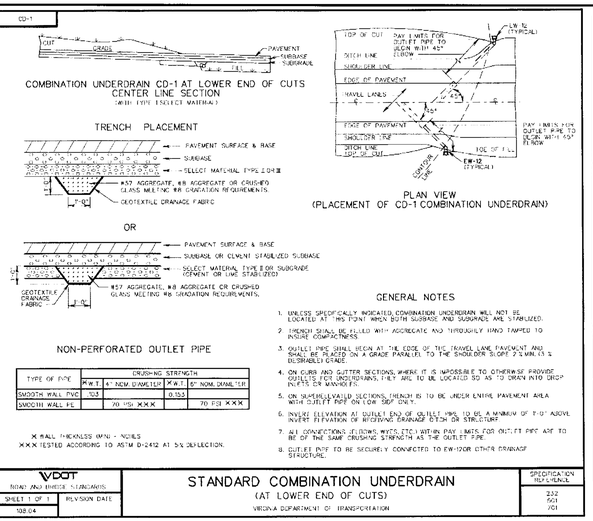
CD-1



NON-PERFORATED OUTLET PIPE

TYPE OF PIPE	CRUSHING STRENGTH			
	W.T.	4" NOM. DIAMETER	W.T.	6" NOM. DIAMETER
SMOOTH WALL PVC	SDR		0.153	
SMOOTH WALL PE		70 PSI ×××		70 PSI ×××

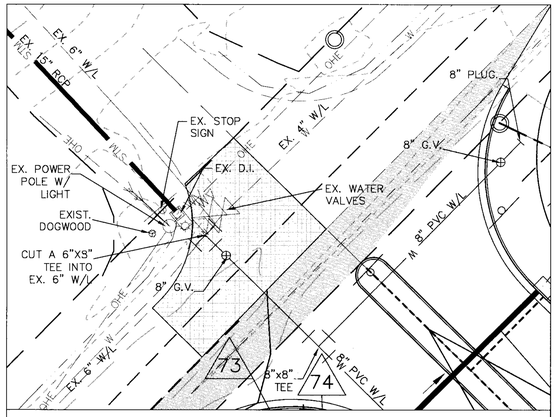
W WALL THICKNESS (MIN) - INCHES
××× TESTED ACCORDING TO ASTM D-2412 AT 5% DEFLECTION.

GENERAL NOTES

1. UNLESS SPECIFICALLY INDICATED, COMBINATION UNDERDRAIN WILL NOT BE LOCATED AT THIS POINT WHEN BOTH SUBBASE AND SUBGRADE ARE STABILIZED.
2. TRENCH SHALL BE FILLED WITH AGGREGATE AND THROUGHLY HAND TAMPED TO INSURE COMPACTNESS.
3. OUTLET PIPE SHALL BEGIN AT THE EDGE OF THE TRAVEL LANE PAVEMENT AND SHALL BE PLACED ON A GRADE PARALLEL TO THE SHOULDER SLOPE 2 % MIN. IN DESIRABLE GRADE.
4. ON CURB AND GUTTER SECTIONS, WHERE IT IS IMPOSSIBLE TO OTHERWISE PROVIDE OUTLETS FOR UNDERDRAINS, THEY ARE TO BE LOCATED SO AS TO DRAIN INTO DROP INLETS OR MANHOLES.
5. ON SUPERELEVATED SECTIONS, TRENCH IS TO BE UNDER ENTIRE PAVEMENT AREA WITH OUTLET PIPE ON LOW SIDE ONLY.
6. INVERT ELEVATION AT OUTLET END OF OUTLET PIPE TO BE A MINIMUM OF 1'-0" ABOVE INVERT ELEVATION OF RECEIVING DRAINAGE DITCH OR STRUCTURE.
7. ALL CONNECTIONS (ELBOWS, WYES, ETC.) WITHIN PAY LIMITS FOR OUTLET PIPE ARE TO BE OF THE SAME CRUSHING STRENGTH AS THE OUTLET PIPE.
8. OUTLET PIPE TO BE SECURELY CONNECTED TO EW-12OR OTHER DRAINAGE STRUCTURE.

