

WATER NOTES:

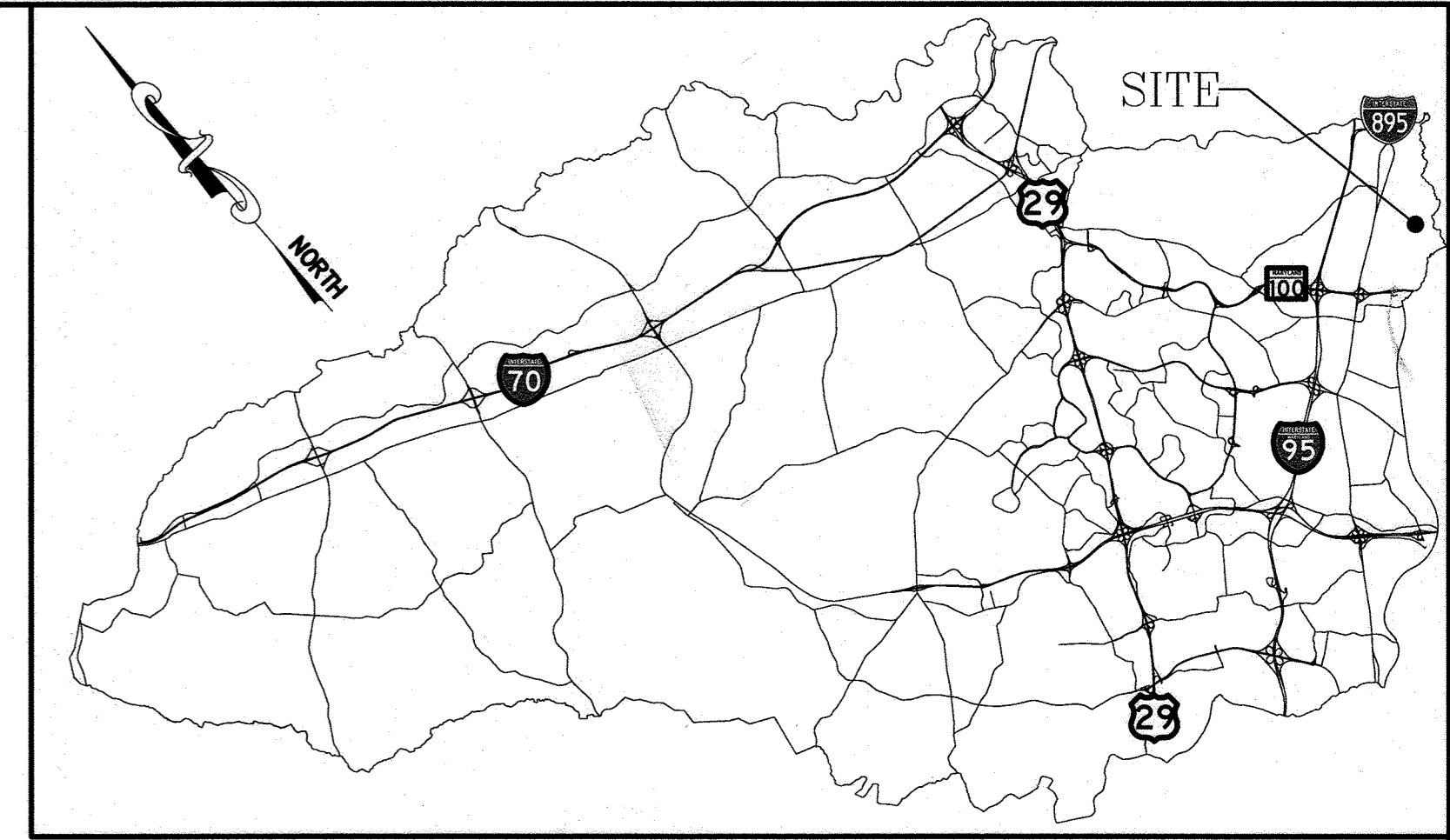
- ALL PROPOSED WATER MAINS SHALL BE POLYVINYL CHLORIDE (PVC) PRESSURE CLASS DR-14 IN ACCORDANCE WITH ANSI/AWWA C900, WITH DUCTILE IRON (DI) FITTINGS.
- ALL HYDRANTS, MAINLINE GATE VALVES, WATER SERVICE VALVES AND PIPING, AND SIMILAR APPURTENANCES (FOR BOTH PERMANENT AND TEMPORARY INSTALLATIONS) SHALL BE RATED FOR A MINIMUM OPERATING PRESSURE OF 305 PSI.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED/RESTRAINED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- ALL TIE-INS TO EXISTING WATER MAINS SHALL BE COORDINATED WITH THE HOWARD COUNTY BUREAU OF UTILITIES AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING THE WORK.
- SALVAGEABLE VALVES AND APPURTENANCES TO BE REMOVED SHALL BE DELIVERED TO THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS - BUREAU OF UTILITIES, AS DIRECTED BY THE ENGINEER OR THE COUNTY.
- IN ACCORDANCE WITH THE 10 STATE STANDARD REQUIREMENTS, WHERE PROPOSED WATER MAIN CROSSES EXISTING OR PROPOSED SEWER, THE WATER MAINS SHALL BE INSTALLED WITH MINIMUM 18-INCHES VERTICAL CLEARANCE (BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER). ALL CROSSINGS OF THE NEW WATER MAIN WITH EXISTING SANITARY OR STORM SEWER PIPING SHALL BE ACCOMPLISHED BY CENTERING A FULL LENGTH OF THE NEW WATER MAIN PIPING AT THE CROSSING TO MAXIMIZE THE DISTANCE OF ANY WATER MAIN JOINT FROM THE CROSSING.
- NO WATER SHALL BE DISCHARGED FROM THE EXISTING WATER MAIN TO THE ENVIRONMENT, WITHOUT FIRST DECHLORINATING. THE CONTRACTOR SHALL SUBMIT THE DECHLORINATION METHOD TO THE ENGINEER FOR REVIEW.
- TRACER WIRES AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
- FOR PVC WATER MAINS, ALL RECORDS FOR THE QUALITY CONTROL AND QUALIFICATION TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE AWWA STANDARD C900 FOR PVC PRESSURE PIPE SHALL BE SUBMITTED WITH THE PIPE MATERIAL CERTIFICATIONS OR SHOP DRAWINGS PRIOR TO APPROVAL OF THE MATERIAL FOR USE. THE TEST RECORDS SHALL BE FOR THE PIPE TO BE INSTALLED UNDER THIS CONTRACT. ALL PVC PIPE SHALL CONTAIN MARKINGS TO ALLOW CROSS REFERENCING OF THE PIPE SUPPLIED TO THE TEST RECORDS RECEIVED.
- UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS, SACRIFICIAL ANODES SHALL BE INSTALLED ON ALL VALVES AND METALLIC FITTINGS USED WITH PVC WATER MAINS IN ACCORDANCE WITH VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. SEVENTEEN (17) POUND MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSSES. TWELVE (12) POUND ZINC ANODES SHALL BE INSTALLED ON ALL STAINLESS STEEL FITTINGS AND SADDLES USED WITH PVC MAINS. ALL "TEES" USED WITH PVC MAINS SHALL BE DUCTILE IRON.
- PROPER ASSEMBLY OF GASKETED PVC PIPE JOINTS: THE MANUFACTURER'S INSERTION LINE OF GASKETED PVC PIPE JOINTS INDICATES THE MAXIMUM DEPTH OF INSERTION OF THE SPIGOT INTO THE BELL. AFTER ASSEMBLY OF THE JOINT, THE INSERTION LINE SHALL REMAIN VISIBLE. DUAL INSERTION LINES ON GASKETED PVC PIPE INDICATE THE MAXIMUM AND MINIMUM DEPTH OF INSERTION OF THE SPIGOT INTO THE BELL. THE CONTRACTOR SHALL NOT OVER INSERT OR OVER HOME THE SPIGOT INTO THE BELL OF PVC PIPE.
- ALL CHANGES IN HORIZONTAL OR VERTICAL DIRECTION OF PVC WATER PIPE SHALL BE MADE WITH STANDARD BENDS, 5-DEGREE SWEEPS OR HIGH DEFLECTION (HD) COUPLINGS. NO BENDING OF THE PIPE OR DEFLECTING OF PVC PIPE JOINTS IS PERMITTED. WHERE HIGH DEFLECTION COUPLINGS OR 5-DEGREE SWEEPS ARE TO BE INSTALLED, THE CONTRACTOR SHALL PROVIDE ONE FULL PIPE LENGTH (20-FOOT LONG) ON EITHER SIDE OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP. THE CONTRACTOR SHALL USE A VIBRATORY PLATE COMPACTOR OR OTHER APPROVED MEANS TO THOROUGHLY COMPACT THE #7 STONE ON BOTH SIDES OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP, TAKING CARE NOT TO USE COMPACTION EQUIPMENT DIRECTLY OVER THE FITTING.
- PVC HIGH DEFLECTION COUPLINGS SHALL BE LIMITED TO A TOTAL DEFLECTION OF 3-DEGREES (1½-DEGREE ON EITHER END OF THE COUPLING), SHALL BE RATED FOR A MINIMUM 235 PSI MEETING THE REQUIREMENTS OF AWWA C900, SHALL HAVE A MINIMUM LAY LENGTH OF 9-INCHES AND SHALL HAVE CENTER STOPS. PVC HIGH DEFLECTION COUPLINGS SHALL BE CERTAINTIEED PVC HIGH DEFLECTION (HD) STOP COUPLINGS OR EQUAL. FIVE DEGREE SWEEPS SHALL BE BELL BY SPIGOT, RATED FOR A MINIMUM 235 PSI, DR-18, MEETING THE REQUIREMENTS OF ANSI/AWWA C900 AND SHALL BE MULTI FITTINGS (IPEX) BLUE BRUTE DR-18 OR EQUAL.

(WATER NOTES CONTINUED ON DRAWING C-01, SHEET 03)

ANDERSON AVENUE / MOUND STREET WATER MAIN

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

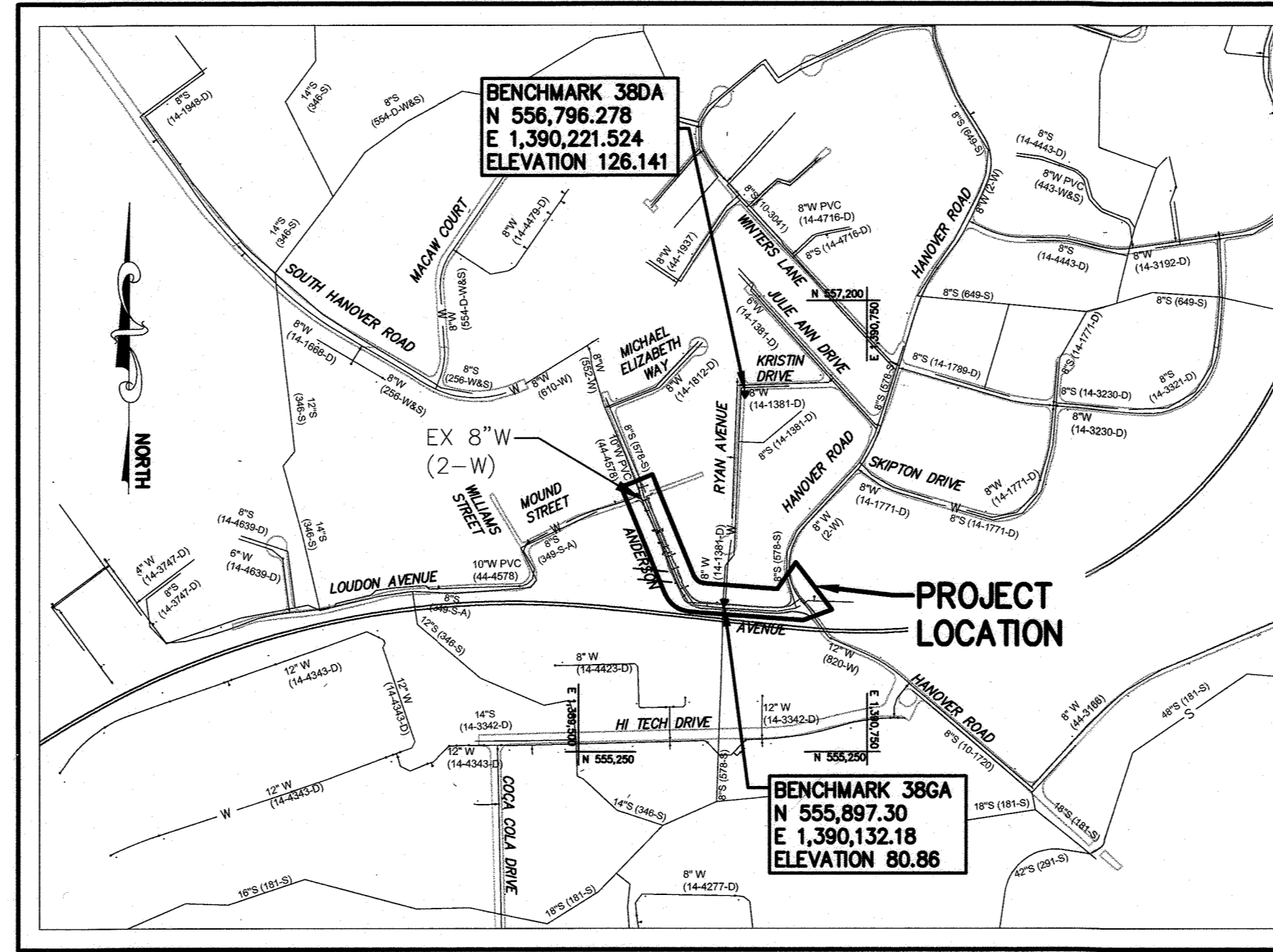
CAPITAL PROJECT NO. W8303 CONTRACT NO. 44-5054



LOCATION MAP
NOT TO SCALE

GENERAL NOTES:

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN NOVEMBER 2017 BY RUMMEL, KLEPPER & KAHL, LLP (RK&K).
- HORIZONTAL AND VERTICAL SURVEY CONTROLS: THE COORDINATES SHOWN ON THE DRAWINGS ARE BASED ON MARYLAND STATE REFERENCE SYSTEM NAD '83 (ADJUSTED 2011) AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATION NO. 31EB AND NO. 3116. ALL VERTICAL CONTROLS ARE BASED ON NAVD '88.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
- CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
- FOR DETAILS NOT SHOWN ON THE DRAWING OR DESCRIBED IN THE CONTRACT DOCUMENTS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
- ALL EXISTING UTILITIES SHALL BE TEST PITTED/LOCATED AS NECESSARY AND IN ADVANCE OF THE PROPOSED CONSTRUCTION, IN ORDER TO PROPERLY MAKE ALL REQUIRED UTILITY CROSSINGS AND/OR CONNECTIONS. ANY DISCREPANCIES OR UTILITY CONFLICTS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATION OF THE TEST PIT. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS ARE INCLUDED IN THE DRAWINGS OR SPECIFICATIONS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG, SHALL BE LOCATED BY THE CONTRACTOR TWO (2) WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
 AT&T.....1-800-252-1133
 BGE (CONSTRUCTION SERVICES).....410-637-8713
 BGE (EMERGENCY)800-685-0123
 BUREAU OF UTILITIES.....410-313-4900
 COLONIAL PIPELINE CO.410-795-1390
 MISS UTILITY.....1-800-257-7777
 STATE HIGHWAY ADMINISTRATION.....410-531-5533
 VERIZON.....1-800-743-0033
 TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- THE CONTRACTOR SHALL NOTIFY BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-7450 AT LEAST FIVE (5) WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(A) OF THE HOWARD COUNTY CODE.



VICINITY MAP
SCALE: 1" = 600'

EROSION AND SEDIMENT CONTROL NOTES
 SEDIMENT CONTROL MEASURES FOR THIS CONTRACT WILL BE IMPLEMENTED IN ACCORDANCE WITH SECTION 308 OF THE HOWARD COUNTY DESIGN MANUAL - VOLUME IV: STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.

WATER ZONE: 400
 TEST GRADIENT: 654 FT
 TEST PRESSURE: 250 PSI
 TYPE OF BUILDINGS: N/A
 NUMBER OF PARCELS: N/A
 NO. OF WATER CONNECTIONS: 16
 NO. OF SEWER CONNECTIONS: N/A
 DRAINAGE AREA: DEEP RUN

STATION#	EAST	NORTH	ELEVATION
38DA	1,390,221.52	556,796.28	126.14
38GA	1,390,132.18	555,897.30	80.86

INDEX OF DRAWINGS

SHEET NO.	DRAWING NO.	DESCRIPTION
01	G-01	TITLE SHEET, GENERAL NOTES AND INDEX OF DRAWINGS
02	G-02	LEGEND, ABBREVIATIONS, SURVEY CONTROL AND STAKEOUT
03	C-01	WATER SHUTOFF PLAN, TEMPORARY BYPASS PLAN, AND SEQUENCE OF CONSTRUCTION
04	C-02	WATER PLAN (STA 0+00 TO STA 10+05)
05	C-03	WATER PROFILES (STA 0+00 TO STA 10+05)
06	C-04	WATER AND MISCELLANEOUS DETAILS
07	C-05	WATER AND MISCELLANEOUS DETAILS (CONTINUED)
08	CP-01	CORROSION CONTROL DETAILS
09	MT-01	MAINTENANCE OF TRAFFIC NOTES AND DETAILS
10	PV-01	PAVING PLAN
11	ES-01	EROSION AND SEDIMENT CONTROL PLAN
12	ES-02	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
13	ES-03	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

**AS-BUILT
DEC. 2021**

OWNER/DEVELOPER CERTIFICATION:
 I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

ZACHARY C. KNIGHT
 Owner's/Developer's Signature
 6-1-2020
 Date

HOWARD SOIL CONSERVATION DISTRICT:
 THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT (HSCD).

Howard Soil Conservation District
 7/21/20
 Date

ENGINEER'S CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Engineer's Signature - Registration Number
 05-19-2020
 Date

PURPOSE STATEMENT:
 CONTRACT NO. 44-5054 WILL REPLACE APPROXIMATELY 1,000 FEET OF ANTIQUATED 8-INCH WATER MAIN WITH A NEW 12-INCH WATER MAIN ALONG ANDERSON AVENUE BETWEEN MOUND STREET AND HANOVER ROAD. THIS PROJECT IS REQUIRED UNDER THE HOWARD COUNTY MASTER PLAN FOR WATER AND SEWERAGE, AND IS NECESSARY TO PROVIDE A SECONDARY WATER LOOP FOR THIS AREA OF THE 400 WATER ZONE, AND TO PROVIDE ADEQUATE SERVICE AND SUPPLY TO LOCAL DEMANDS AND FIRE PROTECTION.

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Director of Public Works
 Chief, Bureau of Utilities
 Chief, Utility Design Division

RK&K
 700 East Pratt Street, Suite 500 | Baltimore, MD 21202
 Engineers | Construction Managers | Planners | Scientists
 www.rk&k.com
 Responsive People | Creative Solutions

PROFESSIONAL CERTIFICATION:
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 20566
 EXPIRATION DATE: 09/06/2020

DES:	BY:	NO.	REVISION	DATE
WJG				
DRN:				
CHK:				
SIGN DATE:				

MAY 1, 2020

TITLE SHEET, GENERAL NOTES AND INDEX OF DRAWINGS

600' SCALE MAP NO. 38
 BLOCK NO. 14, 15

PROJECT NO. W8303
 CONTRACT NO. 44-5054

ANDERSON AVE/MOUND STREET WATER MAIN

ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
 SHEET NO. 01 OF 13

Plot By: bgrasas Tab: G-01
 Plot Scale: 1" = 1'
 ENVCITB
 May 15, 2020 - 7:28am
 \\bldm01\vd2012\212154_14c6860A\Task 11 - Loudon Ave W8303\CD03\Plans\Y-pk01-pk01-L000000.dwg
 R021\515 - \\bldm01\vd2012\212154_14c6860A\Task 11 - Loudon Ave W8303\CD03\Plans\Y-pk01-pk01-L000000.dwg

ABBREVIATIONS

ABAN ABANDONED
ADA AMERICANS WITH DISABILITIES ACT
ADJ ADJUSTABLE, ADJACENT
ALT ALTERNATE, ALTERNATIVE
APPROX APPROXIMATE
AUX AUXILIARY
AVE. AVENUE

BGE BALTIMORE GAS AND ELECTRIC
BLDG BUILDING
BLK BLOCK
BLKG BLOCKING
BLT(S) BOLT(S)
BM BENCHMARK
BOP BOTTOM OF PIPE

CB COMBINED BEND
CC CORROSION CONTROL
CFM CUBIC FEET PER MINUTE
C&G CURB AND GUTTER
CI CAST IRON
CIP CAST IRON PIPE
CL CLASS, CLEARANCE, CENTER LINE
CLR CLEAR, CLEARANCE
CO CLEAN OUT
COMB COMBINATION
CONC CONCRETE
CONDU CONDUIT
CONN CONNECTION
CONSTR CONSTRUCTION
CONT CONTINUOUS, CONTINUATION, CONTROL
COV COVER
CP CATHODIC PROTECTION
CPLG COUPLING
CTV CABLE TELEVISION

DEG DEGREE
DEPT DEPARTMENT
DET DETAIL
DI DROP INLET, DUCTILE IRON
DIA DIAMETER
DIM DIMENSION
DIP DUCTILE IRON PIPE
DISCH DISCHARGE
DIV DIVISION
DN DOWN
DOT DEPARTMENT OF TRANSPORTATION
DR DRAIN
DTL DETAIL
DV DIVISION VALVE
DWG(S) DRAWING(S)

E EAST, ELECTRIC
EA EACH
EBOX ELECTRICAL BOX
EL ELEVATION
ELEC ELECTRIC
ELEV ELEVATION
EOP EDGE OF PAVEMENT
EQ EQUAL
EQUIP EQUIPMENT
EX EXISTING
EXT EXTENSION, EXTERIOR, EXTERNAL

FH FIRE HYDRANT
FLEX FLEXIBLE
FLG FLANGE
FM FORCE MAIN, FLOW METER
FO FIBER OPTIC
FP FLOOD PLAIN
FT FEET, FOOT

G GAS
GAB GRADED AGGREGATE BASE
GAL GALLON
GALV GALVANIZED
GPM GALLONS PER MINUTE
GR GRADE
GV GATE VALVE, GRAVITY VENTILATOR

HB HORIZONTAL BEND
HC HOWARD COUNTY
HD HIGH DEFLECTION
HMA HOT MIX ASPHALT
HORIZ HORIZONTAL
HP HIGH POINT, HORSEPOWER
HR HOUR
HWY HIGHWAY

ID INSIDE DIAMETER
IN INCH, INCHES
INC INCORPORATED
INCL INCLUDING
INL INLET

ABBREVIATIONS (CONT'D)

INSUL INSULATE, INSULATION, INSULATING
INV INVERT
JT JOINT
L LENGTH
LB(S) POUND(S)
LF LINEAR FEET
LG LENGTH, LONG
LOC LIMIT OF CONTRACT
LOD LIMIT OF DISTURBANCE
LP LOW POINT, LIGHT POLE
LT LEFT

MAX MAXIMUM
MDSHA MARYLAND STATE HIGHWAY ADMINISTRATION
MECH MECHANICAL
MED MEDIUM
MFR(S) MANUFACTURER(S)
MG MILLION GALLONS
MGD MILLION GALLONS PER DAY
MH MANHOLE
MIN MINIMUM, MINUTE
MISC MISCELLANEOUS
MJ MECHANICAL JOINT
MPH MILES PER HOUR

N NORTH
NA NOT APPLICABLE
N.I.C NOT IN CONTRACT
NO.(S) NUMBER(S)
NPT NATIONAL PIPE THREAD
NST NATIONAL STANDARD THREAD
NTS NOT TO SCALE

OD OUTSIDE DIAMETER
OH OVERHEAD
OPP OPPOSITE, OPPOSING

PAV PAVEMENT
PCF POUNDS PER CUBIC FOOT
PE PLAIN END
PK PK NAIL
PL PLATE
PROP PROPOSED
PSI POUNDS PER SQUARE INCH
PT POINT
PVC POLYVINYL CHLORIDE

R RADIUS, RISER, RIM ELEVATION
RCP REINFORCED CONCRETE PIPE
RD ROAD
REF REFERENCE
REQD REQUIRED
REV REVISION, REVISED
ROW RIGHT-OF-WAY
R/W RIGHT-OF-WAY
RT RIGHT

S SOUTH, SEWER
SAN SANITARY
SB SOIL BORING
SCE STABILIZED CONSTRUCTION ENTRANCE
SCH SCHEDULE
SD STORM DRAIN
SEC SECOND
SECT SECTION
SF SILT FENCE
SHC SANITARY SEWER HOUSE CONNECTION
SHT SHEET
SPEC(S) SPECIFICATION(S)
SQ SQUARE
SS STAINLESS STEEL, SANITARY SEWER
STA STATION
STD STANDARD
STL STEEL
SYS SYSTEM

T TOP
TBD TO BE DETERMINED
TEL TELEPHONE
TEMP TEMPERATURE, TEMPORARY
TH, TP TEST HOLE, TEST PIT
TOP TOP (OF PIPE) ELEVATION
TRAV TRAVERSE
TYP TYPICAL

USGS UNITED STATES GEOLOGICAL SURVEY
V VALVE, VERTICAL
VB VERTICAL BEND
VCP VITRIFIED CLAY PIPE
VERT VERTICAL

ABBREVIATIONS (CONT'D)

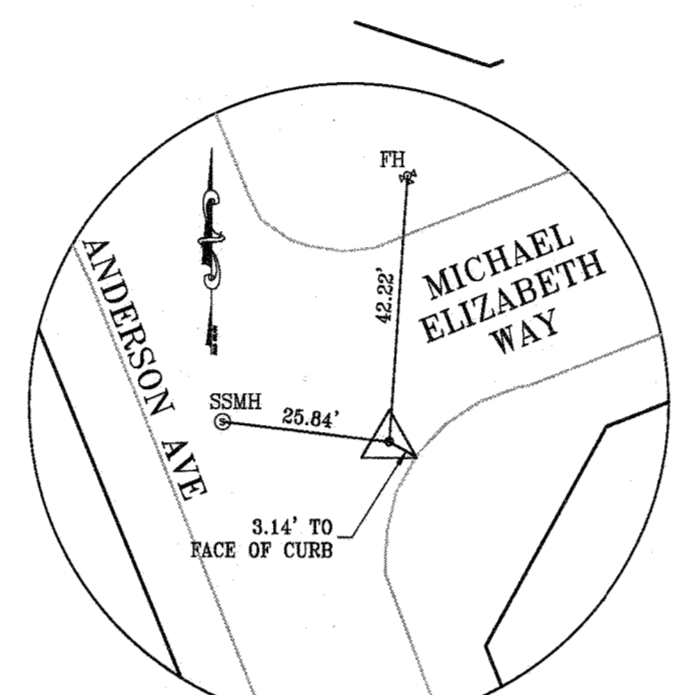
W WEST, WIDTH, WATER
W/W WITH
WHC WATER HOUSE CONNECTION
WM WATER MAIN
W/O WITHOUT
WSS WATER SUPPLY SERVICE
WV WATER VALVE

X BY, TIMES
YD YARD

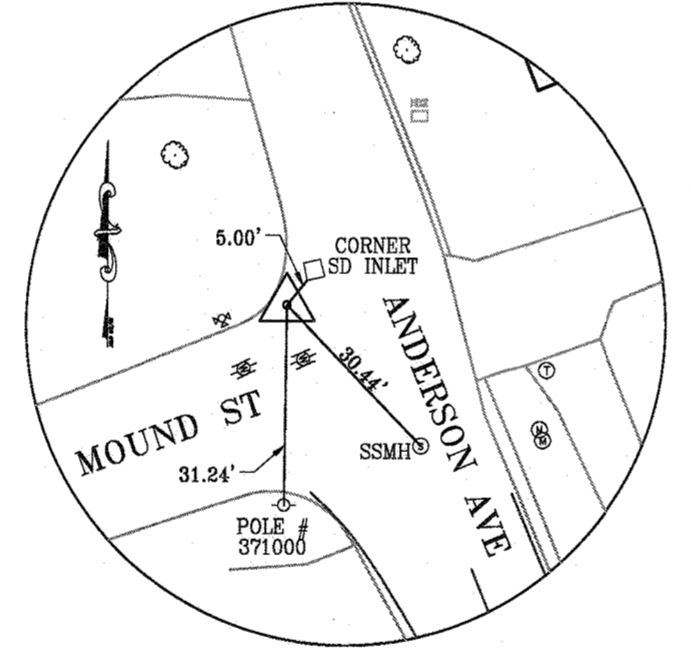
& AND
AT AT
NUMBER
% PERCENT

PROPERTY INFORMATION:

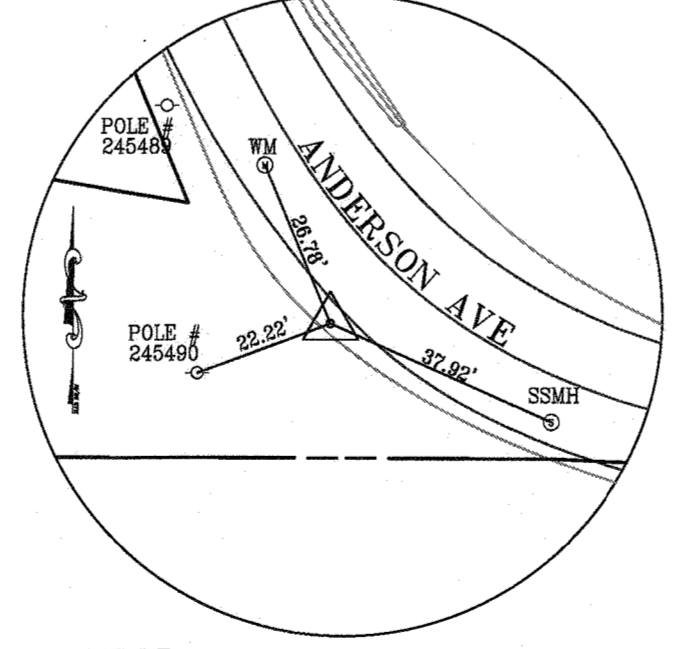
ADDRESS
OWNER NAME(S)
MAP-GRID-PARCEL LOT#
LIBER - FOLIO
ACREAGE



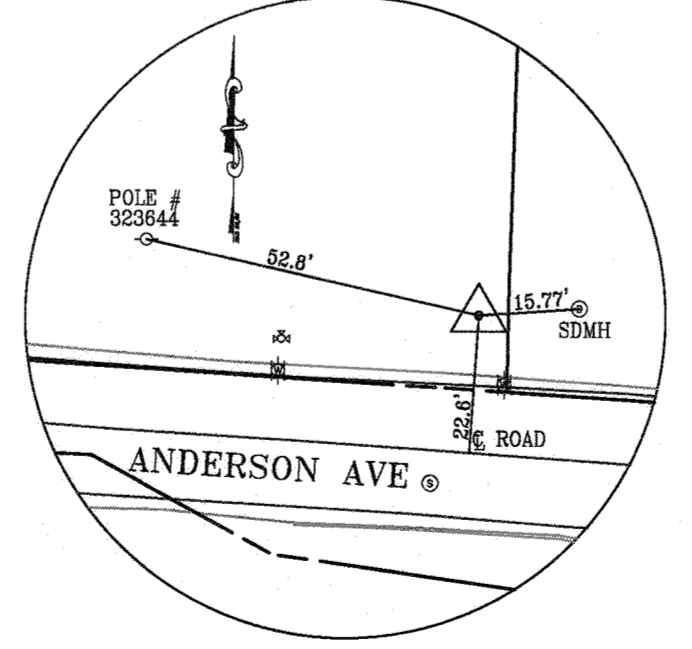
MRC1
NORTHING: 556,734.537
EASTING: 1,389,661.651
ELEVATION: 134.7700



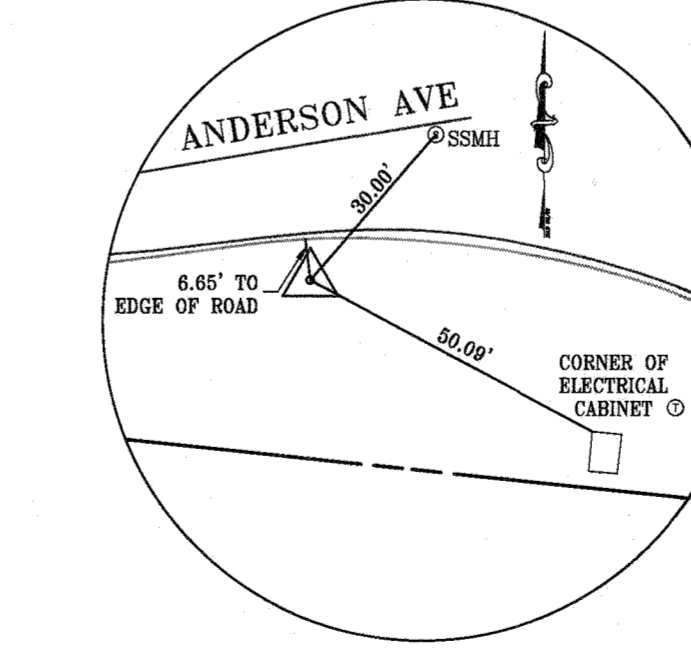
MRC2
NORTHING: 556,364.585
EASTING: 1,389,764.403
ELEVATION: 116.640



MRC3
NORTHING: 555,899.590
EASTING: 1,389,968.337
ELEVATION: 93.8700



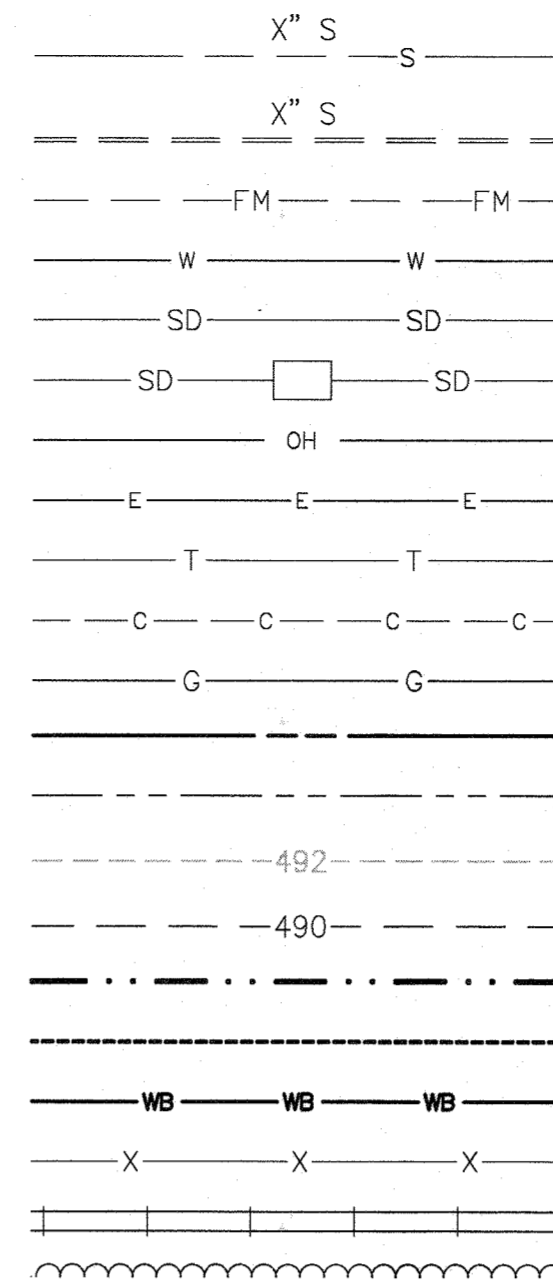
38GA
NORTHING: 555,897.300
EASTING: 1,390,132.183
ELEVATION: 80.8620



MRC4
NORTHING: 555,848.284
EASTING: 1,390,423.908
ELEVATION: 93.4200

LEGEND

EXISTING



PROPOSED

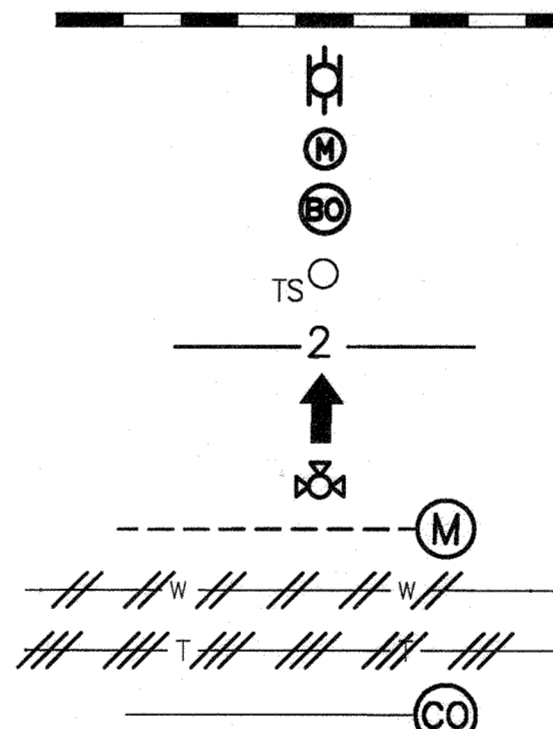


Table with columns: ITEM, ESTIMATED QUANTITY, AS-BUILT, SUPPLIER. Lists various pipe and valve items and their quantities.

