND RECORD OF SUCH INFORMATION PRIOR TO "FINAL COMPLETION" OF CONSTRUCTION. ANY UTILITY OR OTHER IMPROVEMENT THAT IS FOUND NOT TO BE AS SHOWN IN THE PROJECT PLANS SHALL BE CORRECTLY SHOWN ON THE "AS BUILT" INFORMATION PROVIDED BY THE CONTRACTOR.

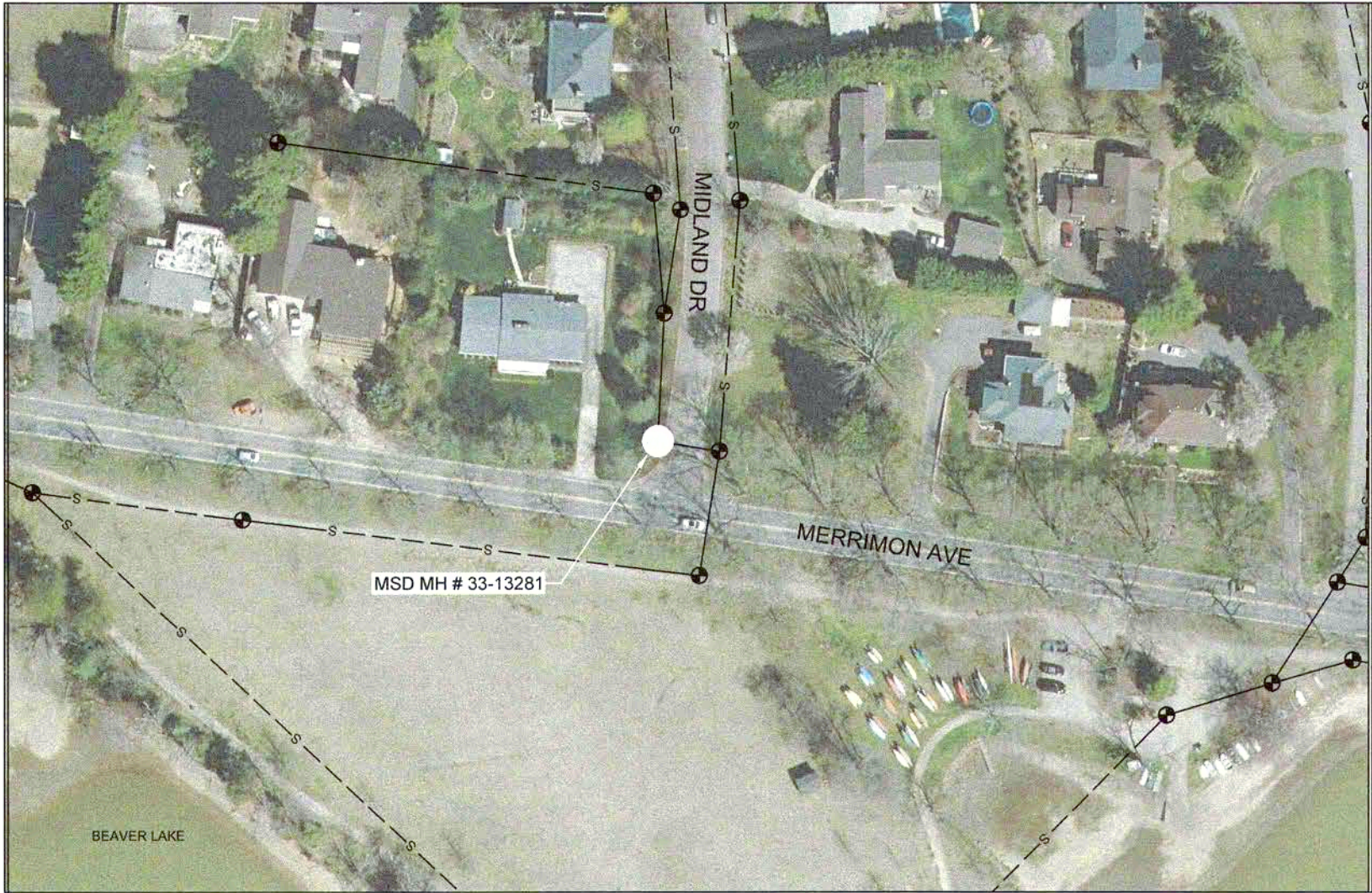
6. THE CONTRACTOR SHALL COMPLY WITH ALL STATE, LOCAL AND FEDERAL HEALTH AND SAFETY LAWS, RULES , REGULATIONS AND REQUIREMENTS (INCLUDING STATE AND FEDERAL OSHA REGULATIONS) AS MAY BE APPLICABLE TO WORK PERFORMED UNDER THIS CONTRACT.

8. ALL EXISTING PROPERTY CORNERS, IRONS OR MONUMENTS THAT ARE REMOVED OR DISTURBED BY CONSTRUCTION ON THIS PROJECT SHALL BE REPLACED BY A COMPETENT REGISTERED PROFESSIONAL LAND SURVEYOR IN ACCORDANCE TO STANDARDS AND REQUIREMENTS OF THE NC BOARD OF REGISTRATION OF ENGINEERS AND LAND SURVEYORS FOR CLASS "B" PROPERTY SURVEYS. IF SAID PROPERTY CORNER, IRON OR MONUMENT IS SHOWN UPON THE PROJECT PLANS AND IS WITHIN THE LIMITS OF THE PERMANENT RIGHT OF WAY OF THE SEWER LINE, AS SHOWN UPON THESE PLANS OR IS WITHIN AN AREA THAT WOULD (IN THE OPINION OF MSD'S PROJECT ENGINEER) LIKELY BE DISTURBED BY NORMAL SEWER LINE CONSTRUCTION, MSD WILL PAY FOR THE REPLACEMENT OF SAID CORNERS, IRONS AND MONUMENTS AT THE CONTRACT UNIT PRICE PER PROPERTY CORNER REPLACED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ALL OTHER PROPERTY CORNER REPLACEMENTS.

SHEET NO.	DESCRIPTION
C-1	INDEX OF DRAWINGS AND GENERAL NOTES
PL-1	LINING CONTRACT #9 - NORTH / DOWNTOWN PLAN
PL-2	LINING CONTRACT #9 - NORTH / DOWNTOWN PLAN
PL-3	LINING CONTRACT #9 - SOUTH PLAN
PL-4	LINING CONTRACT #9 - SOUTH PLAN
PL-5	LINING CONTRACT #9 - EAST PLAN
PL-6	LINING CONTRACT #9 - EAST PLAN
PL-7	LINING CONTRACT #9 - WEST PLAN
PL-8	LINING CONTRACT #9 - WEST PLAN
D-1	SANITARY SEWER DETAILS
D-2	EROSION CONTROL DETAILS

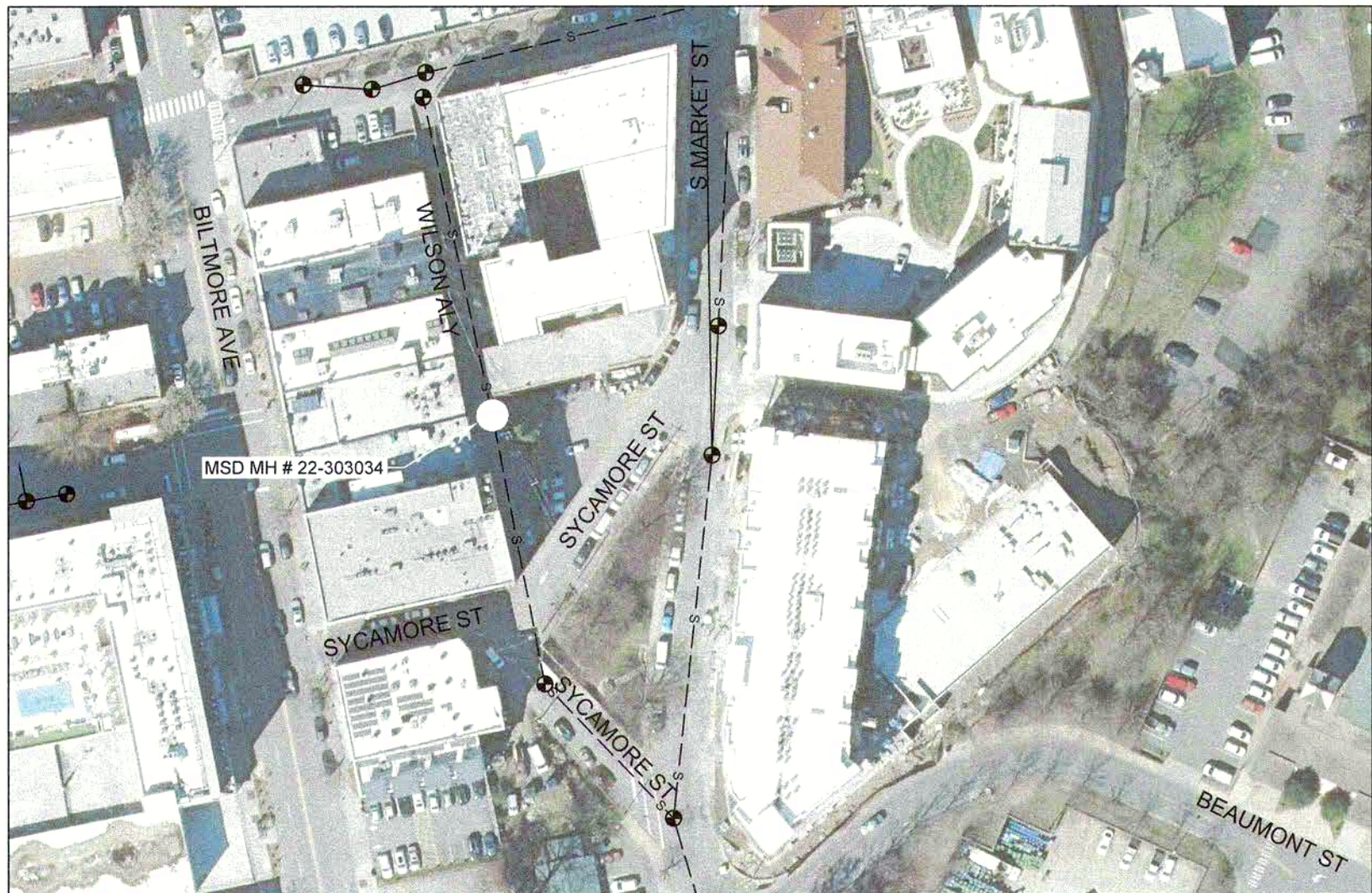
North Carolina 811
www.nc811.org





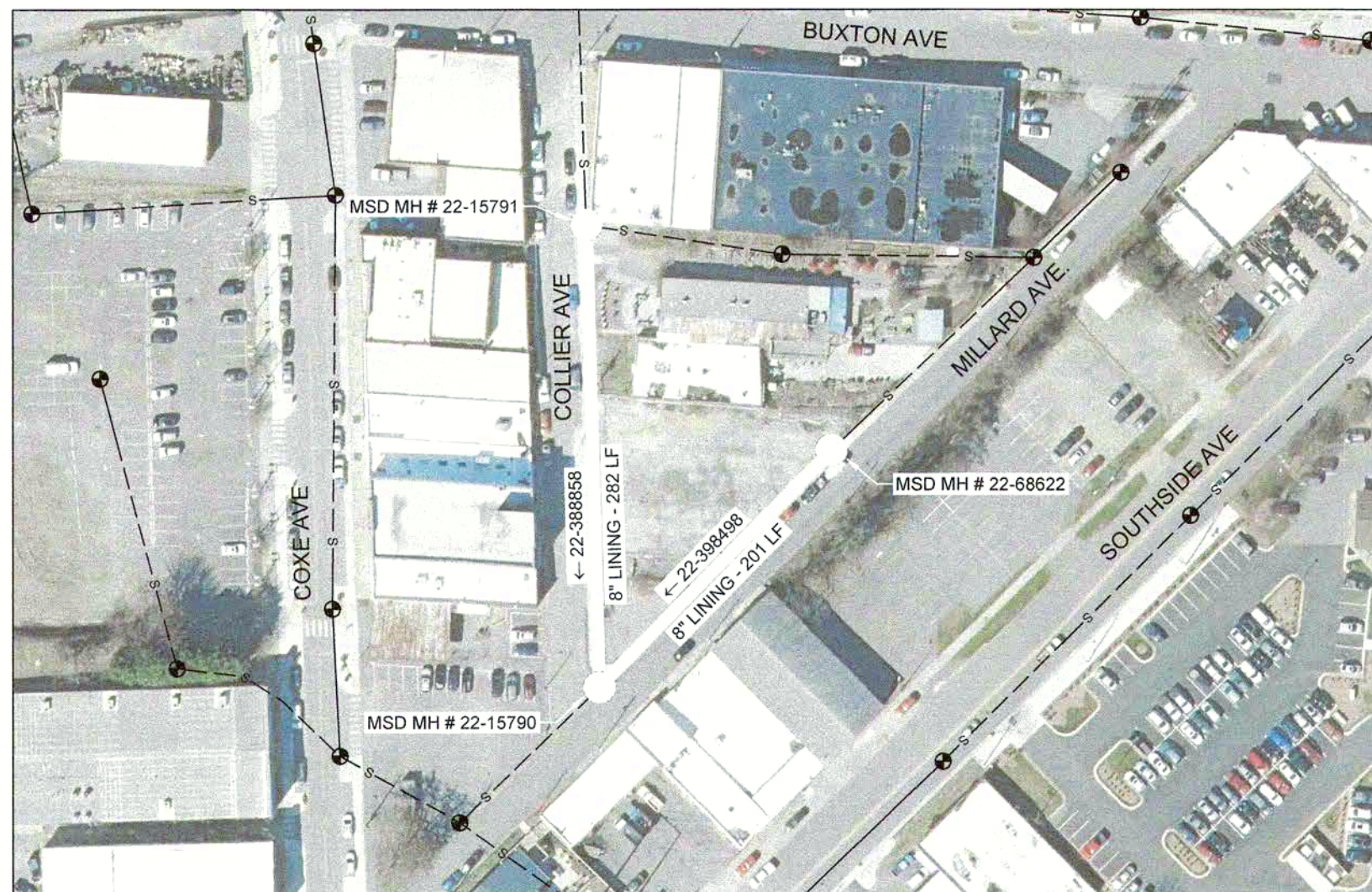
PIPE LINING PLAN – MIDLAND DRIVE

SCALE: 1"=100'



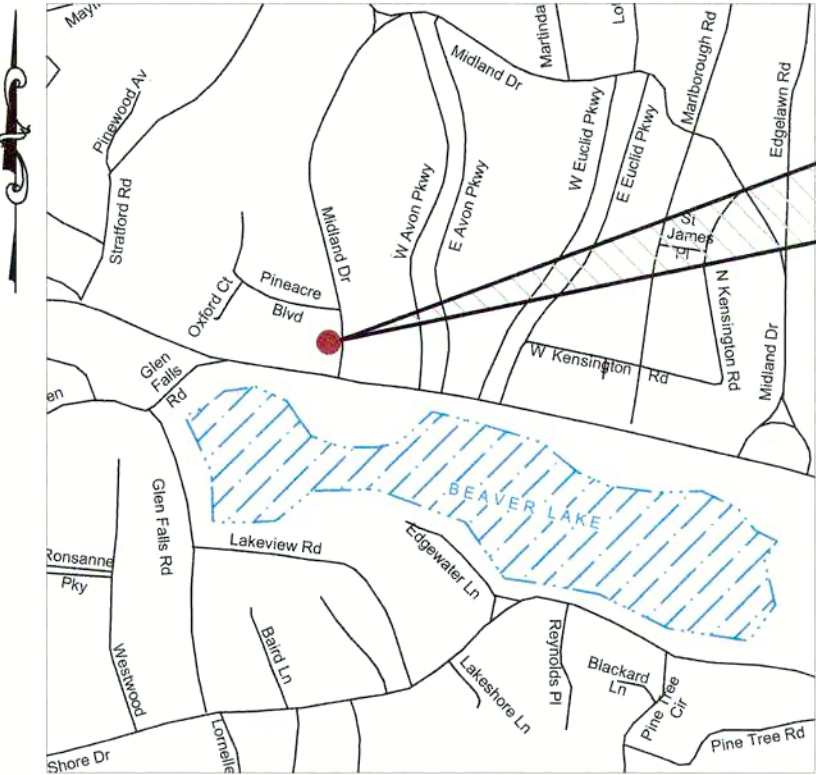
MANHOLE REHAB. PLAN – WILSON ALLEY

SCALE: 1"=100'



PIPE LINING PLAN – COLLIER AVE.

SCALE: 1"=100'



VICINITY MAP

No Scale

PROPOSED MANHOLE REHABILITATION - MIDLAND DRIVE		
MANHOLE #	DEPTH (FT.)	METHOD OF REHAB. *
33-13281	5.3'	REPLACE MANHOLE COMPLETE, ASPHALT REPAIR

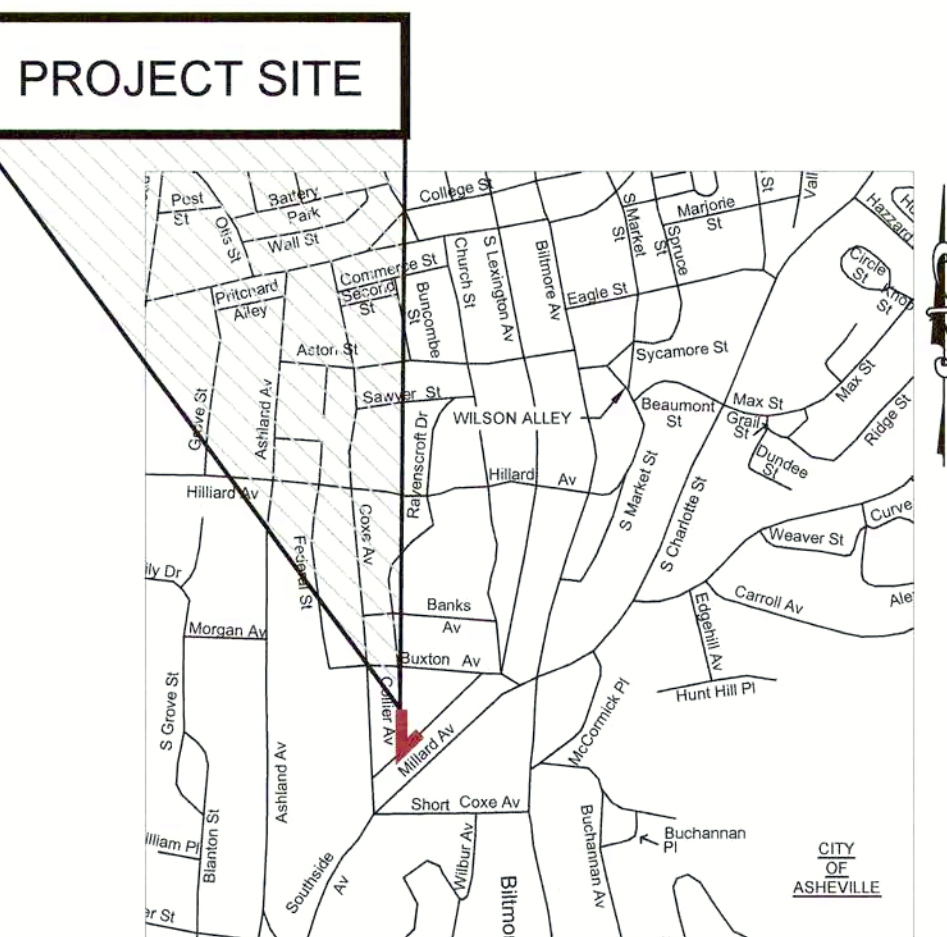
- * FOR MANHOLE WHERE CEMENTITIOUS LINER IS TO BE INSTALLED THE FOLLOWING ITEMS SHALL BE CONSIDERED INCIDENTAL WITHOUT SEPARATE PAYMENT BEING PROVIDED. THESE ITEMS ARE TO BE COMPLETED BY CONTRACTOR PER MSD STANDARDS.
 - GROUTING OF ALL SEAMS AND VOIDS IN MANHOLE INTERIOR.
 - REMOVAL OF ALL INTERIOR STEPS.
 - RECONSTRUCTION OF MANHOLE INVERTS WITH U-SHAPED CHANNELS BEING PROVIDED.
 - PROPER REPAIRS TO BENCHES IN MANHOLE INVERTS.
- * FOR MANHOLE WHERE CEMENTITIOUS LINER IS NOT TO BE INSTALLED BUT INTERIOR IMPROVEMENTS ARE SPECIFIED, SEE PAY ITEM FOR "INTERIOR MANHOLE IMPROVEMENTS WITH NO CEMENTITIOUS LINER REQUIRED". THIS ITEM WILL COVER THE FOLLOWING ITEMS FOR EACH MANHOLE. THESE ITEMS ARE TO BE COMPLETED BY CONTRACTOR PER MSD STANDARDS.
 - GROUTING OF ALL SEAMS AND VOIDS IN MANHOLE INTERIOR.
 - REMOVAL OF ALL INTERIOR STEPS.
 - RECONSTRUCTION OF MANHOLE INVERTS WITH U-SHAPED CHANNELS BEING PROVIDED.
 - PROPER REPAIRS TO BENCHES IN MANHOLE INVERTS.



