

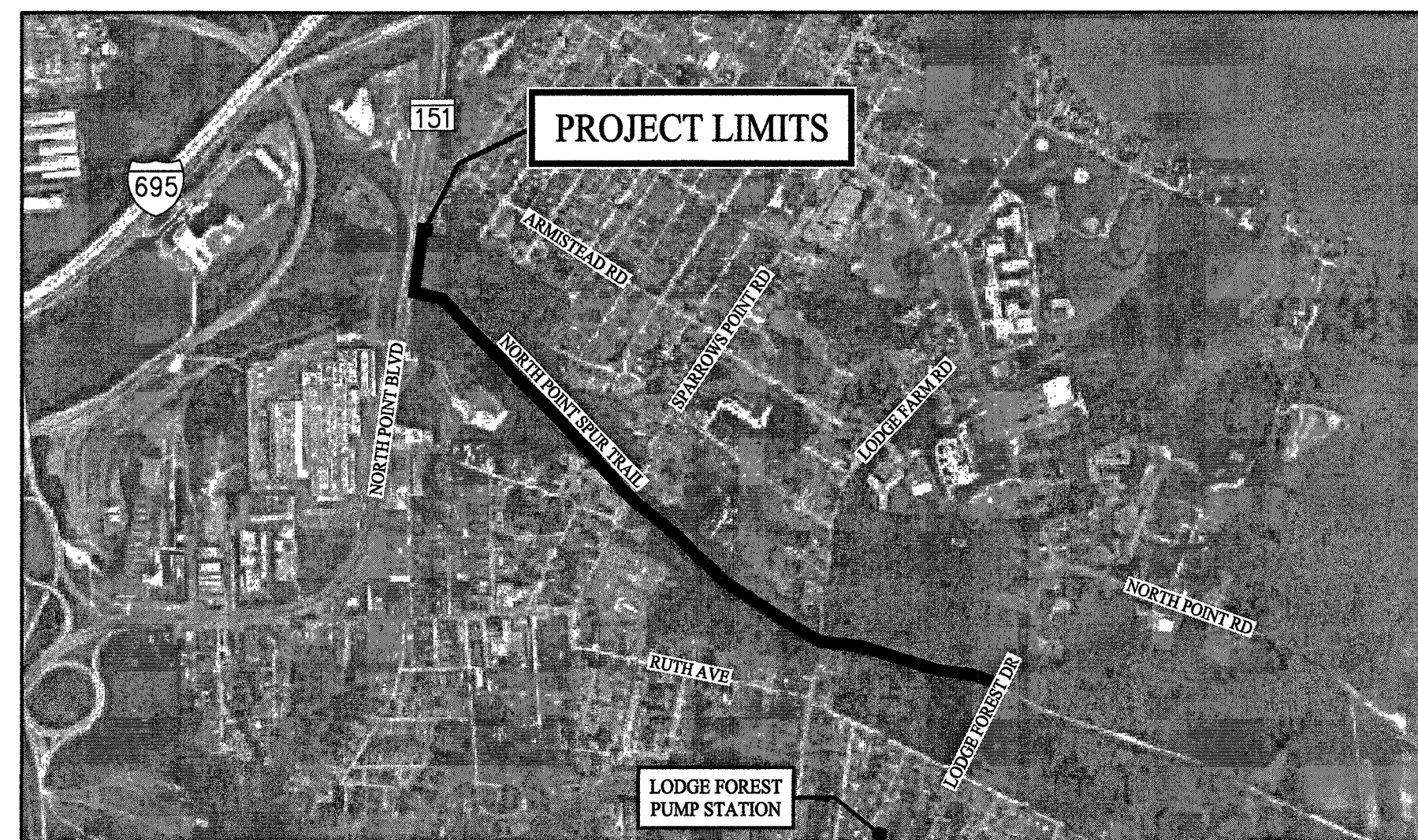
BALTIMORE COUNTY
DEPARTMENT OF PUBLIC WORKS
GLEN ECHO RELIEF SEWER
JOB ORDER NO. 231-201-0077-7252
CONTRACT NO. 20196 SX0
PROPOSED 24" RELIEF SEWER

SUGGESTED SEQUENCE OF CONSTRUCTION:

1. NOTIFY THE MARYLAND DEPARTMENT OF NATURAL RESOURCES, NORTH POINT STATE PARK, (410) 592-2897, AT LEAST ONE (1) WEEK PRIOR TO BEGINNING WORK. NOTIFY BALTIMORE SOIL CONSERVATION DISTRICT, (410) 887-3226, AT LEAST 48 HOURS PRIOR TO BEGINNING WORK. NOTIFY BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS (410) 887-3300, AT LEAST ONE (1) WEEK PRIOR TO BEGINNING WORK.
2. REFER TO SHEET ESC-7 FOR EROSION AND SEDIMENT CONTROL SEQUENCE OF OPERATIONS. WITH THE APPROVAL OF BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL AND THE SEDIMENT CONTROL INSPECTOR, PROCEED TO NEXT STEP.
3. INSTALL MAINTENANCE OF TRAFFIC AS NEEDED. ALL WORK WITHIN SHA R/W SHALL BE IN ACCORDANCE WITH SHA PERMIT. FOR SHA ROADS CONTACT (410) 229-2344 MINIMUM 48 HOURS PRIOR TO THE START OF WORK.
4. COORDINATE WITH BALTIMORE COUNTY BUREAU OF UTILITIES PRIOR TO START OF WORK AT THE DELMAR PUMP STATION. CONTACT FRANK NABOZNY (410) 663-9362 AT LEAST ONE (1) WEEK PRIOR TO BEGINNING WORK.
5. INSTALL ORANGE HIGH VISIBILITY FENCE AROUND WORK AREA AS NEEDED, OR AS DIRECTED BY THE COUNTY INSPECTOR.
6. PERFORM CONVENTIONAL TEST PITS OF UTILITY CROSSINGS AS INDICATED ON THE DRAWINGS TO DETERMINE IF CONCRETE ENCASEMENT EXISTS.
7. INSTALL PROPOSED 24-INCH PIPE AND MANHOLES.
 - A. INSTALL TEMPORARY BYPASS PUMPS AND APPURTENANCES AT THE DELMAR PUMP STATION (MH 901678 AND MH 40443). INSTALL UPSTREAM PLUG IN MH 7938. BYPASS SHALL DISCHARGE AT MH 7938. TEST BYPASS SYSTEM.
 - B. EXCAVATE TRENCH FOR PROPOSED PIPE. SHEET AND SHORE THE EXCAVATED TRENCH AS NEEDED. INSTALL DEWATERING EQUIPMENT. EXCAVATED MATERIAL SHALL BE PROPERLY DISPOSED OF OFF-SITE.
 - C. INSTALL NEW MANHOLES (MHS 74219 AND 74220) AND NEW SEWER BETWEEN MH 74220 AND MH 74219.
 - D. INSTALL TEMPORARY PLUG AT THE DOWNSTREAM END OF THE NEW PIPE AT MH 74219.
 - E. REMOVE BYPASS AT MH 40443.
 - F. INSTALL NEW MANHOLE (MH 74221) AND NEW SEWER BETWEEN MH 74221 AND MH 74220.
 - G. REMOVE TEMPORARY PLUG ON PIPE SEGMENT 74220-74219. INSTALL TEMPORARY PLUG AT THE DOWNSTREAM END OF PIPE SEGMENT 74221-74220.
 - H. REMOVE BYPASS AT MH 901678.
 - I. INSTALL SEWER ALONG NORTH POINT BOULEVARD BETWEEN MH 74221 AND MH 74222.
 - J. INSTALL SEWER ALONG NORTH POINT BOULEVARD BETWEEN NORTH POINT BOULEVARD AND LODGE FOREST DRIVE. THE ENTIRE SPUR TRAIL BETWEEN NORTH POINT BOULEVARD AND LODGE FOREST DRIVE CANNOT BE SHUT DOWN AT ONE TIME FOR CONSTRUCTION WORK. CONSTRUCTION WORK SHALL BE COMPLETED IN THREE PHASES. PHASE I SHALL BEGIN ONCE PHASE I IS COMPLETE. PHASE II SHALL BEGIN ONCE PHASE II IS COMPLETE.
 - I. PHASE I: MH 74222 TO MH 74226 (NORTH POINT BOULEVARD TO SPARROWS POINT ROAD)
 - II. PHASE II: MH 74226 TO MH 74230 (SPARROWS POINT ROAD TO LODGE FOREST DRIVE)
 - III. PHASE III: MH 74230 TO MH 74234 (LODGE FOREST DRIVE TO LODGE FOREST DRIVE)
 - K. INSTALL HOT TAP AND LINE STOP ON LODGE FOREST PUMP STATION FORCE MAIN. INSTALL TEMPORARY BYPASS PUMPING AND APPURTENANCES FROM HOT TAP TO MH 12646.
 - L. INSTALL NEW MANHOLE (MH 74234) AND CONNECT RELIEF SEWER AND FORCE MAIN TO THE MANHOLE.
 - M. REMOVE LINE STOP AND BYPASS SYSTEM.
 - N. ABANDON IN PLACE FORCE MAIN BETWEEN MH 74234 AND MH 12646.
8. PERFORM THE REQUIRED TESTING OF THE PIPELINE AND MANHOLES TO ENSURE COMPLIANCE WITH THE SPECIFICATIONS BEFORE IT IS PLACED INTO SERVICE.
9. PERFORM ALL SURFACE RESTORATION WORK INCLUDING CURB AND GUTTER, GRASS REPLACEMENT, AND FENCE.
10. PERFORM TRENCH REPAIRS IN ACCORDANCE WITH TRENCH DETAIL ON SHEET C-5 (REPAVING TRENCH OPENINGS, FLEXIBLE PAVING).
11. UPON STABILIZATION OF SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.
12. REMOVE MAINTENANCE OF TRAFFIC.

INDEX OF SHEETS			
NO.	DISCIPLINE CODE	TITLE	DRAWING NUMBER
*1	G-1	VICINITY MAP, SEQUENCE OF CONSTRUCTION, INDEX OF DRAWINGS	2020-1386
*2	G-2	LEGEND, NOTES AND ABBREVIATIONS	2020-1387
3	C-1	OVERALL PLAN	2020-1388
4	C-2	PLAN AND PROFILE	2020-1389
5	C-3	ENLARGED PLAN	2020-1390
6	C-4	PLAN AND PROFILE	2020-1391
7	C-5	PLAN AND PROFILE	2020-1392
8	C-6	PLAN AND PROFILE	2020-1393
9	C-7	PLAN AND PROFILE	2020-1394
10	C-8	PLAN AND PROFILE	2020-1395
11	C-9	PLAN AND PROFILE	2020-1396
12	C-10	PLAN AND PROFILE	2020-1397
*13	ESC-1	EROSION AND SEDIMENT CONTROL PLAN 1	2020-1398
*14	ESC-2	EROSION AND SEDIMENT CONTROL PLAN 2	2020-1399
*15	ESC-3	EROSION AND SEDIMENT CONTROL PLAN 3	2020-1400
*16	ESC-4	EROSION AND SEDIMENT CONTROL PLAN 4	2020-1401
*17	ESC-5	EROSION AND SEDIMENT CONTROL DETAILS	2020-1402
*18	ESC-6	EROSION AND SEDIMENT CONTROL DETAILS	2020-1403
*19	ESC-7	EROSION AND SEDIMENT CONTROL NOTES	2020-1404
20	D-1	SOIL BORING LOGS 1	2020-1405
21	D-2	SOIL BORING LOGS 2	2020-1406
22	MOT-1	TRAFFIC CONTROL NOTES AND DETAILS	2020-1407

NOTE: "*" SYMBOL DENOTES SHEETS WITHIN THE SEDIMENT CONTROL PLAN



VICINITY MAP
1"=1000'



DEPARTMENT OF PUBLIC WORKS
111 W. CHESAPEAKE AVE, TOWSON, MD 21204
(410) 887-3781

BENCH MARK INFORMATION: SEE SHEET C-1 FOR BENCH MARK LOCATIONS

100RS N 572,678.60 E 1,466,717.83 ELEVATION 3.82' DESCRIPTION: IRON ROD AND CAP	103RS N 572,396.95 E 1,467,000.04 ELEVATION 5.56' DESCRIPTION: IRON ROD AND CAP	106RS N 571,716.98 E 1,467,651.14 ELEVATION 19.56' DESCRIPTION: IRON ROD AND CAP	112RS N 570,622.59 E 1,468,955.07 ELEVATION 20.05' DESCRIPTION: IRON ROD AND CAP
101RS N 572,585.06 E 1,466,813.53 ELEVATION 3.98' DESCRIPTION: IRON ROD AND CAP	104RS N 572,201.53 E 1,467,192.18 ELEVATION 8.27' DESCRIPTION: IRON ROD AND CAP	110RS N 570,892.80 E 1,468,425.89 ELEVATION 22.58' DESCRIPTION: IRON ROD AND CAP	113RS N 570,476.60 E 1,469,441.95 ELEVATION 17.36' DESCRIPTION: IRON ROD AND CAP
102RS N 571,465.54 E 1,466,929.62 ELEVATION 4.81' DESCRIPTION: IRON ROD AND CAP	105RS N 571,878.47 E 1,467,502.99 ELEVATION 16.14' DESCRIPTION: IRON ROD AND CAP	111RS N 570,682.18 E 1,468,856.54 ELEVATION 21.44' DESCRIPTION: IRON ROD AND CAP	114RS N 570,389.43 E 1,469,724.77 ELEVATION 14.70' DESCRIPTION: IRON ROD AND CAP

CONSENT DECREE NOTE:

1. THE CONTRACTOR UNDERSTANDS THAT BALTIMORE COUNTY SHALL INCUR SIGNIFICANT AND SUBSTANTIAL STIPULATED PENALTIES PURSUANT TO A CONSENT DECREE ENTERED IN U.S. DISTRICT COURT FOR THE DISTRICT OF MARYLAND BY AND AMONG THE UNITED STATES OF AMERICA, THE STATE OF MARYLAND, AND BALTIMORE COUNTY. IN THE EVENT SEWAGE IS DISCHARGED ONTO THE GROUND OR INTO ANY STREAMS IN CONNECTION WITH THIS CONTRACT AND PENALTIES INCURRED BY THE COUNTY, ALONG WITH ANY AND ALL OTHER DAMAGES, COSTS AND EXPENSES OF THE COUNTY, SHALL BE THE LIABILITY AND OBLIGATION OF THE CONTRACTOR UNDER THIS CONTRACT.

GRADING NOTES:

1. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST BUFFER EASEMENT OR OTHER FOREST RETENTION AREAS, EXCEPT AS PERMITTED BY THE BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY.
2. STORMWATER MANAGEMENT HAS BEEN ADDRESSED THROUGH STORMWATER MANAGEMENT VARIANCE.
3. THE PROPOSED GRADING SHOWN ON THIS PLAN MEETS THE REQUIREMENTS SET FORTH BY BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY AND COMPLIES WITH ARTICLE 33, TITLE 5 OF THE BALTIMORE COUNTY CODE. HOWEVER, DUE TO BUILDING TYPES AND LAYOUT, SOME FIELD ADJUSTMENTS MAY BE REQUIRED. ALL CHANGES MUST COMPLY WITH THE ABOVE MENTIONED REQUIREMENTS.
4. ALL SWALES HAVE BEEN DESIGNED BY THE ENGINEER TO CONVEY RUNOFF ACCORDING TO BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS DESIGN STANDARDS.

OWNER/DEVELOPER CERTIFICATION:

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE ALSO CERTIFY THAT THE SITE WILL BE INSPECTED AT THE END OF EACH WORKING DAY, AND THAT ANY NEEDED MAINTENANCE WILL BE COMPLETED SO AS TO INSURE THAT ALL SEDIMENT CONTROL PRACTICES ARE LEFT IN OPERATIONAL CONDITION. I/WE AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT BOARD OF SUPERVISORS OR THEIR AUTHORIZED AGENTS.

SIGNATURE OWNER/DEVELOPER Laura Boucher DATE 10/6/22
PRINT NAME Laura Boucher TITLE Deputy Director DPWT

OWNER'S/DEVELOPER'S CERTIFICATION - GRADING:

I/WE CERTIFY THAT ALL GRADING ON THIS SITE WILL BE DONE IN ACCORDANCE WITH THE CURRENT GRADING REQUIREMENTS AS SET FORTH BY THE BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY AND WITH THE REQUIREMENTS SPECIFIED IN ARTICLE 3, TITLE 5 OF THE BALTIMORE COUNTY CODE.

SIGNATURE Laura Boucher TITLE Deputy Director DPWT DATE 10/6/22
PRINT NAME Laura Boucher

CONSULTANT'S CERTIFICATION:

I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT AND THE CURRENT STATE OF MARYLAND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.

SIGNATURE Norbert Huang DATE 10/11/22
PRINT NAME Norbert Huang MD LICENSE NUMBER 40290

BGE FACILITIES NOTE:

THIS DOCUMENT INCLUDES INFORMATION AND DEPICTIONS OF BALTIMORE GAS AND ELECTRIC COMPANY'S ("BGE") ELECTRIC AND/OR GAS UTILITIES LOCATED WITHIN THE PROJECT AREA (THE "BGE UTILITY INFORMATION"), LOCATIONS, DIMENSIONS, DEPTHS, AND OTHER DETAILS OF ANY SUCH UTILITIES MAY NOT BE AS-BUILT, AND THE INFORMATION SHALL NOT BE RELIED UPON WITHOUT FIELD VERIFICATION. EXCAVATORS MUST EMPLOY SAFE DIGGING BEST PRACTICES WHEN APPROACHING BGE ELECTRIC AND GAS UTILITIES AND COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, INCLUDING, BUT NOT LIMITED TO, THE "MISS UTILITY LAW". NO REPRESENTATION, GUARANTEES, OR WARRANTIES, EXPRESS OR IMPLIED, ARE MADE BY BGE AS TO THE QUALITY, COMPLETENESS, OR ACCURACY OF THE BGE UTILITY INFORMATION, AND IN ACCEPTING THIS DOCUMENT, THE RECIPIENT EXPRESSLY ACKNOWLEDGES AND AGREES THAT IT IS NOT RELYING ON THE ACCURACY OF THE SAME.

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT	
APPROVED FOR SEDIMENT CONTROL	<u>3-1-23</u>
	DATE
DISTRICT OFFICIAL <u>Jeffrey P. West</u> <u>026-45F9-23</u>	
PLAN NO.	
TECHNICAL REVIEW FOR THE DISTRICT BY:	
<u>Sara C. Dulina</u>	
THIS PLAN APPROVAL WILL EXPIRE THREE (3) YEARS FROM THE APPROVAL DATE.	

BALTIMORE COUNTY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY	
APPROVED FOR GRADING	
<u>[Signature]</u> <u>03.14.23</u>	
DATE	
STORMWATER MANAGEMENT PERMIT NOT REQUIRED	

TOTAL LIMIT OF DISTURBANCE:
124,632 SF / 2.78 ACRES

NO GRADE CHANGE

CONTRACT COMPLETION BOX	
CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	

MARYLAND COORDINATE SYSTEM (MCS) HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
G-1	20196 SX0
JOB ORDER NUMBER	
231-201-0077-7252	
SHEET 1 OF 22	
DRAWING NUMBER	
2020-1386	
FILE NO.: 1	

DWG. FILENAME: 20200927 146P O:\20209-BAL\20209-013 GLEN ECHO INTERCEPTOR RELIEF DESIGN DRAWINGS\GENERAL\G1.DWG LastSavedBy:MLUCICKENSTAY

SEAL STATE OF MARYLAND PROFESSIONAL ENGINEER 40290 NORBERT HUANG DATE: 9/29/2022	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. <u>40290</u> EXPIRATION DATE <u>05/18/2023</u> ENGINEER: <u>NORBERT HUANG</u>		AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SH	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
	CONTRACT COMPLETION BOX								PLAN SCALE: 1"=1000'	APPROVED BY: <u>[Signature]</u> DIRECTOR
	BUREAU OF ENGINEERING AND CONSTRUCTION		BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION
	REVIEWED BY: <u>[Signature]</u>									APPROVED BY: <u>[Signature]</u> CHIEF
DATE REVIEWED:										DATE: <u>10/6/2022</u>

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION
GLEN ECHO RELIEF SEWER
VICINITY MAP, SEQUENCE OF CONSTRUCTION, INDEX OF DRAWINGS
SUBDIVISION: DELMAR
ELECTION DIST. NO.:15c7

DWG. FILENAME: 20200927 1:APP C:\3298-BAL\3298B-013 GLEN ECHO INTERCEPTOR RELIEF DESIGN DRAWINGS\GENERAL\G2.DWG User:SAVEDBY-MJLICKENSTAMP

GENERAL NOTES:

- THESE DRAWINGS ARE BASED ON A TOPOGRAPHIC SURVEY PERFORMED ON 06/11/2018 AS PERFORMED BY PRECISION MEASUREMENTS, INC. DESIGN AND DRAWINGS ARE BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM (HORIZONTAL NAD 83/91 AND VERTICAL NAVD 88).
- THE CONTRACTOR SHALL COORDINATE WITH BALTIMORE COUNTY TRAFFIC ENGINEERING AND TRANSPORTATION PLANNING (410-887-3354) AT LEAST ONE WEEK PRIOR TO THE IMPLEMENTATION OF MAINTENANCE OF TRAFFIC PLANS.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE BALTIMORE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, BALTIMORE COUNTY STANDARD DETAILS FOR CONSTRUCTION, PROJECT SPECIAL PROVISIONS AND AMENDMENTS THERETO.
- ALL WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE LATEST VERSION OF THE MARYLAND STATE HIGHWAY ADMINISTRATIONS' (MSHA) BOOK OF STANDARDS FOR HIGHWAY AND INCIDENTAL STRUCTURES AND MSHA'S MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) 2011 EDITION.
- THE CONTRACTOR SHALL HAVE A SET OF SPECIFICATIONS, CONTRACT DOCUMENTS AND PERMITS, AND A COMPLETE SET OF DRAWINGS ON THE SITE AT ALL TIMES.
- THE LOCATIONS OF FEATURES SHOWN ON THESE DRAWINGS ARE PROVIDED ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITIES SHOWN ON THESE DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN INCLUDING FIELD OBSERVATIONS, SURVEYS, AS-BUILT DRAWINGS, AND GIS DATA. BALTIMORE COUNTY DOES NOT WARRANT AND/OR GUARANTEE THE ACCURACY OR COMPLETENESS OF THE INFORMATION. LOCATIONS OF ALL FEATURES AND UTILITIES SHOWN SHALL BE CONSIDERED APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY TO THEIR SATISFACTION THE WORK REQUIREMENTS ASSOCIATED WITH ALL LOCATIONS, INCLUDING LOCATIONS AND DIMENSIONS OF ANY EXISTING UTILITIES, FEATURES, AND/OR STRUCTURES RELATED TO PROJECT CONSTRUCTION PRIOR TO ORDERING MATERIALS OR COMMENCING WORK.
- THE CONTRACTOR SHALL NOTIFY MISS UTILITY (1-800-257-7777) 72 HOURS PRIOR TO THE START OF EXCAVATION TO DETERMINE THE LOCATION OF EXISTING UTILITIES. WHERE EXISTING UNDERGROUND UTILITIES OR OTHER STRUCTURES APPEAR TO BE IN CLOSE PROXIMITY TO PROJECT CONSTRUCTION, TEST PITS SHALL BE COMPLETED TO VERIFY THE SIZE, ELEVATION, LOCATION AND TYPE WELL IN ADVANCE OF PERFORMING ANY WORK THAT MAY IMPACT THESE UTILITIES. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT AND SUPPORT EXISTING UTILITIES, STRUCTURES, OR OTHER FEATURES IN THE VICINITY OF THEIR WORK AND SHALL MAINTAIN UNINTERRUPTED SUPPLY. ANY UTILITY, WHETHER SHOWN OR NOT, THAT IS DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE OWNER. SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE COUNTY IS TO BE NOTIFIED IMMEDIATELY. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT THE AUTHORIZATION OF THE COUNTY, THE CONTRACTOR ASSUMES THE RESPONSIBILITY FOR SAID CORRECTIONS OR ADJUSTMENTS.
- ALL EXISTING SURFACE FEATURES INCLUDING FENCES, ROADS, DRIVEWAYS, SIDEWALKS, CURBS, SIGNS, DRAINAGE INLETS, DRAINAGE DITCHES, STRUCTURES, EQUIPMENT, SHRUBS, AND TREES REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED OR REPAIRED TO THEIR ORIGINAL CONDITION OR BETTER AS REQUIRED AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING SILT AND DEBRIS DUE TO CONSTRUCTION ACTIVITIES OUT OF THE STORM DRAINAGE SYSTEM, STREAMS, RIVERS, ETC. FOR THE DURATION OF THE CONTRACT.
- THE CONTRACTOR SHALL PROVIDE APPROPRIATE TREE PROTECTION WHEN THE CONTRACTOR'S CONSTRUCTION ACTIVITIES ARE IN THE VICINITY OF STAND ALONE TREES OR FORESTED AREAS.
- FULL TRENCH COMPACTION TO BE USED FOR ALL RELIEF SEWER CONSTRUCTION.
- ALL PROPERTY MARKERS DISTURBED BY THE CONTRACTOR MUST BE RESET IN THE ORIGINAL LOCATION BY THE CONTRACTOR AFTER CONSTRUCTION IS COMPLETE. ALL COSTS FOR RESETTING PROPERTY MARKERS TO BE INCLUDED IN OTHER ITEMS BID.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN STREETS AND NORTH POINT SPUR TRAIL OF DUST AND TAKE WHATEVER MEASURES NECESSARY TO ENSURE THAT THE ROAD IS MAINTAINED IN A MUD AND DUST FREE CONDITION AT ALL TIMES. THE CONTRACTOR SHALL IMMEDIATELY CLEAN UP ALL DIRT AND/OR MUD TRACKED ONTO ROADS.
- THE CONTRACTOR SHALL USE EASEMENT/RIGHTS-OF-WAY AS SHOWN UNLESS THEY NEGOTIATE OTHERWISE WITH THE PROPERTY OWNER. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL SITE ACCESS REQUIREMENTS, TEMPORARY SHUT DOWN, NOTIFICATIONS AND BY-PASS ROUTING REQUIREMENTS WITH IMPACTED PROPERTY OWNERS AS NECESSARY TO COMPLETE THE WORK.
- EXISTING SEWAGE FLOWS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. AT NO TIME WILL IT BE PERMITTED FOR SEWAGE TO BE DISCHARGED ONTO THE GROUND, STREAMS OR ANY OTHER AREAS OTHER THAN A SANITARY SEWER. THE CONTRACTOR SHALL FURNISH ALL NECESSARY EQUIPMENT FOR THIS PURPOSE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR AVOIDING THE SPILLAGE OF RAW SEWAGE OR OTHER SUBSTANCES WHICH WOULD BE CONSIDERED DANGEROUS TO THE ENVIRONMENT DURING THE

CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL FURNISH ALL NECESSARY EQUIPMENT (PLUGGING, PUMPING, CONTAINMENT EQUIPMENT, ETC.) TO PREVENT SPILLAGE. SHOULD ANY LIQUID OR SOLID MATTER FROM THE SEWER COLLECTION SYSTEM BE SPILLED, DISCHARGED, LEAKED OR OTHERWISE DEPOSITED TO THE OPEN ENVIRONMENT AS A RESULT OF THE CONTRACTOR'S OPERATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CLEAN UP AND DISINFECTION OF THE AFFECTED AREA AND ALL ASSOCIATED COSTS, INCLUDING ANY FINES OR PENALTIES RESULTING FROM THE DISCHARGE. THE CONTRACTOR ALSO SHALL BE RESPONSIBLE FOR NOTIFYING THE COUNTY AND PERFORMING ALL REQUIRED CLEANUP OPERATIONS AT NO ADDITIONAL COST TO THE COUNTY. ALL SEWAGE SPILLS OR OVERFLOWS RESULTING FROM CONSTRUCTION ACTIVITY MUST IMMEDIATELY BE REPORTED TO THE COUNTY FIELD INSPECTOR AND THE BUREAU OF UTILITIES AT 410-887-7415. THE CONTRACTOR MUST ALSO SUBMIT AN INCIDENT REPORT TO THE PROJECT INSPECTOR WITHIN 24 HOURS OF THE EVENT. A COPY OF THE INCIDENT REPORT FORM IS INCLUDED IN THE SPECIFICATIONS.