FITTING SCHEDULE

Table with columns: STA, OFFSET, ITEM, NORTHING, EASTING. Lists fitting items and their stationing.

AS-BUILT DRAWINGS:

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN REVISED TO REFLECT THE AS-BUILT CONDITIONS OF THE CAPITAL PROJECT W8303, ANDERSON AVE/MOUND STREET WATER MAIN RECORDED BY HOWARD COUNTY'S CONTRACTOR AND INSPECTOR.

Engineer's Signature - Registration Number Date

AS-BUILT DECEMBER 2021

G-02

VERTICAL SCALE 1=1

HORIZONTAL SCALE 1"=40'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND



P: 410.728.2900
700 East Pratt Street, Suite 500 | Baltimore, MD 21202

PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE
DOCUMENTS WERE PREPARED OR
APPROVED BY ME, AND THAT I
AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER
THE LAWS OF THE STATE OF
MARYLAND.
LICENSE NO. 20586.
EXPIRATION DATE: 09/06/2020.

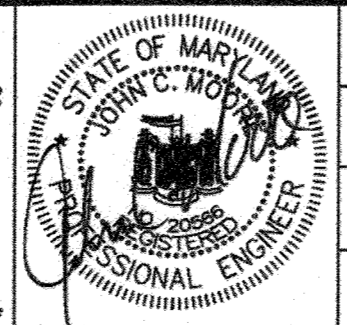


Table with columns: DES, DRN, CHK, SIGN DATE, BY, NO., REVISION, DATE

LEGEND, ABBREVIATIONS, SURVEY
CONTROL AND STAKEOUT

PROJECT NO. W8303
CONTRACT NO. 44-5054
ANDERSON AVE/MOUND STREET WATER MAIN
ELECTION DISTRICT NO. 2
HOWARD COUNTY, MARYLAND

SCALE
AS SHOWN
SHEET NO.
02 OF 13

SUGGESTED SEQUENCE OF CONSTRUCTION

THE SUGGESTED SEQUENCE OF CONSTRUCTION DOES NOT INCLUDE CONCURRENT SEDIMENT AND EROSION CONTROL MEASURES, AND MAINTENANCE OF TRAFFIC ACTIVITIES, WHICH SHALL ALSO BE FOLLOWED AS DESCRIBED IN THE CONTRACT DOCUMENTS.

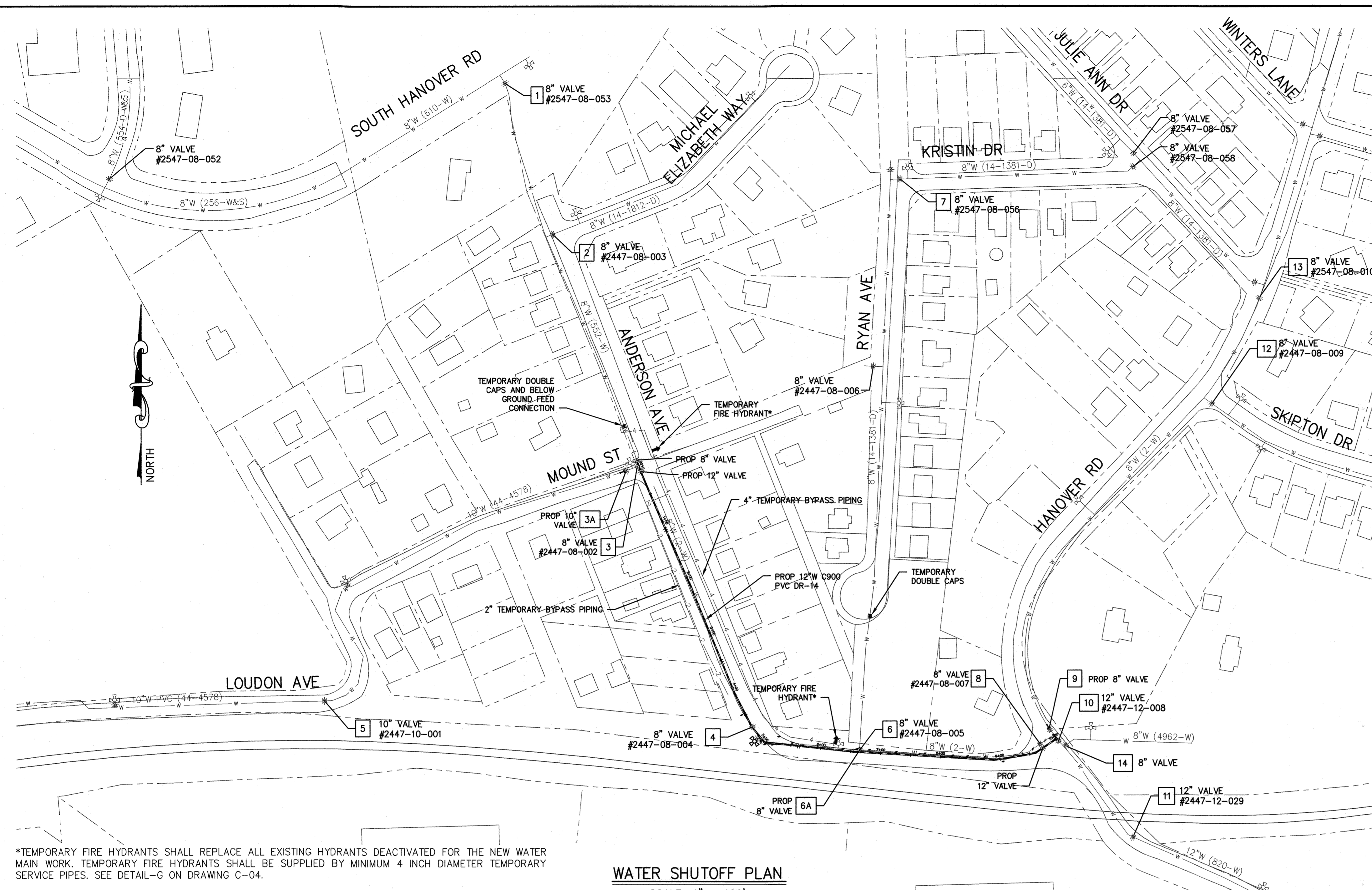
THE CONTRACTOR SHALL VERIFY THAT THE EXISTING WATER MAINS AND VALVES ARE ADEQUATELY RESTRAINED PRIOR TO REMOVAL OF EXISTING WATER MAIN AT THE CONNECTION LOCATIONS. THE CONTRACTOR SHALL PROVIDE TEMPORARY THRUST BLOCKING ON THE EXISTING AND NEW WATER MAINS AS NEEDED TO COMPLETE CONNECTION TO THE NEW WATER MAIN AT NO ADDITIONAL COST TO THE COUNTY.

THE CONTRACTOR SHALL NOTIFY ALL PROPERTY OWNERS AFFECTED BY THE PROPOSED WATER SHUTDOWN. SUCH NOTIFICATIONS SHALL BE SENT SUFFICIENTLY IN ADVANCE OF ANY PLANNED WATER SHUTDOWN. ALL WATER SHUTDOWNS MUST BE LIMITED TO MAXIMUM OF EIGHT (8) HOURS AND SHALL BE PERFORMED DURING A LOW WATER DEMAND PERIOD IN CONSULTATION WITH THE COUNTY PERSONNEL AND IMPACTED PROPERTY OWNERS.

- INSTALL NEW 4-INCH AND 2-INCH TEMPORARY BYPASS PIPING AND TEMPORARY FIRE HYDRANTS ALONG ANDERSON AVENUE AS SHOWN. OPEN THE 4" BYPASS VALVE ON TEMPORARY BYPASS PIPING, DISINFECT, FLUSH, AND TEST.
- CLOSE VALVES 1, 2, 3 AND 4 INCLUDING 4" BYPASS VALVE. INSTALL 8-INCH TEMPORARY DOUBLE CAPS AND BELOW GROUND FEED CONNECTION ON ANDERSON AVE AS SHOWN. ALL WORK MUST BE COMPLETED WITHIN MAX. 8-HOUR WATER SHUTDOWN. OPEN VALVES 1, 2, 3 AND 4. AFTER BACTERIOLOGICAL TESTING OF THE TEMPORARY BYPASS PIPING IS COMPLETE, CONNECT 4-INCH TEMPORARY BYPASS PIPING TO THE BELOW GROUND FEED CONNECTION.
- CLOSE VALVES 4 AND 5. REPLACE ABOUT 10- FEET OF EXISTING 10-INCH WATER MAIN ON MOUND ST WITH NEW 10-INCH DIP AND NEW 10-INCH VALVE 3A AS SHOWN, WITHIN MAX. 8-HOUR WATER SHUTDOWN. OPEN VALVES 4 AND 5. INSTALL CONCRETE THRUST BLOCK ON NEWLY INSTALLED 10-INCH DIP AND STRAP VALVE 3A TO THE THRUST BLOCK AS PER HOWARD COUNTY STANDARD DETAILS G-8.11 AND G-8.12.
- CLOSE VALVES 8, 11, 12, 13 AND 14. REPLACE ABOUT 10- FEET OF EXISTING 8-INCH WATER MAIN ON HANOVER ROAD WITH NEW 8-INCH DIP AND NEW 8-INCH VALVE 9 AS SHOWN, WITHIN MAX. 8-HOUR WATER SHUTDOWN. OPEN VALVES 8, 11, 12, 13, AND 14. INSTALL CONCRETE THRUST BLOCK ON NEWLY INSTALLED 8-INCH DIP AND STRAP VALVE 9 TO THE THRUST BLOCK AS PER HOWARD COUNTY STANDARD DETAILS G-8.11 AND G-8.12.
- CLOSE VALVES 6 AND 7. INSTALL TEMPORARY DOUBLE CAPS ON RYAN AVENUE AS SHOWN, WITHIN MAX. 8-HOUR WATER SHUTDOWN. OPEN VALVE 7. KEEP VALVE 6 CLOSED.
- SEQUENCE #2 THRU #5 CAN BE PERFORMED IN ANY SEQUENCE OR CAN BE PERFORMED SIMULTANEOUSLY, HOWEVER, ALL WATER MAIN SHUTDOWNS MUST BE LIMITED TO 8-HOURS MAX.
- AFTER DISINFECTION, FLUSHING, AND BACTERIOLOGICAL TESTING OF THE TEMPORARY BYPASS PIPING IS COMPLETE, TRANSFER ALL AFFECTED WATER SERVICES TO THE TEMPORARY BYPASS PIPING.
- PERFORM DEMONSTRATION PERIOD OF TEMPORARY BYPASS WATER SYSTEM IN ACCORDANCE WITH THE SPECIAL PROVISIONS. RELIANCE UPON THE TEMPORARY WATER SYSTEM FOR WATER SUPPLY WITHOUT CONTINUOUS ONSITE CONTRACTOR PERSONNEL IS NOT PERMITTED UNTIL SUCCESSFUL COMPLETION OF THE DEMONSTRATION PERIOD.
- ONCE THE IN-LINE THRUST BLOCKS INSTALLED ON MOUND STREET AND HANOVER ROAD ARE CURED, CLOSE VALVES 3A, 9, 11, AND BEGIN REPLACEMENT/INSTALLATION OF NEW 12-INCH PVC WATER MAIN, FITTINGS AND APPURTENANCES, AS SHOWN. REPLACE WATER SERVICES AND INSTALL NEW OUTSIDE METER SETTINGS AND VAULTS AS REQUIRED AND AS SHOWN ON THE WATER HOUSE CONNECTION TABLE.
- PRESSURE TEST AND DISINFECT, FLUSH AND PERFORM BACTERIOLOGICAL TESTING FOR NEWLY INSTALLED WATER MAINS. OPEN VALVES 3A, 9 AND 11. TRANSFER ALL WATER SERVICES TO THE NEW WATER MAIN.
- CLOSE VALVES 6A AND 7. REMOVE TEMPORARY DOUBLE CAPS ON RYAN AVENUE AS SHOWN, WITHIN MAX. 8-HOUR WATER SHUTDOWN. OPEN VALVES 6A AND 7.
- REPEAT SEQUENCE #2 TO REMOVE TEMPORARY DOUBLE CAPS AND BELOW GROUND FEED CONNECTION. REMOVE TEMPORARY BYPASS PIPING AND RESTORE THE AREA.

WATER NOTES (CONT'D G-01):

- WHEN PVC HIGH DEFLECTION COUPLINGS OR PVC 5-DEGREE SWEEPS ARE USED TO FACILITATE CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS OF AWWA C900 PVC PIPELINES, THE CONTRACTOR SHALL INSTALL DEVICES FOR THE PREVENTION OF OVER-INSERTION OF THE PVC PIPE SPIGOTS OR PLAIN ENDS INTO THE PUSH ON BELL JOINT ON BOTH SIDES OF THE HIGH DEFLECTION COUPLINGS AND 5-DEGREE SWEEPS. BELL STOPS SHALL BE PLACED AT THE PROPER INSERTION LINE FOR THE FITTING. THE BELL STOP SHALL BE MANUFACTURED OF DUCTILE IRON AND INCORPORATE AN EXPANSION RETENTION SPRING TO ALLOW FOR PIPE EXPANSION AND CONTRACTION. THE BELL STOPS SHALL BE SERIES 5000 MEGA-STOP, AS MANUFACTURED BY EBAA IRON, INC. OR APPROVED EQUAL.
- TEES, CROSSES, CAPS, BENDS, GREATER THAN 5 DEGREES, AND SIMILAR FITTINGS THAT REQUIRE RESTRAINED JOINTS SHALL BE DUCTILE IRON MECHANICAL JOINT FITTINGS IN ACCORDANCE WITH ANSI/AWWA C110/A21.10 OR C153/A21.53, APPROPRIATE FOR PVC C900 PIPE. ALL DUCTILE IRON FITTINGS SHALL BE FUSION BONDED EPOXY COATED INSIDE AND OUTSIDE.
- THE CONTRACTOR SHALL USE RESTRAINED COUPLINGS IN LIEU OF HIGH DEFLECTION COUPLINGS WITHIN THE LIMITS OF RESTRAINED JOINT PVC PIPE. ALL RESTRAINED COUPLINGS SHALL BE LIMITED TO A TOTAL DEFLECTION OF 3-DEGREES (1-1/2 DEGREE ON EITHER END OF THE COUPLING). THE PIPE SHALL BE INSERTED AN EQUAL DEPTH ON BOTH SIDES OF THE COUPLING. CORROSION PROTECTION SHALL BE PROVIDED IN ACCORDANCE WITH DETAIL ON SHEET C-04. RESTRAINED COUPLINGS SHALL BE RATED FOR A MINIMUM 305 PSI, DR-14, MEETING THE REQUIREMENTS OF ANSI/AWWA C900 AND SHALL BE SERIES 3800 MEGA-COUPLING, AS MANUFACTURED BY EBAA IRON, INC. OR APPROVED EQUAL.
- TEMPORARY BYPASS PIPING SHALL BE YELOMINE DR-17 AS MANUFACTURED BY NORTH AMERICAN PIPE CORPORATION, OR APPROVED EQUAL.
- INSTALLATION OF PROPOSED BYPASS WATER SYSTEM FOR TEMPORARY WATER SERVICE SHALL ONLY BE ALLOWED BETWEEN APRIL 1ST AND NOVEMBER 15TH. NO BYPASS PIPE OR SERVICE CONNECTION SHALL BE INSTALLED DURING FREEZING WEATHER. THE CONTRACTOR MUST NOTIFY PROPERTY OWNERS AT LEAST 72 HOURS PRIOR TO COMMENCING THIS WORK.
- THE STATIC GRADIENT FOR THE WATER MAINS AT THE PROJECT LOCATION IS 400 FEET. HYDROSTATIC AND LEAKAGE TESTING OF NEW WATER MAINS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 1006 OF THE HOWARD COUNTY DESIGN MANUAL VOLUME IV (LATEST EDITION). THE TEST PRESSURE TO BE INDUCED AT THE LOW POINT OF THE TEST SECTION SHALL BE 250 PSI MINIMUM.



*TEMPORARY FIRE HYDRANTS SHALL REPLACE ALL EXISTING HYDRANTS DEACTIVATED FOR THE NEW WATER MAIN WORK. TEMPORARY FIRE HYDRANTS SHALL BE SUPPLIED BY MINIMUM 4 INCH DIAMETER TEMPORARY SERVICE PIPES. SEE DETAIL-G ON DRAWING C-04.

WATER SHUTOFF PLAN
SCALE: 1" = 100'

WATER HOUSE CONNECTIONS										
SERVICE ADDRESS	EX. WHC SIZE	EX. WHC MATERIAL	EX. METER LOCATION	EX. METER SIZE	APPROX. LENGTH OF EX. WHC (LF)	PROP. TAP/WHC SIZE	NEW METER SIZE	APPROX. LENGTH OF PROP. WHC (LF)	STANDARD DETAIL	REMARKS/NOTES
6205 MOUND ST	3/4"	UNKNOWN	INSIDE	5/8"	30.0	1"	3/4"	27.0	W-3.27	INSTALL NEW OUTSIDE METER SETTING & VAULT
6449 ANDERSON AVE	3/4"	UNKNOWN	INSIDE	5/8"	29.0	1"	3/4"	28.0	W-3.27	INSTALL NEW OUTSIDE METER SETTING & VAULT
6450 ANDERSON AVE	3/4"	COPPER	INSIDE	5/8"	5.5	1"	3/4"	9.0	W-3.27	INSTALL NEW OUTSIDE METER SETTING & VAULT
6454 ANDERSON AVE	3/4"	COPPER	INSIDE	5/8"	0.5	1"	3/4"	9.0	W-3.27	INSTALL NEW OUTSIDE METER SETTING & VAULT
6457 ANDERSON AVE	3/4"	UNKNOWN	INSIDE	5/8"	31.0	1"	3/4"	38.0	W-3.27	INSTALL NEW OUTSIDE METER SETTING & VAULT
6464 ANDERSON AVE	1"	COPPER	INSIDE	3/4"	11.0	1"	3/4"	12.0	W-3.27	INSTALL NEW OUTSIDE METER SETTING & VAULT
6465 ANDERSON AVE	3/4"	UNKNOWN	INSIDE	5/8"	28.0	1"	3/4"	39.0	W-3.27	INSTALL NEW OUTSIDE METER SETTING & VAULT
6470 ANDERSON AVE	3/4"	UNKNOWN	OUTSIDE	5/8"	10.0	1"	3/4"	8.0	W-3.27	INSTALL NEW OUTSIDE METER SETTING & VAULT
6472 ANDERSON AVE	1-1/2"	UNKNOWN	OUTSIDE	1"	10.0	1-1/2"	N/A	10.0	W-3.28	CONNECT TO EXISTING OUTSIDE METER SETTING & VAULT
6473 ANDERSON AVE	3/4"	UNKNOWN	INSIDE	5/8"	20.0	1"	3/4"	37.0	W-3.27	INSTALL NEW OUTSIDE METER SETTING & VAULT
6477 ANDERSON AVE	3/4"	UNKNOWN	INSIDE	5/8"	37.0	1"	3/4"	37.0	W-3.27	INSTALL NEW OUTSIDE METER SETTING & VAULT
6479 ANDERSON AVE	3/4"	COPPER	OUTSIDE	5/8"	30.0	1"	3/4"	29.0	W-3.27	INSTALL NEW OUTSIDE METER SETTING & VAULT
6480 - LOT 13 ANDERSON AVE	3/4"	UNKNOWN	OUTSIDE	5/8"	7.5	1-1/2"	1"	7.0	W-3.28	INSTALL NEW OUTSIDE METER SETTING & VAULT
6480 - LOT 14 ANDERSON AVE	-	-	-	-	-	1-1/2"	1"	6.0	W-3.28	INSTALL NEW OUTSIDE METER SETTING & VAULT
6480 - LOT 15 ANDERSON AVE	-	-	-	-	-	1-1/2"	1"	6.0	W-3.28	INSTALL NEW OUTSIDE METER SETTING & VAULT
6485 ANDERSON AVE	3/4"	UNKNOWN	INSIDE	5/8"	34.0	1"	3/4"	34.0	W-3.27	INSTALL NEW OUTSIDE METER SETTING & VAULT

WATER HOUSE CONNECTION NOTES:

- THE CONTRACTOR SHALL INSTALL NEW 1" WATER SERVICE TO REPLACE EXISTING 3/4" WATER HOUSE CONNECTION, AND SHALL INSTALL NEW METER VAULT WITH 3/4" METER SETTING, IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL W-3.27.
- THE CONTRACTOR SHALL WRAP WATER SERVICE CONNECTIONS WITH A COLD APPLIED PETROLATUM OR PETROLEUM ANTI-CORROSION WAX TAPE COATING SYSTEM. WAX TAPE COATING SYSTEM SHALL BE THREE-PART, COLD APPLIED CONSISTING OF PRIMER, WAX TAPE, AND TAPE OUTERWRAP IN ACCORDANCE WITH AWWA C217 AND AS DESCRIBED IN THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL INSTALL NEW OUTSIDE METER VAULT AND SETTING FOR ALL ADDRESSES WHERE EXISTING METER IS LOCATED INSIDE, IN ACCORDANCE WITH THE DETAIL W-3.27. THE NEW METER SETTING AND VAULT SHALL BE INSTALLED AT THE APPROXIMATE LOCATION OF THE EXISTING CURB STOP UNLESS SHOWN OTHERWISE ON THE WATER PLAN.
- THE PROPOSED WATER HOUSE CONNECTION (WHC) REPLACEMENT LENGTH FOR WATER METERS THAT WERE NOT SURVEYED OR COULD NOT BE LOCATED IN THE FIELD HAVE BEEN ESTIMATED FROM THE PROPERTY LINE TO THE PROPOSED WATER MAIN.
- PERMANENT REPAIR OF TRENCHES FOR WATER HOUSE CONNECTIONS SHALL BE COMPLETED IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL G-2.11 AND G-4.01. IF THE WATER HOUSE CONNECTION WAS INSTALLED SUCH THAT THE LIMITS OF PAVING ENCR OACH UPON PRIVATE PROPERTY, PERMISSION SHALL BE OBTAINED FROM THE PROPERTY OWNER PRIOR TO WORK.

AS-BUILT, DEC. 2021



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
 Director of Public Works: [Signature]
 Chief, Bureau of Engineering: [Signature]
 Chief, Bureau of Utilities: [Signature]
 Chief, Utility Design Division: [Signature]

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 Engineers | Construction Managers | Planners | Scientists
 www.rk&k.com
 Responsive People | Creative Solutions

PROFESSIONAL CERTIFICATION:
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 20566
 EXPIRATION DATE: 09/06/2020



DES:	WJG	BY NO.		REVISION		DATE	
DRN:	RAD						
CHK:	NKS						
SIGN DATE:	05-19-2020						

MAY 1, 2020
WATER SHUTOFF PLAN, TEMPORARY BYPASS PLAN, AND SEQUENCE OF CONSTRUCTION
 600' SCALE MAP NO. 38
 BLOCK NO. 14, 15

PROJECT NO. W8303
 CONTRACT NO. 44-5054
ANDERSON AVE/MOUND STREET WATER MAIN
 ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND

SCALE
 AS SHOWN
 SHEET NO.
 03 OF 13

R0621315 - \\bdrw01\y2021\2021\2154_445054\Task 11 - Loudon Ave W8303\030\Plans\3-pull-P001_Loudon.dwg May 14, 2020 - 3:46pm ENX/CIB Plot Scale 1=1 Plot By: bgress Tab: C-01

AS-BUILT LOCATIONS: FITTINGS AND VALVES				
ITEM	LOCATION	DIMENSION 1	DIMENSION 2	EASTING
10" VALVE	STA 0+00 (6' RT)	SSMH 578-53: (27')	FH 2447-003: (12')	556,353.9727
12" VALVE	STA 0+03	SSMH 578-53: (19.5')	FH 2447-003: (19.5')	556,353.2082
8" VALVE	STA 0+06	SSMH 578-53: (30')	FH 2447-003: (13')	556,365.6068
NEW FH	STA 4+47 (9' RT)	SSMH 578-52: (34')	BGE 245489: (10.5')	555,942.2094
6" FH VALVE	STA 4+47	SSMH 578-52: (32')	NEW FH [STA 4+47]: (7')	555,945.0689
8" VALVE	STA 6+64 (1.5' LT)	SSMH 578-50: (18')	SD INLET [STA 6+75]: (83')	555,885.4401
12" VALVE	STA 10+00	SSMH 578-57: (38')	VERIZON MH 12: (77')	555,902.8400
12" VALVE	STA 10+03 (2' RT)	SSMH 578-57: (40')	VERIZON MH 12: (76')	555,901.9898
8" VALVE	STA 10+03 (4' LT)	SSMH 578-57: (42')	VERIZON MH 12: (84')	555,910.0553

NOTES: NEW FIRE HYDRANT, STA 4+47 (9' RT), IS RELOCATED FH 2447-004

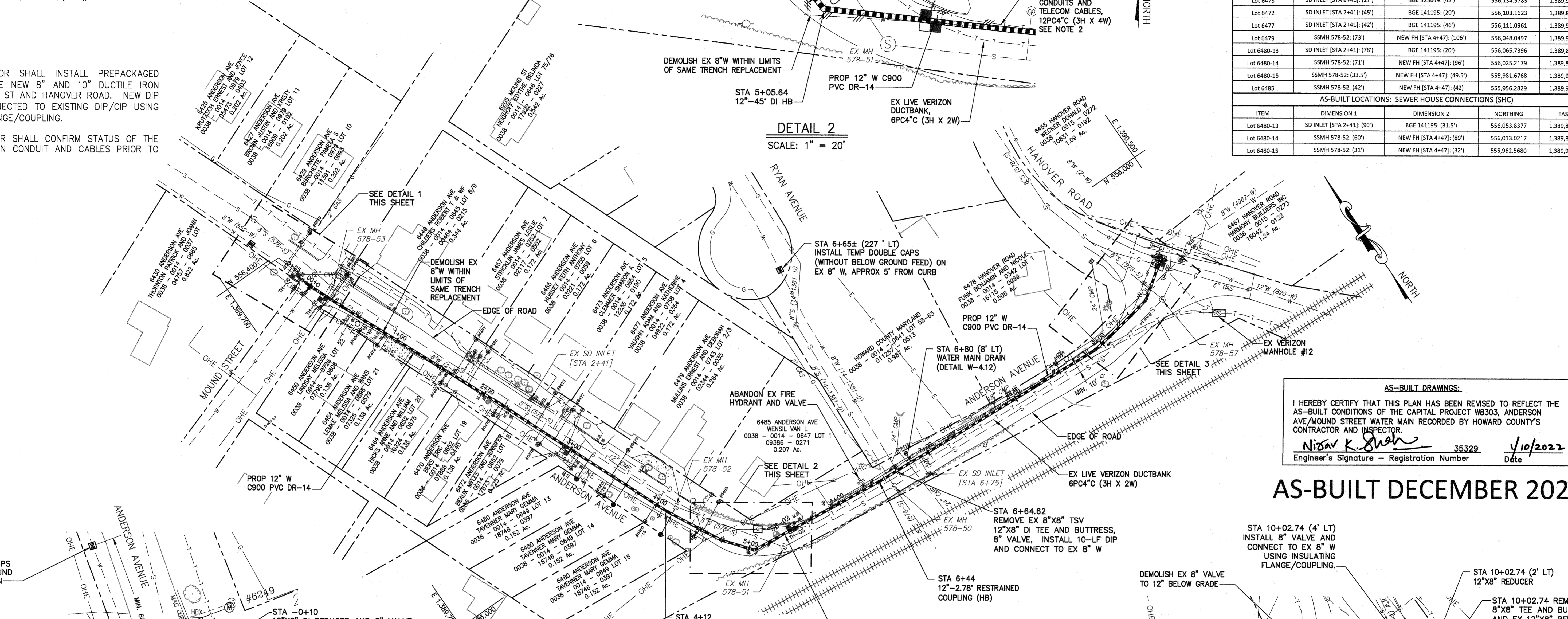
NOTES:

- THE CONTRACTOR SHALL INSTALL PREPACKAGED ANODES TO THE NEW 8" AND 10" DUCTILE IRON PIPE ON MOUND ST AND HANOVER ROAD. NEW DIP SHALL BE CONNECTED TO EXISTING DIP/CIP USING INSULATING FLANGE/COUPLING.
- THE CONTRACTOR SHALL CONFIRM STATUS OF THE EXISTING VERIZON CONDUIT AND CABLES PRIOR TO DEMOLITION.