VICINITY MAP

No Scale

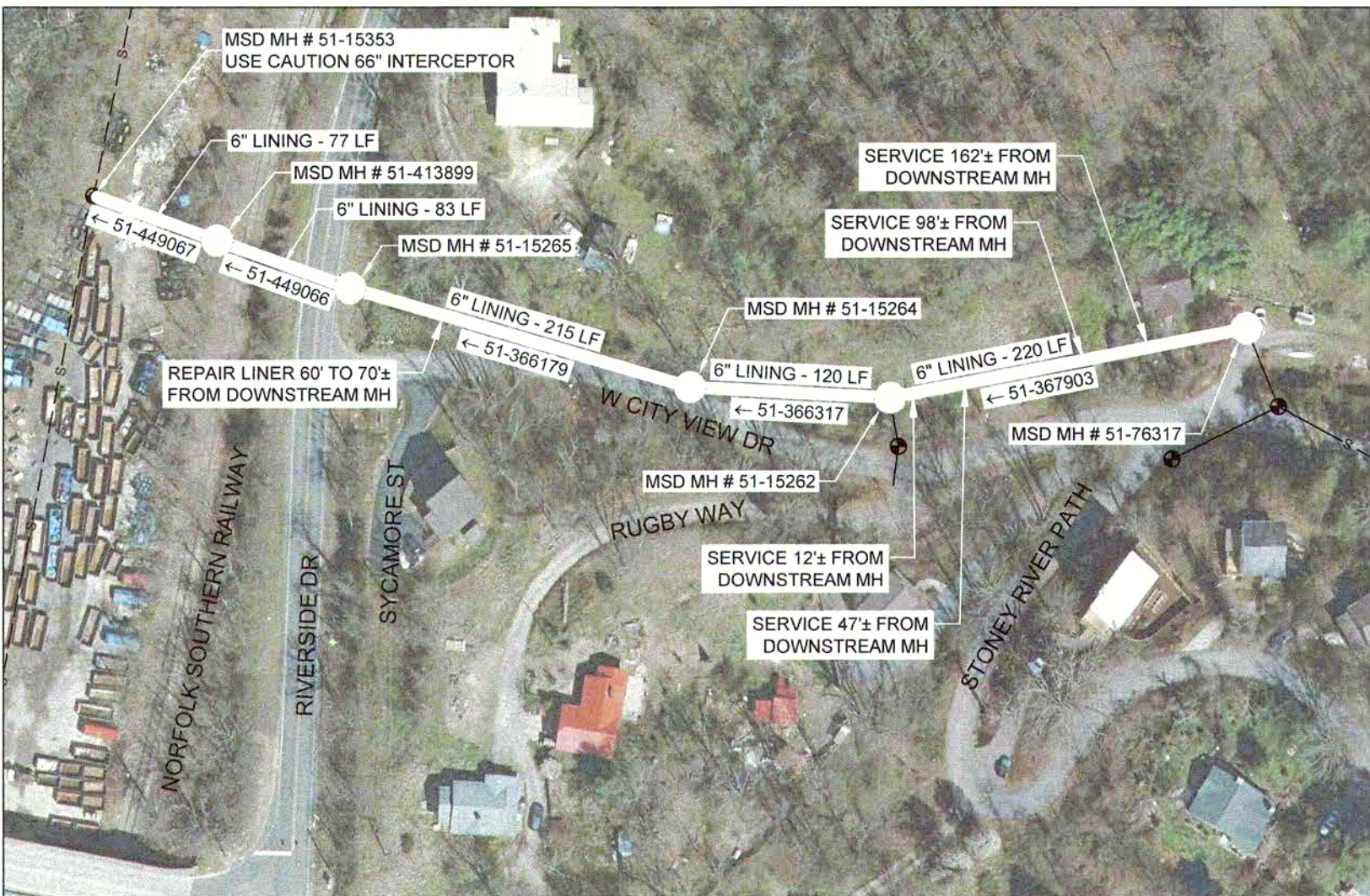
PROPOSED MANHOLE REHABILITATION - WILSON ALLEY		
MANHOLE #	DEPTH (FT.)	METHOD OF REHAB. *
22-303034	10.5'	REPLACE MANHOLE, REUSE FRAME & COVER, RECONNECT 4" SERVICE LOWER TO INVERT, ASPHALT REPAIR



VICINITY MAP

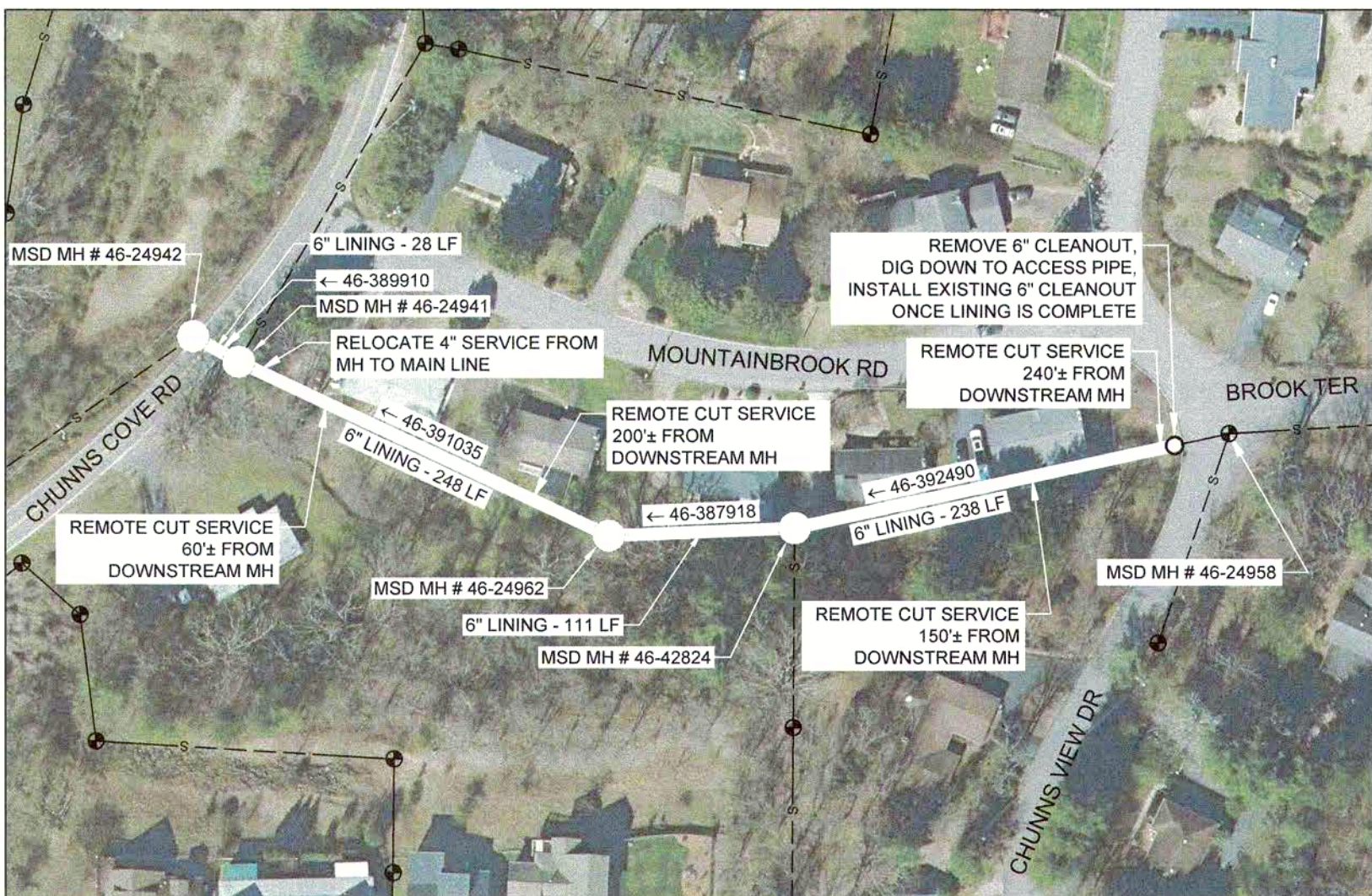
No Scale

PROPOSED MANHOLE REHABILITATION - COLLIER AVE.		
MANHOLE #	DEPTH (FT.)	METHOD OF REHAB. *
22-15790	11.4'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER, ASPHALT REPAIR
22-15791	10.4'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER, INSTALL 2-4" PVC INSIDE DROP TO INVERT, ASPHALT REPAIR
22-68622	10.7'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER, CONCRETE SIDEWALK REPAIR



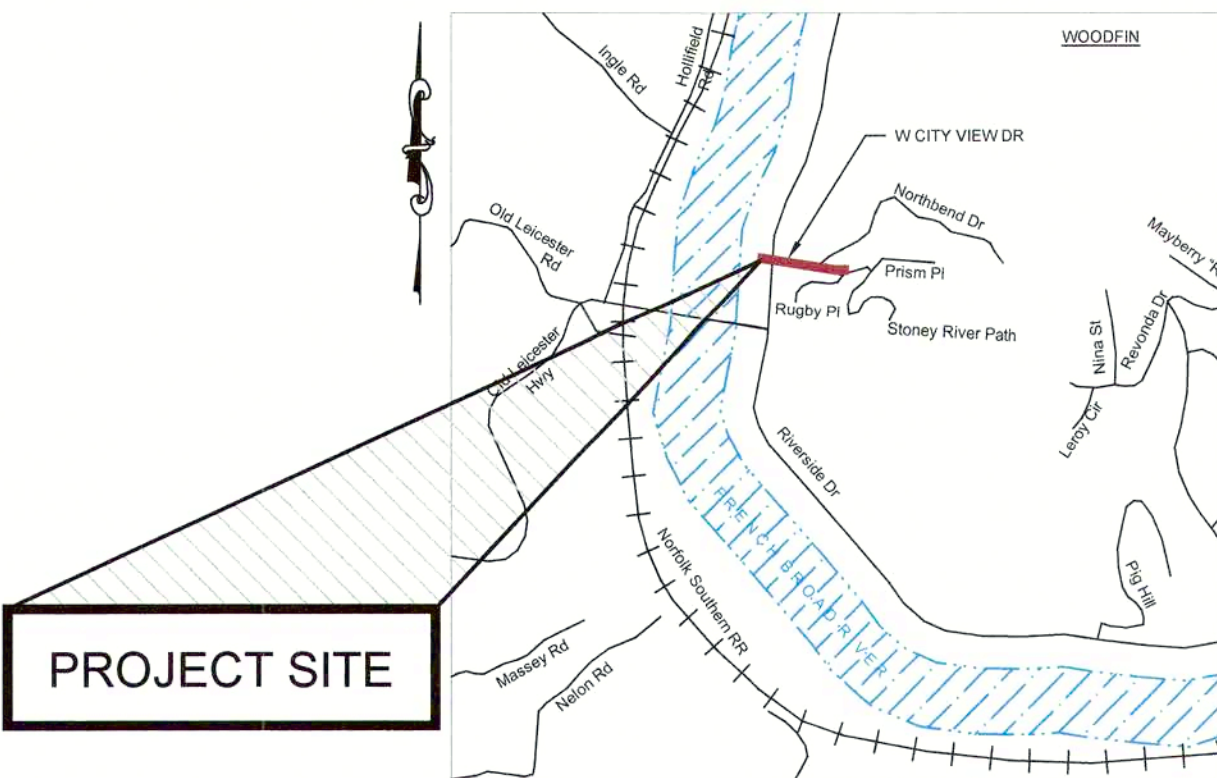
PIPE LINING PLAN – W. CITY VIEW DRIVE

SCALE: 1"=100'



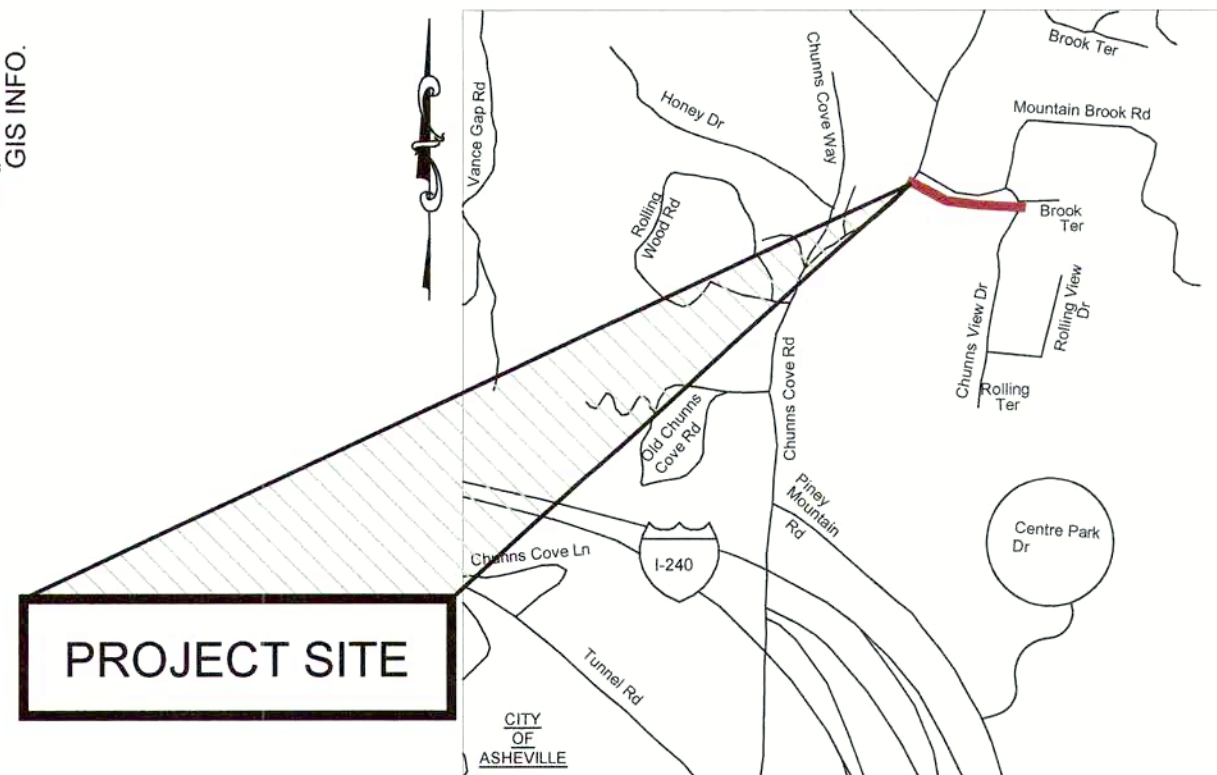
PIPE LINING PLAN – MOUNTAINBROOK ROAD

SCALE: 1"=100'



PROJECT SITE

PROPOSED MANHOLE REHABILITATION - W. CITY VIEW DRIVE		
MANHOLE #	DEPTH (FT.)	METHOD OF REHAB. *
51-76317	5.3'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER
51-15262	6.0'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER
51-15264	5.0'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER
51-15265	10.1'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER, RECONNECT 2-4" SERVICES
51-413899	16.0'	NO REHABILITATION
51-15353	23.3'	NO REHABILITATION, USE CAUTION 66" INTERCEPTOR



PROJECT SITE

PROPOSED MANHOLE REHABILITATION - MOUNTAINBROOK ROAD		
MANHOLE #	DEPTH (FT.)	METHOD OF REHAB. *
46-24942	5.5'	NO REHABILITATION
46-24941	5.9'	REPLACE MANHOLE COMPLETE, RECONNECT 4" SERVICE TO MAIN LINE
46-24962	4.9'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER
46-42824	8.3'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER

APPROXIMATE LINING FOOTAGE THIS SHEET = 1,821 LF

NOTES:

1. CONTRACTOR SHALL COMPLETE THE FOLLOWING SCOPE OF WORK: (NOT NECESSARILY IN THIS ORDER)

A) PERFORM POINT REPAIRS AS NOTED ON THE DRAWINGS.

B) INSTALL LINING AS NOTED-INSTALLATION OF NEW OR REPLACEMENT MANHOLES SHALL OCCUR PRIOR TO PIPE LINING.

C) PERFORM MANHOLE REHABILITATION AS NOTED.

D) INSTALL COMPRESSION FITTINGS (OR SADDLES IN 6" LINES ONLY) AS SPECIFIED WHERE POORLY CONSTRUCTED PLUMBER'S SERVICE LATERAL TAPS INTERSECT THE MAIN LINE.

E) INSTALL CLEAN-OUT ASSEMBLIES ON SERVICE LATERALS CONNECTED TO THE MAIN LINES BEING REHABILITATED AS DIRECTED BY THE ENGINEER AND IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. SEE NOTE No.3 FOR ADDITIONAL DETAILS.

F) PERFORM VIDEO INSPECTIONS ON EACH SERVICE LATERAL THAT IS CONNECTED TO A MAIN SEWER LINE THAT IS BEING REHABILITATED, AND THAT IS CONNECTED TO A MANHOLE ON THAT MAIN LINE. AT THE ENGINEER'S DISCRETION, REPLACE THE SERVICE LATERAL. SEE NOTE No.4 FOR ADDITIONAL DETAILS.