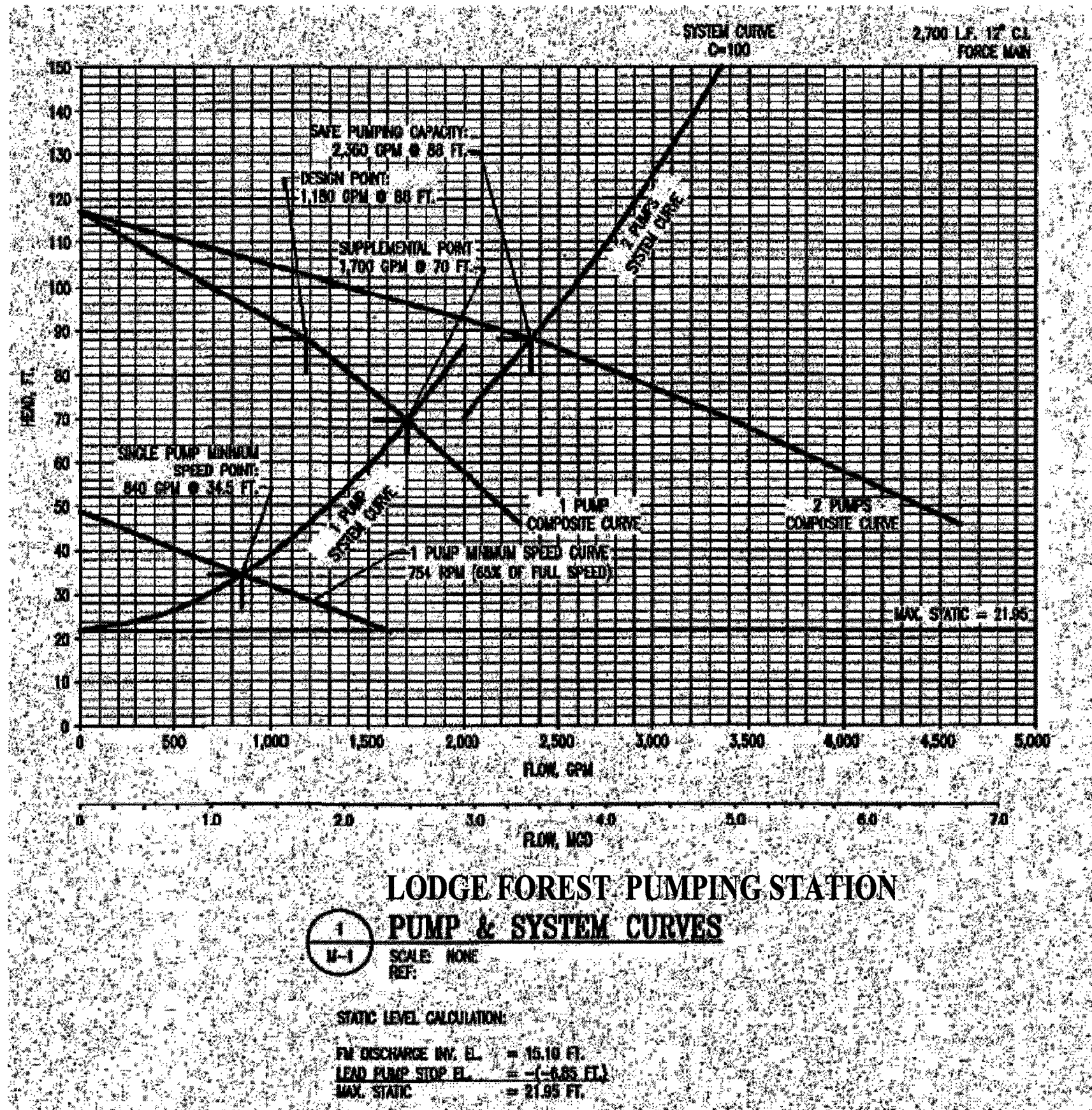
- THE CONTRACTOR SHALL REPORT TO THE BALTIMORE COUNTY DPW PROJECT MANAGER ALL INCIDENTS/COMPLAINTS FROM RESIDENTS REGARDING PROPERTY DAMAGE RESULTING FROM CONTRACTOR WORK OR ANY BACKUPS OF SEWAGE INTO DWELLINGS/BUSINESSES. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR MUST COMPLETE A BASEMENT BACK UP INCIDENT REPORT (SEE SPECIFICATIONS) AND PROVIDE TO THE PROJECT INSPECTOR WITHIN 24 HOURS.
- FOR ANY PRIVATE PROPERTY OUTSIDE OF THE TEMPORARY CONSTRUCTION EASEMENT WHICH IN THE CONTRACTOR'S OPINION IS NEEDED TO COMPLETE PROJECT CONSTRUCTION, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE OWNERS AND DETERMINE ANY SPECIFIC ACCESS OR LAND USE REQUIREMENTS AS NEEDED TO COMPLETE THE WORK. ALL COSTS ASSOCIATED WITH LAND USE OUTSIDE OF THE TEMPORARY CONSTRUCTION EASEMENT AND RIGHT-OF-WAY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR, IN COORDINATION WITH THE COUNTY, SHALL CONTACT PROPERTY OWNERS EARLY IN THE PROJECT SO AS NOT TO IMPACT THE SCHEDULE FOR COMPLETION OF THE WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADHERING TO ALL MAINTENANCE OF TRAFFIC (MOT) REQUIREMENTS AND FOR OBTAINING ANY REQUIRED PERMITS NECESSARY TO COMPLETE THEIR WORK.
- BALTIMORE COUNTY ROADWAYS:
 - A MINIMUM SINGLE LANE OF TRAFFIC IS REQUIRED TO BE MAINTAINED AT ALL TIMES ON ALL ROADWAYS.
 - AT THE END OF EACH WORKDAY, THE CONTRACTOR IS REQUIRED TO COMPLETE THE FOLLOWING:
 - BACKFILL AND/OR PLATE OVER ALL OPEN EXCAVATIONS SO THAT TWO LANES OF TRAFFIC ARE MAINTAINED.
 - REMOVE ALL EQUIPMENT AND MATERIAL FROM THE TRAVELED PORTION OF THE ROADWAY. ALSO, EQUIPMENT AND MATERIALS SHOULD NOT BE STORED IN SUCH A MANNER AS TO OBSTRUCT SIGHT DISTANCE AT ANY DRIVEWAY OR INTERSECTING ROAD.
 - COVER OR REMOVE ALL SIGNS REFERRING TO A SINGLE LANE OPERATION. ALSO, IT MAY BE NECESSARY FOR THE CONTRACTOR TO PROVIDE "STEEL PLATES AHEAD" SIGNS ON EACH APPROACH TO THE CONSTRUCTION AREA, IF APPROPRIATE, OR AS DIRECTED BY THE INSPECTOR OF THE PROJECT.
 - ALL EXISTING DRIVEWAY ACCESS MUST BE MAINTAINED AT ALL TIMES.
 - WORK BEING PROPOSED ALONG NORTH POINT BLVD. (MD 151) SHALL BE IN ACCORDANCE WITH THE SHA PERMIT.
- THE CONTRACTOR SHALL NOT PENETRATE, CONNECT, OR DEMOLISH ANY EXISTING SEWERS OR ASSOCIATED STRUCTURES WITHOUT PRIOR APPROVAL FROM THE BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS.
- THE UNDERGROUND UTILITY INFORMATION ON THE PLANS AND PROFILES IS ONLY SHOWN IN THE AREAS ASSOCIATED WITH PROPOSED OPEN EXCAVATION. THIS UNDERGROUND UTILITY INFORMATION DOES NOT EXTEND BEYOND THESE AREAS, AND SHOULD NOT BE CONSIDERED COMPREHENSIVE FOR THE ENTIRE PROJECT AREA.
- NO TRENCH EXCAVATION SHALL BE MADE IF THE NEAREST BOTTOM EDGE OF THE TRENCH EXCAVATION IS LESS THAN A 1:1 SLOPE AWAY FROM ANY UTILITY POLES, UNLESS SPECIAL ARRANGEMENTS ARE MADE WITH BGE.
- BYPASS OF FLOWS FROM FORCE MAINS IS REQUIRED TO COMPLETE THIS WORK. CONTRACTOR SHALL SUBMIT PROPOSED BYPASS PLAN. SEE SPECIAL PROVISIONS SECTION TITLED "FORCE MAIN BYPASS."
- STORMWATER MANAGEMENT HAS BEEN ADDRESSED BY A STORMWATER MANAGEMENT VARIANCE.
- CONTRACTOR SHALL PERFORM SURFACE RESTORATION, TRENCH REPAIR, AND CLEANUP OF THE SPUR TRAIL IMMEDIATELY FOLLOWING COMPLETION OF PIPE INSTALLATION FOR THAT SECTION. REFER TO THE SEQUENCE OF CONSTRUCTION ON SHEET G-1, NOTE 7J FOR THE THREE PHASES OF WORK.

GENERAL NOTES - SHA

- SHA PERMIT
THIS PROJECT IS WITHIN LIMITS OF THE STATE RIGHT OF WAY. ALL WORK WITHIN LIMITS OF THE STATE RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE STATE UTILITY PERMIT ISSUED FOR THIS PROJECT.
- UTILITY TRENCH REPAIR
REFER TO LATEST STANDARD NO. MD 578.01 "REPAIRING PAVEMENT OPENINGS FOR UTILITY TRENCHES" OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATIONS (SHA), FOR THE WORK UNDER THIS PROJECT. TRENCH REPAIR SHALL BE IN ACCORDANCE WITH THE SHA PERMIT.
- PAVEMENT MARKINGS
UNLESS OTHERWISE NOTED OR DIRECTED BY ENGINEER, ALL EXISTING PAVEMENT MARKINGS SHALL REMAIN IN PLACE DURING AND AFTER CONSTRUCTION OR IT SHALL BE REPLACED IMMEDIATELY IN KIND. THIS WILL INCLUDE BOTH TEMPORARY AND PERMANENT PAVEMENT MARKINGS REQUIRED IN ACCORDANCE WITH THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATIONS (SHA) PREVAILING SPECIFICATIONS. THE COST TO BE INCLUDED IN THE PRICE BID ITEM FOR MAINTENANCE OF TRAFFIC.
- TRAFFIC CONTROL
TRAFFIC CONTROL AND MAINTENANCE OF TRAFFIC NECESSARY FOR THE PROJECT SHALL BE IN ACCORDANCE WITH STATE UTILITY PERMIT ISSUED FOR THE PROJECT.

GENERAL NOTES - PAVE SPUR TRAIL

- ALL WORK WITHIN THE PAVE SPUR TRAIL INCLUDING ACCESS, CONSTRUCTION ACTIVITY, BYPASS PUMPING, AND EROSION AND SEDIMENT CONTROL SHALL BE COMPLETED WITHIN THE LIMITS OF DISTURBANCE AS SHOWN ON SHEETS C-1 TO C-10 AND ESC-1 TO ESC-4. REFER TO SHEET C-1 FOR THE DNR PROPERTY LIMITS.
- THE CONTRACTOR AT ALL TIMES MUST MAINTAIN A SAFE CONSTRUCTION ZONE WITH NECESSARY SIGNS, CONES, AND CLOSING OFF EACH OPEN EXCAVATION AREA AT THE END OF EACH DAY WITH ORANGE MESH FENCING AND ROAD PLATES AS DEEMED NECESSARY. FOR AREAS WHERE GATES ARE TO BE LEFT OPEN FOR CONSTRUCTION VEHICLES, REFLECTIVE SIGNS MUST BE KEPT ON BOTH SIDES OF THE PATH INDICATING AN ACTIVE CONSTRUCTION ZONE. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING PUBLIC SAFETY DURING THE COURSE OF THIS CONTRACT AND WILL BE HELD ACCOUNTABLE AS THE RESPONSIBLE PARTY FOR ANY SAFETY VIOLATIONS.
- THE CONTRACTOR AT NO TIME WILL REMOVE TREES WITHIN NORTH POINT STATE PARK OR ADJACENT TO THE NORTH POINT SPUR TRAIL OR STAGING AREAS. THE CONTRACTOR MAY TRIM TREES OVERHANGING THE NORTH POINT SPUR TRAIL AS DEEMED NECESSARY AND ANY VEGETATION GROWING OVER EXISTING TRAIL PAVEMENT MAY BE REMOVED. OVER THE COURSE OF TIME, SOIL AND SOME VEGETATION HAS ENCRONCHED ON TOP OF THE EXISTING TRAIL AND THIS MAY BE REMOVED AND PROPERLY DISPOSED OF UNDER THIS CONTRACT.
- THE PARCEL LINES SHOWN ON SHEETS C-1 TO C-10 ARE APPROXIMATE AND ARE SHOWN FOR INFORMATION PURPOSES ONLY.
- THE CONTOURS HEREON ARE BASED ON FIELD RUN TOPOGRAPHY.
- REFER TO SPECIAL PROVISIONS FOR FURTHER REQUIREMENTS.



LEGEND

EXISTING		ABANDON	
	MANHOLE ID		ABANDON PIPE
	BUILDING/STRUCTURE		PROPOSED
	EDGE OF PAVEMENT		MANHOLE ID
	PAVED SURFACE		SANITARY SEWER PIPING
	CONTOUR		SANITARY SEWER MANHOLE
	BENCHMARK LOCATION		BYPASS PIPING
	SANITARY SEWER MANHOLE		PERMANENT CONSTRUCTION EASEMENT / LOD
	SANITARY SEWER GRAVITY MAIN PIPING		CONVENTIONAL TEST PIT LOCATION
	SANITARY SEWER FORCE MAIN PIPING	EROSION AND SEDIMENT CONTROL	
	STORM DRAIN PIPING		LIMITS OF DISTURBANCE
	WATER PIPING		SUPER SILT FENCE
	GAS PIPING		SUPER SILT FENCE ON PAVED AREAS / LOD
	OVERHEAD ELECTRIC		CURB INLET PROTECTION
	UNDERGROUND COMMUNICATIONS	ABBREVIATIONS	
	UNDERGROUND ELECTRIC	AVE	AVENUE
	FIBER OPTIC CABLE	BGE	BALTIMORE GAS & ELECTRIC
	UTILITY POLE	CMP	CORRUGATED METAL PIPE
	STORM INLET	CONC	CONCRETE
	STORM DRAIN HEADWALL	DWF	DRY WEATHER FLOW
	STORM DRAIN MANHOLE	DWG	DRAWING
	WATER VALVE	E	EAST
	WATER METER	EL	ELEVATION
	TELEPHONE MANHOLE	EX	EXISTING
	FIRE HYDRANT	FT	FEET
	GAS VALVE	INV	INVERT
	GAS MANHOLE	LF	LINEAR FEET
	FENCE LINE	LOD	LIMITS OF DISTURBANCE
	PROPERTY LINE	MGD	MILLION GALLONS PER DAY
	EASEMENT LINE	MH	MANHOLE
	STREET SIGN		
	TREE		
	TREE LINE		
	FLOW ARROW		
	CURB AND GUTTER		
	RAILROAD		
	WETLAND		
	DNR PROPERTY		
	STREAM		
	WETLAND BUFFER		
	FOREST BUFFER		
	CRITICAL AREA BOUNDARY		
	SOIL BORING LOCATION		
	VACUUM TEST PIT LOCATION		

SEAL	PROFESSIONAL CERTIFICATION	AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
	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. 40290 EXPIRATION DATE 05/12/2023								
	ENGINEER: NORBERT HUANG								
	DGN BY: NH	BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
	Hazen	REVIEWED BY:							
	1 SOUTH RETREAT DRIVE, SUITE 100, BALTIMORE, MD 21202	DATE REVIEWED:							
DATE: 4/24/2022									

SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES

SUBDIVISION: DELMAR

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION
GLEN ECHO RELIEF SEWER
LEGEND, NOTES AND ABBREVIATIONS

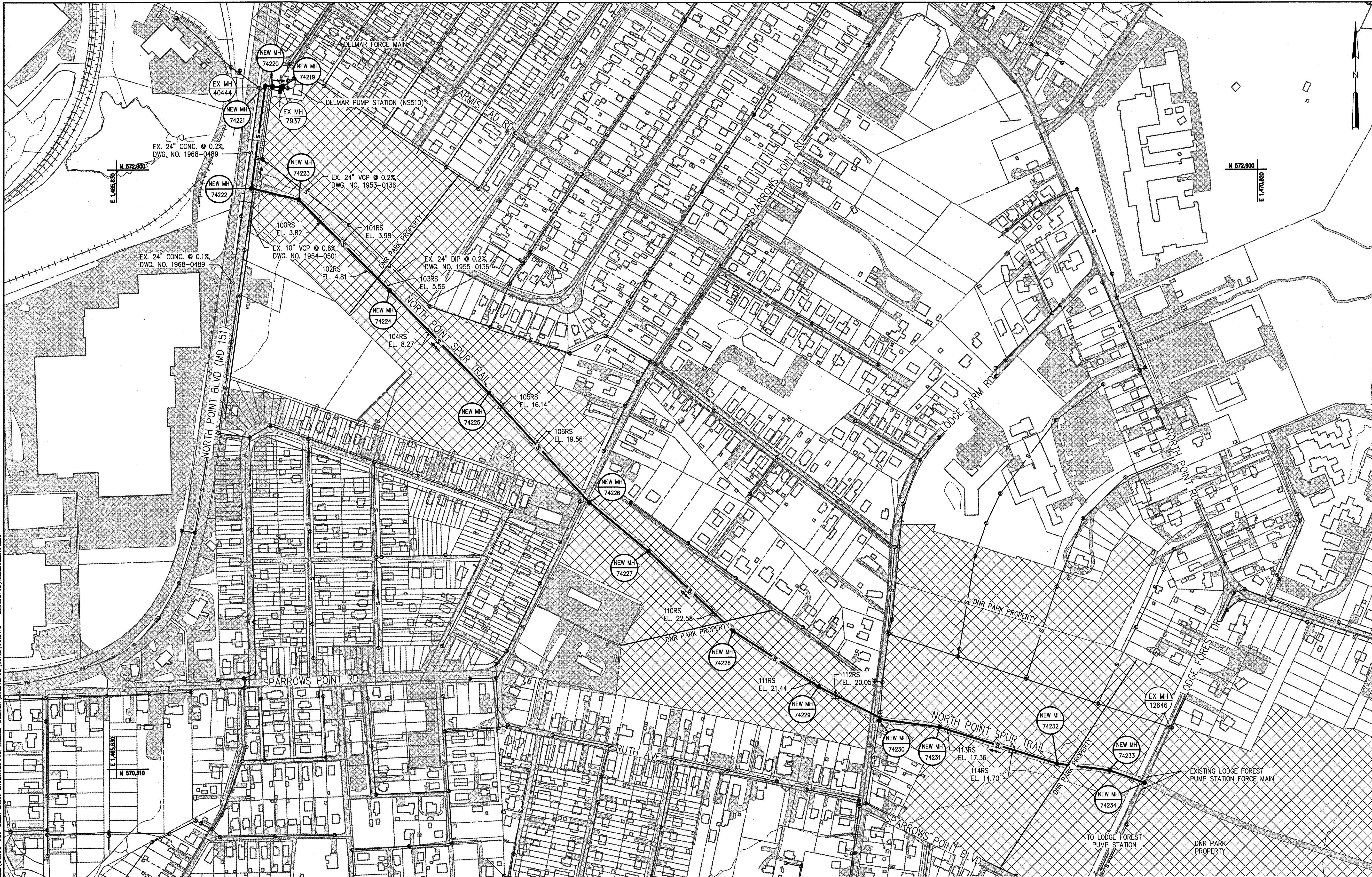
ELECTION DIST. NO.:15c7

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT APPROVED FOR SEDIMENT CONTROL	
	3-1-23 DATE

CONTRACT COMPLETION BOX	
CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	

MARYLAND COORDINATE SYSTEM (MCS) HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
G-2	20196 SXO
JOB ORDER NUMBER	
231-201-0077-7252	
SHEET 2 OF 22	
DRAWING NUMBER	
2020-1387	
FILE NO.: 1	

DWG. FILENAME: 20200927 147P C:\32598-BAL\32598-013 GLEN ECHO INTERCEPTOR RELIEF DESIGN DRAWINGS\CI\CI.DWG LastSavedBy:ABUCKENSTAFF



FLOW DATA NOTES:

1. FOR PROPOSED RELIEF SEWER'S DOWNSTREAM CONNECTION

MH 12636
AVERAGE DAILY FLOW = 0.758 MGD
MAXIMUM DAILY FLOW = 6.992 MGD

MH 7966
AVERAGE DAILY FLOW = 0.258 MGD
MAXIMUM DAILY FLOW = 1.582 MGD

MH 40444
AVERAGE DAILY FLOW = 0.524 MGD
MAXIMUM DAILY FLOW = 5.821 MGD

FLOW DATA IS FROM 2011 - 2012. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACCOMMODATING ALL FLOWS AS REQUIRED TO COMPLETE THEIR WORK.

2. FOR PROPOSED RELIEF SEWER'S UPSTREAM CONNECTION

LODGE FOREST PUMP STATION FORCE MAIN
AVERAGE DAILY FLOW = 0.252 MGD
MAXIMUM DAILY FLOW = 3.4 MGD

REFER TO SHEET G-2 FOR LODGE FOREST PUMP STATION PUMP AND SYSTEM CURVES.

FLOW DATA IS FROM JANUARY - DECEMBER 2017. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACCOMMODATING ALL FLOWS AS REQUIRED TO COMPLETE THEIR WORK.

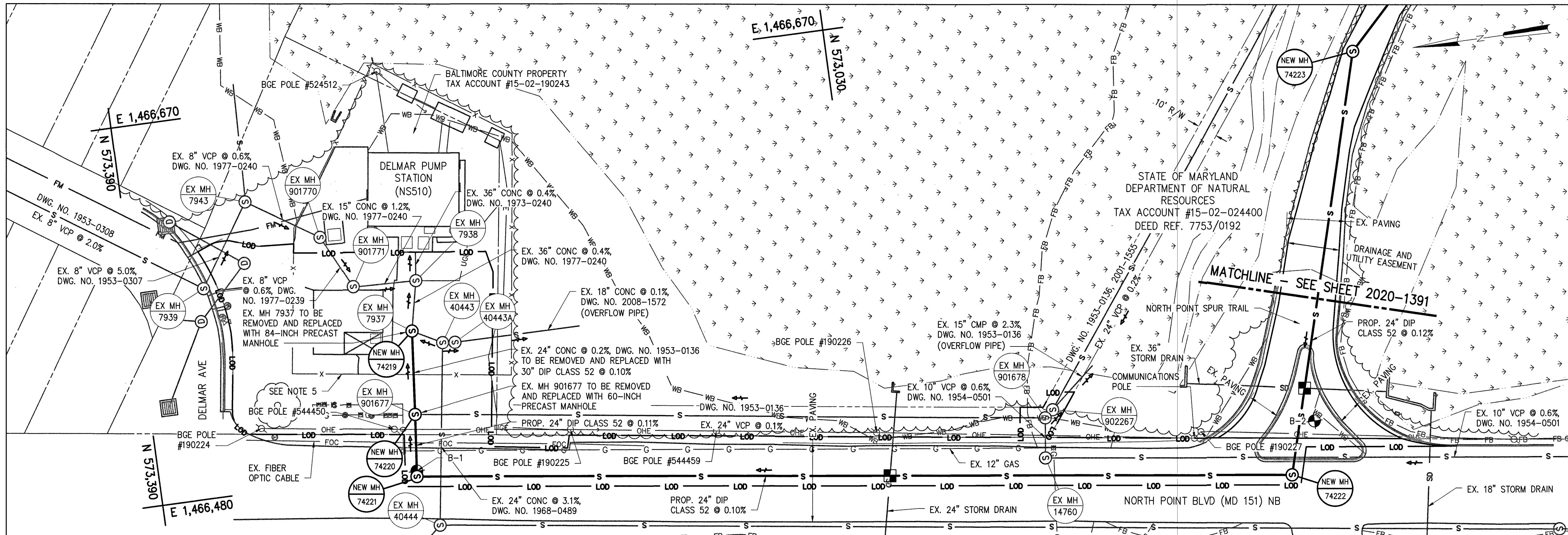
OVERALL PLAN
1"=200'

CONTRACT COMPLETION BOX	
CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	

MARYLAND COORDINATE SYSTEM (MCS)	
HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
C-1	20196 SXO
JOB ORDER NUMBER 231-201-0077-7252	
SHEET 3 OF 22	
DRAWING NUMBER 2020-1388	
FILE NO.: 1	

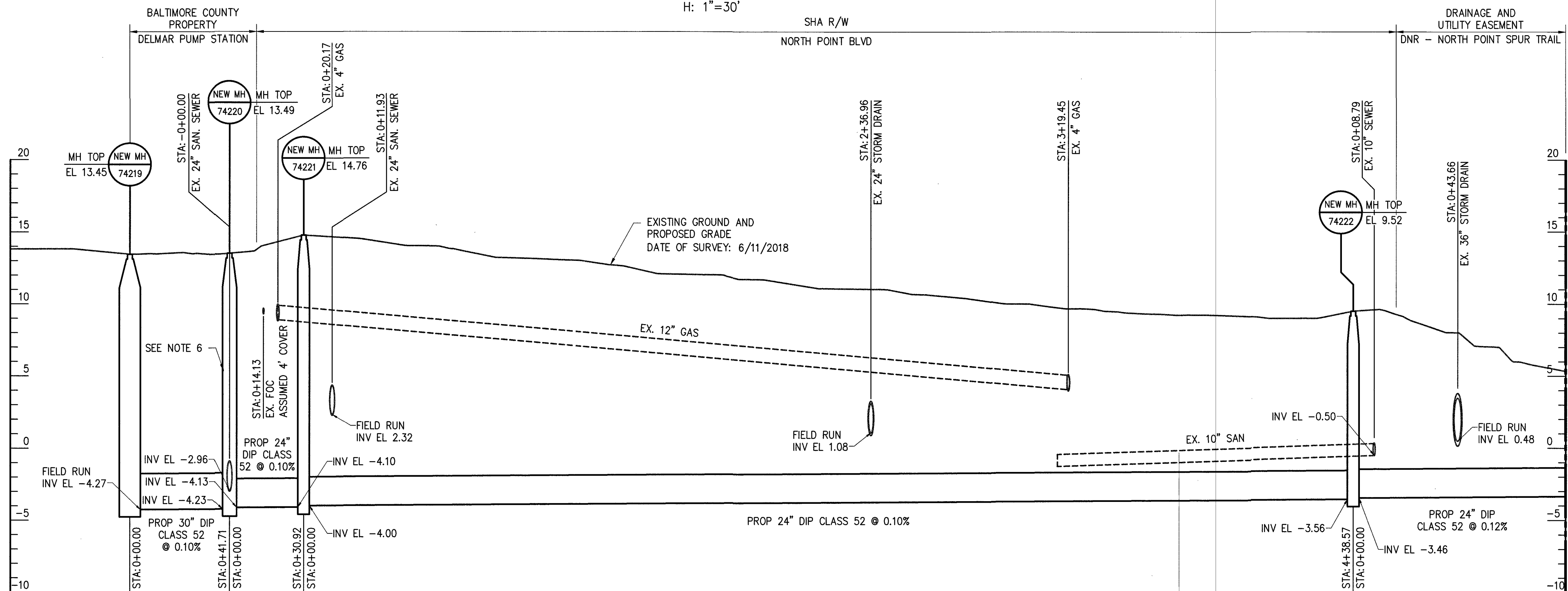
PROFESSIONAL CERTIFICATION	AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION	SHT	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40290 EXPIRATION DATE 05/12/2023 ENGINEER: NORBERT HUANG				R.O.W. NO.	ANE			PLAN SCALE: 1" = 200'	APPROVED BY: DIRECTOR
								PROFILE SCALE: N/A	DATE:
DON BY: NH	BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION
DWN BY: TSA	REVIEWED BY:	SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES							
CHKD BY: JTB	DATE REVIEWED:								

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION	
GLEN ECHO RELIEF SEWER	
OVERALL PLAN	
SUBDIVISION: DELMAR	ELECTION DIST. NO.: 15c7



PLAN (MH 7937 TO MH 74222)

H: 1"=30'



PROFILE (MH 7937 TO MH 74222)

H: 1"= 30' V: 1"= 5'

NOTES:

- THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO THE START OF CONSTRUCTION.
- REFER TO SHEETS ESC-5 AND ESC-6 FOR TYPICAL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
- THERE ARE POLES, GAS LINES, AND COMMUNICATION LINES LOCATED ADJACENT TO EXCAVATION LOCATIONS. CONTRACTOR TO COORDINATE WITH BALTIMORE COUNTY AND UTILITY OWNERS PRIOR TO EXCAVATION.
- CONTRACTOR SHALL REMOVE SECTIONS OF THE DELMAR PUMP STATION FENCE AS NECESSARY TO COMPLETE THE SEWER INSTALLATION. TEMPORARY CONSTRUCTION FENCE SHALL BE SECURED AT THE END OF EACH WORK DAY TO PREVENT UNAUTHORIZED ACCESS TO THE PUMP STATION SITE. CONTRACTOR SHALL REPLACE SECTIONS OF FENCE REMOVED AFTER WORK IS COMPLETE.
- NEW MH 74219 SHALL BE 84-INCH PRECAST SANITARY MANHOLE PER DETAIL ON SHEET C-3.
- NEW MH 74220 SHALL BE 60-INCH PRECAST SANITARY MANHOLE PER COUNTY STANDARD DETAIL S-5.
- MH 7937 IS A NON-STANDARD MANHOLE, MODIFIED TO ACCOMMODATE THE EXISTING 36-INCH OUTGOING PIPE. REFER TO DRAWING NO. 1977-0241 FOR DETAILS.
- CONTRACTOR SHALL BE PERMITTED TO TRIM TREES WITHIN THE LIMITS OF DISTURBANCE, HOWEVER, NO TREE REMOVAL SHALL BE PERMITTED.
- CONTRACTOR SHALL COORDINATE WITH BALTIMORE COUNTY BUREAU OF UTILITIES PRIOR START OF WORK AT THE DELMAR PUMP STATION. CONTACT FRANK NABOZNY (410) 663-9362 AT LEAST ONE (1) WEEK PRIOR TO BEGINNING WORK.
- SEE SHEET C-3 FOR ENLARGED PLAN.