STA 4+47 (9' RT)
FIRE HYDRANT, 6.5' BURY (W-1.11),
WITH CONTINUITY TEST STATION (W-1.15)

AS-BUILT LOCATIONS: WATER HOUSE CONNECTIONS (WHC)				
ITEM	DIMENSION 1	DIMENSION 2	NORTHING	EASTING
Lot 6429	SSMH 578-53: (58')	FH 2447-003: (56.5')	556,399.3131	1,389,797.5223
6205 Mound	SSMH 578-53: (19')	FH 2447-003: (55)	556,346.6492	1,389,803.9633
Lot 6449	SSMH 578-53: (20')	FH 2447-003: (55)	556,344.4695	1,389,805.3130
Lot 6450	SSMH 578-53: (49')	FH 2447-003: (76')	556,293.6333	1,389,783.4340
Lot 6454	SSMH 578-53: (71')	FH 2447-003: (98.5')	556,271.6655	1,389,789.1191
Lot 6457	SD INLET [STA 2+41]: (79')	BGE 323649: (55')	556,221.6770	1,389,871.5668
Lot 6464	SD INLET [STA 2+41]: (90')	BGE 323649: (17')	556,206.4462	1,389,818.3496
Lot 6465	SD INLET [STA 2+41]: (62')	BGE 323649: (50.5')	556,204.9070	1,389,874.3996
Lot 6470	SD INLET [STA 2+41]: (40')	BGE 323649: (43')	556,152.0148	1,389,843.5816
Lot 6473	SD INLET [STA 2+41]: (27')	BGE 323649: (43')	556,134.5783	1,389,905.5017
Lot 6472	SD INLET [STA 2+41]: (45')	BGE 141195: (20')	556,103.1623	1,389,862.6270
Lot 6477	SD INLET [STA 2+41]: (42')	BGE 141195: (46')	556,111.0961	1,389,909.4258
Lot 6479	SSMH 578-52: (73')	NEW FH [STA 4+47]: (106')	556,048.0497	1,389,931.8392
Lot 6480-13	SD INLET [STA 2+41]: (78')	BGE 141195: (20')	556,065.7396	1,389,876.0483
Lot 6480-14	SSMH 578-52: (71')	NEW FH [STA 4+47]: (96')	556,025.2179	1,389,887.2114
Lot 6480-15	SSMH 578-52: (33.5')	NEW FH [STA 4+47]: (49.5')	555,981.6768	1,389,905.3824
Lot 6485	SSMH 578-52: (42')	NEW FH [STA 4+47]: (42)	555,956.2829	1,389,975.6351

AS-BUILT LOCATIONS: SEWER HOUSE CONNECTIONS (SHC)				
ITEM	DIMENSION 1	DIMENSION 2	NORTHING	EASTING
Lot 6480-13	SD INLET [STA 2+41]: (90')	BGE 141195: (31.5')	556,053.8377	1,389,874.4106
Lot 6480-14	SSMH 578-52: (60')	NEW FH [STA 4+47]: (89')	556,013.0217	1,389,889.7096
Lot 6480-15	SSMH 578-52: (32')	NEW FH [STA 4+47]: (32')	555,962.5680	1,389,911.0201



PLAN - ANDERSON AVENUE
SCALE: 1" = 50'

UTILITY TEST HOLE					
TEST HOLE #	NORTHING	EASTING	TOP OF UTILITY	SURFACE ELEV.	DESCRIPTION
TH-01	555,903.7831	1,390,464.9174	90.65	94.89	12" WATER
TH-02	555,899.3241	1,390,460.2525	92.84	94.63	6" GAS
TH-03	555,894.9311	1,390,019.3844	86.58	90.83	EX. AND NEW VERIZON CONDUITS
TH-04	556,083.2631	1,389,881.8599	101.96	104.38	1" ELEC, 3" FO CONDUIT, 4" TELE CONDUIT
TH-05	556,339.0890	1,389,771.6497	112.52	115.55	4-4" PL TELE CONDUIT
TH-06	556,372.9582	1,389,761.9880	112.80	117.39	8" WATER

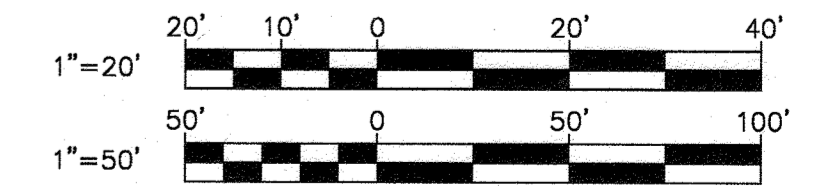
DETAIL 1
SCALE: 1" = 20'

DETAIL 2
SCALE: 1" = 20'

DETAIL 3
SCALE: 1" = 20'

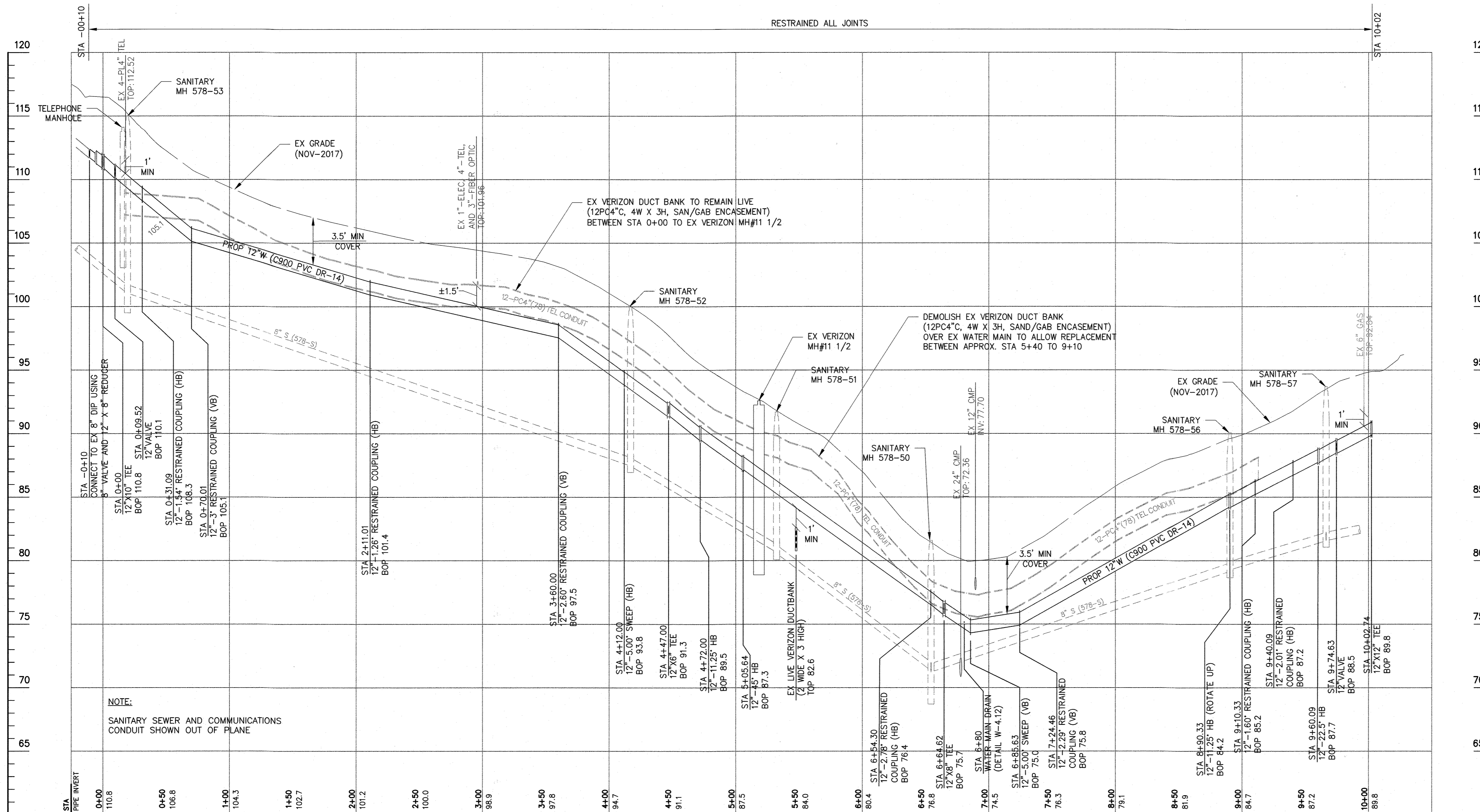
AS-BUILT DRAWINGS:
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN REVISED TO REFLECT THE AS-BUILT CONDITIONS OF THE CAPITAL PROJECT W8303, ANDERSON AVE/MOUND STREET WATER MAIN RECORDED BY HOWARD COUNTY'S CONTRACTOR AND INSPECTOR.
Nisar K. Sultan 35329 1/10/2022
Engineer's Signature - Registration Number Date

AS-BUILT DECEMBER 2021



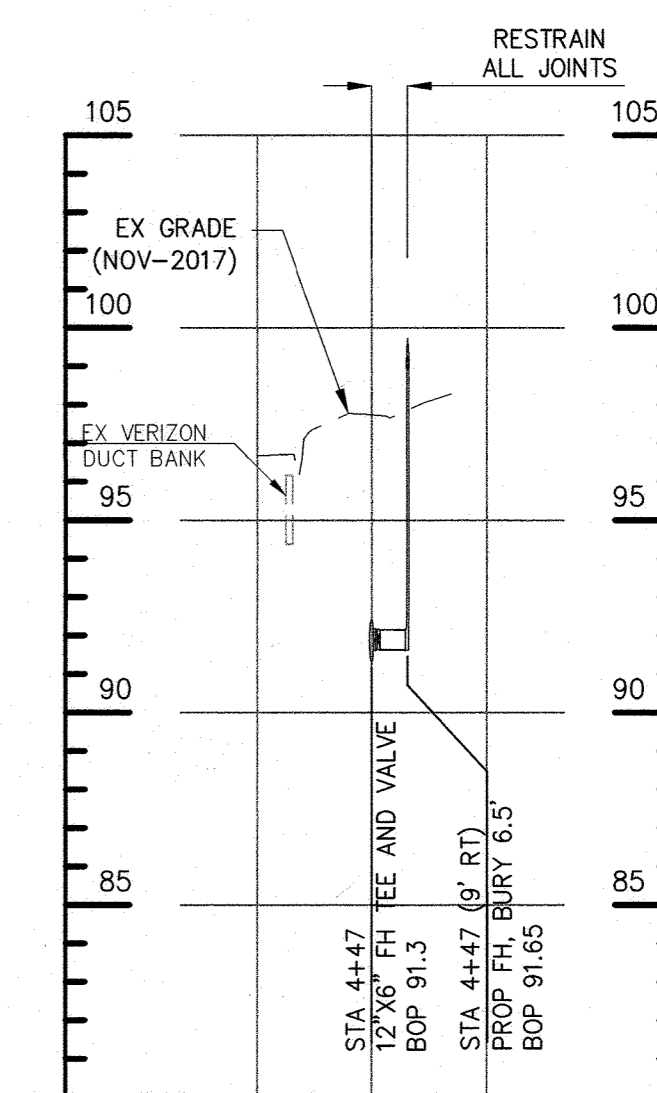
R027A.SYS - \\vol001\2012\2012\12154_jhc680A\Task 11 - Loudon Ave WM W8303_GADD\Plans\4-pjt-F002_LOADON.dwg May 14, 2020 - 3:49pm ENV:CTB Plot Scale 1"=50' Plot By: bgrace Tab: C-02

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>Melanie J. Hester</i> 6/9/20 Chief, Bureau of Engineering: <i>Thomas E. Sullivan</i> 6/9/20 Chief, Bureau of Utilities: <i>Chris J. ...</i> 6-27-2020 Chief, Utility Design Division: <i>...</i>		RK&K P: 410.728.2900 700 East Pratt Street, Suite 500 Baltimore, MD 21202 Engineers Construction Managers Planners Scientists www.rkk.com Responsive People Creative Solutions		PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. License No. 20566 Expiration Date: 09/06/2020		DES: WJG BY: WJG DRN: RAD CHK: NKS SIGN DATE: 05.19.2020		REVISION AS-BUILT DATE: 12/7/21		WATER PLAN (STA 0+00 TO STA 10+05) 800' SCALE MAP NO. 38 BLOCK NO. 14, 15		PROJECT NO. W8303 CONTRACT NO. 44-5054 ANDERSON AVE/MOUND STREET WATER MAIN ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND		SCALE: AS SHOWN SHEET NO. 04 OF 13	
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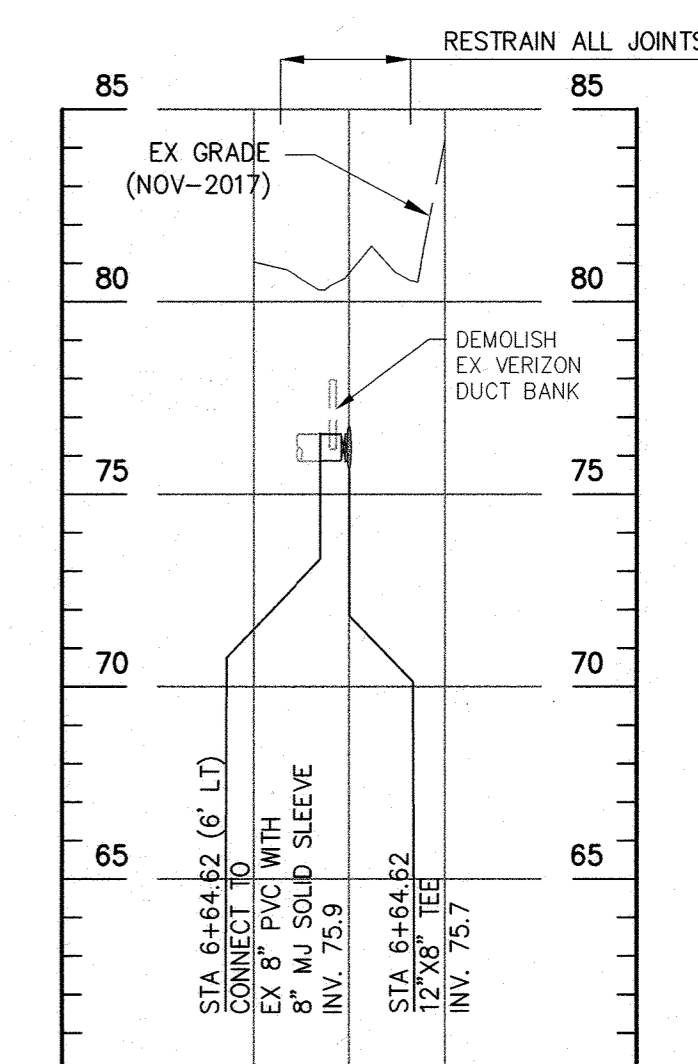


PROFILE - PROP 12" WATER

SCALE: 1" = 50' HORIZ.
1" = 5' VERT.



SCALE: 1" = 50' HORIZ.
1" = 5' VERT.
PROFILE - FH (STA 4+47)



SCALE: 1" = 50' HORIZ.
1" = 5' VERT.
PROFILE - 8"W (STA 6+64.62)

NOTES:

- 1. CONTINUITY TEST STATIONS SHALL BE LOCATED AS SHOWN ON THE DRAWING AND ADJACENT TO EACH FIRE HYDRANT WITHIN THE PUBLIC ROW / EASEMENT FOR LOCATING THE PVC WATER MAIN.
- 2. THE DEPTH OF EX TELE CONDUIT AND SEWER ON ANDERSON AVENUE SHOWN ON THE PROFILE ARE BASED ON THE RECORD DRAWINGS. THE CONTRACTOR SHALL ADJUST THE LOCATION OF THE FITTINGS AND THE ELEVATION OF THE PIPELINES AS NECESSARY DUE TO ACTUAL FIELD CONDITIONS WHICH MAY BE DIFFERENT THAN SHOWN ON THE PLANS, AT NO ADDITIONAL COST TO THE COUNTY.

AS-BUILT
DEC. 2021



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director: *Andrew M. McManus* 1/18/2020
Chief, Bureau of Engineering: *Thomas E. Scullen* 6/9/20
Chief, Bureau of Utilities: *[Signature]* 6-29-2020
Chief, Utility Design Division: *[Signature]*

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PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 20566
EXPIRATION DATE: 09/06/2020



DES:	BY:	NO.:	REVISION:	DATE:
WJG				
DRN:	RAD			
CHK:	NKS			
SIGN DATE:	6-5-2020			

WATER PROFILES
(STA 0+00 TO STA 10+05)
MAY 1, 2020
600' SCALE MAP NO. 38
BLOCK NO. 14, 15

PROJECT NO. W8303
CONTRACT NO. 44-5054
ANDERSON AVE/MOUND STREET WATER MAIN
ELECTION DISTRICT NO. 2
HOWARD COUNTY, MARYLAND

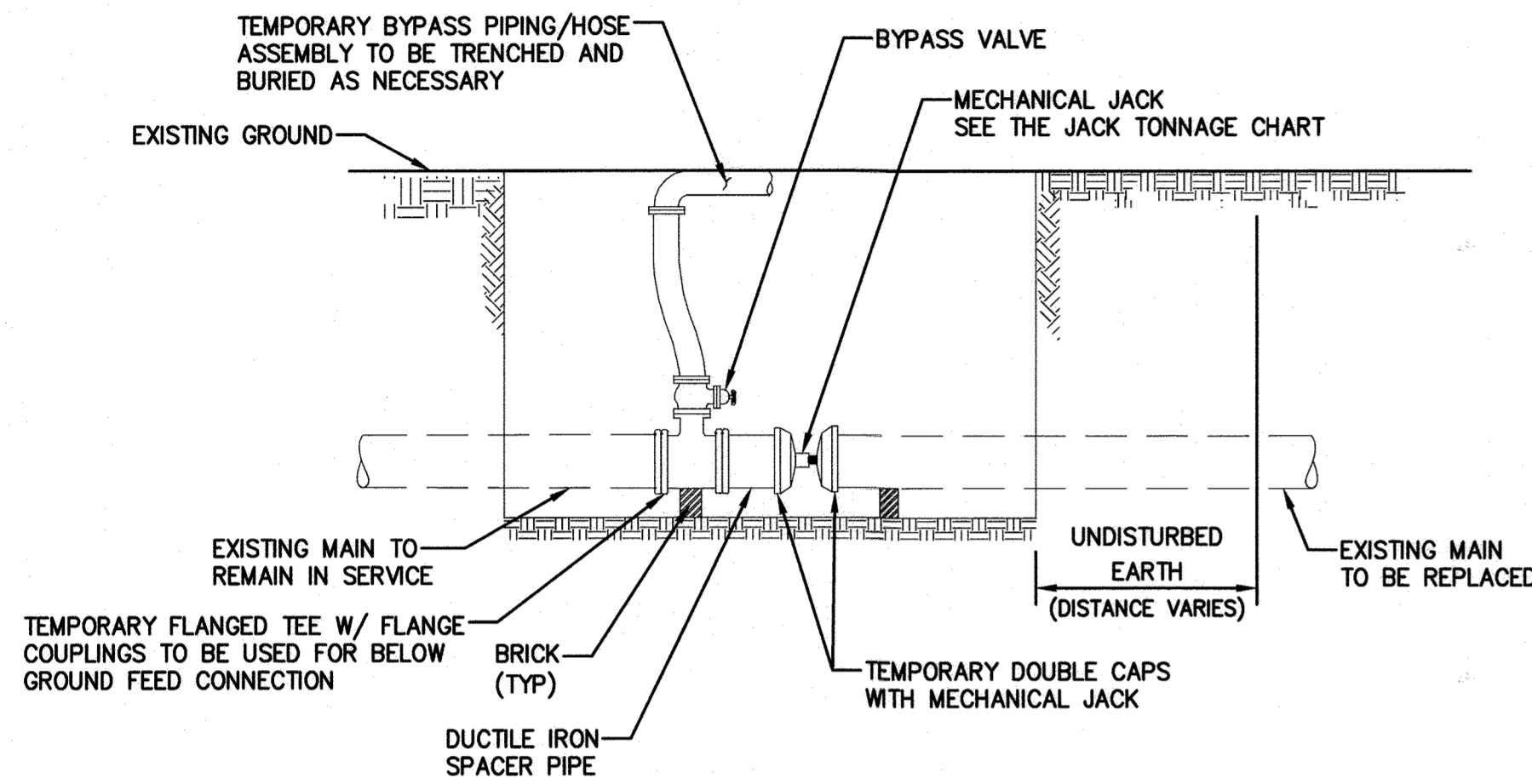
SCALE
AS SHOWN
SHEET NO.
05 OF 13
C-03

NOTES:

1. AFTER THE TEMPORARY BULKHEAD AND BELOW GROUND FEED CONNECTION ARE INSTALLED, THE CONTRACTOR SHALL SECURE THE UTILITY TRENCH WITH THE STEEL PLATE AS PER COUNTY DETAIL G-4.02 UNTIL PROPOSED WATER MAIN WORK IS COMPLETED.
2. TO RETURN THE EXISTING MAIN TO NORMAL SERVICE, THE TEMPORARY BULKHEAD AND BELOW GROUND FEED CONNECTION MUST BE REMOVED AND REPLACED WITH NEW DUCTILE IRON SPOOL PIECE AND TRANSITION COUPLINGS, AS SHOWN HERE AND IN ACCORDANCE WITH THE HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS.

JACK TONNAGE CHART	
JACK TONNAGE @ 150 PSI	OD ² / 16 TONS
JACK TONNAGE @ 200 PSI	OD ² / 12 TONS

OD OF WATER MAIN MEASURED IN INCHES.

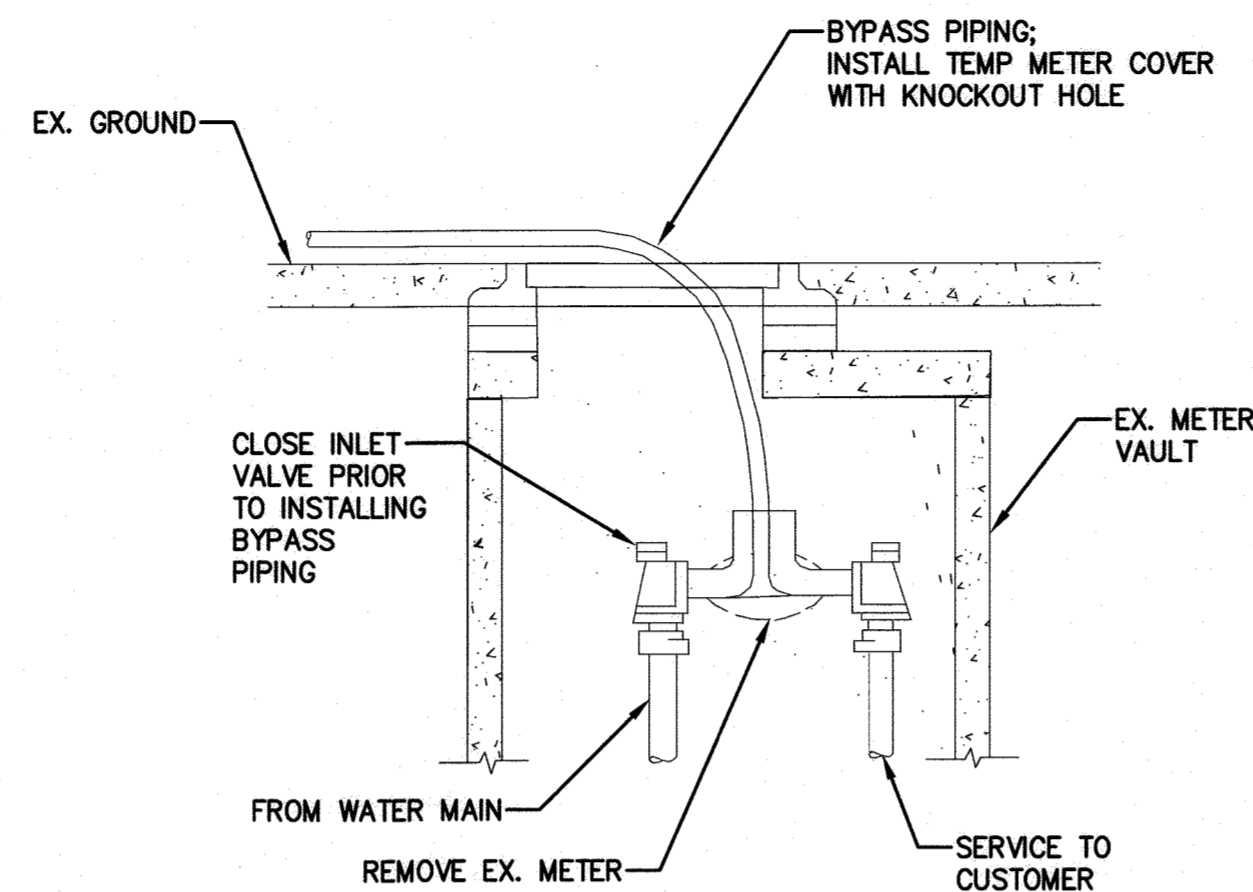


A. TEMPORARY DOUBLE CAPS/BULKHEAD AND BELOW GROUND FEED CONNECTION

SCALE: NTS

NOTE:

TEMPORARY BYPASS PIPING SYSTEM MUST COMPLY WITH NSF 61.

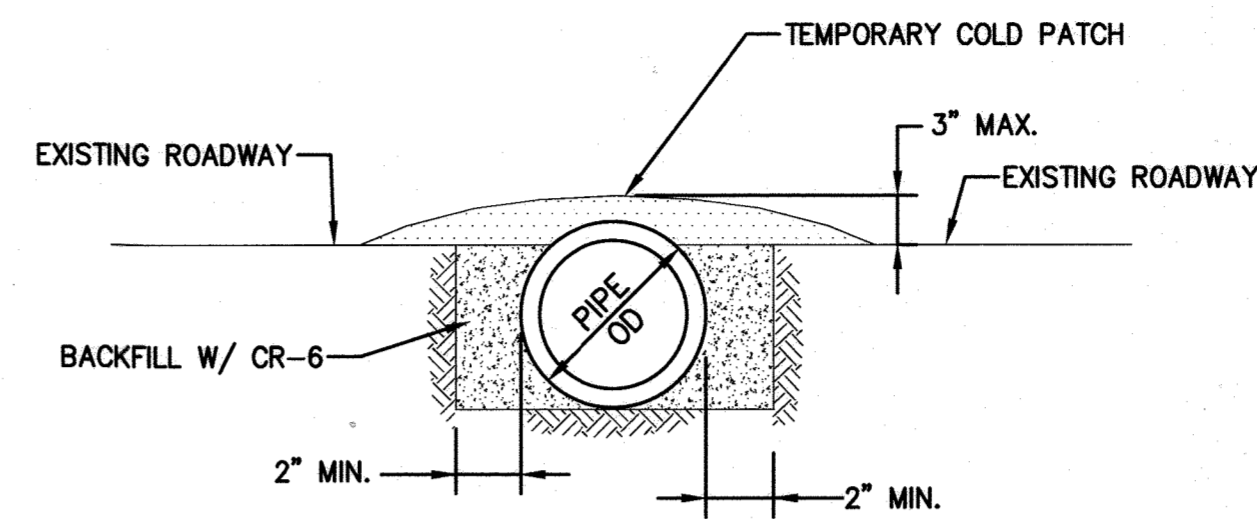


C. TEMPORARY WATER HOUSE CONNECTION FOR OUTSIDE METER (UP TO 2" WATER SERVICE)

SCALE: NTS

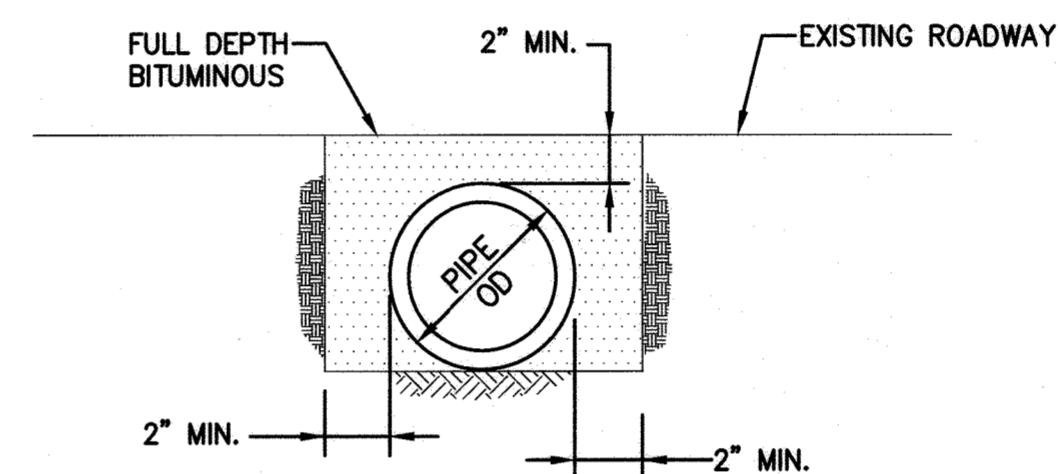
NOTE:

1. TRENCH REPAIR AND ROADWAY RESTORATION SHALL BE COMPLETED IN ACCORDANCE WITH THE HOWARD COUNTY STANDARD DETAIL G-2.11 AND G-4.01. IF THE TEMPORARY BYPASS PIPE WAS INSTALLED SUCH THAT THE LIMITS OF PAVING ENCROACH UPON PRIVATE PROPERTY, PERMISSION SHALL BE OBTAINED FROM THE PROPERTY OWNER PRIOR TO WORK.
2. PROTECT EXISTING NON-BITUMINOUS PAVEMENT FROM DISCOLORATION IF USING COLD PATCH METHOD. THE CONTRACTOR IS RESPONSIBLE FOR CORRECTING ANY STAINING OR DISCOLORATION.
3. RUBBER RAMPS THAT DO NOT CUT THE PAVEMENT ARE ALLOWED ONLY FOR DRIVEWAY CROSSINGS.



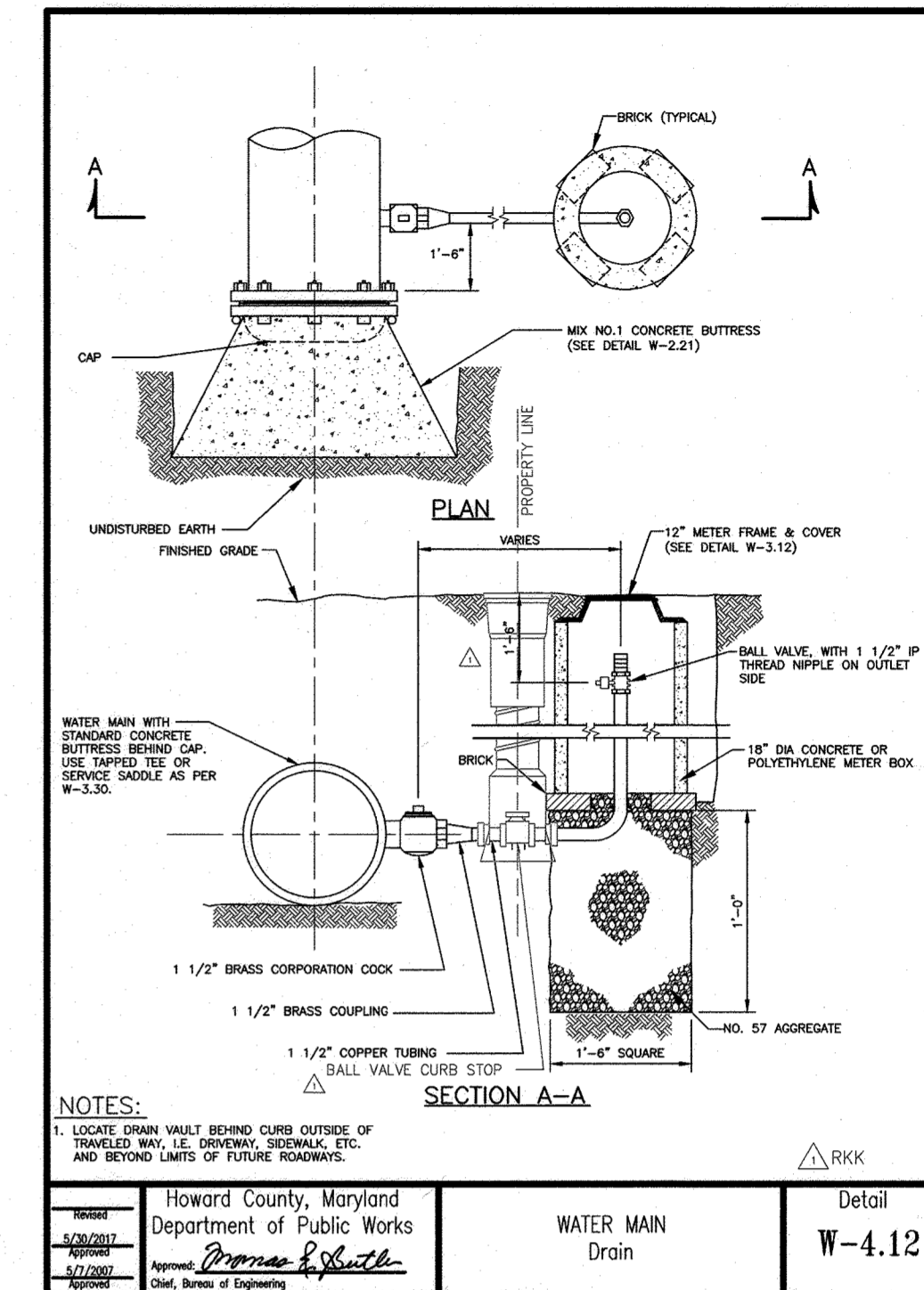
E. TEMPORARY ROADWAY CROSSING FOR 4" AND SMALLER TEMPORARY BY-PASS PIPING

SCALE: NTS



F. TEMPORARY "MAJOR ROADWAY" CROSSING FOR 4" AND SMALLER TEMPORARY BY-PASS PIPING

SCALE: NTS

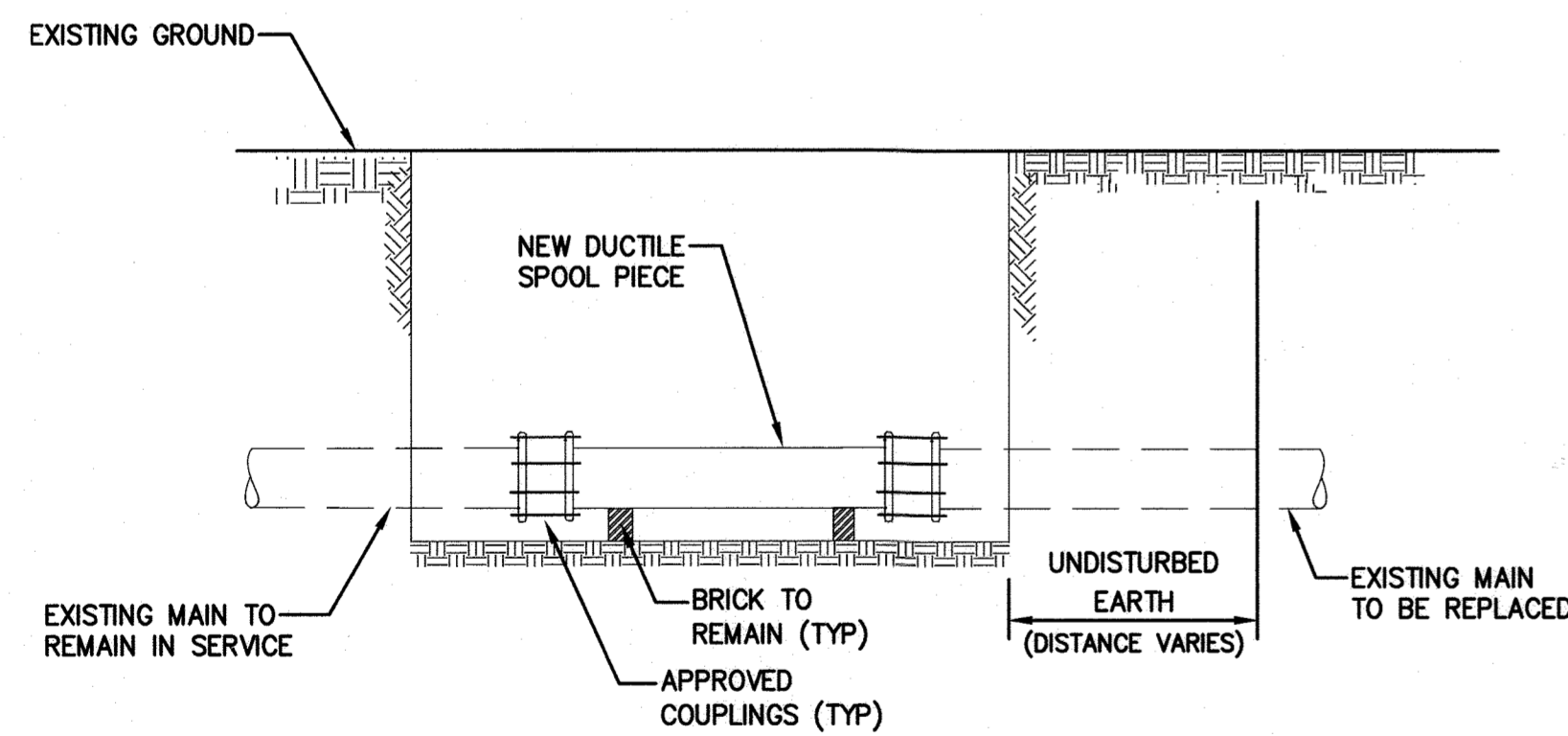


H. WATER MAIN DRAIN

SCALE: NTS

NOTE:

TRENCH REPAIR AND ROADWAY RESTORATION SHALL BE COMPLETED IN ACCORDANCE WITH THE HOWARD COUNTY STANDARD DETAIL G-2.11 AND G-4.01.