G) PERFORM ALL OTHER MISCELLANEOUS WORK SPECIFIED IN THE CONTRACT DOCUMENTS.

2. THIS MAP IS BASED ON CURRENT MSD MAPPING OF ITS SEWER SYSTEM. LOCATIONS OF SOME OF THE MANHOLES ON THIS SHEET ARE APPROXIMATE AND HAVE NOT BEEN SURVEYED. CONTRACTOR SHALL VERIFY ALL LOCATIONS OF EXISTING MANHOLES PRIOR TO CONSTRUCTION.

3. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL SERVICES ON THE EXISTING LINES AND RECONNECTING THEM AFTER THE LINER IS INSTALLED. ON SERVICE LATERALS THAT DO NOT CONTAIN A CLEAN-OUT ASSEMBLY WITHIN THE RIGHT-OF-WAY OR PRESCRIPTIVE EASEMENT, THE CONTRACTOR SHALL INSTALL A CLEAN-OUT ON THE SERVICE LATERAL. CLEAN-OUTS MAY ALSO BE INSTALLED ON VACANT LOTS AT THE DISCRETION OF THE ENGINEER.

4. A DECISION ON THE REHABILITATION OF SERVICE LATERALS WILL BE MADE UPON THE TELEVISION INSPECTION OF EACH LATERAL. CONTRACTOR SHALL COORDINATE THE INSPECTION OF EACH LATERAL WITH A REPRESENTATIVE OF THE ENGINEER.

5. THE CONTRACTOR SHALL LIMIT ALL ACTIVITIES WITHIN THE ROADWAYS WHEN POSSIBLE. WHEN IT IS NECESSARY TO ACCESS PRIVATE PROPERTY, ACTIVITY SHALL BE LIMITED TO 10 FEET EACH SIDE OF THE SEWER LINE. IN ADDITION, REASONABLE ACCESS BETWEEN THE ROAD AND EACH MANHOLE IS PERMISSIBLE WITH APPROVAL FROM MSD. BEFORE ENTERING PRIVATE PROPERTY, THE CONTRACTOR SHALL NOTIFY THE RESIDENT OF THE PROPERTY.

6. UNLESS OTHERWISE NOTED, NO TREES, SHRUBS, OR OTHER LANDSCAPING SHALL BE REMOVED OR DISTURBED DURING CONSTRUCTION.

7. LOCATIONS OF EXISTING UTILITIES AND STRUCTURES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. CONTRACTOR SHALL LOCATE ALL UTILITIES TO BE CONNECTED FAR ENOUGH IN ADVANCE OF THE WORK TO ALLOW FOR REDESIGN BY THE ENGINEER IF NECESSARY.

8. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY N.C. DETAILS AND SPECIFICATIONS FOR PUBLIC SEWER SYSTEMS.

9. CONTRACTOR TO REPAIR ANY DAMAGE TO EXISTING STRUCTURES, WALKS, ACCESS ROADS AND LANDSCAPING THAT OCCURS DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH EACH PROPERTY OWNER THE RESTORATION OF ALL LANDSCAPED AREAS DISTURBED BY CONSTRUCTION. CARE SHALL BE TAKEN TO RESTORE DISTURBED AREAS IN AS GOOD OR BETTER CONDITION THAN EXISTED PRIOR TO CONSTRUCTION.

10. THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO KEEP ALL UTILITIES IN SERVICE AT ALL TIMES DURING CONSTRUCTION.

11. CONTRACTOR SHALL MAINTAIN SEWAGE FLOW AT ALL TIMES, AND SHALL PROVIDE BY-PASS PUMPING FACILITIES WHEN REQUIRED.

12. OTHER CONTRACTORS MAY BE WORKING IN THE AREA DURING THE SAME TIME PERIOD. CONTRACTORS SHALL COORDINATE AND SCHEDULE WORK SO AS NOT TO INTERFERE WITH EACH OTHERS WORK.

Metropolitan Sewerage District
of Buncombe County

Lining Contract #9
North / Downtown Plan

PL-1

DATE: 08/10/2022

CHECKED BY: KMK

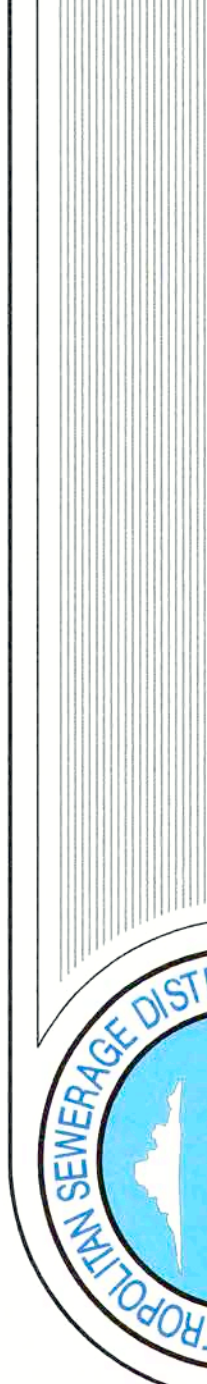
APPROVED: DAP

SCALE: 1" = 100'

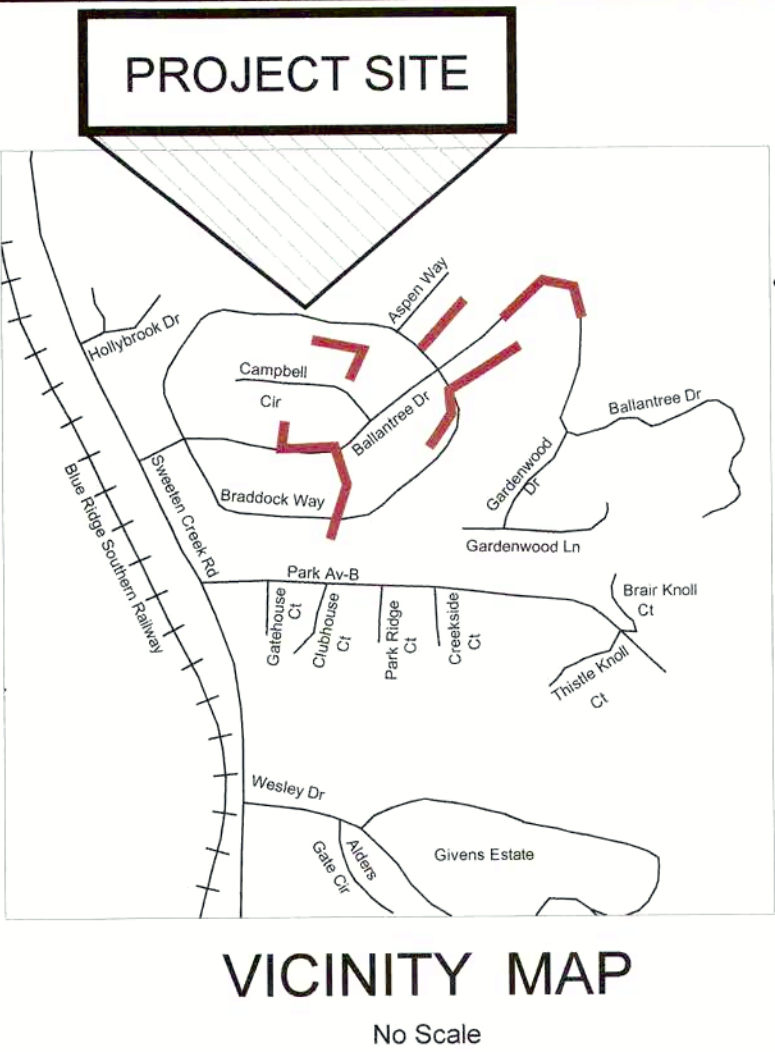


REVISIONS	
NO.	DESCRIPTION
1.	BID SET
10/31/2022	DATE

MSD



Engineering Division



PIPE LINING PLAN – BALLANTREE DRIVE

SCALE: 1"=100'

NOTES:

1. CONTRACTOR SHALL COMPLETE THE FOLLOWING SCOPE OF WORK: (NOT NECESSARILY IN THIS ORDER)

- PERFORM POINT REPAIRS AS NOTED ON THE DRAWINGS.
 - INSTALL LINING AS NOTED-INSTALLATION OF NEW OR REPLACEMENT MANHOLES SHALL OCCUR PRIOR TO PIPE LINING.
 - PERFORM MANHOLE REHABILITATION AS NOTED.
 - INSTALL COMPRESSION FITTINGS (OR SADDLES IN 6" LINES ONLY) AS SPECIFIED WHERE POORLY CONSTRUCTED PLUMBER'S SERVICE LATERAL TAPS INTERSECT THE MAIN LINE.
 - INSTALL CLEAN-OUT ASSEMBLIES ON SERVICE LATERALS CONNECTED TO THE MAIN LINES BEING REHABILITATED AS DIRECTED BY THE ENGINEER AND IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. SEE NOTE No.3 FOR ADDITIONAL DETAILS.
 - PERFORM VIDEO INSPECTIONS ON EACH SERVICE LATERAL THAT IS CONNECTED TO A MAIN SEWER LINE THAT IS BEING REHABILITATED, AND THAT IS CONNECTED TO A MANHOLE ON THAT MAIN LINE. AT THE ENGINEER'S DISCRETION, REPLACE THE SERVICE LATERAL. SEE NOTE No.4 FOR ADDITIONAL DETAILS.
 - PERFORM ALL OTHER MISCELLANEOUS WORK SPECIFIED IN THE CONTRACT DOCUMENTS.
2. THIS MAP IS BASED ON CURRENT MSD MAPPING OF ITS SEWER SYSTEM. LOCATIONS OF SOME OF THE MANHOLES ON THIS SHEET ARE APPROXIMATE AND HAVE NOT BEEN SURVEYED. CONTRACTOR SHALL VERIFY ALL LOCATIONS OF EXISTING MANHOLES PRIOR TO CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL SERVICES ON THE EXISTING LINES AND RECONNECTING THEM. AFTER THE LINER IS INSTALLED, ON SERVICE LATERALS THAT DO NOT CONTAIN A CLEAN-OUT ASSEMBLY WITHIN THE RIGHT-OF-WAY OR PRESCRIPTIVE EASEMENT, THE CONTRACTOR SHALL INSTALL A CLEAN-OUT ON THE SERVICE LATERAL. CLEAN-OUTS MAY ALSO BE INSTALLED ON VACANT LOTS AT THE DISCRETION OF THE ENGINEER.
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6. UNLESS OTHERWISE NOTED, NO TREES, SHRUBS, OR OTHER LANDSCAPING SHALL BE REMOVED OR DISTURBED DURING CONSTRUCTION.
7. LOCATIONS OF EXISTING UTILITIES AND STRUCTURES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. CONTRACTOR SHALL LOCATE ALL UTILITIES TO BE CONNECTED FAR ENOUGH IN ADVANCE OF THE WORK TO ALLOW FOR REDESIGN BY THE ENGINEER IF NECESSARY.
8. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY N.C. DETAILS AND SPECIFICATIONS FOR PUBLIC SEWER SYSTEMS.
9. CONTRACTOR TO REPAIR ANY DAMAGE TO EXISTING STRUCTURES, WALKS, ACCESS ROADS AND LANDSCAPING THAT OCCURS DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH EACH PROPERTY OWNER THE RESTORATION OF ALL LANDSCAPED AREAS DISTURBED BY CONSTRUCTION. CARE SHALL BE TAKEN TO RESTORE DISTURBED AREAS IN AS GOOD OR BETTER CONDITION THAN EXISTED PRIOR TO CONSTRUCTION.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO KEEP ALL UTILITIES IN SERVICE AT ALL TIMES DURING CONSTRUCTION.
11. CONTRACTOR SHALL MAINTAIN SEWAGE FLOW AT ALL TIMES, AND SHALL PROVIDE BY-PASS PUMPING FACILITIES WHEN REQUIRED.
12. OTHER CONTRACTORS MAY BE WORKING IN THE AREA DURING THE SAME TIME PERIOD. CONTRACTORS SHALL COORDINATE AND SCHEDULE WORK SO AS NOT TO INTERFERE WITH EACH OTHERS WORK.

- FOR MANHOLE WHERE CEMENTITIOUS LINER IS TO BE INSTALLED THE FOLLOWING ITEMS SHALL BE CONSIDERED INCIDENTAL WITHOUT SEPARATE PAYMENT BEING PROVIDED. THESE ITEMS ARE TO BE COMPLETED BY CONTRACTOR PER MSD STANDARDS.
 - GROUTING OF ALL SEAMS AND VOIDS IN MANHOLE INTERIOR.
 - REMOVAL OF ALL INTERIOR STEPS.
 - RECONSTRUCTION OF MANHOLE INVERTS WITH U-SHAPED CHANNELS BEING PROVIDED.
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 - PROPER REPAIRS TO BENCHES IN MANHOLE INVERTS.

PROPOSED MANHOLE REHABILITATION - BALLANTREE DRIVE		
MANHOLE #	DEPTH (FT.)	METHOD OF REHABILITATION*
20-41714	UNKNOWN	REHABILITATION TO BE DETERMINED
20-41713	UNKNOWN	REHABILITATION TO BE DETERMINED
20-17523	4.9'	CEMENTITIOUS LINER ON BRICK RISER AND CONE, REPLACE FRAME AND COVER, RECONNECT 2-4" SERVICES, ASPHALT REPAIR
20-41715	UNKNOWN	REHABILITATION TO BE DETERMINED
20-17506	11.2'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME AND COVER, RECONNECT 4" SERVICE
20-17507	6.5'	REPLACE MANHOLE COMPLETE, RECONNECT 2-4" SERVICES, ASPHALT REPAIR
20-17508	5.5'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, INSTALL 4" PVC INSIDE DROP
20-15448	9.1'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, RECONNECT 2-4" SERVICES
20-15404	6.2'	RECONSTRUCT INVERT
20-15403	8.0'	RECONSTRUCT INVERT
20-17516	5.6'	NO REHABILITATION
20-17515	4.9'	NO REHABILITATION
20-17514	4.9'	RECONSTRUCT INVERT
20-17512	6.7'	RECONSTRUCT INVERT, REPLACE FRAME AND COVER, ASPHALT REPAIR
20-17513	UNKNOWN	REHABILITATION TO BE DETERMINED
20-15420	4.8'	NO REHABILITATION
20-15421	4.5'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, RECONNECT 4" SERVICE
20-17511	11.7'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, RECONNECT 4" SERVICE
20-15422	8.7'	RECONSTRUCT INVERT

APPROXIMATE LINING FOOTAGE THIS SHEET = 3,021LF

MSD



Engineering Division

Metropolitan Sewerage District
of Buncombe County

Lining Contract #9
South

PL-3

DRAWN: LJ
CHECKED BY: KMK
APPROVED: DAP

DATE: 08/10/2022
SCALE: 1" = 100'



REVISIONS

DATE

DESCRIPTION

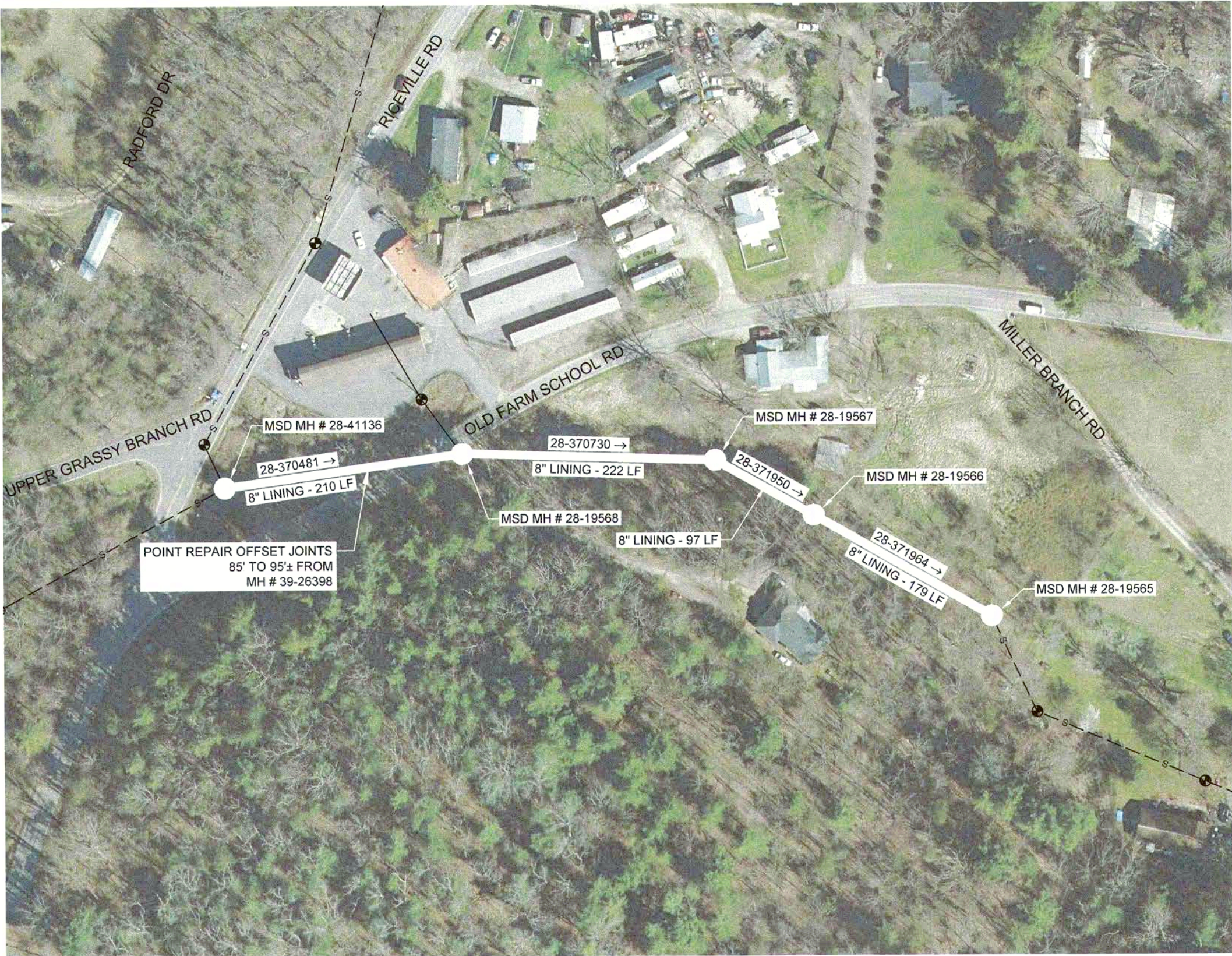
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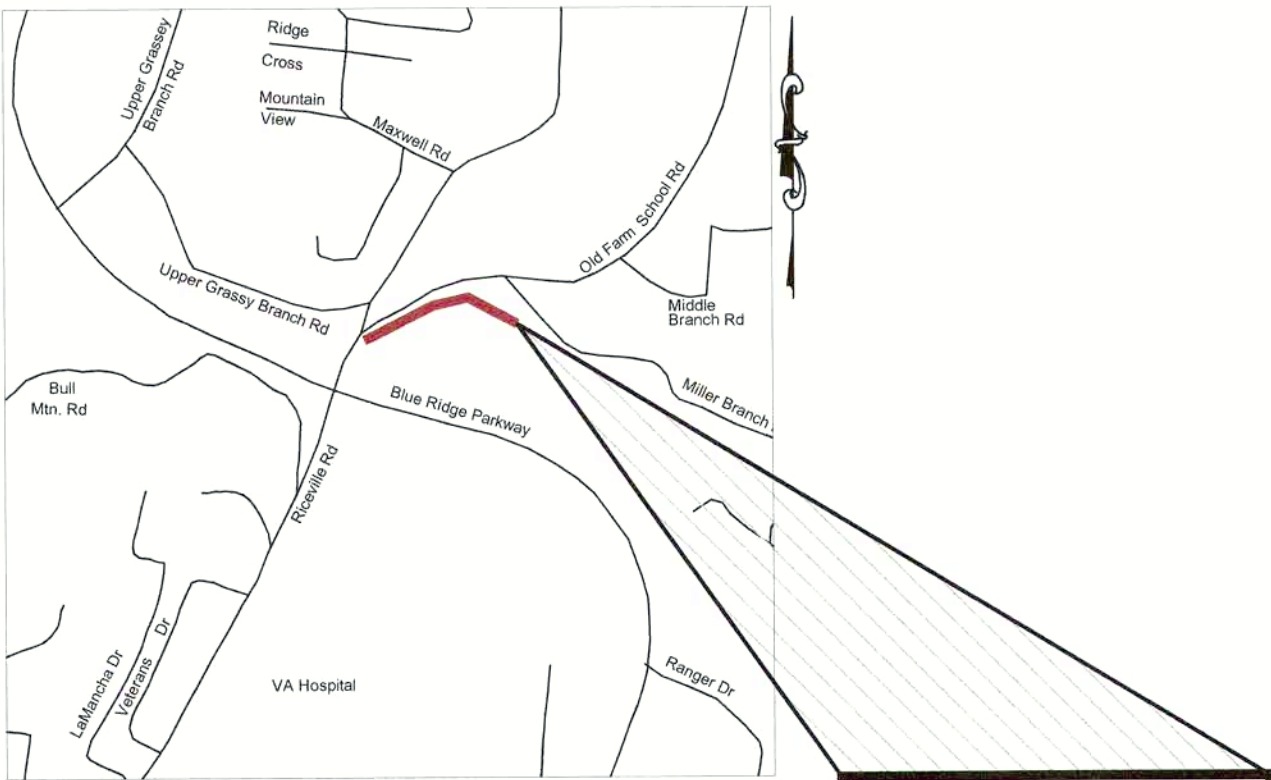
PIPE LINING PLAN – NC HWY 9

