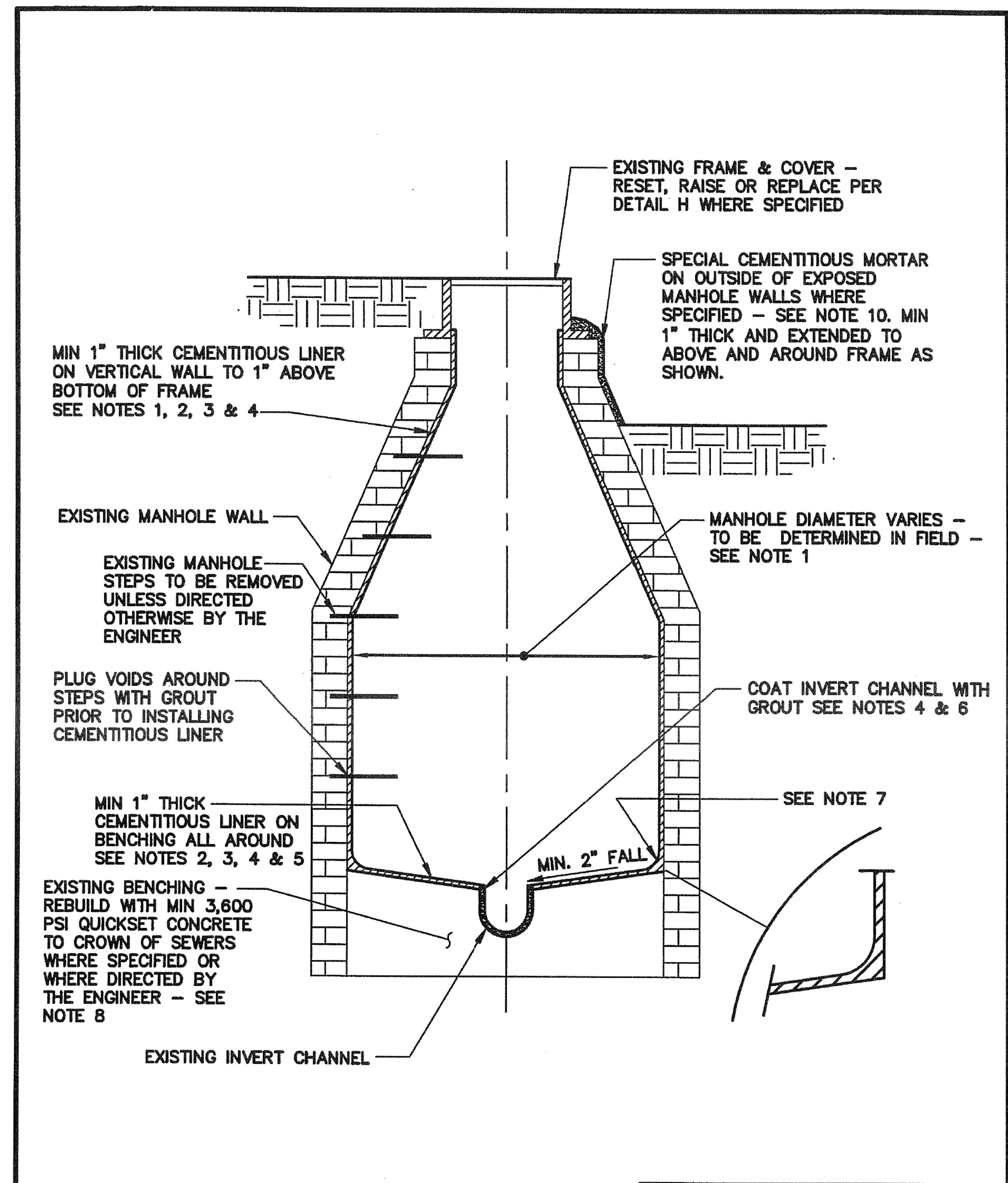


CLTWater STANDARD DETAILS

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- NOTES:**
- MANHOLE SHOWN IS A TYPICAL SHAPE. HOWEVER, MANHOLE SHAPES WILL VARY. CONTRACTOR SHALL DETERMINE ACTUAL SHAPE. UNIT PRICES BID SHALL COVER ANY SHAPE.
 - BID ITEMS ARE INCLUDED FOR COATING EXISTING 4-FOOT, 5-FOOT, AND 6-FOOT DIAMETER MANHOLES WITH ANY SPECIFIED MATERIAL AND WITH HYDROGEN-SULFIDE RESISTANT MATERIAL. THE ENGINEER WILL SPECIFY THE REQUIRED MATERIAL FOR EACH MANHOLE.
 - CEMENTITIOUS LINER SHALL NOT BE INSTALLED UNTIL ALL MAIN SEWER, SERVICE LATERAL WORK WITHIN THE MANHOLE, AND OTHER MANHOLE REHABILITATION WORK IS COMPLETED.
 - CONTRACTOR SHALL PROPERLY PREPARE SURFACE PRIOR TO LINING IN STRICT ACCORDANCE WITH THE LINING MANUFACTURER'S RECOMMENDATIONS AND THE SPECIFICATIONS. ALL MATERIAL REMOVED DURING THE PREPARATORY WORK INCLUDING PRESSURE CLEANING SHALL BE REMOVED FROM THE MANHOLE AND DISPOSED OF OFFSITE - NO MATERIAL SHALL BE ALLOWED TO ENTER THE SEWERS. IN ADDITION, NO CHEMICALS USED FOR CLEANING OR OTHER OPERATIONS SHALL BE ALLOWED TO ENTER THE SEWER. CEMENTITIOUS LINING SHALL BE MONOLITHICALLY SPRAY APPLIED IN ONE PASS AND TROWELED SMOOTH AFTER APPLICATION.
CONTRACTOR SHALL PROVIDE BYPASS PUMPING AS REQUIRED WHILE REHABILITATING MANHOLES. BYPASS PUMPING MUST BE PERFORMED WHEN COATING THE INVERT CHANNELS WITH GROUT. NO MATERIAL SHALL BE ALLOWED TO ENTER THE SEWERS.
 - PROVIDE ADDITIONAL CEMENTITIOUS MATERIAL AS NECESSARY TO PROVIDE A MINIMUM 2" FALL FROM THE MANHOLE WALL TO THE INVERT CHANNEL. ANY AND ALL ADDITIONAL CEMENTITIOUS MATERIAL REQUIRED TO PROVIDE THE 2" FALL SHALL BE INCIDENTAL TO THE WORK AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE CEMENTITIOUS COATING. THE CONTRACTOR IS ADVISED THAT MOST OF THE EXISTING BENCHES ARE FLAT. PROVIDE CHANNEL IN BENCHING FOR SEWERS ENTERING MANHOLES ABOVE BENCHING. CHANNEL TO PROVIDE SMOOTH TRANSITION TO MAIN INVERT CHANNEL.
 - COAT INVERT CHANNELS WITH A QUICKSET NON-SHRINK GROUT TO PROVIDE A CONSTANT SLOPE BETWEEN INLET AND OUTLET SEWERS WHEN SPECIFIED/REQUIRED BY THE ENGINEER. PROVIDE ADDITIONAL MATERIAL AS NECESSARY TO PROVIDE A UNIFORM INVERT CHANNEL THROUGH THE MANHOLE. THE WIDTH OF THE UNIFORM CHANNEL SHALL BE EQUAL TO THE INCOMING AND OUTGOING PIPE DIAMETERS. THE FINISHED CHANNEL SHALL BE SMOOTH AND FREE OF BURRS THAT WILL CATCH TOILET PAPER, DEBRIS, RAGS, ETC. SEE NOTE 8.