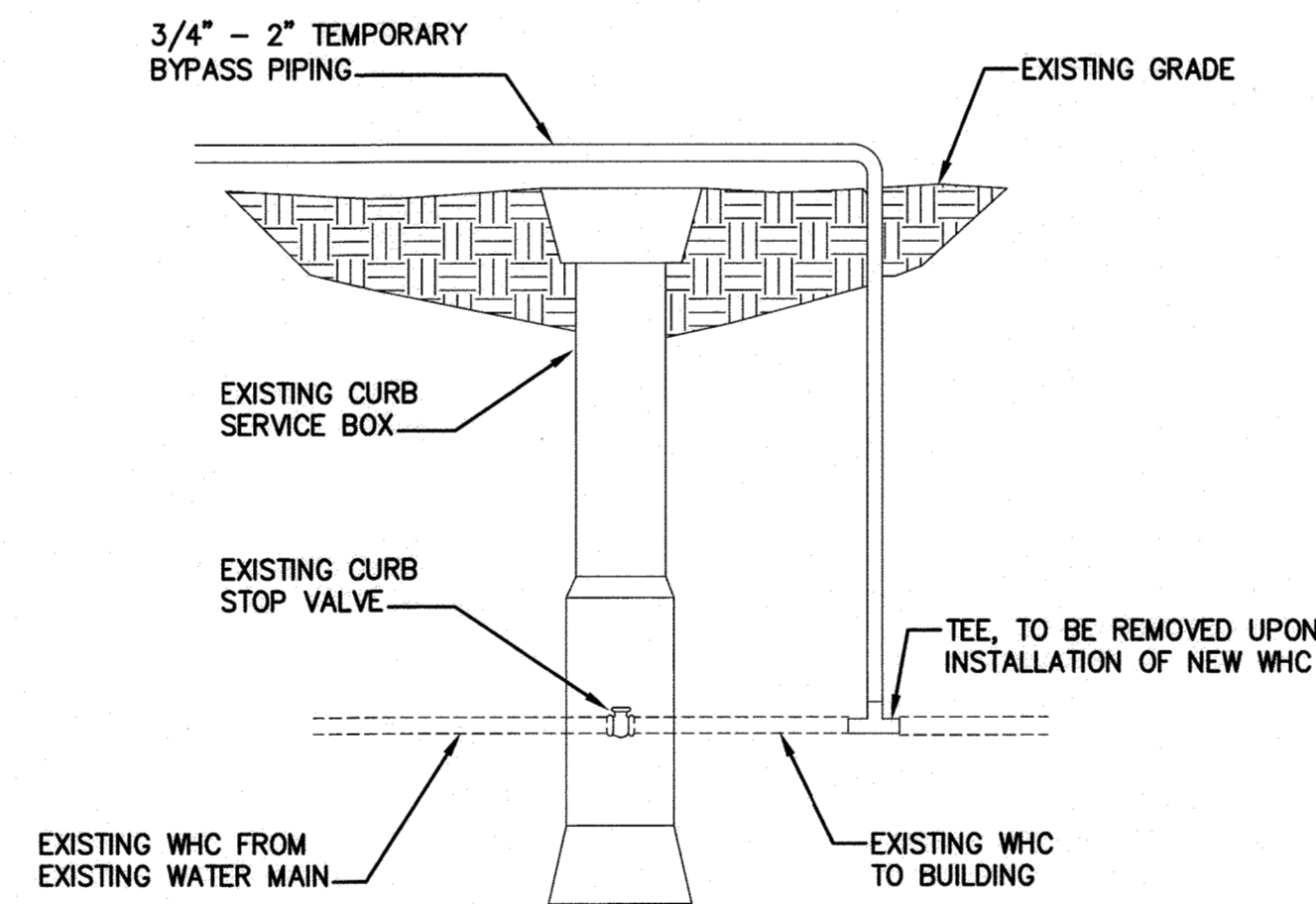


B. PERMANENT REPAIR TO BELOW GROUND FEED CONNECTION

SCALE: NTS

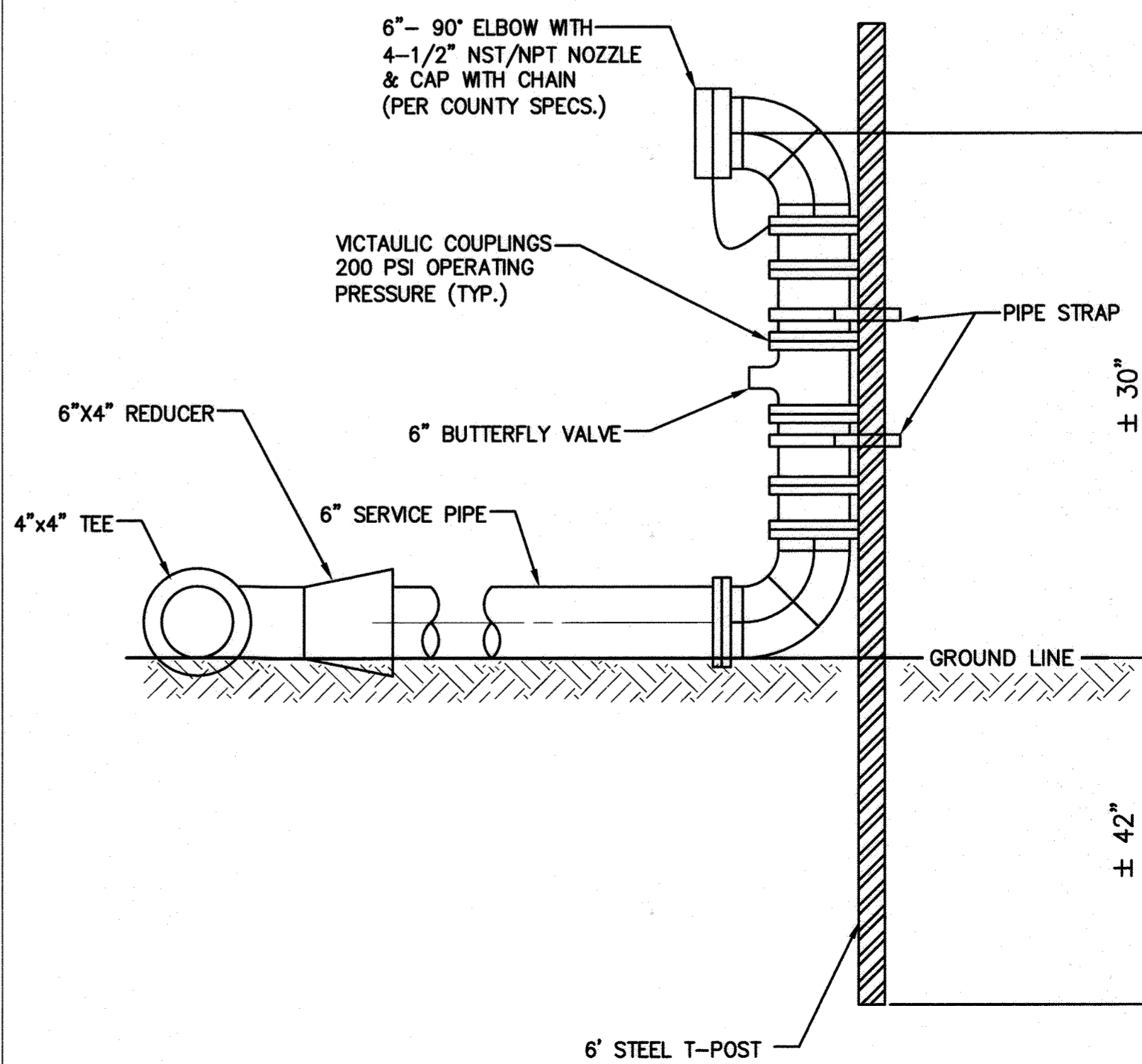
NOTES:

1. EXCAVATE TO CONNECT TEMPORARY WATER HOUSE CONNECTION.
2. SHUT-OFF EXISTING CURB STOP VALVE. INSTALL TEE ON BUILDING SIDE OF CURB SERVICE BOX AND CONNECT TEMPORARY WATER LINE TO TEE.
3. BACKFILL EXCAVATION.
4. TEMPORARY BYPASS PIPING SYSTEM MUST COMPLY WITH NSF 61.



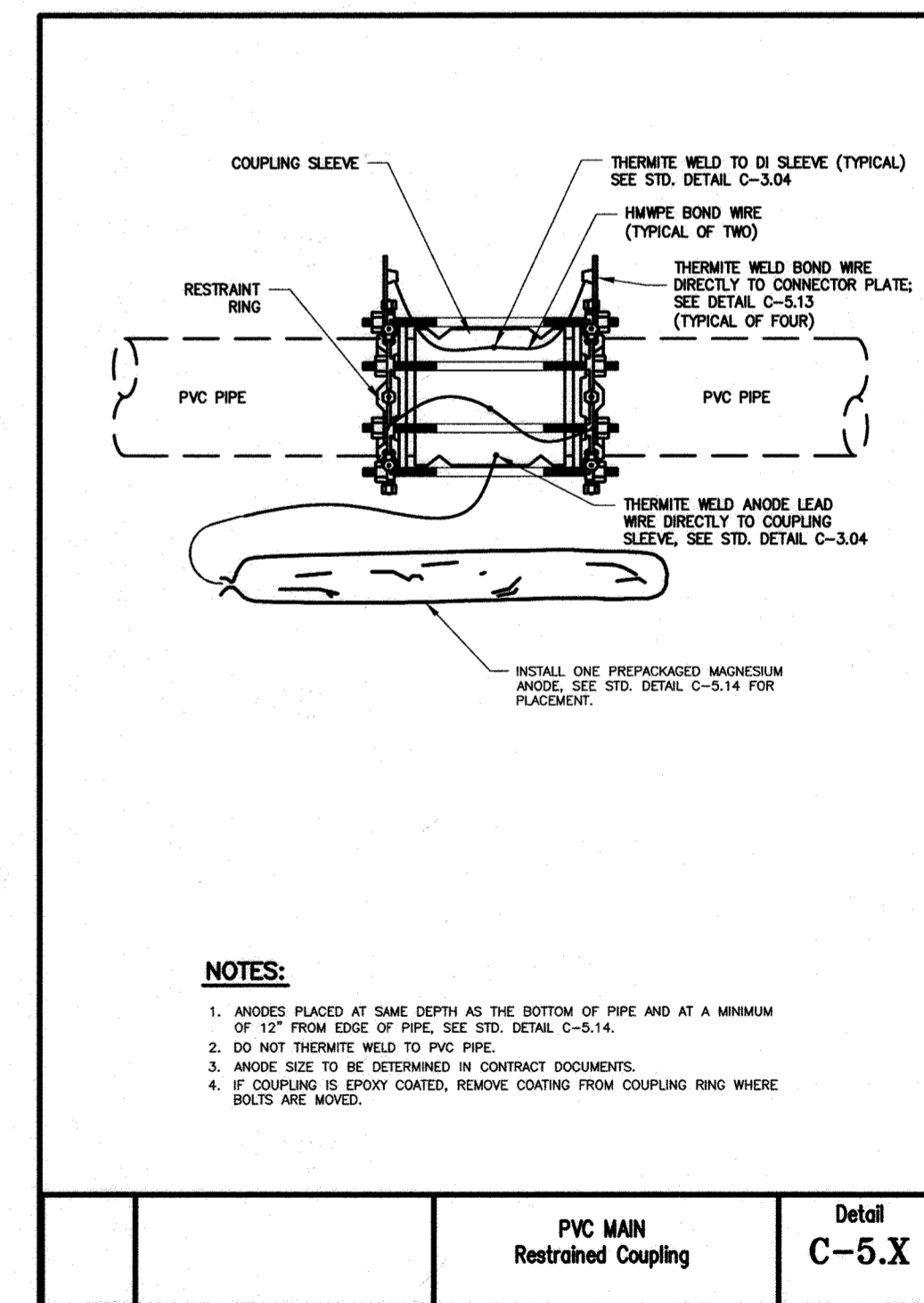
D. TEMPORARY WATER HOUSE CONNECTION FOR INSIDE METER WITH CURB STOP

SCALE: NTS



G. TEMPORARY FIRE HYDRANT ASSEMBLY

SCALE: NTS



I. CATHODIC PROTECTION FOR RESTRAINED COUPLING

SCALE: NTS

AS-BUILT, DEC. 2021

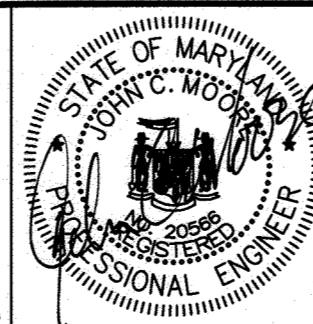
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 6-29-2020
Chief, Bureau of Engineering: *[Signature]* 6/29/2020
Chief, Bureau of Utilities: *[Signature]* 6-29-2020
Chief, Utility Design Division: *[Signature]* 6/29/2020