SCALE: 1"=100'



PIPE LINING PLAN – OLD FARM SCHOOL ROAD

SCALE: 1"=100'

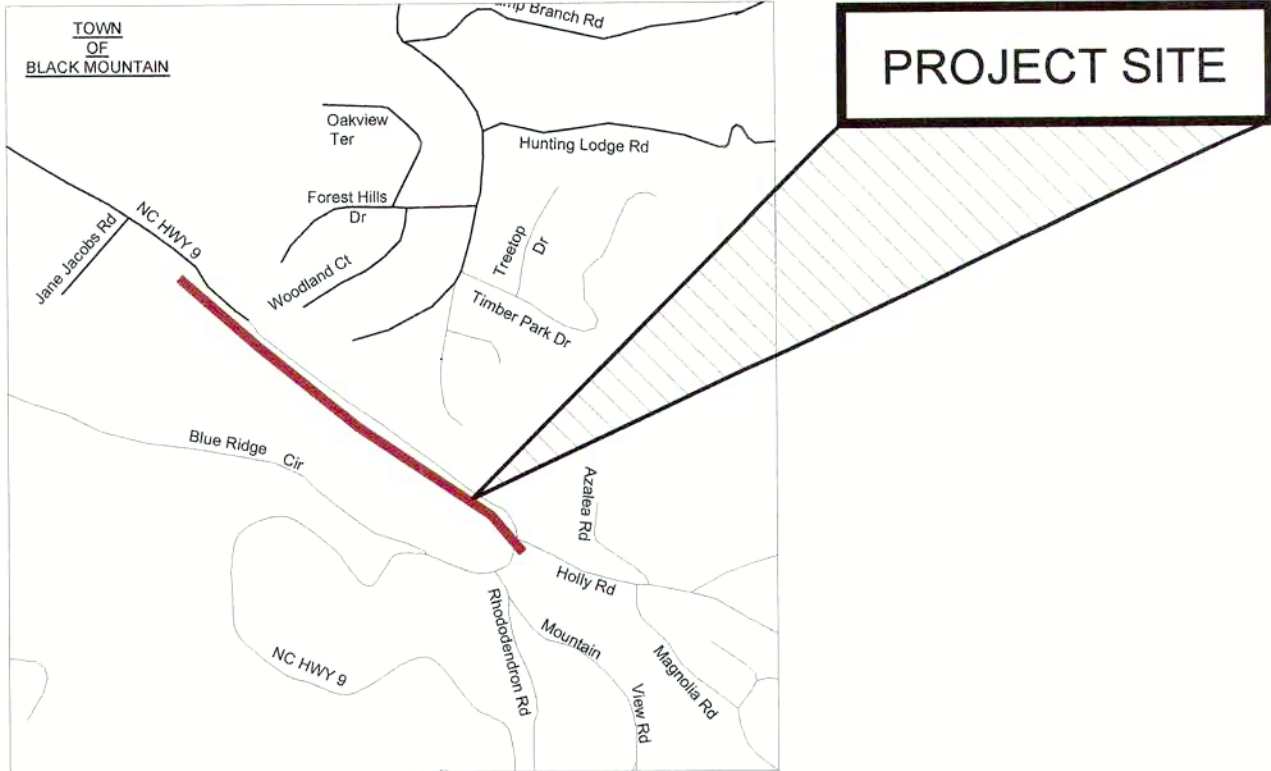


VICINITY MAP

No Scale

PROJECT SITE

PROPOSED MANHOLE REHABILITATION - OLD FARM SCHOOL ROAD		
MANHOLE #	DEPTH (FT.)	METHOD OF REHAB. *
28-41136	4.0'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER
28-19568	5.0'	RECONSTRUCT INVERT
28-19567	3.6'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER, RECONNECT 4" SERVICE
28-19566	5.2'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER
28-19565	3.9'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER



VICINITY MAP

No Scale

PROJECT SITE

PROPOSED MANHOLE REHABILITATION - NC HWY 9		
MANHOLE #	DEPTH (FT.)	METHOD OF REHAB. *
13-70010	4.6'	NO REHABILITATION
13-25909	3.4'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER
13-25910	4.2'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER, RECONNECT 4" SERVICE
13-40327	4.0'	CEMENTITIOUS LINER, RECONSTRUCT INVERT
13-25987	3.0'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, REPLACE FRAME & COVER
13-75004	4.2'	CEMENTITIOUS LINER
13-25911	5.7'	CEMENTITIOUS LINER, REPLACE FRAME & COVER

- * FOR MANHOLE WHERE CEMENTITIOUS LINER IS TO BE INSTALLED THE FOLLOWING ITEMS SHALL BE CONSIDERED INCIDENTAL WITHOUT SEPARATE PAYMENT BEING PROVIDED. THESE ITEMS ARE TO BE COMPLETED BY CONTRACTOR PER MSD STANDARDS.
- GROUTING OF ALL SEAMS AND VOIDS IN MANHOLE INTERIOR.
 - REMOVAL OF ALL INTERIOR STEPS.
 - RECONSTRUCTION OF MANHOLE INVERTS WITH U-SHAPED CHANNELS BEING PROVIDED.
 - PROPER REPAIRS TO BENCHES IN MANHOLE INVERTS.
- * FOR MANHOLE WHERE CEMENTITIOUS LINER IS NOT TO BE INSTALLED BUT INTERIOR IMPROVEMENTS ARE SPECIFIED, SEE PAY ITEM FOR "INTERIOR MANHOLE IMPROVEMENTS WITH NO CEMENTITIOUS LINER REQUIRED". THIS ITEM WILL COVER THE FOLLOWING ITEMS FOR EACH MANHOLE. THESE ITEMS ARE TO BE COMPLETED BY CONTRACTOR PER MSD STANDARDS.
- GROUTING OF ALL SEAMS AND VOIDS IN MANHOLE INTERIOR.
 - REMOVAL OF ALL INTERIOR STEPS.
 - RECONSTRUCTION OF MANHOLE INVERTS WITH U-SHAPED CHANNELS BEING PROVIDED.
 - PROPER REPAIRS TO BENCHES IN MANHOLE INVERTS.

- NOTES:
1. CONTRACTOR SHALL COMPLETE THE FOLLOWING SCOPE OF WORK: (NOT NECESSARILY IN THIS ORDER)
 - A) PERFORM POINT REPAIRS AS NOTED ON THE DRAWINGS.
 - B) INSTALL LINING AS NOTED-INSTALLATION OF NEW OR REPLACEMENT MANHOLES SHALL OCCUR PRIOR TO PIPE LINING.
 - C) PERFORM MANHOLE REHABILITATION AS NOTED
 - D) INSTALL COMPRESSION FITTINGS (OR SADDLES IN 6" LINES ONLY) AS SPECIFIED WHERE POORLY CONSTRUCTED PLUMBER'S SERVICE LATERAL TAPS INTERSECT THE MAIN LINE.
 - E) INSTALL CLEAN-OUT ASSEMBLIES ON SERVICE LATERALS CONNECTED TO THE MAIN LINES BEING REHABILITATED AS DIRECTED BY THE ENGINEER AND IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. SEE NOTE No.3 FOR ADDITIONAL DETAILS.
 - F) PERFORM VIDEO INSPECTIONS ON EACH SERVICE LATERAL THAT IS CONNECTED TO A MAIN SEWER LINE THAT IS BEING REHABILITATED, AND THAT IS CONNECTED TO A MANHOLE ON THAT MAIN LINE. AT THE ENGINEER'S DISCRETION. REPLACE THE SERVICE LATERAL. SEE NOTE No.4 FOR ADDITIONAL DETAILS.
 - G) PERFORM ALL OTHER MISCELLANEOUS WORK SPECIFIED IN THE CONTRACT DOCUMENTS.
 2. THIS MAP IS BASED ON CURRENT MSD MAPPING OF ITS SEWER SYSTEM. LOCATIONS OF SOME OF THE MANHOLES ON THIS SHEET ARE APPROXIMATE AND HAVE NOT BEEN SURVEYED. CONTRACTOR SHALL VERIFY ALL LOCATIONS OF EXISTING MANHOLES PRIOR TO CONSTRUCTION.
 3. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL SERVICES ON THE EXISTING LINES AND RECONNECTING THEM AFTER THE LINER IS INSTALLED. ON SERVICE LATERALS THAT DO NOT CONTAIN A CLEAN-OUT ASSEMBLY WITHIN THE RIGHT-OF-WAY OR PRESCRIPTIVE EASEMENT, THE CONTRACTOR SHALL INSTALL A CLEAN-OUT ON THE SERVICE LATERAL. CLEAN-OUTS MAY ALSO BE INSTALLED ON VACANT LOTS AT THE DISCRETION OF THE ENGINEER.
 4. A DECISION ON THE REHABILITATION OF SERVICE LATERALS WILL BE MADE UPON THE TELEVISION INSPECTION OF EACH LATERAL. CONTRACTOR SHALL COORDINATE THE INSPECTION OF EACH LATERAL WITH A REPRESENTATIVE OF THE ENGINEER.
 5. THE CONTRACTOR SHALL LIMIT ALL ACTIVITIES WITHIN THE ROADWAYS WHEN POSSIBLE. WHEN IT IS NECESSARY TO ACCESS PRIVATE PROPERTY, ACTIVITY SHALL BE LIMITED TO 10 FEET EACH SIDE OF THE SEWER LINE. IN ADDITION, REASONABLE ACCESS BETWEEN THE ROAD AND EACH MANHOLE IS PERMISSIBLE WITH APPROVAL FROM MSD. BEFORE ENTERING PRIVATE PROPERTY, THE CONTRACTOR SHALL NOTIFY THE RESIDENT OF THE PROPERTY.
 6. UNLESS OTHERWISE NOTED, NO TREES, SHRUBS, OR OTHER LANDSCAPING SHALL BE REMOVED OR DISTURBED DURING CONSTRUCTION.
 7. LOCATIONS OF EXISTING UTILITIES AND STRUCTURES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. CONTRACTOR SHALL LOCATE ALL UTILITIES TO BE CONNECTED FAR ENOUGH IN ADVANCE OF THE WORK TO ALLOW FOR REDESIGN BY THE ENGINEER IF NECESSARY.
 8. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY N.C. DETAILS AND SPECIFICATIONS FOR PUBLIC SEWER SYSTEMS.
 9. CONTRACTOR TO REPAIR ANY DAMAGE TO EXISTING STRUCTURES, WALKS, ACCESS ROADS AND LANDSCAPING THAT OCCURS DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH EACH PROPERTY OWNER THE RESTORATION OF ALL LANDSCAPED AREAS DISTURBED BY CONSTRUCTION. CARE SHALL BE TAKEN TO RESTORE DISTURBED AREAS IN AS GOOD OR BETTER CONDITION THAN EXISTED PRIOR TO CONSTRUCTION.
 10. THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO KEEP ALL UTILITIES IN SERVICE AT ALL TIMES DURING CONSTRUCTION.
 11. CONTRACTOR SHALL MAINTAIN SEWAGE FLOW AT ALL TIMES, AND SHALL PROVIDE BY-PASS PUMPING FACILITIES WHEN REQUIRED.
 12. OTHER CONTRACTORS MAY BE WORKING IN THE AREA DURING THE SAME TIME PERIOD. CONTRACTORS SHALL COORDINATE AND SCHEDULE WORK SO AS NOT TO INTERFERE WITH EACH OTHERS WORK.

APPROXIMATE LINING FOOTAGE THIS SHEET = 2,765 LF



REVISIONS	
NO.	DESCRIPTION
1.	BID SET
	DATE
	10/31/2022

MSD

Engineering Division





SCALE: 1"=100'



SCALE: 1"=100'



SCALE: 1"=100'



No Scale

PROPOSED MANHOLE REHABILITATION - NEW LEICESTER HWY		
MANHOLE #	DEPTH (FT.)	METHOD OF REHAB. *
24-65082	11.0'	NO REHABILITATION
24-65083	8.0'	NO REHABILITATION
24-65084	10.0'	INSTALL 4" PVC INSIDE DROP TO INVERT
24-65085	10.3'	NO REHABILITATION
24-65090	4.9'	NO REHABILITATION



No Scale

PROPOSED MANHOLE REHABILITATION - DEPOT STREET		
MANHOLE #	DEPTH (FT.)	METHOD OF REHAB. *
21-15746	14.4'	NO REHABILITATION
21-15741	10.8'	CEMENTITIOUS LINER, RECONSTRUCT INVERT



No Scale

PROPOSED MANHOLE REHABILITATION - SULPHUR SPRINGS ROAD		
MANHOLE #	DEPTH (FT.)	METHOD OF REHAB. *
66-493248	7.8'	** CEMENTITIOUS LINER, RECONSTRUCT INVERT

** MANHOLE HAS CEMENTITIOUS LINER THAT NEEDS TO BE REPLACED OR PATCHED



No Scale

- CONTRACTOR SHALL COMPLETE THE FOLLOWING SCOPE OF WORK (NOT NECESSARILY IN THIS ORDER)
- A) PERFORM POINT REPAIRS AS NOTED ON THE DRAWINGS.
- B) INSTALL LINING AS NOTED-INSTALLATION OF NEW OR REPLACEMENT MANHOLES SHALL OCCUR PRIOR TO PIPE LING.
- C) PERFORM MANHOLE REHABILITATION AS NOTED.
- D) INSTALL COMPRESSION FITTINGS (OR SADDLES IN 6" LINES ONLY) AS SPECIFIED WHERE POORLY CONSTRUCTED PLUMBERS SERVICE LATERAL TAPS INTERSECT THE MAIN LINE.
- E) INSTALL CLEAN-OUT ASSEMBLIES ON SERVICE LATERALS CONNECTED TO THE MAIN LINES WHEN REHABILITATED AS DIRECTED BY THE ENGINEER AND IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. SEE NOTE NO.3 FOR ADDITIONAL DETAILS.
- F) PERFORM VIDEO INSPECTIONS ON EACH SERVICE LATERAL THAT IS CONNECTED TO A MAIN SEWER LINE THAT IS BEING REHABILITATED, AND REPORT THE RESULTS TO A MANHOLE ON THAT MAIN LINE. AT THE ENGINEERS DISCRETION, REPLACE THE SERVICE LATERAL. SEE NOTE NO.4 FOR ADDITIONAL DETAILS.
- G) PERFORM ALL OTHER MISCELLANEOUS WORK SPECIFIED IN THE CONTRACT DOCUMENTS.
2. THIS MAP IS BASED ON CURRENT MSD MAPPING OF ITS SEWER SYSTEM. LOCATIONS OF SOME OF THE MANHOLES ON THIS SHEET ARE APPROXIMATE AND HAVE NOT BEEN SURVEYED. CONTRACTOR SHALL VERIFY ALL LOCATIONS OF EXISTING MANHOLES PRIOR TO CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL SERVICES ON THE EXISTING LINES AND RECONNECTING THEM AFTER THE LINER IS INSTALLED ON SERVICE LATERALS THAT DO NOT CONTAIN A CLEAN-OUT ASSEMBLY WITHIN THE RIGHT-OF-WAY OR PRESCRIPTIVE EASEMENT. CONTRACTOR SHALL REPAIR OR INSTALL A CLEAN-OUT ON THE SERVICE LATERAL. CLEAN-OUTS MAY ALSO BE INSTALLED ON VACANT LOTS AT THE DISCRETION OF THE ENGINEER.
4. A DECISION ON THE REHABILITATION OF SERVICE LATERALS WILL BE MADE UPON THE TELEVISION INSPECTION OF EACH LATERAL. CONTRACTOR SHALL COORDINATE THE INSPECTION OF EACH LATERAL WITH A REPRESENTATIVE OF THE ENGINEER.
5. THE CONTRACTOR SHALL LIMIT ALL ACTIVITIES WITHIN THE ROADWAYS AND DRIVEWAYS. WHEN IT IS NECESSARY TO ACCESS PRIVATE PROPERTY, ACTIVITY SHALL BE LIMITED TO 10 FEET EACH SIDE OF THE SEWER LINE. IN ADDITION, REASONABLE ACCESS BETWEEN THE ROAD AND EACH MANHOLE IS PERMISSIBLE WITH APPROVAL FROM MSD. BEFORE ENTERING ANY PRIVATE PROPERTY, THE CONTRACTOR SHALL NOTIFY THE RESIDENT OF THE PROPERTY.
6. UNLESS OTHERWISE NOTED, NO TREES, SHRUBS, OR OTHER LANDSCAPING SHALL BE REMOVED OR DISTURBED DURING CONSTRUCTION.
7. LOCATIONS OF EXISTING UTILITIES AND STRUCTURES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. CONTRACTOR SHALL LOCATE ALL UTILITIES TO BE DELETED OR EXTENDED. CONTRACTOR SHALL BE ALLOWED TO ALLOW FOR REDESIGN BY THE ENGINEER IF NECESSARY.
8. ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE METROPOLITAN SEWERAGE DISTRICTS OF WESTCHESTER COUNTY N.C. DETAILS AND SPECIFICATIONS FOR PUBLIC SEWER SYSTEMS.
9. CONTRACTOR TO REPAIR ANY DAMAGE TO EXISTING STRUCTURES, WALKS, ACCESS ROADS AND LANDSCAPING THAT OCCURS DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH EACH PROPERTY OWNER THE RESTORATION OF ALL LANDSCAPED AREAS DISTURBED BY THE CONSTRUCTION. THE CONTRACTOR SHALL BE TAKEN TO RESTORE DISTURBED AREAS IN AS GOOD OR BETTER CONDITION THAN EXISTED PRIOR TO CONSTRUCTION.
10. THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO KEEP ALL UTILITIES IN SERVICE AT ALL TIMES DURING CONSTRUCTION.
11. CONTRACTOR SHALL MAINTAIN SEWAGE FLOW AT ALL TIMES, AND SHALL PROVIDE BY-PASS PUMPING FACILITIES WHEN REQUIRED.
12. OTHER CONTRACTORS MAY BE WORKING IN THE AREA DURING THE SAME TIME PERIOD. CONTRACTORS SHALL COORDINATE AND SCHEDULE WORK SO AS NOT TO INTERFERE WITH EACH OTHERS WORK.