MH STAKEOUT TABLE				
MH NO.	NORTHING	EASTING	INV. EL.	RIM ELEV.
74219	573,254.33	1,466,549.21	IN: -4.27	13.45
74220	573,258.46	1,466,507.70	IN: -4.13	13.49
74221	573,261.76	1,466,476.95	IN: -4.00	14.76
74222	572,827.17	1,466,418.02	IN: -3.46	9.52

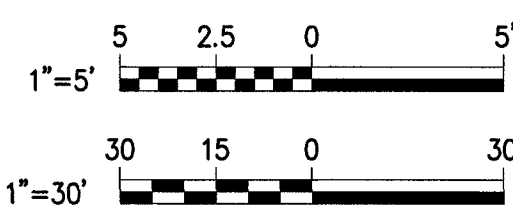
PIPE SCHEDULE				
UPSTREAM MH	DOWNSTREAM MH	SIZE	LENGTH	BEARING
74220	74219	30"	41.71	S84°18'32.86"E
74221	74220	24"	30.92	S83°53'01.36"E
74222	74221	24"	438.57	N07°43'19.99"E
74223	74222	24"	88.80	N73°59'34.56"W

BILL OF MATERIALS			
ASSET ID	LENGTH (FT)	DEPTH (FT)	SIZE/MATERIAL
MH 74219	-	17.72	84"
MH 74220	-	17.72	60"
MH 74221	-	18.86	48"
MH 74222	-	13.07	48"
74220-74219	41.71	-	30" DUCTILE IRON CLASS 52
74221-74220	30.92	-	24" DUCTILE IRON CLASS 52
74222-74221	438.57	-	24" DUCTILE IRON CLASS 52
74223-74222	88.80	-	24" DUCTILE IRON CLASS 52

CONTRACTOR SHALL PERFORM CONVENTIONAL TEST PITS FOR THE FOLLOWING STORM DRAINS TO DETERMINE IF CONCRETE ENCASEMENT EXISTS:

DIAMETER	NORTHING	EASTING
24"	573,026.94	1,466,445.11
36"	572,815.13	1,466,459.99

CONTRACT COMPLETION BOX	
CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	



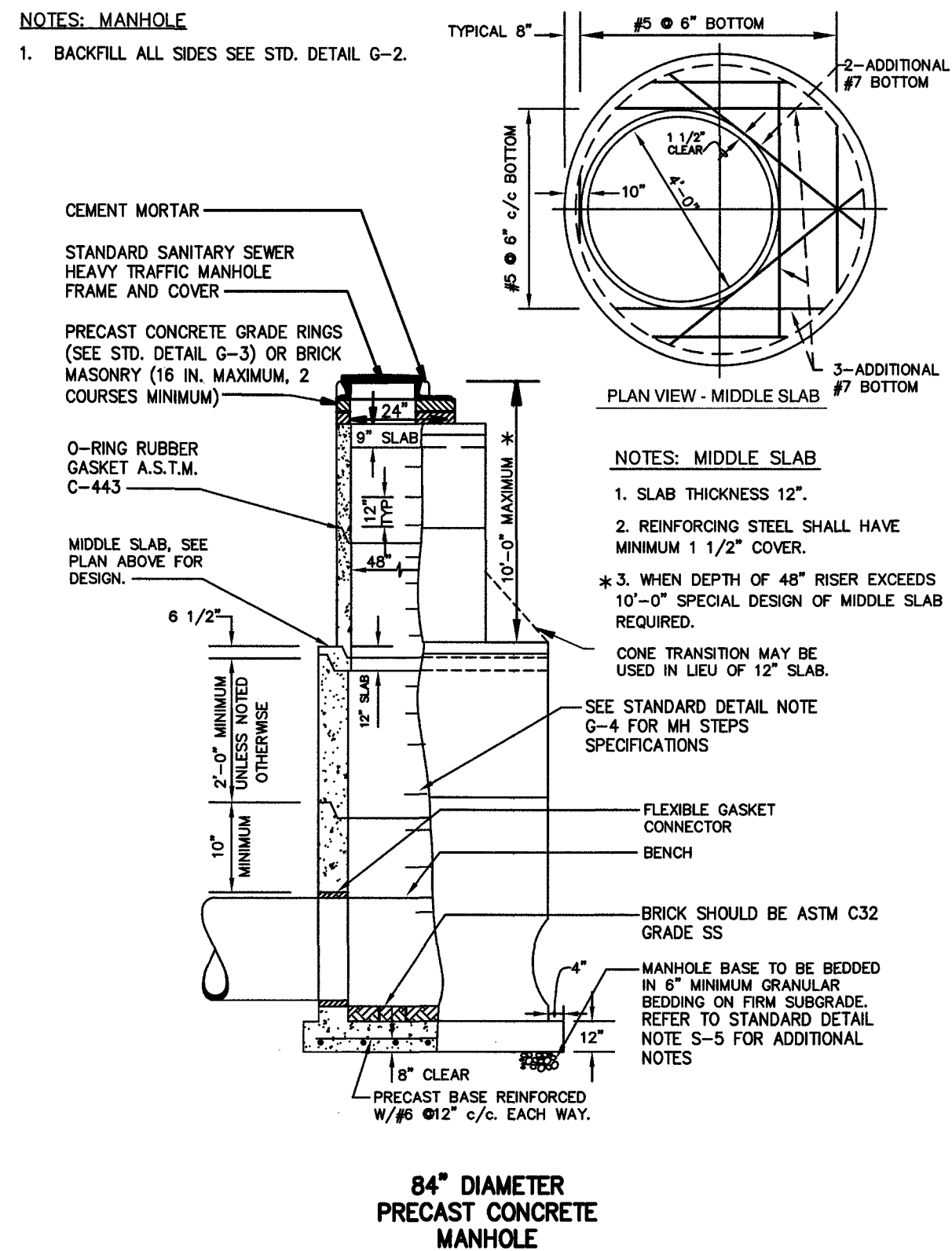
MARYLAND COORDINATE SYSTEM (MCS) HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION C-2	CONTRACT NUMBER 20196 SXO
JOB ORDER NUMBER 231-201-0077-7252	
SHEET 4 OF 22 DRAWING NUMBER 2020-1389	
FILE NO.: 1	

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PROFESSIONAL CERTIFICATION		AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SH#	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
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. 40290 EXPIRATION DATE 05/12/2023		CONTRACT COMPLETION BOX			R.O.W. NO. 19-058	ANE	22SE31	PLAN SCALE: 1"=30'	APPROVED BY: DIRECTOR
ENGINEER: NORBERT HUANG		BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	DATE: _____
DGN BY: _____ NH		REVIEWED BY: _____	SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES						
DWN BY: _____ TSA		DATE REVIEWED: _____	SUBDIVISION: DELMAR						
CHKD BY: _____ NH									

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION
GLEN ECHO RELIEF SEWER
PLAN AND PROFILE

ELECTION DIST. NO.: 15c7



- NOTES:**
1. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO THE START OF CONSTRUCTION.
 2. REFER TO SHEETS ESC-5 AND ESC-6 FOR TYPICAL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
 3. THERE ARE POLES LOCATED ADJACENT TO EXCAVATION LOCATIONS. CONTRACTOR TO COORDINATE WITH BALTIMORE COUNTY AND UTILITY OWNERS PRIOR TO EXCAVATION.
 4. CONTRACTOR SHALL BE PERMITTED TO TRIM TREES WITHIN THE LIMITS OF DISTURBANCE, HOWEVER, NO TREE REMOVAL SHALL BE PERMITTED.
 5. CONTRACTOR SHALL COORDINATE WITH BALTIMORE COUNTY BUREAU OF UTILITIES PRIOR START OF WORK AT THE DELMAR PUMP STATION. CONTACT FRANK NABOZNY (410) 336-3582 AT LEAST ONE (1) WEEK PRIOR TO BEGINNING WORK. COORDINATION SHALL INCLUDE ACCESS, BYPASS PUMP, AND LAYDOWN.

NOTES: MANHOLE

1. BACKFILL ALL SIDES SEE STD. DETAIL G-2.

Diagram showing the plan view of the middle of the jar. It features concentric circles with dimensions: 10" (outer diameter), 1 1/2" (width of the middle section), and 5" (radius of the middle section). A note indicates "TYPICAL 5" and "5" @ 6" BOTTOM". A label "2-ADDITIONAL #7 BOTTOM" points to a dashed line. A label "3-ADDITIONAL #7 BOTTOM" points to a solid line. The text "PLAN VIEW - MIDDLE OF JAR" is at the bottom.

NOTES: MIDDLE SLAB

1. SLAB THICKNESS 12".
2. REINFORCING STEEL SHALL HAVE MINIMUM 1 1/2" COVER.
- * 3. WHEN DEPTH OF 48" RISER EXCEEDS 10'-0" SPECIAL DESIGN OF MIDDLE SLAB REQUIRED.
- CONCRETE TRANSITION MAY BE USED IN LIEU OF 12" SLAB.
- SEE STANDARD DETAIL NOTE
- 4 FOR MH STEPS
- SPECIFICATIONS
- FLEXIBLE GASKET CONNECTOR
- BENCH
- BRICK SHOULD BE ASTM C32 GRADE SS
- MANHOLE BASE TO BE BEDDED IN MINIMUM GRANULAR BEDDING ON FIRM SUBGRADE. REFER TO STANDARD DETAIL NOTE — 5 FOR ADDITIONAL NOTES


**84" DIAMETER
PRECAST CONCRETE
MANHOLE**

H: $1'' = 20'$

FILENAME: 20202072

DATE: 7/1/2022

SEAL



PROFESSIONAL ENGINEER

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. 40290 EXPIRATION DATE 05/12/2023
ENGINEER: NORBERT HUANG

DGN BY: NH

DWN BY: TSA

CHKD BY: NH

BUREAU OF ENGINEERING AND CONSTRUCTION

REVIEWED BY:

DATE REVIEWED:

BUILDINGS

HIGHWAYS

STRUCTURES

STORM DRAINS

SEWER

WATER

FIELD ENGINEER

BUR. OF ENGINEERING & CONSTRUCTION

AS-BUILT / REVISION

BY

DATE

P.W.A. NO.

KEY SHEET

POSITION SH#

DRAWING SCALE

DEPARTMENT OF PUBLIC WORKS

R.O.W NO.

ANE

22SE31

PLAN SCALE: 1"=20'


PROFILE SCALE: N/A

APPROVED BY:

DIRECTOR

DATE:

CONTRACT COMPLETION BOX



Hazen


HAZEN AND SAWYER
1 SOUTH STREET, SUITE 1100 BALTIMORE, MD 21202
TEL: 410.396.7000 FAX: 410.396.7001

SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES

SUBDIVISION: DELMAR


BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION
GLEN ECHO RELIEF SEWER
ENLARGED PLAN

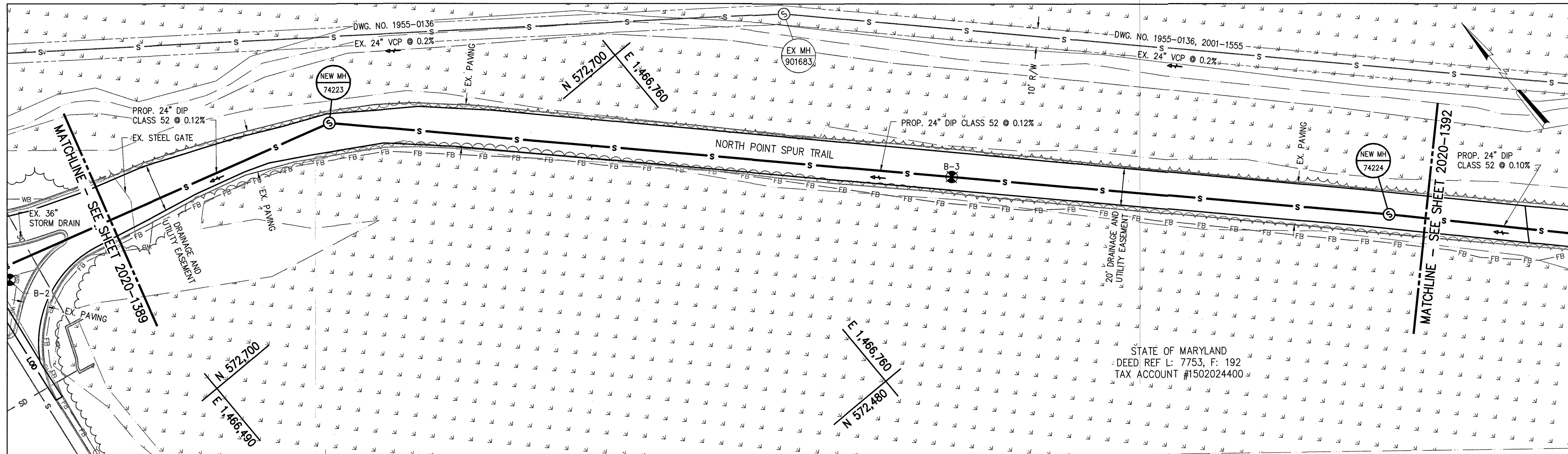
1"=20'



CONTRACT COMPLETION BOX	
CONTRACTOR: _____	
DATE COMPLETED: _____	
INSPECTOR: _____	
PIPE MATERIAL (Pressure Only) _____	

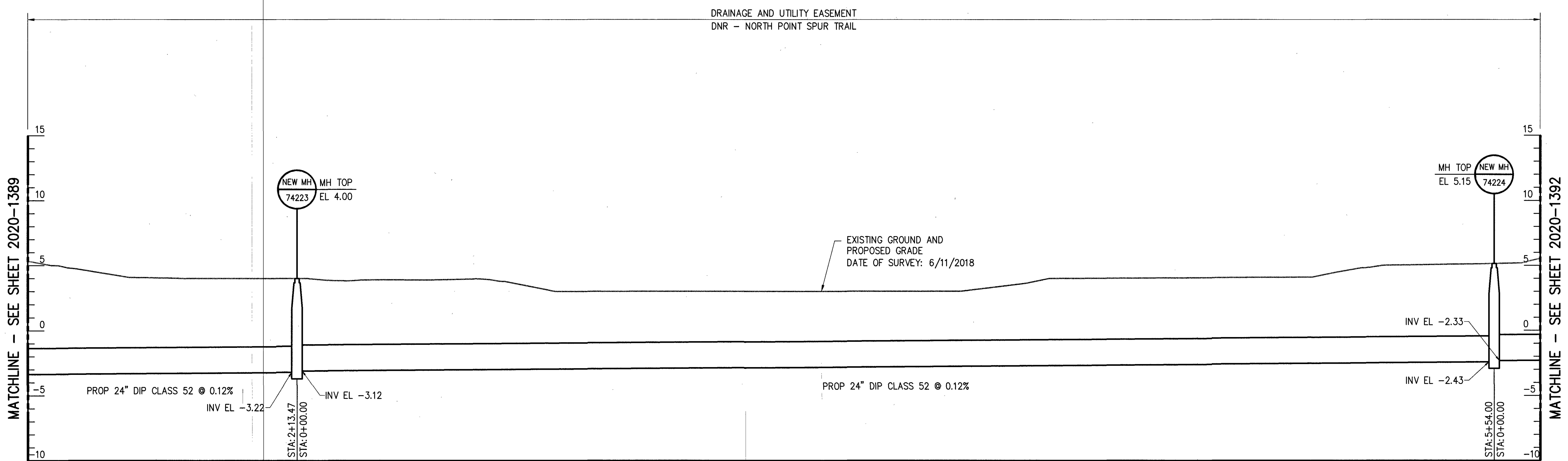
MARYLAND COORDINATE SYSTEM (MCS) HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
C-3	20196 SXO

	JOB ORDER NUMBER
	231-201-0077-7255
	SHEET 5 OF 22
	DRAWING NUMBER
	2020-1390
	FILE NO. 1



PLAN (MH 74223 TO MH 74224)

H: 1"=30'



PROFILE (MH 74223 TO MH 74224)

H: 1"= 30' V: 1"= 5'

NOTES:

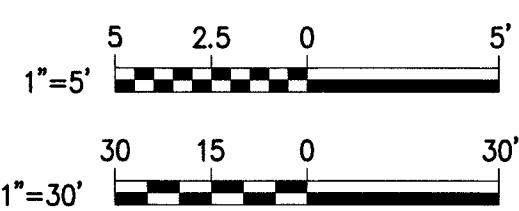
1. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO THE START OF CONSTRUCTION.
2. REFER TO SHEETS ESC-5 AND ESC-6 FOR TYPICAL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
3. THERE ARE POLES LOCATED ADJACENT TO EXCAVATION LOCATIONS. CONTRACTOR TO COORDINATE WITH BALTIMORE COUNTY AND UTILITY OWNERS PRIOR TO EXCAVATION.
4. CONTRACTOR SHALL BE PERMITTED TO TRIM TREES WITHIN THE LIMITS OF DISTURBANCE, HOWEVER, NO TREE REMOVAL SHALL BE PERMITTED.

MH STAKEOUT TABLE				
MH NO.	NORTHING	EASTING	INV. EL.	RIM ELEV.
74223	572,768.30	1,466,623.21	IN: -3.12 OUT: -3.22	4.00
74224	572,378.52	1,467,016.89	IN: -2.33 OUT: -2.43	5.15

PIPE SCHEDULE				
UPSTREAM MH	DOWNSTREAM MH	SIZE	LENGTH	BEARING
74223	74222	24"	124.66	N73°59'34.56"W
74224	74223	24"	554.00	N45°17'04.59"W
74225	74224	24"	21.34	N44°15'51.98"W

BILL OF MATERIALS			
ASSET ID	LENGTH (FT)	DEPTH (FT)	SIZE/MATERIAL
MH 74223	-	7.21	48", WATERTIGHT FRAME/COVER
MH 74224	-	7.58	48", WATERTIGHT FRAME/COVER
74223-74222	124.66	-	24" DUCTILE IRON CLASS 52
74224-74223	554.00	-	24" DUCTILE IRON CLASS 52
74225-74224	21.34	-	24" DUCTILE IRON CLASS 52

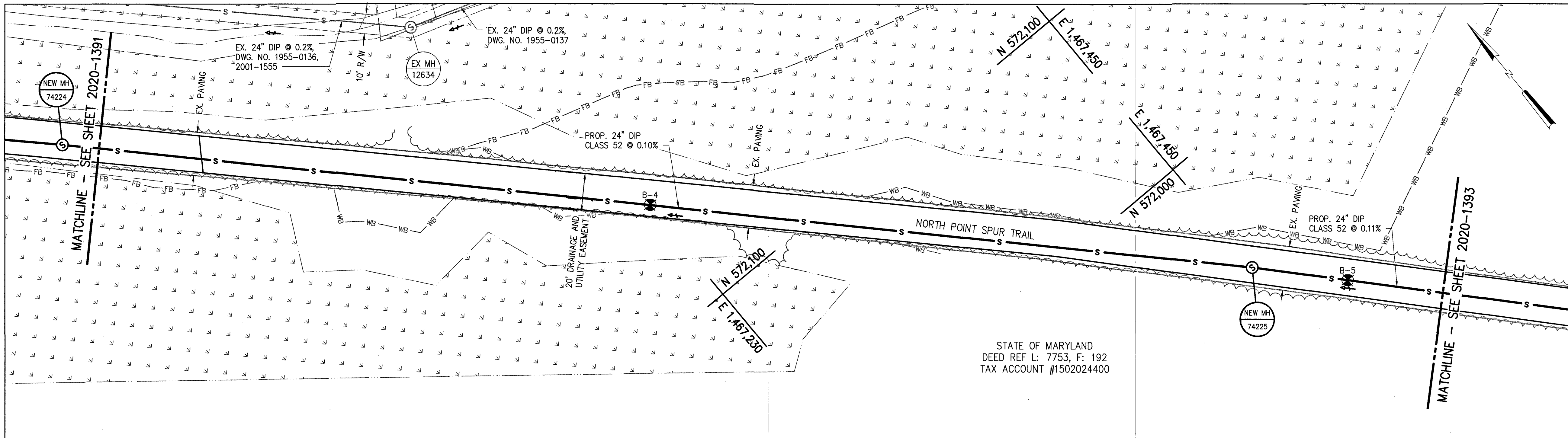
CONTRACT COMPLETION BOX	
CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	



MARYLAND COORDINATE SYSTEM (MCS)	
HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
C-4	20196 SXO
JOB ORDER NUMBER	
231-201-0077-7252	
SHEET 6 OF 22	
DRAWING NUMBER	
2020-1391	
FILE NO.:	1

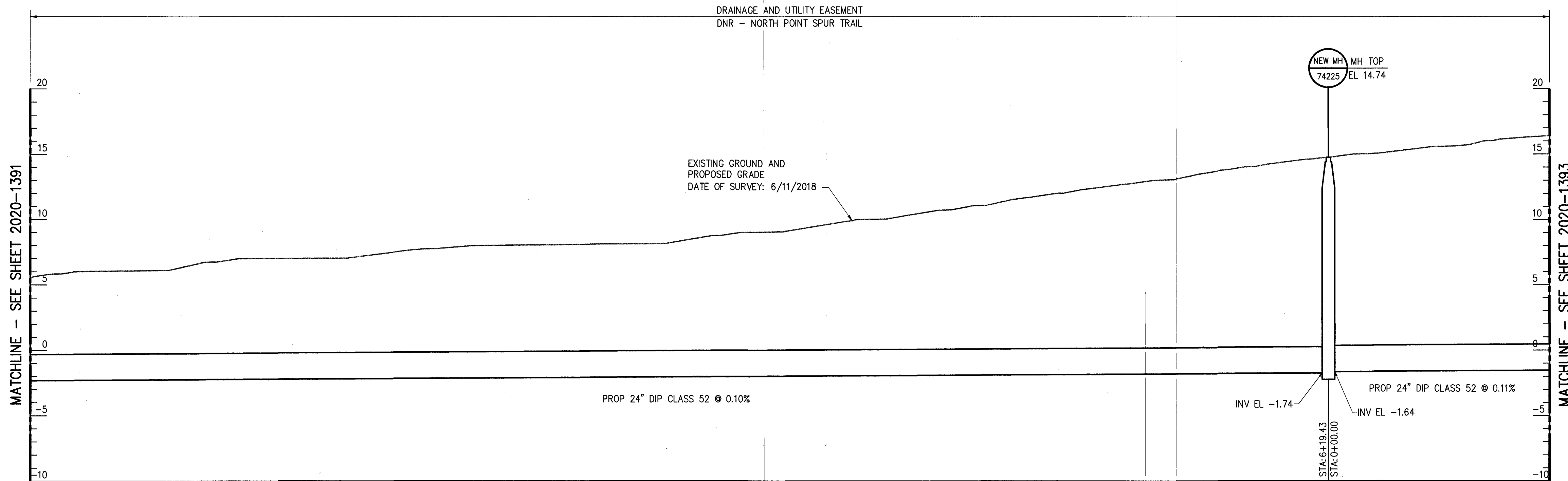
SEAL	PROFESSIONAL CERTIFICATION	AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SH	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
	I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.							1"=30'	APPROVED BY: _____
	LICENSE NO. 40290, EXPIRATION DATE 05/12/2023							H: 1"=30'	DIRECTOR
	ENGINEER: ROBERT HUANG	CONTRACT COMPLETION BOX						V: 1"=5'	DATE: _____
	DGN BY: NH	BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
DWN BY: TSA	REVIEWED BY:	SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES							
CHKD BY: JTB	DATE REVIEWED:								

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION	
GLEN ECHO RELIEF SEWER	
PLAN AND PROFILE	
SUBDIVISION: DELMAR	
ELECTION DIST. NO.: 15c7	



PLAN (MH 74224 TO MH 74225)

H: 1"=30'



PROFILE (MH 74224 TO MH 74225)

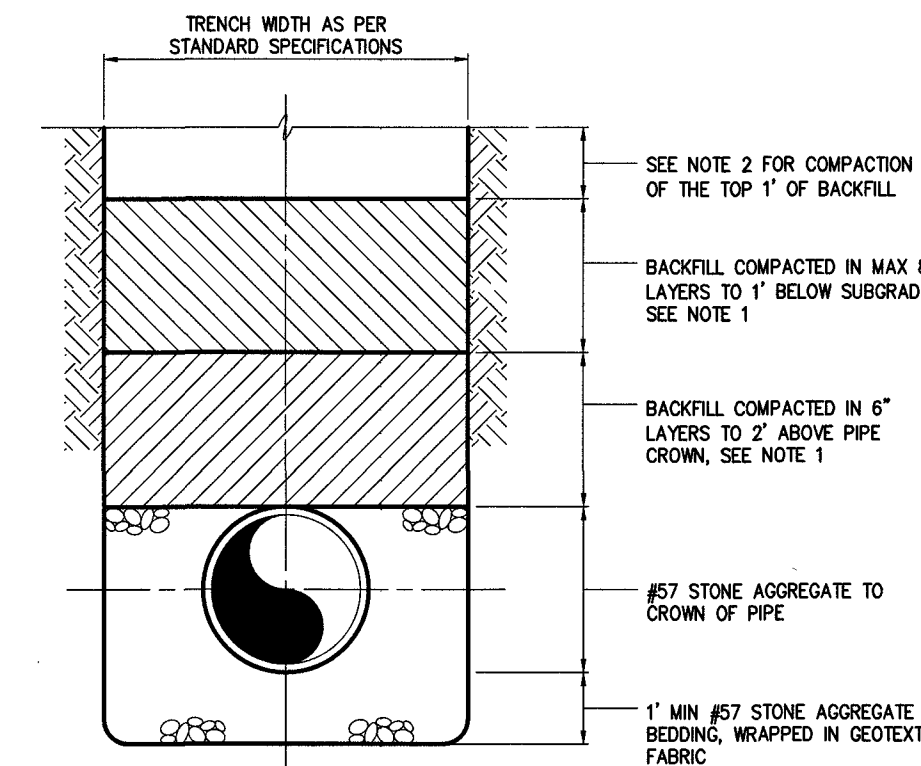
H: 1"= 30' V: 1"= 5'

- NOTES:
- THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO THE START OF CONSTRUCTION.
 - REFER TO SHEETS ESC-5 AND ESC-6 FOR TYPICAL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
 - THERE ARE POLES LOCATED ADJACENT TO EXCAVATION LOCATIONS. CONTRACTOR TO COORDINATE WITH BALTIMORE COUNTY AND UTILITY OWNERS PRIOR TO EXCAVATION.
 - CONTRACTOR SHALL BE PERMITTED TO TRIM TREES WITHIN THE LIMITS OF DISTURBANCE, HOWEVER, NO TREE REMOVAL SHALL BE PERMITTED.