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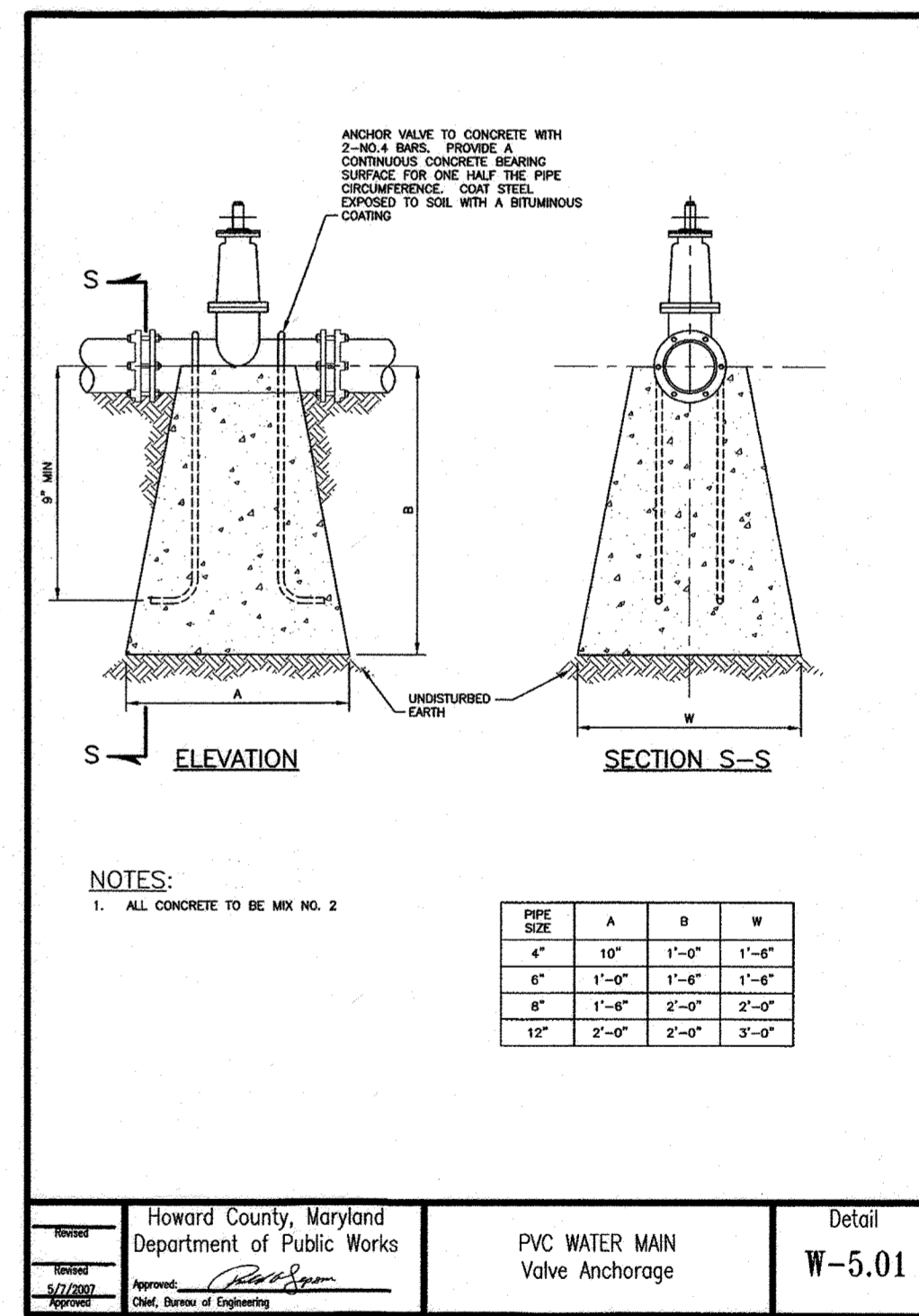
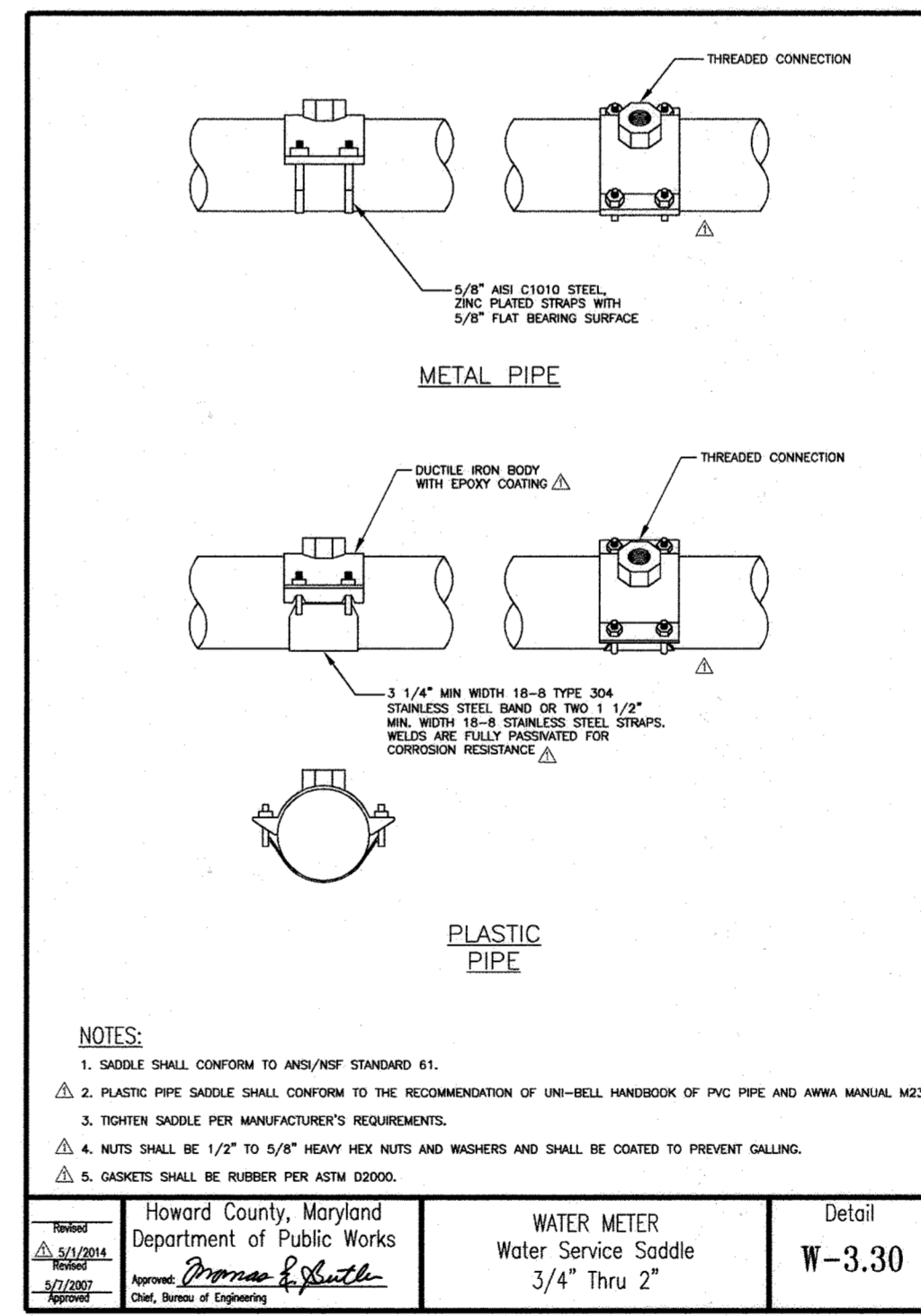
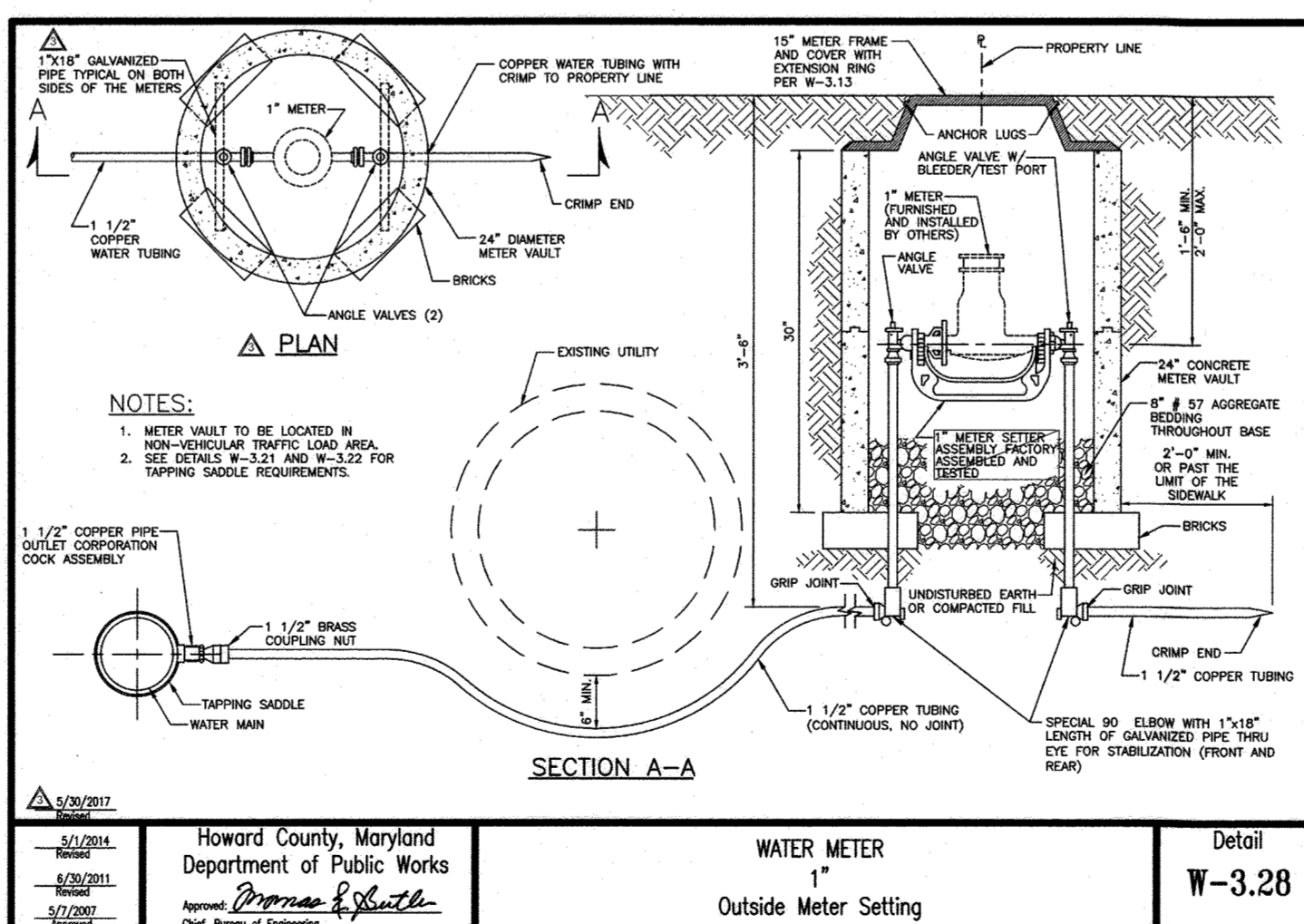
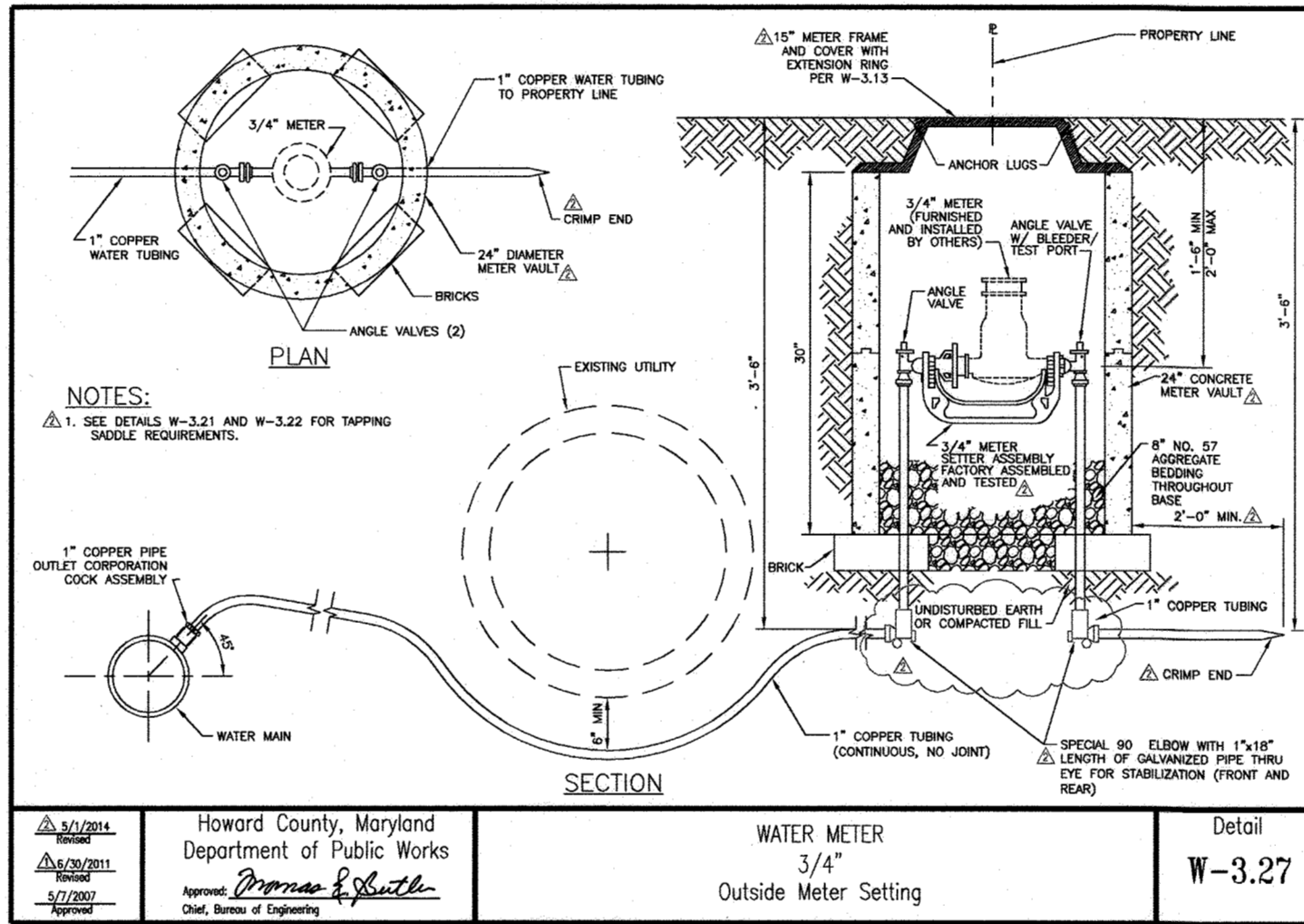
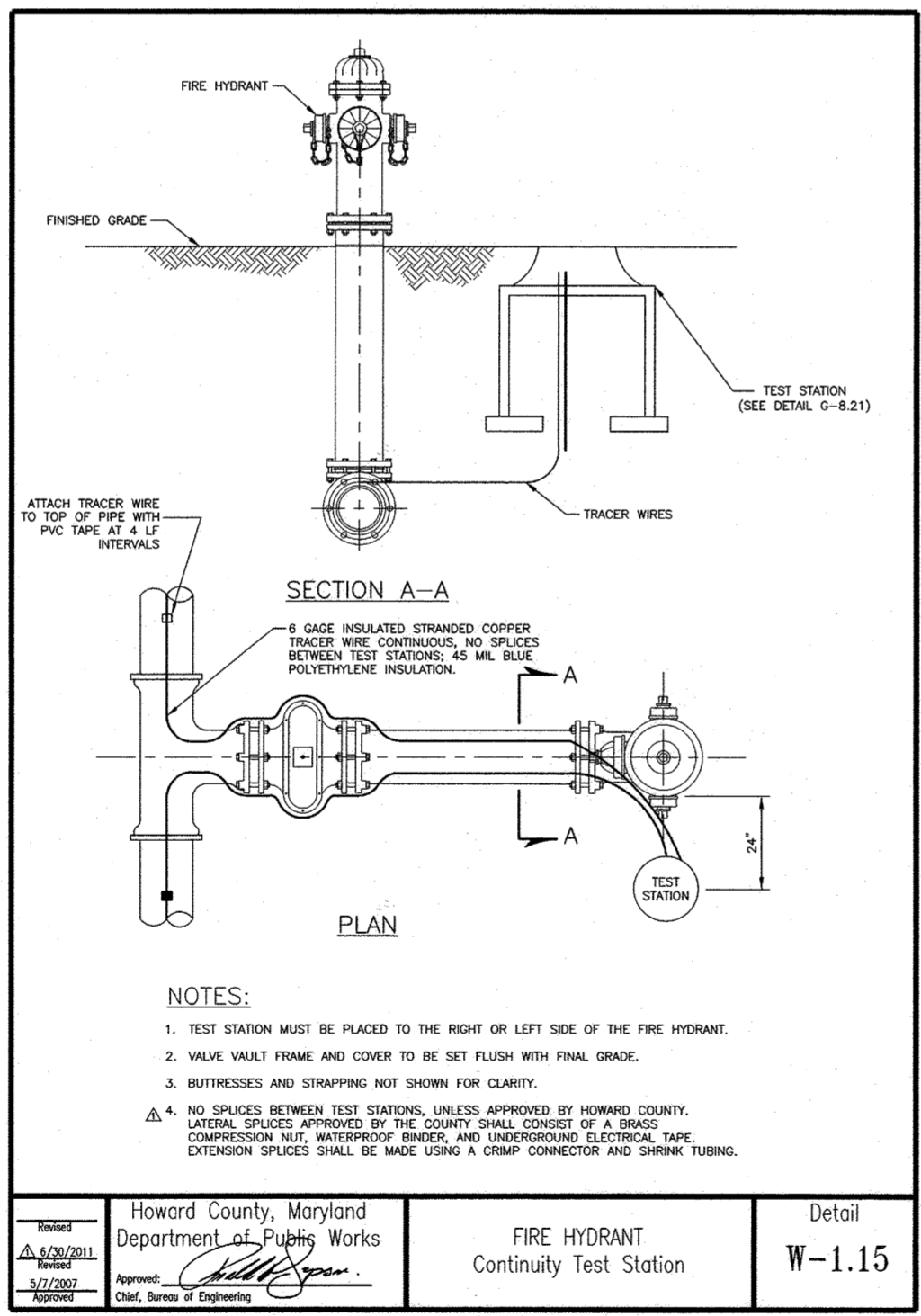
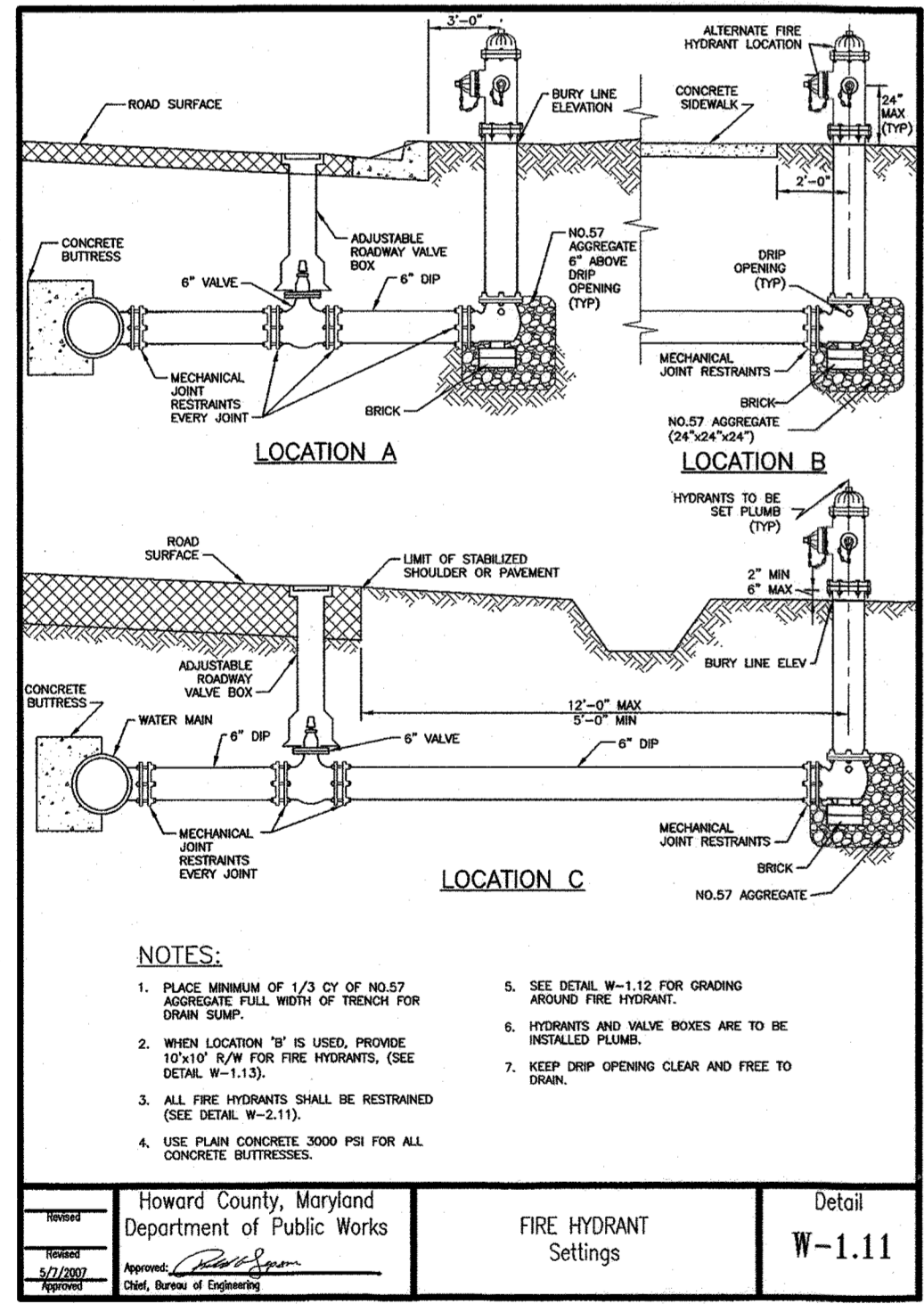
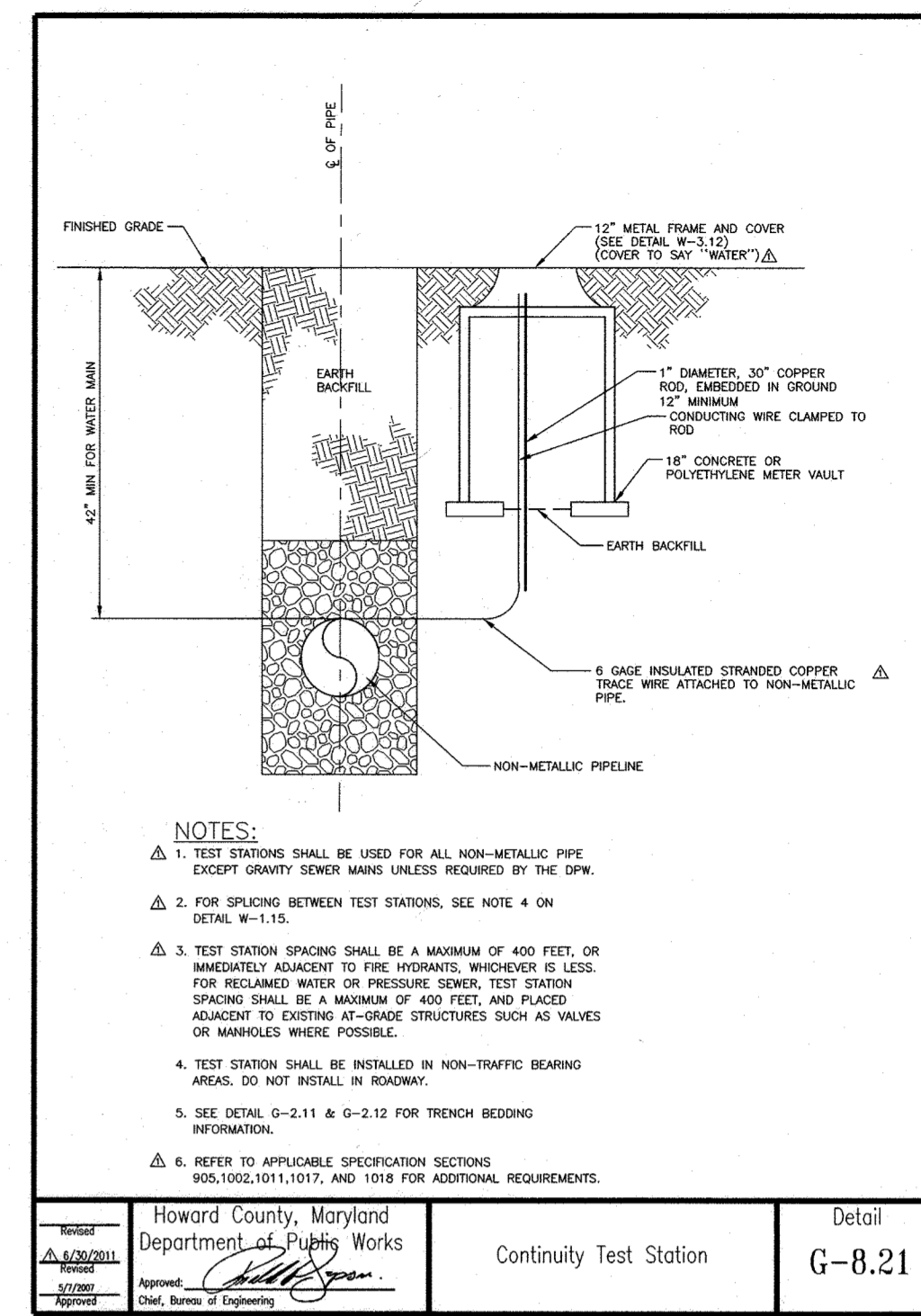
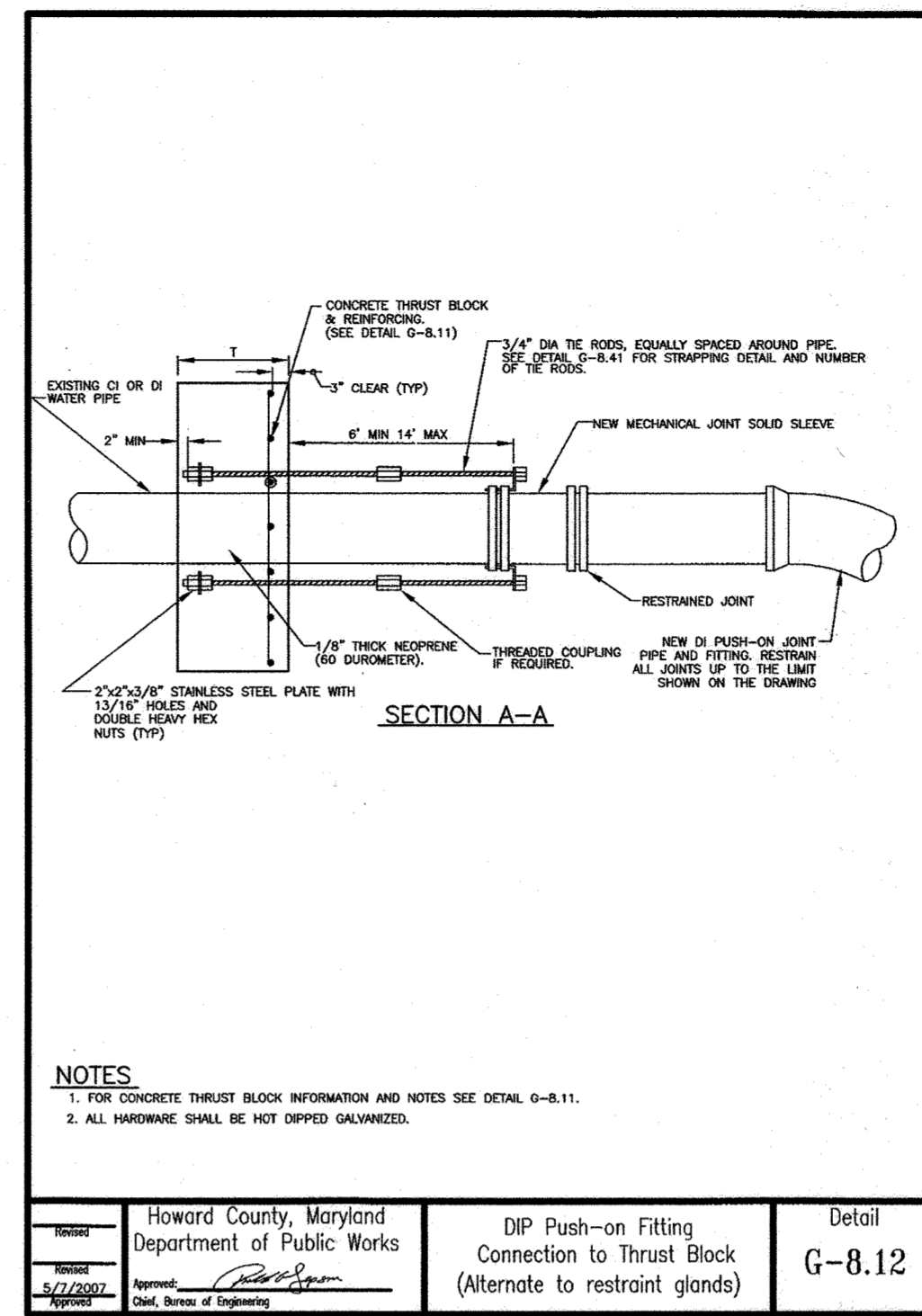
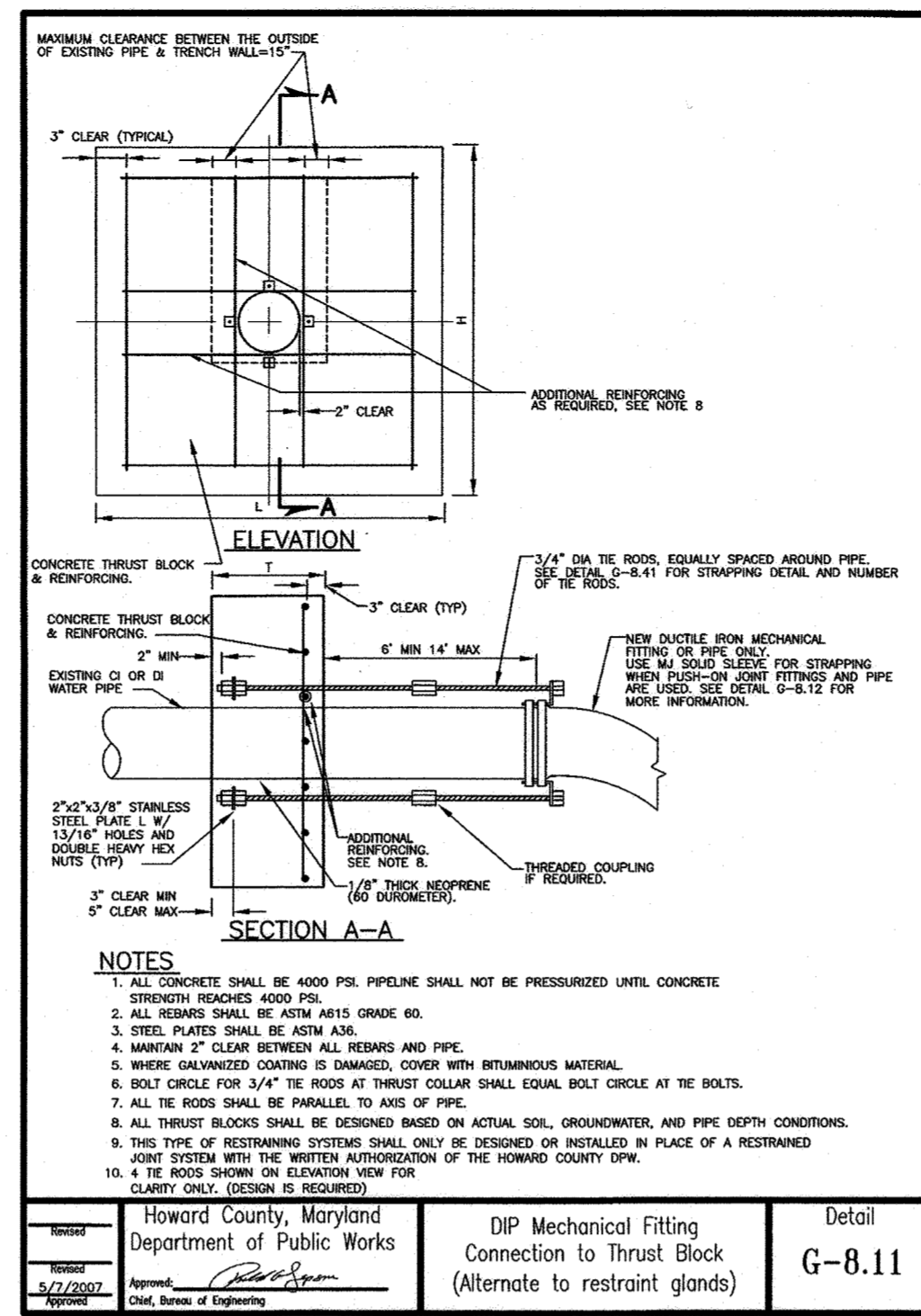
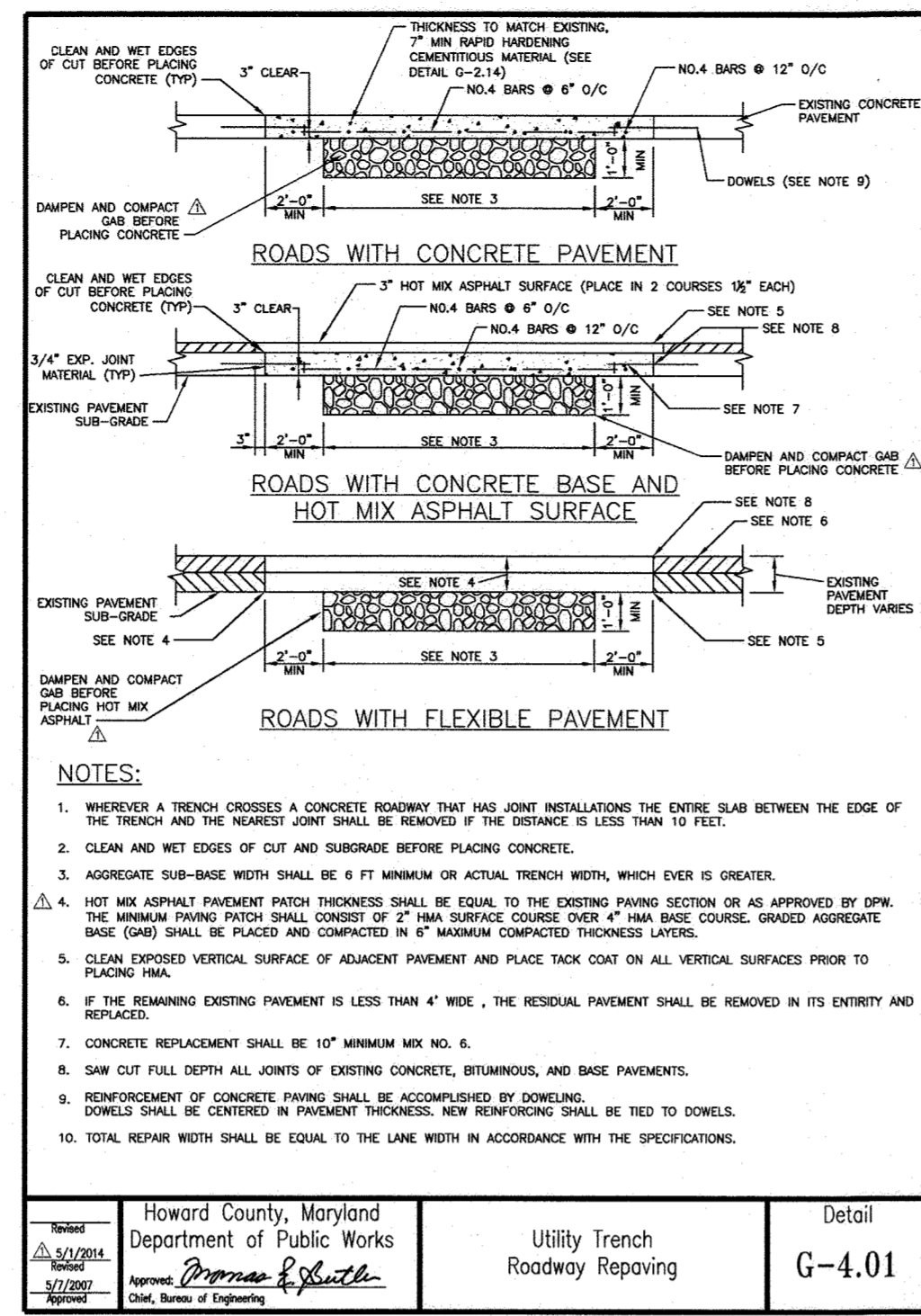
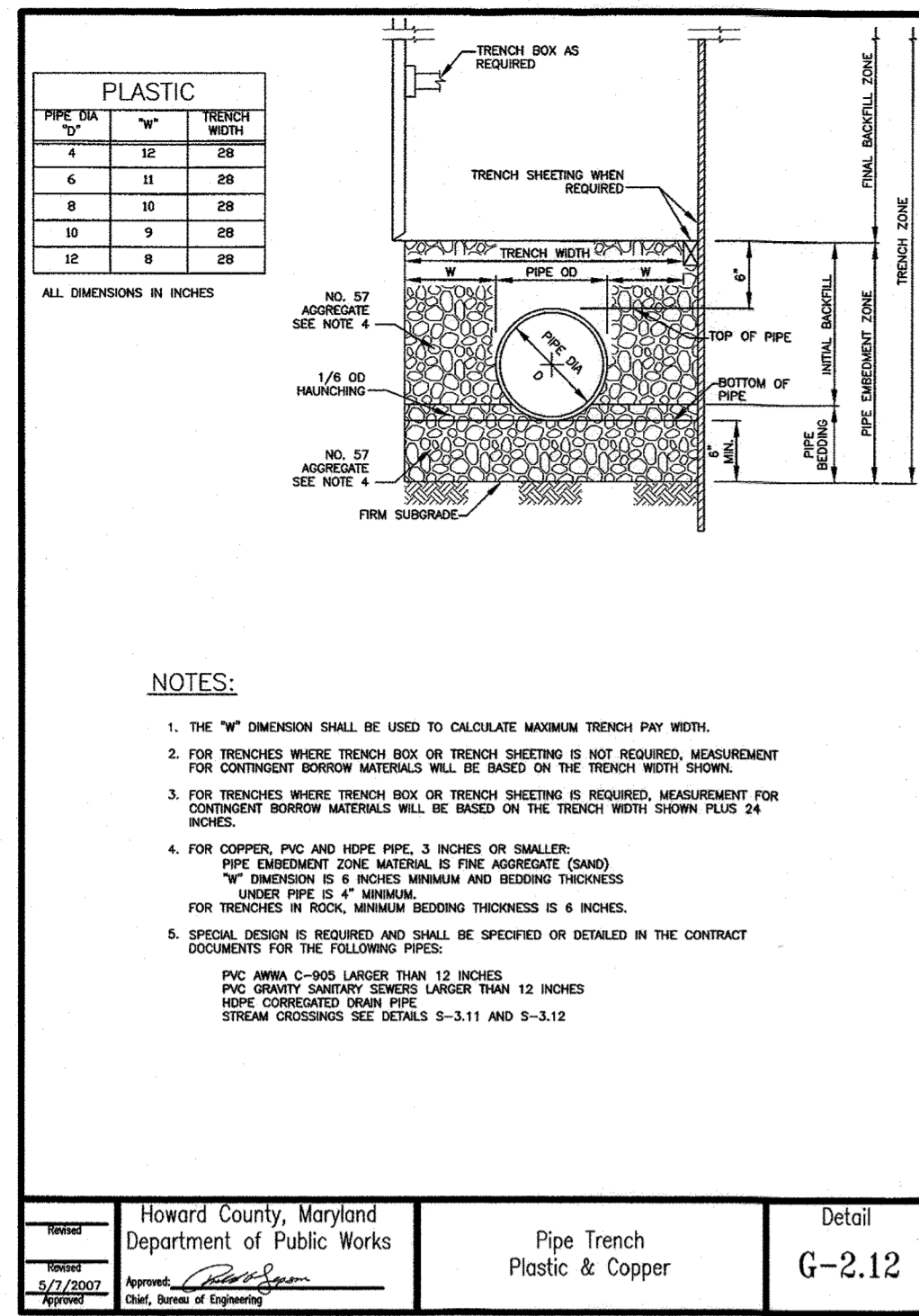
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EXPIRATION DATE: 09/06/2020.



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WJC				
DRN:				
CHK:				
SIGN DATE:				

MAY 1, 2020
WATER AND MISCELLANEOUS DETAILS
600' SCALE MAP NO. 38
BLOCK NO. 14, 15

PROJECT NO. W8303
CONTRACT NO. 44-5054
ANDERSON AVE/MOUND STREET WATER MAIN
ELECTION DISTRICT NO. 2
HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN
SHEET NO. 06 OF 13



R021515 - \\bldg01\p021515\2021\2154-146580A\Task 11 - Loudon Ave W8303\CD\Plan\7-101-002-LOADON.dwg May 14, 2020 - 3:46pm ENVCIB Plot Scale 1=1 Plot By: bgraves Tab-C-05

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director 7/8/2020
DIRECTOR OF PUBLIC WORKS DATE

Chief 6/19/20
CHIEF, BUREAU OF ENGINEERING DATE

Chief 6-29-2020
CHIEF, BUREAU OF UTILITIES DATE

Chief 6/16/20
CHIEF, UTILITY DESIGN DIVISION DATE

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DES:	BY:	NO.	REVISION	DATE
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DRN:				
CHK:				
SIGN DATE:				

MAY 1, 2020

WATER AND MISCELLANEOUS
DETAILS (CONTINUED)