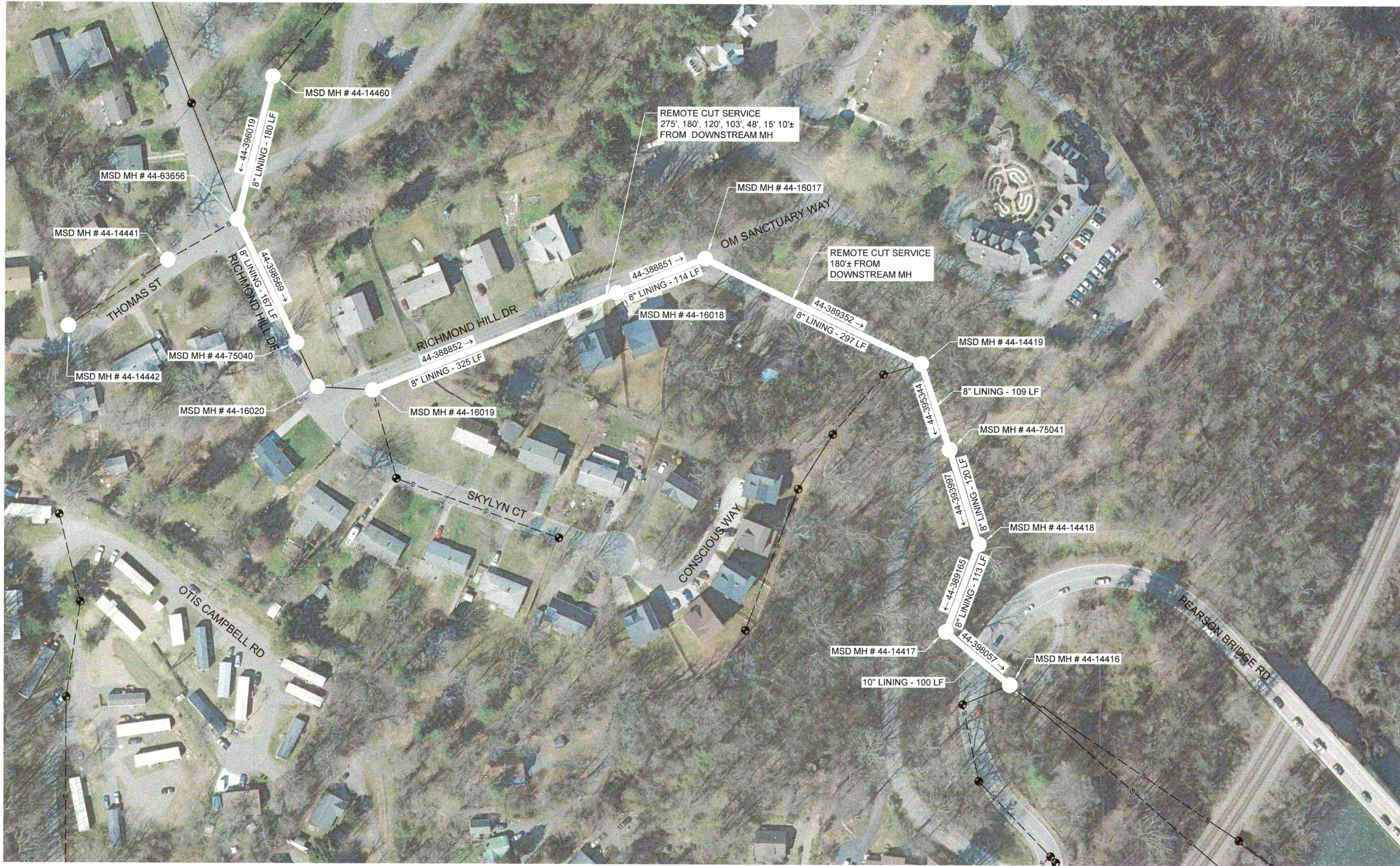
PROPOSED MANHOLE REHABILITATION - DRUID DRIVE		
MANHOLE #	DEPTH (FT.)	METHOD OF REHAB. *
68-17694	8.8'	CEMENTITIOUS LINER, CUT BACK 8" LINE, RECONSTRUCT INVERT, REPLACE FRAME & COVER
68-57008	UNKNOWN	REHABILITATION TO BE DETERMINED
68-57007	UNKNOWN	REHABILITATION TO BE DETERMINED
68-17715	5.2'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, BUILD CHANNEL FOR 4" SERVICE
68-17714	4.5'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, BUILD CHANNEL FOR 8" LINE, REPLACE FRAME & COVER, ASPHALT REPAIR
68-17712	8.5'	CEMENTITIOUS LINER, RECONSTRUCT INVERT, BUILD CHANNELS FOR 2-6" AND 4" LINES, REPLACE FRAME & COVER, ASPHALT REPAIR
68-424365	6.4'	NO REHABILITATION