VDOT ROAD AND BRIDGE STANDARDS

SHEET 1 OF 1	REVISION DATE	STANDARD COMBINATION UNDERDRAIN (AT LOWER END OF CUTS) VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE 232 501 701
108.04			

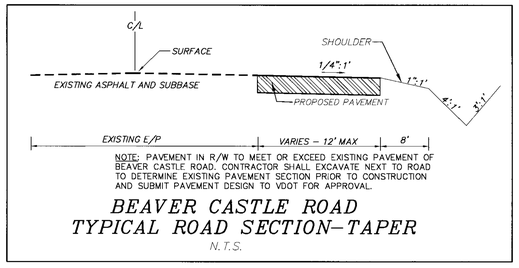


WATERLINE CONNECTION DETAIL 1
SCALE: 1"=20'

UTILITY NOTE: ALL SANITARY MANHOLES ARE TO BE SEALED AT THE JOINTS WITH AN EXTERNAL RUBBER SLEEVE SIMILAR TO THE INFI-SHIELD SEAL WRAP MANUFACTURED BY SEALING SYSTEMS, INC. THE SEAL SHALL BE MADE OF EPDM (ETHYLENE PROPYLENE DIENE MONOMER) RUBBER WITH A MINIMUM THICKNESS OF 65 MILS. EACH UNIT SHALL HAVE A 2-INCH WIDE MASTIC STRIP ON THE TOP AND BOTTOM EDGE OF THE RUBBER WRAP. THE MASTIC SHALL BE NON-HARDENING BUTYL RUBBER SEALANT, WITH A MINIMUM THICKNESS OF 125 MILS. THE SEAL SHALL BE DESIGNED TO PREVENT LEAKAGE OF WATER THROUGH THE JOINT SECTIONS OF A MANHOLE. THIS IS IN ADDITION TO THE NORMAL O-RING INSTALLATION.

NOTES:

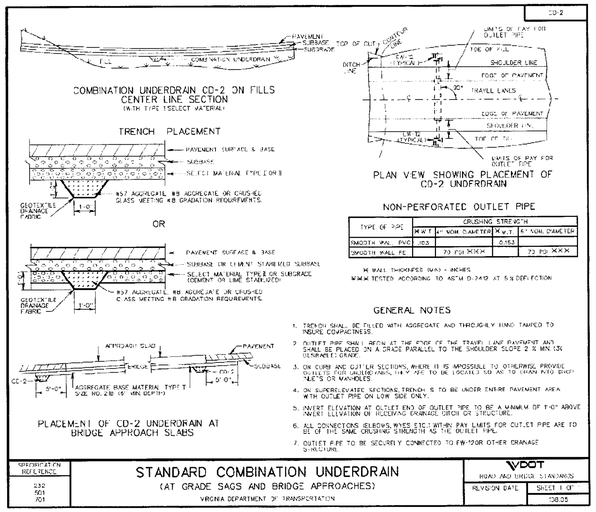
1. FILL SHALL BE INSTALLED IN LIFTS TO ACHIEVE 95% COMPACTION TO A POINT OF 80' IN BOTH DIRECTIONS OF THE ROAD CENTERLINE.
2. R.P.A. IS PRESENT ON THE FOLLOWING LOTS: 37, 38, 39, 73, 74, 75, 76 & 77. THE BALANCE IS R.M.A.
3. ALL LOTS ALONG ROLL FACE CURB, WILL NEED TO HAVE ROLL TOP CURB ENTRANCES INSTALLED AT TIME OF CURB AND GUTTER INSTALLATION. OWNER SHALL DETERMINE LOCATION OF DRIVEWAY ENTRANCES. CONTACT THE DESIGN ENGINEER FOR ENTRANCE DESIGEN CLARIFICATIONS, CONSTRUCTION ANOMALIES AND INSTALLATION QUESTIONS.
4. HOUSE FOOTINGS MUST EXTEND INTO THE ORIGINAL EXISTING GROUND.
5. STREET LIGHTS SHALL MEET REQUIREMENTS OF FIGURES 14 AND 15 FOUND ON PAGE B-45 OF *APPENDIX B – SUBDIVISION STREET DESIGN GUIDE* OF THE ROAD DESIGN MANUAL.



NOTE: PAVEMENT IN R/W TO MEET OR EXCEED EXISTING PAVEMENT OF BEAVER CASTLE ROAD. CONTRACTOR SHALL EXCAVATE NEXT TO ROAD TO DETERMINE EXISTING PAVEMENT SECTION PRIOR TO CONSTRUCTION AND SUBMIT PAVEMENT DESIGN TO VDOT FOR APPROVAL.

BEAVER CASTLE ROAD
TYPICAL ROAD SECTION–TAPER
N.T.S.