MH STAKEOUT TABLE				
MH NO.	NORTHING	EASTING	INV. EL.	RIM ELEV.
74225	571,934.93	1,467,449.23	IN: -1.64 OUT: -1.74	14.74

PIPE SCHEDULE				
UPSTREAM MH	DOWNSTREAM MH	SIZE	LENGTH	BEARING
74225	74224	24"	598.09	N44°15'51.98"W
74226	74225	24"	101.91	N42°34'26.35"W

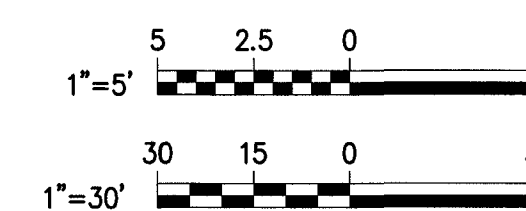
BILL OF MATERIALS			
ASSET ID	LENGTH (FT)	DEPTH (FT)	SIZE/MATERIAL
MH 74225	-	16.48	48", WATERTIGHT FRAME/COVER
74225-74224	598.09	-	24" DUCTILE IRON CLASS 52
74226-74225	101.91	-	24" DUCTILE IRON CLASS 52



- NOTES:
- BACKFILL SOIL SHALL BE COMPACTED TO A MINIMUM OF 92% OF THE MAXIMUM DRY DENSITY USING AASHTO T-180. BACKFILL WITHIN SHA RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE SHA PERMIT.
 - BACKFILL WITHIN SHA RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE SHA PERMIT. BACKFILL SOIL SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY FOR ALL OTHER AREAS USING AASHTO T-180.
 - TRENCH BACKFILL SHALL CONFORM TO STANDARD SPECIFICATIONS. BACKFILL SHALL ALSO HAVE A LIQUID LIMIT LESS THAN 40 AND A MAXIMUM PLASTICITY INDEX OF 10.
 - THIS DETAIL IS APPLICABLE FOR THE ENTIRE LENGTH OF THE RELIEF SEWER.
 - SURFACE RESTORATION SHALL BE AS FOLLOWS:
 - IF RT-151 - RESTORATION IN ACCORDANCE WITH DETAIL MD 578.01 FLEXIBLE PAVEMENT
 - IF COUNTY ROAD - RESTORATION IN ACCORDANCE WITH DETAIL R-38. CONTRACTOR SHALL MATCH EXISTING BITUMINOUS PAVING, MINIMUM 6" THICK WITH A 2" SURFACE COURSE AND A 4" BASE COURSE. GAB BASE COURSE SHALL BE 12"
 - IF DNR SPUR TRAIL - RESTORATION SHALL BE IN ACCORDANCE WITH DETAIL R-38. CONTRACTOR SHALL MATCH EXISTING BITUMINOUS PAVING, MINIMUM 4" THICK. GAB BASE COURSE SHALL BE 12"

TRENCH DETAIL
NOTES

CONTRACT COMPLETION BOX	
CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	



MARYLAND COORDINATE SYSTEM (MCS)	
HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
C-5	20196 SXO
JOB ORDER NUMBER	
231-201-0077-7252	
SHEET 7 OF 22	
DRAWING NUMBER	
2020-1392	
FILE NO.:	
1	

SEAL	PROFESSIONAL CERTIFICATION	AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS	
	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.					ANE	23SE31	PLAN SCALE: 1"=30' PROFILE SCALE: H: 1"=30' V: 1"=5'	APPROVED BY: _____ DIRECTOR	
	LICENSE NO. 40290, EXPIRATION DATE 05/12/2023	CONTRACT COMPLETION BOX			19-058				DATE: _____	
	ENGINEER: NORBERT HUANG	DGN BY: NH	BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
	CHKD BY: JTB	REVIEWED BY: _____	DATE REVIEWED: _____							

SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES

DATE: 7/12/22

DATE: 6/12/23

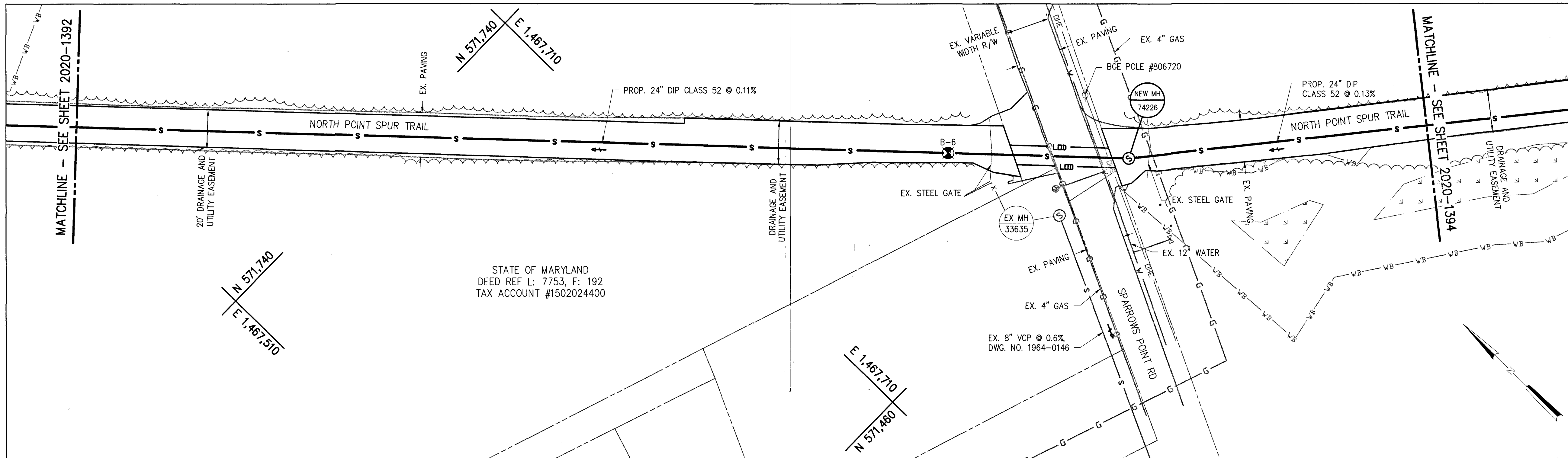
BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION

GLEN ECHO RELIEF SEWER

PLAN AND PROFILE

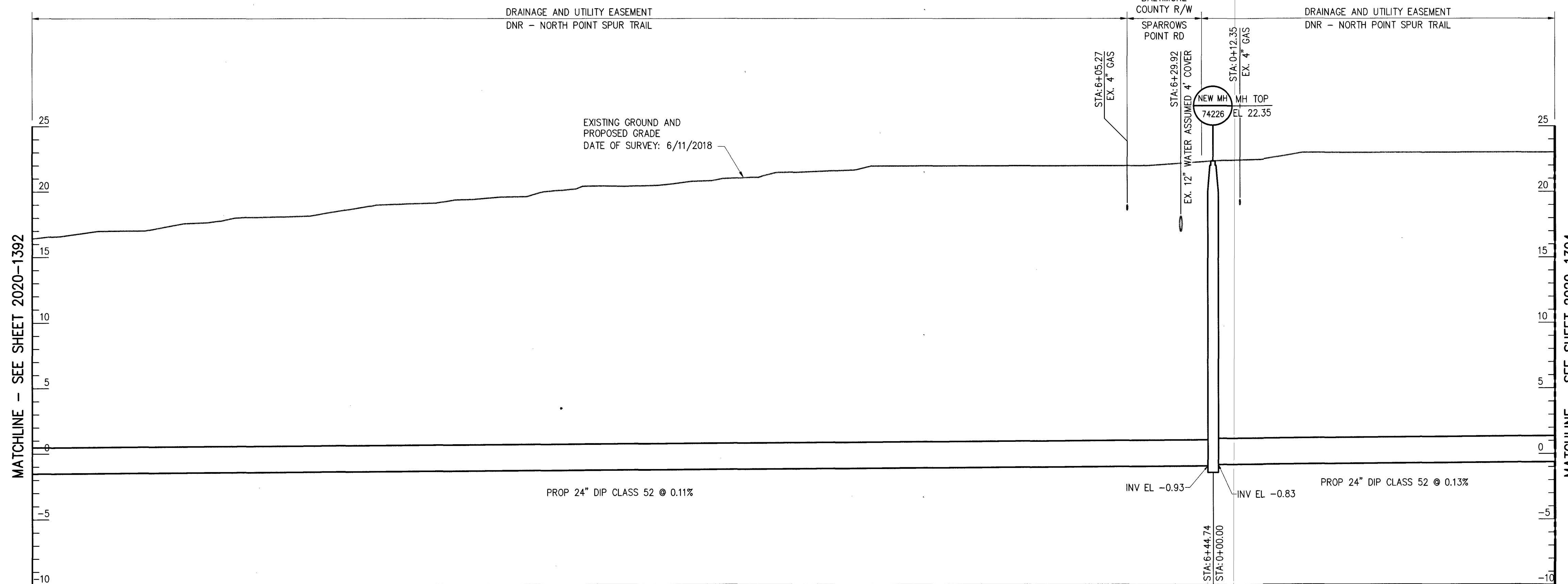
SUBDIVISION: DELMAR

ELECTION DIST. NO.: 15c7



PLAN (MH 74225 TO MH 74226)

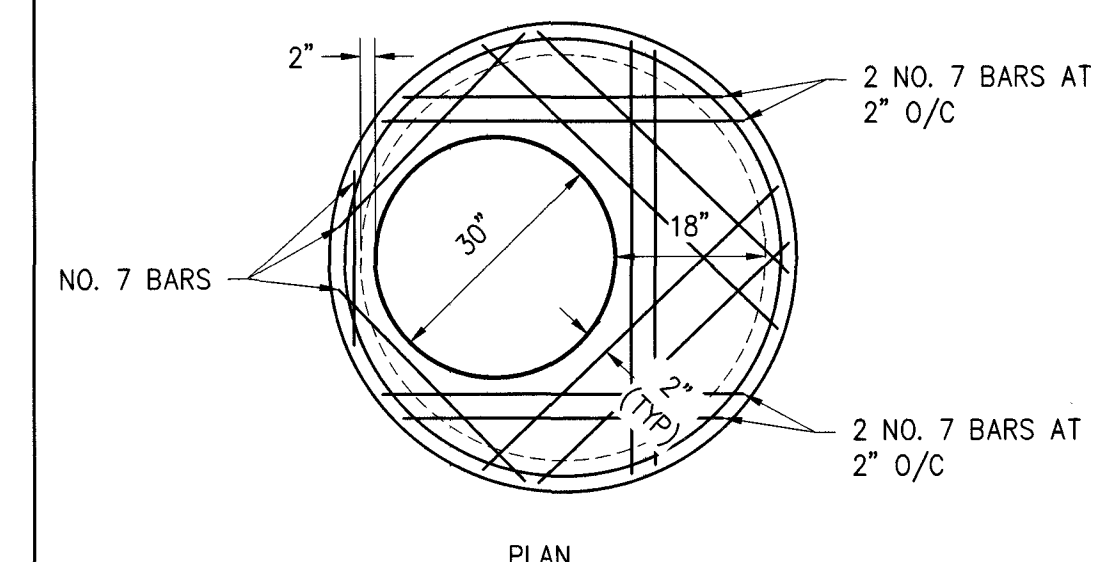
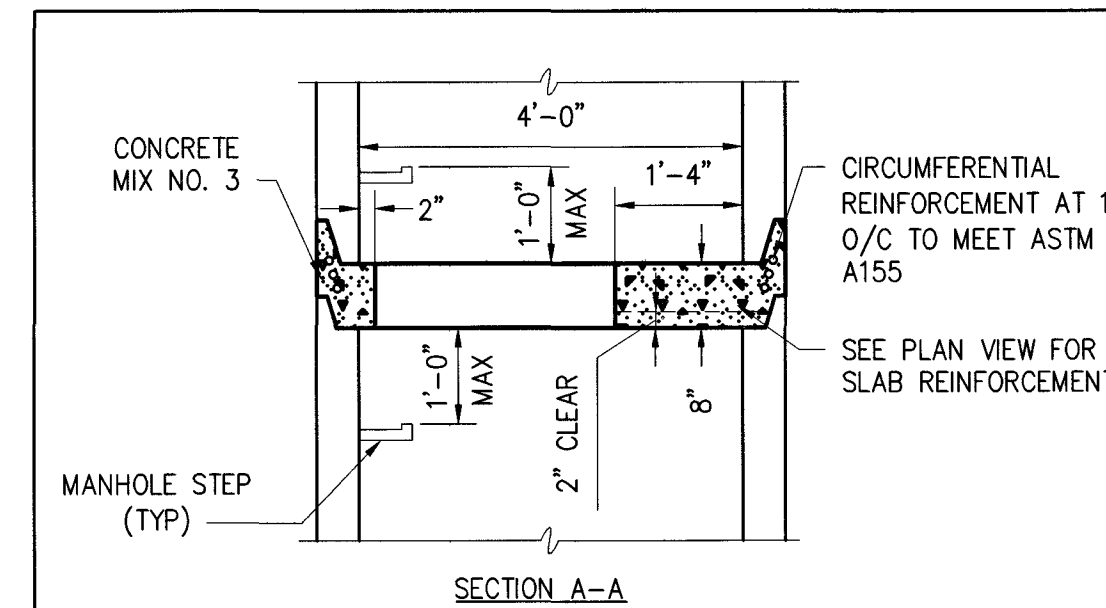
H: 1"=30'



PROFILE (MH 74225 TO MH 74226)

H: 1"= 30' V: 1"= 5'

- NOTES:
1. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO THE START OF CONSTRUCTION.
 2. REFER TO SHEETS ESC-5 AND ESC-6 FOR TYPICAL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
 3. THERE ARE POLES LOCATED ADJACENT TO EXCAVATION LOCATIONS. CONTRACTOR TO COORDINATE WITH BALTIMORE COUNTY AND UTILITY OWNERS PRIOR TO EXCAVATION.
 4. CONTRACTOR SHALL BE PERMITTED TO TRIM TREES WITHIN THE LIMITS OF DISTURBANCE, HOWEVER, NO TREE REMOVAL SHALL BE PERMITTED.



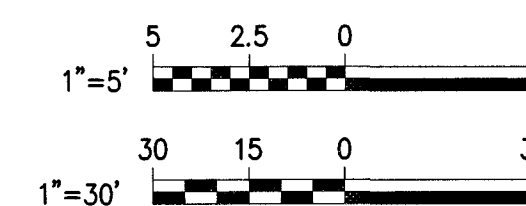
- NOTES:
1. INTERMEDIATE LANDING TO BE USED WHEN MANHOLE DEPTH EXCEEDS 20', WHEN DEPTH EXCEEDS 25', SPACE AT MAX 10' INTERVALS. IN ANY CASE, MIN 6.5' CLEAR OF PIPE INVERT OR CLEAR OR PIPE CROWN, WHICHEVER IS GREATER.

MH STAKEOUT TABLE				
MH NO.	NORTHING	EASTING	INV. EL.	RIM ELEV.
74226	571,460.14	1,467,885.43	IN: -0.83 OUT: -0.93	22.36

PIPE SCHEDULE				
UPSTREAM MH	DOWNSTREAM MH	SIZE	LENGTH	BEARING
74226	74225	24"	542.83	N42°34'26.35"W
74227	74226	24"	157.17	N50°29'08.60"W

BILL OF MATERIALS			
ASSET ID	LENGTH (FT)	DEPTH (FT)	SIZE/MATERIAL
MH 74226	-	23.29	48"
74226-74225	542.83	-	24" DUCTILE IRON CLASS 52
74227-74226	157.17	-	24" DUCTILE IRON CLASS 52

CONTRACT COMPLETION BOX	
CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	



MARYLAND COORDINATE SYSTEM (MCS) HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION C-6	CONTRACT NUMBER 20196 SXO
JOB ORDER NUMBER 231-201-0077-7252	
SHEET 8 OF 22	
DRAWING NUMBER 2020-1393	
FILE NO.: 1	

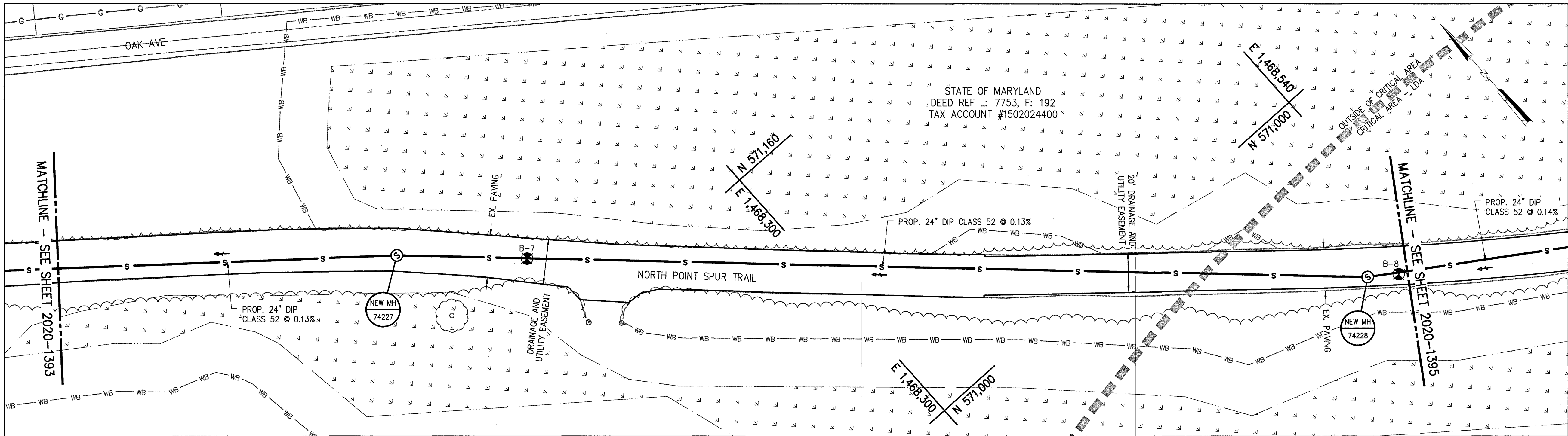
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PROFESSIONAL CERTIFICATION		AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SH	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.									
LICENSE NO. 40290, EXPIRATION DATE 05/12/2023									
ENGINEER: NORBERT HUANG									
DGN BY: NH		BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
DWN BY: TSA		REVIEWED BY:							
CHKD BY: JTB		DATE REVIEWED:							
SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES									

SUBDIVISION: DELMAR

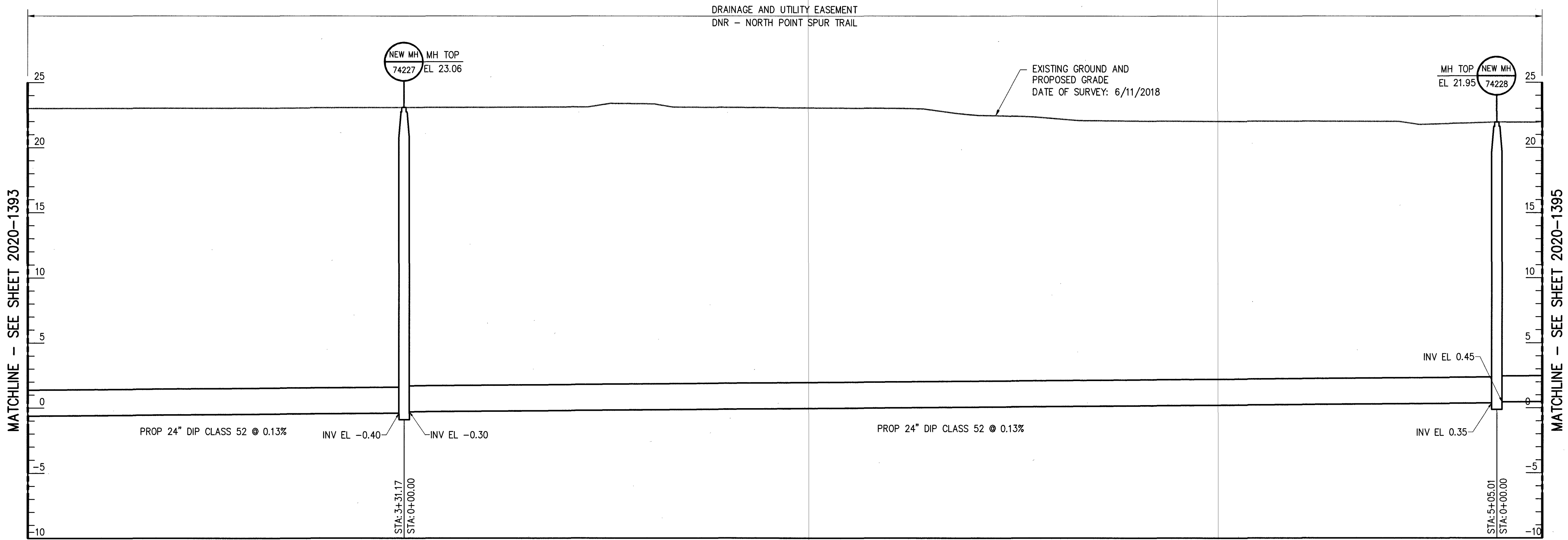
GLEN ECHO RELIEF SEWER
PLAN AND PROFILE

ELECTION DIST. NO.: 15c7



PLAN (MH 74226 TO MH 74228)

H: 1"=30'



PROFILE (MH 74226 TO MH 74228)

H: 1"= 30' V: 1"= 5'

NOTES:

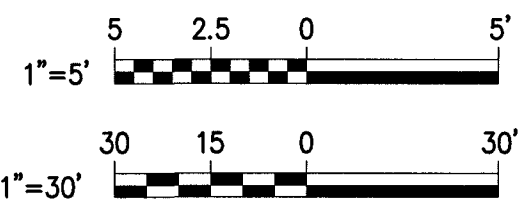
1. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO THE START OF CONSTRUCTION.
2. REFER TO SHEETS ESC-5 AND ESC-6 FOR TYPICAL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
3. THERE ARE POLES LOCATED ADJACENT TO EXCAVATION LOCATIONS. CONTRACTOR TO COORDINATE WITH BALTIMORE COUNTY AND UTILITY OWNERS PRIOR TO EXCAVATION.
4. THERE SHALL BE NO TREE REMOVAL WITHIN THE CRITICAL AREA. SHRUB REMOVAL OR CLEARING WITHIN THE CRITICAL AREA SHALL ONLY BE PERMITTED WITHIN THE LIMITS OF DISTURBANCE.
5. CONTRACTOR SHALL BE PERMITTED TO TRIM TREES WITHIN THE LIMITS OF DISTURBANCE, HOWEVER, NO TREE REMOVAL SHALL BE PERMITTED.

MH STAKEOUT TABLE				
MH NO.	NORTHING	EASTING	INV. EL.	RIM ELEV.
74227	571,249.43	1,468,140.91	IN: -0.30 OUT: -0.40	23.06
74228	570,905.14	1,468,510.38	IN: 0.45 OUT: 0.35	21.95

PIPE SCHEDULE				
UPSTREAM MH	DOWNSTREAM MH	SIZE	LENGTH	BEARING
74227	74226	24"	174.00	N50°29'08.60"W
74228	74227	24"	505.01	N47°01'10.99"W
74229	74228	24"	20.99	N56°47'33.41"W

BILL OF MATERIALS			
ASSET ID	LENGTH (FT)	DEPTH (FT)	SIZE/MATERIAL
MH 74227	-	23.46	48"
MH 74228	-	21.57	48"
74227-74226	174.00	-	24" DUCTILE IRON CLASS 52
74228-74227	505.01	-	24" DUCTILE IRON CLASS 52
74229-74228	20.99	-	24" DUCTILE IRON CLASS 52

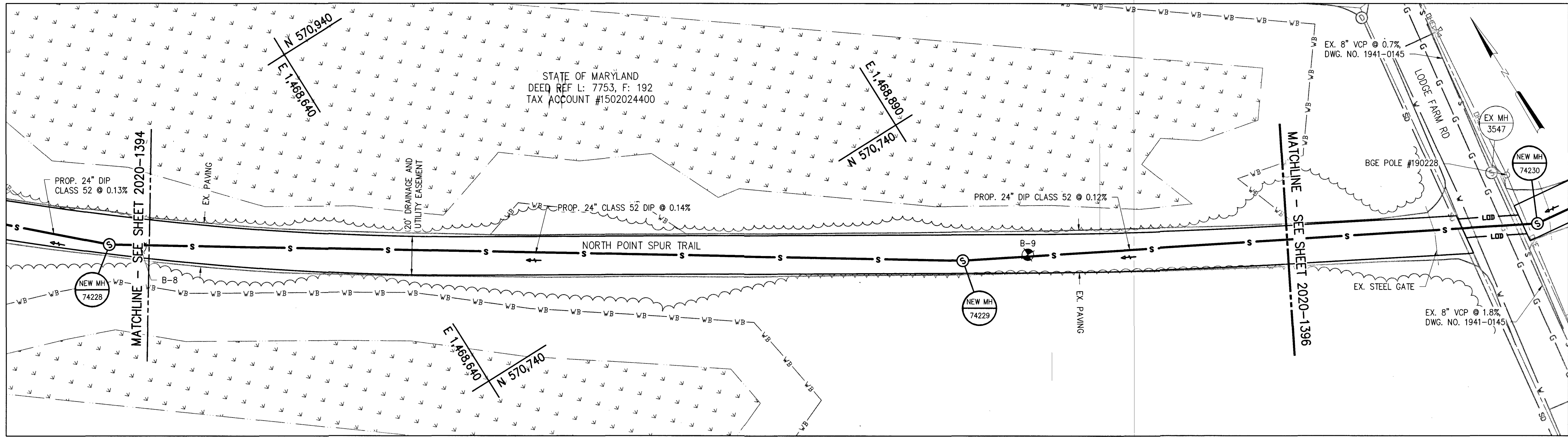
CONTRACT COMPLETION BOX
CONTRACTOR: _____
DATE COMPLETED: _____
INSPECTOR: _____
PIPE MATERIAL (Pressure Only): _____



MARYLAND COORDINATE SYSTEM (MCS) HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION C-7	CONTRACT NUMBER 20196 SXO
JOB ORDER NUMBER 231-201-0077-7252	
SHEET 9 OF 22	
DRAWING NUMBER 2020-1394	
FILE NO.: 1	

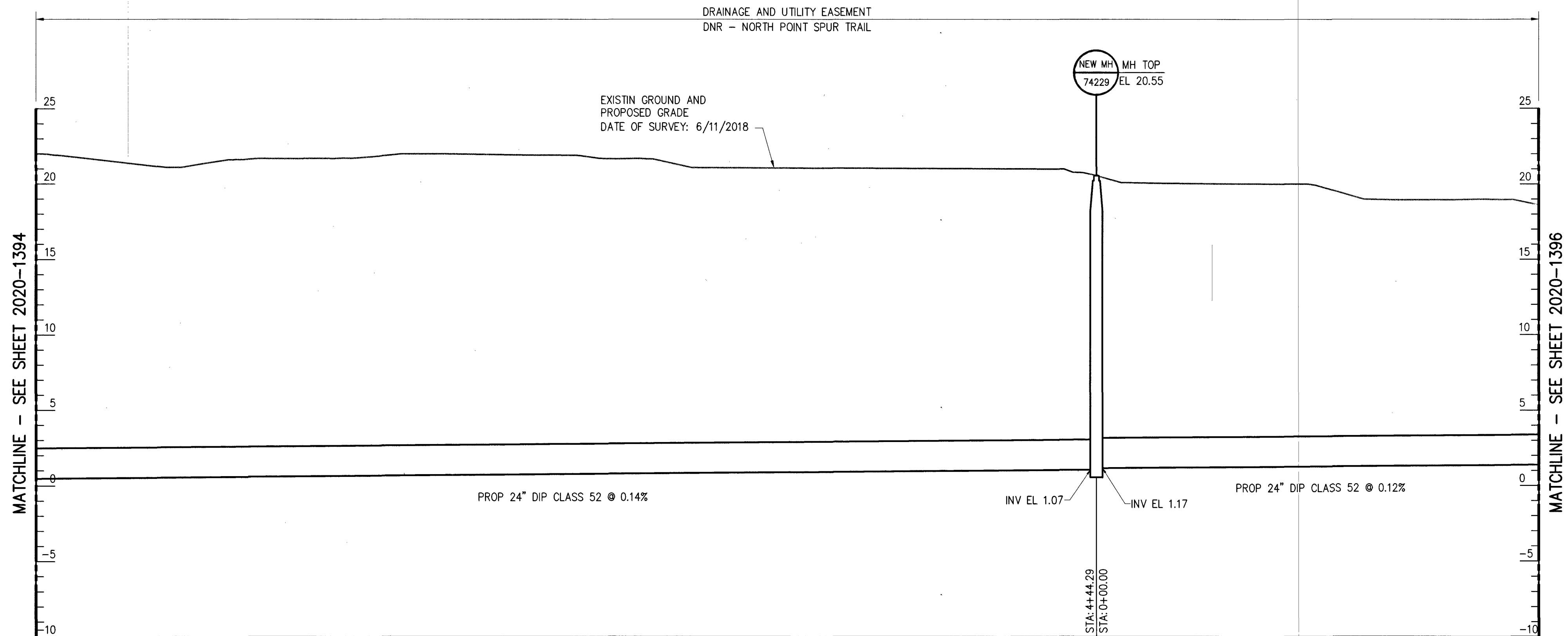
	PROFESSIONAL CERTIFICATION		AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SH	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
	I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.									
	LICENSE NO. 40290 EXPIRATION DATE 05/12/2023									
	ENGINEER: NORBERT HUANG									
Hazen		DGN BY: NH	BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
1 SOUTH STREET, SUITE 1100 BALTIMORE, MD 21202 NHUANG@HAZENANDSAVIER.COM 410-528-7881		CHD BY: JTB	REVIEWED BY:	SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES						

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION	
GLEN ECHO RELIEF SEWER	
PLAN AND PROFILE	
SUBDIVISION: DELMAR	
ELECTION DIST. NO.:15c7	



PLAN (MH 74228 TO MH 74229)

H: 1"=30'



PROFILE (MH 74228 TO MH 74229)

H: 1"= 30' V: 1"= 5'

NOTES:

1. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO THE START OF CONSTRUCTION.
2. REFER TO SHEETS ESC-5 AND ESC-6 FOR TYPICAL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
3. THERE ARE POLES LOCATED ADJACENT TO EXCAVATION LOCATIONS. CONTRACTOR TO COORDINATE WITH BALTIMORE COUNTY AND UTILITY OWNERS PRIOR TO EXCAVATION.
4. THERE SHALL BE NO TREE REMOVAL WITHIN THE CRITICAL AREA. SHRUB REMOVAL OR CLEARING WITHIN THE CRITICAL AREA SHALL ONLY BE PERMITTED WITHIN THE LIMITS OF DISTURBANCE.
5. CONTRACTOR SHALL BE PERMITTED TO TRIM TREES WITHIN THE LIMITS OF DISTURBANCE, HOWEVER, NO TREE REMOVAL SHALL BE PERMITTED.