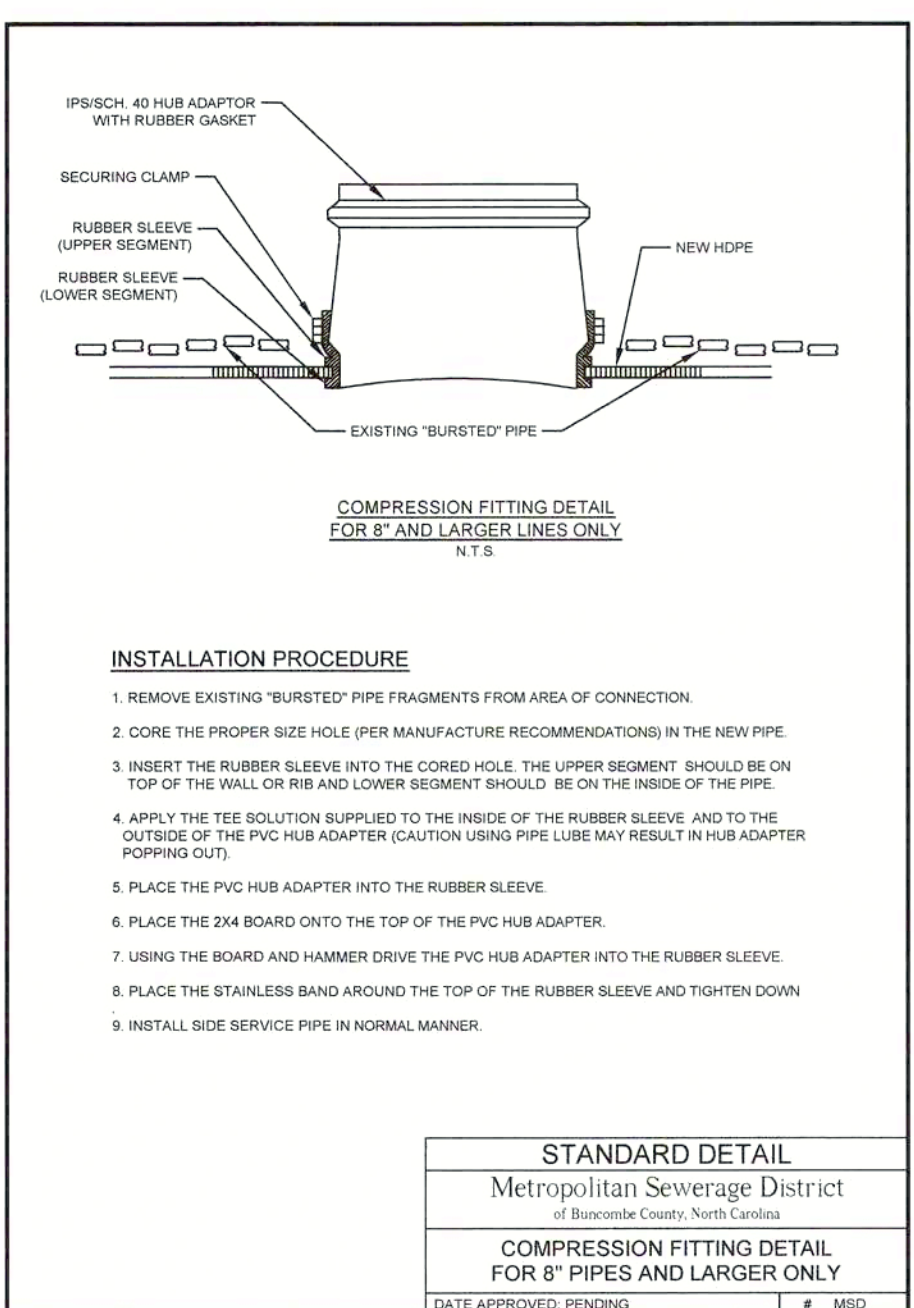
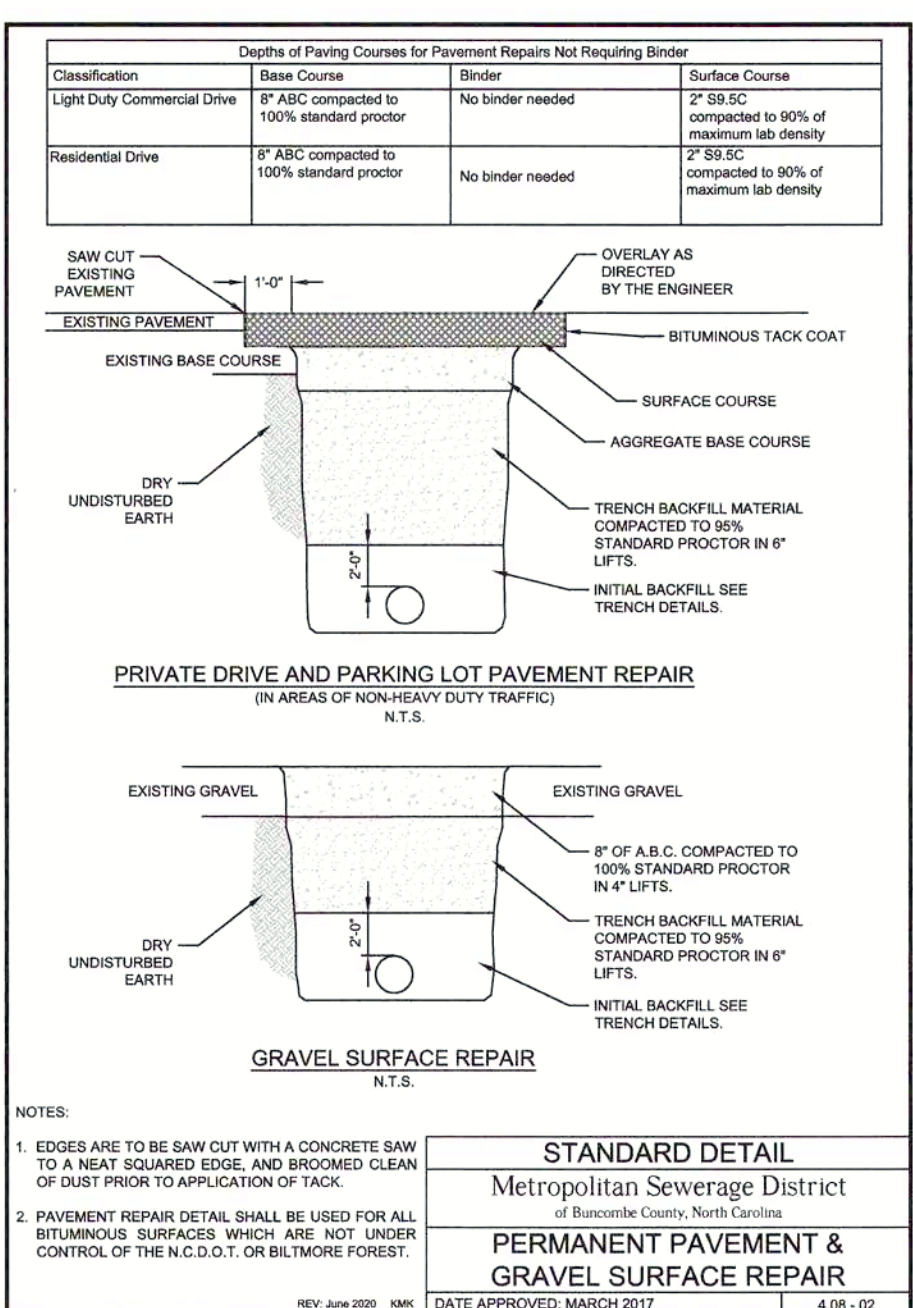
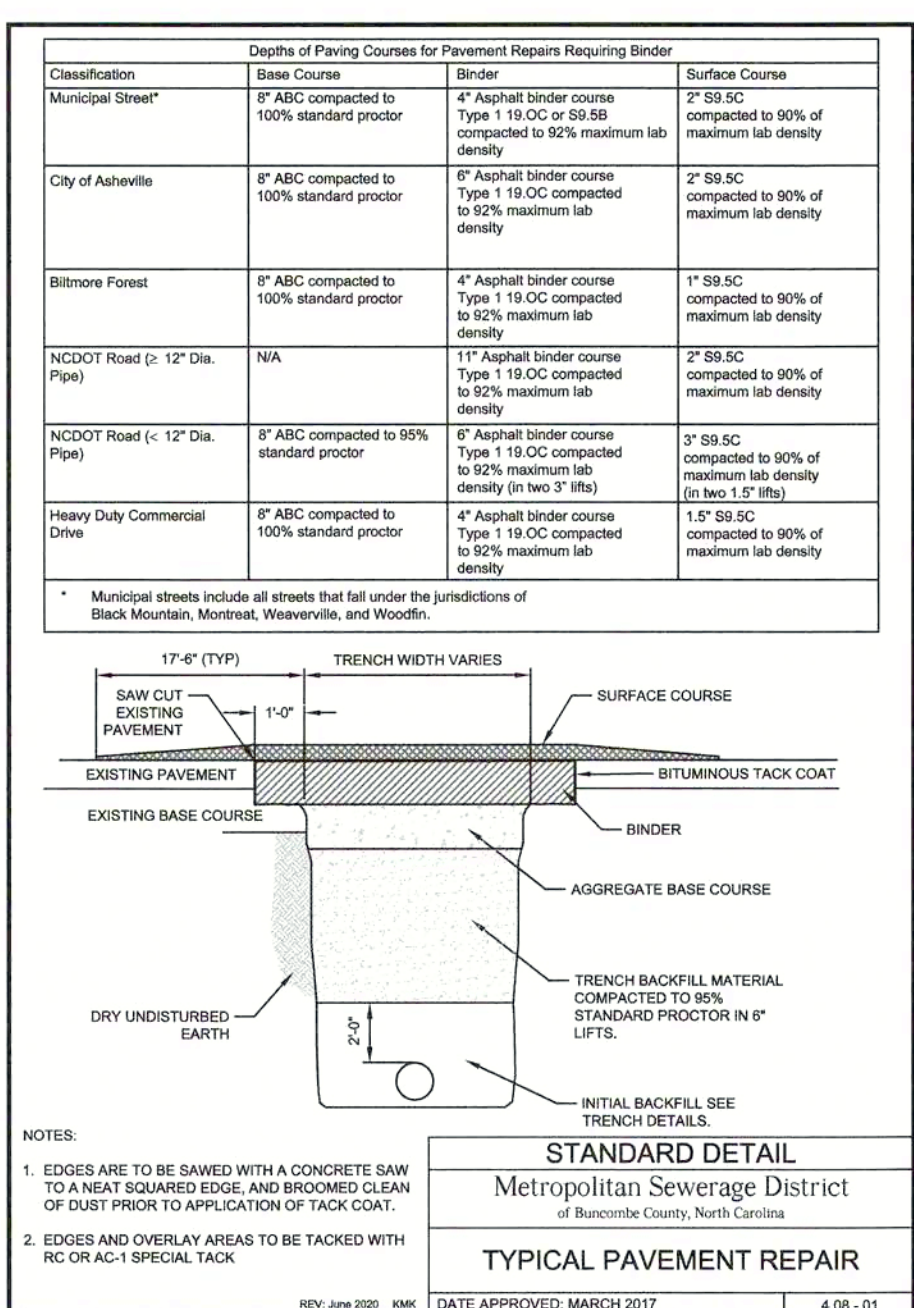
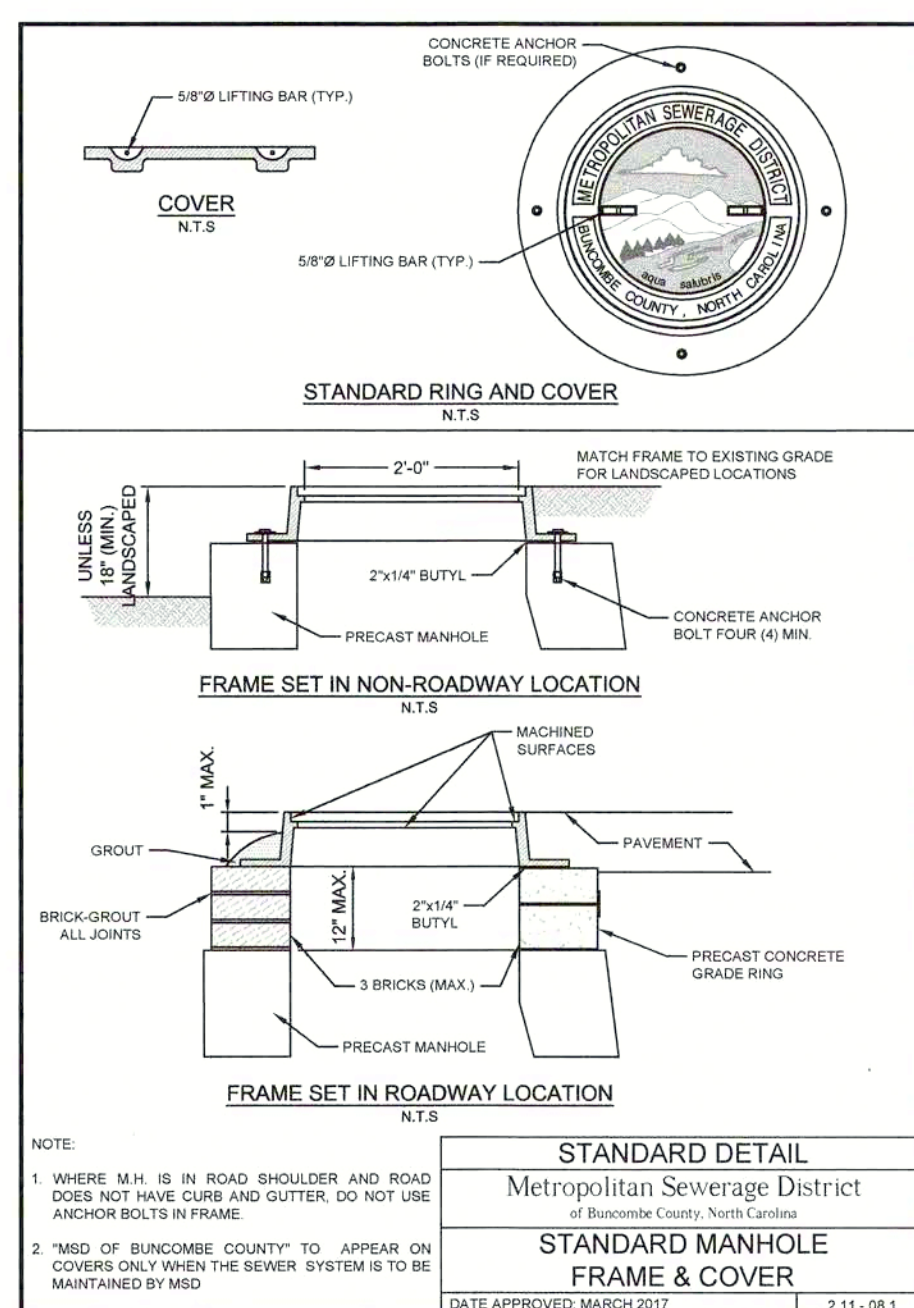
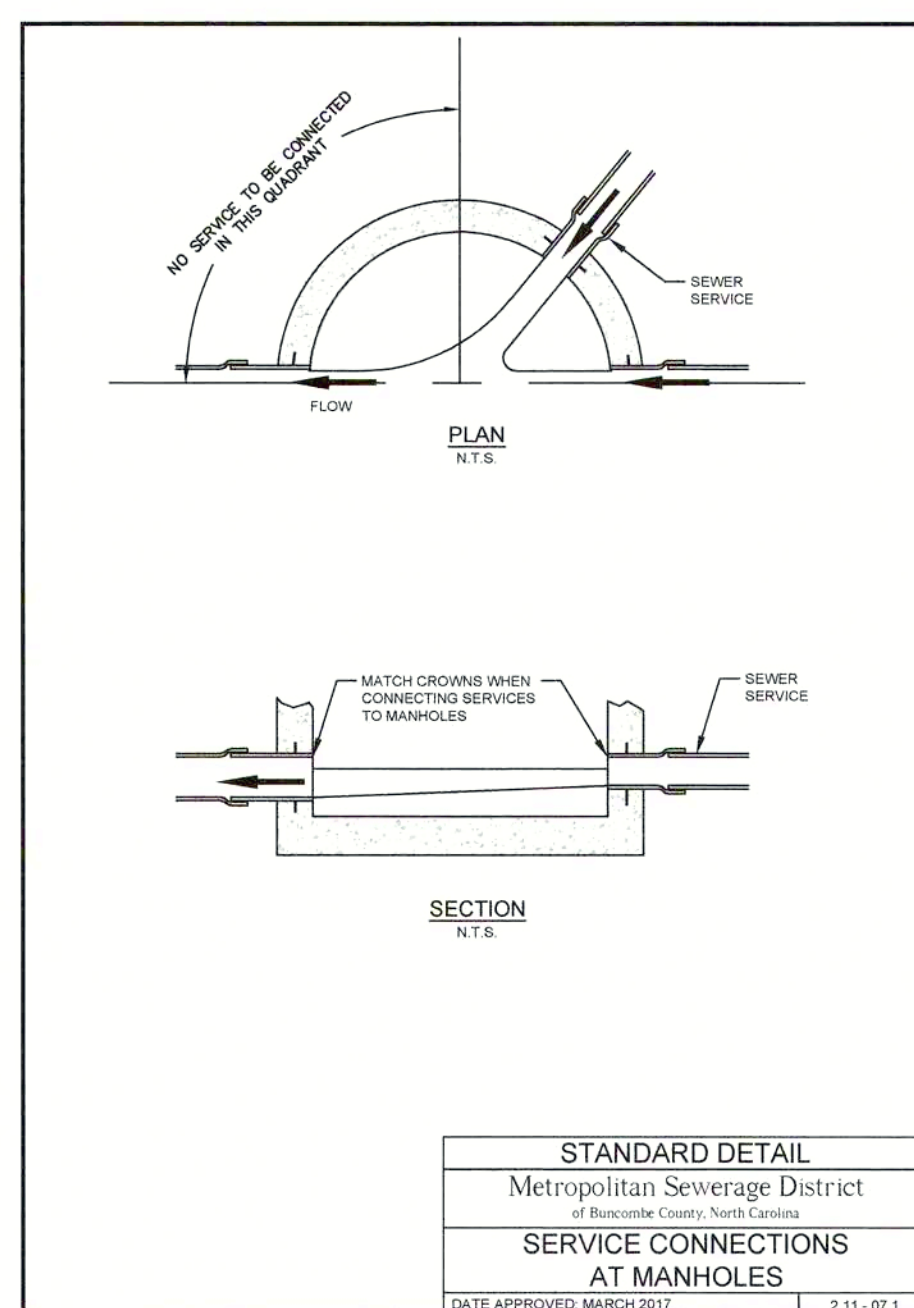
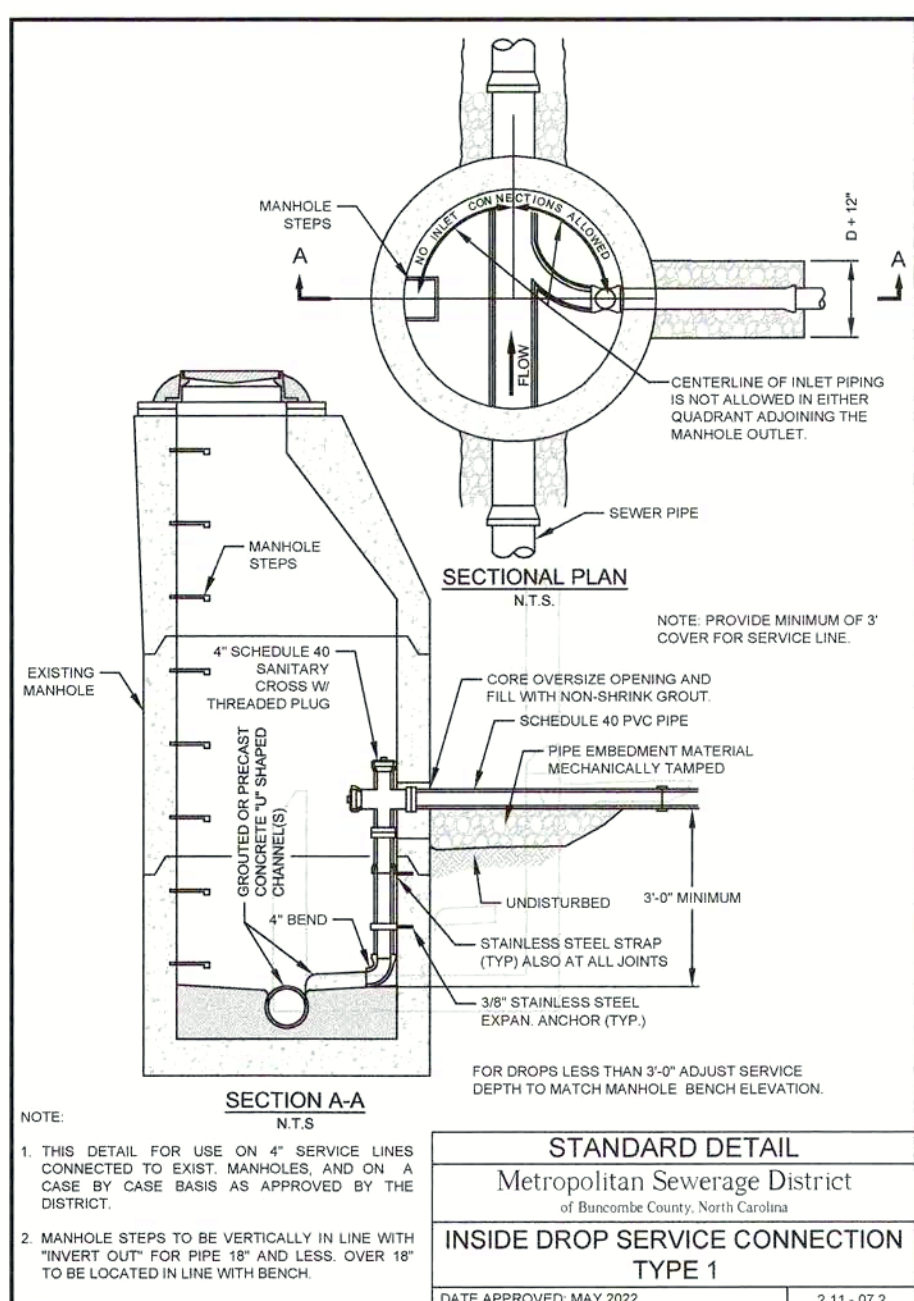
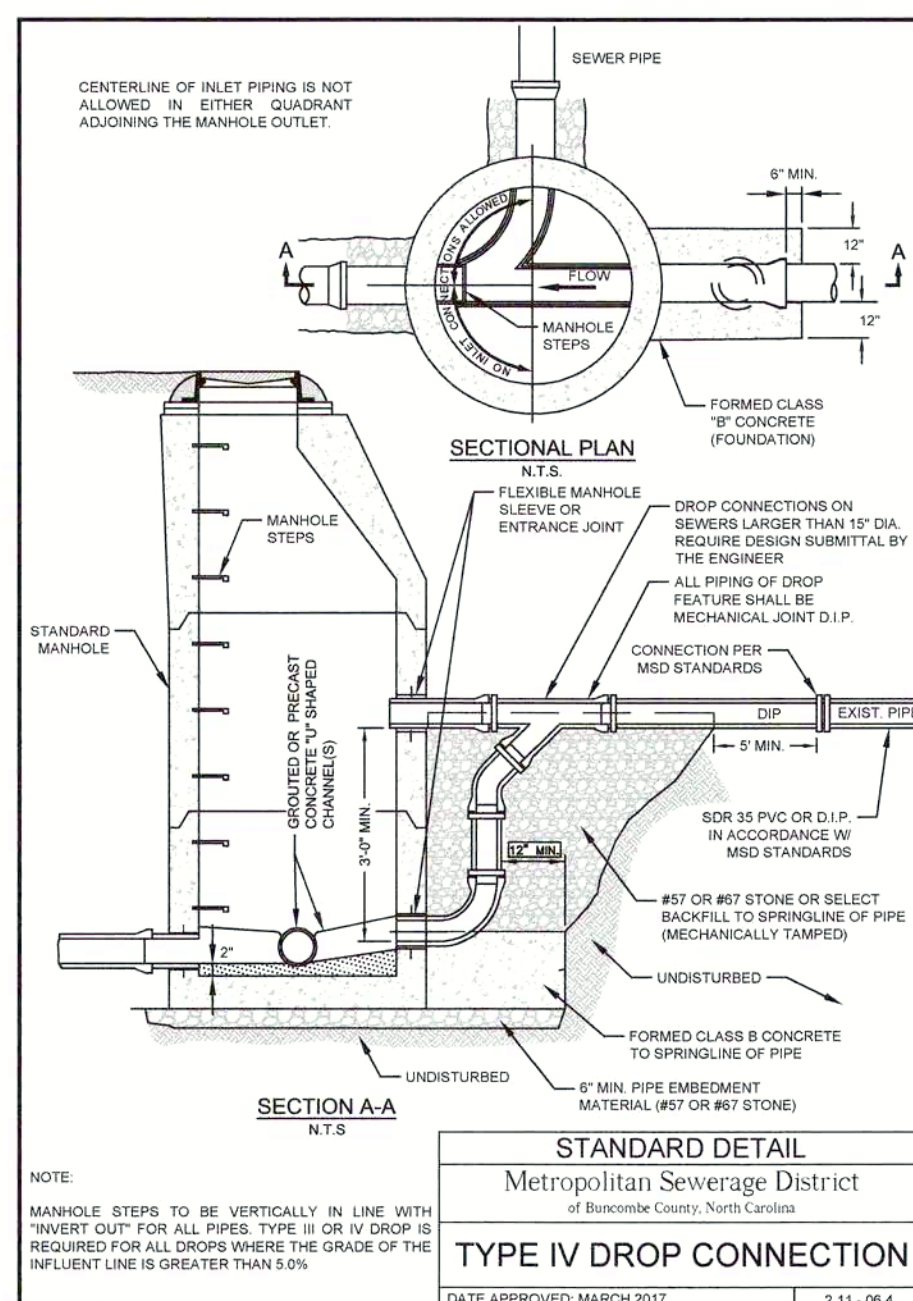
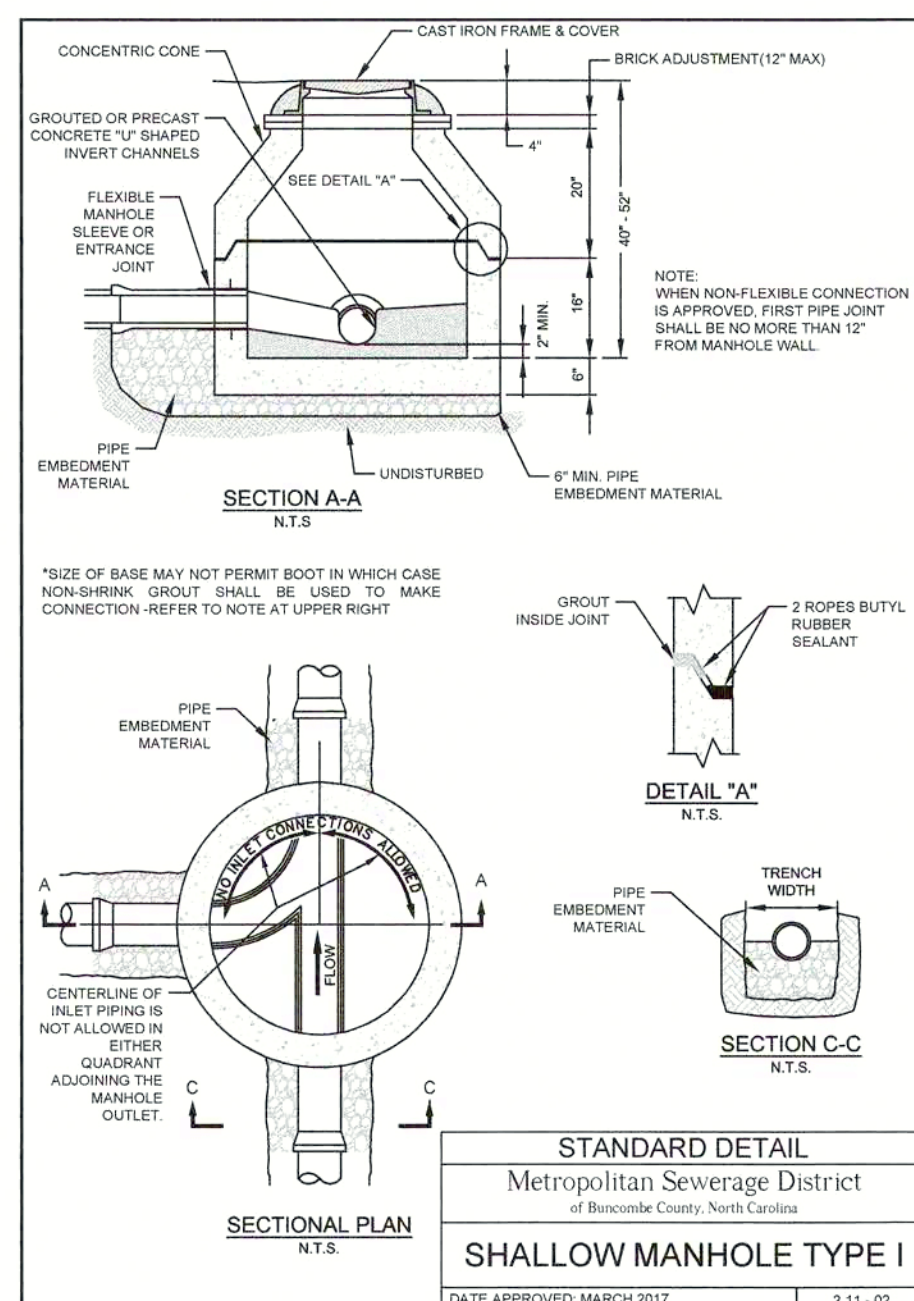
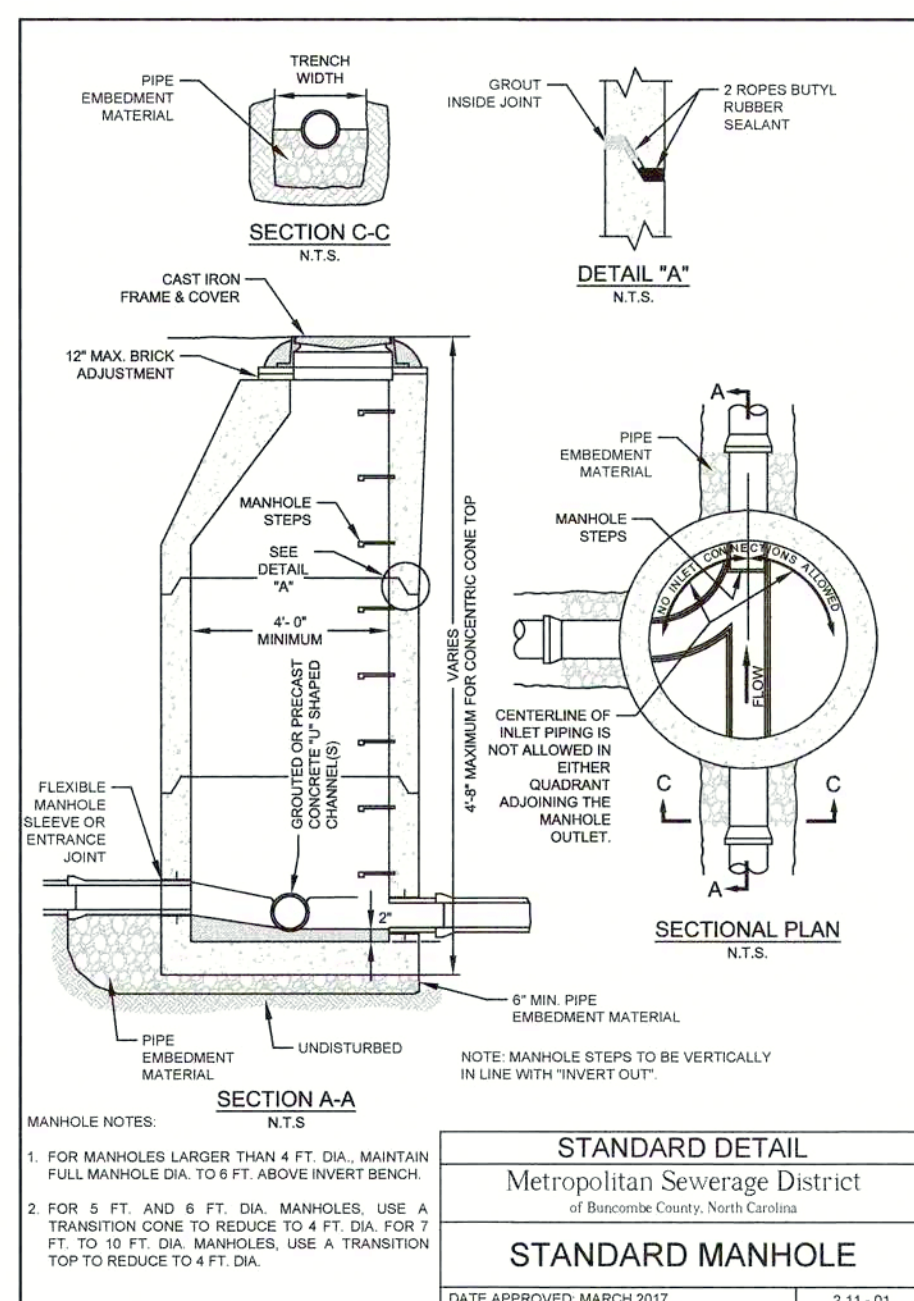
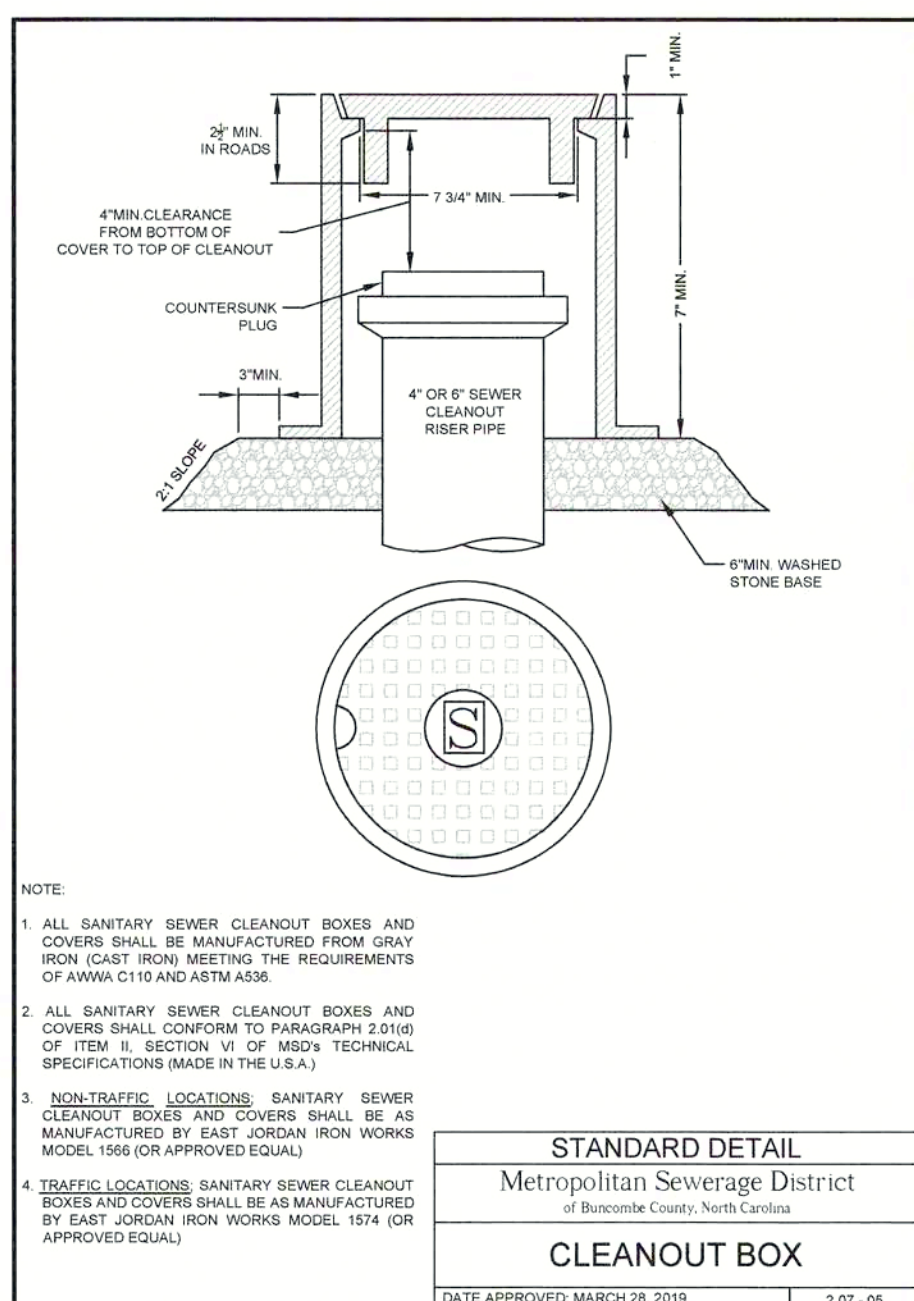
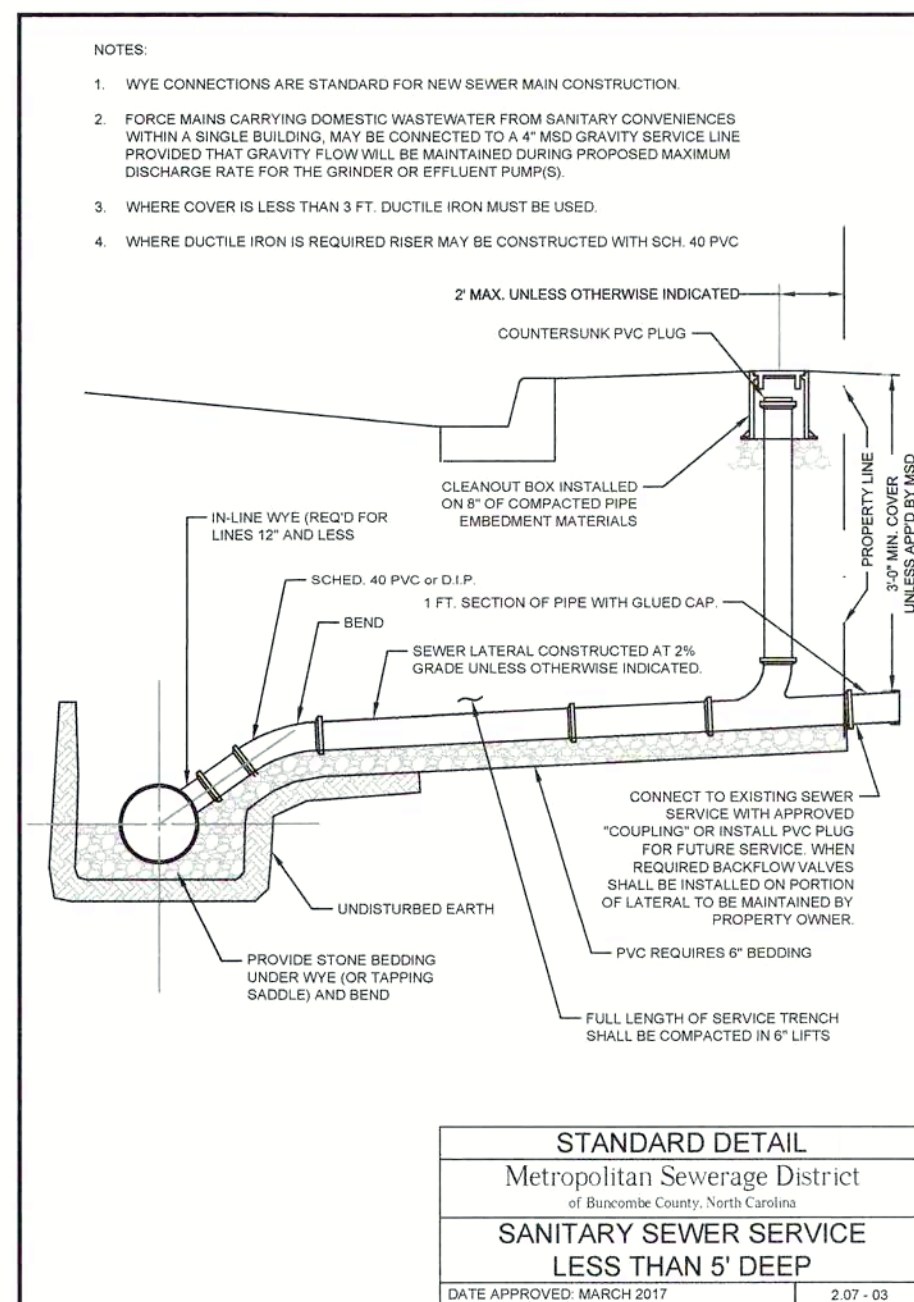
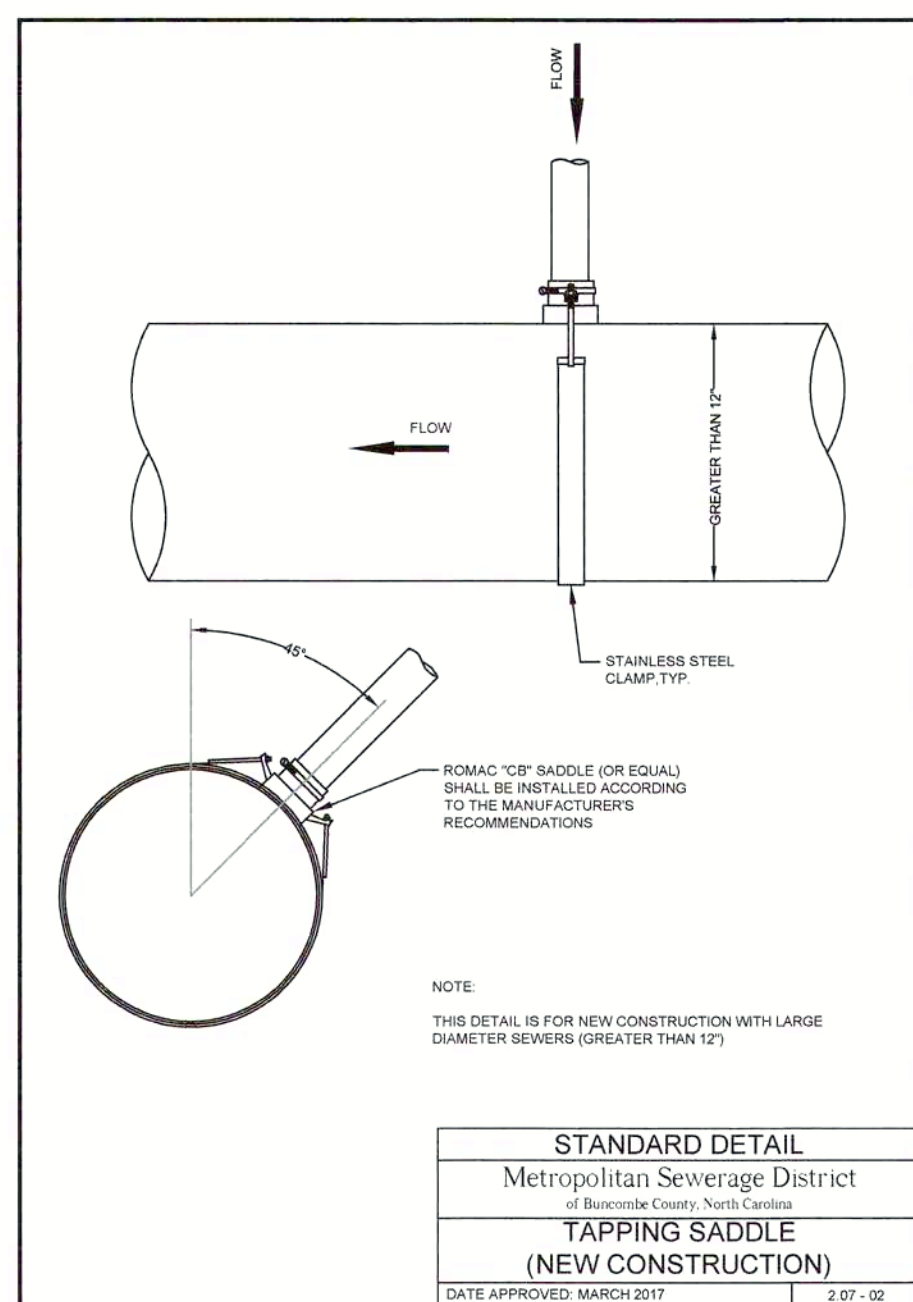
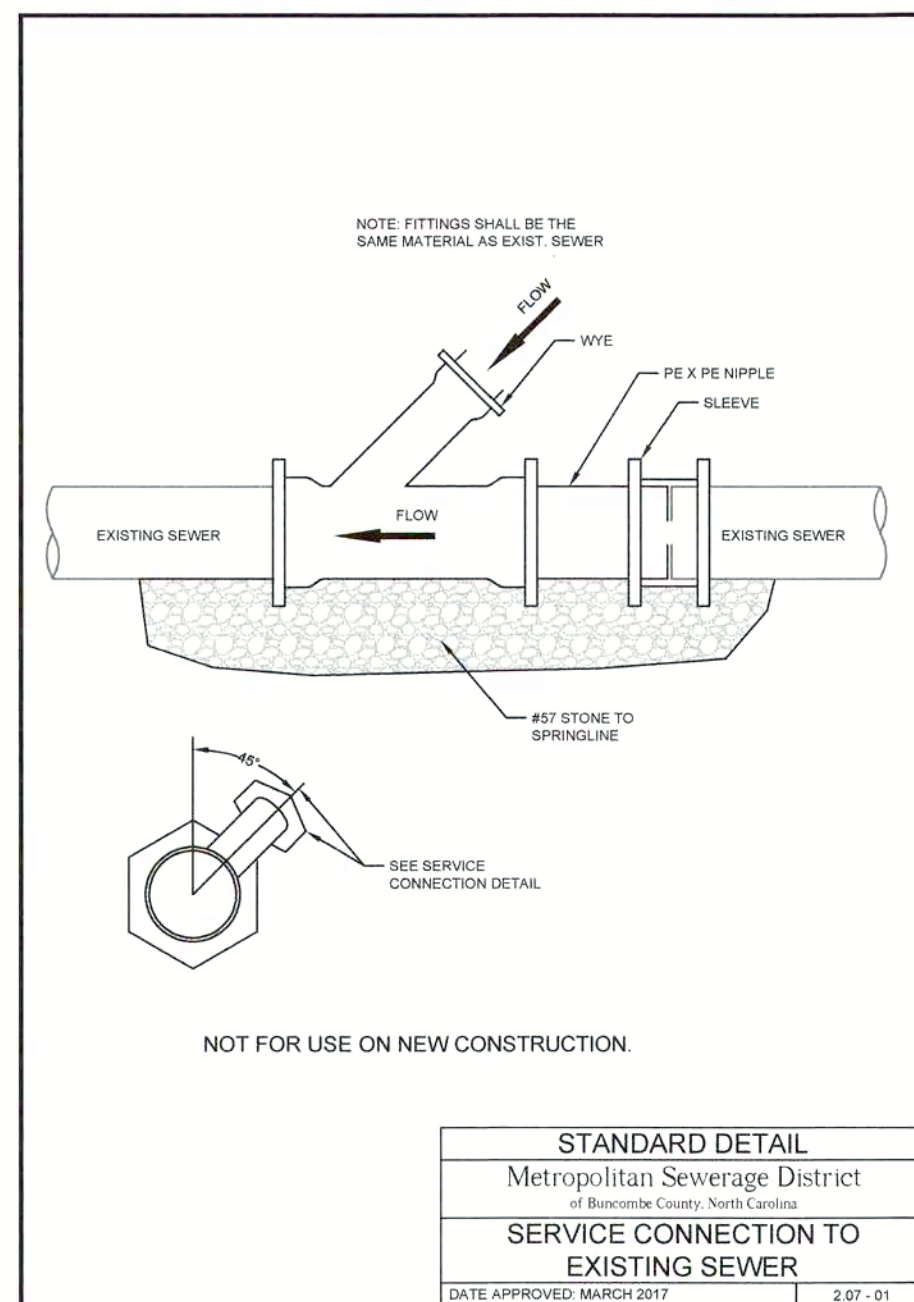
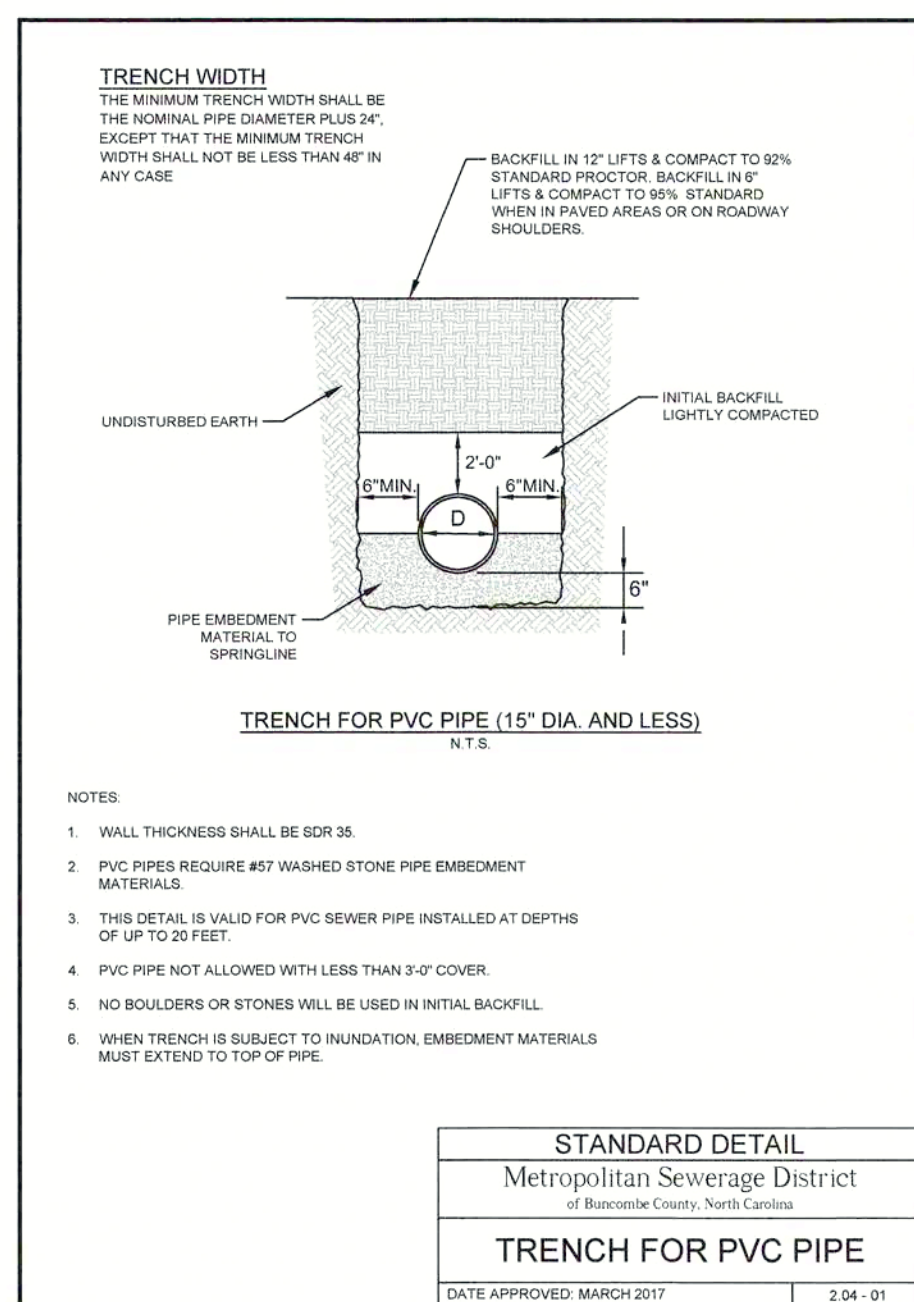
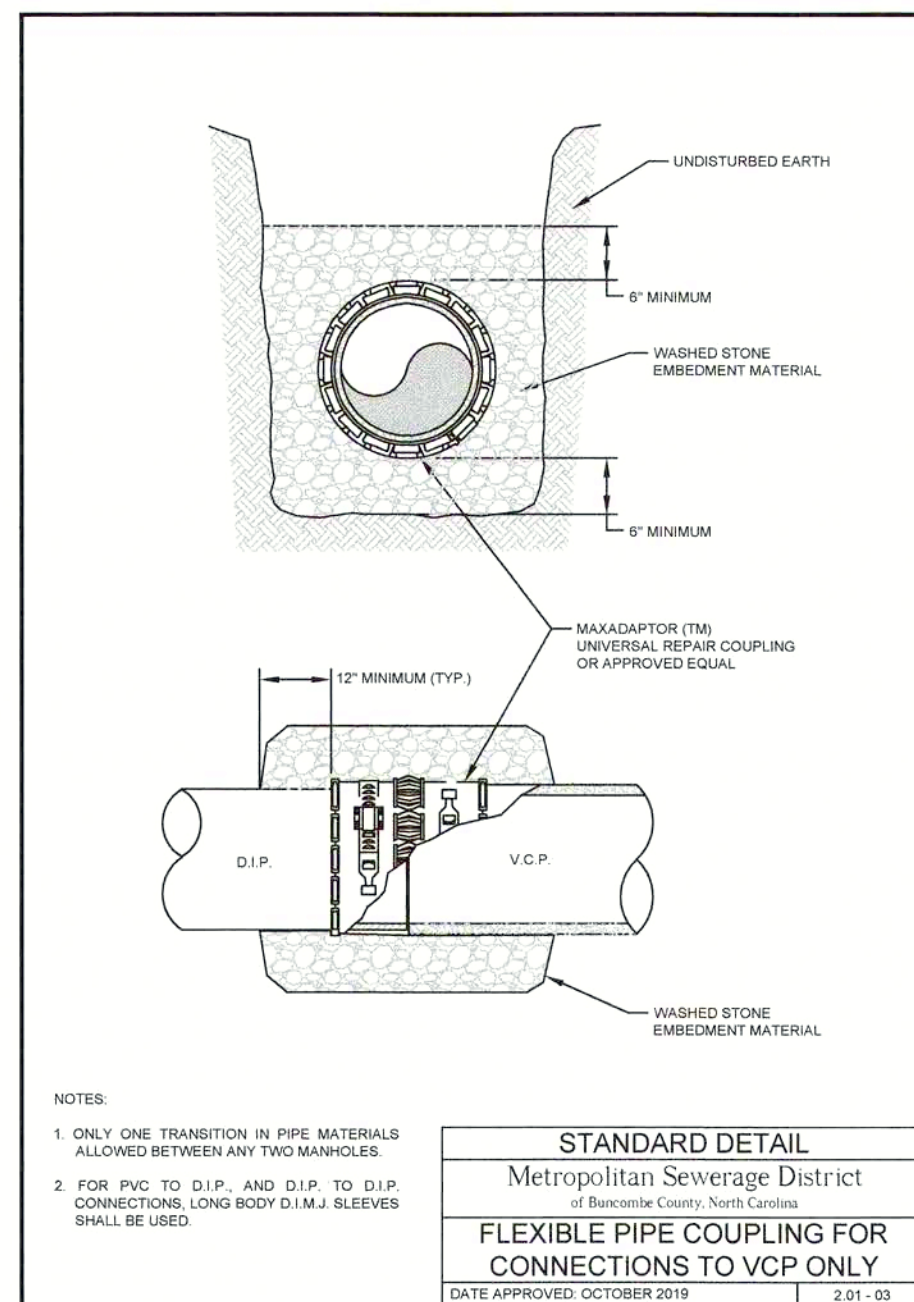
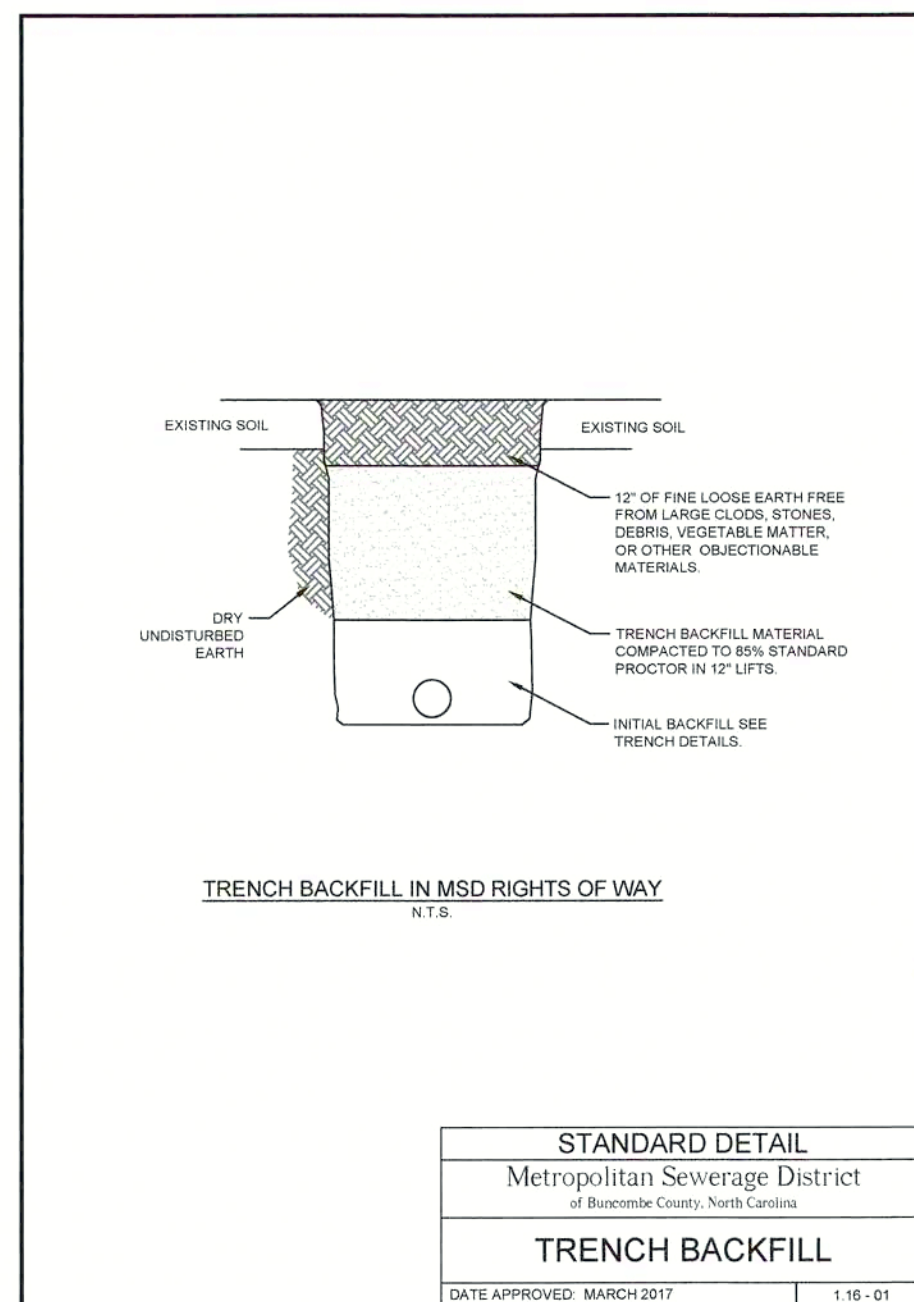
- FOR MANHOLE WHERE CEMENTITIOUS LINER IS TO BE INSTALLED THE FOLLOWING ITEMS SHALL BE CONSIDERED INCIDENTAL WITHOUT SEPARATE PRICES. THE PRICES FOR THE FOLLOWING ITEMS ARE TO BE COMPLETED BY CONTRACTOR PER MSD STANDARDS:
- GROUTING OF ALL SEAMS AND VOIDS IN MANHOLE INTERIOR.
 - REMOVAL OF ALL INTERIOR STEPS.
 - RECONSTRUCTION OF MANHOLE INVERTS WITH U-SHAPED CHANNELS BEING PROVIDED.
 - PROPER REPAIRS TO BENCHES IN MANHOLE INVERTS.
- FOR MANHOLE WHERE CEMENTITIOUS LINER IS NOT TO BE INSTALLED BUT INTERIOR IMPROVEMENTS ARE SPECIFIED, SEE PAY ITEM FOR "INTERIOR MANHOLE IMPROVEMENTS" FOR DETAILED REQUIREMENTS. THE PRICES FOR THIS ITEM WILL COVER THE FOLLOWING ITEMS FOR EACH MANHOLE. THESE ITEMS ARE TO BE COMPLETED BY CONTRACTOR PER MSD STANDARDS.
- GROUTING OF ALL SEAMS AND VOIDS IN MANHOLE INTERIOR.
 - REMOVAL OF ALL INTERIOR STEPS.
 - RECONSTRUCTION OF MANHOLE INVERTS WITH U-SHAPED CHANNELS BEING PROVIDED.
 - PROPER REPAIRS TO BENCHES IN MANHOLE INVERTS.