600' SCALE MAP NO. 38 BLOCK NO. 14, 15

PROJECT NO. W8303
CONTRACT NO. 44-5054

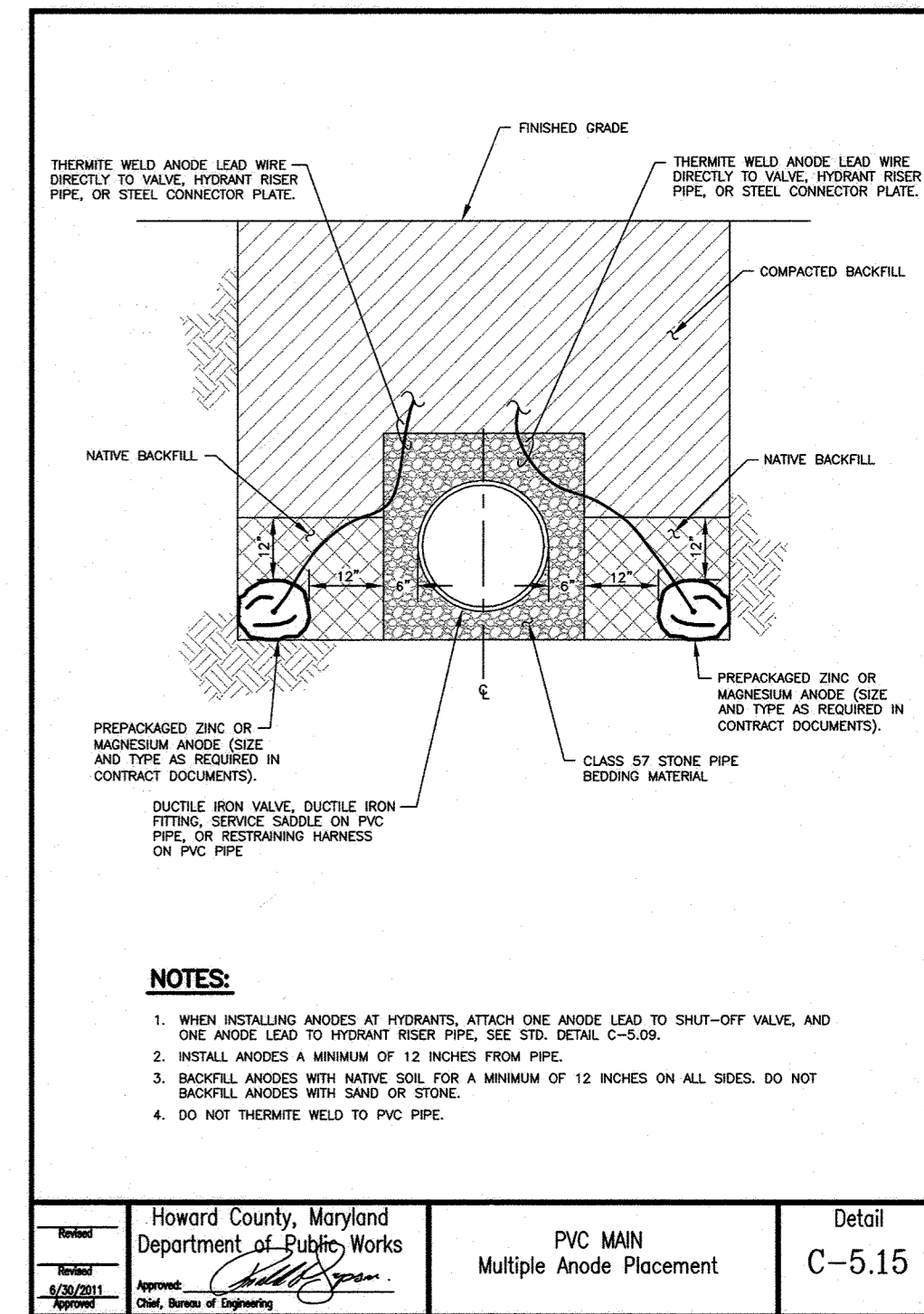
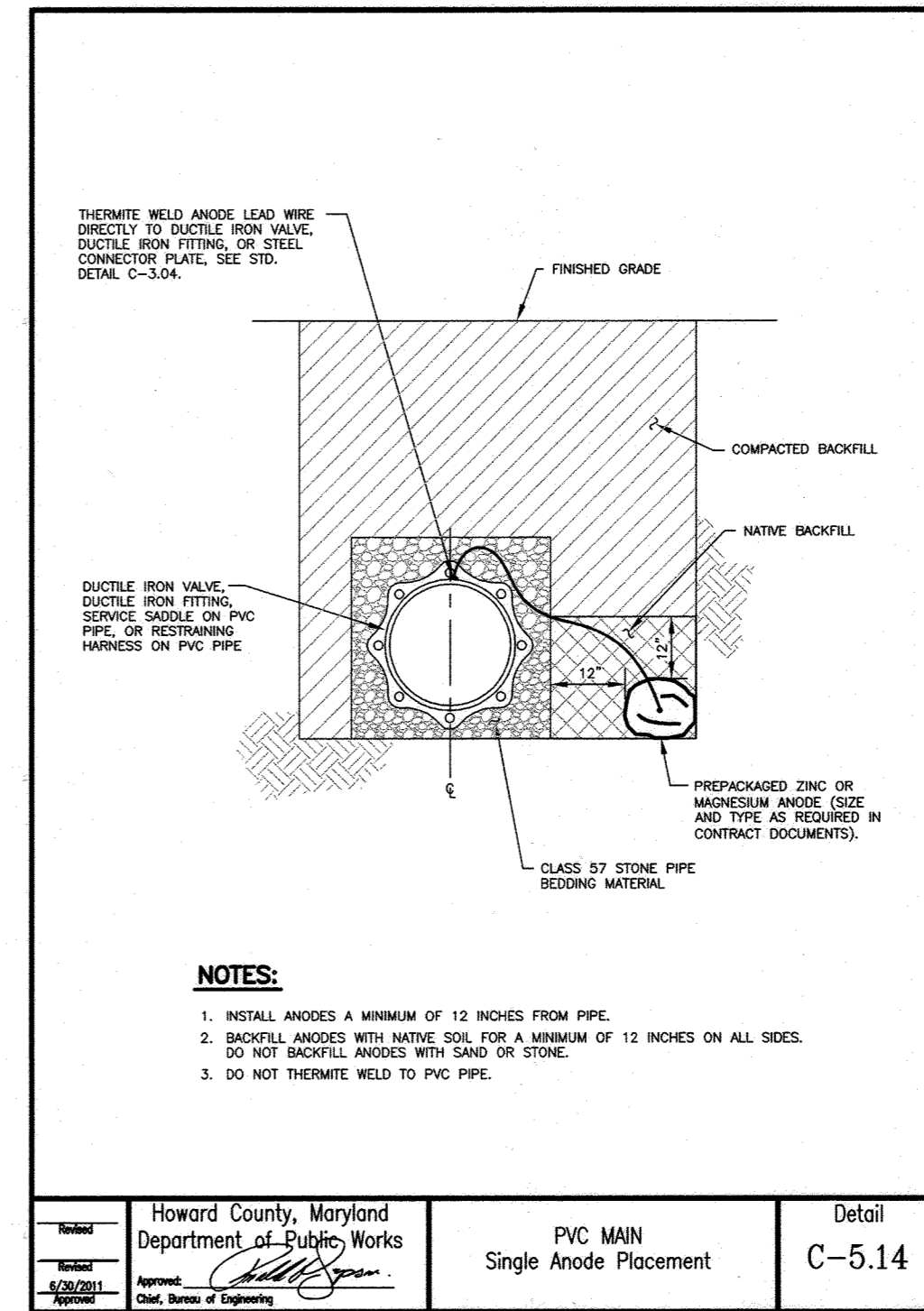
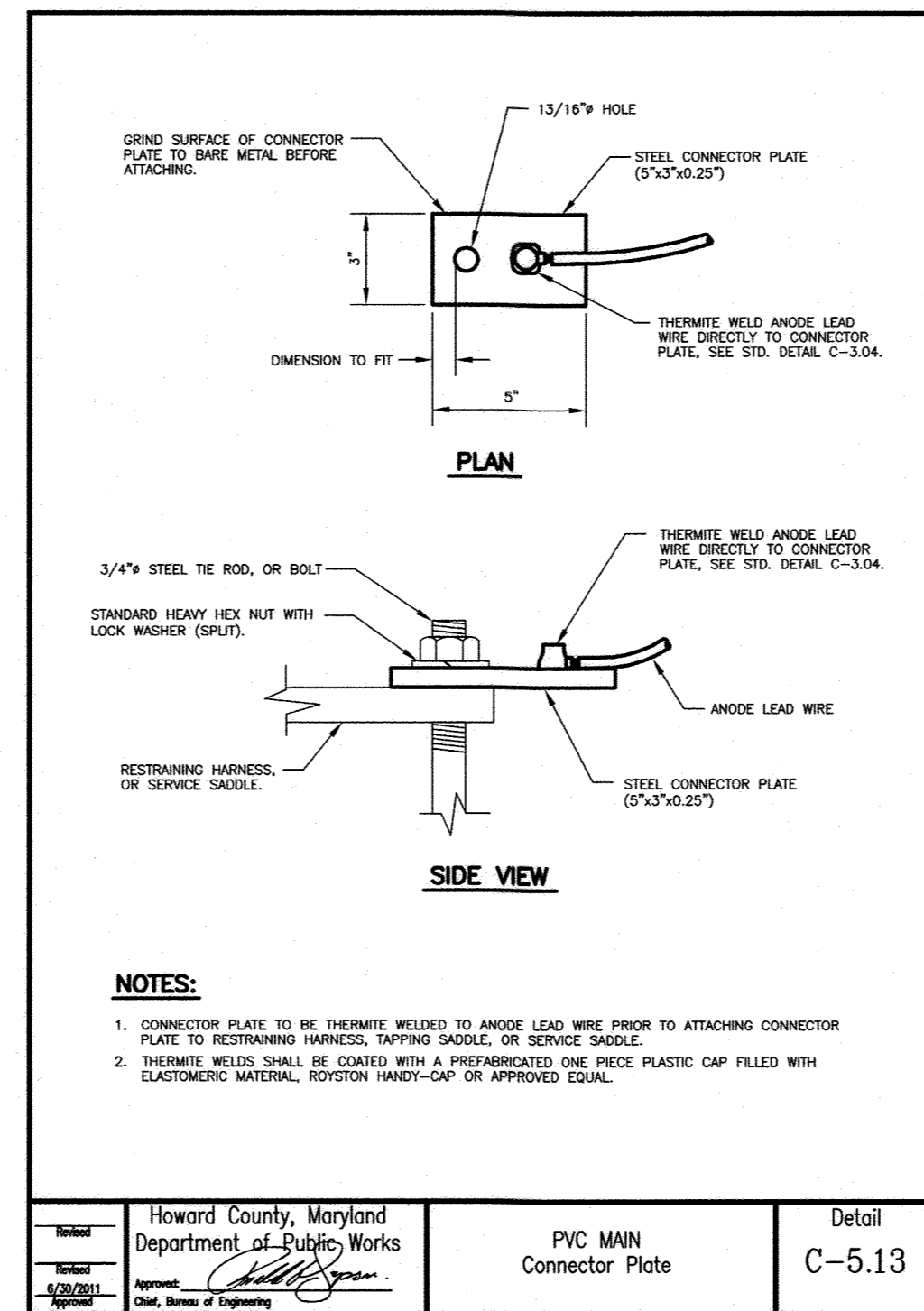
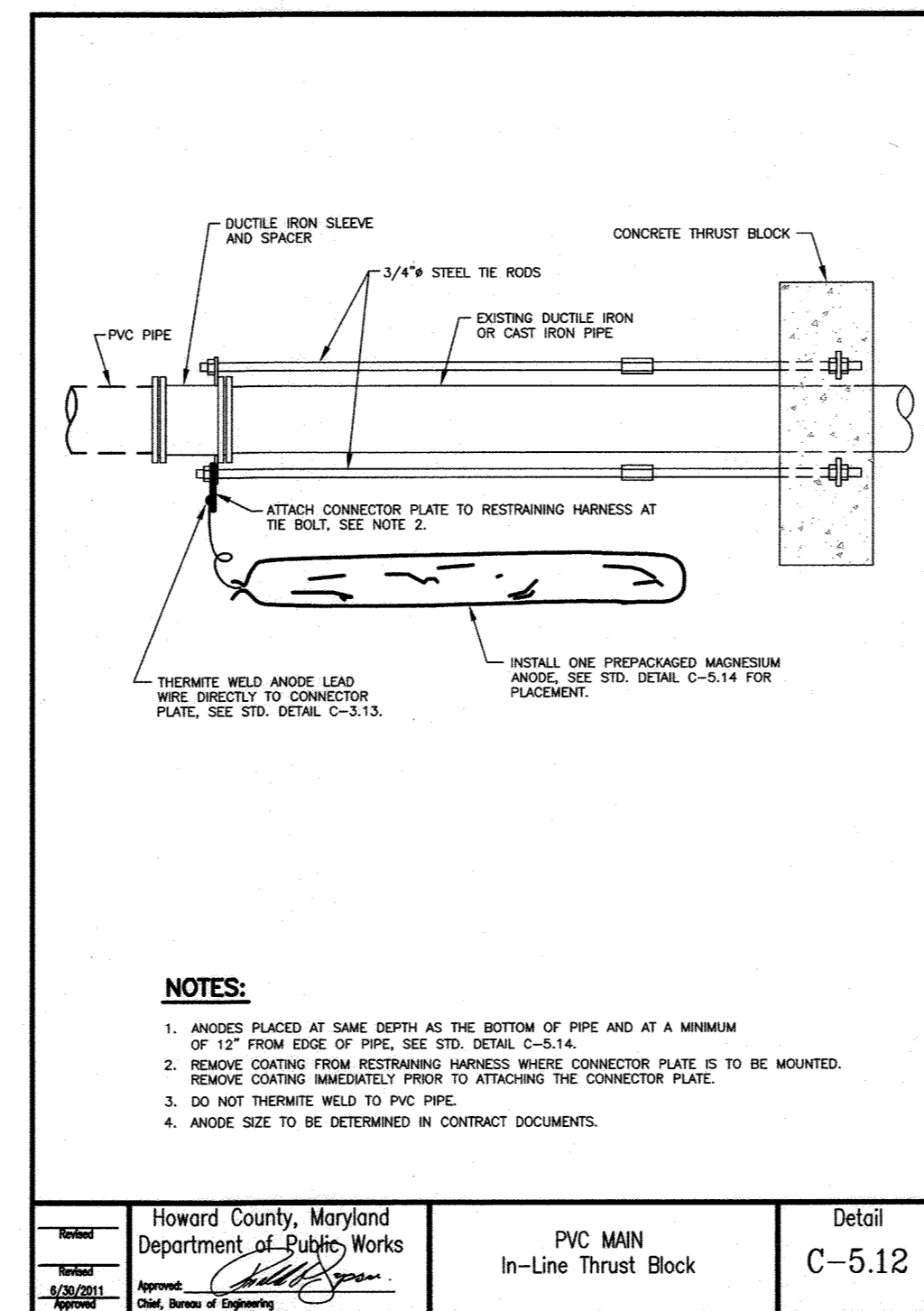
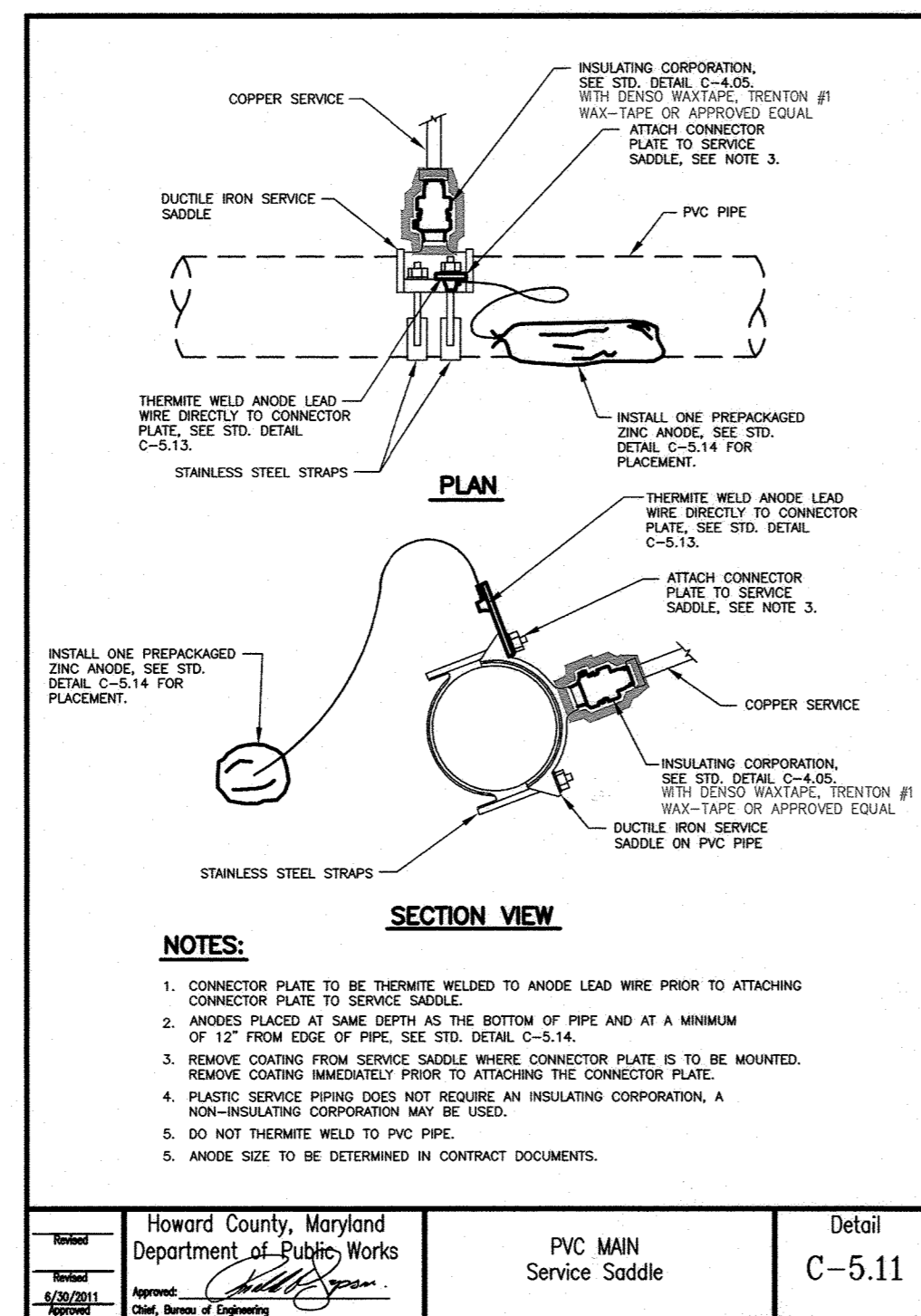
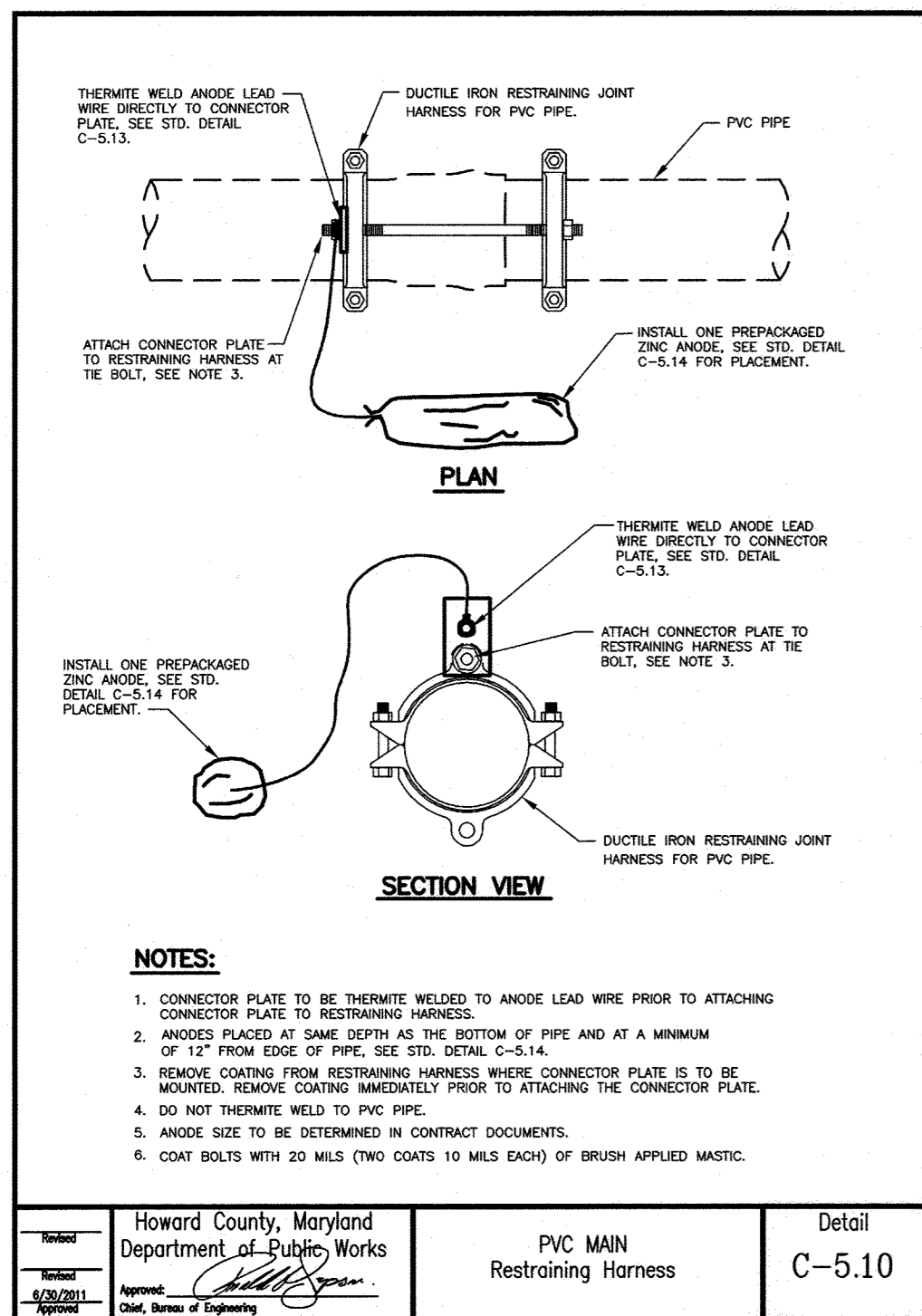
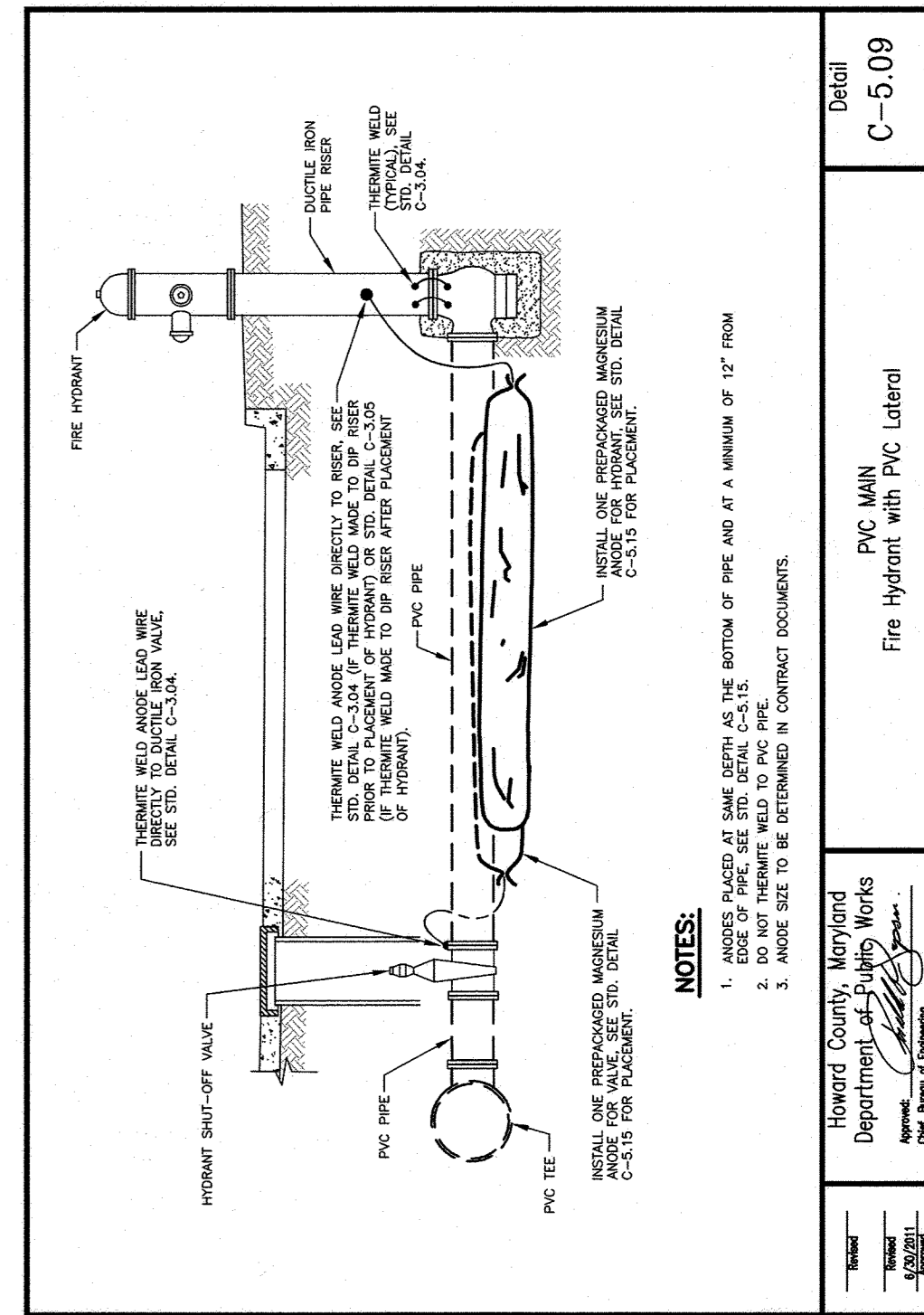
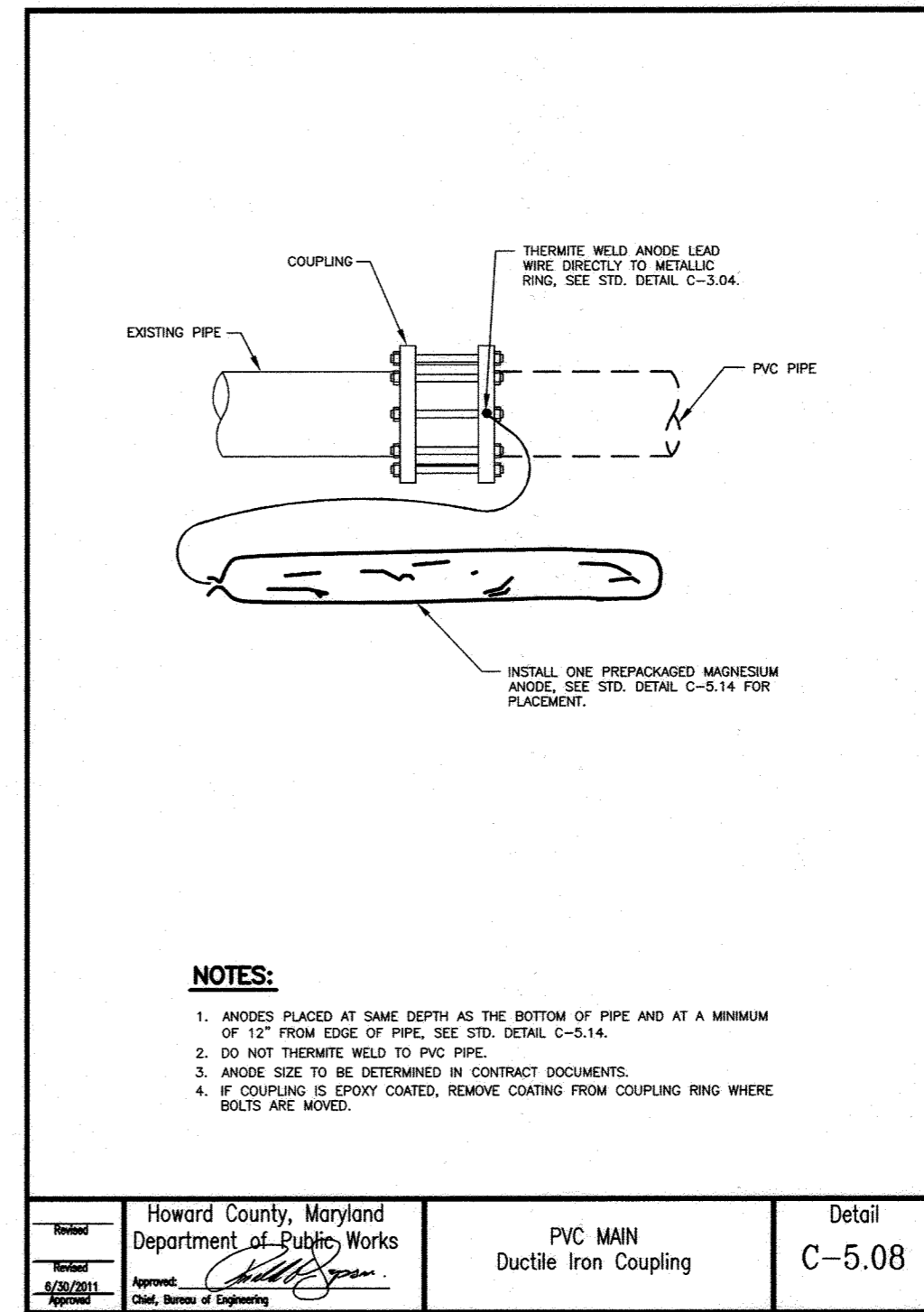
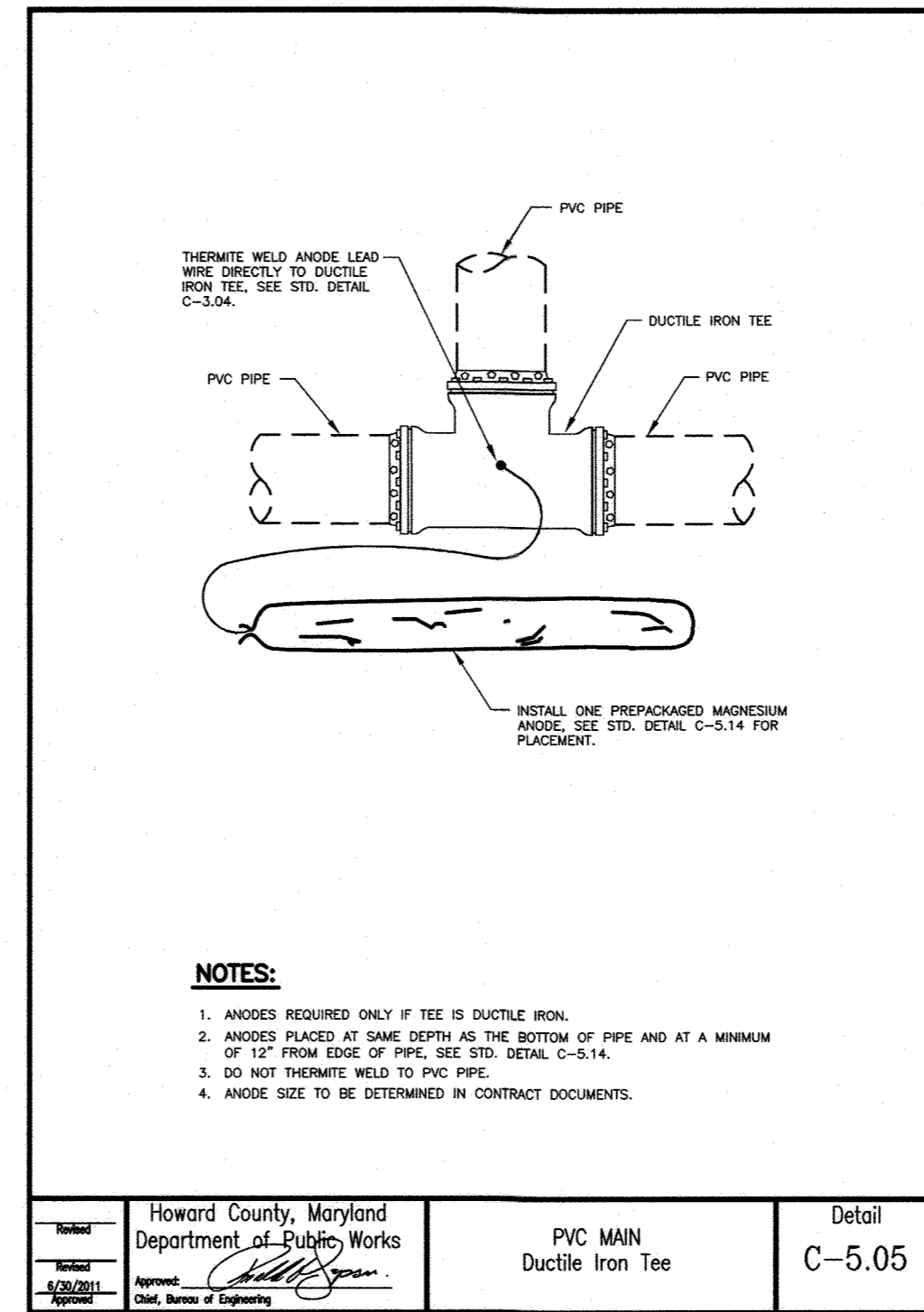
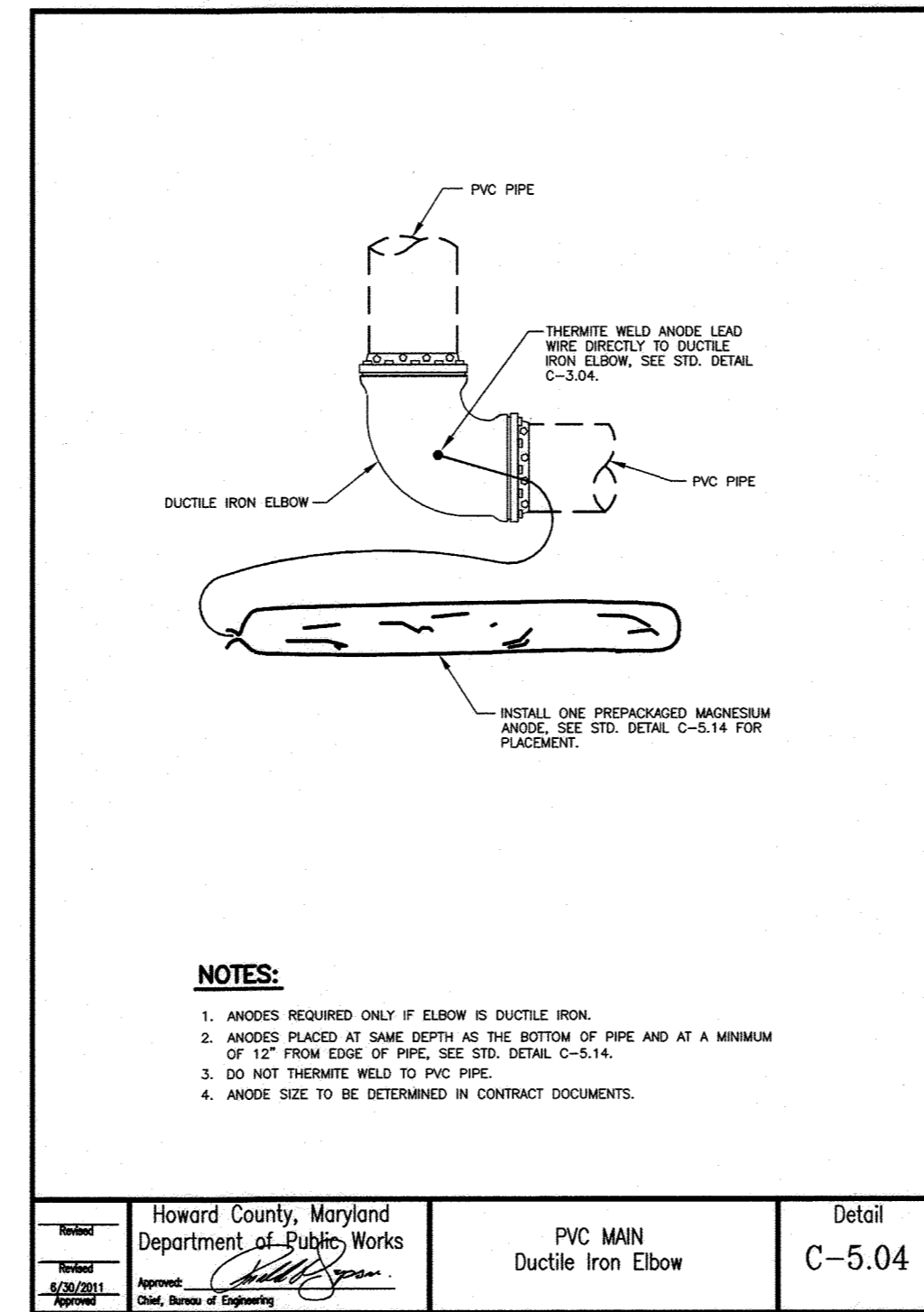
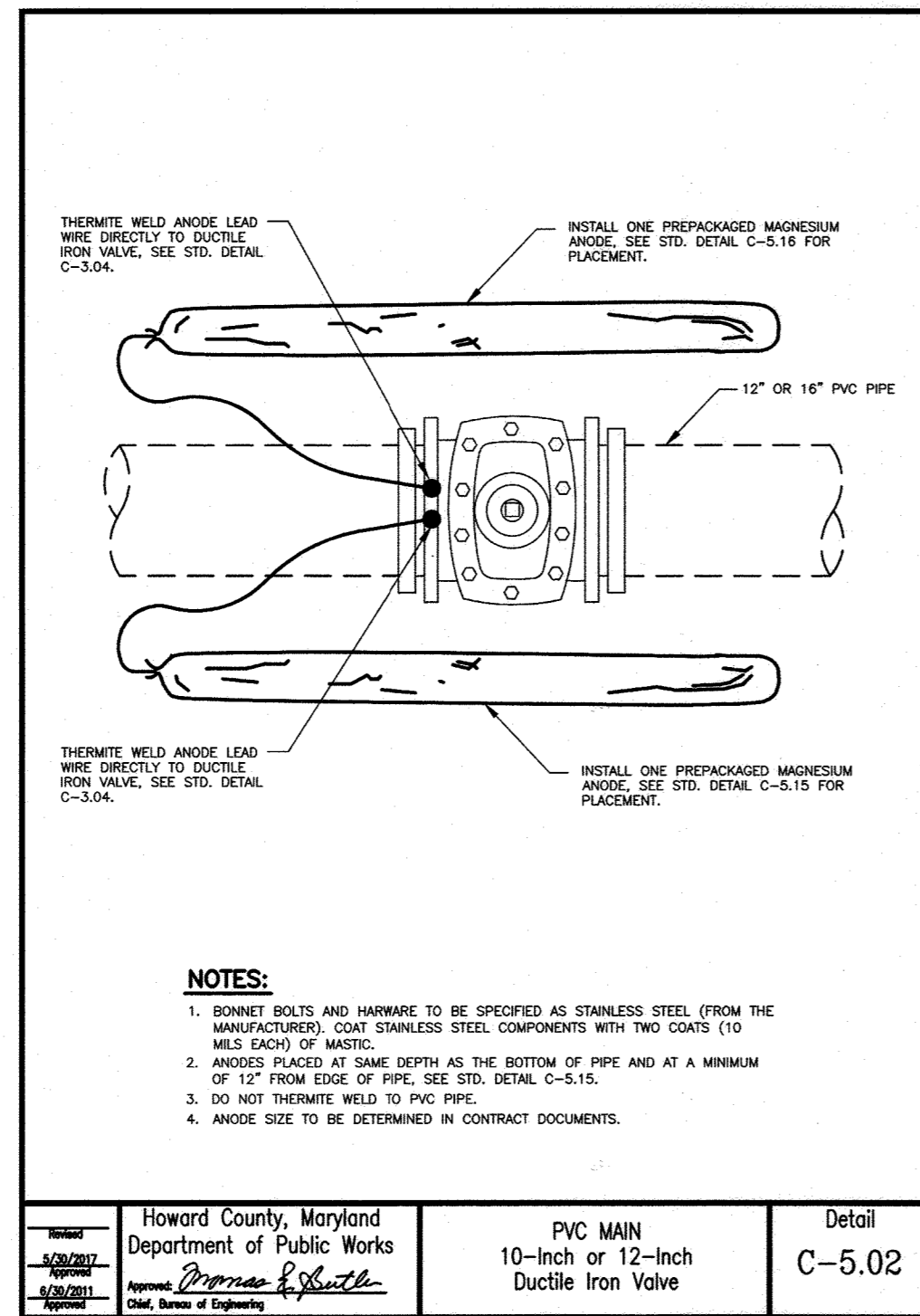
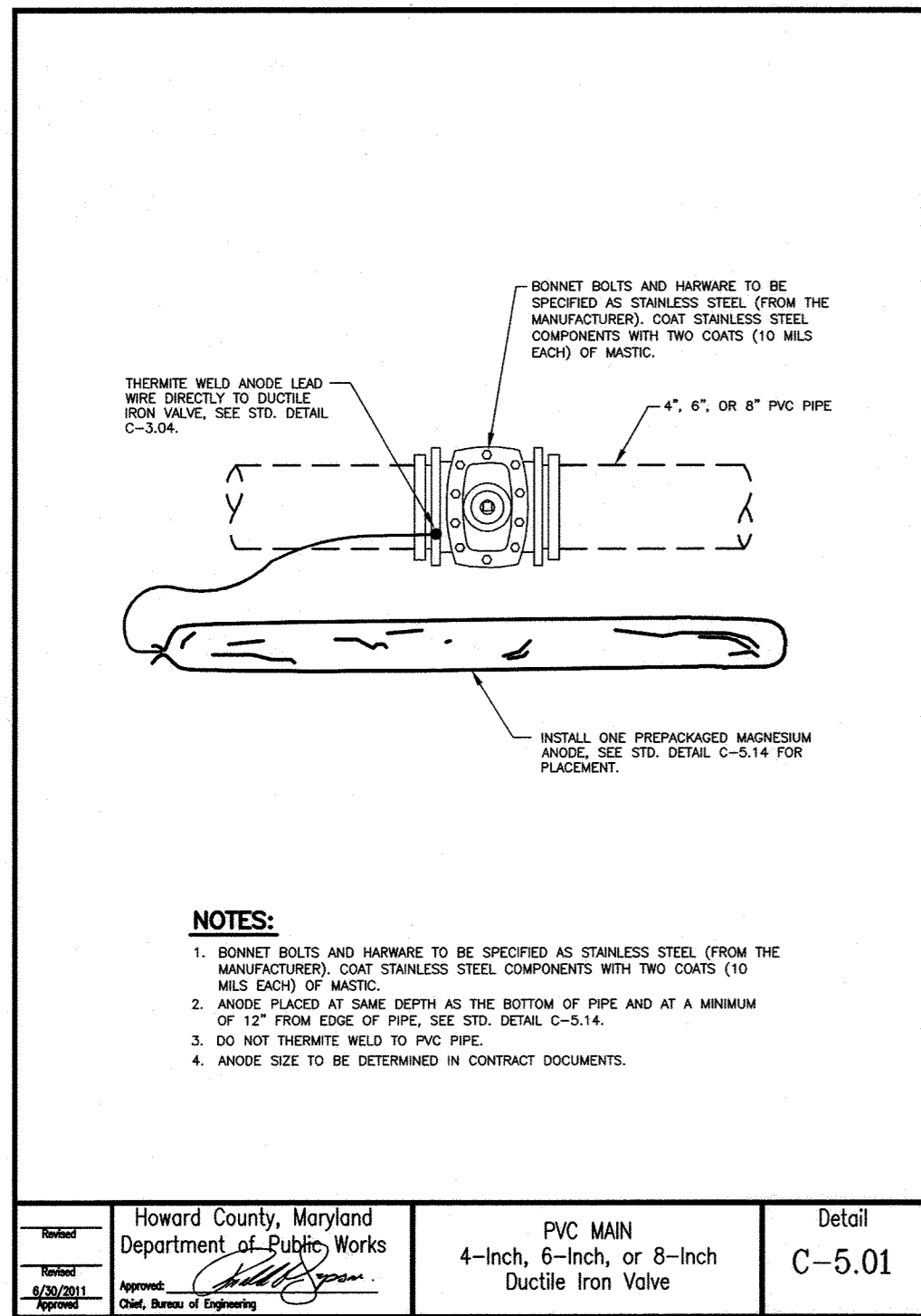
ANDERSON AVE/MOUND STREET WATER MAIN