MH STAKEOUT TABLE				
MH NO.	NORTHING	EASTING	INV. EL.	RIM ELEV.
74229	570,661.81	1,468,882.11	IN: 1.17 OUT: 1.07	20.55

PIPE SCHEDULE				
UPSTREAM MH	DOWNSTREAM MH	SIZE	LENGTH	BEARING
74229	74228	24"	423.30	N56°47'33.41"W
74230	74229	24"	176.69	N61°32'24.20"W

BILL OF MATERIALS			
ASSET ID	LENGTH (FT)	DEPTH (FT)	SIZE/MATERIAL
MH 74229	-	19.48	48"
74229-74228	423.30	-	24" DUCTILE IRON CLASS 52
74230-74229	176.69	-	24" DUCTILE IRON CLASS 52

CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	

MARYLAND COORDINATE SYSTEM (MCS)	
HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
C-8	20196 SXO
JOB ORDER NUMBER	
231-201-0077-7252	
SHEET 10 OF 22	
DRAWING NUMBER	
2020-1395	
FILE NO.: 1	

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SEAL	PROFESSIONAL CERTIFICATION	AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SH	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
	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. 40290 EXPIRATION DATE 05/12/2023								
	ENGINEER: NORBERT HUANG								
	DGN BY: NH								
	DWN BY: TSA								
	CHKD BY: JTB								
	DATE REVIEWED:								

SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES

DATE: 6/27/2023

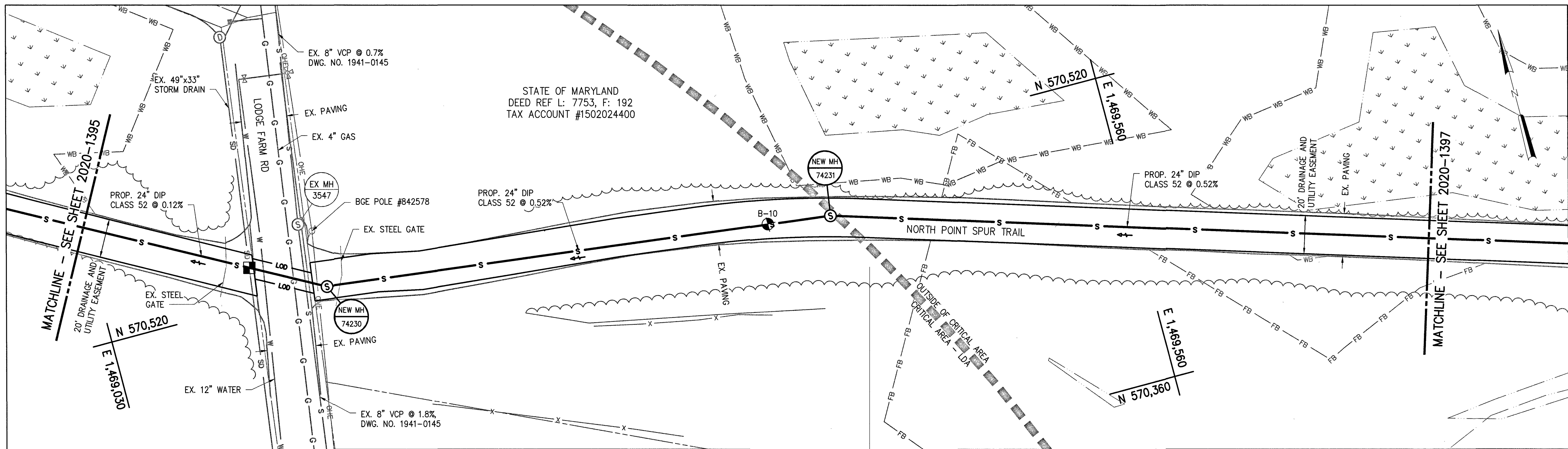
BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION

GLEN ECHO RELIEF SEWER

PLAN AND PROFILE

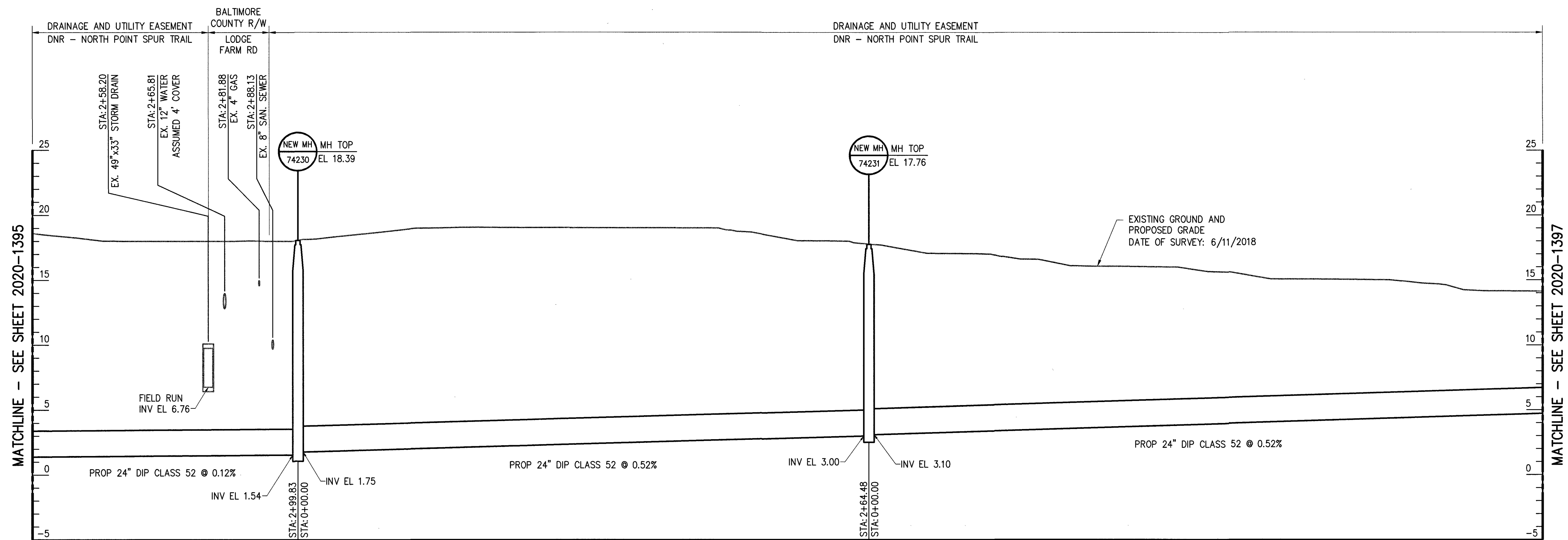
SUBDIVISION: DELMAR

ELECTION DIST. NO.:15c7



PLAN (MH 74229 TO MH 74232)

H: 1"=30'



PROFILE (MH 74229 TO MH 74232)

H: 1"= 30' V: 1"= 5'

NOTES:

1. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO THE START OF CONSTRUCTION.
2. REFER TO SHEETS ESC-5 AND ESC-6 FOR TYPICAL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
3. THERE ARE POLES LOCATED ADJACENT TO EXCAVATION LOCATIONS. CONTRACTOR TO COORDINATE WITH BALTIMORE COUNTY AND UTILITY OWNERS PRIOR TO EXCAVATION.
4. THERE SHALL BE NO TREE REMOVAL WITHIN THE CRITICAL AREA. SHRUB REMOVAL OR CLEARING WITHIN THE CRITICAL AREA SHALL ONLY BE PERMITTED WITHIN THE LIMITS OF DISTURBANCE.
5. CONTRACTOR SHALL BE PERMITTED TO TRIM TREES WITHIN THE LIMITS OF DISTURBANCE, HOWEVER, NO TREE REMOVAL SHALL BE PERMITTED.

MH STAKEOUT TABLE				
MH NO.	NORTHING	EASTING	INV. EL.	RIM ELEV.
74230	570,518.93	1,469,145.71	IN: 1.75 OUT: 1.54	18.05
74231	570,486.81	1,469,408.24	IN: 3.10 OUT: 3.00	17.76

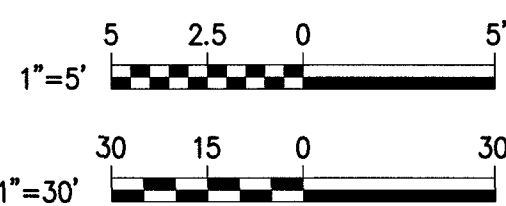
PIPE SCHEDULE				
UPSTREAM MH	DOWNSTREAM MH	SIZE	LENGTH	BEARING
74230	74229	24"	123.14	N61°32'24.20"W
74231	74230	24"	264.48	N83°01'33.87"W
74232	74231	24"	312.38	N72°53'12.46"W

BILL OF MATERIALS			
ASSET ID	LENGTH (FT)	DEPTH (FT)	SIZE/MATERIAL
MH 74230	-	16.51	48"
MH 74231	-	14.75	48"
74230-74229	123.14	-	24" DUCTILE IRON CLASS 52
74231-74230	264.48	-	24" DUCTILE IRON CLASS 52
74232-74231	312.38	-	24" DUCTILE IRON CLASS 52

CONTRACTOR SHALL PERFORM CONVENTIONAL TEST PITS FOR THE FOLLOWING STORM DRAINS TO DETERMINE IF CONCRETE ENCASEMENT EXISTS:

DIAMETER	NORTHING	EASTING
49"x33"	570,538.77	1,469,109.11

CONTRACT COMPLETION BOX	
CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	



MARYLAND COORDINATE SYSTEM (MCS)	
HORIZONTAL NAD 83/91	
VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
C-9	20196 SXO
JOB ORDER NUMBER	
231-201-0077-7252	
SHEET 11 OF 22	
DRAWING NUMBER	
2020-1396	
FILE NO.:	
1	

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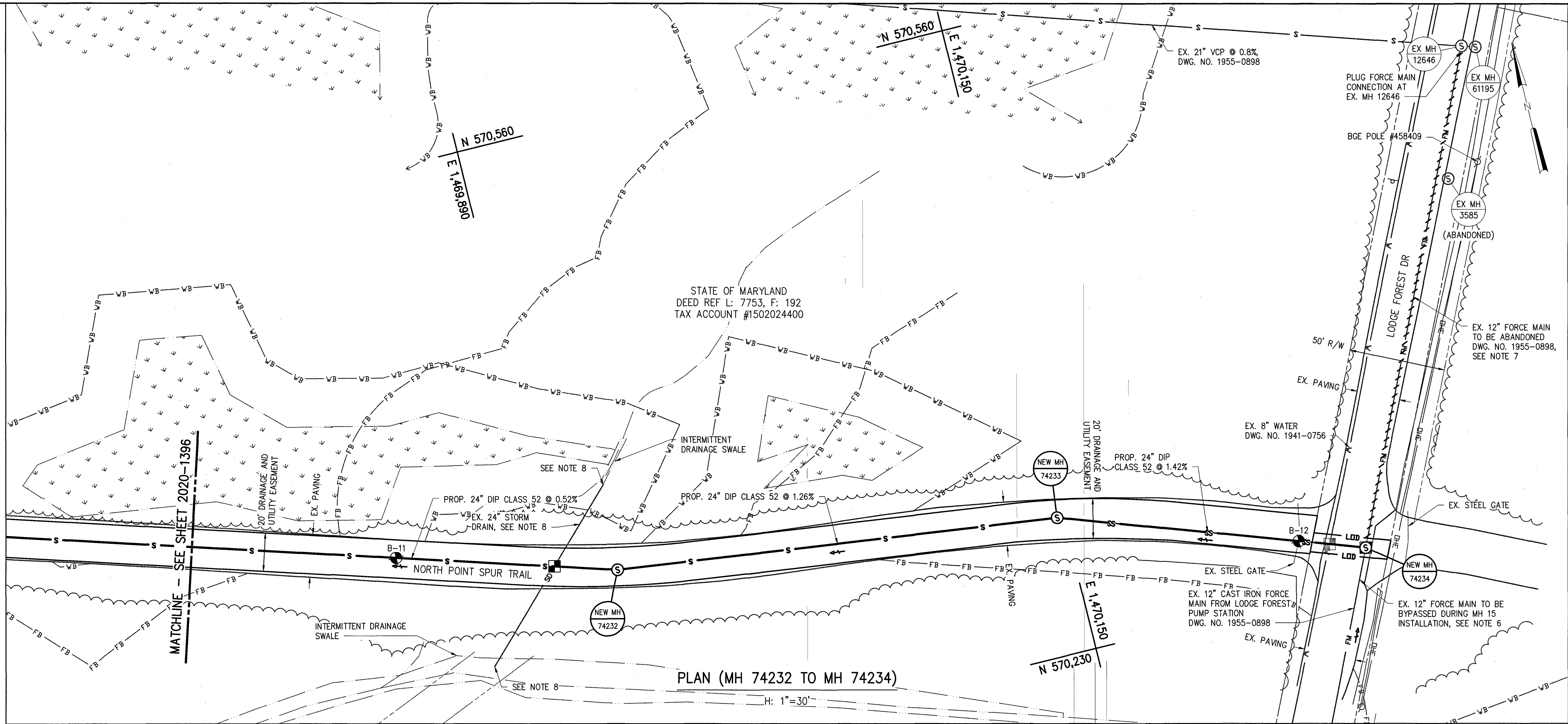
	PROFESSIONAL CERTIFICATION		AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHIT	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS	
	I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.										
	LICENSE NO. 40290 EXPIRATION DATE 06/12/2023		CONTRACT COMPLETION BOX								
	ENGINEER: NORBERT HUANG		DGN BY: NH	BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
	Hazen		DWN BY: TSA	REVIEWED BY:							
1 SOUTH STREET, SUITE 1100, BALTIMORE, MD 21202		CHD BY: NH	DATE REVIEWED:								
SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES											

SUBDIVISION: DELMAR

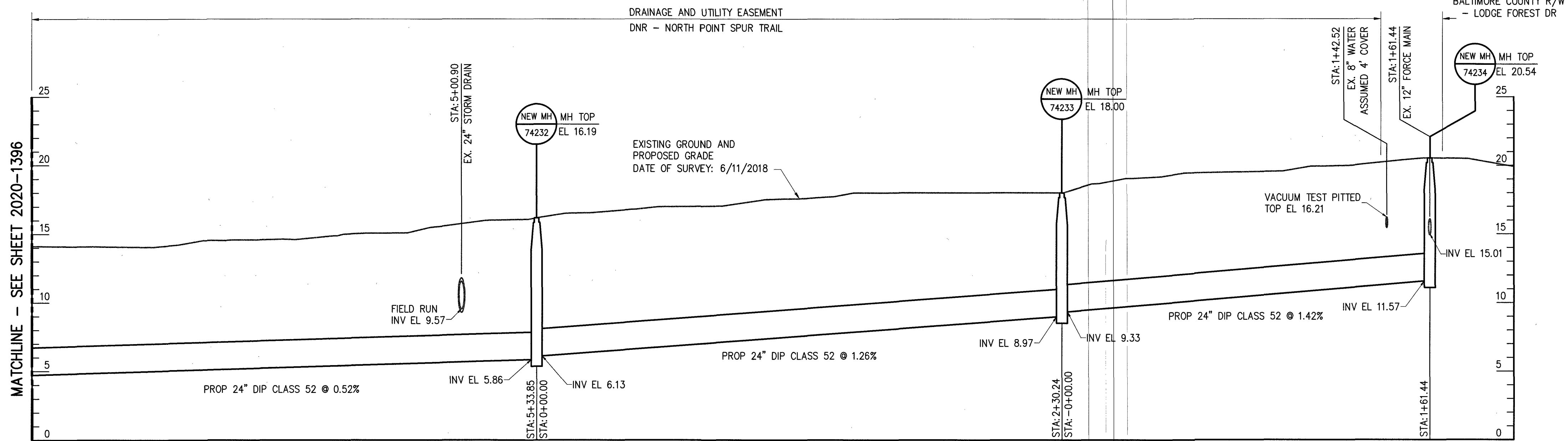
BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION
GLEN ECHO RELIEF SEWER
PLAN AND PROFILE

ELECTION DIST. NO.:15c7

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PLAN (MH 74232 TO MH 74234)



PROFILE (MH 74232 TO MH 74234)

- NOTES:
1. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO THE START OF CONSTRUCTION.
 2. REFER TO SHEETS ESC-5 AND ESC-6 FOR TYPICAL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
 3. THERE ARE POLES LOCATED ADJACENT TO EXCAVATION LOCATIONS. CONTRACTOR TO COORDINATE WITH BALTIMORE COUNTY AND UTILITY OWNERS PRIOR TO EXCAVATION.
 4. THERE SHALL BE NO TREE REMOVAL WITHIN THE CRITICAL AREA. SHRUB REMOVAL WITHIN THE CRITICAL AREA SHALL ONLY BE PERMITTED WITHIN THE LIMITS OF DISTURBANCE.
 5. CONTRACTOR SHALL SET UP SEWAGE BYPASS OF THE EXISTING 12" FORCE MAIN PRIOR TO THE INSTALLATION OF THE PROPOSED NEW MANHOLE 74234. REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL FORCE MAIN BYPASS REQUIREMENTS.
 6. CONTRACTOR SHALL REMOVE SEWAGE FROM ABANDONED SECTION OF FORCE MAIN PRIOR TO PLUGGING THE ENDS OF THE PIPE.
 7. CONTRACTOR SHALL BE PERMITTED TO TRIM TREES WITHIN THE LIMITS OF DISTURBANCE, HOWEVER, NO TREE REMOVAL SHALL BE PERMITTED.
 8. NO CHANGES SHALL BE MADE TO EXISTING STORM DRAIN. STORM DRAIN CONNECTS TWO REGULATED INTERMITTENT DRAINAGE CHANNELS.

MH STAKEOUT TABLE				
MH NO.	NORTHING	EASTING	INV. EL.	RIM ELEV.
74232	570,329.72	1,469,918.45	IN: 6.13 OUT: 5.86	16.19
74233	570,300.61	1,470,146.84	IN: 9.33 OUT: 8.97	18.00
74234	570,246.56	1,470,298.97	OUT: 11.57	20.54

PIPE SCHEDULE				
UPSTREAM MH	DOWNSTREAM MH	SIZE	LENGTH	BEARING
74232	74231	24"	222.00	N72°53'12.46"W
74233	74232	24"	230.24	N82°44'09.09"W
74234	74233	24"	161.44	N70°26'21.88"W

BILL OF MATERIALS			
ASSET ID	LENGTH (FT)	DEPTH (FT)	SIZE/MATERIAL
MH 74232	-	10.31	48", EPOXY COATING
MH 74233	-	9.00	48", EPOXY COATING
MH 74234	-	8.94	48", EPOXY COATING
74232-74231	222.00	-	24" DUCTILE IRON CLASS 52
74233-74232	230.24	-	24" DUCTILE IRON CLASS 52
74234-74233	161.44	-	24" DUCTILE IRON CLASS 52

CONTRACTOR SHALL PERFORM CONVENTIONAL TEST PITS FOR THE FOLLOWING STORM DRAINS TO DETERMINE IF CONCRETE ENCASEMENT EXISTS:

DIAMETER	NORTHING	EASTING
24"	570,339.42	1,469,886.95

CONTRACT COMPLETION BOX	
CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	

MARYLAND COORDINATE SYSTEM (MCS)	
HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
C-10	20196 SXO
JOB ORDER NUMBER	
231-201-0077-7252	
SHEET 12 OF 22	
DRAWING NUMBER	
2020-1397	
FILE NO.	
1	

PROFESSIONAL CERTIFICATION		AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
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. 40290 EXPIRATION DATE 05/12/2023									
ENGINEER: NORBERT HUANG									
DGN BY: NH		BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER
CHKD BY: JTB		REVIEWED BY:							BUR. OF ENGINEERING & CONSTRUCTION
DATE REVIEWED:									
SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES									

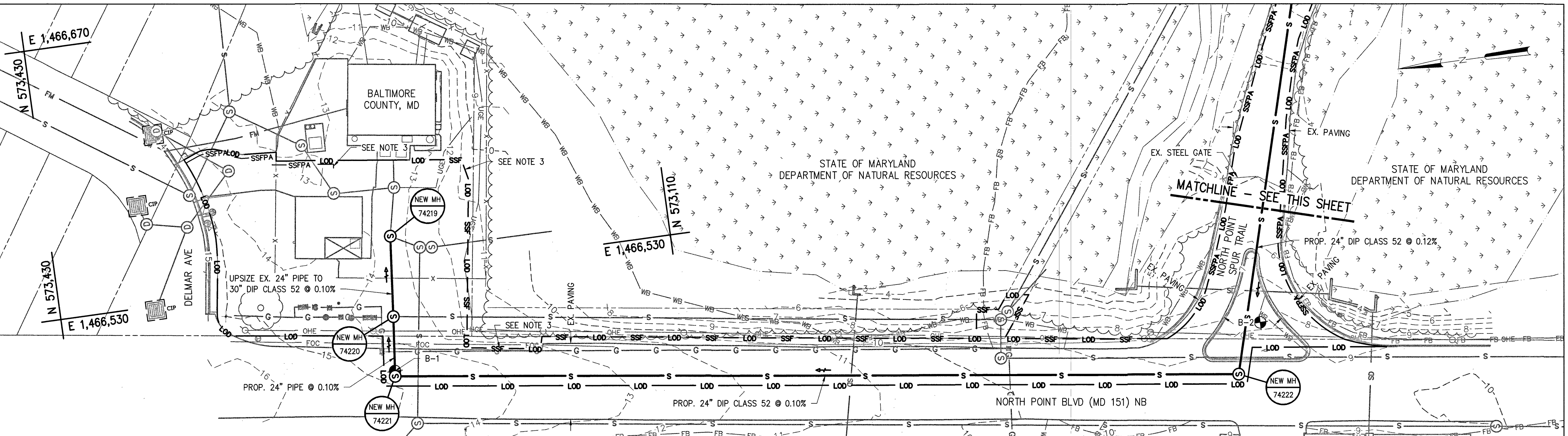
SUBDIVISION: DELMAR

GLEN ECHO RELIEF SEWER

PLAN AND PROFILE

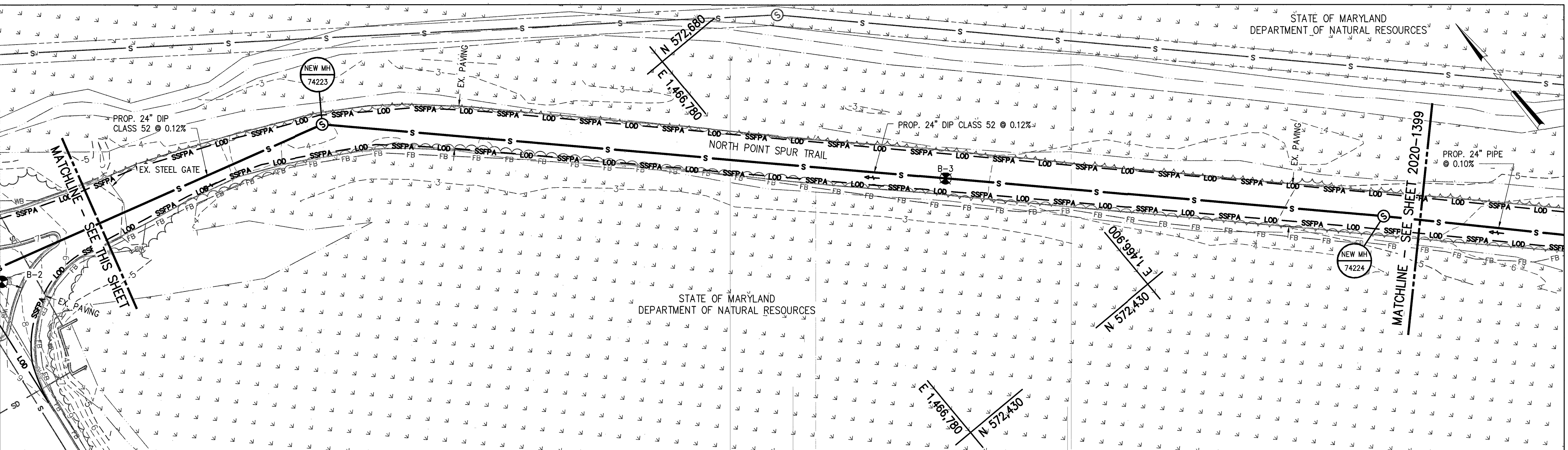
ELECTION DIST. NO.: 15c7

- NOTES:
1. NO GRADE CHANGE.
 2. CONTRACTOR SHALL IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING AND/OR SWEEPING.
 3. AT ENDS, SUPER SILT FENCE SHALL BE ANGLED UPSLOPE TO PREVENT THE TRANSPORT OF SEDIMENT. WHEN INSTALLED, SUPER SILT FENCE SHALL BE OFFSET ON INSIDE BOUNDARY OF LIMITS OF DISTURBANCE SHOWN AND PROPER PERIMETER CONTROLS SHALL BE MAINTAINED AT ALL TIMES.
 4. NO DISTURBANCE SHALL BE ALLOWED OUTSIDE THE LIMITS OF DISTURBANCE AT ANY TIME. SUPER SILT FENCE MUST BE INSTALLED AS PER ALL REGULATIONS AND STANDARD DETAILS WITHIN THE INSIDE BOUNDARY OF THE LIMITS OF DISTURBANCE. THIS SUPER SILT FENCE WAS COMBINED WITH THE SAME LINETYPE AS LIMITS OF DISTURBANCE ON THIS PLAN SET FOR CLARITY. ENDS OF SUPER SILT FENCE MUST BE EXTENDED UPSLOPE TO PREVENT THE ESCAPE OF SEDIMENT.