APPROXIMATE LINING FOOTAGE THIS SHEET = 1,479 LF

P:\COLLECTION_SYSTEMS\SEWER_GENERAL\DWG\REHABILITATION\Lining Contract #9 - 20170311_MSD.dwg 12/27/2022 1:14 PM JAG/EL

- NOTES:
- CONTRACTOR SHALL COMPLETE THE FOLLOWING SCOPE OF WORK: (NOT NECESSARILY IN THIS ORDER)
 - PERFORM POINT REPAIRS AS NOTED ON THE DRAWINGS.
 - INSTALL LINING AS NOTED-INSTALLATION OF NEW OR REPLACEMENT MANHOLES SHALL OCCUR PRIOR TO PIPE LINING.
 - PERFORM MANHOLE REHABILITATION AS NOTED.
 - INSTALL COMPRESSION FITTINGS (OR SADDLES IN 6" LINES ONLY) AS SPECIFIED WHERE POORLY CONSTRUCTED PLUMBER'S SERVICE LATERAL TAPS INTERSECT THE MAIN LINE.
 - INSTALL CLEAN-OUT ASSEMBLIES ON SERVICE LATERALS CONNECTED TO THE MAIN LINES BEING REHABILITATED AS DIRECTED BY THE ENGINEER AND IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. SEE NOTE No.3 FOR ADDITIONAL DETAILS.
 - PERFORM VIDEO INSPECTIONS ON EACH SERVICE LATERAL THAT IS CONNECTED TO A MAIN SEWER LINE THAT IS BEING REHABILITATED, AND THAT IS CONNECTED TO A MANHOLE ON THAT MAIN LINE. AT THE ENGINEER'S DISCRETION, REPLACE THE SERVICE LATERAL. SEE NOTE No.4 FOR ADDITIONAL DETAILS.
 - PERFORM ALL OTHER MISCELLANEOUS WORK SPECIFIED IN THE CONTRACT DOCUMENTS.
 - THIS MAP IS BASED ON CURRENT MSD MAPPING OF ITS SEWER SYSTEM. LOCATIONS OF SOME OF THE MANHOLES ON THIS SHEET ARE APPROXIMATE AND HAVE NOT BEEN SURVEYED. CONTRACTOR SHALL VERIFY ALL LOCATIONS OF EXISTING MANHOLES PRIOR TO CONSTRUCTION.
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 - ALL WORK SHALL CONFORM TO THE LATEST EDITION OF THE METROPOLITAN SEWERAGE DISTRICT OF BUNCOMBE COUNTY N.C. DETAILS AND SPECIFICATIONS FOR PUBLIC SEWER SYSTEMS.
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 - OTHER CONTRACTORS MAY BE WORKING IN THE AREA DURING THE SAME TIME PERIOD. CONTRACTORS SHALL COORDINATE AND SCHEDULE WORK SO AS NOT TO INTERFERE WITH EACH OTHERS WORK.





PERMANENT SEEDING SPECIFICATIONS			
LOCATION	OPEN PASTURES PASTURES	FLW. CLEARED THROUGH WOODS	LAWNS
SEED TYPE	KENTUCKY 31 FESCUE	KENTUCKY 31 FESCUE	PAVING RESCUE 775 LAMC REBEL FESCUE 775 LAMC REBEL FESCUE 775 LAMC BUTLOR MEX. 200 LAMC
LIME APPLICATION	4,000 LBAC. (GROUND AG.)	4,000 LBAC. (GROUND AG.)	4,000 LBAC. (GROUND AG.)
FERTILIZER	1,000 LBAC. 5-10-10 500 LBAC. 0-20-0	1,000 LBAC. 5-10-10 500 LBAC. 0-20-0	1,000 LBAC. 5-10-10 500 LBAC. 0-20-0
MULCH	3,000 - 4,000 LBAC STRAW	3,000 - 4,000 LBAC STRAW	4,000 - 5,000 LBAC STRAW

TEMPORARY SEEDING SPECIFICATIONS			
TIME OF YEAR	WINTER FERTILIZER THROUGH MAY	SPRING MAY THROUGH AUGUST	SUMMER AUGUST THROUGH NOV.
SEED TYPE	RYE (GRASS)	GERMAN MULLET	GERMAN MULLET
LIME APPLICATION	2,000 LBAC. (GROUND AG.)	2,000 LBAC. (GROUND AG.)	2,000 LBAC. (GROUND AG.)
FERTILIZER	750 LBAC. (10-10-10)	750 LBAC. (10-10-10)	750 LBAC. (10-10-10)
MULCH	3,000 - 4,000 LBAC STRAW	3,000 - 4,000 LBAC STRAW	3,000 - 4,000 LBAC STRAW

STANDARD DETAIL	
Metropolitan Sewerage District	
of Roanoke County, North Carolina	
SEEDING SCHEDULES	
DATE APPROVED: MARCH 2017	5.04 - 05

NOTES:

1) ALL RIP-RAP SHALL BE NC DOT SPECIFICATION CLASS 1 AND SHALL CONSIST OF WELL GRADED STONES MEASURING FROM 1" TO 17" NO MORE THAN 5.0% OF THE MATERIAL FURNISHED CAN BE LESS THAN THE MINIMUM SIZE SPECIFIED NOR NO MORE THAN 10.0% OF THE MATERIAL CAN EXCEED THE MAXIMUM SIZE SPECIFIED

2) WASHED STONE SHALL CONFORM TO NC D.O.T. # 47 STONE SPECIFICATION.

3) FILTER FABRIC SHALL BE TRESPA SPUNBOND TYPE 125 AS MANUFACTURED BY HORECHT CELENSE OR APPROVED EQUAL, AND SHALL HAVE A MIN. TENSILE STRENGTH OF 200 POUNDS. PUNCTURE STRENGTH SHALL BE A MINIMUM OF 90 POUNDS.

4) 6 X 7 FENCE SHALL BE WOVEN POLYPROPYLENE FABRIC 30WIDE. GRAB STRENGTH SHALL BE 120 LBS. ELONGATION 20%, TRAP TEAR STRENGTH 85 LBS., BURST STRENGTH 250 PSL., UV RESISTANCE 90% AND SLURRY FLOW RATE 1.5 GPM/FT

5) INLET PROTECTION SHALL BE PROVIDED AT ALL INLETS AFFECTED BY THE CONSTRUCTION GEE DETAIL.

6) CONSTRUCTION ENTRANCES SHALL BE PROVIDED AT ALL POINTS OF ACCESS TO PUBLIC HIGHWAYS.

STANDARD DETAIL	
Metropolitan Sewerage District of Ramsey County, North Carolina	
EROSION CONTROL NOTES	
DATE APPROVED: MARCH 2017	5-01-02

SEQUENCE OF CONSTRUCTION

- 1) OBTAIN LAND DISTURBANCE PERMIT (BY MISC)
- 2) INSTALL CONSTRUCTION ENTRANCES AS NEEDED.
- 3) INSTALL DROP INLET PROTECTION AT ALL EXISTING CATCH BASINS AS SHOWN ON PLANS PRIOR TO CLEARING AND EXCAVATION.
- 4) INSTALL TEMPORARY SEDIMENT TRAPS, SILT FENCES AND CHECK DAMS PRIOR TO CLEARING AND EXCAVATING.
- 5) INITIAL EROSION CONTROL FEATURES AS CLEARING PROGRESSES.
- 6) PROVIDE TEMPORARY SEEDING IF CLEARING IS MORE THAN 14 DAYS AHEAD OF PIPELINE CONSTRUCTION.
- 7) FINE GRADE, SEED AND MULCH IMMEDIATELY BEHIND PIPELINE CONSTRUCTION.
- 8) MAINTAIN EROSION CONTROL FEATURES IN GOOD WORKING ORDER UNTIL SITE IS STABILIZED.
- 9) THE LOCATION OF EROSION CONTROL FEATURES SHOWN ON THE PLANS AND DESCRIBED IN THE SPECIFICATIONS IS SUBJECT TO FIELD MODIFICATION TO PROVIDE THE MOST EFFICIENT EROSION CONTROL PLAN.
- 10) EROSION CONTROL FEATURES MAY BE REMOVED AFTER PERMANENT VEGETATION IS ESTABLISHED AND THE SITE IS STABILIZED.

STANDARD DETAIL	
Metropolitan Sewerage District of Bexar County, North Carolina	
EROSION CONTROL SEQUENCE	
DATE APPROVED: MARCH 2017	5-01 - 01



MSD

Engineering Division

Metropolitan Sewerage District
of Buncombe County

LINING CONTRACT #9

DRAWN: LJ	
CHECKED BY: KMK	DATE: 08/10/2022
APPROVED: DAP	SCALE: NTS

D-1