CD-2



NON-PERFORATED OUTLET PIPE

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SMOOTH WALL PE		70 PSI ×××		70 PSI ×××

W WALL THICKNESS (MIN) - INCHES
××× TESTED ACCORDING TO ASTM D-2412 AT 5% DEFLECTION

GENERAL NOTES

1. TRENCH SHALL BE FILLED WITH AGGREGATE AND THROUGHLY HAND TAMPED TO INSURE COMPACTNESS.
2. OUTLET PIPE SHALL BEGIN AT THE EDGE OF THE TRAVEL LANE PAVEMENT AND SHALL BE PLACED ON A GRADE PARALLEL TO THE SHOULDER SLOPE 2 % MIN. IN DESIRABLE GRADE.
3. ON CURB AND GUTTER SECTIONS, WHERE IT IS IMPOSSIBLE TO OTHERWISE PROVIDE OUTLETS FOR UNDERDRAINS, THEY ARE TO BE LOCATED SO AS TO DRAIN INTO DROP INLETS OR MANHOLES.
4. ON SUPERELEVATED SECTIONS, TRENCH IS TO BE UNDER ENTIRE PAVEMENT AREA WITH OUTLET PIPE ON LOW SIDE ONLY.
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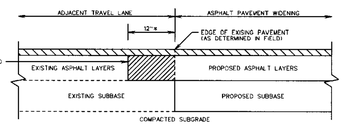
6. ALL CONNECTIONS (ELBOWS, WYES, ETC.) WITHIN PAY LIMITS FOR OUTLET PIPE ARE TO BE OF THE SAME CRUSHING STRENGTH AS THE OUTLET PIPE.
7. OUTLET PIPE TO BE SECURELY CONNECTED TO EW-12OR OTHER DRAINAGE STRUCTURE.

VDOT ROAD AND BRIDGE STANDARDS

SPECIFICATION REFERENCE	STANDARD COMBINATION UNDERDRAIN (AT GRADE SAGS AND BRIDGE APPROACHES) VIRGINIA DEPARTMENT OF TRANSPORTATION	REVISION DATE	SHEET 1 OF 1
232 501 701			108.05

WP-2



CONSTRUCTION JOINT DETAIL

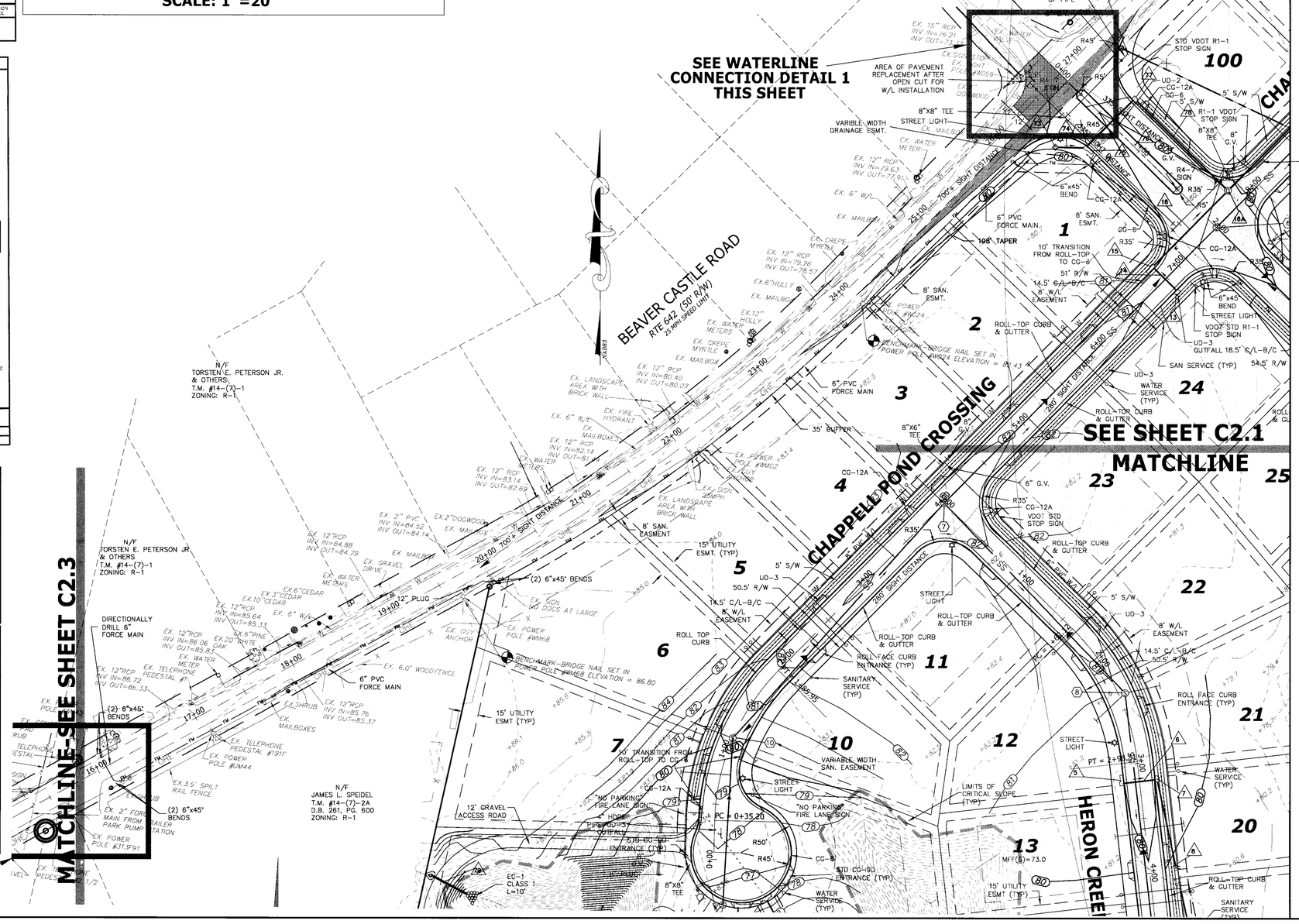
REMOVE EXISTING ASPHALT LAYERS TO EXISTING SUBBASE AND REPLACE WITH PROPOSED ASPHALT WIDENING LAYERS
PROPOSED MINIMUM 1½ INCH THICK ASPHALT SURFACE COURSE (SEE NOTE 5)
* MINIMUM 12 INCHES OR GREATER AS NECESSARY TO ABUT THE FULL THICKNESS OF EXISTING ASPHALT LAYERS AS DETERMINED BY CORES (SEE NOTE 3)