PLAN (MH 74220 TO MH 74222)

H: 1"=30'

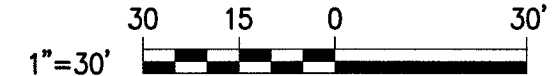


PLAN (MH 74223 TO MH 74224)

H: 1"=30'

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL

Jeffrey P. Wood 3-1-23
DATE



CONTRACT COMPLETION BOX	
CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	

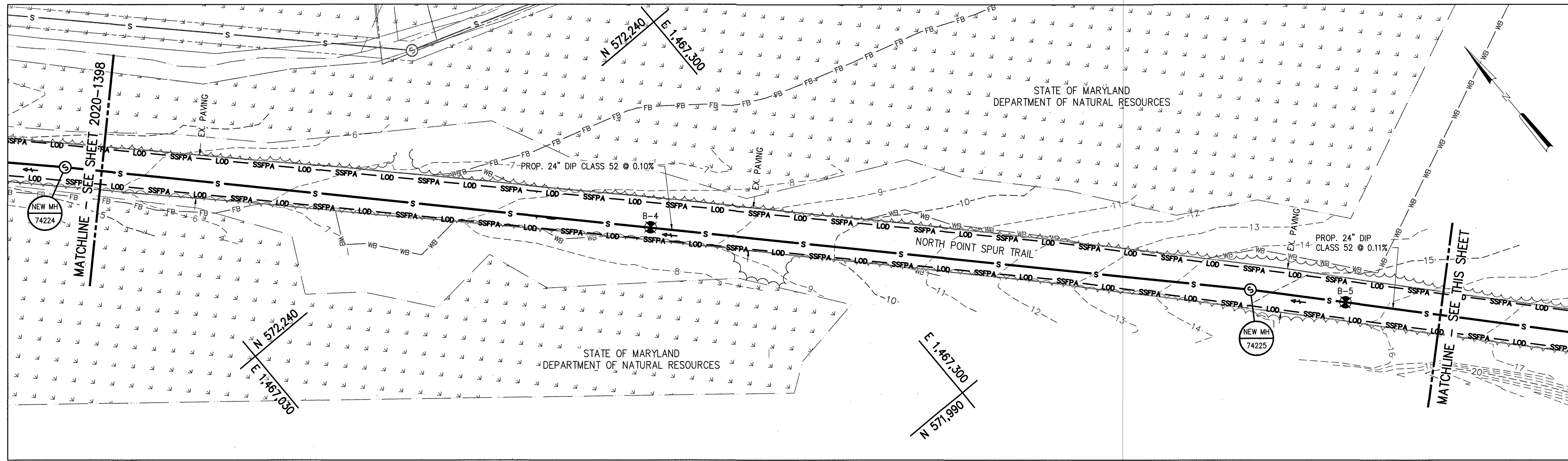
MARYLAND COORDINATE SYSTEM (MCS)	
HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
ESC-1	20196 SXO
JOB ORDER NUMBER	
231-201-0077-7252	
SHEET 13 OF 22	
DRAWING NUMBER	
2020-1398	
FILE NO.: 1	



PROFESSIONAL CERTIFICATION				AS-BUILT / REVISION		BY	DATE	P.W.A. NO.	KEY SHEET	POSITION	SHT	DRAWING SCALE		DEPARTMENT OF PUBLIC WORKS	
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.				CONTRACT COMPLETION BOX				R.O.W. NO.	ANE	22SE31	23SE31	PLAN SCALE:	1"=30'	APPROVED BY:	DIRECTOR
												19-058		N/A	
LICENSE NO. 40290 EXPIRATION DATE 05/12/2023															
ENGINEER: NORBERT HUANG															
<div><div>Hazen</div><div>HAZEN AND SAWYER 1 SOUTH STREET SUITE 1100 BALTIMORE, MD 21202 NHUANG@HAZENANDSAWYER.COM 410-638-7861</div></div>				DGN BY: NH	BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION		
				DWN BY: TSA	REVIEWED BY:										
				CHKD BY: JTB	DATE REVIEWED:										
				SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES											

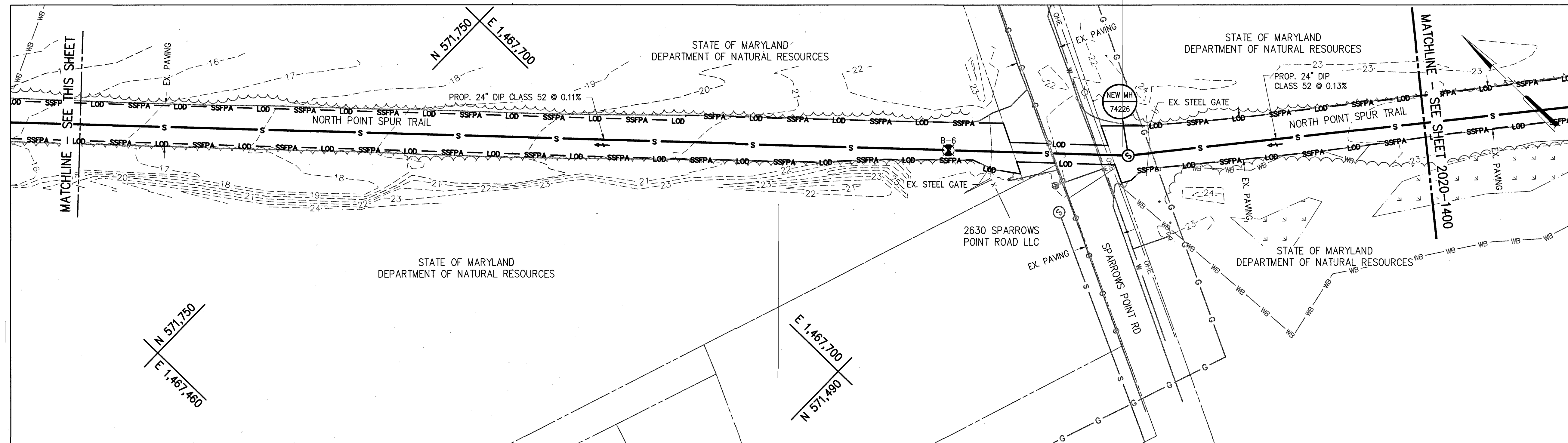
NOTES:

1. NO GRADE CHANGE.
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PLAN (MH 74224 TO MH 74225)

H: 1"=30'



PLAN (MH 74225 TO MH 74226)

H: 1"=30'

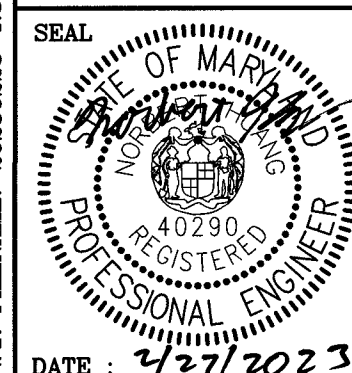
BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL

Jeffrey P. Woot 3-1-23
DATE

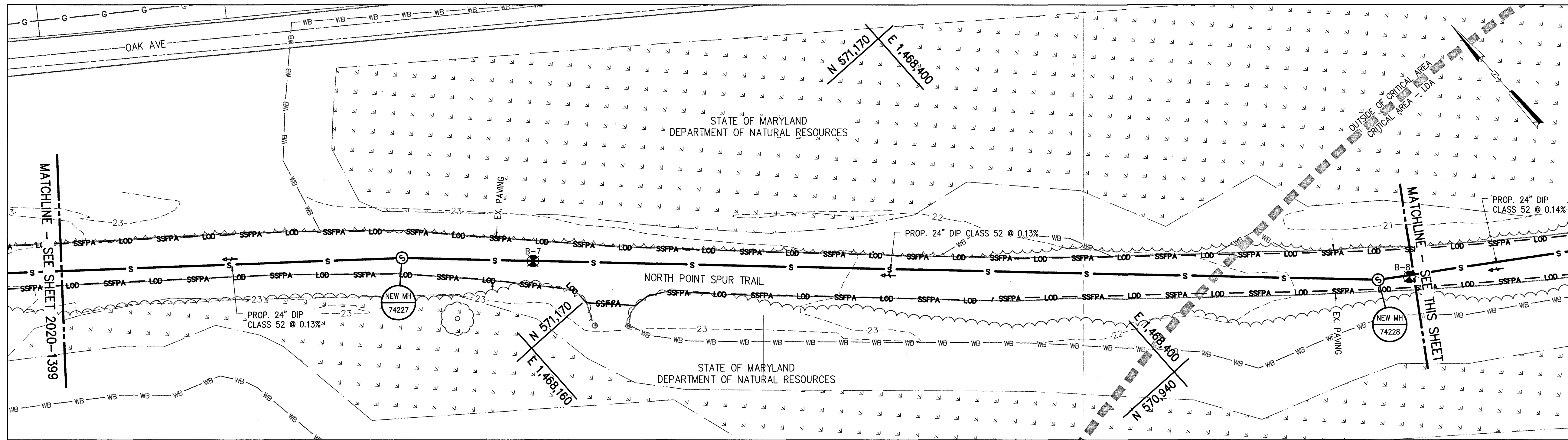
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CONTRACT COMPLETION BOX	
CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	

MARYLAND COORDINATE SYSTEM (MCS)	
HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
ESC-2	20196 SXO
JOB ORDER NUMBER	
231-201-0077-7252	
SHEET 14 OF 22	
DRAWING NUMBER	
2020-1399	
FILE NO.: 1	

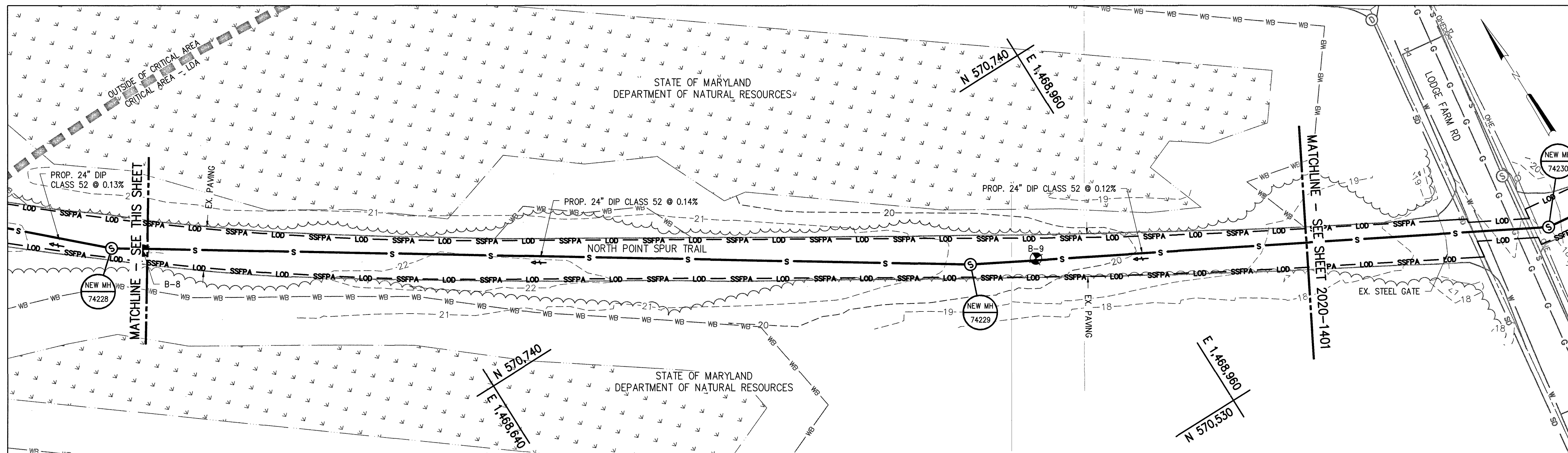


PROFESSIONAL CERTIFICATION				AS-BUILT / REVISION		BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT	DRAWING SCALE		DEPARTMENT OF PUBLIC WORKS						
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40290, EXPIRATION DATE 05/12/2023 ENGINEER: NORBERT HUANG								R.O.W NO.	ANE	23SE31 23SE32	PLAN SCALE: 1"=30'		APPROVED BY: _____						
											PROFILE SCALE: N/A		DIRECTOR: _____						
											N/A		DATE: _____						
CONTRACT COMPLETION BOX								19-058											
DGN BY: NH		BUREAU OF ENGINEERING AND CONSTRUCTION		BUILDINGS		HIGHWAYS		STRUCTURES		STORM DRAINS		SEWER		WATER		FIELD ENGINEER		BUR. OF ENGINEERING & CONSTRUCTION	
DWN BY: TSA		REVIEWED BY:		SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES															
CHKD BY: JTB		DATE REVIEWED:																	



PLAN (MH 74226 TO MH 74228)

H: 1"=30'



PLAN (MH 74228 TO MH 74229)

H: 1"=30'

NOTES:

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CONTRACT COMPLETION BOX	
CONTRACTOR:	
DATE COMPLETED:	
INSPECTOR:	
PIPE MATERIAL (Pressure Only):	

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT APPROVED FOR SEDIMENT CONTROL	
<i>Jeffrey P. West</i>	3-1-23
	DATE

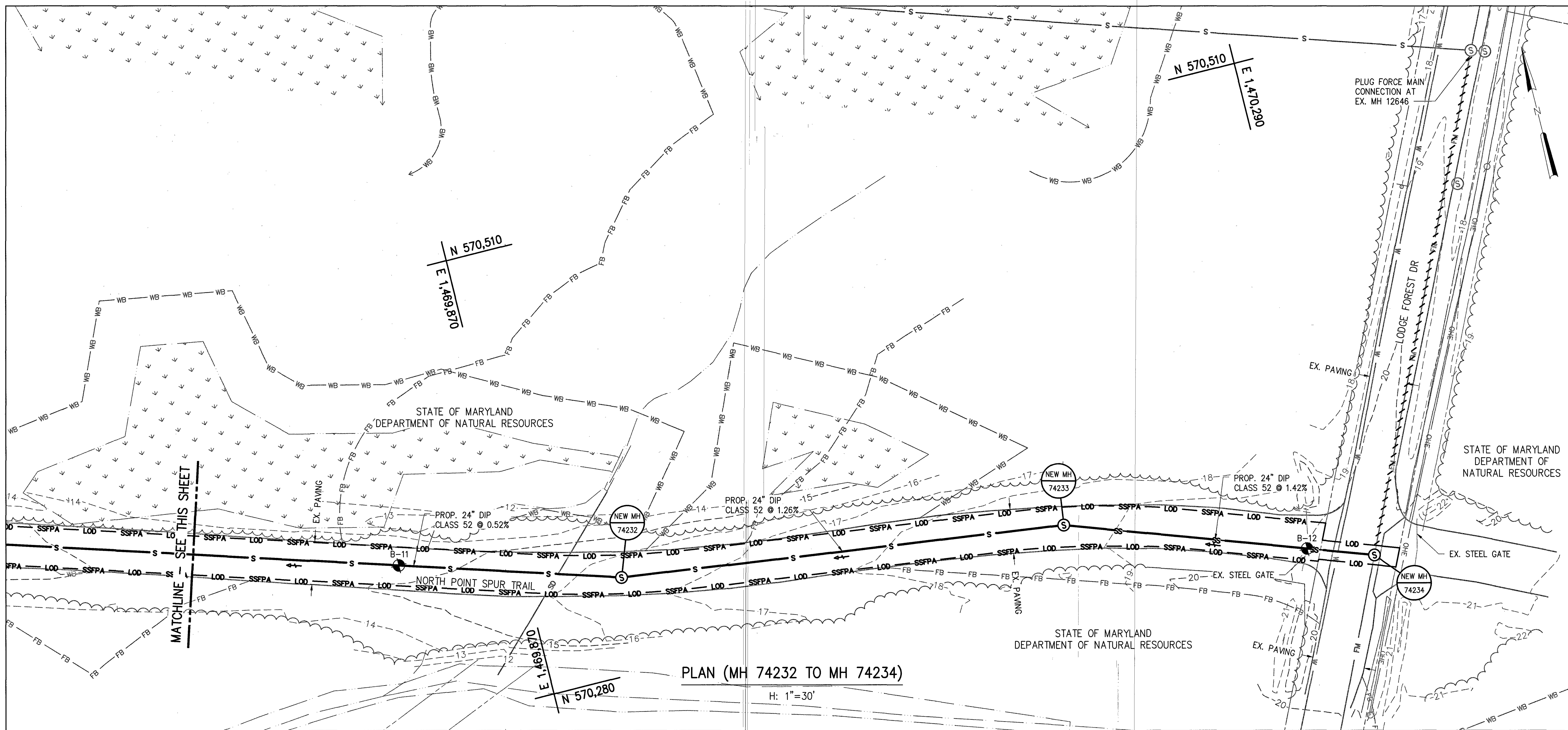
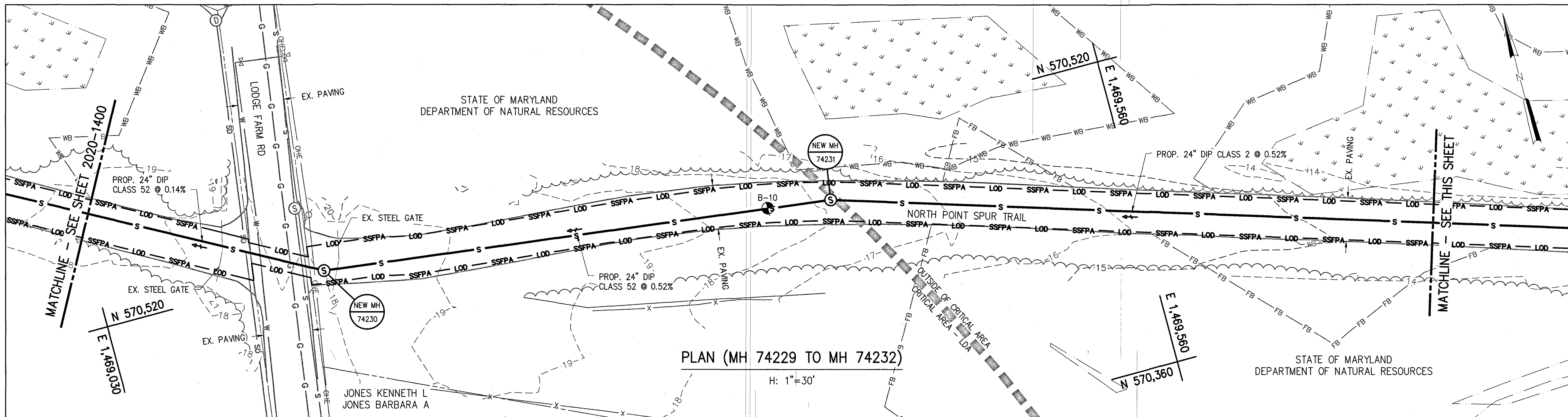


PROFESSIONAL CERTIFICATION		AS-BUILT / REVISION		BY DATE		P.W.A. NO.		KEY SHEET POSITION SH		DRAWING SCALE		DEPARTMENT OF PUBLIC WORKS	
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.						R.O.W. NO.		ANE		PLAN SCALE: 1"=30'		APPROVED BY: DIRECTOR	
LICENSE NO. 40290 EXPIRATION DATE 05/12/2023						19-058				PROFILE SCALE: N/A		DATE:	
ENGINEER: NORBERT HUANG										FIELD ENGINEER		BUR. OF ENGINEERING & CONSTRUCTION	
DGN BY: NH													
DWN BY: TSA													
CHKD BY: JTB													
DATE REVIEWED:													
SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES													

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION	
GLEN ECHO RELIEF SEWER	
EROSION AND SEDIMENT CONTROL PLAN 3	
SUBDIVISION: DELMAR	
ELECTION DIST. NO.: 15c7	

MARYLAND COORDINATE SYSTEM (MCS)	
HORIZONTAL NAD 83/91	
VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
ESC-3	20196 SXO
JOB ORDER NUMBER	
231-201-0077-7252	
SHEET 15 OF 22	
DRAWING NUMBER	
2020-1400	
FILE NO.: 1	

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NOTES:

1. NO GRADE CHANGE.
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BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL

Jeffrey P. West 3-1-23
DATE

CONTRACT COMPLETION BOX

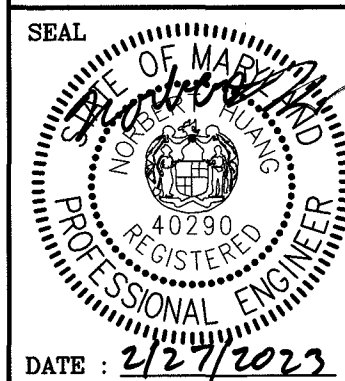
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DATE COMPLETED: _____
INSPECTOR: _____
PIPE MATERIAL (Pressure Only): _____


MARYLAND COORDINATE SYSTEM (MCS)
HORIZONTAL NAD 83/91
VERTICAL NAVD 88

SHEET DESIGNATION: ESC-4 CONTRACT NUMBER: 20196 SXO



JOB ORDER NUMBER: 231-201-0077-7252
SHEET 16 OF 22
DRAWING NUMBER: 2020-1401
FILE NO.: 1



PROFESSIONAL CERTIFICATION			AS-BUILT / REVISION		BY	DATE	P.W.A. NO.	KEY SHEET	POSITION	SHT	DRAWING SCALE		DEPARTMENT OF PUBLIC WORKS			
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. 40290 EXPIRATION DATE 05/12/2023 ENGINEER: NORBERT HUANG											PLAN SCALE:	1"=30'	APPROVED BY: _____			
							R.O.W NO.	ANE	24SE32 24SE33 26SE33			N/A N/A	DIRECTOR _____			
			CONTRACT COMPLETION BOX				19-05B				PROFILE SCALE:	N/A	DATE: _____			
<div> HAZEN AND AWADY 1 SOUTH STREET, SUITE 1100, BALTIMORE, MD 21202 TEL: 410-398-6200 FAX: 410-398-7861 WWW.HAZENAWADY.COM</div>			BUREAU OF ENGINEERING AND CONSTRUCTION		BUILDINGS		HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION			
			DGN BY: NH		REVIEWED BY:											
			DWN BY: TSA		DATE REVIEWED:											
CHKD BY: JTB					SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES											

SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES

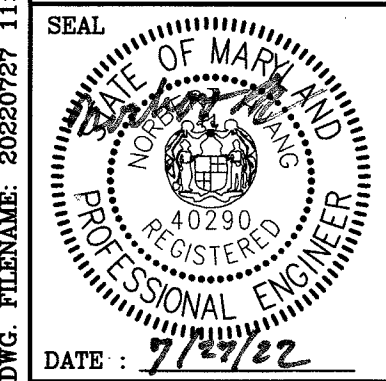
SUBDIVISION: DELMAR

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION
GLEN ECHO RELIEF SEWER
EROSION AND SEDIMENT CONTROL PLAN 4

ELECTION DIST. NO.: 15c7

JTB 6/28/23

DWG. FILENAME: 20200727 11.154 O:\32298-BAL\32298-013 GLEN ECHO INTERCEPTOR RELIEF DESIGN DRAWINGS ESC-5.DWG LASTSAVEBY:MLKXENSTAFF



PROFESSIONAL CERTIFICATION				AS-BUILT / REVISION		BY DATE	P.W.A. NO.	KEY SHEET	POSITION SHY	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
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.							R.O.W. NO.	N/A	N/A	PLAN SCALE: N/A	APPROVED BY: DIRECTOR
LICENSE NO. 40290 EXPIRATION DATE 06/12/2023				CONTRACT COMPLETION BOX						PROFILE SCALE: N/A	DATE:
ENGINEER: NORBERT HUANG				BUREAU OF ENGINEERING AND CONSTRUCTION		BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	DIRECTOR
OWN BY: TSA				REVIEWED BY:							
CHKD BY: JTB				DATE REVIEWED:							

SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES

DATE: 7/15/22

6/28/23

B-4.3 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

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, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
 - 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. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
 - 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 loosened to a depth of 3 to 5 inches.

B. Topsoiling

1. Topsoil 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 1½ 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-4.4 STANDARDS AND SPECIFICATIONS

FOR

SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

1. Specifications
 - 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 phytotoxic 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. Mulching

1. Mulch Materials (in order of preference)
 - 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, calked, decayed, or excessively dirty. **Note: Use only sterile straw mulch in areas where one species of grass is desired.**
 - b. Wood Cellulose Fiber Mulch (WCFCM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - i. WCFCM 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. WCFCM, including dye, must contain no germination or growth inhibiting factors.
 - iii. WCFCM 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. WCFCM material must not contain elements or compounds at concentration levels that will be phytotoxic.
 - v. WCFCM 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 Tax 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-4.5 STANDARDS AND SPECIFICATIONS

FOR

PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

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 Hardness 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 areas 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 ½ 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, Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ 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
 - i. Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)
 - ii. Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 6b)
 - iii. 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 1½ 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 seedlings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary (SEE TABLE TO RIGHT)

Hardiness Zone (from Figure B.3): 7B				Fertilizer Rate (10-20-20)			Lime Rate	
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P ₂ O ₅		
				¼ - ½ in	45 pounds per acre (1.0 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
				¼ - ½ in				
				¼ - ½ in				

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 ¾ inch, plus or minus ¼ 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 sods 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 wilting.
- 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 ¼ 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.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): 7B SEED MIXTURE (FROM TABLE B.3)					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES*	APPLICATION RATE (LB/AC)	SEEDING DATES**	SEEDING DEPTHS	N	P205	K20	
1	SWITCH GRASS CREEPING RED FESCUE *PARTRIDGE PEA	10 15 4	2/15 - 4/30** 5/1 - 5/31*		45 LB/AC (1.0 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
8	TALL FESCUE	100	2/15 - 4/30 8/15 - 10/31	1/4" - 1/2"				
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	60 40 20	2/15 - 4/30 8/15 - 10/31					

♦♦ WARM SEASON GRASSES NEED A SOIL TEMPERATURE OF AT LEAST 50 DEGREES F IN ORDER TO GERMINATE. IF SOIL TEMPERATURES ARE COLDER THAN 50 DEGREES OR MOISTURE IS NOT ADEQUATE, THE SEEDS WILL REMAIN DORMANT UNTIL CONDITIONS ARE FAVORABLE. IN GENERAL, PLANTING DURING THE LATTER PORTION OF THE PERIOD ALLOWS MORE TIME FOR WEED EMERGENCE AND THE WEED CONTROL PRIOR TO PLANTING. WHEN SELECTING A PLANTING DATE, CONSIDER THE NEED FOR WEED CONTROL VS. THE LIKELIHOOD OF HAVING SUFFICIENT MOISTURE FOR LATER PLANTINGS, ESPECIALLY ON DROUGHTY SITES.

* ADDITIONAL PLANTING DATES DURING WHICH SUPPLEMENTAL WATERING MAY BE NEEDED TO ENSURE PLANT ESTABLISHMENT.

♦ SEED MIXES CONTAINING PERENNIAL RYEGRASS, KENTUCKY BLUEGRASS, AND/OR FESCUE SPECIES MAY NOT BE USED IN ANY WETLAND, WETLAND BUFFER OR 100 YEAR FLOODPLAIN, FOR STABILIZING OR REPLACING VEGETATION IN THESE ENVIRONMENTAL AREAS, A WETLAND BUFFER MIX SUCH AS ERNWX-734 OR APPROVED EQUAL MUST BE USED. SEE WETLAND SEED MIX TABLE ON SHEET ESC-6.

** FOR THE PERIOD 5/1-8/14 ADD FOXTAIL OR PEARL MILLET TO THE PERMANENT SEED MIX, 5 LBS/AC TO MIX NO. 8 AND 6 LBS/AC TO MIX NO. 9.