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

C-05
SCALE
AS SHOWN
SHEET NO.
07 OF 13

**AS-BUILT
DEC. 2021**

R02121515 - \\bldg01\vd02121515-146580A\Task 11 - Loudon Ave W8303\CD03\Plans\9-PP-001_LOADON.dwg May 14, 2020 - 3:50pm ENV/CTB Plot Scale 1=1 Plot By: bgrace Tab: CP-01

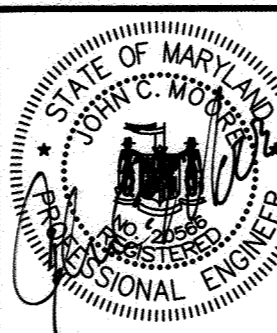


DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *Thomas P. Reilly* 6/18/20
 Chief, Bureau of Engineering: *Thomas P. Reilly* 6/18/20
 Chief, Bureau of Utilities: *Tom Reilly* 6-29-2020
 Chief, Utility Design Division: *Tom Reilly* 6/18/20

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 LICENSE NO. 20566
 EXPIRATION DATE: 09/06/2020



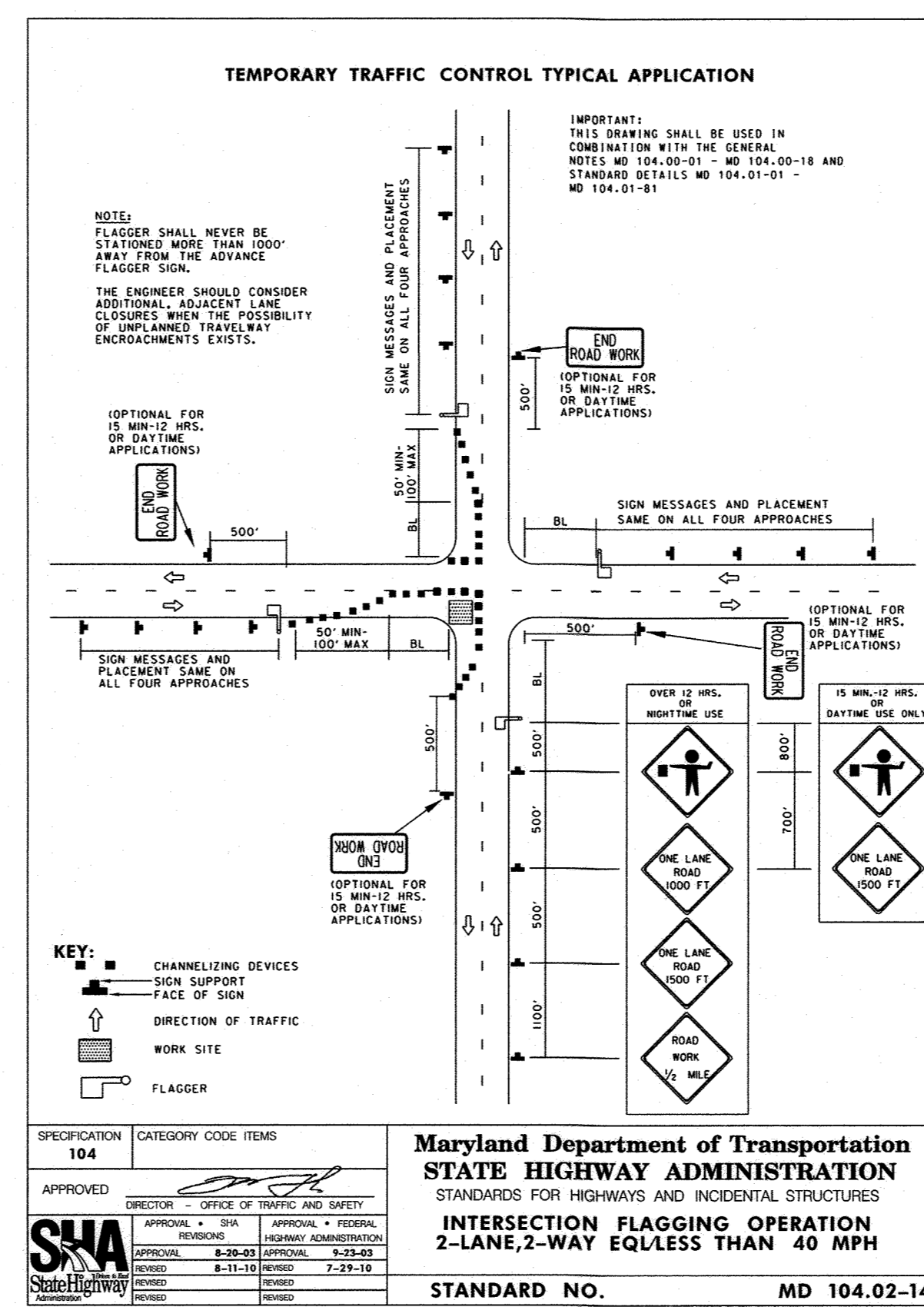
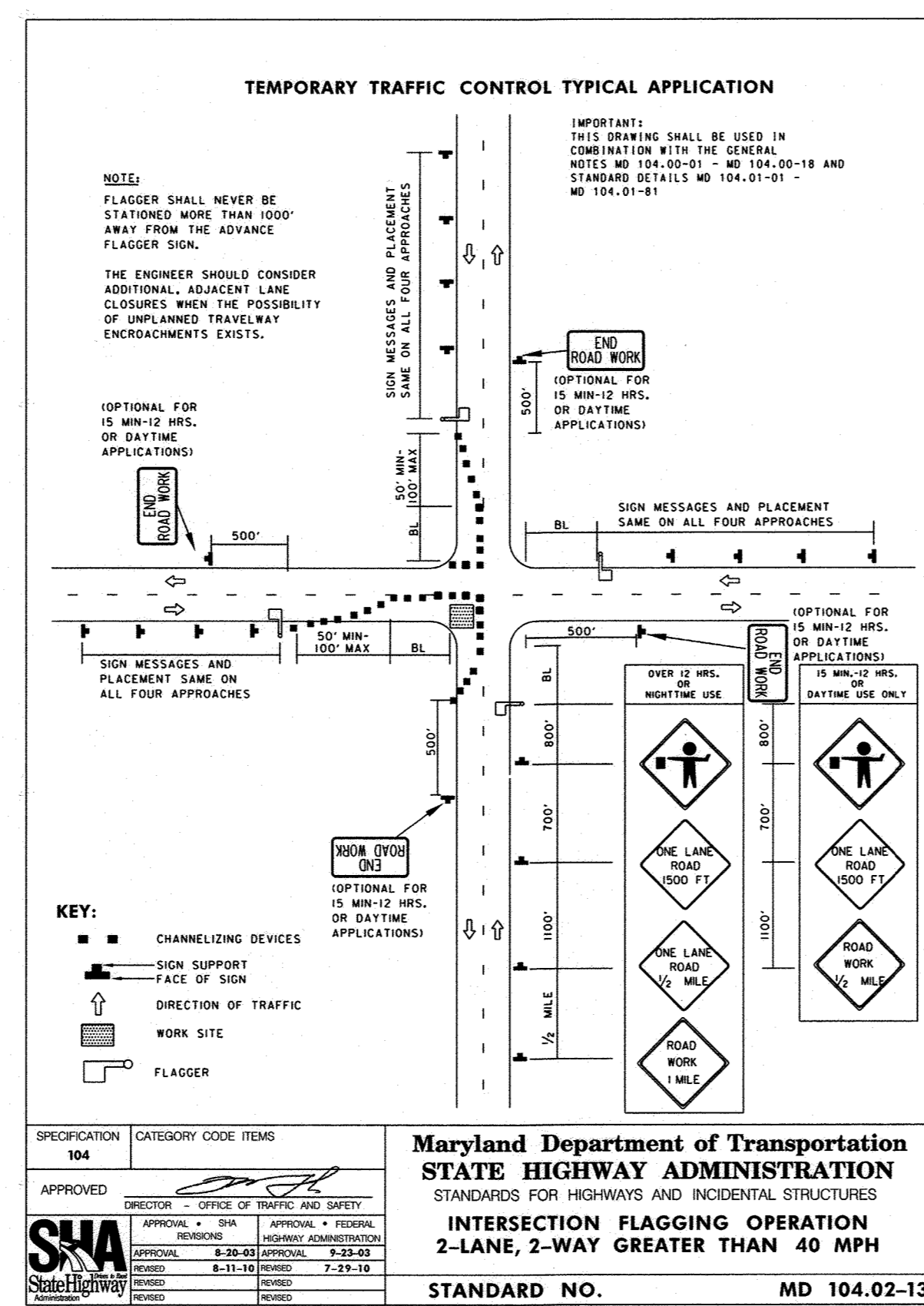
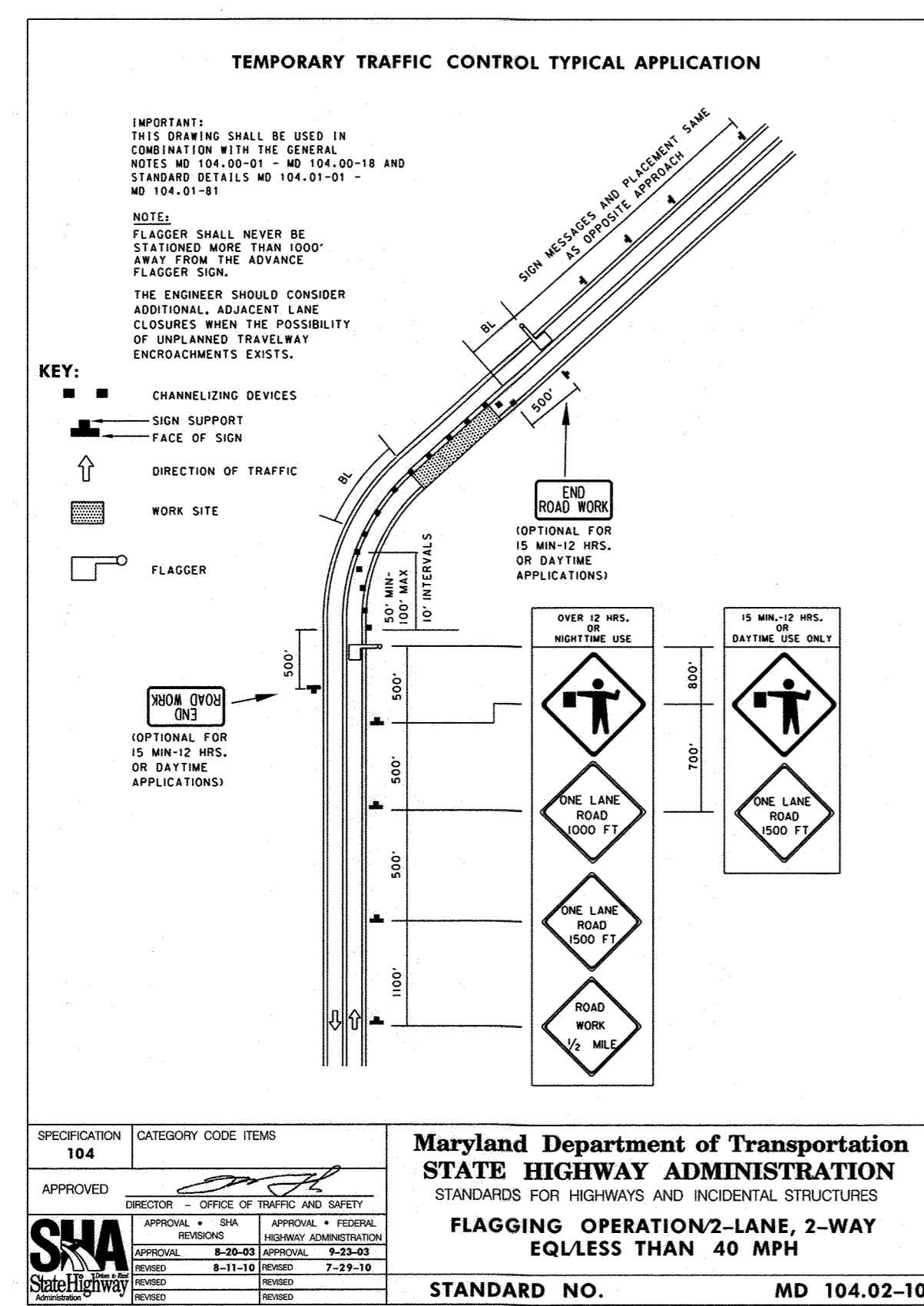
DES:	BY:	NO.:	REVISION:	DATE:
WJG				
DRN:				
CHK:				
SIGN DATE:				

MAY 1, 2020
 CORROSION CONTROL DETAILS
 600' SCALE MAP NO. 38
 BLOCK NO. 14, 15

PROJECT NO. W8303
 CONTRACT NO. 44-5054
 ANDERSON AVE/MOUND STREET WATER MAIN
 ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND

CP-01
 SCALE AS SHOWN
 SHEET NO. 08 OF 13

**AS-BUILT
DEC. 2021**



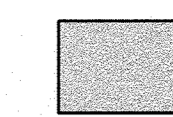
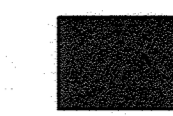
TRAFFIC CONTROL PLAN - GENERAL NOTES

- HOWARD COUNTY TRAFFIC SHALL BE NOTIFIED AT LEAST 3 DAYS PRIOR TO BEGINNING ANY WORK IN ORDER TO SCHEDULE A FIELD INSPECTION OF TRAFFIC CONTROL DEVICES. CONTACT THE TRAFFIC DIVISION AT (410) 313-2430.
- ALL CONSTRUCTION AND MATERIALS FOR THE TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE STANDARDS CONTAINED IN THE LATEST EDITION OF THE STATE OF MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- TRAVEL LANES SHALL BE A MINIMUM OF TEN FEET IN WIDTH. WHEN ONLY ONE LANE IS OPEN, FLAGGERS AND THE APPROPRIATE SIGNING SHALL BE PROVIDED. THE ROADWAY SHALL BE REOPENED TO TWO WAY TRAFFIC AT THE END OF EACH WORK SHIFT.
- REFLECTORIZED CHANNELIZING DEVICES SHALL BE USED AT NIGHT ALONG THE CONSTRUCTION AREA.
- THE CONTRACTOR SHALL BACKFILL THE TRENCH IMMEDIATELY AFTER THE INSTALLATION OF A SECTION OF PIPE. IF STEEL PLATES ARE TO BE USED, APPROPRIATE SIGNING WILL BE REQUIRED. STEEL PLATES MUST BE PINNED. STEEL PLATES ON ALL COUNTY ROADWAYS MUST BE RECESSED, AS MUST ALL STEEL PLATES TO BE PLACED FOR MORE THAN 24 HOURS BETWEEN DECEMBER 1st AND MARCH 15th. THE CONTRACTOR SHALL NOT LEAVE AN OPEN TRENCH UNATTENDED.
- CONTRACTOR SHALL INSTALL "CAUTION STEEL PLATES AHEAD" SIGNS W8-8(4) IN ADVANCE OF STEEL PLATE BRIDGING.
- ALL TEMPORARY SIGNS THAT DO NOT APPLY WHEN ROAD IS OPEN SHALL BE COVERED OR REMOVED, OR TURNED AWAY.
- CHANNELIZING DEVICES AND TEMPORARY STRIPING SHALL BE REMOVED AS SOON AS PRACTICAL.
- ALL TRAFFIC CONTROL DEVICES SHALL BE KEPT IN THEIR PROPER POSITION AT ALL TIMES AND SHALL BE REPAIRED, REPLACED OR CLEANED AS NECESSARY TO PRESERVE THEIR APPEARANCE AND CONTINUITY.
- ALL CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE TYPICAL SIGN PLACEMENT SHOWN ON THESE PLANS AND SHALL NOT OBSTRUCT EXISTING TRAFFIC CONTROL DEVICES.
- ANY CHANGES TO THE TCP SHALL BE SUBMITTED TO THE TRAFFIC ENGINEERING DIVISION FOR REVIEW AND APPROVAL. REQUESTS FOR DETOURS AND ROAD CLOSURES SHALL BE SUBMITTED TO THE TRAFFIC DIVISION AT 410-313-2430 5 DAYS IN ADVANCE WITH A DETOUR PLAN FOR APPROVAL.
- CONSTRUCTION & WORKER'S VEHICLES SHALL NOT BE PARKED IN A MANNER THAT WILL IMPEDE TRAFFIC OR IMPAIR SIGHT DISTANCE. THESE VEHICLES SHOULD BE PARKED OFF-STREET ON THE CONSTRUCTION SITE OR ON A SIDE STREET NOT UNDER CONSTRUCTION.
- FLAGGERS SHALL BE CERTIFIED FLAGGER AND SHALL HAVE THEIR CERTIFIED FLAGGER CARD WITH THEM AT ALL TIMES DURING FLAGGING OPERATIONS.
- CONTRACTOR'S TRAFFIC MANAGER MUST HAVE A MDSA TEMPORARY TRAFFIC CONTROL MANAGER'S TRAINING COURSE CARD.
- THE HOWARD COUNTY PUBLIC SCHOOL SYSTEM, 410-313-6278, SHALL BE ADVISED OF WORK ACTIVITIES WHICH MAY AFFECT BUS ROUTE TIMING AS EARLY AS PRACTICAL.
- PORTABLE VARIABLE MESSAGE SIGNS (PVMS), SHALL BE PLACED 10 DAYS PRIOR TO ROAD WORK (RECOMMENDED ONE FOR EACH APPROACH, TWO (2) ON BALTIMORE STREET, ONE (1) ON FOUNDRY STREET). CONTACT THE TRAFFIC DIVISION FOR LOCATION AND MESSAGES ON THE PVMS.

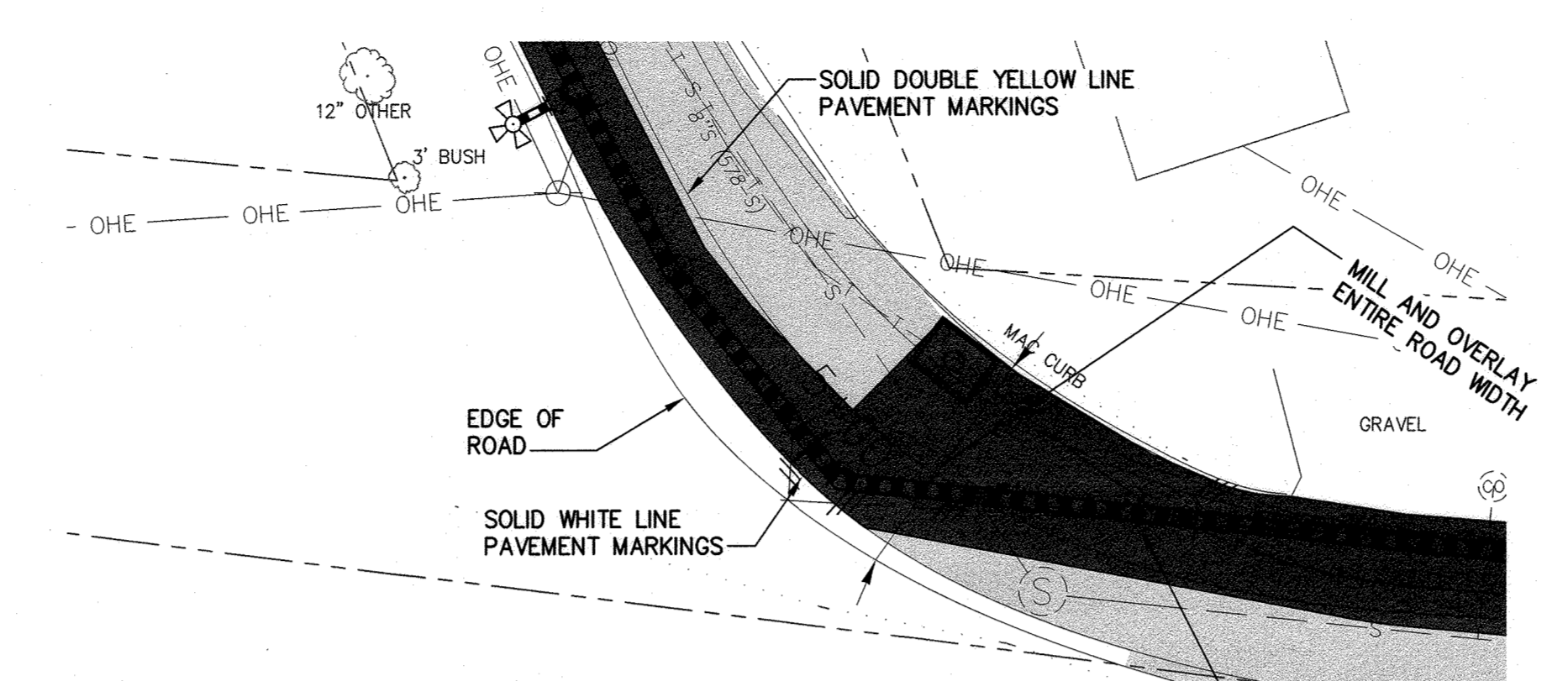
**AS-BUILT
DEC. 2021**

MT-01

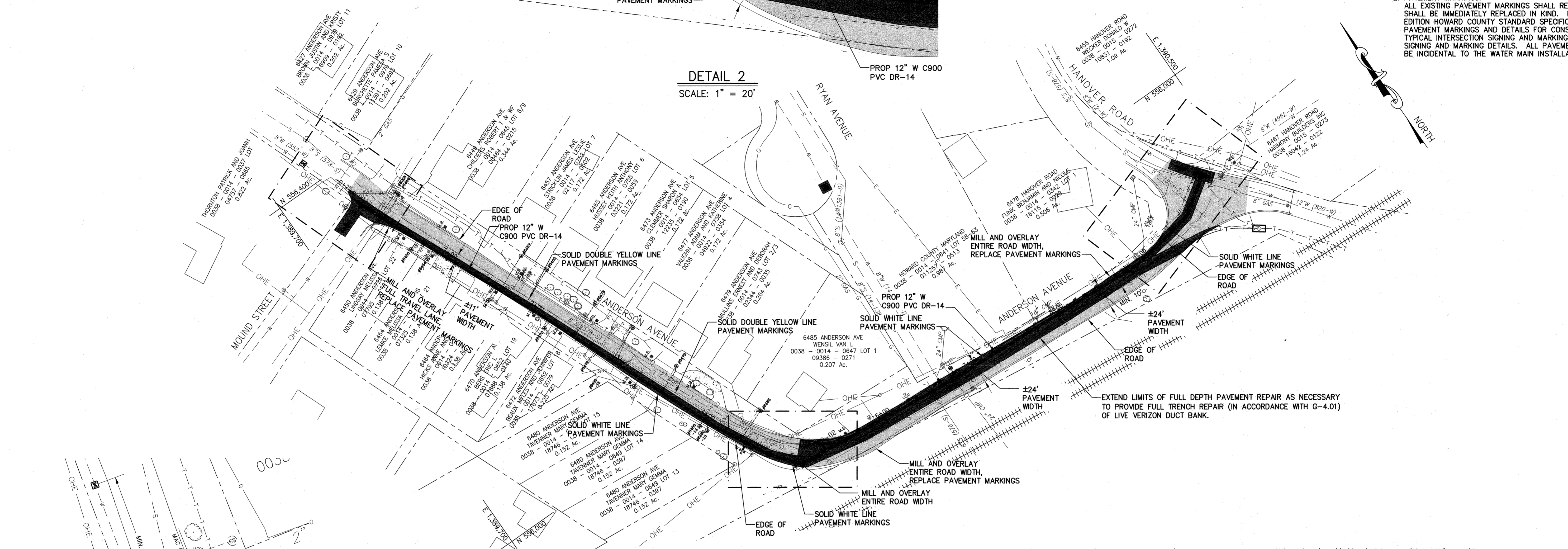
<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>[Signature]</i> 7/8/2020 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>[Signature]</i> 6/1/20 CHIEF, BUREAU OF ENGINEERING DATE</p> <p><i>[Signature]</i> 6-19-2020 CHIEF, BUREAU OF UTILITIES DATE</p> <p><i>[Signature]</i> 6/1/20 CHIEF, UTILITY DESIGN DIVISION DATE</p>	<p>RK&K</p> <p>P: 410.728.2900 700 East Pratt Street, Suite 500 Baltimore, MD 21202 www.rk.com Responsive People Creative Solutions</p>	<p>PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 20566 EXPIRATION DATE: 09/06/2020</p> <p><i>[Signature]</i></p>	<p>DES: WJG BY NO. [] DRN: RAD CHK: NKS SIGN DATE: 05-19-2020</p>	<p>REVISION</p> <p>DATE</p>	<p>MAY 1, 2020</p> <p>600' SCALE MAP NO. 38</p> <p>BLOCK NO. 14, 15</p>	<p>PROJECT NO. W8303 CONTRACT NO. 44-5054</p> <p>ANDERSON AVE/MOUND STREET WATER MAIN</p> <p>ELECTION DISTRICT NO. 2</p> <p>HOWARD COUNTY, MARYLAND</p>	<p>SCALE: AS SHOWN</p> <p>SHEET NO. 09 OF 13</p>
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-  LIMITS OF 2" MILL AND OVERLAY PAVEMENT REPAIR ±1,757 SQ YD
-  LIMITS OF FULL DEPTH PAVEMENT REPAIR (FLEXIBLE PAVEMENT) ±1,365 SQ YD*
- *CONTRACTOR SHALL FIELD-VERIFY LIMITS OF FULL DEPTH PAVEMENT REPAIR QUANTITY.

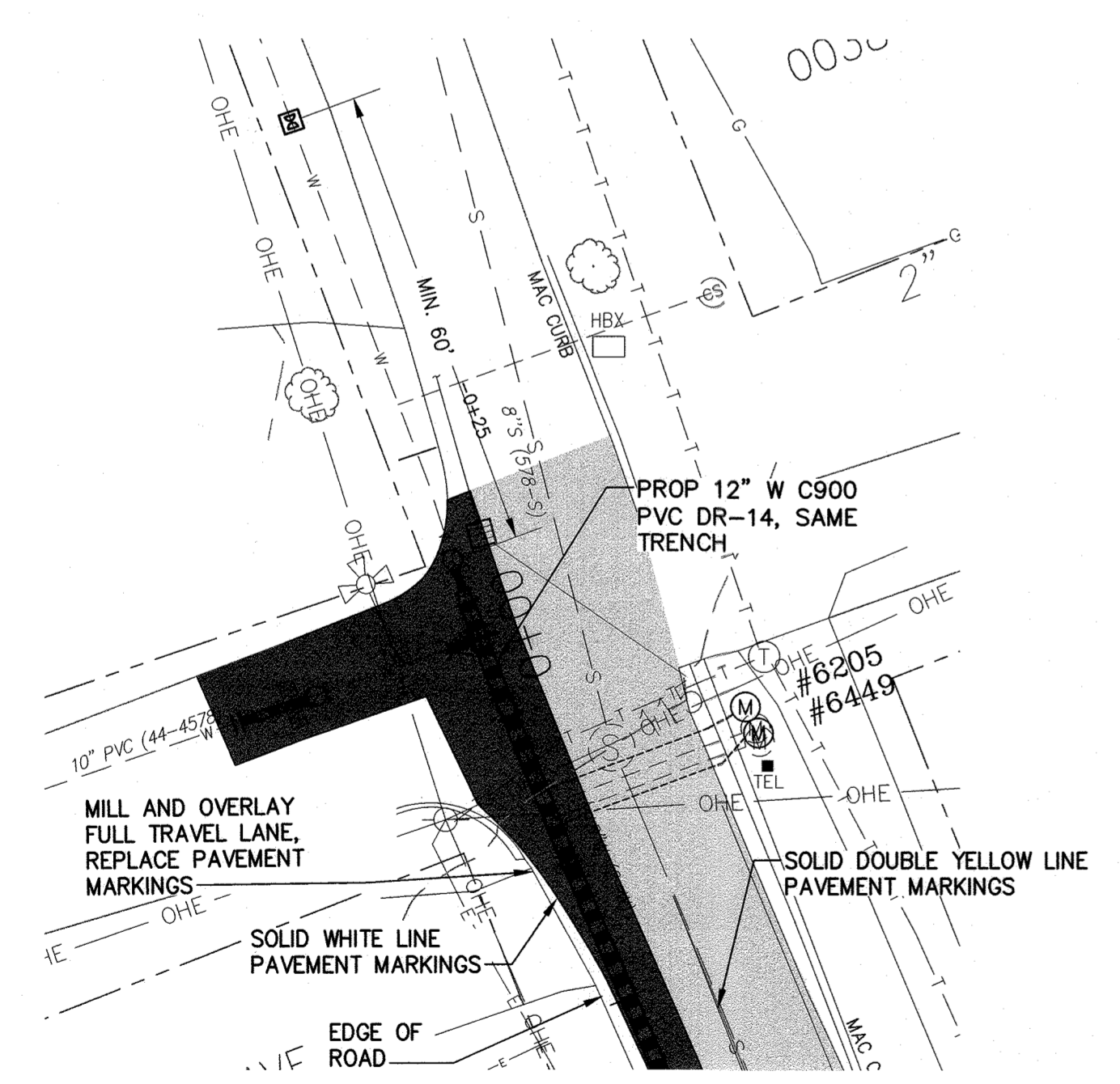
- NOTES:**
- PAVEMENT REPAIR: REFER TO THE LATEST EDITION HOWARD COUNTY STANDARD SPECIFICATIONS SECTION 504 ASPHALT PAVING AND DETAILS FOR CONSTRUCTION G-4.01 UTILITY TRENCH ROADWAY REPAIRING AND R-2.01/2.02 PAVING SECTION P4, CBR 5 to <7.
 - PAVEMENT MARKINGS: ALL EXISTING PAVEMENT MARKINGS SHALL REMAIN IN PLACE OR SHALL BE IMMEDIATELY REPLACED IN KIND. REFER TO THE LATEST EDITION HOWARD COUNTY STANDARD SPECIFICATIONS SECTION 549 PAVEMENT MARKINGS AND DETAILS FOR CONSTRUCTION T-7.01 TYPICAL INTERSECTION SIGNING AND MARKING LAYOUT AND T-7.03 SIGNING AND MARKING DETAILS. ALL PAVEMENT MARKINGS SHALL BE INCIDENTAL TO THE WATER MAIN INSTALLATION.