 - AT WALL/BENCH INTERFACE, INSTALL ADDITIONAL CEMENTITIOUS MATERIAL TO PROVIDE A SMOOTH TRANSITION FROM THE WALL TO THE BENCH AS SHOWN. MATERIAL SHALL BE MONOLITHICALLY APPLIED WITH THE WALL AND BENCH MATERIAL.
 - THE ENGINEER WILL SPECIFY MANHOLE BENCHES AND INVERT CHANNELS THAT ARE REQUIRED TO BE RE-BUILT. THE ENGINEER WILL DETERMINE SUCH WORK BASED ON MANHOLE INSPECTIONS. RE-BUILDING MAY BE REQUIRED IF THERE IS NO BENCHING, AND NO DEFINED INVERT CHANNEL OR IF THE EXISTING INVERT CHANNEL IS MORE THAN 6 INCHES WIDER THAN THE INCOMING AND OUTGOING PIPE DIAMETERS. EXISTING INVERT CHANNELS THAT ARE LESS THAN 6 INCHES WIDER THAN THE INCOMING/OUTGOING PIPE DIAMETERS SHALL BE NARROWED TO PROVIDE A UNIFORM CHANNEL PER NOTE 6 AS PART OF THE MANHOLE REHABILITATION WORK AND AT NO ADDITIONAL COST. BENCHES AND INVERTS SHALL BE IN ACCORDANCE WITH CMUD STANDARD SPECIFICATIONS AND DETAILS. SEE NOTE 6.
 - ALL REHABILITATED MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE WITH ASTM C-1244 EXCEPT THAT THE MINIMUM TEST TIME SHALL BE 1 MINUTE. VACUUM TESTING SHALL BE PERFORMED AFTER ALL MANHOLE REHABILITATION WORK IS COMPLETE. TESTING SHALL INCLUDE VACUUM TESTING THE FRAME-CHIMNEY INTERFACE. CONTRACTOR TO PERFORM ALL MANHOLE REHABILITATION WORK NECESSARY IN ORDER TO PASS THE VACUUM TEST. THE CONTRACTOR SHALL REPAIR ALL LEAKS AND SHALL RE-TEST MANHOLES THAT FAIL THE VACUUM TEST REGARDLESS OF THE REASON FOR THE FAILURE (INCLUDING LEAKS AT THE FRAME-CHIMNEY SEAL) AT NO ADDITIONAL COST TO THE OWNER.
 - THE ENGINEER WILL SPECIFY MANHOLES TO RECEIVE AN EXTERIOR COATING OF MORTAR. THE MORTAR SHALL BE SPECIALLY DESIGNED FOR INSTALLATION ON VERTICAL, EXPOSED SURFACES AS RECOMMENDED BY THE MORTAR MANUFACTURER. THE MORTAR SHALL BE USED TO REPAIR BROKEN OR CRACKED MORTAR AND TO PATCH HOLES IN EXPOSED WALLS. ALL OLD, CRACKED MORTAR SHALL BE COMPLETELY REMOVED AND THE SUBSTRATE SURFACE SHALL BE CLEAN AND DRY PRIOR TO INSTALLING NEW, 1-INCH THICK MORTAR. MORTAR TO BE HB2 REPAIR MORTAR BY THOROC, SIKATOP 123 BY SIKA CORPORATION OR APPROVED EQUAL.

CHARLOTTE-MECKLENBURG UTILITIES CHARLOTTE, NORTH CAROLINA			
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CHARLOTTE-MECKLENBURG UTILITIES CHARLOTTE, NORTH CAROLINA			
REHABILITATION OF EXISTING MANHOLES (PAGE 2 OF 2)			
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