CONTRACT COMPLETION BOX

CONTRACTOR: _____

DATE COMPLETED: _____

INSPECTOR: _____

PIPE MATERIAL (Pressure Only): _____

MARYLAND COORDINATE SYSTEM (MCS)

HORIZONTAL NAD 83/91

VERTICAL NAVD 88

SHEET DESIGNATION	CONTRACT NUMBER
ESC-5	20196 SXO
JOB ORDER NUMBER	231-201-0077-7252
SHEET 17 OF 22	
DRAWING NUMBER	2020-1402
FILE NO.:	1

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION -- BUREAU OF ENGINEERING & CONSTRUCTION

GLEN ECHO RELIEF SEWER

EROSION AND SEDIMENT CONTROL DETAILS

SUBDIVISION: DELMAR

ELECTION DIST. NO.: 15C7

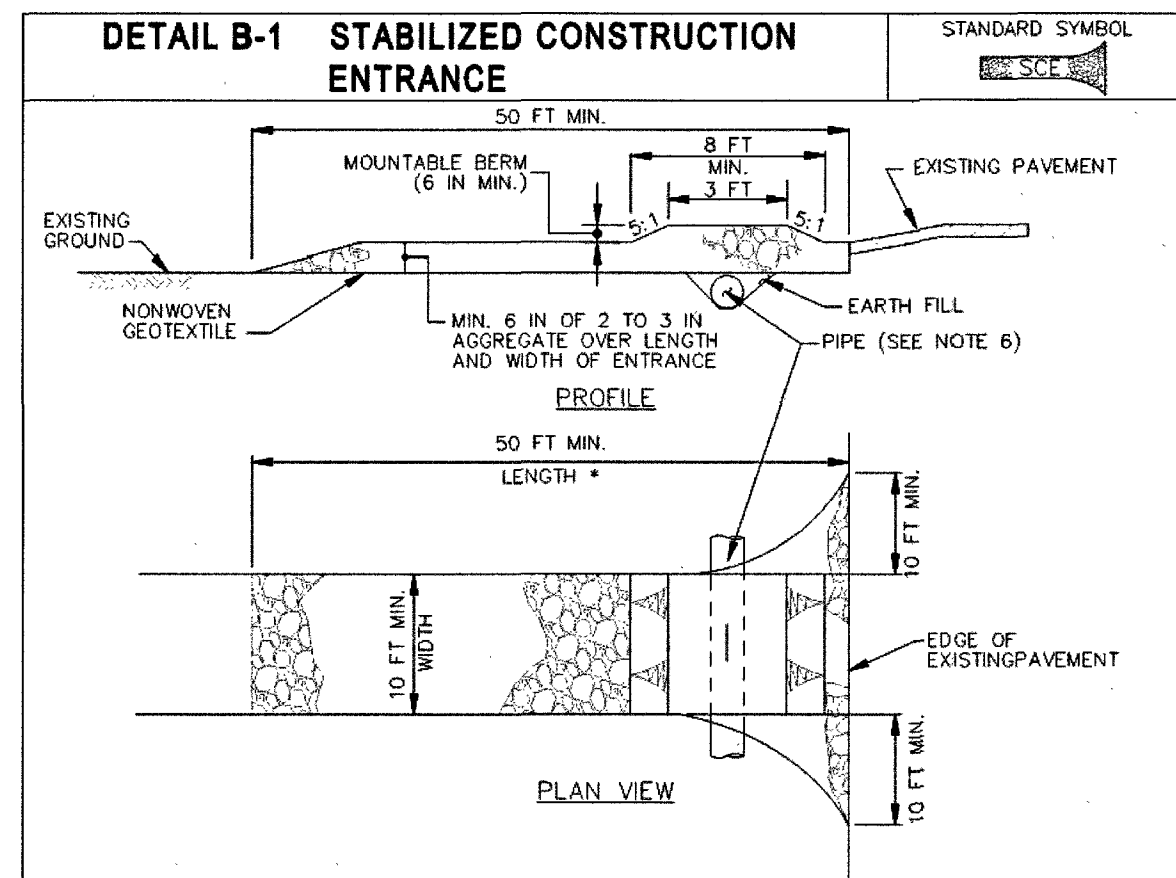
BALTIMORE COUNTY SOIL CONSERVATION DISTRICT

APPROVED FOR SEDIMENT CONTROL

Jeffrey P. Walsh 3-1-23

DATE

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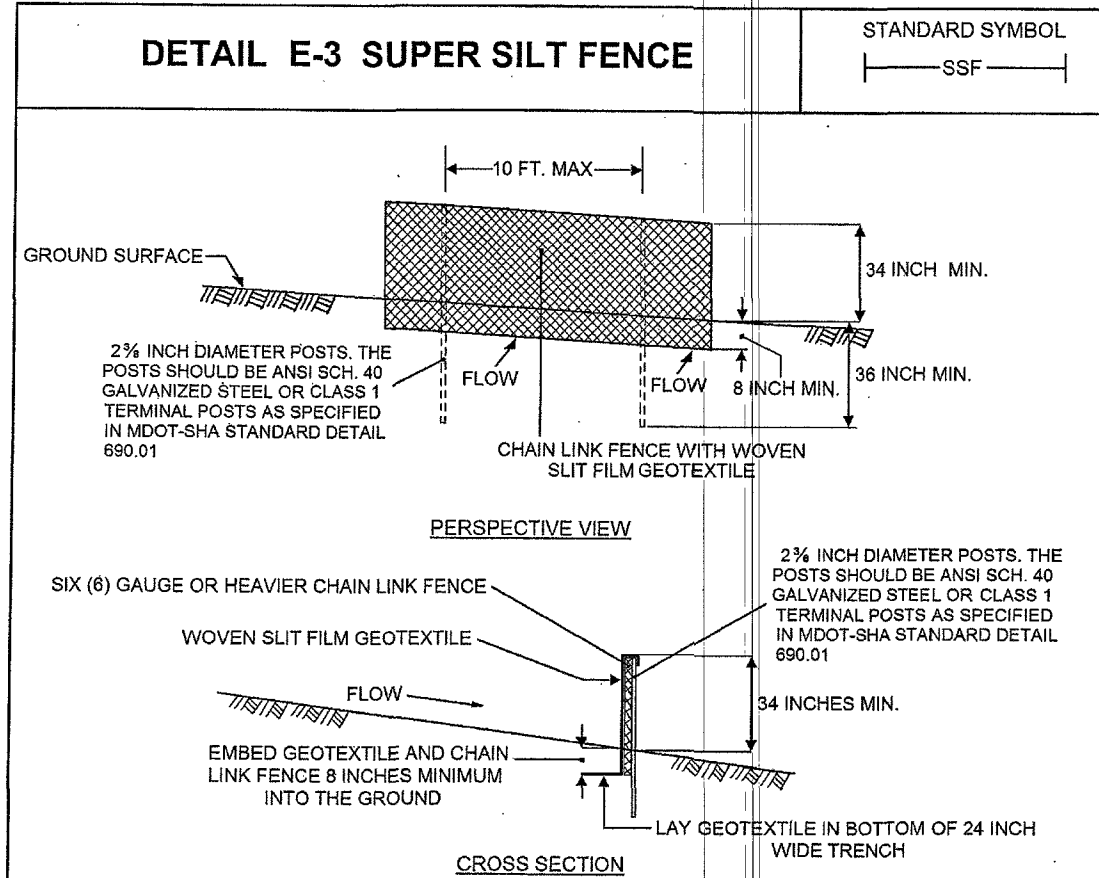


CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (50 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE. MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE. MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT
NATURAL RESOURCES CONSERVATION SERVICE MODIFIED - 2012 WATER MANAGEMENT ADMINISTRATION

B.2

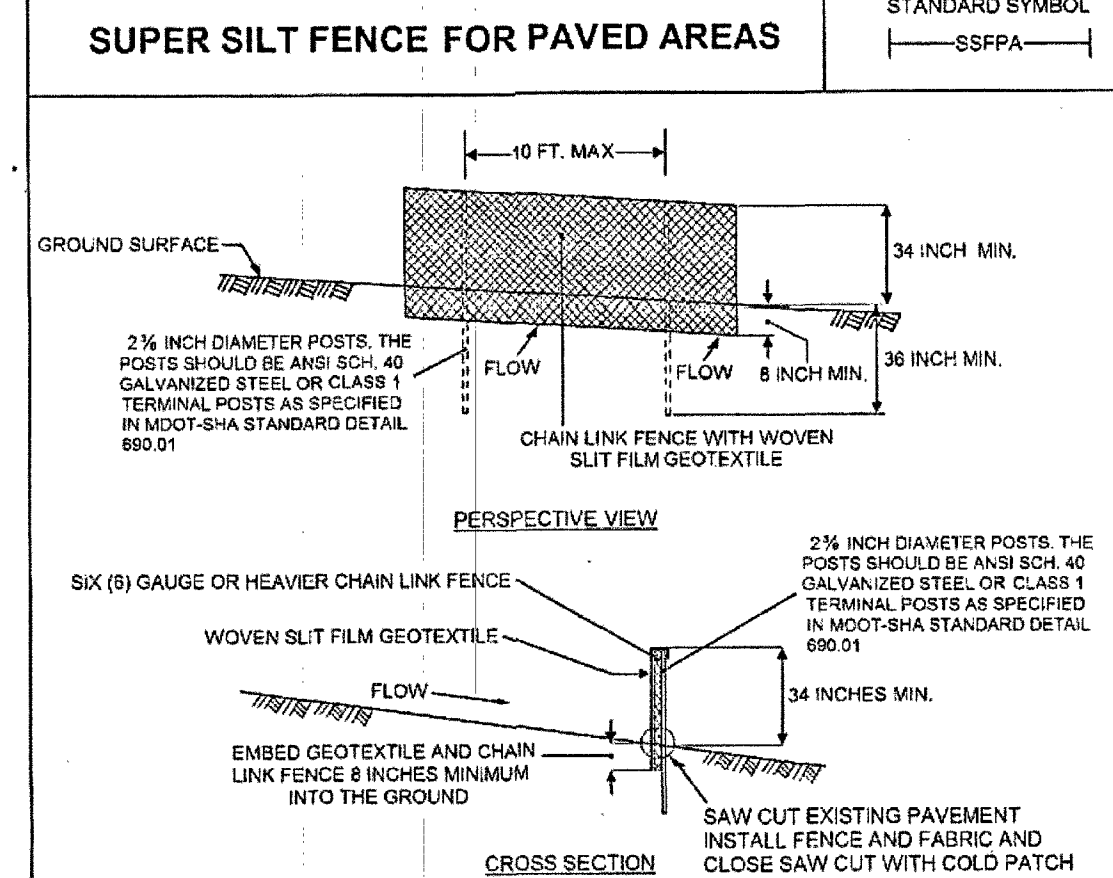


CONSTRUCTION SPECIFICATIONS

1. INSTALL 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 6 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 1/2 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. SECURELY TO THE UPSIDE SIDE OF THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND. LAY THE GEOTEXTILE IN THE BOTTOM OF THE 24 INCH WIDE TRENCH.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 8 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BYPASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE UP HILL A MINIMUM OF 3 VERTICAL FEET TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURERS CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF THE FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT
NATURAL RESOURCES CONSERVATION SERVICE MODIFIED - 2012 WATER MANAGEMENT ADMINISTRATION

APPENDIX 17

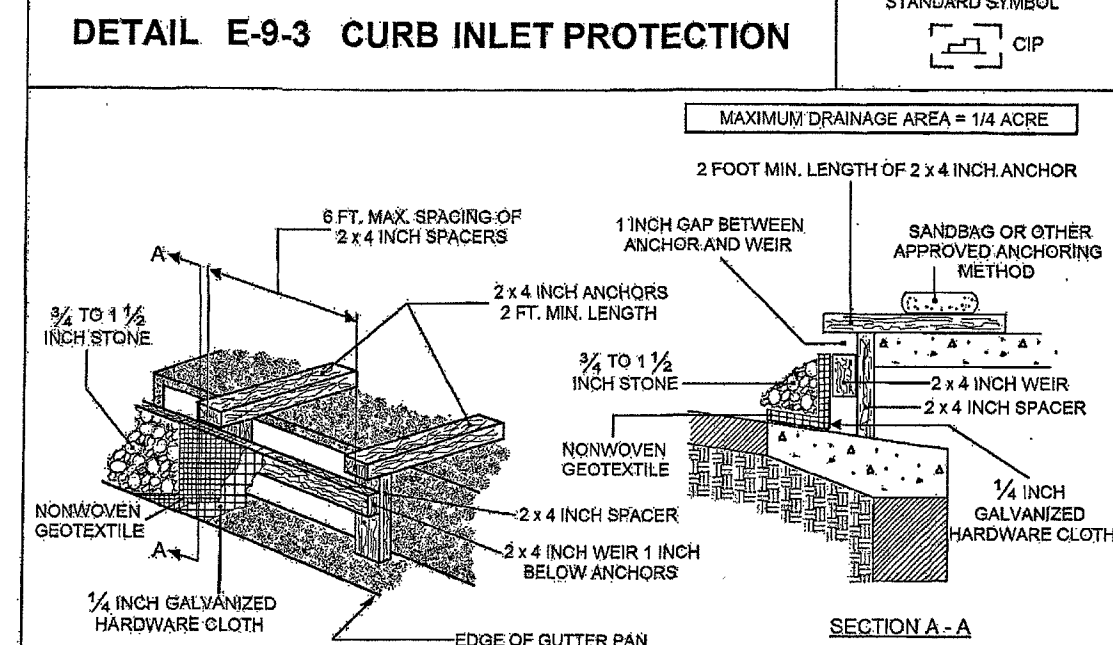


CONSTRUCTION SPECIFICATIONS

1. INSTALL 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 6 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 1/2 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SILT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. SECURELY TO THE UPSIDE SIDE OF THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 8 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BYPASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE UP HILL A MINIMUM OF 3 VERTICAL FEET TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURERS CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF THE FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT
NATURAL RESOURCES CONSERVATION SERVICE MODIFIED - 2012 WATER MANAGEMENT ADMINISTRATION

APPENDIX 19

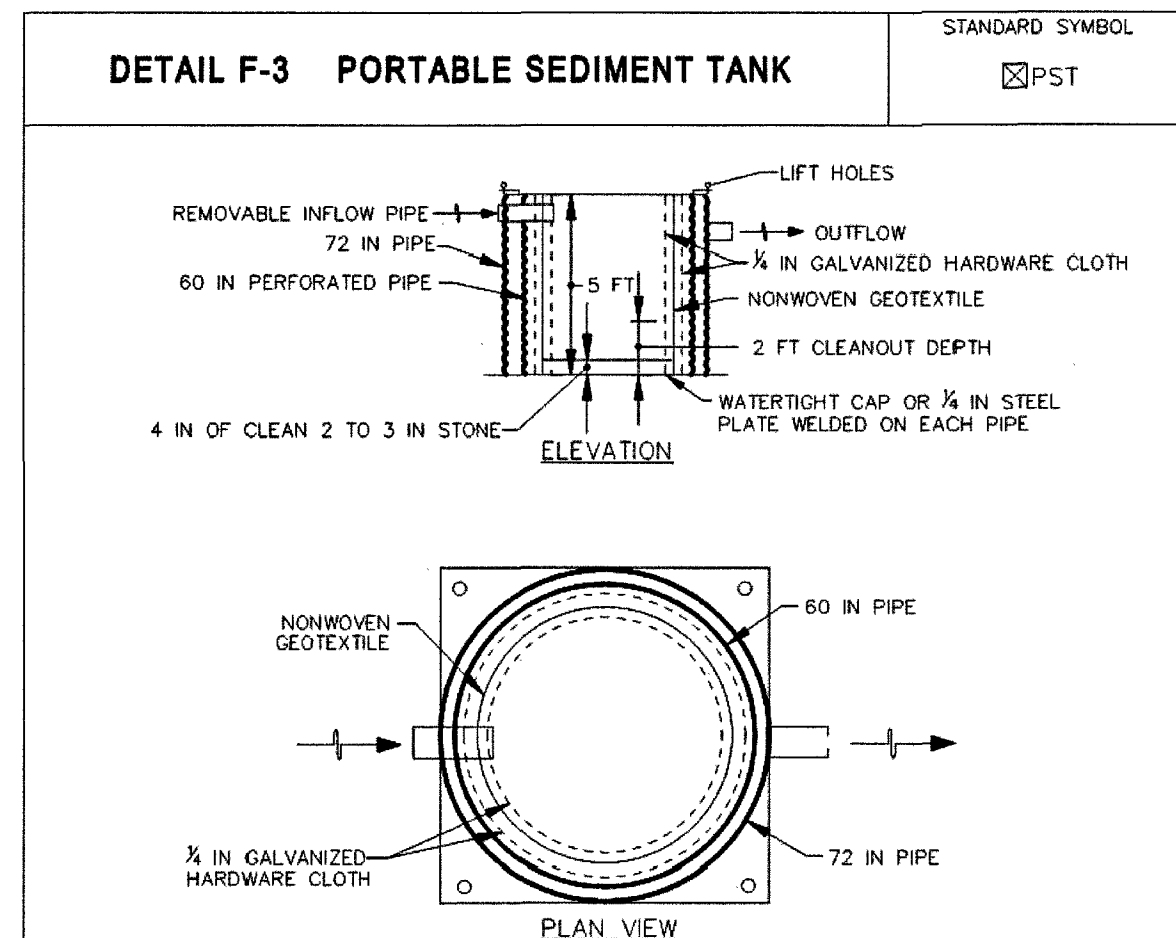


CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 x 4 INCH LUMBER.
2. ATTACH A CONTINUOUS PIECE OF 1/4 INCH GALVANIZED HARDWARE CLOTH. MINIMUM WIDTH OF 30 INCHES, AND MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2 x 4 INCH WEIR, EXTENDING 2 FEET BEYOND THE THROAT ON EACH SIDE.
3. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2 x 4 INCH WEIR.
4. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
5. NAIL THE 2 x 4 INCH WEIR (1 INCH BELOW THE ANCHORS) TO THE 8 INCH LONG VERTICAL SPACERS (MAX. 6 FEET APART).
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2 x 4 INCH ANCHORS (MIN. 2 FEET IN LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TAP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND GEOTEXTILE TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOSING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN OR REPLACE THE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT
NATURAL RESOURCES CONSERVATION SERVICE MODIFIED - 2012 WATER MANAGEMENT ADMINISTRATION

APPENDIX 22

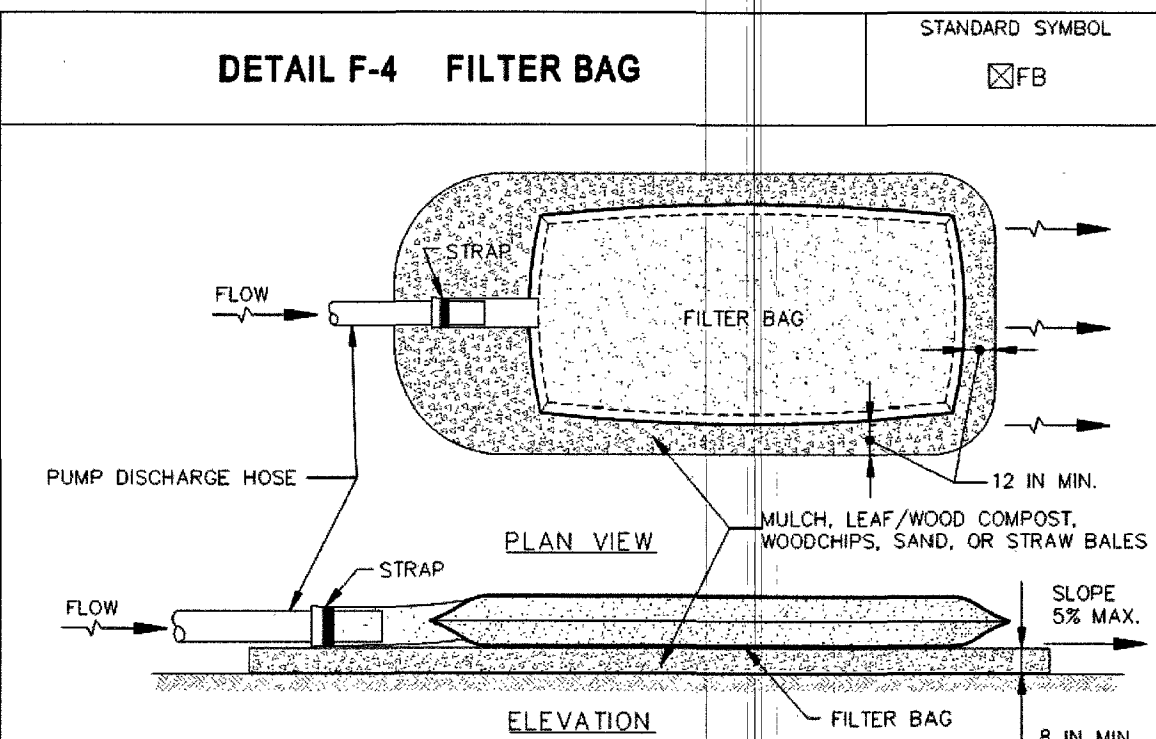


CONSTRUCTION SPECIFICATIONS

1. PROVIDE 1 CUBIC FOOT OF STORAGE FOR EACH GALLON PER MINUTE OF PUMP CAPACITY. REQUIRED STORAGE VOLUME MAY BE ATTAINED BY PLACEMENT OF TANKS IN PARALLEL WITH INFLOW EVENLY DISTRIBUTED AMONG TANKS. OVERTOPPING OF TANKS IS NOT PERMITTED.
2. USE 60 INCH CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER FOR THE INNER PIPE, LINE PIPE WITH NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS. SANDWICHED BETWEEN, AND ATTACHED TO, 1/2 INCH HARDWARE CLOTH.
3. OVERLAP GEOTEXTILE 8 INCHES MINIMUM AT VERTICAL SEAM AND AT THE BOTTOM PLATE.
4. ANCHOR GEOTEXTILE AT BOTTOM OF TANK WITH 4 INCHES OF 2 TO 3 INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE.
5. USE 72 INCH CORRUGATED METAL OR PLASTIC OUTER PIPE WITH PERMANENT OUTFLOW PIPE WITH INVERT LOWER THAN INFLOW PIPE.
6. INFLOW PIPE MUST DISCHARGE INTO INNER PIPE AND BE REMOVABLE.
7. PLACE TANK ON LEVEL SURFACE AND DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A PORTABLE SEDIMENT TANK REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT FROM INNER PIPE WHEN IT REACHES TWO FEET IN DEPTH. IF SYSTEM CLOGS, PULL OUT INNER PIPE, REMOVE ACCUMULATED SEDIMENT, AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT
NATURAL RESOURCES CONSERVATION SERVICE MODIFIED - 2012 WATER MANAGEMENT ADMINISTRATION

F.7



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G. MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DOWNSIDE SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:
GRAB TENSILE 250 LB
PUNCTURE 150 LB
FLOW RATE 70 GAL/MIN/FT²
PERMITTIVITY (SEC⁻¹) 1.2 SEC⁻¹
UV RESISTANCE 70% STRENGTH @ 500 HOURS
APPARENT OPENING SIZE (AOS) 0.15-0.18 MM
SEAM STRENGTH 90%
ASTM D-4632
ASTM D-4833
ASTM D-4491
ASTM D-4355
ASTM D-4751
ASTM D-4632
6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT; REPLACE BEDDING IF IT BECOMES DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT
NATURAL RESOURCES CONSERVATION SERVICE MODIFIED - 2012 WATER MANAGEMENT ADMINISTRATION

F.9

H-1 STANDARDS AND SPECIFICATIONS

FOR MATERIALS

Table H.1: Geotextile Fabrics

PROPERTY	TEST METHOD	MINIMUM AVERAGE ROLL VALUE¹			
		WOVEN SILT FILM GEOTEXTILE	WOVEN MONOPLANET GEOTEXTILE	NONWOVEN GEOTEXTILE	
		MD	CD	MD	CD
Grab Tensile Strength	ASTM D-4632	200 lb	200 lb	250 lb	200 lb
Grab Tensile Elongation	ASTM D-4632	15%	10%	15%	50%
Trapezoidal Tear Strength	ASTM D-4533	75 lb	75 lb	100 lb	80 lb
Puncture Strength	ASTM D-6241	450 lb	900 lb	450 lb	450 lb
Apparent Opening Size²	ASTM D-4751	U.S. Sieve 30 (0.6 mm)	U.S. Sieve 70 (0.25 mm)	U.S. Sieve 70 (0.25 mm)	U.S. Sieve 70 (0.25 mm)
Permittivity	ASTM D-4491	0.05 sec⁻¹	0.28 sec⁻¹	1.1 sec⁻¹	1.1 sec⁻¹
Ultraviolet Resistance Retained at 500 hours	ASTM D-4355	70% strength	70% strength	70% strength	70% strength

¹ All numeric values except apparent opening size (AOS) represent minimum average roll values (MARV). MARV is calculated as the typical minus two standard deviations. MD is machine direction; CD is cross direction.

² Values for AOS represent the average maximum opening.

Geotextiles must be evaluated by the National Transportation Product Evaluation Program (NTPPE) and conform to the values in Table H.1.

The geotextile must be inert to commonly encountered chemicals and hydrocarbons and must be rot and mildew resistant. The geotextile must be manufactured from fibers consisting of long chain synthetic polymers and composed of a minimum of 95 percent by weight of polyolefins or polyesters, and formed into a stable network so the filaments or yarns retain their dimensional stability relative to each other, including selvages.

When more than one section of geotextile is necessary, overlap the sections by at least one foot. The geotextile must be pulled taut over the applied surface. Equipment must not run over exposed fabric. When placing riprap on geotextile, do not exceed a one foot drop height.

H.1

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
Jeffrey P. West 3-1-23
DATE

CONTRACT COMPLETION BOX
CONTRACTOR: _____
DATE COMPLETED: _____
INSPECTOR: _____
PIPE MATERIAL (Pressure Only): _____

MARYLAND COORDINATE SYSTEM (MCS)
HORIZONTAL NAD 83/91
VERTICAL NAVD 88
SHEET DESIGNATION: ESC-6
CONTRACT NUMBER: 20196 SXO
JOB ORDER NUMBER: 231-201-0077-7252
SHEET 18 OF 22
DRAWING NUMBER: 2020-1403
FILE NO.: 1

SEAL	PROFESSIONAL CERTIFICATION	AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION	SHT	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS
	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. 40290 EXPIRATION DATE 05/12/2023									
	ENGINEER: NORBERT HUANG									
	DON BY: NH									
	Hazen	BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION
	1000 NORTH STREET, SUITE 1100, BALTIMORE, MD 21202									
	DATE: 7/1/22									

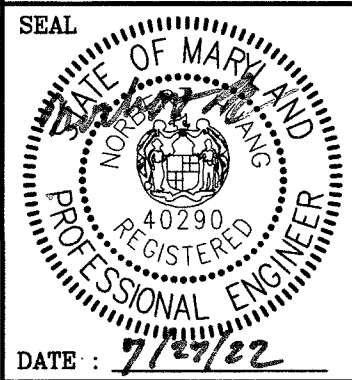
SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES

SUBDIVISION: DELMAR

EROSION AND SEDIMENT CONTROL DETAILS

ELECTION DIST. NO.: 15c7

DWG. FILENAME: 20220727 11:15A O:\32298-BAL\32298-013 GLEN ECHO INTERCEPTOR RELIEF DESIGN DRAWINGS\ESC ESC-7.DWG LastSavedBy:MLCKENSTAFF



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. 40290 EXPIRATION DATE 05/12/2023 ENGINEER: NORBERT HUANG		AS-BUILT / REVISION		BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SHT	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS	
Hazen HAZEN AND SHAWYER 1 SOUTH STREET, SUITE 100, BALTIMORE, MD 21202 NHLAND@HAZENSHAWYER.COM 410-526-7501		CONTRACT COMPLETION BOX				R.O.W NO.	N/A	N/A	PLAN SCALE: N/A PROFILE SCALE: N/A	APPROVED BY: _____	DIRECTOR
		BUREAU OF ENGINEERING AND CONSTRUCTION		BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	DATE: _____
DGN BY: NH		REVIEWED BY: _____		SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES							
DWN BY: TSA		DATE REVIEWED: _____									
CHKD BY: JTB											

DB 6/28/23

SUBDIVISION: DELMAR

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS:

- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NON PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
- RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (UNIOILA SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION, KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
- AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:
USE I WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
USE III WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30, INCLUSIVE, DURING ANY YEAR.
USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
- CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

SEDIMENT AND EROSION CONTROL PLAN NOTES:
GENERAL NOTES (FOR EROSION AND SEDIMENT CONTROL PLANS ONLY)

- REFER TO "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN.
- WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, MINOR FIELD ADJUSTMENTS CAN AND WILL BE MADE TO INSURE THE CONTROL OF ANY SEDIMENT. CHANGES IN SEDIMENT CONTROL PRACTICES REQUIRE PRIOR APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT.
- AT THE END OF EACH WORKING DAY, ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT IN OPERATIONAL CONDITION.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN: A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALWS, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1), AND B.) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
- ANY CHANGE TO THE GRADING PROPOSED ON THIS PLAN REQUIRES RE-SUBMISSION TO BALTIMORE COUNTY SOIL CONSERVATION DISTRICT FOR APPROVAL.
- DUST CONTROL WILL BE PROVIDED FOR ALL DISTURBED AREAS. REFER TO "2011 MARYLAND STANDARDS AND SPECIFICATIONS" FOR SOIL EROSION AND SEDIMENT CONTROL", PG. H.22, FOR ACCEPTABLE METHODS AND SPECIFICATIONS FOR DUST CONTROL.
- ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE BALTIMORE COUNTY SOIL CONSERVATION DISTRICT PRIOR TO THE INITIATION OF THE CHANGE.
- EXCESS CUT OR BORROW MATERIAL SHALL GO TO, OR COME FROM, RESPECTIVELY, A SITE WITH AN OPEN GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN.
- THE FOLLOWING ITEM MAY BE USED AS APPLICABLE: REFER TO "MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION" BY THE WATER MANAGEMENT ADMINISTRATION OF THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, REVISED NOVEMBER 2000, FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN FOR WATERWAY CONSTRUCTION.
- PUMPING SEDIMENT-LADEN WATER INTO WATERS OF THE STATE IS STRICTLY PROHIBITED. ANY PORTABLE DEWATERING DEVICE MUST BE LOCATED WITHIN THE LIMIT OF DISTURBANCE.