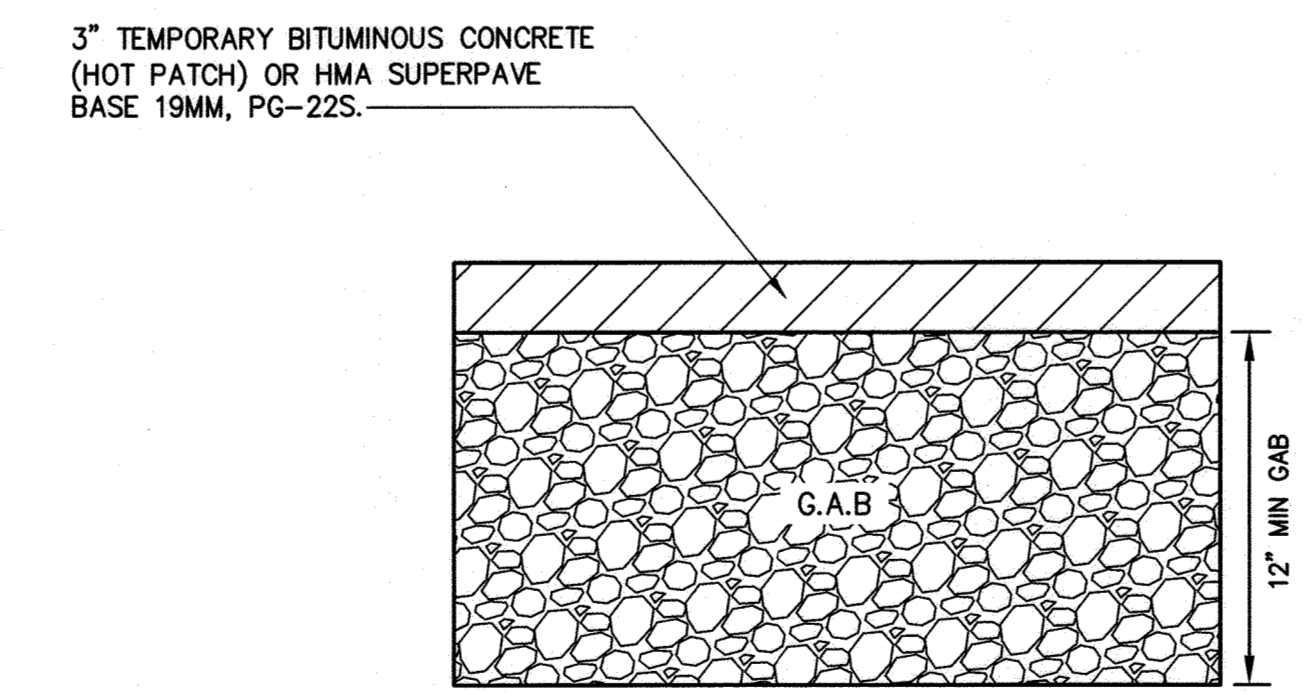
DETAIL 2
SCALE: 1" = 20'



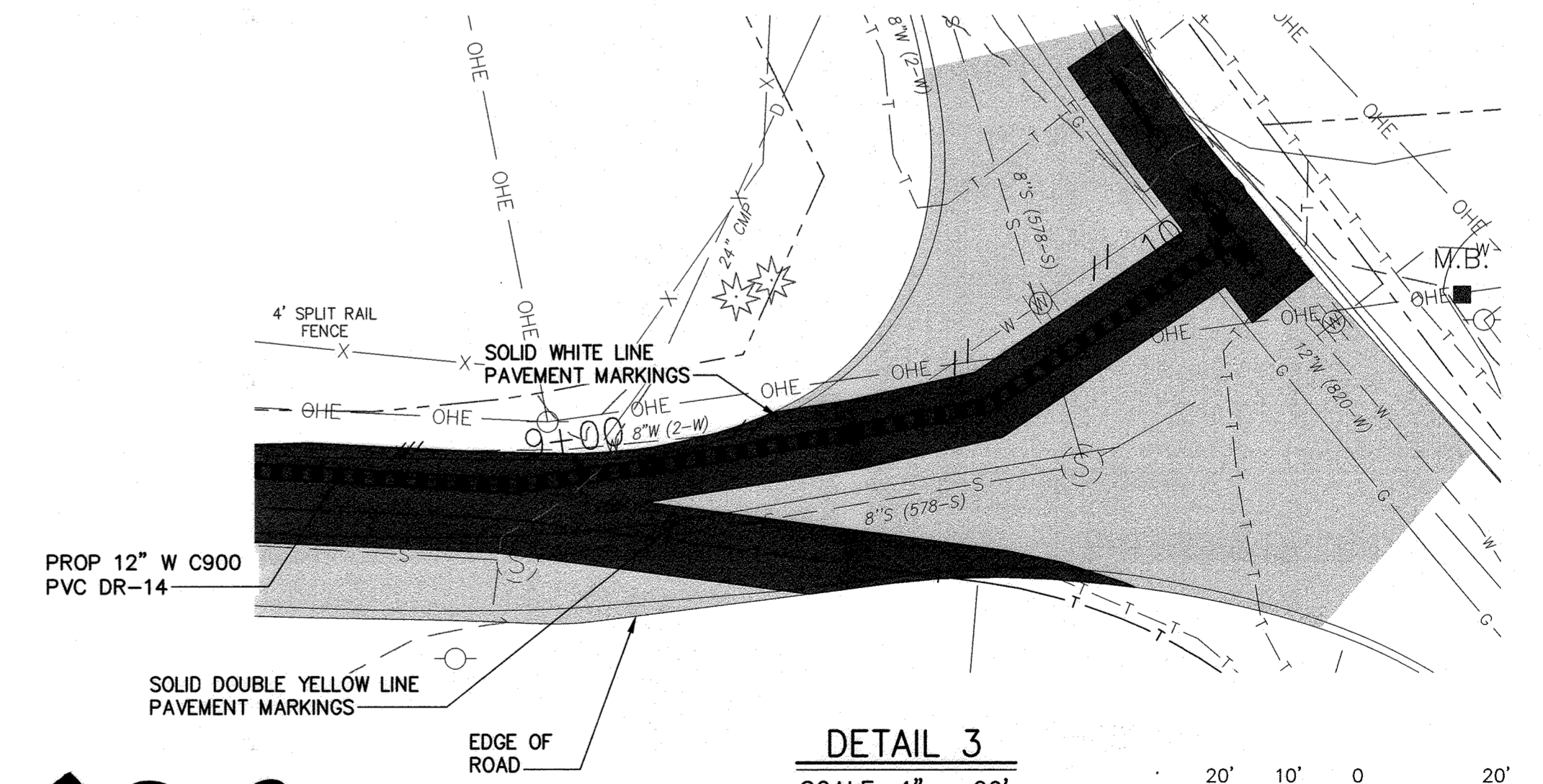
PLAN - ANDERSON AVENUE
SCALE: 1" = 50'



DETAIL 1
SCALE: 1" = 20'

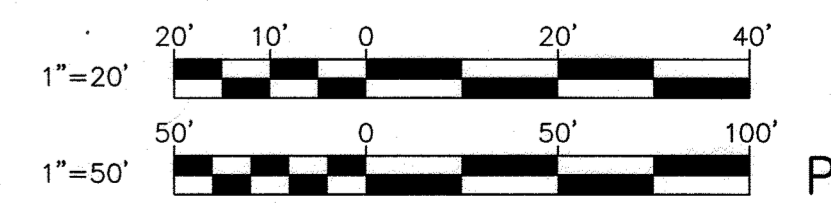


TEMPORARY UTILITY TRENCH PAVING RESTORATION
SCALE: NTS
FOR TRENCH DETAIL REFER TO HOWARD COUNTY STANDARD
DETAIL G-2.12 AND G-4.01



DETAIL 3
SCALE: 1" = 20'

AS-BUILT, DEC. 2021



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Johnnie J. Butler 7/8/2020
DIRECTOR OF PUBLIC WORKS DATE

Thomas P. Butler 6/12/20
CHIEF, BUREAU OF ENGINEERING DATE

Johnnie J. Butler 6-29-2020
CHIEF, BUREAU OF UTILITIES DATE

Johnnie J. Butler 6/12/20
CHIEF, UTILITY DESIGN DIVISION DATE

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WJG				
DRN:				
CHK:				
SIGN DATE:				

MAY 1, 2020

PAVING PLAN

600' SCALE MAP NO. 38

BLOCK NO. 14, 15

PROJECT NO. W8303
CONTRACT NO. 44-5054

ANDERSON AVE/MOUND STREET WATER MAIN

ELECTION DISTRICT NO. 2

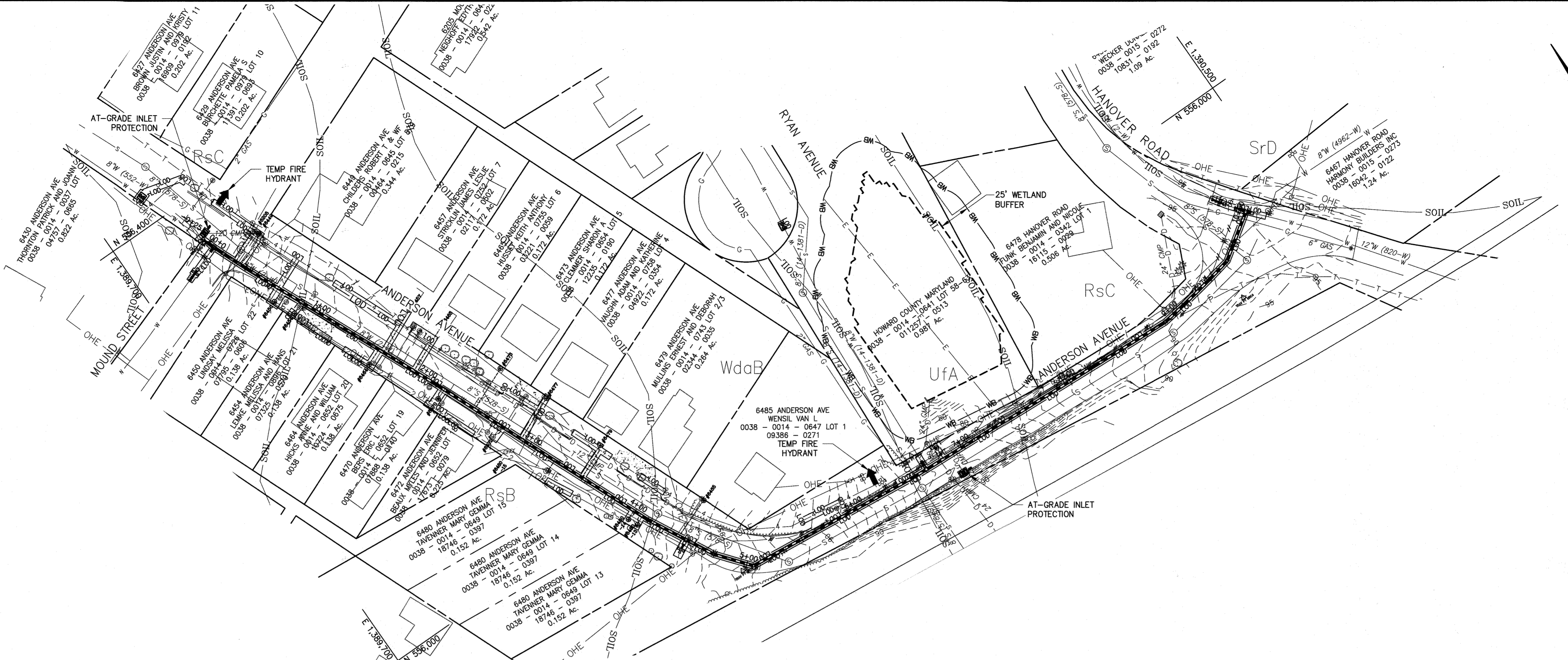
HOWARD COUNTY, MARYLAND

SCALE
AS SHOWN

SHEET NO.
10 OF 13

PV-01

RRC21575 - \\bldm\c\2012\2012\2154_hcoe80A\Task 11 - Loudon Ave WM W8303 CAD\Plan\10-up\1-P01_LOADON.dwg May 14, 2020 - 3:51pm ENV:CTB Plot Scale 1=1 Plot By: bgras Tab:PV-01



PLAN - ANDERSON AVENUE
SCALE: 1" = 50'

EROSION AND SEDIMENT CONTROL CONSTRUCTION NOTES

- IF SO DIRECTED BY THE RESIDENT ENGINEER OR THE EROSION AND SEDIMENT CONTROL INSPECTOR, PROVIDE INLET PROTECTION IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS SHOWN ON THIS DRAWING, SILT FENCE IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS.

UTILITY TRENCH SEDIMENT CONTROL PROCEDURES

- EXCAVATE TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH.
- IMMEDIATELY FOLLOWING PIPE INSTALLATION THE TRENCH SHALL BE BACKFILLED, COMPACTED AND STABILIZED AT THE END OF EACH WORKING DAY. SEE HSCD NOTE #9 ON DWG. ES-02 (SHT 12 OF 13)
- TEMPORARY STEEL PLATES SHALL BE PLACED ON ANY DISTURBED AREA DAILY.

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

- THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN THREE (3) HORIZONTAL TO ONE (1) VERTICAL (3:1); AND
- SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

DESIGN NARRATIVE:

ALONG ANDERSON AVENUE BETWEEN MOUND STREET AND HANOVER ROAD APPROXIMATELY 1,000 FEET OF ANTIQUATED 8-INCH WATER MAIN WILL BE REPLACED WITH A NEW 12-INCH WATER MAIN AND APPROXIMATELY 324 FEET OF 1-INCH WATER HOUSE CONNECTIONS UNDER CONTRACT NO. 44-5054. CONTRACTOR WILL INSTALL EROSION AND SEDIMENT CONTROLS IN ACCORDANCE WITH THE DRAWINGS, DETAILS AND SPECIFICATIONS.

SOIL NOTES

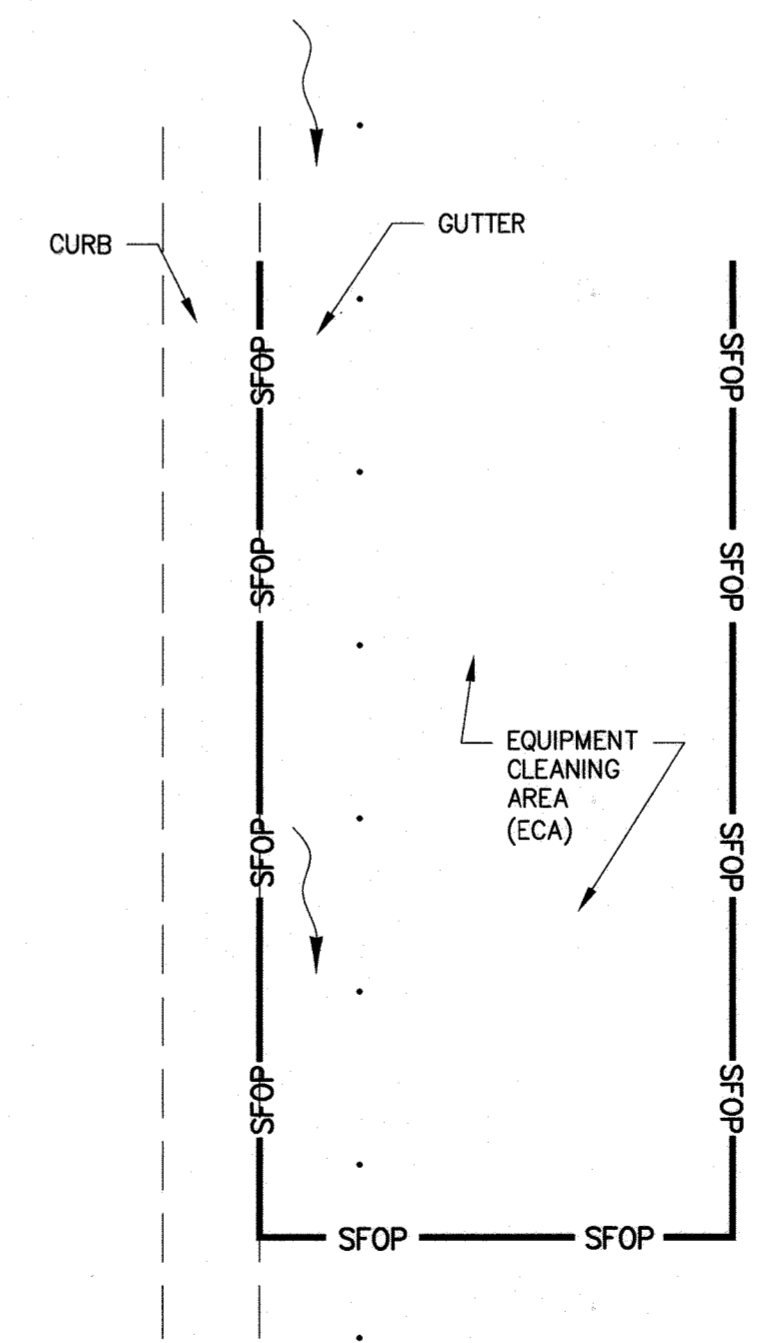
- SOIL DATA IS BASED ON THE WEB SOIL SURVEY WEBSITE BY THE USDA NATURAL RESOURCES CONSERVATION SERVICE:

RsB RUSSET FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES
 RsC RUSSET FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES
 SrD SASSAFRAS AND CROOM SOILS, 10 TO 15 PERCENT SLOPES
 UfA URBAN LAND-FALLSINGTON COMPLEX, 0 TO 2 PERCENT SLOPES
 WdaB WOODSTOWN SANDY LOAM, 2 TO 5 PERCENT SLOPES

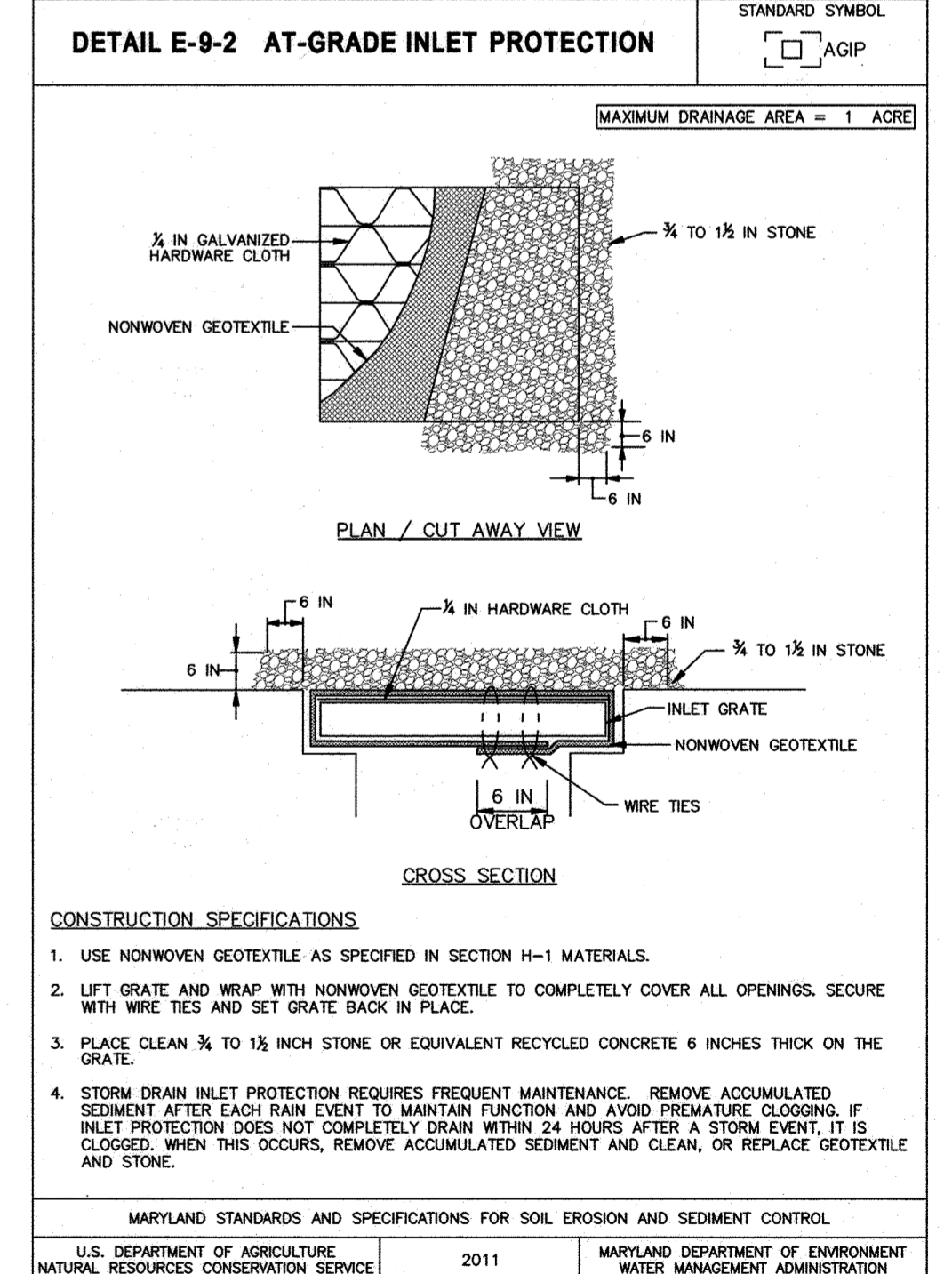
- TOP SOIL SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST EDITION OF THE SHA STANDARD SPECIFICATIONS OF CONSTRUCTION AND MATERIALS. SECTION 920 - LANDSCAPING MATERIALS.

SEQUENCE OF CONSTRUCTION

- THE CONTRACTOR SHALL OBTAIN GRADING PERMIT. WORK SHALL BE CONDUCTED PER SAID PERMIT.
- A PRECONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOURS NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
 - PRIOR TO THE START OF EACH DISTURBANCE
 - UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING
 - PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT,
 - PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.
- INSTALL PERIMETER CONTROLS AS NECESSARY.... ONE (1) DAY
- CONTACT CID PER 2.b ABOVE.
- COMPLETE WATER MAIN CONSTRUCTION.... TWENTY (20) DAYS
- COMPLETE TIE-INS TO EXISTING WATER MAINS.... THREE (3) DAYS
- RESTORE PAVING AND SURROUNDING AREAS.... FIVE (5) DAYS
- ONCE THE PROJECT SITE IS STABILIZED AND CONTROLS CAN BE REMOVED, CONTACT CID PER 2.d ABOVE.
- REMOVE ANY REMAINING SEDIMENT CONTROLS AND STABILIZE AREAS DISTURBED BY REMOVAL OF SEDIMENT CONTROLS.... ONE (1) DAY



U-SHAPED EQUIPMENT CLEANING AREA



AS-BUILT, DEC 2021

1" = 50' 0 50' 100' ES-01

RNC21SYS - \\bldm01\2021\2021\2154_44-5054\Task 11 - Loudon Ave W8303 CAD\DWG\Plan\11-SES-P01_LOADON.dwg May 14, 2020 - 3:51pm ENV/CIB Plot Scale 1=1 Plot By: bgrans Tab:ES-01

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

7/8/2020
 DIRECTOR OF PUBLIC WORKS

6/27/2020
 CHIEF, BUREAU OF UTILITIES

6/27/2020
 CHIEF, BUREAU OF UTILITIES

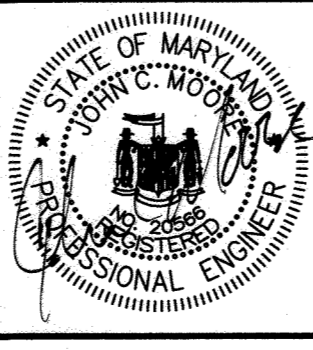
6/27/2020
 CHIEF, UTILITY DESIGN DIVISION

RK&K

P: 410.728.2900
 700 East Pratt Street, Suite 500 | Baltimore, MD 21202

Engineers | Construction Managers | Planners | Scientists
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PROFESSIONAL CERTIFICATION:
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 20566
 EXPIRATION DATE: 09/06/2020



DES:	BY:	NO.:	REVISION:	DATE:
WJG				
DRN:	RAD			
CHK:	NKS			
SIGN DATE:	05-19-2020			

MAY 1, 2020

EROSION AND SEDIMENT CONTROL PLAN

600' SCALE MAP NO. 38

BLOCK NO. 14, 15

PROJECT NO. W8303
 CONTRACT NO. 44-5054

ANDERSON AVE/MOUND STREET WATER MAIN

ELECTION DISTRICT NO. 2

HOWARD COUNTY, MARYLAND

SCALE
 AS SHOWN

SHEET NO.
 11 OF 13

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

1. A PRECONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOURS NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
 - PRIOR TO THE START OF EACH DISTURBANCE
 - UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING
 - PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT,
 - PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH > 15' OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).
5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

6. SITE ANALYSIS:

TOTAL AREA OF SITE:	1.77 ACRES	(LINEAR PUBLIC UTILITY PROJECT WITHIN LOUDON AVENUE)
AREA DISTURBED:	0.20 ACRES	
AREA TO BE ROOFED OR PAVED:	0.52 ACRES	
AREA TO BE VEGETATIVELY STABILIZED:	0.02 ACRES	(MINOR SHOULDER WORK)
TOTAL CUT:	1,208 CU. YDS.	(ALL TRENCH EXCAVATION FOR 12" WATER)
TOTAL FILL:	1,208 CU. YDS.	
OFFSITE WASTE/BORROW AREA LOCATION:	TO BE DETERMINED BY CONTRACTOR	


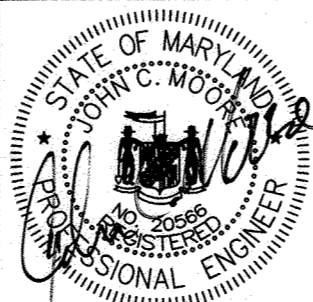
7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
 - INSPECTION DATE
 - INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
 - NAME AND TITLE OF INSPECTOR
 - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
 - BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
 - EVIDENCE OF SEDIMENT DISCHARGES
 - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
 - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
 - COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
 - PHOTOGRAPHS
 - MONITORING/SAMPLING
 - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
 - OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORM ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).
9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.
10. ANY MAJOR CHANGES OR REVISIONS ON THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER LIST OF HSCD-APPROVED FIELD CHANGES.
11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE LOD. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
14. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

SUPPLEMENTAL EROSION AND SEDIMENT CONTROL NOTES

1. STAGING AND STOCKPILING:
 - NO STAGING OR STOCKPILE AREAS ALLOWED ON-SITE.
2. STABILIZED CONSTRUCTION ENTRANCE (SCE) AND EQUIPMENT CLEANING AREA (ECA):
 - THERE ARE NO SCEs INCLUDED IN THIS PROJECT. PROVIDE AN EQUIPMENT CLEANING AREA (ECA) DURING CONSTRUCTION, AS DIRECTED BY ENGINEER. REFER TO ECA DETAIL ON DRAWING SHEET ES-01 (SHEET 11 OF 13). REMOVE ACCUMULATED STONE AND SEDIMENT PRIOR TO DISMANTLING THE ECA.
3. STORM DRAIN AND DITCH CONSTRUCTION:
 - STORM DRAIN SYSTEMS AND PERMANENT DITCHES/SWALES SHALL BE CONSTRUCTED FROM DOWNSTREAM TO UPSTREAM UNLESS OTHERWISE NOTED ON THE PLANS OR APPROVED BY THE ENGINEER.
4. COORDINATION WITH MAINTENANCE OF TRAFFIC PLAN:
 - THE SEDIMENT AND EROSION CONTROL SEQUENCES SHALL BE COORDINATED WITH THE MAINTENANCE OF TRAFFIC PLANS TO MAINTAIN CONTINUITY OF THE PRACTICES DURING ALL PHASES OF THE PROPOSED WORK. CONCURRENT CONSTRUCTION WITHIN THE VARIOUS PHASES MAY BE UNDERTAKEN IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC PLAN. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO BEGINNING CONCURRENT WORK. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON COMPLETION OF THEIR INTENDED FUNCTION. PERMANENT STABILIZATION OF CONTRIBUTORY DRAINAGE AREA AND PRIOR APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR. SEDIMENT AND EROSION CONTROL MEASURES NECESSARY FOR SUBSEQUENT PHASE OF THE WORK SHALL BE MAINTAINED AS REQUIRED BY THE STANDARDS AND SPECIFICATIONS.
5. DEWATERING
 - ANY EFFLUENT FROM DEWATERING FOUNDATIONS, TRENCHES AND OTHER DISTURBED AREAS MUST BE TREATED BY AN APPROVED SEDIMENT CONTROL DEVICE BEFORE BEING DISCHARGED. CONTRACTOR TO USE PORTABLE SEDIMENT TANKS.
6. SEQUENCE OF CONSTRUCTION
 - THE SEQUENCE OF CONSTRUCTION INCLUDED IN THESE PLANS IS APPROVED BY HOWARD COUNTY. THIS SEQUENCE OF CONSTRUCTION MAY BE MODIFIED BY THE CONTRACTOR. HOWEVER, THE CONTRACTOR MUST OBTAIN HOWARD COUNTY APPROVAL FOR ANY MODIFICATIONS PRIOR TO IMPLEMENTING A REVISED SEQUENCE OF CONSTRUCTION IN THE FIELD.
 - NO DISTURBED AREAS SHALL BE LEFT UNSTABILIZED OVERNIGHT, UNLESS RUNOFF IS DIRECTED TO AN APPROVED SEDIMENT CONTROL DEVICE.
7. CONTRACTOR SHALL REMOVE SPOILS TO A SITE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PERMIT.

**AS-BUILT
DEC. 2021**

R:\GIS\15 - \Voter\152012\2012\12154_165680A\Task 11 - Loudon Ave W8303\CD00\Plans\12-pe5-001_LOUDON.dwg May 14, 2020 - 3:51pm ENVC/BT Plot Scale 1=1 Plot By: bgrasso Tab: ES-02

<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>John Mercurio</i> 7/8/2020 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>Thomas E. Swille</i> 6/1/20 CHIEF, BUREAU OF ENGINEERING DATE</p> <p><i>Chris Kelly</i> 6/1/20 CHIEF, BUREAU OF UTILITIES DATE</p> <p><i>[Signature]</i> 6/1/20 CHIEF, UTILITY DESIGN DIVISION DATE</p>	 <p>P: 410.728.2900 700 East Pratt Street, Suite 500 Baltimore, MD 21202 www.rkk.com Responsive People Creative Solutions</p>	<p>PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 20566 EXPIRATION DATE: 09/06/2020</p> 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>DES:</th> <th>BY</th> <th>NO.</th> <th>REVISION</th> <th>DATE</th> </tr> <tr> <td>WJG</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>DRN:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CHK:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SIGN DATE:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>05-17-2020</td> </tr> </table>	DES:	BY	NO.	REVISION	DATE	WJG					DRN:					CHK:					SIGN DATE:									05-17-2020	<p style="text-align: right;">MAY 1, 2020</p> <p style="text-align: center;">EROSION AND SEDIMENT CONTROL NOTES AND DETAILS</p> <p>600' SCALE MAP NO. 38 BLOCK NO. 14, 15</p>	<p style="text-align: center;">PROJECT NO. W8303 CONTRACT NO. 44-5054</p> <p style="text-align: center;">ANDERSON AVE/MOUND STREET WATER MAIN</p> <p>ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND</p>	<p>SCALE AS SHOWN</p> <p>SHEET NO. 12 OF 13</p>
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ES-02

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

CRITERIA:

A. SOIL PREPARATION

- 1. TEMPORARY STABILIZATION
a. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT...
b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
2. PERMANENT STABILIZATION
a. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
i. SOIL PH BETWEEN 6.0 AND 7.0.
ii. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
iii. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE...
iv. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
v. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
b. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
c. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE, AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENEED TO A DEPTH OF 3 TO 5 INCHES.
d. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
e. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS

B. TOPSOILING

- 1. TOPSOILING IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
a. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2 INCHES IN DIAMETER.
b. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
c. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
6. TOPSOIL APPLICATION
a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
b. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
c. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

- 1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

CRITERIA:

A. SEEDING

- 1. SEEDING
a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
b. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
c. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
d. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
2. APPLICATION
a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS
i. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
b. DRILL OR CULTPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
i. CULTPACKER SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION
c. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
i. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P2O5 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
ii. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
iii. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
iv. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.
3. MULCHING
a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
i. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
ii. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
iii. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
iv. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
v. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
2. APPLICATION
a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
b. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. ANCHORING
a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
iii. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TACK II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION: TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS

PURPOSE: TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES: EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA:

- 1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

Table with columns: NO., SPECIES, APPLICATION RATE (LB/AC), SEEDING DATES, SEEDING DEPTHS, FERTILIZER RATE (10-20-20), LIME RATE. Rows include Annual Rye, Foxtail Millet, and Oats.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION CRITERIA:

PERMANENT SEEDING SUMMARY

Table with columns: NO., SPECIES, APPLICATION RATE (LB/AC), SEEDING DATES, SEEDING DEPTHS, N, P2O5, K2O, LIME RATE. Rows include Tall Fescue, Kentucky Bluegrass, Perennial Ryegrass, Creeping Red Fescue, Chewings Fescue, and Kentucky Bluegrass.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION CRITERIA:

A. SEED MIXTURES

- 1. GENERAL USE
a. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
b. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
c. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
d. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.
2. TURFGRASS MIXTURES
a. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
b. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
i. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
ii. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
iii. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT. CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
iv. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA, MIXTURE INCLUDES: CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1 1/2 TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES: SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND"

CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE

c. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)

CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)

SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)

- d. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1 1/2 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.
e. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

- 1. GENERAL SPECIFICATIONS
a. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
b. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 1/2 INCH, PLUS OR MINUS 1/4 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
c. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
d. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
e. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
2. SOD INSTALLATION
a. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
b. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
c. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
d. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.
3. SOD MAINTENANCE
a. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT MELTING.
b. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
c. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/2 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

AS-BUILT DEC. 2021

ES-03

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DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND. PROJECT NO. W8303 CONTRACT NO. 44-5054. EROSION AND SEDIMENT CONTROL NOTES AND DETAILS. AS BUILT DEC. 2021. SHEET NO. 13 OF 13.