NOTES:

1. ASPHALT PAVEMENT WIDENING SHALL HAVE A PAVEMENT DESIGN IN ACCORDANCE WITH CURRENT VDOT PROCEDURES AND BE APPROVED BY THE ENGINEER.
2. THE PAVEMENT DESIGN FOR ASPHALT PAVEMENT WIDENING SHALL MEET OR EXCEED THE DEPTHS AND TYPES OF THE LAYERS OF EXISTING PAVEMENT, SUBSURFACE DRAINAGE OF THE EXISTING AND PROPOSED PAVEMENT SHALL BE ADDRESSED IN THE PAVEMENT DESIGN.
3. A MINIMUM OF THREE CORES SHALL BE TAKEN ALONG THE CENTER OF THE ADJACENT TRAVEL LANE TO DETERMINE THE TYPE AND THICKNESS OF EXISTING PAVEMENT LAYERS. THESE CORES SHALL BE SPACED NO MORE THAN 500 FEET APART.
4. THE ADJACENT TRAVEL LANE SHALL BE MILLED A MINIMUM DEPTH OF 1½ INCHES AND REPLACED WITH AN ASPHALT SURFACE COURSE TO MATCH THE PROPOSED PAVEMENT WIDENING SURFACE COURSE, UNLESS WAIVED BY THE ENGINEER.
5. THE ENGINEER MAY REQUIRE THE MILLING DEPTH OF THE EXISTING PAVEMENT TO BE ADJUSTED TO ACHIEVE AN ACCEPTABLE PAVEMENT CROSS-SLOPE AND EFFECTIVE SURFACE DRAINAGE.
6. EXISTING PAVEMENT MARKINGS AND MARKERS WITHIN THE PROJECT LIMITS SHALL BE RESTORED SUBJECT TO THE APPROVAL OF THE ENGINEER.
7. FINAL TRANSVERSE PAVEMENT TIE-IN SHALL CONFORM TO THE REQUIREMENTS OF SECTION 315.05(c) OF THE SPECIFICATIONS EXCEPT THAT ALL JOINTS AT TIE-IN LOCATIONS SHALL BE TESTED USING A 10 FOOT STRAIGHTEDGE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 315.07(b) OF THE SPECIFICATIONS.

REV. 11/07	ASPHALT PAVEMENT WIDENING FOR WIDENING SUBJECT TO TRAFFIC VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE 305 315
303.02		

SEE FORCE MAIN CONNECTION DETAIL 1 SHEET C2.3



COMMONWEALTH OF VIRGINIA
DERRICK A. JOHNSON
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9-16-13
PROFESSIONAL ENGINEER

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DATE	REVISION DESCRIPTION
02-16-06	COUNTY COMMENTS
05-01-06	COUNTY COMMENTS
09-18-06	COUNTY COMMENTS
02-01-08	COUNTY COMMENTS
09-30-09	COUNTY COMMENTS

DATE 12/12/05
DRAWN BY K. HALPAUS
DESIGNED BY K. HALPAUS
CHECKED BY D. JOHNSON
SCALE 1"=50'

TIMMONS GROUP

CHAPPELL CREEK ON THE JAMES

BLAND DISTRICT * PRINCE GEORGE COUNTY, VIRGINIA

DEVELOPMENT PLAN

JOB NO. 22595
SHEET NO. C2.4

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