SEQUENCE OF OPERATIONS:

- NOTIFY BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, (410) 887-3226 AT LEAST 48 HOURS PRIOR TO BEGINNING WORK. NOTIFY MARYLAND DEPARTMENT OF THE ENVIRONMENT, INSPECTION AND COMPLIANCE PROGRAM, (410) 537-3510 AT LEAST 5 DAYS PRIOR TO BEGINNING WORK.
- CLEAR AND GRUB FOR SEDIMENT & EROSION CONTROL MEASURES OR DEVICES ONLY.
- INSTALL ALL SEDIMENT & EROSION CONTROL MEASURES OR DEVICES ONLY. USAGE AND LOCATION OF STABILIZED CONSTRUCTION ENTRANCE SHALL BE AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR.
- NOTIFY BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL, UPON COMPLETION OF SAID INSTALLATION.
- WITH THE APPROVAL OF BALTIMORE COUNTY DEPARTMENT OF PERMITS, APPROVALS AND INSPECTIONS, SEDIMENT CONTROL AND THE SEDIMENT CONTROL INSPECTOR, PROCEED TO STEP NO. 6.
- PERFORM INSTALLATION OF UTILITIES PER CONTRACT DRAWINGS. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE UTILITY NOTES (SEE THIS SHEET). UPON COMPLETION OF WORK, ANY UTILITY TRENCHES SHALL BE BACKFILLED WITH SELECT BACKFILL MATERIAL. BACKFILL OF THE TRENCH SHALL MATCH THE ORIGINAL GRADE. COMPLETE ANY ROADWAY, CURB, SIDEWALK OR OTHER IMPROVEMENTS AS NEEDED.
- UPON COMPLETION AND STABILIZATION OF SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THE PROCESS.

BALTIMORE COUNTY SOIL CONSERVATION DISTRICT
APPROVED FOR SEDIMENT CONTROL
Jeffrey P. W. 2020 3-1-23
DATE

UTILITY NOTES:

- ONLY THAT SECTION OF TRENCH SHALL BE OPENED WHICH CAN BE BACKFILLED AND STABILIZED EACH DAY. EXCAVATIONS WHICH ARE TO BE LEFT OPEN OVERNIGHT, OR WHEN THE CONTRACTOR'S FORCES ARE NOT PRESENT, SHALL BE APPROVED BY BALTIMORE COUNTY DPW AND SO PROTECTED OR ENCLOSED AND EFFECTIVELY MARKED TO PRESENT NO DANGER TO THE PUBLIC. EXCAVATIONS OCCURRING IN THE ROADWAY SHALL HAVE PLATES PLACED OVER THE EXCAVATED SITE WHEN THE CONTRACTOR IS NOT PRESENT.
- WHEN EXCAVATING FOR UTILITIES, ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
- ANY SEDIMENT CONTROL MEASURES DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

TEMPORARY STOCKPILE NOTE:

- LIMITS OF DISTURBANCE (L.O.D.) SHALL BE USED AS THE ONSITE TEMPORARY STOCKPILE AREA, IF THE CONTRACTOR ELECTS TO DO SO. LOCATION OF TEMPORARY STOCKPILE SHALL BE APPROVED BY THE COUNTY. THE CONTRACTOR MUST ADHERE TO SOIL CONSERVATION RULES AND REGULATIONS. THE TEMPORARY STOCKPILE MUST DRAIN TO A FUNCTIONING SEDIMENT CONTROL DEVICE AND BE POSITIONED TO NOT IMPEDE UPON OR IMPAIR THE FUNCTION OF SAID DEVICE AND NOT ALTER DRAINAGE DIVIDES. ANY OFFSITE AREA THAT THE CONTRACTOR DESIRES TO USE AS A TEMPORARY STOCKPILE AREA SHALL BE IN A SITE WITH AN OPEN GRADING PERMIT, AND AN APPROVED SEDIMENT CONTROL PLAN AND MUST BE APPROVED BY THE CONSTRUCTION INSPECTOR AND A REPRESENTATIVE OF THE ENVIRONMENTAL IMPACT REVIEW SECTION OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SUSTAINABILITY.

INLET PROTECTION NOTES:

- ALL STORM DRAINS, DITCHES, ETC. SHALL REMAIN FUNCTIONAL DURING CONSTRUCTION AND SHALL BE PROTECTED BY THE CONTRACTOR FROM SEDIMENT RUNOFF. EXCAVATED MATERIAL SHALL NOT BE PLACED IN, OR OBSTRUCT DRAINAGE DITCHES. DITCHES AND OTHER STORM DRAIN FACILITIES SHALL BE RETURNED TO ORIGINAL CONDITION FOLLOWING CONSTRUCTION. DURING TRENCH DEWATERING OPERATIONS, NO WATER SHALL BE DISCHARGED DIRECTLY ACROSS THE GROUND OR INTO AN EXISTING BODY OF WATER OR STREAM WITHOUT FIRST FLOWING THROUGH AN APPROVED DEWATERING BASIN OR PORTABLE SEDIMENT TANK.
- THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:
2.1. ANY INLET OUTFALLING DIRECTLY INTO A SEDIMENT TRAPPING DEVICE.*
2.2. INLETS ON PRIVATE OR PUBLIC PAVED ROADWAYS OPEN TO THE PUBLIC.
- ALL INLET PROTECTION WILL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, PAGE E.23 (OR AS MAY BE AMENDED). THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

*STORM DRAINS TO BE FLUSHED PRIOR TO TRAPPING DEVICE REMOVAL.

SEDIMENT AND EROSION CONTROL NOTES:

- ALL GRADES AND APPURTENANCES SHALL BE RETURNED TO ORIGINAL CONDITION AFTER CONSTRUCTION.
- THERE SHALL BE NO TREE REMOVAL WITHIN THE CRITICAL AREA. SHRUB REMOVAL OR CLEARING WITHIN THE CRITICAL AREA SHALL ONLY BE PERMITTED WITHIN THE LIMITS OF DISTURBANCE.
- THE TOTAL LIMIT OF DISTURBANCE IS 157,721 SF / 3.62 AC.

CONTRACT COMPLETION BOX	
CONTRACTOR: _____	
DATE COMPLETED: _____	
INSPECTOR: _____	
PIPE MATERIAL (Pressure Only): _____	

MARYLAND COORDINATE SYSTEM (MCS) HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
ESC-7	20196 SXO
JOB ORDER NUMBER 231-201-0077-7252	
SHEET 19 OF 22	
DRAWING NUMBER 2020-1404	
FILE NO.: 1	

ELECTION DIST. NO.:15c7

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION
GLEN ECHO RELIEF SEWER
EROSION AND SEDIMENT CONTROL NOTES

BORING LOG BORING B-7 PAGE 1 OF 2

CLIENT Hazen and Sawyer PROJECT NAME Glen Echo Relief Sewer

PROJECT LOCATION Baltimore County, Maryland PROJECT NUMBER 16952-0 MD

RIG Mobile B45 METHOD Hollow Stem Auger SAMPLER 2-in OD SS HAMMER 140# FALL: 30" AUTO? Yes

DATE STARTED 7/6/18 COMPLETED 7/6/18

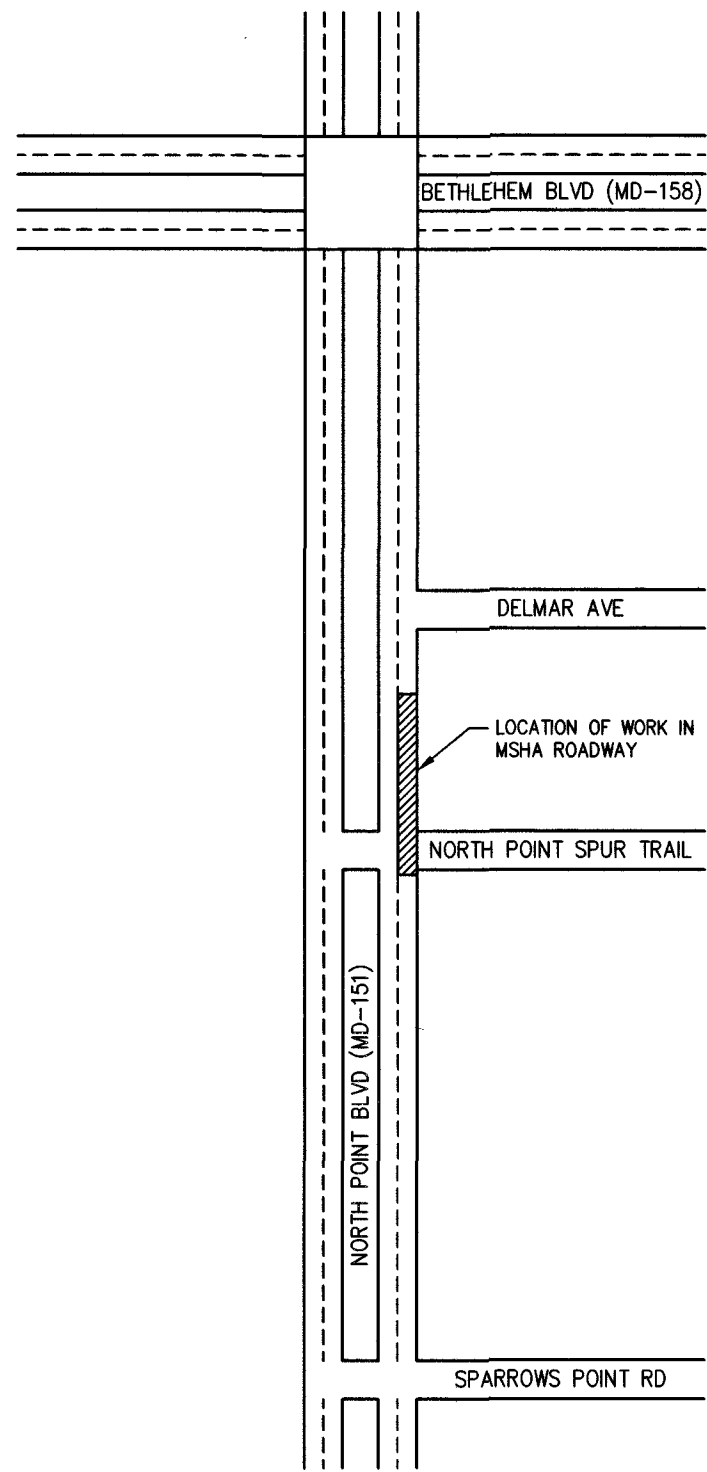
DRILLER Dennis Strawderman HELPER Dustin Hurd

REVIEWED BY Josh Daily SITE DELAYS

LOCATION As Staked BULK SAMPLES 4-6'

DEPTH (ft)	SAMPLE TYPE AND NUMBER	SPT BLOW/FT OR REC MIN %	N-VALUE OR CORE ROD	GRAPHIC LOG	USCS	WATER LEVEL	MATERIAL DESCRIPTION	PP (ft)	NMC %	-#200	PL	LL	PI	REMARKS
0							SURFACE EL = 23.1 ft							
0.5	S1	9-13	7.8		CL		Bituminous Concrete (2-inches)							
1.0	S2	4-7.7	14		CL		Aggregate Base (-47 3-inches)							
1.5	S3	4-5.7	12		CL		Moist, Stiff, Light Brown Silty CLAY (A-6)		2.70	20				(1)
2.0	S4	4-5.5	10		CL		Moist, Stiff, Light Brown CLAY (A-6)							
2.5	S5	4-5.5	10		SM		Moist, Loose to Very Loose, Reddish Brown to Gray Silty SAND (A-2-4)			18				
3.0	S6	4-5.5	10		SM		Wet, Soft, Light Brown Clayey SILT (A-4)			21				
3.5	S7	4-5.5	10		CL		Wet, Soft, Light Brown-Gray CLAY, trace rock fragments (A-6)							
4.0	S8	4-5.5	10		CL		Wet, Very Loose, Light Brown Poorly-Graded SAND (A-3)							
4.5	S9	4-5.5	10		CL		Wet, Very Soft, Gray-Brown Silty CLAY, trace sand (A-6)							
5.0	S10	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
5.5	S11	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
6.0	S12	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
6.5	S13	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
7.0	S14	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
7.5	S15	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
8.0	S16	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
8.5	S17	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
9.0	S18	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
9.5	S19	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
10.0	S20	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
10.5	S21	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
11.0	S22	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
11.5	S23	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
12.0	S24	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
12.5	S25	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
13.0	S26	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
13.5	S27	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
14.0	S28	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
14.5	S29	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
15.0	S30	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
15.5	S31	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
16.0	S32	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
16.5	S33	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
17.0	S34	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
17.5	S35	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
18.0	S36	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
18.5	S37	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
19.0	S38	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
19.5	S39	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
20.0	S40	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
20.5	S41	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
21.0	S42	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
21.5	S43	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
22.0	S44	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
22.5	S45	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
23.0	S46	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
23.5	S47	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
24.0	S48	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
24.5	S49	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
25.0	S50	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
25.5	S51	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
26.0	S52	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
26.5	S53	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
27.0	S54	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
27.5	S55	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
28.0	S56	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
28.5	S57	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
29.0	S58	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
29.5	S59	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
30.0	S60	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
30.5	S61	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
31.0	S62	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
31.5	S63	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
32.0	S64	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
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41.5	S83	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
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43.0	S86	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
43.5	S87	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
44.0	S88	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
44.5	S89	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
45.0	S90	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
45.5	S91	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
46.0	S92	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
46.5	S93	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
47.0	S94	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
47.5	S95	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
48.0	S96	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
48.5	S97	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
49.0	S98	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
49.5	S99	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
50.0	S100	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
50.5	S101	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
51.0	S102	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
51.5	S103	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
52.0	S104	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
52.5	S105	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
53.0	S106	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
53.5	S107	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
54.0	S108	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
54.5	S109	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
55.0	S110	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
55.5	S111	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
56.0	S112	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
56.5	S113	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
57.0	S114	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
57.5	S115	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
58.0	S116	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
58.5	S117	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
59.0	S118	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
59.5	S119	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
60.0	S120	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							
60.5	S121	4-5.5	10		CL		Wet, Very Soft, Dark Gray Sandy SILT (A-4)							

DWG. FILENAME: 20230606 2.05P 0:\32298-BAL\32298-013 GLEN ECHO INTERCEPTOR RELIEF DESIGN\DRAWINGS\MOT\MOT-1.DWG LastSavedBy:SKILE



TRAFFIC CONTROL PLAN - NORTH POINT BLVD (MD-151)

NTS

NOTES FOR WORK IN THE MARYLAND STATE HIGHWAY ADMINISTRATION RIGHT-OF-WAY

PAVING SECTION (FOR ALL PAVING IN THE MSHA RIGHT-OF-WAY)

2" HOT MIX ASPHALT SUPERPAVE 12.5 MM FOR SURFACE, PG 64-22, LEVEL 2
6" HOT MIX ASPHALT SUPERPAVE 19.0 MM FOR BASE, PG 64-22, LEVEL 2 (TWO 3" LIFTS)
12" BASE COURSE USING GRADED AGGREGATE (TWO 6" LIFTS)

PAVEMENT NOTES

- BITUMINOUS CONCRETE BAND DESIGNATIONS ARE MARYLAND STATE HIGHWAY ADMINISTRATION.
- BITUMINOUS CONCRETE AND GRADED AGGREGATE BASE COURSE SHALL BE MIXED AND PLACED IN ACCORDANCE WITH THE LATEST MSHA SPECIFICATIONS.
- THE CONTRACTOR SHALL BE FAMILIAR WITH THE GEOTECHNICAL REPORT FOR THIS SITE.
- ALL PAVING WITHIN THE MSHA RIGHT-OF-WAY, INCLUDING DRIVEWAYS AND ACCESS ROADS, SHALL BE PAVED IN ACCORDANCE WITH THE PAVING SECTION LISTED ABOVE AND MSHA STANDARDS. PAVEMENT OPENINGS FOR UTILITY TRENCHES SHALL BE REPAIRED IN ACCORDANCE WITH STANDARD NO. MD 578.01 AND USING THE AFOREMENTIONED PAVING SECTION.

TRAFFIC CONTROL NOTE

THE FOLLOWING STANDARDS (CONSTRUCTION AND TEMPORARY TRAFFIC CONTROL) ARE REQUIRED FOR THIS PROJECT:

- A. RIGHT LANE CLOSURE/DIVIDED UNCON. EQL/LESS THAN 40 MPH STANDARD NO. MD 104.04-06

FOR ALL STANDARDS REFERENCED ON THE PLAN, THE CONTRACTOR SHALL REFER TO THE MSHA BOOK OF STANDARDS WHICH WILL HAVE THE MOST CURRENT VERSION. THE BOOK OF STANDARDS CAN BE ACCESSED AT THE MSHA WEBSITE AT WWW.MARYLANDROADS.COM BY GOING TO THE BUSINESS SECTION AND FOLLOWING THE BUSINESS STANDARDS AND SPECIFICATIONS LINK, OR DIRECTLY AT:

[HTTP://APPS.ROADS.MARYLAND.GOV/BUSINESSWITHSHA/BIZSTDSSPECS/DESMANUALSTD/PUB/PUBLICATIONSONLINE/OHD/BOOKSTD/INDEX.ASP](http://APPS.ROADS.MARYLAND.GOV/BUSINESSWITHSHA/BIZSTDSSPECS/DESMANUALSTD/PUB/PUBLICATIONSONLINE/OHD/BOOKSTD/INDEX.ASP)

ALL ITEMS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT VERSION OF THE REFERENCED STANDARDS AT THE TIME OF CONSTRUCTION.

UTILITIES NOTE

- THE EXISTING UTILITIES SHOWN ON THE CONSTRUCTION PLANS ARE SCHEMATIC ONLY AND ARE NOT TO BE CONSIDERED TO BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES CAN BE LOCATED IN THE FIELD. THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES A MINIMUM OF TWO (2) WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS IN THE VICINITY OF THE UTILITIES. ANY DAMAGE INCURRED BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- CONSTRUCTION SHALL BE COMPLETED IN ACCORDANCE WITH THE MSHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, LATEST EDITION, AND ALL AMENDMENTS.
- THE CONTACT PERSON FOR MSHA DISTRICT 4 IS MS. SUTAPA SAMANTA, DISTRICT ENGINEER, 410-229-2424.

GENERAL NOTES (FOR WORK IN BALTIMORE COUNTY ROAD RIGHT-OF-WAY):

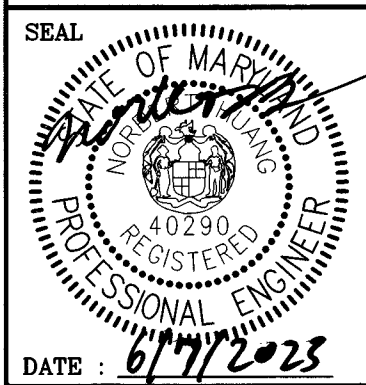
- THE CONTRACTOR SHALL CONTACT THE BUREAU DIVISION OF TRAFFIC ENGINEERING AND TRANSPORTATION PLANNING AT (410) 887-3554 TWO (2) WEEKS BEFORE CONSTRUCTION AND ONE (1) WEEK PRIOR TO ANY CHANGE TO THE MAINTENANCE OF TRAFFIC PLANS. ONCE THE CONTRACTOR RECEIVES NOTICE TO PROCEED, THE DIVISION OF TRAFFIC ENGINEERING WILL INVENTORY THE EXISTING PERMANENT TRAFFIC CONTROL DEVICES WITHIN THE PROJECT LIMITS. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE AND REINSTALL ANY DEVICES DAMAGED DURING CONSTRUCTION AT HIS OWN EXPENSE.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY, INSTALL, AND MAINTAIN ALL TEMPORARY TRAFFIC CONTROL EQUIPMENT FOR THE DURATION OF THE CONTRACT. ALL MAINTENANCE OF TRAFFIC DEVICES AND INSTALLATION OF THE DEVICES WILL BE INSPECTED ON A ROUTINE BASIS BY THE ENGINEER. ANY DEFICIENCIES SHALL BE CORRECTED PROMPTLY BY THE CONTRACTOR AND REMOVED OR COVERED WITH AN OPAQUE MATERIAL.
- ALL TRAFFIC CONTROL DEVICES (INCLUDING THEIR INSTALLATION), LANE SHIFTS, AND LANE CLOSURES MUST ADHERE TO THE CURRENT EDITION OF THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MD M.U.T.C.D.) MARYLAND STATE HIGHWAY ADMINISTRATION (MD SHA) BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES, AND THE MD SHA BOOK OF STANDARDS AND SPECIFICATIONS FOR CONSTRUCTION MATERIALS.
- THE CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNERS AND THE BUREAU OF TRAFFIC ENGINEERING IN MAINTAINING VEHICULAR, BICYCLE, AND PEDESTRIAN ACCESS FOR COMMERCIAL AND PRIVATE PROPERTIES DURING CONSTRUCTION. PEDESTRIAN DETOURS DUE TO SIDEWALK AND ADA RAMP CONSTRUCTION SHALL BE PROVIDED AND ADHERE TO MSHA STD. MD 104.06-09A THRU MD 104.06-09D.
- ANY TEMPORARY SIGNING AND MARKINGS THAT MAY CONFLICT WITH NORMAL TRAFFIC FLOW SHALL BE REMOVED OR COVERED AT THE END OF EACH DAY. ALL EXISTING DISTURBED PAVEMENT MARKINGS SHALL BE REPLACED IN KIND WITH TEMPORARY PAVEMENT MARKINGS EACH DAY BEFORE THE AFFECTED LANE MAY BE OPENED TO TRAFFIC. ALSO, IT MAY BE NECESSARY FOR THE CONTRACTOR TO PROVIDE "STEEL PLATES AHEAD" SIGNS ON EACH APPROACH TO THE CONSTRUCTION AREA, IF APPROPRIATE OR AS DIRECTED BY THE INSPECTOR FOR THE PROJECT.
- ALL EXCAVATION SHALL BE BACK FILLED AND PLATED IN ACCORDANCE WITH MSHA STANDARDS AT THE END OF EACH WORKING DAY AND "STEEL PLATES AHEAD" WARNING SIGNS DISPLAYED IN ADVANCE. A MINIMUM OF TWO LANES SHALL BE MAINTAINED ON COUNTY ROADS.
- THE CONTRACTOR SHALL MAINTAIN ONE (1) ELEVEN (11) FOOT LANE OF TRAFFIC ON ONE WAY STREETS AND ONE (1) ELEVEN (11) FOOT LANE OF TRAFFIC IN EACH DIRECTION ON TWO WAY STREETS AT ALL TIMES OR PROVIDE A TWO PERSON FLAGGING OPERATION EQUIPPED WITH "SLOW AND STOP" PADDLES (REFER TO MSHA STANDARD MD 104.02-10). THE BUREAU OF HIGHWAYS RESERVE THE RIGHT TO LIMIT THE NUMBER AND DURATION OF LANE CLOSURES. WITHIN MSHA ROW, THE CONTRACTOR SHALL MAINTAIN AT A MINIMUM ONE (1) ELEVEN (11) FOOT LANE OF TRAVEL FOR EACH DIRECTION OF TRAVEL.
- AT THE COMPLETION OF THE WORK DAY, THE CONTRACTOR SHALL RESTORE THE ROADWAY TO ITS FULL WIDTH. REFER TO MD SHA STANDARD NO. 104.01-28 FOR TEMPORARY AGGREGATE RAMP DETAIL FOR AREAS WHERE THE PAVEMENT DROP OFF IS GREATER THAN 2.5 INCHES AS NEEDED.
- PORTABLE VARIABLE MESSAGE SIGNS (PVMS) SHALL BE PLACED A MINIMUM OF 1 WEEK PRIOR TO WORK STARTING TO NOTIFY TRAFFIC OF CHANGES. MESSAGE AND LOCATION SHALL BE DETERMINED BY THE DISTRICT TRAFFIC ENGINEER. PVMS SHALL REMAIN IN PLACE FOR THE DURATION OF THE PROJECT. RELOCATION MAY BE NECESSARY AS CONSTRUCTION PROGRESSES AND AS DIRECTED BY THE TRAFFIC ENGINEER.
- THE CONTRACTOR SHALL USE STAGED CONSTRUCTION TO COMPLETE THIS WORK. DURING A STAGE, THE CONTRACTOR SHALL SET UP ONE WORK ZONE AT A TIME LIMITED TO 500 FT OR ONE CITY BLOCK. TO EXCEED THIS LIMIT THE CONTRACTOR MUST OBTAIN APPROVAL FROM THE ENGINEER. AT THE COMPLETION OF ONE WORK ZONE, THE CONTRACTOR SHALL BEGIN THE STAGING OF THE NEXT WORK ZONE.
- AT THE END OF EACH WORK DAY ALL EQUIPMENT AND MATERIALS SHALL BE REMOVED FROM THE TRAVEL PORTION OF THE ROADWAY AND SHOULD NOT BE STORED IN SUCH A MANNER AS TO OBSTRUCT SIGHT DISTANCE AT ANY DRIVEWAY OR INTERSECTING ROAD.

SUGGESTED SEQUENCE OF CONSTRUCTION

- A. CONSTRUCTION ON COUNTY ROADS:
- PLACE ADVANCE WARNING SIGNS AND TEMPORARY TRAFFIC CONTROL DEVICES TO IMPLEMENT TWO-MAN FLAGGING OPERATION DURING NON-PEAK HOURS USING STAGED CONSTRUCTION. REFER TO MD SHA STANDARD 104.02-10 FOR ADDITIONAL DETAILS. BACK-FILL AND PLATE ALL EXCAVATED AREAS IN ACCORDANCE WITH MD SHA STANDARDS AT THE END OF EACH WORKING DAY.
 - COMPLETE SEWER INSTALLATION WORK AS DESCRIBED IN THE PLANS.
 - INSTALL THE FINAL PAVEMENT RESURFACING AND PAVEMENT MARKINGS.
- B. CONSTRUCTION ON MD 151 (NORTH POINT BLVD):
- PLACE ADVANCE WARNING SIGNS AND TEMPORARY TRAFFIC CONTROL DEVICES TO CLOSE A MAXIMUM OF ONE LANE OF TRAFFIC IN THE NORTHBOUND DIRECTION AND TO CLOSE THE NORTHBOUND SHOULDER. THE CONTRACTOR SHALL USE STAGED CONSTRUCTION DURING THE SPECIFIED HOURS OF CONSTRUCTION. REFER TO MSHA NOTES ON THIS DRAWING FOR ADDITIONAL INFORMATION. BACK-FILL AND PLATE ALL EXCAVATED AREAS IN ACCORDANCE WITH MD SHA STANDARDS AT THE END OF EACH WORKING DAY.
 - COMPLETE SEWER INSTALLATION WORK AS DESCRIBED IN THE PLANS.
 - INSTALL THE FINAL PAVEMENT RESURFACING AND PAVEMENT MARKINGS.

CONTRACT COMPLETION BOX	
CONTRACTOR:	_____
DATE COMPLETED:	_____
INSPECTOR:	_____
PIPE MATERIAL (Pressure Only):	_____

MARYLAND COORDINATE SYSTEM (MCS)	
HORIZONTAL NAD 83/91 VERTICAL NAVD 88	
SHEET DESIGNATION	CONTRACT NUMBER
MOT-1	20196 SXO
JOB ORDER NUMBER	
231-201-0077-7252	
SHEET 22 OF 22	
DRAWING NUMBER	
2020-1407	
FILE NO.: 1	



PROFESSIONAL CERTIFICATION		AS-BUILT / REVISION	BY	DATE	P.W.A. NO.	KEY SHEET	POSITION SH	DRAWING SCALE	DEPARTMENT OF PUBLIC WORKS	
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.								PLAN SCALE: N/A	APPROVED BY: _____	DIRECTOR
LICENSE NO. 40290, EXPIRATION DATE 05/12/2023								PROFILE SCALE: N/A	DATE: _____	
ENGINEER: NORBERT HUANG		CONTRACT COMPLETION BOX								
DGN BY: NH		BUREAU OF ENGINEERING AND CONSTRUCTION	BUILDINGS	HIGHWAYS	STRUCTURES	STORM DRAINS	SEWER	WATER	FIELD ENGINEER	BUR. OF ENGINEERING & CONSTRUCTION
DWN BY: TSA		REVIEWED BY: _____								
CHKD BY: JTB		DATE REVIEWED: _____								

SEE DRAWING NO. 2020-1386 FOR ORIGINAL SIGNATURES

SUBDIVISION: DELMAR

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION - BUREAU OF ENGINEERING & CONSTRUCTION
GLEN ECHO RELIEF SEWER
TRAFFIC CONTROL NOTES AND DETAILS

ELECTION DIST. NO.:15c7

4/25/23